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**PART NUMBER****5446BEA-ROCS**

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**Rochester Electronics  
Manufactured Components**

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All re-creations are done with the approval of the Original Component Manufacturer. (OCM)

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceeds the OCM data sheet.

**Quality Overview**

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-38535
  - Class Q Military
  - Class V Space Level

**Qualified Suppliers List of Distributors (QSLD)**

- Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

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*The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OCM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.*

INCH-POUND

MIL-M-38510/10D  
16 February 2005  
SUPERSEDING  
MIL-M-38510/10C  
3 March 1986

## MILITARY SPECIFICATION

### MICROCIRCUITS, DIGITAL, BIPOLAR, TTL, DECODERS MONOLITHIC SILICON

Inactive for new design after 7 September 1995.

This specification is approved for use by all Departments  
and Agencies of the Department of Defense.

The requirements for acquiring the product herein shall consist of this specification sheet and MIL-PRF 38535

#### 1. SCOPE

1.1 Scope. This specification covers the detail requirements for monolithic silicon, TTL, microcircuit decoders. Two product assurance classes and a choice of case outlines and lead finishes are provided for each type and are reflected in the complete part number. For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535, (see 6.4).

1.2 Part or Identifying Number (PIN). The PIN is in accordance with MIL-PRF-38535.

1.2.1 Device types. The device types are as follows:

| <u>Device type</u> | <u>Circuit</u>                                                        |
|--------------------|-----------------------------------------------------------------------|
| 01                 | BCD-to-decimal decoder                                                |
| 02                 | Excess-3-to-decimal decoder                                           |
| 03                 | Excess-3-gray-to-decimal decoder                                      |
| 04                 | BCD-to-decimal decoder/driver (30 volt, open collector output)        |
| 05                 | BCD-to-decimal decoder/driver (15 volt, open collector output)        |
| 06                 | BCD-to-seven segment decoder/driver (30 volt, open collector output)  |
| 07                 | BCD-to-seven segment decoder/driver (15 volt, open collector output)  |
| 08                 | BCD-to-seven segment decoder/driver                                   |
| 09                 | BCD-to-seven segment decoder/driver (5.5 volt, open collector output) |

1.2.2 Device class. The device class is the product assurance level as defined in MIL-PRF-38535.

1.2.3 Case outlines. The case outlines are as designated in MIL-STD-1835 and as follows:

| <u>Outline letter</u> | <u>Descriptive designator</u> | <u>Terminals</u> | <u>Package style</u> |
|-----------------------|-------------------------------|------------------|----------------------|
| A                     | GDFF5-F14 or CDFP6-F14        | 14               | Flat pack            |
| B                     | GDFF4-F14                     | 14               | Flat pack            |
| C                     | GDIP1-T14 or CDIP2-T14        | 14               | Dual-in-line         |
| D                     | GDFF1-F14 or CDFP2-F14        | 14               | Flat pack            |
| E                     | GDIP1-T16 or CDIP2-T16        | 16               | Dual-in-line         |
| F                     | GDFF2-F16 or CDFP3-F16        | 16               | Flat pack            |

Comments, suggestions, or questions on this document should be addressed to: Commander, Defense Supply Center Columbus, ATTN: DSCC-VAS, P. O. Box 3990, Columbus, OH 43218-3990, or emailed to [bipolar@dsccl.dla.mil](mailto:bipolar@dsccl.dla.mil). Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <http://assist.daps.dla.mil>.

1.3 Absolute maximum ratings.

|                                                         |                                  |
|---------------------------------------------------------|----------------------------------|
| Supply voltage range .....                              | -0.5 V dc to +7.0 V dc           |
| Input voltage range .....                               | -1.5 V dc at -12 mA to +5.5 V dc |
| Storage temperature range .....                         | -65° to +150°C                   |
| Maximum power dissipation ( $P_D$ ): <u>1/</u>          |                                  |
| Device types 01, 02 and 03 .....                        | 226 mW                           |
| Device types 04 and 05 .....                            | 341 mW                           |
| Device types 06, 07, 08 and 09 .....                    | 467 mW                           |
| Lead temperature (soldering, 10 seconds) .....          | +300°C                           |
| Thermal resistance, junction to case ( $\theta_{JC}$ ): |                                  |
| Cases A, B, C, D, E and F .....                         | (See MIL-STD-1835)               |
| Junction temperature ( $T_J$ ) <u>2/</u> .....          | 175°C                            |
| Maximum current into any output (output off):           |                                  |
| Device types 04, 05, 06, 07 and 09 .....                | 1 mA                             |

1.4 Recommended operating conditions.

|                                                     |                                      |
|-----------------------------------------------------|--------------------------------------|
| Supply voltage ( $V_{CC}$ ) .....                   | 4.5 V dc minimum to 5.5 V dc maximum |
| Minimum high level input voltage ( $V_{IH}$ ) ..... | 2.0 V dc                             |
| Maximum low level input voltage ( $V_{IL}$ ) .....  | 0.8 V dc                             |
| Sink current capability by device type:             |                                      |
| Device types 01, 02, 03 .....                       | 16 mA                                |
| Device types 04, 05 .....                           | 20 mA                                |
| Device types 06, 07                                 |                                      |
| Outputs A - G .....                                 | 40 mA                                |
| BI/RBO node .....                                   | 8 mA                                 |
| Device type 08                                      |                                      |
| Outputs A - G .....                                 | 6.4 mA                               |
| BI/RBO node .....                                   | 8 mA                                 |
| Device type 09 .....                                | 10 mA                                |
| Case operating temperature range ( $T_C$ ) .....    | -55° to +125°C                       |

## 2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

1/ Must withstand the added  $P_D$  due to short-circuit test (e.g.,  $I_{OS}$ ).

2/ Maximum junction temperature should not be exceeded except in accordance with allowable short duration burn-in screening condition in accordance with MIL-PRF-38535.

## 2.2 Government documents.

2.2.1 Specifications and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

### DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-38535 - Integrated Circuits (Microcircuits) Manufacturing, General Specification for.

### DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-883 - Test Method Standard for Microelectronics.  
MIL-STD-1835 - Interface Standard Electronic Component Case Outlines

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch/> or <http://assist.daps.dla.mil> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

3.1 Qualification. Microcircuits furnished under this specification shall be products that are manufactured by a manufacturer authorized by the qualifying activity for listing on the applicable qualified manufacturers list before contract award (see 4.3 and 6.3).

3.2 Item requirements. The individual item requirements shall be in accordance with MIL-PRF-38535 and as specified herein or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not affect the form, fit, or function as described herein. This slash sheet has been modified to allow the manufacturer to use the alternate die/fabrication requirements of paragraph A.3.2.2 of MIL-PRF-38535 or other alternative approved by the qualifying activity.

3.3 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535 and herein.

3.3.1 Case outlines. The case outlines shall be as specified in 1.2.3.

3.3.2 Logic diagrams and terminal connections. The logic diagrams and terminal connections shall be as specified on figures 1 and 2.

3.3.3 Truth tables. The truth tables shall be as specified on figure 3.

3.3.4 Schematic circuits. The schematic circuits shall be maintained by the manufacturer and made available to the qualifying activity and the preparing activity upon request.

3.4 Lead material and finish. The lead material and finish shall be in accordance with MIL-PRF-38535 (see 6.6).

3.5 Electrical performance characteristics. The electrical performance characteristics are as specified in table I, and apply over the full recommended case operating temperature range, unless otherwise specified.

3.6 Electrical test requirements. The electrical test requirements for each device class shall be the subgroups specified in table II. The electrical tests for each subgroup are described in table III.

## MIL-M-38510/10D

TABLE I. Electrical performance characteristics, device types 01, 02 and 03.

| Test                                                 | Symbol           | Conditions<br>-55°C ≤ T <sub>C</sub> ≤ +125°C<br>unless otherwise specified            | Limits |      | Unit |
|------------------------------------------------------|------------------|----------------------------------------------------------------------------------------|--------|------|------|
|                                                      |                  |                                                                                        | Min    | Max  |      |
| High level output voltage                            | V <sub>OH</sub>  | V <sub>CC</sub> = 4.5 V, I <sub>OH</sub> = -0.8 mA                                     | 2.4    |      | V    |
| Low level output voltage                             | V <sub>OL</sub>  | V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 16 mA,<br>V <sub>IN</sub> = 0.8 V and 2.0 V |        | 0.4  | V    |
| Input clamp voltage                                  | V <sub>IC</sub>  | V <sub>CC</sub> = 4.5 V, I <sub>IN</sub> = -12 mA                                      |        | -1.5 | V    |
| Low level input current                              | I <sub>IL</sub>  | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0.4 V <u>1/</u>                             | -0.7   | -1.6 | mA   |
| High level input current                             | I <sub>IH1</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 2.4 V <u>2/</u>                             |        | 40   | μA   |
|                                                      | I <sub>IH2</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V <u>2/</u>                             |        | 100  | μA   |
| Short circuit output current                         | I <sub>OS</sub>  | V <sub>CC</sub> = 5.5 V <u>3/</u>                                                      | -20    | -55  | mA   |
| Supply current                                       | I <sub>CC</sub>  | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0 V                                         |        | 41   | mA   |
| Propagation delay time through<br>two logic levels   | t <sub>PHL</sub> | C <sub>L</sub> = 50 pF minimum,<br>R <sub>L</sub> = 390 Ω ±5%<br>(Figure 4)            | 5      | 39   | ns   |
| Propagation delay time through<br>two logic levels   | t <sub>PLH</sub> |                                                                                        | 5      | 39   | ns   |
| Propagation delay time through<br>three logic levels | t <sub>PHL</sub> |                                                                                        | 5      | 46   | ns   |
| Propagation delay time through<br>three logic levels | t <sub>PLH</sub> |                                                                                        | 5      | 46   | ns   |

1/ All unspecified inputs at 5.5 volts.2/ All unspecified inputs grounded.3/ Not more than one output should be shorted at one time.

## MIL-M-38510/10D

TABLE I. Electrical performance characteristics, device types 04 and 05.

| Test                                         | Symbol           | Conditions<br>-55°C ≤ T <sub>C</sub> ≤ +125°C<br>unless otherwise specified | Limits |      | Unit |
|----------------------------------------------|------------------|-----------------------------------------------------------------------------|--------|------|------|
|                                              |                  |                                                                             | Min    | Max  |      |
| Low level output voltage                     | V <sub>OL1</sub> | V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 80 mA                            |        | 0.9  | V    |
| Low level output voltage                     | V <sub>OL2</sub> | V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 20 mA                            |        | 0.4  | V    |
| Input clamp voltage                          | V <sub>IC</sub>  | V <sub>CC</sub> = 4.5 V, I <sub>IN</sub> = -12 mA                           |        | -1.5 | V    |
| Maximum collector cut-off current            | I <sub>CEX</sub> | V <sub>CC</sub> = 4.5 V, V <sub>OH</sub> = max <u>1/</u>                    |        | 250  | μA   |
| Low level input current                      | I <sub>IL</sub>  | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0.4 V <u>2/</u>                  | -0.7   | -1.6 | mA   |
| High level input current                     | I <sub>IH1</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 2.4 V <u>3/</u>                  |        | 40   | μA   |
|                                              | I <sub>IH2</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V <u>3/</u>                  |        | 100  | μA   |
| Supply current                               | I <sub>CC</sub>  | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0 V                              |        | 62   | mA   |
| Propagation delay time to a high logic level | t <sub>PLH</sub> | C <sub>L</sub> = 50 pF minimum,<br>R <sub>L</sub> = 390 Ω ±5%<br>(Figure 5) | 5      | 73   | ns   |
| Propagation delay time to a low logic level  | t <sub>PHL</sub> |                                                                             | 5      | 73   | ns   |

1/ Device type 04 maximum V<sub>OH</sub> = 30 V.Device type 05 maximum V<sub>OH</sub> = 15 V.2/ All unspecified inputs at 5.5 volts.3/ All unspecified inputs grounded.

## MIL-M-38510/10D

TABLE I. Electrical performance characteristics, device types 06 and 07.

| Test                                                           | Symbol           | Conditions<br>-55°C ≤ T <sub>C</sub> ≤ +125°C<br>unless otherwise specified                                                   | Limits |      | Unit |
|----------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------|--------|------|------|
|                                                                |                  |                                                                                                                               | Min    | Max  |      |
| Low level output voltage <u>1/</u>                             | V <sub>OL1</sub> | V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 40 mA                                                                              |        | 0.4  | V    |
| Low level output voltage <u>2/</u>                             | V <sub>OL2</sub> | V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 8 mA                                                                               |        | 0.4  | V    |
| Input clamp voltage                                            | V <sub>IC</sub>  | V <sub>CC</sub> = 4.5 V, I <sub>IN</sub> = -12 mA                                                                             |        | -1.5 | V    |
| High level output voltage <u>2/</u>                            | V <sub>OH</sub>  | V <sub>CC</sub> = 4.5 V, I <sub>OH</sub> = -0.2 mA                                                                            | 2.4    |      | V    |
| Maximum collector cut-off current <u>3/</u>                    | I <sub>CEX</sub> | V <sub>CC</sub> = 4.5 V, V <sub>OH</sub> = max <u>3/</u>                                                                      |        | 250  | μA   |
| Low level input current <u>4/</u>                              | I <sub>IL1</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0.4 V <u>5/</u>                                                                    | -0.4   | -1.6 | mA   |
| Low level input current <u>2/</u>                              | I <sub>IL2</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0.4 V <u>5/</u>                                                                    | -1.7   | -4.2 | mA   |
| High level input current <u>4/</u>                             | I <sub>IH1</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 2.4 V <u>6/</u>                                                                    |        | 40   | μA   |
|                                                                | I <sub>IH2</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V <u>6/</u>                                                                    |        | 100  | μA   |
| Short circuit output current <u>1/</u>                         | I <sub>OS</sub>  | V <sub>CC</sub> = 5.5 V <u>6/</u>                                                                                             |        | -4   | mA   |
| Supply current                                                 | I <sub>CC</sub>  | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V                                                                              |        | 85   | mA   |
| Propagation delay time from any input except RBI to any output | t <sub>PLH</sub> | C <sub>L</sub> = 50 pF minimum,<br>R <sub>L</sub> = 120 Ω ±5% <u>1/</u><br>R <sub>L</sub> = 560 Ω ±5% <u>2/</u><br>(Figure 6) | 8      | 144  | ns   |
| Propagation delay time from RBI to any output                  | t <sub>PLH</sub> |                                                                                                                               | 8      | 144  | ns   |
| Propagation delay time from any input except RBI to any output | t <sub>PHL</sub> |                                                                                                                               | 8      | 144  | ns   |
| Propagation delay time from RBI to any output                  | t <sub>PHL</sub> |                                                                                                                               | 8      | 144  | ns   |

1/ Outputs A through G only.

2/ BI/RBO node only.

3/ Device type 06 maximum V<sub>OH</sub> = 30 V.  
Device type 07 maximum V<sub>OH</sub> = 15 V.

4/ Any input except BI/RBO node.

5/ All unspecified inputs at 5.5 volts.

6/ All unspecified inputs grounded.

## MIL-M-38510/10D

TABLE I. Electrical performance characteristics, device types 08.

| Test                                                           | Symbol           | Conditions<br>-55°C ≤ T <sub>C</sub> ≤ +125°C<br>unless otherwise specified                                                   | Limits |      | Unit |
|----------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------|--------|------|------|
|                                                                |                  |                                                                                                                               | Min    | Max  |      |
| High level output voltage <u>1/</u>                            | V <sub>OH1</sub> | V <sub>CC</sub> = 4.5 V, I <sub>OH</sub> = -0.4 mA                                                                            | 2.4    |      | V    |
| High level output voltage <u>2/</u>                            | V <sub>OH2</sub> | V <sub>CC</sub> = 4.5 V, I <sub>OH</sub> = -0.2 mA                                                                            | 2.4    |      | V    |
| Low level output voltage <u>1/</u>                             | V <sub>OL1</sub> | V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 6.4 mA                                                                             |        | 0.4  | V    |
| Low level output voltage <u>2/</u>                             | V <sub>OL2</sub> | V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 8 mA                                                                               |        | 0.4  | V    |
| Input clamp voltage                                            | V <sub>IC</sub>  | V <sub>CC</sub> = 4.5 V, I <sub>IN</sub> = -12 mA                                                                             |        | -1.5 | V    |
| Low level input current <u>3/</u>                              | I <sub>IL1</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0.4 V <u>4/</u>                                                                    | -0.4   | -1.6 | mA   |
| Low level input current <u>3/</u>                              | I <sub>IL2</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0.4 V <u>4/</u>                                                                    | -1.7   | -4.2 | mA   |
| High level input current <u>3/</u>                             | I <sub>IH1</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 2.4 V <u>5/</u>                                                                    |        | 40   | μA   |
|                                                                | I <sub>IH2</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V <u>5/</u>                                                                    |        | 100  | μA   |
| Short circuit output current                                   | I <sub>OS</sub>  | V <sub>CC</sub> = 5.5 V                                                                                                       |        | -4   | mA   |
| Supply current                                                 | I <sub>CC</sub>  | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0 V                                                                                |        | 76   | mA   |
| Propagation delay time from any input except RBI to any output | t <sub>PLH</sub> | C <sub>L</sub> = 50 pF minimum,<br>R <sub>L</sub> = 750 Ω ±5% <u>1/</u><br>R <sub>L</sub> = 560 Ω ±5% <u>2/</u><br>(Figure 7) | 8      | 144  | ns   |
| Propagation delay time from RBI to any output                  | t <sub>PLH</sub> |                                                                                                                               | 8      | 144  | ns   |
| Propagation delay time from any input except RBI to any output | t <sub>PHL</sub> |                                                                                                                               | 8      | 144  | ns   |
| Propagation delay time from RBI to any output                  | t <sub>PHL</sub> |                                                                                                                               | 8      | 144  | ns   |

1/ Outputs A through G only.2/ BI/RBO node only.3/ Any input except BI/RBO node.4/ All unspecified inputs at 5.5 volts.5/ All unspecified inputs grounded.

## MIL-M-38510/10D

TABLE I. Electrical performance characteristics, device types 09.

| Test                                                | Symbol           | Conditions<br>-55°C ≤ T <sub>C</sub> ≤ +125°C<br>unless otherwise specified | Limits |      | Unit |
|-----------------------------------------------------|------------------|-----------------------------------------------------------------------------|--------|------|------|
|                                                     |                  |                                                                             | Min    | Max  |      |
| Low level output voltage                            | V <sub>OL</sub>  | V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 10 mA                            |        | 0.4  | V    |
| Input clamp voltage                                 | V <sub>IC</sub>  | V <sub>CC</sub> = 4.5 V, I <sub>IN</sub> = -12 mA                           |        | -1.5 | V    |
| Maximum collector cut-off current                   | I <sub>CEX</sub> | V <sub>CC</sub> = 4.5 V, V <sub>OH</sub> = 5.5 V                            |        | 250  | μA   |
| Low level input current                             | I <sub>IL</sub>  | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0.4 V <u>1/</u>                  | -0.4   | -1.6 | mA   |
| High level input current                            | I <sub>IH1</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 2.4 V <u>2/</u>                  |        | 40   | μA   |
|                                                     | I <sub>IH2</sub> | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V <u>2/</u>                  |        | 100  | μA   |
| Supply current                                      | I <sub>CC</sub>  | V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0 V                              |        | 47   | mA   |
| Propagation delay time from any input to any output | t <sub>PLH</sub> | C <sub>L</sub> = 50 pF minimum,<br>R <sub>L</sub> = 470 Ω ±5%<br>(Figure 8) | 8      | 144  | ns   |
| Propagation delay time from any input to any output | t <sub>PHL</sub> |                                                                             | 8      | 144  | ns   |

1/ All unspecified inputs at 5.5 volts.2/ All unspecified inputs grounded.

TABLE II. Electrical test requirements.

| MIL-PRF-38535<br>test requirements                                          | Subgroups (see table III)  |                             |
|-----------------------------------------------------------------------------|----------------------------|-----------------------------|
|                                                                             | Class S<br>devices         | Class B<br>devices          |
| Interim electrical parameters                                               | 1                          | 1                           |
| Final electrical test parameters                                            | 1*, 2, 3, 7<br>9, 10, 11   | 1*, 2, 3, 7, 9              |
| Group A test requirements                                                   | 1, 2, 3, 7, 8<br>9, 10, 11 | 1, 2, 3, 7, 8,<br>9, 10, 11 |
| Group B electrical test parameters<br>when using the method 5005 QCI option | 1, 2, 3,<br>9, 10, 11      | N/A                         |
| Group C end-point electrical parameters                                     | 1, 2, 3,<br>9, 10, 11      | 1, 2, 3                     |
| Group D end-point electrical parameters                                     | 1, 2, 3                    | 1, 2, 3                     |

\*PDA applies to subgroup 1.

3.7 Marking. Marking shall be in accordance with MIL-PRF-38535.

3.7.1 Certification/compliance mark. The certification mark for device classes Q and V shall be a "QML" or "Q" as required in MIL-PRF-38535. For class Q product built in accordance with A.3.2.2 of MIL-PRF-38535 or other alternative approved by the qualifying activity, the "QD" certification mark shall be used in place of the "QML" or "Q" certification mark.

3.8 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 4 (see MIL-PRF-38535, appendix A).

#### 4. VERIFICATION

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with MIL-PRF-38535 or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not effect the form, fit, or function as described herein.

4.2 Screening. Screening shall be in accordance with MIL-PRF-38535 and shall be conducted on all devices prior to qualification and conformance inspection. The following additional criteria shall apply:

- a. The burn-in test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015 of MIL-STD-883.
- b. Interim and final electrical test parameters shall be as specified in table II, except interim electrical parameters test prior to burn-in is optional at the discretion of the manufacturer.
- c. Additional screening for space level product shall be as specified in MIL-PRF-38535.

4.3 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-38535.

4.4 Technology Conformance Inspection (TCI). Technology conformance inspection shall be in accordance with MIL-PRF-38535 and herein for groups A, B, C, and D inspections (see 4.4.1 through 4.4.4).

4.4.1 Group A inspection. Group A inspection shall be in accordance with table III of MIL-PRF-38535 and as follows:

- a. Tests shall be as specified in table II herein.
- b. Subgroups 4, 5, and 6 shall be omitted.

4.4.2 Group B inspection. Group B inspection shall be in accordance with table II of MIL-PRF-38535.

4.4.3 Group C inspection. Group C inspection shall be in accordance with table IV of MIL-PRF-38535 and as follows:

- a. End-point electrical parameters shall be as specified in table II herein.
- b. The steady-state life test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005 of MIL-STD-883.

4.4.4 Group D inspection. Group D inspection shall be in accordance with table V of MIL-PRF-38535. End-point electrical parameters shall be as specified in table II herein.

4.5 Methods of inspection. Methods of inspection shall be specified as follows:

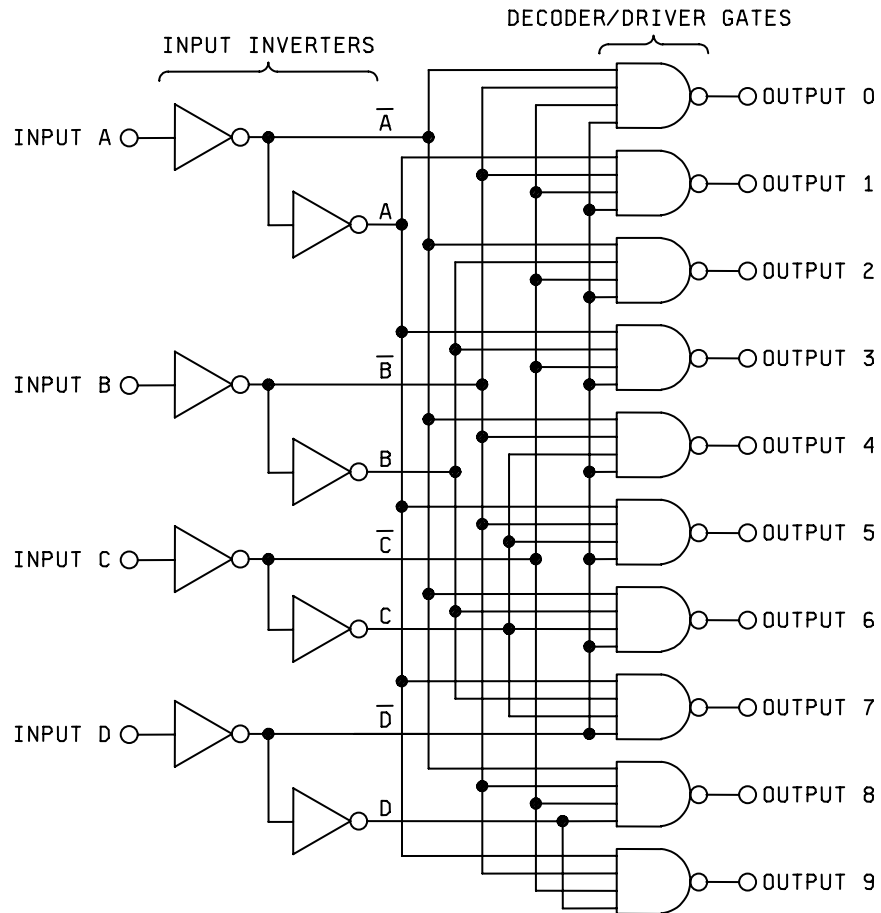
4.5.1 Voltage and current. All voltages given are referenced to the microcircuit ground terminal. Currents given are conventional and positive when flowing into the referenced terminal.

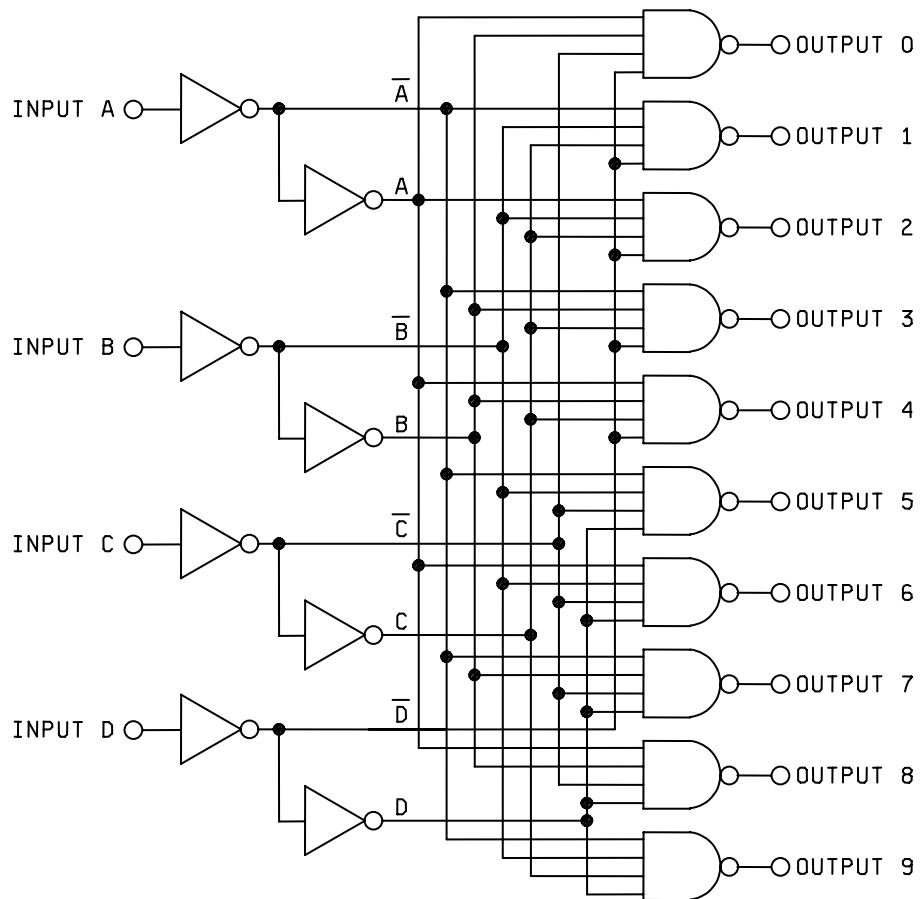
| Terminal<br>number | Device type<br>01, 02, 03,<br>04, and 05 | Device type<br>06 and 07 | Device type 08   | Device type<br>09       |
|--------------------|------------------------------------------|--------------------------|------------------|-------------------------|
|                    | Cases<br>E and F                         | Cases<br>E and F         | Cases<br>E and F | Cases<br>A, B, C, and D |
| 1                  | OUT 0                                    | IN B                     | IN B             | IN B                    |
| 2                  | OUT 1                                    | IN C                     | IN C             | IN C                    |
| 3                  | OUT 2                                    | LT                       | LT               | BI                      |
| 4                  | OUT 3                                    | RBO                      | RBO/B1           | IN D                    |
| 5                  | OUT 4                                    | RBI                      | RBI              | IN A                    |
| 6                  | OUT 5                                    | IN D                     | IN D             | OUT E                   |
| 7                  | OUT 6                                    | IN A                     | IN A             | GND                     |
| 8                  | GND                                      | GND                      | GND              | OUT D                   |
| 9                  | OUT 7                                    | OUT E                    | OUT E            | OUT C                   |
| 10                 | OUT 8                                    | OUT D                    | OUT D            | OUT B                   |
| 11                 | OUT 9                                    | OUT C                    | OUT C            | OUT A                   |
| 12                 | IN D                                     | OUT B                    | OUT B            | OUT G                   |
| 13                 | IN C                                     | OUT A                    | OUT A            | OUT F                   |
| 14                 | IN B                                     | OUT G                    | OUT G            | V <sub>CC</sub>         |
| 15                 | IN A                                     | OUT F                    | OUT F            |                         |
| 16                 | V <sub>CC</sub>                          | V <sub>CC</sub>          | V <sub>CC</sub>  |                         |

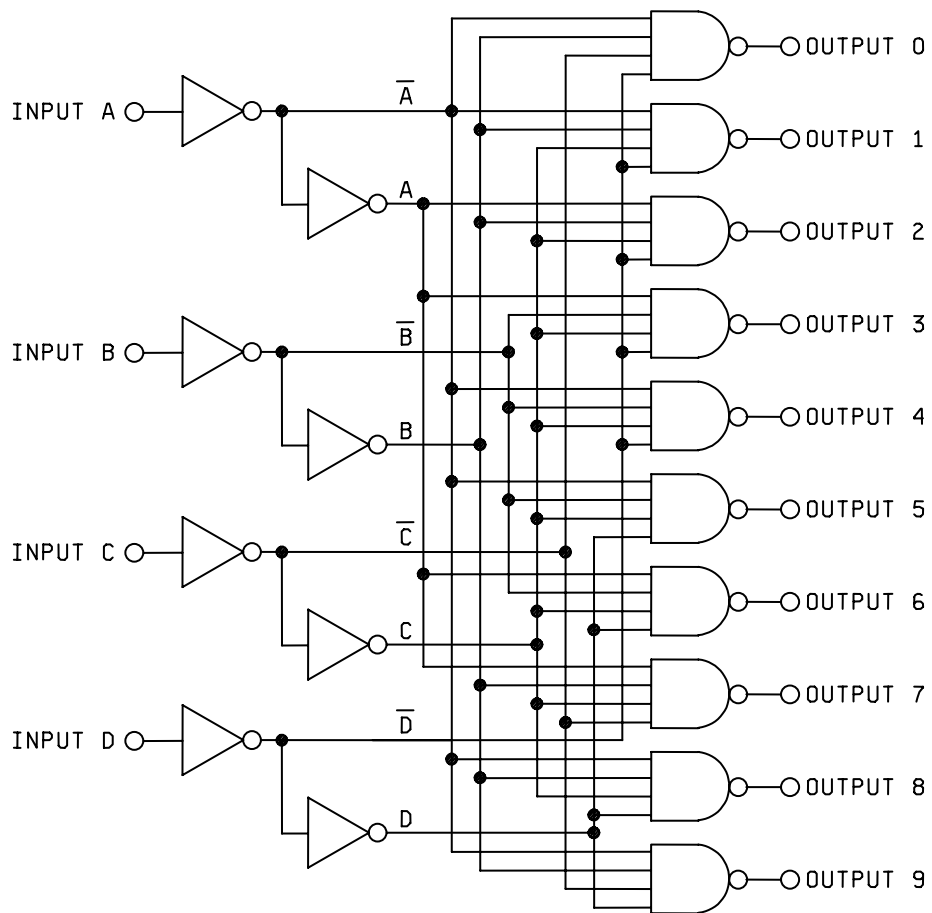
LT = Lamp Test  
BI = Blanking Input  
RBO = Ripple-blanking Output  
RBI = Ripple-blanking Input

FIGURE 1. Terminal connections.

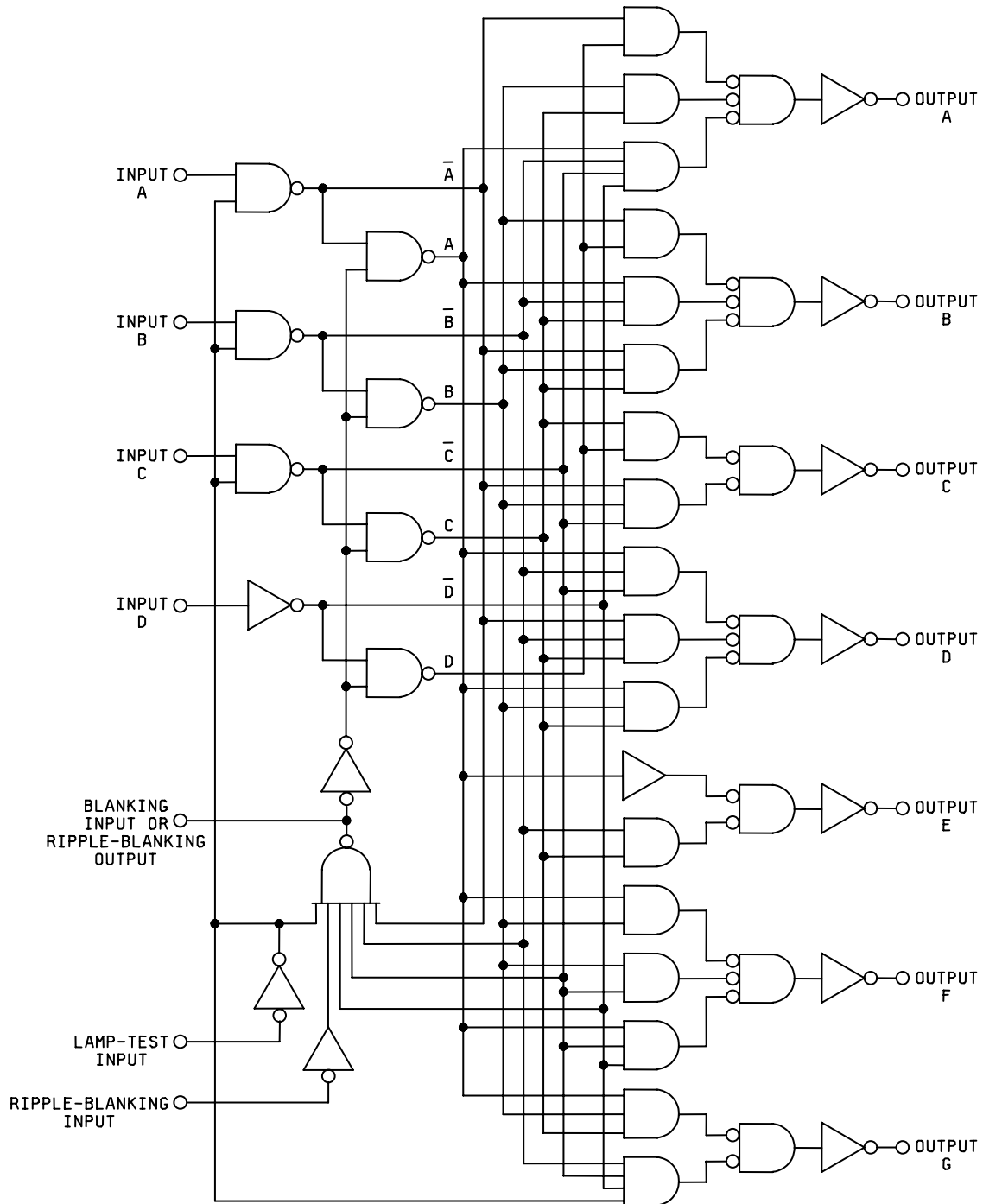
## DEVICE TYPE 01,04 AND 05

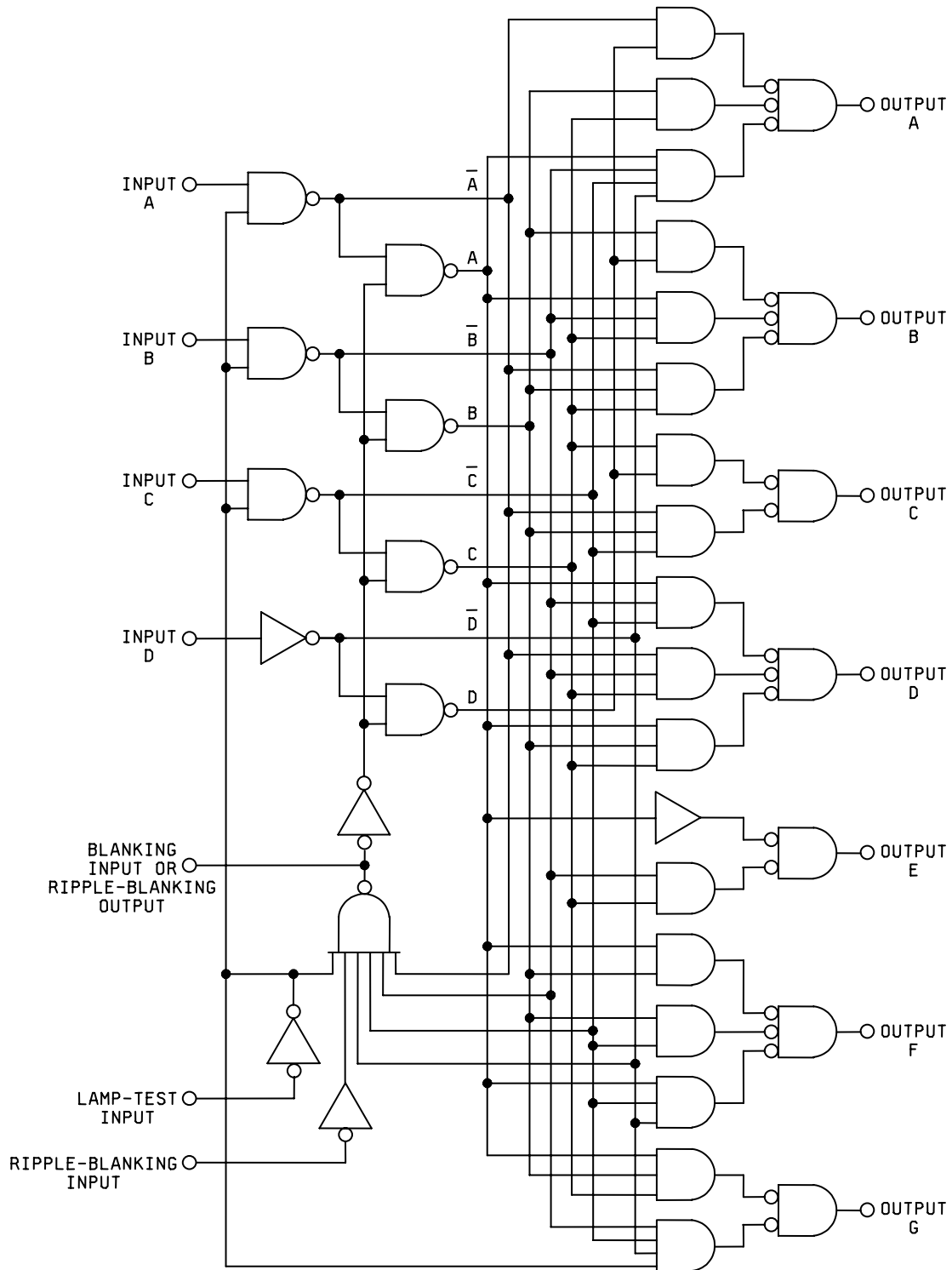
FIGURE 2. Logic diagrams.

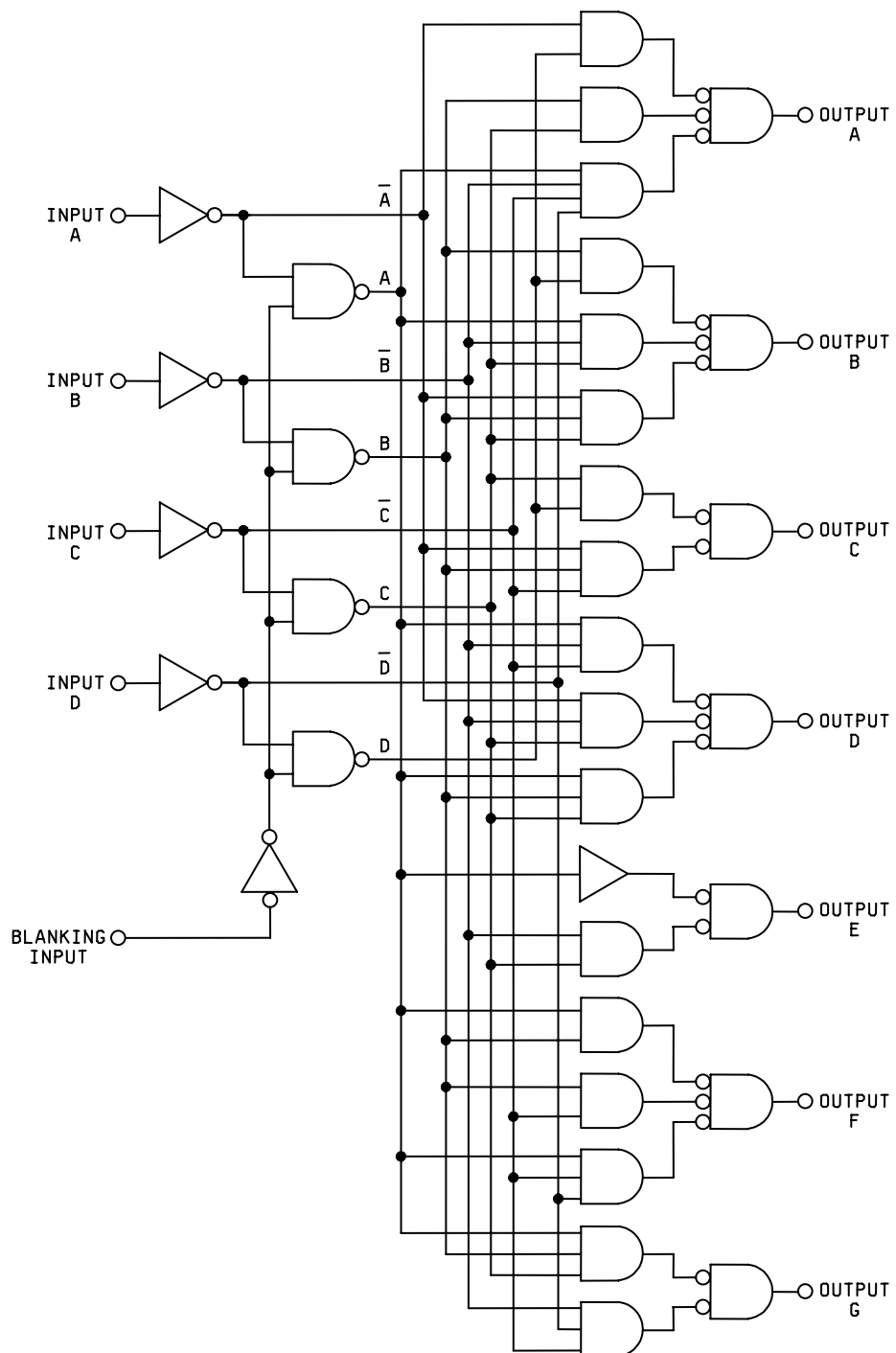
DEVICE TYPE 02FIGURE 2. Logic diagrams - Continued.

DEVICE TYPE 03FIGURE 2. Logic diagrams - Continued.

## DEVICE TYPES 06 AND 07

FIGURE 2. Logic diagrams - Continued.

FIGURE 2. Logic diagrams - Continued.

DEVICE TYPE 09FIGURE 2. Logic diagrams - Continued.

Device types 01, 04, and 05

| INPUTS |   |   |   | OUTPUTS |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---------|---|---|---|---|---|---|---|---|---|
| D      | C | B | A | 0       | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| L      | L | L | L | L       | H | H | H | H | H | H | H | H | H |
| L      | L | L | H | H       | L | H | H | H | H | H | H | H | H |
| L      | L | H | L | H       | H | L | H | H | H | H | H | H | H |
| L      | L | H | H | H       | H | H | L | H | H | H | H | H | H |
| L      | H | L | L | H       | H | H | H | L | H | H | H | H | H |
| L      | H | L | H | H       | H | H | H | H | L | H | H | H | H |
| L      | H | H | L | H       | H | H | H | H | H | L | H | H | H |
| L      | H | H | H | H       | H | H | H | H | H | H | L | H | H |
| H      | L | L | L | H       | H | H | H | H | H | H | H | L | H |
| H      | L | L | H | H       | H | H | H | H | H | H | H | H | L |
| H      | L | H | L | H       | H | H | H | H | H | H | H | H | H |
| H      | L | H | H | H       | H | H | H | H | H | H | H | H | H |
| H      | H | L | L | H       | H | H | H | H | H | H | H | H | H |
| H      | H | L | H | H       | H | H | H | H | H | H | H | H | H |
| H      | H | H | L | H       | H | H | H | H | H | H | H | H | H |
| H      | H | H | H | H       | H | H | H | H | H | H | H | H | H |

FIGURE 3. Truth tables.

Device type 02

| INPUTS |   |   |   | OUTPUTS |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---------|---|---|---|---|---|---|---|---|---|
| D      | C | B | A | 0       | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| L      | L | H | H | L       | H | H | H | H | H | H | H | H | H |
| L      | H | L | L | H       | L | H | H | H | H | H | H | H | H |
| L      | H | L | H | H       | H | L | H | H | H | H | H | H | H |
| L      | H | H | L | H       | H | H | L | H | H | H | H | H | H |
| L      | H | H | H | H       | H | H | H | L | H | H | H | H | H |
| H      | L | L | L | H       | H | H | H | H | L | H | H | H | H |
| H      | L | L | H | H       | H | H | H | H | H | L | H | H | H |
| H      | L | H | L | H       | H | H | H | H | H | H | L | H | H |
| H      | L | H | H | H       | H | H | H | H | H | H | H | L | H |
| H      | H | L | L | H       | H | H | H | H | H | H | H | H | L |
| H      | H | L | H | H       | H | H | H | H | H | H | H | H | H |
| H      | H | H | L | H       | H | H | H | H | H | H | H | H | H |
| H      | H | H | H | H       | H | H | H | H | H | H | H | H | H |
| L      | L | L | L | H       | H | H | H | H | H | H | H | H | H |
| L      | L | L | H | H       | H | H | H | H | H | H | H | H | H |
| L      | L | H | L | H       | H | H | H | H | H | H | H | H | H |

Device type 03

| INPUTS |   |   |   | OUTPUTS |   |   |   |   |   |   |   |   |   |
|--------|---|---|---|---------|---|---|---|---|---|---|---|---|---|
| D      | C | B | A | 0       | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| L      | L | H | L | L       | H | H | H | H | H | H | H | H | H |
| L      | H | H | L | H       | L | H | H | H | H | H | H | H | H |
| L      | H | H | H | H       | H | L | H | H | H | H | H | H | H |
| L      | H | L | H | H       | H | H | L | H | H | H | H | H | H |
| L      | H | L | L | H       | H | H | H | L | H | H | H | H | H |
| H      | H | L | L | H       | H | H | H | H | L | H | H | H | H |
| H      | H | L | H | H       | H | H | H | H | H | L | H | H | H |
| H      | H | H | H | H       | H | H | H | H | H | H | L | H | H |
| H      | H | H | L | H       | H | H | H | H | H | H | H | L | H |
| H      | L | H | L | H       | H | H | H | H | H | H | H | H | L |
| H      | L | H | H | H       | H | H | H | H | H | H | H | H | H |
| H      | L | L | H | H       | H | H | H | H | H | H | H | H | H |
| H      | L | L | L | H       | H | H | H | H | H | H | H | H | H |
| L      | L | L | L | H       | H | H | H | H | H | H | H | H | H |
| L      | L | L | H | H       | H | H | H | H | H | H | H | H | H |
| L      | L | H | H | H       | H | H | H | H | H | H | H | H | H |

FIGURE 3. Truth tables - Continued.

Device types 06 and 07

| DECIMAL<br>OR<br>FUNCTION | INPUTS |     |   |   |   |   |        | OUTPUTS |   |   |   |   |   |   | NOTE |
|---------------------------|--------|-----|---|---|---|---|--------|---------|---|---|---|---|---|---|------|
|                           | LT     | RBI | D | C | B | A | BI/RBO | A       | B | C | D | E | F | G |      |
| 0                         | H      | H   | L | L | L | L | H      | L       | L | L | L | L | L | H | 1    |
| 1                         | H      | X   | L | L | L | H | H      | H       | L | L | H | H | H | H | 1    |
| 2                         | H      | X   | L | L | H | L | H      | L       | L | H | L | L | H | L |      |
| 3                         | H      | X   | L | L | H | H | H      | L       | L | L | L | H | H | L |      |
| 4                         | H      | X   | L | H | L | L | H      | H       | L | L | H | H | L | L |      |
| 5                         | H      | X   | L | H | L | H | H      | L       | H | L | L | H | L | L |      |
| 6                         | H      | X   | L | H | H | L | H      | H       | H | L | L | L | L | L |      |
| 7                         | H      | X   | L | H | H | H | H      | L       | L | L | H | H | H | H |      |
| 8                         | H      | X   | H | L | L | L | H      | L       | L | L | L | L | L | L |      |
| 9                         | H      | X   | H | L | L | H | H      | L       | L | L | H | H | L | L |      |
| 10                        | H      | X   | H | L | H | L | H      | H       | H | H | L | L | H | L |      |
| 11                        | H      | X   | H | L | H | H | H      | H       | H | L | L | H | H | L |      |
| 12                        | H      | X   | H | H | L | L | H      | H       | L | H | H | H | L | L |      |
| 13                        | H      | X   | H | H | L | H | H      | L       | H | H | L | H | L | L |      |
| 14                        | H      | X   | H | H | H | L | H      | H       | H | H | L | L | L | L |      |
| 15                        | H      | X   | H | H | H | H | H      | H       | H | H | H | H | H | H |      |
| BI                        | X      | X   | X | X | X | X | L      | H       | H | H | H | H | H | H | 2    |
| RBI                       | H      | L   | L | L | L | L | L      | H       | H | H | H | H | H | H | 3    |
| LT                        | L      | X   | X | X | X | X | H      | L       | L | L | L | L | L | L | 4    |

## NOTES:

1. BI/RBO is wire-OR logic serving as blanking input (BI) and/or ripple-blanking output (RBO). The blanking input must be open or held at a high logic level when output functions 0 through 15 are desired, and ripple-blanking input (RBI) must be open or at a high logic level during the decimal 0 output. X = input may be high or low.
2. When a low logic level is applied to the blanking input (forced condition) all segment outputs go to a low logic level regardless of the state of any other input condition.
3. When ripple-blanking input (RBI) is at a low logic level, lamp test input is at high logic level and A = B = C = D = low logic level, all segment outputs go to a low logic level and the ripple-blanking output goes to a low logic level (response condition).
4. When blanking input/ripple-blanking output is open or held at a high logic level, and a low logic level is applied to lamp test input, all segment outputs go to a high logic level.

FIGURE 3. Truth tables - Continued.

Device type 08

| DECIMAL<br>OR<br>FUNCTION | INPUTS |     |   |   |   |   |        | OUTPUTS |   |   |   |   |   |   | NOTE |
|---------------------------|--------|-----|---|---|---|---|--------|---------|---|---|---|---|---|---|------|
|                           | LT     | RBI | D | C | B | A | BI/RBO | A       | B | C | D | E | F | G |      |
| 0                         | H      | H   | L | L | L | L | H      | H       | H | H | H | H | H | L | 1    |
| 1                         | H      | X   | L | L | L | H | H      | L       | H | H | L | L | L | L | 1    |
| 2                         | H      | X   | L | L | H | L | H      | H       | H | L | H | H | L | H |      |
| 3                         | H      | X   | L | L | H | H | H      | H       | H | H | H | L | L | H |      |
| 4                         | H      | X   | L | H | L | L | H      | L       | H | H | L | L | H | H |      |
| 5                         | H      | X   | L | H | L | H | H      | H       | L | H | H | L | H | H |      |
| 6                         | H      | X   | L | H | H | L | H      | L       | L | H | H | H | H | H |      |
| 7                         | H      | X   | L | H | H | H | H      | H       | H | H | L | L | L | L |      |
| 8                         | H      | X   | H | L | L | L | H      | H       | H | H | H | H | H | H |      |
| 9                         | H      | X   | H | L | L | H | H      | H       | H | H | L | L | H | H |      |
| 10                        | H      | X   | H | L | H | L | H      | L       | L | L | H | H | L | H |      |
| 11                        | H      | X   | H | L | H | H | H      | L       | L | H | H | L | L | H |      |
| 12                        | H      | X   | H | H | L | L | H      | L       | H | L | L | L | H | H |      |
| 13                        | H      | X   | H | H | L | H | H      | H       | L | L | H | L | H | H |      |
| 14                        | H      | X   | H | H | H | L | H      | L       | L | L | H | H | H | H |      |
| 15                        | H      | X   | H | H | H | H | H      | L       | L | L | L | L | L | L |      |
| BI                        | X      | X   | X | X | X | X | L      | L       | L | L | L | L | L | L | 2    |
| RBI                       | H      | L   | L | L | L | L | L      | L       | L | L | L | L | L | L | 3    |
| LT                        | L      | X   | X | X | X | X | H      | H       | H | H | H | H | H | H | 4    |

## NOTES:

1. BI/RBO is wire-OR logic serving as blanking input (BI) and/or ripple-blanking output (RBO). The blanking input must be open or held at a high logic level when output functions 0 through 15 are desired, and ripple-blanking input (RBI) must be open or at a high logic level during the decimal 0 output. X = input may be high or low.
2. When a low logic level is applied to the blanking input (forced condition) all segment outputs go to a low logic level regardless of the state of any other input condition.
3. When ripple-blanking input (RBI) is at a low logic level, lamp test input is at high logic level and A = B = C = D = low logic level, all segment outputs go to a low logic level and the ripple-blanking output goes to a low logic level (response condition).
4. When blanking input/ripple-blanking output is open or held at a high logic level, and a low logic level is applied to lamp test input, all segment outputs go to a high logic level.

FIGURE 3. Truth tables - Continued.

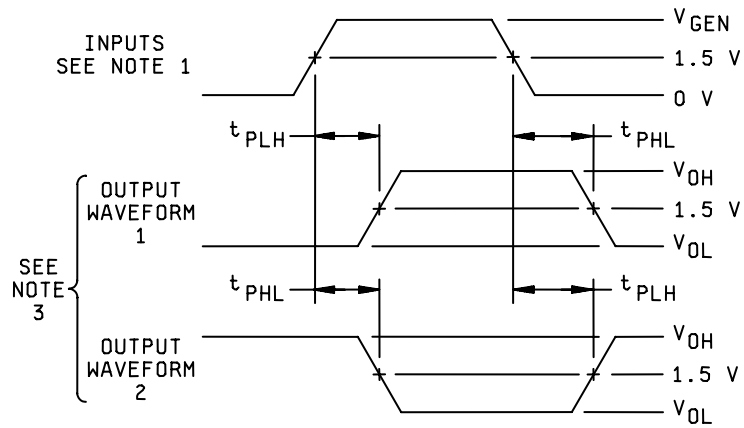
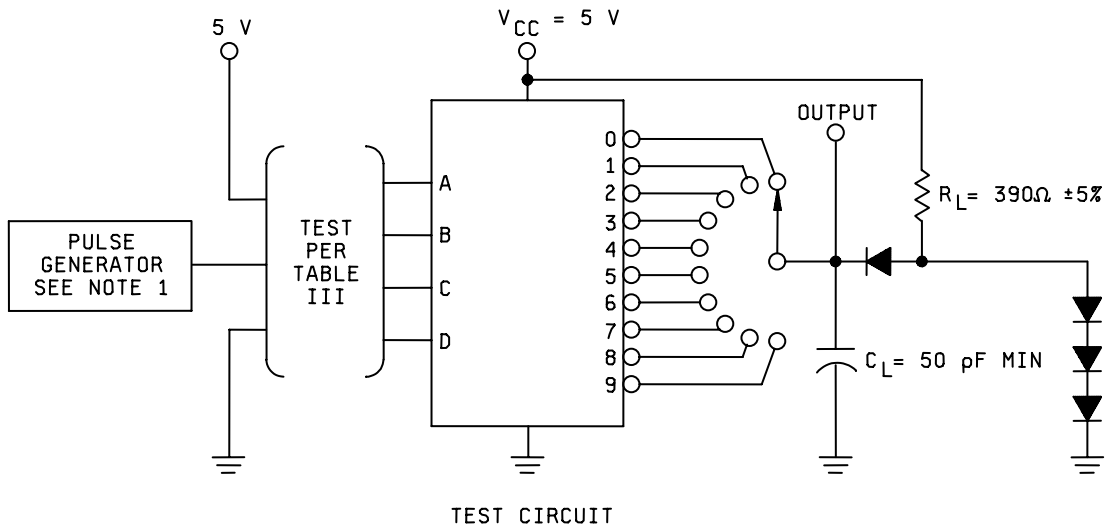
Device type 09

| DECIMAL<br>OR<br>FUNCTION | INPUTS |   |   |   |    | OUTPUTS |   |   |   |   |   |   | NOTE |
|---------------------------|--------|---|---|---|----|---------|---|---|---|---|---|---|------|
|                           | D      | C | B | A | BI | A       | B | C | D | E | F | G |      |
| 0                         | L      | L | L | L | H  | H       | H | H | H | H | H | L | 1    |
| 1                         | L      | L | L | H | H  | L       | H | H | L | L | L | L |      |
| 2                         | L      | L | H | L | H  | H       | H | L | H | H | L | H |      |
| 3                         | L      | L | H | H | H  | H       | H | H | H | L | L | H |      |
| 4                         | L      | H | L | L | H  | L       | H | H | L | L | H | H |      |
| 5                         | L      | H | L | H | H  | H       | L | H | H | L | H | H |      |
| 6                         | L      | H | H | L | H  | L       | L | H | H | H | H | H |      |
| 7                         | L      | H | H | H | H  | H       | H | H | L | L | L | L |      |
| 8                         | H      | L | L | L | H  | H       | H | H | H | H | H | H |      |
| 9                         | H      | L | L | H | H  | H       | H | H | L | L | H | H |      |
| 10                        | H      | L | H | L | H  | L       | L | L | H | H | L | H |      |
| 11                        | H      | L | H | H | H  | L       | L | H | H | L | L | H |      |
| 12                        | H      | H | L | L | H  | L       | H | L | L | L | H | H |      |
| 13                        | H      | H | L | H | H  | H       | L | L | H | L | H | H |      |
| 14                        | H      | H | H | L | H  | L       | L | L | H | H | H | H |      |
| 15                        | H      | H | H | H | H  | L       | L | L | L | L | L | L |      |
| BI                        | X      | X | X | X | L  | L       | L | L | L | L | L | L | 2    |

## NOTES:

1. The blanking input must be open or held at a high logic level when output functions 0 through 15 are desired.
2. When a low logic level is applied to the blanking input all segment outputs go to a low logic level regardless of the state of any other input condition. X = input may be high or low.

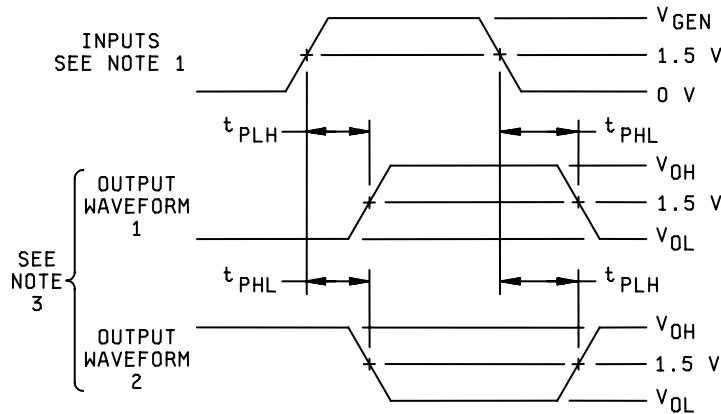
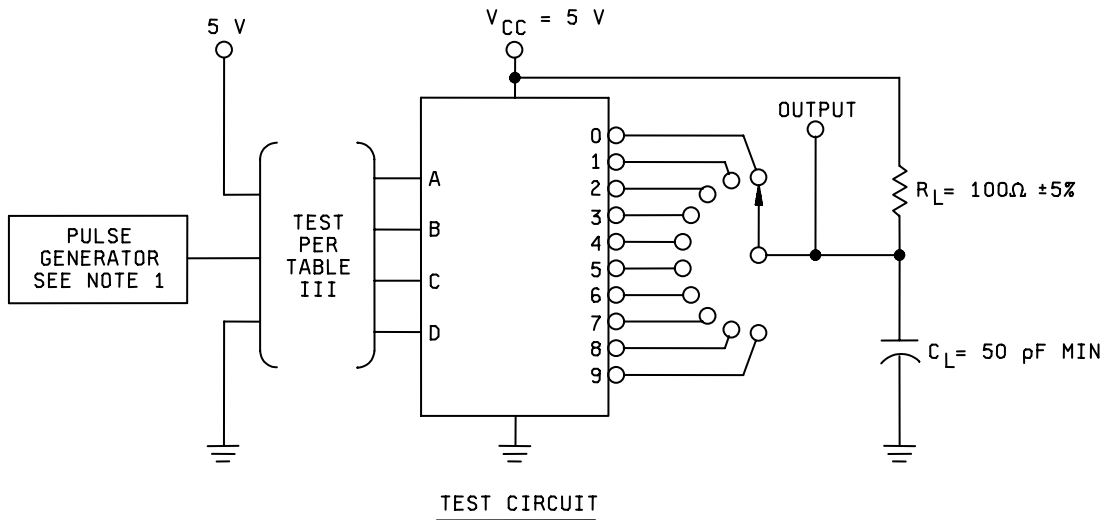
FIGURE 3. Truth tables - Continued.



## NOTES:

1. The pulse generator has the following characteristics:  $V_{GEN} = 3.0 \text{ V}$  minimum,  $t_{TLH}$  (0.7 V to 2.7 V) and  $t_{THL}$  (2.7 V to 0.7 V)  $\leq 10 \text{ ns}$ , PRR = 1 MHz, and minimum duty cycle = 50%.
2.  $C_L$  includes probe and jig capacitance.
3. Input - output waveform combination in accordance with the truth tables (see figure 3).
4. All diodes are 1N3064 or equivalent.

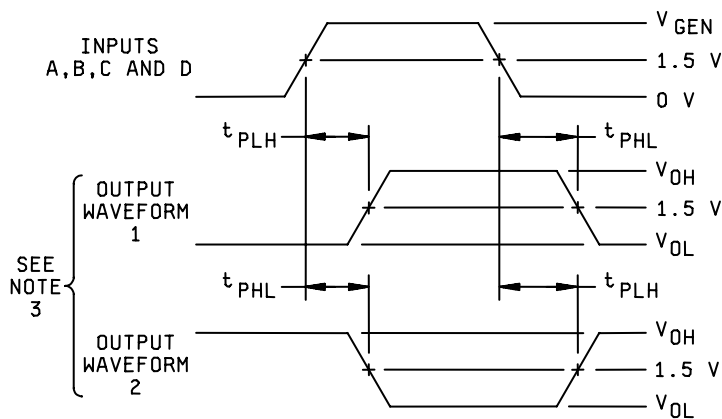
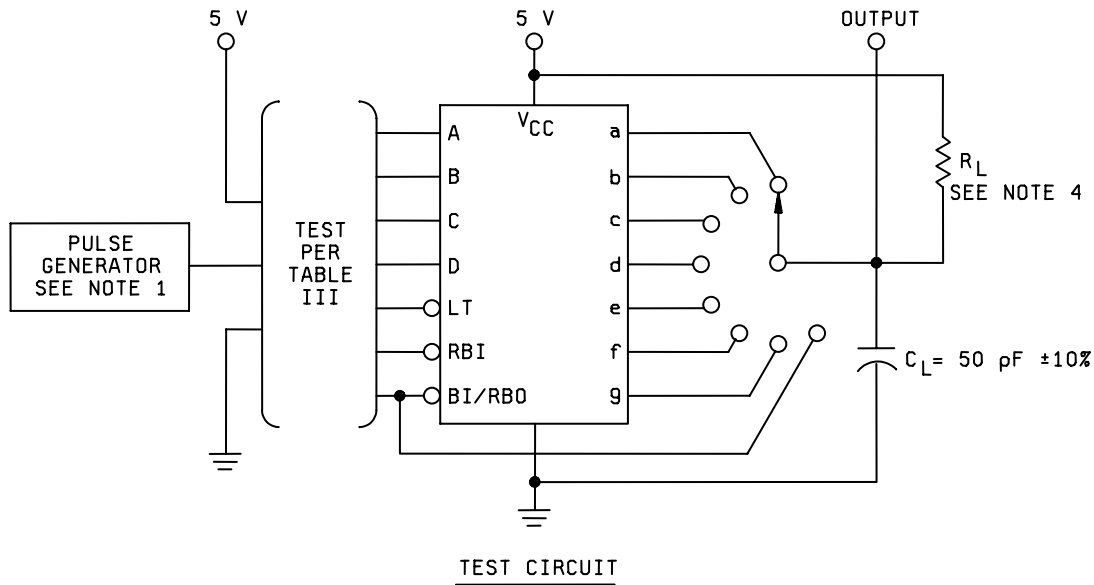
FIGURE 4. Switching times for device types 01, 02, and 03.



## NOTES:

1. The pulse generator has the following characteristics:  $V_{GEN} = 3.0\text{ V}$  minimum,  $t_{TLH}$  (0.7 V to 2.7 V) and  $t_{THL}$  (2.7 V to 0.7 V)  $\leq 10\text{ ns}$ , PRR = 1 MHz, and minimum duty cycle = 50%.
2.  $C_L$  includes probe and jig capacitance.
3. Input - output waveform combination in accordance with the truth tables (see figure 3).

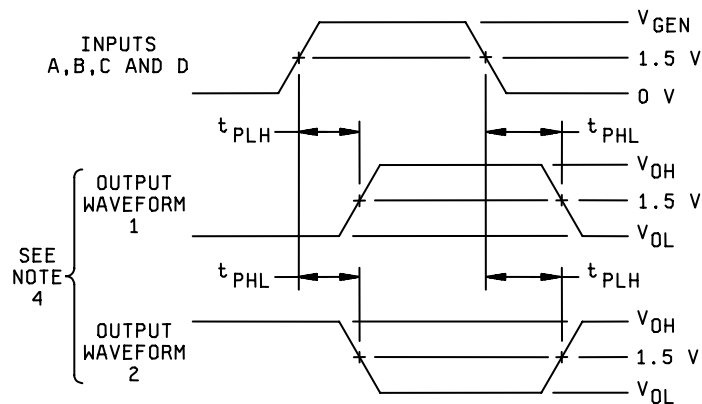
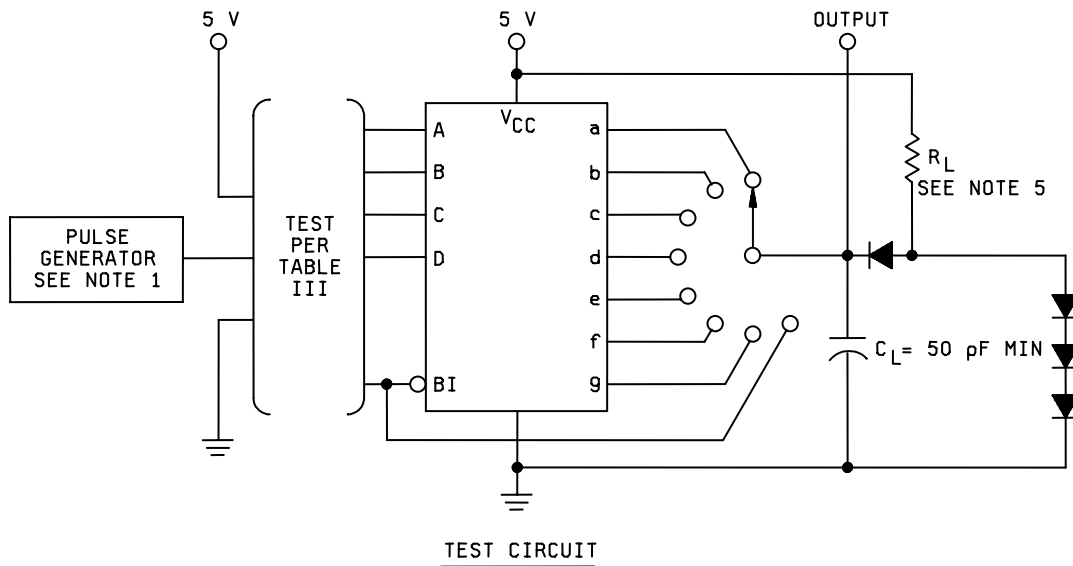
FIGURE 5. Switching times for device types 04 and 05.



## NOTES:

1. The pulse generator has the following characteristics:  $V_{GEN} = 3.0$  V minimum,  $t_{TLH}$  (0.7 V to 2.7 V) and  $t_{THL}$  (2.7 V to 0.7 V)  $\leq 10$  ns, PRR = 1 MHz, and minimum duty cycle = 50%.
2.  $C_L$  includes probe and jig capacitance.
3. Input - output waveform combination in accordance with the truth tables (see figure 3).
4.  $R_L = 120 \Omega \pm 5\%$  for outputs A thru G;  $R_L = 560 \Omega \pm 5\%$  for output BI/RBO.

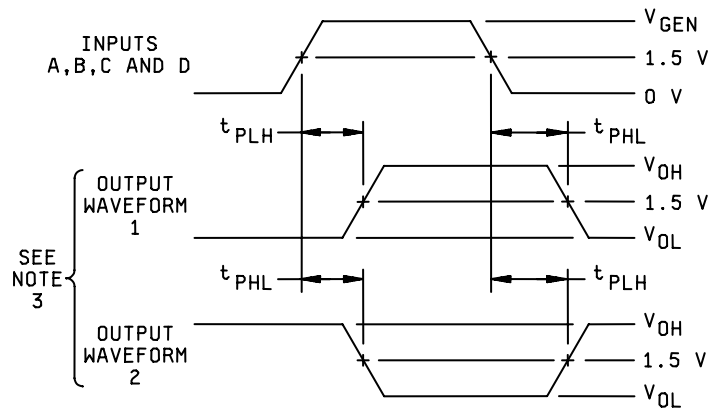
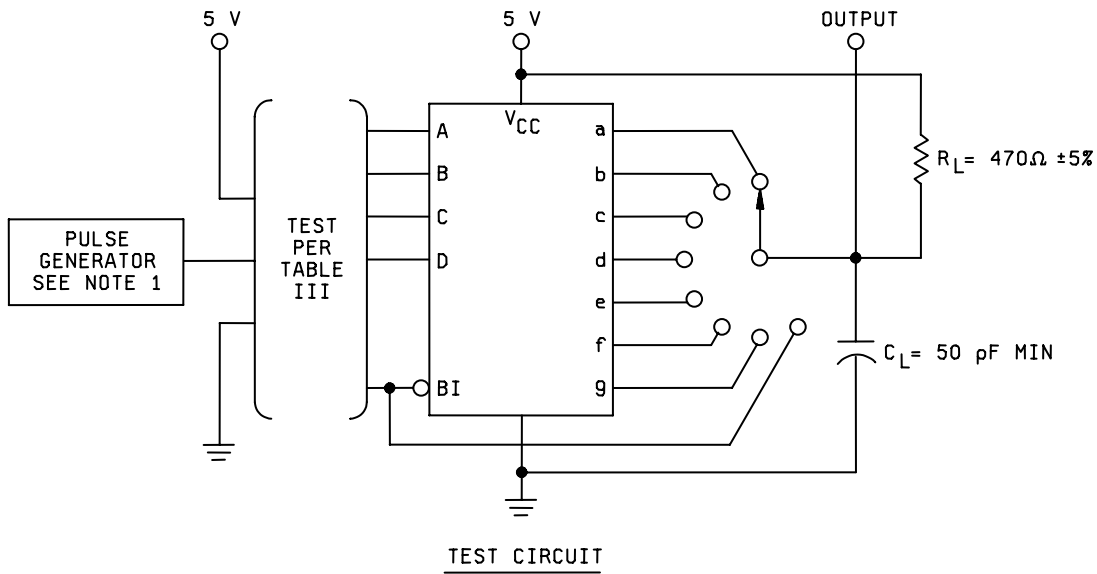
FIGURE 6. Switching times for device types 06 and 07.



## NOTES:

1. The pulse generator has the following characteristics:  $V_{GEN} = 3.0 \text{ V}$  minimum,  $t_{TLH} (0.7 \text{ V to } 2.7 \text{ V})$  and  $t_{THL} (2.7 \text{ V to } 0.7 \text{ V}) \leq 10 \text{ ns}$ ,  $PRR = 1 \text{ MHz}$ , and minimum duty cycle = 50%.
2.  $C_L$  includes probe and jig capacitance.
3. All diodes are 1N3064 or equivalent.
4. Input - output waveform combination in accordance with the truth tables (see figure 3).
5.  $R_L = 750 \Omega \pm 5\%$  for outputs A thru G;  $R_L = 560 \Omega \pm 5\%$  for output BI/RBO.

FIGURE 7. Switching times for device type 08.



## NOTES:

1. The pulse generator has the following characteristics:  $V_{GEN} = 3.0 \text{ V}$  minimum,  $t_{TLH}$  (0.7 V to 2.7 V) and  $t_{THL}$  (2.7 V to 0.7 V)  $\leq 10 \text{ ns}$ ,  $PRR = 1 \text{ MHz}$ , and minimum duty cycle = 50%.
2.  $C_L$  includes probe and jig capacitance.
3. Input - output waveform combination in accordance with the truth tables (see figure 3).

FIGURE 8. Switching times for device type 09.

TABLE III. Group A inspection for device type 01.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                   | Symbol                                                                                                                            | MIL-STD-883 method | Cases E, F<br>Test no. | 1       | 2       | 3       | 4       | 5       | 6       | 7       | 8   | 9       | 10      | 11      | 12     | 13     | 14     | 15     | 16              | Measured terminal | Limits |       | Unit |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------|---------|---------|---------|---------|---------|---------|---------|-----|---------|---------|---------|--------|--------|--------|--------|-----------------|-------------------|--------|-------|------|
|                            |                                                                                                                                   |                    |                        | 0       | 1       | 2       | 3       | 4       | 5       | 6       | GND | 7       | 8       | 9       | D      | C      | B      | A      | V <sub>CC</sub> |                   | Min    | Max   |      |
| 1<br>T <sub>C</sub> = 25°C | V <sub>OH</sub>                                                                                                                   | 3006               | 1                      | -0.8 mA |         |         |         |         |         |         | GND |         |         |         | 2.0 V  | 2.0 V  | 2.0 V  | 2.0 V  | 4.5 V           | 0                 | 2.4 V  |       | V    |
|                            |                                                                                                                                   | "                  | 2                      |         | -0.8 mA |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 1                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 3                      |         |         | -0.8 mA |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 2                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 4                      |         |         |         | -0.8 mA |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 3                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 5                      |         |         |         |         | -0.8 mA |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 4                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 6                      |         |         |         |         |         | -0.8 mA |         | "   |         |         |         | "      | "      | "      | "      | "               | 5                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 7                      |         |         |         |         |         |         | -0.8 mA | "   |         |         |         | "      | "      | "      | "      | "               | 6                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 8                      |         |         |         |         |         |         |         | "   | -0.8 mA |         |         | "      | "      | "      | "      | "               | 7                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 9                      |         |         |         |         |         |         |         | "   |         | -0.8 mA |         | "      | "      | "      | "      | "               | 8                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 10                     |         |         |         |         |         |         |         | "   |         |         | -0.8 mA | "      | "      | "      | "      | "               | 9                 | "      |       | "    |
| V                          | O <sub>L</sub>                                                                                                                    | 3007               | 11                     | 16 mA   | 16 mA   | 16 mA   | 16 mA   | 16 mA   | 16 mA   | 16 mA   | "   |         |         |         | 0.8 V  | 0.8 V  | 0.8 V  | 0.8 V  | "               | 0                 |        | 0.4 V | V    |
|                            |                                                                                                                                   | "                  | 12                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | 0.8 V  | 2.0 V  | "               | 1                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 13                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | 2.0 V  | 0.8 V  | "               | 2                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 14                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | 2.0 V  | 2.0 V  | "               | 3                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 15                     |         |         |         |         |         |         |         | "   |         |         |         | "      | 2.0 V  | 0.8 V  | 0.8 V  | "               | 4                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 16                     |         |         |         |         |         | 16 mA   |         | "   |         |         |         | "      | "      | 0.8 V  | 2.0 V  | "               | 5                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 17                     |         |         |         |         |         |         | 16 mA   | "   |         |         |         | "      | "      | 2.0 V  | 0.8 V  | "               | 6                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 18                     |         |         |         |         |         |         |         | "   | 16 mA   |         |         | "      | "      | 2.0 V  | 2.0 V  | "               | 7                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 19                     |         |         |         |         |         |         |         | "   |         | 16 mA   |         | "      | "      | 0.8 V  | 0.8 V  | "               | 8                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 20                     |         |         |         |         |         |         |         | "   |         |         | 16 mA   | "      | "      | 0.8 V  | 2.0 V  | "               | 9                 |        | "     | "    |
| V                          | I <sub>C</sub>                                                                                                                    |                    | 21                     |         |         |         |         |         |         |         | "   |         |         |         |        |        | -12 mA | -12 mA | "               | A                 |        | -1.5  | V    |
|                            |                                                                                                                                   |                    | 22                     |         |         |         |         |         |         |         | "   |         |         |         |        |        |        |        | "               | B                 |        | "     | "    |
|                            |                                                                                                                                   |                    | 23                     |         |         |         |         |         |         |         | "   |         |         |         |        |        |        |        | "               | C                 |        | "     | "    |
|                            |                                                                                                                                   |                    | 24                     |         |         |         |         |         |         |         | "   |         |         |         | -12 mA | -12 mA |        |        | "               | D                 |        | "     | "    |
| I                          | IH1                                                                                                                               | 3010               | 25                     |         |         |         |         |         |         |         | "   |         |         |         | GND    | GND    | GND    | 2.4 V  | 5.5 V           | A                 |        | 40    | μA   |
|                            |                                                                                                                                   | "                  | 26                     |         |         |         |         |         |         |         | "   |         |         |         | "      | GND    | 2.4 V  | GND    | "               | B                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 27                     |         |         |         |         |         |         |         | "   |         |         |         | "      | 2.4 V  | GND    | "      | "               | C                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 28                     |         |         |         |         |         |         |         | "   |         |         |         | 2.4 V  | GND    | "      | "      | "               | D                 |        | "     | "    |
| I                          | IH2                                                                                                                               | 3010               | 29                     |         |         |         |         |         |         |         | "   |         |         |         | GND    | "      | "      | 5.5 V  | "               | A                 |        | 100   | μA   |
|                            |                                                                                                                                   | "                  | 30                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | 5.5 V  | GND    | "               | B                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 31                     |         |         |         |         |         |         |         | "   |         |         |         | "      | 5.5 V  | GND    | "      | "               | C                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 32                     |         |         |         |         |         |         |         | "   |         |         |         | 5.5 V  | GND    | GND    | "      | "               | D                 |        | "     | "    |
| I                          | IL                                                                                                                                | 3009               | 33                     |         |         |         |         |         |         |         | "   |         |         |         | "      | 5.5 V  | 5.5 V  | 0.4 V  | "               | A                 | -0.7   | -1.6  | mA   |
|                            |                                                                                                                                   | "                  | 34                     |         |         |         |         |         |         |         | "   |         |         |         | "      | 5.5 V  | 0.4 V  | 5.5 V  | "               | B                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 35                     |         |         |         |         |         |         |         | "   |         |         |         | "      | 0.4 V  | 5.5 V  | "      | "               | C                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 36                     |         |         |         |         |         |         |         | "   |         |         |         | 0.4 V  | 5.5 V  | 5.5 V  | "      | "               | D                 | "      | "     | "    |
| I                          | OS                                                                                                                                | 3011               | 37                     | GND     | GND     | GND     | GND     | GND     | GND     | GND     | "   |         |         |         | 5.5 V  | 5.5 V  | 5.5 V  | 5.5 V  | "               | 0                 | -20    | -55   | mA   |
|                            |                                                                                                                                   | "                  | 38                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 1                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 39                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 2                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 40                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 3                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 41                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 4                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 42                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 5                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 43                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 6                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 44                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 7                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 45                     |         |         |         |         |         |         |         | "   | GND     |         |         | "      | "      | "      | "      | "               | 8                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 46                     |         |         |         |         |         |         |         | "   |         | GND     |         | "      | "      | "      | "      | "               | 9                 | "      | "     | "    |
|                            | CC                                                                                                                                | 3005               | 47                     |         |         |         |         |         |         |         | "   |         |         |         | GND    | GND    | GND    | GND    | "               | V <sub>CC</sub>   |        | 41    | mA   |
| 2                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = +125°C and V <sub>I</sub> C tests are omitted. |                    |                        |         |         |         |         |         |         |         |     |         |         |         |        |        |        |        |                 |                   |        |       |      |
| 3                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = -55°C and V <sub>I</sub> C tests are omitted.  |                    |                        |         |         |         |         |         |         |         |     |         |         |         |        |        |        |        |                 |                   |        |       |      |

See footnotes at end of device type 01.



TABLE III. Group A inspection for device type 02.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                   | Symbol                                                                                                                            | MIL-STD-883 method | Cases E, F<br>Test no. | 1       | 2       | 3       | 4       | 5       | 6       | 7       | 8   | 9       | 10      | 11      | 12     | 13     | 14     | 15     | 16              | Measured terminal | Limits |       | Unit |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------|---------|---------|---------|---------|---------|---------|---------|-----|---------|---------|---------|--------|--------|--------|--------|-----------------|-------------------|--------|-------|------|
|                            |                                                                                                                                   |                    |                        | 0       | 1       | 2       | 3       | 4       | 5       | 6       | GND | 7       | 8       | 9       | D      | C      | B      | A      | V <sub>CC</sub> |                   | Min    | Max   |      |
| 1<br>T <sub>C</sub> = 25°C | V <sub>OH</sub>                                                                                                                   | 3006               | 1                      | -0.8 mA |         |         |         |         |         |         | GND |         |         |         | 2.0 V  | 2.0 V  | 2.0 V  | 2.0 V  | 4.5 V           | 0                 | 2.4 V  |       | V    |
|                            |                                                                                                                                   | "                  | 2                      |         | -0.8 mA |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 1                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 3                      |         |         | -0.8 mA |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 2                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 4                      |         |         |         | -0.8 mA |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 3                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 5                      |         |         |         |         | -0.8 mA |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 4                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 6                      |         |         |         |         |         | -0.8 mA |         | "   |         |         |         | "      | "      | "      | "      | "               | 5                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 7                      |         |         |         |         |         |         | -0.8 mA | "   |         |         |         | "      | "      | "      | "      | "               | 6                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 8                      |         |         |         |         |         |         |         | "   | -0.8 mA |         |         | "      | "      | "      | "      | "               | 7                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 9                      |         |         |         |         |         |         |         | "   |         | -0.8 mA |         | "      | "      | "      | "      | "               | 8                 | "      |       | "    |
|                            |                                                                                                                                   | "                  | 10                     |         |         |         |         |         |         |         | "   |         |         | -0.8 mA | "      | "      | "      | "      | "               | 9                 | "      |       | "    |
| V                          | O <sub>L</sub>                                                                                                                    | 3007               | 11                     | 16 mA   | 16 mA   | 16 mA   | 16 mA   | 16 mA   | 16 mA   | 16 mA   | "   |         |         |         | 0.8 V  | 0.8 V  | 2.0 V  | 2.0 V  | "               | 0                 |        | 0.4 V | V    |
|                            |                                                                                                                                   | "                  | 12                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | 0.8 V  | 0.8 V  | "               | 1                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 13                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | 0.8 V  | 2.0 V  | "               | 2                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 14                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | 2.0 V  | 0.8 V  | "               | 3                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 15                     |         |         |         |         |         |         |         | "   |         |         |         | "      | 2.0 V  | 2.0 V  | 2.0 V  | "               | 4                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 16                     |         |         |         |         |         | 16 mA   |         | "   |         |         |         | "      | "      | 0.8 V  | 0.8 V  | "               | 5                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 17                     |         |         |         |         |         |         | 16 mA   | "   |         |         |         | "      | "      | 0.8 V  | 2.0 V  | "               | 6                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 18                     |         |         |         |         |         |         |         | "   | 16 mA   |         |         | "      | "      | 2.0 V  | 0.8 V  | "               | 7                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 19                     |         |         |         |         |         |         |         | "   |         | 16 mA   |         | "      | 2.0 V  | 2.0 V  | 2.0 V  | "               | 8                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 20                     |         |         |         |         |         |         |         | "   |         |         | 16 mA   | 2.0 V  | 0.8 V  | 0.8 V  | 0.8 V  | "               | 9                 |        | "     | "    |
| V                          | I <sub>C</sub>                                                                                                                    |                    | 21                     |         |         |         |         |         |         |         | "   |         |         |         |        |        | -12 mA | -12 mA | "               | A                 |        | -1.5  | V    |
|                            |                                                                                                                                   |                    | 22                     |         |         |         |         |         |         |         | "   |         |         |         |        |        |        |        | "               | B                 |        | "     | "    |
|                            |                                                                                                                                   |                    | 23                     |         |         |         |         |         |         |         | "   |         |         |         |        |        |        |        | "               | C                 |        | "     | "    |
|                            |                                                                                                                                   |                    | 24                     |         |         |         |         |         |         |         | "   |         |         |         | -12 mA | -12 mA |        |        | "               | D                 |        | "     | "    |
| I                          | IH1                                                                                                                               | 3010               | 25                     |         |         |         |         |         |         |         | "   |         |         |         | GND    | GND    | GND    | 2.4 V  | 5.5 V           | A                 |        | 40    | μA   |
|                            |                                                                                                                                   | "                  | 26                     |         |         |         |         |         |         |         | "   |         |         |         | "      | GND    | 2.4 V  | GND    | "               | B                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 27                     |         |         |         |         |         |         |         | "   |         |         |         | "      | 2.4 V  | GND    | "      | "               | C                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 28                     |         |         |         |         |         |         |         | "   |         |         |         | 2.4 V  | GND    | "      | "      | "               | D                 |        | "     | "    |
| I                          | IH2                                                                                                                               | 3010               | 29                     |         |         |         |         |         |         |         | "   |         |         |         | GND    | "      | "      | 5.5 V  | "               | A                 |        | 100   | μA   |
|                            |                                                                                                                                   | "                  | 30                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | 5.5 V  | GND    | "               | B                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 31                     |         |         |         |         |         |         |         | "   |         |         |         | "      | 5.5 V  | GND    | "      | "               | C                 |        | "     | "    |
|                            |                                                                                                                                   | "                  | 32                     |         |         |         |         |         |         |         | "   |         |         |         | 5.5 V  | GND    | GND    | "      | "               | D                 |        | "     | "    |
| I                          | IL                                                                                                                                | 3009               | 33                     |         |         |         |         |         |         |         | "   |         |         |         | "      | 5.5 V  | 5.5 V  | 0.4 V  | "               | A                 | -0.7   | -1.6  | mA   |
|                            |                                                                                                                                   | "                  | 34                     |         |         |         |         |         |         |         | "   |         |         |         | "      | 5.5 V  | 0.4 V  | 5.5 V  | "               | B                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 35                     |         |         |         |         |         |         |         | "   |         |         |         | "      | 0.4 V  | 5.5 V  | "      | "               | C                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 36                     |         |         |         |         |         |         |         | "   |         |         |         | 0.4 V  | 5.5 V  | 5.5 V  | "      | "               | D                 | "      | "     | "    |
| I                          | OS                                                                                                                                | 3011               | 37                     | GND     | GND     | GND     | GND     | GND     | GND     | GND     | "   |         |         |         | 5.5 V  | 5.5 V  | 5.5 V  | 5.5 V  | "               | 0                 | -20    | -55   | mA   |
|                            |                                                                                                                                   | "                  | 38                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 1                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 39                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 2                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 40                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 3                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 41                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 4                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 42                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 5                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 43                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 6                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 44                     |         |         |         |         |         |         |         | "   |         |         |         | "      | "      | "      | "      | "               | 7                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 45                     |         |         |         |         |         |         |         | "   | GND     |         |         | "      | "      | "      | "      | "               | 8                 | "      | "     | "    |
|                            |                                                                                                                                   | "                  | 46                     |         |         |         |         |         |         |         | "   |         | GND     |         | "      | "      | "      | "      | "               | 9                 | "      | "     | "    |
|                            | CC                                                                                                                                | 3005               | 47                     |         |         |         |         |         |         |         | "   |         |         |         | GND    | GND    | GND    | GND    | "               | V <sub>CC</sub>   |        | 41    | mA   |
| 2                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = +125°C and V <sub>I</sub> C tests are omitted. |                    |                        |         |         |         |         |         |         |         |     |         |         |         |        |        |        |        |                 |                   |        |       |      |
| 3                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = -55°C and V <sub>I</sub> C tests are omitted.  |                    |                        |         |         |         |         |         |         |         |     |         |         |         |        |        |        |        |                 |                   |        |       |      |

See footnotes at end of device type 01.



TABLE III. Group A inspection for device type 02.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                     | Symbol                                                                                     | MIL-STD-883 method | Cases E, F | 1   | 2   | 3 | 4   | 5   | 6 | 7 | 8   | 9   | 10  | 11  | 12  | 13    | 14  | 15 | 16              | Measured terminal | Limits |     | Unit |     |   |   |   |   |   |   |   |   |   |
|------------------------------|--------------------------------------------------------------------------------------------|--------------------|------------|-----|-----|---|-----|-----|---|---|-----|-----|-----|-----|-----|-------|-----|----|-----------------|-------------------|--------|-----|------|-----|---|---|---|---|---|---|---|---|---|
|                              |                                                                                            |                    | Test no.   | 0   | 1   | 2 | 3   | 4   | 5 | 6 | GND | 7   | 8   | 9   | D   | C     | B   | A  | V <sub>CC</sub> |                   | Min    | Max |      |     |   |   |   |   |   |   |   |   |   |
| 10<br>T <sub>c</sub> = 125°C | t <sub>PHL</sub><br>t <sub>PLH</sub>                                                       | 3003<br>(Fig. 4)   | 144 & 145  | OUT | OUT |   |     |     |   |   | GND | OUT |     | OUT | GND | 5.0 V | GND | IN | 5.0 V           | A to 1            | 5      | 39  | ns   |     |   |   |   |   |   |   |   |   |   |
|                              |                                                                                            |                    | 146 & 147  |     |     |   |     |     |   |   | "   |     |     |     | "   | "     | "   | "  | "               | "                 | "      | "   | "    | "   | " | " | " | " | " | " | " | " |   |
|                              |                                                                                            |                    | 148 & 149  |     |     |   |     |     |   |   | "   |     |     |     | "   | "     | "   | "  | "               | "                 | "      | "   | "    | "   | " | " | " | " | " | " | " | " | " |
|                              |                                                                                            |                    | 150 & 151  |     |     |   |     |     |   |   | "   |     |     |     | "   | "     | "   | "  | "               | "                 | "      | "   | "    | "   | " | " | " | " | " | " | " | " | " |
|                              |                                                                                            |                    | 152 & 153  |     |     |   |     |     |   |   | "   |     |     |     | "   | "     | "   | "  | "               | "                 | "      | "   | "    | "   | " | " | " | " | " | " | " | " | " |
|                              |                                                                                            |                    | 154 & 155  |     |     |   |     |     |   |   | "   |     |     |     | "   | OUT   | "   | "  | "               | "                 | "      | "   | "    | "   | " | " | " | " | " | " | " | " | " |
|                              |                                                                                            |                    | 156 & 157  |     |     |   |     |     |   |   | "   |     |     |     | "   | "     | "   | "  | "               | "                 | "      | "   | "    | "   | " | " | " | " | " | " | " | " | " |
|                              |                                                                                            |                    | 158 & 159  |     |     |   |     |     |   |   | "   |     |     |     | "   | "     | "   | "  | "               | "                 | "      | "   | "    | "   | " | " | " | " | " | " | " | " | " |
|                              |                                                                                            |                    | 160 & 161  |     |     |   |     |     |   |   | "   |     |     |     | "   | "     | OUT | "  | "               | "                 | "      | "   | "    | "   | " | " | " | " | " | " | " | " | " |
|                              |                                                                                            |                    | 162 & 163  |     |     |   |     |     |   |   | "   |     |     |     | "   | "     | "   | "  | "               | "                 | "      | "   | OUT  | "   | " | " | " | " | " | " | " | " | " |
|                              |                                                                                            |                    | 164 & 165  |     |     |   |     |     |   |   | "   |     |     |     | "   | "     | "   | "  | "               | "                 | "      | "   | "    | OUT | " | " | " | " | " | " | " | " | " |
|                              |                                                                                            |                    | 166 & 167  |     |     |   |     |     |   |   | "   |     |     |     | "   | OUT   | "   | "  | "               | "                 | "      | "   | "    | "   | " | " | " | " | " | " | " | " | " |
|                              |                                                                                            |                    | 168 & 169  | "   | "   | " | "   | "   | " | " | "   | "   | OUT | "   | "   | "     | "   | "  | "               | "                 | "      | "   | "    |     |   |   |   |   |   |   |   |   |   |
|                              |                                                                                            |                    | 170 & 171  | "   | "   | " | "   | "   | " | " | "   | "   | "   | "   | OUT | "     | "   | "  | "               | "                 | "      | "   | "    |     |   |   |   |   |   |   |   |   |   |
|                              |                                                                                            |                    | 172 & 173  | "   | "   | " | "   | "   | " | " | "   | "   | "   | "   | "   | "     | "   | "  | "               | "                 | "      | "   | "    |     |   |   |   |   |   |   |   |   |   |
|                              |                                                                                            |                    | 174 & 175  | "   | "   | " | OUT | "   | " | " | "   | "   | "   | "   | "   | "     | "   | "  | "               | "                 | "      | "   | "    |     |   |   |   |   |   |   |   |   |   |
|                              |                                                                                            |                    | 176 & 177  | "   | "   | " | "   | "   | " | " | "   | "   | "   | "   | "   | "     | "   | "  | "               | "                 | "      | "   | "    |     |   |   |   |   |   |   |   |   |   |
|                              |                                                                                            |                    | 178 & 179  | "   | "   | " | "   | "   | " | " | "   | "   | "   | "   | "   | "     | "   | "  | "               | "                 | "      | "   | "    |     |   |   |   |   |   |   |   |   |   |
|                              |                                                                                            |                    | 180 & 181  | "   | "   | " | "   | "   | " | " | "   | "   | "   | "   | "   | "     | "   | "  | "               | "                 | "      | "   | "    |     |   |   |   |   |   |   |   |   |   |
|                              |                                                                                            |                    | 182 & 183  | "   | "   | " | "   | OUT | " | " | "   | "   | "   | "   | "   | "     | "   | "  | "               | "                 | "      | "   | "    |     |   |   |   |   |   |   |   |   |   |
|                              |                                                                                            |                    | 184 & 185  | "   | "   | " | "   | "   | " | " | "   | "   | "   | "   | "   | "     | "   | "  | "               | "                 | "      | "   | "    |     |   |   |   |   |   |   |   |   |   |
|                              |                                                                                            |                    | 186 & 187  | "   | "   | " | "   | "   | " | " | "   | "   | "   | "   | "   | "     | "   | "  | "               | "                 | "      | "   | "    |     |   |   |   |   |   |   |   |   |   |
|                              |                                                                                            |                    | 188 & 189  | "   | "   | " | "   | "   | " | " | "   | "   | "   | "   | "   | "     | "   | "  | "               | "                 | "      | "   | "    |     |   |   |   |   |   |   |   |   |   |
|                              |                                                                                            |                    | 190 & 191  | "   | "   | " | "   | "   | " | " | "   | "   | "   | "   | "   | "     | "   | "  | "               | "                 | "      | "   | "    | "   |   |   |   |   |   |   |   |   |   |
| 11                           | Same tests, terminal conditions, and limits as subgroup 10, except T <sub>c</sub> = -55°C. |                    |            |     |     |   |     |     |   |   |     |     |     |     |     |       |     |    |                 |                   |        |     |      |     |   |   |   |   |   |   |   |   |   |

NOTE: Output voltages shall be either: (a) H = 2.4 V minimum and L = 0.4 V maximum when using a high speed checker double comparator, or (b) H  $\geq 1.5$  V and L  $\leq 1.5$  V when using a high speed checker single comparator.

TABLE III. Group A inspection for device type 03.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                   | Symbol                                                                                                                                      | MIL-STD-883 method | Cases E, F | 1       | 2       | 3       | 4       | 5       | 6       | 7       | 8   | 9       | 10      | 11      | 12    | 13     | 14     | 15     | 16              | Measured terminal | Limits |       | Unit |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------|---------|---------|---------|---------|---------|---------|---------|-----|---------|---------|---------|-------|--------|--------|--------|-----------------|-------------------|--------|-------|------|
|                            |                                                                                                                                             |                    | Test no.   | 0       | 1       | 2       | 3       | 4       | 5       | 6       | GND | 7       | 8       | 9       | D     | C      | B      | A      | V <sub>CC</sub> |                   | Min    | Max   |      |
| 1<br>T <sub>C</sub> = 25°C | V <sub>OH</sub>                                                                                                                             | 3006               | 1          | -0.8 mA |         |         |         |         |         |         | GND |         |         |         | 0.8 V | 0.8 V  | 0.8 V  | 0.8 V  | 4.5 V           | 0                 | 2.4 V  |       | V    |
|                            |                                                                                                                                             | "                  | 2          |         | -0.8 mA |         |         |         |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 1                 | "      |       | "    |
|                            |                                                                                                                                             | "                  | 3          |         |         | -0.8 mA |         |         |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 2                 | "      |       | "    |
|                            |                                                                                                                                             | "                  | 4          |         |         |         | -0.8 mA |         |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 3                 | "      |       | "    |
|                            |                                                                                                                                             | "                  | 5          |         |         |         |         | -0.8 mA |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 4                 | "      |       | "    |
|                            |                                                                                                                                             | "                  | 6          |         |         |         |         |         | -0.8 mA |         | "   |         |         |         | "     | "      | "      | "      | "               | 5                 | "      |       | "    |
|                            |                                                                                                                                             | "                  | 7          |         |         |         |         |         |         | -0.8 mA | "   |         |         |         | "     | "      | "      | "      | "               | 6                 | "      |       | "    |
|                            |                                                                                                                                             | "                  | 8          |         |         |         |         |         |         |         | "   | -0.8 mA |         |         | "     | "      | "      | "      | "               | 7                 | "      |       | "    |
|                            |                                                                                                                                             | "                  | 9          |         |         |         |         |         |         |         | "   |         | -0.8 mA |         | "     | "      | "      | "      | "               | 8                 | "      |       | "    |
|                            |                                                                                                                                             | "                  | 10         |         |         |         |         |         |         |         | "   |         |         | -0.8 mA | "     | "      | "      | "      | "               | 9                 | "      |       | "    |
|                            | V                                                                                                                                           | 3007               | 11         | 16 mA   | 16 mA   | 16 mA   | 16 mA   | 16 mA   | 16 mA   | 16 mA   | "   |         |         |         | 0.8 V | 0.8 V  | 2.0 V  | 0.8 V  | "               | 0                 |        | 0.4 V | V    |
|                            |                                                                                                                                             | "                  | 12         |         |         |         |         |         |         |         | "   |         |         |         | "     | 2.0 V  | "      | 0.8 V  | "               | 1                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 13         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | 0.8 V  | 2.0 V  | "               | 2                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 14         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | "      | 2.0 V  | "               | 3                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 15         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | "      | 0.8 V  | "               | 4                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 16         |         |         |         |         |         |         |         | "   |         |         |         | 2.0 V | "      | "      | 0.8 V  | "               | 5                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 17         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | "      | 2.0 V  | "               | 6                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 18         |         |         |         |         |         |         |         | "   | 16 mA   |         |         | "     | "      | 2.0 V  | 2.0 V  | "               | 7                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 19         |         |         |         |         |         |         |         | "   |         | 16 mA   |         | "     | "      | "      | 0.8 V  | "               | 8                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 20         |         |         |         |         |         |         |         | "   |         |         | 16 mA   | "     | 0.8 V  | "      | 0.8 V  | "               | 9                 |        | "     | "    |
| V                          | I <sub>C</sub>                                                                                                                              |                    | 21         |         |         |         |         |         |         |         | "   |         |         |         |       |        | -12 mA | -12 mA | "               | A                 |        | -1.5  | V    |
|                            |                                                                                                                                             |                    | 22         |         |         |         |         |         |         |         | "   |         |         |         |       |        |        |        | "               | B                 |        | "     | "    |
|                            |                                                                                                                                             |                    | 23         |         |         |         |         |         |         |         | "   |         |         |         |       |        |        |        | "               | C                 |        | "     | "    |
|                            |                                                                                                                                             |                    | 24         |         |         |         |         |         |         |         | "   |         |         |         |       | -12 mA | -12 mA |        | "               | D                 |        | "     | "    |
|                            | I <sub>H1</sub>                                                                                                                             | 3010               | 25         |         |         |         |         |         |         |         | "   |         |         |         | GND   | GND    | GND    | 2.4 V  | 5.5 V           | A                 |        | 40    | μA   |
|                            |                                                                                                                                             | "                  | 26         |         |         |         |         |         |         |         | "   |         |         |         | "     | GND    | 2.4 V  | GND    | "               | B                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 27         |         |         |         |         |         |         |         | "   |         |         |         | "     | 2.4 V  | GND    | "      | "               | C                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 28         |         |         |         |         |         |         |         | "   |         |         |         | "     | GND    | GND    | "      | "               | D                 |        | "     | "    |
|                            | I <sub>H2</sub>                                                                                                                             | 3010               | 29         |         |         |         |         |         |         |         | "   |         |         |         | GND   | "      | "      | 5.5 V  | 5.5 V           | A                 |        | 100   | "    |
|                            |                                                                                                                                             | "                  | 30         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | 5.5 V  | GND    | "               | B                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 31         |         |         |         |         |         |         |         | "   |         |         |         | "     | 5.5 V  | GND    | "      | "               | C                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 32         |         |         |         |         |         |         |         | "   |         |         |         | "     | GND    | GND    | "      | "               | D                 |        | "     | "    |
| I                          | I <sub>L</sub>                                                                                                                              | 3009               | 33         |         |         |         |         |         |         |         | "   |         |         |         | "     | 5.5 V  | 5.5 V  | 0.4 V  | "               | A                 | -0.7   | -1.6  | mA   |
|                            |                                                                                                                                             | "                  | 34         |         |         |         |         |         |         |         | "   |         |         |         | "     | 5.5 V  | 0.4 V  | 5.5 V  | "               | B                 | "      | "     | "    |
|                            |                                                                                                                                             | "                  | 35         |         |         |         |         |         |         |         | "   |         |         |         | "     | 0.4 V  | 5.5 V  | "      | "               | C                 | "      | "     | "    |
|                            |                                                                                                                                             | "                  | 36         |         |         |         |         |         |         |         | "   |         |         |         | "     | 5.5 V  | 5.5 V  | "      | "               | D                 | "      | "     | "    |
|                            | I <sub>OS</sub>                                                                                                                             | 3011               | 37         | GND     | GND     | GND     | GND     | GND     | GND     | GND     | "   |         |         |         | GND   | GND    | GND    | GND    | "               | 0                 | -20    | -55   | mA   |
|                            |                                                                                                                                             | "                  | 38         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 1                 | "      | "     | "    |
|                            |                                                                                                                                             | "                  | 39         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 2                 | "      | "     | "    |
|                            |                                                                                                                                             | "                  | 40         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 3                 | "      | "     | "    |
|                            |                                                                                                                                             | "                  | 41         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 4                 | "      | "     | "    |
|                            |                                                                                                                                             | "                  | 42         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 5                 | "      | "     | "    |
|                            |                                                                                                                                             | "                  | 43         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 6                 | "      | "     | "    |
|                            |                                                                                                                                             | "                  | 44         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 7                 | "      | "     | "    |
|                            |                                                                                                                                             | "                  | 45         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 8                 | "      | "     | "    |
|                            |                                                                                                                                             | "                  | 46         |         |         |         |         |         |         |         | "   |         |         |         | "     | "      | "      | "      | "               | 9                 | "      | "     | "    |
|                            | CC                                                                                                                                          | 3005               | 47         |         |         |         |         |         |         |         | "   |         |         |         | GND   | GND    | GND    | GND    | "               | V <sub>CC</sub>   |        | 41    | mA   |
| 2                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = +125°C and V <sub>I<sub>C</sub></sub> tests are omitted. |                    |            |         |         |         |         |         |         |         |     |         |         |         |       |        |        |        |                 |                   |        |       |      |
| 3                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = -55°C and V <sub>I<sub>C</sub></sub> tests are omitted.  |                    |            |         |         |         |         |         |         |         |     |         |         |         |       |        |        |        |                 |                   |        |       |      |

See footnotes at end of device type 03.

TABLE III. Group A inspection for device type 03.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                   | Symbol                               | MIL-STD-883 method | Cases E, F | 1                                                         | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10 | 11  | 12    | 13    | 14    | 15    | 16              | Measured terminal | Limits |        | Unit |       |   |
|----------------------------|--------------------------------------|--------------------|------------|-----------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-------|-------|-------|-------|-----------------|-------------------|--------|--------|------|-------|---|
|                            |                                      |                    | Test no.   | 0                                                         | 1   | 2   | 3   | 4   | 5   | 6   | GND | 7   | 8  | 9   | D     | C     | B     | A     | V <sub>CC</sub> |                   | Min    | Max    |      |       |   |
| 7<br>T <sub>C</sub> = 25°C | Truth table test                     |                    | 48         | L                                                         | H   | H   | H   | H   | H   | H   | GND | H   | H  | H   | GND   | GND   | 5.0 V | GND   | 5.0 V           | See note          |        |        |      |       |   |
|                            |                                      |                    | 49         | H                                                         | L   | H   | "   | "   | "   | "   | "   | "   | "  | "   | "     | "     | 5.0 V | 5.0 V | GND             |                   |        |        |      | "     |   |
|                            |                                      |                    | 50         | "                                                         | H   | L   | "   | "   | "   | "   | "   | "   | "  | "   | "     | "     | "     | 5.0 V | 5.0 V           |                   |        |        |      | "     |   |
|                            |                                      |                    | 51         | "                                                         | "   | H   | L   | "   | "   | "   | "   | "   | "  | "   | "     | "     | "     | GND   | 5.0 V           |                   |        |        |      | "     |   |
|                            |                                      |                    | 52         | "                                                         | "   | "   | H   | L   | "   | "   | "   | "   | "  | "   | "     | "     | "     | "     | GND             |                   |        |        |      | "     |   |
|                            |                                      |                    | 53         | "                                                         | "   | "   | "   | H   | L   | "   | "   | "   | "  | "   | "     | 5.0 V | "     | "     | GND             |                   |        |        |      | "     |   |
|                            |                                      |                    | 54         | "                                                         | "   | "   | "   | "   | H   | L   | "   | "   | "  | "   | "     | "     | "     | "     | 5.0 V           |                   |        |        |      | "     |   |
|                            |                                      |                    | 55         | "                                                         | "   | "   | "   | "   | "   | "   | H   | L   | "  | "   | "     | "     | "     | 5.0 V | 5.0 V           |                   |        |        |      | "     |   |
|                            |                                      |                    | 56         | "                                                         | "   | "   | "   | "   | "   | "   | "   | "   | L  | "   | "     | "     | "     | 5.0 V | GND             |                   |        |        |      | "     |   |
|                            |                                      |                    | 57         | "                                                         | "   | "   | "   | "   | "   | "   | "   | "   | "  | L   | L     | "     | GND   | "     | GND             |                   |        |        |      | "     |   |
|                            |                                      |                    | 58         | "                                                         | "   | "   | "   | "   | "   | "   | "   | "   | "  | "   | H     | "     | "     | "     | 5.0 V           |                   |        |        |      | "     |   |
|                            |                                      |                    | 59         | "                                                         | "   | "   | "   | "   | "   | "   | "   | "   | "  | "   | "     | "     | "     | "     | GND             |                   |        |        |      | 5.0 V | " |
|                            |                                      |                    | 60         | "                                                         | "   | "   | "   | "   | "   | "   | "   | "   | "  | "   | "     | "     | "     | "     | GND             |                   |        |        |      | "     |   |
|                            |                                      |                    | 61         | "                                                         | "   | "   | "   | "   | "   | "   | "   | "   | "  | "   | "     | "     | "     | "     | GND             |                   |        |        |      | "     |   |
|                            |                                      |                    | 62         | "                                                         | "   | "   | "   | "   | "   | "   | "   | "   | "  | "   | "     | "     | "     | "     | 5.0 V           |                   |        |        |      | "     |   |
|                            |                                      |                    | 63         | "                                                         | "   | "   | "   | "   | "   | "   | "   | "   | "  | "   | "     | "     | "     | "     | 5.0 V           |                   |        |        |      | 5.0 V | " |
| 8                          | Truth table test                     |                    | 64 thru 79 | Same tests as subgroup 7, except T <sub>C</sub> = +125°C. |     |     |     |     |     |     |     |     |    |     |       |       |       |       |                 |                   |        |        |      |       |   |
|                            |                                      |                    | 80 thru 95 | Same tests as subgroup 7, except T <sub>C</sub> = -55°C.  |     |     |     |     |     |     |     |     |    |     |       |       |       |       |                 |                   |        |        |      |       |   |
| 9<br>T <sub>C</sub> = 25°C | t <sub>PHL</sub><br>t <sub>PLH</sub> | 3003 (Fig. 4)      | 96 & 97    | OUT                                                       |     |     |     |     |     |     | GND |     |    |     | GND   | GND   | 5.0 V | IN    | 5.0 V           | A to 0            | 5      | 32     | ns   |       |   |
|                            |                                      |                    | 98 & 99    |                                                           |     |     |     |     |     |     | "   |     |    | OUT | 5.0 V | 5.0 V | 5.0 V | IN    | "               | A to 8            | "      | 32     | "    |       |   |
|                            |                                      |                    | 100 & 101  |                                                           |     | OUT |     |     |     |     | "   |     |    |     | GND   | "     | 5.0 V | IN    | "               | A to 2            | "      | 37     | "    |       |   |
|                            |                                      |                    | 102 & 103  |                                                           |     |     | OUT |     |     |     | "   |     |    |     | GND   | "     | IN    | 5.0 V | "               | B to 3            | "      | 32     | "    |       |   |
|                            |                                      |                    | 104 & 105  |                                                           |     |     |     | OUT |     |     | "   |     |    |     | GND   | "     | "     | GND   | "               | B to 4            | "      | "      | "    |       |   |
|                            |                                      |                    | 106 & 107  |                                                           |     |     |     |     | OUT |     | "   |     |    |     | 5.0 V | "     | "     | GND   | "               | B to 5            | "      | "      | "    |       |   |
|                            |                                      |                    | 108 & 109  |                                                           |     |     |     |     |     | OUT | "   |     |    |     | 5.0 V | "     | "     | 5.0 V | "               | B to 6            | "      | "      | "    |       |   |
|                            |                                      |                    | 110 & 111  | OUT                                                       |     |     |     |     |     |     | "   |     |    |     | GND   | GND   | "     | GND   | "               | B to 0            | "      | 37     | "    |       |   |
|                            |                                      |                    | 112 & 113  |                                                           | OUT |     |     |     |     |     | "   |     |    |     | GND   | 5.0 V | "     | GND   | "               | B to 1            | "      | "      | "    |       |   |
|                            |                                      |                    | 114 & 115  |                                                           |     | OUT |     |     |     |     | "   |     |    |     | GND   | 5.0 V | "     | 5.0 V | "               | B to 2            | "      | "      | "    |       |   |
|                            |                                      |                    | 116 & 117  |                                                           |     |     |     |     |     |     | "   |     |    | OUT | 5.0 V | 5.0 V | "     | GND   | "               | B to 8            | "      | "      | "    |       |   |
|                            |                                      |                    | 118 & 119  |                                                           |     |     |     |     |     |     | "   |     |    | OUT | 5.0 V | IN    | 5.0 V | GND   | "               | C to 9            | "      | 32     | "    |       |   |
|                            |                                      |                    | 120 & 121  |                                                           | OUT |     |     |     |     |     | "   |     |    |     | GND   | "     | 5.0 V | GND   | "               | C to 1            | "      | 37     | "    |       |   |
|                            |                                      |                    | 122 & 123  |                                                           |     |     | OUT |     |     |     | "   |     |    |     | GND   | "     | GND   | 5.0 V | "               | C to 3            | "      | "      | "    |       |   |
|                            |                                      |                    | 124 & 125  |                                                           |     |     |     | OUT |     |     | "   |     |    |     | GND   | "     | "     | GND   | "               | C to 4            | "      | "      | "    |       |   |
|                            |                                      |                    | 126 & 127  |                                                           |     |     |     |     | OUT |     | "   |     |    |     | 5.0 V | "     | "     | GND   | "               | C to 5            | "      | "      | "    |       |   |
|                            |                                      |                    | 128 & 129  |                                                           |     |     |     |     |     | OUT | "   |     |    |     | 5.0 V | "     | "     | 5.0 V | "               | C to 6            | "      | "      | "    |       |   |
|                            |                                      |                    | 130 & 131  |                                                           |     |     |     |     |     |     | "   | OUT |    |     | 5.0 V | "     | 5.0 V | 5.0 V | "               | C to 7            | "      | "      | "    |       |   |
|                            |                                      |                    | 132 & 133  |                                                           | OUT |     |     |     |     |     | "   |     |    |     | "     | "     | 5.0 V | 5.0 V | GND             | "                 | D to 1 | "      | 32   | "     |   |
|                            |                                      |                    | 134 & 135  |                                                           |     | OUT |     |     |     |     | "   |     |    |     | "     | "     | 5.0 V | 5.0 V | "               | D to 2            | "      | 32     | "    |       |   |
|                            |                                      |                    | 136 & 137  |                                                           |     |     |     | OUT |     |     | "   |     |    |     | "     | "     | "     | GND   | 5.0 V           | "                 | D to 4 | "      | 32   | "     |   |
|                            |                                      |                    | 138 & 139  |                                                           |     |     |     |     | OUT |     | "   |     |    |     | "     | "     | "     | GND   | GND             | "                 | D to 5 | "      | 37   | "     |   |
|                            |                                      |                    | 140 & 141  |                                                           |     |     |     |     |     | OUT | "   |     |    |     | "     | "     | "     | GND   | 5.0 V           | "                 | D to 6 | "      | "    | "     |   |
|                            |                                      |                    | 142 & 143  |                                                           |     |     |     |     |     |     | "   |     |    | OUT | "     | "     | "     | 5.0 V | 5.0 V           | "                 | D to 7 | "      | "    | "     |   |
|                            |                                      |                    | 144 & 145  |                                                           |     |     |     |     |     |     | "   |     |    |     | "     | OUT   | "     | GND   | 5.0 V           | GND               | "      | D to 9 | "    | "     | " |

See notes at end of device type 03.

TABLE III. Group A inspection for device type 03.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                     | Symbol                                                                                     | MIL-STD-883 method | Cases E, F  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12    | 13    | 14    | 15    | 16              | Measured terminal | Limits |     | Unit |
|------------------------------|--------------------------------------------------------------------------------------------|--------------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|-------|-----------------|-------------------|--------|-----|------|
|                              |                                                                                            |                    | Test no.    | 0   | 1   | 2   | 3   | 4   | 5   | 6   | GND | 7   | 8   | 9   | D     | C     | B     | A     | V <sub>CC</sub> |                   | Min    | Max |      |
| 10<br>T <sub>C</sub> = 125°C | t <sub>PHL</sub><br>t <sub>PLH</sub>                                                       | 3003<br>(Fig. 4)   | 146 & 147   | OUT |     |     |     |     |     |     | GND |     |     |     | GND   | GND   | 5.0 V | IN    | 5.0 V           | A to 0            | 5      | 39  | ns   |
|                              |                                                                                            |                    | 148 & 149   |     |     |     |     |     |     |     | "   |     | OUT |     | 5.0 V | 5.0 V | 5.0 V | IN    | "               | A to 8            | "      | 39  | "    |
|                              |                                                                                            |                    | " 150 & 151 |     |     |     |     |     |     |     | "   |     |     |     | GND   | "     | 5.0 V | IN    | "               | A to 2            | "      | 46  | "    |
|                              |                                                                                            |                    | " 152 & 153 |     |     | OUT | OUT |     |     |     | "   |     |     |     | GND   | "     | IN    | 5.0 V | "               | B to 3            | "      | 39  | "    |
|                              |                                                                                            |                    | " 154 & 155 |     |     |     |     | OUT |     |     | "   |     |     |     | GND   | "     | "     | GND   | "               | B to 4            | "      | "   | "    |
|                              |                                                                                            |                    | " 156 & 157 |     |     |     |     |     | OUT |     | "   |     |     |     | 5.0 V | "     | "     | GND   | "               | B to 5            | "      | "   | "    |
|                              |                                                                                            |                    | " 158 & 159 |     |     |     |     |     |     | OUT | "   |     |     |     | 5.0 V | "     | "     | 5.0 V | "               | B to 6            | "      | "   | "    |
|                              |                                                                                            |                    | " 160 & 161 | OUT |     |     |     |     |     |     | "   |     |     |     | GND   | GND   | "     | GND   | "               | B to 0            | "      | 46  | "    |
|                              |                                                                                            |                    | " 162 & 163 |     | OUT |     |     |     |     |     | "   |     |     |     | GND   | 5.0 V | "     | GND   | "               | B to 1            | "      | "   | "    |
|                              |                                                                                            |                    | " 164 & 165 |     |     | OUT |     |     |     |     | "   |     |     |     | GND   | 5.0 V | "     | 5.0 V | "               | B to 2            | "      | "   | "    |
|                              |                                                                                            |                    | " 166 & 167 |     |     |     |     |     |     |     | "   |     | OUT |     | 5.0 V | 5.0 V | "     | GND   | "               | B to 8            | "      | "   | "    |
|                              |                                                                                            |                    | " 168 & 169 |     |     |     |     |     |     |     | "   |     |     | OUT | 5.0 V | IN    | 5.0 V | GND   | "               | C to 9            | "      | 39  | "    |
|                              |                                                                                            |                    | " 170 & 171 |     | OUT |     |     |     |     |     | "   |     |     |     | GND   | "     | 5.0 V | GND   | "               | C to 1            | "      | 46  | "    |
|                              |                                                                                            |                    | " 172 & 173 |     |     | OUT |     |     |     |     | "   |     |     |     | GND   | "     | GND   | 5.0 V | "               | C to 3            | "      | "   | "    |
|                              |                                                                                            |                    | " 174 & 175 |     |     |     | OUT |     |     |     | "   |     |     |     | GND   | "     | "     | GND   | "               | C to 4            | "      | "   | "    |
|                              |                                                                                            |                    | " 176 & 177 |     |     |     |     |     | OUT |     | "   |     |     |     | 5.0 V | "     | "     | GND   | "               | C to 5            | "      | "   | "    |
|                              |                                                                                            |                    | " 178 & 179 |     |     |     |     |     |     | OUT | "   |     |     |     | 5.0 V | "     | "     | 5.0 V | "               | C to 6            | "      | "   | "    |
|                              |                                                                                            |                    | " 180 & 181 |     |     |     |     |     |     |     | "   | OUT |     |     | 5.0 V | "     | 5.0 V | 5.0 V | "               | C to 7            | "      | "   | "    |
|                              |                                                                                            |                    | " 182 & 183 |     |     | OUT |     |     |     |     | "   |     |     |     | IN    | 5.0 V | 5.0 V | GND   | "               | D to 1            | "      | 39  | "    |
|                              |                                                                                            |                    | " 184 & 185 |     |     |     | OUT |     |     |     | "   |     |     |     | "     | "     | 5.0 V | 5.0 V | "               | D to 2            | "      | 39  | "    |
|                              |                                                                                            |                    | " 186 & 187 |     |     |     |     | OUT |     |     | "   |     |     |     | "     | "     | GND   | 5.0 V | "               | D to 4            | "      | 39  | "    |
|                              |                                                                                            |                    | " 188 & 189 |     |     |     |     |     | OUT |     | "   |     |     |     | "     | "     | GND   | GND   | "               | D to 5            | "      | 46  | "    |
|                              |                                                                                            |                    | " 190 & 191 |     |     |     |     |     |     | OUT | "   |     |     |     | "     | "     | GND   | 5.0 V | "               | D to 6            | "      | "   | "    |
|                              |                                                                                            |                    | " 192 & 193 |     |     |     |     |     |     |     | "   | OUT |     |     | "     | "     | 5.0 V | 5.0 V | "               | D to 7            | "      | "   | "    |
|                              |                                                                                            |                    | " 194 & 195 |     |     |     |     |     |     |     | "   |     |     |     | "     | GND   | 5.0 V | GND   | "               | D to 9            | "      | "   | "    |
| 11                           | Same tests, terminal conditions, and limits as subgroup 10, except T <sub>C</sub> = -55°C. |                    |             |     |     |     |     |     |     |     |     |     |     |     |       |       |       |       |                 |                   |        |     |      |

NOTE: Output voltages shall be either: (a) H = 2.4 V minimum and L = 0.4 V maximum when using a high speed checker double comparator, or (b) H  $\geq 1.5$  V and L  $\leq 1.5$  V when using a high speed checker single comparator.

TABLE III. Group A inspection for device type 04 and 05.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                   | Symbol                                                                                                                                      | MIL-STD-883 method | Cases E, F<br>Test no. | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8   | 9     | 10    | 11    | 12     | 13     | 14     | 15     | 16              | Measured terminal | Limits |       | Unit |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-----|-------|-------|-------|--------|--------|--------|--------|-----------------|-------------------|--------|-------|------|
|                            |                                                                                                                                             |                    |                        | 0     | 1     | 2     | 3     | 4     | 5     | 6     | GND | 7     | 8     | 9     | D      | C      | B      | A      | V <sub>CC</sub> |                   | Min    | Max   |      |
| 1<br>T <sub>C</sub> = 25°C | V <sub>OL</sub>                                                                                                                             | 3007               | 1                      | 80 mA |       |       |       |       |       |       | GND |       |       |       | 0.8 V  | 0.8 V  | 0.8 V  | 0.8 V  | 4.5 V           | 0                 |        | 0.9   | V    |
|                            |                                                                                                                                             | "                  | 2                      |       | mA    |       |       |       |       |       | "   |       |       |       | "      | "      | 0.8 V  | 2.0 V  | "               | 1                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 3                      |       |       | 80 mA |       |       |       |       | "   |       |       |       | "      | "      | 2.0 V  | 0.8 V  | "               | 2                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 4                      | 80    |       |       | 80 mA |       |       |       | "   |       |       |       | "      | "      | 2.0 V  | 2.0 V  | "               | 3                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 5                      |       |       |       |       | 80 mA |       |       | "   |       |       |       | "      | 2.0 V  | 0.8 V  | 0.8 V  | "               | 4                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 6                      |       |       |       |       |       | 80 mA |       | "   |       |       |       | "      | "      | 0.8 V  | 2.0 V  | "               | 5                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 7                      |       |       |       |       |       |       | 80 mA | "   |       |       |       | "      | "      | 2.0 V  | 0.8 V  | "               | 6                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 8                      |       |       |       |       |       |       |       | "   | 80 mA |       |       | "      | "      | 2.0 V  | 2.0 V  | "               | 7                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 9                      |       |       |       |       |       |       |       | "   |       | 80 mA |       | "      | "      | 0.8 V  | 0.8 V  | "               | 8                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 10                     |       |       |       |       |       |       |       | "   |       |       | 80 mA | 2.0 V  | 0.8 V  | 0.8 V  | 2.0 V  | "               | 9                 |        | "     | "    |
| V                          | OL2                                                                                                                                         | 3007               | 11                     | 20 mA | 20 mA |       |       |       |       |       | "   |       |       |       | 0.8 V  | 0.8 V  | 0.8 V  | 0.8 V  | "               | 0                 |        | 0.4 V | V    |
|                            |                                                                                                                                             | "                  | 12                     |       |       | 20 mA |       |       |       |       | "   |       |       |       | "      | "      | 0.8 V  | 2.0 V  | "               | 1                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 13                     |       |       |       | 20 mA |       |       |       | "   |       |       |       | "      | "      | 2.0 V  | 0.8 V  | "               | 2                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 14                     |       |       |       |       | 20 mA |       |       | "   |       |       |       | "      | "      | 2.0 V  | 2.0 V  | "               | 3                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 15                     |       |       |       |       |       | 20 mA |       | "   |       |       |       | "      | 2.0 V  | 0.8 V  | 0.8 V  | "               | 4                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 16                     |       |       |       |       |       |       | 20 mA | "   |       |       |       | "      | "      | 0.8 V  | 2.0 V  | "               | 5                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 17                     |       |       |       |       |       |       |       | "   | 20 mA |       |       | "      | "      | 2.0 V  | 0.8 V  | "               | 6                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 18                     |       |       |       |       |       |       |       | "   |       | 20 mA |       | "      | "      | 2.0 V  | 2.0 V  | "               | 7                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 19                     |       |       |       |       |       |       |       | "   |       |       | 20 mA | 2.0 V  | 0.8 V  | 0.8 V  | 0.8 V  | "               | 8                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 20                     |       |       |       |       |       |       |       | "   |       |       |       | 2.0 V  | 0.8 V  | 0.8 V  | 2.0 V  | "               | 9                 |        | "     | "    |
| I<br>1                     | CEX                                                                                                                                         |                    | 21                     | Y     |       |       |       |       |       |       | "   |       |       |       | 2.0 V  | 2.0 V  | 2.0 V  | 2.0 V  | "               | 0                 |        | 250   | μA   |
|                            |                                                                                                                                             |                    | 22                     |       | Y     |       |       |       |       |       | "   |       |       |       | "      | "      | "      | "      | "               | 1                 |        | "     | "    |
|                            |                                                                                                                                             |                    | 23                     |       |       | Y     |       |       |       |       | "   |       |       |       | "      | "      | "      | "      | "               | 2                 |        | "     | "    |
|                            |                                                                                                                                             |                    | 24                     |       |       |       | Y     |       |       |       | "   |       |       |       | "      | "      | "      | "      | "               | 3                 |        | "     | "    |
|                            |                                                                                                                                             |                    | 25                     |       |       |       |       | Y     |       |       | "   |       |       |       | "      | "      | "      | "      | "               | 4                 |        | "     | "    |
|                            |                                                                                                                                             |                    | 26                     |       |       |       |       |       | Y     |       | "   |       |       |       | "      | "      | "      | "      | "               | 5                 |        | "     | "    |
|                            |                                                                                                                                             |                    | 27                     |       |       |       |       |       |       | Y     | "   |       |       |       | "      | "      | "      | "      | "               | 6                 |        | "     | "    |
|                            |                                                                                                                                             |                    | 28                     |       |       |       |       |       |       |       | "   | Y     |       |       | "      | "      | "      | "      | "               | 7                 |        | "     | "    |
|                            |                                                                                                                                             |                    | 29                     |       |       |       |       |       |       |       | "   |       | Y     |       | "      | "      | "      | "      | "               | 8                 |        | "     | "    |
|                            |                                                                                                                                             |                    | 30                     |       |       |       |       |       |       |       | "   |       |       | Y     | "      | "      | "      | "      | "               | 9                 |        | "     | "    |
| V                          | I <sub>C</sub>                                                                                                                              |                    | 31                     |       |       |       |       |       |       |       | "   |       |       |       |        |        | -12 mA | -12 mA | "               | A                 |        | -1.5  | V    |
|                            |                                                                                                                                             |                    | 32                     |       |       |       |       |       |       |       | "   |       |       |       |        |        |        |        | "               | B                 |        | "     | "    |
|                            |                                                                                                                                             |                    | 33                     |       |       |       |       |       |       |       | "   |       |       |       |        |        |        |        | "               | C                 |        | "     | "    |
|                            |                                                                                                                                             |                    | 34                     |       |       |       |       |       |       |       | "   |       |       |       | -12 mA | -12 mA | -12 mA |        | "               | D                 |        | "     | "    |
| I                          | IL                                                                                                                                          | 3009               | 35                     |       |       |       |       |       |       |       | "   |       |       |       | 5.5 V  | 5.5 V  | 5.5 V  | 0.4 V  | 5.5 V           | A                 | -0.7   | -1.6  | mA   |
|                            |                                                                                                                                             | "                  | 36                     |       |       |       |       |       |       |       | "   |       |       |       | 5.5 V  | 5.5 V  | 0.4 V  | 5.5 V  | "               | B                 | "      | "     | "    |
|                            |                                                                                                                                             | "                  | 37                     |       |       |       |       |       |       |       | "   |       |       |       | "      | 0.4 V  | 5.5 V  | "      | "               | C                 | "      | "     | "    |
|                            |                                                                                                                                             | "                  | 38                     |       |       |       |       |       |       |       | "   |       |       |       | 0.4 V  | 5.5 V  | 5.5 V  | "      | "               | D                 | "      | "     | "    |
| I                          | IH1                                                                                                                                         | 3010               | 39                     |       |       |       |       |       |       |       | "   |       |       |       | GND    | GND    | GND    | 2.4 V  | "               | A                 |        | 40    | μA   |
|                            |                                                                                                                                             | "                  | 40                     |       |       |       |       |       |       |       | "   |       |       |       | "      | GND    | 2.4 V  | GND    | "               | B                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 41                     |       |       |       |       |       |       |       | "   |       |       |       | "      | 2.4 V  | "      | "      | "               | C                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 42                     |       |       |       |       |       |       |       | "   |       |       |       | 2.4 V  | GND    | "      | "      | "               | D                 |        | "     | "    |
| I                          | IH2                                                                                                                                         | 3010               | 43                     |       |       |       |       |       |       |       | "   |       |       |       | GND    | "      | "      | 5.5 V  | "               | A                 |        | 100   | μA   |
|                            |                                                                                                                                             | "                  | 44                     |       |       |       |       |       |       |       | "   |       |       |       | "      | "      | GND    | "      | "               | B                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 45                     |       |       |       |       |       |       |       | "   |       |       |       | "      | 5.5 V  | GND    | "      | "               | C                 |        | "     | "    |
|                            |                                                                                                                                             | "                  | 46                     |       |       |       |       |       |       |       | "   |       |       |       | 5.5 V  | GND    | GND    | "      | "               | D                 |        | "     | "    |
|                            | CC                                                                                                                                          | 3005               | 47                     |       |       |       |       |       |       |       | "   |       |       |       | GND    | GND    | GND    | GND    | "               | V <sub>CC</sub>   |        | 62    | mA   |
| 2                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = +125°C and V <sub>I<sub>C</sub></sub> tests are omitted. |                    |                        |       |       |       |       |       |       |       |     |       |       |       |        |        |        |        |                 |                   |        |       |      |
| 3                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = -55°C and V <sub>I<sub>C</sub></sub> tests are omitted.  |                    |                        |       |       |       |       |       |       |       |     |       |       |       |        |        |        |        |                 |                   |        |       |      |

See footnotes at end of device types 04 and 05.

TABLE III. Group A inspection for device type 04 and 05.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                   | Symbol                                                   | MIL-STD-883 method | Cases E, F | 1                | 2   | 3          | 4                                                         | 5 | 6   | 7 | 8   | 9 | 10 | 11 | 12  | 13    | 14    | 15    | 16              | Measured terminal | Limits |     | Unit |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------------------------|----------------------------------------------------------|--------------------|------------|------------------|-----|------------|-----------------------------------------------------------|---|-----|---|-----|---|----|----|-----|-------|-------|-------|-----------------|-------------------|--------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                            |                                                          |                    | Test no.   | 0                | 1   | 2          | 3                                                         | 4 | 5   | 6 | GND | 7 | 8  | 9  | D   | C     | B     | A     | V <sub>CC</sub> |                   | Min    | Max |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 7<br>T <sub>C</sub> = 25°C | Truth table test                                         |                    | 48         | L                | H   | H          | H                                                         | H | H   | H | GND | H | H  | H  | GND | GND   | GND   | GND   | GND             | 5.0 V             | 2/     |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 49         | H                | L   | H          | "                                                         | " | "   | " | "   | " | "  | "  | "   | "     | "     | GND   | 5.0 V           | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 50         | "                | H   | L          | "                                                         | " | "   | " | "   | " | "  | "  | "   | "     | "     | 5.0 V | GND             | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 51         | "                | "   | H          | L                                                         | " | "   | " | "   | " | "  | "  | "   | "     | "     | 5.0 V | 5.0 V           | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 52         | "                | "   | "          | H                                                         | L | "   | " | "   | " | "  | "  | "   | "     | 5.0 V | GND   | GND             | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 53         | "                | "   | "          | "                                                         | L | H   | " | "   | " | "  | "  | "   | "     | "     | GND   | 5.0 V           | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 54         | "                | "   | "          | "                                                         | " | H   | L | "   | " | "  | "  | "   | "     | "     | 5.0 V | GND             | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 55         | "                | "   | "          | "                                                         | " | "   | " | H   | " | "  | "  | "   | "     | "     | 5.0 V | 5.0 V           | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 56         | "                | "   | "          | "                                                         | " | "   | " | "   | H | L  | "  | "   | 5.0 V | GND   | GND   | GND             | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 57         | "                | "   | "          | "                                                         | " | "   | " | "   | " | H  | L  | "   | "     | "     | GND   | 5.0 V           | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 58         | "                | "   | "          | "                                                         | " | "   | " | "   | " | "  | H  | "   | "     | "     | 5.0 V | GND             | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 59         | "                | "   | "          | "                                                         | " | "   | " | "   | " | "  | "  | "   | "     | "     | 5.0 V | 5.0 V           | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 60         | "                | "   | "          | "                                                         | " | "   | " | "   | " | "  | "  | "   | "     | 5.0 V | GND   | GND             | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 61         | "                | "   | "          | "                                                         | " | "   | " | "   | " | "  | "  | "   | "     | "     | GND   | 5.0 V           | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 62         | "                | "   | "          | "                                                         | " | "   | " | "   | " | "  | "  | "   | "     | "     | 5.0 V | GND             | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 63         | "                | "   | "          | "                                                         | " | "   | " | "   | " | "  | "  | "   | "     | "     | 5.0 V | 5.0 V           | "                 |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 8          | Truth table test |     | 64 thru 79 | Same tests as subgroup 7, except T <sub>C</sub> = +125°C. |   |     |   |     |   |    |    |     |       |       |       |                 |                   |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 80 thru 95                 | Same tests as subgroup 7, except T <sub>C</sub> = -55°C. |                    |            |                  |     |            |                                                           |   |     |   |     |   |    |    |     |       |       |       |                 |                   |        |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 9<br>T <sub>C</sub> = 25°C | t <sub>PHL</sub><br>t <sub>PLH</sub>                     | 3003 (Fig. 5)      | 96 & 97    | OUT              | OUT |            |                                                           |   | OUT |   | GND |   |    |    | GND | GND   | GND   | IN    | 5.0 V           | A to 0            | 5      | 56  | ns   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|                            |                                                          |                    | 98 & 99    |                  |     |            |                                                           |   |     |   |     |   |    |    |     |       |       |       |                 |                   |        |     |      | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT | OUT |

See notes at end of device types 04 and 05.

TABLE III. Group A inspection for device type 04 and 05.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                     | Symbol                                                                                     | MIL-STD-883 method | Cases E, F | 1   | 2         | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15    | 16              | Measured terminal | Limits |        | Unit |  |  |  |  |        |        |        |        |  |  |  |
|------------------------------|--------------------------------------------------------------------------------------------|--------------------|------------|-----|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-----------------|-------------------|--------|--------|------|--|--|--|--|--------|--------|--------|--------|--|--|--|
|                              |                                                                                            |                    | Test no.   | 0   | 1         | 2   | 3   | 4   | 5   | 6   | GND | 7   | 8   | 9   | D   | C   | B   | A     | V <sub>CC</sub> |                   | Min    | Max    |      |  |  |  |  |        |        |        |        |  |  |  |
| 10<br>T <sub>c</sub> = 125°C | t <sub>PHL</sub><br>t <sub>PLH</sub>                                                       | 3003 (Fig. 5)      | 140 & 141  | OUT | OUT       | OUT | OUT | OUT | OUT | OUT | GND | 7   | 8   | 9   | GND | GND | GND | IN    | 5.0 V           | A to 0            | 5      | 73     | ns   |  |  |  |  |        |        |        |        |  |  |  |
|                              |                                                                                            | 142 & 143          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  | A to 1 |        |        |        |  |  |  |
|                              |                                                                                            | 144 & 145          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        | A to 5 |        |        |  |  |  |
|                              |                                                                                            | 146 & 147          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        | A to 8 |        |        |  |  |  |
|                              |                                                                                            | 148 & 149          |            | OUT |           |     |     |     |     |     |     |     |     | OUT |     |     |     |       |                 |                   | B to 1 |        |      |  |  |  |  |        |        |        |        |  |  |  |
|                              |                                                                                            | 150 & 151          |            |     | OUT       | OUT | OUT | OUT | OUT | OUT | OUT | GND | 7   | 8   | 9   |     | GND | IN    | 5.0 V           |                   | B to 2 |        |      |  |  |  |  |        |        |        |        |  |  |  |
|                              |                                                                                            | 152 & 153          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        | B to 6 |        |  |  |  |
|                              |                                                                                            | 154 & 155          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        |        | C to 2 |  |  |  |
|                              |                                                                                            | 156 & 157          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        |        | C to 3 |  |  |  |
|                              |                                                                                            | 158 & 159          |            |     |           | OUT | OUT | OUT | OUT | OUT | OUT | GND | 7   | 8   | 9   |     |     | GND   | GND             |                   | C to 4 |        |      |  |  |  |  |        |        |        |        |  |  |  |
|                              |                                                                                            | 160 & 161          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        | C to 5 |        |  |  |  |
|                              |                                                                                            | 162 & 163          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        |        | C to 6 |  |  |  |
|                              |                                                                                            | 164 & 165          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        |        | C to 7 |  |  |  |
|                              |                                                                                            | 166 & 167          |            |     |           |     | OUT | OUT | OUT | OUT | OUT | GND | 7   | 8   | 9   |     |     | 5.0 V | 5.0 V           |                   | C to 8 |        |      |  |  |  |  |        |        |        |        |  |  |  |
|                              |                                                                                            | 168 & 169          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        | C to 9 |        |  |  |  |
|                              |                                                                                            | 170 & 171          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        | D to 3 |        |  |  |  |
|                              |                                                                                            | 172 & 173          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        |        | D to 4 |  |  |  |
|                              |                                                                                            | 174 & 175          |            |     |           |     |     | OUT | OUT | OUT | OUT | OUT | GND | 7   | 8   | 9   |     |       | GND             | GND               |        | D to 5 |      |  |  |  |  |        |        |        |        |  |  |  |
|                              |                                                                                            | 176 & 177          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        |        | D to 6 |  |  |  |
|                              |                                                                                            | 178 & 179          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        |        | D to 7 |  |  |  |
|                              |                                                                                            | 180 & 181          |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        |        | D to 8 |  |  |  |
|                              |                                                                                            |                    |            |     | 182 & 183 |     |     |     |     |     |     |     |     |     | OUT |     |     | GND   | GND             | 5.0 V             |        | D to 9 |      |  |  |  |  |        |        |        |        |  |  |  |
| 11                           | Same tests, terminal conditions, and limits as subgroup 10, except T <sub>c</sub> = -55°C. |                    |            |     |           |     |     |     |     |     |     |     |     |     |     |     |     |       |                 |                   |        |        |      |  |  |  |  |        |        |        |        |  |  |  |

1/ Y = 30 volts for device type 04 and 15 volts for device type 05.

2/ Output voltages shall be either:

- (a) H = 2.4 V minimum and L = 0.4 V maximum when using a high speed checker double comparator, or
- (b) H  $\geq 1.5$  V and L  $\leq 1.5$  V when using a high speed checker single comparator.

TABLE III. Group A inspection for device type 06 and 07.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                   | Symbol                                                                                                                            | MIL-STD-883 method | Cases E, F<br>Test no. | 1      | 2      | 3     | 4      | 5      | 6      | 7      | 8      | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16              | Measured terminal | Limits |      | Unit |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------|--------|--------|-------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-----------------|-------------------|--------|------|------|
|                            |                                                                                                                                   |                    |                        | IN B   | IN C   | LT    | RBO    | RBI    | IN D   | IN A   | GND    | OUT E | OUT D | OUT C | OUT B | OUT A | OUT G | OUT F | V <sub>CC</sub> |                   | Min    | Max  |      |
| 1<br>T <sub>C</sub> = 25°C | V <sub>OL1</sub><br>1/                                                                                                            | 3007               | 1                      | X      |        | 0.8 V |        | X      |        |        | GND    | 40 mA |       |       |       |       |       |       | 4.5 V           | OUT E             |        | 0.4  | V    |
|                            |                                                                                                                                   | "                  | 2                      | "      | "      | "     |        | "      | "      | "      | "      |       | 40 mA |       |       |       |       |       | "               | OUT D             |        | "    | "    |
|                            |                                                                                                                                   | "                  | 3                      | "      | "      | "     |        | "      | "      | "      | "      |       |       | 40 mA |       |       |       |       | "               | OUT C             |        | "    | "    |
|                            |                                                                                                                                   | "                  | 4                      | " X    | "      | "     |        | " X    | " X    | "      | "      |       |       |       | 40 mA |       |       |       | "               | OUT B             |        | "    | "    |
|                            |                                                                                                                                   | "                  | 5                      | "      | "      | "     |        | "      | "      | "      | "      |       |       |       |       | 40 mA |       |       | "               | OUT A             |        | "    | "    |
|                            |                                                                                                                                   | "                  | 6                      | "      | "      | "     |        | "      | "      | "      | "      |       |       |       |       |       | 40 mA |       | "               | OUT G             |        | "    | "    |
|                            |                                                                                                                                   | "                  | 7                      | "      | "      | "     |        | "      | "      | "      | "      |       |       |       |       |       |       | 40 mA | "               | OUT F             |        | "    | "    |
|                            | OL2                                                                                                                               | "                  | 8                      | 0.8 V  | 0.8 V  | 2.0 V | 8 mA   | 0.8 V  | 0.8 V  | 0.8 V  | "      |       |       |       |       |       |       |       | "               | RBO               |        | 0.4  | "    |
|                            | CEX<br>J                                                                                                                          |                    | 9                      | "      | "      | "     |        | "      | "      | "      | "      | Y     |       | Y     |       |       |       |       | "               | OUT E             |        | 250  | μA   |
|                            |                                                                                                                                   |                    | 10                     | "      | "      | "     |        | "      | "      | "      | "      |       | Y     |       |       |       |       |       | "               | OUT D             |        | "    | "    |
|                            |                                                                                                                                   |                    | 11                     | "      | "      | "     |        | "      | "      | "      | "      |       |       | Y     |       |       |       |       | "               | OUT C             |        | "    | "    |
|                            |                                                                                                                                   |                    | 12                     | "      | "      | "     |        | "      | "      | "      | "      |       |       |       | Y     |       |       |       | "               | OUT B             |        | "    | "    |
|                            |                                                                                                                                   |                    | 13                     | "      | "      | "     |        | "      | "      | "      | "      |       |       |       |       | Y     |       |       | "               | OUT A             |        | "    | "    |
|                            |                                                                                                                                   |                    | 14                     | "      | "      | "     |        | "      | "      | "      | "      |       |       |       |       |       | Y     |       | "               | OUT G             |        | "    | "    |
|                            |                                                                                                                                   |                    | 15                     | "      | "      | "     |        | "      | "      | "      | "      |       |       |       |       |       |       | Y     | "               | OUT F             |        | "    | "    |
|                            | OH                                                                                                                                | 3006               | 16                     | 0.8 V  | 0.8 V  | 2.0 V | -2 mA  | 2.0 V  | 0.8 V  | 0.8 V  | "      |       |       |       |       |       |       |       | "               | RBO               | 2.4    |      | V    |
|                            | I <sub>C</sub>                                                                                                                    |                    | 17                     | -12 mA | -12 mA |       | "      |        |        |        | "      |       |       |       |       |       |       |       | "               | IN B              |        | -1.5 | "    |
|                            |                                                                                                                                   |                    | 18                     |        |        |       | -12 mA |        |        |        | "      |       |       |       |       |       |       |       | "               | IN C              |        | "    | "    |
|                            |                                                                                                                                   |                    | 19                     |        |        |       |        | -12 mA |        |        | "      |       |       |       |       |       |       |       | "               | RBO               |        | "    | "    |
|                            |                                                                                                                                   |                    | 20                     |        |        |       |        |        | -12 mA |        | "      |       |       |       |       |       |       |       | "               | RBI               |        | "    | "    |
|                            |                                                                                                                                   |                    | 21                     |        |        |       |        |        |        | -12 mA | "      |       |       |       |       |       |       |       | "               | IN D              |        | "    | "    |
|                            |                                                                                                                                   |                    | 22                     |        |        |       |        |        |        |        | -12 mA | "     |       |       |       |       |       |       | "               | IN A              |        | "    | "    |
|                            |                                                                                                                                   |                    |                        |        |        |       |        |        |        |        |        |       |       |       |       |       |       |       | "               |                   |        |      |      |
|                            | IL1                                                                                                                               | 3009               | 23 4/                  | 0.4 V  | 5.5 V  | 5.5 V |        | 5.5 V  | 5.5 V  | 5.5 V  | "      |       |       |       |       |       |       |       | 5.5 V           | IN B              | -0.7   | -1.6 | mA   |
|                            |                                                                                                                                   | "                  | 23 CKT C               | 0.4 V  | 5.5 V  | 5.5 V |        | "      | "      | "      | "      |       |       |       |       |       |       |       | "               | IN B              | -0.4   | -1.3 | "    |
|                            |                                                                                                                                   | "                  | 24 4/                  | 5.5 V  | 0.4 V  | 5.5 V |        | "      | "      | "      | "      |       |       |       |       |       |       |       | "               | IN C              | -0.7   | -1.6 | "    |
|                            |                                                                                                                                   | "                  | 24 CKT C               | 5.5 V  | 0.4 V  | 5.5 V |        | "      | "      | "      | "      |       |       |       |       |       |       |       | "               | IN C              | -0.4   | -1.3 | "    |
|                            |                                                                                                                                   | "                  | 25 4/                  | "      | 5.5 V  | 0.4 V |        | "      | "      | "      | "      |       |       |       |       |       |       |       | "               | LT                | -0.7   | -1.6 | "    |
|                            |                                                                                                                                   | "                  | 25 CKT C               | "      | 5.5 V  | 0.4 V |        | "      | "      | "      | "      |       |       |       |       |       |       |       | "               | LT                | -0.4   | -1.3 | "    |
|                            |                                                                                                                                   | "                  | 26 4/                  | "      | "      | 5.5 V |        | 0.4 V  | "      | "      | "      |       |       |       |       |       |       |       | "               | RBI               | -0.7   | -1.6 | "    |
|                            |                                                                                                                                   | "                  | 26 CKT C               | "      | "      | 5.5 V |        | 0.4 V  | "      | "      | "      |       |       |       |       |       |       |       | "               | RBI               | -0.4   | -1.3 | "    |
|                            |                                                                                                                                   | "                  | 27 4/                  | "      | "      | "     |        | 5.5 V  | 0.4 V  | "      | "      |       |       |       |       |       |       |       | "               | IN D              | -0.7   | -1.6 | "    |
|                            |                                                                                                                                   | "                  | 27 CKT C               | "      | "      | "     |        | "      | 0.4 V  | "      | "      |       |       |       |       |       |       |       | "               | IN D              | -0.4   | -1.3 | "    |
|                            |                                                                                                                                   | "                  | 28 4/                  | "      | "      | "     |        | "      | 5.5 V  | 0.4 V  | "      |       |       |       |       |       |       |       | "               | IN A              | -0.7   | -1.6 | "    |
|                            |                                                                                                                                   | "                  | 28 CKT C               | "      | "      | "     |        | "      | 5.5 V  | 0.4 V  | "      |       |       |       |       |       |       |       | "               | IN A              | -0.4   | -1.3 | "    |
|                            | IL2                                                                                                                               | 3009               | 29                     | "      | "      | "     | 0.4 V  | 5.5 V  | 5.5 V  | 5.5 V  | "      |       |       |       |       |       |       |       | 5.5 V           | RBO               | -1.7   | -4.2 | mA   |
|                            | IH1                                                                                                                               | 3010               | 30                     | 2.4 V  | GND    | GND   |        | GND    | GND    | GND    | "      |       |       |       |       |       |       |       | "               | IN B              |        | 40   | μA   |
|                            |                                                                                                                                   | "                  | 31                     | GND    | 2.4 V  | GND   |        | GND    | "      | "      | "      |       |       |       |       |       |       |       | "               | IN C              |        | "    | "    |
|                            |                                                                                                                                   | "                  | 32                     | "      | GND    | 2.4 V |        | GND    | "      | "      | "      |       |       |       |       |       |       |       | "               | LT                |        | "    | "    |
|                            |                                                                                                                                   | "                  | 33                     | "      | "      | GND   |        | GND    | "      | "      | "      |       |       |       |       |       |       |       | "               | RBI               |        | "    | "    |
|                            |                                                                                                                                   | "                  | 34                     | "      | "      | GND   |        | GND    | 2.4 V  | "      | "      |       |       |       |       |       |       |       | "               | IN D              |        | "    | "    |
|                            | IH2                                                                                                                               | 3010               | 36                     | 5.5 V  | GND    | GND   |        | GND    | GND    | GND    | "      |       |       |       |       |       |       |       | "               | IN B              |        | 100  | μA   |
|                            |                                                                                                                                   | "                  | 37                     | GND    | 5.5 V  | GND   |        | GND    | "      | "      | "      |       |       |       |       |       |       |       | "               | IN C              |        | "    | "    |
|                            |                                                                                                                                   | "                  | 38                     | "      | GND    | 5.5 V |        | GND    | "      | "      | "      |       |       |       |       |       |       |       | "               | LT                |        | "    | "    |
|                            |                                                                                                                                   | "                  | 39                     | "      | "      | GND   |        | 5.5 V  | "      | "      | "      |       |       |       |       |       |       |       | "               | RBI               |        | "    | "    |
|                            |                                                                                                                                   | "                  | 40                     | "      | "      | "     |        | GND    | 5.5 V  | "      | "      |       |       |       |       |       |       |       | "               | IN D              |        | "    | "    |
|                            | OS                                                                                                                                | 3011               | 42                     | "      | "      | "     | GND    | GND    | GND    | 5.5 V  | "      |       |       |       |       |       |       |       | "               | IN A              |        |      | "    |
|                            | CC                                                                                                                                | 3005               | 43                     | 5.5 V  | 5.5 V  | 5.5 V | 5.5 V  | 5.5 V  | 5.5 V  | 5.5 V  | "      |       |       |       |       |       |       |       | "               | RBO               |        | -4   | mA   |
|                            |                                                                                                                                   |                    |                        |        |        |       |        |        |        |        |        |       |       |       |       |       |       |       | V <sub>CC</sub> |                   | 85     | mA   |      |
| 2                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = +125°C and V <sub>I,C</sub> tests are omitted. |                    |                        |        |        |       |        |        |        |        |        |       |       |       |       |       |       |       |                 |                   |        |      |      |
| 3                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = -55°C and V <sub>I,C</sub> tests are omitted.  |                    |                        |        |        |       |        |        |        |        |        |       |       |       |       |       |       |       |                 |                   |        |      |      |

See footnotes at end of device types 06 and 07.

TABLE III. Group A inspection for device type 06 and 07.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                   | Symbol                               | MIL-STD-883 method | Cases E, F | 1                | 2     | 3       | 4                                                        | 5     | 6     | 7     | 8   | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16              | Measured terminal | Limits |     | Unit |  |  |  |  |  |
|----------------------------|--------------------------------------|--------------------|------------|------------------|-------|---------|----------------------------------------------------------|-------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-----------------|-------------------|--------|-----|------|--|--|--|--|--|
|                            |                                      |                    | Test no.   | IN B             | IN C  | LT      | RBO                                                      | RBI   | IN D  | IN A  | GND | OUT E | OUT D | OUT C | OUT B | OUT A | OUT G | OUT F | V <sub>CC</sub> |                   | Min    | Max |      |  |  |  |  |  |
| 7<br>T <sub>C</sub> = 25°C | Truth table test                     |                    | 44         | GND              | GND   | 5.0 V   |                                                          | 5.0 V | GND   | GND   | GND | L     | L     | L     | L     | L     | H     | L     | 5.0 V           | 3/                |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 45         | GND              | "     | "       |                                                          | X     | "     | 5.0 V | "   | H     | H     | L     | "     | H     | H     | H     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 46         | 5.0 V            | "     | "       |                                                          | "     | "     | GND   | "   | L     | L     | H     | "     | L     | L     | H     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 47         | 5.0 V            | "     | "       |                                                          | "     | "     | 5.0 V | "   | H     | L     | L     | "     | L     | "     | H     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 48         | GND              | 5.0 V | "       |                                                          | "     | "     | GND   | "   | H     | H     | "     | "     | H     | "     | L     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 49         | GND              | "     | "       |                                                          | "     | "     | 5.0 V | "   | H     | L     | "     | H     | L     | "     | L     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 50         | 5.0 V            | "     | "       |                                                          | "     | "     | GND   | "   | L     | L     | "     | H     | H     | "     | L     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 51         | 5.0 V            | "     | "       |                                                          | "     | "     | 5.0 V | "   | H     | H     | "     | L     | L     | H     | H     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 52         | GND              | GND   | "       |                                                          | "     | 5.0 V | GND   | "   | L     | L     | "     | L     | L     | L     | L     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 53         | GND              | "     | "       |                                                          | "     | "     | 5.0 V | "   | H     | H     | "     | L     | L     | L     | L     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 54         | 5.0 V            | "     | "       |                                                          | "     | "     | GND   | "   | L     | L     | H     | H     | H     | "     | H     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 55         | 5.0 V            | "     | "       |                                                          | "     | "     | 5.0 V | "   | H     | L     | L     | H     | H     | "     | H     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 56         | GND              | 5.0 V | "       |                                                          | "     | "     | GND   | "   | H     | H     | H     | H     | H     | "     | L     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 57         | GND              | "     | "       |                                                          | "     | "     | 5.0 V | "   | H     | L     | "     | L     | L     | "     | L     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 58         | 5.0 V            | "     | "       |                                                          | "     | "     | GND   | "   | L     | L     | "     | "     | H     | "     | L     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 59         | 5.0 V            | "     | "       |                                                          | "     | "     | 5.0 V | "   | H     | H     | "     | "     | "     | H     | H     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 60         | X                | X     | X       | GND<br>L                                                 | X     | X     | X     | "   | H     | H     | "     | "     | "     | "     | H     | H               |                   |        |     | "    |  |  |  |  |  |
|                            |                                      |                    | 61         | GND              | GND   | 5.0 V   |                                                          | GND   | GND   | GND   | "   | H     | H     | "     | "     | "     | H     | H     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 62         | X                | X     | GND     |                                                          | X     | X     | X     | "   | L     | L     | L     | L     | L     | L     | L     | "               |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    | 8          | Truth table test |       | 63 - 81 | Same tests as subgroup 7, except T <sub>C</sub> = 125°C. |       |       |       |     |       |       |       |       |       |       |       |                 |                   |        |     |      |  |  |  |  |  |
|                            |                                      |                    |            |                  |       | 82 -100 | Same tests as subgroup 7, except T <sub>C</sub> = -55°C. |       |       |       |     |       |       |       |       |       |       |       |                 |                   |        |     |      |  |  |  |  |  |
| 9<br>T <sub>C</sub> = 25°C | t <sub>PHL</sub><br>t <sub>PLH</sub> | 3003 (Fig. 6)      | 101 & 102  | GND              | GND   | 5.0 V   |                                                          | 5.0 V | GND   | IN    | GND |       |       |       |       |       |       |       | 5.0 V           | IN A to A         | 8      | 104 | ns   |  |  |  |  |  |
|                            |                                      |                    | 103 & 104  | GND              | 5.0 V | "       |                                                          | "     | 5.0 V | "     | "   | "     |       |       |       |       |       |       | "               | IN A to A         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 105 & 106  | 5.0 V            | "     | "       |                                                          | "     | GND   | "     | "   | "     |       |       |       |       |       |       | "               | IN A to A         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 107 & 108  | GND              | "     | "       |                                                          | "     | "     | "     | "   | "     |       |       |       |       |       |       | "               | IN A to B         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 109 & 110  | 5.0 V            | "     | "       |                                                          | "     | "     | "     | "   | "     |       |       |       |       |       |       | "               | IN A to B         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 111 & 112  | 5.0 V            | GND   | "       |                                                          | "     | "     | "     | "   | "     |       |       |       |       |       |       | "               | IN A to C         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 113 & 114  | GND              | GND   | "       |                                                          | "     | "     | "     | "   | "     |       |       |       |       |       |       | "               | IN A to D         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 115 & 116  | GND              | 5.0 V | "       |                                                          | "     | "     | "     | "   | "     |       |       |       |       |       |       | "               | IN A to D         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 117 & 118  | 5.0 V            | 5.0 V | "       |                                                          | "     | "     | "     | "   | "     |       |       |       |       |       |       | "               | IN A to D         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 119 & 120  | GND              | GND   | "       |                                                          | "     | "     | "     | "   | "     | OUT   |       |       |       |       |       | "               | IN A to E         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 121 & 122  | 5.0 V            | GND   | "       |                                                          | "     | "     | "     | "   | "     | OUT   |       |       |       |       |       | "               | IN A to E         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 123 & 124  | GND              | GND   | "       |                                                          | "     | "     | "     | "   | "     |       |       |       |       |       |       | "               | IN A to F         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 125 & 126  | 5.0 V            | 5.0 V | "       |                                                          | "     | 5.0 V | "     | "   | "     |       |       |       |       |       |       | "               | IN A to F         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 127 & 128  | 5.0 V            | 5.0 V | "       |                                                          | "     | 5.0 V | "     | "   | "     |       |       |       |       |       |       | "               | IN A to G         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 129 & 130  | GND              | GND   | "       | OUT                                                      | GND   | GND   | "     | "   | "     |       |       |       |       | OUT   |       | "               | IN A to RBO       | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 131 & 132  | IN               | GND   | "       |                                                          | 5.0 V | 5.0 V | GND   | "   |       |       |       |       |       |       |       | "               | IN B to A         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 133 & 134  | "                | GND   | "       |                                                          | "     | GND   | 5.0 V | "   |       |       |       |       |       | OUT   |       | "               | IN B to A         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 135 & 136  | "                | 5.0 V | "       |                                                          | "     | GND   | GND   | "   |       |       |       |       |       |       |       | "               | IN B to B         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 137 & 138  | "                | GND   | "       |                                                          | "     | 5.0 V | GND   | "   |       |       |       |       |       |       |       | "               | IN B to B         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 139 & 140  | "                | 5.0 V | "       |                                                          | "     | GND   | 5.0 V | "   |       |       |       |       |       |       |       | "               | IN B to B         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 141 & 142  | "                | GND   | "       |                                                          | "     | 5.0 V | 5.0 V | "   |       |       |       |       |       |       |       | "               | IN B to B         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 143 & 144  | "                | GND   | "       |                                                          | "     | GND   | GND   | "   |       |       |       |       |       |       |       | "               | IN B to C         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 145 & 146  | "                | GND   | "       |                                                          | "     | "     | 5.0 V | "   |       |       |       |       |       |       |       | "               | IN B to D         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 147 & 148  | "                | 5.0 V | "       |                                                          | "     | "     | GND   | "   |       |       |       |       |       |       |       | "               | IN B to D         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 149 & 150  | "                | 5.0 V | "       |                                                          | "     | "     | GND   | "   | OUT   |       |       |       |       |       |       | "               | IN B to E         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 151 & 152  | "                | 5.0 V | "       |                                                          | "     | "     | 5.0 V | "   |       |       |       |       |       |       |       | "               | IN B to F         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 153 & 154  | "                | GND   | "       |                                                          | "     | "     | GND   | "   |       |       |       |       |       |       |       | "               | IN B to F         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 155 & 156  | "                | GND   | "       |                                                          | "     | 5.0 V | "     | "   |       |       |       |       |       |       |       | "               | IN B to F         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 157 & 158  | "                | GND   | "       |                                                          | "     | GND   | "     | "   |       |       |       |       |       | OUT   |       | "               | IN B to G         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 159 & 160  | GND              | IN    | "       |                                                          | "     | 5.0 V | "     | "   |       |       |       |       |       |       |       | "               | IN C to A         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 161 & 162  | 5.0 V            | "     | "       |                                                          | "     | GND   | "     | "   |       |       |       |       |       |       |       | "               | IN C to C         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 163 & 164  | GND              | "     | "       |                                                          | "     | 5.0 V | 5.0 V | "   |       |       |       |       |       |       |       | "               | IN C to C         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 165 & 166  | GND              | "     | "       |                                                          | "     | GND   | GND   | "   |       |       |       |       |       |       |       | "               | IN C to D         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 167 & 168  | GND              | "     | "       |                                                          | "     | GND   | GND   | "   | OUT   |       |       |       |       |       |       | "               | IN C to E         | "      | "   | "    |  |  |  |  |  |
|                            |                                      |                    | 169 & 170  | 5.0 V            | "     | "       |                                                          | "     | 5.0 V | GND   | "   |       |       |       |       |       | OUT   |       | "               | IN C to F         | "      | "   | "    |  |  |  |  |  |

See footnotes at end of device types 06 and 07.

TABLE III. Group A inspection for device type 06 and 07.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                     | Symbol                                                                                    | MIL-STD-883 method | Cases E, F | 1     | 2     | 3     | 4   | 5     | 6     | 7     | 8   | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16              | Measured terminal | Limits |     | Unit |
|------------------------------|-------------------------------------------------------------------------------------------|--------------------|------------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-----------------|-------------------|--------|-----|------|
|                              |                                                                                           |                    | Test no.   | IN B  | IN C  | LT    | RBO | RBI   | IN D  | IN A  | GND | OUT E | OUT D | OUT C | OUT B | OUT A | OUT G | OUT F | V <sub>CC</sub> |                   | Min    | Max |      |
| 9<br>T <sub>C</sub> = 25°C   | t <sub>PHL</sub><br>t <sub>PLH</sub>                                                      | 3003 (Fig. 6)      | 171 & 172  | GND   | IN    | 5.0 V |     | 5.0 V | GND   | 5.0 V | GND |       |       |       |       |       |       | OUT   | 5.0 V           | IN C to F         | 8      | 104 | ns   |
|                              |                                                                                           |                    | 173 & 174  | 5.0 V | 5.0 V | "     |     | "     | IN    | 5.0 V | "   |       |       |       |       |       |       |       | "               | IN D to A         | "      | "   | "    |
|                              |                                                                                           |                    | 175 & 176  | GND   | 5.0 V | "     |     | "     | IN    | GND   | "   |       |       | OUT   |       |       |       |       | "               | IN D to C         | "      | "   | "    |
|                              |                                                                                           |                    | 177 & 178  | GND   | "     | "     |     | "     | IN    | "     | "   |       |       |       |       |       |       |       | "               | IN D to G         | "      | "   | "    |
|                              |                                                                                           |                    | 179 & 180  | "     | "     | IN    |     | GND   | GND   | "     | "   |       |       |       |       |       |       |       | "               | LT to A           | "      | "   | "    |
|                              |                                                                                           |                    | 181 & 182  | "     | "     | IN    | OUT | GND   | "     | "     | "   |       |       |       |       |       |       |       | "               | LT to RBO         | "      | "   | "    |
|                              |                                                                                           |                    | 183 & 184  | "     | "     | 5.0 V | IN  | 5.0 V | "     | "     | "   |       |       |       |       |       |       |       | "               | RBO to A          | "      | "   | "    |
|                              |                                                                                           |                    | 185 & 186  | "     | "     | "     | IN  | IN    | "     | "     | "   |       |       |       |       |       |       |       | "               | RBI to A          | "      | "   | "    |
|                              |                                                                                           |                    | 187 & 188  | "     | "     | "     | OUT | IN    | "     | "     | "   |       |       |       |       |       |       |       | "               | RBI to RBO        | "      | "   | "    |
| 10<br>T <sub>C</sub> = 125°C | t <sub>PHL</sub><br>t <sub>PLH</sub>                                                      | 3003 (Fig. 6)      | 189 & 190  | "     | "     | "     |     | 5.0 V | "     | IN    | "   |       |       |       |       |       |       |       | "               | IN A to A         | 8      | 144 | "    |
|                              |                                                                                           |                    | 191 & 192  | "     | 5.0 V | "     |     | "     | 5.0 V | "     | "   |       |       |       |       |       |       |       | "               | IN A to A         | "      | "   | "    |
|                              |                                                                                           |                    | 193 & 194  | 5.0 V | "     | "     |     | "     | GND   | "     | "   |       |       |       |       |       |       |       | "               | IN A to A         | "      | "   | "    |
|                              |                                                                                           |                    | 195 & 196  | GND   | "     | "     |     | "     | "     | "     | "   |       |       |       |       |       |       |       | "               | IN A to B         | "      | "   | "    |
|                              |                                                                                           |                    | 197 & 198  | 5.0 V | "     | "     |     | "     | "     | "     | "   |       |       |       |       |       |       |       | "               | IN A to B         | "      | "   | "    |
|                              |                                                                                           |                    | 199 & 200  | 5.0 V | GND   | "     |     | "     | "     | "     | "   |       |       |       |       |       |       |       | "               | IN A to C         | "      | "   | "    |
|                              |                                                                                           |                    | 201 & 202  | GND   | GND   | "     |     | "     | "     | "     | "   |       |       | OUT   |       | OUT   |       |       | "               | IN A to C         | "      | "   | "    |
|                              |                                                                                           |                    | 203 & 204  | GND   | 5.0 V | "     |     | "     | "     | "     | "   |       |       | OUT   |       |       |       |       | "               | IN A to D         | "      | "   | "    |
|                              |                                                                                           |                    | 205 & 206  | 5.0 V | 5.0 V | "     |     | "     | "     | "     | "   |       |       | OUT   |       |       |       |       | "               | IN A to D         | "      | "   | "    |
|                              |                                                                                           |                    | 207 & 208  | GND   | GND   | "     |     | "     | "     | "     | "   |       |       | OUT   |       |       |       |       | "               | IN A to E         | "      | "   | "    |
|                              |                                                                                           |                    | 209 & 210  | 5.0 V | GND   | "     |     | "     | "     | "     | "   |       |       | OUT   |       |       |       |       | "               | IN A to E         | "      | "   | "    |
|                              |                                                                                           |                    | 211 & 212  | GND   | GND   | "     |     | "     | "     | "     | "   |       |       |       |       |       |       |       | "               | IN A to F         | "      | "   | "    |
|                              |                                                                                           |                    | 213 & 214  | 5.0 V | 5.0 V | "     |     | "     | 5.0 V | "     | "   |       |       |       |       |       |       |       | "               | IN A to F         | "      | "   | "    |
|                              |                                                                                           |                    | 215 & 216  | 5.0 V | 5.0 V | "     |     | "     | 5.0 V | "     | "   |       |       |       |       |       | OUT   |       | "               | IN A to G         | "      | "   | "    |
|                              |                                                                                           |                    | 217 & 218  | GND   | GND   | "     | OUT | GND   | GND   | "     | "   |       |       |       |       |       |       |       | "               | IN A to RBO       | "      | "   | "    |
|                              |                                                                                           |                    | 219 & 220  | IN    | GND   | "     |     | 5.0 V | 5.0 V | GND   | "   |       |       |       |       |       |       |       | "               | IN B to A         | "      | "   | "    |
|                              |                                                                                           |                    | 221 & 222  | "     | GND   | "     |     | "     | GND   | 5.0 V | "   |       |       |       |       |       |       |       | "               | IN B to A         | "      | "   | "    |
|                              |                                                                                           |                    | 223 & 224  | "     | 5.0 V | "     |     | "     | GND   | GND   | "   |       |       |       |       |       |       |       | "               | IN B to B         | "      | "   | "    |
|                              |                                                                                           |                    | 225 & 226  | "     | GND   | "     |     | "     | 5.0 V | GND   | "   |       |       |       |       |       |       |       | "               | IN B to B         | "      | "   | "    |
|                              |                                                                                           |                    | 227 & 228  | "     | 5.0 V | "     |     | "     | GND   | 5.0 V | "   |       |       |       |       |       |       |       | "               | IN B to B         | "      | "   | "    |
|                              |                                                                                           |                    | 229 & 230  | "     | GND   | "     |     | "     | 5.0 V | 5.0 V | "   |       |       |       |       |       |       |       | "               | IN B to B         | "      | "   | "    |
|                              |                                                                                           |                    | 231 & 232  | "     | GND   | "     |     | "     | GND   | GND   | "   |       |       | OUT   |       |       |       |       | "               | IN B to C         | "      | "   | "    |
|                              |                                                                                           |                    | 233 & 234  | "     | GND   | "     |     | "     | "     | 5.0 V | "   |       |       | OUT   |       |       |       |       | "               | IN B to D         | "      | "   | "    |
|                              |                                                                                           |                    | 235 & 236  | "     | 5.0 V | "     |     | "     | "     | GND   | "   |       |       | OUT   |       |       |       |       | "               | IN B to D         | "      | "   | "    |
|                              |                                                                                           |                    | 237 & 238  | "     | 5.0 V | "     |     | "     | "     | GND   | "   |       |       | OUT   |       |       |       |       | "               | IN B to E         | "      | "   | "    |
|                              |                                                                                           |                    | 239 & 240  | "     | 5.0 V | "     |     | "     | "     | 5.0 V | "   |       |       |       |       |       |       |       | "               | IN B to F         | "      | "   | "    |
|                              |                                                                                           |                    | 241 & 242  | "     | GND   | "     |     | "     | "     | GND   | "   |       |       |       |       |       |       |       | "               | IN B to F         | "      | "   | "    |
|                              |                                                                                           |                    | 243 & 244  | "     | GND   | "     |     | "     | 5.0 V | "     | "   |       |       |       |       |       |       |       | "               | IN B to F         | "      | "   | "    |
|                              |                                                                                           |                    | 245 & 246  | "     | GND   | "     |     | "     | GND   | "     | "   |       |       |       |       |       |       |       | "               | IN B to G         | "      | "   | "    |
|                              |                                                                                           |                    | 247 & 248  | GND   | IN    | "     |     | "     | 5.0 V | "     | "   |       |       |       |       |       |       |       | "               | IN C to A         | "      | "   | "    |
|                              |                                                                                           |                    | 249 & 250  | 5.0 V | "     | "     |     | "     | GND   | "     | "   |       |       | OUT   |       |       |       |       | "               | IN C to C         | "      | "   | "    |
|                              |                                                                                           |                    | 251 & 252  | GND   | "     | "     |     | "     | 5.0 V | GND   | "   |       |       | OUT   |       |       |       |       | "               | IN C to C         | "      | "   | "    |
|                              |                                                                                           |                    | 253 & 254  | GND   | "     | "     |     | "     | GND   | GND   | "   |       |       |       |       |       |       |       | "               | IN C to D         | "      | "   | "    |
|                              |                                                                                           |                    | 255 & 256  | GND   | "     | "     |     | "     | GND   | GND   | "   |       |       | OUT   |       |       |       |       | "               | IN C to E         | "      | "   | "    |
|                              |                                                                                           |                    | 257 & 258  | 5.0 V | "     | "     |     | "     | 5.0 V | GND   | "   |       |       |       |       |       |       |       | "               | IN C to F         | "      | "   | "    |
|                              |                                                                                           |                    | 259 & 260  | GND   | 5.0 V | "     |     | "     | GND   | 5.0 V | "   |       |       |       |       |       |       |       | "               | IN C to F         | "      | "   | "    |
|                              |                                                                                           |                    | 261 & 262  | 5.0 V | 5.0 V | "     |     | "     | IN    | 5.0 V | "   |       |       |       |       | OUT   |       |       | "               | IN D to A         | "      | "   | "    |
|                              |                                                                                           |                    | 263 & 264  | GND   | 5.0 V | "     |     | "     | IN    | GND   | "   |       |       |       |       |       |       |       | "               | IN D to C         | "      | "   | "    |
|                              |                                                                                           |                    | 265 & 266  | "     | GND   | "     |     | "     | IN    | "     | "   |       |       |       |       |       |       |       | "               | IN D to G         | "      | "   | "    |
|                              |                                                                                           |                    | 267 & 268  | "     | "     | IN    |     | IN    | GND   | "     | "   |       |       |       |       |       |       |       | "               | LT to A           | "      | "   | "    |
|                              |                                                                                           |                    | 269 & 270  | "     | "     | "     | OUT | "     | GND   | "     | "   |       |       |       |       |       |       |       | "               | LT to RBO         | "      | "   | "    |
|                              |                                                                                           |                    | 271 & 272  | "     | "     | 5.0 V | IN  | 5.0 V | "     | "     | "   |       |       |       |       | OUT   |       |       | "               | RBO to A          | "      | "   | "    |
|                              |                                                                                           |                    | 273 & 274  | "     | "     | "     | OUT | IN    | "     | "     | "   |       |       |       |       | OUT   |       |       | "               | RBI to A          | "      | "   | "    |
|                              |                                                                                           |                    | 275 & 276  | "     | "     | "     |     | IN    | "     | "     | "   |       |       |       |       |       |       |       | "               | RBI to RBO        | "      | "   | "    |
| 11                           | Same tests, terminal conditions, and limits as subgroup 10 except T <sub>C</sub> = -55°C. |                    |            |       |       |       |     |       |       |       |     |       |       |       |       |       |       |       |                 |                   |        |     |      |

- 1/ X = Input may be high level or low level.  
2/ Y = 30 volts for device type 05 and 15 volts for device type 07.  
3/ Output voltages shall be either:  
(a) H = 2.4 volts minimum and L = 0.4 volts minimum when using high speed checker double comparator, or  
(b) H  $\geq 1.5$  volts and L  $\leq 1.5$  volts when using a high speed checker single comparator.  
4/ CKT except C.

TABLE III. Group A inspection for device type 08.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                   | Symbol                                                                                                                            | MIL-STD-883 method | Cases E, F<br>Test no. | 1      | 2      | 3     | 4      | 5      | 6      | 7     | 8   | 9       | 10      | 11      | 12      | 13      | 14      | 15      | 16              | Measured terminal | Limits |      | Unit |  |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------|--------|--------|-------|--------|--------|--------|-------|-----|---------|---------|---------|---------|---------|---------|---------|-----------------|-------------------|--------|------|------|--|
|                            |                                                                                                                                   |                    |                        | IN B   | IN C   | LT    | RBO    | RBI    | IN D   | IN A  | GND | OUT E   | OUT D   | OUT C   | OUT B   | OUT A   | OUT G   | OUT F   | V <sub>CC</sub> |                   | Min    | Max  |      |  |
| 1<br>T <sub>C</sub> = 25°C | V <sub>OH1</sub><br>1/                                                                                                            | 3006               | 1                      | X      | X      | 0.8 V |        | X      | X      | X     | GND | -0.4 mA | -0.4 mA | -0.4 mA | -0.4 mA | -0.4 mA | -0.4 mA | -0.4 mA | 4.5 V           | OUT E             | 2.4 V  |      | V    |  |
|                            |                                                                                                                                   |                    | 2                      | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT D             | "      |      | "    |  |
|                            |                                                                                                                                   |                    | 3                      | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT C             | "      |      | "    |  |
|                            |                                                                                                                                   |                    | 4                      | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT B             | "      |      | "    |  |
|                            |                                                                                                                                   |                    | 5                      | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT A             | "      |      | "    |  |
|                            |                                                                                                                                   |                    | 6                      | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT G             | "      |      | "    |  |
|                            |                                                                                                                                   |                    | 7                      | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         | -0.4 mA | "               | OUT F             | "      |      | "    |  |
|                            | QH2                                                                                                                               |                    | 8                      | 0.8 V  | 0.8 V  | 2.0 V | -2 mA  | 0.8 V  | 0.8 V  | 0.8 V | "   |         |         |         |         |         |         |         | "               | RBO               | "      |      | "    |  |
|                            | V<br>V                                                                                                                            | OL1                | 9                      | "      | "      | "     |        | "      | "      | "     | "   | 6.4 mA  | 6.4 mA  | 6.4 mA  | 6.4 mA  | 6.4 mA  | 6.4 mA  | 6.4 mA  | "               | OUT E             |        | 0.4  | "    |  |
|                            |                                                                                                                                   |                    | 10                     | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT D             |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 11                     | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT C             |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 12                     | "      | "      | "     |        | "      | "      | "     | "   |         |         |         | 6.4 mA  | 6.4 mA  | 6.4 mA  | 6.4 mA  | "               | OUT B             |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 13                     | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         | 6.4 mA  | 6.4 mA  | 6.4 mA  | "               | OUT A             |        | "    | "    |  |
|                            | V<br>V                                                                                                                            | OL2                | 14                     | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         | 6.4 mA  | 6.4 mA  | "               | OUT G             |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 15                     | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         | 6.4 mA  | "               | OUT F             |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 16                     | 0.8 V  | 0.8 V  | 2.0 V | 8 mA   | 0.8 V  | 0.8 V  | 0.8 V | "   |         |         |         |         |         |         |         | "               | RBO               |        | 0.4  | "    |  |
|                            |                                                                                                                                   | I<br>C             | 17                     | -12 mA | -12 mA |       | "      | -12 mA |        | "     | "   |         |         |         |         |         |         |         | "               | IN B              |        | -1.5 | "    |  |
|                            |                                                                                                                                   |                    | 18                     |        |        |       | "      |        |        | "     | "   |         |         |         |         |         |         |         | "               | IN C              |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 19                     |        |        |       | -12 mA |        |        | "     | "   |         |         |         |         |         |         |         | "               | RBO               |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 20                     |        |        |       |        | -12 mA |        | "     | "   |         |         |         |         |         |         |         | "               | RBI               |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 21                     |        |        |       |        |        | -12 mA |       | "   |         |         |         |         |         |         |         | "               | IN D              |        | "    | "    |  |
|                            | I                                                                                                                                 | IL1                | 22                     |        |        |       |        |        | -12 mA |       | "   |         |         |         |         |         |         |         | "               | IN A              |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 23 2/                  | 0.4 V  | 5.5 V  | 5.5 V |        | 5.5 V  | 5.5 V  | 5.5 V | "   |         |         |         |         |         |         |         | 5.5 V           | IN B              | -0.7   | -1.6 | mA   |  |
|                            |                                                                                                                                   |                    | 23 CKT B               | 0.4 V  | 5.5 V  | 5.5 V |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | IN B              | -0.4   | -1.3 | "    |  |
|                            |                                                                                                                                   |                    | 24 2/                  | 5.5 V  | 0.4 V  | 5.5 V |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | IN C              | -0.7   | -1.6 | "    |  |
|                            |                                                                                                                                   |                    | 24 CKT B               | "      | 0.4 V  | 5.5 V |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | IN C              | -0.4   | -1.3 | "    |  |
|                            |                                                                                                                                   |                    | 25 2/                  | "      | 5.5 V  | 0.4 V |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | LT                | -0.7   | -1.6 | "    |  |
|                            |                                                                                                                                   |                    | 25 CKT B               | "      | "      | 0.4 V |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | LT                | -0.4   | -1.3 | "    |  |
|                            |                                                                                                                                   |                    | 26 2/                  | "      | "      | 5.5 V |        | 0.4 V  | "      | "     | "   |         |         |         |         |         |         |         | "               | RBI               | -0.7   | -1.6 | "    |  |
|                            |                                                                                                                                   |                    | 26 CKT B               | "      | "      | "     |        | 0.4 V  | "      | "     | "   |         |         |         |         |         |         |         | "               | RBI               | -0.4   | -1.3 | "    |  |
|                            |                                                                                                                                   |                    | 27 2/                  | "      | "      | "     |        | 5.5 V  | 0.4 V  | "     | "   |         |         |         |         |         |         |         | "               | IN D              | -0.7   | -1.6 | V    |  |
|                            |                                                                                                                                   |                    | 27 CKT B               | "      | "      | "     |        | "      | 0.4 V  | "     | "   |         |         |         |         |         |         |         | "               | IN D              | -0.4   | -1.3 | "    |  |
|                            | I                                                                                                                                 | IL2                | 28 2/                  | "      | "      | "     |        | "      | 5.5 V  | 0.4 V | "   |         |         |         |         |         |         |         | "               | IN A              | -0.7   | -1.6 | "    |  |
|                            |                                                                                                                                   |                    | 28 CKT B               | "      | "      | "     |        | "      | 5.5 V  | 0.4 V | "   |         |         |         |         |         |         |         | "               | IN A              | -0.4   | -1.3 | "    |  |
|                            |                                                                                                                                   |                    | 29                     | "      | "      | "     | 0.4 V  | 5.5 V  | 5.5 V  | 5.5 V | "   |         |         |         |         |         |         |         | "               | RBO               | -1.7   | -4.2 | mA   |  |
|                            |                                                                                                                                   | IH1                | 30                     | 2.4 V  | GND    | GND   |        | GND    | GND    | GND   | "   |         |         |         |         |         |         |         | "               | IN B              |        | 40   | μA   |  |
|                            |                                                                                                                                   |                    | 31                     | GND    | 2.4 V  | GND   |        | GND    | GND    | "     | "   |         |         |         |         |         |         |         | "               | IN C              |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 32                     | "      | GND    | 2.4 V |        | GND    | GND    | "     | "   |         |         |         |         |         |         |         | "               | LT                |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 33                     | "      | "      | GND   |        | 2.4 V  | "      | "     | "   |         |         |         |         |         |         |         | "               | RBI               |        | "    | "    |  |
| 2                          | I                                                                                                                                 | IH2                | 34                     | "      | "      | GND   |        | GND    | 2.4 V  | "     | "   |         |         |         |         |         |         |         | "               | IN D              |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 35                     | "      | "      | GND   |        | GND    | GND    | 2.4 V | "   |         |         |         |         |         |         |         | "               | IN A              |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 36                     | 5.5 V  | GND    | GND   |        | GND    | GND    | GND   | "   |         |         |         |         |         |         |         | "               | IN B              |        | 100  | μA   |  |
|                            |                                                                                                                                   |                    | 37                     | GND    | 5.5 V  | GND   |        | GND    | "      | "     | "   |         |         |         |         |         |         |         | "               | IN C              |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 38                     | "      | GND    | 5.5 V |        | GND    | "      | "     | "   |         |         |         |         |         |         |         | "               | LT                |        | "    | "    |  |
|                            | I                                                                                                                                 | OS                 | 39                     | "      | "      | GND   |        | 5.5 V  | "      | "     | "   |         |         |         |         |         |         |         | "               | RBI               |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 40                     | "      | "      | "     |        | GND    | 5.5 V  | "     | "   |         |         |         |         |         |         |         | "               | IN D              |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 41                     | "      | "      | "     |        | GND    | GND    | 5.5 V | "   |         |         |         |         |         |         |         | "               | IN A              |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 42                     | X      | X      | GND   |        | X      | X      | X     | "   |         |         |         |         |         |         |         | "               | OUT A             |        | -4   | mA   |  |
|                            |                                                                                                                                   |                    | 43                     | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT B             |        | "    | "    |  |
|                            | I                                                                                                                                 | CC                 | 44                     | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT C             |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 45                     | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT D             |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 46                     | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT E             |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 47                     | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT F             |        | "    | "    |  |
|                            |                                                                                                                                   |                    | 48                     | "      | "      | "     |        | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | OUT G             |        | "    | "    |  |
|                            | I                                                                                                                                 | 3005               | 49                     | "      | "      | "     | GND    | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | RBO               |        | 76   | mA   |  |
|                            |                                                                                                                                   |                    | 50                     | "      | "      | "     | "      | "      | "      | "     | "   |         |         |         |         |         |         |         | "               | V <sub>CC</sub>   |        |      |      |  |
|                            |                                                                                                                                   |                    |                        |        |        |       |        |        |        |       |     |         |         |         |         |         |         |         |                 |                   |        |      |      |  |
|                            |                                                                                                                                   |                    |                        |        |        |       |        |        |        |       |     |         |         |         |         |         |         |         |                 |                   |        |      |      |  |
|                            |                                                                                                                                   |                    |                        |        |        |       |        |        |        |       |     |         |         |         |         |         |         |         |                 |                   |        |      |      |  |
| 2                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = +125°C and V <sub>I C</sub> tests are omitted. |                    |                        |        |        |       |        |        |        |       |     |         |         |         |         |         |         |         |                 |                   |        |      |      |  |
| 3                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = -55°C and V <sub>I C</sub> tests are omitted.  |                    |                        |        |        |       |        |        |        |       |     |         |         |         |         |         |         |         |                 |                   |        |      |      |  |

See footnotes at end of device types 08.

TABLE III. Group A inspection for device type 08.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                   | Symbol                               | MIL-STD-883 method | Cases E, F | 1                                                        | 2     | 3     | 4     | 5     | 6     | 7     | 8   | 9     | 10    | 11    | 12    | 13    | 14        | 15    | 16              | Measured terminal | Limits |     | Unit |
|----------------------------|--------------------------------------|--------------------|------------|----------------------------------------------------------|-------|-------|-------|-------|-------|-------|-----|-------|-------|-------|-------|-------|-----------|-------|-----------------|-------------------|--------|-----|------|
|                            |                                      |                    | Test no.   | IN B                                                     | IN C  | LT    | RBO   | RBI   | IN D  | IN A  | GND | OUT E | OUT D | OUT C | OUT B | OUT A | OUT G     | OUT F | V <sub>CC</sub> |                   | Min    | Max |      |
| 7<br>T <sub>C</sub> = 25°C | Truth table test                     |                    | 51         | GND                                                      | GND   | 5.0 V |       | 5.0 V | GND   | GND   | GND | H     | H     | H     | H     | H     | L         | H     | 5.0 V           | 3/                |        |     |      |
|                            |                                      |                    | 52         | GND                                                      | "     | "     |       | X     | "     | 5.0 V | "   | L     | L     | H     | "     | L     | L         | "     | "               |                   |        |     |      |
|                            |                                      |                    | 53         | 5.0 V                                                    | "     | "     |       | "     | "     | GND   | "   | H     | H     | L     | "     | H     | H         | "     | "               |                   |        |     |      |
|                            |                                      |                    | 54         | 5.0 V                                                    | "     | "     |       | "     | "     | 5.0 V | "   | L     | H     | H     | "     | H     | "         | "     | "               |                   |        |     |      |
|                            |                                      |                    | 55         | GND                                                      | 5.0 V | "     |       | "     | "     | GND   | "   | "     | L     | "     | "     | L     | "         | H     | "               |                   |        |     |      |
|                            |                                      |                    | 56         | GND                                                      | "     | "     |       | "     | "     | 5.0 V | "   | "     | H     | "     | L     | H     | "         | "     | "               |                   |        |     |      |
|                            |                                      |                    | 57         | 5.0 V                                                    | "     | "     |       | "     | "     | GND   | "   | H     | H     | "     | L     | L     | "         | "     | "               |                   |        |     |      |
|                            |                                      |                    | 58         | 5.0 V                                                    | "     | "     |       | "     | "     | 5.0 V | "   | L     | L     | "     | H     | H     | L         | L     | "               |                   |        |     |      |
|                            |                                      |                    | 59         | GND                                                      | GND   | "     |       | "     | 5.0 V | GND   | "   | H     | H     | "     | "     | "     | H         | H     | "               |                   |        |     |      |
|                            |                                      |                    | 60         | GND                                                      | "     | "     |       | "     | "     | 5.0 V | "   | L     | L     | "     | "     | "     | "         | H     | "               |                   |        |     |      |
|                            |                                      |                    | 61         | 5.0 V                                                    | "     | "     |       | "     | "     | GND   | "   | H     | H     | L     | L     | L     | "         | L     | "               |                   |        |     |      |
|                            |                                      |                    | 62         | 5.0 V                                                    | "     | "     |       | "     | "     | 5.0 V | "   | L     | H     | H     | L     | "     | "         | L     | "               |                   |        |     |      |
|                            |                                      |                    | 63         | GND                                                      | 5.0 V | "     |       | "     | "     | GND   | "   | "     | L     | L     | H     | "     | "         | H     | "               |                   |        |     |      |
|                            |                                      |                    | 64         | GND                                                      | "     | "     |       | "     | "     | 5.0 V | "   | "     | H     | "     | L     | H     | "         | "     | "               |                   |        |     |      |
|                            |                                      |                    | 65         | 5.0 V                                                    | "     | "     |       | "     | "     | GND   | "   | H     | H     | "     | "     | L     | "         | "     | "               |                   |        |     |      |
|                            |                                      |                    | 66         | 5.0 V                                                    | "     | "     |       | "     | "     | 5.0 V | "   | L     | L     | "     | "     | "     | L         | L     | "               |                   |        |     |      |
|                            |                                      |                    | 67         | X                                                        | X     | X     | GND L | X     | X     | X     | "   | "     | "     | "     | "     | "     | "         | "     | "               |                   |        |     | "    |
|                            |                                      |                    | 68         | GND                                                      | GND   | 5.0 V |       | GND   | GND   | GND   | "   | "     | "     | "     | "     | "     | "         | "     | "               |                   |        |     | "    |
|                            |                                      |                    | 69         | X                                                        | X     | GND   |       | X     | X     | X     | "   | H     | H     | H     | H     | H     | H         | H     | "               |                   |        |     | "    |
| 8                          | Truth table test                     |                    | 70 - 89    | Same tests as subgroup 7, except T <sub>C</sub> = 125°C. |       |       |       |       |       |       |     |       |       |       |       |       |           |       |                 |                   |        |     |      |
|                            |                                      |                    | 90 - 109   | Same tests as subgroup 7, except T <sub>C</sub> = -55°C. |       |       |       |       |       |       |     |       |       |       |       |       |           |       |                 |                   |        |     |      |
| 9<br>T <sub>C</sub> = 25°C | t <sub>PHL</sub><br>t <sub>PLH</sub> | 3003 (Fig. 7)      | 110 & 111  | GND                                                      | GND   | 5.0 V |       | 5.0 V | GND   | IN    | GND |       | OUT   |       |       | OUT   |           |       | 5.0 V           | IN A to A         | 8      | 104 | ns   |
|                            |                                      |                    | 112 & 113  | "                                                        | "     | "     |       | "     | "     | "     | "   | "     |       |       |       |       |           |       | "               | IN A to D         | "      | "   | "    |
|                            |                                      |                    | 114 & 115  | "                                                        | "     | "     |       | "     | "     | "     | "   | "     |       |       |       |       |           |       | "               | IN A to E         | "      | "   | "    |
|                            |                                      |                    | 116 & 117  | "                                                        | "     | "     |       | "     | "     | "     | "   | "     |       |       |       |       |           |       | "               | IN A to F         | "      | "   | "    |
|                            |                                      |                    | 118 & 119  | 5.0 V                                                    | 5.0 V | "     |       | "     | "     | "     | "   | "     |       |       |       |       |           |       | "               | IN A to A         | "      | "   | "    |
|                            |                                      |                    | 120 & 121  | GND                                                      | 5.0 V | "     |       | "     | "     | "     | "   | "     |       |       |       |       |           |       | "               | IN A to B         | "      | "   | "    |
|                            |                                      |                    | 122 & 123  | 5.0 V                                                    | 5.0 V | "     |       | "     | "     | "     | "   | "     |       |       | OUT   |       |           |       | "               | IN A to D         | "      | "   | "    |
|                            |                                      |                    | 124 & 125  | GND                                                      | GND   | "     | OUT   | GND   | "     | "     | "   | "     |       |       |       |       |           |       | "               | IN A to RBO       | "      | "   | "    |
|                            |                                      |                    | 126 & 127  | IN                                                       | "     | "     |       | 5.0 V | "     | GND   | "   |       |       | OUT   |       |       |           |       | "               | IN B to C         | "      | "   | "    |
|                            |                                      |                    | 128 & 129  | "                                                        | "     | "     |       | "     | "     | "     | "   | "     |       |       |       |       |           |       | "               | IN B to F         | "      | "   | "    |
|                            |                                      |                    | 130 & 131  | "                                                        | "     | "     |       | "     | "     | "     | "   | "     |       |       |       |       |           |       | "               | IN B to G         | "      | "   | "    |
|                            |                                      |                    | 132 & 133  | "                                                        | "     | "     |       | "     | 5.0 V | "     | "   | "     |       |       |       |       | OUT       |       | "               | IN B to A         | "      | "   | "    |
|                            |                                      |                    | 134 & 135  | "                                                        | 5.0 V | "     |       | "     | GND   | 5.0 V | "   | "     |       |       |       |       | OUT       |       | "               | IN B to F         | "      | "   | "    |
|                            |                                      |                    | 136 & 137  | "                                                        | 5.0 V | "     |       | "     | "     | 5.0 V | "   | "     |       |       |       |       | OUT       |       | "               | IN B to G         | "      | "   | "    |
|                            |                                      |                    | 138 & 139  | "                                                        | 5.0 V | "     |       | "     | "     | GND   | "   | "     |       | OUT   |       |       |           |       | "               | IN B to E         | "      | "   | "    |
|                            |                                      |                    | 140 & 141  | "                                                        | IN    | "     |       | "     | "     | "     | "   | "     |       |       | OUT   |       |           |       | "               | IN C to D         | "      | "   | "    |
|                            |                                      |                    | 142 & 143  | 5.0 V                                                    | IN    | "     |       | "     | "     | "     | "   | "     |       |       |       |       |           |       | "               | IN C to B         | "      | "   | "    |
|                            |                                      |                    | 144 & 145  | "                                                        | GND   | "     |       | "     | IN    | "     | "   | "     |       |       |       |       | OUT       |       | "               | IN D to A         | "      | "   | "    |
|                            |                                      |                    | 146 & 147  | "                                                        | GND   | "     |       | "     | IN    | "     | "   | "     |       |       |       |       | OUT       |       | "               | IN D to B         | "      | "   | "    |
| 148 & 149                  | GND                                  | 5.0 V              | "          |                                                          | "     | IN    | "     | "     | "     |       |     |       |       |       |       | "     | IN D to C | "     | "               | "                 |        |     |      |
| 150 & 151                  | GND                                  | GND                | IN         |                                                          | GND   | GND   | "     | "     | "     |       |     |       |       |       |       | "     | LT to A   | "     | "               | "                 |        |     |      |
| 152 & 153                  | X                                    | X                  | GND        | IN                                                       | X     | X     | X     | "     | "     |       |     |       |       |       |       | "     | RBO to A  | "     | "               | "                 |        |     |      |
| 154 & 155                  | GND                                  | GND                | 5.0 V      |                                                          | IN    | GND   | GND   | "     | "     |       |     |       |       |       |       | "     | RBI to A  | "     | "               | "                 |        |     |      |

See footnotes at end of device types 08.

TABLE III. Group A inspection for device type 08.  
Terminal conditions (pins not designated may be high  $\geq 2.4$  V or low  $\leq 0.8$  V; or open).

| Subgroup                     | Symbol                                                                                    | MIL-STD-883 method | Cases E, F | 1     | 2     | 3     | 4   | 5     | 6     | 7     | 8   | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16              | Measured terminal | Limits    |     | Unit |    |
|------------------------------|-------------------------------------------------------------------------------------------|--------------------|------------|-------|-------|-------|-----|-------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-----------------|-------------------|-----------|-----|------|----|
|                              |                                                                                           |                    | Test no.   | IN B  | IN C  | LT    | RBO | RBI   | IN D  | IN A  | GND | OUT E | OUT D | OUT C | OUT B | OUT A | OUT G | OUT F | V <sub>CC</sub> |                   | Min       | Max |      |    |
| 10<br>T <sub>C</sub> = 125°C | t <sub>PHL</sub><br>t <sub>PLH</sub>                                                      | 3003<br>(Fig. 7)   | 156 & 157  | GND   | GND   | 5.0 V |     | 5.0 V | GND   | IN    | GND |       |       |       |       | OUT   |       |       |                 | 5.0 V             | IN A to A | 8   | 144  | ns |
|                              |                                                                                           |                    | 158 & 159  | "     | "     | "     |     | "     | "     | "     | "   |       | OUT   |       |       |       |       |       | "               | IN A to D         | "         | "   | "    |    |
|                              |                                                                                           |                    | 160 & 161  | "     | "     | "     |     | "     | "     | "     | "   |       |       |       |       |       |       |       | "               | IN A to E         | "         | "   | "    |    |
|                              |                                                                                           |                    | 162 & 163  | "     | "     | "     |     | "     | "     | "     | "   |       |       |       |       |       |       |       | "               | IN A to F         | "         | "   | "    |    |
|                              |                                                                                           |                    | 164 & 165  | 5.0 V | 5.0 V | "     |     | "     | "     | "     | "   |       |       |       |       |       |       | OUT   | "               | IN A to A         | "         | "   | "    |    |
|                              |                                                                                           |                    | 166 & 167  | GND   | 5.0 V | "     |     | "     | "     | "     | "   |       |       |       | OUT   |       |       |       | "               | IN A to B         | "         | "   | "    |    |
|                              |                                                                                           |                    | 168 & 169  | 5.0 V | 5.0 V | "     |     | "     | "     | "     | "   |       |       |       |       |       |       |       | "               | IN A to D         | "         | "   | "    |    |
|                              |                                                                                           |                    | 170 & 171  | GND   | GND   | "     | OUT | GND   | "     | "     | "   |       | OUT   |       |       |       |       |       | "               | IN A to RBO       | "         | "   | "    |    |
|                              |                                                                                           |                    | 172 & 173  | IN    | "     | "     |     | 5.0 V | "     | GND   | "   |       |       | OUT   |       |       |       |       | "               | IN B to C         | "         | "   | "    |    |
|                              |                                                                                           |                    | 174 & 175  | "     | "     | "     |     | "     | "     | "     | "   |       |       |       |       |       |       |       | "               | IN B to F         | "         | "   | "    |    |
|                              |                                                                                           |                    | 176 & 177  | "     | "     | "     |     | "     | "     | "     | "   |       |       |       |       |       | OUT   | OUT   | "               | IN B to G         | "         | "   | "    |    |
|                              |                                                                                           |                    | 178 & 179  | "     | "     | "     |     | "     | 5.0 V | "     | "   |       |       |       |       |       |       |       | "               | IN B to A         | "         | "   | "    |    |
|                              |                                                                                           |                    | 180 & 181  | "     | 5.0 V | "     |     | "     | GND   | 5.0 V | "   |       |       |       |       |       | OUT   |       | "               | IN B to F         | "         | "   | "    |    |
|                              |                                                                                           |                    | 182 & 183  | "     | 5.0 V | "     |     | "     | "     | 5.0 V | "   |       |       |       |       |       |       | OUT   | "               | IN B to G         | "         | "   | "    |    |
|                              |                                                                                           |                    | 184 & 185  | "     | 5.0 V | "     |     | "     | "     | GND   | "   |       | OUT   |       |       |       |       |       | "               | IN B to E         | "         | "   | "    |    |
|                              |                                                                                           |                    | 186 & 187  | "     | IN    | "     |     | "     | "     | "     | "   |       |       |       |       |       |       |       | "               | IN C to D         | "         | "   | "    |    |
|                              |                                                                                           |                    | 188 & 189  | 5.0 V | IN    | "     |     | "     | "     | "     | "   |       | OUT   |       |       |       |       |       | "               | IN C to B         | "         | "   | "    |    |
|                              |                                                                                           |                    | 190 & 191  | "     | GND   | "     |     | "     | IN    | "     | "   |       |       |       | OUT   |       |       |       | "               | IN D to A         | "         | "   | "    |    |
|                              |                                                                                           |                    | 192 & 193  | "     | GND   | "     |     | "     | IN    | "     | "   |       |       |       |       |       |       |       | "               | IN D to B         | "         | "   | "    |    |
|                              |                                                                                           |                    | 194 & 195  | GND   | 5.0 V | "     |     | "     | IN    | "     | "   |       |       | OUT   |       |       |       |       | "               | IN D to C         | "         | "   | "    |    |
|                              |                                                                                           |                    | 196 & 197  | GND   | GND   | IN    |     | GND   | GND   | "     | "   |       |       |       |       |       |       |       | "               | LT to A           | "         | "   | "    |    |
|                              |                                                                                           |                    | 198 & 199  | X     | X     | GND   | IN  | X     | X     | X     | "   |       |       |       |       |       |       |       | "               | RBO to A          | "         | "   | "    |    |
|                              |                                                                                           |                    | 200 & 201  | GND   | GND   | 5.0 V |     | IN    | GND   | GND   | "   |       |       |       |       |       |       |       | "               | RBI to A          | "         | "   | "    |    |
| 11                           | Same tests, terminal conditions, and limits as subgroup 10 except T <sub>C</sub> = -55°C. |                    |            |       |       |       |     |       |       |       |     |       |       |       |       |       |       |       |                 |                   |           |     |      |    |

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- 1/ X = Input may be high level or low level.  
 / CKT except B.  
 2 3/ Output voltages shall be either:  
 (a) H = 2.4 volts minimum and L = 0.4 volts minimum when using high speed checker double comparator, or  
 (b) H  $\geq 1.5$  volts and L  $\leq 1.5$  volts when using a high speed checker single comparator.

TABLE III. Group A inspection for device type 09.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V or low  $\leq 0.8$  V or open).

| Subgroup                   | Symbol                                                                                                                            | MIL-STD-883 method | Cases A,B,C,D<br>Test no. | 1      | 2      | 3     | 4      | 5      | 6     | 7   | 8     | 9     | 10    | 11    | 12    | 13    | 14              | Measured                                    | Limits |      | Unit |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------|--------|--------|-------|--------|--------|-------|-----|-------|-------|-------|-------|-------|-------|-----------------|---------------------------------------------|--------|------|------|
|                            |                                                                                                                                   |                    |                           | IN B   | IN C   | BI    | IN D   | IN A   | OUT E | GND | OUT D | OUT C | OUT B | OUT A | OUT G | OUT F | V <sub>CC</sub> |                                             | Min    | Max  |      |
| 1<br>T <sub>C</sub> = 25°C | V <sub>OL</sub><br>1/                                                                                                             | 3007               | 1                         | X      | X      | 0.8 V | X      | X      | 10 mA | GND | 10 mA | 10 mA |       |       |       |       | 4.5 V           | terminal<br>E<br>D<br>C<br>B<br>A<br>G<br>F |        | 0.4  | V    |
|                            |                                                                                                                                   | "                  | 2                         | "      | "      | "     | "      | "      |       | "   |       |       |       |       |       |       | "               |                                             |        | "    | "    |
|                            |                                                                                                                                   | "                  | 3                         | "      | "      | "     | "      | "      |       | "   |       |       |       |       |       |       | "               |                                             |        | "    | "    |
|                            |                                                                                                                                   | "                  | 4                         | "      | "      | "     | "      | "      |       | "   |       |       |       |       |       |       | "               |                                             |        | "    | "    |
|                            |                                                                                                                                   | "                  | 5                         | "      | "      | "     | "      | "      |       | "   |       |       |       |       |       |       | "               |                                             |        | "    | "    |
|                            |                                                                                                                                   | "                  | 6                         | "      | "      | "     | "      | "      |       | "   |       |       |       |       |       |       | "               |                                             |        | "    | "    |
|                            |                                                                                                                                   | "                  | 7                         | "      | "      | "     | "      | "      |       | "   |       | 10    |       | 10 mA |       | 10 mA | "               |                                             |        | "    | "    |
|                            | CEX                                                                                                                               |                    | 8                         | 0.8 V  | 0.8 V  | 2.0 V | 2.0 V  | 0.8 V  | 5.5 V | "   | 5.5 V | 5.5 V | 5.5 V | 5.5 V | 5.5 V | 5.5 V | "               | E                                           |        | 250  | μA   |
|                            |                                                                                                                                   |                    | 9                         | "      | "      | "     | "      | "      |       | "   |       |       |       |       |       |       | "               | D                                           |        | "    | "    |
|                            |                                                                                                                                   |                    | 10                        | "      | "      | "     | "      | "      |       | "   |       |       |       |       |       |       | "               | C                                           |        | "    | "    |
|                            |                                                                                                                                   |                    | 11                        | "      | "      | "     | "      | "      |       | "   |       |       |       |       |       |       | "               | B                                           |        | "    | "    |
|                            |                                                                                                                                   |                    | 12                        | "      | "      | "     | "      | "      |       | "   |       |       |       |       |       |       | "               | A                                           |        | "    | "    |
|                            |                                                                                                                                   |                    | 13                        | "      | "      | "     | "      | "      |       | "   |       |       |       |       |       |       | "               | G                                           |        | "    | "    |
|                            |                                                                                                                                   |                    | 14                        | "      | "      | "     | "      | "      |       | "   |       |       |       |       |       |       | "               | F                                           |        | "    | "    |
| V                          | I <sub>C</sub>                                                                                                                    |                    | 15                        | -12 mA | -12 mA |       | -12 mA | -12 mA |       | "   |       |       |       |       |       |       | "               | IN A                                        |        | -1.5 | "    |
|                            |                                                                                                                                   |                    | 16                        |        |        |       |        |        |       | "   |       |       |       |       |       |       | "               | IN B                                        |        | "    | "    |
|                            |                                                                                                                                   |                    | 17                        |        |        |       |        |        |       | "   |       |       |       |       |       |       | "               | IN C                                        |        | "    | "    |
|                            |                                                                                                                                   |                    | 18                        |        |        |       |        |        |       | "   |       |       |       |       |       |       | "               | IN D                                        |        | "    | "    |
|                            | I <sub>L</sub>                                                                                                                    | 3009               | 20 2/                     | 5.5 V  | 5.5 V  | 5.5 V | 5.5 V  | 0.4 V  |       | "   |       |       |       |       |       |       | 5.5 V           | IN A                                        | -0.7   | -1.6 | mA   |
|                            |                                                                                                                                   | "                  | 20 CKT C                  | 5.5 V  | "      | "     | "      | 0.4 V  |       | "   |       |       |       |       |       |       | "               | IN A                                        | -0.4   | -1.3 | "    |
|                            |                                                                                                                                   | "                  | 21 2/                     | 0.4 V  | "      | "     | "      | 5.5 V  |       | "   |       |       |       |       |       |       | "               | IN B                                        | -0.7   | -1.6 | "    |
|                            |                                                                                                                                   | "                  | 21 CKT C                  | 0.4 V  | "      | "     | "      |        |       | "   |       |       |       |       |       |       | "               | IN B                                        | -0.4   | -1.3 | "    |
|                            |                                                                                                                                   | "                  | 22 2/                     | 5.5 V  | 0.4 V  | "     | "      | "      |       | "   |       |       |       |       |       |       | "               | IN C                                        | -0.7   | -1.6 | "    |
|                            |                                                                                                                                   | "                  | 22 CKT C                  | "      | 0.4 V  | "     | "      | "      |       | "   |       |       |       |       |       |       | "               | IN C                                        | -0.4   | -1.3 | "    |
|                            |                                                                                                                                   | "                  | 23 2/                     | "      | 5.5 V  | "     | 0.4 V  | "      |       | "   |       |       |       |       |       |       | "               | IN D                                        | -0.7   | -1.6 | "    |
|                            |                                                                                                                                   | "                  | 23 CKT C                  | "      | "      | "     | 0.4 V  | "      |       | "   |       |       |       |       |       |       | "               | IN D                                        | -0.4   | -1.3 | "    |
|                            | I <sub>H1</sub>                                                                                                                   | 3010               | 24 2/                     | "      | "      | 0.4 V | 5.5 V  | "      |       | "   |       |       |       |       |       |       | "               | BI                                          | -0.7   | -1.6 | "    |
|                            |                                                                                                                                   | "                  | 24 CKT C                  | "      | "      | 0.4 V | 5.5 V  | "      |       | "   |       |       |       |       |       |       | "               | BI                                          | -0.4   | -1.3 | "    |
|                            |                                                                                                                                   |                    | 25                        | GND    | GND    | GND   | GND    | 2.4 V  |       | "   |       |       |       |       |       |       | "               | IN A                                        |        | 40   | μA   |
|                            |                                                                                                                                   | "                  | 26                        | 2.4 V  | GND    | "     | "      | GND    |       | "   |       |       |       |       |       |       | "               | IN B                                        |        | "    | "    |
|                            |                                                                                                                                   | "                  | 27                        | GND    | 2.4 V  | "     | "      | "      |       | "   |       |       |       |       |       |       | "               | IN C                                        |        | "    | "    |
|                            |                                                                                                                                   | "                  | 28                        | "      | GND    | "     | 2.4 V  | "      |       | "   |       |       |       |       |       |       | "               | IN D                                        |        | "    | "    |
| I                          | I <sub>H2</sub>                                                                                                                   | 3010               | 29                        | "      | "      | 2.4 V | GND    | "      |       | "   |       |       |       |       |       |       | "               | BI                                          |        | "    | "    |
|                            |                                                                                                                                   |                    | 30                        | "      | "      | GND   | "      | 5.5 V  |       | "   |       |       |       |       |       |       | "               | IN A                                        |        | 100  | μA   |
|                            |                                                                                                                                   | "                  | 31                        | 5.5 V  | "      | "     | "      | GND    |       | "   |       |       |       |       |       |       | "               | IN B                                        |        | "    | "    |
|                            |                                                                                                                                   | "                  | 32                        | GND    | 5.5 V  | "     | "      | "      |       | "   |       |       |       |       |       |       | "               | IN C                                        |        | "    | "    |
|                            |                                                                                                                                   | "                  | 33                        | "      | GND    | "     | 5.5 V  | "      |       | "   |       |       |       |       |       |       | "               | IN D                                        |        | "    | "    |
|                            |                                                                                                                                   | "                  | 34                        | "      | "      | 5.5 V | GND    | "      |       | "   |       |       |       |       |       |       | "               | BI                                          |        | "    | "    |
|                            | CC                                                                                                                                | 3005               | 35                        | GND    | GND    | GND   | GND    | GND    |       | "   |       |       |       |       |       |       | "               | V <sub>CC</sub>                             |        | 47   | mA   |
|                            |                                                                                                                                   |                    |                           |        |        |       |        |        |       |     |       |       |       |       |       |       |                 |                                             |        |      |      |
|                            |                                                                                                                                   |                    |                           |        |        |       |        |        |       |     |       |       |       |       |       |       |                 |                                             |        |      |      |
|                            |                                                                                                                                   |                    |                           |        |        |       |        |        |       |     |       |       |       |       |       |       |                 |                                             |        |      |      |
|                            |                                                                                                                                   |                    |                           |        |        |       |        |        |       |     |       |       |       |       |       |       |                 |                                             |        |      |      |
|                            |                                                                                                                                   |                    |                           |        |        |       |        |        |       |     |       |       |       |       |       |       |                 |                                             |        |      |      |
|                            |                                                                                                                                   |                    |                           |        |        |       |        |        |       |     |       |       |       |       |       |       |                 |                                             |        |      |      |
|                            |                                                                                                                                   |                    |                           |        |        |       |        |        |       |     |       |       |       |       |       |       |                 |                                             |        |      |      |
| 2                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = +125°C and V <sub>I C</sub> tests are omitted. |                    |                           |        |        |       |        |        |       |     |       |       |       |       |       |       |                 |                                             |        |      |      |
| 3                          | Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = -55°C and V <sub>I C</sub> tests are omitted.  |                    |                           |        |        |       |        |        |       |     |       |       |       |       |       |       |                 |                                             |        |      |      |

I See footnotes at end of device type 09.

TABLE III. Group A inspection for device type 09 – Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V or low  $\leq 0.8$  V or open).

| Subgroup                   | Symbol      | MIL-STD-883 method | Cases A,B,C,D                                                                                      | 1                                                                                                                                                               | 2                                                                                                            | 3                                                                                                                                                   | 4                                                                                                                                                   | 5                                                                                                                                                                 | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 7   | 8     | 9     | 10    | 11    | 12    | 13    | 14              | Measured terminal | Limits |     | Unit |
|----------------------------|-------------|--------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------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|                            |             |                    | Test no.                                                                                           | IN B                                                                                                                                                            | IN C                                                                                                         | BI                                                                                                                                                  | IN D                                                                                                                                                | IN A                                                                                                                                                              | OUT E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | GND | OUT D | OUT C | OUT B | OUT A | OUT G | OUT F | V <sub>CC</sub> |                   | Min    | Max |      |
| 7<br>T <sub>C</sub> = 25°C | Truth table |                    | 36<br>37<br>38<br>39<br>40<br>41<br>42<br>43<br>44<br>45<br>46<br>47<br>48<br>49<br>50<br>51<br>52 | GND<br>"<br>5.0 V<br>5.0 V<br>GND<br>GND<br>5.0 V<br>5.0 V<br>GND<br>GND<br>5.0 V<br>5.0 V<br>GND<br>GND<br>5.0 V<br>5.0 V<br>GND<br>GND<br>5.0 V<br>5.0 V<br>X | GND<br>"<br>"<br>5.0 V<br>"<br>"<br>"<br>GND<br>GND<br>"<br>"<br>5.0 V<br>"<br>5.0 V<br>"<br>5.0 V<br>"<br>X | <br><br><br><br><br><br><br>5.0 V<br>"<br>"<br>"<br>5.0 V<br>"<br>5.0 V<br>"<br>GND<br>"<br>5.0 V<br>"<br>5.0 V<br>"<br>GND<br>"<br>5.0 V<br>"<br>X | GND<br>5.0 V<br>GND<br>5.0 V<br>5.0 V<br>GND<br>5.0 V<br>GND<br>5.0 V<br>GND<br>5.0 V<br>GND<br>5.0 V<br>5.0 V<br>GND<br>5.0 V<br>GND<br>5.0 V<br>X | GND<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>5.0 V<br>X | 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|     |       |       |       |       |       |       |                 |                   |        |     |      |

See notes at end of device type 09.

TABLE III. Group A inspection for device type 09 – Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V or low  $\leq 0.8$  V or open).

| Subgroup                     | Symbol                                                                                        | MIL-STD-883 method | Cases A,B,C,D | 1     | 2     | 3     | 4     | 5     | 6     | 7   | 8     | 9     | 10    | 11    | 12    | 13    | 14              | Measured          | Limits    |           | Unit |    |   |
|------------------------------|-----------------------------------------------------------------------------------------------|--------------------|---------------|-------|-------|-------|-------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-----------------|-------------------|-----------|-----------|------|----|---|
|                              |                                                                                               |                    | Test no.      | IN B  | IN C  | BI    | IN D  | IN A  | OUT E | GND | OUT D | OUT C | OUT B | OUT A | OUT G | OUT F | V <sub>CC</sub> |                   | Min       | Max       |      |    |   |
| 10<br>T <sub>C</sub> = 125°C | t <sub>PHL</sub><br>t <sub>PLH</sub>                                                          | 3003<br>(Fig 8)    | 117 & 118     | GND   | GND   | 5.0 V | GND   | IN    |       | GND |       |       |       |       | OUT   |       |                 | 5.0 V<br>terminal | IN A to A | 8         | 144  | ns |   |
|                              |                                                                                               |                    | 119 & 120     | "     | "     | "     | "     | "     |       |     |       | OUT   |       |       |       |       |                 |                   | IN A to D | "         | "    | "  |   |
|                              |                                                                                               |                    | 121 & 122     | "     | "     | "     | "     | "     |       | OUT | "     |       |       |       |       |       |                 |                   | "         | IN A to E | "    | "  | " |
|                              |                                                                                               |                    | 123 & 124     | "     | "     | "     | "     | "     |       | "   | "     |       |       |       |       |       |                 |                   | "         | IN A to F | "    | "  | " |
|                              |                                                                                               |                    | 125 & 126     | 5.0 V | 5.0 V | "     | "     | "     | "     | "   | "     |       |       |       | OUT   |       |                 |                   | "         | IN A to A | "    | "  | " |
|                              |                                                                                               |                    | 127 & 128     | GND   | 5.0 V | "     | "     | "     | "     | "   | "     |       |       |       | OUT   |       |                 |                   | "         | IN A to B | "    | "  | " |
|                              |                                                                                               |                    | 129 & 130     | 5.0 V | 5.0 V | "     | "     | "     | "     | "   | "     |       | OUT   |       |       |       |                 |                   | "         | IN A to D | "    | "  | " |
|                              |                                                                                               |                    | 131 & 132     | IN    | GND   | "     | "     | GND   |       | "   | "     |       | OUT   |       |       |       |                 |                   | "         | IN B to C | "    | "  | " |
|                              |                                                                                               |                    | 133 & 134     | "     | "     | "     | "     | "     | "     | "   | "     |       |       |       |       |       |                 |                   | "         | IN B to F | "    | "  | " |
|                              |                                                                                               |                    | 135 & 136     | "     | "     | "     | "     | "     | "     | "   | "     |       |       |       |       |       | OUT             |                   | "         | IN B to G | "    | "  | " |
|                              |                                                                                               |                    | 137 & 138     | "     | "     | "     | 5.0 V | "     | "     | "   | "     |       |       |       | OUT   |       |                 |                   | "         | IN B to A | "    | "  | " |
|                              |                                                                                               |                    | 139 & 140     | "     | 5.0 V | "     | GND   | 5.0 V |       | "   | "     |       |       |       |       |       | OUT             |                   | "         | IN B to F | "    | "  | " |
|                              |                                                                                               |                    | 141 & 142     | "     | 5.0 V | "     | "     | GND   |       | OUT | "     |       |       |       |       |       |                 |                   | "         | IN B to E | "    | "  | " |
|                              |                                                                                               |                    | 143 & 144     | "     | 5.0 V | "     | "     | 5.0 V |       | "   | "     |       |       |       |       |       | OUT             |                   | "         | IN B to G | "    | "  | " |
|                              |                                                                                               |                    | 145 & 146     | GND   | IN    | "     | "     | GND   |       | "   | "     |       | OUT   |       |       |       |                 |                   | "         | IN C to D | "    | "  | " |
|                              |                                                                                               |                    | 147 & 148     | 5.0 V | IN    | "     | "     | GND   |       | "   | "     |       |       |       | OUT   |       |                 |                   | "         | IN C to B | "    | "  | " |
|                              |                                                                                               |                    | 149 & 150     | GND   | GND   | "     | IN    | GND   |       | "   | "     |       |       |       |       |       | OUT             |                   | "         | IN D to G | "    | "  | " |
|                              |                                                                                               |                    | 151 & 152     | 5.0 V | GND   | "     | IN    | 5.0 V |       | "   | "     |       |       |       | OUT   |       |                 |                   | "         | IN D to B | "    | "  | " |
|                              |                                                                                               |                    | 153 & 154     | GND   | 5.0 V | "     | IN    | GND   |       | "   | "     |       |       | OUT   |       |       |                 |                   | "         | IN D to C | "    | "  | " |
|                              |                                                                                               |                    | 155 & 156     | GND   | GND   | IN    | GND   | GND   |       | "   | "     |       |       |       | OUT   |       |                 |                   | "         | BI to A   | "    | "  | " |
| 11                           | Same tests, terminal conditions and limits as for subgroup 10, except T <sub>C</sub> = -55°C. |                    |               |       |       |       |       |       |       |     |       |       |       |       |       |       |                 |                   |           |           |      |    |   |

1/ X = Input may be high level or low level.

2/ CKT except B.

3/ Output voltages shall be either:

(a) H = 2.4 volts minimum and L = 0.4 volts minimum when using high speed checker double comparator, or

(b) H  $\geq 1.5$  volts and L  $\leq 1.5$  volts when using a high speed checker single comparator.

## 5. PACKAGING

5.1 Packaging requirements. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military service's system command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but it is not mandatory)

6.1 Intended use. Microcircuits conforming to this specification are intended for original equipment design applications and logistic support of existing equipment.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of the specification.
- b. PIN and compliance identifier, if applicable (see 1.2).
- c. Requirements for delivery of one copy of the conformance inspection data pertinent to the device inspection lot to be supplied with each shipment by the device manufacturer, if applicable.
- d. Requirements for certificate of compliance, if applicable.
- e. Requirements for notification of change of product or process to contracting activity in addition to notification to the qualifying activity, if applicable.
- f. Requirements for failure analysis (including required test condition of method 5003 of MIL-STD-883), corrective action, and reporting of results, if applicable.
- g. Requirements for product assurance options.
- h. Requirements for special carriers, lead lengths, or lead forming, if applicable. These requirements should not affect the part number. Unless otherwise specified, these requirements will not apply to direct purchase by or direct shipment to the Government.
- i. Requirements for "JAN" marking.
- j. Packaging requirements (see 5.1).

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List QML-38535 whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from DSCC-VQ, 3990 E. Broad Street, Columbus, Ohio 43123-1199.

6.4 Superseding information. The requirements of MIL-M-38510 have been superseded to take advantage of the available Qualified Manufacturer Listing (QML) system provided by MIL-PRF-38535. Previous references to MIL-M-38510 in this document have been replaced by appropriate references to MIL-PRF-38535. All technical requirements now consist of this specification and MIL-PRF-38535. The MIL-M-38510 specification sheet number and PIN have been retained to avoid adversely impacting existing government logistics systems and contractor's parts lists.

6.5 Abbreviations, symbols, and definitions. The abbreviations, symbols, and definitions used herein are defined in MIL-PRF-38535, MIL-HDBK-1331, and as follows:

GND ..... Ground zero voltage potential  
 $V_{IN}$  ..... Voltage level at an input terminal  
 $I_{IN}$  ..... Current flowing into an input terminal

6.6 Logistic support. Lead materials and finishes (see 3.4) are interchangeable. Unless otherwise specified, microcircuits acquired for Government logistic support will be acquired to device class B (see 1.2.2), lead material and finish A (see 3.4). Longer length leads and lead forming should not affect the part number.

6.7 Substitutability. The cross-reference information below is presented for the convenience of users. Microcircuits covered by this specification will functionally replace the listed generic-industry type. Generic-industry microcircuit types may not have equivalent operational performance characteristics across military temperature ranges or reliability factors equivalent to MIL-M-38510 device types and may have slight physical variations in relation to case size. The presence of this information should not be deemed as permitting substitution of generic-industry types for MIL-M-38510 types or as a waiver of any of the provisions of MIL-PRF-38535.

| Military device type | Generic-industry type |
|----------------------|-----------------------|
| 01                   | 5442                  |
| 02                   | 5443                  |
| 03                   | 5444                  |
| 04                   | 5445                  |
| 05                   | 54145                 |
| 06                   | 5446                  |
| 07                   | 5447                  |
| 08                   | 5448                  |
| 09                   | 5449                  |

6.8 Manufacturers' designation. Manufacturers' circuits which form a part of this specification are designated with an "X" as shown in table IV herein.

TABLE IV. Manufacturers' designations.

| Device type | Circuit           |           |                                                    |               |           |
|-------------|-------------------|-----------|----------------------------------------------------|---------------|-----------|
|             | Texas Instruments | Signetics | National Semiconductor/<br>Fairchild Semiconductor | Motorola Inc. | Fairchild |
| 01          | D                 | C         | E                                                  | B             | A         |
| 04          | C                 | A         | E                                                  | B             | D         |
| 05          | C                 | A         | E                                                  | B             | D         |
| 06          | C                 | B         | D                                                  |               |           |
| 07          | C                 | B         | D                                                  |               |           |
| 08          | B                 | C         | E                                                  | A             |           |

6.9 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - CR  
Navy - EC  
Air Force - 11  
DLA - CC

Preparing activity:

DLA - CC

(Project 5962-2093)

Review activities:

Army - MI, SM  
Navy - AS, CG, MC, SH, TD  
Air Force - 03, 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <http://assist.daps.dla.mil>.