The documentation and process conversion measures necessary to comply with this document shall be completed by 27 May 2023.

INCH-POUND

MIL-PRF-19500/583D
w/AMENDMENT 2
27 February 2023
SUPERSEDING
MIL-PRF-19500/583D
w/AMENDMENT 1
15 April 2020

PERFORMANCE SPECIFICATION SHEET

TRANSISTOR, NPN, SILICON AMPLIFIER, TYPES 2N5681 AND 2N5682, JAN, JANTX, JANTXV, JANHC, AND JANKC

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

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-PRF-19500.

1. SCOPE

* 1.1 Scope. This specification covers the performance requirements for NPN, silicon, amplifier transistor. Three levels of product assurance (JAN, JANTX, and JANTXV) are provided for each device as specified in MIL-PRF-19500 and two levels of product assurance are provided for unencapsulated devices.

1.2 Package outlines and die topography. The device package outlines are as follows: TO-39/ TO205AD in accordance with figure 1 for all encapsulated device types. The dimensions and topography for JANHC and JANKC unencapsulated die is as follows: The A version die in accordance with figure 2. The B version die in accordance with figure 3.

1.3 Maximum ratings. Unless otherwise specified, T_A = +25°C.

Type	P_T T_A = +25°C (1)	P_T T_C = +25°C (2)	$R_{\theta JC}$	V_{CBO}	V_{CEO}	V_{EBO}	I_C	I_B	T_{op} and T_{STG}
	W	W	°C	V dc	V dc	V dc	A dc	A dc	°C
2N5681	1.0	10	17.5	100	100	4.0	1.0	0.5	-65 to +200
2N5682	1.0	10	17.5	120	120	4.0	1.0	0.5	

(1) Derate linearly 5.7 mW/°C for T_A > +25°C.
(2) Derate linearly 57 mW/°C for T_C > +25°C.

Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, ATTN: VAC, P.O. Box 3990, Columbus, OH 43218-3990, or emailed to Semiconductor@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.dla.mil.

AMSC N/A
FSC 5961

1.4 Primary electrical characteristics at T_A = +25°C.

Limits	h_{FE} at V_{CE} = 2.0 V dc 1/			/h_{fe} / f = 10 MHz	C_{obo} f = 1.0 MHz	$V_{CE(sat)1}$ (1) I_C = 250 mA dc	$V_{BE(sat)1}$ 1/ I_C = 250 mA dc
	h_{FE1} I_C = 250 mA dc	h_{FE2} I_C = 500 mA dc	h_{FE3} I_C = 1.0 A dc	V_{CE} = 10 V dc I_C = 100 mA dc	V_{CB} = 20 V dc I_E = 0	I_B = 25 mA dc	I_B = 25 mA dc
					pF	V dc	V dc
Min	40	20	5	3.0			
Max	150				50	0.6	1.1

(1) Pulsed see 4.5.1.

1.5 Part or Identifying Number (PIN). The PIN is in accordance with MIL-PRF-19500, and as specified herein. See 6.5 for PIN construction example and 6.6 for a list of available PINs.

1.5.1 JAN certification mark and quality level.

1.5.1.1 JAN certification mark and quality level for encapsulated devices. The quality level designators for encapsulated devices that are applicable for this specification sheet from the lowest to the highest level are as follows: “JAN”, “JANTX”, and "JANTXV".

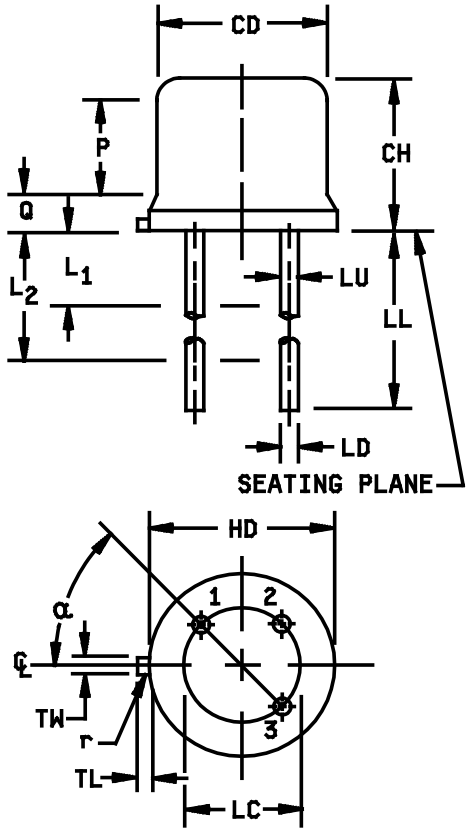
1.5.1.2 Quality level designators for unencapsulated device (die). The quality level designators for unencapsulated device (die) that are applicable for this specification sheet from the lowest to the highest level are as follows: "JANHC" and "JANKC".

1.5.2 First number and first letter symbols. The transistors of this specification sheet use the first number and letter symbols "2N".

1.5.2.1 Second number symbols. The second number symbols for the transistors covered by this specification sheet are as follows: "5681" and "5682".

1.5.3 Lead finish. The lead finishes applicable to this specification sheet are listed on QPDSIS-19500.

1.5.4 Die identifiers for unencapsulated devices (manufacturers and critical interface identifiers). The manufacturer die identifiers that are applicable for this specification sheet are "A" and “B”



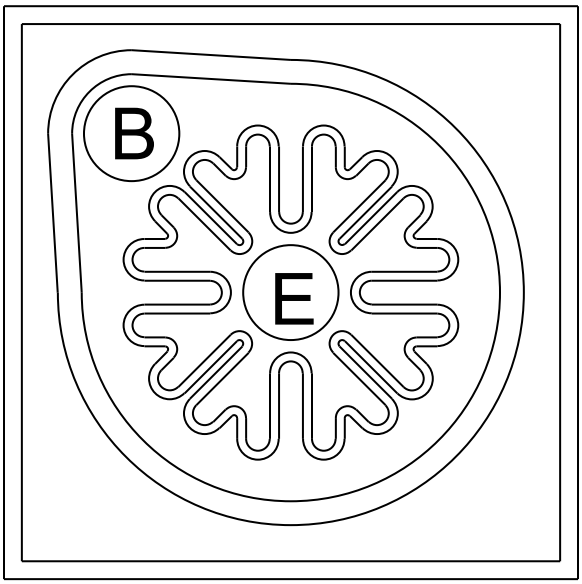
Symbol	Dimensions				Notes
	in	in	mm	mm	
	Min	Max	Min	Max	
CD	0.305	.335	7.75	8.51	
CH	0.240	.260	6.10	6.60	
HD	0.335	.370	8.51	9.39	
LC	0.200	BSC	5.08	BSC	9
LD	0.016	0.021	0.41	0.53	9, 10
LL	0.500	0.750	12.70	19.05	10, 11
LU	0.016	0.019	0.41	0.48	10, 11
L_1		0.050		1.27	10, 11
L_2	0.250		6.35		10, 11
P	0.100		2.54		8
Q		0.050		1.27	7
r		0.010		0.25	12
TL	0.029	0.045	0.74	1.14	6
TW	0.028	0.034	0.72	0.86	5

α	45° BSC	9
Term 1	Emitter	
Term 2	Base	
Term 3	Collector	

NOTES:

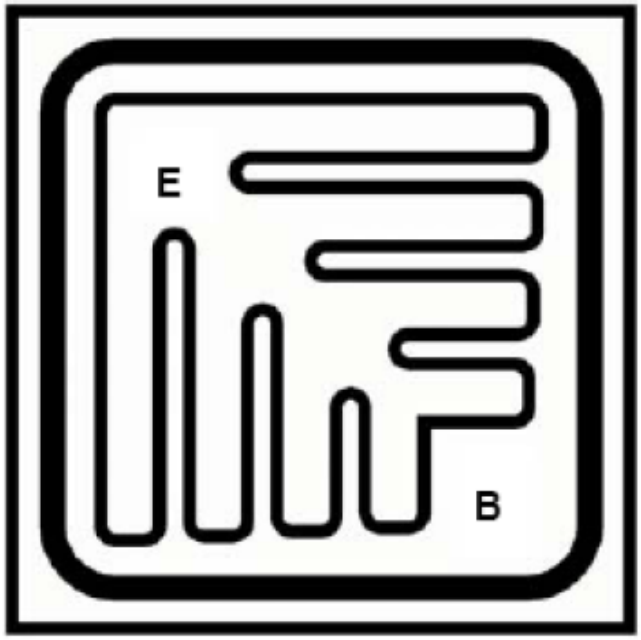
1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Refer to applicable symbol list.
4. Lead number 1 is the emitter, lead number 2 is the base, lead number 4 is omitted from this outline. The collector is number 3 and is electrically connected to the case.
5. Beyond r (radius) max, TW shall be held for a minimum length of .011 inch (0.28 mm).
6. TL measured from maximum HD.
7. Outline in this zone is not controlled.
8. CD shall not vary more than .010 inch (0.25 mm) in zone P. This zone is controlled for automatic handling.
9. Leads at gauge plane .054 + .001 - .000 inch (1.37 +0.03 - 0.00 mm) below seating plane shall be within .007 inch (0.18 mm) radius of true position (TP) at maximum material condition (MMC) relative to tab at MMC.
10. LU applies between L_1 and L_2. LD applies between L_2 and LL minimum. Diameter is uncontrolled in L_1 and beyond LL minimum.
11. All three leads.
12. r (radius) applies to both inside corners of tab.

FIGURE 1. Physical dimensions for (TO-39/ TO205AD).



Die size--------- .060 x .060 inch, (1.524 mm X 1.524 mm).
Base pad-------- .010 inch Diameter, (0.254 mm).
Emitter pad----- .010 inch Diameter, (0.254 mm).
* Back metal----- Gold, 4,000 Å, ± 1,000 Å
Top metal------ Aluminum, 19,500 Å ± 2,500 Å .
Back side------ Collector.
* Passivation: SILOX, 6,000 Å, ± 1,000 Å

* FIGURE 2. Physical dimensions for (2N5682) version A die.



Die size--------- .075 x .075 inch ± .002 inch, (1.905 mm X 1.905 mm ± 0.051 mm).
Die thickness---.014 ± .003 inch nominal, (0.356 ± 0.0762 mm).
Emitter pad----- .020 x .007 inch (0.508 x 0.178 mm).
Base pad-------- .016 x .016 inch (0.406 x 0.406 mm).
Back metal----- Al/Ti/Ni/Au 10,000 Å, minimum 12,000 Å nominal.
Top metal------ Aluminum, 95,000 Å minimum 110,000 Å nominal.
Back side------ Collector.

FIGURE 3. Physical dimensions, JANHCB and JANKCB die

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 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 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document 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-19500 - Semiconductor Devices, General Specification for.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-750 - Test Methods for Semiconductor Devices.

(Copies of these documents are available online at https://quicksearch.dla.mil).

2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document 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 General. The individual item requirements shall be as specified in MIL-PRF-19500 and as modified herein.

3.2 Qualification. Devices furnished under this specification shall be products that are manufactured by a manufacturer authorized by the qualifying activity for listing on the applicable qualified manufacturer's list (QML-19500) before contract award (see 4.2 and 6.3).

3.3 Abbreviations, symbols, and definitions. Abbreviations, symbols, and definitions used herein shall be as specified in MIL-PRF-19500.

3.4 Interface requirements and physical dimensions. The interface requirements and physical dimensions shall be as specified in MIL-PRF-19500 and on figure 1 (TO-39), figure 2 (version A die), and figure 3 (version B die) herein.

3.4.1 Lead finish. Lead finish shall be solderable as defined in MIL-PRF-19500, MIL-STD-750, and herein. Where a choice of lead finish is desired, it shall be specified in the acquisition document (see 6.2).

3.5 Marking. Marking shall be in accordance with MIL-PRF-19500.

3.6 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics are as specified in 1.3, 1.4, and table I herein.

3.7 Electrical test requirements. The electrical test requirements shall be the subgroups specified in table I herein.

3.8 Workmanship. Semiconductor devices shall be processed in such a manner as to be uniform in quality and shall be free from other defects that will affect life, serviceability, or appearance.

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. Qualification inspection (see 4.2).

b. Screening (see 4.3)

c. Conformance inspection (see 4.4 and tables I and II).

d. Element evaluation (see 4.5.2).

4.2 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-19500 and as specified herein.

4.2.1 JANHC and JANKC qualification. JANHC and JANKC qualification inspection shall be in accordance with MIL-PRF-19500.

4.2.2 Group E inspection. Group E inspection shall be performed for qualification or re-qualification only. In case qualification was awarded to a prior revision of the specification sheet that did not request the performance of table III tests, the tests specified in table III herein that were not performed in the prior revision shall be performed on the first inspection lot of this revision to maintain qualification.

* 4.3 Screening (JANTX and JANTXV levels only). Screening shall be in accordance with table E-IV of MIL-PRF-19500, and as specified herein. The following measurements shall be made in accordance with table I herein. Devices that exceed the limits of table I herein shall not be acceptable.

Screen	Measurements for JANTX and JANTXV level
3c (1)	Method 3131 (see 4.3.2)
11	I_{CBO}, h_{FE2}
12	See 4.3.1
13	Subgroup 2 of table I herein; ΔI_{CBO} = 100 percent of initial value, or 10 nA dc whichever is greater; Δh_{FE2} = ± 15percent of initial value.

(1) Shall be performed anytime after temperature cycling, screen 3a; and does not need to be repeated in screening requirements.

4.3.1 Power burn-in conditions. Power burn-in conditions are as follows: $V_{CB} \geq 20$ V dc; $P_T = 1.0$ W at $T_A = 30°C$ ±5°C. NOTE: No heat sink or forced air cooling on the devices shall be permitted.

4.3.2 Thermal impedance. The thermal impedance measurements shall be performed in accordance with method 3131 of MIL-STD-750 using the guidelines in that method for determining I_M, I_H, t_H, t_{MD} t_{SW}, (and V_H where appropriate). See table III, group E, subgroup 4 herein.

4.3.3 Unencapsulated die (JANHC and JANKC). Screening of JANHC and JANKC die shall be in accordance with MIL-PRF-19500 "Discrete Semiconductor Die/Chip Lot Acceptance". Burn-in duration for the JANKC level follows JANS requirements; the JANHC follows JANTX requirements.

4.4 Conformance inspection. Conformance inspection shall be in accordance with MIL-PRF-19500, and as specified herein. Alternate flow is allowed for quality conformance inspection in accordance with MIL-PRF-19500.

4.4.1 Group A inspection. Group A inspection shall be conducted in accordance with table I herein.

4.4.2 Group B inspection. Group B inspection shall be conducted in accordance with the conditions specified. In the event of a group B failure, the manufacturer may pull a new sample at double the sample size from either the failed assembly lot or from another assembly lot from the same wafer lot. If the new “assembly lot” option is exercised, the failed assembly lot shall be scrapped. Delta measurements shall be in accordance with table II herein.

Step	Method	Condition
1	1027	Steady-state life: 340 hours, $V_{CB} \geq 20$ V dc, $T_J = 150°C$ minimum. External heating of the device under test to achieve $T_J = 150°C$ minimum is allowed provided that a minimum of 75 percent of rated power is dissipated. No heat sink or forced-air cooling on the devices shall be permitted. n = 45 devices, c = 0.
2	1048	Blocking life, $T_A = +150°C$, V_{CB} = 80 percent of rated voltage, 48 hours minimum. n = 45 devices, c = 0.
3	1032	High-temperature life (non-operating), $T_A = +200°C$. n = 22, c = 0.

4.4.2.1 Group B sample selection. Samples selected for group B inspection shall meet all of the following requirements:

a. Separate samples maybe used for each step. For JAN, JANTX, and JANTXV samples shall be selected randomly from a minimum of three wafers (or from each wafer in the lot) from each wafer lot.

b. Samples shall be selected from an inspection lot that has been submitted to and passed group A, subgroup 2, conformance inspection. When the final lead finish is solder or any plating prone to oxidation at high temperature, the samples for life test (group B for JAN, JANTX, and JANTXV) may be tested prior to the application of final lead finish.

4.4.3 Group C inspection. Group C inspection shall be conducted in accordance with the conditions specified for subgroup testing in table E-VII of MIL-PRF-19500. Delta measurements shall be in accordance with table II herein; delta requirements only apply to subgroup C6.

4.4.3.1 Group C inspection, table E-VII (JAN, JANTX, and JANTXV) of MIL-PRF-19500.

Subgroup	Method	Condition
C2	2036	Test condition E.
C5	3131	Thermal resistance, see 4.3.2, $R_{\theta JC} = 17.5°C/W$.
C6		Not applicable.

4.4.3.2 Group C sample selection. Samples for subgroups in group C shall be chosen at random from any lot containing the intended package type and lead finish procured to the same specification which is submitted to and passes group A tests for conformance inspection. Testing of a subgroup using a single device type enclosed in the intended package type shall be considered as complying with the requirements for that subgroup.

4.4.4 Group E inspection. Group E inspection for qualification only shall be conducted in accordance with the conditions specified for subgroup testing in table E-IX of MIL-PRF-19500 and table III herein. Delta measurements shall be in accordance with table II herein.

4.5 Methods of inspection. Methods of inspection shall be as specified in the appropriate tables and as follows.

4.5.1 Pulse measurements. Conditions for pulse measurement shall be as specified in section 4 of MIL-STD-750.

4.5.2 Element evaluation of unencapsulated die. The element evaluation of unencapsulated die shall be in accordance with appendix G of MIL-PRF-19500.

TABLE I. Group A inspection.

Inspection 1/	MIL-STD-750		Symbol	Limits	Limits	Unit
	Method	Conditions		Min	Max	
Subgroup 1 2/						
Visual and mechanical 3/ examination	2071	n = 45 devices, c = 0				
Solderability 3/	2026	n = 15 leads, c = 0				
Resistance to solvents 3/ 4/	1022	n = 15 devices, c = 0				
Salt atmosphere (corrosion), (Laser marked devices only. Not required for non-corrosive base metals.)	1041	n = 6 devices, c = 0				
Temp cycling 3/	1051	Test condition C, 25 cycles. n = 22 devices, c = 0				
Hermetic seal	1071	n = 22 devices, c = 0				
Fine leak Gross leak						
Electrical measurements		Group A, subgroup 2				
Bond strength 3/	2037	Pre-condition T_A = +250°C at t = 24 hrs or T_A = +300°C at t = 2 hrs, n = 11 wires, c = 0				
Decap internal visual (design verification)	2075	n = 4 devices, c = 0				
Subgroup 2						
Thermal impedance 5/	3131	See 4.3.2	$Z_{\theta JX}$			°C/W
Breakdown voltage collector to emitter 2N5681 2N5682	3011	Bias condition D, pulsed (see 4.5.1) I_C = 10 mA dc	$V_{(BR)CEO}$	 100 120		V dc

See footnotes at end of table.

TABLE I. Group A inspection - Continued.

Inspection 1/	MIL-STD-750		Symbol	Limits	Limits	Unit
	Method	Conditions		Min	Max	
Subgroup 2 Continued						
Collector emitter cutoff current 2N5681 2N5682	3041	Bias condition A, V_{BE} = 1.5 V dc V_{CE} = 100 V dc V_{CE} = 120 V dc	I_{CEX1}		100	nA dc
Collector emitter cutoff current 2N5681 2N5682	3041	Bias condition D V_{CE} = 70 V dc V_{CE} = 80 V dc	I_{CEO}		10	µA dc
Collector to baser cutoff current 2N5681 2N5682	3036	Bias condition D V_{CE} = 100 V dc V_{CE} = 120 V dc	I_{CBO}		100	nA dc
Emitter to base cutoff current	3061	Bias condition D, V_{EB} = 4.0 V dc	I_{EBO}		1.0	µA dc
Forward current transfer ratio	3076	Pulsed (see 4.5.1), I_C = 250 mA dc V_{CE} = 2.0 V dc	h_{FE1}	40	150	
Forward current transfer ratio	3076	Pulsed (see 4.5.1), I_C = 500 mA dc V_{CE} = 2.0 V dc	h_{FE2}	20		
Forward current transfer ratio	3076	Pulsed (see 4.5.1), I_C = 1.0 A dc V_{CE} = 2.0 V dc	h_{FE3}	5		
Collector to emitter voltage (saturated)	3071	Pulsed (see 4.5.1), I_C = 250 mA dc I_B = 25 mA dc	$V_{CE(sat)1}$		0.6	V dc
Collector to emitter voltage (saturated)	3071	Pulsed (see 4.5.1), I_C = 500 mA dc I_B = 50 mA dc	$V_{CE(sat)2}$		1.0	V dc
Base emitter voltage	3066	Test condition A, pulsed (see 4.5.1), I_C = 250 mA dc , I_B = 25 mA dc	$V_{BE(sat)1}$		1.1	V dc

See footnotes at end of table.

TABLE I. Group A inspection - Continued.

Inspection 1/	MIL-STD-750		Symbol	Limits	Limits	Unit
	Method	Conditions		Min	Max	
Subgroup 2 Continued						
Base emitter voltage	3066	Test condition A, pulsed (see 4.5.1), I_C = 500 mA dc, I_B = 50 mA dc	$V_{BE(sat)2}$		1.3	V dc
Subgroup 3						
High temperature operation:		T_A = +150°C				
Collector to emitter cutoff current 2N5681 2N5682	3041	Bias condition A, V_{BE} = 1.5 V dc V_{CE} = 100 V dc V_{CE} = 120 V dc	I_{CEX2}		1.0	mA dc
Low-temperature operation:		T_A = -55°C				
Forward current transfer ratio	3076	Pulsed (see 4.5.1), I_C = 250 mA dc, V_{CE} = 2.0 V dc	h_{FE4}	20		
Subgroup 4						
Small signal short circuit forward current transfer ratio	3206	I_C = 0.2 A dc, V_{CE} = 1.5 V dc, f = 1.0 kHz	h_{fe}	40		
* Magnitude of small-signal short-circuit forward-current transfer ratio	3306	I_C = 100 mA dc, V_{CE} = 10 V dc, f = 10 MHz	$\|h_{FE}\|$	3		
Open circuit output capacitance	3236	I_E = 0, V_{CB} = 20 V dc, f = 1 MHz	C_{obo}		50	pF

See footnotes at end of table.

TABLE I. Group A inspection - Continued.

Inspection 1/	MIL-STD-750		Symbol	Limits	Limits	Unit
	Method	Conditions		Min	Max	
Subgroup 5						
Safe operating area (continuous dc)	3051	T_C = +25°C; t ≥ 0.5 s, 1 cycle.				
Test 1		I_C = 1.0 A dc, V_{CE} = 2 V dc,				
Test 2		I_C = 1.0 A dc, V_{CE} = 10 V dc,				
Test 3		I_C = 50 mA dc, V_{CE} = 90 V dc,				
Electrical measurements		See table I, subgroup 2				
Subgroups 6 and 7						
Not applicable						

1/ For sampling plan, see MIL-PRF-19500.
2/ For resubmission of failed subgroup A1, double the sample size of the failed test or sequence of tests.
3/ Separate samples may be used.
4/ Not required for laser marked devices.
5/ For end-point measurements, this test is required for the following subgroups::
Group B, step 1 (JAN, JANTX, and JANTXV).
Group C, subgroup 2 and 6.
Group E, subgroup 1.

TABLE II. Groups B, C, and E delta measurements. 1/ 2/ 3/

Step	Inspection	MIL-STD-750		Symbol	Limits	Limits	Unit
		Method	Conditions		Min	Max	
1.	Collector to base cutoff current 2N5681 2N5682	3036	Bias condition D V_{CB} = 100 V dc V_{CB} = 120 V dc	ΔI_{CBO}	100 percent of initial value or 10 nA dc whichever is greater.		
2.	Forward current transfer ratio	3076	I_C = 250 mA dc V_{CE} = 2.0 V dc; Pulsed (see 4.5.1)	Δh_{FE1}	±25 percent change from initial recorded value.		

1/ Devices which exceed the group A limits for this test shall not be shipped.
2/ The delta measurements for group B, 4.4.2 herein are as follows:
   a. Step 1, see table II herein, steps 1 and 2.
   b. Step 2, see table II herein, steps 1 and 2.
3/ The delta measurements for table E-IX of MIL-PRF-19500 are as follows: Subgroup E2, see table II herein, steps 1 and 2.

TABLE III. Group E inspection (all quality levels) for qualification or re-qualification only.

Inspection	MIL-STD-750		Qualification
	Method	Conditions	
Subgroup 1			45 devices c = 0
Temperature cycling (air to air)	1051	Test condition C, 500 cycles	
Hermetic seal			
Fine leak Gross leak	1071		
Electrical measurements		See table I, subgroup 2 herein	
Subgroup 2			45 devices c = 0
Life test	1039	Test condition A, 1,000 hours	
Electrical measurements		See table I, subgroup 2 and table II herein	
Subgroup 4			
Thermal impedance		See MIL-PRF-19500.	
Subgroup 5			
Not applicable			
Subgroup 8			45 devices c = 0
Reverse stability	1033	Condition B	

5. PACKAGING

5.1 Packaging. 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 activities within the Military Service or Defense Agency, or within the Military Service's system commands. 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 is not mandatory. The notes specified in MIL-PRF-19500 are applicable to this specification.)

6.1 Intended use. Semiconductors 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 this specification.

b. Packaging requirements (see 5.1).

c. Lead finish (see 3.4.1).

d. The complete PIN, see 1.5 and 6.5.

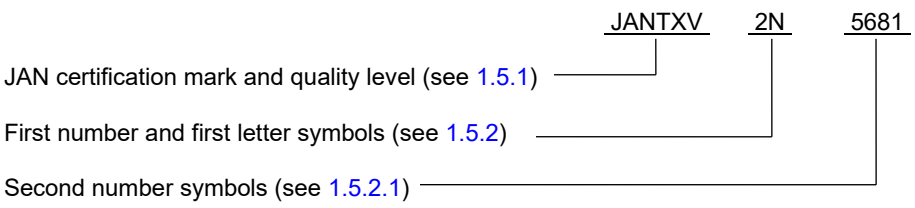
6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List (QML-19500) whether or not such products have actually been so listed by that date. The attention 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 orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from DLA Land and Maritime, ATTN: VQE, P.O. Box 3990, Columbus, OH 43218-3990 or e-mail vqe.chief@dla.mil. An online listing of products qualified to this specification may be found in the Qualified Products Database (QPD) at https://qpldocs.dla.mil.

6.4 Application guidance. The following PNP type transistor is complementary to the NPN device listed herein.

NPN	PNP
2N5681	2N5679
2N5682	2N5680

6.5 PIN construction example.

6.5.1 Encapsulated devices The PINs for encapsulated devices are constructed using the following form.



6.6 List of PINs.

6.6.1 List of PINs for encapsulated devices. The following is a list of possible PINs for encapsulated devices available on this specification sheet.

PINs for types 2N5681	PINs for types 2N5682
JAN2N5681	JAN2N5682
JANTX2N5681	JANTX2N5682
JANTXV2N5681	JANTXV2N5682

* 6.6.2 List of PINs and suppliers for unencapsulated devices. The following is a list of possible PINs for unencapsulated devices available on this specification sheet.

Die ordering information		
PIN	Manufacturer	Manufacturer
JAN2N5681	34156	52GC4
		JANHCB2N5681 JANKCB2N5681
JAN2N5682	JANHCA2N5682	JANHCB2N5682 JANKCB2N5682

6.7 Substitution information. Devices covered by this specification are substitutable for the manufacturer's and user's Part or Identifying Number (PIN). This information in no way implies that manufacturer's PIN's are suitable for the military PIN.

Military PIN	Manufacturer's CAGE Code	Manufacturer's and user's PIN
JAN2N5681 or JANTX2N5681 or JANTXV2N5681	04713	2N5681 ST1113H
JAN2N5682 or JANTX2N5682 or JANTXV2N5682	04713	2N5682 ST1211H

6.8 Amendment notations. The margins of this specification are marked with asterisks to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:
Army - CR
* Navy - SH
Air Force - 85
NASA - NA
DLA - CC

Review activities:
Air Force - 19

Preparing activity:
DLA - CC

(Project 5961-2023-019)

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 https://assist.dla.mil/.