

## PART NUMBER

### CLC412A^B2A

#### 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.

*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.*

## REVISIONS

LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED
A	Delete subgroup 4 entirely from final electrical parameters for device classes M, Q, and V under Table II. Changes in accordance with N.O.R. 5962-R194-95.	95-08-25	M. A. FRYE
B	Drawing updated to reflect current requirements. Redrawn - ro	02-02-21	R. MONNIN
C	Add new footnote 4/ to SSBW, GFP, GFR, HD2, and HD3 tests as specified under Table I. Make changes to Table II. - ro	03-06-12	R. MONNIN
D	Updating boilerplate paragraphs. - ro	09-06-02	J. RODENBECK
E	Update drawing to current MIL-PRF-38535 requirements. -rrp	15-11-16	C. SAFFLE
F	Drawing updated to reflect current MIL-PRF-38535 requirements. -rrp	21-07-21	J. ESCHMEYER

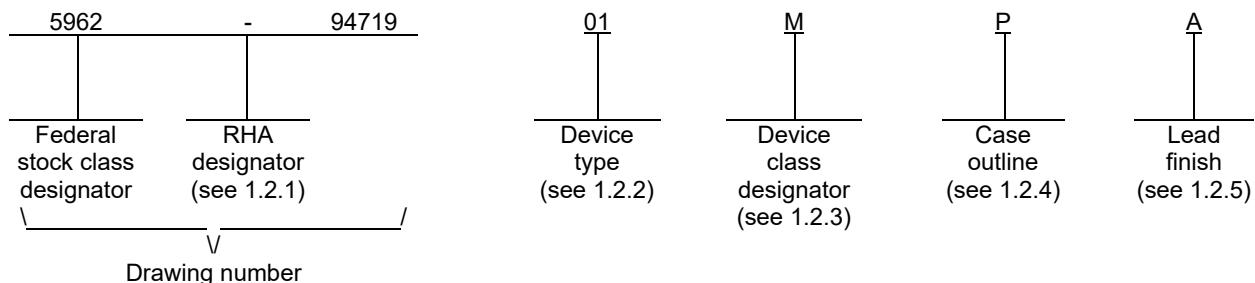


REV														
SHEET														
REV														
SHEET														
REV STATUS OF SHEETS	REV	F	F	F	F	F	F	F	F	F	F	F	F	F
PMIC N/A	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13
<b>STANDARD MICROCIRCUIT DRAWING</b>	PREPARED BY RICK OFFICER	<b>DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990</b> <a href="https://www.dla.mil/LandandMaritime">https://www.dla.mil/LandandMaritime</a>												
THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE	CHECKED BY RAJESH PITHADIA													
AMSC N/A	APPROVED BY MICHAEL FRYE													
	DRAWING APPROVAL DATE 94-08-23													
	REVISION LEVEL F													
		SIZE A	CAGE CODE <b>67268</b>	<b>5962-94719</b>										
			SHEET 1 OF 13											

## 1. SCOPE

1.1 Scope. This drawing documents two product assurance class levels consisting of high reliability (device class Q and M) and space application (device class V). A choice of case outlines and lead finishes are available and are reflected in the Part or Identifying Number (PIN). When available, a choice of Radiation Hardness Assurance (RHA) levels is reflected in the PIN.

1.2 PIN. The PIN is as shown in the following example:



1.2.1 RHA designator. Device classes Q and V RHA marked devices meet the MIL-PRF-38535 specified RHA levels and are marked with the appropriate RHA designator. Device class M RHA marked devices meet the MIL-PRF-38535, appendix A specified RHA levels and are marked with the appropriate RHA designator. A dash (-) indicates a non-RHA device.

1.2.2 Device type(s). The device type(s) identify the circuit function as follows:

<u>Device type</u>	<u>Generic number</u>	<u>Circuit function</u>
01	CLC412	Dual, wideband, video operational amplifier

1.2.3 Device class designator. The device class designator is a single letter identifying the product assurance level as follows:

<u>Device class</u>	<u>Device requirements documentation</u>
M	Vendor self-certification to the requirements for MIL-STD-883 compliant, non-JAN class level B microcircuits in accordance with MIL-PRF-38535, appendix A
Q or V	Certification and qualification to MIL-PRF-38535

1.2.4 Case outline(s). The case outline(s) 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>
P	GDIP1-T8 or CDIP2-T8	8	Dual-in-line
2	CQCC1-N20	20	Square leadless chip carrier

1.2.5 Lead finish. The lead finish is as specified in MIL-PRF-38535 for device classes Q and V or MIL-PRF-38535, appendix A for device class M.

**STANDARD  
MICROCIRCUIT DRAWING**  
DLA LAND AND MARITIME  
COLUMBUS, OHIO 43218-3990

**SIZE  
A**

**5962-94719**

REVISION LEVEL  
F

SHEET

2

1.3 Absolute maximum ratings. 1/

Supply voltage (VCC) .....	±7 V dc
Output current (I <sub>OUT</sub> ) .....	96 mA
Common mode input voltage .....	±VCC
Power dissipation (PD) .....	1.15 W
Lead temperature (soldering, 10 seconds) .....	+300°C
Junction temperature (T <sub>J</sub> ) .....	+175°C
Storage temperature range .....	-65°C to +150°C
Thermal resistance, junction-to-case (θ <sub>JC</sub> ):	
Case P .....	+50°C/W
Case 2 .....	+45°C/W
Thermal resistance, junction-to-ambient (θ <sub>JA</sub> ):	
Case P .....	+100°C/W
Case 2 .....	+60°C/W

1.4 Recommended operating conditions.

Supply voltage (VCC) .....	±5 V dc
Gain range (Av) .....	+1 V/V to +10 V/V
Ambient operating temperature range (T <sub>A</sub> ) .....	-55°C to +125°C

2. APPLICABLE DOCUMENTS

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

DEPARTMENT OF DEFENSE SPECIFICATION

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

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-883 - Test Method Standard Microcircuits.

MIL-STD-1835 - Interface Standard Electronic Component Case Outlines.

DEPARTMENT OF DEFENSE HANDBOOKS

MIL-HDBK-103 - List of Standard Microcircuit Drawings.

MIL-HDBK-780 - Standard Microcircuit Drawings.

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

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

1/ Stresses above the absolute maximum rating may cause permanent damage to the device. Extended operation at the maximum levels may degrade performance and affect reliability.

<b>STANDARD MICROCIRCUIT DRAWING</b> DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	<b>SIZE</b>	<b>5962-94719</b>
	<b>A</b>	
	REVISION LEVEL F	<b>SHEET 3</b>

### 3. REQUIREMENTS

3.1 Item requirements. The individual item requirements for device classes Q and V shall be in accordance with MIL-PRF-38535 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. The individual item requirements for device class M shall be in accordance with MIL-PRF-38535, appendix A for non-JAN class level B devices and as specified herein.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535 and herein for device classes Q and V or MIL-PRF-38535, appendix A and herein for device class M.

3.2.1 Case outline. The case outline shall be in accordance with 1.2.4 herein.

3.2.2 Terminal connections. The terminal connections shall be as specified on figure 1.

3.3 Electrical performance characteristics and postirradiation parameter limits. Unless otherwise specified herein, the electrical performance characteristics and postirradiation parameter limits are as specified in table I and shall apply over the full ambient operating temperature range.

3.4 Electrical test requirements. The electrical test requirements shall be the subgroups specified in table II. The electrical tests for each subgroup are defined in table I.

3.5 Marking. The part shall be marked with the PIN listed in 1.2 herein. In addition, the manufacturer's PIN may also be marked. For packages where marking of the entire SMD PIN number is not feasible due to space limitations, the manufacturer has the option of not marking the "5962-" on the device. For RHA product using this option, the RHA designator shall still be marked. Marking for device classes Q and V shall be in accordance with MIL-PRF-38535. Marking for device class M shall be in accordance with MIL-PRF-38535, appendix A.

3.5.1 Certification/compliance mark. The certification mark for device classes Q and V shall be a "QML" or "Q" as required in MIL-PRF-38535. The compliance mark for device class M shall be a "C" as required in MIL-PRF-38535, appendix A.

3.6 Certificate of compliance. For device classes Q and V, a certificate of compliance shall be required from a QML-38535 listed manufacturer in order to supply to the requirements of this drawing (see 6.6.1 herein). For device class M, a certificate of compliance shall be required from a manufacturer in order to be listed as an approved source of supply in MIL-HDBK-103 (see 6.6.2 herein). The certificate of compliance submitted to DLA Land and Maritime-VA prior to listing as an approved source of supply for this drawing shall affirm that the manufacturer's product meets, for device classes Q and V, the requirements of MIL-PRF-38535 and herein or for device class M, the requirements of MIL-PRF-38535, appendix A and herein.

3.7 Certificate of conformance. A certificate of conformance as required for device classes Q and V in MIL-PRF-38535 or for device class M in MIL-PRF-38535, appendix A shall be provided with each lot of microcircuits delivered to this drawing.

3.8 Notification of change for device class M. For device class M, notification to DLA Land and Maritime-VA of change of product (see 6.2 herein) involving devices acquired to this drawing is required for any change that affects this drawing.

3.9 Verification and review for device class M. For device class M, DLA Land and Maritime, DLA Land and Maritime's agent, and the acquiring activity retain the option to review the manufacturer's facility and applicable required documentation. Offshore documentation shall be made available onshore at the option of the reviewer.

3.10 Microcircuit group assignment for device class M. Device class M devices covered by this drawing shall be in microcircuit group number 49 (see MIL-PRF-38535, appendix A).

<b>STANDARD MICROCIRCUIT DRAWING</b> DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	<b>SIZE A</b>		<b>5962-94719</b>
		REVISION LEVEL F	SHEET 4

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions 1/ -55°C ≤ TA ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits 2/ Min      Max		Unit				
					Min	Max					
Static and dc tests.											
Input bias current	+IBN		01	1,2	1,2	-12	+12	μA			
					3	-28	+28				
					1	-15	+15				
	-IBN				2	-20	+20				
					3	-34	+34				
Input offset voltage	VIO		01	1	1	-6	+6	mV			
					2	-12	+12				
					3	-10	+10				
Average input bias current drift	TC (+IBN)	TA = +125°C, -55°C 3/	01	2	-90	+90	nA/°C				
					-187	+187					
	TC (-IBN)			3	-80	+80					
					-125	+125					
Average input offset voltage drift	TC (VIO)	TA = +125°C, -55°C 3/		2,3	01	-60	+60	μV/°C			
Supply current	ICC	RL = ∞	01	1,2			12.8	mA			
					3		13.6				
Power supply rejection ratio	PSRR	+VS = +4.5 V to +5.0 V, -VS = -4.5 V to -5.0 V	01	1	46		dB				
					2,3	44					
Common mode 3/ rejection ratio	CMRR	VCM = ±1 V	01	4	45		dB				
					5,6	43					

See footnotes at end of table.

**STANDARD  
MICROCIRCUIT DRAWING**  
DLA LAND AND MARITIME  
COLUMBUS, OHIO 43218-3990

SIZE  
**A****5962-94719**REVISION LEVEL  
FSHEET  
5

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ TA ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits <u>2/</u>		Unit
					Min	Max	
Frequency domain tests.							
Small signal bandwidth	SSBW	-3 dB bandwidth, V <sub>OUT</sub> < 0.5 V <sub>PP</sub>	4	01	175		MHz
			5 <u>4/</u>		135		
			6 <u>4/</u>		150		
Large signal bandwidth	LSBW	-3 dB bandwidth, <u>3/</u> V <sub>OUT</sub> < 4.0 V <sub>PP</sub>	4,6	01	80		MHz
			5		65		
Gain flatness peaking high	GFP	0.1 MHz to 30 MHz, V <sub>OUT</sub> ≤ 0.5 V <sub>PP</sub>	4	01		0.1	dB
			5 <u>4/</u>			0.2	
			6 <u>4/</u>			0.1	
Gain flatness rolloff	GFR	0.1 MHz to 30 MHz, V <sub>OUT</sub> ≤ 0.5 V <sub>PP</sub>	4	01		0.3	dB
			5 <u>4/</u>			0.3	
			6 <u>4/</u>			0.4	
Linear phase deviation	LPD	DC to 75 MHz, <u>3/</u> V <sub>OUT</sub> ≤ 0.5 V <sub>PP</sub>	4,5	01		1.0	Degrees
			6			1.3	
Differential gain	DG	4.43 MHz, RL = 150 Ω <u>3/</u>	4,6	01	0.04		%
			5		0.08		
Differential phase	DP	4.43 MHz, RL = 150 Ω <u>3/</u>	4,6	01	0.04		Degree
			5		0.08		

See footnotes at end of table.

**STANDARD  
MICROCIRCUIT DRAWING**  
DLA LAND AND MARITIME  
COLUMBUS, OHIO 43218-3990

SIZE  
**A****5962-94719**REVISION LEVEL  
FSHEET  
6

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ TA ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits <u>2/</u>		Unit
					Min	Max	
Distortion and noise tests.							
Second harmonic distortion	HD2	2 VPP at 20 MHz	4	01		-42	dBc
			5 <u>4/</u>			-38	
			6 <u>4/</u>			-42	
Third harmonic distortion	HD3	2 VPP at 20 MHz	4	01		-46	dBc
			5 <u>4/</u>			-42	
			6 <u>4/</u>			-46	
Equivalent noise input positive voltage	VEN	> 1 MHz	<u>3/</u>	01		3.4	nV / $\sqrt{\text{Hz}}$
						3.8	
Equivalent input inverting current noise	ICN	> 1 MHz	<u>3/</u>	01		13.9	pA / $\sqrt{\text{Hz}}$
						15.5	
Equivalent input non- inverting current noise	NICN	> 1 MHz	<u>3/</u>	01		2.6	pA / $\sqrt{\text{Hz}}$
						3.0	
Noise floor	SNF	> 1 MHz	<u>3/</u>	01	-156		dBm (1 Hz)
					-155		
Crosstalk (input referred)	XTLK	At 10 MHz	<u>3/</u>	4,5,6	01	-64	dB

See footnotes at end of table.

**STANDARD  
MICROCIRCUIT DRAWING**  
DLA LAND AND MARITIME  
COLUMBUS, OHIO 43218-3990

SIZE  
**A****5962-94719**REVISION LEVEL  
FSHEET  
7

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ TA ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits <u>2/</u>		Unit
					Min	Max	
Timing tests.							
Rise and fall time	t <sub>RS</sub>	0.5 V step <u>3/</u>	9	01	2.0		ns
			10		2.6		
			11		2.3		
	t <sub>RL</sub>	4 V step <u>3/</u>	9,11		4.4		
			10		4.8		
Slew rate	SR	Measured ±1 V with <u>3/</u> ±2 V step, Av = 2	4,6	01		1000	V/μs
			5			800	
Settling time	t <sub>S</sub>	2 V step at 0.05 % of <u>3/</u> the fixed value	9,11	01		18	ns
			10			20	
Overshoot	OS	0.5 V step <u>3/</u>	9,10,11	01		15	%
Performance tests							
Input resistance (positive)	R <sub>IN</sub>	<u>3/</u>	4,5	01	500		kΩ
			6		300		
Input capacitance (positive)	C <sub>IN</sub>	<u>3/</u>	4,5,6	01	2.0		pF
Output resistance	R <sub>OUT</sub>	Closed loop <u>3/</u>	4	01	0.3		Ω
			5		0.2		
			6		0.6		
Output voltage range	V <sub>OUT</sub>	R <sub>L</sub> = ∞ <u>3/</u>	1,2	01	-3.0	+3.7	V
			3		-2.9	+3.6	
		R <sub>L</sub> = 100 Ω <u>3/</u>	1,2		-2.7	+2.7	
			3		-2.5	+2.0	

See footnotes at end of table.

**STANDARD  
MICROCIRCUIT DRAWING**  
DLA LAND AND MARITIME  
COLUMBUS, OHIO 43218-3990

SIZE  
**A****5962-94719**REVISION LEVEL  
FSHEET  
8

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ TA ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits <u>2/</u>		Unit
					Min	Max	
Performance tests – continued.							
Common mode input voltage range	CMIR	<u>3/</u>	1,2	01	-2.0	+2.0	V
			3		-1.4	+1.4	
Output current	I <sub>OUT</sub>	<u>3/</u>	1,2	01	45		mA
			3		25		

1/ Unless otherwise specified, V<sub>CC</sub> = ±5 V dc, A<sub>v</sub> = +2, load resistance (R<sub>L</sub>) = 100 Ω, feedback resistance (R<sub>F</sub>) = 634 Ω, and gain resistance (R<sub>G</sub>) = 634 Ω.

2/ The algebraic convention, whereby the most negative value is a minimum and the most positive is a maximum, is used in this table. Negative current shall be defined as conventional current flow out of a device terminal.

3/ If not tested, shall be guaranteed to the limits specified in table I herein.

4/ Subgroups 5 and 6 are Group A tested only.

**STANDARD  
MICROCIRCUIT DRAWING**  
DLA LAND AND MARITIME  
COLUMBUS, OHIO 43218-3990

**SIZE  
A**

**5962-94719**

REVISION LEVEL  
F

SHEET  
9

Device type	01	
Case outlines	P	2
Terminal number	Terminal number	
1	OUTPUT 1	NC
2	-INPUT 1	OUTPUT 1
3	+INPUT 1	NC
4	-VCC	NC
5	+INPUT 2	-INPUT 1
6	-INPUT 2	NC
7	OUTPUT 2	+INPUT 1
8	+VCC	NC
9	---	NC
10	---	-VCC
11	---	NC
12	---	+INPUT 2
13	---	NC
14	---	NC
15	---	-INPUT 2
16	---	NC
17	---	OUTPUT 2
18	---	NC
19	---	NC
20	---	+VCC

NC = No connection

FIGURE 1. Terminal connections.

<b>STANDARD MICROCIRCUIT DRAWING</b> DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	<b>SIZE</b>	<b>5962-94719</b>
	<b>A</b>	
	REVISION LEVEL F	<b>SHEET</b> 10

#### 4. VERIFICATION

4.1 Sampling and inspection. For device classes Q and V, 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 affect the form, fit, or function as described herein. For device class M, sampling and inspection procedures shall be in accordance with MIL-PRF-38535, appendix A.

4.2 Screening. For device classes Q and V, screening shall be in accordance with MIL-PRF-38535, and shall be conducted on all devices prior to qualification and technology conformance inspection. For device class M, screening shall be in accordance with method 5004 of MIL-STD-883, and shall be conducted on all devices prior to quality conformance inspection.

##### 4.2.1 Additional criteria for device class M.

a. Burn-in test, method 1015 of MIL-STD-883.

(1) Test condition B. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to the preparing or acquiring activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in method 1015 of MIL-STD-883.

(2)  $TA = +125^{\circ}\text{C}$ , minimum.

b. Interim and final electrical test parameters shall be as specified in table II herein.

##### 4.2.2 Additional criteria for device classes Q and V.

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 revision level control of 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 method 1015 of MIL-STD-883.

b. Interim and final electrical test parameters shall be as specified in table II herein.

c. Additional screening for device class V beyond the requirements of device class Q shall be as specified in MIL-PRF-38535, appendix B.

4.3 Qualification inspection for device classes Q and V. Qualification inspection for device classes Q and V shall be in accordance with MIL-PRF-38535. Inspections to be performed shall be those specified in MIL-PRF-38535 and herein for groups A, B, C, D, and E inspections (see 4.4.1 through 4.4.4).

4.4 Conformance inspection. Technology conformance inspection for classes Q and V shall be in accordance with MIL-PRF-38535 including groups A, B, C, D, and E inspections, and as specified herein. Quality conformance inspection for device class M shall be in accordance with MIL-PRF-38535, appendix A and as specified herein. Inspections to be performed for device class M shall be those specified in method 5005 of MIL-STD-883 and herein for groups A, B, C, D, and E inspections (see 4.4.1 through 4.4.4).

##### 4.4.1 Group A inspection.

a. Tests shall be as specified in table II herein.

b. Subgroups 7 and 8 in table I, method 5005 of MIL-STD-883 shall be omitted.

<b>STANDARD MICROCIRCUIT DRAWING</b> DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	<b>SIZE A</b>		<b>5962-94719</b>
		REVISION LEVEL F	SHEET 11

TABLE II. Electrical test requirements.

Test requirements	Subgroups (in accordance with MIL-STD-883, method 5005, table I)	Subgroups (in accordance with MIL-PRF-38535, table III)	
	Device class M	Device class Q	Device class V
Interim electrical parameters (see 4.2)	1	1	1
Final electrical parameters (see 4.2)	1,2,3,4 <u>1/</u>	1,2,3,4 <u>1/</u>	1,2,3,4 <u>1/</u>
Group A test requirements (see 4.4)	1,2,3,4,5,6, <u>2/</u> 9,10,11	1,2,3,4,5, <u>2/</u> 6,9,10,11	1,2,3,4,5, <u>2/</u> 6,9,10,11
Group C end-point electrical parameters (see 4.4)	1	1	1
Group D end-point electrical parameters (see 4.4)	1	1	1
Group E end-point electrical parameters (see 4.4)	---	---	---

1/ PDA applies to subgroup 1.

2/ Subgroups 9, 10, and 11 if not tested, shall be guaranteed to the limits specified in table I herein.

4.4.2 Group C inspection. The group C inspection end-point electrical parameters shall be as specified in table II herein.

4.4.2.1 Additional criteria for device class M. Steady-state life test conditions, method 1005 of MIL-STD-883:

- Test condition B. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to the preparing or acquiring activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in method 1005 of MIL-STD-883.
- TA = +125°C, minimum.
- Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.

4.4.2.2 Additional criteria for device classes Q and V. 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 test circuit shall be maintained under document revision level control by the device manufacturer's 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 method 1005 of MIL-STD-883.

4.4.3 Group D inspection. The group D inspection end-point electrical parameters shall be as specified in table II herein.

<b>STANDARD MICROCIRCUIT DRAWING</b> DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	<b>SIZE A</b>	<b>5962-94719</b>
	<b>REVISION LEVEL F</b>	

4.4.4 Group E inspection. Group E inspection is required only for parts intended to be marked as radiation hardness assured (see 3.5 herein).

- a. End-point electrical parameters shall be as specified in table II herein.
- b. For device classes Q and V, the devices or test vehicle shall be subjected to radiation hardness assured tests as specified in MIL-PRF-38535 for the RHA level being tested. For device class M, the devices shall be subjected to radiation hardness assured tests as specified in MIL-PRF-38535, appendix A for the RHA level being tested. All device classes must meet the postirradiation end-point electrical parameter limits as defined in table I at  $TA = +25^\circ\text{C} \pm 5^\circ\text{C}$ , after exposure, to the subgroups specified in table II herein.

## 5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-PRF-38535 for device classes Q and V or MIL-PRF-38535, appendix A for device class M.

## 6. NOTES

6.1 Intended use. Microcircuits conforming to this drawing are intended for use for Government microcircuit applications (original equipment), design applications, and logistics purposes.

6.1.1 Replaceability. Microcircuits covered by this drawing will replace the same generic device covered by a contractor prepared specification or drawing.

6.1.2 Substitutability. Device class Q devices will replace device class M devices.

6.2 Configuration control of SMD's. All proposed changes to existing SMD's will be coordinated with the users of record for the individual documents. This coordination will be accomplished using DD Form 1692, Engineering Change Proposal.

6.3 Record of users. Military and industrial users should inform DLA Land and Maritime when a system application requires configuration control and which SMD's are applicable to that system. DLA Land and Maritime will maintain a record of users and this list will be used for coordination and distribution of changes to the drawings. Users of drawings covering microelectronic devices (FSC 5962) should contact DLA Land and Maritime-VA, telephone (614) 692-8108.

6.4 Comments. Comments on this drawing should be directed to DLA Land and Maritime-VA, Columbus, Ohio 43218-3990, or telephone (614) 692-0540.

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

### 6.6 Sources of supply.

6.6.1 Sources of supply for device classes Q and V. Sources of supply for device classes Q and V are listed in MIL-HDBK-103 and QML-38535. The vendors listed in MIL-HDBK-103 and QML-38535 have submitted a certificate of compliance (see 3.6 herein) to DLA Land and Maritime-VA and have agreed to this drawing.

6.6.2 Approved sources of supply for device class M. Approved sources of supply for class M are listed in MIL-HDBK-103. The vendors listed in MIL-HDBK-103 have agreed to this drawing and a certificate of compliance (see 3.6 herein) has been submitted to and accepted by DLA Land and Maritime-VA.

<b>STANDARD MICROCIRCUIT DRAWING</b> DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	<b>SIZE</b>	<b>5962-94719</b>
	REVISION LEVEL F	SHEET 13

## STANDARD MICROCIRCUIT DRAWING BULLETIN

DATE: 21-07-21

Approved sources of supply for SMD 5962-94719 are listed below for immediate acquisition information only and shall be added to MIL-HDBK-103 and QML-38535 during the next revision. MIL-HDBK-103 and QML-38535 will be revised to include the addition or deletion of sources. The vendors listed below have agreed to this drawing and a certificate of compliance has been submitted to and accepted by DLA Land and Maritime-VA. This information bulletin is superseded by the next dated revision of MIL-HDBK-103 and QML-38535. DLA Land and Maritime maintains an online database of all current sources of supply at <https://landandmaritimeapps.dla.mil/programs/smcr/>.

Standard microcircuit drawing PIN 1/	Vendor CAGE number	Vendor similar PIN 2/
5962-9471901MPA	3/	CLC412A/BPA
	3/	CLC412AJ-QML
	3/	CLC412A8B
5962-9471901M2A	3V146	CLC412A/B2A
	3/	CLC412AE-QML
	3/	CLC412A8L-2

- 1/ The lead finish shown for each PIN representing a hermetic package is the most readily available from the manufacturer listed for that part. If the desired lead finish is not listed contact the vendor to determine its availability.
- 2/ Caution. Do not use this number for item acquisition. Items acquired to this number may not satisfy the performance requirements of this drawing.
- 3/ Not available from an approved source of supply.

Vendor CAGE  
number

3V146

Vendor name  
and address

Rochester Electronics Inc.  
16 Malcolm Hoyt Drive  
Newburyport, MA 01950

The information contained herein is disseminated for convenience only and the Government assumes no liability whatsoever for any inaccuracies in the information bulletin.