REVISIONS			
LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED

REV																				
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SHEET	15																			

REV STATUS OF SHEETS	REV														
	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14

PMIC N/A

STANDARDIZED MILITARY DRAWING

THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE

AMSC N/A

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DRAWING APPROVAL DATE
93-07-07

REVISION LEVEL

DEFENSE ELECTRONICS SUPPLY CENTER
DAYTON, OHIO 45444

MICROCIRCUIT, LINEAR, ANALOG MULTIPLEXER, MONOLITHIC SILICON

SIZE	CAGE CODE	
A	67268	5962-90635

SHEET 1 OF 15

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

1. SCOPE

1.1 Scope. This drawing forms a part of a one part - one part number documentation system (see 6.6 herein). Two product assurance classes consisting of military high reliability (device classes B, Q, and M) and space application (device classes S and V), and a choice of case outlines and lead finishes are available and are reflected in the Part or Identifying Number (PIN). Device class M microcircuits represent non-JAN class B microcircuits in accordance with 1.2.1 of MIL-STD-883, "Provisions for the use of MIL-STD-883 in conjunction with compliant non-JAN devices". When available, a choice of Radiation Hardness Assurance (RHA) levels are reflected in the PIN.

1.2 PIN. The PIN shall be as shown in the following example:

5962	-	90635	01	M	V	X
Federal stock class designator	RHA designator (see 1.2.1)		Device type (see 1.2.2)	Device class designator (see 1.2.3)	Case outline (See 1.2.4)	Lead finish (see 1.2.5)
Drawing number						

1.2.1 RHA designator. Device classes M, B, and S RHA marked devices shall meet the MIL-M-38510 specified RHA levels and shall be marked with the appropriate RHA designator. Device classes Q and V RHA marked devices shall meet the MIL-I-38535 specified RHA levels and shall be marked with the appropriate RHA designator. A dash (-) indicates a non-RHA device.

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

Device type	Generic number	Circuit function
01	ADG528A	8 channel analog multiplexer
02	ADG529A	dual 4 channel analog multiplexer

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

Device class	Device requirements documentation
M	Vendor self-certification to the requirements for non-JAN class B microcircuits in accordance with 1.2.1 of MIL-STD-883
B or S	Certification and qualification to MIL-M-38510
Q or V	Certification and qualification to MIL-I-38535

1.2.4 Case outline(s). The case outline(s) shall be as designated in MIL-STD-1835 and as follows:

Outline letter	Descriptive designator	Terminals	Package style
V	GDIP1-T18 or CDIP2-T18	18	dual-in-line
2	CQCC1-N20	20	square leadless chip carrier

1.2.5 Lead finish. The lead finish shall be as specified in MIL-M-38510 for classes M, B, and S or MIL-I-38535 for classes Q and V. Finish letter "X" shall not be marked on the microcircuit or its packaging. The "X" designation is for use in specifications when lead finishes A, B, and C are considered acceptable and interchangeable without preference.

1.3 Absolute maximum ratings. 1/

Supply voltage range (V_{DD} to V_{SS})	44 V dc
V_{DD} to GND	+25 V dc
V_{SS} to GND	-25 V dc
Analog input voltage at S, D	V_{SS} -2 V dc to V_{DD} +2 V dc or 20 mA, whichever occurs first
Continuous current, S or D	20 mA
Pulsed current S or D (1 mS duration, 10% duty cycle)	40 mA
Digital input voltage at A, EN, WR, RS	V_{SS} -4 V dc to V_{DD} +4 V dc or 20 mA, whichever occurs first
Power disipation (P_D) at +75°C 2/	470 mW
Storage temperature range	-65°C to +150°C
Lead temperature (soldering, 10 seconds)	+300°C

1.4 Recommended operating conditions.

Operating voltage range:	
V_{DD}	+10.8 V dc to +16.5 V dc
V_{SS}	-10.8 V dc to -16.5 V dc
Ambient operating temperature range	-55°C to +125°C

2. APPLICABLE DOCUMENTS

2.1 Government specifications, standards, bulletin, and handbook. Unless otherwise specified, the following specifications, standards, bulletin, and handbook of the issue listed in that issue of the Department of Defense Index of Specifications and Standards specified in the solicitation, form a part of this drawing to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-M-38510 - Microcircuits, General Specification for.
MIL-I-38535 - Integrated Circuits, Manufacturing, General Specification for.

STANDARDS

MILITARY

MIL-STD-480 - Configuration Control-Engineering Changes, Deviations and Waivers.
MIL-STD-883 - Test Methods and Procedures for Microelectronics.
MIL-STD-1835 - Microcircuit Case Outlines.

BULLETIN

MILITARY

MIL-BUL-103 - List of Standardized Military Drawings (SMD's).

HANDBOOK

MILITARY

MIL-HDBK-780 - Standardized Military Drawings.

(Copies of the specifications, standards, bulletin, and handbook required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

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.

2/ Above +75°C, Derate at 6 mW/°C .

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 shall take precedence.

3. REQUIREMENTS

3.1 Item requirements. The individual item requirements for device class M shall be in accordance with 1.2.1 of MIL-STD-883, "Provisions for the use of MIL-STD-883 in conjunction with compliant non-JAN devices" and as specified herein. The individual item requirements for device classes B and S shall be in accordance with MIL-M-38510 and as specified herein. For device classes B and S, a full electrical characterization table for each device type shall be included in this SMD. The individual item requirements for device classes Q and V shall be in accordance with MIL-I-38535, the device manufacturer's Quality Management (QM) plan, and as specified herein.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-M-38510 for device classes M, B, and S and MIL-I-38535 for device classes Q and V and herein.

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

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

3.2.3 Truth table(s). The truth table(s) shall be as specified on figure 2.

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. Marking for device class M shall be in accordance with MIL-STD-883 (see 3.1 herein). In addition, the manufacturer's PIN may also be marked as listed in MIL-BUL-103. Marking for device classes B and S shall be in accordance with MIL-M-38510. Marking for device classes Q and V shall be in accordance with MIL-I-38535.

3.5.1 Certification/compliance mark. The compliance mark for device class M shall be a "C" as required in MIL-STD-883 (see 3.1 herein). The certification mark for device classes B and S shall be a "J" or "JAN" as required in MIL-M-38510. The certification mark for device classes Q and V shall be a "QML" as required in MIL-I-38535.

3.6 Certificate of compliance. 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-BUL-103 (see 6.7.3 herein). 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 6.7.2 herein). The certificate of compliance submitted to DESC-EC prior to listing as an approved source of supply for this drawing shall affirm that the manufacturer's product meets, for device class M, the requirements of MIL-STD-883 (see 3.1 herein), or for device classes Q and V, the requirements of MIL-I-38535 and the requirements herein.

3.7 Certificate of conformance. A certificate of conformance as required for device class M in MIL-STD-883 (see 3.1 herein) or device classes B and S in MIL-M-38510 or for device classes Q and V in MIL-I-38535 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 DESC-EC of change of product (see 6.2 herein) involving devices acquired to this drawing is required for any change as defined in MIL-STD-480.

3.9 Verification and review for device class M. For device class M, DESC, DESC'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 classes M, B, and S. Device classes M, B, and S devices covered by this drawing shall be in microcircuit group number 82 (see MIL-M-38510, appendix E).

3.11 Serialization for device class S. All device class S devices shall be serialized in accordance with MIL-M-38510.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions $-55^\circ C \leq T_A \leq +125^\circ C$ $V_{DD} = +10.8$ V to $+16.5$ V $V_{SS} = -10.8$ V to -16.5 V unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Dual supply							
Analog signal range	V_{RANGE}		1, 2, 3	All	V_{SS}	V_{DD}	V
Switch resistance	R_{ON}	-10 V $\leq V_S \leq +10$ V, $I_{DS} = 1$ mA	1	All		450	Ω
			2, 3			600	
		$V_{DD} = +15$ V (±5%), $V_{SS} = -15$ V (±5%)	1			300	
			2, 3			400	
Off input leakage current	$I_{S(OFF)}$	V1 = ±10 V, V2 = ∓10 V	1	All		1	nA
			2, 3			50	
Off output leakage current	$I_{D(OFF)}$	V1 = ±10 V, V2 = ∓10 V	1	All		1	
			2, 3	01		100	
				02		50	
On channel leakage current	$I_{D(ON)}$	V1 = ±10 V, V2 = ∓10 V	1	All		1	
			2, 3	01		100	
				02		50	
Differential off output leakage current	I_{DIFF}	V1 = ±10 V, V2 = ∓10 V	1, 2, 3	02		25	
Input high voltage	V_{INH}		1, 2, 3	All	2.4		V
Input low voltage	V_{INL}		1, 2, 3	All		0.8	
Input current, high or low	I_{INL} or I_{INH}	$V_{IN} = 0$ V to V_{DD}	1, 2, 3	All		1	µA
Digital input capacitance	C_{IN}		4	All		8	pF
Transition delay time	t_{TRANS}	V1 = ±10 V, V2 = ∓10 V 1/ $R_L = 1M\Omega$, $C_L = 35$ pF	9	All		300	ns
			10, 11			400	
Open time	t_{OPEN}	1/ $R_L = 1k\Omega$, $C_L = 35$ pF	9	All	25		
			10, 11		10		

See footnotes at end of table.

TABLE I. Electrical performance characteristics - continued.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ V_{DD} = +10.8 V to +16.5 V V_{SS} = -10.8 V to -16.5 V unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
On delay time	t_{ON}	1/ R_L = 1kΩ, C_L = 35 pF	9	All		300	ns
			10, 11			400	
Off delay time	t_{OFF}	1/ R_L = 1kΩ, C_L = 35 pF	9	All		300	
			10, 11			400	
Write pulse width	t_W	1/ see figure 3	9	All	100		
			10, 11		130		
Address, enable setup time	t_S	1/ see figure 3	9, 10, 11	All	100		
Address, enable hold time	t_H	1/ see figure 3	9, 10, 11	All	10		
Reset pulse width	t_{RS}	1/ see figure 3	9, 10, 11	All	100		
Off isolation		V_S = 7 V rms, f = 100 kHz V_{EN} = 0.8 V, R_L = 1 kΩ, C_L = 15 pF	4	All	50		dB
Positive supply current	I_{DD}	V_{IN} = V_{INL} or V_{INH}	1, 2, 3	All		1.5	mA
Negative supply current	I_{SS}	V_{IN} = V_{INL} or V_{INH}	1, 2, 3	All		0.2	

See footnotes at end of table.

TABLE I. Electrical performance characteristics - continued.

Test	Symbol	Conditions -55°C ≤ T_A ≤ +125°C V_{DD} = +10.8 V to +16.5 V V_{SS} = GND = 0 V unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Single supply							
Analog signal range	V_{RANGE}		1, 2, 3	All	GND	V_{DD}	V
Switch resistance	R_{ON}	GND ≤ V_S ≤ +10 V, I_{DS} = 0.5 mA	1	All		700	Ω
			2, 3			1000	
Off input leakage current	$I_{S(OFF)}$	V1 = +10 V/ GND, V2 = GND/ +10 V	1	All		1	nA
			2, 3			50	
Off output leakage current	$I_{D(OFF)}$	V1 = +10 V/ GND, V2 = GND/ +10 V	1	All		1	
			2, 3	01		100	
				02		50	
On channel leakage current	$I_{D(ON)}$	V1 = +10 V/ GND, V2 = GND/ +10 V	1	All		1	
			2, 3	01		100	
				02		50	
Differential off output leakage current	I_{DIFF}	V1 = +10 V/ GND, V2 = GND/ +10 V	1, 2, 3	02		25	
Input high voltage	V_{INH}		1, 2, 3	All	2.4		V
Input low voltage	V_{INL}		1, 2, 3	All		0.8	
Input current, high or low	I_{INL} or I_{INH}	V_{IN} = 0 V to V_{DD}	1, 2, 3	All		1	µA
Digital input capacitance	C_{IN}		4	All		8	pF
Transition delay time	t_{TRANS}	V1 = +10 V/GND, V2 = GND/ +10 V 1/ R_L = 1MΩ, C_L = 35 pF	9	All		450	ns
			10, 11			600	
Open time	t_{OPEN}	1/ R_L = 1kΩ, C_L = 35 pF	9	All	25		
			10, 11		10		

See footnotes at end of table.

TABLE I. Electrical performance characteristics - continued.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ $V_{DD} = +10.8$ V to $+16.5$ V V_{SS} = GND = 0 V unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
On delay time	t_{ON}	1/ $R_L = 1k\Omega$, $C_L = 35$ pF	9	All		450	ns
			10, 11			600	
Off delay time	t_{OFF}	1/ $R_L = 1k\Omega$, $C_L = 35$ pF	9	All		450	
			10, 11			600	
Write pulse width	t_W	1/ see figure 3	9	All	100		
			10, 11		130		
Address, enable setup time	t_S	1/ see figure 3	9, 10, 11	All	100		
Address, enable hold time	t_H	1/ see figure 3	9, 10, 11	All	10		
Reset pulse width	t_{RS}	1/ see figure 3	9, 10, 11	All	100		
Off isolation		$V_S = 3.5$ V rms, f = 100 kHz $V_{EN} = 0.8$ V, $R_L = 1$ kΩ, $C_L = 15$ pF	4	All	50		dB
Positive supply current	I_{DD}	$V_{IN} = V_{INL}$ or V_{INH}	1, 2, 3	All		1.5	mA
Functional tests	FT	See paragraph 4.4.1d	7, 8	All			

1/ For subgroups 10 and 11, parameter is guaranteed to the specified limit but not tested.

Device type	01		02	
Case outline	V	2	V	2
Terminal number	Terminal symbol			
1	$\overline{WR}$	NC	$\overline{WR}$	NC
2	A0	$\overline{WR}$	A0	$\overline{WR}$
3	EN	A0	EN	A0
4	V_{SS}	EN	V_{SS}	EN
5	S1	V_{SS}	S1A	V_{SS}
6	S2	S1	S2A	S1A
7	S3	S2	S3A	S2A
8	S4	S3	S4A	S3A
9	D	S4	DA	S4A
10	S8	D	DB	DA
11	S7	NC	S4B	NC
12	S6	S8	S3B	DB
13	S5	S7	S2B	S4B
14	V_{DD}	S6	S1B	S3B
15	GND	S5	V_{DD}	S2B
16	A2	V_{DD}	GND	S1B
17	A1	GND	A1	V_{DD}
18	$\overline{RS}$	A2	$\overline{RS}$	GND
19	---	A1	---	A1
20	---	$\overline{RS}$	---	$\overline{RS}$

FIGURE 1. Terminal connections.

Device type 01

A2	A1	A0	EN	$\overline{WR}$	$\overline{RS}$	ON SWITCH PAIR
X	X	X	X	↑	1	Retains previous switch condition
X	X	X	X	X	0	NONE (address and enable latches cleared)
X	X	X	0	0	1	NONE
0	0	0	1	0	1	1
0	0	1	1	0	1	2
0	1	0	1	0	1	3
0	1	1	1	0	1	4
1	0	0	1	0	1	5
1	0	1	1	0	1	6
1	1	0	1	0	1	7
1	1	1	1	0	1	8

Device type 02

A1	A0	EN	$\overline{WR}$	$\overline{RS}$	ON SWITCH PAIR
X	X	X	↑	1	Retains previous switch condition
X	X	X	X	0	NONE (address and enable latches cleared)
X	X	0	0	1	NONE
0	0	1	0	1	1
0	1	1	0	1	2
1	0	1	0	1	3
1	1	1	0	1	4

Note: X = Don't care

FIGURE 2. Truth table.

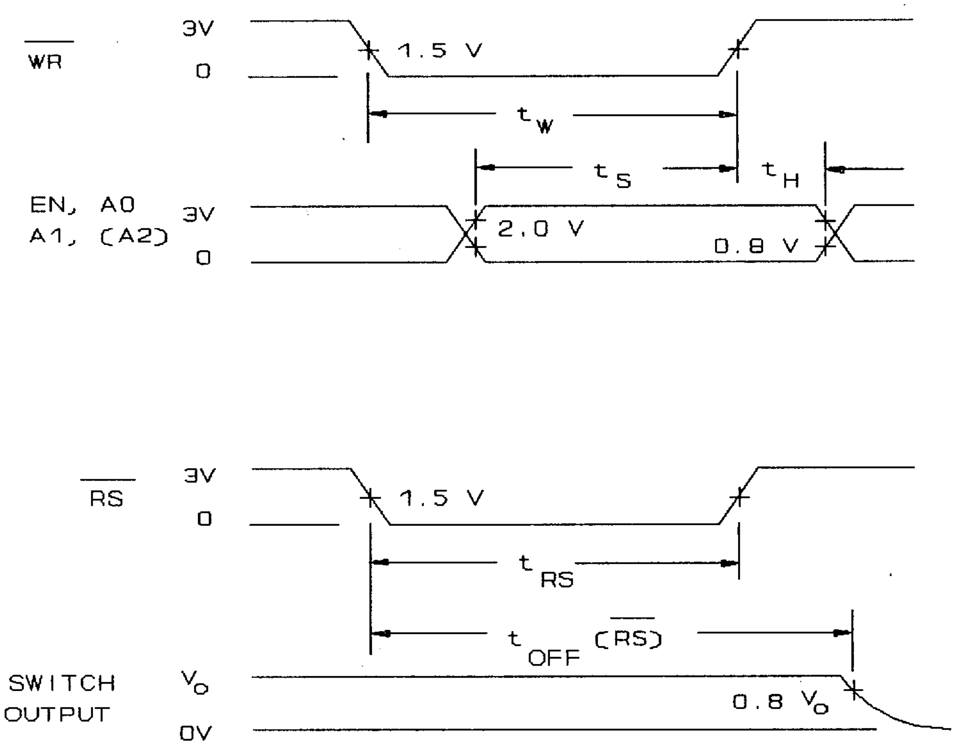

FIGURE 3. Timing waveforms.

4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. For device class M, sampling and inspection procedures shall be in accordance with section 4 of MIL-M-38510 to the extent specified in MIL-STD-883 (see 3.1 herein). For device classes B and S, sampling and inspection procedures shall be in accordance with MIL-M-38510 and method 5005 of MIL-STD-883, except as modified herein. For device classes Q and V, sampling and inspection procedures shall be in accordance with MIL-I-38535 and the device manufacturer's QM plan.

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

4.2.1 Additional criteria for device classes M, B, and S.

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

(1) Test condition A, B, C, or D. For device class M, 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. For device classes B and S, the test circuit shall be submitted to the qualifying activity. For device classes M, B, and S, the test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015.

(2) T_A = +125°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-I-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-I-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.

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 appendix B of MIL-I-38535.

4.3 Qualification inspection.

4.3.1 Qualification inspection for device classes B and S. Qualification inspection for device classes B and S shall be in accordance with MIL-M-38510. Inspections to be performed 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 4.4.5).

4.3.2 Qualification inspection for device classes Q and V. Qualification inspection for device classes Q and V shall be in accordance with MIL-I-38535. Inspections to be performed shall be those specified in MIL-I-38535 and herein for groups A, B, C, D, and E inspections (see 4.4.1 through 4.4.5).

4.4 Conformance inspection. Quality conformance inspection for device class M shall be in accordance with MIL-STD-883 (see 3.1 herein) and as specified herein. Quality conformance inspection for device classes B and S shall be in accordance with MIL-M-38510 and as specified herein. Inspections to be performed for device classes M, B, and S 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 4.4.5). Technology conformance inspection for classes Q and V shall be in accordance with MIL-I-38535 including groups A, B, C, D, and E inspections and as specified herein except where option 2 of MIL-I-38535 permits alternate in-line control testing.

TABLE II. Electrical test requirements.

Test requirements	Subgroups (in accordance with MIL-STD-883, method 5005, table I)			Subgroups (in accordance with MIL-I-38535, table III)	
	Device class M	Device class B	Device class S	Device class Q	Device class V
Interim electrical parameters (see 4.2)	---	---	---	---	---
Final electrical parameters (see 4.2)	1/ 1,2,3,7 8,9,10,11	1/ 1,2,3,7 8,9,10,11	1/1,2,3,7 8,9,10,11	1/ 1,2,3,7 8,9,10,11	1/ 1,2,3,7 8,9,10,11
Group A test requirements (see 4.4)	1,2,3,4,7 8,9,10,11	1,2,3,4,7 8,9,10,11	1,2,3,4,7 8,9,10,11	1,2,3,4,7 8,9,10,11	1,2,3,4,7 8,9,10,11
Group B end-point electrical parameters (see 4.4)	---	---	1,2,3,4,7 8,9,10,11	---	---
Group C end-point electrical parameters (see 4.4)	1	1	---	1	1,2,3,4,7 8,9,10,11
Group D end-point electrical parameters (see 4.4)	1	1	1	1	1
Group E end-point electrical parameters (see 4.4)	---	---	---	---	---

1/ PDA applies to subgroup 1.

4.4.1 Group A inspection.

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

b. Subgroup 4 tests performed on initial release and after any major change which may affect the parameter.

c. Subgroups 5 and 6 in table I, method 5005 of MIL-STD-883 shall be omitted.

d. For device class M, subgroups 7 and 8 tests shall be sufficient to verify the truth table. For device classes B and S, subgroups 7 and 8 tests shall be sufficient to verify the truth table as approved by the qualifying activity. For device classes Q and V, subgroups 7 and 8 shall include verifying the functionality of the device; these tests shall have been fault graded in accordance with MIL-STD-883, test method 5012 (see 1.5 herein).

4.4.2 Group B inspection. The group B inspection end-point electrical parameters shall be as specified in table II herein. For device class S steady-state life tests, the test circuit shall be submitted to the qualifying activity.

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

4.4.3.1 Additional criteria for device classes M and B. Steady-state life test conditions, method 1005 of MIL-STD-883:

a. Test condition A, B, C, or D. For device class M, 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. For device class B, the test circuit shall be submitted to the qualifying activity. For device classes M and B, the test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005.

b. T_A = +125°C, minimum.

c. Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.

4.4.3.2 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-I-38535. The test circuit shall be maintained under document revision level control by the device manufacturer's TRB in accordance with MIL-I-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.

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

4.4.5 Group E inspection. Group E inspection is required only for parts intended to be marked as radiation hardness assured (see 3.5 herein). RHA levels for device classes B, S, Q, and V shall be M, D, R, and H and for device class M shall be M and D.

a. End-point electrical parameters shall be as specified in table II herein.

b. For device classes M, B, and S, the devices shall be subjected to radiation hardness assured tests as specified in MIL-M-38510 for the RHA level being tested. For device classes Q and V, the devices or test vehicle shall be subjected to radiation hardness assured tests as specified in MIL-I-38535 for the RHA environment and level being tested. All device classes must meet the postirradiation end-point electrical parameter limits as defined in table I at T_A = +25°C ±5°C, after exposure, to the subgroups specified in table II herein.

c. When specified in the purchase order or contract, a copy of the RHA delta limits shall be supplied.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-M-38510 for device classes M, B, and S and MIL-I-38535 for device classes Q and V.

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 classes B and 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 in accordance with MIL-STD-481 using DD Form 1693, Engineering Change Proposal (Short Form).

6.3 Record of users. Military and industrial users shall inform Defense Electronics Supply Center when a system application requires configuration control and which SMD's are applicable to that system. DESC 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 DESC-EC, telephone (513) 296-6047.

6.4 Comments. Comments on this drawing should be directed to DESC-EC, Dayton, Ohio 45444, or telephone (513) 296-5377.

6.5 Abbreviations, symbols, and definitions. The abbreviations, symbols, and definitions used herein are defined in MIL-M-38510 and MIL-STD-1331.

6.6 One part - one part number system. The one part - one part number system described below has been developed to allow for transitions between identical generic devices covered by the four major microcircuit requirements documents (MIL-M-38510, MIL-H-38534, MIL-I-38535, and 1.2.1 of MIL-STD-883) without the necessity for the generation of unique PIN's. The four military requirements documents represent different class levels, and previously when a device manufacturer upgraded military product from one class level to another, the benefits of the upgraded product were unavailable to the Original Equipment Manufacturer (OEM), that was contractually locked into the original unique PIN. By establishing a one part number system covering all four documents, the OEM can acquire to the highest class level available for a given generic device to meet system needs without modifying the original contract parts selection criteria.

Military documentation format	Example PIN under new system	Manufacturing source listing	Document listing
New MIL-M-38510 Military Detail Specifications (in the SMD format)	5962-XXXXXZZ(B or S)YY	QPL-38510 (Part 1 or 2)	MIL-BUL-103
New MIL-H-38534 Standardized Military Drawings	5962-XXXXXZZ(H or K)YY	QML-38534	MIL-BUL-103
New MIL-I-38535 Standardized Military Drawings	5962-XXXXXZZ(Q or V)YY	QML-38535	MIL-BUL-103
New 1.2.1 of MIL-STD-883 Standardized Military Drawings	5962-XXXXXZZ(M)YY	MIL-BUL-103	MIL-BUL-103

6.7 Sources of supply.

6.7.1 Sources of supply for device classes B and S. Sources of supply for device classes B and S are listed in QPL-38510.

6.7.2 Sources of supply for device classes Q and V. Sources of supply for device classes Q and V are listed in QML-38535. The vendors listed in QML-38535 have submitted a certificate of compliance (see 3.6 herein) to DESC-EC and have agreed to this drawing.

6.7.3 Approved sources of supply for device class M. Approved sources of supply for class M are listed in MIL-BUL-103. The vendors listed in MIL-BUL-103 have agreed to this drawing and a certificate of compliance (see 3.6 herein) has been submitted to and accepted by DESC-EC.