

REVISIONS			
LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED
A	Add case outline X, TABLE IIB, and device classes Q and V. Make changes to 1.2.4, 1.3, and throughout.	96-07-15	M. A. FRYE
B	TABLE IIA, electrical test requirements: Final electrical parameters; for device class V, delete "2/". Footnote 2/ below table IIA: second line; delete "interim" and substitute "endpoint". In accordance with N.O.R. 5962-R039-97.	96-11-04	R. MONNIN
C	Make changes to 1.3 and dimensions R and R1 as specified under figure 1. Redrawn. - ro	97-12-02	R. MONNIN
D	Delete figure 1 and update drawing to reflect current requirements. - ro	03-05-08	R. MONNIN
E	Add device type 02. Make changes to paragraph 1.3, Table I, and figure 1. Add new footnote to paragraph 1.3. Under paragraph 1.3, device type 01, case outline X, make correction to the θ_{JC} limit by deleting 24°C/W and replacing with 7°C/W. Under paragraph 1.3, device type 01, case outline X, make corrections to the θ_{JA} limits; for still air, delete 160°C/W and replace with 134°C/W; for LFPM, delete 105°C/W and replace with 81°C/W. - ro	11-11-17	C. SAFFLE
F	Add note under figure 1 terminal connections for case outline X. - ro	12-09-12	C. SAFFLE

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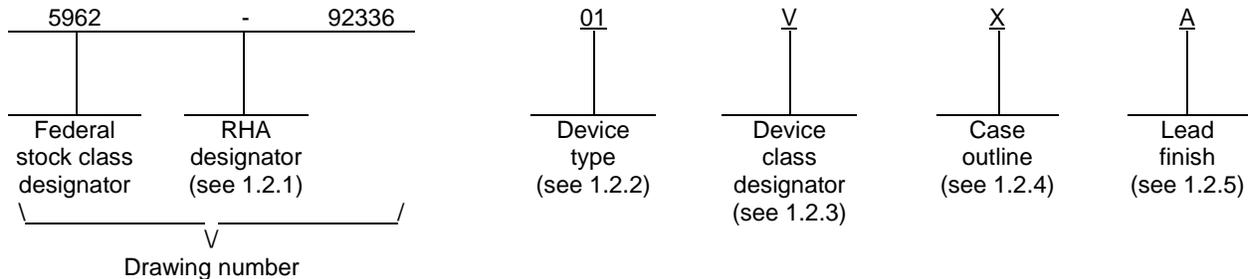
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REV STATUS	REV	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
OF SHEETS	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14		

PMIC N/A	PREPARED BY MARCIA B. KELLEHER	DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990 http://www.landandmaritime.dla.mil					
STANDARD MICROCIRCUIT DRAWING THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE	CHECKED BY CHARLES E. BESORE						
	APPROVED BY MICHAEL A. FRYE	MICROCIRCUIT, LINEAR, ADJUSTABLE LOW POWER, LOW DROPOUT, VOLTAGE REGULATOR, MONOLITHIC SILICON					
	DRAWING APPROVAL DATE 93-03-05						
	AMSC N/A	REVISION LEVEL F	SIZE A	CAGE CODE 67268	5962-92336		
			SHEET		1 OF 14		

1. SCOPE

1.1 Scope. This drawing documents two product assurance class levels consisting of high reliability (device classes 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> 1/	<u>Generic number</u>	<u>Circuit function</u>
01	LP2953A	Adjustable micropower low-dropout voltage regulator
02	LP2953A	Adjustable micropower low-dropout voltage regulator

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>
E	GDIP1-T16 or CDIP2-T16	16	Dual-in-line
X 1/	GDFP1-G16	16	Flat pack with gull wing leads

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.

1/ For case outline letter X, device type 01 package material is aluminum nitride and the device type 02 package material is aluminum oxide.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-92336
		REVISION LEVEL F	SHEET 2

1.3 Absolute maximum ratings. 2/

Input supply voltage range (V_{IN})	-20 V to +30 V
Feedback input voltage range	-0.3 V to +5 V <u>3/</u>
Comparator input voltage range	-0.3 V to +30 V <u>4/</u>
Comparator output voltage range	-0.3 V to +30 V <u>4/</u>
Shutdown input voltage	-3.0 V to +30 V <u>4/</u>
Power dissipation (P_D)	Internally limited
Storage temperature range	-65°C to +150°C
Junction temperature (T_J)	+150°C
Lead temperature (soldering, 5 seconds)	+260°C
Thermal resistance, junction-to-case (θ_{JC}):	
Device type 01:	
Case E	5°C/W
Case X	7°C/W
Device type 02:	
Case X	15°C/W <u>1/</u>
Thermal resistance, junction-to-ambient (θ_{JA}):	
Device type 01:	
Case E	87°C/W still air
	33°C/W 500 LFPM air flow
Case X	134°C/W still air
	81°C/W 500 LFPM air flow
Device type 02:	
Case X	140°C/W still air <u>1/</u>
	90°C/W 500 LFPM air flow <u>1/</u>

1.4 Recommended operating conditions.

Input voltage (V_{IN})	+6 V dc
Ambient operating temperature range (T_A)	-55°C to +125°C

- 1/ For case outline letter X, device type 01 package material is aluminum nitride and the device type 02 package material is aluminum oxide.
- 2/ 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.
- 3/ When used in dual-supply systems where the regulator load is returned load is returned to a negative supply, the output voltage must be diode-clamped to ground.
- 4/ May exceed the input supply voltage.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-92336
		REVISION LEVEL F	SHEET 3

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://assist.dla.mil/quicksearch/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

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.

3. REQUIREMENTS

3.1 Item requirements. The individual item requirements for device classes Q and V 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. 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 outlines. The case outlines 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 Block diagram. The block diagram 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 IIA. 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 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.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-92336
		REVISION LEVEL F	SHEET 4

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _A ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Output voltage	V _O	1 mA ≤ I _L ≤ 250 mA	1	01, 02	4.975	5.025	V
			2,3		4.940	5.060	
			1,2,3		4.93	5.07	
Output voltage line regulation	ΔV _{OUT} / V _O	6 V ≤ V _{IN} ≤ 30 V	1	01, 02		0.1	%
			2,3			0.2	
Output voltage load regulation	ΔV _{OUT} / V _O	1 mA ≤ I _L ≤ 250 mA	1	01, 02		0.16	%
			2,3			0.2	
		0.1 mA ≤ I _L ≤ 1 mA	1			0.16	
			2,3			0.2	
Dropout voltage <u>2/</u>	V _{DO}	I _L = 1 mA	1	01, 02		100	mV
			2,3			150	
		I _L = 50 mA	1			300	
			2,3			420	
		I _L = 100 mA	1			400	
			2,3			520	
		I _L = 250 mA	1			600	
			2,3			800	
Ground current <u>3/</u>	I _G	I _L = 1 mA	1	01, 02		170	μA
			2,3			200	
		I _L = 50 mA	1			2.0	mA
			2,3			2.5	
		I _L = 100 mA	1			6	
			2,3			8	
		I _L = 250 mA	1			28	
			2,3			33	

See footnotes at end of table.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-92336
		REVISION LEVEL F	SHEET 5

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _A ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Dropout ground current	I _{GDO}	V _{IN} = 4.5 V, <u>3/</u> I _L = 100 μA	1	01, 02		210	μA
			2,3			240	
Shutdown ground current	I _{GSO}	V _{SHUTDOWN} ≤ 1.1 V, <u>3/</u> V _{OUT} = 5 V, T _A = +25°C	1	01, 02		140	μA
Current limit	I _{SC}	V _{OUT} = 0 V	1	01, 02		500	mA
			2,3			530	
Thermal regulation	ΔV _{OUT} / ΔP _D	T _A = +25°C <u>4/</u>	1	01, 02		0.2	%/W
Reference voltage	V _{REF}	<u>5/</u>	1	01, 02	1.215	1.245	V
			2,3		1.205	1.255	
Reference voltage line regulation	ΔV _{REF} / V _{REF}	2.5 V ≤ V _{IN} ≤ 6 V	1	01, 02		0.1	%
			2,3			0.2	
		6 V ≤ V _{IN} ≤ 30 V	1			0.1	
			2,3			0.2	
Reference voltage load regulation	ΔV _{REF} / V _{REF}	0 μA ≤ I _{REF} ≤ 200 μA	1	01, 02		0.4	%
			2,3			0.6	
Feed back pin bias current	IFB		1	01, 02		40	nA
			2,3			60	
Output "off" pulldown current	I _{OSINK}	<u>6/</u>	1	01, 02	30		mA
			2,3		20		

See footnotes at end of table.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-92336
		REVISION LEVEL F	SHEET 6

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions 1/ -55°C ≤ T _A ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Dropout detection comparator section							
Output "high" leakage current	I _{OH}	V _{OH} = 30 V	1	01, 02		1	μA
			2,3			2	
Output "low" voltage	V _{OL}	V _{IN} = 4 V, I _{OCOMP} = 400 μA	1	01, 02		250	mV
			2,3			400	
Upper threshold voltage	V _{THR} max	<u>7</u> /	1	01, 02	-320	-150	mV
			2		-380	-130	
			3		-380	-120	
Lower threshold voltage	V _{THR} min	<u>7</u> /	1	01, 02	-450	-280	mV
			2		-640	-180	
			3		-640	-155	
SHUTDOWN input section.							
Input offset voltage	V _{IO}	(Referenced to V _{REF})	1	01, 02	-7.5	7.5	mV
			2		-10	10	
			3		-12	12	
Input bias current	I _{IB}	V _{IN(COMP)} = 0 V to 5 V	1	01, 02	-30	30	nA
			2		-50	50	
			3		-75	75	

See footnotes at end of table.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-92336
		REVISION LEVEL F	SHEET 7

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions ^{1/} -55°C ≤ T _A ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Auxiliary comparator							
Input offset voltage	V _{IO}	Referenced to V _{REF}	1	01, 02	-7.5	7.5	mV
			2		-10	10	
			3		-12	12	
Input bias current	I _{IB}	V _{IN(COMP)} = 0 V to 5 V	1	01, 02	-30	30	nA
			2		-50	50	
			3		-75	75	
Output "high" leakage current	I _{OH}	V _{OH} = 30 V, V _{IN(COMP)} = 1.3 V	1	01, 02		1	μA
			2			2	
			3			2.2	
Output "low" voltage	V _{OL}	V _{OH (COMP)} = 1.1 V, I _{OP (COMP)} = 400 μA	1	01, 02		250	mV
			2			400	
			3			420	

- ^{1/} V_{IN} = 6 V, I_L = 1 mA, C_L = 2.2 μF, V_{OUT} = 5 V, feedback pin is tied to 5 V tap pin, output pin is tied output sense pin.
- ^{2/} Dropout voltage is defined as the input to output differential at which the output voltage drops 100 mV below the value measured with a 1 V differential. At very low values of programmed output voltage, the input minimum of 2 V (2.3 V over temperature) must be observed.
- ^{3/} Ground pin current is the regulator quiescent current. The total current drawn from the source is the sum of the ground pin current, output load current, and current through the external resistive divider (if used).
- ^{4/} Thermal regulation is the change in output voltage at a time (T) after a change in power dissipation, excluding load or line effects. Specifications are for a 200 mA pulse at V_{IN} = 20 V (4 W pulse) for T = 10 ms.
- ^{5/} V_{REF} ≤ V_{OUT} ≤ (V_{IN}), 2.3 V ≤ V_{IN} ≤ 30 V, 100 μA ≤ I_L ≤ 250 mA.
- ^{6/} V_{SHUTDOWN} ≤ 1.1 V, V_{OUT} = 5 V.
- ^{7/} Comparator threshold are referred to a 5 V output. To express the threshold voltages in terms of a differential at the feedback terminal, divide by the error amplifier gain = V_{OUT} / V_{REF}.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-92336
		REVISION LEVEL F	SHEET 8

Device types	01	01 and 02
Case outlines	E	X (SEE NOTE 1)
Terminal number	Terminal symbol	
1	5 V TAP	GND
2	FEEDBACK	NC
3	INPUT	OUTPUT
4	GND	SENSE
5	GND	$\overline{\text{SHUTDOWN}}$
6	OUTPUT	$\overline{\text{ERROR}}$
7	NC	NC
8	SENSE	GND
9	$\overline{\text{SHUTDOWN}}$	GND
10	$\overline{\text{ERROR}}$	COMP OUTPUT
11	NC	COMP INPUT
12	GND	REFERENCE
13	GND	5 V TAP
14	COMP OUTPUT	FEEDBACK
15	COMP INPUT	INPUT
16	REFERENCE	GND

NOTES:

1. Pins 1, 8, 9, and 16 must be all tied together on the user's printed circuit board.
2. NC = No connection

FIGURE 1. Terminal connections.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-92336
		REVISION LEVEL F	SHEET 9

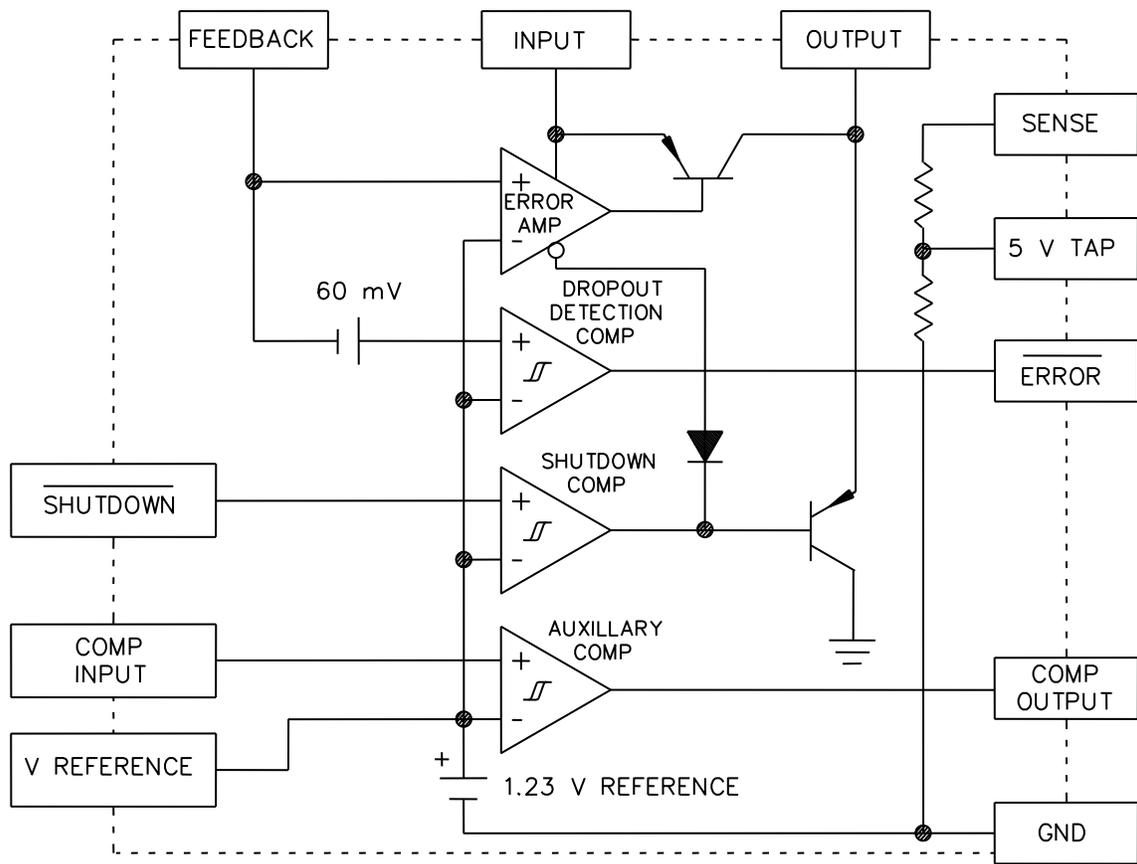


FIGURE 2. Block diagram.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-92336
		REVISION LEVEL F	SHEET 10

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 51 (see MIL-PRF-38535, appendix A).

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 A, B, C, or D. 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) $T_A = +125^\circ\text{C}$, minimum.

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

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-92336
		REVISION LEVEL F	SHEET 11

TABLE IIA. 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 <u>1/</u>	1,2,3 <u>1/</u>	1,2,3 <u>1/</u>
Group A test requirements (see 4.4)	1,2,3	1,2,3	1,2,3
Group C end-point electrical parameters (see 4.4)	1,2,3	1,2,3	1,2,3 <u>2/</u>
Group D end-point electrical parameters (see 4.4)	1,2,3	1,2,3	1,2,3
Group E end-point electrical parameters (see 4.4)	---	---	---

1/ PDA applies to subgroup 1.

2/ Delta limits as specified in table IIB shall be required where specified, and the delta limits shall be computed with reference to the previous endpoint electrical parameters.

TABLE IIB. Delta parameters. $T_A = +25^\circ\text{C}$.

Parameter	Device types	Limit
V_{DO}	All	$\pm 12\%$
I_G	All	$\pm 5\ \mu\text{A}$ or $\pm 10\%$ which ever is greater
I_{DGO}	All	$\pm 5\ \mu\text{A}$ or $\pm 10\%$ which ever is greater
I_{GSO}	All	$\pm 5\ \mu\text{A}$ or $\pm 10\%$ which ever is greater
V_{IO}	All	$\pm 1\ \text{mV}$
I_{IB}	All	$\pm 5\ \text{nA}$

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

SIZE
A

REVISION LEVEL
F

5962-92336

SHEET
12

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 IIA herein.
- b. Subgroups 4, 5, 6, 7, 8, 9, 10, and 11 in table I, method 5005 of MIL-STD-883 shall be omitted.

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

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

- a. Test condition A, B, C, or D. 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.
- b. $T_A = +125^{\circ}\text{C}$, minimum.
- c. 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 IIA herein.

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 IIA 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 $T_A = +25^{\circ}\text{C} \pm 5^{\circ}\text{C}$, after exposure, to the subgroups specified in table IIA 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.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-92336
		REVISION LEVEL F	SHEET 13

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) 692-0544.

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 QML-38535. The vendors listed in 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.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-92336
		REVISION LEVEL F	SHEET 14

STANDARD MICROCIRCUIT DRAWING BULLETIN

DATE: 12-09-12

Approved sources of supply for SMD 5962-92336 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 <http://www.landandmaritime.dla.mil/Programs/Smcr/>.

Standard microcircuit drawing PIN <u>1/</u>	Vendor CAGE number	Vendor similar PIN <u>2/</u>
5962-9233601MEA	<u>3/</u>	LP2953AMJ/883
5962-9233601QXA	<u>3/</u>	LP2953AMWG/883
5962-9233601VEA	<u>3/</u>	LP2953AMJ-QMLV
5962-9233601VXA	<u>3/</u>	LP2953AMWG-QMLV
5962-9233602QXA	27014	LP2953AMGW/883
5962-9233602VXA	27014	LP2953AMGW-QMLV

- 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

Vendor name and address

27014

National Semiconductor
 2900 Semiconductor Drive
 P.O. Box 58090
 Santa Clara, CA 95052-8090

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