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

REV																									
SHEET																									
REV																									
SHEET																									
REV STATUS OF SHEETS	REV																								
	SHEET	1	2	3	4	5	6	7	8																

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: 19 JANUARY 1990

REVISION LEVEL:

DEFENSE ELECTRONICS SUPPLY CENTER
DAYTON, OHIO 45444

MICROCIRCUIT, LINEAR, DUAL-POLARITY TRACKING VOLTAGE REGULATOR, MONOLITHIC SILICON

SIZE	CAGE CODE	
A	67268	5962-88763

SHEET 1

DESC FORM 193
SEP 87

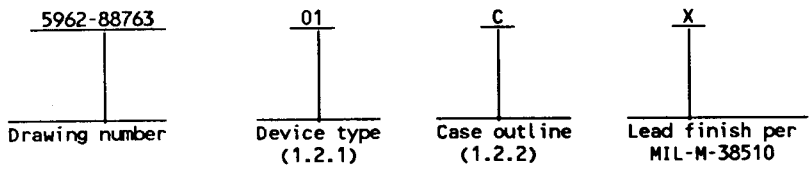
* U.S. GOVERNMENT PRINTING OFFICE: 1987 — 748-129/60911

5962-E1094

1. SCOPE

1.1 Scope. This drawing describes device requirements for 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".

1.2 Part number. The complete part number shall be as shown in the following example:



1.2.1 Device types. The device types shall identify the circuit function as follows:

Device type	Generic number	Circuit function
01	1568	Dual-polarity tracking voltage regulator
02	1568	Dual-polarity tracking voltage regulator with balance adjust

1.2.2 Case outlines. The case outlines shall be as designated in appendix C of MIL-M-38510, and as follows:

Outline letter	Case outline
C	D-1 (14-lead,.785" x .310" x .200"), dual-in-line package
I	A-2 (10-lead,.370" x .185"), can package

1.3 Absolute maximum ratings.

Positive input voltage (V+)	+30 V
Negative input voltage (V-)	-30 V
Minimum short-circuit resistance	4.0Ω
Peak load current	±100 mA
Power dissapation (P_D) 1/	1.0 W
Storage temperature	-65°C to +150°C
Lead temperature (soldering 10 seconds)	+300°C
Thermal resistance junction-to-case (Θ_{JC})	See MIL-M-38510, appendix C
Thermal resistance junction-to-ambient (Θ_{JA}):	
Case outline G	60°C/W
Case outline I	42°C/W
Junction temperature (T_J)	175°C

1.4 Recommended operating conditions.

Positive supply voltage (V+)	+20 V
Negative voltage supply (V-)	-20 V
Ambient operating temperature range (T_A)	-55°C to +125°C

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

2. APPLICABLE DOCUMENTS

2.1 Government specification, standard, and bulletin. Unless otherwise specified, the following specification, standard, and bulletin 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.

SPECIFICATION

MILITARY

MIL-M-38510 - Microcircuits, General Specification for.

STANDARD

MILITARY

MIL-STD-883 - Test Methods and Procedures for Microelectronics.

BULLETIN

MILITARY

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

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

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 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.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-M-38510 and herein.

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

3.2.2 Case outlines. The case outlines shall be in accordance with 1.2.2 herein.

3.3 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics 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 described in table I.

3.5 Marking. Marking shall be in accordance with MIL-STD-883 (see 3.1 herein). The part shall be marked with the part number listed in 1.2 herein. In addition, the manufacturer's part number may also be marked as listed in MIL-BUL-103 (see 6.6 herein).

3.6 Certificate of compliance. 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 6.6 herein). The certificate of compliance submitted to DESC-ECS prior to listing as an approved source of supply shall affirm that the manufacturer's product meets the requirements of MIL-STD-883 (see 3.1 herein) and the requirements herein.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ unless otherwise 1/ specified	Device type	Group A subgroups	Limits		Unit
					Min	Max	
Output voltage	V_O		All	1,2,3	14.5	15.5	V
Input voltage	V ±		All	1,2,3		±30	V
Input-output voltage differential	V_{diff}		All	1,2,3		2.0	V
Output voltage balance	V_{bal}		All	1,2,3		±150	mV
Line regulation voltage	R_{line}	V+ = 18 V to 30 V	All	1 2, 3		10 20	mV
Load regulation voltage	R_{load}	I_L = 0 mA to 50 mA	All	1 2, 3		10 30	mV
Output voltage range	V_{RO}		All	1,2,3	8.0	20	V
Ripple rejection 2/			All	4,5,6		75	dB
Output voltage temperature stability			All	2		1.0	%
Output short circuit current	I_{OS}	R_{SC} = 10Ω	All	1 2, 3	40 40	80 110	mA
Output noise voltage 2/	N_O	BW = 100 Hz to 10 kHz	All	4,5,6		100	μVrms
Positive standby current	I+	V+ = +30 V	All	1,2,3		4.0	mA
Negative standby current	I-	V- = -30 V	All	1,2,3		-3.0	

1/ Unless otherwise specified V+ = 20 V, V- = -20 V.
2/ Guaranteed if not tested to the limits specified.

Device types	01	02
Case outlines	I	C
Terminal number	Terminal symbol	
1	POSITIVE COMPENSATION	GND
2	POSITIVE SENSE	BALANCE ADJUST
3	POSITIVE OUTPUT	POSITIVE COMPENSATION
4	POSITIVE INPUT V+	POSITIVE SENSE
5	NEGATIVE INPUT V-	POSITIVE OUTPUT
6	NEGATIVE OUTPUT	NC
7	NEGATIVE SENSE	POSITIVE INPUT V+
8	NEGATIVE COMPENSATION	NEGATIVE INPUT V-
9	VOLTAGE ADJUST	NC
10	GND	NEGATIVE OUTPUT
11	---	NEGATIVE SENSE
12	---	NEGATIVE COMPENSATION
13	---	NC
14	---	VOLTAGE ADJUST

FIGURE 1. Terminal connections.

3.7 Certificate of conformance. A certificate of conformance as required in MIL-STD-883 (see 3.1 herein) shall be provided with each lot of microcircuits delivered to this drawing.

3.8 Notification of change. Notification of change to DESC-ECS shall be required in accordance with MIL-STD-883 (see 3.1 herein).

3.9 Verification and review. 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.

4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. 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).

4.2 Screening. Screening shall be in accordance with method 5004 of MIL-STD-883, and shall be conducted on all devices prior to quality conformance inspection. The following additional criteria shall apply:

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

(1) Test condition A, B, C, or D using the circuit submitted with the certificate of compliance (see 3.6 herein).

(2) T_A = +125°C, minimum.

b. Interim and final electrical test parameters shall be as specified in table II herein, except interim electrical parameter tests prior to burn-in are optional at the discretion of the manufacturer.

4.3 Quality conformance inspection. Quality conformance inspection shall be in accordance with method 5005 of MIL-STD-883 including groups A, B, C, and D inspections. The following additional criteria shall apply.

4.3.1 Group A inspection.

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

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

4.3.2 Groups C and D inspections.

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

b. Steady-state life test conditions; method 1005 of MIL-STD-883:

(1) Test condition A, B, C, or D using the circuit submitted with the certificate of compliance (see 3.6 herein).

(2) T_A = +125°C, minimum.

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

TABLE II. Electrical test requirements.

MIL-STD-883 test requirements	Subgroups (per method 5005, table I)
Interim electrical parameters (method 5004)	1
Final electrical test parameters (method 5004)	1*,2,3
Group A test requirements (method 5005)	1,2,3,4,5,6**
Groups C and D end-point electrical parameters (method 5005)	1

*PDA applies to subgroup 1.
**Subgroups 4, 5, and 6 if not tested shall be guaranteed to the limits specified in table I.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-M-38510.

6. NOTES

6.1 Intended use. Microcircuits conforming to this drawing are intended for use when military specifications do not exist and qualified military devices that will perform the required function are not available for OEM application. When a military specification exists and the product covered by this drawing has been qualified for listing on QPL-38510, the device specified herein will be inactivated and will not be used for new design. The QPL-38510 product shall be the preferred item for all applications.

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

6.3 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).

6.4 Record of users. Military and industrial users shall inform Defense Electronics Supply Center when a system application requires configuration control and the applicable SMD. 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 microelectronics devices (FSC 5962) should contact DESC-ECS, telephone (513) 296-6022.

6.5 Comments. Comments on this drawing should be directed to DESC-ECS, Dayton, Ohio 45444, or telephone (513) 296-5375.

6.6 Approved source of supply. An approved source of supply is listed in MIL-BUL-103. Additional sources will be added to MIL-BUL-103 as they become available. The vendor listed in MIL-BUL-103 has agreed to this drawing and a certificate of compliance (see 3.6 herein) has been submitted to and accepted by DESC-ECS. The approved source of supply listed below is for information purposes only and is current only to the date of the last action of this document.

Military drawing part number	Vendor CAGE number	Vendor similar part number 1/
5962-8876301IX	34333	SG1568T/883B
5962-8876302CX	34333	SG1568J/883B

1/ Caution. Do not use this number for item acquisition. Items acquired to this number may not satisfy the performance requirements of this drawing.

Vendor CAGE number	Vendor name and address
34333	Silicon General 11861 Western Avenue Garden Grove, CA 92641

☆ U.S. GOVERNMENT PRINTING OFFICE: 1988—550-547