

NOTICE OF REVISION (NOR)		1. DATE (YYMMDD) 96-10-17	Form Approved OMB No. 0704-0188
THIS REVISION DESCRIBED BELOW HAS BEEN AUTHORIZED FOR THE DOCUMENT LISTED.			
<small>Public reporting burden for this collection is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. PLEASE DO NOT RETURN YOUR COMPLETED FORM TO EITHER OF THESE ADDRESSES. RETURN COMPLETED FORM TO THE GOVERNMENT ISSUING CONTRACTING OFFICER FOR THE CONTRACT/PROCURING ACTIVITY NUMBER LISTED IN ITEM 2 OF THIS FORM.</small>		2. PROCURING ACTIVITY NO.	
		3. DODAAC	
4. ORIGINATOR	b. ADDRESS (Street, City, State, Zip Code) Defense Supply Center Columbus 3990 East Broad Street Columbus, OH 43216-5000	5. CAGE CODE 67268	6. NOR NO. 5962-R015-97
a. TYPED NAME (First, Middle Initial, Last)		7. CAGE CODE 67268	8. DOCUMENT NO. 5962-90861
9. TITLE OF DOCUMENT MICROCIRCUIT, LINEAR, J-FET LOW POWER, SINGLE/DUAL/QUAD OPERATIONAL AMPLIFIER, MONOLITHIC SILICON		11. ECP NO. No users listed.	
		10. REVISION LETTER	
		a. CURRENT	b. NEW A
12. CONFIGURATION ITEM (OR SYSTEM) TO WHICH ECP APPLIES All			
13. DESCRIPTION OF REVISION			
<p>Sheet 1: Revisions ltr column; add "A". Revisions description column; add "Changes in accordance with NOR 5962-R015-97". Revisions date column; add "96-10-17" Revision level block; add "A". Rev status of sheets; for sheets 1 and 7, add "A".</p> <p>Sheet 7: Positive slew rate at unity gain test. Group A subgroup 4, under the min limits column, delete "2 V/μs" and substitute "1.5 V/μs". Group A subgroups 5 and 6, under the min limits column, delete "1.2 V/μs" and substitute "1.0 V/μs". Negative slew rate at unity gain test. Group A subgroup 4, under the min limits column, delete "3 V/μs" and substitute "1.5 V/μs". Group A subgroups 5 and 6, under the min limits column, delete "1.5 V/μs" and substitute "1.0 V/μs". Revision level block; add "A".</p>			
14. THIS SECTION FOR GOVERNMENT USE ONLY			
a. (X one)	X	(1) Existing document supplemented by the NOR may be used in manufacture.	
		(2) Revised document must be received before manufacturer may incorporate this change.	
		(3) Custodian of master document shall make above revision and furnish revised document.	
b. ACTIVITY AUTHORIZED TO APPROVE CHANGE FOR GOVERNMENT DSCC-VAS		c. TYPED NAME (First, Middle Initial, Last) RAYMOND MONNIN	
d. TITLE Chief, Microelectronics Team	e. SIGNATURE RAYMOND MONNIN		f. DATE SIGNED (YYMMDD) 96-10-17
15a. ACTIVITY ACCOMPLISHING REVISION DSCC-VAS	b. REVISION COMPLETED (Signature) RICK OFFICER		c. DATE SIGNED (YYMMDD) 96-10-17



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	9	10	11								

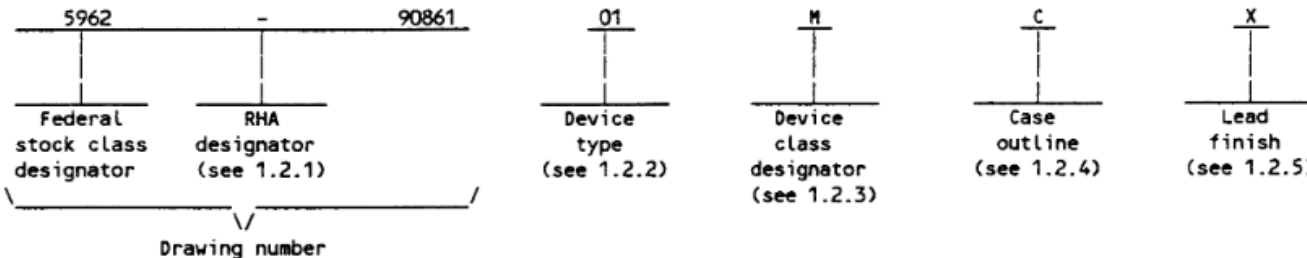
PMIC N/A	PREPARED BY RICK C. OFFICER	DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO 45444		
STANDARDIZED MILITARY DRAWING THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE AMSC N/A	CHECKED BY RAJESH R. PITHADIA	MICROCIRCUIT, LINEAR, J-FET LOW POWER, SINGLE/DUAL/QUAD OPERATIONAL AMPLIFIER, MONOLITHIC SILICON		
	APPROVED BY MICHAEL A. FRYE			
	DRAWING APPROVAL DATE 94-05-16	SIZE A	CAGE CODE 67268	5962-90861
	REVISION LEVEL	SHEET 1 OF 11		



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 Q and M) and space application (device class 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:



1.2.1 RHA designator. Device class M RHA marked devices shall meet the MIL-I-38535 appendix A 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:

<u>Device type</u>	<u>Generic number</u>	<u>Circuit function</u>
01	TL031	J-FET low power operational amplifier
02	TL032	J-FET low power dual operational amplifier
03	TL034	J-FET low power quad operational amplifier

1.2.3 Device class designator. The device class designator shall be 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 non-JAN class B microcircuits in accordance with 1.2.1 of MIL-STD-883
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:

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
C	GDIP1-T14 or CDIP2-T14	14	Dual-in-line
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 shall be as specified in MIL-STD-883 (see 3.1 herein) for class M 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.

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1.3 Absolute maximum ratings. 1/

Supply voltage (+V _{CC})	±18 V dc	2/
Supply voltage (-V _{CC})	-18 V dc	2/
Differential input voltage	±30 V dc	3/
Input voltage range (any input) (V _{IN})	±15 V dc	2/ 4/
Input current (I _{IN})	±1 mA	
Output current (I _{OUT})	±40 mA	
Total current into +V _{CC} terminal	160 mA	
Total current into -V _{CC} terminal	160 mA	
Duration of short circuit current at (or below) 25°C	Unlimited	5/
Case temperature for 60 seconds:		
Case 2	+260°C	
Lead temperature, 6 mm (1/16 inch) from case for 60 seconds:		
Cases C or P	+300°C	
Maximum allowable power dissipation:		
Case C	275 mW at +125°C	
Case P	210 mW at +125°C	
Case 2	275 mW at +125°C	
Thermal resistance, junction-to-case (θ _{JC})	See MIL-STD-1835	

1.4 Recommended operating conditions.

Supply voltage (V _{CC})	±15 V dc maximum
Supply voltage (V _{CC})	±5 V dc minimum
Common-mode input voltage (V _{IC}), (±V _{CC} = ±5 V)	4 V dc maximum, -1.5 V dc minimum
Common-mode input voltage (V _{IC}), (±V _{CC} = ±15 V)	14 V dc maximum, -11.5 V dc minimum
Ambient operating temperature (T _A)	-55°C to +125°C

2. APPLICABLE DOCUMENTS

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

SPECIFICATION

MILITARY

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

- 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/ All voltage values, except differential voltages, are with respect to the midpoint between +V_{CC} and -V_{CC}.
- 3/ Differential voltages are at the noninverting input with respect to the inverting input.
- 4/ The magnitude of the input voltage must never exceed the magnitude of the power supply voltage or 15 V, whichever is less.
- 5/ The output may be shorted to either supply. Temperature and/or supply voltage must be limited to ensure that the maximum dissipation rating is not exceeded.

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STANDARDS

MILITARY

- MIL-STD-883 - Test Methods and Procedures for Microelectronics.
- MIL-STD-973 - Configuration Management.
- 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 specification, 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.)

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 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-STD-883 (see 3.1 herein) for device class M 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.

3.3 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 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 Q and V shall be a "QML" or "Q" as required in MIL-I-38535.

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