1.1 Scope.

This specification covers the detail requirements for a high accuracy instrumentation amplifier. It is highly recommended that this data sheet be used as a baseline for new military or aerospace specification control drawings.

1.2 Part Number.

The complete part numbers per Table 1 of this specification is as follows:

Device	Part Number	Package
−1	AMP-02AZ/883	Z
−1	AMP-02ARC/883	RC

1.2.3 Case Outline.

Letter	Case Outline (Lead Finish Per MIL-M-38510)
Z	8-Lead Ceramic Dual-In-Line Package (Cerdip)
RC	20-Contact Hermetic Leadless Chip Carrier (LCC)

1.3 Absolute Maximum Ratings. (T_A = +25°C unless otherwise noted)

Supply Voltage ..... ±18 V
Common-Mode Input Voltage ..... [(V−) − 60 V] to [(V+) + 60 V]
Differential Input Voltage ..... [(V−) − 60 V] to [(V+) + 60 V]
Output Short-Circuit Duration ..... Continuous
Operating Temperature Range ..... −55°C to +125°C
Storage Temperature Range ..... −65°C to +150°C
Junction Temperature Range ..... −65°C to +150°C
Lead Temperature Range (Soldering 60 sec) ..... +300°C

1.5 Thermal Characteristics.

Thermal Resistance, Cerdip (Z) Package:
Junction-to-Case (θ_{JC}) = 12°C/W max
Junction-to-Ambient (θ_{JA}) = 134°C/W max

Thermal Resistance, LCC (RC) Package:
Junction-to-Case (θ_{JC}) = 33°C/W max
Junction-to-Ambient (θ_{JA}) = 88°C/W max

AMP-02—SPECIFICATIONS

Table 1.

Test	Symbol	Group A Subgroups	Limits Min	Limits Max	Test Condition[1]	Units
Input Offset Voltage	V_{IOS}	1		200	T_A = +25°C	µV
		2, 3		350	T_A = −55°C, +125°C	
Input Offset Voltage Drift	TCV_{IOS}	8		5	T_A = −55°C, +125°C	µV/°C
Output Offset Voltage	V_{OOS}	1		10	T_A = +25°C	mV
		2, 3		25	T_A = −55°C, +125°C	
Output Offset Voltage Drift	TCV_{OOS}	8		250	T_A = −55°C, +125°C	µV/°C
Power Supply Rejection	PSR	1	110 105 90 70		V_S = ±4.8 V to ±18 V; T_A = +25°C G = 1000 G = 100 G = 10 G = 1	dB
		2, 3	105 100 85 65		V_S = ±4.8 V to ±18 V; T_A = −55°C, +125°C G = 1000 G = 100 G = 10 G = 1	
Input Bias Current	I_B	1		30	T_A = +25°C	nA
		2, 3		60	T_A = −55°C, +125°C	
Input Offset Current	I_{OS}	1		10	T_A = +25°C	nA
		2, 3		20	T_A = −55°C, +125°C	
Input Voltage Range[2]	IVR	1	±11		T_A = +25°C	V
		2, 3	±11		T_A = −55°C, +125°C	
Common-Mode Rejection	CMR	1	110 105 90 70		V_{CM} = ±11 V; T_A = +25°C G = 1000 G = 100 G = 10 G = 1	dB
		2, 3	105 100 85 65		V_{CM} = ±11 V; T_A = −55°C, +125°C G = 1000 G = 100 G = 10 G = 1	
Gain Equation Accuracy	$G = \frac{50\ k\Omega}{R_G} + 1$	1 1		 0.70 0.50 0.40 0.05	T_A = +25°C G = 1000 G = 100 G = 10 G = 1	% %
Output Voltage Swing	V_{OUT}	4	±12		R_L = 1 kΩ; T_A = +25°C	V
		5, 6	±11		R_L = 2 kΩ; T_A = −55°C, +125°C	
Slew Rate	SR	7	4		G = 10; R_L = 1 kΩ; T_A = +25°C	V/µs
Supply Current	I_{SY}	1		6	T_A = +25°C	mA
		2, 3			T_A = −55°C, +125°C	

NOTES
[1]V_S = ±15 V, V_{CM} = 0 V, unless otherwise specified.
[2]Input voltage range guaranteed by common-mode rejection test.

Table 2. Electrical Test Requirements

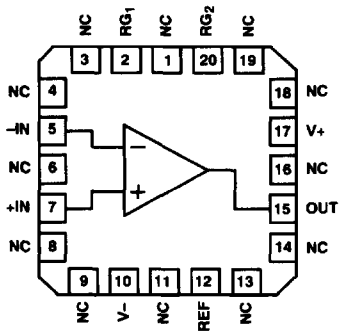
MIL-STD-883 Test Requirements	Subgroups (See Table 1)
Interim Electrical Parameters (Pre-Burn-In)	1
Final Electrical Test Parameters	1,* 2, 3, 4, 5, 6
Group A Test Requirements	1, 2, 3, 4, 5, 6, 7, 8

*PDA applies to Subgroup 1 only. No other subgroups are included in PDA.

3.2.1 Functional Block Diagram and Terminal Assignments.

20-Position LCC

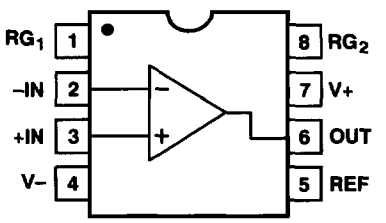
(RC Suffix)

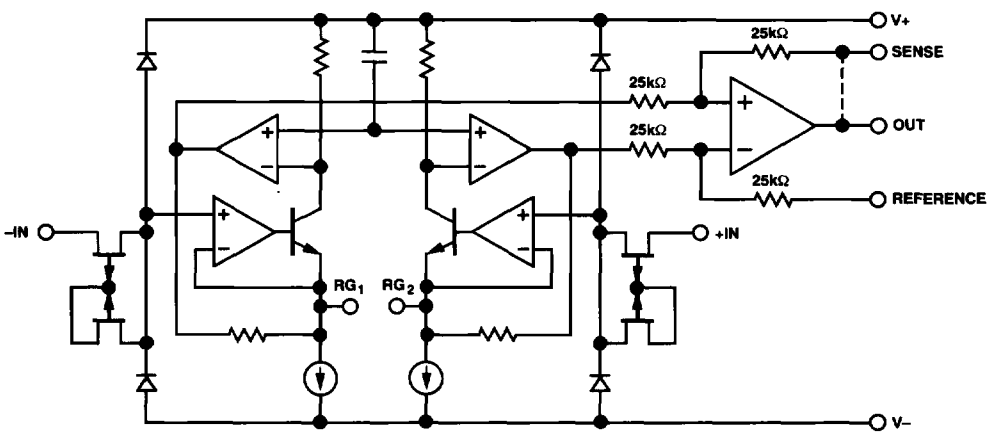


NC = NO CONNECT

8-Pin Ceramic DIP

(Z Suffix)





Simplified Schematic

3.2.2 Microcircuit Technology Group.

This microcircuit is covered by technology group (49).

4.2.1 Life Test/Burn-In Circuit.

Steady state life test is per MIL-STD-883 Method 1005. Burn-in performed per MIL-STD-883 Method 1015 test condition (B).