ANALOG DEVICES

Dual, High Speed, Current Feedback Operational Amplifier

OP-260

1.1 Scope.

This specification covers the detail requirement for a dual, high speed, current feedback operational 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	OP-260AJ/883	J
−1	OP-260ARC/883	RC
−1	OP-260AZ/883	Z

1.2.3 Case Outline.

Letter	Case Outline (Lead Finish Per MIL-M-38510)
J	8-Lead Metal Can (TO-99)
RC	20-Pin Leadless Chip Carrier (LCC)
Z	8-Lead Ceramic Dual-In-Line Package (Cerdip)

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

Supply Voltage ..... ±18 V
Input Voltage ..... Supply Voltage
Differential Input Voltage ..... ±1 V
Inverting Input Current ..... ±7 mA Continuous ±20 mA Peak
Output Short-Circuit Duration ..... 10 Seconds
Storage Temperature Range ..... −65°C to +150°C
Operating Temperature Range ..... $-55°C \leq T_A \leq +125°C$
Lead Temperature Range (Soldering 60 sec) ..... +300°C
Maximum Junction Temperature (T_J) ..... +175°C

1.5 Thermal Characteristics.

Thermal Resistance, TO-99 (J) Package:
Junction-to-Case (θ_{JC}) = 16°C/W max
Junction-to-Ambient (θ_{JA}) = 145°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

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

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Table 1.

Characteristics	Symbol	Limits A Min	Limits A Max	Group A Subgroup	Test Condition[1]	Units
Input Offset Voltage	V_{IOS}		3.5	1	T_A = +25°C	mV
			6.0	2, 3	T_A = −55°C, +125°C	
Input Bias Current	I_{B+}		1.0	1	T_A = +25°C	µA
			2.0	2, 3	T_A = −55°C, +125°C	
	I_{B-}		8.0	1	T_A = +25°C	µA
			12.0	2, 3	T_A = −55°C, +125°C	
Input Bias Current Common-Mode Rejection Ratio	$CMRRI_{B-}$		0.1	1	V_{CM} = ±11 V; T_A = +25°C	µA/V
			0.2	2, 3	V_{CM} = ±11 V; T_A = −55°C, +125°C	
Input Bias Current Power Supply Rejection Ratio	$PSRRI_{B-}$		0.1	1	V_S = ±9 V, ±18 V; T_A = +25°C	µA/V
			0.2	2, 3	V_S = ±9 V, ±18 V; T_A = −55°C, +125°C	
	$PSRRI_{B+}$		0.02	1	V_S = ±9 V, ±18 V; T_A = +25°C	µA/V
			0.05	2, 3	V_S = ±9 V, ±18 V; T_A = −55°C, +125°C	
Common-Mode Rejection	CMR	56		1	V_{CM} = ±11 V; T_A = +25°C	dB
		52		2, 3	V_{CM} = ±11 V; T_A = −55°C, +125°C	
Power Supply Rejection	PSR	66		1	V_S = ±9 V, ±18 V; T_A = +25°C	dB
		62		2, 3	V_S = ±9 V, ±18 V; T_A = −55°C, +125°C	
Input Voltage Range[2]	IVR	±11		1	T_A = +25°C	V
		±10		2, 3	T_A = −55°C, +125°C	
Output Voltage Swing	V_O	±12		4	R_L = 1 kΩ; T_A = +25°C	V
		±11.5		5, 6	R_L = 1 kΩ; T_A = −55°C, +125°C	
		±11		4	I_{OUT} = ±20 mA; T_A = +25°C	V
		±10.5		5, 6	I_{OUT} = ±20 mA, T_A = −55°C, +125°C	
Open-Loop Transimpedance	R_T	5		4	V_O = ±10 V; R_L = 1 kΩ; T_A = +25°C	MΩ
		3		5, 6	V_O = ±10 V; R_L = 1 kΩ T_A = −55°C, +125°C	
Slew Rate (J & RC) Package (Z) Package	SR	375 300		7	A_{VCL} = +10, R_L = 1 kΩ; T_A = +25°C V_O = ±10 V, Test at V_O = ±5 V	V/µs
Supply Current[3]	I_{SY}		10.5	1	No Load; T_A = +25°C	mA
			11.5	2, 3	No Load; T_A = −55°C, +125°C	

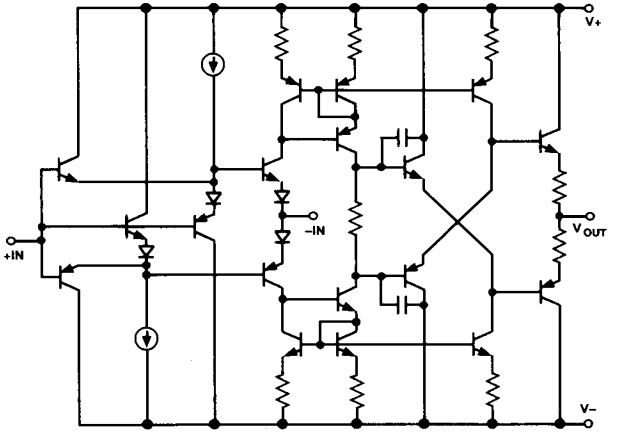
NOTES
[1]V_S = ±15 V, V_{CM} = 0 V, R_F = 2.5 kΩ, R_S = 50 Ω unless otherwise specified.
[2]Input Voltage Range is guaranteed by common-mode rejection CMR test.
[3]I_{SY} limit = total for both amplifiers.

Table 2. Electrical Test Requirements for Class B Devices

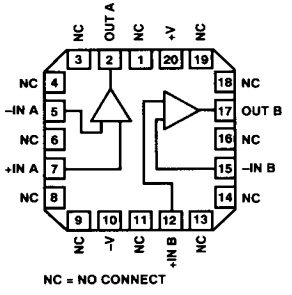
MIL-STD-883 Test Requirements	Subgroups (See Table 1)
Interim Electrical Parameters (Pre-Burn-In)	1
Final Electrical Test Parameters	1,* 2, 3, 4, 5, 6
Group A Test Requirements	1, 2, 3, 4, 5, 6, 7

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

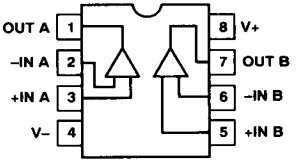
3.2.1 Functional Block Diagram and Terminal Assignments.



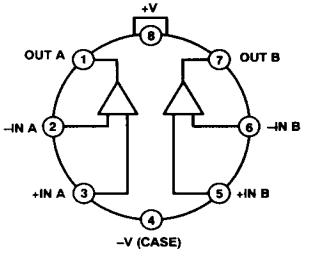
20-Position LCC (RC Suffix)



Cerdip (Z Suffix)



TO-99 (J Suffix)



3.2.4. Microcircuit Technology Group.

This microcircuit is covered by technology group (49).

4.2. Life Test/Burn-In Circuit.

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