

1.1 Scope.

This specification covers the detail requirements for a quad precision, low input current, low offset voltage, monolithic bipolar amplifier.

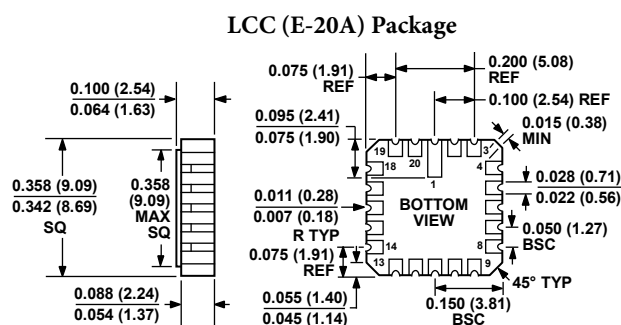
1.2 Part Number.

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

Part Number

AD704SE/883B

1.2.3 Case Outline.



CONTROLLING DIMENSIONS ARE IN INCHES; MILLIMETER DIMENSIONS (IN PARENTHESES) ARE ROUNDED-OFF INCH EQUIVALENTS FOR REFERENCE ONLY AND ARE NOT APPROPRIATE FOR USE IN DESIGN.

022106-A

(X)	Package	Description
E	E-20A	20-Terminal Leadless Chip Carrier

1.3 Absolute Maximum Ratings ($T_A = +25^\circ\text{C}$, unless otherwise noted).

Supply Voltage	$\pm 18\text{ V}$
Internal Power Dissipation ¹	650 mW
Input Voltage	$\pm V_s$
Differential Input Voltage ²	$\pm 0.7\text{ V}$
Output Short-Circuit Duration	Indefinite
Storage Temperature Range	-65°C to $+150^\circ\text{C}$
Operating Temperature Range	-55°C to $+125^\circ\text{C}$
Lead Temperature Range (Soldering 60 sec)	300°C

¹ Maximum package power dissipation vs. ambient temperature.

Package Type	MAXIMUM AMBIENT Temperature for Rating	DERATE ABOVE MAXIMUM Ambient Temperature
LCC (E-20A)	90°C	$5.7\text{ mW}/^\circ\text{C}$

² The input pins of this amplifier are protected by back-to-back diodes. If the differential voltage exceeds $\pm 0.7\text{ V}$, external series protection resistors should be added to limit the input current to less than 25 mA.

1.4 Thermal Characteristics.

Thermal Resistance: $\theta_{JC} = 25^\circ\text{C}/\text{W}$ for E-20A Package
 $\theta_{JC} = 95^\circ\text{C}/\text{W}$ for E-20A Package

Rev. C

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Table 1.

Test	Symbol	Sub Group	Limits		Unit	Test Conditions ¹	
			Min	Max			
Input Offset Voltage	V _{OS}	1		150	μV		
		2, 3		250			
Power Supply Rejection Ratio	PSRR	1	100		dB	±2 V ≤ V _S ≤ ±18 V	
		2, 3	100			±2.5 V ≤ V _S ≤ ±18 V	
Input Bias Current ²	I _B	1		270	pA	Either input, V _{CM} = 0 V	
		2, 3		600			
		1		300	pA	Either input, V _{CM} = ±13.5 V	
		2, 3		700			
Input Offset Current	I _{OS}	1		250	pA	V _{CM} = 0 V	
		2, 3		400			
		1		300	pA	V _{CM} = ±13.5 V	
		2, 3		500			
Matching Characteristics Offset Voltage	V _{OS}	1		250	μV		
		2, 3		400			
	Input Bias Current ³	1		500	pA		
		2, 3		600			
	Common-Mode Rejection ⁴	CMR	1, 2, 3	94			dB
	Power Supply Rejection ⁵	PSR	1, 2, 3	94			dB
Common-Mode Rejection Ratio	CMRR	1	100		dB	V _{CM} = ±13.5 V	
		2, 3	98				
Open-Loop Gain	A _{OL}	1	200		V/mV	V _O = ±12 V, R _L = 10 kΩ	
		2, 3	150				
		1	200		V/mV	V _O = ±10 V, R _L = 2 kΩ	
		2, 3	100				
Output Voltage Swing	V _{OUT}	1, 2, 3	±13		V	R _L = 10 kΩ	
Power Supply Quiescent Current	I _Q	1		2.5	mA		
		2, 3		2.8			

¹ V_S = ±15 V, unless otherwise noted.

² Bias current specifications maximum at either input.

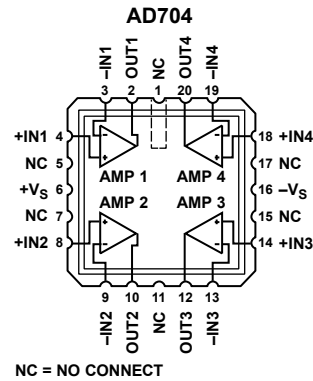
³ Input bias current match is the maximum difference between the corresponding inputs of all four amplifiers.

⁴ CMR match is the difference between ΔV_{OS}/ΔV_{CM} for any two amplifiers, expressed in dB.

⁵ PSR match is the difference between ΔV_{OS}/ΔV_{SUPPLY} for any two amplifiers, expressed in dB.

3.2.1 Functional Block Diagram and Terminal Assignments.

LCC (E-20A) Connection Diagram



3.2.4 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 MIL-STD-833 Method 1015 Test Condition (B).

