

### 1.1 Scope.

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

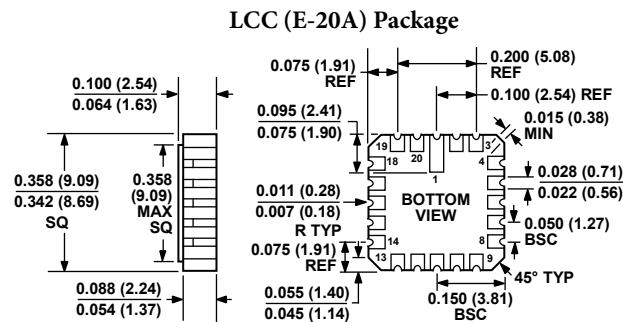
### 1.2 Part Number.

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.

021106-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 <sup>1</sup> .....	650 mW
Input Voltage .....	$\pm V_S$
Differential Input Voltage <sup>2</sup> .....	$\pm 0.7\text{ V}$
Output Short-Circuit Duration.....	Indefinite
Storage Temperature Range.....	$-65^\circ\text{C}$ to $+150^\circ\text{C}$
Operating Temperature Range.....	$-55^\circ\text{C}$ to $+125^\circ\text{C}$
Lead Temperature Range (Soldering 60 sec).....	$300^\circ\text{C}$

<sup>1</sup> Maximum package power dissipation vs. ambient temperature.

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

<sup>2</sup> 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

Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

# AD704/883B

Table 1.

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

<sup>1</sup> V<sub>S</sub> = ±15 V, unless otherwise noted.

<sup>2</sup> Bias current specifications maximum at either input.

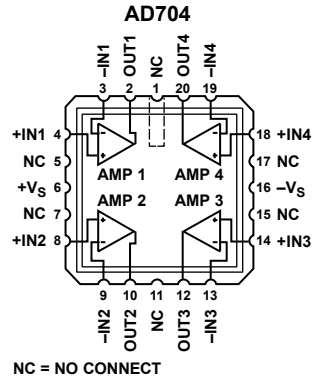
<sup>3</sup> Input bias current match is the maximum difference between the corresponding inputs of all four amplifiers.

<sup>4</sup> CMR match is the difference between ΔV<sub>OS</sub>/ΔV<sub>CM</sub> for any two amplifiers, expressed in dB.

<sup>5</sup> PSR match is the difference between ΔV<sub>OS</sub>/ΔV<sub>SUPPLY</sub> 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).

