

### 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

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**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.

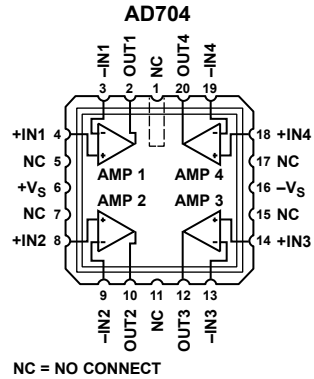
<sup>3</sup> Input bias current match is the maximum difference between the corresponding inputs of all four amplifiers.

<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).

