

### 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 |      |  |    |                           |
|                                 | Common-Mode Rejection <sup>4</sup>  | CMR       | 1, 2, 3 | 94  |      |  | dB |                           |
|                                 | Power Supply Rejection <sup>5</sup> | 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.

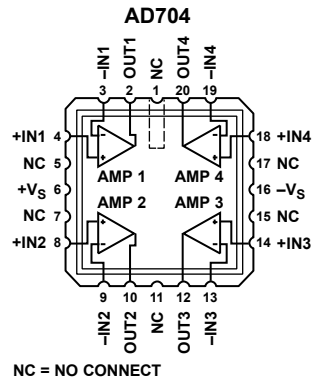
<sup>3</sup> Input bias current match is the maximum difference between the corresponding inputs of all four amplifiers.

<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).



## Данный компонент на территории Российской Федерации

### Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9