

## 1.1 Scope.

This specification covers the detail requirements for a high precision, 8.192 volt IC reference.

## 1.2 Part Number.

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

| Device | Part Number  |
|--------|--------------|
| -1     | AD689SQ/883B |
| -2     | AD689TQ/883B |

### 1.2.3 Case Outline.

See Appendix 1 of General Specification ADI-M-1000: package outline: Q-8.

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

|                                    |                                             |
|------------------------------------|---------------------------------------------|
| Input Voltage $V_{IN}$ to Ground   | +36V                                        |
| GND to GND Sense                   | $\pm 200\text{mV}$                          |
| Power Dissipation                  | 500mW                                       |
| Storage Temperature Range          | $-65^\circ\text{C}$ to $+150^\circ\text{C}$ |
| Lead Temperature (Soldering 10sec) | $+300^\circ\text{C}$                        |

## 1.5 Thermal Characteristics.

Thermal Resistance  $\theta_{JC} = 22^\circ\text{C/W}$   
 $\theta_{JA} = 110^\circ\text{C/W}$

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| Test                                   | Symbol                | Device | Design Limit<br>@ +25°C | Sub Group<br>1 | Sub Group<br>2, 3 | Sub Group<br>4 | Test Condition <sup>1</sup>       | Units        |
|----------------------------------------|-----------------------|--------|-------------------------|----------------|-------------------|----------------|-----------------------------------|--------------|
| Quiescent Current                      | I <sub>CC</sub>       | – 1, 2 | 5                       | 5              |                   |                |                                   | + mA max     |
| Output Voltage Error                   | V <sub>OUT</sub>      | – 1    | 16                      | 16             |                   |                |                                   | ± mV max     |
|                                        |                       | – 2    | 4                       | 16             |                   | 4              |                                   |              |
| Gain Adjustment                        | V <sub>ADJ</sub>      | – 1, 2 | + 655<br>– 245          | + 655<br>– 245 |                   |                |                                   | mV min       |
| Line Regulation                        | VR <sub>LINE</sub>    | – 1, 2 | 250                     | 250            | 250               |                | 10.8V ≤ V <sub>IN</sub> ≤ 36V     | ± μV/V max   |
| Load Regulation, Sourcing              | VR <sub>LOAD</sub>    | – 1, 2 | 100                     | 100            | 100               |                | I <sub>L</sub> = 0mA to 8.192mA   | ± μV/mA max  |
| Load Regulation, Sinking               | I <sub>OUT</sub>      | – 1, 2 | 100                     | 100            | 100               |                | I <sub>L</sub> = – 8.192mA to 0mA | ± μV/mA max  |
| Output Voltage Temperature Coefficient | DV <sub>OUT</sub> /dT | – 1    | 20                      |                | 20                |                |                                   | ± ppm/°C max |
|                                        |                       | – 2    | 10                      |                | 10                |                |                                   |              |
| Output Short-Circuit Current           | I <sub>SC</sub>       | – 1, 2 | 50                      | 50             |                   |                | To Ground, to V <sub>IN</sub>     | + mA max     |

NOTE

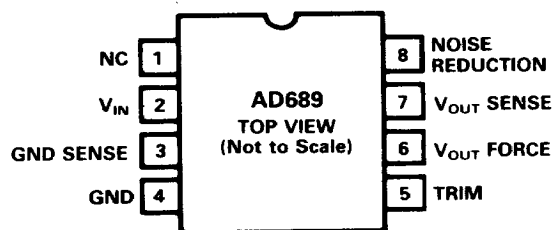
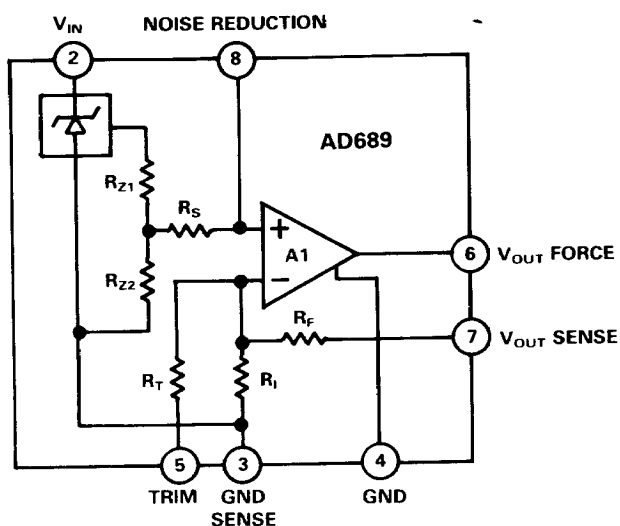
<sup>1</sup>V<sub>IN</sub> = + 12V, no load unless otherwise indicated.

Table 1.

This information applies to a product under development. Its characteristics and specifications are subject to change without notice. Analog Devices assumes no obligation regarding future manufacture unless otherwise agreed to in writing.

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## 3.2.1 Functional Block Diagram and Terminal Assignments.

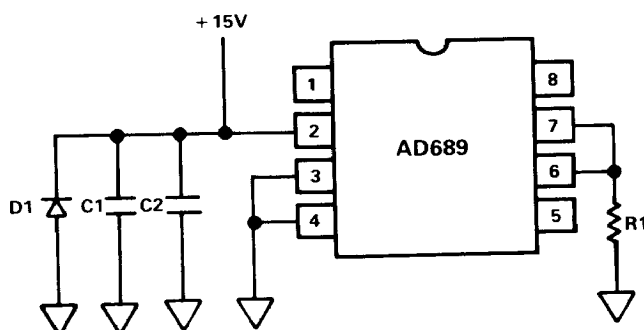


## 3.2.4 Microcircuit Technology Group.

This microcircuit is covered by technology group (59).

## 4.2.1 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).



NOTE: D1 = MR-820  
C1 = 0.1 $\mu$ F  
C2 = 47 $\mu$ F  
R1 = 787 $\Omega$  1/4 WATT AT 25°C

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