

**1.1 Scope.**

This specification covers the detail requirements for a high precision 10 volt IC reference.

**1.2 Part Number.**

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

| Device | Part Number  |
|--------|--------------|
| -1     | AD587SQ/883B |
| -2     | AD587TQ/883B |
| -3     | AD587UQ/883B |

**1.2.3 Case Outline.**

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

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

|   |                 |
|---|-----------------|
| Input Voltage $V_{IN}$ to Ground . . . . .    | + 36V           |
| Power Dissipation . . . . .                   | 500mW           |
| Storage Temperature Range . . . . .           | -65°C to +150°C |
| Lead Temperature (Soldering 10secs) . . . . . | + 300°C         |

**1.5 Thermal Characteristics.**

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

# AD587—SPECIFICATIONS

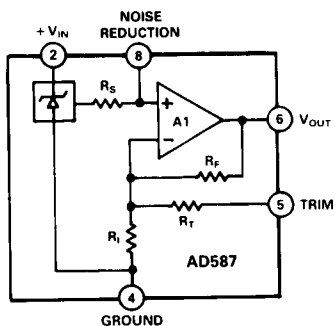
Table 1.

| Test                                   | Symbol               | Device    | Design Limit @ +25°C | Sub Group 1 | Sub Group 2, 3 | Sub Group 4 | Test Condition <sup>1</sup>        | Units        |
|--|----------------------|-----------|----------------------|-------------|----------------|-------------|------------------------------------|--------------|
| Quiescent Current                      | I <sub>CC</sub>      | - 1, 2, 3 | 4                    | 4           |                |             |                                    | + mA max     |
| Output Voltage Error                   | V <sub>OUT</sub>     | - 1       | 10                   | 10          |                |             |                                    | ± mV max     |
|  |                      | - 2       | 5                    | 10          |                | 5           |                                    |              |
|  |                      | - 3       | 5                    | 10          |                | 5           |                                    |              |
| Output Voltage Temperature Coefficient | V <sub>OUT</sub> /dT | - 1       | 20                   |             | 20             |             | T <sub>A</sub> = - 55°C to + 125°C | ± ppm/°C max |
|  |                      | - 2       | 10                   |             | 10             |             |                                    |              |
|  |                      | - 3       | 5                    |             | 5              |             |                                    |              |
| Gain Adjustment                        | V <sub>ADJ</sub>     | - 1, 2, 3 | + 300                | + 300       |                |             |                                    | mV min       |
|  |                      |           | - 100                | - 100       |                |             |                                    |              |
| Line Regulation                        | VR <sub>LINE</sub>   | - 1, 2, 3 | 100                  | 100         | 100            |             | 13.5V ≤ V <sub>IN</sub> ≤ 36V      | ± μV/V max   |
| Load Regulation, Sourcing              | VR <sub>LOAD</sub>   | - 1, 2, 3 | 100                  | 100         | 100            |             | I <sub>L</sub> = 0 to 10mA         | ± μV/mA max  |
| Load Regulation, Sinking               | I <sub>OUT</sub>     | - 1, 2, 3 | 100                  | 100         | 100            |             | I <sub>L</sub> = - 10 to 0mA       | ± μV/mA max  |
| Output Short-Circuit Current           | I <sub>OS</sub>      | - 1, 2, 3 | 50                   | 50          |                |             | To Ground                          | + mA max     |
| Output Short-Circuit Current           | I <sub>OS</sub>      | - 1, 2, 3 | 50                   | 50          |                |             | To V <sub>IN</sub>                 | - mA max     |

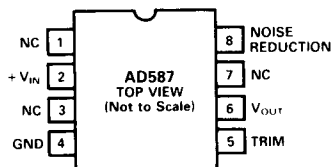
NOTE

<sup>1</sup>T<sub>A</sub> = + 25°C; V<sub>CC</sub> = + 15V unless otherwise stated.

### 3.2.1 Functional Block Diagram and Terminal Assignments.



NOTE: MAKE NO CONNECTIONS TO PINS 1, 3, AND 7.

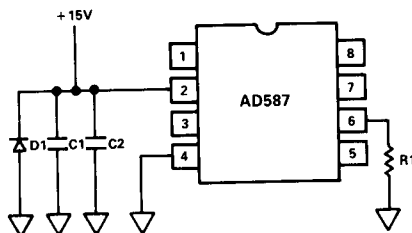


### 3.2.4 Microcircuit Technology Group.

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 = 1k $\Omega$  1/2 WATT AT 25°C