

**SMD/883B**
**AD780**
**Scope**

This specification covers the detail requirements for a high precision 2.5/3.0 V IC reference. The electrical specifications match the Standard Military Drawing (SMD) 5962-94636 in effect at the release of this data sheet. For a copy of the latest official SMD, contact DESC-ELDS.

**Part Number/Case Outline**

For case outline dimensions, see Package Information Appendix of General Specification ADI-M-1000. The complete part numbers of these SMD and 883 devices are as follows:

Device Type	SMD Part Number	ADI 883 Part Number	Package Description	Package Designation	
				ADI	MIL-STD-1835
01	5962-9463601MPA	AD780SQ/883B	8-Pin Cerdip	Q-8	GDIP1-T8

**Absolute Maximum Ratings<sup>1</sup>** ( $T_A = +25^\circ\text{C}$  unless otherwise noted)

Input Voltage, $V_{IN}$ to Ground	+36 V
Trim Pin to Ground	+36 V
Temp Pin to Ground	+36 V
Power Dissipation	500 mW
Storage Temperature Range	$-65^\circ\text{C}$ to $+150^\circ\text{C}$
Lead Temperature (Soldering 10 secs)	$+300^\circ\text{C}$

**Recommended Operating Conditioning**

Operating Voltage Range, 2.5 V Output	4.0 V to 36 V
Operating Voltage Range, 3.0 V Output	4.5 V to 36 V
Ambient Operating Temperature Range ( $T_A$ )	$-55^\circ\text{C}$ to $+125^\circ\text{C}$

**Thermal Characteristics**

Thermal Resistance, Junction-to-Case ( $\theta_{JC}$ ) max	28°C/W
Thermal Resistance, Junction-to-Ambient ( $\theta_{JA}$ ) max	110°C/W

**NOTE**

<sup>1</sup>Permanent damage may occur if any absolute maximum rating is exceeded. Functional operation is not implied, and device reliability may be impaired by exposure to higher-than-recommended voltages for extended periods of time.

REV. A

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 which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices.

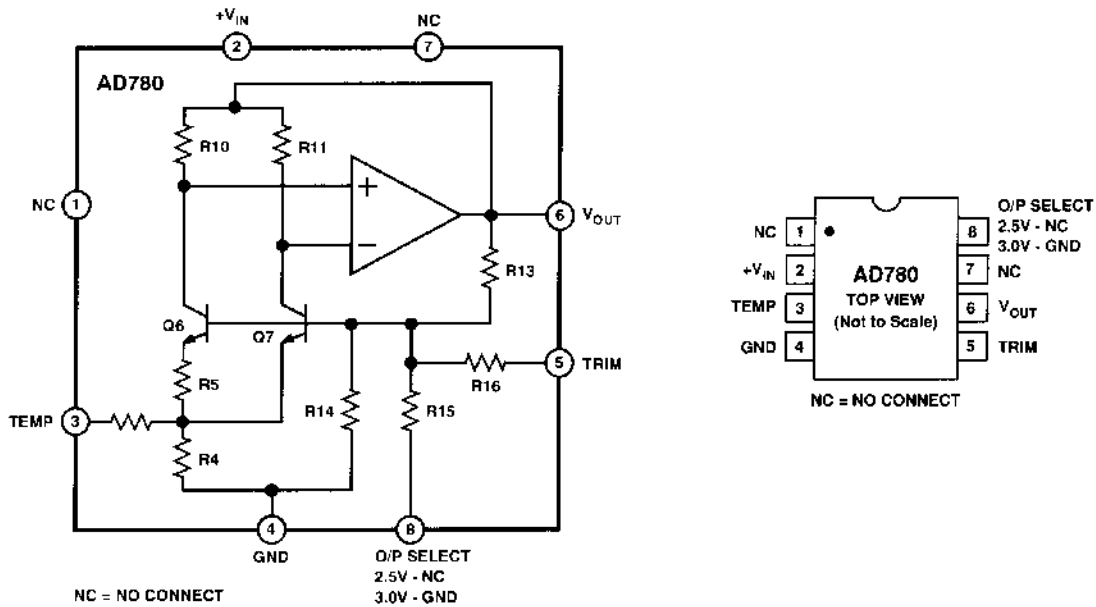
One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106, U.S.A.  
Tel: 617/329-4700 Fax: 617/326-8703

# AD780—SPECIFICATIONS

Table I. Electrical Performance Characteristics

Test	Symbol	Conditions $V_{CC} = +5\text{ V}$ , $I_L = 0\text{ mA}$ unless otherwise specified	Group A Subgroup	Device	Limits		Units
					Min	Max	
Quiescent Current	$I_{CC}$	2.5 V/3.0 V	1, 2, 3	01		1.3	mA
Output Voltage Error	$V_{OUT}$	2.5 V/3.0 V	1	01		5	mV
Line Regulation	$VR_{LINE}$	2.5 V Output, $4\text{ V} < +V_{IN} < 36\text{ V}$	1, 2, 3	01		10	$\mu\text{V/V}$
		3.0 V Output, $4.5\text{ V} < -V_{IN} < 36\text{ V}$					
Load Regulation, Sourcing	$VR_{LOAD}$	$I_L = 0\text{ mA}$ to 10 mA, Series Mode	1	01		50	$\mu\text{V/mA}$
			2, 3		75		
Load Regulation, Sinking	$VR_{LOAD}$	$I_L = -10\text{ mA}$ to 0 mA, Series Mode	1	01		75	$\mu\text{V/mA}$
			2, 3		150		
Minimum Shunt Current			1	01		1	mA
Load Regulation, Shunt		$1 < I_{shunt} < 10\text{ mA}$	1	01		75	$\mu\text{V/mA}$
			2, 3		150		
Output Voltage Temperature Coefficient	$DV_{OUT}/dT$		2, 3	01		20	ppm/ $^{\circ}\text{C}$
Voltage Output-Temperature Pin			1	01	500	620	mV
Short Circuit Current	$I_{OS}$	To Ground, $T_A = +25^{\circ}\text{C}$	—	01	30 typical		mA
Trim Range			1, 2, 3	01	4		$\pm\%$

Functional Block Diagram and Terminal Assignments



Microcircuit Technology Group

This microcircuit is covered by technology group (59).

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).

