

## DESCRIPTION

The RH<sup>®</sup>1009 is a general purpose 2.5V shunt regulator diode designed to operate over a wide current range while maintaining good stability with time and temperature. The adjust terminal allows either temperature coefficient to be minimized or the reference voltage to be adjusted without changing the temperature coefficient. Because it operates as a shunt regulator it can be used equally well as a positive or negative reference.

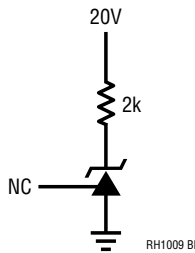
The wafer lots are processed to Analog Devices' in-house Class S flow to yield circuits usable in stringent military applications.

## ABSOLUTE MAXIMUM RATINGS

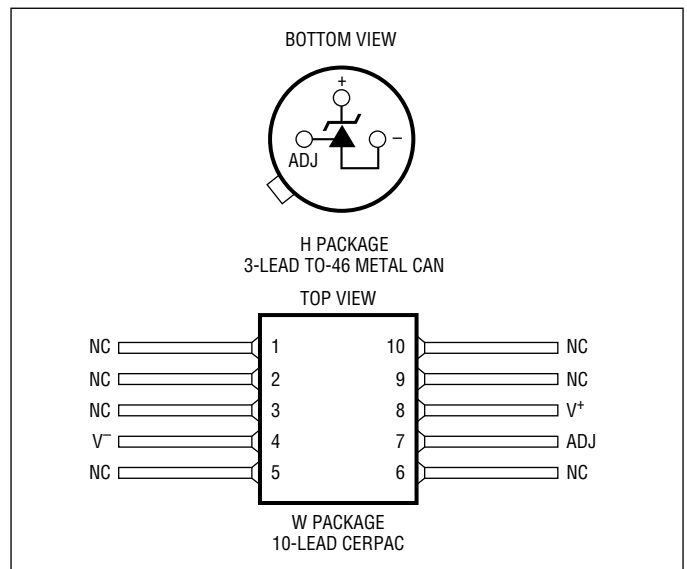
Reverse Breakdown Current .....	20mA
Forward Current .....	10mA
Operating Temperature Range .....	-55°C to 125°C
Storage Temperature Range .....	-65°C to 150°C
Lead Temperature (Soldering, 10 sec).....	300°C
Junction Temperature .....	150°C

All registered trademarks and trademarks are the property of their respective owners. Protected by U.S. patents, including XXXXX, XXXXX.

## BURN-IN CIRCUIT



## PACKAGE/ORDER INFORMATION



**TABLE 1: ELECTRICAL CHARACTERISTICS** (Preirradiation)

SYMBOL	PARAMETER	CONDITIONS	NOTES	T <sub>A</sub> = 25°C			SUB-GROUP	-55°C ≤ T <sub>A</sub> ≤ 125°C			SUB-GROUP	UNITS
				MIN	TYP	MAX		MIN	TYP	MAX		
V <sub>Z</sub>	Reverse Breakdown Voltage	I <sub>R</sub> = 1 mA		2.495		2.505	1					V
$\frac{\Delta V_Z}{\Delta I_R}$	Reverse Breakdown Voltage Change with Current	400 μA ≤ I <sub>R</sub> ≤ 10 mA				6	1			10	2, 3	mV
r <sub>Z</sub>	Reverse Dynamic Impedance	I <sub>R</sub> = 1 mA	1			0.6				1		Ω
ΔV <sub>Z</sub>	Temperature Stability		1							15		mV
$\frac{\Delta V_Z}{\Delta \text{Time}}$	Long Term Stability	T <sub>A</sub> = 25°C ± 0.1°C, I <sub>R</sub> = 1 mA				20						ppm/kHr

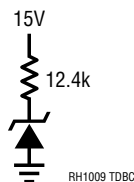
**TABLE 1A: ELECTRICAL CHARACTERISTICS** (Postirradiation) (Note 2)

SYMBOL	PARAMETER	CONDITIONS	NOTES	10Krad(Si)		20Krad(Si)		50Krad(Si)		100Krad(Si)		200Krad(Si)		UNITS
				MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
V <sub>Z</sub>	Reverse Breakdown Voltage	I <sub>R</sub> = 1 mA		2.495	2.505	2.495	2.505	2.495	2.505	2.495	2.505	2.495	2.505	V
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse Breakdown Voltage Change with Current	400 μA ≤ I <sub>R</sub> ≤ 10 mA			6		6		8		10		12	mV
r <sub>Z</sub>	Reverse Dynamic Impedance	I <sub>R</sub> = 1 mA	1		0.6		0.6		0.8		1.0		1.4	Ω

**Note 1:** Guaranteed by design, characterization or correlation to other tested parameters.

**Note 2:** T<sub>A</sub> = 25°C unless otherwise noted.

## TOTAL DOSE BIAS CIRCUIT

**TABLE 2: ELECTRICAL TEST REQUIREMENTS**

MIL-STD-883 TEST REQUIREMENTS	SUBGROUP
Final Electrical Test Requirements (Method 5004)	1*, 2, 3,
Group A Test Requirements (Method 5005)	1, 2, 3
Group C and D End Point Electrical Parameters (Method 5005)	1

\*PDA Applies to subgroup 1. See PDA Test Notes.

### PDA Test Notes

The PDA is specified as 5% based on failures from group A, subgroup 1, tests after cooldown as the final electrical test in accordance with method 5004 of MIL-STD-883 Class B. The verified failures (including Delta parameters) of group A, subgroup 1, after burn-in divided by the total number of devices submitted for burn-in in that lot shall be used to determine the percent for the lot.

Analog Devices reserves the right to test to tighter limits than those given.

---

## REVISION HISTORY

REV	DATE	DESCRIPTION	PAGE NUMBER
D	05/19	Updated logo and revised specified temperature from $T_J$ to $T_A$ in Electrical Characteristics. Added $T_J$ to Absolute Max.	1, 2

**TYPICAL PERFORMANCE CHARACTERISTICS**

