

DESCRIPTION

The RH[®]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.

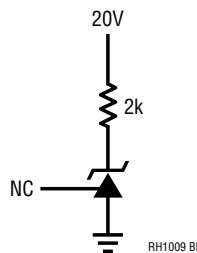
The wafer lots are processed to Analog Devices' in-house Class S flow to yield circuits usable in stringent military applications.

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.

BURN-IN CIRCUIT



PACKAGE/ORDER INFORMATION

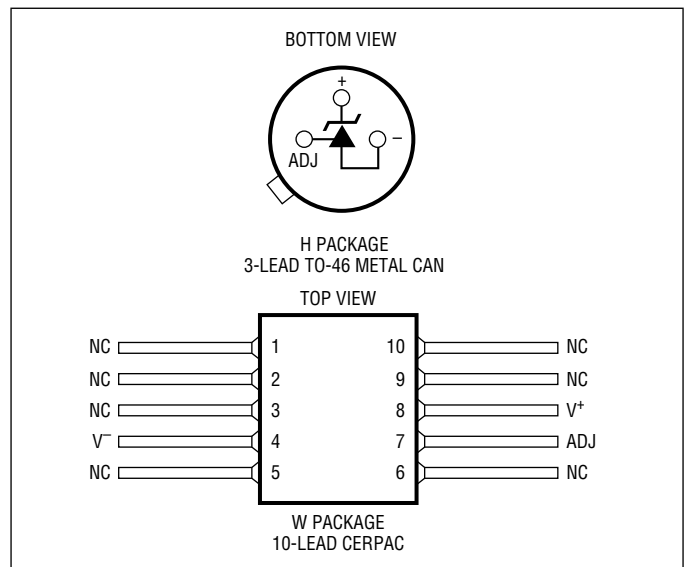


TABLE 1: ELECTRICAL CHARACTERISTICS (Preirradiation)

SYMBOL	PARAMETER	CONDITIONS	NOTES	$T_A = 25^\circ\text{C}$			SUB-GROUP	$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			SUB-GROUP	UNITS
				MIN	TYP	MAX		MIN	TYP	MAX		
V_Z	Reverse Breakdown Voltage	$I_R = 1\text{mA}$		2.495		2.505	1					V
$\frac{\Delta V_Z}{\Delta I_R}$	Reverse Breakdown Voltage Change with Current	$400\mu\text{A} \leq I_R \leq 10\text{mA}$				6	1			10	2, 3	mV
r_Z	Reverse Dynamic Impedance	$I_R = 1\text{mA}$	1			0.6				1		Ω
ΔV_Z	Temperature Stability		1							15		mV
$\frac{\Delta V_Z}{\Delta \text{Time}}$	Long Term Stability	$T_A = 25^\circ\text{C} \pm 0.1^\circ\text{C}$, $I_R = 1\text{mA}$			20							ppm/kHr

TABLE 1A: ELECTRICAL CHARACTERISTICS (Postirradiation) (Note 2, 3)

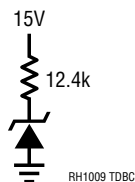
SYMBOL	PARAMETER	CONDITIONS	NOTES	10Krad(Si)		20Krad(Si)		50Krad(Si)		100Krad(Si)		200Krad(Si)		UNITS
				MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
V_Z	Reverse Breakdown Voltage	$I_R = 1\text{mA}$		2.495	2.505	2.495	2.505	2.495	2.505	2.495	2.505	2.495	2.505	V
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse Breakdown Voltage Change with Current	$400\mu\text{A} \leq I_R \leq 10\text{mA}$			6		6		8		10		12	mV
r_Z	Reverse Dynamic Impedance	$I_R = 1\text{mA}$	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: $T_A = 25^\circ\text{C}$ unless otherwise noted.

Note 3: Device is characterized at 10Krad, 20Krad, 50Krad, 100Krad, and 200Krad; and is production tested at 100Krad only.

TOTAL DOSE BIAS CIRCUIT

**TABLE 2: ELECTRICAL TEST REQUIREMENTS**

MIL-PRF-38535 TEST REQUIREMENTS	SUBGROUP
Final Electrical Test Requirements	1*, 2, 3,
Group A Test Requirements	1, 2, 3
Group C End Point Electrical Parameters	1
Group D End Point Electrical Parameters	1
Group E End Point Electrical Parameters	1

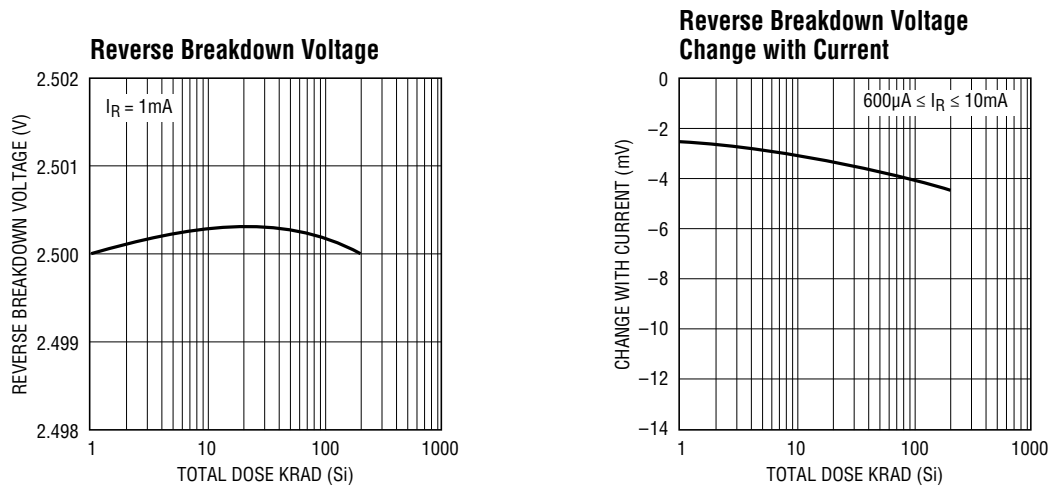
*PDA Applies to subgroup 1. See PDA Test Notes.

PDA Test Notes

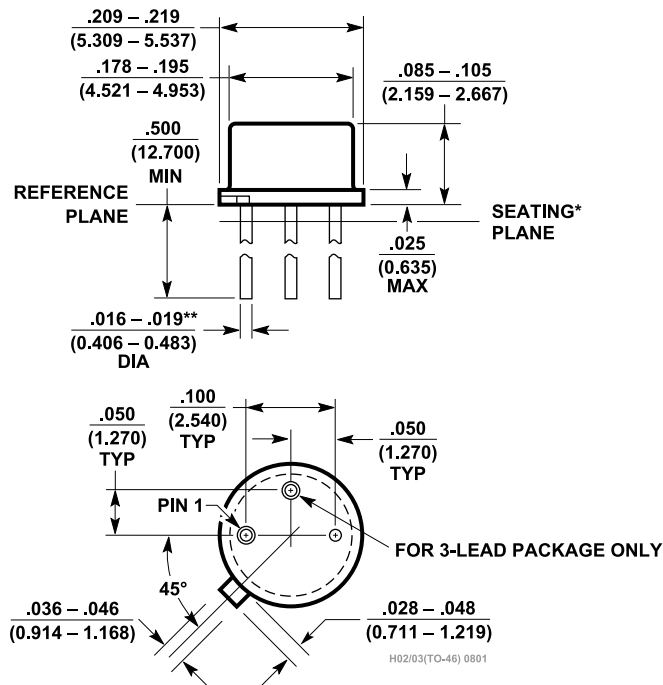
The PDA is specified as 5% based on failures from group A, subgroup 1, tests after cooldown as the final electrical test in accordance with method 5004 of MIL-STD-883 Class B. The verified failures (including Delta parameters) of group A, subgroup 1, after burn-in divided by the total number of devices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

TYPICAL PERFORMANCE CHARACTERISTICS



PACKAGE OUTLINE DRAWINGS

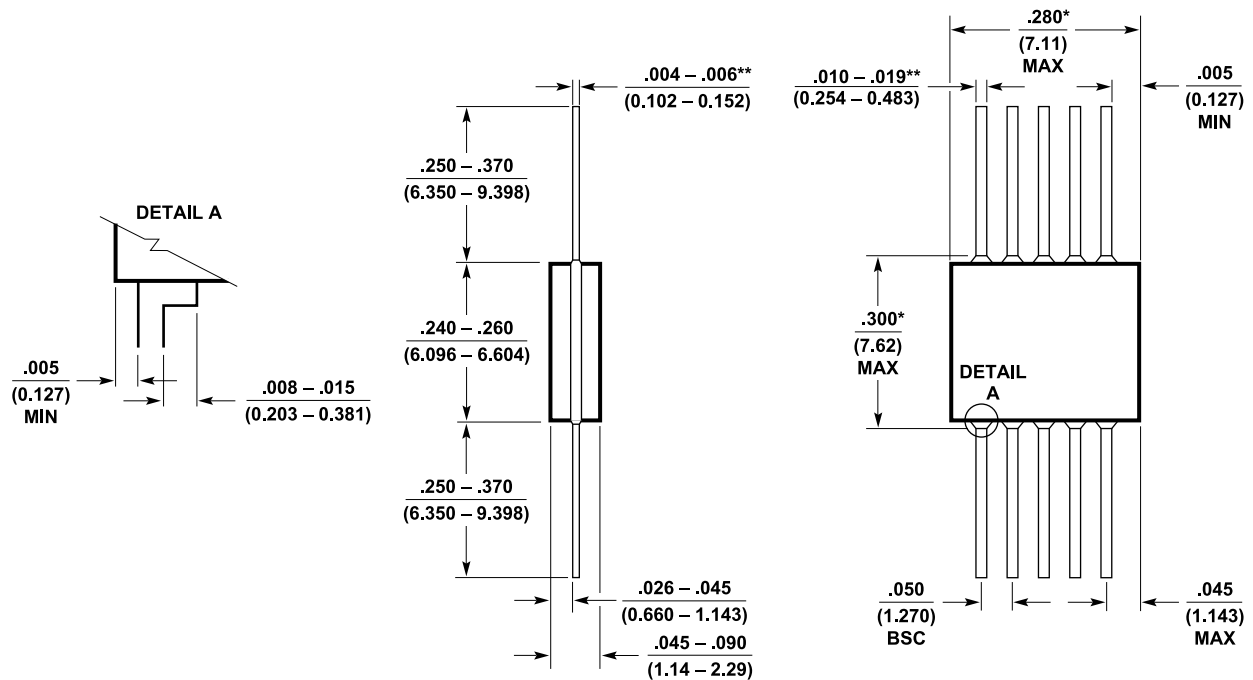


*LEAD DIAMETER IS UNCONTROLLED BETWEEN THE REFERENCE PLANE AND .050" BELOW THE REFERENCE PLANE

**FOR SOLDER DIP LEAD FINISH, LEAD DIAMETER IS $.016 - .024$ (0.406 - 0.610)

**H Package 2-Lead and 3-Lead TO-46
Metal Can (Reference LTC DWG #
05-08-1340)**

PACKAGE OUTLINE DRAWINGS



NOTES:

*THIS DIMENSION ALLOWS FOR OFF-CENTER LID, MENISCUS AND GLASS OVERRUN

**INCREASE DIMENSIONS BY 0.003 INCHES (0.076 mm) WHEN LEAD FINISH A IS APPLIED (SOLDER DIPPED)

W10 (GLASS) 0603

W Package
10-Lead Flatpak Glass Sealed (Hermetic)
(Reference LTC DWG # 05-08-1130)

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
E	07/24	Updated Table 2: Electrical Test Requirements	2
F	07/25	Updated Table 1: Electrical Characteristics Added Package Outline Drawings	2 3, 4