DESCRIPTION

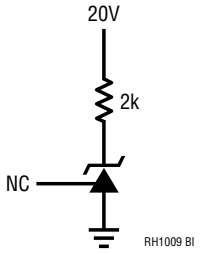
The RH®1009 is a general purpose 2.5V shunt regulator diode designed to operate over a wide current range while maintaining good stability with time and temperature. The adjust terminal allows either temperature coefficient to be minimized or the reference voltage to be adjusted without changing the 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

BURN-IN CIRCUIT



PACKAGE/ORDER INFORMATION

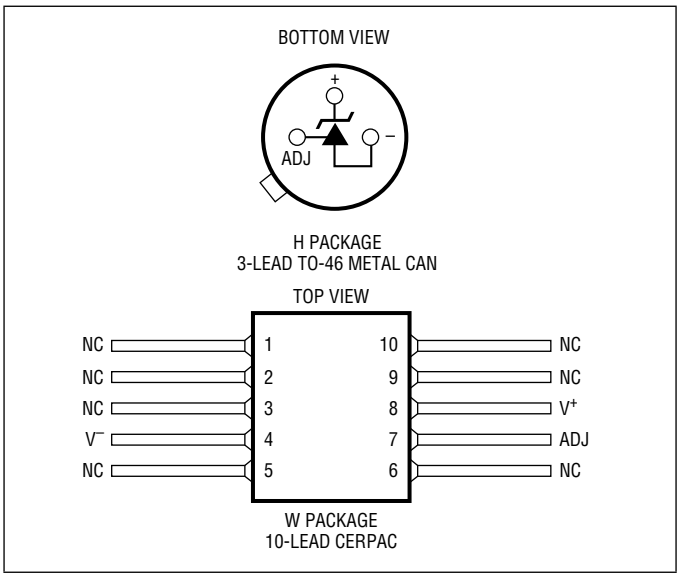


TABLE 1: ELECTRICAL CHARACTERISTICS (Preirradiation)

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

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

SYMBOL	PARAMETER	CONDITIONS	NOTES	10Krad(Si) MIN	10Krad(Si) MAX	20Krad(Si) MIN	20Krad(Si) MAX	50Krad(Si) MIN	50Krad(Si) MAX	100Krad(Si) MIN	100Krad(Si) MAX	200Krad(Si MIN	200Krad(Si MAX	UNITS
V_Z	Reverse Breakdown Voltage	I_R = 1mA		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	400µA ≤ I_R ≤ 10mA			6		6		8		10		12	mV
r_Z	Reverse Dynamic Impedance	I_R = 1mA	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°C unless otherwise noted.

TOTAL DOSE BIAS CIRCUIT

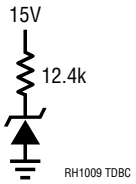


TABLE 2: ELECTRICAL TEST REQUIREMENTS

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.

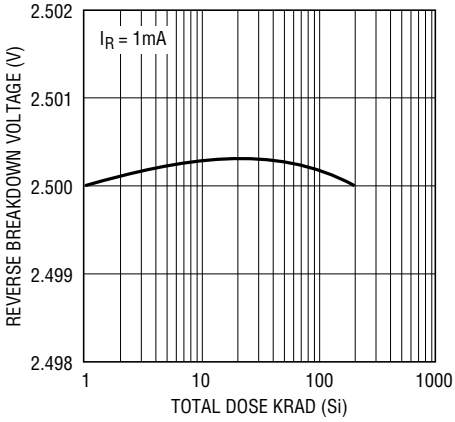
I.D.No.66-10-0174 Rev. E

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

TYPICAL PERFORMANCE CHARACTERISTICS

Reverse Breakdown Voltage



Reverse Breakdown Voltage Change with Current