



**INTERNATIONAL
SEMICONDUCTOR, INC.**

TEMPERATURE COMPENSATED ZENER REFERENCE DIODES
6.6 VOLT NOMINAL ZENER VOLTAGE - 2.0 to 1.0 mA

**1N4611
thru
1N4613C**

MAXIMUM RATINGS *

Operating Temperature: -65 °C to +175 °C
Storage Temperature: -65 °C to +200 °C
DC Power Dissipation: 400 mW at 50 °C
Power Derating: 3.33 mW/°C above 50 °C

Note 1: The maximum allowable change observed over the entire temperature range, ie: the diode voltage will not exceed the specified change at any discrete temperature between the established limits

Note 2: Zener impedance is derived by superimposing on I_{zt} a 60 Hz a.c. current equal to 10% of I_{zt} .

DESIGN DATA

CASE: Hermetically sealed glass case. DO-7 Outline.

LEAD MATERIAL: Copper Clad Steel

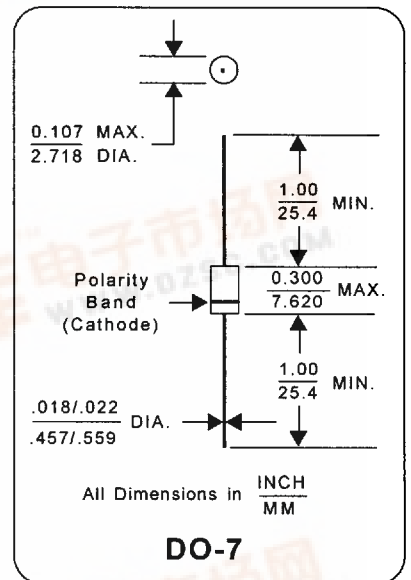
LEAD FINISH: Tin Plate

THERMAL RESISTANCE:
250 °C/w (Typical)
junction to ambient.

POLARITY: Diode to be operated with the banded (cathode) end positive with respect to the opposite end

WEIGHT: 0.2 Grams

MOUNTING POSITION: Any



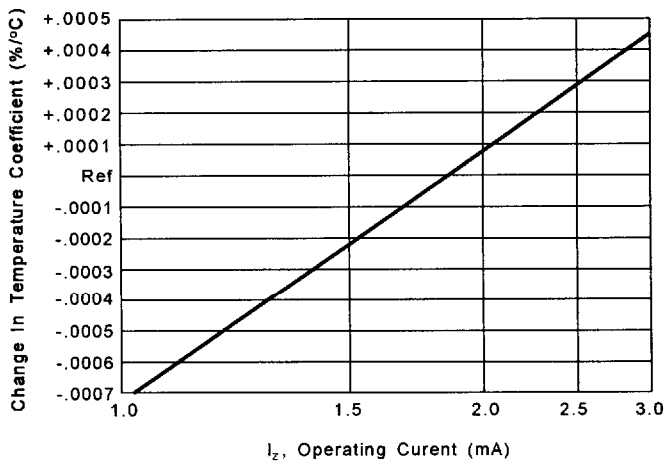
ELECTRICAL CHARACTERISTICS @ 25°C, unless otherwise specified

JEDEC TYPE NUMBERS	ZENER VOLTAGE (±5%) V_{zt} at I_{zt}	ZENER TEST CURRENT I_{zt}	MAXIMUM DYNAMIC IMPEDANCE (Note 2) Z_{zt}	MAXIMUM REVERSE CURRENT I_r at $V_r=3.0V$	MAXIMUM TEMPERATURE COEFFICIENT at I_{zt} -50°C to +100°C	OPERATING CURRENT RANGE	MAXIMUM TEMPERATURE COEFFICIENT OVER OPERATING CURRENT RANGE (Note 1) -50°C to +100°C	TYPICAL NOISE LEVEL
	Volts	mA	Ohms	uA	%/°C	mA	%/°C	uV
1N4611	6.6	2.0	75.0	0.20	.005	1.0 - 3.0	.01	1.0
1N4611A	6.6	2.0	75.0	0.20	.002	1.0 - 3.0	.005	1.0
1N4611B	6.6	2.0	75.0	0.20	.001	1.0 - 3.0	.002	1.0
1N4611C	6.6	2.0	75.0	0.20	.0005	1.0 - 3.0	.001	1.0
1N4612	6.6	5.0	25.0	0.20	.005	3.0 - 7.0	.01	1.0
1N4612A	6.6	5.0	25.0	0.20	.002	3.0 - 7.0	.005	1.0
1N4612B	6.6	5.0	25.0	0.20	.001	3.0 - 7.0	.002	1.0
1N4612C	6.6	5.0	25.0	0.20	.0005	3.0 - 7.0	.001	1.0
1N4613	6.6	10.0	15.0	0.20	.005	7.0 - 15.0	.01	1.0
1N4613A	6.6	10.0	15.0	0.20	.002	7.0 - 15.0	.005	1.0
1N4613B	6.6	10.0	15.0	0.20	.001	7.0 - 15.0	.002	1.0
1N4613C	6.6	10.0	15.0	0.20	.0005	7.0 - 15.0	.001	1.0

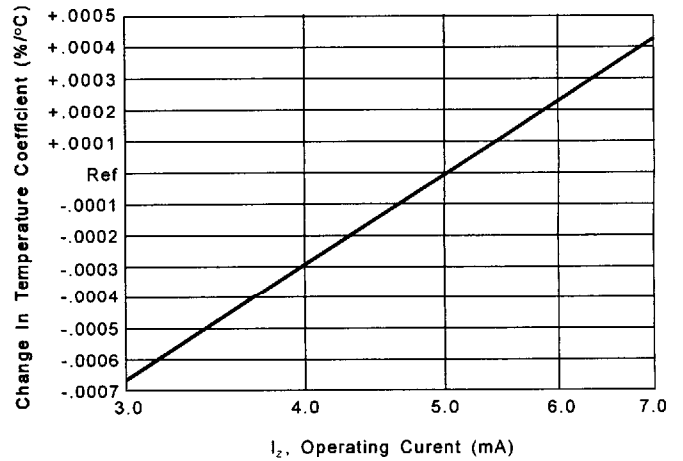
* JEDEC Registered Data.



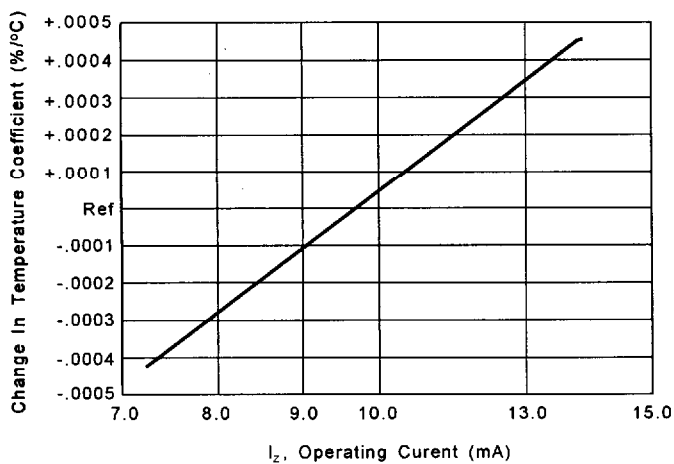
1N4611 thru 1N4613C CHARACTERISTIC CV CURVES



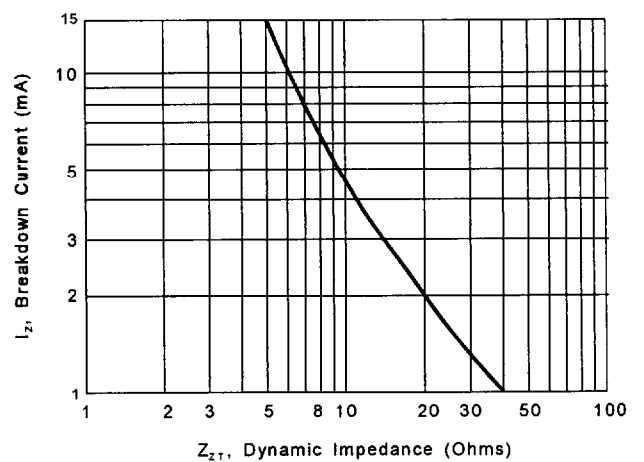
TYPICAL CHANGE OF TEMPERATURE COEFFICIENT
WITH CHANGE IN OPERATING CURRENT
1N4611 TYPES
FIGURE 2



TYPICAL CHANGE OF TEMPERATURE COEFFICIENT
WITH CHANGE IN OPERATING CURRENT
1N4612 TYPES
FIGURE 3



TYPICAL CHANGE OF TEMPERATURE COEFFICIENT
WITH CHANGE IN OPERATING CURRENT
1N4613 TYPES
FIGURE 4



TYPICAL CHANGE OF DYNAMIC IMPEDANCE WITH
CHANGE IN BREAKDOWN CURRENT
ALL TYPES
FIGURE 5