

- AVAILABLE IN JAN, JANTX, JANTXV AND JANS  
PER MIL-PRF-19500/533
- 500 mW ZENER DIODES
- NON CAVITY CONSTRUCTION
- METALLURGICALLY BONDED

**1N6309US  
THRU  
1N6320US**

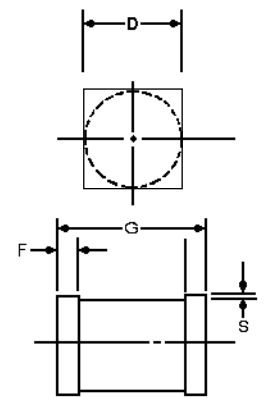
### MAXIMUM RATINGS

Operating Temperature: -65°C to +175°C  
 Storage Temperature: -65°C to +175°C  
 Power Dissipation: 500 mW @  $T_{EC}=+125^{\circ}C$   
 Power Derating: 10 mW/°C above  $T_{EC}=+125^{\circ}C$   
 Forward Voltage: 1.4V dc @  $I_F=1A$  dc (pulsed)

### ELECTRICAL CHARACTERISTICS @ 25°C, unless otherwise specified

TYPE	$V_{Z2}$ NOM. ±5% @ $I_{Z2}$	$V_{Z1}$ MIN. @ $I_{Z1}$ 250 $\mu$ A	$I_{Z2}$ TEST CURRENT	$Z_Z$ @ $I_{Z2}$	$Z_{ZK}$ @ 250 $\mu$ A	$I_{ZM}$	$V_Z$ (reg) $\Delta V_Z$ (1)	$I_{ZSM}$ SURGE	$V_R$	$I_{R1}$ @ 25°C	$I_{R2}$ @ TA= 150°C	$N_D$ @250 $\mu$ A 1-3 kHz
	VOLTS	VOLTS	mA	OHMS	OHMS	mA	VOLTS	AMPS	VOLTS	$\mu$ A	$\mu$ A	$\mu$ V/ $\sqrt{Hz}$
1N6309US	2.4	1.1	20	30	1200	177	1.5	2.5	1.0	100	200	1.0
1N6310US	2.7	1.2	20	30	1300	157	1.5	2.2	1.0	60	150	1.0
1N6311US	3.0	1.3	20	29	1400	141	1.5	2.0	1.0	30	100	1.0
1N6312US	3.3	1.5	20	24	1400	128	1.6	1.8	1.0	5.0	20	1.0
1N6313US	3.6	1.8	20	22	1400	117	1.6	1.65	1.0	3.0	12	1.0
1N6314US	3.9	2.0	20	20	1700	108	1.6	1.5	1.0	2.0	12	1.0
1N6315US	4.3	2.4	20	18	1400	99	0.9	1.4	1.0	2.0	12	1.0
1N6316US	4.7	2.8	20	16	1500	90	0.5	1.27	1.5	5.0	12	1.0
1N6317US	5.1	3.3	20	14	1300	83	0.4	1.17	2.0	5.0	12	1.0
1N6318US	5.6	4.3	20	8.0	1200	76	0.4	1.10	2.5	5.0	10	2.0
1N6319US	6.2	5.2	20	3.0	800	68	0.3	0.97	3.5	5.0	10	5.0
1N6320US	6.8	6.0	20	3.0	400	63	0.35	1.23	4.0	2.0	50	5.0

NOTE 1:  $\Delta V_Z = V_Z @ 20$  mAdc minus  $V_Z @ 2$  mAdc



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
D	1.78	2.16	0.070	0.085
F	0.48	0.71	0.019	0.028
G	4.19	4.95	0.165	0.195
S	0.08MIN.		0.003MIN.	

FIGURE 1

### DESIGN DATA

**CASE:** D-5D, Hermetically sealed glass case, per MIL-PRF- 19500/533

**LEAD FINISH:** Tin / Lead

**THERMAL RESISTANCE:** ( $R_{\theta JC}$ ): 50 °C/W maximum

**THERMAL IMPEDANCE:** ( $Z_{\theta JX}$ ): 15 °C/W maximum

**POLARITY:** Diode to be operated with the banded (cathode) end positive.

**MOUNTING SURFACE SELECTION:**  
 The Axial Coefficient of Expansion (COE) of this device is approximately + 4PPM / °C. The COE of the Mounting Surface System should be selected to provide a suitable match with this device.

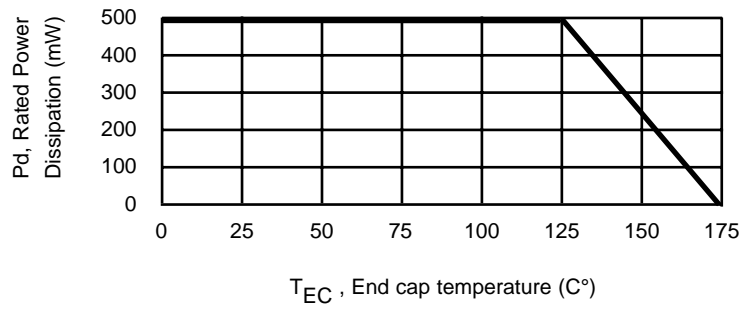


**COMPENSATED DEVICES INCORPORATED**

22 COREY STREET, MELROSE, MASSACHUSETTS 02176  
 PHONE (781) 665-1071 FAX (781) 665-7379  
 WEBSITE: <http://www.cdi-diodes.com> E-mail: [mail@cdi-diodes.com](mailto:mail@cdi-diodes.com)

# 1N6309US thru 1N6320US

FIGURE 2



POWER DERATING CURVE

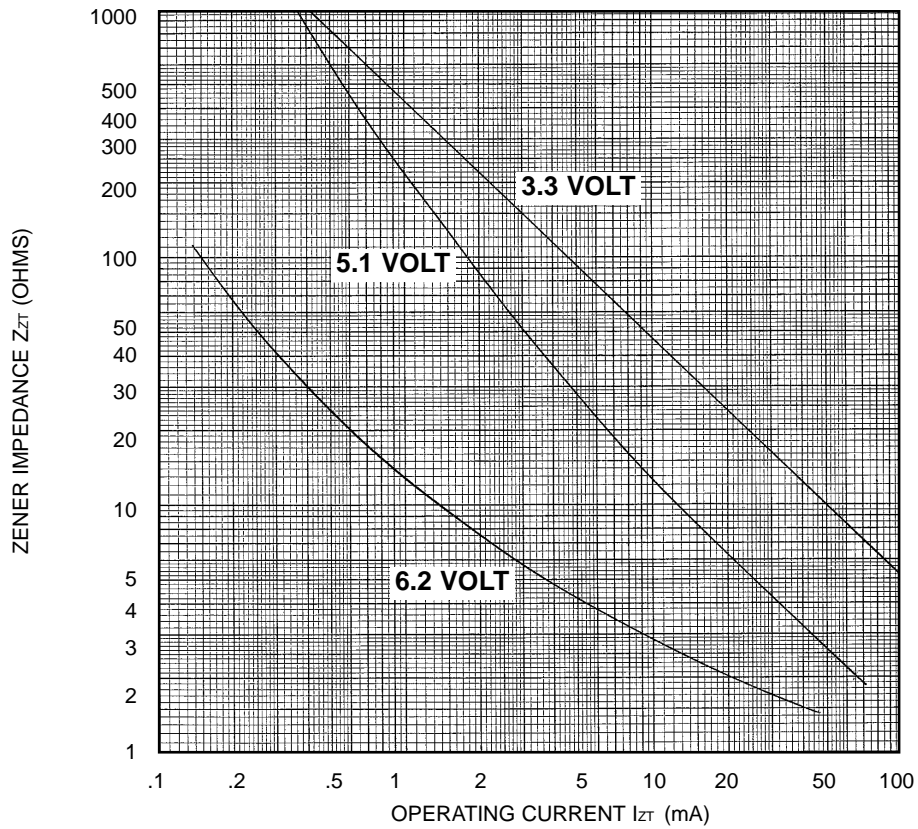


FIGURE 3

ZENER IMPEDANCE VS. OPERATING CURRENT