

• 1N4099UR-1 THRU 1N4135UR-1 AVAILABLE IN JAN, JANTX, JANTXV AND JANS

PER MIL-PRF-19500/435

- LEADLESS PACKAGE FOR SURFACE MOUNT
- LOW CURRENT OPERATION AT 250  $\mu$ A
- METALLURGICALLY BONDED

1N4099UR-1  
thru  
1N4135UR-1  
and  
CDLL4099 thru CDLL4135

**MAXIMUM RATINGS**

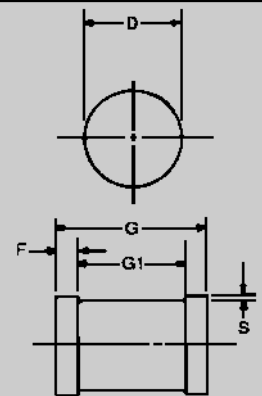
Junction and Storage Temperature: -65°C to +175°C  
DC Power Dissipation: 500mW @  $T_{EC} = +125^{\circ}C$   
Power Derating: 10mW/°C above  $T_{EC} = +125^{\circ}C$   
Forward Derating @ 200 mA: 1.1 Volts maximum

**ELECTRICAL CHARACTERISTICS @ 25°C, unless otherwise specified.**

| CDI TYPE NUMBER | NOMINAL ZENER VOLTAGE $V_z @ I_{ZT}$ (Note 1) | ZENER TEST CURRENT $I_{ZT}$ | MAXIMUM ZENER IMPEDANCE $Z_{ZT}$ (Note 2) | MAXIMUM REVERSE LEAKAGE CURRENT $I_R @ V_R$ |       | MAXIMUM ZENER CURRENT $I_{ZM}$ |
|-----------------|---|-----------------------------|---|---|-------|--------------------------------|
|                 |   |                             |   | $\mu A$                                     | VOLTS |                                |
|                 | VOLTS   | $\mu A$                     | OHMS                                      | $\mu A$                                     | VOLTS | mA                             |
| CDLL4099        | 6.8   | 250                         | 200                                       | 10  | 5.17  | 56                             |
| CDLL4100        | 7.5   | 250                         | 200                                       | 10  | 5.70  | 51                             |
| CDLL4101        | 8.2   | 250                         | 200                                       | 1.0   | 6.24  | 46                             |
| CDLL4102        | 8.7   | 250                         | 200                                       | 1.0   | 6.61  | 44                             |
| CDLL4103        | 9.1   | 250                         | 200                                       | 1.0   | 6.92  | 42                             |
| CDLL4104        | 10  | 250                         | 200                                       | 1.0   | 7.60  | 38                             |
| CDLL4105        | 11  | 250                         | 200                                       | .05   | 8.44  | 35                             |
| CDLL4106        | 12  | 250                         | 200                                       | .05   | 9.12  | 32                             |
| CDLL4107        | 13  | 250                         | 200                                       | .05   | 9.87  | 29                             |
| CDLL4108        | 14  | 250                         | 200                                       | .05   | 10.66 | 27                             |
| CDLL4109        | 15  | 250                         | 100                                       | .05   | 11.40 | 25                             |
| CDLL4110        | 16  | 250                         | 100                                       | .05   | 12.15 | 24                             |
| CDLL4111        | 17  | 250                         | 100                                       | .05   | 12.92 | 22                             |
| CDLL4112        | 18  | 250                         | 100                                       | .05   | 13.67 | 21                             |
| CDLL4113        | 19  | 250                         | 150                                       | .05   | 14.44 | 20                             |
| CDLL4114        | 20  | 250                         | 150                                       | .01   | 15.20 | 19                             |
| CDLL4115        | 22  | 250                         | 150                                       | .01   | 16.72 | 17                             |
| CDLL4116        | 24  | 250                         | 150                                       | .01   | 18.25 | 16                             |
| CDLL4117        | 25  | 250                         | 150                                       | .01   | 19.00 | 15                             |
| CDLL4118        | 27  | 250                         | 150                                       | .01   | 20.46 | 14                             |
| CDLL4119        | 28  | 250                         | 200                                       | .01   | 21.28 | 14                             |
| CDLL4120        | 30  | 250                         | 200                                       | .01   | 22.80 | 13                             |
| CDLL4121        | 33  | 250                         | 200                                       | .01   | 25.08 | 12                             |
| CDLL4122        | 36  | 250                         | 200                                       | .01   | 27.38 | 11                             |
| CDLL4123        | 39  | 250                         | 200                                       | .01   | 29.65 | 9.8                            |
| CDLL4124        | 43  | 250                         | 250                                       | .01   | 32.65 | 8.9                            |
| CDLL4125        | 47  | 250                         | 250                                       | .01   | 35.75 | 8.1                            |
| CDLL4126        | 51  | 250                         | 300                                       | .01   | 38.76 | 7.5                            |
| CDLL4127        | 56  | 250                         | 300                                       | .01   | 42.60 | 6.7                            |
| CDLL4128        | 60  | 250                         | 400                                       | .01   | 45.60 | 6.4                            |
| CDLL4129        | 62  | 250                         | 500                                       | .01   | 47.10 | 6.1                            |
| CDLL4130        | 68  | 250                         | 700                                       | .01   | 51.68 | 5.6                            |
| CDLL4131        | 75  | 250                         | 700                                       | .01   | 57.00 | 5.1                            |
| CDLL4132        | 82  | 250                         | 800                                       | .01   | 62.32 | 4.6                            |
| CDLL4133        | 87  | 250                         | 1000                                      | .01   | 66.12 | 4.4                            |
| CDLL4134        | 91  | 250                         | 1200                                      | .01   | 69.16 | 4.2                            |
| CDLL4135        | 100   | 250                         | 1500                                      | .01   | 76.00 | 3.8                            |

**NOTE 1** The CDI type numbers shown above have a Zener voltage tolerance of  $\pm 5\%$  of the nominal Zener voltage. Nominal Zener voltage is measured with the device junction in thermal equilibrium at an ambient temperature of  $25^{\circ}C \pm 3^{\circ}C$ . A "C" suffix denotes a  $\pm 2\%$  tolerance and a "D" suffix denotes a  $\pm 1\%$  tolerance.

**NOTE 2** Zener impedance is derived by superimposing on  $I_{ZT}$ , A 60 Hz rms a.c. current equal to 10% of  $I_{ZT}$  (25  $\mu$  A a.c.).



| DIM | MILLIMETERS |      | INCHES    |       |
|-----|-------------|------|-----------|-------|
|     | MIN         | MAX  | MIN       | MAX   |
| D   | 1.60        | 1.70 | 0.063     | 0.067 |
| F   | 0.41        | 0.55 | 0.016     | 0.022 |
| G   | 3.30        | 3.70 | .130      | .146  |
| G1  | 2.54 REF.   |      | .100 REF. |       |
| S   | 0.03 MIN.   |      | .001 MIN. |       |

**FIGURE 1**

**DESIGN DATA**

**CASE:** DO-213AA, Hermetically sealed glass case. (MELF, SOD-80, LL34)

**LEAD FINISH:** Tin / Lead

**THERMAL RESISTANCE:** ( $R_{\theta JC}$ ): 100  $^{\circ}C/W$  maximum at  $L = 0$  inch

**THERMAL IMPEDANCE:** ( $Z_{\theta JX}$ ): 35  $^{\circ}C/W$  maximum

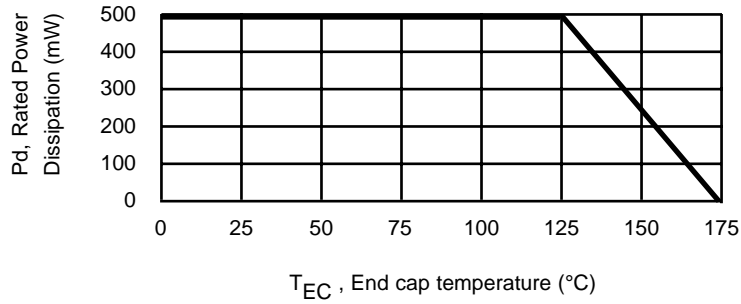
**POLARITY:** Diode to be operated with the banded (cathode) end positive.

**MOUNTING SURFACE SELECTION:** The Axial Coefficient of Expansion (COE) of this Device is Approximately +6PPM/ $^{\circ}C$ . The COE of the Mounting Surface System Should Be Selected To Provide A Suitable Match With This Device.



# 1N4099UR-1 thru 1N4135UR-1 CDLL4099 thru CDLL4135

FIGURE 2



POWER DERATING CURVE

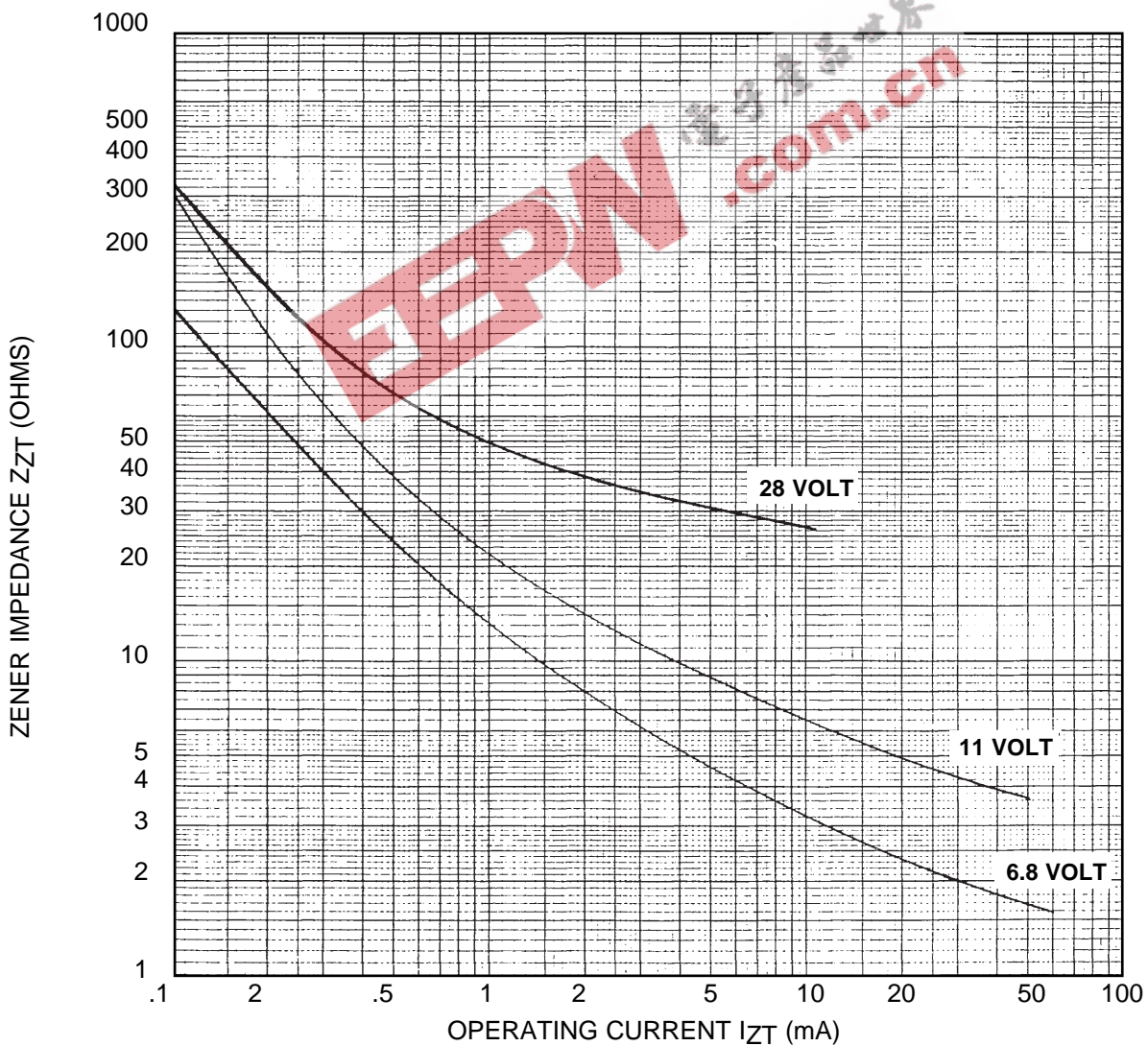


FIGURE 3  
ZENER IMPEDANCE VS. OPERATING CURRENT