

- 1N962BUR-1 thru 1N986BUR-1 AVAILABLE IN JAN, JANTX AND JANTXV PER MIL-PRF-19500/117
- ZENER DIODES
- LEADLESS PACKAGE FOR SURFACE MOUNT
- METALLURGICALLY BONDED

1N962BUR-1 thru 1N986BUR-1  
and  
CDLL957B thru CDLL986B

## MAXIMUM RATINGS

Operating Temperature: -65°C to +175°C

Storage Temperature: -65°C to +175°C

DC Power Dissipation: 500mW @  $T_{EC} = +125^{\circ}\text{C}$

Power Derating: 10 mW / °C above  $T_{EC} = +125^{\circ}\text{C}$

Forward Voltage @ 200mA: 1.1 volts maximum

## ELECTRICAL CHARACTERISTICS @ 25°C

| CDI<br>TYPE<br>NUMBER<br><br>(NOTE 1) | NOMINAL<br>ZENER<br>VOLTAGE<br>$V_Z$<br><br>(NOTE 2) | ZENER<br>TEST<br>CURRENT<br>$I_{ZT}$ | MAXIMUM ZENER IMPEDANCE<br>(NOTE 3) |      |                   | MAX. DC<br>ZENER<br>CURRENT<br>$I_{ZM}$ | MAX. REVERSE<br>LEAKAGE CURRENT<br>$I_R @ V_R$ |       |
|---------------------------------------|------------------------------------------------------|--------------------------------------|-------------------------------------|------|-------------------|-----------------------------------------|------------------------------------------------|-------|
|                                       |                                                      |                                      | $Z_{ZT} @ I_{ZT}$                   |      | $Z_{ZK} @ I_{ZK}$ |                                         | $I_R @ V_R$                                    |       |
|                                       |                                                      |                                      | OHMS                                | OHMS | mA                |                                         | $\mu\text{A}$                                  | VOLTS |
| CDLL957B                              | 6.8                                                  | 18.5                                 | 4.5                                 | 700  | 1.0               | 55                                      | 5.0                                            | 5.2   |
| CDLL958B                              | 7.5                                                  | 16.5                                 | 5.5                                 | 700  | .5                | 50                                      | 5.0                                            | 5.7   |
| CDLL959B                              | 8.2                                                  | 15.0                                 | 6.5                                 | 700  | .5                | 45                                      | 5.0                                            | 6.2   |
| CDLL960B                              | 9.1                                                  | 14.0                                 | 7.5                                 | 700  | .5                | 41                                      | 5.0                                            | 6.9   |
| CDLL961B                              | 10                                                   | 12.5                                 | 8.5                                 | 700  | .25               | 38                                      | 2.0                                            | 7.6   |
| CDLL962B                              | 11                                                   | 11.5                                 | 9.5                                 | 700  | .25               | 32                                      | 1.0                                            | 8.4   |
| CDLL963B                              | 12                                                   | 10.5                                 | 11.5                                | 700  | .25               | 31                                      | 1.0                                            | 9.1   |
| CDLL964B                              | 13                                                   | 9.5                                  | 13                                  | 700  | .25               | 28                                      | 0.5                                            | 9.9   |
| CDLL965B                              | 15                                                   | 8.5                                  | 16                                  | 700  | .25               | 25                                      | 0.5                                            | 11    |
| CDLL966B                              | 16                                                   | 7.8                                  | 17                                  | 700  | .25               | 24                                      | 0.5                                            | 12    |
| CDLL967B                              | 18                                                   | 7.0                                  | 21                                  | 750  | .25               | 20                                      | 0.5                                            | 14    |
| CDLL968B                              | 20                                                   | 6.2                                  | 25                                  | 750  | .25               | 18                                      | 0.5                                            | 15    |
| CDLL969B                              | 22                                                   | 5.6                                  | 29                                  | 750  | .25               | 16                                      | 0.5                                            | 17    |
| CDLL970B                              | 24                                                   | 5.2                                  | 33                                  | 750  | .25               | 15                                      | 0.5                                            | 18    |
| CDLL971B                              | 27                                                   | 4.6                                  | 41                                  | 750  | .25               | 13                                      | 0.5                                            | 21    |
| CDLL972B                              | 30                                                   | 4.2                                  | 49                                  | 1000 | .25               | 12                                      | 0.5                                            | 23    |
| CDLL973B                              | 33                                                   | 3.8                                  | 58                                  | 1000 | .25               | 11                                      | 0.5                                            | 25    |
| CDLL974B                              | 36                                                   | 3.4                                  | 70                                  | 1000 | .25               | 10                                      | 0.5                                            | 27    |
| CDLL975B                              | 39                                                   | 3.2                                  | 90                                  | 1000 | .25               | 9.5                                     | 0.5                                            | 30    |
| CDLL976B                              | 43                                                   | 3.0                                  | 93                                  | 1500 | .25               | 8.8                                     | 0.5                                            | 33    |
| CDLL977B                              | 47                                                   | 2.7                                  | 105                                 | 1500 | .25               | 7.9                                     | 0.5                                            | 36    |
| CDLL978B                              | 51                                                   | 2.5                                  | 125                                 | 1500 | .25               | 7.4                                     | 0.5                                            | 39    |
| CDLL979B                              | 56                                                   | 2.2                                  | 150                                 | 2000 | .25               | 6.8                                     | 0.5                                            | 43    |
| CDLL980B                              | 62                                                   | 2.0                                  | 185                                 | 2000 | .25               | 6.0                                     | 0.5                                            | 47    |
| CDLL981B                              | 68                                                   | 1.8                                  | 230                                 | 2000 | .25               | 5.5                                     | 0.5                                            | 52    |
| CDLL982B                              | 75                                                   | 1.7                                  | 270                                 | 2000 | .25               | 5.0                                     | 0.5                                            | 56    |
| CDLL983B                              | 82                                                   | 1.5                                  | 330                                 | 3000 | .25               | 4.6                                     | 0.5                                            | 62    |
| CDLL984B                              | 91                                                   | 1.4                                  | 400                                 | 3000 | .25               | 4.1                                     | 0.5                                            | 69    |
| CDLL985B                              | 100                                                  | 1.3                                  | 500                                 | 3000 | .25               | 3.7                                     | 0.5                                            | 76    |
| CDLL986B                              | 110                                                  | 1.1                                  | 750                                 | 4000 | .25               | 3.3                                     | 0.5                                            | 84    |

- NOTE 1** Zener voltage tolerance on "B" suffix is  $\pm 5\%$ . Suffix letter "A" denotes  $\pm 10\%$ . No Suffix denotes  $\pm 20\%$ . "C" suffix denotes  $\pm 2\%$ , and "D" suffix denotes  $\pm 1\%$ .
- NOTE 2** Zener voltage is measured with the device junction in thermal equilibrium at an ambient temperature of  $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ .
- NOTE 3** Zener impedance is derived by superimposing on  $I_{ZT}$  A 60Hz rms a.c. current equal to 10% of  $I_{ZT}$ .



|     | MILLIMETERS |      | INCHES    |       |
|-----|-------------|------|-----------|-------|
| DIM | 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:** ( $R_{\theta JEC}$ ):  
100 °C/W maximum at L = 0 inch

**THERMAL IMPEDANCE:** ( $Z_{\theta JX}$ ): 35  
°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/°C. The COE of the Mounting Surface System Should Be Selected To Provide A Suitable Match With This Device.

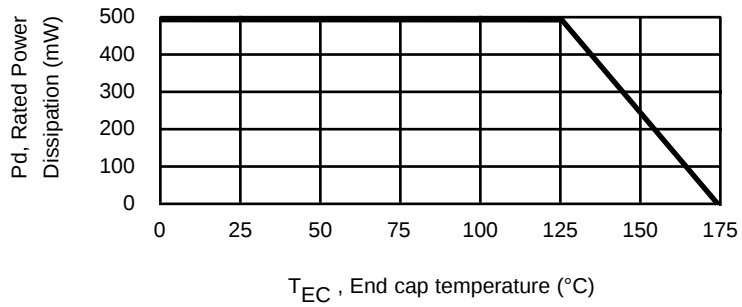


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# CDLL957 thru CDLL986B

FIGURE 2



POWER DERATING CURVE



FIGURE 3

ZENER IMPEDANCE VS. OPERATING CURRENT