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# *TECHNICAL DATA SHEET*

## ZENER DIODE, 500mW – LEADLESS PACKAGE FOR SURFACE MOUNT – LOW REVERSE LEAKAGE CHARACTERISTICS – METALLURGICALLY BONDED

***Qualified per MIL-PRF-19500/437***

**DEVICES**

**1N5518BUR-1 Thru 1N5546BUR-1**
**And**
**CDLL5518 Thru CDLL5546D**

**QUALIFIED LEVELS**
**JAN**
**JANTX**
**JANTXV**

**MAXIMUM RATING AT 25°C**

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

**ELECTRICAL CHARACTERISTICS** *($T_A$ = 25°C, unless otherwise specified)*

| TYPE NUMBER (NOTE 1) | NOMINAL ZENER VOLTAGE $V_Z$ @ $I_{ZT}$ (NOTE 2) | ZENER TEST CURRENT $I_{ZT}$ | MAX. ZENER IMPEDANCE B-C-D SUFFIX $Z_{ZT}$ @ $I_{ZT}$ (NOTE 3) | MAXIMUM REVERSE LEAKAGE CURRENT $I_R$ (NOTE 4) | MAXIMUM REVERSE LEAKAGE CURRENT $V_R$ = VOLTS NON & A-SUFFIX | MAXIMUM REVERSE LEAKAGE CURRENT $V_R$ = VOLTS B-C-D-SUFFIX | B-C-D SUFFIX MAIMUM DC ZENER $I_{ZM}$ | REGULATION FACTOR CURRENT $\Delta V_Z$ (NOTE 5) | LOW $V_Z$ CURRENT $I_{ZL}$ |
|---|---|---|---|---|---|---|---|---|---|
| | VOLTS | mA | Ohms | µAdc | | | mA | VOLTS | mA |
| CDLL5518B | 3.3 | 20 | 26 | 5.0 | 0.90 | 1.0 | 115 | 0.90 | 2.0 |
| CDLL5519B | 3.6 | 20 | 24 | 3.0 | 0.90 | 1.0 | 105 | 0.90 | 2.0 |
| CDLL5520B | 3.9 | 20 | 22 | 1.0 | 0.90 | 1.0 | 98 | 0.85 | 2.0 |
| CDLL5521B | 4.3 | 20 | 18 | 3.0 | 1.0 | 1.5 | 88 | 0.75 | 2.0 |
| CDLL5522B | 4.7 | 10 | 22 | 2.0 | 1.5 | 2.0 | 81 | 0.60 | 1.0 |
| CDLL5523B | 5.1 | 5.0 | 26 | 2.0 | 2.0 | 2.5 | 75 | 0.65 | 0.25 |
| CDLL5524B | 5.6 | 3.0 | 30 | 2.0 | 3.0 | 3.5 | 68 | 0.30 | 0.25 |
| CDLL5525B | 6.2 | 1.0 | 30 | 1.0 | 4.5 | 5.0 | 61 | 0.20 | 0.01 |
| CDLL5526B | 6.8 | 1.0 | 30 | 1.0 | 5.5 | 6.2 | 56 | 0.10 | 0.01 |
| CDLL5527B | 7.5 | 1.0 | 35 | 0.5 | 6.0 | 6.8 | 51 | 0.05 | 0.01 |
| CDLL5528B | 8.2 | 1.0 | 40 | 0.5 | 6.5 | 7.5 | 46 | 0.05 | 0.01 |
| CDLL5529B | 9.1 | 1.0 | 45 | 0.1 | 7.0 | 8.2 | 42 | 0.05 | 0.01 |
| CDLL5530B | 10.0 | 1.0 | 60 | 0.05 | 8.0 | 9.1 | 38 | 0.10 | 0.01 |
| CDLL5531B | 11.0 | 1.0 | 80 | 0.05 | 9.0 | 9.9 | 35 | 0.20 | 0.01 |
| CDLL5532B | 12.0 | 1.0 | 90 | 0.05 | 9.5 | 10.8 | 32 | 0.20 | 0.01 |
| CDLL5533B | 13.0 | 1.0 | 90 | 0.01 | 10.5 | 11.7 | 29 | 0.20 | 0.01 |
| CDLL5534B | 14.0 | 1.0 | 100 | 0.01 | 11.5 | 12.6 | 27 | 0.20 | 0.01 |
| CDLL5535B | 15.0 | 1.0 | 100 | 0.01 | 12.5 | 13.5 | 25 | 0.20 | 0.01 |
| CDLL5536B | 16.0 | 1.0 | 100 | 0.01 | 13.0 | 14.4 | 24 | 0.20 | 0.01 |
| CDLL5537B | 17.0 | 1.0 | 100 | 0.01 | 14.0 | 15.3 | 22 | 0.20 | 0.01 |
| CDLL5538B | 18.0 | 1.0 | 100 | 0.01 | 15.0 | 16.2 | 21 | 0.20 | 0.01 |
| CDLL5539B | 19.0 | 1.0 | 100 | 0.01 | 16.0 | 17.1 | 20 | 0.20 | 0.01 |
| CDLL5540B | 20.0 | 1.0 | 100 | 0.01 | 17.0 | 18.0 | 19 | 0.20 | 0.01 |
| CDLL5541B | 22.0 | 1.0 | 100 | 0.01 | 18.0 | 19.8 | 17 | 0.25 | 0.01 |
| CDLL5542B | 24.0 | 1.0 | 100 | 0.01 | 20.0 | 21.6 | 16 | 0.30 | 0.01 |
| CDLL5543B | 25.0 | 1.0 | 100 | 0.01 | 21.0 | 22.4 | 15 | 0.35 | 0.01 |
| CDLL5544B | 28.0 | 1.0 | 100 | 0.01 | 23.0 | 25.2 | 14 | 0.40 | 0.01 |
| CDLL5545B | 30.0 | 1.0 | 100 | 0.01 | 24.0 | 27.0 | 13 | 0.45 | 0.01 |
| CDLL5546B | 33.0 | 1.0 | 100 | 0.01 | 28.0 | 29.7 | 12 | 0.50 | 0.01 |

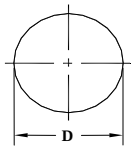
**NOTE 1:** No Suffix type numbers are ±20% with guaranteed limits for only $V_Z$, $I_R$, and $V_F$. Units with "A" suffix are ±10% with guaranteed limits for $V_Z$, $I_R$, and $V_F$. Units with guaranteed limits for all six parameters are indicated by a "B" suffix for ±5.0% units, "C" suffix for ±2.0% and "D" suffix for ±1.0%.

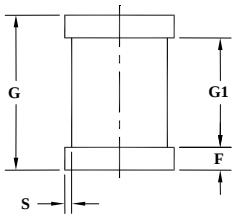
**NOTE 2:** Zener voltage is measured with the device junction in thermal equilibrium at an ambient temperature of 25°C ± 3°C.

**NOTE 3:** Zener impedance is derived by superimposing on $I_{ZT}$ A 60Hz rms a.c. current equal to 10% of $I_{ZT}$.

**NOTE 4:** Reverse leakage currents are measured at $V_R$ as shown on the table.

**NOTE 5:** $\Delta V_Z$ is the maximum difference between $V_Z$ at $I_{ZT}$ and $V_Z$ at $I_{ZL}$ measured with the device junction in thermal equilibrium.




| | 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.

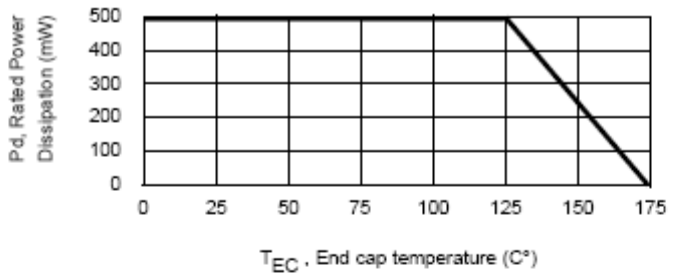
**MOUTING SURFACE SELECTION:**
The Axial Coefficient of Expansion (COE) of this device is approximately +6PPM/°C. The COE of the Mounting Surface System should be selected to provide a suitable match with this device.

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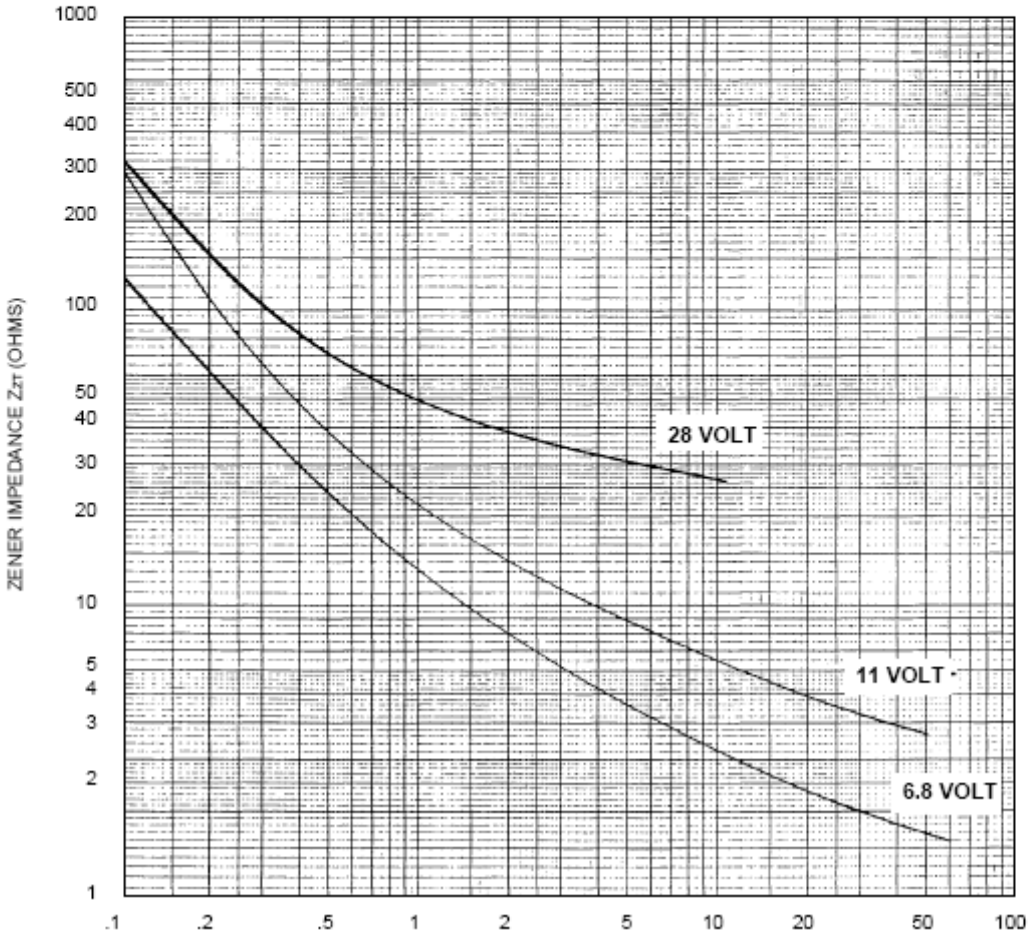
# *TECHNICAL DATA SHEET*

## CDLL5518 thru CDLL5546D

FIGURE 2




**POWER DERATING CURVE**




**OPERATING CURRENT $I_{ZT}$ (mA)**
**FIGURE 3**
**ZENER IMPEDANCE VS. OPERATION CURRENT**