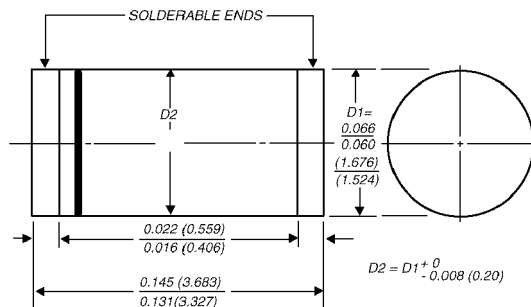


# 1/2 Watt ZENER DIODES (2.4V to 62V) Mechanical Dimensions

**DO-213AA  
(Mini-MELF)**



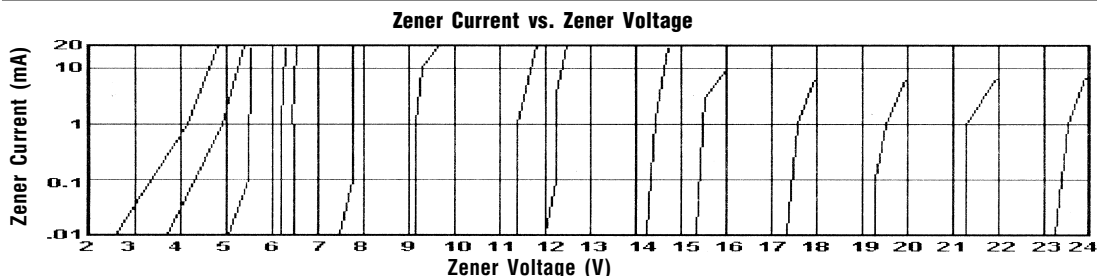
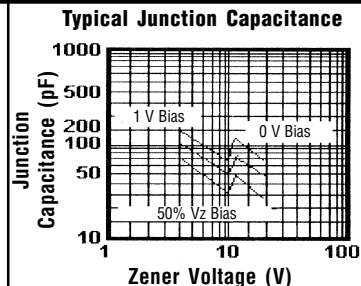
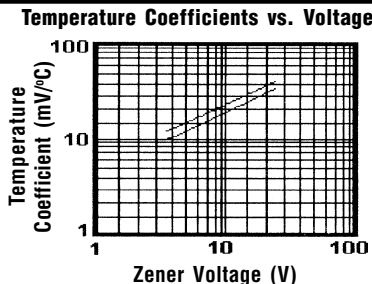
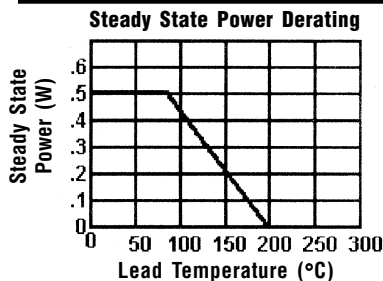
Dimensions in inches and (mm)

## Features

■ 5 & 10% VOLTAGE TOLERANCES AVAILABLE

■ WIDE VOLTAGE RANGE  
■ MEETS UL SPECIFICATION 94V-0

| Maximum Ratings                                                    | LL5221 . . . LL5265 | Units   |
|--------------------------------------------------------------------|---------------------|---------|
| DC Power Dissipation with $T_L = > = 75^{\circ}\text{C}$ ... $P_D$ | 500                 | mW      |
| Lead Length = .375 Inches<br>Derate Above 50 °C                    | 4                   | mW / °C |
| Operating & Storage Temperature Range... $T_J$ , $T_{STRG}$        | -65 to 100          | °C      |



**NOTES:** 1. For 10% Tolerance on Zener Voltage, Specify Suffix "A". For 5% Tolerance, Specify Suffix "B". (Example: LL5230B = 4.7V +/- 5%)  
2.  $T_A = 25^\circ\text{C}$  unless otherwise specified. Measurements made at Thermal Equilibrium.  
Lead Length = .375". Thermal Resistance of Heat Sink =  $30^\circ\text{C/W}$ ,  $V_F = 1.1\text{V}$  Max. @  $I_F = 200\text{mA}$

## Electrical Characteristics @ $25^\circ\text{C}$ .

| Part #       | Nominal Zener Voltage | Test Current $I_{ZT}$ (mA) | Max. Zener Impedance           |                                                | Max. Reverse Leakage Current @ $V_R$ |           | Max. Zener Voltage Temp. Coeff. of $V_Z$ (%/°C) |
|--------------|-----------------------|----------------------------|--------------------------------|------------------------------------------------|--------------------------------------|-----------|-------------------------------------------------|
|              |                       |                            | $Z_{ZT} @ I_{ZT}$ ( $\Omega$ ) | $Z_{ZK} @ I_{ZK} = 0.25\text{mA}$ ( $\Omega$ ) | $I_R$ ( $\mu\text{A}$ )              | $V_R$ (V) |                                                 |
| LL5221A or B | 2.4                   | 20                         | 30                             | 1200                                           | 100                                  | 1         | -0.085                                          |
| LL5222A or B | 2.5                   | 20                         | 30                             | 1250                                           | 100                                  | 1         | -0.085                                          |
| LL5223A or B | 2.7                   | 20                         | 30                             | 1300                                           | 75                                   | 1         | -0.08                                           |
| LL5224A or B | 2.8                   | 20                         | 30                             | 1400                                           | 75                                   | 1         | -0.08                                           |
| LL5225A or B | 3.0                   | 20                         | 29                             | 1600                                           | 50                                   | 1         | -0.075                                          |
| LL5226A or B | 3.3                   | 20                         | 28                             | 1600                                           | 25                                   | 1         | -0.07                                           |
| LL5227A or B | 3.6                   | 20                         | 24                             | 1700                                           | 15                                   | 1         | -0.065                                          |
| LL5228A or B | 3.9                   | 20                         | 23                             | 1900                                           | 10                                   | 1         | -0.06                                           |
| LL5229A or B | 4.3                   | 20                         | 22                             | 2000                                           | 5                                    | 1         | +/- 0.055                                       |
| LL5230A or B | 4.7                   | 20                         | 19                             | 1900                                           | 5                                    | 2         | +/- 0.03                                        |
| LL5231A or B | 5.1                   | 20                         | 17                             | 1600                                           | 5                                    | 2         | +/- 0.03                                        |
| LL5232A or B | 5.6                   | 20                         | 11                             | 1600                                           | 5                                    | 3         | + 0.038                                         |
| LL5233A or B | 6.0                   | 20                         | 7                              | 1600                                           | 5                                    | 3.5       | + 0.038                                         |
| LL5234A or B | 6.2                   | 20                         | 7                              | 1000                                           | 5                                    | 4         | + 0.045                                         |
| LL5235A or B | 6.8                   | 20                         | 5                              | 750                                            | 5                                    | 5         | + 0.050                                         |
| LL5236A or B | 7.5                   | 20                         | 6                              | 500                                            | 3                                    | 6         | + 0.058                                         |
| LL5237A or B | 8.2                   | 20                         | 8                              | 500                                            | 3                                    | 6.5       | + 0.062                                         |
| LL5238A or B | 8.7                   | 20                         | 8                              | 600                                            | 3                                    | 6.5       | + 0.065                                         |
| LL5239A or B | 9.1                   | 20                         | 10                             | 600                                            | 3                                    | 7         | + 0.068                                         |
| LL5240A or B | 10                    | 20                         | 17                             | 600                                            | 3                                    | 8         | + 0.075                                         |
| LL5241A or B | 11                    | 20                         | 22                             | 600                                            | 2                                    | 8.4       | + 0.076                                         |
| LL5242A or B | 12                    | 20                         | 30                             | 600                                            | 1                                    | 9.1       | + 0.077                                         |
| LL5243A or B | 13                    | 9.5                        | 13                             | 600                                            | .5                                   | 9.9       | + 0.079                                         |
| LL5244A or B | 14                    | 9.0                        | 15                             | 600                                            | .1                                   | 10        | + 0.082                                         |
| LL5245A or B | 15                    | 8.5                        | 16                             | 600                                            | .1                                   | 11        | + 0.082                                         |
| LL5246A or B | 16                    | 7.8                        | 17                             | 600                                            | .1                                   | 12        | + 0.083                                         |
| LL5247A or B | 17                    | 7.4                        | 19                             | 600                                            | .1                                   | 13        | + 0.084                                         |
| LL5248A or B | 18                    | 7.0                        | 21                             | 600                                            | .1                                   | 14        | + 0.085                                         |
| LL5249A or B | 19                    | 6.6                        | 23                             | 600                                            | .1                                   | 15        | + 0.086                                         |
| LL5250A or B | 20                    | 6.2                        | 25                             | 600                                            | .1                                   | 16        | + 0.086                                         |
| LL5251A or B | 22                    | 5.6                        | 29                             | 600                                            | .1                                   | 17        | + 0.087                                         |
| LL5252A or B | 24                    | 5.2                        | 33                             | 600                                            | .1                                   | 18        | + 0.088                                         |
| LL5253A or B | 25                    | 5.0                        | 35                             | 600                                            | .1                                   | 19        | + 0.089                                         |
| LL5254A or B | 27                    | 4.6                        | 41                             | 600                                            | .1                                   | 21        | + 0.090                                         |
| LL5255A or B | 28                    | 4.5                        | 44                             | 600                                            | .1                                   | 21        | + 0.091                                         |
| LL5256A or B | 30                    | 4.2                        | 49                             | 600                                            | .1                                   | 23        | + 0.091                                         |
| LL5257A or B | 33                    | 3.8                        | 58                             | 700                                            | .1                                   | 25        | + 0.092                                         |
| LL5258A or B | 36                    | 3.4                        | 70                             | 700                                            | .1                                   | 27        | + 0.093                                         |
| LL5259A or B | 39                    | 3.2                        | 80                             | 800                                            | .1                                   | 30        | + 0.094                                         |
| LL5260A or B | 43                    | 3.0                        | 93                             | 900                                            | .1                                   | 33        | + 0.095                                         |
| LL5261A or B | 47                    | 2.7                        | 105                            | 1000                                           | .1                                   | 36        | + 0.095                                         |
| LL5262A or B | 51                    | 2.5                        | 125                            | 1100                                           | .1                                   | 39        | + 0.096                                         |
| LL5263A or B | 56                    | 2.2                        | 150                            | 1300                                           | .1                                   | 43        | + 0.096                                         |
| LL5264A or B | 60                    | 2.1                        | 170                            | 1400                                           | .1                                   | 46        | + 0.097                                         |
| LL5265A or B | 62                    | 2.0                        | 185                            | 1400                                           | .1                                   | 47        | + 0.097                                         |