

# DL5221 THRU DL5267

**500 mW  
Zener Diode  
2.4 to 75 Volts**

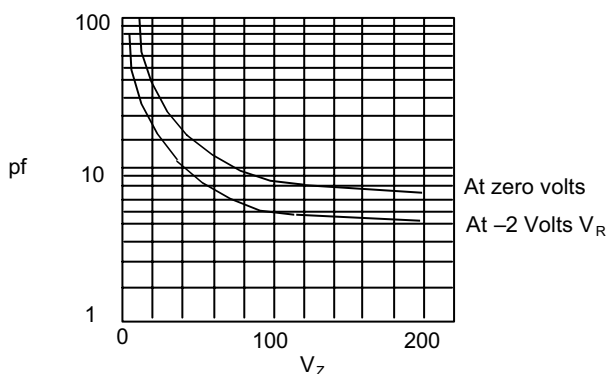
## Features

- Wide Voltage Range Available
- Glass Package
- High Temp Soldering: 260°C for 10 Seconds At Terminals
- Surface Mount Package
- Marking : Cathode band denotes polarity
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates Compliant. See ordering information)

## Maximum Ratings

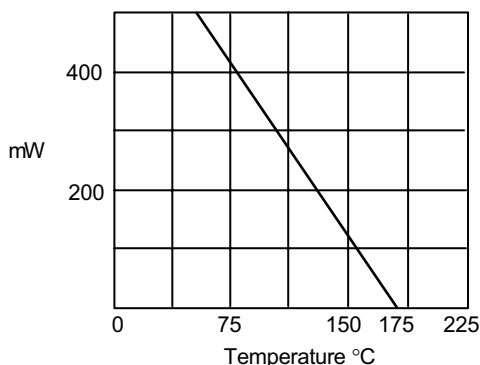
- Operating Temperature: -65°C to +175°C
- Storage Temperature: -65°C to +175°C
- 500 mWatt DC Power Dissipation
- Power Derating: 4.0mW/°C above 50°C
- Forward Voltage @ 200mA: 1.1 Volts
- Moisture Sensitivity Level 1

Figure 1 - Typical Capacitance



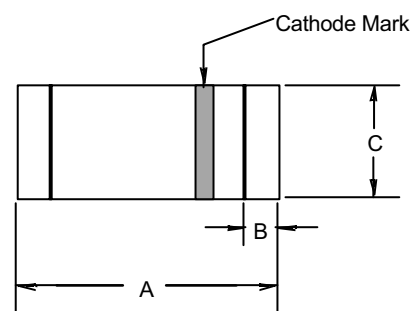
Typical Capacitance (pf) – versus – Zener voltage (V<sub>Z</sub>)

Figure 2 - Derating Curve



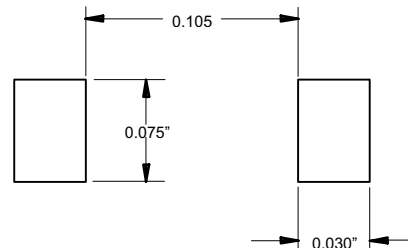
Power Dissipation (mW) - Versus - Ambient Temperature °C

## MINIMELF



| DIMENSIONS |        |      |      |      |      |
|------------|--------|------|------|------|------|
| DIM        | INCHES |      | MM   |      | NOTE |
|            | MIN    | MAX  | MIN  | MAX  |      |
| A          | .130   | .146 | 3.30 | 3.70 |      |
| B          | .008   | .016 | .20  | .40  |      |
| C          | .055   | .059 | 1.40 | 1.50 | Ø    |

## SUGGESTED SOLDER PAD LAYOUT



Note:1.Lead in Glass Exemption Applied, see EU Directive Annex 5.

# DL5221 thru DL5267

| MCC<br>PART<br>NUMBER | NOMINAL ZENER<br>VOLTAGE $V_Z$ @ $I_{ZT}$<br><br>VOLTS | TEST<br>CURRENT $I_{ZT}$<br><br>mA | MAXIMUM ZENER IMPEDANCE<br>'B' SUFFIX ONLY |                              | MAXIMUM REVERSE<br>LEAKAGE CURRENT |       | MAX. ZENER VOLTAGE<br>TEMP COEFFICIENT 'B'<br>SUFFIX ONLY<br>% / °C |
|-----------------------|--------------------------------------------------------|------------------------------------|--------------------------------------------|------------------------------|------------------------------------|-------|---------------------------------------------------------------------|
|                       |                                                        |                                    | $Z_{ZT}$ @ $I_{ZT}$                        | $Z_{ZK}$ @ $I_{ZK} = 0.25mA$ | $I_R$ @                            | $V_R$ |                                                                     |
|                       |                                                        |                                    | OHMS                                       | OHMS                         | $\mu A$                            | VOLTS |                                                                     |
| DL5221                | 2.4                                                    | 20                                 | 30                                         | 1200                         | 100                                | 1.0   | -0.085                                                              |
| DL5222                | 2.5                                                    | 20                                 | 30                                         | 1250                         | 100                                | 1.0   | -0.085                                                              |
| DL5223                | 2.7                                                    | 20                                 | 30                                         | 1300                         | 75                                 | 1.0   | -0.080                                                              |
| DL5224                | 2.8                                                    | 20                                 | 30                                         | 1400                         | 75                                 | 1.0   | -0.080                                                              |
| DL5225                | 3.0                                                    | 20                                 | 29                                         | 1600                         | 50                                 | 1.0   | -0.075                                                              |
| DL5226                | 3.3                                                    | 20                                 | 28                                         | 1600                         | 25                                 | 1.0   | -0.070                                                              |
| DL5227                | 3.6                                                    | 20                                 | 24                                         | 1700                         | 15                                 | 1.0   | -0.065                                                              |
| DL5228                | 3.9                                                    | 20                                 | 23                                         | 1900                         | 10                                 | 1.0   | -0.060                                                              |
| DL5229                | 4.3                                                    | 20                                 | 22                                         | 2000                         | 5.0                                | 1.0   | $\pm 0.055$                                                         |
| DL5230                | 4.7                                                    | 20                                 | 19                                         | 1900                         | 5.0                                | 2.0   | $\pm 0.030$                                                         |
| DL5231                | 5.1                                                    | 20                                 | 17                                         | 1600                         | 5.0                                | 2.0   | $\pm 0.030$                                                         |
| DL5232                | 5.6                                                    | 20                                 | 11                                         | 1600                         | 5.0                                | 3.0   | $\pm 0.038$                                                         |
| DL5233                | 6.0                                                    | 20                                 | 7.0                                        | 1600                         | 5.0                                | 3.5   | $\pm 0.038$                                                         |
| DL5234                | 6.2                                                    | 20                                 | 7.0                                        | 1000                         | 5.0                                | 4.0   | $\pm 0.045$                                                         |
| DL5235                | 6.8                                                    | 20                                 | 5.0                                        | 750                          | 3.0                                | 5.0   | $\pm 0.050$                                                         |
| DL5236                | 7.5                                                    | 20                                 | 6.0                                        | 500                          | 3.0                                | 6.0   | $\pm 0.058$                                                         |
| DL5237                | 8.2                                                    | 20                                 | 8.0                                        | 500                          | 3.0                                | 6.5   | $\pm 0.062$                                                         |
| DL5238                | 8.7                                                    | 20                                 | 8.0                                        | 600                          | 3.0                                | 6.5   | $\pm 0.065$                                                         |
| DL5239                | 9.1                                                    | 20                                 | 10                                         | 600                          | 3.0                                | 7.0   | $\pm 0.068$                                                         |
| DL5240                | 10                                                     | 20                                 | 17                                         | 600                          | 3.0                                | 8.0   | $\pm 0.075$                                                         |
| DL5241                | 11                                                     | 20                                 | 22                                         | 600                          | 2.0                                | 8.4   | $\pm 0.076$                                                         |
| DL5242                | 12                                                     | 20                                 | 30                                         | 600                          | 1.0                                | 9.1   | $\pm 0.077$                                                         |
| DL5243                | 13                                                     | 9.5                                | 13                                         | 600                          | 0.5                                | 9.9   | $\pm 0.079$                                                         |
| DL5244                | 14                                                     | 9.0                                | 15                                         | 600                          | 0.1                                | 10    | $\pm 0.082$                                                         |
| DL5245                | 15                                                     | 8.5                                | 16                                         | 600                          | 0.1                                | 11    | $\pm 0.082$                                                         |
| DL5246                | 16                                                     | 7.8                                | 17                                         | 600                          | 0.1                                | 12    | $\pm 0.083$                                                         |
| DL5247                | 17                                                     | 7.4                                | 19                                         | 600                          | 0.1                                | 13    | $\pm 0.084$                                                         |
| DL5248                | 18                                                     | 7.0                                | 21                                         | 600                          | 0.1                                | 14    | $\pm 0.085$                                                         |
| DL5249                | 19                                                     | 6.6                                | 23                                         | 600                          | 0.1                                | 14    | $\pm 0.086$                                                         |
| DL5250                | 20                                                     | 6.2                                | 25                                         | 600                          | 0.1                                | 15    | $\pm 0.086$                                                         |
| DL5251                | 22                                                     | 5.6                                | 29                                         | 600                          | 0.1                                | 17    | $\pm 0.087$                                                         |
| DL5252                | 24                                                     | 5.2                                | 33                                         | 600                          | 0.1                                | 18    | $\pm 0.088$                                                         |
| DL5253                | 25                                                     | 5.0                                | 35                                         | 600                          | 0.1                                | 19    | $\pm 0.089$                                                         |
| DL5254                | 27                                                     | 4.6                                | 41                                         | 600                          | 0.1                                | 21    | $\pm 0.090$                                                         |
| DL5255                | 28                                                     | 4.5                                | 44                                         | 600                          | 0.1                                | 21    | $\pm 0.091$                                                         |
| DL5256                | 30                                                     | 4.2                                | 49                                         | 600                          | 0.1                                | 23    | $\pm 0.091$                                                         |
| DL5257                | 33                                                     | 3.8                                | 58                                         | 700                          | 0.1                                | 25    | $\pm 0.092$                                                         |
| DL5258                | 36                                                     | 3.4                                | 70                                         | 700                          | 0.1                                | 27    | $\pm 0.093$                                                         |
| DL5259                | 39                                                     | 3.2                                | 80                                         | 800                          | 0.1                                | 30    | $\pm 0.094$                                                         |
| DL5260                | 43                                                     | 3.0                                | 93                                         | 900                          | 0.1                                | 33    | $\pm 0.095$                                                         |
| DL5261                | 47                                                     | 2.7                                | 105                                        | 1000                         | 0.1                                | 36    | $\pm 0.095$                                                         |
| DL5262                | 51                                                     | 2.5                                | 125                                        | 1100                         | 0.1                                | 39    | $\pm 0.096$                                                         |
| DL5263                | 56                                                     | 2.2                                | 150                                        | 1300                         | 0.1                                | 43    | $\pm 0.096$                                                         |
| DL5264                | 60                                                     | 2.1                                | 170                                        | 1400                         | 0.1                                | 46    | $\pm 0.097$                                                         |
| DL5265                | 62                                                     | 2.0                                | 185                                        | 1400                         | 0.1                                | 47    | $\pm 0.097$                                                         |
| DL5266                | 68                                                     | 1.8                                | 230                                        | 1600                         | 0.1                                | 52    | $\pm 0.097$                                                         |
| DL5267                | 75                                                     | 1.7                                | 270                                        | 1700                         | 0.1                                | 56    | $\pm 0.098$                                                         |

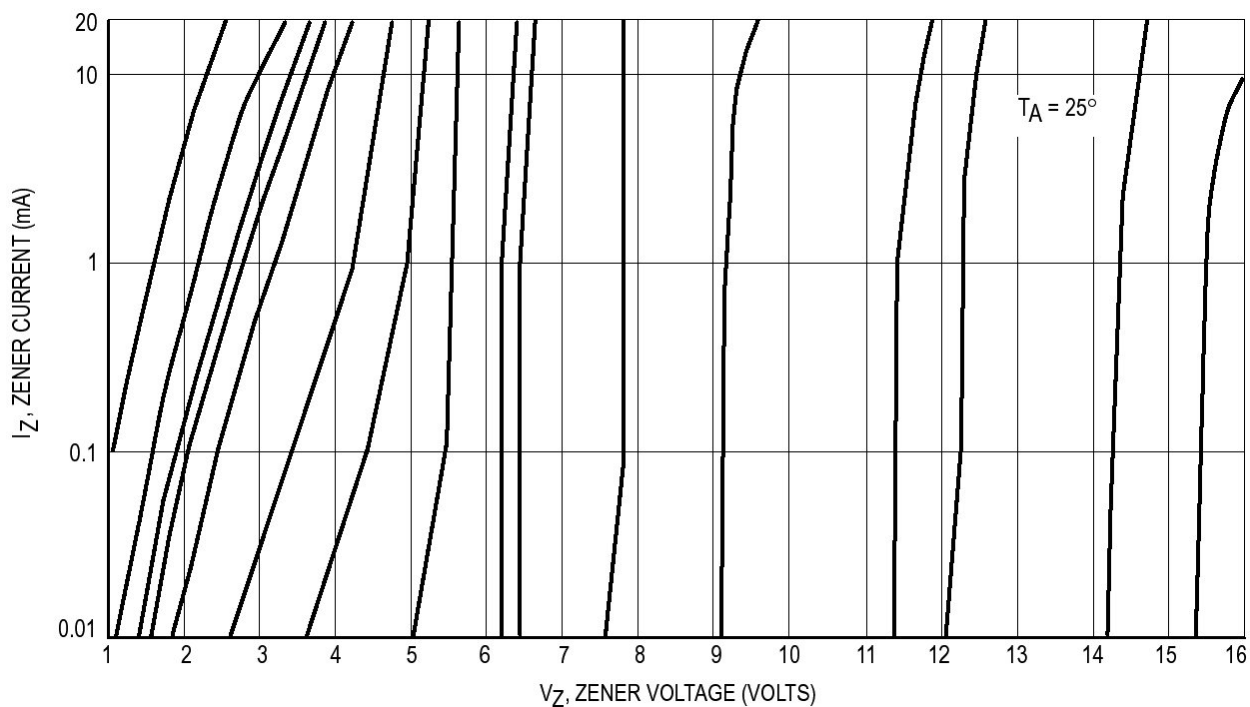
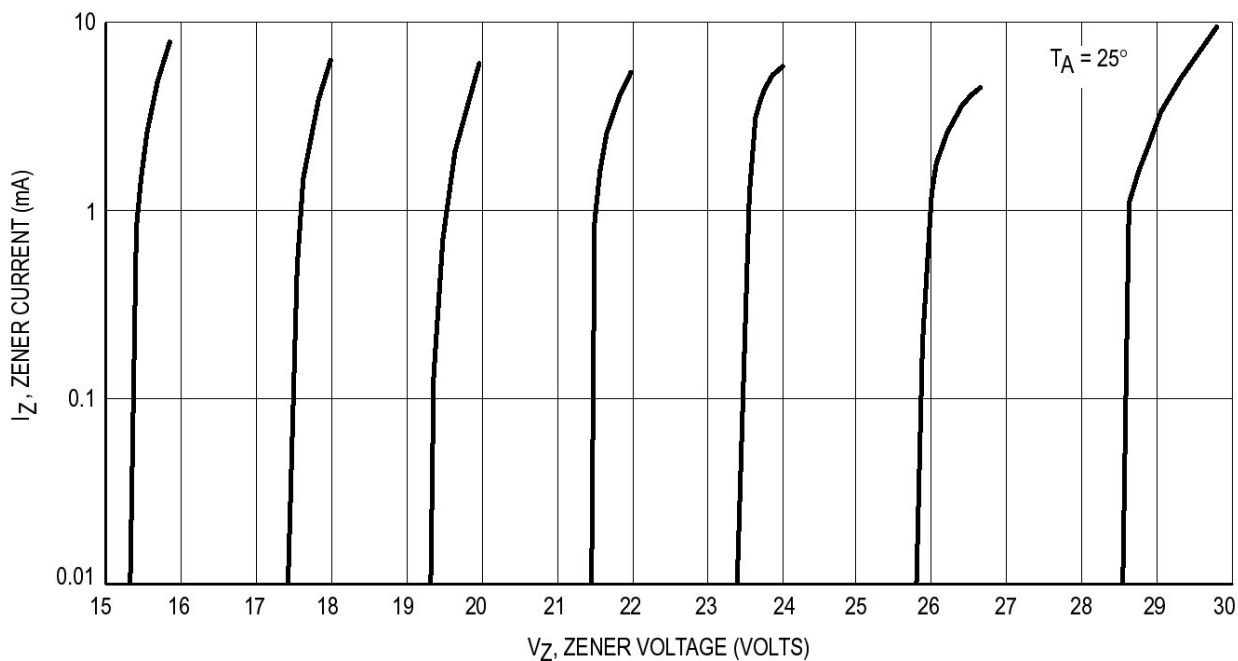
NOTE 1: Table as shown lists type numbers, which indicate a tolerance of  $\pm 20\%$  with guaranteed limits on only  $V_Z$ ,  $I_R$ , and  $V_F$ . Devices with guaranteed limits on all six parameters are indicated by suffix "A" for  $\pm 10\%$ , "B" for  $\pm 5\%$ , "C" for  $\pm 2\%$  tolerance

NOTE 2: The electrical characteristics are measured after allowing the device to stabilize for 20 seconds.

NOTE 3: Temperature coefficient ( $\Delta V_Z$ ). Test conditions for temperature coefficient are as follows:

- $I_{ZT} = 7.5mA$ ,  $T_1 = 25^\circ C$ ,  $T_2 = 125^\circ C$  (DL5221 thru DL5242)
- $I_{ZT} = \text{Rated } I_{ZT}$ ,  $T_1 = 25^\circ C$ ,  $T_2 = 125^\circ C$  (DL5243 thru DL5267)

Device to be temperature stabilized with current applied prior to reading breakdown voltage at the specified ambient temperature.

**Characteristics** ( $T_j=25^\circ\text{C}$  unless otherwise specified)**Figure 1. Zener Voltage versus Zener Current –  $V_Z=1$  thru 16 Volts****Figure 2. Zener Voltage versus Zener Current –  $V_Z=15$  thru 30 Volts**

# DL5221 thru DL5267

## Characteristics ( $T_j=25^\circ\text{C}$ unless otherwise specified)

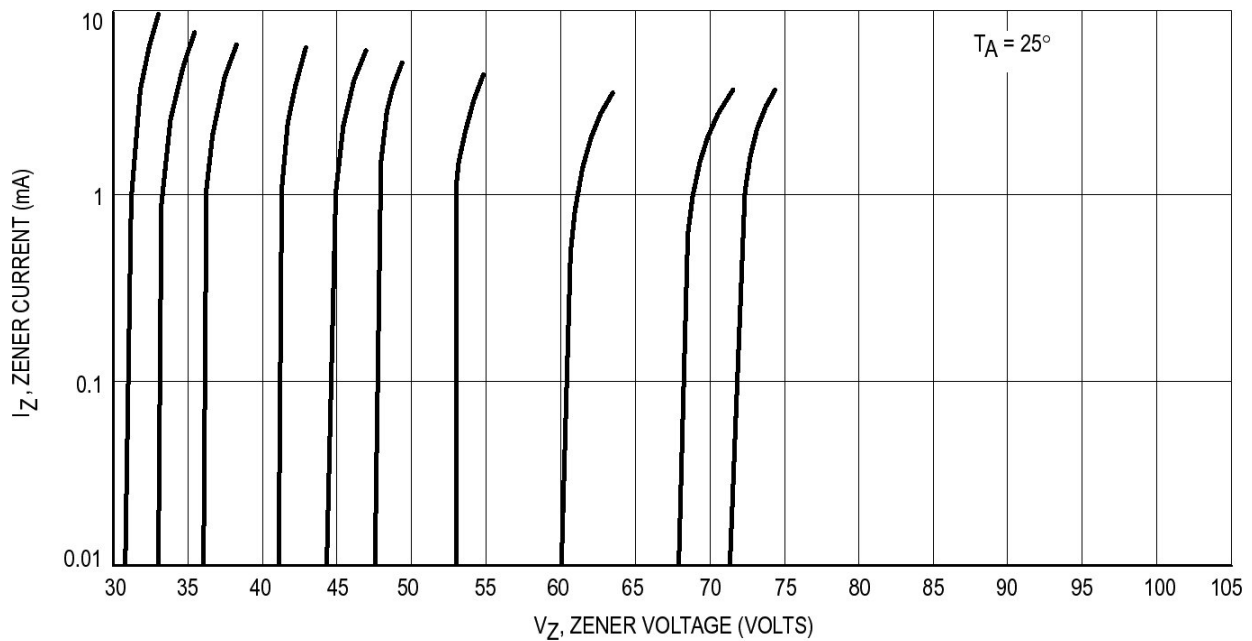


Figure 3. Zener Voltage versus Zener Current –  $V_Z=30$  thru 75 Volts

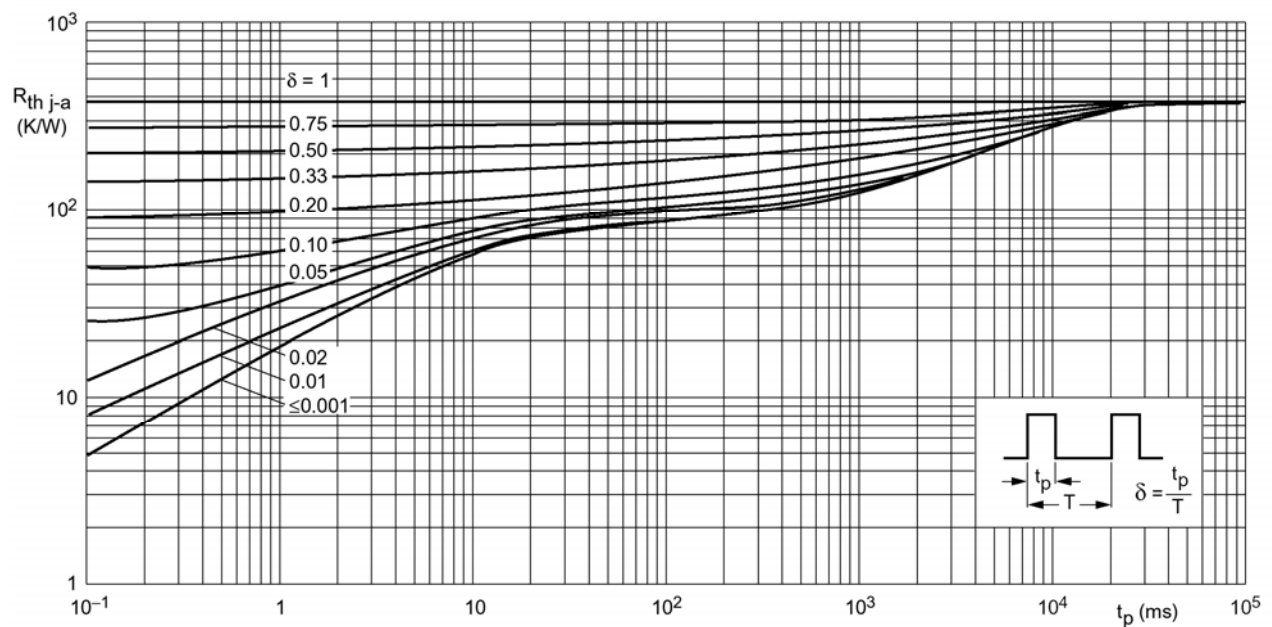


Figure 4. Thermal resistance from junction to ambient as a function of pulse duration

Ordering Information :

| Device         | Packing                 |
|----------------|-------------------------|
| Part Number-TP | Tape&Reel: 2.5Kpcs/Reel |

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