



Micro Commercial Components  
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## DL5221 THRU DL5281

### Features

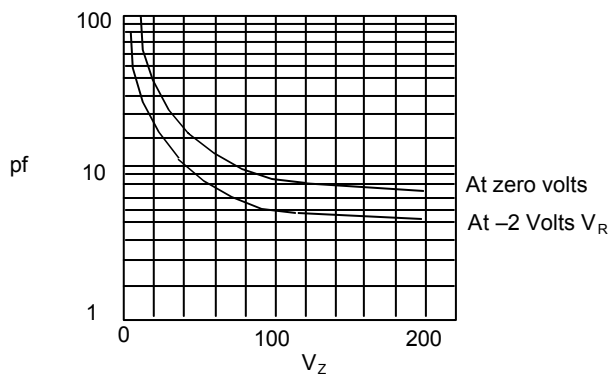
- Wide Voltage Range Available
- Glass Package
- High Temp Soldering: 250°C for 10 Seconds At Terminals
- Surface Mount Package

**500 mW  
Zener Diode  
2.4 to 200 Volts**

### Maximum Ratings

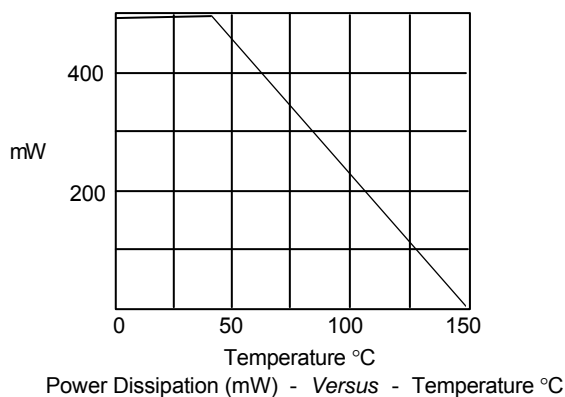
- Operating Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- 500 mWatt DC Power Dissipation
- Power Derating: 4.0mW/°C above 50°C
- Forward Voltage @ 200mA: 1.1 Volts

Figure 1 - Typical Capacitance

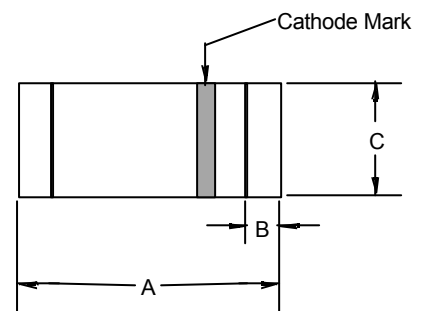


Typical Capacitance (pf) – versus – Zener voltage ( $V_Z$ )

Figure 2 - Derating Curve

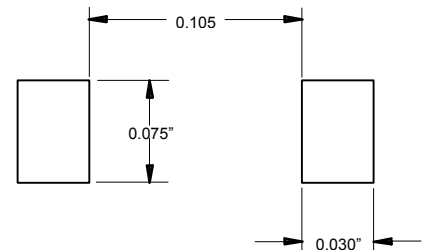


### MINIMELF



| DIMENSIONS |        |      |      |      |      |
|------------|--------|------|------|------|------|
| DIM        | INCHES |      | MM   |      | NOTE |
|            | MIN    | MAX  | MIN  | MAX  |      |
| A          | .134   | .142 | 3.40 | 3.60 |      |
| B          | .008   | .016 | .20  | .40  |      |
| C          | .055   | .059 | 1.40 | 1.50 | Ø    |

### SUGGESTED SOLDER PAD LAYOUT



# DL5221 thru DL5281



| 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<br>$Z_{ZT}$ @ $I_{ZT}$ $Z_{ZK}$ @ $I_{ZK} = 0.25\text{mA}$<br>OHMS                      OHMS |      | MAXIMUM REVERSE<br>LEAKAGE CURRENT<br>$I_R$ @ $V_R$<br>$\mu\text{A}$ VOLTS |     | MAX. ZENER VOLTAGE<br>TEMP COEFFICIENT 'B'<br>SUFFIX ONLY<br>% / °C |
|-----------------------|--|------------------------------------|---|------|--|-----|---|
|                       |  |                                    |   |      |  |     |   |
| 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 | ±0.055  |
| DL5230                | 4.7  | 20                                 | 19  | 1900 | 5.0  | 2.0 | ±0.030  |
| DL5231                | 5.1  | 20                                 | 17  | 1600 | 5.0  | 2.0 | ±0.030  |
| DL5232                | 5.6  | 20                                 | 11  | 1600 | 5.0  | 3.0 | +0.038  |
| DL5233                | 6.0  | 20                                 | 7.0   | 1600 | 5.0  | 3.5 | +0.038  |
| DL5234                | 6.2  | 20                                 | 7.0   | 1000 | 5.0  | 4.0 | +0.045  |
| DL5235                | 6.8  | 20                                 | 5.0   | 750  | 3.0  | 5.0 | +0.050  |
| DL5236                | 7.5  | 20                                 | 6.0   | 500  | 3.0  | 6.0 | +0.058  |
| DL5237                | 8.2  | 20                                 | 8.0   | 500  | 3.0  | 6.5 | +0.062  |
| DL5238                | 8.7  | 20                                 | 8.0   | 600  | 3.0  | 6.5 | +0.065  |
| DL5239                | 9.1  | 20                                 | 10  | 600  | 3.0  | 7.0 | +0.068  |
| DL5240                | 10   | 20                                 | 17  | 600  | 3.0  | 8.0 | +0.075  |
| DL5241                | 11   | 20                                 | 22  | 600  | 2.0  | 8.4 | +0.076  |
| DL5242                | 12   | 20                                 | 30  | 600  | 1.0  | 9.1 | +0.077  |
| DL5243                | 13   | 9.5                                | 13  | 600  | 0.5  | 9.9 | +0.079  |
| DL5244                | 14   | 9.0                                | 15  | 600  | 0.1  | 10  | +0.082  |
| DL5245                | 15   | 8.5                                | 16  | 600  | 0.1  | 11  | +0.082  |
| DL5246                | 16   | 7.8                                | 17  | 600  | 0.1  | 12  | +0.083  |
| DL5247                | 17   | 7.4                                | 19  | 600  | 0.1  | 13  | +0.084  |
| DL5248                | 18   | 7.0                                | 21  | 600  | 0.1  | 14  | +0.085  |
| DL5249                | 19   | 6.6                                | 23  | 600  | 0.1  | 14  | +0.086  |
| DL5250                | 20   | 6.2                                | 25  | 600  | 0.1  | 15  | +0.086  |
| DL5251                | 22   | 5.6                                | 29  | 600  | 0.1  | 17  | +0.087  |
| DL5252                | 24   | 5.2                                | 33  | 600  | 0.1  | 18  | +0.088  |
| DL5253                | 25   | 5.0                                | 35  | 600  | 0.1  | 19  | +0.089  |
| DL5254                | 27   | 4.6                                | 41  | 600  | 0.1  | 21  | +0.090  |
| DL5255                | 28   | 4.5                                | 44  | 600  | 0.1  | 21  | +0.091  |
| DL5256                | 30   | 4.2                                | 49  | 600  | 0.1  | 23  | +0.091  |
| DL5257                | 33   | 3.8                                | 58  | 700  | 0.1  | 25  | +0.092  |
| DL5258                | 36   | 3.4                                | 70  | 700  | 0.1  | 27  | +0.093  |
| DL5259                | 39   | 3.2                                | 80  | 800  | 0.1  | 30  | +0.094  |
| DL5260                | 43   | 3.0                                | 93  | 900  | 0.1  | 33  | +0.095  |
| DL5261                | 47   | 2.7                                | 105   | 1000 | 0.1  | 36  | +0.095  |
| DL5262                | 51   | 2.5                                | 125   | 1100 | 0.1  | 39  | +0.096  |
| DL5263                | 56   | 2.2                                | 150   | 1300 | 0.1  | 43  | +0.096  |
| DL5264                | 60   | 2.1                                | 170   | 1400 | 0.1  | 46  | +0.097  |
| DL5265                | 62   | 2.0                                | 185   | 1400 | 0.1  | 47  | +0.097  |
| DL5266                | 68   | 1.8                                | 230   | 1600 | 0.1  | 52  | +0.097  |
| DL5267                | 75   | 1.7                                | 270   | 1700 | 0.1  | 56  | +0.098  |
| DL5268                | 82   | 1.5                                | 330   | 2000 | 0.1  | 62  | +0.098  |
| DL5269                | 87   | 1.4                                | 370   | 2200 | 0.1  | 68  | +0.099  |
| DL5270                | 91   | 1.4                                | 400   | 2300 | 0.1  | 69  | +0.099  |
| DL5271                | 100  | 1.3                                | 500   | 2600 | 0.1  | 76  | +0.110  |
| DL5272                | 110  | 1.1                                | 750   | 3000 | 0.1  | 84  | +0.110  |
| DL5273                | 120  | 1.0                                | 900   | 4000 | 0.1  | 91  | +0.110  |
| DL5274                | 130  | 0.95                               | 1100  | 4500 | 0.1  | 99  | +0.110  |
| DL5275                | 140  | 0.90                               | 1300  | 4500 | 0.1  | 106 | +0.110  |
| DL5276                | 150  | 0.85                               | 1500  | 5000 | 0.1  | 114 | +0.110  |
| DL5277                | 160  | 0.80                               | 1700  | 5500 | 0.1  | 122 | +0.110  |
| DL5278                | 170  | 0.74                               | 1900  | 5500 | 0.1  | 129 | +0.110  |
| DL5279                | 180  | 0.68                               | 2200  | 6000 | 0.1  | 137 | +0.110  |
| DL5280                | 190  | 0.66                               | 2400  | 6500 | 0.1  | 144 | +0.110  |
| DL5281                | 200  | 0.65                               | 2500  | 7000 | 0.1  | 152 | +0.110  |

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  $\pm 2\%$ , and "D" for  $\pm 1\%$  tolerance

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

NOTE 3: Temperature coefficient ( $\alpha_{VZ}$ ). Test conditions for temperature coefficient are as follows:

- $I_{ZT} = 7.5\text{mA}$ ,  $T_1 = 25^\circ\text{C}$ ,  $T_2 = 125^\circ\text{C}$  (DL5221 thru DL5242)
- $I_{ZT} = \text{Rated } I_{ZT}$ ,  $T_1 = 25^\circ\text{C}$ ,  $T_2 = 125^\circ\text{C}$  (DL5243 thru DL5281)

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