

# ZMM52 - SERIES

## SURFACE MOUNT ZENER DIODES/MINI MELF



| Device Type | Nominal zener Voltage Vz at Izt* | Test Current Izt | Maximum Zener Impedance |                     | Typical Temperature coefficient | Maximum Reverse Leakage Current |                         | Maximum Regulator Current IzM |
|-------------|----------------------------------|------------------|-------------------------|---------------------|---------------------------------|---------------------------------|-------------------------|-------------------------------|
|             |                                  |                  | ZzT at Izt              | Zzk at Izk = 0.25mA |                                 | IR                              | Test - Voltage suffix B |                               |
|             | Volts                            | mA               | $\Omega$                | $\Omega$            | %/°C                            | $\mu$ A                         | Volts                   | mA                            |
| ZMM5221B    | 2.4                              | 20               | 30                      | 1200                | -0.085                          | 100                             | 1.0                     | 191                           |
| ZMM5222B    | 2.5                              | 20               | 30                      | 1250                | -0.085                          | 100                             | 1.0                     | 182                           |
| ZMM5223B    | 2.7                              | 20               | 30                      | 1300                | -0.080                          | 75                              | 1.0                     | 168                           |
| ZMM5224B    | 2.8                              | 20               | 30                      | 1400                | -0.080                          | 75                              | 1.0                     | 162                           |
| ZMM5225B    | 3.0                              | 20               | 29                      | 1600                | -0.075                          | 50                              | 1.0                     | 151                           |
| ZMM5226B    | 3.3                              | 20               | 28                      | 1600                | -0.070                          | 25                              | 1.0                     | 138                           |
| ZMM5227B    | 3.6                              | 20               | 24                      | 1700                | -0.065                          | 15                              | 1.0                     | 126                           |
| ZMM5228B    | 3.9                              | 20               | 23                      | 1900                | -0.060                          | 10                              | 1.0                     | 115                           |
| ZMM5229B    | 4.3                              | 20               | 22                      | 2000                | $\pm$ 0.055                     | 5                               | 1.0                     | 106                           |
| ZMM5230B    | 4.7                              | 20               | 19                      | 1900                | $\pm$ 0.03                      | 5                               | 2.0                     | 97                            |
| ZMM5231B    | 5.1                              | 20               | 17                      | 1600                | $\pm$ 0.03                      | 55                              | 2.0                     | 89                            |
| ZMM5232B    | 5.6                              | 20               | 11                      | 1600                | +0.038                          | 5                               | 3.0                     | 81                            |
| ZMM5233B    | 6.0                              | 20               | 7                       | 1600                | +0.038                          | 5                               | 3.5                     | 76                            |
| ZMM5234B    | 6.2                              | 20               | 7                       | 1000                | +0.045                          | 3                               | 4.0                     | 73                            |
| ZMM5235B    | 6.8                              | 20               | 5                       | 750                 | +0.050                          | 3                               | 5.0                     | 67                            |
| ZMM5236B    | 7.5                              | 20               | 6                       | 500                 | +0.058                          | 3                               | 6.0                     | 61                            |
| ZMM5237B    | 8.2                              | 20               | 8                       | 500                 | +0.062                          | 3                               | 6.5                     | 55                            |
| ZMM5238B    | 8.7                              | 20               | 8                       | 600                 | +0.065                          | 3                               | 6.5                     | 52                            |
| ZMM5239B    | 9.1                              | 20               | 10                      | 600                 | +0.068                          | 3                               | 7.0                     | 50                            |
| ZMM5240B    | 10                               | 20               | 17                      | 600                 | +0.075                          | 3                               | 8.0                     | 45                            |
| ZMM5241B    | 11                               | 20               | 22                      | 600                 | +0.076                          | 2                               | 8.4                     | 41                            |
| ZMM5242B    | 12                               | 20               | 30                      | 600                 | +0.077                          | 1                               | 9.1                     | 38                            |
| ZMM5243B    | 13                               | 9.5              | 13                      | 600                 | +0.079                          | 1.5                             | 9.9                     | 35                            |
| ZMM5244B    | 14                               | 9.0              | 15                      | 600                 | +0.082                          | 0.1                             | 10                      | 32                            |
| ZMM5245B    | 15                               | 8.5              | 16                      | 600                 | +0.082                          | 0.1                             | 11                      | 30                            |
| ZMM5246B    | 16                               | 7.8              | 17                      | 600                 | +0.083                          | 0.1                             | 12                      | 28                            |
| ZMM5247B    | 17                               | 7.4              | 19                      | 600                 | +0.084                          | 0.1                             | 13                      | 27                            |
| ZMM5248B    | 18                               | 7.0              | 21                      | 600                 | +0.085                          | 0.1                             | 14                      | 25                            |
| ZMM5249B    | 19                               | 6.6              | 23                      | 600                 | +0.086                          | 0.1                             | 14                      | 24                            |
| ZMM5250B    | 20                               | 6.2              | 25                      | 600                 | +0.086                          | 0.1                             | 15                      | 23                            |
| ZMM5251B    | 22                               | 5.6              | 29                      | 600                 | +0.087                          | 0.1                             | 17                      | 21.2                          |
| ZMM5252B    | 24                               | 5.2              | 33                      | 600                 | +0.087                          | 0.1                             | 18                      | 19.1                          |
| ZMM5253B    | 25                               | 5.0              | 35                      | 600                 | +0.089                          | 0.1                             | 19                      | 18.2                          |
| ZMM5254B    | 27                               | 4.6              | 41                      | 600                 | +0.090                          | 0.1                             | 21                      | 16.8                          |
| ZMM5255B    | 28                               | 4.5              | 44                      | 600                 | +0.091                          | 0.1                             | 21                      | 16.2                          |
| ZMM5256B    | 30                               | 4.2              | 49                      | 600                 | +0.091                          | 0.1                             | 23                      | 15.1                          |
| ZMM5257B    | 33                               | 3.8              | 58                      | 700                 | +0.092                          | 0.1                             | 25                      | 13.8                          |
| ZMM5258B    | 36                               | 3.4              | 70                      | 700                 | +0.093                          | 0.1                             | 27                      | 12.6                          |
| ZMM5259B    | 39                               | 3.2              | 80                      | 800                 | +0.094                          | 0.1                             | 30                      | 11.5                          |
| ZMM5260B    | 43                               | 3                | 93                      | 900                 | +0.095                          | 0.1                             | 33                      | 10.6                          |
| ZMM5261B    | 47                               | 2.7              | 150                     | 1000                | +0.095                          | 0.1                             | 36                      | 9.7                           |

STANDARD VOLTAGE TOLERANCE IS + 5% AND:

SUFFIX "A" FOR  $\pm$  3%

SUFFIX "B" FOR  $\pm$  5%

SUFFIX "C" FOR  $\pm$  10%

SUFFIX "D" FOR  $\pm$  20%

MEASURED WITH PULSES  $T_p = 40m$  SEC.

ZENER DIODE NUMBERING SYSTEM

ZMM5225 B

1\* 2\*

1\* TYPE NO., ZMM = ZENER MINI MELF

2\* TOLERANCE OF VZ.

3\* ZMM5225B = 3.0V  $\pm$  5%



# ZMM52 – SERIES

## SURFACE MOUNT ZENER DIODES

### Absolute Maximum Ratings

|   | Symbol    | Value         | Unit               |
|---|-----------|---------------|--------------------|
| Zener Current see Table "Characteristics"           |           |               |                    |
| Power Dissipation at $T_{amb} = 25^{\circ}\text{C}$ | $P_{tot}$ | 500*          | mW                 |
| Junction Temperature                                | $T_j$     | 175           | $^{\circ}\text{C}$ |
| Storage Temperature Range                           | $T_s$     | - 65 to + 175 | $^{\circ}\text{C}$ |

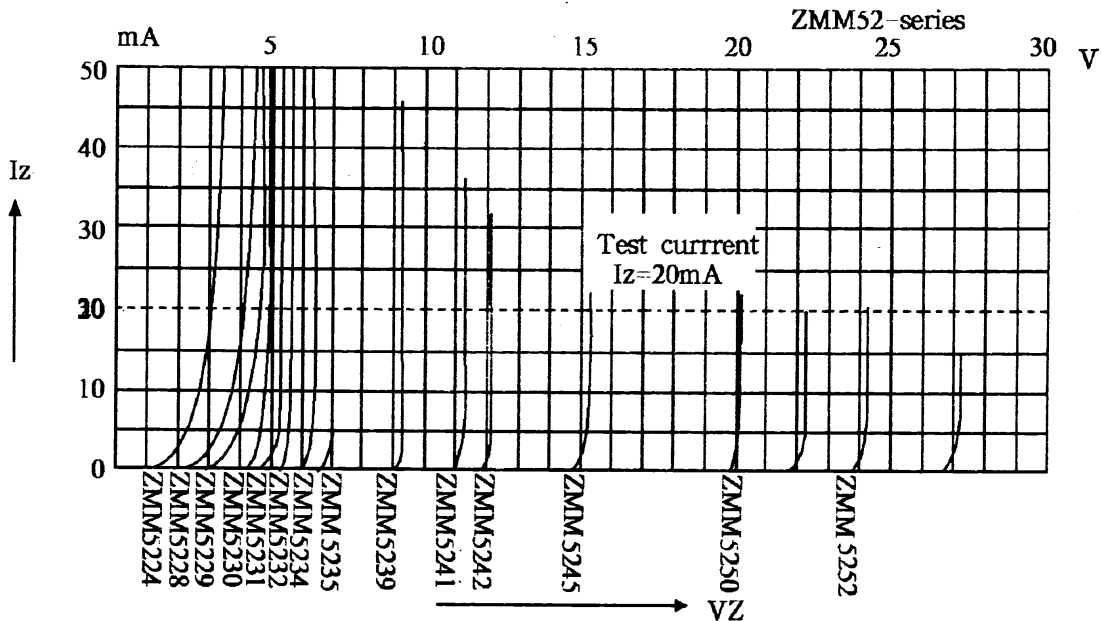
\* Valid provided that leads at a distance of 10mm from case are kept at ambient temperature.

Characteristic at  $T_{amb} = 25^{\circ}\text{C}$

|   | Symbol    | Min. | Typ. | Max. | Unit |
|---|-----------|------|------|------|------|
| Thermal Resistance<br>Junction to Ambient Air | $R_{thA}$ | -    | -    | 0.3* | K/mW |
| Forward Voltage<br>at $I_F = 200\text{mA}$    | $V_F$     | -    | -    | 1.1  | V    |

\* Valid provided that leads at a distance of 10mm from case are kept at ambient temperature.

### Breakdown characteristics



changes in the power dissipation  
due to the ambient temperature

