

MM3Z2V4CWF–MM3Z75VCWF(LS)

SURFACE MOUNT ZENER DIODE

REVERSE VOLTAGE – 2.4 to 75 Volts
POWER DISSIPATION – 0.2 Watts

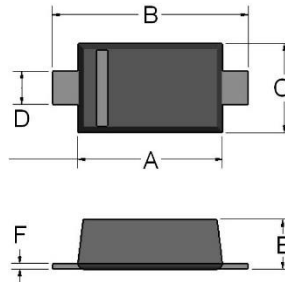
FEATURES

- Wide Zener Voltage Range Selection, 2.4V to 75V
- V_Z Tolerance Selection of $\pm 5\%$ (C Series)
- Flat Lead SOD-323F Plastic Package
- Surface Device Type Mounting
- Green Epoxy Molding Compound
- Matte Tin (Sn) Lead Finish
- Band Indicates Cathode
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. “Green” Device (Note 3)**

MECHANICAL DATA

- Package: SOD-323F Plastic

SOD-323F



| SOD-323F | | |
|----------|------|------|
| DIM. | MIN. | MAX. |
| A | 1.60 | 1.80 |
| B | 2.30 | 2.70 |
| C | 1.15 | 1.35 |
| D | 0.25 | 0.40 |
| E | 0.80 | 1.00 |
| F | 0.05 | 0.25 |

All Dimensions in millimeter

Maximum Ratings & Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|-----------------------------|-----------|-------------|------------------|
| Power Dissipation | P_D | 200 | mW |
| Storage Temperature Range | T_{STG} | -65 to +150 | $^\circ\text{C}$ |
| Operating Temperature Range | T_J | -65 to +150 | $^\circ\text{C}$ |

Device Marking:

| Device P/N | Marking | Pin Diagram | Equivalent Circuit Diagram |
|------------|-----------------|-------------|----------------------------|
| MM3ZxxxCWF | See below table | | |

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Symbol | Parameter |
|----------|------------------------------------|
| V_Z | Reverse Zener Voltage @ I_{ZT} |
| I_{ZT} | Reverse Current |
| Z_{ZT} | Maximum Zener Impedance @ I_{ZT} |
| I_{ZK} | Reverse Current |
| Z_{ZK} | Maximum Zener Impedance @ I_{ZK} |
| I_R | Reverse Leakage Current @ V_R |
| V_R | Reverse Voltage |
| I_F | Forward Current |
| V_F | Forward Voltage @ I_F |

Notes:

1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Device | Device Marking | Zener Voltage | | | | Maximum Zener Impedance | | | Maximum Reverse Current | |
|------------|----------------|----------------|---------|---------|----------|-------------------------|----------|-------------------|-------------------------|------|
| | | $V_Z @ I_{ZT}$ | | | I_{ZT} | $Z_{ZT} @ I_{ZT}$ | I_{ZK} | $Z_{ZK} @ I_{ZK}$ | $I_R @ V_R$ | |
| | | Min (V) | Nom (V) | Max (V) | mA | Ω | mA | Ω | μA | V |
| MM3Z2V4CWF | Z0 | 2.28 | 2.4 | 2.52 | 5 | 100 | 1 | 564 | 45 | 1 |
| MM3Z2V7CWF | Z1 | 2.57 | 2.7 | 2.84 | 5 | 100 | 1 | 564 | 18 | 1 |
| MM3Z3V0CWF | Z2 | 2.85 | 3.0 | 3.15 | 5 | 100 | 1 | 564 | 9 | 1 |
| MM3Z3V3CWF | Z3 | 3.14 | 3.3 | 3.47 | 5 | 95 | 1 | 564 | 4.5 | 1 |
| MM3Z3V6CWF | Z4 | 3.42 | 3.6 | 3.78 | 5 | 90 | 1 | 564 | 4.5 | 1 |
| MM3Z3V9CWF | Z5 | 3.71 | 3.9 | 4.10 | 5 | 90 | 1 | 564 | 2.7 | 1 |
| MM3Z4V3CWF | Z6 | 4.09 | 4.3 | 4.52 | 5 | 90 | 1 | 564 | 2.7 | 1 |
| MM3Z4V7CWF | Z7 | 4.47 | 4.7 | 4.94 | 5 | 80 | 1 | 470 | 2.7 | 2 |
| MM3Z5V1CWF | Z8 | 4.85 | 5.1 | 5.36 | 5 | 60 | 1 | 451 | 1.8 | 2 |
| MM3Z5V6CWF | Z9 | 5.32 | 5.6 | 5.88 | 5 | 40 | 1 | 376 | 0.9 | 2 |
| MM3Z6V2CWF | ZA | 5.89 | 6.2 | 6.51 | 5 | 10 | 1 | 141 | 2.7 | 4 |
| MM3Z6V8CWF | ZB | 6.46 | 6.8 | 7.14 | 5 | 15 | 1 | 75 | 1.8 | 4 |
| MM3Z7V5CWF | ZC | 7.11 | 7.5 | 7.86 | 5 | 15 | 1 | 75 | 0.9 | 5 |
| MM3Z8V2CWF | ZD | 7.79 | 8.2 | 8.61 | 5 | 15 | 1 | 75 | 0.63 | 5 |
| MM3Z9V1CWF | ZE | 8.65 | 9.1 | 9.56 | 5 | 15 | 1 | 94 | 0.45 | 6 |
| MM3Z10VCWF | ZF | 9.50 | 10 | 10.50 | 5 | 20 | 1 | 141 | 0.18 | 7 |
| MM3Z11VCWF | ZG | 10.45 | 11 | 11.55 | 5 | 20 | 1 | 141 | 0.09 | 8 |
| MM3Z12VCWF | ZH | 11.40 | 12 | 12.60 | 5 | 25 | 1 | 141 | 0.09 | 8 |
| MM3Z13VCWF | ZJ | 12.35 | 13 | 13.65 | 5 | 30 | 1 | 160 | 0.09 | 8 |
| MM3Z15VCWF | ZK | 14.25 | 15 | 15.75 | 5 | 30 | 1 | 188 | 0.045 | 10.5 |
| MM3Z16VCWF | ZL | 15.20 | 16 | 16.80 | 5 | 40 | 1 | 188 | 0.045 | 11.2 |
| MM3Z18VCWF | ZM | 17.10 | 18 | 18.90 | 5 | 45 | 1 | 212 | 0.045 | 12.6 |
| MM3Z20VCWF | ZN | 19.00 | 20 | 21.00 | 5 | 55 | 1 | 212 | 0.045 | 14.0 |
| MM3Z22VCWF | ZP | 20.90 | 22 | 23.10 | 5 | 55 | 1 | 235 | 0.045 | 15.4 |
| MM3Z24VCWF | ZR | 22.80 | 24 | 25.20 | 5 | 70 | 1 | 235 | 0.045 | 16.8 |
| MM3Z27VCWF | ZS | 25.65 | 27 | 28.35 | 2 | 80 | 0.5 | 282 | 0.045 | 18.9 |
| MM3Z30VCWF | ZT | 28.50 | 30 | 31.50 | 2 | 80 | 0.5 | 282 | 0.045 | 21.0 |
| MM3Z33VCWF | ZU | 31.35 | 33 | 34.65 | 2 | 80 | 0.5 | 306 | 0.045 | 23.0 |
| MM3Z36VCWF | ZV | 34.20 | 36 | 37.80 | 2 | 90 | 0.5 | 329 | 0.045 | 25.2 |
| MM3Z39VCWF | ZW | 37.05 | 39 | 40.95 | 2 | 130 | 0.5 | 329 | 0.045 | 27.3 |
| MM3Z43VCWF | ZX | 40.85 | 43 | 45.15 | 2 | 150 | 0.5 | 353 | 0.045 | 30.1 |
| MM3Z47VCWF | ZY | 44.65 | 47 | 49.35 | 2 | 170 | 0.5 | 353 | 0.045 | 33.0 |
| MM3Z51VCWF | Z- | 48.45 | 51 | 53.55 | 2 | 180 | 0.5 | 376 | 0.045 | 35.7 |
| MM3Z56VCWF | Z= | 53.20 | 56 | 58.80 | 2 | 200 | 0.5 | 400 | 0.045 | 39.2 |
| MM3Z62VCWF | Z≡ | 58.90 | 62 | 65.10 | 2 | 215 | 0.5 | 423 | 0.045 | 43.4 |
| MM3Z68VCWF | Z> | 64.60 | 68 | 71.40 | 2 | 240 | 0.5 | 447 | 0.045 | 47.6 |
| MM3Z75VCWF | Z< | 71.25 | 75 | 78.75 | 2 | 255 | 0.5 | 470 | 0.045 | 52.5 |

V_F Forward Voltage = 1V Maximum @ $I_F = 10\text{mA}$ for all types.

Notes:

- The Zener Voltage (V_Z) is tested under pulse condition of 10ms.
- The device numbers listed have a standard tolerance on the nominal Zener voltage of $\pm 5\%$.

Typical Characteristics

MM3Z2V4CWF–MM3Z75VCWF

Fig.1 Power Dissipation Curve

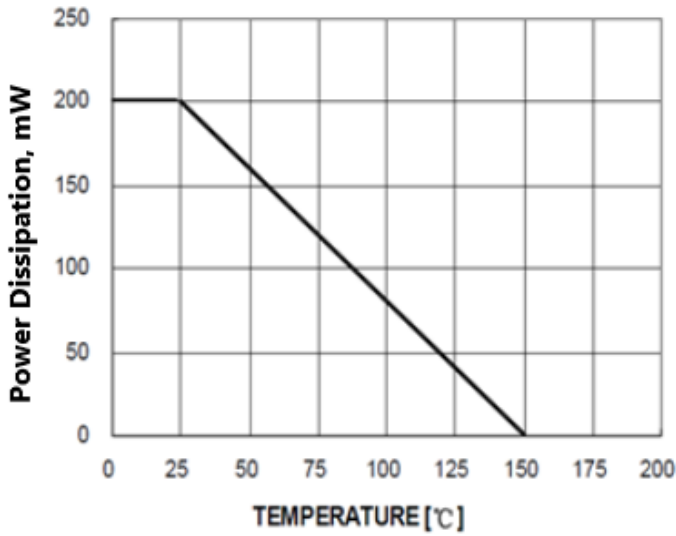


Fig.2 Typical Zener Breakdown Characteristics

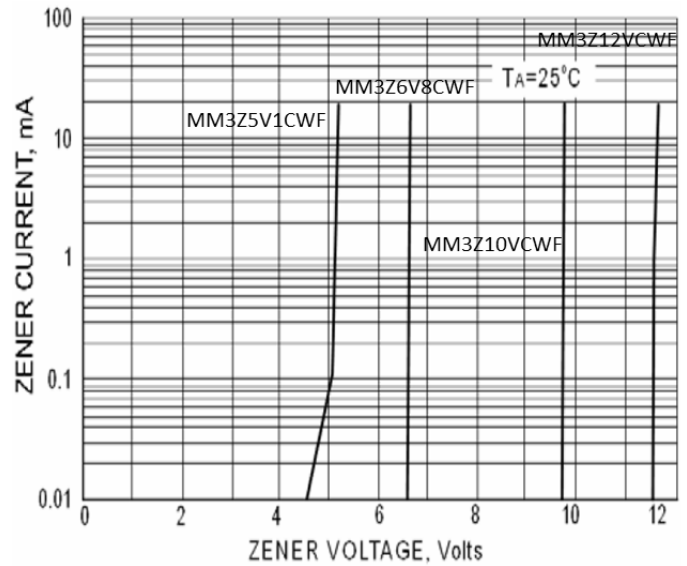


Fig.3 Typical Zener Breakdown Characteristics

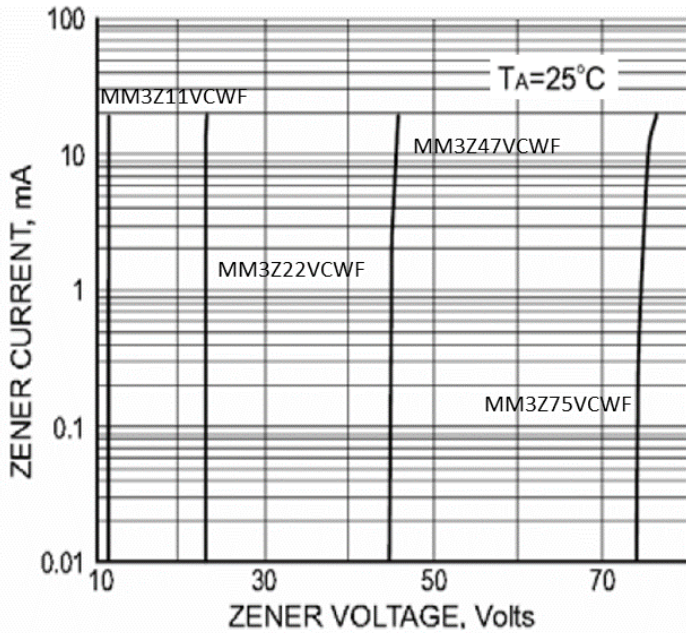


Fig.4 Typical Total Capacitance vs. Nominal Zener Voltage

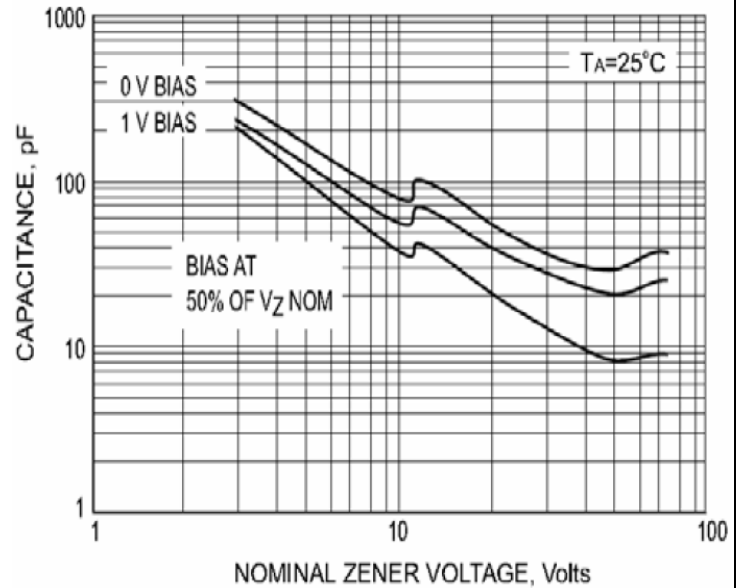


Fig.5 Effect Of Zener Voltage On Zener Impedance

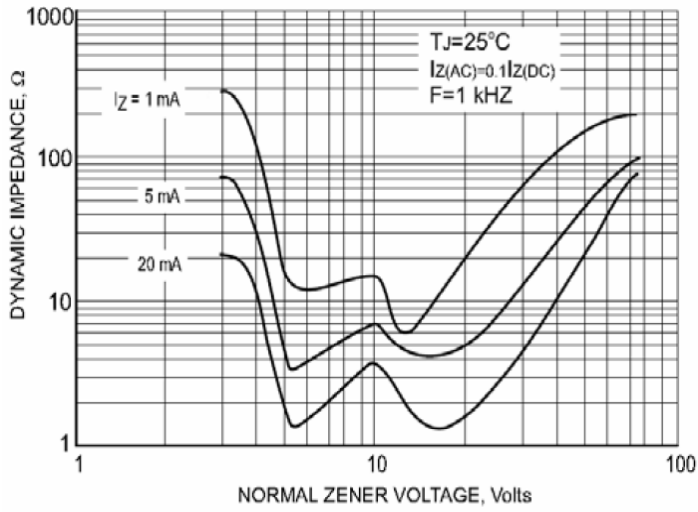
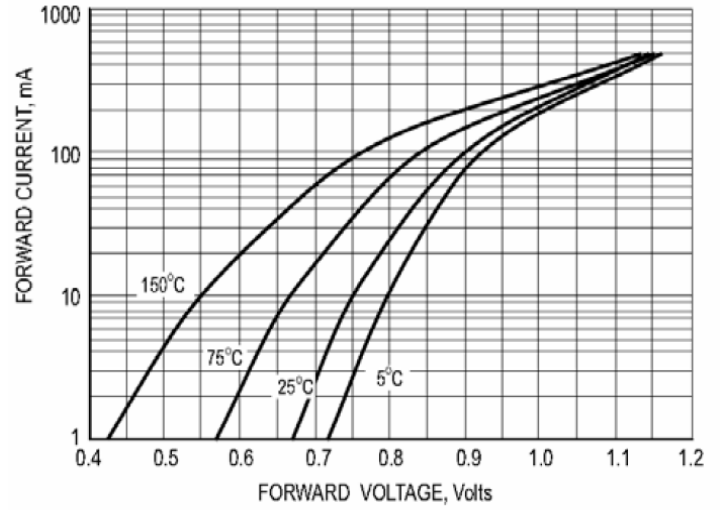


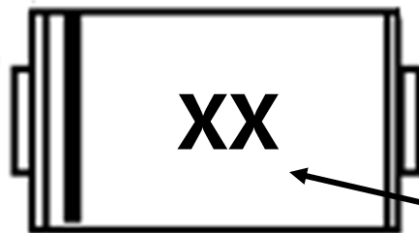
Fig.6 Typical Forward Voltage



Ordering Information:

| Part Number | Package | Packing | |
|-------------|----------|---------|-------------|
| | | Qty. | Carrier |
| MM3Z2V4CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z2V7CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z3V0CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z3V3CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z3V6CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z3V9CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z4V3CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z4V7CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z5V1CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z5V6CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z6V2CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z6V8CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z7V5CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z8V2CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z9V1CWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z10VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z11VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z12VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z13VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z15VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z16VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z18VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z20VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z22VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z24VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z27VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z30VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z33VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z36VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z39VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z43VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z47VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z51VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z56VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z62VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z68VCWF | SOD-323F | 3000pcs | Tape & Reel |
| MM3Z75VCWF | SOD-323F | 3000pcs | Tape & Reel |

Marking Information:



Product Type Marking Code, ex: Z0

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