

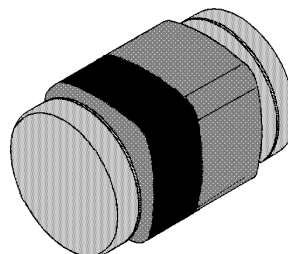
**ZENER DIODES**

**ZMC RD2.0UM~RD39UM**

LS-31

**Features**

- Sharp Breakdown Characteristics
- Vz: Applied E24 standard



**Applications**

- Circuits for Constant Voltage, Constant Current  
Wave form clipper, Surge absorber, etc.

**Absolute Maximum Ratings (Ta = 25°C)**

|  | Symbol    | Value       | Unit |
|--|-----------|-------------|------|
| Power Dissipation                                | $P_{tot}$ | 150         | mW   |
| Forward Current                                  | $I_F$     | 100         | mA   |
| Reverse Surge Power<br>At t = 10 $\mu$ s/1 pulse | $P_{RSM}$ | 85          | W    |
| Junction Temperature                             | $T_j$     | 150         | °C   |
| Storage Temperature Range                        | $T_s$     | -55 to +155 | °C   |

**ZENER DIODES**

**ZMC RD2.0UM~RD39UM**

Characteristics at Ta = 25 °C

| TYPE         | Zener Voltage                       |      |                     | Dynamic Impedance                   |                     | Reverse Current     |                    |
|--------------|-------------------------------------|------|---------------------|-------------------------------------|---------------------|---------------------|--------------------|
|              | V <sub>Z</sub> (V) <sup>Note1</sup> |      |                     | Z <sub>Z</sub> (Ω) <sup>Note2</sup> |                     | I <sub>R</sub> (μA) |                    |
|              | Min.                                | Max. | I <sub>Z</sub> (mA) | Max.                                | I <sub>Z</sub> (mA) | Max.                | V <sub>R</sub> (V) |
| ZMCRD2.0UMB  | 1.80                                | 2.15 | 5                   | 100                                 | 5                   | 120                 | 0.5                |
| ZMCRD2.2UMB  | 2.10                                | 2.40 | 5                   | 100                                 | 5                   | 120                 | 0.7                |
| ZMCRD2.4UMB  | 2.30                                | 2.60 | 5                   | 100                                 | 5                   | 120                 | 1.0                |
| ZMCRD2.7UMB  | 2.50                                | 2.90 | 5                   | 110                                 | 5                   | 120                 | 1.0                |
| ZMCRD2.7UMB1 | 2.50                                | 2.75 |                     |                                     |                     |                     |                    |
| ZMCRD2.7UMB2 | 2.65                                | 2.90 | 5                   | 120                                 | 5                   | 50                  | 1.0                |
| ZMCRD3.0UMB  | 2.80                                | 3.20 |                     |                                     |                     |                     |                    |
| ZMCRD3.0UMB1 | 2.80                                | 3.05 |                     |                                     |                     |                     |                    |
| ZMCRD3.0UMB2 | 2.95                                | 3.20 | 5                   | 130                                 | 5                   | 20                  | 1.0                |
| ZMCRD3.3UMB  | 3.10                                | 3.50 |                     |                                     |                     |                     |                    |
| ZMCRD3.3UMB1 | 3.10                                | 3.35 |                     |                                     |                     |                     |                    |
| ZMCRD3.3UMB2 | 3.25                                | 3.50 | 5                   | 130                                 | 5                   | 10                  | 1.0                |
| ZMCRD3.6UMB  | 3.40                                | 3.80 |                     |                                     |                     |                     |                    |
| ZMCRD3.6UMB1 | 3.40                                | 3.65 |                     |                                     |                     |                     |                    |
| ZMCRD3.6UMB2 | 3.55                                | 3.80 | 5                   | 130                                 | 5                   | 10                  | 1.0                |
| ZMCRD3.9UMB  | 3.70                                | 4.10 |                     |                                     |                     |                     |                    |
| ZMCRD3.9UMB1 | 3.70                                | 3.97 |                     |                                     |                     |                     |                    |
| ZMCRD3.9UMB2 | 3.87                                | 4.10 | 5                   | 130                                 | 5                   | 10                  | 1.0                |
| ZMCRD4.3UMB  | 4.00                                | 4.49 |                     |                                     |                     |                     |                    |
| ZMCRD4.3UMB1 | 4.00                                | 4.22 |                     |                                     |                     |                     |                    |
| ZMCRD4.3UMB2 | 4.14                                | 4.35 |                     |                                     |                     |                     |                    |
| ZMCRD4.3UMB3 | 4.27                                | 4.49 | 5                   | 130                                 | 5                   | 10                  | 1.0                |
| ZMCRD4.7UMB  | 4.40                                | 4.92 |                     |                                     |                     |                     |                    |
| ZMCRD4.7UMB1 | 4.40                                | 4.63 |                     |                                     |                     |                     |                    |
| ZMCRD4.7UMB2 | 4.53                                | 4.77 |                     |                                     |                     |                     |                    |
| ZMCRD4.7UMB3 | 4.67                                | 4.92 | 5                   | 130                                 | 5                   | 5                   | 1.5                |
| ZMCRD5.1UMB  | 4.82                                | 5.39 |                     |                                     |                     |                     |                    |
| ZMCRD5.1UMB1 | 4.82                                | 5.06 |                     |                                     |                     |                     |                    |
| ZMCRD5.1UMB2 | 4.96                                | 5.22 |                     |                                     |                     |                     |                    |
| ZMCRD5.1UMB3 | 5.12                                | 5.39 | 5                   | 80                                  | 5                   | 5                   | 2.5                |
| ZMCRD5.6UMB  | 5.29                                | 5.94 |                     |                                     |                     |                     |                    |
| ZMCRD5.6UMB1 | 5.29                                | 5.57 |                     |                                     |                     |                     |                    |
| ZMCRD5.6UMB2 | 5.47                                | 5.75 |                     |                                     |                     |                     |                    |
| ZMCRD5.6UMB3 | 5.65                                | 5.94 | 5                   | 50                                  | 5                   | 2                   | 3.0                |
| ZMCRD6.2UMB  | 5.84                                | 6.55 |                     |                                     |                     |                     |                    |
| ZMCRD6.2UMB1 | 5.84                                | 6.14 |                     |                                     |                     |                     |                    |
| ZMCRD6.2UMB2 | 6.04                                | 6.35 |                     |                                     |                     |                     |                    |
| ZMCRD6.2UMB3 | 6.24                                | 6.55 | 5                   | 30                                  | 5                   | 2                   | 3.5                |
| ZMCRD6.8UMB  | 6.44                                | 7.17 |                     |                                     |                     |                     |                    |
| ZMCRD6.8UMB1 | 6.44                                | 6.76 |                     |                                     |                     |                     |                    |
| ZMCRD6.8UMB2 | 6.62                                | 6.96 |                     |                                     |                     |                     |                    |
| ZMCRD6.8UMB3 | 6.83                                | 7.17 | 5                   | 30                                  | 5                   | 2                   | 4.0                |
| ZMCRD7.5UMB  | 7.03                                | 7.87 |                     |                                     |                     |                     |                    |
| ZMCRD7.5UMB1 | 7.03                                | 7.39 |                     |                                     |                     |                     |                    |
| ZMCRD7.5UMB2 | 7.25                                | 7.63 |                     |                                     |                     |                     |                    |
| ZMCRD7.5UMB3 | 7.49                                | 7.87 | 5                   | 30                                  | 5                   | 2                   | 5.0                |
| ZMCRD8.2UMB  | 7.73                                | 8.67 |                     |                                     |                     |                     |                    |
| ZMCRD8.2UMB1 | 7.73                                | 8.13 |                     |                                     |                     |                     |                    |
| ZMCRD8.2UMB2 | 7.98                                | 8.39 |                     |                                     |                     |                     |                    |
| ZMCRD8.2UMB3 | 8.25                                | 8.67 |                     |                                     |                     |                     |                    |

ZENER DIODES

ZMC RD2.0UM~RD39UM

Characteristics at Ta = 25°C

| TYPE         | Zener Voltage                       |       |                     | Dynamic Impedance                   |                     | Reverse Current     |                    |
|--------------|-------------------------------------|-------|---------------------|-------------------------------------|---------------------|---------------------|--------------------|
|              | V <sub>Z</sub> (V) <sup>Note1</sup> |       |                     | Z <sub>Z</sub> (Ω) <sup>Note2</sup> |                     | I <sub>R</sub> (μA) |                    |
|              | Min.                                | Max.  | I <sub>Z</sub> (mA) | Max.                                | I <sub>Z</sub> (mA) | Max.                | V <sub>R</sub> (V) |
| ZMCRD9.1UMB  | 8.53                                | 9.58  | 5                   | 30                                  | 5                   | 2                   | 6.0                |
| ZMCRD9.1UMB1 | 8.53                                | 8.96  |                     |                                     |                     |                     |                    |
| ZMCRD9.1UMB2 | 8.81                                | 9.26  |                     |                                     |                     |                     |                    |
| ZMCRD9.1UMB3 | 9.12                                | 9.58  |                     |                                     |                     |                     |                    |
| ZMCRD10UMB   | 9.42                                | 10.58 | 5                   | 30                                  | 5                   | 2                   | 7.0                |
| ZMCRD10UMB1  | 9.42                                | 9.90  |                     |                                     |                     |                     |                    |
| ZMCRD10UMB2  | 9.74                                | 10.24 |                     |                                     |                     |                     |                    |
| ZMCRD10UMB3  | 10.08                               | 10.58 |                     |                                     |                     |                     |                    |
| ZMCRD11UMB   | 10.40                               | 11.60 | 5                   | 30                                  | 5                   | 2                   | 8.0                |
| ZMCRD11UMB1  | 10.40                               | 10.92 |                     |                                     |                     |                     |                    |
| ZMCRD11UMB2  | 10.72                               | 11.26 |                     |                                     |                     |                     |                    |
| ZMCRD11UMB3  | 11.06                               | 11.60 |                     |                                     |                     |                     |                    |
| ZMCRD12UMB   | 11.38                               | 12.64 | 5                   | 30                                  | 5                   | 2                   | 9.0                |
| ZMCRD12UMB1  | 11.38                               | 11.94 |                     |                                     |                     |                     |                    |
| ZMCRD12UMB2  | 11.69                               | 12.28 |                     |                                     |                     |                     |                    |
| ZMCRD12UMB3  | 12.04                               | 12.64 |                     |                                     |                     |                     |                    |
| ZMCRD13UMB   | 12.43                               | 14.00 | 5                   | 35                                  | 5                   | 2                   | 10                 |
| ZMCRD13UMB1  | 12.43                               | 13.07 |                     |                                     |                     |                     |                    |
| ZMCRD13UMB2  | 12.87                               | 13.53 |                     |                                     |                     |                     |                    |
| ZMCRD13UMB3  | 13.33                               | 14.00 |                     |                                     |                     |                     |                    |
| ZMCRD15UMB   | 13.80                               | 15.56 | 5                   | 40                                  | 5                   | 2                   | 11                 |
| ZMCRD15UMB1  | 13.80                               | 14.50 |                     |                                     |                     |                     |                    |
| ZMCRD15UMB2  | 14.30                               | 15.02 |                     |                                     |                     |                     |                    |
| ZMCRD15UMB3  | 14.81                               | 15.56 |                     |                                     |                     |                     |                    |
| ZMCRD16UMB   | 15.31                               | 17.14 | 5                   | 40                                  | 5                   | 2                   | 12                 |
| ZMCRD16UMB1  | 15.31                               | 16.07 |                     |                                     |                     |                     |                    |
| ZMCRD16UMB2  | 15.78                               | 16.58 |                     |                                     |                     |                     |                    |
| ZMCRD16UMB3  | 16.30                               | 17.14 |                     |                                     |                     |                     |                    |
| ZMCRD18UMB   | 16.89                               | 19.08 | 5                   | 45                                  | 5                   | 2                   | 13                 |
| ZMCRD18UMB1  | 16.89                               | 17.75 |                     |                                     |                     |                     |                    |
| ZMCRD18UMB2  | 17.51                               | 18.40 |                     |                                     |                     |                     |                    |
| ZMCRD18UMB3  | 18.16                               | 19.08 |                     |                                     |                     |                     |                    |
| ZMCRD20UMB   | 18.80                               | 21.14 | 5                   | 50                                  | 5                   | 2                   | 15                 |
| ZMCRD20UMB1  | 18.80                               | 19.76 |                     |                                     |                     |                     |                    |
| ZMCRD20UMB2  | 19.46                               | 20.45 |                     |                                     |                     |                     |                    |
| ZMCRD20UMB3  | 20.15                               | 21.14 |                     |                                     |                     |                     |                    |
| ZMCRD22UMB   | 20.81                               | 23.25 | 5                   | 55                                  | 5                   | 2                   | 17                 |
| ZMCRD22UMB1  | 20.81                               | 21.84 |                     |                                     |                     |                     |                    |
| ZMCRD22UMB2  | 21.46                               | 22.55 |                     |                                     |                     |                     |                    |
| ZMCRD22UMB3  | 22.15                               | 23.25 |                     |                                     |                     |                     |                    |
| ZMCRD24UMB   | 22.86                               | 25.66 | 5                   | 60                                  | 5                   | 2                   | 19                 |
| ZMCRD24UMB1  | 22.86                               | 24.03 |                     |                                     |                     |                     |                    |
| ZMCRD24UMB2  | 23.65                               | 24.85 |                     |                                     |                     |                     |                    |
| ZMCRD24UMB3  | 24.45                               | 25.66 |                     |                                     |                     |                     |                    |
| ZMCRD27UMB   | 25.10                               | 28.90 | 2                   | 70                                  | 2                   | 2                   | 21                 |
| ZMCRD30UMB   | 28.00                               | 32.00 | 2                   | 80                                  | 2                   | 2                   | 23                 |
| ZMCRD33UMB   | 31.00                               | 35.00 | 2                   | 80                                  | 2                   | 2                   | 25                 |
| ZMCRD36UMB   | 34.00                               | 38.00 | 2                   | 90                                  | 2                   | 2                   | 27                 |
| ZMCRD39UMB   | 37.00                               | 41.00 | 2                   | 100                                 | 2                   | 2                   | 30                 |

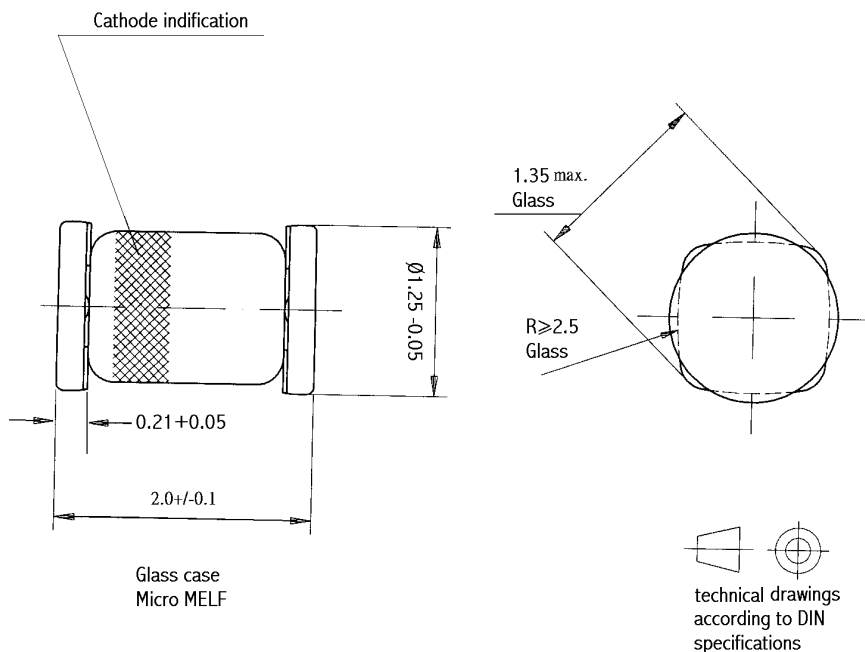
Note 1. V<sub>Z</sub> is tested with pulse (20ms).

2. Z<sub>Z</sub> is measured at I<sub>Z</sub> by given a very small A.C. Current Signal.

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Dimensions in mm

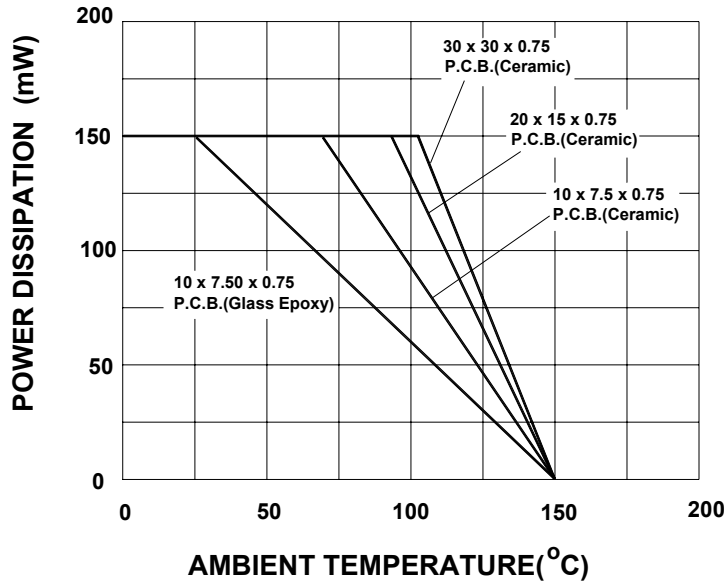




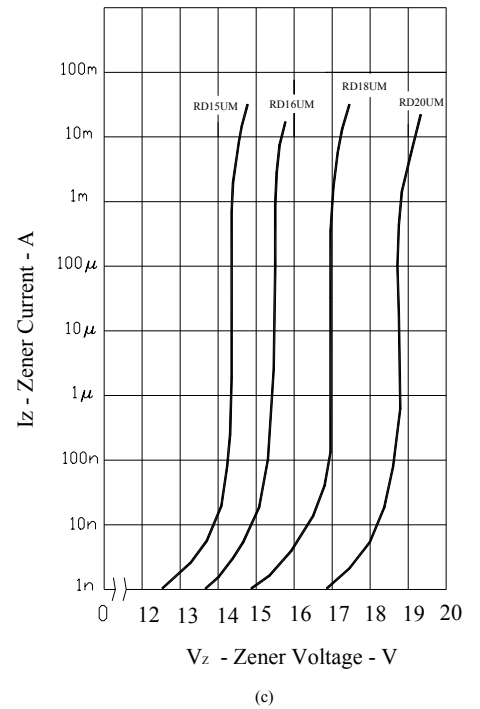
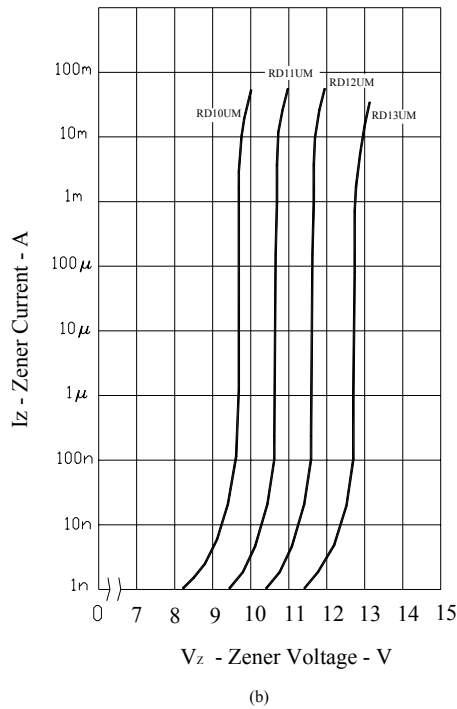
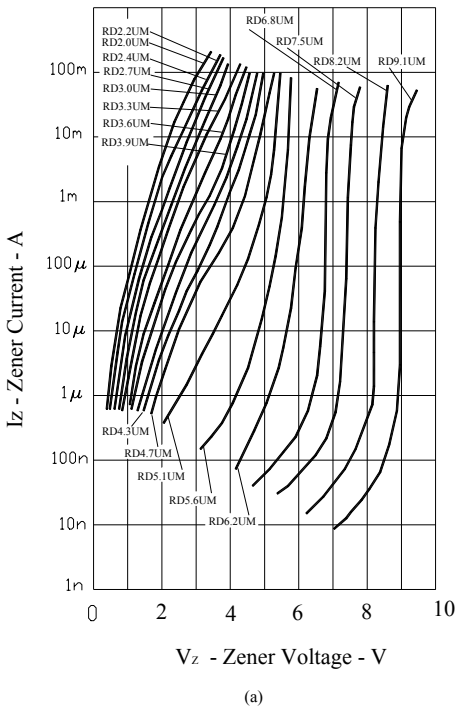
ZENER DIODES

ZMC RD2.0UM~RD39UM

P - Ta Rating

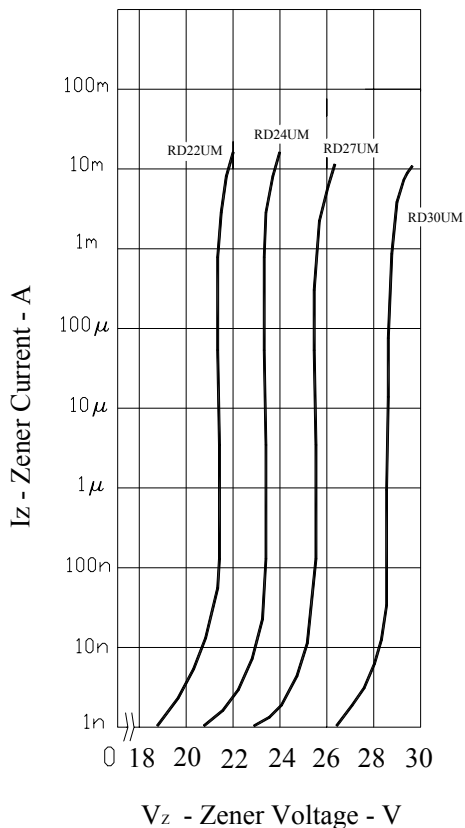


Iz - Vz CHARACTERISTICS

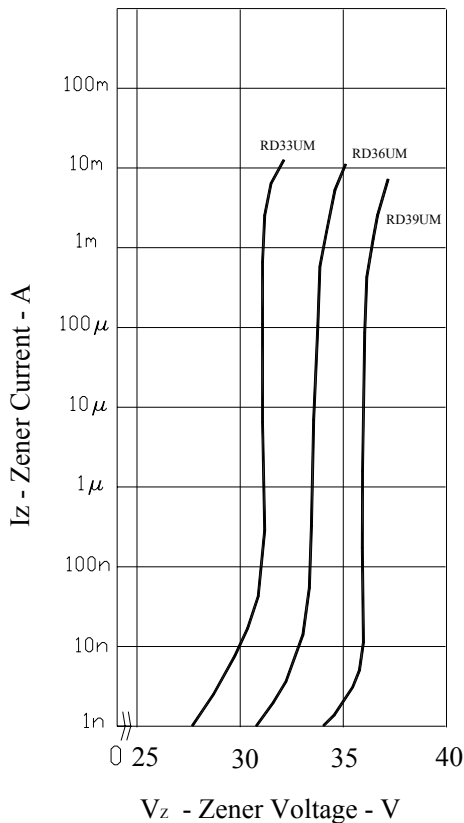


ZENER DIODES

ZMC RD2.0UM~RD39UM

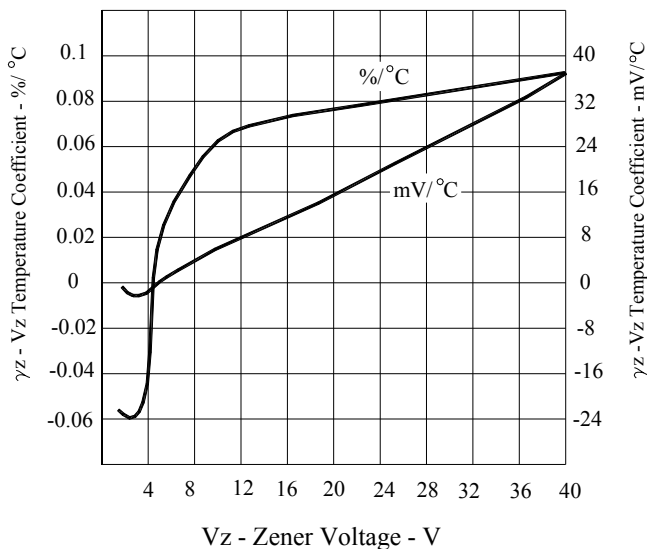


(d)

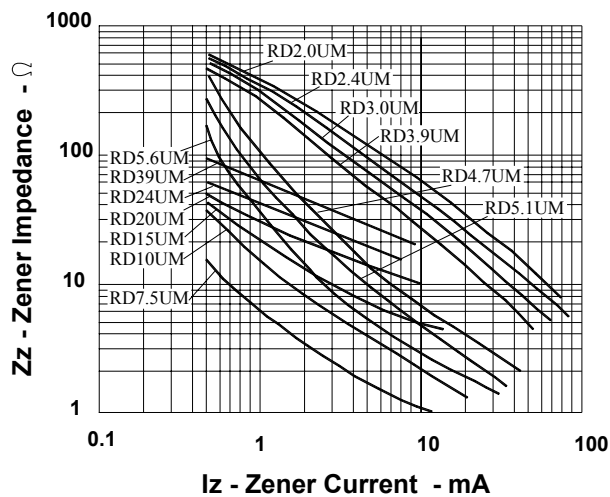


(e)

$\gamma_z - V_z$  CHARACTERISTICS



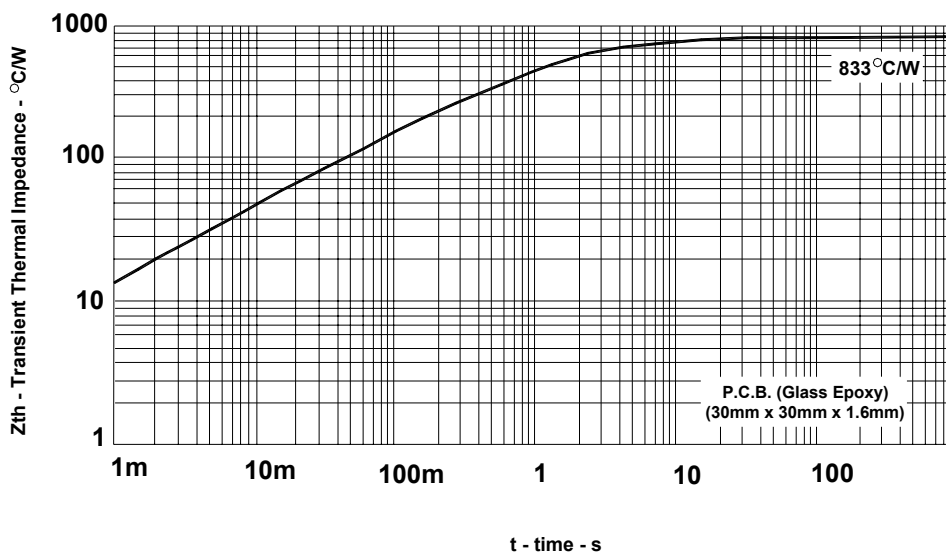
$Z_z - I_z$  Characteristics



ZENER DIODES

ZMC RD2.0UM~RD39UM

TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



SURGE REVERSE POWER RATINGS

