

SOD-323 Plastic-Encapsulate Zener Diode

Features

- Low Zener Impedance
- 200mW; Power Dissipation of 200mW
- High Stability and High Reliability



SOD-323

Mechanical Data

- SOD-323 Small Outline Plastic Package
- Polarity: Color band denotes cathode end
- Mounting Position: Any

Maximum Ratings & Electrical Characteristics (T_A=25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---------------------------------------|----------------|----------|------|
| Power dissipation | P _D | 200 | mW |
| Forward voltage @I _F =10mA | V _F | 0.9 | V |
| Storage temperature range | T _S | -65-+150 | °C |

¹ Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm²

² Short duration test pulse used to minimize self-heating effect

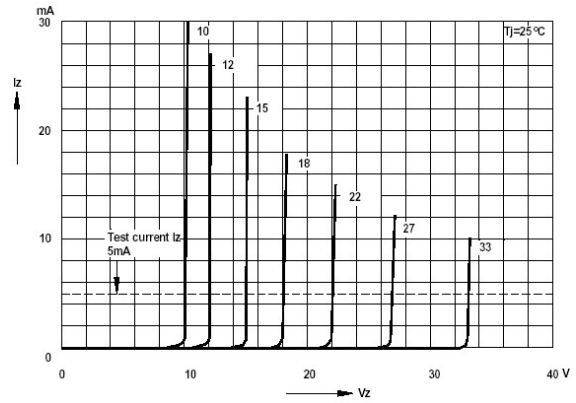
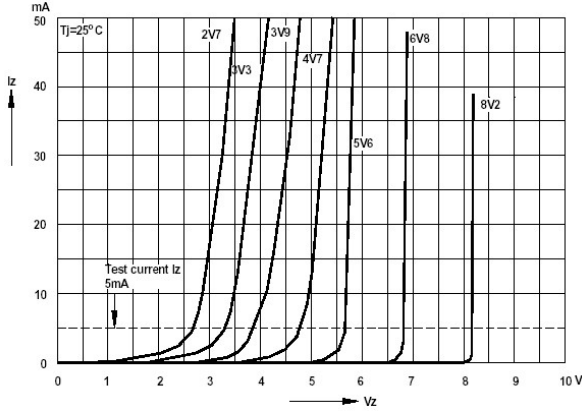
³ f=1KHz

| Electrical Characteristics (TA=25°C unless otherwise noted) | | | | | | | | | | | | | |
|---|---------|---------------------|--------|--------|-----|-------------------------|----------|-----|-------------------------|------|--|------|----------------------|
| Device | Marking | Zener Voltage Range | | | | Maximum Zener Impedance | | | Maximum Reverse Current | | Typical Temperature coefficient @ IZTC=mV/°C | | C @VR=0 f=1MHz pF |
| | | Vz@Izt | | | Izt | Zzt @Izt | Zzk @Izk | Izk | IR | VR | Min | Max | |
| | | Nom(V) | Min(V) | Max(V) | mA | Ω | | mA | uA | V | | | |
| MM3Z 2V0 | WY | 2.0 | 1.91 | 2.09 | 5 | 100 | 600 | 1.0 | 150 | 1.0 | -3.5 | 0 | 450 |
| MM3Z 2V4 | 00 | 2.4 | 2.20 | 2.60 | 5 | 100 | 1000 | 0.5 | 50 | 1.0 | -3.5 | 0 | 450 |
| MM3Z 2V7 | 01 | 2.7 | 2.50 | 2.90 | 5 | 100 | 1000 | 0.5 | 20 | 1.0 | -3.5 | 0 | 450 |
| MM3Z 3V0 | 02 | 3.0 | 2.80 | 3.20 | 5 | 100 | 1000 | 0.5 | 10 | 1.0 | -3.5 | 0 | 450 |
| MM3Z 3V3 | 05 | 3.3 | 3.10 | 3.50 | 5 | 95 | 1000 | 0.5 | 5 | 1.0 | -3.5 | 0 | 450 |
| MM3Z 3V6 | 06 | 3.6 | 3.40 | 3.80 | 5 | 90 | 1000 | 0.5 | 5 | 1.0 | -3.5 | 0 | 450 |
| MM3Z 3V9 | 07 | 3.9 | 3.70 | 4.10 | 5 | 90 | 1000 | 0.5 | 3 | 1.0 | -3.5 | -2.5 | 450 |
| MM3Z 4V3 | 08 | 4.3 | 4.00 | 4.60 | 5 | 90 | 1000 | 0.5 | 3 | 1.0 | -3.5 | 0 | 450 |
| MM3Z 4V7 | 09 | 4.7 | 4.40 | 5.00 | 5 | 80 | 800 | 0.5 | 3 | 2.0 | -3.5 | 0.2 | 260 |
| MM3Z 5V1 | 0A | 5.1 | 4.80 | 5.40 | 5 | 60 | 800 | 0.5 | 2 | 2.0 | -2.7 | 1.2 | 225 |
| MM3Z 5V6 | 0C | 5.6 | 5.20 | 6.00 | 5 | 40 | 700 | 0.5 | 1 | 2.0 | -2.0 | 2.5 | 200 |
| MM3Z 6V2 | 0E | 6.2 | 5.80 | 6.60 | 5 | 10 | 100 | 0.5 | 3 | 4.0 | 0.4 | 3.7 | 185 |
| MM3Z 6V8 | 0F | 6.8 | 6.40 | 7.20 | 5 | 15 | 160 | 0.5 | 2 | 4.0 | 1.2 | 4.5 | 155 |
| MM3Z 7V5 | 0G | 7.5 | 7.00 | 7.90 | 5 | 15 | 160 | 0.5 | 1 | 5.0 | 2.5 | 5.3 | 140 |
| MM3Z 8V2 | 0H | 8.2 | 7.70 | 8.70 | 5 | 15 | 160 | 0.5 | 0.7 | 5.0 | 3.2 | 6.2 | 135 |
| MM3Z 9V1 | 0K | 9.1 | 8.50 | 9.60 | 5 | 15 | 160 | 0.5 | 0.2 | 7.0 | 3.8 | 7.0 | 130 |
| MM3Z 10 | 0L | 10.0 | 9.40 | 10.60 | 5 | 20 | 160 | 0.5 | 0.1 | 8.0 | 4.5 | 8.0 | 130 |
| MM3Z 11 | 0M | 11.0 | 10.40 | 11.60 | 5 | 20 | 160 | 0.5 | 0.1 | 8.0 | 5.4 | 9.0 | 130 |
| MM3Z 12 | 0N | 12.0 | 11.40 | 12.70 | 5 | 25 | 80 | 0.5 | 0.1 | 8.0 | 6.0 | 10.0 | 130 |
| MM3Z 13 | 0P | 13.0 | 12.40 | 14.10 | 5 | 30 | 80 | 0.5 | 0.1 | 8.0 | 7.0 | 11.0 | 120 |
| MM3Z 15 | 0T | 15.0 | 13.80 | 15.60 | 5 | 30 | 400 | 0.5 | 0.05 | 10.5 | 9.2 | 13.0 | 110 |
| MM3Z 16 | 0U | 16.0 | 15.30 | 17.10 | 5 | 40 | 400 | 0.5 | 0.05 | 11.2 | 10.4 | 14.0 | 105 |
| MM3Z 18 | 0W | 18.0 | 16.80 | 19.10 | 5 | 45 | 400 | 0.5 | 0.05 | 12.6 | 12.4 | 16.0 | 100 |
| MM3Z 20 | 0Z | 20.0 | 18.80 | 21.20 | 5 | 55 | 500 | 0.5 | 0.05 | 14.0 | 14.4 | 18.0 | 85 |
| MM3Z 22 | 10 | 22.0 | 20.80 | 23.30 | 5 | 55 | 500 | 0.5 | 0.05 | 15.4 | 16.4 | 20.0 | 85 |
| MM3Z 24 | 11 | 24.0 | 22.80 | 25.60 | 5 | 70 | 120 | 0.5 | 0.05 | 16.8 | 18.4 | 22.0 | 80 |
| MM3Z 27 | 12 | 27.0 | 25.10 | 28.90 | 2 | 80 | 300 | 0.5 | 0.05 | 18.9 | 21.4 | 25.3 | 70 |
| MM3Z 30 | 14 | 30.0 | 28.00 | 32.00 | 2 | 80 | 300 | 0.5 | 0.05 | 21.0 | 24.4 | 29.4 | 70 |
| MM3Z 33 | 18 | 33.0 | 31.00 | 35.00 | 2 | 80 | 300 | 0.5 | 0.05 | 23.1 | 27.4 | 33.4 | 70 |
| MM3Z 36 | 19 | 36.0 | 34.00 | 38.00 | 2 | 90 | 500 | 0.5 | 0.05 | 25.2 | 30.4 | 37.4 | 70 |
| MM3Z 39 | 20 | 39.0 | 37.00 | 41.00 | 2 | 130 | 500 | 0.5 | 0.05 | 27.3 | 33.4 | 41.2 | 45 |
| MM3Z 43 | 21 | 43.0 | 40.00 | 46.00 | 2 | 150 | 500 | 0.5 | 0.05 | 30.1 | 37.6 | 46.6 | 40 |
| MM3Z 47 | 1A | 47.0 | 44.00 | 50.00 | 2 | 170 | 500 | 0.5 | 0.05 | 32.9 | 42.0 | 51.8 | 40 |
| MM3Z 51 | 1C | 51.0 | 48.00 | 54.00 | 2 | 180 | 500 | 0.5 | 0.05 | 35.7 | 46.6 | 57.2 | 40 |
| MM3Z 56 | 1D | 56.0 | 52.00 | 60.00 | 2 | 200 | 500 | 0.5 | 0.05 | 39.2 | 52.2 | 63.8 | 40 |
| MM3Z 62 | 1E | 62.0 | 58.00 | 66.00 | 2 | 215 | 500 | 0.5 | 0.05 | 43.3 | 58.8 | 71.6 | 35 |
| MM3Z 68 | 1F | 68.0 | 64.00 | 72.00 | 2 | 240 | 500 | 0.5 | 0.05 | 47.6 | 65.6 | 79.8 | 35 |
| MM3Z 75 | 1G | 75.0 | 70.00 | 79.00 | 2 | 255 | 500 | 0.5 | 0.05 | 52.5 | 73.4 | 88.6 | 35 |

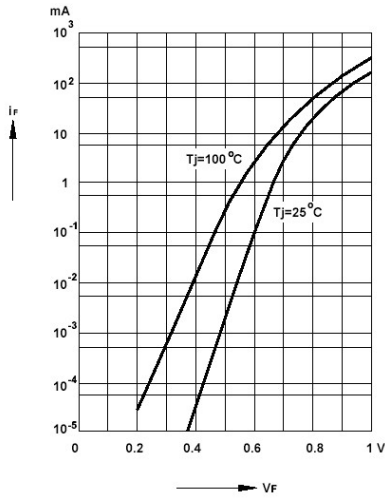
Ratings and Characteristics Curves

($T_A = 25^\circ\text{C}$ unless otherwise noted)

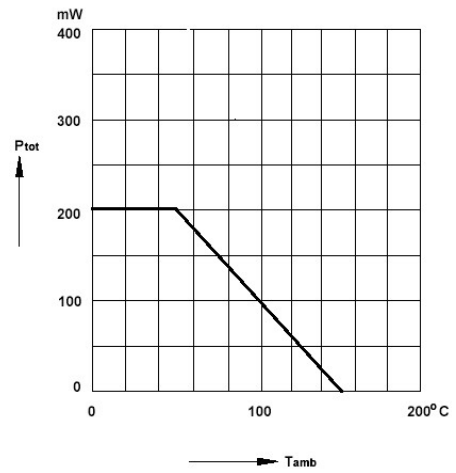
Breakdown characteristics at $T_J = \text{constant}$ (pulsed)



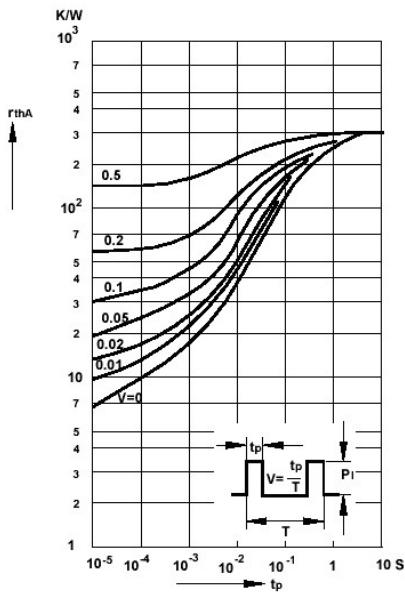
Forward characteristics



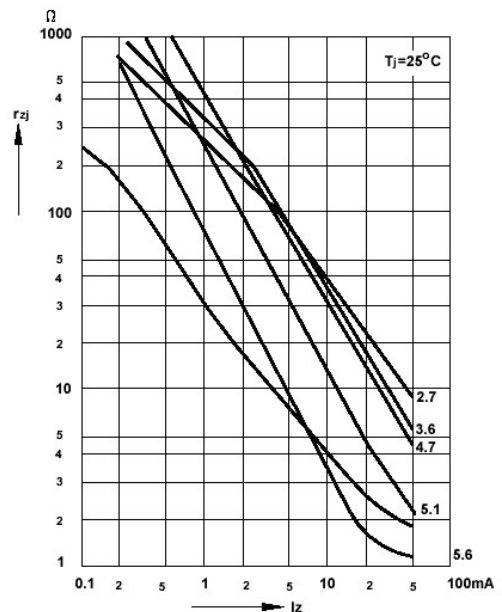
Admissible power dissipation versus ambient temperature



Pulse thermal resistance versus pulse duration

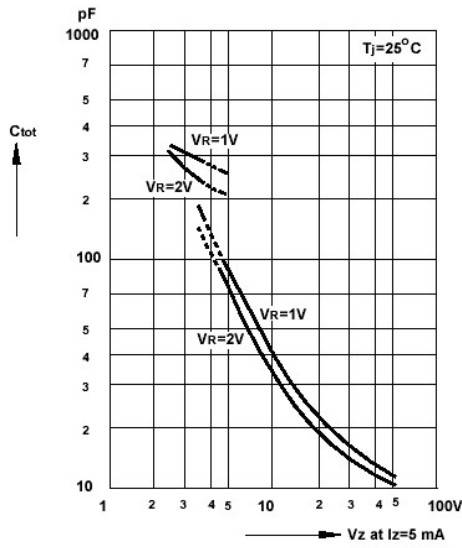


Dynamic resistance versus Zener current

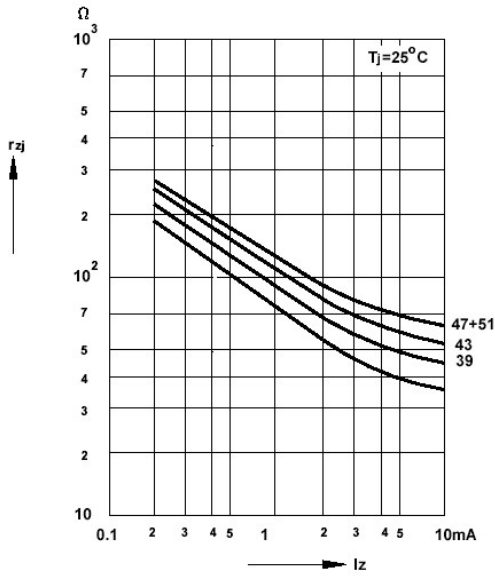


Ratings and Characteristics Curves

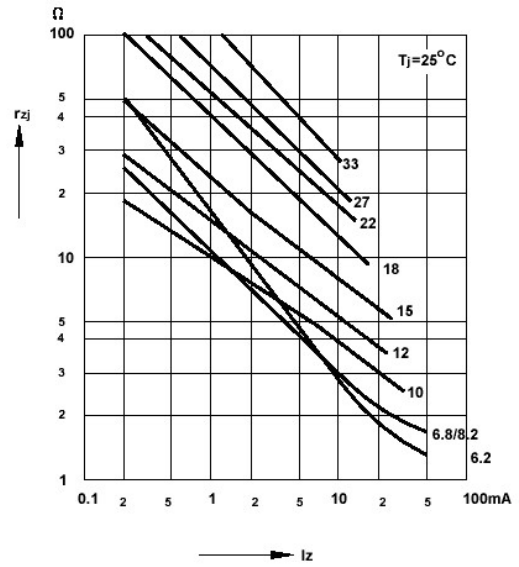
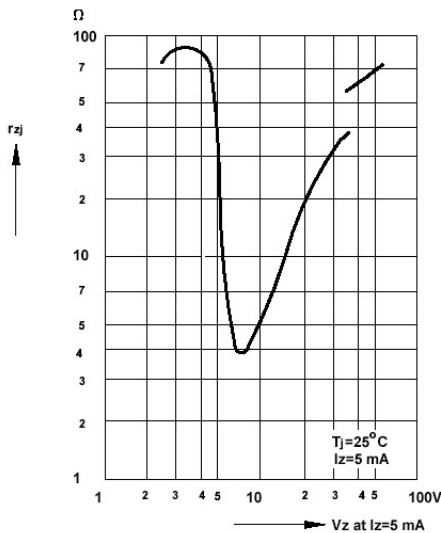
($T_A = 25^\circ\text{C}$ unless otherwise noted)



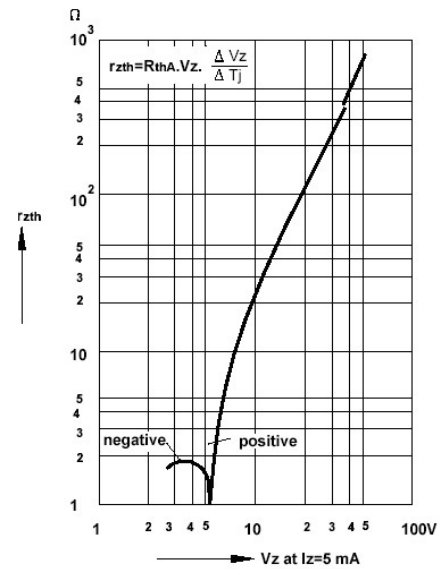
Dynamic resistance versus Zener current



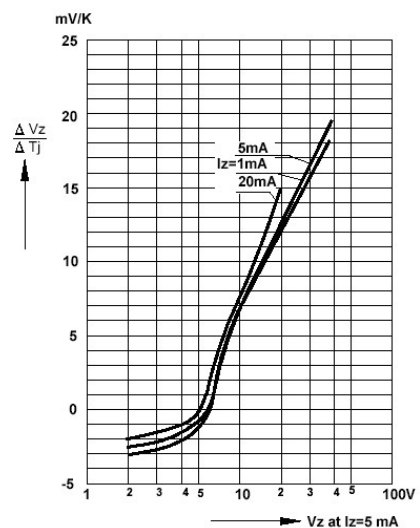
Dynamic resistance versus Zener voltage



Thermal differential resistance versus Zener voltage

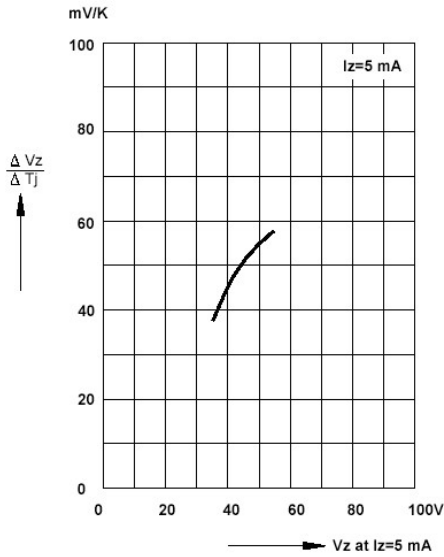


Temperature dependence of Zener voltage versus Zener voltage

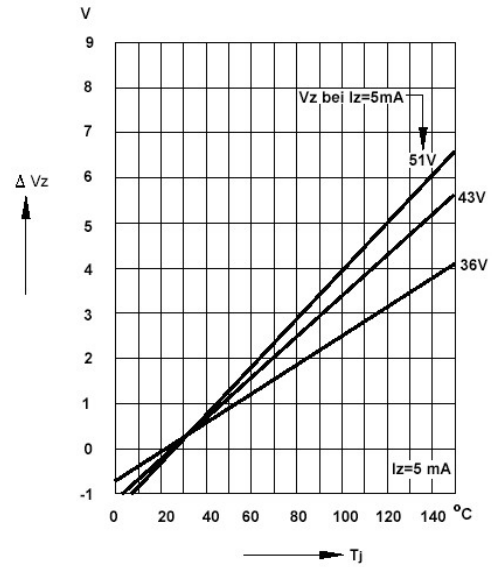


Ratings and Characteristics Curves

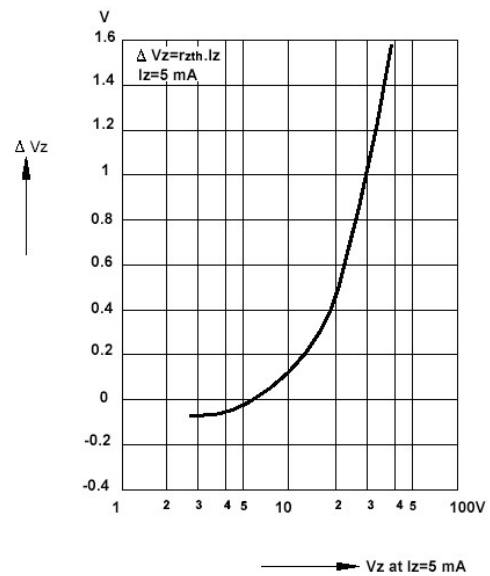
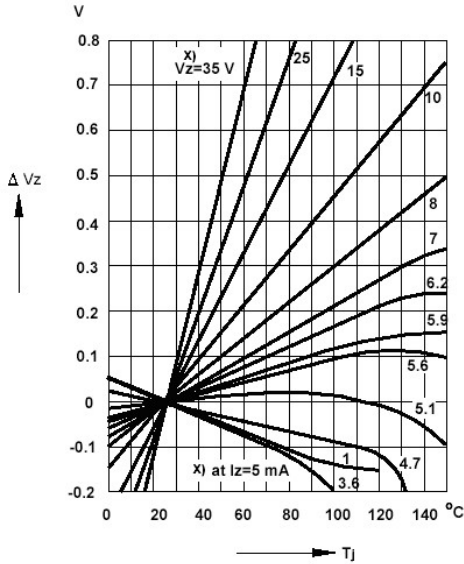
($T_A = 25^\circ\text{C}$ unless otherwise noted)



Change of Zener voltage versus junction temperature

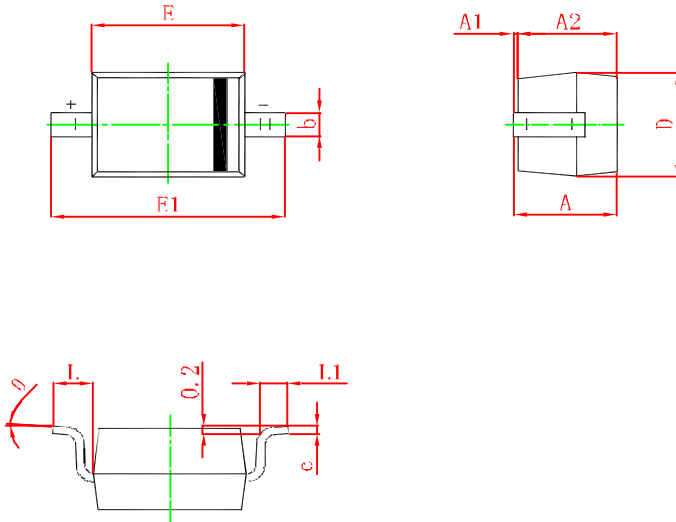


Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener voltage



Package Outline Dimensions

millimeters



| Symbol | Min | Max |
|----------|----------|-------|
| A | | 1.000 |
| A1 | 0.000 | 0.100 |
| A2 | 0.800 | 0.900 |
| b | 0.250 | 0.350 |
| c | 0.080 | 0.150 |
| D | 1.200 | 1.400 |
| E | 1.600 | 1.800 |
| E1 | 2.500 | 2.700 |
| L | 0.475REF | |
| L1 | 0.250 | 0.400 |
| θ | 0° | 8° |

Revision History

| Document Version | Date of release | Description of changes |
|------------------|-----------------|------------------------|
| Rev.A | 2017.04.22 | First issue |
| | | |
| | | |

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