

SURFACE MOUNT ZENER DIODE

VOLTAGE RANGE 2.4 to 91 Volts POWER RATING 500 mWatts

FEATURES

- * Planar Die Construction
- * 500mW Power Dissipation
- * General Purpose, Medium Current
- * Ideally Suited for Automated Assembly Processes
- * ESD Rating of Class 3(> 16kV) per Human Body Model
- * MSL: Level 1
- * P/N suffix V means AEC-Q101 qualified, e.g:MMSZ5221BV
- * Halogen-free

MECHANICAL DATA

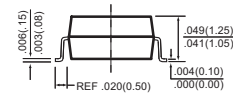
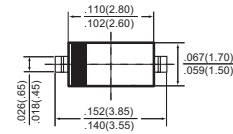
- * Case: Molded plastic
- * Epoxy: UL 94V-O rate flame retardant
- * Lead: MIL-STD-202E method 208C guaranteed
- * Mounting position: Any
- * Weight: 0.01 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.



SOD-123



Dimensions in inches and (millimeters)

MAXIMUM RATINGS (@ TA = 25°C unless otherwise noted)

| RATINGS | SYMBOL | VALUE | UNITS |
|---|------------------|-------------|-------|
| Max. Steady State Power Dissipation @TA=25°C (Note 1) | P _D | 500 | mW |
| Max. Operating Temperature Range | T _J | -65 to +150 | °C |
| Storage Temperature Range | T _{STG} | -65 to +150 | °C |

ELECTRICAL CHARACTERISTICS (@ TA = 25°C unless otherwise noted)

| CHARACTERISTICS | SYMBOL | MIN. | TYP. | MAX. | UNITS |
|---|-------------------|------|------|------|-------|
| Thermal Resistance Junction to Ambient (Note 1) | R θ _{JA} | - | - | 350 | °C/W |
| Max. Instantaneous Forward Voltage at I _F = 10mA | V _F | - | - | 0.9 | Volts |

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

2020-03/08
REV: G

ELECTRICAL CHARACTERISTICS (@TA=25°C unless otherwise specified)

| TYPE | MARKING | Zener voltage Range (Note 1) Vz (V) @ IZT | | | Test current | Maximum Zener impedance | | | Maximum Reverse leakage current | |
|-----------|---------|--|-------|-------|-----------------|-------------------------|----------------------|------------|------------------------------------|------------|
| | | Nom | Min | Max | | IZT (mA) | ZzT at IZT (Ω) | Zzk (Ω) | at Izk (mA) | IR (μA) |
| | | Volts | Volts | Volts | | | | | | |
| MMSZ5221B | C1 | 2.4 | 2.28 | 2.52 | 20 | 30 | 1200 | 0.25 | 100 | 1.0 |
| MMSZ5222B | C2 | 2.5 | 2.38 | 2.63 | 20 | 30 | 1250 | 0.25 | 100 | 1.0 |
| MMSZ5223B | C3 | 2.7 | 2.57 | 2.84 | 20 | 30 | 1300 | 0.25 | 75 | 1.0 |
| MMSZ5225B | C5 | 3.0 | 2.85 | 3.15 | 20 | 30 | 1600 | 0.25 | 50 | 1.0 |
| MMSZ5226B | G1 | 3.3 | 3.14 | 3.47 | 20 | 28 | 1600 | 0.25 | 25 | 1.0 |
| MMSZ5227B | G2 | 3.6 | 3.42 | 3.78 | 20 | 24 | 1700 | 0.25 | 15 | 1.0 |
| MMSZ5228B | G3 | 3.9 | 3.71 | 4.10 | 20 | 23 | 1900 | 0.25 | 10 | 1.0 |
| MMSZ5229B | G4 | 4.3 | 4.09 | 4.52 | 20 | 22 | 2000 | 0.25 | 5.0 | 1.0 |
| MMSZ5230B | G5 | 4.7 | 4.47 | 4.94 | 20 | 19 | 1900 | 0.25 | 5.0 | 2.0 |
| MMSZ5231B | E1 | 5.1 | 4.85 | 5.36 | 20 | 17 | 1600 | 0.25 | 5.0 | 2.0 |
| MMSZ5232B | E2 | 5.6 | 5.32 | 5.88 | 20 | 11 | 1600 | 0.25 | 5.0 | 3.0 |
| MMSZ5233B | E3 | 6.0 | 5.70 | 6.30 | 20 | 7 | 1600 | 0.25 | 5.0 | 3.5 |
| MMSZ5234B | E4 | 6.2 | 5.89 | 6.51 | 20 | 7 | 1000 | 0.25 | 5.0 | 4.0 |
| MMSZ5235B | E5 | 6.8 | 6.46 | 7.14 | 20 | 5 | 750 | 0.25 | 3.0 | 5.0 |
| MMSZ5236B | F1 | 7.5 | 7.13 | 7.88 | 20 | 6 | 500 | 0.25 | 3.0 | 6.0 |
| MMSZ5237B | F2 | 8.2 | 7.79 | 8.61 | 20 | 8 | 500 | 0.25 | 3.0 | 6.5 |
| MMSZ5238B | F3 | 8.7 | 8.27 | 9.14 | 20 | 8 | 600 | 0.25 | 3.0 | 6.5 |
| MMSZ5239B | F4 | 9.1 | 8.65 | 9.56 | 20 | 10 | 600 | 0.25 | 3.0 | 7.0 |
| MMSZ5240B | F5 | 10 | 9.50 | 10.50 | 20 | 17 | 600 | 0.25 | 3.0 | 8.0 |
| MMSZ5241B | H1 | 11 | 10.45 | 11.55 | 20 | 22 | 600 | 0.25 | 2.0 | 8.4 |
| MMSZ5242B | H2 | 12 | 11.40 | 12.60 | 20 | 30 | 600 | 0.25 | 1.0 | 9.1 |
| MMSZ5243B | H3 | 13 | 12.35 | 13.65 | 9.5 | 13 | 600 | 0.25 | 0.5 | 9.9 |
| MMSZ5244B | H4 | 14 | 13.3 | 14.7 | 9.0 | 15 | 600 | 0.25 | 0.1 | 10 |
| MMSZ5245B | H5 | 15 | 14.25 | 15.75 | 8.5 | 16 | 600 | 0.25 | 0.1 | 11 |
| MMSZ5246B | J1 | 16 | 15.20 | 16.80 | 7.8 | 17 | 600 | 0.25 | 0.1 | 12 |
| MMSZ5247B | J2 | 17 | 16.15 | 17.85 | 7.4 | 19 | 600 | 0.25 | 0.1 | 13 |
| MMSZ5248B | J3 | 18 | 17.10 | 18.90 | 7.0 | 21 | 600 | 0.25 | 0.1 | 14 |
| MMSZ5250B | J5 | 20 | 19.00 | 21.00 | 6.2 | 25 | 600 | 0.25 | 0.1 | 15 |
| MMSZ5251B | K1 | 22 | 20.90 | 23.10 | 5.6 | 29 | 600 | 0.25 | 0.1 | 17 |
| MMSZ5252B | K2 | 24 | 22.80 | 25.20 | 5.2 | 33 | 600 | 0.25 | 0.1 | 18 |
| MMSZ5254B | K4 | 27 | 25.65 | 28.35 | 5.0 | 41 | 600 | 0.25 | 0.1 | 21 |
| MMSZ5255B | K5 | 28 | 26.60 | 29.40 | 4.5 | 44 | 600 | 0.25 | 0.1 | 21 |
| MMSZ5256B | M1 | 30 | 28.50 | 31.50 | 4.2 | 49 | 600 | 0.25 | 0.1 | 23 |
| MMSZ5257B | M2 | 33 | 31.35 | 34.65 | 3.8 | 58 | 700 | 0.25 | 0.1 | 25 |
| MMSZ5258B | M3 | 36 | 34.20 | 37.80 | 3.4 | 70 | 700 | 0.25 | 0.1 | 27 |
| MMSZ5259B | M4 | 39 | 37.05 | 40.95 | 3.2 | 80 | 800 | 0.25 | 0.1 | 30 |
| MMSZ5260B | M5 | 43 | 40.85 | 45.15 | 3.0 | 93 | 900 | 0.25 | 0.1 | 33 |
| MMSZ5261B | N1 | 47 | 44.65 | 49.35 | 2.7 | 105 | 1000 | 0.25 | 0.1 | 36 |
| MMSZ5262B | N2 | 51 | 48.45 | 53.55 | 2.5 | 125 | 1100 | 0.25 | 0.1 | 39 |
| MMSZ5263B | N3 | 56 | 53.20 | 58.80 | 2.2 | 150 | 1300 | 0.25 | 0.1 | 43 |
| MMSZ5264B | N4 | 60 | 57.00 | 63.00 | 2.1 | 170 | 1400 | 0.25 | 0.1 | 46 |
| MMSZ5265B | N5 | 62 | 58.90 | 65.10 | 2.0 | 185 | 1400 | 0.25 | 0.1 | 47 |
| MMSZ5266B | P1 | 68 | 64.60 | 71.40 | 1.8 | 230 | 1600 | 0.25 | 0.1 | 52 |
| MMSZ5267B | P2 | 75 | 71.25 | 78.75 | 1.7 | 270 | 1700 | 0.25 | 0.1 | 56 |
| MMSZ5268B | P3 | 82 | 77.90 | 86.10 | 1.5 | 330 | 2000 | 0.25 | 0.1 | 62 |
| MMSZ5269B | P4 | 87 | 82.65 | 91.35 | 1.4 | 370 | 2200 | 0.25 | 0.1 | 68 |
| MMSZ5270B | P5 | 91 | 86.45 | 95.55 | 1.4 | 400 | 2300 | 0.25 | 0.1 | 69 |

Note 1. Tested with pulses, Tp≤1.0ms.

RATING AND CHARACTERISTICS CURVES (MMSZ5221B-MMSZ5270B)

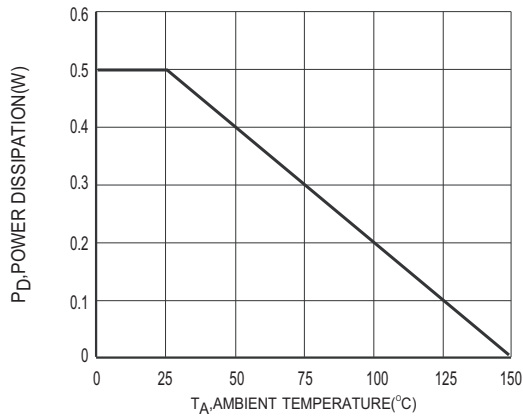


Figure 1 Power Dissipation vs Ambient Temperature

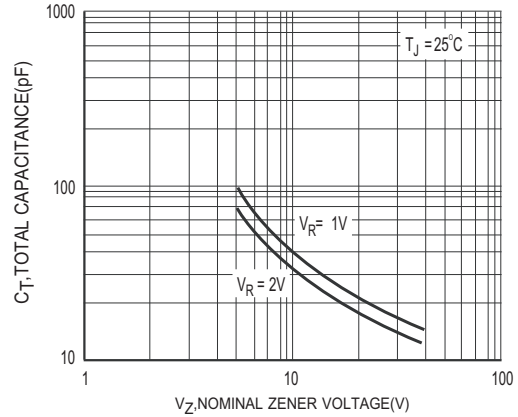


Figure 2 Typical Capacitance

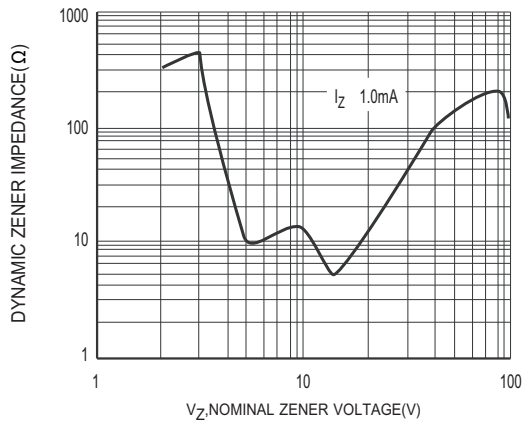


Figure 3 Zener Voltage vs Zener Impedance

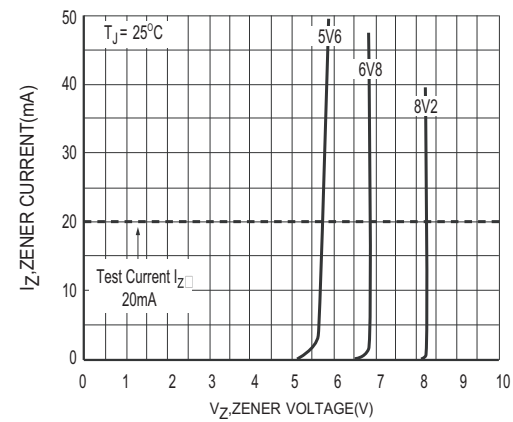


Figure 4 Zener Breakdown Characteristics

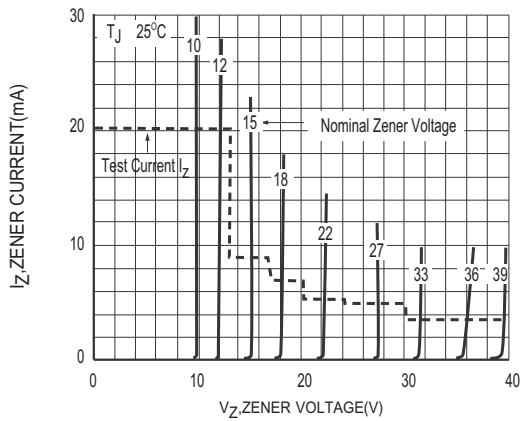


Figure 5 Zener Breakdown Characteristics

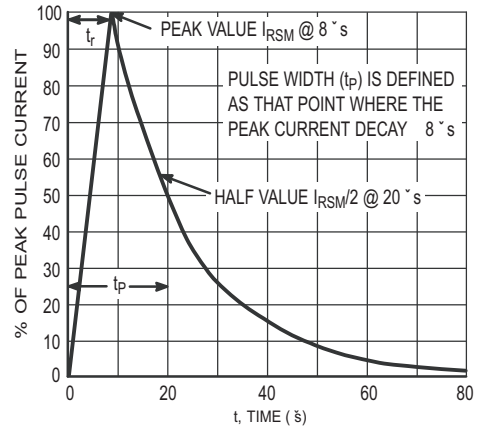


Figure 6. 8x20s Pulse Waveform

RATING AND CHARACTERISTICS CURVES (MMSZ5221B-MMSZ5270B)

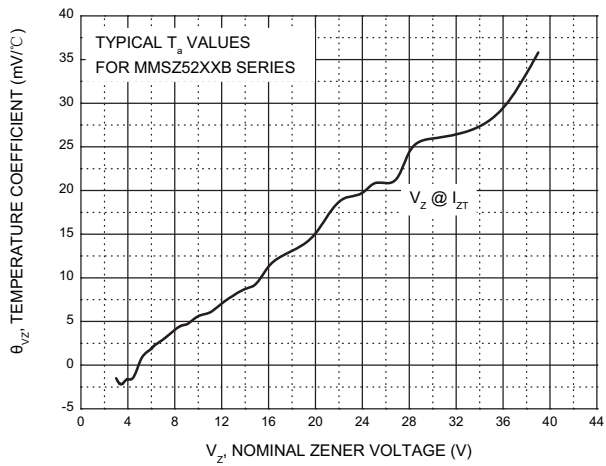


Figure 7 Typical Capacitance

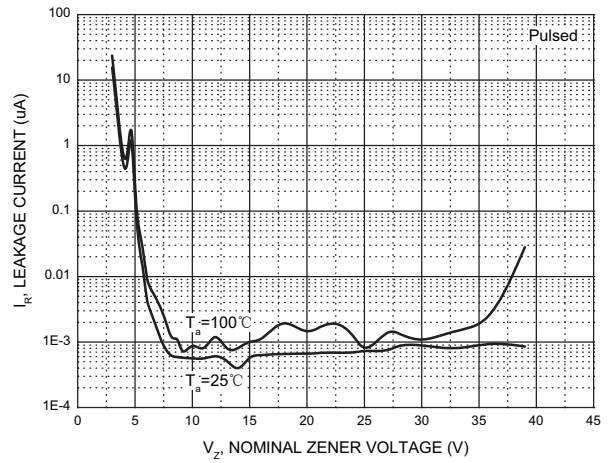


Figure 8 Effect of Zener Voltage on Zener Impedance

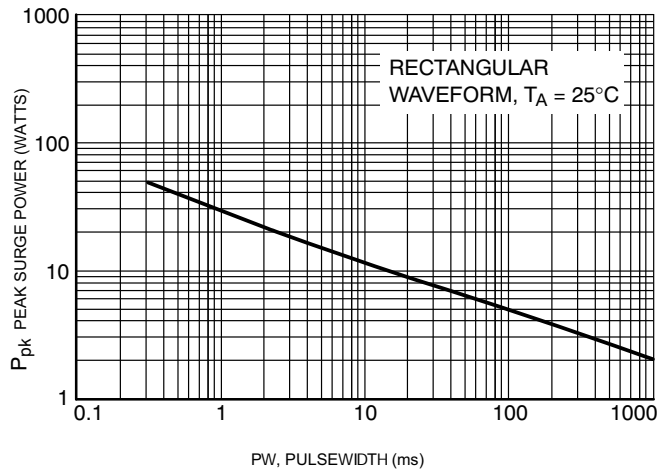


Figure 9. Maximum Nonrepetitive Surge Power

REEL TAPING SPECIFICATIONS FOR SURFACE MOUNT DEVICES-SOD-123

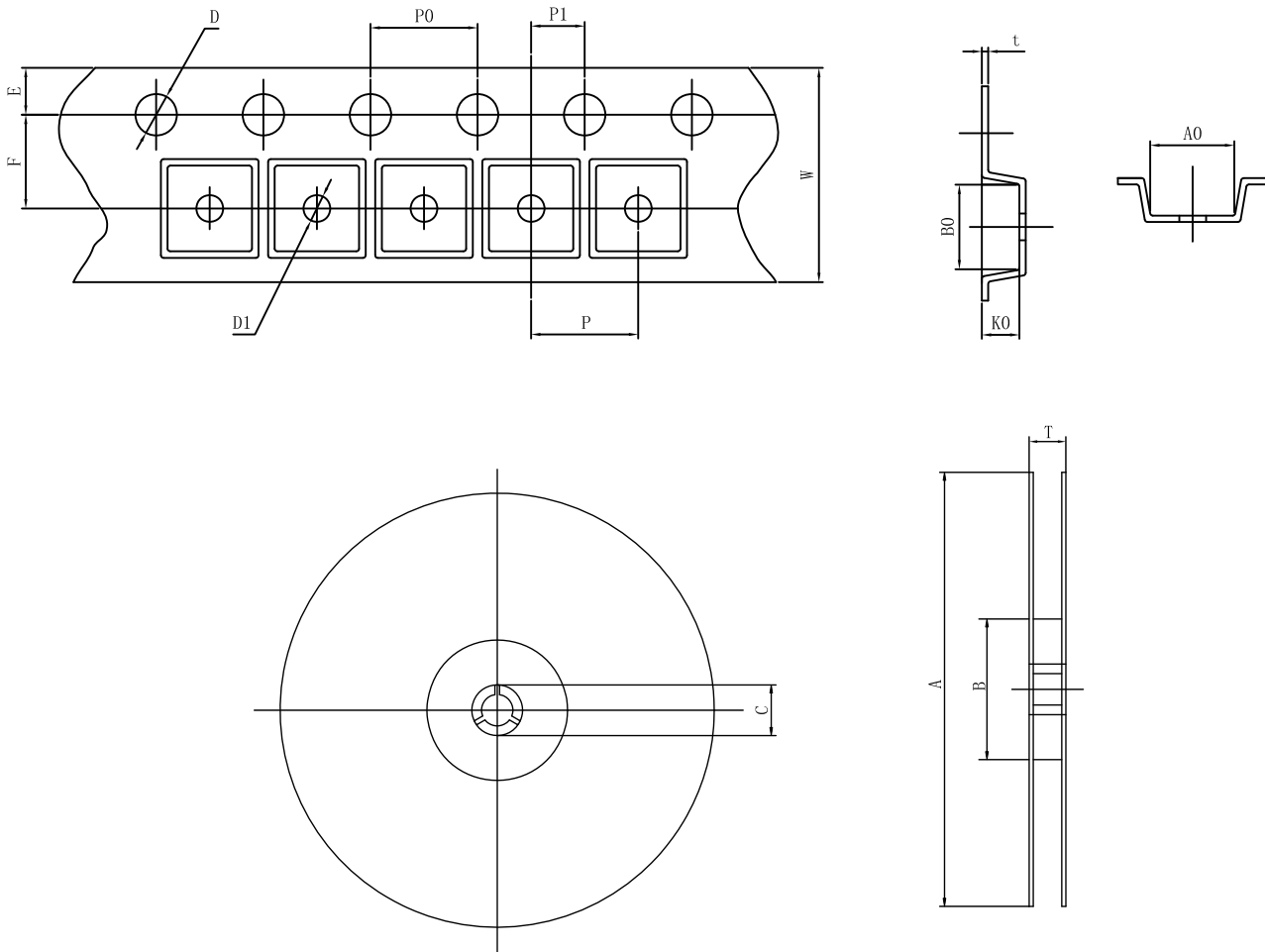


Fig.: Configuration of SOD-123 TAPING

| ITEM | SYMBOL | SPECIFICATIONS (mm) | SPECIFICATIONS (inch) |
|------------------------|--------|---------------------|-----------------------|
| Carrier width | A0 | 1.95 Max. | 0.077 Max. |
| Carrier length | B0 | 4.04 Max. | 0.159 Max. |
| Carrier depth | K0 | 1.67 Max. | 0.066 Max. |
| Sprocket hole | D | 1.55±0.05 | 0.061±0.002 |
| Reel outside diameter | A | 178±1.0 | 7.009±0.039 |
| Reel inner diameter | B | 54 Min. | 2.126 Min. |
| Feed hole diameter | C | 13.0±0.20 | 0.512±0.008 |
| Strocket hole position | E | 1.75±0.10 | 0.069±0.004 |
| Punch hole position | F | 3.5±0.05 | 0.138±0.002 |
| Punch hole pitch | P | 4.0±0.10 | 0.158±0.004 |
| Sprocket hole pitch | P0 | 4.0±0.10 | 0.158±0.004 |
| Embossment center | P1 | 2.0±0.05 | 0.079±0.002 |
| Overall tape thickness | t | 0.216 Max. | 0.009 Max. |
| Tape width | W | 8.0+0.2/-0.1 | 0.315+0.008/-0.004 |
| Reel width | T | 12.5 Max. | 0.492 Max. |
| Punch hole diameter | D1 | 1.25 Max. | 0.049 Max. |

Note : Devices are packed in accordance with EIA standard RS-481-D and specification given above. Available only for SOD-123 devices.

PACKAGING OF DIODE

REEL PACK

| PACKAGE | PACKING CODE | REEL (EA) | COMPONENT SPACE(mm) | TAPE SPACE (mm) | REEL DIA (mm) | CARTON SIZE (mm) | EA PER CARTON | GROSS WEIGHT(Kg) |
|---------|--------------|-------------|---------------------|-----------------|---------------|------------------|---------------|------------------|
| SOD-123 | -T | 3,000 | --- | --- | 178 | 390*205*310 | 120,000 | 5.29 |

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
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Как с нами связаться

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