

SURFACE MOUNT ZENER DIODE

Features

- ◆ Total power dissipation: Max. 1W.
- ◆ Wide zener reverse voltage range 2.4V to 43V.
- ◆ Small plastic package suitable for surface mounted design.
- ◆ Tolerance approximately $\pm 5\%$

Mechanical Data

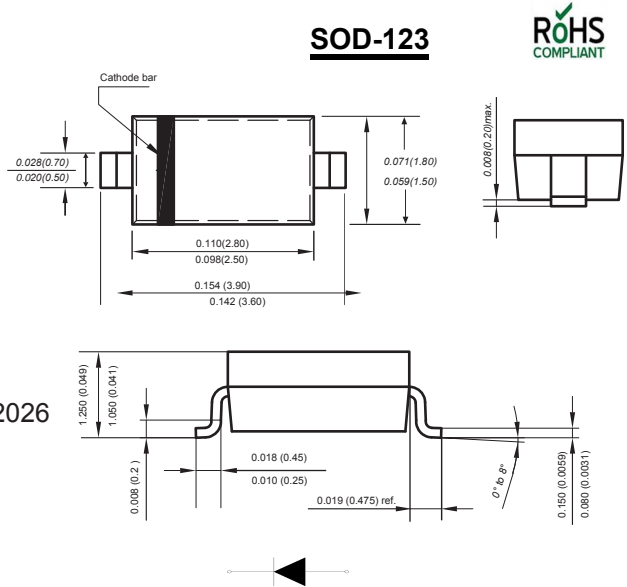
Case : JEDEC SOD-123 Molded plastic body

Terminals : Solder plated, solderable per MIL-STD-750, Method 2026

Polarity : Polarity symbol marking on body

Mounting Position : Any

Weight : 0.00056 ounce, 0.016 grams



Dimensions in inches and (millimeters)

ORDERING INFORMATION

| Type No. | Marking | Package Code |
|---------------------|-------------|--------------|
| MMSZ5221B-MMSZ5260B | See table 2 | SOD-123 |

MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|------------------|---------|------|
| Forward Voltage @ I _F =10mA | V _F | 0.9 | V |
| Power Dissipation | P _d | 500 | mW |
| Thermal resistance, junction to ambient air | R _{θjA} | 350 | °C/W |
| Junction temperature | T _j | 150 | °C |
| Storage temperature range | T _{stg} | -65-150 | °C |

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

2. Tested with pulses, T_p ≤ 1.0ms.



MMSZ5221B THRU MMSZ5260B

Zener Voltage - 2.4 to 43 Volts Peak Pulse Power - - 0.5 W

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| Type Number | Type Code | Zener Voltage Range | | | Test Current | Maximum Zener Impedance | | Maximum Reverse Leakage Current | |
|-------------|-----------|---------------------------------|--------|--------|-----------------|----------------------------------|--|---------------------------------|-----------------|
| | | V _Z @I _{ZT} | | | I _{ZT} | Z _{KT} @I _{ZT} | Z _{ZK} @I _{ZK} =0.25mA | I _R | @V _R |
| | | Nom(V) | Min(V) | Max(V) | mA | Ω | | μA | V |
| MMSZ5221B | C1 | 2.4 | 2.28 | 2.52 | 20 | 30 | 1200 | 100 | 1.0 |
| MMSZ5223B | C3 | 2.7 | 2.57 | 2.84 | 20 | 30 | 1300 | 75 | 1.0 |
| MMSZ5225B | C5 | 3.0 | 2.85 | 3.15 | 20 | 30 | 1600 | 50 | 1.0 |
| MMSZ5226B | G1 | 3.3 | 3.14 | 3.47 | 20 | 28 | 1600 | 25 | 1.0 |
| MMSZ5227B | G2 | 3.6 | 3.42 | 3.78 | 20 | 24 | 1700 | 15 | 1.0 |
| MMSZ5228B | G3 | 3.9 | 3.71 | 4.10 | 20 | 23 | 1900 | 10 | 1.0 |
| MMSZ5229B | G4 | 4.3 | 4.09 | 4.52 | 20 | 22 | 2000 | 5.0 | 1.0 |
| MMSZ5230B | G5 | 4.7 | 4.47 | 4.94 | 20 | 19 | 1900 | 5.0 | 2.0 |
| MMSZ5231B | E1 | 5.1 | 4.85 | 5.36 | 20 | 17 | 1600 | 5.0 | 2.0 |
| MMSZ5232B | E2 | 5.6 | 5.32 | 5.88 | 20 | 11 | 1600 | 5.0 | 3.0 |
| MMSZ5233B | E3 | 6.0 | 5.70 | 6.30 | 20 | 7 | 1600 | 5.0 | 3.5 |
| MMSZ5234B | E4 | 6.2 | 5.89 | 6.51 | 20 | 7 | 1000 | 5.0 | 4.0 |
| MMSZ5235B | E5 | 6.8 | 6.46 | 7.14 | 20 | 5 | 750 | 3.0 | 5.0 |
| MMSZ5236B | F1 | 7.5 | 7.13 | 7.88 | 20 | 6 | 500 | 3.0 | 6.0 |
| MMSZ5237B | F2 | 8.2 | 7.79 | 8.61 | 20 | 8 | 500 | 3.0 | 6.5 |
| MMSZ5238B | F3 | 8.7 | 8.27 | 9.14 | 20 | 8 | 600 | 3.0 | 6.5 |
| MMSZ5239B | F4 | 9.1 | 8.65 | 9.56 | 20 | 10 | 600 | 3.0 | 7.0 |
| MMSZ5240B | F5 | 10 | 9.50 | 10.50 | 20 | 17 | 600 | 3.0 | 8.0 |
| MMSZ5241B | H1 | 11 | 10.45 | 11.55 | 20 | 22 | 600 | 2.0 | 8.4 |
| MMSZ5242B | H2 | 12 | 11.40 | 12.60 | 20 | 30 | 600 | 1.0 | 9.1 |
| MMSZ5243B | H3 | 13 | 12.35 | 13.65 | 9.5 | 13 | 600 | 0.5 | 9.9 |
| MMSZ5245B | H5 | 15 | 14.25 | 15.75 | 8.5 | 16 | 600 | 0.1 | 11 |
| MMSZ5246B | J1 | 16 | 15.20 | 16.80 | 7.8 | 17 | 600 | 0.1 | 12 |
| MMSZ5248B | J3 | 18 | 17.10 | 18.90 | 7.0 | 21 | 600 | 0.1 | 14 |
| MMSZ5250B | J5 | 20 | 19.00 | 21.00 | 6.2 | 25 | 600 | 0.1 | 15 |
| MMSZ5251B | K1 | 22 | 20.90 | 23.10 | 5.6 | 29 | 600 | 0.1 | 17 |
| MMSZ5252B | K2 | 24 | 22.80 | 25.20 | 5.2 | 33 | 600 | 0.1 | 18 |
| MMSZ5254B | K4 | 27 | 25.65 | 28.35 | 5.0 | 41 | 600 | 0.1 | 21 |
| MMSZ5255B | K5 | 28 | 26.60 | 29.40 | 4.5 | 44 | 600 | 0.1 | 21 |
| MMSZ5256B | M1 | 30 | 28.50 | 31.5 | 4.2 | 49 | 600 | 0.1 | 23 |
| MMSZ5257B | M2 | 33 | 31.35 | 34.65 | 3.8 | 58 | 700 | 0.1 | 25 |
| MMSZ5258B | M3 | 36 | 34.20 | 37.80 | 3.4 | 70 | 700 | 0.1 | 27 |
| MMSZ5259B | M4 | 39 | 37.05 | 40.95 | 3.2 | 80 | 800 | 0.1 | 30 |
| MMSZ5260B | M5 | 43 | 40.85 | 45.15 | 3.0 | 93 | 900 | 0.1 | 33 |

Typical Characteristics

TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

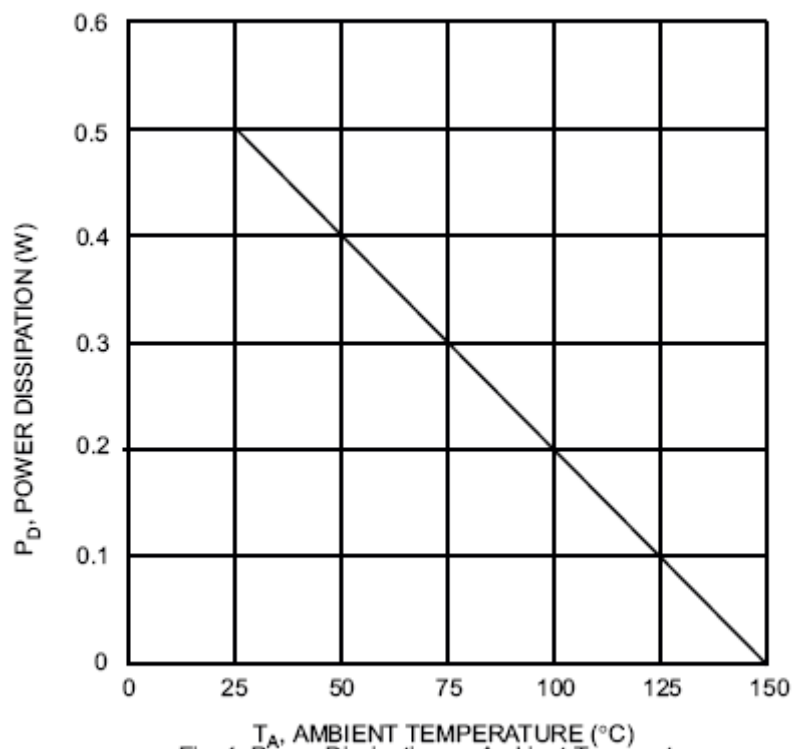
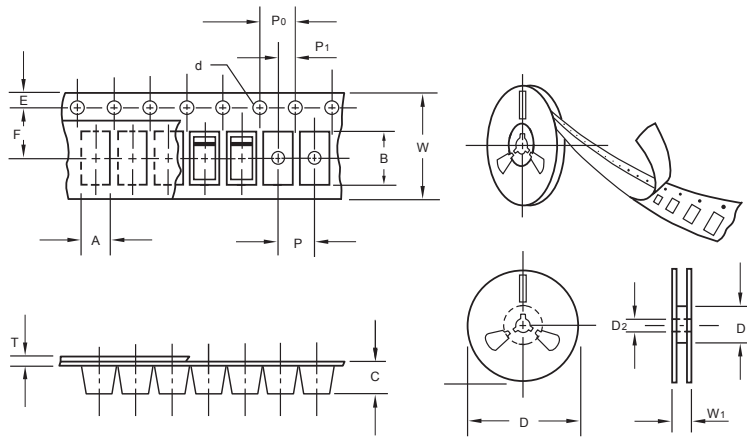


Fig. 1 Power Dissipation vs Ambient Temperature

The curve above is for reference only.

Packing information



unit:mm

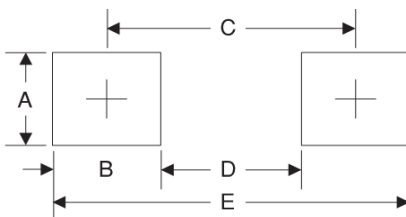
| Item | Symbol | Tolerance | SOD-123 |
|--------------------------|----------------|-----------|---------|
| Carrier width | A | 0.1 | 2.1 |
| Carrier length | B | 0.1 | 4.0 |
| Carrier depth | C | 0.1 | 1.60 |
| Sprocket hole | d | 0.05 | 1.55 |
| 7" Reel outside diameter | D | 2.0 | 178.00 |
| 7" Reel inner diameter | D ₁ | min | 50.0 |
| Feed hole diameter | D ₂ | 0.5 | 13.00 |
| Sprocket hole position | E | 0.1 | 1.75 |
| Punch hole position | F | 0.1 | 3.50 |
| Punch hole pitch | P | 0.1 | 4.00 |
| Sprocket hole pitch | P ₀ | 0.1 | 4.00 |
| Embossment center | P ₁ | 0.1 | 2.00 |
| Overall tape thickness | T | 0.1 | 0.25 |
| Tape width | W | 0.3 | 8.15 |
| Reel width | W ₁ | 1.0 | 10.5 |

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

Reel packing

| PACKAGE | REEL SIZE | REEL (pcs) | COMPONENT SPACING (m/m) | BOX (pcs) | INNER BOX (m/m) | REEL DIA, (m/m) | CARTON SIZE (m/m) | CARTON (pcs) | APPROX. GROSS WEIGHT (kg) |
|---------|-----------|------------|-------------------------|-----------|-----------------|-----------------|-------------------|--------------|---------------------------|
| SOD-123 | 7" | 3,000 | 4.0 | 45,000 | 210*208*203 | 178 | 430*430*235 | 180,000 | 9.0 |

Suggested Pad Layout



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A | 1.2 | 0.047 |
| B | 1.2 | 0.047 |
| C | 3.2 | 0.126 |
| D | 2.0 | 0.079 |
| E | 4.4 | 0.173 |