

SOD-123 SURFACE MOUNT SILICON ZENER DIODES

Features

- Low Zener Impedance
- Power Dissipation of 500mW
- High Stability and High Reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

Zener Diode
2.0 to 75 Volts
Power Dissipation
0.5 Watts

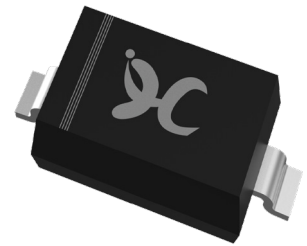
Applications

Zener diode is generally used as reference voltage sources in regulated power supplies or as protective diode in overvoltage protection circuits.

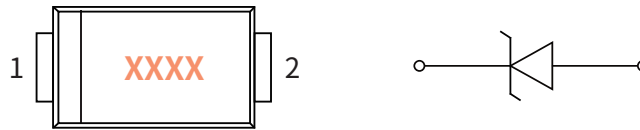
Mechanical Data

- Case: SOD-123
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Cathode line denotes the cathode end

SOD-123



Function Diagram



Maximum Ratings (Ta=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | VALUE |
|-------------------------------------|-----------------|-------|------------|
| Power Dissipation | P_D | mW | 500 |
| Forward Voltage @ $I_F=10\text{mA}$ | V_F | V | 0.9 |
| Storage Temperature | T_{stg} | °C | -55 ~ +150 |
| Junction Temperature | T_J | °C | -55 ~ +150 |
| Typical Thermal Resistance | $R_{\theta JA}$ | °C /W | 340 |

Electrical Parameter

| 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 |

MMSZ5221B THRU MMSZ5267B

SURFACE MOUNT ZENER DIODES

● Electrical Characteristics (Ta=25°C Unless otherwise noted)

| Type Number | Type Code | Nominal Zener Voltage | | | | Maximum Zener Impedance | | Maximum Leakage Current | |
|-------------|-----------|-----------------------|---------|---------|-----------------|---------------------------------------|------------------------------|-------------------------|--|
| | | V _Z | | | I _{ZT} | Z _{ZT@I_{ZT}=0.25mA} | I _{R@V_R} | | |
| | | Min.(V) | Nom.(V) | Max.(V) | (mA) | Z _{ZT} (Ω) | I _R (μA) | V _R (V) | |
| MMSZ5221B | C1 | 2.28 | 2.4 | 2.52 | 20 | 30 | 100 | 1.0 | |
| MMSZ5222B | C2 | 2.38 | 2.5 | 2.63 | 20 | 30 | 100 | 1.0 | |
| MMSZ5223B | C3 | 2.57 | 2.7 | 2.84 | 20 | 30 | 75 | 1.0 | |
| MMSZ5224B | C4 | 2.66 | 2.8 | 2.94 | 20 | 30 | 75 | 1.0 | |
| MMSZ5225B | C5 | 2.85 | 3.0 | 3.15 | 20 | 30 | 50 | 1.0 | |
| MMSZ5226B | G1 | 3.14 | 3.3 | 3.47 | 20 | 28 | 25 | 1.0 | |
| MMSZ5227B | G2 | 3.42 | 3.6 | 3.78 | 20 | 24 | 15 | 1.0 | |
| MMSZ5228B | G3 | 3.71 | 3.9 | 4.10 | 20 | 23 | 10 | 1.0 | |
| MMSZ5229B | G4 | 4.09 | 4.3 | 4.52 | 20 | 22 | 5.0 | 1.0 | |
| MMSZ5230B | G5 | 4.47 | 4.7 | 4.94 | 20 | 19 | 5.0 | 2.0 | |
| MMSZ5231B | E1 | 4.85 | 5.1 | 5.36 | 20 | 17 | 5.0 | 2.0 | |
| MMSZ5232B | E2 | 5.32 | 5.6 | 5.88 | 20 | 11 | 5.0 | 3.0 | |
| MMSZ5233B | E3 | 5.70 | 6.0 | 6.30 | 20 | 7 | 5.0 | 3.5 | |
| MMSZ5234B | E4 | 5.89 | 6.2 | 6.51 | 20 | 7 | 5.0 | 4.0 | |
| MMSZ5235B | E5 | 6.46 | 6.8 | 7.14 | 20 | 5 | 3 | 5.0 | |
| MMSZ5236B | F1 | 7.13 | 7.5 | 7.88 | 20 | 6 | 3 | 6.0 | |
| MMSZ5237B | F2 | 7.79 | 8.2 | 8.61 | 20 | 8 | 3 | 6.5 | |
| MMSZ5238B | F3 | 8.27 | 8.7 | 9.14 | 20 | 8 | 3 | 6.5 | |
| MMSZ5239B | F4 | 8.65 | 9.1 | 9.56 | 20 | 10 | 3 | 7.0 | |
| MMSZ5240B | F5 | 9.50 | 10.0 | 10.50 | 20 | 17 | 3 | 8.0 | |
| MMSZ5241B | H1 | 10.45 | 11.0 | 11.55 | 20 | 22 | 2.0 | 8.4 | |
| MMSZ5242B | H2 | 11.40 | 12.0 | 12.60 | 20 | 30 | 1.0 | 9.1 | |
| MMSZ5243B | H3 | 12.35 | 13.0 | 13.65 | 9.5 | 13 | 0.5 | 9.9 | |
| MMSZ5244B | H4 | 13.30 | 14.0 | 14.70 | 9.0 | 15 | 0.1 | 10.0 | |
| MMSZ5245B | H5 | 14.25 | 15.0 | 15.75 | 8.5 | 16 | 0.1 | 11.0 | |
| MMSZ5246B | J1 | 15.20 | 16.0 | 16.80 | 7.8 | 17 | 0.1 | 12.0 | |
| MMSZ5247B | J2 | 16.15 | 17.0 | 17.85 | 7.5 | 19 | 0.1 | 13.0 | |
| MMSZ5248B | J3 | 17.10 | 18.0 | 18.90 | 7.0 | 21 | 0.1 | 14.0 | |
| MMSZ5249B | J4 | 18.05 | 19.0 | 19.95 | 6.6 | 23 | 0.1 | 14.0 | |
| MMSZ5250B | J5 | 19.00 | 20.0 | 21.00 | 6.2 | 25 | 0.1 | 15.0 | |
| MMSZ5251B | K1 | 20.90 | 22.0 | 23.10 | 5.6 | 29 | 0.1 | 17.0 | |
| MMSZ5252B | K2 | 22.80 | 24.0 | 25.20 | 5.2 | 33 | 0.1 | 18.0 | |
| MMSZ5253B | K3 | 23.75 | 25.0 | 26.25 | 5.0 | 35 | 0.1 | 19.0 | |

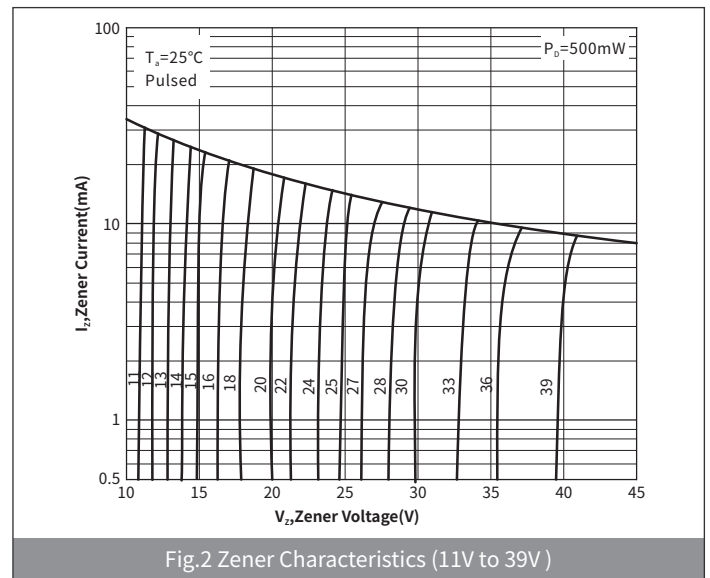
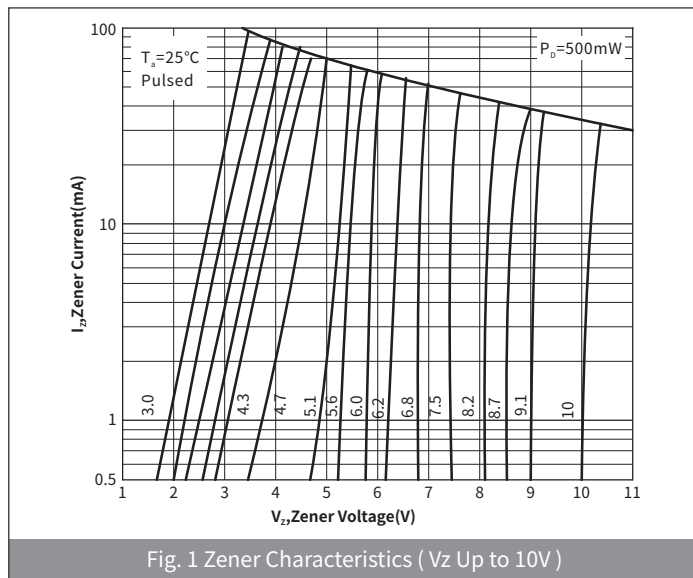
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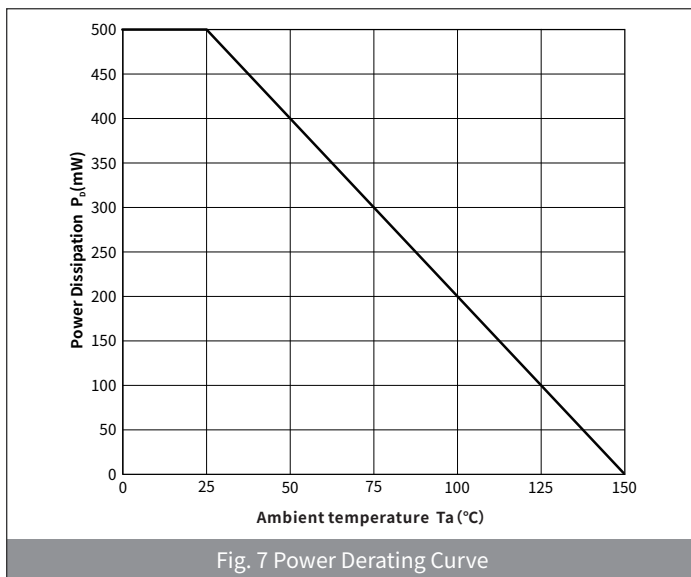
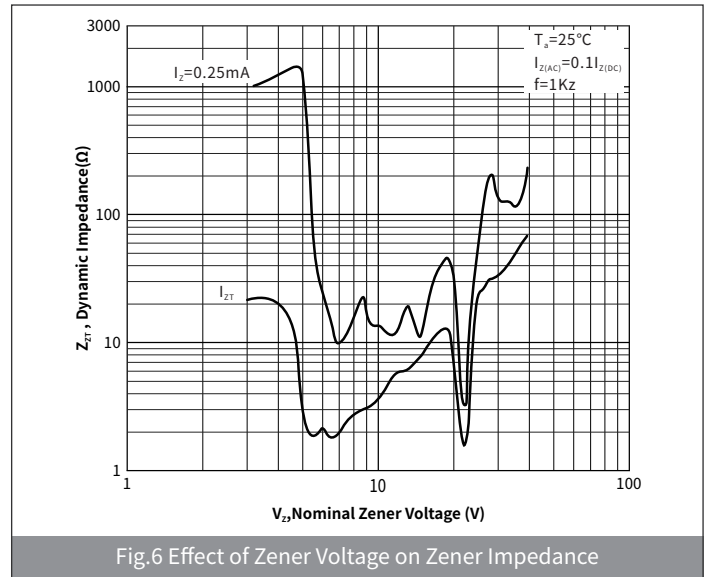
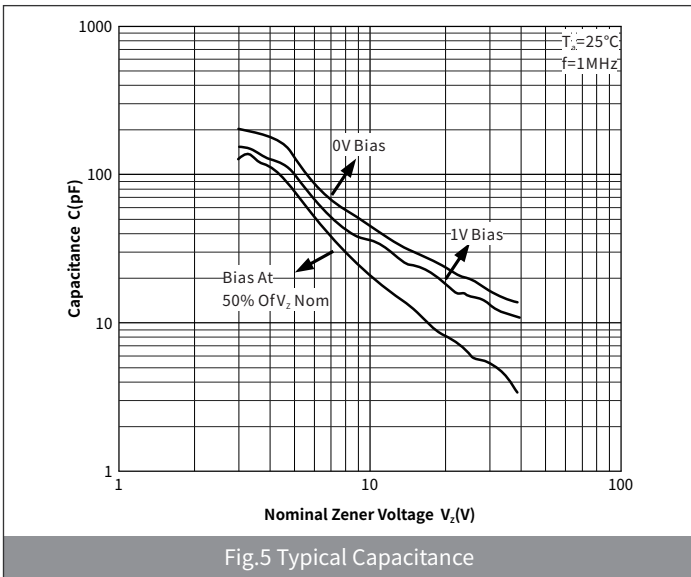
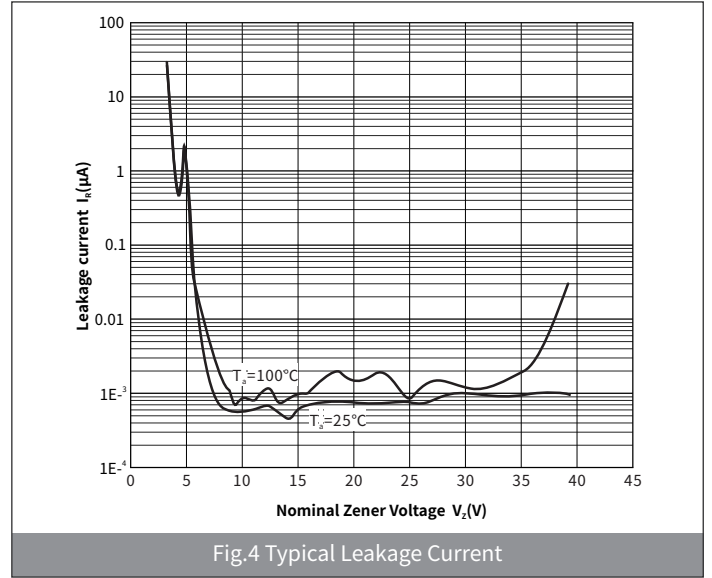
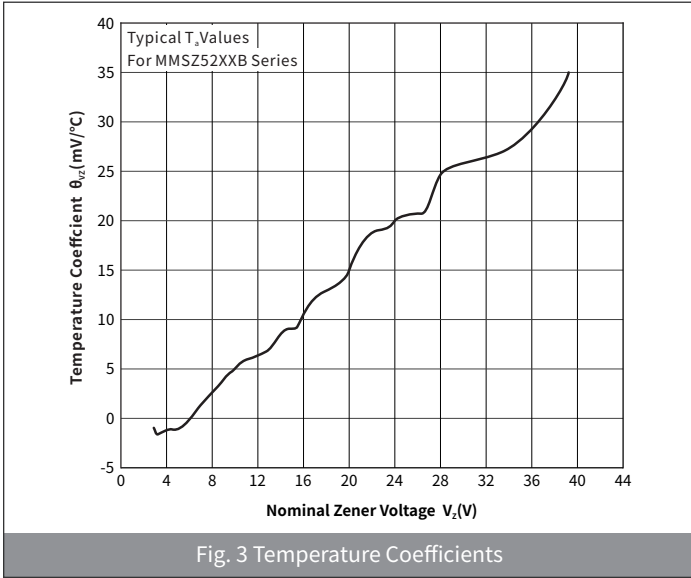
Electrical Characteristics (Ta=25°C Unless otherwise noted)

| Type Number | Type Code | Nominal Zener Voltage | | | I _{ZT} (mA) | Z _{ZT} @I _{ZT} =0.25mA Z _{ZT} (Ω) | Leakage Current | |
|-------------|-----------|-----------------------|---------|---------|-------------------------|---|---|--------------------|
| | | V _Z | | | | | I _R @V _R I _R (μA) | V _R (V) |
| | | Min.(V) | Nom.(V) | Max.(V) | | | | |
| MMSZ5254B | K4 | 25.65 | 27.0 | 28.35 | 5.0 | 600 | 0.1 | 21 |
| MMSZ5255B | K5 | 26.60 | 28.0 | 29.40 | 4.5 | 600 | 0.1 | 21 |
| MMSZ5256B | M1 | 28.50 | 30.0 | 31.50 | 4.2 | 600 | 0.1 | 23 |
| MMSZ5257B | M2 | 31.35 | 33.0 | 34.65 | 3.8 | 700 | 0.1 | 25 |
| MMSZ5258B | M3 | 34.20 | 36.0 | 37.80 | 3.4 | 700 | 0.1 | 27 |
| MMSZ5259B | M4 | 37.05 | 39.0 | 40.95 | 3.2 | 800 | 0.1 | 30 |
| MMSZ5260B | M5 | 40.85 | 43.0 | 45.15 | 3.0 | 900 | 0.1 | 33 |
| MMSZ5261B | N1 | 44.65 | 47.0 | 49.35 | 2.7 | 1000 | 0.1 | 36 |
| MMSZ5262B | N2 | 48.45 | 51.0 | 53.55 | 2.5 | 1100 | 0.1 | 39 |
| MMSZ5263B | N3 | 53.20 | 56.0 | 58.80 | 2.2 | 1300 | 0.1 | 43 |
| MMSZ5264B | N4 | 57.00 | 60.0 | 63.00 | 2.1 | 1400 | 0.1 | 46 |
| MMSZ5265B | N5 | 58.90 | 62.0 | 65.10 | 2.0 | 1400 | 0.1 | 47 |
| MMSZ5266B | P1 | 64.60 | 68.0 | 71.40 | 1.8 | 1600 | 0.1 | 52 |
| MMSZ5267B | P2 | 71.25 | 75.0 | 78.75 | 1.7 | 1700 | 0.1 | 56 |

Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



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● Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SOD-123 | R1 | 0.012 | 3000 | 45000 | 180000 | 7" |

● Package Outline Dimensions (SOD-123)

| Symbol | Dimensions | | | |
|----------|-------------|------|--------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 3.55 | 3.85 | 0.140 | 0.152 |
| B | 2.55 | 2.85 | 0.100 | 0.112 |
| C | 1.40 | 1.80 | 0.055 | 0.071 |
| D | 0.95 | 1.35 | 0.140 | 0.152 |
| E | 0.51 | 0.71 | 0.037 | 0.053 |
| F | - | 0.15 | - | 0.006 |
| G | 0.15 | 0.45 | 0.006 | 0.008 |
| H | 0.08 | 0.25 | 0.003 | 0.010 |
| θ | - | 8° | - | 8° |

● Suggested Pad Layout

| Symbol | Dimensions | | | |
|--------|-------------|------|--------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| J | 0.91 | - | 0.036 | - |
| K | - | 2.36 | - | 0.092 |
| M | 1.22 | - | 0.048 | - |