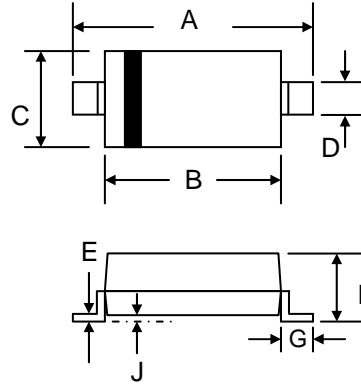


Features

- Planar Die Construction
- 200mW Power Dissipation
- 2.4V – 51V Nominal Zener Voltage
- 5% Standard Vz Tolerance
- Designed for Surface Mount Application
- Plastic Material – UL Recognition Flammability Classification 94V-0



| SOD-323 | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 2.30 | 2.75 |
| B | 1.60 | 1.80 |
| C | 1.20 | 1.40 |
| D | 0.25 | 0.40 |
| E | 0.05 | 0.15 |
| G | 0.20 | 0.40 |
| H | — | 1.10 |
| J | — | 0.10 |
| All Dimensions in mm | | |

Mechanical Data

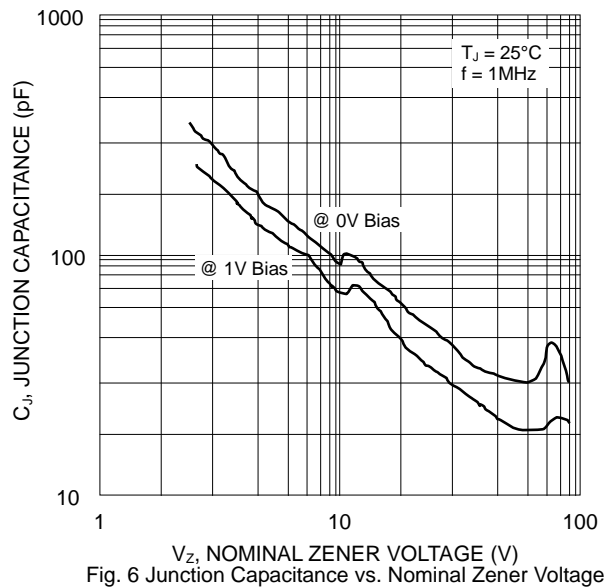
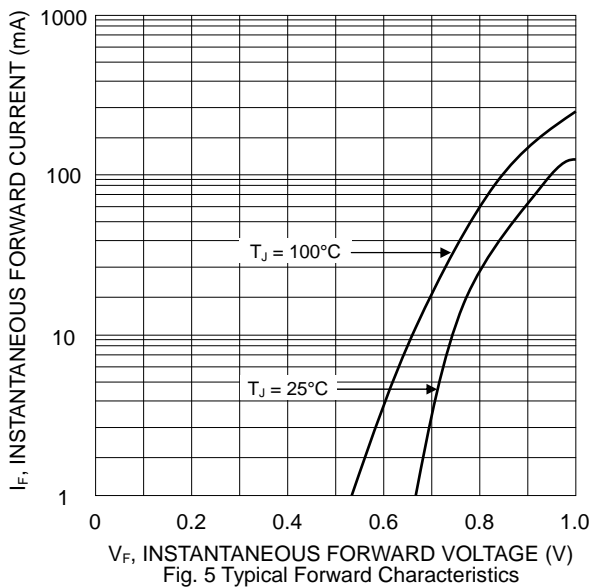
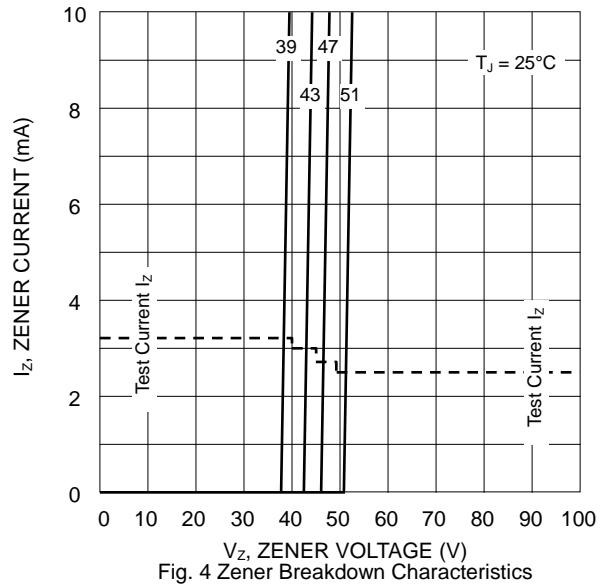
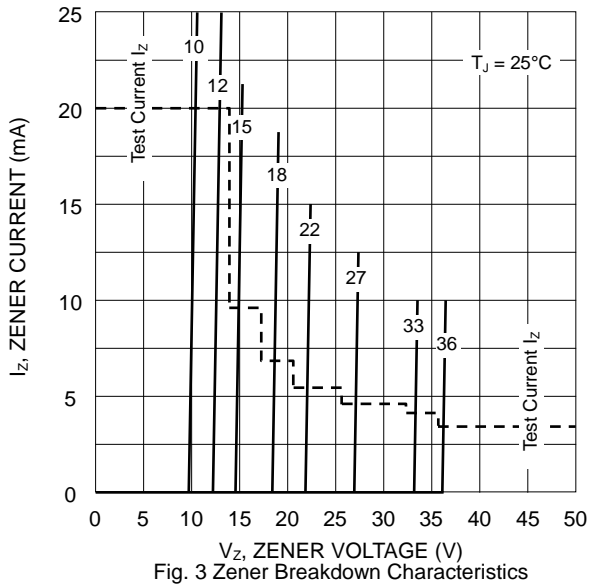
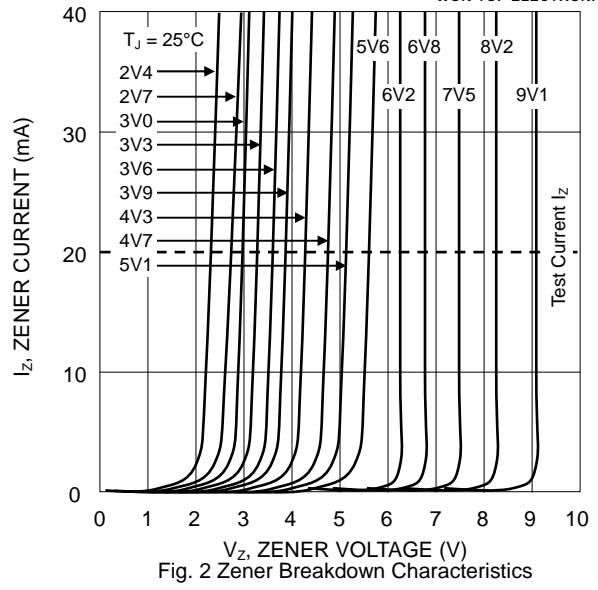
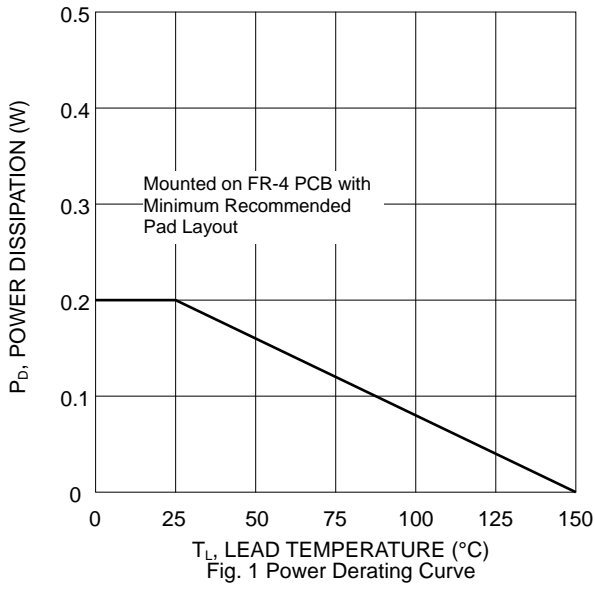
- Case: SOD-323, Molded Plastic
- Terminals: Plated Leads Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Weight: 0.004 grams (approx.)
- Marking: Device Code
- **Lead Free: For RoHS / Lead Free Version, Add “-LF” Suffix to Part Number, See Page 5**

Maximum Ratings @ $T_A=25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|----------------|-------------|---------------------------|
| Power Dissipation at $T_A = 25^\circ\text{C}$ (Note 1) | P_D | 200 | mW |
| Forward Voltage @ $I_F = 10\text{mA}$ | V_F | 0.9 | V |
| Thermal Resistance, Junction to Ambient (Note 1, 2) | R_{JA} | 625 | $^\circ\text{C}/\text{W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -65 to +150 | $^\circ\text{C}$ |

Note: 1. Mounted on FR-4 PCB with minimum recommended pad layout.
2. Thermal resistance measurement obtained via infrared scan method.

MMSZ5221BS – MMSZ5262BS



Electrical Characteristics (@T_A=25°C unless otherwise specified) Table 1

| Type Number (Note 1) | Device Marking Code (Note 2) | | Zener Voltage Range (Note 3) | | | Maximum Zener Impedance (Note 4) | | | | Max Reverse Leakage Current | | Typical Temp. Coefficient of Zener Voltage |
|-------------------------|---------------------------------|----|----------------------------------|---------|---------|-------------------------------------|------|-----------------------------------|------|-----------------------------|------------------|--|
| | | | V _Z @ I _{ZT} | | | Z _{ZT} @ I _{ZT} | | Z _{ZK} @ I _{ZK} | | I _R | @ V _R | |
| | TW | CN | Nom (V) | Min (V) | Max (V) | () | (mA) | () | (mA) | (μA) | (V) | (%/°C) |
| MMSZ5221BS | C1 | C1 | 2.4 | 2.28 | 2.52 | 30 | 20 | 1200 | 0.25 | 100 | 1.0 | -0.075 |
| MMSZ5222BS | C2 | C2 | 2.5 | 2.38 | 2.63 | 30 | 20 | 1250 | 0.25 | 100 | 1.0 | -0.075 |
| MMSZ5223BS | C3 | C3 | 2.7 | 2.57 | 2.84 | 30 | 20 | 1300 | 0.25 | 75 | 1.0 | -0.075 |
| MMSZ5225BS | C5 | C5 | 3.0 | 2.85 | 3.15 | 29 | 20 | 1600 | 0.25 | 50 | 1.0 | -0.075 |
| MMSZ5226BS | D1 | G1 | 3.3 | 3.14 | 3.47 | 28 | 20 | 1600 | 0.25 | 25 | 1.0 | -0.070 |
| MMSZ5227BS | D2 | G2 | 3.6 | 3.42 | 3.78 | 24 | 20 | 1700 | 0.25 | 15 | 1.0 | -0.065 |
| MMSZ5228BS | D3 | G3 | 3.9 | 3.71 | 4.10 | 23 | 20 | 1900 | 0.25 | 10 | 1.0 | -0.060 |
| MMSZ5229BS | D4 | G4 | 4.3 | 4.09 | 4.52 | 22 | 20 | 2000 | 0.25 | 5.0 | 1.0 | -0.055 |
| MMSZ5230BS | D5 | G5 | 4.7 | 4.47 | 4.94 | 19 | 20 | 1900 | 0.25 | 5.0 | 2.0 | ±0.030 |
| MMSZ5231BS | E1 | E1 | 5.1 | 4.85 | 5.36 | 17 | 20 | 1600 | 0.25 | 5.0 | 2.0 | ±0.030 |
| MMSZ5232BS | E2 | E2 | 5.6 | 5.32 | 5.88 | 11 | 20 | 1600 | 0.25 | 5.0 | 3.0 | +0.038 |
| MMSZ5233BS | E3 | E3 | 6.0 | 5.70 | 6.30 | 7.0 | 20 | 1600 | 0.25 | 5.0 | 3.5 | +0.038 |
| MMSZ5234BS | E4 | E4 | 6.2 | 5.89 | 6.51 | 7.0 | 20 | 1000 | 0.25 | 5.0 | 4.0 | +0.045 |
| MMSZ5235BS | E5 | E5 | 6.8 | 6.46 | 7.14 | 5.0 | 20 | 750 | 0.25 | 3.0 | 5.0 | +0.050 |
| MMSZ5236BS | F1 | F1 | 7.5 | 7.13 | 7.88 | 6.0 | 20 | 500 | 0.25 | 3.0 | 6.0 | +0.058 |
| MMSZ5237BS | F2 | F2 | 8.2 | 7.79 | 8.61 | 8.0 | 20 | 500 | 0.25 | 3.0 | 6.5 | +0.062 |
| MMSZ5238BS | F3 | F3 | 8.7 | 8.27 | 9.14 | 8.0 | 20 | 600 | 0.25 | 3.0 | 6.5 | +0.065 |
| MMSZ5239BS | F4 | F4 | 9.1 | 8.65 | 9.56 | 10 | 20 | 600 | 0.25 | 3.0 | 7.0 | +0.068 |
| MMSZ5240BS | F5 | F5 | 10 | 9.50 | 10.50 | 17 | 20 | 600 | 0.25 | 3.0 | 8.0 | +0.075 |
| MMSZ5241BS | H1 | H1 | 11 | 10.45 | 11.55 | 22 | 20 | 600 | 0.25 | 2.0 | 8.4 | +0.076 |
| MMSZ5242BS | H2 | H2 | 12 | 11.40 | 12.60 | 30 | 20 | 600 | 0.25 | 1.0 | 9.1 | +0.077 |
| MMSZ5243BS | H3 | H3 | 13 | 12.35 | 13.65 | 13 | 9.5 | 600 | 0.25 | 0.5 | 9.9 | +0.079 |
| MMSZ5245BS | H5 | H5 | 15 | 14.25 | 15.75 | 16 | 8.5 | 600 | 0.25 | 0.1 | 11 | +0.082 |
| MMSZ5246BS | J1 | J1 | 16 | 15.20 | 16.80 | 17 | 7.8 | 600 | 0.25 | 0.1 | 12 | +0.083 |
| MMSZ5248BS | J3 | J3 | 18 | 17.10 | 18.90 | 21 | 7.0 | 600 | 0.25 | 0.1 | 14 | +0.085 |
| MMSZ5250BS | J5 | J5 | 20 | 19.00 | 21.00 | 25 | 6.2 | 600 | 0.25 | 0.1 | 15 | +0.086 |
| MMSZ5251BS | K1 | K1 | 22 | 20.90 | 23.10 | 29 | 5.6 | 600 | 0.25 | 0.1 | 17 | +0.087 |
| MMSZ5252BS | K2 | K2 | 24 | 22.80 | 25.20 | 33 | 5.2 | 600 | 0.25 | 0.1 | 18 | +0.087 |
| MMSZ5254BS | K4 | K4 | 27 | 25.65 | 28.35 | 41 | 4.6 | 600 | 0.25 | 0.1 | 21 | +0.090 |
| MMSZ5255BS | K5 | K5 | 28 | 26.60 | 29.40 | 44 | 4.5 | 600 | 0.25 | 0.1 | 21 | +0.091 |
| MMSZ5256BS | M1 | M1 | 30 | 28.50 | 31.50 | 49 | 4.2 | 600 | 0.25 | 0.1 | 23 | +0.091 |
| MMSZ5257BS | M2 | M2 | 33 | 31.35 | 34.65 | 58 | 3.8 | 700 | 0.25 | 0.1 | 25 | +0.092 |
| MMSZ5258BS | M3 | M3 | 36 | 34.20 | 37.80 | 70 | 3.4 | 700 | 0.25 | 0.1 | 27 | +0.093 |
| MMSZ5259BS | M4 | M4 | 39 | 37.05 | 40.95 | 80 | 3.2 | 800 | 0.25 | 0.1 | 30 | +0.094 |
| MMSZ5260BS | M5 | M5 | 43 | 40.85 | 45.15 | 93 | 3.0 | 900 | 0.25 | 0.1 | 33 | +0.095 |
| MMSZ5261BS | N1 | N1 | 47 | 44.65 | 49.35 | 105 | 2.7 | 1000 | 0.25 | 0.1 | 36 | +0.095 |
| MMSZ5262BS | N2 | N2 | 51 | 48.45 | 53.55 | 125 | 2.5 | 1100 | 0.25 | 0.1 | 39 | +0.096 |

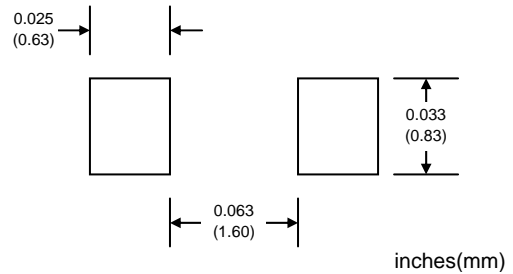
- Note: 1. Type numbers listed have standard tolerance on the nominal zener voltage of ±5%.
 2. TW: Marking code for Taiwan plant. CN: Marking code for China plant.
 3. Measured with device junction in thermal equilibrium.
 4. f = 1KHz

MARKING INFORMATION



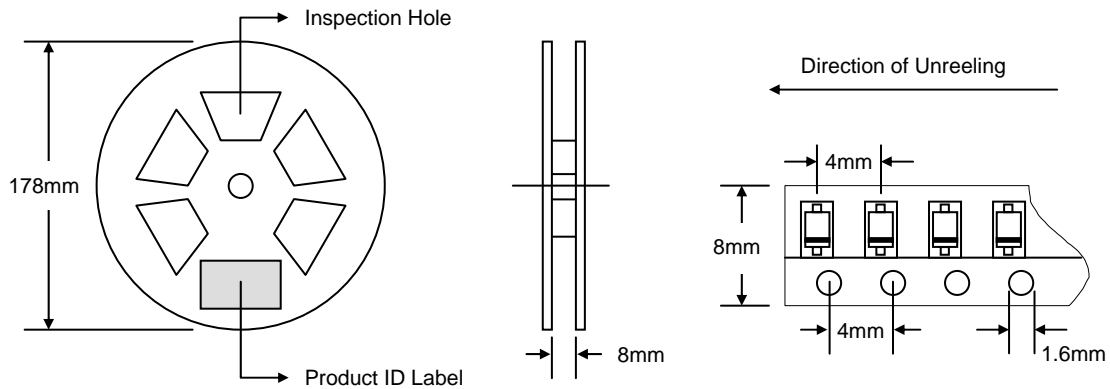
Cathode = Polarity Band
xx = Device Code, Table 1

RECOMMENDED FOOTPRINT



PACKAGING INFORMATION

TAPE & REEL




| Reel Diameter (mm) | Quantity (PCS) | Inner Box Size L x W x H (mm) | Quantity (PCS) | Carton Size L x W x H (mm) | Quantity (PCS) | Approx. Gross Weight (KG) |
|--------------------|----------------|-------------------------------|----------------|----------------------------|----------------|---------------------------|
| 178 | 3,000 | 187 x 187 x 65 | 15,000 | 390 x 240 x 420 | 150,000 | 7.0 |

Note: 1. Anti-static plastic reel, white, water clear or blue color. Inspection hole might be varied in different alignment.
2. Components are packed in accordance with EIA standard 481-1 and 481-2.

ORDERING INFORMATION

| Product No. | Package Type | Shipping Quantity |
|---------------|--------------|-------------------|
| MMSZ52xxBS-T1 | SOD-323 | 3000/Tape & Reel |

1. Shipping quantity given is for minimum packing quantity only. For minimum order quantity, please consult the Sales Department.
2. **To order RoHS / Lead Free version (with Lead Free finish), add “-LF” suffix to part number above. For example, MMSZ5221BS-T1-LF.**

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