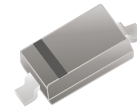


MMSZ5221B-HF Thru. MMSZ5267B-HF

RoHS Device
Halogen Free

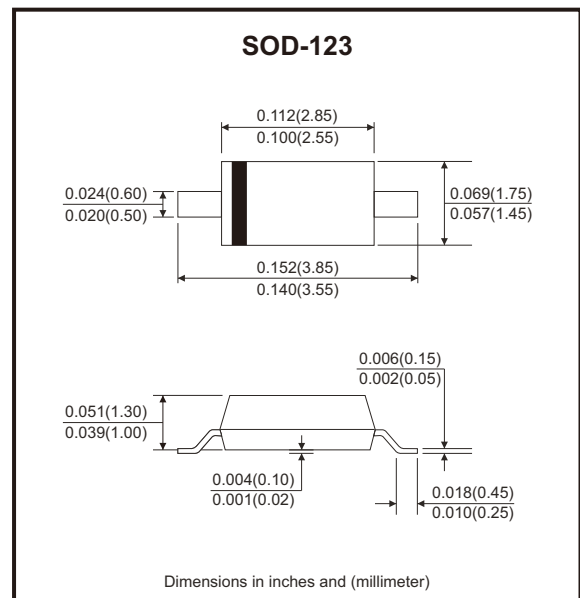


Features

- Large selection of zener voltages: 2.4V~75V.
- Tight voltage tolerance: $\pm 5\%$ for B-series.
- Ultra low-profile package well suited for automated assembly.
- MSL class 1 compatible.

Mechanical data

- Case: Molded plastic, SOD-123
- Molding compound: UL flammability classification rating 94V-0.
- Terminals: Tin-plated; solderability per MIL-STD-202, method 208.



Circuit Diagram



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

| Parameter | Symbol | Value | Unit |
|---|-----------------|-------------|--------------------|
| Forward voltage @ $I_F=10\text{mA}$ | V_F | 0.9 | V |
| Power dissipation (collector) | P_C | 500 | mW |
| Thermal resistance, junction to ambient | $R_{\theta JA}$ | 250 | $^\circ\text{C/W}$ |
| Thermal resistance, junction to case | $R_{\theta JC}$ | 140 | $^\circ\text{C/W}$ |
| Junction temperature range | T_J | -55 to +150 | $^\circ\text{C}$ |
| Storage temperature range | T_{STG} | -65 to +150 | $^\circ\text{C}$ |

Note: 1. These ratings are limiting values above which the serviceability of the diodes may be impaired.

Electrical Characteristics (TA=25°C unless otherwise noted)

| Part Number | Zener Voltage Range | | | Test Current | Maximum Zener Impedance | | Maximum Reverse Leakage Current | | Marking Code |
|--------------|---------------------|--------|--------|--------------|-------------------------|-----------|---------------------------------|---------|--------------|
| | Vz @ IzT | | | | IzT | ZzT @ IzT | Zzk @ Izk=0.25mA | Ir @ VR | |
| | Min(V) | Typ(V) | Max(V) | (mA) | (Ω) | (Ω) | (μA) | (V) | |
| MMSZ5221B-HF | 2.28 | 2.4 | 2.52 | 20 | 30 | 1200 | 100 | 1.0 | C1 |
| MMSZ5223B-HF | 2.57 | 2.7 | 2.84 | 20 | 30 | 1300 | 75 | 1.0 | C3 |
| MMSZ5225B-HF | 2.85 | 3.0 | 3.15 | 20 | 30 | 1600 | 50 | 1.0 | C5 |
| MMSZ5226B-HF | 3.14 | 3.3 | 3.47 | 20 | 28 | 1600 | 25 | 1.0 | G1 |
| MMSZ5227B-HF | 3.42 | 3.6 | 3.78 | 20 | 24 | 1700 | 15 | 1.0 | G2 |
| MMSZ5228B-HF | 3.71 | 3.9 | 4.10 | 20 | 23 | 1900 | 10 | 1.0 | G3 |
| MMSZ5229B-HF | 4.09 | 4.3 | 4.52 | 20 | 22 | 2000 | 5.0 | 1.0 | G4 |
| MMSZ5230B-HF | 4.47 | 4.7 | 4.94 | 20 | 19 | 1900 | 5.0 | 2.0 | G5 |
| MMSZ5231B-HF | 4.85 | 5.1 | 5.36 | 20 | 17 | 1600 | 5.0 | 2.0 | E1 |
| MMSZ5232B-HF | 5.32 | 5.6 | 5.88 | 20 | 11 | 1600 | 5.0 | 3.0 | E2 |
| MMSZ5233B-HF | 5.70 | 6.0 | 6.30 | 20 | 7 | 1600 | 5.0 | 3.5 | E3 |
| MMSZ5234B-HF | 5.89 | 6.2 | 6.51 | 20 | 7 | 1000 | 5.0 | 4.0 | E4 |
| MMSZ5235B-HF | 6.46 | 6.8 | 7.14 | 20 | 5 | 750 | 3.0 | 5.0 | E5 |
| MMSZ5236B-HF | 7.13 | 7.5 | 7.88 | 20 | 6 | 500 | 3.0 | 6.0 | F1 |
| MMSZ5237B-HF | 7.79 | 8.2 | 8.61 | 20 | 8 | 500 | 3.0 | 6.5 | F2 |
| MMSZ5238B-HF | 8.27 | 8.7 | 9.14 | 20 | 8 | 600 | 3.0 | 6.5 | F3 |
| MMSZ5239B-HF | 8.65 | 9.1 | 9.56 | 20 | 10 | 600 | 3.0 | 7.0 | F4 |
| MMSZ5240B-HF | 9.50 | 10 | 10.50 | 20 | 17 | 600 | 3.0 | 8.0 | F5 |
| MMSZ5241B-HF | 10.45 | 11 | 11.55 | 20 | 22 | 600 | 2.0 | 8.4 | H1 |
| MMSZ5242B-HF | 11.40 | 12 | 12.60 | 20 | 30 | 600 | 1.0 | 9.1 | H2 |
| MMSZ5243B-HF | 12.35 | 13 | 13.65 | 9.5 | 13 | 600 | 0.5 | 9.9 | H3 |
| MMSZ5244B-HF | 13.30 | 14 | 14.70 | 9.0 | 15 | 600 | 0.1 | 10 | H4 |
| MMSZ5245B-HF | 14.25 | 15 | 15.75 | 8.5 | 16 | 600 | 0.1 | 11 | H5 |
| MMSZ5246B-HF | 15.20 | 16 | 16.80 | 7.8 | 17 | 600 | 0.1 | 12 | J1 |
| MMSZ5247B-HF | 16.15 | 17 | 17.85 | 7.5 | 19 | 600 | 0.1 | 13 | J2 |
| MMSZ5248B-HF | 17.10 | 18 | 18.90 | 7.0 | 21 | 600 | 0.1 | 14 | J3 |
| MMSZ5250B-HF | 19.00 | 20 | 21.00 | 6.2 | 25 | 600 | 0.1 | 15 | J5 |
| MMSZ5251B-HF | 20.90 | 22 | 23.10 | 5.6 | 29 | 600 | 0.1 | 17 | K1 |
| MMSZ5252B-HF | 22.80 | 24 | 25.20 | 5.2 | 33 | 600 | 0.1 | 18 | K2 |
| MMSZ5253B-HF | 23.75 | 25 | 26.25 | 5.0 | 35 | 600 | 0.1 | 19 | K3 |

Company reserves the right to improve product design , functions and reliability without notice.

REV:A

Electrical Characteristics (TA=25°C unless otherwise noted)

| Part Number | Zener Voltage Range | | | Test Current | Maximum Zener Impedance | | Maximum Reverse Leakage Current | | Marking Code |
|--------------|---------------------|--------|--------|--------------|-------------------------|-----------|---------------------------------|---------|--------------|
| | Vz @ IzT | | | | IzT | ZzT @ IzT | Zzk @ Izk=0.25mA | Ir @ VR | |
| | Min(V) | Typ(V) | Max(V) | (mA) | (Ω) | (Ω) | (μA) | (V) | |
| MMSZ5254B-HF | 25.65 | 27 | 28.35 | 5.0 | 41 | 600 | 0.1 | 21 | K4 |
| MMSZ5255B-HF | 26.60 | 28 | 29.40 | 4.5 | 44 | 600 | 0.1 | 21 | K5 |
| MMSZ5256B-HF | 28.50 | 30 | 31.50 | 4.2 | 49 | 600 | 0.1 | 23 | M1 |
| MMSZ5257B-HF | 31.35 | 33 | 34.65 | 3.8 | 58 | 700 | 0.1 | 25 | M2 |
| MMSZ5258B-HF | 34.20 | 36 | 37.80 | 3.4 | 70 | 700 | 0.1 | 27 | M3 |
| MMSZ5259B-HF | 37.05 | 39 | 40.95 | 3.2 | 80 | 800 | 0.1 | 30 | M4 |
| MMSZ5260B-HF | 40.85 | 43 | 45.15 | 3.0 | 93 | 900 | 0.1 | 33 | M5 |
| MMSZ5261B-HF | 44.65 | 47 | 49.35 | 2.7 | 105 | 1000 | 0.1 | 36 | N1 |
| MMSZ5262B-HF | 48.45 | 51 | 53.55 | 2.5 | 125 | 1100 | 0.1 | 39 | N2 |
| MMSZ5263B-HF | 53.20 | 56 | 58.80 | 2.2 | 150 | 1300 | 0.1 | 43 | M8 |
| MMSZ5265B-HF | 58.90 | 62 | 65.10 | 2.0 | 185 | 1400 | 0.1 | 47 | N5 |
| MMSZ5267B-HF | 71.25 | 75 | 78.75 | 1.7 | 270 | 1700 | 0.1 | 56 | P2 |

Rating and Characteristic Curves (MMSZ5221B-HF Thru. MMSZ5267B-HF)

Fig.1 - Power Dissipation vs Ambient Temperature

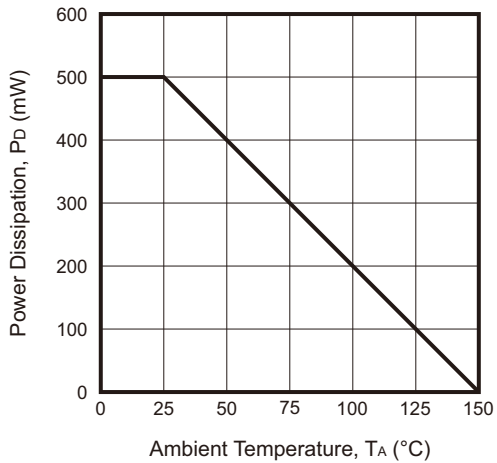


Fig.2 - Typical Capacitance

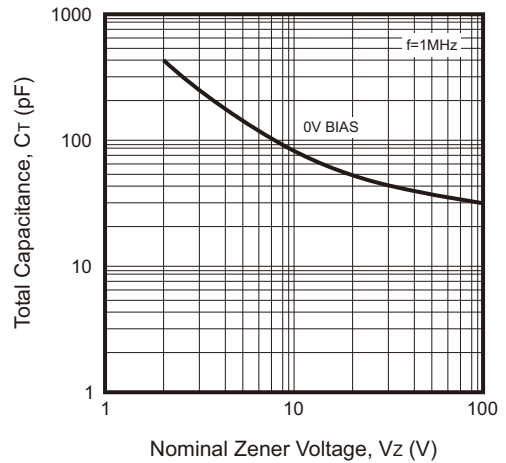


Fig.3 - Zener Breakdown Characteristics

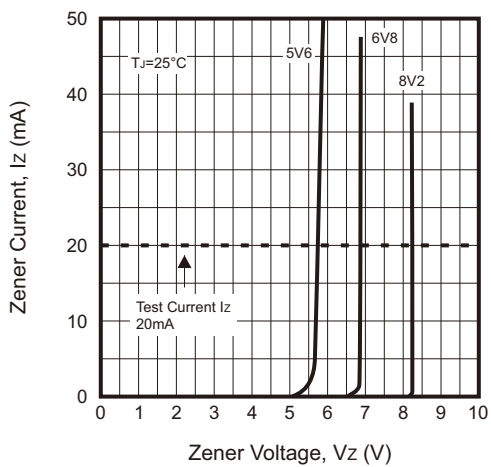
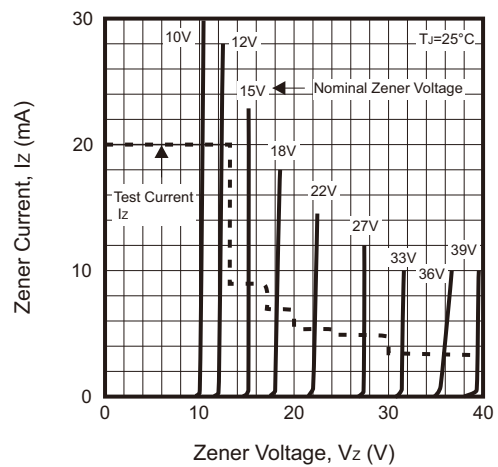


Fig.4 - Zener Breakdown Characteristics



Reel Taping Specification



| SOD-123 | SYMBOL | A | B | C | d | D | D1 | D2 |
|---------|--------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | (mm) | 1.85 ± 0.10 | 3.94 ± 0.10 | 1.57 ± 0.10 | 1.55 ± 0.05 | 178.00 ± 1.00 | 54.00 ± 0.50 | 13.00 ± 0.50 |
| | (inch) | 0.073 ± 0.004 | 0.155 ± 0.004 | 0.062 ± 0.004 | 0.061 ± 0.002 | 7.008 ± 0.039 | 2.126 ± 0.020 | 0.512 ± 0.020 |

| SOD-123 | SYMBOL | E | F | P | P1 | P0 | W | W1 |
|---------|--------|---------------|---------------|---------------|---------------|---------------|--------------------------|---------------|
| | (mm) | 1.75 ± 0.10 | 3.50 ± 0.05 | 4.00 ± 0.10 | 2.00 ± 0.05 | 4.00 ± 0.10 | 8.00 + 0.30 - 0.10 | 9.50 ± 1.00 |
| | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.157 ± 0.004 | 0.315 + 0.012 - 0.004 | 0.374 ± 0.039 |

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