



October 2015

## MMSZ5226B - MMSZ5257B Zeners

Tolerance = 5%



SOD-123

\* Band marking denotes cathode.

### Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol          | Parameter  | Value       | Units                     |
|-----------------|--|-------------|---------------------------|
| $P_D$           | Power Dissipation at $T_A = 25^\circ\text{C}$          | 500         | mW                        |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient <sup>(1)</sup> | 340         | $^\circ\text{C}/\text{W}$ |
| $T_{STG}$       | Storage Temperature Range                              | -55 to +150 | $^\circ\text{C}$          |
| $T_J$           | Operating Junction Temperature                         | +150        | $^\circ\text{C}$          |

**Note:**

1. FR-4 or FR-5 = 3.5 inch  $\times$  1.5 inch using minimum recommended land pads.

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Device    | Mark | $V_Z$ (V) @ $I_Z$ (mA) |      |       |            | $Z_Z$ ( $\Omega$ ) @ $I_Z$ (mA) |     | $Z_{ZK}$ ( $\Omega$ ) @ $I_{ZK}$ (mA) |      | $I_R$ ( $\mu\text{A}$ ) @ $V_R$ (V) |     |
|-----------|------|------------------------|------|-------|------------|---------------------------------|-----|---------------------------------------|------|-------------------------------------|-----|
|           |      | Min.                   | Typ. | Max.  | $I_Z$ (mA) |                                 |     |                                       |      |                                     |     |
| MMSZ5226B | D1   | 3.135                  | 3.3  | 3.465 | 20         | 28                              | 20  | 1,600                                 | 0.25 | 25                                  | 1.0 |
| MMSZ5227B | D2   | 3.42                   | 3.6  | 3.78  | 20         | 24                              | 20  | 1,700                                 | 0.25 | 15                                  | 1.0 |
| MMSZ5228B | D3   | 3.705                  | 3.9  | 4.095 | 20         | 23                              | 20  | 1,900                                 | 0.25 | 10                                  | 1.0 |
| MMSZ5229B | D4   | 4.085                  | 4.3  | 4.515 | 20         | 22                              | 20  | 2,000                                 | 0.25 | 5.0                                 | 1.0 |
| MMSZ5230B | D5   | 4.465                  | 4.7  | 4.935 | 20         | 19                              | 20  | 1,900                                 | 0.25 | 5.0                                 | 2.0 |
| MMSZ5231B | E1   | 4.845                  | 5.1  | 5.355 | 20         | 17                              | 20  | 1,600                                 | 0.25 | 5.0                                 | 2.0 |
| MMSZ5232B | E2   | 5.32                   | 5.6  | 5.88  | 20         | 11                              | 20  | 1,600                                 | 0.25 | 5.0                                 | 3.0 |
| MMSZ5233B | E3   | 5.7                    | 6    | 6.3   | 20         | 7.0                             | 20  | 1,600                                 | 0.25 | 5.0                                 | 3.5 |
| MMSZ5234B | E4   | 5.89                   | 6.2  | 6.51  | 20         | 7.0                             | 20  | 1,000                                 | 0.25 | 5.0                                 | 4.0 |
| MMSZ5235B | E5   | 6.46                   | 6.8  | 7.14  | 20         | 5.0                             | 20  | 750                                   | 0.25 | 3.0                                 | 5.0 |
| MMSZ5236B | F1   | 7.125                  | 7.5  | 7.875 | 20         | 6.0                             | 20  | 500                                   | 0.25 | 3.0                                 | 6.0 |
| MMSZ5237B | F2   | 7.79                   | 8.2  | 8.61  | 20         | 8.0                             | 20  | 500                                   | 0.25 | 3.0                                 | 6.5 |
| MMSZ5238B | F3   | 8.265                  | 8.7  | 9.135 | 20         | 8.0                             | 20  | 600                                   | 0.25 | 3.0                                 | 6.5 |
| MMSZ5239B | F4   | 8.645                  | 9.1  | 9.555 | 20         | 10                              | 20  | 600                                   | 0.25 | 3.0                                 | 7.0 |
| MMSZ5240B | F5   | 9.5                    | 10   | 10.5  | 20         | 17                              | 20  | 600                                   | 0.25 | 3.0                                 | 8.0 |
| MMSZ5241B | H1   | 10.45                  | 11   | 11.55 | 20         | 22                              | 20  | 600                                   | 0.25 | 2.0                                 | 8.4 |
| MMSZ5242B | H2   | 11.4                   | 12   | 12.6  | 20         | 30                              | 20  | 600                                   | 0.25 | 1.0                                 | 9.1 |
| MMSZ5243B | H3   | 12.35                  | 13   | 13.65 | 9.5        | 13                              | 9.5 | 600                                   | 0.25 | 0.5                                 | 9.9 |
| MMSZ5244B | H4   | 13.3                   | 14   | 14.7  | 9.0        | 15                              | 9.0 | 600                                   | 0.25 | 0.1                                 | 10  |
| MMSZ5245B | H5   | 14.25                  | 15   | 15.75 | 8.5        | 16                              | 8.5 | 600                                   | 0.25 | 0.1                                 | 11  |
| MMSZ5246B | J1   | 15.2                   | 16   | 16.8  | 7.8        | 17                              | 7.8 | 600                                   | 0.25 | 0.1                                 | 12  |
| MMSZ5247B | J2   | 16.15                  | 17   | 17.85 | 7.4        | 19                              | 7.4 | 600                                   | 0.25 | 0.1                                 | 13  |
| MMSZ5248B | J3   | 17.1                   | 18   | 18.9  | 7.0        | 21                              | 7.0 | 600                                   | 0.25 | 0.1                                 | 14  |
| MMSZ5249B | J4   | 18.05                  | 19   | 19.95 | 6.6        | 23                              | 6.6 | 600                                   | 0.25 | 0.1                                 | 14  |
| MMSZ5250B | J5   | 19                     | 20   | 21    | 6.2        | 25                              | 6.2 | 600                                   | 0.25 | 0.1                                 | 15  |
| MMSZ5251B | K1   | 20.92                  | 22   | 23.1  | 5.6        | 29                              | 5.6 | 600                                   | 0.25 | 0.1                                 | 17  |
| MMSZ5252B | K2   | 22.8                   | 24   | 25.2  | 5.2        | 33                              | 5.2 | 600                                   | 0.25 | 0.1                                 | 18  |
| MMSZ5253B | K3   | 23.75                  | 25   | 26.25 | 5.0        | 35                              | 5.0 | 600                                   | 0.25 | 0.1                                 | 19  |
| MMSZ5254B | K4   | 25.65                  | 27   | 28.35 | 4.6        | 41                              | 4.6 | 600                                   | 0.25 | 0.1                                 | 21  |
| MMSZ5255B | K5   | 26.6                   | 28   | 29.4  | 4.5        | 44                              | 4.5 | 600                                   | 0.25 | 0.1                                 | 21  |
| MMSZ5256B | M1   | 28.5                   | 30   | 31.5  | 4.2        | 49                              | 4.2 | 600                                   | 0.25 | 0.1                                 | 23  |
| MMSZ5257B | M2   | 31.35                  | 33   | 34.65 | 3.8        | 58                              | 3.8 | 700                                   | 0.25 | 0.1                                 | 25  |

$V_F$  Forward Voltage = 0.9 V Maximum at  $I_F = 10$  mA for all MMSZ5200 series

### Typical Performance Characteristics

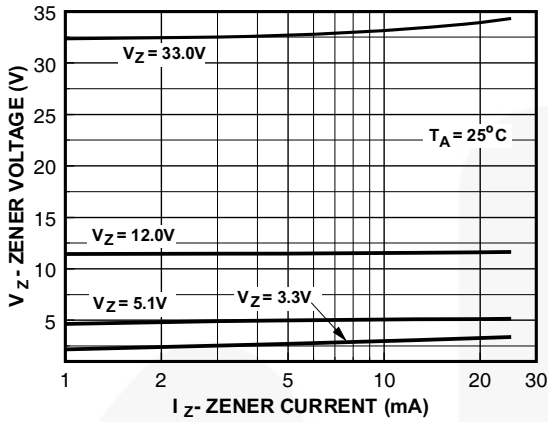


Figure 1. Zener Current vs. Zener Voltage

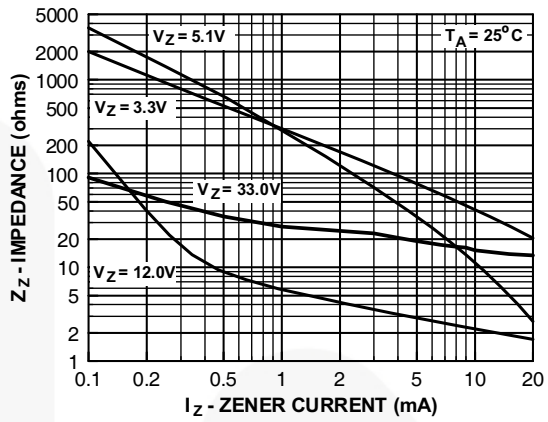


Figure 2. Zener Current vs. Zener Impedance

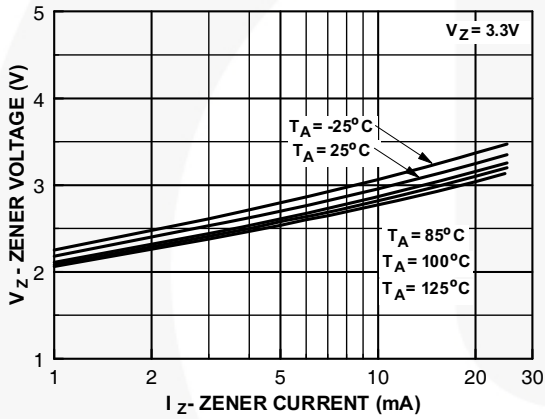


Figure 3. 3.3 Zener Voltage vs. Temperature

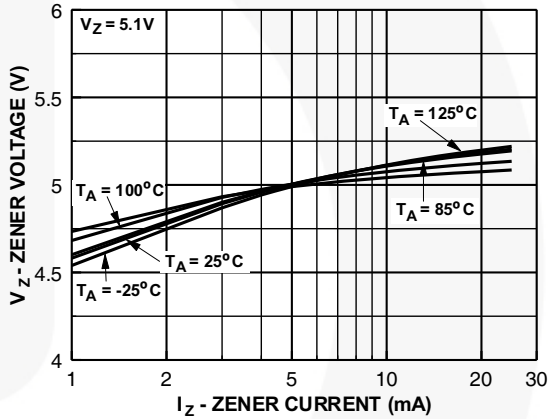


Figure 4. 5.1 Zener Voltage vs. Temperature

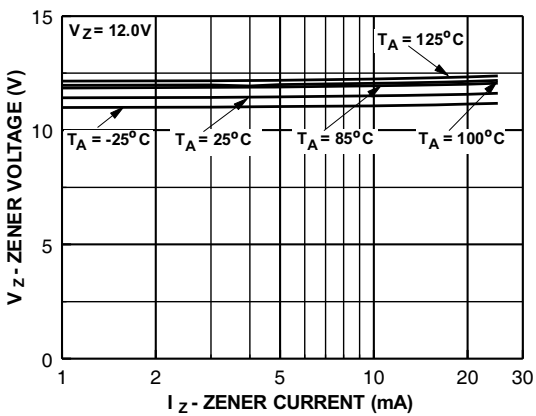


Figure 5. 12 Zener Voltage vs. Zener Temperature

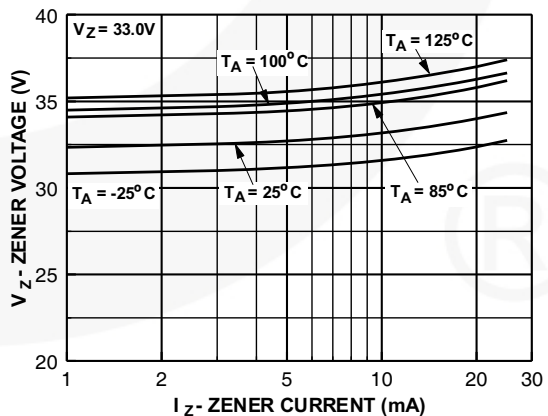


Figure 6. 33 Zener Voltage vs. Zener Temperature

Physical Dimensions

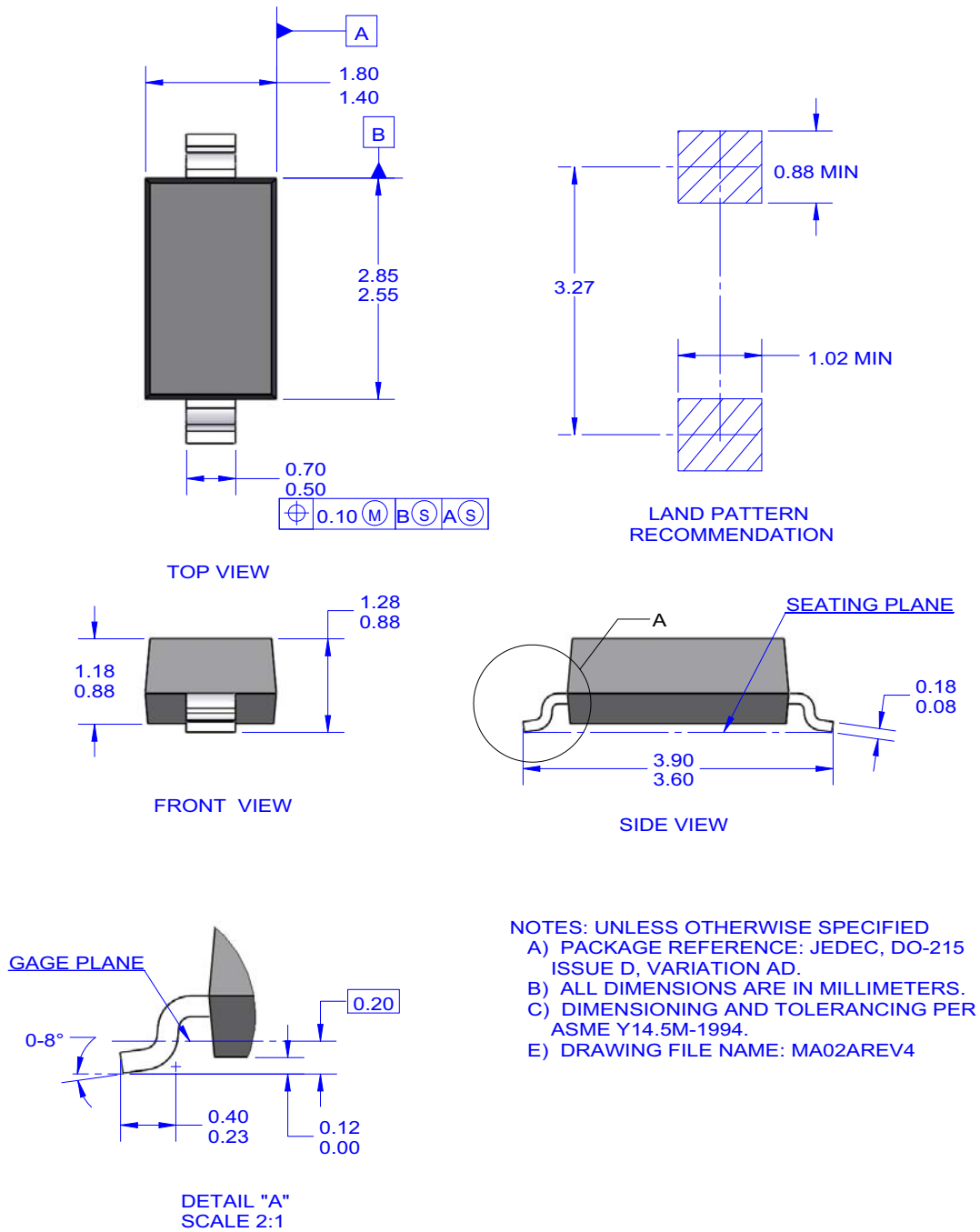







Figure 7. 2-LEAD, SOD123, JEDEC DO-219



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