

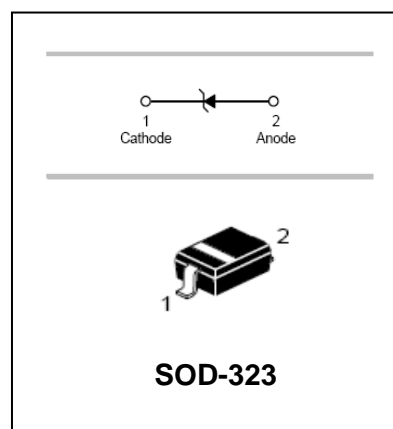
## SMT-Type Zener Diode

## MMSZ5221BS-MMSZ5267BS

### 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

HF



### Mechanical Data

- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208

### APPLICATIONS

- General voltage regulation
- Mobile & handheld systems

### ORDERING INFORMATION

| Part Number             | Marking                        | Package |
|-------------------------|--------------------------------|---------|
| MMSZ5221BS – MMSZ5267BS | See Electrical Characteristics | SOD-323 |

### MAXIMUM RATING (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Parameter                                | Symbol          | Value      | Unit               |
|--|-----------------|------------|--------------------|
| Forward Voltage @ $I_F=10\text{mA}$      | $V_F$           | 0.9        | V                  |
| Power Dissipation (Collector)            | $P_C$           | 200        | mW                 |
| Thermal Resistance (Junction-to-Ambient) | $R_{\theta JA}$ | 625        | $^\circ\text{C/W}$ |
| Thermal Resistance (Junction-to-Case)    | $R_{\theta JC}$ | 337        | $^\circ\text{C/W}$ |
| Junction Temperature Range               | $T_J$           | -55 ~ +150 | $^\circ\text{C}$   |
| Storage Temperature Range                | $T_{STG}$       | -65 ~ +150 | $^\circ\text{C}$   |

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

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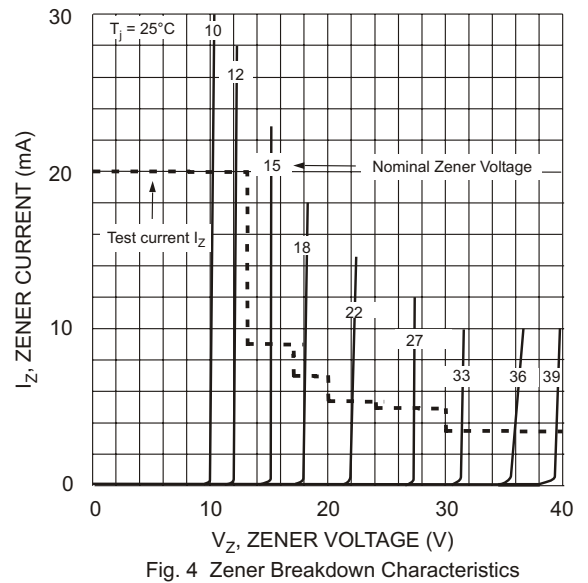
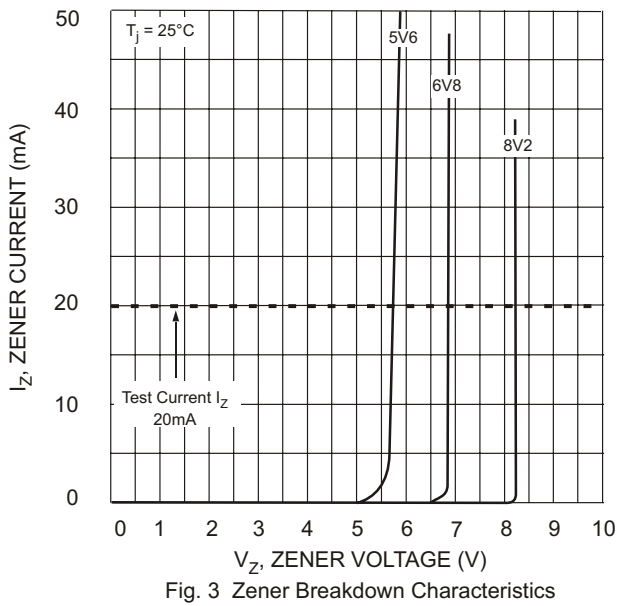
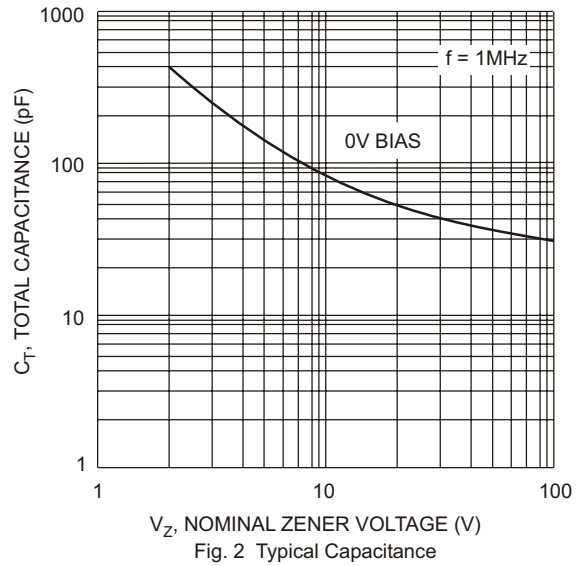
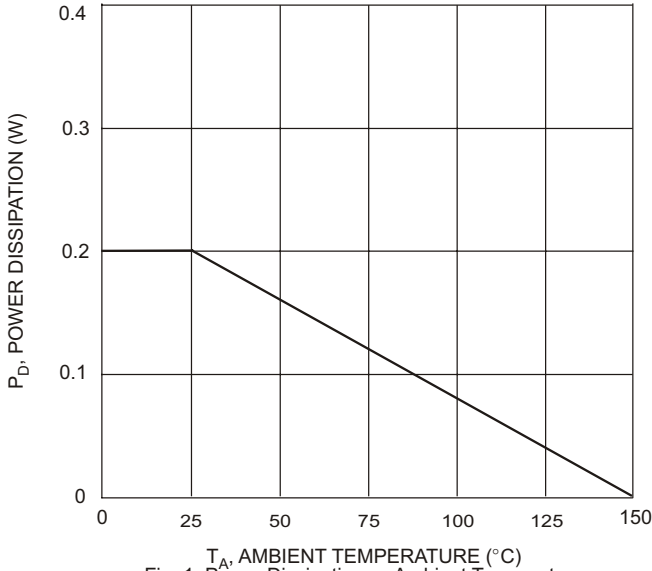
### ELECTRICAL CHARACTERISTICS (@ T<sub>A</sub> = 25°C unless otherwise specified)

| Part Number | Marking Code | Zener Voltage V <sub>Z</sub> (V) |       |       | @ I <sub>ZT</sub> (mA) | Maximum Zener Impedance                  |                     |                        | Maximum Reverse Current I <sub>R</sub> (μA) | @ V <sub>R</sub> (V) |
|-------------|--------------|----------------------------------|-------|-------|------------------------|--|---------------------|------------------------|---|----------------------|
|             |              | Min.                             | Typ.  | Max.  |                        | Z <sub>ZT</sub> (Ω)<br>@ I <sub>ZT</sub> | Z <sub>ZK</sub> (Ω) | @ I <sub>ZK</sub> (mA) |   |                      |
| MMSZ5221BS  | C1           | 2.28                             | 2.40  | 2.52  | 20.0                   | 30                                       | 1200                | 0.25                   | 100.0                                       | 1.0                  |
| MMSZ5223BS  | C3           | 2.57                             | 2.70  | 2.84  | 20.0                   | 30                                       | 1300                | 0.25                   | 75.0  | 1.0                  |
| MMSZ5225BS  | C5           | 2.85                             | 3.00  | 3.15  | 20.0                   | 30                                       | 1600                | 0.25                   | 50.0  | 1.0                  |
| MMSZ5226BS  | G1           | 3.14                             | 3.30  | 3.47  | 20.0                   | 28                                       | 1600                | 0.25                   | 25.0  | 1.0                  |
| MMSZ5227BS  | G2           | 3.42                             | 3.60  | 3.78  | 20.0                   | 24                                       | 1700                | 0.25                   | 15.0  | 1.0                  |
| MMSZ5228BS  | G3           | 3.71                             | 3.90  | 4.10  | 20.0                   | 23                                       | 1900                | 0.25                   | 10.0  | 1.0                  |
| MMSZ5229BS  | G4           | 4.09                             | 4.30  | 4.52  | 20.0                   | 22                                       | 2000                | 0.25                   | 5.0   | 1.0                  |
| MMSZ5230BS  | G5           | 4.47                             | 4.70  | 4.94  | 20.0                   | 19                                       | 1900                | 0.25                   | 5.0   | 2.0                  |
| MMSZ5231BS  | E1           | 4.85                             | 5.10  | 5.36  | 20.0                   | 17                                       | 1600                | 0.25                   | 5.0   | 2.0                  |
| MMSZ5232BS  | E2           | 5.32                             | 5.60  | 5.88  | 20.0                   | 11                                       | 1600                | 0.25                   | 5.0   | 3.0                  |
| MMSZ5233BS  | E3           | 5.70                             | 6.00  | 6.30  | 20.0                   | 7  | 1600                | 0.25                   | 5.0   | 3.5                  |
| MMSZ5234BS  | E4           | 5.89                             | 6.20  | 6.51  | 20.0                   | 7  | 1000                | 0.25                   | 5.0   | 4.0                  |
| MMSZ5235BS  | E5           | 6.46                             | 6.80  | 7.14  | 20.0                   | 5  | 750                 | 0.25                   | 3.0   | 5.0                  |
| MMSZ5236BS  | F1           | 7.13                             | 7.50  | 7.88  | 20.0                   | 6  | 500                 | 0.25                   | 3.0   | 6.0                  |
| MMSZ5237BS  | F2           | 7.79                             | 8.20  | 8.61  | 20.0                   | 8  | 500                 | 0.25                   | 3.0   | 6.5                  |
| MMSZ5238BS  | F3           | 8.27                             | 8.70  | 9.14  | 20.0                   | 8  | 600                 | 0.25                   | 3.0   | 6.5                  |
| MMSZ5239BS  | F4           | 8.65                             | 9.10  | 9.56  | 20.0                   | 10                                       | 600                 | 0.25                   | 3.0   | 7.0                  |
| MMSZ5240BS  | F5           | 9.50                             | 10.00 | 10.50 | 20.0                   | 17                                       | 600                 | 0.25                   | 3.0   | 8.0                  |
| MMSZ5241BS  | H1           | 10.45                            | 11.00 | 11.55 | 20.0                   | 22                                       | 600                 | 0.25                   | 2.0   | 8.4                  |
| MMSZ5242BS  | H2           | 11.40                            | 12.00 | 12.60 | 20.0                   | 30                                       | 600                 | 0.25                   | 1.0   | 9.1                  |
| MMSZ5243BS  | H3           | 12.35                            | 13.00 | 13.65 | 9.5                    | 13                                       | 600                 | 0.25                   | 0.5   | 9.9                  |
| MMSZ5244BS  | H4           | 13.30                            | 14.00 | 14.70 | 9.0                    | 15                                       | 600                 | 0.25                   | 0.1   | 10.0                 |
| MMSZ5245BS  | H5           | 14.25                            | 15.00 | 15.75 | 8.5                    | 16                                       | 600                 | 0.25                   | 0.1   | 11.0                 |
| MMSZ5246BS  | J1           | 15.20                            | 16.00 | 16.80 | 7.8                    | 17                                       | 600                 | 0.25                   | 0.1   | 12.0                 |
| MMSZ5247BS  | J2           | 16.15                            | 17.00 | 17.85 | 7.5                    | 19                                       | 600                 | 0.25                   | 0.1   | 13.0                 |
| MMSZ5248BS  | J3           | 17.10                            | 18.00 | 18.90 | 7.0                    | 21                                       | 600                 | 0.25                   | 0.1   | 14.0                 |
| MMSZ5250BS  | J5           | 19.00                            | 20.00 | 21.00 | 6.2                    | 25                                       | 600                 | 0.25                   | 0.1   | 15.0                 |
| MMSZ5251BS  | K1           | 20.90                            | 22.00 | 23.10 | 5.6                    | 29                                       | 600                 | 0.25                   | 0.1   | 17.0                 |
| MMSZ5252BS  | K2           | 22.80                            | 24.00 | 25.20 | 5.2                    | 33                                       | 600                 | 0.25                   | 0.1   | 18.0                 |
| MMSZ5253BS  | K3           | 23.75                            | 25.00 | 26.25 | 5.0                    | 35                                       | 600                 | 0.25                   | 0.1   | 19.0                 |
| MMSZ5254BS  | K4           | 25.65                            | 27.00 | 28.35 | 5.0                    | 41                                       | 600                 | 0.25                   | 0.1   | 21.0                 |
| MMSZ5255BS  | K5           | 26.60                            | 28.00 | 29.40 | 4.5                    | 44                                       | 600                 | 0.25                   | 0.1   | 21.0                 |
| MMSZ5256BS  | M1           | 28.50                            | 30.00 | 31.50 | 4.2                    | 49                                       | 600                 | 0.25                   | 0.1   | 23.0                 |
| MMSZ5257BS  | M2           | 31.35                            | 33.00 | 34.65 | 3.8                    | 58                                       | 700                 | 0.25                   | 0.1   | 25.0                 |
| MMSZ5258BS  | M3           | 34.20                            | 36.00 | 37.80 | 3.4                    | 70                                       | 700                 | 0.25                   | 0.1   | 27.0                 |
| MMSZ5259BS  | M4           | 37.05                            | 39.00 | 40.95 | 3.2                    | 80                                       | 800                 | 0.25                   | 0.1   | 30.0                 |
| MMSZ5260BS  | M5           | 40.85                            | 43.00 | 45.15 | 3.0                    | 93                                       | 900                 | 0.25                   | 0.1   | 33.0                 |
| MMSZ5261BS  | M6           | 44.65                            | 47.00 | 49.35 | 2.7                    | 105                                      | 1000                | 0.25                   | 0.1   | 36.0                 |
| MMSZ5262BS  | M7           | 48.45                            | 51.00 | 53.55 | 2.5                    | 125                                      | 1100                | 0.25                   | 0.1   | 39.0                 |
| MMSZ5263BS  | M8           | 53.20                            | 56.00 | 58.80 | 2.2                    | 150                                      | 1300                | 0.25                   | 0.1   | 43.0                 |
| MMSZ5265BS  | M9           | 58.90                            | 62.00 | 65.10 | 2.0                    | 185                                      | 1400                | 0.25                   | 0.1   | 47.0                 |
| MMSZ5267BS  | P2           | 71.25                            | 75.00 | 78.75 | 1.7                    | 270                                      | 1700                | 0.25                   | 0.1   | 56.0                 |

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**TYPICAL CHARACTERISTICS** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

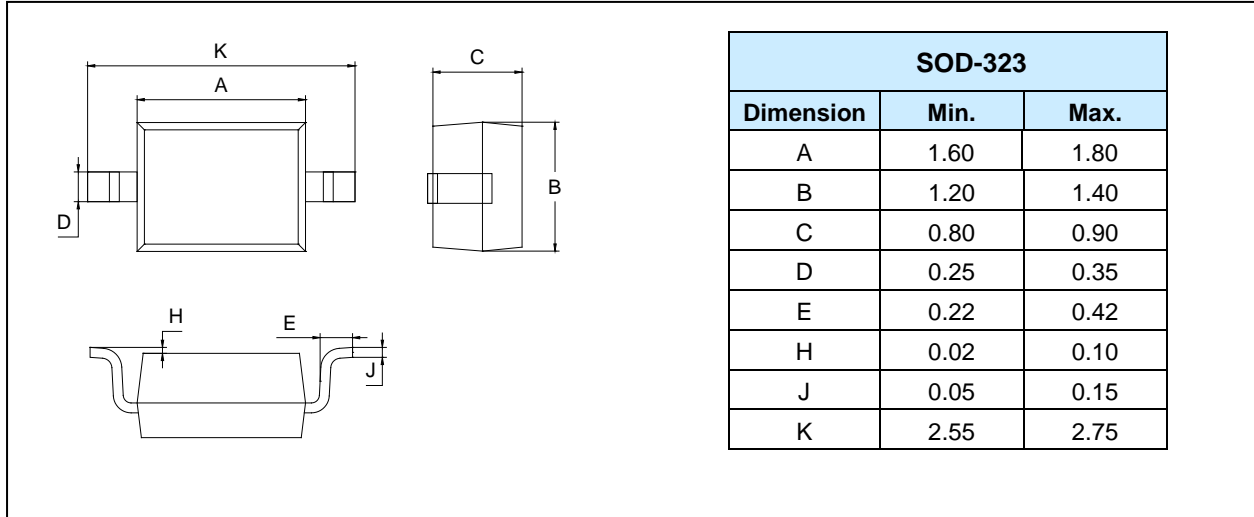


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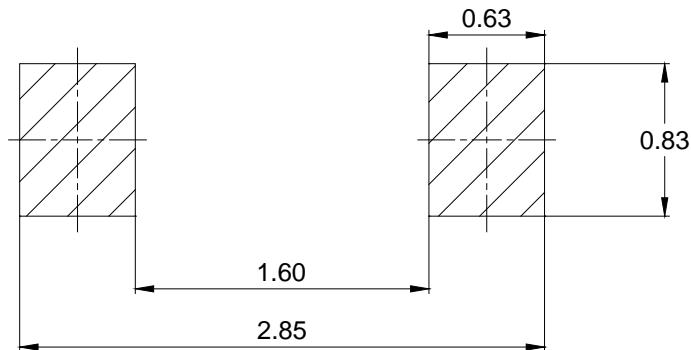
## MMSZ5221BS-MMSZ5267BS

### PACKAGE OUTLINE (Unit: mm)

Plastic surface mounted package



### MOUNTING PAD LAYOUT (Unit: mm)



### PACKAGE INFORMATION

| Part Number             | Package | Shipping Quantity     |
|-------------------------|---------|-----------------------|
| MMSZ5221BS – MMSZ5267BS | SOD-323 | 3000pcs / Tape & Reel |

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