



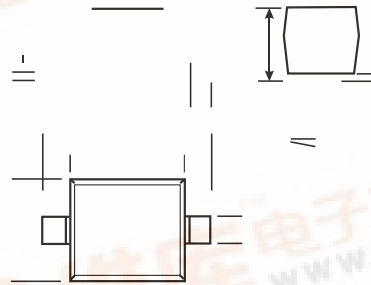
MMSZ5221BS - MMSZ5259BS

SURFACE MOUNT ZENER DIODE

Features

- Planar Die Construction
- Ultra-Small Surface Mount Package
- General Purpose
- Ideally suited for Automated Assembly Processes
- Lead Free /RoHS Compliant (Note 3)

Mechanical Data



Maximum Ratings @ T_A = 25 C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Forward Voltage (Note 2) @ I _F = 10mA | V _F | 0.9 | V |
| Power Dissipation (Note 1) | P _d | 200 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 1) | R _{JA} | 625 | C/W |
| Operating and Storage Temperature Range | T _j , T _{STG} | -65 to +150 | C |

- Notes:
1. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
 2. Short duration pulse test used to minimize self-heating effect.
 3. No purposefully added lead.



Electrical Characteristics @ T_A = 25 C unless otherwise specified

| Type Number | Marking Code | Zener Voltage Range (Note 4) | | | Test Current | Maximum Zener Impedance (Note 5) | | Maximum Reverse Leakage Current (Note 4) | |
|-------------|--------------|----------------------------------|---------|---------|-----------------|-----------------------------------|--|--|------------------|
| | | V _Z @ I _{ZT} | | | I _{ZT} | Z _{ZT} @ I _{ZT} | Z _{ZK} @ I _{ZK} = 0.25mA | I _R | @ V _R |
| | | Nom (V) | Min (V) | Max (V) | mA | | | A | V |
| MMSZ5221BS | C1 | 2.4 | 2.28 | 2.52 | 20 | 30 | 1200 | 100 | 1.0 |
| MMSZ5223BS | C3 | 2.7 | 2.57 | 2.84 | 20 | 30 | 1300 | 75 | 1.0 |
| MMSZ5225BS | C5 | 3.0 | 2.85 | 3.15 | 20 | 30 | 1600 | 50 | 1.0 |
| MMSZ5226BS | G1 | 3.3 | 3.14 | 3.47 | 20 | 28 | 1600 | 25 | 1.0 |
| MMSZ5227BS | G2 | 3.6 | 3.42 | 3.78 | 20 | 24 | 1700 | 15 | 1.0 |
| MMSZ5228BS | G3 | 3.9 | 3.71 | 4.10 | 20 | 23 | 1900 | 10 | 1.0 |
| MMSZ5229BS | G4 | 4.3 | 4.09 | 4.52 | 20 | 22 | 2000 | 5.0 | 1.0 |
| MMSZ5230BS | G5 | 4.7 | 4.47 | 4.94 | 20 | 19 | 1900 | 5.0 | 2.0 |
| MMSZ5231BS | E1 | 5.1 | 4.85 | 5.36 | 20 | 17 | 1600 | 5.0 | 2.0 |
| MMSZ5232BS | E2 | 5.6 | 5.32 | 5.88 | 20 | 11 | 1600 | 5.0 | 3.0 |
| MMSZ5233BS | E3 | 6.0 | 5.70 | 6.30 | 20 | 7 | 1600 | 5.0 | 3.5 |
| MMSZ5234BS | E4 | 6.2 | 5.89 | 6.51 | 20 | 7 | 1000 | 5.0 | 4.0 |
| MMSZ5235BS | E5 | 6.8 | 6.46 | 7.14 | 20 | 5 | 750 | 3.0 | 5.0 |
| MMSZ5236BS | F1 | 7.5 | 7.13 | 7.88 | 20 | 6 | 500 | 3.0 | 6.0 |
| MMSZ5237BS | F2 | 8.2 | 7.79 | 8.61 | 20 | 8 | 500 | 3.0 | 6.5 |
| MMSZ5238BS | F3 | 8.7 | 8.27 | 9.14 | 20 | 8 | 600 | 3.0 | 6.5 |
| MMSZ5239BS | F4 | 9.1 | 8.65 | 9.56 | 20 | 10 | 600 | 3.0 | 7.0 |
| MMSZ5240BS | F5 | 10 | 9.50 | 10.50 | 20 | 17 | 600 | 3.0 | 8.0 |
| MMSZ5241BS | H1 | 11 | 10.45 | 11.55 | 20 | 22 | 600 | 2.0 | 8.4 |
| MMSZ5242BS | H2 | 12 | 11.40 | 12.60 | 20 | 30 | 600 | 1.0 | 9.1 |
| MMSZ5243BS | H3 | 13 | 12.35 | 13.65 | 9.5 | 13 | 600 | 0.5 | 9.9 |
| MMSZ5245BS | H5 | 15 | 14.25 | 15.75 | 8.5 | 16 | 600 | 0.1 | 11 |
| MMSZ5246BS | J1 | 16 | 15.20 | 16.80 | 7.8 | 17 | 600 | 0.1 | 12 |
| MMSZ5248BS | J3 | 18 | 17.10 | 18.90 | 7.0 | 21 | 600 | 0.1 | 14 |
| MMSZ5250BS | J5 | 20 | 19.00 | 21.00 | 6.2 | 25 | 600 | 0.1 | 15 |
| MMSZ5251BS | K1 | 22 | 20.90 | 23.10 | 5.6 | 29 | 600 | 0.1 | 17 |
| MMSZ5252BS | K2 | 24 | 22.80 | 25.20 | 5.2 | 33 | 600 | 0.1 | 18 |
| MMSZ5254BS | K4 | 27 | 25.65 | 28.35 | 5.0 | 41 | 600 | 0.1 | 21 |
| MMSZ5255BS | K5 | 28 | 26.60 | 29.40 | 4.5 | 44 | 600 | 0.1 | 21 |
| MMSZ5256BS | M1 | 30 | 28.50 | 31.50 | 4.2 | 49 | 600 | 0.1 | 23 |
| MMSZ5257BS | M2 | 33 | 31.35 | 34.65 | 3.8 | 58 | 700 | 0.1 | 25 |
| MMSZ5258BS | M3 | 36 | 34.20 | 37.80 | 3.4 | 70 | 700 | 0.1 | 27 |
| MMSZ5259BS | M4 | 39 | 37.05 | 40.95 | 3.2 | 80 | 800 | 0.1 | 30 |

Notes: 4. Short duration test pulse used to minimize self-heating effect.
5. f = 1KHz.

Ordering Information (Note 6)

| Device | Packaging | Shipping |
|-------------------|-----------|------------------|
| (Type Number)-7-F | SOD-323 | 3000/Tape & Reel |

Notes: 6. For Packaging Details, go to our website at: <http://www.diodes.com/datasheets/ap02007.pdf>.
*Add "-7-F" to the appropriate type number in Table 1 above example: 6.2V Zener = MMSZ5234BS-7-F.

Marking Information



XX = Product Type Marking Code
(See Table Above)

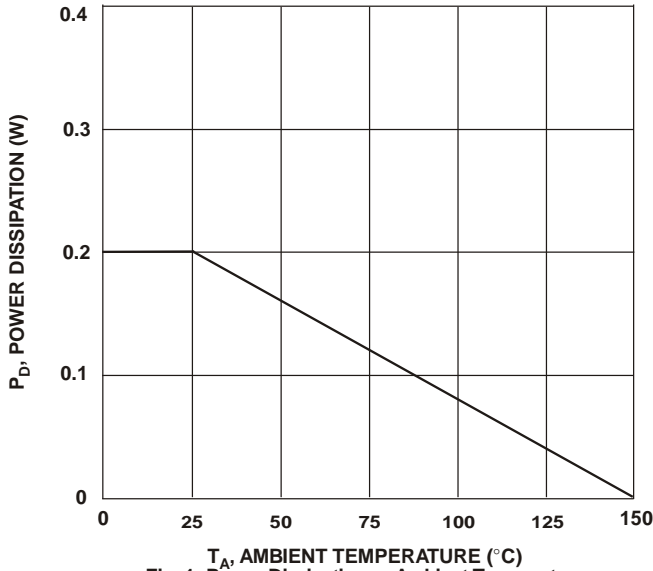


Fig. 1 Power Dissipation vs Ambient Temperature

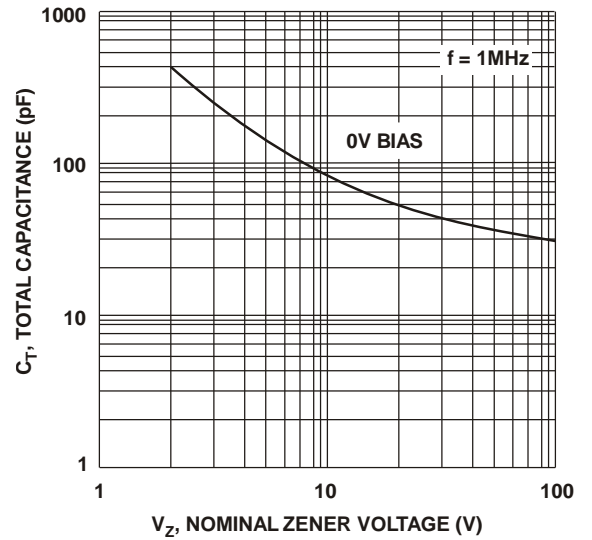


Fig. 2 Typical Capacitance

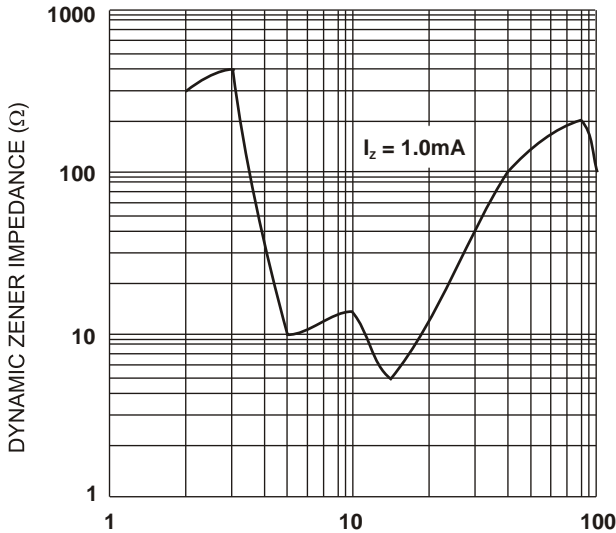


Fig. 3 Zener Impedance vs. Zener Voltage

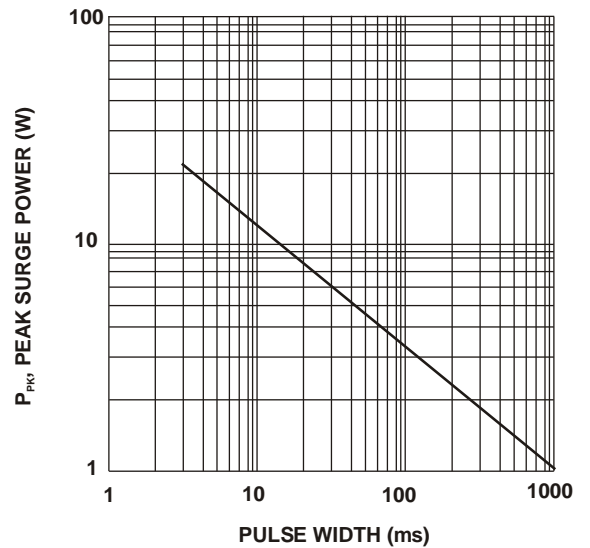


Fig. 4 Maximum Non-repetitive Surge Power

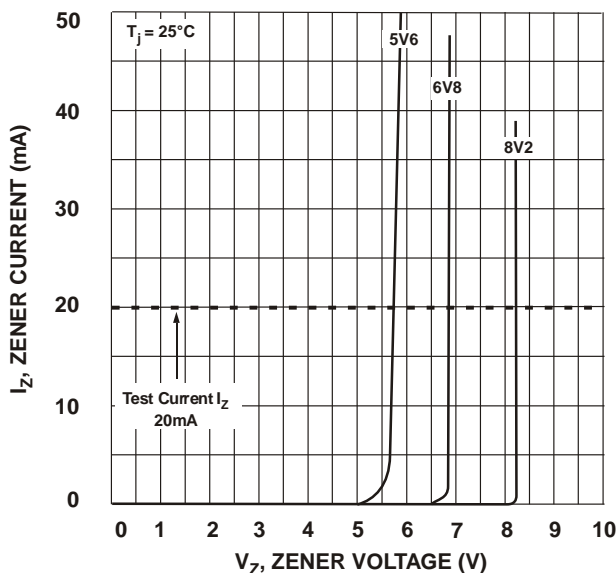


Fig. 5 Zener Breakdown Characteristics

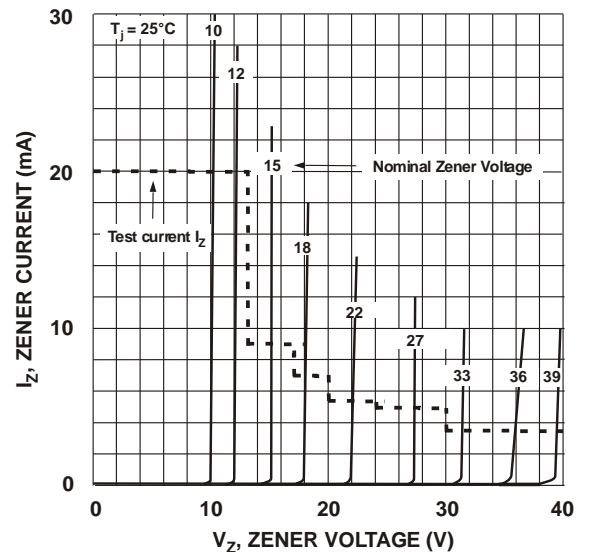


Fig. 6 Zener Breakdown Characteristics



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