

# MMXZ5221B THRU MMXZ5259B

**200 mW**

**Zener Diodes**

**2.4 to 39 Volts**

## Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Planar Die construction
- Zener Voltages from 2.4V - 39V and 200mW Power Dissipation
- Ideally Suited for Automated Assembly Processes

## Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Approx. Weight: 0.008 gram
- Mounting Position: Any
- Storage & Operating Junction Temperature: -55°C to +150°C

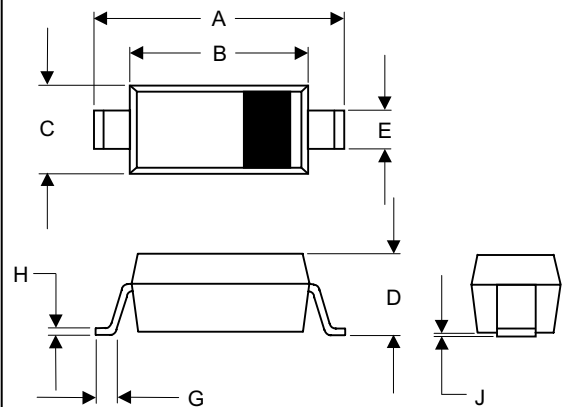
### Maximum Ratings @ 25°C Unless Otherwise Specified

|                                      |                   |     |       |
|--------------------------------------|-------------------|-----|-------|
| Forward Current                      | I <sub>F</sub>    | 100 | mA    |
| Maximum Forward Voltage              | V <sub>F</sub>    | 1.2 | V     |
| Power Dissipation (Notes A)          | P <sub>(AV)</sub> | 200 | mWatt |
| Peak Forward Surge Current (Notes B) | I <sub>FSM</sub>  | 2.0 | Amps  |

#### NOTES:

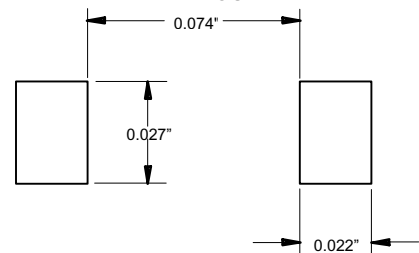
- A. Mounted on 5.0mm2(.013mm thick) land areas.  
B. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

## SOD-323



| DIM | INCHES |      | MM    |      | NOTE |
|-----|--------|------|-------|------|------|
|     | MIN    | MAX  | MIN   | MAX  |      |
| A   | .090   | .107 | 2.30  | 2.70 |      |
| B   | .063   | .071 | 1.60  | 1.80 |      |
| C   | .045   | .053 | 1.15  | 1.35 |      |
| D   | .031   | .045 | 0.80  | 1.15 |      |
| E   | .010   | .016 | 0.25  | 0.40 |      |
| G   | .004   | .018 | 0.10  | 0.45 |      |
| H   | .004   | .010 | 0.10  | 0.25 |      |
| J   | -----  | .006 | ----- | 0.15 |      |

#### SUGGESTED SOLDER PAD LAYOUT



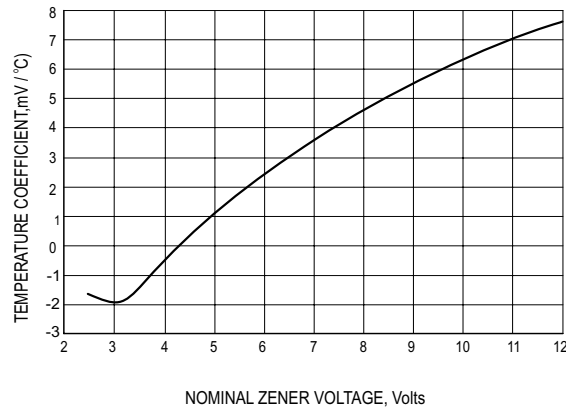
# MMXZ5221B thru MMXZ5259B

## Electrical Characteristics @ 25°C Unless Otherwise Specified

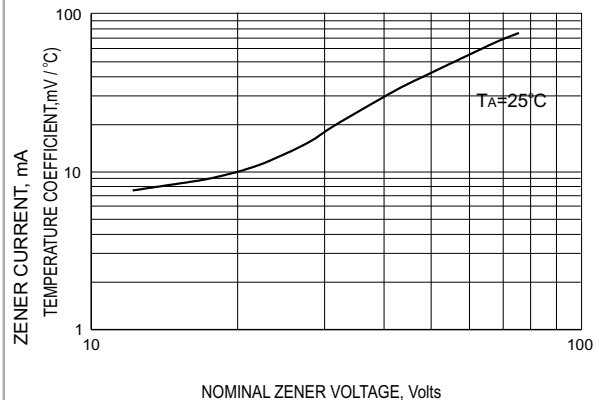
| MCC PART NUMBER | Marking | NORMAL ZENER VOLTAGE | TEST CURRENT | MAXIMUM ZENER IMPEDANCE |                  | MAXIMUM REVERSE LEAKAGE CURRENT |       | MAXIMUM ZENER VOLTAGE TEMP COEFFICIENT 'B' |
|-----------------|---------|----------------------|--------------|-------------------------|------------------|---------------------------------|-------|--------------------------------------------|
|                 |         | Vz @ Iz              | Izt          | 'B' SUFFIX ONLY         |                  | Ir @ Vr                         |       | COEFFICIENT 'B' SUFFIX ONLY                |
|                 |         | VOLTS                | mA           | Zzt @ Iz                | Zzk @ Izk=0.25mA | uA                              | VOLTS | %/°C                                       |
| MMXZ5221B       | C1      | 2.4                  | 20           | 30                      | 1200             | 100                             | 1.0   | -0.085                                     |
| MMXZ5222B       | C2      | 2.5                  | 20           | 30                      | 1250             | 100                             | 1.0   | -0.085                                     |
| MMXZ5223B       | C3      | 2.7                  | 20           | 30                      | 1300             | 75                              | 1.0   | -0.080                                     |
| MMXZ5225B       | C5      | 3.0                  | 20           | 29                      | 1600             | 50                              | 1.0   | -0.075                                     |
| MMXZ5226B       | G1/D1   | 3.3                  | 20           | 28                      | 1600             | 25                              | 1.0   | -0.070                                     |
| MMXZ5227B       | G2/D2   | 3.6                  | 20           | 24                      | 1700             | 15                              | 1.0   | -0.065                                     |
| MMXZ5228B       | G3/D3   | 3.9                  | 20           | 23                      | 1900             | 10                              | 1.0   | -0.060                                     |
| MMXZ5229B       | G4/D4   | 4.3                  | 20           | 22                      | 2000             | 5.0                             | 1.0   | ±0.055                                     |
| MMXZ5230B       | G5/D5   | 4.7                  | 20           | 19                      | 1900             | 5.0                             | 2.0   | ±0.030                                     |
| MMXZ5231B       | E1      | 5.1                  | 20           | 17                      | 1600             | 5.0                             | 2.0   | ±0.030                                     |
| MMXZ5232B       | E2      | 5.6                  | 20           | 11                      | 1600             | 5.0                             | 3.0   | +0.038                                     |
| MMXZ5234B       | E4      | 6.2                  | 20           | 7.0                     | 1000             | 5.0                             | 4.0   | +0.045                                     |
| MMXZ5235B       | E5      | 6.8                  | 20           | 5.0                     | 750              | 3.0                             | 5.0   | +0.050                                     |
| MMXZ5236B       | F1      | 7.5                  | 20           | 6.0                     | 500              | 3.0                             | 6.0   | +0.058                                     |
| MMXZ5237B       | F2      | 8.2                  | 20           | 8.0                     | 500              | 3.0                             | 6.5   | +0.062                                     |
| MMXZ5239B       | F4      | 9.1                  | 20           | 10                      | 600              | 3.0                             | 7.0   | +0.068                                     |
| MMXZ5240B       | F5      | 10                   | 20           | 17                      | 600              | 3.0                             | 8.0   | +0.075                                     |
| MMXZ5241B       | H1      | 11                   | 20           | 22                      | 600              | 2.0                             | 8.4   | +0.076                                     |
| MMXZ5242B       | H2      | 12                   | 20           | 30                      | 600              | 1.0                             | 9.1   | +0.077                                     |
| MMXZ5243B       | H3      | 13                   | 9.5          | 13                      | 600              | 0.5                             | 9.9   | +0.079                                     |
| MMXZ5245B       | H5      | 15                   | 8.5          | 16                      | 600              | 0.1                             | 11    | +0.082                                     |
| MMXZ5246B       | J1      | 16                   | 7.8          | 17                      | 600              | 0.1                             | 12    | +0.083                                     |
| MMXZ5248B       | J3      | 18                   | 7.0          | 21                      | 600              | 0.1                             | 14    | +0.085                                     |
| MMXZ5250B       | J5      | 20                   | 6.2          | 25                      | 600              | 0.1                             | 15    | +0.086                                     |
| MMXZ5251B       | K1      | 22                   | 5.6          | 29                      | 600              | 0.1                             | 17    | +0.087                                     |
| MMXZ5252B       | K2      | 24                   | 5.2          | 33                      | 600              | 0.1                             | 18    | +0.088                                     |
| MMXZ5254B       | K4      | 27                   | 4.6          | 41                      | 600              | 0.1                             | 21    | +0.090                                     |
| MMXZ5255B       | K5      | 28                   | 4.5          | 44                      | 600              | 0.1                             | 21    | +0.091                                     |
| MMXZ5256B       | M1      | 30                   | 4.2          | 49                      | 600              | 0.1                             | 23    | +0.091                                     |
| MMXZ5257B       | M2      | 33                   | 3.8          | 58                      | 700              | 0.1                             | 25    | +0.092                                     |
| MMXZ5258B       | M3      | 36                   | 3.4          | 70                      | 700              | 0.1                             | 27    | +0.093                                     |
| MMXZ5259B       | M4      | 39                   | 3.2          | 80                      | 800              | 0.1                             | 30    | +0.094                                     |

NOTE:

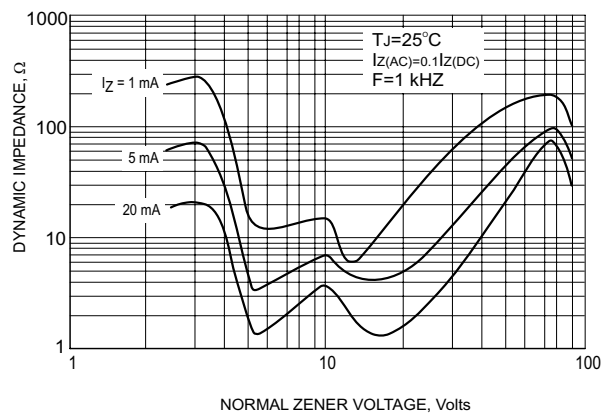
1. Tolerance and Type Number Designation. The type numbers listed have a standard tolerance on the nominal zener voltage of ±5%.
2. Specials Available Include:
  - A. Nominal zener voltages between the voltages shown and tighter voltage tolerances.
  - B. Matched sets.
3. Zener Voltage (Vz) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature (Tl) at 30°C, from the diode body.
4. Zener Impedance (Zz) Derivation. The zener impedance is derived from the 60 cycle ac voltage, which results when an AC current having an rms value equal to 10% of the dc zener current (Izt or Izk) is superimposed on Izt or Izk.
5. Surge Current (Irs) Non-Repetitive. The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current, Izt, per JEDEC registration; however, actual device capability is as described in Figure 5.



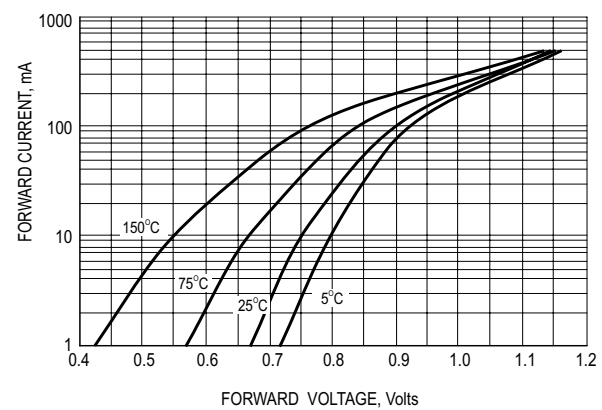
TYPICAL REVERSE CURRENT



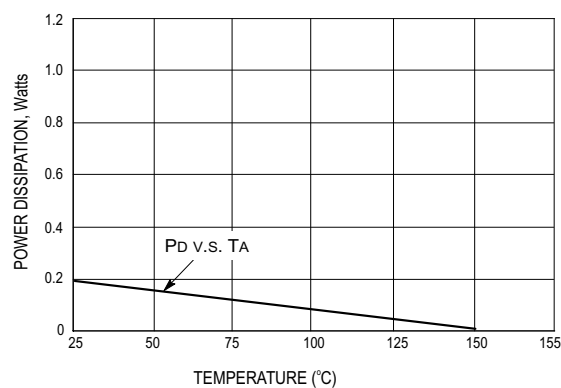
STEADY STATE POWER DERATING



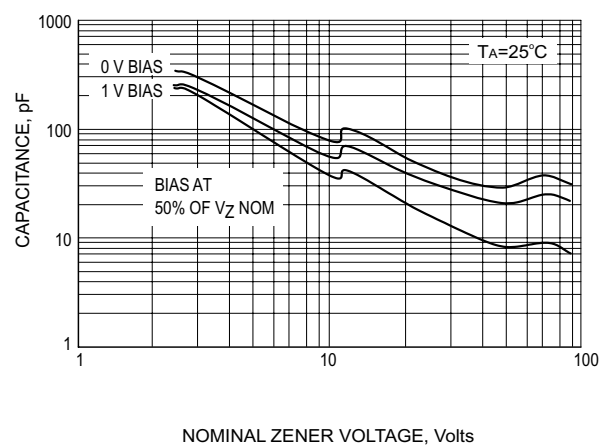
EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE



TYPICAL FORWARD VOLTAGE



STEADY STATE POWER DERATING

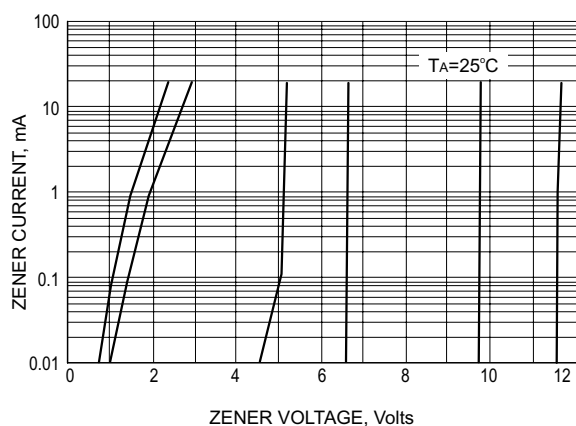


TYPICAL CAPACITANCE

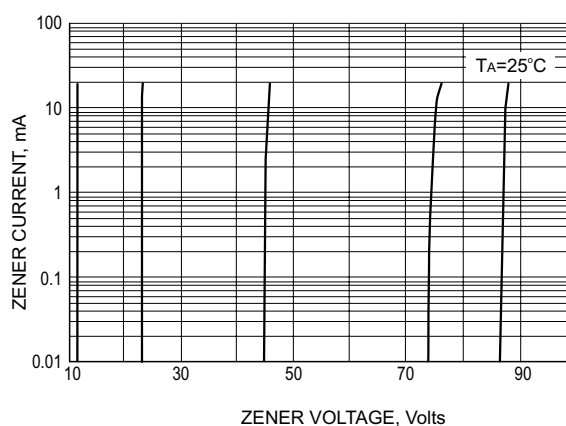
# MMXZ5221B thru MMXZ5259B

**MCC**

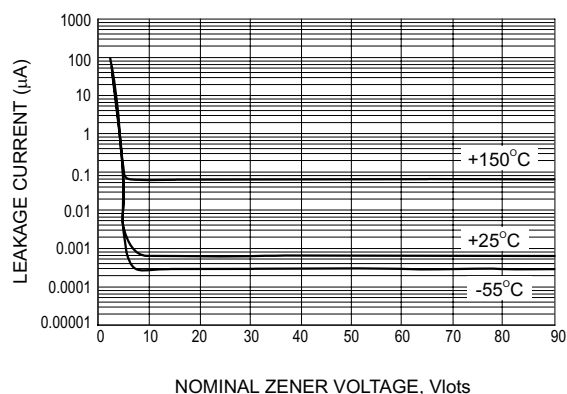
Micro Commercial Components



ZENER VOLTAGE V.S. ZENER CURRENT



ZENER VOLTAGE V.S. ZENER CURRENT



TYPICAL LEAKGE CURRENT

## Ordering Information :

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

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