

# Zeners

## MMBZ5221B - MMBZ5257B

Tolerance: B = 5%

### Absolute Maximum Ratings\*

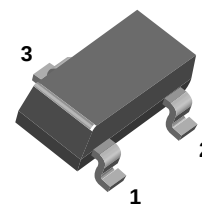
$T_A = 25^\circ\text{C}$  unless otherwise noted

| Symbol    | Parameter                      | Value       | Units            |
|-----------|--------------------------------|-------------|------------------|
| $P_D$     | Power Dissipation              | 350         | mW               |
| $T_{STG}$ | Storage Temperature Range      | -55 to +150 | $^\circ\text{C}$ |
| $T_J$     | Operating Junction Temperature | + 150       | $^\circ\text{C}$ |

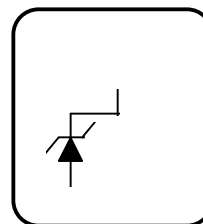
\*These ratings are limiting values above which the serviceability of the diode may be impaired.

#### NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.



SOT-23



### Electrical Characteristics

$T_A = 25^\circ\text{C}$  unless otherwise noted

| Device     | Mark | $V_Z$ (V) | $Z_Z(\Omega)$ @ $I_Z$ (mA) | $Z_{ZK}(\Omega)$ @ $I_{ZK}$ (mA) | $I_R(\mu\text{A})$ @ $V_R$ (V) |
|------------|------|-----------|----------------------------|----------------------------------|--------------------------------|
| MMBZ 5221B | 18A  | 2.4       | 30 20                      | 1,200 0.25                       | 100 1.0                        |
| MMBZ 5223B | 18C  | 2.7       | 30 20                      | 1,300 0.25                       | 75 1.0                         |
| MMBZ 5226B | 8A   | 3.3       | 28 20                      | 1,600 0.25                       | 25 1.0                         |
| MMBZ 5227B | 8B   | 3.6       | 24 20                      | 1,700 0.25                       | 15 1.0                         |
| MMBZ 5228B | 8C   | 3.9       | 23 20                      | 1,900 0.25                       | 10 1.0                         |
| MMBZ 5229B | 8D   | 4.3       | 22 20                      | 1,000 0.25                       | 5.0 1.0                        |
| MMBZ 5230B | 8E   | 4.7       | 19 20                      | 1,900 0.25                       | 5.0 2.0                        |
| MMBZ 5231B | 8F   | 5.1       | 17 20                      | 1,600 0.25                       | 5.0 2.0                        |
| MMBZ 5232B | 8G   | 5.6       | 11 20                      | 1,600 0.25                       | 5.0 3.0                        |
| MMBZ 5233B | 8H   | 6.0       | 7.0 20                     | 1,600 0.25                       | 5.0 3.5                        |
| MMBZ 5234B | 8J   | 6.2       | 7.0 20                     | 1,000 0.25                       | 5.0 4.0                        |
| MMBZ 5235B | 8K   | 6.8       | 5.0 20                     | 750 0.25                         | 3.0 5.0                        |
| MMBZ 5236B | 8L   | 7.5       | 6.0 20                     | 500 0.25                         | 3.0 6.0                        |
| MMBZ 5237B | 8M   | 8.2       | 8.0 20                     | 500 0.25                         | 3.0 6.5                        |
| MMBZ 5238B | 8N   | 8.7       | 8.0 20                     | 600 0.25                         | 3.0 6.5                        |
| MMBZ 5239B | 8P   | 9.1       | 10 20                      | 600 0.25                         | 3.0 7.0                        |
| MMBZ 5240B | 8Q   | 10        | 17 20                      | 600 0.25                         | 3.0 8.0                        |
| MMBZ 5241B | 8R   | 11        | 22 20                      | 600 0.25                         | 2.0 8.4                        |
| MMBZ 5242B | 8S   | 12        | 30 20                      | 600 0.25                         | 1.0 9.1                        |

$V_F$  Forward Voltage = 0.9 V Maximum @  $I_F = 10$  mA for all MMBZ 5200 series

Zeners (MMBZ5221B - MMBZ5257B)

# Zeners (MMBZ5221B - MMBZ5257B) (continued)

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

| Device     | Mark | V <sub>Z</sub> (V) | Z <sub>Z</sub> (Ω) | I <sub>Z</sub> (mA) | Z <sub>ZK</sub> (Ω) | I <sub>ZK</sub> (mA) | I <sub>R</sub> (nA) | V <sub>R</sub> (V) |
|------------|------|--------------------|--------------------|---------------------|---------------------|----------------------|---------------------|--------------------|
| MMBZ 5243B | 8T   | 13                 | 13                 | 9.5                 | 600                 | 0.25                 | 500                 | 9.9                |
| MMBZ 5244B | 8U   | 14                 | 15                 | 9.0                 | 600                 | 0.25                 | 100                 | 10                 |
| MMBZ 5245B | 8V   | 15                 | 16                 | 8.5                 | 600                 | 0.25                 | 100                 | 11                 |
| MMBZ 5246B | 8W   | 16                 | 17                 | 7.8                 | 600                 | 0.25                 | 100                 | 12                 |
| MMBZ 5247B | 8X   | 17                 | 19                 | 7.4                 | 600                 | 0.25                 | 100                 | 13                 |
| MMBZ 5248B | 8Y   | 18                 | 21                 | 7.0                 | 600                 | 0.25                 | 100                 | 14                 |
| MMBZ 5249B | 8Z   | 19                 | 23                 | 6.6                 | 600                 | 0.25                 | 100                 | 14                 |
| MMBZ 5250B | 81A  | 20                 | 25                 | 6.2                 | 600                 | 0.25                 | 100                 | 15                 |
| MMBZ 5251B | 81B  | 22                 | 29                 | 5.6                 | 600                 | 0.25                 | 100                 | 17                 |
| MMBZ 5252B | 81C  | 24                 | 33                 | 5.2                 | 600                 | 0.25                 | 100                 | 18                 |
| MMBZ 5253B | 81D  | 25                 | 35                 | 5.0                 | 600                 | 0.25                 | 100                 | 19                 |
| MMBZ 5254B | 81E  | 27                 | 41                 | 4.6                 | 600                 | 0.25                 | 100                 | 21                 |
| MMBZ 5255B | 81F  | 28                 | 44                 | 4.5                 | 600                 | 0.25                 | 100                 | 21                 |
| MMBZ 5256B | 81G  | 30                 | 49                 | 4.2                 | 600                 | 0.25                 | 100                 | 23                 |
| MMBZ 5257B | 81H  | 33                 | 58                 | 3.8                 | 700                 | 0.25                 | 100                 | 25                 |

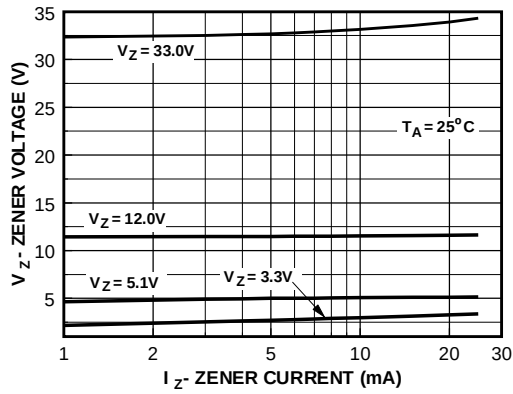
V<sub>F</sub> Forward Voltage = 0.9 V Maximum @ I<sub>F</sub> = 10 mA for all MMBZ 5200 series

Zeners (MMBZ5221B - MMBZ5257B)

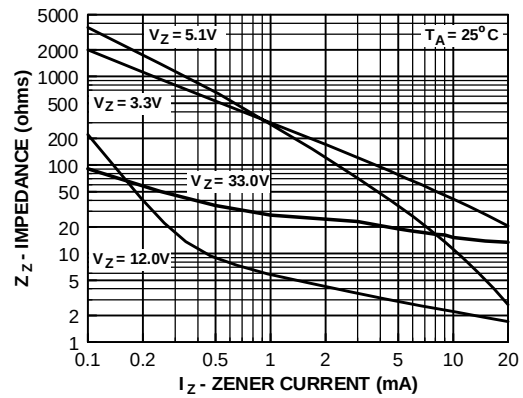
# Zeners (MMBZ5221B - MMBZ5257B) (continued)

## Typical Characteristics

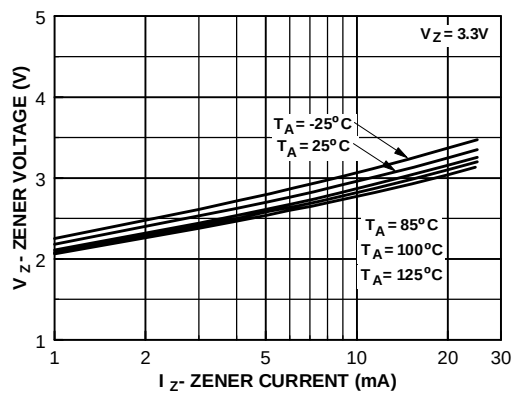
### Zener Current vs. Zener Voltage



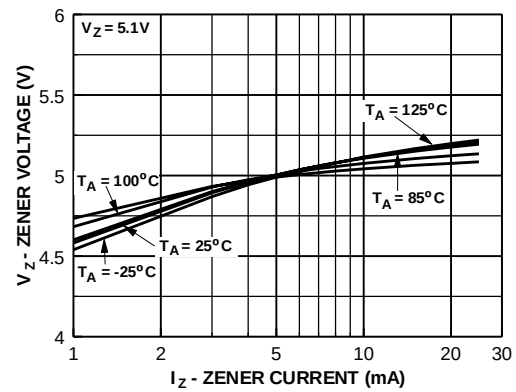
### Zener Current vs. Zener Impedance



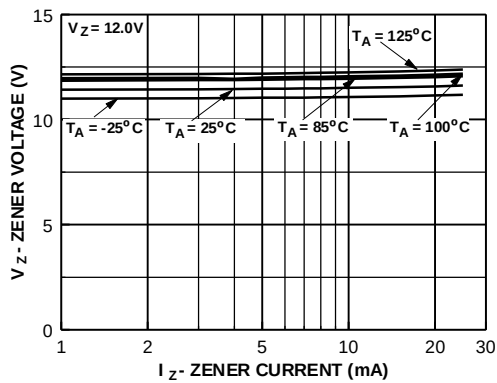
### 3.3 Zener Voltage vs. Temperature



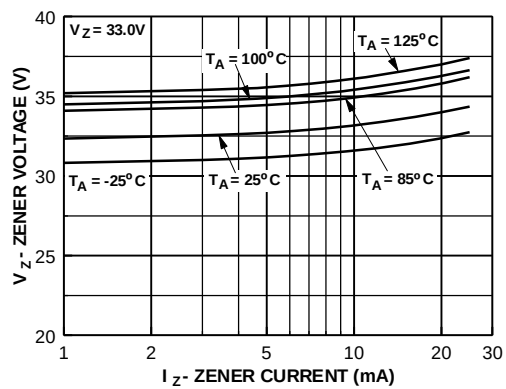
### 5.1 Zener Voltage vs. Temperature



### 12 Zener Voltage vs. Zener Temperature



### 33 Zener Voltage vs. Zener Temperature



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