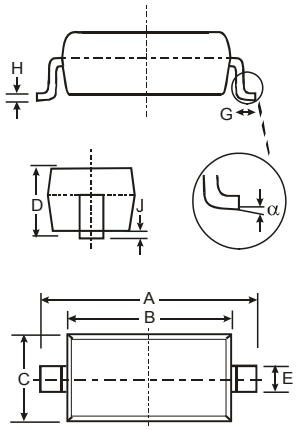
# MM1Z5221B~MM1Z5267B

## SURFACE MOUNT ZENMER DIODE

## Features

- Total power dissipation: Max. 500 mW
- Small plastic package suitable for surface mounted design
- Tolerance approximately ± 5%

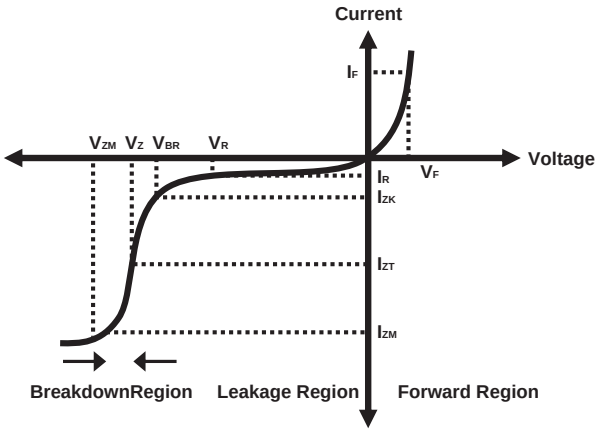



| SOD-123 | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 3.55 | 3.85 |
| **B** | 2.55 | 2.85 |
| **C** | 1.40 | 1.70 |
| **D** | — | 1.35 |
| **E** | 0.45 | 0.65 |
| | 0.55 Typical | |
| **G** | 0.25 | — |
| **H** | 0.11 Typical | |
| **J** | — | 0.10 |
| **α** | 0° | 8° |
| **All Dimensions in mm** | | |

## Maximum Ratings @ $T_A$ = 25°C unless otherwise specified

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Power Dissipation | $P_{tot}$ | 500 | mW |
| Junction Temperature | $T_j$ | 150 | °C |
| Storage Temperature Range | $T_{Stg}$ | - 55 to + 150 | °C |
| Thermal Resistance Junction to Ambient Air | $R_{\theta JA}$ | 350 | °C/W |
| Forward Voltage at $I_F$ = 10 mA | $V_F$ | 0.9 | V |

## Zener I vs. V Characteristics




**$V_{BR}$** : Voltage at $I_{ZK}$
**$I_{ZK}$** : Test current for voltage $V_{BR}$
**$Z_{ZK}$** : Dynamic impedance at $I_{ZK}$
**$I_{ZT}$** : Test current for voltage $V_Z$
**$V_Z$** : Voltage at current $I_{ZT}$
**$Z_{ZT}$** : Dynamic impedance at $I_{ZT}$
**$I_{ZM}$** : Maximum steady state current
**$V_{ZM}$** : Voltage at $I_{ZM}$

# MM1Z5221B~MM1Z5267B

## SURFACE MOUNT ZENMER DIODE

## Electrical Characteristics @ $T_A$ = 25°C unless otherwise specified

| Type | Marking Code | Zener Voltage Range 1) | | | Dynamic Impedance 2) | | | Reverse Current | |
|---|---|---|---|---|---|---|---|---|---|
| | | $V_{znom}$ | $I_{ZT}$ for | $V_{ZT}$ | $Z_{ZT}$ | $Z_{ZK}$ | at $I_{ZK}$ | $I_R$ | at $V_R$ |
| | | V | mA | V | Ω (Max.) | Ω (Max.) | mA | μA (Max.) | V |
| MM1Z5221B | A4 | 2.4 | 20 | 2.28…2.52 | 30 | 1200 | 0.25 | 100 | 1 |
| MM1Z5223B | B4 | 2.7 | 20 | 2.57…2.84 | 30 | 1300 | 0.25 | 75 | 1 |
| MM1Z5225B | C4 | 3.0 | 20 | 2.85…3.15 | 29 | 1600 | 0.25 | 50 | 1 |
| MM1Z5226B | D4 | 3.3 | 20 | 3.14…3.47 | 28 | 1600 | 0.25 | 25 | 1 |
| MM1Z5227B | E4 | 3.6 | 20 | 3.42…3.78 | 24 | 1700 | 0.25 | 15 | 1 |
| MM1Z5228B | F4 | 3.9 | 20 | 3.71…4.1 | 23 | 1900 | 0.25 | 10 | 1 |
| MM1Z5229B | H4 | 4.3 | 20 | 4.09…4.52 | 22 | 2000 | 0.25 | 5 | 1 |
| MM1Z5230B | J4 | 4.7 | 20 | 4.47…4.94 | 19 | 1900 | 0.25 | 5 | 2 |
| MM1Z5231B | K4 | 5.1 | 20 | 4.85…5.36 | 17 | 1600 | 0.25 | 5 | 2 |
| MM1Z5232B | M4 | 5.6 | 20 | 5.32…5.88 | 11 | 1600 | 0.25 | 5 | 3 |
| MM1Z5234B | N4 | 6.2 | 20 | 5.89…6.51 | 7 | 1000 | 0.25 | 5 | 4 |
| MM1Z5235B | P4 | 6.8 | 20 | 6.46…7.14 | 5 | 750 | 0.25 | 3 | 5 |
| MM1Z5236B | R4 | 7.5 | 20 | 7.13…7.88 | 6 | 500 | 0.25 | 3 | 6 |
| MM1Z5237B | X4 | 8.2 | 20 | 7.79…8.61 | 8 | 500 | 0.25 | 3 | 6.5 |
| MM1Z5239B | Y4 | 9.1 | 20 | 8.65…9.56 | 10 | 600 | 0.25 | 3 | 7 |
| MM1Z5240B | Z4 | 10 | 20 | 9.5…10.5 | 17 | 600 | 0.25 | 3 | 8 |
| MM1Z5241B | A5 | 11 | 20 | 10.45…11.55 | 22 | 600 | 0.25 | 2 | 8.4 |
| MM1Z5242B | B5 | 12 | 20 | 11.4…12.6 | 30 | 600 | 0.25 | 1 | 9.1 |
| MM1Z5243B | C5 | 13 | 9.5 | 12.35…13.65 | 13 | 600 | 0.25 | 0.5 | 9.9 |
| MM1Z5245B | D5 | 15 | 8.5 | 14.25…15.75 | 16 | 600 | 0.25 | 0.1 | 11 |
| MM1Z5246B | E5 | 16 | 7.8 | 15.2…16.8 | 17 | 600 | 0.25 | 0.1 | 12 |
| MM1Z5248B | F5 | 18 | 7 | 17.1…18.9 | 21 | 600 | 0.25 | 0.1 | 14 |
| MM1Z5249B | K9 | 19 | 6.6 | 18.05…19.95 | 23 | 600 | 0.25 | 0.1 | 14 |
| MM1Z5250B | H5 | 20 | 6.2 | 19…21 | 25 | 600 | 0.25 | 0.1 | 15 |
| MM1Z5251B | J5 | 22 | 5.6 | 20.9…23.1 | 29 | 600 | 0.25 | 0.1 | 17 |
| MM1Z5252B | K5 | 24 | 5.2 | 22.8…25.2 | 33 | 600 | 0.25 | 0.1 | 18 |
| MM1Z5253B | M9 | 25 | 5 | 23.75…26.25 | 35 | 600 | 0.25 | 0.1 | 19 |
| MM1Z5254B | M5 | 27 | 4.6 | 25.65…28.35 | 41 | 600 | 0.25 | 0.1 | 21 |
| MM1Z5256B | N5 | 30 | 4.2 | 28.5…31.5 | 49 | 600 | 0.25 | 0.1 | 23 |
| MM1Z5257B | P5 | 33 | 3.8 | 31.35…34.65 | 58 | 700 | 0.25 | 0.1 | 25 |
| MM1Z5258B | R5 | 36 | 3.4 | 34.2…37.8 | 70 | 700 | 0.25 | 0.1 | 27 |
| MM1Z5259B | X5 | 39 | 3.2 | 37.05…40.95 | 80 | 800 | 0.25 | 0.1 | 30 |
| MM1Z5260B | Y5 | 43 | 3 | 40.85…45.15 | 93 | 900 | 0.25 | 0.1 | 33 |
| MM1Z5261B | Z5 | 47 | 2.7 | 44.65…49.35 | 105 | 1000 | 0.25 | 0.1 | 36 |
| MM1Z5262B | A6 | 51 | 2.5 | 48.45…53.55 | 125 | 1100 | 0.25 | 0.1 | 39 |
| MM1Z5263B | B6 | 56 | 2.2 | 53.2…58.8 | 150 | 1300 | 0.25 | 0.1 | 43 |
| MM1Z5265B | C6 | 62 | 2 | 58.9…65.1 | 185 | 1400 | 0.25 | 0.1 | 47 |
| MM1Z5266B | D6 | 68 | 1.8 | 64.6…71.4 | 230 | 1600 | 0.25 | 0.1 | 52 |
| MM1Z5267B | E6 | 75 | 1.7 | 71.25…78.75 | 270 | 1700 | 0.25 | 0.1 | 56 |

## TYPICAL TRANSIENT CHARACTERISTICS

FIG1. TEMPERATURE COEFFICIENTS
（ TEMPERATURE RANGE −55°C TO + 150°C）

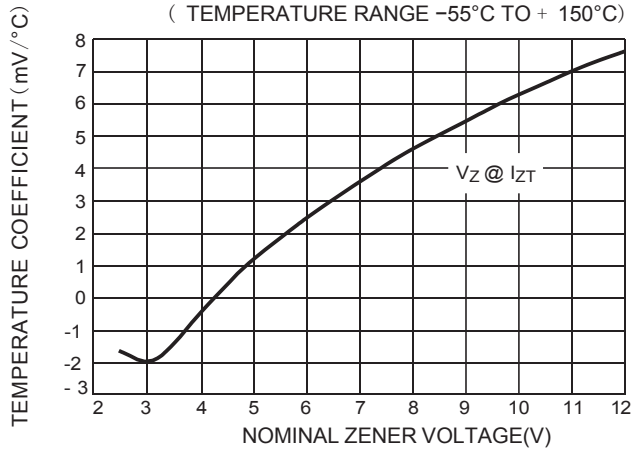



FIG 2. TEMPERATURE COEFFICIENTS
（ TEMPERATURE RANGE −55°C TO + 150°C）

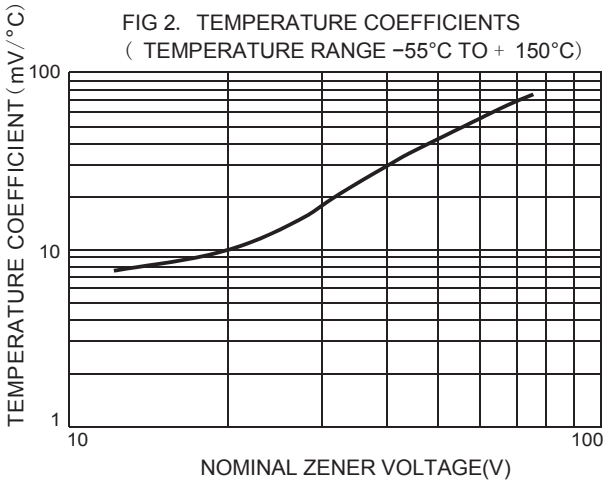



FIG3. TYPICAL LEAKAGE CURRENT

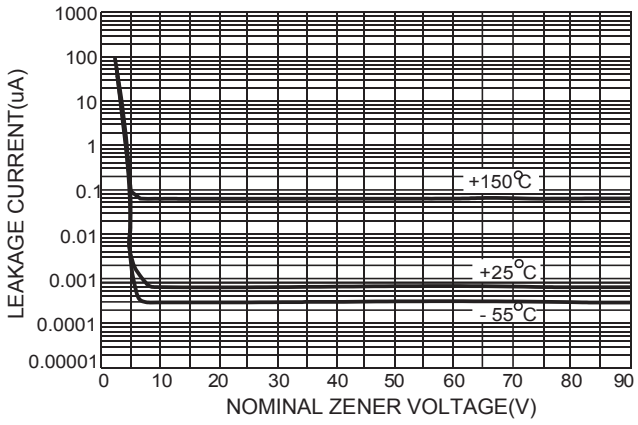



FIG4. TYPICAL FORWARD VOLTAGE

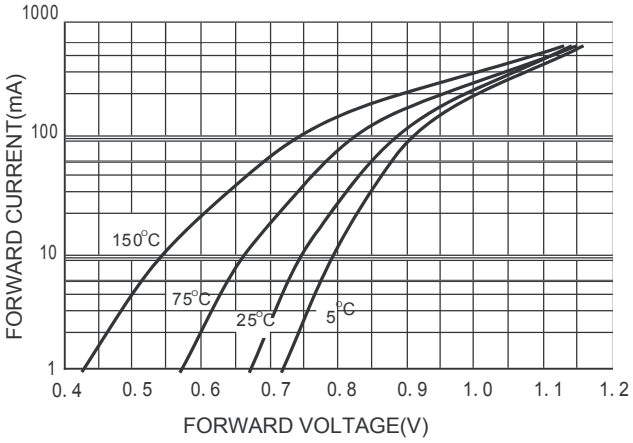



FIG5. STEADY STATE POWER DERATING

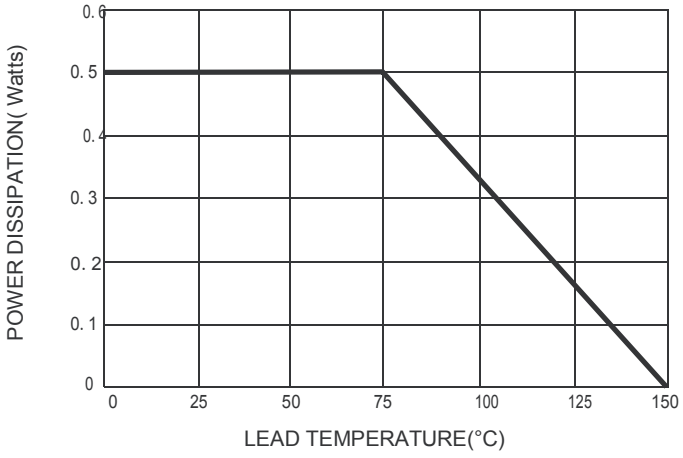
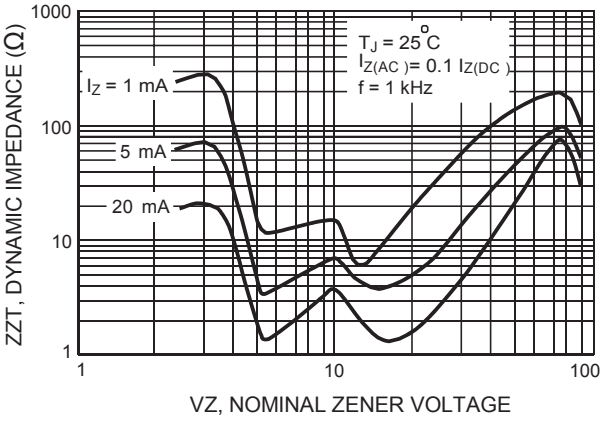



FIG6. Effect of Zener Voltage on Zener Impedance



## TYPICAL TRANSIENT CHARACTERISTICS

FIG7. Typical Capacitance

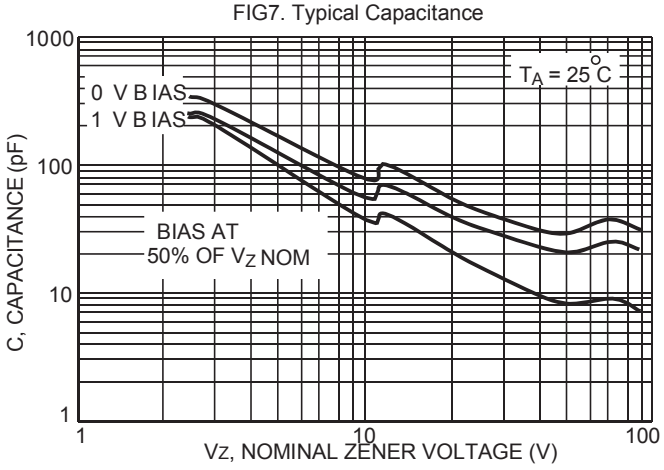



FIG8. Zener Voltage versus Zener Current
(VZ Up to 12 V)

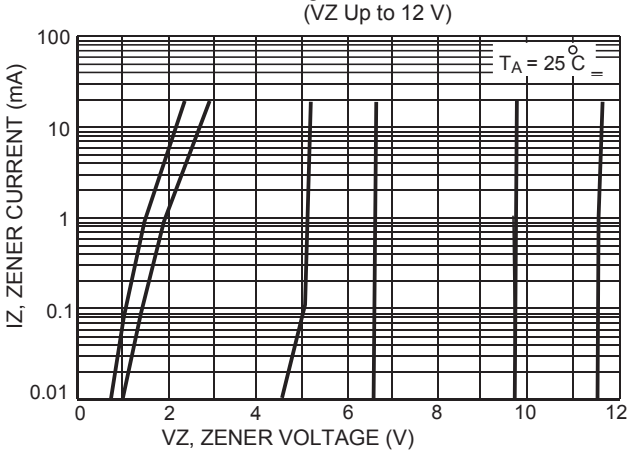
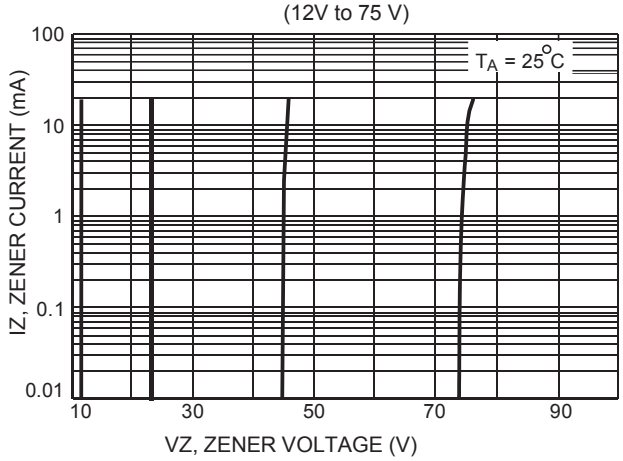



FIG9. Zener Voltage versus Zener Current
(12V to 75 V)



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