SEMICONDUCTOR

# MM3Z2V0B THRU MM3Z39B

## 0.3W SILICON PLANAR ZENER DIODES

## FEATURES

- Total power dissipation: max. 300 mW
- Small plastic package suitable for surface mounted design
- High reliability
- High temperature soldering guaranteed: 260℃/10 seconds at terminals
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

## SOD-323




Dimensions in inches and (millimeters)

## MECHANICAL DATA

- *Case*: SOD-323 plastic case
- *Weight*: Approx. 0.004 gram

## ABSOLUTE MAXIMUM RATINGS(LIMITING VALUES) ($T_A$=25℃)

| | *Symbols* | *Value* | *Units* |
|---|---|---|---|
| Zener current see table "Characteristics" | | | |
| Power dissipation | $P_{tot}$ | 300 | mW |
| Junction temperature | $T_J$ | 150 | ℃ |
| Storage temperature range | $T_{STG}$ | -55 to+150 | ℃ |

## ELECTRICAL CHARACTERISTICS ($T_A$=25℃)

| | *Symbols* | *Min* | *Typ* | *Max* | *Units* |
|---|---|---|---|---|---|
| Thermal resistance junction to ambient | $R_{\theta JA}$ | | | 0.3 | K/mW |
| Forward voltage at $I_F$=10mA | $V_F$ | | | 0.9 | V |

# MM3Z... SILICON PLANAR ZENER DIODES

| Type | Marking Code | Zener Voltage range 1) | | | Dynamic resistance 2) | | Reverse leakage current | | Temp Coefficient of zener voltage |
|---|---|---|---|---|---|---|---|---|---|
| | | $V_{ZNOM}$ | $I_{ZT}$ for $V_{ZT}$ | | $r_{zj}$ and $r_{zjK}$ at $I_{ZK}$ | | $I_R$ at $V_R$ | | $TK_{VZ}$ |
| | | V | mA | V | Ω | mA | μA | V | %/K |
| MM3Z2V0B | B0 | 2.0 | 5 | 1.8…2.15 | 100 | 5 | 120 | 0.5 | -0.09…-0.06 |
| MM3Z2V2B | MF | 2.2 | 5 | 2.08…2.33 | 100 | 5 | 120 | 0.7 | -0.09…-0.06 |
| MM3Z2V4B | 7C | 2.4 | 5 | 2.3…2.65 | 100 | 5 | 120 | 1 | -0.09…-0.06 |
| MM3Z2V7B | 7D | 2.7 | 5 | 2.65…2.95 | 110 | 5 | 120 | 1 | -0.09…-0.06 |
| MM3Z3V0B | 7E | 3.0 | 5 | 2.95…3.25 | 120 | 5 | 50 | 1 | -0.08…-0.05 |
| MM3Z3V3B | 7F | 3.3 | 5 | 3.25…3.55 | 120 | 5 | 20 | 1 | -0.08…-0.05 |
| MM3Z3V6B | 7H | 3.6 | 5 | 3.6…3.845 | 100 | 5 | 10 | 1 | -0.08…-0.05 |
| MM3Z3V9B | 7J | 3.9 | 5 | 3.89…4.16 | 100 | 5 | 5 | 1 | -0.08…-0.05 |
| MM3Z4V3B | 7K | 4.3 | 5 | 4.17…4.43 | 100 | 5 | 5 | 1 | -0.06…-0.03 |
| MM3Z4V7B | 7M | 4.7 | 5 | 4.55…4.75 | 100 | 5 | 2 | 1 | -0.05…+0.02 |
| MM3Z5V1B | 7N | 5.1 | 5 | 4.98…5.2 | 80 | 5 | 2 | 1.5 | -0.02…+0.02 |
| MM3Z5V6B | 7P | 5.6 | 5 | 5.49…5.73 | 60 | 5 | 1 | 2.5 | -0.05…+0.05 |
| MM3Z6V2B | 7R | 6.2 | 5 | 6.06…6.33 | 60 | 5 | 1 | 3 | 0.03…0.06 |
| MM3Z6V8B | 7X | 6.8 | 5 | 6.65…6.93 | 40 | 5 | 0.5 | 3.5 | 0.03…0.07 |
| MM3Z7V5B | 7Y | 7.5 | 5 | 7.28…7.6 | 30 | 5 | 0.5 | 4 | 0.03…0.07 |
| MM3Z8V2B | 7Z | 8.2 | 5 | 8.02…8.36 | 30 | 5 | 0.5 | 5 | 0.03…0.08 |
| MM3Z9V1B | 8A | 9.1 | 5 | 8.85…9.23 | 30 | 5 | 0.5 | 6 | 0.03…0.09 |
| MM3Z10B | 8B | 10 | 5 | 9.77…10.21 | 30 | 5 | 0.1 | 7 | 0.03…0.1 |
| MM3Z11B | 8C | 11 | 5 | 10.76…11.22 | 30 | 5 | 0.1 | 8 | 0.03…0.11 |
| MM3Z12B | 8D | 12 | 5 | 11.74…12.24 | 30 | 5 | 0.1 | 9 | 0.03…0.11 |
| MM3Z13B | 8E | 13 | 5 | 12.91…13.49 | 37 | 5 | 0.1 | 10 | 0.03…0.11 |
| MM3Z15B | 8F | 15 | 5 | 14.34…14.98 | 42 | 5 | 0.1 | 11 | 0.03…0.11 |
| MM3Z16B | 8H | 16 | 5 | 15.85…16.51 | 50 | 5 | 0.1 | 12 | 0.03…0.11 |
| MM3Z18B | 8J | 18 | 5 | 17.56…18.35 | 65 | 5 | 0.1 | 13 | 0.03…0.11 |
| MM3Z20B | 8K | 20 | 5 | 19.52…20.39 | 85 | 5 | 0.1 | 15 | 0.03…0.11 |
| MM3Z22B | 8M | 22 | 5 | 21.54…22.47 | 100 | 5 | 0.1 | 17 | 0.04…0.12 |
| MM3Z24B | 8N | 24 | 5 | 23.72…24.78 | 120 | 5 | 0.1 | 19 | 0.04…0.12 |
| MM3Z27B | 8P | 27 | 5 | 26.19…27.53 | 150 | 2 | 0.1 | 21 | 0.04…0.12 |
| MM3Z30B | 8R | 30 | 5 | 29.19…30.69 | 200 | 2 | 0.1 | 23 | 0.04…0.12 |
| MM3Z33B | 8X | 33 | 5 | 32.15…33.79 | 250 | 2 | 0.1 | 25 | 0.04…0.12 |
| MM3Z36B | 8Y | 36 | 5 | 35.07…36.87 | 300 | 2 | 0.1 | 27 | 0.04…0.12 |
| MM3Z39B | 8Z | 39 | 5 | 37…41 | 100 | 2 | 2 | 30 | 0.04…0.12 |

1) Teated with pulses tp=20ms.
2) $Z_Z$ is measured at $I_Z$ by given a very small A. C. current signal.

FIG.1-Effect of Zener Voltage on Zener Impedance

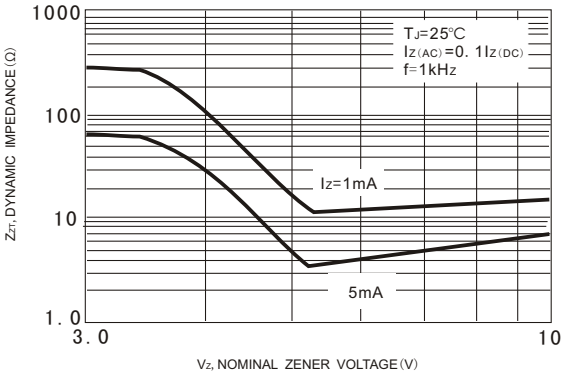


FIG.2-Typical Forward Voltage

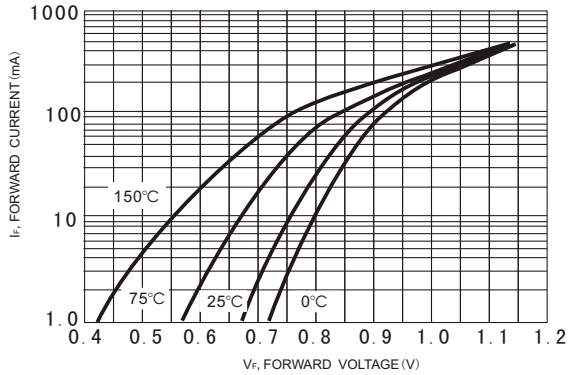


FIG.3-Typical Capacltance

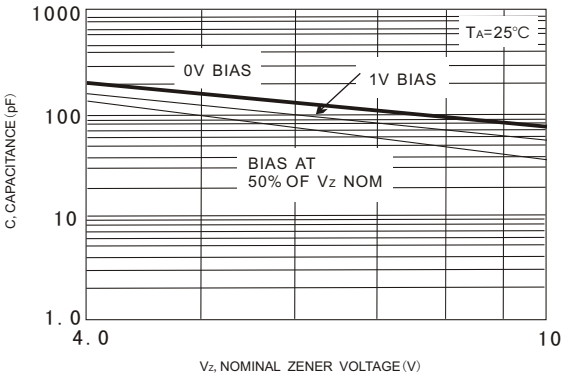


FIG.4-typical leakage current

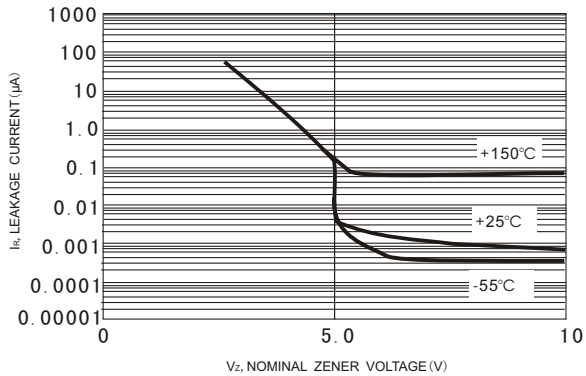


FIG.5-Zener Voltage versus Zener Current