TECH PUBLIC
台舟电子

# MMSZ52xxBT1G-TP Series
## 500m Watt Zener Voltage Regulators

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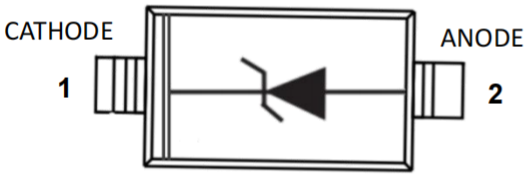
## Features

- Low Zener Impedance
- Power Dissipation of 500mW
- High Stability and High Reliability
- Halogen free and RoHS compliant
- SOD123 surface mount package

## Applications

- General voltage regulation
- Mobile & handheld systems
- Household Electric Appliances
- Industrial automation
- communication field

## Pin Configuration




SOD123

## Maximum Ratings& Thermal Characteristics

**(Tamb=25°C unless otherwise specified)**

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Forward Voltage @ IF=10mA | VF | 0.9 | V |
| Power Dissipation | PD | 500 | mW |
| Thermal Resistance (Junction-to-Ambient) | RθJA | 340 | °C/W |
| Junction Temperature Range | TJ | -55 ~ +150 | °C |
| Storage Temperature Range | TSTG | -55 ~ +150 | °C |

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## Electrical Characteristics ($T_A$ = 25 Cunless otherwise noted, $V_F$ = 0.9 V Max. @ $I_F$ = 10 mA)

| Device | Zener Voltage | | | | Zener Impedance | | | Leakage Current | |
|---|---|---|---|---|---|---|---|---|---|
| | $V_Z$ (Volts) | | | @ $I_{ZT}$ | $Z_{ZT}$ @ $I_{ZT}$ | $Z_{ZK}$ @ $I_{ZK}$ | | $I_R$ @ $V_R$ | |
| | Min | Nom | Max | mA | Ω | Ω | mA | μA | Volts |
| MMSZ5221BT1G-TP | 2.28 | 2.4 | 2.52 | 20 | 30 | 1200 | 0.25 | 100 | 1 |
| MMSZ5222BT1G-TP | 2.38 | 2.5 | 2.63 | 20 | 30 | 1250 | 0.25 | 100 | 1 |
| MMSZ5223BT1G-TP | 2.57 | 2.7 | 2.84 | 20 | 30 | 1300 | 0.25 | 75 | 1 |
| MMSZ5224BT1G-TP | 2.66 | 2.8 | 2.94 | 20 | 30 | 1400 | 0.25 | 75 | 1 |
| MMSZ5225BT1G-TP | 2.85 | 3.0 | 3.15 | 20 | 29 | 1600 | 0.25 | 50 | 1 |
| MMSZ5226BT1G-TP | 3.14 | 3.3 | 3.47 | 20 | 28 | 1600 | 0.25 | 25 | 1 |
| MMSZ5227BT1G-TP | 3.42 | 3.6 | 3.78 | 20 | 24 | 1700 | 0.25 | 15 | 1 |
| MMSZ5228BT1G-TP | 3.71 | 3.9 | 4.10 | 20 | 23 | 1900 | 0.25 | 10 | 1 |
| MMSZ5229BT1G-TP | 4.09 | 4.3 | 4.52 | 20 | 22 | 2000 | 0.25 | 5 | 1 |
| MMSZ5230BT1G-TP | 4.47 | 4.7 | 4.94 | 20 | 19 | 1900 | 0.25 | 5 | 2 |
| MMSZ5231BT1G-TP | 4.85 | 5.1 | 5.36 | 20 | 17 | 1600 | 0.25 | 5 | 2 |
| MMSZ5232BT1G-TP | 5.32 | 5.6 | 5.88 | 20 | 11 | 1600 | 0.25 | 5 | 3 |
| MMSZ5233BT1G-TP | 5.70 | 6.0 | 6.30 | 20 | 7 | 1600 | 0.25 | 5 | 3.5 |
| MMSZ5234BT1G-TP | 5.89 | 6.2 | 6.51 | 20 | 7 | 1000 | 0.25 | 5 | 4 |
| MMSZ5235BT1G-TP | 6.46 | 6.8 | 7.14 | 20 | 5 | 750 | 0.25 | 3 | 5 |
| MMSZ5236BT1G-TP | 7.13 | 7.5 | 7.88 | 20 | 6 | 500 | 0.25 | 3 | 6 |
| MMSZ5237BT1G-TP | 7.79 | 8.2 | 8.61 | 20 | 8 | 500 | 0.25 | 3 | 6.5 |
| MMSZ5238BT1G-TP | 8.27 | 8.7 | 9.14 | 20 | 8 | 600 | 0.25 | 3 | 6.5 |
| MMSZ5239BT1G-TP | 8.65 | 9.1 | 9.56 | 20 | 10 | 600 | 0.25 | 3 | 7 |
| MMSZ5240BT1G-TP | 9.50 | 10 | 10.50 | 20 | 17 | 600 | 0.25 | 3 | 8 |
| MMSZ5241BT1G-TP | 10.45 | 11 | 11.55 | 20 | 22 | 600 | 0.25 | 2 | 8.4 |
| MMSZ5242BT1G-TP | 11.40 | 12 | 12.60 | 20 | 30 | 600 | 0.25 | 1 | 9.1 |
| MMSZ5243BT1G-TP | 12.35 | 13 | 13.65 | 9.5 | 13 | 600 | 0.25 | 0.5 | 9.9 |
| MMSZ5244BT1G-TP | 13.30 | 14 | 14.70 | 9.0 | 15 | 600 | 0.25 | 0.1 | 10 |
| MMSZ5245BT1G-TP | 14.25 | 15 | 15.75 | 8.5 | 16 | 600 | 0.25 | 0.1 | 11 |
| MMSZ5246BT1G-TP | 15.20 | 16 | 16.80 | 7.8 | 17 | 600 | 0.25 | 0.1 | 12 |
| MMSZ5247BT1G-TP | 16.15 | 17 | 17.85 | 7.4 | 19 | 600 | 0.25 | 0.1 | 13 |

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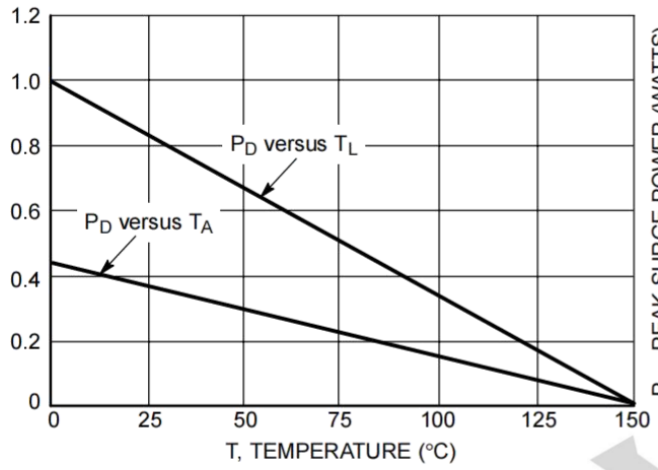
## Electrical Characteristics ($T_A$ = 25 Cunless otherwise noted, $V_F$ = 0.9 V Max. @ $I_F$ = 10 mA)

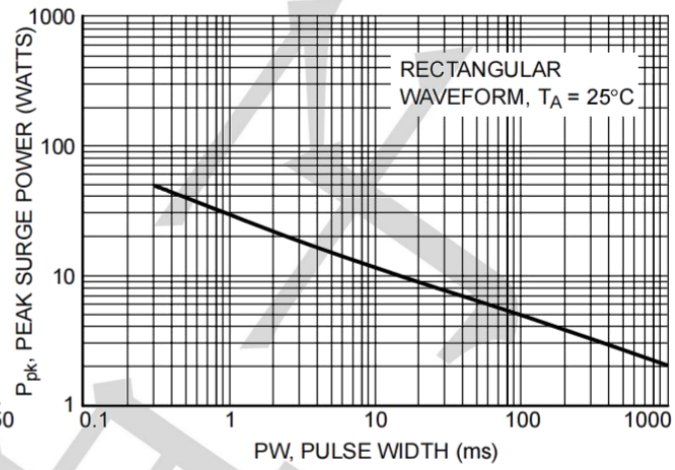
| Device | Zener Voltage | | | | Zener Impedance | | | Leakage Current | |
|---|---|---|---|---|---|---|---|---|---|
| | $V_Z$ (Volts) | | | @ $I_{ZT}$ | $Z_{ZT}$ @ $I_{ZT}$ | $Z_{ZK}$ @ $I_{ZK}$ | | $I_R$ @ $V_R$ | |
| | Min | Nom | Max | mA | Ω | Ω | mA | μA | Volts |
| MMSZ5248BT1G-TP | 17.10 | 18 | 18.90 | 7.0 | 21 | 600 | 0.25 | 0.1 | 14 |
| MMSZ5250BT1G-TP | 19.00 | 20 | 21.00 | 6.2 | 25 | 600 | 0.25 | 0.1 | 15 |
| MMSZ5251BT1G-TP | 20.90 | 22 | 23.10 | 5.6 | 29 | 600 | 0.25 | 0.1 | 17 |
| MMSZ5252BT1G-TP | 22.80 | 24 | 25.20 | 5.2 | 33 | 600 | 0.25 | 0.1 | 18 |
| MMSZ5253BT1G-TP | 23.75 | 25 | 26.25 | 5.0 | 35 | 600 | 0.25 | 0.1 | 19 |
| MMSZ5254BT1G-TP | 25.65 | 27 | 28.35 | 4.6 | 41 | 600 | 0.25 | 0.1 | 21 |
| MMSZ5255BT1G-TP | 26.60 | 28 | 29.40 | 4.5 | 44 | 600 | 0.25 | 0.1 | 21 |
| MMSZ5256BT1G-TP | 28.50 | 30 | 31.50 | 4.2 | 49 | 600 | 0.25 | 0.1 | 23 |
| MMSZ5257BT1G-TP | 31.35 | 33 | 34.65 | 3.8 | 58 | 700 | 0.25 | 0.1 | 25 |
| MMSZ5258BT1G-TP | 34.20 | 36 | 37.80 | 3.4 | 70 | 700 | 0.25 | 0.1 | 27 |
| MMSZ5259BT1G-TP | 37.05 | 39 | 40.95 | 3.2 | 80 | 800 | 0.25 | 0.1 | 30 |
| MMSZ5260BT1G-TP | 40.85 | 43 | 45.15 | 3.0 | 93 | 900 | 0.25 | 0.1 | 33 |
| MMSZ5261BT1G-TP | 44.65 | 47 | 49.35 | 2.7 | 105 | 1000 | 0.25 | 0.1 | 36 |
| MMSZ5262BT1G-TP | 48.45 | 51 | 53.55 | 2.5 | 125 | 1100 | 0.25 | 0.1 | 39 |
| MMSZ5263BT1G-TP | 53.20 | 56 | 58.80 | 2.2 | 150 | 1300 | 0.25 | 0.1 | 43 |
| MMSZ5264BT1G-TP | 57.00 | 60 | 63.00 | 2.1 | 170 | 1400 | 0.25 | 0.1 | 46 |
| MMSZ5265BT1G-TP | 58.90 | 62 | 65.10 | 2.0 | 185 | 1400 | 0.25 | 0.1 | 47 |
| MMSZ5266BT1G-TP | 64.60 | 68 | 71.40 | 1.8 | 230 | 1600 | 0.25 | 0.1 | 52 |
| MMSZ5267BT1G-TP | 71.25 | 75 | 78.75 | 1.7 | 270 | 1700 | 0.25 | 0.1 | 56 |
| MMSZ5268BT1G-TP | 77.90 | 82 | 86.10 | 1.5 | 330 | 2000 | 0.25 | 0.1 | 62 |
| MMSZ5269BT1G-TP | 82.65 | 87 | 91.35 | 1.4 | 370 | 2200 | 0.25 | 0.1 | 68 |
| MMSZ5270BT1G-TP | 86.45 | 91 | 95.55 | 1.4 | 400 | 2300 | 0.25 | 0.1 | 69 |
| MMSZ5272BT1G-TP | 104.5 | 110 | 115.5 | 1.1 | 750 | 3000 | 0.25 | 0.1 | 84 |

1.The type numbers shown have a standard tolerance of 5% on the nominal Zener voltage.
2.Nominal Zener voltage is measured with the device junction in thermal equilibrium at TL = 30℃ ±1℃.
3.ZZT and ZZK are measured by dividing the AC voltage drop across the device by the ac current applied

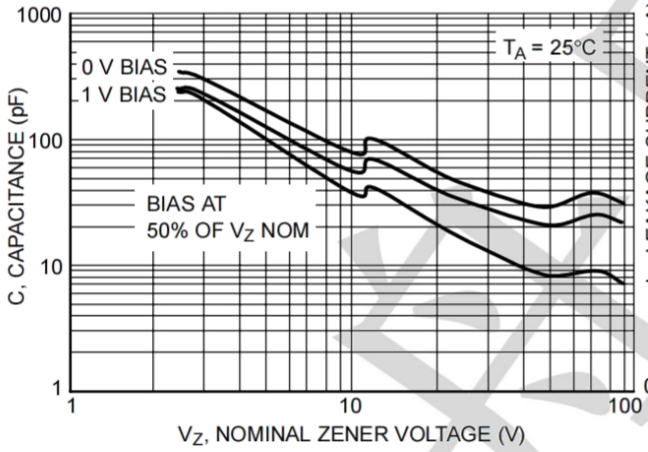
## Typical Characteristics Curves



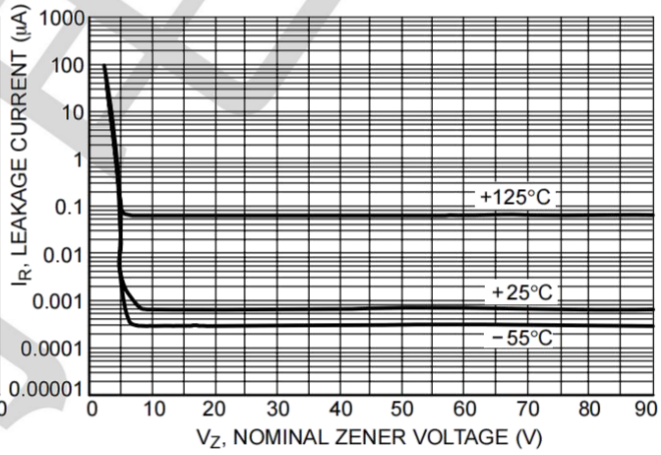

**Steady State Power Derating**



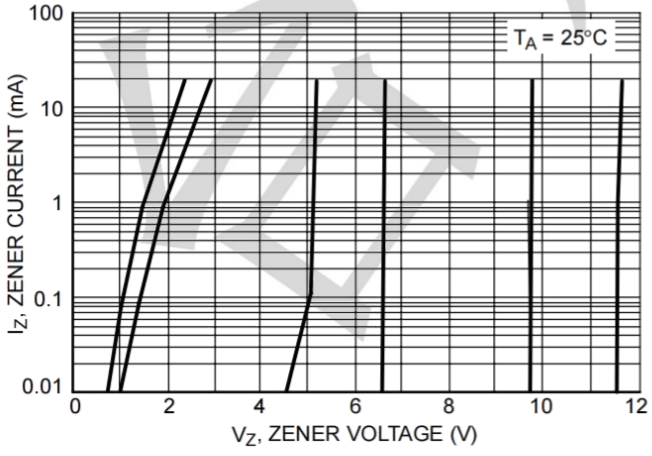

**Maximum Nonrepetitive Surge Power**



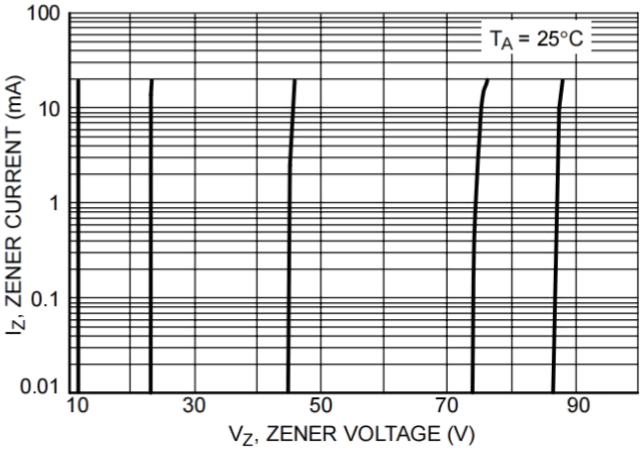

**Typical Capacitance**




**Typical Leakage Current**



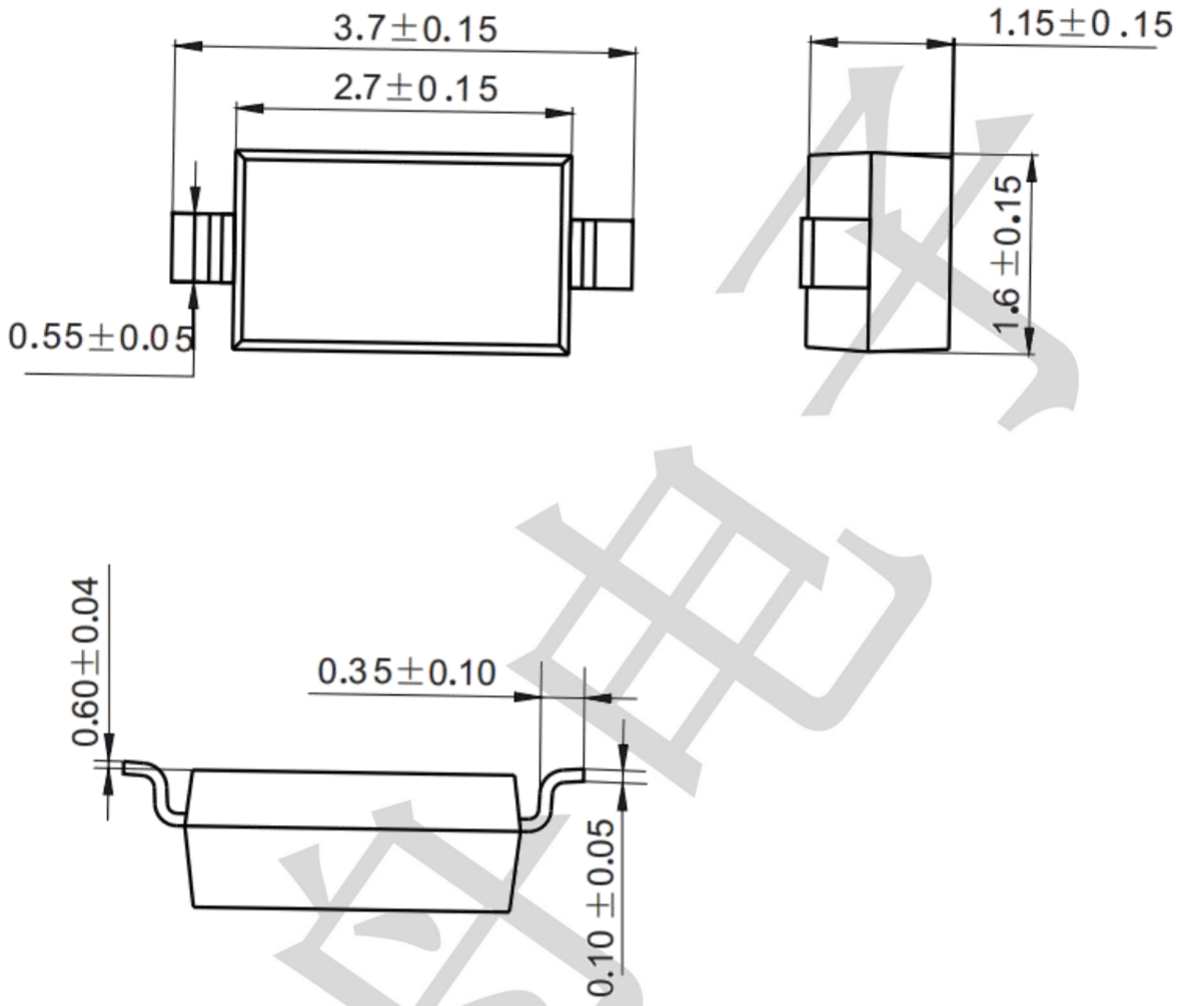

**Zener Voltage versus Zener Current ($V_Z$ Up to 12 V)**

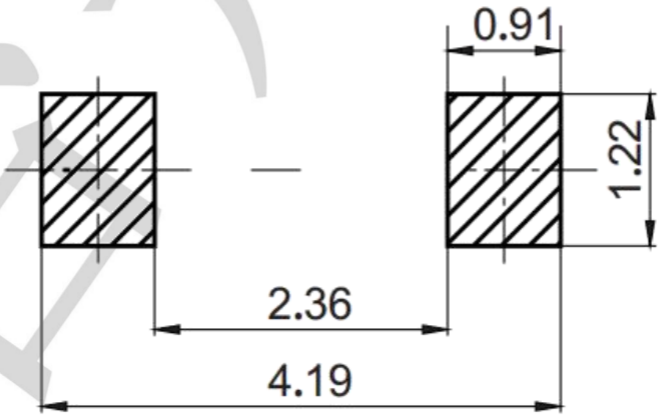



**Zener Voltage versus Zener Current (12 V to 91 V)**

## Package Outline Dimensions (unit: mm)

**SOD123**




## Mounting Pad Layout (unit: mm)