TECH PUBLIC
台舟电子

# MM5ZxxxT1G-TP Series
## 150m Watt Zener Voltage Regulators

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## Features

- Low Zener Impedance
- Power Dissipation of 150mW
- High Stability and High Reliability
- Halogen free and RoHS compliant
- SOD523 surface mount package

## Applications

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

**SOD523**

**Pin Configuration**

## 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 | 150 | mW |
| Thermal Resistance (Junction-to-Ambient) | RθJA | 883 | °C/W |
| Thermal Resistance (Junction-to-Case) | RθJC | 623 | °C/W |
| Junction Temperature Range | TJ | 150 | °C |
| Storage Temperature Range | TSTG | -55 ~ +150 | °C |

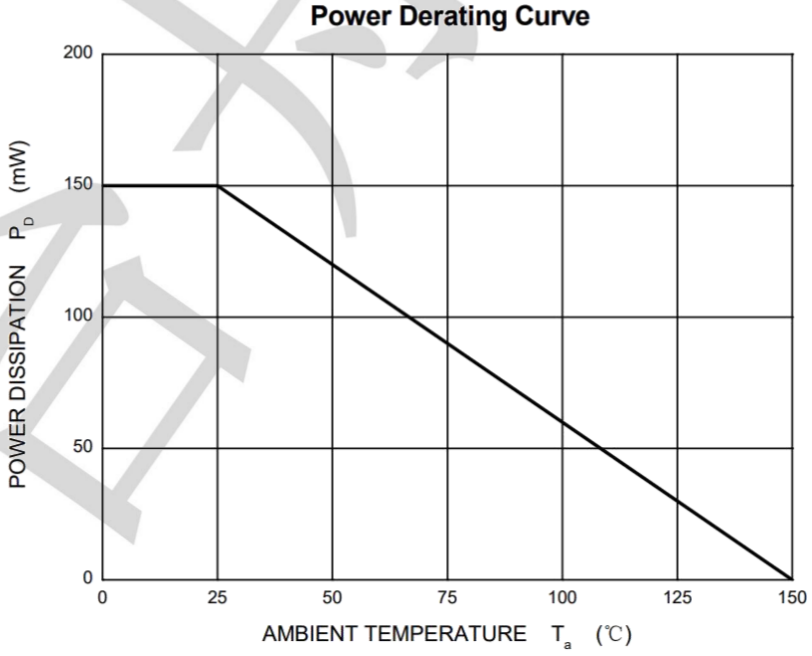
## Electrical Characteristics (TA=25°C unless otherwise specified)

| DEVICE | VZ(V) @ IZ=5mA | | | ZZ @ IZ = 1mA | ZZ @ IZ = 5mA | ZZ @ IZ = 20mA | IR@VR | VR | Typical Temperature Coefficient(mV/℃)@ IZ=5mA | |
|---|---|---|---|---|---|---|---|---|---|---|
| | MIN | NOM | MAX | Ω | | | uA | V | Min | Max |
| MM5Z2V4T1G-TP | 2.28 | 2.4 | 2.60 | 600 | 100 | 50 | 50 | 1 | -3.5 | 0 |
| MM5Z2V7T1G-TP | 2.57 | 2.7 | 2.90 | 600 | 100 | 50 | 20 | 1 | -3.5 | 0 |
| MM5Z3V0T1G-TP | 2.85 | 3.0 | 3.15 | 600 | 95 | 50 | 10 | 1 | -3.5 | 0 |
| MM5Z3V3T1G-TP | 3.14 | 3.3 | 3.47 | 600 | 95 | 40 | 5 | 1 | -3.5 | 0 |
| MM5Z3V6T1G-TP | 3.42 | 3.6 | 3.78 | 600 | 90 | 40 | 5 | 1 | -3.5 | 0 |
| MM5Z3V9T1G-TP | 3.71 | 3.9 | 4.09 | 600 | 90 | 30 | 0.5 | 1 | -3.5 | 0 |
| MM5Z4V3T1G-TP | 4.09 | 4.3 | 4.52 | 600 | 90 | 30 | 0.5 | 1 | -3.5 | 0 |
| MM5Z4V7T1G-TP | 4.47 | 4.7 | 4.94 | 500 | 80 | 15 | 3.0 | 2 | -3.5 | 0.2 |
| MM5Z5V1T1G-TP | 4.85 | 5.1 | 5.36 | 480 | 60 | 15 | 2.0 | 2 | -2.7 | 1.2 |
| MM5Z5V6T1G-TP | 5.32 | 5.6 | 5.88 | 400 | 40 | 10 | 1.0 | 2 | -2 | 2.5 |
| MM5Z6V2T1G-TP | 5.89 | 6.2 | 6.51 | 150 | 9.5 | 5.7 | 2.4 | 4 | 0.4 | 3.7 |
| MM5Z6V8T1G-TP | 6.46 | 6.8 | 7.14 | 76 | 14.2 | 5.7 | 1.6 | 4 | 1.2 | 4.5 |
| MM5Z7V5T1G-TP | 7.13 | 7.5 | 7.88 | 76 | 14.2 | 5.7 | 0.8 | 5 | 2.5 | 5.3 |
| MM5Z8V2T1G-TP | 7.79 | 8.2 | 8.61 | 76 | 14.2 | 5.7 | 0.56 | 5 | 3.2 | 6.2 |
| MM5Z9V1T1G-TP | 8.65 | 9.1 | 9.56 | 95 | 14.2 | 7.6 | 0.4 | 7 | 3.8 | 7.0 |
| MM5Z10VT1G-TP | 9.50 | 10 | 10.50 | 142.5 | 19 | 9.5 | 0.1 | 8 | 4.5 | 8.0 |
| MM5Z11VT1G-TP | 10.45 | 11 | 11.55 | 142.5 | 19 | 9.5 | 0.1 | 8 | 5.4 | 9.0 |
| MM5Z12VT1G-TP | 11.4 | 12 | 12.60 | 150 | 23.7 | 9.5 | 0.1 | 8 | 6.0 | 10.0 |
| MM5Z13VT1G-TP | 12.35 | 13 | 13.65 | 190 | 28.5 | 14.2 | 0.1 | 8 | 7.0 | 11.0 |
| MM5Z15VT1G-TP | 14.25 | 15 | 15.75 | 190 | 28.5 | 19 | 0.1 | 11 | 9.2 | 13.0 |
| MM5Z16VT1G-TP | 15.2 | 16 | 16.80 | 190 | 38 | 19 | 0.1 | 11 | 10.4 | 14.0 |
| MM5Z18VT1G-TP | 17.10 | 18 | 18.90 | 213 | 42.7 | 19 | 0.1 | 13 | 12.4 | 16.0 |
| MM5Z20VT1G-TP | 19.0 | 20 | 21.0 | 213 | 52.2 | 19 | 0.1 | 14 | 14.4 | 18.0 |
| MM5Z22VT1G-TP | 20.9 | 22 | 23.10 | 237 | 52.2 | 23.7 | 0.1 | 15 | 16.4 | 20.0 |
| MM5Z24VT1G-TP | 22.8 | 24 | 25.2 | 250 | 66.5 | 23.7 | 0.1 | 17 | 18.4 | 22.0 |

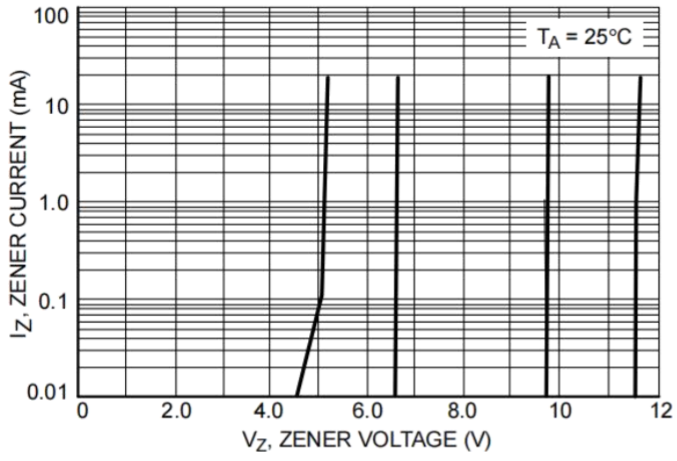
## Electrical Characteristics (TA=25°C unless otherwise specified)

| DEVICE | VZ(V) @ IZ=5mA | | | ZZ @ IZ = 1mA | ZZ @ IZ = 5mA | ZZ @ IZ = 20mA | IR@VR | VR | Typical Temperature Coefficient(mV/℃)@ IZ=5mA | |
|---|---|---|---|---|---|---|---|---|---|---|
| | MIN | NOM | MAX | Ω | | | uA | V | Min | Max |
| MM5Z27VT1G-TP | 25.65 | 27 | 28.35 | 295 | 75 | 43 | 0.04 | 19 | 21.4 | 25.3 |
| MM5Z30VT1G-TP | 28.50 | 30 | 31.50 | 295 | 75 | 48 | 0.04 | 21 | 24.4 | 29.4 |
| MM5Z33VT1G-TP | 31.35 | 33 | 34.65 | 320 | 75 | 53 | 0.04 | 23 | 27.4 | 33.4 |
| MM5Z36VT1G-TP | 34.20 | 36 | 37.80 | 345 | 85 | 58 | 0.04 | 25 | 30.4 | 37.4 |
| MM5Z39VT1G-TP | 37.05 | 39 | 40.95 | 345 | 125 | 68 | 0.04 | 27 | 33.4 | 41.2 |
| MM5Z43VT1G-TP | 40.85 | 43 | 45.15 | 370 | 145 | 78 | 0.04 | 30 | 37.6 | 46.6 |
| MM5Z47VT1G-TP | 44.65 | 47 | 49.35 | 370 | 165 | 88 | 0.04 | 33 | 42.0 | 51.8 |
| MM5Z51VT1G-TP | 48.45 | 51 | 53.55 | 395 | 175 | 98 | 0.04 | 36 | 46.6 | 57.2 |
| MM5Z56VT1G-TP | 52.2 | 56 | 58.8 | 420 | 195 | 108 | 0.04 | 39 | 52.2 | 63.8 |
| MM5Z62VT1G-TP | 58.9 | 62 | 65.1 | 445 | 210 | 118 | 0.04 | 43 | 58.8 | 71.6 |
| MM5Z68VT1G-TP | 64.6 | 68 | 71.4 | 470 | 235 | 128 | 0.04 | 48 | 65.6 | 79.8 |
| MM5Z75VT1G-TP | 71.25 | 75 | 78.75 | 495 | 250 | 138 | 0.04 | 53 | 73.4 | 88.6 |

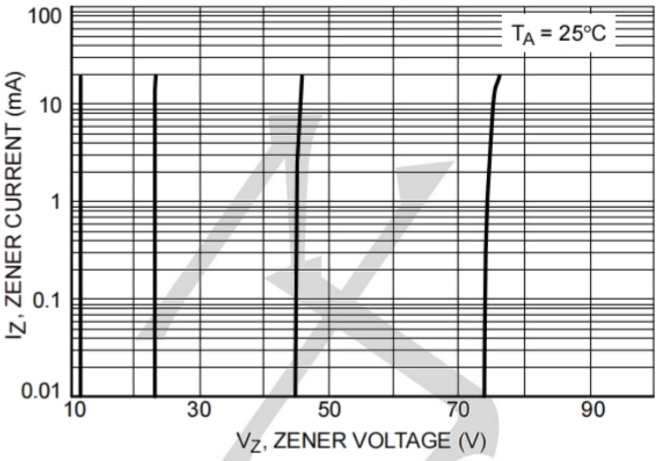
## Typical Characteristics Curves



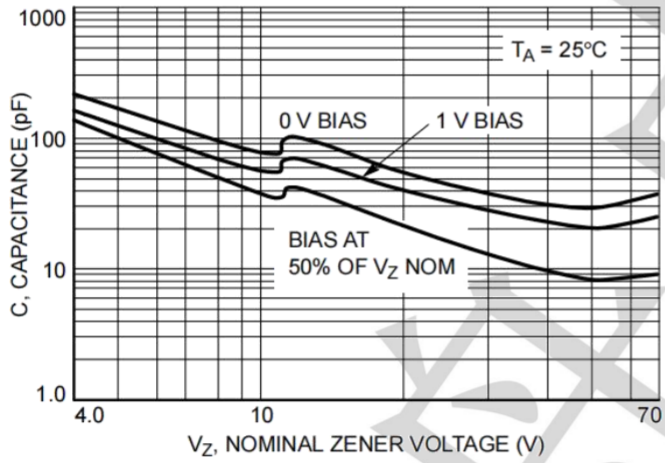
## Typical Characteristics Curves



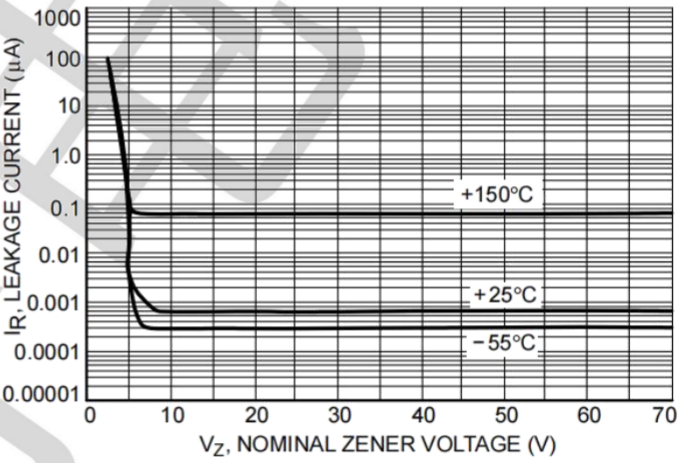

**Zener Voltage versus Zener Current ($V_Z$ Up to 12 V)**



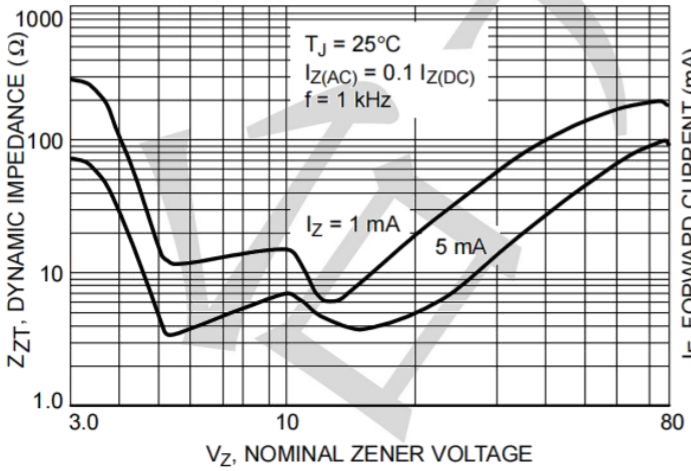

**Zener Voltage versus Zener Current (12 V to 75 V)**



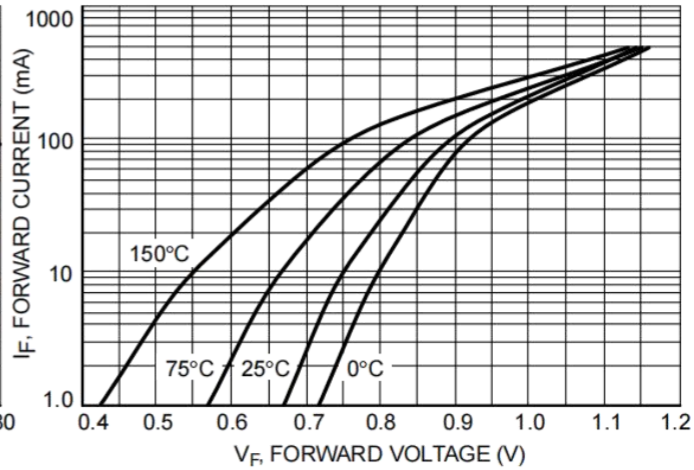

**Typical Capacitance**




**Typical Leakage Current**



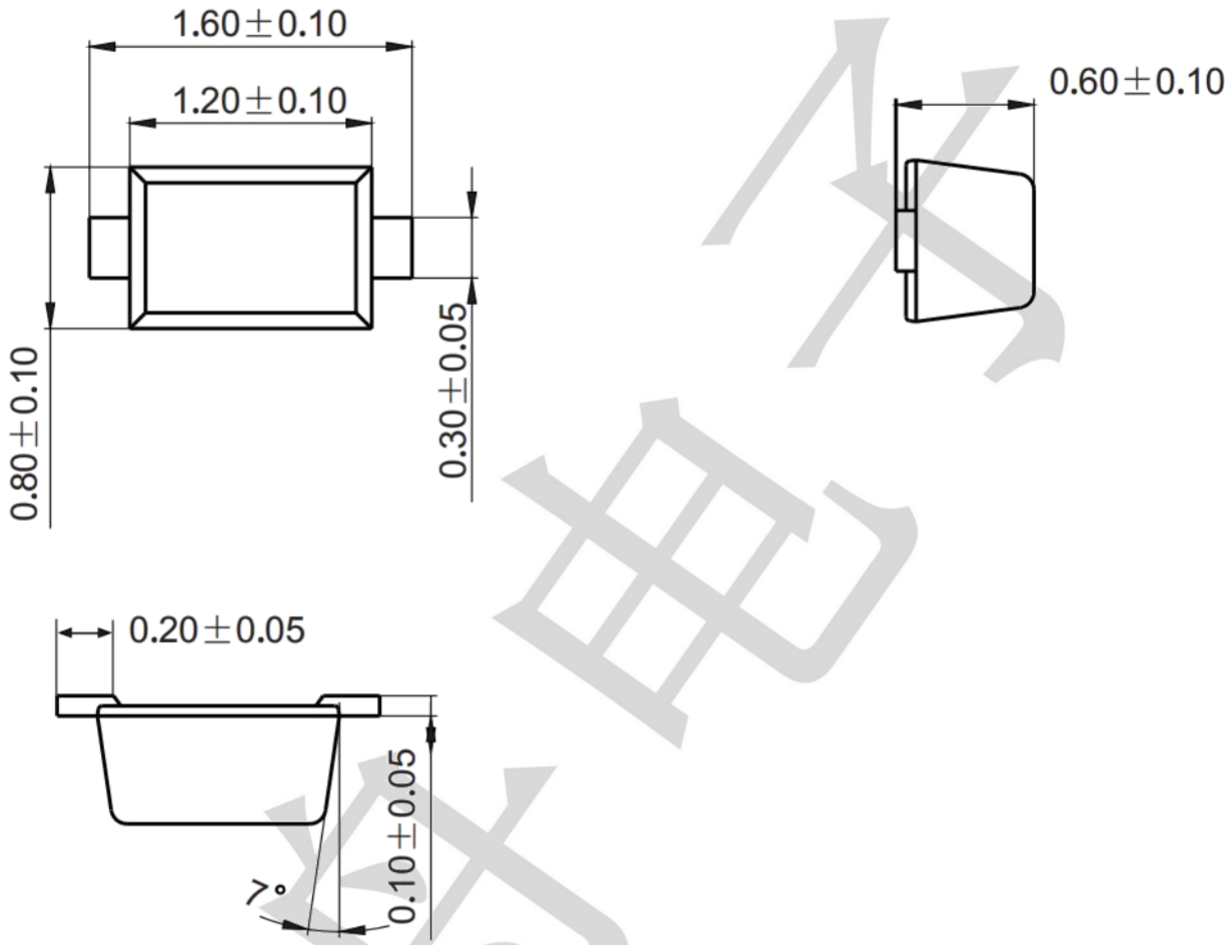

**Effect of Zener Voltage on Zener Impedance**




**Typical Forward Voltage**

## Package Outline Dimensions (unit: mm)

### SOD523




## Mounting Pad Layout (unit: mm)