TECH PUBLIC
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# TPZxxxC-123 Series
## 500m Watt Zener Voltage Regulators

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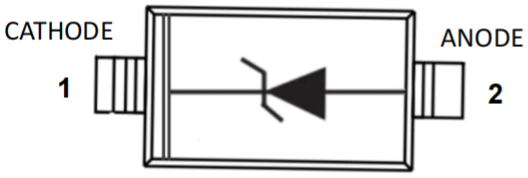
## Features

- 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 |

# TPZxxxC-123 Series
## 500m Watt Zener Voltage Regulators



## Electrical Characteristics ($T_A$ = 25℃ Cunless otherwise noted)

| Type | Zener Voltage Range | | | | Maximum Zener Impedance | | | | Reverse Current | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $V_{ZT}$ (at $I_{ZT}$) | | | $I_{ZT}$ | $Z_{ZT}$ @$I_{ZT}$ | $I_{ZT}$ | $Z_{ZK}$@ $I_{ZK}$ | $I_{ZK}$ | $I_R$ | @$V_R$ |
| | Min (V) | Nom (V) | Max (V) | (mA) | (Ω) | (mA) | (Ω) | (mA) | μA | V |
| TPZ2V0C-123 | 1.91 | 2.0 | 2.09 | 5 | 100 | 5 | 600 | 1 | 150 | 1.0 |
| TPZ2V4C-123 | 2.2 | 2.4 | 2.6 | 5 | 100 | 5 | 600 | 1 | 50 | 1.0 |
| TPZ2V7C-123 | 2.5 | 2.7 | 2.9 | 5 | 100 | 5 | 600 | 1 | 20 | 1.0 |
| TPZ3V0C-123 | 2.8 | 3.0 | 3.2 | 5 | 95 | 5 | 600 | 1 | 10 | 1.0 |
| TPZ3V3C-123 | 3.1 | 3.3 | 3.5 | 5 | 95 | 5 | 600 | 1 | 5.0 | 1.0 |
| TPZ3V6C-123 | 3.4 | 3.6 | 3.8 | 5 | 90 | 5 | 600 | 1 | 5.0 | 1.0 |
| TPZ3V9C-123 | 3.7 | 3.9 | 4.1 | 5 | 90 | 5 | 600 | 1 | 3.0 | 1.0 |
| TPZ4V3C-123 | 4.0 | 4.3 | 4.6 | 5 | 90 | 5 | 600 | 1 | 3.0 | 1.0 |
| TPZ4V7C-123 | 4.4 | 4.7 | 5.0 | 5 | 80 | 5 | 500 | 1 | 3.0 | 2.0 |
| TPZ5V1C-123 | 4.8 | 5.1 | 5.4 | 5 | 60 | 5 | 480 | 1 | 2.0 | 2.0 |
| TPZ5V6C-123 | 5.2 | 5.6 | 6.0 | 5 | 40 | 5 | 400 | 1 | 1.0 | 2.0 |
| TPZ6V2C-123 | 5.8 | 6.2 | 6.6 | 5 | 10 | 5 | 150 | 1 | 3.0 | 4.0 |
| TPZ6V8C-123 | 6.4 | 6.8 | 7.2 | 5 | 15 | 5 | 80 | 1 | 2.0 | 4.0 |
| TPZ7V5C-123 | 7.0 | 7.5 | 7.9 | 5 | 15 | 5 | 80 | 1 | 1.0 | 5.0 |
| TPZ8V2C-123 | 7.7 | 8.2 | 8.7 | 5 | 15 | 5 | 80 | 1 | 0.7 | 5.0 |
| TPZ9V1C-123 | 8.5 | 9.1 | 9.6 | 5 | 15 | 5 | 100 | 1 | 0.5 | 6.0 |
| TPZ10VC-123 | 9.4 | 10 | 10.6 | 5 | 20 | 5 | 150 | 1 | 0.2 | 7.0 |
| TPZ11VC-123 | 10.4 | 11 | 11.6 | 5 | 20 | 5 | 150 | 1 | 0.1 | 8.0 |
| TPZ12VC-123 | 11.4 | 12 | 12.7 | 5 | 25 | 5 | 150 | 1 | 0.1 | 8.0 |
| TPZ13VC-123 | 12.4 | 13 | 14.1 | 5 | 30 | 5 | 170 | 1 | 0.1 | 8.0 |
| TPZ15VC-123 | 13.8 | 15 | 15.6 | 5 | 30 | 5 | 200 | 1 | 0.1 | 10.5 |
| TPZ16VC-123 | 15.3 | 16 | 17.1 | 5 | 40 | 5 | 200 | 1 | 0.1 | 11.2 |
| TPZ18VC-123 | 16.8 | 18 | 19.1 | 5 | 45 | 5 | 225 | 1 | 0.1 | 12.6 |
| TPZ20VC-123 | 18.8 | 20 | 21.2 | 5 | 55 | 5 | 225 | 1 | 0.1 | 14.0 |
| TPZ22VC-123 | 20.8 | 22 | 23.3 | 5 | 55 | 5 | 250 | 1 | 0.1 | 15.4 |
| TPZ24VC-123 | 22.8 | 24 | 25.6 | 5 | 70 | 5 | 250 | 1 | 0.1 | 16.8 |

## Electrical Characteristics ($T_A$ = 25℃ Cunless otherwise noted)

| Type | Zener Voltage Range | | | | Maximum Zener Impedance | | | | Reverse Current | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $V_{ZT}$ (at $I_{ZT}$) | | | $I_{ZT}$ | $Z_{ZT}$ @$I_{ZT}$ | $I_{ZT}$ | $Z_{ZK}$@ $I_{ZK}$ | $I_{ZK}$ | $I_R$ | @$V_R$ |
| | Min (V) | Nom (V) | Max (V) | (mA) | (Ω) | (mA) | (Ω) | (mA) | μA | V |
| TPZ27VC-123 | 25.1 | 27 | 28.9 | 2 | 80 | 2 | 300 | 0.5 | 0.1 | 18.9 |
| TPZ30VC-123 | 28 | 30 | 32 | 2 | 80 | 2 | 300 | 0.5 | 0.1 | 21.0 |
| TPZ33VC-123 | 31 | 33 | 35 | 2 | 80 | 2 | 325 | 0.5 | 0.1 | 23.1 |
| TPZ36VC-123 | 34 | 36 | 38 | 2 | 90 | 2 | 350 | 0.5 | 0.1 | 25.2 |
| TPZ39VC-123 | 37 | 39 | 41 | 2 | 130 | 2 | 350 | 0.5 | 0.1 | 27.3 |
| TPZ43VC-123 | 40 | 43 | 46 | 2 | 130 | 2 | 500 | 1 | 2 | 33 |
| TPZ47VC-123 | 44 | 47 | 50 | 2 | 150 | 2 | 500 | 1 | 2 | 36 |
| TPZ51VC-123 | 48 | 51 | 54 | 2 | 180 | 2 | 500 | 1 | 1 | 37 |
| TPZ56VC-123 | 52 | 56 | 60 | 2 | 180 | 2 | 500 | 1 | 1 | 43 |
| TPZ62VC-123 | 58 | 62 | 66 | 2 | 200 | 2 | 500 | 1 | 0.2 | 47 |
| TPZ68VC-123 | 64 | 68 | 72 | 2 | 250 | 2 | 500 | 1 | 0.2 | 52 |
| TPZ75VC-123 | 70 | 75 | 79 | 2 | 300 | 2 | 500 | 1 | 0.2 | 57 |

NOTES:（1）f=1KHz

（2）Short duration test pulse used to minimize self-heating effect.

（3）VZT is tested with pulses 20ms.

## Typical Characteristics Curves

Fig.1 Maximum Continuous Power Derating

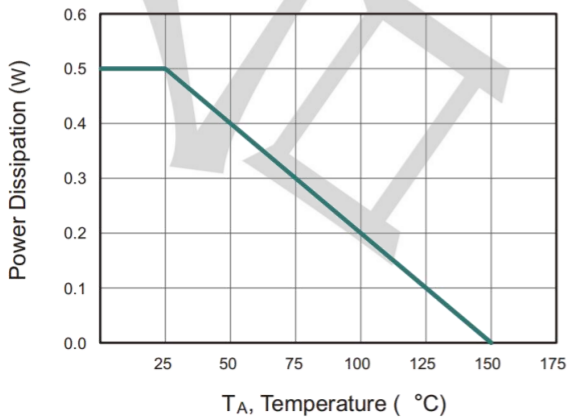
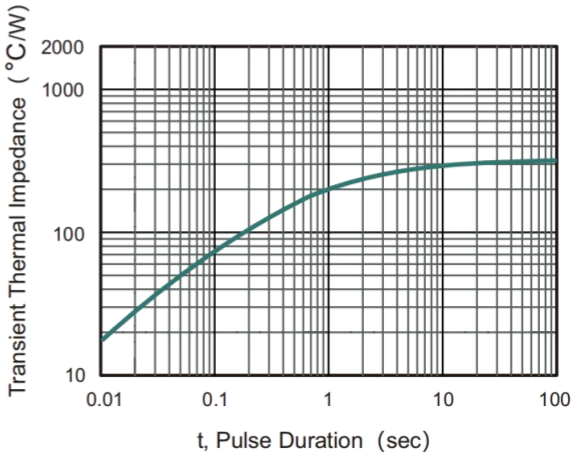
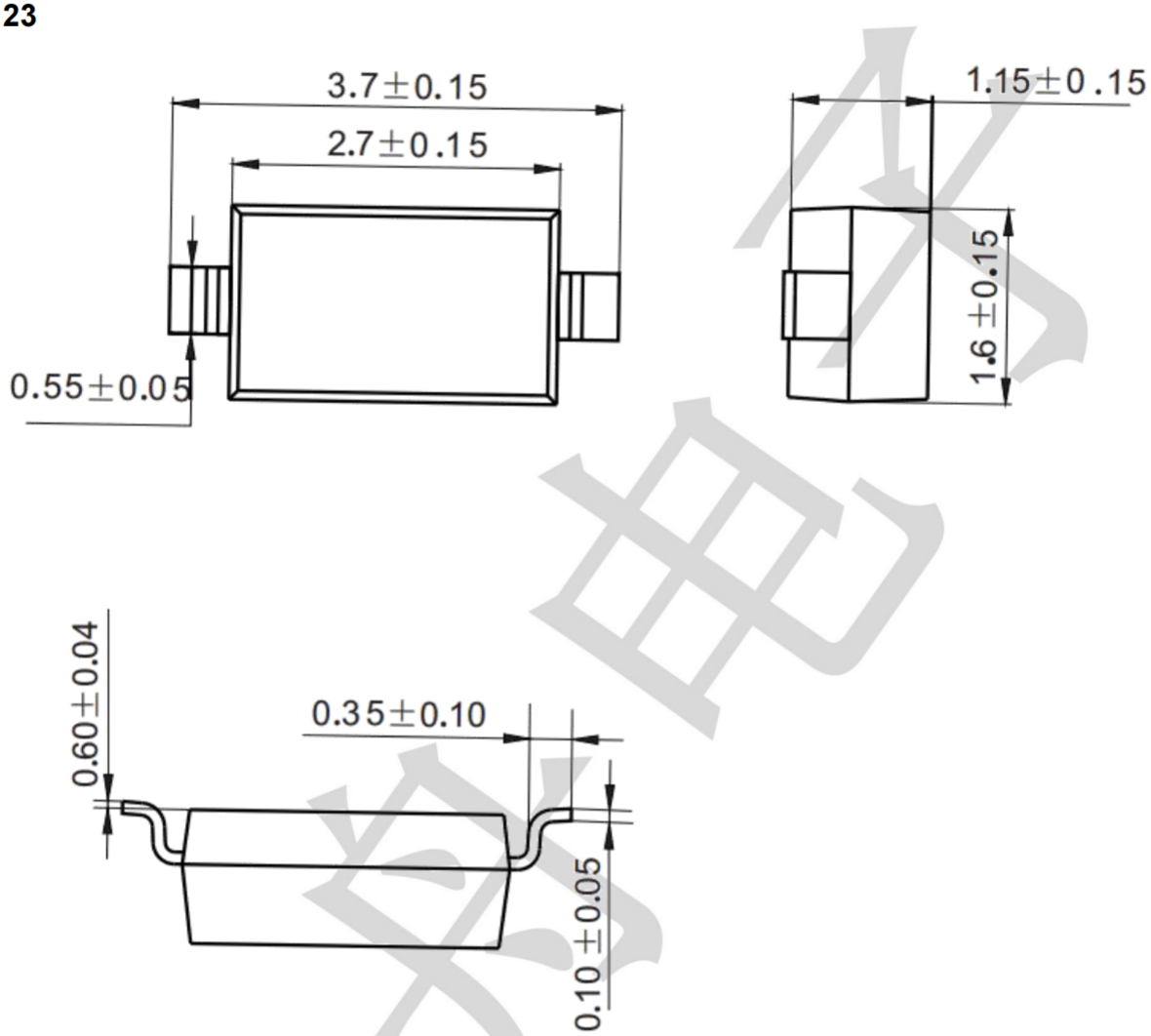


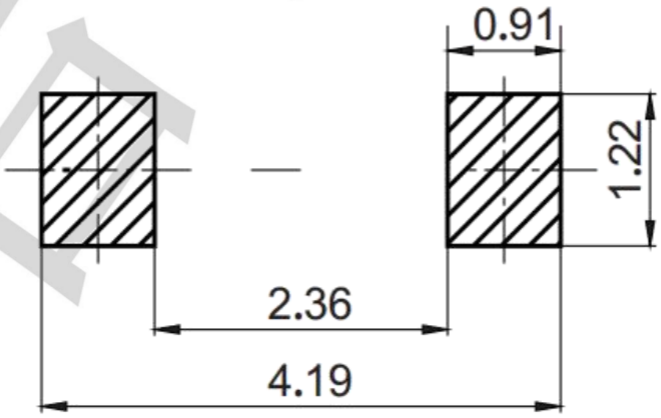

Fig.2 Typical Transient Thermal Impedance



## Package Outline Dimensions (unit: mm)

**SOD123**




## Mounting Pad Layout (unit: mm)