

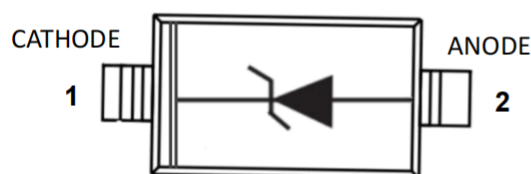
### Features

- 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

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### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ Unless otherwise noted)

| Type        | Zener Voltage Range     |         |         |          | Maximum Zener Impedance |          |                        |          | Reverse Current |         |
|-------------|-------------------------|---------|---------|----------|-------------------------|----------|------------------------|----------|-----------------|---------|
|             | $V_{ZT}$ (at $I_{ZT}$ ) |         |         | $I_{ZT}$ | $Z_{ZT}$<br>@ $I_{ZT}$  | $I_{ZT}$ | $Z_{ZK}$<br>@ $I_{ZK}$ | $I_{ZK}$ | $I_R$           | @ $V_R$ |
|             | Min (V)                 | Nom (V) | Max (V) | (mA)     | ( $\Omega$ )            | (mA)     | ( $\Omega$ )           | (mA)     | $\mu\text{A}$   | 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 ( $T_A = 25^\circ\text{C}$ Unless 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)     | ( $\Omega$ )            | (mA)     | ( $\Omega$ )        | (mA)     | $\mu\text{A}$   | 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)  $f=1\text{KHz}$

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

(3)  $V_{ZT}$  is tested with pulses 20ms.

### Typical Characteristics Curves

Fig.1 Maximum Continuous Power Derating

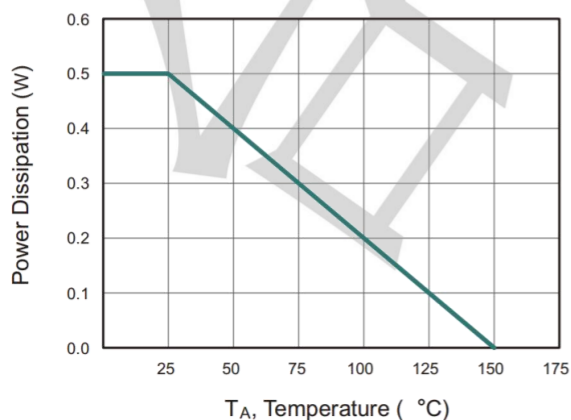
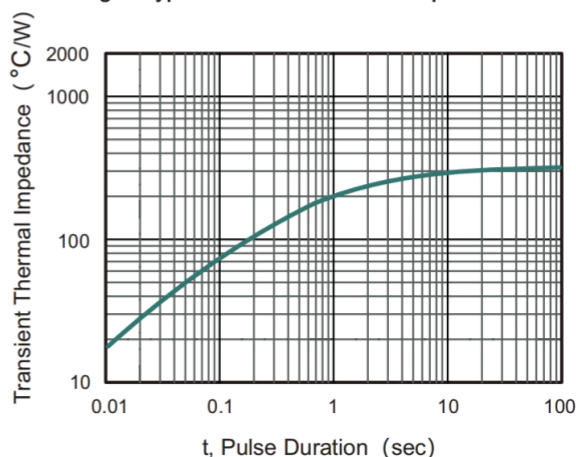
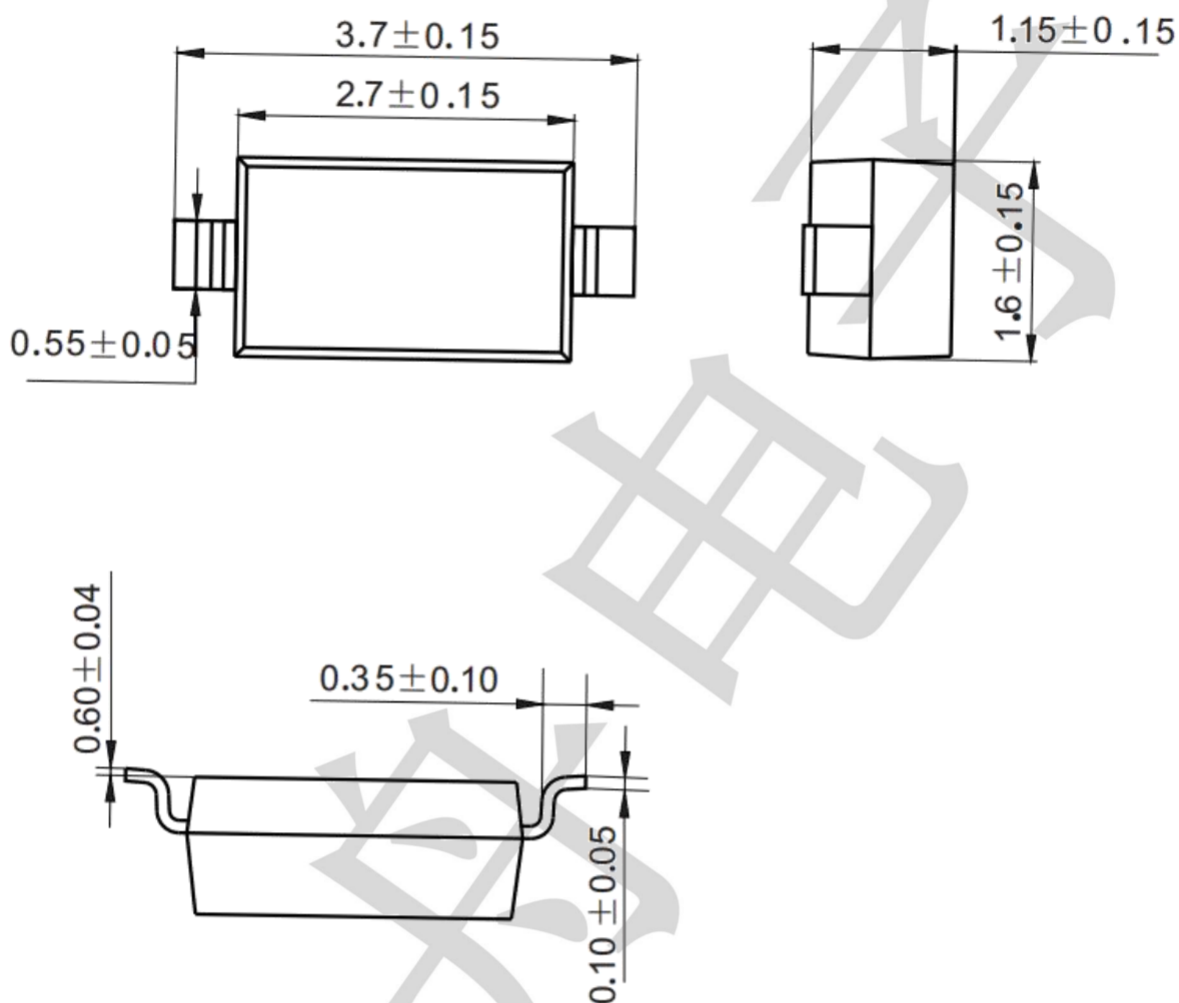


Fig.2 Typical Transient Thermal Impedance



**Package Outline Dimensions (unit: mm)**

SOD123



**Mounting Pad Layout (unit: mm)**

