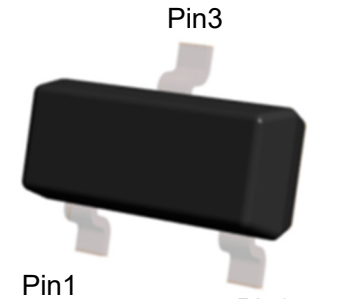
Prisemi®

# PZ23Txx Series

# Zener Voltage Regulators

## Feature

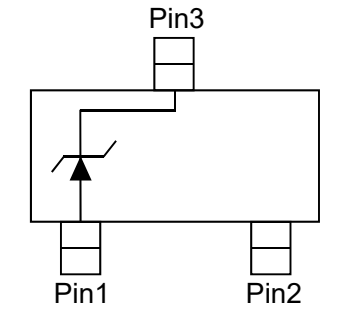
- Low Zener Impedance
- Power Dissipation of 300mW
- High Stability and High Reliability




**SOT-23(Top View)**

## Mechanical Characteristics

- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any




**Circuit Diagram**

## Electrical characteristics ($T_A$=25℃ unless otherwise noted)

| Rating | Symbol | Value | Units |
|---|---|---|---|
| Power Dissipation[1)] | $P_d$ | 300 | mW |
| Forward Voltage @$I_F$=10mA[2)] | $V_f$ | 0.9 | V |
| Storage temperature range | $T_S$ | -65~+150 | ℃ |
| Thermal resistance junction to ambient air<br>Warmewider stand Sperrschicht –umgebende Luft | $R_{thA}$ | 417 | K/W |

Notes:

1) Valid provided that device terminals are kept at ambient temperature.
2) Test with pulse, period=5ms, pulse width=300us
3) f = 1MKz

## Maximum Ratings and Thermal Characteristics ($T_A$=25℃ unless otherwise noted)

| Device | Zener Voltage Range | | | Maximum Zenner Impedance | | | Reverse Current | | Temperature Coefficient of Zener voltage @Izt=5mA | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $V_Z$ | | | $Z_{Zt}$ | $Z_{Zk}$ | | $I_r$ | | | |
| | Min | Max | $I_{Zt}$ | Max | Max | $I_{Zk}$ | Max | $V_R$ | Min | Max |
| | V | V | mA | Ω | Ω | mA | uA | V | mV/℃ | mV/℃ |
| PZ23T2V4 | 2.20 | 2.60 | 5 | 100 | 600 | 1.0 | 50.0 | 1.0 | -3.5 | 0.0 |
| PZ23T2V7 | 2.50 | 2.90 | 5 | 100 | 600 | 1.0 | 20.0 | 1.0 | -3.5 | 0.0 |
| PZ23T3V0 | 2.80 | 3.20 | 5 | 95 | 600 | 1.0 | 10.0 | 1.0 | -3.5 | 0.0 |
| PZ23T3V3 | 3.10 | 3.50 | 5 | 95 | 600 | 1.0 | 5.0 | 1.0 | -3.5 | 0.0 |
| PZ23T3V6 | 3.40 | 3.80 | 5 | 90 | 600 | 1.0 | 5.0 | 1.0 | -3.5 | 0.0 |
| PZ23T3V9 | 3.70 | 4.10 | 5 | 90 | 600 | 1.0 | 3.0 | 1.0 | -3.5 | 0.0 |
| PZ23T4V3 | 4.00 | 4.60 | 5 | 90 | 600 | 1.0 | 3.0 | 1.0 | -3.5 | 0.0 |
| PZ23T4V7 | 4.40 | 5.00 | 5 | 80 | 500 | 1.0 | 3.0 | 2.0 | -3.5 | 0.2 |
| PZ23T5V1 | 4.80 | 5.40 | 5 | 60 | 480 | 1.0 | 2.0 | 2.0 | -2.7 | 1.2 |
| PZ23T5V6 | 5.20 | 6.00 | 5 | 40 | 400 | 1.0 | 1.0 | 2.0 | -2.0 | 2.5 |
| PZ23T6V2 | 5.80 | 6.60 | 5 | 10 | 150 | 1.0 | 3.0 | 4.0 | 0.4 | 3.7 |
| PZ23T6V8 | 6.40 | 7.20 | 5 | 15 | 80 | 1.0 | 2.0 | 4.0 | 1.2 | 4.5 |
| PZ23T7V5 | 7.00 | 7.90 | 5 | 15 | 80 | 1.0 | 1.0 | 5.0 | 2.5 | 5.3 |
| PZ23T8V2 | 7.70 | 8.70 | 5 | 15 | 80 | 1.0 | 0.7 | 5.0 | 3.2 | 6.2 |
| PZ23T9V1 | 8.50 | 9.60 | 5 | 15 | 100 | 1.0 | 0.5 | 6.0 | 3.8 | 7.0 |
| PZ23T10 | 9.40 | 10.60 | 5 | 20 | 150 | 1.0 | 0.2 | 7.0 | 4.5 | 8.0 |
| PZ23T11 | 10.40 | 11.60 | 5 | 20 | 150 | 1.0 | 0.1 | 8.0 | 5.4 | 9.0 |
| PZ23T12 | 11.40 | 12.70 | 5 | 25 | 150 | 1.0 | 0.1 | 8.0 | 6.0 | 10.0 |
| PZ23T13 | 12.40 | 14.10 | 5 | 30 | 170 | 1.0 | 0.1 | 8.0 | 7.0 | 11.0 |
| PZ23T15 | 13.80 | 15.60 | 5 | 30 | 200 | 1.0 | 0.1 | 10.5 | 9.2 | 13.0 |
| PZ23T16 | 15.30 | 17.10 | 5 | 40 | 200 | 1.0 | 0.1 | 11.2 | 10.4 | 14.0 |
| PZ23T18 | 16.80 | 19.10 | 5 | 45 | 225 | 1.0 | 0.1 | 12.6 | 12.4 | 16.0 |
| PZ23T20 | 18.80 | 21.20 | 5 | 55 | 225 | 1.0 | 0.1 | 14.0 | 14.4 | 18.0 |
| PZ23T22 | 20.80 | 23.30 | 5 | 55 | 250 | 1.0 | 0.1 | 15.4 | 16.4 | 20.0 |
| PZ23T24 | 22.80 | 25.60 | 5 | 70 | 250 | 1.0 | 0.1 | 16.8 | 18.4 | 22.0 |
| PZ23T27 | 25.10 | 28.90 | 2 | 80 | 300 | 0.5 | 0.1 | 18.9 | 21.4 | 25.3 |
| PZ23T30 | 28.00 | 32.00 | 2 | 80 | 300 | 0.5 | 0.1 | 21.0 | 24.4 | 29.4 |
| PZ23T33 | 31.00 | 35.00 | 2 | 80 | 325 | 0.5 | 0.1 | 23.1 | 27.1 | 33.4 |
| PZ23T36 | 34.00 | 38.00 | 2 | 90 | 350 | 0.5 | 0.1 | 25.2 | 30.4 | 37.4 |
| PZ23T39 | 37.00 | 41.00 | 2 | 130 | 350 | 0.5 | 0.1 | 27.3 | 33.4 | 41.2 |
| PZ23T43 | 40.00 | 46.00 | 2 | 100 | 700 | 1.0 | 0.1 | 32.0 | 10.0 | 12.0 |
| PZ23T47 | 44.00 | 50.00 | 2 | 100 | 750 | 1.0 | 0.1 | 35.0 | 10.0 | 12.0 |
| PZ23T51 | 48.00 | 54.00 | 2 | 125 | 750 | 1.0 | 0.1 | 38.0 | 10.0 | 12.0 |
| PZ23T56 | 52.00 | 60.00 | 2 | 135 | 700 | 1.0 | 0.1 | 39.0 | 10.0 | 12.0 |
| PZ23T62 | 58.00 | 66.00 | 2 | 200 | 1000 | 1.0 | 0.2 | 47.0 | 10.0 | 12.0 |
| PZ23T68 | 64.00 | 72.00 | 2 | 250 | 1000 | 1.0 | 0.2 | 52.0 | 10.0 | 12.0 |
| PZ23T75 | 70.00 | 79.00 | 2 | 300 | 1000 | 1.0 | 0.2 | 57.0 | 10.0 | 12.0 |

## Typical Characteristics

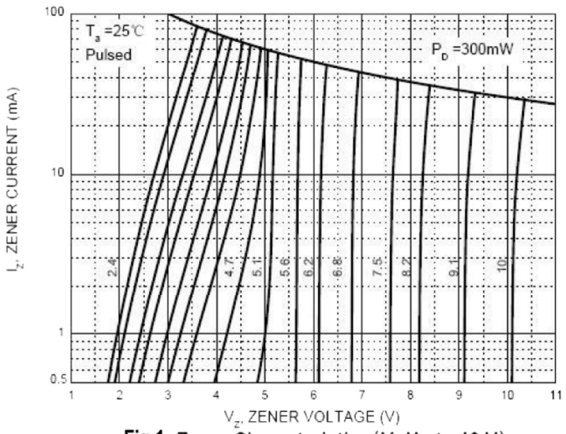



Fig 1. Zener Characteristics ($V_Z$ Up to 10 V)

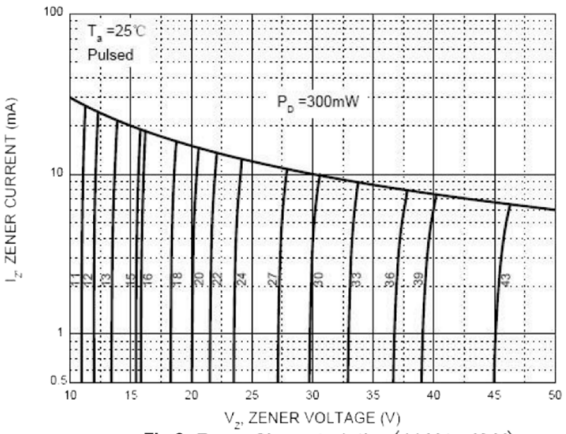



Fig 2. Zener Characteristics (11 V to 43 V)

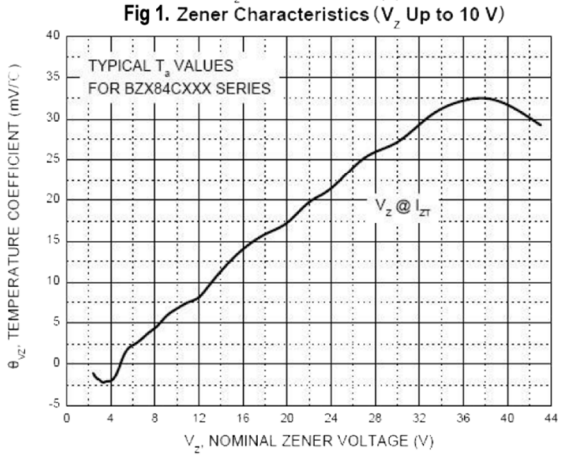



Fig 3. Temperature Coefficients

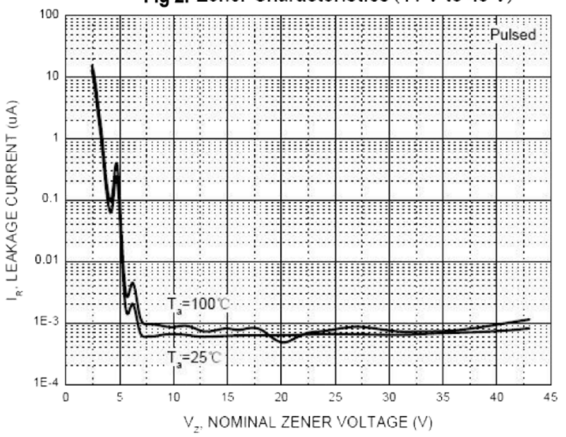



Fig 4. Typical Leakage Current

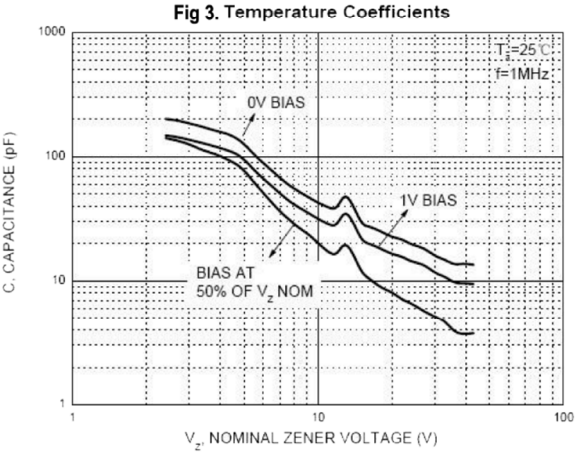



Fig 5. Typical Capacitance

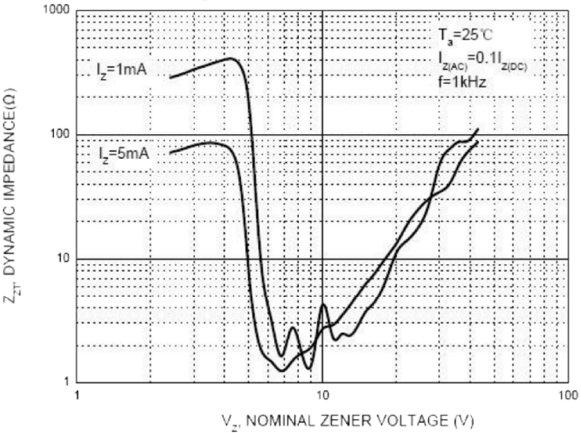



Fig 6. Effect of Zener Voltage on Zener Impedance

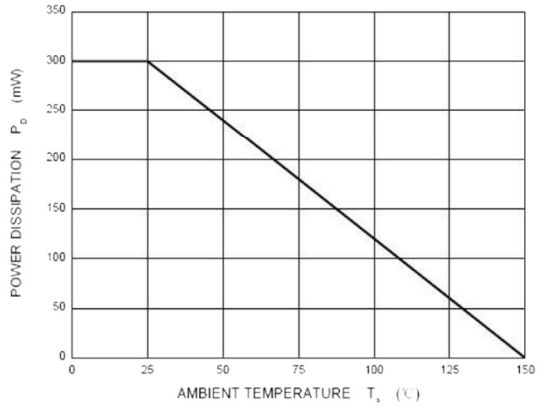
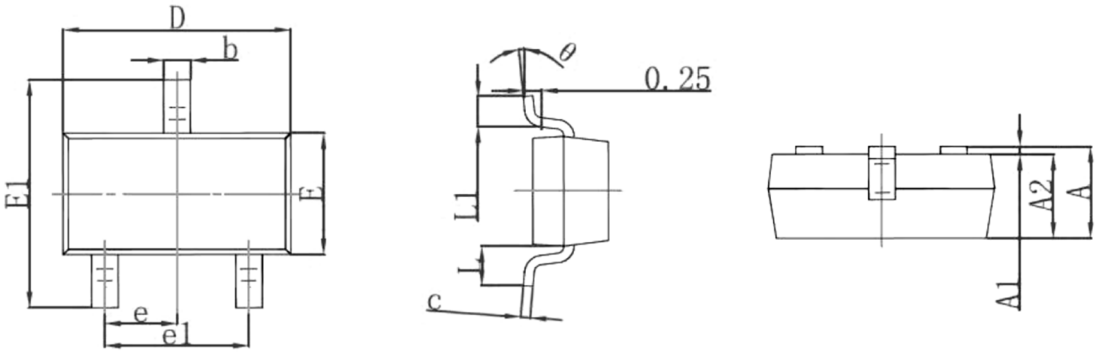
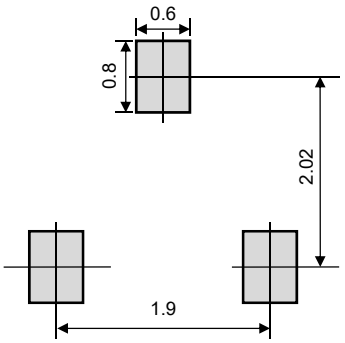



Fig 7. Power Derating Curve

## Product dimension (SOT-23)




| Dim | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 Typ. | | 0.037 Typ. | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 Ref. | | 0.022 Ref. | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |




Unit:mm

Suggested PCB Layout

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