

BZX584CXX Series

ROHS

SOD-523 Plastic-Encapsulate Zener Diodes

Features

- ◆ Planar Die Construction
- ◆ 150mW Power Dissipation
- ◆ Zener Voltages from 2.4 to 39V

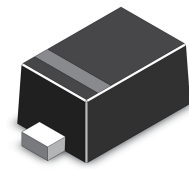
Mechanical Data

- ◆ Case: SOD-523
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Quantity Per Reel : 3,000pcs/8,000pcs
- ◆ Lead Finish : Lead Free



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SOD-523



Functional Diagram



Maximum Ratings(Ta=25°C unless otherwise specified)

| Parameter | Symbol | Value | Units |
|---|------------------|------------|-------|
| Forward Voltage @ IF=10mA | V _F | 0.9 | V |
| Power Dissipation | P _D | 150 | mW |
| Thermal Resistance from Junction to Ambient | R _{θJA} | 833 | °C/W |
| Operating Junction Temperature Range | T _J | -55 ~ +150 | °C |
| Storage Temperature Range | T _{stg} | -55 ~ +150 | °C |

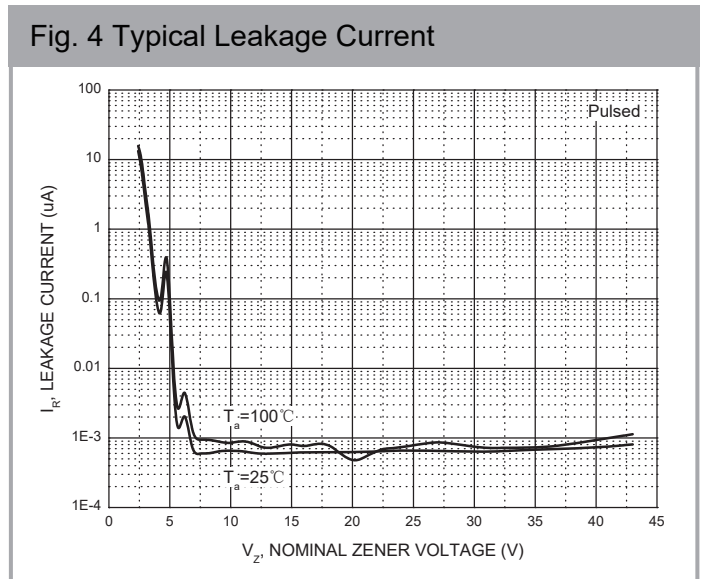
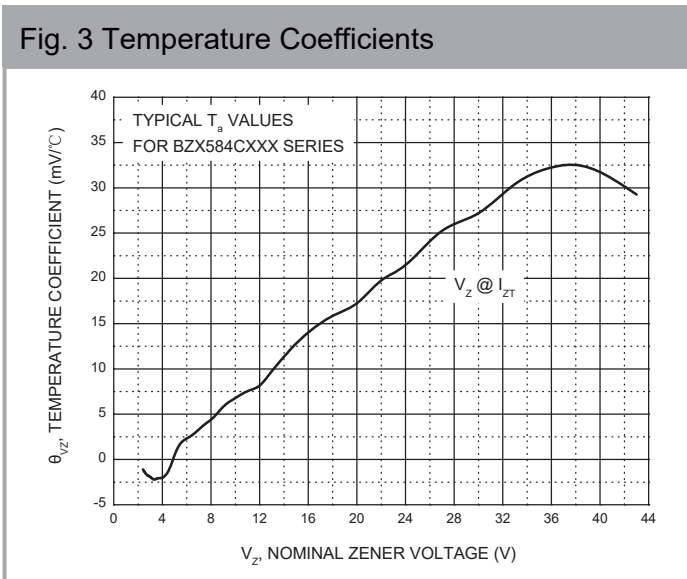
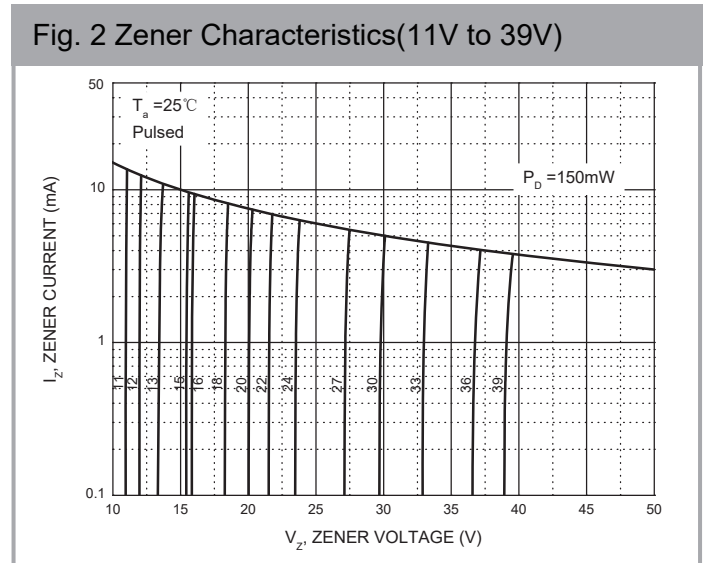
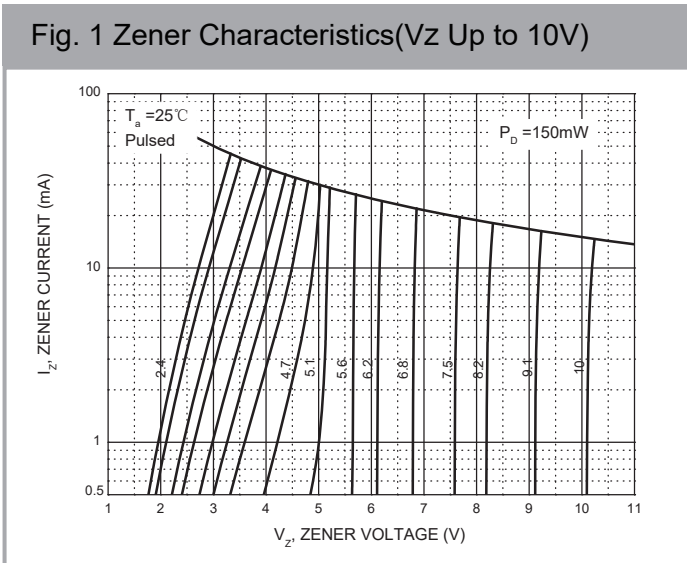
Electrical Characteristics (Ta=25°C unless otherwise specified)

| Parameter | Marking | Zener Voltage Range | | | | Maximum Zener Impedance | | | Maximum Reverse Current | | Typical Temperature Coefficient @I _{ZT} | |
|------------|---------|---------------------------------|--------|--------|-----------------|----------------------------------|----------------------------------|-----------------|-------------------------|----------------|--|-------------|
| | | V _Z @I _{ZT} | | | I _{ZT} | Z _{ZT} @I _{ZT} | Z _{ZK} @I _{ZK} | I _{ZK} | I _R | V _R | Min (mV/°C) | Max (mV/°C) |
| | | Min(V) | Nom(V) | Max(V) | mA | Ω | Ω | mA | μA | V | | |
| BZX584C2V4 | Z11 | 2.2 | 2.4 | 2.6 | 5 | 100 | 600 | 1.0 | 50 | 1.0 | -3.5 | 0 |
| BZX584C2V7 | Z12 | 2.5 | 2.7 | 2.9 | 5 | 100 | 600 | 1.0 | 20 | 1.0 | -3.5 | 0 |
| BZX584C3V0 | Z13 | 2.8 | 3.0 | 3.2 | 5 | 95 | 600 | 1.0 | 10 | 1.0 | -3.5 | 0 |
| BZX584C3V3 | Z14 | 3.1 | 3.3 | 3.5 | 5 | 95 | 600 | 1.0 | 5 | 1.0 | -3.5 | 0 |
| BZX584C3V6 | Z15 | 3.4 | 3.6 | 3.8 | 5 | 90 | 600 | 1.0 | 5 | 1.0 | -3.5 | 0 |
| BZX584C3V9 | Z16 | 3.7 | 3.9 | 4.1 | 5 | 90 | 600 | 1.0 | 3 | 1.0 | -3.5 | 0 |
| BZX584C4V3 | Z17 | 4.0 | 4.3 | 4.6 | 5 | 90 | 600 | 1.0 | 3 | 1.0 | -3.5 | 0 |
| BZX584C4V7 | Z1 | 4.4 | 4.7 | 5.0 | 5 | 80 | 500 | 1.0 | 3 | 2.0 | -3.5 | 0.2 |
| BZX584C5V1 | Z2 | 4.8 | 5.1 | 5.4 | 5 | 60 | 480 | 1.0 | 2 | 2.0 | -2.7 | 1.2 |
| BZX584C5V6 | Z3 | 5.2 | 5.6 | 6.0 | 5 | 40 | 400 | 1.0 | 1 | 2.0 | -2.0 | 2.5 |
| BZX584C6V2 | Z4 | 5.8 | 6.2 | 6.6 | 5 | 10 | 150 | 1.0 | 3 | 4.0 | 0.4 | 3.7 |
| BZX584C6V8 | Z5 | 6.4 | 6.8 | 7.2 | 5 | 15 | 80 | 1.0 | 2 | 4.0 | 1.2 | 4.5 |
| BZX584C7V5 | Z6 | 7.0 | 7.5 | 7.9 | 5 | 15 | 80 | 1.0 | 1 | 5.0 | 2.5 | 5.3 |
| BZX584C8V2 | Z7 | 7.7 | 8.2 | 8.7 | 5 | 15 | 80 | 1.0 | 0.7 | 5.0 | 3.2 | 6.2 |
| BZX584C9V1 | Z8 | 8.5 | 9.1 | 9.6 | 5 | 15 | 100 | 1.0 | 0.5 | 6.0 | 3.8 | 7.0 |

Electrical Characteristics (Ta=25°C unless otherwise specified)

| Parameter | Marking | Zener Voltage Range | | | | Maximum Zener Impedance | | | Maximum Reverse Current | | Typical Temperature Coefficient @I _{ZT} | |
|-----------|---------|---------------------------------|--------|--------|-----------------|----------------------------------|----------------------------------|-----------------|-------------------------|----------------|--|-------------|
| | | V _Z @I _{ZT} | | | I _{ZT} | Z _{ZT} @I _{ZT} | Z _{ZK} @I _{ZK} | I _{ZK} | I _R | V _R | Min (mV/°C) | Max (mV/°C) |
| | | Min(V) | Nom(V) | Max(V) | mA | Ω | Ω | mA | μA | V | | |
| BZX584C10 | Z9 | 9.4 | 10 | 10.6 | 5 | 20 | 150 | 1.0 | 0.2 | 7.0 | 4.5 | 8.0 |
| BZX584C11 | Y1 | 10.4 | 11 | 11.6 | 5 | 20 | 150 | 1.0 | 0.1 | 8.0 | 5.4 | 9.0 |
| BZX584C12 | Y2 | 11.4 | 12 | 12.7 | 5 | 25 | 150 | 1.0 | 0.1 | 8.0 | 6.0 | 10.0 |
| BZX584C13 | Y3 | 12.4 | 13 | 14.1 | 5 | 30 | 170 | 1.0 | 0.1 | 8.0 | 7.0 | 11.0 |
| BZX584C15 | Y4 | 13.8 | 15 | 15.6 | 5 | 30 | 200 | 1.0 | 0.1 | 10.5 | 9.2 | 13.0 |
| BZX584C16 | Y5 | 15.3 | 16 | 17.1 | 5 | 40 | 200 | 1.0 | 0.1 | 11.2 | 10.4 | 14.0 |
| BZX584C18 | Y6 | 16.8 | 18 | 19.1 | 5 | 45 | 225 | 1.0 | 0.1 | 12.6 | 12.4 | 16.0 |
| BZX584C20 | Y7 | 18.8 | 20 | 21.2 | 5 | 55 | 225 | 1.0 | 0.1 | 14.0 | 14.4 | 18.0 |
| BZX584C22 | Y8 | 20.8 | 22 | 23.3 | 5 | 55 | 250 | 1.0 | 0.1 | 15.4 | 16.4 | 20.0 |
| BZX584C24 | Y9 | 22.8 | 24 | 25.6 | 5 | 70 | 250 | 1.0 | 0.1 | 16.8 | 18.4 | 22.0 |
| BZX584C27 | Y10 | 25.1 | 27 | 28.9 | 2 | 80 | 300 | 0.5 | 0.1 | 18.9 | 21.4 | 25.3 |
| BZX584C30 | Y11 | 28.0 | 30 | 32.0 | 2 | 80 | 300 | 0.5 | 0.1 | 21.0 | 24.4 | 29.4 |
| BZX584C33 | Y12 | 31.0 | 33 | 35.0 | 2 | 80 | 325 | 0.5 | 0.1 | 23.1 | 27.4 | 33.4 |
| BZX584C36 | Y13 | 34.0 | 36 | 38.0 | 2 | 90 | 350 | 0.5 | 0.1 | 25.2 | 30.4 | 37.4 |
| BZX584C39 | Y14 | 37.0 | 39 | 41.0 | 2 | 130 | 350 | 0.5 | 0.1 | 27.3 | 33.4 | 41.2 |

Electrical Characteristics Curves



Electrical Characteristics Curves

Fig. 5 Typical Capacitance

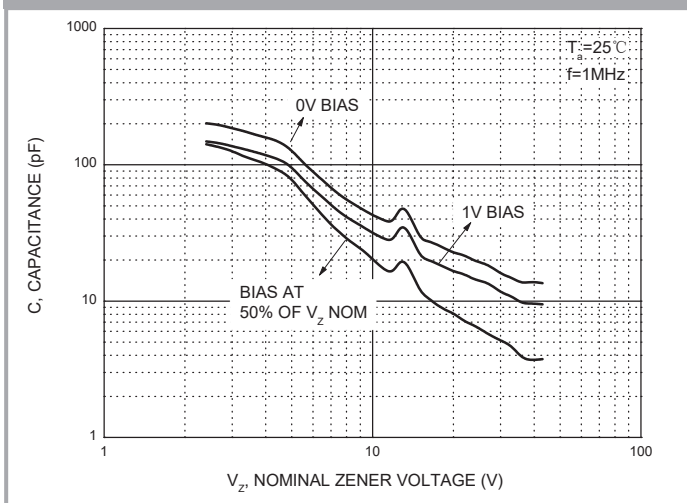


Fig. 6 Effect of Zener Voltage on Zener Impedance

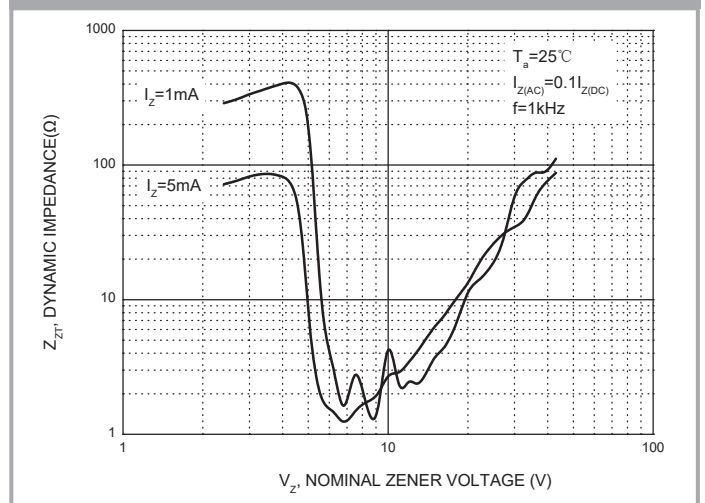
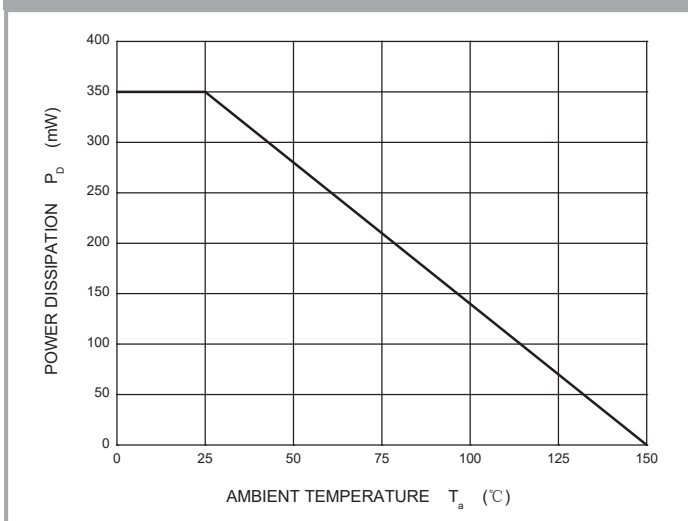
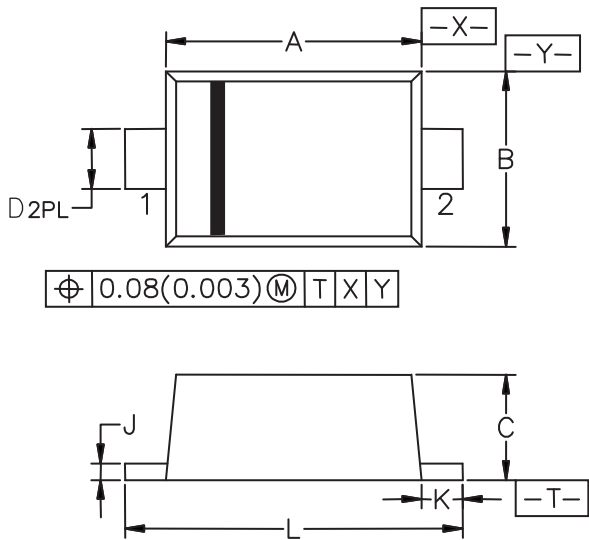


Fig. 7 Power Derating Curve

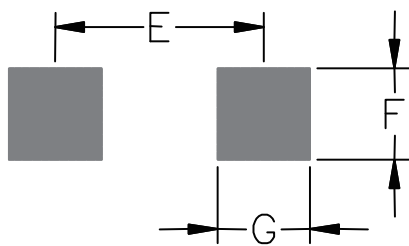


SOD-523 Package Outline & Dimensions



| Symbol | Millimeters | | | Inches | | |
|--------|-------------|------|------|--------|--------|--------|
| | Min. | Nom. | Max. | Min. | Nom. | Max. |
| A | 1.10 | 1.20 | 1.30 | 0.043 | 0.047 | 0.051 |
| B | 0.70 | 0.80 | 0.90 | 0.028 | 0.032 | 0.035 |
| C | 0.50 | 0.60 | 0.70 | 0.020 | 0.024 | 0.028 |
| D | 0.25 | 0.30 | 0.35 | 0.010 | 0.012 | 0.014 |
| J | 0.07 | 0.14 | 0.20 | 0.0028 | 0.0055 | 0.0079 |
| K | 0.15 | 0.20 | 0.25 | 0.006 | 0.008 | 0.010 |
| L | 1.50 | 1.60 | 1.70 | 0.059 | 0.063 | 0.067 |

Soldering Footprint



| Symbol | Millimeters | Inches |
|--------|-------------|--------|
| E | 1.40 | 0.0547 |
| F | 0.40 | 0.0157 |
| G | 0.40 | 0.0157 |

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