

BZX584C2V4 THRU BZX584C43

SURFACE MOUNT ZENER DIODES

SOD-523 SURFACE MOUNT SILICON ZENER DIODES

● Features

- Low Zener Impedance
- Power Dissipation of 150mW
- High Stability and High Reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

● Applications

Zener diode is generally used as reference voltage sources in regulated power supplies or as protective diode in overvoltage protection circuits.

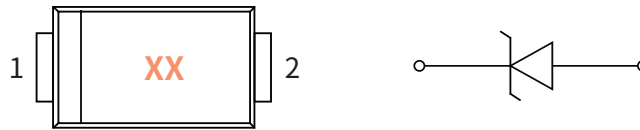
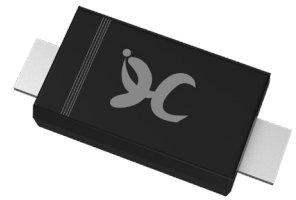
● Mechanical Data

- Case: SOD-523
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Cathode line denotes the cathode end

● Function Diagram

Zener Diode
2.4 to 43 Volts
Power Dissipation
150 Milliwatts

SOD-523

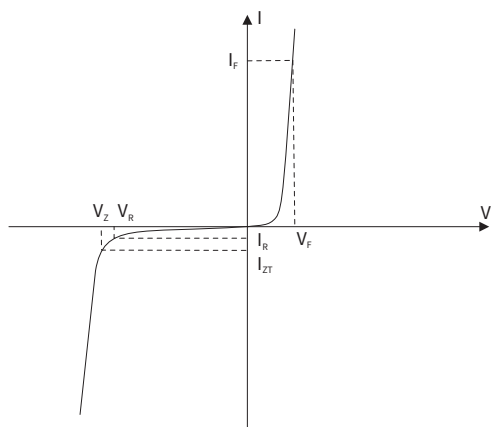


● Maximum Ratings (Ta=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | VALUE |
|-------------------------------------|------------------------|-------|------------|
| Power Dissipation | P_D | mW | 150 |
| Forward Voltage @ $I_F=10\text{mA}$ | V_F | V | 0.9 |
| Storage Temperature | T_{stg} | °C | -55 ~ +150 |
| Junction Temperature | T_J | °C | -55 ~ +150 |
| Typical Thermal Resistance | $R_{\theta\text{J-A}}$ | °C /W | 833 |

● Electrical Parameter

| SYMBOL | PARAMETER |
|----------|------------------------------------|
| V_Z | Reverse zener voltage @ I_{ZT} |
| I_{ZT} | Reverse current |
| Z_{ZT} | Maximum Zener Impedance @ I_{ZT} |
| I_{ZK} | Reverse Current |
| Z_{ZK} | Maximum Zener Impedance @ I_{ZK} |
| I_R | Reverse leakage current @ V_R |
| V_R | Reverse voltage |
| I_F | Forward current |
| V_F | Forward voltage @ I_F |



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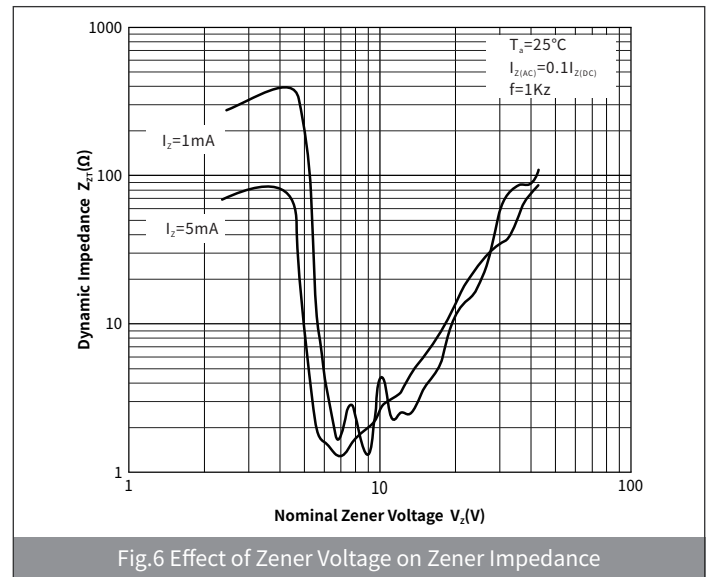
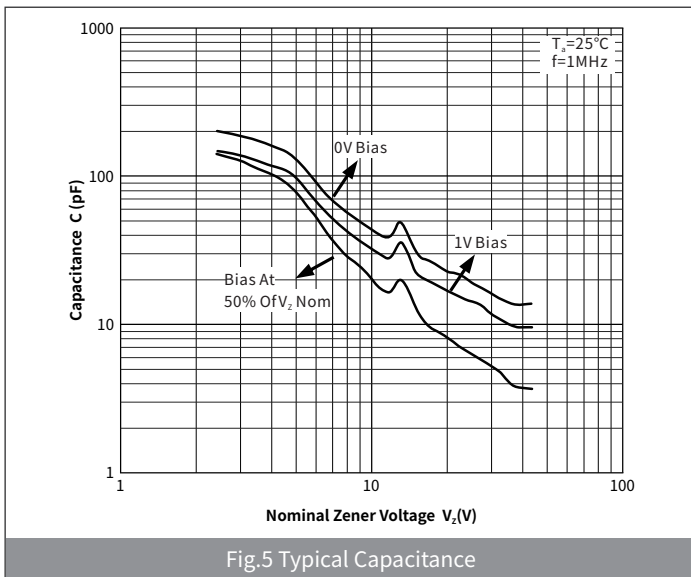
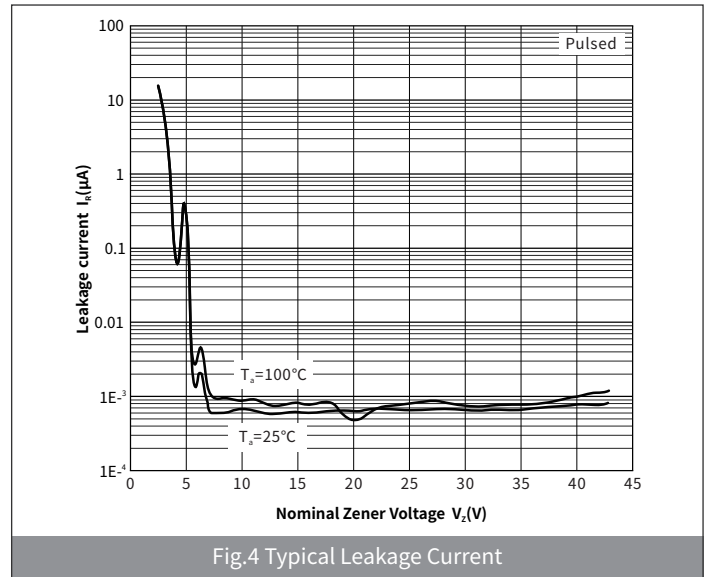
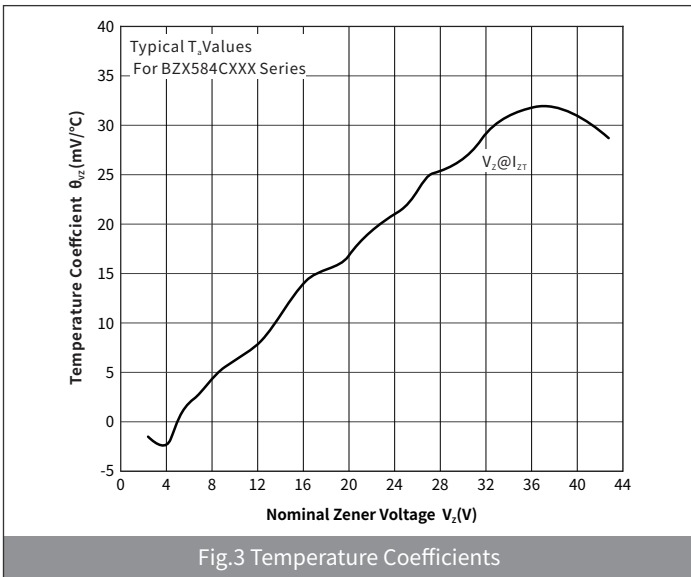
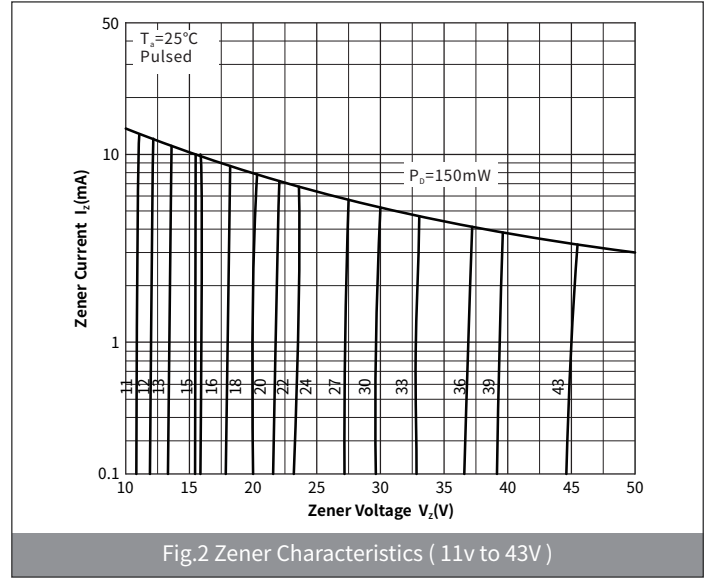
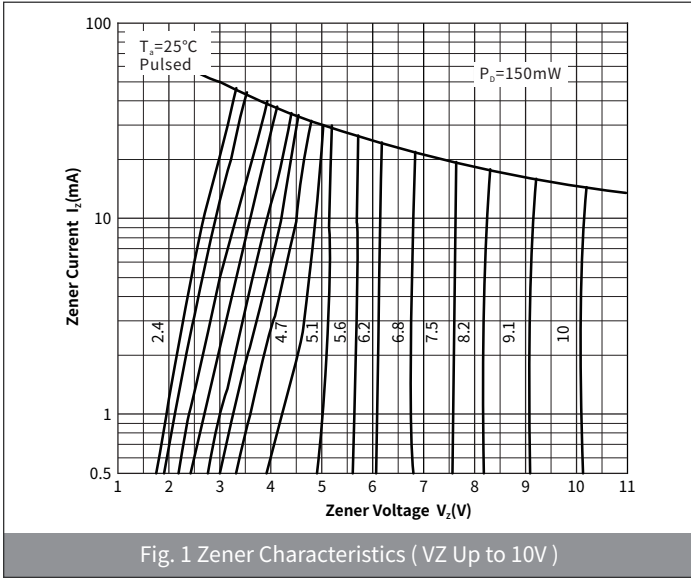
● Electrical Characteristics (Ta=25°C Unless otherwise noted)

| Type Number | Marking | Nominal Zener Voltage | | | | Zener Impedance | | | Leakage Current | | Typical Temperature coefficient @ I _{ZTC} (mV/°C) | | Admissible Zener Current |
|-------------|---------|-----------------------|------|------|-----------------|----------------------------------|----------------------------------|-----------------|--------------------------------|--------------------|--|------|--------------------------|
| | | V _Z (V) | | | I _{ZT} | Z _{ZT} @I _{ZT} | Z _{ZK} @I _{ZK} | I _{ZK} | I _R @V _R | | Min. | Max. | |
| | | Min. | Nom. | Max. | (mA) | (Ω) | | (mA) | I _R (μA) | V _R (V) | | | I _{ZM} (mA) |
| BZX584C2V4 | Z11 | 2.2 | 2.4 | 2.6 | 5 | 100 | 600 | 1.0 | 50 | 1.0 | -3.5 | 0 | 5 |
| BZX584C2V7 | Z12 | 2.5 | 2.7 | 2.9 | 5 | 100 | 600 | 1.0 | 20 | 1.0 | -3.5 | 0 | 5 |
| BZX584C3V0 | Z13 | 2.8 | 3.0 | 3.2 | 5 | 95 | 600 | 1.0 | 10 | 1.0 | -3.5 | 0 | 5 |
| BZX584C3V3 | Z14 | 3.1 | 3.3 | 3.5 | 5 | 95 | 600 | 1.0 | 5 | 1.0 | -3.5 | 0 | 5 |
| BZX584C3V6 | Z15 | 3.4 | 3.6 | 3.8 | 5 | 90 | 600 | 1.0 | 5 | 1.0 | -3.5 | 0 | 5 |
| BZX584C3V9 | Z16 | 3.7 | 3.9 | 4.1 | 5 | 90 | 600 | 1.0 | 3 | 1.0 | -3.5 | 0 | 5 |
| BZX584C4V3 | Z17 | 4.0 | 4.3 | 4.6 | 5 | 90 | 600 | 1.0 | 3 | 1.0 | -3.5 | 0 | 5 |
| BZX584C4V7 | Z1 | 4.4 | 4.7 | 5.0 | 5 | 80 | 500 | 1.0 | 3 | 2.0 | -3.5 | 0.2 | 5 |
| BZX584C5V1 | Z2 | 4.8 | 5.1 | 5.4 | 5 | 60 | 480 | 1.0 | 2 | 2.0 | -2.7 | 1.2 | 5 |
| BZX584C5V6 | Z3 | 5.2 | 5.6 | 6.0 | 5 | 40 | 400 | 1.0 | 1 | 2.0 | -2 | 2.5 | 5 |
| BZX584C6V2 | Z4 | 5.8 | 6.2 | 6.6 | 5 | 10 | 150 | 1.0 | 3 | 4.0 | 0.4 | 3.7 | 5 |
| BZX584C6V8 | Z5 | 6.4 | 6.8 | 7.2 | 5 | 15 | 80 | 1.0 | 2 | 4.0 | 1.2 | 4.5 | 5 |
| BZX584C7V5 | Z6 | 7.0 | 7.5 | 7.9 | 5 | 15 | 80 | 1.0 | 1 | 5.0 | 2.5 | 5.3 | 5 |
| BZX584C8V2 | Z7 | 7.7 | 8.2 | 8.7 | 5 | 15 | 80 | 1.0 | 0.7 | 5.0 | 3.2 | 6.2 | 5 |
| BZX584C9V1 | Z8 | 8.5 | 9.1 | 9.6 | 5 | 15 | 100 | 1.0 | 0.5 | 6.0 | 3.8 | 7.0 | 5 |
| BZX584C10 | Z9 | 9.4 | 10 | 10.6 | 5 | 20 | 150 | 1.0 | 0.2 | 7.0 | 4.5 | 8.0 | 5 |
| BZX584C11 | Y1 | 10.4 | 11 | 11.6 | 5 | 20 | 150 | 1.0 | 0.1 | 8.0 | 5.4 | 9.0 | 5 |
| BZX584C12 | Y2 | 11.4 | 12 | 12.7 | 5 | 25 | 150 | 1.0 | 0.1 | 8.0 | 6.0 | 10.0 | 5 |
| BZX584C13 | Y3 | 12.4 | 13 | 14.1 | 5 | 30 | 170 | 1.0 | 0.1 | 8.0 | 7.0 | 11.0 | 5 |
| BZX584C15 | Y4 | 13.8 | 15 | 15.6 | 5 | 30 | 200 | 1.0 | 0.1 | 10.5 | 9.2 | 13.0 | 5 |
| BZX584C16 | Y5 | 15.3 | 16 | 17.1 | 5 | 40 | 200 | 1.0 | 0.1 | 11.2 | 10.4 | 14.0 | 5 |
| BZX584C18 | Y6 | 16.8 | 18 | 19.1 | 5 | 45 | 225 | 1.0 | 0.1 | 12.6 | 12.4 | 16.0 | 5 |
| BZX584C20 | Y7 | 18.8 | 20 | 21.2 | 5 | 55 | 225 | 1.0 | 0.1 | 14.0 | 14.4 | 18.0 | 5 |
| BZX584C22 | Y8 | 20.8 | 22 | 23.3 | 5 | 55 | 250 | 1.0 | 0.1 | 15.4 | 16.4 | 20.0 | 5 |
| BZX584C24 | Y9 | 22.8 | 24 | 25.6 | 5 | 70 | 250 | 1.0 | 0.1 | 16.8 | 18.4 | 22.0 | 5 |
| BZX584C27 | Y10 | 25.1 | 27 | 28.9 | 2 | 80 | 300 | 0.5 | 0.1 | 18.9 | 21.4 | 25.3 | 2 |
| BZX584C30 | Y11 | 28 | 30 | 32 | 2 | 80 | 300 | 0.5 | 0.1 | 21.0 | 24.4 | 29.4 | 2 |
| BZX584C33 | Y12 | 31 | 33 | 35 | 2 | 80 | 325 | 0.5 | 0.1 | 23.1 | 27.4 | 33.4 | 2 |
| BZX584C36 | Y13 | 34 | 36 | 38 | 2 | 90 | 350 | 0.5 | 0.1 | 25.2 | 30.4 | 37.4 | 2 |
| BZX584C39 | Y14 | 37 | 39 | 41 | 2 | 130 | 350 | 0.5 | 0.1 | 27.3 | 33.4 | 41.2 | 2 |
| BZX584C43 | Y15 | 40 | 43 | 46 | 5 | 100 | 700 | 1.0 | 0.1 | 32.0 | 10.0 | 12.0 | 5 |

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● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



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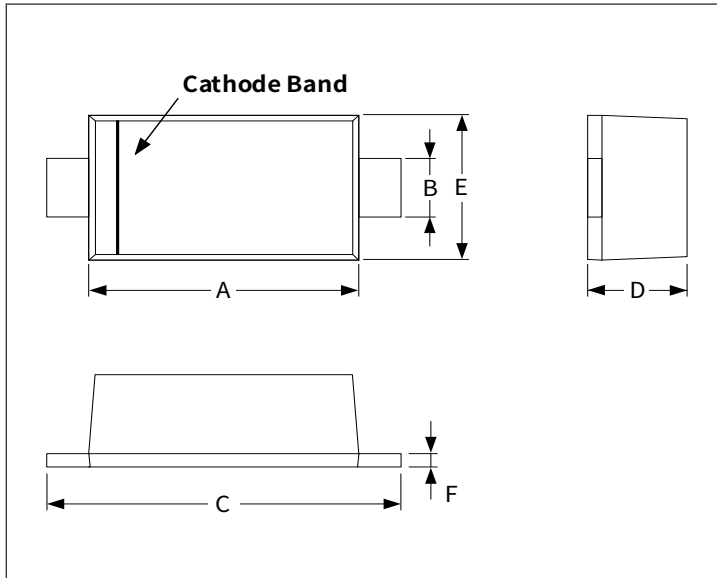
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● Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SOD-523 | R1 | 0.002 | 3000 | 45000 | 180000 | 7" |

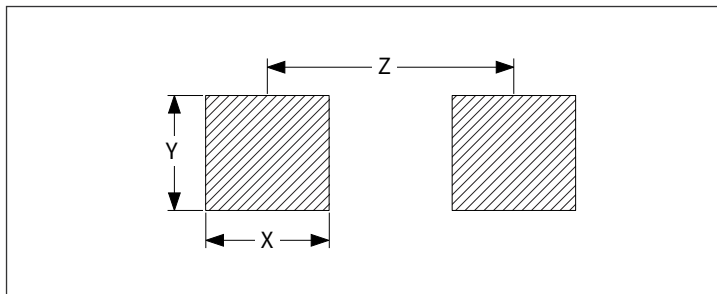
● Package Outline Dimensions (SOD-523)

| Symbol | Dimensions | | | |
|--------|-------------|------|--------|-------|
| | Millimeters | | Inches | |
| | Min | Max | Min | Max |
| A | 1.10 | 1.30 | 0.043 | 0.051 |
| B | 0.25 | 0.35 | 0.010 | 0.014 |
| C | 1.50 | 1.70 | 0.059 | 0.067 |
| D | 0.50 | 0.70 | 0.020 | 0.027 |
| E | 0.70 | 0.90 | 0.027 | 0.035 |
| F | 0.05 | 0.20 | 0.002 | 0.008 |



● Suggested Pad Layout

| Symbol | Dimensions | | | |
|--------|-------------|------|--------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| X | 0.55 | 0.65 | 0.022 | 0.026 |
| Y | 0.65 | 0.75 | 0.026 | 0.029 |
| Z | 1.37 | 1.47 | 0.054 | 0.058 |



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