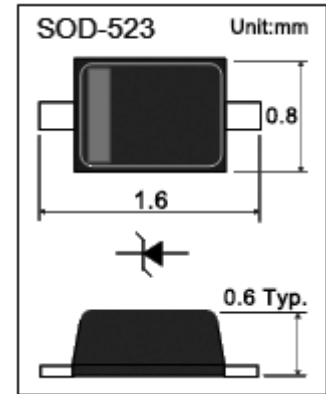


Zener Diodes / DATA SHEET

BZX584B Series

- ◇ Constant Voltage control
- ◇ Wide Voltage Range Selection 2.4V to 75V
- ◇ **SOD523 Thin** SMD package
- ◇ RoHS compliant / Green EMC
- ◇ Matte Tin (Sn) Lead finish
- ◇ Cathode Band / Device marking
Refer to table list

Maximum Ratings ($T_a = 25\text{ }^\circ\text{C}$)

| Symbol | Parameter | Value | Units |
|-----------|---------------------------|-------------|------------------|
| P_D | Power Dissipation | 200 | mW |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | -55 to +150 | $^\circ\text{C}$ |
| I_{ZM} | Maximum Regulator Current | P_D/V_Z | mA |

Electrical Characteristics ($T_a = 25\text{ }^\circ\text{C}$)

| Type Number | Device Marking | V_Z (V) *1 | | | I_{ZT} mA | $Z_{ZT}@I_{ZT}$ Ω | $Z_{ZK}@I_{ZK}$ Ω | I_{ZK} (mA) | I_R (μA) | V_R (V) |
|-------------|----------------|--------------|--------|--------|----------------|-----------------------------|-----------------------------|------------------|----------------------------|--------------|
| | | Nom(V) | Min(V) | Max(V) | | | | | | |
| BZX584B2V4 | Z1. | 2.4 | 2.35 | 2.45 | 5 | 100 | 600 | 1.0 | 50 | 1.0 |
| BZX584B2V7 | Z2. | 2.7 | 2.65 | 2.75 | 5 | 100 | 600 | 1.0 | 20 | 1.0 |
| BZX584B3V0 | Z3. | 3.0 | 2.94 | 3.06 | 5 | 95 | 600 | 1.0 | 10 | 1.0 |
| BZX584B3V3 | Z4. | 3.3 | 3.23 | 3.37 | 5 | 95 | 600 | 1.0 | 5 | 1.0 |
| BZX584B3V6 | Z5. | 3.6 | 3.53 | 3.67 | 5 | 90 | 600 | 1.0 | 5 | 1.0 |
| BZX584B3V9 | Z6. | 3.9 | 3.82 | 3.98 | 5 | 90 | 600 | 1.0 | 3 | 1.0 |
| BZX584B4V3 | Z7. | 4.3 | 4.21 | 4.39 | 5 | 90 | 600 | 1.0 | 3 | 1.0 |
| BZX584B4V7 | X1. | 4.7 | 4.61 | 4.79 | 5 | 80 | 500 | 1.0 | 3 | 2.0 |
| BZX584B5V1 | 222 | 5.1 | 5.00 | 5.20 | 5 | 60 | 480 | 1.0 | 2 | 2.0 |
| BZX584B5V6 | 223 | 5.6 | 5.49 | 5.71 | 5 | 40 | 400 | 1.0 | 1 | 2.0 |
| BZX584B6V2 | 224 | 6.2 | 6.08 | 6.32 | 5 | 10 | 150 | 1.0 | 3 | 4.0 |

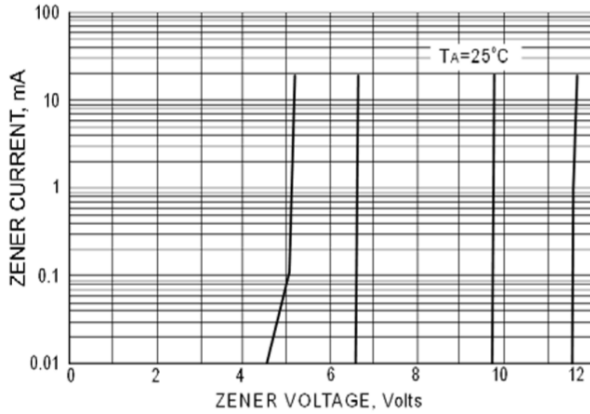
Continued next page

Electrical Characteristics (Ta = 25 °C)

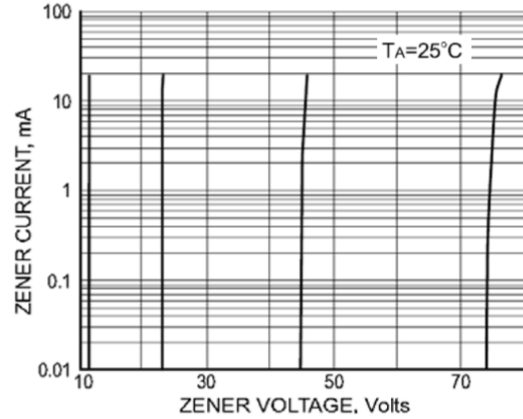
| Type Number | Device Marking | Vz (V) ^{*1} | | | I _{ZT} mA | Z _{ZT} @I _{ZT} Ω | Z _{ZK} @I _{ZK} Ω | I _{ZK} (mA) | I _R (uA) | V _R (V) |
|-------------|----------------|----------------------|--------|--------|-----------------------|---------------------------------------|---------------------------------------|-------------------------|------------------------|-----------------------|
| | | Nom(V) | Min(V) | Max(V) | | | | | | |
| BZX584B6V8 | 2Z5 | 6.8 | 6.66 | 6.94 | 5 | 15 | 80 | 1.0 | 2 | 4.0 |
| BZX584B7V5 | 2Z6 | 7.5 | 7.35 | 7.65 | 5 | 15 | 80 | 1.0 | 1 | 5.0 |
| BZX584B8V2 | 2Z7 | 8.2 | 8.04 | 8.36 | 5 | 15 | 80 | 1.0 | 0.7 | 5.0 |
| BZX584B9V1 | 2Z8 | 9.1 | 8.92 | 9.28 | 5 | 15 | 100 | 1.0 | 0.5 | 6.0 |
| BZX584B10 | 2Z9 | 10 | 9.80 | 10.20 | 5 | 20 | 150 | 1.0 | 0.2 | 7.0 |
| BZX584B11 | 2Y1 | 11 | 10.78 | 11.22 | 5 | 20 | 150 | 1.0 | 0.1 | 8.0 |
| BZX584B12 | 2Y2 | 12 | 11.76 | 12.24 | 5 | 25 | 150 | 1.0 | 0.1 | 8.0 |
| BZX584B13 | 2Y3 | 13 | 12.74 | 13.26 | 5 | 30 | 170 | 1.0 | 0.1 | 8.0 |
| BZX584B15 | 2Y4 | 15 | 14.70 | 15.30 | 5 | 30 | 200 | 1.0 | 0.1 | 10.5 |
| BZX584B16 | 2Y5 | 16 | 15.68 | 16.32 | 5 | 40 | 200 | 1.0 | 0.1 | 11.2 |
| BZX584B18 | 2Y6 | 18 | 17.64 | 18.36 | 5 | 45 | 225 | 1.0 | 0.1 | 12.6 |
| BZX584B20 | 2Y7 | 20 | 19.60 | 20.40 | 5 | 55 | 225 | 1.0 | 0.1 | 14.0 |
| BZX584B22 | W8. | 22 | 21.56 | 22.44 | 5 | 55 | 250 | 1.0 | 0.1 | 15.4 |
| BZX584B24 | W9. | 24 | 23.52 | 24.48 | 5 | 70 | 250 | 1.0 | 0.1 | 16.8 |
| BZX584B27 | Y1. | 27 | 26.46 | 27.54 | 2 | 80 | 300 | 0.5 | 0.1 | 18.9 |
| BZX584B30 | Y2. | 30 | 29.40 | 30.60 | 2 | 80 | 300 | 0.5 | 0.1 | 21.0 |
| BZX584B33 | Y3. | 33 | 32.34 | 33.66 | 2 | 80 | 325 | 0.5 | 0.1 | 23.1 |
| BZX584B36 | Y4. | 36 | 35.28 | 36.72 | 2 | 90 | 350 | 0.5 | 0.1 | 25.2 |
| BZX584B39 | Y5. | 39 | 38.22 | 39.78 | 2 | 130 | 350 | 0.5 | 0.1 | 27.3 |
| BZX584B43 | Y6. | 43 | 42.14 | 43.86 | 2 | 130 | 350 | 0.5 | 0.1 | 29.4 |
| BZX584B47 | V1. | 47 | 45.83 | 48.17 | 2 | 170 | 1000 | 0.25 | 0.1 | 36 |
| BZX584B51 | V2. | 51 | 49.73 | 52.27 | 2 | 180 | 1300 | 0.25 | 0.1 | 39 |
| BZX584B56 | V3. | 56 | 54.60 | 57.40 | 2 | 200 | 1400 | 0.25 | 0.1 | 43 |
| BZX584B62 | V4. | 62 | 60.45 | 63.55 | 2 | 225 | 1400 | 0.25 | 0.1 | 47 |
| BZX584B68 | V5. | 68 | 66.30 | 69.70 | 2 | 240 | 1600 | 0.25 | 0.1 | 52 |
| BZX584B75 | V6. | 75 | 73.13 | 76.87 | 2 | 265 | 1700 | 0.25 | 0.1 | 56 |

*1 Pulse width = 10 ms

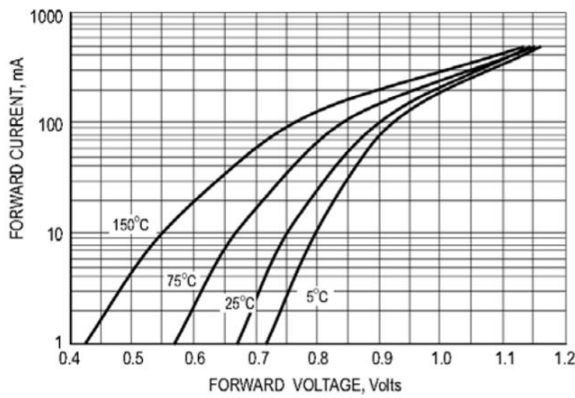
Typical Characteristics



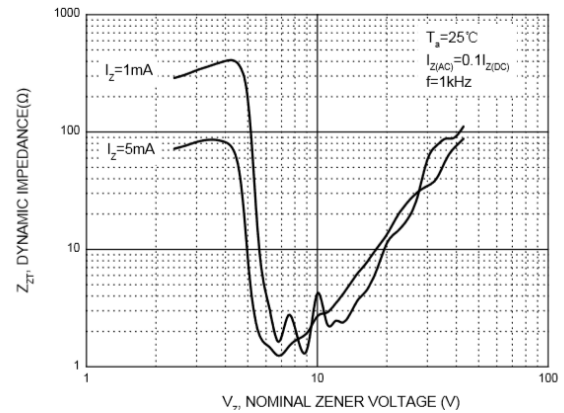
ZENER BREAKDOWN CHARACTERISTIC



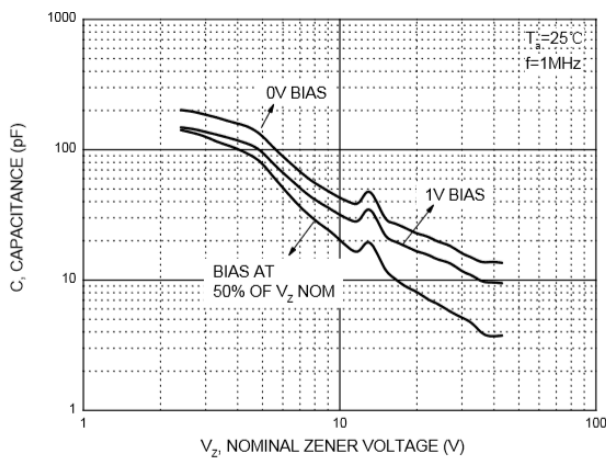
ZENER BREAKDOWN CHARACTERISTICS



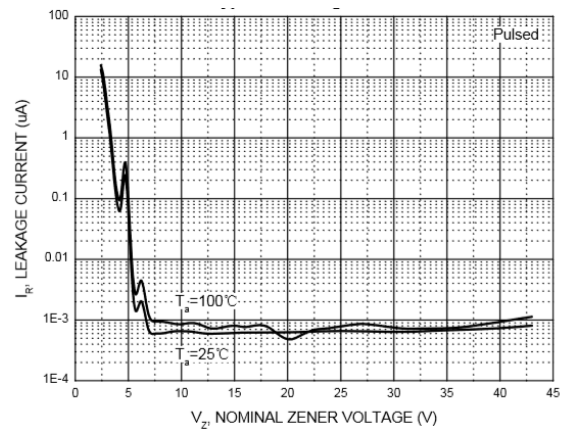
TYPICAL FORWARD VOLTAGE



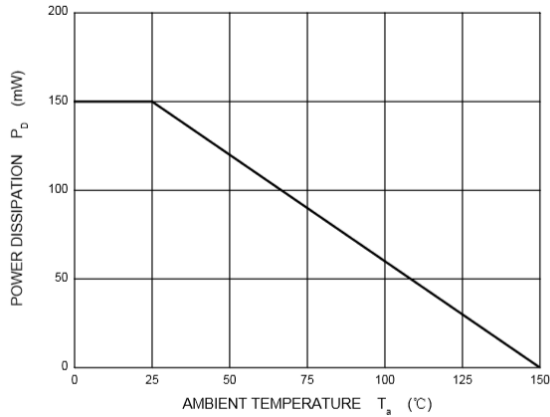
Effect of Zener Voltage on Zener Impedance



Typical Capacitance



Typical Leakage Current



Power Derating Curve

Ordering Information

| Device | Package | Shipping | Tape wide | Emboss pitch | Tape specification | Notes |
|----------------|---------|---------------------------------|-----------|--------------|--------------------|-------|
| BZX584B Series | SOD523 | Tape & Reel 8000pcs /7" Reel | 8 mm | 4 mm | Conductive | |

Package Dimensions

Package outline : SOD-523

| Unit | A | A1 | b | c | D | E | E1 | E2 | L | θ |
|------|------|------|------|------|------|------|------|------|------|----------|
| Max. | 0.77 | 0.70 | 0.35 | 0.15 | 0.85 | 1.30 | 1.70 | 0.20 | 0.07 | 7° |
| Min. | 0.51 | 0.50 | 0.25 | 0.08 | 0.75 | 1.10 | 1.50 | REF. | 0.01 | REF. |

SOD523 Package Outline

Lead Pattern Recommendation

Note:

1. Halogen free, EMC
2. Pb free solder
3. Lead thickness includes solder plating
4. Lead frame: Cu
5. Other Tolerance: ± 0.05
6. Dimensions are exclusive of Burrs, Mold Flash and Tie Bar extrusions
7. Unit: mm

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