

BZX84C2V4 THRU BZX84C(B)51

Silicon 350 mWatt Zener Diodes

Features

- Planar Die construction
- 350mW Power Dissipation
- Zener Voltages from 2.4V - 51V
- Ideally Suited for Automated Assembly Processes
- Halogen free available upon request by adding suffix "-HF"

Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Weight: 0.008 grams (approx.)

Maximum Ratings @ 25°C Unless Otherwise Specified

| | | | |
|------------------------------------|-----------------------------------|-----------------|-------|
| Maximum Forward Voltage@IF=10mA | V _F | 0.9 | V |
| Power Dissipation (Note A) | P _(AV) | 350 | mWatt |
| Operation And Storage Temperature | T _J , T _{STG} | -55°C to +150°C | |
| Peak Forward Surge Current(Note B) | I _{FSM} | 2.0 | A |
| Thermal Resistance (Note C) | R _{thja} | 357 | °C/W |

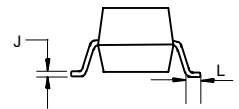
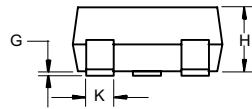
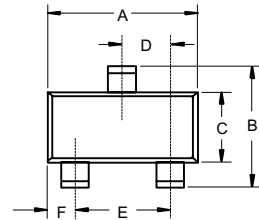
NOTES:

- A. Mounted on 5.0mm²(.013mm thick) land areas.
 B. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
 C. Valid provided the terminals are kept at ambient temperature

*Pin Configuration - Top View

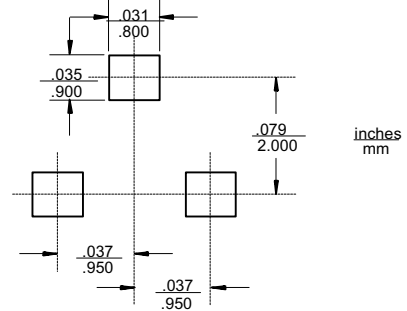


SOT-23



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | .110 | .120 | 2.80 | 3.04 | |
| B | .083 | .104 | 2.10 | 2.64 | |
| C | .047 | .055 | 1.20 | 1.40 | |
| D | .035 | .041 | .89 | 1.03 | |
| E | .070 | .081 | 1.78 | 2.05 | |
| F | .018 | .024 | .45 | .60 | |
| G | .0005 | .0039 | .013 | .100 | |
| H | .035 | .044 | .89 | 1.12 | |
| J | .003 | .007 | .085 | .180 | |
| K | .015 | .020 | .37 | .51 | |
| L | .007 | .020 | .20 | .50 | |

Suggested Solder Pad Layout



BZX84C2V4 thru BZX84C51

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise noted)

| Part Number | Marking | Nominal Zener Voltage | | | Max. Zener Impedance | | | | Max.Reverse Leakage Current | |
|-------------|---------|-------------------------|-------|-------|-----------------------------------|----|-----------------------------------|----|-----------------------------|-------|
| | | Vz(V) @ I _{ZT} | | | Z _{ZT} @ I _{ZT} | | Z _{ZK} @ I _{ZK} | | IR @ VR | |
| | | Nom. | Min. | Max. | Ohm | mA | Ohm | mA | µA | V |
| BZX84C2V4 | W1/Z11 | 2.4 | 2.28 | 2.52 | 100 | 5 | 600 | 1 | 50 | 1.0 |
| BZX84C2V7 | W2/Z12 | 2.7 | 2.5 | 2.9 | 100 | 5 | 600 | 1 | 20 | 1.0 |
| BZX84C3V0 | W3/Z13 | 3 | 2.8 | 3.2 | 95 | 5 | 600 | 1 | 10 | 1.0 |
| BZX84C3V3 | W4/Z14 | 3.3 | 3.1 | 3.5 | 95 | 5 | 600 | 1 | 5 | 1.0 |
| BZX84C3V6 | W5/Z15 | 3.6 | 3.4 | 3.8 | 90 | 5 | 600 | 1 | 5 | 1.0 |
| BZX84C3V9 | W6/Z16 | 3.9 | 3.7 | 4.1 | 90 | 5 | 600 | 1 | 3 | 1.0 |
| BZX84C4V3 | W7/Z17 | 4.3 | 4 | 4.6 | 90 | 5 | 600 | 1 | 3 | 1.0 |
| BZX84C4V7 | W8/Z1 | 4.7 | 4.4 | 5 | 80 | 5 | 500 | 1 | 3 | 2.0 |
| BZX84C5V1 | W9/Z2 | 5.1 | 4.8 | 5.4 | 60 | 5 | 480 | 1 | 2 | 2.0 |
| BZX84C5V6 | WA/Z3 | 5.6 | 5.2 | 6 | 40 | 5 | 400 | 1 | 1 | 2.0 |
| BZX84C6V2 | WB/Z4 | 6.2 | 5.8 | 6.6 | 10 | 5 | 150 | 1 | 3 | 4.0 |
| BZX84C6V8 | WC/Z5 | 6.8 | 6.4 | 7.2 | 15 | 5 | 80 | 1 | 2 | 4.0 |
| BZX84C7V5 | WD/Z6 | 7.5 | 7 | 7.9 | 15 | 5 | 80 | 1 | 1 | 5.0 |
| BZX84C8V2 | WE/Z7 | 8.2 | 7.7 | 8.7 | 15 | 5 | 80 | 1 | 0.7 | 5.0 |
| BZX84C9V1 | WF/Z8 | 9.1 | 8.5 | 9.6 | 15 | 5 | 100 | 1 | 0.5 | 6.0 |
| BZX84C10 | WG/Z9 | 10 | 9.4 | 10.6 | 20 | 5 | 150 | 1 | 0.2 | 7.0 |
| BZX84C11 | WH/Y1 | 11 | 10.4 | 11.6 | 20 | 5 | 150 | 1 | 0.1 | 8.0 |
| BZX84C12 | WI/Y2 | 12 | 11.4 | 12.7 | 25 | 5 | 150 | 1 | 0.1 | 8.0 |
| BZX84C13 | WK/Y3 | 13 | 12.4 | 14.1 | 30 | 5 | 170 | 1 | 0.1 | 8.0 |
| BZX84C15 | WL/Y4 | 15 | 13.8 | 15.6 | 30 | 5 | 200 | 1 | 0.1 | 10.5 |
| BZX84C16 | WM /Y5 | 16 | 15.3 | 17.1 | 40 | 5 | 200 | 1 | 0.1 | 11.2 |
| BZX84C18 | WN/Y6 | 18 | 16.8 | 19.1 | 45 | 5 | 225 | 1 | 0.1 | 12.6 |
| BZX84C20 | WO/Y7 | 20 | 18.8 | 21.2 | 55 | 5 | 225 | 1 | 0.1 | 14.0 |
| BZX84C22 | WP/Y8 | 22 | 20.8 | 23.3 | 55 | 5 | 250 | 1 | 0.1 | 15.4 |
| BZX84C24 | WR/Y9 | 24 | 22.8 | 25.6 | 70 | 5 | 250 | 1 | 0.1 | 16.8 |
| BZX84C27 | WS/Y10 | 27 | 25.1 | 28.9 | 80 | 2 | 300 | 1 | 0.1 | 18.9 |
| BZX84C30 | WT /Y11 | 30 | 28 | 32 | 80 | 2 | 300 | 1 | 0.1 | 21.0 |
| BZX84C33 | WU/Y12 | 33 | 31 | 35 | 80 | 2 | 325 | 1 | 0.1 | 23.1 |
| BZX84C36 | WW/Y13 | 36 | 34 | 38 | 90 | 2 | 350 | 1 | 0.1 | 25.2 |
| BZX84C39 | WX/Y14 | 39 | 37 | 41 | 130 | 2 | 350 | 1 | 0.1 | 27.3 |
| BZX84C43 | WY/Y15 | 43 | 40.85 | 45.15 | 150 | 5 | 375 | 1 | 0.1 | 30.10 |
| BZX84C47 | WZ/Y16 | 47 | 44.65 | 49.35 | 170 | 5 | 375 | 1 | 0.1 | 32.90 |
| BZX84C51 | XA/Y17 | 51 | 48.45 | 53.55 | 100 | 5 | 400 | 1 | 0.1 | 35.70 |

NOTE:

- Standard zener voltage tolerance is +/- 5% with a 'C' suffix from BZX84C2V4-BZX84C51, suffix 'B' is +/- 2% tolerance from BZX84B4V3-BZX84B51.
- Zener Voltage (Vz) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature (TL) AT 30 °C, from the diode body.
- Zener Impedance (Zz) Derivation. The zener impedance is derived from the 60 cycle ac voltage, which results when an AC current having an rms value equal to 10% of the dc zener current (Izt or Izk) is superimposed on Izt or Izk.
- Surge Current (IR) Non-Repetitive. The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current, Izt, per JEDEC registration; however, actual device capability is as described in Figure 5.

BZX84B4V3 thru BZX84B51

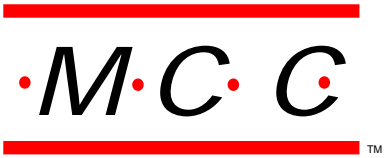
ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise noted)

| Part Number | Marking | Nominal Zener Voltage | | | Max. Zener Impedance | | | | Max.Reverse Leakage Current | |
|-------------|---------|-------------------------|-------|-------|-----------------------------------|----|-----------------------------------|----|-----------------------------|------|
| | | Vz(V) @ I _{ZT} | | | Z _{ZT} @ I _{ZT} | | Z _{ZK} @ I _{ZK} | | IR @ VR | |
| | | Nom. | Min. | Max. | Ohm | mA | Ohm | mA | µA | V |
| BZX84B4V3 | W7 | 4.3 | 4.21 | 4.39 | 90 | 5 | 600 | 1 | 3.0 | 1.0 |
| BZX84B4V7 | W8/Z1 | 4.7 | 4.61 | 4.79 | 80 | 5 | 500 | 1 | 3.0 | 2.0 |
| BZX84B5V1 | W9/Z2Z | 5.1 | 5.00 | 5.20 | 60 | 5 | 480 | 1 | 2.0 | 2.0 |
| BZX84B5V6 | WA/Z2Z3 | 5.6 | 5.49 | 5.71 | 40 | 5 | 400 | 1 | 1.0 | 2.0 |
| BZX84B6V2 | WB/Z2Z4 | 6.2 | 6.08 | 6.32 | 10 | 5 | 150 | 1 | 3.0 | 4.0 |
| BZX84B6V8 | WC/Z2Z5 | 6.8 | 6.66 | 6.94 | 15 | 5 | 80 | 1 | 2.0 | 4.0 |
| BZX84B7V5 | WD/Z2Z6 | 7.5 | 7.35 | 7.65 | 15 | 5 | 80 | 1 | 1.0 | 5.0 |
| BZX84B8V2 | WE/Z2Z7 | 8.2 | 8.04 | 8.36 | 15 | 5 | 80 | 1 | 0.7 | 5.0 |
| BZX84B9V1 | WF/Z2Z8 | 9.1 | 8.92 | 9.28 | 15 | 5 | 100 | 1 | 0.5 | 6.0 |
| BZX84B10 | WG/Z2Z9 | 10 | 9.80 | 10.20 | 20 | 5 | 150 | 1 | 0.2 | 7.0 |
| BZX84B11 | WH/2Y1 | 11 | 10.78 | 11.22 | 20 | 5 | 150 | 1 | 0.1 | 8.0 |
| BZX84B12 | WI/2Y2 | 12 | 11.76 | 12.24 | 25 | 5 | 150 | 1 | 0.1 | 8.0 |
| BZX84B13 | WK/2Y3 | 13 | 12.74 | 13.26 | 30 | 5 | 170 | 1 | 0.1 | 8.0 |
| BZX84B15 | WL/2Y4 | 15 | 14.70 | 15.30 | 30 | 5 | 200 | 1 | 0.1 | 10.5 |
| BZX84B16 | WM/2Y5 | 16 | 15.68 | 16.32 | 40 | 5 | 200 | 1 | 0.1 | 11.2 |
| BZX84B18 | WN/2Y6 | 18 | 17.64 | 18.36 | 45 | 5 | 225 | 1 | 0.1 | 12.6 |
| BZX84B20 | WO/2Y7 | 20 | 19.60 | 20.40 | 55 | 5 | 225 | 1 | 0.1 | 14.0 |
| BZX84B22 | WP/Y8 | 22 | 21.56 | 22.44 | 55 | 5 | 250 | 1 | 0.1 | 15.4 |
| BZX84B24 | WR/Y9 | 24 | 23.52 | 24.48 | 70 | 5 | 250 | 1 | 0.1 | 16.8 |
| BZX84B27 | WS/Y10 | 27 | 26.46 | 27.54 | 80 | 5 | 300 | 1 | 0.1 | 18.9 |
| BZX84B30 | WT/Y11 | 30 | 29.40 | 30.60 | 80 | 5 | 300 | 1 | 0.1 | 21.0 |
| BZX84B33 | WU/Y12 | 33 | 32.34 | 33.66 | 80 | 5 | 325 | 1 | 0.1 | 23.1 |
| BZX84B36 | WW/Y13 | 36 | 35.28 | 36.72 | 90 | 5 | 350 | 1 | 0.1 | 25.2 |
| BZX84B39 | WX/Y14 | 39 | 38.22 | 39.78 | 130 | 5 | 350 | 1 | 0.1 | 27.3 |
| BZX84B43 | WY | 43 | 42.14 | 43.86 | 150 | 5 | 375 | 1 | 0.1 | 30.1 |
| BZX84B47 | WZ | 47 | 46.06 | 47.94 | 170 | 5 | 375 | 1 | 0.1 | 32.9 |
| BZX84B51 | XA | 51 | 49.98 | 52.02 | 100 | 5 | 750 | 1 | 0.1 | 38.0 |

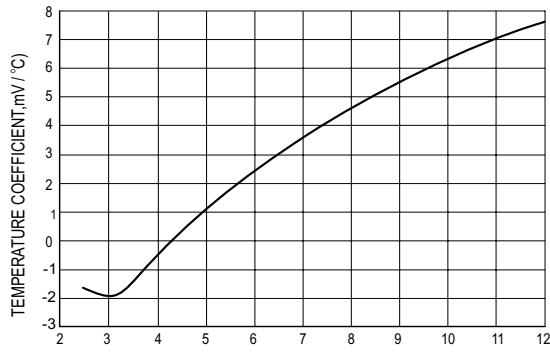
NOTE:

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- Surge Current (IR) Non-Repetitive. The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current, Izt, per JEDEC registration; however, actual device capability is as described in Figure 5.

BZX84 Series

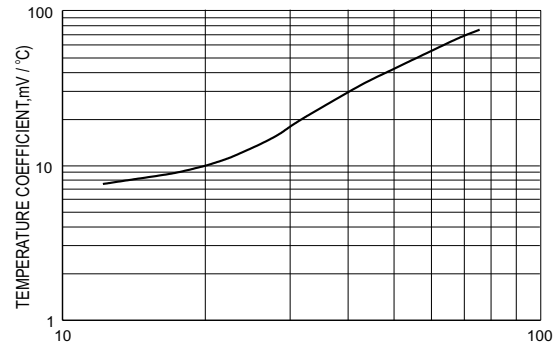


Micro Commercial Components



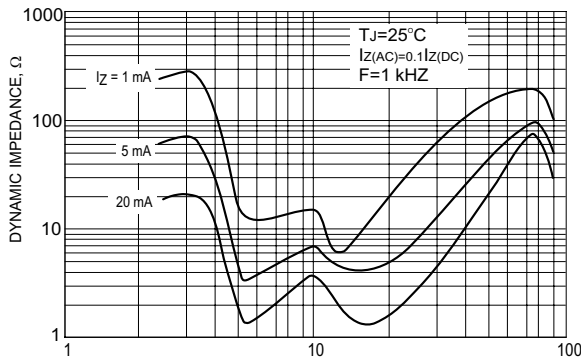
NOMINAL ZENER VOLTAGE, Volts

TYPICAL REVERSE CURRENT



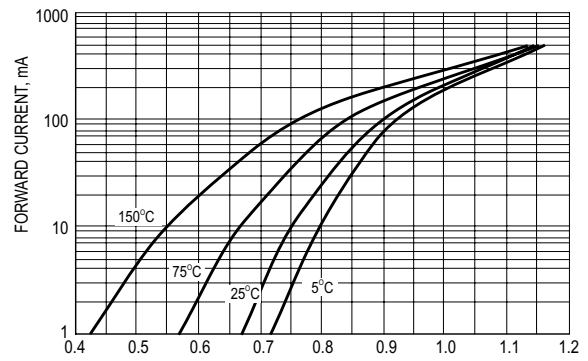
NOMINAL ZENER VOLTAGE, Volts

TEMPERATURE COEFFICIENTS



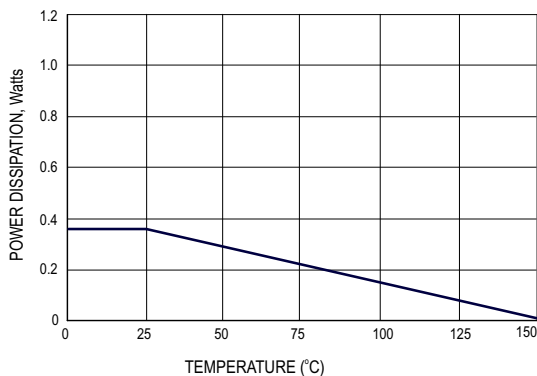
NORMAL ZENER VOLTAGE, Volts

EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE



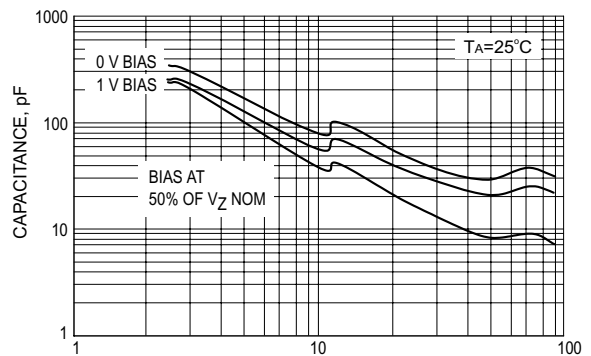
FORWARD VOLTAGE, Volts

TYPICAL FORWARD VOLTAGE



TEMPERATURE (°C)

STEADY STATE POWER DERATING



NOMINAL ZENER VOLTAGE, Volts

TYPICAL CAPACITANCE

BZX84 Series



ZENER VOLTAGE V.S. ZENER CURRENT



ZENER VOLTAGE V.S. ZENER CURRENT



TYPICAL LEAKAGE CURRENT



TM

Micro Commercial Components

Ordering Information :

| Device | Packing |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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