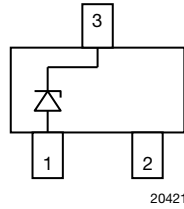


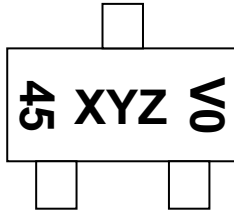
Small Signal Zener Diodes



LINKS TO ADDITIONAL RESOURCES



MARKING (example only)



XYZ = type code
 45 = working week
 0 = year
 V = Vishay

FEATURES

- Silicon planar Zener diodes
- The Zener voltages are graded according to the international E24 standard. Standard Zener voltage tolerance is $\pm 5\%$, indicated by the "C" in the ordering code. Replace "C" with "B" for $\pm 2\%$ tolerance.
- AEC-Q101 qualified available
- ESD capability acc. to AEC-Q101:
human body model: > 8 kV,
machine model: > 800 V
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3_A - RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



| PRIMARY CHARACTERISTICS | | |
|-------------------------|---------------|------|
| PARAMETER | VALUE | UNIT |
| V_Z range nom. | 2.2 to 75 | V |
| Test current I_{ZT} | 2; 5 | mA |
| V_Z specification | Pulse current | |
| Circuit configuration | Single | |

| ORDERING INFORMATION | | | | | |
|----------------------|---|-------------------------|--------------------|-----------------------------------|------------------------|
| DEVICE NAME | ORDERING CODE | ZENER VOLTAGE TOLERANCE | AEC-Q101 QUALIFIED | TAPED UNITS PER REEL | MINIMUM ORDER QUANTITY |
| BZX84 series | BZX84C2V4-E3-08 to BZX84C75-E3-08 | 5 % | no | 3000 (8 mm tape on 7" reel) | 15 000 |
| | BZX84B2V4-E3-08 to BZX84B75-E3-08 | 2 % | no | | |
| | BZX84C2V4-HE3_A-08 to BZX84C75-HE3_A-08 | 5 % | yes | | |
| | BZX84B2V4-HE3_A-08 to BZX84B75-HE3_A-08 | 2 % | yes | | |
| | BZX84C2V4-E3-18 to BZX84C75-E3-18 | 5 % | no | 10 000 (8 mm tape on 13" reel) | 10 000 |
| | BZX84B2V4-E3-18 to BZX84B75-E3-18 | 2 % | no | | |
| | BZX84C2V4-HE3_A-18 to BZX84C75-HE3_A-18 | 5 % | yes | | |
| | BZX84B2V4-HE3_A-18 to BZX84B75-HE3_A-18 | 2 % | yes | | |

| PACKAGE | | | | |
|--------------|--------|--------------------------------------|--------------------------------------|------------------------------|
| PACKAGE NAME | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
| SOT-23 | 9.2 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | Peak temperature max. 260 °C |



| ABSOLUTE MAXIMUM RATINGS | | | | | |
|--|---|--|-------------------|-------------|------|
| PARAMETER | TEST CONDITION | | SYMBOL | VALUE | UNIT |
| Power dissipation | R _{thJL} = 250 K/W | | P _{tot} | 500 | mW |
| | On FR-4 board with recommended soldering footprint | | P _{tot} | 300 | mW |
| Thermal resistance junction to lead | | | R _{thJL} | 250 | K/W |
| Thermal resistance junction to ambient | According to JEDEC® 51-3 on FR-4 board with recommended soldering footprint | | R _{thJA} | 420 | K/W |
| Junction temperature | | | T _j | 150 | °C |
| Storage temperature range | | | T _{stg} | -65 to +150 | °C |
| Operating temperature range | | | T _{op} | -55 to +150 | °C |

| ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) | | | | | | | | | | | | |
|---|--------------|------------------------------------|------|-------|------------------|------------------|----------------------------------|------|------------------------------------|-------------------------------------|-------------------------------------|------|
| PART NUMBER | MARKING CODE | ZENER VOLTAGE RANGE | | | TEST CURRENT | | REVERSE LEAKAGE CURRENT | | DYNAMIC RESISTANCE f = 1 kHz | | TEMPERATURE COEFFICIENT | |
| | | V _Z at I _{ZT1} | | | I _{ZT1} | I _{ZT2} | I _R at V _R | | Z _Z at I _{ZT1} | Z _{ZK} at I _{ZT2} | α _{VZ} at I _{ZT1} | |
| | | V | | | mA | | μA | V | W | | 10 ⁻⁴ /°C | |
| | | MIN. | NOM. | MAX. | | | | | MAX. | MAX. | MIN. | MAX. |
| BZX84C2V2 | G49 | 2.09 | 2.2 | 2.31 | 5 | 1 | 100 | 1 | 120 | 600 | -9 | -4 |
| BZX84C2V4 | G50 | 2.28 | 2.4 | 2.52 | 5 | 1 | 50 | 1 | 100 | 600 | -9 | -4 |
| BZX84C2V7 | G51 | 2.57 | 2.7 | 2.84 | 5 | 1 | 20 | 1 | 100 | 600 | -9 | -4 |
| BZX84C3V0 | G52 | 2.85 | 3.0 | 3.15 | 5 | 1 | 10 | 1 | 95 | 600 | -9 | -3 |
| BZX84C3V3 | G53 | 3.14 | 3.3 | 3.47 | 5 | 1 | 5 | 1 | 95 | 600 | -8 | -3 |
| BZX84C3V6 | G54 | 3.42 | 3.6 | 3.78 | 5 | 1 | 5 | 1 | 90 | 600 | -8 | -3 |
| BZX84C3V9 | G55 | 3.71 | 3.9 | 4.10 | 5 | 1 | 3 | 1 | 90 | 600 | -7 | -3 |
| BZX84C4V3 | G56 | 4.09 | 4.3 | 4.52 | 5 | 1 | 3 | 1 | 90 | 600 | -6 | -1 |
| BZX84C4V7 | G57 | 4.47 | 4.7 | 4.94 | 5 | 1 | 3 | 2 | 80 | 500 | -5 | 2 |
| BZX84C5V1 | G58 | 4.85 | 5.1 | 5.36 | 5 | 1 | 2 | 2 | 60 | 480 | -3 | 4 |
| BZX84C5V6 | G59 | 5.32 | 5.6 | 5.88 | 5 | 1 | 1 | 2 | 40 | 400 | -2 | 6 |
| BZX84C6V2 | G60 | 5.89 | 6.2 | 6.51 | 5 | 1 | 3 | 4 | 10 | 150 | -1 | 7 |
| BZX84C6V8 | G61 | 6.46 | 6.8 | 7.14 | 5 | 1 | 2 | 4 | 15 | 80 | 2 | 7 |
| BZX84C7V5 | G62 | 7.13 | 7.5 | 7.88 | 5 | 1 | 1 | 5 | 15 | 80 | 3 | 7 |
| BZX84C8V2 | G63 | 7.79 | 8.2 | 8.61 | 5 | 1 | 0.7 | 5 | 15 | 80 | 4 | 7 |
| BZX84C9V1 | G64 | 8.65 | 9.1 | 9.56 | 5 | 1 | 0.5 | 6 | 15 | 100 | 5 | 8 |
| BZX84C10 | G65 | 9.50 | 10 | 10.50 | 5 | 1 | 0.2 | 7 | 20 | 150 | 5 | 8 |
| BZX84C11 | G66 | 10.45 | 11 | 11.55 | 5 | 1 | 0.1 | 8 | 20 | 150 | 5 | 9 |
| BZX84C12 | G67 | 11.40 | 12 | 12.60 | 5 | 1 | 0.1 | 8 | 25 | 150 | 6 | 9 |
| BZX84C13 | G68 | 12.40 | 13 | 13.65 | 5 | 1 | 0.1 | 8 | 30 | 170 | 7 | 9 |
| BZX84C15 | G69 | 14.25 | 15 | 15.60 | 5 | 1 | 0.05 | 10.5 | 30 | 200 | 7 | 9 |
| BZX84C16 | G70 | 15.30 | 16 | 16.80 | 5 | 1 | 0.05 | 11.2 | 40 | 200 | 8 | 9.5 |
| BZX84C18 | G71 | 17.10 | 18 | 18.90 | 5 | 1 | 0.05 | 12.6 | 45 | 225 | 8 | 9.5 |
| BZX84C20 | G72 | 19.00 | 20 | 21.00 | 5 | 1 | 0.05 | 14.0 | 55 | 225 | 8 | 10 |
| BZX84C22 | G73 | 20.90 | 22 | 23.10 | 5 | 1 | 0.05 | 15.4 | 55 | 250 | 8 | 10 |
| BZX84C24 | G74 | 22.80 | 24 | 25.20 | 5 | 1 | 0.05 | 16.8 | 70 | 250 | 8 | 10 |
| BZX84C27 | G75 | 25.65 | 27 | 28.35 | 2 | 0.5 | 0.05 | 18.9 | 80 | 300 | 8 | 10 |
| BZX84C30 | G76 | 28.50 | 30 | 31.50 | 2 | 0.5 | 0.05 | 21.0 | 80 | 300 | 8 | 10 |
| BZX84C33 | G77 | 31.35 | 33 | 34.65 | 2 | 0.5 | 0.05 | 23.1 | 80 | 325 | 8 | 10 |
| BZX84C36 | G78 | 34.20 | 36 | 37.80 | 2 | 0.5 | 0.05 | 25.2 | 90 | 350 | 8 | 10 |
| BZX84C39 | G79 | 37.05 | 39 | 40.95 | 2 | 0.5 | 0.05 | 27.3 | 130 | 350 | 10 | 12 |
| BZX84C43 | G80 | 40.85 | 43 | 45.15 | 2 | 0.5 | 0.05 | 30.1 | 150 | 375 | 10 | 12 |
| BZX84C47 | G81 | 44.65 | 47 | 49.35 | 2 | 0.5 | 0.05 | 32.9 | 170 | 375 | 10 | 12 |
| BZX84C51 | G82 | 48.45 | 51 | 53.55 | 2 | 0.5 | 0.05 | 35.7 | 180 | 400 | 10 | 12 |
| BZX84C56 | G83 | 53.20 | 56 | 58.80 | 2 | 0.5 | 0.05 | 39.2 | 200 | 425 | 9 | 11 |
| BZX84C62 | G84 | 58.90 | 62 | 65.10 | 2 | 0.5 | 0.05 | 43.4 | 215 | 450 | 9 | 12 |
| BZX84C68 | G85 | 64.60 | 68 | 71.40 | 2 | 0.5 | 0.05 | 47.6 | 240 | 475 | 10 | 12 |
| BZX84C75 | G86 | 71.25 | 75 | 78.75 | 2 | 0.5 | 0.05 | 52.5 | 255 | 500 | 10 | 12 |



| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | | | | | | |
|--|--------------|---------------------|------|-------|--------------|-----------|-------------------------|------|--|-----------------------|----------------------------|------|
| PART NUMBER | MARKING CODE | ZENER VOLTAGE RANGE | | | TEST CURRENT | | REVERSE LEAKAGE CURRENT | | DYNAMIC RESISTANCE $f = 1\text{ kHz}$ | | TEMPERATURE COEFFICIENT | |
| | | V_Z at I_{ZT1} | | | I_{ZT1} | I_{ZT2} | I_R at V_R | | Z_Z at I_{ZT1} | Z_{ZK} at I_{ZT2} | α_{VZ} at I_{ZT1} | |
| | | V | | | mA | | μA | V | W | | $10^{-4}/^{\circ}\text{C}$ | |
| | | MIN. | NOM. | MAX. | | | | | MAX. | MAX. | MIN. | MAX. |
| BZX84B2V2 | H49 | 2.16 | 2.2 | 2.24 | 5 | 1 | 100 | 1 | 120 | 600 | -9 | -4 |
| BZX84B2V4 | H50 | 2.35 | 2.4 | 2.45 | 5 | 1 | 50 | 1 | 100 | 600 | -9 | -4 |
| BZX84B2V7 | H51 | 2.65 | 2.7 | 2.75 | 5 | 1 | 20 | 1 | 100 | 600 | -9 | -4 |
| BZX84B3V0 | H52 | 2.94 | 3.0 | 3.06 | 5 | 1 | 10 | 1 | 95 | 600 | -9 | -3 |
| BZX84B3V3 | H53 | 3.23 | 3.3 | 3.37 | 5 | 1 | 5 | 1 | 95 | 600 | -8 | -3 |
| BZX84B3V6 | H54 | 3.53 | 3.6 | 3.67 | 5 | 1 | 5 | 1 | 90 | 600 | -8 | -3 |
| BZX84B3V9 | H55 | 3.82 | 3.9 | 3.98 | 5 | 1 | 3 | 1 | 90 | 600 | -7 | -3 |
| BZX84B4V3 | H56 | 4.21 | 4.3 | 4.39 | 5 | 1 | 3 | 1 | 90 | 600 | -6 | -1 |
| BZX84B4V7 | H57 | 4.61 | 4.7 | 4.79 | 5 | 1 | 3 | 2 | 80 | 500 | -5 | 2 |
| BZX84B5V1 | H58 | 5.00 | 5.1 | 5.20 | 5 | 1 | 2 | 2 | 60 | 480 | -3 | 4 |
| BZX84B5V6 | H59 | 5.49 | 5.6 | 5.71 | 5 | 1 | 1 | 2 | 40 | 400 | -2 | 6 |
| BZX84B6V2 | H60 | 6.08 | 6.2 | 6.32 | 5 | 1 | 3 | 4 | 10 | 150 | -1 | 7 |
| BZX84B6V8 | H61 | 6.66 | 6.8 | 6.94 | 5 | 1 | 2 | 4 | 15 | 80 | 2 | 7 |
| BZX84B7V5 | H62 | 7.35 | 7.5 | 7.65 | 5 | 1 | 1 | 5 | 15 | 80 | 3 | 7 |
| BZX84B8V2 | H63 | 8.04 | 8.2 | 8.36 | 5 | 1 | 0.7 | 5 | 15 | 80 | 4 | 7 |
| BZX84B9V1 | H64 | 8.92 | 9.1 | 9.28 | 5 | 1 | 0.5 | 6 | 15 | 100 | 5 | 8 |
| BZX84B10 | H65 | 9.80 | 10 | 10.20 | 5 | 1 | 0.2 | 7 | 20 | 150 | 5 | 8 |
| BZX84B11 | H66 | 10.78 | 11 | 11.22 | 5 | 1 | 0.1 | 8 | 20 | 150 | 5 | 9 |
| BZX84B12 | H67 | 11.76 | 12 | 12.24 | 5 | 1 | 0.1 | 8 | 25 | 150 | 6 | 9 |
| BZX84B13 | H68 | 12.74 | 13 | 13.26 | 5 | 1 | 0.1 | 8 | 30 | 170 | 7 | 9 |
| BZX84B15 | H69 | 14.70 | 15 | 15.30 | 5 | 1 | 0.05 | 10.5 | 30 | 200 | 7 | 9 |
| BZX84B16 | H70 | 15.68 | 16 | 16.32 | 5 | 1 | 0.05 | 11.2 | 40 | 200 | 8 | 9.5 |
| BZX84B18 | H71 | 17.64 | 18 | 18.36 | 5 | 1 | 0.05 | 12.6 | 45 | 225 | 8 | 9.5 |
| BZX84B20 | H72 | 19.60 | 20 | 20.40 | 5 | 1 | 0.05 | 14 | 55 | 225 | 8 | 10 |
| BZX84B22 | H73 | 21.56 | 22 | 22.44 | 5 | 1 | 0.05 | 15.4 | 55 | 250 | 8 | 10 |
| BZX84B24 | H74 | 23.52 | 24 | 24.48 | 5 | 1 | 0.05 | 16.8 | 70 | 250 | 8 | 10 |
| BZX84B27 | H75 | 26.46 | 27 | 27.54 | 2 | 0.5 | 0.05 | 18.9 | 80 | 300 | 8 | 10 |
| BZX84B30 | H76 | 29.40 | 30 | 30.60 | 2 | 0.5 | 0.05 | 21 | 80 | 300 | 8 | 10 |
| BZX84B33 | H77 | 32.34 | 33 | 33.66 | 2 | 0.5 | 0.05 | 23.1 | 80 | 325 | 8 | 10 |
| BZX84B36 | H78 | 35.28 | 36 | 36.72 | 2 | 0.5 | 0.05 | 25.2 | 90 | 350 | 8 | 10 |
| BZX84B39 | H79 | 38.22 | 39 | 39.78 | 2 | 0.5 | 0.05 | 27.3 | 130 | 350 | 10 | 12 |
| BZX84B43 | H80 | 42.14 | 43 | 43.86 | 2 | 0.5 | 0.05 | 30.1 | 150 | 375 | 10 | 12 |
| BZX84B47 | H81 | 46.06 | 47 | 47.94 | 2 | 0.5 | 0.05 | 32.9 | 170 | 375 | 10 | 12 |
| BZX84B51 | H82 | 49.98 | 51 | 52.02 | 2 | 0.5 | 0.05 | 35.7 | 180 | 400 | 10 | 12 |
| BZX84B56 | H83 | 54.88 | 56 | 57.12 | 2 | 0.5 | 0.05 | 39.2 | 200 | 425 | 9 | 11 |
| BZX84B62 | H84 | 60.76 | 62 | 63.24 | 2 | 0.5 | 0.05 | 43.4 | 215 | 450 | 9 | 12 |
| BZX84B68 | H85 | 66.64 | 68 | 69.36 | 2 | 0.5 | 0.05 | 47.6 | 240 | 475 | 10 | 12 |
| BZX84B75 | H86 | 73.50 | 75 | 76.50 | 2 | 0.5 | 0.05 | 52.5 | 255 | 500 | 10 | 12 |

TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

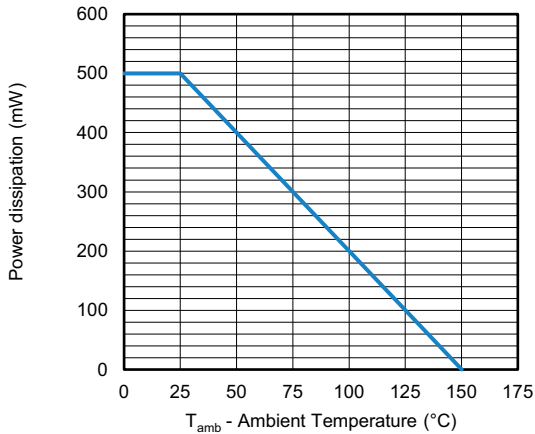


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

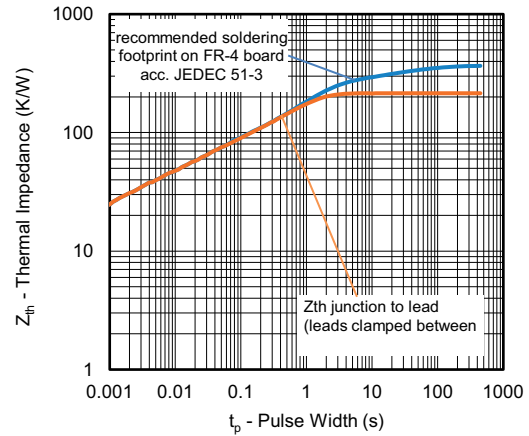
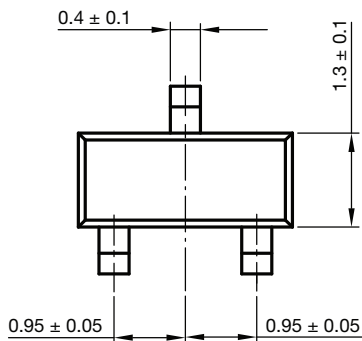
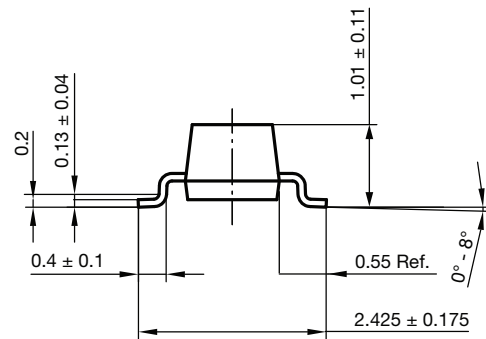
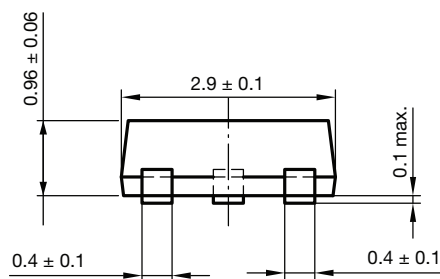
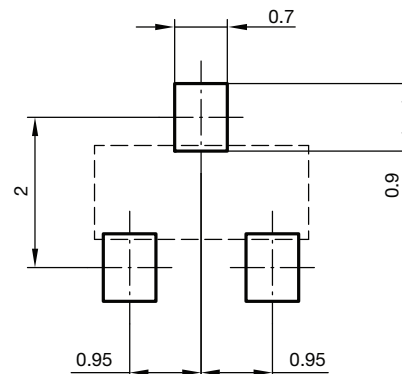


Fig. 2 - Thermal Impedance vs. Time

PACKAGE DIMENSIONS in millimeters (inches): **SOT-23**



Foot print recommendation:



Document no.: S8-V-3929.01-009 (4)
 Created - Date: 18. Oct. 2021
 Rev. 01 - Date: 18. Jan. 2022



ORIENTATION IN CARRIER TAPE

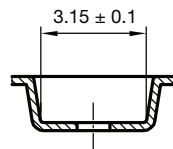


S8-V-3929.01-006 (4)
 Created Date: 04.02.2010
 Rev. 02 Date: 07.11.2022

CARRIER TAPE



B-B Section



Document no.: S8-V-3929.01-005 (4)
 Created - Date: 04. Feb. 2010



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