

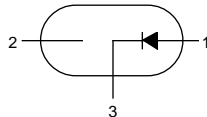


BZX84C series

SILICON PLANAR VOLTAGE REGULATOR DIODES

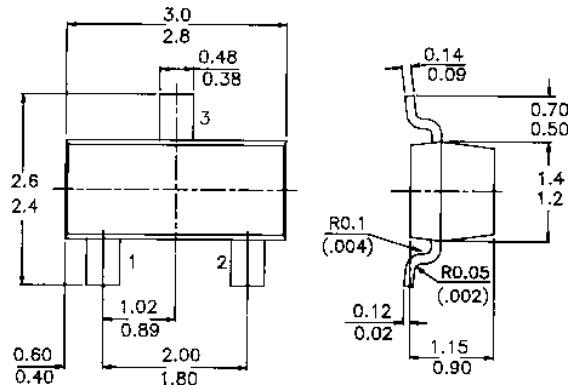
Pin configuration

- 1 = ANODE
- 2 = NC
- 3 = CATHODE



PACKAGE OUTLINE DETAILS

ALL DIMENSIONS IN mm



Marking

| | | | |
|------------------|-----------------|----------------|-----------------|
| BZX84-C3V3 = Z14 | BZX84-C7V5 = Z6 | BZX84-C18 = Y6 | BZX84-C43 = Y15 |
| C3V6 = Z15 | C8V2 = Z7 | C20 = Y7 | C47 = Y16 |
| C3V9 = Z16 | C9V1 = Z8 | C22 = Y8 | |
| C4V3 = Z17 | C10 = Z9 | C24 = Y9 | |
| C4V7 = Z1 | C11 = Y1 | C27 = Y10 | |
| C5V1 = Z2 | C12 = Y2 | C30 = Y11 | |
| C5V6 = Z3 | C13 = Y3 | C33 = Y12 | |
| C6V2 = Z4 | C15 = Y4 | C36 = Y13 | |
| C6V8 = Z5 | C16 = Y5 | C39 = Y14 | |

ABSOLUTE MAXIMUM RATINGS

| | | |
|--|-----------|------------------|
| Working voltage range | V_Z | nom. 3.3 to 47 V |
| Working voltage tolerance | | ±5 % |
| Total power dissipation up to $T_{amb} = 25\text{ °C}$ | P_{tot} | max. 300 mW |
| Junction temperature | T_j | max. 150 °C |

BZX84C series

RATINGS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Limiting values

| | | | |
|---|-----------|-------------|----------------------|
| Repetitive peak forward current | I_{FRM} | max. | 250 mA |
| Repetitive peak working current | I_{ZRM} | max. | 250 mA |
| Total power dissipation up to $T_{amb} = 25^\circ\text{C}^*$ | P_{tot} | max. | 300 mW |
| Total power dissipation up to $T_{amb} = 25^\circ\text{C}^{**}$ | P_{tot} | max. | 250 mW |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |
| Junction temperature | T_j | max. | 150 $^\circ\text{C}$ |

THERMAL RESISTANCE

| | | | |
|--------------------------|-------------|-----|-----|
| From junction to ambient | R_{thj-a} | 430 | K/W |
| From junction to ambient | R_{thj-a} | 500 | K/W |

CHARACTERISTICS

$T_j = 25^\circ\text{C}$ unless otherwise specified

Forward voltage

| | | | |
|----------------------|-------|---|-------|
| $I_F = 10\text{ mA}$ | V_F | < | 0.9 V |
|----------------------|-------|---|-------|

Reverse current

| | | | | |
|-----------|----------------------|-------|---|-----------------|
| BZX84-3V3 | $V_R = 1\text{ V}$ | I_R | < | 5 μA |
| 3V6 | $V_R = 1\text{ V}$ | I_R | < | 5 μA |
| 3V9 | $V_R = 1\text{ V}$ | I_R | < | 3 μA |
| 4V3 | $V_R = 1\text{ V}$ | I_R | < | 3 μA |
| 4V7 | $V_R = 2\text{ V}$ | I_R | < | 3 μA |
| 5V1 | $V_R = 2\text{ V}$ | I_R | < | 2 μA |
| 5V6 | $V_R = 2\text{ V}$ | I_R | < | 1 μA |
| 6V2 | $V_R = 4\text{ V}$ | I_R | < | 3 μA |
| 6V8 | $V_R = 4\text{ V}$ | I_R | < | 2 μA |
| 7V5 | $V_R = 5\text{ V}$ | I_R | < | 1 μA |
| 8V2 | $V_R = 5\text{ V}$ | I_R | < | 700 nA |
| 9V1 | $V_R = 6\text{ V}$ | I_R | < | 500 nA |
| 10 | $V_R = 7\text{ V}$ | I_R | < | 200 nA |
| 11 | $V_R = 8\text{ V}$ | I_R | < | 100 nA |
| 12 | $V_R = 8\text{ V}$ | I_R | < | 100 nA |
| 13 | $V_R = 8\text{ V}$ | I_R | < | 100 nA |
| 15 to 47 | $V_R = 0.7 V_{Znom}$ | I_R | < | 50 nA |

.. = C for 5%

$T_j = 25^\circ\text{C}$

$\pm 5\%$ tolerance range

* Device mounted on a ceramic alumina

** Device mounted on an FR5 printed-circuit board

$T_j = 25^\circ\text{C}$

$\pm 5\%$ tolerance range

BZX84C series

| <i>BZX84</i> | <i>working voltage</i> | | <i>differential resistance</i> | | <i>temperature coefficient</i> | | | <i>differential resistance</i> | |
|-------------------|------------------------------------|-------------|------------------------------------|-------------|------------------------------------|-------------|-------------|----------------------------------|-------------|
| | <i>V_Z (V)*</i> | | <i>r_{diff} (Ω)</i> | | <i>S_Z (mV/K)</i> | | | <i>r_{diff} (Ω)</i> | |
| | <i>at I_{Ztest} = 5 mA</i> | | <i>at I_{Ztest} = 5 mA</i> | | <i>at I_{Ztest} = 5 mA</i> | | | <i>at I_Z = 1 mA</i> | |
| | <i>min.</i> | <i>max.</i> | <i>typ.</i> | <i>max.</i> | <i>min.</i> | <i>typ.</i> | <i>max.</i> | <i>typ.</i> | <i>max.</i> |
| <i>BZX84-C3V3</i> | 3.10 | 3.50 | 85 | 95 | -3.5 | -2.4 | 0 | 350 | 600 |
| <i>C3V6</i> | 3.40 | 3.80 | 85 | 90 | -3.5 | -2.4 | 0 | 375 | 600 |
| <i>C3V9</i> | 3.70 | 4.10 | 85 | 90 | -3.5 | -2.5 | 0 | 400 | 600 |
| <i>C4V3</i> | 4.00 | 4.60 | 80 | 90 | -3.5 | -2.5 | 0 | 410 | 600 |
| <i>C4V7</i> | 4.40 | 5.00 | 50 | 80 | -3.5 | -1.4 | 0.2 | 425 | 500 |
| <i>C5V1</i> | 4.80 | 5.40 | 40 | 60 | -2.7 | -0.8 | 1.2 | 400 | 480 |
| <i>C5V6</i> | 5.20 | 6.00 | 15 | 40 | -2.0 | 1.2 | 2.5 | 80 | 400 |
| <i>C6V2</i> | 5.80 | 6.60 | 6 | 10 | 0.4 | 2.3 | 3.7 | 40 | 150 |
| <i>C6V8</i> | 6.40 | 7.20 | 6 | 15 | 1.2 | 3.0 | 4.5 | 30 | 80 |
| <i>C7V5</i> | 7.00 | 7.90 | 6 | 15 | 2.5 | 4.0 | 5.3 | 30 | 80 |
| <i>C8V2</i> | 7.70 | 8.70 | 6 | 15 | 3.2 | 4.6 | 6.2 | 40 | 80 |
| <i>C9V1</i> | 8.50 | 9.60 | 6 | 15 | 3.8 | 5.5 | 7.0 | 40 | 100 |
| <i>C10</i> | 9.40 | 10.60 | 8 | 20 | 4.5 | 6.4 | 8.0 | 50 | 150 |
| <i>C11</i> | 10.40 | 11.60 | 10 | 20 | 5.4 | 7.4 | 9.0 | 50 | 150 |
| <i>C12</i> | 11.40 | 12.70 | 10 | 25 | 6.0 | 8.4 | 10.0 | 50 | 150 |
| <i>C13</i> | 12.40 | 14.10 | 10 | 30 | 7.0 | 9.4 | 11.0 | 50 | 170 |
| <i>C15</i> | 13.80 | 15.60 | 10 | 30 | 9.2 | 11.4 | 13.0 | 50 | 200 |
| <i>C16</i> | 15.30 | 17.10 | 10 | 40 | 10.4 | 12.4 | 14.0 | 50 | 200 |
| <i>C18</i> | 16.80 | 19.10 | 10 | 45 | 12.4 | 14.4 | 16.0 | 50 | 225 |
| <i>C20</i> | 18.80 | 21.20 | 15 | 55 | 14.4 | 16.4 | 18.0 | 60 | 225 |
| <i>C22</i> | 20.80 | 23.30 | 20 | 55 | 16.4 | 18.4 | 20.0 | 60 | 250 |
| <i>C24</i> | 22.80 | 25.60 | 25 | 70 | 18.4 | 20.4 | 22.0 | 60 | 250 |
| | <i>at I_{Ztest} = 2 mA</i> | | <i>at I_{Ztest} = 2 mA</i> | | <i>at I_{Ztest} = 2 mA</i> | | | <i>at I_Z = 0.5 mA</i> | |
| <i>BZX84-C27</i> | 25.10 | 28.90 | 25 | 80 | 21.4 | 23.4 | 25.3 | 65 | 300 |
| <i>C30</i> | 28.00 | 32.00 | 30 | 80 | 24.4 | 26.6 | 29.4 | 70 | 300 |
| <i>C33</i> | 31.00 | 35.00 | 35 | 80 | 27.4 | 29.7 | 33.4 | 75 | 325 |
| <i>C36</i> | 34.00 | 38.00 | 35 | 90 | 30.4 | 33.0 | 37.4 | 80 | 350 |
| <i>C39</i> | 37.00 | 41.00 | 40 | 130 | 33.4 | 36.4 | 41.2 | 80 | 350 |
| <i>C43</i> | 40.00 | 46.00 | 45 | 150 | 37.6 | 41.2 | 46.6 | 85 | 375 |
| <i>C47</i> | 44.00 | 50.00 | 50 | 170 | 42.0 | 46.1 | 51.8 | 85 | 375 |

* Pulse test $20\text{ ms} \leq t_p \leq 50\text{ ms}$