

# Zener Voltage Regulators

250 mW SOT-23 Surface Mount

## BZX84BxxxLT1G, BZX84CxxxLT1G Series, SZBZX84BxxxLT1G, SZBZX84CxxxLT1G Series

This series of Zener diodes is offered in the convenient, surface mount plastic SOT-23 package. These devices are designed to provide voltage regulation with minimum space requirement. They are well suited for applications such as cellular phones, hand held portables, and high density PC boards.

### Features

- 250 mW Rating on FR-4 or FR-5 Board
- Zener Breakdown Voltage Range – 2.4 V to 75 V
- Package Designed for Optimal Automated Board Assembly
- Small Package Size for High Density Applications
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- Tight Tolerance Series Available (See Page 4)
- SZ Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free and are RoHS Compliant

### Mechanical Characteristics

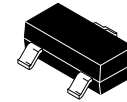
**CASE:** Void-free, transfer-molded, thermosetting plastic case

**FINISH:** Corrosion resistant finish, easily Solderable

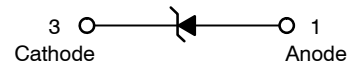
**MAXIMUM CASE TEMPERATURE FOR SOLDERING PURPOSES:**  
260°C for 10 Seconds

**POLARITY:** Cathode indicated by polarity band

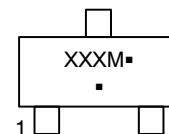
**FLAMMABILITY RATING:** UL 94 V-0



SOT-23  
CASE 318  
STYLE 8



### MARKING DIAGRAM



XXX = Device Code  
M = Date Code\*  
■ = Pb-Free Package

(Note: Microdot may be in either location)

\*Date Code orientation may vary depending upon manufacturing location.

### ORDERING INFORMATION

| Device          | Package             | Shipping†               |
|-----------------|---------------------|-------------------------|
| BZX84CxxxLT1G   | SOT-23<br>(Pb-Free) | 3,000 /<br>Tape & Reel  |
| SZBZX84CxxxLT1G | SOT-23<br>(Pb-Free) | 3,000 /<br>Tape & Reel  |
| BZX84CxxxLT3G   | SOT-23<br>(Pb-Free) | 10,000 /<br>Tape & Reel |
| SZBZX84CxxxLT3G | SOT-23<br>(Pb-Free) | 10,000 /<br>Tape & Reel |
| BZX84BxxxLT1G   | SOT-23<br>(Pb-Free) | 3,000 /<br>Tape & Reel  |
| SZBZX84BxxxLT1G | SOT-23<br>(Pb-Free) | 3,000 /<br>Tape & Reel  |
| BZX84BxxxLT3G   | SOT-23<br>(Pb-Free) | 10,000 /<br>Tape & Reel |
| SZBZX84BxxxLT3G | SOT-23<br>(Pb-Free) | 10,000 /<br>Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

### DEVICE MARKING INFORMATION

See specific marking information in the device marking column of the Electrical Characteristics table on page 3 of this data sheet.

\*For additional information on our Pb-Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

# BZX84BxxxLT1G, BZX84CxxxLT1G Series, SZBZX84BxxxLT1G, SZBZX84CxxxLT1G Series

## MAXIMUM RATINGS

| Rating                                                                                                                   | Symbol          | Max         | Unit                                                    |
|--------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|---------------------------------------------------------|
| Total Power Dissipation on FR-5 Board,<br>(Note 1) @ $T_A = 25^\circ\text{C}$<br>Derated above $25^\circ\text{C}$        | $P_D$           | 250         | mW                                                      |
| Thermal Resistance, Junction-to-Ambient                                                                                  | $R_{\theta JA}$ | 2.0<br>500  | $\text{mW}/^\circ\text{C}$<br>$^\circ\text{C}/\text{W}$ |
| Total Power Dissipation on Alumina<br>Substrate, (Note 2) @ $T_A = 25^\circ\text{C}$<br>Derated above $25^\circ\text{C}$ | $P_D$           | 300         | mW                                                      |
| Thermal Resistance, Junction-to-Ambient                                                                                  | $R_{\theta JA}$ | 2.4<br>417  | $\text{mW}/^\circ\text{C}$<br>$^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature Range                                                                                   | $T_J, T_{stg}$  | -65 to +150 | $^\circ\text{C}$                                        |

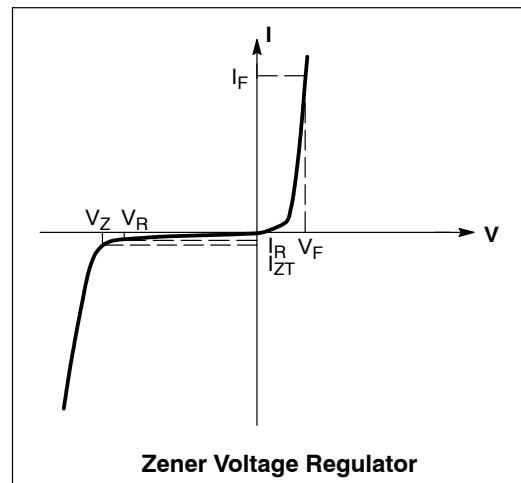
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

- FR-5 = 1.0 X 0.75 X 0.62 in.
- Alumina = 0.4 X 0.3 X 0.024 in., 99.5% alumina.

## ELECTRICAL CHARACTERISTICS

(Pinout: 1-Anode, 2-No Connection, 3-Cathode) ( $T_A = 25^\circ\text{C}$  unless otherwise noted,  $V_F = 0.90\text{ V Max.}$  @  $I_F = 10\text{ mA}$ )

| Symbol       | Parameter                                           |
|--------------|-----------------------------------------------------|
| $V_Z$        | Reverse Zener Voltage @ $I_{ZT}$                    |
| $I_{ZT}$     | Reverse Current                                     |
| $Z_{ZT}$     | Maximum Zener Impedance @ $I_{ZT}$                  |
| $I_R$        | Reverse Leakage Current @ $V_R$                     |
| $V_R$        | Reverse Voltage                                     |
| $I_F$        | Forward Current                                     |
| $V_F$        | Forward Voltage @ $I_F$                             |
| $\Theta V_Z$ | Maximum Temperature Coefficient of $V_Z$            |
| C            | Max. Capacitance @ $V_R = 0$ and $f = 1\text{ MHz}$ |



# BZX84BxxxLT1G, BZX84CxxxLT1G Series, SZBZX84BxxxLT1G, SZBZX84CxxxLT1G Series

## ELECTRICAL CHARACTERISTICS – BZX84CxxxLT1 SERIES (STANDARD TOLERANCE)

(Pinout: 1-Anode, 2-No Connection, 3-Cathode) ( $T_A = 25^\circ\text{C}$  unless otherwise noted,  $V_F = 0.90\text{ V Max. @ } I_F = 10\text{ mA}$ )  
(Devices listed in **bold**, *italic* are onsemi Preferred devices.)

| Device*                 | Device Marking | V <sub>Z1</sub> (Volts)<br>@ I <sub>ZT1</sub> = 5 mA<br>(Note 3) |            |             | Z <sub>1T1</sub> (Ω)<br>@ I <sub>ZT1</sub> = 5 mA   | V <sub>Z2</sub> (V)<br>@ I <sub>ZT2</sub> = 1 mA<br>(Note 3) |             | Z <sub>2T2</sub> (Ω)<br>@ I <sub>ZT2</sub> = 1 mA     | V <sub>Z3</sub> (V)<br>@ I <sub>ZT3</sub> = 20 mA<br>(Note 3) |             | Z <sub>3T3</sub> (Ω)<br>@ I <sub>ZT3</sub> = 20 mA   | Max Reverse Leakage Current |                      | θ <sub>VZ</sub> (mV/k)<br>@ I <sub>ZT1</sub> = 5 mA       |             | C (pF)<br>@ V <sub>R</sub> = 0<br>f = 1 MHz |
|-------------------------|----------------|------------------------------------------------------------------|------------|-------------|-----------------------------------------------------|--------------------------------------------------------------|-------------|-------------------------------------------------------|---------------------------------------------------------------|-------------|------------------------------------------------------|-----------------------------|----------------------|-----------------------------------------------------------|-------------|---------------------------------------------|
|                         |                | Min                                                              | Nom        | Max         |                                                     | Min                                                          | Max         |                                                       | Min                                                           | Max         |                                                      | I <sub>R</sub> μA           | V <sub>R</sub> Volts | Min                                                       | Max         |                                             |
| BZX84C2V4LT1G           | Z11            | 2.2                                                              | 2.4        | 2.6         | 100                                                 | 1.7                                                          | 2.1         | 600                                                   | 2.6                                                           | 3.2         | 50                                                   | 50                          | 1                    | -3.5                                                      | 0           | 450                                         |
| BZX84C2V7LT1G           | Z12            | 2.5                                                              | 2.7        | 2.9         | 100                                                 | 1.9                                                          | 2.4         | 600                                                   | 3                                                             | 3.6         | 50                                                   | 20                          | 1                    | -3.5                                                      | 0           | 450                                         |
| BZX84C3V0LT1G           | Z13            | 2.8                                                              | 3          | 3.2         | 95                                                  | 2.1                                                          | 2.7         | 600                                                   | 3.3                                                           | 3.9         | 50                                                   | 10                          | 1                    | -3.5                                                      | 0           | 450                                         |
| BZX84C3V3LT1G           | Z14            | 3.1                                                              | 3.3        | 3.5         | 95                                                  | 2.3                                                          | 2.9         | 600                                                   | 3.6                                                           | 4.2         | 40                                                   | 5                           | 1                    | -3.5                                                      | 0           | 450                                         |
| BZX84C3V6LT1G           | Z15            | 3.4                                                              | 3.6        | 3.8         | 90                                                  | 2.7                                                          | 3.3         | 600                                                   | 3.9                                                           | 4.5         | 40                                                   | 5                           | 1                    | -3.5                                                      | 0           | 450                                         |
| BZX84C3V9LT1G           | Z16            | 3.7                                                              | 3.9        | 4.1         | 90                                                  | 2.9                                                          | 3.5         | 600                                                   | 4.1                                                           | 4.7         | 30                                                   | 3                           | 1                    | -3.5                                                      | -2.5        | 450                                         |
| BZX84C4V3LT1G           | W9             | 4                                                                | 4.3        | 4.6         | 90                                                  | 3.3                                                          | 4           | 600                                                   | 4.4                                                           | 5.1         | 30                                                   | 3                           | 1                    | -3.5                                                      | 0           | 450                                         |
| <b>BZX84C4V7LT1/T3G</b> | <b>Z1</b>      | <b>4.4</b>                                                       | <b>4.7</b> | <b>5</b>    | <b>80</b>                                           | <b>3.7</b>                                                   | <b>4.7</b>  | <b>500</b>                                            | <b>4.5</b>                                                    | <b>5.4</b>  | <b>15</b>                                            | <b>3</b>                    | <b>2</b>             | <b>-3.5</b>                                               | <b>0.2</b>  | <b>260</b>                                  |
| <b>BZX84C5V1LT1/T3G</b> | <b>Z2</b>      | <b>4.8</b>                                                       | <b>5.1</b> | <b>5.4</b>  | <b>60</b>                                           | <b>4.2</b>                                                   | <b>5.3</b>  | <b>480</b>                                            | <b>5</b>                                                      | <b>5.9</b>  | <b>15</b>                                            | <b>2</b>                    | <b>2</b>             | <b>-2.7</b>                                               | <b>1.2</b>  | <b>225</b>                                  |
| <b>BZX84C5V6LT1/T3G</b> | <b>Z3</b>      | <b>5.2</b>                                                       | <b>5.6</b> | <b>6</b>    | <b>40</b>                                           | <b>4.8</b>                                                   | <b>6</b>    | <b>400</b>                                            | <b>5.2</b>                                                    | <b>6.3</b>  | <b>10</b>                                            | <b>1</b>                    | <b>2</b>             | <b>-2.0</b>                                               | <b>2.5</b>  | <b>200</b>                                  |
| <b>BZX84C6V2LT1/T3G</b> | <b>Z4</b>      | <b>5.8</b>                                                       | <b>6.2</b> | <b>6.6</b>  | <b>10</b>                                           | <b>5.6</b>                                                   | <b>6.6</b>  | <b>150</b>                                            | <b>5.8</b>                                                    | <b>6.8</b>  | <b>6</b>                                             | <b>3</b>                    | <b>4</b>             | <b>0.4</b>                                                | <b>3.7</b>  | <b>185</b>                                  |
| BZX84C6V8LT1/T3G        | Z5             | 6.4                                                              | 6.8        | 7.2         | 15                                                  | 6.3                                                          | 7.2         | 80                                                    | 6.4                                                           | 7.4         | 6                                                    | 2                           | 4                    | 1.2                                                       | 4.5         | 155                                         |
| BZX84C7V5LT1G           | Z6             | 7                                                                | 7.5        | 7.9         | 15                                                  | 6.9                                                          | 7.9         | 80                                                    | 7                                                             | 8           | 6                                                    | 1                           | 5                    | 2.5                                                       | 5.3         | 140                                         |
| BZX84C8V2LT1G           | Z7             | 7.7                                                              | 8.2        | 8.7         | 15                                                  | 7.6                                                          | 8.7         | 80                                                    | 7.7                                                           | 8.8         | 6                                                    | 0.7                         | 5                    | 3.2                                                       | 6.2         | 135                                         |
| BZX84C9V1LT1/T3G        | Z8             | 8.5                                                              | 9.1        | 9.6         | 15                                                  | 8.4                                                          | 9.6         | 100                                                   | 8.5                                                           | 9.7         | 8                                                    | 0.5                         | 6                    | 3.8                                                       | 7.0         | 130                                         |
| BZX84C10LT1G            | Z9             | 9.4                                                              | 10         | 10.6        | 20                                                  | 9.3                                                          | 10.6        | 150                                                   | 9.4                                                           | 10.7        | 10                                                   | 0.2                         | 7                    | 4.5                                                       | 8.0         | 130                                         |
| BZX84C11LT1G            | Y1             | 10.4                                                             | 11         | 11.6        | 20                                                  | 10.2                                                         | 11.6        | 150                                                   | 10.4                                                          | 11.8        | 10                                                   | 0.1                         | 8                    | 5.4                                                       | 9.0         | 130                                         |
| <b>BZX84C12LT1G</b>     | <b>Y2</b>      | <b>11.4</b>                                                      | <b>12</b>  | <b>12.7</b> | <b>25</b>                                           | <b>11.2</b>                                                  | <b>12.7</b> | <b>150</b>                                            | <b>11.4</b>                                                   | <b>12.9</b> | <b>10</b>                                            | <b>0.1</b>                  | <b>8</b>             | <b>6.0</b>                                                | <b>10.0</b> | <b>130</b>                                  |
| BZX84C13LT1G            | Y3             | 12.4                                                             | 13         | 14.1        | 30                                                  | 12.3                                                         | 14          | 170                                                   | 12.5                                                          | 14.2        | 15                                                   | 0.1                         | 8                    | 7.0                                                       | 11.0        | 120                                         |
| BZX84C15LT1/T3G         | Y4             | 13.8                                                             | 15         | 15.6        | 30                                                  | 13.7                                                         | 15.5        | 200                                                   | 13.9                                                          | 15.7        | 20                                                   | 0.05                        | 10.5                 | 9.2                                                       | 13.0        | 110                                         |
| BZX84C16LT1G            | Y5             | 15.3                                                             | 16         | 17.1        | 40                                                  | 15.2                                                         | 17          | 200                                                   | 15.4                                                          | 17.2        | 20                                                   | 0.05                        | 11.2                 | 10.4                                                      | 14.0        | 105                                         |
| <b>BZX84C18LT1/T3G</b>  | <b>Y6</b>      | <b>16.8</b>                                                      | <b>18</b>  | <b>19.1</b> | <b>45</b>                                           | <b>16.7</b>                                                  | <b>19</b>   | <b>225</b>                                            | <b>16.9</b>                                                   | <b>19.2</b> | <b>20</b>                                            | <b>0.05</b>                 | <b>12.6</b>          | <b>12.4</b>                                               | <b>16.0</b> | <b>100</b>                                  |
| BZX84C20LT1G            | Y7             | 18.8                                                             | 20         | 21.2        | 55                                                  | 18.7                                                         | 21.1        | 225                                                   | 18.9                                                          | 21.4        | 20                                                   | 0.05                        | 14                   | 14.4                                                      | 18.0        | 85                                          |
| BZX84C22LT1G            | Y8             | 20.8                                                             | 22         | 23.3        | 55                                                  | 20.7                                                         | 23.2        | 250                                                   | 20.9                                                          | 23.4        | 25                                                   | 0.05                        | 15.4                 | 16.4                                                      | 20.0        | 85                                          |
| BZX84C24LT1G            | Y9             | 22.8                                                             | 24         | 25.6        | 70                                                  | 22.7                                                         | 25.5        | 250                                                   | 22.9                                                          | 25.7        | 25                                                   | 0.05                        | 16.8                 | 18.4                                                      | 22.0        | 80                                          |
| Device*                 | Device Marking | V <sub>Z1</sub> Below<br>@ I <sub>ZT1</sub> = 2 mA               |            |             | Z <sub>1T1</sub> Below<br>@ I <sub>ZT1</sub> = 2 mA | V <sub>Z2</sub> Below<br>@ I <sub>ZT2</sub> = 0.1 mA         |             | Z <sub>2T2</sub> Below<br>@ I <sub>ZT2</sub> = 0.5 mA | V <sub>Z3</sub> Below<br>@ I <sub>ZT3</sub> = 10 mA           |             | Z <sub>3T3</sub> Below<br>@ I <sub>ZT3</sub> = 10 mA | Max Reverse Leakage Current |                      | θ <sub>VZ</sub> (mV/k) Below<br>@ I <sub>ZT1</sub> = 2 mA |             | C (pF)<br>@ V <sub>R</sub> = 0<br>f = 1 MHz |
|                         |                | Min                                                              | Nom        | Max         |                                                     | Min                                                          | Max         |                                                       | Min                                                           | Max         |                                                      | I <sub>R</sub> μA           | V <sub>R</sub> (V)   | Min                                                       | Max         |                                             |
| BZX84C27LT1G            | Y10            | 25.1                                                             | 27         | 28.9        | 80                                                  | 25                                                           | 28.9        | 300                                                   | 25.2                                                          | 29.3        | 45                                                   | 0.05                        | 18.9                 | 21.4                                                      | 25.3        | 70                                          |
| BZX84C30LT1G            | Y11            | 28                                                               | 30         | 32          | 80                                                  | 27.8                                                         | 32          | 300                                                   | 28.1                                                          | 32.4        | 50                                                   | 0.05                        | 21                   | 24.4                                                      | 29.4        | 70                                          |
| BZX84C33LT1/T3G         | Y12            | 31                                                               | 33         | 35          | 80                                                  | 30.8                                                         | 35          | 325                                                   | 31.1                                                          | 35.4        | 55                                                   | 0.05                        | 23.1                 | 27.4                                                      | 33.4        | 70                                          |
| BZX84C36LT1G            | Y13            | 34                                                               | 36         | 38          | 90                                                  | 33.8                                                         | 38          | 350                                                   | 34.1                                                          | 38.4        | 60                                                   | 0.05                        | 25.2                 | 30.4                                                      | 37.4        | 70                                          |
| BZX84C39LT1G            | Y14            | 37                                                               | 39         | 41          | 130                                                 | 36.7                                                         | 41          | 350                                                   | 37.1                                                          | 41.5        | 70                                                   | 0.05                        | 27.3                 | 33.4                                                      | 41.2        | 45                                          |
| BZX84C43LT1G            | Y15            | 40                                                               | 43         | 46          | 150                                                 | 39.7                                                         | 46          | 375                                                   | 40.1                                                          | 46.5        | 80                                                   | 0.05                        | 30.1                 | 37.6                                                      | 46.6        | 40                                          |
| BZX84C47LT1G            | Y16            | 44                                                               | 47         | 50          | 170                                                 | 43.7                                                         | 50          | 375                                                   | 44.1                                                          | 50.5        | 90                                                   | 0.05                        | 32.9                 | 42.0                                                      | 51.8        | 40                                          |
| BZX84C51LT1G            | Y17            | 48                                                               | 51         | 54          | 180                                                 | 47.6                                                         | 54          | 400                                                   | 48.1                                                          | 54.6        | 100                                                  | 0.05                        | 35.7                 | 46.6                                                      | 57.2        | 40                                          |
| BZX84C56LT1G            | Y18            | 52                                                               | 56         | 60          | 200                                                 | 51.5                                                         | 60          | 425                                                   | 52.1                                                          | 60.8        | 110                                                  | 0.05                        | 39.2                 | 52.2                                                      | 63.8        | 40                                          |
| BZX84C62LT1G            | Y19            | 58                                                               | 62         | 66          | 215                                                 | 57.4                                                         | 66          | 450                                                   | 58.2                                                          | 67          | 120                                                  | 0.05                        | 43.4                 | 58.8                                                      | 71.6        | 35                                          |
| BZX84C68LT1G            | Y20            | 64                                                               | 68         | 72          | 240                                                 | 63.4                                                         | 72          | 475                                                   | 64.2                                                          | 73.2        | 130                                                  | 0.05                        | 47.6                 | 65.6                                                      | 79.8        | 35                                          |
| BZX84C75LT1G            | Y21            | 70                                                               | 75         | 79          | 255                                                 | 69.4                                                         | 79          | 500                                                   | 70.3                                                          | 80.2        | 140                                                  | 0.05                        | 52.5                 | 73.4                                                      | 88.6        | 35                                          |

3. Zener voltage is measured with a pulse test current  $I_Z$  at an ambient temperature of  $25^\circ\text{C}$ .

\*Includes SZ-prefix devices where applicable.

# BZX84BxxxLT1G, BZX84CxxxLT1G Series, SZBZX84BxxxLT1G, SZBZX84CxxxLT1G Series

## ELECTRICAL CHARACTERISTICS – BZX84BxxxL (Tight Tolerance Series)

(Pinout: 1-Anode, 2-No Connection, 3-Cathode) ( $T_A = 25^\circ\text{C}$  unless otherwise noted,  $V_F = 0.90\text{ V Max. @ } I_F = 10\text{ mA}$ )

| Device             | Device Marking | $V_Z$ (Volts) @ $I_{ZT} = 5\text{ mA}$<br>(Note 4) |     |      | $Z_{ZT} (\Omega)$ @ $I_{ZT} = 5\text{ mA}$<br>(Note 4) | Max Reverse Leakage Current |         | $\theta_{VZ}$ (mV/k)<br>@ $I_{ZT} = 5\text{ mA}$ |     | C (pF)<br>@ $V_R = 0$ ,<br>f = 1 MHz |
|--------------------|----------------|----------------------------------------------------|-----|------|--------------------------------------------------------|-----------------------------|---------|--------------------------------------------------|-----|--------------------------------------|
|                    |                |                                                    |     |      |                                                        | $I_R$                       | $V_R$   |                                                  |     |                                      |
|                    |                | Min                                                | Nom | Max  | Max                                                    | $\mu\text{A}$               | @ Volts | Min                                              | Max |                                      |
| BZX84B3V3LT1G      | T2A            | 3.23                                               | 3.3 | 3.37 | 95                                                     | 5                           | 1       | -3.5                                             | 0   | 450                                  |
| BZX84B4V7LT1G      | T10            | 4.61                                               | 4.7 | 4.79 | 80                                                     | 3                           | 2       | -3.5                                             | 0.2 | 260                                  |
| BZX84B5V1LT1G      | T11            | 5.00                                               | 5.1 | 5.20 | 60                                                     | 2                           | 2       | -2.7                                             | 1.2 | 225                                  |
| BZX84B5V6LT1G      | T12            | 5.49                                               | 5.6 | 5.71 | 40                                                     | 1                           | 2       | -2                                               | 2.5 | 200                                  |
| BZX84B6V2LT1G      | T13            | 6.08                                               | 6.2 | 6.32 | 10                                                     | 3                           | 4       | 0.4                                              | 3.7 | 185                                  |
| BZX84B6V8LT1G      | T14            | 6.66                                               | 6.8 | 6.94 | 15                                                     | 2                           | 4       | 1.2                                              | 4.5 | 155                                  |
| BZX84B7V5LT1G      | T15            | 7.35                                               | 7.5 | 7.65 | 15                                                     | 1                           | 5       | 2.5                                              | 5.3 | 140                                  |
| BZX84B8V2LT1G      | T16            | 8.04                                               | 8.2 | 8.36 | 15                                                     | 0.7                         | 5       | 3.2                                              | 6.2 | 135                                  |
| BZX84B9V1LT1G, T3G | T17            | 8.92                                               | 9.1 | 9.28 | 15                                                     | 0.5                         | 6       | 3.8                                              | 7   | 130                                  |
| BZX84B10LT1G       | T2E            | 9.8                                                | 10  | 10.2 | 20                                                     | 0.2                         | 7       | 4.5                                              | 8   | 130                                  |
| BZX84B12LT1G       | T18            | 11.8                                               | 12  | 12.2 | 25                                                     | 0.1                         | 8       | 6                                                | 10  | 130                                  |
| BZX84B15LT1G       | T22            | 14.7                                               | 15  | 15.3 | 30                                                     | 0.05                        | 10.5    | 9.2                                              | 13  | 110                                  |
| BZX84B16LT1G       | T19            | 15.7                                               | 16  | 16.3 | 40                                                     | 0.05                        | 11.2    | 10.4                                             | 14  | 105                                  |
| BZX84B18LT1G       | T20            | 17.6                                               | 18  | 18.4 | 45                                                     | 0.05                        | 12.6    | 12.4                                             | 16  | 100                                  |
| BZX84B22LT1G       | T24            | 21.6                                               | 22  | 22.4 | 55                                                     | 0.05                        | 15.4    | 16.4                                             | 20  | 85                                   |
| BZX84B24LT1G       | T25            | 23.5                                               | 24  | 24.5 | 70                                                     | 0.05                        | 16.8    | 18.4                                             | 22  | 80                                   |

4. Zener voltage is measured with a pulse test current  $I_Z$  at an ambient temperature of  $25^\circ\text{C}$ .

## ELECTRICAL CHARACTERISTICS – BZX84BxxxL (Tight Tolerance Series)

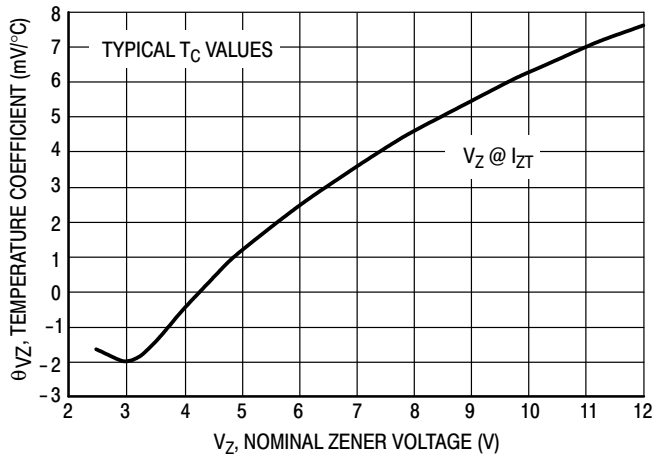
(Pinout: 1-Anode, 2-No Connection, 3-Cathode) ( $T_A = 25^\circ\text{C}$  unless otherwise noted,  $V_F = 0.90\text{ V Max. @ } I_F = 10\text{ mA}$ )

| Device*      | Device Marking | $V_Z$ (Volts) @ $I_{ZT} = 2\text{ mA}$<br>(Note 4) |     |      | $Z_{ZT} (\Omega)$ @ $I_{ZT} = 2\text{ mA}$<br>(Note 4) | Max Reverse Leakage Current |         | $\theta_{VZ}$ (mV/k)<br>@ $I_{ZT} = 2\text{ mA}$ |      | C (pF)<br>@ $V_R = 0$ ,<br>f = 1 MHz |
|--------------|----------------|----------------------------------------------------|-----|------|--------------------------------------------------------|-----------------------------|---------|--------------------------------------------------|------|--------------------------------------|
|              |                |                                                    |     |      |                                                        | $I_R$                       | $V_R$   |                                                  |      |                                      |
|              |                | Min                                                | Nom | Max  | Max                                                    | $\mu\text{A}$               | @ Volts | Min                                              | Max  |                                      |
| BZX84B27LT1G | T27            | 26.5                                               | 27  | 27.5 | 80                                                     | 0.05                        | 18.9    | 21.4                                             | 25.3 | 70                                   |

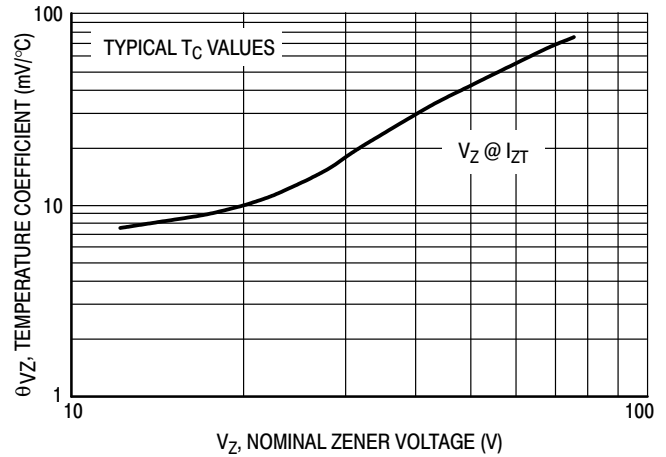
\*Includes SZ-prefix devices where applicable.

# BZX84BxxxLT1G, BZX84CxxxLT1G Series, SZBZX84BxxxLT1G, SZBZX84CxxxLT1G Series

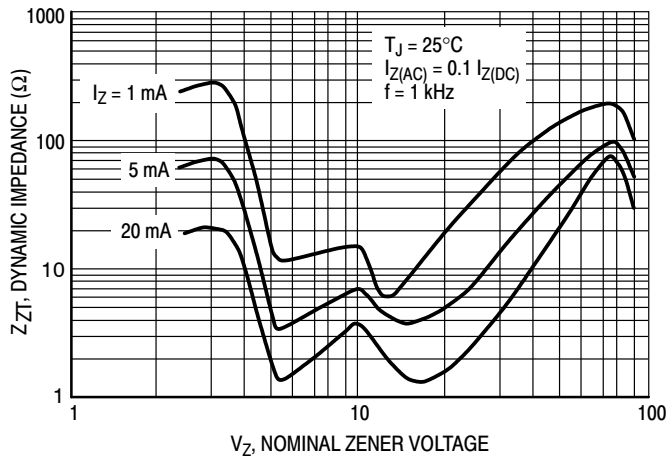
## TYPICAL CHARACTERISTICS



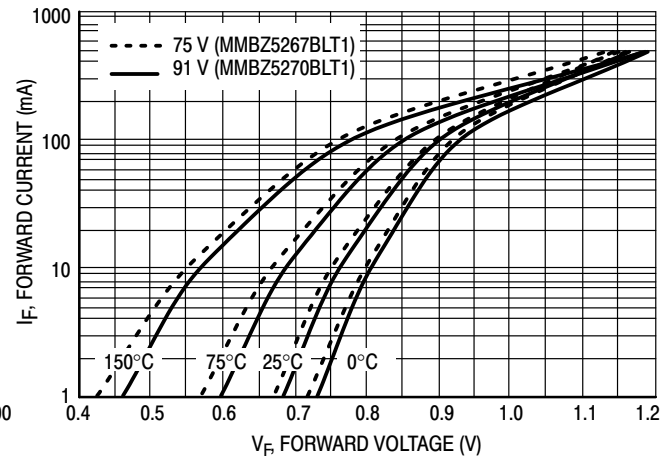
**Figure 1. Temperature Coefficients**  
(Temperature Range -55°C to +150°C)



**Figure 2. Temperature Coefficients**  
(Temperature Range -55°C to +150°C)



**Figure 3. Effect of Zener Voltage on Zener Impedance**



**Figure 4. Typical Forward Voltage**

# BZX84BxxxLT1G, BZX84CxxxLT1G Series, SZBZX84BxxxLT1G, SZBZX84CxxxLT1G Series

## TYPICAL CHARACTERISTICS

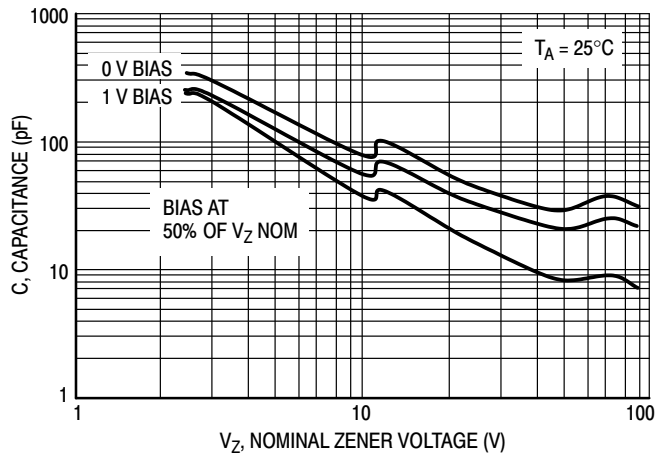


Figure 5. Typical Capacitance

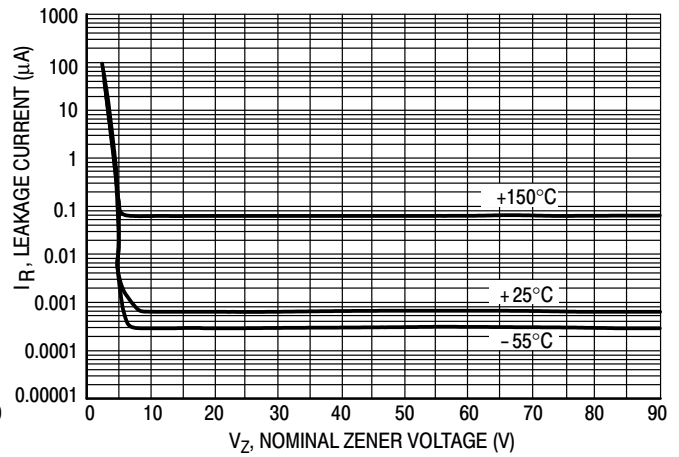


Figure 6. Typical Leakage Current

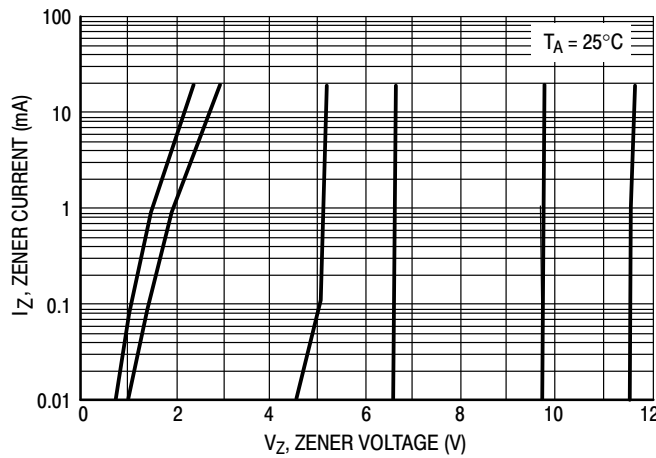


Figure 7. Zener Voltage versus Zener Current ( $V_Z$  Up to 12 V)

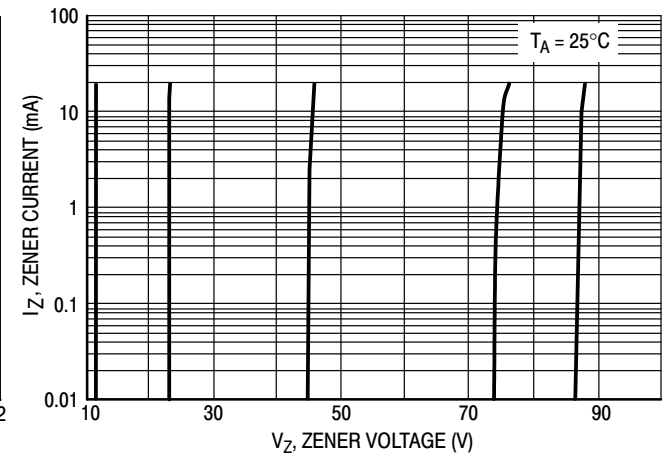
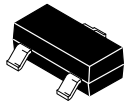


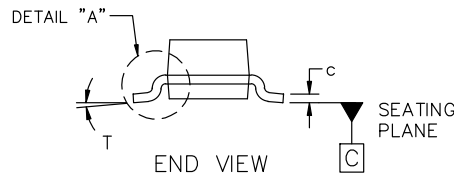
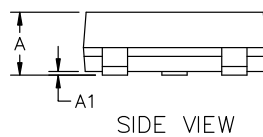
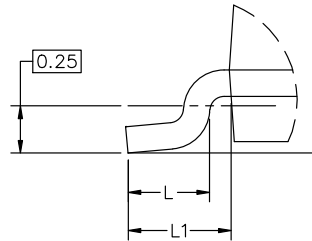
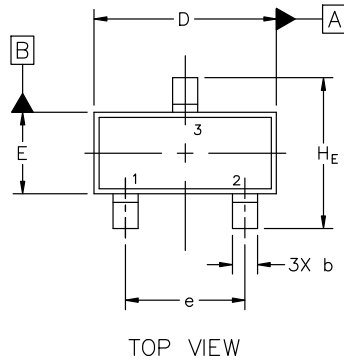
Figure 8. Zener Voltage versus Zener Current (12 V to 91 V)



SCALE 4:1

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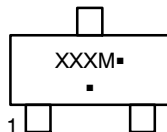


| MILLIMETERS |      |      |      |
|-------------|------|------|------|
| DIM         | MIN  | NOM  | MAX  |
| A           | 0.89 | 1.00 | 1.11 |
| A1          | 0.01 | 0.06 | 0.10 |
| b           | 0.37 | 0.44 | 0.50 |
| c           | 0.08 | 0.14 | 0.20 |
| D           | 2.80 | 2.90 | 3.04 |
| E           | 1.20 | 1.30 | 1.40 |
| e           | 1.78 | 1.90 | 2.04 |
| L           | 0.30 | 0.43 | 0.55 |
| L1          | 0.35 | 0.54 | 0.69 |
| HE          | 2.10 | 2.40 | 2.64 |
| T           | 0°   | ---  | 10°  |

NOTES:

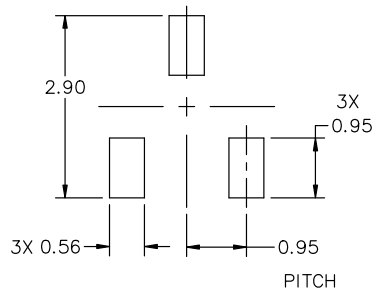
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSIONS: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

GENERIC  
MARKING DIAGRAM\*



XXX = Specific Device Code  
M = Date Code  
▪ = Pb-Free Package

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.



RECOMMENDED  
MOUNTING FOOTPRINT

\* For additional information on our Pb-Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques Reference Manual, SOLDERM/D.

STYLES ON PAGE 2

|                  |                                      |                                                                                                                                                                                     |
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|                                                         |                                                       |                                                             |                                                             |                                                             |                                                             |
|---------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|
| STYLE 1 THRU 5:<br>CANCELLED                            | STYLE 6:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 7:<br>PIN 1. EMITTER<br>2. BASE<br>3. COLLECTOR       | STYLE 8:<br>PIN 1. ANODE<br>2. NO CONNECTION<br>3. CATHODE  |                                                             |                                                             |
| STYLE 9:<br>PIN 1. ANODE<br>2. ANODE<br>3. CATHODE      | STYLE 10:<br>PIN 1. DRAIN<br>2. SOURCE<br>3. GATE     | STYLE 11:<br>PIN 1. ANODE<br>2. CATHODE<br>3. CATHODE-ANODE | STYLE 12:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. ANODE       | STYLE 13:<br>PIN 1. SOURCE<br>2. DRAIN<br>3. GATE           | STYLE 14:<br>PIN 1. CATHODE<br>2. GATE<br>3. ANODE          |
| STYLE 15:<br>PIN 1. GATE<br>2. CATHODE<br>3. ANODE      | STYLE 16:<br>PIN 1. ANODE<br>2. CATHODE<br>3. CATHODE | STYLE 17:<br>PIN 1. NO CONNECTION<br>2. ANODE<br>3. CATHODE | STYLE 18:<br>PIN 1. NO CONNECTION<br>2. CATHODE<br>3. ANODE | STYLE 19:<br>PIN 1. CATHODE<br>2. ANODE<br>3. CATHODE-ANODE | STYLE 20:<br>PIN 1. CATHODE<br>2. ANODE<br>3. GATE          |
| STYLE 21:<br>PIN 1. GATE<br>2. SOURCE<br>3. DRAIN       | STYLE 22:<br>PIN 1. RETURN<br>2. OUTPUT<br>3. INPUT   | STYLE 23:<br>PIN 1. ANODE<br>2. ANODE<br>3. CATHODE         | STYLE 24:<br>PIN 1. GATE<br>2. DRAIN<br>3. SOURCE           | STYLE 25:<br>PIN 1. ANODE<br>2. CATHODE<br>3. GATE          | STYLE 26:<br>PIN 1. CATHODE<br>2. ANODE<br>3. NO CONNECTION |
| STYLE 27:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. CATHODE | STYLE 28:<br>PIN 1. ANODE<br>2. ANODE<br>3. ANODE     |                                                             |                                                             |                                                             |                                                             |

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