

# Zener Voltage Regulators

## 250 mW SOT-23 Surface Mount

### BZX84CxxxET1G Series, SZBZX84CxxxET1G 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.

#### Specification 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
- Peak Power – 225 W (8 X 20  $\mu$ s)
- 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

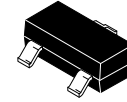
**FLAMMABILITY RATING:** UL 94 V-0

#### MAXIMUM RATINGS

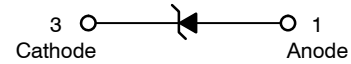
| Rating                                                                                                                                                              | Symbol                   | Max               | Unit                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------|---------------------------------------------------------|
| Peak Power Dissipation @ 20 $\mu$ s (Note 1)<br>@ $T_L \leq 25^\circ\text{C}$                                                                                       | $P_{pk}$                 | 225               | W                                                       |
| Total Power Dissipation on FR-5 Board,<br>(Note 2) @ $T_A = 25^\circ\text{C}$<br>Derated above $25^\circ\text{C}$<br>Thermal Resistance, Junction-to-Ambient        | $P_D$<br>$R_{\theta JA}$ | 250<br>2.0<br>500 | mW<br>mW/ $^\circ\text{C}$<br>$^\circ\text{C}/\text{W}$ |
| Total Power Dissipation on Alumina<br>Substrate, (Note 3) @ $T_A = 25^\circ\text{C}$<br>Derated above $25^\circ\text{C}$<br>Thermal Resistance, Junction-to-Ambient | $P_D$<br>$R_{\theta JA}$ | 300<br>2.4<br>417 | mW<br>mW/ $^\circ\text{C}$<br>$^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature Range                                                                                                                              | $T_J, T_{stg}$           | -65 to<br>+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.

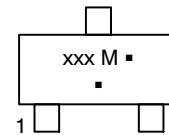
1. Nonrepetitive current pulse per Figure 9.
2. FR-5 = 1.0 X 0.75 X 0.62 in.
3. Alumina = 0.4 X 0.3 X 0.024 in, 99.5% alumina.



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†               |
|-----------------|---------------------|-------------------------|
| BZX84CxxxET1G   | SOT-23<br>(Pb-Free) | 3,000 /<br>Tape & Reel  |
| SZBZX84CxxxET1G | SOT-23<br>(Pb-Free) | 3,000 /<br>Tape & Reel  |
| BZX84CxxxET3G   | SOT-23<br>(Pb-Free) | 10,000 /<br>Tape & Reel |
| SZBZX84CxxxET3G | SOT-23<br>(Pb-Free) | 10,000 /<br>Tape & Reel |

NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 2.

†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

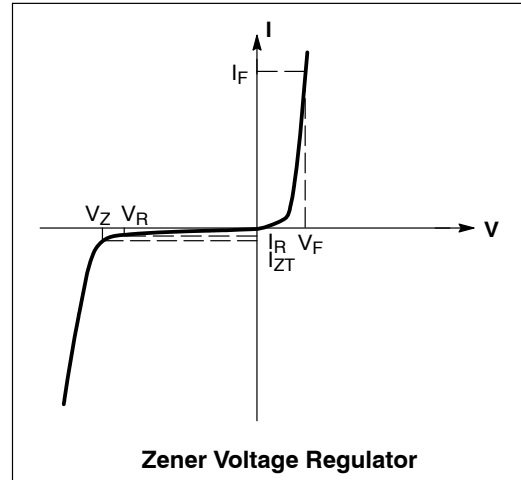
See specific marking information in the device marking column of the Electrical Characteristics table on page 2 of this data sheet.

## BZX84CxxxET1G Series, SZBZX84CxxxET1G Series

### 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 $f = 1\text{ MHz}$ |



### ELECTRICAL CHARACTERISTICS

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

| Device*       | Device Marking | $V_{Z1}\text{ (V)}$<br>@ $I_{ZT1} = 5\text{ mA}$<br>(Note 4) |     |     | $Z_{ZT1}\text{ (}\Omega\text{)}$<br>@ $I_{ZT1} = 5\text{ mA}$ | $V_{Z2}\text{ (V)}$<br>@ $I_{ZT2} = 1\text{ mA}$<br>(Note 4) |     | $Z_{ZT2}\text{ (}\Omega\text{)}$<br>@ $I_{ZT2} = 1\text{ mA}$ | $V_{Z3}\text{ (V)}$<br>@ $I_{ZT3} = 20\text{ mA}$<br>(Note 4) |     | $Z_{ZT3}\text{ (}\Omega\text{)}$<br>@ $I_{ZT3} = 20\text{ mA}$ | Max Reverse Leakage Current<br>$I_R$ @ $V_R$<br>$\mu\text{A}$ @ (V) |     | $\theta_{VZ}\text{ (mV/k)}$<br>@ $I_{ZT1} = 5\text{ mA}$ |     | C (pF)<br>@ $V_R = 0$<br>$f = 1\text{ MHz}$ |
|---------------|----------------|--------------------------------------------------------------|-----|-----|---------------------------------------------------------------|--------------------------------------------------------------|-----|---------------------------------------------------------------|---------------------------------------------------------------|-----|----------------------------------------------------------------|---------------------------------------------------------------------|-----|----------------------------------------------------------|-----|---------------------------------------------|
|               |                | Min                                                          | Nom | Max |                                                               | Min                                                          | Max |                                                               | Min                                                           | Max |                                                                | Min                                                                 | Max | Min                                                      | Max |                                             |
| BZX84C2V4ET1G | BA1            | 2.2                                                          | 2.4 | 2.6 | 100                                                           | 1.7                                                          | 2.1 | 600                                                           | 2.6                                                           | 3.2 | 50                                                             | 50                                                                  | 1.0 | -3.5                                                     | 0   | 450                                         |
| BZX84C6V2ET1G | BB3            | 5.8                                                          | 6.2 | 6.6 | 10                                                            | 5.6                                                          | 6.6 | 150                                                           | 5.8                                                           | 6.8 | 6                                                              | 3.0                                                                 | 4.0 | 0.4                                                      | 3.7 | 185                                         |

### DISCONTINUED (Note 5)

|               |     |      |     |      |     |      |      |     |      |      |    |      |      |      |      |     |
|---------------|-----|------|-----|------|-----|------|------|-----|------|------|----|------|------|------|------|-----|
| BZX84C2V7ET1G | BA2 | 2.5  | 2.7 | 2.9  | 100 | 1.9  | 2.4  | 600 | 3.0  | 3.6  | 50 | 20   | 1.0  | -3.5 | 0    | 450 |
| BZX84C13ET1G  | BC2 | 12.4 | 13  | 14.1 | 30  | 12.3 | 14   | 170 | 12.5 | 14.2 | 15 | 0.1  | 8.0  | 7.0  | 11   | 120 |
| BZX84C16ET1G  | BC4 | 15.3 | 16  | 17.1 | 40  | 15.2 | 17   | 200 | 15.4 | 17.2 | 20 | 0.05 | 11.2 | 10.4 | 14   | 105 |
| BZX84C22ET1G  | BC7 | 20.8 | 22  | 23.3 | 55  | 20.7 | 23.2 | 250 | 20.9 | 23.4 | 25 | 0.05 | 15.4 | 16.4 | 20   | 85  |
| BZX84C10ET1G  | BB8 | 9.4  | 10  | 10.6 | 20  | 9.3  | 10.6 | 150 | 9.4  | 10.7 | 10 | 0.2  | 7.0  | 4.5  | 8.0  | 130 |
| BZX84C7V5ET1G | BB5 | 7.0  | 7.5 | 7.9  | 15  | 6.9  | 7.9  | 80  | 7.0  | 8.0  | 6  | 1.0  | 5.0  | 2.5  | 5.3  | 140 |
| BZX84C5V1ET1G | BB1 | 4.8  | 5.1 | 5.4  | 60  | 4.2  | 5.3  | 480 | 5.0  | 5.9  | 15 | 2.0  | 2.0  | -2.7 | 1.2  | 225 |
| BZX84C4V3ET1G | BA7 | 4.0  | 4.3 | 4.6  | 90  | 3.3  | 4.0  | 600 | 4.4  | 5.1  | 30 | 3.0  | 1.0  | -3.5 | 0    | 450 |
| BZX84C6V8ET1G | BB4 | 6.4  | 6.8 | 7.2  | 15  | 6.3  | 7.2  | 80  | 6.4  | 7.4  | 6  | 2.0  | 4.0  | 1.2  | 4.5  | 155 |
| BZX84C3V3ET1G | BA4 | 3.1  | 3.3 | 3.5  | 95  | 2.3  | 2.9  | 600 | 3.6  | 4.2  | 40 | 5.0  | 1.0  | -3.5 | 0    | 450 |
| BZX84C18ET1G  | BC5 | 16.8 | 18  | 19.1 | 45  | 16.7 | 19   | 225 | 16.9 | 19.2 | 20 | 0.05 | 12.6 | 12.4 | 16   | 100 |
| BZX84C5V6ET1G | BB2 | 5.2  | 5.6 | 6.0  | 40  | 4.8  | 6.0  | 400 | 5.2  | 6.3  | 10 | 1.0  | 2.0  | -2   | 2.5  | 200 |
| BZX84C3V0ET1G | BA3 | 2.8  | 3.0 | 3.2  | 95  | 2.1  | 2.7  | 600 | 3.3  | 3.9  | 50 | 10   | 1.0  | -3.5 | 0    | 450 |
| BZX84C8V2ET1G | BB6 | 7.7  | 8.2 | 8.7  | 15  | 7.6  | 8.7  | 80  | 7.7  | 8.8  | 6  | 0.7  | 5.0  | 3.2  | 6.2  | 135 |
| BZX84C15ET1G  | BC3 | 13.8 | 15  | 15.6 | 30  | 13.7 | 15.5 | 200 | 13.9 | 15.7 | 20 | 0.05 | 10.5 | 9.2  | 13   | 110 |
| BZX84C11ET1G  | BB9 | 10.4 | 11  | 11.6 | 20  | 10.2 | 11.6 | 150 | 10.4 | 11.8 | 10 | 0.1  | 8.0  | 5.4  | 9.0  | 130 |
| BZX84C20ET1G  | BC6 | 18.8 | 20  | 21.2 | 55  | 18.7 | 21.1 | 225 | 18.9 | 21.4 | 20 | 0.05 | 14   | 14.4 | 18   | 85  |
| BZX84C24ET1G  | BC8 | 22.8 | 24  | 25.6 | 70  | 22.7 | 25.5 | 250 | 22.9 | 25.7 | 25 | 0.05 | 16.8 | 18.4 | 22   | 80  |
| BZX84C3V6ET1G | BA5 | 3.4  | 3.6 | 3.8  | 90  | 2.7  | 3.3  | 600 | 3.9  | 4.5  | 40 | 5.0  | 1.0  | -3.5 | 0    | 450 |
| BZX84C4V7ET1G | BA9 | 4.4  | 4.7 | 5.0  | 80  | 3.7  | 4.7  | 500 | 4.5  | 5.4  | 15 | 3.0  | 2.0  | -3.5 | 0.2  | 260 |
| BZX84C9V1ET1G | BB7 | 8.5  | 9.1 | 9.6  | 15  | 8.4  | 9.6  | 100 | 8.5  | 9.7  | 8  | 0.5  | 6.0  | 3.8  | 7.0  | 130 |
| BZX84C3V9ET1G | BA6 | 3.7  | 3.9 | 4.1  | 90  | 2.9  | 3.5  | 600 | 4.1  | 4.7  | 30 | 3.0  | 1.0  | -3.5 | -2.5 | 450 |

## BZX84CxxxET1G Series, SZBZX84CxxxET1G Series

### ELECTRICAL CHARACTERISTICS

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

| Device*      | Device Marking | V <sub>Z1</sub> Below<br>@ I <sub>ZT1</sub> = 2 mA |     |     | Z <sub>ZT1</sub> Below<br>@ I <sub>ZT1</sub> =<br>2 mA | V <sub>Z2</sub> Below<br>@ I <sub>ZT2</sub> =<br>0.1 mA |     | Z <sub>ZT2</sub> Below<br>@ I <sub>ZT4</sub> =<br>0.5 mA | V <sub>Z3</sub> Below<br>@ I <sub>ZT3</sub> = 10 m-A |      | Z <sub>ZT3</sub> Below<br>@ I <sub>ZT3</sub> =<br>10 mA | Max<br>Reverse<br>Leakage<br>Current<br>I <sub>R</sub> @ V <sub>R</sub><br>μA (V) |     | θ <sub>VZ</sub><br>(mV/k)<br>Below<br>@ I <sub>ZT1</sub> = 2<br>mA |      | C (pF)<br>@ V <sub>R</sub> =<br>0<br>f =<br>1 MHz |
|--------------|----------------|----------------------------------------------------|-----|-----|--------------------------------------------------------|---------------------------------------------------------|-----|----------------------------------------------------------|------------------------------------------------------|------|---------------------------------------------------------|-----------------------------------------------------------------------------------|-----|--------------------------------------------------------------------|------|---------------------------------------------------|
|              |                | Min                                                | Nom | Max |                                                        | Min                                                     | Max |                                                          | Min                                                  | Max  |                                                         | Min                                                                               | Max | Min                                                                | Max  |                                                   |
| BZX84C30ET1G | BD1            | 28                                                 | 30  | 32  | 80                                                     | 27.8                                                    | 32  | 300                                                      | 28.1                                                 | 32.4 | 50                                                      | 0.05                                                                              | 21  | 24.4                                                               | 29.4 | 70                                                |

### DISCONTINUED (Note 5)

|              |     |      |    |      |     |      |      |     |      |      |     |      |      |      |      |     |
|--------------|-----|------|----|------|-----|------|------|-----|------|------|-----|------|------|------|------|-----|
| BZX84C47ET1G | BD5 | 44   | 47 | 50   | 170 | 43.7 | 50   | 375 | 44.1 | 50.5 | 90  | 0.05 | 32.9 | 42   | 51.8 | 40  |
| BZX84C56ET1G | BD7 | 52   | 56 | 60   | 200 | 51.5 | 60   | 425 | 52.1 | 60.8 | 110 | 0.05 | 39.2 | 52.2 | 63.8 | 40  |
| BZX84C62ET1G | BD8 | 58   | 62 | 66   | 215 | 57.4 | 66   | 450 | 58.2 | 67   | 120 | 0.05 | 43.4 | 58.8 | 71.6 | 35  |
| BZX84C43ET1G | BK6 | 40   | 43 | 46   | 150 | 39.7 | 46   | 375 | 40.1 | 46.5 | 80  | 0.05 | 30.1 | 37.6 | 46.6 | 40  |
| BZX84C36ET1G | BD3 | 34   | 36 | 38   | 90  | 33.8 | 38   | 350 | 34.1 | 38.4 | 60  | 0.05 | 25.2 | 30.4 | 37.4 | 70  |
| BZX84C27ET1G | BC9 | 25.1 | 27 | 28.9 | 80  | 25   | 28.9 | 300 | 25.2 | 29.3 | 45  | 0.05 | 18.9 | 21.4 | 25.3 | 70  |
| BZX84C39ET1G | BD4 | 37   | 39 | 41   | 130 | 36.7 | 41   | 350 | 37.1 | 41.5 | 70  | 0.05 | 27.3 | 33.4 | 41.2 | 45  |
| BZX84C33ET1G | BD2 | 31   | 33 | 35   | 80  | 30.8 | 35   | 325 | 31.1 | 35.4 | 55  | 0.05 | 23.1 | 27.4 | 33.4 | 70  |
| BZX84C12ET1G | BC1 | 11.4 | 12 | 12.7 | 25  | 11.2 | 12.7 | 150 | 11.4 | 12.9 | 10  | 0.1  | 8.0  | 6.0  | 10   | 130 |
| BZX84C51ET1G | BD6 | 48   | 51 | 54   | 180 | 47.6 | 54   | 400 | 48.1 | 54.6 | 100 | 0.05 | 35.7 | 46.6 | 57.2 | 40  |
| BZX84C75ET1G | BE1 | 70   | 75 | 79   | 255 | 69.4 | 79   | 500 | 70.3 | 80.2 | 140 | 0.05 | 52.5 | 73.4 | 88.6 | 35  |
| BZX84C68ET1G | BD9 | 64   | 68 | 72   | 240 | 63.4 | 72   | 475 | 64.2 | 73.2 | 130 | 0.05 | 47.6 | 65.6 | 79.8 | 35  |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

\* Include SZ-prefix devices where applicable.

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

5. **DISCONTINUED:** These devices are not recommended for new design. Please contact your **onsemi** representative for information. The most current information on these devices may be available on [www.onsemi.com](http://www.onsemi.com).



TYPICAL CHARACTERISTICS

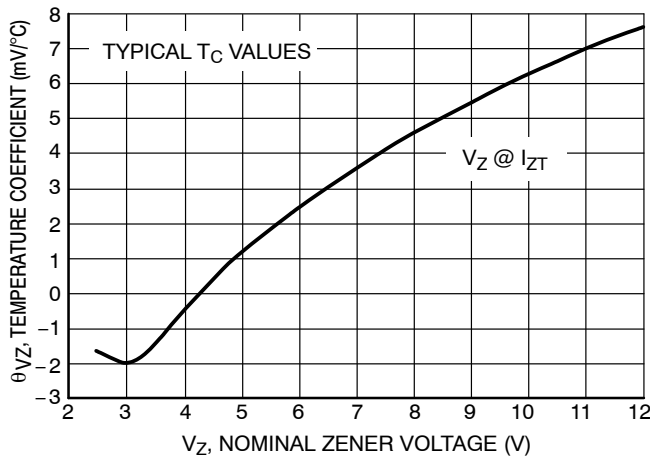


Figure 1. Temperature Coefficients  
(Temperature Range -55°C to +150°C)

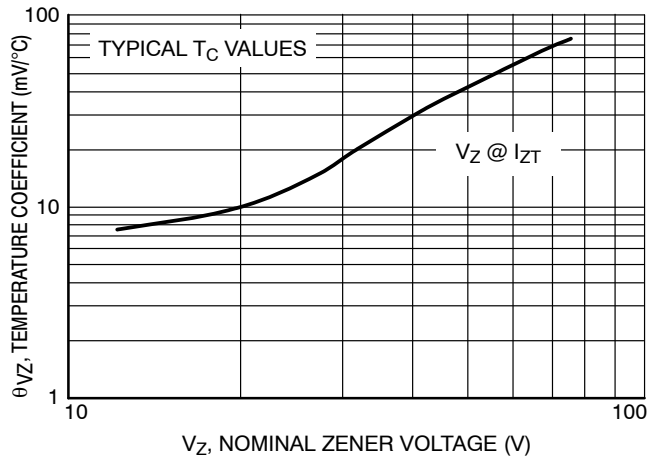


Figure 2. Temperature Coefficients  
(Temperature Range -55°C to +150°C)

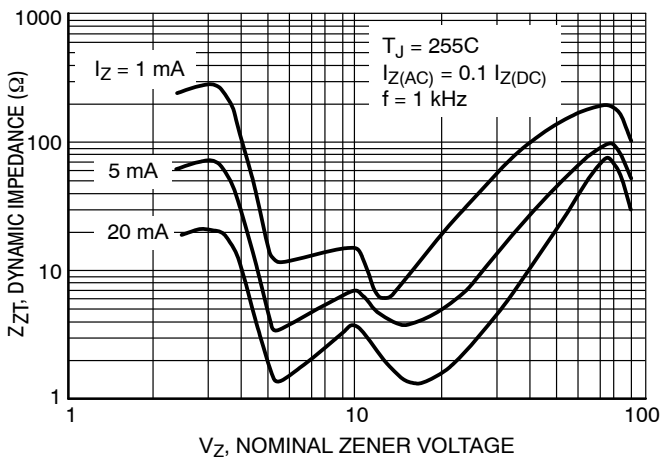


Figure 3. Effect of Zener Voltage on  
Zener Impedance

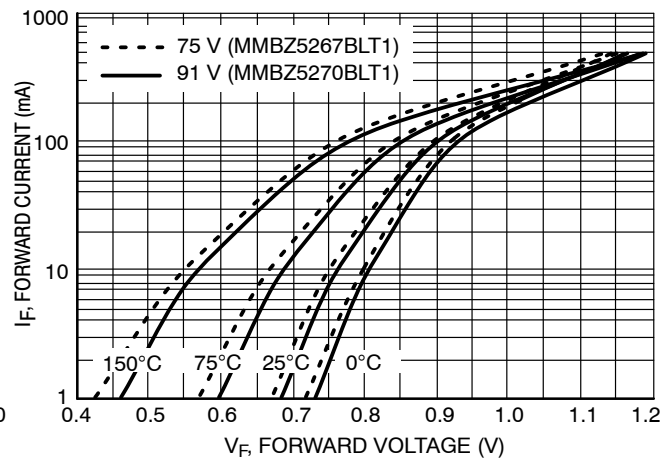


Figure 4. Typical Forward Voltage

TYPICAL CHARACTERISTICS

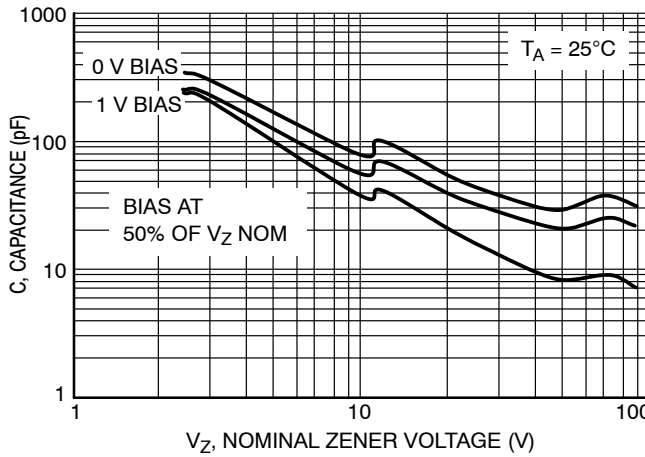


Figure 5. Typical Capacitance

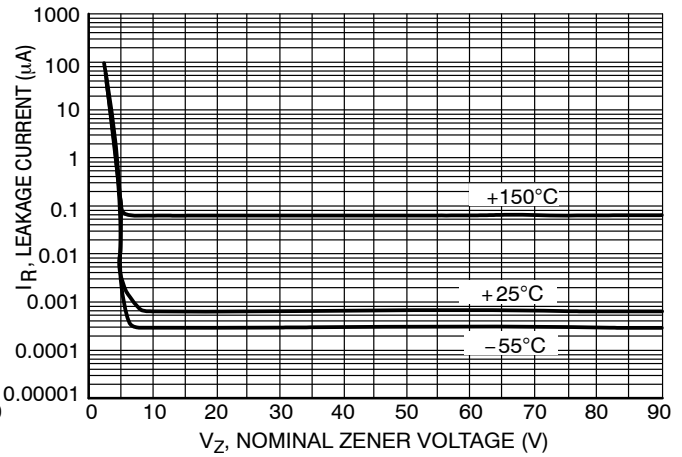


Figure 6. Typical Leakage Current

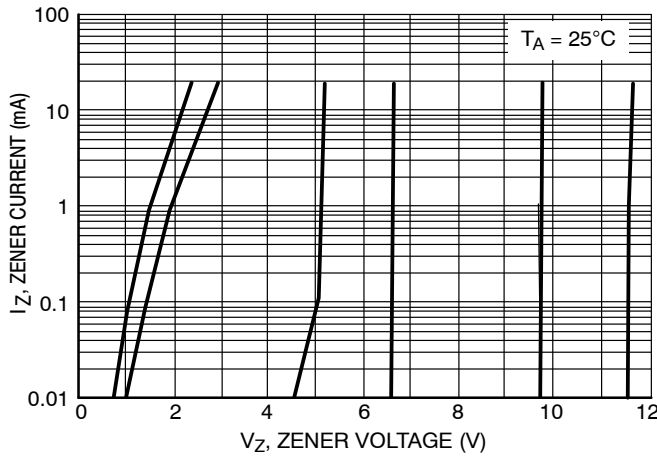


Figure 7. Zener Voltage versus Zener Current  
( $V_Z$  Up to 12 V)

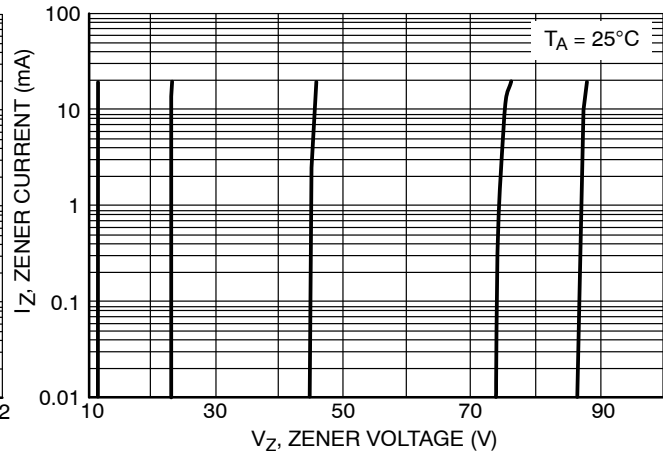


Figure 8. Zener Voltage versus Zener Current  
(12 V to 91 V)

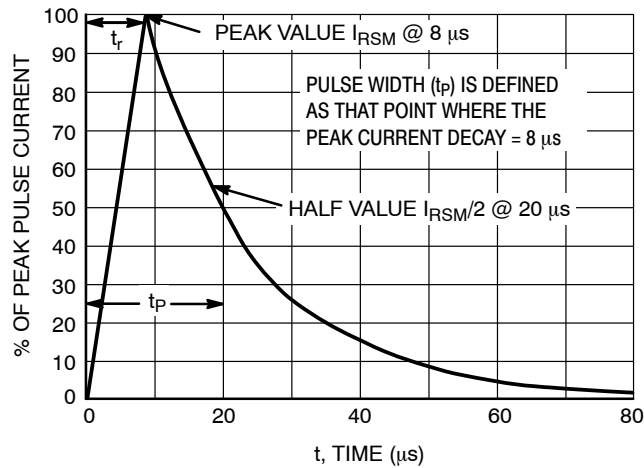


Figure 9.  $8 \times 20 \mu s$  Pulse Waveform



SCALE 4:1

**SOT-23 (TO-236) 2.90x1.30x1.00 1.90P**  
CASE 318  
ISSUE AU

DATE 14 AUG 2024



| 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, SOLDERRM/D.

**STYLES ON PAGE 2**

|                         |                                             |                                                                                                                                                                                     |
|-------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DOCUMENT NUMBER:</b> | <b>98ASB42226B</b>                          | Electronic versions are uncontrolled except when accessed directly from the Document Repository.<br>Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red. |
| <b>DESCRIPTION:</b>     | <b>SOT-23 (TO-236) 2.90x1.30x1.00 1.90P</b> | <b>PAGE 1 OF 2</b>                                                                                                                                                                  |

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**SOT-23 (TO-236) 2.90x1.30x1.00 1.90P**  
**CASE 318**  
**ISSUE AU**

DATE 14 AUG 2024

|                                                         |                                                       |                                                             |                                                             |                                                             |                                                             |
|---------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|
| 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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