

# Silicon Switching Diode

## BAS16TT1G

### Features

- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

| Rating                                                       | Symbol                 | Max | Unit |
|--------------------------------------------------------------|------------------------|-----|------|
| Continuous Reverse Voltage                                   | $V_R$                  | 100 | V    |
| Recurrent Peak Forward Current                               | $I_F$                  | 200 | mA   |
| Peak Forward Surge Current<br>Pulse Width = 10 $\mu\text{s}$ | $I_{FM(\text{surge})}$ | 500 | mA   |

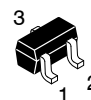
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### THERMAL CHARACTERISTICS

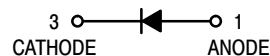
| Characteristic                                                                                                   | Symbol          | Max         | Unit                       |
|------------------------------------------------------------------------------------------------------------------|-----------------|-------------|----------------------------|
| Total Device Dissipation,<br>FR-4 Board (Note 1)<br>$T_A = 25^\circ\text{C}$<br>Derated above $25^\circ\text{C}$ | $P_D$           | 225         | mW                         |
| Thermal Resistance,<br>Junction-to-Ambient (Note 1)                                                              | $R_{\theta JA}$ | 1.8         | $\text{mW}/^\circ\text{C}$ |
| Total Device Dissipation,<br>FR-4 Board (Note 2)<br>$T_A = 25^\circ\text{C}$<br>Derated above $25^\circ\text{C}$ | $P_D$           | 360         | mW                         |
| Thermal Resistance,<br>Junction-to-Ambient (Note 2)                                                              | $R_{\theta JA}$ | 2.9         | $\text{mW}/^\circ\text{C}$ |
| Junction and Storage<br>Temperature Range                                                                        | $T_J, T_{stg}$  | -55 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.

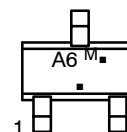
- FR-4 @ Minimum Pad
- FR-4 @  $1.0 \times 1.0$  Inch Pad



CASE 463  
SOT-416  
STYLE 2



### MARKING DIAGRAM



- XX = Specific Device Code  
M = Date Code  
■ = Pb-Free Package

### ORDERING INFORMATION

| Device       | Package              | Shipping <sup>†</sup> |
|--------------|----------------------|-----------------------|
| BAS16TT1G    | SOT-416<br>(Pb-Free) | 3000 /<br>Tape & Reel |
| NSVBAS16TT1G | SOT-416<br>(Pb-Free) | 3000 /<br>Tape & Reel |

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

# BAS16TT1G

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

| Characteristic                                                                                                                                    | Symbol          | Min              | Max                        | Unit |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|----------------------------|------|
| Forward Voltage<br>(I <sub>F</sub> = 1.0 mA)<br>(I <sub>F</sub> = 10 mA)<br>(I <sub>F</sub> = 50 mA)<br>(I <sub>F</sub> = 150 mA)                 | V <sub>F</sub>  | –<br>–<br>–<br>– | 715<br>866<br>1000<br>1250 | mV   |
| Reverse Current<br>(V <sub>R</sub> = 100 V)<br>(V <sub>R</sub> = 75 V, T <sub>J</sub> = 150°C)<br>(V <sub>R</sub> = 25 V, T <sub>J</sub> = 150°C) | I <sub>R</sub>  | –<br>–<br>–      | 1.0<br>50<br>30            | μA   |
| Capacitance<br>(V <sub>R</sub> = 0, f = 1.0 MHz)                                                                                                  | C <sub>D</sub>  | –                | 2.0                        | pF   |
| Reverse Recovery Time<br>(I <sub>F</sub> = I <sub>R</sub> = 10 mA, R <sub>L</sub> = 50 Ω) (Figure 1)                                              | t <sub>rr</sub> | –                | 6.0                        | ns   |
| Stored Charge<br>(I <sub>F</sub> = 10 mA to V <sub>R</sub> = 6.0 V, R <sub>L</sub> = 500 Ω) (Figure 2)                                            | Q <sub>S</sub>  | –                | 45                         | PC   |
| Forward Recovery Voltage<br>(I <sub>F</sub> = 10 mA, t <sub>r</sub> = 20 ns) (Figure 3)                                                           | V <sub>FR</sub> | –                | 1.75                       | V    |

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.

# BAS16TT1G

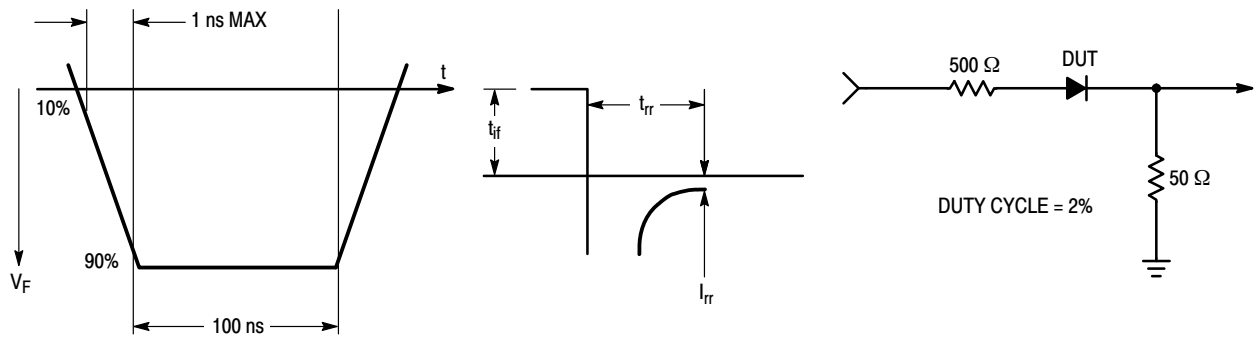


Figure 1. Reverse Recovery Time Equivalent Test Circuit

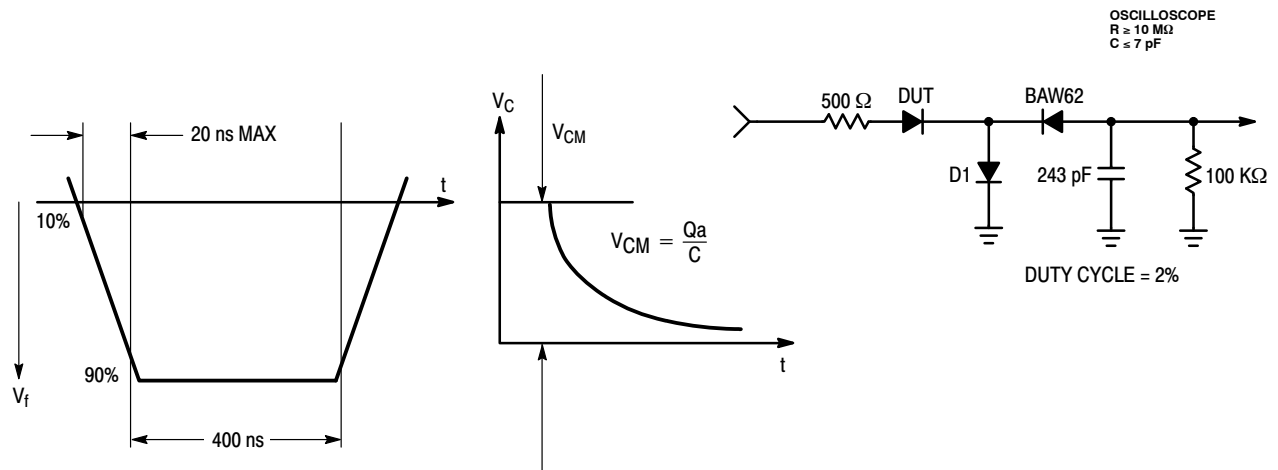


Figure 2. Stored Charge Equivalent Test Circuit

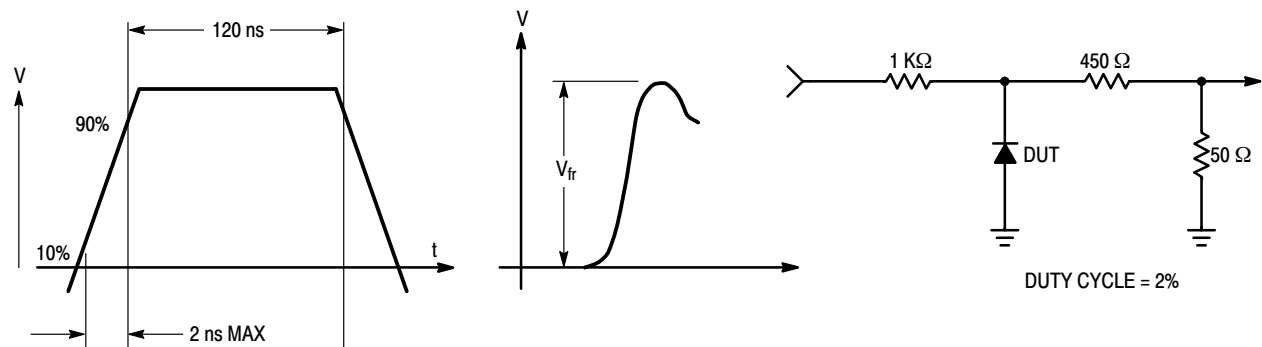


Figure 3. Forward Recovery Voltage Equivalent Test Circuit

# BAS16TT1G

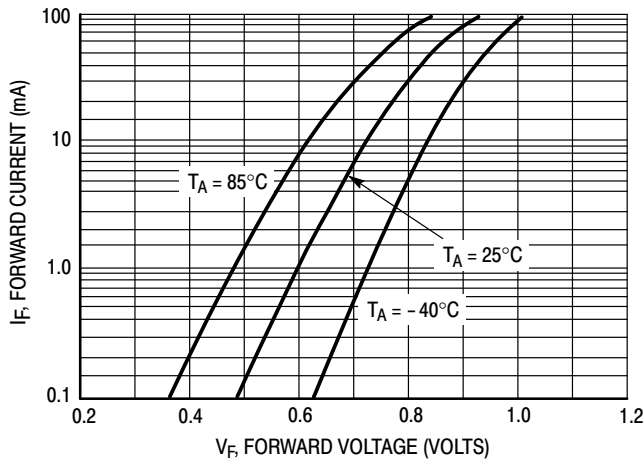


Figure 4. Forward Voltage

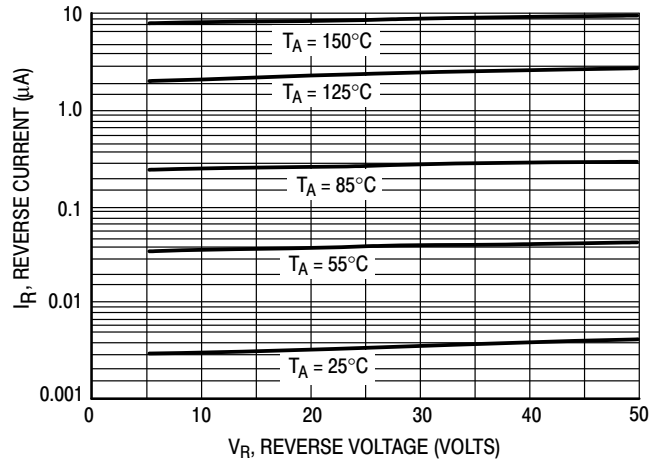


Figure 5. Leakage Current

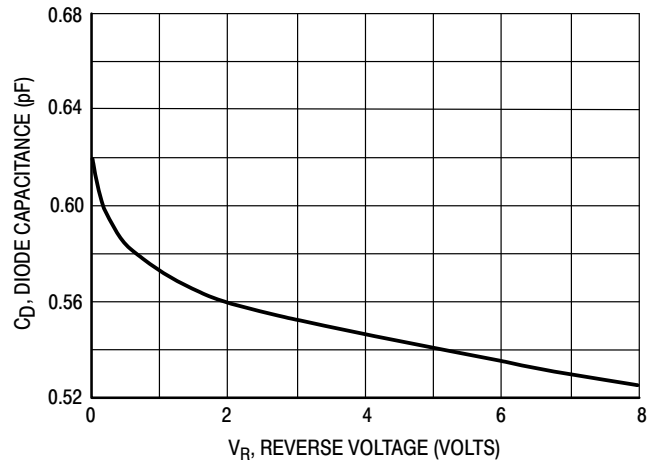


Figure 6. Capacitance

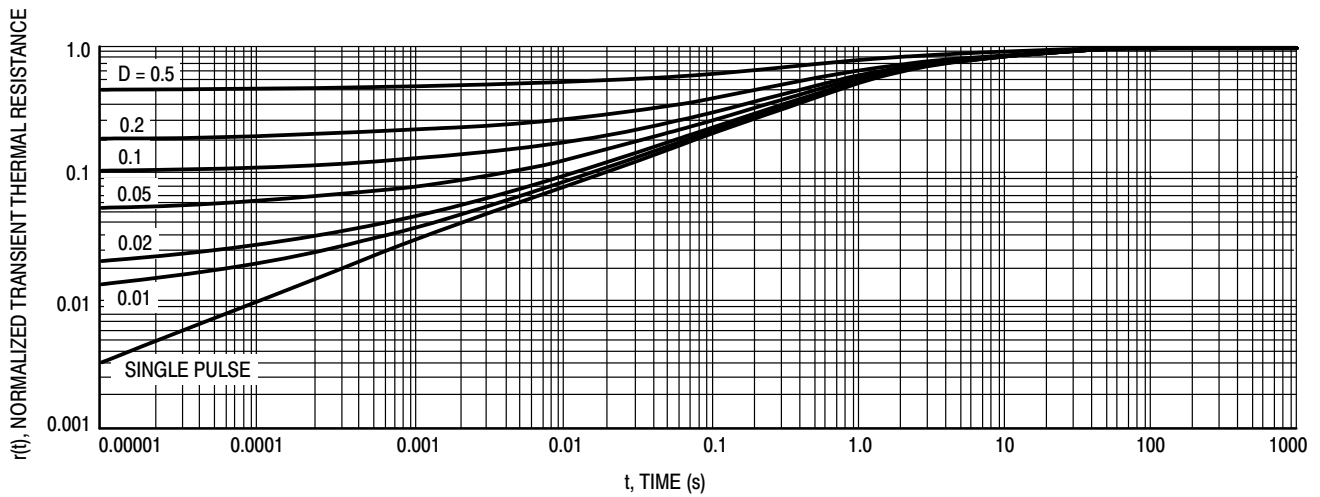
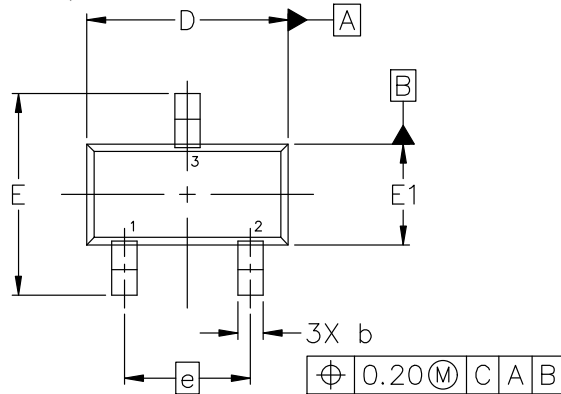


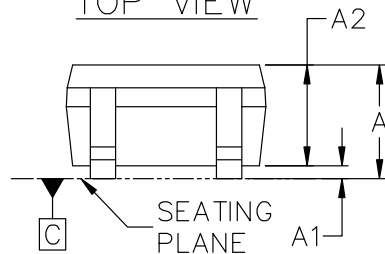
Figure 7. Normalized Thermal Response

SC75-3 1.60x0.80x0.80, 1.00P  
CASE 463  
ISSUE H

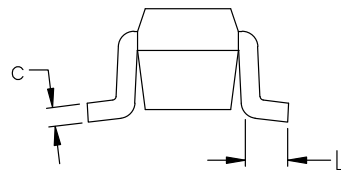
DATE 01 FEB 2024



TOP VIEW

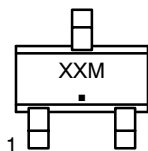


SIDE VIEW



END VIEW

GENERIC  
MARKING DIAGRAM\*



XX = 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.

STYLE 1:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

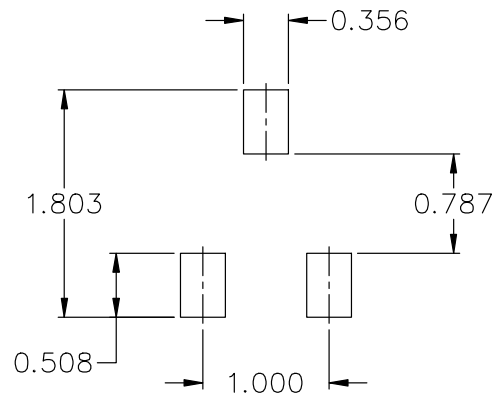
STYLE 2:  
PIN 1. ANODE  
2. N/C  
3. CATHODE

STYLE 3:  
PIN 1. ANODE  
2. ANODE  
3. CATHODE

STYLE 4:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE

STYLE 5:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN

| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | MIN.        | NOM. | MAX. |
| A   | 0.70        | 0.80 | 0.90 |
| A1  | 0.00        | 0.05 | 0.10 |
| A2  | 0.80 REF.   |      |      |
| b   | 0.15        | 0.20 | 0.30 |
| c   | 0.10        | 0.15 | 0.25 |
| D   | 1.55        | 1.60 | 1.65 |
| E   | 1.50        | 1.60 | 1.70 |
| E1  | 0.70        | 0.80 | 0.90 |
| e   | 1.00 BSC    |      |      |
| L   | 0.10        | 0.15 | 0.20 |



RECOMMENDED MOUNTING FOOTPRINT\*

\* FOR ADDITIONAL INFORMATION ON OUR Pb-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

|                  |                              |                                                                                                                                                                                  |
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