

# BAS16TT1G

## Silicon Switching Diode

### 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   |

### 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°C | $P_D$           | 225            | mW                        |
| Thermal Resistance,<br>Junction-to-Ambient (Note 1)  | $R_{\theta JA}$ | 555            | $^\circ\text{C}/\text{W}$ |
| Total Device Dissipation,<br>FR-4 Board (Note 2)<br>$T_A = 25^\circ\text{C}$<br>Derated above 25°C | $P_D$           | 360            | mW                        |
| Thermal Resistance,<br>Junction-to-Ambient (Note 2)  | $R_{\theta JA}$ | 345            | $^\circ\text{C}/\text{W}$ |
| Junction and Storage<br>Temperature Range  | $T_J, T_{stg}$  | -55 to<br>+150 | $^\circ\text{C}$          |

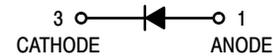
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR-4 @ Minimum Pad
2. FR-4 @ 1.0 x 1.0 Inch Pad



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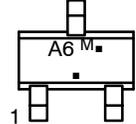
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### MARKING DIAGRAM



CASE 463  
SOT-416  
STYLE 2



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

### ORDERING INFORMATION

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

†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 ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic  | Symbol   | Min              | Max                        | Unit          |
|---|----------|------------------|----------------------------|---------------|
| Forward Voltage<br>( $I_F = 1.0\text{ mA}$ )<br>( $I_F = 10\text{ mA}$ )<br>( $I_F = 50\text{ mA}$ )<br>( $I_F = 150\text{ mA}$ )                         | $V_F$    | –<br>–<br>–<br>– | 715<br>866<br>1000<br>1250 | mV            |
| Reverse Current<br>( $V_R = 100\text{ V}$ )<br>( $V_R = 75\text{ V}$ , $T_J = 150^\circ\text{C}$ )<br>( $V_R = 25\text{ V}$ , $T_J = 150^\circ\text{C}$ ) | $I_R$    | –<br>–<br>–      | 1.0<br>50<br>30            | $\mu\text{A}$ |
| Capacitance<br>( $V_R = 0$ , $f = 1.0\text{ MHz}$ )   | $C_D$    | –                | 2.0                        | pF            |
| Reverse Recovery Time<br>( $I_F = I_R = 10\text{ mA}$ , $R_L = 50\ \Omega$ ) (Figure 1)   | $t_{rr}$ | –                | 6.0                        | ns            |
| Stored Charge<br>( $I_F = 10\text{ mA}$ to $V_R = 6.0\text{ V}$ , $R_L = 500\ \Omega$ ) (Figure 2)  | QS       | –                | 45                         | PC            |
| Forward Recovery Voltage<br>( $I_F = 10\text{ mA}$ , $t_r = 20\text{ ns}$ ) (Figure 3)  | $V_{FR}$ | –                | 1.75                       | V             |

# BAS16TT1G

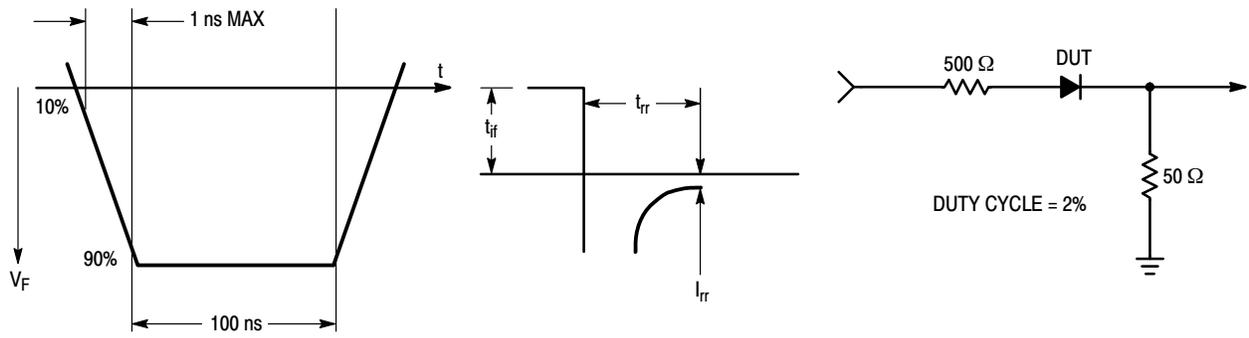


Figure 1. Reverse Recovery Time Equivalent Test Circuit

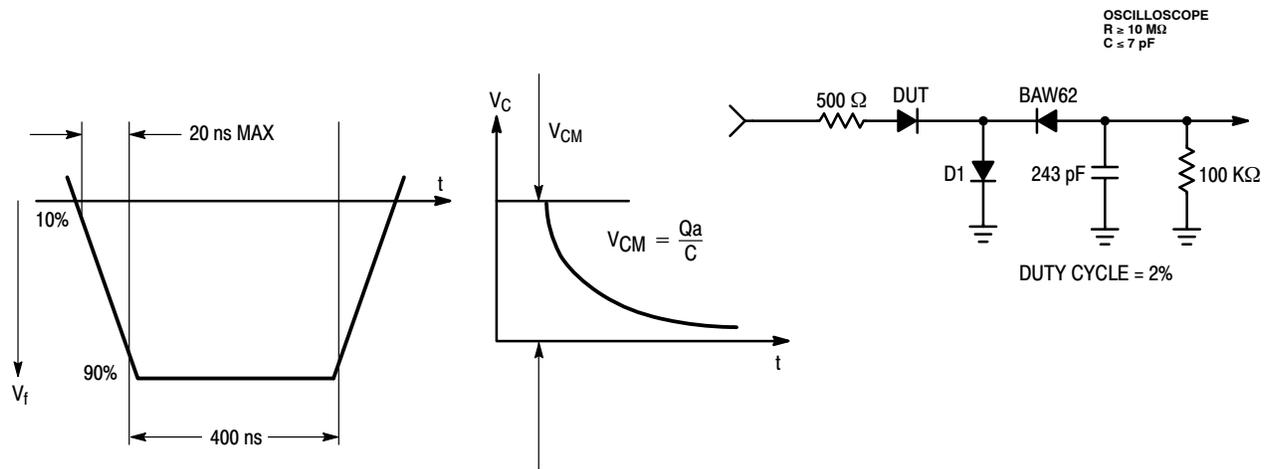


Figure 2. Stored Charge Equivalent Test Circuit

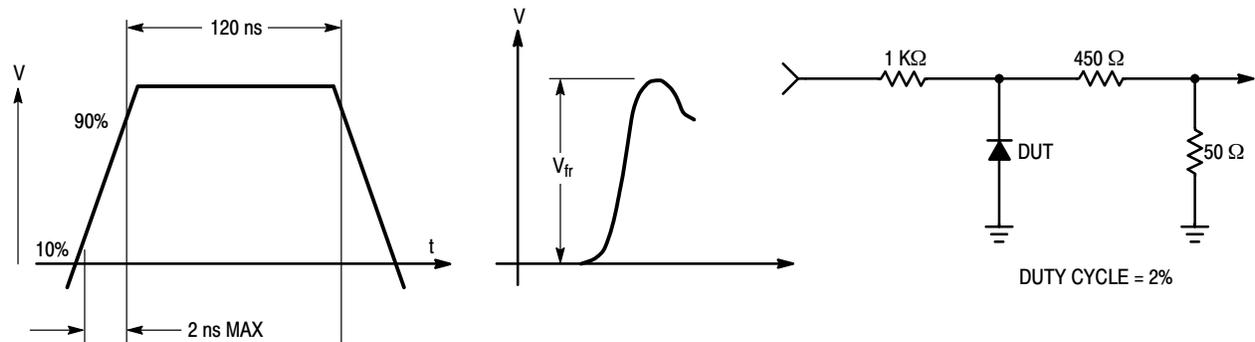


Figure 3. Forward Recovery Voltage Equivalent Test Circuit

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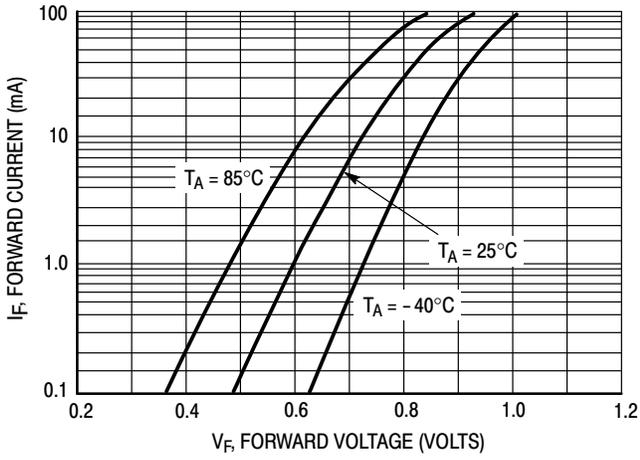


Figure 4. Forward Voltage

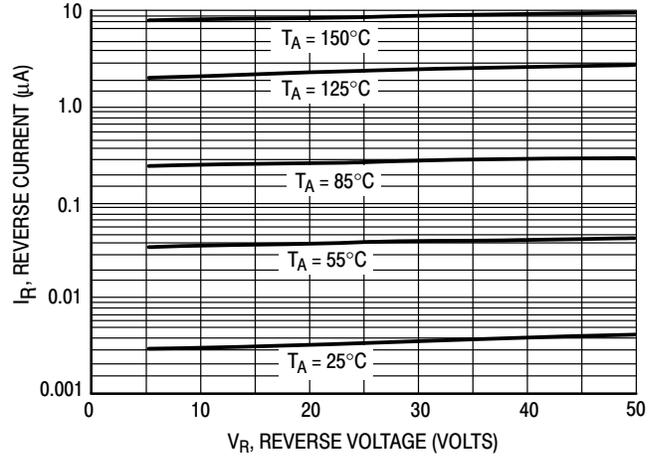


Figure 5. Leakage Current

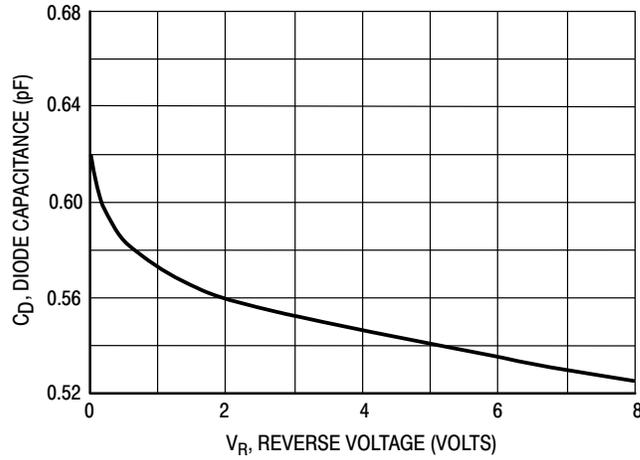


Figure 6. Capacitance

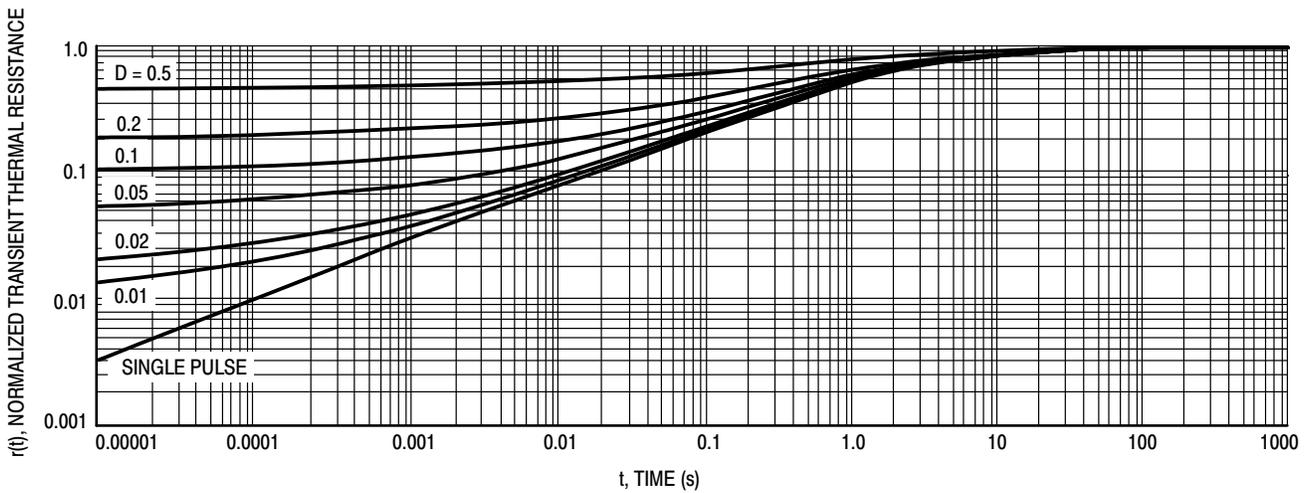


Figure 7. Normalized Thermal Response

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

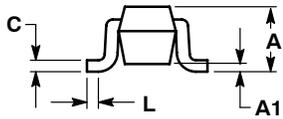
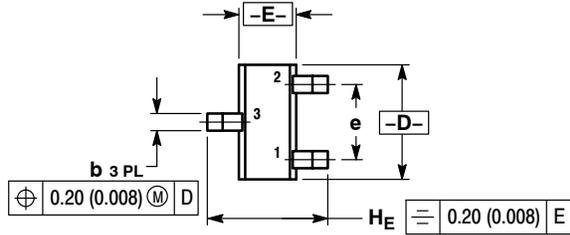
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**SC-75/SOT-416**  
CASE 463-01  
ISSUE G

DATE 07 AUG 2015

SCALE 4:1



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

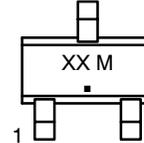
STYLE 5:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN

**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

| DIM | MILLIMETERS |      |      | INCHES   |       |       |
|-----|-------------|------|------|----------|-------|-------|
|     | MIN         | NOM  | MAX  | MIN      | NOM   | MAX   |
| A   | 0.70        | 0.80 | 0.90 | 0.027    | 0.031 | 0.035 |
| A1  | 0.00        | 0.05 | 0.10 | 0.000    | 0.002 | 0.004 |
| b   | 0.15        | 0.20 | 0.30 | 0.006    | 0.008 | 0.012 |
| C   | 0.10        | 0.15 | 0.25 | 0.004    | 0.006 | 0.010 |
| D   | 1.55        | 1.60 | 1.65 | 0.061    | 0.063 | 0.065 |
| E   | 0.70        | 0.80 | 0.90 | 0.027    | 0.031 | 0.035 |
| e   | 1.00 BSC    |      |      | 0.04 BSC |       |       |
| L   | 0.10        | 0.15 | 0.20 | 0.004    | 0.006 | 0.008 |
| HE  | 1.50        | 1.60 | 1.70 | 0.060    | 0.063 | 0.067 |

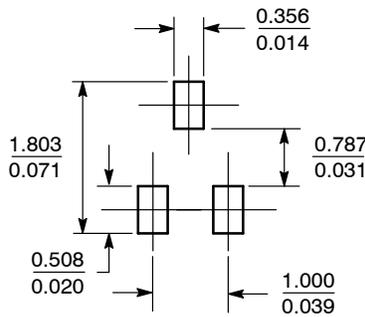
**GENERIC MARKING DIAGRAM\***



- 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.

**SOLDERING FOOTPRINT\***



SCALE 10:1 (mm/inches)

\*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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| <b>DESCRIPTION:</b>     | <b>SC-75/SOT-416</b> | <b>PAGE 1 OF 1</b>   |

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