

# Dual Switching Diode

## BAV70T, NSVBAV70T

### Features

- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### MAXIMUM RATINGS (T<sub>A</sub> = 25°C)

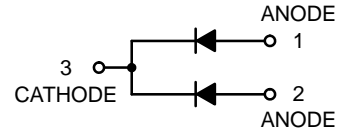
| Rating                     | Symbol                 | Max | Unit |
|----------------------------|------------------------|-----|------|
| Reverse Voltage            | V <sub>R</sub>         | 100 | Vdc  |
| Forward Current            | I <sub>F</sub>         | 200 | mAdc |
| Peak Forward Surge Current | I <sub>FM(surge)</sub> | 500 | mAdc |

### THERMAL CHARACTERISTICS

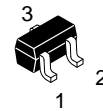
| Characteristic  | Symbol                            | Max            | Unit |
|---|-----------------------------------|----------------|------|
| Total Device Dissipation,<br>FR-4 Board (Note 1)<br>T <sub>A</sub> = 25°C<br>Derated above 25°C | P <sub>D</sub>                    | 225            | mW   |
| Thermal Resistance,<br>Junction to Ambient (Note 1)   | R <sub>θJA</sub>                  | 555            | °C/W |
| Total Device Dissipation,<br>FR-4 Board (Note 2)<br>T <sub>A</sub> = 25°C<br>Derated above 25°C | P <sub>D</sub>                    | 360            | mW   |
| Thermal Resistance,<br>Junction-to-Ambient (Note 2)   | R <sub>θJA</sub>                  | 345            | °C/W |
| Junction and Storage<br>Temperature Range   | T <sub>J</sub> , T <sub>stg</sub> | -55 to<br>+150 | °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.

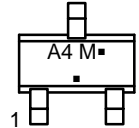
1. FR-4 @ Minimum Pad
2. FR-4 @ 1.0 × 1.0 Inch Pad



### MARKING DIAGRAM



CASE 463  
SOT-416/SC-75  
STYLE 3



A4 = Specific Device Code  
M = Date Code  
■ = Pb-Free Package

### ORDERING INFORMATION

| Device       | Package              | Shipping†              |
|--------------|----------------------|------------------------|
| BAV70TT1G    | SOT-416<br>(Pb-Free) | 3000 / Tape &<br>Reel  |
| NSVBAV70TT1G | SOT-416<br>(Pb-Free) | 3000 / Tape &<br>Reel  |
| NSVBAV70TT3G | SOT-416<br>(Pb-Free) | 10000 / Tape &<br>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.

## BAV70T, NSVBAV70T

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

| Characteristic  | Symbol         | Min              | Max                        | Unit                    |
|---|----------------|------------------|----------------------------|-------------------------|
| <b>OFF CHARACTERISTICS</b>  |                |                  |                            |                         |
| Reverse Breakdown Voltage<br>( $I_{BR} = 100 \mu\text{Adc}$ )   | $V_{(BR)}$     | 100              | –                          | Vdc                     |
| Reverse Voltage Leakage Current (Note 3)<br>( $V_R = 100 \text{Vdc}$ )<br>( $V_R = 50 \text{Vdc}$ )                                       | $I_R$<br>$I_R$ | –<br>–           | 1.0<br>100                 | $\mu\text{Adc}$<br>nAdc |
| Diode Capacitance<br>( $V_R = 0$ , $f = 1.0 \text{MHz}$ )   | $C_D$          | –                | 1.5                        | pF                      |
| Forward Voltage<br>( $I_F = 1.0 \text{mAdc}$ )<br>( $I_F = 10 \text{mAdc}$ )<br>( $I_F = 50 \text{mAdc}$ )<br>( $I_F = 150 \text{mAdc}$ ) | $V_F$          | –<br>–<br>–<br>– | 715<br>855<br>1000<br>1250 | mVdc                    |
| Reverse Recovery Time<br>( $I_F = I_R = 10 \text{mAdc}$ , $R_L = 100 \Omega$ , $I_{R(REC)} = 1.0 \text{mAdc}$ ) (Figure 1)                | $t_{rr}$       | –                | 6.0                        | ns                      |
| Forward Recovery Voltage<br>( $I_F = 10 \text{mAdc}$ , $t_r = 20 \text{ns}$ ) (Figure 2)  | $V_{RF}$       | –                | 1.75                       | V                       |

3. For each individual diode while the second diode is unbiased.

# BAV70T, NSVBAV70T

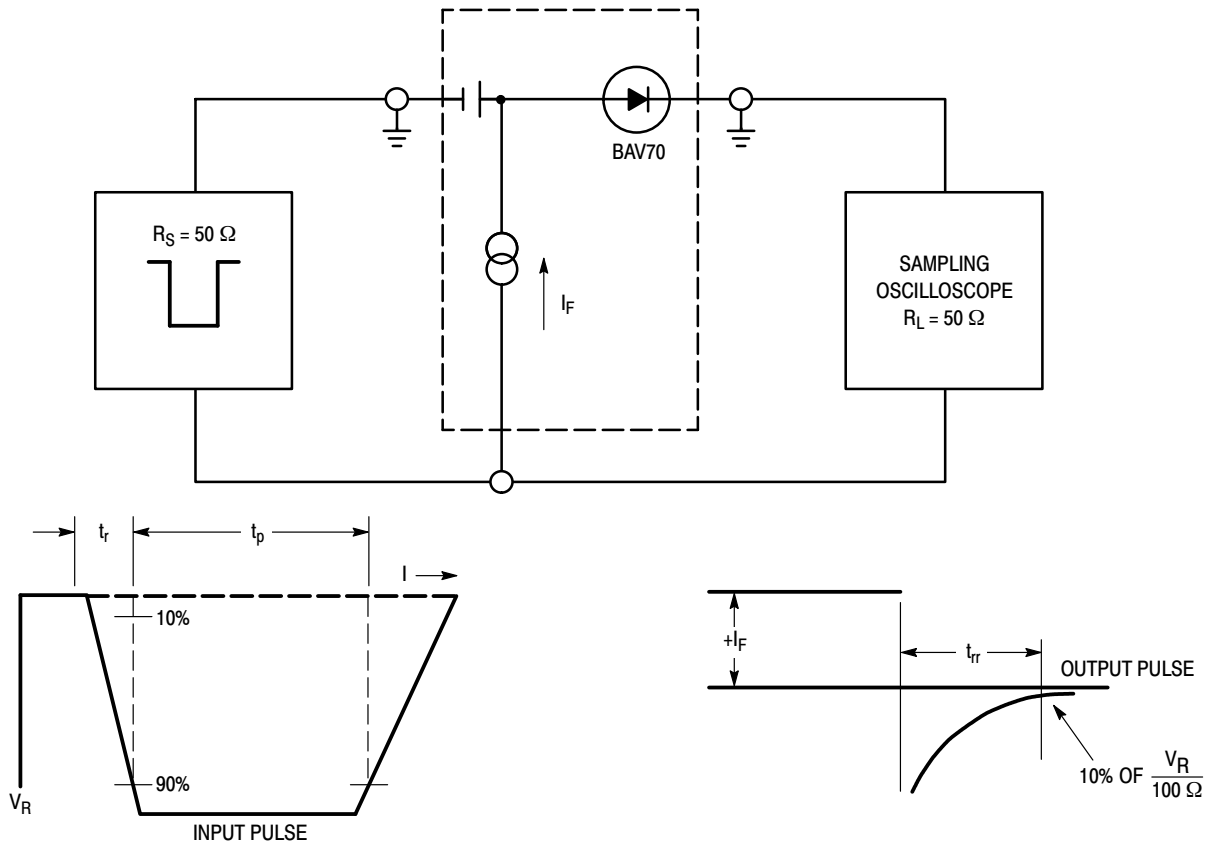


Figure 1. Recovery Time Equivalent Test Circuit

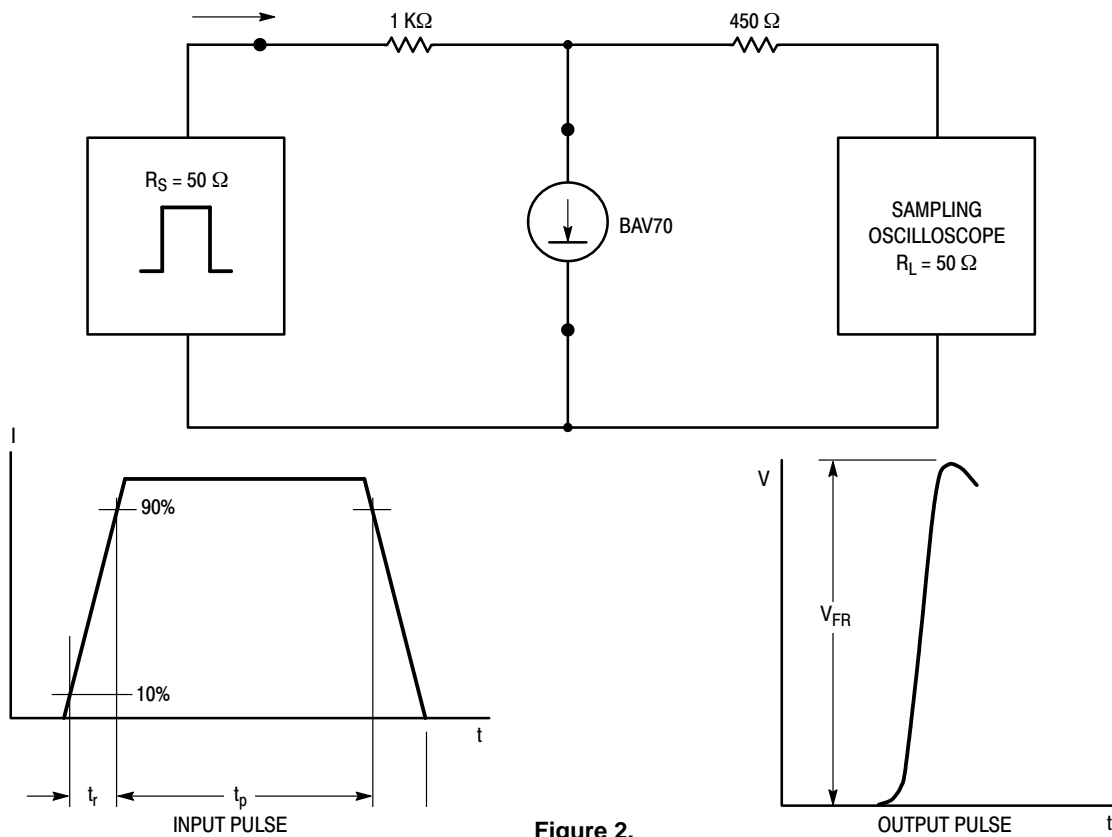


Figure 2.

# BAV70T, NSVBAV70T

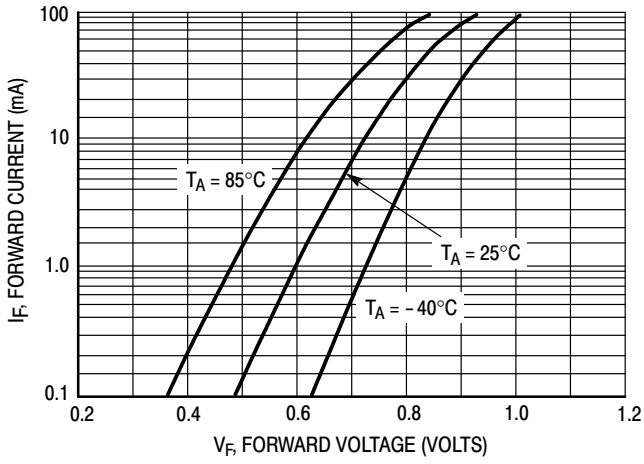


Figure 3. Forward Voltage

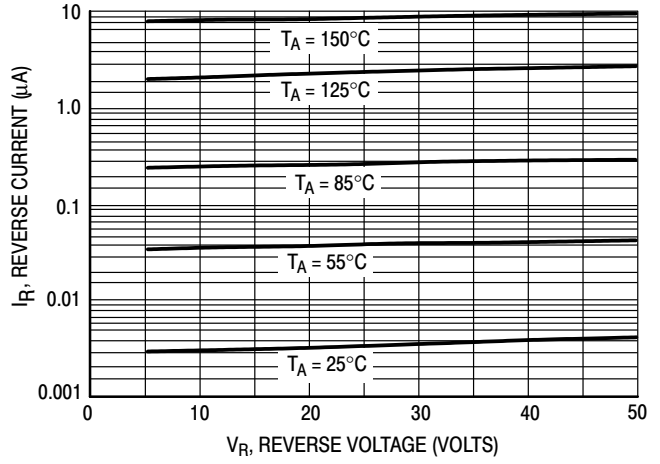


Figure 4. Leakage Current

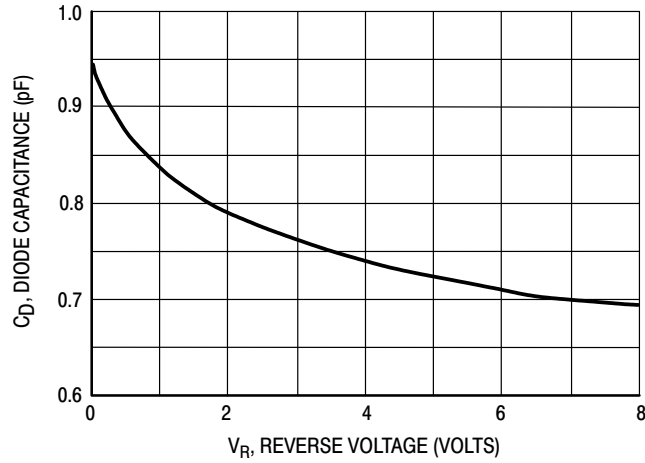


Figure 5. Capacitance

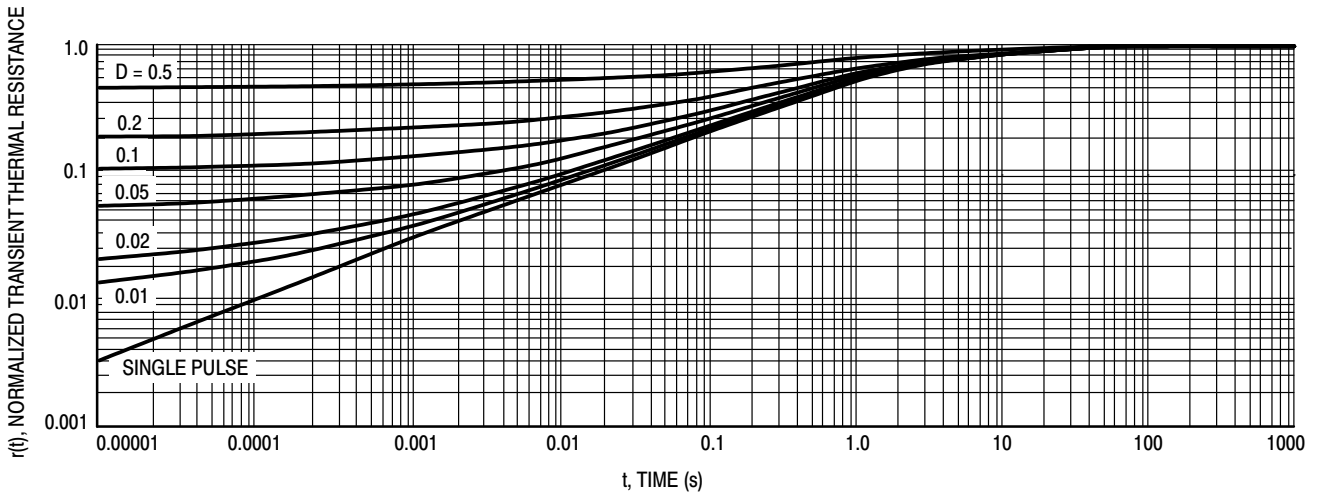


Figure 6. Normalized Thermal Response

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

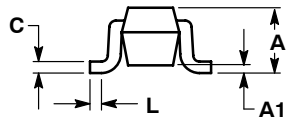
ON Semiconductor®



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

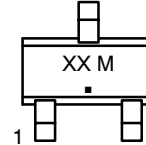
STYLE 4:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE

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 |
| H <sub>E</sub> | 1.50        | 1.60 | 1.70 | 0.060    | 0.063 | 0.067 |

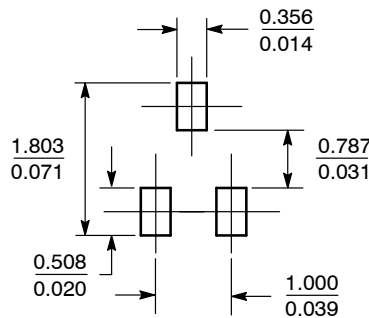
### GENERIC MARKING DIAGRAM\*



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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| DESCRIPTION:     | SC-75/SOT-416 | PAGE 1 OF 1  |

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