

# BAV70T, NSVBAV70T

## Dual Switching Diode

### 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   |

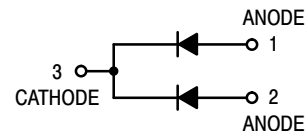
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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

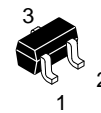


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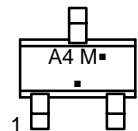
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### MARKING DIAGRAM



**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>( $I_{BR} = 100 \mu\text{A}$ )   | $V_{(BR)}$     | 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                 | $\mu\text{A}$<br>$\text{nA}$ |
| Diode Capacitance<br>( $V_R = 0, f = 1.0 \text{ MHz}$ )   | $C_D$          | –                | 1.5                        | pF                           |
| 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>855<br>1000<br>1250 | mVdc                         |
| Reverse Recovery Time<br>( $I_F = I_R = 10 \text{ mA}$ , $R_L = 100 \Omega$ , $I_{R(REC)} = 1.0 \text{ mA}$ ) (Figure 1)              | $t_{rr}$       | –                | 6.0                        | ns                           |
| Forward Recovery Voltage<br>( $I_F = 10 \text{ mA}$ , $t_r = 20 \text{ ns}$ ) (Figure 2)  | $V_{RF}$       | –                | 1.75                       | V                            |

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

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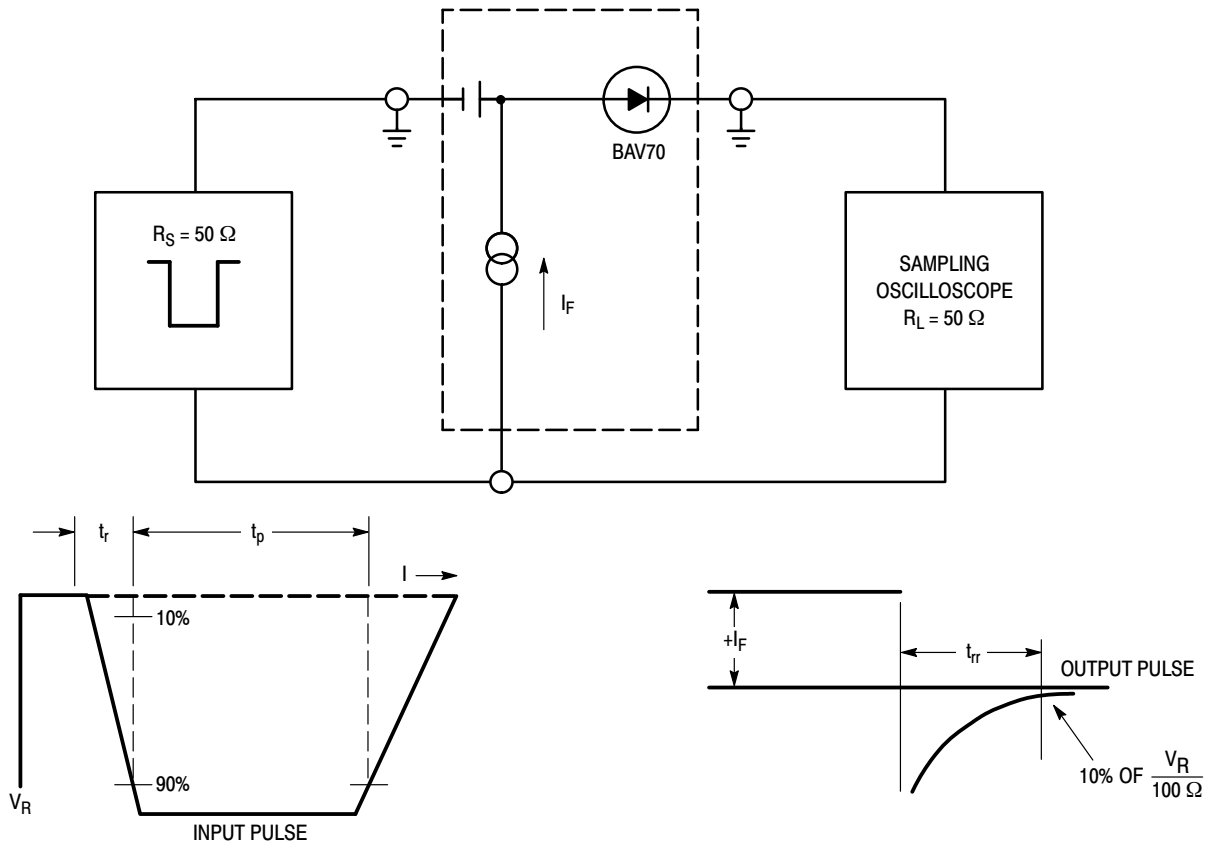


Figure 1. Recovery Time Equivalent Test Circuit

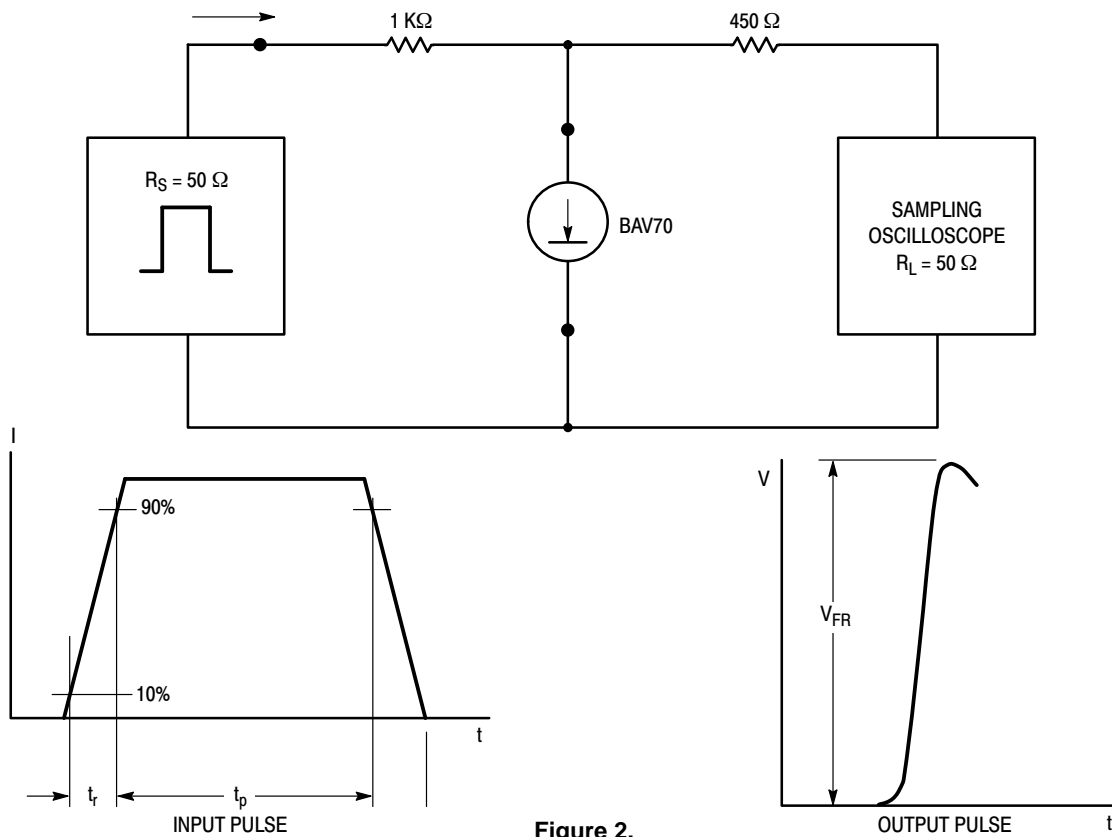


Figure 2.

# BAV70T, NSVBAV70T

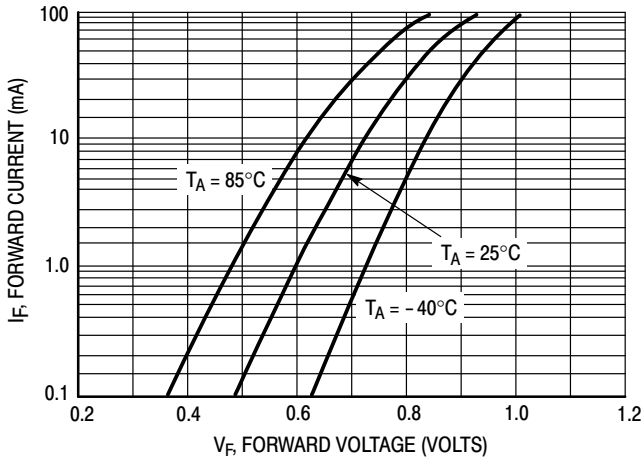


Figure 3. Forward Voltage

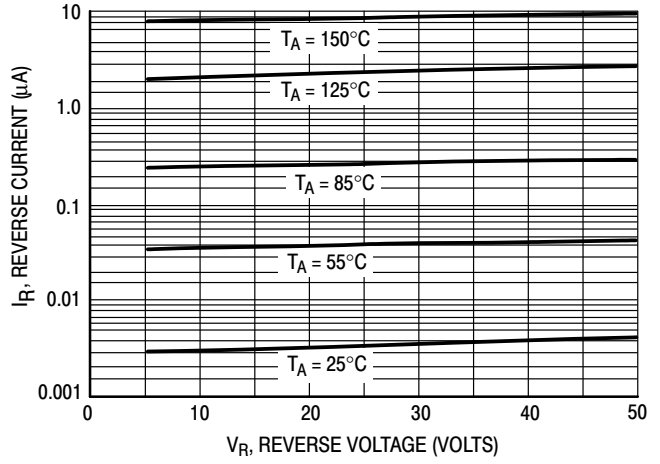


Figure 4. Leakage Current

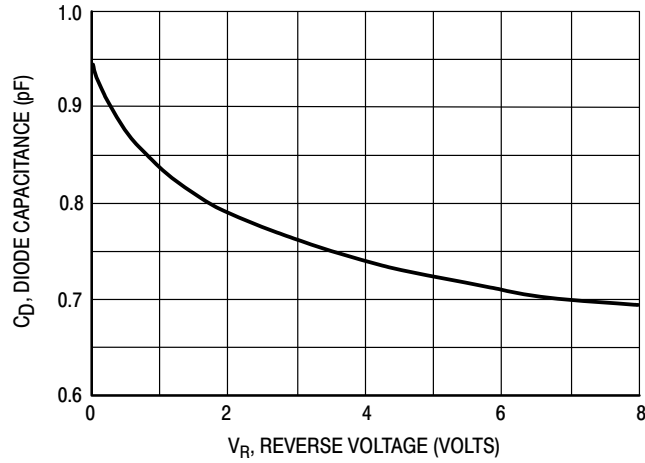


Figure 5. Capacitance

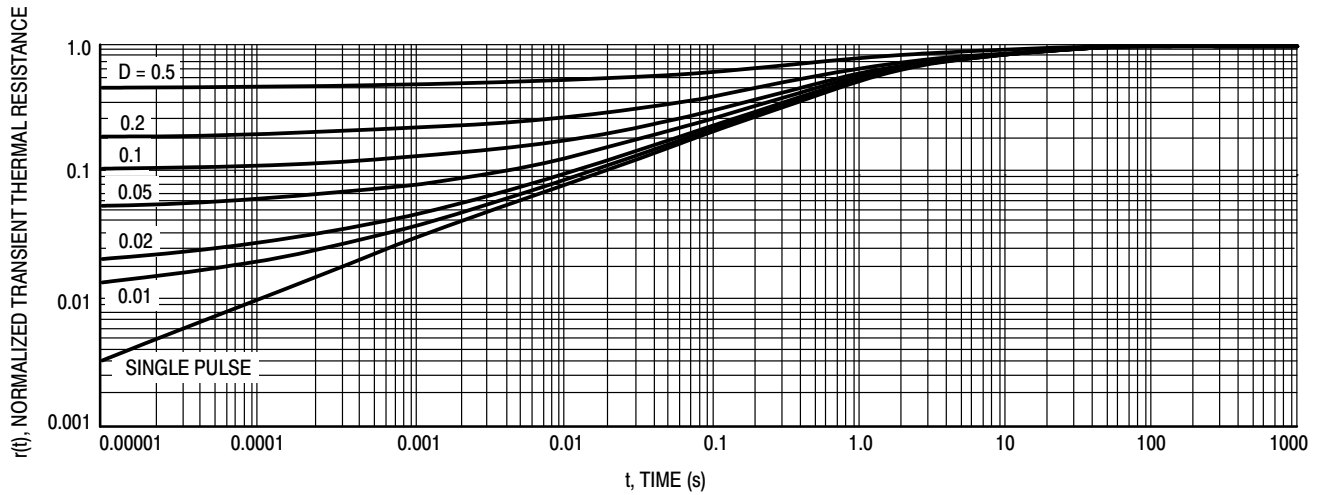
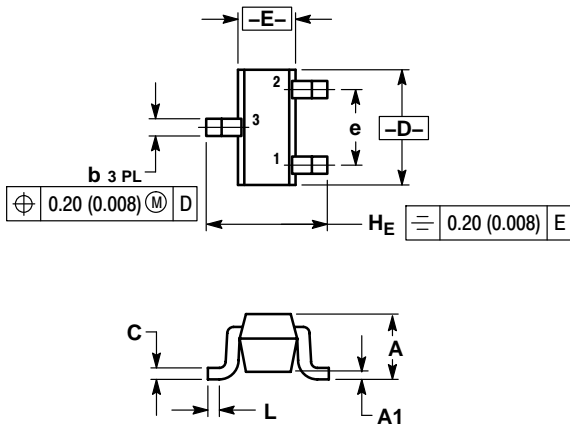


Figure 6. Normalized Thermal Response

# BAV70T, NSVBAV70T

## PACKAGE DIMENSIONS

SC-75/SOT-416  
CASE 463  
ISSUE F

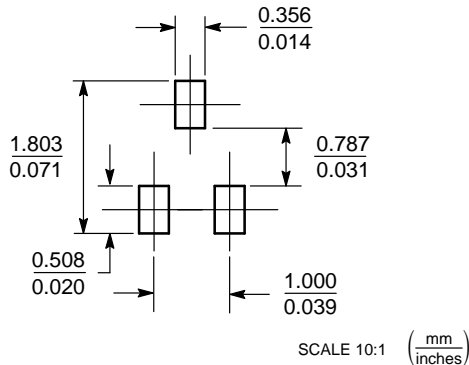


- NOTES:
- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  - CONTROLLING DIMENSION: MILLIMETER.

| 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 | 0.059    | 0.063 | 0.067 |
| 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 | 0.061    | 0.063 | 0.065 |

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

### SOLDERING 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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