

# BAV70W, SBAV70W

## Dual Switching Diode Common Cathode

### Features

- S 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 ( $T_A = 25^\circ\text{C}$ )

| Rating                     | Symbol                 | Max | Unit |
|----------------------------|------------------------|-----|------|
| Reverse Voltage            | $V_R$                  | 100 | V    |
| Forward Current            | $I_F$                  | 200 | mA   |
| Peak Forward Surge Current | $I_{FM(\text{surge})}$ | 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 FR-5 Board<br>(Note 1)<br>$T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$     | $P_D$           | 200            | mW                        |
| Thermal Resistance,<br>Junction-to-Ambient                                                                         | $R_{\theta JA}$ | 625            | $^\circ\text{C}/\text{W}$ |
| Total Device Dissipation<br>Alumina Substrate (Note 2) $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$           | 300            | mW                        |
| Thermal Resistance,<br>Junction-to-Ambient                                                                         | $R_{\theta JA}$ | 417            | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature                                                                                   | $T_J, T_{stg}$  | -55 to<br>+150 | $^\circ\text{C}$          |

1. FR-5 =  $1.0 \times 0.75 \times 0.062$  in.
2. Alumina =  $0.4 \times 0.3 \times 0.024$  in. 99.5% alumina.

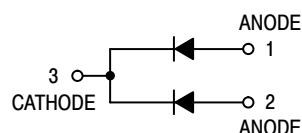


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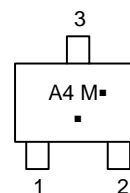
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SOT-323  
CASE 419  
STYLE 5



### MARKING DIAGRAM



A4 = Specific Device Code  
M = Date Code  
■ = Pb-Free Package  
(Note: Microdot may be in either location)

### ORDERING INFORMATION

| Device     | Package              | Shipping†           |
|------------|----------------------|---------------------|
| BAV70WT1G  | SOT-323<br>(Pb-Free) | 3,000 / Tape & Reel |
| SBAV70WT1G | SOT-323<br>(Pb-Free) | 3,000 / 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.

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

## BAV70W, SBAV70W

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

| Characteristic                                                                                                                        | Symbol     | Min              | Max                        | Unit                |
|---------------------------------------------------------------------------------------------------------------------------------------|------------|------------------|----------------------------|---------------------|
| Reverse Breakdown Voltage<br>( $I_{BR} = 100 \mu\text{A}$ )                                                                           | $V_{(BR)}$ | 100              | –                          | V                   |
| Reverse Voltage Leakage Current (Note 3)<br>( $V_R = 100 \text{ V}$ )<br>( $V_R = 50 \text{ V}$ )                                     | $I_R$      | –<br>–           | 1.0<br>100                 | $\mu\text{A}$<br>nA |
| 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 | mV                  |
| Diode Capacitance<br>( $V_R = 0 \text{ V}$ , $f = 1.0 \text{ MHz}$ )                                                                  | $C_D$      | –                | 1.5                        | pF                  |
| 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.

# BAV70W, SBAV70W

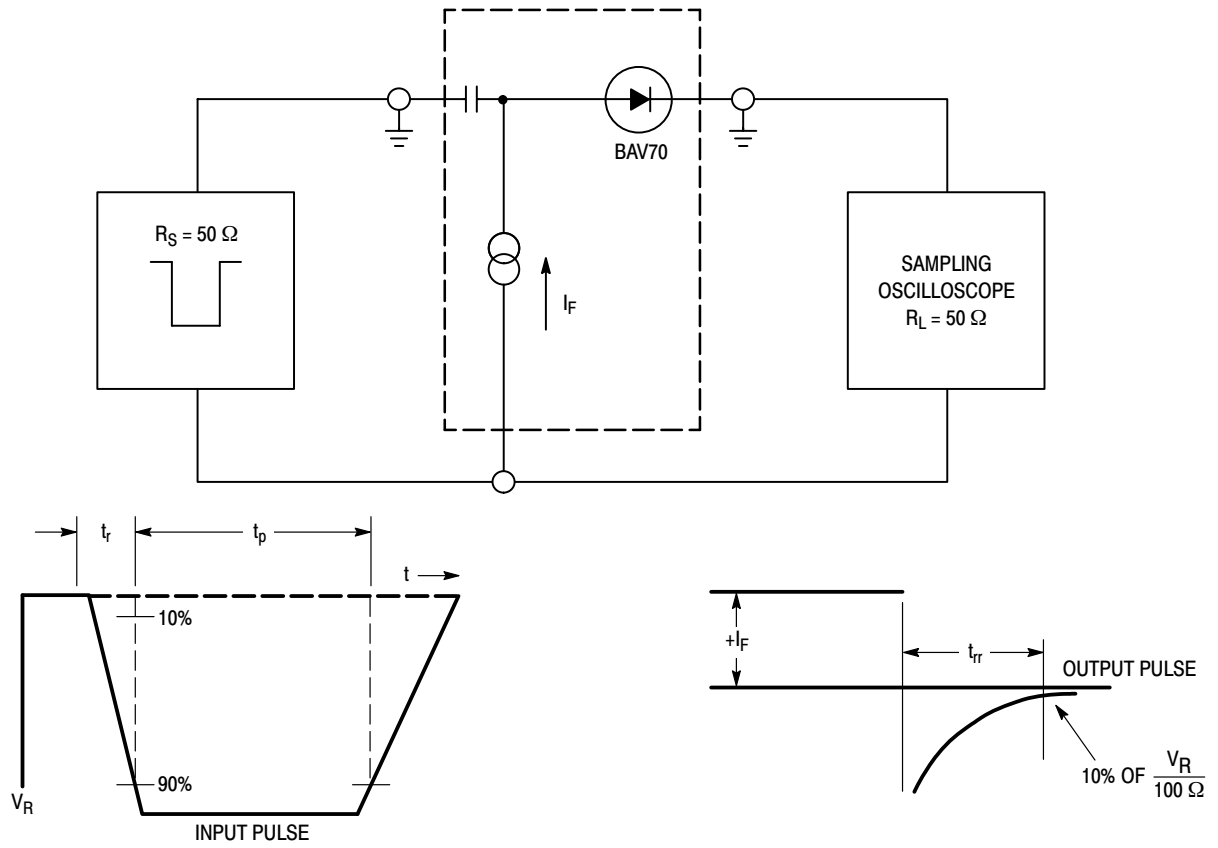


Figure 1. Recovery Time Equivalent Test Circuit

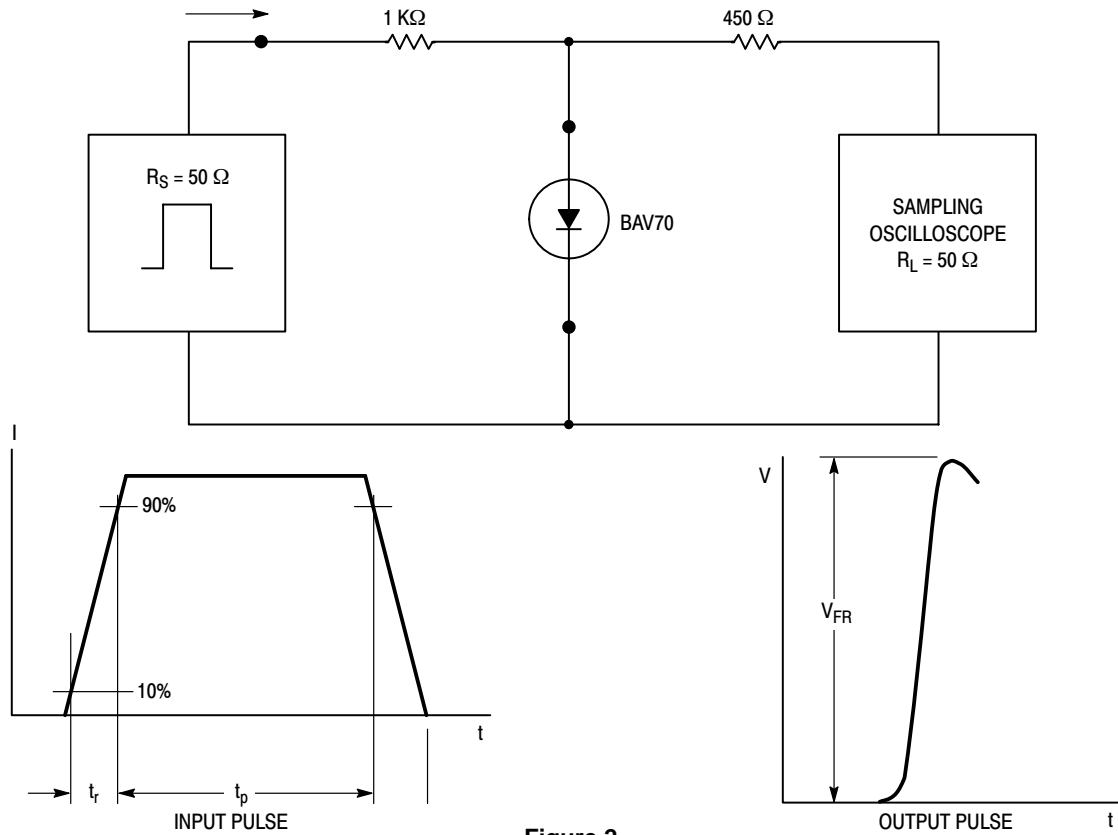


Figure 2.

# BAV70W, SBAV70W

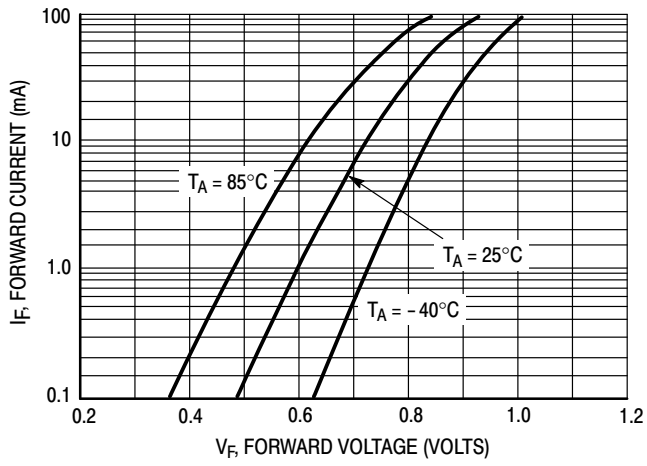


Figure 3. Forward Voltage

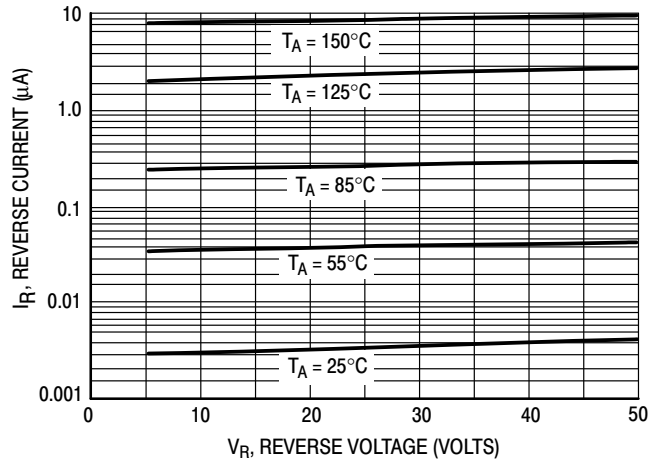


Figure 4. Leakage Current

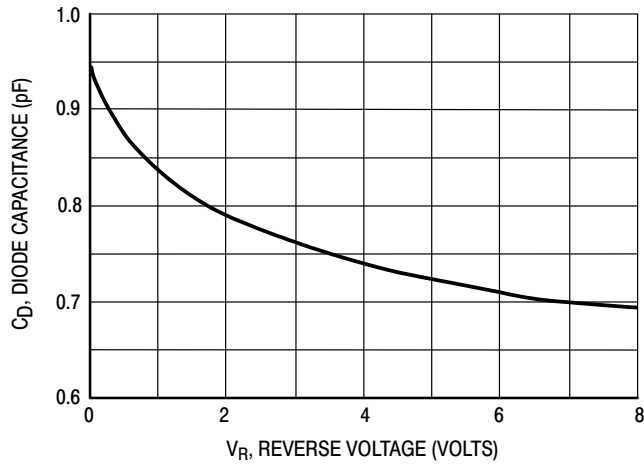
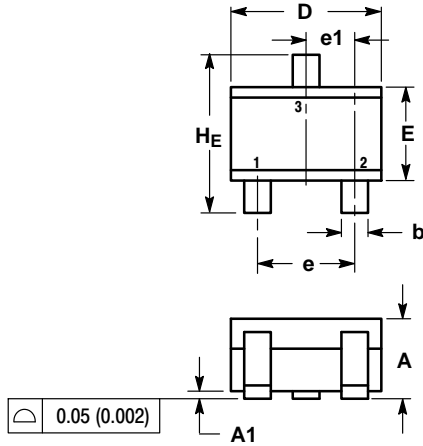


Figure 5. Capacitance

# BAV70W, SBAV70W

## PACKAGE DIMENSIONS

SC-70 (SOT-323)  
CASE 419-04  
ISSUE N

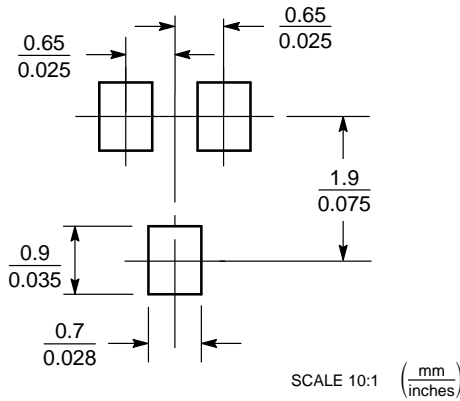


- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.

| DIM | MILLIMETERS |      |      | INCHES    |       |       |
|-----|-------------|------|------|-----------|-------|-------|
|     | MIN         | NOM  | MAX  | MIN       | NOM   | MAX   |
| A   | 0.80        | 0.90 | 1.00 | 0.032     | 0.035 | 0.040 |
| A1  | 0.00        | 0.05 | 0.10 | 0.000     | 0.002 | 0.004 |
| A2  | 0.70 REF    |      |      | 0.028 REF |       |       |
| b   | 0.30        | 0.35 | 0.40 | 0.012     | 0.014 | 0.016 |
| c   | 0.10        | 0.18 | 0.25 | 0.004     | 0.007 | 0.010 |
| D   | 1.80        | 2.10 | 2.20 | 0.071     | 0.083 | 0.087 |
| E   | 1.15        | 1.24 | 1.35 | 0.045     | 0.049 | 0.053 |
| e   | 1.20        | 1.30 | 1.40 | 0.047     | 0.051 | 0.055 |
| e1  | 0.65 BSC    |      |      | 0.026 BSC |       |       |
| L   | 0.20        | 0.38 | 0.56 | 0.008     | 0.015 | 0.022 |
| HE  | 2.00        | 2.10 | 2.40 | 0.079     | 0.083 | 0.095 |

- STYLE 5:  
PIN 1. ANODE  
PIN 2. ANODE  
PIN 3. CATHODE

### 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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