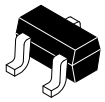
# Dual Switching Diode Common Cathode

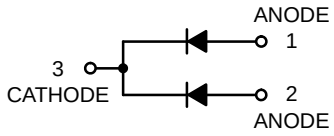
# BAV70W, SBAV70W



**SOT−323**
**CASE 419**
**STYLE 5**

### 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°C)

| Rating | Symbol | Max | Unit |
|---|---|---|---|
| Reverse Voltage | $V_R$ | 100 | V |
| Forward Current | $I_F$ | 200 | mA |
| Peak Forward Surge Current | $I_{FM(surge)}$ | 500 | mA |
| Forward Surge Current (60 Hz @ 1 cycle) | $I_{FSM}$ | 2.0 | A |
| Repetitive Peak Forward Current (Pulse Wave = 1 sec, Duty Cycle = 66%) | $I_{FRM}$ | 0.7 | A |

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.

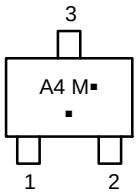
### THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|---|---|---|
| Total Device Dissipation FR−5 Board (Note 1) $T_A$ = 25°C<br>Derate above 25°C | $P_D$ | 200<br>1.6 | mW<br>mW/°C |
| Thermal Resistance, Junction−to−Ambient | $R_{\theta JA}$ | 625 | °C/W |
| Total Device Dissipation Alumina Substrate (Note 2) $T_A$ = 25°C<br>Derate above 25°C | $P_D$ | 300<br>2.4 | mW<br>mW/°C |
| Thermal Resistance, Junction−to−Ambient | $R_{\theta JA}$ | 417 | °C/W |
| Junction and Storage Temperature | $T_J$, $T_{stg}$ | −55 to +150 | °C |

1. FR−5 = 1.0 × 0.75 × 0.062 in.
2. Alumina = 0.4 × 0.3 × 0.024 in. 99.5% alumina.

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

### 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 (Pb−Free) | 3,000 / Tape & Reel |
| SBAV70WT1G | SOT−323 (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.

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May, 2023 − Rev. 10
Publication Order Number:
BAV70WT1/D

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25°C unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| Reverse Breakdown Voltage<br>($I_{(BR)}$ = 100 μA) | $V_{(BR)}$ | <br>100 | <br>– | V |
| Reverse Voltage Leakage Current (Note 3)<br>($V_R$ = 100 V)<br>($V_R$ = 50 V) | $I_R$ | <br>–<br>– | <br>1.0<br>100 | <br>μA<br>nA |
| Forward Voltage<br>($I_F$ = 1.0 mA)<br>($I_F$ = 10 mA)<br>($I_F$ = 50 mA)<br>($I_F$ = 150 mA) | $V_F$ | <br>–<br>–<br>–<br>– | <br>715<br>855<br>1000<br>1250 | mV |
| Diode Capacitance<br>($V_R$ = 0 V, f = 1.0 MHz) | $C_D$ | <br>– | <br>1.5 | pF |
| Reverse Recovery Time<br>($I_F$ = $I_R$ = 10 mA, $R_L$ = 100 Ω, $I_{R(REC)}$ = 1.0 mA) (Figure 1) | $t_{rr}$ | <br>– | <br>6.0 | ns |
| Forward Recovery Voltage<br>($I_F$ = 10 mA, $t_r$ = 20 ns) (Figure 2) | $V_{RF}$ | <br>– | <br>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.

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

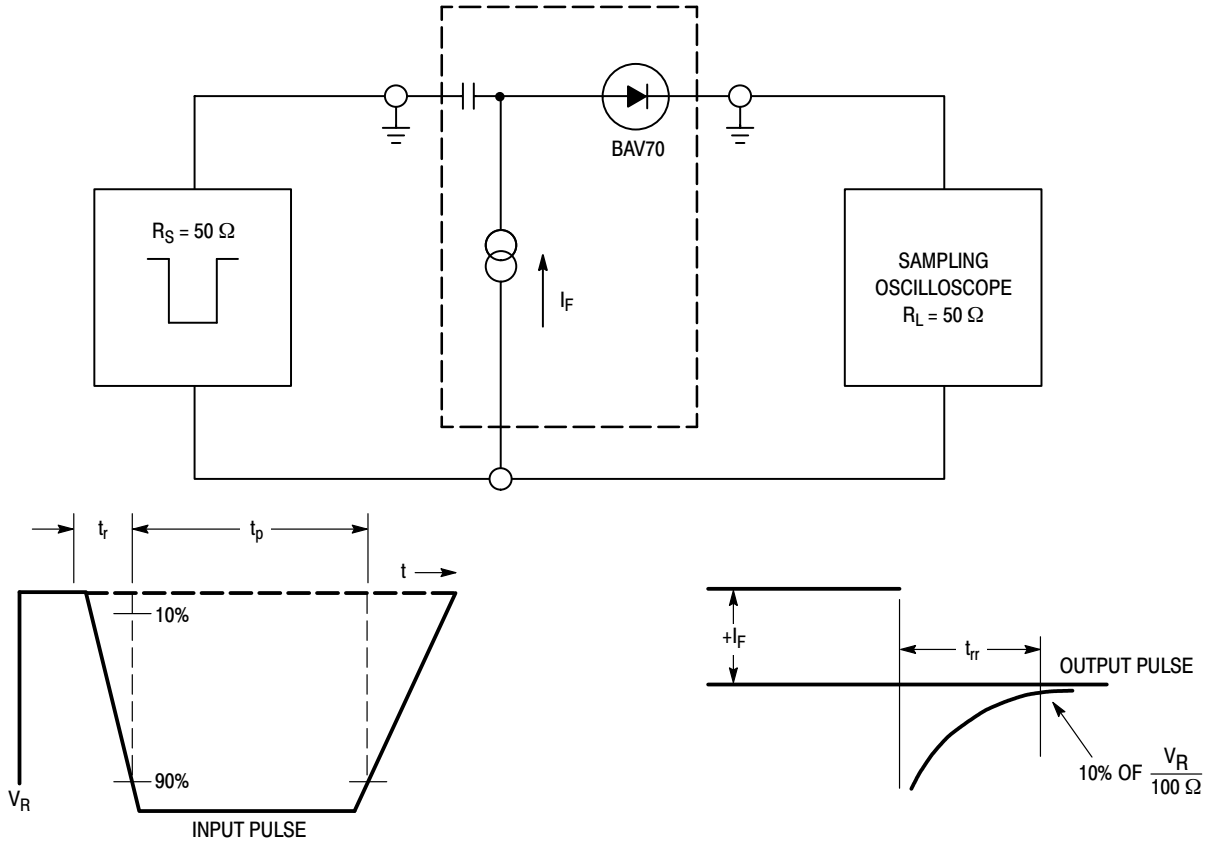



**Figure 1. Recovery Time Equivalent Test Circuit**

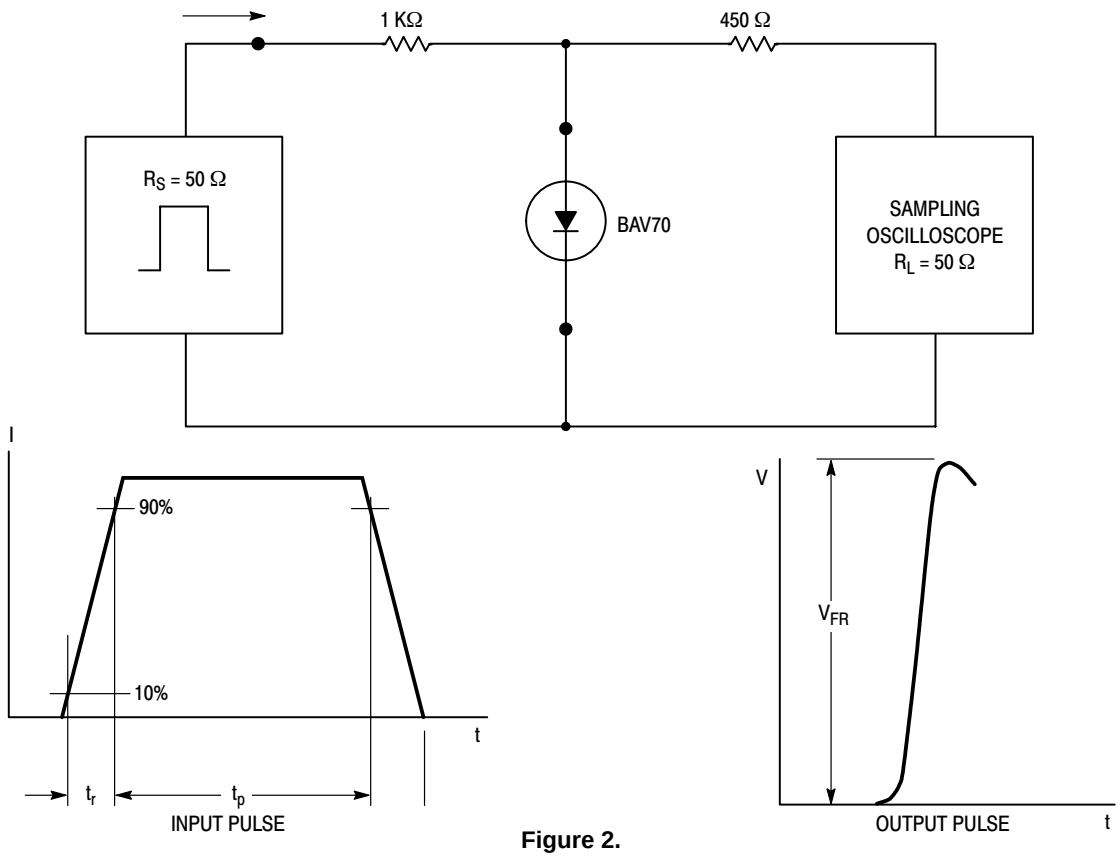



**Figure 2.**

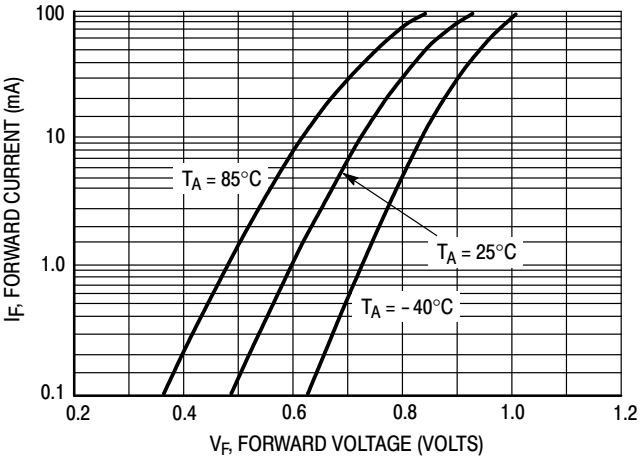



**Figure 3. Forward Voltage**

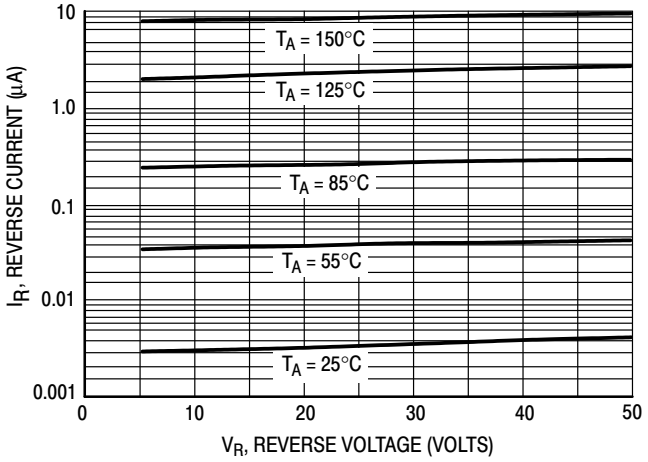



**Figure 4. Leakage Current**

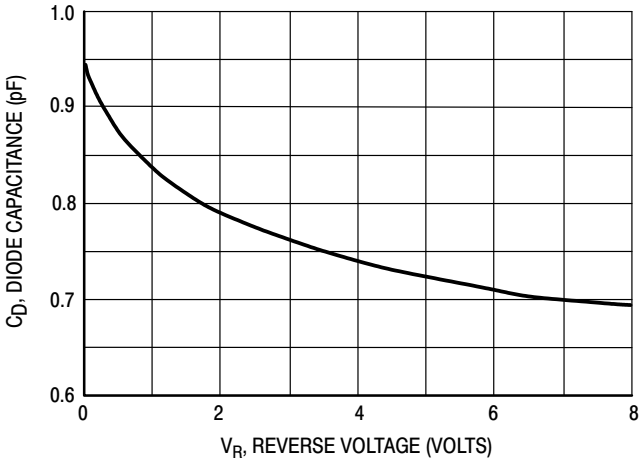



**Figure 5. Capacitance**

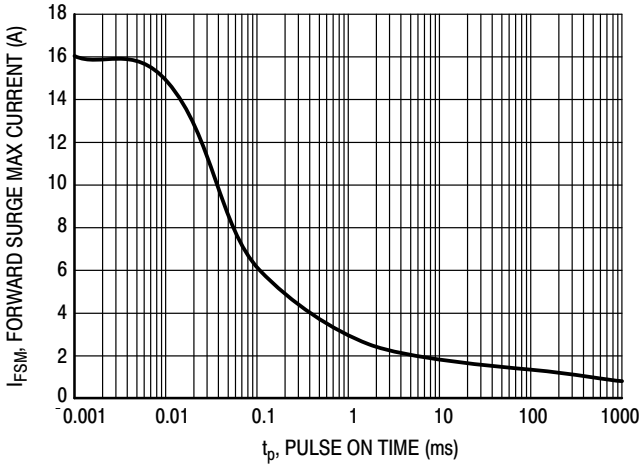
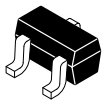



**Figure 6. Forward Surge Current**

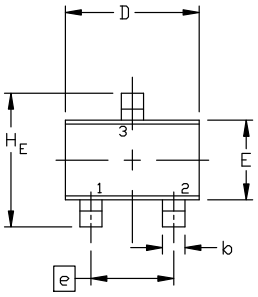
# MECHANICAL CASE OUTLINE
## PACKAGE DIMENSIONS

**SC−70 (SOT−323)**
CASE 419
ISSUE R

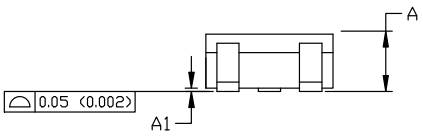
DATE 11 OCT 2022



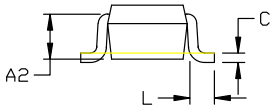
**SCALE 4:1**




TOP VIEW



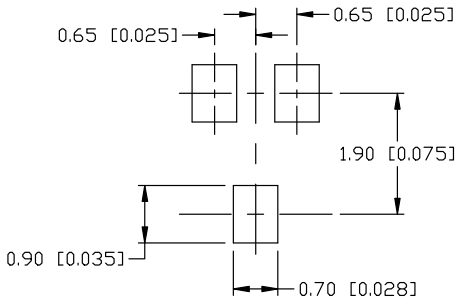

SIDE VIEW




END VIEW

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

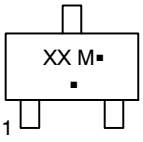
| | MILLIMETERS | | | INCHES | | |
|---|---|---|---|---|---|---|
| DIM | MIN. | NOM. | MAX. | MIN. | NOM. | MAX. |
| A | 0.80 | 0.90 | 1.00 | 0.032 | 0.035 | 0.040 |
| A1 | 0.00 | 0.05 | 0.10 | 0.000 | 0.002 | 0.004 |
| A2 | 0.70 REF | | | 0.028 BSC | | |
| b | 0.30 | 0.35 | 0.40 | 0.012 | 0.014 | 0.016 |
| c | 0.10 | 0.18 | 0.25 | 0.004 | 0.007 | 0.010 |
| D | 1.80 | 2.00 | 2.20 | 0.071 | 0.080 | 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 |
| $H_E$ | 2.00 | 2.10 | 2.40 | 0.079 | 0.083 | 0.095 |




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

SOLDERING FOOTPRINT

### 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:
CANCELLED

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

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

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

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

STYLE 6:
PIN 1. EMITTER
2. BASE
3. COLLECTOR

STYLE 7:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

STYLE 8:
PIN 1. GATE
2. SOURCE
3. DRAIN

STYLE 9:
PIN 1. ANODE
2. CATHODE
3. CATHODE−ANODE

STYLE 10:
PIN 1. CATHODE
2. ANODE
3. ANODE−CATHODE

STYLE 11:
PIN 1. CATHODE
2. CATHODE
3. CATHODE

| | | |
|---|---|---|
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| **DESCRIPTION:** | **SC−70 (SOT−323)** | **PAGE 1 OF 1** |

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