

# 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	$I_{FM(surge)}$	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) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	200	mW
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate (Note 2) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300	mW
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	$T_J, T_{stg}$	-55 to +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.

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

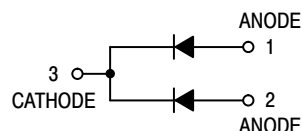


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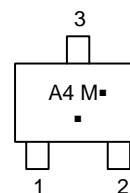
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SOT-323  
CASE 419  
STYLE 5



### 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 (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.

## BAV70W, SBAV70W

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

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

# BAV70W, SBAV70W

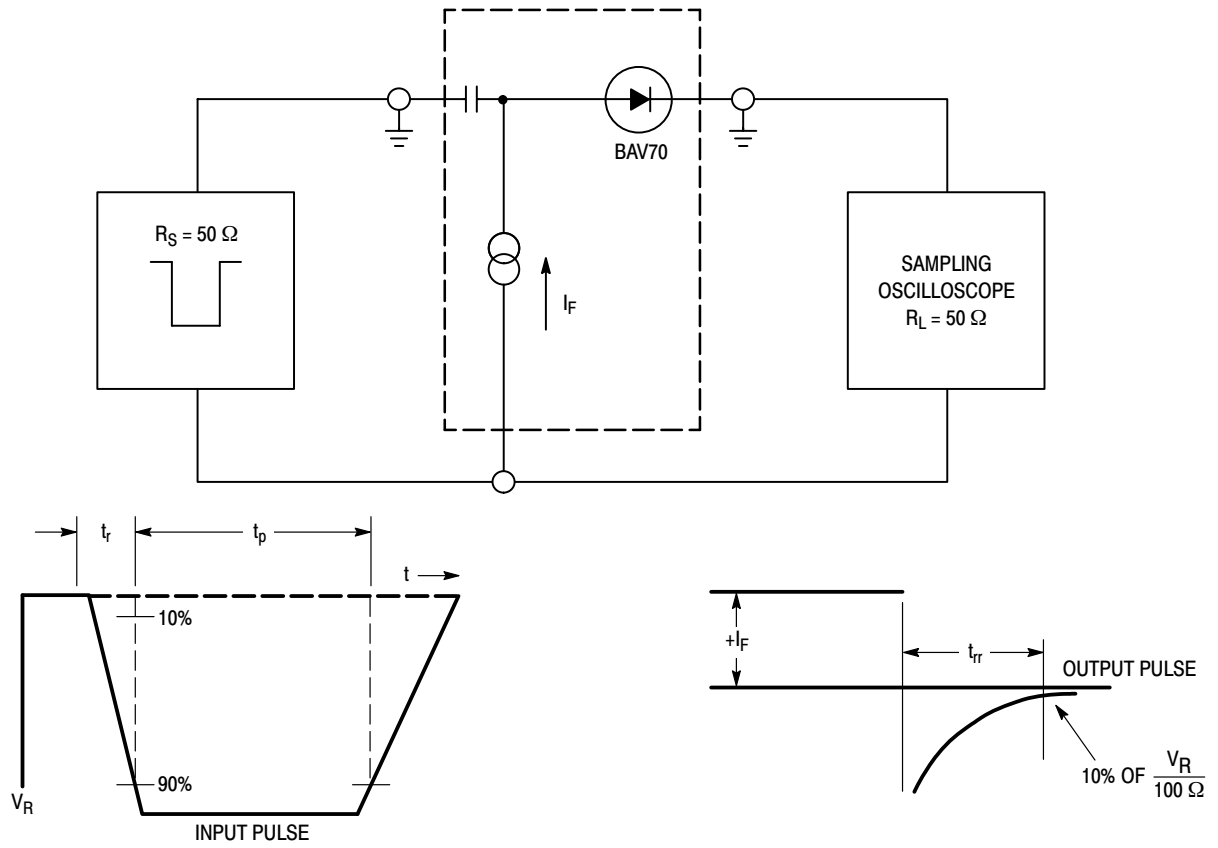


Figure 1. Recovery Time Equivalent Test Circuit

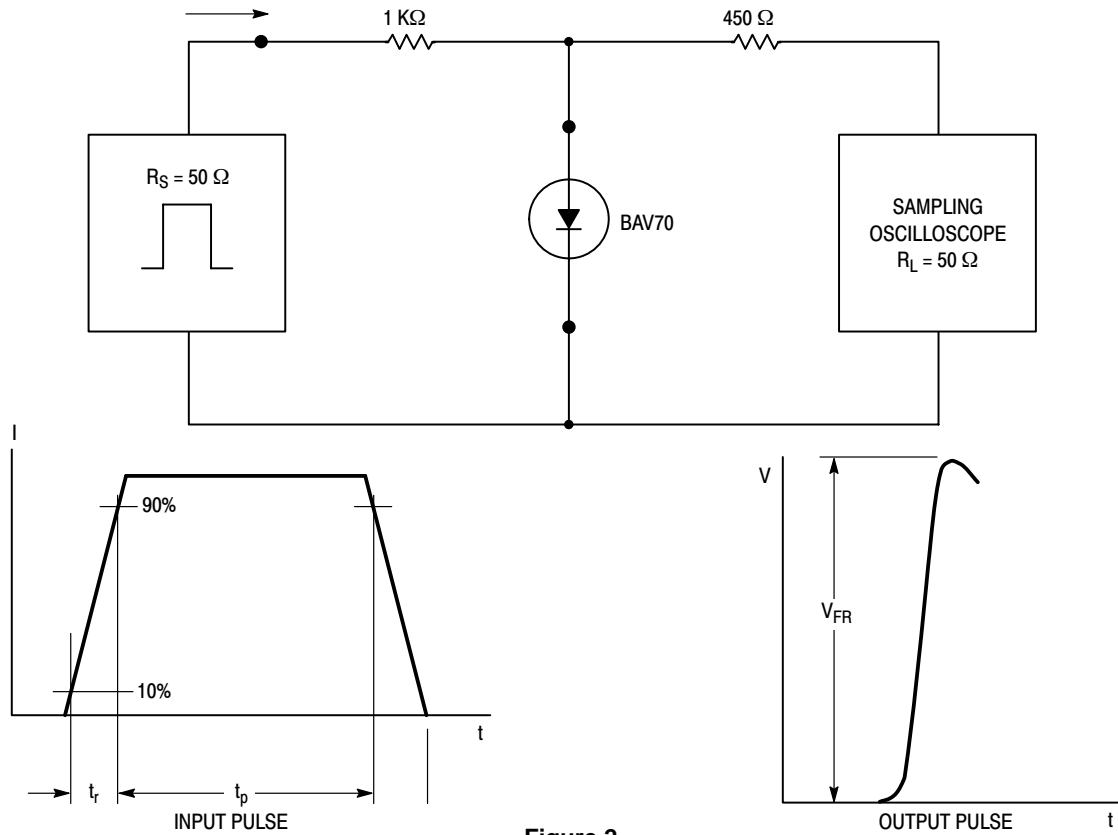


Figure 2.

# BAV70W, SBAV70W

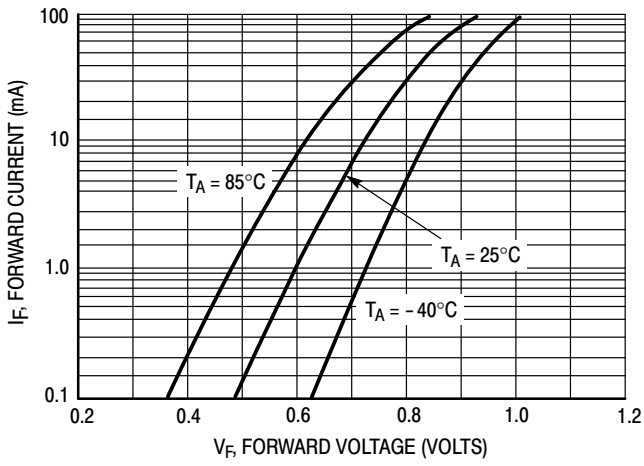


Figure 3. Forward Voltage

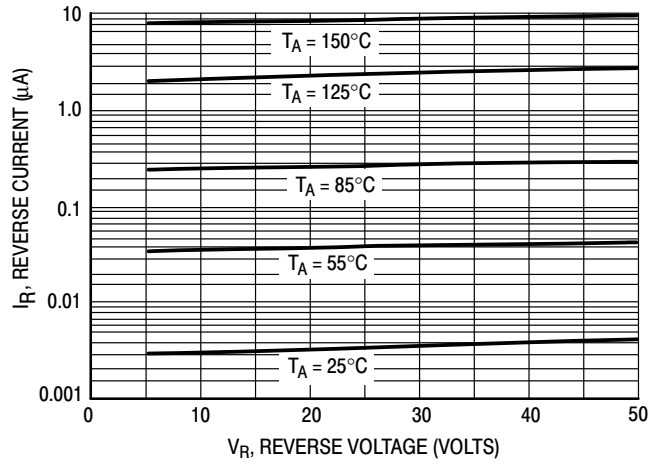


Figure 4. Leakage Current

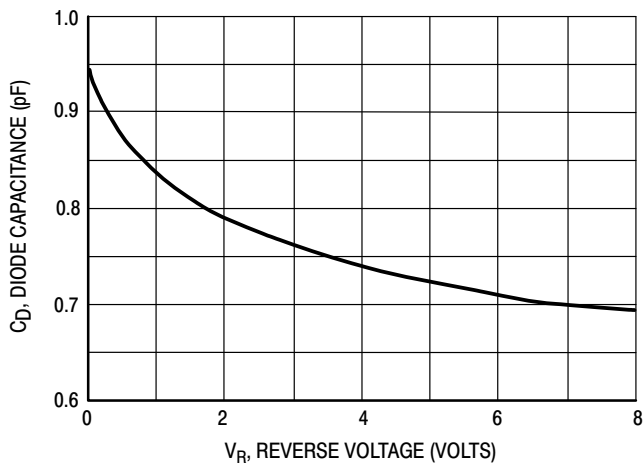


Figure 5. Capacitance

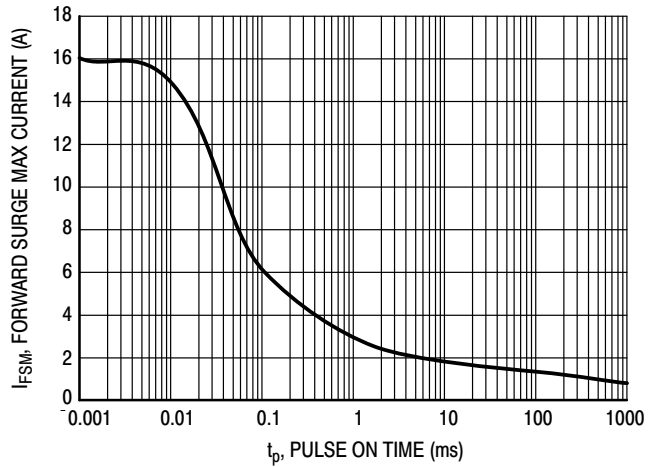


Figure 6. Forward Surge Current

# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



SCALE 4:1

SC-70 (SOT-323)  
CASE 419  
ISSUE P

DATE 07 OCT 2021

NOTES:

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



DIM	MILLIMETERS			INCHES		
	MIN.	NDM.	MAX.	MIN.	NDM.	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	2.10	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
H <sub>E</sub>	2.00	2.10	2.40	0.079	0.083	0.095

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.



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

SOLDERING FOOTPRINT

- |   |   |   |  |   |
|---|---|---|--|---|
| STYLE 1:<br>CANCELLED                                 | STYLE 2:<br>PIN 1. ANODE<br>2. N.C.<br>3. CATHODE     | STYLE 3:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 4:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. ANODE       | STYLE 5:<br>PIN 1. ANODE<br>2. ANODE<br>3. CATHODE          |
| STYLE 6:<br>PIN 1. EMITTER<br>2. BASE<br>3. COLLECTOR | STYLE 7:<br>PIN 1. BASE<br>2. EMITTER<br>3. COLLECTOR | STYLE 8:<br>PIN 1. GATE<br>2. SOURCE<br>3. DRAIN      | STYLE 9:<br>PIN 1. ANODE<br>2. CATHODE<br>3. CATHODE-ANODE | STYLE 10:<br>PIN 1. CATHODE<br>2. ANODE<br>3. ANODE-CATHODE |
|   |   |   |  | STYLE 11:<br>PIN 1. CATHODE<br>2. CATHODE<br>3. CATHODE     |

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