

# Dual Switching Diode Common Cathode

## BAV70M3

The BAV70M3T5G device is a spin-off of our popular SOT-23 three-leaded device. It is designed for switching applications and is housed in the SOT-723 surface mount package. This device is ideal for low-power surface mount applications where board space is at a premium.

### Features

- Reduces Board Space
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### MAXIMUM RATINGS (EACH DIODE)

Rating	Symbol	Value	Unit
Reverse Voltage	$V_R$	100	Vdc
Forward Current	$I_F$	200	mAdc
Peak Forward Surge Current	$I_{FM(surge)}$	500	mAdc

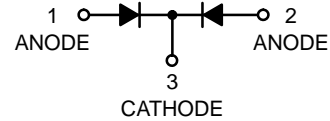
### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	265 2.1	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	470	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	640 5.1	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	195	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

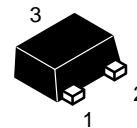
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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

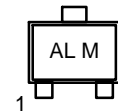
## 70 V DUAL COMMON CATHODE SWITCHING DIODES



### MARKING DIAGRAM



SOT-723  
CASE 631AA  
STYLE 3



AL = Specific Device Code  
M = Date Code

### ORDERING INFORMATION

Device	Package	Shipping†
BAV70M3T5G	SOT-723 (Pb-Free)	8000/Tape & Reel

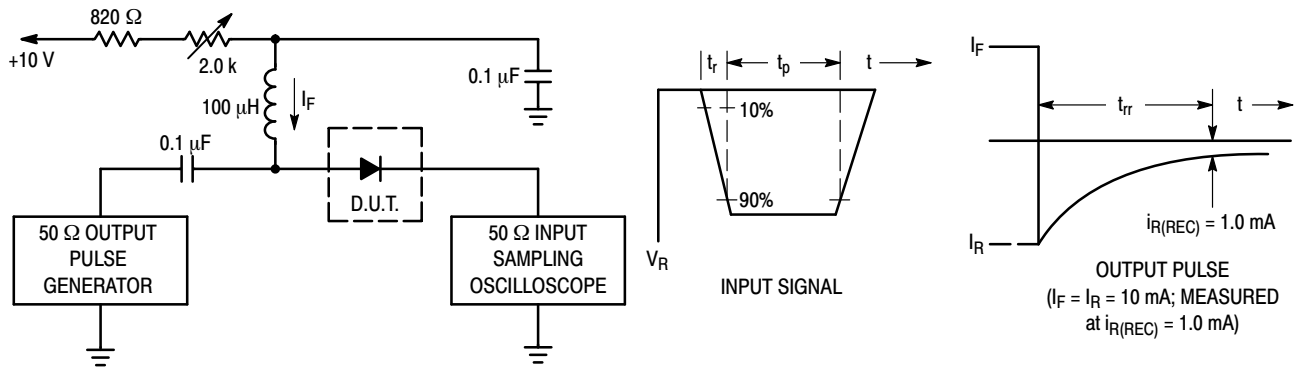
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# BAV70M3

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

Characteristic	Symbol	Min	Max	Unit
Reverse Breakdown Voltage ( $I_{(BR)} = 100\ \mu\text{A}$ )	$V_{(BR)}$	100	–	V
Reverse Voltage Leakage Current (Note 3) ( $V_R = 25\ \text{V}$ , $T_J = 150^\circ\text{C}$ ) ( $V_R = 100\ \text{V}$ ) ( $V_R = 70\ \text{V}$ , $T_J = 150^\circ\text{C}$ )	$I_R$	– – –	60 1.0 100	$\mu\text{A}$
Diode Capacitance ( $V_R = 0\ \text{V}$ , $f = 1.0\ \text{MHz}$ )	$C_D$	–	1.5	pF
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
Reverse Recovery Time ( $I_F = I_R = 10\ \text{mA}$ , $I_{R(REC)} = 1.0\ \text{mA}$ ) (Figure 1)	$t_{rr}$	–	6.0	ns

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

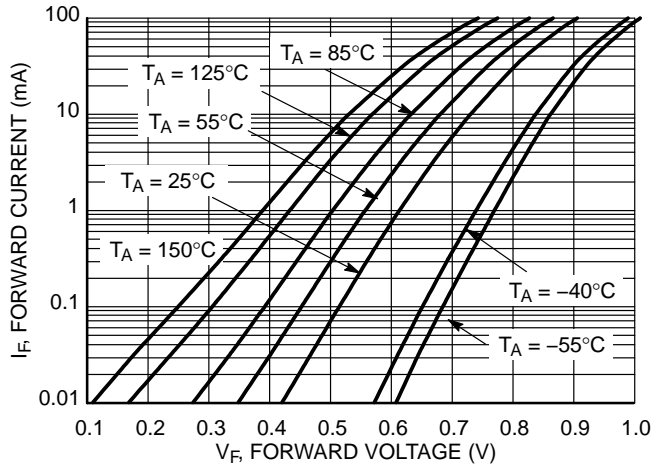


- Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.  
2. Input pulse is adjusted so  $I_{R(\text{peak})}$  is equal to 10 mA.  
3.  $t_p \gg t_{rr}$

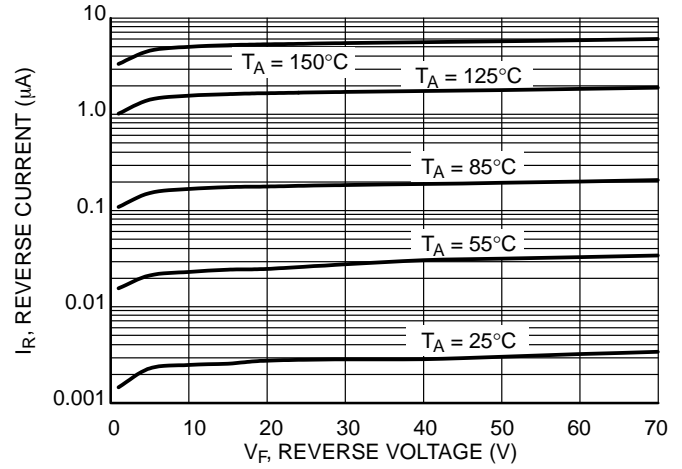
**Figure 1. Recovery Time Equivalent Test Circuit**

# BAV70M3

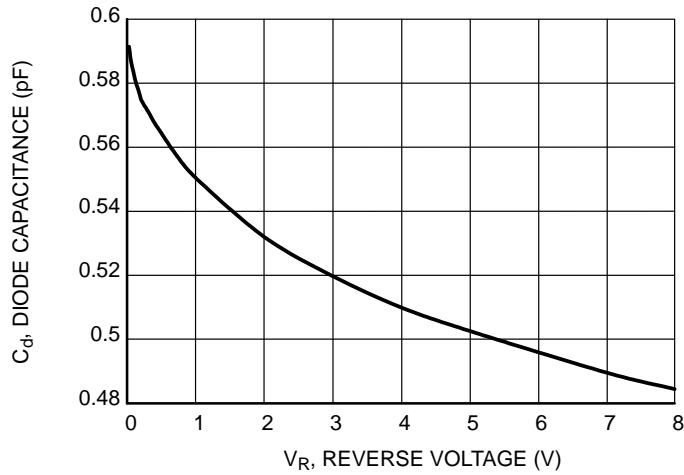
## Curves Applicable to Each Anode



**Figure 2. Forward Voltage**



**Figure 3. Leakage Current**



**Figure 4. Capacitance**

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

ON Semiconductor®

ON



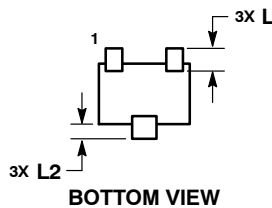
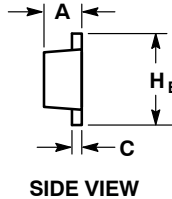
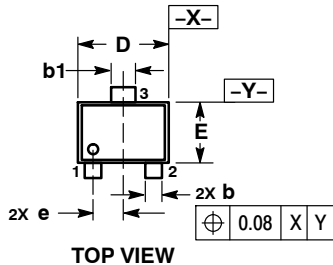
SCALE 4:1

### SOT-723

#### CASE 631AA-01

#### ISSUE D

DATE 10 AUG 2009

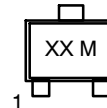


#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.45	0.50	0.55
b	0.15	0.21	0.27
b1	0.25	0.31	0.37
C	0.07	0.12	0.17
D	1.15	1.20	1.25
E	0.75	0.80	0.85
e	0.40 BSC		
H E	1.15	1.20	1.25
L	0.29 REF		
L2	0.15	0.20	0.25

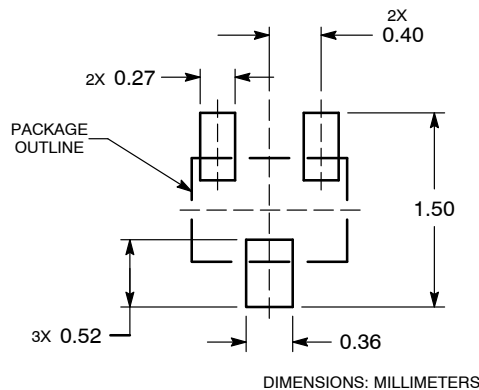
#### GENERIC MARKING DIAGRAM\*



XX = Specific Device Code  
M = Date Code

- 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

#### RECOMMENDED SOLDERING FOOTPRINT\*



\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G", may or not be present.

\*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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