

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 |

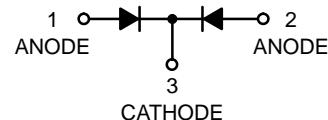
THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|-----------------|----------------|----------------------------|
| Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°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°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.

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.

70 V DUAL COMMON CATHODE SWITCHING DIODES



MARKING DIAGRAM



AL = Specific Device Code

M = Date Code

ORDERING INFORMATION

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

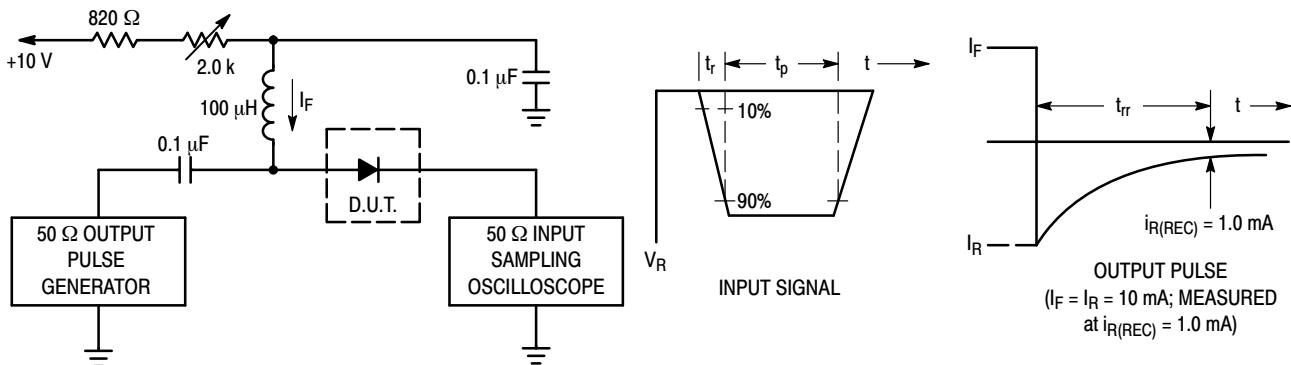
[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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 | μA |
| 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 ($I_F = I_R = 10 \text{ mA}, I_{R(\text{REC})} = 1.0 \text{ mA}$) (Figure 1) | t_{rr} | — | 6.0 | ns |

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



Notes: 1. A 2.0 k Ω 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

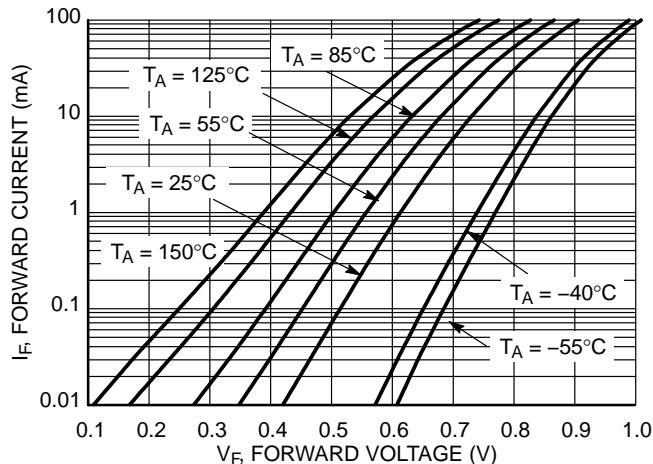


Figure 2. Forward Voltage

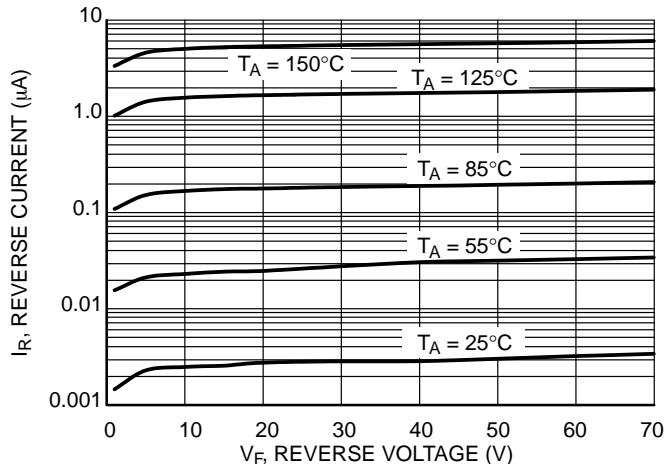


Figure 3. Leakage Current

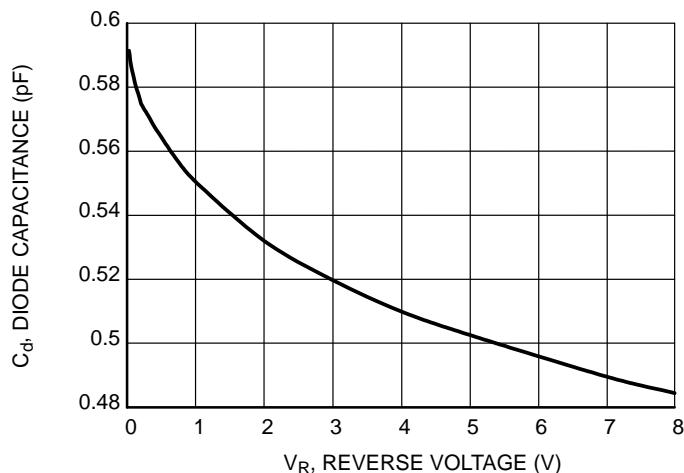
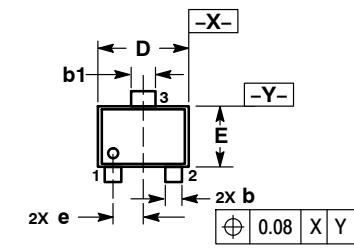


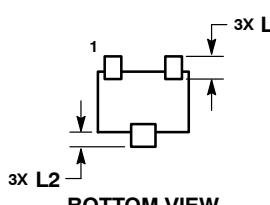
Figure 4. Capacitance



SCALE 4:1



TOP VIEW



BOTTOM VIEW

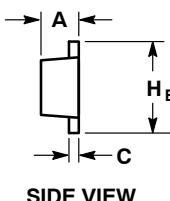
STYLE 1:
PIN 1. BASE
2. Emitter
3. Collector

STYLE 2:
PIN 1. ANODE
2. NC
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

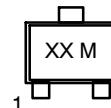


SIDE VIEW

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.

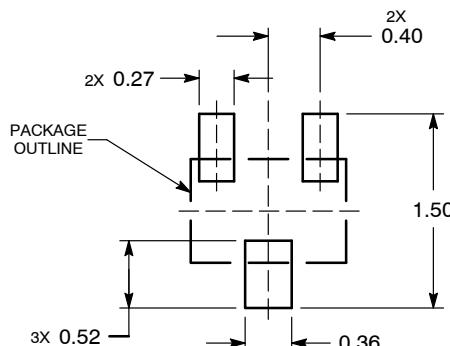
| DIM | MILLIMETERS | | |
|-----|-------------|------|------|
| | MIN | NOM | MAX |
| A | 0.45 | 0.50 | 0.55 |
| b | 0.15 | 0.21 | 0.27 |
| b1 | 0.25 | 0.31 | 0.37 |
| C | 0.07 | 0.12 | 0.17 |
| D | 1.15 | 1.20 | 1.25 |
| E | 0.75 | 0.80 | 0.85 |
| e | 0.40 BSC | | |
| H_E | 1.15 | 1.20 | 1.25 |
| L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

**GENERIC
MARKING DIAGRAM***



XX = Specific Device Code
M = Date Code

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



DIMENSIONS: MILLIMETERS

*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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| DESCRIPTION: | SOT-723 | PAGE 1 OF 1 |

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