

# SC-70/SOT-323 Dual Series Switching Diode

The BAV99WT1 is a smaller package, equivalent to the BAV99LT1.

### Suggested Applications

- ESD Protection
- Polarity Reversal Protection
- Data Line Protection
- Inductive Load Protection
- Steering Logic

### MAXIMUM RATINGS (EACH DIODE)

| Rating  | Symbol                 | Value             | Unit |
|---|------------------------|-------------------|------|
| Reverse Voltage   | $V_R$                  | 70                | Vdc  |
| Forward Current   | $I_F$                  | 215               | mAdc |
| Peak Forward Surge Current  | $I_{FM}(\text{surge})$ | 500               | mAdc |
| Repetitive Peak Reverse Voltage   | $V_{RRM}$              | 70                | V    |
| Average Rectified Forward Current <sup>(1)</sup><br>(averaged over any 20 ms period)                      | $I_{F(AV)}$            | 715               | mA   |
| Repetitive Peak Forward Current   | $I_{FRM}$              | 450               | mA   |
| Non-Repetitive Peak Forward Current<br>$t = 1.0 \mu\text{s}$<br>$t = 1.0 \text{ms}$<br>$t = 1.0 \text{S}$ | $I_{FSM}$              | 2.0<br>1.0<br>0.5 | A    |

### DEVICE MARKING

BAV99WT1 = A7  
BAV99RWT1 = F7

### THERMAL CHARACTERISTICS

| Characteristic  | Symbol          | Max         | Unit                       |
|---|-----------------|-------------|----------------------------|
| Total Device Dissipation<br>FR-5 Board, <sup>(1)</sup> $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$        | $P_D$           | 200<br>1.6  | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance Junction to Ambient  | $R_{\theta JA}$ | 625         | $^\circ\text{C/W}$         |
| Total Device Dissipation<br>Alumina Substrate, <sup>(2)</sup> $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$           | 300<br>2.4  | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance Junction to Ambient  | $R_{\theta JA}$ | 417         | $^\circ\text{C/W}$         |
| Junction and Storage Temperature  | $T_J, T_{stg}$  | -65 to +150 | $^\circ\text{C}$           |

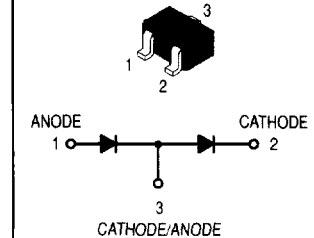
1. FR-5 =  $1.0 \times 0.75 \times 0.062$  in.

2. Alumina =  $0.4 \times 0.3 \times 0.024$  in. 99.5% alumina.

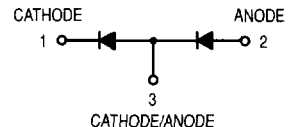
Preferred devices are Motorola recommended choices for future use and best overall value.

## BAV99WT1 BAV99RWT1

Motorola Preferred Devices



**BAV99WT1**  
CASE 419-02, STYLE 9  
SC-70/SOT-323

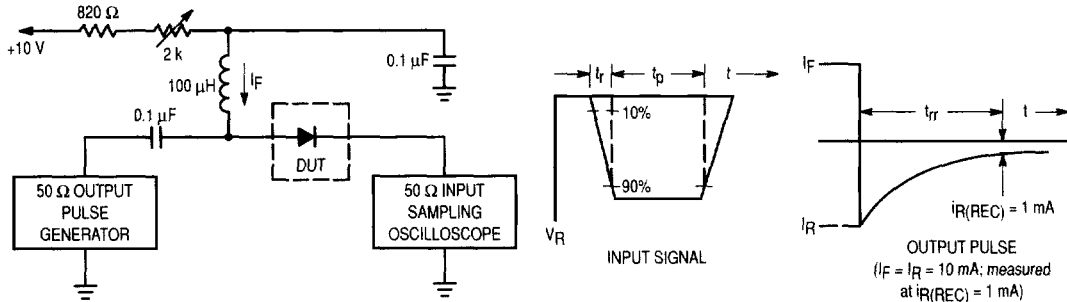


**BAV99RWT1**  
CASE 419-02, STYLE 10  
SC-70/SOT-323

# BAV99WT1 BAV99RWT1

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

| Characteristic   | Symbol     | Min | Max                        | Unit            |
|--|------------|-----|----------------------------|-----------------|
| <b>OFF CHARACTERISTICS</b>   |            |     |                            |                 |
| Reverse Breakdown Voltage ( $I_{BR} = 100 \mu\text{A}$ )   | $V_{(BR)}$ | 70  | —                          | Vdc             |
| Reverse Voltage Leakage Current ( $V_R = 70 \text{ Vdc}$ )<br>( $V_R = 25 \text{ Vdc}, T_J = 150^\circ\text{C}$ )<br>( $V_R = 70 \text{ Vdc}, T_J = 150^\circ\text{C}$ ) | $I_R$      | —   | 2.5<br>30<br>50            | $\mu\text{Adc}$ |
| Diode Capacitance ( $V_R = 0, f = 1.0 \text{ MHz}$ )   | $C_D$      | —   | 1.5                        | pF              |
| Forward Voltage ( $I_F = 1.0 \text{ mAdc}$ )<br>( $I_F = 10 \text{ mAdc}$ )<br>( $I_F = 50 \text{ mAdc}$ )<br>( $I_F = 150 \text{ mAdc}$ )                               | $V_F$      | —   | 715<br>855<br>1000<br>1250 | mVdc            |
| Reverse Recovery Time ( $I_F = I_R = 10 \text{ mAdc}, i_{R(REC)} = 1.0 \text{ mAdc}$ ) (Figure 1) $R_L = 100 \Omega$   | $t_{rr}$   | —   | 6.0                        | ns              |
| Forward Recovery Voltage ( $I_F = 10 \text{ mA}, t_r = 20 \text{ ns}$ )  | $V_{FR}$   | —   | 1.75                       | V               |



- Notes: 1. A 2.0 k $\Omega$  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**

CURVES APPLICABLE TO EACH DIODE

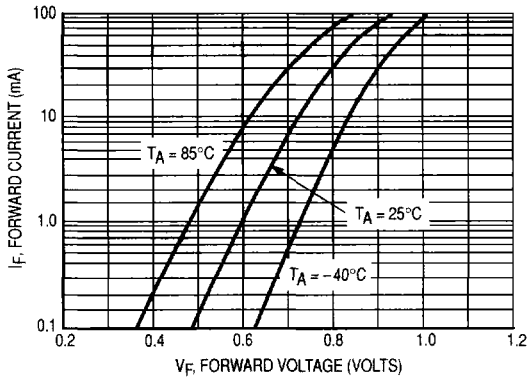


Figure 2. Forward Voltage

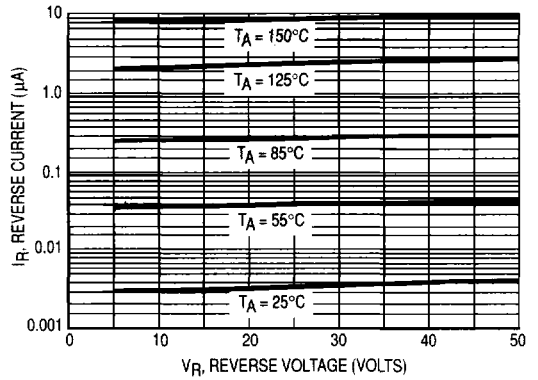


Figure 3. Leakage Current

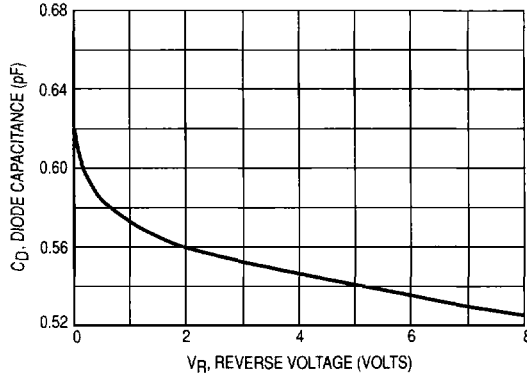


Figure 4. Capacitance