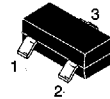


# Monolithic Dual Switching Diode

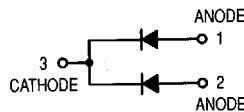
## BAV170LT1

Motorola Preferred Device

- This switching diode has the following features:
- Low Leakage Current Applications
  - Medium Speed Switching Times
  - Available in 8 mm Tape and Reel  
Use BAV170LT1 to order the 7 inch/3,000 unit reel  
Use BAV170LT3 to order the 13 inch/10,000 unit reel



CASE 318-08, STYLE 9  
SOT-23 (TO-236AB)



### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	$V_R$	70	Vdc
Forward Current	$I_F$	200	mAdc
Peak Forward Surge Current	$I_{FM}(\text{surge})$	500	mAdc

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board <sup>(1)</sup> $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225	mW
		1.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate <sup>(2)</sup> $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300	mW
		2.4	mW/ $^\circ\text{C}$
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	$^\circ\text{C}$

### DEVICE MARKING

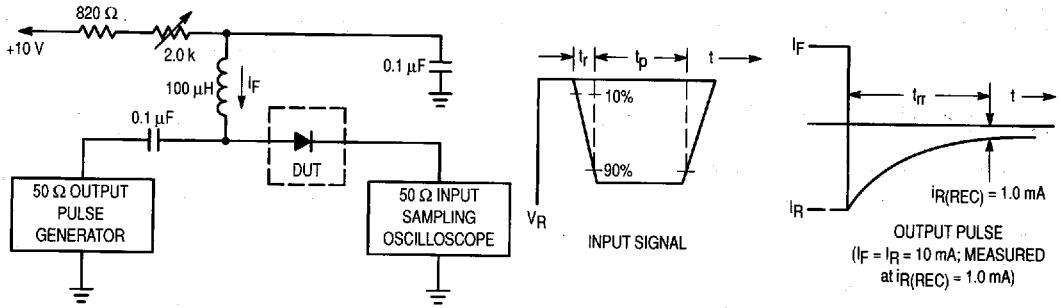
BAV170LT1 = JX

### 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 ( $I_{(BR)} = 100 \mu\text{Adc}$ )	$V_{(BR)}$	70	—	Vdc	
Reverse Voltage Leakage Current ( $V_R = 70 \text{ Vdc}$ ) ( $V_R = 70 \text{ Vdc}, T_J = 150^\circ\text{C}$ )	$I_R$	—	5.0	nAdc	
		—	80		
Diode Capacitance ( $V_R = 0 \text{ V}, f = 1.0 \text{ MHz}$ )	$C_D$	—	2.0	pF	
Forward Voltage ( $I_F = 1.0 \text{ mAdc}$ ) ( $I_F = 10 \text{ mAdc}$ ) ( $I_F = 50 \text{ mAdc}$ ) ( $I_F = 150 \text{ mAdc}$ )	$V_F$	—	900	mVdc	
		—	1000		
		—	1100		
		—	1250		
Reverse Recovery Time ( $I_F = I_R = 10 \text{ mAdc}$ ) (Figure 1)	$R_L = 100 \Omega$	$t_{rr}$	—	3.0	$\mu\text{s}$

1. FR-5 =  $1.0 \times 0.75 \times 0.062 \text{ in.}$
2. Alumina =  $0.4 \times 0.3 \times 0.024 \text{ in. } 99.5\% \text{ alumina.}$

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



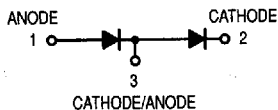
- Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.  
 2. Input pulse is adjusted so  $I_{R(peak)}$  is equal to 10 mA.  
 3.  $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

## Dual Series Switching Diode

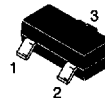
This switching diode has the following features:

- Low Leakage Current Applications
- Medium Speed Switching Times
- Available in 8 mm Tape and Reel  
Use BAV199LT1 to order the 7 inch/3,000 unit reel  
Use BAV199LT3 to order the 13 inch/10,000 unit reel



## BAV199LT1

Motorola Preferred Device



CASE 318-08, STYLE 11  
SOT-23 (TO-236AB)

### MAXIMUM RATINGS

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	Vdc
Average Rectified Forward Current <sup>(1)</sup> (averaged over any 20 ms period)	$I_{F(AV)}$	715	mAdc
Repetitive Peak Forward Current	$I_{FRM}$	450	mAdc
Non-Repetitive Peak Forward Current	$I_{FSM}$	2.0 1.0 0.5	Adc
		$t = 1.0 \mu\text{s}$	
		$t = 1.0 \text{ms}$	
		$t = 1.0 \text{A}$	

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board <sup>(1)</sup> $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate <sup>(2)</sup> $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300 2.4	mW 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	$^\circ\text{C}$

### DEVICE MARKING

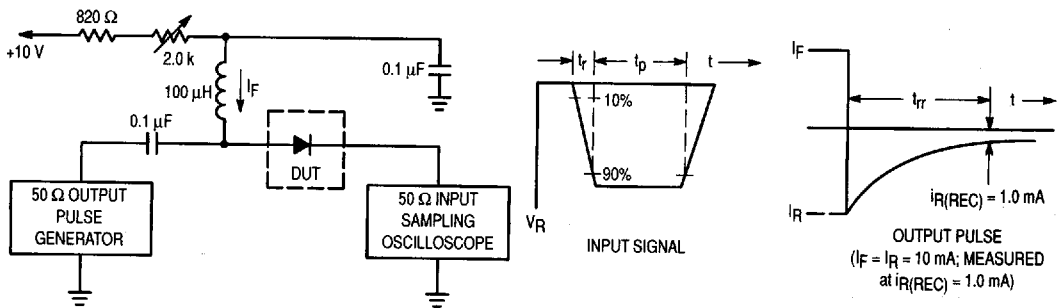
BAV199LT1 = JY

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.

**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 ( $V_R = 70 \text{ Vdc}$ ) ( $V_R = 70 \text{ Vdc}, T_J = 150^\circ\text{C}$ )	$I_R$	—	5.0 80	nA dc
Diode Capacitance ( $V_R = 0 \text{ V}, f = 1.0 \text{ MHz}$ )	$C_D$	—	2.0	pF
Forward Voltage ( $I_F = 1.0 \text{ mA}$ ) ( $I_F = 10 \text{ mA}$ ) ( $I_F = 50 \text{ mA}$ ) ( $I_F = 150 \text{ mA}$ )	$V_F$	—	900 1000 1100 1250	mVdc
Reverse Recovery Time ( $I_F = I_R = 10 \text{ mA}$ ) (Figure 1)	$t_{rr}$	—	3.0	$\mu\text{s}$



- 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**