April 2014

BAV99
200 mA 70 V High Conductance Ultra-Fast Switching Diode

Features

- High Conductance: I_F = 200 mA
- Fast Switching Speed: t_{rr} < 6 ns Maximum
- Small Plastic SOT-23 Package
- Series-Pair Configuration

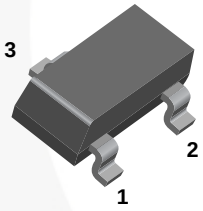
Applications

- High-Speed Switching Applications

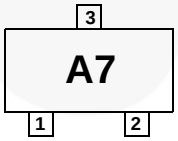
Description

The BAV99 is a 350 mW high-speed switching diode array with series-pair diode configuration. It achieves high-current conductivity, up to 200 mA, in a very small 7mm^2 footprint. These features make the BAV99 optimal for area-constrained applications that need a little extra power capability.

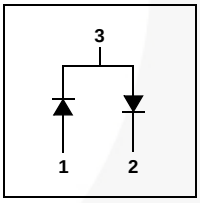
For common cathode and common anode high-speed switching diodes, explore Fairchild's BAV70 and BAW56. Looking for more options in the SOT-23 package? Check Fairchild's MMBD family.



SOT-23



Connection Diagram



Ordering Information

Part Number	Marking	Package	Packing Method
BAV99	A7	SOT-23 3L	Tape and Reel, Reel 7 inch
BAV99_D87Z	A7	SOT-23 3L	Tape and Reel, Reel 13 inch

Absolute Maximum Ratings(1)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter		Value	Unit
V_{RRM}	Maximum Repetitive Reverse Voltage		70	V
$I_{F(AV)}$	Average Rectified Forward Current		200	mA
I_{FSM}	Non-Repetitive Peak Forward Surge Current	Pulse Width = 1.0 Second	1.0	A
		Pulse Width = 300 Microseconds	8.0	
T_{STG}	Storage Temperature Range		-55 to +150	°C
T_J	Operating Junction Temperature Range		-55 to +150	°C

Note:

1. These ratings are based on a maximum junction temperature of 150°C.
   These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty cycle operations.

Thermal Characteristics(2)

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W

Note:

2. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
V_R	Breakdown Voltage, per Diode	I_R = 100 µA	70		V
V_F	Forward Voltage, per Diode	I_F = 1 mA		715	mV
		I_F = 10 mA		855	
		I_F = 50 mA		1.00	V
		I_F = 150 mA		1.25	
I_R	Reverse Leakage, per Diode	V_R = 70 V		2.5	µA
		V_R = 25 V, T_A = 150°C		30.0	
		V_R = 70 V, T_A = 150°C		50.0	
C_T	Total Capacitance, per Diode	V_R = 0 V, f = 1.0 MHz		1.5	pF
t_{rr}	Reverse-Recovery Time, per Diode	I_F = I_R = 10 mA, I_{RR} = 1 mA, R_L = 100 Ω		6.0	ns

Typical Performance Characteristics

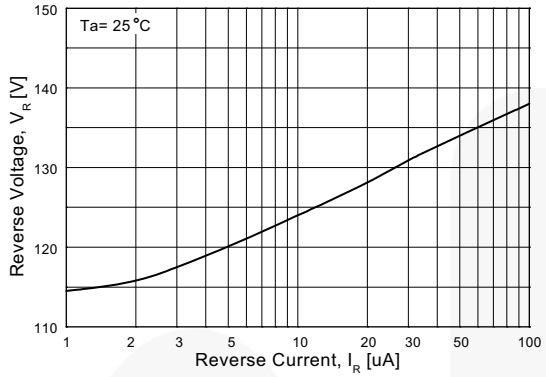


Figure 1. Reverse Voltage vs. Reverse Current

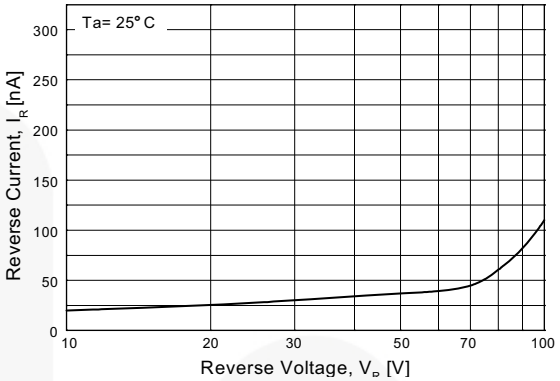


Figure 2. Reverse Current vs. Reverse Voltage

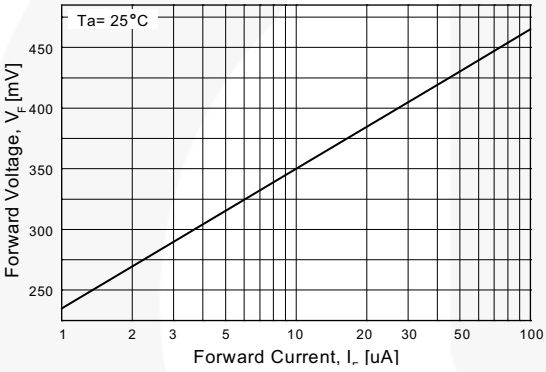


Figure 3. Forward Voltage vs. Forward Current V_F - 1 to 100 µA

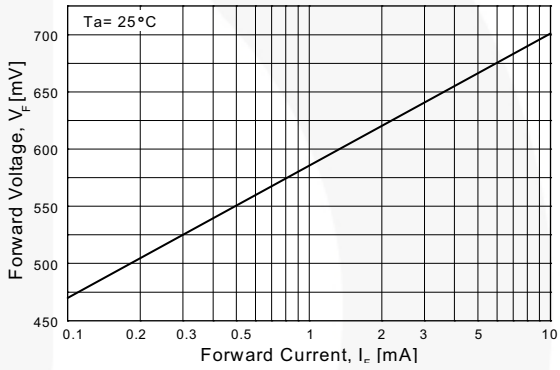


Figure 4. Forward Voltage vs. Forward Current V_F - 0.1 to 10 mA

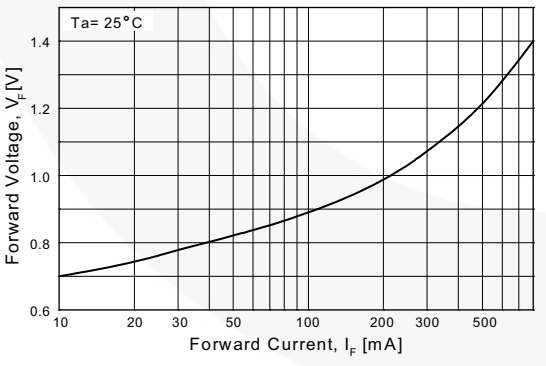


Figure 5. Forward Voltage vs. Forward Current V_F - 10 to 800 mA

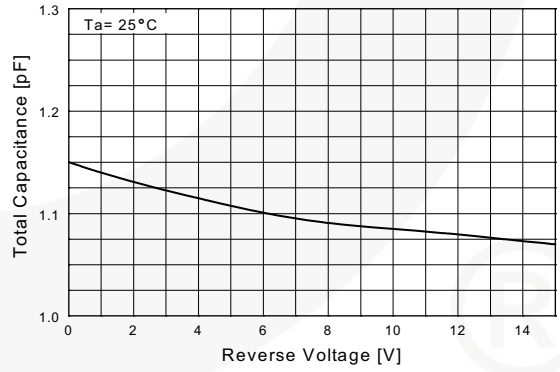


Figure 6. Total Capacitance vs. Reverse Voltage

Typical Performance Characteristics (Continued)

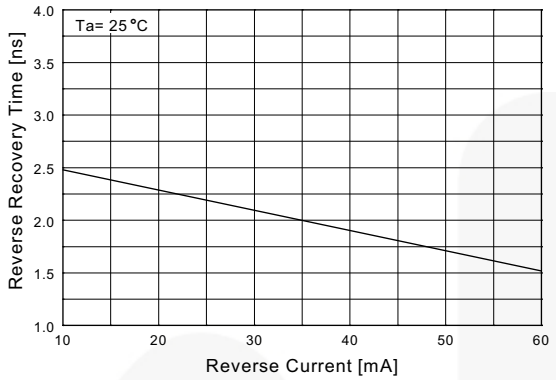


Figure 7. Reverse-Recovery Time vs. Reverse Current

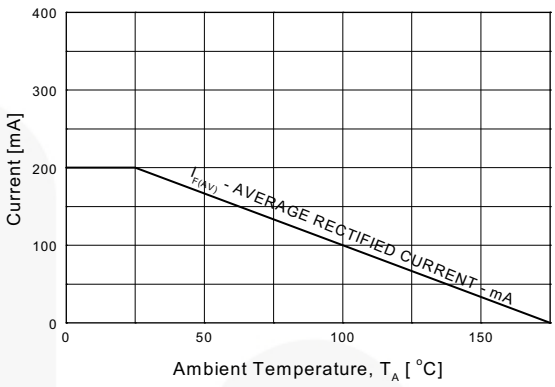


Figure 8. Average Rectified Current ($I_{F(AV)}$) vs. Ambient Temperature (T_A)

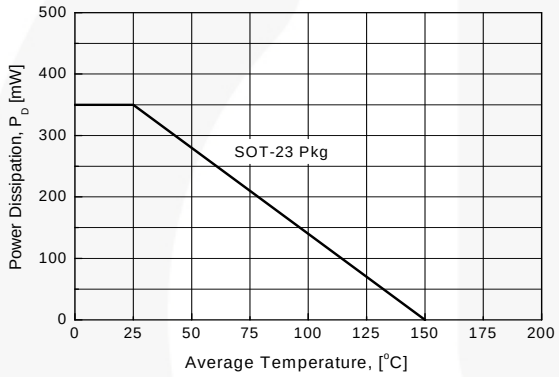


Figure 9. Power Derating Curve

Physical Dimensions

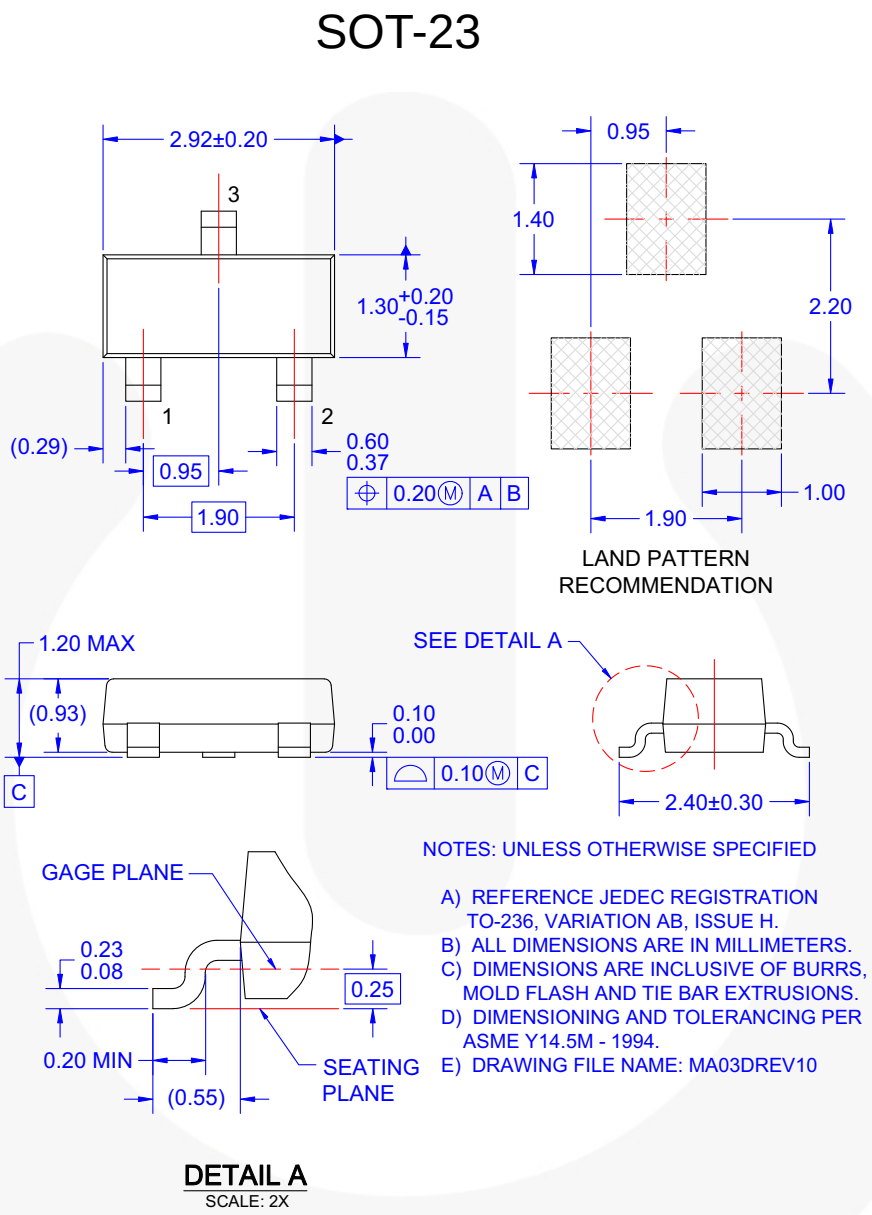


Figure 10. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE

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