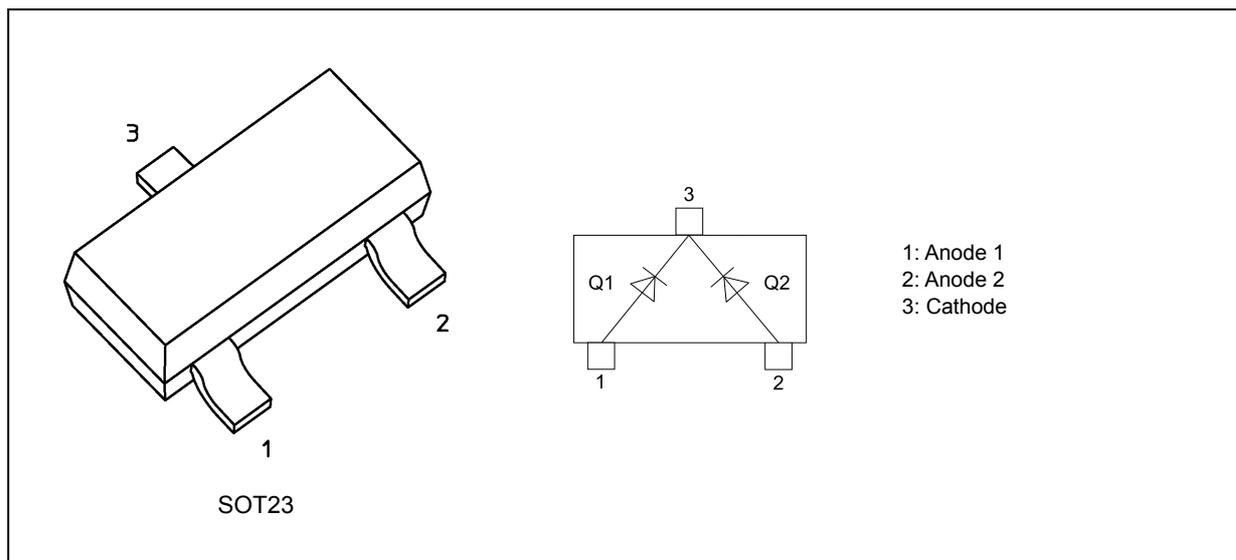


## BAV70

### 1. Applications

- Ultra-High-Speed Switching

### 2. Packaging and Internal Circuit



### 3. Absolute Maximum Ratings (Note) (Unless otherwise specified, $T_a = 25\text{ }^\circ\text{C}$ )

Characteristics	Symbol	Note	Rating	Unit
Peak reverse voltage	$V_{RM}$		100	V
Reverse voltage	$V_R$		100	
Average rectified current	$I_O$	(Note 1)	215	mA
Peak forward current	$I_{FM}$	(Note 1)	500	
Non-repetitive peak forward surge current	$I_{FSM}$	(Note 1), (Note 2)	2	A
Power dissipation	$P_D$		150	mW
		(Note 3)	320	
Junction temperature	$T_j$		150	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-55 to 150	

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 1: Unit rating. Total rating = Unit rating  $\times$  1.5

Note 2: Pulse width 10 ms

Note 3: Mounted on an FR4 board (25.4 mm  $\times$  25.4 mm  $\times$  1.6 mm, Cu pad: 0.42 mm<sup>2</sup>  $\times$  3)

Start of commercial production

2016-08

## 4. Thermal Characteristics

Characteristics	Symbol	Max	Unit
Junction-to-ambient thermal resistance (Note 1)	$R_{th(j-a)}$	391	°C/W

Note 1: Mounted on an FR4 board (25.4 mm × 25.4 mm × 1.6 mm, Cu pad: 0.42 mm<sup>2</sup> × 3)

## 5. Electrical Characteristics (Unless otherwise specified, T<sub>a</sub> = 25 °C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	V <sub>F</sub> (1)	I <sub>F</sub> = 1 mA	—	—	0.715	V
	V <sub>F</sub> (2)	I <sub>F</sub> = 10 mA	—	—	0.855	
	V <sub>F</sub> (3)	I <sub>F</sub> = 50 mA	—	—	1.0	
	V <sub>F</sub> (4)	I <sub>F</sub> = 150 mA	—	—	1.25	
Reverse current	I <sub>R</sub> (1)	V <sub>R</sub> = 25 V	—	—	30	nA
	I <sub>R</sub> (2)	V <sub>R</sub> = 80 V	—	—	200	
Total capacitance	C <sub>t</sub>	V <sub>R</sub> = 0 V, f = 1 MHz	—	0.9	—	pF
Reverse recovery time	t <sub>rr</sub>	I <sub>F</sub> = 10 mA, See Fig. 5.1	—	—	4.0	ns

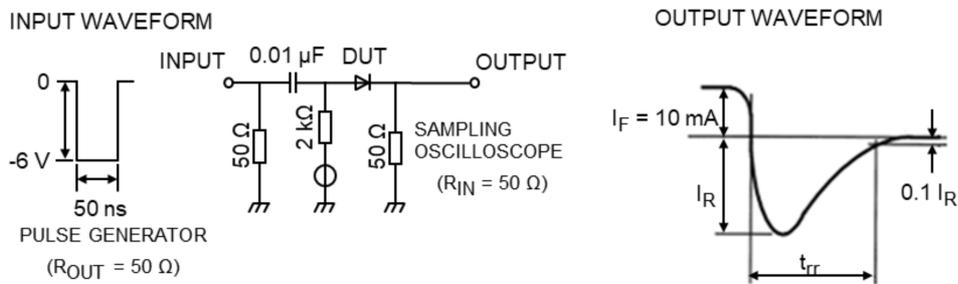
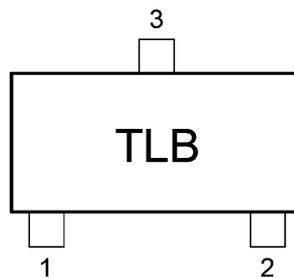
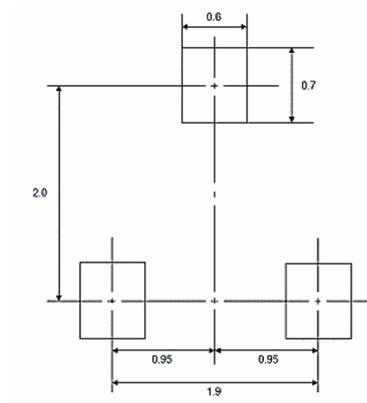


Fig. 5.1 Reverse recovery time (t<sub>rr</sub>) Test circuit

## 6. Marking

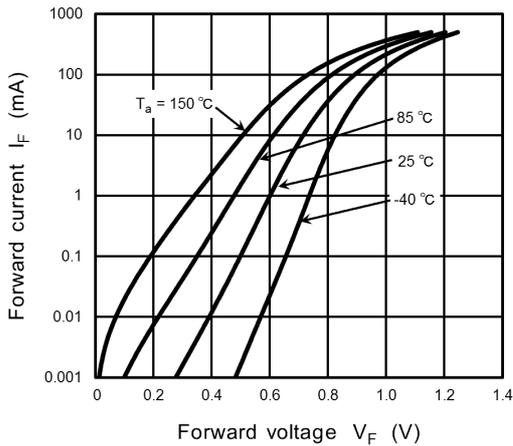


## 7. Land Pattern Dimensions (for reference only)

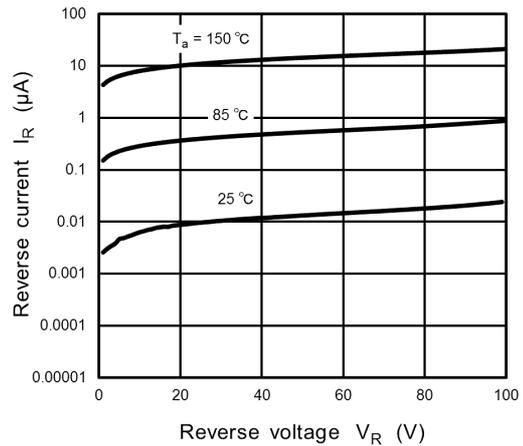


SOT23 (Unit: mm)

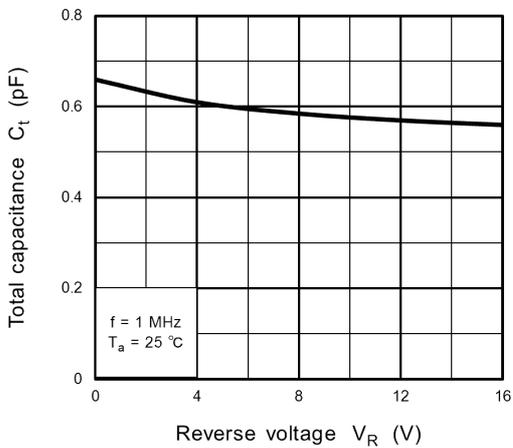
## 8. Characteristics Curves (Note)



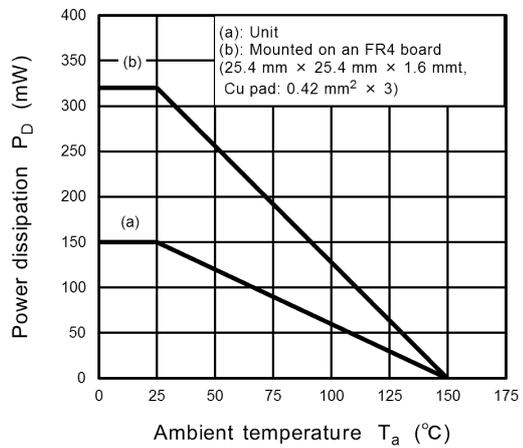
**Fig. 8.1  $I_F - V_F$**



**Fig. 8.2  $I_R - V_R$**



**Fig. 8.3  $C_t - V_R$**

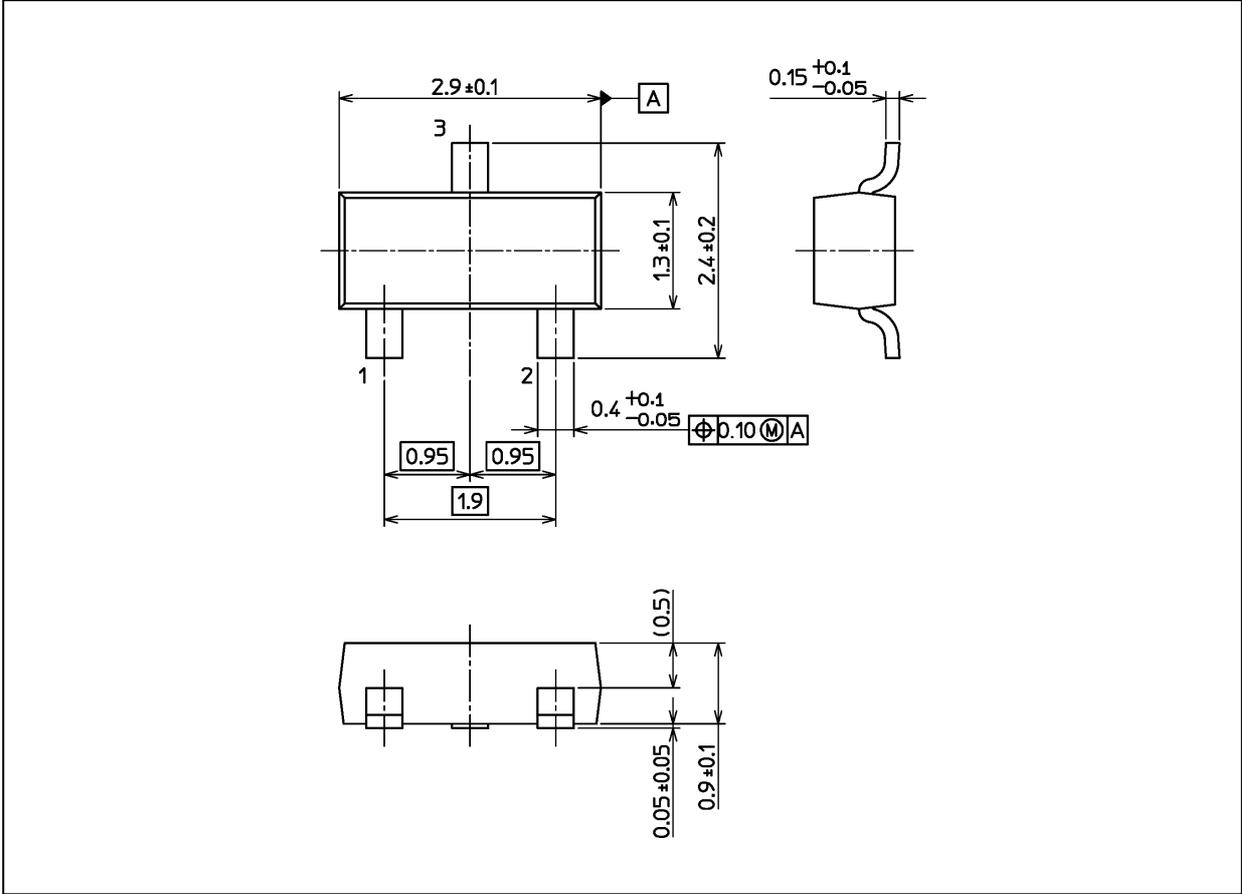


**Fig. 8.4  $P_D - T_a$**

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

Package Dimensions

Unit: mm



Weight: 9 mg (typ.)

Package Name(s)
JEDEC: SOT-23
Nickname: SOT23

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