

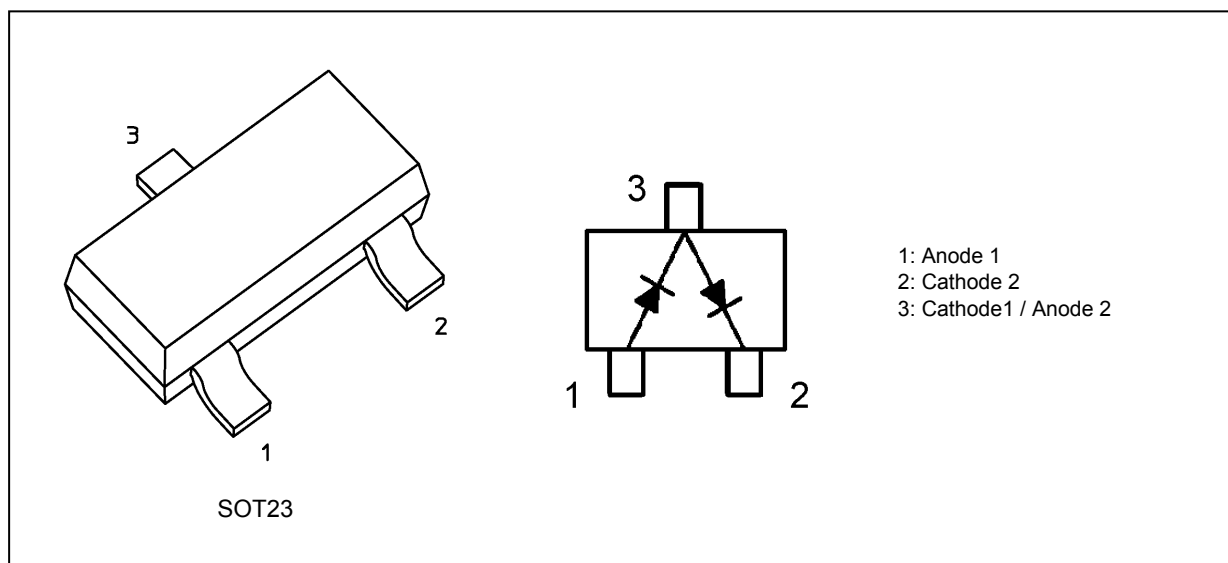
Switching Diodes Silicon Epitaxial Planar

# TBAV99

## 1. Applications

- Ultra-High-Speed Switching

## 2. Packaging and Internal Circuit



Start of commercial production

2014-12

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

Characteristics	Symbol	Note	Rating	Unit
Peak reverse voltage	$V_{RM}$		85	V
Reverse voltage	$V_R$		80	
Peak forward current	$I_{FM}$	(Note 1)	300	mA
Average rectified current	$I_O$	(Note 1)	100	
Power dissipation	$P_D$		150	mW
Power dissipation	$P_D$	(Note 2)	320	mW
Non-repetitive peak forward surge current	$I_{FSM}$	(Note 1), (Note 3)	2	A
Junction temperature	$T_J$		125	$^{\circ}\text{C}$
Storage temperature	$T_{stg}$		-55 to 125	$^{\circ}\text{C}$

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  $\times$  70 %

Note 2: Device mounted on a 25.4 mm  $\times$  25.4 mm  $\times$  1.6 mm FR-4 glass epoxy board (Cu pad: 0.42 mm<sup>2</sup>  $\times$  3)

Note 3: Measured with a 10 ms pulse.

### 4. Electrical Characteristics (Unless otherwise specified, $T_a = 25\text{ }^{\circ}\text{C}$ )

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_{F(1)}$	$I_F = 1\text{ mA}$	—	—	0.715	V
	$V_{F(2)}$	$I_F = 10\text{ mA}$	—	—	0.855	
	$V_{F(3)}$	$I_F = 50\text{ mA}$	—	—	1.0	
	$V_{F(4)}$	$I_F = 150\text{ mA}$	—	—	1.25	
Reverse current	$I_{R(1)}$	$V_R = 25\text{ V}$	—	—	30	nA
	$I_{R(2)}$	$V_R = 80\text{ V}$	—	—	0.5	$\mu\text{A}$
Total capacitance	$C_t$	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$	—	—	1.5	pF
Reverse recovery time	$t_{rr}$	$I_F = 10\text{ mA}$ See Fig. 4.1.	—	—	4.0	ns

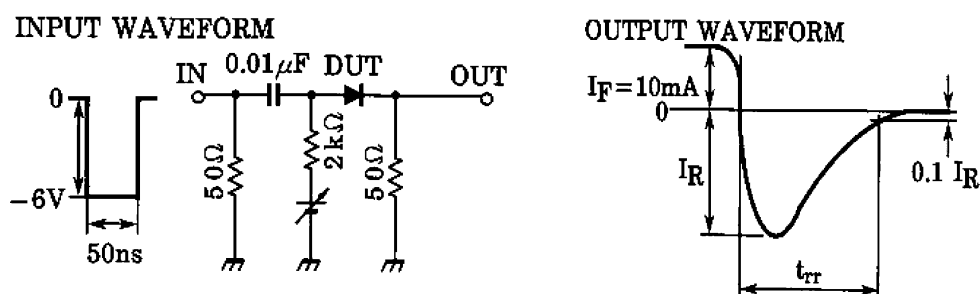


Fig. 4.1 Reverse recovery time ( $t_{rr}$ ) Test circuit

## 5. Marking

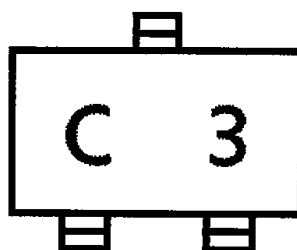


Fig. 5.1 Marking

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

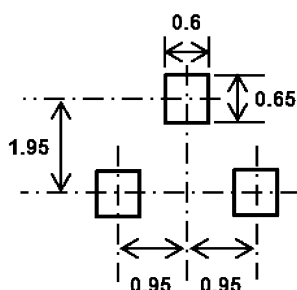


Fig. 6.1 SOT23 (Unit: mm)

## 7. Characteristics Curves (Note)

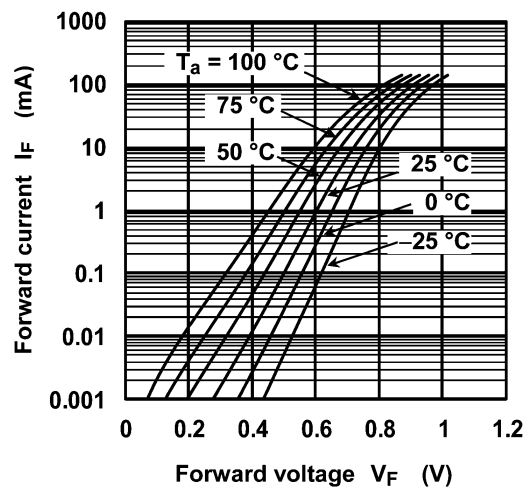


Fig. 7.1  $I_F - V_F$

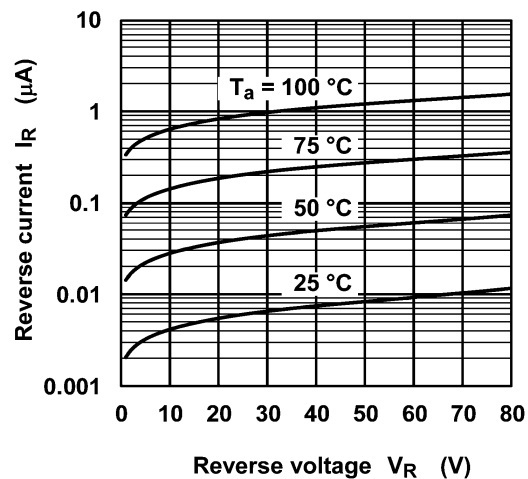


Fig. 7.2  $I_R - V_R$

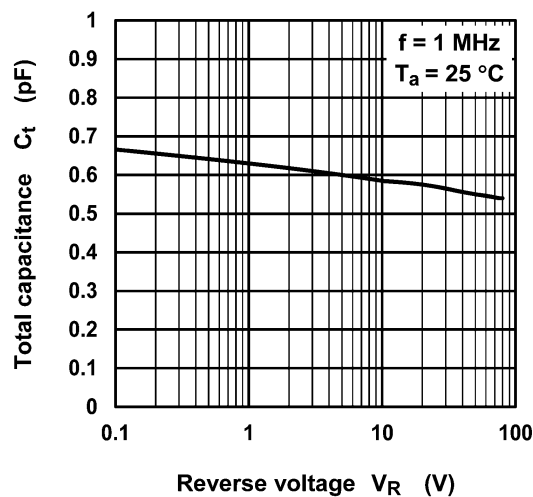


Fig. 7.3  $C_t - V_R$

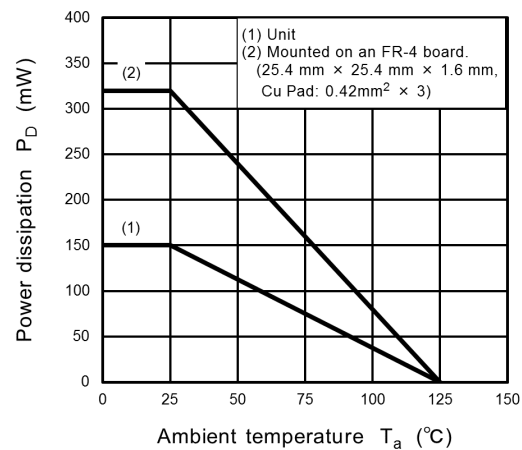
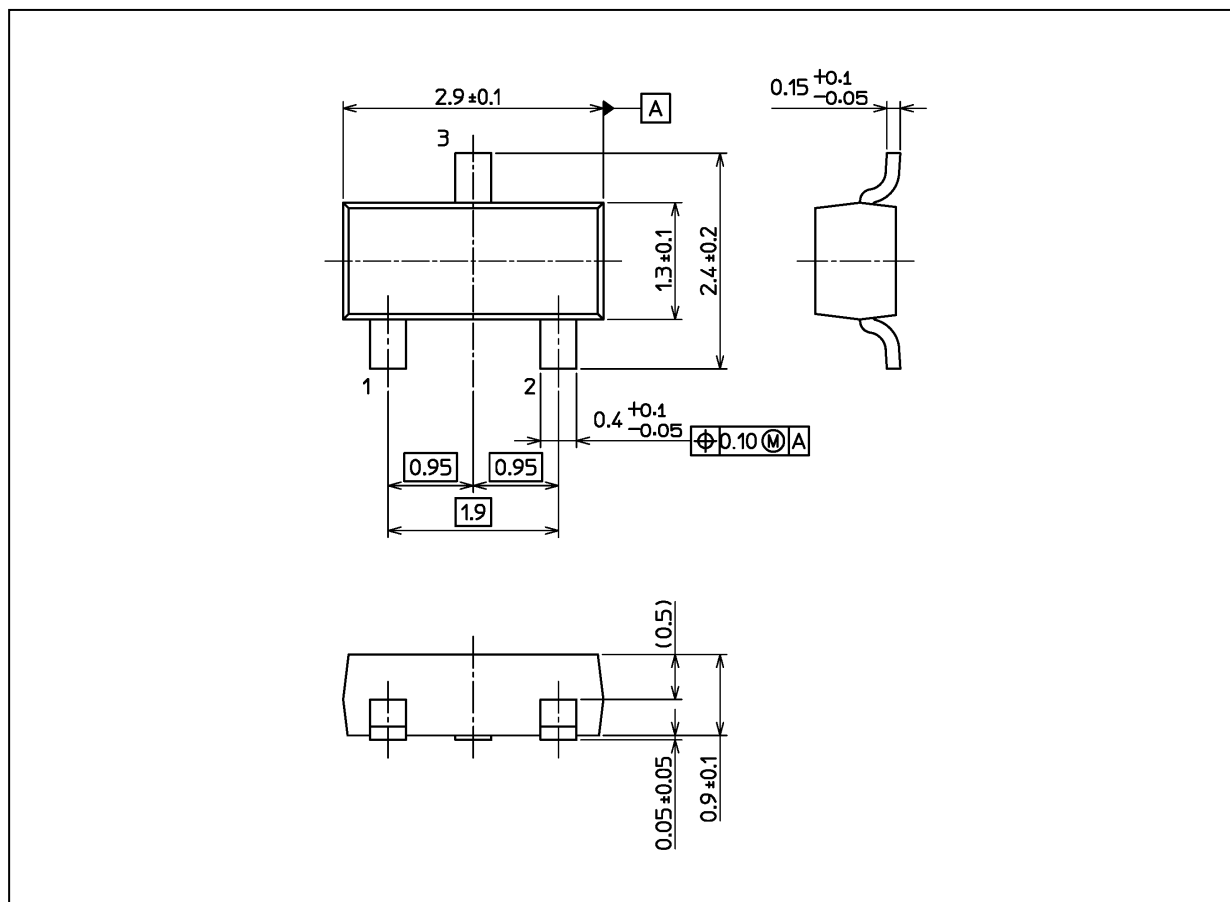


Fig. 7.4  $P_D - T_a$

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)
TOSHIBA: 2-3AB1A
Nickname: SOT23

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