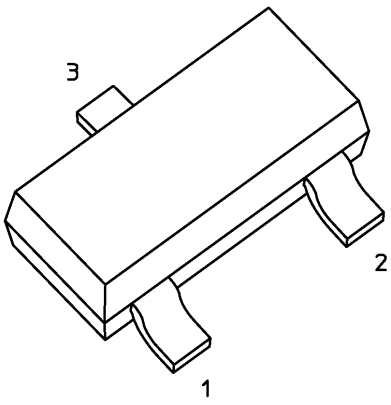
Switching Diodes Silicon Epitaxial Planar

BAV99

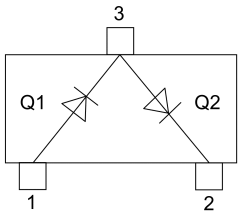
1. Applications

- Ultra-High-Speed Switching

2. Packaging and Internal Circuit



SOT23



1: Anode 1
2: Cathode 2
3: Cathode 1/Anode 2

3. Absolute Maximum Ratings (Note) (Unless otherwise specified, T_a = 25 °C)

Characteristics	Symbol	Note	Rating	Unit
Peak reverse voltage	V_{RM}		100	V
Reverse voltage	V_R		100	
Peak forward current	I_{FM}	(Note 1)	500	mA
Average rectified current	I_O	(Note 2)	215	mA
Non-repetitive peak forward surge current	I_{FSM}	(Note 3)	2	A
Power dissipation	P_D		150	mW
		(Note 4)	320	
Junction temperature	T_j		150	°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 × 40%
Note 2: Unit rating. Total rating = Unit rating × 55%
Note 3: Pulse width 10 ms
Note 4: Mounted on an FR4 board (25.4 mm × 25.4 mm × 1.6 mmt, Cu pad: 0.42 mm^2 × 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 mmt, Cu pad: 0.42 mm² × 3)

5. Electrical Characteristics (Unless otherwise specified, T_a = 25 °C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	V_F (1)	I_F = 1 mA	—	—	0.715	V
	V_F (2)	I_F = 10 mA	—	—	0.855	
	V_F (3)	I_F = 50 mA	—	—	1.0	
	V_F (4)	I_F = 150 mA	—	—	1.25	
Reverse current	I_R (1)	V_R = 25 V	—	—	30	nA
	I_R (2)	V_R = 80 V	—	—	200	
Total capacitance	C_t	V_R = 0 V, f = 1 MHz	—	0.9	—	pF
Reverse recovery time	t_{rr}	I_F = 10 mA, See Fig. 5.1	—	—	3.0	ns

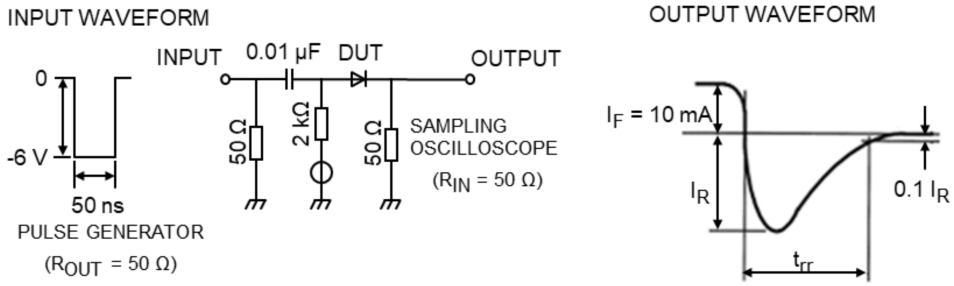
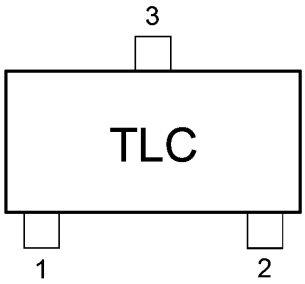
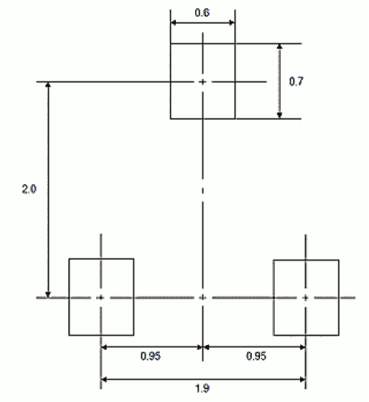


Fig. 5.1 Reverse recovery time (t_{rr}) Test circuit

6. Marking



7. Land Pattern Dimensions (for reference only)



SOT23 (Unit: mm)

8. Characteristics Curves (Note)

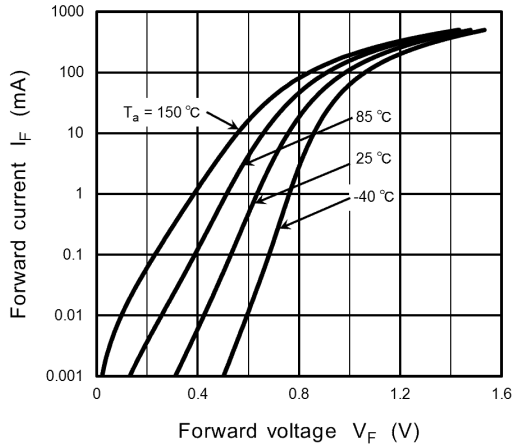


Fig. 8.1 I_F - V_F

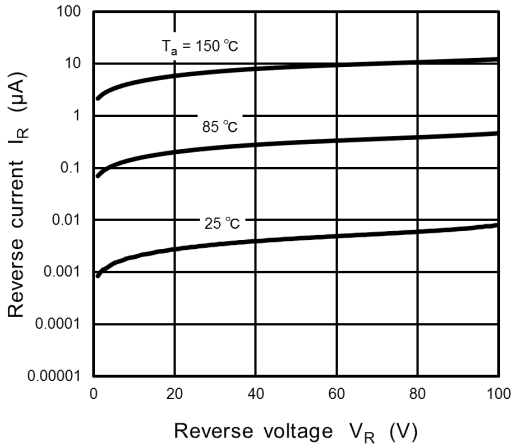


Fig. 8.2 I_R - V_R

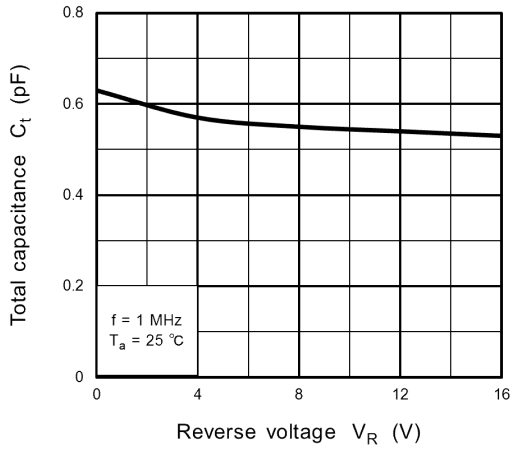


Fig. 8.3 C_t - V_R

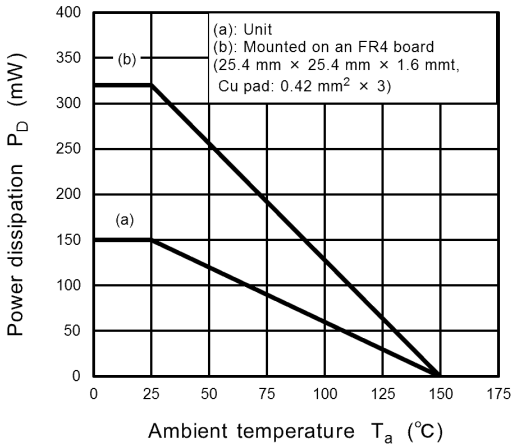
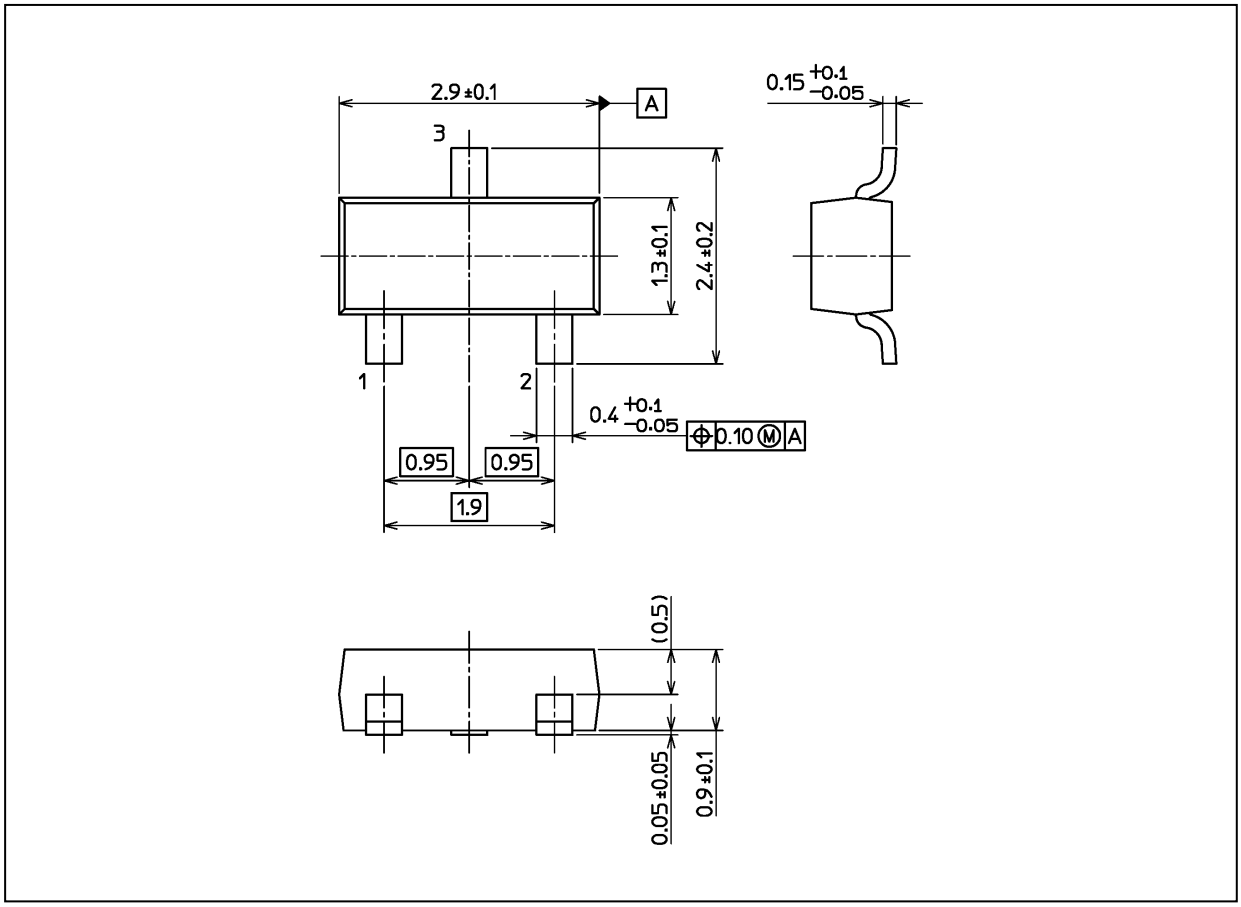


Fig. 8.4 P_D - T_a

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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