Switching Diodes Silicon Epitaxial Planar

1SS403E

1. Applications

- Ultra-High-Speed Switching

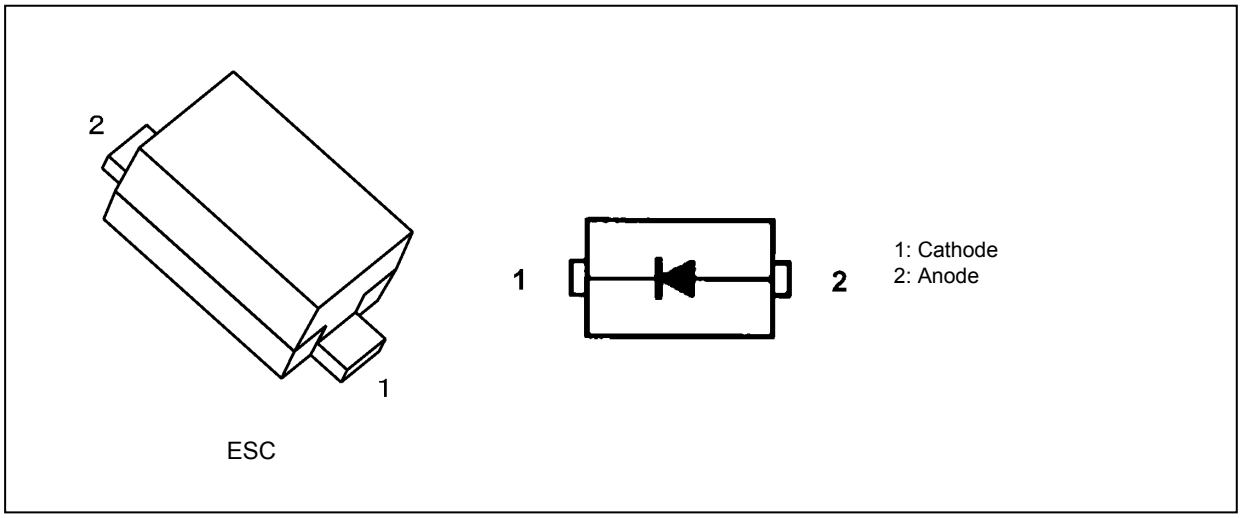
2. Features

(1) Small package

(2) Low reverse current. : $I_{R(2)}$ = 1.0 μA (max)

(3) Small total capacitance: C_t = 3.0 pF (max)

3. Packaging and Internal Circuit



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

Characteristics	Symbol	Note	Rating	Unit
Peak reverse voltage	V_{RM}		250	V
Reverse voltage	V_R		200	V
Peak forward current	I_{FM}		300	mA
Average rectified current	I_O		100	mA
Non-repetitive peak forward surge current	I_{FSM}	(Note 1)	2	A
Power dissipation	P_D	(Note 2)	200	mW
Junction temperature	T_j		150	°C
Storage temperature	T_{stg}		-55 to 150	°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: Measured with a 10 ms pulse.

Note 2: Mounted on a glass epoxy circuit board of 20 mm × 20 mm, Pad dimension of 4 mm × 4 mm.

Start of commercial production
2017-11

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 = 10 mA	—	0.72	1.0	V
	$V_{F(2)}$	I_F = 100 mA	—	0.90	1.2	
Reverse current	$I_{R(1)}$	V_R = 50 V	—	—	0.1	μA
	$I_{R(2)}$	V_R = 200 V	—	—	1.0	
Total capacitance	C_t	V_R = 0 V, f = 1 MHz	—	—	3.0	pF
Reverse recovery time	t_{rr}	I_F = 10 mA See Fig. 5.1.	—	—	60	ns

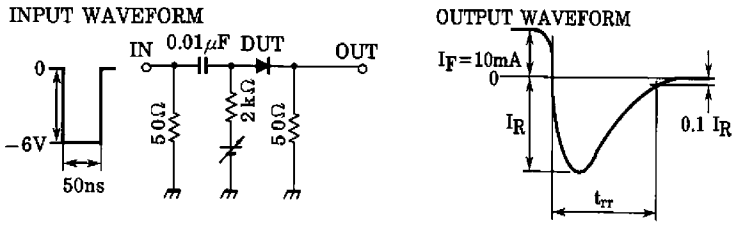
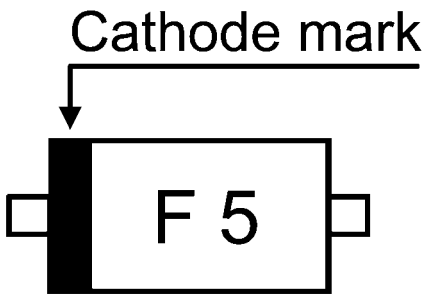


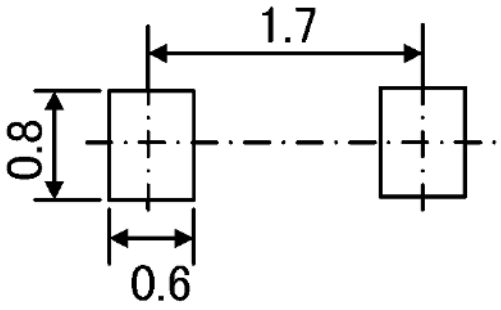
Fig. 5.1 Reverse recovery time (t_{rr}) Test circuit

Note: This device is sensitive to electrostatic discharge (ESD). Extreme ESD conditions should be using proper antistatic precautions for the worktable, operator, solder iron and so on.

6. Marking



7. Land Pattern Dimensions (for reference only)



(Unit: mm)

8. Characteristics Curves (Note)

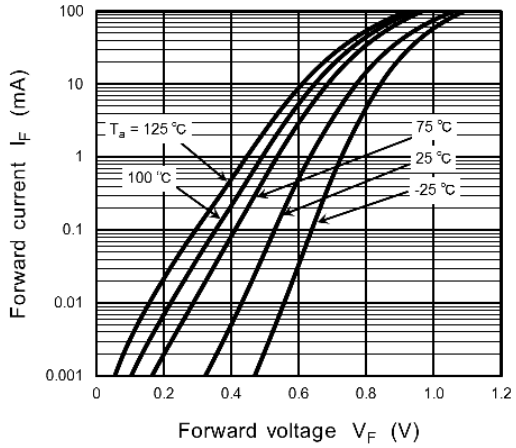


Fig. 8.1 I_F - V_F

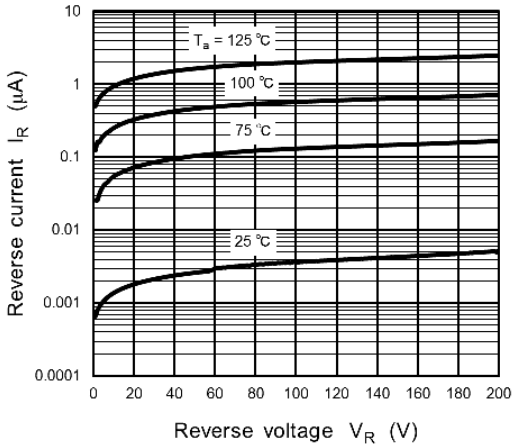


Fig. 8.2 I_R - V_R

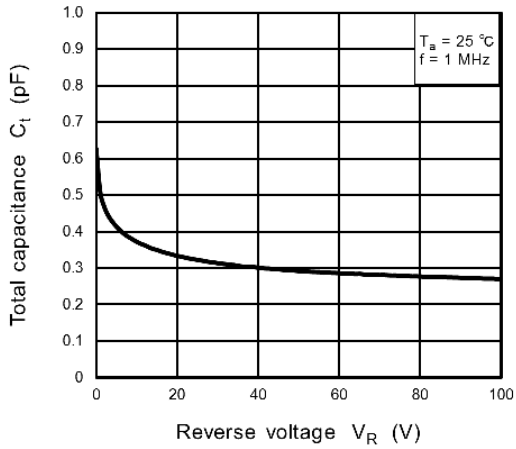


Fig. 8.3 C_t - V_R

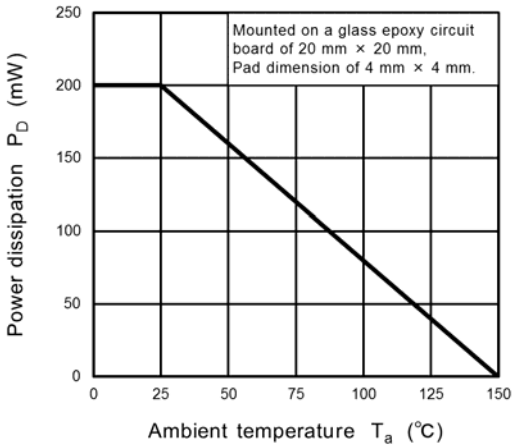
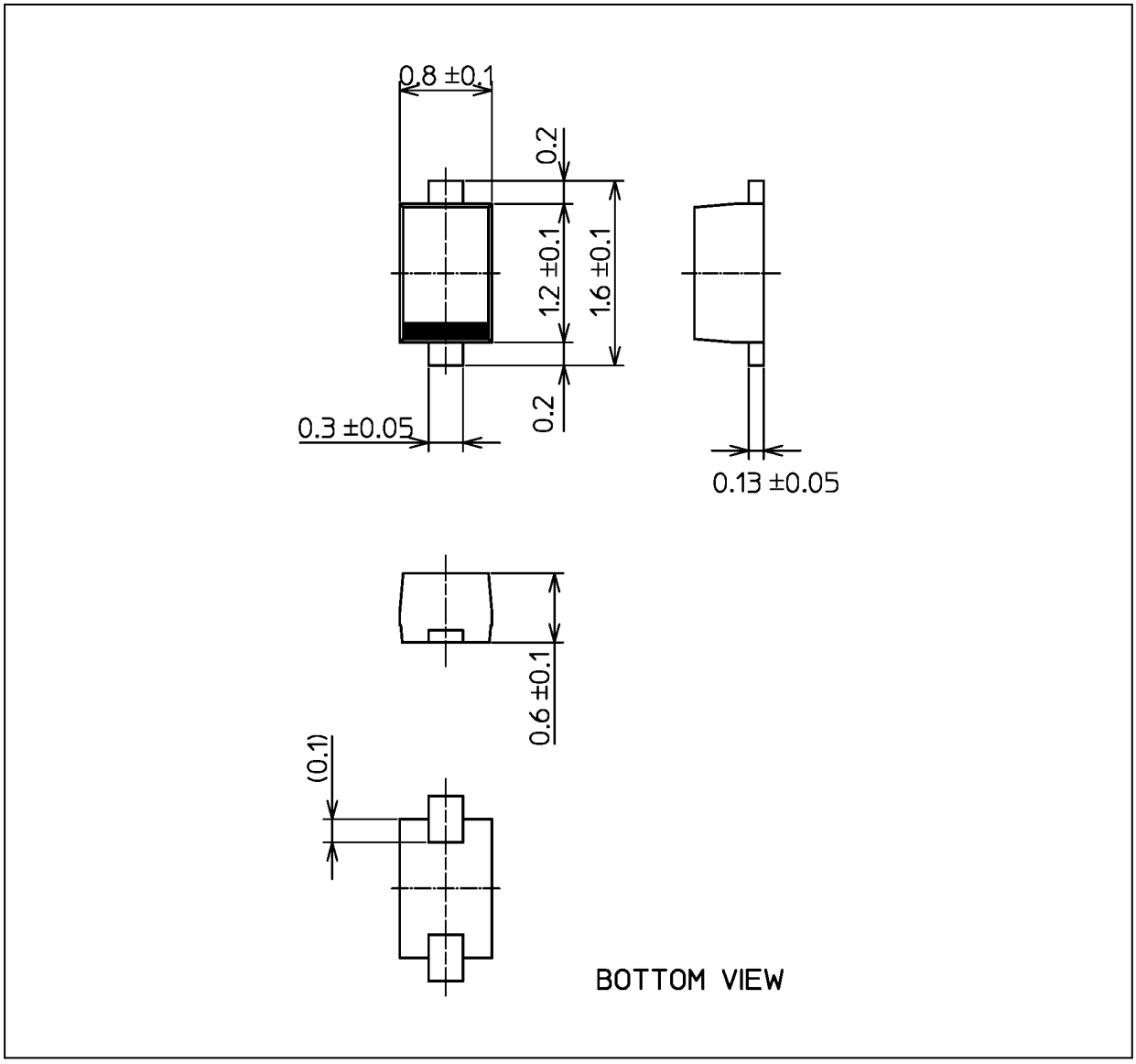


Fig. 8.4 P_D - T_a

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

Package Dimensions

Unit: mm



Weight: 1.4 mg (typ.)

Package Name(s)
TOSHIBA: 1-1G1S
Nickname: ESC

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