

TOSHIBA Diode Silicon Epitaxial Planar Type

1SS399

High Voltage Switching Applications

- Small package : SC-61
- Low forward voltage : $V_F(2) = 1.0 \text{ V (typ.)}$
- Fast reverse recovery time : $t_{rr} = 0.5 \mu\text{s (typ.)}$
- Small total capacitance : $C_T = 2.5 \text{ pF (typ.)}$

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit
Maximum (peak) reverse Voltage	V_{RM}	420	V
Reverse voltage	V_R	400	V
Maximum (peak) forward current	I_{FM}	300 *	mA
Average forward current	I_O	100 *	mA
Surge current (10ms)	I_{FSM}	2 *	A
Power dissipation	P_D (Note 1, 3)	200	mW
	P_D (Note 2)	150	
Junction temperature	T_j (Note 1)	150	$^\circ\text{C}$
	T_j (Note 2)	125	
Storage temperature range	T_{stg} (Note 1)	-55 to 150	$^\circ\text{C}$
	T_{stg} (Note 2)	-55 to 125	

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: For devices with the ordering part number ending in LF(T).

Note 2: For devices with the ordering part number in other than LF(T).

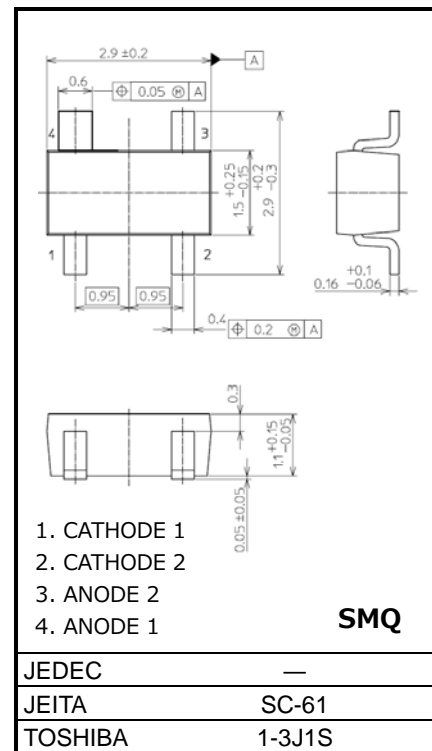
Note 3: Total rating, Mounted on a FR4 board. (25.4 mm x 25.4 mm x 1.6 mm, Cu pad: 1.215 mm² x 3 + 1.15 mm²)

*: Unit rating. Total rating = Unit rating x 1.5.

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	V_F (1)	$I_F = 10 \text{ mA}$	—	0.8	—	V
	V_F (2)	$I_F = 100 \text{ mA}$	—	1.0	1.3	
Reverse current	I_R (1)	$V_R = 300 \text{ V}$	—	—	0.05	μA
	I_R (2)	$V_R = 400 \text{ V}$	—	—	0.1	
Total capacitance	C_T	$V_R = 0 \text{ V}, f = 1 \text{ MHz}$	—	2.5	5.0	pF
Reverse recovery time	t_{rr}	$I_F = 10 \text{ mA}$ (Fig.1)	—	0.5	—	μs

Unit: mm



1. CATHODE 1
2. CATHODE 2
3. ANODE 2
4. ANODE 1

SMQ

JEDEC —

JEITA SC-61

TOSHIBA 1-3J1S

Weight: 13 mg (typ.)

Start of commercial production
1995-11

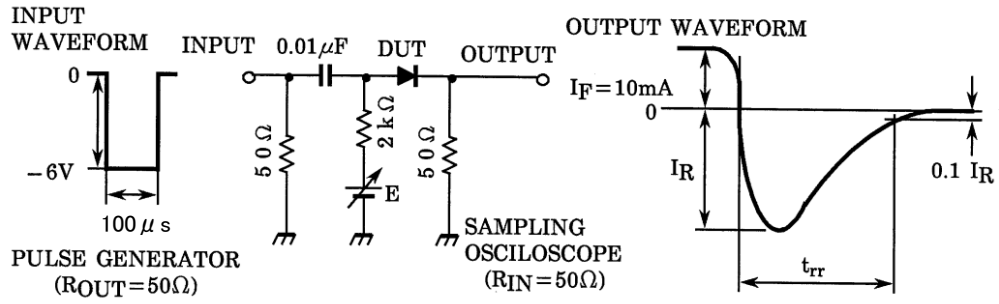
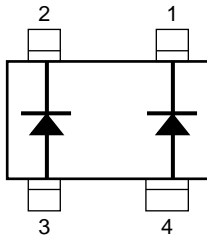
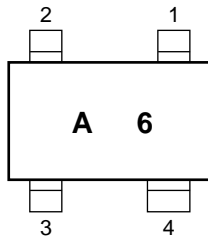


Fig.1 Reverse recovery time (t_{rr}) test circuit

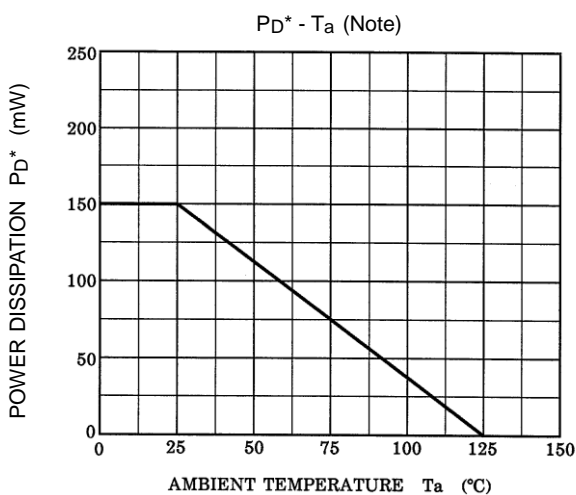
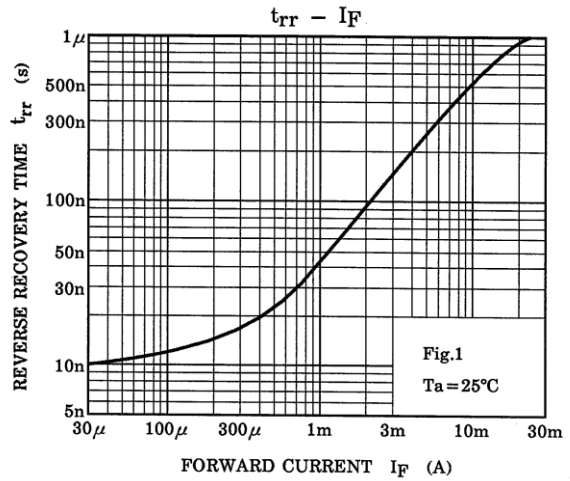
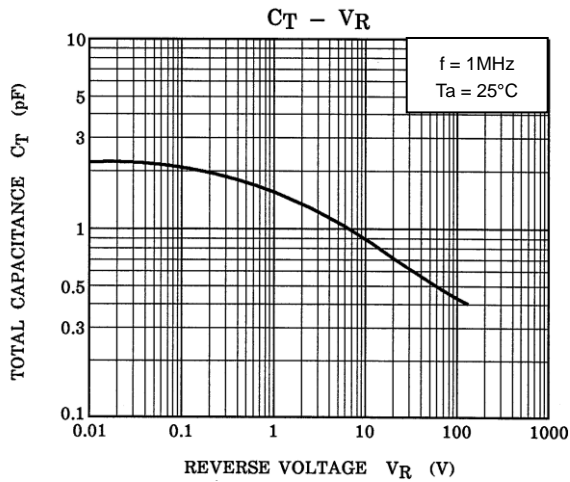
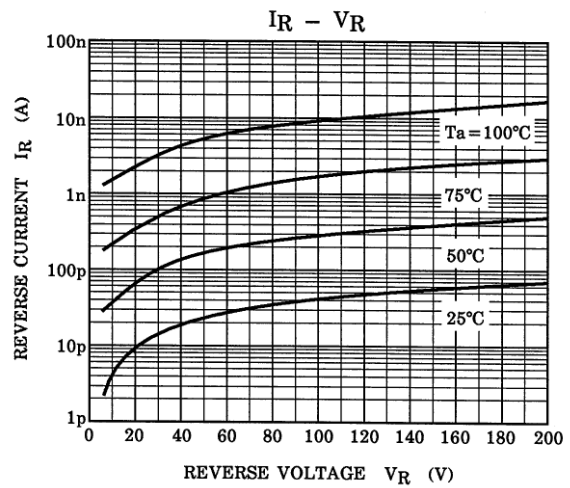
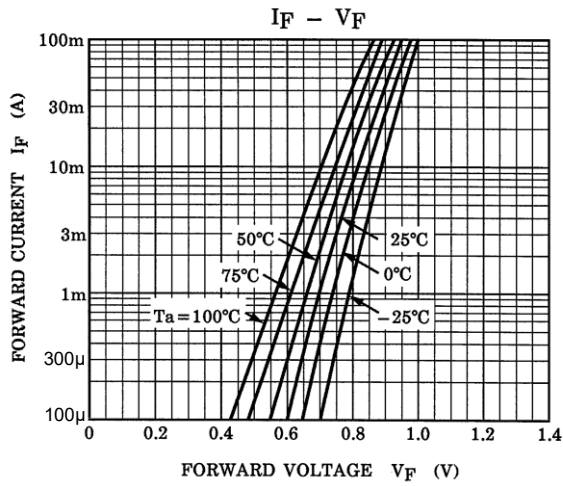
Equivalent Circuit (top view)



Marking

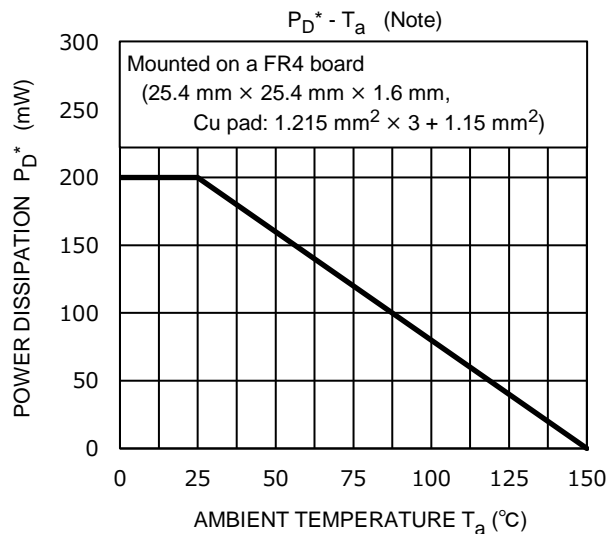


Electrical Characteristics (Ta = 25°C)



*: Total Rating

Note: Reference only with T_j of 125 °C.



*: Total Rating

Note: Reference only with T_j of 150 °C.

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

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