

TOSHIBA Diode Silicon Epitaxial Planar Type

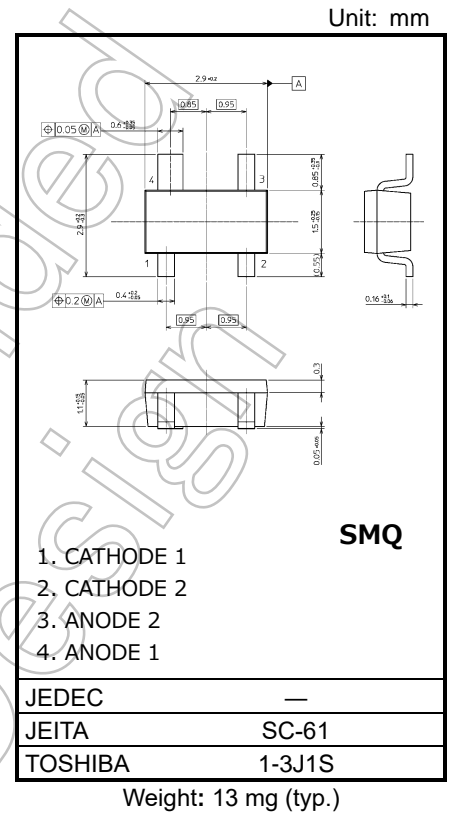
1SS399

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 (Ta = 25°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	°C
	T_j (Note 2)	125	
Storage temperature range	T_{stg} (Note 1)	-55 to 150	°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 (TE85L,F).

Note 2: For devices with the ordering part number in other than (TE85L,F).

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

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

Electrical Characteristics (Ta = 25°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

Start of commercial production
1995-11

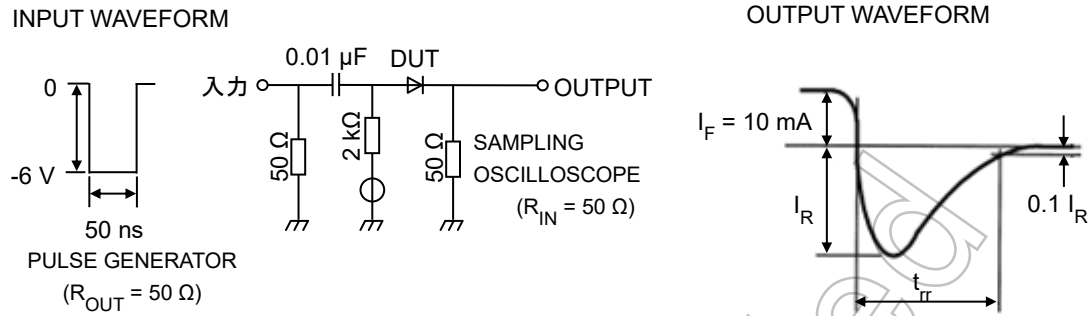
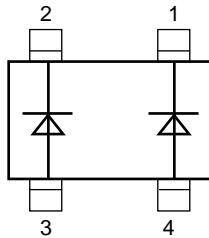
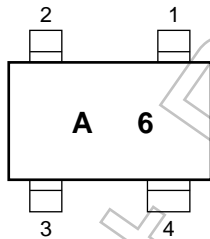


Fig.1 Reverse recovery time (t_{rr}) test circuit

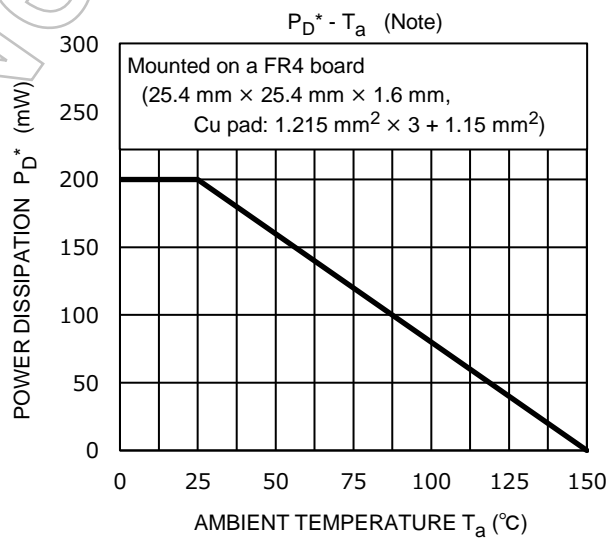
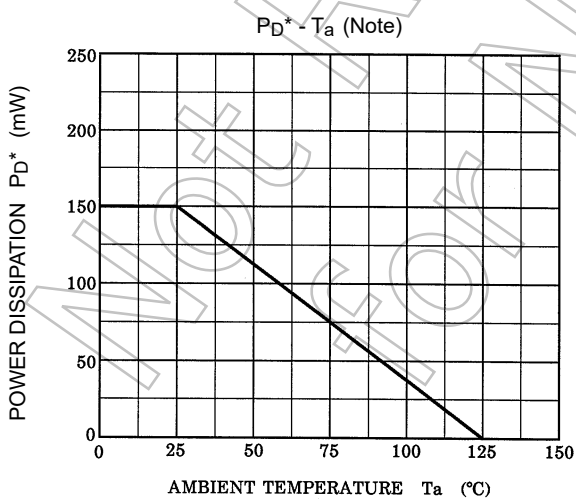
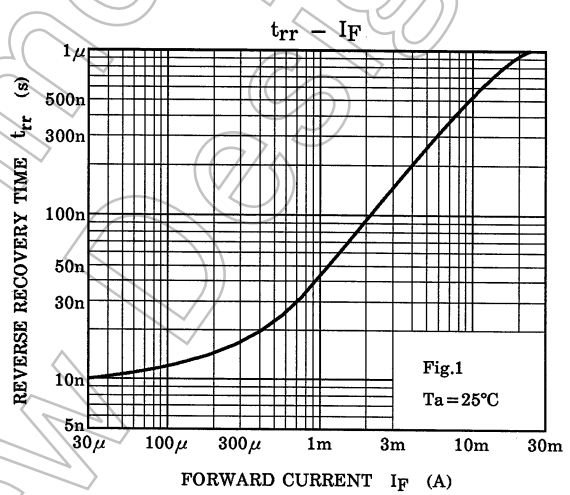
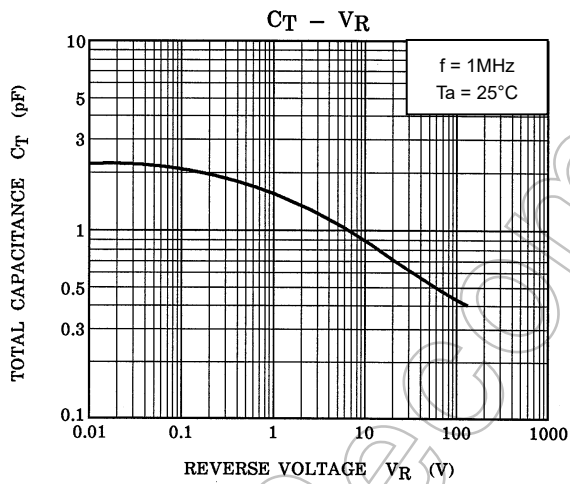
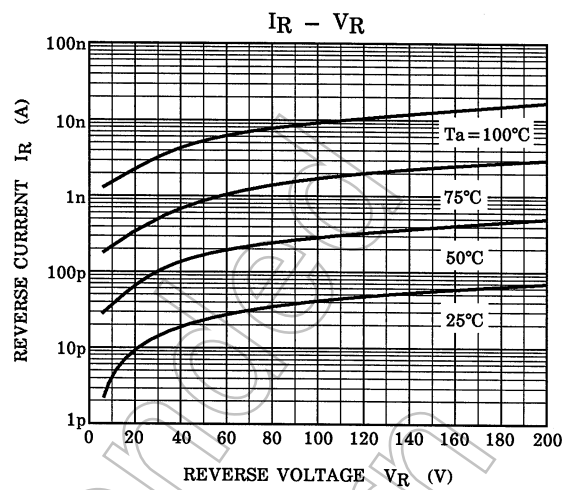
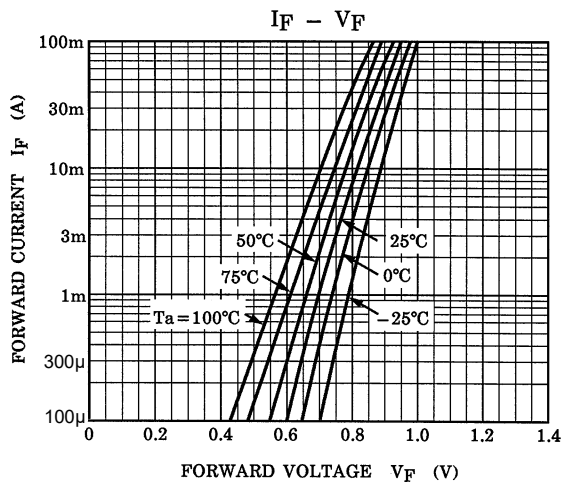
Equivalent Circuit (Top view)



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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