

TOSHIBA Diode Silicon Epitaxial Planar Type

## 1SS399

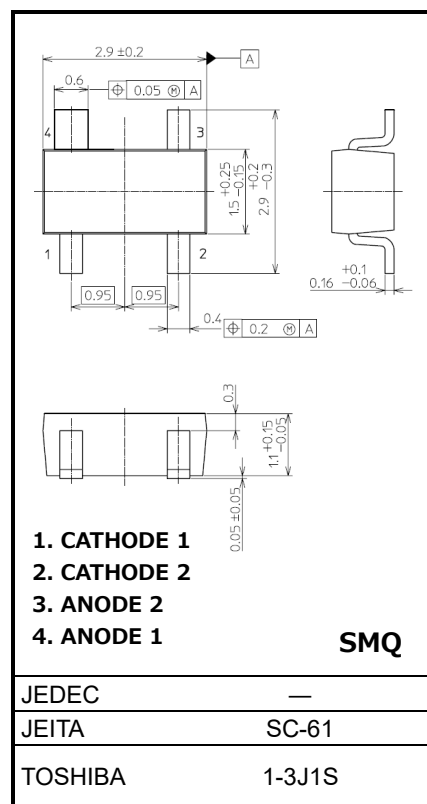
Unit: mm

### 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	150	mW
Junction temperature	$T_j$	125	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 to 125	$^\circ\text{C}$



Weight: 13 mg (typ.)

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.

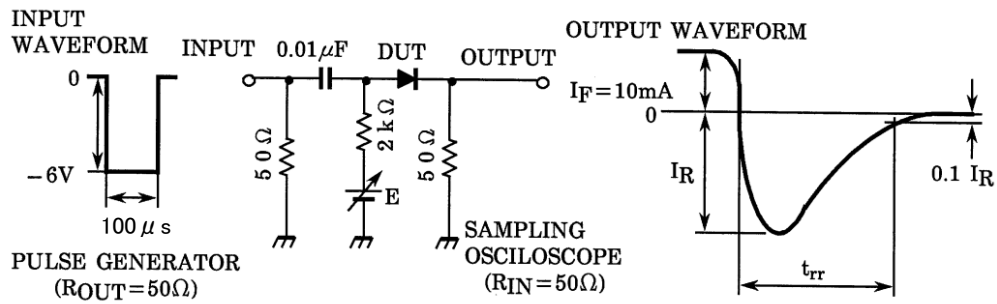
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

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

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

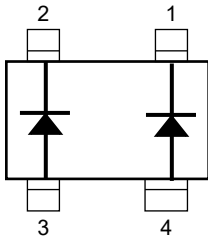
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_F(1)$	$I_F = 10 \text{ mA}$	—	0.8	—	V
	$V_F(2)$	$I_F = 100 \text{ mA}$	—	1.0	1.3	
Reverse current	$I_R(1)$	$V_R = 300 \text{ V}$	—	—	0.05	$\mu\text{A}$
	$I_R(2)$	$V_R = 400 \text{ V}$	—	—	0.1	
Total capacitance	$C_T$	$V_R = 0 \text{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

Start of commercial production  
1995-11

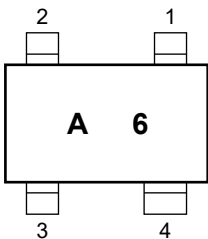


**Fig.1 Reverse Recovery Time ( $t_{rr}$ ) Test Circuit**

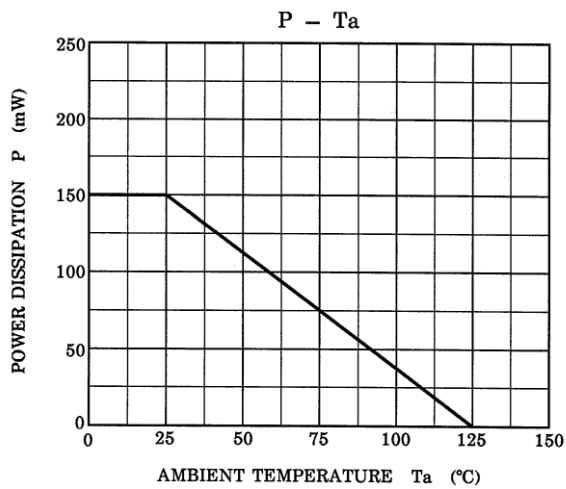
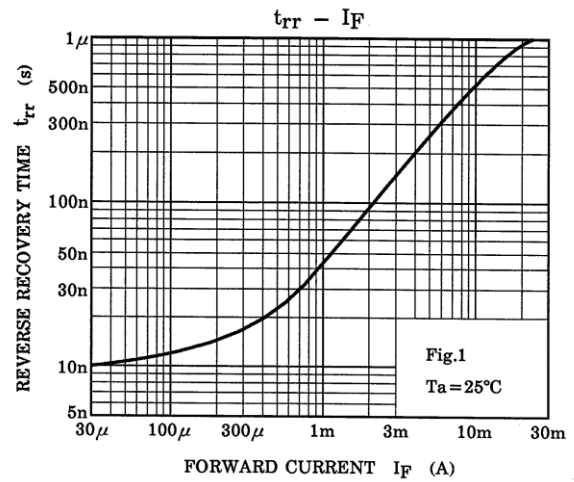
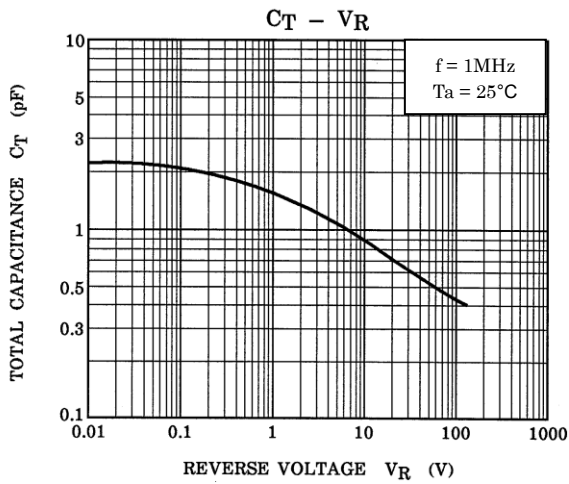
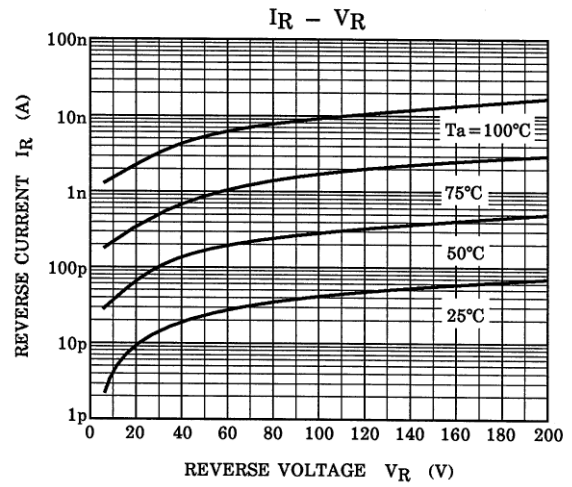
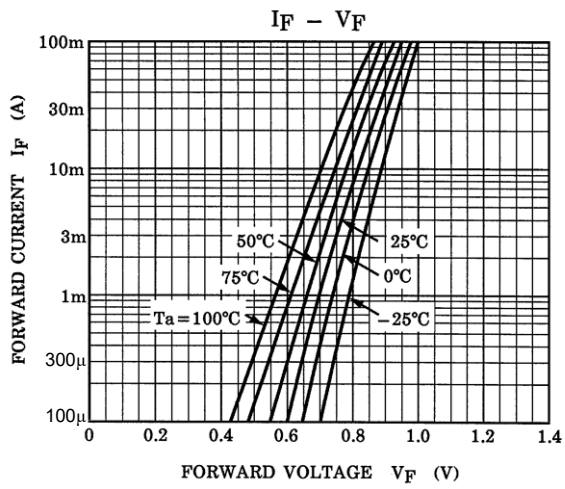
**Equivalent circuit (Top view)**



**Marking**



## Electrical Characteristics (Ta = 25°C)



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

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