

# 1SS272

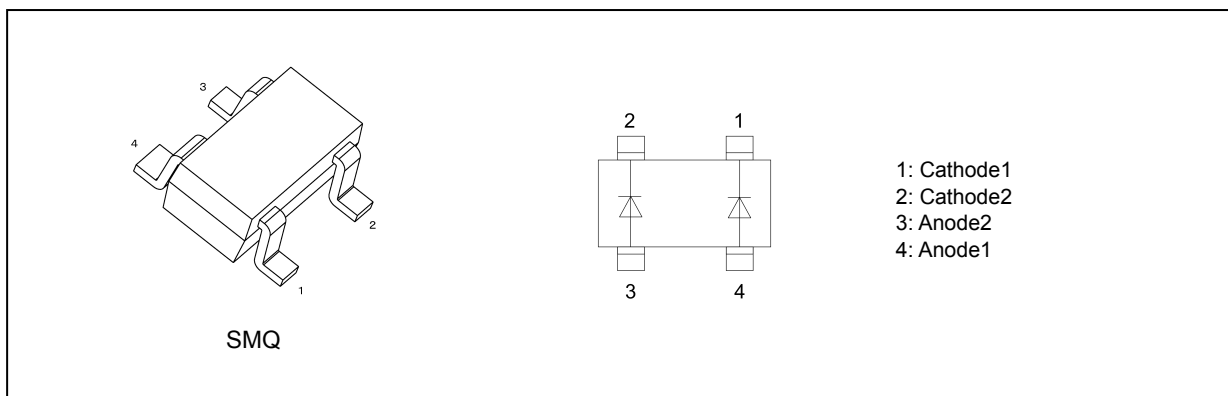
## 1. Applications

- Ultra-High-Speed Switching

## 2. Features

- (1) Low forward voltage:  $V_{F(3)} = 0.92 \text{ V (typ.)}$
- (2) Fast reverse recovery time:  $t_{rr} = 1.6 \text{ ns (typ.)}$
- (3) Small total capacitance:  $C_t = 0.9 \text{ pF (typ.)}$

## 3. Packaging and Internal Circuit



## 4. Absolute Maximum Ratings (Note) (Unless otherwise specified, $T_a = 25 \text{ }^\circ\text{C}$ )

Characteristics	Symbol	Note	Rating	Unit
Peak reverse voltage	$V_{RM}$		85	V
Reverse voltage	$V_R$		80	
Peak forward current	$I_{FM}$	(Note 1)	300	mA
Average rectified current	$I_O$	(Note 1)	100	
Non-repetitive peak forward surge current	$I_{FSM}$	(Note 1)	2	A
Power dissipation	$P_D$	(Note 1), (Note 2), (Note 3)	200	mW
		(Note 4)	150	
Junction temperature	$T_j$	(Note 3)	150	$^\circ\text{C}$
		(Note 4)	125	
Storage temperature	$T_{stg}$	(Note 3)	-55 to 150	$^\circ\text{C}$
		(Note 4)	-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: Unit rating. Total rating = Unit rating  $\times$  1.5

Note 2: Total rating, Mounted on an FR4 board (25.4 mm  $\times$  25.4 mm  $\times$  1.6 mm, Cu pad: 1.215 mm<sup>2</sup>  $\times$  3 + 1.15 mm<sup>2</sup>)

Note 3: For devices with the ordering part number ending in (TE85L,F).

Note 4: For devices with the ordering part number ending in other than (TE85L,F).

Start of commercial production

1984-10

## 5. Electrical Characteristics (Unless otherwise specified, $T_a = 25\text{ }^\circ\text{C}$ )

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_{F(1)}$	$I_F = 1\text{ mA}$	—	0.61	—	V
	$V_{F(2)}$	$I_F = 10\text{ mA}$	—	0.74	—	
	$V_{F(3)}$	$I_F = 100\text{ mA}$	—	0.92	1.2	
Reverse current	$I_{R(1)}$	$V_R = 30\text{ V}$	—	—	0.1	$\mu\text{A}$
	$I_{R(2)}$	$V_R = 80\text{ V}$	—	—	0.5	
Total capacitance	$C_t$	$V_R = 0\text{ V}, f = 1\text{ MHz}$	—	0.9	2.0	pF
Reverse recovery time	$t_{rr}$	$I_F = 10\text{ mA}$ See Fig. 5.1	—	1.6	4.0	ns

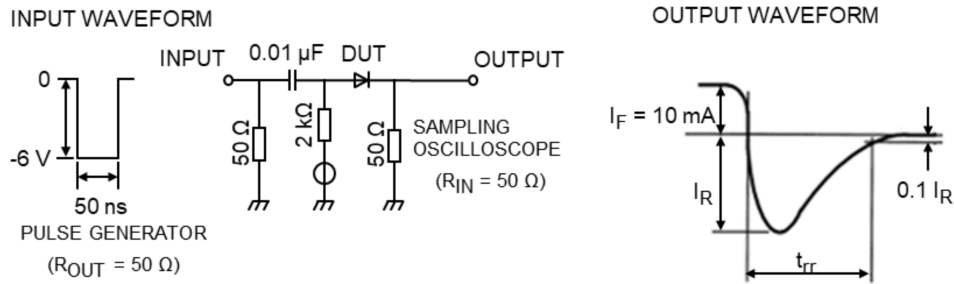
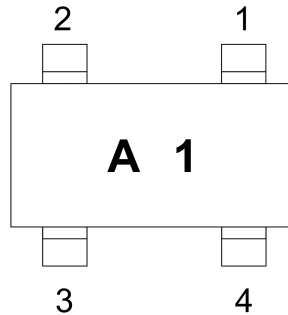


Fig. 5.1 Reverse recovery time ( $t_{rr}$ ) Test circuit

## 6. Marking



## 7. Characteristics Curves (Note)

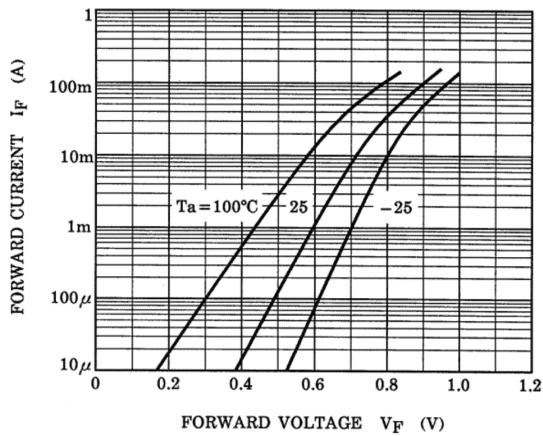


Fig. 7.1  $I_F - V_F$

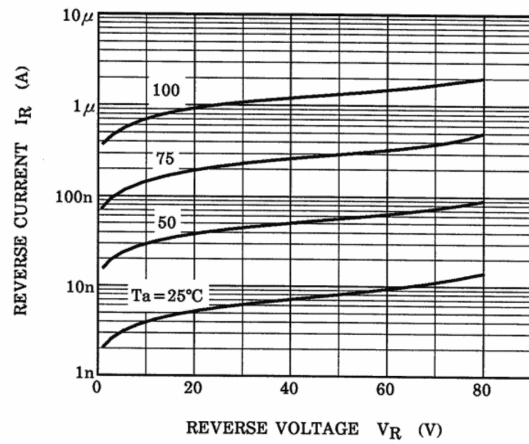


Fig. 7.2  $I_R - V_R$

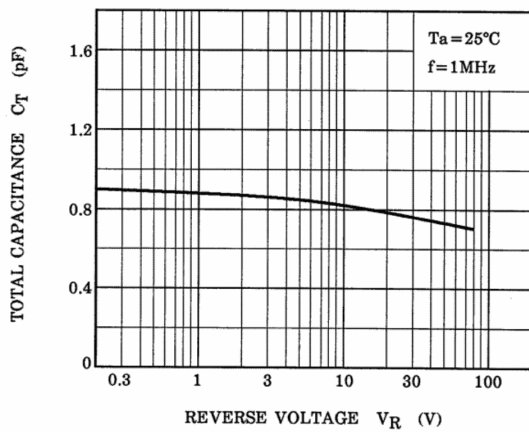


Fig. 7.3  $C_T - V_R$

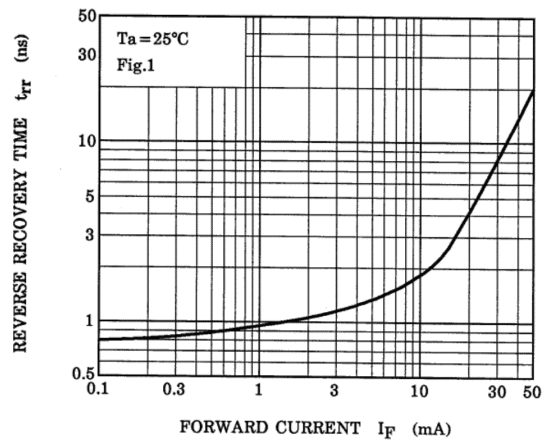


Fig. 7.4  $t_{rr} - I_F$

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



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