

TOSHIBA DIODE SILICON EPITAXIAL PLANAR TYPE

HN1D03F

ULTRA HIGH SPEED SWITCHING APPLICATION.

- Built in Anode Common and Cathode Common.

Unit 1

- Low Forward Voltage Q1, Q2 : $V_F(3)=0.90V$ (Typ.)
- Fast Reverse Recovery Time Q1, Q2 : $t_{rr}=1.6ns$ (Typ.)
- Small Total Capacitance Q1, Q2 : $C_T=0.9pF$ (Typ.)

Unit 2

- Low Forward Voltage Q3, Q4 : $V_F(3)=0.92V$ (Typ.)
- Fast Reverse Recovery Time Q3, Q4 : $t_{rr}=1.6ns$ (Typ.)
- Small Total Capacitance Q3, Q4 : $C_T=2.2pF$ (Typ.)

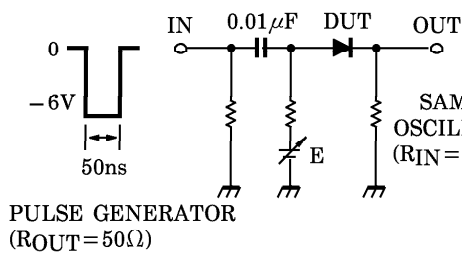
Unit 1, Unit 2 COMMON MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Maximum (Peak) Reverse Voltage	V_{RM}	85	V
Reverse Voltage	V_R	80	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	300	mW
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	-55~125	°C

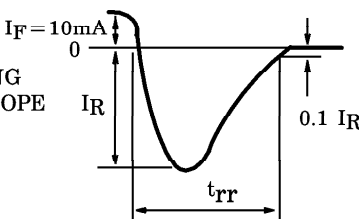
(*) This is the Maximum Ratings of single diode (Q1 or Q2 or Q3 or Q4).
In the case of using Unit 1 and Unit 2 independently or simultaneously, the Maximum Ratings per diode is 75% of the single diode one.

Fig.1 REVERSE RECOVERY TIME (t_{rr}) TEST CIRCUIT

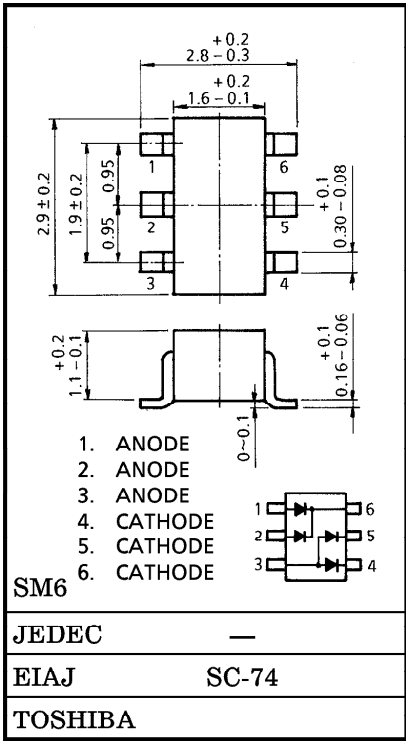
INPUT WAVEFORM



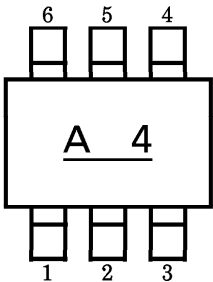
OUTPUT WAVEFORM



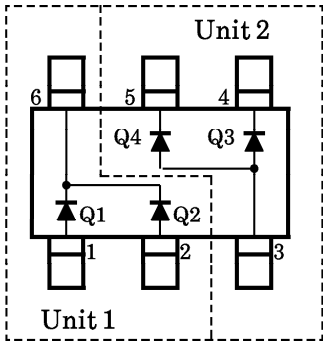
Unit in mm



Weight : 0.015g
Marking



PIN ASSIGNMENT (TOP VIEW)



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● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

Unit 1 ELECTRICAL CHARACTERISTICS (Q1, Q2 COMMON) (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Forward Voltage	V _F (1)	I _F = 1mA	—	0.60	—	V
	V _F (2)	I _F = 10mA	—	0.72	—	
	V _F (3)	I _F = 100mA	—	0.90	1.20	
Reverse Current	I _R (1)	V _R = 30V	—	—	0.1	μA
	I _R (2)	V _R = 80V	—	—	0.5	
Total Capacitance	C _T	V _R = 0, f = 1MHz	—	0.9	3.0	pF
Reverse Recovery Time	t _{rr}	I _F = 10mA (Fig.1)	—	1.6	4.0	ns

Unit 2 ELECTRICAL CHARACTERISTICS (Q3, Q4 COMMON) (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Forward Voltage	V _F (1)	I _F = 1mA	—	0.61	—	V
	V _F (2)	I _F = 10mA	—	0.74	—	
	V _F (3)	I _F = 100mA	—	0.92	1.20	
Reverse Current	I _R (1)	V _R = 30V	—	—	0.1	μA
	I _R (2)	V _R = 80V	—	—	0.5	
Total Capacitance	C _T	V _R = 0, f = 1MHz	—	2.2	4.0	pF
Reverse Recovery Time	t _{rr}	I _F = 10mA (Fig.1)	—	1.6	4.0	ns

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