

TOSHIBA DIODE SILICON EPITAXIAL PLANAR TYPE

# HN1D03FU

ULTRA HIGH SPEED SWITCHING APPLICATION.

Unit in mm

- Built in Anode Common and Cathode Common.

**Unit 1**

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

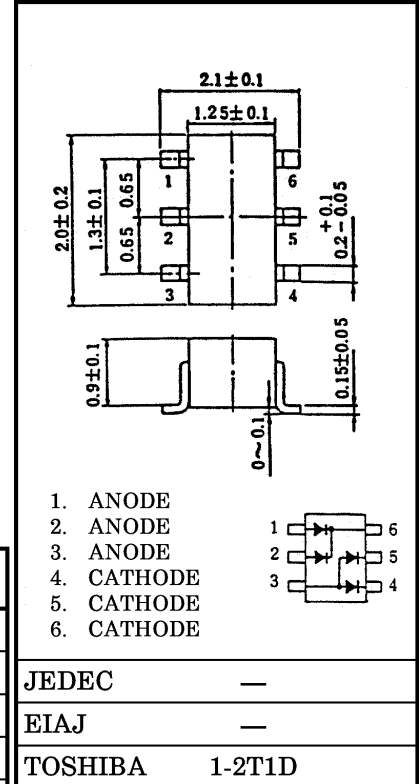
**Unit 2**

- Low Forward Voltage Q3, Q4 :  $V_F = 0.92$  (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)**

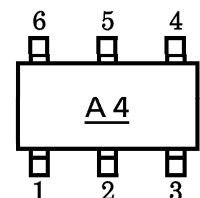
CHARACTERISTIC	SYMBOL	RATING	UNIT
Maximum (Peak) Reverse Voltage	$V_{RM}$	85	V
Reverse Voltage	$V_R$	80	V
Maximum (Peak) Forward Current	$I_{FM}$	240*	mA
Average Forward Current	$I_O$	80*	mA
Surge Current (10ms)	$I_{FSM}$	1*	A
Power Dissipation	P	200	mW
Junction Temperature	$T_j$	125	°C
Storage Temperature	$T_{stg}$	-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.



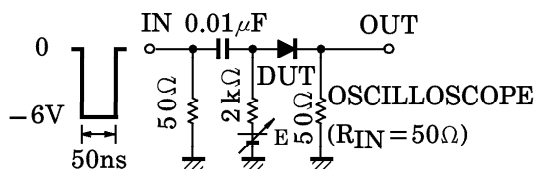
Weight : 6.2mg

**Marking**



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

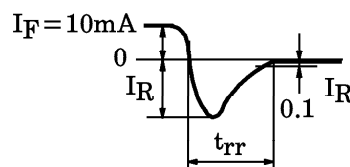
**INPUT WAVEFORM**



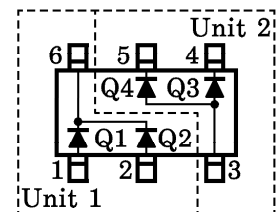
**PULSE GENERATOR**

( $R_{OUT} = 50\Omega$ )

**OUTPUT WAVEFORM**



**PIN ASSIGNMENT (TOP VIEW)**



961001EAA2

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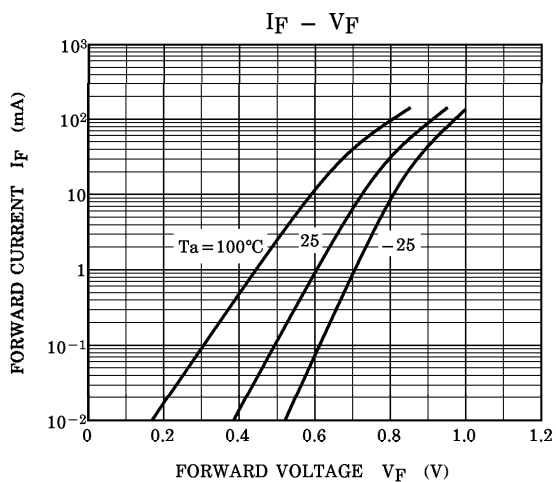
## Unit 1 ELECTRICAL CHARACTERISTICS (Q1, Q2 COMMON) (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Forward Voltage	$V_F(1)$	$I_F = 1\text{mA}$	—	0.60	—	V
	$V_F(2)$	$I_F = 10\text{mA}$	—	0.72	—	
	$V_F(3)$	$I_F = 100\text{mA}$	—	0.90	1.20	
Reverse Current	$I_R(1)$	$V_R = 30\text{V}$	—	—	0.10	$\mu\text{A}$
	$I_R(2)$	$V_R = 80\text{V}$	—	—	0.50	
Total Capacitance	$C_T$	$V_R = 0, f = 1\text{MHz}$	—	0.90	3.0	pF
Reverse Recovery Time	$t_{rr}$	$I_F = 10\text{mA}$ ( Fig. 1 )	—	1.60	4.0	ns

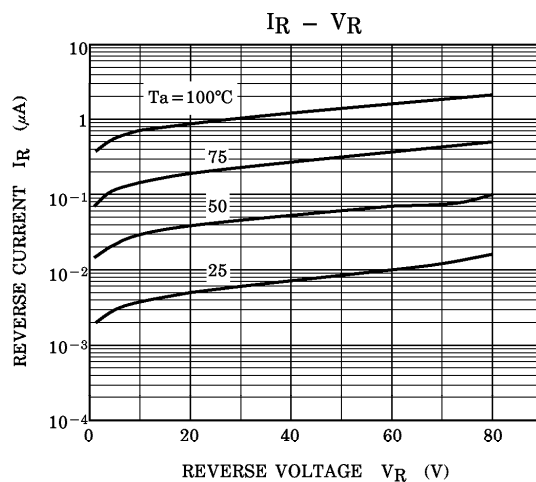
## Unit 2 ELECTRICAL CHARACTERISTICS (Q3, Q4 COMMON) (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Forward Voltage	$V_F(1)$	$I_F = 1\text{mA}$	—	0.61	—	V
	$V_F(2)$	$I_F = 10\text{mA}$	—	0.74	—	
	$V_F(3)$	$I_F = 100\text{mA}$	—	0.92	1.20	
Reverse Current	$I_R(1)$	$V_R = 30\text{V}$	—	—	0.10	$\mu\text{A}$
	$I_R(2)$	$V_R = 80\text{V}$	—	—	0.50	
Total Capacitance	$C_T$	$V_R = 0, f = 1\text{MHz}$	—	2.20	4.0	pF
Reverse Recovery Time	$t_{rr}$	$I_F = 10\text{mA}$ (Fig. 1)	—	1.60	4.0	ns

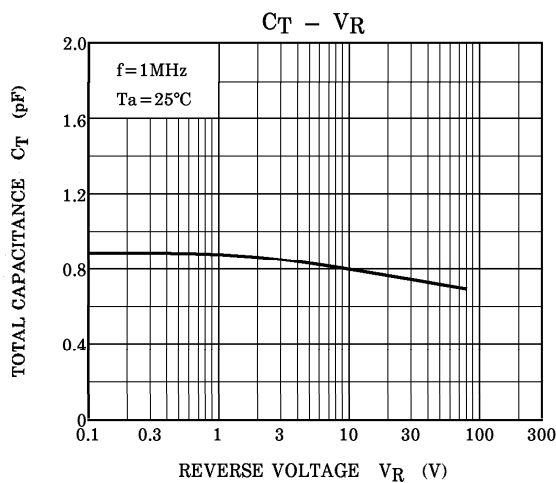
Unit 1 (Q1, Q2 COMMON)



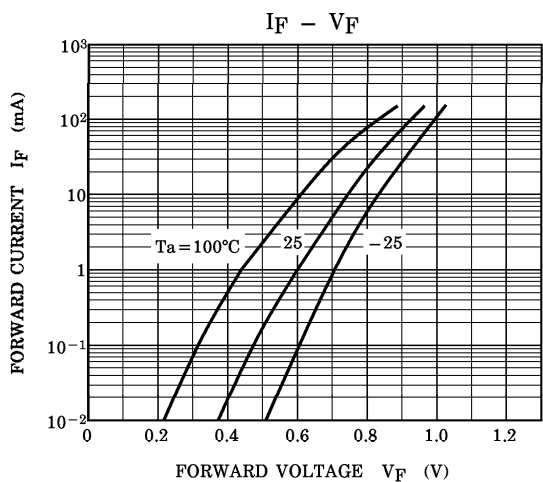
Unit 1 (Q1, Q2 COMMON)



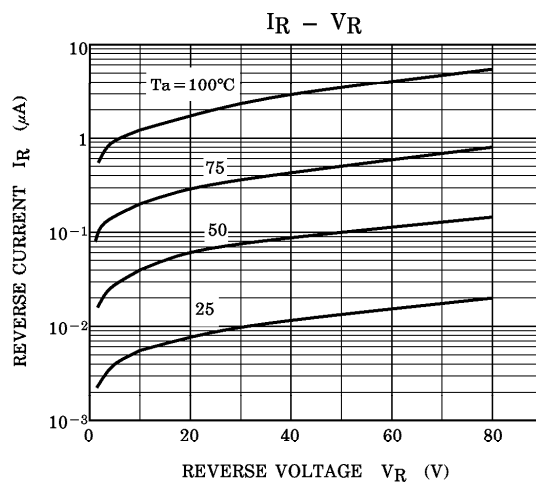
Unit 1 (Q1, Q2 COMMON)



Unit 2 (Q3, Q4 COMMON)



Unit 2 (Q3, Q4 COMMON)



Unit 2 (Q3, Q4 COMMON)

