

TOSHIBA Diode Silicon Epitaxial Planar Type

HN1D03FU

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

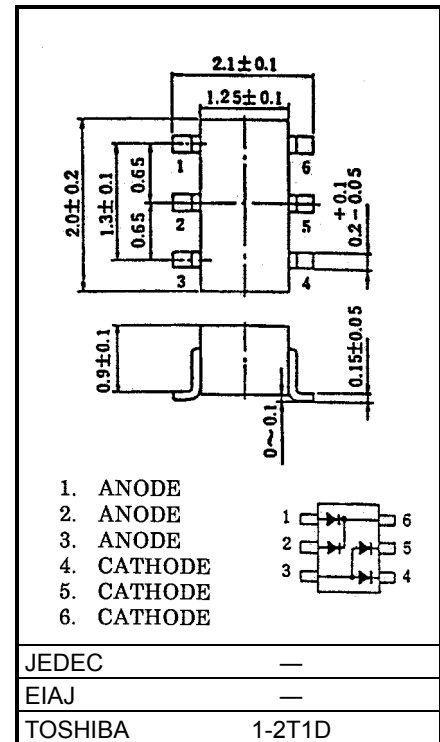
- Low forward voltage Q3, Q4: $V_F(3) = 0.92V$ (typ.)
- Fast reverse recovery time Q3, Q4: $t_{rr} = 1.6ns$ (typ.)
- Small total capacitance Q3, Q4: $C_T = 2.2pF$ (typ.)

Unit 1, Unit 2 Common Maximum Ratings ($T_a = 25^\circ C$)

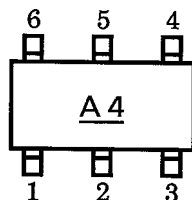
Characteristic	Symbol	Rating	Unit
Maximum (peak) reverse voltage	V_{RM}	85	V
Reverse voltage	V_R	80	V
Maximum (peak) forward current	I_{FM}	240*	mA
Average forward current	I_O	80*	mA
Surge current (10ms)	I_{FSM}	1*	A
Power dissipation	P	200	mW
Junction temperature	T_j	125	$^\circ C$
Storage temperature	T_{stg}	-55~125	$^\circ C$

*: 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.

Unit: mm



Marking



Pin Assignment (Top View)

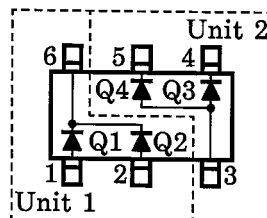
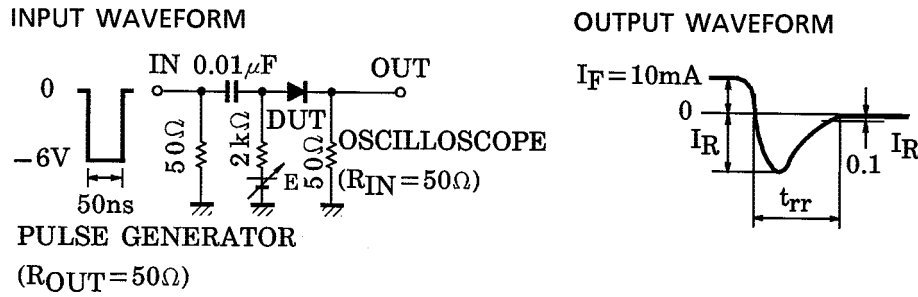


Fig.1 Reverse Recovery Time (t_{rr}) Test Circuit



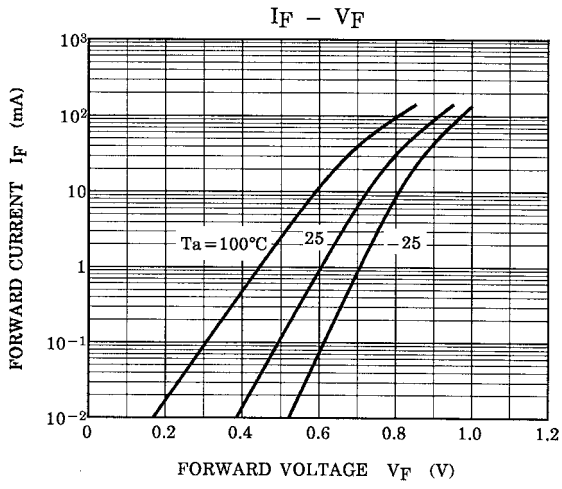
Unit 1 Electrical Characteristics (Q1, Q2, Common) (Ta = 25°C)

Characteristic	Symbol	Test Circuit	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	μA
	$I_R(2)$	—	$V_R = 80\text{V}$	—	—	0.50	
Total capacitance	C_T	—	$V_R = 0, f = 1\text{MHz}$	—	0.9	3.0	pF
Reverse recovery time	t_{rr}	—	$I_F = 10\text{mA}$ (fig.1)	—	1.6	4.0	ns

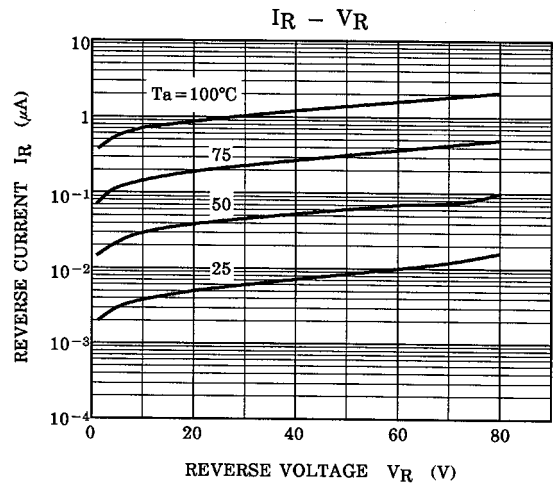
Unit 2 Electrical Characteristics (Q3, Q4, Common) (Ta = 25°C)

Characteristic	Symbol	Test Circuit	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	μA
	$I_R(2)$	—	$V_R = 80\text{V}$	—	—	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

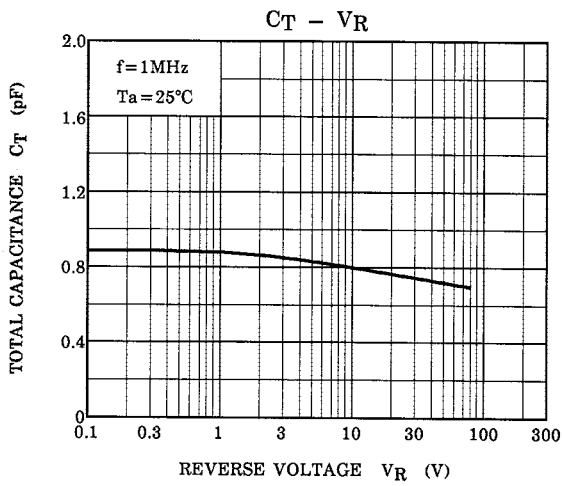
Unit 1 (Q1, Q2 COMMON)



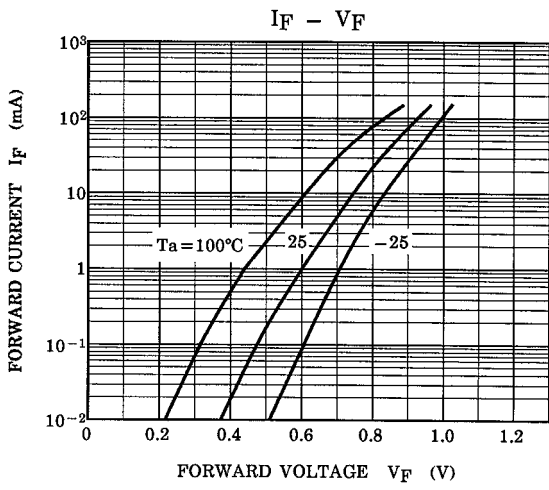
Unit 1 (Q1, Q2 COMMON)



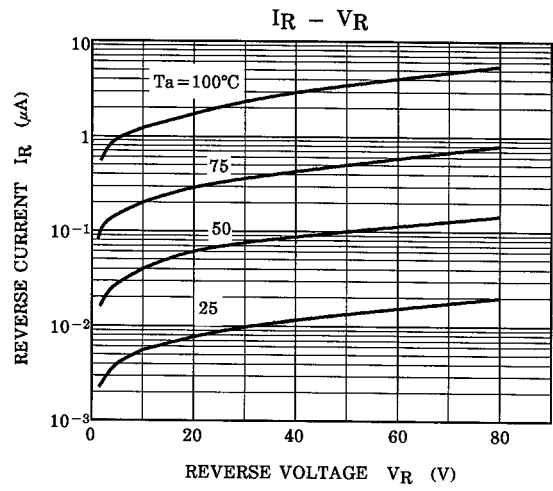
Unit 1 (Q1, Q2 COMMON)



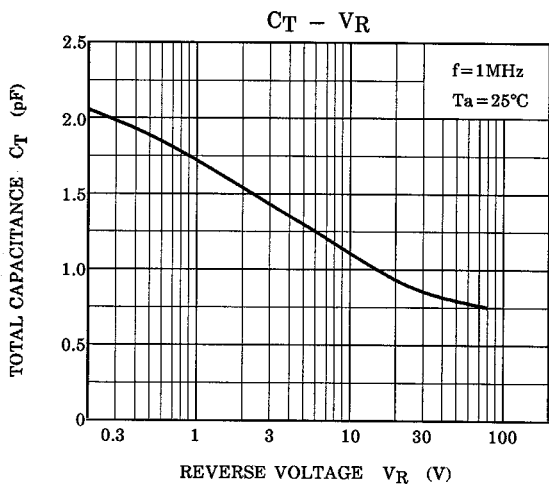
Unit 2 (Q3, Q4 COMMON)



Unit 2 (Q3, Q4 COMMON)



Unit 2 (Q3, Q4 COMMON)



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