

TOSHIBA Diode Silicon Epitaxial Planar Type

## HN2D01F

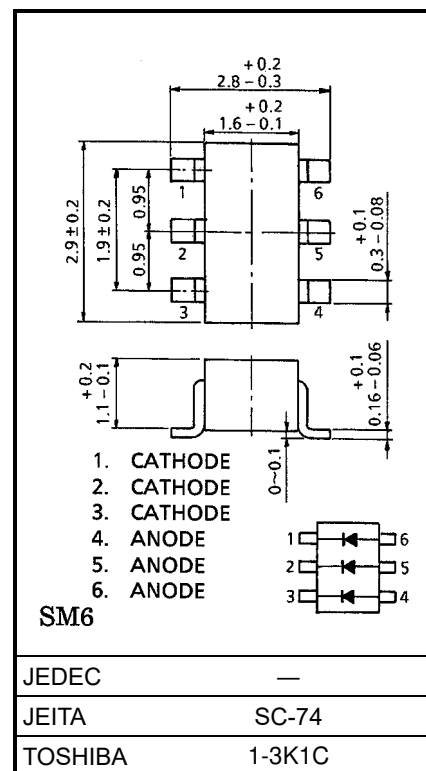
Unit: mm

### Ultra High Speed Switching Application

- HN2D01F is composed of 3 independent diodes.
- Low forward voltage :  $V_F (3) = 0.98 \text{ V (typ.)}$
- Fast reverse recovery time:  $t_{rr} = 1.6 \text{ ns (typ.)}$
- Small total capacitance :  $C_T = 0.5 \mu\text{F (typ.)}$

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

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 (10 ms)	$I_{FSM}$	1 (*)	A
Power dissipation	$P_D$ (Note 3)	300	mW
Junction temperature	$T_j$ (Note 1)	150	°C
	$T_j$ (Note 2)	125	
Storage temperature	$T_{stg}$ (Note 1)	-55 to 150	°C
	$T_{stg}$ (Note 2)	-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: For devices with the ordering part number ending in LF(T).

Note 2: For devices with the ordering part number in other than LF(T).

Note 3: Total rating.

(\*) This is absolute maximum rating of single diode (Q1, Q2 or Q3).

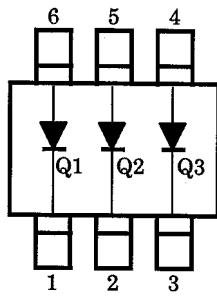
In the case of using 2 or 3 diodes, the absolute maximum ratings per diodes is 75 % of the single diode one.

### Electrical Characteristics (Q1, Q2, Q3 Common, $T_a = 25^\circ\text{C}$ )

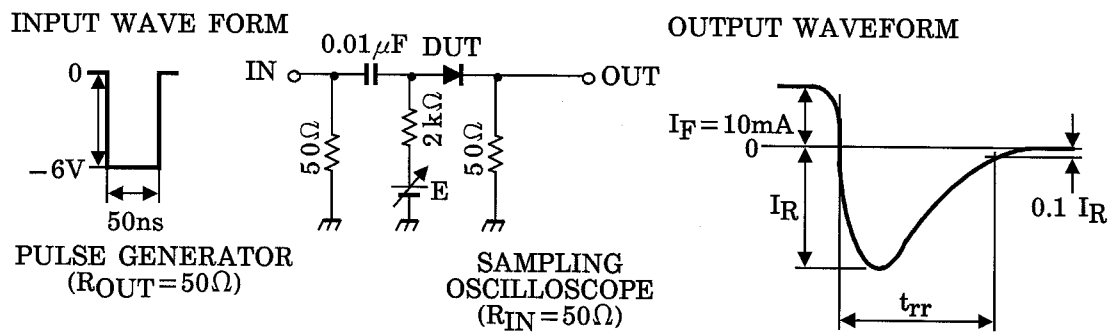
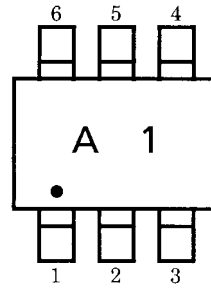
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_F (1)$	$I_F = 1 \text{ mA}$	—	0.62	—	V
	$V_F (2)$	$I_F = 10 \text{ mA}$	—	0.75	—	
	$V_F (3)$	$I_F = 100 \text{ mA}$	—	0.98	1.20	
Reverse current	$I_R (1)$	$V_R = 30 \text{ V}$	—	—	0.1	$\mu\text{A}$
	$I_R (2)$	$V_R = 80 \text{ V}$	—	—	0.5	
Total capacitance	$C_T$	$V_R = 0 \text{ V}, f = 1 \text{ MHz}$	—	0.5	3.0	pF
Reverse recovery time	$t_{rr}$	$I_F = 10 \text{ mA (Fig.1)}$	—	1.6	4.0	ns

Start of commercial production  
1988-11

### Pin Assignment (Top View)

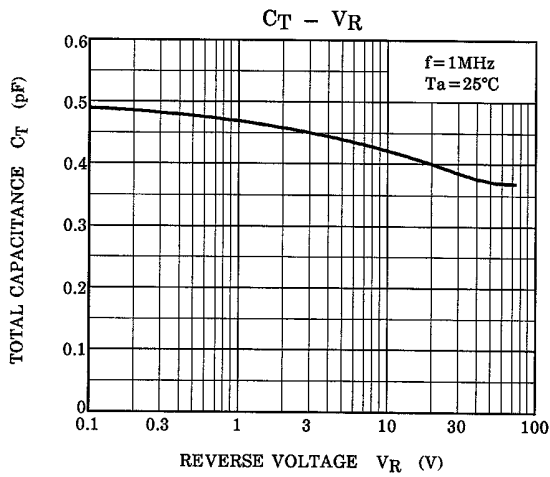
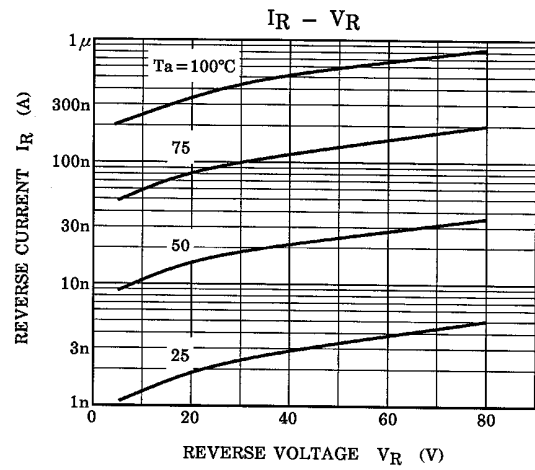
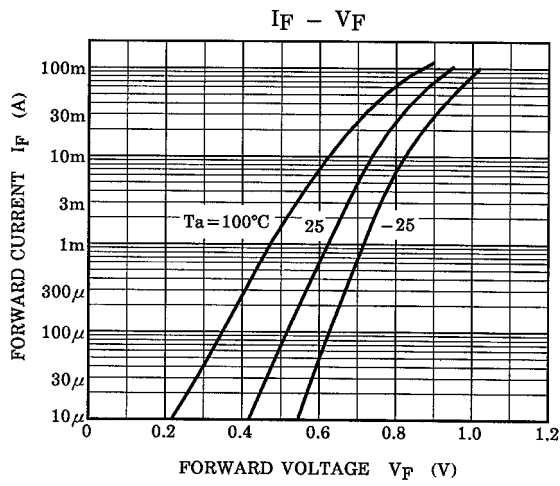


### Marking



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

### Characteristics Curves (Ta = 25°C) (Q1, Q2, Q3 Common)



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

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