

TOSHIBA Diode Silicon Epitaxial Planar Type

# HN1D01FU

## Ultra High Speed Switching Application

- AEC-Q101 Qualified (Note1)
- HN1D01FU is composed of 2 unit of anode common.
- Low forward voltage:  $V_F(3) = 0.92 \text{ V (typ.)}$
- Fast reverse recovery time:  $t_{rr} = 1.6 \text{ ns (typ.)}$
- Small total capacitance:  $C_T = 2.2 \text{ pF (typ.)}$

Note1: For detail information, please contact our sales.

## Absolute 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 (10 ms)	$I_{FSM}$	2 (*)	A
Power dissipation	$P_D$ (Note 4)	200	mW
Junction temperature	$T_j$ (Note 2)	150	°C
	$T_j$ (Note 3)	125	
Storage temperature	$T_{stg}$ (Note 2)	-55 to 150	°C
	$T_{stg}$ (Note 3)	-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.

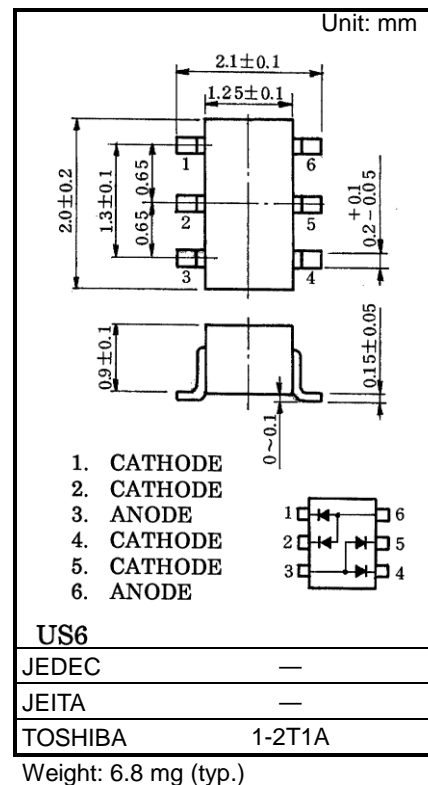
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

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

Note 3: For devices with the ordering part number in other than LF(T).

Note 4: Total rating, Mounted on a FR4 board. (25.4 mm × 25.4 mm × 1.6 mm, Cu pad: 0.32 mm<sup>2</sup> × 6).

(\*) These are the Absolute Maximum Ratings for a single diode (Q1 or Q2 or Q3 or Q4). If Unit 1 and Unit 2 are used independently or simultaneously, the Absolute Maximum Ratings per diode are 75% of those of a single diode.

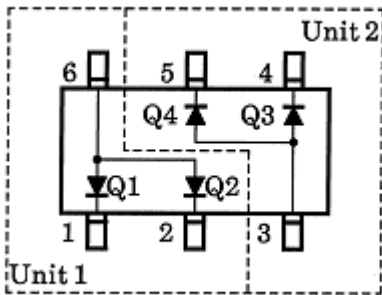


Start of commercial production  
1992-05

Electrical Characteristics (Q<sub>1</sub>, Q<sub>2</sub>, Q<sub>3</sub>, Q<sub>4</sub> Common, Ta = 25°C)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Forward voltage	V <sub>F</sub> (1)	—	I <sub>F</sub> = 1 mA	—	0.61	—	V
	V <sub>F</sub> (2)	—	I <sub>F</sub> = 10 mA	—	0.74	—	
	V <sub>F</sub> (3)	—	I <sub>F</sub> = 100 mA	—	0.92	1.20	
Reverse current	I <sub>R</sub> (1)	—	V <sub>R</sub> = 30 V	—	—	0.1	μA
	I <sub>R</sub> (2)	—	V <sub>R</sub> = 80 V	—	—	0.5	
Total capacitance	C <sub>T</sub>	—	V <sub>R</sub> = 0 V, f = 1 MHz	—	2.2	4.0	pF
Reverse recovery time	t <sub>rr</sub>	—	I <sub>F</sub> = 10 mA (Fig. 1)	—	1.6	4.0	ns

Pin Assignment (Top View)



Marking

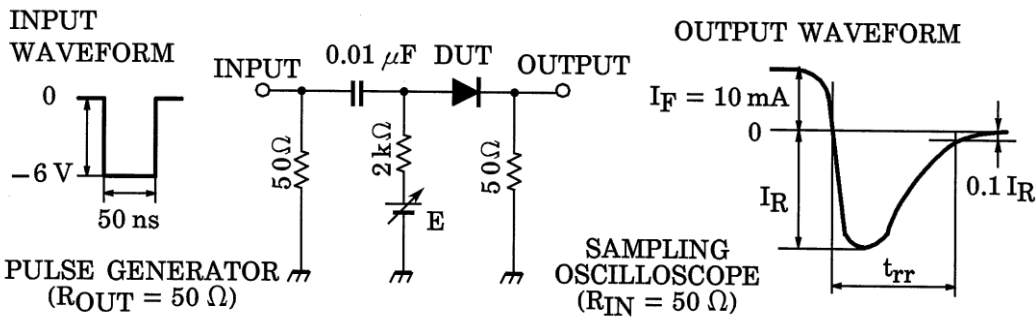
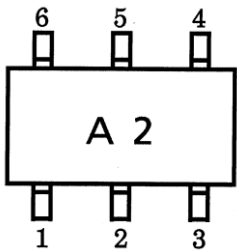
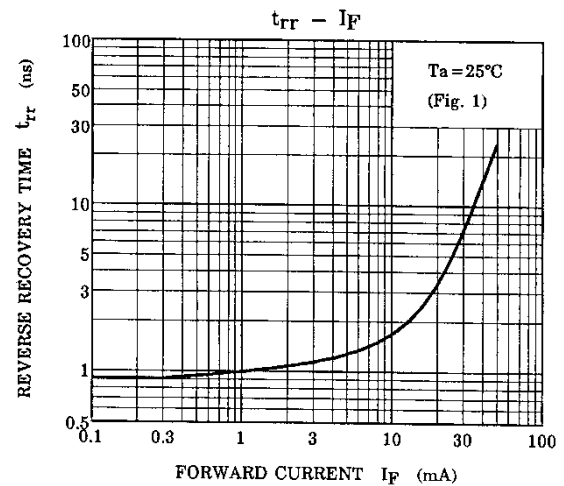
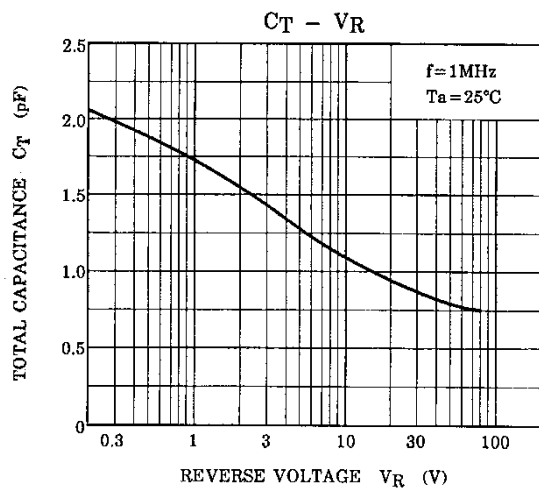
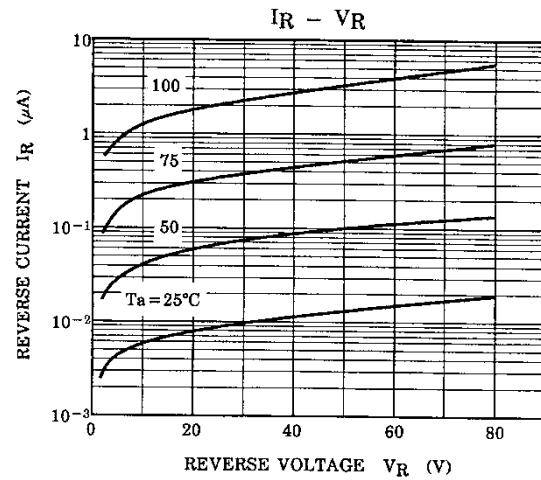
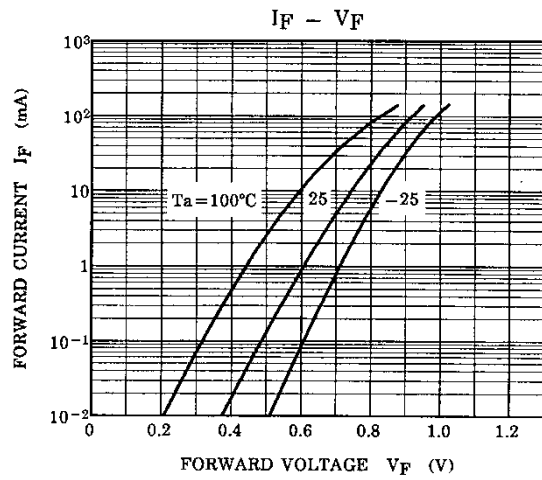


Fig.1 Reverse Recovery Time (t<sub>rr</sub>) Test Circuit

### Characteristics Curves (Q<sub>1</sub>, Q<sub>2</sub>, Q<sub>3</sub>, Q<sub>4</sub> Common, Ta = 25°C)



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

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