

TOSHIBA Diode Silicon Epitaxial Planar Type

## HN1D02F

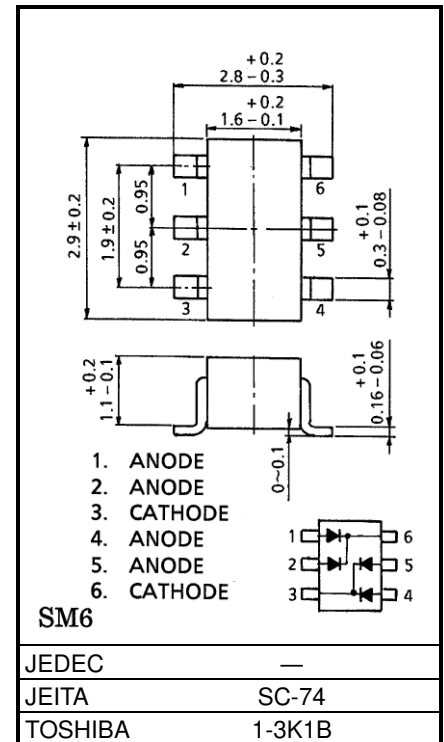
Unit: mm

### Ultra High Speed Switching Application

- The HN1D02F is composed of two (2) cathode common units.
- Low forward voltage :  $V_F$  (3) = 0.90 V (typ.)
- Fast reverse recovery time :  $t_{rr}$  = 1.6 ns (typ.)
- Small total capacitance :  $C_T$  = 0.9 pF (typ.)

### 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 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	



Weight: 0.015 g (typ.)

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.

(\*) 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.

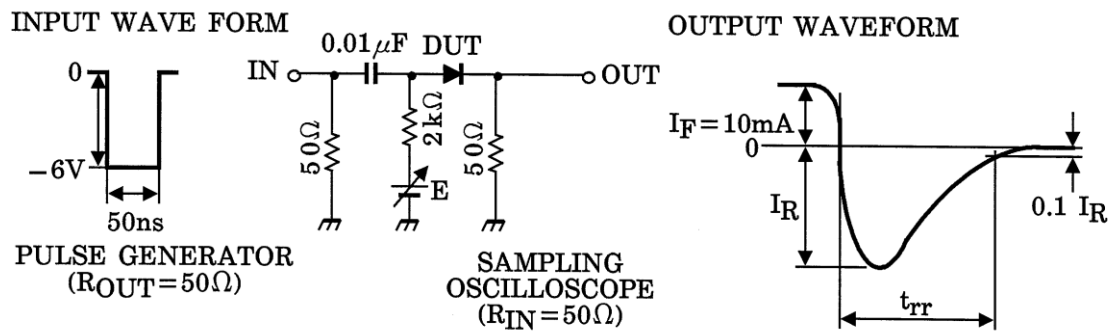
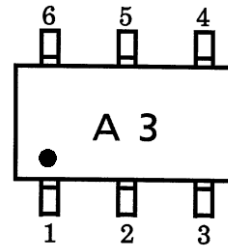
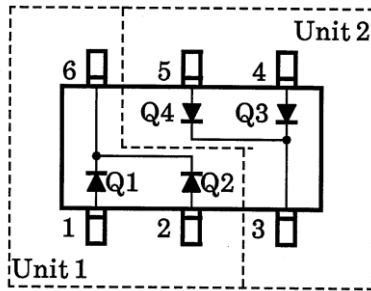
### Electrical Characteristics (Q1, Q2, Q3, Q4 Common, Ta = 25°C)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_F$ (1)	—	$I_F = 1$ mA	—	0.60	—	V
	$V_F$ (2)	—	$I_F = 10$ mA	—	0.72	—	
	$V_F$ (3)	—	$I_F = 100$ mA	—	0.90	1.20	
Reverse current	$I_R$ (1)	—	$V_R = 30$ V	—	—	0.1	$\mu$ A
	$I_R$ (2)	—	$V_R = 80$ V	—	—	0.5	
Total capacitance	$C_T$	—	$V_R = 0$ V, $f = 1$ MHz	—	0.9	3.0	pF
Reverse recovery time	$t_{rr}$	—	$I_F = 10$ mA (Fig. 1)	—	1.6	4.0	ns

Start of commercial production  
1992-05

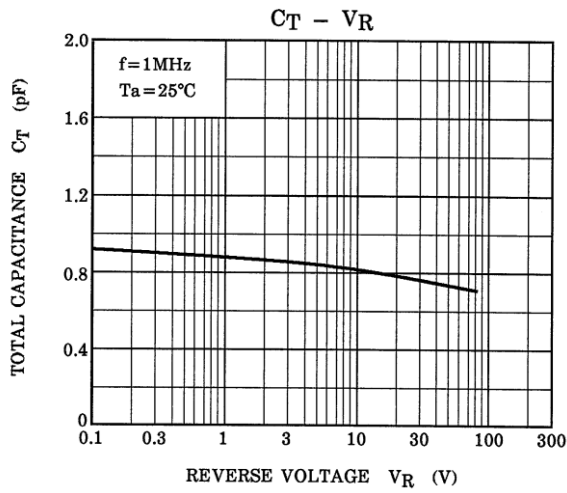
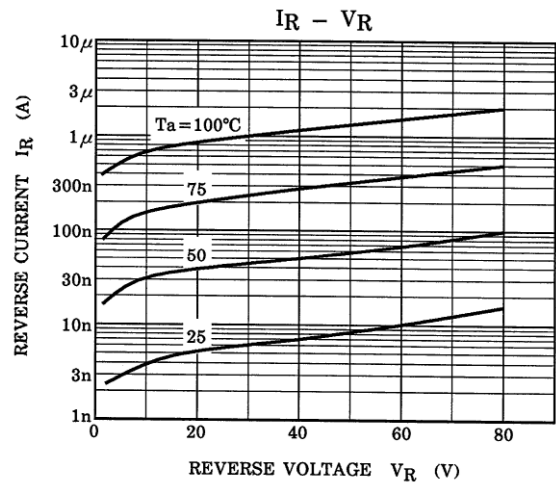
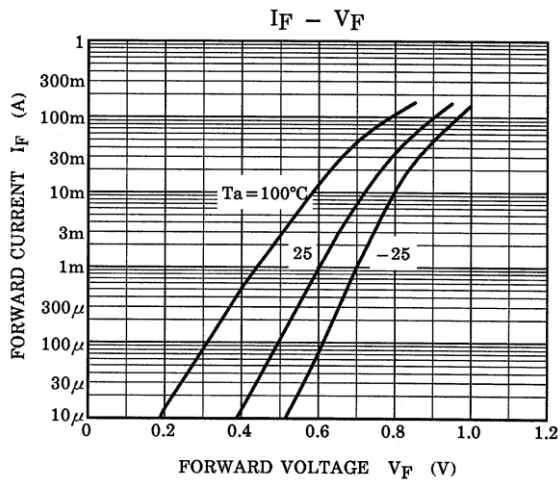
### Pin Assignment (Top View)

### Marking



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

### Characteristics Curves (Q1, Q2, Q3, Q4 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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