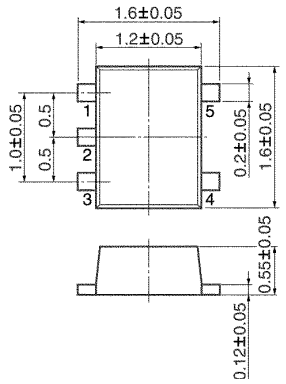
TOSHIBA Diode Silicon Epitaxial Planar Type

HN2D01JE

Ultra High Speed Switching Application

- The HN2D01JE is composed of 2 independent diodes.
- Low forward voltage : $V_{F\ (3)}$ = 0.98V (typ.)
- Fast reverse recovery time : t_{rr} = 1.6ns (typ.)
- Small total capacitance : C_T = 0.5pF (typ.)

Unit: mm



1.ANODE1
2.NC
3.ANODE2
4.CATHODE2
5.CATHODE1

ESV

JEDEC	—
JEITA	—
TOSHIBA	1-2W1B

Weight: 0.003 mg (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}	200 *	mA
Average forward current	I_O	100 *	mA
Surge current (10ms)	I_{FSM}	1 *	A
Power dissipation	P	100 **	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to 150	°C

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).

*: Unit rating; total rating = unit rating × 1.5

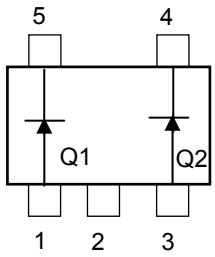
**: Total rating.

Electrical Characteristics (Ta = 25°C)

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

Start of commercial production
2001-10

Pin Assignment (Top View)



Marking

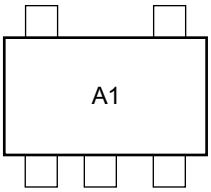
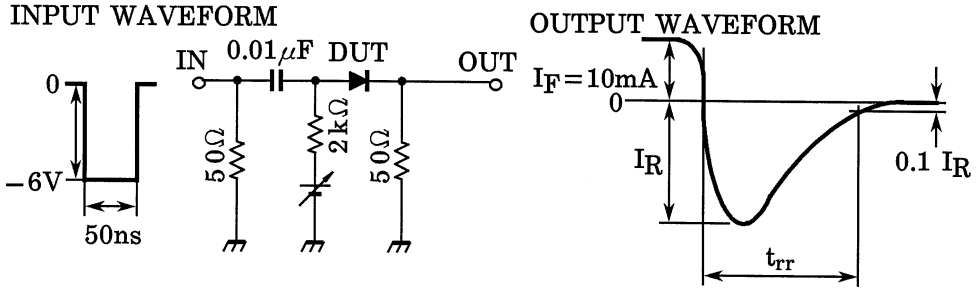
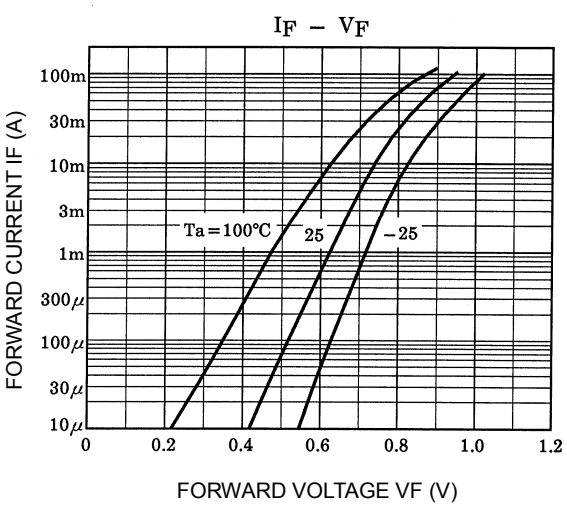
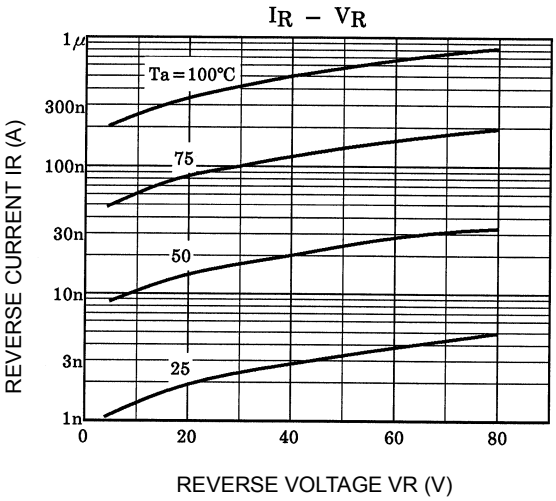
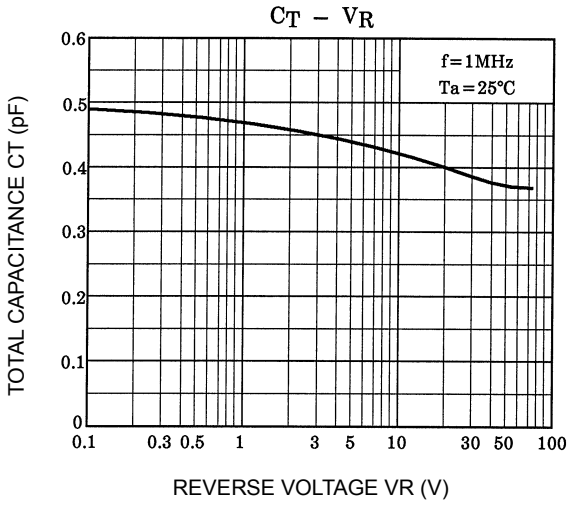


Fig. 1 Reverse Recovery Time (t_{rr}) Test Circuit




$I_F - V_F$
FORWARD CURRENT IF (A)
100m
30m
10m
3m
1m
300μ
100μ
30μ
10μ
Ta = 100°C
25
−25
0
0.2
0.4
0.6
0.8
1.0
1.2
FORWARD VOLTAGE VF (V)


$I_R - V_R$
REVERSE CURRENT IR (A)
1μ
300n
100n
30n
10n
3n
1n
Ta = 100°C
75
50
25
0
20
40
60
80
REVERSE VOLTAGE VR (V)


$C_T - V_R$
TOTAL CAPACITANCE CT (pF)
0.6
0.5
0.4
0.3
0.2
0.1
0
f = 1MHz
Ta = 25°C
0.1
0.3
0.5
1
3
5
10
30
50
100
REVERSE VOLTAGE VR (V)

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