TOSHIBA Diode Silicon Epitaxial Planar Type

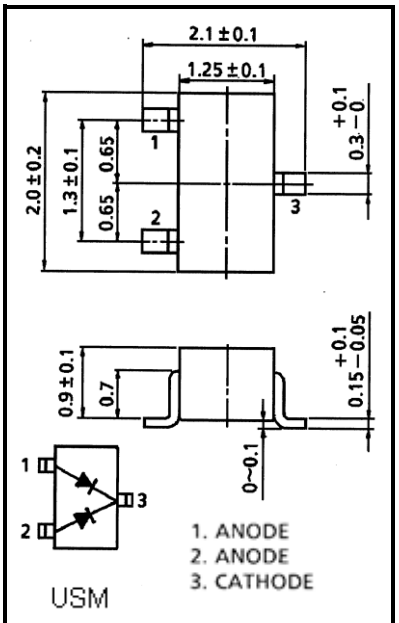
1SS301

Ultra High Speed Switching Applications

- AEC-Q101 Qualified (Note1)
- Small package : SC-70
- 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.)
-

Note1: For detail information, please contact to our sales.

Unit: mm



JEDEC	―
JEITA	SC-70
TOSHIBA	1-2P1B

Weight: 0.006 g (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	100	mW
Junction temperature	T_j	125	°C
Storage temperature	T_{stg}	-55 to 125	°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

Start of commercial production
1986-11

Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	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	μA
	$I_{R\ (2)}$	V_R = 80 V	—	—	0.5	
Total capacitance	C_T	V_R = 0V, f = 1 MHz	—	0.9	3.0	pF
Reverse recovery time	t_{rr}	I_F = 10 mA (Fig.1)	—	1.6	4.0	ns

Marking

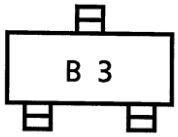
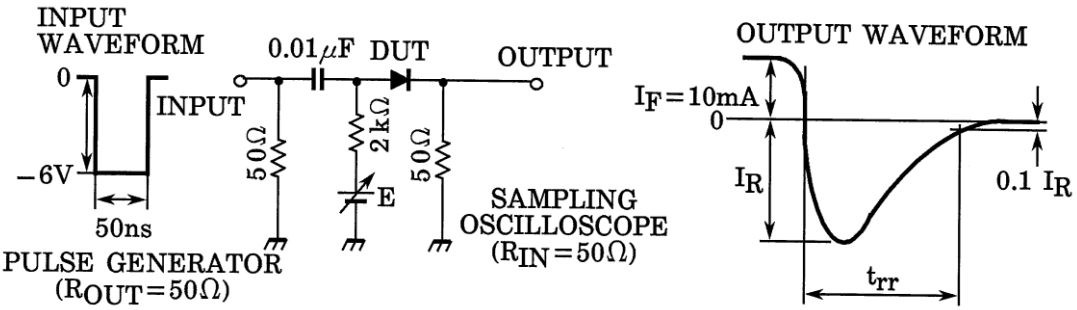
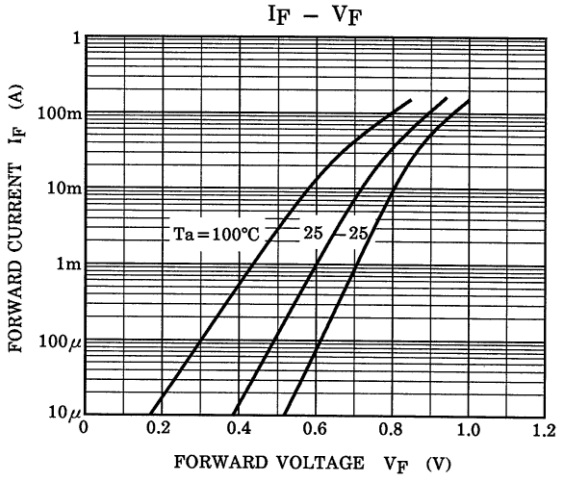
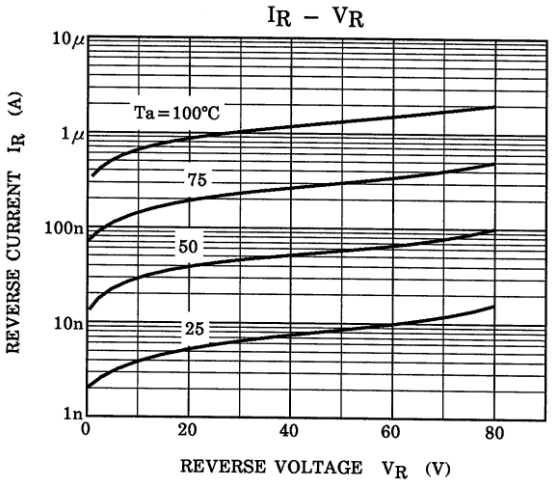
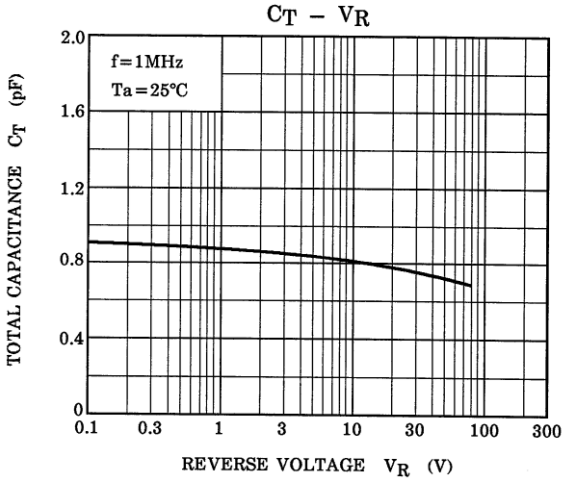


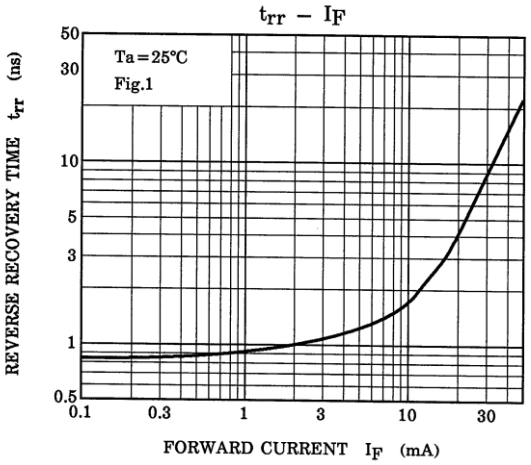
Fig.1 Reverse Recovery Time (t_{rr}) Test Circuit




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


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


$C_T - V_R$
TOTAL CAPACITANCE C_T (pF)
f = 1MHz
Ta = 25°C
2.0
1.6
1.2
0.8
0.4
0
0.1
0.3
1
3
10
30
100
300
REVERSE VOLTAGE V_R (V)


$t_{rr} - I_F$
REVERSE RECOVERY TIME t_{rr} (ns)
Ta = 25°C
Fig.1
50
30
10
5
3
1
0.5
0.1
0.3
1
3
10
30
FORWARD CURRENT I_F (mA)

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