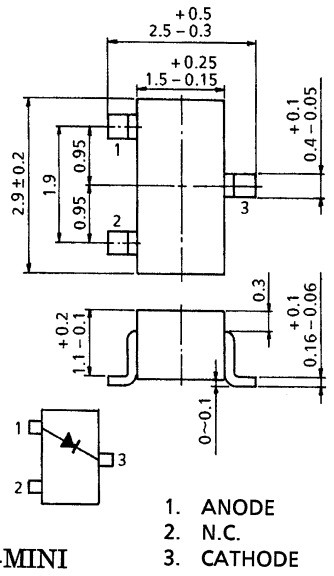
TOSHIBA Diode Silicon Epitaxial Planar Type

1SS311

High Voltage,High Speed Switching Applications

Unit: mm

- Low forward voltage : V_F = 0.94V (typ.)
- High voltage : V_R = 400V (min)
- Fast reverse recovery time : t_{rr} = 1.5ns (typ.)
- Small total capacitance : C_T = 3.2pF (typ.)
- Small package : SC−59



JEDEC	—
EIAJ	SC−61
TOSHIBA	1−3G1B

Weight: 0.012g

Absolute Maximum Ratings (Ta = 25°C)

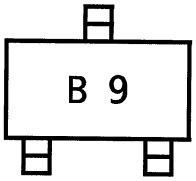
Characteristic	Symbol	Rating	Unit
Maximum (peak) reverse voltage	V_{RM}	420	V
Reverse voltage	V_R	400	V
Maximum (peak) forward current	I_{FM}	300	mA
Average forward current	I_O	100	mA
Surge current (10ms)	I_{FSM}	2	A
Power dissipation	P	150	mW
Junction temperature	T_j	125	°C
Storage temperature	T_{stg}	−55~125	°C

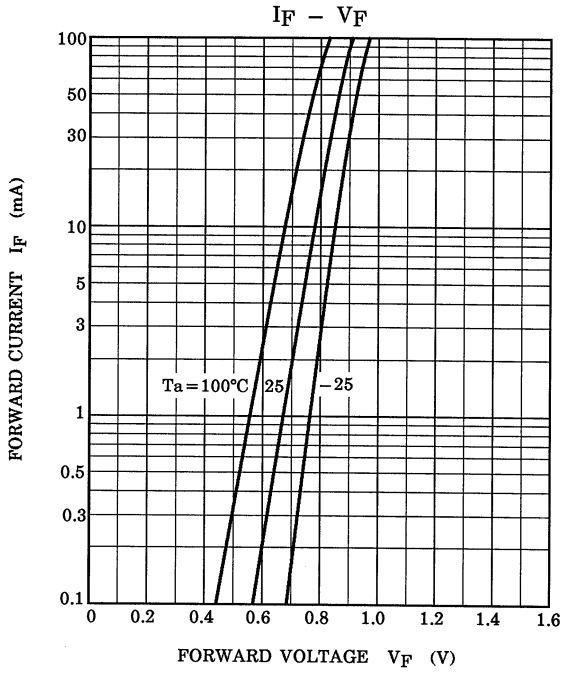
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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).

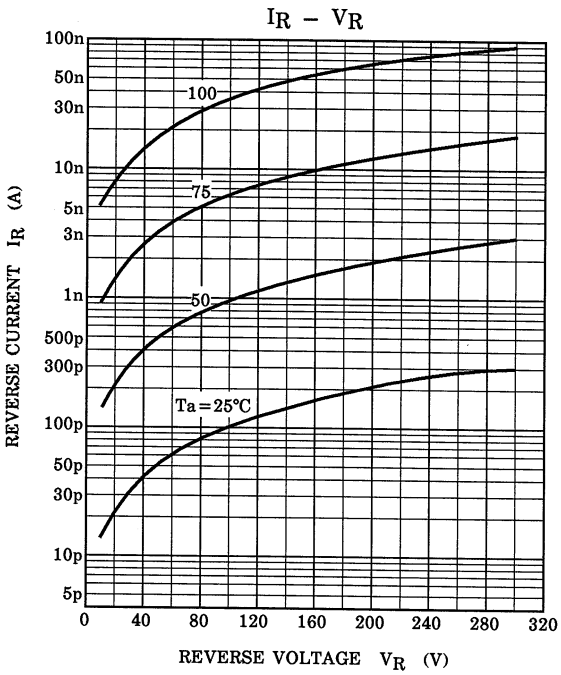
Electrical Characteristics (Ta = 25°C)

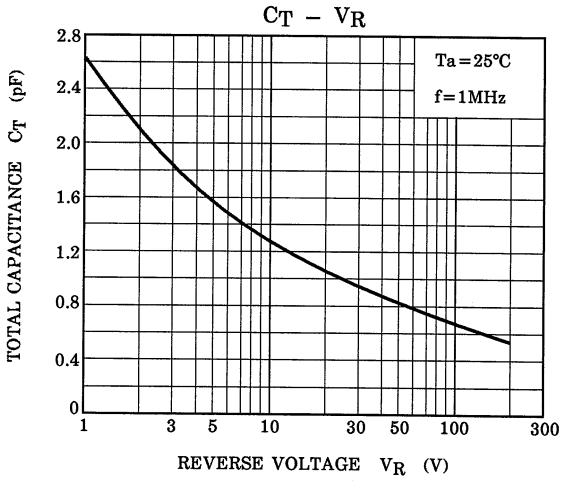
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_{F\ (1)}$	—	I_F = 10mA	—	0.80	—	V
	$V_{F\ (2)}$	—	I_F = 100mA	—	0.94	1.20	
Reverse current	$I_{R\ (1)}$	—	V_R = 300V	—	—	0.1	μA
	$I_{R\ (2)}$	—	V_R = 400V	—	—	1.0	
Total capacitance	C_T	—	V_R = 0, f = 1MHz	—	3.2	5.0	pF
Reverse recovery time	t_{rr}	—	I_F = 10mA	—	1.5	—	μs

Marking




$I_F - V_F$
FORWARD CURRENT I_F (mA)
100
50
30
10
5
3
1
0.5
0.3
0.1
Ta = 100°C
25
−25
0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
FORWARD VOLTAGE V_F (V)


$I_R - V_R$
REVERSE CURRENT I_R (A)
100n
50n
30n
10n
5n
3n
1n
500p
300p
100p
50p
30p
10p
5p
100
75
50
Ta = 25°C
0
40
80
120
160
200
240
280
320
REVERSE VOLTAGE V_R (V)


$C_T - V_R$
TOTAL CAPACITANCE C_T (pF)
2.8
2.4
2.0
1.6
1.2
0.8
0.4
0
Ta = 25°C
f = 1MHz
1
3
5
10
30
50
100
300
REVERSE VOLTAGE V_R (V)

RESTRICTIONS ON PRODUCT USE

20070701-EN GENERAL

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