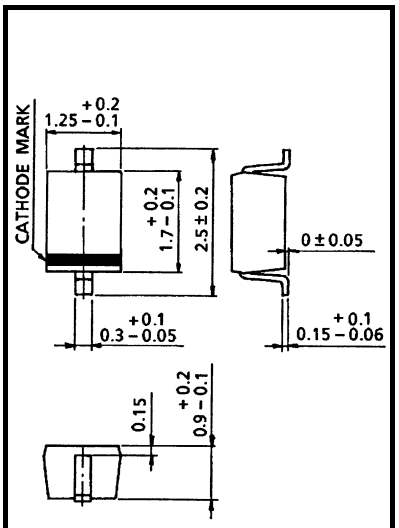
TOSHIBA Diode Silicon Epitaxial Planar Type

1SS314

VHF Tuner Band Switch Applications

- Small package.
- Small total capacitance: C_T = 1.2 pF (max)
- Low series resistance: r_s = 0.5 Ω (typ.)

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	1-1E1A

Weight: 0.004 g (typ.)

Absolute Maximum Ratings (Ta = 25°C)

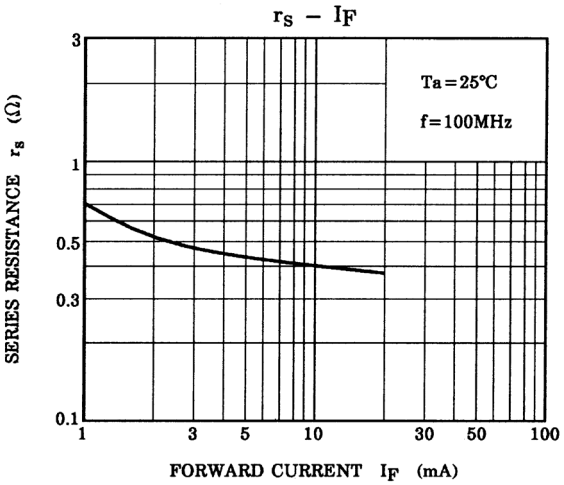
Characteristics	Symbol	Rating	Unit
Reverse voltage	V_R	30	V
Forward current	I_F	100	mA
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55~125	°C

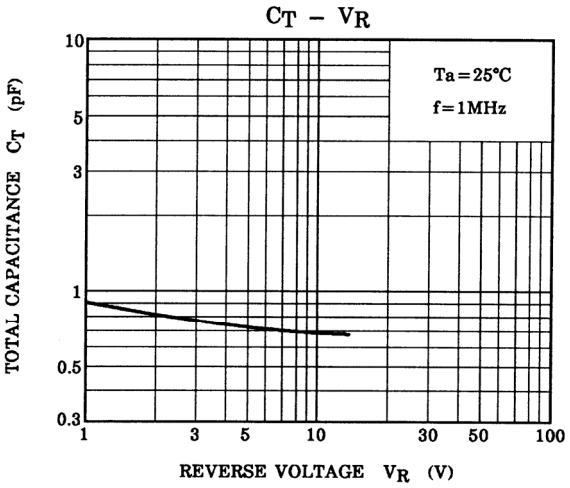
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

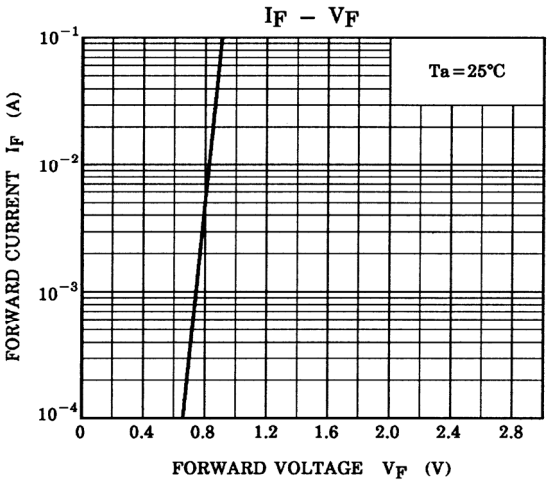
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	V_F	I_F = 2 mA	—	—	0.85	V
Reverse current	I_R	V_R = 15 V	—	—	0.1	μA
Reverse voltage	V_R	I_R = 1 μA	30	—	—	V
Total capacitance	C_T	V_R = 6 V, f = 1 MHz	—	0.7	1.2	pF
Series resistance	r_s	I_F = 2 mA, f = 100 MHz	—	0.5	0.9	Ω

Marking


$r_S - I_F$
Ta = 25°C
f = 100MHz
SERIES RESISTANCE r_s (Ω)
3
1
0.5
0.3
0.1
1
3
5
10
30
50
100
FORWARD CURRENT I_F (mA)


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


$I_F - V_F$
Ta = 25°C
FORWARD CURRENT I_F (A)
10^{-1}
10^{-2}
10^{-3}
10^{-4}
0
0.4
0.8
1.2
1.6
2.0
2.4
2.8
FORWARD VOLTAGE V_F (V)

RESTRICTIONS ON PRODUCT USE

20070701-EN GENERAL

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- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.
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