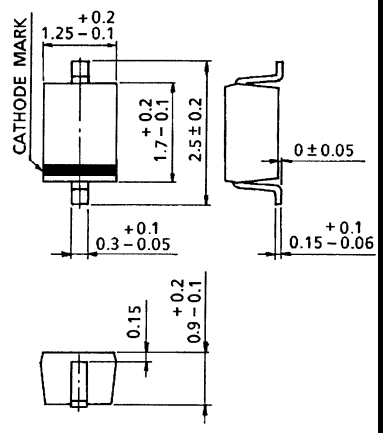
TOSHIBA Diode Silicon Epitaxial Pin Type

1SV307

VHF Tuner Band Switch Applications

Unit: mm

- Small package
- Low series resistance: r_s = 1.1 Ω (typ.)
- Small total capacitance: C_T = 0.3 pF (typ.)



USC

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	50	mA
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55~125	°C

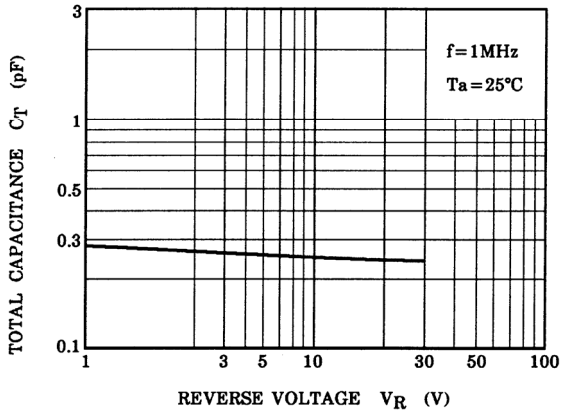
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

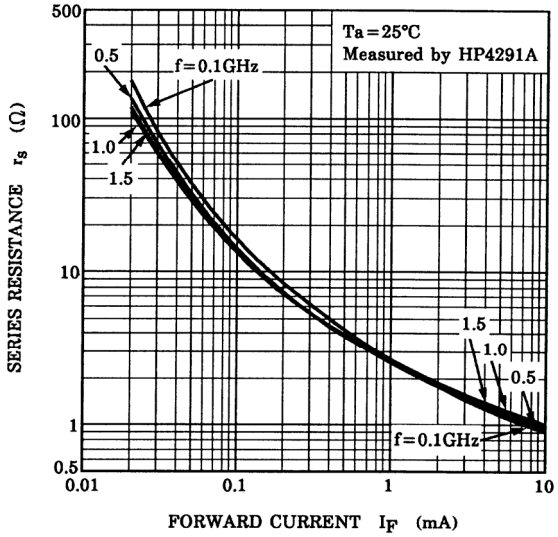
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Reverse voltage	V_R	I_R = 10 μA	30	—	—	V
Reverse current	I_R	V_R = 30 V	—	—	0.1	μA
Forward voltage	V_F	I_F = 50 mA	—	0.95	1.0	V
Total capacitance	C_T	V_R = 1 V, f = 1 MHz	—	0.3	0.5	pF
Series resistance 1	$r_{s\ (1)}$	I_F = 10 mA, f = 100 MHz	—	1.0	1.5	Ω
Series resistance 2	$r_{s\ (2)}$	I_F = 10 mA, f = 1.5 GHz	—	1.1	—	Ω

Marking

$C_T - V_R$


f=1MHz
Ta=25°C
TOTAL CAPACITANCE C_T (pF)
REVERSE VOLTAGE V_R (V)
3
1
0.5
0.3
0.1
1
3
5
10
30
50
100

$r_S - I_F$


Ta=25°C
Measured by HP4291A
f=0.1GHz
0.5
1.0
1.5
SERIES RESISTANCE r_S (Ω)
FORWARD CURRENT I_F (mA)
500
100
10
1
0.5
0.01
0.1
1
10

RESTRICTIONS ON PRODUCT USE

20070701-EN GENERAL

- The information contained herein is subject to change without notice.
- 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.
  In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the “Handling Guide for Semiconductor Devices,” or “TOSHIBA Semiconductor Reliability Handbook” etc.
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