

TOSHIBA DIODE SILICON EPITAXIAL PLANAR TYPE

1SV311

VCO FOR UHF BAND RADIO

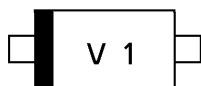
Unit in mm

- High Capacitance Ratio : $C_{1V}/C_{4V}=2.1$ (Typ.)
- Low Series Resistance : $r_s=0.28\Omega$ (Typ.)
- Useful for Small Size Tuner

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Reverse Voltage	V_R	10	V
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55\sim 125$	$^\circ\text{C}$

MARKING



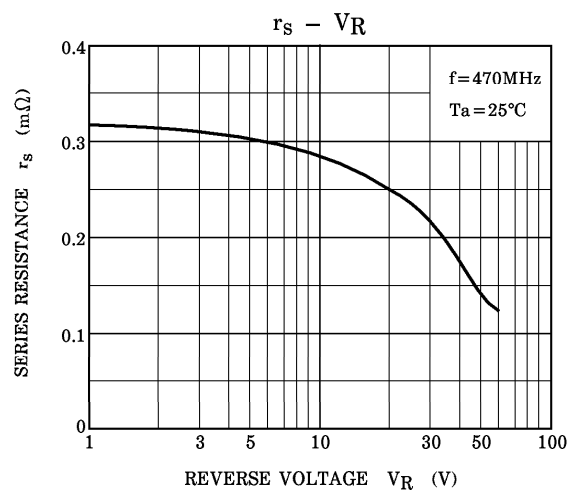
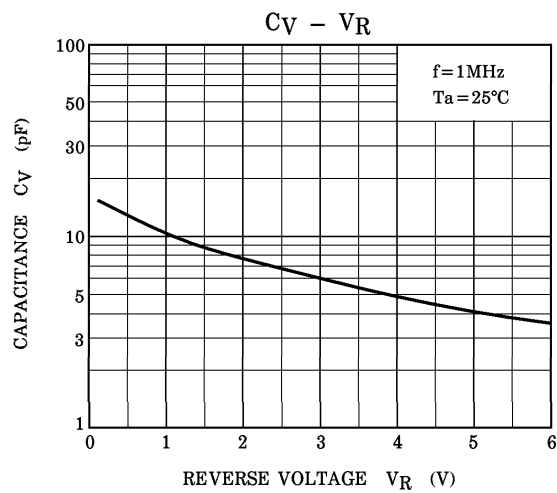
		ESC
JEDEC	—	
EIAJ	—	
TOSHIBA	1-1G1A	

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Voltage	V_R	$I_R=1\mu\text{A}$	10	—	—	V
Reverse Current	I_R	$V_R=10\text{V}$	—	—	3	nA
Capacitance	C_{1V}	$V_R=1\text{V}, f=1\text{MHz}$	9.7	—	11.1	pF
Capacitance	C_{4V}	$V_R=4\text{V}, f=1\text{MHz}$	4.45	—	5.45	pF
Capacitance Ratio	C_{1V}/C_{4V}	—	1.8	2.1	—	—
Series Resistance	r_s	$V_R=1\text{V}, f=470\text{MHz}$	—	0.28	0.4	Ω

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SPICE PARAMETER

SPICE MODEL : BERKLEY SPICE.2G.6 DIODE MODEL

DATA FORMAT : MODEL FORMAT

SPICE SYMBOL : I_S (A), R_S (Ω), N (-), C_{J0} (F), V_J (V), M (-), B_V (V), I_{BV} (A)

FREQUENCY RANGE : f = 0.1~3 GHz

REVERSE VOLTAGE RANGE : V_R = 1~4 V

PARAMETER

I_S = 5.579E - 16

N = 1.012

B_V = 10

I_{BV} = 1.00E - 04

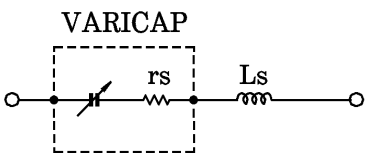
R_S = 0.28

C_{J0} = 1.620E - 11

V_J = 1.75

M = 0.99

L_s = 5.00E - 10



(Note 1) : These parameters from I_S to M mean die characteristic.
Actually device has lead inductance so L_s is necessary for simulation.
And please use default value except above parameters.

(Note 2) : R_S shows the value at the condition of V_R = 1 V and f = 470 MHz.
If another value is needed, please refer to R_S - V_R curve in this data sheets.