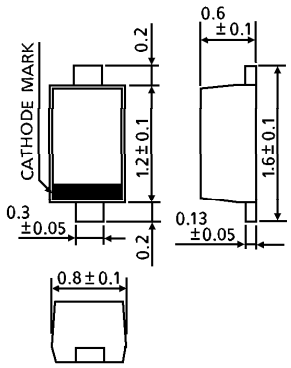
TOSHIBA DIODE SILICON EPITAXIAL PLANAR TYPE

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

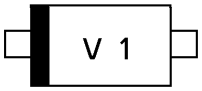


ESC	
JEDEC	—
EIAJ	—
TOSHIBA	1-1G1A

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Reverse Voltage	V_R	10	V
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	−55~125	°C

MARKING



ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Voltage	V_R	$I_R=1\mu A$	10	—	—	V
Reverse Current	I_R	$V_R=10V$	—	—	3	nA
Capacitance	C1V	$V_R=1V$, f=1MHz	9.7	—	11.1	pF
Capacitance	C_{4V}	$V_R=4V$, f=1MHz	4.45	—	5.45	pF
Capacitance Ratio	C_{1V}/C_{4V}	—	1.8	2.1	—	—
Series Resistance	r_S	$V_R=1V$, f=470MHz	—	0.28	0.4	Ω

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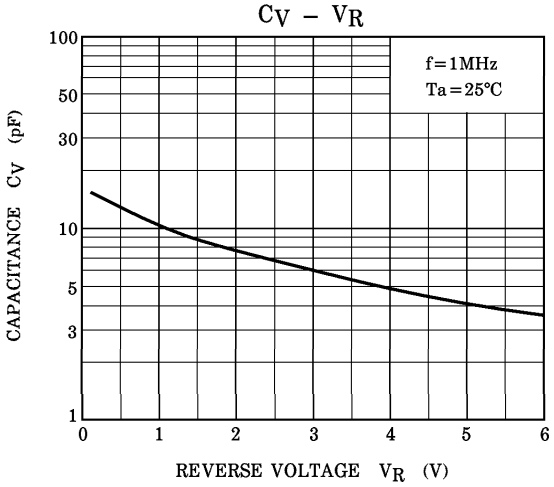
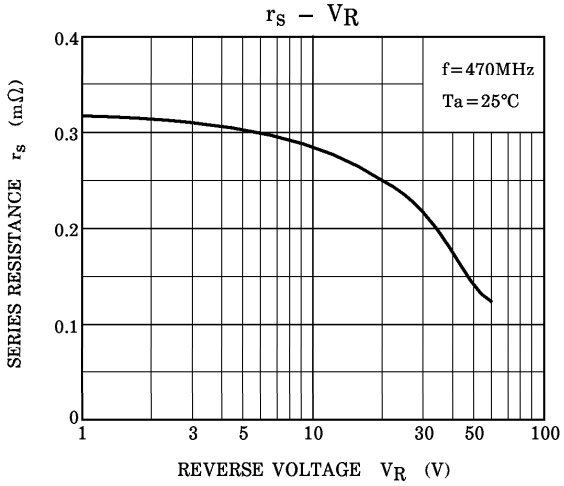




SPICE PARAMETER

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

DATA FORMAT : MODEL FORMAT

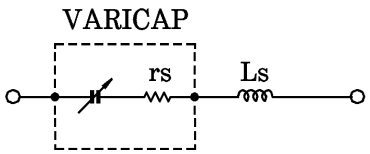
SPICE SYMBOL : I_S (A), R_S (Ω), N (–), CJ0 (F), V_J (V), M (–), B_V (V), I_{BV} (A)

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
CJ0	=	1.620E – 11
V_J	=	1.75
M	=	0.99
Ls	=	5.00E – 10



(Note 1) : These parameters from I_S to M mean die characteristic.
Actually device has lead inductance so Ls 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.