

**TOSHIBA****1SV305**

TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

**1SV305**

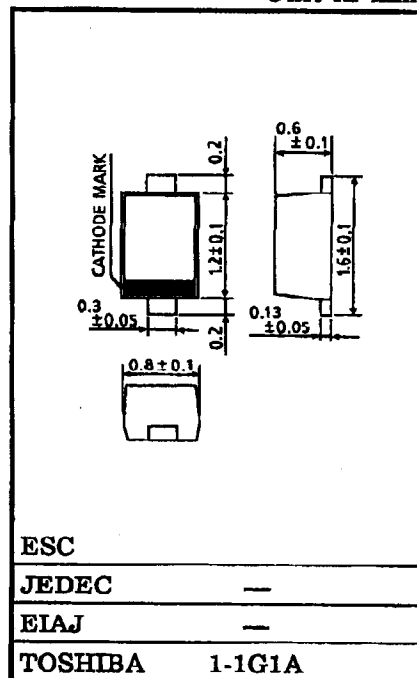
VCO FOR VHF BAND RADIO

Unit in mm

- Small Package
- High Capacitance Ratio :  $C_{1V}/C_{4V}=3.0$  (Typ.)
- Low Series Resistance :  $r_s=0.27\Omega$  (Typ.)

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

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

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

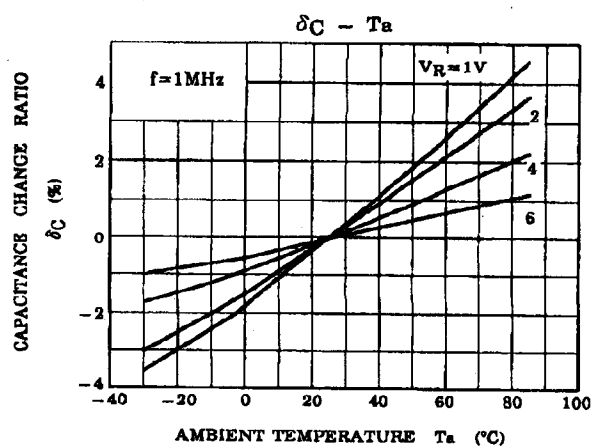
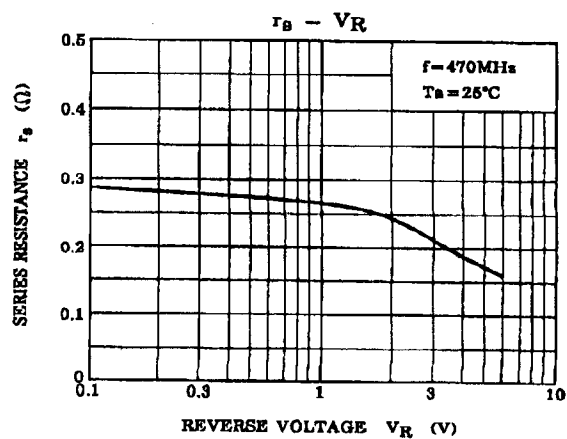
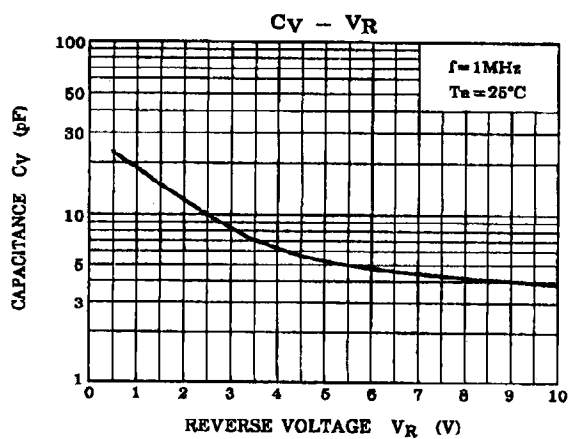
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX	UNIT
Reverse Voltage	$V_R$	$I_R=1\mu\text{A}$	10	—	—	V
Reverse Current	$I_R$	$V_R=10\text{V}$	—	—	3	nA
Capacitance	$C_{1V}$	$V_R=1\text{V}, f=1\text{MHz}$	17.3	18.3	19.3	pF
Capacitance	$C_{4V}$	$V_R=4\text{V}, f=1\text{MHz}$	5.3	6.1	6.6	pF
Capacitance Ratio	$C_{1V}/C_{4V}$	—	2.8	3	—	—
Series Resistance	$r_s$	$V_R=1\text{V}, f=470\text{MHz}$	—	0.27	0.32	$\Omega$

MARKING



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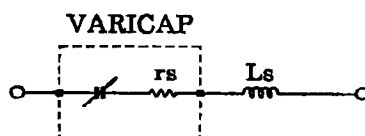
**TOSHIBA****1SV305**

**TOSHIBA****1SV305****SPICE PARAMETER**

**SPICE MODEL** : BERKLEY SPICE.2G.6 DIODE MODEL  
**DATA FORMAT** : MODEL FORMAT  
**SPICE SYMBOL** :  $I_S$  (A),  $R_S$  ( $\Omega$ ),  $N$  (-),  $CJ0$  (F),  $V_J$  (V),  $M$  (-),  $B_V$  (V),  $I_{BV}$  (A)  
**FREQUENCY RANGE** :  $f = 0.1 \sim 3$  GHz  
**REVERSE VOLTAGE RANGE** :  $V_R = 1 \sim 4$  V

**PARAMETER**

$I_S = 8.971E - 16$   
 $N = 1.018$   
 $B_V = 10$   
 $I_{BV} = 1.00E - 04$   
 $R_S = 0.27$   
 $CJ0 = 3.254E - 11$   
 $V_J = 2.403$   
 $M = 1.713$   
 -----  
 $L_s = 5.00E - 10$



- (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.