

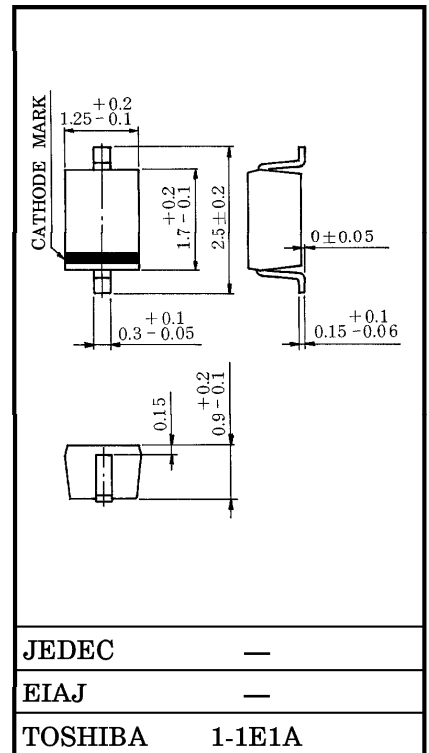
TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

1SV270

VCO FOR UHF BAND RADIO

Unit in mm

- High Capacitance Ratio : $C1V / C4V = 2.0$ (Typ.)
- Low Series Resistance : $r_s = 0.28\Omega$ (Typ.)
- Small Package



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

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

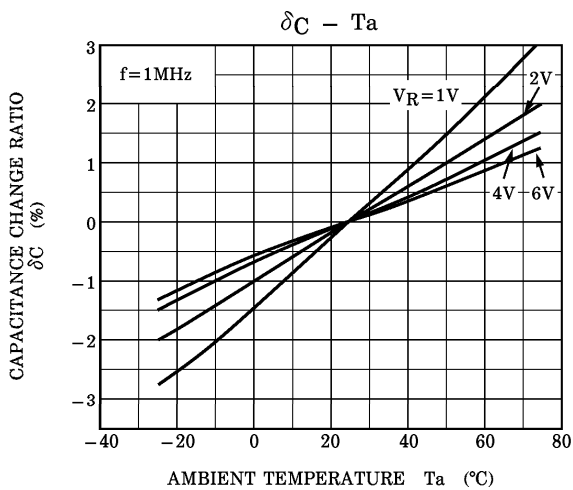
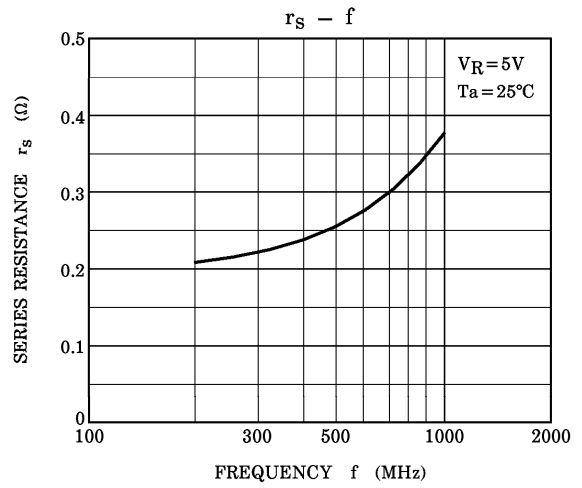
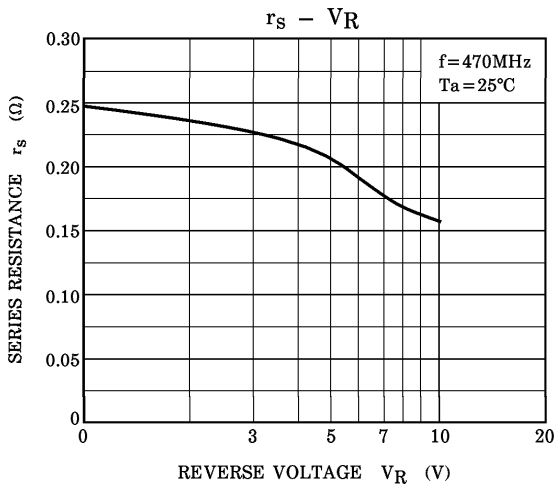
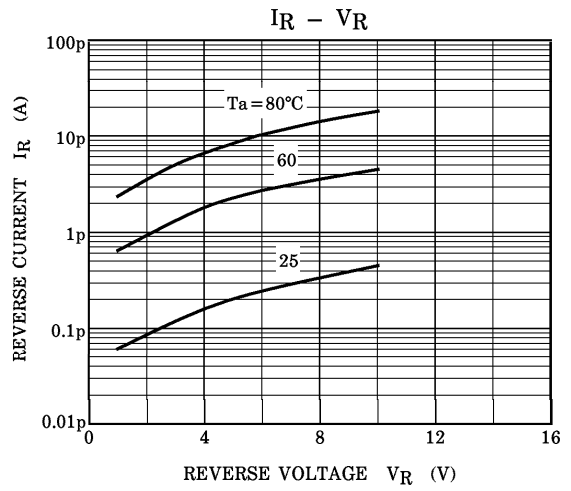
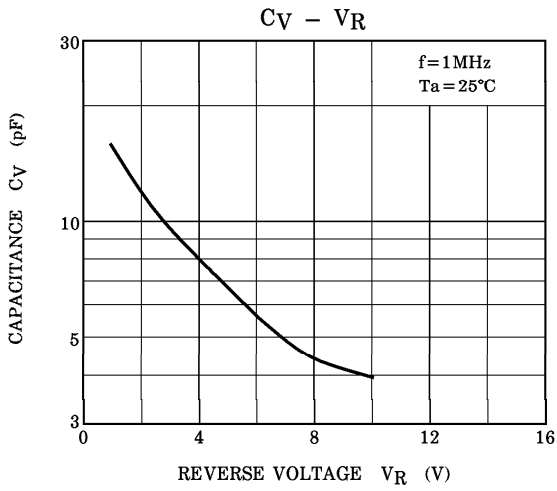
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Voltage	V_R	$I_R = 1\mu A$	10	—	—	V
Reverse Current	I_R	$V_R = 10V$	—	—	3	nA
Capacitance	C1V	$V_R = 1V, f = 1MHz$	15	16	17	pF
Capacitance	C4V	$V_R = 4V, f = 1MHz$	7.3	8.0	8.7	pF
Capacitance Ratio	C1V / C4V	—	1.8	2.0	—	—
Series Resistance	r_s	$V_R = 1V, f = 470MHz$	—	0.28	0.5	Ω

Marking



961001EAA2

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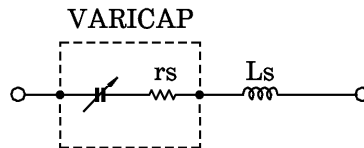
SPICE PARAMETER

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 : $f = 0.1 \sim 3$ GHz
 REVERSE VOLTAGE RANGE : $V_R = 1 \sim 4$ V

PARAMETER

$I_S = 6.929E - 16$
 $N = 1.017$
 $B_V = 10$
 $I_{BV} = 1.00E - 04$
 $R_S = 0.28$
 $CJ0 = 2.303E - 11$
 $V_J = 2.637$
 $M = 1.181$

 $L_s = 1.00E - 09$



- (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.