

TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

1SV284

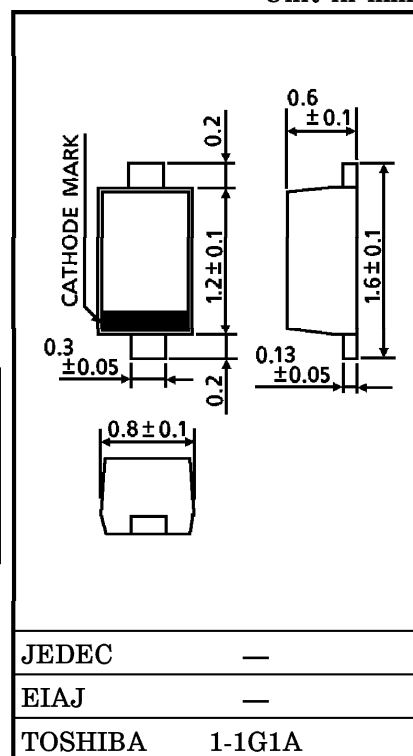
VCO FOR V/UHF BAND RADIO

Unit in mm

- High Capacitance Ratio : $C_{1V}/C_{4V}=2.0$ (TYP.)
- Low Series Resistance : $r_s=0.22\Omega$ (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}	$-55\sim 125$	$^\circ\text{C}$



Weight : 0.0014g

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

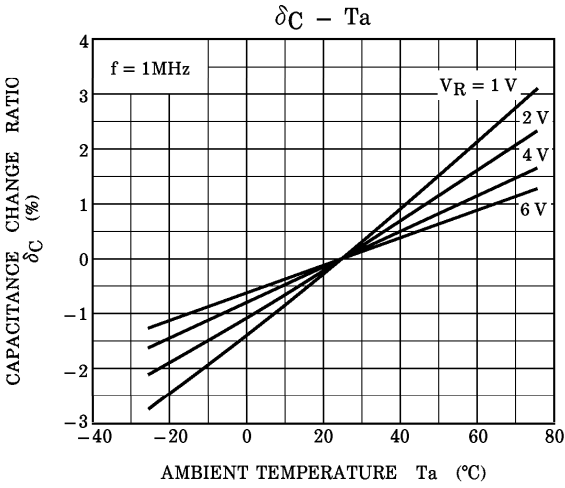
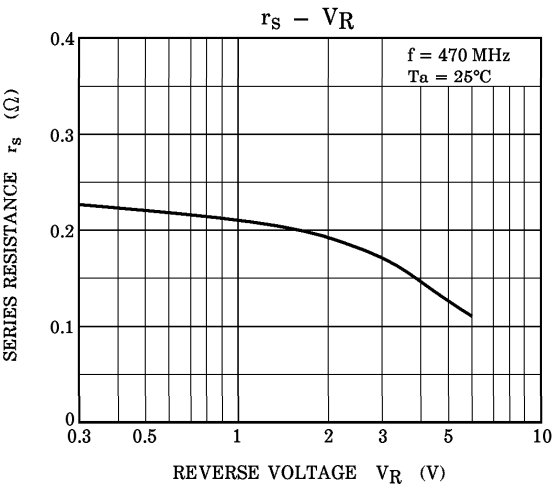
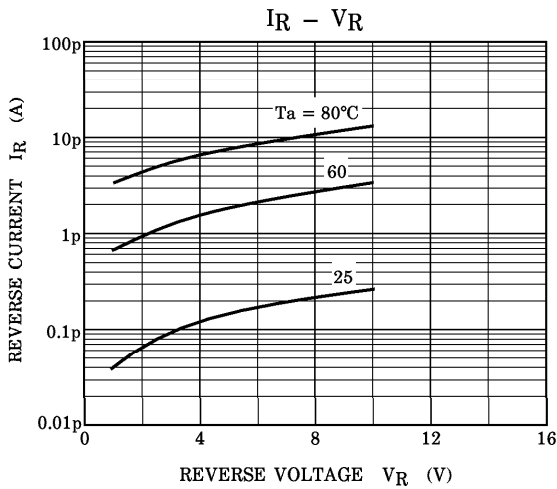
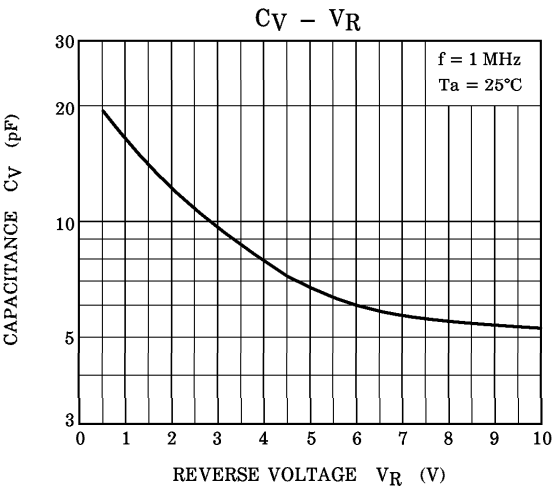
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Voltage	V_R	$I_R = 1\mu\text{A}$	10	—	—	V
Reverse Current	I_R	$V_R = 10\text{V}$	—	—	3	nA
Capacitance	C_{1V}	$V_R = 1\text{V}, f = 1\text{MHz}$	15	—	17	pF
Capacitance	C_{4V}	$V_R = 4\text{V}, f = 1\text{MHz}$	7.0	—	8.5	pF
Capacitance Ratio	C_{1V}/C_{4V}	—	1.8	2.0	—	—
Series Resistance	r_s	$V_R = 1\text{V}, f = 470\text{MHz}$	—	0.22	0.4	Ω

MARKING



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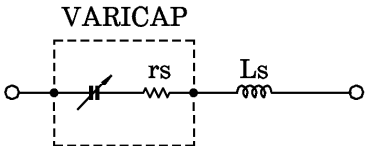
SPICE PARAMETER

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 = $1.070E - 15$
 N = 1.021
 B_V = 10
 I_{BV} = $1.00E - 04$
 R_S = 0.22
 $CJ0$ = $2.300E - 11$
 V_J = 2.18
 M = 1.03

 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.