

TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

1SV279

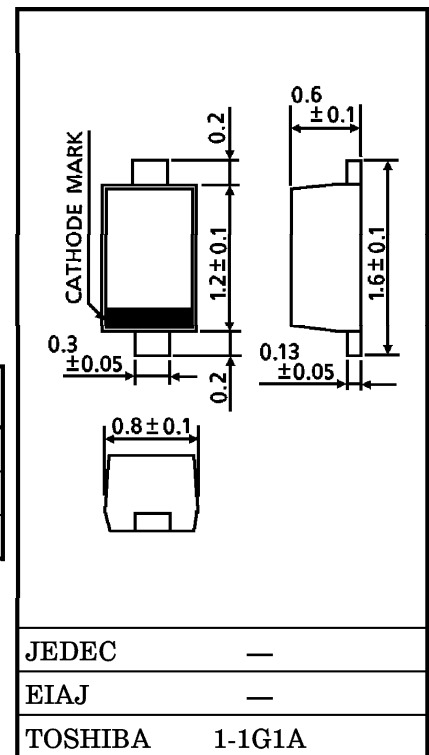
VCO FOR V/UHF BAND RADIO

Unit in mm

- High Capacitance Ratio : $C_{2V} / C_{10V} = 2.5$ (TYP.)
- Low Series Resistance : $r_s = 0.2\Omega$ (TYP.)
- Useful for Small Size Tuner.

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Reverse Voltage	V_R	15	V
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~125	$^\circ\text{C}$

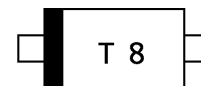


Weight : 0.0014g

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

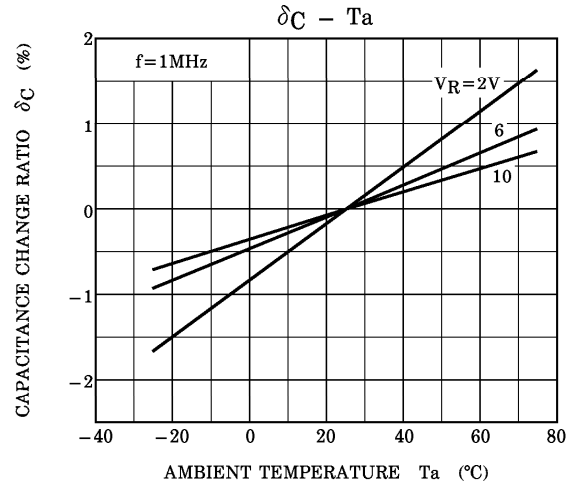
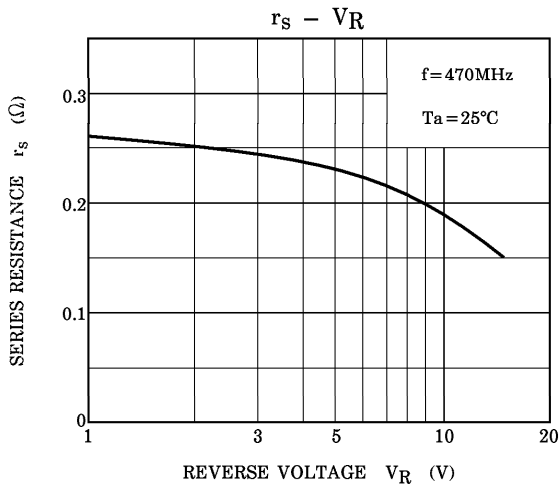
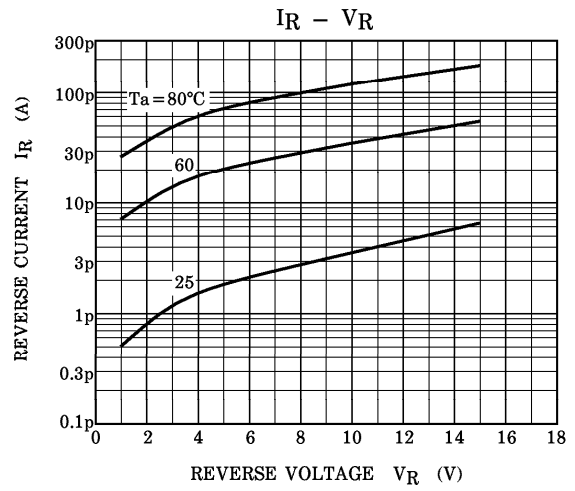
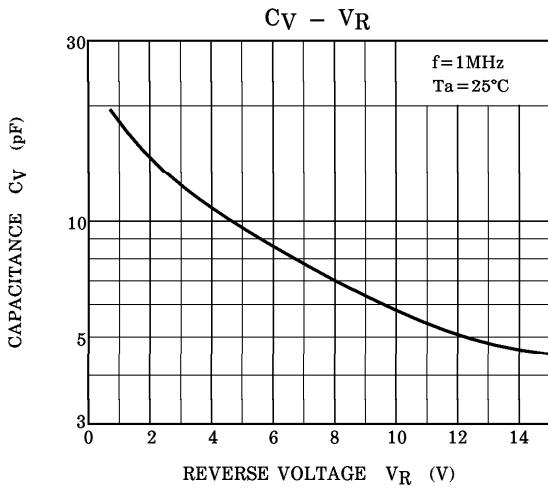
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Voltage	V_R	$I_R = 1\mu\text{A}$	15	—	—	V
Reverse Current	I_R	$V_R = 15\text{V}$	—	—	3	nA
Capacitance	C_{2V}	$V_R = 2\text{V}, f = 1\text{MHz}$	14	—	16	pF
Capacitance	C_{10V}	$V_R = 10\text{V}, f = 1\text{MHz}$	5.5	—	6.5	pF
Capacitance Ratio	C_{2V} / C_{10V}	—	2.0	2.5	—	—
Series Resistance	r_s	$V_R = 5\text{V}, f = 470\text{MHz}$	—	0.2	0.4	Ω

MARKING



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NOTE : $\delta C = \frac{C(T_a) - C(25)}{C(25)} \times 100$

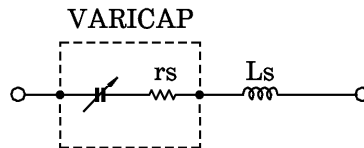
SPICE PARAMETER

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 : $V_R = 2 \sim 10$ V

PARAMETER

$I_S = 5.373E - 16$
 $N = 1.006$
 $B_V = 15$
 $I_{BV} = 1.00E - 04$
 $R_S = 0.2$
 $CJ0 = 2.599E - 11$
 $V_J = 2.657$
 $M = 0.9572$

 $L_s = 5.00E - 10$



- (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 $V_R = 5$ V and $f = 470$ MHz.
 If another value is needed, please refer to $R_S - V_R$ curve in this data sheets.