

TOSHIBA DIODE SILICON EPITAXIAL PLANAR TYPE

1SV313

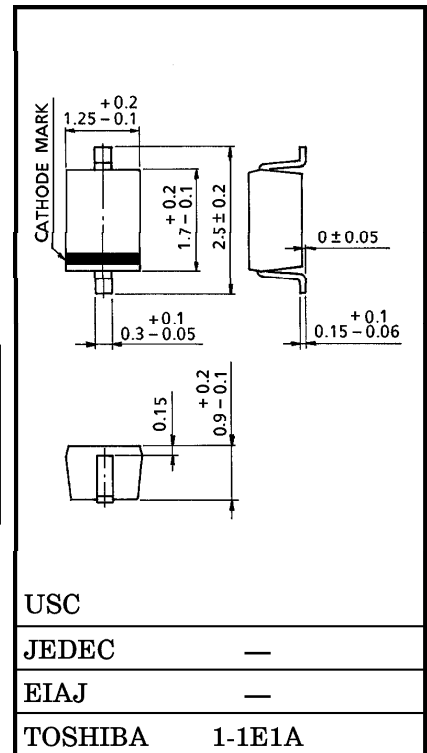
VCO FOR UHF BAND RADIO

- High Capacitance Ratio : $C_{0.5V} / C_{2.5V} = 2.5$ (Typ.)
- Low Series Resistance : $r_s = 0.35 \Omega$ (Typ.)
- Useful for Small Size Tuner

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

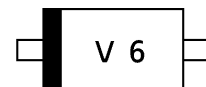
Unit in mm



ELECTRICAL CHARACTERISTICS (Ta = 25°C)

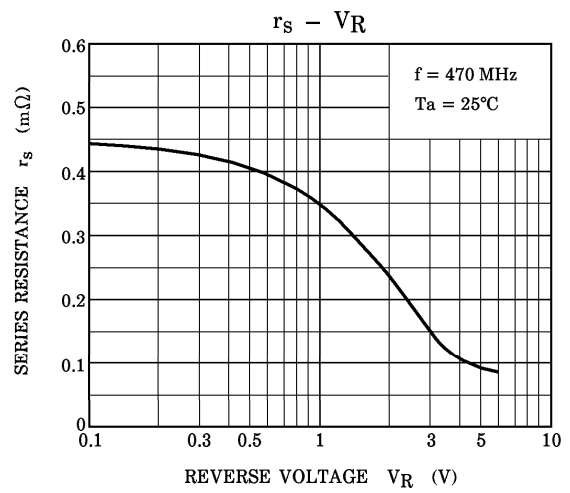
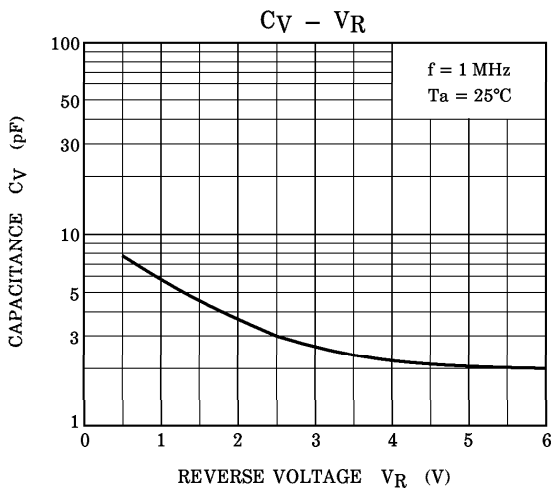
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Voltage	V_R	$I_R = 1 \mu A$	10	—	—	V
Reverse Current	I_R	$V_R = 10 V$	—	—	3	nA
Capacitance	$C_{0.5V}$	$V_R = 0.5 V, f = 1 MHz$	7.3	—	8.4	pF
Capacitance	$C_{2.5V}$	$V_R = 2.5 V, f = 1 MHz$	2.75	—	3.4	pF
Capacitance Ratio	$C_{0.5V} / C_{2.5V}$	—	2.4	2.5	—	—
Series Resistance	r_s	$V_R = 1 V, f = 470 MHz$	—	0.35	0.45	Ω

MARKING



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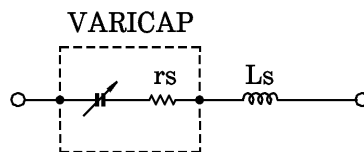


SPICE PARAMETER

- SPICE MODEL : BERKLEY SPICE.2G.6 DIODE MODEL
- DATA FORMAT : MODEL FORMAT
- SPICE SYMBOL : I_S (A), R_S (Ω), N (-), C_{J0} (F), V_J (V), M (-), B_V (V), I_{BV} (A)
- FREQUENCY RANGE : $f = 0.1 \sim 3$ GHz
- REVERSE VOLTAGE RANGE : $V_R = 0.5 \sim 2.5$ V

PARAMETER

- $I_S = 5.381E - 16$
- $N = 1.037$
- $B_V = 10$
- $I_{BV} = 1.00E - 04$
- $R_S = 0.35$
- $C_{J0} = 1.039E - 11$
- $V_J = 2.567$
- $M = 1.825$
-
- $L_s = 1.00E - 09$



- (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.