

TOSHIBA DIODE SILICON EPITAXIAL PLANAR TYPE

1SV313

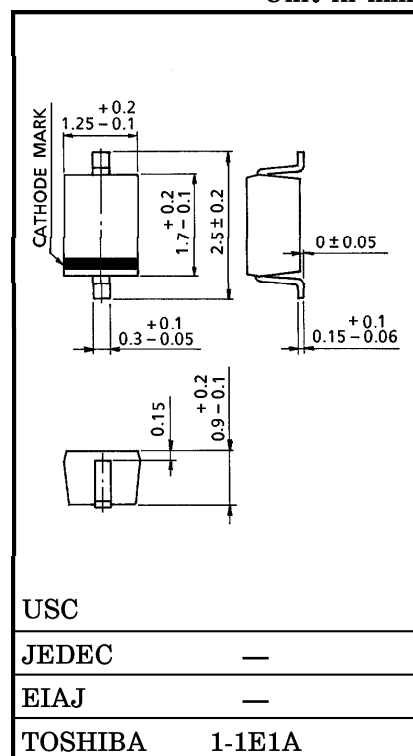
VCO FOR UHF BAND RADIO

Unit in mm

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

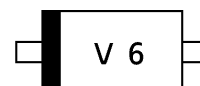
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

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

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

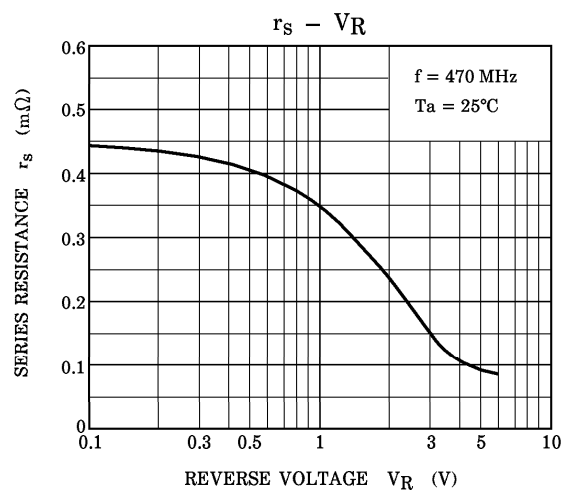
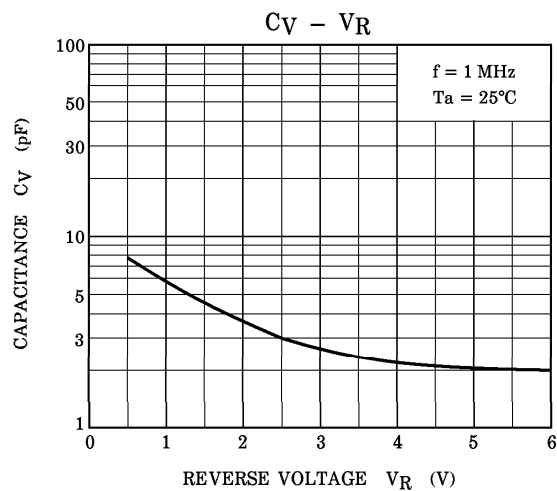
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Voltage	V_R	$I_R = 1\ \mu\text{A}$	10	—	—	V
Reverse Current	I_R	$V_R = 10\text{ V}$	—	—	3	nA
Capacitance	$C_{0.5\text{ V}}$	$V_R = 0.5\text{ V}, f = 1\text{ MHz}$	7.3	—	8.4	pF
Capacitance	$C_{2.5\text{ V}}$	$V_R = 2.5\text{ V}, f = 1\text{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

MARKING



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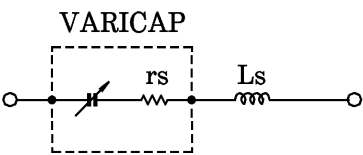
SPICE PARAMETER

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	: $f = 0.1 \sim 3 \text{ GHz}$
REVERSE VOLTAGE RANGE	: $V_R = 0.5 \sim 2.5 \text{ V}$

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 $V_R = 1 \text{ V}$ and $f = 470 \text{ MHz}$.
If another value is needed, please refer to $R_S - V_R$ curve in this data sheets.