

TOSHIBA DIODE SILICON EPITAXIAL PLANAR TYPE

1SV309

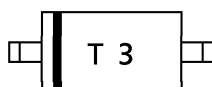
UHF SHF TUNING

- High Capacitance Ratio : $C_{2V}/C_{25V}=5.7$ (Typ.)
- Low Series Resistance : $r_s=1.2\Omega$ (Typ.)
- Excellent C-V Characteristics, and Small Tracking Error
- Useful for Small Size Tuner

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

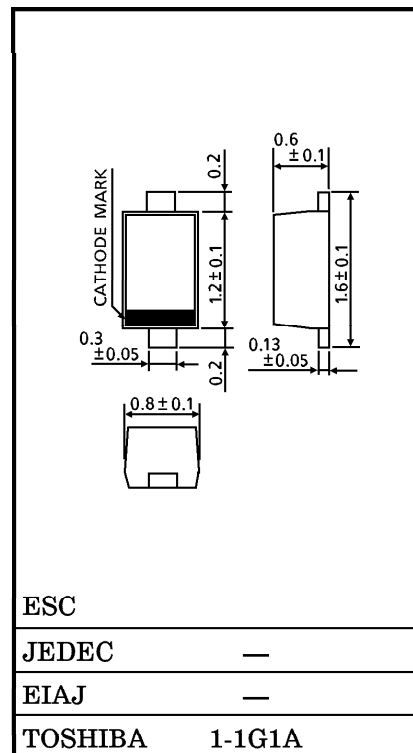
CHARACTERISTIC	SYMBOL	RATING	UNIT
Reverse Voltage	V_R	30	V
Peak Reverse Voltage	V_{RM}	35 ($R_L=10k\Omega$)	V
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55\sim 125$	$^\circ\text{C}$

MARKING



CATHODE MARK

Unit in mm

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

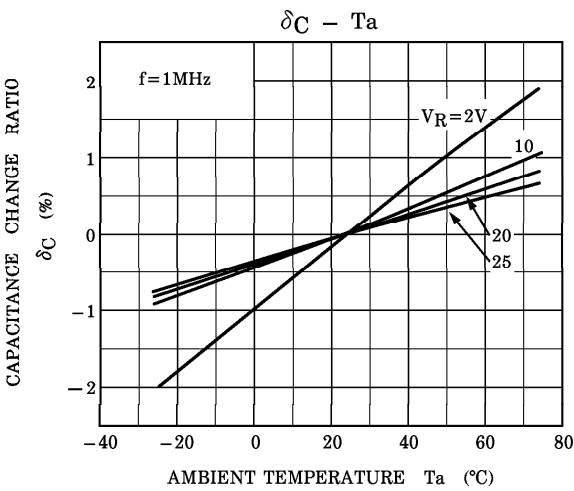
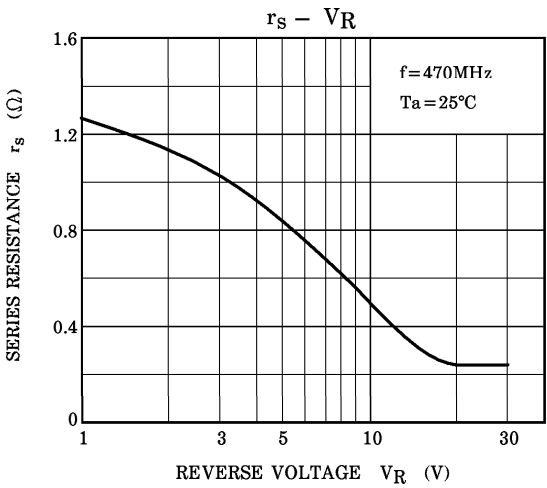
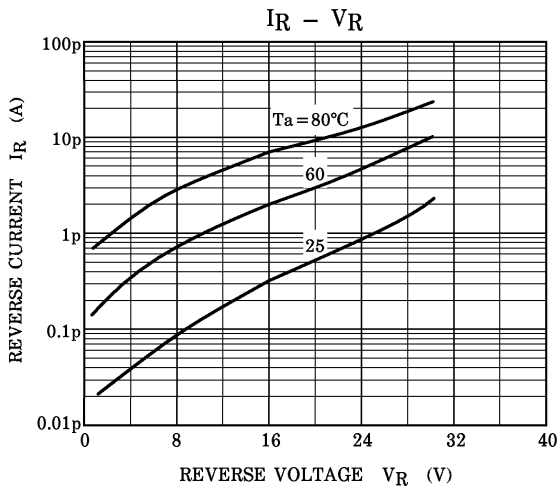
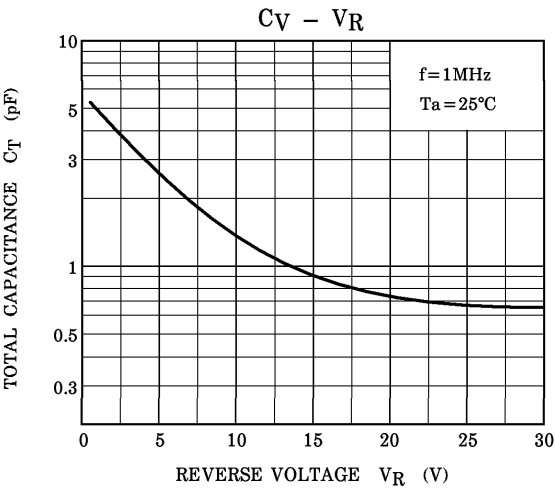
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Voltage	V_R	$I_R=1\mu\text{A}$	30	—	—	V
Reverse Current	I_R	$V_R=28\text{V}$	—	—	10	nA
Capacitance	C_{2V}	$V_R=2\text{V}, f=1\text{MHz}$	3.31	—	4.55	pF
Capacitance	C_{25V}	$V_R=25\text{V}, f=1\text{MHz}$	0.61	—	0.77	pF
Capacitance Ratio	C_{2V}/C_{25V}	—	5.0	—	6.5	—
Series Resistance	r_s	$V_R=1\text{V}, f=470\text{MHz}$	—	1.2	2.0	Ω

(Note) Unites are compounded in one package and are matched to 6.0%.

$$\frac{C(\text{Max.}) - C(\text{Min.})}{C(\text{Min.})} \leq 0.06$$

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NOTE : $\delta C (\%) = \frac{C (T_a = T^\circ\text{C}) - C (T_a = 25^\circ\text{C})}{C (T_a = 25^\circ\text{C})} \times 100$

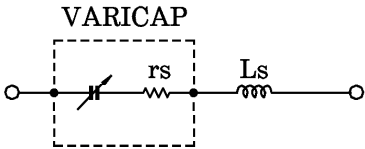
SPICE PARAMETER

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 : $V_R = 2 \sim 25$ V

PARAMETER

$I_S = 5.020E - 16$
 $N = 1.041$
 $B_V = 30$
 $I_{BV} = 1.00E - 04$
 $R_S = 1.2$
 $CJ0 = 5.948E - 12$
 $V_J = 4.4$
 $M = 1.185$

 $L_s = 5.00E - 10$



- (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.