

TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

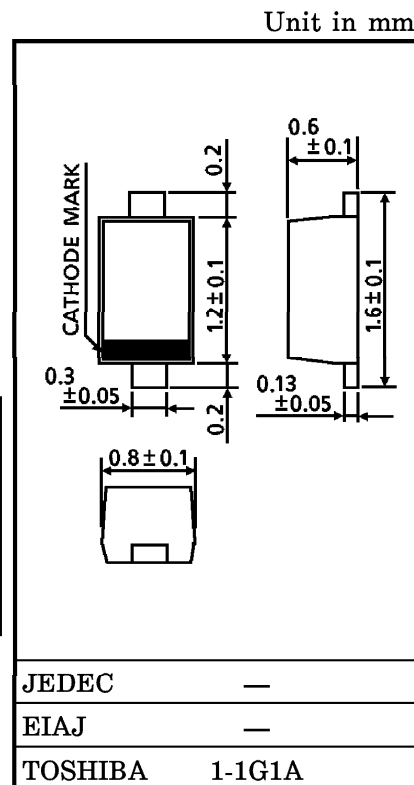
1SV282

CATV TUNING

- High Capacitance Ratio : $C_{2V}/C_{25V}=12.5$ (TYP.)
- Low Series Resistance : $r_s=0.6\Omega$ (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	34	V
Peak Reverse Voltage	V_{RM}	36 ($R_L=10k\Omega$)	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	$I_R=1\mu\text{A}$	34	—	—	V
Reverse Current	I_R	$V_R=32\text{V}$	—	—	10	nA
Capacitance	C_{2V}	$V_R=2\text{V}, f=1\text{MHz}$	33	—	38	pF
Capacitance	C_{25V}	$V_R=25\text{V}, f=1\text{MHz}$	2.6	—	3.0	pF
Capacitance Ratio	C_{2V}/C_{25V}	—	12.0	12.5	—	—
Capacitance Ratio	C_{25V}/C_{28V}	—	1.03	—	—	—
Series Resistance	r_s	$V_R=5\text{V}, f=470\text{MHz}$	—	0.6	0.8	Ω

Note 1 : Available in matched group for capacitance to 2%.

$$\frac{C(\text{MAX.}) - C(\text{MIN.})}{C(\text{MIN.})} \leq 0.02$$

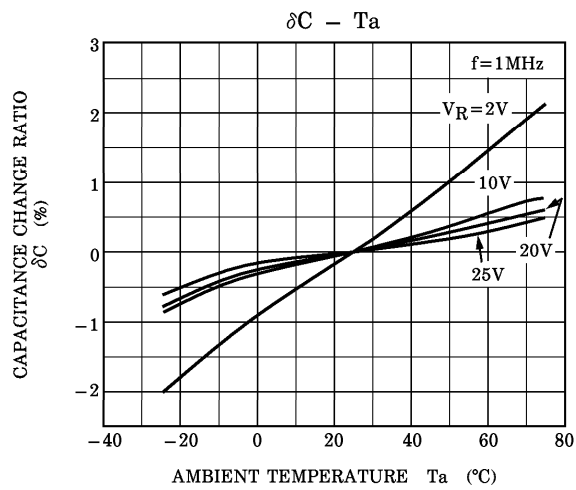
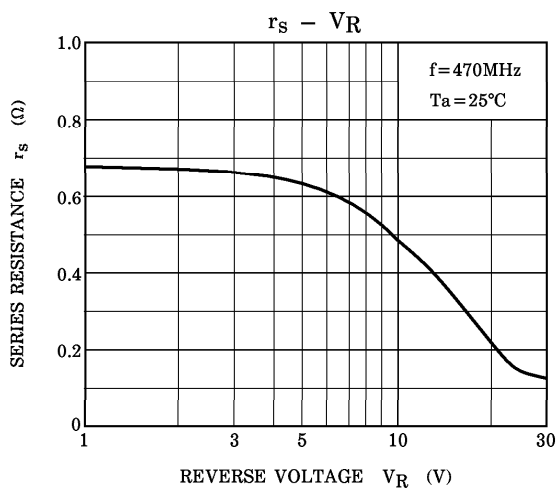
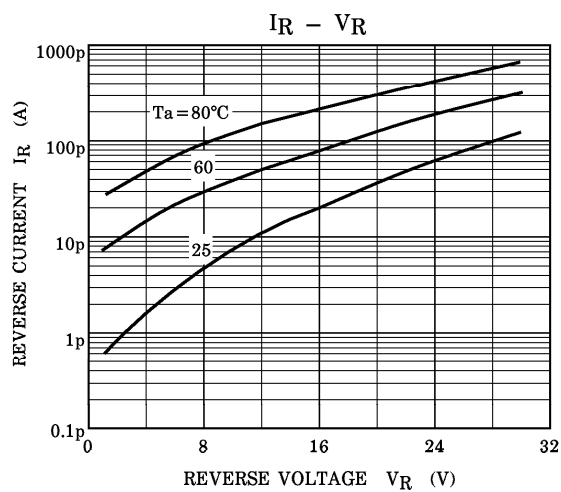
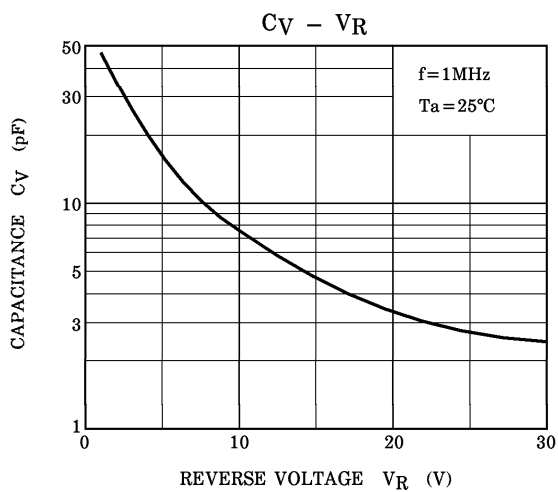
 $(V_R=2\sim 25\text{V})$

MARKING



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

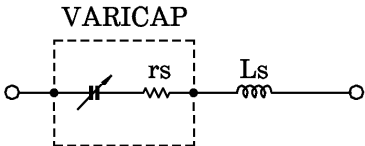
SPICE PARAMETER

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 : $V_R = 2 \sim 25$ V

PARAMETER

$I_S = 6.356E - 15$
 $N = 1.058$
 $B_V = 34$
 $I_{BV} = 1.00E - 04$
 $R_S = 0.6$
 $CJ0 = 8.577E - 11$
 $V_J = 2.208$
 $M = 1.396$

 $L_s = 5.00E - 10$



- (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.