

TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

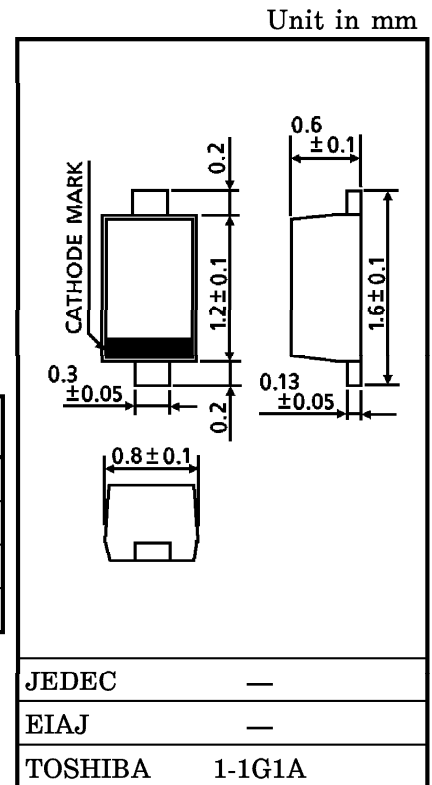
# 1SV283

CATV TUNING

- High Capacitance Ratio :  $C_{2V} / C_{25V} = 11.5$  (TYP.)
- Low Series Resistance :  $r_s = 0.55\Omega$  (TYP.)
- Excellent C-V Characteristics, and Small Tracking Error.
- Useful for Small Size Tuner.

MAXIMUM RATINGS (Ta = 25°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	°C
Storage Temperature Range	$T_{stg}$	-55~125	°C



Weight : 0.0014g

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Voltage	$V_R$	$I_R = 1\mu A$	34	—	—	V
Reverse Current	$I_R$	$V_R = 32V$	—	—	10	nA
Capacitance	$C_{2V}$	$V_R = 2V, f = 1MHz$	29	—	34	pF
Capacitance	$C_{25V}$	$V_R = 25V, f = 1MHz$	2.5	—	2.9	pF
Capacitance Ratio	$C_{2V} / C_{25V}$	—	11.0	11.5	—	—
Capacitance Ratio	$C_{25V} / C_{28V}$	—	1.03	—	—	—
Series Resistance	$r_s$	$V_R = 5V, f = 470MHz$	—	0.55	0.7	$\Omega$

(Note 1) : Available in matched group for capacitance to 2.0%.

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

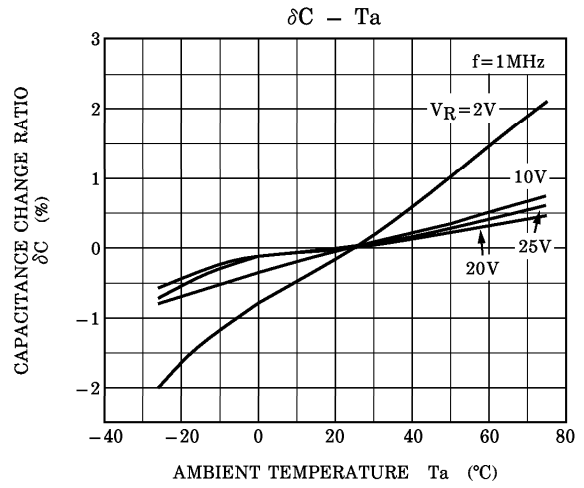
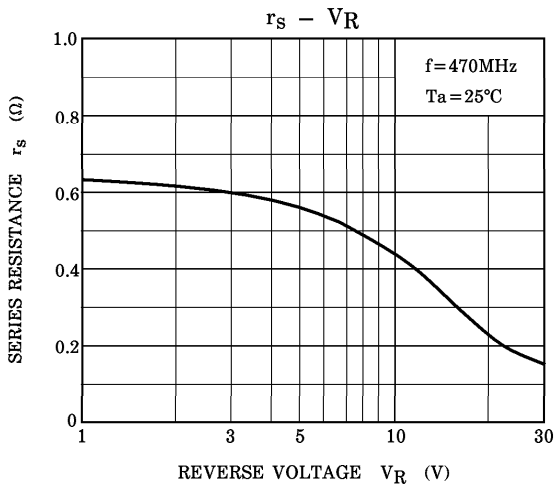
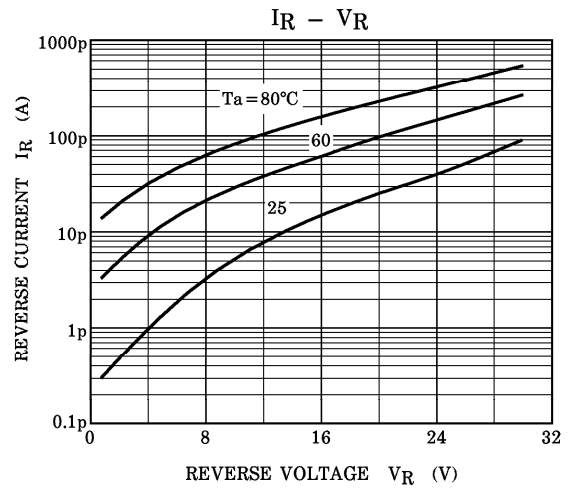
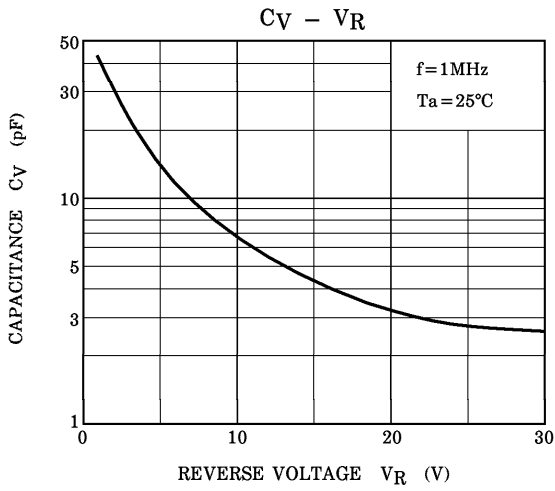
( $V_R = 2 \sim 25V$ )

MARKING



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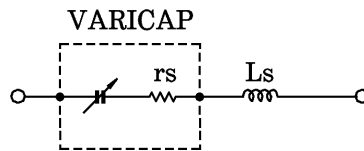
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SPICE PARAMETER

SPICE MODEL : BERKLEY SPICE.2G.6 DIODE MODEL  
 DATA FORMAT : MODEL FORMAT  
 SPICE SYMBOL :  $I_S$  (A),  $R_S$  ( $\Omega$ ),  $N$  (-),  $CJ0$  (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  
 AMBIENT TEMPERATURE :  $T_a = 27^\circ\text{C}$

PARAMETER

$I_S = 6.685E - 15$   
 $N = 1.069$   
 $B_V = 34$   
 $I_{BV} = 1.00E - 06$   
 $R_S = 0.55$   
 $CJ0 = 6.847E - 11$   
 $V_J = 2.378$   
 $M = 1.356$   
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 $L_s = 5.00E - 10$



- (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.