

TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

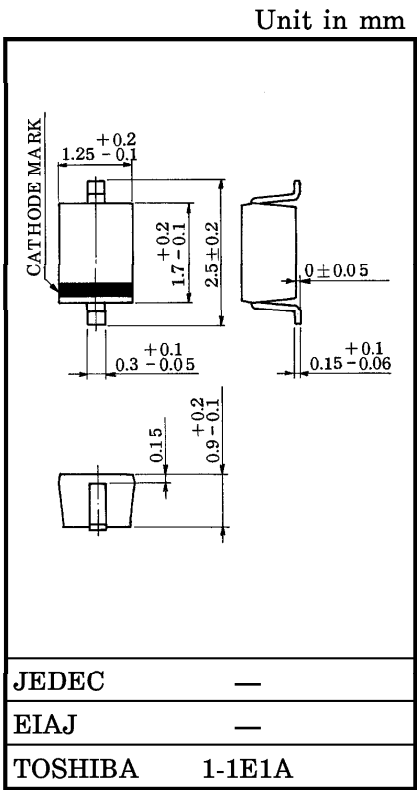
1SV232

CATV TUNING.

- High Capacitance Ratio : $C_{2V} / C_{25V} = 10.5$ (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	30	V
Peak Reverse Voltage	V_{RM}	35 ($R_L = 10k\Omega$)	V
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	-55~125	°C



Weight : 0.004g

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Voltage	V_R	$I_R = 1\mu A$	30	—	—	V
Reverse Current	I_R	$V_R = 28V$	—	—	10	nA
Capacitance	C_{2V}	$V_R = 2V, f = 1MHz$	28	30.3	32	pF
Capacitance	C_{25V}	$V_R = 25V, f = 1MHz$	2.75	2.90	3.10	pF
Capacitance Ratio	C_{2V} / C_{25V}	—	10	10.5	—	—
Series Resistance	r_s	$V_R = 5V, f = 470MHz$	—	0.55	0.70	Ω

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

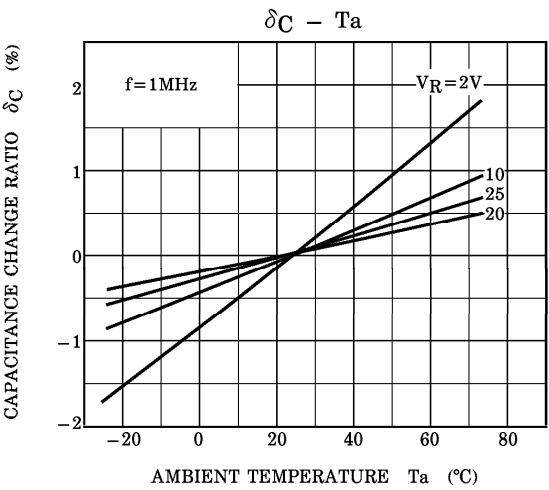
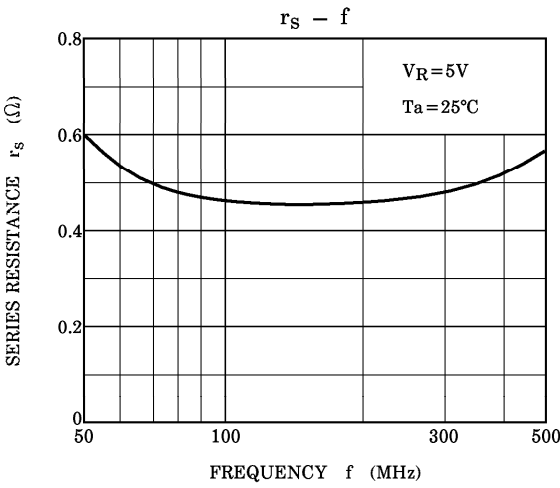
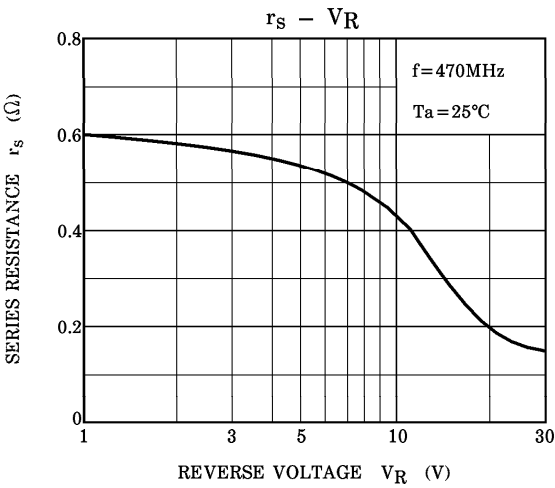
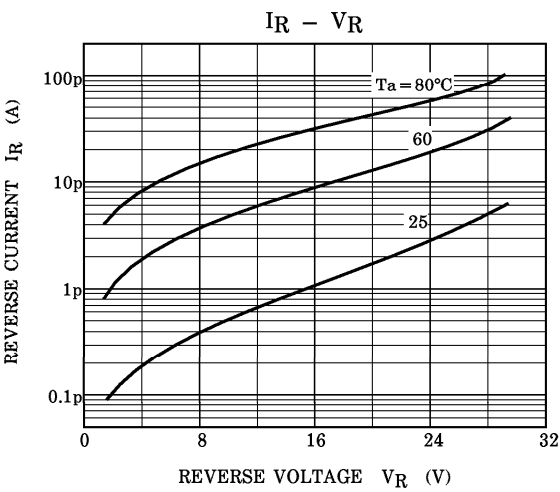
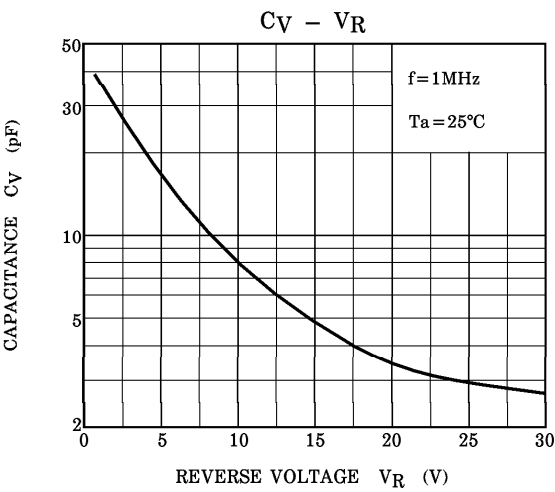


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NOTE : $\delta C (\%) = \frac{C(T_a) - C(25)}{C(25)} \times 100$

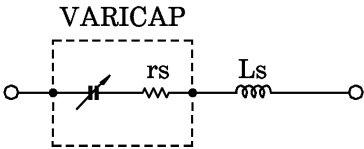
SPICE PARAMETER

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 = $5.320E - 15$
 N = 1.062
 B_V = 30
 I_{BV} = $1.00E - 04$
 R_S = 0.55
 $CJ0$ = $5.725E - 11$
 V_J = 3.574
 M = 1.431

 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 $V_R = 5$ V and $f = 470$ MHz.
If another value is needed, please refer to $R_S - V_R$ curve in this data sheets.