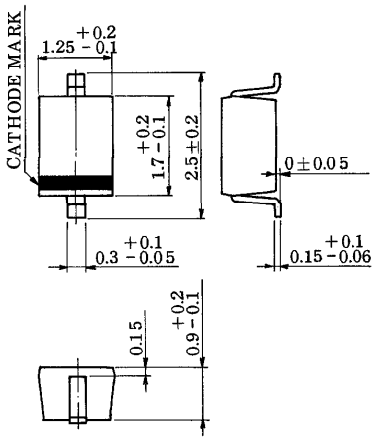
TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

1SV232

CATV TUNING.

Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	1-1E1A

Weight : 0.004g

- 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

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%.

$$\frac{C\,(\text{Max.}) - C\,(\text{Min.})}{C\,(\text{Min.})} \leqq 0.02$$

($V_R = 2 \sim 25V$)

Marking

961001EAA2

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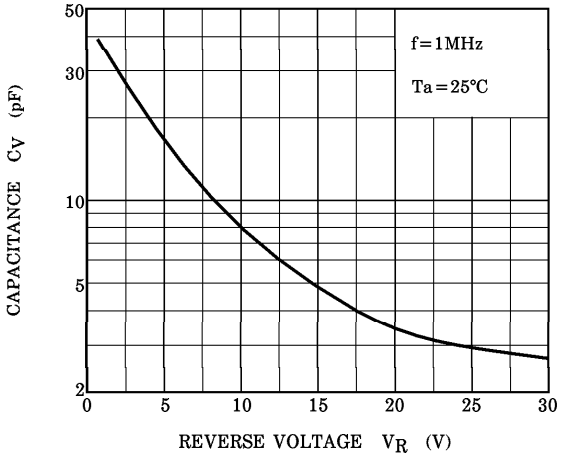
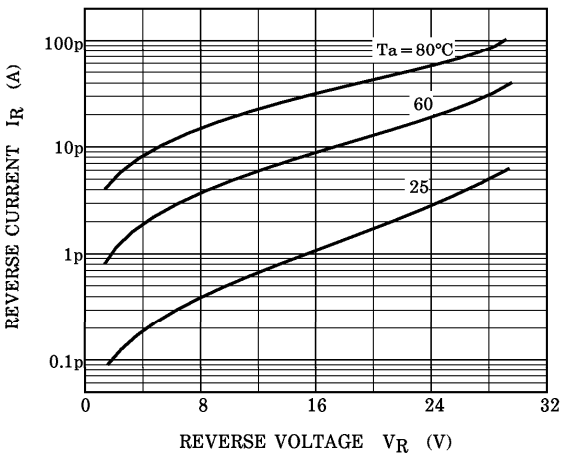
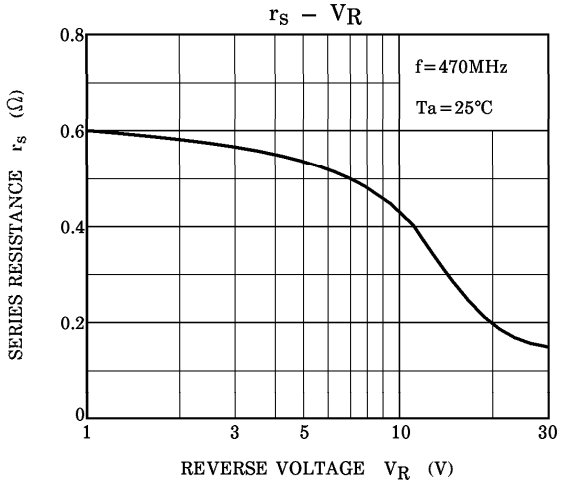
$C_V - V_R$



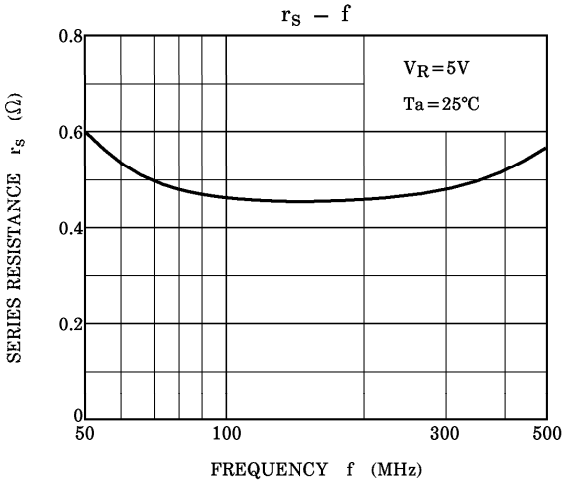
$I_R - V_R$



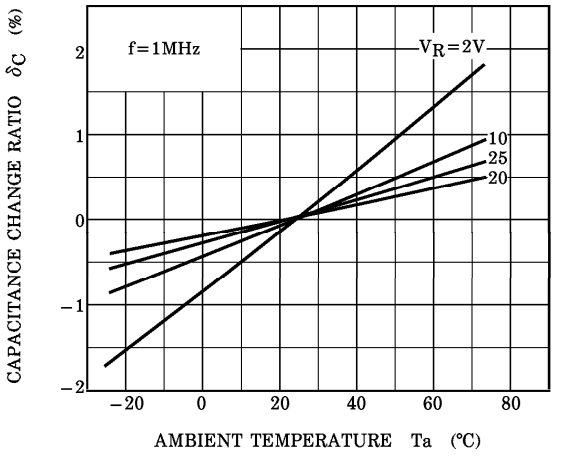
$r_S - V_R$



$r_S - f$



$\delta_C - Ta$



NOTE : $\delta_C\,(\%) = \dfrac{C\,(Ta) - C\,(25)}{C\,(25)} \times 100$

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 = 0.1~3 GHz

REVERSE VOLTAGE RANGE : V_R = 2~25 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
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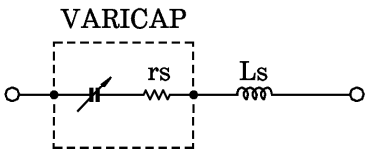
Ls	=	1.00E − 09



(Note 1) : These parameters from I_S to M mean die characteristic.
Actually device has lead inductance so Ls 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.