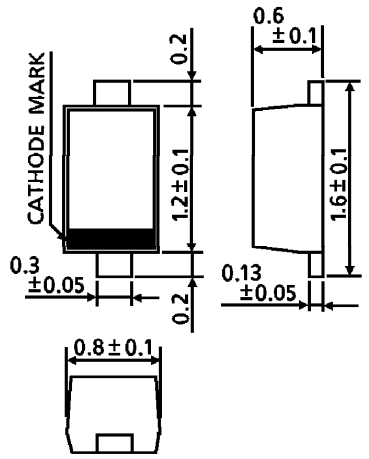
TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

1SV281

VCO FOR V/UHF BAND RADIO

Unit in mm

- High Capacitance Ratio : $C_{1V}/C_{4V}=2.0$ (TYP.)
- Low Series Resistance : $r_s=0.28\Omega$ (TYP.)
- Useful for Small Size Tuner.



JEDEC	—
EIAJ	—
TOSHIBA	1-1G1A

Weight : 0.0014g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Reverse Voltage	V_R	10	V
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	−55~125	°C

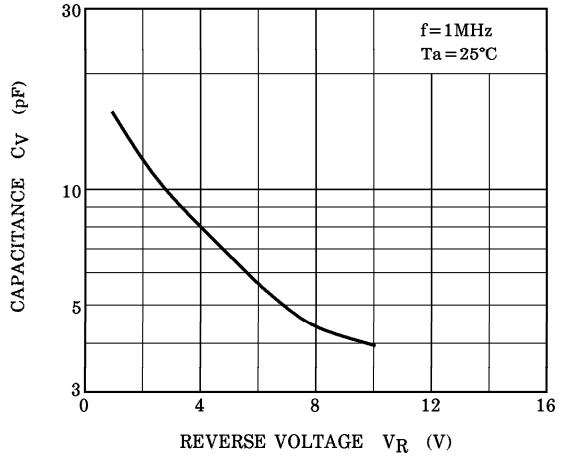
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Voltage	V_R	$I_R=1\mu A$	10	—	—	V
Reverse Current	I_R	$V_R=10V$	—	—	3	nA
Capacitance	C_{1V}	$V_R=1V$, f=1MHz	15	—	17	pF
Capacitance	C_{4V}	$V_R=4V$, f=1MHz	7.3	—	8.7	pF
Capacitance Ratio	C_{1V}/C_{4V}	—	1.8	2.0	—	—
Series Resistance	r_s	$V_R=1V$, f=470MHz	—	0.28	0.5	Ω

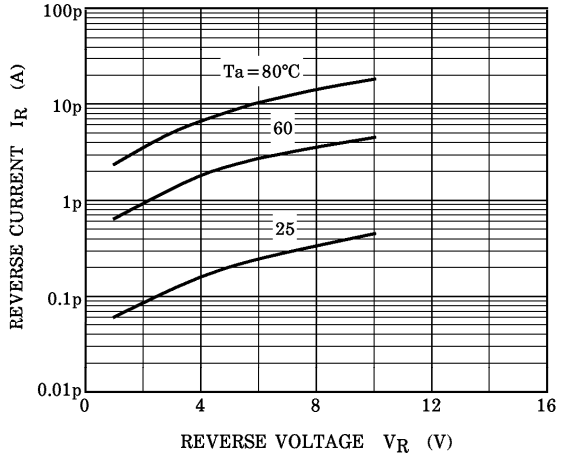
MARKING

000707EAA2

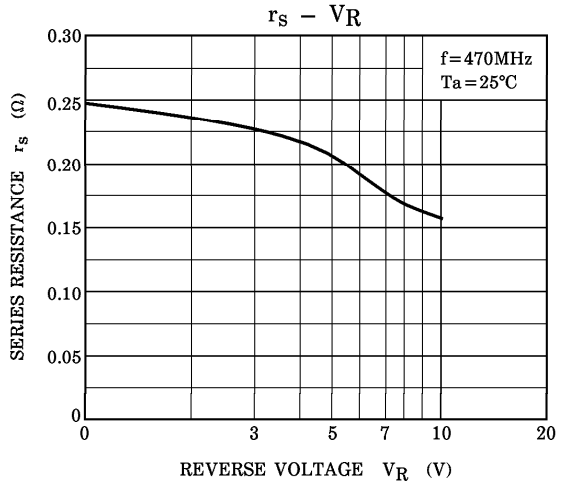
$C_V - V_R$



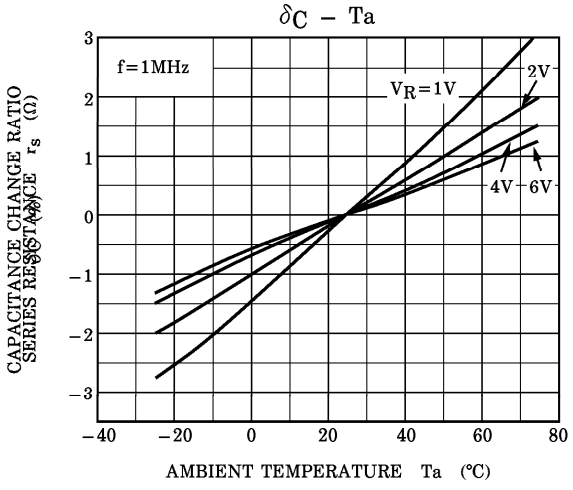
$I_R - V_R$



$r_s - V_R$



$\delta C - Ta$



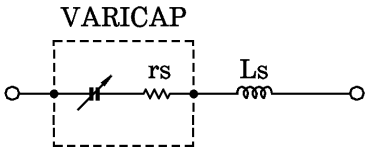
NOTE : $\delta_C = \dfrac{C(Ta) - C(25)}{C(25)} \times 100$

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 = 1~4 V
AMBIENT TEMPERATURE	: Ta = 27°C

PARAMETER

I_S	=	6.929E − 16
N	=	1.017
B_V	=	10
I_{BV}	=	1.00E − 04
R_S	=	0.28
CJ0	=	2.303E − 11
V_J	=	2.637
M	=	1.181
Ls	=	5.00E − 10



(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 = 1 V and f = 470 MHz.
If another value is needed, please refer to R_S – V_R curve in this data sheets.