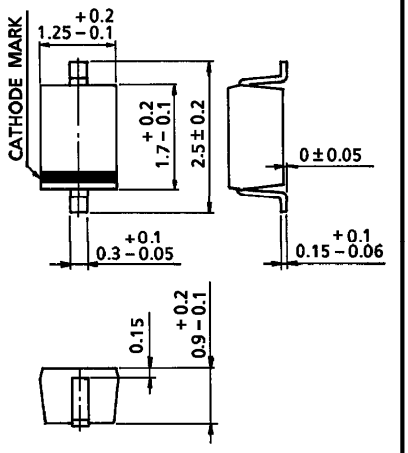
TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

# 1SV288

CATV TUNING

Unit in mm




| | |
|---|---|
| JEDEC | — |
| EIAJ | — |
| TOSHIBA | 1-1E1A |

Weight : 0.004g

- High Capacitance Ratio : $C_{2V}/C_{25V}=16$ (TYP.)
- Low Series Resistance : $r_S=0.92\Omega$ (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 | $V_R$ | 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 | 41 | — | 49.5 | pF |
| Capacitance | $C_{25V}$ | $V_R=25V$, f=1MHz | 2.5 | — | 3.2 | pF |
| Capacitance Ratio | $C_{2V}/C_{25V}$ | — | 15 | 16 | — | — |
| Series Resistance | $r_S$ | $V_R=5V$, f=470MHz | — | 0.92 | 1.05 | Ω |

Note 1 : Available in matched group for capacitance to 2.5%.

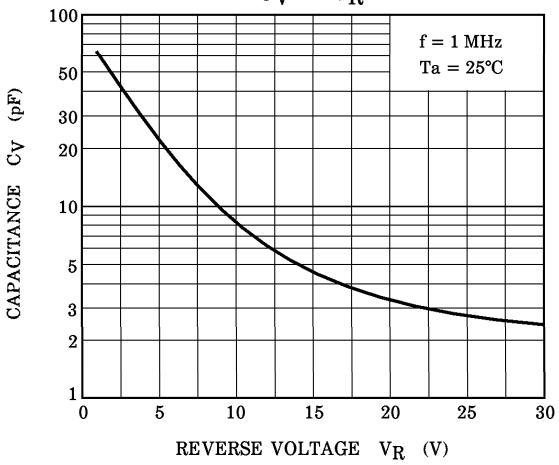
$$\frac{C(MAX.)-C(MIN.)}{C(MIN.)} \leqq 0.025$$

($V_R=2\sim25V$)

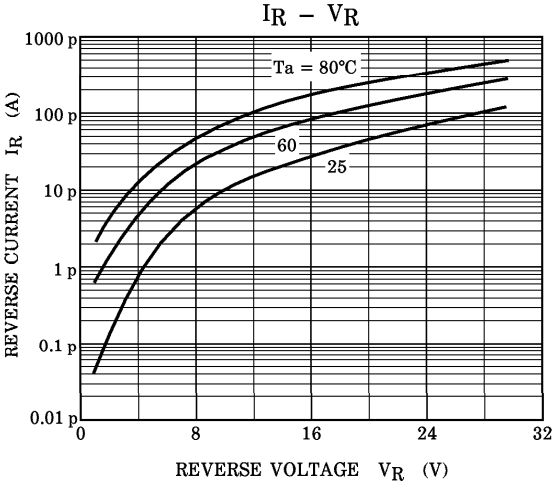
MARKING


961001EAA2

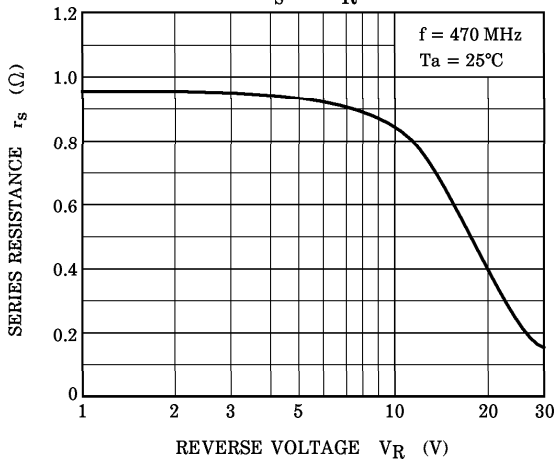
$C_V - V_R$



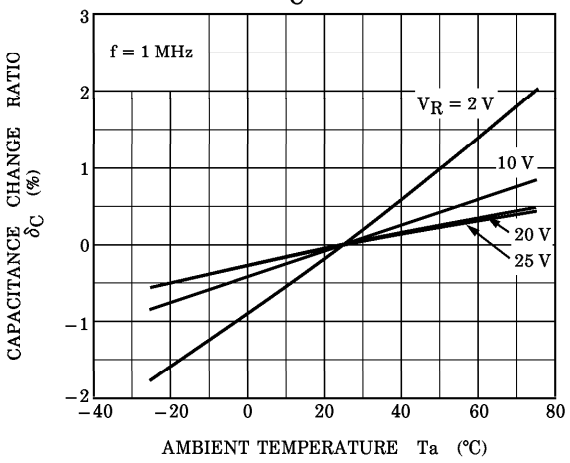

$I_R - V_R$




$r_S - V_R$




$\delta C - Ta$

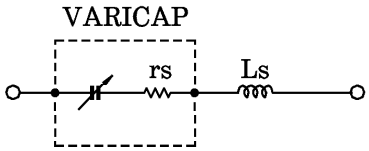


SPICE PARAMETER

| | |
|---|---|
| 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

| | | |
|---|---|---|
| $I_S$ | = | 9.480E − 15 |
| N | = | 1.058 |
| $B_V$ | = | 30 |
| $I_{BV}$ | = | 1.00E − 04 |
| $R_S$ | = | 0.92 |
| CJ0 | = | 1.000E − 10 |
| $V_J$ | = | 3.412 |
| M | = | 1.758 |
| − − − − − − − − − − | | |
| 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.