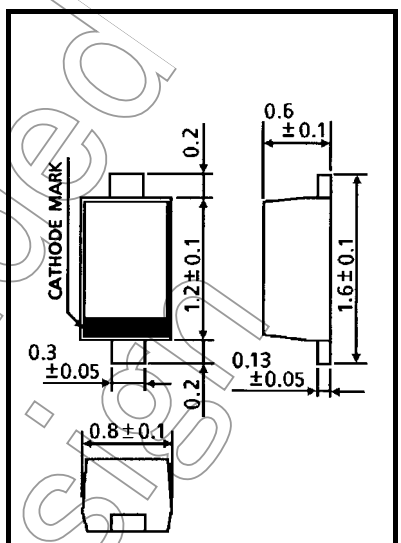
TOSHIBA Variable Capacitance Diode Silicon Epitaxial Planar Type

1SV290B

CATV Tuning

- High capacitance ratio: $C_{2\ V}/C_{25\ V}$ = 16 (typ.)
- Low series resistance: r_s = 0.92 Ω (typ.)
- Excellent C-V characteristics, and small tracking error.
- Suitable for small tuners

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	1-1G1A

Weight: 0.0014 g (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Reverse voltage	V_R	30	V
Peak reverse voltage	V_{RM}	35 (R_L = 10 kΩ)	V
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55~125	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/“Derating Concept and Methods”) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Reverse voltage	V_R	I_R = 1 μA	30	—	—	V
Reverse current	I_R	V_R = 28 V	—	—	10	nA
Capacitance	$C_{2\ V}$	V_R = 2 V, f = 1 MHz	41	45	49.5	pF
Capacitance	$C_{25\ V}$	V_R = 25 V, f = 1 MHz	2.5	2.8	3.2	pF
Capacitance ratio	$C_{2\ V}/C_{25\ V}$	—	14.8	16	—	—
Series resistance	r_s	V_R = 5 V, f = 470 MHz	—	0.92	1.05	Ω

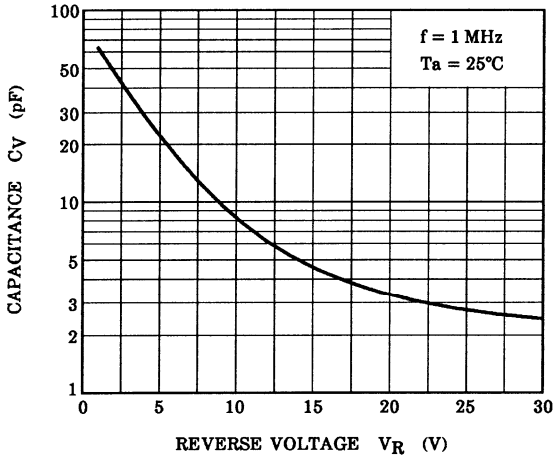
Note 1: Available in matched group for capacitance to 2%.

$$\frac{C\ (max) - C\ (min)}{C\ (min)} \leqq 0.02$$

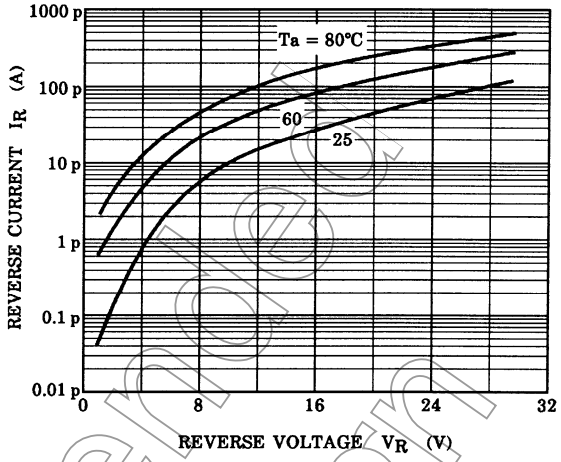
(V_R = 2~25 V)

Marking

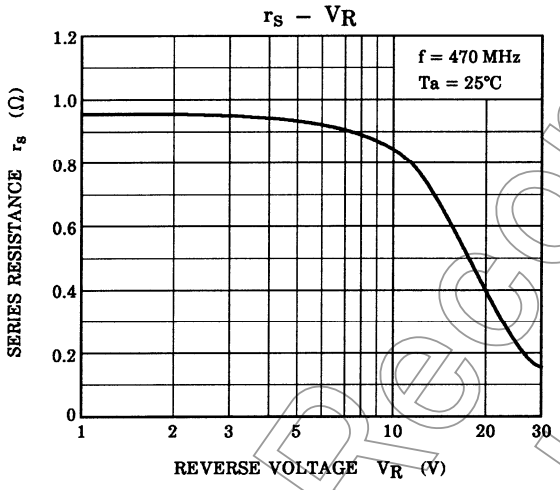
$C_V - V_R$



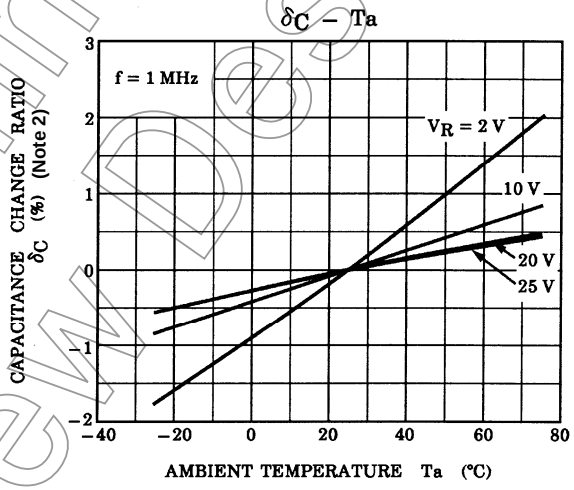
$I_R - V_R$



$r_s - V_R$



$\delta_C - Ta$



Note 2: $\delta_C = \dfrac{C\,(Ta) - C\,(25)}{C\,(25)} \times 100 \quad (\%)$

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