

TOSHIBA Variable Capacitance Diode Silicon Epitaxial Planar Type

## 1SV291

## UHF SHF Tuning

- High capacitance ratio:  $C_2 V/C_{25} V = 7.6$  (typ.)
- Low series resistance:  $r_s = 1.9 \Omega$  (typ.)
- Excellent C-V characteristics, and small tracking error.
- Useful for small size tuner.

Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Rating	Unit
Reverse voltage	$V_R$	30	V
Peak reverse voltage	$V_{RM}$	35 ( $R_L = 10 \text{ k}\Omega$ )	V
Junction temperature	$T_j$	125	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	$-55 \sim 125$	$^\circ\text{C}$

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).

Unit: mm

JEDEC	—
JEITA	—
TOSHIBA	1-1G1A

Weight: 0.0014 g (typ.)

Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Reverse voltage	$V_R$	$I_R = 1 \mu\text{A}$	30	—	—	V
Reverse current	$I_R$	$V_R = 28 \text{ V}$	—	—	10	nA
Capacitance	$C_{2V}$	$V_R = 2 \text{ V}, f = 1 \text{ MHz}$	4.2	—	5.7	pF
Capacitance	$C_{25V}$	$V_R = 25 \text{ V}, f = 1 \text{ MHz}$	0.53	—	0.68	pF
Capacitance ratio	$C_{2V}/C_{25V}$	—	7.3	7.7	—	—
Series resistance	$r_s$	$V_R = 1 \text{ V}, f = 470 \text{ MHz}$	—	1.9	2.3	$\Omega$

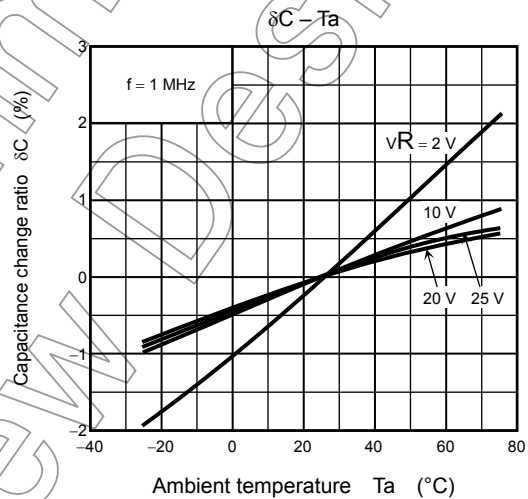
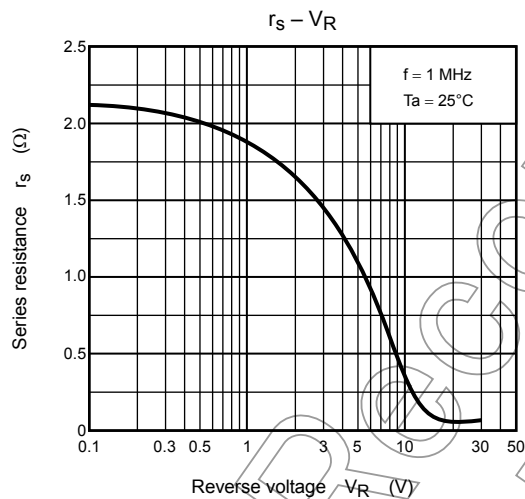
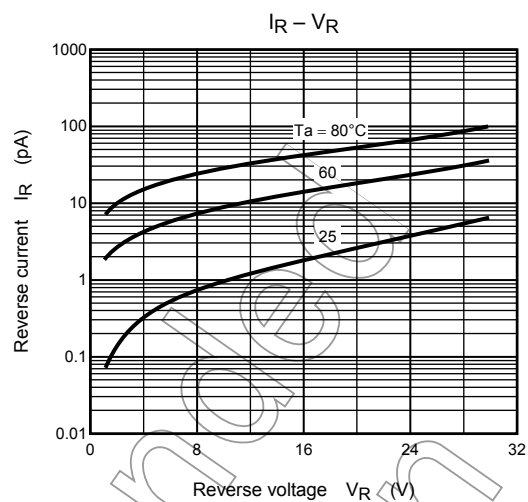
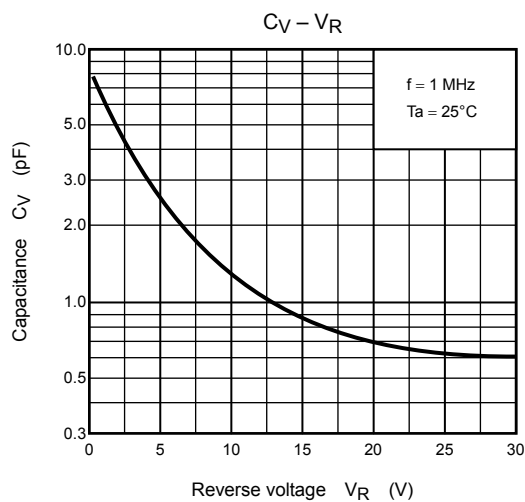
Note: Available in matched group for capacitance to 6%.

$$\frac{C(\text{max}) - C(\text{min})}{C(\text{min})} \leq 0.06$$

 $(V_R = 2 \sim 25 \text{ V})$ 

## Marking





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

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