

TOSHIBA Variable Capacitance Diode Silicon Epitaxial Planar Type

1SV242

TV VHF Wide Band Tuning

High capacitance ratio: $C1\text{ V}/C28\text{ V} = 14.5$ (typ.)

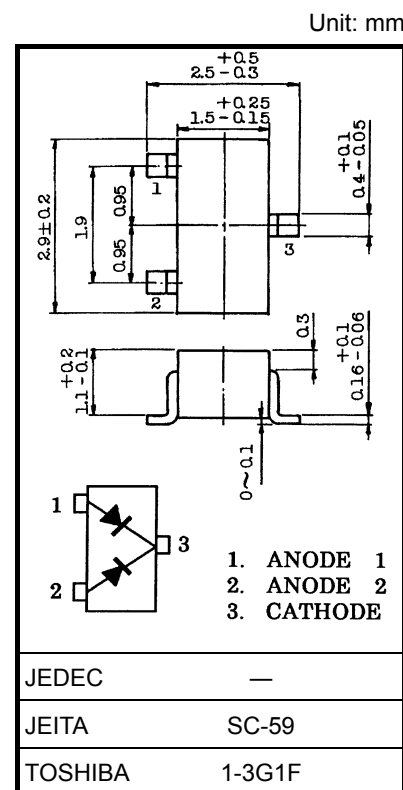
- Low series resistance: $r_s = 0.65\ \Omega$ (typ.)
- Excellent C-V characteristics, and small tracking error.
- Small package

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}	-55~125	$^\circ\text{C}$

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).



Weight: 0.013 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	$C1\text{ V}$	$V_R = 1\text{ V}, f = 1\text{ MHz}$ (Note 1)	36	39	42	pF
Capacitance	$C28\text{ V}$	$V_R = 28\text{ V}, f = 1\text{ MHz}$ (Note 1)	2.43	2.7	3.0	pF
Capacitance ratio	$C1\text{ V}/C28\text{ V}$	— (Note 1)	13.4	14.5	—	—
Series resistance	r_s	$V_R = 5\text{ V}, f = 470\text{ MHz}$ (Note 1)	—	0.65	0.8	Ω

Note 1: Characteristic between anode 1 and anode 2

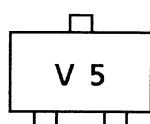
Note 2: The manufactured devices are divided into groups so that the capacitance variation in each group is kept below 2.5% in the V_R range from 1 V to 28 V.

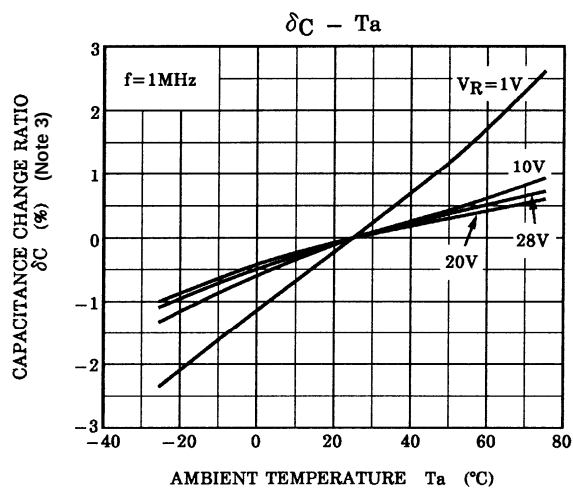
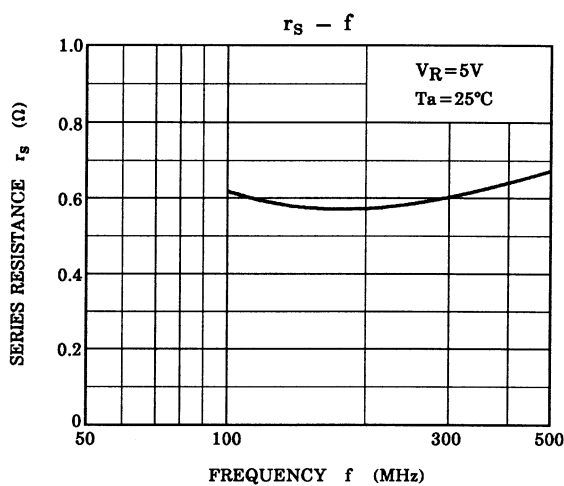
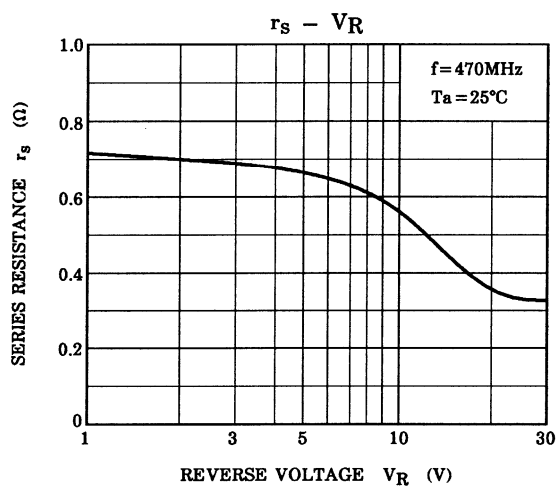
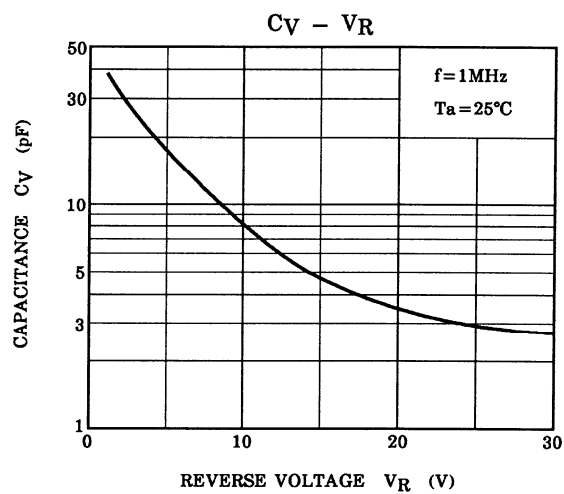
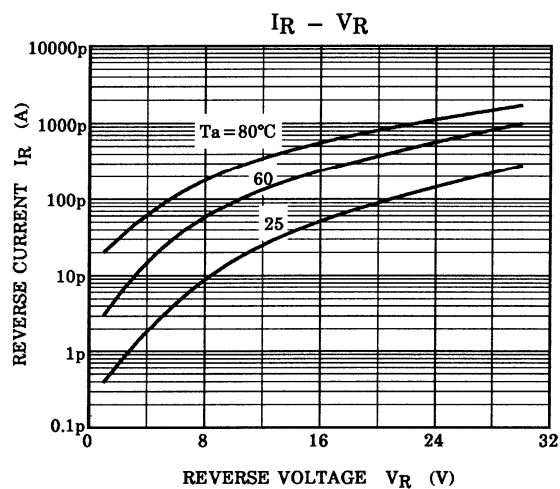
$$\frac{C(\text{max}) - C(\text{min})}{C(\text{min})} \leq 0.025 \quad (V_R = 1\sim 28\text{ V})$$

Note 3: Packing

Devices in each group occupy adjacent cavities of the embossed tape. The number of devices in each group is a multiple of 12 (except for TPH6/TPH6R and TPH7/TPHR7).

Marking





Note 3: $\delta C = \frac{C(T_a) - C(25)}{C(25)} \times 100$ (%)

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