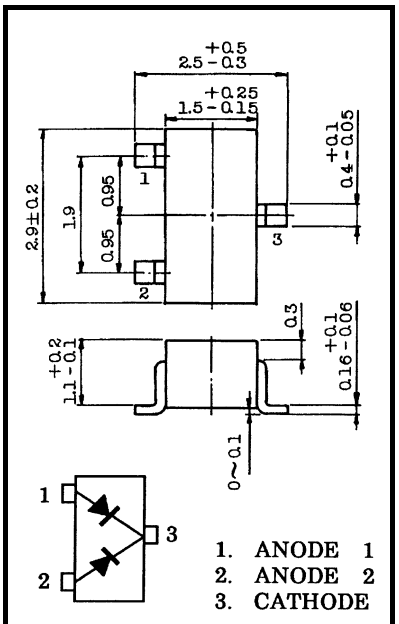
TOSHIBA Variable Capacitance Diode Silicon Epitaxial Planar Type

1SV242

TV VHF Wide Band Tuning

Unit: mm

- High capacitance ratio: C1 V/C28 V = 14.5 (typ.)
- Low series resistance: r_s = 0.65 Ω (typ.)
- Excellent C-V characteristics, and small tracking error.
- Small package



JEDEC	—
JEITA	SC-59
TOSHIBA	1-3G1F

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

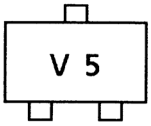
Note 1: Characteristic between anode 1 and anode 2

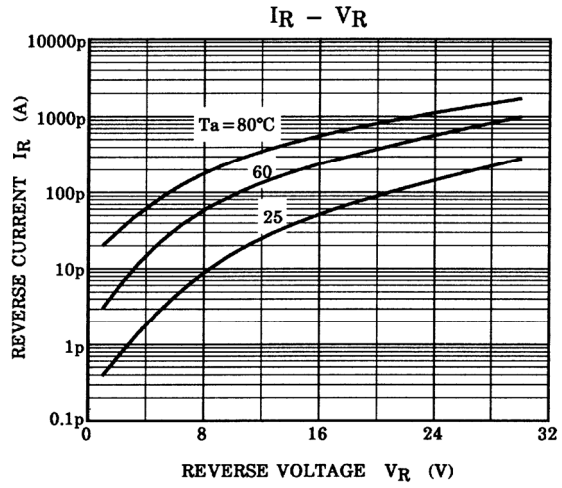
Note 2: The manufactured devices are divided into groups so that the capacitance variation in each group is kept below 2.5% in the VR range from 1 V to 28 V.

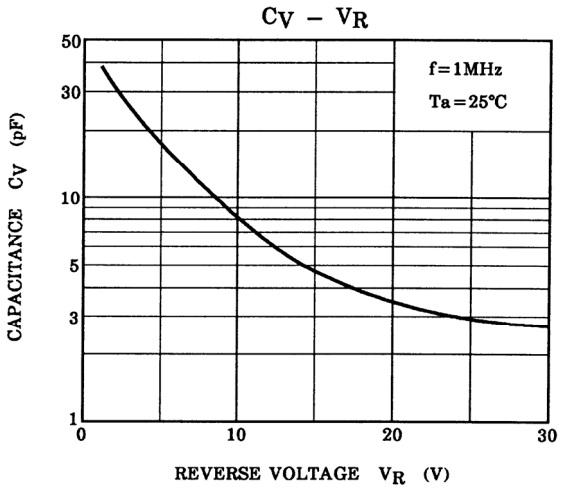
$$\frac{C\ (max) - C\ (min)}{C\ (min)} \leqq 0.025\ (VR = 1\sim28\ V)$$

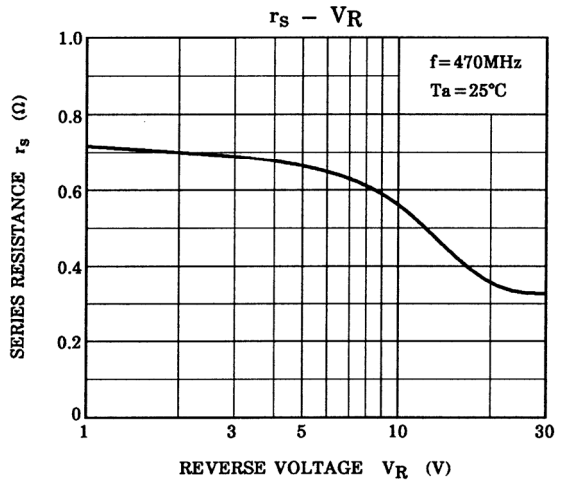
Note 3: Packing
Devices in each group occupy adjacent cavities of the embossed tape. The number of devices in each group is a multiple of 12 (except for TPH6/TPH6R and TPH7/TPHR7).

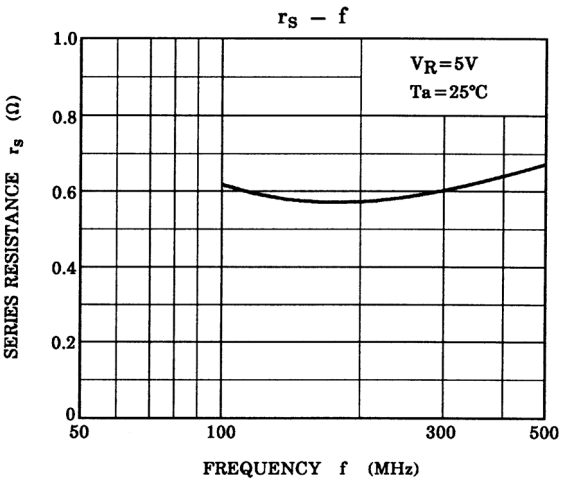
Marking

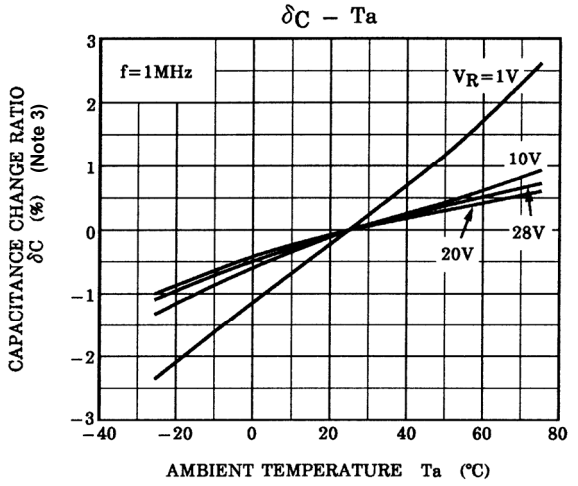












Note 3: $\delta_C = \dfrac{C\ (Ta) - C\ (25)}{C\ (25)} \times 100\ \ (\%)$

RESTRICTIONS ON PRODUCT USE

20070701-EN GENERAL

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