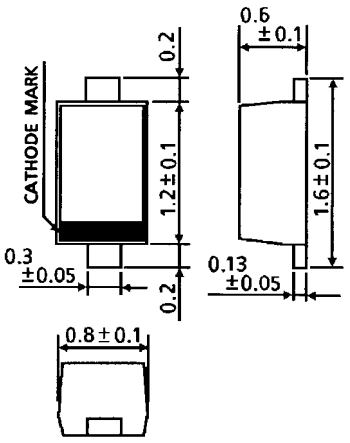
TOSHIBA Variable Capacitance Diode Silicon Epitaxial Planar Type

1SV278B

TV Tuning

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	1-1G1A

Weight: 0.0014 g (typ.)

- High capacitance ratio: $C_{2\ V}/C_{25\ V}$ = 6.5 (typ.)
- Low series resistance: r_s = 0.4 Ω (typ.)
- Excellent C-V characteristics, and small tracking error.
- Suitable for small tuners

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	14.16	—	16.25	pF
Capacitance	$C_{25\ V}$	V_R = 25 V, f = 1 MHz	2.01	—	2.43	pF
Capacitance ratio	$C_{2\ V}/C_{25\ V}$	—	5.90	6.50	7.28	—
Series resistance	r_s	V_R = 5 V, f = 470 MHz	—	0.4	0.58	Ω

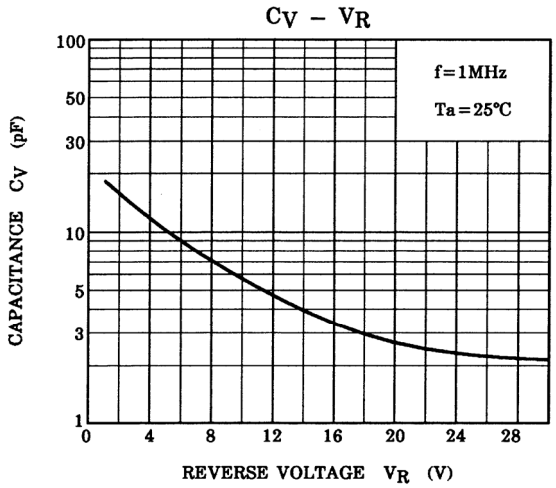
Note 1: Available in matched group for capacitance to 2.%.

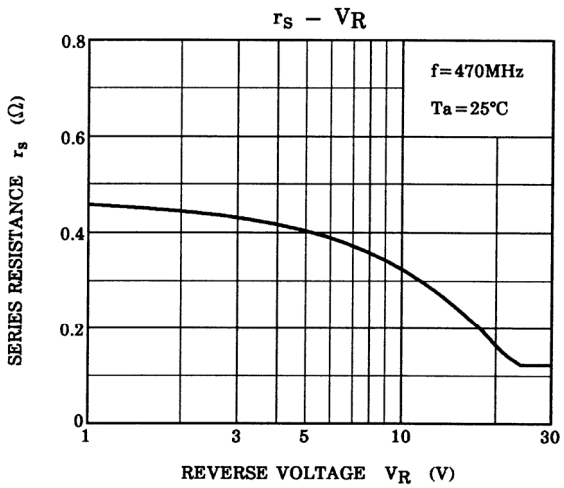
$$\frac{C\ (max) - C\ (min)}{C\ (min)} \leqq 0.02$$

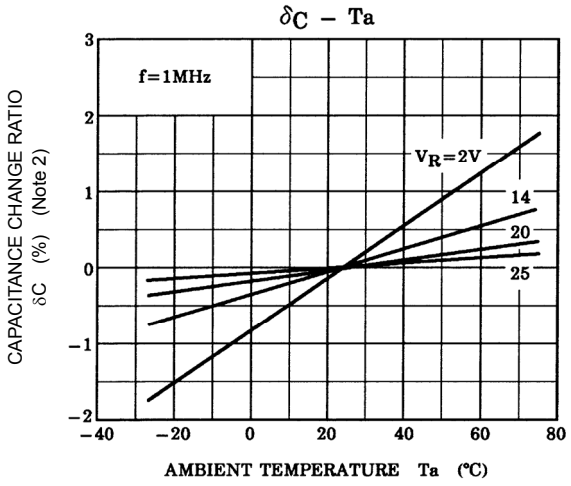
(V_R = 2~25 V)

Marking









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

RESTRICTIONS ON PRODUCT USE

20070701-EN GENERAL

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- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.
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