

TOSHIBA Variable Capacitance Diode Silicon Epitaxial Planar Type

## 1SV228

Electronic Tuning Applications of FM Receivers

Unit: mm

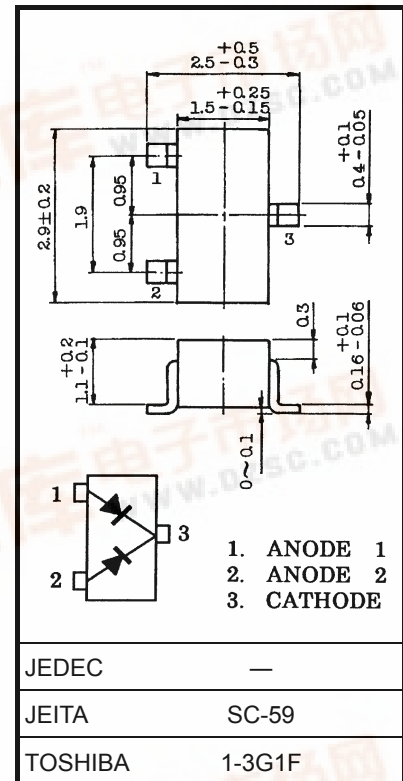
- Low  $r_s$ :  $r_s = 0.3 \Omega$  (typ.)
- Small package

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

Characteristics	Symbol	Rating	Unit
Reverse voltage	$V_R$	15	V
Junction temperature	$T_j$	125	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-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.).



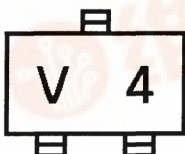
Weight: 0.013 g (typ.)

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

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Reverse voltage	$V_R$	$I_R = 10 \mu\text{A}$	15	—	—	V
Reverse current	$I_R$	$V_R = 15 \text{ V}$	—	—	10	nA
Capacitance	$C_{3V}$	$V_R = 3 \text{ V}$ , $f = 1 \text{ MHz}$ (Note 1)	28.5	30.5	32.5	pF
Capacitance	$C_{8V}$	$V_R = 8 \text{ V}$ , $f = 1 \text{ MHz}$ (Note 1)	11.7	12.7	13.7	pF
Capacitance ratio	$C_{3V}/C_{8V}$	— (Note 1)	2.1	—	2.6	—
Series resistance	$r_s$	$V_R = 3 \text{ V}$ , $f = 100 \text{ MHz}$ (Note 1)	—	0.3	0.5	$\Omega$

Note 1: Characteristics between anode 1 and anode 2

## Marking



**Table 1 Address Classification of Capacitance**  
**Test Condition: f = 1 MHz, Ta = 25°C**

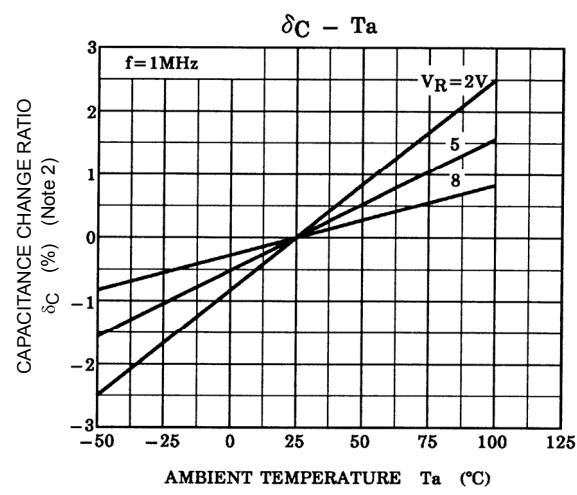
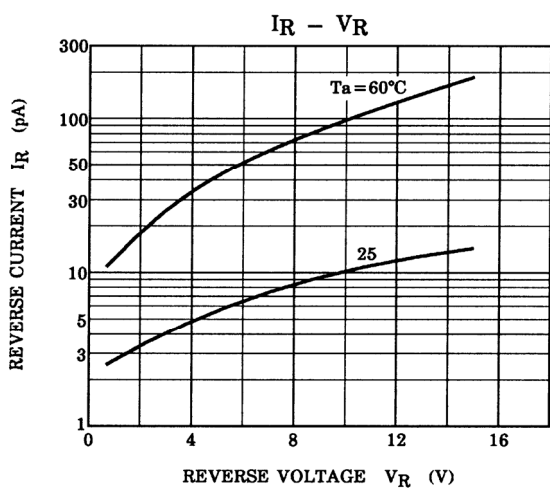
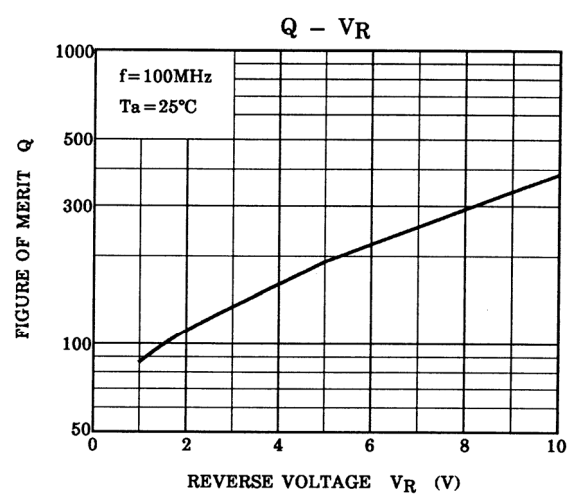
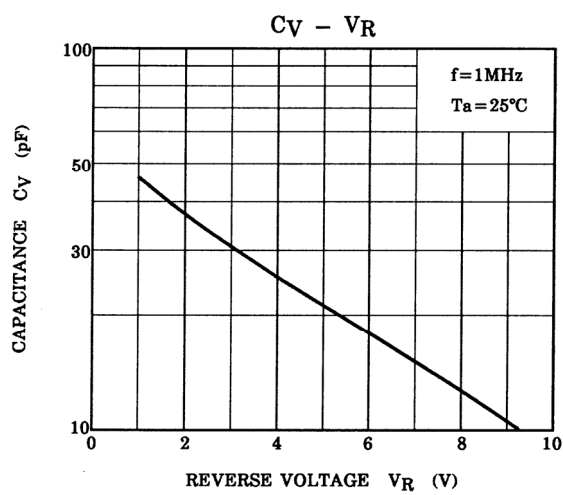
No.	C <sub>2</sub> V	C <sub>3</sub> V	C <sub>6</sub> V	C <sub>8</sub> V
1	34.70~35.74	28.60~29.45	16.80~17.30	11.72~12.07
2	35.56~36.62	29.31~30.18	17.21~17.72	12.01~12.37
3	36.44~37.53	30.03~30.93	17.63~18.15	12.31~12.67
4	37.35~38.47	30.77~31.69	18.06~18.60	12.61~12.98
5	38.27~39.41	31.53~32.47	18.50~19.05	12.92~13.30
6	—	—	18.95~19.51	13.23~13.62

- (1) Units are compounded in one package and are matched to 3%.

$$\frac{C(\text{max}) - C(\text{min})}{C(\text{min})} \leq 0.03 \quad (V_R = 2 \sim 8 \text{ V})$$

and capacitance is classified as Table 1.

- (2) C<sub>2</sub> V, C<sub>3</sub> V, C<sub>6</sub> V, C<sub>8</sub> V are A1-A2 capacitance.  
 (3) The tolerance of address is ±1 address.



Note 2: 
$$\delta C = \frac{C(T_a) - C(25)}{C(25)} \times 100 \text{ (%)}$$

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20070701-EN GENERAL

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