

TOSHIBA Variable Capacitance Diode Silicon Epitaxial Planar Type

1SV278

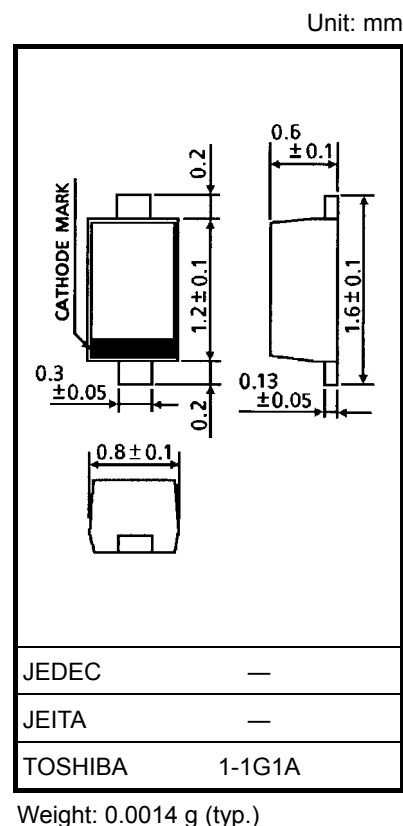
TV Tuning

- High capacitance ratio: $C_2 V/C_{25} V = 6.5$ (typ.)
- Low series resistance: $r_s = 0.4 \Omega$ (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).



Weight: 0.0014 g (typ.)

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

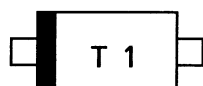
| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|-------------------|------------------|--|-------|------|-------|----------|
| Reverse voltage | V_R | $I_R = 1 \mu\text{A}$ | 30 | — | — | V |
| Reverse current | I_R | $V_R = 28 \text{ V}$ | — | — | 10 | nA |
| Capacitance | $C_2 V$ | $V_R = 2 \text{ V}, f = 1 \text{ MHz}$ | 14.16 | — | 16.25 | pF |
| Capacitance | $C_{25} V$ | $V_R = 25 \text{ V}, f = 1 \text{ MHz}$ | 2.11 | — | 2.43 | pF |
| Capacitance ratio | $C_2 V/C_{25} V$ | — | 5.90 | 6.50 | 7.15 | — |
| Series resistance | r_s | $V_R = 5 \text{ V}, f = 470 \text{ MHz}$ | — | 0.4 | 0.55 | Ω |

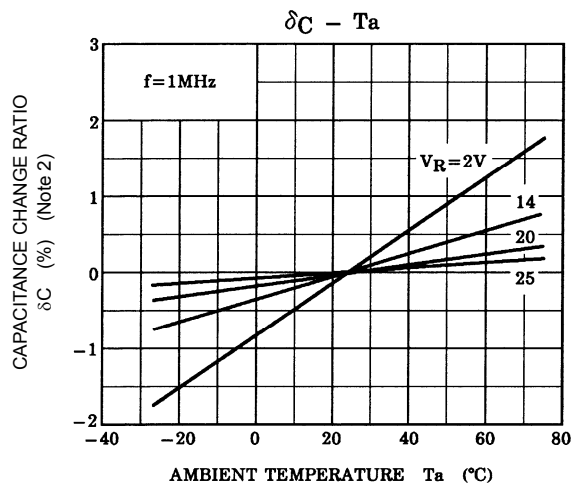
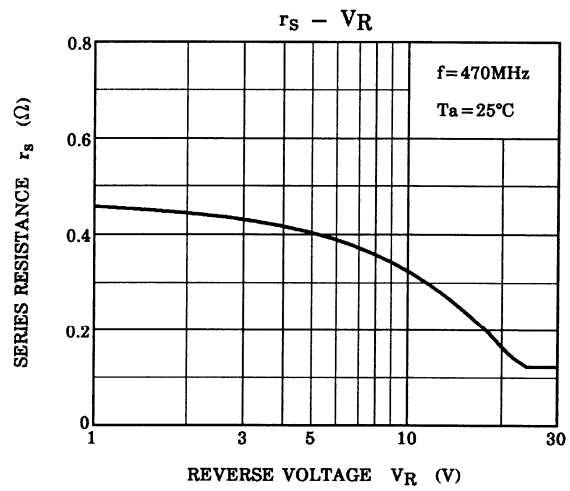
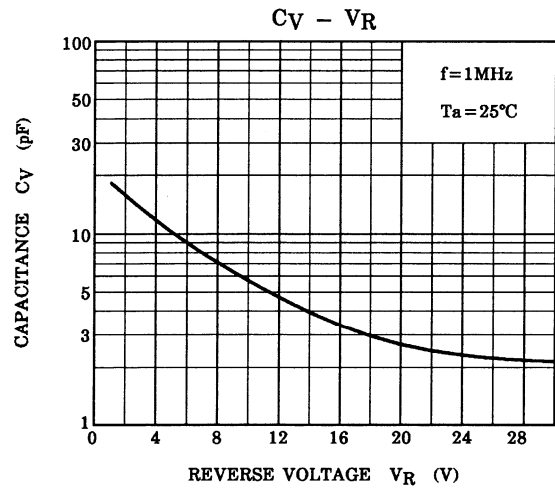
Note 1: Available in matched group for capacitance to 2.5%.

$$\frac{C(\text{max}) - C(\text{min})}{C(\text{min})} \leq 0.025$$

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

Marking





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

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