

TOSHIBA Variable Capacitance Diode Silicon Epitaxial Planar Type

## 1SV277

VCO for UHF Band Radio

Unit: mm

- High capacitance ratio:  $C_1 V/C_4 V = 2.3$  (typ.)
- Low series resistance:  $r_s = 0.42 \Omega$  (typ.)
- Small package

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

| Characteristics           | Symbol           | Rating  | Unit             |
|---------------------------|------------------|---------|------------------|
| Reverse voltage           | $V_R$            | 10      | V                |
| Junction temperature      | $T_j$            | 125     | $^\circ\text{C}$ |
| Storage temperature range | $T_{\text{stg}}$ | -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).

|         |        |
|---------|--------|
|         |        |
| JEDEC   | —      |
| JEITA   | —      |
| TOSHIBA | 1-1E1A |

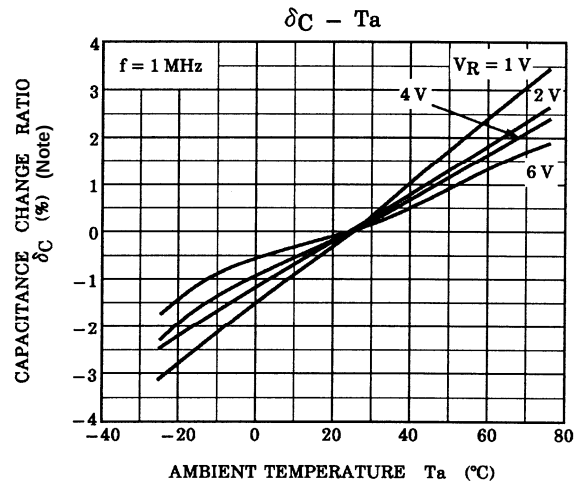
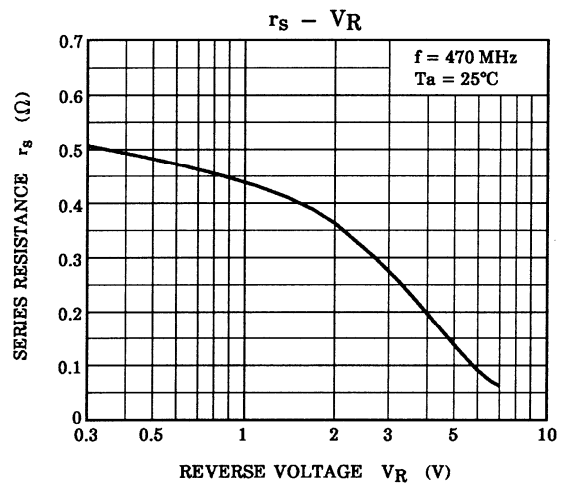
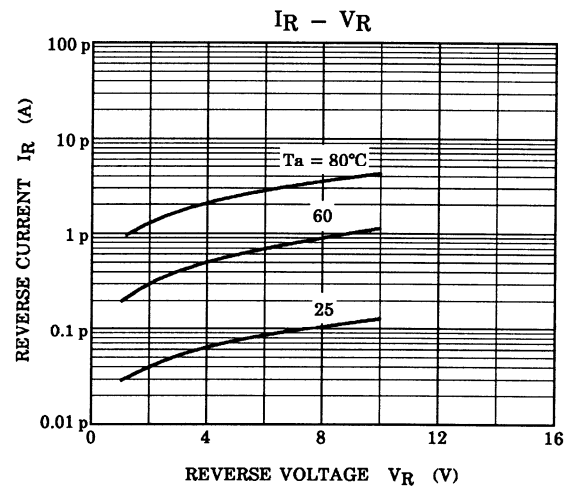
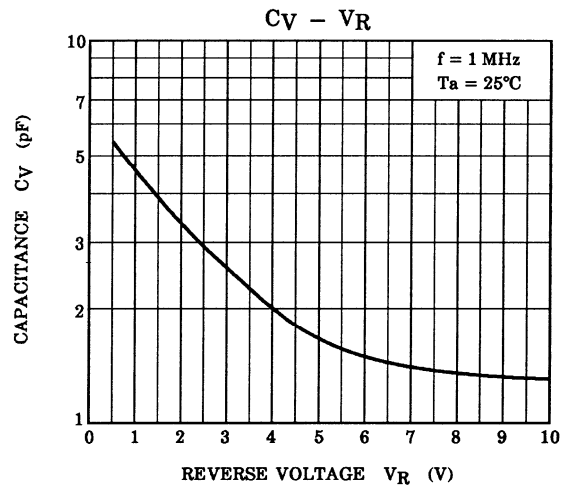
Weight: 0.004 g (typ.)

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

| Characteristics   | Symbol        | Test Condition                           | Min  | Typ. | Max  | Unit     |
|-------------------|---------------|------------------------------------------|------|------|------|----------|
| Reverse voltage   | $V_R$         | $I_R = 1 \mu\text{A}$                    | 10   | —    | —    | V        |
| Reverse current   | $I_R$         | $V_R = 10 \text{ V}$                     | —    | —    | 3    | nA       |
| Capacitance       | $C_1 V$       | $V_R = 1 \text{ V}, f = 1 \text{ MHz}$   | 4.0  | 4.5  | 4.9  | pF       |
| Capacitance       | $C_4 V$       | $V_R = 4 \text{ V}, f = 1 \text{ MHz}$   | 1.85 | 2.0  | 2.35 | pF       |
| Capacitance ratio | $C_1 V/C_4 V$ | —                                        | 2.0  | 2.3  | —    | —        |
| Series resistance | $r_s$         | $V_R = 1 \text{ V}, f = 470 \text{ MHz}$ | —    | 0.42 | 0.55 | $\Omega$ |

### Marking





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

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