

Schottky Barrier Diode    Silicon Epitaxial

# CBS10S40

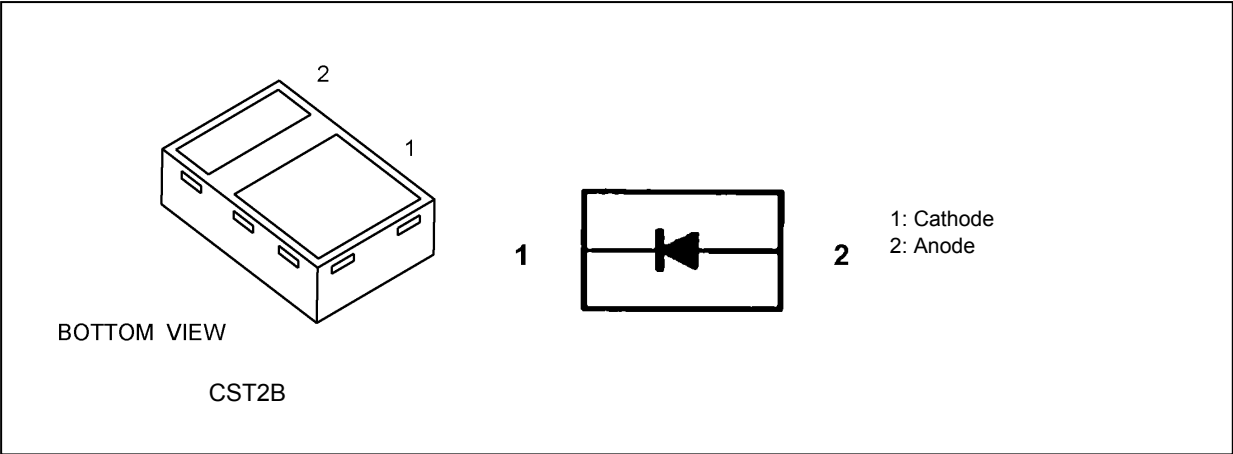
## 1. Applications

- High-Speed Switching

## 2. Features

- (1) Low forward voltage:  $V_{F(2)} = 0.48\text{ V (typ.)}$
- (2) Thin and compact packaging: Height = 0.40mm(max)

## 3. Packaging and Internal Circuit



## 4. Absolute Maximum Ratings (Note) (Unless otherwise specified, $T_a = 25^\circ\text{C}$ )

| Characteristics                           | Symbol    | Note     | Rating     | Unit             |
|-------------------------------------------|-----------|----------|------------|------------------|
| Peak reverse voltage                      | $V_{RM}$  | —        | 40         | V                |
| Average rectified current                 | $I_O$     | (Note 1) | 1.0        | A                |
| Non-repetitive peak forward surge current | $I_{FSM}$ | (Note 2) | 3          |                  |
| Junction temperature                      | $T_J$     | —        | 125        | $^\circ\text{C}$ |
| Storage temperature                       | $T_{stg}$ | —        | -55 to 125 |                  |

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).

Note 1: Mounted on an FR4 board.

(25.4 mm × 25.4 mm × 1.6 mm, Cu Pad: 645 mm<sup>2</sup>)

Note 2: Measured with a 10 ms pulse.

Start of commercial production

2013-10

## 5. Electrical Characteristics (Unless otherwise specified, $T_a = 25^\circ\text{C}$ )

| Characteristics   | Symbol     | Test Condition                            | Min | Typ. | Max  | Unit          |
|-------------------|------------|-------------------------------------------|-----|------|------|---------------|
| Forward voltage   | $V_{F(1)}$ | $I_F = 0.5 \text{ A}$ (pulse test)        | —   | 0.36 | 0.40 | V             |
|                   | $V_{F(2)}$ | $I_F = 1 \text{ A}$ (pulse test)          | —   | 0.48 | 0.55 |               |
| Reverse current   | $I_R$      | $V_R = 40 \text{ V}$ (pulse test)         | —   | —    | 150  | $\mu\text{A}$ |
| Total capacitance | $C_t$      | $V_R = 0 \text{ V}$ , $f = 1 \text{ MHz}$ | —   | 120  | —    | pF            |

## 6. Marking

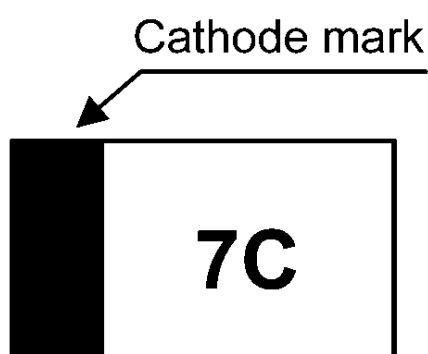


Fig. 6.1 Marking

| Marking Code | Part Number |
|--------------|-------------|
| 7C           | CBS10S40    |

## 7. Usage Considerations

- Schottky barrier diodes (SBDs) have reverse leakage greater than other types of diodes. This makes SBDs more susceptible to thermal runaway under high-temperature and high-voltage conditions. Thus, both forward and reverse power losses of SBDs should be considered for thermal and safety design.

## 8. Land pattern dimensions for reference only

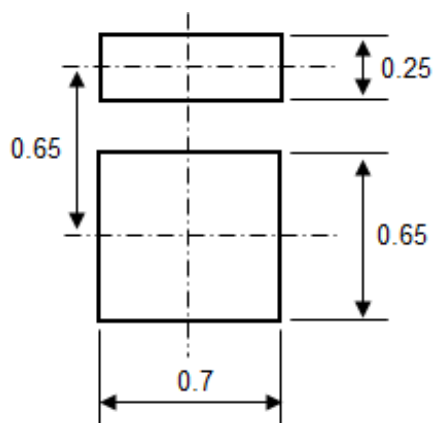


Fig. 8.1 Land pattern dimensions for reference only (Unit: mm)

9. Characteristics Curves (Note)

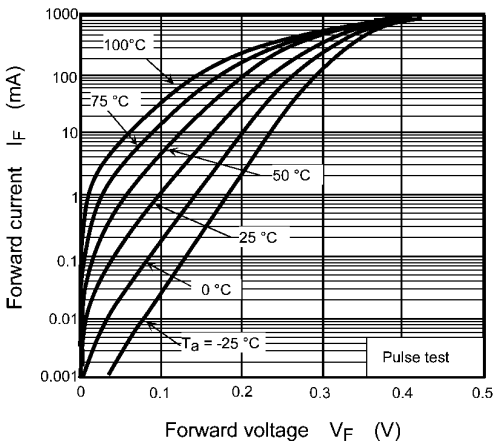


Fig. 9.1  $I_F - V_F$

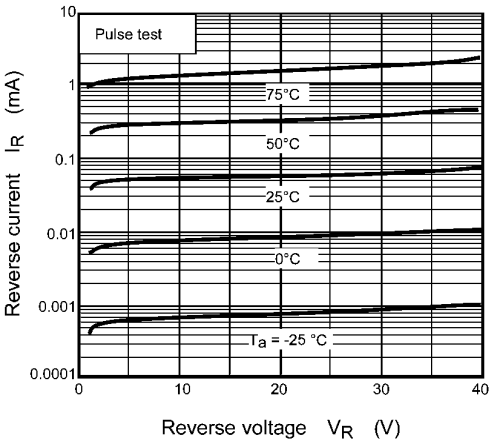


Fig. 9.2  $I_R - V_R$

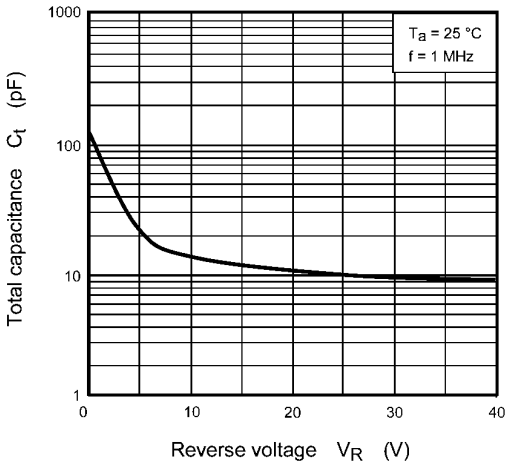
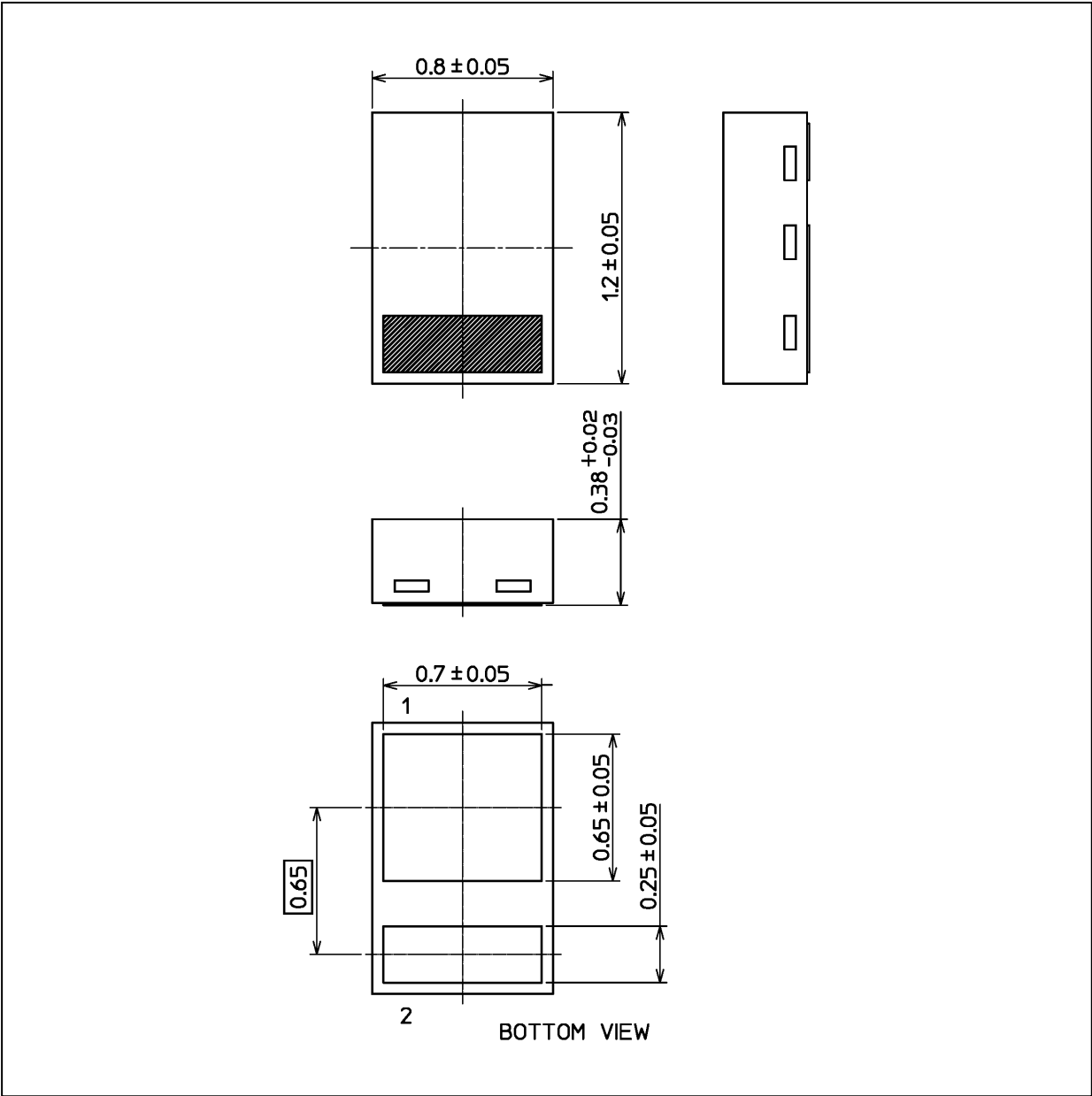


Fig. 9.3  $C_t - V_R$

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

Package Dimensions

Unit: mm



Weight: 1.3 mg (typ.)

|                 |
|-----------------|
| Package Name(s) |
| Nickname: CST2B |

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