

Schottky Barrier Diode   Silicon Epitaxial

# CBS10S40

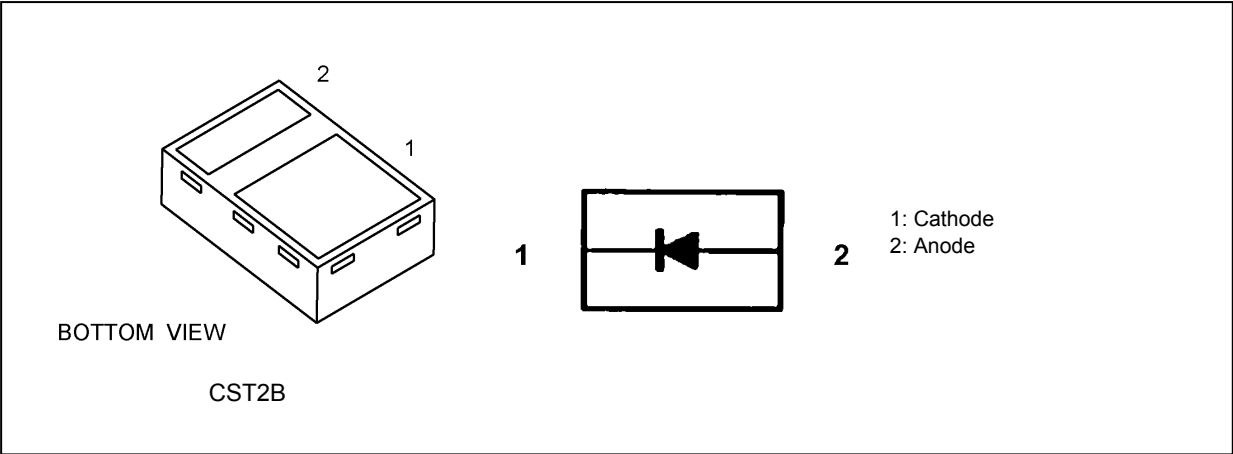
## 1. Applications

- 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

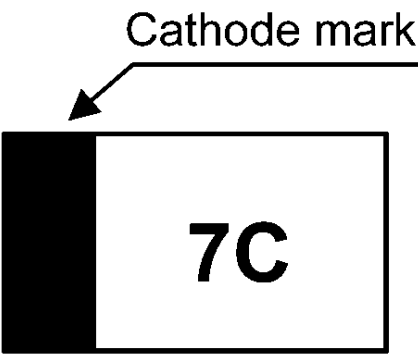


Fig. 6.1 Marking

| 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

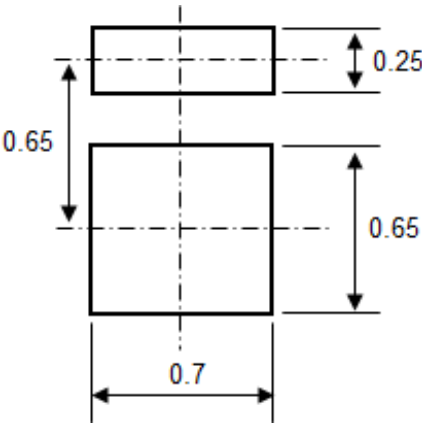
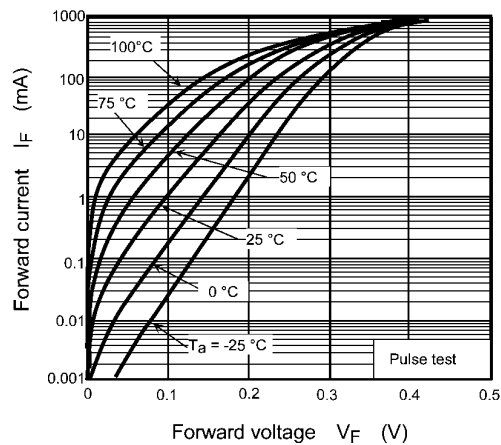
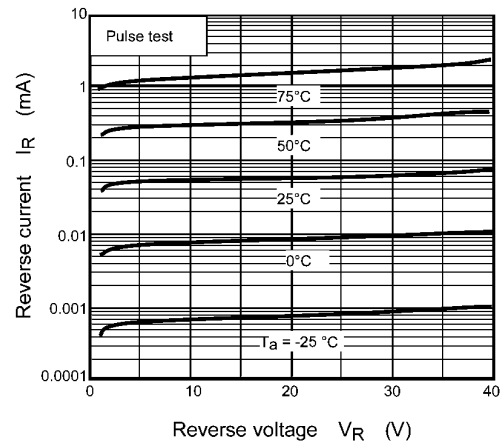


Fig. 8.1 Land pattern dimensions for reference only (Unit: mm)

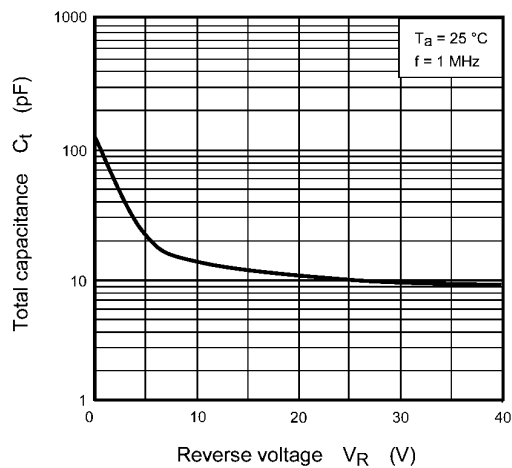
## 9. Characteristics Curves (Note)



**Fig. 9.1  $I_F - V_F$**



**Fig. 9.2  $I_R - V_R$**

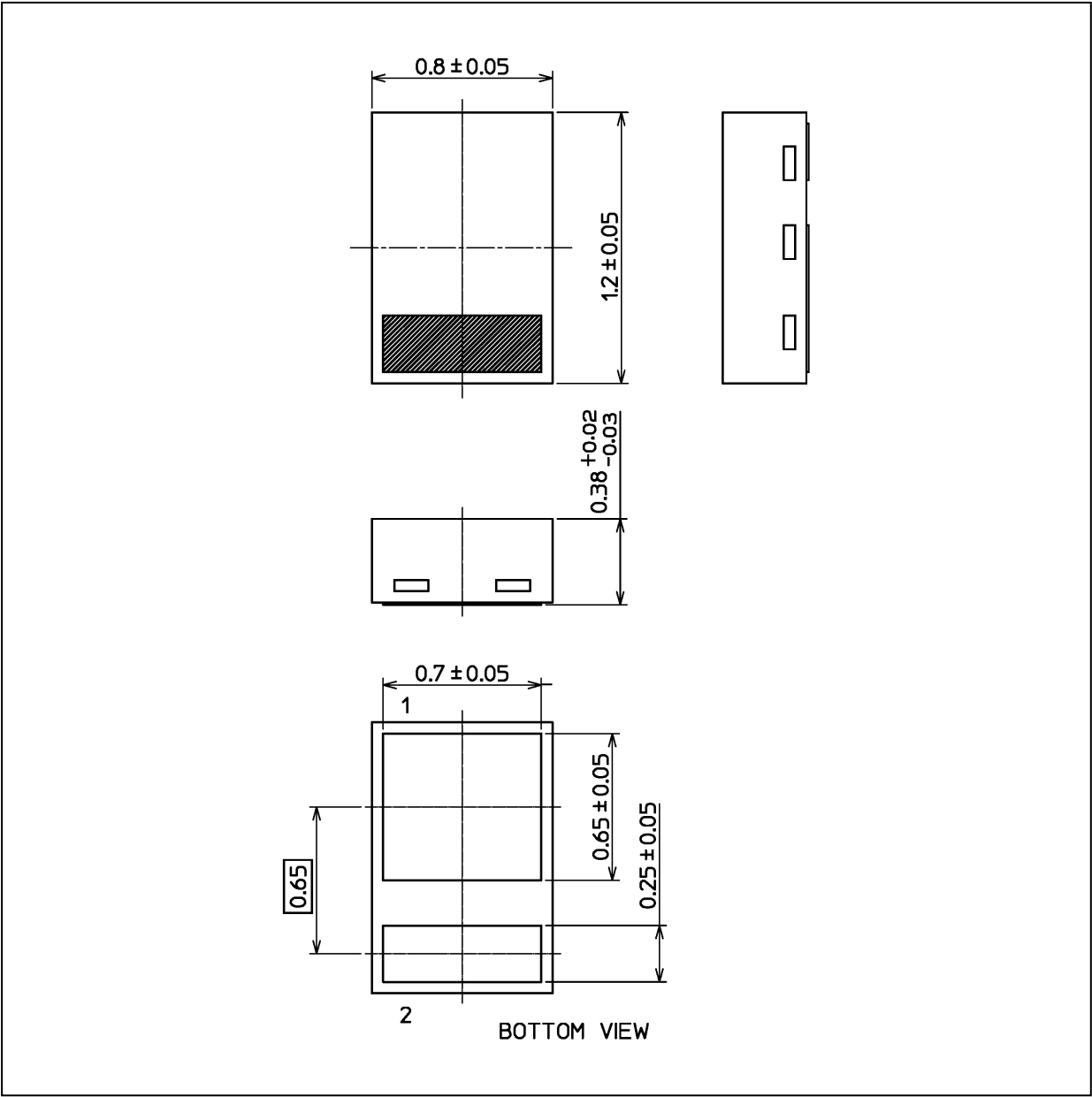


**Fig. 9.3  $C_t - V_R$**

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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