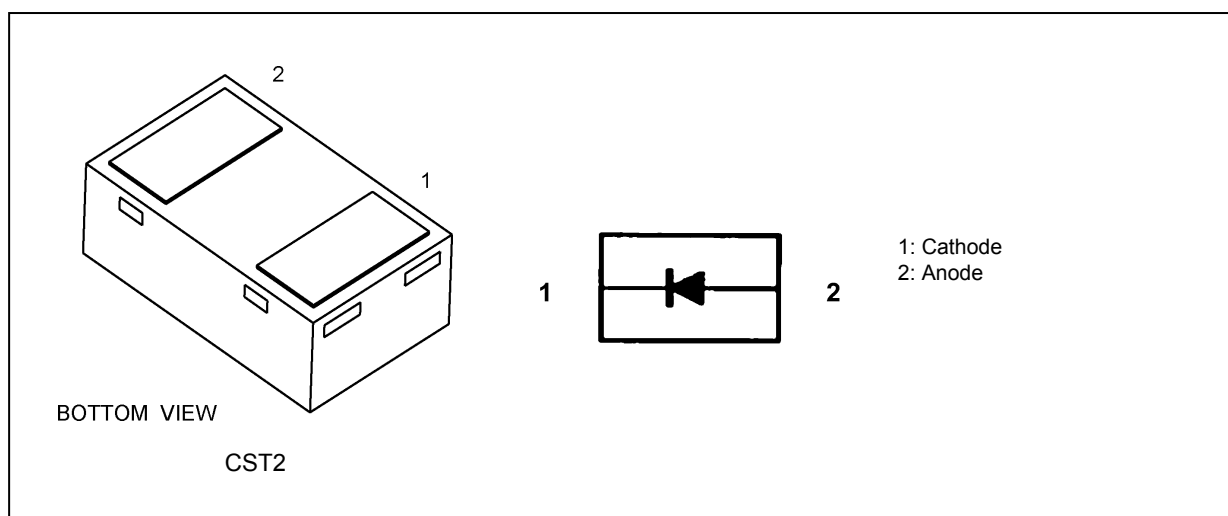


# CTS05S40

## 1. Applications

- High-Speed Switching

## 2. Packaging and Internal Circuit



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

| Characteristics                           | Symbol    | Note     | Rating     | Unit               |
|---|-----------|----------|------------|--------------------|
| Peak reverse voltage                      | $V_{RM}$  |          | 40         | V                  |
| Reverse voltage                           | $V_R$     |          | 30         |                    |
| Average rectified current                 | $I_O$     | (Note 1) | 0.5        | A                  |
| Non-repetitive peak forward surge current | $I_{FSM}$ | (Note 2) | 2          |                    |
| 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

2013-06

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

| Characteristics   | Symbol   | Test Condition                          | Min | Typ. | Max  | Unit          |
|-------------------|----------|---|-----|------|------|---------------|
| Forward voltage   | $V_F(1)$ | $I_F = 0.1\text{ A}$ (Pulse test)       | —   | 0.31 | 0.35 | V             |
| Forward voltage   | $V_F(2)$ | $I_F = 0.5\text{ A}$ (Pulse test)       | —   | 0.56 | 0.60 | V             |
| Reverse current   | $I_R(1)$ | $V_R = 10\text{ V}$ (Pulse test)        | —   | —    | 30   | $\mu\text{A}$ |
| Reverse current   | $I_R(2)$ | $V_R = 40\text{ V}$ (Pulse test)        | —   | —    | 50   | $\mu\text{A}$ |
| Total capacitance | $C_t$    | $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ | —   | 42   | —    | pF            |

#### 5. Marking

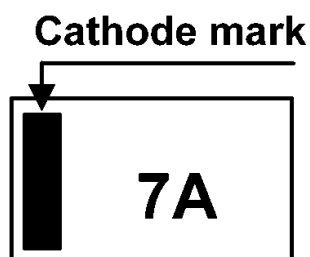


Fig. 5.1 Marking

| Marking Code | Part Number |
|--------------|-------------|
| 7A           | CTS05S40    |

#### 6. 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.

#### 7. Land Pattern Dimensions (for reference only)

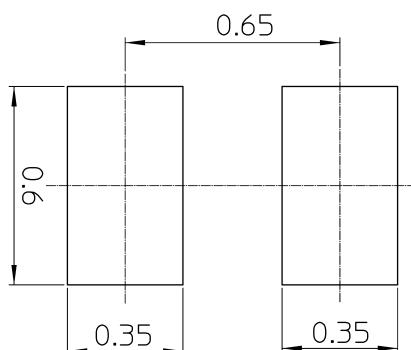


Fig. 7.1 Land Pattern Dimensions for Reference Only (Unit: mm)

# 8. Characteristics Curves (Note)

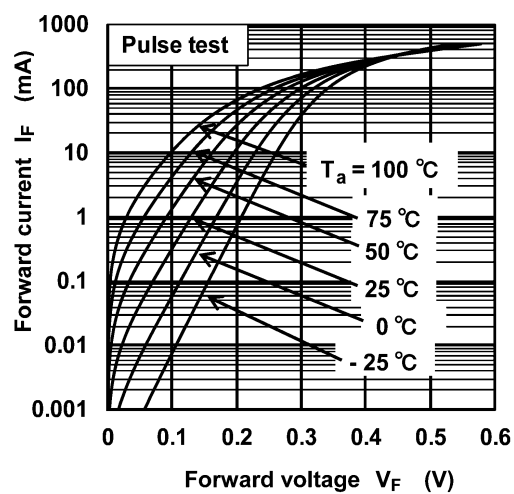


Fig. 8.1  $I_F - V_F$

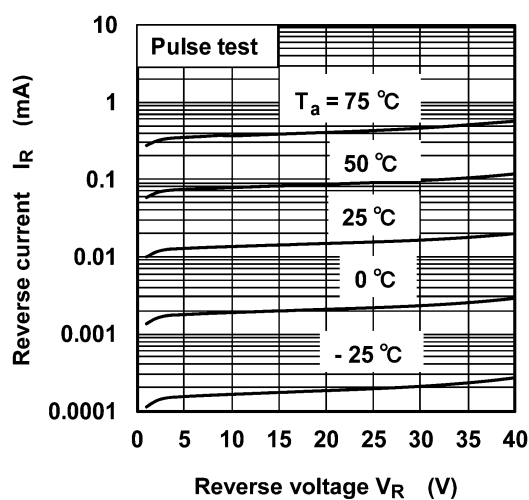


Fig. 8.2  $I_R - V_R$

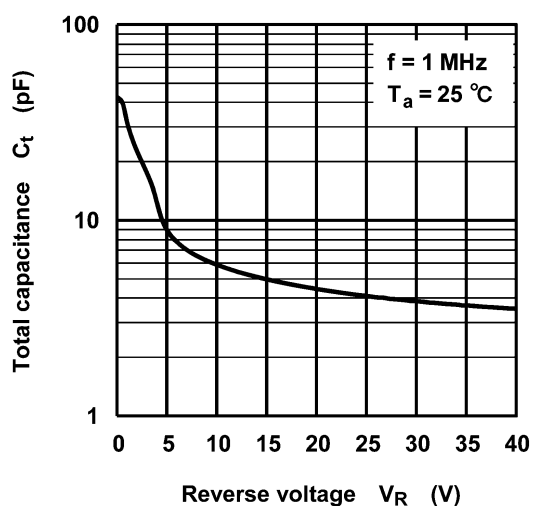
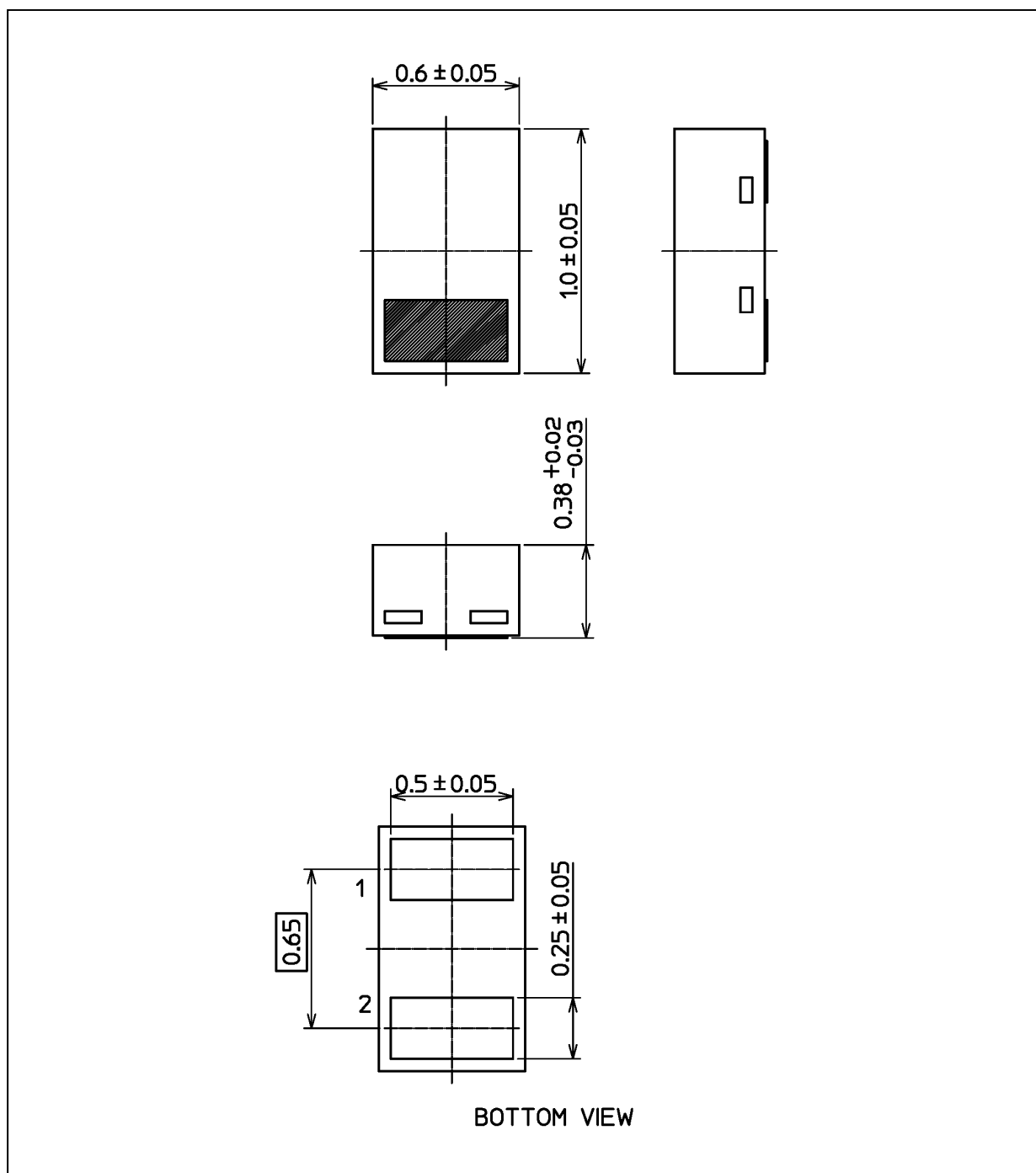


Fig. 8.3  $C_t - V_R$

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

## Package Dimensions

Unit: mm



Weight: 0.7 mg (typ.)

| Package Name(s) |
|-----------------|
| TOSHIBA: 1-1P1S |
| Nickname: CST2  |

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- Техническая поддержка проекта;
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