Schottky Barrier Diode Silicon Epitaxial

CUS10S40

1. Applications

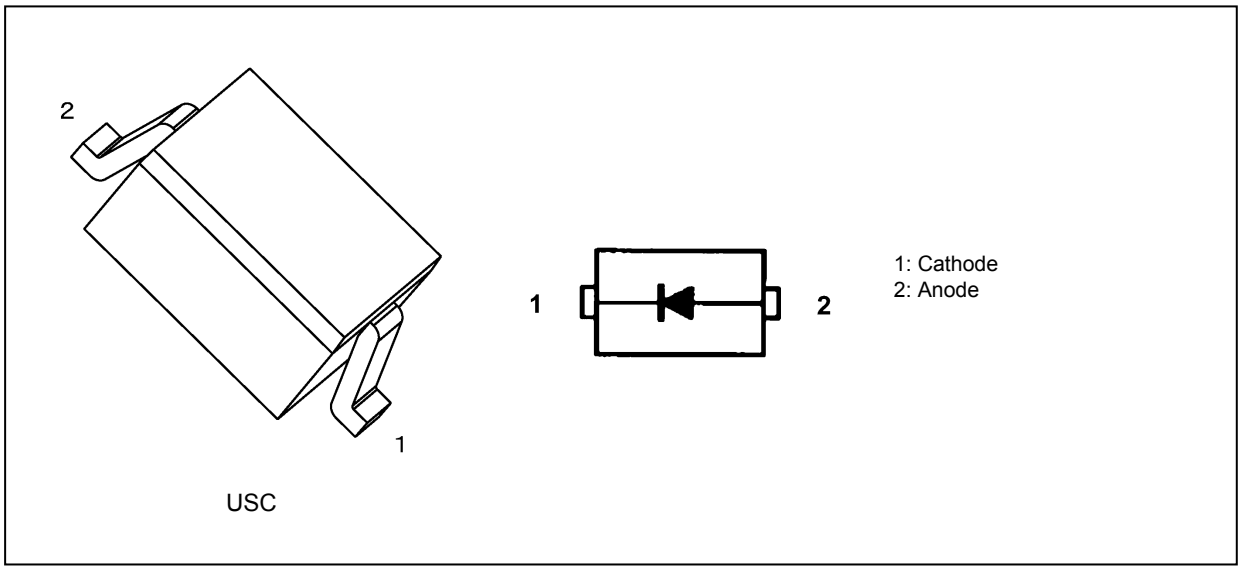
- High-Speed Switching

2. Features

(1) Small package

(2) Low forward voltage: $V_F(2)$ = 0.45 V (typ.)

3. Packaging and Internal Circuit



Start of commercial production
2013-09

2014-04-07
Rev.2.0

4. Absolute Maximum Ratings (Note) (Unless otherwise specified, T_a = 25 °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)	5	A
Junction temperature	T_j		125	°C
Storage temperature	T_{stg}		-55 to 125	°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).

Note 1: Mounted on an FR4 board.
(25.4 mm × 25.4 mm × 1.6 mm, Cu Pad: 645 mm²)

Note 2: Measured with a 10 ms pulse.

5. Electrical Characteristics (Unless otherwise specified, T_a = 25 °C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	V_F(1)	I_F = 0.5 A (Pulse test)	—	0.35	0.40	V
Forward voltage	V_F(2)	I_F = 1 A (Pulse test)	—	0.45	0.50	V
Reverse current	I_R	V_R = 40 V (Pulse test)	—	—	150	μA
Total capacitance	C_t	V_R = 0 V, f = 1 MHz	—	120	—	pF

6. Marking

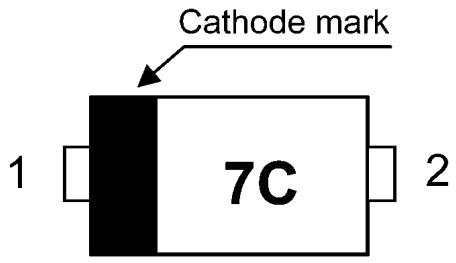


Fig. 6.1 Marking

Marking Code	Part Number
7C	CUS10S40

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)

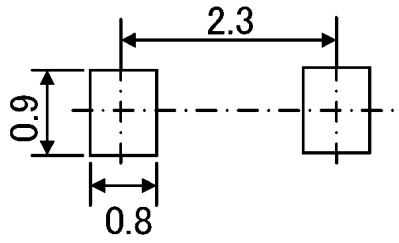


Fig. 8.1 Land Pattern Dimensions for Reference Only (Unit: mm)

9. Characteristics Curves (Note)

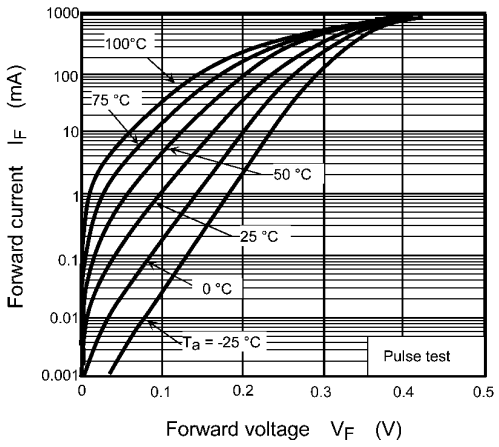


Fig. 9.1 I_F - V_F

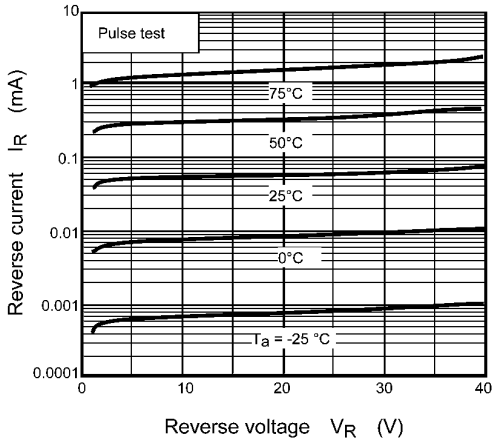


Fig. 9.2 I_R - V_R

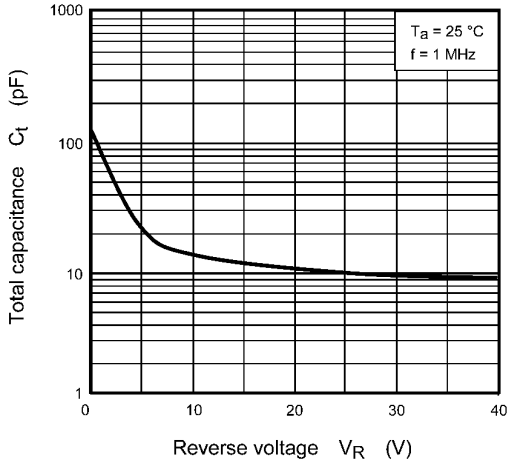
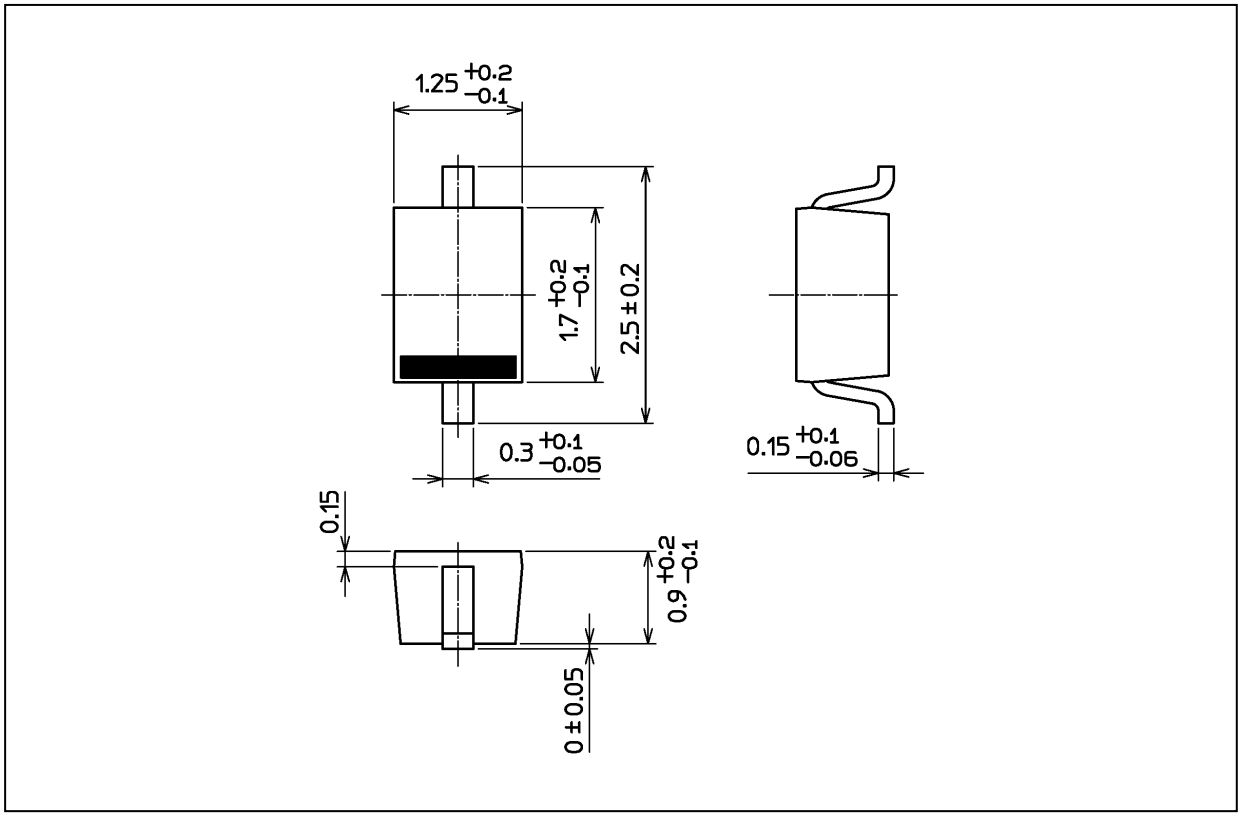


Fig. 9.3 C_t - V_R

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

Package Dimensions

Unit: mm



Weight: 4.5 mg (typ.)

Package Name(s)
Nickname: USC

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