

Schottky Barrier Diode Silicon Epitaxial

# CBS10S40

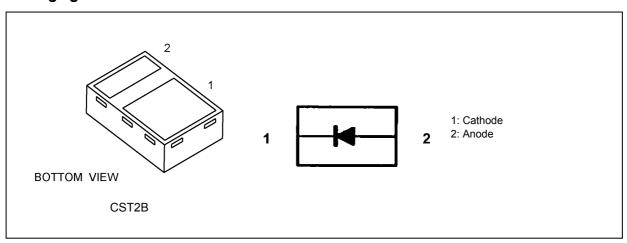
#### 1. Applications

· 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, Ta = 25°C)

Characteristics	Symbol	Note	Rating	Unit
Peak reverse voltage	$V_{RM}$		40	V
Average rectified current	Io	(Note 1)	1.0	Α
Non-repetitive peak forward surge current	I <sub>FSM</sub>	(Note 2)	3	
Junction temperature	Tj	-	125	°C
Storage temperature	T <sub>stg</sub>	_	-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.

1

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.

 $(25.4 \text{ mm} \times 25.4 \text{ mm} \times 1.6 \text{ mm}, \text{ Cu Pad: } 645 \text{ mm}^2)$ 

Note 2: Measured with a 10 ms pulse.

Start of commercial production



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

Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Forward voltage	V <sub>F(1)</sub>	I <sub>F</sub> = 0.5 A (pulse test)		0.36	0.40	٧
	V <sub>F(2)</sub>	I <sub>F</sub> = 1 A (pulse test)		0.48	0.55	
Reverse current	I <sub>R</sub>	V <sub>R</sub> = 40 V (pulse test)	_	_	150	μА
Total capacitance	Ct	V <sub>R</sub> = 0 V, f = 1 MHz		120		pF

### 6. Marking

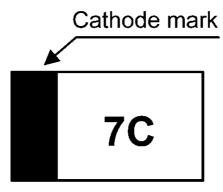


Fig. 6.1 Marking

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

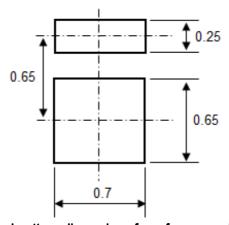


Fig. 8.1 Land pattern dimensions for reference only (Unit: mm)



## 9. Characteristics Curves (Note)

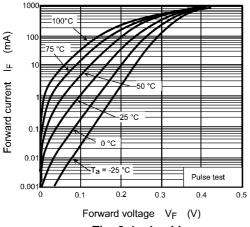


Fig. 9.1 I<sub>F</sub> - V<sub>F</sub>

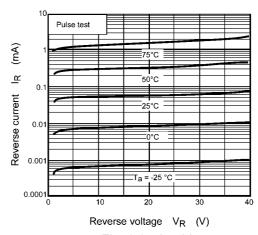


Fig. 9.2 I<sub>R</sub> - V<sub>R</sub>

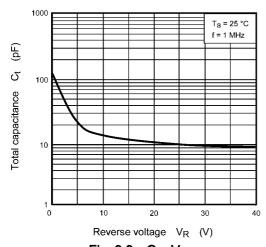


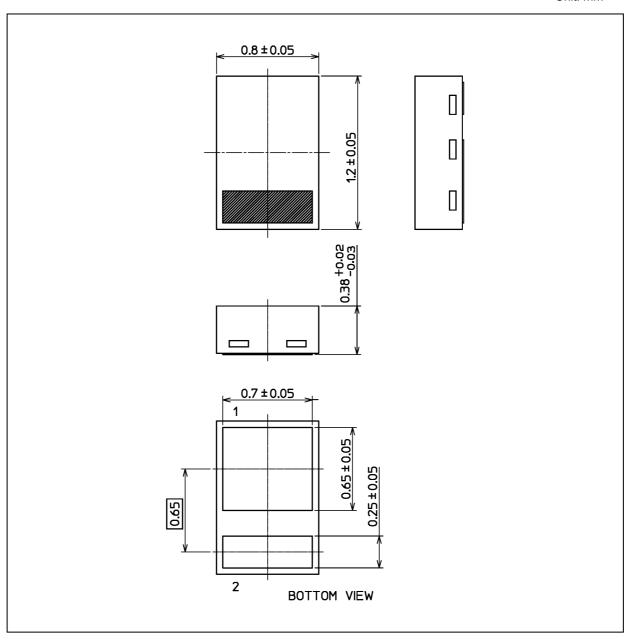
Fig. 9.3  $C_t - V_R$ 

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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