

Schottky Barrier Diode Silicon Epitaxial

# DSF01S30SL

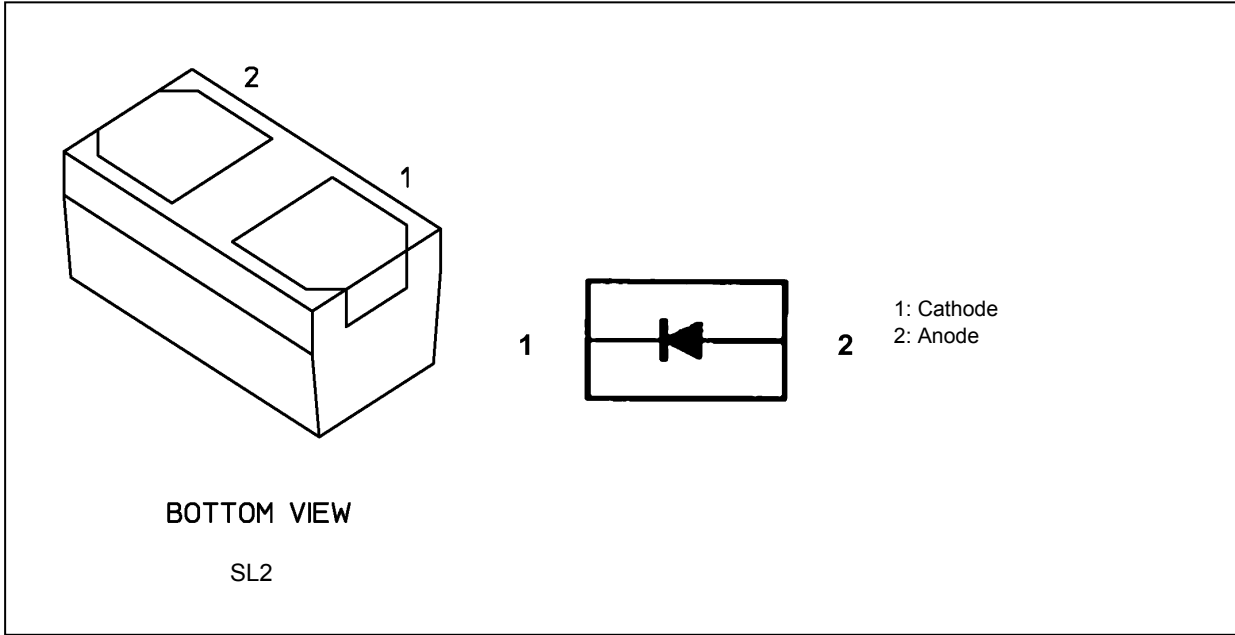
## 1. Applications

- High-Speed Switching

## 2. Features

- (1) Low forward voltage:  $V_F = 0.41 \text{ V (typ.) @ } I_F = 100 \text{ mA}$

## 3. Packaging and Internal Circuit



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

Characteristics	Symbol	Note	Rating	Unit
Reverse voltage	$V_R$		30	V
Peak forward current	$I_{FM}$		200	mA
Average rectified current	$I_O$	(Note 1)	100	
Non-repetitive peak forward surge current	$I_{FSM}$	(Note 2)	2	A
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 a glass epoxy circuit board of 25.4 mm × 25.4 mm × 1.6 mm, Pad dimension of 645 mm<sup>2</sup>.

Note 2: Measured with a 10 ms pulse.

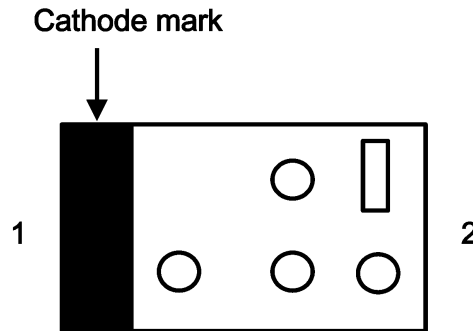
Start of commercial production

2015-06

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

Characteristics	Symbol	Note	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_F$		$I_F = 10\text{ mA}$	—	0.27	0.3	V
			$I_F = 100\text{ mA}$	—	0.41	0.5	
Reverse current	$I_R$		$V_R = 10\text{ V}$	—	—	7	$\mu\text{A}$
			$V_R = 30\text{ V}$	—	—	50	
Total capacitance	$C_t$		$V_R = 0\text{ V}, f = 1\text{ MHz}$	—	9.3	—	pF

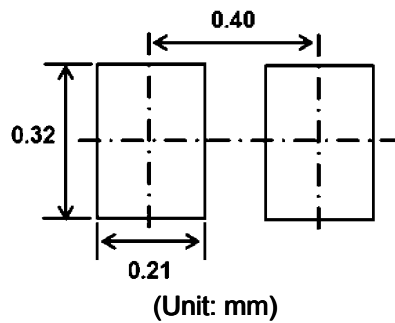
**6. Marking**



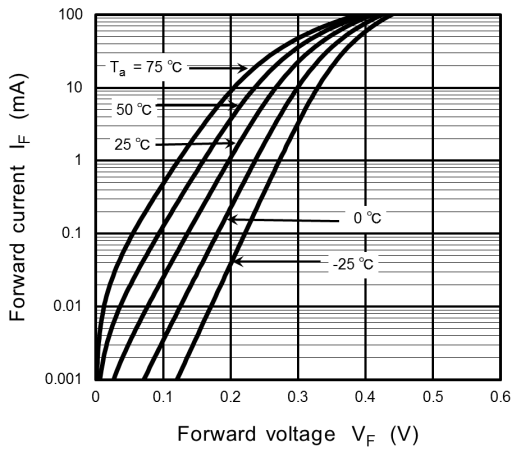
**7. Usage Considerations**

- 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.

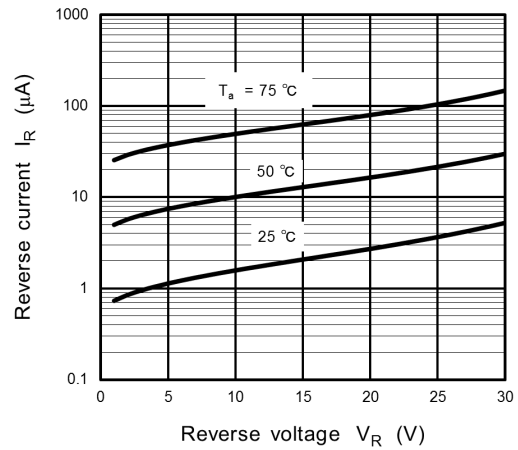
**8. Land Pattern Dimensions (for reference only)**



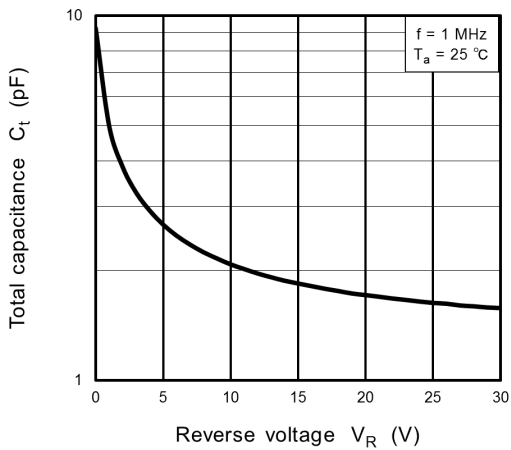
**9. Characteristics Curves (Note)**



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



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

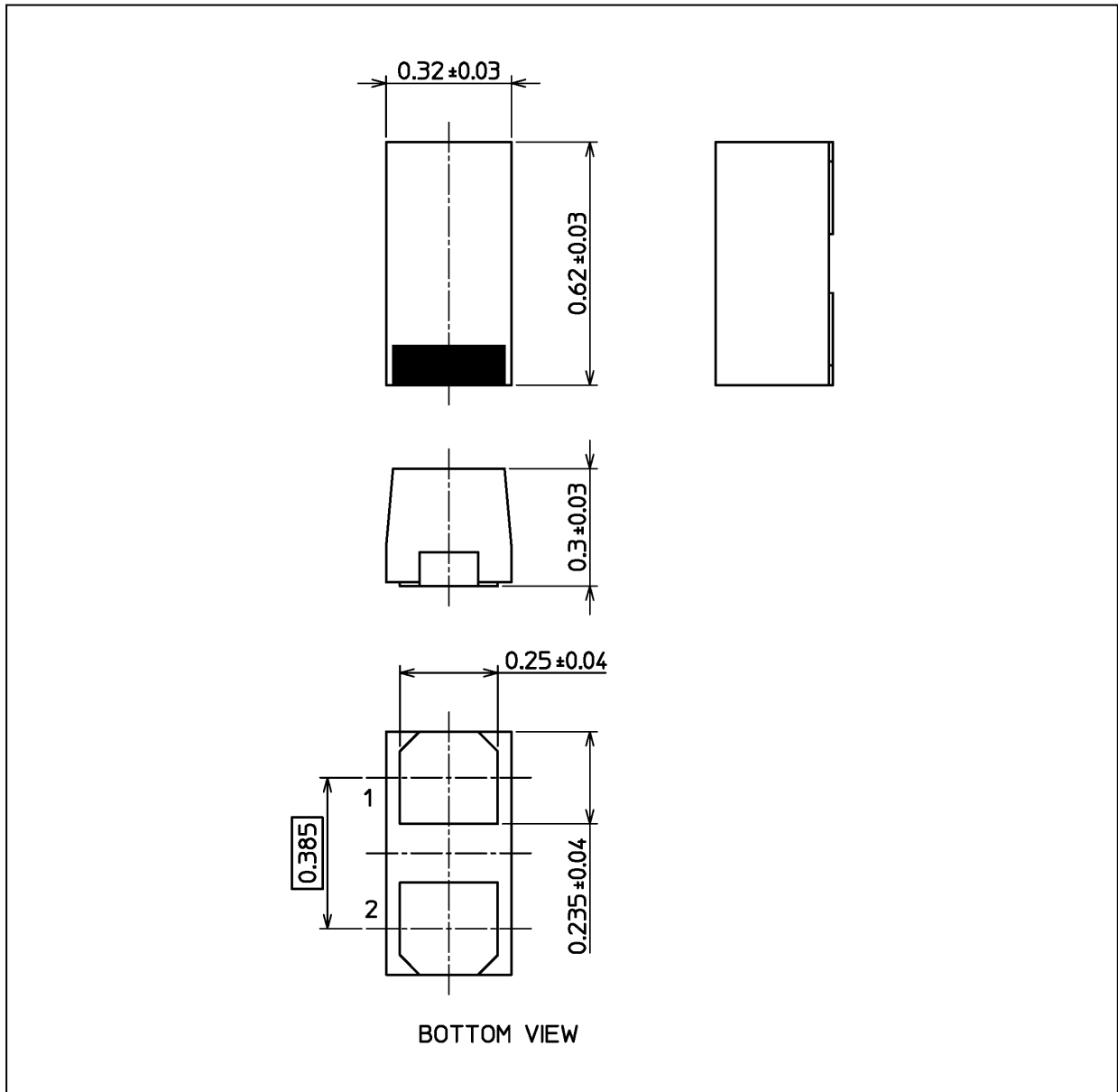


**Fig. 9.3  $C_t - V_R$**

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

**Package Dimensions**

Unit: mm



Weight: 0.2 mg (typ.)

Package Name(s)
TOSHIBA: 1-1AL1A
Nickname: SL2

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