

Schottky Barrier Diode Silicon Epitaxial

DSF01S30SL

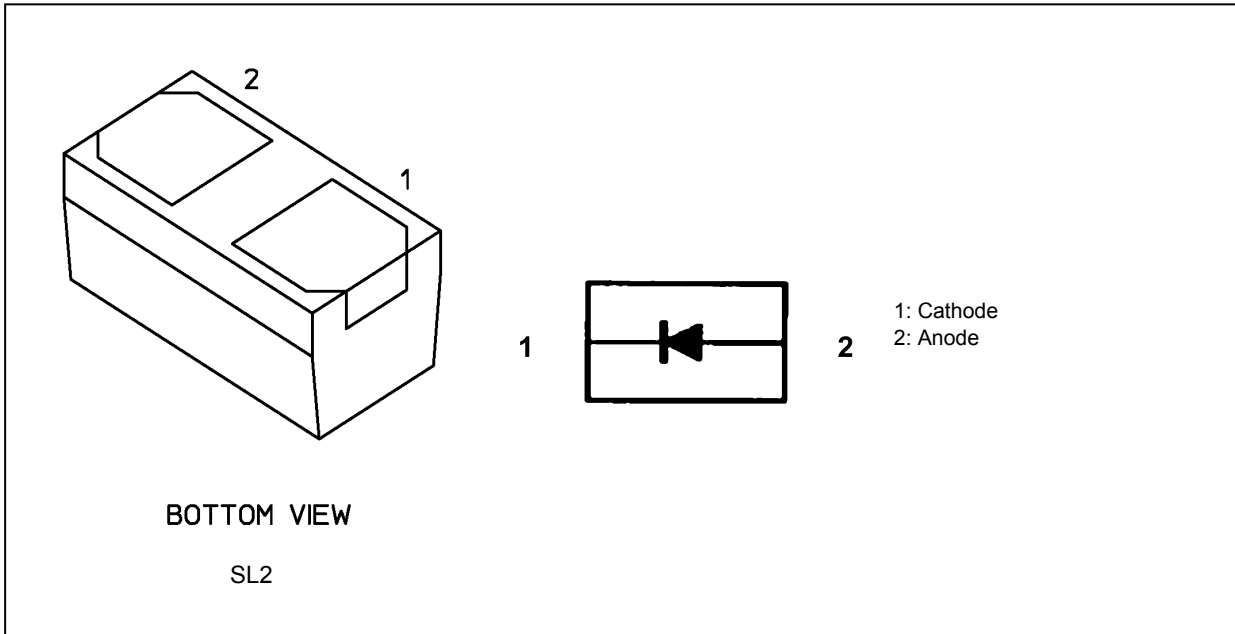
1. Applications

- 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 mm².

Note 2: Measured with a 10 ms pulse.

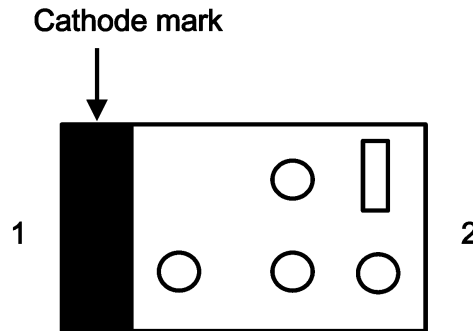
Start of commercial production

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	μA
			$V_R = 30\text{ V}$	—	—	50	
Total capacitance	C_t		$V_R = 0\text{ V}, f = 1\text{ MHz}$	—	9.3	—	pF

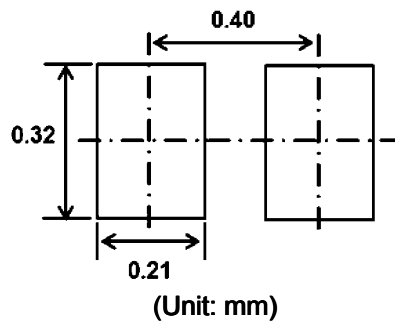
6. Marking



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)

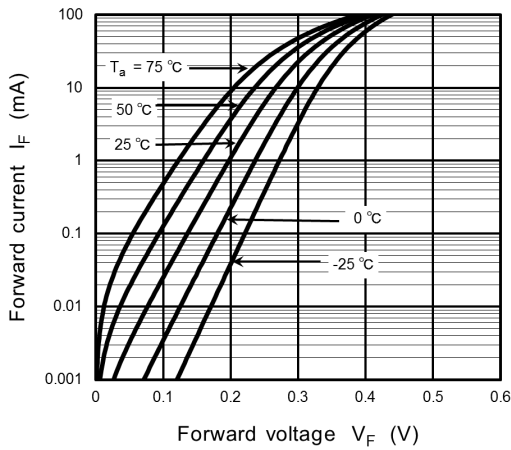


Fig. 9.1 $I_F - V_F$

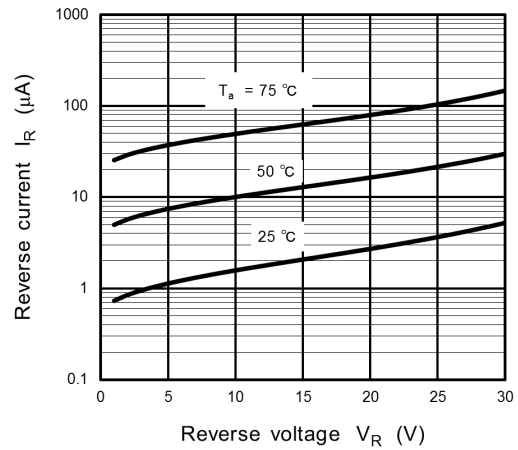


Fig. 9.2 $I_R - V_R$

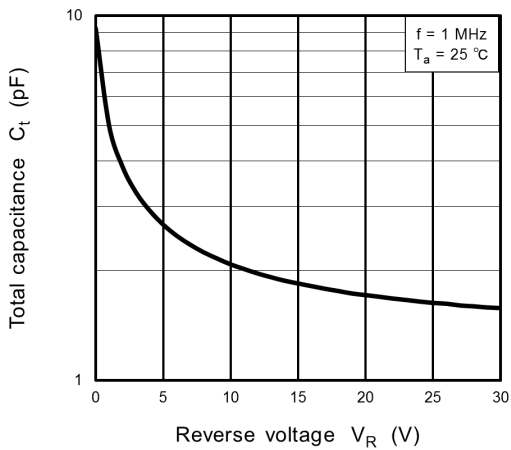
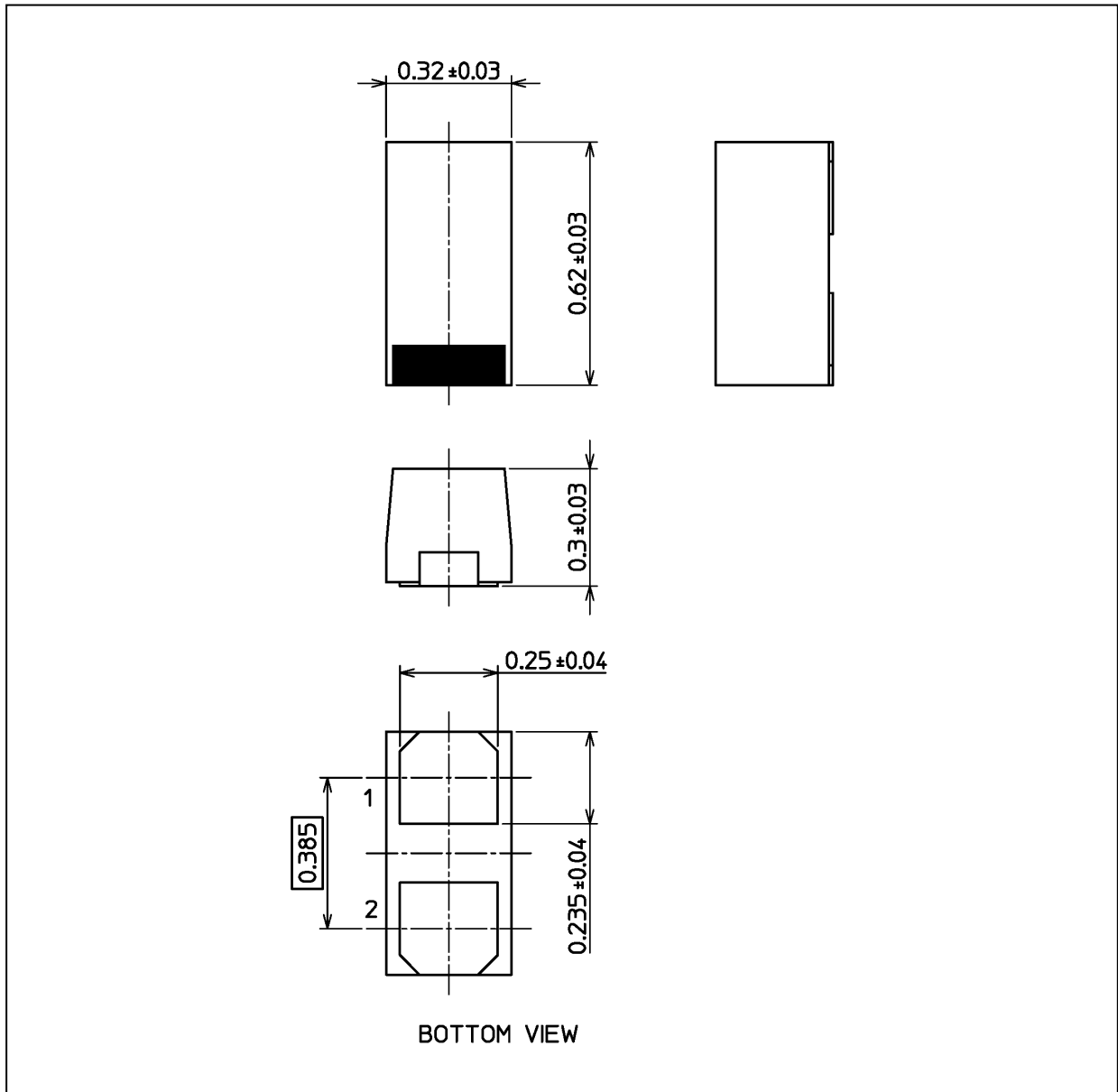


Fig. 9.3 $C_t - V_R$

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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