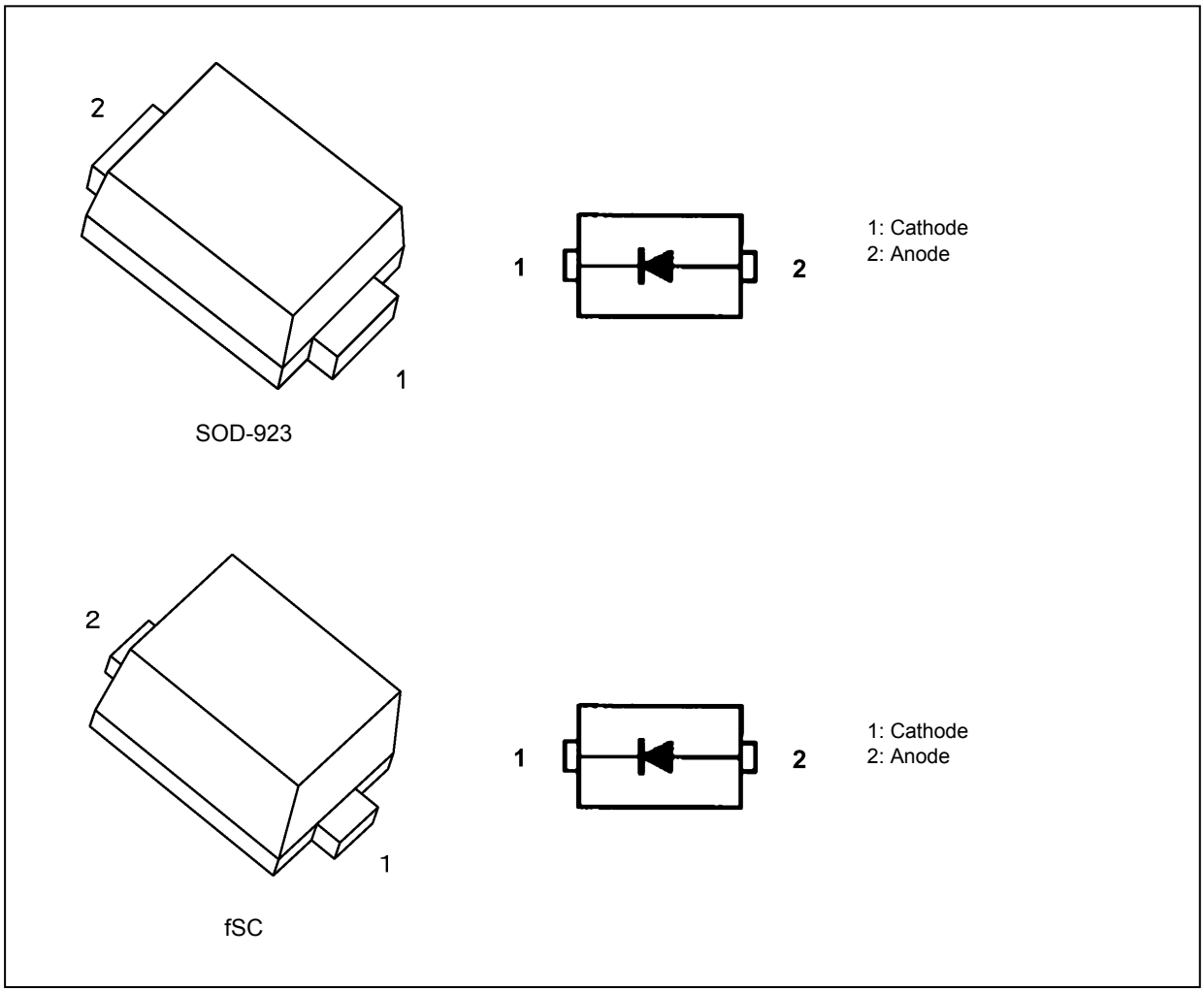
Schottky Barrier Diode Silicon Epitaxial

1SS416

1. Applications

- High-Speed Switching

2. Packaging and Internal Circuit



Start of commercial production
2003-06

2014-07-08
Rev.3.0

3. Absolute Maximum Ratings (Note) (Unless otherwise specified, T_a = 25 °C)

Characteristics	Symbol	Note	Rating	Unit
Peak reverse voltage	V_{RM}		35	V
Reverse voltage	V_R		30	
Peak forward current	I_{FM}		200	mA
Average rectified current	I_O		100	mA
Power dissipation	P_D	(Note 1)	100	mW
Non-repetitive peak forward surge current	I_{FSM}	(Note 2)	1	A
Junction temperature	T_j		125	°C
Storage temperature	T_{stg}		-55 to 125	°C
Operating temperature	T_{opr}		-40 to 100	°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 a glass epoxy circuit board of 20 mm × 20 mm, Pad dimension of 4 mm × 4 mm.

Note 2: Measured with a 10 ms pulse.

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

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_{F(1)}$	I_F = 1 mA	—	0.18	—	V
Forward voltage	$V_{F(2)}$	I_F = 5 mA	—	0.23	—	V
Forward voltage	$V_{F(3)}$	I_F = 100 mA	—	0.38	0.50	V
Reverse current	$I_{R(1)}$	V_R = 10 V	—	—	20	μA
Reverse current	$I_{R(2)}$	V_R = 30 V	—	—	50	μA
Total capacitance	C_t	V_R = 0 V, f = 1 MHz	—	15	—	pF

5. Marking

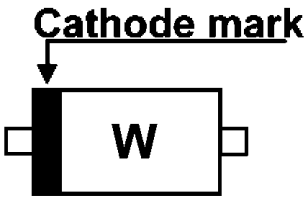


Fig. 5.1 Marking

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)

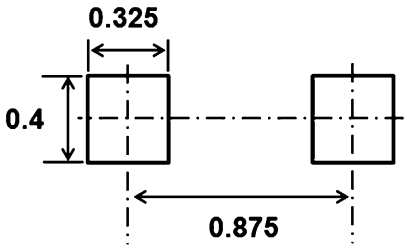


Fig. 7.1 SOD-923 (Unit: mm)

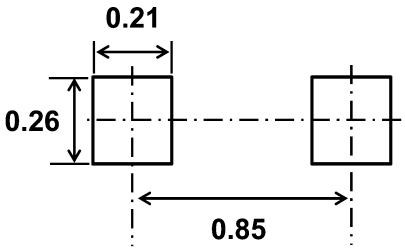


Fig. 7.2 fSC (Unit: mm)

8. Characteristics Curves (Note)

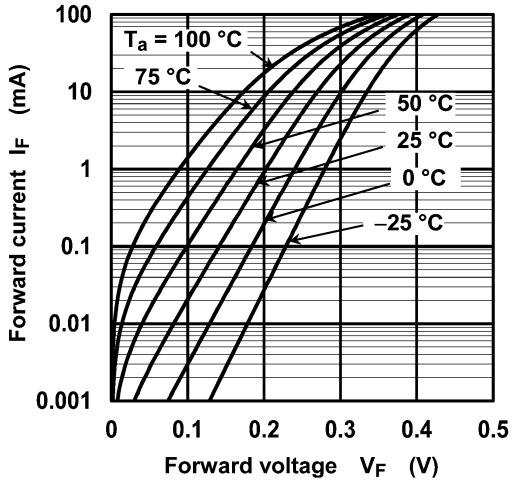


Fig. 8.1 I_F - V_F

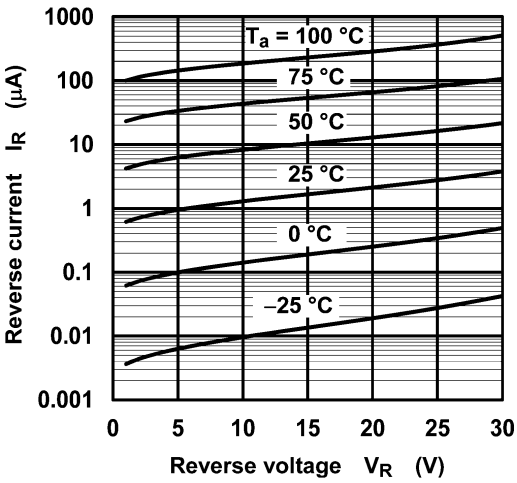


Fig. 8.2 I_R - V_R

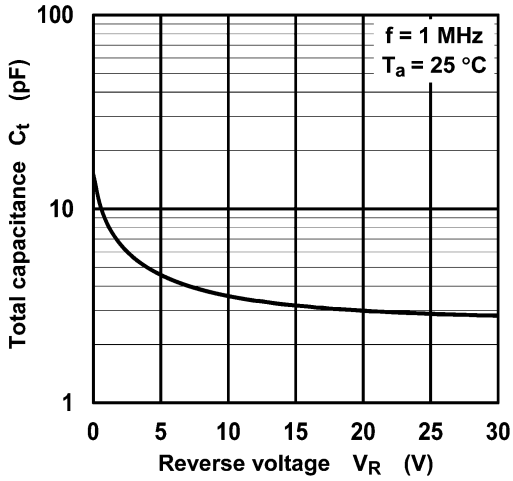


Fig. 8.3 C_t - V_R

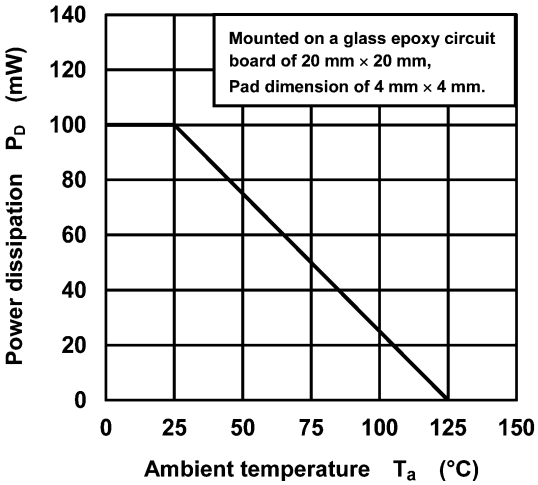
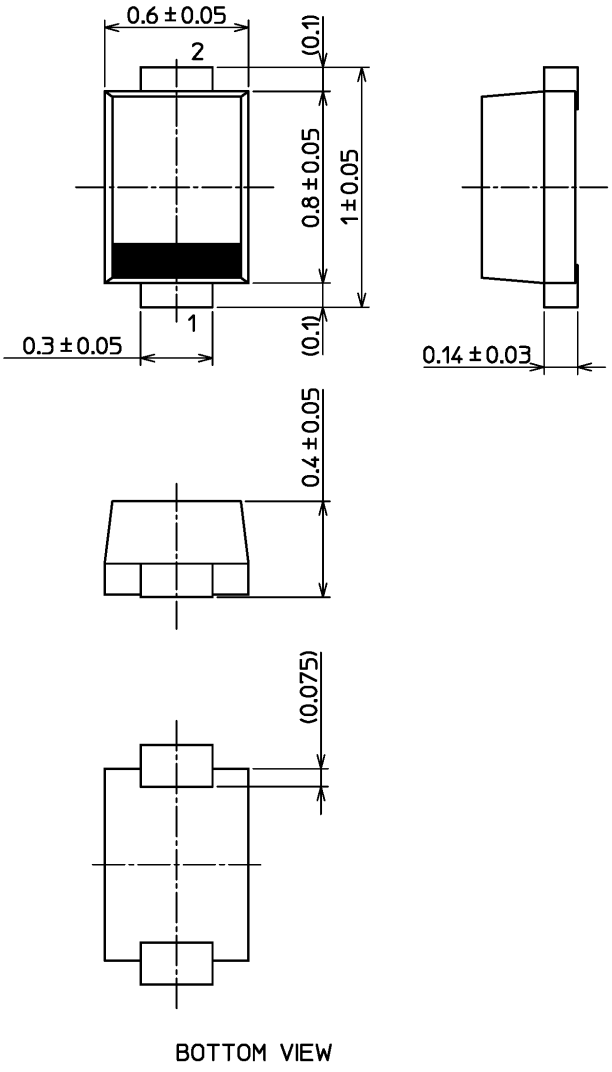


Fig. 8.4 P_D - T_a

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

Package Dimensions

Unit: mm



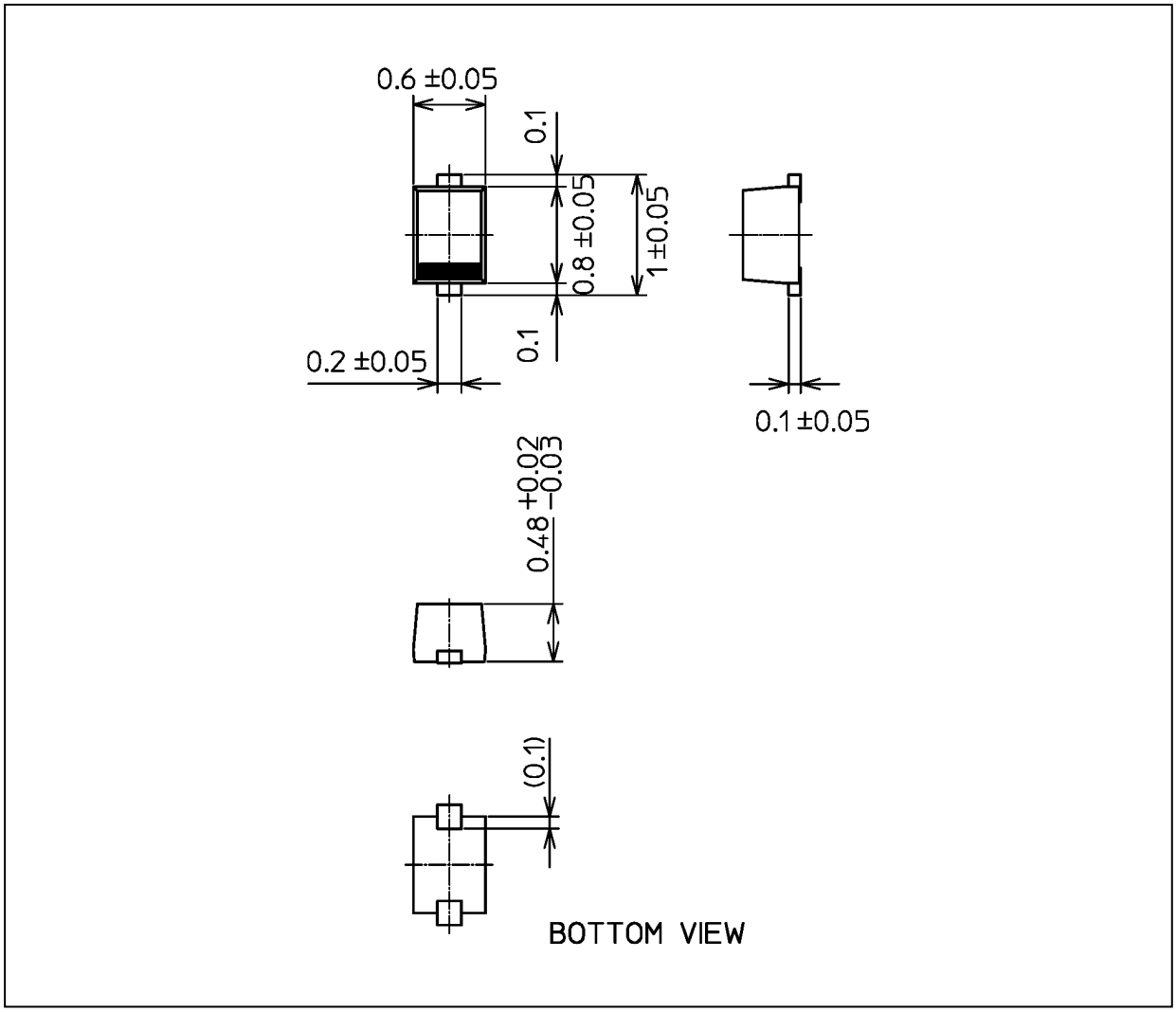
The shapes and dimensions of the package vary, depending on the manufacturing plant. For details, contact the Toshiba sales representative.

Weight: 0.55 mg (typ.)

Package Name(s)
TOSHIBA: 1-1AH1A
Nickname: SOD-923

Package Dimensions

Unit: mm



The shapes and dimensions of the package vary, depending on the manufacturing plant. For details, contact the Toshiba sales representative.

Weight: 0.6 mg (typ.)

Package Name(s)
TOSHIBA: 1-1L1S
Nickname: fSC

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