

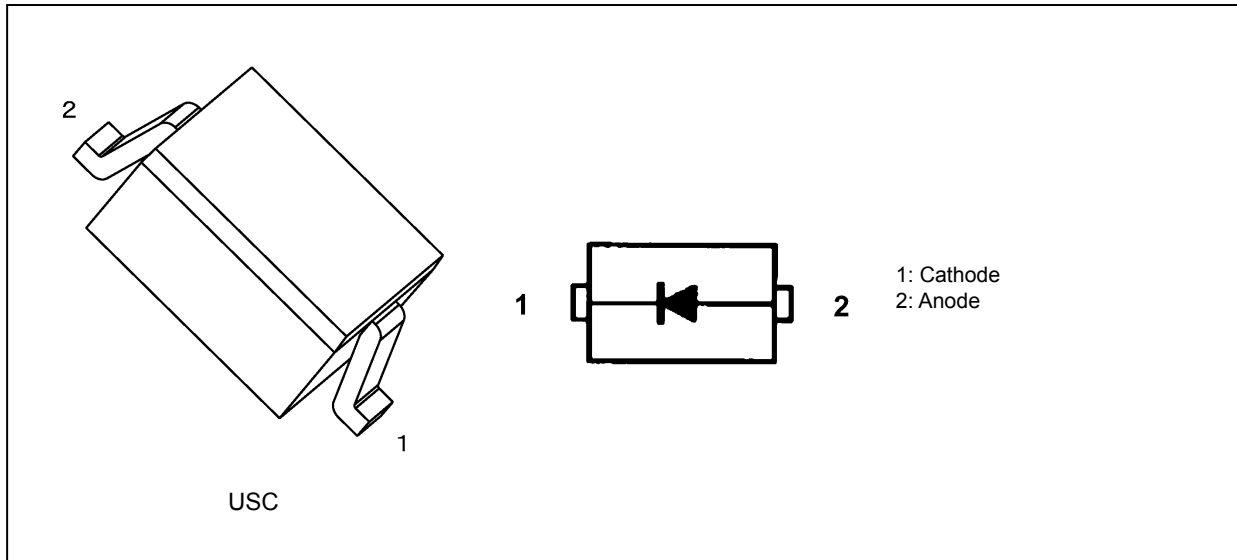
Switching Diodes Silicon Epitaxial Planar

1N4148WS

1. Applications

- High-Speed Switching

2. Packaging and Internal Circuit



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

Characteristics	Symbol	Note	Rating	Unit
Peak reverse voltage	V_{RM}		100	V
Reverse voltage	V_R		100	V
Peak forward current	I_{FM}		500	mA
Average rectified current	I_O		250	mA
Non-repetitive peak forward surge current	I_{FSM}	(Note 1)	1	A
Power dissipation	P_D	(Note 2)	230	mW
Junction temperature	T_j		150	$^\circ\text{C}$
Storage temperature	T_{stg}		-55 to 150	$^\circ\text{C}$

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: Pulse width 10 ms

Note 2: Mounted on an FR4 board (20 mm × 20 mm, Cu pad: 4 mm × 4 mm)

Start of commercial production

2022-04

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

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	V_F (1)	$I_F = 1\text{ mA}$	—	—	0.715	V
	V_F (2)	$I_F = 10\text{ mA}$	—	—	0.855	
	V_F (3)	$I_F = 50\text{ mA}$	—	—	1.00	
	V_F (4)	$I_F = 150\text{ mA}$	—	—	1.25	
Reverse current	I_R (1)	$V_R = 25\text{ V}$	—	—	30	nA
	I_R (2)	$V_R = 80\text{ V}$	—	—	200	
Total capacitance	C_t	$V_R = 0\text{ V}, f = 1\text{ MHz}$	—	0.5	—	pF
Reverse recovery time	t_{rr}	$I_F = 10\text{ mA}$, See Fig. 4.1.	—	—	3.0	ns

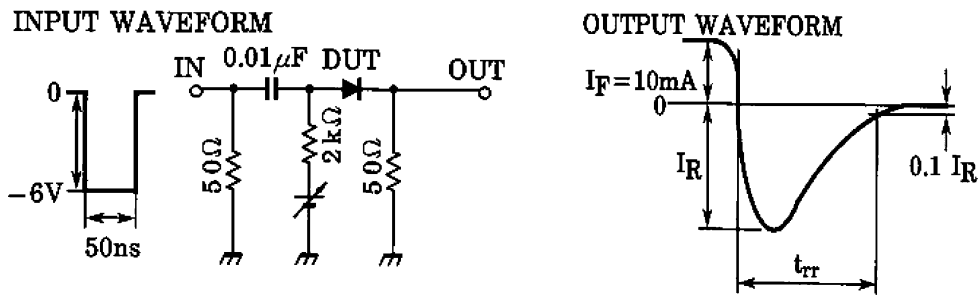
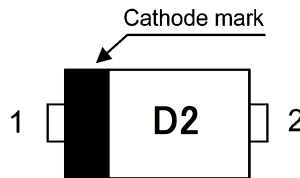
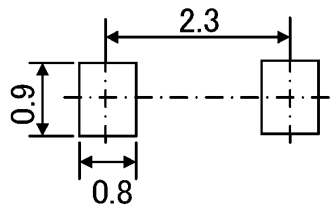


Fig. 4.1 Reverse recovery time (t_{rr}) Test circuit

5. Marking



6. Land Pattern Dimensions (for reference only)



Land Pattern Dimensions (Unit: mm)

7. Characteristics Curves (Note)

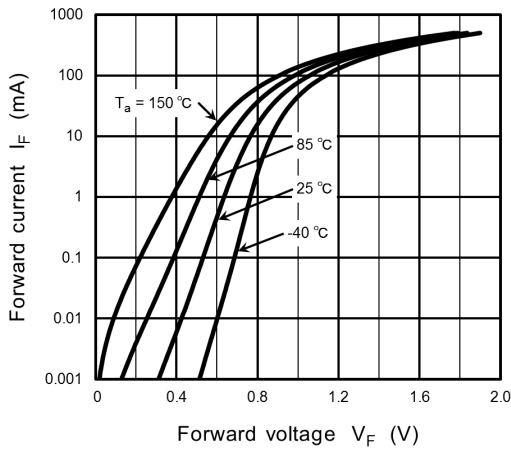


Fig. 7.1 $I_F - V_F$

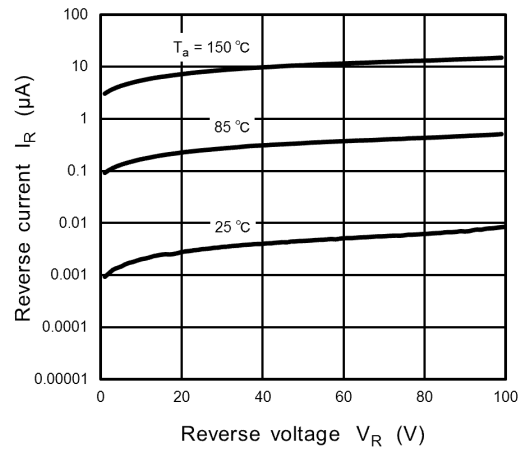


Fig. 7.2 $I_R - V_R$

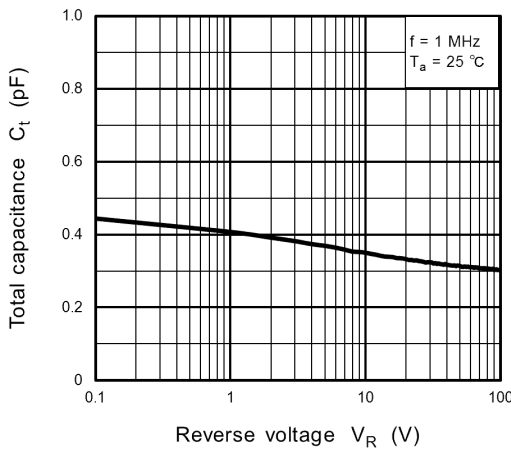


Fig. 7.3 $C_t - V_R$

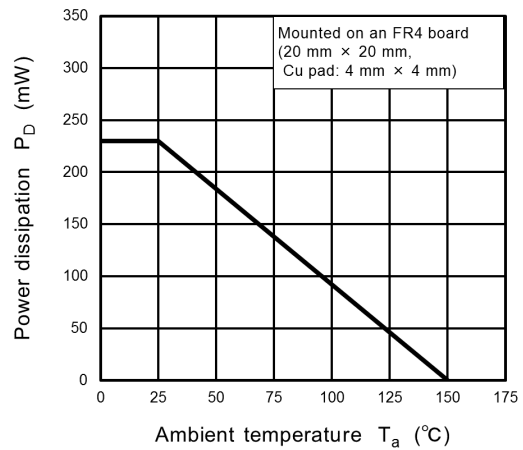
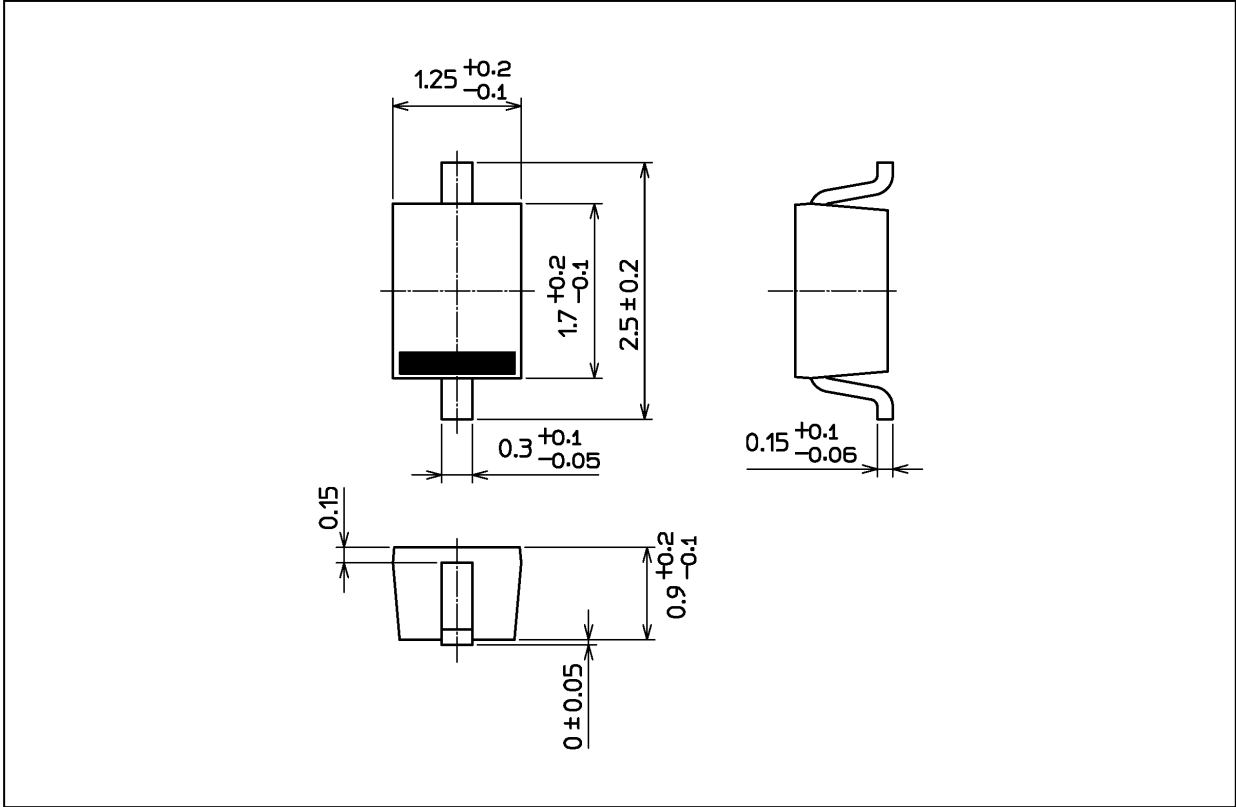


Fig. 7.4 $P_D - T_a$

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

Package Dimensions

Unit: mm



Weight: 4.5 mg (typ.)

Package Name(s)
Nickname: USC

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