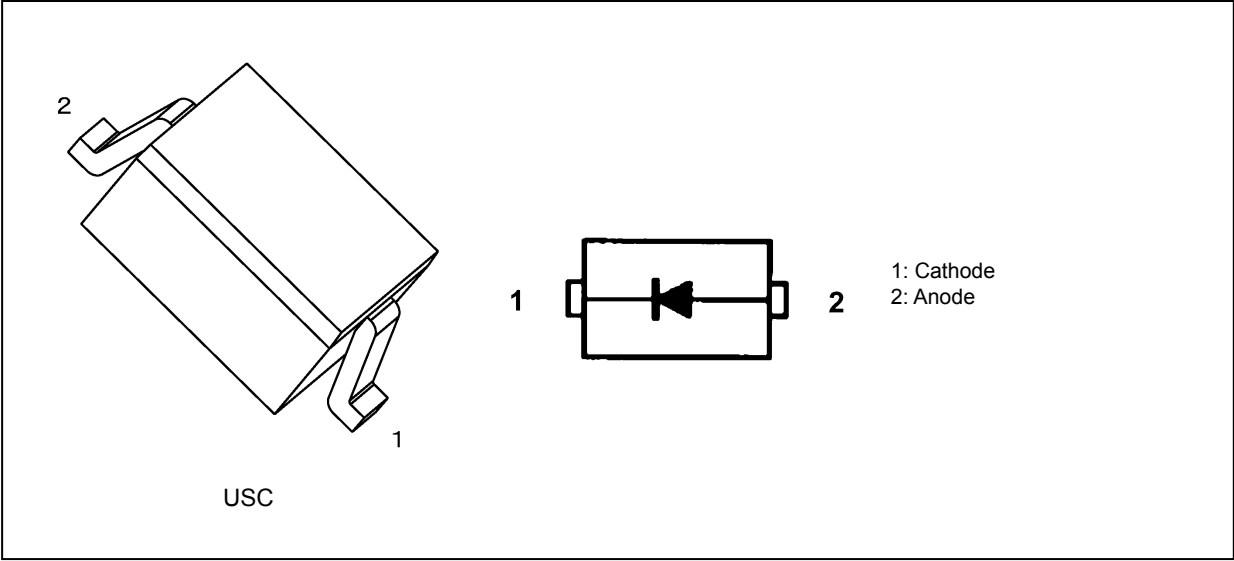


# 1N4148WS

## 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

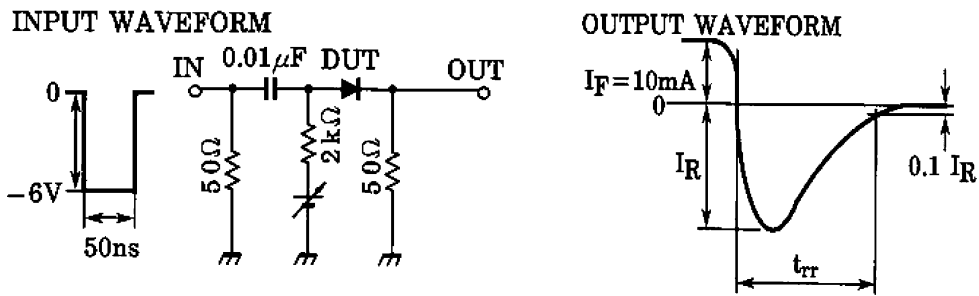
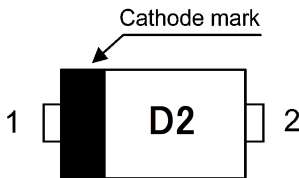
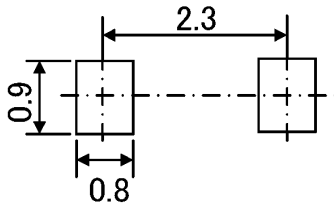


Fig. 4.1 Reverse recovery time ( $t_{rr}$ ) Test circuit

5. Marking



6. Land Pattern Dimensions (for reference only)



Land Pattern Dimensions (Unit: mm)

7. Characteristics Curves (Note)

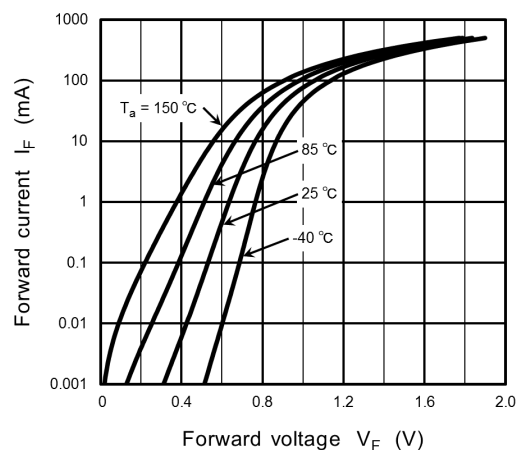


Fig. 7.1  $I_F - V_F$

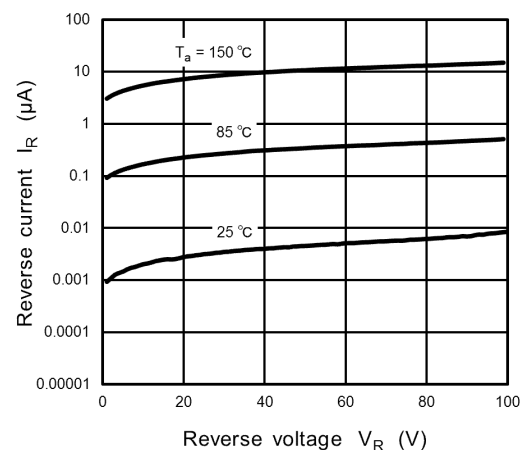


Fig. 7.2  $I_R - V_R$

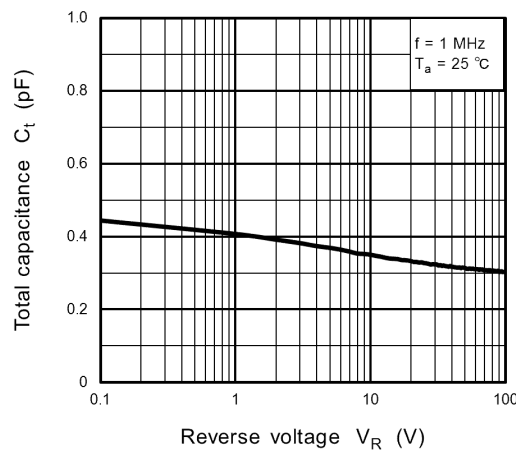


Fig. 7.3  $C_t - V_R$

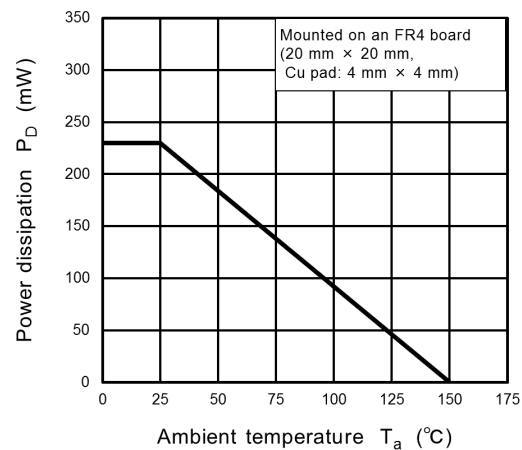
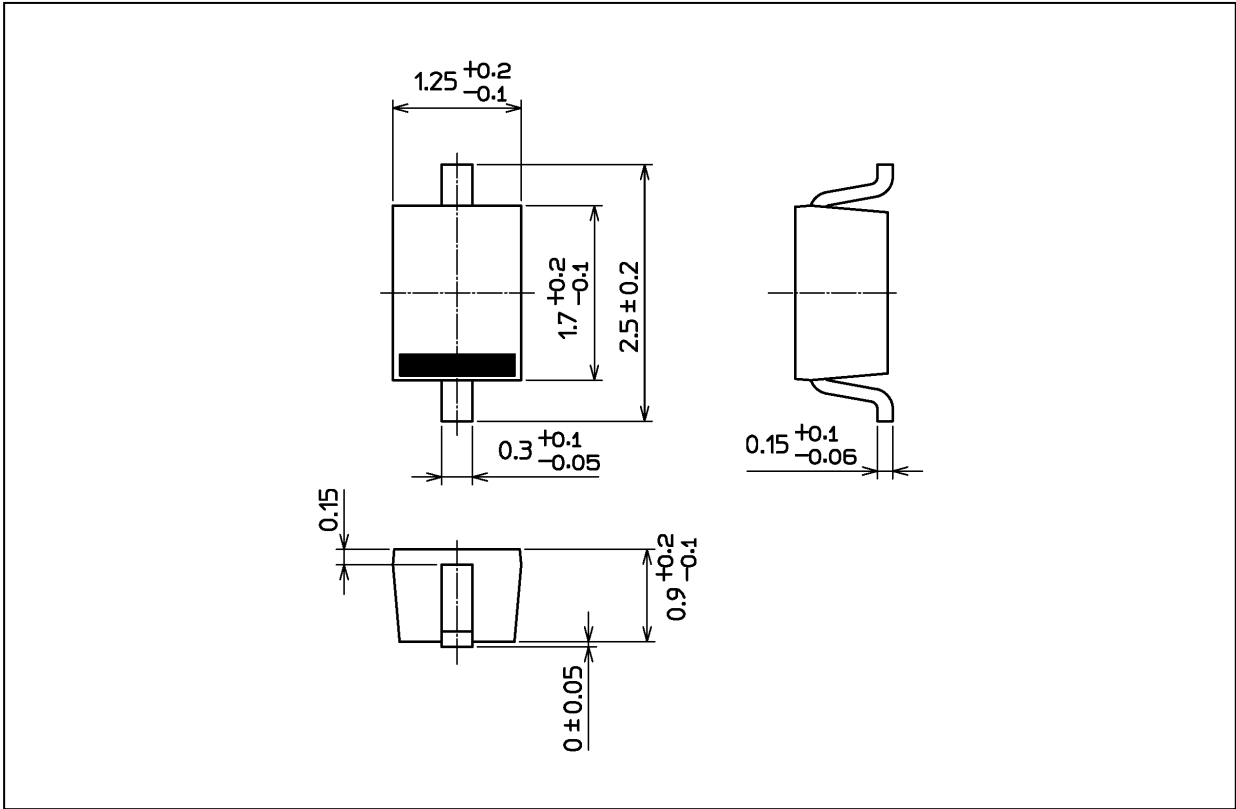


Fig. 7.4  $P_D - T_a$

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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