1N4448W

List

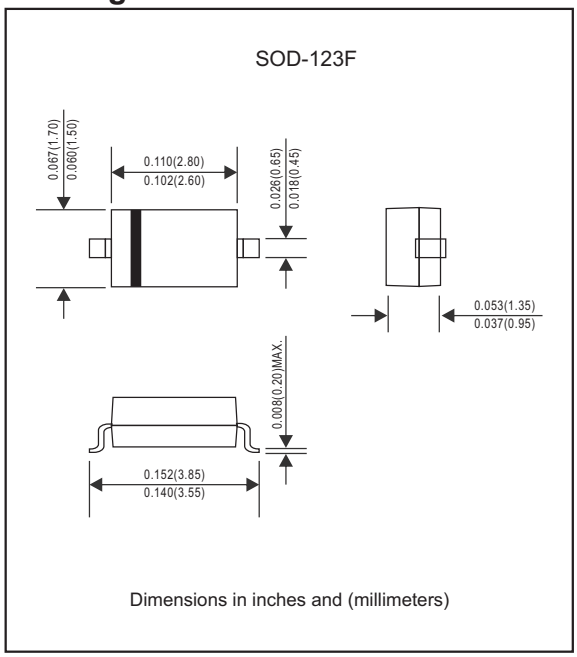
1N4448W

250mA Surface Mount Switching Diode-100V

Features

- Small package
- Low reverse current
- Fast switching speed
- Surface mount package ideally suited for automatic insertion
- Silicon epitaxial planar chip
- Lead-free parts meet RoHS requirments.
- Suffix "-H" indicates Halogen-free parts, ex. 1N4448W-H

Package outline



Dimensions in inches and (millimeters)

Mechanical data

- Epoxy:UL94-VO rated flame retardant
- Case : Molded plastic, SOD-123F
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.010 gram

Maximum ratings (AT T_A=25°C unless otherwise noted)

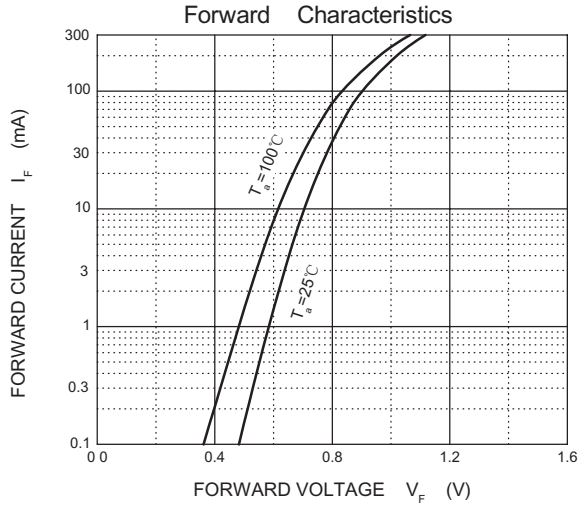
PARAMETER	Symbol	Limit	UNIT
Non-repetitive peak reverse voltage	V_{RRM}	100	V
Working peak reverse voltage DC blocking voltage	V_{RWM} V_R	75	V
RMS voltage	$V_{R(RMS)}$	53	V
Forward continuous current	I_{FM}	500	mA
Average rectified output current (note 1)	I_O	250	mA
Non-repetitive peak forward surge current 8.3ms	I_{FSM}	2.0	A
Power dissipation (note 1)	P_D	500	mW
Typical thermal resistance junction to ambient (note 1)	$R_{\theta JA}$	250	°C/W
Operating junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

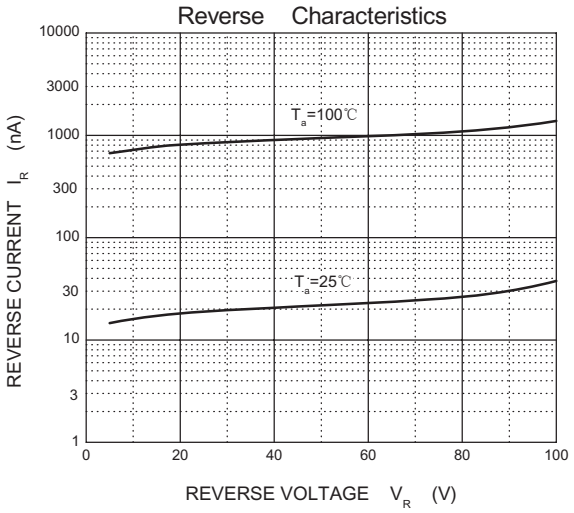
Electrical characteristics (AT T_A=25°C unless otherwise noted)

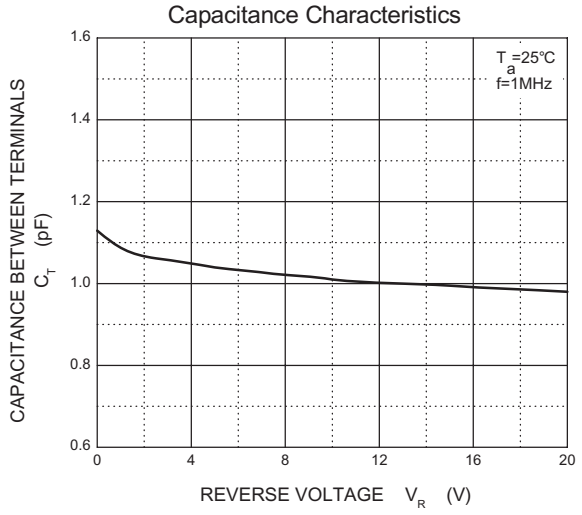
PARAMETER	CONDITION	Symbol	MIN.	MAX.	UNIT
Reverse breakdown voltage	I_R = 10μA	$V_{(BR)R}$	75		V
Forward voltage	I_F = 5 mA I_F = 10 mA I_F = 100 mA I_F = 150 mA	V_F	0.62	0.72 0.855 1.00 1.25	V
Reverse leakage current	V_R = 75V, T_J=25°C V_R = 20V, T_J=25°C	I_R		2.5 25	μA nA
Capacitance between terminals	V_R = 0 V , f = 1.0MHz	C_T		4.0	pF
Reverse recovery time	I_F = I_R = 10mA , I_{RR} = 0.1 X I_R , R_L = 100$_{OHM}$	t_{rr}		4.0	ns

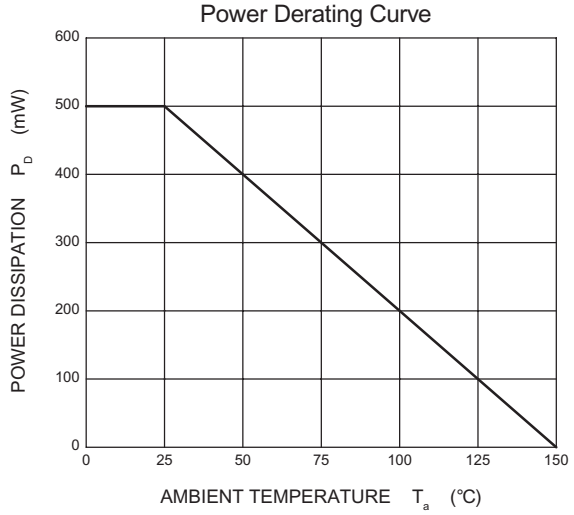
Note 1: Valid provided that electrodes are kept at ambient temperature.

Rating and characteristic curves (1N4448W)









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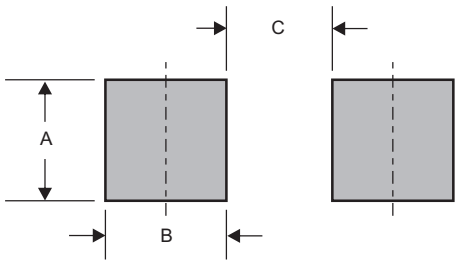
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
1N4448W	T5

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-123F	0.048 (1.22)	0.036 (0.91)	0.093 (2.36)

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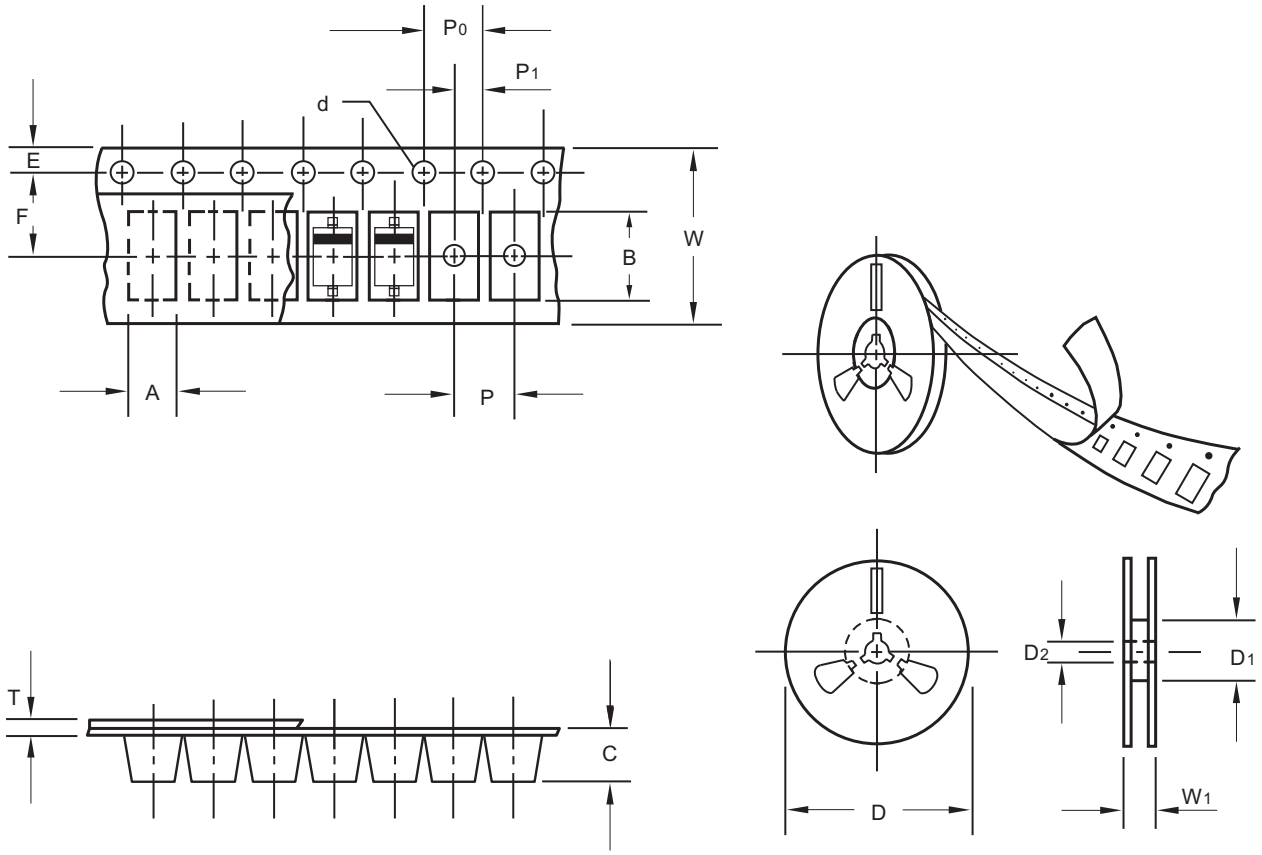
Packing information



unit:mm

Item	Symbol	Tolerance	SOD-123F
Carrier width	A	0.1	1.85
Carrier length	B	0.1	3.95
Carrier depth	C	0.1	1.57
Sprocket hole	d	0.1	1.55
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D_1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D_1	min	54.40
Feed hole diameter	D_2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P_0	0.1	4.00
Embossment center	P_1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W_1	1.0	11.40

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

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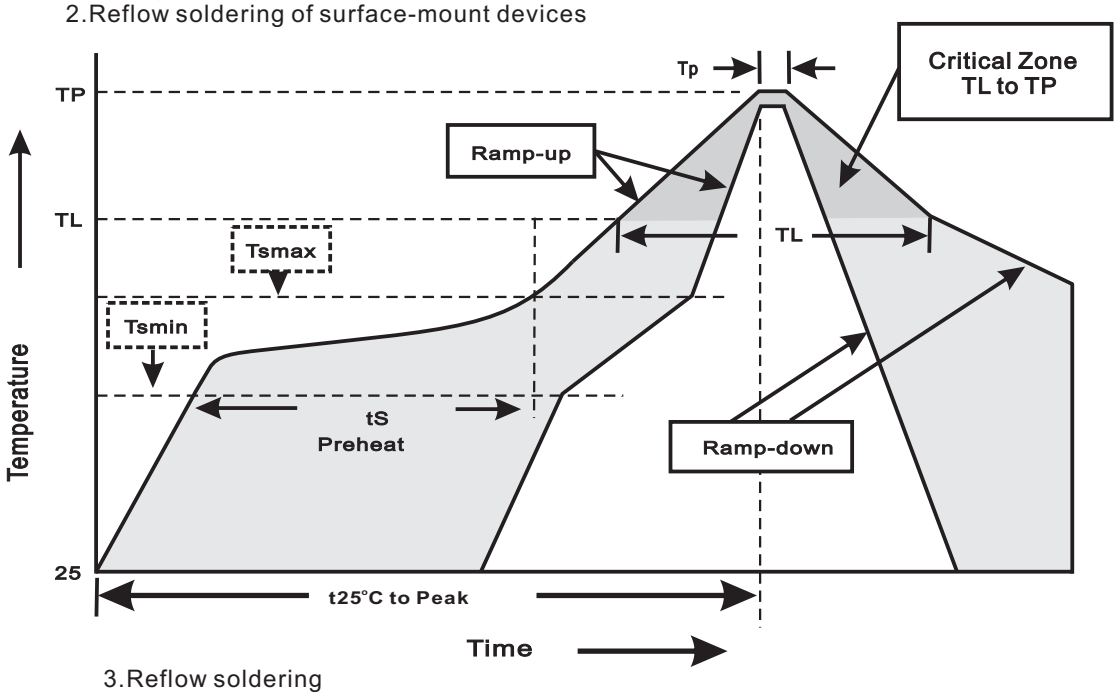
Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOD-123F	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	9.5

Suggested thermal profiles for soldering processes

1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec.	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	V_R=80% rate at T_J=150°C for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at T_A=25°C for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	T_A = 25°C, I_F = I_O On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	15P_{SIG} at T_A=121°C for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Forward Surge	Peak forward surge current 8.3ms for 1cycle	MIL-STD-750D METHOD-4066-2
9. Humidity	at T_A=85°C, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
10. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031