1N4148W-FL

List

1N4148W-FL

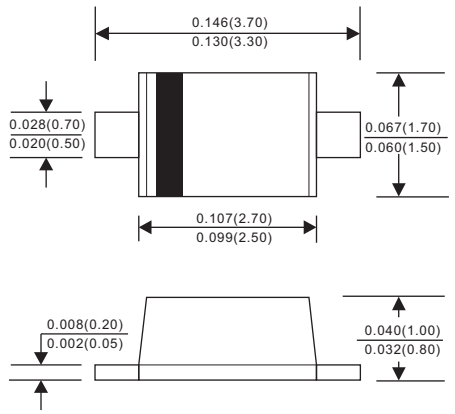
400mW Surface Mount Switching Diode-100V

Features

- Fast Switching Device (trr<4.0 ns)
- General Purpose Diodes
- Flat Lead SOD-123FL Small Outline Plastic Package
- Surface Device Type Mounting
- RoHS Compliant
- Green EMC
- Matte Tin(Sn) Lead Finish
- Band Indicates Cathode
- Lead-free parts for green partner, exceeds environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free parts, ex. 1N4148W-FL-H

Package Outline

SOD-123FL



Dimensions in inches and (millimeters)

Mechanical data

- Epoxy:UL94-VO rated flame retardant
- Case : Molded plastic, SOD-123FL
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.009 gram

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

PARAMETER	Symbol	Value	UNIT
Power Dissipation at TA=25°C	P_D	400	mW
Non-Repetitive Peak Reverse Voltage	V_{RRM}	100	V
Repetitive Peak Reverse Voltage	V_R	75	V
Repetitive Peak Forward Current	I_{FRM}	300	mA
Continuous Forward Current	I_O	150	mA
Peak Forward Surge Current (Pulse Width=1us)	I_{FSM}	2	A
Operating junction temperature range	T_J	-55~+150	°C
Storage temperature range	T_{STG}	-55~+150	°C

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

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Breakdown Voltage	I_R=100μA I_R=5μA	V_B	100 75			V
Reverse Leakage Current	V_R=20V V_R=75V	I_R			25 5	nA μA
Forward Voltage	I_F=10mA	V_F			1.0	V
Reverse Recovery Time	I_F=10mA,I_R=10mA,R_L=100Ω,I_{RR}=1mA	t_{rr}			4.0	ns
Capacitance	V_R=0V, f=1MHz	C_J			4.0	pF

Thermal characteristics

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Thermal resistance	junction to ambient	$R_{\theta JA}$		315		°C/W
	junction to case	$R_{\theta JC}$		235		°C/W

Rating and characteristic curves (1N4148W-FL)

FIG.1-Power Dissipation

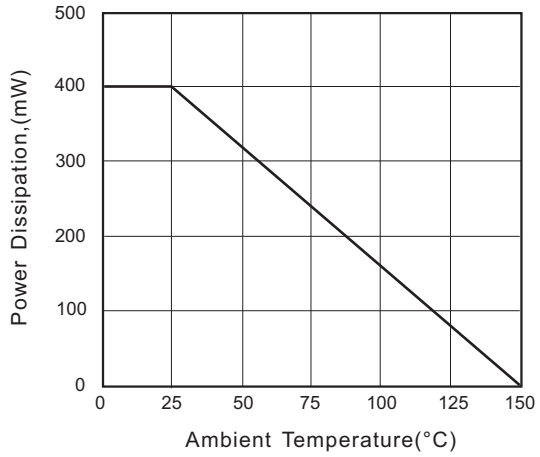


FIG.2 - Typical Reverse Characteristics

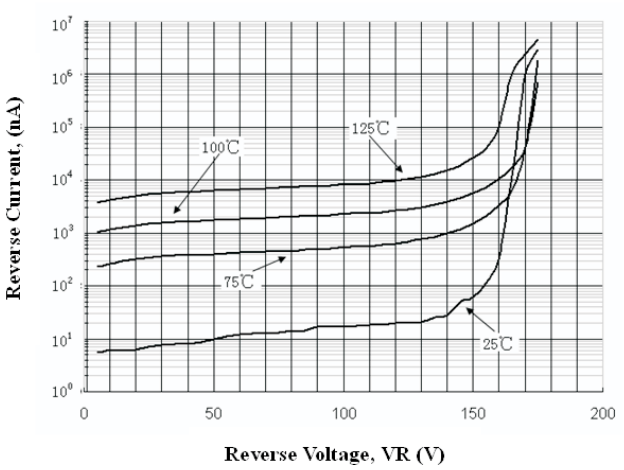


FIG.3 - Typical Capacitance

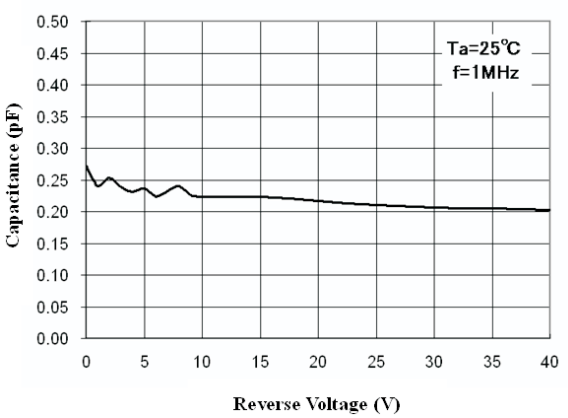
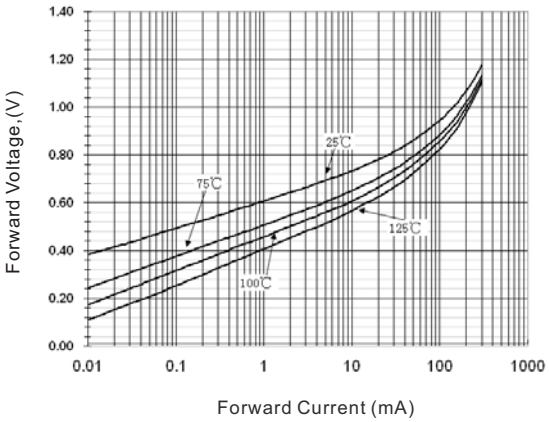


FIG.4 - Typical Forward Voltage vs. Ambient Temperature



1N4148W-FL

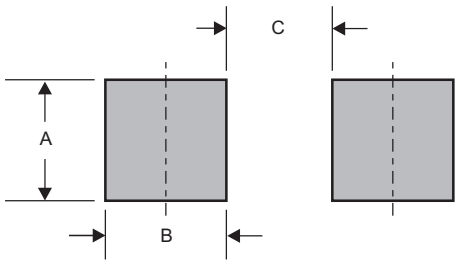
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
1N4148W-FL	D1

Suggested solder pad layout

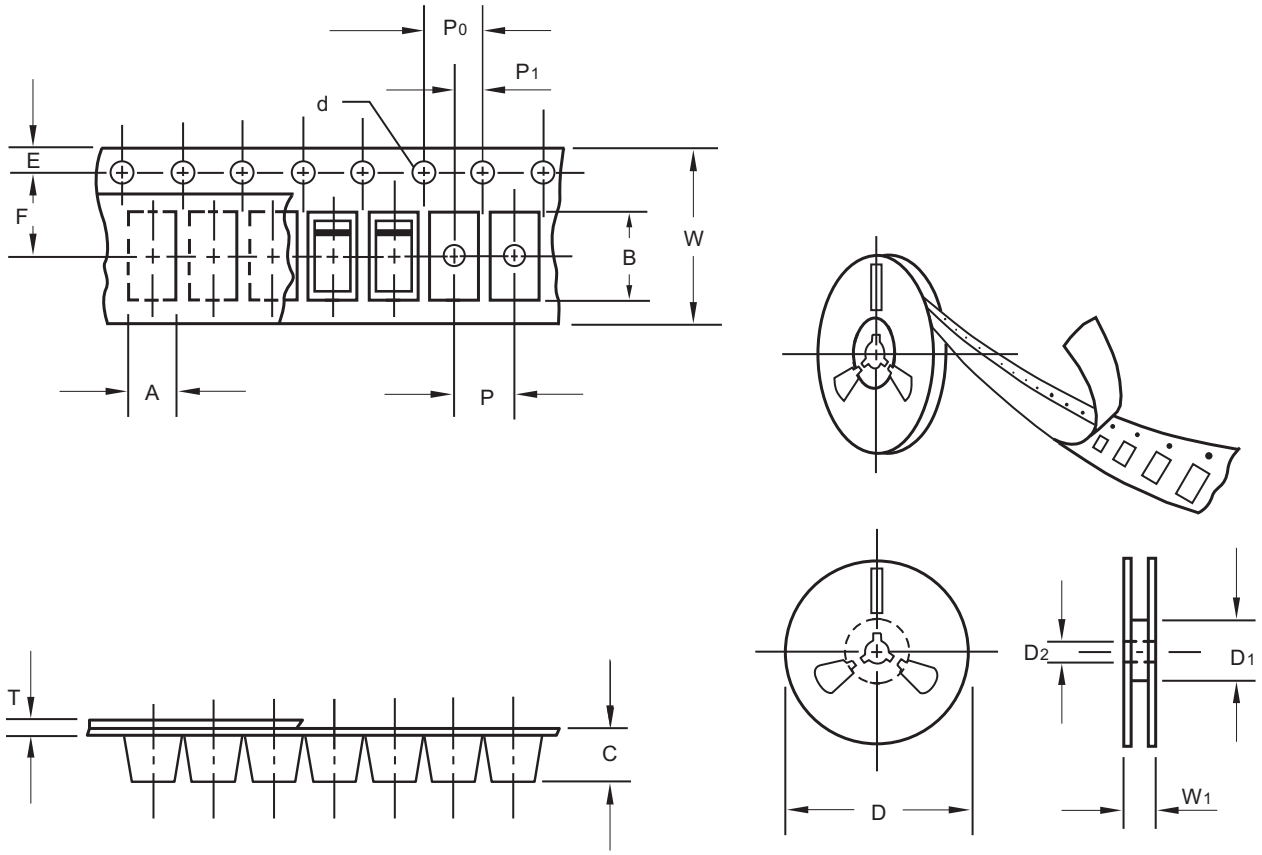


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-123FL	0.028 (0.70)	0.028 (0.70)	0.091 (2.30)

1N4148W-FL

Packing information



unit:mm

Item	Symbol	Tolerance	SOD-123FL
Carrier width	A	0.1	2.00
Carrier length	B	0.1	3.85
Carrier depth	C	0.1	1.10
Sprocket hole	d	0.1	1.50
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	62.00
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.

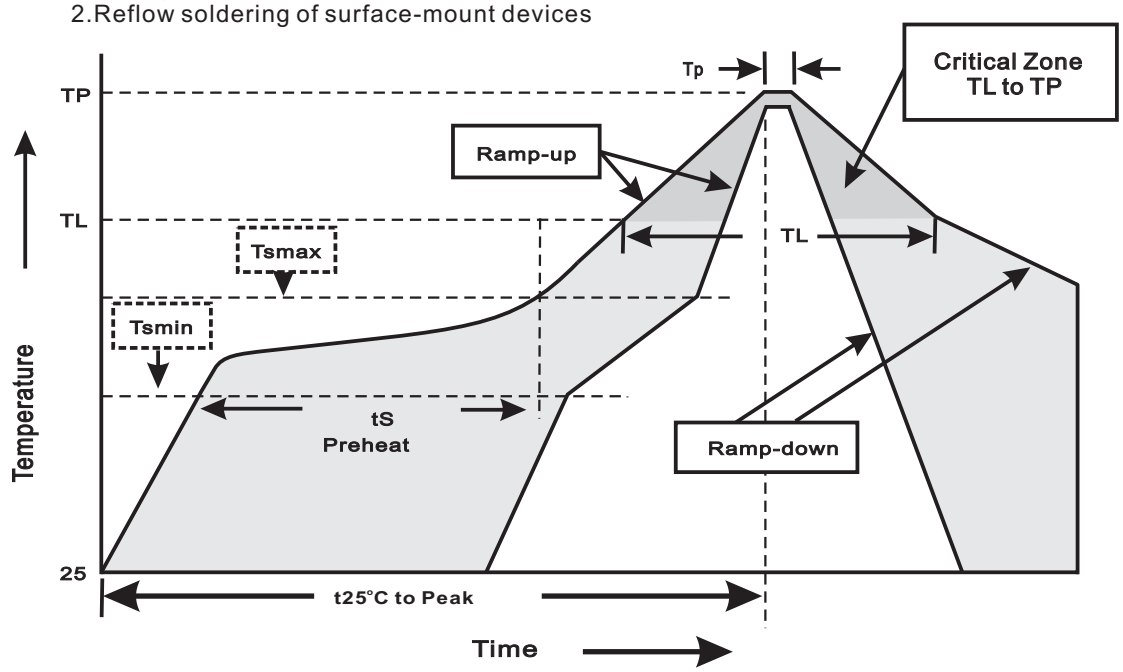
1N4148W-FL

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-123FL	7"	3,000	4.0	30,000	183*183*123	178	382*262*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

1N4148W-FL

High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec. immerse body into solder 1/16"±1/32"	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	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