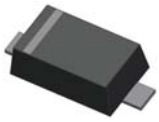
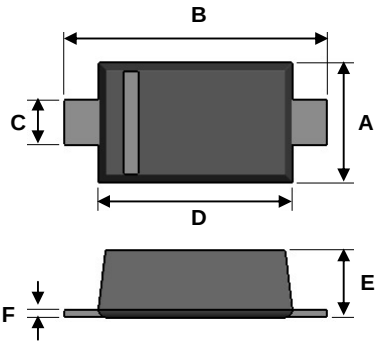
TAIWAN SEMICONDUCTOR

1N4148W/1N4448W/1N914BW
400mW High Speed SMD Switching Diode

Small Signal Diode



SOD-123F



Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.5	1.7	0.059	0.067
B	3.3	3.7	0.130	0.146
C	0.5	0.7	0.020	0.028
D	2.5	2.7	0.098	0.106
E	0.8	1.0	0.031	0.039
F	0.05	0.2	0.002	0.008

Features

- ✧Fast switching device(T_{rr}<4.0nS)
- ✧Surface device type mounting
- ✧Moisture sensitivity level 1
- ✧Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- ✧Pb free version and RoHS compliant
- ✧Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code

Mechanical Data

- ✧Case : Flat lead SOD-123 small outline plastic package
- ✧Terminal: Matte tin plated, lead free., solderable per MIL-STD-202, Method 208 guaranteed
- ✧High temperature soldering guaranteed: 260°C/10s
- ✧Polarity : Indicated by cathode band
- ✧Weight : 8.85±0.5 mg
- ✧Marking Code : D1, D2, D3

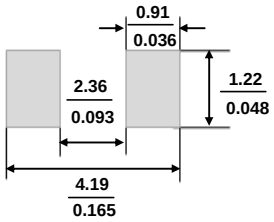
Ordering Information

Package	Part No.	Packing	Marking
SOD-123F	1N4148W RH	3K / 7" Reel	D1
SOD-123F	1N4448W RH	3K / 7" Reel	D2
SOD-123F	1N9148B RH	3K / 7" Reel	D3
SOD-123F	1N4148W RHG	3K / 7" Reel	D1
SOD-123F	1N4448W RHG	3K / 7" Reel	D2
SOD-123F	1N9148B RHG	3K / 7" Reel	D3

Pin Configuration



Suggested PAD Layout



Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Maximum Ratings

Type Number	Symbol	Value	Units
Power Dissipation	P_D	400	mW
Non-Repetitive Peak Reverse Voltage	V_{RSM}	100	V
Repetitive Peak Reverse Voltage	V_{RRM}	75	V
Repetitive Peak Forward Current	I_{FRM}	300	mA
Mean Forward Current	I_O	150	mA
Thermal Resistance (Junction to Ambient) (Note 1)	RθJA	450	°C/W
Junction and Storage Temperature Range	T_J, T_{STG}	-65 to + 150	°C

Notes:1. Test Condition : 8.3ms Single half Sine-Wave Superimposed on Rated Load (JEDEC Method)

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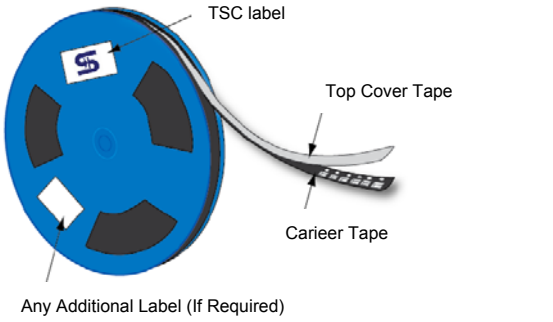
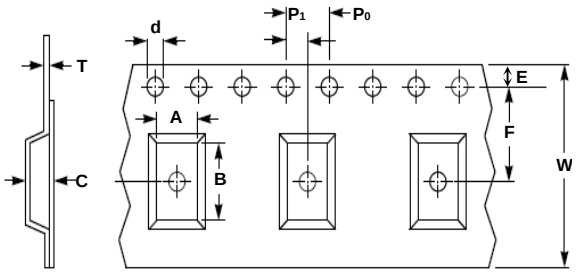
Electrical Characteristics

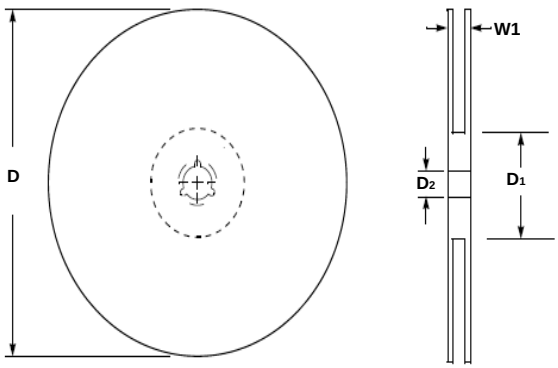
Type Number		Symbol	Min	Max	Units
Reverse Breakdown Voltage	I_R= 100uA	$V_{(BR)}$	100	-	V
	I_R= 5uA		75	-	
Forward Voltage		V_F			V
1N4448W, 1N914BW	I_F= 5.0mA		0.62	0.72	
1N4148W	I_F= 10.0mA		-	1.0	
1N4448W, 1N914BW	I_F= 100.0mA		-	1.0	
Reverse Leakage Current	V_R= 20V	I_R	-	25	nA
	V_R= 75V		-	5.0	μA
Junction Capacitance	V_R=0, f=1.0MHz	C_J	-	4.0	pF
Reverse Recovery Time (Note 2)		Trr	-	4.0	ns

Notes:2. Reverse Recovery Test Conditions: I_F=10mA, I_R=60mA, R_L=100Ω, I_{RR}=1mA

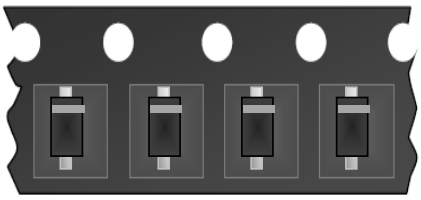
Tape & Reel specification







Item	Symbol	Dimension
Carrier width	A	1.85 ± 0.10
Carrier length	B	3.94 ± 0.10
Carrier depth	C	1.50 ±0.10
Sprocket hole	d	1.5 ± 0.1
Reel outside diameter	D	178 ± 1
Reel inner diameter	D1	55 Min
Feed hole width	D2	13.0 ± 0.20
Sprocke hole position	E	1.75 ±0.10
Punch hole position	F	3.50 ±0.05
Sprocke hole pitch	P0	4.00 ±0.10
Embossment center	P1	2.00 ±0.05
Overall tape thickness	T	0.23 ± 0.05
Tape width	W	8.00 ±0.20
Reel width	W1	14.4 Max



Small Signal Diode

Rating and Sharacteristic Curves

FIG 1 Typical Forward Characteristics

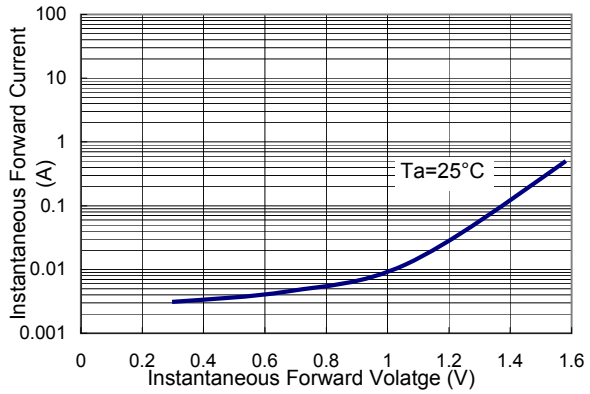


FIG 2 Reverse Current vs Reverse Voltage

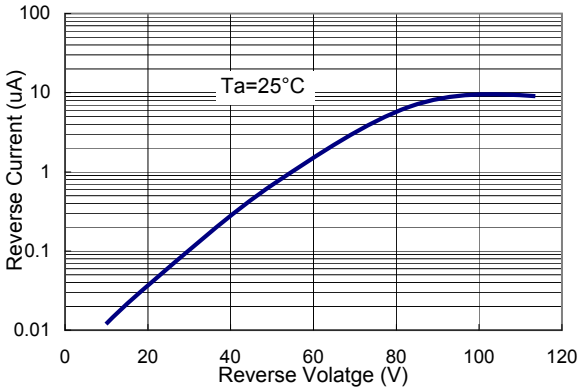


FIG 3 Admissible Power Dissipation Curve

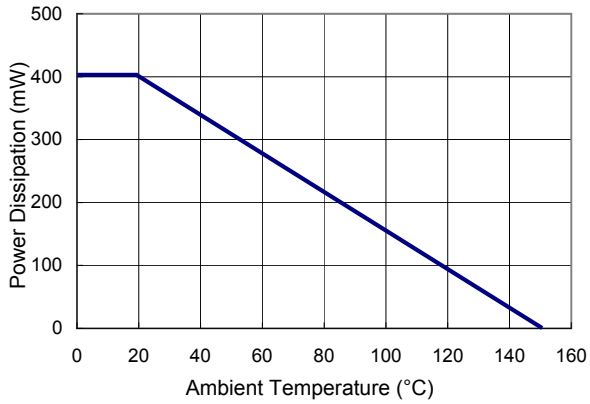


FIG 4 Typical Junction Capacitance

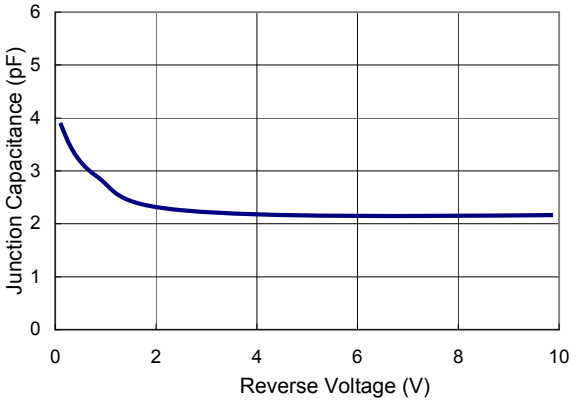


FIG 5 Forward Resistance vs. Forward Current

