

## FEATURES

- | Fast Switching Device (TRR <4.0 nS)

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- | Power Dissipation of 500mW

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- | High Stability and High Reliability

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- | Low reverse leakage

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- | Meet AEC-Q101 Requirements

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SOD-123



Marking



Schematic Symbol

## MECHANICAL DATA

- | Encapsulation: SOD-123 Small Outline Plastic Package

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- | Polarity: Color band denotes cathode end

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- | Mounting Position: Any

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## APPROVALS

<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

## MAXIMUM RATINGS (T<sub>A</sub>=25°C)

Parameter	Symbol	Value	Unit
Peak Reverse Voltage	V <sub>RM</sub>	100	V
Power Dissipation	Pd	500	mW
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub>	250	°C/W
Average Rectified Current	I <sub>O</sub>	150	mA
Non-repetitive Peak Forward Current	I <sub>FM</sub>	300	mA
Peak Forward Surge Current @tp=1μs; T <sub>A</sub> =25°C	I <sub>FSM</sub>	2.0	A
Operating junction temperature range	T <sub>J</sub>	150	°C
Storage temperature range	T <sub>STG</sub>	-65 to 150	°C

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Breakdown Voltage	$B_V$	$I_R = 100\mu\text{A}$	100			V
Reverse Leakage Current	$I_R$	$V_R = 20\text{V}$			25	nA
		$V_R = 20\text{V}$ $T_j = 150^\circ\text{C}$			50	$\mu\text{A}$
		$V_R = 75\text{V}$			5	$\mu\text{A}$
Forward Voltage	$V_F$	$I_F = 10\text{mA}$			1.00	V
		$I_F = 100\text{mA}$			1.25	V
Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$			4	pF
Reverse Recovery Time	$t_{rr}$	$I_F = I_R = 10\text{mA}$ , $R_L = 100\Omega$ , $I_{RR} = 0.1 \times I_R$			4	nS

## CHARACTERISTIC CURVES

Fig.1 Forward Characteristics

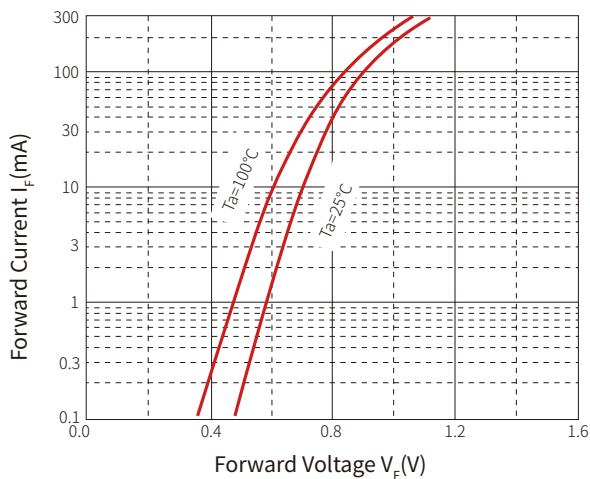
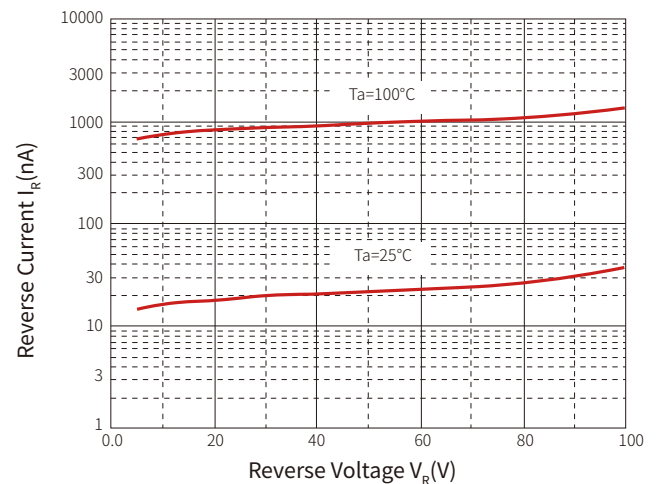
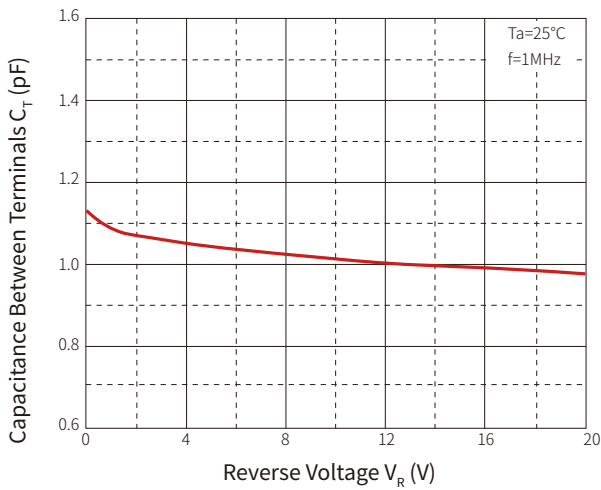
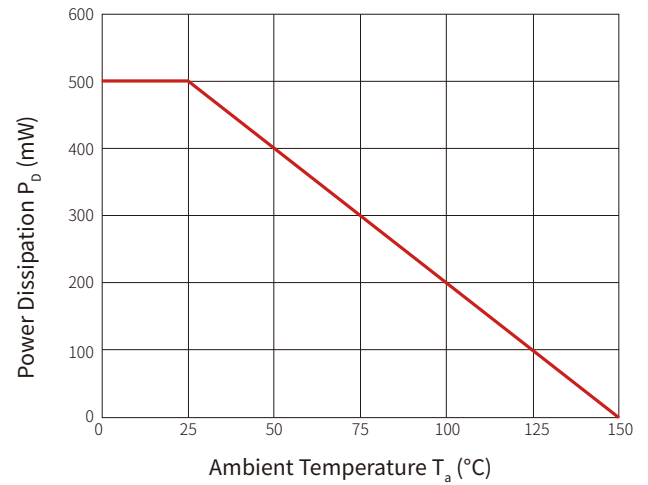


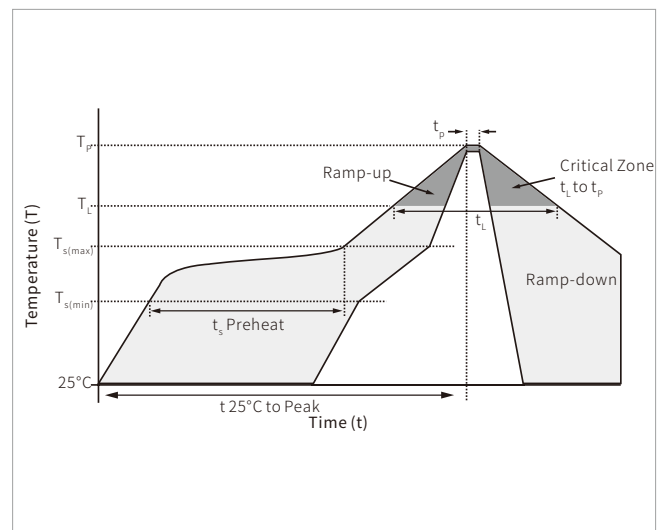
Fig.2 Reverse Characteristics



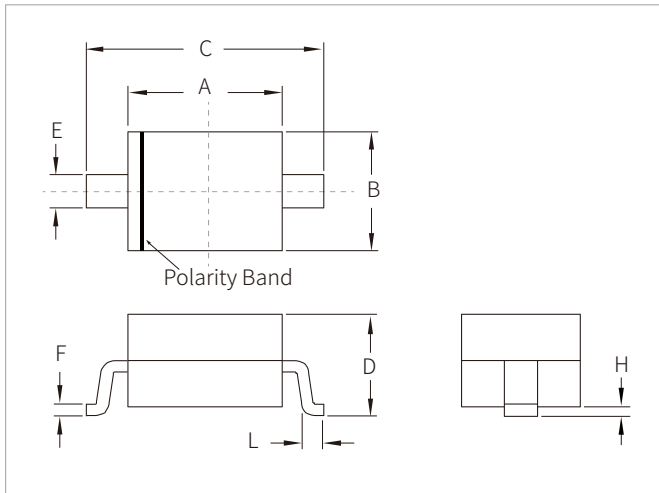
**Fig.3 Capacitance Characteristics**

**Fig.4 Power Derating Curve**


## SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ( $T_{s(\min)}$ )	150 $^\circ\text{C}$
	Temperature Max ( $T_{s(\max)}$ )	200 $^\circ\text{C}$
	Time (min to max) ( $t_s$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3 $^\circ\text{C}/\text{second}$ max
$T_{s(\max)}$ to $T_L$ - Ramp-up Rate		3 $^\circ\text{C}/\text{second}$ max
Reflow	Temperature ( $T_L$ ) (Liquidus)	217 $^\circ\text{C}$
	Time (min to max) ( $t_L$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		260 $^\circ\text{C}$
Time within 5 $^\circ\text{C}$ of actual peak Temperature ( $t_p$ )		20 – 40 seconds
Ramp-down Rate		6 $^\circ\text{C}/\text{second}$ max
Time 25 $^\circ\text{C}$ to peak Temperature ( $T_p$ )		8 minutes max.
Do not exceed		260 $^\circ\text{C}$

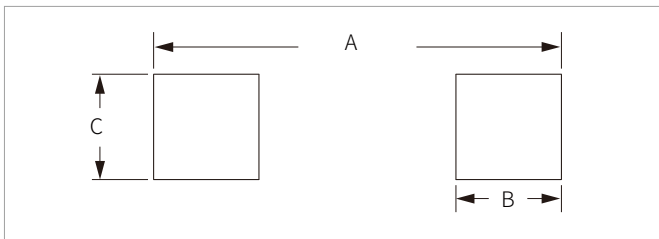


## SOD-123 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	2.80	0.102	0.110
B	1.50	1.70	0.059	0.067
C	3.55	3.85	0.140	0.152
D	1.05	1.25	0.041	0.049
E	0.45	0.65	0.018	0.026
F	0.08	0.15	0.003	0.006
H	0.00	0.10	0.000	0.004
L	0.25	0.45	0.010	0.018

## RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.19	3.29	0.126	0.130
B	0.75	0.85	0.030	0.033
C	0.95	1.05	0.037	0.041

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
1N4148WQ	SOD-123	3000PCS	7"

**Headquarters**

No.3387 Shendu Road  
Pujiang I&E Park  
Minhang Shanghai China  
201000

**Hotline**

400-021-5756

**Web**

<https://www.semiware.com>

**Sales Center**

Tel: 86-21-3463-7458  
Email: [sales18@semiware.com](mailto:sales18@semiware.com)

**Customer Service**

Tel: 86-21-5484-1001  
Email: [sales17@semiware.com](mailto:sales17@semiware.com)

**Technical Support**

Tel: 86-21-3463-7654  
Email: [fae01@semiware.com](mailto:fae01@semiware.com)

**Complaint & Suggestions**

Tel: 86-21-3463-7172  
Ext: 8868  
Email: [cs03@semiware.com](mailto:cs03@semiware.com)

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