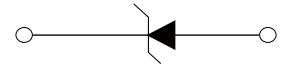


## FEATURES

- | Low Profile Package
- | Ideal For Automated Placement
- | Glass Passivated Chip Junction
- | High Forward Surge Capability
- | Super Fast Reverse Recovery Time



SOD-123FL



Schematic Symbol

## MECHANICAL DATA

- | Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- | Polarity: Cathode line denotes the cathode end

## APPROVALS

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

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

Parameter	Symbol	ES2000	ES2001	ES2015	ES2002	ES2003	ES2004	ES2005	ES2006	ES2008	Unit	
		FL	FL	FL	FL	FL	FL	FL	FL	FL		
Marking		ES2A	ES2B	ES2C	ES2D	ES2F	ES2G	ES2H	ES2J	ES2K		
Maximum Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	50	100	150	200	300	400	500	600	800	V	
Maximum RMS Voltage	V <sub>RMS</sub>	35	70	105	140	210	280	350	420	560		
Maximum DC Blocking Voltage	V <sub>DC</sub>	50	100	150	200	300	400	500	600	800		
Average Rectified Output Current @60Hz Sine Wave, Resistance Load, TL (Fig.1)	I <sub>O</sub>						2.0					A
Forward Surge Current (Non-Repetitive) @60Hz Half-Sine Wave, 1 cycle, T <sub>j</sub> =25°C	I <sub>FSM</sub>						50					
Forward Surge Current (Non-Repetitive) @1ms, Square Wave, 1 Cycle, T <sub>j</sub> =25°C	I <sub>FSM</sub>						100					
Maximum Instantaneous Forward Voltage @I <sub>FM</sub> =2A	V <sub>F</sub>	1.0			1.3		1.7		2.2		V	
Maximum DC Reverse Current at Rated DC Blocking Voltage	I <sub>R</sub>	T <sub>j</sub> =25°C				5.0						μA
		T <sub>j</sub> =125°C				100						
Typical Thermal Resistance <sup>(1)</sup>	R <sub>θJ-A</sub>						90					°C/W
	R <sub>θJ-L</sub>						30					
Current Squared Time @1ms ≤ t ≤ 8.3ms T <sub>j</sub> =25°C	I <sup>2</sup> t						10.375					A <sup>2</sup> s
Typical Junction Capacitance Measured At 1MHz And Applied Reverse Voltage Of 4.0 V.D.C	C <sub>J</sub>	30			16		12			pF		
Operating Junction Temperature Range	T <sub>J</sub>						-55 to +150					°C
Storage Temperature Range	T <sub>STG</sub>						-55 to +150					
Maximum Reverse Recovery Time I <sub>F</sub> =0.5A, I <sub>r</sub> =1.0A, I <sub>r</sub> =0.25A	t <sub>rr</sub>						35					ns

Note: (1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

# CHARACTERISTIC CURVES

Fig. 1-  $I_o$ - $T_L$  Curve

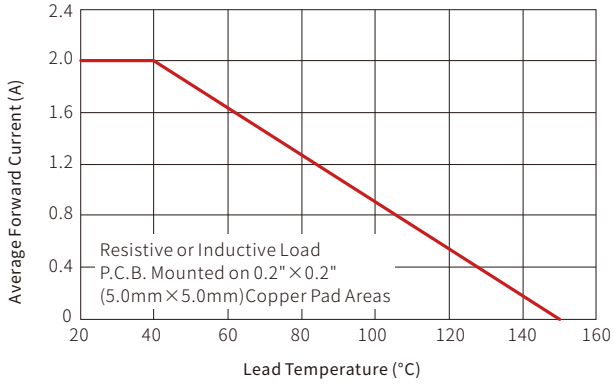


Fig. 2-Surge Forward Current Capability

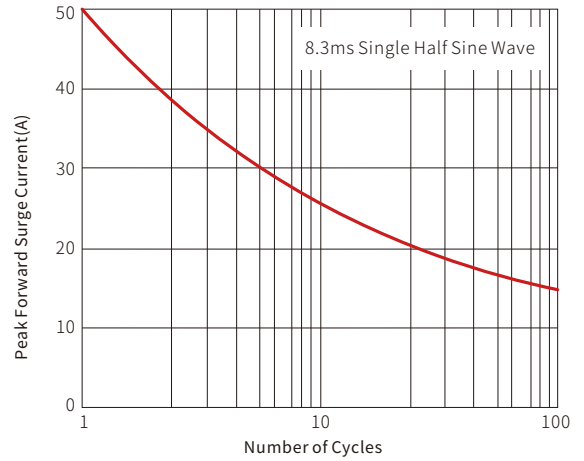


Fig. 3-Typical Forward Voltage

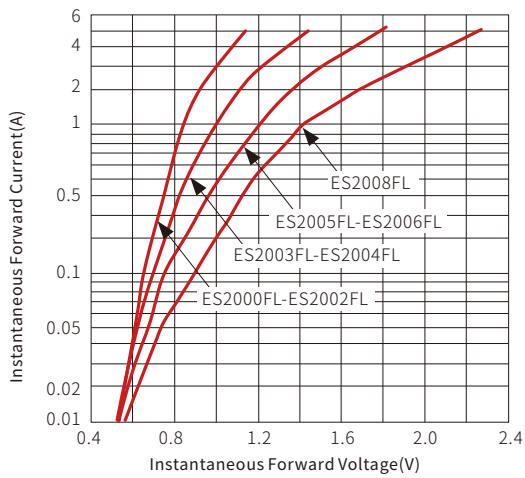
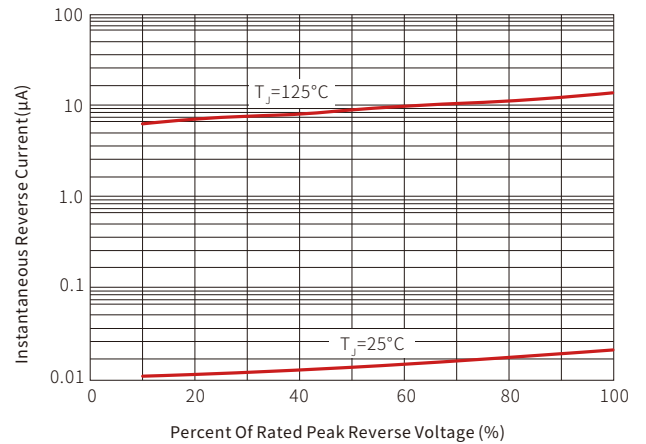
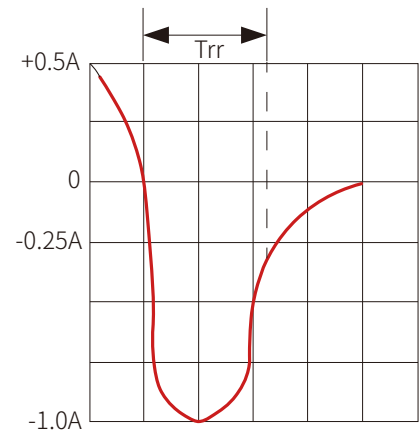
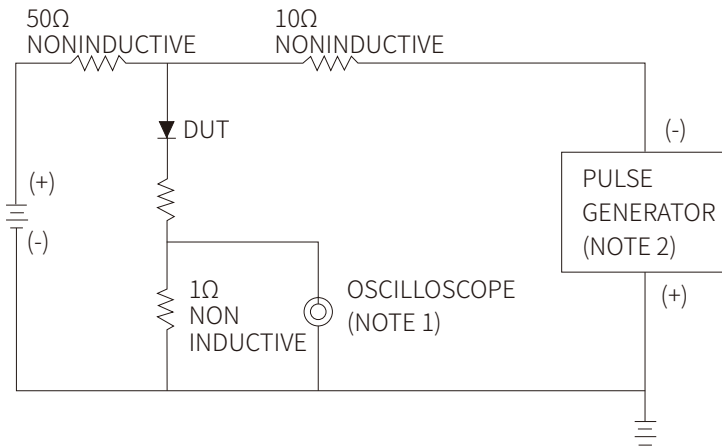


Fig. 4-Typical Reverse Characteristics

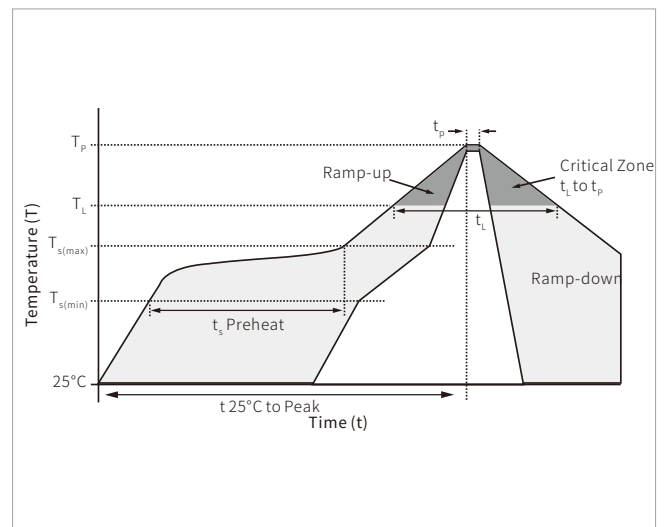


**Fig. 5-Diagram Of Circuit And Testing Wave Form Of Reverse Recovery Time**


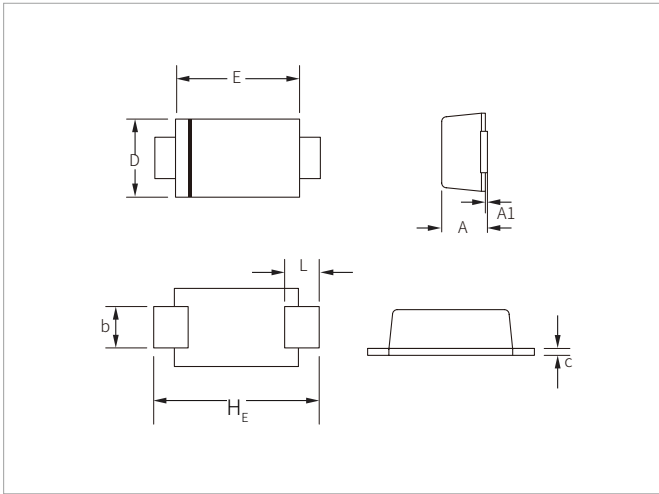
NOTES : 1. Rise Time = 7 ns max., Input Impedance = 1 megaohm, 22 pF  
 2. Rise time = 10 ns max., Source Impedance = 50Ω

## SOLDERING PARAMETERS

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

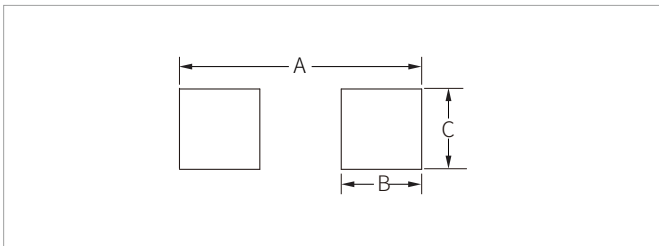


## SOD-123FL PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.95	1.45	0.037	0.057
A1	0.00	0.10	0.000	0.004
b	0.70	1.20	0.028	0.047
c	0.05	0.30	0.002	0.012
D	1.50	2.00	0.059	0.079
E	2.50	2.90	0.098	0.114
L	0.35	0.90	0.014	0.035
H <sub>E</sub>	3.40	3.90	0.134	0.154

## RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
A	4.20	0.165
B	1.50	0.059
C	1.20	0.047

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
ES2000-2008FL	SOD-123FL	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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