

# 0.8A, 200V - 600V Super Fast Surface Mount Rectifier

#### **FEATURES**

- Glass passivated chip junction
- Ideal for automated placement
- Low profile package
- Low power loss, high efficiency
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

#### **APPLICATIONS**

- DC to DC converter
- Switching mode converters and inverters
- Freewheeling application

#### **MECHANICAL DATA**

- Case: SOD-123W
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.016g (approximately)

KEY PARAMETERS			
PARAMETER	VALUE	UNIT	
I <sub>F</sub>	0.8	А	
V <sub>RRM</sub>	200 - 600 V		
I <sub>FSM</sub>	20 A		
T <sub>J MAX</sub>	150 °C		
Package	SOD-123W		
Configuration	Single die		





SOD-123W



ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C unless otherwise noted)					
PARAMETER	SYMBOL	ESDLW	ESGLW	ESJLW	UNIT
Marking code on the device		ESDLW	ESGLW	ESJLW	
Repetitive peak reverse voltage	$V_{RRM}$	200	400	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	V
Forward current	l <sub>F</sub>	0.8		А	
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	20		А	
Junction temperature	Τ <sub>J</sub>	- 55 to +150		°C	
Storage temperature	T <sub>STG</sub>	- 55 to +150		°C	



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THERMAL PERFORMANCE				
PARAMETER	SYMBOL	ТҮР	UNIT	
Junction-to-lead thermal resistance	R <sub>ejl</sub>	34	°C/W	
Junction-to-ambient thermal resistance	R <sub>eja</sub>	88	°C/W	
Junction-to-case thermal resistance	R <sub>eJC</sub>	35	°C/W	

Thermal Performance Note: Units mounted on PCB (5mm x 5mm Cu pad test board)

PARAMETER		CONDITIONS	SYMBOL	ТҮР	МАХ	UNIT
		$I_F = 0.4A, T_J = 25^{\circ}C$		0.80	-	V
		$I_F = 0.8A, T_J = 25^{\circ}C$		0.85	0.95	V
	ESDLW	$I_F = 0.4A, T_J = 125^{\circ}C$		0.65	-	V
		$I_F = 0.8A, T_J = 125^{\circ}C$		0.72	0.80	V
		$I_F = 0.4A, T_J = 25^{\circ}C$		0.88	-	V
<b>F</b> (1)	FOOLW	$I_F = 0.8A, T_J = 25^{\circ}C$	VF	0.96	1.30	V
Forward voltage <sup>(1)</sup>	ESGLW	$I_F = 0.4A, T_J = 125^{\circ}C$		0.69	-	V
		$I_F = 0.8A, T_J = 125^{\circ}C$		0.77	1.05	V
		$I_F = 0.4A, T_J = 25^{\circ}C$		1.03	-	V
		$I_F = 0.8A, T_J = 25^{\circ}C$		1.14	1.70	V
	ESJLW	$I_F = 0.4A, T_J = 125^{\circ}C$		0.82	-	V
		$I_F = 0.8A, T_J = 125^{\circ}C$		0.94	1.30	V
Reverse current @ rated V <sub>R</sub> <sup>(2)</sup>		$T_J = 25^{\circ}C$	I <sub>R</sub>	-	1	μA
		T <sub>J</sub> = 125°C		-	150	μA
	ESDLW			21	-	pF
Junction capacitance	ESGLW		CJ	20	-	pF
	ESJLW			19	-	pF
Reverse recovery time		I <sub>F</sub> = 0.5A , I <sub>R</sub> = 1.0A I <sub>rr</sub> = 0.25A	t <sub>rr</sub>	-	35	ns

#### Notes:

1. Pulse test with PW = 0.3ms

2. Pulse test with PW = 30ms

ORDERING INFORMATION			
ORDERING CODE <sup>(1)</sup> PACKAGE PACKING			
ESxLW	SOD-123W	10,000 / Tape & Reel	

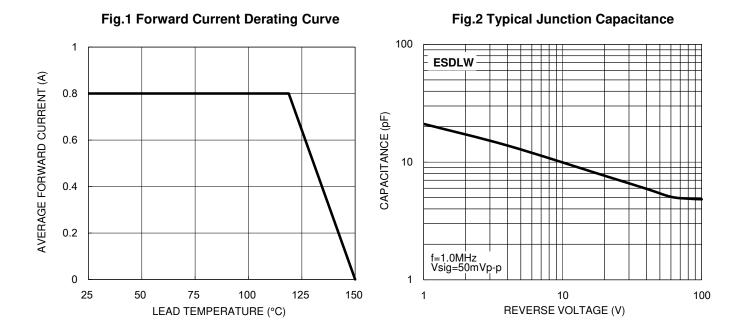
Notes:

1. "x" defines voltage from 200V(ESDLW) to 600V(ESJLW)



### **CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25°C unless otherwise noted)



**Fig.3 Typical Reverse Characteristics** 

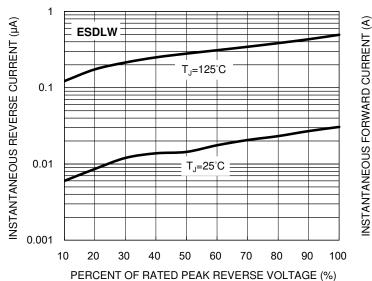
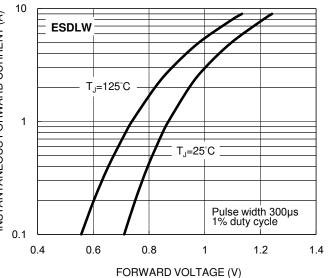


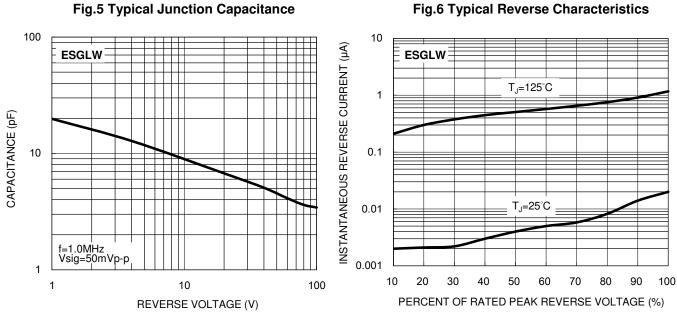
Fig.4 Typical Forward Characteristics



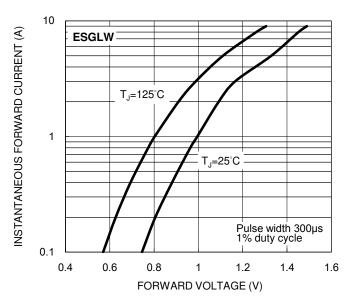


### **CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25°C unless otherwise noted)



**Fig.7 Typical Forward Characteristics** 

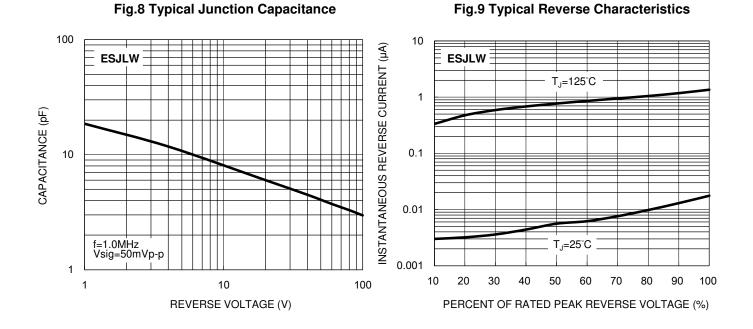


**Fig.6 Typical Reverse Characteristics** 

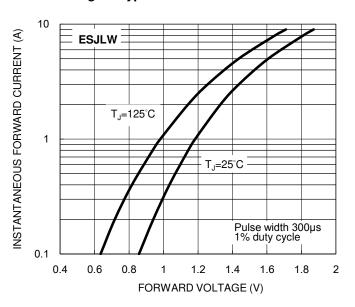


### **CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25°C unless otherwise noted)

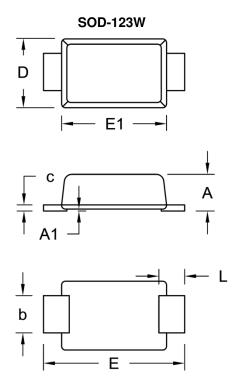


#### Fig.10 Typical Forward Characteristics



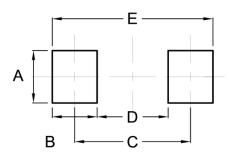
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### PACKAGE OUTLINE DIMENSIONS



DIM. Unit (mm		Unit (mm)		(inch)
	Min.	Max.	Min.	Max.
А	0.90	1.02	0.035	0.040
A1	0.00	0.10	0.000	0.004
b	0.90	1.05	0.035	0.041
с	0.10	0.22	0.004	0.009
D	1.70	1.90	0.067	0.075
E	3.60	3.80	0.142	0.150
E1	2.60	2.90	0.102	0.114
L	0.50	0.85	0.020	0.033

### SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
А	1.40	0.055
В	1.20	0.047
С	3.10	0.122
D	1.90	0.075
E	4.30	0.169

### **MARKING DIAGRAM**



P/N = Marking Code

YW = Date Code

F = Factory Code



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