

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

FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Low profile package
- Low power loss, high efficiency
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching Mode Power Supplies
- Lighting
- On-board DC/DC converter

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: As marked
- Weight: 16mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	0.8	A
V_{RRM}	200 - 600	V
I_{FSM}	20	A
$T_{J\ MAX}$	150	°C
Package	SOD-123W	
Configuration	Single die	



SOD-123W

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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	$I_{F(AV)}$	0.8			A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	20			A
Junction temperature	T_J	-55 to +150			°C
Storage temperature	T_{STG}	-55 to +150			°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP.	UNIT
Junction-to-lead thermal resistance per diode	$R_{\theta JL}$	34	$^{\circ}C/W$
Junction-to-ambient thermal resistance per diode	$R_{\theta JA}$	88	$^{\circ}C/W$
Junction-to-case thermal resistance per diode	$R_{\theta JC}$	35	$^{\circ}C/W$

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

ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}C$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Forward voltage per diode ⁽¹⁾	ESDLW	$I_F = 0.4A, T_J = 25^{\circ}C$	V_F	0.80	-	V
		$I_F = 0.8A, T_J = 25^{\circ}C$		0.85	0.95	V
		$I_F = 0.4A, T_J = 125^{\circ}C$		0.65	-	V
		$I_F = 0.8A, T_J = 125^{\circ}C$		0.72	0.80	V
	ESGLW	$I_F = 0.4A, T_J = 25^{\circ}C$		0.88	-	V
		$I_F = 0.8A, T_J = 25^{\circ}C$		0.96	1.30	V
		$I_F = 0.4A, T_J = 125^{\circ}C$		0.69	-	V
		$I_F = 0.8A, T_J = 125^{\circ}C$		0.77	1.05	V
	ESJLW	$I_F = 0.4A, T_J = 25^{\circ}C$		1.03	-	V
		$I_F = 0.8A, T_J = 25^{\circ}C$		1.14	1.70	V
		$I_F = 0.4A, T_J = 125^{\circ}C$		0.82	-	V
		$I_F = 0.8A, T_J = 125^{\circ}C$		0.94	1.30	V
Reverse current @ rated V_R per diode ⁽²⁾		$T_J = 25^{\circ}C$	I_R	-	1	μA
		$T_J = 125^{\circ}C$		-	150	μA
Junction capacitance	ESDLW	1 MHz, $V_R = 4.0V$	C_J	21	-	pF
	ESGLW			20	-	pF
	ESJLW			19	-	pF
Reverse recovery time		$I_F = 0.5A, I_R = 1.0A$ $I_{RR} = 0.25A$	t_{rr}	-	35	ns

Notes:

1. Pulse test with $PW = 0.3$ ms
2. Pulse test with $PW = 30$ ms

ORDERING INFORMATION		
ORDERING CODE (Note 1, 2)	PACKAGE	PACKING
ESxLWHRVG	SOD-123W	3,000 / 7" Plastic Reel
ESxLWHRQG	SOD-123W	10,000 / 13" Paper Reel
ESxLW RVG	SOD-123W	3,000 / 7" Plastic Reel
ESxLW RQG	SOD-123W	10,000 / 13" Paper Reel

Notes:

1. "x" defines voltage from 200V (ESDLW) to 600V (ESJLW)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Forward Current Derating Curve

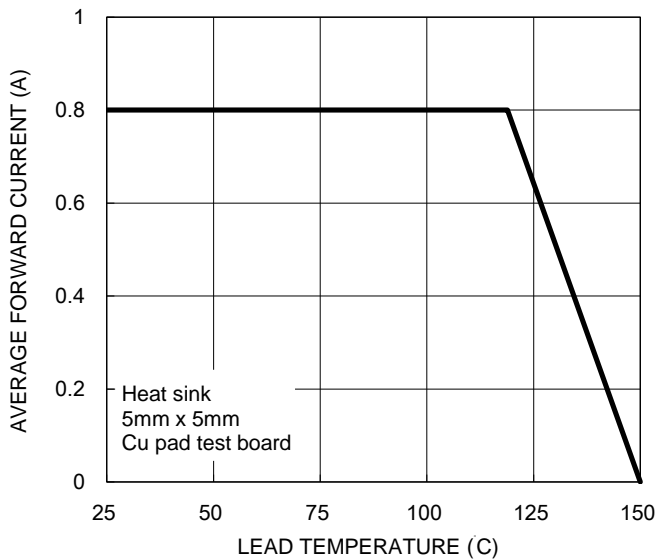


Fig.2 Typical Junction Capacitance

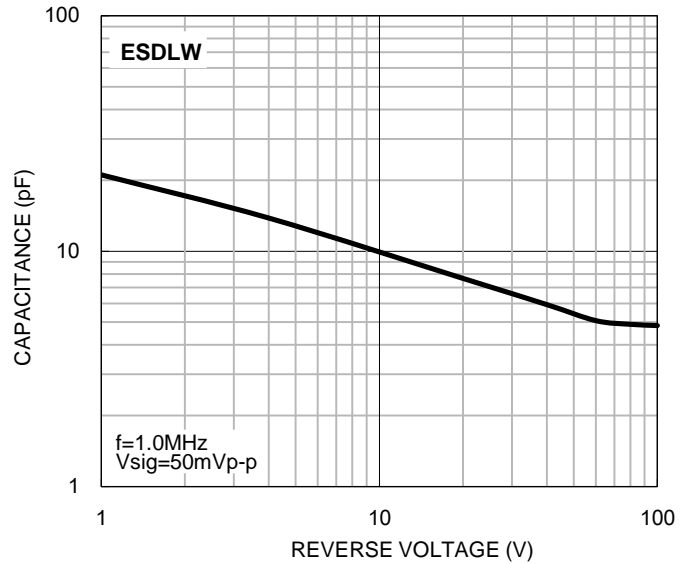


Fig.3 Typical Reverse Characteristics

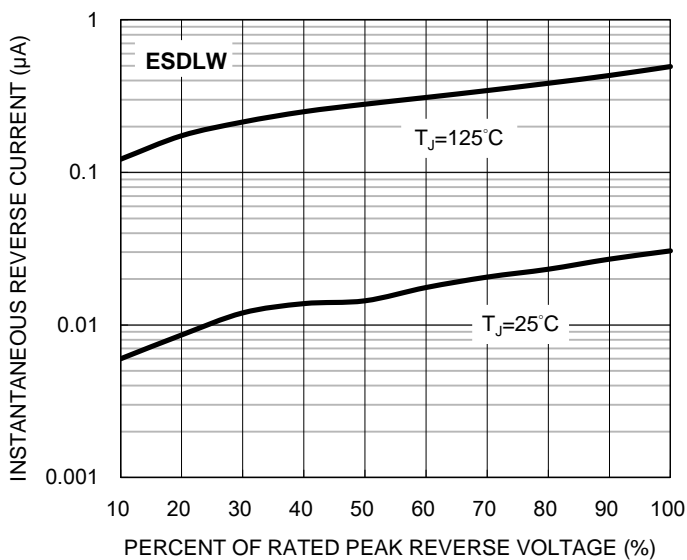
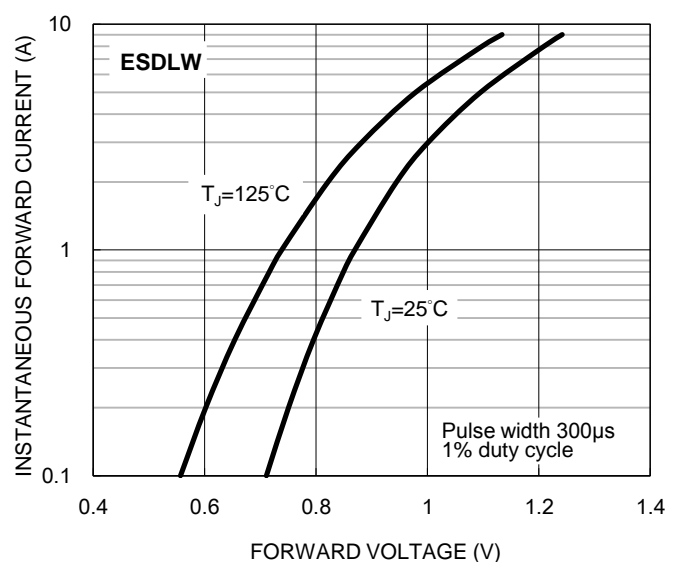


Fig.4 Typical Forward Characteristics



CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.5 Typical Junction Capacitance

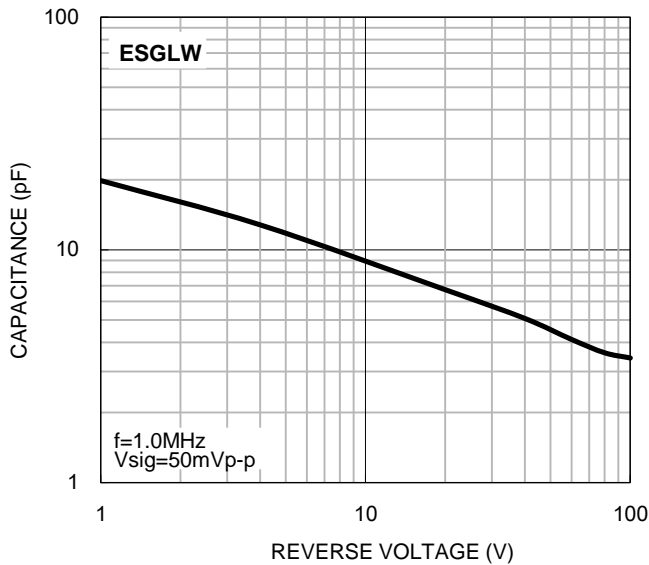


Fig.6 Typical Reverse Characteristics

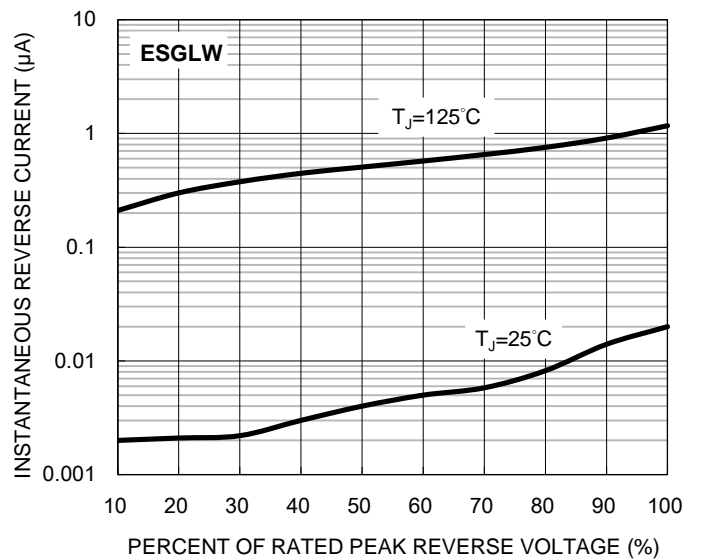
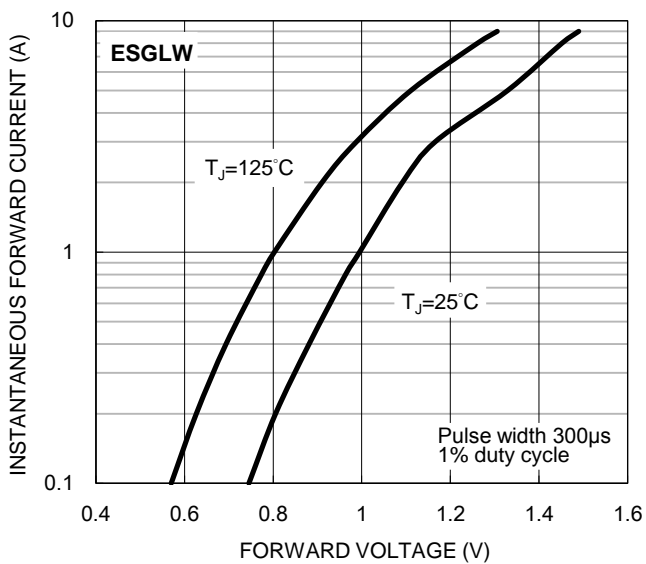


Fig.7 Typical Forward Characteristics



CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.8 Typical Junction Capacitance

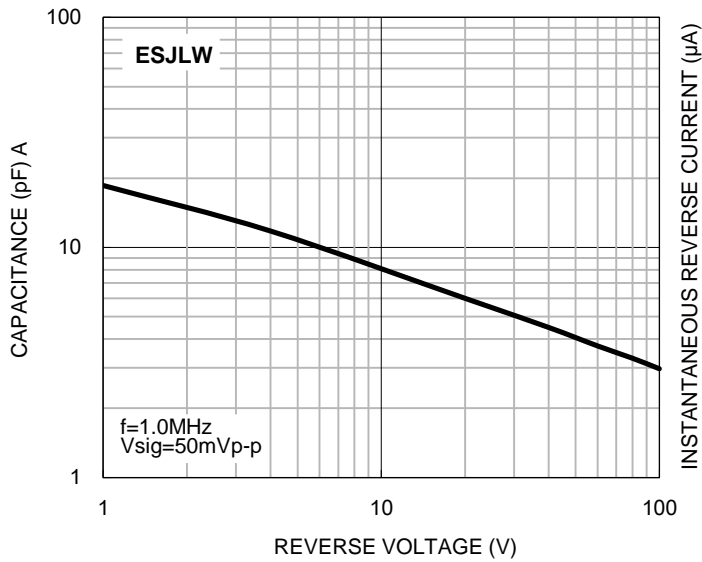


Fig.9 Typical Reverse Characteristics

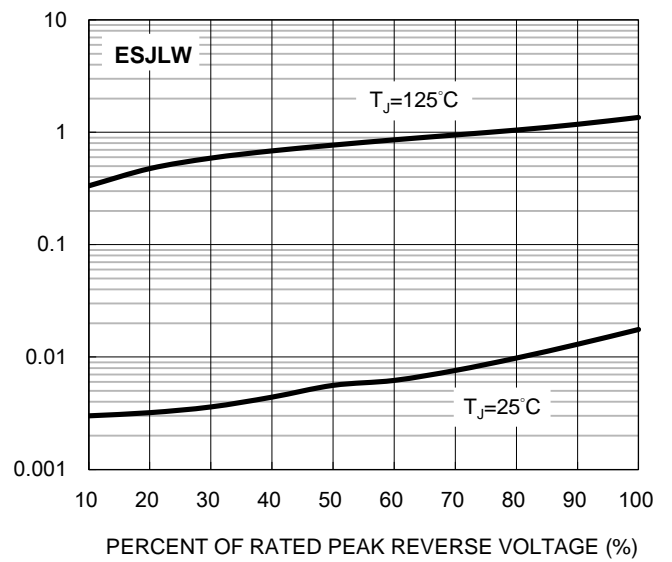
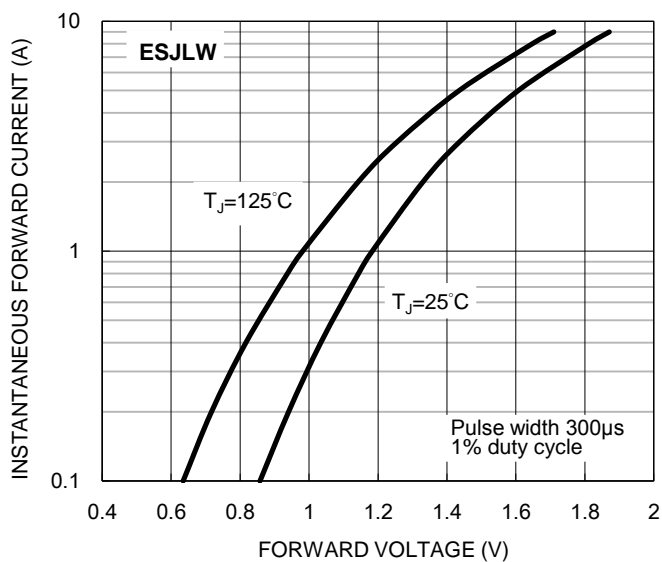
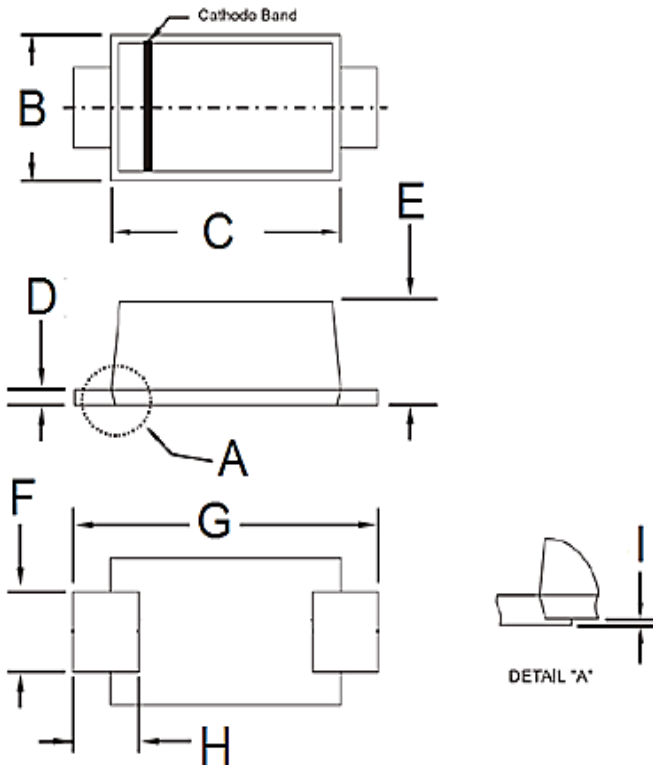


Fig.10 Typical Forward Characteristics



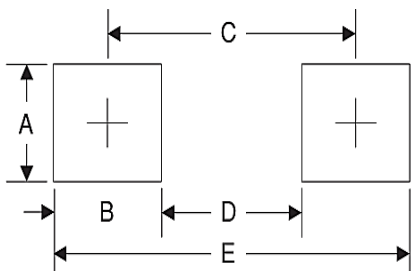
PACKAGE OUTLINE DIMENSIONS

SOD-123W



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
B	1.70	1.90	0.067	0.075
C	2.60	2.90	0.102	0.114
D	0.10	0.22	0.004	0.009
E	0.90	1.02	0.035	0.040
F	0.90	1.05	0.035	0.041
G	3.60	3.80	0.142	0.150
H	0.50	0.85	0.020	0.033
I	0.00	0.10	0.000	0.004

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.4	0.055
B	1.2	0.047
C	3.1	0.122
D	1.9	0.075
E	4.3	0.169

MARKING DIAGRAM



- P/N = Marking Code
- YW = Date Code
- F = Factory Code

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Rectifiers](#) category:

Click to view products by [Taiwan Semiconductor](#) manufacturer:

Other Similar products are found below :

[70HFR40](#) [RL252-TP](#) [150KR30A](#) [1N5397](#) [NTE5841](#) [NTE6038](#) [SCF5000](#) [1N4002G](#) [1N4005-TR](#) [JANS1N6640US](#) [481235F](#)
[RRE02VS6SGTR](#) [067907F](#) [MS306](#) [70HF40](#) [T110HF60](#) [T85HFL60S02](#) [US2JFL-TP](#) [A1N5404G-G](#) [CRS04\(T5L,TEMQ\)](#) [ACGRA4007-HF](#)
[ACGRB207-HF](#) [CLH03\(TE16L,Q\)](#) [ACGRC307-HF](#) [ACEFC304-HF](#) [NTE6356](#) [NTE6359](#) [NTE6002](#) [NTE6023](#) [NTE6039](#) [NTE6077](#)
[85HFR60](#) [40HFR60](#) [1N1186RA](#) [70HF120](#) [85HFR80](#) [D126A45C](#) [SCF7500](#) [D251N08B](#) [SCHJ22.5K](#) [SM100](#) [SCPA2](#) [SCH10000](#) [SDHD5K](#)
[VS-12FL100S10](#) [ACGRA4001-HF](#) [D1821SH45T PR](#) [D1251S45T](#) [NTE5990](#) [NTE6358](#)