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	

Pb-Free RoHS COMPLIANT HALOGEN FREE

SOD-123W

ABSOLUTE MAXIMUM RATINGS (T_A = 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	$I_{F(AV)}$	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	°C/W
Junction-to-ambient thermal resistance per diode	$R_{\Theta JA}$	88	°C/W
Junction-to-case thermal resistance per diode	$R_{\Theta JC}$	35	°C/W

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

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Forward voltage per diode (1)	ESDLW	I_F = 0.4A, T_J = 25°C	V_F	0.80	-	V
		I_F = 0.8A, T_J = 25°C		0.85	0.95	V
		I_F = 0.4A, T_J = 125°C		0.65	-	V
		I_F = 0.8A, T_J = 125°C		0.72	0.80	V
	ESGLW	I_F = 0.4A, T_J = 25°C		0.88	-	V
		I_F = 0.8A, T_J = 25°C		0.96	1.30	V
		I_F = 0.4A, T_J = 125°C		0.69	-	V
		I_F = 0.8A, T_J = 125°C		0.77	1.05	V
	ESJLW	I_F = 0.4A, T_J = 25°C		1.03	-	V
		I_F = 0.8A, T_J = 25°C		1.14	1.70	V
		I_F = 0.4A, T_J = 125°C		0.82	-	V
		I_F = 0.8A, T_J = 125°C		0.94	1.30	V
Reverse current @ rated V_R per diode (2)		T_J = 25°C	I_R	-	1	μA
		T_J = 125°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°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

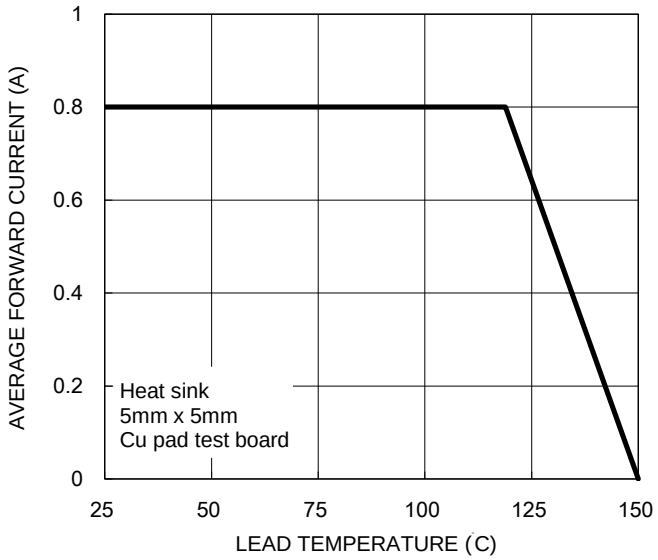


Fig.2 Typical Junction Capacitance

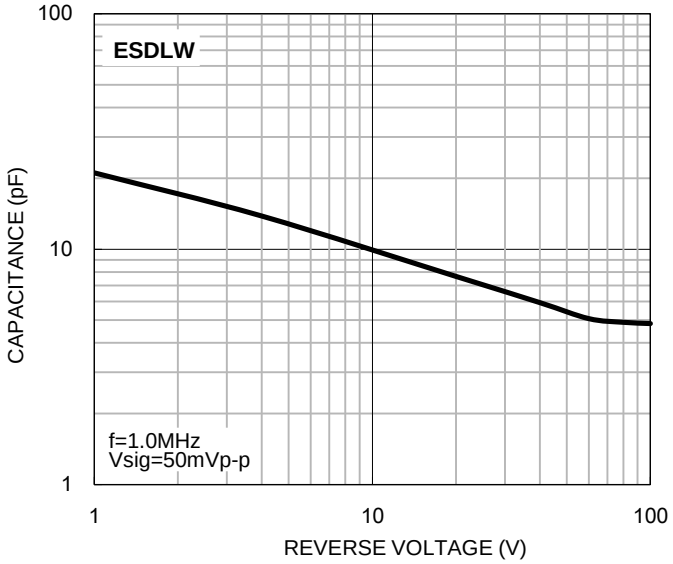


Fig.3 Typical Reverse Characteristics

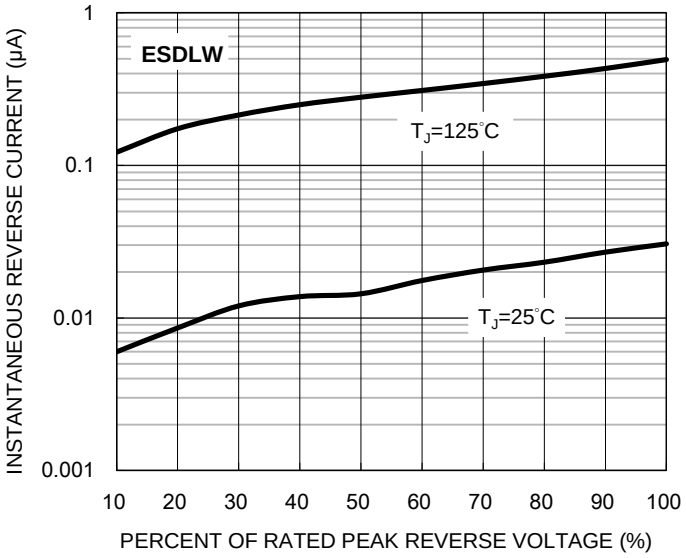
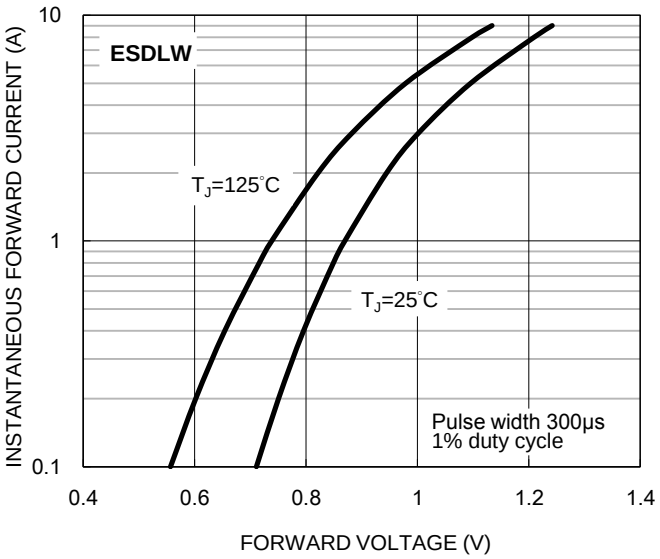


Fig.4 Typical Forward Characteristics



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Typical Junction Capacitance

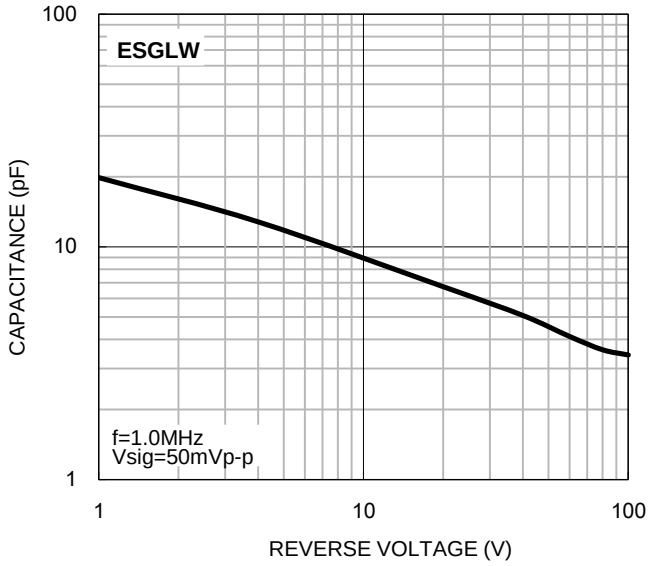


Fig.6 Typical Reverse Characteristics

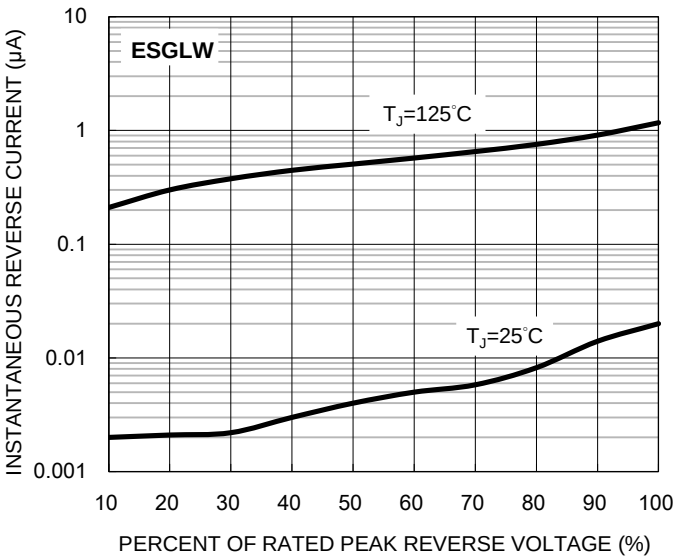
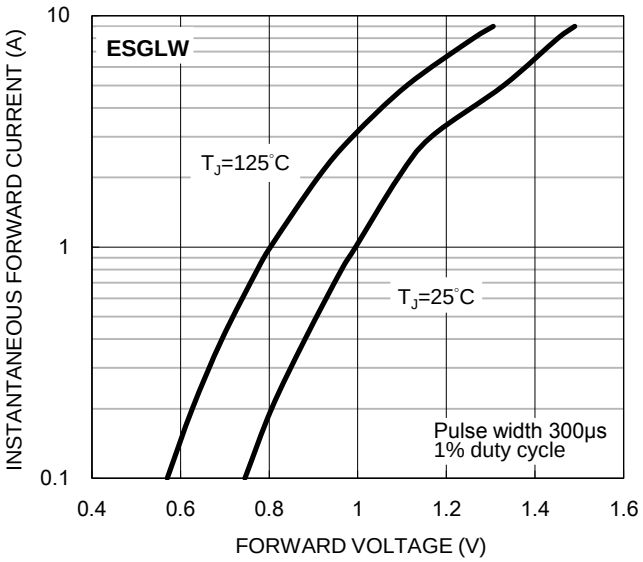


Fig.7 Typical Forward Characteristics



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.8 Typical Junction Capacitance

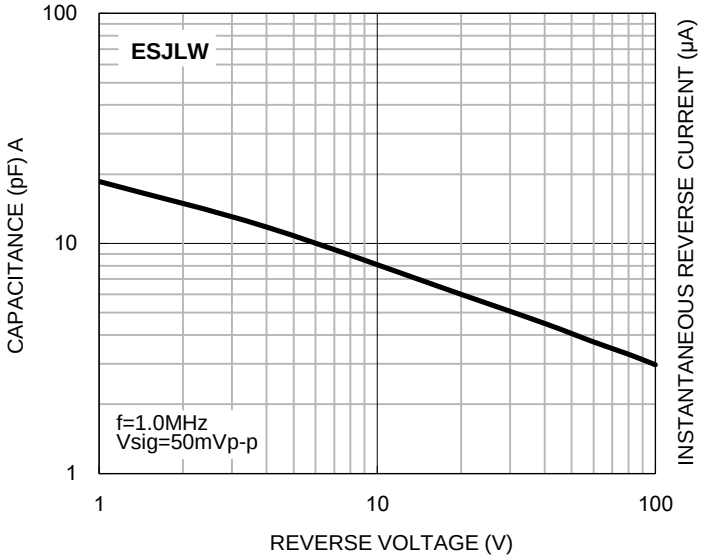


Fig.9 Typical Reverse Characteristics

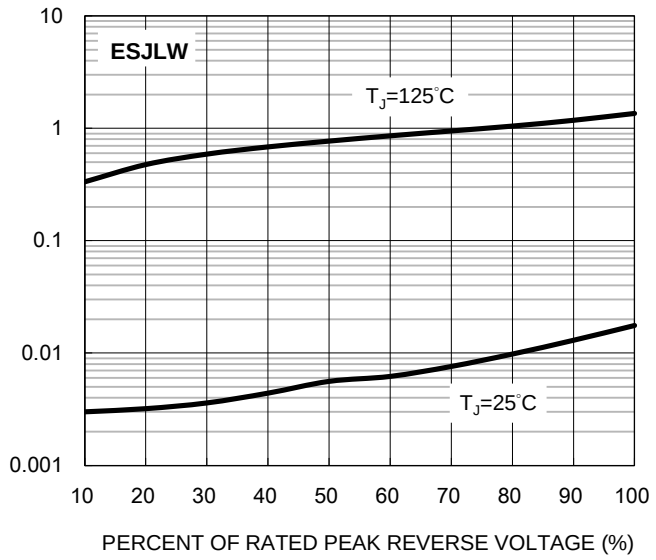
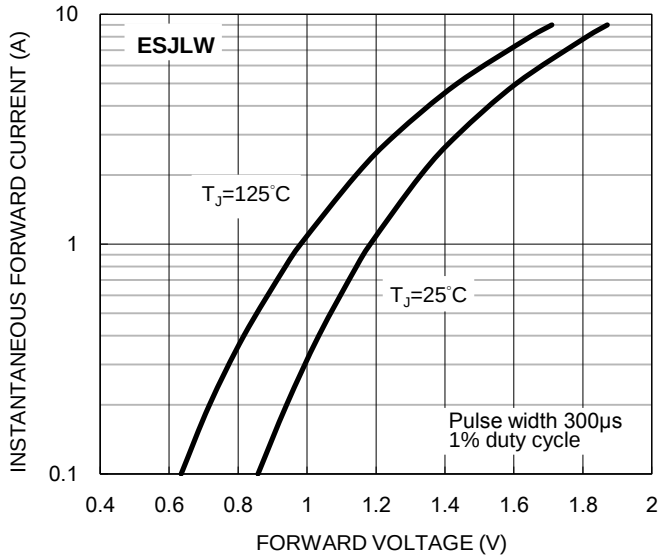
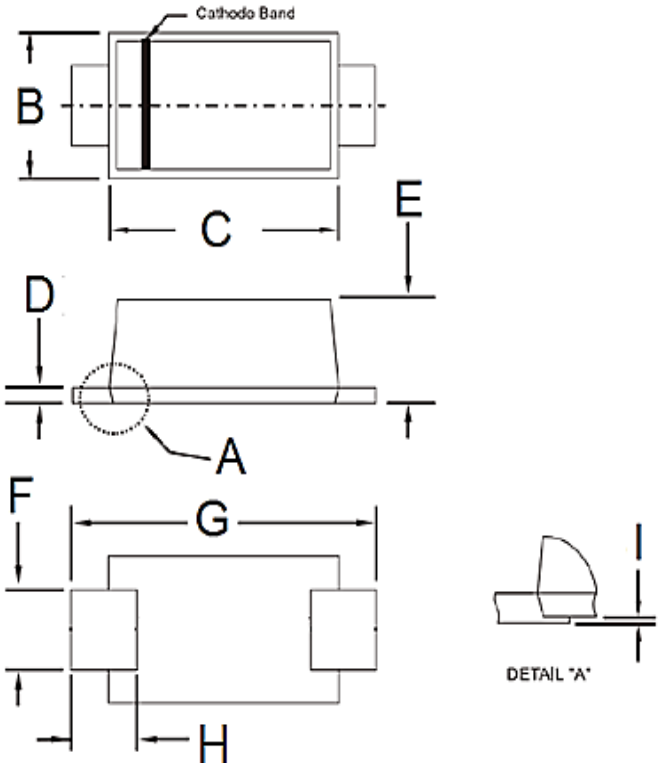


Fig.10 Typical Forward Characteristics



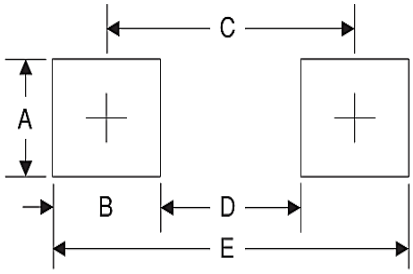
PACKAGE OUTLINE DIMENSIONS

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

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