1.5A, 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_F	1.5	A
V_{RRM}	200 - 600	V
I_{FSM}	40	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**	**ES15DLW**	**ES15GLW**	**ES15JLW**	**UNIT**
Marking code on the device		ES15D	ES15G	ES15J	
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	1.5			A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	40			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	$R_{\Theta JL}$	26	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	76	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	27	°C/W

Thermal Performance Note: Units mounted on 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[1]	ES15DLW	I_F = 0.75A, T_J = 25°C	V_F	0.80	-	V
		I_F = 1.50A, T_J = 25°C		0.85	0.95	V
		I_F = 0.75A, T_J = 125°C		0.66	-	V
		I_F = 1.50A, T_J = 125°C		0.73	0.80	V
	ES15GLW	I_F = 0.75A, T_J = 25°C		0.87	-	V
		I_F = 1.50A, T_J = 25°C		0.95	1.30	V
		I_F = 0.75A, T_J = 125°C		0.72	-	V
		I_F = 1.50A, T_J = 125°C		0.80	1.05	V
	ES15JLW	I_F = 0.75A, T_J = 25°C		1.06	-	V
		I_F = 1.50A, T_J = 25°C		1.18	1.70	V
		I_F = 0.75A, T_J = 125°C		0.84	-	V
		I_F = 1.50A, T_J = 125°C		0.97	1.30	V
Reverse current @ rated V_R[2]		T_J = 25°C	I_R	-	1	μA
		T_J = 125°C		-	150	μA
Junction capacitance	ES15DLW	1MHz, V_R = 4.0V	C_J	24	-	pF
	ES15GLW			21	-	pF
	ES15JLW			20	-	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 = 0.3ms
2. Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE[1]	PACKAGE	PACKING
ES15xLW	SOD-123W	10,000 / Tape & Reel

Notes:

1. "x" defines voltage from 200V(ES15DLW) to 600V(ES15JLW)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

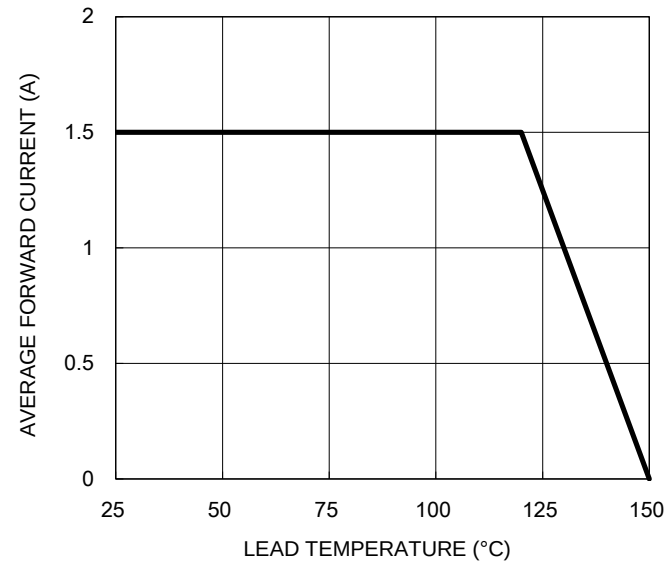


Fig.2 Typical Junction Capacitance

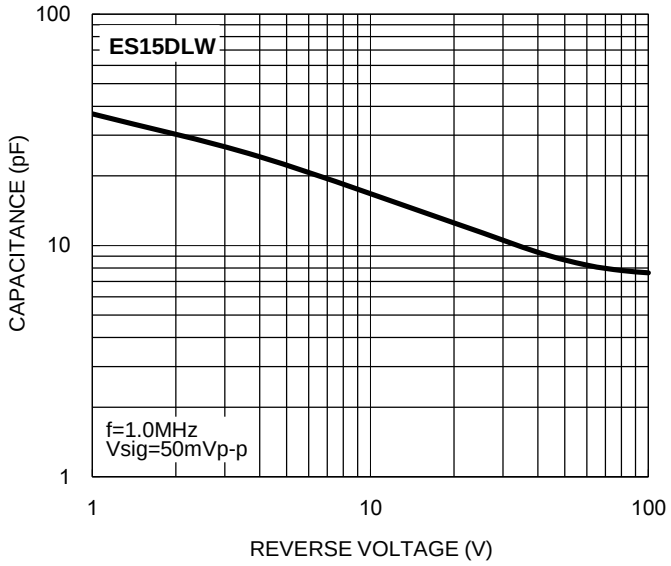


Fig.3 Typical Reverse Characteristics

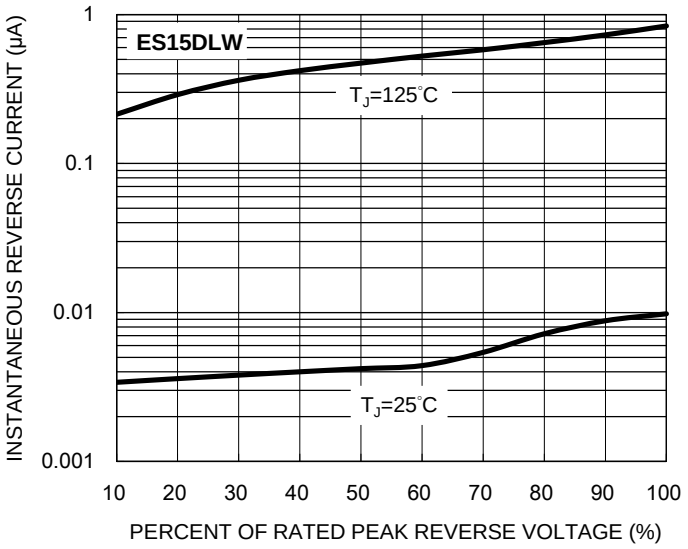
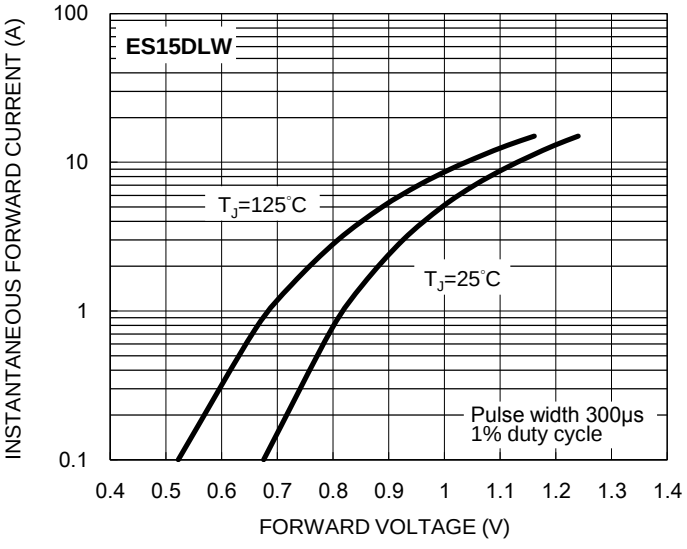


Fig.4 Typical Forward Characteristics



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Typical Junction Capacitance

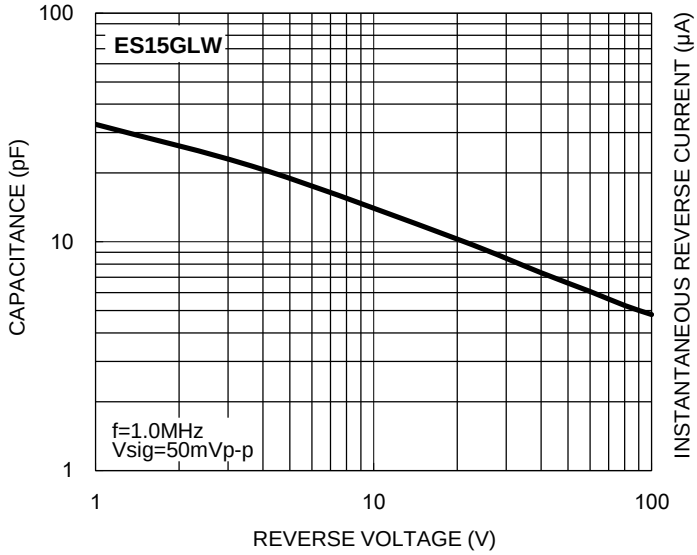


Fig.6 Typical Reverse Characteristics

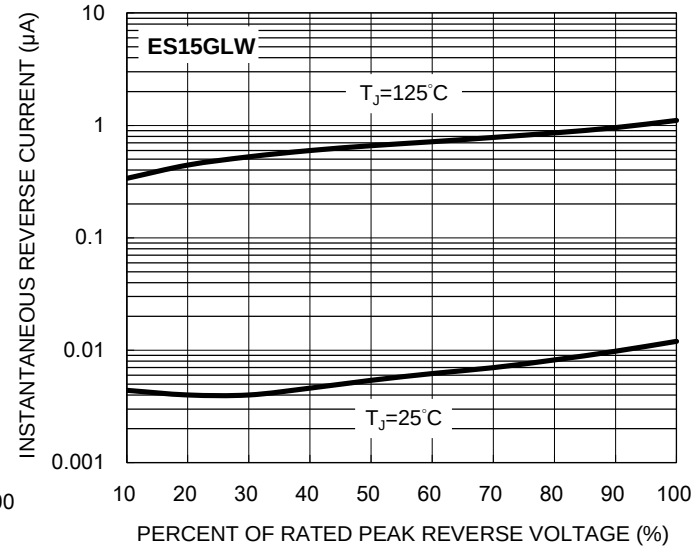
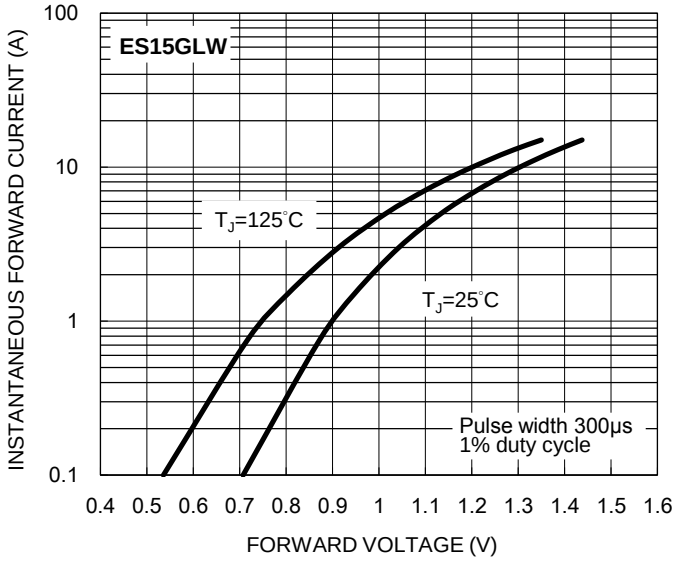


Fig.7 Typical Forward Characteristics



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.8 Typical Junction Capacitance

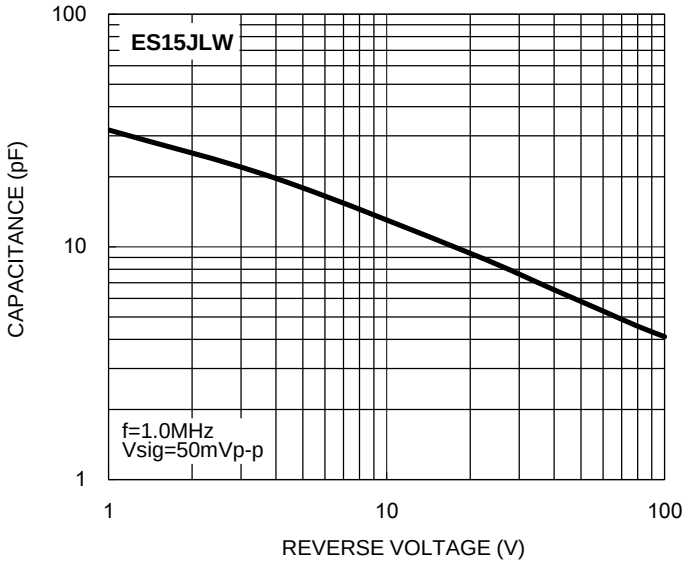


Fig.9 Typical Reverse Characteristics

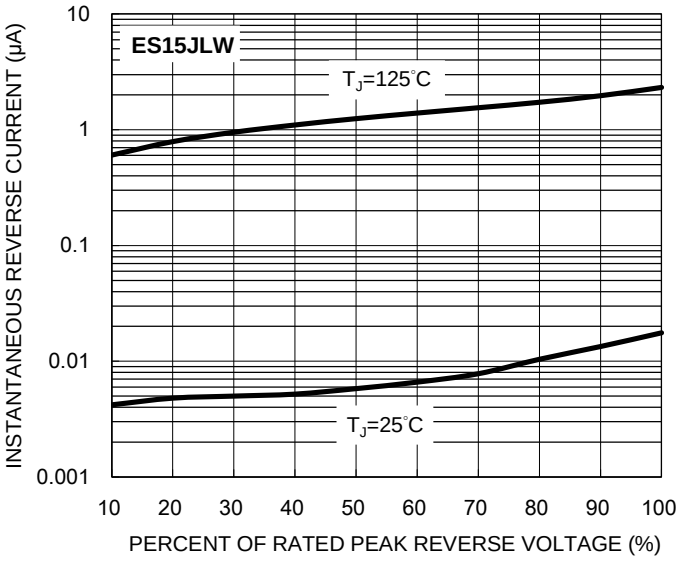
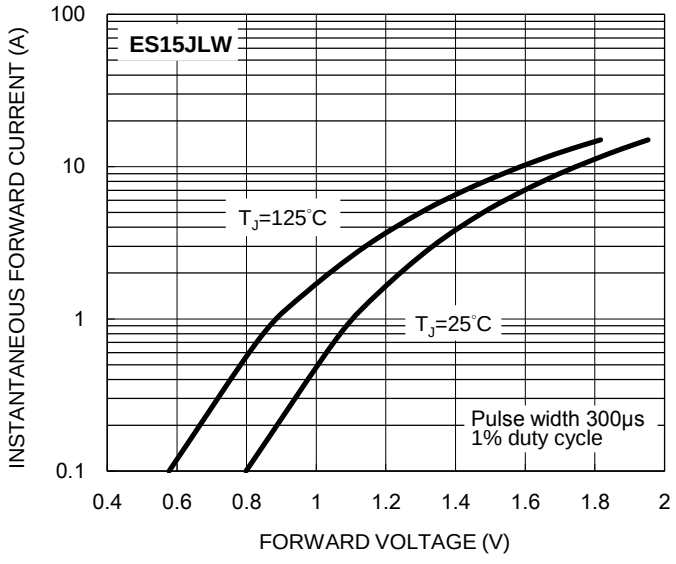
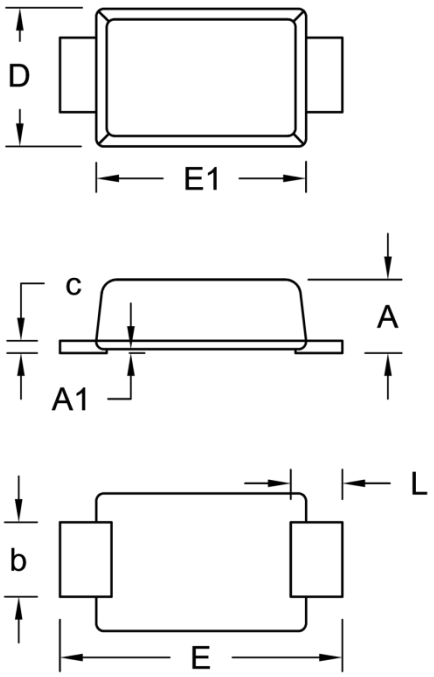


Fig.10 Typical Forward Characteristics



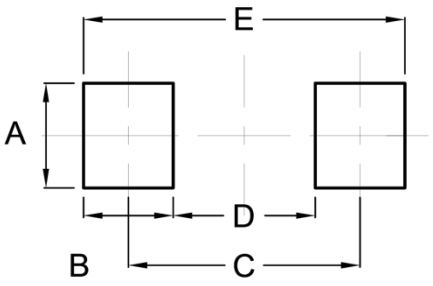
PACKAGE OUTLINE DIMENSIONS

SOD-123W



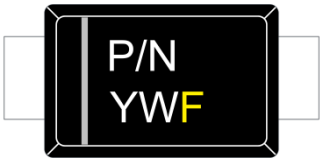
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.90	1.02	0.035	0.040
A1	0.00	0.10	0.000	0.004
b	0.90	1.05	0.035	0.041
c	0.10	0.22	0.004	0.009
D	1.70	1.90	0.067	0.075
E	3.60	3.80	0.142	0.150
E1	2.60	2.90	0.102	0.114
L	0.50	0.85	0.020	0.033

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.40	0.055
B	1.20	0.047
C	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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