

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	



SOD-123W



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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 ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	ES15DLW	$I_F = 0.75\text{A}, T_J = 25^\circ\text{C}$	V_F	0.80	-	V
		$I_F = 1.50\text{A}, T_J = 25^\circ\text{C}$		0.85	0.95	V
		$I_F = 0.75\text{A}, T_J = 125^\circ\text{C}$		0.66	-	V
		$I_F = 1.50\text{A}, T_J = 125^\circ\text{C}$		0.73	0.80	V
	ES15GLW	$I_F = 0.75\text{A}, T_J = 25^\circ\text{C}$		0.87	-	V
		$I_F = 1.50\text{A}, T_J = 25^\circ\text{C}$		0.95	1.30	V
		$I_F = 0.75\text{A}, T_J = 125^\circ\text{C}$		0.72	-	V
		$I_F = 1.50\text{A}, T_J = 125^\circ\text{C}$		0.80	1.05	V
	ES15JLW	$I_F = 0.75\text{A}, T_J = 25^\circ\text{C}$		1.06	-	V
		$I_F = 1.50\text{A}, T_J = 25^\circ\text{C}$		1.18	1.70	V
		$I_F = 0.75\text{A}, T_J = 125^\circ\text{C}$		0.84	-	V
		$I_F = 1.50\text{A}, T_J = 125^\circ\text{C}$		0.97	1.30	V
Reverse current @ rated V_R ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	1	μA
		$T_J = 125^\circ\text{C}$		-	150	μA
Junction capacitance	ES15DLW	1MHz, $V_R = 4.0\text{V}$	C_J	24	-	pF
	ES15GLW			21	-	pF
	ES15JLW			20	-	pF
Reverse recovery time		$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{rr} = 0.25\text{A}$	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

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

Fig.1 Forward Current Derating Curve

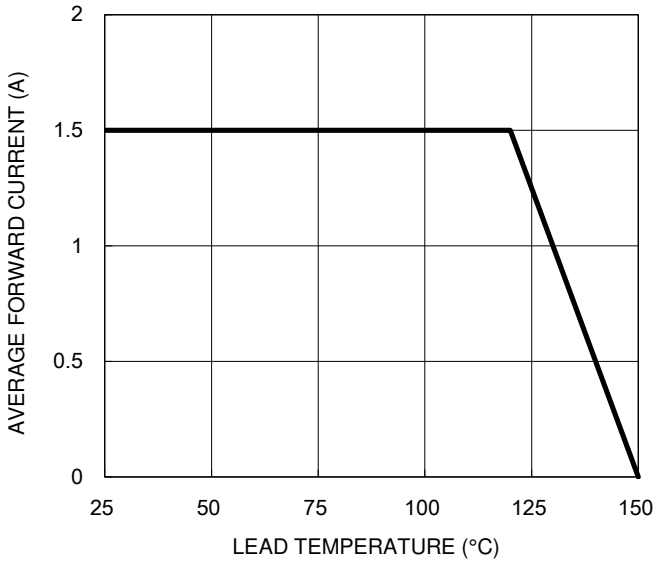


Fig.2 Typical Junction Capacitance

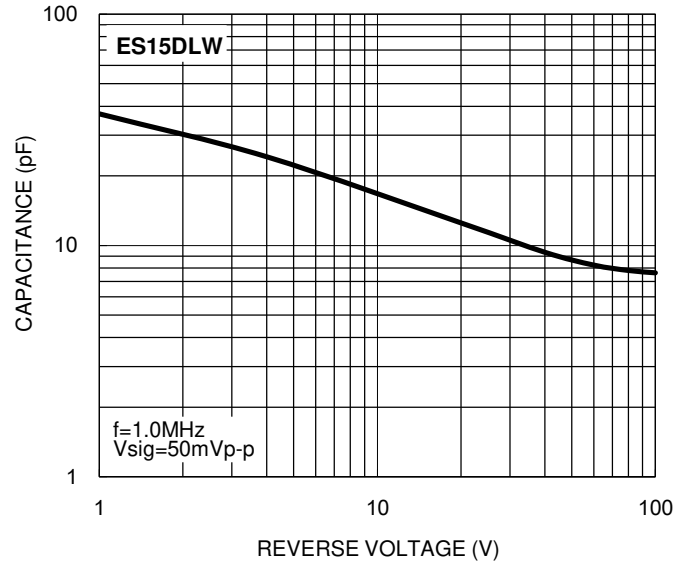


Fig.3 Typical Reverse Characteristics

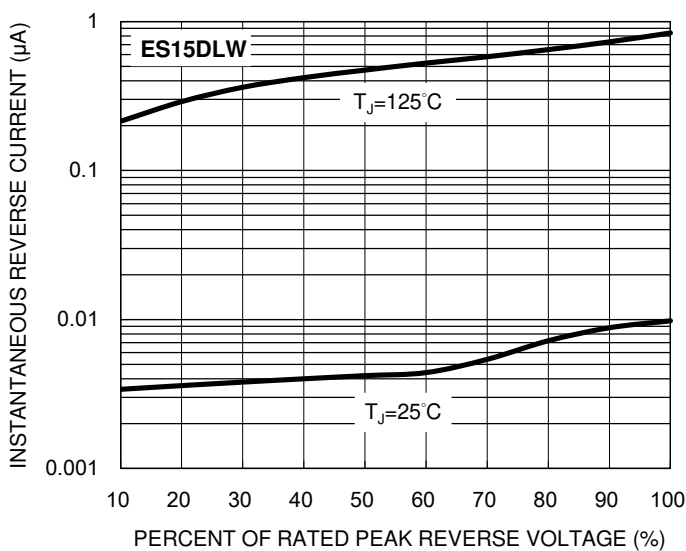
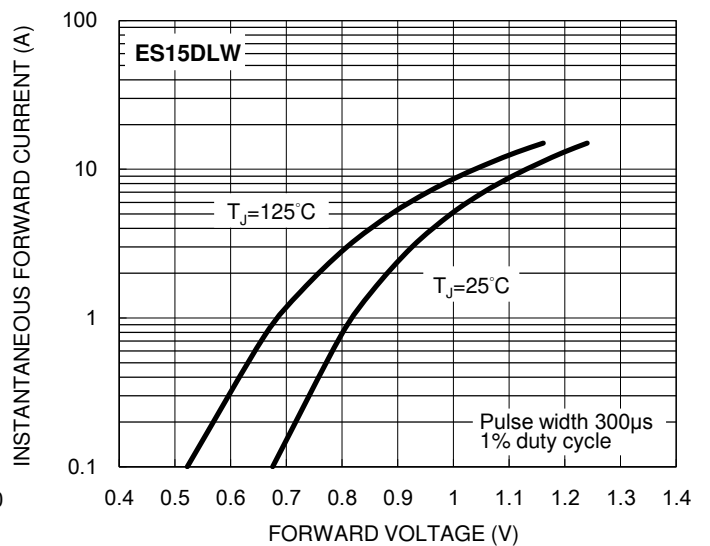


Fig.4 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.5 Typical Junction Capacitance

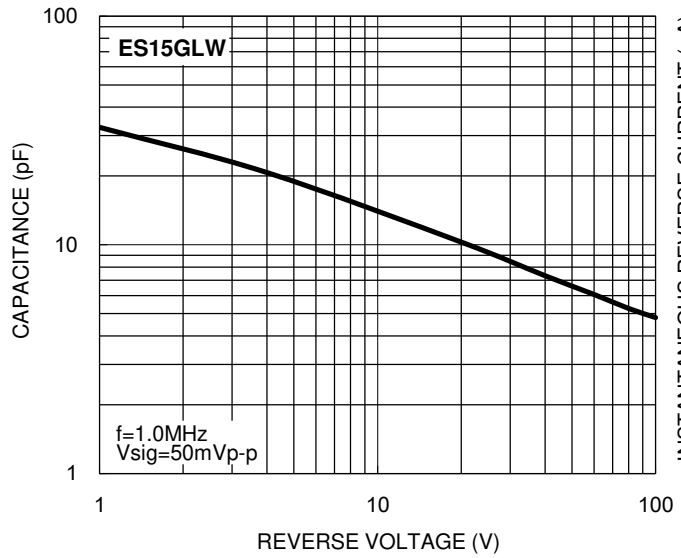


Fig.6 Typical Reverse Characteristics

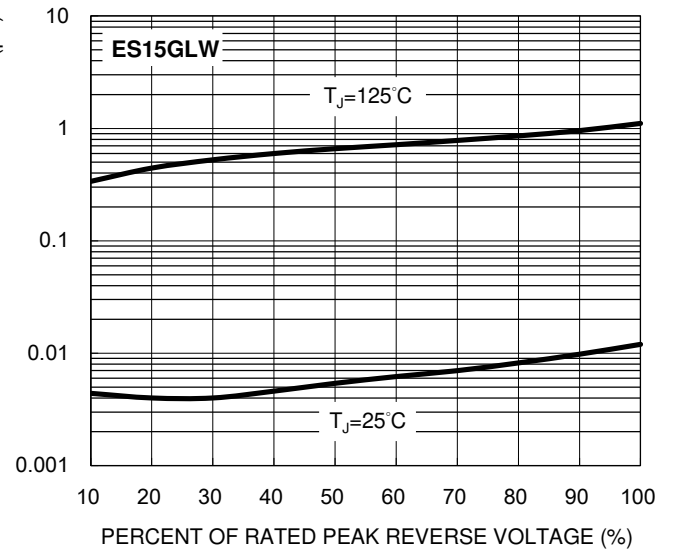
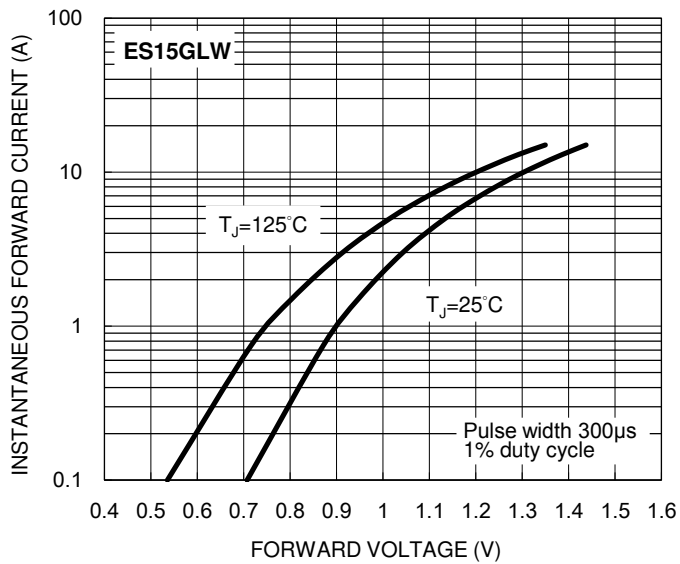


Fig.7 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.8 Typical Junction Capacitance

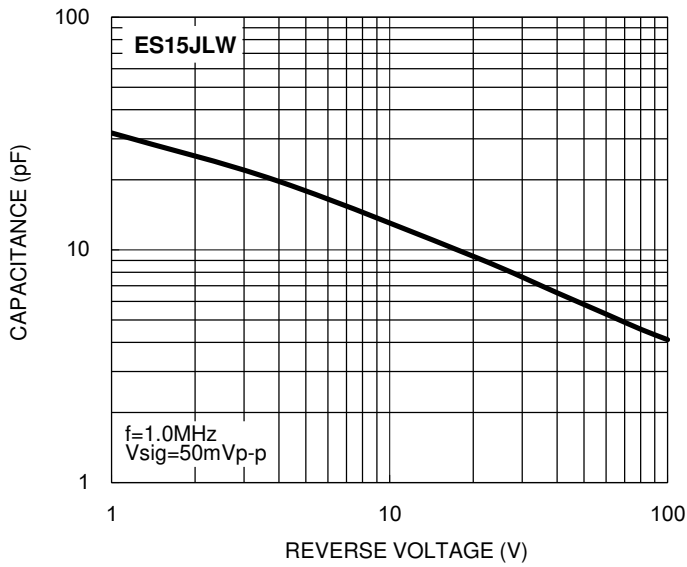


Fig.9 Typical Reverse Characteristics

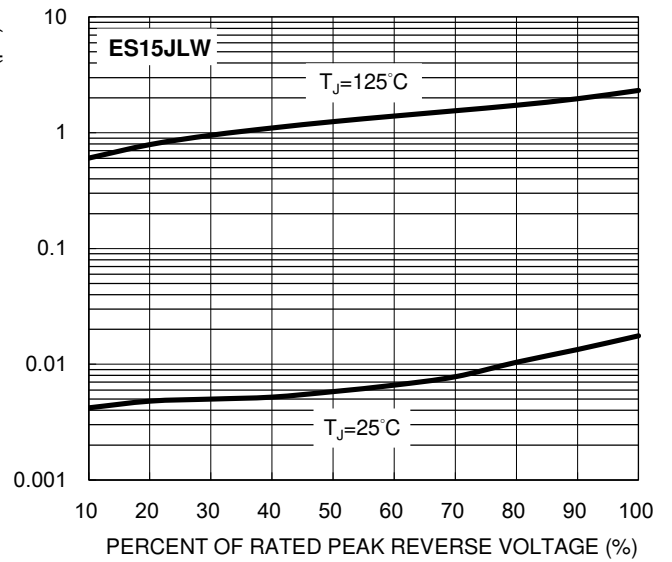
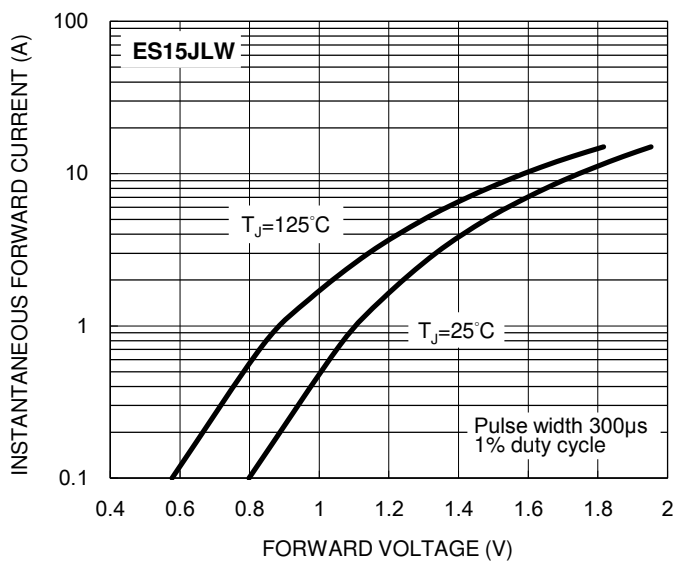
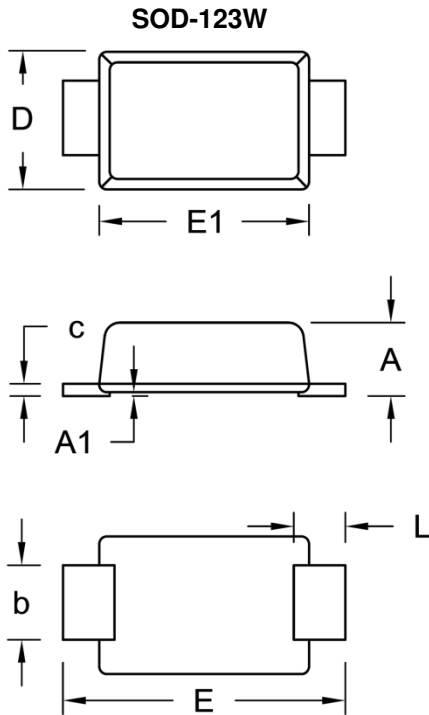


Fig.10 Typical Forward Characteristics

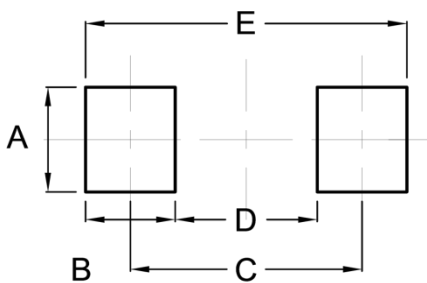


PACKAGE OUTLINE DIMENSIONS



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

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.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

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.