

1.5A, 200V - 1000V High Efficient Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Glass passivated chip junction
- Ideal for automated placement
- Low profile package
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- DC to DC converter
- Automotive application
- Car lighting
- Snubber
- 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 - 1000	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	HS15D LWH	HS15G LWH	HS15J LWH	HS15K LWH	HS15M LWH	UNIT	
Marking code on the device		HS15D	HS15G	HS15J	HS15K	HS15M		
Repetitive peak reverse voltage	V_{RRM}	200	400	600	800	1000	V	
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	560	700	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	$R_{\theta JL}$	43	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	84	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	45	°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⁾	HS15DLWH	$I_F = 0.75\text{A}, T_J = 25^\circ\text{C}$	V_F	0.82	0.89	V			
		$I_F = 1.50\text{A}, T_J = 25^\circ\text{C}$		0.88	0.95	V			
		$I_F = 0.75\text{A}, T_J = 125^\circ\text{C}$		0.68	0.75	V			
		$I_F = 1.50\text{A}, T_J = 125^\circ\text{C}$		0.75	0.80	V			
	HS15GLWH	$I_F = 0.75\text{A}, T_J = 25^\circ\text{C}$		0.86	1.03	V			
		$I_F = 1.50\text{A}, T_J = 25^\circ\text{C}$		0.93	1.30	V			
		$I_F = 0.75\text{A}, T_J = 125^\circ\text{C}$		0.70	0.85	V			
		$I_F = 1.50\text{A}, T_J = 125^\circ\text{C}$		0.79	1.05	V			
	HS15JLWH HS15KLWH HS15MLWH	$I_F = 0.75\text{A}, T_J = 25^\circ\text{C}$		1.17	1.40	V			
		$I_F = 1.50\text{A}, T_J = 25^\circ\text{C}$		1.31	1.70	V			
		$I_F = 0.75\text{A}, T_J = 125^\circ\text{C}$		0.94	1.12	V			
		$I_F = 1.50\text{A}, T_J = 125^\circ\text{C}$		1.09	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	HS15DLWH	1MHz, $V_R = 4.0\text{V}$	C_J	25	-	pF			
	HS15GLWH			22	-	pF			
	HS15JLWH HS15KLWH HS15MLWH			9	-	pF			
	Reverse recovery time			HS15DLWH HS15GLWH	$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{rr} = 0.25\text{A}$	t_{rr}	-	50	ns
				HS15JLWH HS15KLWH HS15MLWH			-	75	ns

Notes:

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

ORDERING INFORMATION		
ORDERING CODE⁽¹⁾	PACKAGE	PACKING
HS15xLWH	SOD-123W	10,000 / Tape & Reel

Notes:

1. "x" defines voltage from 200V(HS15DLWH) to 1000V(HS15MLWH)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

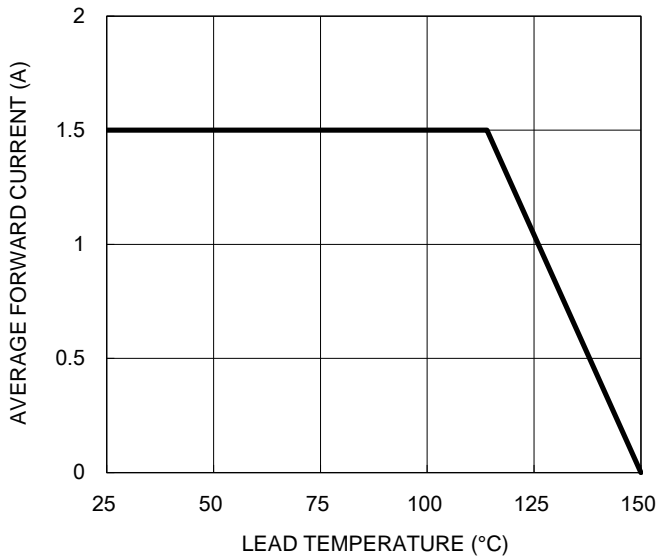


Fig.2 Typical Junction Capacitance

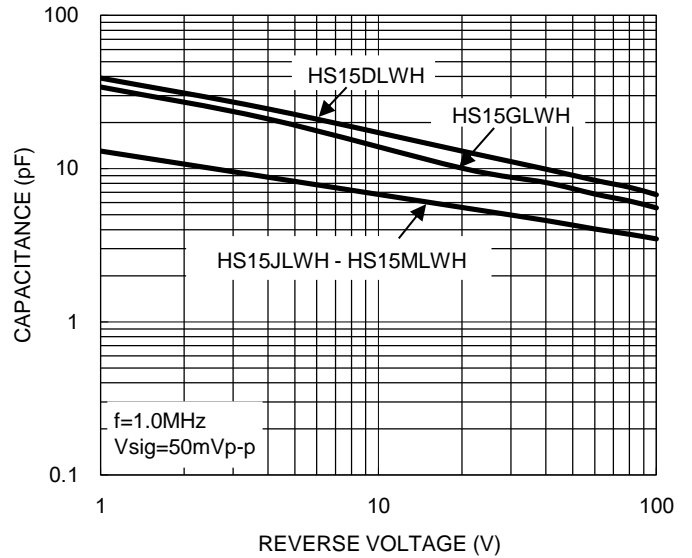


Fig.3 Typical Reverse Characteristics

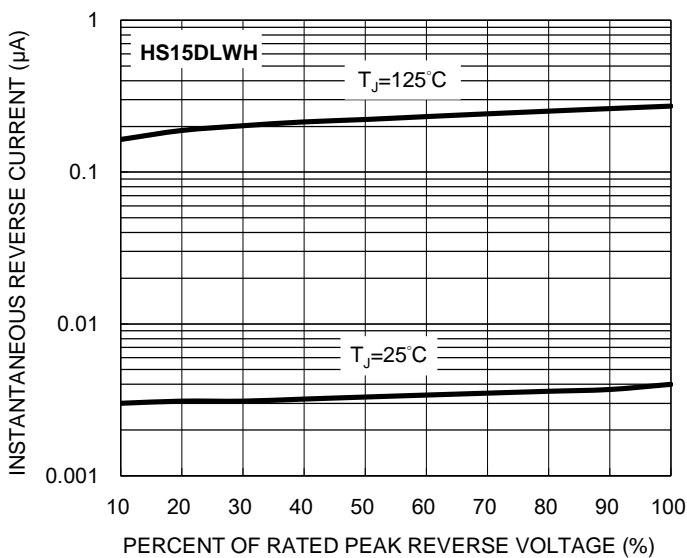
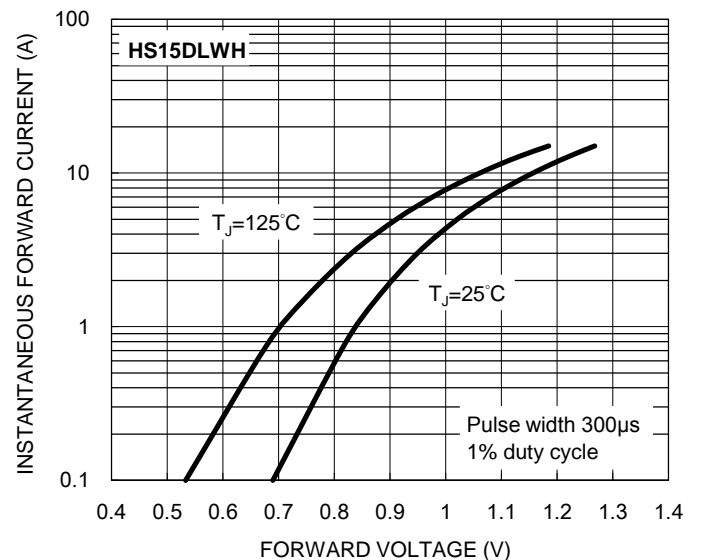


Fig.4 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.5 Typical Reverse Characteristics

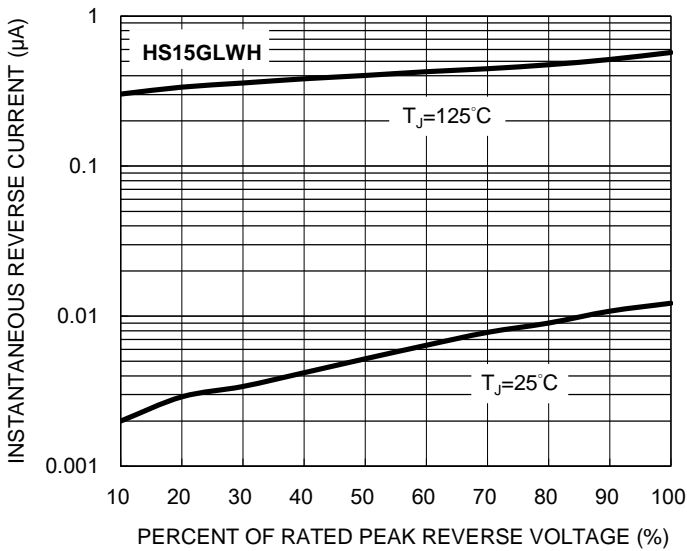


Fig.6 Typical Forward Characteristics

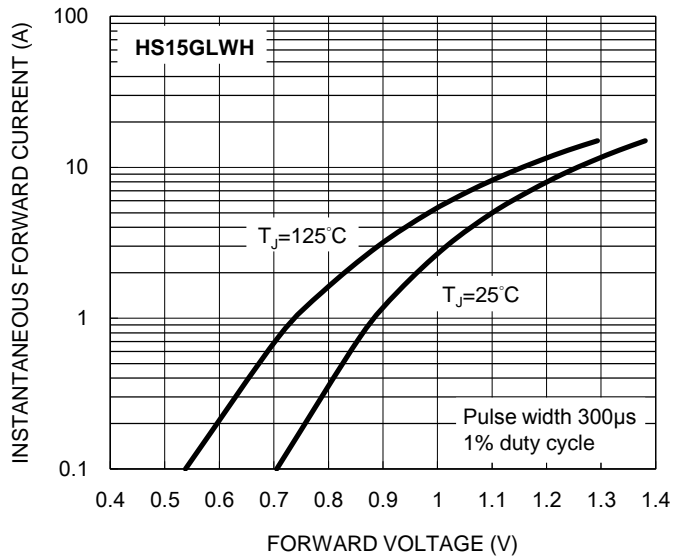


Fig.7 Typical Reverse Characteristics

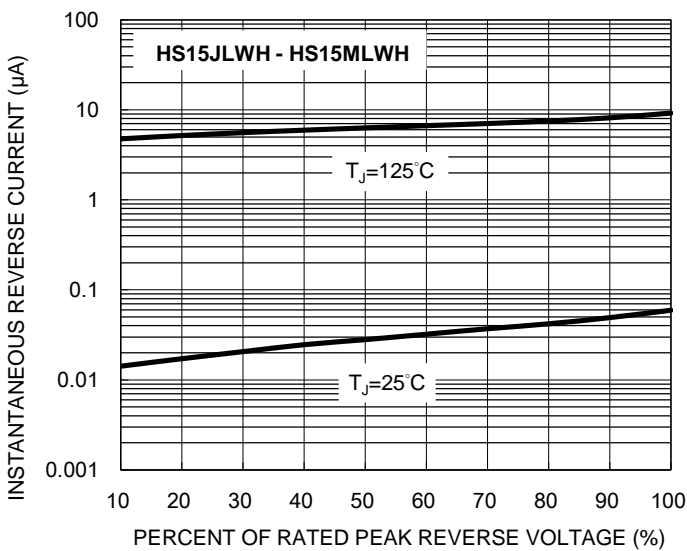
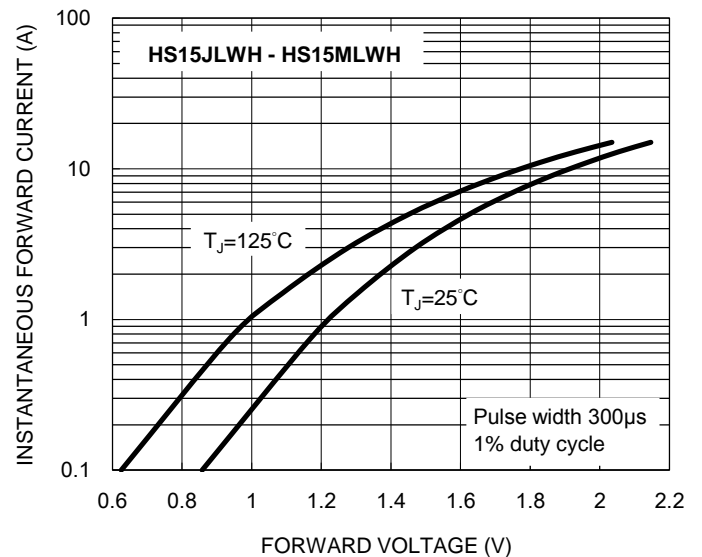
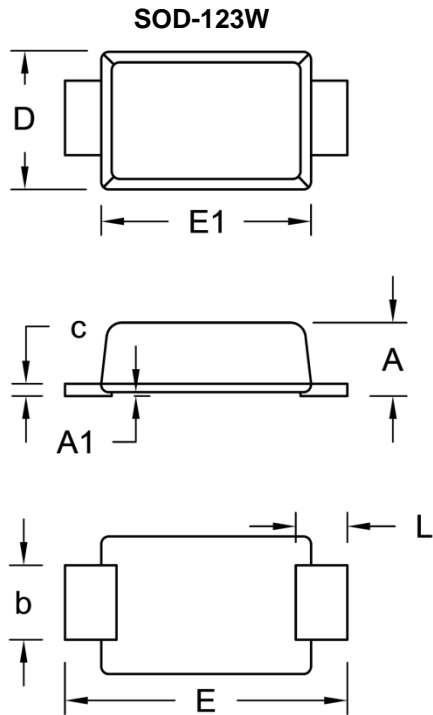


Fig.8 Typical Forward Characteristics

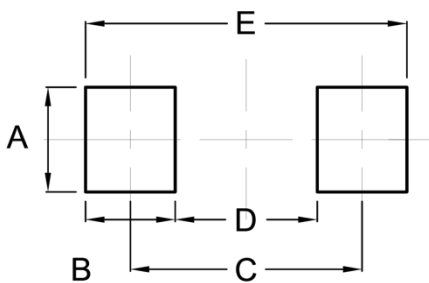


PACKAGE OUTLINE DIMENSIONS



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

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