

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

### FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Low forward voltage drop
- AEC-Q101 qualified available
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- High frequency rectification
- Freewheeling application
- Switching mode converters and inverters in computer, automotive and telecommunication

### MECHANICAL DATA

- Case: SOD-123W
- Molding compound meets UL 94V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- 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
$I_{F(AV)}$	1.5	A
$V_{RRM}$	200 - 1000	V
$I_{FSM}$	40	A
$T_{JMAX}$	150	°C
Package	SOD-123W	
Configuration	Single die	


**SOD-123W**

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

PARAMETER	SYMBOL	HS15DLW	HS15GLW	HS15JLW	HS15KLW	HS15MLW	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	$I_{F(AV)}$	1.5					A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	40					A
Junction temperature	$T_J$	-55 to +150					°C
Storage temperature	$T_{STG}$	-55 to +150					°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance per diode	$R_{\theta JL}$	43	$^{\circ}C/W$
Junction-to-ambient thermal resistance per diode	$R_{\theta JA}$	84	$^{\circ}C/W$
Junction-to-case thermal resistance per diode	$R_{\theta JC}$	45	$^{\circ}C/W$

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

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^{\circ}C$ unless otherwise noted)						
<b>PARAMETER</b>		<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage per diode <sup>(1)</sup>	HS15DLW	$I_F = 0.75A, T_J = 25^{\circ}C$	$V_F$	0.82	0.89	V
		$I_F = 1.50A, T_J = 25^{\circ}C$		0.88	0.95	V
		$I_F = 0.75A, T_J = 125^{\circ}C$		0.68	0.75	V
		$I_F = 1.50A, T_J = 125^{\circ}C$		0.75	0.80	V
	HS15GLW	$I_F = 0.75A, T_J = 25^{\circ}C$		0.86	1.03	V
		$I_F = 1.50A, T_J = 25^{\circ}C$		0.93	1.30	V
		$I_F = 0.75A, T_J = 125^{\circ}C$		0.70	0.85	V
		$I_F = 1.50A, T_J = 125^{\circ}C$		0.79	1.05	V
	HS15JLW HS15KLW HS15MLW	$I_F = 0.75A, T_J = 25^{\circ}C$		1.17	1.40	V
		$I_F = 1.50A, T_J = 25^{\circ}C$		1.31	1.70	V
		$I_F = 0.75A, T_J = 125^{\circ}C$		0.94	1.12	V
		$I_F = 1.50A, T_J = 125^{\circ}C$		1.09	1.30	V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>		$T_J = 25^{\circ}C$	$I_R$	-	1	$\mu A$
		$T_J = 125^{\circ}C$		-	150	$\mu A$
Junction capacitance		1 MHz, $V_R = 4.0V$	$C_J$	25	-	pF
				22	-	pF
				9	-	pF
				9	-	pF
Reverse recovery time		$I_F = 0.5A, I_R = 1.0A$ $I_{RR} = 0.25A$	$t_{rr}$	-	50	ns
				-	75	ns
				-	75	ns
				-	75	ns

**Notes:**

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

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
HS15xLWH RVG	SOD-123W	3,000 / 7" Reel
HS15xLWH RQG	SOD-123W	10,000 / 13" Reel
HS15xLW RVG	SOD-123W	3,000 / 7" Reel
HS15xLW RQG	SOD-123W	10,000 / 13" Reel

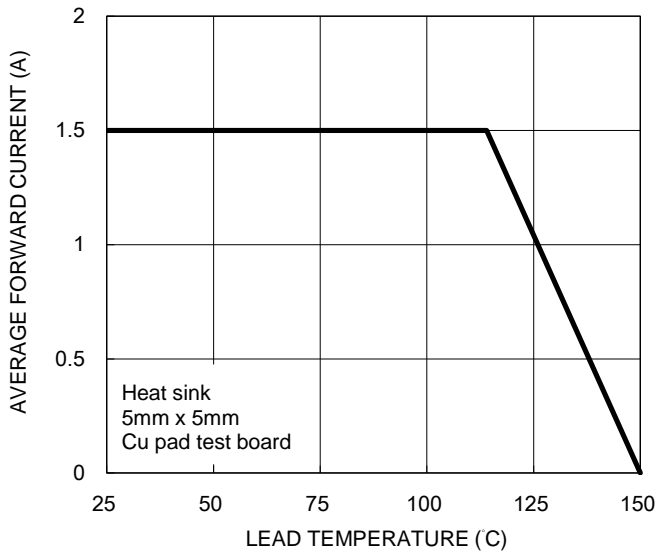
**Notes:**

- "x" defines voltage from 200V (HS15DLW) to 1000V (HS15MLW)

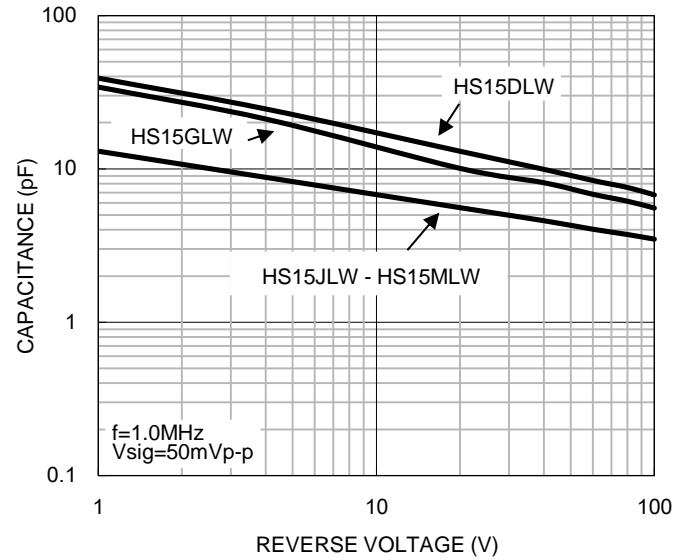
**CHARACTERISTICS CURVES**

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

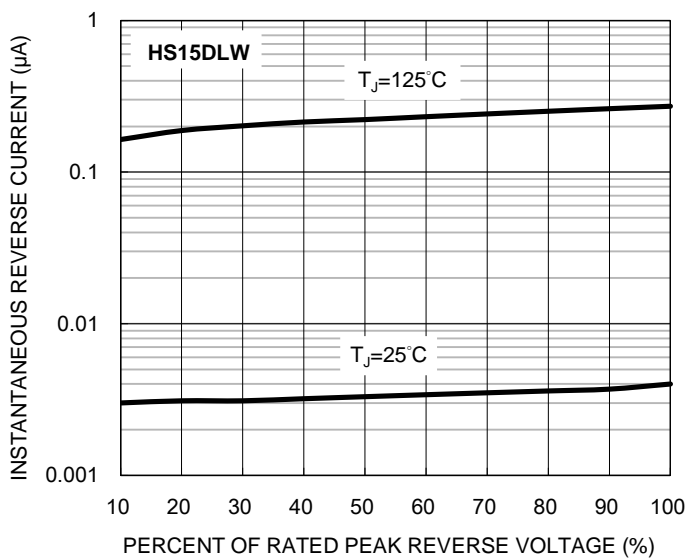
**Fig.1 Forward Current Derating Curve**



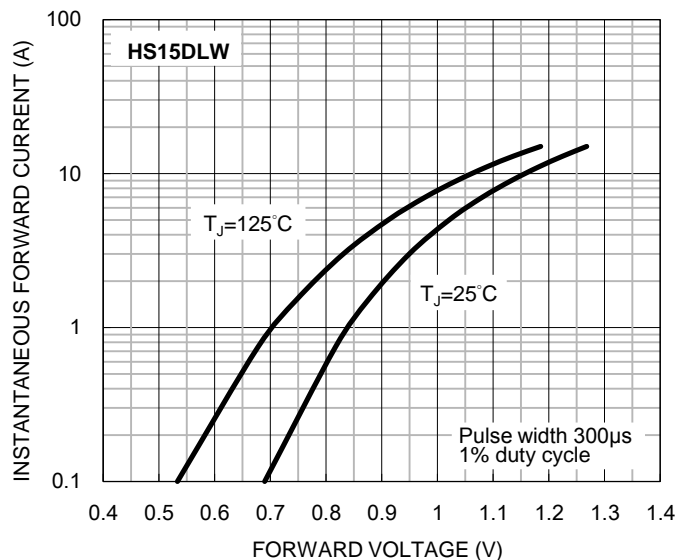
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**



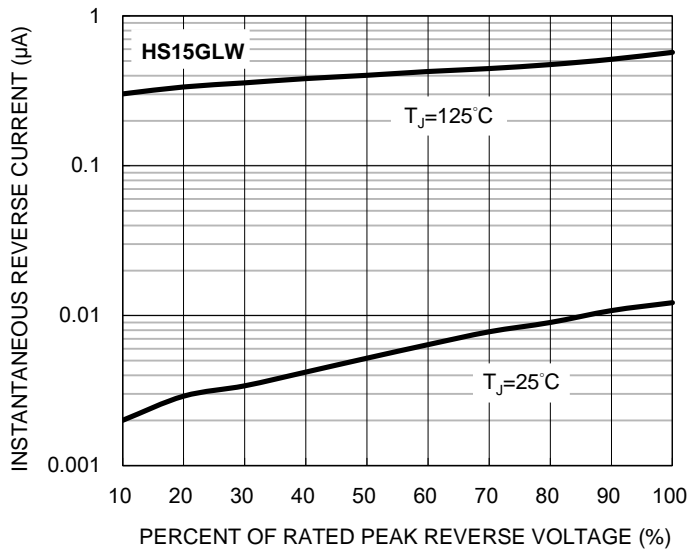
**Fig.4 Typical Forward Characteristics**



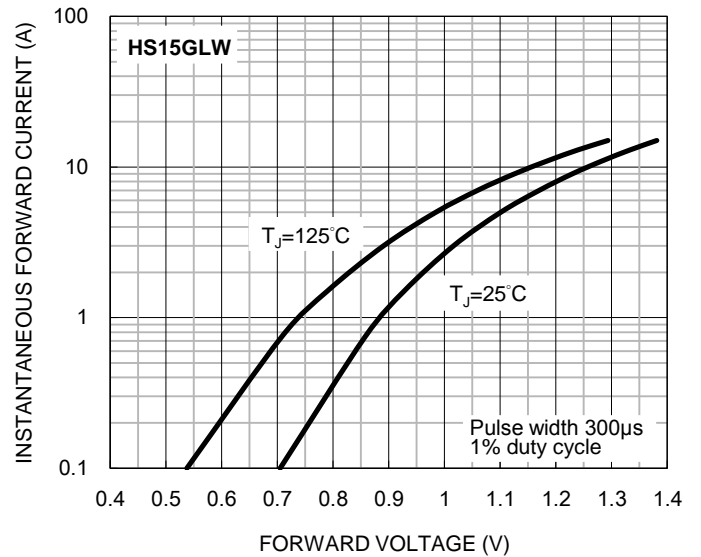
**CHARACTERISTICS CURVES**

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

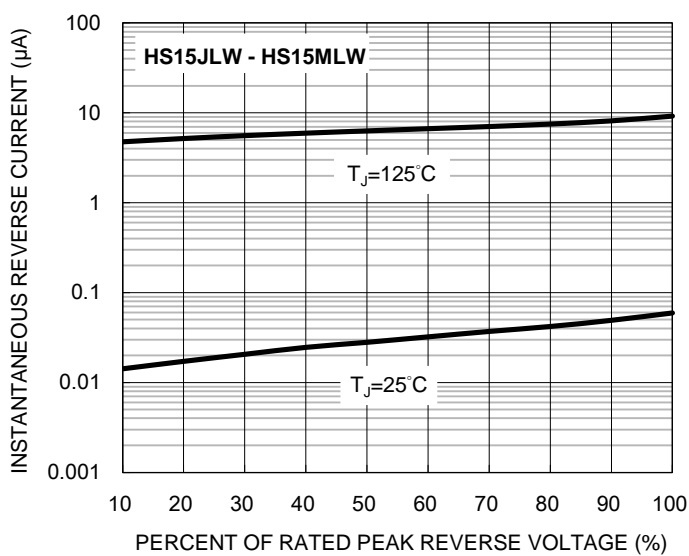
**Fig.5 Typical Reverse Characteristics**



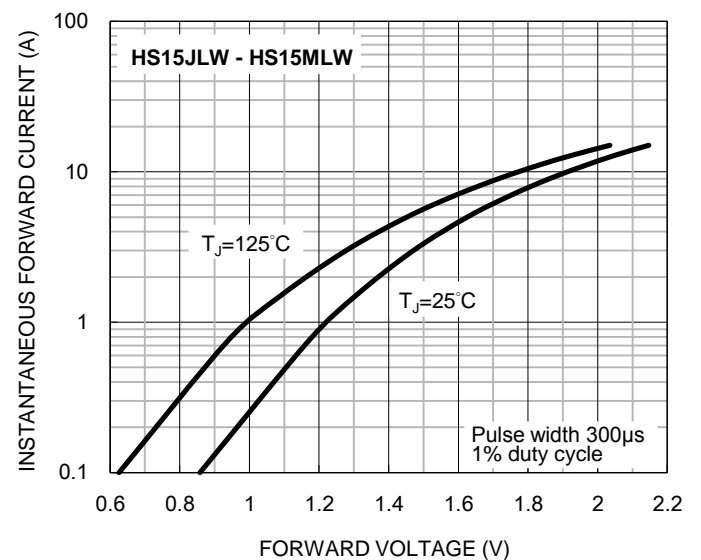
**Fig.6 Typical Forward Characteristics**



**Fig.7 Typical Reverse Characteristics**

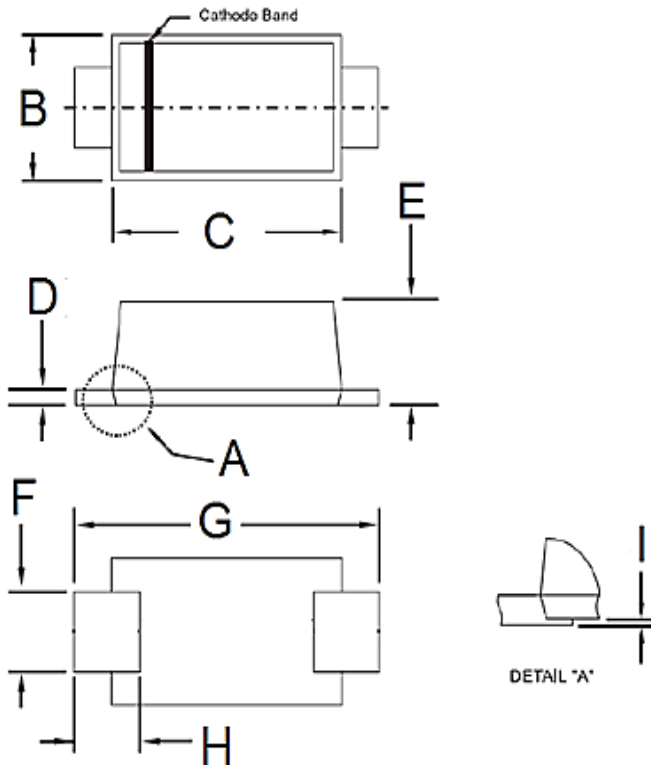


**Fig.8 Typical Forward Characteristics**



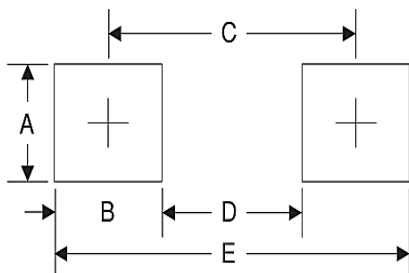
**PACKAGE OUTLINE DIMENSIONS**

**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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