

0.8A, 200V - 1000V High Efficient Surface Mount Rectifier

FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Low profile package
- 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
$I_{F(AV)}$	0.8	A
V_{RRM}	200 - 1000	V
I_{FSM}	20	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	HSDLW	HSGLW	HSJLW	HSKLW	HSMLW	UNIT
Marking code on the device		HSDLW	HSGLW	HSJLW	HSKLW	HSMLW	
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	$I_{F(AV)}$	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	$R_{\theta JL}$	34	$^{\circ}C/W$
Junction-to-ambient thermal resistance	$R_{\theta JA}$	86	$^{\circ}C/W$
Junction-to-case thermal resistance	$R_{\theta JC}$	35	$^{\circ}C/W$

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

ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}C$ unless otherwise noted)								
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT		
Forward voltage per diode ⁽¹⁾	HSDLW	$I_F = 0.4A, T_J = 25^{\circ}C$	V_F	0.81	0.97	V		
		$I_F = 0.8A, T_J = 25^{\circ}C$		0.86	1.00	V		
		$I_F = 0.4A, T_J = 125^{\circ}C$		0.66	0.79	V		
		$I_F = 0.8A, T_J = 125^{\circ}C$		0.73	0.83	V		
	HSGLW	$I_F = 0.4A, T_J = 25^{\circ}C$		0.84	1.01	V		
		$I_F = 0.8A, T_J = 25^{\circ}C$		0.91	1.30	V		
		$I_F = 0.4A, T_J = 125^{\circ}C$		0.70	0.83	V		
		$I_F = 0.8A, T_J = 125^{\circ}C$		0.77	1.05	V		
	HSJLW HSKLW HSMLW	$I_F = 0.4A, T_J = 25^{\circ}C$		1.17	1.40	V		
		$I_F = 0.8A, T_J = 25^{\circ}C$		1.31	1.70	V		
		$I_F = 0.4A, T_J = 125^{\circ}C$		0.93	1.12	V		
		$I_F = 0.8A, T_J = 125^{\circ}C$		1.09	1.30	V		
Reverse current @ rated V_R per diode ⁽²⁾		$T_J = 25^{\circ}C$	I_R	-	1	μA		
		$T_J = 125^{\circ}C$		-	150	μA		
Junction capacitance	HSDLW	1 MHz, $V_R = 4.0V$	C_J	17	-	pF		
	HSGLW			14	-	pF		
	HSJLW HSKLW HSMLW			5	-	pF		
Reverse recovery time	HSDLW HSGLW	$I_F = 0.5A, I_R = 1.0A$ $I_{RR} = 0.25A$	t_{rr}	-	50	ns		
	HSJLW HSKLW HSMLW			-	75	ns		

Notes:

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

ORDERING INFORMATION		
ORDERING CODE⁽¹⁾	PACKAGE	PACKING
HSxLWH RVG	SOD-123W	3,000 / 7" Reel
HSxLWH RQG	SOD-123W	10,000 / 13" Reel
HSxLW RVG	SOD-123W	3,000 / 7" Reel
HSxLW RQG	SOD-123W	10,000 / 13" Reel

Notes:

- "x" defines voltage from 200V (HSDLW) to 1000V (HSMLW)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

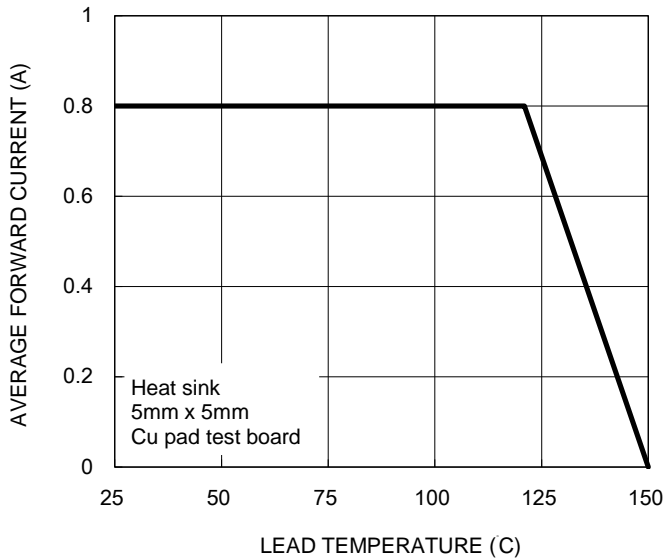


Fig.2 Typical Junction Capacitance

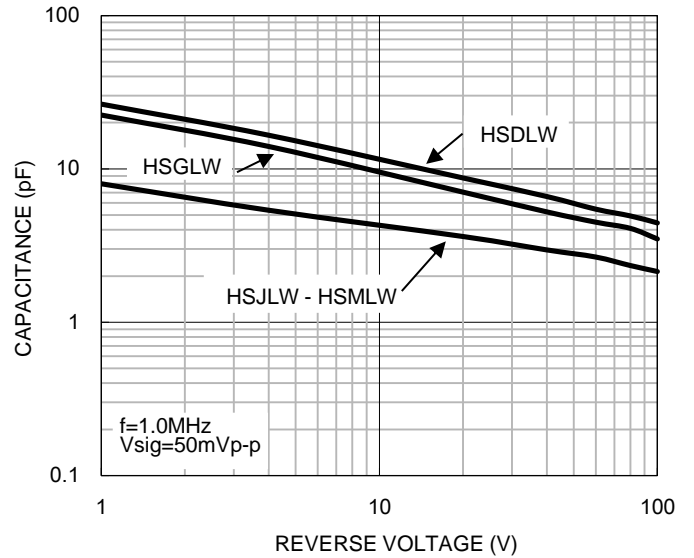


Fig.3 Typical Reverse Characteristics

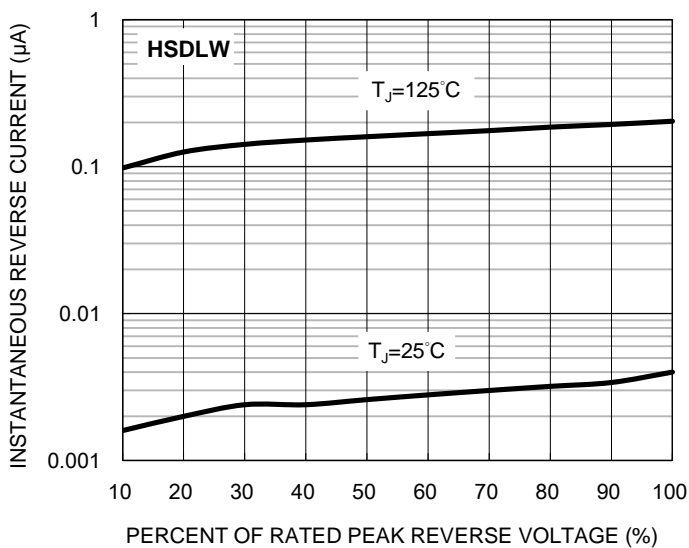
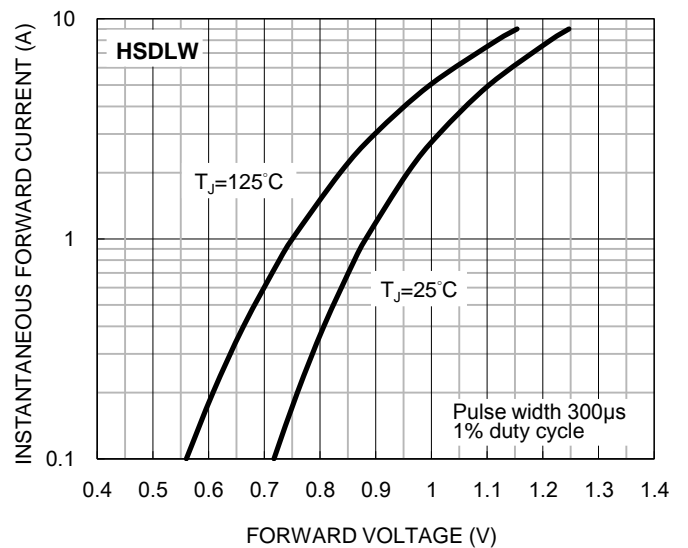


Fig.4 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.5 Typical Reverse Characteristics

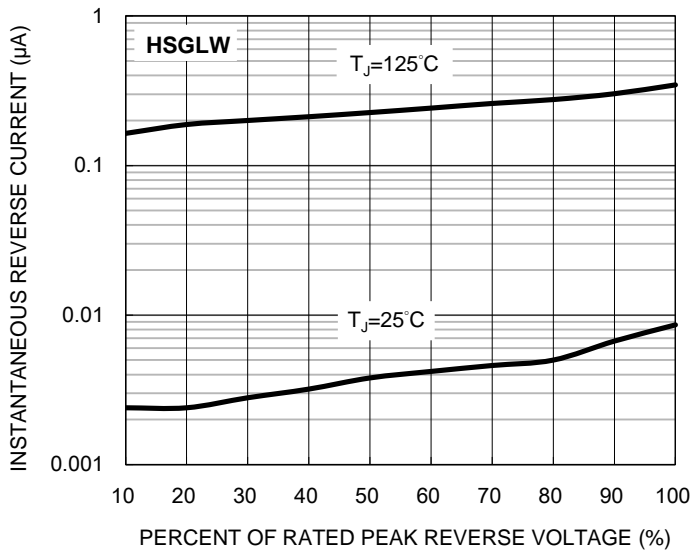


Fig.6 Typical Forward Characteristics

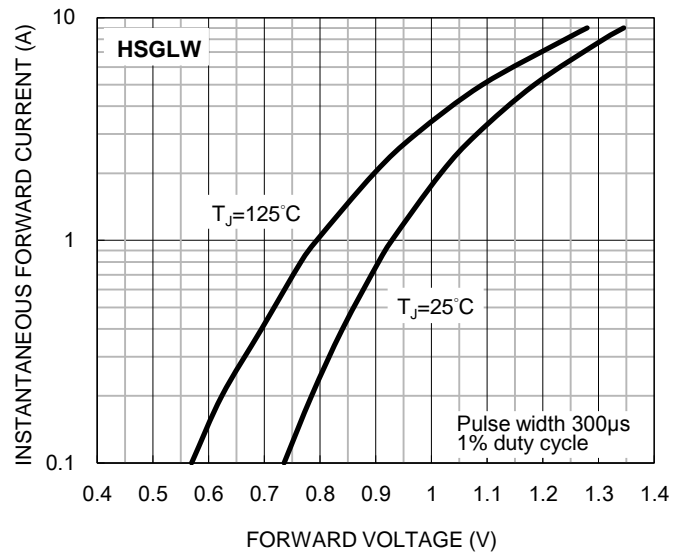


Fig.7 Typical Reverse Characteristics

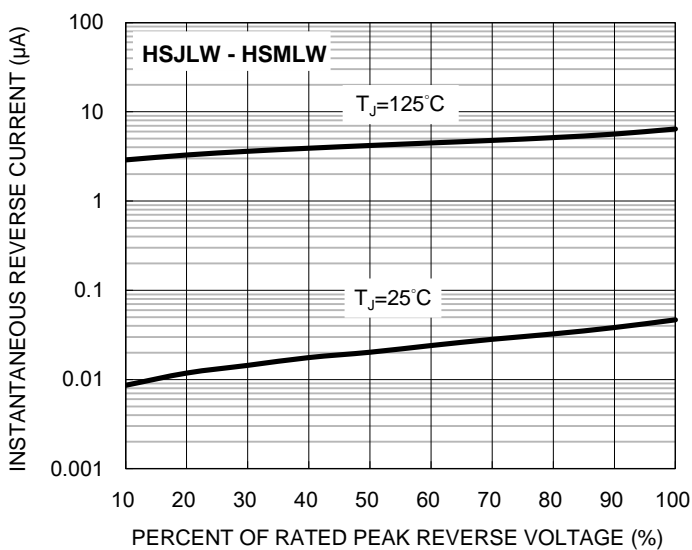
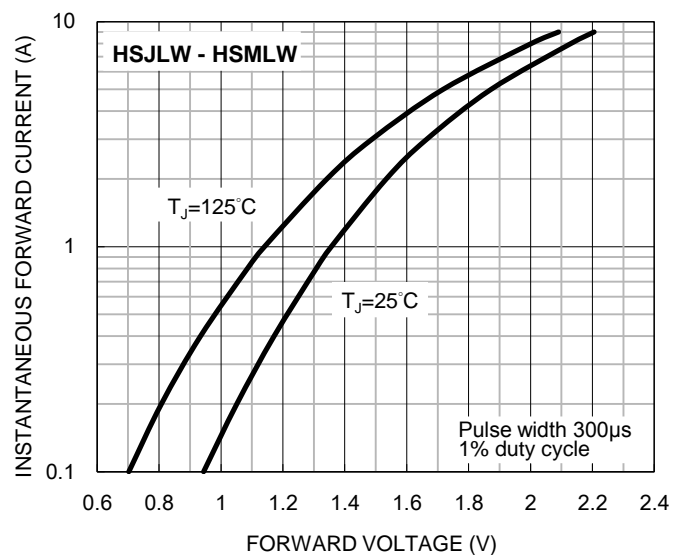
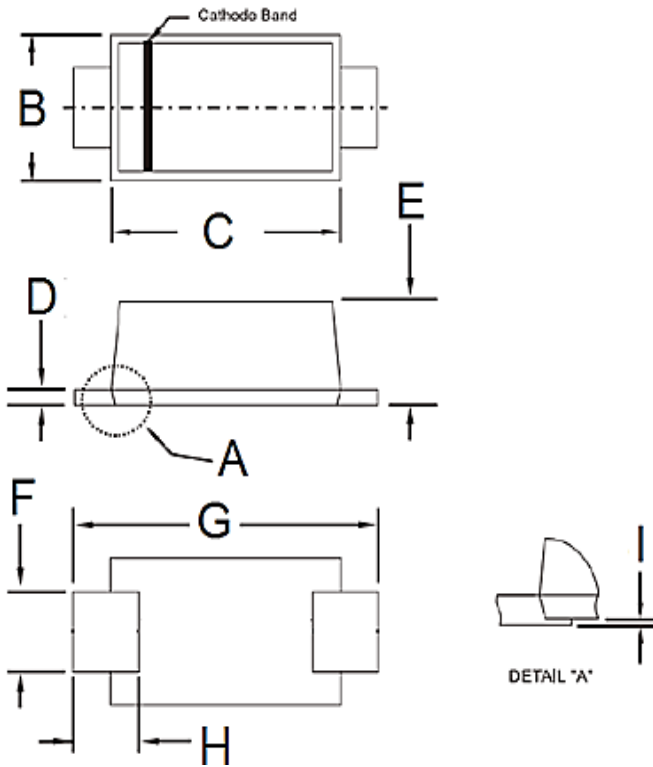


Fig.8 Typical Forward Characteristics



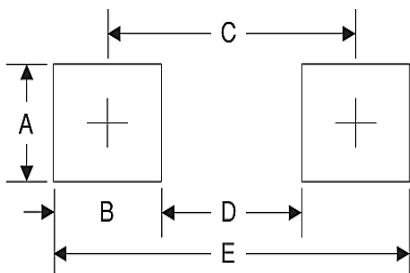
PACKAGE OUTLINE DIMENSIONS

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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