

## 1A, 200V - 1000V High Efficient 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	A
$V_{RRM}$	200 - 1000	V
$I_{FSM}$	30	A
$T_{J\ MAX}$	175	°C
Package	SOD-123W	
Configuration	Single die	



SOD-123W



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	SYMBOL	HS1DLW	HS1GLW	HS1JLW	HS1KLW	HS1MLW	UNIT
Marking code on the device		HDLW	HGLW	HJLW	HKLW	HMLW	
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					A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	30					A
Junction temperature	$T_J$	- 55 to +175					°C
Storage temperature	$T_{STG}$	- 55 to +175					°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	25	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	80	°C/W

ELECTRICAL SPECIFICATIONS (T <sub>A</sub> = 25°C unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage <sup>(1)</sup>	HS1DLW	$I_F = 1A, T_J = 25^\circ C$	$V_F$	-	1.0	V
	HS1GLW			-	1.3	V
	HS1JLW			-	1.7	V
	HS1KLW					
	HS1MLW					
Reverse current @ rated V <sub>R</sub> <sup>(2)</sup>		T <sub>J</sub> = 25°C	$I_R$	-	1	μA
		T <sub>J</sub> = 125°C		-	150	μA
Junction capacitance	HS1DLW	1MHz, V <sub>R</sub> = 4.0V	$C_J$	16	-	pF
	HS1GLW					
	HS1JLW					
	HS1KLW			7	-	pF
Reverse recovery time	HS1DLW	$I_F = 0.5A, I_R = 1.0A,$ $I_{rr} = 0.25A$	$t_{rr}$	-	50	ns
	HS1GLW					
	HS1JLW					
	HS1KLW			-	75	ns
HS1MLW						

**Notes:**

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

ORDERING INFORMATION		
ORDERING CODE <sup>(1)</sup>	PACKAGE	PACKING
HS1xLW	SOD-123W	10,000 / Tape & Reel

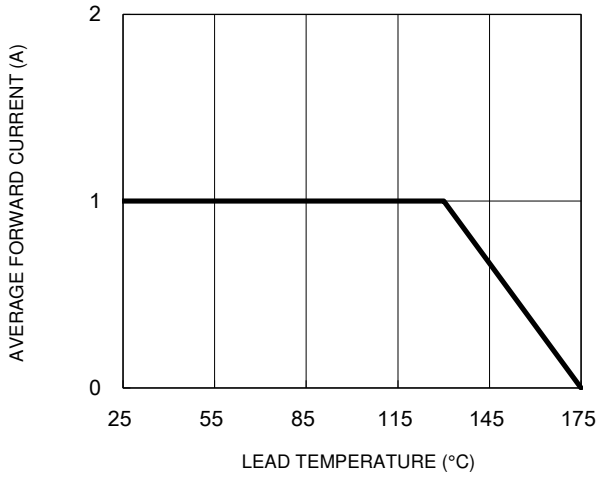
**Notes:**

1. "x" defines voltage from 200V(HS1DLW) to 1000V(HS1MLW)

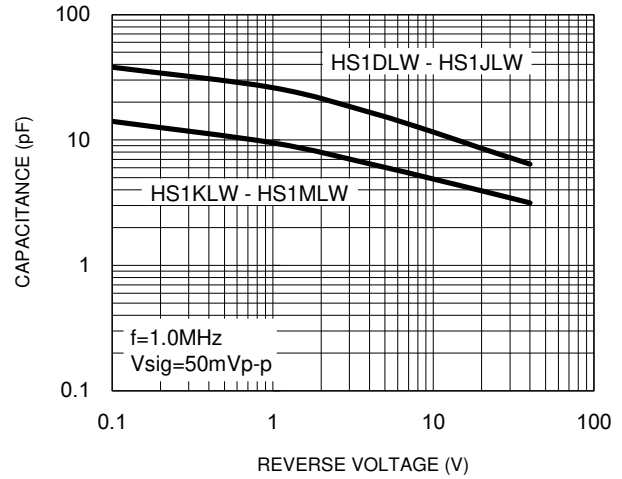
**CHARACTERISTICS CURVES**

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

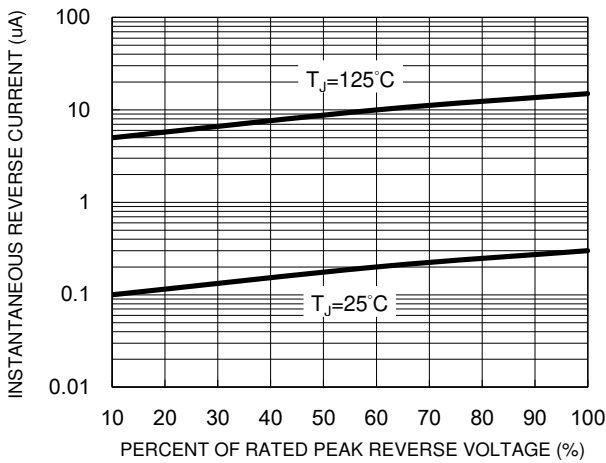
**Fig.1 Forward Current Derating Curve**



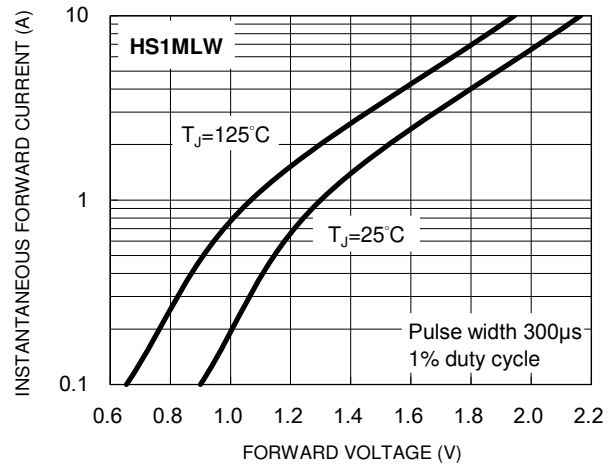
**Fig.2 Typical Junction Capacitance**



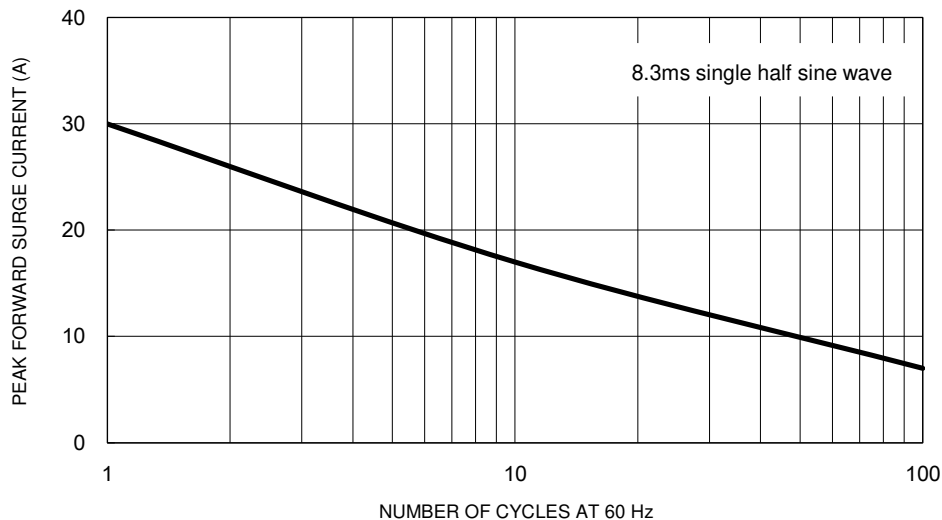
**Fig.3 Typical Reverse Characteristics**



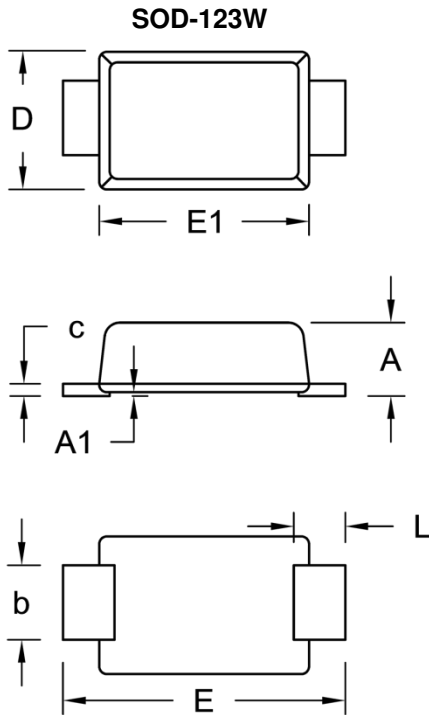
**Fig.4 Typical Forward Characteristics**



**Fig.5 Maximum Non-Repetitive Forward Surge Current**

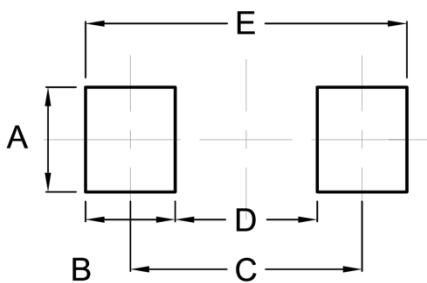


**PACKAGE OUTLINE DIMENSIONS**



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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