

## 1A, 400V ESD Capability Rectifier

### FEATURES

- High ESD capability
- Glass passivated chip junction
- Ideal for automated placement
- Low forward voltage drop
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- AEC-Q101 qualified available:  
ordering code with suffix "H"
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	1	A
$V_{RRM}$	400	V
$I_{FSM}$	40	A
$V_F$ at $I_F = 1A$	1	V
$T_{JMAX}$	175	°C
Package	SOD-123W	
Configuration	Single die	

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- Converter



### 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: 0.019g (approximately)



**SOD-123W**

SOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	TSDGLW	UNIT
Marking code on the device		TSDGLW	
Repetitive peak reverse voltage	$V_{RRM}$	400	V
Reverse voltage, total rms value	$V_{R(RMS)}$	280	V
Forward current	$I_F$	1	A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	40	A
Junction temperature	$T_J$	- 55 to +175	°C
Storage temperature	$T_{STG}$	- 55 to +175	°C

<b>THERMAL PERFORMANCE</b>			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	25	$^{\circ}C/W$
Junction-to-ambient thermal resistance	$R_{\theta JA}$	84	$^{\circ}C/W$
Junction-to-case thermal resistance	$R_{\theta JC}$	27	$^{\circ}C/W$

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

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^{\circ}C$ unless otherwise noted)					
PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage <sup>(1)</sup>	$I_F = 0.5A, T_J = 25^{\circ}C$	$V_F$	0.86	0.95	V
	$I_F = 1.0A, T_J = 25^{\circ}C$		0.90	1.00	V
	$I_F = 0.5A, T_J = 125^{\circ}C$		0.72	0.90	V
	$I_F = 1.0A, T_J = 125^{\circ}C$		0.77	1.00	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^{\circ}C$	$I_R$	-	1	$\mu A$
	$T_J = 125^{\circ}C$		-	50	$\mu A$
Junction capacitance	1MHz, $V_R = 4.0V$	$C_J$	15	-	pF

**Notes:**

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

<b>IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS</b> ( $T_A = 25^{\circ}C$ unless otherwise noted)						
STANDARD	TEST TYPE	TEST CONDITION	SYMBOL	CLASS	VALUE	TYPICAL
AEC-Q101-001	Human body model(contact mode)	$C=100pF, R=1.5k\Omega$	$V_c$	H3B	$\geq 8kV$	N/A
IEC 61000-4-2	Contact mode	$C=150pF, R=330\Omega$		4	$\geq 8kV$	20kV
	Air-discharge mode	$C=150pF, R=330\Omega$		4	$\geq 15kV$	25kV
ISO 10605	Contact mode	$C=330pF, R=330\Omega$		L4	$\geq 15kV$	20kV
	Air-discharge mode	$C=330pF, R=330\Omega$		L4	$\geq 25kV$	25kV

<b>ORDERING INFORMATION</b>		
ORDERING CODE (Note 1)	PACKAGE	PACKING
TSDGLWHRVG	SOD-123W	3,000 / 7" Plastic reel
TSDGLWHRQG	SOD-123W	10,000 / 13" Paper reel
TSDGLW RVG	SOD-123W	3,000 / 7" Plastic reel
TSDGLW RQG	SOD-123W	10,000 / 13" Paper reel

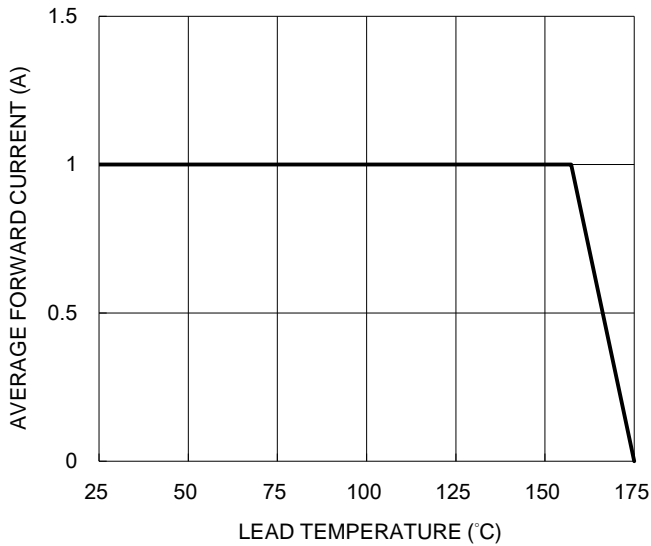
**Note:**

1. "H" means AEC-Q101 qualified

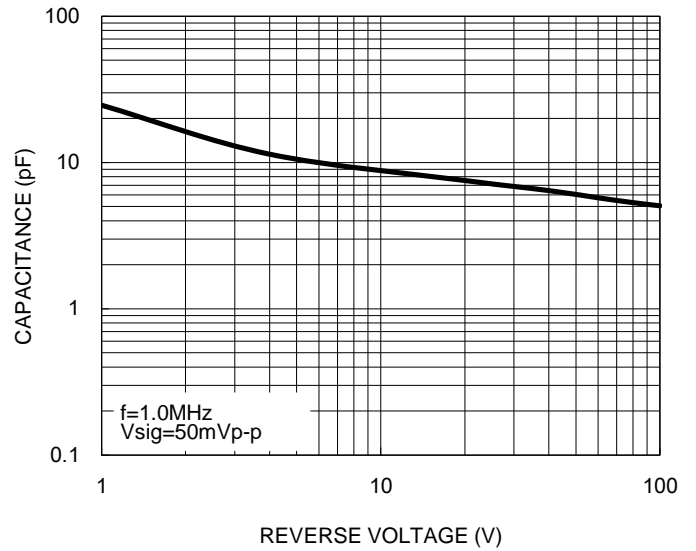
**CHARACTERISTICS CURVES**

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

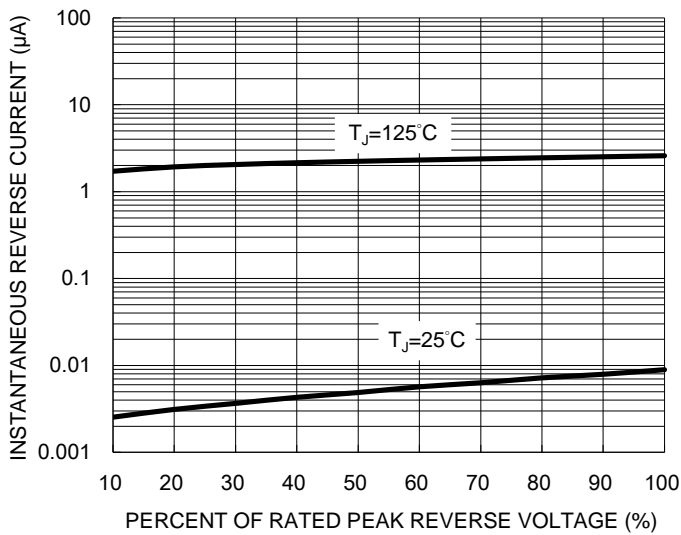
**Fig.1 Forward Current Derating Curve**



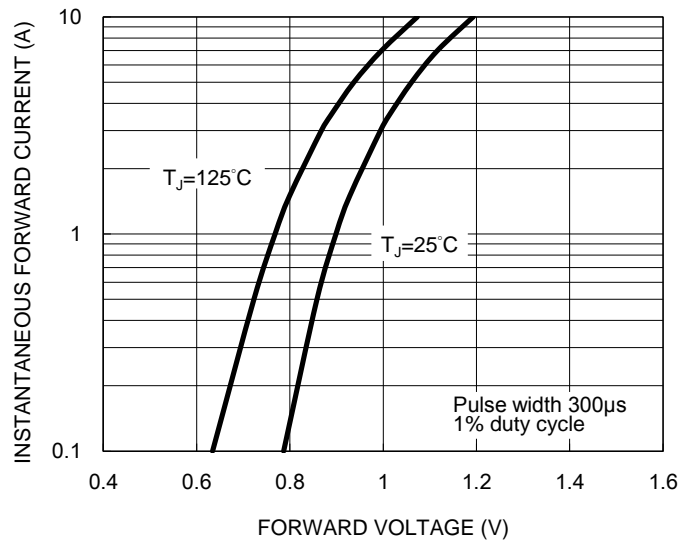
**Fig.2 Typical Junction Capacitance**



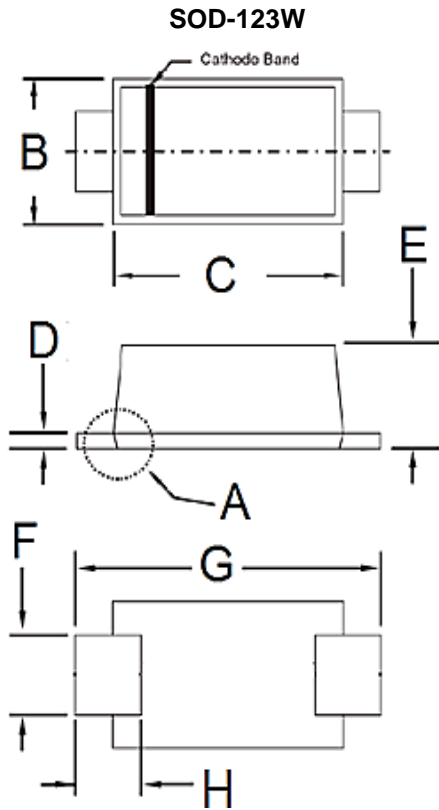
**Fig.3 Typical Reverse Characteristics**



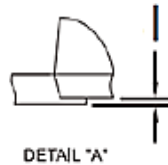
**Fig.4 Typical Forward Characteristics**



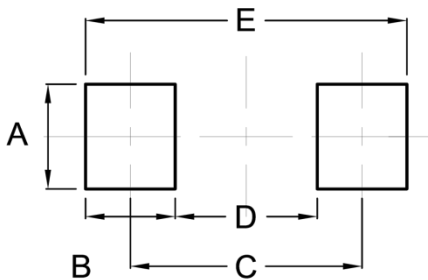
**PACKAGE OUTLINE DIMENSIONS**



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	1.40	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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