

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
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

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

MECHANICAL DATA

- Case: SOD-123W
- Molding compound meets UL 94V-0 flammability rating
- Part no. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- 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: Indicated by cathode band
- Weight: 19mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	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	



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	$I_{F(AV)}$	1	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 +175	°C
Storage temperature	T_{STG}	- 55 to +175	°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	52	$^{\circ}C/W$
Junction-to-ambient thermal resistance	$R_{\theta JA}$	84	$^{\circ}C/W$
Junction-to-case thermal resistance	$R_{\theta JC}$	54	$^{\circ}C/W$

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⁾	$I_F = 0.5A, T_J = 25^{\circ}C$	V_F	0.86	0.95	V
	$I_F = 1A, T_J = 25^{\circ}C$		0.90	1.00	V
	$I_F = 0.5A, T_J = 125^{\circ}C$		0.72	0.90	V
	$I_F = 1A, T_J = 125^{\circ}C$		0.77	1.00	V
Reverse current @ rated V_R per diode ⁽²⁾	$T_J = 25^{\circ}C$	I_R	-	1	μA
	$T_J = 125^{\circ}C$		-	50	μA
Junction capacitance	1 MHz, $V_R = 4.0V$	C_J	15	-	pF

Notes:

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

IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS ($T_A = 25^{\circ}C$ unless otherwise noted)						
Standard	Test Type	Test Conditions	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

ORDERING INFORMATION					
PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
TSDGLW (Note 1)	H	RV RQ	G	SOD-123W	3,000 / 7" Plastic reel 10,000 / 13" Paper reel

Note:

1. Whole series with green compound (halogen-free)

EXAMPLE					
EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
TSDGLWHRVG	TSDGLW	H	RV	G	AEC-Q101 qualified Green compound

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

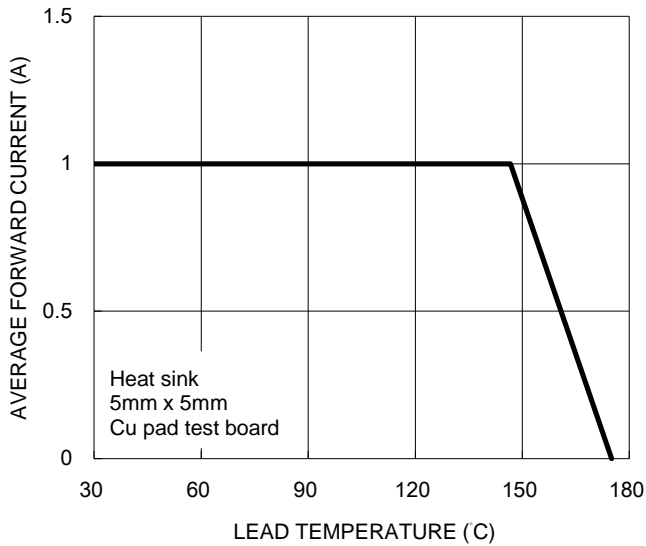


Fig.2 Typical Junction Capacitance

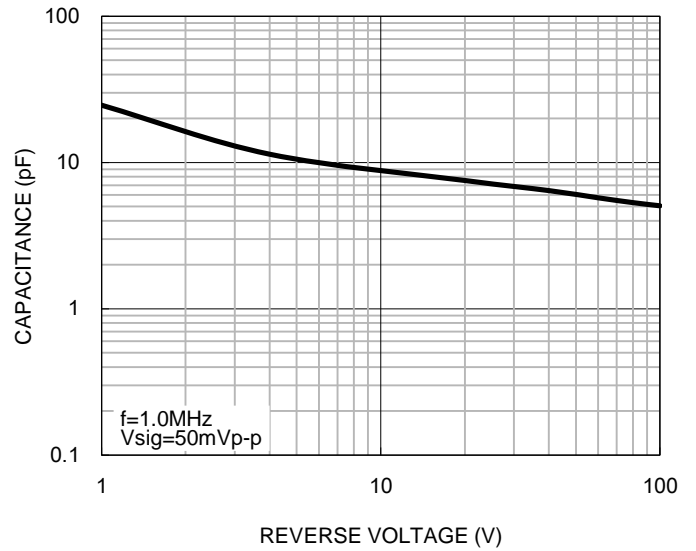


Fig.3 Typical Reverse Characteristics

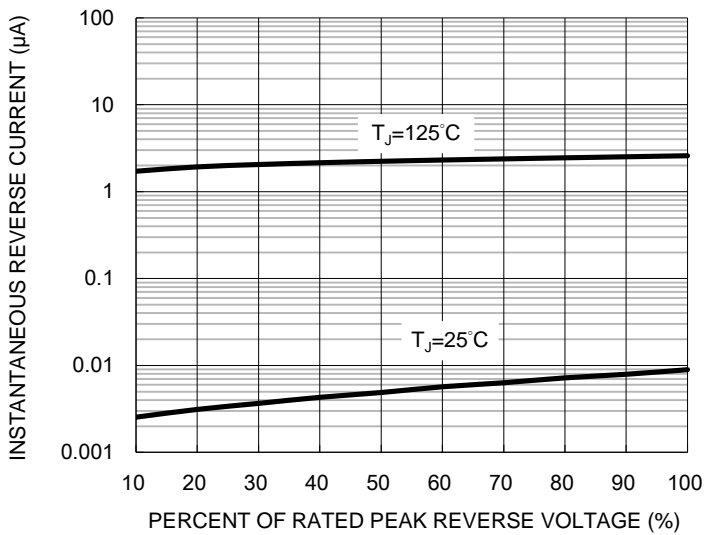
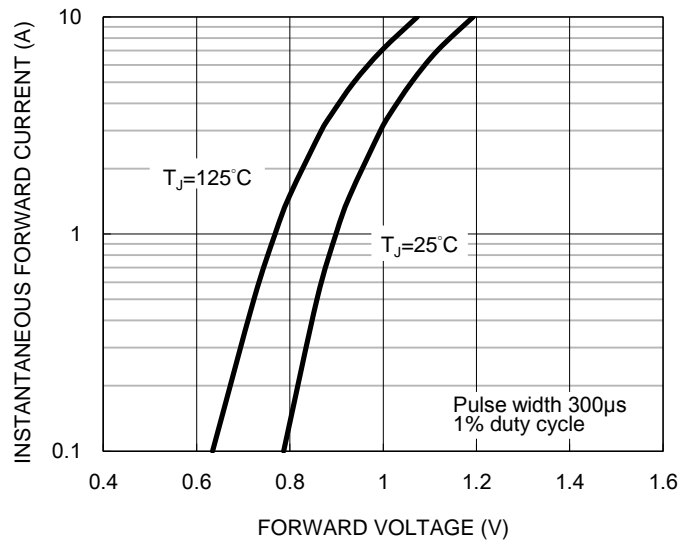
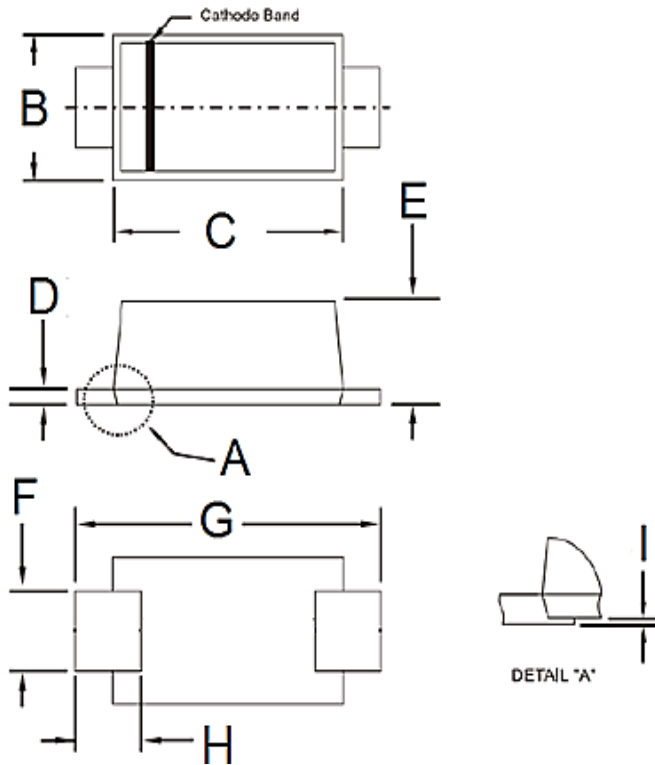


Fig.4 Typical Forward Characteristics

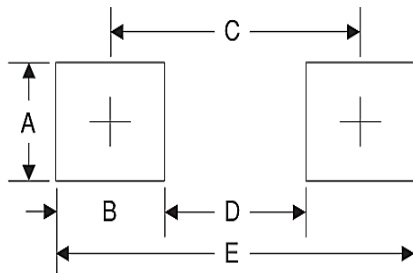


PACKAGE OUTLINE DIMENSIONS



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	1.4	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
- G =Green Compound
- YW =Date Code
- F =Factory Code

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