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

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
$I_{F(AV)}$	1	A
V_{RRM}	400	V
I_{FSM}	40	A
V_F at I_F=2A	1	V
$T_{J\ MAX}$	175	°C
Package	DO-214AC (SMA)	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

APPLICATIONS

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

MECHANICAL DATA

- Case: DO-214AC (SMA)
- 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: As marked
- Weight: 0.06 g (approximately)

DO-214AC (SMA)

SOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)			
PARAMETER	**SYMBOL**	**TSD1G**	**UNIT**
Marking code on the device		TSD1G	
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	I_{FSM}	40	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	$R_{\Theta JL}$	39	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	86	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	43	°C/W

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

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode (1)	I_F = 1A, T_J = 25°C	V_F	0.89	1.25	V
	I_F = 0.5A, T_J = 25°C		0.85	1.00	V
	I_F = 1A, T_J = 125°C		0.77	1.10	V
	I_F = 0.5A, T_J = 125°C		0.72	0.90	V
Reverse current @ rated V_R per diode (2)	T_J = 25°C	I_R	-	1.00	μA
	T_J = 125°C		-	50	μA
Junction capacitance	1 MHz, V_R=4.0V	C_J	14	-	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°C unless otherwise noted)

Standard	Test Type	Test Conditions	SYMBOL	CLASS	Value	Typical
AEC-Q101-001	Human body model(contact mode)	C=100pF,R=1.5kΩ	Vc	H3B	≥8kV	N/A
IEC 61000-4-2	Contact mode	C=150pF,R=330Ω		4	≥8kV	20kV
	Air-discharge mode	C=150pF,R=330Ω		4	≥15kV	25kV
ISO 10605	Contact mode	C=330pF,R=330Ω		L4	≥15kV	20kV
	Air-discharge mode	C=330pF,R=330Ω		L4	≥25kV	25kV

ORDERING INFORMATION

ORDERING CODE (Note 1)	PACKAGE	PACKING	STATUS
TSD1GHR3G	SMA	1,800 / 7" Plastic reel	Active
TSD1GHR2G	SMA	7,500 / 13" Paper reel	NRND
TSD1GHM3G	SMA	7,500 / 13" Plastic reel	Active
TSD1GHF3G	Folded SMA	1,800 / 7" Plastic reel	NRND
TSD1GHF2G	Folded SMA	7,500 / 13" Paper reel	NRND
TSD1GHF4G	Folded SMA	7,500 / 13" Plastic reel	NRND
TSD1G R3G	SMA	1,800 / 7" Plastic reel	Active
TSD1G R2G	SMA	7,500 / 13" Paper reel	NRND
TSD1G M3G	SMA	7,500 / 13" Plastic reel	Active
TSD1G F3G	Folded SMA	1,800 / 7" Plastic reel	NRND
TSD1G F2G	Folded SMA	7,500 / 13" Paper reel	NRND
TSD1G F4G	Folded SMA	7,500 / 13" Plastic reel	NRND

Note 1:
"H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

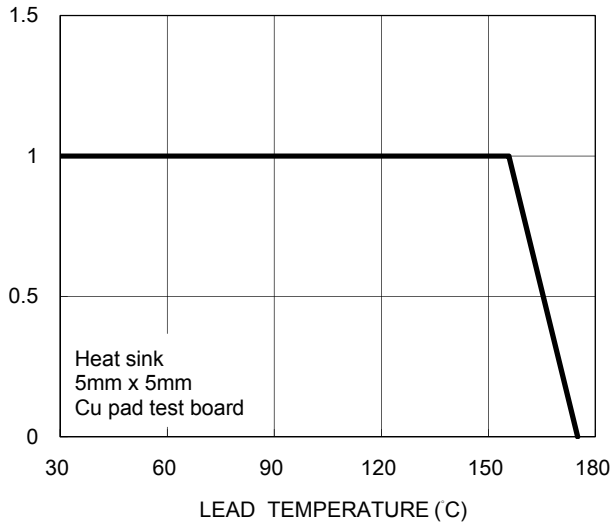


Fig.2 Typical Junction Capacitance

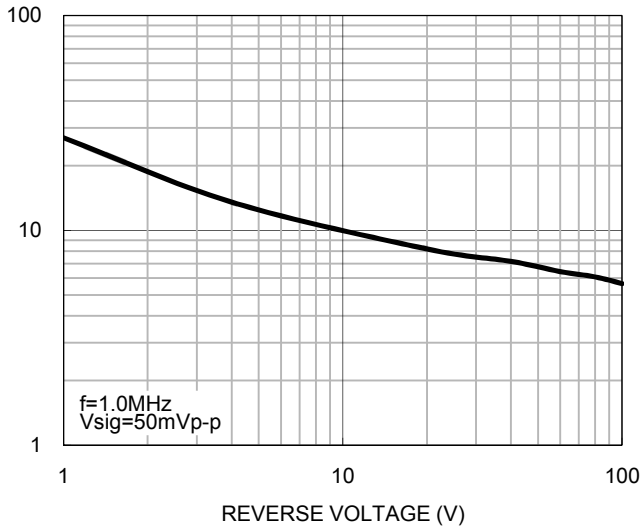


Fig.3 Typical Reverse Characteristics

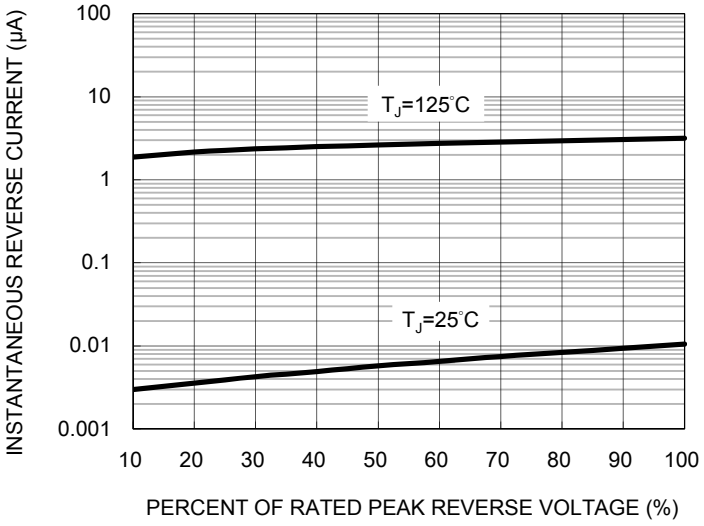
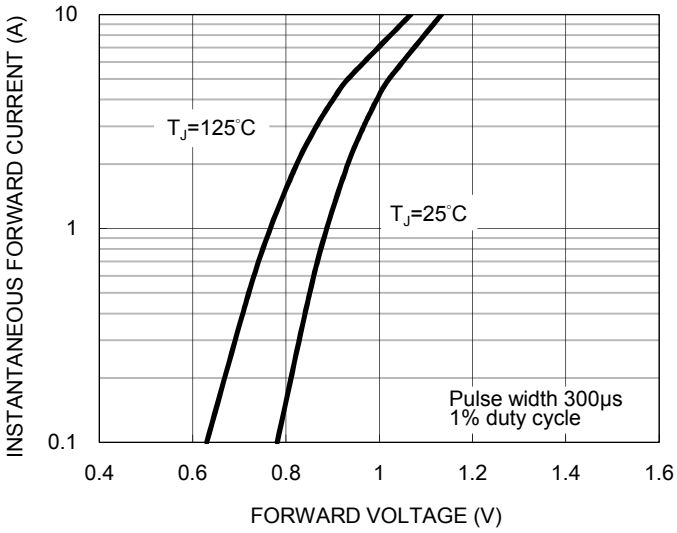
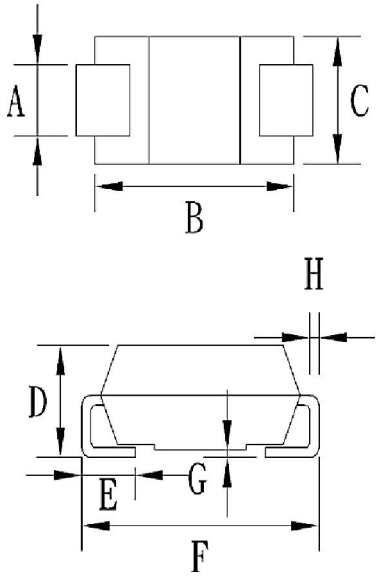


Fig.4 Typical Forward Characteristics



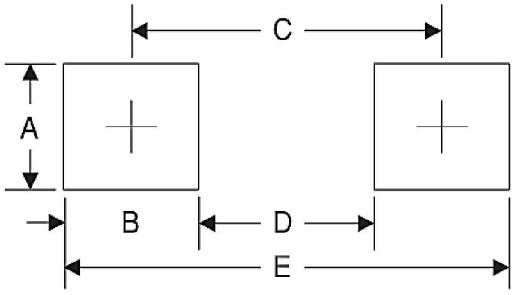
PACKAGE OUTLINE DIMENSIONS

DO-214AC (SMA)



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.27	1.58	0.050	0.062
B	4.06	4.60	0.160	0.181
C	2.29	2.83	0.090	0.111
D	1.99	2.50	0.078	0.098
E	0.90	1.41	0.035	0.056
F	4.95	5.33	0.195	0.210
G	0.10	0.20	0.004	0.008
H	0.15	0.31	0.006	0.012

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.68	0.066
B	1.52	0.060
C	3.93	0.155
D	2.41	0.095
E	5.45	0.215

MARKING DIAGRAM

P/N =Marking Code
G =Green Compound
YW =Date Code
F =Factory Code

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