

2A, 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
$I_{F(AV)}$	2	A
V_{RRM}	400	V
I_{FSM}	50	A
V_F at $I_F=2A$	1	V
$T_{J\ MAX}$	175	°C
Package	DO-214AA (SMB)	
Configuration	Single die	

APPLICATIONS

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



MECHANICAL DATA

- Case: DO-214AA (SMB)
- 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: 0.09 g (approximately)



DO-214AA (SMB)

SOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	TSD2G	UNIT
Marking code on the device		TSD2G	
Repetitive peak reverse voltage	V_{RRM}	400	V
Reverse voltage, total rms value	$V_{R(RMS)}$	280	V
Forward current	$I_{F(AV)}$	2	A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	50	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	$R_{\theta JL}$	26	$^{\circ}\text{C/W}$
Junction-to-ambient thermal resistance	$R_{\theta JA}$	73	$^{\circ}\text{C/W}$
Junction-to-case thermal resistance	$R_{\theta JC}$	27	$^{\circ}\text{C/W}$

Thermal Performance Note: Units mounted on PCB (10mm x 10mm Cu pad test board)

ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted)					
PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	$I_F = 1\text{A}, T_J = 25^{\circ}\text{C}$	V_F	0.87	0.95	V
	$I_F = 2\text{A}, T_J = 25^{\circ}\text{C}$		0.90	1.00	V
	$I_F = 1\text{A}, T_J = 125^{\circ}\text{C}$		0.80	0.90	V
	$I_F = 2\text{A}, T_J = 125^{\circ}\text{C}$		0.75	0.85	V
Reverse current @ rated V_R per diode ⁽²⁾	$T_J = 25^{\circ}\text{C}$	I_R	-	1	μA
	$T_J = 125^{\circ}\text{C}$		-	50	μA
Junction capacitance	1 MHz, $V_R=4.0\text{V}$	C_J	20	-	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 ($T_A = 25^{\circ}\text{C}$ unless otherwise noted)						
Standard	Test Type	Test Conditions	SYMBOL	CLASS	Value	Typical
AEC-Q101-001	Human body model(contact mode)	$C=100\text{pF}, R=1.5\text{k}\Omega$	V_c	H3B	$\geq 8\text{kV}$	N/A
IEC 61000-4-2	Contact mode	$C=150\text{pF}, R=330\Omega$		4	$\geq 8\text{kV}$	25kV
	Air-discharge mode	$C=150\text{pF}, R=330\Omega$		4	$\geq 15\text{kV}$	30kV
ISO 10605	Contact mode	$C=330\text{pF}, R=330\Omega$		L4	$\geq 15\text{kV}$	25kV
	Air-discharge mode	$C=330\text{pF}, R=330\Omega$		L4	$\geq 25\text{kV}$	30kV

ORDERING INFORMATION			
ORDERING CODE (Note 1,2)	PACKAGE	PACKING	STATUS
TSD2GHR5G	SMB	850 / 7" Plastic reel	Active
TSD2GHR4G	SMB	3,000 / 13" Paper reel	NRND
TSD2GHM4G	SMB	3,000 / 13" Plastic reel	Active
TSD2G R5G	SMB	850 / 7" Plastic reel	Active
TSD2G R4G	SMB	3,000 / 13" Paper reel	NRND
TSD2G M4G	SMB	3,000 / 13" Plastic reel	Active

Note 1:

"H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

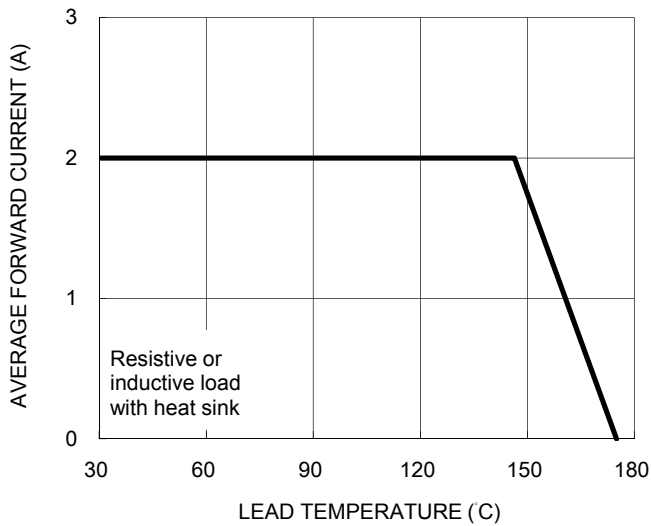


Fig.2 Typical Junction Capacitance

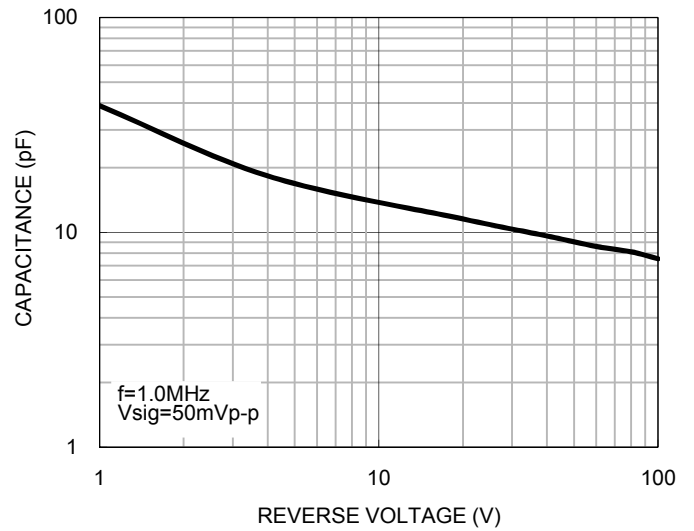


Fig.3 Typical Reverse Characteristics

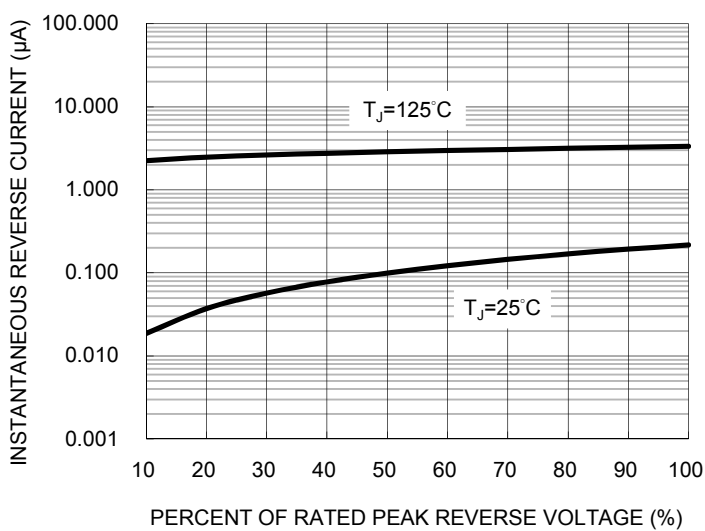
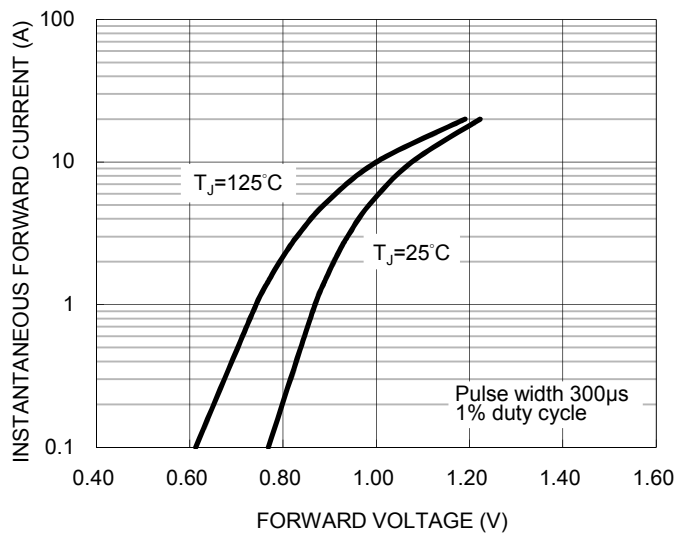
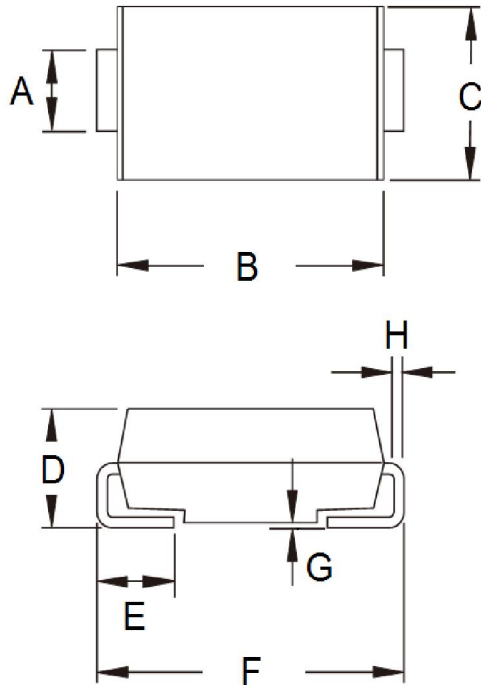


Fig.4 Typical Forward Characteristics



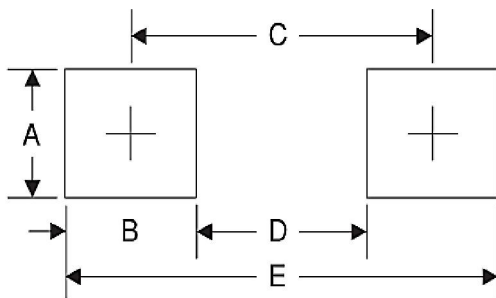
PACKAGE OUTLINE DIMENSIONS

DO-214AA (SMB)



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.95	2.20	0.077	0.087
B	4.05	4.60	0.159	0.181
C	3.30	3.95	0.130	0.156
D	1.95	2.65	0.077	0.104
E	0.75	1.60	0.030	0.063
F	5.10	5.60	0.201	0.220
G	0.05	0.20	0.002	0.008
H	0.15	0.31	0.006	0.012

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	2.3	0.091
B	2.5	0.098
C	4.3	0.169
D	1.8	0.071
E	6.8	0.268

MARKING DIAGRAM



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

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