2A, 50V - 1400V Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Glass passivated junction chip
- 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

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
$I_{F(AV)}$	2	A
V_{RRM}	50 - 1400	V
I_{FSM}	50	A
$T_{J\ MAX}$	150	°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)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETER	SYMBOL	S2A	S2B	S2D	S2G	S2J	S2K	S2M	S2Q	S2V	UNIT
Marking code on the device		S2A	S2B	S2D	S2G	S2J	S2K	S2M	S2Q	S2V	
Repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	1200	1400	V
Reverse voltage, total rms value	$V_{R(RMS)}$	30	70	140	280	420	560	700	840	980	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	1000	1200	1400	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 +150									°C
Storage temperature	T_{STG}	- 55 to +150									°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP.	UNIT
Junction to Lead Thermal Resistance	$R_{\Theta JL}$	16	°C/W
Junction to Ambient Thermal Resistance	$R_{\Theta JA}$	53	°C/W

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

PARAMETER	CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Forward voltage per diode (1)	I_F = 2A,T_J = 25°C	V_F	-	1.15	V
Reverse current @ rated V_R per diode (2)	T_J = 25°C	I_R	-	1	μA
	T_J = 125°C		-	125	μA
Junction capacitance	1 MHz, V_R=4.0V	C_J	30	-	pF
Reverse recovery time	I_F=0.5A ,I_R=1.0A I_{RR}=0.25A	t_{rr}	1.5	-	μs

Notes:

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

EXAMPLE P/N

ORDERING CODE	PACKAGE	PACKING
S2AHR5G	SMB	850 / 7" Plastic reel
S2AHR4G	SMB	3,000 / 13" Paper reel
S2AHM4G	SMB	3,000 / 13" Plastic reel
S2BHR5G	SMB	850 / 7" Plastic reel
S2BHR4G	SMB	3,000 / 13" Paper reel
S2BHM4G	SMB	3,000 / 13" Plastic reel
S2DHR5G	SMB	850 / 7" Plastic reel
S2DHR4G	SMB	3,000 / 13" Paper reel
S2DHM4G	SMB	3,000 / 13" Plastic reel
S2GHR5G	SMB	850 / 7" Plastic reel
S2GHR4G	SMB	3,000 / 13" Paper reel
S2GHM4G	SMB	3,000 / 13" Plastic reel
S2JHR5G	SMB	850 / 7" Plastic reel
S2JHR4G	SMB	3,000 / 13" Paper reel
S2JHM4G	SMB	3,000 / 13" Plastic reel
S2KHR5G	SMB	850 / 7" Plastic reel
S2KHR4G	SMB	3,000 / 13" Paper reel
S2KHM4G	SMB	3,000 / 13" Plastic reel
S2MHR5G	SMB	850 / 7" Plastic reel
S2MHR4G	SMB	3,000 / 13" Paper reel
S2MHM4G	SMB	3,000 / 13" Plastic reel
S2QHR5G	SMB	850 / 7" Plastic reel

EXAMPLE P/N		
ORDERING CODE	**PACKAGE**	**PACKING**
S2QHR4G	SMB	3,000 / 13" Paper reel
S2QHM4G	SMB	3,000 / 13" Plastic reel
S2VHR5G	SMB	850 / 7" Plastic reel
S2VHR4G	SMB	3,000 / 13" Paper reel
S2VHM4G	SMB	3,000 / 13" Plastic reel
S2AHR5	SMB	850 / 7" Plastic reel
S2AHR4	SMB	3,000 / 13" Paper reel
S2AHM4	SMB	3,000 / 13" Plastic reel
S2BHR5	SMB	850 / 7" Plastic reel
S2BHR4	SMB	3,000 / 13" Paper reel
S2BHM4	SMB	3,000 / 13" Plastic reel
S2DHR5	SMB	850 / 7" Plastic reel
S2DHR4	SMB	3,000 / 13" Paper reel
S2DHM4	SMB	3,000 / 13" Plastic reel
S2GHR5	SMB	850 / 7" Plastic reel
S2GHR4	SMB	3,000 / 13" Paper reel
S2GHM4	SMB	3,000 / 13" Plastic reel
S2JHR5	SMB	850 / 7" Plastic reel
S2JHR4	SMB	3,000 / 13" Paper reel
S2JHM4	SMB	3,000 / 13" Plastic reel
S2KHR5	SMB	850 / 7" Plastic reel
S2KHR4	SMB	3,000 / 13" Paper reel
S2KHM4	SMB	3,000 / 13" Plastic reel
S2MHR5	SMB	850 / 7" Plastic reel
S2MHR4	SMB	3,000 / 13" Paper reel
S2MHM4	SMB	3,000 / 13" Plastic reel
S2QHR5	SMB	850 / 7" Plastic reel
S2QHR4	SMB	3,000 / 13" Paper reel
S2QHM4	SMB	3,000 / 13" Plastic reel
S2VHR5	SMB	850 / 7" Plastic reel
S2VHR4	SMB	3,000 / 13" Paper reel
S2VHM4	SMB	3,000 / 13" Plastic reel
S2A R5G	SMB	850 / 7" Plastic reel
S2A R4G	SMB	3,000 / 13" Paper reel
S2A M4G	SMB	3,000 / 13" Plastic reel
S2B R5G	SMB	850 / 7" Plastic reel
S2B R4G	SMB	3,000 / 13" Paper reel
S2B M4G	SMB	3,000 / 13" Plastic reel

EXAMPLE P/N		
ORDERING CODE	**PACKAGE**	**PACKING**
S2D R5G	SMB	850 / 7" Plastic reel
S2D R4G	SMB	3,000 / 13" Paper reel
S2D M4G	SMB	3,000 / 13" Plastic reel
S2G R5G	SMB	850 / 7" Plastic reel
S2G R4G	SMB	3,000 / 13" Paper reel
S2G M4G	SMB	3,000 / 13" Plastic reel
S2J R5G	SMB	850 / 7" Plastic reel
S2J R4G	SMB	3,000 / 13" Paper reel
S2J M4G	SMB	3,000 / 13" Plastic reel
S2K R5G	SMB	850 / 7" Plastic reel
S2K R4G	SMB	3,000 / 13" Paper reel
S2K M4G	SMB	3,000 / 13" Plastic reel
S2M R5G	SMB	850 / 7" Plastic reel
S2M R4G	SMB	3,000 / 13" Paper reel
S2M M4G	SMB	3,000 / 13" Plastic reel
S2Q R5G	SMB	850 / 7" Plastic reel
S2Q R4G	SMB	3,000 / 13" Paper reel
S2Q M4G	SMB	3,000 / 13" Plastic reel
S2V R5G	SMB	850 / 7" Plastic reel
S2V R4G	SMB	3,000 / 13" Paper reel
S2V M4G	SMB	3,000 / 13" Plastic reel
S2A R5	SMB	850 / 7" Plastic reel
S2A R4	SMB	3,000 / 13" Paper reel
S2A M4	SMB	3,000 / 13" Plastic reel
S2B R5	SMB	850 / 7" Plastic reel
S2B R4	SMB	3,000 / 13" Paper reel
S2B M4	SMB	3,000 / 13" Plastic reel
S2D R5	SMB	850 / 7" Plastic reel
S2D R4	SMB	3,000 / 13" Paper reel
S2D M4	SMB	3,000 / 13" Plastic reel
S2G R5	SMB	850 / 7" Plastic reel
S2G R4	SMB	3,000 / 13" Paper reel
S2G M4	SMB	3,000 / 13" Plastic reel
S2J R5	SMB	850 / 7" Plastic reel
S2J R4	SMB	3,000 / 13" Paper reel
S2J M4	SMB	3,000 / 13" Plastic reel
S2K R5	SMB	850 / 7" Plastic reel
S2K R4	SMB	3,000 / 13" Paper reel

EXAMPLE P/N		
ORDERING CODE	**PACKAGE**	**PACKING**
S2K M4	SMB	3,000 / 13" Plastic reel
S2M R5	SMB	850 / 7" Plastic reel
S2M R4	SMB	3,000 / 13" Paper reel
S2M M4	SMB	3,000 / 13" Plastic reel
S2Q R5	SMB	850 / 7" Plastic reel
S2Q R4	SMB	3,000 / 13" Paper reel
S2Q M4	SMB	3,000 / 13" Plastic reel
S2V R5	SMB	850 / 7" Plastic reel
S2V R4	SMB	3,000 / 13" Paper reel
S2V M4	SMB	3,000 / 13" Plastic reel

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

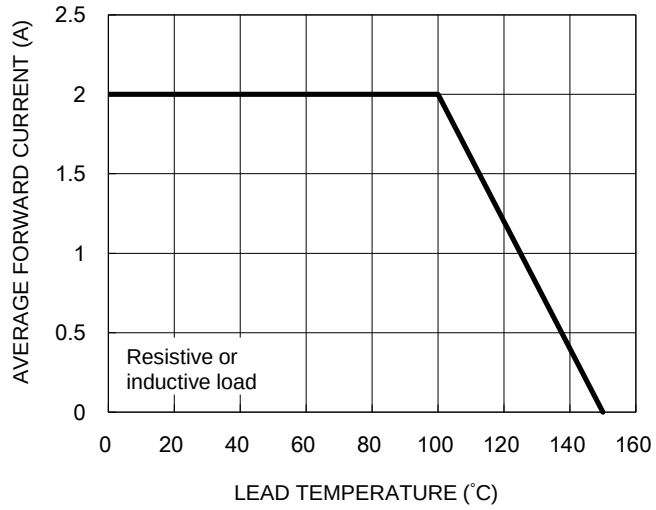


Fig.2 Typical Junction Capacitance

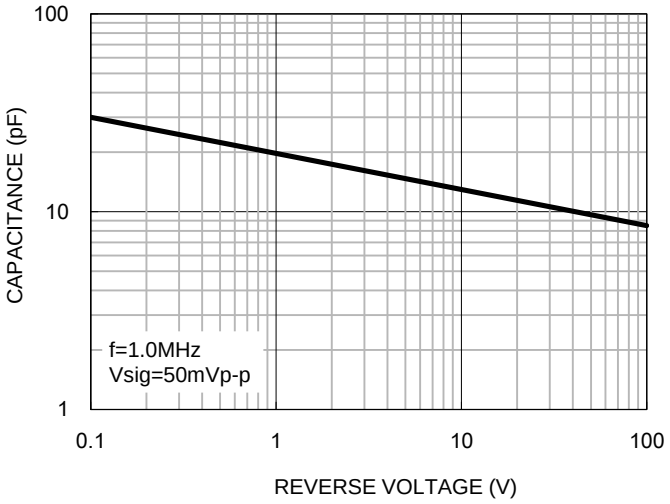


Fig.3 Typical Reverse Characteristics

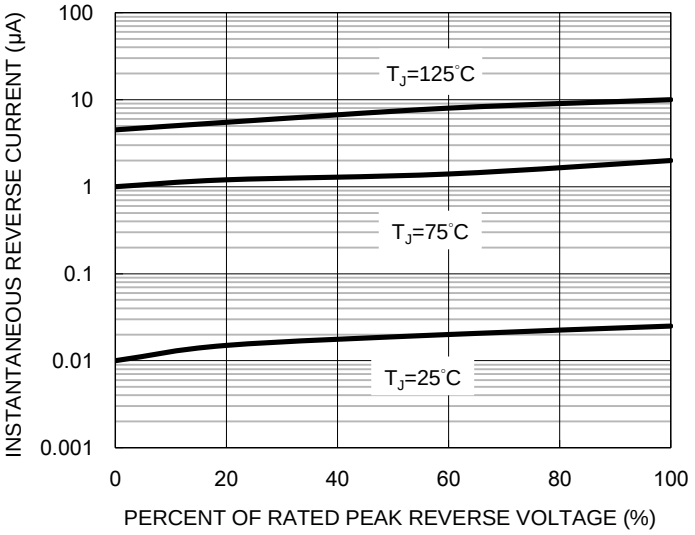
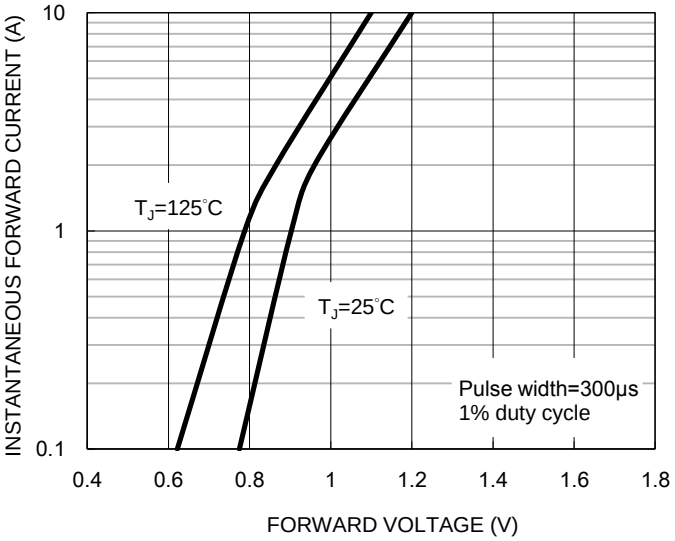


Fig.4 Typical Forward Characteristics



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Maximum Non-repetitive Forward Surge Current

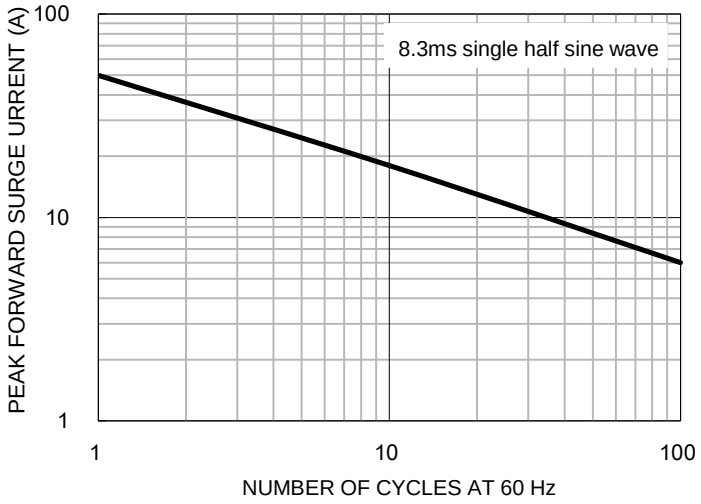
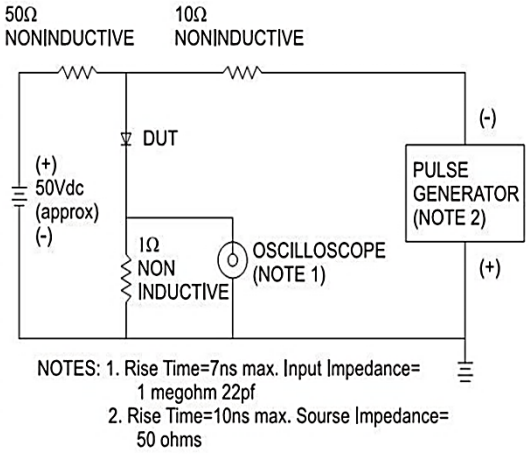
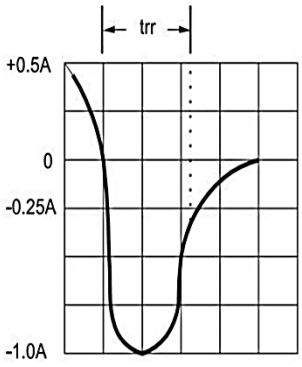


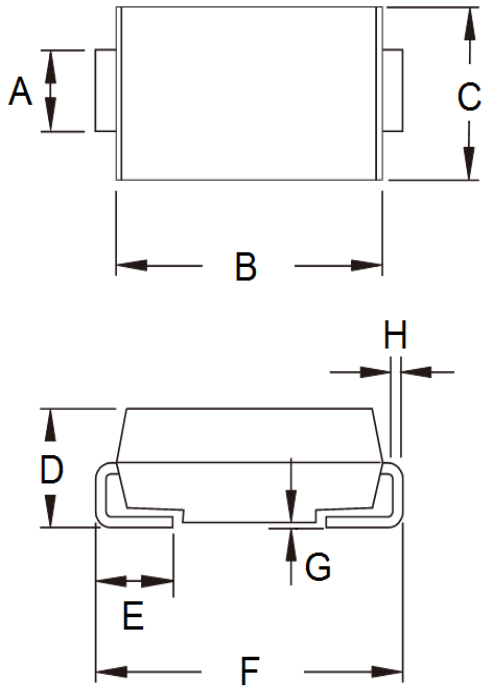
Fig.6 Reverse Recovery Time Characteristic And Test Circuit Diagram





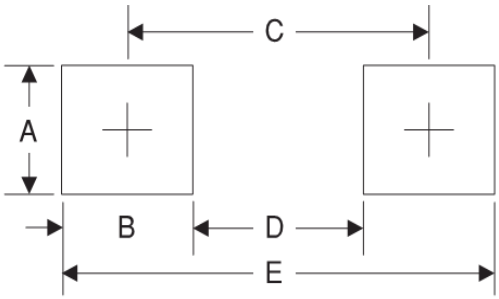
PACKAGE OUTLINE DIMENSIONS

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

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.