

4A, 50V - 1000V Surface Mount Rectifier

FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Low forward voltage drop
- High current capability
- 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: DO-214AB (SMC)
- 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: As marked
- Weight: 0.21 g (approximately)

KEY PARAMETERS						
PARAMETER	VALUE	UNIT				
I _{F(AV)}	4	Α				
V_{RRM}	50 - 1000	V				
I _{FSM}	100	Α				
T _{J MAX}	150	°C				
Package	DO-214AB (SMC)					
Configuration	Single die					





DO-214AB (SMC)

ABSOLUTE MAXIMUM RATINGS (T _A = 25°C unless otherwise noted)									
PARAMETER	SYMBOL	S4A	S4B	S4D	S4G	S4J	S4K	S4M	UNIT
Marking code on the device		S4A	S4B	S4D	S4G	S4J	S4K	S4M	
Repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Reverse voltage, total rms value	V _{R(RMS)}	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	1000	V
Forward current	I _{F(AV)}				4				Α
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	I _{FSM}	100		Α					
Junction temperature	TJ	- 55 to +150			°C				
Storage temperature	T _{STG}	T _{STG} - 55 to +150			°C				

1



THERMAL PERFORMANCE						
PARAMETER	SYMBOL	LIMIT	UNIT			
Junction-to-lead thermal resistance per diode	R _{eJL}	13	°C/W			
Junction-to-ambient thermal resistance per diode	$R_{\Theta JA}$	47	°C/W			

ELECTRICAL SPECIFICATIONS (T _A = 25°C unless otherwise noted)						
PARAMETER	CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Forward voltage per diode (1)	I _F = 4A, T _J = 25°C	V _F	-	1.15	V	
Reverse current @ rated V _R per diode ⁽²⁾	T _J = 25°C		-	10	μA	
Reverse current @ rated v _R per diode	T _J = 125°C	- I _R	-	250	μΑ	
Junction capacitance	1 MHz, V _R =4.0V	CJ	60	-	pF	
Reverse recovery time	I _F =0.5A , I _R =1.0A I _{RR} =0.25A	t _{rr}	1500	-	ns	

Notes:

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

ORDERING INFORMATION						
PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING	
	S4A H	R7		SMC	850 / 7" Plastic reel	
		R6	G	SMC	3,000 / 13" Paper reel	
S4A (Note 1)		M6		SMC	3,000 / 13" Plastic reel	
(Note 1)	V7		Matrix SMC	850 / 7" Plastic reel		
			Matrix SMC	3,000 / 13" Plastic reel		

Note:

1. "x" defines voltage from 50V (S4A) to 1000V (S4M)

EXAMPLE					
EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
S4AHR7G	S4A	Н	R7	G	AEC-Q101 qualified Green compound



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

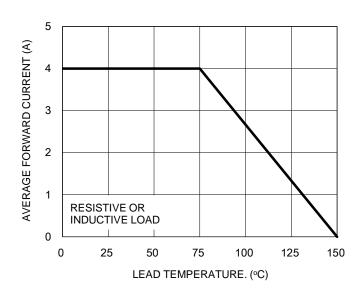


Fig.2 Typical Junction Capacitance

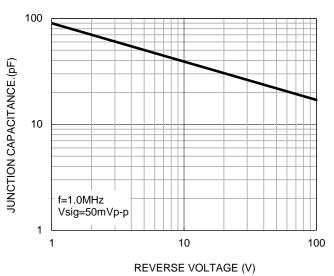


Fig.3 Typical Reverse Characteristics

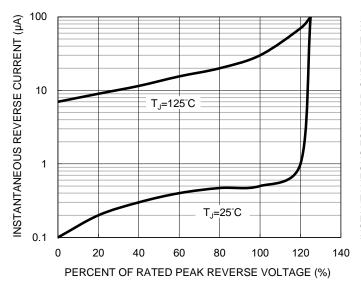
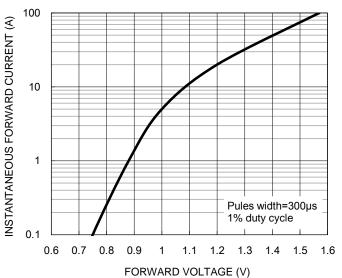


Fig.4 Typical Forward Characteristics



3 Version:I1708



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Maximum Non-repetitive Forward Surge Current

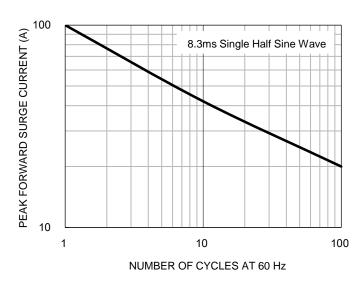
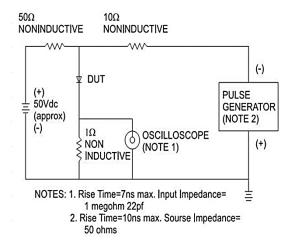
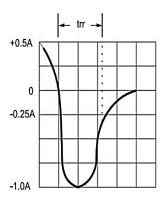


Fig.6 Reverse Recovery Time Characteristic And Test Circuit Diagram

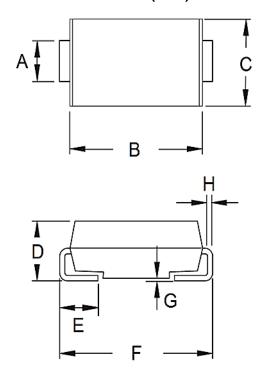






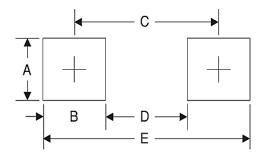
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



DIM.	Unit	(mm)	Unit (inch)		
DIIVI.	Min.	Max.	Min.	Max.	
Α	2.90	3.20	0.114	0.126	
В	6.60	7.11	0.260	0.280	
С	5.59	6.22	0.220	0.245	
D	2.00	2.62	0.079	0.103	
Е	1.00	1.60	0.039	0.063	
F	7.75	8.13	0.305	0.320	
G	0.10	0.20	0.004	0.008	
Н	0.15	0.31	0.006	0.012	

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
А	3.30	0.130
В	2.50	0.098
С	6.80	0.268
D	4.40	0.173
Е	9.40	0.370

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.