

5A, 50V - 1000V High Efficient Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Glass passivated chip junction
- Ideal for automated placement
- Low forward voltage drop
- Low profile package
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- DC to DC converter
- Automotive application
- Car lighting
- Snubber
- Freewheeling application

MECHANICAL DATA

- Case: DO-214AB (SMC)
- 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: Indicated by cathode band
- Weight: 0.210g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	5	A
V_{RRM}	50 - 1000	V
I_{FSM}	150	A
T_{JMAX}	150	°C
Package	DO-214AB (SMC)	
Configuration	Single die	



DO-214AB (SMC)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	HS 5AH	HS 5BH	HS 5DH	HS 5FH	HS 5GH	HS 5JH	HS 5KH	HS 5MH	UNIT
Marking code on the device		HS5A	HS5B	HS5D	HS5F	HS5G	HS5J	HS5K	HS5M	
Repetitive peak reverse voltage	V_{RRM}	50	100	200	300	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	140	210	280	420	560	700	V
Forward current	I_F	5								A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	150								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-ambient thermal resistance	$R_{\theta JA}$	60	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	HS5AH HS5BH HS5DH HS5FH	$I_F = 3\text{A}, T_J = 25^\circ\text{C}$	V_F	-	-	V
	HS5GH			-	-	V
	HS5JH HS5KH HS5MH			-	1.35	V
	HS5AH HS5BH HS5DH HS5FH	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	V_F	-	1.00	V
	HS5GH			-	1.30	V
	HS5JH HS5KH HS5MH			-	1.70	V
Reverse current @ rated V_R ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	10	μA
		$T_J = 125^\circ\text{C}$		-	250	μA
Junction capacitance	HS5AH HS5BH HS5DH HS5FH HS5GH	1MHz, $V_R = 4.0\text{V}$	C_J	80	-	pF
	HS5JH HS5KH HS5MH			50	-	pF
Reverse recovery time	HS5AH HS5BH HS5DH HS5FH HS5GH	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$	t_{rr}	-	50	ns
	HS5JH HS5KH HS5MH			-	75	ns

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾	PACKAGE	PACKING
HS5xH	DO-214AB (SMC)	3,000 / Tape & Reel

Notes:

1. "x" defines voltage from 50V(HS5AH) to 1000V(HS5MH)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

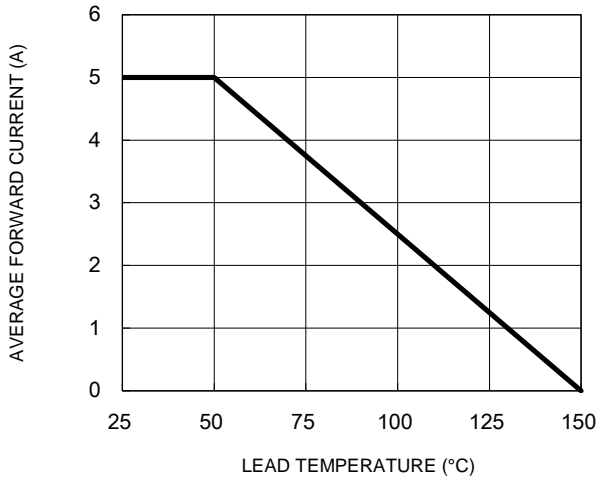


Fig.2 Typical Junction Capacitance

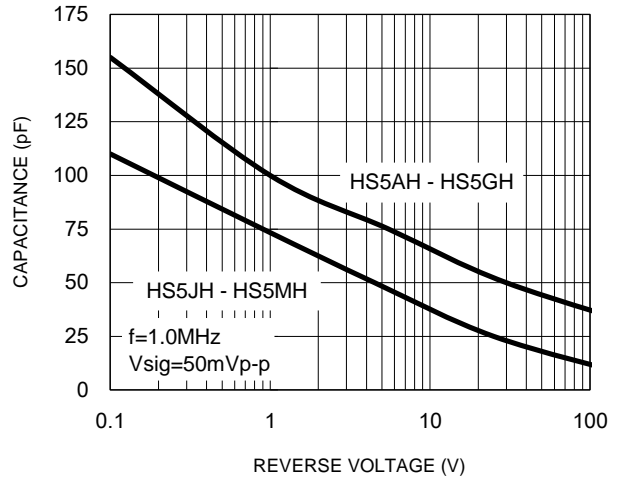


Fig.3 Typical Reverse Characteristics

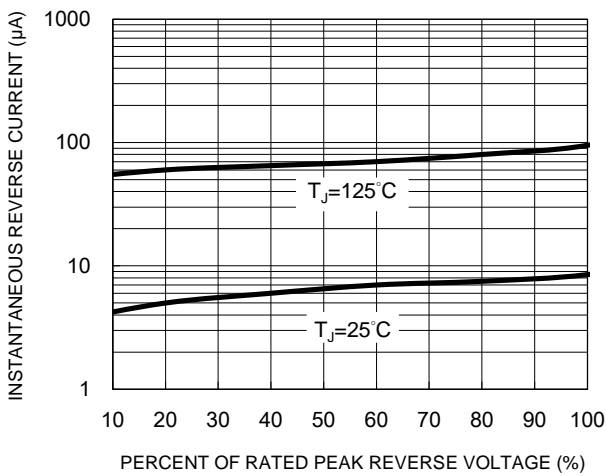


Fig.4 Typical Forward Characteristics

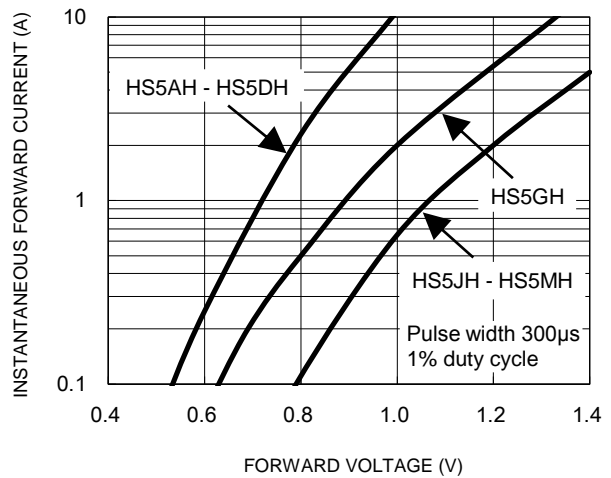
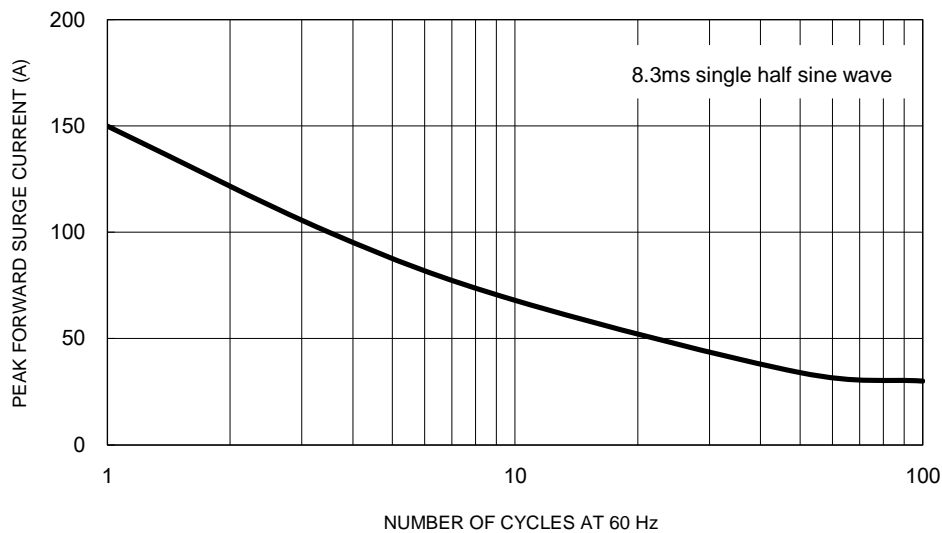


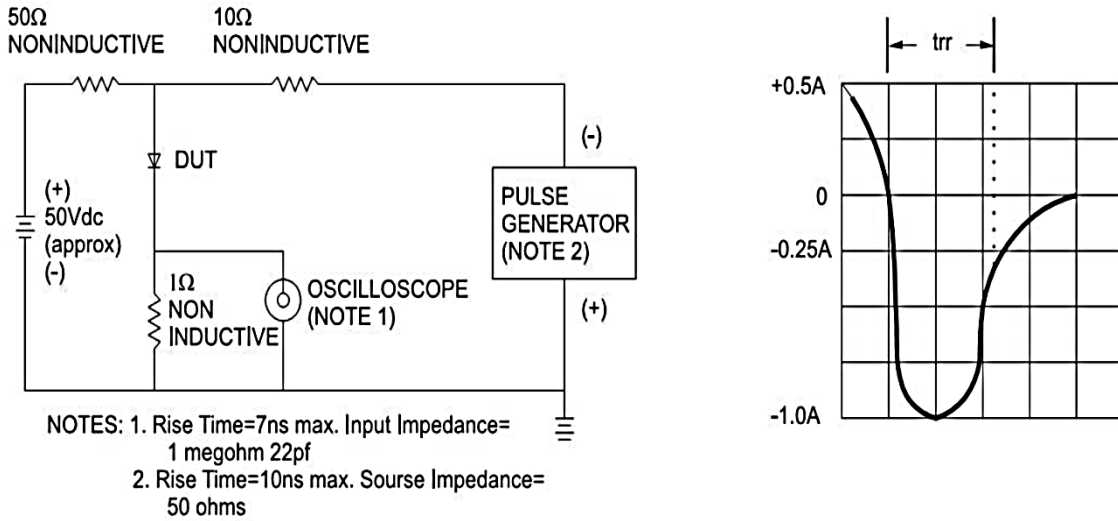
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

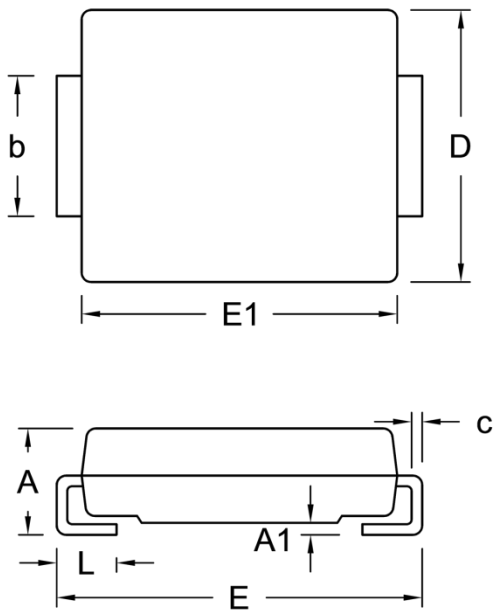
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



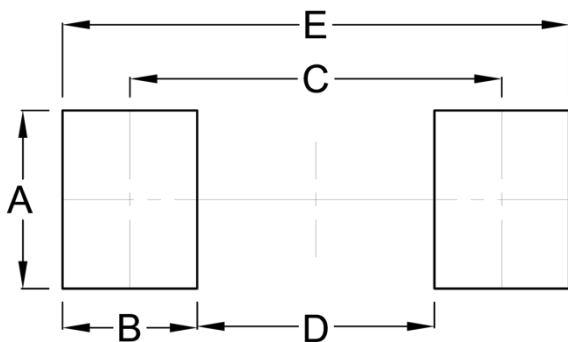
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.00	2.62	0.079	0.103
A1	0.10	0.20	0.004	0.008
b	2.90	3.20	0.114	0.126
c	0.15	0.31	0.006	0.012
D	5.59	6.22	0.220	0.245
E	7.75	8.13	0.305	0.320
E1	6.60	7.11	0.260	0.280
L	1.00	1.60	0.039	0.063

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.90	0.272
D	4.40	0.173
E	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.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

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.