

3A, 50V - 1000V High Efficient Surface Mount Rectifier

FEATURES

- Low power loss, high efficiency
- Low forward voltage drop
- Low profile package
- Fast switching for high efficiency
- Ideal for automated placement
- Glass passivated junction chip
- Fast switching for high efficiency
- 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
- Monitor
- TV

MECHANICAL DATA

- Case: DO-214AA (SMB)
- Molding compound meets UL 94V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Part no. with suffix "H" means AEC-Q101 qualified
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.093 g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	3	A
V_{RRM}	50 - 1000	V
I_{FSM}	100	A
$T_{J\ MAX}$	150	°C
Package	DO-214AA (SMB)	
Configuration	Signal Die	



DO-214AA (SMB)

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

PARAMETER	SYMBOL	HS 3AB	HS 3BB	HS 3DB	HS 3FB	HS 3GB	HS 3JB	HS 3KB	HS 3MB	UNIT
Marking code on the device		HS 3AB	HS 3BB	HS 3DB	HS 3FB	HS 3GB	HS 3JB	HS 3KB	HS 3MB	
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
Maximum DC blocking voltage	V_{DC}	50	100	200	300	400	600	800	1000	V
Forward current	$I_{F(AV)}$	3								A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	100								A
Junction temperature	T_J	- 55 to +150								°C
Storage temperature	T_{STG}	- 55 to +150								°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	60	$^{\circ}\text{C/W}$

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	HS3AB	$I_F = 3\text{A}, T_J = 25^{\circ}\text{C}$	V_F	-	1.0	V
	HS3BB					V
	HS3DB					V
	HS3FB					V
	HS3GB			-	1.3	V
	HS3JB			-	1.7	V
	HS3KB					V
	HS3MB					V
Reverse current @ rated V_R per diode ⁽²⁾		$T_J = 25^{\circ}\text{C}$	I_R	-	10	μA
		$T_J = 100^{\circ}\text{C}$	I_R	-	250	μA
Junction capacitance	HS3AB	1 MHz, $V_R = 4\text{V}$	C_J	80	-	pF
	HS3BB				-	pF
	HS3DB				-	pF
	HS3FB				-	pF
	HS3GB			50	-	pF
	HS3JB				-	pF
	HS3KB				-	pF
	HS3MB				-	pF
Reverse recovery time	HS3AB	$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{RR} = 0.25\text{A}$	t_{rr}	-	50	ns
	HS3BB					ns
	HS3DB					ns
	HS3FB					ns
	HS3GB			-	75	ns
	HS3JB					ns
	HS3KB					ns
	HS3MB					ns

Notes:

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

ORDERING INFORMATION

PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX(*)	PACKAGE	PACKING
HS3xB (Note 1)	H	R5	G	SMB	850 / 7" Plastic reel
		R4		SMB	3,000 / 13" Paper reel
		M4		SMB	3,000 / 13" Plastic reel

Note:

1. "x" defines voltage from 50V (HS3AB) to 1000V (HS3MB)

*: Optional available

EXAMPLE P/N

EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
HS3ABHR5G	HS3AB	H	R5	G	AEC-Q101 qualified Green compound

CHARACTERISTICS CURVES

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

Fig1. Forward Current Derating Curve

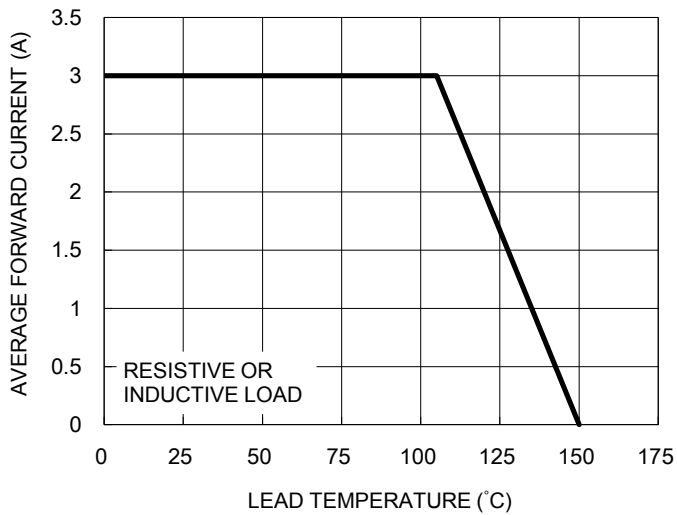


Fig2. Typical Junction Capacitance

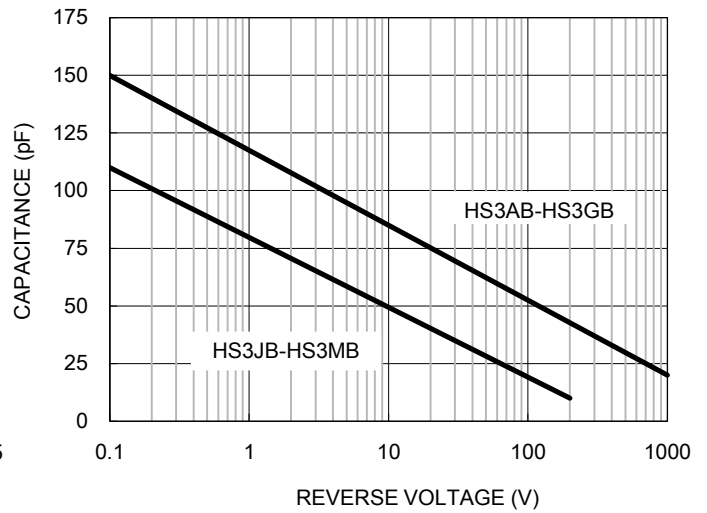


Fig3. Typical Reverse Characteristics

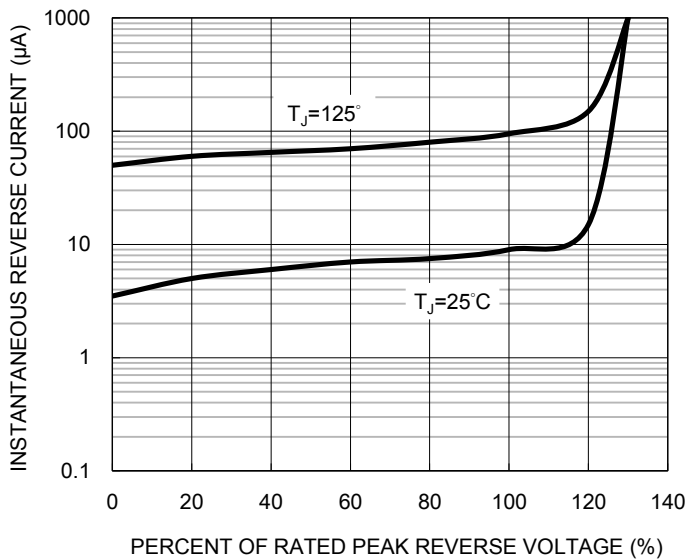


Fig4. Typical Forward Characteristics

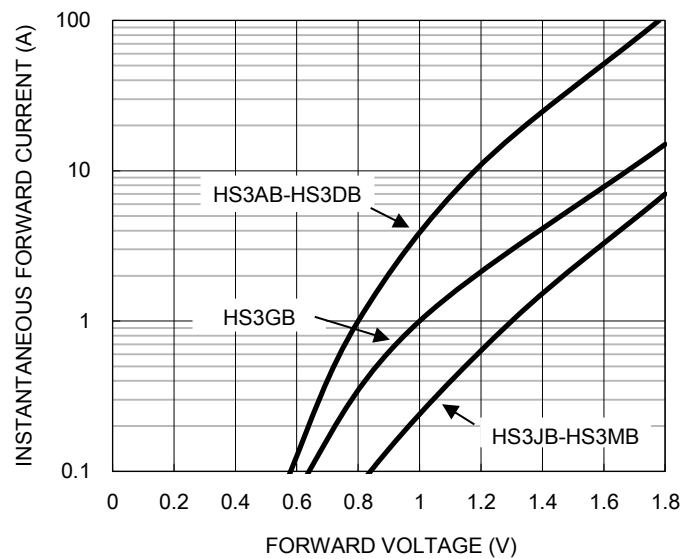


Fig5. Maximum Non-repetitive Forward Surge Current

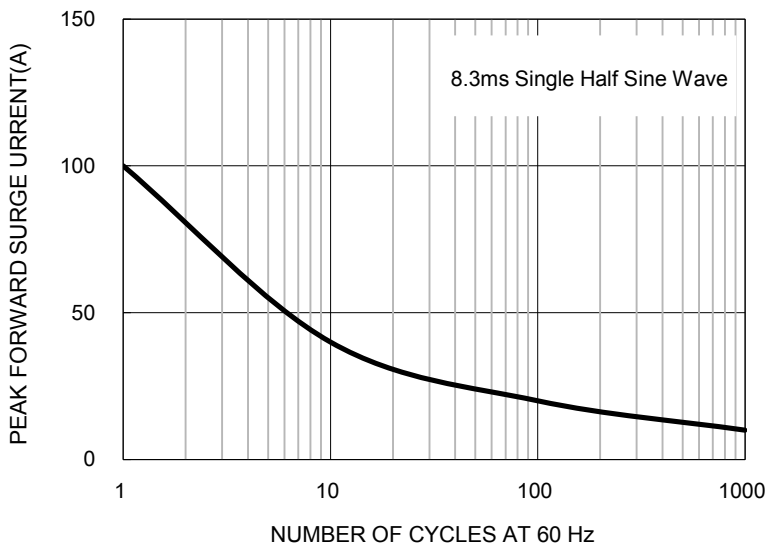
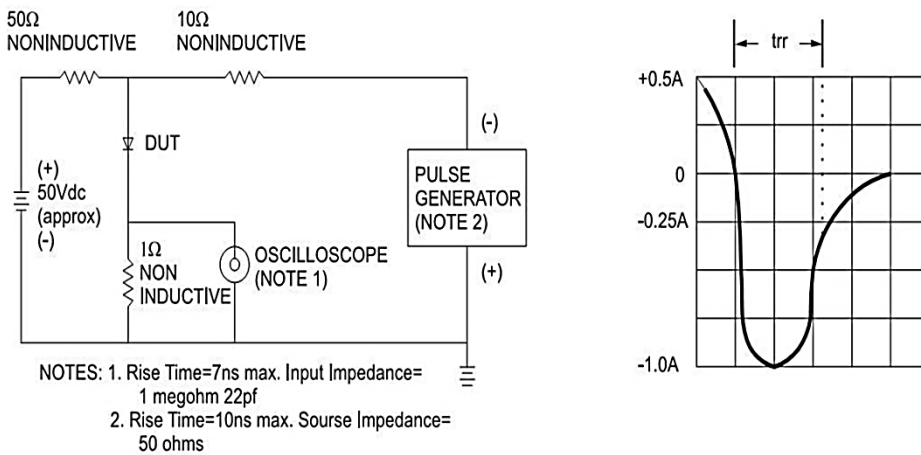
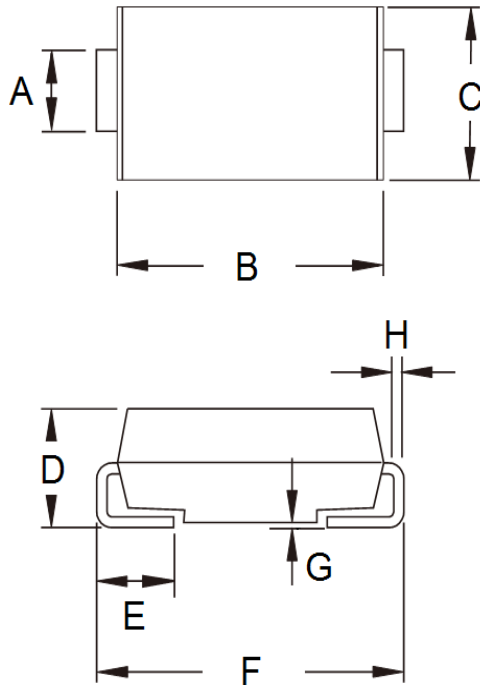


Fig6. Reverse Recovery Time Characteristic And Test Circuit Diagram



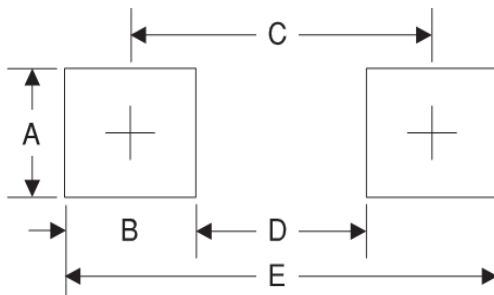
PACKAGE OUTLINE DIMENSIONS

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.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Taiwan Semiconductor:

[HS3AB](#) [HS3BB](#) [HS3DB](#) [HS3FB](#) [HS3GB](#) [HS3JB](#) [HS3KB](#) [HS3MB](#) [HS3GB R4](#) [HS3MB R4](#) [HS3MB R5](#) [HS3KB R4](#) [HS3BB R4](#) [HS3BBHR4G](#) [HS3FBHR5G](#) [HS3ABHR4](#) [HS3ABHR5](#) [HS3ABHR5G](#) [HS3DBHR4G](#) [HS3GB R5](#) [HS3JB R5G](#) [HS3KB R5](#) [HS3GBHR5](#) [HS3KBHR4](#) [HS3MBHR4](#) [HS3FBHR4](#) [HS3MB R4G](#) [HS3MBHR4G](#) [HS3GB R4G](#) [HS3KBHR5](#) [HS3FB R5G](#) [HS3ABHR4G](#) [HS3KB R4G](#) [HS3AB R4](#) [HS3BBHR5G](#) [HS3JBHR5](#) [HS3AB R5](#) [HS3GB R5G](#) [HS3JB R5](#) [HS3BB R5G](#) [HS3DB R5G](#) [HS3DBHR4](#) [HS3DB R5](#) [HS3DB R4](#) [HS3BB R5](#) [HS3BBHR4](#) [HS3DB R4G](#) [HS3AB R4G](#) [HS3BB R4G](#) [HS3FB R4G](#) [HS3MBHR5](#) [HS3JB R4](#) [HS3MB R5G](#) [HS3FBHR5](#) [HS3GBHR4](#) [HS3KBHR5G](#) [HS3KB R5G](#) [HS3DBHR5G](#) [HS3BBHR5](#) [HS3DBHR5](#) [HS3MBHR5G](#) [HS3JBHR4](#) [HS3FBHR4G](#) [HS3GBHR5G](#) [HS3AB R5G](#) [HS3JBHR4G](#) [HS3FB R4](#) [HS3FB R5](#) [HS3KBHR4G](#) [HS3JBHR5G](#) [HS3JB R4G](#) [HS3GBHR4G](#)