



# THE DATASHEET OF HS3MB R5G



## 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

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	

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Monitor
- TV



**DO-214AA (SMB)**

### 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)

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	HS	HS	HS	HS	HS	HS	HS	HS	UNIT
		3AB	3BB	3DB	3FB	3GB	3JB	3KB	3MB	
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

<b>THERMAL PERFORMANCE</b>			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	60	$^{\circ}C/W$

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^{\circ}C$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode <sup>(1)</sup>	HS3AB	$I_F = 3A, T_J = 25^{\circ}C$	$V_F$	-	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 <sup>(2)</sup>		$T_J = 25^{\circ}C$	$I_R$	-	10	$\mu A$
		$T_J = 100^{\circ}C$	$I_R$	-	250	$\mu A$
Junction capacitance	HS3AB	1 MHz, $V_R = 4V$	$C_J$	80	-	pF
	HS3BB					pF
	HS3DB					pF
	HS3FB					pF
	HS3GB			-	pF	
	HS3JB			50	pF	
	HS3KB				pF	
	HS3MB				pF	
Reverse recovery time	HS3AB	$I_F = 0.5A, I_R = 1.0A$ $I_{RR} = 0.25A$	$t_{rr}$	-	50	ns
	HS3BB					ns
	HS3DB					ns
	HS3FB					ns
	HS3GB			ns		
	HS3JB			-	ns	
	HS3KB				ns	
	HS3MB				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
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

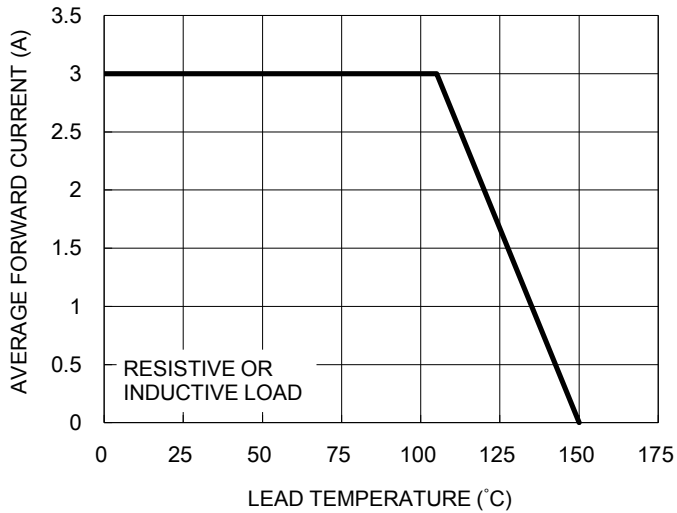
**EXAMPLE P/N**

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

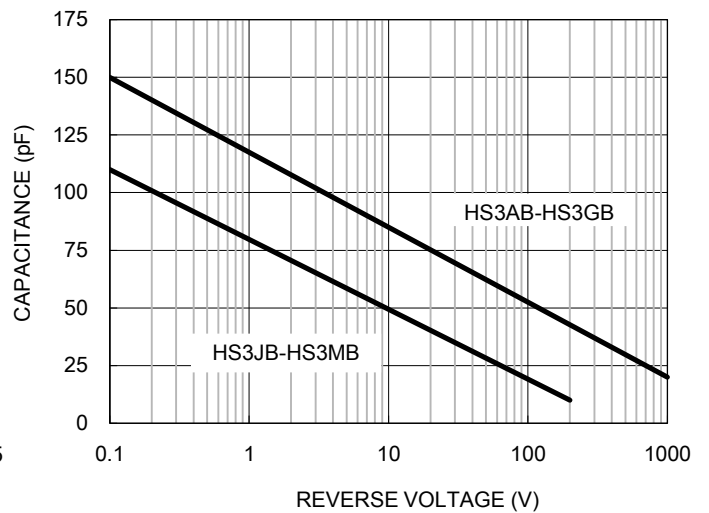
**CHARACTERISTICS CURVES**

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

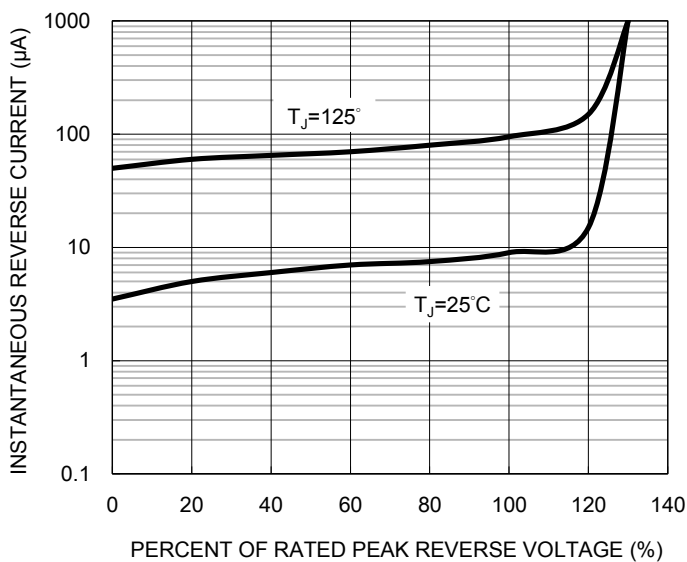
**Fig1. Forward Current Derating Curve**



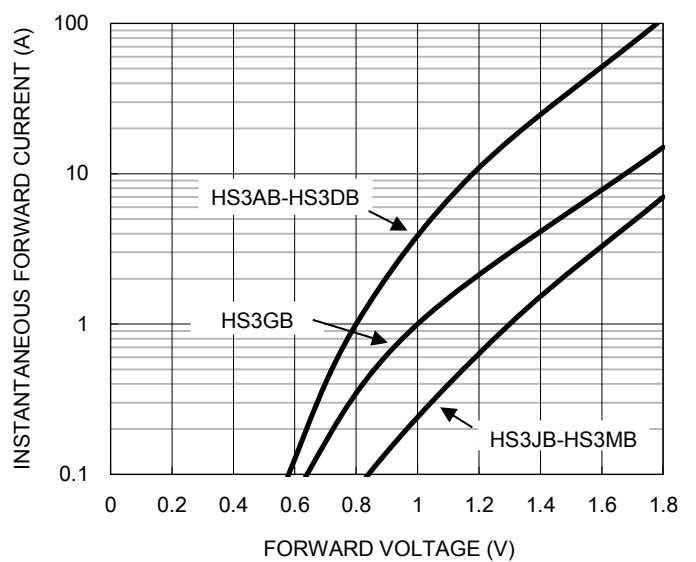
**Fig2. Typical Junction Capacitance**



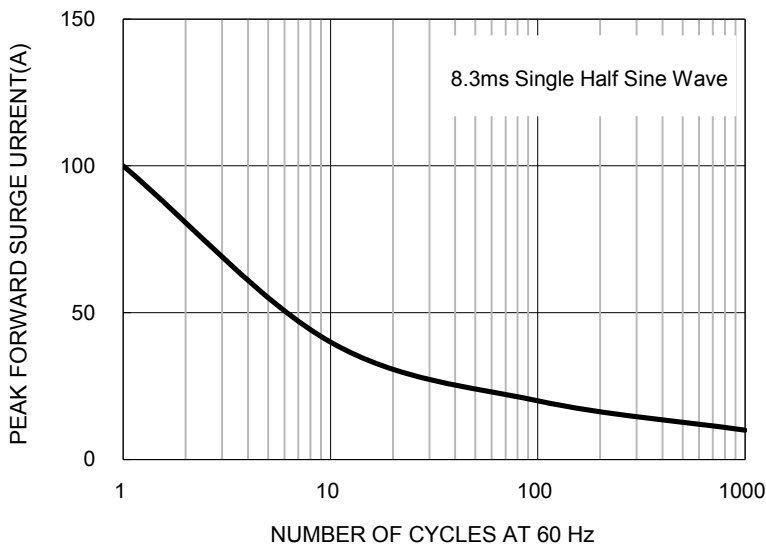
**Fig3. Typical Reverse Characteristics**



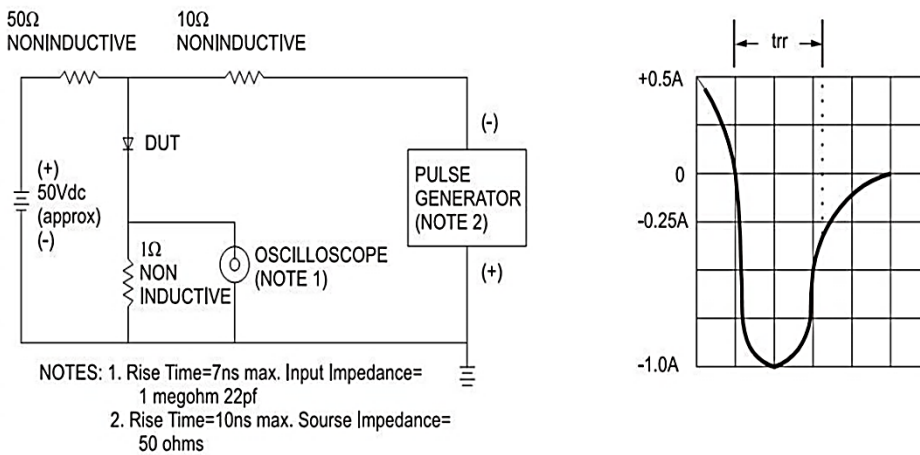
**Fig4. Typical Forward Characteristics**



**Fig5. Maximum Non-repetitive Forward Surge Current**

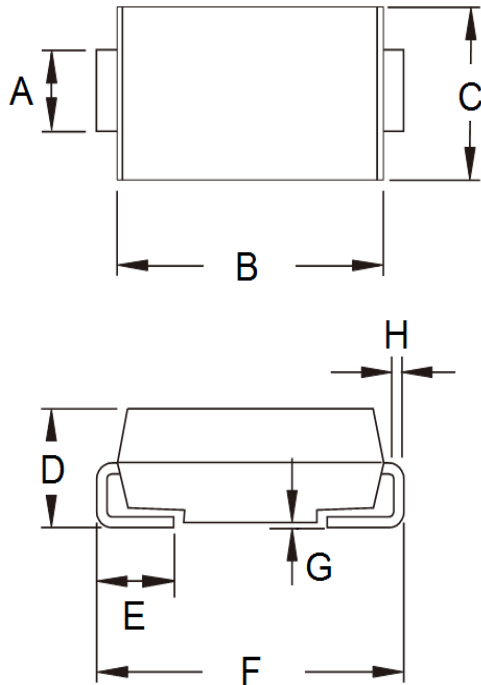


**Fig6. Reverse Recovery Time Characteristic And Test Circuit Diagram**



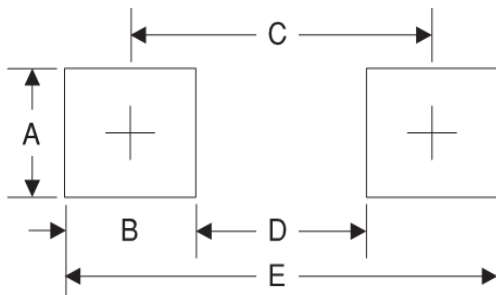
**PACKAGE OUTLINE DIMENSIONS**

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

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