

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

### FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Low forward voltage drop
- Low profile package
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- High frequency rectification
- Freewheeling application
- Switching mode converters and inverters in computer, automotive and telecommunication

### 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
$I_{F(AV)}$	3	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	HS3A	HS3B	HS3D	HS3F	HS3G	HS3J	HS3K	HS3M	UNIT
Marking code on the device		HS3A	HS3B	HS3D	HS3F	HS3G	HS3J	HS3K	HS3M	
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	
Forward current	$I_{F(AV)}$	3								A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	150								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>	HS3A HS3B HS3D HS3F	$I_F = 3A, T_J = 25^{\circ}C$	$V_F$	-	1.0	V
	HS3G			-	1.3	V
	HS3J HS3K HS3M			-	1.7	V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	$T_J = 25^{\circ}C$		$I_R$	-	10	$\mu A$
	$T_J = 125^{\circ}C$			-	250	$\mu A$
Junction capacitance	HS3A HS3B HS3D HS3F HS3G	1 MHz, $V_R = 4.0V$	$C_J$	80	-	$\mu F$
	HS3J HS3K HS3M			50	-	$\mu F$
Reverse recovery time	HS3A HS3B HS3D HS3F HS3G	$I_F = 0.5A, I_R = 1.0A$ $I_{RR} = 0.25A$	$t_{rr}$	-	50	ns
	HS3J HS3K HS3M			-	75	ns

**Notes:**

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

<b>ORDERING INFORMATION</b>					
<b>PART NO.</b>	<b>PART NO. SUFFIX</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>PACKAGE</b>	<b>PACKING</b>
HS3x (Note 1)	H	R7	G	SMC	850 / 7" Plastic reel
		R6		SMC	3,000 / 13" Paper reel
		M6		SMC	3,000 / 13" Plastic reel
		V7		Matrix SMC	850 / 7" Plastic reel
		V6		Matrix SMC	3,000 / 13" Plastic reel

**Note :**

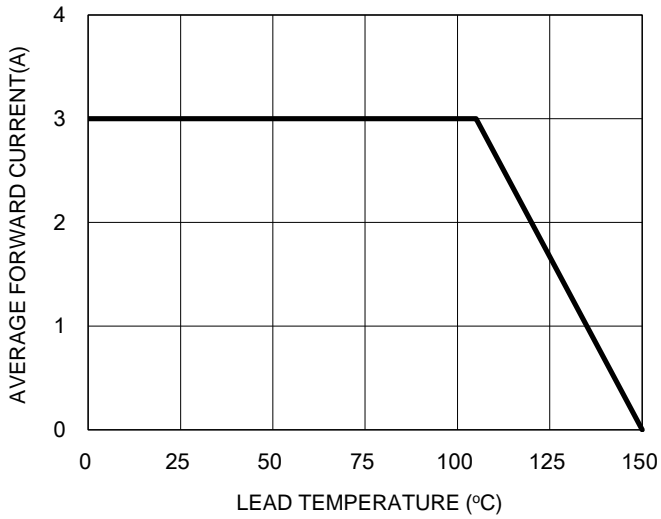
- "x" defines voltage from 50V (HS3A) to 1000V (HS3M)

<b>EXAMPLE</b>					
<b>EXAMPLE P/N</b>	<b>PART NO.</b>	<b>PART NO. SUFFIX</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>DESCRIPTION</b>
HS3AHR7G	HS3A	H	R7	G	AEC-Q101 qualified Green compound

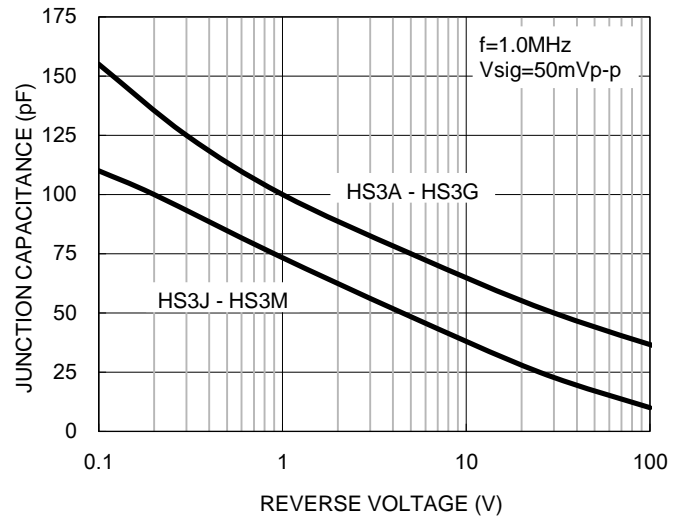
**CHARACTERISTICS CURVES**

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

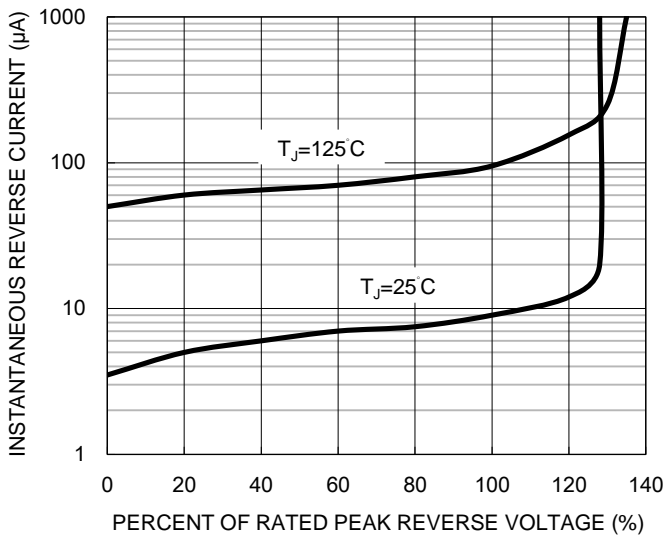
**Fig.1 Forward Current Derating Curve**



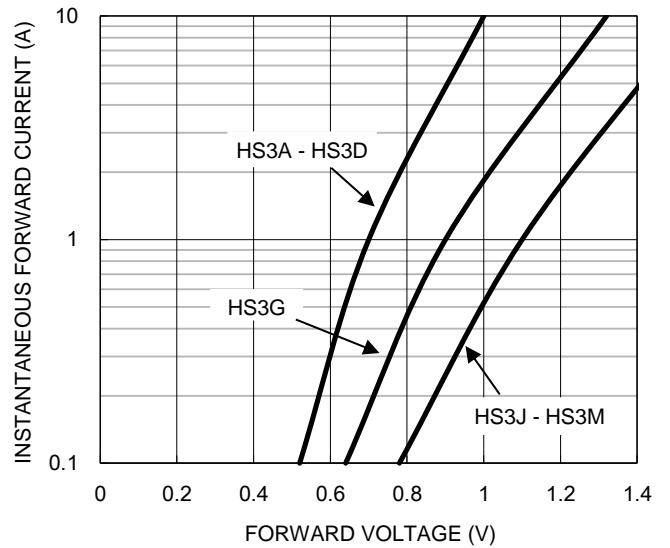
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**



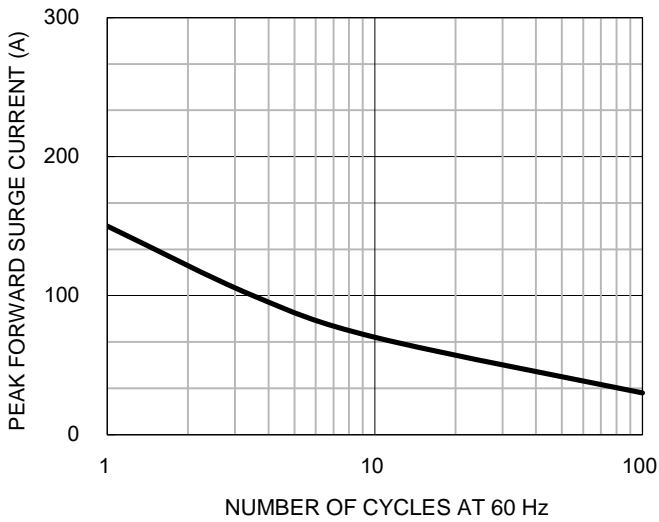
**Fig.4 Typical Forward Characteristics**



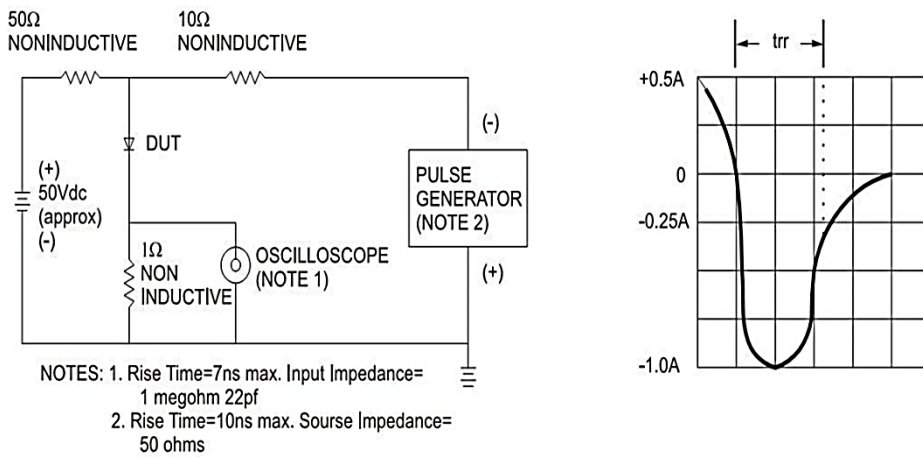
**CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25°C unless otherwise noted)

**Fig.5 Maximum Non-repetitive Forward Surge Current**



**Fig.6 Reverse Recovery Time Characteristic And Test Circuit Diagram**



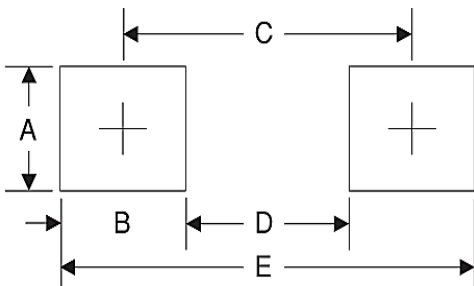
**PACKAGE OUTLINE DIMENSIONS**

DO-214AB (SMC)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.90	3.20	0.114	0.126
B	6.60	7.11	0.260	0.280
C	5.59	6.22	0.220	0.245
D	2.00	2.62	0.079	0.103
E	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
H	0.15	0.31	0.006	0.012

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.80	0.268
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

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