



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: [info@chipsmall.com](mailto:info@chipsmall.com) Web: [www.chipsmall.com](http://www.chipsmall.com)

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## 3A, 50 - 200V Surface Mount Ultrafast Power Rectifier

### FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Ultrafast recovery time 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 definition

### APPLICATIONS

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

### MECHANICAL DATA

- Case: DO-214AA (SMB)
- Molding compound meets UL 94V-0 flammability rating
- Packing code with suffix "G" means green compound (halogen-free)
- Part No. with suffix "H" means AEC-Q101 qualified
- 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: 0.11 g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	3	A
$V_{RRM}$	200	V
$I_{FSM}$	75	A
$T_{J\ MAX}$	175	°C
Package	DO-214AA (SMB)	
Configuration	Single Die	



**DO-214AA (SMB)**

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	MUR305SB	MUR310SB	MUR315SB	MUR320SB	UNIT
Marking code on the device		MUR305SB	MUR310SB	MUR315SB	MUR320SB	
Repetitive peak reverse voltage	$V_{RRM}$	50	100	150	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	105	140	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	$I_{FSM}$	75				A
Junction temperature	$T_J$	- 55 to +175				°C
Storage temperature	$T_{STG}$	- 55 to +175				°C

**THERMAL PERFORMANCE**

PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	42	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	76	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	45	°C/W

**Thermal Performance Note:** Units mounted on recommended PCB (10mm x 10mm Cu pad test board)

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode <sup>(1)</sup>	$I_F = 1.5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	0.79	0.85	V
	$I_F = 3\text{A}, T_J = 25^\circ\text{C}$		0.86	0.90	V
	$I_F = 1.5\text{A}, T_J = 150^\circ\text{C}$		0.61	0.68	V
	$I_F = 3\text{A}, T_J = 150^\circ\text{C}$		0.69	0.73	V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	5	$\mu\text{A}$
	$T_J = 150^\circ\text{C}$		-	150	$\mu\text{A}$
Junction capacitance	1 MHz, $V_R = 4.0\text{V}$	$C_J$	45	-	pF
Reverse recovery time	$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{RR} = 0.25\text{A}$	$t_{rr}$	-	25	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
MUR3xxSB (Note 1, 2)	H	R5	G	SMB	850 / 7" Plastic reel
		R4		SMB	3,000 / 13" Paper reel
		M4		SMB	3,000 / 13" Plastic reel

**Notes:**

1. "xx" defines voltage from 50V (MUR305SB) to 200V (MUR320SB)
2. Whole series with green compound (halogen-free)

**EXAMPLE**

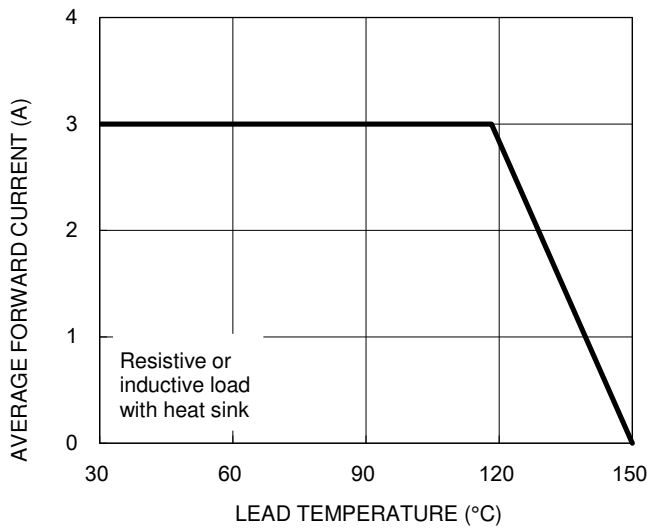
EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
MUR320SBHR5	MUR320SB	H	R5	G	Green compound AEC-Q101 qualified



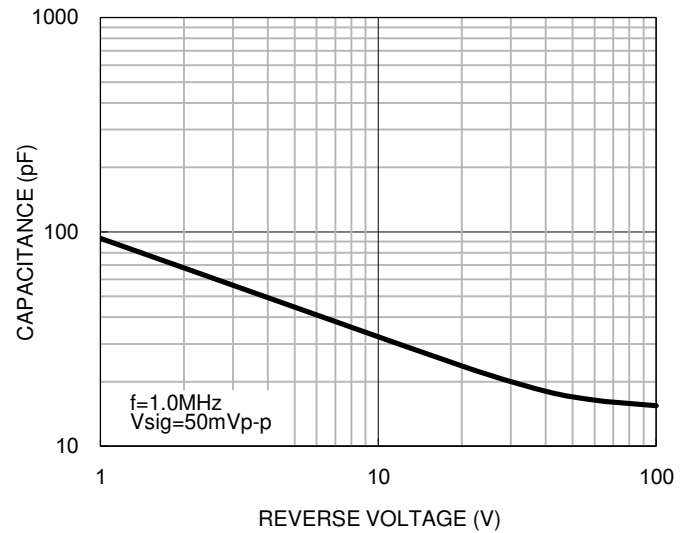
## CHARACTERISTICS CURVES

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

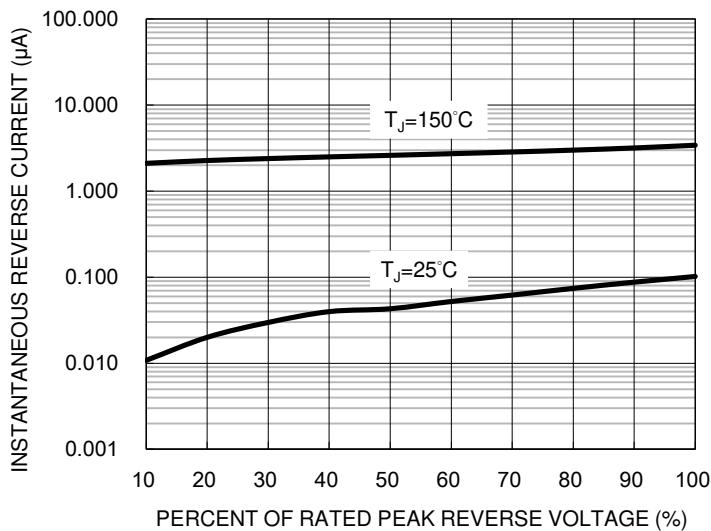
**Fig.1 Forward Current Derating Curve**



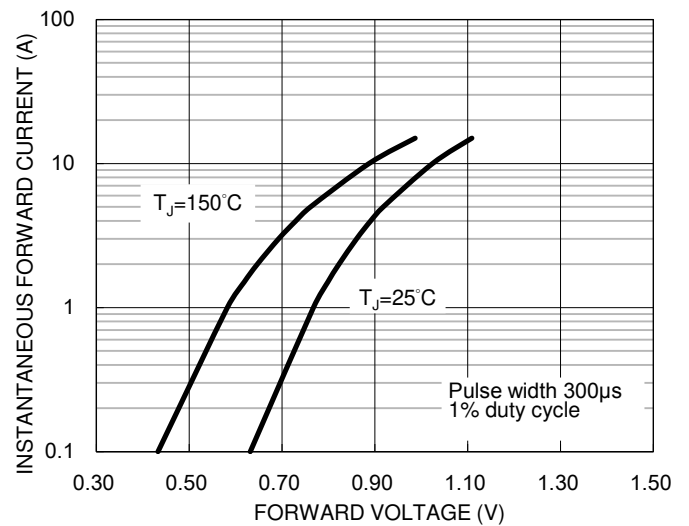
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**

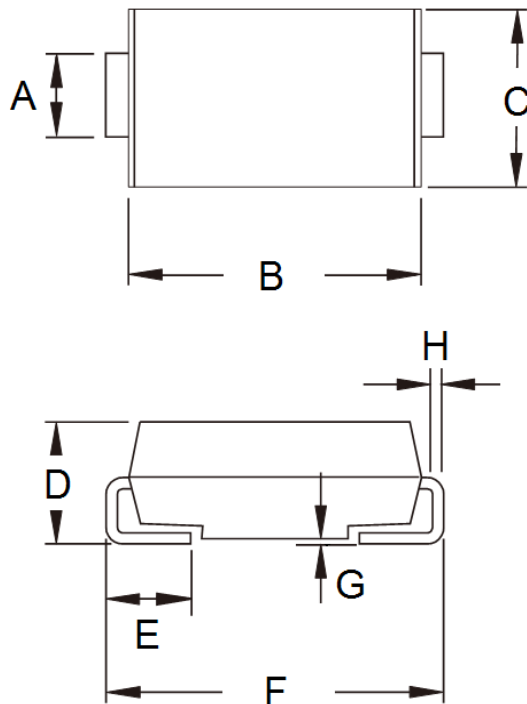


**Fig.4. Typical Forward Characteristics**



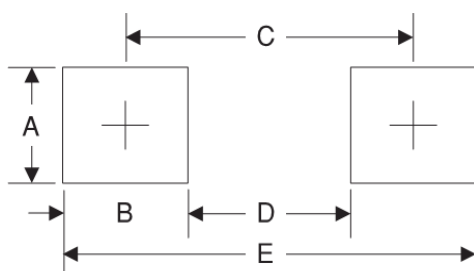
## PACKAGE OUTLINE DIMENSIONS

DO-214AA (SMB)



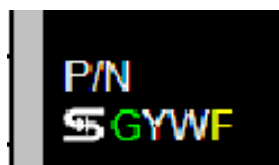
DIM	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.95	2.20	0.077	0.087
B	4.05	4.60	0.159	0.181
C	3.30	3.95	0.130	0.156
D	1.95	2.65	0.077	0.104
E	0.75	1.60	0.030	0.063
F	5.10	5.60	0.201	0.220
G	0.05	0.20	0.002	0.008
H	0.15	0.31	0.006	0.012

## 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.