

## 3A, 600V Ultra Fast Surface Mount Rectifier

### FEATURES

- Planar technology
- Low power loss, high efficiency
- Ideal for automated placement
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- Lighting application
- Snubber
- Freewheeling application

### MECHANICAL DATA

- Case: DO-214AA (SMB)
- 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: 0.087g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	3	A
$V_{RRM}$	600	V
$I_{FSM}$	45	A
$T_{J\ MAX}$	150	°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	PU3JB	UNIT
Marking code on the device		PU3JB	
Repetitive peak reverse voltage	$V_{RRM}$	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	420	V
Forward current	$I_F$	3	A
Surge peak forward current single half sine-wave superimposed on rated load	$t = 8.3\text{ms}$	45	A
	$t = 1.0\text{ms}$	100	
Junction temperature	$T_J$	-55 to +150	°C
Storage temperature	$T_{STG}$	-55 to +150	°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	14	$^{\circ}C/W$
Junction-to-ambient thermal resistance	$R_{\theta JA}$	68	$^{\circ}C/W$
Junction-to-case thermal resistance	$R_{\theta JC}$	16	$^{\circ}C/W$

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

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^{\circ}C$ unless otherwise noted)					
<b>PARAMETER</b>	<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage <sup>(1)</sup>	$I_F = 1.5A, T_J = 25^{\circ}C$	$V_F$	1.27	-	V
	$I_F = 3.0A, T_J = 25^{\circ}C$		1.43	1.7	V
	$I_F = 1.5A, T_J = 125^{\circ}C$		0.99	-	V
	$I_F = 3.0A, T_J = 125^{\circ}C$		1.16	-	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^{\circ}C$	$I_R$	-	2	$\mu A$
	$T_J = 125^{\circ}C$		5	-	$\mu A$
Junction capacitance	1MHz, $V_R = 4.0V$	$C_J$	31	-	pF
Reverse recovery time	$I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A$	$t_{rr}$	-	25	ns
	$I_F = 1.0A, di/dt = 50A/\mu s, V_R = 30V$		26	-	
Reverse recovery current	$I_F = 3.0A, di/dt = 200A/\mu s, V_R = 400V$	$I_{RM}$	2.8	-	A
Reverse recovery charge		$Q_{rr}$	61	-	nC
Reverse recovery time		$t_{rr}$	43	-	ns

**Notes:**

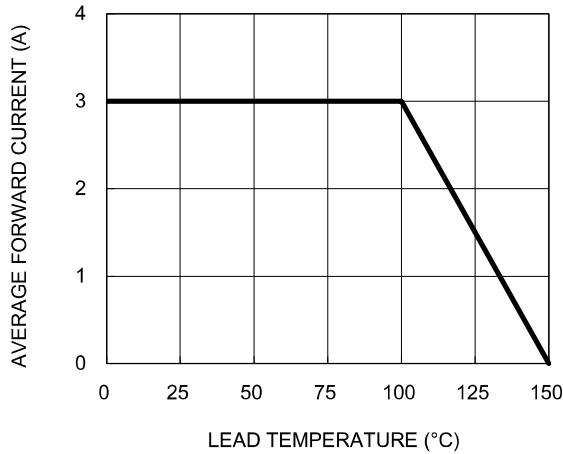
1. Pulse test with  $PW = 0.3ms$
2. Pulse test with  $PW = 30ms$

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE</b>	<b>PACKAGE</b>	<b>PACKING</b>
PU3JB	DO-214AA (SMB)	3,000/ Tape & Reel

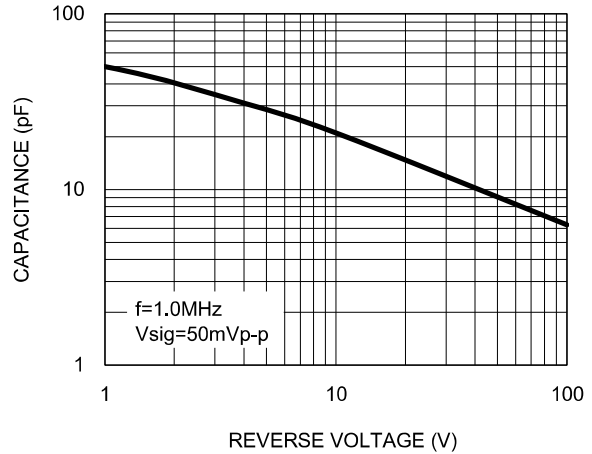
**CHARACTERISTICS CURVES**

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

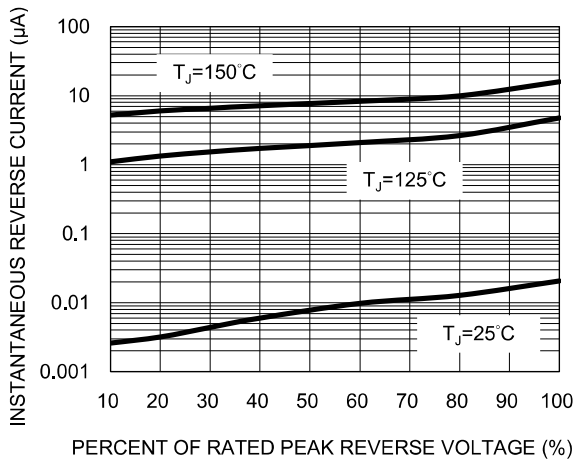
**Fig.1 Forward Current Derating Curve**



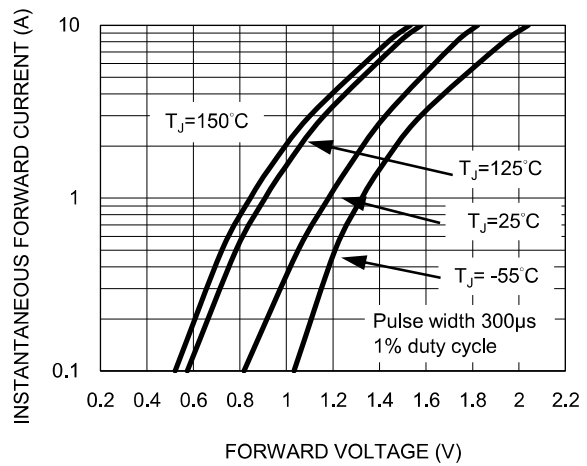
**Fig.2 Typical Junction Capacitance**



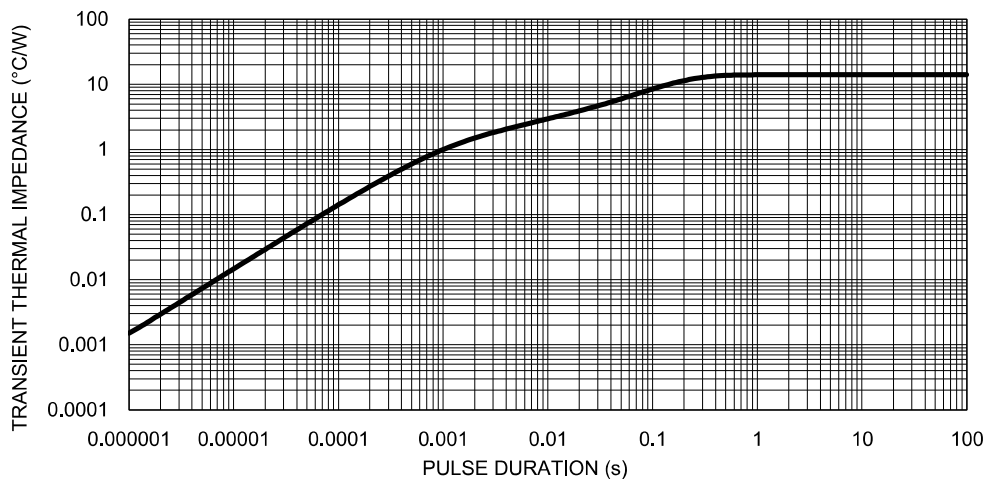
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**

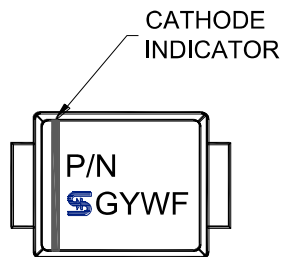
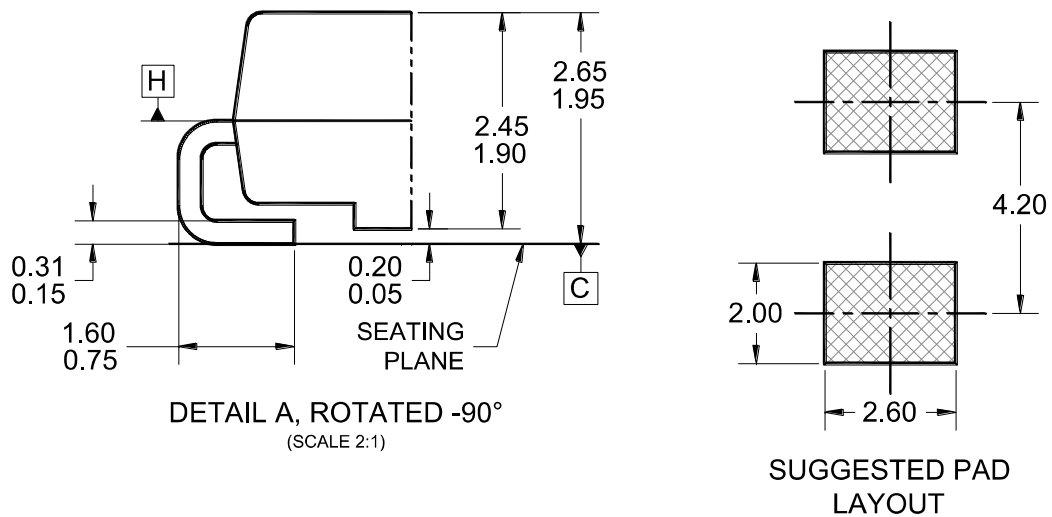
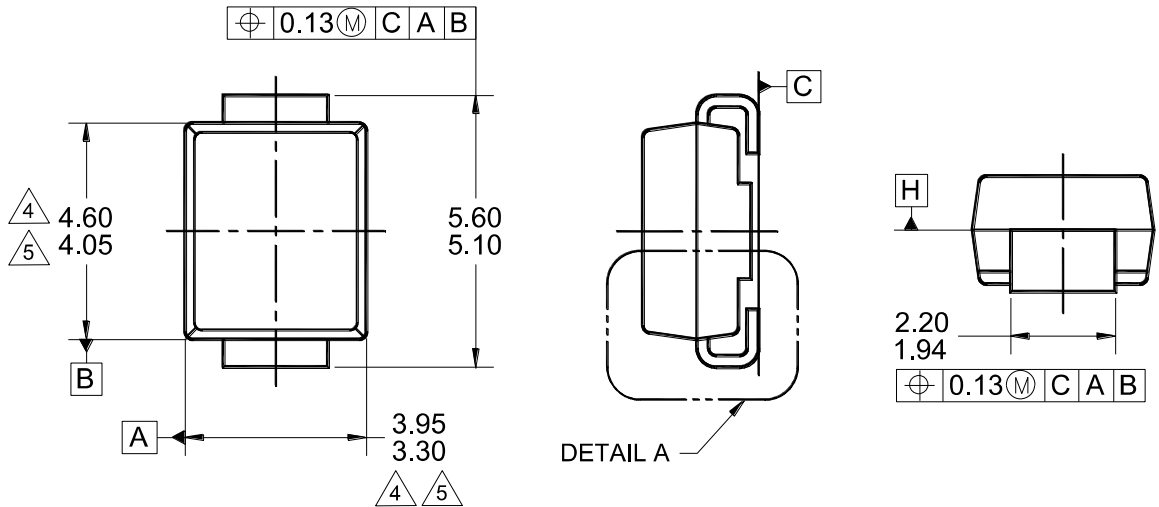


**Fig.5 Typical Transient Thermal Impedance**



**PACKAGE OUTLINE DIMENSIONS**

**DO-214AA (SMB)**



**MARKING DIAGRAM**

P/N = MARKING CODE  
G = GREEN COMPOUND  
YW = DATE CODE  
F = FACTORY CODE

**NOTES: UNLESS OTHERWISE SPECIFIED**

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC DO-214, VARIATION AA, ISSUE D.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. MOLDED PLASTIC BODY LATERAL DIMENSIONS TO BE DETERMINED AT DATUM PLANE H.
6. DWG NO. REF: HQ2SD07-DO214SMB-035 REV A.

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