

# 1A, 1200V High Efficient Surface Mount Rectifier

## FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Low power loss, high efficiency
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

## APPLICATIONS

- Switching mode converters and inverters
- Lighting application
- Snubber
- Freewheeling application
- Bootstrap rectifier

## 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: 0.088g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I <sub>F</sub>	1	A
V <sub>RRM</sub>	1200	V
I <sub>FSM</sub>	35	A
T <sub>J MAX</sub>	175	°C
Package	DO-214AA (SMB)	
Configuration	Single die	



**DO-214AA (SMB)**



## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Repetitive peak reverse voltage	V <sub>RRM</sub>	1200	V
Reverse voltage, total rms value	V <sub>R(RMS)</sub>	840	V
Forward current	I <sub>F</sub>	1	A
Surge peak forward current single half sine-wave superimposed on rated load	t = 8.3ms	35	A
	t = 1.0ms	130	
Junction temperature	T <sub>J</sub>	-40 to +175	°C
Storage temperature	T <sub>STG</sub>	-55 to +175	°C

**THERMAL PERFORMANCE**

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\Theta JL}$	13	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	69	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	15	°C/W

**Thermal Performance Note:** Units mounted on 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 <sup>(1)</sup>	$I_F = 0.5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	1.39	-	V
	$I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$		1.62	1.9	V
	$I_F = 0.5\text{A}, T_J = 125^\circ\text{C}$		0.99	-	V
	$I_F = 1.0\text{A}, T_J = 125^\circ\text{C}$		1.19	-	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	5	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		11	-	$\mu\text{A}$
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	$C_J$	12	-	pF
Reverse recovery time	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$	$t_{rr}$	-	75	ns

**Notes:**

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

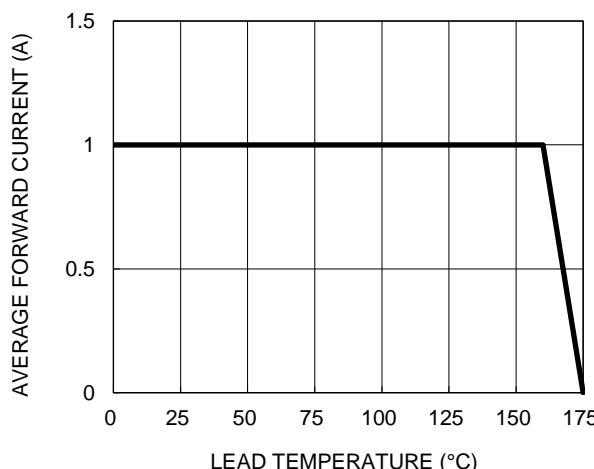
**ORDERING INFORMATION**

ORDERING CODE	PACKAGE	PACKING
HS1QB	DO-214AA (SMB)	3,000/ Tape & Reel

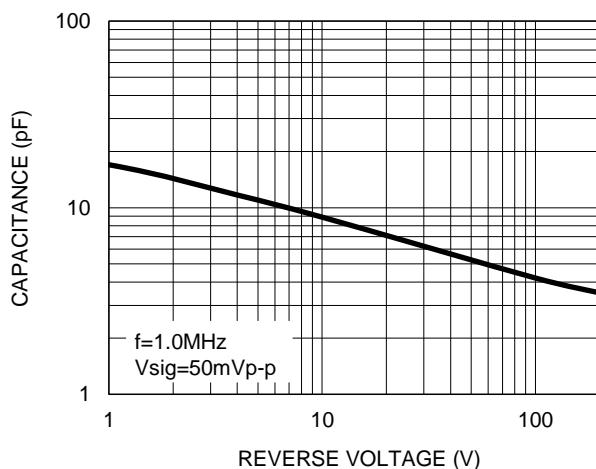
## CHARACTERISTICS CURVES

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

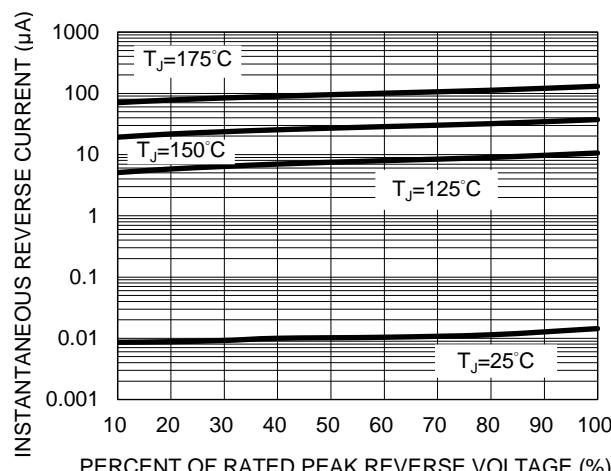
**Fig.1 Forward Current Derating Curve**



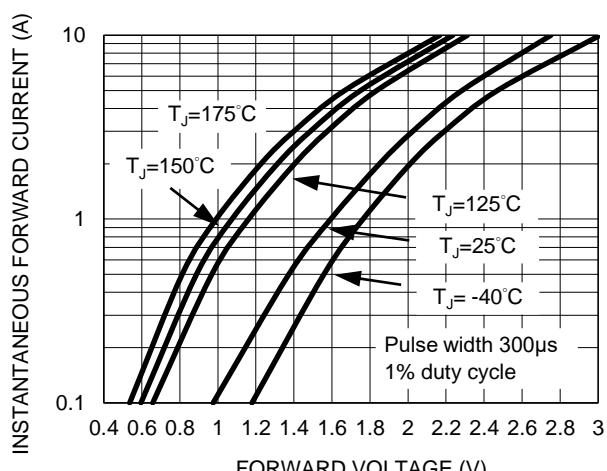
**Fig.2 Typical Junction Capacitance**



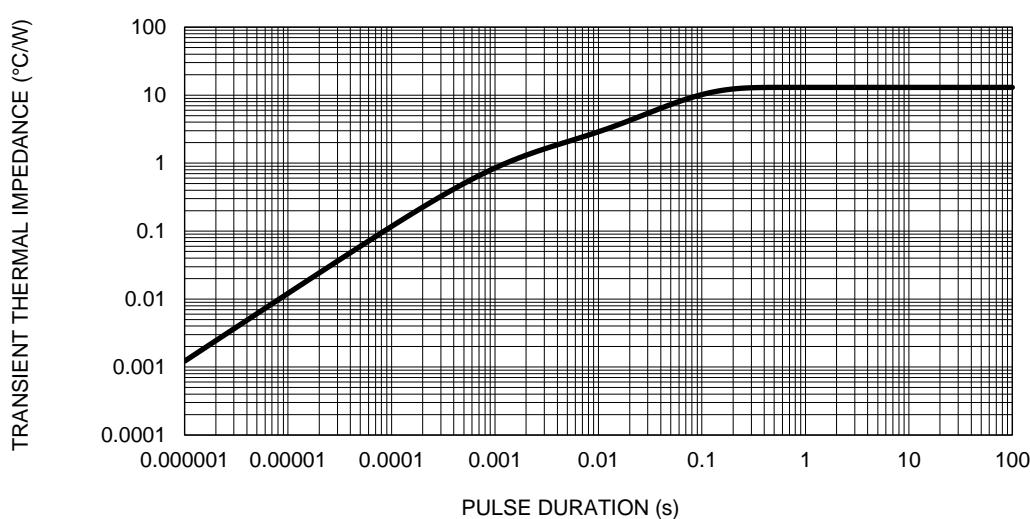
**Fig.3 Typical Reverse Characteristics**

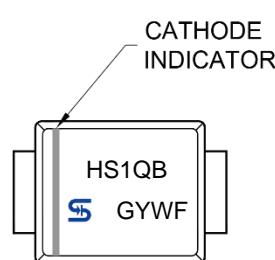
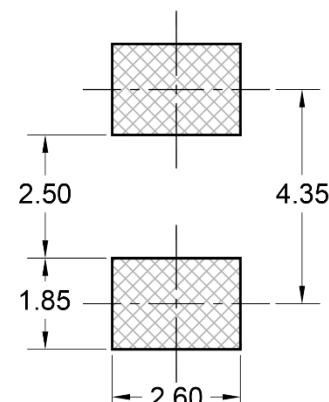
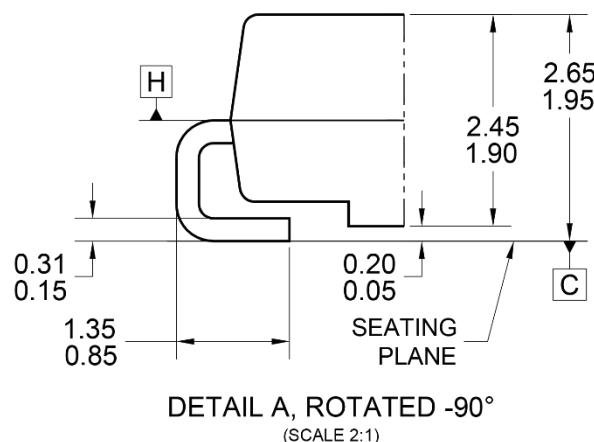
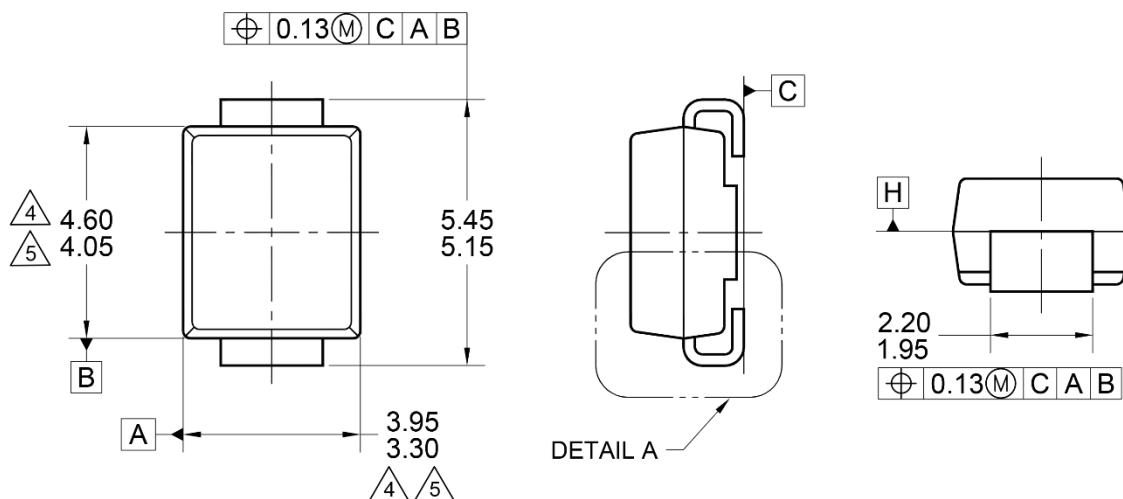


**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Transient Thermal Impedance**



**PACKAGE OUTLINE DIMENSIONS**
**DO-214AA (SMB)**

**MARKING DIAGRAM**

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-DO214SMBHV-128 REV B.

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