

5A, 1200V Surface Mount Rectifier

FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Low reverse leakage
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switch Mode Power Supply
- Inverters and Converters
- Free Wheeling diodes

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 1 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.09 g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	5	A
V_{RRM}	1200	V
I_{FSM}	170	A
$T_{J\ MAX}$	150	°C
Package	DO-214AA (SMB)	


**HALOGEN
FREE**


DO-214AA (SMB)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)				
PARAMETER		SYMBOL	S5QB	UNIT
Marking code on the device			S5QB	
Repetitive peak reverse voltage		V_{RRM}	1200	V
Reverse voltage, total rms value		$V_{R(RMS)}$	840	V
DC blocking voltage		V_{DC}	1200	V
Forward current		I_F	5	A
Surge peak forward current single half sine-wave superimposed on rated load per diode	8.3 ms at $T_A = 25^\circ\text{C}$	I_{FSM}	170	A
	1.0 ms at $T_A = 25^\circ\text{C}$		430	A
Junction temperature		T_J	-55 to +150	°C
Storage temperature		T_{STG}	-55 to +150	°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance per diode	$R_{\theta JL}$	28	°C/W
Junction-to-ambient thermal resistance per diode	$R_{\theta JA}$	49	°C/W
Junction-to-case thermal resistance per diode	$R_{\theta JC}$	16	°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 ⁽¹⁾	$I_F = 2.5\text{A}, T_J = 25^\circ\text{C}$	V_F	0.89	-	V
	$I_F = 5.0\text{A}, T_J = 25^\circ\text{C}$		0.94	1.1	V
	$I_F = 2.5\text{A}, T_J = 125^\circ\text{C}$		0.76	-	V
	$I_F = 5.0\text{A}, T_J = 125^\circ\text{C}$		0.83	0.95	V
Reverse current @ rated V_R ⁽²⁾	$T_J = 25^\circ\text{C}$	I_R	-	10	μA
	$T_J = 125^\circ\text{C}$		-	75	μA
Junction capacitance per diode	1 MHz, $V_R = 4.0\text{V}$	C_J	36	-	pF

Notes:

(1) Pulse test with $PW = 0.3\text{ ms}$

(2) Pulse test with $PW = 30\text{ ms}$

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
S5QB M3G	SMB	850 / 7" reel
S5QB M2G	SMB	3,000 / 13" reel

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

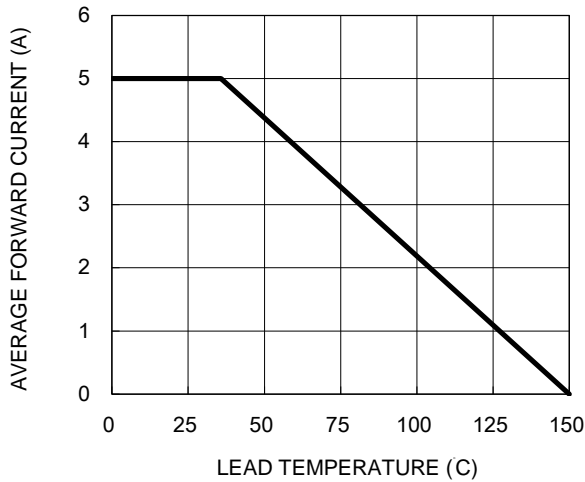


Fig.2 Typical Junction Capacitance

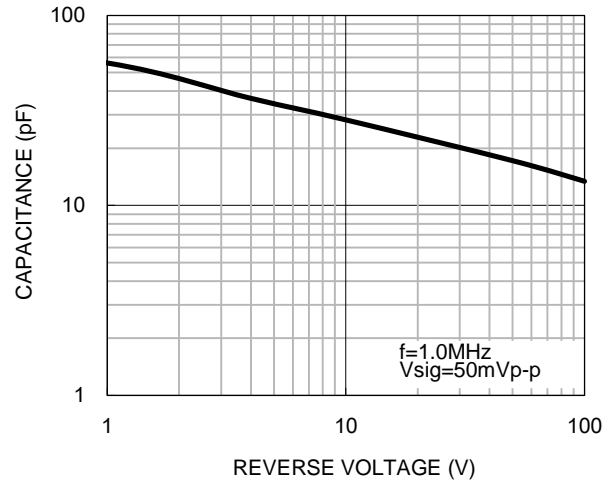


Fig.3 Typical Reverse Characteristics

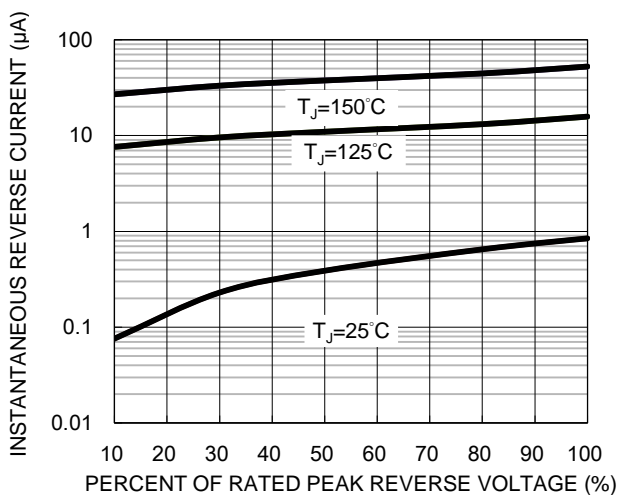


Fig.4 Typical Forward Characteristics

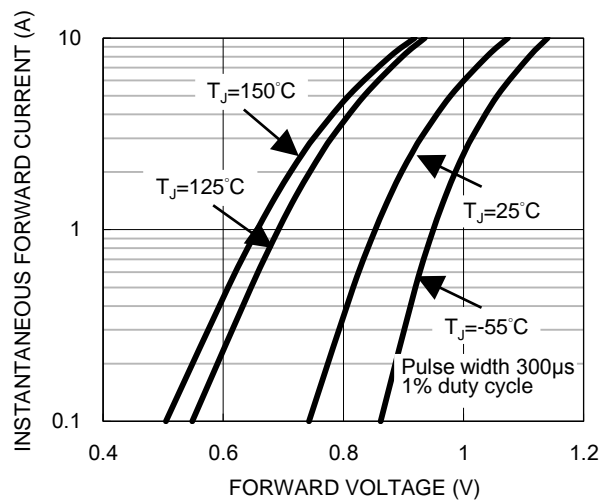
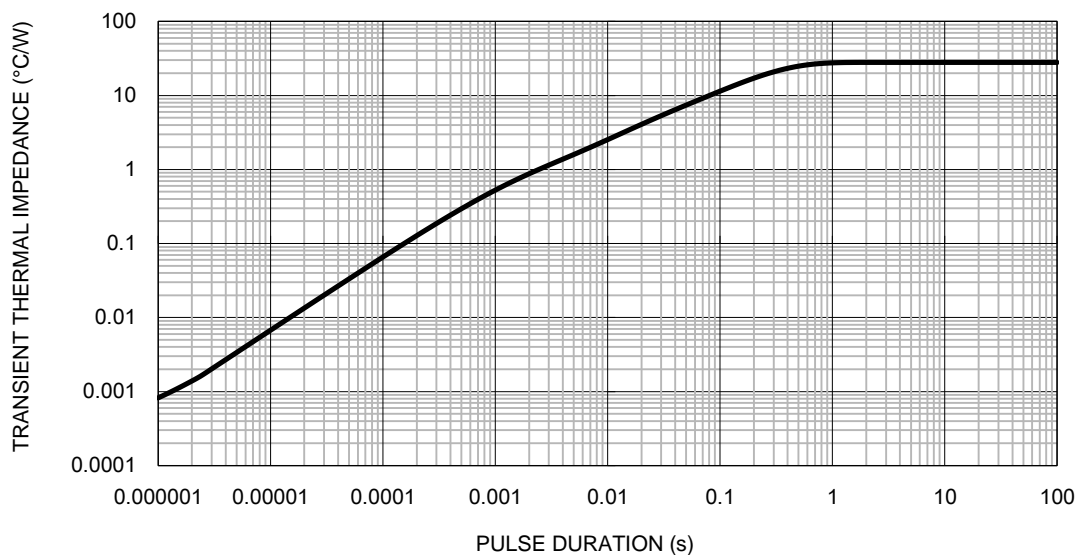
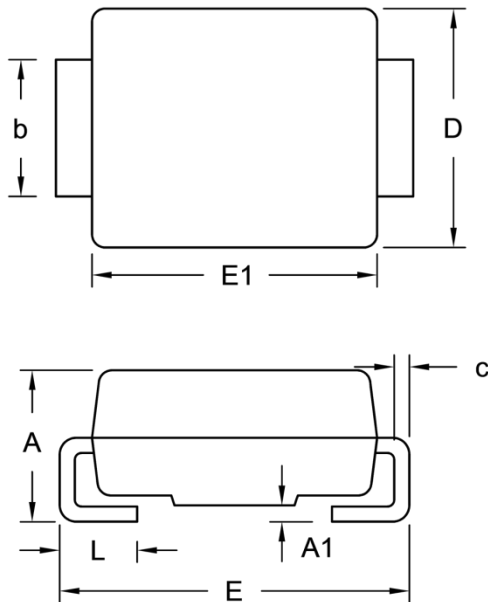


Fig.5 Typical Transient Thermal Impedance



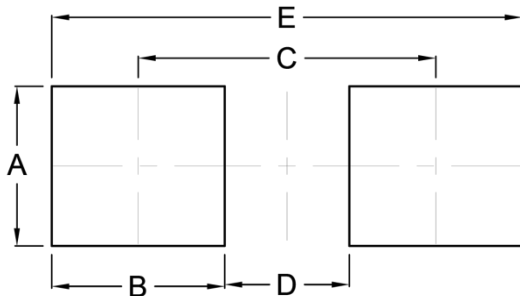
PACKAGE OUTLINE DIMENSIONS

DO-214AA (SMB)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.95	2.65	0.077	0.104
A1	0.05	0.20	0.002	0.008
b	1.95	2.20	0.077	0.087
c	0.15	0.31	0.006	0.012
D	3.30	3.95	0.130	0.156
E	5.10	5.60	0.201	0.220
E1	4.05	4.60	0.159	0.181
L	0.75	1.60	0.030	0.063

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	2.30	0.091
B	2.50	0.098
C	4.30	0.169
D	1.80	0.071
E	6.80	0.268

MARKING DIAGRAM



P/N = Marking Code
 G = Green Compound
 YW = Date Code
 F = Factory Code

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