

3A, 200V-1000V Surface Mount Rectifier

FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Low reverse leakage
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- 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	3	A
V_{RRM}	200-1000	V
I_{FSM}	80	A
T_{JMAX}	150	°C
Package	DO-214AA (SMB)	



DO-214AA (SMB)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)								
PARAMETER	SYMBOL	S3DB-K	S3GB-K	S3JB-K	S3KB-K	S3MB-K	UNIT	
Marking code on the device		S3DB	S3GB	S3JB	S3KB	S3MB	V	
Repetitive peak reverse voltage	V_{RRM}	200	400	600	800	1000	V	
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	560	700	V	
DC blocking voltage	V_{DC}	200	400	600	800	1000		
Forward current	I_F	3					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}					80	A
	1.0 ms at $T_A = 25^\circ\text{C}$						224	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	$R_{\theta JL}$	20	°C/W
Junction-to-ambient thermal resistance per diode	$R_{\theta JA}$	78	°C/W
Junction-to-case thermal resistance per diode	$R_{\theta JC}$	26	°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 per diode ⁽¹⁾	$I_F = 1.5\text{A}, T_J = 25^\circ\text{C}$	V_F	0.88	-	V
	$I_F = 3\text{A}, T_J = 25^\circ\text{C}$		0.93	1.15	V
	$I_F = 1.5\text{A}, T_J = 125^\circ\text{C}$		0.79	-	V
	$I_F = 3\text{A}, T_J = 125^\circ\text{C}$		0.87	0.99	V
Reverse current @ rated V_R per diode ⁽²⁾	$T_J = 25^\circ\text{C}$	I_R	-	5	μA
	$T_J = 125^\circ\text{C}$		-	300	μA
Junction capacitance per diode	1 MHz, $V_R = 4.0\text{V}$	C_J	60	-	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
S3XB-K R5G ⁽¹⁾	SMB	850 / 7" Plastic reel
S3XB-K M4G ⁽¹⁾	SMB	3,000 / 13" Plastic reel
S3XB-K R4G ⁽¹⁾	SMB	3,000 / 13" Paper reel

Notes:

- (1) "X" defines voltage from 200V(S3DB-K) to 1000V(S3MB-K)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

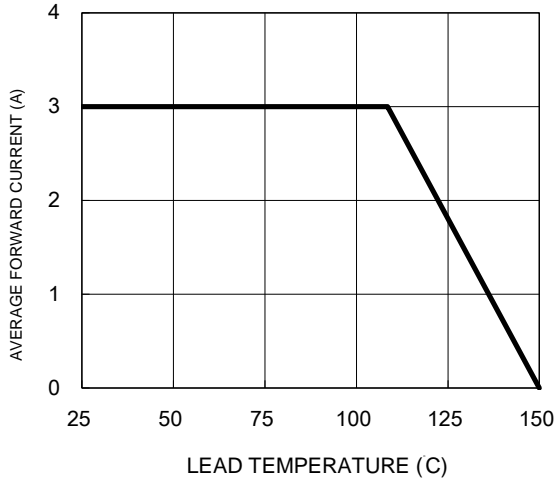


Fig.2 Typical Junction Capacitance

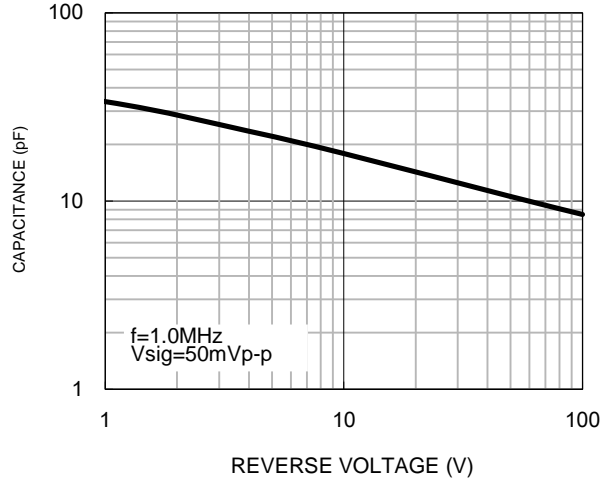


Fig.3 Typical Reverse Characteristics

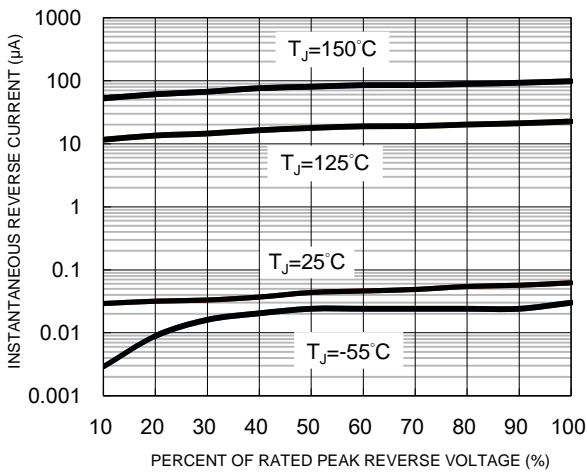


Fig.4 Typical Forward Characteristics

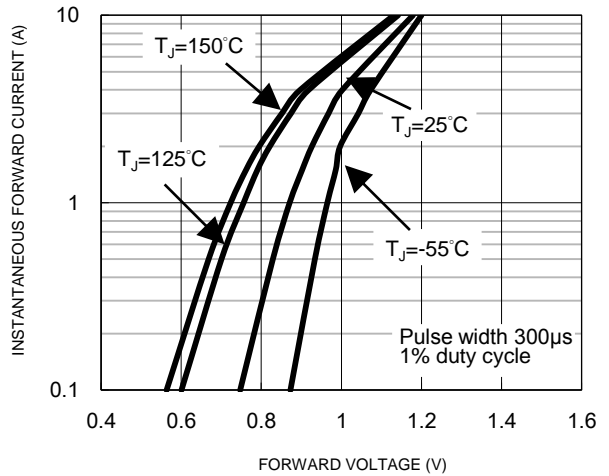
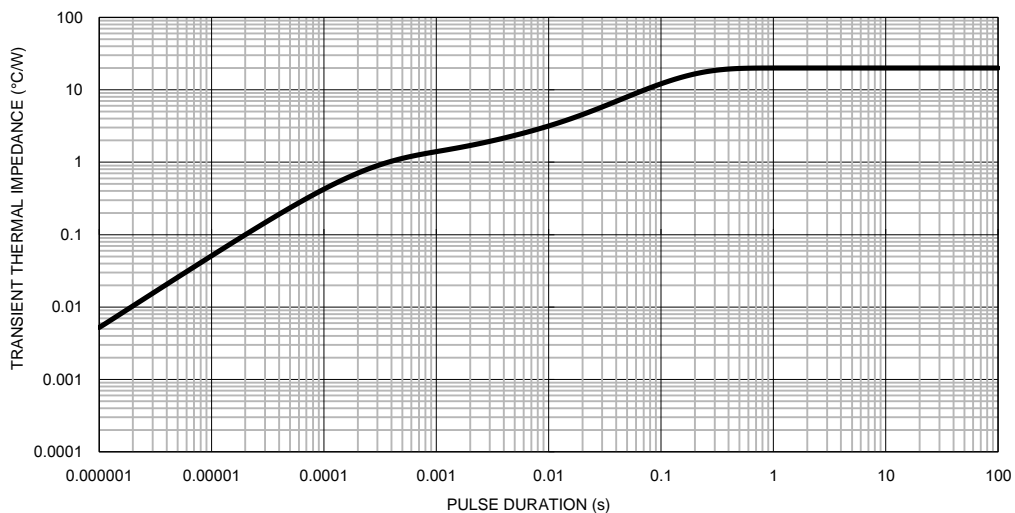
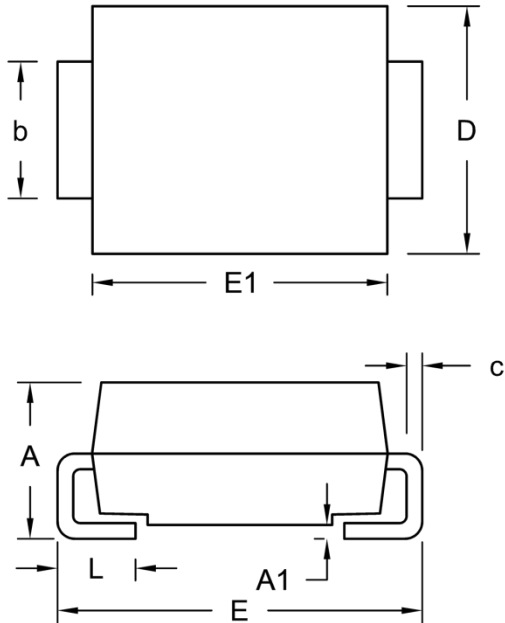


Fig.5 Typical Transient Thermal Impedance



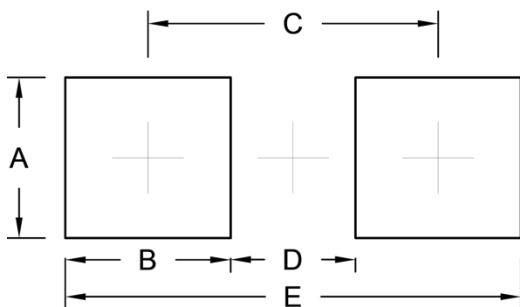
PACKAGE OUTLINE DIMENSIONS

DO-214AA (SMB)



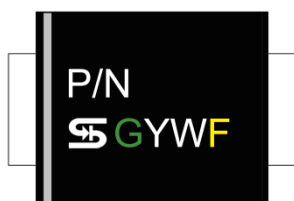
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.13	2.44	0.084	0.096
A1	-	0.203	-	0.008
b	1.80	2.20	0.071	0.087
c	0.152	0.305	0.006	0.012
D	3.30	3.94	0.130	0.155
E	5.08	5.59	0.200	0.220
E1	4.06	4.57	0.160	0.180
L	0.76	1.52	0.030	0.060

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	2.36	0.093
B	2.44	0.096
C	4.28	0.169
D	1.84	0.072
E	6.72	0.265

MARKING DIAGRAM



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

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