3A, 200V-1000V Fast Recovery 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

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	3	A
V_{RRM}	200-1000	V
I_{FSM}	80	A
$T_{J\ MAX}$	150	°C
Package	DO-214AA (SMB)	

Pb-Free RoHS COMPLIANT HALOGEN FREE

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)

DO-214AA (SMB)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETER		SYMBOL	RS3DB -T	RS3GB -T	RS3JB -T	RS3KB -T	RS3MB -T	UNIT
Marking code on the device			RS3DB	RS3GB	RS3JB	RS3KB	RS3MB	
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	V
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°C	I_{FSM}	80					A
	1.0 ms at T_A= 25°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°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode (1)	RS3DB-T to RS3GB-T	I_F = 1.5A, T_J = 25°C	V_F	0.94	-	V
		I_F = 3A, T_J = 25°C		1.02	1.3	V
		I_F = 1.5A, T_J = 125°C		0.78	-	V
		I_F = 3A, T_J =125°C		0.87	1.17	V
	RS3JB-T	I_F = 1.5A, T_J = 25°C	V_F	0.99	-	V
		I_F = 3A, T_J = 25°C		1.10	1.3	V
		I_F = 1.5A, T_J = 125°C		0.80	-	V
		I_F = 3A, T_J = 125°C		0.90	1.16	V
	RS3KB-T to RS3MB-T	I_F = 1.5A, T_J = 25°C	V_F	1.03	-	V
		I_F = 3A, T_J = 25°C		1.13	1.3	V
		I_F = 1.5A, T_J = 125°C		0.83	-	V
		I_F = 3A, T_J = 125°C		0.94	1.14	V
Reverse current @ rated V_R per diode (2)		T_J = 25°C	I_R	-	5	μA
		T_J = 125°C		-	150	μA
Reverse recovery time	RS3DB-T to RS3GB-T	I_F=0.5A,I_R=1.0A, Irr=0.25A	t_{rr}	-	150	ns
	RS3JB-T			-	250	ns
	RS3KB-T to RS3MB-T			-	500	ns
Junction capacitance per diode		1 MHz, V_R=4.0V	C_J	50	-	pF

Notes:

(1) Pulse test with PW=0.3 ms

(2) Pulse test with PW=30 ms

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
RS3XB-T R5G(1)	SMB	850 / 7" Plastic reel
RS3XB-T M4G(1)	SMB	3,000 / 13" Plastic reel
RS3XB-T R4G(1)	SMB	3,000 / 13" Paper reel

Notes:

(1) "X" defines voltage from 200V(RS3DB-T) to 1000V(RS3MB-T)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

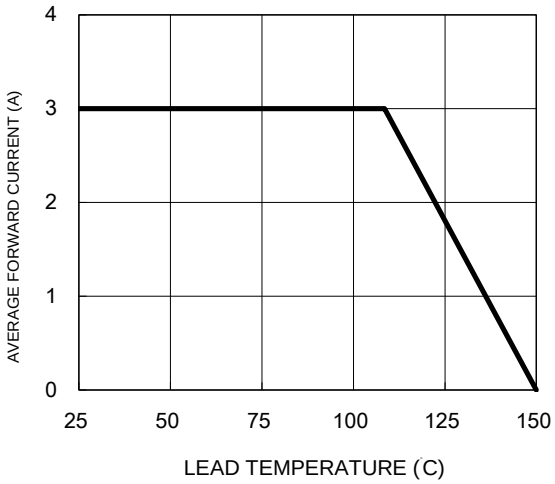


Fig.2 Typical Junction Capacitance

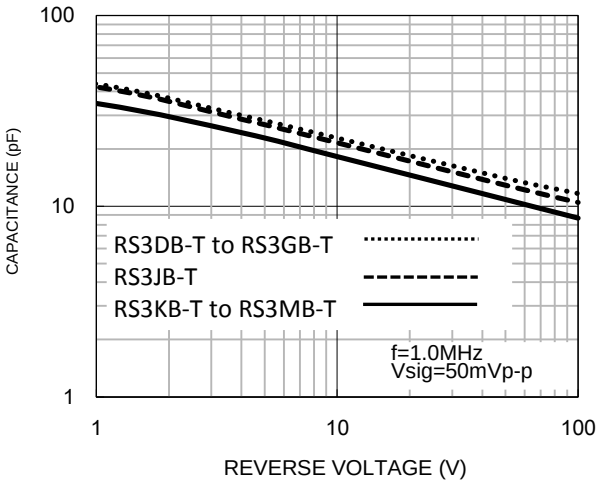


Fig.3 Typical Reverse Characteristics

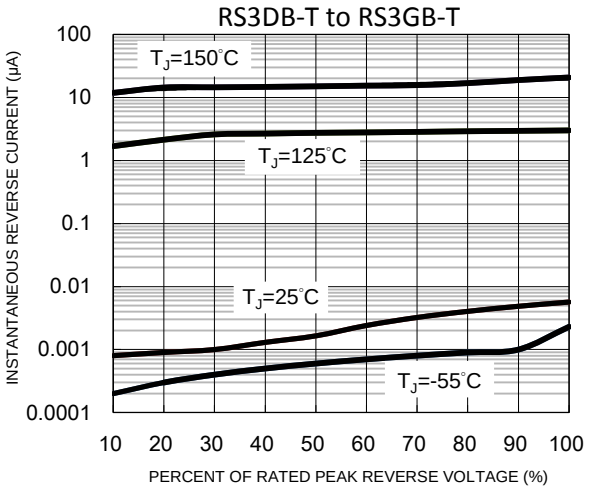


Fig.4 Typical Forward Characteristics

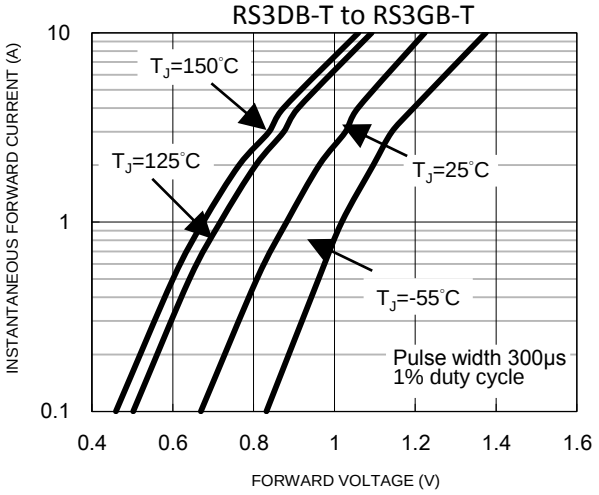


Fig.5 Typical Reverse Characteristics

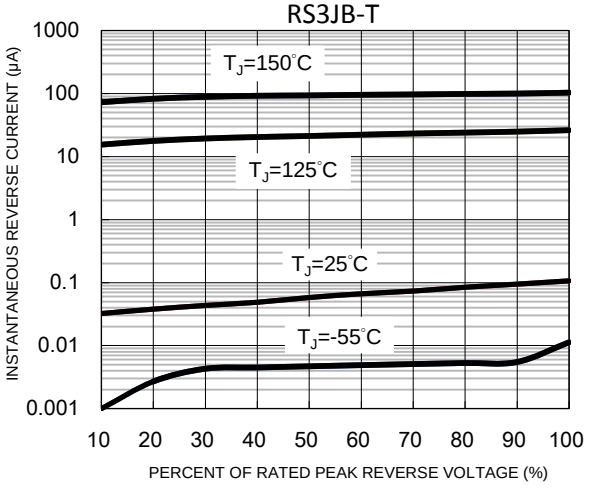


Fig.6 Typical Forward Characteristics

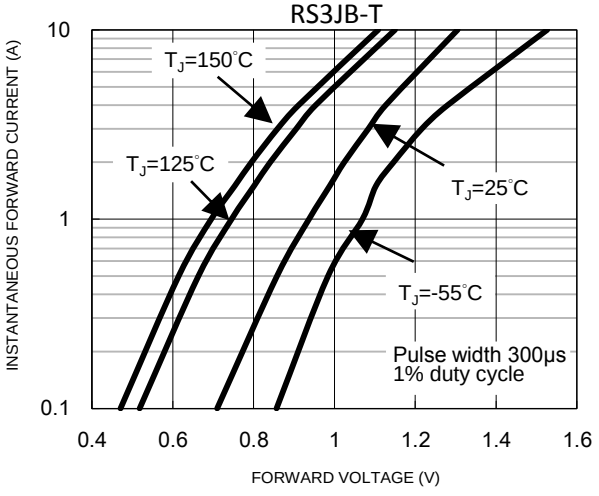


Fig.7 Typical Reverse Characteristics

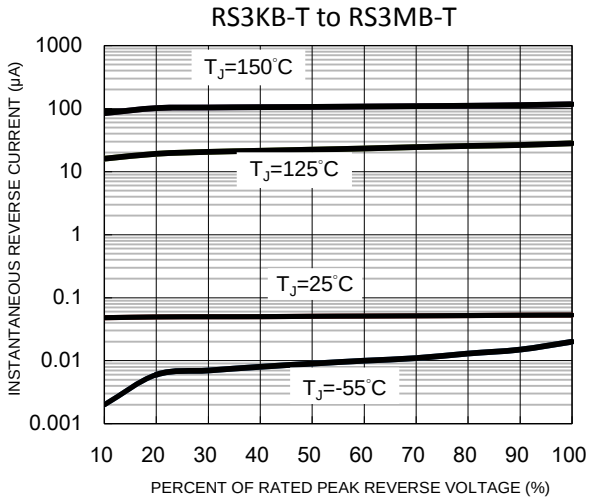


Fig.8 Typical Forward Characteristics

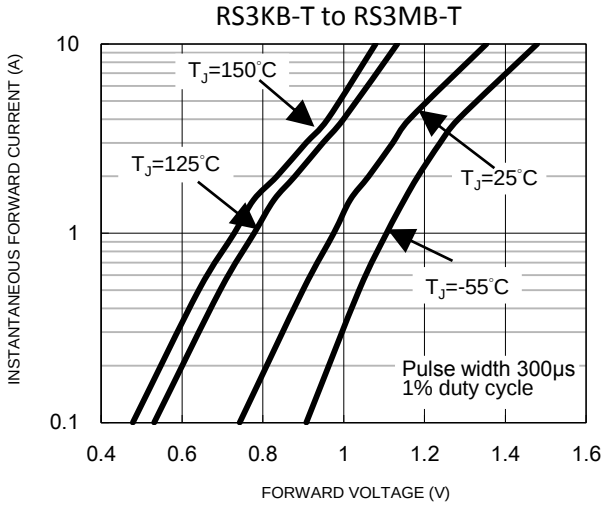
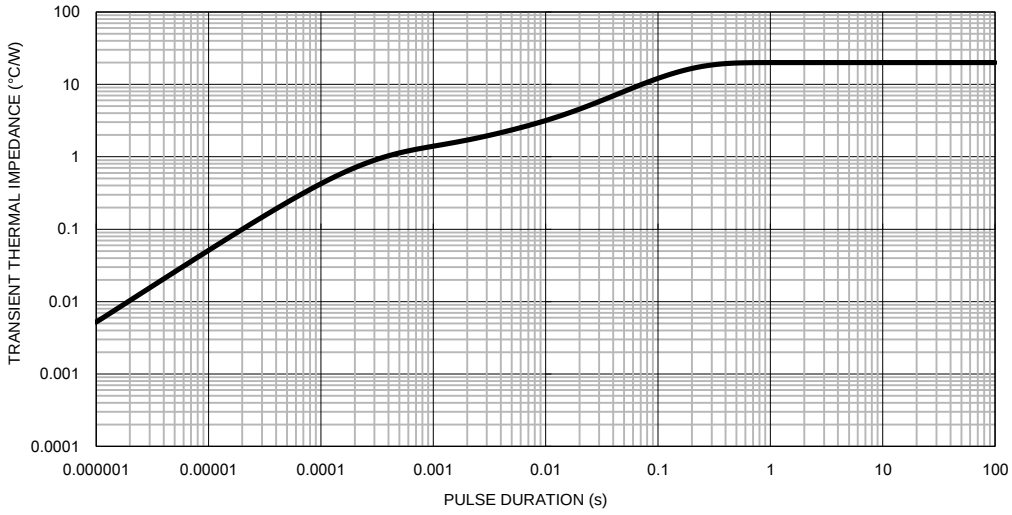
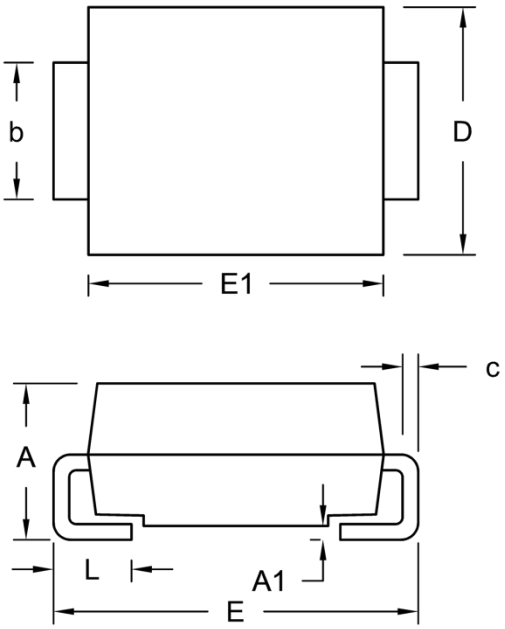


Fig.9 Typical Transient Thermal Impedance



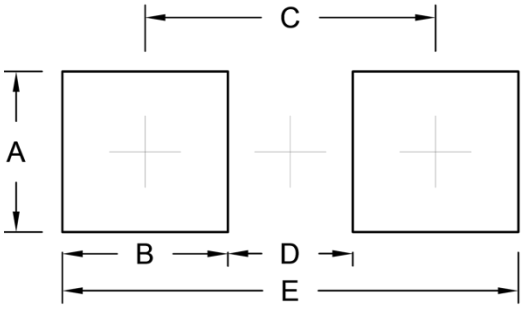
PACKAGE OUTLINE DIMENSIONS

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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