Surface Mount Fast Switching Rectifier

DO-214AA (SMB)

FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Fast switching for high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters, and freewheeling diodes for consumer, automotive and telecommunication.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.5 A
V_{RRM}	50 V to 800 V
I_{FSM}	50 A
t_{rr}	150 ns, 250 ns, 500 ns
V_F	1.3 V
T_J max.	150 °C

MECHANICAL DATA

Case: DO-214AA (SMB)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

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

PARAMETER	SYMBOL	RS2A	RS2B	RS2D	RS2G	RS2J	RS2K	UNIT
Device marking code		RA	RB	RD	RG	RJ	RK	
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	V
Maximum RMS voltage	V_{RMS}	35	70	140	280	420	500	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	V
Maximum average forward rectified current at T_L = 100 °C	$I_{F(AV)}$	1.5						A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	50						A
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150						°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)										
PARAMETER	TEST CONDITIONS		SYMBOL	RS2A	RS2B	RS2D	RS2G	RS2J	RS2K	UNIT
Maximum instantaneous forward voltage	at 1.5 A		V_F	1.3						V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C T_A = 125 °C	I_R	5.0 200						μA
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	150				250	500	ns
Typical junction capacitance	at 4.0 V, 1 MHz		C_J	20				17		pF

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	RS2A	RS2B	RS2D	RS2G	RS2J	RS2K	UNIT
Typical thermal resistance (1)	$R_{\theta JA}$ $R_{\theta JL}$	55 18						°C/W

Note:

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.27 x 0.27" (7.0 x 7.0 mm) copper pad

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	REFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
RS2J-E3/52T	0.096	52T	750	7" diameter plastic tape and reel
RS2J-E3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel
RS2JHE3/52T (1)	0.096	52T	750	7" diameter plastic tape and reel
RS2JHE3/5BT (1)	0.096	5BT	3200	13" diameter plastic tape and reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

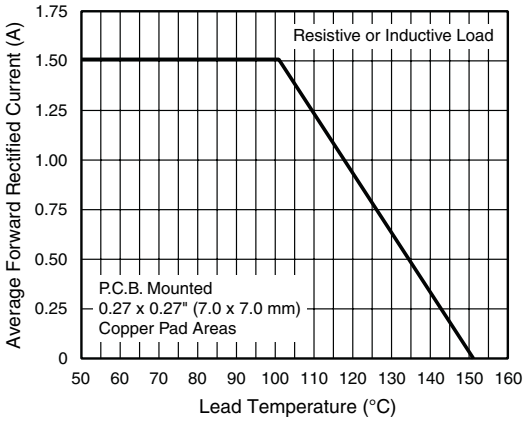


Figure 1. Forward Current Derating Curve

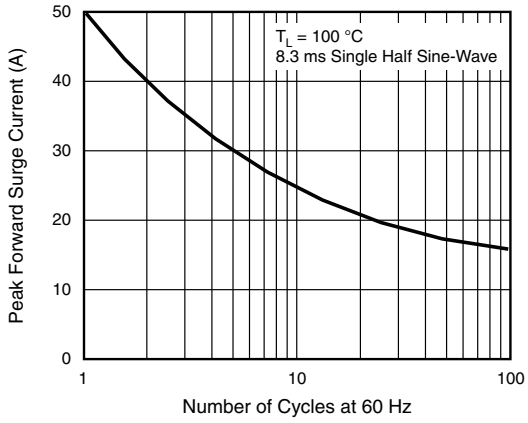


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

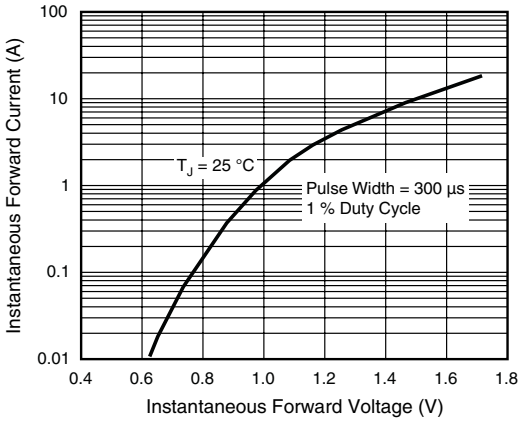


Figure 3. Typical Instantaneous Forward Characteristics

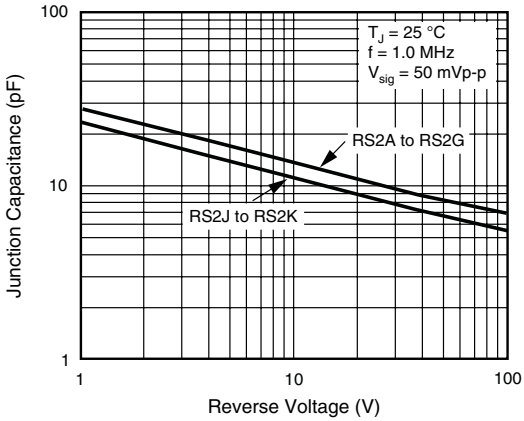


Figure 5. Typical Junction Capacitance

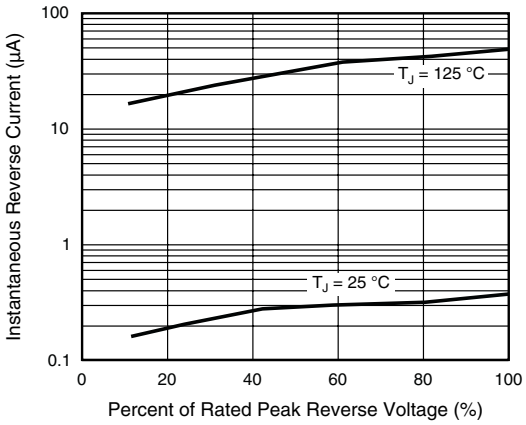
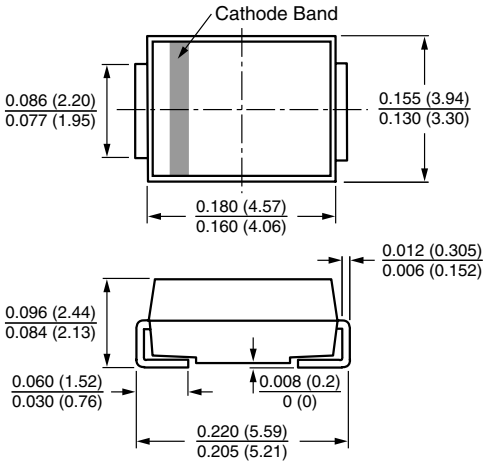


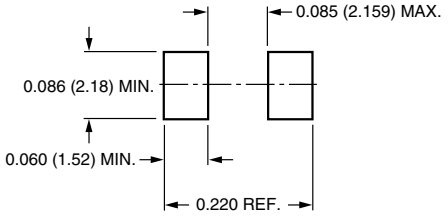
Figure 4. Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AA (SMB)



Mounting Pad Layout



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