

# 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-020C, LF max peak of 260 °C
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



## TYPICAL APPLICATIONS

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

## MECHANICAL DATA

**Case:** DO-214AA (SMB)

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

**Polarity:** Color band denotes cathode end

## MAJOR RATINGS AND 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

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

PARAMETER	SYMBOL	RS2A	RS2B	RS2D	RS2G	RS2J	RS2K	UNIT
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$ $R_{\theta JL}$			55 18				$^{\circ}\text{C/W}$

#### 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

PREFERRED P/N	UNIT WEIGHT (g)	REFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
RS2J-E3/52T	0.096	52T	750	7" Diameter Plastic Tape & Reel
RS2J-E3/5BT	0.096	5BT	3200	13" Diameter Plastic Tape & Reel

### RATINGS AND CHARACTERISTICS CURVES

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

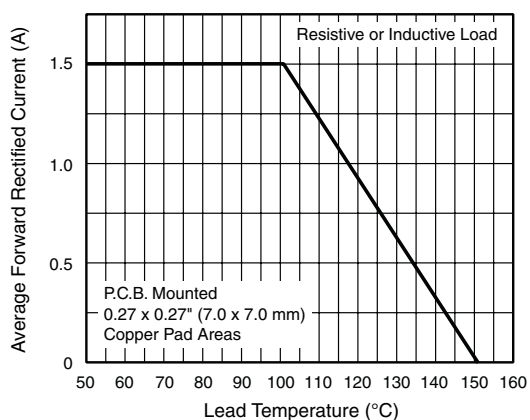


Figure 1. Forward Current Derating Curve

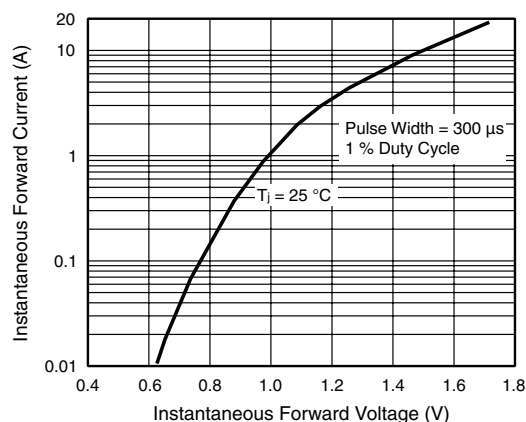


Figure 3. Typical Instantaneous Forward Characteristics

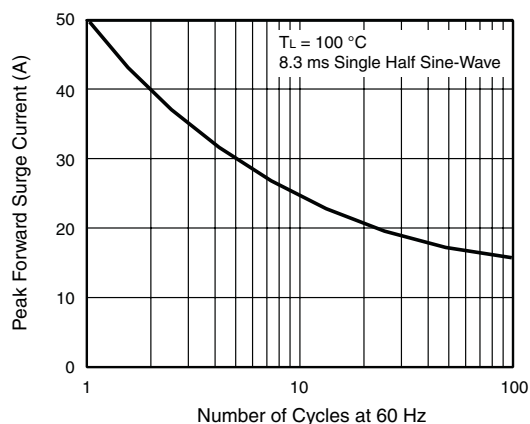


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

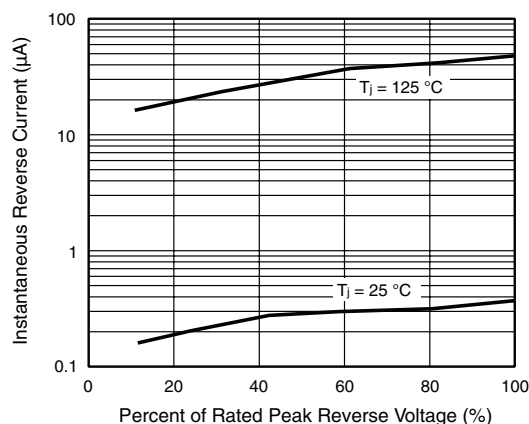


Figure 4. Typical Reverse Characteristics

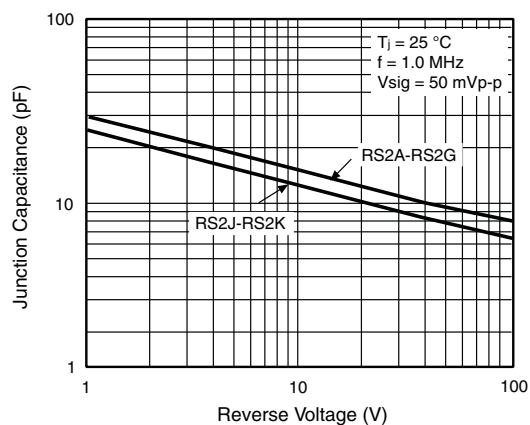
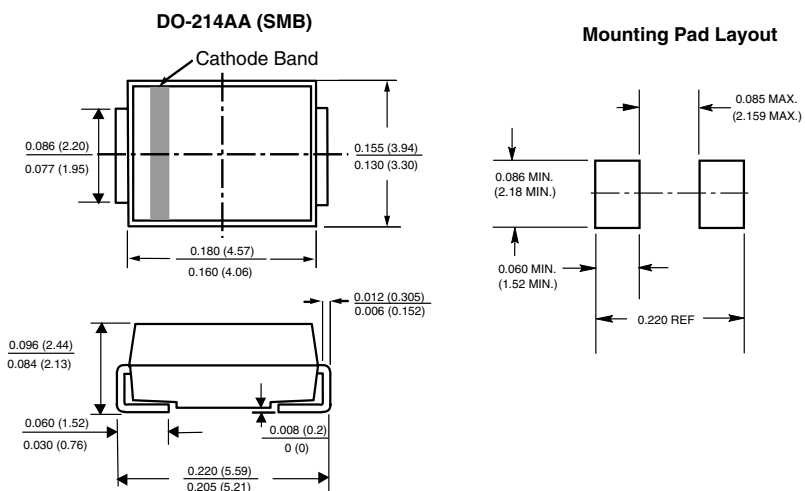


Figure 5. Typical Junction Capacitance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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