

## Surface Mount Glass Passivated Rectifier


**DO-214AA (SMB)**

### FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

### MECHANICAL DATA

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

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS compliant, commercial grade

Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 1.5 A          |
| $V_{RRM}$               | 50 V to 1000 V |
| $I_{FSM}$               | 50 A           |
| $I_R$                   | 1.0 $\mu$ A    |
| $V_F$                   | 1.15 V         |
| $T_J$ max.              | 150 °C         |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                            |                |               |     |     |     |     |     |      |      |
|--|----------------|---------------|-----|-----|-----|-----|-----|------|------|
| PARAMETER  | SYMBOL         | S2A           | S2B | S2D | S2G | S2J | S2K | S2M  | UNIT |
| Device marking code  |                | SA            | SB  | SD  | SG  | SJ  | SK  | SM   |      |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 50            | 100 | 200 | 400 | 600 | 800 | 1000 | V    |
| Maximum RMS voltage  | $V_{RMS}$      | 35            | 70  | 140 | 280 | 420 | 560 | 700  | V    |
| Maximum DC blocking voltage  | $V_{DC}$       | 50            | 100 | 200 | 400 | 600 | 800 | 1000 | 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 and storage temperature range  | $T_J, T_{STG}$ | - 55 to + 150 |     |     |     |     |     |      | °C   |



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |   |                 |      |     |     |     |     |     |     |      |    |
|--|---|-----------------|------|-----|-----|-----|-----|-----|-----|------|----|
| PARAMETER  | TEST CONDITIONS   | SYMBOL          | S2A  | S2B | S2D | S2G | S2J | S2K | S2M | UNIT |    |
| Maximum instantaneous forward voltage                                      | 1.5 A   | V <sub>F</sub>  | 1.15 |     |     |     |     |     |     |      | V  |
| Maximum DC reverse current at rated DC blocking voltage                    | T <sub>A</sub> = 25 °C<br>T <sub>A</sub> = 125 °C                           | I <sub>R</sub>  | 1.0  |     |     |     |     |     |     |      | μA |
|  |   |                 | 125  |     |     |     |     |     |     |      |    |
| Typical reverse recovery time  | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A,<br>I <sub>rr</sub> = 0.25 A | t <sub>rr</sub> | 2.0  |     |     |     |     |     |     |      | μs |
| Typical junction capacitance   | 4.0 V, 1 MHz  | C <sub>J</sub>  | 16   |     |     |     |     |     |     |      | pF |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |     |     |     |     |     |     |     |      |      |
|---|------------------|-----|-----|-----|-----|-----|-----|-----|------|------|
| PARAMETER   | SYMBOL           | S2A | S2B | S2D | S2G | S2J | S2K | S2M | UNIT |      |
| Typical thermal resistance <sup>(1)</sup>                               | R <sub>θJA</sub> | 53  |     |     |     |     |     |     |      | °C/W |
|   | R <sub>θJL</sub> | 16  |     |     |     |     |     |     |      |      |

**Note**

<sup>(1)</sup> Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad areas

| ORDERING INFORMATION (Example) |                 |                        |               |                                    |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| S2J-E3/52T                     | 0.096           | 52T                    | 750           | 7" diameter plastic tape and reel  |
| S2J-E3/5BT                     | 0.096           | 5BT                    | 3200          | 13" diameter plastic tape and reel |
| S2JHE3/52T <sup>(1)</sup>      | 0.096           | 52T                    | 750           | 7" diameter plastic tape and reel  |
| S2JHE3/5BT <sup>(1)</sup>      | 0.096           | 5BT                    | 3200          | 13" diameter plastic tape and reel |

**Note**

<sup>(1)</sup> AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

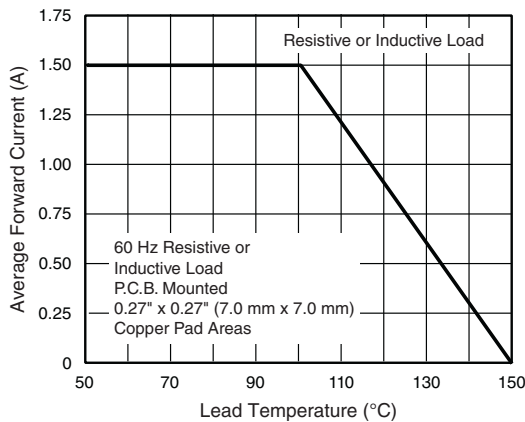


Fig. 1 - Forward Current Derating Curve

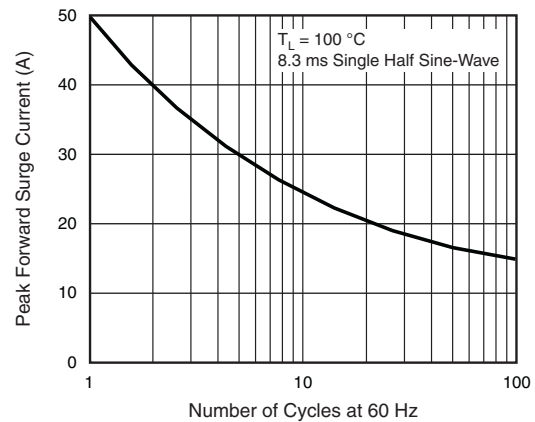


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

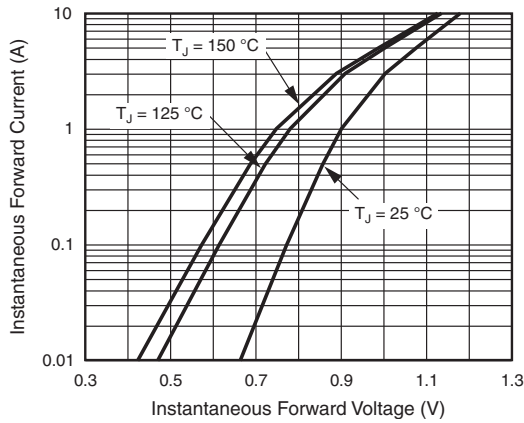


Fig. 3 - Typical Instantaneous Forward Characteristics

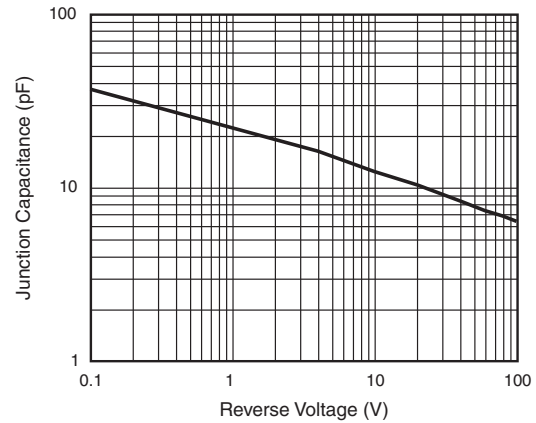


Fig. 5 - Typical Junction Capacitance

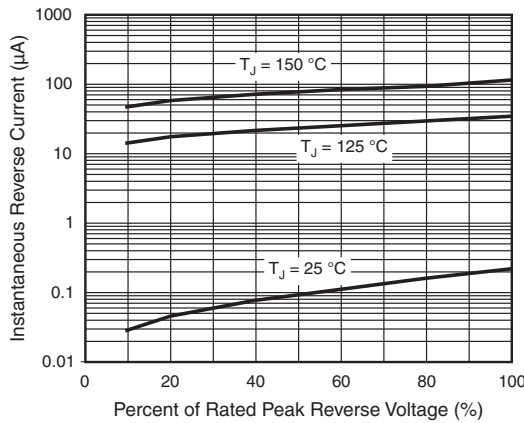


Fig. 4 - Typical Reverse Characteristics

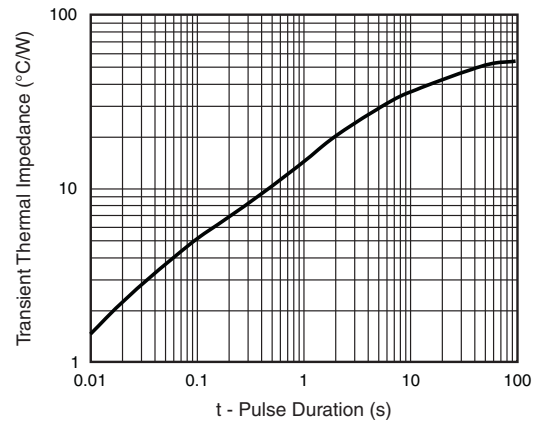
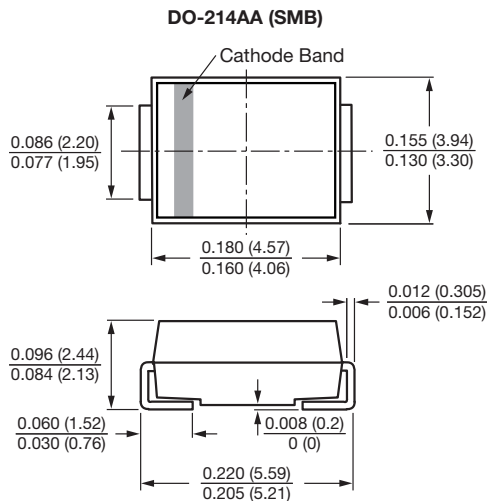


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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