

## High-Voltage Surface Mount Schottky Rectifier



**DO-214AA (SMB)**

### FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- High 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 low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

### 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 the cathode end

| PRIMARY CHARACTERISTICS |             |
|-------------------------|-------------|
| $I_{F(AV)}$             | 1.5 A       |
| $V_{RRM}$               | 90 V, 100 V |
| $I_{FSM}$               | 75 A        |
| $V_F$                   | 0.71 V      |
| $T_J \text{ max.}$      | 150 °C      |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                     |                |               |       |                  |
|------------------------------------------------------------------------------------|----------------|---------------|-------|------------------|
| PARAMETER                                                                          | SYMBOL         | SS29          | SS210 | UNIT             |
| Device marking code                                                                |                | S9            | S10   |                  |
| Maximum repetitive peak reverse voltage                                            | $V_{RRM}$      | 90            | 100   | V                |
| Maximum RMS voltage                                                                | $V_{RMS}$      | 63            | 70    | V                |
| Maximum DC blocking voltage                                                        | $V_{DC}$       | 90            | 100   | V                |
| Maximum average forward rectified current (fig. 1)                                 | $I_{F(AV)}$    | 1.5           |       | A                |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 75            |       | A                |
| Peak repetitive reverse surge current at $t_p = 2\text{ }\mu\text{s}$ , 1 kHz      | $I_{RRM}$      | 1.0           |       | A                |
| Voltage rate of change (rated $V_R$ )                                              | $dV/dt$        | 10 000        |       | V/ $\mu\text{s}$ |
| Operating junction 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         | SS29 | SS210 | UNIT |
| Maximum instantaneous forward voltage <sup>(1)</sup>                       | I <sub>F</sub> = 0.1 A | T <sub>A</sub> = 25 °C  | V <sub>F</sub> | 0.43 |       | V    |
|                                                                            | I <sub>F</sub> = 1.0 A |                         |                | 0.75 |       |      |
|                                                                            | I <sub>F</sub> = 3.0 A |                         |                | 0.95 |       |      |
|                                                                            | I <sub>F</sub> = 1.5 A | 0.71                    |                |      |       |      |
|                                                                            | I <sub>F</sub> = 3.0 A | 0.85                    |                |      |       |      |
| Maximum DC reverse current at rated V <sub>R</sub> <sup>(1)</sup>          |                        | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 30   |       | μA   |
|                                                                            |                        | T <sub>A</sub> = 100 °C |                | 5    |       | mA   |

**Note**
<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |      |       |      |
|-------------------------------------------------------------------------|------------------|------|-------|------|
| PARAMETER                                                               | SYMBOL           | SS29 | SS210 | UNIT |
| Maximum thermal resistance <sup>(1)</sup>                               | R <sub>θJA</sub> | 85   |       | °C/W |
|                                                                         | R <sub>θJL</sub> | 25   |       |      |

**Note**
<sup>(1)</sup> P.C.B. mounted with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |                                    |
|---------------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| SS210-E3/52T                          | 0.096           | 52T                    | 750           | 7" diameter plastic tape and reel  |
| SS210-E3/5BT                          | 0.096           | 5BT                    | 3200          | 13" diameter plastic tape and reel |
| SS210HE3/52T <sup>(1)</sup>           | 0.096           | 52T                    | 750           | 7" diameter plastic tape and reel  |
| SS210HE3/5BT <sup>(1)</sup>           | 0.096           | 5BT                    | 3200          | 13" diameter plastic tape and reel |

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

**RATINGS AND CHARACTERISTICS CURVES**

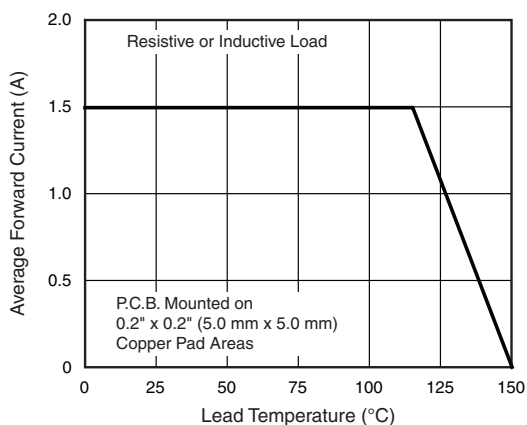
( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

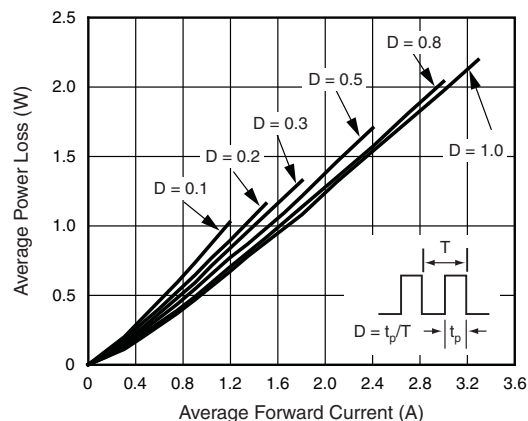


Fig. 2 - Forward Power Loss Characteristics

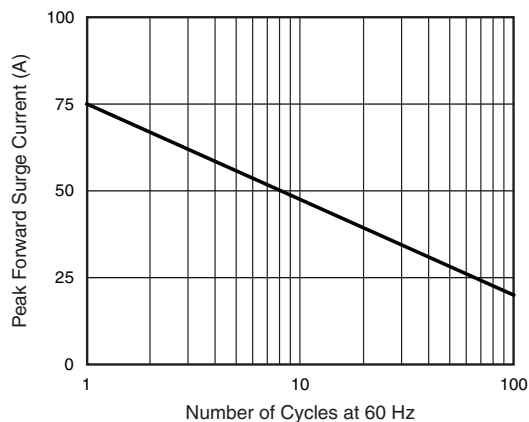


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

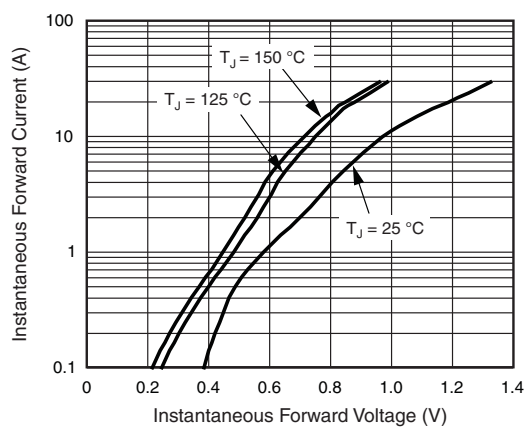


Fig. 4 - Typical Instantaneous Forward Characteristics

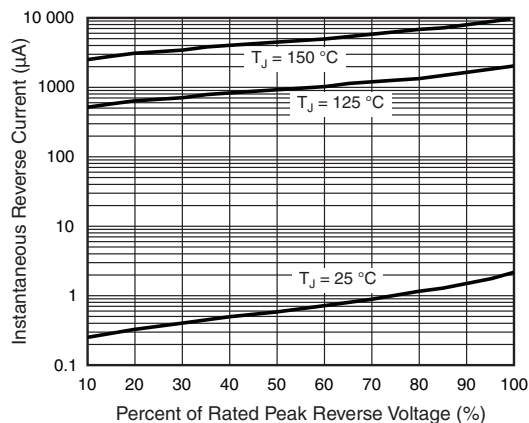


Fig. 5 - Typical Reverse Leakage Characteristics

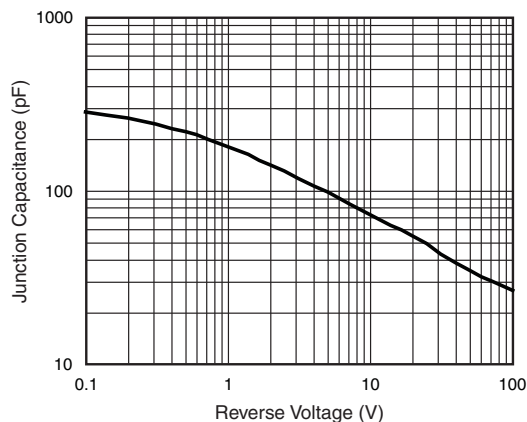
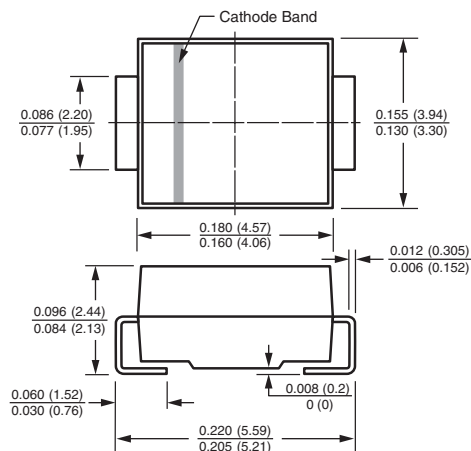


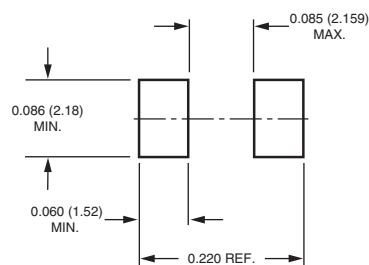
Fig. 6 - Typical Junction Capacitance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-214AA (SMB)



### Mounting Pad Layout





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#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.