

Vishay General Semiconductor

## Surface Mount Schottky Barrier Rectifier



DO-214AB (SMC)

| PRIMARY CHARACTERISTICS |                              |  |  |  |  |  |
|-------------------------|------------------------------|--|--|--|--|--|
| I <sub>F(AV)</sub>      | 3.0 A                        |  |  |  |  |  |
| V <sub>RRM</sub>        | 20 V, 30 V, 40 V, 50 V, 60 V |  |  |  |  |  |
| I <sub>FSM</sub>        | 100 A                        |  |  |  |  |  |
| EAS                     | 20 mJ                        |  |  |  |  |  |
| V <sub>F</sub>          | 0.5 V, 0.75 V                |  |  |  |  |  |
| T <sub>J</sub> max.     | 150 °C                       |  |  |  |  |  |
| Package                 | DO-214AB (SMC)               |  |  |  |  |  |
| Diode variations        | Single                       |  |  |  |  |  |

#### **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 <u>www.vishay.com/doc?99912</u>

#### **TYPICAL APPLICATIONS**

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

#### MECHANICAL DATA

Case: DO-214AB (SMC)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/NHE3\_X - RoHS-compliant and AEC-Q101 qualified ("\_X" denotes revision code e.g. A, B, .....)

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

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

Polarity: Color band denotes the cathode end

| <b>MAXIMUM RATINGS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)             |                    |             |      |      |      |      |      |
|--|--------------------|-------------|------|------|------|------|------|
| PARAMETER  | SYMBOL             | SS32        | SS33 | SS34 | SS35 | SS36 | UNIT |
| Device marking code  |                    | S2          | S3   | S4   | S5   | S6   |      |
| Maximum repetitive peak reverse voltage  | V <sub>RRM</sub>   | 20          | 30   | 40   | 50   | 60   | V    |
| Maximum RMS voltage  | V <sub>RMS</sub>   | 14          | 21   | 28   | 35   | 42   | V    |
| Maximum DC blocking voltage  | V <sub>DC</sub>    | 20          | 30   | 40   | 50   | 60   | V    |
| Maximum average forward rectified current at $T_L$ (fig. 1)                        | I <sub>F(AV)</sub> | 3.0         |      |      |      |      | Α    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I <sub>FSM</sub>   | 100         |      |      |      |      | А    |
| Non-repetitive avalanche energy at $T_A = 25$ °C, $I_{AS} = 2.0$ A, L = 10 mH      | E <sub>AS</sub>    | 20          |      |      |      | mJ   |      |
| Voltage rate of change (rated V <sub>R</sub> )                                     | dV/dt              | 10 000      |      |      |      | V/µs |      |
| Operating junction temperature range   | TJ                 | -55 to +150 |      |      |      | °C   |      |
| Storage temperature range  | T <sub>STG</sub>   | -55 to +150 |      |      |      | °C   |      |







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| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted) |        |                         |                |      |      |      |      |      |      |
|---|--------|-------------------------|----------------|------|------|------|------|------|------|
| PARAMETER   | TEST C | ONDITIONS               | SYMBOL         | SS32 | SS33 | SS34 | SS35 | SS36 | UNIT |
| Maximum instantaneous forward voltage <sup>(1)</sup>                              | 3.0 A  |                         | V <sub>F</sub> |      | 0.5  |      | 0.   | 75   | V    |
| Maximum DC reverse current  |        | T <sub>A</sub> = 25 °C  | L              | 0.5  |      |      |      | mA   |      |
| at rated DC blocking voltage <sup>(1)</sup>                                       |        | T <sub>A</sub> = 100 °C | IR             |      | 20   |      | 1    | 0    | ШA   |

Note

 $^{(1)}\,$  Pulse test: 300  $\mu s$  pulse width, 1 % duty cycle

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted) |                 |      |      |      |      |      |      |
|--|-----------------|------|------|------|------|------|------|
| PARAMETER  | SYMBOL          | SS32 | SS33 | SS34 | SS35 | SS36 | UNIT |
| Typical thermal resistance <sup>(1)</sup>                                      | $R_{\theta JA}$ | 55   |      |      |      |      | °C/W |
| Typical mermai resistance (*)  | $R_{\theta JL}$ | 17   |      |      |      |      | 0/10 |

Note

<sup>(1)</sup> PCB. mounted 0.55" x 0.55" (14 mm x 14 mm) copper pad areas

| ORDERING INFORMATION (Example) |                 |                        |               |                                    |  |  |  |  |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|--|--|--|--|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |  |  |  |  |
| SS34-E3/57T                    | 0.235           | 57T                    | 850           | 7" diameter plastic tape and reel  |  |  |  |  |
| SS34-E3/9AT                    | 0.235           | 9AT                    | 3500          | 13" diameter plastic tape and reel |  |  |  |  |
| SS34HE3_A/H (1)                | 0.235           | Н                      | 850           | 7" diameter plastic tape and reel  |  |  |  |  |
| SS34HE3_A/I (1)                | 0.235           |                        | 3500          | 13" diameter plastic tape and reel |  |  |  |  |

Note

(1) AEC-Q101 qualified

### RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

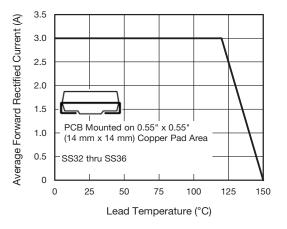


Fig. 1 - Forward Current Derating Curve

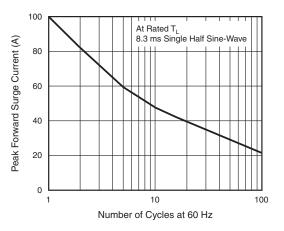


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current



### SS32, SS33, SS34, SS35, SS36

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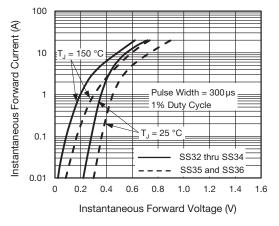


Fig. 3 - Typical Instantaneous Forward Characteristics

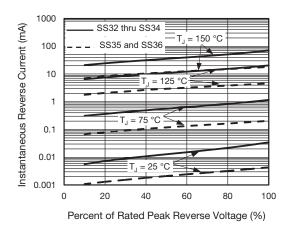
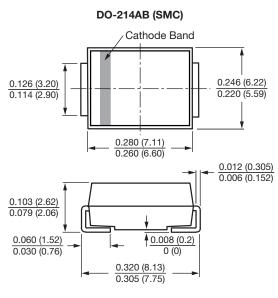


Fig. 4 - Typical Reverse Current Characteristics





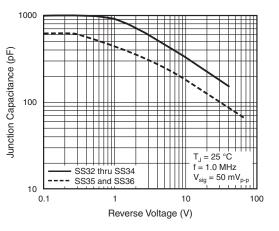


Fig. 5 - Typical Junction Capacitance

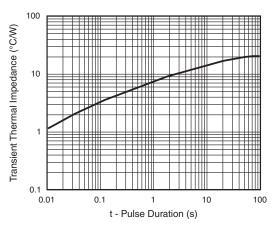
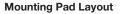
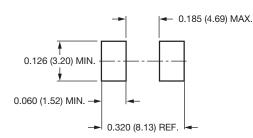


Fig. 6 - Typical Transient Thermal Impedance





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