

# Surface Mount Schottky Barrier Rectifier



DO-214AB (SMC)

## 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-214AB (SMC)

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

**Polarity:** Color band denotes the cathode end

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 3.0 A          |
| $V_{RRM}$               | 20 V to 60 V   |
| $I_{FSM}$               | 100 A          |
| EAS                     | 20 mJ          |
| $V_F$                   | 0.5 V, 0.75 V  |
| $T_J$ max.              | 125 °C, 150 °C |

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °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 <sub>L</sub> (fig. 1)                          | I <sub>F(AV)</sub> | 3.0           |      |      |               |      | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load            | I <sub>FSM</sub>   | 100           |      |      |               |      | A    |
| Non-repetitive avalanche energy at T <sub>A</sub> = 25 °C, I <sub>AS</sub> = 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                                                          | T <sub>J</sub>     | - 55 to + 125 |      |      | - 55 to + 150 |      | °C   |
| Storage temperature range                                                                     | T <sub>STG</sub>   | - 55 to + 150 |      |      |               |      | °C   |

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

| PARAMETER                                                              | TEST CONDITIONS |                         | 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 at rated DC blocking voltage <sup>(1)</sup> |                 | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 0.5  |      |      |      |      | mA   |
|                                                                        |                 | T <sub>A</sub> = 100 °C |                | 20   |      | 10   |      |      |      |

**Note**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                 | SYMBOL           | SS32 | SS33 | SS34 | SS35 | SS36 | UNIT |
|-------------------------------------------|------------------|------|------|------|------|------|------|
| Typical thermal resistance <sup>(1)</sup> | R <sub>θJA</sub> | 55   |      |      |      |      | °C/W |
|                                           | R <sub>θJL</sub> | 17   |      |      |      |      |      |

**Note**

(1) P.C.B. 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 |
| SS34HE3/57T <sup>(1)</sup> | 0.235           | 57T                    | 850           | 7" diameter plastic tape and reel  |
| SS34HE3/9AT <sup>(1)</sup> | 0.235           | 9AT                    | 3500          | 13" diameter plastic tape and reel |
| SS34HE3_A/H <sup>(1)</sup> | 0.235           | H                      | 850           | 7" diameter plastic tape and reel  |
| SS34HE3_A/I <sup>(1)</sup> | 0.235           | I                      | 3500          | 13" diameter plastic tape and reel |

**Note**

(1) AEC-Q101 qualified

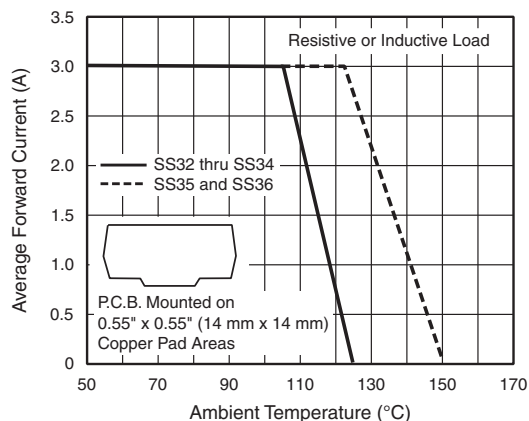
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

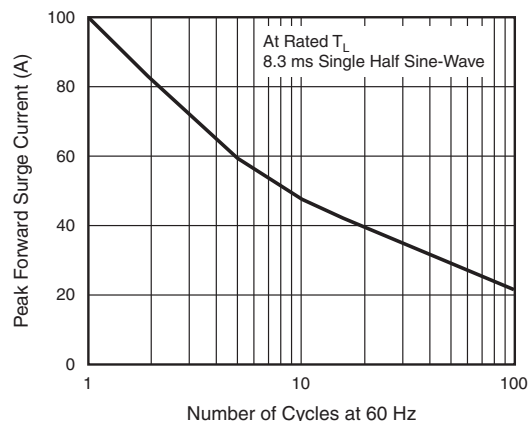


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

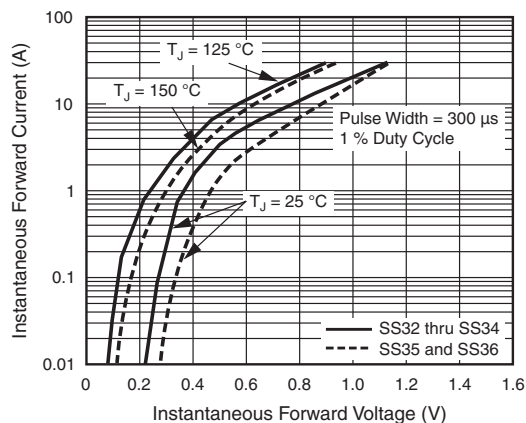


Fig. 3 - Typical Instantaneous Forward Characteristics

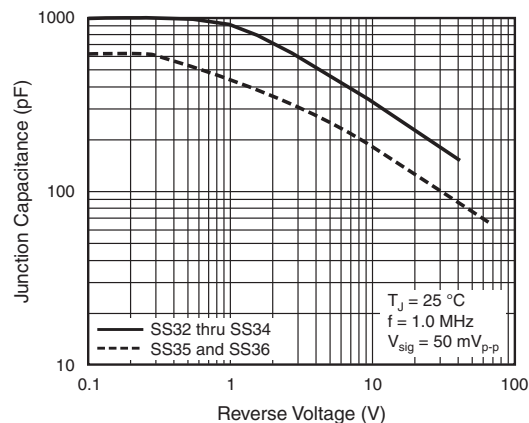


Fig. 5 - Typical Junction Capacitance

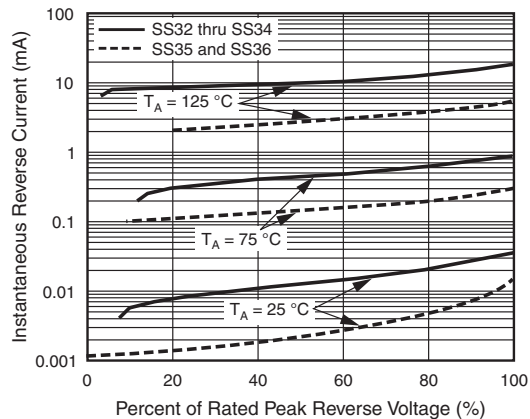


Fig. 4 - Typical Reverse Current Characteristics

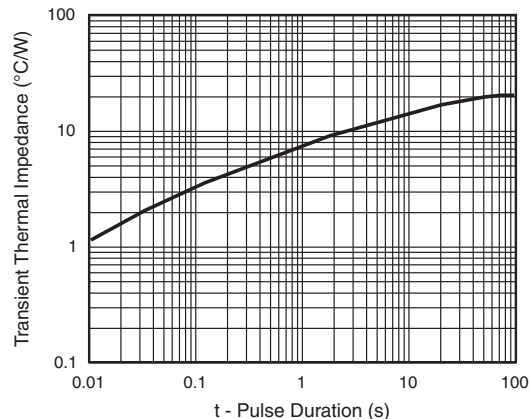
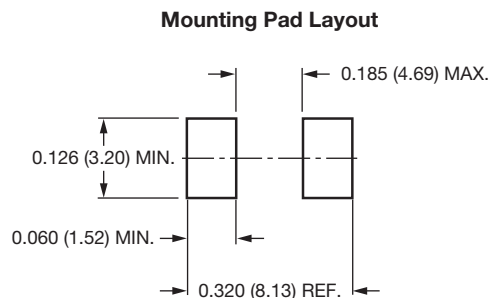
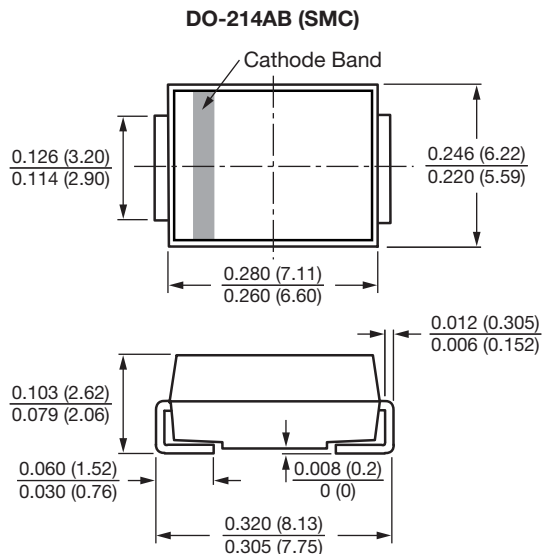


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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