

## Surface-Mount Schottky Barrier Rectifier



SMC (DO-214AB)

Cathode  Anode

### LINKS TO ADDITIONAL RESOURCES



Design Tools



Related Documents



3D Models



SPICE Models



Application Notes



Marking

### PRIMARY CHARACTERISTICS

|                       |                              |
|-----------------------|------------------------------|
| $I_{F(AV)}$           | 3.0 A                        |
| $V_{RRM}$             | 20 V, 30 V, 40 V, 50 V, 60 V |
| $I_{FSM}$             | 100 A                        |
| EAS                   | 20 mJ                        |
| $V_F$                 | 0.5 V, 0.75 V                |
| $T_J \text{ max.}$    | 150 °C                       |
| Package               | SMC (DO-214AB)               |
| Circuit configuration | 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 available
  - Automotive ordering code: base P/NHE3 or P/NHM3
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
Available

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** SMC (DO-214AB)

Molding compound meets UL 94 V-0 flammability rating

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

Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade

Base P/NHE3\_X - RoHS-compliant and AEC-Q101 qualified  
Base P/NHM3\_X - halogen-free, 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, M3, HE3, and HM3 suffix meets JESD 201 class 2 whisker test

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

### MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)

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

**Note**

<sup>(1)</sup> 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**

<sup>(1)</sup> PCB mounted with 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                      |
|----------------------------|-----------------|------------------------|---------------|------------------------------------|
| SS36-E3/57T                | 0.235           | 57T                    | 850           | 7" diameter plastic tape and reel  |
| SS36-E3/9AT                | 0.235           | 9AT                    | 3500          | 13" diameter plastic tape and reel |
| SS36HE3_B/H <sup>(1)</sup> | 0.235           | H                      | 850           | 7" diameter plastic tape and reel  |
| SS36HE3_B/I <sup>(1)</sup> | 0.235           | I                      | 3500          | 13" diameter plastic tape and reel |
| SS36-M3/57T                | 0.235           | 57T                    | 850           | 7" diameter plastic tape and reel  |
| SS36-M3/9AT                | 0.235           | 9AT                    | 3500          | 13" diameter plastic tape and reel |
| SS36HM3_A/H <sup>(1)</sup> | 0.235           | H                      | 850           | 7" diameter plastic tape and reel  |
| SS36HM3_A/I <sup>(1)</sup> | 0.235           | I                      | 3500          | 13" diameter plastic tape and reel |

**Note**

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

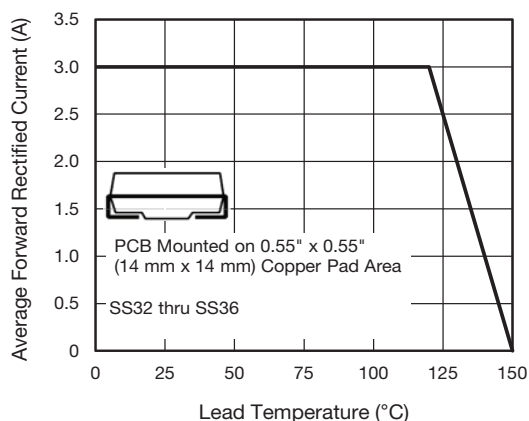
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

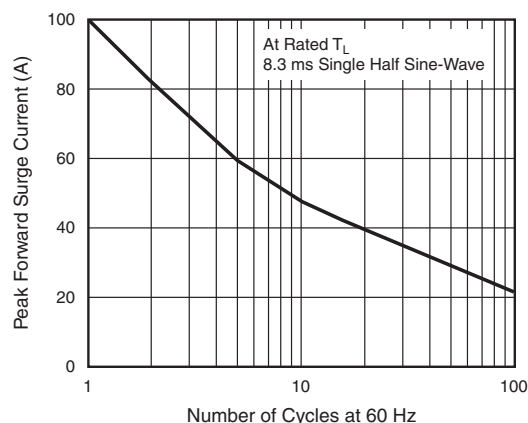


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

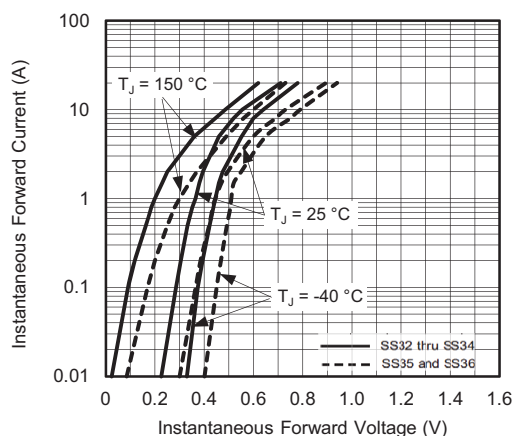


Fig. 3 - Typical Instantaneous Forward Characteristics

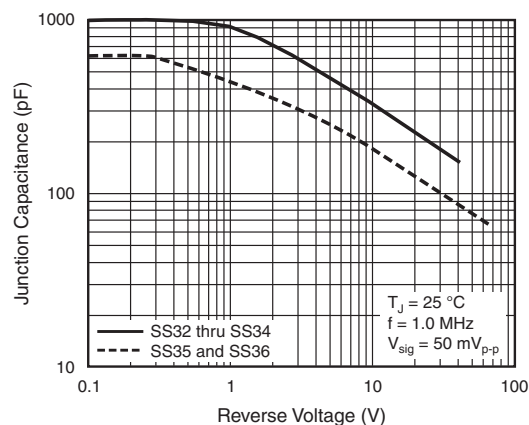


Fig. 5 - Typical Junction Capacitance

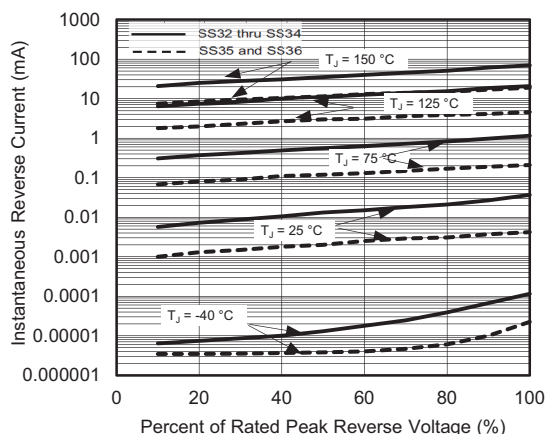


Fig. 4 - Typical Reverse Current Characteristics

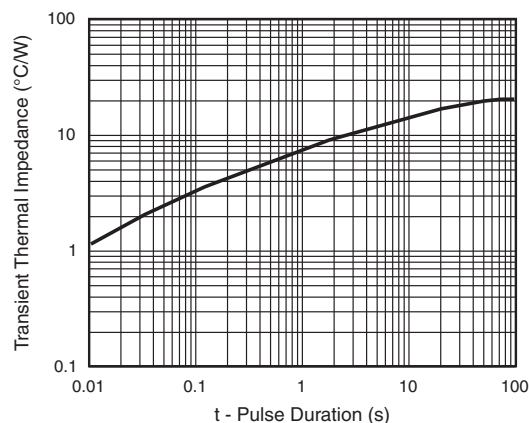
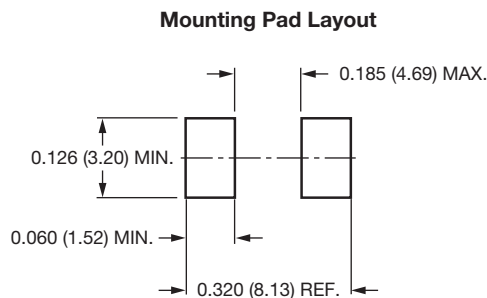
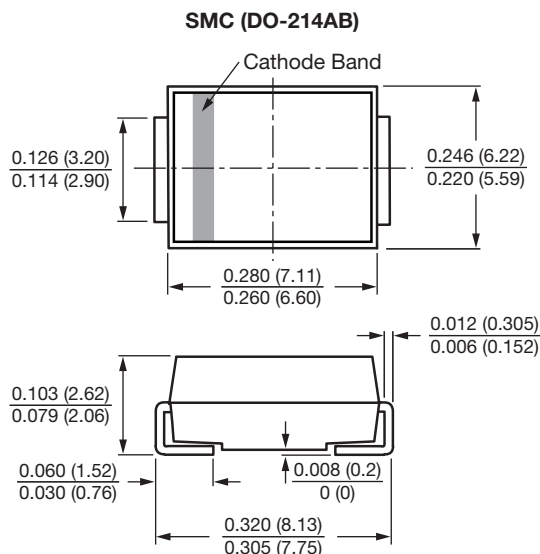


Fig. 6 - Typical Transient Thermal Impedance

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





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