

# High Current Density Surface Mount Schottky Rectifier



SMA (DO-214AC)

## 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-214AC (SMA)

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 cathode end

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 3.0 A          |
| $V_{RRM}$               | 30 V, 40 V     |
| $I_{FSM}$               | 75 A           |
| $V_F$                   | 0.38 V, 0.42 V |
| $T_J \text{ max.}$      | 150 °C         |
| Package                 | DO-214AC (SMA) |
| Diode variations        | Single         |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                     |             |             |       |            |
|------------------------------------------------------------------------------------|-------------|-------------|-------|------------|
| PARAMETER                                                                          | SYMBOL      | SSA33L      | SSA34 | UNIT       |
| Device marking code                                                                |             | 33L         | S34   | V          |
| Maximum repetitive peak reverse voltage                                            | $V_{RRM}$   | 30          | 40    | V          |
| Maximum RMS voltage                                                                | $V_{RMS}$   | 21          | 28    | V          |
| Maximum DC blocking voltage                                                        | $V_{DC}$    | 30          | 40    | 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 | $I_{FSM}$   | 75          |       | A          |
| Voltage rate of change (rated $V_R$ )                                              | $dV/dt$     | 10 000      |       | V/ $\mu$ s |
| Operating junction temperature range                                               | $T_J$       | -65 to +150 |       | °C         |
| Storage temperature range                                                          | $T_{STG}$   | -65 to +150 |       | °C         |

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                 |                         |                |        |      |       |      |      |
|----------------------------------------------------------------------------|-----------------|-------------------------|----------------|--------|------|-------|------|------|
| PARAMETER                                                                  | TEST CONDITIONS |                         | SYMBOL         | SSA33L |      | SSA34 |      | UNIT |
|                                                                            |                 |                         |                | TYP.   | MAX. | TYP.  | MAX. |      |
| Maximum instantaneous forward voltage <sup>(1)</sup>                       | 3.0 A           | T <sub>J</sub> = 25 °C  | V <sub>F</sub> | 0.43   | 0.45 | 0.46  | 0.49 | V    |
|                                                                            |                 | T <sub>J</sub> = 125 °C |                | 0.34   | 0.38 | 0.38  | 0.42 |      |
| Maximum reverse current at rated V <sub>R</sub> <sup>(2)</sup>             |                 | T <sub>J</sub> = 25 °C  | I <sub>R</sub> | -      | 0.5  | -     | 0.2  | mA   |
|                                                                            |                 | T <sub>J</sub> = 125 °C |                | 20     | 35   | 17    | 30   |      |

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

<sup>(2)</sup> Pulse test: Pulse width  $\leq 40\text{ ms}$ 

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |        |       |      |
|-------------------------------------------------------------------------|------------------|--------|-------|------|
| PARAMETER                                                               | SYMBOL           | SSA33L | SSA34 | UNIT |
| Typical thermal resistance <sup>(1)</sup>                               | R <sub>θJA</sub> | 110    |       | °C/W |
|                                                                         | R <sub>θJL</sub> | 28     |       |      |

**Note**
<sup>(1)</sup> Aluminum substrate mounted

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |                                    |
|---------------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| SSA33L-E3/61T                         | 0.064           | 61T                    | 1800          | 7" diameter plastic tape and reel  |
| SSA33L-E3/5AT                         | 0.064           | 5AT                    | 7500          | 13" diameter plastic tape and reel |
| SSA33LHE3_A/H <sup>(1)</sup>          | 0.064           | H                      | 1800          | 7" diameter plastic tape and reel  |
| SSA33LHE3_A/I <sup>(1)</sup>          | 0.064           | I                      | 7500          | 13" diameter plastic tape and reel |

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

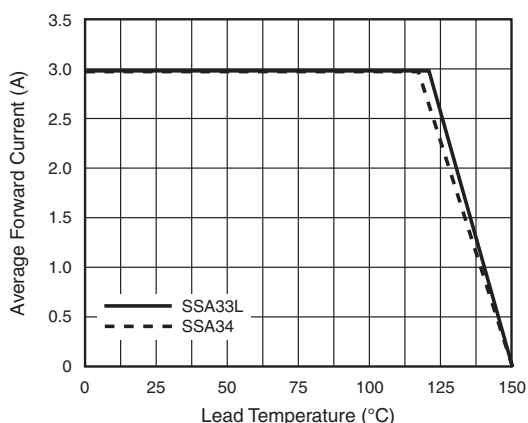
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

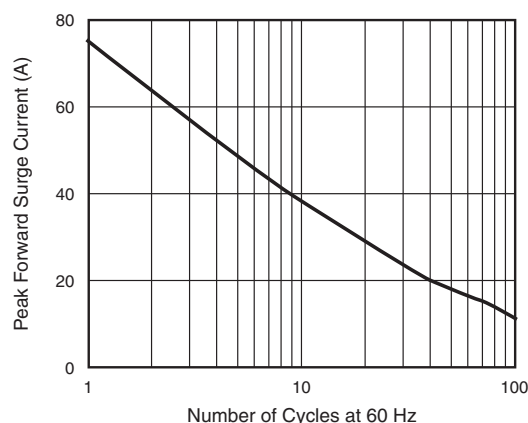


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

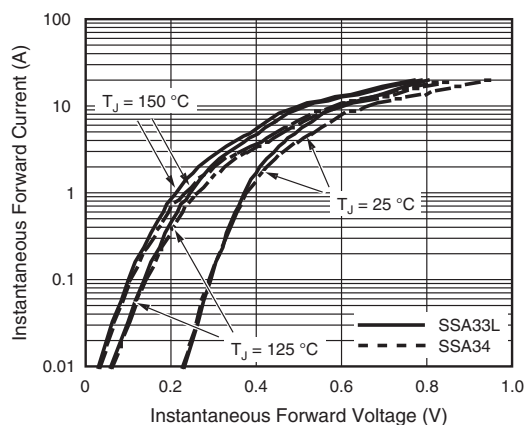


Fig. 3 - Typical Instantaneous Forward Characteristics

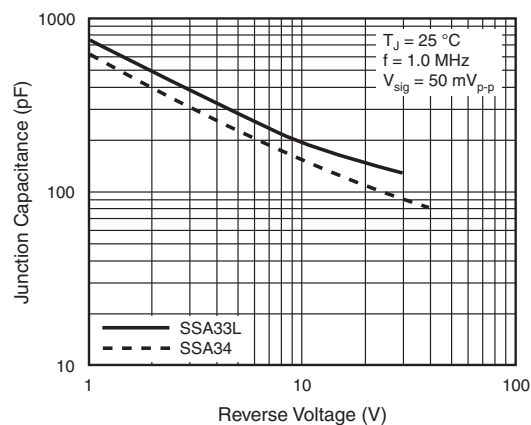


Fig. 5 - Typical Junction Capacitance

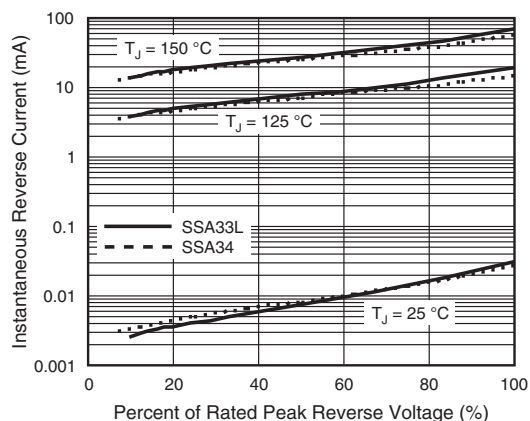
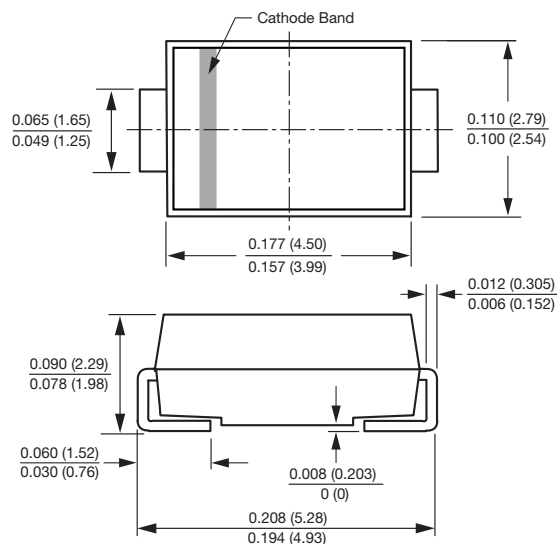
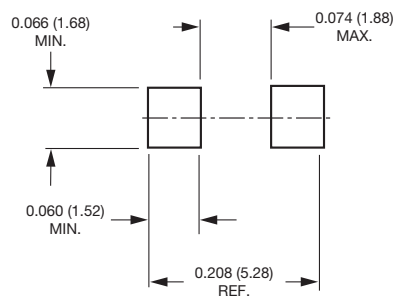


Fig. 4 - Typical Reverse Characteristics

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

SMA (DO-214AC)


**Mounting Pad Layout**




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