

# High-Current Density Surface Mount Schottky Rectifier



DO-214AC (SMA)

## 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
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC


RoHS  
COMPLIANT

## 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 |
| $T_J$ max.  | 150 °C         |

## TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, dc-to-dc converters, and polarity protection applications.

## MECHANICAL DATA

**Case:** DO-214AC (SMA)

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

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

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

| PARAMETER                                             | TEST CONDITIONS                                                                    | SYMBOL | SSA33L       |              | SSA34        |              | UNIT |
|-------------------------------------------------------|------------------------------------------------------------------------------------|--------|--------------|--------------|--------------|--------------|------|
|                                                       |                                                                                    |        | TYP.         | MAX.         | TYP.         | MAX.         |      |
| Maximum instantaneous forward voltage <sup>(1)</sup>  | 3.0 A<br>$T_J = 25\text{ }^{\circ}\text{C}$<br>$T_J = 125\text{ }^{\circ}\text{C}$ | $V_F$  | 0.43<br>0.34 | 0.45<br>0.38 | 0.46<br>0.38 | 0.49<br>0.42 | V    |
| Maximum reverse current at rated $V_R$ <sup>(2)</sup> | $T_J = 25\text{ }^{\circ}\text{C}$<br>$T_J = 125\text{ }^{\circ}\text{C}$          | $I_R$  | -<br>20      | 0.5<br>35    | -<br>17      | 0.2<br>30    | mA   |

**Notes:**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: Pulse width  $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                 | SYMBOL                             | SSA33L    | SSA34 | UNIT                 |
|-------------------------------------------|------------------------------------|-----------|-------|----------------------|
| Typical thermal resistance <sup>(1)</sup> | $R_{\theta JA}$<br>$R_{\theta JL}$ | 110<br>28 |       | $^{\circ}\text{C/W}$ |

**Note:**

(1) Aluminum substrate mounted

**ORDERING INFORMATION** (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 |
| SSA33LHE3/61T <sup>(1)</sup> | 0.064           | 61T                    | 1800          | 7" diameter plastic tape and reel  |
| SSA33LHE3/5AT <sup>(1)</sup> | 0.064           | 5AT                    | 7500          | 13" diameter plastic tape and reel |

**Note:**

(1) Automotive grade AEC Q101 qualified

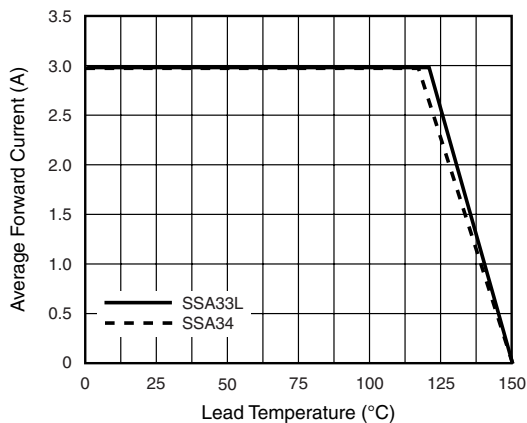
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Figure 1. Forward Current Derating Curve

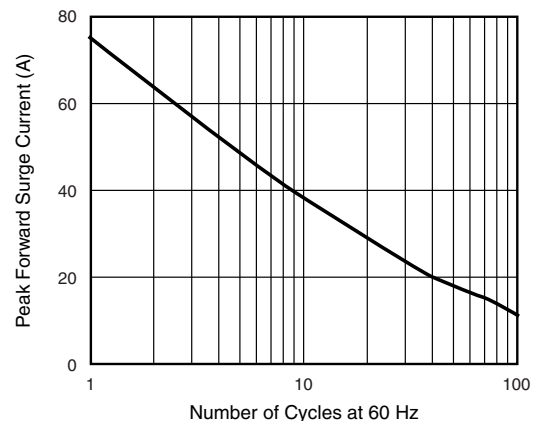


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

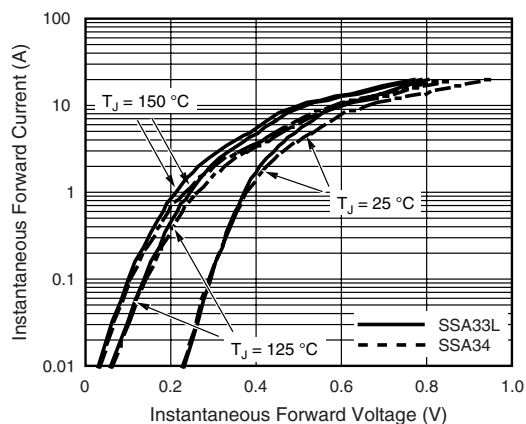


Figure 3. Typical Instantaneous Forward Characteristics

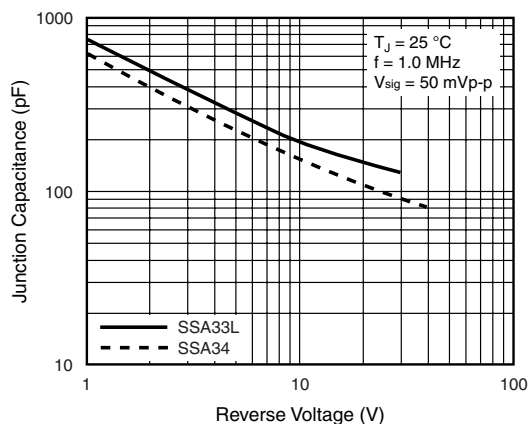


Figure 5. Typical Junction Capacitance

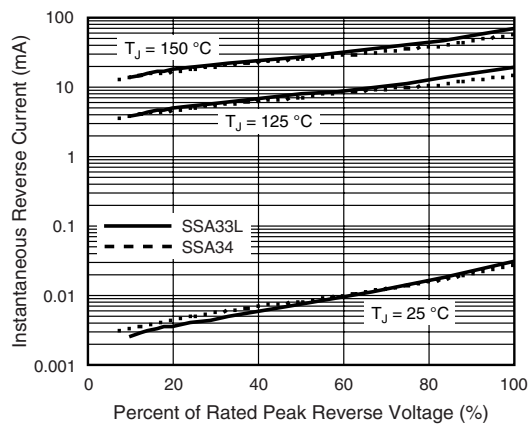
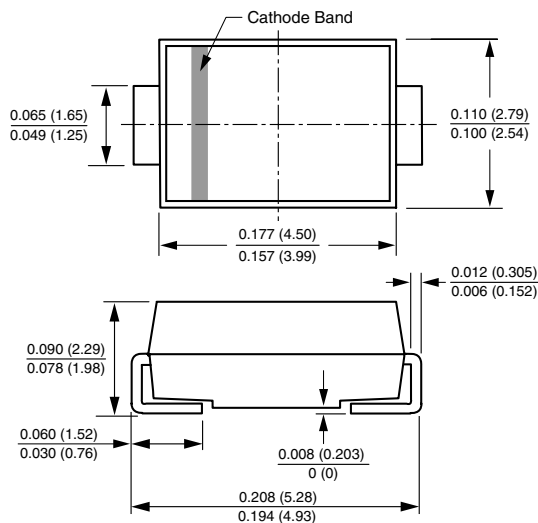


Figure 4. Typical Reverse Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-214AC (SMA)



### Mounting Pad Layout

