New Product

RoHS

COMPLIANT



Vishay General Semiconductor

# **High-Current Density Surface Mount Schottky Rectifier**



DO-214AB (SMC)

## **FEATURES**

- Low profile package
- · Ideal for automated placement
- · Guardring for overvoltage protection
- Low power losses, high efficiency
- · Very 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

### **TYPICAL APPLICATIONS**

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

### **MECHANICAL DATA**

Case: DO-214AB (SMC)

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 gualified), meets

Polarity: Color band denotes the cathode end

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)                       |                    |                  |     |      |  |
|---|--------------------|------------------|-----|------|--|
| PARAMETER   | SYMBOL             | SSC53L SSC54     |     | UNIT |  |
| Device marking code   |                    | 53L              | S54 |      |  |
| Maximum repetitive peak reverse voltage   | V <sub>RRM</sub>   | 30               | 40  | V    |  |
| Maximum RMS voltage   | V <sub>RMS</sub>   | 21               | 28  | V    |  |
| Maximum DC blocking voltage   | V <sub>DC</sub>    | 30               | 40  | V    |  |
| Maximum average forward rectified current at $T_L$ (Fig. 1)                           | I <sub>F(AV)</sub> | 5.0              |     | А    |  |
| Peak forward surge current 8.3 ms single half sine-wave<br>superimposed on rated load | I <sub>FSM</sub>   | 175              |     | А    |  |
| Voltage rate of change (rated V <sub>R</sub> )  | dV/dt              | 10 000           |     | V/µs |  |
| Operating junction temperature range  | TJ                 | - 65 to + 150    |     | °C   |  |
| Storage temperature range   | T <sub>STG</sub>   | - 65 to + 150 °C |     | °C   |  |

For technical questions within your region, please contact one of the following: PDD-Americas@vishay.com, PDD-Asia@vishay.com, PDD-Europe@vishay.com



| PRIMARY CHARACTERISTICS |                |  |  |  |
|-------------------------|----------------|--|--|--|
| I <sub>F(AV)</sub>      | 5.0 A          |  |  |  |
| V <sub>RRM</sub>        | 30 V, 40 V     |  |  |  |
| I <sub>FSM</sub>        | 175 A          |  |  |  |
| V <sub>F</sub>          | 0.38 V, 0.42 V |  |  |  |
| T <sub>J</sub> max.     | 150 °C         |  |  |  |

## SSC53L & SSC54



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| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25 \degree C$ unless otherwise noted) |                                  |   |                |              |              |              |              |      |
|--|----------------------------------|---|----------------|--------------|--------------|--------------|--------------|------|
| DADAMETED  | PARAMETER TEST CONDITIONS SYMBOL |   | CVMPOL         | SSC53L       |              | SSC54        |              | UNIT |
| PANAMETEN  |                                  |   | STMBOL         | TYP.         | MAX.         | TYP.         | MAX.         | UNIT |
| Maximum instantaneous forward voltage <sup>(1)</sup>                             | 5.0 A                            | T <sub>J</sub> = 25 °C<br>T <sub>J</sub> = 125 °C | V <sub>F</sub> | 0.42<br>0.33 | 0.45<br>0.38 | 0.45<br>0.36 | 0.49<br>0.42 | V    |
| Maximum reverse current at rated $\mathrm{V_{R}}\ ^{(2)}$                        |                                  | T <sub>J</sub> = 25 °C<br>T <sub>J</sub> = 125 °C | I <sub>R</sub> | -<br>45      | 0.7<br>65    | -<br>40      | 0.5<br>60    | mA   |

#### Notes:

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

(2) Pulse test: Pulse width  $\leq$  40 ms

| <b>THERMAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted) |  |          |       |      |  |
|--|--|----------|-------|------|--|
| PARAMETER  | SYMBOL                                     | SSC53L   | SSC54 | UNIT |  |
| Typical thermal resistance <sup>(1)</sup>                                      | $R_{	extsf{	heta}JA}\ R_{	extsf{	heta}JL}$ | 60<br>20 |       | °C/W |  |

#### Note:

(1) Aluminum substrate mounted

| ORDERING INFORMATION (Example) |                 |                        |               |                                    |  |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|--|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |  |
| SSC53L-E3/57T                  | 0.235           | 57T                    | 850           | 7" diameter plastic tape and reel  |  |
| SSC53L-E3/9AT                  | 0.235           | 9AT                    | 3500          | 13" diameter plastic tape and reel |  |
| SSC53LHE3/57T (1)              | 0.235           | 57T                    | 850           | 7" diameter plastic tape and reel  |  |
| SSC53LHE3/9AT <sup>(1)</sup>   | 0.235           | 9AT                    | 3500          | 13" diameter plastic tape and reel |  |

#### Note:

(1) Automotive grade AEC Q101 qualified

### **RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)







Figure 2. Maximum Non-Repetitive Peak Forward Surge Current



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Figure 3. Typical Instantaneous Forward Characteristics



Figure 5. Typical Junction Capacitance



Figure 4. Typical Reverse Characteristics

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



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