

# Schottky Barrier Rectifier

## Surface Mount

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RoHS  
Compliant



### Features

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- For surface mounted applications
- Built-in strain relief, ideal for automated placement
- Low reverse leakage
- High forward surge current capability
- High temperature soldering guaranteed 250°C/10 seconds at terminals

### Absolute Maximum Ratings (Ta = 25°C Unless otherwise specified)

| Parameter                                                                         | Symbol            | SS545L Value | Unit |
|-----------------------------------------------------------------------------------|-------------------|--------------|------|
| Maximum repetitive peak reverse voltage                                           | V <sub>RRM</sub>  | 45           | V    |
| Maximum RMS voltage                                                               | V <sub>RMS</sub>  | 31.5         |      |
| Maximum DC blocking voltage                                                       | V <sub>DC</sub>   | 45           |      |
| Maximum average forward rectified current at T <sub>L</sub> =100°C                | I <sub>(AV)</sub> | 5            | A    |
| Peak forward surge current, 8.3ms single halfsine-wave superimposed on rated load | I <sub>FSM</sub>  | 120          |      |
| Maximum instantaneous forward voltage at 5A                                       | V <sub>F</sub>    | 0.48         | V    |
| Maximum DC reverse current T <sub>A</sub> =25°C                                   | I <sub>R</sub>    | 0.5          | mA   |
| at rated DC blocking voltage T <sub>A</sub> =125°C                                |                   | 50           |      |
| Typical thermal resistance                                                        | R <sub>qJA</sub>  | 80           | °C/W |
| Operating Junction Temperature Range                                              | T <sub>J</sub>    | -55 to +150  | °C   |
| Storage Temperature Range                                                         | T <sub>STG</sub>  | -55 to +150  | °C   |

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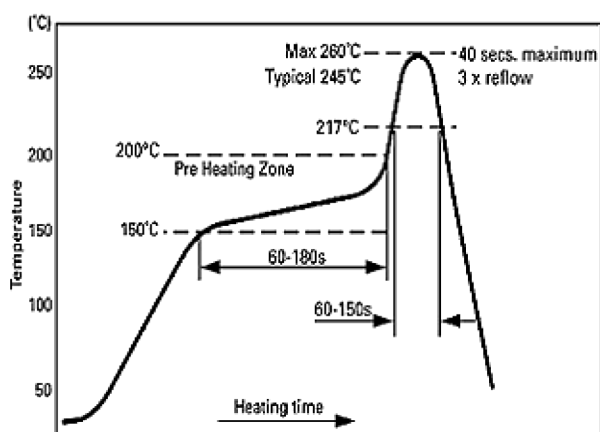
## Recommended Reflow Solder Profiles

The recommended reflow solder profiles for Pb and Pb-free devices are shown below.

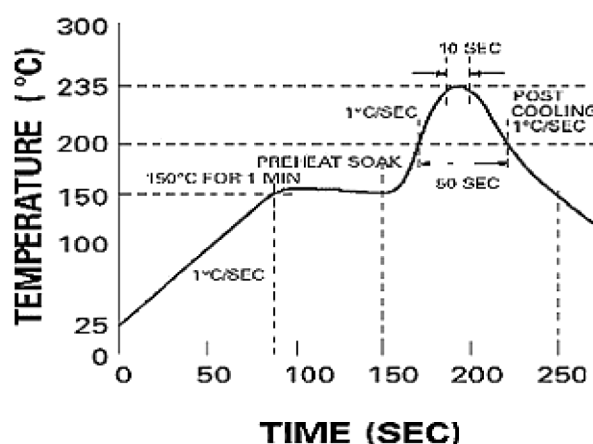
Figure 1 shows the recommended solder profile for devices that have Pb-free terminal plating, and where a Pb-free solder is used.

Figure 2 shows the recommended solder profile for devices with Pb-free terminal plating used with leaded solder, or for devices with leaded terminal plating used with a leaded solder.

**Figure 1**



**Figure 2**



## Reflow profiles in tabular form

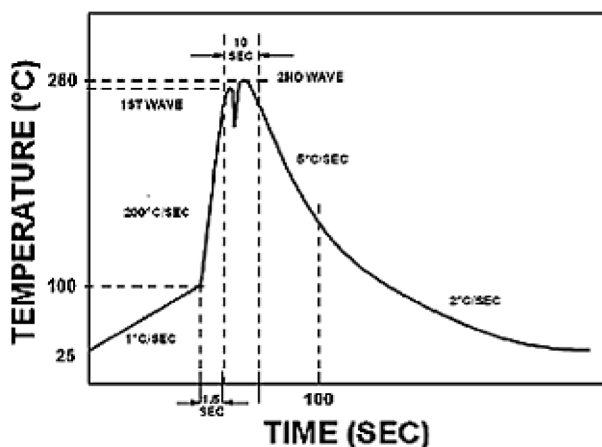
| Profile Feature                                   | Sn-Pb System                | Pb-Free System              |
|---------------------------------------------------|-----------------------------|-----------------------------|
| Average Ramp-Up Rate                              | ~3°C/second                 | ~3°C/second                 |
| Preheat<br>– Temperature Range<br>– Time          | 150-170°C<br>60-180 seconds | 150-200°C<br>60-180 seconds |
| Time maintained above:<br>– Temperature<br>– Time | 200°C<br>30-50 seconds      | 217°C<br>60-150 seconds     |
| Peak Temperature                                  | 235°C                       | 260°C max.                  |
| Time within +0 -5°C of actual Peak                | 10 seconds                  | 40 seconds                  |
| Ramp-Down Rate                                    | 3°C/second max.             | 6°C/second max.             |

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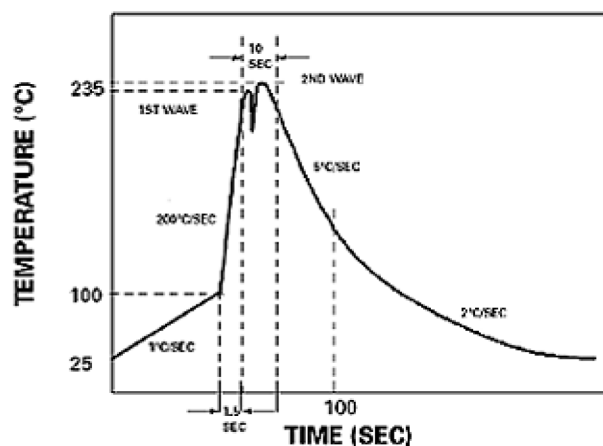
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## Recommended Wave Solder Profiles

The Recommended solder Profile For Devices with Pb-free terminal plating where a Pb-free solder is used



The Recommended solder Profile For Devices with Pb-free terminal plating used with leaded solder, or for devices with leaded terminal plating used with leaded solder



## Wave Profiles in Tabular Form

| Profile Feature                    | Sn-Pb System                | Pb-Free System              |
|------------------------------------|-----------------------------|-----------------------------|
| Average Ramp-Up Rate               | ~200°C/second               | ~200°C/second               |
| Heating rate during preheat        | Typical 1-2, Max 4°C/sec    | Typical 1-2, Max 4°C/Sec    |
| Final preheat Temperature          | Within 125°C of Solder Temp | Within 125°C of Solder Temp |
| Peak Temperature                   | 235°C                       | 260°C max.                  |
| Time within +0 -5°C of actual Peak | 10 seconds                  | 10 seconds                  |
| Ramp-Down Rate                     | 3°C/second max.             | 5°C/second max.             |

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## Typical Characteristic Curves

Fig 1: Derating Curve Output Rectified Current

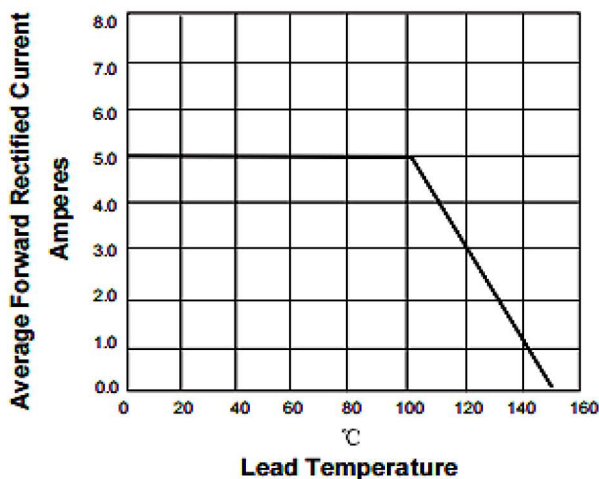


Fig 3: Maximum Non-Repetitive Peak Forward Surge Current Per leg

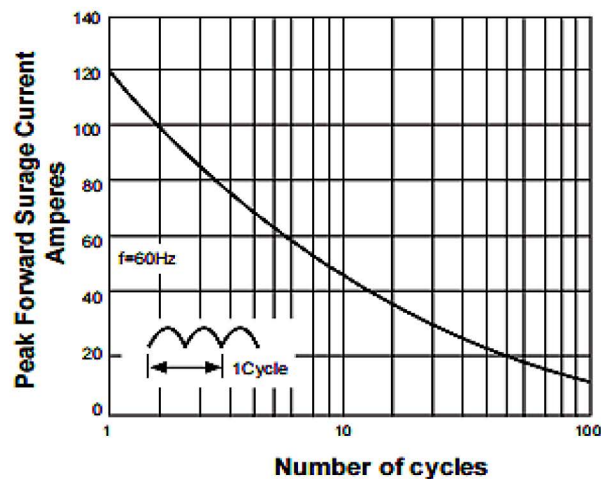


Fig 2: Typical Forward Voltage Characteristics

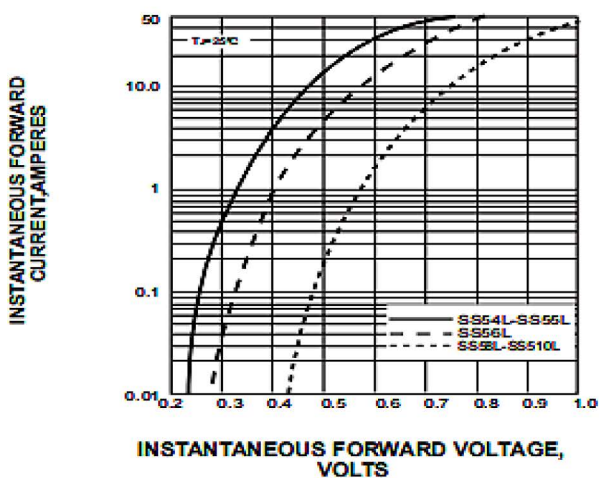
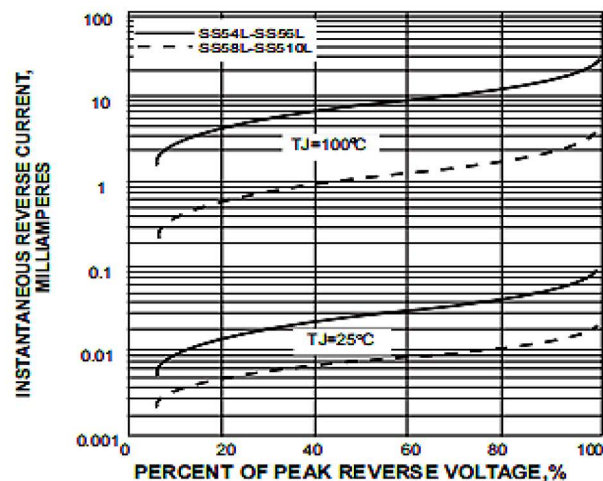


Fig 4: Typical Reverse Leakage Characteristics

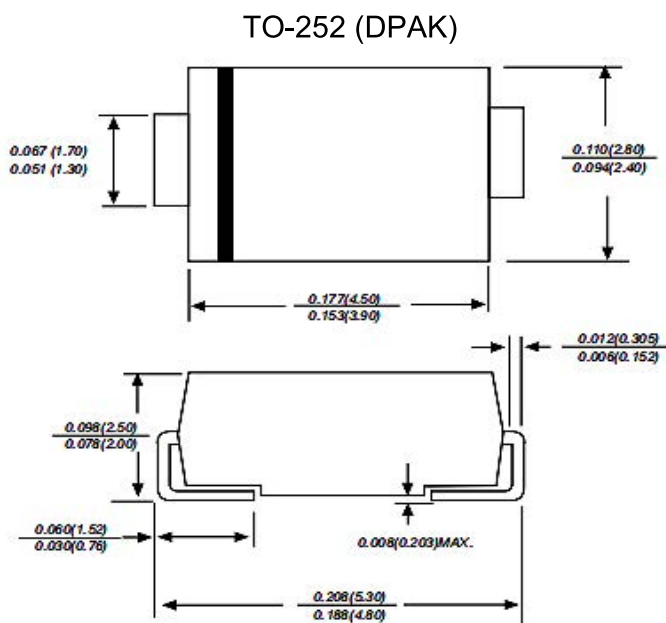


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## Dimensions



## Part Number Table

| Description                                       | Part Number |
|---------------------------------------------------|-------------|
| Schottky Barrier Rectifier, Surface Mount, 5.0Amp | SS545L      |

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