Surface-Mount Fast Switching Rectifier

**FEATURES**
- Low profile package
- Ideal for automated placement
- Glass passivated pellet chip junction
- Fast switching for high efficiency
- High forward 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

**TYPICAL APPLICATIONS**
For use in fast switching rectification of power supply, inverters, converters, and freewheeling diodes for consumer, automotive and telecommunication.

**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 cathode end

**PRIMARY CHARACTERISTICS**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>RS3A</th>
<th>RS3B</th>
<th>RS3D</th>
<th>RS3G</th>
<th>RS3J</th>
<th>RS3K</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device marking code</td>
<td></td>
<td>RA</td>
<td>RB</td>
<td>RD</td>
<td>RG</td>
<td>RJ</td>
<td>RK</td>
<td></td>
</tr>
<tr>
<td>Maximum repetitive peak reverse voltage</td>
<td>V_{RRM}</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>V</td>
</tr>
<tr>
<td>Maximum RMS voltage</td>
<td>V_{RMS}</td>
<td>35</td>
<td>70</td>
<td>140</td>
<td>280</td>
<td>420</td>
<td>500</td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC blocking voltage</td>
<td>V_{DC}</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>V</td>
</tr>
<tr>
<td>Maximum average forward rectified current at T_{J} = 75 °C</td>
<td>I_{F(AV)}</td>
<td></td>
<td>3.0</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load</td>
<td>I_{FSM}</td>
<td></td>
<td>100</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating junction and storage temperature range</td>
<td>T_{J}, T_{STG}</td>
<td>-55 to +150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C</td>
</tr>
</tbody>
</table>

**MAXIMUM RATINGS** (T_{A} = 25 °C unless otherwise noted)

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**ADDITIONAL RESOURCES**
3D Models
RS3A, RS3B, RS3D, RS3G, RS3J, RS3K

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**ELECTRICAL CHARACTERISTICS** *(T_A = 25 °C unless otherwise noted)*

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>TEST CONDITIONS</th>
<th>SYMBOL</th>
<th>RS3A</th>
<th>RS3B</th>
<th>RS3D</th>
<th>RS3G</th>
<th>RS3J</th>
<th>RS3K</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum instantaneous forward voltage</td>
<td>2.5 A</td>
<td>V_F</td>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC reverse current at rated DC blocking voltage</td>
<td></td>
<td>I_R</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>μA</td>
</tr>
<tr>
<td>Maximum reverse recovery time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ns</td>
</tr>
<tr>
<td>Typical junction capacitance</td>
<td>4.0 V, 1 MHz</td>
<td>C_J</td>
<td>44</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pF</td>
</tr>
</tbody>
</table>

**THERMAL CHARACTERISTICS** *(T_A = 25 °C unless otherwise noted)*

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>RS3A</th>
<th>RS3B</th>
<th>RS3D</th>
<th>RS3G</th>
<th>RS3J</th>
<th>RS3K</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical thermal resistance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note

1. Thermal resistance from junction to ambient and from junction to lead mounted on PCB with 0.3” x 0.3” (8.0 mm x 8.0 mm) copper pad area

**ORDERING INFORMATION** (Example)

<table>
<thead>
<tr>
<th>PREFERRED P/N</th>
<th>UNIT WEIGHT (g)</th>
<th>PREFERRED PACKAGE CODE</th>
<th>BASE QUANTITY</th>
<th>DELIVERY MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS3J-E3/57T</td>
<td>0.211</td>
<td>57T</td>
<td>850</td>
<td>7” diameter plastic tape and reel</td>
</tr>
<tr>
<td>RS3J-E3/9AT</td>
<td>0.211</td>
<td>9AT</td>
<td>3500</td>
<td>13” diameter plastic tape and reel</td>
</tr>
<tr>
<td>RS3JHE3_A/H (1)</td>
<td>0.211</td>
<td>H</td>
<td>850</td>
<td>7” diameter plastic tape and reel</td>
</tr>
<tr>
<td>RS3JHE3_A/I (1)</td>
<td>0.211</td>
<td>I</td>
<td>3500</td>
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</tr>
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Note

1. AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES** *(T_A = 25 °C unless otherwise noted)*

- Fig. 1 - Forward Current Derating Curve
- Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

**FOR TECHNICAL QUESTIONS WITHIN YOUR REGION:**
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**RS3A, RS3B, RS3D, RS3G, RS3J, RS3K**

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**Fig. 3 - Typical Instantaneous Forward Characteristics**

**Fig. 4 - Typical Reverse Characteristics**

**Fig. 5 - Typical Junction Capacitance**

**Fig. 6 - Typical Transient Thermal Impedance**

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

**SMC (DO-214AB)**

**Mounting Pad Layout**

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For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

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