**Surface-Mount Schottky Barrier Rectifier**

**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 available
  - Automotive ordering code: base P/NHE3 or P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

**TYPICAL APPLICATIONS**
For use in low voltage, high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

**MECHANICAL DATA**
- Case: SMA (DO-214AC)
- 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, ….)

**TYPICAL APPLICATIONS**
For use in low voltage, high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

**MAXIMUM RATINGS**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>SS12</th>
<th>SS13</th>
<th>SS14</th>
<th>SS15</th>
<th>SS16</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device marking code</td>
<td></td>
<td>S2</td>
<td>S3</td>
<td>S4</td>
<td>S5</td>
<td>S6</td>
<td>V</td>
</tr>
<tr>
<td>Maximum repetitive peak reverse voltage</td>
<td>VRRM</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>V</td>
</tr>
<tr>
<td>Maximum RMS voltage</td>
<td>VRMS</td>
<td>14</td>
<td>21</td>
<td>28</td>
<td>35</td>
<td>42</td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC blocking voltage</td>
<td>VDC</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>V</td>
</tr>
<tr>
<td>Maximum average forward rectified current at TJ (fig. 1)</td>
<td>IFAVI</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load</td>
<td>IFSM</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Voltage rate of change (rated VR)</td>
<td>dV/dt</td>
<td>10000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>V/μs</td>
</tr>
<tr>
<td>Operating junction temperature range</td>
<td>TJ</td>
<td>-65 to +150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>TSTG</td>
<td>-65 to +150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C</td>
</tr>
</tbody>
</table>
## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C unless otherwise noted)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>TEST CONDITIONS</th>
<th>SYMBOL</th>
<th>SS12</th>
<th>SS13</th>
<th>SS14</th>
<th>SS15</th>
<th>SS16</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum instantaneous forward voltage</td>
<td>1.0 A</td>
<td>V&lt;sub&gt;F&lt;/sub&gt; (1)</td>
<td>0.50</td>
<td>0.75</td>
<td>0.50</td>
<td>0.75</td>
<td>0.50</td>
<td>0.75</td>
</tr>
<tr>
<td>Maximum DC reverse current at rated DC blocking voltage</td>
<td>T&lt;sub&gt;A&lt;/sub&gt; = 25 °C</td>
<td>I&lt;sub&gt;R&lt;/sub&gt; (2)</td>
<td>6.0</td>
<td>5.0</td>
<td>0.2</td>
<td>6.0</td>
<td>5.0</td>
<td>mA</td>
</tr>
</tbody>
</table>

### Notes

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: pulse width ≤ 40 ms

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

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>SS12</th>
<th>SS13</th>
<th>SS14</th>
<th>SS15</th>
<th>SS16</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical thermal resistance (1)</td>
<td>R&lt;sub&gt;θJA&lt;/sub&gt;</td>
<td>88</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C/W</td>
</tr>
<tr>
<td></td>
<td>R&lt;sub&gt;θJL&lt;/sub&gt;</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C/W</td>
</tr>
</tbody>
</table>

### Note

(1) PCB mounted with 0.2” x 0.2” (5.0 mm x 5.0 mm) copper pad areas

## 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>SS16-E3/61T</td>
<td>0.064</td>
<td>61T</td>
<td>1800</td>
<td>7” diameter plastic tape and reel</td>
</tr>
<tr>
<td>SS16-E3/5AT</td>
<td>0.064</td>
<td>5AT</td>
<td>7500</td>
<td>13” diameter plastic tape and reel</td>
</tr>
<tr>
<td>SS16HE3_B/H (1)</td>
<td>0.064</td>
<td>H</td>
<td>1800</td>
<td>7” diameter plastic tape and reel</td>
</tr>
<tr>
<td>SS16HE3_B/I (1)</td>
<td>0.064</td>
<td>I</td>
<td>7500</td>
<td>13” diameter plastic tape and reel</td>
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<td>SS16-M3/61T</td>
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</tr>
</tbody>
</table>

### Note

(1) AEC-Q101 qualified
RATINGS AND CHARACTERISTICS CURVES \( (T_A = 25 \, ^\circ C \text{ unless otherwise noted}) \)

Fig. 1 - Forward Current Derating Curve

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

Fig. 3 - Typical Instantaneous Forward Characteristics

Fig. 4 - Typical Reverse Characteristics

Fig. 5 - Typical Junction Capacitance
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMA (DO-214AC)

Cathode Band

0.065 (1.65)
0.049 (1.25)

0.177 (4.50)
0.157 (3.99)

0.012 (0.305)
0.006 (0.152)

0.066 (1.68) MIN.
0.060 (1.52) MIN.

0.074 (1.88) MAX.
0.208 (5.28) REF.

0.090 (2.29)
0.078 (1.98)

0.060 (1.52)
0.030 (0.76)

0.008 (0.203)
0 (0)

0.208 (5.28)
0.194 (4.93)
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