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

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

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 the cathode end

MAXIMUM RATINGS (TA = 25 °C unless otherwise noted)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>SS32</th>
<th>SS33</th>
<th>SS34</th>
<th>SS35</th>
<th>SS36</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></td>
</tr>
<tr>
<td>Maximum repetitive peak reverse voltage</td>
<td>VRM</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>IF(AV)</td>
<td>3.0</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>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Non-repetitive avalanche energy at TA = 25 °C, IAS = 2.0 A, L = 10 mH</td>
<td>EAS</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>mJ</td>
</tr>
<tr>
<td>Voltage rate of change (rated VP)</td>
<td>dV/dt</td>
<td>10 000</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>-55 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>-55 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>SS32</th>
<th>SS33</th>
<th>SS34</th>
<th>SS35</th>
<th>SS36</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum instantaneous forward voltage (1)</td>
<td>3.0 A</td>
<td>V&lt;sub&gt;F&lt;/sub&gt;</td>
<td>0.5</td>
<td>0.75</td>
<td></td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC reverse current at rated DC blocking voltage (1)</td>
<td>T&lt;sub&gt;A&lt;/sub&gt; = 25 °C</td>
<td>I&lt;sub&gt;R&lt;/sub&gt;</td>
<td>20</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>mA</td>
</tr>
</tbody>
</table>

Note

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

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

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>SS32</th>
<th>SS33</th>
<th>SS34</th>
<th>SS35</th>
<th>SS36</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>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C/W</td>
</tr>
<tr>
<td></td>
<td>R&lt;sub&gt;ΘUL&lt;/sub&gt;</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C/W</td>
</tr>
</tbody>
</table>

Note

(1) PCB mounted with 0.55" x 0.55" (14 mm x 14 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>SS36-E3/57T</td>
<td>0.235</td>
<td>57T</td>
<td>850</td>
<td>7&quot; diameter plastic tape and reel</td>
</tr>
<tr>
<td>SS36-E3/9AT</td>
<td>0.235</td>
<td>9AT</td>
<td>3500</td>
<td>13&quot; diameter plastic tape and reel</td>
</tr>
<tr>
<td>SS36HE3_B/H (1)</td>
<td>0.235</td>
<td>H</td>
<td>850</td>
<td>7&quot; diameter plastic tape and reel</td>
</tr>
<tr>
<td>SS36-M3/57T</td>
<td>0.235</td>
<td>57T</td>
<td>3500</td>
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<td>SS36-M3/9AT</td>
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<td>9AT</td>
<td>3500</td>
<td>13&quot; diameter plastic tape and reel</td>
</tr>
<tr>
<td>SS36HM3_A/H (1)</td>
<td>0.235</td>
<td>H</td>
<td>850</td>
<td>7&quot; diameter plastic tape and reel</td>
</tr>
<tr>
<td>SS36HM3_A/I (1)</td>
<td>0.235</td>
<td>I</td>
<td>3500</td>
<td>13&quot; diameter plastic tape and reel</td>
</tr>
</tbody>
</table>

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

![Forward Current Derating Curve](image1)

![Maximum Non-Repetitive Peak Forward Surge Current](image2)

**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 Current Characteristics

Fig. 5 - Typical Junction Capacitance

Fig. 6 - Typical Transient Thermal Impedance

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

SMC (DO-214AB)

Cathode Band

Mounting Pad Layout

0.185 (4.69) MAX.

0.126 (3.20) MIN.

0.060 (1.52) MIN.

0.320 (8.13) REF.

0.126 (3.20) MIN.

0.060 (1.52) MIN.

0.320 (8.13) REF.

0.126 (3.20) 0.114 (2.90) 0.103 (2.62) 0.069 (1.52) 0.030 (0.76)

0.246 (6.22) 0.220 (5.59) 0.280 (7.11) 0.260 (6.60) 0.012 (0.305)

0.012 (0.305) 0.006 (0.152) 0.008 (0.2) 0 (0)

0.320 (8.13) 0.305 (7.75)

0.008 (0.2)

0.0008 (0.02)

0.126 (3.20) 0.114 (2.90) 0.103 (2.62) 0.069 (1.52) 0.030 (0.76)
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