High Current Density Surface Mount
TMBS® (Trench MOS Barrier Schottky) Rectifier

Ultra Low $V_F = 0.58$ V at $I_F = 4$ A

FEATURES
- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
  - Automotive ordering code; base 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: SMPC (TO-277A)
Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade
Base P/NHM3 - halogen-free, RoHS-compliant and AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 and HM3 suffix meets JESD 201 class 2 whisker test

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>V8P15</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device marking code</td>
<td>V815</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum repetitive peak reverse voltage</td>
<td>$V_{RRM}$</td>
<td>150</td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC forward current</td>
<td>$I_{F(DC)}$</td>
<td>8</td>
<td>A</td>
</tr>
<tr>
<td>Peak forward surge current 10 ms single half sine-wave superimposed on rated load</td>
<td>$I_{FSM}$</td>
<td>140</td>
<td>A</td>
</tr>
<tr>
<td>Operating junction and storage temperature range</td>
<td>$T_J$, $T_{STG}$</td>
<td>-40 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>

Notes
1. Mounted on 30 mm x 30 mm pad areas aluminum PCB
2. Free air, mounted on recommended pad area

3D Models

V8P15
Vishay General Semiconductor

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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>TYP.</th>
<th>MAX.</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instantaneous forward voltage</td>
<td>IF = 4 A, T_A = 25 °C</td>
<td>VF (1)</td>
<td>0.75</td>
<td>-</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>IF = 8 A, T_A = 25 °C</td>
<td></td>
<td>1.00</td>
<td>1.08</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IF = 4 A, T_A = 125 °C</td>
<td></td>
<td>0.58</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IF = 8 A, T_A = 125 °C</td>
<td></td>
<td>0.66</td>
<td>0.72</td>
<td></td>
</tr>
<tr>
<td>Reverse current</td>
<td>VR = 100 V, T_A = 25 °C</td>
<td>IR (2)</td>
<td>0.01</td>
<td>-</td>
<td>mA</td>
</tr>
<tr>
<td></td>
<td>VR = 100 V, T_A = 125 °C</td>
<td></td>
<td>1.5</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VR = 150 V, T_A = 25 °C</td>
<td></td>
<td></td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VR = 150 V, T_A = 125 °C</td>
<td></td>
<td>3</td>
<td>10</td>
<td></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_A = 25 °C unless otherwise specified)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>V8P15</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical thermal resistance</td>
<td>R_JA (1)</td>
<td>75</td>
<td>°C/W</td>
</tr>
<tr>
<td></td>
<td>R_JM (2)</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**Notes**
1. Free air, mounted on recommended copper pad area; thermal resistance R_JA - junction to ambient
2. Mounted on 30 mm x 30 mm pad areas aluminum PCB, thermal resistance R_JM - junction to mount

## ORDERING INFORMATION (Example)

<table>
<thead>
<tr>
<th>PREFERRED P/N</th>
<th>UNIT WEIGHT (g)</th>
<th>PACKAGE CODE</th>
<th>BASE QUANTITY</th>
<th>DELIVERY MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>V8P15-M3/H</td>
<td>0.10</td>
<td>H</td>
<td>1500</td>
<td>7&quot; diameter plastic tape and reel</td>
</tr>
<tr>
<td>V8P15-M3/I</td>
<td>0.10</td>
<td>I</td>
<td>6500</td>
<td>13&quot; diameter plastic tape and reel</td>
</tr>
<tr>
<td>V8P15HM3/H</td>
<td>0.10</td>
<td>H</td>
<td>1500</td>
<td>7&quot; diameter plastic tape and reel</td>
</tr>
<tr>
<td>V8P15HM3/I</td>
<td>0.10</td>
<td>I</td>
<td>6500</td>
<td>13&quot; diameter plastic tape and reel</td>
</tr>
</tbody>
</table>

**Note**
1. AEC-Q101 qualified
RATINGS AND CHARACTERISTICS CURVES (TA = 25 °C unless otherwise specified)

![Maximum Forward Current Derating Curve](image1)

**Fig. 1 - Maximum Forward Current Derating Curve**

![Forward Power Loss Characteristics](image2)

**Fig. 2 - Forward Power Loss Characteristics**

![Typical Instantaneous Forward Characteristics](image3)

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

![Typical Reverse Characteristics](image4)

**Fig. 4 - Typical Reverse Characteristics**

![Typical Junction Capacitance](image5)

**Fig. 5 - Typical Junction Capacitance**

![Typical Transient Thermal Impedance](image6)

**Fig. 6 - Typical Transient Thermal Impedance**
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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