Nexperia AEC-Q101 rated Trench Schottky rectifiers meet the challenging demands of efficient and space-saving designs. They combine low forward voltage, reverse current and \( Q_{\text{rr}} \) to enable best efficiency at high switching speeds and high ambient temperatures. Available in clip-bond packages with excellent power capabilities.

The Trench advantage

Adding trenches to the Schottky design increases the thermal stability by reducing the leakage currents \( (I_r) \) and improves switching performance compared to planar counterparts.

Excellent switching behaviour

- Low \( Q_{\text{rr}} \)  
  - lower switching losses in the diode
- Low \( I_{\text{peak}} \) peak current
- Lower induced losses in the MOSFET
- No compromise on EMI despite higher ringing

High system efficiency

- Measured in a 48V-12V buck converter - 3A output current
- The Trench advantage increases at higher switching frequency

Designed for a wide safe operating area

At 125°C junction temperature the maximum allowable reverse voltage of PMEG100T080ELPE is almost 40 V higher than alternative Trench products.

Applications

- High efficiency DC-to-DC conversion
- Automotive LED lighting
- Switch mode power supply
- Freewheeling application
- Reverse polarity protection
- OR-ing
### Trench Schottky rectifiers – clip-bond packages

**Advanced Clip Flat Power (CFP) packaging**
- Solid copper clip and high peak current capability
- Reduced package inductance for improved switching behavior
- Innovative silicon and reduced package resistance for better electrical performance

**Space-saving and future-proof**
- Small, thin and light design
- Secure supply in high volumes
- Continuous package and portfolio innovation
- Replacements for previous-generation SMx-packaged devices

### Optimization

<table>
<thead>
<tr>
<th>I (_{\text{max}}) (A)</th>
<th>V (<em>{\text{BR}}) (</em>{\text{max}}) (V)</th>
<th>Package</th>
<th>CFP15 (SOT1289)</th>
<th>CFP15B (SOT1289B)</th>
<th>CFP5 (SOD128)</th>
<th>CFP3 (SOD123W)</th>
<th>CFP2-HP (SOD323HP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Low (I_{\text{L}}), Low (Q_{\text{rr}})</td>
<td>PMEG040T10ER (-Q)</td>
<td>PMEG040T10ER (-Q)</td>
<td>PMEG040T10ER (-Q)</td>
<td>PMEG040T10ER (-Q)</td>
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<td>PMEG045T10ER (-Q)</td>
<td>PMEG045T10ER (-Q)</td>
<td>PMEG045T10ER (-Q)</td>
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<td>60</td>
<td>Low (I_{\text{L}}), Low (Q_{\text{rr}})</td>
<td>PMEG060T10ERL (-Q)</td>
<td>PMEG060T10ERL (-Q)</td>
<td>PMEG060T10ERL (-Q)</td>
<td>PMEG060T10ERL (-Q)</td>
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<td>PMEG060T10ERL (-Q)</td>
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<tr>
<td>100</td>
<td>Low (I_{\text{L}}), Low (Q_{\text{rr}})</td>
<td>PMEG100T10ERL (-Q)</td>
<td>PMEG100T10ERL (-Q)</td>
<td>PMEG100T10ERL (-Q)</td>
<td>PMEG100T10ERL (-Q)</td>
<td>PMEG100T10ERL (-Q)</td>
<td>PMEG100T10ERL (-Q)</td>
</tr>
</tbody>
</table>

#### Footprint area

- **SMA**: 13.57 mm\(^2\)
- **CFP5**: 11.75 mm\(^2\)
- **CFP3**: 5.95 mm\(^2\)
- **CFP2-HP**: 3.45 mm\(^2\)

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