Product brief

OptiMOS™ in TO-Leadless
A package optimized for high power applications

Infineon’s OptiMOS™ power MOSFET in TO-Leadless package is optimized for high current applications up to 300 A, such as forklifts, light electric vehicles (LEV), power tools, point-of-loads (POL), telecom and e-fuses. Furthermore, the 60 percent smaller package size enables a very compact design. Compared to D²PAK 7-pin, TO-Leadless shows a substantial reduction in footprint of 30 percent. The 50 percent reduced height offers a significant advantage in narrow applications such as rack or blade servers.

TO-Leadless – a leadless package with 60 percent space reduction compared to D²PAK 7-pin

<table>
<thead>
<tr>
<th>Footprint: 150 mm²</th>
<th>Footprint: 115 mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>30% footprint reduction</td>
<td>50% height reduction</td>
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</tbody>
</table>

Key features

› Reduced footprint and space
› Highest current capability up to 300 A
› Very low package parasitics and inductances
› Significantly reduced electromigration due to improved solder contact area

Key benefits

› Highest efficiency and system cost reduction
› Less paralleling and cooling required
› Enabling compact design
› Improved EMI
› Highest reliability

Target applications

› Forklift
› Light electric vehicles (LEV) e.g. e-scooters, e-bikes or μ-cars
› Point-of-loads (POL)
› Telecom
› e-fuse

www.infineon.com/toll
TO-Leadless offers the industry’s lowest on-state resistance ($R_{DS(on)}$) in 30 V (0.4 mΩ) and 60 V (0.75 mΩ) devices. This enables a reduction in the number of paralleled MOSFETs in high power applications and increases power density. In addition, TO-Leadless comes with a 50 percent bigger solder contact area, which leads to lower current density, avoiding electromigration at high current levels and temperatures, resulting in improved reliability. TO-Leadless is a package without leads with the possibility of optical inspection due to tin plated grooved gate and source contacts.

With TO-Leadless Infineon offers lowest $R_{DS(on)}$

Tinned trapezoidal grooves on the tips of gate and source contacts

Visible solder meniscus allows a simple and inexpensive automatic optical inspection

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**Product portfolio TO-Leadless**

<table>
<thead>
<tr>
<th>Package</th>
<th>Voltage [V]</th>
<th>Product number</th>
<th>$R_{DS(on)}$ max. @10 V [mΩ]</th>
<th>ID max. [A]</th>
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<tr>
<td>TO-Leadless</td>
<td>30</td>
<td>IPT04N03L</td>
<td>0.4</td>
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