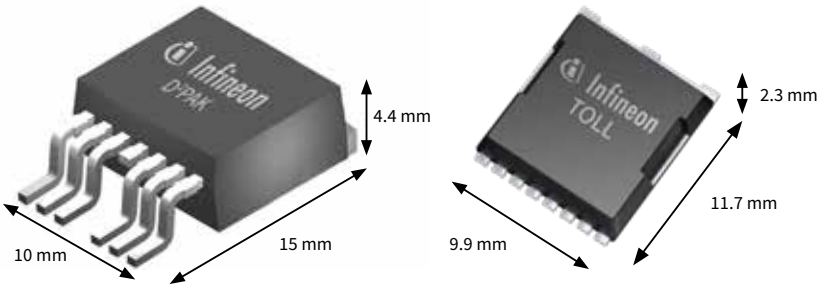
Product brief

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



Footprint: 150 mm² → Footprint: 115 mm²

30% footprint reduction	50% height reduction	→ 60% space reduction

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
- Power and gardening tools

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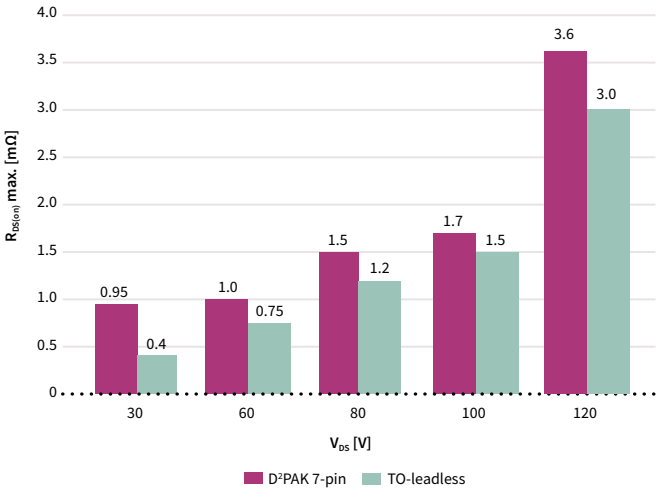
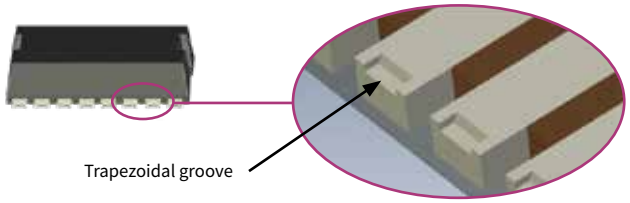
TO-Leadless offers the industry's lowest on-state resistance ($R_{DS(on)}$) in 30 V (0.4 mΩ) and 60 V (0.75 mΩ) devices. This enables a reduction in the number of paralleled MOSFETs in high power applications and increases power density. In addition, TO-Leadless comes with a 50 percent bigger solder 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.

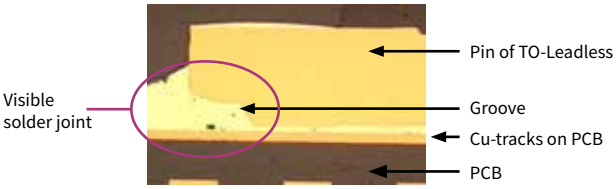
With TO-Leadless Infineon offers lowest $R_{DS(on)}$



Tinned trapezoidal grooves on the tips of gate and source contacts



Visible solder meniscus allows a simple and inexpensive automatic optical inspection



Product portfolio TO-Leadless

Package	Voltage [V]	Product number	$R_{DS(on)}$ max. @10 V [mΩ]	ID max. [A]
TO-Leadless	30	IPT004N03L	0.4	300
	60	IPT007N06N	0.75	240
	80	IPT012N08N5	1.2	300
		IPT019N08N5	1.9	247
		IPT029N08N5	2.9	169
	100	IPT015N10N5	1.5	300
		IPT020N10N3	2.0	300
		IPT020N10N5	2.0	260
		IPT026N10N5	2.6	202
	120	IPT030N12N3 G	3.0	237
	150	IPT059N15N3	5.9	155
	200	IPT111N20NFD	11.1	96
	250	IPT210N25NFD	21.0	69

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Additional information
For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

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