

Infineon OptiMOS™ 5 80 V and 100 V mTOLG (8x8mm²) automotive power MOSFET product family presentation

September 2024

restricted

Automotive MOSFET Package Overview for 80V / 100V products

	Leadless					Gullwing		Top side cooled		Dual side cooled
Name	**S3O8 (TSDSON-8)**	**SSO8 (TDSON-8)**	**sTOLL (HSOF-5)**	**TOLL (HSOF-8)**	**TOLL, D.G. (HSOF-8)**	**mTOLG (HSOG-4)**	**TOLG (HSOG-8)**	**SSO10T (LHDSO-10)**	**TOLT (HDSOP-16)**	**DirectFET2 (WDSON)**
3D View										
Footprint	3x3 mm²	5x6 mm²	7x8 mm²	10x12 mm²	10x12 mm²	8x8 mm²	10x12 mm²	5x8 mm²	10x15 mm²	7x9 mm²
Configuration	Single	Single	Single	Single	Dual Gate	Single	Single	Single	Single	Single



- mTOLG is Infineon's latest automotive MOSFET package
- mTOLG features gullwing-shaped leads
- mTOLG is smaller than the TOLG and the D2PAK (10x15mm²) gullwing packages
  - it uses the same area as a DPAK (6.5x10mm²) gullwing package
- Copper clip interconnect technology brings advantages in thermal performance, resistance and inductance over DPAK and D2PAK packages

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OptiMOS™ 5 80V and 100V mTOLG 8x8 automotive MOSFETs

Key Benefits

- Enhanced temperature cycling (TCoB) results
- Recommended for use on metal substrates i.e. Aluminum IMS
- Minimized conduction losses
- High power density
- Option to use second source 8x8mm^2 MOSFET

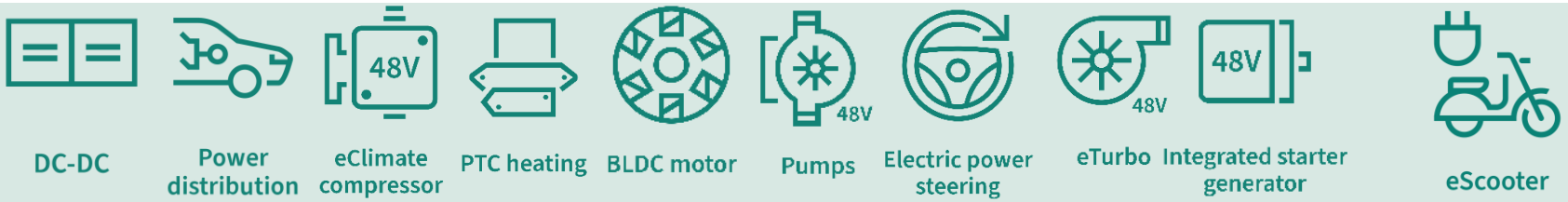
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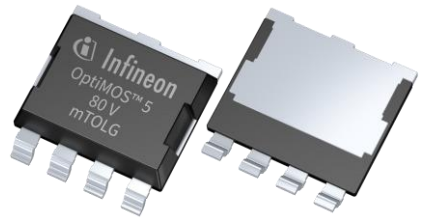
OptiMOS™ 5 80V mTOLG 8x8 Product Portfolio

Product	max $R_{DS(on)}$ [mΩ]	I_D (DC current) [A]	I_D (chip limitation) [A]	Q_G typ. [nC]	$V_{GS(th)}$ [LL/NL]
IAUMN08S5N012G	1.2	300	370	149	NL
IAUMN08S5N013G	1.3	250	350	138	NL

- Leading edge $R_{DS(on)}$ performance in 80V 8x8mm gullwing lead package → Minimizes conduction losses
- JEDEC listed package is compatible with other 8x8 mm^2 gullwing package MOSFETs, i.e. LFPAK88 type
  - → Option to use second source
- Gullwing leads → Enhanced temperature cycling (TCoB) performance
  - Recommended for aluminum (Al) IMS, heavy copper PCBs, copper inlay PCBs and copper IMS
- Excellent thermal performance in compact form factor → good power density
- Superior avalanche performance compared to competitors → better robustness
- Ideal for 48V architectures
- Takes same PCB area as DPAK, with 75% lower $R_{DS(on)}$ than our best 80V DPAK → Better power density
- Takes only 40% of the PCB area of D2PAK → Can shrink PCB for cost savings or use more Cu on PCB for cooling

Application examples:



mTOLG

L x W x H 8.0 x 8.0 x 1.6 mm^3
Cu-Clip soldered

In production

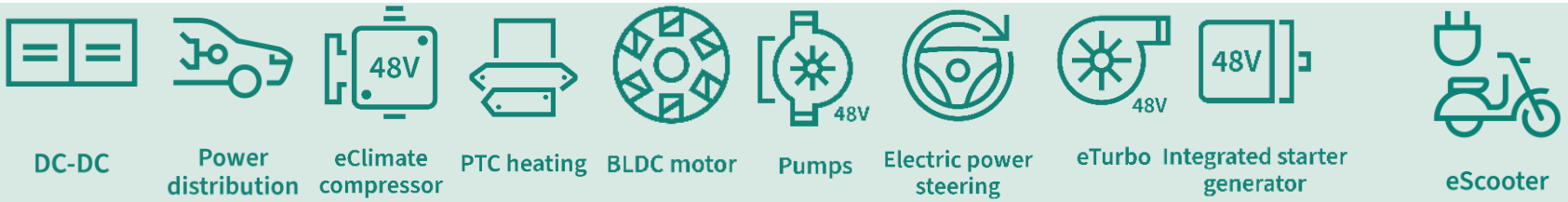
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OptiMOS™ 5 100V mTOLG 8x8 Product Portfolio

Product	max $R_{DS(on)}$ [mΩ]	I_D (DC current) [A]	I_D (chip limitation) [A]	Q_G typ. [nC]	$V_{GS(th)}$ [LL/NL]
IAUMN10S5N016G	1.6	220	310	142	NL
IAUMN10S5N017G	1.7	200	290	131	NL

- Leading edge $R_{DS(on)}$ performance in 100V 8x8mm gullwing lead package → Minimizes conduction losses
- JEDEC listed package is compatible with other 8x8 mm^2 gullwing package MOSFETs, i.e. LFPAK88 type
  - → Option to use second source
- Gullwing leads → Enhanced temperature cycling (TCoB) performance
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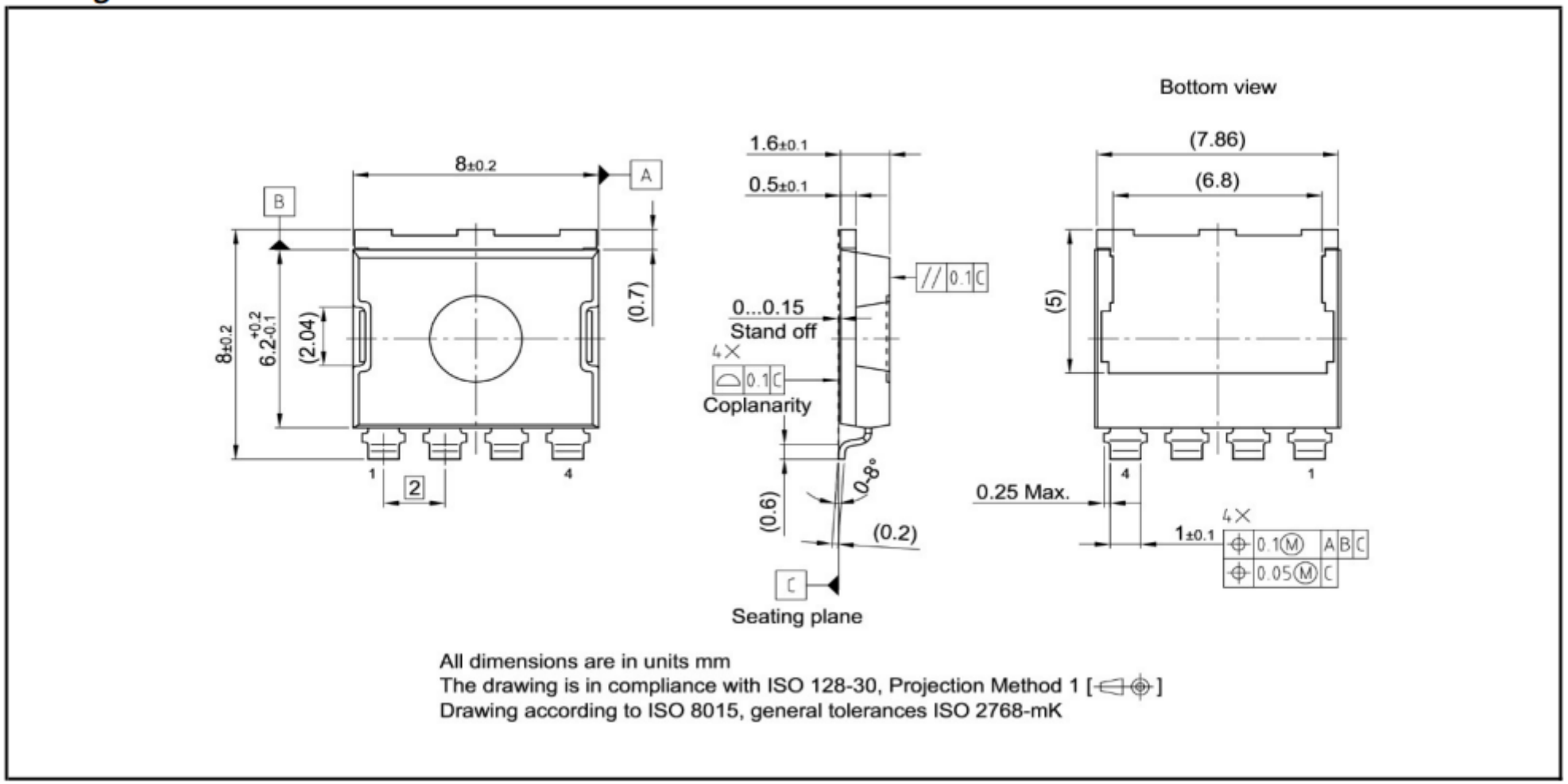
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In production

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mTOLG (PG-HSOG-4) package outline drawing

Package Outline



All dimensions are in units mm
The drawing is in compliance with ISO 128-30, Projection Method 1 [⊕]
Drawing according to ISO 8015, general tolerances ISO 2768-mK

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Design Support and additional Information

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