New Product Introduction

February 2022

EiceDRIVER™ F3 Enhanced (1ED332x) – Single-channel isolated gate driver family with short-circuit protection

OptiMOS™ 5 MOSFET 25 V and 30 V in PQFN 2x2 package

OptiMOS™ 5 60 V Power MOSFET in SuperSO8 5x6 (SSO8) package

MERUS™ MA5332MS 2-channel analog input class D audio amplifier multichip

REF_MA5332BTLSPS reference board

EVAL_AUDAMP25 evaluation board

3 kW half bridge induction heating evaluation board with 650 V Reverse Conducting

EiceDRIVER™ F3 Enhanced (1ED332x) – Single-channel isolated gate driver family with short-circuit protection

The EiceDRIVER™ F3 Enhanced (1ED332x) family is an isolated gate driver family including protection features, such as short-circuit protection (DESAT), soft-off and active Miller Clamp.

The gate driver family provides typical peak output currents of up to 8.5 A. Its short-circuit protection is suitable for both IGBTs and SiC MOSFETs. The active Miller Clamp feature makes it ideal for fast-switching applications with SiC MOSFETs and TRENCHSTOP™ IGBT 7 to avoid parasitic turn-on. The appealing protection feature-set increases system safety in many applications.

Features

- For up to 2300 V IGBTs, SiC and Si MOSFETs
- +6 A / -8.5 A typical sinking and sourcing peak output current
- Precise VCE_{sat} detection (DESAT) with fault output
- Soft turn-off after desaturation detection
- Active Miller Clamp
- 40 V absolute maximum output supply voltage
- 85 ns propagation delay with 35 ns input filter
- High common-mode transient immunity CMTI >300 kV/µs
- DSO-16 300 mil wide-body package with large creepage distance (>8 mm)
- Undervoltage lockout (UVLO) protection with hysteresis (for IGBTs and SiC)

Competitive advantage

- Future-proof output current capability supporting trends towards higher-power inverters and wide-bandgap devices adoption
- Short-circuit protection for both IGBTs and CoolSIC™. Maintains systems to be short-circuit proof also with SiC MOSFETs
- Tight part-to-part propagation delay matching enables reducing dead-time and therefore supports highest system-efficiency

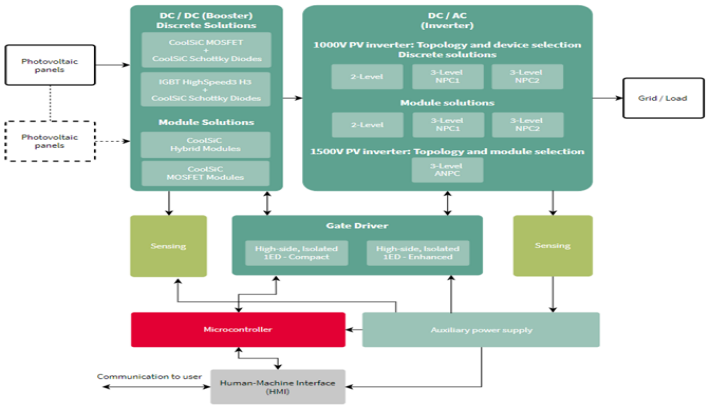
Benefits

- Tight part-to-part propagation delay matching (15 ns. max.) allows minimum deadtime improving system efficiency and decreasing harmonic distortion
- UL 1577 VISO = 6.8 kV (rms) for 1 s, 5.7 kV (rms) for 1 min
- IEC 60747-17/VDE 0884-11 with VIORM = 1767 V (peak, reinforced)
- The precise threshold and timings, combined with UL 1577 certification enable superior application safety
- High isolation capability, can be used in 1500 V DC solar inverter application

Target applications

- Industrial motor drives - compact, standard, premium, servo drives
- Solar inverters, High-voltage isolated DC-DC converters
- UPS systems
- EV charging
- Energy storage systems
- Commercial air-conditioning (CAC)
- Commercial induction cooking
- Commercial and agricultural vehicles (CAV)
- Server and telecom SMPS

Block diagram



Product collaterals / Online support

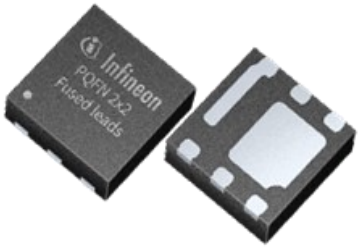
Product family page

Product overview incl. data sheet link

OPN	SP Number	Package
1ED3321MC12NXUMA1	SP005433357	PG-DSO-16
1ED3322MC12NXUMA1	SP005433359	PG-DSO-16
1ED3323MC12NXUMA1	SP005433361	PG-DSO-16
EVAL1ED3321MC12NTOBO1	SP005679300	

OptiMOS™ 5 MOSFET 25 V and 30 V in PQFN 2x2 package

With the new OptiMOS™ 5 best-in-class 25 V and 30 V in PQFN 2x2 product family, Infineon is setting impressive new standards in small form factor, on-state resistance ($R_{DS(on)}$) and switching performance.



Features

- New best-in-class products
- 150°C junction temperature (T_j)
- Industry's lowest $R_{DS(on)}$ in smallest PQFN 2x2 package
- Superior thermal resistance for a PQFN 2x2 package
- 100% avalanche tested
- Smallest package for highest PCB layout routing flexibility
- Pb-free lead plating; RoHS compliant; Halogen-free according to IEC61249-2-21

Benefits

- Optimized for high performance applications
- Optimized for highest efficiency and power density
- Enables significant space saving
- System cost reduction
- Very low voltage overshoot
- Less paralleling required
- Environmentally friendly

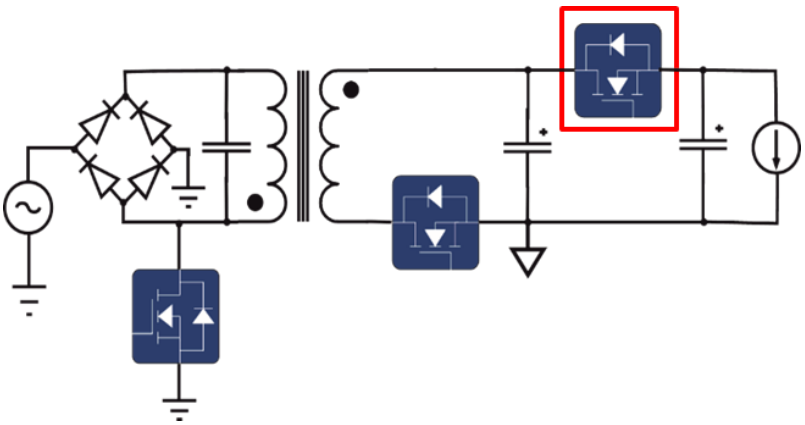
Target applications

- Wireless charging
- Charger and adapters
- Robots and drones
- Industrial SMPS
- Server
- Telecom
- Consumer

Competitive advantage

- Best-in-class $R_{DS(on)max}$ in smallest 2x2 PQFN package for maximium power density
- System cost reduction
- High continuous current capability up to 55 A
- Superior thermal resistance (R_{thJC}=11 K/W)
- 150°C junction temperature (T_j)

Block diagram: Portable charger



Product collaterals / Online support

Product page ISK024NE2LM5

Product page ISK036N03LM5

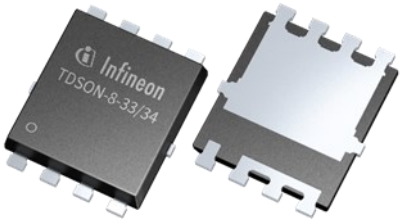
Product overview incl. data sheet link

OPN	SP Number	Package
ISK024NE2LM5	SP002296752	PG-VSON-6
ISK036N03LM5	SP002296744	PG-VSON-6

OptiMOS™ 5 60 V Power MOSFET in SuperSO8 5x6 (SSO8) package

Infineon's new best-in-class OptiMOS™ 5 60 V Power MOSFET in SuperSO8 package (ISC010N06NM5) offers low on-state resistance $R_{DS(on)}$ at 25˚C and 175˚C, and high continuous current (up to 330 A). Infineon's OptiMOS™ MOSFETs in SuperSO8 package extend OptiMOS™ 3 and 5 product portfolio and enable higher power density in addition to improved robustness, responding to the need for lower system cost and increased performance.

Low reverse recovery charge (Q_{rr}) improves the system reliability by providing a significant reduction of voltage overshoot, which minimizes the need for snubber circuits, resulting in less engineering cost and effort.



Features

- Lowest $R_{DS(on)}$
- Low R_{thJC}
- Low reverse recovery charge (Q_{rr})
- Higher operating temperature rating to 175°C

Benefits

- Lower conduction losses, higher power density and efficiency
- Less paralleling for system cost reduction
- Reduced overshoot
- Excellent thermal behavior

Target applications

- Telecom
- Server
- Power tools
- Low voltage drives
- Class D audio, solar micro inverter, etc.

Competitive advantage

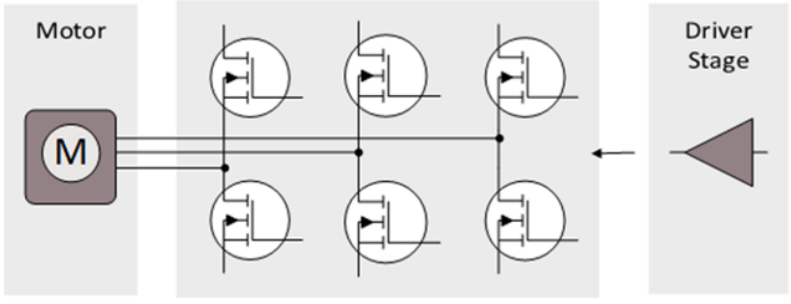
- Market leader with best-in-class $R_{DS(on)}$

Product collaterals / Online support

Product page

Application example

Inverter – power tools, low voltage drives

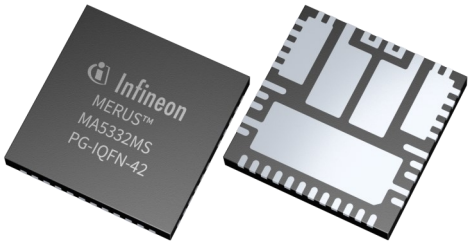


Product overview incl. data sheet link

OPN	SP Number	Package
ISC010N06NM5	SP005630896	PG-TSON-8

MERUS™ MA5332MS 2-channel analog input class D audio amplifier multichip module

The MERUS™ MA5332MS multichip module offers the same or even higher output power as monolithic alternatives without a heatsink and 50 percent less footprint. This MCM (multi-chip module) solution integrates a dual-channel PWM controller, a high-voltage gate driver, and 4 low $R_{DS(ON)}$ MOSFETs. It includes standard class D protection features for reliable operation over various environmental conditions. The MA5332MS' 7x7 mm PG- IQFN-42 package showcases the benefit of a small footprint, high power density, and operation without a heatsink.



Features

- Integrated Infineon's best-in-class mid voltage MOSFET with low $R_{DS(ON)}$
- 100V high breakdown voltage
- Over-current, over-temperature and under-voltage protections with self-reset feature

Benefits

- Enables heatsink-less solution compared to same power level monolithic approach
- Enables high power SE (single-ended) design with reduced bus capacitors and output filters from low voltage BTL approach
- Simplifies Class D design and eliminates the need for external protection circuitry

Target applications

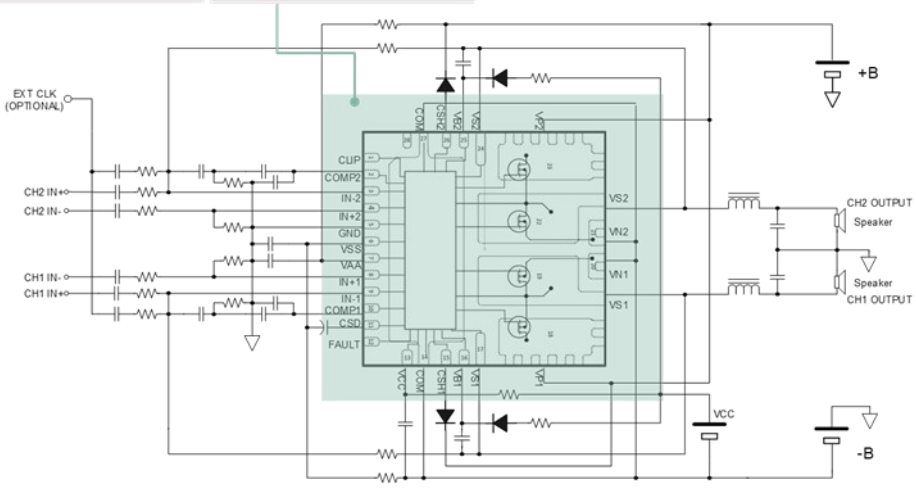
- Soundbar subwoofer
- Aftermarket car audio system
- Active speaker

Competitive advantage

- Saves system BOM
- Higher power density
- Simplifies amplifier protection implementation

Block diagram

[Subsystem]	
Main component(s)	Infineon product offering
› Class D controller	› MA5332MS



Product collaterals / Online support

Product page

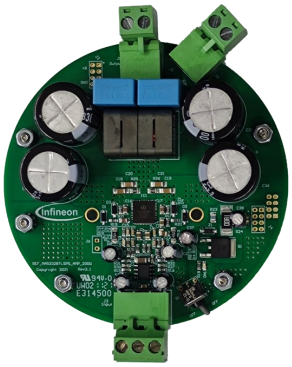
Video

Product overview incl. data sheet link

OPN	SP Number	Package
MA5332MSXUMA1	SP005582717	PG-IQFN-42

REF_MA5332BTLSPS reference board

The REF_MA5332BTLSPS reference board is a one BTL channel, 200 W/ch (4 Ω at 40 V) class D audio power amplifier for home audio systems. This reference board demonstrates how to use MA5332M IC with a single power supply and design an optimum PCB layout using Infineon integrated Class D IC. This reference design does not require additional heatsink or fan cooling for normal operation (one-eighth of continuous rated power). The reference design provides all the required housekeeping power supplies for ease of use.



Features

- Output power: 200 W x 1 channels (10 percent THD+N, 4 Ω at 40 V)
- Multiple protection features:
  - Over-Current Protection (OCP), high-side and low-side
  - Over-Temperature Protection (OTP)
- PWM modulator: Self-oscillating half-bridge topology with optional clock synchronization

Benefits

- Single power supply
- Full-bridge output
- High audio quality
- Low noise
- High efficiency

Target applications

- Audio

Product collaterals / Online support

Board page

User manual

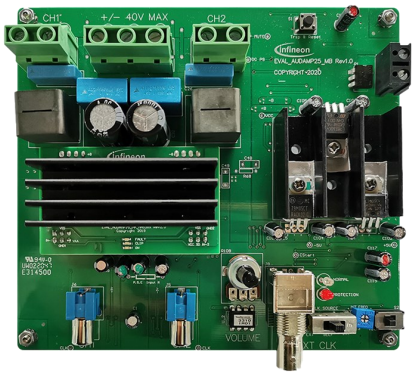
Additional product information

Product overview incl. data sheet link

OPN	SP Number
REFMA5332BTLSPSTOBO1	SP005576570

EVAL_AUDAMP25 evaluation board

The EVAL_AUDAMP25 MA5332 evaluation board is a two-channel, 200 W/ch (4 Ω at ±36.5 V; with heatsink) half-bridge class D audio power amplifier for Hi-Fi audio systems. This evaluation board demonstrates how to use MA5332 IC, implement protection circuits, and design an optimum PCB layout using Infineon integrated Class D IC. This reference design does not require additional heatsink or fan cooling for normal operation (one-eighth of continuous rated power).



Features

- Output power: 200 W x 2 channels (10 percent THD+N, 4 Ω at ±36.5 V)
- Multiple protection features:
  - Over-Current Protection (OCP), high-side and low-side
  - Over-Voltage Protection (OVP)
  - Under-Voltage Protection (UVP), high-side and low-side
  - DC Protection(DCP)
  - Over-Temperature Protection (OTP)
- PWM modulator: Self-oscillating half-bridge topology with optional clock synchronization

Benefits

- Split power supply
- SE/BTL/PSE output
- High audio quality
- Low noise
- High efficiency

Target applications

- Audio

Product collaterals / Online support

Board page

User Manual

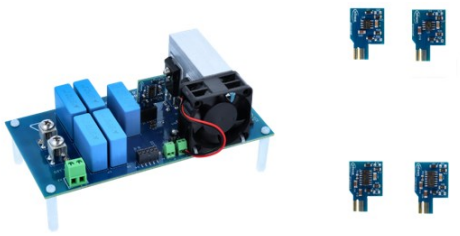
Safety and operational instructions

Product overview incl. data sheet link

OPN	SP Number
EVALAUDAMP25TOBO1	SP005537889

3 kW half bridge induction heating evaluation board with 650 V Reverse Conducting R6 IGBT

This induction heating, half-bridge evaluation board EVAL - HW65R62EDS06J features the new 650 V reverse-conducting R6 family of IGBTs, specifically designed for induction heating and resonant switching applications up to 100 kHz. The evaluation board demonstrates the functionality and key features of the R6 IGBTs in combination with the Infineon level-shift EiceDRIVER™ ICs based on the Infineon SOI technology.



Features

- Input voltage: 180 – 270 V_{dc}
- Max auxiliary supply voltage: 20 V_{dc}
- Nominal output power: 3 kW
- Features the new 650 V reverse-conducting R6 family of IGBTs

Benefits

- Easy to measure waveforms of IGBT
- Easy exchange or replacement of resonant coil
- Easy evaluation of different gate driver ICs
- Direct access to the device for thermal measurements

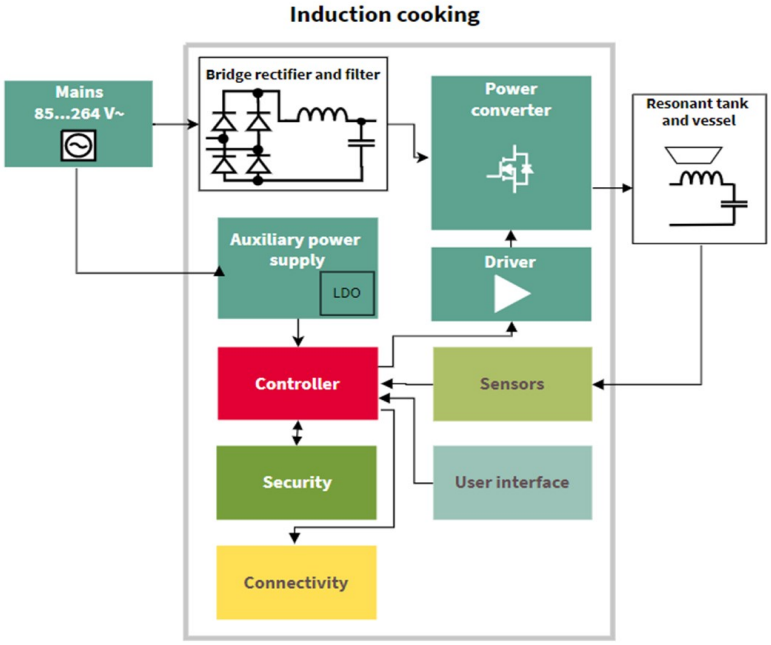
Target applications

- Induction cooking
- Inverterized microwaves

Competitive advantage

- The board is reflecting a typical, state-of-the-art induction cooking system based on a half-bridge topology
- This evaluation board can be used during design-in, for evaluation and measurement of characteristics, and proof of data sheet specifications
- Unique chance to evaluation Infineon reverse-conducting IGBTs in combination with four different gate driver ICs (EiceDRIVER™ 2ED2x families)

Block diagram:



Product collaterals / Online support

Board page

Application note

Video

Board overview incl data sheet link

OPN	SP Number
EVALIHW65R62EDS06JTOBO1	SP005678248