



New Product Introduction

December 2022

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PrimePACK™ 2300 V half-bridge and 1200 V Common Collector IGBT module with TRENCHSTOP™ IGBT7



The new PrimePACK™ 2300 V IGBT modules support the trend of 1500 V_{DC} designs for central solar inverters. It features a high robustness against cosmic radiation for this operating voltage and 175°C overload junction operating temperature to support failure modes like LVRT. In addition, the module enables higher power density compared to IGBT4 solutions, which leads to a reduction of € / W on system level.

In combination with the 1200 V Common Collector IGBT module an NPC2 topology can be realized, which compared to a 1200 V NPC1 topology results in a reduction of stray inductance, faster switching and 37% higher power in the same footprint.

Features

- > PrimePACK™ 3+ housing
- > TRENCHSTOP™ IGBT7 chip generation
- > 175° C T_{vjop} during overload
- > Module current rating of 2400 A at 1200 V and 1800 A at 2300 V
- > Module layout optimized for low stray inductance

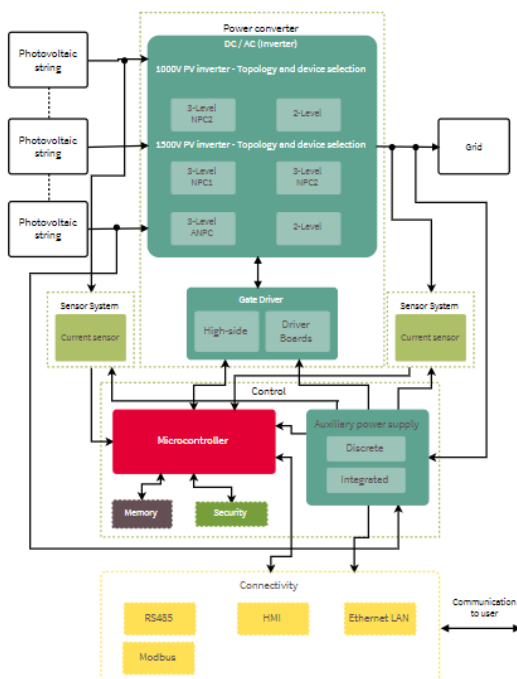
Competitive advantage

- > Industry-first 2300 V IGBT module enables continuous DC voltage operation of 1500 V

Benefits

- > Low cost and high-power density for 1500V_{DC} applications
- > Up to 1.8 MW output with 3-level NPC2 topology, forced air-cooled
- > Low stray inductive design enables faster switching speeds and lower losses
- > Cosmic ray robustness allows for continuous operation at 1500V_{DC}
- > Module can compensate grid failures like LVRT
- > Reduced effort in electrical, thermal and system design

Block diagram



Target applications

- > Solar Central
- > Energy Storage Systems
- > Wind
- > Hydrogen

Product collaterals / Online support

[Product family page](#)

Product overview incl. data sheet link

OPN	SP Number	Package
FF1800R23IE7BPSPA1	SP005349542	AG-PRIME3+-731
FF1800R23IE7PBPSA1	SP005678645	AG-PRIME3+-731
FF2400RB12IP7BPSPA1	SP005411822	AG-PRIME3+-731
FF2400RB12IP7PBPSA1	SP005545663	AG-PRIME3+-731

XDP™ digital power XDPS2221 – industry’s first PFC + hybrid flyback combo IC

Driving giGaNtic performance in USB-C adapters and chargers: The novel XDP™ digital power XDPS2221 is a highly integrated control IC combining an AC-DC PFC controller with a DC-DC hybrid flyback controller in one single package. It enables optimized system performance through the combined operation of the two stages and brings ultimate efficiency in conjunction with GaN-based devices.



Features

- > IEC62368-1 certified active X-cap discharge function
- > High-performance multi-mode PFC with critical conduction mode operation
- > High efficiency multi-mode hybrid-flyback topology with adaptive resonant period
- > Supports USB-PD standard V3.1 extended power range (EPR) with wide output voltage up to 28 V (36 V / 48 V to be covered by XDPS2222 available in Q2/2023)
- > Highly integrated combo controller for the PFC and hybrid flyback topology, including a 600 V start-up cell with X-cap discharge functionality
- > DSO-14 (150-mil) package

Benefits

- > Class-leading efficiency across various line/load conditions
- > Ultra-high power density and switching frequency
- > Up to 50% transformer size reduction compared to flyback topologies
- > Low BOM cost and count
- > Low no-load input standby power performance
- > Easily configurable via digital software

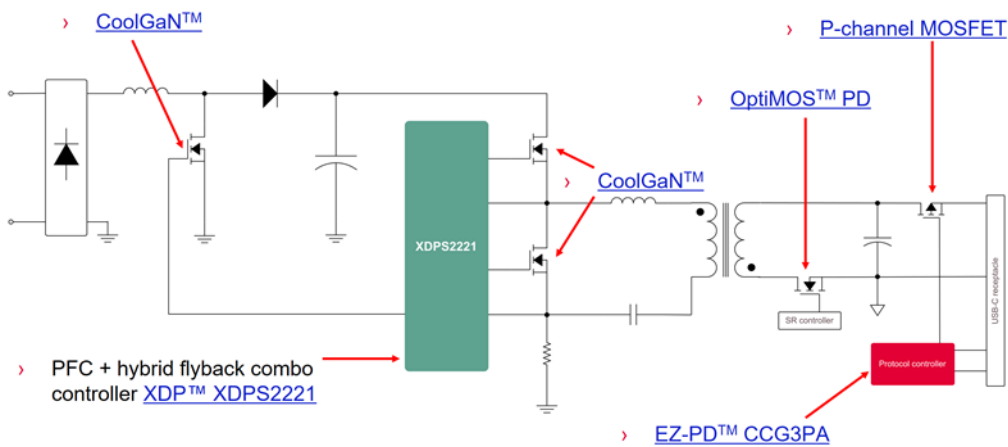
Target applications

- > Adapters and chargers
 - > with ultra-high power density
 - > with extended power range (EPR)

Product collaterals / Online support

[Product page](#)

Block diagram



Product overview incl. data sheet link

OPN	SP Number	Package
XDPS2221XUMA1	SP005630569	PG-DSO-14

MERUS™ multilevel class D audio MA2304DNS / MA2304PNS



The MA2304DNS / MA2304PNS is a 2x37 W audio amplifier with integrated audio DSP and I2S / TDM audio interface. It features the MERUS™ multilevel switching amplifier technology enabling unmatched power efficiency at both low and high output power. Multilevel switching also relaxes EMI and enables inductorless applications with lower cost and no compromise in audio performance or efficiency. A high order internal feedback loop ensures low THD for excellent audio performance.

Features

- > 52 mW ultralow idle power (18 V PVDD, LPC mode) and high efficiency at low output power (>80 %, 2 W, 8 Ω)
- > Inductor-less output filtering at full power range
- > Excellent EMI performance
- > 0.03% low THD+N at 1 W, 1 kHz
- > Residual noise floor 52 μV_{rms} A-weighted
- > Configurable output stage – 2x BTL, 1x PBTL

Benefits

- > Extremely low idle power enables prolonged battery life
- > Smallest output filtering without bulky inductors
- > Easy-to-pass EMI test without sacrificing efficiency or audio performance
- > Premium sound quality due to low THD+N and low noise floor
- > Flexible output configuration to support different speaker number and power level

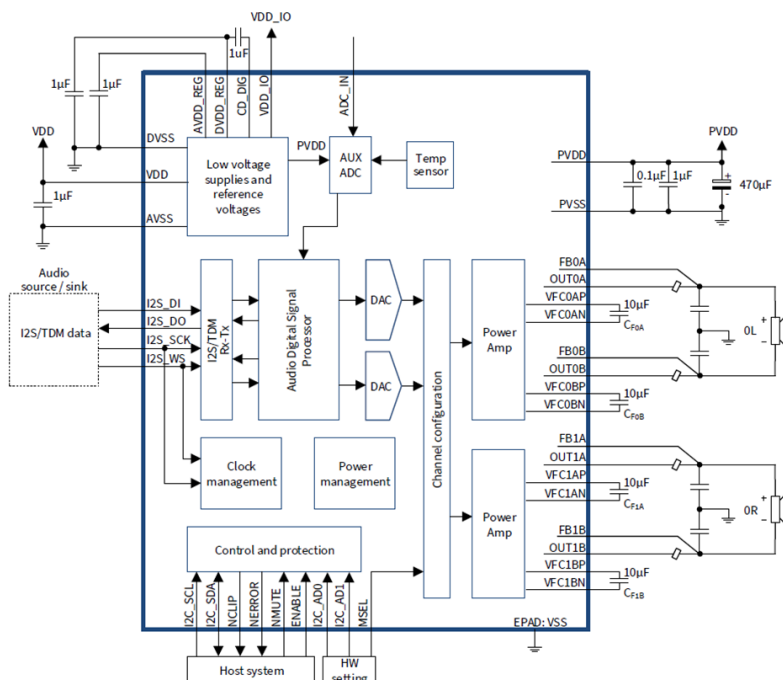
Competitive advantage

- > Ultralow idle power consumption
- > Inductor-less output filter

Target applications

- > Battery-powered speakers
- > Bluetooth / wireless / smart speakers and soundbars
- > Conference speakers
- > Multi-channel / multi-room audio systems

Block diagram



Product collaterals / Online support

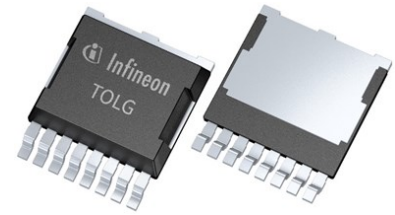
[Product page MA2304DNS](#)

[Product page MA2304PNS](#)

Product overview incl. data sheet link

OPN	SP Number	Package
MA2304DNSXUMA1	SP005344447	PG-VQFN-40
MA2304PNSXUMA1	SP005344594	PG-VQFN-40

OptiMOS™ 5 power MOSFETs 150 V in TOLG



TOLG is the new package added to the TOLx family, offering better thermal cycling on board (TCoB) performances. This package offers the same high current and low profile features as the TO - leadless (TOLL). The TOLG is compatible with the footprint to the TO - leadless with the additional feature of gullwing leads for high thermal cycling.

Features

- > Best-in-class technology
- > High current rating
- > Low ringing and voltage overshoot
- > 60% space board reduction compared to D²PAK 7-pin
- > Gullwing leads

Benefits

- > High performance capability
- > High system reliability
- > High efficiency and lower EMI
- > Increased power density
- > High thermal cycling on board performance (TCoB)

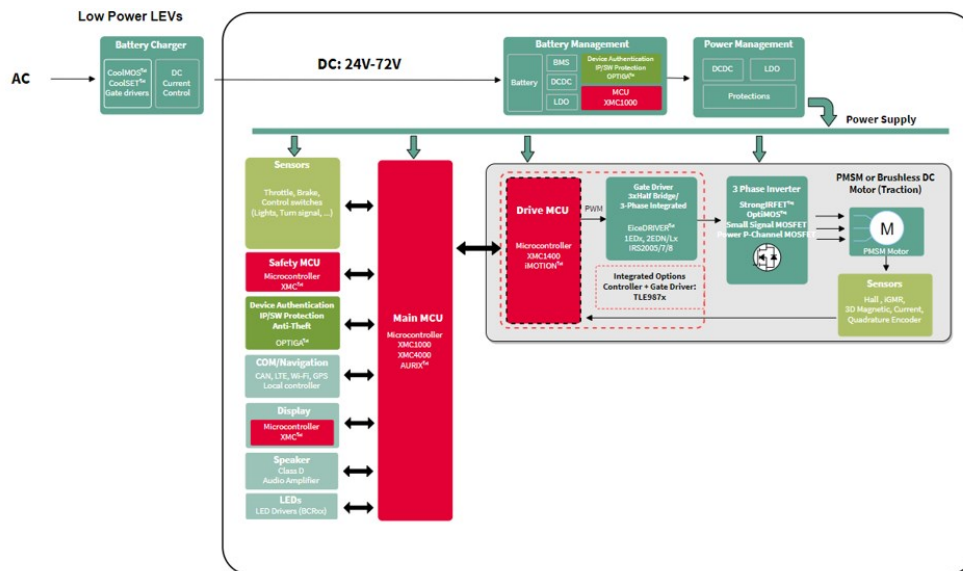
Competitive advantage

- > Better thermal cycling on board (TCoB) in AI-IMS board compared to TOLL package and standard requirement IPC-9701

Target applications

- > Motor drives
- > E-scooter
- > Battery management
- > Light electric vehicles
- > Power and gardening tools

Block diagram



Product overview incl. data sheet link

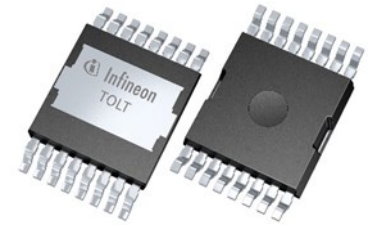
OPN	SP Number	Package
IPTG039N15NM5ATMA1	SP005676943	PG-HSOG-8
IPTG044N15NM5ATMA1	SP005676948	PG-HSOG-8
IPTG054N15NM5ATMA1	SP005676952	PG-HSOG-8
IPTG063N15NM5ATMA1	SP005676956	PG-HSOG-8

Product collaterals / Online support

[Product family page](#)

OptiMOS™ 5 power MOSFETs 80 V / 100 V / 150 V in TOLT

The new Infineon's OptiMOS™ TOLT in 80 V / 100 V / 150 V is the new top side cooling package enabling superior thermal performance. Infineon's OptiMOS™ power MOSFET family expands its high performance package offerings with the introduction of the TO-leaded top-side cooling (TOLT) package to its portfolio. The TOLT package offers the same high current low profile benefits as the TOLL package with the additional advantage of top - side cooling for optimum thermal performance.



Features

- > Low $R_{DS(on)}$
- > High current rating
- > Top-side cooling
- > Negative standoff

Benefits

- > Reduction in conduction losses
- > High current carrying capability
- > Superior thermal performance
- > Minimize thermal resistance to heatsink

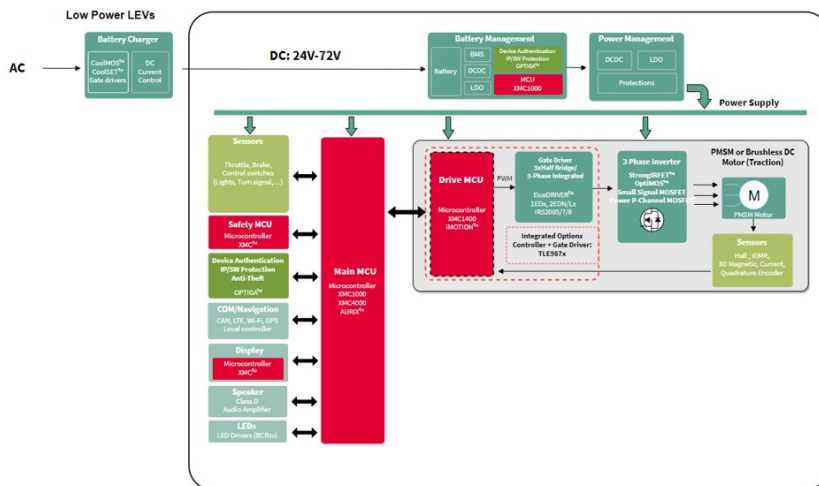
Competitive advantage

- > TOLT reduces thermal resistance to heatsink by up to 50% compared to TOLL package
- > Less than 5% of heat is transferred through the PCB
- > ~ 8% lower cost on heatsink and PCB with TOLT compared to TOLL solution

Target applications

- > Motor drives
- > E-scooter
- > Battery management
- > Light electric vehicles
- > Power and gardening tools

Block diagram



Product collaterals / Online support

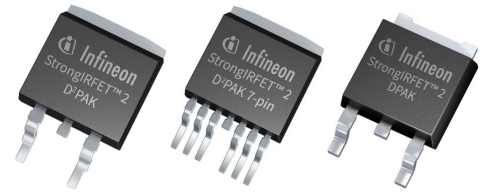
[Product family page](#)

Product overview incl. data sheet link

OPN	SP Number	Package
IPTC011N08NM5ATMA1	SP005731287	PG-HDSOP-16
IPTC014N10NM5ATMA1	SP005731291	PG-HDSOP-16
IPTC039N15NM5ATMA1	SP005631626	PG-HDSOP-16
IPTC044N15NM5ATMA1	SP005631629	PG-HDSOP-16
IPTC054N15NM5ATMA1	SP005590568	PG-HDSOP-16
IPTC063N15NM5ATMA1	SP005631636	PG-HDSOP-16

StrongIRFET™ 2 Power MOSFETs

The new StrongIRFET™ 2 in 80 V and 100 V power MOSFETs are Infineon's latest generation of MOSFET technology addressing a wide range of applications and are suitable for both low and high switching frequencies. This new family compliments the well-established StrongIRFET™ MOSFETs by offering a higher performance option.



Features

- > Broad availability from distribution partners
- > Excellent price/performance ratio
- > Ideal for high and low switching frequency
- > High current rating

Target applications

- > Adapters
- > TVs
- > Motor drives
- > E-scooter
- > Battery management
- > Light electric vehicles
- > Power and gardening tools
- > Robotics

Benefits

- > Increased security of supply
- > Right-fit products
- > Supports a wide variety of applications
- > Increased product ruggedness

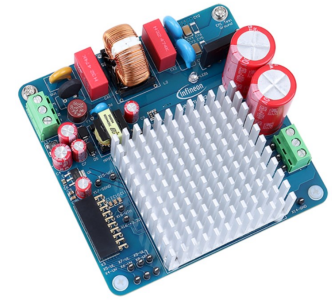
Product collaterals / Online support

[Product family page](#)

Product overview incl. data sheet link

OPN	SP Number	Package
IPB016N08NF2SATMA1	SP005571685	PG-TO263-3
IPB019N08NF2SATMA1	SP005571690	PG-TO263-3
IPB024N08NF2SATMA1	SP005571694	PG-TO263-3
IPB026N10NF2SATMA1	SP005571706	PG-TO263-3
IPB040N08NF2SATMA1	SP005571698	PG-TO263-3
IPB043N10NF2SATMA1	SP005741998	PG-TO263-3
IPB050N10NF2SATMA1	SP005571710	PG-TO263-3
IPB055N08NF2SATMA1	SP005571702	PG-TO263-3
IPD040N08NF2SATMA1	SP005737450	PG-TO252-3
IPD052N10NF2SATMA1	SP005737451	PG-TO252-3
IPD055N08NF2SATMA1	SP005737449	PG-TO252-3
IPD130N10NF2SATMA1	SP005737452	PG-TO252-3
IPF014N08NF2SATMA1	SP005578878	PG-TO263-7
IPF016N10NF2SATMA1	SP005578929	PG-TO263-7
IPF017N08NF2SATMA1	SP005578885	PG-TO263-7
IPF023N08NF2SATMA1	SP005578892	PG-TO263-7
IPF024N10NF2SATMA1	SP005578916	PG-TO263-7
IPF039N08NF2SATMA1	SP005578898	PG-TO263-7
IPF042N10NF2SATMA1	SP005742001	PG-TO263-7
IPF050N10NF2SATMA1	SP005742004	PG-TO263-7
IPT012N08NF2SATMA1	SP005679720	PG-HSOF-8
IPT015N10NF2SATMA1	SP005679723	PG-HSOF-8
IPT017N10NF2SATMA1	SP005612527	PG-HSOF-8
IPT022N10NF2SATMA1	SP005679731	PG-HSOF-8

EVAL-M1-IM241 - Evaluation board for motor drive applications up to 500 W



The evaluation board EVAL-M1-IM241 was developed to support customers during their first steps of applications with the IM241 series CIPOS™ Micro IPM. In combination with control-boards equipped with the M1 20pin interface connector, like EVAL-M1-101T, the kit offers a complete system to demonstrate our CIPOS™ Micro IPM technology in motor drives.

The IM241-L6T2B CIPOS™ Micro IPM has 600 V of voltage and 6 A of current rating. It is optimized for small home appliances like pumps, fans and other low power motor drive applications.

Features

- > Input voltage 110~230 Vac
- > Maximum 2.5 A input current at 110 Vac
- > Maximum 250 W motor power output at 220 Vac
- > On board EMI filter and pass EMI standards EN55032
- > Auxiliary power supply with 15 V, 3.3 V
- > Overcurrent hardware protection & over temperature protection

Benefits

- > Evaluate IM241-L6T2B
- > Get your motor running within an hour with EVAL-M1-101T
- > Start to learn more about motor control with Infineon parts

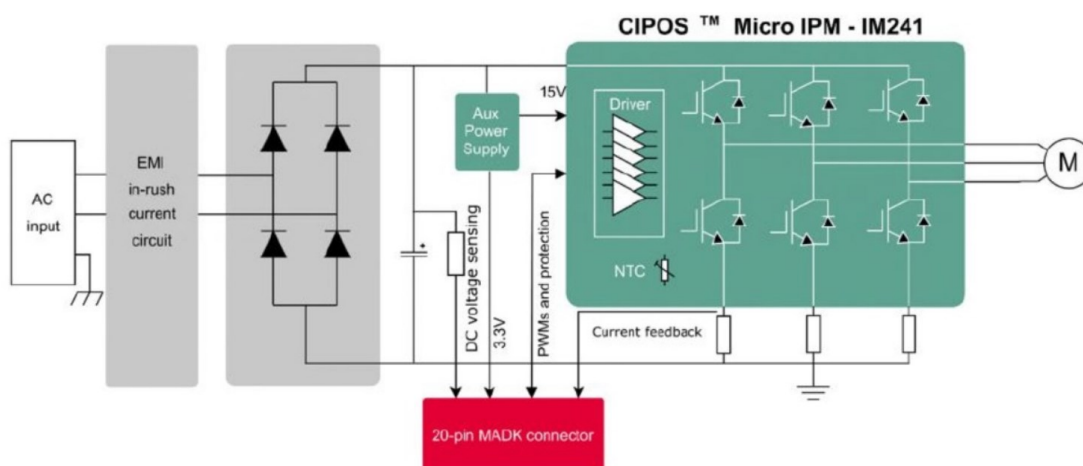
Competitive advantage

- > Comprehensive solution pre-assembled in PCB, enables easy plug and play for evaluation purposes

Target applications

- > Low power motors up to 500 W
 - > Aircon ODU/IDU fan
 - > Fan motors
 - > Pumps
 - > Dish washer
 - > Washing machine
 - > Refrigerator
 - > General purpose motor drives – Light load

Block diagram



Product collaterals / Online support

[Board page](#)

[Product family page](#)

Product overview incl. user manual link

OPN	SP Number
EVALM1IM241TOBO1	SP005581727

EVAL-M1-IM323 - Evaluation board for motor drive applications up to 1500 W



The evaluation board EVAL-M1-IM323 is based on the IM323 series of CIPOS™ IPM and has been developed to provide initial support to customers in designing 3-phase motor drive applications for major home appliances such as air conditioners, pumps, fans, and other variable-speed drives.

Features

- > Input voltage 165 Vac to 265 Vac
- > Maximum 12 A input current at 165 Vac
- > Maximum 1500 W motor power output at 220 Vac
- > Inrush current limiter for circuit protection
- > On-board EMI filter and pass EMI standards EN55032
- > Auxiliary power supply with 15 V, 3.3 V
- > Overcurrent hardware protection and over temperature protection
- > Sensing of DC link voltage
- > Thermistor output

Benefits

- > Evaluate IM323 series for your application
- > Easy to start evaluation – shorter cycle time to final product
- > UL certified package and temperature sensor inside each Tiny IPM
- > Smaller foot print to allow smaller PCB

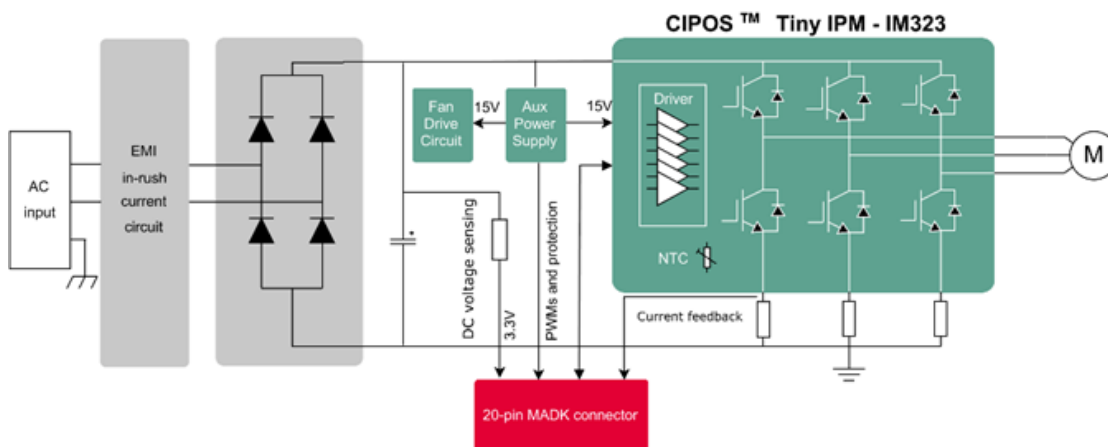
Target applications

- > Hood fan
- > Motor control and drives
- > Residential aircon - motor-, system control and monitoring
- > Residential heat pumps
- > Washer and dryer motor-control - quieter systems

Competitive advantage

- > Comprehensive solution pre-assembled in PCB, enables easy plug and play for evaluation purposes

Block diagram



Product collaterals / Online support

[Board page](#)

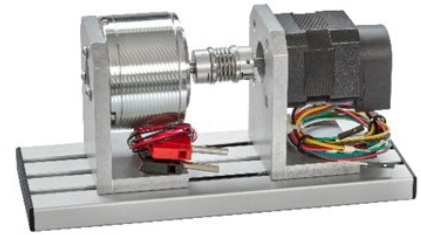
[Product family page](#)

Product overview incl. user manual link

OPN	SP Number
EVALM1IM323TOB01	SP005629445

MOTIX™ Motor Bench

The MOTIX™ Motor Bench offers BLDC motor control evaluation in a portable package, when combined with supported evaluation boards and reference designs for motor control software development. The MOTIX™ Motor Bench can be used with 3 phase evaluation boards of Infineon products.



Features

- > Brushless DC motor (Nanotec DB42S03):
 - > No. of pol. / phase: 8 / 3
 - > Voltage rated (V_{DC}): 24 V
 - > Torque rated / peak: 0.0625 / 0.19 Nm
 - > Speed rated / no load (RPM): 4000 / 6200
- > Current controlled hysteresis brake (Mobac HB-50M-2)
 - > Torque max: 0.38 Nm
 - > Speed max. (RPM): 15000
- > Plugs for connection of load, motor, and sensors

Benefits

- > Harmonized BLDC motor & load setup
- > Safe to operate in office environment
- > Compact package
- > Targets motor control software development process

Target applications

- > Pumps and fans
- > 3-phase BLDC motor applications

Competitive advantage

- > Motor test bench in a compact portable package

Product collaterals / Online support

[Board page](#)

Product overview incl. user manual link

OPN	SP Number
MOTIXMOTORBENCHTOB01	SP005850262