New Product Introduction

April 2020

EiceDRIVER™ 1EDN7550U

30 V OptiMOS™ 5 power MOSFET products

XENSIV™ - TLI4971-A120T5 current sensor

CIPOS™ Mini IM564-X6D

CIPOS™ Nano IM111-X3Q1B (250 V) & -X6Q1B (600 V)

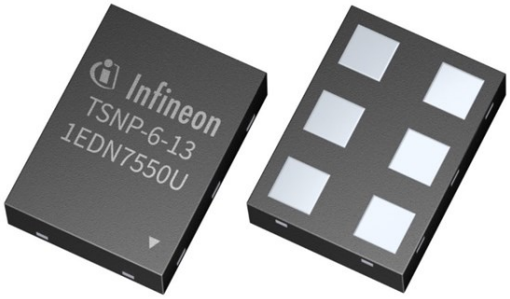
XENSIV™ - TLE5014 angle sensor

XMC4400 Platform2Go

EasyPIM™ & EasyPACK™ with TRENCHSTOP™ IGBT7

EiceDRIVER™ 1EDN7550U

The 1EDN7550U is a non-isolated gate-driver IC and available in an ultrasmall TSNP package. It has truly differential control inputs, which enables cost-effective solutions with exceptional power density.



Features

- Truly differential inputs for configurable common mode robustness
- 4 A source current
- 8 A sink current
- Separate source/sink outputs
- Low-ohmic output stage
- 29 ns input minimum pulse width
- -7 ns / +10 ns propagation delay accuracy
- 5 A reverse current robustness of the outputs
- 4 V UVLO version
- TSNP-6 package

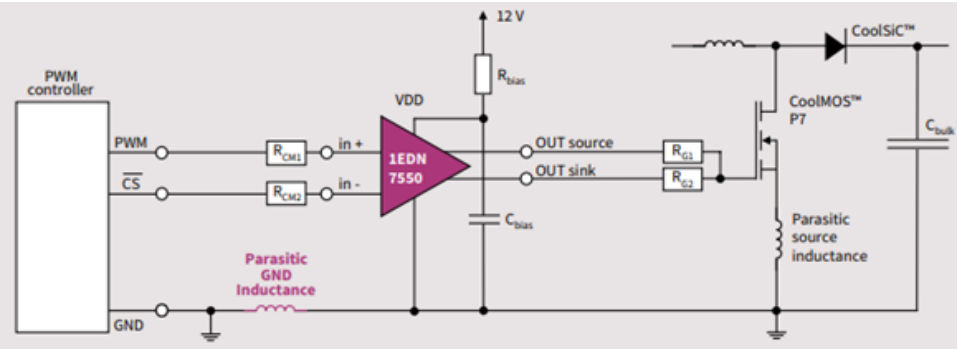
Benefits

- Robust
- Small
- PCB layout flexibility
- High power density
- Short time to market

Target applications

- Boost-PFCs with Kelvin-source MOSFETs
- Interleaved PFC
- Full-bridge synchronous rectification stages
- 48 V to 12 V intermediate bus converters
- Buck-boost converters
- Low- and medium-voltage half-bridges

Application diagram



Product overview incl. data sheet link

OPN	SP Number	Package
1EDN7550UXTSA1	SP001690394	PG-TSNP-6

Product collaterals / Online support

Product page

Product brief

Application note

30 V OptiMOS™ 5 power MOSFET products

Low voltage power MOSFETs offering broad accessibility, short lead-times and competitive price/performance ratio.

With this family of OptiMOS(TM) devices, Infineon continues to broaden it's wide portfolio of power MOSFETs, providing customers the right-fit products for all of their application requirements

The portfolio of right-fit MOSFETs, are especially suited for customers looking for a simple and price competitive solution, but still want to enjoy a stable supply of high quality devices

Features

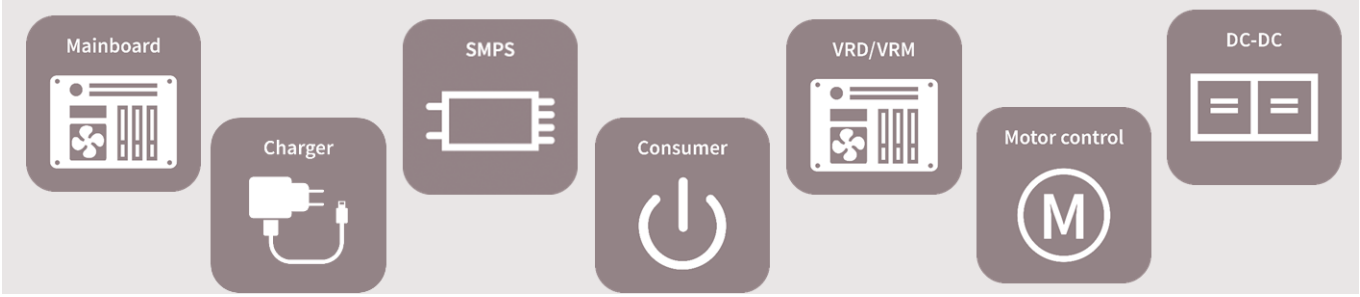
- Short lead-times
- Competitive price/performance
- Low power losses

Benefits

- Broad availability
- Right-fit products
- Less power consumption for high efficiency

Target applications

- General purpose for a variety of applications such as: adapters, chargers, battery powered applications, motor control and drives, battery management systems, inverters, computing and mobile applications



Product overview incl. data sheet link

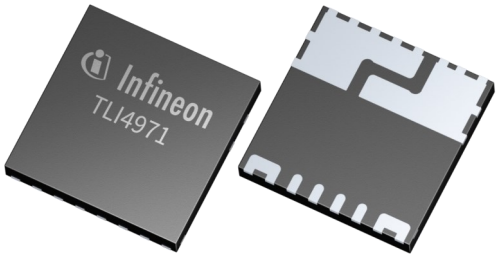
OPN	SP Number	Package
ISC019N03L5SATMA1	SP005408617	PG-TDSON-8
ISC011N03L5SATMA1	SP005408614	PG-TDSON-8
ISC026N03L5SATMA1	SP005408611	PG-TDSON-8
ISC037N03L5ISATMA1	SP005408608	PG-TDSON-8
ISZ019N03L5SATMA1	SP005408602	PG-TSDSON-8
ISZ065N03L5SATMA1	SP005408599	PG-TSDSON-8
ISZ040N03L5ISATMA1	SP005408582	PG-TSDSON-8

Product collaterals / Online support

Family page

XENSIV™ - TLI4971-A120T5 current sensor

The Infineon XENSIV™ - TLI4971-A120T5 is the first product of a new family of precise and stable current sensors based on Infineon´s proven Hall technology. The products offer a high level of flexibility as customers can individually program product parameters such as the current range, the overcurrent threshold and the output mode. It addresses industrial applications such as electric drives up to 30 kW or photovoltaic inverters. The coreless open loop current sensor offers an accurate and stable current measurement – provided as an analog output voltage. Based on Infineon's market-proven temperature and stress compensation the sensitivity error is as low as 2 percent at room temperature. It can be reduced below 2 percent with a single point in-system calibration. Furthermore, differential measurement with two Hall cells ensures high accuracy even in a noisy environment with cross-talk from adjacent current lines or magnetic stray fields.



Features

- Measurement up to 70ARMS @ 690VRMS
- Full scale measurement range ±120 A
- AC and DC measurement possible
- Measurement range programmable from 25 A to 120 A
- Typical error at 25°C <2%
- Resistance of the current-rail 225µΩ typical
- Analog output signal with 120kHz bandwidth
- Two separate outputs for overcurrent detection (OCD) feature
- Programmable overcurrent detection threshold up to 2 times of the measurement range
- Fast response time for overcurrent detection (typ. <1µs)
- Small TISON-8 package (8x8x1mm)
- Version with UL certification available

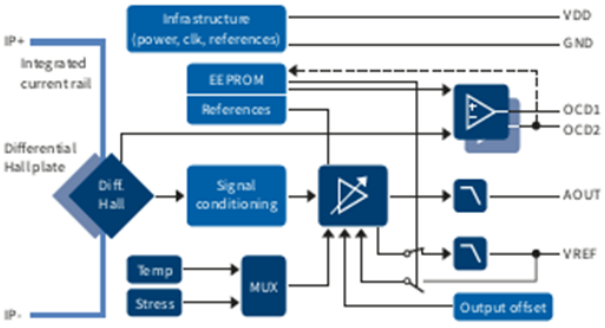
Benefits

- Ultra-low power loss due to low resistance of current rail saves cooling structure
- Reliable current measurement over lifetime (no re-calibration)
- Functional isolation for high voltage applications
- Integrated overcurrent detection safes external circuitry
- Two overcurrent pins with two independent overcurrent thresholds to define pre-warning and shut-off current
- Programmable sensor to cover multiple frame sizes for drives

Target applications

- Electric drives up to 690VRMS
- Photovoltaic inverters
- Power supplies
- Overload or overcurrent detection in high voltage power circuits
- Current sensor applications requiring UL certificate

Application diagram



Competitive advantage

- Very low sensitivity error over temperature (<2.5%) and lifetime (<3%)
- Best in class power dissipation for high currents
- Programmability of current ranges to enable platform design
- No shielding against cross-talk required
- Separate path for overcurrent detection to support OC pre-warning and shut-down
- Limited number of external components due to integrated overcurrent detection

Product overview incl. data sheet link

OPN	SP Number	Package
TLI4971A120T5E0001XUMA1	SP005344532	PG-TISON-8
TLI4971A120T5UE0001XUMA1	SP005272936	PG-TISON-8
TLI4971 MS2GO	SP005345474	board
S2GO_CUR-SENSE_TLI4971	SP005345472	board

Product collaterals / Online support

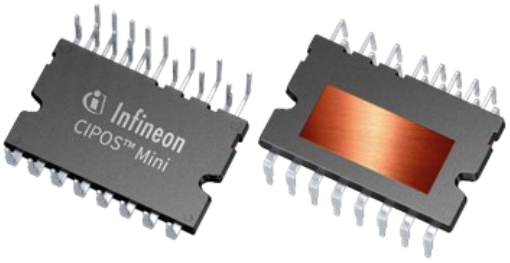
Product page

Application notes

CIPOS™ Mini IM564-X6D

The IM564-X6D is a new 20 A CIPOS™ Mini PFC-integrated IPM that combines a single boost PFC and three-phase inverter in one package. The PFC integration into inverter IPM helps to reduce significant PCB area and simplify manufacturing process to reduce overall system cost.

Moreover, IM564-X6D incorporates a CoolMOS™ power MOSFET and a rapid switching diode for PFC stage to increase PFC switching frequency up to 150 kHz. This enables significant inductor size reduction for high power density with small system size.



Features

- Single boost PFC and three phase inverter in one package
- 20 A TRENCHSTOP™ IGBTs for inverter stage
- 115 mΩ CoolMOS™ power MOSFET for PFC stage
- PFC switching frequency up to 150 kHz
- Enable high power density with smaller system
- Built-in temperature monitoring
- Motor power rating up to 2400 W at 10 kHz
- UL certified

Benefits

- System size reduction with PFC integration into inverter module
- Significant inductor size reduction with high PFC switching
- Cost improvement from lower BOM count, simplified assembly process
- Excellent thermal performance with DCB substrate

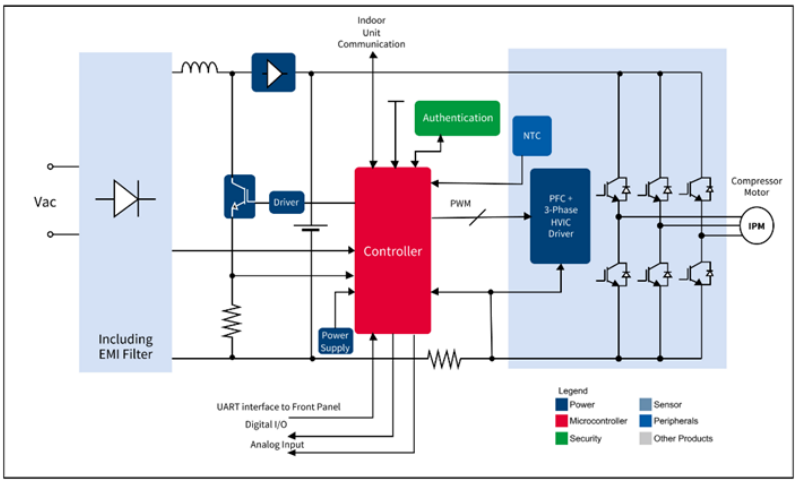
Competitive advantage

- Single boost PFC stage and inverter stage in one package
- System size reduction and cost improvement

Target applications

- Home appliances
- Aircon
- Pumps & fans
- Motor control and drives
- Motor control for industrial automation
- Heating ventilation and air conditioning (HVAC)

Application diagram



Product overview incl. data sheet link

OPN	SP Number	Package
IM564X6DAKMA1	SP003014000	PG-MDIP-24
EVALM3IM564TOBO1	SP005403067	board

Product collaterals / Online support

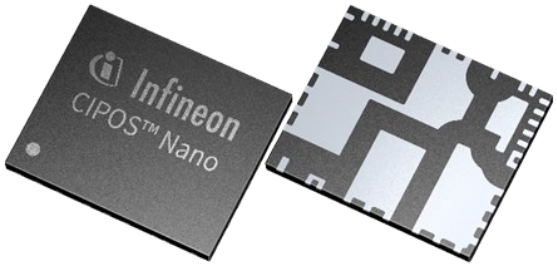
Product page

Product family page

Application note

CIPOS™ Nano IM111-X3Q1B (250 V) & -X6Q1B (600 V)

CIPOS™ Nano Full-bridge inverter modules in 12x10 mm QFN package are designed using Infineon's 600 V/0.28 Ω RDSon CoolMOS™ (X6) and 250 V/0.063 Ω $R_{DS(on)}$ OptiMOS™ (X3) to maximize the single-phase motor drive efficiency. One Full-bridge IPM can replace two half-bridge to increase integration and reduce board space. In addition, NTC thermistor is built-in for the first time to provide real-time thermal feedback for higher system protection and reliability. This advanced IPM comes in a very compact and fully isolated surface mount package. With an integrated high precision temperature monitor, over-current protection feature, and under-voltage lockout function, it delivers high system level protection and fail-safe operation. CIPOS™ Nano IM111-X3(X6)Q1B offer highest power density while optimizing dv/dt for best possible EMI performance.



Features

- An integrated thermal sensor (NTC) provides an additional level of protection to the system to improve reliability
- The module family also features overcurrent protection, fault reporting and enable/shutdown functions.
- Low 600 V/0.28 Ω $R_{DS(on)}$ CoolMOS™ (X6) and 250 V/0.063 Ω $R_{DS(on)}$ OptiMOS™ (X3)
- Shoot through protection
- Matched propagation delay for all channels
- Optimized dv/dt for high efficiency and low EMI
- Advanced input filter
- 3.3 V input logic compatible
- Ideal for motor power range from 80 - 200 W

Benefits

- Higher integration and lower system cost compared to half-bridge IPMs.
- Utilizing Infineon's ultra-low Rds(on) power MOSFET technologies of CoolMOS™ at 600 V and OptiMOS™ at 250 V greatly improves system efficiency and offers benefits to customers who have higher ambient temperature operating conditions.
- Integrated gate drivers and bootstrap
- Ultra-compact 12x10 mm QFN package. The family has been developed in both 600 V and 250 V ratings using the same package and footprint, which provides ease-of-use to customers who develop appliances for both US and EU markets.
- With tailored closer Vs node design, the IM111 family offers lower EMI and easier PCB layout.

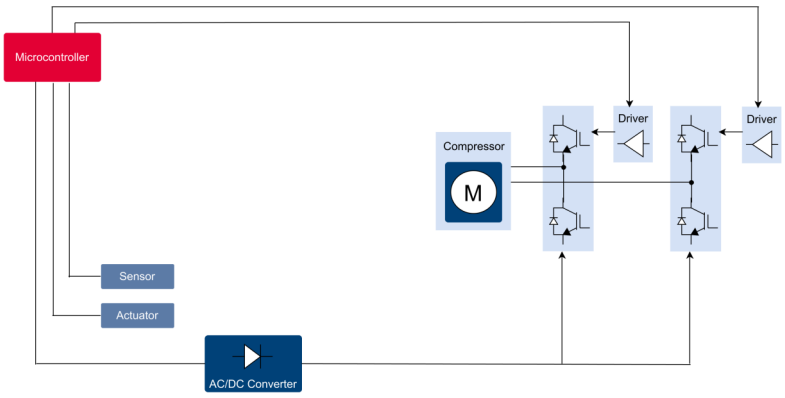
Competitive advantage

- Improved efficiency of the motor drive
- Lower EMI compared to competitor
- Full-bridge inverter with high integration

Target applications

- Pumps & fans
- Hair dryer
- Refrigerator

Application diagram



Product overview incl. data sheet link

OPN	SP Number	Package
IM111X3Q1BAUMA1	SP002510460	PG-IQFN-37
IM111X6Q1BAUMA1	SP002510468	PG-IQFN-37

Product collaterals / Online support

Product page IM111-X3Q1B

Product page IM111-X6Q1B

CIPOS™ IPM simulation tools - IM111-X3Q1B

CIPOS™ IPM simulation tools - IM111-X6Q1B

Application note

XENSIV™ - TLE5014 angle sensor

The Infineon XENSIV™ TLE5014 angle sensor family is available as single and dual die products. The products come pre-configured and pre-calibrated as plug-and-play sensors – and are thus easy-to-use. Today, customers can choose between SENT, PWM, SPC and SPI interfaces. On top of those protocol options, the sensors can be adapted to any kind of application setup via their programmable E²PROM interfaces.

TLE5014 magnetic angle sensors meet ISO 26262 ASIL C for the single chip and ISO 26262 ASIL D for the dual chip versions. Therefore, all products are ready for applications with the highest functional safety requirements. Additionally, there is a QM single chip option without Functional Safety documentation available. This allows an optimum to balance functional safety level and cost efficiency – by allowing a direct pin compatible replacement between the different versions.

Features

- Easy-to-use plug & play sensors: pre-configured and pre-calibrated
- Offering high flexibility:
- Available as single and dual die products
- 15bit digital interface with SPI protocol
- E2PROM and look-up table for customer configuration and calibration
- High angle accuracy: max. 1.0° over temperature and lifetime
- High voltage capability up to 26 V
- Fully compliant development according ISO 26262
- developed acc. ASIL D process
- sensor reaching ASIL C metrics

Target applications

- Motor commutation and rotor position measurement
- any other kind of high-accuracy position measurement Safety Applications

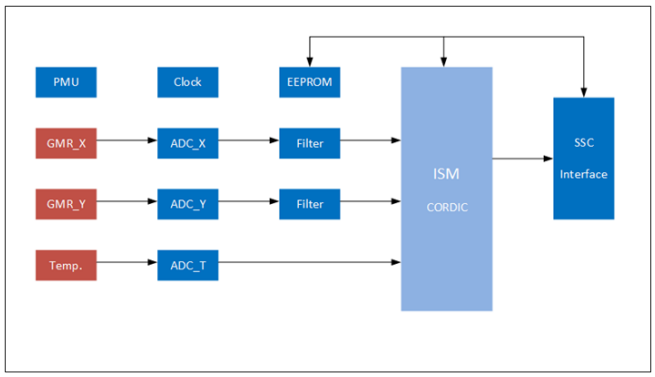
Benefits

- Easy-to-use plug & play concept
- Offering high flexibility: single and dual die products, different interface options, programmable E2PROM and look-up table
- High angle accuracy (<1° over temp and lifetime)
- High voltage capability up to 26 V
- Fully compliant development according ISO 26262: Ready for Functional Safety applications up to ASIL D level

Competitive advantage

- Fully compliant development according ISO 26262: Ready for Functional Safety applications up to ASIL D level
- Easy-to-use plug & play concept
- Offering high flexibility: single and dual die products, SPI interface (TLE5014 family offers also PWM, SENT or SPC interface options)
- Programmable E2PROM and look-up table
- High angle accuracy (<1° over temp and lifetime)
- High voltage capability up to 26 V

Application diagram



Product overview incl. data sheet link

OPN	SP Number	Package
TLE5014SP16E0001XUMA1	SP004232096	PG-TDSO-16
TLE5014SP16E0002XUMA1	SP004531446	PG-TDSO-16
TLE5014SP16DE0002XUMA1	SP004531452	PG-TDSO-16

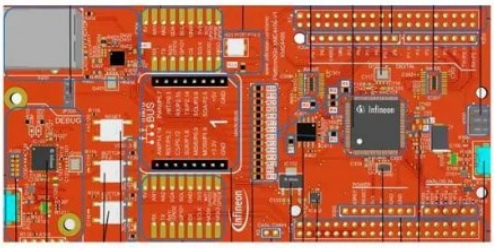
Product collaterals / Online support

Product family page

XMC4400 Platform2Go

Kit Platform2GO XTREME XMC4400 kit – This kit has the XMC4400 device with debugger plus ETHERNET, CAN, ARDUINO, MikroBUS and Shields2Go form factor.

Equipped with an ARM® Cortex®-M4 based XMC™ Microcontroller from Infineon Technologies AG, the XMC4400 Platform2Go is designed to evaluate the capabilities of Infineon's XMC4400 Microcontroller. It can be used with a wide range of development tools including Infineon's free of charge Eclipse based IDE DAVE.



Features

- XMC™4400 (ARM® Cortex™-M4)
- ARDUINO Uno compatibility
- Shields2Go connectivity
- Ethernet-enabled communication option
- Additional voltage level shifters
- Available in four different assembly versions: 3.3V Shields (Lite), 5V (Lite)
- CAN connectivity

Benefits

- Highest integration on Microcontrollers
- Easy to design products
- Highest efficiency
- Reduced system cost

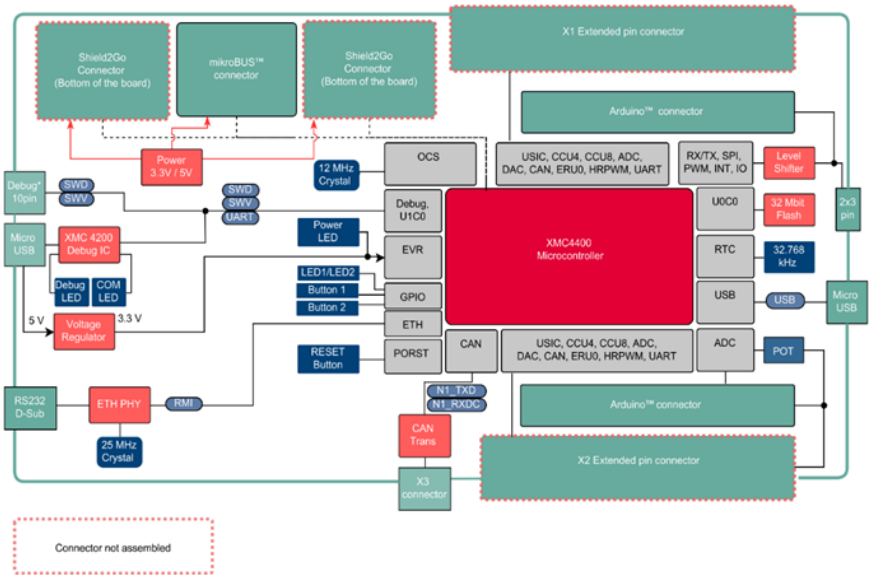
Target applications

Motor Control, Solar Inverters, Switched mode power supplies

Competitive advantage

Easy to use, offers a greater variety of features

Application diagram



Product overview incl. user manual link

OPN	SP Number	Package
KITXMCPLT2GOXMC4400TOBO1	SP005405964	board

Product collaterals / Online support

Product page

EasyPIM™ & EasyPACK™ with TRENCHSTOP™ IGBT7

The portfolio for Easy 1B and Easy 2B with 1200 V TRENCHSTOP™ IGBT7 and Emitter Controlled Diode 7 technology has now been extended. The portfolio now offers current ratings from 10 A up to 100 A in PIM as well as sixpack configuration.

The chip is specially optimized for industrial drives applications, which means much lower static losses, higher power density and softer switching.

When exchanging the TRENCHSTOP™ IGBT4 with the IGBT7 solution, the output current is 30% higher for the same housing and the same system cooling. The system cooling could be reduced by 40% for the same output current or the third option would be to achieve a framesize jump by using a smaller housing in combination with 11% more output power.

Features

- Lower on state voltage $V_{CE(sat)}$ and V_f
- Overload capability at Tvj,op = 175°C
- Enhanced controllability of dv/dt
- Improved free-wheeling diode softness
- Optimized for simple driving

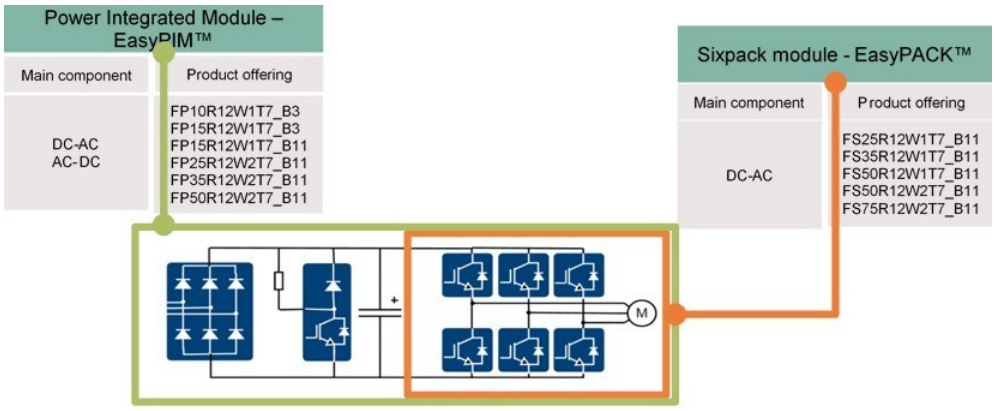
Benefits

- Pin-to-pin compatible with IGBT4 solutions
- Power class jump: 30% more current with IGBT7 in the same housing and with the same system cooling
- Frame size jump: 11% more output power plus system design reduction with IGBT7 and smaller housing
- Heat sink reduction: 40% reduction in heatsink performance with the same output power

Target applications

- Industrial drives

Application diagram



Product overview incl. data sheet link

OPN	SP Number	Package
FP10R12W1T7B3BOMA1	SP003654844	AG-EASY1B-1
FP15R12W1T7B3BOMA1	SP003654830	AG-EASY1B-1
FP15R12W1T7B11BOMA1	SP003021898	AG-EASY1B-2
FP25R12W2T7B11BPSA1	SP002116656	AG-EASY2B-2
FS25R12W1T7B11BOMA1	SP002952280	AG-EASY1B-2
FP35R12W2T7B11BOMA1	SP001783588	AG-EASY2B-2
FS35R12W1T7B11BOMA1	SP003402010	AG-EASY1B-2
FP50R12W2T7B11BOMA1	SP001894018	AG-EASY2B-2
FS50R12W1T7B11BOMA1	SP002952274	AG-EASY1B-2
FS50R12W2T7B11BOMA1	SP005184594	AG-EASY2B-2
FS75R12W2T7B11BOMA1	SP005147302	AG-EASY2B-2

Product collaterals / Online support

Family page

Application note

Whitepaper