New Product Introduction

February 2024

Automotive PSoC™ 4100S Plus

CoolSiC™ MOSFET 750 V G1 Industrial and Automotive graded

CoolSiC™ MOSFETs 1200 V G2 in D2PAK-7 package

PROFET™ Wire Guard 12 V

XHP™ 2.XT IGBT5

Automotive CoolSiC™ MOSFETs 1200 V in TO247-4, with best-in-class switching performance for OBC and DC-DC applications

CoolSiC™ MOSFET discrete 650 V in TOLL package, 107 mΩ IMT65R107M1HXTMA1

OptiMOS™ Linear FET 60 V – 200 V in PQFN 5 x 6 mm and 3.3 x 3.3 mm packages

CoolSiC™ 1200 V, 30 mΩ SiC MOSFET in TO-247-4 package IMZA120R030M1H

Easy modules with CoolSiC™ MOSFET and pre-applied Thermal Interface Material for EV Charging, UPS and Fuel Cell DC-DC

EconoDUAL™ 3 with integrated shunts

BGMC1210 - bias and control ICs for GaN and LDMOS Doherty PAs

XENSIV™ - IM66D130A / IM66D120A high performance digital MEMS microphone - best fit for automotive Active Noise Cancellation (ANC)

EZ-PD™ CCG7DC CYPD7272

AIROC™ CYW20829 Bluetooth® LE 5.4 MCU

Evaluation kit EVAL_PMG1_B1_DRP

REF_5GR4780AG_6W1

REF_ICL8810_116W_BPA reference board

REF_XDPS2201_170W_BPA2

CY8CPROTO-040T: PSoC™4000T CAPSENSE™ Prototyping kit

EVAL-2ED2106 - evaluation board for 2ED2106S06F, 650 V, 0.7 A high-side and low-side gate driver with integrated bootstrap diode

EVAL-2ED21814 - evaluation board for 2ED21814S06F, 650 V, 2.5 A half-bridge gate driver with integrated bootstrap diode

EVAL-2ED2184 - evaluation board for 2ED2184S06F, 650 V, 2.5 A half-bridge gate driver with integrated bootstrap diode

EVAL-2ED2748S01 evaluation kit

ModusToolbox™ Software v3.2 Release Announcement

Automotive PSoC™ 4100S Plus

PSoC™ 4 is a scalable and reconfigurable platform architecture for a family of programmable embedded system controllers with an Arm® Cortex®-M0+ CPU while being AEC-Q100 compliant. It combines programmable and reconfigurable analog and digital blocks with flexible automatic routing. PSoC™ 4100S Plus is a member of the PSoC™ 4 platform architecture. It is a combination of a microcontroller with standard communication and timing peripherals, a capacitive touch-sensing system (CAPSENSE™) with best-in-class performance, programmable general-purpose continuous-time and switched-capacitor analog blocks, and programmable connectivity. PSoC™ 4100S Plus products will be upward compatible with members of the PSoC™ 4 platform for new applications and design needs.

Features

- 32-bit MCU subsystem
- 48-MHz Arm® Cortex®-M0+ CPU with DMA controller and real-time clock (RTC)
- 128-KB Flash and 16-KB SRAM
- External MHz oscillator (ECO) with PLL and 32-KHz watch crystal oscillator (WCO)
- Programmable analog blocks
- One 12-bit, 1-Msps successive approximation register (SAR) analog-to-digital converter (ADC)
- One 10-bit, 46.8-ksps single-slope ADC1
- Two opamps configurable as programmable gain amplifiers (PGA), comparators, etc.
- Two low-power comparators (CMP)
- One CAPSENSE™ block that supports low-power operation with self- and mutual-
- capacitance sensing
- Two 7-bit current-output digital-to-analog converters (IDAC) configurable as a single 8-bit IDAC
- Programmable digital blocks
- Eight 16-bit timer/counter/pulse-width modulation (TCPWM) blocks
- Five serial communication blocks (SCBs) that are configurable as I2C, SPI, UART, or LIN Slave
- One Controller Area Network (CAN) controller
- Packages
- 40-pin QFN and 64-pin TQFP
- I/O subsystem
- Up to 54 GPIOs, including 24 Smart I/Os2

Benefits

- Low-power compute & integration, optimized right from the hardware level
- Differentiated Touch HMI features in MCU
- Integrate differentiated analog capabilities to support resistive and current sensing.
- High-speed communications from Fast I2C or CAN-FD
- Dedicated cryptography block for fast cryptographic functions.
- Easy-to-use software for prototyping and productizing end applications

Target applications

- User interface for HMI applications
- Body control and HVAC applications

Competitive advantage

- Reduced system costs with feature integration in single host MCU
- Improve end-product user experience with robust touch-based user interfaces, and intelligent analog sensing
- Flexible options for automotive applications
- Long-range wired communication protocols for physically large systems
- Future-proof product upgrades for higher feature options

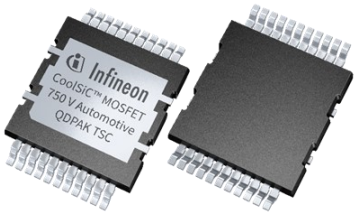
Product collaterals / Online support

Product page

Product overview incl. data sheet link

OPN	SP Number	Package
CY8C4147LQSS285XQLA1	SP005916615	PG-VQFN-64
CY8C4147LQE-S473	SP005645835	PG-VQFN-40
CY8C4147AZE-S475	SP005642547	PG-TQFP-64

CoolSiC™ MOSFET 750 V G1 Industrial and Automotive graded



The new CoolSiC™ MOSFET 750 V G1 is a highly robust SiC MOSFET family for the best system performance and reliability. The CoolSiC™ MOSFET 750V leverages more than 20 years of SiC experience in Infineon. It offers an edge in performance, reliability and robustness, with gate driving flexibility, enabling the simplified and cost-effective system design for top efficiency and power density. The innovative top-side-cooling package further enhances the CoolSiC™ 750 V strengths, enabling better power density, optimized power loop design and less system and assembly costs.

Features

- Highly robust 750 V technology
- Best-in-class $R_{DS(on)}$ x Q_{fr}
- Excellent R_{on} x Q_{oss} and R_{on} x Q_G
- Low C_{rss} / C_{iss} together and high V_{gsth}
- 100% avalanche tested
- Infineon die attach technology
- Cutting-edge top-side-cooled package

Benefits

- Superior efficiency in hard switching
- Enables higher switching frequency
- Higher reliability
- Withstand bus voltages beyond 500 V
- Robustness against parasitic turn
- Unipolar driving
- Best-in-class thermal dissipation

Target applications

- Industrial
  - Solid State Relay (SSR)
  - Solid State Circuit Breaker (SSCB)
  - EV charging
  - PV inverters
  - Energy storage systems
- Automotive
  - Onboard battery charger for electric vehicles
  - High-voltage DC-DC converter for electric vehicles
  - High Voltage e-compressor
  - High Voltage PTC Heater Module
  - Circuit breakers (HV battery disconnect switch, DC and AC low frequency switch, HV e-fuse)

Competitive advantage

- The CoolSiC™ MOSFET 750 V is the most balanced technology combining ease-of-use, switching efficiency and superior thermal performances.
- Enhanced robustness to withstand bus voltages beyond 500 V
- Best-in-class figures of merit
- Unique diffusion soldering technique
- Ultra-low R_{on}
- TSC – Top-side cooling portfolio

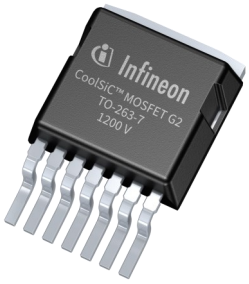
Product overview incl. data sheet link

OPN	SP Number	Package
IMDQ75R008M1HXUMA1	SP005588261	PG-HDSOP-22
IMDQ75R016M1HXUMA1	SP005588264	PG-HDSOP-22
IMDQ75R040M1HXUMA1	SP005629596	PG-HDSOP-22
IMDQ75R140M1HXUMA1	SP005588271	PG-HDSOP-22
AIMDQ75R008M1HXUMA1	SP005931682	PG-HDSOP-22
AIMDQ75R016M1HXUMA1	SP005545098	PG-HDSOP-22
AIMDQ75R040M1HXUMA1	SP005545099	PG-HDSOP-22
AIMDQ75R140M1HXUMA1	SP005545100	PG-HDSOP-22
AIMBG75R016M1HXTMA1	SP005582386	PG-TO263-7
AIMBG75R040M1HXTMA1	SP005570807	PG-TO263-7
AIMBG75R140M1HXTMA1	SP005582406	PG-TO263-7

Product collaterals / Online support

Product family page

CoolSiC™ MOSFETs 1200 V G2 in D²PAK-7 package



The CoolSiC™ G2 1200 V family in a D²PAK-7L (TO-263-7) package builds on the strengths of Generation 1 technology and enables the accelerated system design of more cost optimized, efficient, compact, and reliable solutions. Generation 2 comes with significant improvements in key figures-of-merit for both, hard-switching operation, and soft-switching topologies, suitable for all common combinations of AC-DC, DC-DC, and DC-AC stages.

Features

- Very low switching losses
- Overload operation up to T_{vj} = 200°C
- Short circuit withstand time 2 µs
- Benchmark gate threshold voltage, $V_{GS(th)}$ = 4.2 V
- Robust against parasitic turn on, 0 V turn-off gate voltage can be applied
- Robust body diode for hard commutation
- .XT interconnection technology for best-in-class thermal performance

Benefits

- Better energy efficiency
- Cooling optimization
- Higher power density
- New robustness features
- Highly reliable

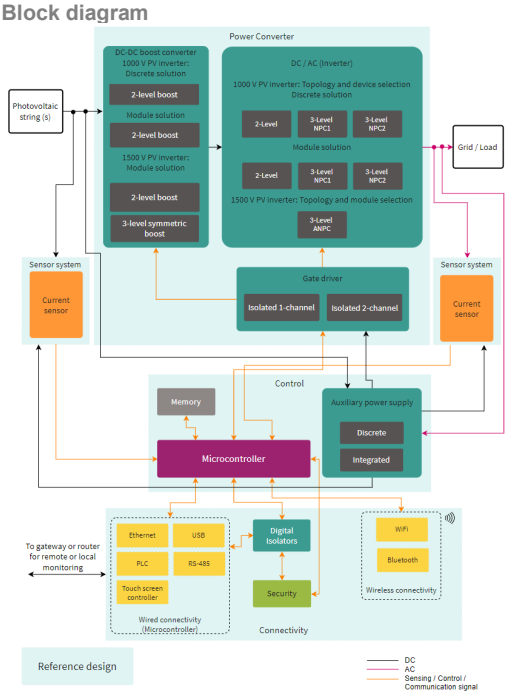
Target applications

- EV charging
- String inverter
- Online UPS / Industrial UPS
- General purpose drives (GPD)

Competitive advantage

- Lowest $R_{DS(on)}$ for highest output capability
- Most granular portfolio in the market
- Overload operation up to Tvj = 200°C
- Robust short-circuit rating
- Avalanche robustness

Block diagram



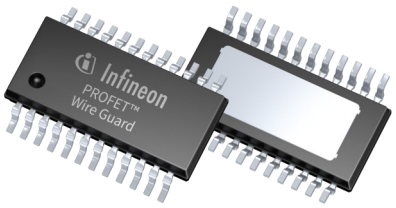
Product collaterals / Online support

Product page

Product overview incl. data sheet link

OPN	SP Number	Package
IMBG120R008M2HXTMA1	SP005752492	TO-263-7
IMBG120R012M2HXTMA1	SP005825843	TO-263-7
IMBG120R017M2HXTMA1	SP005825845	TO-263-7
IMBG120R022M2HXTMA1	SP005825847	TO-263-7
IMBG120R026M2HXTMA1	SP005825849	TO-263-7
IMBG120R040M2HXTMA1	SP005825851	TO-263-7
IMBG120R053M2HXTMA1	SP005825853	TO-263-7
IMBG120R078M2HXTMA1	SP005825855	TO-263-7
IMBG120R116M2HXTMA1	SP005825857	TO-263-7
IMBG120R181M2HXTMA1	SP005825859	TO-263-7
IMBG120R234M2HXTMA1	SP005825459	TO-263-7

PROFET™ Wire Guard 12 V



The single-channel high-side power switches of the PROFET™ Wire Guard family are designed for wire protection in power distribution systems of modern automotive E/E architectures. They are equipped with integrated I²t wire protection and enhanced diagnostic capabilities. Their adjustable overcurrent protection threshold ensures fast failure isolation towards power supplies and the automatic idle mode reduces the current consumption to ~50 µA (typ.) during parking.

Features

- Selectable, integrated I²t wire protection
- Sequential diagnosis for status readout
- Operating current < 60 µA during parking
- IDL pin for microcontroller wake-up
- Adjustable overcurrent protection threshold
- Capacitive load switching mode

Benefits

- Precise wire protection
- Fast failure isolation to power supply
- Precise application diagnostics
- Dynamic load control during parking
- Automatic Idle mode at ~50 µA
- ISO 26262-compliant

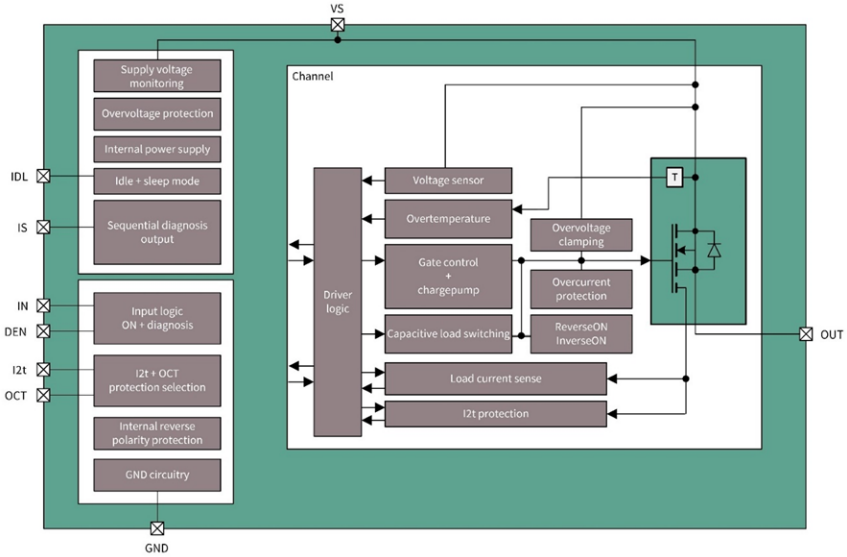
Target applications

- Wire protection
- Secondary power distribution
- Primary power distribution
- Fuse and relay replacement
- Zone Architectures

Competitive advantage

- Highly precise I²t wire protection with integrated wire matching based on thermal wire model
- Integrated automatic Idle mode
- Compatible family approach
- ISO 26262-compliant development
- First in market high-side switch family with I²t protection

Block diagram



Product collaterals / Online support

Product page

Product overview incl. data sheet link

OPN	SP Number	Package
BTG70013A1ESWXUMA1	SP005730309	PG-TSDSO-24
BTG70020A1ESWXUMA1	SP005730307	PG-TSDSO-24
BTG7003A1EPWXUMA1	SP005730297	PG-TSDSO-14
BTG7007A1EPWXUMA1	SP005730283	PG-TSDSO-14
BTG7016A1EPWXUMA1	SP005730281	PG-TSDSO-14

XHP™ 2.XT IGBT5

High power traction and wind applications require high reliability and robustness, combined with system availability and long lifetime. XHP™ 2 modules with IGBT5 and .XT meet those requirements: IGBT5 allows higher power density, whereas the .XT interconnection technology extends the lifetime by increased thermal and power cycling capabilities.

Features

- Optimized for low inductive design
- Extended operation temperature
- T_{Vjop}= 175°C
- Output current increased by more than 25% compared to IGBT4
- Copper bonds for high current carrying capabilities
- Sintering of chips for highest power cycling capabilities
- Total losses reduced by up to 20%
- Package with CTI > 400

Benefits

- Easy to parallel thus scalable
- One platform for all applications
- Extremely robust and reliable
- Higher power per module
- Less number of power stacks
- Less cooling efforts
- Reduced system cost
- Reduced IGBT Eoff losses
- Reduced maintenance

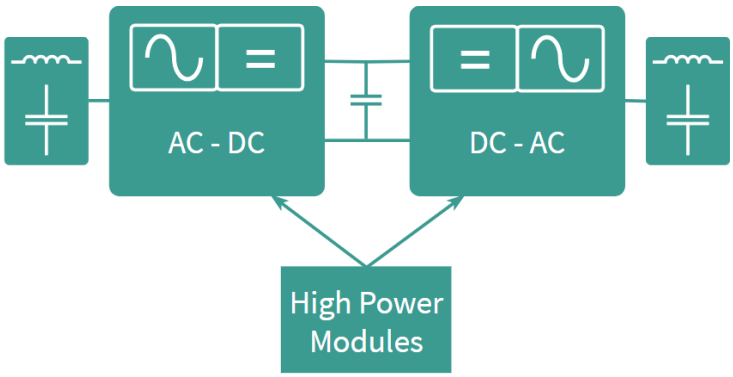
Target applications

- Wind
- Traction
- Solar
- Energy storage
- Motor control and drives

Competitive advantage

- High system reliability
- Reduced system costs
- High power density
- Fast deployment by using same platform for all application types and power ranges

Block diagram



Product collaterals / Online support

Product page FF1200XTR17T2P5

Product page FF1200XTR17T2P5P

Product page FF1800XTR17T2P5

Product page FF1800XTR17T2P5P

Product overview incl. data sheet link

OPN	SP Number	Package
FF1200XTR17T2P5BPSA1	SP003783164	AG-XHP2K17-531
FF1200XTR17T2P5PBPSA1	SP005543124	AG-XHP2K17-531
FF1800XTR17T2P5BPSA1	SP003783172	AG-XHP2K17-531
FF1800XTR17T2P5PBPSA1	SP005434205	AG-XHP2K17-531

Automotive CoolSiC™ MOSFETs 1200 V in TO247-4, with best-in-class switching performance for OBC and DC-DC applications

Infineon expands its Automotive CoolSiC™ MOSFETs portfolio with the SiC 1200 V discrete in TO247-4L package: thanks to the additional Kelvin-source pin, it features the best-in-class switching performance, robustness against parasitic turn-ons, as well as improved $R_{DS(on)}$ and $R_{th(j-c)}$, making it the ideal choice for OBC and DC-DC applications.

Features

- Increased turn-on voltage $V_{GS(th)}$ = 20 V
- 0 V turn-off gate voltage
- Low C_{rss} / C_{iss} ratio and high $V_{GS(th)}$
- Reduced total gate charge Q_{Gtot}
- Suitable for HV creepage requirements
- Thinner leads for reduced risk of solder bridges

Benefits

- Efficiency improvement
- Enabling higher frequency
- Increased power density
- Cooling effort reduction
- Reduction of system complexity and cost

Target applications

- On-board charger
- DC-DC converter
- Auxiliary drives

Competitive advantage

- Lowest R_{on} deviation
- Lowest thermal resistance
- Only device operating at 20 / 0 V_{GS}

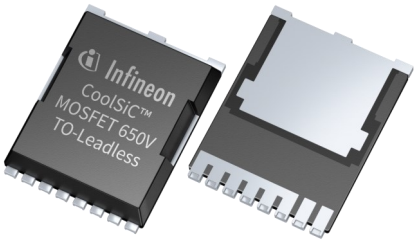
Product collaterals / Online support

Product page

Product overview incl. data sheet link

OPN	SP Number	Package
AIMZH120R010M1TXKSA1	SP005586188	PG-TO247-4
AIMZH120R020M1TXKSA1	SP005586174	PG-TO247-4
AIMZH120R030M1TXKSA1	SP005586190	PG-TO247-4
AIMZH120R040M1TXKSA1	SP005586192	PG-TO247-4
AIMZH120R060M1TXKSA1	SP005586194	PG-TO247-4
AIMZH120R080M1TXKSA1	SP005586198	PG-TO247-4
AIMZH120R120M1TXKSA1	SP005586196	PG-TO247-4
AIMZH120R160M1TXKSA1	SP005586184	PG-TO247-4

CoolSiC™ MOSFET discrete 650 V in TOLL package, 107 mΩ
IMT65R107M1HXTMA1



The CoolSiC™ MOSFET discrete 650 V in TOLL (HSOF-8) package leverages the strengths of the Infineon CoolSiC™ technology. The small form factor and low parasitic of the TO-leadless (TOLL) package allow for an even more efficient and effective usage of PCB space as well to drive the MOSFET at higher frequencies, reaching higher power density. The reduction of thermal impedance compare to D²PAK package, together with the innovative .XT interconnect technology, makes the CoolSiC™ MOSFET 650 V in TOLL products suitable for high to mid power systems, optimizing the performance per $. It ideally fits the emerging Totem Pole PFC topology but also enables high efficiency and density in DC-DC and AC-DC stages as well as in inter-leaved topologies to address high efficiency targets. The products are further suitable for specific high efficiency designs in low power systems, like home appliances or low power industrial drives.

Infineon's CoolSiC™ MOSFET 650 V in TOLL package offering is complemented by our EiceDRIVER™ gate driver IC offering for SiC MOSFETs. With complementing CoolMOS™ SJ MOSFETs and CoolGaN™ HEMTs being available in TOLL package too, Infineon offers an appealing one stop shop option for various systems.

Features

- Industry standard package - JEDEC industrial applications qualified (J-STD20 and JESD22)
- Small form factor
- Thermal impedance reduction
- .XT interconnect
- Low parasitic inductance
- Kelvin source connection
- MSL1 (or MLS2) compliant
- Thermal improvement over D²PAK and similar to TO-220
- Suitable for wave or reflow soldering
- Totally Pb free
- TOLL already a high runner in CoolMOS™ and CoolGaN™

Benefits

- Enable high system power density and high switching operations
- Enable cheaper and faster SMD assembly
- Ease of use and compatibility with existing vendors
- Reduced switching losses à higher energy efficiency
- Lower case temperature and higher reliability
- Enables easy design-in with complementing Infineon products like CoolMOS™ and CoolGaN™

Competitive advantage

- Helps in achieving better efficiency due to its strong source / sink capability
- Tight propagation delay matching reduces dead time losses
- Integrated bootstrap diode reduces BOM cost and increases power density

Target applications

- Datacenter power
- Telecom
- Industrial SMPS
- Solar inverters
- Energy storage systems
- Battery formation
- Motor driver
- Home appliances
- Online UPS

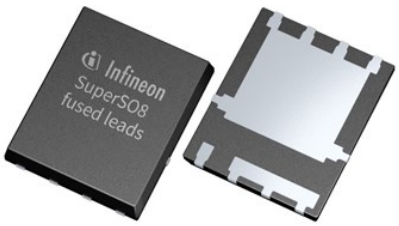
Product collaterals / Online support

Product page

Product overview incl. data sheet link

OPN	SP Number	Package
IMT65R107M1HXUMA1	SP005716854	PG-HSOF-8

OptiMOS™ Linear FET 60 V – 200 V in PQFN 5 x 6 mm and 3.3 x 3.3 mm packages



Three new PQFN 5 x 6 (SuperSO8) parts and one new PQFN 3.3 x 3.3 mm (S3O8) part join the Infineon's OptiMOS™ Linear FET family: ISC015N06NM5LF (1.55 mΩ, 60 V), ISC025N08NM5LF (2.55 mΩ, 80 V), ISC035N10NM5LF (3.55 mΩ, 100 V) and ISZ113N10NM5LF (11.3 mΩ, 100 V) all offer best-in-class $R_{DS(on)}$ and wide safe operating area (SOA) at 25˚C and 125˚C. The OptiMOS™ Linear FET is a revolutionary approach that solves the trade-off between on-state resistance and linear mode capability. ISC015N06NM5LF, ISC025N08NM5LF and ISC035N10NM5LF are targeted for high in-rush current applications such as hot-swap, e-fuse, and battery protection commonly found in Telecom, Data Server and Battery Management System (BMS). ISZ113N10NM5LF is target for soft starting in Power-over-Ethernet (PoE) application.

Compared to existing TOLL and D²PAK 7-pin packages, PQFN 5 x 6 mm and 3.3 x 3.3 mm offer the perfect solution where the highest power density, low profile, cost and space reduction are required.

Features

- Wide safe operating area (SOA)
- Low $R_{DS(on)}$
- High max. pulse current and continuous pulse current
- Small, low profile package

Benefits

- Rugged linear mode operation
- Low conduction losses
- Higher in-rush current enabled for faster start-up and shorter down time
- Compatible footprint for drop-in replacement

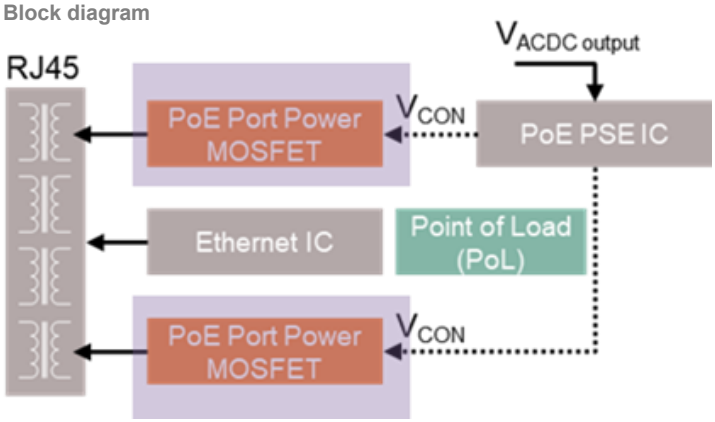
Target applications

- Telecom - hot-swap control
- Server - hot-swap control
- Battery management (BMS) – Battery protection
- Power over Ethernet (PoE) – Port MOSFET

Competitive advantage

- Market leader with best-in-class $R_{DS(on)}$ and wide safe operating area (SOA)

Block diagram



Product collaterals / Online support

Product page ISC015N06NM5LF

Product page ISC025N08NM5LF

Product page ISC035N10NM5LF

Product page ISZ113N10NM5LF

Product overview incl. data sheet link

OPN	SP Number	Package
ISC015N06NM5LF2ATMA1	SP005987895	PG-TDSON-8
ISC025N08NM5LF2ATMA1	SP005987898	PG-TDSON-8
ISC035N10NM5LF2ATMA1	SP005987893	PG-TDSON-8
ISZ113N10NM5LF2ATMA1	SP005987894	PG-TSDSON-8

CoolSiC™ 1200 V, 30 mΩ SiC MOSFET in TO-247-4 package IMZA120R030M1H

The CoolSiC™ 1200 V, 30 mΩ SiC MOSFET in TO-247-4 package is optimized to combine performance with reliability by bringing advantages such low gate charge and device capacitance levels, no reverse recovery losses of the internal commutation body diode, low switching losses, and threshold-free on-state characteristic. It is ideal for hard and resonant switching topologies, bi-directional topologies, DC-DC converters or DC-AC inverters. The TO-247 4-pin package reduces parasitic source inductance effects on the gate circuit enabling faster switching and increased efficiency.

Features

- Best in class switching and conduction losses
- High threshold voltage, V_{th} > 4 V
- 0 V turn-off gate voltage for easy and simple gate drive
- Wide gate-source voltage range
- Robust and low loss body diode rated for hard commutation
- Temperature independent turn-off switching losses
- .XT interconnection technology for best-in-class thermal performance

Benefits

- Highest efficiency
- Reduced cooling effort
- Higher frequency operation
- Increased power density
- Reduced system complexity

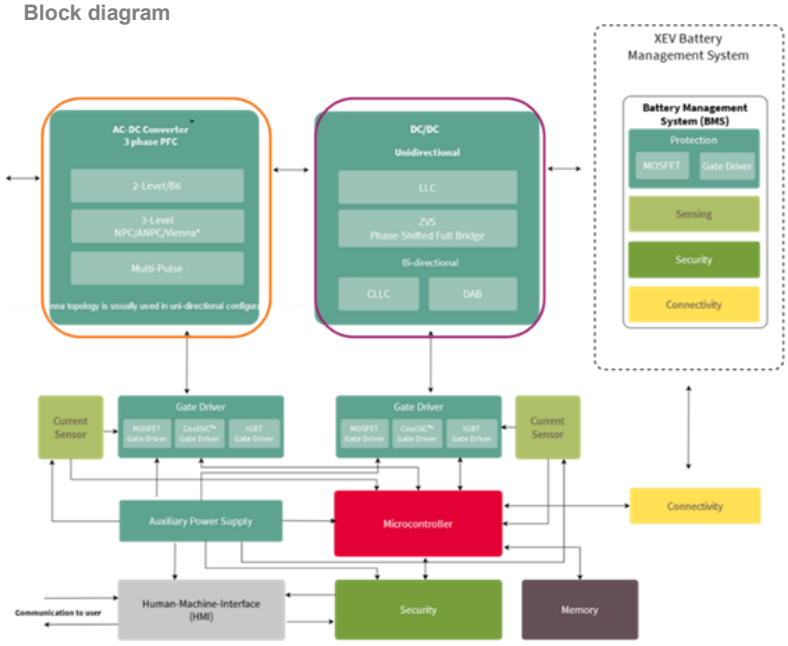
Target applications

- Battery formation
- EV charging
- Motor control and drives
- Photovoltaic
- Switched mode power supplies (SMPS)

Competitive advantage

- The CoolSiC™ 1200 V, 30 mΩ SiC MOSFET in TO-247-4 package build on a state-of-the-art trench semiconductor process optimized to combine performance with reliability

Block diagram



Product collaterals / Online support

Product page

Product overview incl. data sheet link

OPN	SP Number	Package
IMZA120R030M1HXKSA1	SP005425985	PG-TO247-4

Easy modules with CoolSiC™ MOSFET and pre-applied Thermal Interface Material for EV Charging, UPS and Fuel Cell DC-DC

EasyDUAL™ 2B CoolSiC™ MOSFET half-bridge module for 1200 V applications with PressFIT contact technology, integrated NTC temperature sensor and Thermal Interface Material.

Features

- Best-in-class packages with 12 mm height
- Leading edge WBG material
- Very low module stray inductance
- Enhanced CoolSiC™ MOSFET Gen 1
- Enlarged gate drive voltage window from 15 to 18 and 0 to -5 V
- Extended maximum gate-source voltages
- Gate-source voltages of +23 V and -10 V
- T_{vjop}: overload condition up to 175°C
- Integrated NTC temperature sensor

Benefits

- Outstanding module efficiency
- System cost advantages
- System efficiency improvement
- Reduced cooling requirements
- Enabling higher frequency
- Increase of power density

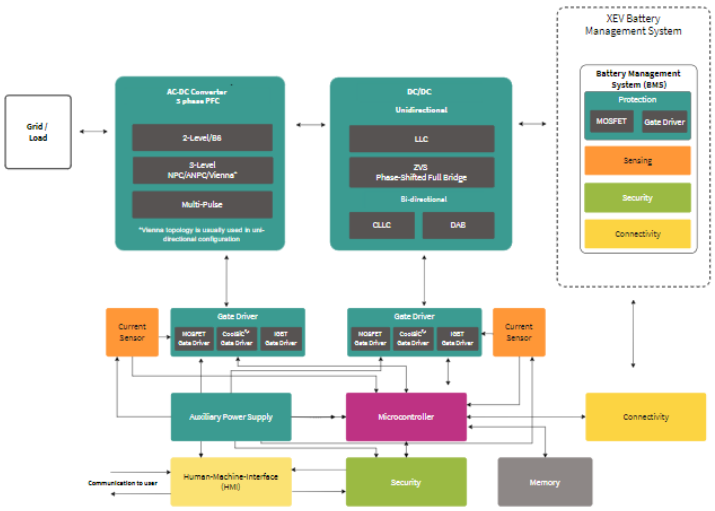
Target applications

- EV Charger
- UPS
- Fuel cell

Competitive advantage

- Full and complete half-bridge portfolio with pre-applied Thermal Interface Material (TIM)
- Expand power rating in existing footprint

Block diagram



Product collaterals / Online support

Product page: FF4MR12W2M1HP_B11

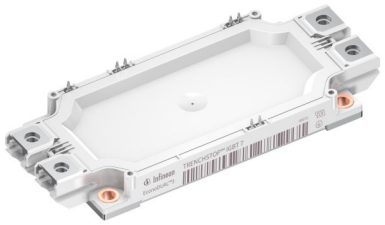
Product page: FF6MR12W2M1HP_B11

Product overview incl. data sheet link

OPN	SP Number	Package
FF4MR12W2M1HPB11BPSA1	SP005882743	AG-EASY2B-3111
FF6MR12W2M1HPB11BPSA1	SP005634513	AG-EASY2B-3111

EconoDUAL™ 3 with integrated shunts

TRENCHSTOP™ IGBT7 module in EconoDUAL™ 3 housing with integrated shunts, emitter controlled 7 diode, NTC and PressFIT contact technology.



Features

- EconoDUAL™ 3 with integrated shunts for current measurement
- Available with TRENCHSTOP™ IGBT4 and latest IGBT7 chip technology
- Now also available with a current of up to 750 A (IGBT 7)
- T_{vjop} 175°C overload (TRENCHSTOP™ IGBT7)
- PressFIT control pins and screw power terminals

Benefits

- High reliability by using well-established EconoDUAL™ 3 package with integrated shunts
- Higher inverter power density
- Increased current measurement accuracy
- Cost reduction by savings in material, space and mounting time

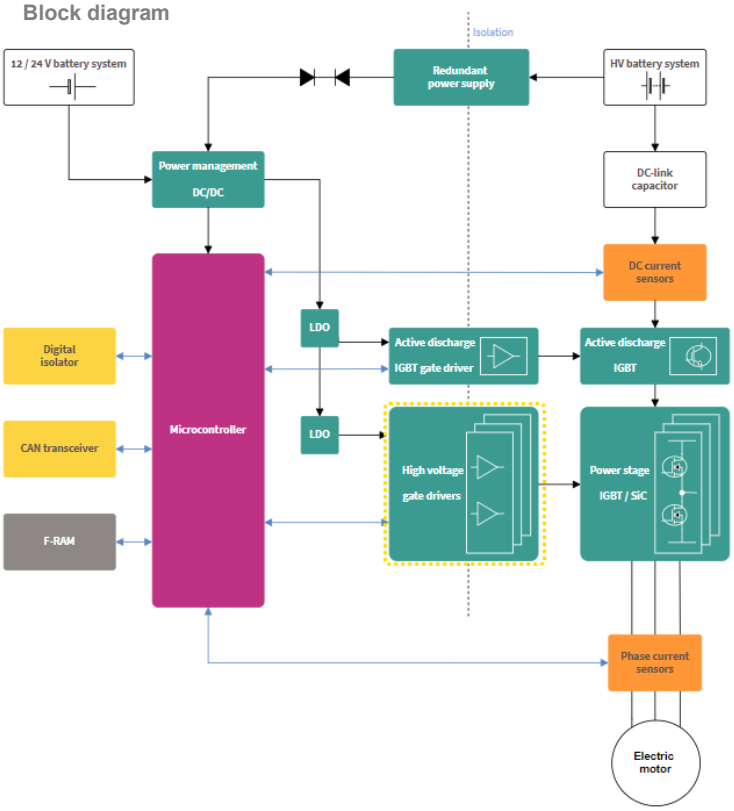
Target applications

- eBus
- CAV
- Drives
- Renewables

Competitive advantage

- The integrated shunts in the EconoDUAL™ 3 package, enabling to replace external current sensors, allow for:
  - Simplification of the system design
  - System cost reduction

Block diagram



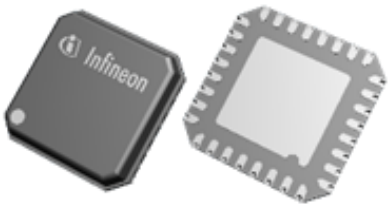
Product collaterals / Online support

Product page IFF750B12ME7_B11

Product overview incl. data sheet link

OPN	SP Number	Package
IFF750B12ME7B11BPSA1	SP005613950	AG-ECONOD-741

BGMC1210 - bias and control ICs for GaN and LDMOS Doherty PAs



Infineon bias and control ICs are used to bias radio-frequency power amplifiers by generating accurate voltages with high-precision DACs. The BGMC1210 is a bias and control IC for Power Amplifiers (PA). The device is optimized for Doherty PAs and biases up to 2 PAs with 4 DAC outputs per PA but can be used in any PA configuration. The DACs have a resolution of 12-bit and a current driving capability of 50 mA sourcing and 20 mA sinking. The DACs are organized in two groups with independent supplies and can be operated with positive and negative supply voltages in order to bias LDMOS and GaN transistors. In addition, the BGMC1210 offers integrated clamping switches for fast TDD operation of the PA and integrated ADCs to measure supply voltages and drain currents.

Features

- 8 DACs with 12-bit resolution
- 2 Shunt and 1 Voltage ADCs
- V_{out} range: -7…0 / 0…7 V
- Integrated Temperature Sensor
- Control Interface: I2C & I3C
- Package: VQFN-32 (5 x 5 mm²)

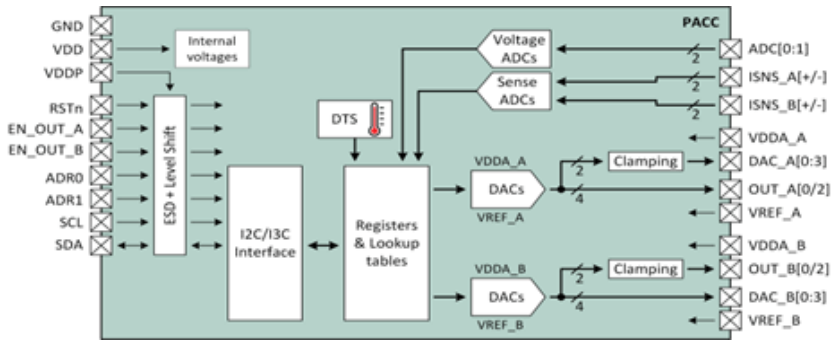
Target applications

- 5G massive MIMO
- Small cells
- Base stations
- Distributed Antenna Systems (DAS)

Benefits

- Bias & Control chip to bias Doherty PA for 2 TX channels: Small 5 x 5 mm² instead of 10 x 10 mm² package incl. clamping switches can be placed directly between PA modules. No external switch or temp sensor required
- Positive and negative output range for GaN and LDMOS PAs: same component for all bands and frequencies which simplifies sourcing
- Integrated clamping switches & buffers for fast TDD operation: no external switch components required, saving cost and space. Switches allow for fast PA switching in <<1 µs
- Integrated 60 V ADC for PA current and voltage measure-ments: no external voltage divider or ADC required. Simplifies communication and signal routing
- Temperature sensor and fast I2C & I3C serial interface: use of integrated temperature compensation and fast setting of DACs (i.e. I2C & I3C communication interface)

Block diagram



Product collaterals / Online support

Product page

Product overview incl. data sheet link

OPN	SP Number	Package
BGMC1210E6327XUMA1	SP005595413	PG-VQFN-32

XENSIV™ - IM66D130A / IM66D120A high performance digital MEMS microphone - best fit for automotive Active Noise Cancellation (ANC)

High-performance digital XENSIV™ MEMS microphones qualified according to the state-of-the-art automotive quality standard AEC-Q103-003.

These microphones are suited for all applications inside and outside the car, where best audio performance in harsh automotive environments and a digital PDM interface are required. Furthermore they perfectly support acoustic noise cancellation applications with its flat, stable frequency and phase response, as well as a very low LFRO (Low frequency roll off) at 7 Hz.

Our products additionally enable distortion-free audio capture for all speech -related applications improving speech intelligibility for voice recognition algorithms. Other highlights include close sensitivity and phase matching, making automotive XENSIV™ MEMS microphones ideal for beamforming arrays.

Features

- Qualification according to AEC-Q103-003
- Increased operating temperature range: T_A = -40°C …105°C
- Flat frequency response down to 7 Hz
- Digital PDM output
- High dynamic range and high wind-noise robustness
- Signal to noise ratio of 66 dB(A)
- <1% total harmonic distortions up to high SPL levels
- Small 3.5 x 2.65 x 0.98 mm³ surface mount package
- Environmental robust up to IP57

Benefits

- Flat frequency response with low frequency roll of for best ANC performance
- Enlarged operating temperature range allows flexible use in different application environments
- Automotive qualified microphone with extended availability to match long automotive design cycles for whole typical vehicle´s life cycles, allows savings in design-in efforts and risks
- Close sensitivity and phase matching for optimum beam forming (arrays)
- Clear speech up to high SPL levels

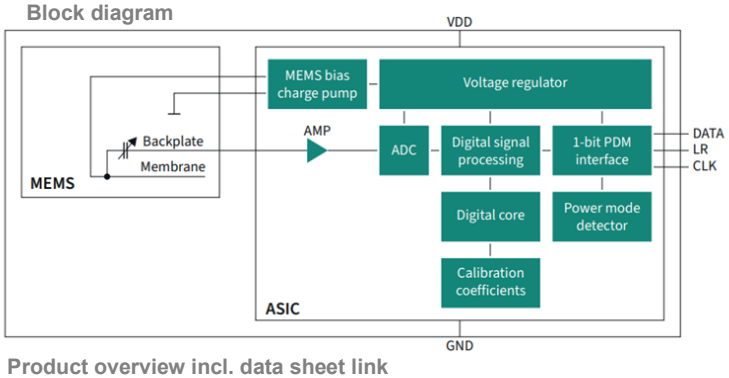
Target applications

- Active noise cancellation / road noise cancellation (ANC / RNC)
- Hands free calling
- Emergency call
- Voice control from interior or exterior
- Siren detection
- Road condition detection

Competitive advantage

- Qualification according to AEC-Q103-003
- Increased T-range: T_A = -40°C ... +105°C
- Long term availability
- High performance
- Very low LFRO = 7 Hz

Block diagram



Product collaterals / Online support

Product page IM66D120A

Product page IM66D130A

Product overview incl. data sheet link

OPN	SP Number	Package
IM66D120AXTMA1	SP005926392	PG-TLGA-5
IM66D130AXTMA1	SP005851225	PG-TLGA-5

EZ-PD™ CCG7DC CYPD7272

EZ-PD™ CCG7DC is Infineon's highly integrated dual-port USB Type-C power delivery (PD) solution with integrated buck-boost controllers. It complies with the latest USB Type-C and PD specifications and is targeted for multi-port consumer charging applications.

Features

- 2x USB-PD ports
- Support USB PD 3.0 version 2.0 including PPS mode
- 2x buck-boost controllers
- 2x legacy / proprietary charging blocks
- 32-bit MCU - 48-MHz ARM® Cortex® M0 CPU
- System-level fault protection

Benefits

- Enables high power density designs
- Dynamic load sharing enables intelligent redistribution of power between two ports
- Optimized efficiency for AC-DC designs

Target applications

- Cigarette lighter adapter (CLA)
- Multi-port AC-DC charger and adapter

Competitive advantage

- EZ-PD™ CCG7DC is a highly integrated dual-port USB-C PD with DC-DC controller. It makes customers´ end-products competitive by offering advanced features such as dynamic load sharing, cable compensation, black-box, and firmware upgrades

Product collaterals / Online support

Product page

Product overview incl. data sheet link

OPN	SP Number	Package
CYPD727268LQXQXQSA1	SP005974260	PG-VQFN-68

AIROC™ CYW20829 Bluetooth® LE 5.4 MCU

Infineon's AIROC™ CYW20829 Bluetooth® LE MCU is a v5.4 core spec-ready device that delivers the optimal combination of compute and RF performance, energy efficiency, I/O options and security to enable feature-rich, innovative Bluetooth® solutions for a wide range of applications.

The CYW20829 integrates dual Arm® Cortex®-M33 cores, a powerful and highly efficient Bluetooth® LE radio with a best-in-class RF link budget, application SRAM, a rich set of interfaces and peripherals including a SMIF with XIP capability for external flash, and it features support for secure boot, a secure execution environment, eFuse for custom keys, and cryptographic acceleration.

In terms of Bluetooth® capabilities, the CYW20829 supports high throughput and coded PHYs for long range, periodic advertising with responses (PAwR), encrypted advertising data, isochronous channels, ultra-low latency HID and many others to help developers target key emerging applications (e.g. ESL, industrial IoT, LE Audio, AR/VR) and to future-proof their designs.

Features

- Full feature Bluetooth® LE 5.4 support
- Up to 96 MHz ARM® Cortex® M33 application core
- 256 KB SRAM
- Up to 48 MHz ARM® Cortex® M33 Bluetooth® subsystem core
- 96 KB SRAM
- 48 MHz Quad SPI SMIF with XIP, on-the-fly encryption and 32 kB cache
- Secure boot & crypto HW engine
- TX power: up to +10 dBm
- RX sensitivity: -106 dBm (coded, S=8)
- 1.7 to 3.6 V supply voltage range
- 32 programmable GPIO
- CAN-FD and LIN support
- -30 to 85°C operating temp. range
- 6 x 6 QFN-56

Competitive advantage

- Industry-leading RF range and robustness
- Full feature Bluetooth® v5.4 support
- Enables secure applications at multiple levels
- Supports external "right-size" flash memory
- Enables LE audio or pre-spec ULL HID
- System BOM cost savings due to highly integrated MCU
- Two-layer board design support
- Ultra-low current consumption

Benefits

- Best RF range and robustness in the industry
- Full-featured Bluetooth® v5.4 support for future proofing
- High integration minimizes system BOM cost
- Ultra-low current consumption for extended battery life
- Ultra-low latency

Target applications

- Industrial
  - Asset tracking, solar farms, automation, electronic shelf labels
- Smart Home
  - Home automation, sensor nodes, remote controls
- Health
  - Medical patches, wearable monitors (e.g. ECG, blood pressure)
- Gaming
  - AR/VR controllers and accessories
- PC Accessories
  - Mouse, keyboards, ULL HID

Product collaterals / Online support

Product page CYW20829

Board page CYW920829M2EVK-02

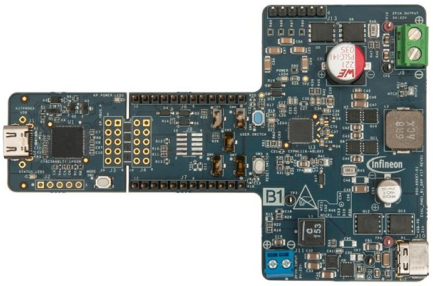
Product overview incl. data sheet link

OPN	SP Number	Package
CYW20829B0LKMLXQLA1	SP005912601	PG-VQFN-56
CYW920829M2EVK-02	SP005962701	Dev kit

Evaluation kit EVAL_PMG1_B1_DRP

EVAL_PMG1_B1_DRP is an evaluation kit for EZ-PD™ PMG1-B1 USB power delivery (PD) microcontroller (MCU) with an integrated buck-boost battery charger. EZ-PD™ PMG1-B1 is targeted for battery-powered applications that are powered by USB-C PD.

The kit is used to sink up to 100 W and source up to 27 W. The kit can also be used to charge 2 cell-5 cell batteries, and the battery charging algorithm is implemented as part of EZ-PD™ PMG1-B1 SDK.



Features

- Supports USB-C PD 3.1 spec up to 100 W
- MCU, flash, DC-DC buck-boost
- Battery charge controller
- High voltage protection circuits
- Programmability to multiple standards
- Customization to multiple standards

Benefits

- Fully programmable and flexible MCU
- Allows easy application development
- SDK on ModusToolbox™ and PMG1 kits
- Huge USB-C PD stack for interoperability
- Integrated hardware protections

Target applications

- Industrial and consumer BMS
- Smart speakers designs
- Vacuum cleaner
- Non-stackable BMS solutions
- Infineon's dedicated solutions for low-power

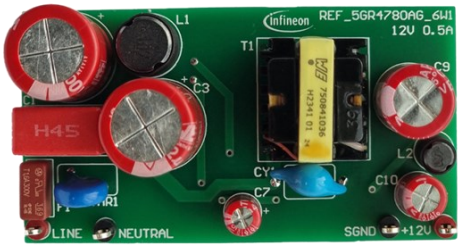
Product collaterals / Online support

Board page

Product overview incl. user manual link

OPN	SP Number
EVALPMG1B1DRPTOBO1	SP005989658

REF_5GR4780AG_6W1



The REF_5GR4780AG_6W1 is an auxiliary power supply reference design based on Infineon's 5th generation fixed-frequency CoolSET™ family (ICE5GR4780AG) configured in a flyback topology. It utilizes a simple Zener diode reference voltage for the feedback loop and a simple input Pi filter for EMI suppression to support cost performance auxiliary power supply targeting small home appliances.

Features

- Supports USB-C PD 3.1 spec up to 100 W
- Universal input 85 ~ 265 V_{AC}
- Isolated 12 V / 0.5 A output
- Over 82% full load efficiency at 115 / 230 V_{AC}

Benefits

- Low-cost solution aux for appliances
- Fixed-frequency reduction technique
- Active burst mode

Target applications

- Home appliances

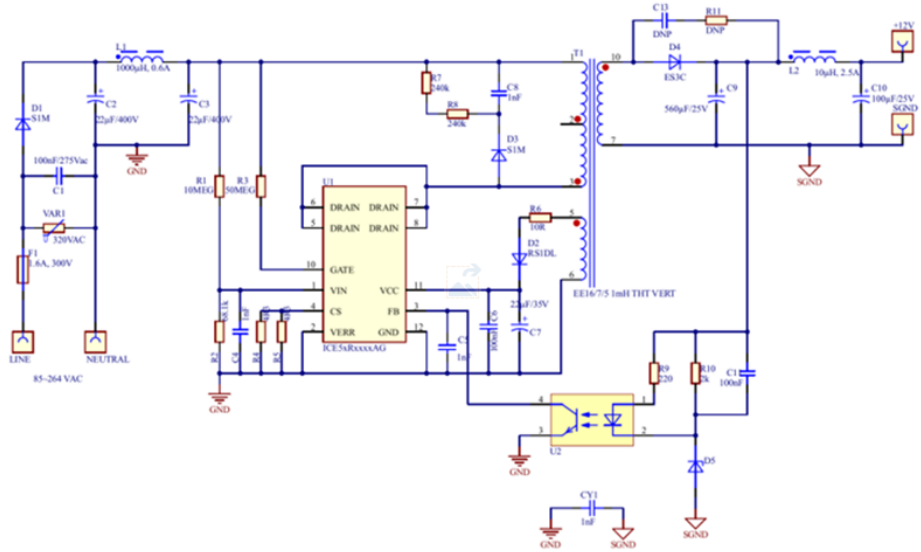
Competitive advantage

- Increase mid and light load efficiency with digital frequency reduction
- Adjustable line input over voltage protection
- VCC pin short to ground protection.
- OLP, output short, OTP with hysteresis and V_{CC} over / under voltage protection
- Auto-restart for all protection features

Product collaterals / Online support

Board page

Block diagram



Product overview incl. user manual link

OPN	SP Number
REF5GR4780AG6W1TOBO1	SP006016120

REF_ICL8810_116W_BPA reference board

This reference board is based on a single-stage PFC flyback topology with secondary-side regulated (SSR) and constant current (CC) output. Universal input voltage range and wide output voltage range of 24 V to 58 V make it suitable for battery charger applications.

Features

- Universal input voltage range
- Output voltage range from 24 V to 58 V
- SSR with adjustable CC output up to 2 A
- High PF and low harmonic currents
- Burst mode for low standby power consumption

Benefits

- Single stage AC-DC with high PF, low THC
- QR mode for high efficiency and low EMI
- Configurable brown-in and brown-out
- Comprehensive set of protections
- Cost optimized design with no bulk capacitor

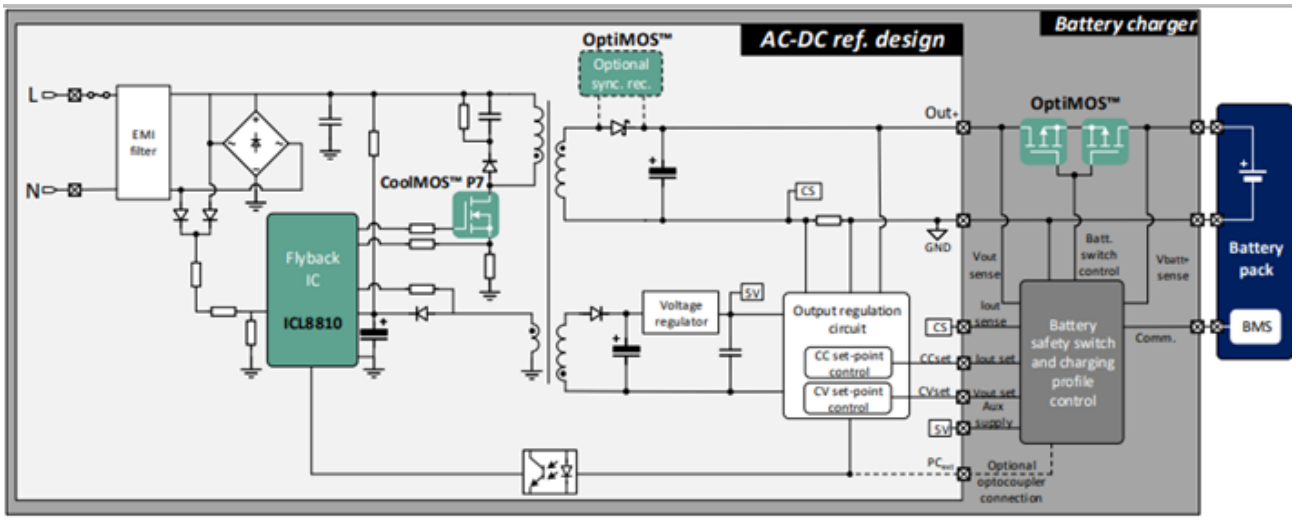
Target applications

- Battery chargers
- E-bike chargers
- Cordless power tools chargers

Product collaterals / Online support

Board page

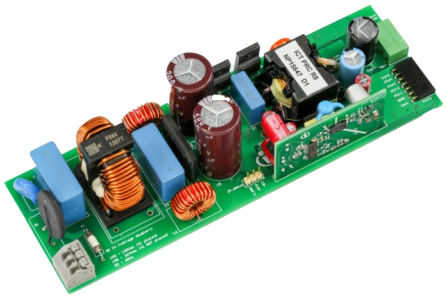
Block diagram



Product overview incl. user manual link

OPN	SP Number
REFICL8810116WBPATOBO1	SP005990405

REF_XDPS2201_170W_BPA2



Infineon's REF_XDPS2201_170W_BPA2 is a highly efficient 170 W single-stage hybrid-flyback reference design aimed for 24 V and 36 V Li-Ion battery packs typically found in chargers for e-bikes or power tools. The design has implemented a configurable wide input voltage range and incorporates a digital controller, XDP™ XDPS2201, with multi-mode operation and two 600 V CoolMOS™ P7 superjunction MOSFETs (IPA60R280P7S).

Features

- Hybrid flyback (asymmetric half-bridge)
- Output voltage range from 18 V to 42 V
- 170 W output power
- Up to 95% @ 230 V_{AC} at full load
- Aimed for 24 V and 36 V battery packs

Benefits

- High efficiency
- Extra small transformer size
- No PFC stage, low system cost
- Wide output voltage range

Target applications

- Battery chargers
- Light electric vehicles

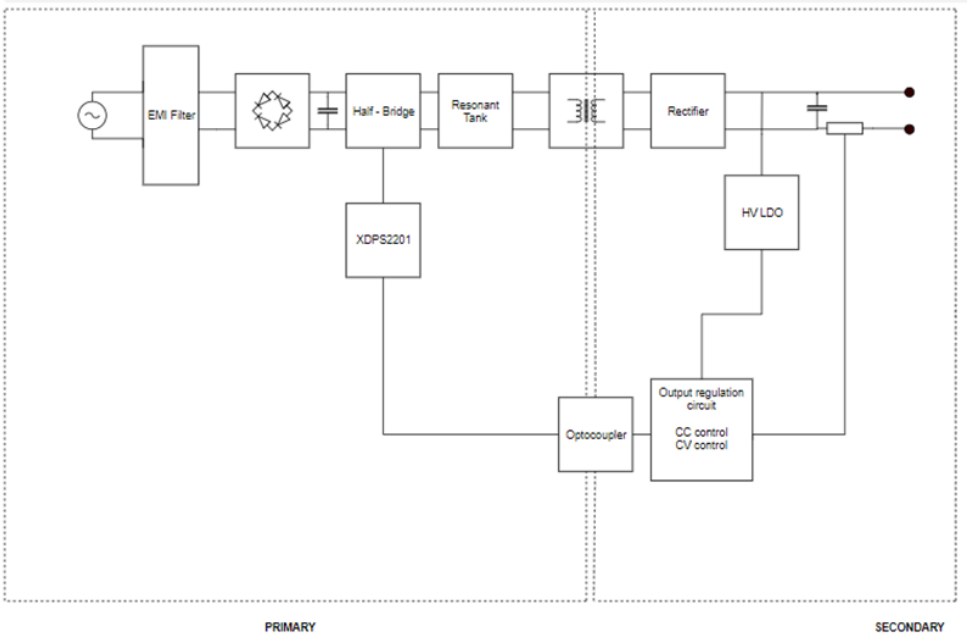
Competitive advantage

- High efficiency
- Extra small transformer size
- No PFC stage, low system cost
- Wide output voltage range
- Wide input voltage range due to the voltage doubler

Product collaterals / Online support

Board page

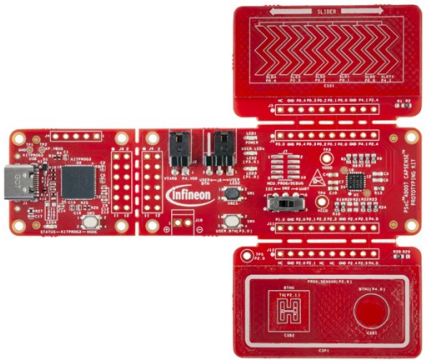
Block diagram



Product overview incl. user manual link

OPN	SP Number
REFXDPS2201170WBPA2TOBO1	SP006015146

CY8CPROTO-040T: PSoC™4000T CAPSENSE™ Prototyping kit



This kit enables quick prototyping for Infineon's 5th Gen CAPSENSE™ technology on the PSoC™4000T microcontroller, demonstrating its ultra-low power always-on sensing capabilities, and Improved SNR performance.

It includes a self-cap and mutual-cap slider, a proximity sensor and self-cap and mutual-cap buttons.

You can use ModusToolbox™ software to develop and debug your PSoC™ 4 projects. ModusToolbox™ software is a set of tools that enables you to integrate Infineon devices into your existing development methodology.

Features

- 5.5 V default power on KitProg with provision to enable 1.8 V operation
- 1 x reset switch, 1 x power indicator, LED status indicator
- Pre-programmed with OOB firmware
- On board KitProg3 (with different KitProg HW ID)
- On board target voltage measurement
- On board current measurement header (with all leakage isolated circuitry)
- 1x SWD / JTAG programming connector for PSoC™ 4000T (footprint only)
- 1x connector for I2C / UART with 2 x 5 header instead of 1 x 5 header (footprint only)

Benefits

- Low cost quick evaluation platform for Infineon's 5th Gen CAPSENSE™ technology and PSoC™ 4000T
- One self-cap button, one mutual-cap button and one printed proximity sensor
- One CAPSENSE™ linear slider (5-segment slider) supporting both CSD & CSX
- 1 mm transparent overlay on sensors, overlay thickness is , 1 mm
- Easy prototyping using breadboard compatible footprint
- Compressive list of code examples through ModusToolbox™ BSP

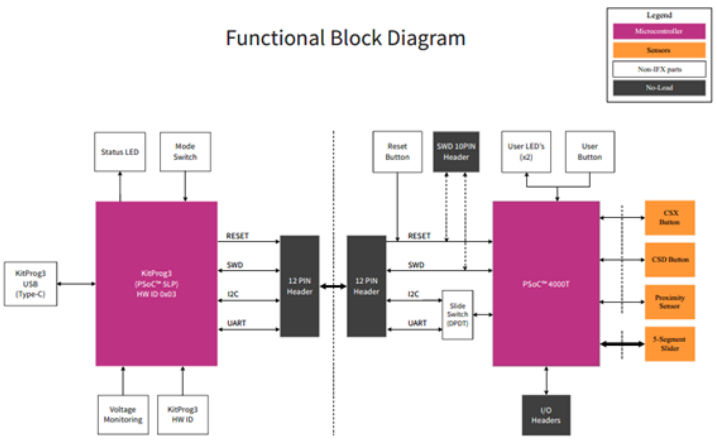
Target applications

- Wearables
- Hearables
- Smart home devices
- Other consumer applications

Competitive advantage

- Easy to use prototyping kit
- Easy to interface sensors to external hardware
- Enables quick proof-of-concept development
- Allows for the evaluation of 5th Gen CAPSENSE™

Block diagram



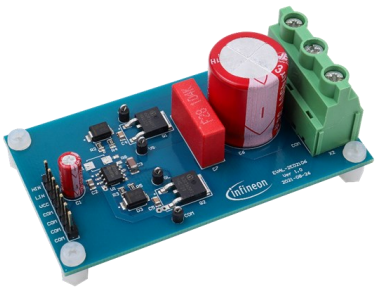
Product collaterals / Online support

Board page

Product overview incl. user manual link

OPN	SP Number
CY8CPROTO-040T	SP005972038

EVAL-2ED2106 - evaluation board for 2ED2106S06F, 650 V, 0.7 A high-side and low-side gate driver with integrated bootstrap diode



This evaluation board comes with the gate driver IC, 2ED2106S06F and two MOSFETs, IPD60R360P7, in half bridge configuration. The board is designed to test basic functionalities and highlight features of the Infineon silicon-on-insulator (SOI) gate driver. The user can test PWM input-output performance, check propagation delay, current capability, and high switching frequency performance. The board can also be used to do a double pulse test.

Features

- Operating voltages up to + 650 V
- Using Infineon SOI-technology
- Negative VS transient immunity of 100 V
- Integrated low ohmic bootstrap diode
- Designed for bootstrap operation
- Maximum supply voltage of 25 V
- Under voltage lockout (UVLO)
- 200 ns propagation delay
- Logic operational up to –11 V on VS Pin
- Negative voltage tolerance on -5 V inputs

Benefits

- Reduced BOM cost & saves space
- 50% lower level-shift losses
- Excellent ruggedness and noise immunity

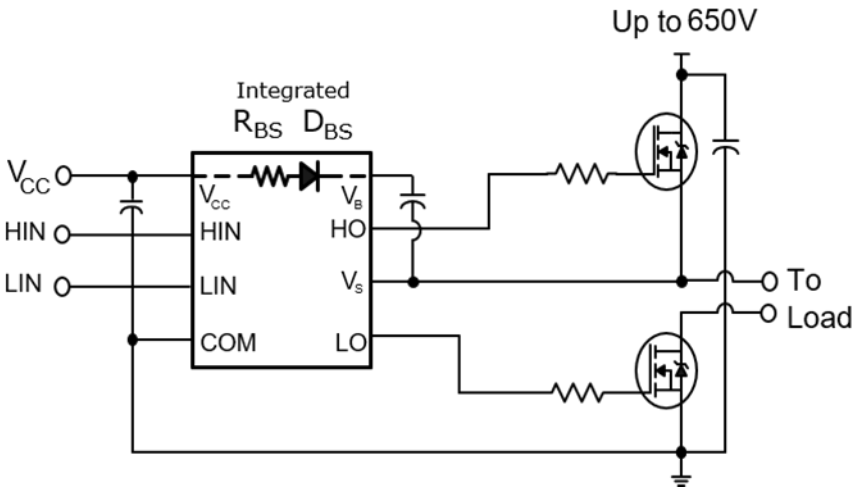
Target applications

- Motor control and driver
- Switched mode power supplies (SMPS)

Product collaterals / Online support

Board page

Block diagram

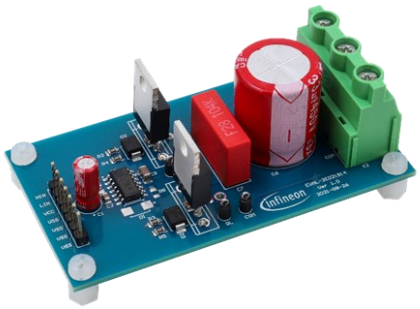


Product overview incl. user manual link

OPN	SP Number
EVAL2ED2106TOBO1	SP005419084

EVAL-2ED21814 - evaluation board for 2ED21814S06F, 650 V, 2.5 A half-bridge gate driver with integrated bootstrap diode

This evaluation board comes with the gate driver IC, 2ED21814S06F and two MOSFETs, IPP60R280P7, in half bridge configuration. This board is designed to test basic functionalities and highlight features of the Infineon silicon-on-insulator (SOI) gate driver. The user can test PWM input-output performance, check propagation delay, current capability, and high switching frequency performance. The board can be used to do a double pulse test.



Features

- Operating voltages up to + 650 V
- Using Infineon SOI-technology
- Negative VS transient immunity of 100V
- Integrated low ohmic bootstrap diode
- Designed for bootstrap operation
- Maximum supply voltage of 25 V
- Under voltage lockout (UVLO)
- 200 ns propagation delay
- Logic operational up to -11 V on VS Pin
- Negative voltage tolerance on -5 V inputs
- Separate logic and power ground

Benefits

- Reduced BOM cost and saves space
- 50% lower level-shift losses
- Excellent ruggedness and noise immunity
- Suitable for high current power devices
- For high frequency applications

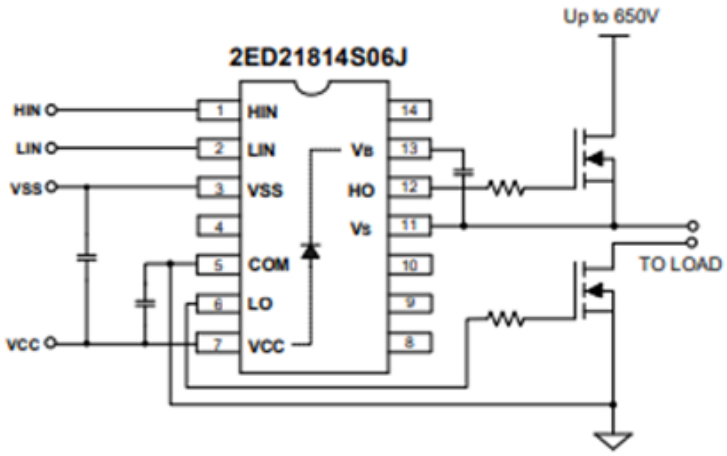
Target applications

- Motor control and driver
- Switched mode power supplies (SMPS)
- Home appliances

Product collaterals / Online support

Board page

Block diagram



Product overview incl. user manual link

OPN	SP Number
EVAL2ED21814TOBO1	SP005419250

EVAL-2ED2184 - evaluation board for 2ED2184S06F, 650 V, 2.5 A half-bridge gate driver with integrated bootstrap diode

This evaluation board comes with the gate driver IC, 2ED2184S06F and two MOSFETs, IPD60R280P7, in half bridge configuration. The board is designed to test basic functionalities and highlight features of the Infineon silicon-on-insulator (SOI) gate driver. The user can test PWM input-output performance, check propagation delay, current capability, and high switching frequency performance. The board can also be used to do a double pulse test.

Features

- Operating voltages up to + 650 V
- Using Infineon SOI-technology
- Negative VS transient immunity of 100 V
- Integrated shoot-through protection
- Integrated low ohmic bootstrap diode
- Designed for bootstrap operation
- Maximum supply voltage of 25 V
- Under voltage lockout (UVLO)
- 200 ns propagation delay
- Logic operational up to -11 V on VS Pin
- Negative voltage tolerance on -5 V inputs

Benefits

- Reduced BOM cost and saves space
- 50% lower level-shift losses
- Excellent ruggedness and noise immunity
- Suitable for high current power devices
- For high frequency applications

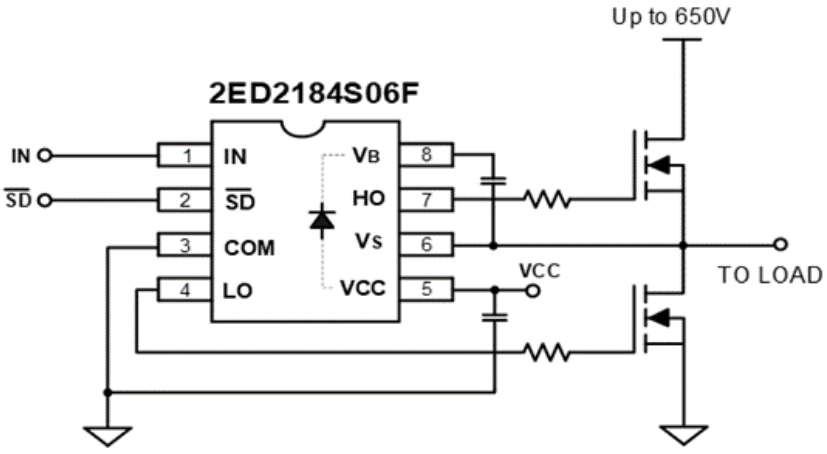
Target applications

- Motor control and driver
- Switched mode power supplies (SMPS)
- Home appliances

Product collaterals / Online support

Board page

Block diagram

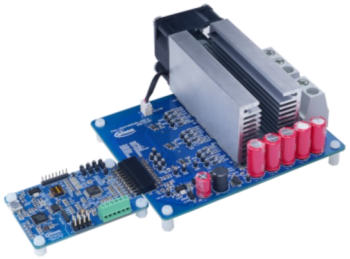


Product overview incl. user manual link

OPN	SP Number
EVAL2ED2184TOBO1	SP005419248

EVAL-2ED2748S01 evaluation kit

EVAL-2ED2748S01 GM1 for Battery Powered Applications (BPA) evaluation kit consists of a three-phase inverter power board with the 160 V rated 2ED2748S01G (in 3 x 3 10-Lead DFN package) half bridge gate driver driving twelve100 V rated OptiMOS™ MOSFETs IPTC015N10NM5 (in HDSOP-16 package). The power board has a M1 connector that is used to interface with iMotion™ Modular Application Design Kit (MADK) control card – EVAL-M1-101T.



Features

- Bootstrap voltage (VB) of +160 V
- 4 A / 8 A source / sink drive strength
- Floating designed for bootstrap
- Integrated bootstrap diodes
- UVLO for both high and low side
- Short Pulse/ noise input filter
- Schmitt trigger inputs
- 3.3 V, 5 V input logic compatible

Benefits

- High drive current
- High power density
- Smaller footprints
- High durability and reliability
- Excellent thermal management
- Scalability
- Simplicity (easy to use)

Target applications

- LEV
- Ebikes
- Battery-powered tool
- Multicopters and drones
- Micro-inverter-solutions

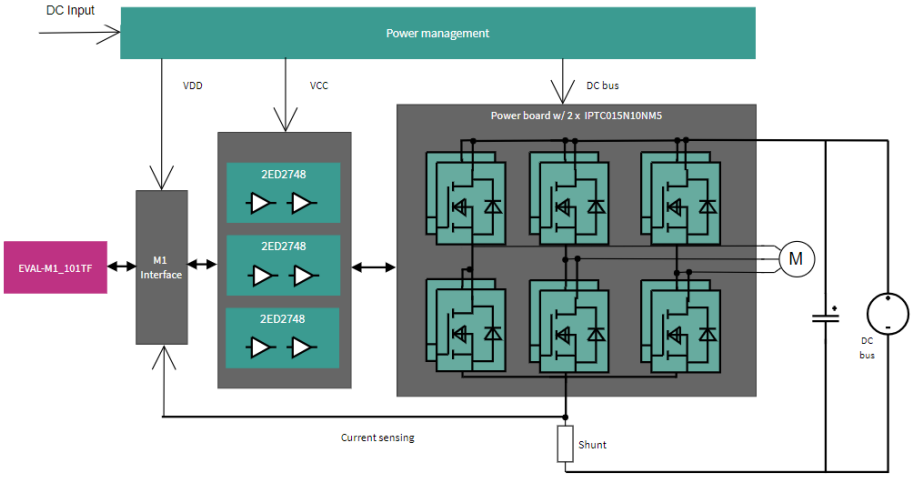
Competitive advantage

- Superior NTSOA
- High drive current (4 A / 8 A) can drive multiple switches in parallel

Product collaterals / Online support

Board page

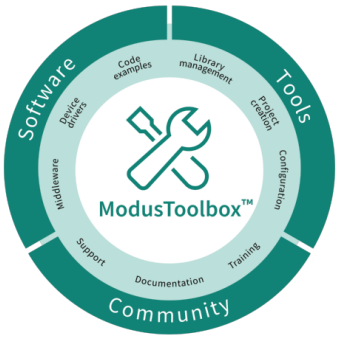
Block diagram



Product overview incl. user manual link

OPN	SP Number
EVAL2ED2748S01GM1TOBO1	SP006015243

ModusToolbox™ Software v3.2 Release Announcement



Infineon has released the latest update to the ModusToolbox™ Software ecosystem with newly supported products and updated use cases.

ModusToolbox™ Software is a modern, extensible development environment supporting a wide range of Infineon microcontrollers, connectivity products and 3rd party partner Wi-Fi modules.

Provided as collection of development tools, libraries, and embedded runtime assets architected to provide a flexible and comprehensive development experience.

Run-Time Software, comprised of middleware, device drivers, and code examples, is provided via an extensive collection of GitHub-hosted repositories. Available in the ModusToolbox™ Software repository overview.

Development Tools supporting Windows, Linux, and macOS are available as a tools installation package from the Infineon Developer Center.

Community forums, knowledge-based articles and technical blog articles are easily accessible from the Infineon Developer Community.

Features

- ModusToolbox™ v3.2 introduces the following new features:
  - New installation and setup tool, providing easy access to the core tools and optional feature packs
  - The bundled Eclipse IDE for ModusToolbox™ has been updated to leverage Eclipse Platform v4.28
  - Underlying ModusToolbox™ build system has been enhanced to greatly improve the build performance, by caching project discoverability
  - Updated ModusToolbox™ Configurator to improve support for 5th Generation CAPSENSE™
  - Usability improvements within the BSP Assistant and Smart I/O tools, providing easier access to key documentation and resources

Benefits

- ModusToolbox™ v3.2 features provide the following benefits:
  - New installation process, making it easier to update future releases and explore additional feature packs
  - Latest Eclipse framework designed to work more efficiently on the most recent host operation systems
  - Enhanced compile times to provide a more efficient development experience
  - Leverage the latest technologies from Infineon

Target applications

- Any IoT or industrial embedded applications using microcontroller-class devices from Infineon

List of the recommended boards supported by ModusToolbox™ incl. board page links

OPN	SP Number	SoC
CY8CKIT-040T	SP005935881	PSoC™ 4000T
CY8CPROTO-040T	SP005972040	PSoC™ 4000T
CYW920829M2EVK-02	SP005962701	AIROC™ 4000T
CY8CKIT-062S4	SP005670453	PSoC™ 62
CY8CPROTO-062S3-4343W	SP005672753	PSoC™ 62
CY8CKIT-062-WIFI-BT	SP005670445	PSoC™ 62
CY8CPROTO-062-4343W	SP005672751	PSoC™ 62
CY8CKIT-149	SP005672745	PSoC™ 4147
KIT_XMC13_boot_001	SP001069656	XMC™ 1000
CY8CKIT-062-BLE	SP005670443	PSoC™ 62 BLE
CY8CPROTO-063-BLE	SP005672757	PSoC™ 63 BLE
KIT_XMC72_EVK	SP005738295	XMC™ 7000
CY8CKIT-041S-MAX	SP005716920	PSoC™ 4100S Max

Product collaterals / Online support

Tool page