



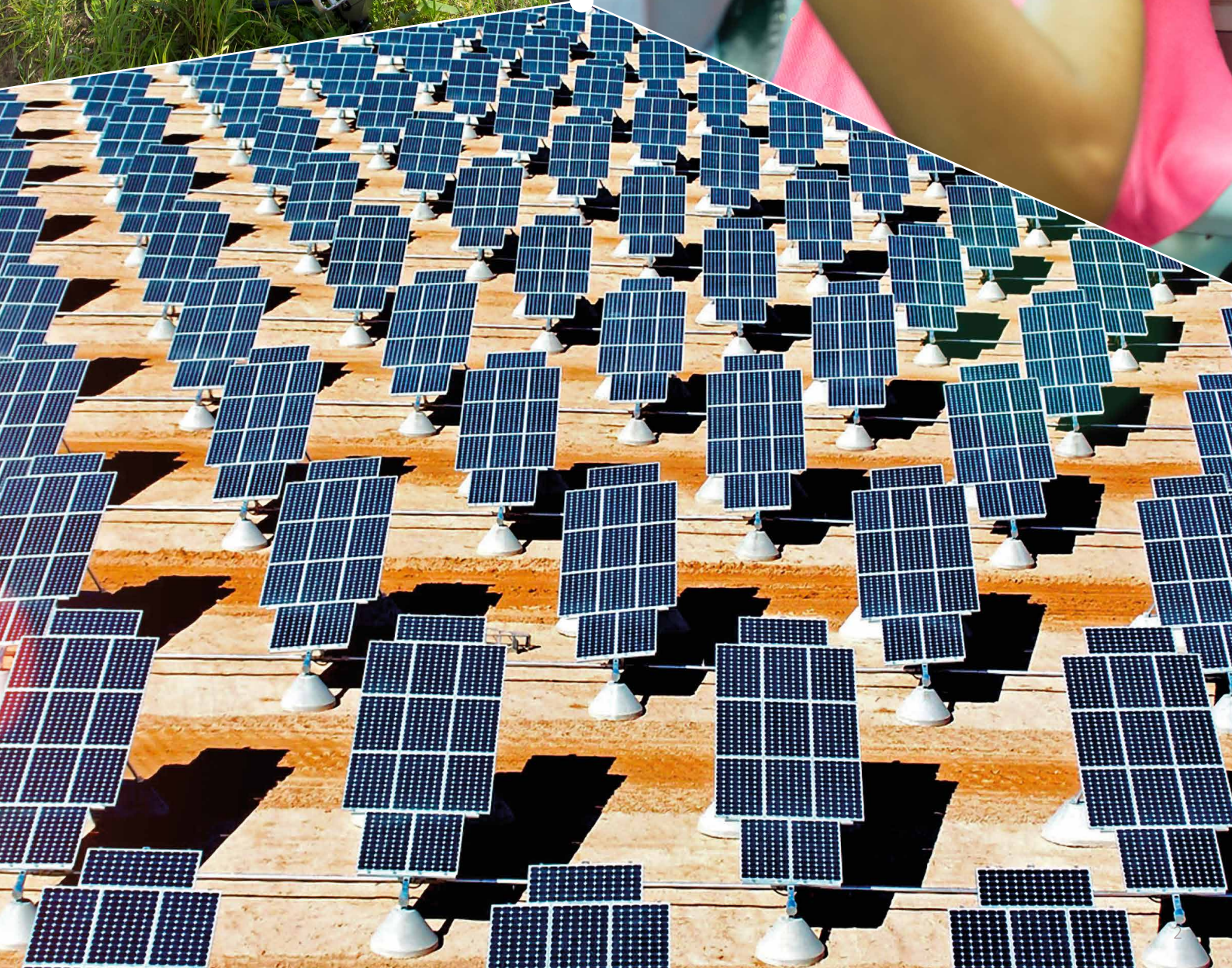
Infineon EiceDRIVER™ gate driver ICs

Selection guide 2022

Every switch needs a driver

www.infineon.com/gatedriver
www.infineon.com/gdbrochure





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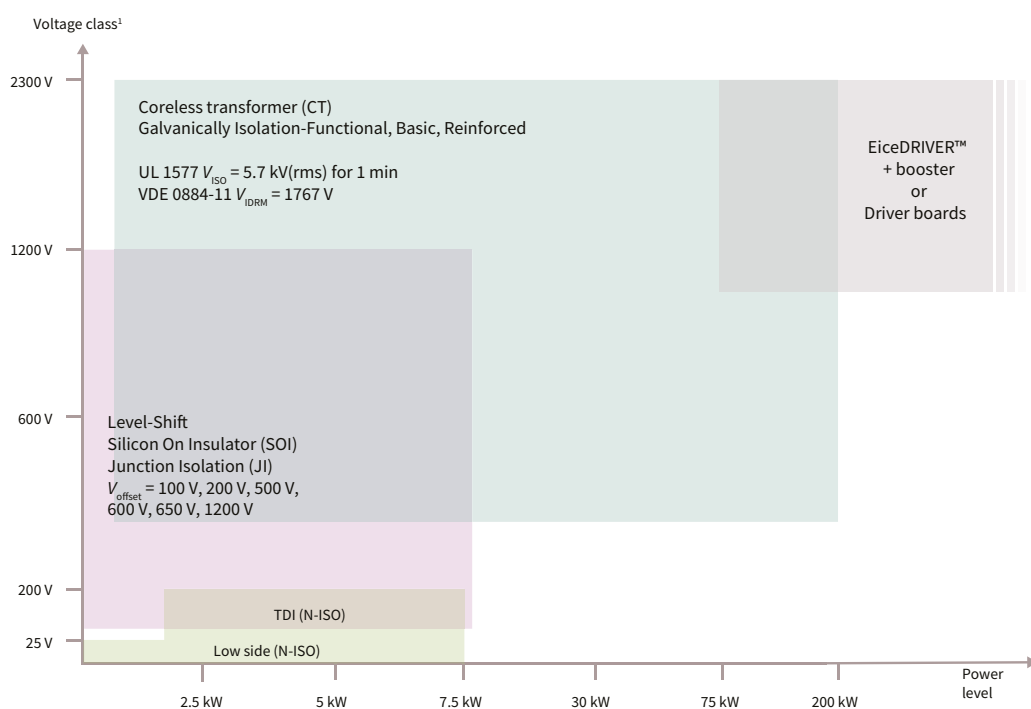
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EiceDRIVER™ and MOTIX™ gate driver IC

Gate driver ICs serve as the interface between control signals (digital or analog controllers) and power switches (IGBTs, MOSFETs, SiC MOSFETs, and GaN HEMTs). The integrated gate driver solutions reduce your design complexity, development time, bill of materials (BOM), and board space while improving reliability over discretely-implemented gate-drive solutions.

Every switch needs a driver, the right driver makes a difference. Infineon offers a comprehensive portfolio of EiceDRIVER™ gate driver ICs with a variety of configurations, voltage classes, isolation levels, protection features, and package options. EiceDRIVER™ gate driver ICs are complementary to Infineon IGBT discretes and modules, silicon (CoolMOS™, OptiMOS™ and StrongIRFET™) and silicon carbide MOSFETs (CoolSiC™), gallium nitride HEMTs (CoolGaN™), or as part of integrated power modules (CIPOS™ IPM and iMOTION™ smart IPM).

In addition, MOTIX™ gate driver is part of the MOTIX™ scalable product portfolio for low-voltage motor control solutions including MOTIX™ Driver, MOTIX™ Bridge, MOTIX™ SBC, and MOTIX™ MCU.



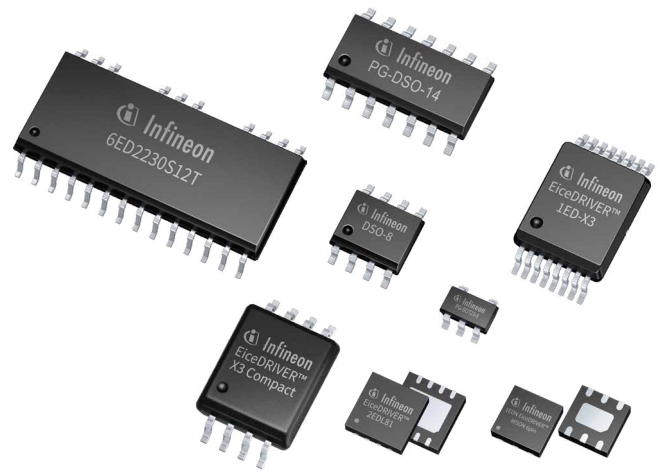
| Gate driver configuration | | | 25 V | 25 - 105 V | 200 V | 500 V | 600 V | 650 V | 1200 V | 2300 V |
|---------------------------|-----------|----------------------|------|------------|-------|-------|-------|-------|--------|--------|
| Gate drivers | 1-Channel | Isolated | | | | | | | ● | ● |
| | | High-side | | ● ● | ● ● | ● | ● | | | |
| | | Low-side | ● | | | | | | | |
| | 2-Channel | Isolated | | | ● | | | ● | ● | |
| | | High-side | | ● | | | | | | |
| | | Low-side | ● | | | | | | | |
| | | High-side + Low side | | | ● ● | ● | ● ● | ● | ● | |
| | 4-Channel | Half-bridge | | ● | ● ● | | ● ● | ● | ● | |
| | 6-Channel | Full-bridge | | ● | | | ● | | | |
| | | Three-phase | | | ● | | ● ● | | ● ● | |

● Non-isolated (N-ISO) ● Junction isolation (JI) ● Silicon on insulator (SOI) ● Coreless transformer (CT)

Note 1 Voltage class on the top row is defined base on different driver configurations for the maximum Voltage class.
 1. For single high-side, high-side and low-side, half bridge and three phase gate drivers, voltage class is defined as switch break down voltage in applications.
 2. For low side drivers (N-ISO), voltage class is defined as maximum operating range supply voltage.
 3. For special cases as 1EDNx550 (1EDN-TDI, N-ISO), voltage class is defined as maximum bus voltage (highest floating voltage it can manage).

Infineon gate driver IC applications

Leveraging the application expertise and advanced technologies of Infineon and International rectifier, EiceDRIVER™ gate driver ICs are well-suited for many applications such as industrial motor drives, home appliances, solar inverters, automotive applications, EV-charging, UPS, switch-mode power supplies (SMPS), high-voltage lighting, battery-powered applications, etc.



Level-shifting technology (SOI&JI)



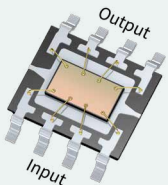
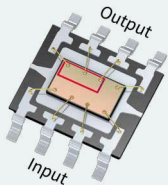
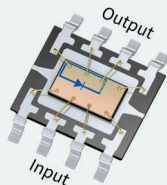
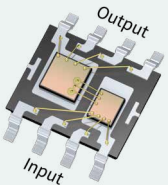
Coreless transformer (CT) technology



Non-Isolated (N-ISO) technology



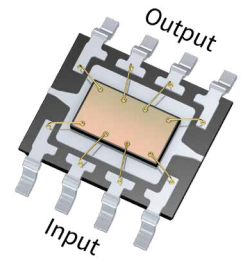
Infineon gate driver IC technologies

| Non-isolated GD | Level-shift GD | | Isolated GD |
|---|--|--|---|
| ● Non-isolated (N-ISO) | ● Junction isolation (JI) | ● Silicon on insulator (SOI) | ● Coreless transformer (CT) |
|  <ul style="list-style-type: none"> > Monolithic construction of ground-reference gate drivers for 20 to 35 V supply voltage applications > Comprehensive families of single- and dual-low-side drivers with flexible options for output current, logic configurations and UVLOs (plus non-isolated TDI) > Uses rugged and high-performance technologies of HVIC process or state-of-the-art 130-nm process |  <ul style="list-style-type: none"> > Monolithic construction of 1 to 6 gate drive channels up to 1200 V rating > Industrial pioneering high-voltage IC (HVIC) technology used in all high-voltage gate drive applications > Gen 2 technology (IR prefix): Industrial pioneering HVIC process > Gen 5 technology (IRS prefix): Cost-effective pin-to-pin versions of Gen 2 |  <ul style="list-style-type: none"> > Monolithic construction of 2 to 6 gate drive channels up to 1200 V rating > Built-in PN-based bootstrap diode (36 Ω typ.) for simplified bootstrap operation & reduced PCB area > Negative transient immunity to prevent latch-up: -100 V for 300 ns > >50% lower level-shift losses for higher efficiency, higher frequency operation, smaller heat sinks, and higher reliability |  <ul style="list-style-type: none"> > Two separate chips solution with magnetic coupling providing galvanically isolated single- and dual channel gate drivers > VDE 0884-11 isolation technology providing isolation up to 8 kV_{pk} V_{IOEM} and up to ±2300 V functional isolation > CMTI of more than 300 V/ns > Strongest gate-drive output currents (up to ±18 A) reducing need for external booster |

Infineon non-isolated (N-ISO) technology



Non-isolated (N-ISO) technology refers to the gate driver ICs utilizing low-voltage circuitry with the robust technology of high-voltage gate drivers, and the state-of-the-art 0.13- μm process. Infineon's world-class fabrication techniques enable high-current gate drivers for high-power-density applications.



Low side gate driver

Infineon offers comprehensive families of single-low-side and dual-low-side gate driver ICs with flexible options for output current, logic configurations, packages, and protection features such as under-voltage lockout (UVLO), integrated overcurrent protection (OCP) in industry-standard DSO-8 and small form-factor SOT23 and WSON packages. The new 1ED4417x low side driver family provides the best-in-class fault reporting accuracy with OCP threshold tolerance of $\pm 5\%$. In addition, Infineon's IC technology enables a tiny PG-SOT23 package by combining the fault output and enable functions into a single pin.

Truly differential inputs (TDI) gate driver

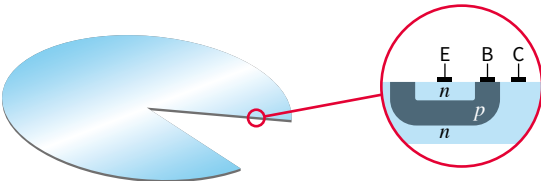
The input signal levels of conventional low-side gate driver ICs are referenced to the ground potential of the gate driver IC. If in the application the ground potential of the gate driver IC shifts excessively, false triggering of the gate driver IC can occur. The 1EDN-TDI gate driver ICs have truly differential inputs. Their control signal inputs are largely independent from the ground potential. Only the voltage difference between its input contacts is relevant. This prevents false triggering of power MOSFETs.



Infineon junction-isolation (JI) technology



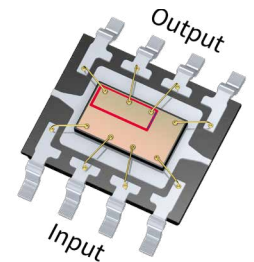
Infineon p-n junction-isolation (JI) technology is a mature, proven industry-standard MOS/CMOS fabrication technique. Infineon's proprietary HVIC and latch-immune CMOS technologies enable rugged monolithic construction. The advanced process allows monolithic high-voltage and low-voltage circuitry construction with the best price per performance for specific motor-control and switch-mode power supply applications.



Main benefits of Infineon JI technology:

- › High current capability (4 A)
- › Precision analog circuitry (tight timing / propagation delay)
- › Most comprehensive portfolio with industry-standard gate driver ICs
- › Voltage classes: 100 V, 200 V, 500 V, 600 V, and 1200 V
- › Configurations: single channel, half-bridge / high- and low-side, three-phase, and more
- › Gate driver ICs tailored towards the best price-performance ratio

Pioneered by International Rectifier (IR) since 1984 with the introduction of the first monolithic product, the high-voltage integrated circuit (HVIC) technology uses patented and proprietary monolithic structures integrating bipolar, CMOS, and lateral DMOS devices with breakdown voltages above 700 V and 1400 V for operating offset voltages of 600 V and 1200 V respectively.



Using this mixed-signal HVIC technology, both high-voltage level-shifting circuits and low-voltage analog and digital circuits can be implemented. This is done with the ability to place high-voltage circuitry (in a 'well' formed by polysilicon rings).

These HVIC gate drivers with floating switches are well-suited for topologies requiring high-side, half-bridge, and three-phase configurations.

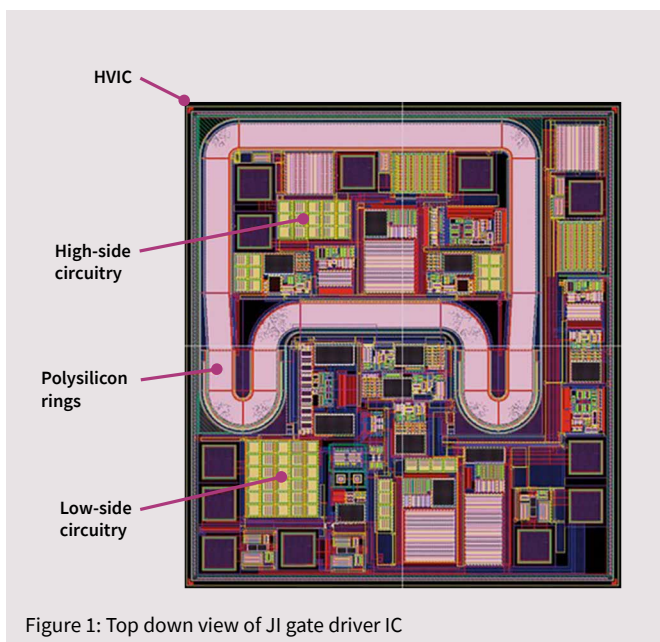


Figure 1: Top down view of JI gate driver IC

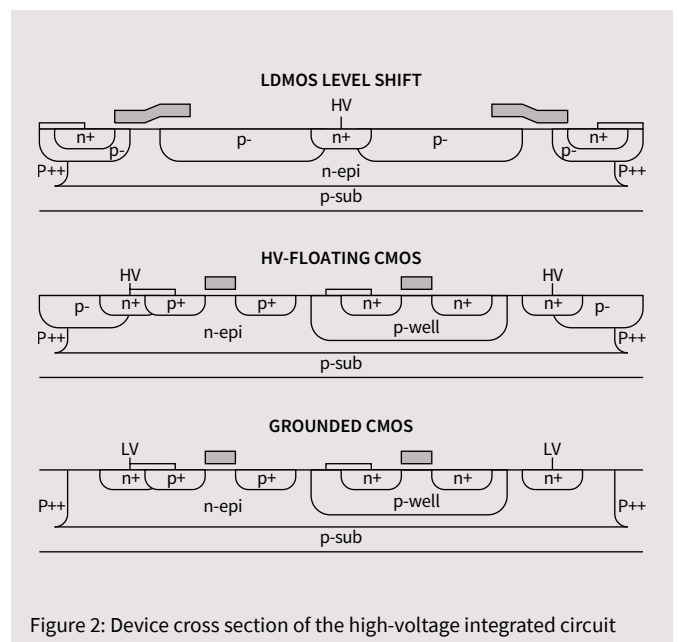


Figure 2: Device cross section of the high-voltage integrated circuit

Infinion silicon-on-insulator (SOI) technology



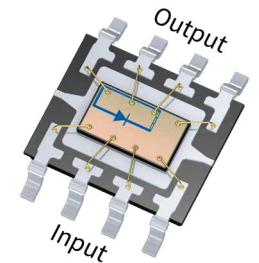
Infinion silicon-on-insulator (SOI) technology is a high-voltage, level-shift technology for Infineon EiceDRIVER™ level-shift gate driver ICs with integrated bootstrap-diode (BSD) and industry-best-in-class robustness to protect against negative transient voltage spikes. Each transistor is isolated by buried silicon dioxide eliminating parasitic bipolar transistors that can cause latch-up. This technology can also lower the level-shift power losses to minimize device-switching power dissipation. The advanced process allows monolithic high-voltage and low-voltage circuitry construction with technology-enhanced benefits.

Main benefits of Infineon SOI technology:

- › Best-in-class immunity to negative transient voltage prevents erratic operation and latch-up while improving reliability
- › Low ohmic integrated bootstrap diodes (BSD) have the lowest reverse recovery and forward losses resulting in increased efficiency, faster switching, lower temperature, and increased reliability
- › Minimum level-shift losses improve driver efficiency and allow flexible housing designs
- › Integrated input filters enhance noise immunity
- › 160 V, 200 V, 600 V, 650 V and 1200 V withstand voltages for each voltage design class providing operating margin

Operation robustness of negative transient voltage on the VS pin (-VS)

Today's high-power switching inverters and drives carry a large load current. The voltage swing on VS pin does not stop at the level of the negative DC bus. It swings below the level of the negative DC bus due to the parasitic inductances in the power circuit and from the die bonding to the PCB tracks. This undershoot voltage is called "negative transient voltage".



EiceDRIVER™ SOI level-shift gate drivers have the best-in-the-industry operational robustness. In Figure 4, the safe operating line of 6ED2230S12T is shown at $V_{BS} = 15$ V for pulse widths up to 1000 ns. In the green area, the products do not show unwanted functional anomalies or permanent damage to the IC.

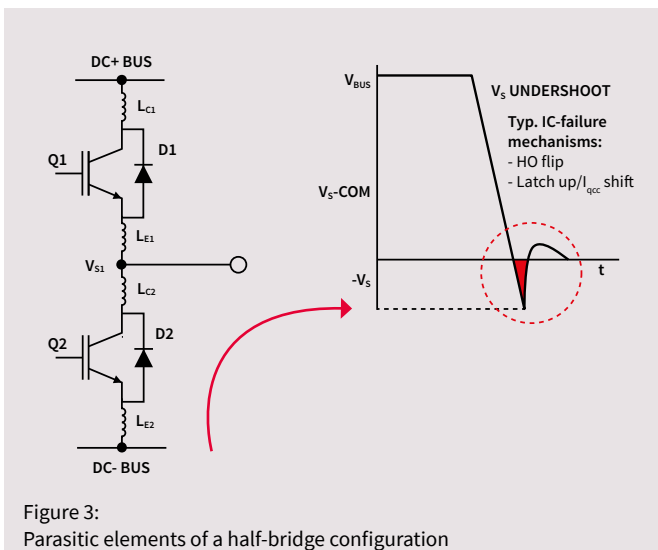


Figure 3: Parasitic elements of a half-bridge configuration

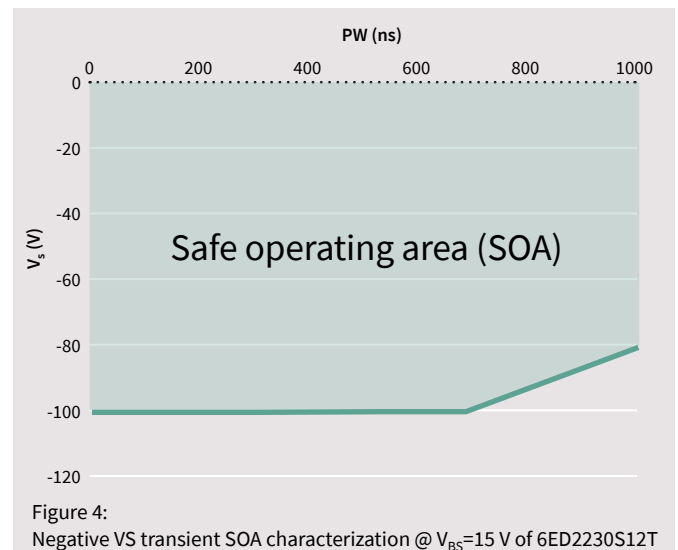


Figure 4: Negative VS transient SOA characterization @ $V_{BS}=15$ V of 6ED2230S12T

Infineon silicon-on-insulator (SOI) technology

Integrated bootstrap diode (BSD)

The bootstrap power supply is the most common technique for supplying power to the high-side driver circuitry due to its simplicity and low cost. As shown in Figure 5, the bootstrap power supply consists of a bootstrap diode and capacitor. The floating channel of level-shift gate drivers is typically designed for bootstrap operation. Infineon SOI gate drivers integrate the ultra-fast bootstrap diodes. The low diode resistance of $R_{BS} \leq 40 \Omega$ enables a wide operating range.

The Infineon SOI gate drivers with BSD can drive larger IGBTs without the risk of self-heating, minimize BOM count, and reduce system cost.

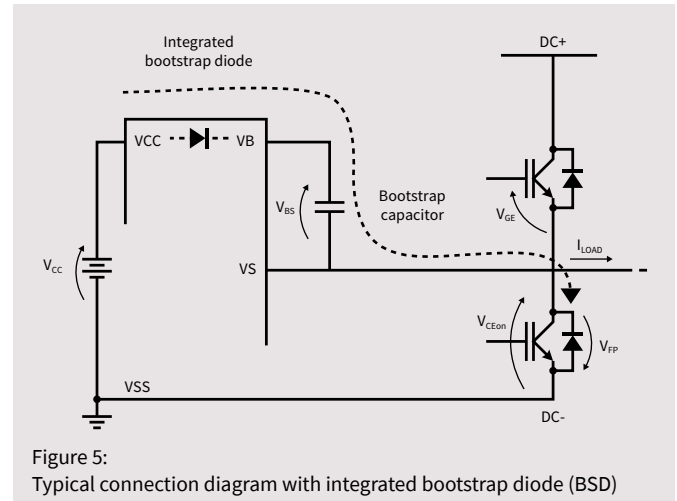


Figure 5: Typical connection diagram with integrated bootstrap diode (BSD)

Low level-shift losses

Level-shift losses become a significant part as the operating frequency increases. A level-shift circuit is used to transmit the switching information from the low-side to the high-side. The necessary charge of the transmission determines the level-shift losses.

EiceDRIVER™ SOI level-shift gate drivers require a very low charge to transmit the information. Minimizing level-shifting power consumption allows design flexibility of higher frequency operations, as well as longer lifetime, improved system efficiency and application reliability.

In Figure 6, the thermal diagrams on the same PCB board show a temperature difference of 55.6°C lower in the power dissipation of the EiceDRIVER™ SOI gate driver (2ED2106S06F).

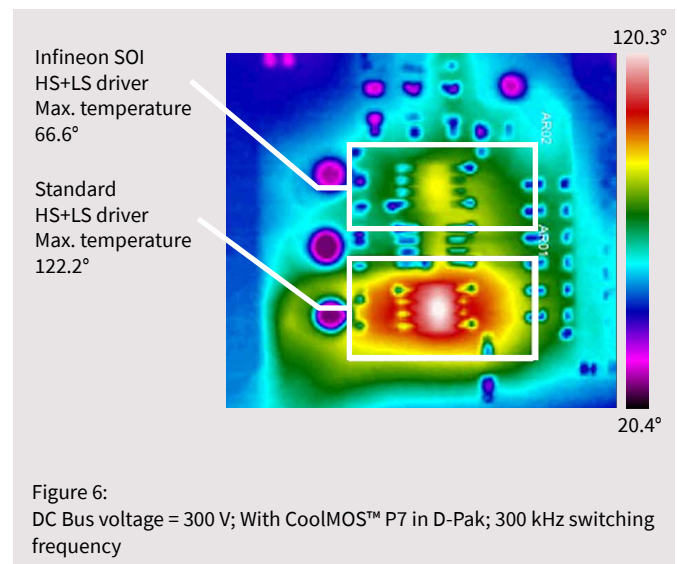
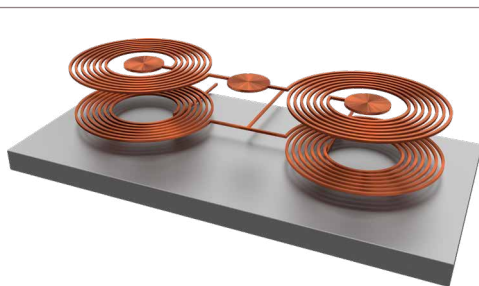


Figure 6: DC Bus voltage = 300 V; With CoolMOS™ P7 in D-Pak; 300 kHz switching frequency

Infinion galvanically isolated coreless transformer (CT) technology



Infinion coreless transformer (CT) technology is a magnetically coupled, galvanically isolated technology which uses semiconductor manufacturing processes to integrate an on-chip transformer consisting of metal spirals and silicon oxide insulation. The on-chip coreless transformers are used for transmitting switching information and other signals between the input chip and output chip. The CT technology enables short propagation delay, best-in-class delay matching, and strong robustness for driving SiC MOSFETs, GaN HEMTs, state-of-the-art IGBTs, and MOSFETs.

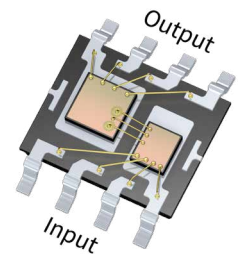


Main benefits of Infinion CT technology:

- › Galvanic isolation (functional, basic, reinforced)
- › Allows large voltage swings of ± 2300 V or larger
- › Immunity against negative and positive transients
- › Low power losses
- › Flexible configurations and features such as
 - High output current (up to 18 A)
 - Precise DESAT protection
 - Active Miller clamp
 - I2C configurability
 - Isolation rating and certification (UL 1577 and VDE 0884-11)
 - 4 mm and 8 mm creepage

Robustness

- › Extremely robust signal transfer independent of common mode noise
- › Common mode transit immunity (CMTI) up to 300 V/ns
- › Tight propagation-delay matching: tolerance improves application robustness without variations due to aging, current, and temperature

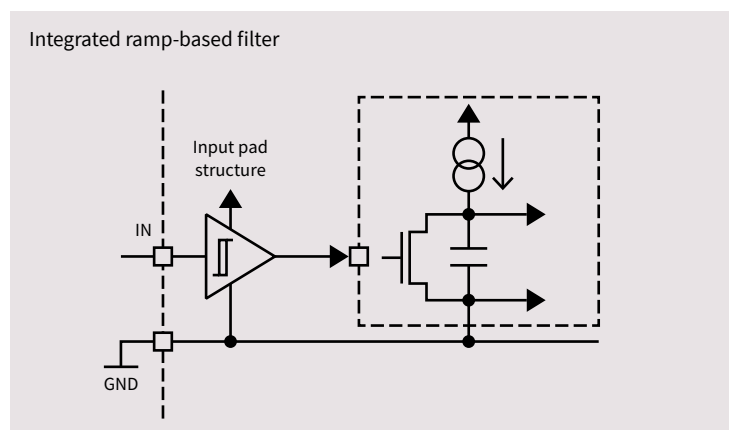


Design flexibility

- › Wide range of gate voltages up to 40 V, including negative gate voltage
- › CT technology is ready for use with wide bandgap such as SiC MOSFETs and GaN HEMTs
- › Closed-loop gate current control option

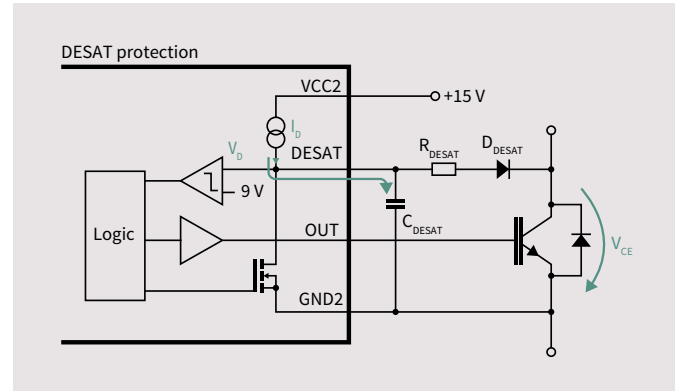
Precise timing control

- › Precise, integrated filters reduce propagation-delay variation over a wide range of operating conditions
- › Integrated filters reduce the need of external filters
- › Tight propagation delay allows minimum deadtime improving system efficiency and decreasing harmonic distortion



Protection

- › Reliable short-circuit detection via accurate desaturation (DESAT) detection circuits (current source and comparator) protects the power switches from damage during short-circuit condition
- › Two-level turn-off (TLTO) for short-circuit current protection to lower collector-emitter voltage overshoot
- › Active Miller clamping option protects against parasitic turn-on due to high dV/dt
- › Built in short-circuit clamping limits the gate voltage during short circuit



Safety certifications

- › Safety certifications available for VDE 0884-11 and UL 1577



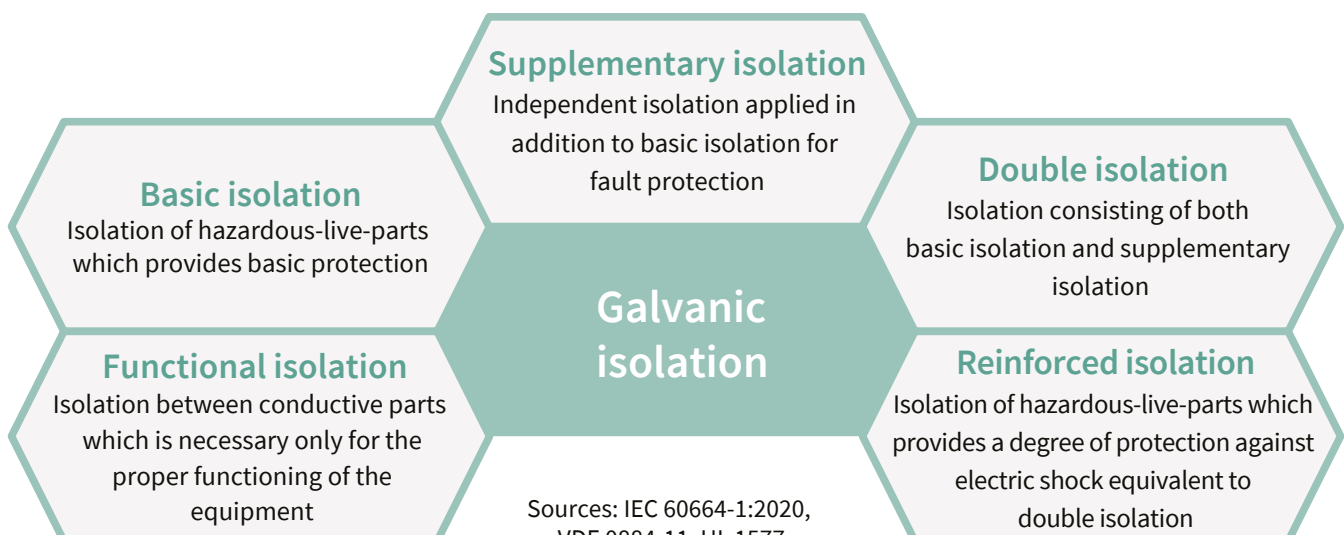
For SiC MOSFET switching

- › Ideal for ultra-fast switching of 650 V - 2000 V silicon carbide power transistors such as CoolSiC™ SiC MOSFETs
- › The EiceDRIVER™ isolated gate drivers incorporate the most important key features and parameters for SiC MOSFET driving:
 - Accurate DESAT for short circuit protection
 - Active Miller clamp for parasitic turn-on

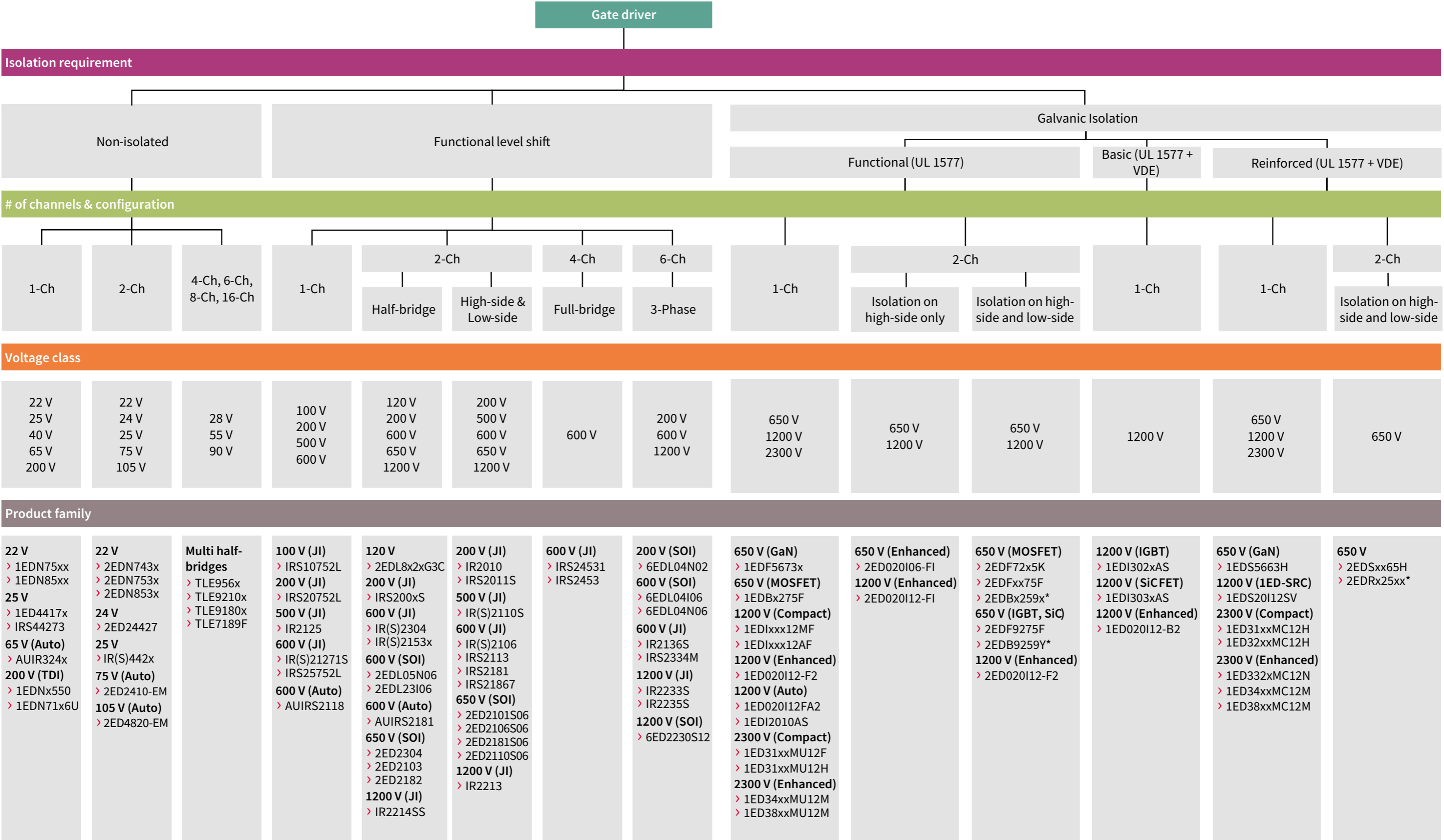
- Tight propagation delay matching
- Precise input filters
- Wide output side supply range
- Negative gate voltage capability
- Extended common mode transient immunity (CMTI) capability



Definitions of the various isolation types



Choosing a gate driver IC



*Coming soon

Infineon power switch technologies

OptiMOS™ and StrongIRFET™ power MOSFET

20-300 V N-channel power MOSFETs

Infineon's semiconductors are designed to bring more efficiency, power density and cost effectiveness. The full range of OptiMOS™ and StrongIRFET™ power MOSFETs enables innovation and performance in applications such as switch mode power supplies (SMPS), motor control and drives, inverters and computing.

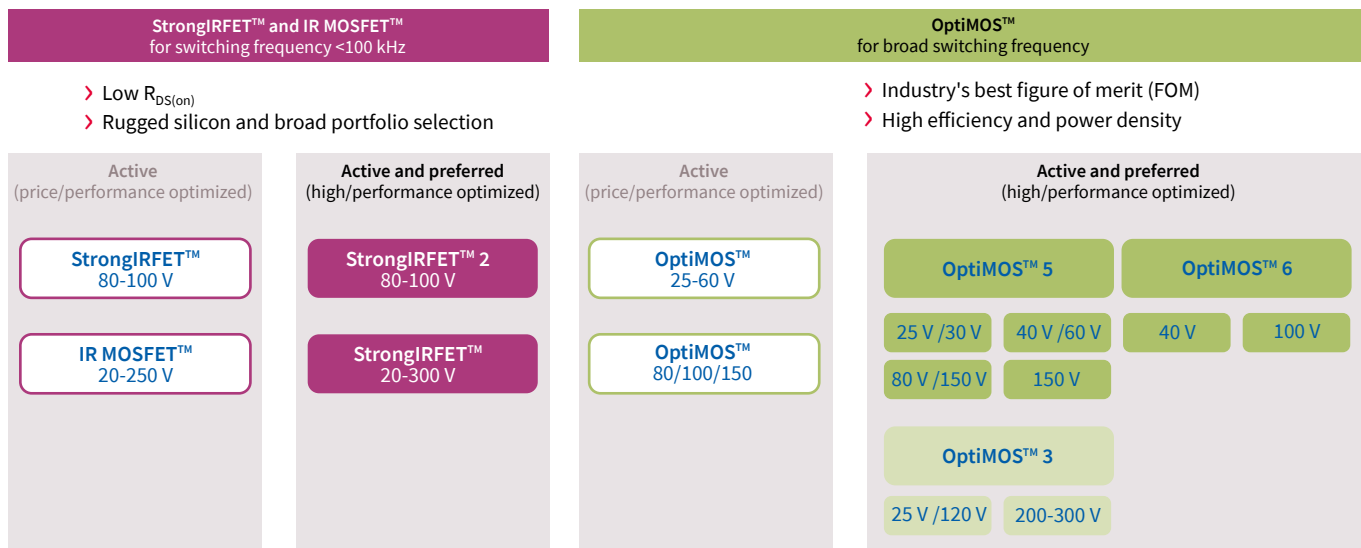
Infineon's highly innovative OptiMOS™ and StrongIRFET™ families consistently meet the highest quality and performance demands in key specifications for power system design such as on-state resistance ($R_{DS(on)}$) and figure of merit characteristics.

OptiMOS™ power MOSFETs provide excellent best-in-class performance. Features include ultra-low $R_{DS(on)}$, as well as low charge for high switching-frequency applications. StrongIRFET™ power MOSFETs are designed for rugged applications, and are ideal for designs with a low switching frequency as well as those that require a high current-carrying capability.

Automotive qualified OptiMOS™ is also available.

Please refer to the application section and www.infineon.com/automotivemosfet

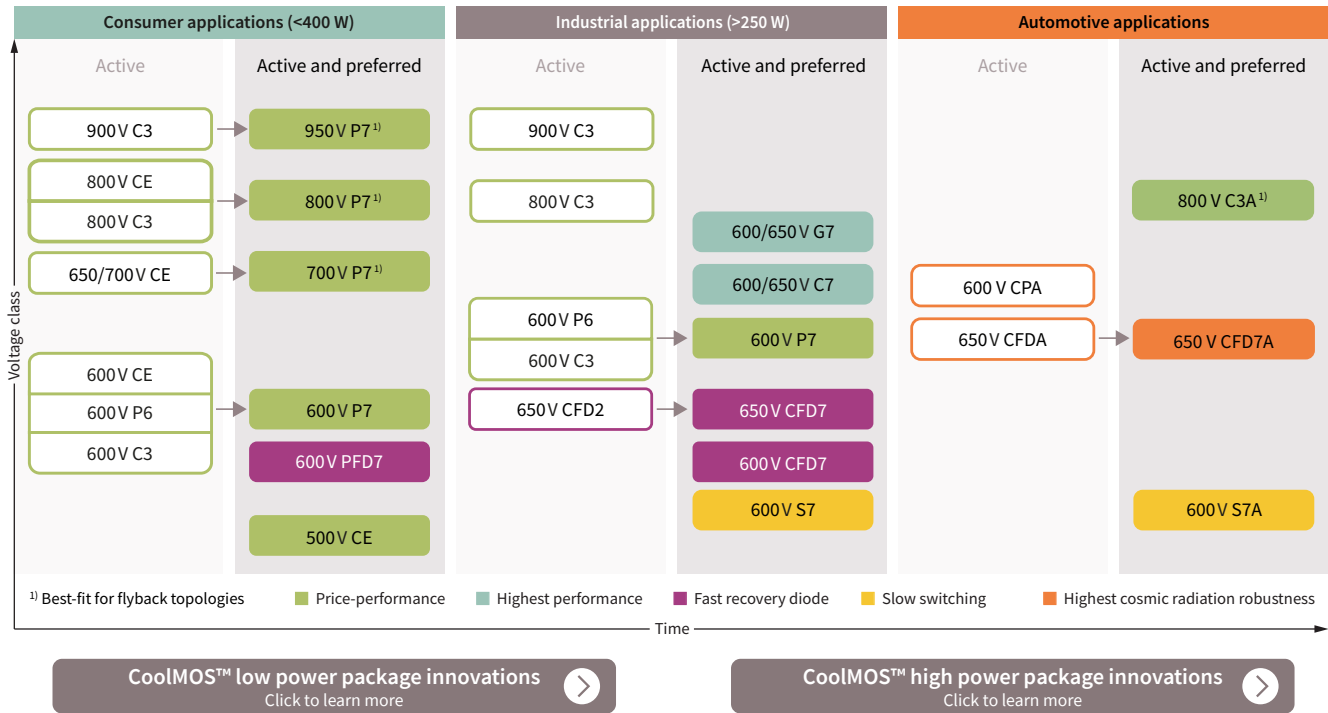
Technology development and product family positioning



CoolMOS™ SJ MOSFETs

Trusted leader in high voltage MOSFETs

The revolutionary CoolMOS™ power MOSFET sets new standards in the field of energy efficiency. Our CoolMOS™ products offer a significant reduction of conduction, switching and driving losses, and enable high power density as well as efficiency for superior power conversion systems.



High voltage superjunction MOSFETs address consumer applications, such as home appliance drives, smartphone/tablet chargers, notebook adapters, LED lighting, PC power, as well as audio and TV power supplies. Customers are increasingly replacing standard MOSFETs with superjunction MOSFETs to benefit from higher efficiency and lower power consumption for end users. CoolMOS™ P7 sets a new benchmark by offering high performance and competitive price all at once. CoolMOS™ PFD7 as brand new series is a state-of-the-art solution for high density chargers/adapters as well as home appliance drives (e.g., refrigerator compressors).

Also for industrial applications such as server, telecom, PC power, solar, UPS, EV-charging and others, Infineon's latest CoolMOS™ 7 superjunction MOSFETs with C7, G7, CFD7 and P7 product families offer what you need - from highest efficiency to best price performance. Complementary to the silicon CoolMOS™ portfolio, Infineon offers a broad wide bandgap (WBG) portfolio of CoolGaN™ e-mode HEMTs and CoolSiC™ MOSFETs to further optimize efficiency and system cost.

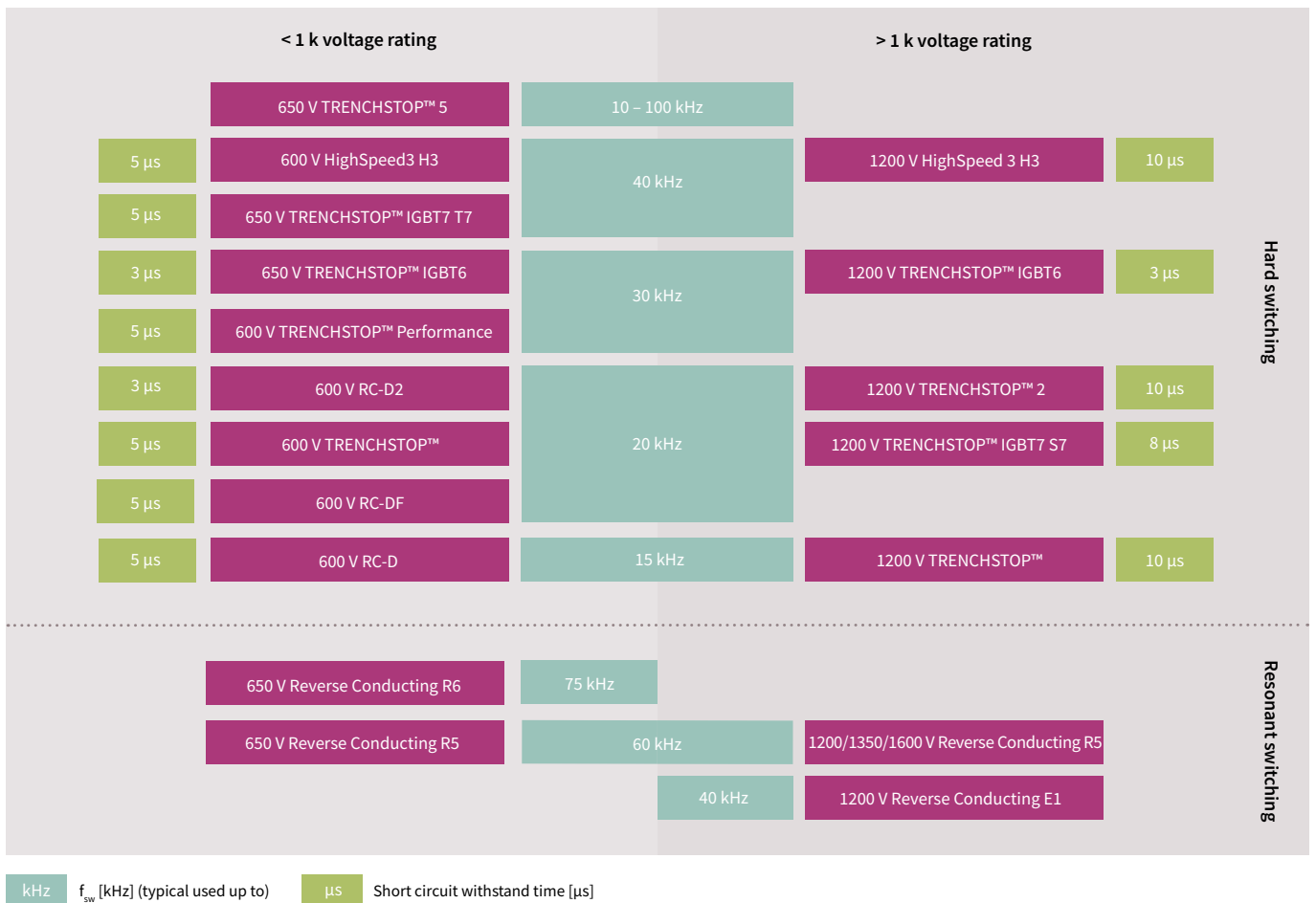
Infineon's industrial- and consumer-qualified CoolMOS™ superjunction MOSFET offering is complemented by the automotive qualified series 600 V CPA, 650 V CFDA, 800 V C3A and our latest 650 V CFD7A and 600 V S7A. Gain your momentum in the rapidly growing xEV market with our excellent performing automotive series addressing on-board charger, DC-DC converter, active pre-charge and discharge function, insulation monitor, HV eFuse and HV eDisconnect with proven outstanding quality standards that go well beyond AEC Q101.

Discrete IGBTs

Market leadership through groundbreaking innovation and application focus

Resolute to achieve the highest standards in performance and quality, Infineon offers a comprehensive portfolio of application-specific discrete IGBTs. From 600 V up to 1600 V, we offer a wide range of IGBT voltage classes to meet different voltage requirements in each application.

Our discrete IGBT package portfolio contains SMD (Surface Mount Device) packages, for example, D²PAK, DPAK, SOT-223, and through-hole packages, for example, TO-220, TO-220FP, TO-247, TO-247-3-HCC, TO-247-4, TO-247PLUS, TO-247PLUS-4 and TO-247 Advanced Isolation packages. Automotive qualified IGBT Discretes are also available. Please refer to the application section or go to www.infineon.com/igbt discreetes for the most up-to-date Discrete IGBT family overview.



Low to medium IGBT power modules

The EasyPIM™/EasyPACK™ and the EconoPIM™/EconoPACK™ families

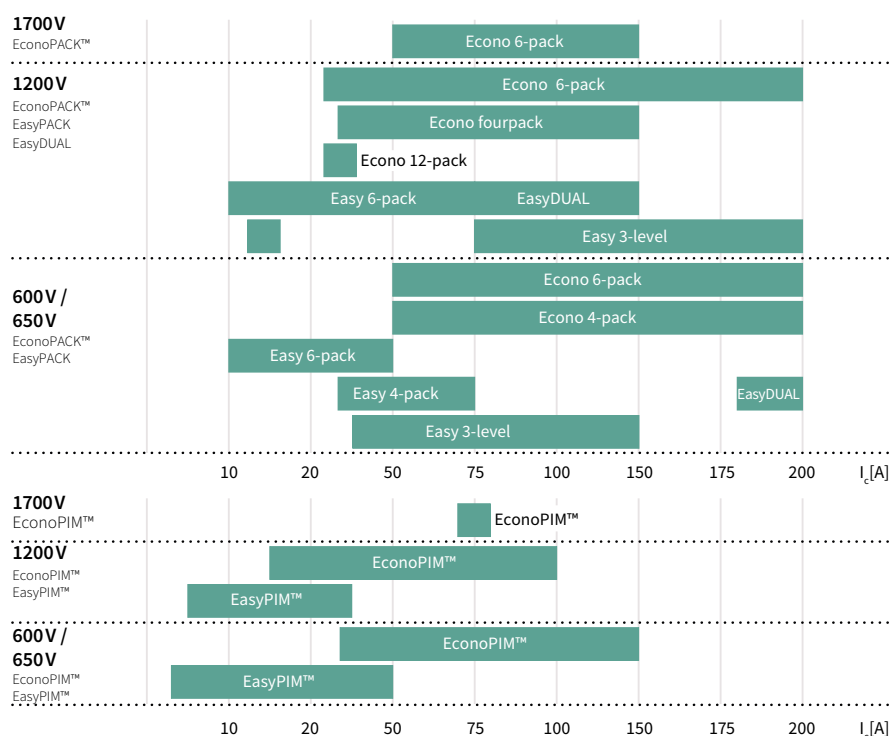
The EasyPIM™/EasyPACK™ as well as the EconoPIM™/EconoPACK™ families have been developed to provide a cost-effective, compact design as well as simplified and reliable assembly. With these modules, we offer an optimized product generation for low and medium-power industrial drives.

The Easy family with its EasyPIM™, EasyPACK™ and EasyDUAL™ configurations covers the full power range from 6 A up to 200 A at 600 V, 650 V, and 1200 V. The modules are without base plates, and include the latest IGBT4 technology. The screw clamp provides a new, fast and reliable, low-cost mounting concept. This series has been extended to include the Easy1B and Easy2B sizes to offer more flexibility, with reduced height from 17 mm to 12 mm, and injected screw clamps for mounting.

The Econo family extends the power range from 15 A up to 300 A with nominal current at 600 V, 650 V, 1200 V and 1700 V. The available configurations are the well-known EconoPIM™ and EconoPACK™ series. The Econo housing features a copper base plate for optimized heat spread, and includes a thermistor (NTC). The Econo modules are available with solderable pins or PressFIT pins, and an increasing number of Econo modules are available with pre-applied TIM.

Besides the standard planar IGBT chip technology for low switching losses, saturation voltage and high-switching frequency, the Econo family also includes the optimized IGBT4 in 650 V, 1200 V and 1700 V. For ease of design, IGBTs with 10 μs short-circuit robustness are now available in 650 V, 1200 V and 1700 V in the same mechanical design. Selected Econo modules feature integrated shunts for accurate and cost-efficient current sensing.

Automotive qualified IGBT modules are also available. Please refer to the application section and www.infineon.com/automotive-igbt



www.infineon.com/easy
www.infineon.com/econo

CoolSiC™ silicon carbide MOSFETs

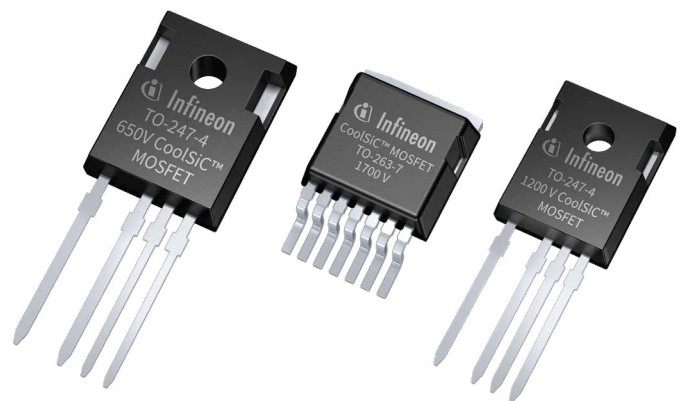
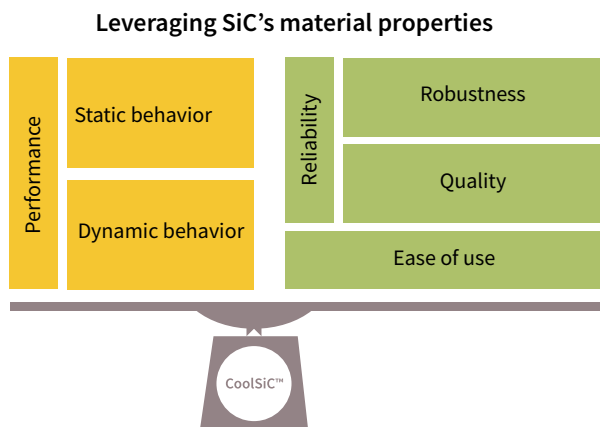
Deliver reliable and cost-effective top performance, and enables radically new product designs

Silicon carbide (SiC) opens up new degrees of freedom for designers to unseen levels of efficiency and system flexibility. In comparison to traditional silicon-based switches like IGBTs and MOSFETs, the SiC MOSFET offers a series of advantages. The Infineon CoolSiC™ MOSFETs maximize the advantages of silicon carbide, offering a high-performance product that also meets power electronics design requirements, like reliability and ease of use.

Some aspects of Infineon's SiC technology, like superior gate oxide reliability, excellent thermal behavior, advanced avalanche ruggedness and short circuit capabilities, contribute to the robustness of the device. Additional unique features, like 0 V turn-off VGS, wide VGS range, and the use of silicon MOSFET drivers and driving schemes make the CoolSiC™ MOSFETs easy to integrate and use. CoolSiC™ MOSFET products in 650 V, 1200 V and 1700 V target applications such as automotive, EV charging, photovoltaic inverters, battery charging, energy storage, motor drives, UPS, auxiliary power supplies and SMPS.

| Key features |
|--|
| > Very low switching losses |
| > Superior gate-oxide reliability |
| > Threshold-free on-state characteristic |
| > Wide gate-source voltage range |
| > Benchmark gate threshold voltage, $V_{GS(th)} = 4.5\text{ V}$ |
| > Fully controllable dV/dt |
| > Commutation robust body diode, ready for synchronous rectification |

| Key benefits |
|--|
| > Best-in-class system performance |
| > Efficiency improvement and reduced cooling effort |
| > Longer lifetime and higher reliability |
| > Enables higher frequency operation, allowing the increase in power density |
| > Reduction in system cost |
| > Ease of use |



www.infineon.com/coolpic-mosfet-discretes
www.infineon.com/SiCgd



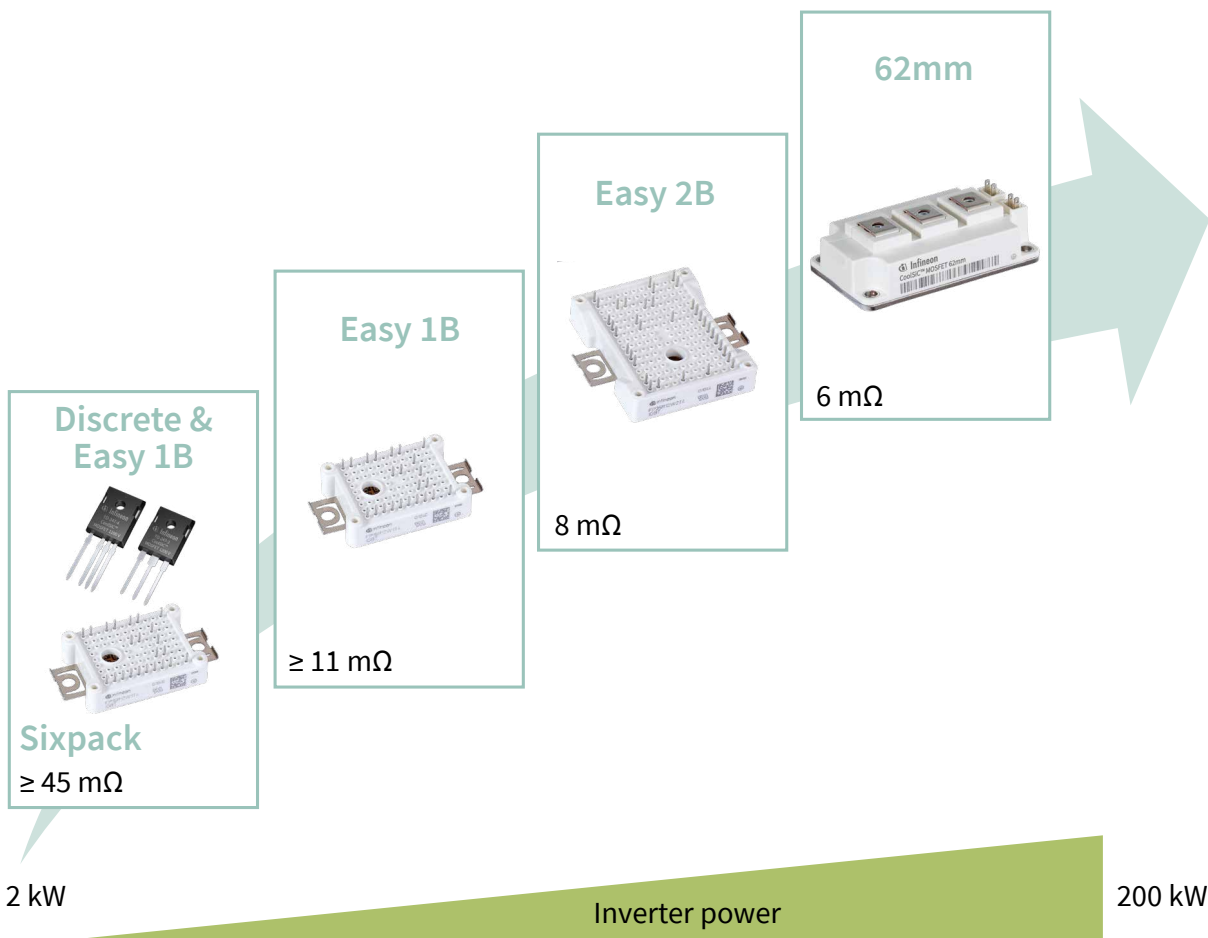
CoolSiC™ Silicon Carbide MOSFET Modules

Power modules with CoolSiC™ MOSFET open up new opportunities for inverter designers to realize never before seen levels of efficiency and power density. In addition, **Silicon Carbide (SiC)** is tailoring to application needs by different available topologies from 45 mOhm to 2 mOhm $R_{DS(on)}$.

Available in different configurations such as 3-level, dual, fourpack, sixpack or as booster, our 1200 V SiC MOSFET modules offer a superior gate oxide reliability enabled by state-of-the-art trench design, best in class switching and conduction losses.

Not only, can all EasyPACK™, EasyDUAL™, and 62 mm CoolSiC™ MOSFET power modules be ordered with pre-applied **Thermal Interface Material (TIM)**, but additional features can be offered as well. For example Easy modules with a high-performance aluminum nitride (AlN) ceramic, that significantly improves the thermal performance of R_{thJH} .

| Easy 1B (Sixpack, fourpack, booster, half-bridge) | Easy 2B (3-Level, Fourpack, Half-bridge) | 62 mm (Half-bridge) |
|---|--|---|
| DF11MR12W1M1P_B11, DF23MR12W1M1_B11 DF23MR12W1M1P_B11, DF11MR12W1M1_B11 F4-23MR12W1M1_B11, F4-23MR12W1M1P_B11 F4-45MR12W1M1_B76, F4-23MR12W1M1_B76 FF23MR12W1M1P_B11, FF11MR12W1M1_B70 FF45MR12W1M1_B11, FF23MR12W1M1_B11 FF11MR12W1M1P_B11, FF08MR12W1MA1_B11A FF11MR12W1M1_B11, FS45MR12W1M1_B11 | F3L11MR12W2M1_B74, F4-15MR12W2M1_B76 F4-11MR12W2M1_B76, FF8MR12W2M1P_B11 FF8MR12W2M1_B11, FF6MR12W2M1_B70 FF6MR12W2M1P_B11, FF6MR12W2M1_B11 | FF2MR12KM1, FF2MR12KM1P FF3MR12KM1, FF3MR12KM1P FF6MR12KM1, FF6MR12KM1P |





Silicon carbide MOSFET gate driver ICs

Ultra-fast switching 650 V to 2000 V power transistors such as CoolSiC™ SiC MOSFETs can be more easily handled by isolated gate driver solutions. Therefore, the following EiceDRIVER™ isolated gate drivers based on Infineon coreless transformer technology are recommended as most suitable. For a larger selection of isolated gate drivers, refer to the product portfolio overview section of this selection guide.

The following EiceDRIVER™ isolated gate drivers incorporate the most important key features for driving SiC MOSFET such as tight propagation delay matching, precise input filters, wide output supply voltage range, negative gate voltage capability, extended CMTI capability, Miller clamp, and DESAT protection.

| Product family | Part number | Typ. current | VCC2-VEE2 | UVLO | Prop. delay (accuracy) | CMTI | Other key features | Package |
|---|--|-----------------|-----------|---|------------------------|----------|---|----------------------------------|
| Achieve high efficiency and power density: Take advantage of low propagation delay and high CMTI | | | | | | | | |
| 1EDB 1-channel family | 1EDB9275F | 5 / 9 A | 20 V | 14.9 / 14.4 V | 45 ns (+6 / -4 ns) | 300 V/ns | Separate source/sink outputs, Fast start-up times and fast recovery, Basic isolation, UL 1577 | DSO-8, 150 mil |
| | 1EDB6275F | | | 12.2 / 11.5 V | | | | |
| 2EDi 2-channel family | 2EDR9259X* 2EDR9258X* 2EDR6258X* | 5 / 9 A | 20 V | 14.9 / 15.4 V 14.9 / 15.4 V 12.5 / 11.5 V | 38 ns (+9 / -5 ns) | 150 V/ns | 2EDi Gen.II, Dead-time control, Disable/Enable, Reinforced isolation, UL 1577, VDE-11, IEC 62368-1, GB4943.1 | DSO-14, 300mil |
| | 2EDB9259Y* | | | 14.9 / 15.4 V | | | 2EDi Gen.II, Dead-time control, Basic isolation, UL 1577, GB4943.1 | DSO-14, 150 mil |
| 1EDN-TDi 1-channel family | 1EDN6550B | 4 / 8 A | 20 V | 12.2 / 11.5 V | 45 ns (+10 / -7 ns) | N/A | Separate source/sink outputs | SOT23-6 |
| | 1EDN9550B | | | 14.9 / 14.4 V | | | | |
| Avoid parasitic turn-on: Take advantage of Miller Clamp options | | | | | | | | |
| 1ED Compact 1-channel family | 1EDI20I12MF | 4 A | 20 V | 12.7 / 10.5 V | 300 ns | 100 V/ns | Miller clamp, Functional isolation | DSO-8, 150 mil |
| | 1EDI60N12AF | 10 A | 35 V | 10 / 8 V | 125 ns | 100 V/ns | Separate source/sink outputs, Functional isolation | |
| X3 Compact 1-channel family | 1ED31xxMC12H 1ED31xxMU12F | 5.5 / 10 / 14 A | 35 V | 12.5 / 10.5 V 14.2 / 12 V | 90 ns (+/- 7 ns) | 200 V/ns | Miller clamp, Reinforced isolation, UL 1577 & VDE-11 | DSO-8, 300 mil DSO-8, 150 mil |
| 2L-SRC Compact 1-channel family | 1ED32xxMC12H | 10 / 18 A | 35 V | 12.5 / 10.4 V | 110 ns (+/- 15 ns) | 200 V/ns | Two-level slew-rate control, Miller clamp, Reinforced isolation, UL 1577 & VDE-11 | DSO-8, 300 mil |
| Short-circuit protect your CoolSiC™: Take advantage of the fast & accurate DESAT protection | | | | | | | | |
| 1ED-F3 1-channel family | 1ED332xMC12N | 3 / 6 A | 35 V | 12.6 / 10.4 V 13.6 / 12.6 V | 85 ns | 300 V/ns | Miller clamp, Short circuit protection, soft-off, Reinforced isolation, UL 1577 & VDE-11 | DSO-16, 300 mil |
| X3 Analog 1-channel family | 1ED34x1MC12M | 3 / 6 / 9 A | 35 V | 12.6 / 10.4 V | 244 ns (+/- 30 ns) | 200 V/ns | Analog configurable, fast & accurate short circuit protection and soft turn-off Miller clamp, Reinforced isolation, UL 1577 & VDE-11 | DSO-16, 300 mil |
| X3 Digital 1-channel family | 1ED38x0MC12M | 3 / 6 / 9 A | 35 V | 12.6 / 10.4 V | 244 ns (+/- 30 ns) | 200 V/ns | Digital configurable (I2C), fast & accurate short circuit protection, Rich monitoring functionality (predictive maintenance) Miller clamp, Reinforced isolation, UL 1577 & VDE-11 | DSO-16, 300 mil |
| 2ED-F2 2-channel family | 2ED020112-F2 | 2.0 A | 28 V | 12.6 / 10.4 V | 170 ns | 50 V/ns | Miller clamp, Short circuit protection | DSO-36, 300mil |

*Coming soon

CoolGaN™ e-mode HEMTs

Tailor-made for the highest efficiency and power density in switch mode power supplies

In comparison to the next best silicon alternative, CoolGaN™ enables higher power density and the highest efficiency, especially in the partial load range, through novel topologies such as the CCM totem-pole PFC stage. GaN e-mode HEMT performance features a low reverse recovery charge and excellent dynamic performance in reverse conduction compared to silicon FET solutions. This enables more efficient operation at established frequencies and much higher frequency operation, improving power density by shrinking the size of passive components. CoolGaN™ enables doubled output power in a given energy storage slot size, freeing up space and realizing higher efficiency at the same time. Infineon's CoolGaN™ comes with industry-leading reliability. During the quality management process, it is not only the device that is thoroughly tested but also its behavior in the application environment. The performance of CoolGaN™ goes beyond other GaN products in the market.

Features

- > Low output charge and gate charge
- > No reverse recovery charge

Design benefits

- > High power density, small and light design
- > High efficiency in resonant circuits
- > New topologies and current modulation
- > Fast and (near-)lossless switching

Advantages

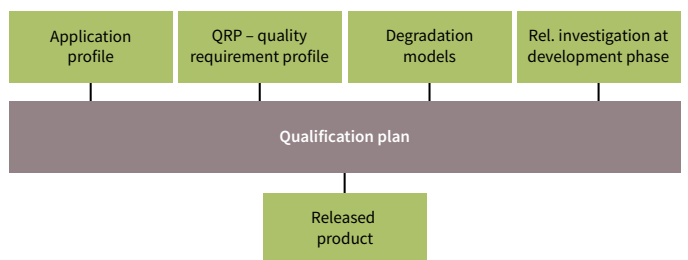
- > Operational expenses (OPEX) and capital expenditure (CAPEX) reduction
- > BOM and overall cost savings

Infineon leverages its unique portfolio of high- and low-voltage MOSFETs, gate-driver ICs and digital controllers to complement its CoolGaN™ product line, thus enabling full exploit for GaN benefits.

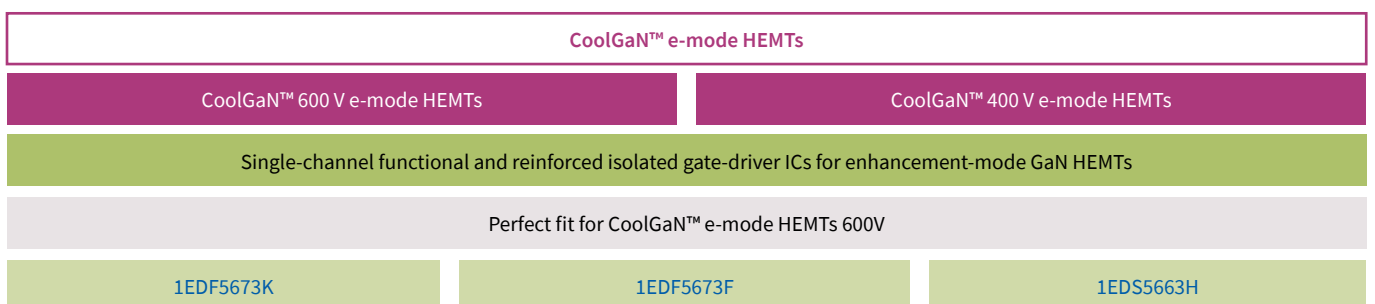
The highest quality

The qualification of GaN switches requires a dedicated approach, well above existing silicon standards

- > Infineon qualifies GaN devices well beyond industry standards
- > Application profiles are an integral part of the qualification process
- > Failure models, based on accelerated test conditions, ensure target lifetime and quality are met
- > Infineon sets the next level of wide bandgap quality



CoolGaN™ e-mode HEMTs overview

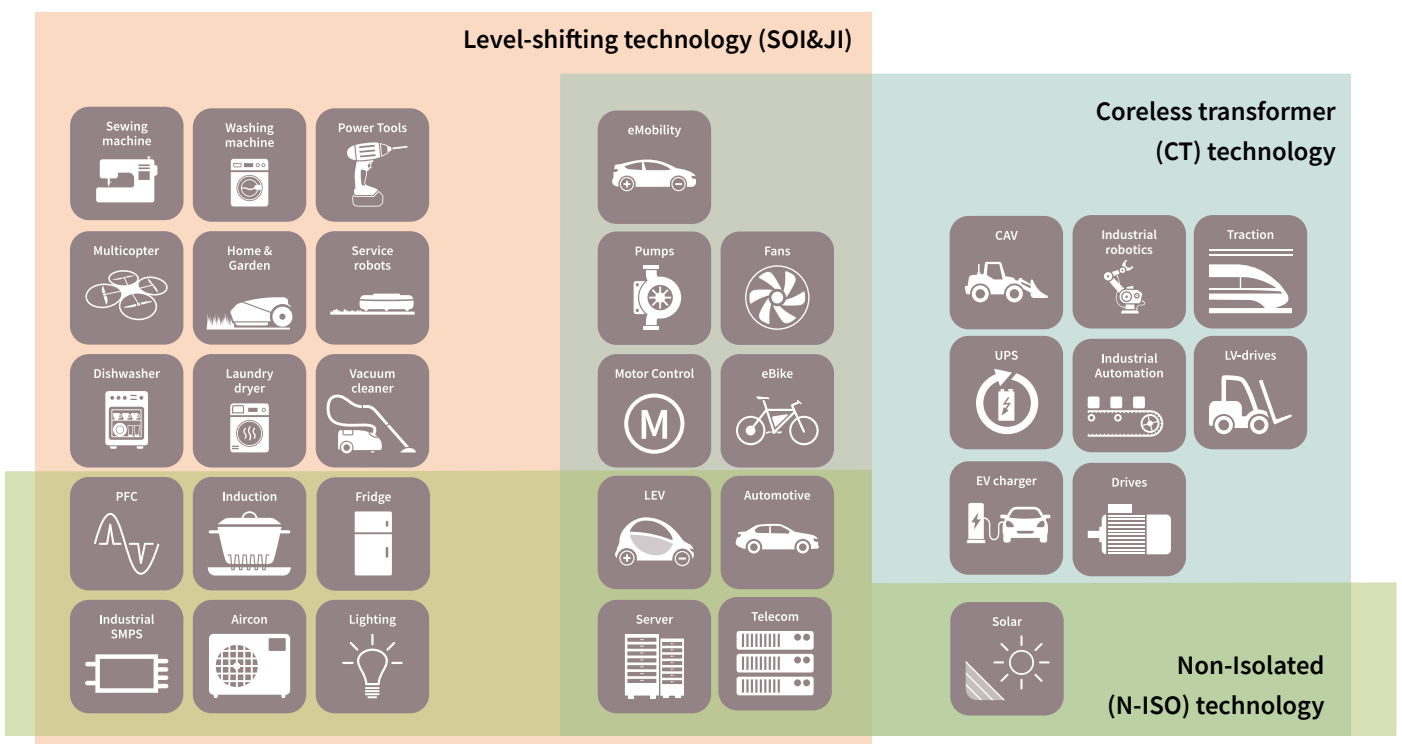




Typical gate-driver applications

From product thinking to system understanding, Infineon enables total solutions which make generation, transmission and conversion of electrical energy more efficient and reliable.

The following pages describe typical applications using Infineon gate drivers and power switches.



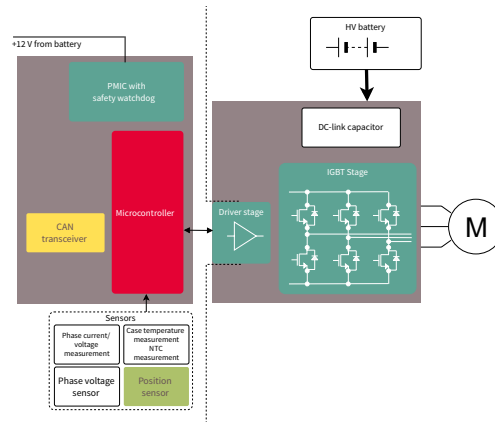


Automotive electric drive train

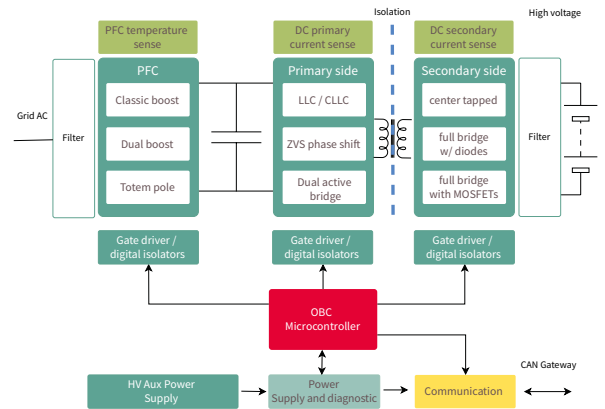
(Hybrid) electric vehicles applications

- > On-board charger
- > HV/LV DC-DC converter
- > Auxiliary inverter
- > Wireless in-cabin phone charging

Typical application diagram- main inverter



Typical application diagram- on-board charger



Within an electric drivetrain, the inverter controls the electric motor, captures energy released through regenerative braking and feeds this back to the battery. As a result, the range of the vehicle is directly related to the efficiency of the traction inverter. Efficiency is also the key success factor for auxiliary applications. The Infineon EiceDRIVER™ gate driver family includes single and dual-channel automotive IGBT and SiC MOSFET driver ICs that provide galvanic isolation and bidirectional signal transmission. These products are ideal for automotive traction inverter systems where efficiency, space saving and functional safety are priorities.

Recommended gate drivers

| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules | |
|---|-------------------|-------------------|-----------------------|--------------------------|----------|---|--|--|
| Main Inverter & DCDC Converter boost HV/HV | 1200 V | 1-ch isolated | 1EDI3020AS NEW | 12 A | DSO-20 | IGBT gate driver IC, ADC for Temperature Diode, ISO 26262-compliant for ASIL D on system level | HybridPACK™ (FS650R08A6P2, FS950R08A6P2B, FS380R12A6T4B) EasyPACK™ (FF300R08W2P2_B11A) IGBT TRENCHSTOP™ (AIKQ120N75CP2*, AIKQ200N75CP2*) (AIKW75N60CT, AIKQ120N60CT) | |
| | | | 1EDI3021AS NEW | 12 A | DSO-20 | IGBT gate driver IC, secondary side ASC, ISO 26262-compliant for ASIL D on system level | | |
| | | | 1EDI3023AS NEW | 12 A | DSO-20 | IGBT gate driver IC, ADC for NTC & DC-Link, ISO 26262-compliant for ASIL D on system level | | |
| | | | 1EDI2004AS | 2 A | DSO-36 | 16-bit SPI interface (up to 2 Mbaud) with daisy chain support, ISO 26262-compliant. Compatible with booster 1EBN1001AE | | |
| | | | 1EDI3030AS NEW | 12 A | DSO-20 | SiC MOS gate driver IC, ADC for Temperature Diode, ISO 26262-compliant for ASIL D on system level | | CoolSiC™ HybridPACK™ (FS03MR12A6MA1B; FS05MR12A6MA1B) CoolSiC™ EasyPACK™ (FF08MR12W1MA1_B11A) |
| | | | 1EDI3031AS NEW | 12 A | DSO-20 | SiC MOS gate driver IC, secondary side ASC, ISO 26262-compliant for ASIL D on system level | | |
| | | | 1EDI3033AS NEW | 12 A | DSO-20 | SiC MOS gate driver IC, ADC for NTC & DC-Link, ISO 26262-compliant for ASIL D on system level | | |
| On-board charger & DC-DC converter | 100 V | Half-bridge | AUIR2085STR | 1 A | DSO-8 | Simple primary side control solution, programmable switching frequency < 500 kHz, adjustable dead-time | IGBT TRENCHSTOP™ 5 (AIKW40N65DH5, AIKW50N65F5) CoolMOS™ CFD7A (IPBE65R115CFD7A, IPBE65R050CFD7A) CoolSiC™ 750 V (AIMBG75R063M1H*, AIMBG75R017M1H*) CoolSiC™ Hybrid (AIKW50N65RF5) EasyPACK™ IGBT (F4-75R07W1H3_B11A, FS75R07W2E3_B11A) | |
| | 200 V | Single low-side | AUIRS1170S | 6 A | DSO-8 | Secondary side high speed synchronous rectification controller, ccm operation with SYNC function, > 500 kHz, cycle by cycle MOT check | | |
| | 600 V | | AUIRS2191S | 3.5 A | DSO-16 | Floating channel for bootstrap operation, negative transient voltage tolerance, UVLO, matched propagation delay | | |
| Auxiliary drives (fans, pumps, HVAC, heat pump, PTC heater) | 600 V | High and low-side | AUIRS21814S | 2.3 A | DSO-14 | Floating channel for bootstrap operation, negative transient voltage tolerance, UVLO, matched propagation delay | Gen Trench 6.2 IGBT (AUIRGP4062D(-E), AUIRGP4063D(-E)) Gen4 Planar IGBT (AUIRG4PC40S-E, AUIRG4PH50S, AUIRGDC0250) TRENCHSTOP™ IGBT (AIKW30N60CT, AIKW20N60CT, AIKW50N60CT) EasyPACK™ IGBT 3 (F4-75R07W1H3_B11A, FS75R07W2E3_B11A) | |
| Wireless in-cabin phone charging | 600 V | High and low-side | AUIRS2301S | 3.5 A | DSO-8 | Floating channel for bootstrap operation, negative transient voltage tolerance, UVLO, matched propagation delay | OptiMOS™ (IPG20N04S4L-11A, IPZ40N04S5L-4R8) | |

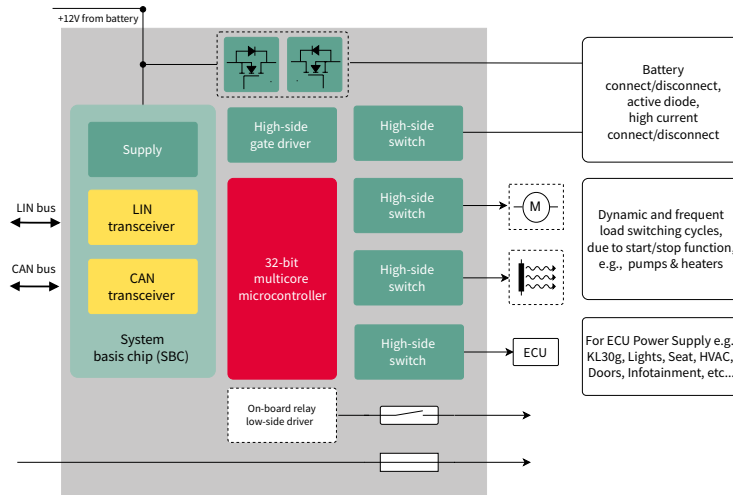
*Coming soon

Table provides representative products. For complete portfolio please visit www.infineon.com

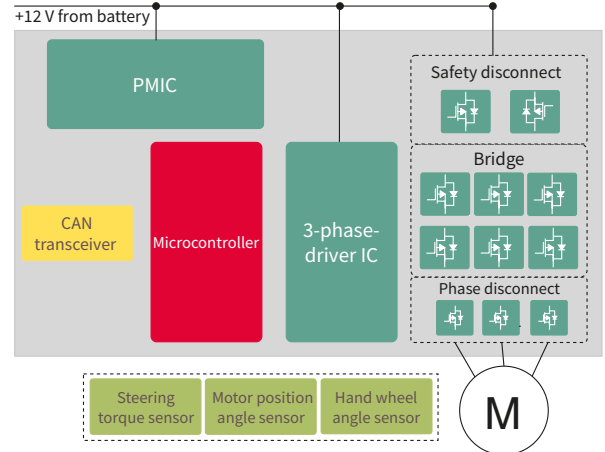


Automotive low voltage drives

Power distribution box



System diagram electric power steering (EPS)



Recommended gate drivers

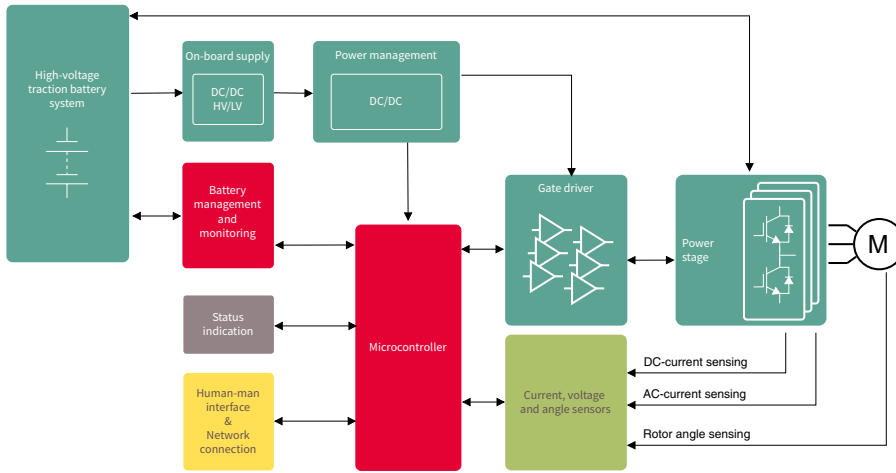
| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules | |
|---|--------------------|--------------------|--|--------------------------------|----------|--|---|---|
| Battery protection switch, Input protection Switch (e.g. DC/DC), Q-Diode (e.g. Start /Stop) Load switch | 65 V | Single high-side | AUIR3241STR | 0.3/0.3 A | DSO-8 | Support back to back MOSFET structure, static operation, low quiescent current in ON-Status, back to back, input active high | OptiMOS™ 6 (IAUC120N04S6L, IAUA250N04S6N) OptiMOS™-T2 (IPLU300N04S4) | |
| | | | AUIR3242STR | 0.3/0.3 A | DSO-8 | Support back to back MOSFET structure, static operation, low quiescent current in ON-Status, back to back, input active low | | |
| | 75 V | Dual high-side | 2ED2410-EM* NEW | 0.18/1.4 A | TSDSO-24 | Support back to back MOSFET structures, static operation, low quiescent current in idle mode, adjustable I-t wire protection, overcurrent and short-circuit protection | | |
| | | | 2ED4820-EM NEW | 0.3/1.0 A | TSDSO-24 | Support back to back MOSFET structures, SPI Interface, static operation, adjustable overcurrent and short-circuit protection | | |
| Cooling Fans, Water Pump, Oil Pump, HVAC Compressor, CAV | 90 V | Three-Phase | TLE9180D-21QK | 2 A | LQFP-64 | Advanced gate driver IC dedicated for high current 3 phase motor drive applications up to 48 V. The 21QK has 2 whereas the 31QK has 3 current sense amplifiers. | OptiMOS™ 5 (IAUA180N08S5N026, IAUA250N08S5N018, IAUA170N10S5N031, IAUA210N10S5N024) | |
| | 28 V | | TLE9180D-31QK | 2 A | | | | |
| Door module, Power lift gate, Power sliding doors, Seat control module, Seatbelt pretension, Steering column lock, Sunroof module | 28 V | 2 x Half-bridges | TLE9563-3QX | 0.15 A | VQFN-48 | Multifunctional system IC with integrated power supply, communication interfaces, multiple half-bridges. | OptiMOS™ 6 (IAUC100N04S6N028, IAUC45N04S6N070H) | |
| | | | TLE9564QX | 0.15 A | | | | |
| | | 4 x Half-bridges | TLE9560-3QX | 0.1 A | | | | |
| | | | TLE9561QX | 0.1 A | | | | |
| | | | TLE9561-3QX | 0.1 A | | | | |
| | | | TLE9562QX | 0.1 A | | | | |
| | 4/8 x half-bridges | 4/8 x half-bridges | 4/8 x half-bridges | TLE92108-232QX | 0.1 A | VQFN-48 | 2 x Current Sense Amplifier, 3 x PWM inputs, Brake mode, adaptive MOSFET control | OptiMOS™ 6 (IAUC100N04S6N028, IAUC45N04S6N070H) |
| | | | | TLE92108-231QX | 0.1 A | | 2 x Current Sense Amplifier, 3 x PWM inputs, adaptive MOSFET control | |
| | | | | TLE92104-232QX | 0.1 A | | 2 x Current Sense Amplifier, 3 x PWM inputs, Brake mode, adaptive MOSFET control | |
| | | | | TLE92104-131QX | 0.1 A | | 1 x Current Sense Amplifier, 3 x PWM inputs, adaptive MOSFET control | |

*Coming soon

Table provides representative products. For complete portfolio please visit www.infineon.com



CAV



Compactness, reliability and efficiency. These factors, along with safety and robustness, are what distinguish successful powertrain inverter for truck and agricultural vehicle designs from the rest. A scalable system level solution that reduces the time to market and the total cost of ownership is key.

Infineon offers all powertrain components from one source. Be it for controls, drivers or power electronics. Benefit from our extensive application know-how and comprehensive product portfolio of high-quality semiconductors, including IGBT stack, IGBT modules, discrete IGBT and gate drivers. We do all we can to ensure you bring a reliable, cost-effective power inverter for truck to market.

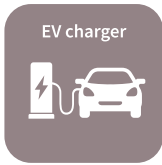
CAV applications

- > Commercial vehicles
- > Construction vehicles
- > Agricultural vehicles

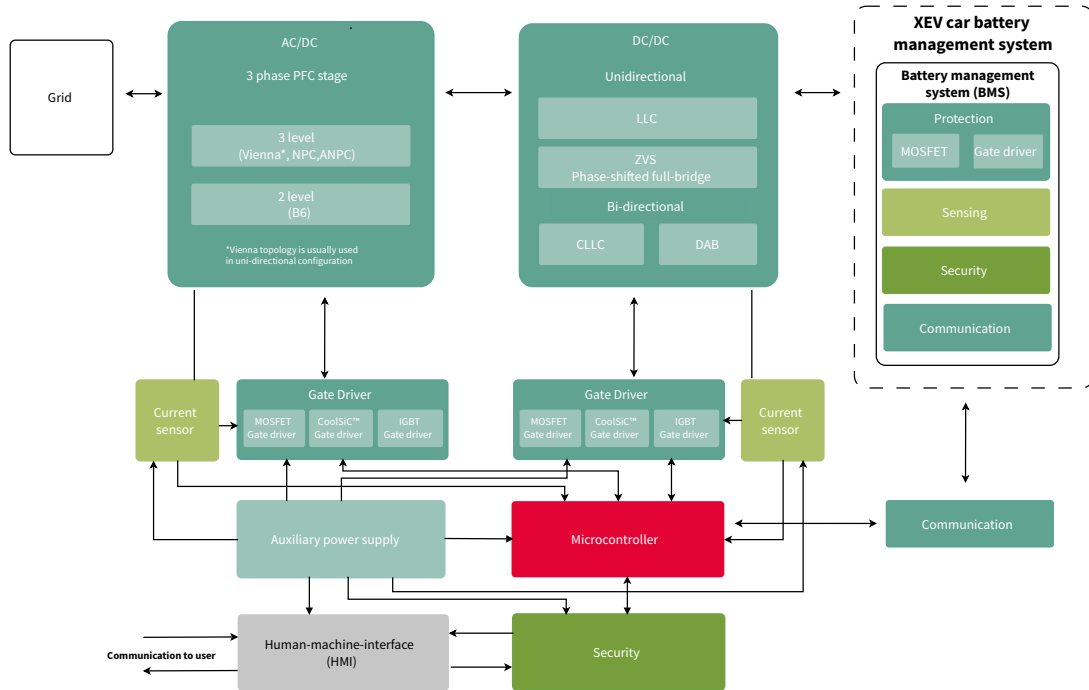
Recommended gate drivers

| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules |
|---------------------|-------------------|---------------|-------------------------|--------------------------|-------------------|--|--|
| Auxiliary Inverters | 600 V | Half-bridge | 2EDL23N06PJ | 2.3/2.8 A | DSO-14 | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | TRENCHSTOP™ IGBT+Diode (IKW40N65ET7, IKB40N65ES5) |
| | 650 V | | 2ED2182S06F NEW | 2.5/2.5 A | DSO-8 | Infineon SOI, integrated BSD, HIN, LIN | EasyPACK™ 1B module (FS20R06W1E3_B11) |
| | 1200 V | 2-ch isolated | 2ED020I12-F2 | 2/2 A | DSO-36 | EiceDRIVER™ Enhanced 2ED-F2 with DESAT and Miller clamp | CoolSiC™ SiC MOSFET module (FS45MR12W1M1_B11, FF8MR12W2M1_B11) |
| | 1200 V | Three-phase | 6ED2230S12T | 0.35/0.65 A | DSO-24 | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | EasyPACK™ 1B module (FS25R12W1T7_B11) |
| | 1200 V | Half-bridge | IR2214SS | 2/3 A | SSOP-24 | DESAT, soft-off, two stage turn on, fault reporting, Synchronization | EasyPACK™ 2B module (FS50R12W2T7, FS75R12W2T7_B11) |
| | 1200 V | Three-phase | IR2233S | 0.25/0.5 A | DSO-28 | OCP, Enable, fault reporting | EconoPACK™ 2/3 module (FS50R12KT4_B15) |
| Powertrain Inverter | 1200 V | 1-ch isolated | 1EDB6275F NEW | 5.4/9.8 A | DSO-8 | EiceDRIVER™ 1EDi with basic isolation (3kV UL 1577) | EconoPACK™ 2/3/4 module (FS150R12N2T7, IFS200B12N3E4_B37) EconoPack™+ module (FS300R12OE4, FS450R12OE4) EconoDUAL™ 3 module (FF300R12ME7_B11, FF900R12ME7_B11) PrimePACK™ 2 module (FF1200R12IESP) PrimePACK™ 3+ module (FR900R12IP4D) HybridPACK™ Drive module (FS380R12A6T4B, FS03MR12A6MA1B) |
| | 1200 V | | 1EDI60I12AF | 10/9.4 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | |
| | 2300 V | | 1ED3124MC12H NEW | 13.5/14 A | DSO-8 300mil | EiceDRIVER™ X3 Compact with separate output | |
| | 2300 V | | 1ED3241MC12H NEW | 18/18 A | DSO-8 300mil | EiceDRIVER™ 2L-SRC Compact with 2-level slew rate control | |
| | 2300 V | | 1ED3321MC12N NEW | 6/8.5 A | DSO-16 | EiceDRIVER™ Enhanced 1ED-F3 with DESAT, soft-off and Miller clamp | |
| | 2300 V | | 1ED3491MC12M NEW | 7.5/11 A | DSO-16 fine pitch | EiceDRIVER™ Enhanced X3 Analog with programmable DESAT, soft-off and Miller clamp | |
| | 2300 V | | 1ED3890MC12M NEW | 7.5/11 A | DSO-16 fine pitch | EiceDRIVER™ Enhanced X3 Digital with I2C configurability, DESAT, soft-off and Miller clamp | |

Table provides representative products. For complete portfolio please visit www.infineon.com



EV charging



As electro-mobility increasingly becomes part of our daily lives, there is a growing need for more efficient charging solutions. Fast EV-charging stations equipped with powerful DC EV chargers are today's answer to the challenge. DC EV chargers are an attractive choice, as they allow much faster charging than the standard AC EV chargers that many EV owners use. Today, a DC charger with 150 kW can supply an EV with a 200 km charge in around 15 minutes. As fast-charging and battery technologies continue to evolve and improve, experts anticipate that charging time will drop even further.

The unique expertise in e-mobility and power supplies makes Infineon the natural partner for advancing DC electric vehicle charging in terms of efficiency, performance, optimal cost and innovation.

Recommended gate drivers

| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules |
|-----------------------|-------------------------|-------------------|-------------------------|--------------------------|---|---|--|
| DC-DC (<22 kW) | 600 V | High and low-side | IRS2186S | 4/4 A | DSO-8 | High current for high power and fast switching frequency | CoolMOS™ MOSFET (IPW60R018CFD7, IPW60R037CSFD) CoolSiC™ MOSFET (IMW65R027M1H, IMZ120R030M1H) |
| | 650 V | | 2ED2110S06M NEW | 2.5/2.5 A | DSO-16 300 mil | Infineon SOI, integrated BSD, fast level-shift, Shutdown, separate VSS/COM | |
| | 650 V | | 2ED2181S06F NEW | 2.5/2.5 A | DSO-8 | Infineon SOI, integrated BSD,HIN, LIN | |
| | 1200 V | 1-ch isolated | 1EDI20N12AF | 4/3.5 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | |
| | 1200 V | High and low-side | IR2213S | 2/2.5 A | DSO-16 300 mil | Shutdown and Separate power supply | |
| | 1200 V | Half-bridge | IR2214SS | 2/3 A | SSOP-24 | DESAT, soft-off, two stage turn on, fault reporting, Synchronization | |
| DC-DC (<50 kW) | 1200 V | 1-ch isolated | 1EDI60N12AF | 10/9.4 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | CoolMOS™ MOSFET (IPW60R018CFD7, IPW60R037CSFD) CoolSiC™ Module (F4-23MR12W1M1P_B11, FF45MR12W1M1_B11) |
| | 1200 V | 2-ch isolated | 2EDR8259H* | 4/8 A | DSO-16 300 mil | EiceDRIVER™ 2EDi with reinforced isolation | |
| | 2300 V | 1-ch isolated | 1ED3122MC12H NEW | 10/9 A | DSO-8 300mil | EiceDRIVER™ X3 Compact with Miller clamp | |
| 2300 V | 1ED3124MC12H NEW | | 13.5/14 A | DSO-8 300mil | EiceDRIVER™ X3 Compact with separate output | | |
| DC-DC (<150 kW) | 2300 V | 1-ch isolated | 1ED3241MC12H NEW | 18/18 A | DSO-8 300mil | EiceDRIVER™ 2L-SRC Compact with 2-level slew rate control | CoolMOS™ MOSFET (IPW60R018CFD7) CoolSiC™ Module (FF8MR12W1M1_B11, FF6MR12W2M1P_B11) |
| | 2300 V | | 1ED3321MC12N NEW | 6/8.5 A | DSO-16 | EiceDRIVER™ Enhanced 1ED-F3 with DESAT, soft-off and Miller clamp | |
| | 2300 V | | 1ED3890MC12M NEW | 7.5/11 A | DSO-16 fine pitch | EiceDRIVER™ Enhanced X3 Digital with I2C configurability, DESAT, soft-off and Miller clamp | |
| | 2300 V | | | | | | |
| Single-end boost PFC | 25 V | 1-ch non-isolated | 1EDN8511B | 4/8 A | SOT23-6 | Separate output, 19 ns propagation delay | CoolMOS™ MOSFET P7 (IPW60R037P7, IPW60R024P7) 650 V CoolSiC™ (IMW65R048M1H, IMW65R027M1H) 650 V TRENCHSTOP™ IGBT (IKW50N65EH5) 1200 V CoolSiC™ (IMW120R045M1, IMW120R030M1H) 1200 V IGBT HighSpeed 3 (IGW40N120H3, IGW25N120H3) CoolSiC™ Diode (IDH20G65C5, IDWD20G120C5) |
| | 25 V | | 1ED44171N01B* | 2.6/2.6 A | SOT23-5 | Enable, programmable fault clear time, UVLO | |
| | 25 V | | 1ED44175N01B NEW | 2.6/2.6 A | SOT23-6 | Fast, accurate (±5%) OCP, fault reporting, Enable, negative current sensing | |
| | 25 V | | 1ED44176N01F | 0.8/1.75 A | DSO-8 | Fast, accurate (±5%) OCP, fault reporting, Enable, positive current sensing, separate VSS / COM | |
| | 25 V | | IRS44273L | 1.5/1.5 A | SOT23-5 | Additional OUT pin | |
| | 200 V | | 1EDN8550B | 4/8 A | SOT23-6 | True differential inputs, with ± 80 V static ground-shift robustness | |
| Interleaved boost PFC | 22 V | 2-ch non-isolated | 2EDN8534F NEW | 5/5 A | DSO-8 | 2 ns delay matching, 19 ns propagation delay | 600 V CoolMOS™ CFD7 MOSFET (IPP60R070CFD7, IPP60R280CFD7, IPT60R035CFD7) EasyPACK™ IGBT Module (FS50R12W1T7_B11, FS100R12W2T7) |
| | 24 V | | 2ED24427N01F NEW | 10/10 A | DSO-8 with powerpad | Enable, Low R _{DS(on)} outputs, thermal pad | |
| | 25 V | | IRS4427S | 2.3/3.3 A | DSO-8 | Matched propagation delay | |
| Totem pole PFC | 650 V | High and low-side | 2ED2181S06F NEW | 2.5/2.5 A | DSO-8 | Infineon SOI, integrated BSD,HIN, LIN | 600 V CoolMOS™ C7 MOSFET (IPP65R045C7, IPW65R019C7, IPL65R070C7) 600 V CoolMOS™ P7 MOSFET (IPP60R060P7, IPP60R360P7, IPW60R024P7) CoolSiC™ Module (F3L15MR12W2M1_B69, F3L11MR12W2M1_B65) |
| | 1200 V | 2-ch isolated | 2EDB8259F* | 4/8 A | DSO-16 | EiceDRIVER™ 2EDi with basic isolation (3kV UL1577) | |
| | 1200 V | | 2EDB8259Y* | 5/9 A | DSO-14 | EiceDRIVER™ 2EDi with basic isolation (3kV UL1577) | |
| Vienna rectifier | 22 V | 2-ch non-isolated | 2EDN7534F NEW | 5/5 A | DSO-8 | 2 ns delay matching, 19 ns propagation delay | 600 V CoolMOS™ C7 MOSFET (IPP65R045C7, IPW65R019C7, IPL65R070C7) 600 V CoolMOS™ P7 MOSFET (IPP60R060P7, IPP60R360P7, IPW60R024P7) CoolSiC™ Module (F3L15MR12W2M1_B69, F3L11MR12W2M1_B65) |
| | 1200 V | 1-ch isolated | 1EDB6275F NEW | 5/9 A | DSO-8 | EiceDRIVER™ 1EDB with basic isolation (3kV UL 1577) | |
| | 1200 V | | 1EDI60N12AF | 10/9.4 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | |

*Coming soon

Table provides representative products. For complete portfolio please visit www.infineon.com



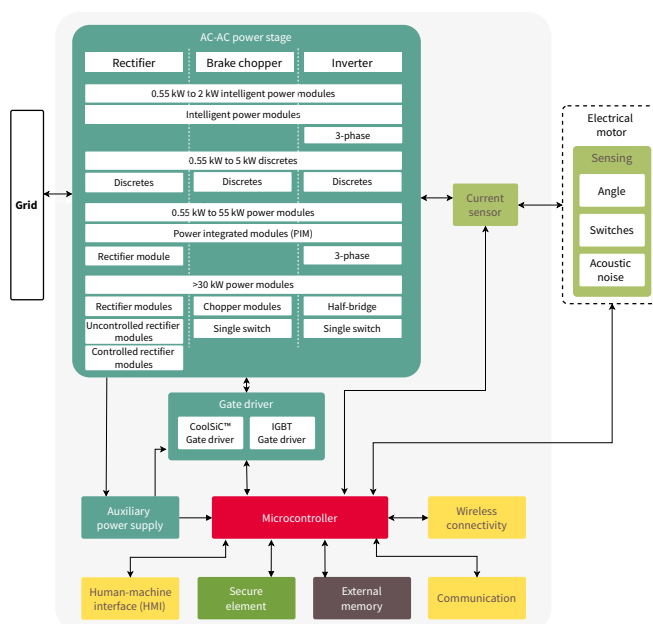
Industrial drives

Electronic speed-control systems for energy and performance gains

A low-voltage drive covers a voltage range from 100 to 690 Volt and power from several watts to megawatts. The drive system is connected to the grid and generates a 3-phase voltage which is variable in amplitude and frequency. This enables control of the electrical motor in torque and speed. Our broad portfolio of semiconductor modules enables you to design low-voltage drives that help to increase process productivity as well as energy efficiency, and furthermore reduce maintenance costs.

Drive applications

- > Commercial HVAC
- > General purpose drives
- > Elevators/escalators
- > Heavy duty drives (<200 kW)
- > Commercial sewing machines
- > Fans and pumps (PFC, inverter)
- > Servo drives
- > Robotics
- > Forklift trucks (hydraulic pump inverter, motor inverter)
- > Stepper motors



Recommended gate drivers

| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules |
|--------------------|-------------------|-------------------|---------------|--------------------------|--|---|---|
| Inverter (<2.2 kW) | 160 V | High and low-side | 2ED2732S01G* | 1/2 A | DFN10 3x3mm | Infineon SOI, integrated BSD, separate VSS/COM, thermal pad | StrongIRFET™ (IRF200P222) |
| | 160 V | Half-bridge | 2ED2748S01G* | 4/8 A | DFN10 3x3mm | Infineon SOI, integrated BSD, separate VSS/COM, thermal pad | |
| | 160 V | Three-phase | 6ED2742S01Q* | 1/2 A | QFN32 5x5mm | Infineon SOI, integrated BSD, PMU, trickle charge pumps, programmable OCP, and current sense amp, RFE | |
| | 200 V | Half-bridge | IRS2007S | 0.29/0.6 A | DSO-8 | VCC & VBS UVLO, matched propagation delay | |
| | 600 V | Half-bridge | 2EDL23I06PJ | 2.3/2.8 A | DSO-14 | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | StrongIRFET™ (IRF250P224, IRF300P226) TRENCHSTOP™ IGBT+Diode (IKW40N65E7, IKB40N65E5) EasyPIM™ 1B/2B module (FP10R06W1E3_B11, FB30R06W1E3) EasyPACK™ 1B module (FS20R06W1E3_B11) |
| | 600 V | Three-phase | 6EDL04I06PT | 0.165/0.375 A | DSO-28 300 mil | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | |
| | 600 V | Single high-side | IRS21271S | 0.29/0.6 A | DSO-8 | OCP, fault reporting | |
| | 600 V | High and low-side | IRS2186S | 4/4 A | DSO-8 | High current for high power and fast switching frequency | |
| | 650 V | | 2ED2110S06M | NEW 2.5/2.5 A | DSO-16 300 mil | Infineon SOI, integrated BSD, fast level-shift, Shutdown, separate VSS/COM | |
| | 650 V | 2ED21814S06J | NEW 2.5/2.5 A | DSO-14 | Infineon SOI, integrated BSD, separate VSS/COM | | |
| | 650 V | Half-bridge | 2ED2182S06F | NEW 2.5/2.5 A | DSO-8 | Infineon SOI, integrated BSD, HIN, LIN | |
| | 1200 V | Three-phase | 6ED2230S12T | 0.35/0.65 A | DSO-24 | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | TRENCHSTOP™ IGBT+Diode (IKW08T120, IKQ40N120CT2) |
| 1200 V | Half-bridge | IR2214SS | 2/3 A | SSOP-24 | DESAT, soft-off, two stage turn on, fault reporting, Synchronization | EasyPIM™ 1B/2B module (FP10R12W1T7_B11, FP25R12W2T7) | |
| 1200 V | Three-phase | IR2233S | 0.25/0.5 A | DSO-28 | OCP, Enable, fault reporting | EasyPACK™ 1B/2B module (FS25R12W1T7_B11) EconoPIM™ 2 module (FP35R12N2T7_B11) | |
| Inverter (<7.5 kW) | 1200 V | 1-ch isolated | 1EDI20I12AF | 4/3.5 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | CoolSiC™ SiC MOSFET (IMZ120R045M1, IMW120R090M1H) TRENCHSTOP™ IGBT+Diode (IKW40N120T2, IKQ75N120CT2) |
| | 1200 V | | 1EDI20I12MF | 4.4/4.1 A | DSO-8 | EiceDRIVER™ 1ED Compact with Miller clamp | EasyPIM™ 1B/2B module (FP15R12W1T7_B11, FP35R12W2T7_B11) |
| | 1200 V | Half-bridge | 2ED020I12-FI | 1.5/2.5 A | DSO-18 | EiceDRIVER™ Enhanced 2ED-FI with OPAMP and comparator (isolation only on the high side) | EasyPACK™ 1B module (FS25R12W1T7_B11, FS50R12W1T7) |
| | 1200 V | Three-phase | 6ED2230S12T | 0.35/0.65 A | DSO-24 | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | EconoPIM™ 2 module (FP25R12KT4_B15, FP50R12KT4G_B15) EconoPACK™ 2/3 module (FS50R12KT4_B15) |

*Coming soon

Table provides representative products. For complete portfolio please visit www.infineon.com



Industrial drives

Electronic speed-control systems for energy and performance gains

Recommended gate drivers

| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules |
|-------------------------|-------------------|-------------------|------------------|--------------------------|---|---|--|
| Inverter (<22 kW) | 1200 V | 1-ch isolated | 1EDI6012AF | 10/9.4 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | CoolSiC™ SiC MOSFET (IMZ120R030M1H, IMW120R045M1) |
| | 1200 V | 2-ch isolated | 2ED02012-F2 | 2/2 A | DSO-36 | EiceDRIVER™ Enhanced 2ED-F2 with DESAT and Miller clamp | EasyPACK™ 2B module (FS50R12W2T7, FS75R12W2T7_B11) |
| | 2300 V | 1-ch isolated | 1ED3321MC12N NEW | 6/8.5 A | DSO-16 | EiceDRIVER™ Enhanced 1ED-F3 with DESAT, soft-off and Miller clamp | EconoPIM™ 2 module (FP50R12N2T7_B11, FP75R12N2T7) |
| 2300 V | 1ED3122MC12H NEW | | 10/9 A | DSO-8 300mil | EiceDRIVER™ X3 Compact with Miller clamp | EconoPACK™ 2/3 module (FS100R12W2T7) | |
| 2300 V | 1ED3321MC12N NEW | | 6/6 A | DSO-16 | EiceDRIVER™ Enhanced 1ED-F3 with DESAT, soft-off and Miller clamp | EconoPIM™ 2 module (FP100R12N2T7, FP150R12N3T7) | |
| Inverter (<75 kW) | 2300 V | 1-ch isolated | 1ED3491MC12M NEW | 7.5/11 A | DSO-16 fine pitch | EiceDRIVER™ Enhanced X3 Analog with programmable DESAT, soft-off and Miller clamp | EconoPACK™ 2/3 module (FS150R12N2T7) |
| | 2300 V | | 1ED3124MC12H NEW | 13.5/14 A | DSO-8 300mil | EiceDRIVER™ X3 Compact with separate output | 34 mm module (FF50R12RT4, FF15012RT4) |
| | 2300 V | | 1ED3241MC12H NEW | 18/18 A | DSO-8 300mil | EiceDRIVER™ 2L-SRC Compact with 2-level slew rate control | CoolSiC™ SiC MOSFET module (FF11MR12W1M1_B11, FF6MR12W2M1_B11) |
| Inverter (<250 kW) | 2300 V | 1-ch isolated | 1ED3890MC12M NEW | 7.5/11 A | DSO-16 fine pitch | EiceDRIVER™ Enhanced X3 Digital with I2C configurability, DESAT, soft-off and Miller clamp | EconoPIM™ 2/3 module (FP150R12N3T7, FP200R12N3T7) |
| | 2300 V | | 1ED3241MC12H NEW | 18/18 A | DSO-8 300mil | EiceDRIVER™ 2L-SRC Compact with 2-level slew rate control | EconoPACK™ 2/3/4 module (FS150R12N2T7, IFS200B12N3E4_B37) |
| | 2300 V | | 1ED3890MC12M NEW | 7.5/11 A | DSO-16 fine pitch | EiceDRIVER™ Enhanced X3 Digital with I2C configurability, DESAT, soft-off and Miller clamp | EconoDUAL™ 3 module (FF300R12ME7_B11) |
| Single-end boost PFC | 22 V | 1-ch non-isolated | 1EDN8511B | 4/8 A | SOT23-6 | Separate output, 19 ns propagation delay | EconoPACK™+ module (FS300R12OE4, FS450R12OE4) |
| | 25 V | | 1ED44171N01B* | 2.6/2.6 A | SOT23-5 | Enable, programmable fault clear time, UVLO | 62 mm module (FF300R12KE4) |
| | 25 V | | 1ED44175N01B NEW | 2.6/2.6 A | SOT23-6 | Fast, accurate (±5%) OCP, fault reporting, Enable, negative current sensing | TRENCHSTOP™ IGBT+Diode (IKP15N65H5, IKW75N65EH5) |
| | 25 V | | 1ED44176N01F | 0.8/1.75 A | DSO-8 | Fast, accurate (±5%) OCP, fault reporting, Enable, positive current sensing, separate VSS / COM | Rapid Diode (IDW30E65D1, IDW60C65D1) |
| | 25 V | | IRS44273L | 1.5/1.5 A | SOT23-5 | Additional OUT pin | CoolSiC™ Schottky Diode (IDH10G65C6, IDW40G65C5) |
| Interleaved boost PFC | 22 V | 2-ch non-isolated | 2EDN8534F NEW | 5/5 A | DSO-8 | 2 ns delay matching, 19 ns propagation delay | CoolMOS™ MOSFET (IPW60R060P7, IPP60R360P7) |
| | 24 V | | 2ED24427N01F NEW | 10/10 A | DSO-8 with powerpad | Enable, Low R _{DS(on)} outputs, thermal pad | CIPOS™ Mini (IFCM15S60GD, IFCM10P60GD) |
| | 25 V | | IRS4427S | 2.3/3.3 A | DSO-8 | Matched propagation delay | |
| SMPS (<3 kW) | 600 V | High and low-side | IRS2186S | 4/4 A | DSO-8 | High current for high power and fast switching frequency | TRENCHSTOP™ IGBT+Diode (IKW30N65F5, IKB40N65EF5) |
| | 650 V | | 2ED2110S06M NEW | 2.5/2.5 A | DSO-16 300 mil | Infineon SOI, integrated BSD, fast level-shift, Shutdown, separate VSS/COM | CoolMOS™ MOSFET P7 (IPW60R060P7, IPP60R360P7) |
| | 650 V | | 2ED21814S06J NEW | 2.5/2.5 A | DSO-14 | Infineon SOI, integrated BSD, separate VSS/COM | CoolIMOS™ MOSFET C7 (IPZ65R019C7, IPW65R190C7) |
| | 650 V | Half-bridge | 2ED2182S06F NEW | 2.5/2.5 A | DSO-8 | Infineon SOI, integrated BSD, HIN, LIN | |
| | 1200 V | 1-ch isolated | 1EDI60N12AF | 10/9.4 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | |
| Brake chopper (<3.5 kW) | 25 V | 1-ch non-isolated | 1ED44171N01B* | 2.6/2.6 A | SOT23-5 | Enable, programmable fault clear time, UVLO | TRENCHSTOP™ IGBT+Diode (IKW40N120T2, IKQ75N120CT2) |
| | 25 V | | IRS44273L | 1.5/1.5 A | SOT23-5 | Additional OUT pin | |
| | 1200 V | 1-ch isolated | 1EDI6012AF | 10/9.4 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | |
| | 2300 V | | 1ED3121MC12H NEW | 5.5/5.5 A | DSO-8 300mil | EiceDRIVER™ X3 Compact with separate output | |

*Coming soon

Table provides representative products. For complete portfolio please visit www.infineon.com

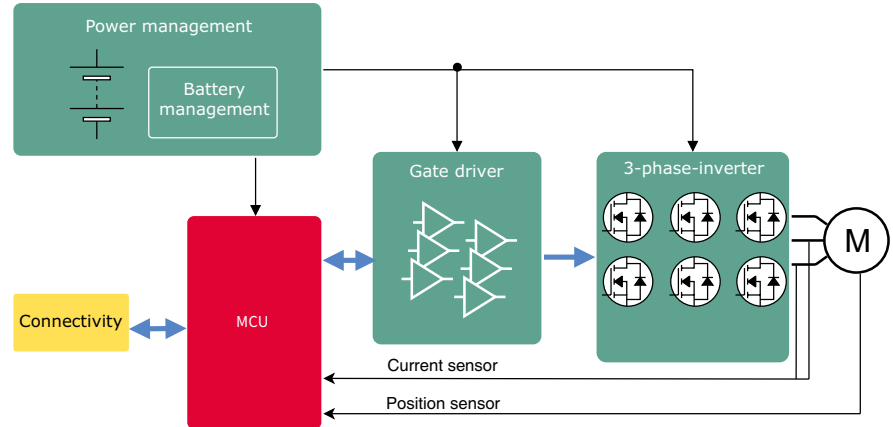


Light electric vehicles (LEV)

LEV applications

Low power LEV (< 3 kW)

- > E-scooters (standing, self-balancing and folding types)
- > E-bikes
- > E-rickshaws, other e-three-wheelers
- > High power LEV (>3 kW)
- > E-forklifts
- > Light utility vehicles (LUVs)
- > Low speed electric vehicles (LSEVs / micro EVs)
- > E-scooters and E-motorbikes
- > E-golf carts



Recommended gate drivers

| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules |
|---|------------------------|-------------------|-------------------------|--|---|---|---|
| Motor Inverter <3kW (<48 V battery) | 60 V | Three-phase | 6EDL7141 NEW | 1.5/1.5 A | VQFN-48 7x7mm | Fully programmable, integrated power supplies and current sense amplifiers, slew rate control, protection features | 60 V StrongIRFET™ (IRF57530, IRF60SC241) 60 V OptiMOS™ 5 MOSFET (IPTG007N06NM5, IPB010N06N, IST011N06NM5, BSC012N06NS) 75 V StrongIRFET™ (IRFB7730, BSC036NE7NS3G) |
| | 160 V | High and low-side | 2ED2732S01G* | 1/2 A | DFN10 3x3mm | SOI, integrated BSD, UVLO, separate VSS/COM, thermal pad | |
| | 160 V | Three-phase | 6ED2742S01Q* | 1/2 A | QFN32 5x5mm | SOI, integrated BSD, PMU, 100% DC w. trickle charge pump, programmable OCP w. select gain, CS amp, RFE | |
| | 200 V | | 6EDL04N02PR | 0.165/0.375 A | TSSOP-28 | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | |
| | 200 V | High and low-side | IRS2005S | 0.29/0.6 A | DSO-8 | UVLO, MTON/OFF,max=50ns, 3.3V-15V input | |
| | 200 V | | IRS2011S | 1/1 A | DSO-8 | UVLO, MTON/OFF,max=20ns, 3.3V-5V input | |
| | 600 V | Three-phase | 2EDL05N06PF | 0.36/0.7 A | DSO-8 | SOI, UVLO, MTON/OFF,max=60ns, 3.3-15V input, BSD | |
| | 600 V | | 6EDL04N06PT | 0.165/0.375 A | DSO-28 300 mil | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | |
| 600 V | Single high-side | IRS21271S | 0.2/0.42 A | DSO-8 | UVLO, OCP, 3-15V input, fault reporting | | |
| Motor Inverter 3-10kW (48-96 V Battery) | 160 V | High and low-side | 2ED2738S01G* | 4/8 A | DFN10 3x3mm | SOI, integrated BSD, UVLO, separate VSS/COM, thermal pad | 80 V OptiMOS™ 5 MOSFET (IPT010N08NM5, IPTG011N08NM5, IPB015N08NS, BSC019N08NS5, IST019N-08NM5) 100 V IR MOSFET™ (IRLS4030, IRF100B201) 100 V StrongIRFET™ 2 (IPP026N10NF2S, IPA030N10NF2S) 100 V OptiMOS™ 5 MOSFET (IPTG014N10NM5, IPTG018N10NM5, IPTC015N10NM5, IPB017N10NS5, IST026N10NM5, BSC027N10NS5) 100 V OptiMOS™ 6 MOSFET (ISC022N10NM6) |
| | 200 V | 1-ch non-isolated | 1EDN8550B | 4/8 A | SOT23-6 | True differential inputs, with ± 80 V static & ± 150V dynamic ground-shift robustness, separate SRC/SNK output pins | |
| | 500 V | High and low-side | IRS2110S | 2/2 A | DSO-16W | MTON/OFF,max=10ns, Separate power and logic ground, SD pin, 3-20V input | |
| | 600 V | | 2EDL23N06PJ | 2.3/2.8 A | DSO-14 | 3.3 V-15 V input, -100 V transient , PGND, SOI, integrated BSD, OCP, UVLO, Enable, fault reporting | |
| | 600 V | | IRS21867S | 4/4 A | DSO-8 | 3-5 V input, MTON/OFF,max=35ns, UVLO, neg. transient robust | |
| | 650 V | | 2ED2181S06F NEW | 2.5/2.5 A | DSO-8 | SOI, integrated BSD, 3.3-15V input, MTON/OFF, max=35ns, -100V transient | |
| 650 V | 2ED2181S06J NEW | 2.5/2.5 A | DSO-14 | SOI, integrated BSD, 3.3-15V input, MTON/OFF, max=35ns, -100V transient, separate logic and power ground | | | |
| Motor Inverter >10 kW (>96 V Battery) | 1200 V | 1-ch isolated | 1EDB8275F NEW | 5/9 A | DSO-8 | 3kV basic isolation w. CT technology, (UL1577), separate SRC/SNK output, UVLO (4 types), CMTI > 300 V/ns | 150 V IR MOSFET™ MOSFET (IRFB4115) 150 V OptiMOS™ 5 MOSFET (IPB044N15NS5, IPT039N15NS) 200 V StrongIRFET™ (IRF200S234) 200 V OptiMOS™ 3 MOSFET (IPB107N20N3G, IPTG111N20NM3FD) |
| | 1200 V | | 1EDI60N12AF | 10/9.4 A | DSO-8 | Short Circuit Clamping, Active Shut-Down, UVLO, separate SRC/SNK output , 3.3-15V input | |
| | 1200 V | 2-ch isolated | 2EDB8259F* | 5/9 A | DSO-16 | 3kV basic isolation w. CT technology (UL1577), dead-time control (DTC) and STP, UVLO (4 types), CMTI > 150 V/ns | |
| | 1200 V | | 2EDB8259Y* | 5/9 A | DSO-14 | | |
| | 2300 V | 1-ch isolated | 1ED3121MC12H NEW | 5.5/5.5 A | DSO-8 300mil | EiceDRIVER™ X3 Compact with separate output | |

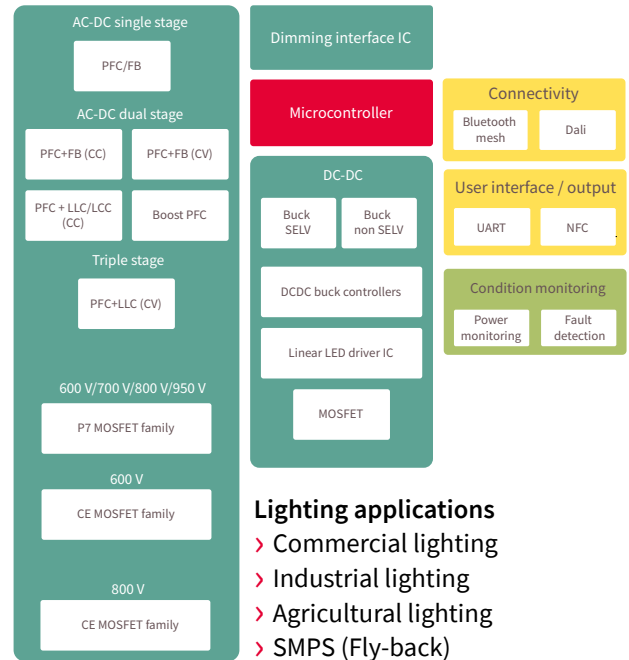
*Coming soon

Table provides representative products. For complete portfolio please visit www.infineon.com



Lighting

LED applications are often powered by an AC-DC supply. Some of those are loosely regulated, or not regulated at all. Since the LED drivers' purpose is to control the current flow through the LED, this results in the need for a LED driver to provide constant current or constant voltage to the LEDs. Regardless of the many functions such as communication required by LED lighting, the development of the power supply block is, where several functions are concentrated, a key point. LED lighting power supply units and LED driver design are required to offer maximum efficiency, power factor (PFC), total harmonic distortion (THD), and are subject to specific requirements regarding safety (EN 61347-1/-2-13), EMC (EN 55015), harmonic current emissions, and further specific requirements of standards such as UL and IEC.



Lighting applications

- Commercial lighting
- Industrial lighting
- Agricultural lighting
- SMPS (Fly-back)
- SMPS (Half-bridge)
- SMPS (High-side buck)
- SMPS (Sync buck)

Recommended gate drivers

| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules |
|------------------|-------------------|-------------------|-------------------------|----------------------------|---------------------|---|--|
| PFC | 22 V | 1-ch non-isolated | 1EDN8511B | 4/8 A | SOT23-6 | Separate output, 19 ns propagation delay | 600 V CoolMOS™ P7 MOSFET (IPW60R180P7, IPD60R180P7, IPN60R360P7S, IPP60R180P7) 700 V CoolMOS™ P7 MOSFET (IPN70R360P7S, IPD70R360P7S, IPA70R360P7S, IPAN70R360P7S) 800 V CoolMOS™ P7 MOSFET (IPN80R600P7, IPD80R280P7, IPP80R280P7, IPA80R280P7) 950 V CoolMOS™ P7 MOSFET (IPN95R1K2P7, IPD95R450P7, IPA95R450P7, IPU95R450P7) |
| | 25 V | | 1ED44171N01B* | 2.6/2.6 A | SOT23-5 | Enable, programmable fault clear time, UVLO | |
| | 25 V | | 1ED44173N01B NEW | 2.6/2.6 A | SOT23-6 | Fast, accurate (±5%) OCP, fault reporting, Enable, negative current sensing | |
| | 25 V | | 1ED44176N01F | 0.8/1.75 A | DSO-8 | Fast, accurate (±5%) OCP, fault reporting, Enable, positive current sensing, separate VSS / COM | |
| | 25 V | 2-ch non-isolated | IRS44273L | 1.5/1.5 A | SOT23-5 | Additional OUT pin | |
| | 200 V | | 1EDN7550B | 4/8 A | SOT23-6 | True differential inputs, with ± 80 V static ground-shift robustness | |
| | 22 V | | 2EDN8534F NEW | 5/5 A | DSO-8 | 2 ns delay matching, 19 ns propagation delay | |
| | 24 V | | 2ED24427N01F NEW | 10/10 A | DSO-8 with powerpad | Enable, Low R _{DS(on)} outputs, thermal pad | |
| 25 V | IRS4427S | 2.3/3.3 A | DSO-8 | Matched propagation delay | | | |
| HS buck (<100 W) | 100 V | Single high-side | IRS10752L | 0.16/0.24 A | SOT23-6 | UVLO on low-side and high-side | 600 V CoolMOS™ P7 MOSFET (IPW60R180P7, IPD60R180P7, IPN60R360P7S, IPP60R180P7) |
| | 200 V | 1-ch non-isolated | 1EDN7550B | 4/8 A | SOT23-6 | True differential inputs, with ± 80 V static ground-shift robustness | |
| | 200 V | Single high-side | IRS20752L IRS25752L | 0.16/0.24 A 0.16/0.24 A | SOT23-6 SOT23-6 | UVLO on low-side and high-side | |
| Fly-back | 22 V | 1-ch non-isolated | 1EDN7511B | 4/8 A | SOT23-6 | 2 ns delay matching, 19 ns propagation delay | 800 V CoolMOS™ P7 MOSFET (IPN80R600P7, IPA80R280P7,) 950 V CoolMOS™ P7 MOSFET (IPN95R1K2P7, IPD95R450P7) |
| | 200 V | | 1EDN7550B | 4/8 A | SOT23-6 | True differential inputs, with ± 80 V static ground-shift robustness | |
| HB(LLC) (<500 W) | 600 V | Half-bridge | IRS2153DS | 0.18/0.26 A | DSO-8 | Self-oscillating, Integrated bootstrap FET, Shutdown | 600 V CoolMOS™ P7 MOSFET (IPW60R180P7, IPD60R180P7, IPA60R360P7S, IPP60R180P7) |
| | 650 V | High and low-side | 2ED2101S06F NEW | 0.29/0.7 A | DSO-8 | Infineon SOL, integrated BSD, fast level-shift, HIN, LIN | |
| | 650 V | Half-bridge | 2ED2304S06F | 0.36/0.7 A | DSO-8 | Infineon SOL, integrated BSD | |
| HB(LLC) (>500 W) | 1200 V | 1-ch isolated | 1EDI60N12AF | 10/9.4 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | 600 V CoolMOS™ P7 MOSFET (IPW60R099P7, IPD60R180P7, IPA60R099P7, IPP60R099P7) |
| | 1200 V | Half-bridge | 2ED020I12-FI | 1.5/2.5 A | DSO-18 | EiceDRIVER™ Enhanced 2ED-FI with OPAMP and comparator (isolation only on the high side) | |
| | 1200 V | 2-ch isolated | 2EDB8259F* | 5/9 A | DSO-16 | EiceDRIVER™ 2EDi with basic isolation (3kV UL1577) | |
| | 1200 V | | 2EDB8259Y* | 5/9 A | DSO-14 | EiceDRIVER™ 2EDi with basic isolation (3kV UL1577) | |
| Sync buck | 200 V | High and low-side | IR2010S | 3/3 A | DSO-8 | Shutdown | 600 V CoolMOS™ P7 MOSFET (IPW60R180P7, IPD60R180P7, IPN60R360P7S, IPP60R180P7) 650 V CoolSiC™ SiC MOSFET (IMZA65R027M1H, IMZA65R107M1H) |
| | 600 V | Half-bridge | 2EDL05N06PF | 0.36/0.7 A | DSO-8 | Infineon SOL, integrated BSD | |
| | 650 V | | 2ED2304S06F | 0.36/0.7 A | DSO-8 | Infineon SOL, integrated BSD | |
| | 1200 V | 1-ch isolated | 1EDB9275F NEW | 5.4/9.8 A | DSO-8 | EiceDRIVER™ 1EDi with basic isolation (3kV UL 1577) | |
| | 1200 V | 2-ch isolated | 2EDB8259F* | 5/9 A | DSO-16 | EiceDRIVER™ 2EDi with basic isolation (3kV UL1577) | |
| | 1200 V | | 2EDB8259Y* | 5/9 A | DSO-14 | EiceDRIVER™ 2EDi with basic isolation (3kV UL1577) | |

*Coming soon

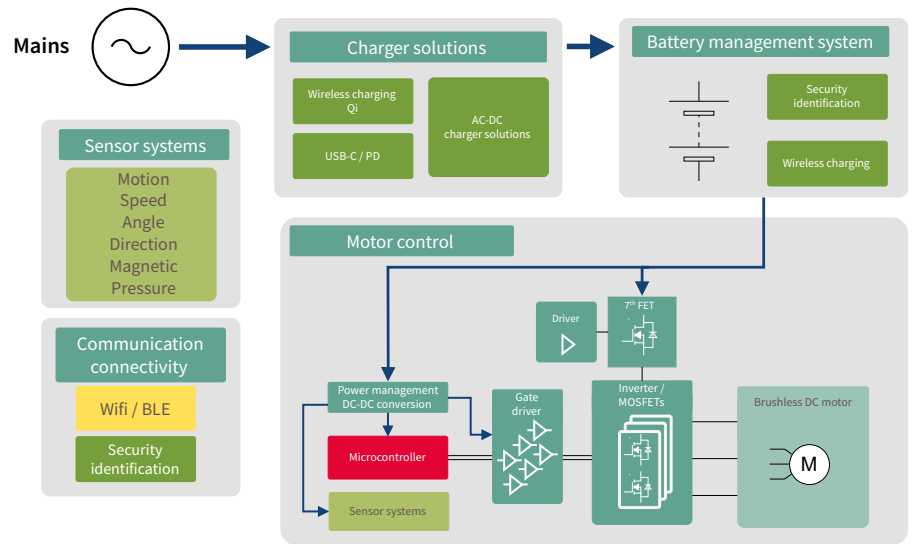
Table provides representative products. For complete portfolio please visit www.infineon.com



Low voltage drives & battery powered applications

Battery-powered applications

- > Drones / multicopters (<2 kW)
- > Lawn mower (<1 kW)
- > Cordless power tools (<3 kW)
- > Outdoor power equipment (<5 kW)
- > Service robotics (<1 kW)
- > Cordless vacuum cleaners (<1 kW)
- > Toys (RC cars) (<1 kW)
- > Fast battery chargers



Millions of households worldwide rely on power tools to complete daily tasks or creative projects around the home. Consumers want robust, reliable and portable power tools that are easy-to-use with low price and long battery life as key selection options. Battery powered tools must also be equipped with diagnostic and safety features to ensure confidence with high quality.

Infineon's broad portfolio offers best-fit, innovative solutions for all power tools applications. We help you meet each consumer need and reduce your overall costs.

Recommended gate drivers

| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules |
|----------------------|------------------------|-------------------|-------------------------|--------------------------|--|---|---|
| Motor Inverter/ BLDC | 60 V | Three-phase | 6EDL7141 NEW | 1.5/1.5 A | VQFN-48 7x7mm | Fully programmable, integrated power supplies and current sense amplifiers | StrongIRFET™ MOSFET (IRF7480M, IRF6726M) StrongIRFET™ 2 MOSFET (IPP016N08NF2S, IPP026N10NF2S) 30 V OptiMOS™ 5 MOSFET (BSZ0500NSI, BSC009NE2LS5) 40 V OptiMOS™ 5 MOSFET (BSC019N04LS, BSZ028N04LS) 60 V OptiMOS™ 5 MOSFET (BSC012N06NS, IPT007N06N) 80 V OptiMOS™ 5 MOSFET (BSC021N08NS5, IPT010N08NM5) 100 V OptiMOS™ 5 MOSFET (BSC027N10NS5, IPT015N10NS5) 150 V OptiMOS™ 5 MOSFET (BSC074N15NS5) |
| | 160 V | High and low-side | 2ED2732S01G* | 1/2 A | DFN10 3x3mm | Infineon SOI, integrated BSD, separate VSS/COM, thermal pad | |
| | 160 V | Three-phase | 6ED2742S01Q* | 1/2 A | QFN32 5x5mm | Infineon SOI, integrated BSD, PMU, trickle charge pumps, programmable OCP, and current sense amp, RFE | |
| | 160 V | Half-bridge | 2ED2748S01G* | 4/8 A | DFN10 3x3mm | Infineon SOI, integrated BSD, separate VSS/COM, thermal pad | |
| | 200 V | 1-ch non-isolated | 1EDN7550B | 4/8 A | SOT23-6 | True differential inputs, with ± 80 V static ground-shift robustness | |
| | 200 V | Three-phase | 6ED003L02-F2 | 0.165/0.375 A | TSSOP-28 | Infineon SOI, OCP, Enable, fault reporting | |
| | 200 V | | 6EDL04N02PR | 0.165/0.375 A | TSSOP-28 | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | |
| | 200 V | High and low-side | IRS2005S | 0.29/0.6 A | DSO-8 | VCC & VBS UVLO, matched propagation delay | |
| | 200 V | Half-Bridge | IRS2007S | 0.29/0.6 A | DSO-8 | VCC & VBS UVLO, matched propagation delay | |
| | 200 V | High and low-side | IRS2011S | 1/1 A | DSO-8 | 60 ns prop delay, VCC & VBS UVLO | |
| | 600 V | Half-bridge | 2EDL05N06PF | 0.36/0.7 A | DSO-8 | Infineon SOI, integrated BSD | |
| | 600 V | | 2EDL23N06PJ | 2.3/2.8 A | DSO-14 | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | |
| | 600 V | Three-phase | 6EDL04N06PT | 0.165/0.375 A | DSO-28 300 mil | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | |
| | 600 V | High and low-side | IRS21867S | 4/4 A | DSO-8 | High current for high power and fast switching frequency with low UVLO (6 V/5.5 V) | |
| Battery Charger | 22 V | 1-ch non-isolated | 1EDN8511B | 4/8 A | SOT23-6 | Separate output, 19 ns propagation delay | CoolMOS™ MOSFET (IPW60R070CFD7, IPAN60R125PFD7S) CoolMOS™ MOSFET P7 (IPA80R900P7, IPA60R180P7S) 650 V CoolSiC™ MOSFET (IMW65R048M1H, IMZA65R072M1H) CoolSiC™ Diode (IDH10G65C6, IDW20G65C5B) OptiMOS™ 5 (IPA083N10N5, IPA029N06N) |
| | 22 V | 2-ch non-isolated | 2EDN8534F NEW | 5/5 A | DSO-8 | 2 ns delay matching, 19 ns propagation delay | |
| | 25 V | 1-ch non-isolated | 1ED44171N01B* | 2.6/2.6 A | SOT23-5 | Enable, programmable fault clear time, UVLO | |
| | 25 V | | 1ED44175N01B NEW | 2.6/2.6 A | SOT23-6 | Fast, accurate (±5%) OCP, fault reporting, Enable, negative current sensing | |
| | 25 V | | IRS44273L | 1.5/1.5 A | SOT23-5 | Additional OUT pin | |
| | 600 V | High and low-side | IRS2186S | 4/4 A | DSO-8 | High current for high power and fast switching frequency | |
| | 650 V | | 2ED2106S06F NEW | 0.29/0.7 A | DSO-8 | Infineon SOI, integrated BSD, HIN, LIN | |
| | 650 V | | 2ED2110S06M NEW | 2.5/2.5 A | DSO-16 300 mil | Infineon SOI, integrated BSD, fast level-shift, Shut-down, separate VSS/COM | |
| 650 V | 2ED2181S06F NEW | | 2.5/2.5 A | DSO-8 | Infineon SOI, integrated BSD, HIN, LIN | | |

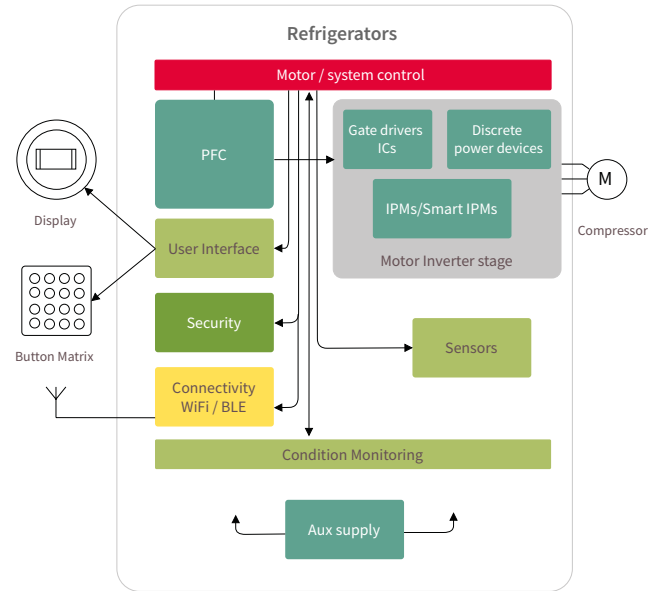
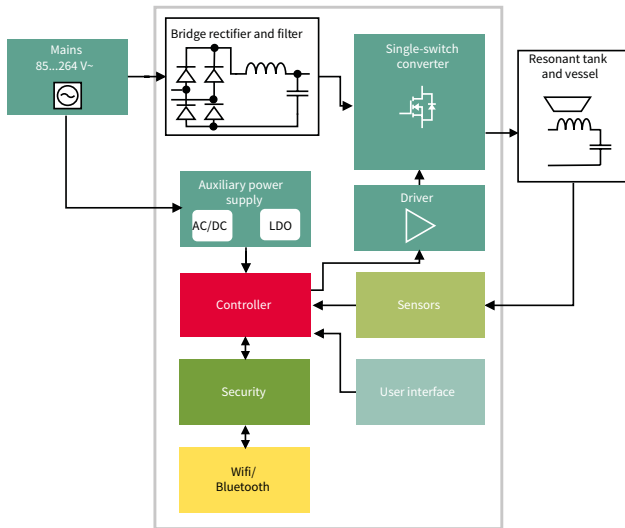
*Coming soon

Table provides representative products. For complete portfolio please visit www.infineon.com



Major and small home appliances

Microwave ovens



Small home appliance applications

- > Vacuum cleaner (SR motor, BLDC, PFC)
- > Hair dryers
- > Induction heating (half bridge-topology)
- > Microwave ovens
- > Fans (hood fans, ceiling fans, freezer fans)

Major home appliance applications

- > Refrigerators (compressors)
- > Air-conditioners (PFC, compressors, fans, SMPS)
- > Washing machines (drum motors, drain pumps)
- > Dryers (drum drives, compressors, fan drives)
- > Dish washers (drain pumps, spray/main circulator pumps)



Recommended gate drivers

| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules |
|--|-------------------|-------------------|------------------|--------------------------|---------------------|---|---|
| Single-end boost PFC | 22 V | 1-ch non-isolated | 1EDN8511B | 4/8 A | SOT23-6 | Separate output, 19 ns propagation delay | TRENCHSTOP™ (IKWH30N65WR6, IKW40N65ET7) Rapid Diode (IDW60C65D1, IDW40E65D1E) CoolMOS™ MOSFET (IPP60R120P7, IPW60R099P7) CoolSiC™ Diode (IDW30G65C5, IDH20G65C6) CIPOS™ Mini (IFCM15S60GD, IFCM10P60GD) |
| | 25 V | | 1ED44171N01B* | 2.6/2.6 A | SOT23-5 | Enable, programmable fault clear time, UVLO | |
| | 25 V | | 1ED44173N01B NEW | 2.6/2.6 A | SOT23-6 | Fast, accurate (±5%) OCP, fault reporting, Enable, negative current sensing | |
| | 25 V | | 1ED44176N01F | 0.8/1.75 A | DSO-8 | Fast, accurate (±5%) OCP, fault reporting, Enable, positive current sensing, separate VSS / COM | |
| | 25 V | | IRS44273L | 1.5/1.5 A | SOT23-5 | Additional OUT pin | |
| Interleaved boost PFC | 22 V | 2-ch non-isolated | 2EDN8534F NEW | 5/5 A | DSO-8 | 2 ns delay matching, 19 ns propagation delay | CoolSiC™ Diode (IDW30G65C5, IDH20G65C6) CIPOS™ Mini (IFCM15S60GD, IFCM10P60GD) |
| | 24 V | | 2ED24427N01F NEW | 10/10 A | DSO-8 with powerpad | Enable, Low R _{DS(on)} outputs, thermal pad | |
| | 25 V | | IRS4427S | 2.3/3.3 A | DSO-8 | Matched propagation delay | |
| Totem pole PFC | 600 V | Half-bridge | 2EDL23N06PJ | 2.3/2.8 A | DSO-14 | Infineon SOL, integrated BSD, OCP, Enable, fault reporting | 600 V CoolMOS™ CFD7 MOSFET (IPP60R070CFD7, IPP60R280CFD7, IPT60R035CFD7, IPT60R145CFD7) |
| | 650 V | High and low-side | 2ED2101S06F NEW | 0.29/0.7 A | DSO-8 | Infineon SOL, integrated BSD, fast level-shift, HIN, LIN | |
| | 650 V | | 2ED2110S06M NEW | 2.5/2.5 A | DSO-16 300 mil | Infineon SOL, integrated BSD, fast level-shift, Shutdown, separate VSS/COM | |
| | 650 V | | 2ED2181S06F NEW | 2.5/2.5 A | DSO-8 | Infineon SOL, integrated BSD, HIN, LIN | |
| Motor Inverter/ Compressor/ Drive/Fans | 600 V | Half-bridge | 2EDL05I06PF | 0.36/0.7 A | DSO-8 | Infineon SOL, integrated BSD | TRENCHSTOP™ IGBT+Diode (IKD04N60RC2, IKD06N60RC2) TRENCHSTOP™ IGBT6 (IKA08N65ET6, IKA15N65ET6) CoolMOS™ MOSFET PFD7 (IPD60R1K0PFD7S, IPN60R600PFD7S) |
| | 600 V | | 2EDL23I06PJ | 2.3/2.8 A | DSO-14 | Infineon SOL, integrated BSD, OCP, Enable, fault reporting | |
| | 600 V | Three-phase | 6EDL04I06PT | 0.165/0.375 A | DSO-28 300 mil | Infineon SOL, integrated BSD, OCP, Enable, fault reporting | |
| | 600 V | | IRS2334M | 0.2/0.35 A | VQFN-28 | Space saving QFN package, matched propagation delay | |
| | 600 V | Half-bridge | IRS2890DS | 0.22/0.48 A | DSO-14 | Integrated bootstrap FET, OCP, fault reporting | |
| | 650 V | High and low-side | 2ED2106S06F NEW | 0.29/0.7 A | DSO-8 | Infineon SOL, integrated BSD, HIN, LIN | |
| | 650 V | Half-bridge | 2ED2108S06F NEW | 0.29/0.7 A | DSO-8 | Infineon SOL, integrated BSD, HIN, /LIN | |
| | 650 V | High and low-side | 2ED21814S06J NEW | 2.5/2.5 A | DSO-14 | Infineon SOL, integrated BSD, separate VSS/COM | |
| | 650 V | Half-Bridge | 2ED2182S06F NEW | 2.5/2.5 A | DSO-8 | Infineon SOL, integrated BSD, HIN, LIN | |
| | 650 V | | 2ED2304S06F | 0.36/0.7 A | DSO-8 | Infineon SOL, integrated BSD | |
| Non-Motor Inverter | 25 V | 1-ch non-isolated | 1ED44173N01B NEW | 2.6/2.6 A | SOT23-6 | Fast, accurate (±5%) OCP, fault reporting, Enable, negative current sensing | TRENCHSTOP™ IGBT Reverse Conducting (IHW20N135R5, IHW30N65R6) |
| | 650 V | Half-bridge | 2ED21824S06J NEW | 2.5/2.5 A | DSO-14 | Infineon SOL, integrated BSD, separate VSS/COM | |
| | 1200 V | 1-ch isolated | 1EDI20I12AF | 4/3.5 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | |
| SMPS (100 W) | 25 V | 2-ch non-isolated | IRS4427S | 2.3/3.3 A | DSO-8 | Matched propagation delay | CoolMOS™ MOSFET P7 (IPN80R4K5P7) |
| | 600 V | High and low-side | IRS2106S | 0.29/0.6 A | DSO-8 | Independent UVLOs | |
| | 600 V | Half-bridge | IRS2153DS | 0.18/0.26 A | DSO-8 | Self-oscillating, Integrated bootstrap FET, Shutdown | |
| | 650 V | High and low-side | 2ED2101S06F NEW | 0.29/0.7 A | DSO-8 | Infineon SOL, integrated BSD, fast level-shift, HIN, LIN | |
| | 650 V | Half-bridge | 2ED2304S06F | 0.36/0.7 A | DSO-8 | Infineon SOL, integrated BSD | |

*Coming soon

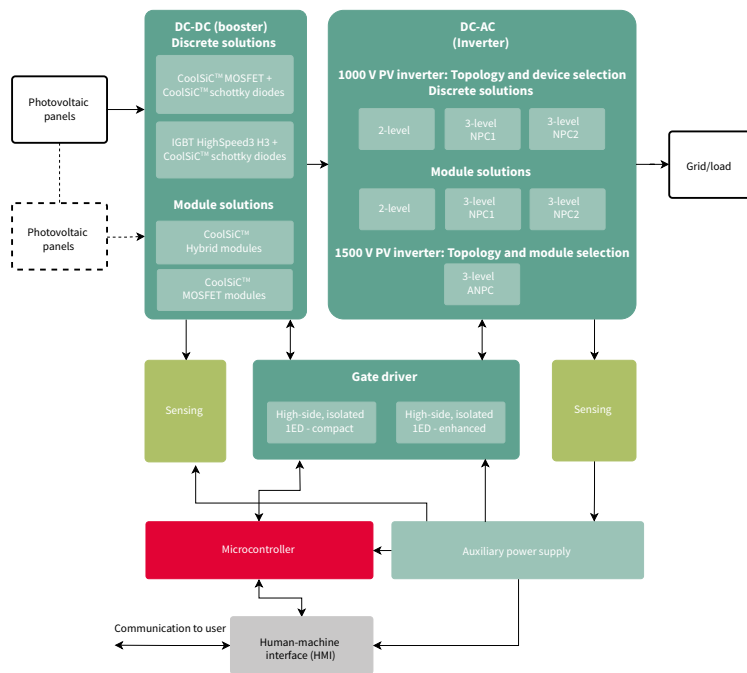
Table provides representative products. For complete portfolio please visit www.infineon.com



Solar

PV modules supply power in the form of direct current (DC). This has to be converted to alternating current (AC) before it can be fed into the grid and be either consumed locally or transmitted to the point of use. Solar inverters convert DC to AC.

Our portfolio comprises a broad selection of inverters ranging from just a few watts and kilowatts for residential use to several megawatts for the commercial and utility-scale markets. It includes best-in-class discrete OptiMOS™, CoolMOS™ and CoolSiC™ MOSFETs and IGBTs as well as highly integrated 3-level Easy 1B/2B modules, functionally integrated EiceDRIVER™ gate driver ICs and XMC™ controllers. Backed by our end-to-end application expertise, we offer the best chip combinations to achieve leading power density levels and best-in-class efficiency.



Solar energy applications

- > Central inverter
- > 3-phase string inverter
- > 1-phase string inverter
- > Micro inverter
- > Power optimizer

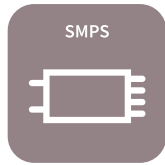


Recommended gate drivers

| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules |
|-------------------------|-------------------|----------------------|-------------------------|--------------------------|--|---|--|
| 3-phase string inverter | 1200 V | 2-ch isolated | 2ED020112-F2 | 2/2 A | DSO-36 | EiceDRIVER™ Enhanced 2ED-F2 with DESAT and Miller clamp | CoolSiC™ SiC MOSFET (IMW120R030M1, IMW120R090M1H) |
| | 1200 V | | 2EDF6258X* | 4/8 A | DSO-14 | EiceDRIVER™ 2EDi with functional isolation | CoolSiC™ SiC Diode (IDW20G1205B, IDW40G120C5B) |
| | 1200 V | | 2EDF9275F NEW | 4/8 A | DSO-16 | EiceDRIVER™ 2EDi with Functional isolation, Disable | TRENCHSTOP™ IGBT (IKW40N120H3, IKW40N65ES5, IKW40N65H5) |
| | 1200 V | | 2EDR8259H* | 4/8 A | DSO-16 300 mil | EiceDRIVER™ 2EDi with reinforced isolation | CoolSiC™ SiC Hybrid booster module (DF80R12W2H3F_B11, DF160R12W2H3F_B11) |
| | 2300 V | 1-ch isolated | 1ED3124MC12H NEW | 13.5/14 A | DSO-8 300 mil | EiceDRIVER™ X3 Compact with separate output | CoolSiC™ SiC MOSFET booster module (DF11MR12W1M1_B11, DF23MR12W1M1_B11) |
| | 2300 V | | 1ED3241MC12H NEW | 18/18 A | DSO-8 300 mil | EiceDRIVER™ 2L-SRC Compact with 2-level slew rate control | CoolSiC™ SiC MOSFET 2-Level module (FF8MR12W2M1_B11, FS45MR12W1M1_B11) |
| | 2300 V | | 1ED3321MC12N NEW | 6/8.5 A | DSO-16 | EiceDRIVER™ Enhanced 1ED-F3 with DESAT, soft-off and Miller clamp | EasyPACK™ IGBT module (FS3L30R07W2H3F_B11, F3L200R12W2H3_B11) |
| | 2300 V | | 1ED3491MC12M NEW | 7.5/11 A | DSO-16 fine pitch | EiceDRIVER™ Enhanced X3 Analog with programmable DESAT, soft-off and Miller clamp | |
| 1-phase string inverter | 22 V | 2-ch non-isolated | 2EDN8534F NEW | 5/5 A | DSO-8 | 2 ns delay matching, 19 ns propagation delay | |
| | 24 V | | 2ED24427N01F NEW | 10/10 A | DSO-8 with powerpad | Enable, Low R _{DS(on)} outputs, thermal pad | |
| | 25 V | 1-ch non-isolated | 1ED44175N01B NEW | 2.6/2.6 A | SOT23-6 | Fast, accurate (±5%) OCP, fault reporting, Enable, negative current sensing | |
| | 25 V | 2-ch non-isolated | IRS4427S | 2.3/3.3 A | DSO-8 | Matched propagation delay | |
| | 25 V | 1-ch non-isolated | IRS44273L | 1.5/1.5 A | SOT23-5 | Additional OUT pin | OptiMOS™ MOSFET (BSC093N15NS5, IPB044N15N5, IPP051N15N5) |
| | 650 V | High and low-side | 2ED2181S06F NEW | 2.5/2.5 A | DSO-8 | Infineon SOI, integrated BSD, HIN, LIN | CoolMOS™ MOSFET (IPZA65R029CFD7, IPZA60R024P7) |
| | 650 V | Half-bridge | 2ED21824S06J NEW | 2.5/2.5 A | DSO-14 | Infineon SOI, integrated BSD, HIN, LIN, separate VSS/COM | CoolSiC™ SiC MOSFET (IMZA65R027M1H, IMBG65R022M1H) |
| | 1200 V | 1-ch isolated | 1EDB9275F NEW | 5.4/9.8 A | DSO-8 | EiceDRIVER™ 1EDi with basic isolation (3kV UL 1577) | CoolSiC™ SiC Diode (IDW40G65C5, IDW20G65C5) |
| | 1200 V | | 1EDI60N12AF | 10/9.4 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | TRENCHSTOP™ IGBT (IKW40N65ES5, IKZ50N65EH5, IKZ75N65EL5) |
| | 1200 V | 2-ch isolated | 2EDB9259Y* | 4/8 A | DSO-16 | EiceDRIVER™ 2EDi with basic isolation (3kV UL1577) | |
| | 1200 V | | 2EDB7259Y* | 5/9 A | DSO-16 | 3kV basic isolation w. CT technology (UL1577), dead-time control (DTC) and STP, UVLO (4 types), CMTI > 150 V/ns | |
| | 1200 V | High and low-side | IR2213S | 2/2.5 A | DSO-16 300 mil | Shutdown and Separate power supply | |
| | 1200 V | Half-bridge | IR2214SS | 2/3 A | SSOP-24 | DESAT, soft-off, two stage turn on, fault reporting, Synchronization | |
| | 2300 V | 1-ch isolated | 1ED3124MC12H NEW | 13.5/14 A | DSO-8 300 mil | EiceDRIVER™ X3 Compact with separate output | |
| MicroInverter | 160 V | High and low-side | 2ED2732S01G* | 1/2 A | DFN10 3x3mm | Infineon SOI, integrated BSD, separate VSS/COM, thermal pad | |
| | 160 V | Half-bridge | 2ED2748S01G* | 4/8 A | DFN10 3x3mm | Infineon SOI, integrated BSD, separate VSS/COM, thermal pad | |
| | 200 V | High and low-side | IRS2011S | 1/1 A | DSO-8 | 60 ns prop delay, VCC & VBS UVLO | OptiMOS™ MOSFET (BSC093N15NS5, BSC028N06NS, BSC027N10NS5) |
| | 600 V | Half-Bridge | 2EDL05N06PJ | 0.36/0.7 A | DSO-14 | Infineon SOI, integrated BSD | CoolMOS™ MOSFET (IPT60R102G7, IPB65R125CFD7, IPW60R145CFD7) |
| | 650 V | | 2ED21824S06J NEW | 2.5/2.5 A | DSO-14 | Infineon SOI, integrated BSD, HIN, LIN, separate VSS/COM | |
| | 650 V | | 2ED2304S06F | 0.36/0.7 A | DSO-8 | Infineon SOI, integrated BSD | |
| 1200 V | 2-ch isolated | 2EDS7165H NEW | 1/2 A | DSO-16 300 mil | EiceDRIVER™ 2EDi with reinforced isolation | | |
| Power Optimizer | 200 V | 1-ch non-isolated | 1EDN8550B | 4/8 A | SOT23-6 | True differential inputs, with ± 80 V static ground-shift robustness | |
| | 200 V | High and low-side | IRS2011S | 1/1 A | DSO-8 | 60 ns prop delay, VCC & VBS UVLO | OptiMOS™ MOSFET (BSC093N15NS5, BSC012N06NS, BSC027N10NS5) |
| | 250 V | | 2EDF5215F* | 5/9 A | DSO-8 | 7 V UVLO, functional isolation and 37 ns propagation delay | |

*Coming soon

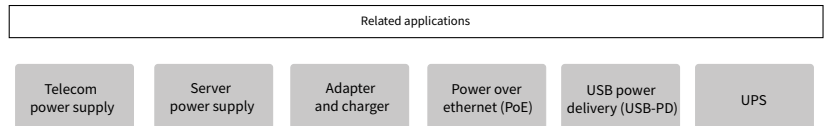
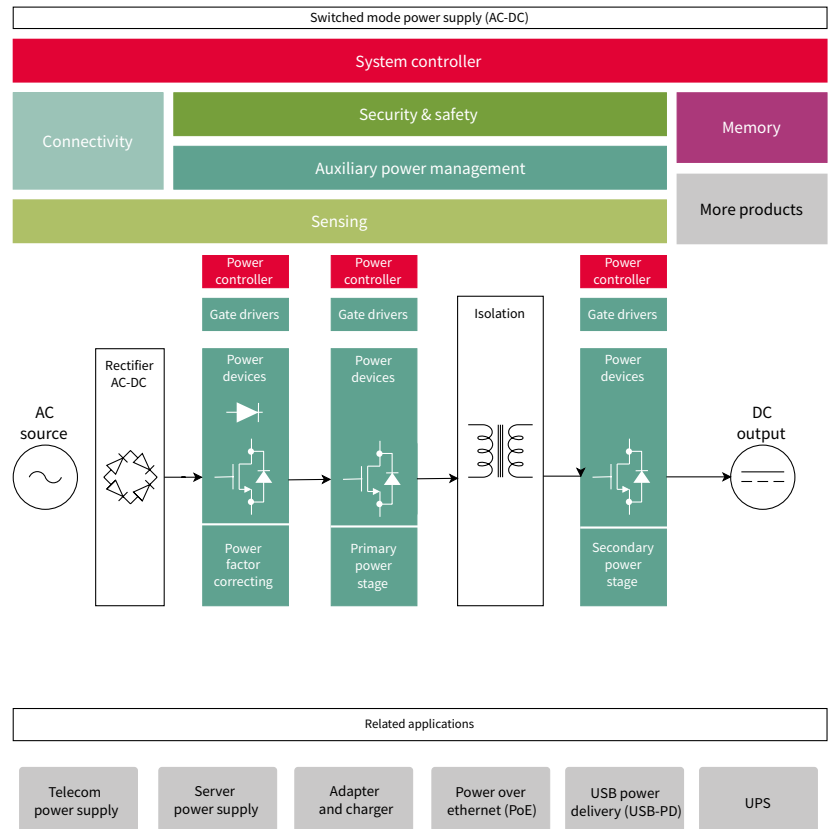
Table provides representative products. For complete portfolio please visit www.infineon.com



Telecom, Server and Industrial SMPS

In addition to Infineon Technologies EiceDRIVER™ gate driver ICs, Infineon Technology provides ac-dc controllers, dc-dc converters, MOSFETs, Intelligent Power Modules, lighting ICs, transistors (IGBTs), diodes and rectifier, regulators, isolation interfaces, voltage, and current management for internal and external power supply applications. Our design solutions increase active-mode efficiency, decrease standby-mode power consumption, and provide power factor correction, at every stage of your layout from line to load.

With the introduction of gallium nitride, Infineon is currently the only company in the market offering a full-spectrum portfolio of all power technologies – silicon (Si), silicon carbide (SiC) and GaN. We deliver solutions from microamps to megawatts as discrete or integrated solutions—depending on your preference.

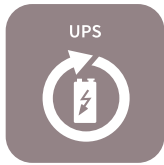


Recommended gate drivers

| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules |
|----------------------|-------------------|-------------------|-------------------------|--------------------------|---------------------|---|---|
| Single-end boost PFC | 22 V | 1-ch non-isolated | 1EDN7511B | 4/8 A | SOT23-6 | Separate output, 19 ns propagation delay | 600 V CoolMOS™ C7 MOSFET (IPL60R065C7, IPZ60R017C7, IPZ60R099C7) |
| | 25 V | | 1ED44175N01B NEW | 2.6/2.6 A | SOT23-6 | Fast, accurate (±5%) OCP, fault reporting, Enable, negative current sensing | 600 V CoolMOS™ G7 MOSFET (IPT60R028G7, IPDD60R050G7, IPDD60R190G7) |
| | 25 V | | IRS44273L | 1.5/1.5 A | SOT23-5 | Additional OUT pin | 600 V CoolMOS™ P7 MOSFET (IPZA60R024P7, IPZA60R180P7, IPL60R365P7) |
| | 200 V | | 1EDN8550B | 4/8 A | SOT23-6 | True differential inputs, with ± 80 V static ground-shift robustness | |
| Totem pole PFC | 600 V | Half-bridge | 2EDL23N06PJ | 2.3/2.8 A | DSO-14 | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | 600 V CoolMOS™ CFD7 MOSFET (IPP60R070CFD7, IPT60R035CFD7, IPT60R145CFD7) |
| | 650 V | High and low-side | 2ED2181S06F NEW | 2.5/2.5 A | DSO-8 | Infineon SOI, integrated BSD, HIN, LIN | |
| | 1200 V | 1-ch isolated | 1EDF5673F | 4/8 A | DSO-16 150 mil | EiceDRIVER™ 1EDi with functional isolation for GaN HEMTs | 600 V CoolGaN™ HEMT (IGT60R070D1, IGT60R070D1, IGLD60R190D1) |
| | 1200 V | 2-ch isolated | 2EDB8259F* | 4/8 A | DSO-16 | EiceDRIVER™ 2EDi with basic isolation (3kV UL1577) | |
| Vienna rectifier | 22 V | 2-ch non-isolated | 2EDN7534F NEW | 5/5 A | DSO-8 | 2 ns delay matching, 19 ns propagation delay | 600 V CoolMOS™ C7 MOSFET (IPP60R040C7, IPW60R017C7, IPB60R040C7) |
| | 1200 V | 1-ch isolated | 1EDI20N12AF | 4/3.5 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | 650 V CoolMOS™ C7 MOSFET (IPP65R045C7, IPW65R019C7, IPB65R045C7) |
| | 1200 V | 2-ch isolated | 2EDB8259Y* | 4/8 A | DSO-14 | EiceDRIVER™ 2EDi with basic isolation (3kV UL1577) | 600 V CoolMOS™ P7 MOSFET (IPP60R060P7, IPW60R024P7, IPW60R180P7) |
| | 1200 V | | 2EDR8259H* | 4/8 A | DSO-16 300 mil | EiceDRIVER™ 2EDi with reinforced isolation | |
| LLC/ZVS PSFB | 600 V | High and low-side | IRS2186S | 4/4 A | DSO-8 | High current for high power and fast switching frequency | 600 V CoolMOS™ CFD7 MOSFET (IPP60R070CFD7, IPP60R280CFD7, IPT60R035CFD7, IPT60R145CFD7) |
| | 1200 V | 1-ch isolated | 1EDI20N12AF | 4/3.5 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | 650 V CoolSiC™ SiC MOSFET (IMZA65R027M1H, IMZA65R072M1H) |
| | 1200 V | | 1EDS5663H | 4/8 A | DSO-16 300 mil | EiceDRIVER™ 1EDi with Reinforced isolation for GaN HEMTs, Disable | 600 V CoolGaN™ HEMT (IGT60R070D1, IGO60R070D1, IGLD60R190D1) |
| | 1200 V | 2-ch isolated | 2EDR8259X* | 5/9 A | DSO-14 300 mil | EiceDRIVER™ 2EDi with reinforced isolation | |
| Sync rectifier | 22 V | 1-ch non-isolated | 1EDN7512G | 4/8 A | WSON-6 | Separate output, 19 ns propagation delay | |
| | 22 V | 2-ch non-isolated | 2EDN7534G NEW | 5/5 A | WSON-8 | 2 ns delay matching, 19 ns propagation delay | |
| | 24 V | | 2ED24427N01F NEW | 10/10 A | DSO-8 with powerpad | Enable, Low R _{DS(on)} outputs, thermal pad | |
| | 25 V | 1-ch non-isolated | 1ED44173N01B NEW | 2.6/2.6 A | SOT23-6 | Fast, accurate (±5%) OCP, fault reporting, Enable, negative current sensing | 40 V OptiMOS™ 6 MOSFET (BSC059N04LS6, ISC012N04LM6, IST007N04NM6) |
| | 120 V | High and low-side | 2EDL8024G NEW | 4/6 A | VDSON-8 | <6ns delay matching, VDD/VHB UVLO | 60 V OptiMOS™ 5 MOSFET (BSC016N06NS, ISC009N06LM5, BSZ040N06LS5) |
| | 120 V | Half-bridge | 2EDL8124G3C* | 4/6 A | VDSON-10 | <6ns delay matching, VDD/VHB UVLO | 80 V OptiMOS™ 5 MOSFET (BSC019N08NS5, BSZ070N08LS5, IPT010N08NM5) |
| | 200 V | 1-ch non-isolated | 1EDN7116G NEW | 2/2 A | VDSON-8 | GaN driver with truly differential input & adjustable negative charge pump | 100 V OptiMOS™ 5 MOSFET (BSC040N10NS5, IPT015N10N5, IPTG014N10NM5) |
| | 200 V | | 1EDN7116U* | 2/2 A | TSNP-7 | GaN driver with truly differential input | 150 V OptiMOS™ 5 MOSFET (BSC074N15NS5, BSC160N15NS5, IPB060N15N5) |
| | 200 V | | 1EDN7550U NEW | 4/8 A | TSNP-6 | True differential inputs, with ± 80 V static ground-shift robustness | |
| | 200 V | 2-ch non-isolated | IR11688S | 1/4 A | DSO-8 | Dual synchronous rectification control IC | |
| | 1200 V | 1-ch isolated | 1EDI20N12AF | 4/3.5 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | |
| | 1200 V | 2-ch isolated | 2EDB8259F* | 5/9 A | DSO-16 | EiceDRIVER™ 2EDi with basic isolation (3kV UL1577) | |

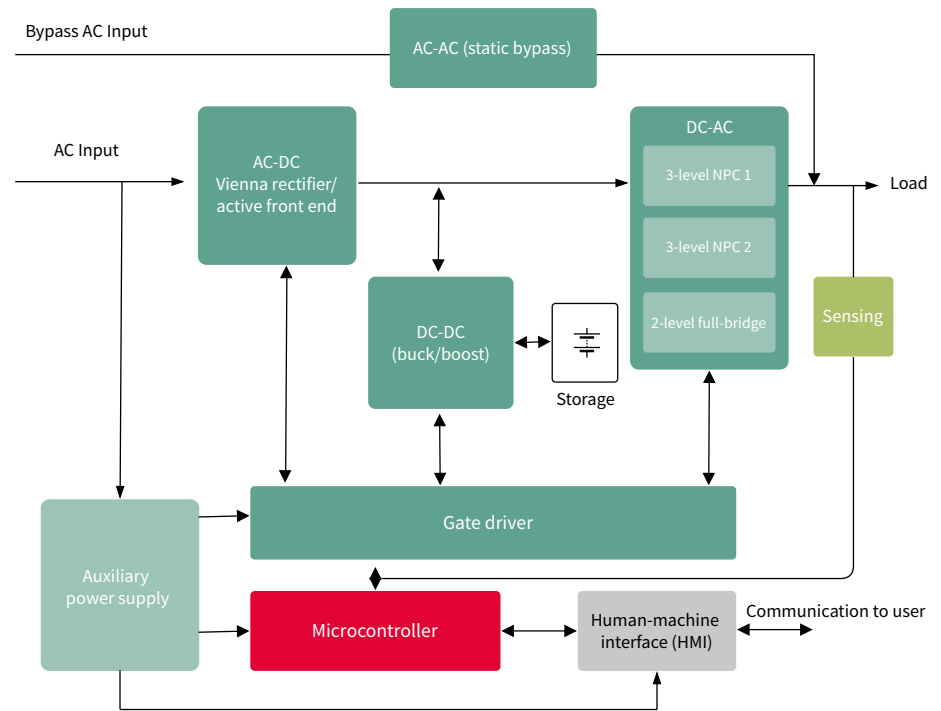
*Coming soon

Table provides representative products. For complete portfolio please visit www.infineon.com



Uninterruptible power supply (UPS)

With increasing awareness and commitment towards reducing carbon emissions across the world, relatively brings more stringent compliance subsequently increasing the threat of higher energy costs are driving the market for higher-efficiency UPSs. There is also a market trend toward customers requiring smaller UPS units that provide the same level of protection. The trend is being driven by space being at a premium and by the cost of ownership. The smaller the UPS unit's footprint, the lighter in weight it becomes, the less it costs to operate and the more space is available to devote to the core business or process. Combining the strengths of the Easy power modules, Infineon's 1200 V CoolSiC™ MOSFET, and EiceDRIVER™ gate driver ICs enables our customers to not only reduce system and operational cost significantly further helps to harness never before seen levels of efficiency and power density.

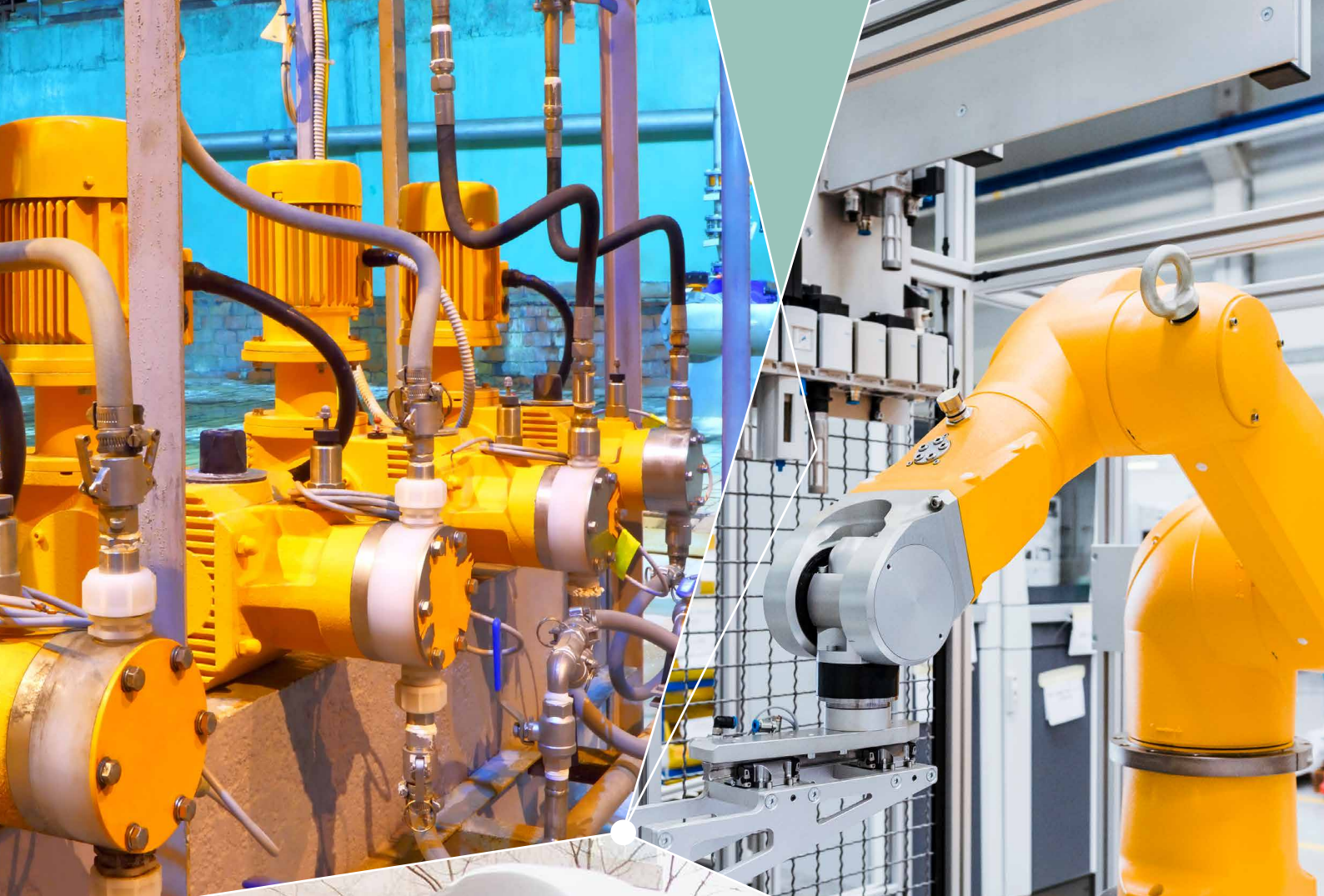


Recommended gate drivers

| Application | Voltage class [V] | Configuration | Part number | Source/sink current typ. | Packages | Description | Suitable power switches and modules |
|------------------------------------|-------------------|-------------------|-------------------------|--------------------------|----------------------|---|--|
| Battery DC-DC (<25 kW) | 600 V | Half-bridge | 2EDL05I06PJ | 0.36/0.7 A | DSO-14 | Infineon SOI, integrated BSD | TRENCHSTOP™ (IKW50N65H5, IKFW75N60ET) |
| | 600 V | | 2EDL23I06PJ | 2.3/2.8 A | DSO-14 | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | |
| | 650 V | High and low-side | 2ED2110S06M NEW | 2.5/2.5 A | DSO-16 300 mil | Infineon SOI, integrated BSD, fast level-shift, Shutdown, separate VSS/COM | |
| | 650 V | | 2ED2181S06F NEW | 2.5/2.5 A | DSO-8 | Infineon SOI, integrated BSD, HIN, LIN | |
| | 1200 V | 1-ch isolated | 1EDI20I12AF | 4/3.5 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | TRENCHSTOP™ IGBT+Diode (IKW15N120BH6, IKQ75N120CS6) |
| | 1200 V | High and low-side | IR2213S | 2/2.5 A | DSO-16 300 mil | Shutdown and Separate power supply | |
| Battery DC-DC (<100 kW) | 1200 V | 1-ch isolated | 1EDI60I12AF | 10/9.4 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | EconoPACK™ 2/3/4 module (FS50R12KT4_B11, FS150R12KT4_B11) |
| Mains inverter (<25 kVA) | 600 V | Half-bridge | 2EDL23I06PJ | 2.3/2.8 A | DSO-14 | Infineon SOI, integrated BSD, OCP, Enable, fault reporting | TRENCHSTOP™ IGBT (IKW30N65ES5, IKW75N65EH5) |
| | 600 V | | IR2114SS | 2/3 A | SSOP-24 | DESAT, soft-off, two stage turn on, fault reporting, Synchronization | |
| | 600 V | High and low-side | IRS2186S | 4/4 A | DSO-8 | High current for high power and fast switching frequency | |
| | 650 V | Half-bridge | 2ED21834S06J NEW | 2.5/2.5 A | DSO-14 | Infineon SOI, integrated BSD, HIN, /LIN, separate VSS/COM | |
| | 1200 V | 1-ch isolated | 1EDI20I12MF | 4.4/4.1 A | DSO-8 | EiceDRIVER™ 1ED Compact with Miller clamp | TRENCHSTOP™ IGBT (IKW15N120BH6, IKQ75N120CS6) |
| | 1200 V | | 1EDI60I12AF | 10/9.4 A | DSO-8 | EiceDRIVER™ 1ED Compact with separate output | |
| Mains inverter (<100 kVA) | 1200 V | 2-ch isolated | 2ED020I12-F2 | 2/2 A | DSO-36 | EiceDRIVER™ Enhanced 2ED-F2 with DESAT and Miller clamp | EasyPACK™ 3-level NPC 1 module (FS3L30R07W2H3F_B11, FS3L50R07W2H3F_B11) EasyPACK™ 3-level NPC 2 module (F3L75R12W1H3_B11, F3L150R12W2H3_B11) CoolSiC™ MOSFET 3-level NPC 2 module (F3L15MR12W2M1_B69) EconoPACK™ 2-level full-bridge module (FS50R12KT4_B11, FS150R12PT4) |
| | 2300 V | 1-ch isolated | 1ED3124MC12H NEW | 13.5/14 A | DSO-8 300mil | EiceDRIVER™ X3 Compact with separate output | |
| | 2300 V | | 1ED3241MC12H NEW | 18/18 A | DSO-8 300mil | EiceDRIVER™ 2L-SRC Compact with 2-level slew rate control | |
| | 2300 V | 1-ch isolated | 1ED3321MC12N NEW | 6/8.5 A | DSO-16 | EiceDRIVER™ Enhanced 1ED-F3 with DESAT, soft-off and Miller clamp | |
| | 2300 V | | 1ED3491MC12M NEW | 7.5/11 A | DSO-16 fine pitch | EiceDRIVER™ Enhanced X3 Analog with programmable DESAT, soft-off and Miller clamp | |
| | 2300 V | | 1ED3890MC12M NEW | 7.5/11 A | DSO-16 fine pitch | EiceDRIVER™ Enhanced X3 Digital with I2C configurability, DESAT, soft-off and Miller clamp | |
| PFC/SMPS | 22 V | 1-ch non-isolated | 1EDN8511B | 4/8 A | SOT23-6 | Separate output, 19 ns propagation delay | TRENCHSTOP™ IGBT (IKW30N65H5, IKW50N65F5) CoolMOS™ MOSFET P7 (IPW60R037P7, IPW60R024P7) |
| | 22 V | 2-ch non-isolated | 2EDN8534F NEW | 5/5 A | DSO-8 | 2 ns delay matching, 19 ns propagation delay | |
| | 24 V | | 2ED24427N01F NEW | 10/10 A | DSO-8 with power pad | Enable, Low R _{DS(on)} outputs, thermal pad | |
| | 25 V | 1-ch non-isolated | 1ED44171N01B* | 2.6/2.6 A | SOT23-5 | Enable, programmable fault clear time, UVLO | |
| | 25 V | | 1ED44175N01B NEW | 2.6/2.6 A | SOT23-6 | Fast, accurate (±5%) OCP, fault reporting, Enable, negative current sensing | |
| | 25 V | | 1ED44176N01F | 0.8/1.75 A | DSO-8 | Fast, accurate (±5%) OCP, fault reporting, Enable, positive current sensing, separate VSS / COM | |
| | 25 V | | 2-ch non-isolated | IRS4427S | 2.3/3.3 A | DSO-8 | |
| | 25 V | 1-ch non-isolated | IRS44273L | 1.5/1.5 A | SOT23-5 | Additional OUT pin | |
| Active bridge rectifier (<100 kVA) | 1200 V | 2-ch isolated | 2ED020I12-F2 | 2/2 A | DSO-36 | EiceDRIVER™ Enhanced 2ED-F2 with DESAT and Miller clamp | CoolSiC™ SiC MOSFET (IMW120R030M1, IMW120R090M1H) CoolSiC™ MOSFET 3-level NPC 2 module (F3L15MR12W2M1_B69) EasyPACK™ 3-level NPC 2 module (F3L75R12W1H3_B11, F3L150R12W2H3_B11) |
| | 2300 V | 1-ch isolated | 1ED3124MC12H NEW | 13.5/14 A | DSO-8 300mil | EiceDRIVER™ X3 Compact with separate output | |
| | 2300 V | | 1ED3321MC12N NEW | 6/8.5 A | DSO-16 | EiceDRIVER™ Enhanced 1ED-F3 with DESAT, soft-off and Miller clamp | |

*Coming soon

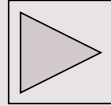
Table provides representative products. For complete portfolio please visit www.infineon.com



Driver configuration overview

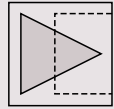
1-channel low-side driver

Allows low offset of the voltage between input and output



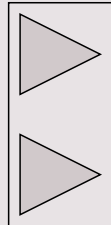
1-channel high-side driver

Allows high voltage offset between input and output



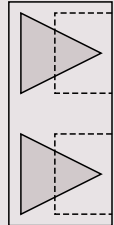
2-channel low-side driver

Both channels allow individual low voltage offsets, no interlock



2-channel high-side driver

Both channels allow individual high voltage offsets, no interlock



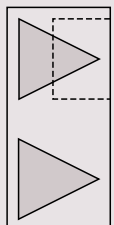
Half-bridge driver

Two interlocked channels for shoot through protection where one of the channels allows a high voltage offset.



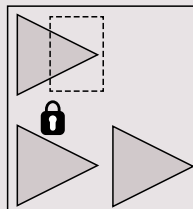
High and low-side driver

Two non-interlocked channels, one for high voltage, one for low voltage offsets. The industry may also refer this as half-bridge.



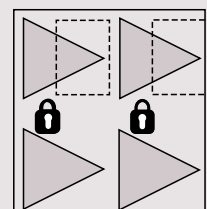
Half-bridge plus single low side driver

Half-bridge with one additional low-side driver.



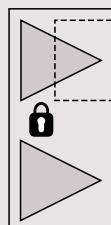
Full-bridge driver

Four channels in a package with two independent half bridges.



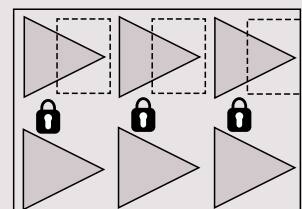
Synchronous-buck drivers

High speed drivers for dual high side and low side MOSFETs in synchronous rectified buck converters.



Three-phase bridge

Six channels in a package with three independent half bridges



Product portfolio overview

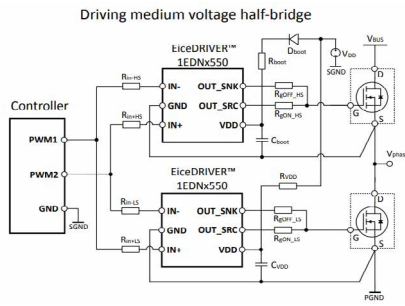
Infinion's gate driver IC solutions are the expert's choice. With more than 400 reliable and efficient gate driver solutions, we provide a comprehensive portfolio for virtually any application. To ease the selection process, this overview is structured along the configurations of the gate driver ICs, as opposed to application topology.

| Non-isolated low side gate driver IC | | | | | | Technology | Enable | Fault reporting | Over-current protection | Programmable fault clear time | Separate sink/source outputs | DSO-8 | DSO-8 (with power-pad) | DIP-8 | SOT23-5 | SOT23-6 | WSON-6 | WSON-8 | TSSOP-8 | | | |
|--------------------------------------|-------------------|--|----------------------|-----------------------------|---------------|--------------|--------|-----------------|-------------------------|-------------------------------|------------------------------|-------|------------------------|-------|---------|---------|--------|--------|---------|------------------------|---|---|
| Configuratiuon | Voltage class [V] | I _o /I _o typ. [mA] | UVLO on/off typ. [V] | Prop delay off/on typ. [ns] | Base PN | | | | | | | | | | | | | | | Features (see page 54) | | |
| 1-channel | 25 | 2.6/2.6 | 8.0/7.3 | 34/34 | 1ED44173N01B | NEW | N-ISO | ✓ | ✓ | ✓ | | | | | | | | | ✓ | | | |
| | | 2.6/2.6 | 11.9/11.0 | 50/50 | 1ED44175N01B | NEW | N-ISO | ✓ | ✓ | ✓ | | | | | | | | | ✓ | | | |
| | | 0.8/1.75 | 11.9/11.4 | 50/50 | 1ED44176N01F | NEW | N-ISO | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | |
| | | 2.6/2.6 | 11.9/11.0 | 50/50 | 1ED44171N01B* | | N-ISO | ✓ | ✓ | | | | | | ✓ | | | | | | | |
| | | 1.5/1.5 | 10.2/9.2 | 50/50 | IRS44273L | | N-ISO | | | | | | | | ✓ | | | | | | | |
| | 22 | 4/8 | 4/8 | 4.2/3.9 | 19/19 | 1EDN7511B | | N-ISO | | | | ✓ | | | | | | | ✓ | | | |
| | | | 4/8 | 4.2/3.9 | 19/19 | 1EDN7512B | | N-ISO | | | | | | | ✓ | | | | | | | |
| | | 4/8 | 4.2/3.9 | 19/19 | 1EDN7512G | | N-ISO | | | | | | | | | | | | ✓ | | | |
| | | | 8.0/7.0 | 19/19 | 1EDN8511B | | N-ISO | | | | | ✓ | | | | | | ✓ | | | | |
| | | | 1.6/3.3 | 8.9/8 | 200/150 | IR2121 | | N-ISO | | ✓ | ✓ | | | | ✓ | | | | | | | |
| 2-channel | 25 | 2.3/3.3 | 10.2/9.2 | 50/50 | IRS44262S | | N-ISO | | | | | ✓ | | | | | | | | | | |
| | | 2.3/3.3 | N.A. | 50/50 | IRS4426S | | N-ISO | | | | | ✓ | | | | | | | | | | |
| | | 2.3/3.3 | N.A. | 50/50 | IRS4427S | | N-ISO | | | | | ✓ | | | | | | | | | | |
| | | 2.3/3.3 | N.A. | 65/85 | IR25600S | | N-ISO | | | | | ✓ | | | | | | | | | | |
| | | 2.3/3.3 | N.A. | 65/85 | IR4426S | | N-ISO | | | | | ✓ | | | | | | | | | | |
| | | 2.3/3.3 | N.A. | 65/85 | IR4427S | | N-ISO | | | | | ✓ | | | | | | | | | | |
| | 22 | 10/10 | 10/10 | 11.5/10.0 | 40/55 | 2ED24427N01F | NEW | N-ISO | ✓ | | | | ✓ | | | | | | | | | |
| | | | 5/5 | 4.2/3.9 | 19/19 | 2EDN7523F | | N-ISO | ✓ | | | | ✓ | | | | | | | | | |
| | | 5/5 | 4.2/3.9 | 19/19 | 2EDN7523G | | N-ISO | ✓ | | | | | | | | | | | | ✓ | | |
| | | | 4.2/3.9 | 19/19 | 2EDN7523R | | N-ISO | ✓ | | | | | | | | | | | | | ✓ | |
| | | | 4.2/3.9 | 19/19 | 2EDN7524F | | N-ISO | ✓ | | | | | ✓ | | | | | | | | | |
| | | | 4.2/3.9 | 19/19 | 2EDN7524G | | N-ISO | ✓ | | | | | | | | | | | | ✓ | | |
| | | | 4.2/3.9 | 19/19 | 2EDN7524R | | N-ISO | ✓ | | | | | | | | | | | | | ✓ | |
| | | | 8.0/7.0 | 19/19 | 2EDN8523F | | N-ISO | ✓ | | | | | ✓ | | | | | | | | | |
| | | | 8.0/7.0 | 19/19 | 2EDN8523R | | N-ISO | ✓ | | | | | | | | | | | | | ✓ | |
| | | | 8.0/7.0 | 19/19 | 2EDN8524F | | N-ISO | ✓ | | | | | ✓ | | | | | | | | | |
| | | | 8.0/7.0 | 19/19 | 2EDN8524R | | N-ISO | ✓ | | | | | | | | | | | | | ✓ | |
| | | | 4/4 | 4.2/3.9 | 19/19 | 2EDN7424F | | N-ISO | ✓ | | | | | ✓ | | | | | | | | |
| | | | | 4.2/3.9 | 19/19 | 2EDN7424R | | N-ISO | ✓ | | | | | | | | | | | | | ✓ |
| | | | | 4.2/3.9 | 19/19 | 2EDN7434F | | NEW | N-ISO | ✓ | | | | ✓ | | | | | | | | |
| | | | | 4.2/3.9 | 19/19 | 2EDN7434R | | NEW | N-ISO | ✓ | | | | | | | | | | | | ✓ |
| | | | | 4.2/3.9 | 19/19 | 2EDN7533B | | NEW | N-ISO | ✓ | | | | | | | | ✓ | | | | |
| | | | | 4.2/3.9 | 19/19 | 2EDN7533F | | NEW | N-ISO | ✓ | | | | | ✓ | | | | | | | |
| | | | | 4.2/3.9 | 19/19 | 2EDN7533R | | NEW | N-ISO | ✓ | | | | | | | | | | | | ✓ |
| | | | | 4.2/3.9 | 19/19 | 2EDN7534B | | NEW | N-ISO | ✓ | | | | | | | | | ✓ | | | |
| | | | | 4.2/3.9 | 19/19 | 2EDN7534F | | NEW | N-ISO | ✓ | | | | | ✓ | | | | | | | |
| | | 4.2/3.9 | | 19/19 | 2EDN7534R | | NEW | N-ISO | ✓ | | | | | | | | | | | | ✓ | |
| | | 5/5 | 8.0/7.0 | 19/19 | 2EDN8533F | | NEW | N-ISO | ✓ | | | | ✓ | | | | | | | | | |
| 8.0/7.0 | 19/19 | | 2EDN8533R | | NEW | N-ISO | ✓ | | | | | | | | | | | | ✓ | | | |
| 8.0/7.0 | 19/19 | | 2EDN8534F | | NEW | N-ISO | ✓ | | | | ✓ | | | | | | | | | | | |
| 8.0/7.0 | 19/19 | | 2EDN8534R | | NEW | N-ISO | ✓ | | | | | | | | | | | | ✓ | | | |
| 8.0/7.0 | 19/19 | | 2EDN8533F | | NEW | N-ISO | ✓ | | | | | ✓ | | | | | | | | | | |
| 8.0/7.0 | 19/19 | | 2EDN8534R | | NEW | N-ISO | ✓ | | | | | | | | | | | | ✓ | | | |

*Coming soon

Non-isolated TDI gate driver IC

Typical connection

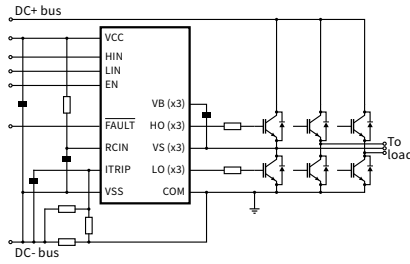


| Configuratiuon | Voltage class [V] | I _{O±/IO-} typ. [mA] | UVLO on/off typ. [V] | Prop delay off/on typ. [ns] | Base PN | Technology | Features (see page 54) | | | | Package (see page 55) | | | | |
|----------------|-------------------|-------------------------------|----------------------|-----------------------------|------------|------------|--------------------------------|---------------------|------------------------------|---------------------------|-----------------------|--------|--------|---------|---|
| | | | | | | | Adustable Negative charge pump | Active Miller clamp | Separate sink/source outputs | Truly differential inputs | SOT23-6 | TSNP-6 | TSNP-7 | VSON-10 | |
| 1-channel | 200 | 4/8 | 4.2/3.9 | 45/45 | 1EDN7550U | N-ISO | | | ✓ | ✓ | | ✓ | | | |
| | | 4/8 | 4.2/3.9 | 45/45 | 1EDN7550B | N-ISO | | | ✓ | ✓ | ✓ | | | | |
| | | 4/8 | 8.0/7.0 | 45/45 | 1EDN8550B | N-ISO | | | ✓ | ✓ | ✓ | | | | |
| | | 4/8 | 12.2/11.5 | 45/45 | 1EDN6550B | NEW N-ISO | | | ✓ | ✓ | ✓ | | | | |
| | | 4/8 | 14.9/14.4 | 45/45 | 1EDN9550B | NEW N-ISO | | | ✓ | ✓ | ✓ | | | | |
| | | 2/2 | 3.85/3.75 | 55/55 | 1EDN7116G | NEW N-ISO | ✓ | ✓ | | ✓ | | | | | ✓ |
| | | 2/2 | 3.85/3.75 | 55/55 | 1EDN7116U* | N-ISO | | ✓ | | ✓ | | | | ✓ | |
| | | 1.5/1.5 | 3.85/3.75 | 75/75 | 1EDN7126G | NEW N-ISO | ✓ | ✓ | | ✓ | | | | | ✓ |
| | | 1.5/1.5 | 3.85/3.75 | 75/75 | 1EDN7126U* | N-ISO | | ✓ | | ✓ | | | | ✓ | |
| | | 1/1 | 3.85/3.75 | 105/105 | 1EDN7136G | NEW N-ISO | ✓ | ✓ | | ✓ | | | | | ✓ |
| | | 1/1 | 3.85/3.75 | 105/105 | 1EDN7136U* | N-ISO | | ✓ | | ✓ | | | | ✓ | |
| | | 0.5/0.5 | 3.85/3.75 | 125/125 | 1EDN7146G | NEW N-ISO | ✓ | ✓ | | ✓ | | | | | ✓ |
| 0.5/0.5 | 3.85/3.75 | 125/125 | 1EDN7146U* | N-ISO | | ✓ | | ✓ | | | | ✓ | | | |

*Coming soon

Three-phase gate driver IC

Typical connection

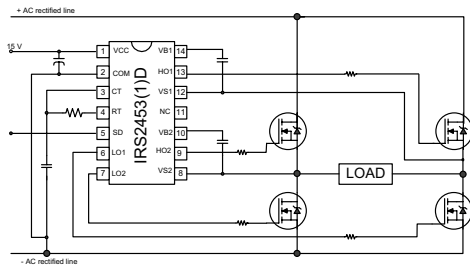


| Voltage class [V] | I _Q /I _O typ. [mA] | UVLO on/off typ. [V] | Prop delay off/on typ. [ns] | Base PN | Technology | Features (see page 54) | | | | | | | | | | | | | | | | Package (see page 55) | | | | | | | | | |
|-------------------|--|----------------------|-----------------------------|--------------|------------|------------------------|-------------------------|--------|-----------------|----------------------------|-----------------------|-------------------------|-----------------------|------------------------|----------------------------------|--------------------------------------|----------------------------------|--|-------------------------------|--------------------------|----------|-----------------------|-----------|--------|-----------|--------|---------|----------|---------|---------|---------|
| | | | | | | Brake chopper | Desaturation protection | Enable | Fault reporting | Integrated bootstrap diode | Operational amplifier | Over-current protection | Power Management Unit | Programmable dead time | Programmable Fault Clear / Reset | Programmable OCP Reference Threshold | Programmable Op-amp Voltage Gain | Trickle Charge Pumps (100% duty cycle) | Separate pin for logic ground | Shoot-through protection | Shutdown | Two stage turn on | DSO-20 WB | DSO-24 | DSO-28 WB | LCC-32 | MQFP-64 | TSSOP-28 | VQFN-28 | VQFN-32 | VQFN-34 |
| 1200 | 0.35/0.65 | 11.4/10.4 | 600/600 | 6ED2230S12T | SOI | | | ✓ | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ | | | ✓ | | | | | | | | | | | ✓ |
| | 0.25/0.5 | 8.6/8.2 | 700/750 | IR2233S | JI | | | | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ | ✓ | | | ✓ | | | | | | | | | |
| | 0.25/0.5 | 8.6/8.2 | 700/750 | IR2233J | JI | | | | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ | ✓ | | | ✓ | | | | | | | | | |
| | 0.25/0.5 | 10.4/9.4 | 700/750 | IR2235S | JI | | | | ✓ | ✓ | ✓ | | | | | | | ✓ | ✓ | ✓ | | | ✓ | | | | | | | | |
| | 0.25/0.5 | 10.4/9.4 | 700/750 | IR2235J | JI | | | | ✓ | ✓ | ✓ | | | | | | | ✓ | ✓ | ✓ | | | ✓ | | | | | | | | |
| 600 | 0.35/0.54 | 11.2/10.2 | 550/550 | IR2238Q | JI | ✓ | ✓ | | ✓ | | ✓ | | ✓ | | | ✓ | ✓ | ✓ | | | | ✓ | | | | | | | | | |
| | 0.165/0.375 | 11.7/9.8 | 490/530 | 6ED003L06-F2 | SOI | | ✓ | ✓ | | ✓ | | ✓ | | | | | ✓ | | | | | ✓ | | | | | | | | ✓ | |
| | 0.165/0.375 | 11.7/9.8 | 490/530 | 6EDL04I06NT | SOI | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | ✓ | | | | | | | | ✓ | |
| | 0.165/0.375 | 11.7/9.8 | 490/530 | 6EDL04I06PT | SOI | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | ✓ | | | | | | | | ✓ | |
| | 0.165/0.375 | 9/8.1 | 530/530 | 6EDL04N06PT | SOI | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | ✓ | | | | | | | | ✓ | |
| | 0.2/0.35 | 8.9/8.2 | 400/425 | IR2136S | JI | | ✓ | ✓ | | ✓ | | | | | | | ✓ | | | | | ✓ | ✓ | | | | | | | ✓ | |
| | 0.2/0.35 | 11.1/10.9 | 400/425 | IR21363S | JI | | ✓ | ✓ | | ✓ | | | | | | | ✓ | | | | | ✓ | | | | | | | | ✓ | |
| | 0.2/0.35 | 11.1/10.9 | 400/425 | IR21363J | JI | | ✓ | ✓ | | ✓ | | | | | | | ✓ | | | | | ✓ | | | | | | | | ✓ | |
| | 0.2/0.35 | 10.4/9.4 | 530/500 | IR21364S | JI | | ✓ | ✓ | | ✓ | | | | | | | ✓ | | | | | ✓ | | | | | | | | ✓ | |
| | 0.2/0.35 | 11.1/10.9 | 530/530 | IRS2334M | JI | | | | | | | | | | | | | | | | | | | | | ✓ | | | | | |
| | 0.2/0.35 | 11.1/10.9 | 530/530 | IRS2334S | JI | | | | | | | | | | | | | | | | | ✓ | | | | | | | | | |
| | 0.2/0.35 | 8.9/8.2 | 530/530 | IRS2336S | JI | | ✓ | ✓ | | ✓ | | | | | | | | ✓ | | | | | ✓ | | | | | | | | |
| | 0.2/0.35 | 8.9/8.2 | 530/530 | IRS2336DJ | JI | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | | ✓ | | | | | | | ✓ | |
| | 0.2/0.35 | 8.9/8.2 | 530/530 | IRS2336DM | JI | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | | ✓ | | | | | ✓ | | ✓ | |
| | 0.2/0.35 | 8.9/8.2 | 530/530 | IRS2336DS | JI | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | | ✓ | | | | | | | ✓ | |
| | 0.2/0.35 | 8.9/8.2 | 530/530 | IRS23364DJ | JI | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | | ✓ | | | | | | | ✓ | |
| | 0.2/0.35 | 8.9/8.2 | 530/530 | IRS23364DS | JI | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | | ✓ | | | | | | | ✓ | |
| | 0.2/0.35 | 8.9/8.2 | 530/530 | IRS23365DM | JI | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | | ✓ | | | | | ✓ | | ✓ | |
| | 0.25/0.5 | 9/8.7 | 425/675 | IR2130S | JI | | | | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | | ✓ | | | | | | | ✓ | |
| | 0.25/0.5 | 9/8.7 | 425/675 | IR2130J | JI | | | | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | | ✓ | | | | | | | ✓ | |
| | 0.25/0.5 | 9/8.7 | 425/675 | IR2132S | JI | | | | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | | ✓ | | | | | | | ✓ | |
| | 0.25/0.5 | 9/8.7 | 425/675 | IR2132J | JI | | | | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | | ✓ | | | | | | | ✓ | |
| | 0.25/0.5 | 8.6/8.2 | 700/750 | IR2133S | JI | | | | ✓ | ✓ | ✓ | | | | | | ✓ | | ✓ | | | | ✓ | | | | | | | ✓ | |
| | 0.25/0.5 | 8.6/8.2 | 700/750 | IR2133J | JI | | | | ✓ | ✓ | ✓ | | | | | | ✓ | | ✓ | | | | ✓ | | | | | | | ✓ | |
| | 0.25/0.5 | 10.4/9.4 | 700/750 | IR2135S | JI | | | | ✓ | ✓ | ✓ | | | | | | ✓ | | ✓ | | | | ✓ | | | | | | | ✓ | |
| 0.25/0.5 | 10.4/9.4 | 700/750 | IR2135J | JI | | | | ✓ | ✓ | ✓ | | | | | | ✓ | | ✓ | | | | ✓ | | | | | | | ✓ | | |
| 200 | 0.165/0.375 | 11.7/9.8 | 490/530 | 6ED003L02-F2 | SOI | | ✓ | ✓ | | ✓ | | | | | | ✓ | | | | | | | | ✓ | | | | | | | |
| | 0.165/0.375 | 9/8.1 | 530/530 | 6EDL04N02PR | SOI | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ | | | | | | ✓ | | | | | | | | |
| 160 | 1/2 | 7.5/6.8 | 100/100 | 6ED2742S01Q* | SOI | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | ✓ | | | | |
| 60 | 1.5/1.5 | 5.8/4.5 | 140/140 | 6EDL7141 | NEW SOI | | | | | | | | | | | | | | | | | | | | | | | | ✓ | | |

*Coming soon

Full-bridge gate driver IC

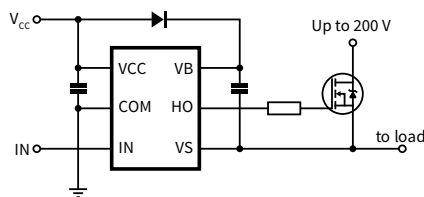
Typical connection



| Voltage class [V] | I_{O+}/I_{O-} typ. [mA] | UVLO on/off typ. [V] | Prop delay off/on typ. [ns] | Base PN | Technology | Features (see page 54) | | | Package (see page 55) | |
|-------------------|---------------------------|----------------------|-----------------------------|-------------------------|------------|------------------------|---|---|-----------------------|--------|
| 600 | 0.18/0.26 | 11/9 | N.A. | IRS2453DS IRS24531DS | J1 | ✓ | ✓ | ✓ | ✓ | DSO-14 |

Single high-side gate driver IC

Typical connection



| Voltage class [V] | I_{O+}/I_{O-} typ. [mA] | UVLO on/off typ. [V] | Prop delay off/on typ. [ns] | Base PN | Technology | Features (see page 54) | | Package (see page 55) | | |
|-------------------|---------------------------|----------------------|-----------------------------|-----------|------------|------------------------|---|-----------------------|---|---|
| 600 | 0.16/0.24 | 9/8 | 215/140 | IRS25752L | J1 | | | | | ✓ |
| | 0.25/0.5 | 8.6/8.2 | 105/125 | IR2117S | J1 | | | ✓ | | |
| | 0.25/0.5 | 8.6/8.2 | 105/125 | IR2118S | J1 | | | ✓ | | |
| | 0.25/0.5 | 10.3/9 | 150/200 | IR2127S | J1 | ✓ | ✓ | ✓ | | |
| | 0.25/0.5 | 10.3/9 | 150/200 | IR2128S | J1 | ✓ | ✓ | ✓ | | |
| | 0.25/0.5 | 7.2/6.8 | 150/200 | IR21271S | J1 | ✓ | ✓ | ✓ | | |
| | 0.29/0.6 | 8.6/8.2 | 105/125 | IRS2117S | J1 | | | ✓ | | |
| | 0.29/0.6 | 8.6/8.2 | 105/125 | IRS2118S | J1 | | | ✓ | | |
| | 0.29/0.6 | 10.3/9 | 150/150 | IRS2127S | J1 | ✓ | ✓ | ✓ | | |
| 0.29/0.6 | 7.2/6.8 | 150/150 | IRS21271S | J1 | ✓ | ✓ | ✓ | | | |
| 500 | 1.6/3.3 | 9.2/8.3 | 200/170 | IR2125S | J1 | ✓ | ✓ | | ✓ | |
| 200 | 0.16/0.24 | 9/8 | 215/140 | IRS20752L | J1 | | | | | ✓ |
| 100 | 0.16/0.24 | 9/8 | 215/140 | IRS10752L | J1 | | | | | ✓ |

Automotive MOTIX™ motor gate driver ICs

| Product name | Voltage class [V] | No. of half-bridges | Communication | Product status | Qualification | Package |
|--------------------------------|-------------------|---------------------|--------------------------|----------------------|---------------|---------|
| BLDC Driver ICs | | | | | | |
| TLE9180D-31QK | 90 | 3 | SPI | on request | Automotive | LQFP-64 |
| TLE9180D-21QK | 90 | 3 | SPI | on request | Automotive | LQFP-64 |
| BLDC Motor System ICs | | | | | | |
| TLE9564QX | 28 | 3 | SPI, LIN | active and preferred | Automotive | VQFN-48 |
| TLE9563-3QX | 28 | 3 | SPI, CAN | active and preferred | Automotive | VQFN-48 |
| DC Motor System ICs | | | | | | |
| TLE9560-3QX | 28 | 2 | SPI, CAN FD, CAN PN, LIN | active and preferred | Automotive | VQFN-48 |
| TLE9561QX | 28 | 4 | SPI, CAN FD | active and preferred | Automotive | VQFN-48 |
| TLE9561-3QX | 28 | 4 | SPI, CAN FD, CAN PN | active and preferred | Automotive | VQFN-48 |
| TLE9562QX | 28 | 4 | SPI, CAN FD, LIN | active and preferred | Automotive | VQFN-48 |
| TLE9562-3QX | 28 | 4 | SPI, CAN FD, CAN PN, LIN | active and preferred | Automotive | VQFN-48 |
| Multi MOSFET Driver | | | | | | |
| TLE92108-232QX | 28 | 8 | SPI | active and preferred | Automotive | VQFN-48 |
| TLE92104-232QX | 28 | 4 | SPI | active and preferred | Automotive | VQFN-48 |
| TLE92104-131QX | 28 | 4 | SPI | active and preferred | Automotive | VQFN-48 |
| TLE92108-231QX | 28 | 8 | SPI | active and preferred | Automotive | VQFN-48 |

Features

Addressing various application requirements, Infineon delivers solutions with an assortment of features intended to optimize performance, minimize size and reduce cost. Below is a table of additional gate driver IC features available in the current portfolio.

| Features | Abbreviation | Benefits |
|---------------------------------|--------------|---|
| Active Miller clamp | M-CLAMP | Protection against inadvertent dynamic turn-on because of parasitic Miller effects |
| Active shutdown | SD-ACT | Ensures a safe IGBT off-state in case the output chip is not connected to the power supply or an undervoltage lockout is in effect |
| Brake chopper | BRAKE | Integrated brake IGBT driver with protection |
| Comparator | CMP | General purpose comparator included |
| Desaturation protection | DESAT | Protects the IGBT at short circuit |
| Enable | EN | Dedicated pin terminates all outputs |
| Fault reporting | FAULT-RPT | Indicates an overcurrent or under-voltage shutdown has occurred |
| Fault reset | FAULT-RST | Dedicated pin resets the DESAT-FAULT-state of the chip |
| High-voltage start-up | HVSTART | Provides easy and fast circuit start-up while enabling low circuit standby losses |
| Integrated bootstrap diode | BSD | Integrated bootstrap reduces BOM |
| Operational amplifier | OPAMP | An independent op-amp for current measurement or overcurrent detection |
| Oscillator | OSC | Integrated front end oscillator |
| Over-current protection (ITRIP) | OCP | Ensures safe application operation in case of overcurrent |
| Programmable deadtime | DT-PROG | Deadtime is programmable with external resistor for flexible design |
| Programmable fault clear time | FLTC | The length of the fault clear time period (tFLTC) is programmed by external capacitor which connected between FLTC and VSS (CFLTC). |
| Programmable shutdown | SD-PROG | A shutdown feature has been designed into a pin |
| Separate pin for logic ground | SEP-GND | Dedicated pin or logic ground for improved noise immunity |
| Separate sink/source outputs | SEP-OUT | Simplifies gate resistor selection, reduces BOM, and improves dV/dt control |
| Shoot-through protection | STP | Additional shoot-through protection logic such as interlock |
| Short-circuit clamping | SC-CLAMP | During short circuit the IGBT's gate voltage tends to rise because of the feedback via the Miller capacitance. An additional protection circuit connected to OUT+ limits this voltage to a value slightly higher than the supply voltage. |
| Shutdown | SD | Dedicated pin disables the IC outputs |
| Soft overcurrent shutdown | SD-SOFT | Dedicated pin turns off the desaturated transistor, preventing overvoltages |
| Truly Differential Inputs | TDI | +/-70 VDC and +/-150 VAC ground-shift robustness of low-side gate driver ICs |
| Two-level turn-off | TLTO | Lowers VCE overshoots at turn-off during short circuits or overcurrent events |
| UL 1577 | UL | Double galvanic isolation certification |
| Undervoltage lockout | UVLO | Ensures safe application operation by avoiding unexpected driver behavior at low voltages |
| VDE 0884-10 or VDE 0884-11 | VDE | Reinforced galvanic isolation certifications for non-optical couplers |



Infineon gate driver IC package options

| | | | | | |
|-------------------------------|--|-----------------------|--|---------------------------|--|
| DSO-8 (SOIC-8N) | | DSO-28 (SOIC-28WB) | | TSSOP-8 | |
| DSO-8 with power pad | | DSO-36 | | TSSOP-28 | |
| DSO-8 300-mil (SOIC-8WB) | | LCC-32 (PLCC-44) | | VDSO-8 | |
| DSO-14 (SOIC-14N) | | LQFP-64 | | VQFN-14 (MLPQ 4X4 14L) | |
| DSO-16 | | MQFP-64 | | VQFN-28 (MLPQ 5X5 28L) | |
| DSO-16 300-mil (SOIC-16WB) | | SOT23-5 | | VQFN-32 | |
| DSO-16 (fine pitch) | | SOT23-6 | | VQFN-34 (MLPQ 7X7 48L) | |
| DSO-18 | | SSOP-24 | | VQFN-48 | |
| DSO-19 | | TFLGA-13 | | VSON-10 | |
| DSO-20 (SOIC-20WB) | | TQFN-48 | | WSO-6 | |
| DSO-20 (fine pitch) | | TSDSO-24 | | WSO-8 | |
| DSO-20 WB | | TSNP-6 | | CHIP | |
| DSO-24 (DSO-28 w/o 4 pins) | | TSNP-7 | | | |

NEW product highlights

EiceDRIVER™ non-isolated low-side gate drivers

1ED4417x, 1-ch, low-side drivers with OCP, Enable, and Fault

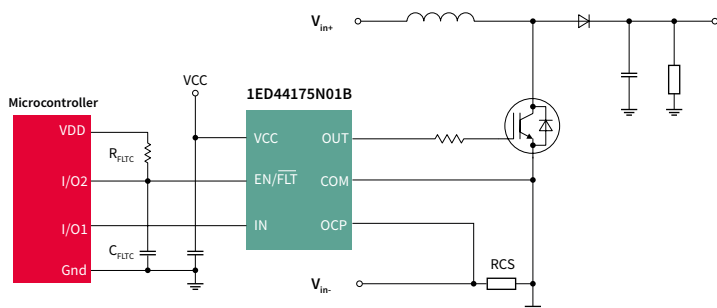
2ED24427N01F, 10 A, 2-ch, low-side driver with Enable in DSO-8 with thermal pad

EiceDRIVER™ 1ED4417x family are 1-channel low-voltage, non-inverting, low-side gate drivers designed for ground-referenced applications such as digitally controlled power-factor correction (PFC) circuits. This family provides an under voltage lockout protection (UVLO) and integrates fault output reporting to the controller and driver enable functionality in one pin.

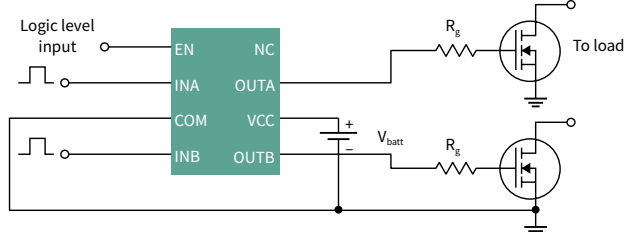
In addition, EiceDRIVER™ 1ED44173/5/6 integrate the overcurrent protection (OCP) comparator, realizing up to 20% cost and 50% space savings. The comparator features a fast and accurate current-sensing threshold tolerance of $\pm 5\%$. 1ED44176N01F has separate logic and power ground pins for operational robustness.

EiceDRIVER™ 2ED24427N01F is a high-current 10 A, 2-channel low-voltage, non-inverting, low-side gate driver in a DSO-8 package with thermally efficient, exposed power pad. Propagation delays between two channels are matched. In half-bridge LLC or full-bridge ZVS topologies, 2ED24427N01F can easily drive low $R_{DS(on)}$ high-voltage MOSFETs at high switching frequencies. In synchronous rectification, more than two MOSFETs can be paralleled and driven from a single channel of the driver. One 2ED24427N01F device can efficiently drive both synchronous rectification legs. When higher current is needed, 2ED24427N01F can boost the current from a regular gate driver and drive high current IGBTs and MOSFETs.

Simplified application diagram

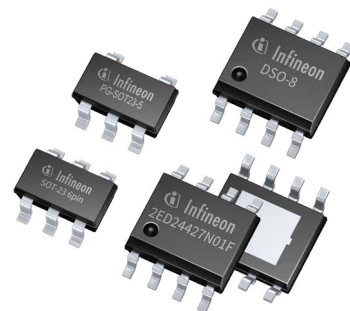


Simplified application diagram



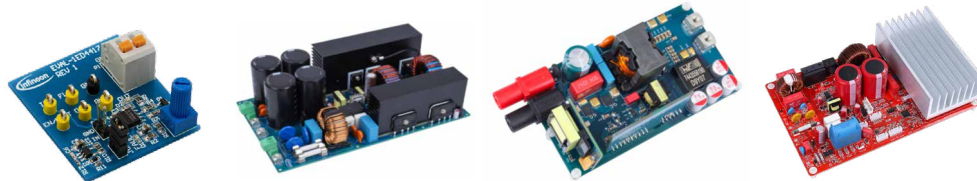
| Part Number | Package | $I_{O+/-}$ | U_{VLO} | V_{OCTH} | Ton/off | Ground pins |
|---------------|-------------------|------------|-------------|------------|----------|-------------|
| 1ED44171N01B* | SOT23-5 | 2.6/2.6 A | 11.9/11.4 V | N/A | 50/50 ns | COM |
| 1ED44173N01B | SOT23-6 | 2.6/2.6 A | 8/7 V | -250 mV | 34/34 ns | COM |
| 1ED44175N01B | SOT23-6 | 2.6/2.6 A | 11.9/11.4 V | -250 mV | 50/50 ns | COM |
| 1ED44176N01F | DSO-8 | 0.8/1.75 A | 11.9/11.4 V | 500 mV | 50/50 ns | VSS / COM |
| 2ED24427N01F | DSO-8 w Power Pad | 10/10 A | 11.5/10 V | N/A | 40/55 ns | COM |

*Coming soon



Evaluation and reference board

- > [EVAL-1ED44176N01F](#)
- > [EVAL-1ED44175N01B](#)
- > [EVAL-1ED44173N01B](#)
- > [EVAL-PFC5KIKWWR5SYS](#)
- > [EVAL-2ED2101-HB-LLC](#)
- > [REF-AIRCON-C302A-IM564](#)



www.infineon.com/1ed44173
www.infineon.com/1ed44175
www.infineon.com/1ed44176
www.infineon.com/2ed24427



2EDN EiceDRIVER™ family

Rugged, fast, dual-channel low-side 4 A/5 A gate-driver ICs

EiceDRIVER™ 2EDN family overview

Dual-channel driver ICs are the crucial link between control ICs and powerful MOSFET, wide band gap (WBG) switching devices. Driver ICs enable high system level efficiencies, excellent power density and consistent system robustness.

EiceDRIVER™ 2EDN family: Fast, precise and compatible

- > Highly efficient SMPS enabled by 19 ns propagation delay and 2 ns channel-to-channel mismatch precision for fast MOSFET, WBG switches
- > Diversified applications driven by strong output current 4 A/5 A per channel
- > Your unique designs supported by the availability of numerous packages

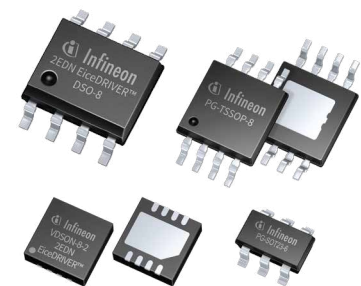
EiceDRIVER™ 2EDN family:

The new reference in ruggedness and low power dissipation

- > 4 V and 8 V UVLO (Under Voltage Lock Out) options for instant FETs protection under abnormal conditions, further improved with active output voltage clamping
- > -10 V robustness of control and enable inputs provides crucial safety margin when driving pulse transformers or driving FETs in various packages
- > 5 A reverse output current robustness eliminates the need for Schottky switching diodes and reduces bill-of-material
- > Cool driver ICs from true rail-to-rail low impedance output stages

Applications

- > Server
- > Telecom
- > DC-DC Converters
- > Power tools
- > Industrial SMPS
- > Low speed electrical vehicles
- > Solar power inverter
- > LED lighting



| Product features | Product benefits | System benefits |
|---|---|--|
| <ul style="list-style-type: none"> > 5 A source/sink current > 2 ns channel-to-channel mismatch > 10 ns minimum input pulse width | <ul style="list-style-type: none"> > Fast Miller plateau transition > Precise timing | <ul style="list-style-type: none"> > High power efficiency <ul style="list-style-type: none"> – in hard switching PFC with SiC Diode – in half-bridges and synchronous rectifications |
| <ul style="list-style-type: none"> > True rail-to-rail low impedance output stages | <ul style="list-style-type: none"> > Low power dissipation in Driver IC | <ul style="list-style-type: none"> > Cooler driver IC operation > Higher FETs drive capability |
| <ul style="list-style-type: none"> > 4 V and 8 V UVLO options, with active output voltage clamping > 19 ns propagation delay for both control and enable inputs | <ul style="list-style-type: none"> > Fast and reliable FETs turn-off, independent of control IC | <ul style="list-style-type: none"> > Instant FETs protection under abnormal operation |
| <ul style="list-style-type: none"> > -10 V robustness of control and enable inputs | <ul style="list-style-type: none"> > Increased GND-bounce robustness | <ul style="list-style-type: none"> > Crucial safety margin to drive pulse transformer |
| <ul style="list-style-type: none"> > 5 A reverse output current robustness | <ul style="list-style-type: none"> > Saves switching diodes | <ul style="list-style-type: none"> > Increases power density > BOM savings |
| <ul style="list-style-type: none"> > 2 independent channels | <ul style="list-style-type: none"> > Option to increase drive current by truly concurrent switching of 2 channels | <ul style="list-style-type: none"> > One IC covering many applications |
| <ul style="list-style-type: none"> > Industry standard pinout and packages | <ul style="list-style-type: none"> > Straight forward design upgrades | <ul style="list-style-type: none"> > Short time to market |

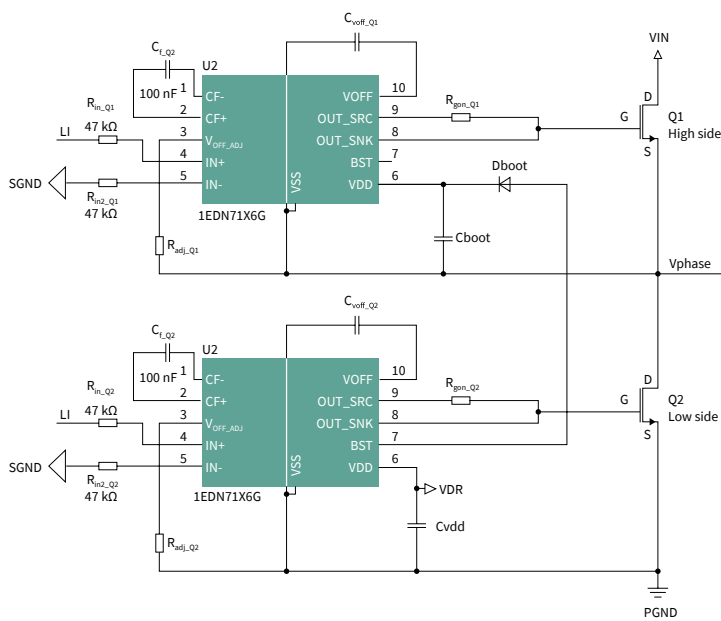


EiceDRIVER™ 1EDN71x6G/U family

200 V 1-ch gate drivers with truly differential input (TDI)

The 1EDN71x6G/U is a 1-channel gate driver family optimized for Infineon CoolGaN™ HEMTs, and also compatible with other GaN HEMTs and silicon MOSFETs. The TDI feature eliminates the risk of false triggering due to ground bounce in low-side applications and enable 1EDN71x6G/U to address even high-side applications. The TDI feature works by controlling the gate driver output state is exclusively by the voltage difference between the two inputs, completely independent of the driver's reference (ground) potential as long as the common-mode voltage is below 150 V (static) and 200 V (dynamic).

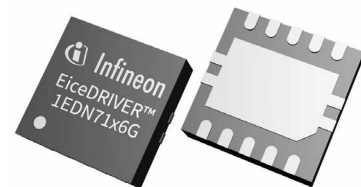
Typical application diagram



Product family

| Product | Output current | Source/sink resistance | Input pulse blanking time | Package |
|------------|----------------|------------------------|---------------------------|---------|
| 1EDN7116G | 2 A | 0.8 Ω | 20 ns | VSON-10 |
| 1EDN7126G | 1.5 A | 1.0 Ω | 40 ns | VSON-10 |
| 1EDN7136G | 1 A | 1.5 Ω | 60 ns | VSON-10 |
| 1EDN7146G | 0.5 A | 3.0 Ω | 80 ns | VSON-10 |
| 1EDN7116U* | 2 A | 0.8 Ω | 20 ns | TSNP-7 |
| 1EDN7126U* | 1.5 A | 1.0 Ω | 40 ns | TSNP-7 |
| 1EDN7136U* | 1 A | 1.5 Ω | 60 ns | TSNP-7 |
| 1EDN7146U* | 0.5 A | 3.0 Ω | 80 ns | TSNP-7 |

*Coming soon



Key features

- > Truly differential logic input (TDI)
- > Four driving strengths
- > Active miller clamp
- > Optional negative charge pump
- > Active bootstrap capacitor

Key benefits

- > High side driving and low side ground bounce immunity
- > Optimize switching speed without external gate resistors
- > Prevent induced turn-on
- > Additional induced turn-on immunity
- > No overcharging the bootstrap capacitor during dead-time



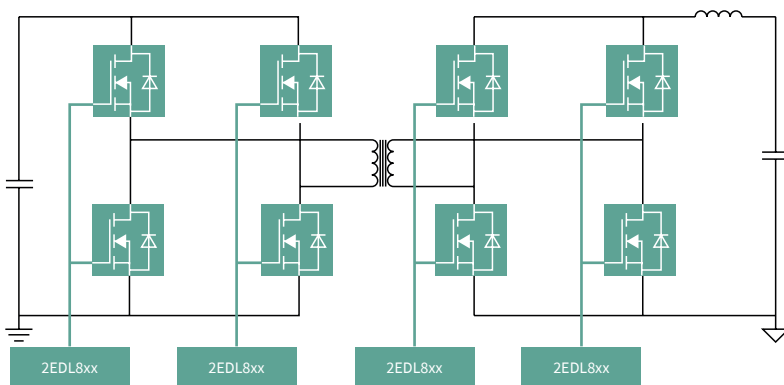
EiceDRIVER™ 2EDL8x2x Family

120 V, 3/4 A, junction-isolated high and low side gate drivers

2EDL8x2x is a family of high and low side gate driver designed for advanced switching DC-DC converters. 2EDL802x takes in independent inputs while 2EDL812x takes in differential inputs with both having built-in hysteresis for enhanced noise immunity. The gate driver family comes in two packages VDSO-8 4x4 mm and VSON-10 3x3 mm.

Schematic diagram

Full bridge – Full bridge (600 W~1300 W)



| Key features |
|--|
| > 120 V integrated boot-strap diode with 10 ns reverse recovery time |
| > 2 A to 4 A output source currents |
| > 6 A output sink currents |
| > -8 V / + 15 V differential input robustness |
| > 5 A reverse current output robustness |
| > ±1 ns (typ.) channel-to-channel delay matching |

| Key benefits |
|--|
| > Drive strength for fast miller plateau transition |
| > Fast and robust |
| > Immunity against false triggering from ground bounce |
| > No need for schottky clamping diodes |

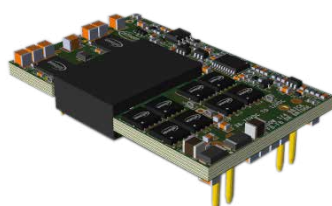
Product family

| Part number | Input | Source current | Sink current | Min input pulse width | propagation delay (typ) | Matching delay (Typ) | ESD | Package |
|--------------|--------------|----------------|--------------|-----------------------|-------------------------|----------------------|------|----------------|
| 2EDL8123G* | Differential | 3 A | 6 A | 40 ns | 45 ns | 2 ns | 2 kV | VDSO-8 4x4 mm |
| 2EDL8124G* | | 4 A | | | | | | |
| 2EDL8023G* | Independent | 3 A | | | | | | |
| 2EDL8024G | | 4 A | | | | | | |
| 2EDL8123G3C* | Differential | 3 A | | | | | | VSON-10 3x3 mm |
| 2EDL8124G3C* | | 4 A | | | | | | |
| 2EDL8023G3C* | Independent | 3 A | | | | | | |
| 2EDL8024G3C* | | 4 A | | | | | | |

*Coming soon

Evaluation board

- > EVAL_HB_2EDL8x2xG*
- > REF_600W_FBFB_QB*



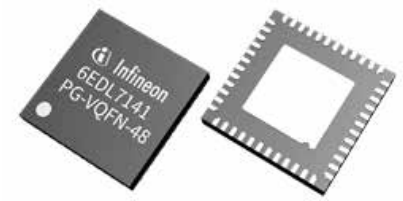
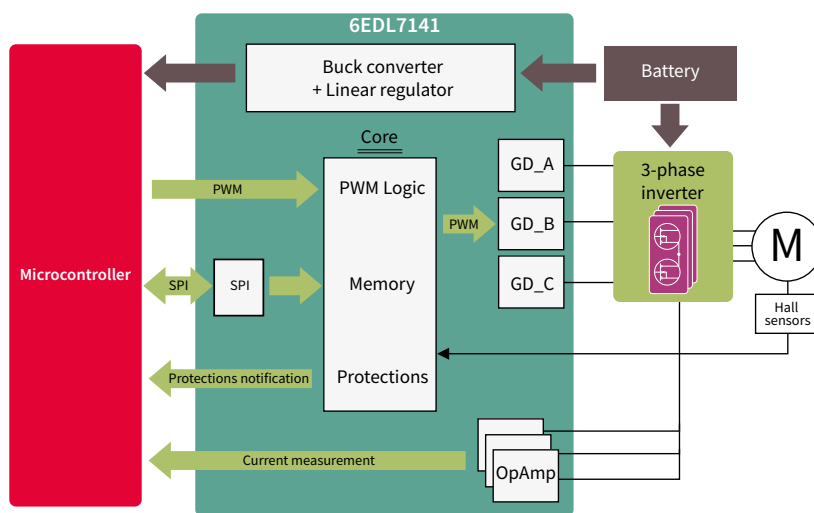
MOTIX™ 6EDL7141: high performance motor control

Next generation fully programmable 3-phase gate driver

6EDL7141, Infineon's latest 3-phase motor control gate driver IC will allow our customers to develop their next generation of high performance battery operated products using BLDC or PMSM motors. Ideal applications include cordless power tools, gardening products, and automated guided vehicles. With over 50 fully programmable parameters using built-in digital SPI interface, 6EDL7141 is fully configurable to drive a wide range of MOSFET's to yield the best possible system efficiency. The integrated buck regulator provides the power for both the microcontroller and the Hall sensors in the motor, further reducing peripheral components and required PCB area. In addition, with a full suite of system protection features such as OCP, UVLO, over-temperature, and locked rotor detection, this dedicated motor controller will increase reliability and robustness in severe operating fault conditions.

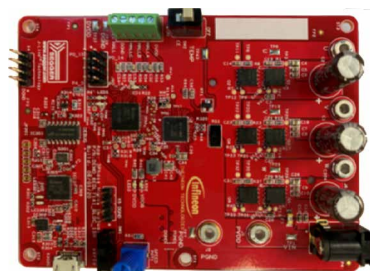
Block diagram

3-phase BLDC battery powered motor control



| Key features |
|---|
| > Integrated power supply |
| > Programmable slew rate |
| > Programmable gate drive supply |
| > 3x current shunt amplifier |
| > ADC ref of 5V |
| > Complete dedicated motor control protection suite |

| Key benefits |
|--|
| > Reduced external components and PCB area |
| > Optimized efficiency and EMI |
| > Maximum flexibility to use different inverter FET's |
| > Highly accurate current sense while saving external components |
| > Higher dynamic range to increase signal resolution |
| > Improve reliability and fault detection |



Evaluation board

- > [EVAL_6EDL7141_TRAP_1SH](#)
- > BC 1 shunt evaluation board
- > Parallel 40V OptiMOS5 PQFN
- > XMC1404 MCU
- > On-board programming dongle
- > Featured module IC: [6EDL7141](#)

MOTIX™ 160 V SOI gate driver family

2ED27xxS01G half-bridge & high and low side gate driver family with integrated bootstrap diode

6ED2742S01Q 3-phase driver with charge pump, current sense amplifier, OCP and bootstrap diode

MOTIX™ 160 V SOI gate driver family is designed for the BLDC motor drive applications. The SOI technology enables integrated bootstrap diodes, which can be used to supply the external high side bootstrap capacitor. The output drivers feature a high-pulse current buffer stage designed for minimum driver cross-conduction.

MOTIX™ 2ED27xxS01G family consists of 3 half-bridge and 3 high and low side 160 V SOI gate drivers. The UVLO protection is on both Vcc and VB pins. Fast propagation delays (50 ns) are suitable for motor drive and power conversion applications in VSON-10 (3x3 mm) with exposed ground pad.

MOTIX™ 6ED2742S01Q is a 160 V three-phase SOI gate driver, which supports 100% duty cycle operation by a trickle charge pump. Protection features include UVLO, OCP with configurable threshold, fault and automatic fault clear. A current sense operational amplifier (CSA) with selectable gain is integrated between the VSS and COM.

| Part Number | Package | Output current | Configuration | Deadtime | Propagation delay | |
|--------------|----------------|----------------|---------------------------|----------|-------------------|-------|
| 2ED2732S01G* | VSON-10 3x3 mm | 1/2 A | High and low-side (HS+LS) | None | 50 ns | |
| 2ED2734S01G* | | 2/4 A | | | | |
| 2ED2738S01G* | | 4/8 A | | | | |
| 2ED2742S01G* | | 1/2 A | Half-bridge | | | 50 ns |
| 2ED2744S01G* | | 2/4 A | | | | |
| 2ED2748S01G* | | 4/8 A | | | | |
| 6ED2742S01Q* | VQFN-32 5x5 mm | 1/2 A | Three-phase | 100 ns | 100 ns | |

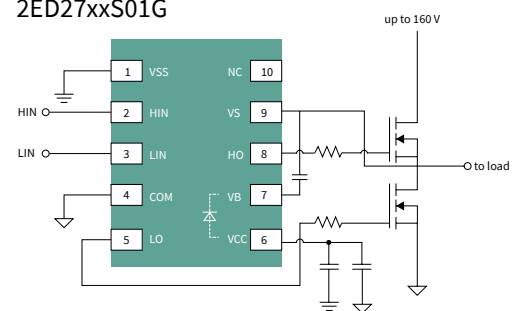
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Applications for MOTIX™ 160 V SOI gate driver family

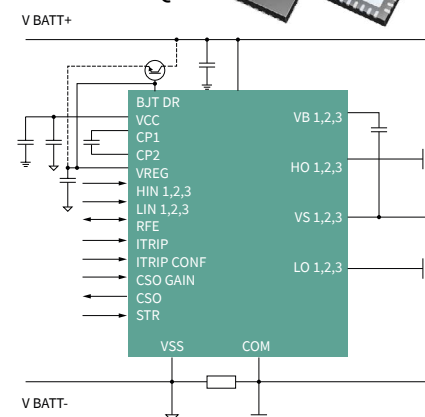
- › Servo / stepper drives in robotics and factory automation
- › General purpose low voltage drives
- › Battery operated small home appliances (SHA)
- › Professional and consumer service robotics
- › Logistics vehicles (e-forklifts, autonomous warehouse robotics)
- › Commercial and agricultural drones
- › Hand-held battery operated power tools
- › Garden or outdoor power equipment (OPE) tools
- › e-scooters, e-bikes, and other e-vehicles that do not require automotive qualification (LSEV)

Simplified application diagram

2ED27xxS01G



6ED2742S01Q



6ED2742S01Q key features

- › Integrated power management with charge pump and pre-regulator supports wide input voltage range of 6 V to 140 V.
- › Integrated over-current protection comparator for single-shunt low side operation with programmable +/-5% reference threshold.
- › Integrated current sense amplifier with programmable voltage gain and ability to read output voltage offset during zero phase current.
- › Always positive output voltage offset to reduce need for +/- VREF for downstream ADC in microcontroller.
- › Integrated, per phase, high side trickle charge pumps to enable 100% duty cycle operation
- › Integrated, multi-function RFE pin combines FAULT, FAULT Clear, and Enable functionality

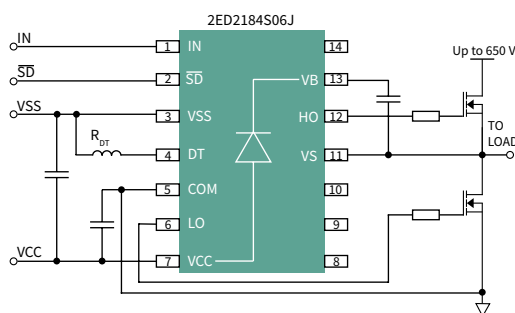
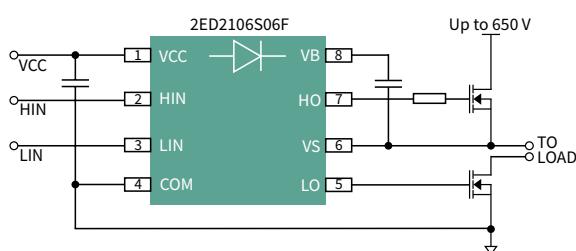
EiceDRIVER™ 650 V level shift SOI gate driver family

2ED2101/3/4 and 2ED2110: EiceDRIVER™ fast level shift SOI family with 90 ns prop delay

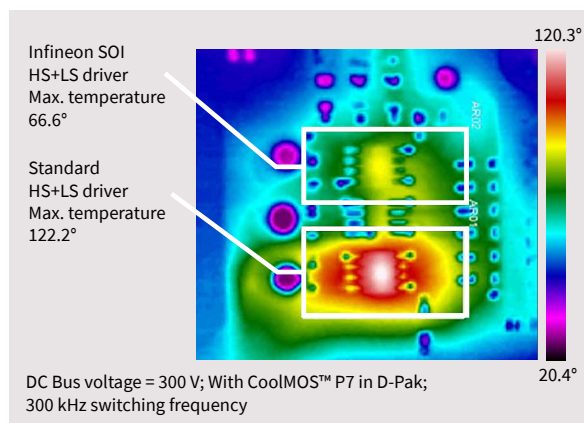
2ED2106/8/9 and 2ED2181/2/3/4: EiceDRIVER™ general purpose SOI family

EiceDRIVER™ 650 V SOI family is high voltage, high speed MOSFET and IGBT gate drivers. Based on Infineon SOI technology, this family features an integrated, ultra-fast, low $R_{DS(on)}$ bootstrap diode and offers excellent ruggedness and noise immunity with tolerance to negative transient voltages of up to -100 V. The absence of parasitic thyristor structures ensures superior latch up immunity. The level-shift loss is significantly reduced on the EiceDRIVER™ SOI gate drivers compare to other technologies.

Simplified application diagrams

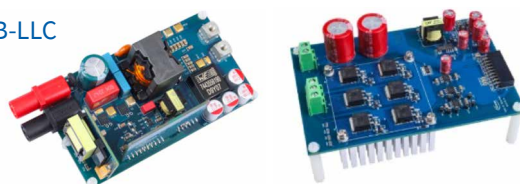


Power dissipation of Infineon SOI



Evaluation board

- > EVAL-M1-2ED2106S
- > EVAL-2ED2101 HB-LLC



| Product family | Part Number | Output current | Prop. delay | Input logic | Configuration | Package |
|-------------------------------------|--------------|----------------|-------------|-------------|-------------------|-----------|
| EiceDRIVER™ Fast level shift SOI | 2ED2101S06F | 0.29/0.7 A | 90 ns | HIN, LIN | High and low-side | DSO-8 |
| | 2ED2103S06F | | | HIN, LIN | Half-bridge | |
| | 2ED2104S06F | | | IN, SD | Half-bridge | |
| | 2ED2110S06M | 2.5/2.5 A | | HIN, LIN | High and low-side | DSO-16 WB |
| EiceDRIVER™ General purpose SOI | 2ED2106S06F | 0.29/0.7 A | 200/200 ns | HIN, LIN | High and low-side | DSO-8 |
| | 2ED21064S06J | | | HIN, LIN | | DSO-14 |
| | 2ED2108S06F | | | HIN, LIN | | DSO-8 |
| | 2ED21084S06J | | HIN, LIN | DSO-14 | | |
| | 2ED2109S06F | | 740/200 ns | IN, SD | Half-bridge | DSO-8 |
| | 2ED21094S06J | | | IN, SD | | DSO-14 |
| | 2ED21091S06F | 2.5/2.5 A | 200/200 ns | IN, DT/SD | High and low-side | DSO-8 |
| | 2ED2181S06F | | | HIN, LIN | | DSO-8 |
| | 2ED21814S06J | | | HIN, LIN | | DSO-14 |
| | 2ED2182S06F | | | HIN, LIN | | DSO-8 |
| | 2ED21824S06J | | HIN, LIN | DSO-14 | | |
| | 2ED2183S06F | | 600/200 ns | Half-bridge | HIN, LIN | DSO-8 |
| | 2ED21834S06J | | | | HIN, LIN | DSO-14 |
| | 2ED2184S06F | | | | IN, SD | DSO-8 |
| 2ED21844S06J | IN, SD | DSO-14 | | | | |

EiceDRIVER™ 1200 V level shift SOI gate driver family

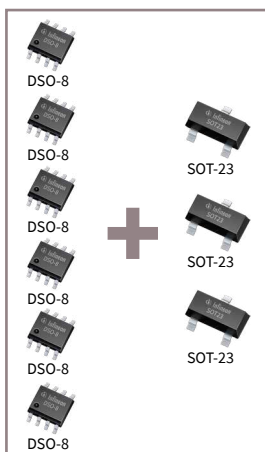
6ED223x: 1200 V 3-phase SOI driver with OCP, bootstrap diode
 2ED132x: 1200 V half-bridge & high and low side SOI driver with OCP, Miller clamp and bootstrap diode



The 6ED2231S12T is a 1200-V three-phase SOI gate driver, with 0.35 A / 0.65 A current in DSO-24 package (DSO-28 with 4 pins removed). The 2ED132x family consists of four 1200-V SOI gate drivers, in half bridge or high and low side configurations. 2ED132x family offers 2.3 A output current in high creepage (5 mm) / clearance DSO-20 wide body package or higher sink option (4.6 A) in DSO-16 wide body package. Both 6ED2231S12T and 2ED132x family integrates ultra-fast over-current protection (OCP) with ± 5% accuracy, and bootstrap diode. 2ED132x family also integrates active Miller Clamp.

Current solutions

6 Opto-isolated drivers +
 3 1200 V bootstrap diodes



New 6ED2231S12T Integrates

6x gate-driver functionality &
 3x boot-strap diodes
 Over-current protection
 IGBT / SiC MOSFET UVLOs

- > Space savings
- > Cost savings
- > Easy to design
- > Higher Reliability
- > Faster time to market



6ED2231S12T easily fits within
 EasyPIM™ 1B module footprint



EVAL-M1-6ED2231-B1

Key features

- > Leading negative VS immunity
- > > 50% lower level-shift switching losses
- > Integrated bootstrap diode
- > 1200 V breakdown voltage integrated input filters

Key benefits

- > Increased robustness and reliability
 → reduced manufacturing and field failures
- > Reduced power dissipation; lower temperature
- > Faster frequency switching
- > Smaller PCB footprints
- > Reduced BOM costs
- > Improved noise sensitivity
- > Latch-up immunity

Customer value

- > Increased profitability from lower lifecycle costs
- > Faster time to market for higher share capture
- > Enables new applications
- > Increased flexibility
- > Increased reliability

| Product Name | Configuration | Package | Output current | Key features | Deadtime | t _{ON} / t _{OFF} |
|--------------|---------------|---------|----------------|---------------------|----------|------------------------------------|
| 6ED2231S12T* | Three-phase | DSO-24 | 0.35 / 0.65 A | OCP, RFE | 460 ns | 700 / 650 ns |
| 2ED1324S12P* | Half-Bridge | DSO-20 | 2.3 / 2.3 A | OCP, SOFF, AMC, RFE | 380 ns | 500 ns |
| 2ED1323S12P* | HS+LS | DSO-20 | 2.3 / 2.3 A | OCP, SOFF, AMC, RFE | None | 350 ns |
| 2ED1322S12M* | Half-Bridge | DSO-16 | 2.3 / 4.6 A | OCP, SOFF, RFE | 400 ns | 500 ns |
| 2ED1321S12M* | HS+LS | DSO-16 | 2.3 / 4.6 A | OCP, SOFF, RFE | None | 350 ns |

*Coming soon

2EDi EiceDRIVER™ family

Fast, robust, dual-channel galvanic isolated Gate Driver ICs

Galvanic isolated EiceDRIVER™ family overview

The 2EDi is a family of dual-channel isolated gate driver ICs designed to drive Si MOSFETs, SiC MOSFETs and GaN power switches. Isolation is achieved by means of Infineon Coreless Transformer (CT) technology which guarantees robust operation and industry benchmark common-mode rejection (CMTI).

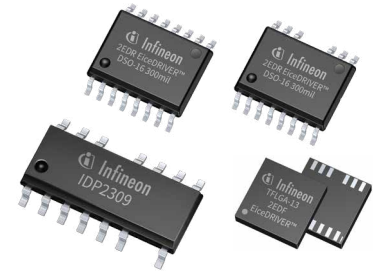
The high propagation delay accuracy and low channel-to-channel mismatch makes the product ideal for use in fast-switching power system. In addition, high CMTI, high reverse current capability and fast clamping of the output below UVLO guarantees reliable operation in the application.

2EDi Gen. II: what is new?

- > DSO-14 packages with increased channel-to-channel creepage to easier the layout or enable the use with higher working voltages or worst pollution layout
- > New LGA 4mmx4mm enabling 70% space saving
- > Fulfills the latest component standard for magnetic couplers (IEC 60747-17)
- > Programmable dead-time and shoot-through functionality

Applications

- > Server
- > Telecom
- > DC-DC converters
- > Power tools
- > Industrial SMPS
- > Low speed electrical vehicles
- > Solar power inverter
- > LED lighting



| Product features | Product benefits | System benefits |
|---|---|---|
| Fast power switching with accurate timing <ul style="list-style-type: none"> > 5 A/ 9 A source/sink currents > Propagation delay typ. 38 ns with 6 ns channel-to-channel precision | Efficiency gain and lower losses <ul style="list-style-type: none"> > Strong driving enables reduced switching losses > Accurate timing enables dead-time optimization or synchronized driving in case of parallel MOSFETs | Enabling higher system efficiency and higher power density designs |
| Optimized for area and system BOM <ul style="list-style-type: none"> > < 1 Ω source and sink output resistance > Output stages with 5 A reverse current capability | Improved thermal behavior at smaller form factor <ul style="list-style-type: none"> > Most of the driving power is dissipated externally with reduced thermal stress on the driver > Eliminates two costly protection diodes on the gate driver outputs | Improving long term competitive cost position, integration and mass manufacturability |
| Robust <ul style="list-style-type: none"> > CMTI >150 V/ns > Under voltage lockout function for switch protection > Dead time control and shoot through protection | Protection and safe operation <ul style="list-style-type: none"> > Reliable driver operation against fast switching transients > MOSFET is protected from thermal stress in abnormal conditions > Protection against noise and spurious pulses | Extending end-product lifetime by improving safe operation of power switches in normal and abnormal field (grid) conditions |
| Output-to-output channel isolation <ul style="list-style-type: none"> > Functional level galvanic isolation | Flexible configurations <ul style="list-style-type: none"> > high-side + low-side, high-side + high-side, low-side + low-side | Lower EMI by ground isolation |
| Input-to-output channel isolation <ul style="list-style-type: none"> > Functional, basic and reinforced galvanic isolation | Regulatory safety <ul style="list-style-type: none"> > Functional for level-shifting and ground bounce immunity > Reinforced for control of primary-side MOSFETs from secondary-side controller | Simplified safety approval through component standards (UL1577, IEC60747-17) and system standards (IEC62368) certificates |

www.infineon.com/cms/en/product/power/gate-driver-ics/dual-channel-isolated-gate-driver-eicedriver-2edi/



EiceDRIVER™ X3 Compact and 2L-SRC Compact



5.7 kV, 18 A, 1-ch, isolated drivers with Miller clamp and 2-level slew rate control

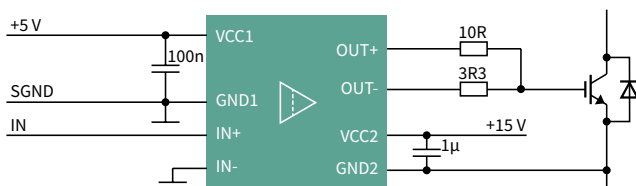
EiceDRIVER™ X3 Compact family (1ED31xx) provides Miller clamp or separate output options with up to 14 A current, in DSO-8 150 mil and 300 mil package. EiceDRIVER™ 2L-SRC Compact family (1ED32xx) provides Miller clamp or 2-level slew rate control options with up to 18 A current, in DSO-8 300 mil package.

The Miller clamp function is highly recommended for SiC MOSFET 0 V turn off and IGBT7 against parasitic turn on. The 2-level slew rate control function allows customers to change the output current on the fly. It is highly recommend for industrial drives application, where customer suffer from the EMI and switching loss optimization.

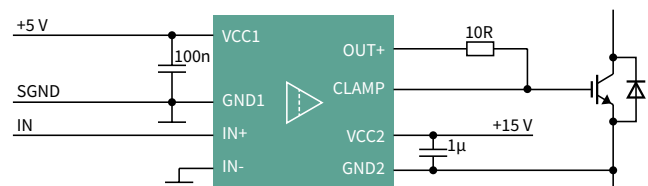
Both EiceDRIVER™ X3 Compact and 2L-SRC Compact families are rated up to 2300 V functional isolation and 200 kV/μs CMTI. They are ideal for IGBTs, MOSFETs, and SiC MOSFETs in applications like solar inverter, EV charging, industrial drives, CAC, industrial induction cooking, CAV, UPS, server and telecom SMPS, etc.

Simplified application diagram

2-level slew rate control (1ED3241MC12H)



Active Miller clamp (1ED3122MC12H)



Evaluation board

- > [EVAL-1ED3121MX12H](#)
- > [EVAL-1ED3122MX12H](#)
- > [EVAL-1ED3124MX12H](#)
- > [EVAL-1ED3241MC12H](#)
- > [EVAL-1ED3251MC12H](#)
- > [REF-22K-GPD-INV-EASY3B](#)



| Family | Part Number | Typ. output current | Feature | Prop. delay | Input filter | UVLO | Prop.delay matching | Package | Isolation rating |
|----------------------------|---------------|---------------------|--|-------------|--------------|--------|---------------------|--------------|---|
| EiceDRIVER™ X3 Compact | 1ED3127MU12F* | 10 A | Miller clamp | 90 ns | 30 ns | 12 V | 7 ns | DSO-8 150mil | UL 1577: VISO = 3 kVrms |
| | 1ED3125MU12F | 10 A | | | | 10.5 V | | | |
| | 1ED3124MU12F | 14 A | | | | 10.5 V | | | |
| | 1ED3131MC12H | 5.5 A | Separate output | 270 ns | 180 ns | 10.5 V | | | |
| | 1ED3120MC12H | 5.5 A | | | | 8 V | | | |
| | 1ED3121MC12H | 5.5 A | | | | 10.5 V | | | |
| | 1ED3122MC12H | 10 A | Miller clamp | 90 ns | 30 ns | 8 V | | | |
| | 1ED3123MC12H | 14 A | | | | 8 V | | | |
| 1ED3124MC12H | 14 A | Separate output | | | 10.5 V | | | | |
| | | | | | 10.5 V | | | | |
| EiceDRIVER™ 2L-SRC Compact | 1ED3240MC12H | 10 A | Turn-on and turn-off slew rate control | 110 ns | 30 ns | 10.5 V | 15 ns | DSO-8 300mil | UL 1577: VISO = 5.7 kVrms VDE 0884-11: VIORM = 1767 V (reinforced) |
| | 1ED3241MC12H | 18 A | | | | 10.5 V | | | |
| | 1ED3250MC12H | 10 A | 10.5 V | | | | | | |
| | 1ED3251MC12H | 18 A | 10.5 V | | | | | | |

*Coming soon

www.infineon.com/gdcompact
www.infineon.com/src



EiceDRIVER™ Enhanced 1ED-F3 and X3 Analog

5.7 kV, 9 A, 1-ch, isolated drivers with DESAT, Miller clamp and soft-off

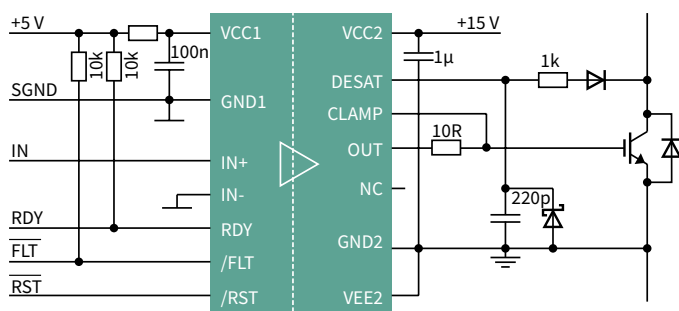
The EiceDRIVER™ Enhanced 1ED-F3 family (1ED332x) provides DESAT, Miller clamp and soft-off features with up to 8,5 A current, in DSO-16 300 mil package. The EiceDRIVER™ Enhanced X3 Analog family (1ED34xx) provides Miller clamp, resistor configurable DESAT and soft-off function with up to 9 A current, in DSO-16 300 mil fine pitch package.

The 1ED-F3 family (1ED332x) is pin2pin with our previous generation 1ED020I12-F2 (1ED-F2), with higher current, shorter propagation delay, higher isolation ratings and additional soft-off function. The X3 Analog family (1ED34xx) offers best-in-class DESAT protection accuracy with the resistor configurability on DESAT filter & leading edge blanking time and soft-off current.

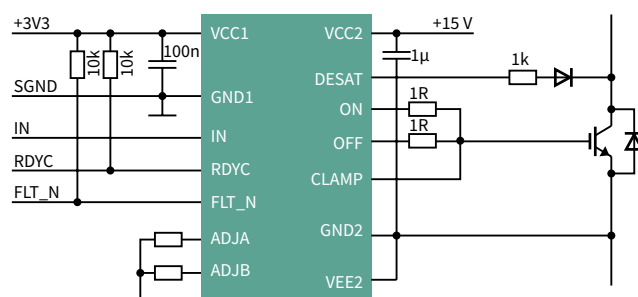
Both EiceDRIVER™ Enhanced 1ED-F3 and X3 Analog families are rated up to 2300 V functional isolation and 200 kV/μs CMTI. They are ideal for IGBTs, MOSFETs, and SiC MOSFETs in applications like solar inverter, EV charging, industrial drives, CAC, industrial induction cooking, CAV, UPS, server and telecom SMPS, etc.

Simplified application diagram

1ED-F3 (1ED332x)



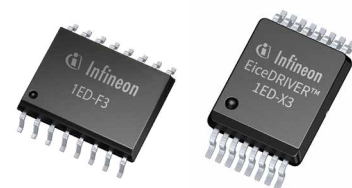
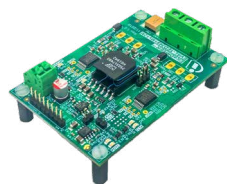
X3 Analog (1ED34xx)



Evaluation board available

[EVAL-1ED3321MC12N](#)

[EVAL-1ED3491Mx12M](#)



| Family | Part Number | Typ. output current | Feature | Prop. delay | Input filter | UVLO | Prop.delay matching | Package | Isolation rating |
|--------------------------------|------------------------------|---------------------|--|-------------|--------------|--------|---------------------|--------------------------|---|
| EiceDRIVER™ Enhanced 1ED-F3 | 1ED3320MC12N | 3/6 A | Miller clamp, DESAT, soft-off | 80 ns | 35 ns | 10.5 V | 15 ns | DSO-16 300mil | UL 1577: V _{ISO} = 5.7 kVrms VDE 0884-11: V _{IORM} = 1767 V (reinforced) |
| | 1ED3321MC12N | 6/8.5 A | | | | 10.5 V | | | |
| | 1ED3322MC12N | 6/8.5 A | Miller clamp, DESAT | | | 12 V | | | |
| | 1ED3323MC12N | 6/8.5 A | | | | 10.5 V | | | |
| EiceDRIVER™ Enhanced X3 Analog | 1ED3431MC12M | 3 A | Miller clamp, Resistor adjustable DESAT and soft-off | 236 ns | 100 ns | 10.5 V | 30 ns | DSO-16 300mil fine pitch | |
| | 1ED3461MC12M | 6 A | Clamp driver, Resistor adjustable DESAT and soft-off | | | 10.5 V | | | |
| | 1ED3491MC12M | 9 A | | | | 10.5 V | | | |



EiceDRIVER™ Enhanced X3 Digital



5.7 kV, 9 A, 1-ch, isolated drivers with I2C configurability for DESAT, Miller clamp, soft-off, etc.

The EiceDRIVER™ Enhanced X3 Digital family (1ED38xx) provides I2C configurability for DESAT, soft-off, UVLO, Miller clamp, two level turn off (TLTO), and Fault function to simplify the design of highly reliable systems. All adjustments are done from the input side via the I2C interface (pin SDA and SCL). 1ED38xx offers up to 9 A current, in DSO-16 300 mil fine pitch package.

EiceDRIVER™ Enhanced X3 Digital family is rated up to 2300 V functional isolation and 200 kV/μs CMTI. They are ideal for IGBTs, MOSFETs, and SiC MOSFETs in applications like solar inverter, EV charging, industrial drives, CAC, industrial induction cooking, CAV, UPS, server and telecom SMPS, etc. X3 Digital is the perfect driver for SiC MOSFET due to the configurability of DESAT and UVLO. Two advantages of the digitally configurable approach for customers are predictive maintenance in sophisticated industrial systems and rapid prototyping for fast solution development.

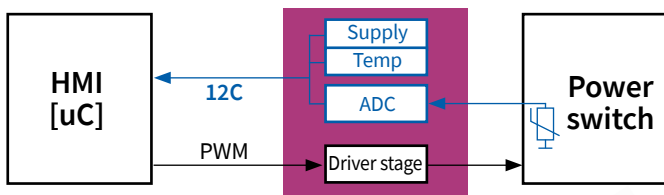
Predictive Maintenance

Using the I²C interface, 1ED38xx is able to register the counts of UVLO spikes, monitor the supply voltage and temperature increase.

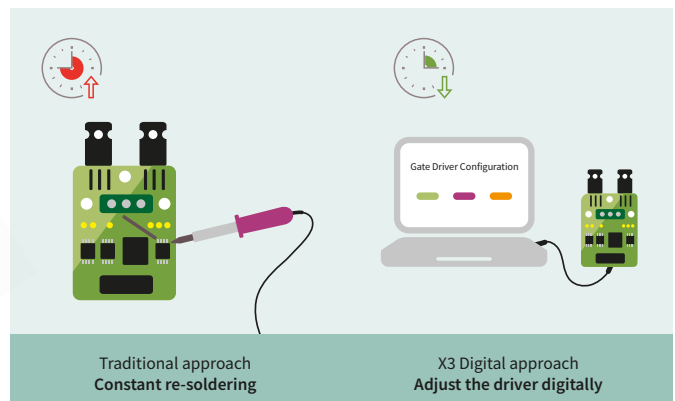
With the long-term analysis of the collected data, customers are able to decide when is the best time to schedule a maintenance cycle before the system fails.

Rapid Prototyping

The I²C interface enables rapid prototyping without hardware changes. Using a traditional gate driver, customers have to first design an initial PCB board, and then adjust and replace the components on the board during evaluation. However, with 1ED38xx I2C interface, customers can configure up to 27 parameters to optimize the board without replacing the components. This feature extremely shortens the development flow.

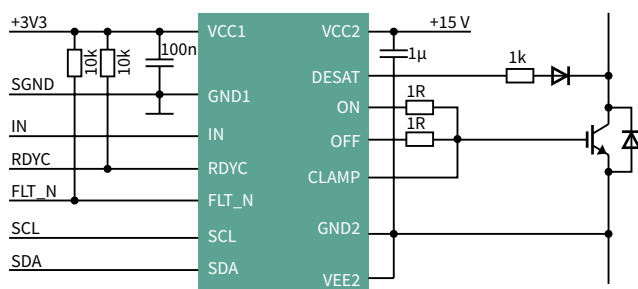


Evaluation board
 EVAL-1ED3890Mx12M
 EVAL-1ED38x0DCT



Simplified application diagram

X3 Digital (1ED38xx)



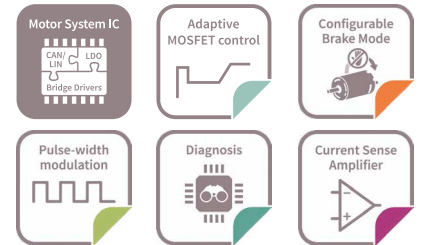
| Family | Part Number | Typ. output current | Feature | Isolation rating |
|---------------------------------|--------------|---------------------|---|--|
| EiceDRIVER™ Enhanced X3 Digital | 1ED3830MC12M | 3 A | I ² C configurability, Miller clamp, DESAT, soft-off, two-level turn-off, integrated ADC | UL 1577: V _{ISO} = 5.7 kVrms VDE 0884-11: V _{ORM} = 1767 V (reinforced) |
| | 1ED3860MC12M | 6 A | | |
| | 1ED3890MC12M | 9 A | | |



MOTIX™ (BL)DC motor system ICs – TLE956x

(BL)DC Motor System IC combines power supply, communication and multiple half-bridge MOSFET drivers

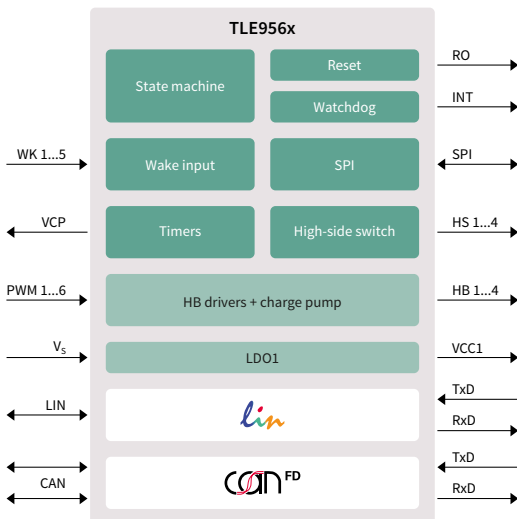
All devices of the Motor System IC family feature a low-dropout voltage regulator with an output current of 250 mA / 5 V. The communication interface incorporates a CAN FD transceiver up to 5 Mbit/s according to ISO 11898-2:2016 (including Partial Networking (PN) option) and / or LIN transceiver. All devices are available in a VQFN-48 (7 mm x 7 mm) package.



Key benefits

- › PCB savings up to 50 percent due to unique integration approach
- › Lower switching losses and EMC optimization due to adaptive MOSFET control
- › Automatic regulation of MOSFET pre-charge currents diminish need for production MOSFET calibration
- › V_s monitoring in sleep mode activates MOSFET to prevent from ECU damage when motor is in generator mode

Simplified application diagram



Key features

- › 5 V linear regulator up to 250 mA
- › CAN FD up to 5 Mbps
- › CAN PN and FD tolerant (“-3” variants)
- › LIN2.2B / J2602
- › TLE9560/1/2: up to 4 half-bridge gate driver with adaptive MOSFET control up to 100 mA constant gate charge
- › TLE9563/4: 3-phase gate driver with CSA and adaptive MOSFET control up to 150 mA constant gate charge
- › Up to 4 high-side switches(with 7 on-resistance)
- › Up to 5 wake inputs
- › Up to 6 PWM inputs

Key applications

- › DC motor control
- › Power lift gate
- › Seat control module
- › Sunroof module
- › HVAC flaps
- › Electric parking actuator
- › Steering column lock
- › Reversible seat belt
- › BLDC motor control
- › Pumps
- › Fans
- › Sunroof
- › Transfer case

Product table

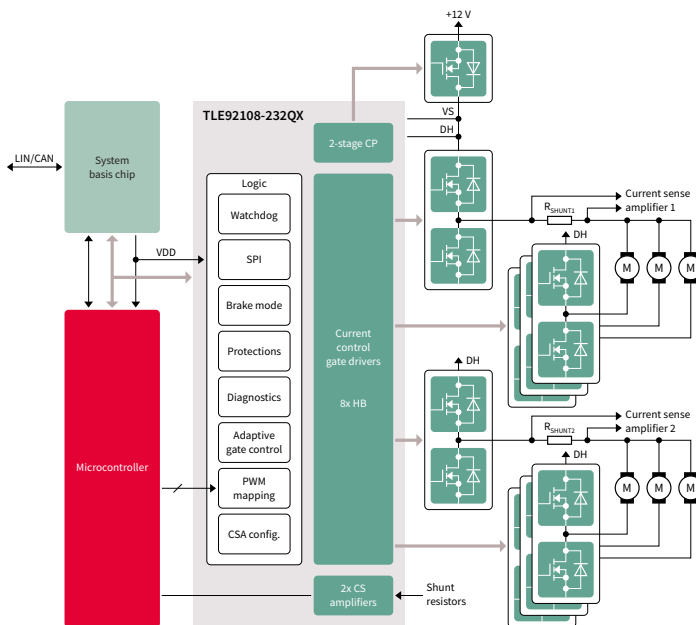
| Product variant | VCC1 | CAN FD | CAN PN | LIN | HS switches | PWM input | Driver |
|-----------------------------|------------------|--------|--------|-----|-------------|-----------|---------------------------------|
| TLE9560-3QX | 5 V up to 250 mA | ✓ | ✓ | ✓ | 4 | 1 | 2x half-bridges (100 mA const.) |
| TLE9561QX | 5 V up to 250 mA | ✓ | × | × | 4 | 4 | 4x half-bridges (100 mA const.) |
| TLE9561-3QX | 5 V up to 250 mA | ✓ | ✓ | × | 4 | 4 | 4x half-bridges (100 mA const.) |
| TLE9562QX | 5 V up to 250 mA | ✓ | × | ✓ | 4 | 2 | 4x half-bridges (100 mA const.) |
| TLE9562-3QX | 5 V up to 250 mA | ✓ | ✓ | ✓ | 4 | 2 | 4x half-bridges (100 mA const.) |
| TLE9563-3QX | 5 V up to 250 mA | ✓ | ✓ | × | 3 | 6 | 3x half bridges (150 mA const.) |
| TLE9564QX | 5 V up to 250 mA | × | × | ✓ | 3 | 6 | 3x half bridges (150 mA const.) |



MOTIX™ multi MOSFET driver ICs – TLE9210x

Multiple half-bridge drivers designed to control up to eight half-bridges

Infiniteon’s TLE9210x is a family of multi MOSFET driver ICs, designed to control up to eight half-bridges (up to 16 n-channel MOSFETs) with one packaged device. Having only one device for several half-bridges enables further savings, such as less pick & place costs as well as less required PCB area compared to discrete solutions. TLE92108 and TLE92104 multiple MOSFET driver offer a reliable and cost optimized solution with state of the art diagnostic and protection. The devices of the TLE9210x family are pin and software compatible. Further, the product family allows motor cascading: with TLE92108 (8 half-bridges), up to 7 motors can be driven.



Key features

- › Adaptive multi-stage MOSFET gate control
- › Configurable brake mode feature
- › Up to 2x flexible current sense amplifiers (high-side capable and bidirectional) with configurable gain
- › 24-bit serial peripheral interface
- › Integrated charge pump for reverse battery protection
- › Drain-source monitoring for hard short circuit detection
- › Current sense monitoring for soft short circuit detection
- › Overtemperature warning and shutdown
- › Timeout watchdog
- › Detailed off-state diagnostic (open load, short circuit to battery or to GND) via SPI
- › 3x PWM inputs (up to 25 kHz)
- › Best-in-class low current consumption in sleep mode
- › AEC Q-100 qualified

Ordering code:

TLE9210423QXAPPKITTOBO1,
TLE9210823QXAPPKITTOBO1



TLE92104-23QX APPKIT
TLE92108-23QX APPKIT

The TLE92104-23QX APPKIT contains TLE92104-232QX, and an application circuit, including 4 OptiMOS™ 40 V MOSFET half-bridges in S308 to drive up to 3 DC motors. The TLE92108-23QX APPKIT contains TLE92108-232QX, and an application circuit, including 8 OptiMOS™ 40 V MOSFET half-bridges in S308 to drive up to 7 DC motors. The application boards can be connected via a UIO stick with the computer to evaluate its features via Config Wizard (a graphical user interface) which can be found in the [Infineon Developer Center](#). The Reference Design Guide: [TLE92108-23QX Central door lock with multiple MOSFET driver](#) is available.

Product table

| Type | Description | Brake mode | Package | Ordering Code |
|--------------------------------|-------------------------------|------------|------------|--------------------|
| TLE92108-231QX | 8-fold Multi-MOSFET driver IC | No | PG-VQFN-48 | TLE92108231QXXUMA1 |
| TLE92108-232QX | 8-fold Multi-MOSFET driver IC | Yes | PG-VQFN-48 | TLE92108232QXXUMA1 |
| TLE92104-131QX | 4-fold Multi-MOSFET driver IC | No | PG-VQFN-48 | TLE92104131QXXUMA1 |
| TLE92104-232QX | 4-fold Multi-MOSFET driver IC | Yes | PG-VQFN-48 | TLE92104232QXXUMA1 |



MOTIX™ automotive motor gate driver ICs

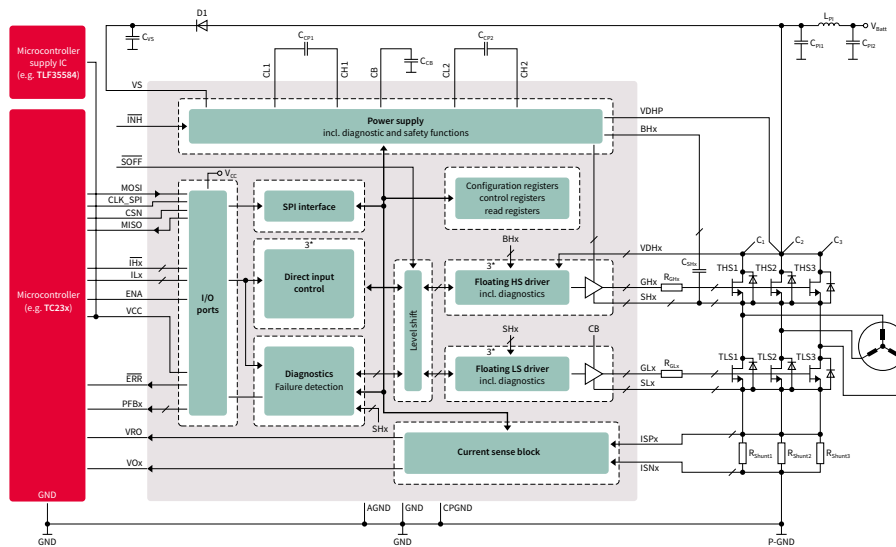
TLE9180D-21QK / TLE9180D-31QK

The TLE9180D-21QK and TLE9180D-31QK are advanced gate driver ICs dedicated to control 6 external N-channel MOSFETs forming an inverter for high current 3-phase motor drives application in the automotive sector.

A sophisticated high voltage technology allows ICs to support applications for single and mixed battery systems with battery voltages of 12 V, 24 V and 48 V. An integrated SPI interface is used to configure the IC for the application after power-up. After successful power-up parameters can be adjusted by SPI, monitoring data, configuration and error registers can be read. Cyclic redundancy check over data and address bits ensures safe communication and data integrity.

The TLE9180D-21QK has two integrated current sense amplifier (CSA) for shunt signal conditioning, whereas the TLE9180D-31QK has three CSA. Gain and zero current voltage offset can be adjusted by SPI. The offset can be calibrated. The IC has an integrated safety barrier that protects the microcontroller from potential damages in case of GDU failure.

Typical application schematic



Product table

| Product | Description | Ordering code | Package |
|--------------------|---|---------------|------------|
| TLE9180D-21QK | 3-phase gate driver IC with 2 current sense amplifier | SP001615886 | PG-LQFP-64 |
| TLE9180D-31QK | 3-phase gate driver IC with 3 current sense amplifier | SP001417250 | PG-LQFP-64 |
| EVAL_TLE9180D-31QK | Evaluation board for TLE9180D-31QK incl. GUI for register configuration | SP005344733 | Box |

Key features

- > Supply range from 5.5 V - 60 V
- > Powerful driver stage with typ. 2 A output current per channel
- > 0 to 100% duty cycle range
- > Integrated current sense amplifier for shunt signal conditioning
- > Extended protection & supervision
- > LQFP-64 exposed pad package

Key benefits

- > Suitable for 12 V, 24 V and 48 V battery voltages
- > Integrated load current measurement
- > Detailed diagnosis supports safety relevant use cases
- > Limp home mode

Key applications

- > 48 V motor drives
- > Cooling fans
- > Water pump
- > Oil pump
- > HVAC compressor
- > Commercial and agricultural vehicles



EiceDRIVER™ APD 2ED4820-EM

48 V smart high side MOSFET gate driver with SPI for automotive applications

The EiceDRIVER™ 2ED4820-EM is a smart high side N-channel MOSFET gate driver with two outputs controlled via SPI. The integrated powerful charge pump allows external MOSFETs to stay continuously on. Thanks to the enhanced turn-on and turn-off ability of the driver, the number of MOSFETs could be easily scaled up to manage large currents in the order of several hundred amps, while ensuring fast switch on and off. The MOSFETs could be controlled in a back to back configuration either common mode or common source. The integrated current sense amplifier supports high side and even load side current measurement with a dedicated monitoring output.

The 2ED4820-EM comes along with several latching failure detections, to implement protections for the external MOSFETs, the load and the power source. Parameters can be adjusted by SPI; monitoring data, configuration, warning and failure detection registers can be read.

Summary of Features

- › Extended supply voltage range: 20 - 70 V
- › Two independent high-side gate driver outputs with 1 A pull down, 0.3 A pull up for fast switch off/on
- › Low supply current in sleep mode $IBAT_Q < 5 \mu A$
- › Device control, configuration and diagnostic via SPI
- › Configurable overcurrent/short circuit protection
- › Configurable Drain-Source overvoltage protection
- › Gate undervoltage lockout (VGS)
- › Ground loss detection
- › AEC-Q100 qualification
- › Lead-Free, Halogen Free, RoHS compliant

Summary of Features

- › Supports back-to-back MOSFET topologies (common drain or common source)
- › SAFESTATEN input to trigger safe state mode in case of μC failure
- › One bidirectional high or low side analog current sense interface with configurable gain to optimize power losses
- › Robust against Vbat voltages up to 105 V and Vsource voltages versus Vbat of -90 V

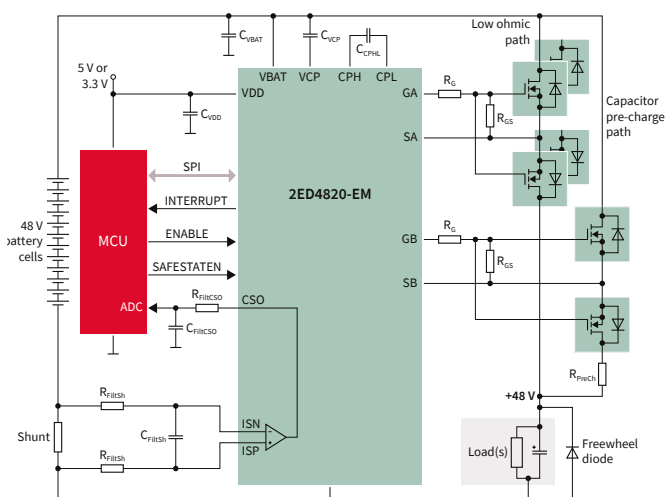
Summary of Features

- › Battery protection switch
- › Input protection switch
- › Static load and supply switch for high currents

Product table

| Product | Description | Ordering code | Package |
|-------------------------------------|---|---------------|-------------|
| 2ED4820-EM | 48 V smart high-side MOSFET gate driver with SPI | SP005629911 | PG-TSDSO-24 |
| 2ED4820 EB2 2HSV48 | 2ED4820 Dual high-side switch – 48 V Evaluation Board | SP005353778 | BOARD |
| R 48V BATT Switch10 | 48V Battery disconnect switch - Reference design | SP005595834 | BOARD |

2ED4820-EM in 48 V battery protection switch application



EiceDRIVER™ 1EDI302xAS / 1EDI303xAS

1200 V galvanically isolated automotive gate driver IC family

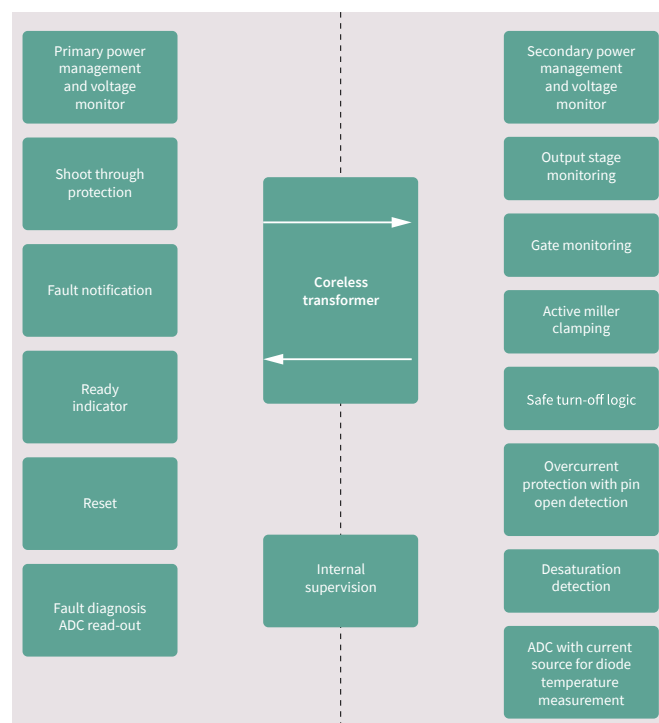


The EiceDRIVER™ 1EDI302xAS / 1EDI303xAS is a family of automotive qualified 1-channel high voltage gate drivers optimized for IGBT and SiC technologies. The robust Infineon Coreless Transformer Technology is used to provide bi-directional signal transfer across the galvanic isolation barrier. Comprehensive safety features and ISO26262 compliance enable ASIL D classification on system level. Accompanying safety documents ease and speed-up FMEDA analysis in the application. The compact package design and high level of feature integration save valuable PCB space and system cost, while pre-configured settings reduce design efforts. Pin-compatible product variants make it easy to switch between variants and swiftly adjust ECUs to different application needs (i.e. SiC MOSFET vs IGBT).

Product features

- › Single channel isolated IGBT driver
- › For IGBTs up to 1200 V
- › High CMTI up to 150 V/ns
- › 8 kV basic insulation according to DIN VDE V 0884-11:2017-01
- › Basic insulation according to UL 1577
- › Min. 12 A peak current rail-to-rail output
- › Propagation delay 60 ns typical
- › Typ. 10 A integrated active Miller clamp supports unipolar switching
- › Integrated, accurate 12 Bit ADC for temperature measurements
- › Integrated safety features to support ASIL B(D):
 - DESAT and differential OCP protection
 - Gate and output stage monitoring
 - Shoot-through protection
 - Primary/secondary supply monitoring
 - Internal supervision
- › Advanced driver diagnosis with duty cycle coded DATA pin
- › Green Product (RoHS compliant)
- › AEC-Q100 qualified
- › Compact DSO-20 fine pitch package

Simplified block diagram



Potential applications

- › Traction inverters for HEV and EV
- › Auxiliary inverters for HEV and EV
- › High power DC/DC converters

Evaluation boards

- › 1EDI30XXAS EVALBOARD
- › 1EDI303XAS EVALBOARD*
- › 1EDI302XAS EVALBOARD*



Product family overview

| Product | Driver support | Additional functionality |
|----------------------------|----------------|---------------------------|
| 1EDI3020AS | IGBT | ADC for Temperature Diode |
| 1EDI3021AS | IGBT | Active Short Circuit |
| 1EDI3023AS | IGBT | ADC for NTC & DC-Link |
| 1EDI3030AS | SiC | ADC for Temperature Diode |
| 1EDI3031AS | SiC | Active Short Circuit |
| 1EDI3033AS | SiC | ADC for NTC & DC-Link |

*Coming soon



Infineon controller technologies

AURIX™ 32-bit TriCore™ Microcontroller

Evolution of TriCore™ generations

In 1999, Infineon launched the first generation of the AUDO (AUtomotive unified processOR) family. Based on a unified RISC/MCU/DSP processor core, this 32-bit TriCore™ microcontroller was a computational power horse. And the company has evolved and optimized the concept ever since – culminating in what is now the sixth TriCore™ generation.

range of memories, peripheral sets, frequencies, temperatures and packaging options. And all this with a high degree of compatibility across generations.

The TriCore™ success story continues with the AURIX™ TC2xx multicore family. AURIX™ combines easy-to-use





Thanks to its high real-time performance, embedded safety and security features, the TriCore™ family is the ideal platform for a wide range of automotive applications. These include powertrain engine management and transmission, electric and hybrid vehicles, chassis domains, braking systems, electric power steering systems, airbags, connectivity and advanced driver assistance systems to support the trend toward autonomous, clean and connected cars. TriCore™-based products also deliver the versatility required for the industrial, CAV and transportation sector, excelling in optimized motor control applications and signal processing. Infineon’s broad product portfolio allows engineers to choose from a wide

functional safety support, strong performance and a future-proven security solution in a highly scalable product family.

The next natural evolution in terms of performance is the AURIX™ TC3xx, which is manufactured in 40 nm embedded flash technology and designed for ultimate reliability in harsh automotive environments. As before with AURIX™, the dual frontend concept ensures continuous supply. An extensive ecosystem is available including the AUTOSAR libraries which Infineon has been developing since 2005. Plus the safety software is also available to help manufacturers meet SIL/ASIL safety standards.

AURIX™ TC3xx

| | |
|---|--|
| <p>MCU scalability</p> <ul style="list-style-type: none"> > Performance and flash > Pin compatibility > Binary-compatible cores | <p>Safety/security concept</p> <ul style="list-style-type: none"> > ISO 26262 compliance > Hardware security support Full EVITA > IEC 61508 compliant   |
| <p>Power consumption</p> <ul style="list-style-type: none"> > On-chip SC DC-DC high-efficiency power supply > Integrated stand-by controller | <p>Connectivity</p> <ul style="list-style-type: none"> > Ethernet: up to 2x 1 GB > CAN FD: up to 20 channels > LIN: up to 24 channels > eMMC IF |

Family highlights

- > Compatibility and scalability
- > Lowest system cost
- > Industry benchmark system performance
- > Easy to use
- > Broad portfolio
- > Certified to automotive standards



Industrial & Multimarket



Applications

- | | |
|-------------------------|----------------|
| > Mobile controller | > Servo drives |
| > Inverter | > Solar panel |
| > Wind turbine inverter | > Robotics |
| | > Medical |
| | > Elevator |

iMOTION™

Flexible and scalable platform for motor control solutions

iMOTION™ products integrate all required hardware and software functions for the control of a variable speed drive (VSD). Infineon’s field proven Motion Control Engine (MCE) eliminates software coding from the motor control development process reducing the effort to the configuration for the respective motor and power stage.

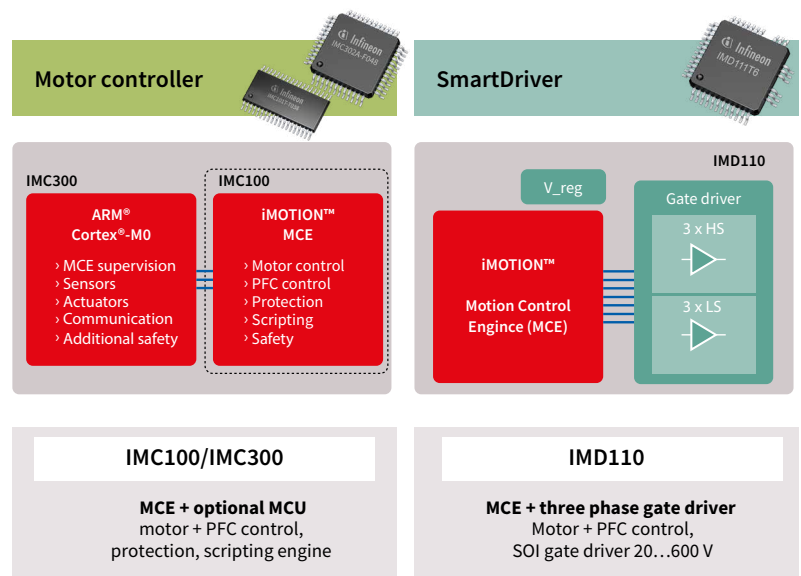
The MCE implements highly efficient control of the motor and an optional power factor correction (PFC) and integrates all necessary protections and a flexible scripting engine. Configuration options allow the use of single or leg shunt current measurement as well as sensorless or hall-based field oriented control (FOC). Assisted by powerful tools like the Solution Designer it is possible to have the motor up and running in less than an hour. Integrated support for functional safety for home appliances paves the way to meet regulations in the global market

Market requirements

- › Energy-efficiency regulations drive inverterization rate
- › Shorter design cycles are driven by reduced product life cycles
- › Focus on key differentiators drives trend to outsourcing
- › Increased price pressure requires system cost reduction
- › Compact DSO-20 fine pitch package

Key benefits

- › Easy to use – no special motor control know-how required
- › High performance and energy-optimized solution
- › Simplify the system solution by eliminating the Hall sensor for control
- › Fastest time-to-market



Product table

| Product | Integration level | Control option | Typical applications |
|---------|-----------------------------------|----------------------|---|
| IMC099 | MCE | Motor inverter | Simple Fans and Pumps |
| IMC101 | MCE + Scripting | Motor inverter | Refrigerators, Washing Machines, Fans, Pumps, AirCon, Blender |
| IMC102 | MCE + Scripting | Motor inverter + PFC | Fans, Pumps, AirCon, Blender,... |
| IMC301 | MCE + Scripting + Arm® Cortex®-M0 | Motor inverter | Refrigerators, Washing Machines, Fans, Pumps, Door & shutter drives |
| IMC302 | MCE + Scripting + Arm® Cortex®-M0 | Motor inverter + PFC | AirCon (Outdoor Unit) |
| IMD111 | MCE + Scripting + Gate Driver | Motor inverter | Refrigerators, Fans (Table, Ceiling, Air Purifier,...) |
| IMD112 | MCE + Scripting + Gate Driver | Motor inverter + PFC | In & Outdoor Fans |

www.infineon.com/iMOTION

www.infineon.com/iMOTION-software

PSoC™ IoT, Consumer and Industrial

PSoC™ 6

The PSoC™ 6 family is the perfect solution for secure, low-power, feature-rich IoT products. The family is built on an ultra-low-power architecture, including advanced low-power design techniques to extend battery life up to a full week for battery powered applications. The dual-core Arm® Cortex®-M4 and Cortex-M0+ architecture lets developers optimize for power and performance simultaneously. Using its dual cores combined with configurable memory and peripheral protection units, PSoC™ 6 enables Platform Security Architecture (PSA) level 2 certified MCUs.

Designers can use the MCU's rich analog and digital peripherals to create custom analog front-ends (AFEs) or digital interfaces for innovative system components such as MEMS sensors, electronic-ink displays. The PSoC™ 6 MCUs feature the latest generation of industry-leading CapSense™ capacitive-sensing technology, enabling modern touch and gesture-based interfaces that are robust and reliable.



PSoC™ 4

As a broad portfolio of Arm® Cortex®-M0 and Cortex-M0+ microcontrollers, PSoC™ 4 is ideally suited to solve the design needs of IoT developers as they connect the real world to the digital world. The MCUs feature the latest generation of industry-leading CapSense™ capacitive-sensing technology, enabling modern touch and gesture-based interfaces that are robust and reliable. In addition, the PSoC™ 4 includes a customizable analog front end through programmable analog blocks, programmable digital blocks as well as wired and wireless connectivity options such as USB, CAN, and Bluetooth® Low Energy. These unique features make PSoC™ 4 one of the industry's most-flexible and scalable low-power mixed-signal architectures.



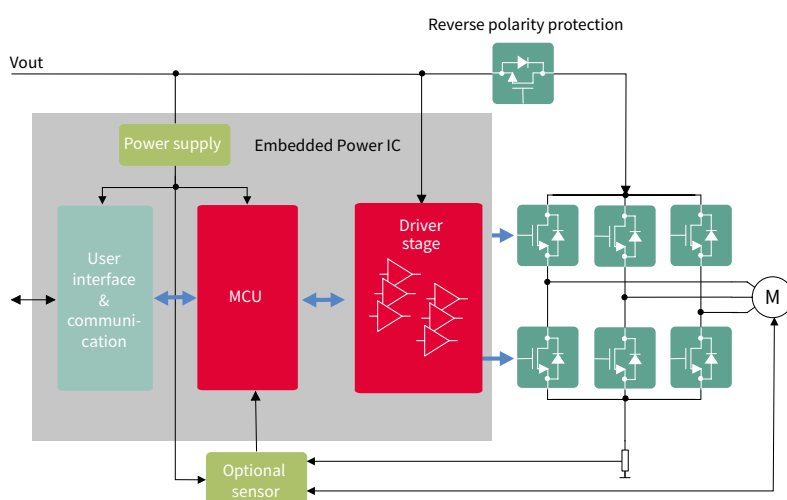
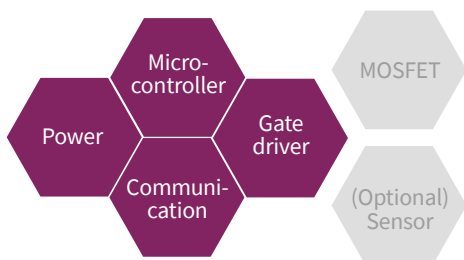
MOTIX™ Embedded Power IC

High-integrated solution for low-voltage mechatronic motor control

MOTIX™ Embedded Power ICs are specifically designed to enable mechatronic motor control solutions for a range of applications in which a small package form factor and a minimum number of external components are essential. Such applications include window lift, sunroof, wiper, fuel pump, HVAC blower, engine cooling fan, water and oil pump. Produced on Infineon’s first-in-industry automotive-qualified Smart Power Technology, the MOTIX™ Embedded Power System-on-Chip (SoC) solutions offer the highest level of integration of all functions required to sense, control and actuate a motor on one single die. These functions include an Arm® Cortex®-M microcontroller, non-volatile flash memory, analog and mixed signal peripherals, communication interfaces along with driving stages needed for either relay, half-bridge or full-bridge DC and BLDC motor applications.

Applications

- > Window lift
- > Sunroof
- > Wiper
- > Fuel pump
- > Oil pump
- > Water pump
- > Engine cooling fan
- > HVAC blower



Key features and benefits

- > Enable cost and board improvements – the chip comes in a compact VQFN-48/TQFP-48 package with 7 x 7 mm footprint that enables PCB space saving. The MOTIX™ Embedded Power IC families allow driving of relays and MOSFETs at VBatt > 6 V without external components, providing very cost effective solution on a system level. Extensive diagnostics and protections features are embedded within the system-on-chip
- > Intelligent power saving modes including stop and sleep mode and energy management for external sensors (on demand)
- > Support multiple and flexible designs with minimal effort – all MOTIX™ Embedded Power ICs are software compatible, maximizing a single design through scalability.

| Criteria | TLE984x | TLE9845 | TLE9850/1 | TLE985x | TLE986x | TLE987x |
|-----------------------------|-----------------|-------------|------------------------|-------------|------------------------------------|-----------|
| Controller | Arm® Cortex® M0 | | | | Arm® Cortex® M3 | |
| Core frequency | 25-40 MHz | 40 MHz | | | 24-40 MHz | |
| Flash size | 36KB – 64KB | 48KB | 48/64KB | 48KB – 96KB | 36KB – 256KB | |
| Driver stage | Relay | Half-bridge | | Half-bridge | | B6-bridge |
| | | PN FET | NN FET | N FET | | |
| High-voltage monitor inputs | 4-5 | 5 | 4 | | 0-1 | |
| Junction temperature levels | 150°C | 150°C | 150°C/175°C | | 150°C/175°C | |
| Packages | VQFN-48-31 | | VQFN-48-29, VQFN-48-31 | | VQFN-48-29, VQFN-48-31, TQFP-48-10 | |

Tools and Software

- > MOTIX™ Embedded Power ICs are supported by a complete development tool chain provided by Infineon and third-party vendors.
- > The tool chain includes compilers, debuggers, several evaluation boards, LIN low level drivers and configuration tools as well as various software code examples. Additional tools supporting the design-in process are available via the Infineon Toolbox.

MOTIX™ Embedded Power ICs

TRAVEO™ II portfolio

Thanks to its special features the Traveo™ II family is the perfect match for industrial applications. With processing power and network connectivity built into a single Arm® Cortex®- M4F and dual Cortex®- M7F, the Traveo™ II family comes up with an enhanced performance up to 1500 DMIPS and a high-performance CPU operating up to 350 MHz.



| Product type | Supply Voltage [V] | Main Core frequency [MHz] | Flash (Code + Work) [kB] | SRAM [kB] | GPIO | ADC Channels | CAN/CAN FD Channels | Ethernet 100/1000 Mbit | SCB Channel | CXPI Channel | SMIF (SPI/HyperBus) | LIN Channel | I ² S Channel | eMMC Channels | HSM | Temperature ranges | Packages | SIL Level |
|---------------------------------|--------------------|---------------------------|--------------------------|-----------|------|--------------|---------------------|------------------------|-------------|--------------|---------------------|-------------|---------------------------------|---------------|-----|--------------------|-----------|-----------|
| TRAVEO™ II CYT2B7 series | | | | | | | | | | | | | | | | | | |
| CYT2B75CADQ0AZEGS | 2,7 to 5,5 | 160 | 1088 + 96 | 128 | 78 | 39 | 6 | no | 8 | 0 | - | 7 | - | 0 | Yes | E | 100-LQFP | ASIL-B |
| CYT2B78CADQ0AZEGS | 2,7 to 5,5 | 160 | 1088 + 96 | 128 | 152 | 64 | 6 | no | 8 | 0 | - | 8 | - | 0 | Yes | E | 176-LQFP | ASIL-B |
| TRAVEO™ CYT2B9 series | | | | | | | | | | | | | | | | | | |
| CYT2B95CACQ0AZEGS | 2,7 to 5,5 | 160 | 2112 + 128 | 256 | 78 | 39 | 8 | no | 8 | 4 | - | 9 | - | 0 | Yes | E | 100-LQFP | ASIL-B |
| CYT2B98CACQ0AZEGS | 2,7 to 5,5 | 160 | 2112 + 128 | 256 | 152 | 64 | 8 | no | 8 | 4 | - | 12 | - | 0 | Yes | E | 176-LQFP | ASIL-B |
| TRAVEO™ CYT3BB series | | | | | | | | | | | | | | | | | | |
| CYT3BB8CEBQ0AEGS | 2,7 to 5,5 | 250 | 4160 + 256 | 768 | 148 | 64 | 8 | 1 | 10 | 0 | 1 | 16 | TX 3ch, RX 3ch (3 instances) | 1 | Yes | S | 176-TEQFP | ASIL-B |
| CYT3BB8CEBQ0BZEGS | 2,7 to 5,5 | 250 | 4160 + 256 | 768 | 220 | 72 | 8 | 1 | 11 | 0 | 1 | 16 | TX 3ch, RX 3ch (3 instances) | 1 | Yes | E | 272-BGA | ASIL-B |
| TRAVEO™ CYT4BF series | | | | | | | | | | | | | | | | | | |
| CYT4BF8CEDQ0AEEGS | 2,7 to 5,5 | 350 | 8384 + 256 | 1024 | 148 | 81 | 10 | 1 | 10 | 0 | 1 | 17 | TX 3ch, RX 2ch (3 instances) | 1 | Yes | E | 176-TEQFP | ASIL-B |
| CYT4BFCCJDQ0BZEGS | 2,7 to 5,5 | 350 | 8384 + 256 | 1024 | 240 | 86 | 10 | 2 | 11 | 0 | 1 | 20 | TX 3ch, RX 2ch (3 instances) | 1 | Yes | E | 320-BGA | ASIL-B |

XMC™

One microcontroller platform – countless solutions

Infineon's XMC™ 32-bit industrial microcontroller portfolio is designed for efficiency and demanding industrial applications.

XMC™ MCU portfolio

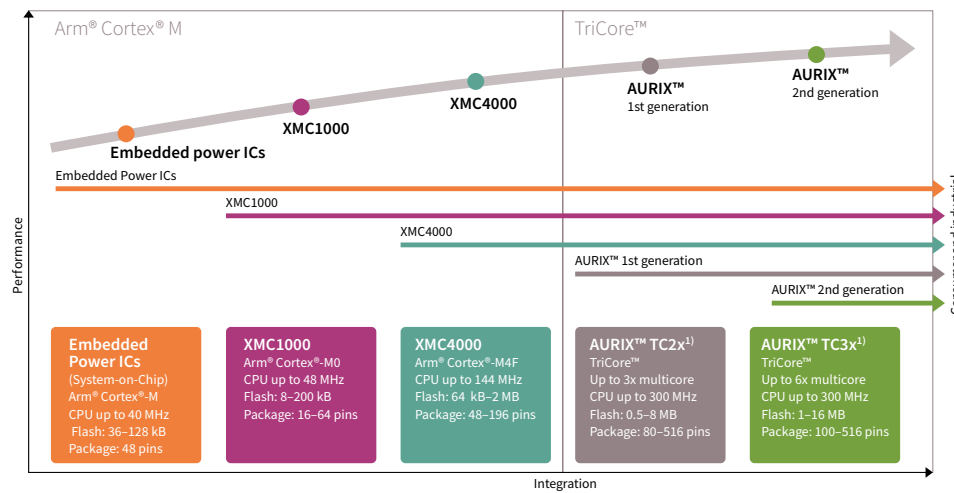
- > RAM: 8 kB up to 352 kB
- > Flash: 16 kB up to 2 MB
- > Accurate analog mixed-signal peripherals
- > Fast timer/PWM peripherals
- > Rich communication interfaces
- > 16-pin to 196-pin count packages

XMC1000 family

- > Arm® Cortex®-M0 up to 48 MHz
- > Peripherals up to 96 MHz
- > One-time event request unit (ERU)
- > V_{DD}: 1.8 to 5.5 V
- > T_{Ambient}: -40°C to 105°C

XMC4000 family

- > Arm® Cortex®-M4 up to 144 MHz
- > Built-in DSP, SFPU
- > Peripherals up to 144 MHz
- > Event request unit (ERU)
- > T_{Ambient}: -40°C to 125°C



1) AURIX™ devices add safety and CAN FD



| | | | | |
|--|---|---|--|--|
| XMC4000 Arm® Cortex®-M4F up to 144 MHz core 64 kB-2 MB Flash up to 125°C | XMC4100 Basic control and connectivity VQFN-48 LQFP-64 | XMC4200 Server power 150 ps HRPWM LQFP-64/100 | XMC4700/4800 Industrial drives, Hall and encoder I/F, ΔΣ demodulator, LQFP-100/144 LFBGA-196 | XMC4800, XMC4300 EtherCAT, +drives MultiCAN - 6 nodes LQFP-100/144 LFBGA-196 |
| | | | XMC4100/XMC4400 Industrial drives, Hall and encoder I/F, ΔΣ demodulator, LQFP-64/100/144 LFBGA-144 | XMC4500 MultiCAN - 3 nodes, Ethernet, +drives ext. memory, SD/MMC LQFP-100/144 LFBGA-144 |
| XMC1000 Arm® Cortex®-M0 up to 48 MHz core/ 96 MHz peripheral 8-200 KB flash up to 105°C 1.8-5.5 V | XMC1100 Basic control and connectivity TSSOP-16/38 VQFN-24/40 | XMC1400 Flicker-free, 4-Ch LED, SMPS, connectivity VQFN-40/64 LQFP-64 | XMC1400 Hall and encoder I/F, MATH co-processor, CAN VQFN-40/64 LQFP-64 | XMC1400 Multi CAN - 2 nodes VQFN-48/64 LQFP-64 |
| | | XMC1200, XMC1300 Flicker-free, 4-Ch LED, SMPS, connectivity TSSOP-16/28/38 VQFN-24, -40 | XMC1300 SMPS control, connectivity, TSSOP-16/38 VQFN-24/40 | XMC1300 Hall and encoder I/F, MATH co-processor, TSSOP-16/38 VQFN-24/40 |
| XMC™ entry | LED lighting | Digital power | Motor control | Industrial I/O |



Infineon gate driver evaluation boards

| Board Picture | Product | Board Description | Topology | Highlighted products | Application | | | | |
|---------------|------------------------|--|------------------|---|---------------------------------|--------------------------------|-------------------------------|-----|-------|
| | | | | | Automotive electric drive train | Automotive low V motor control | Automotive power distribution | CAV | Solar |
| | 1EDI2010AS EVALKIT | EiceDRIVER™ Sense IGBT gate driver evaluation kit for traction inverter applications | Half Bridge | 1EDI2010AS, 1EBN1001AE | ✓ | | | | |
| | 1EDI302XAS EVALBOARD | Evalboard with 1EDI3021AS and 1EDI3020AS | Full Bridge | 1EDI3021AS, 1EDI3020AS | ✓ | | | | |
| | 1EDI303XAS EVALBOARD | Evalboard with 1EDI3031AS and 1EDI3033AS | Half Bridge | 1EDI3031AS, 1EDI3033AS | ✓ | | | | |
| | 1EDI30XXAS EVALBOARD | EiceDRIVER™ 1EDI30xxAS evaluation board without pre-mounted parts. Can switch between different variants | Half Bridge | 1EDI302xAS, 1EDI303xAS | ✓ | | | | |
| | 24V BATT SWITCH DEMO | Reference board of a semiconductor based solution of a 24 V battery protection switch for trucks | Single high-side | AUIR3242, IPLU300N04S4 | | | ✓ | ✓ | |
| | AUIR3241S Board B2B | Board for 12 V automotive applications, with a back to back, N-channel MOSFET common source structure. | Single high-side | AUIR3241S, IAUC120N04S6 | | | ✓ | | |
| | AUIR3242S Board B2B | Board for 12 V automotive applications, with a back to back, N-channel MOSFET common source structure. | Single high-side | AUIR3242S, IAUC120N04S6 | | | ✓ | | |
| | BLDC SHIELD_TLE956X | Board connected to PC via UIO stick using ConfigWizard in Infineon Toolbox, with Arduino Shield interface for rapid prototyping | 3-Phase | TLE9563-3QX, TLE9564QX | ✓ | | | | |
| | DC SHIELD_TLE956X | Board connected to PC via UIO stick using ConfigWizard in Infineon Toolbox, with Arduino Shield interface for rapid prototyping | 3-Phase | TLE9560-3QX, TLE9561QX, TLE9561-3QX, TLE9562QX, TLE9562-3QX | ✓ | | | | |
| | EVAL_TLE9180D-31QK | Eval board for three-phase gate driver, operated at an input voltage range from 12 V up to 48 V DC | 3-Phase | TLE9180D-31QK, LE9180D-21QK | ✓ | | | | |
| | EVAL-6ED100HPDRIVE-AS | Eval board for FSxxxR08A6P2xx with EiceDriver Sense/Lite/Boost, Standalone | 3-Phase | 1EDI2010AS | ✓ | | | | |
| | KIT_A2G_TC387_MOTORCTR | AURIX™ TC3xx motor control application kit contains AURIX™ TC387 application kit TFT, 3-phase motor control Power board, a BLDC motor with encoder, Power supply, and pre-flashed SW. | 3-Phase | TLE9180D-21QK, TLE9180D-31QK | ✓ | | | | |
| | R 48V BATT Switch10 | Reference board of a 48 V battery protection switch including pre-charge path and current sensing | Dual high-side | 2ED4820-EM, IAUT300N08S5, TLE4972-AE35D5 | | | ✓ | ✓ | ✓ |
| | 2ED4820 EB2 2HSV48 | Evaluation Board for 48 V power distribution with pre-charge path controlled by Config Wizard for 2ED4820 tool. | Dual high-side | 2ED4820-EM | | | ✓ | ✓ | |
| | TLE92104-23QX APPKIT | Application kit with MOTIX™ multi MOSFET driver IC and 4 MOSFET half-bridges to drive up to 3 DC motors. The board can be connected to computer via uIO stick and evaluate using Config Wizard in Infineon Developer Center. | 4 x Half Bridges | TLE92104-23QX | ✓ | | | | |
| | TLE92108-23QX APPKIT | Application kit with MOTIX™ multi MOSFET driver IC and 8 MOSFET half-bridges to drive up to 7 DC motors. The board can be connected to computer via uIO stick and evaluate using Config Wizard in Infineon Developer Center. | 8 x Half Bridges | TLE92108-23QX | ✓ | | | | |



Infineon gate driver evaluation boards

| Board Picture | Product | Board Description | Topology | Highlighted products | CAV | EV-charging | LEV | Motor control & drives | SMPS | Solar |
|---|-------------------------------------|---|-------------|-----------------------------|-----|-------------|-----|------------------------|------|-------|
| | | | | | | | | | | |
|  | 2ED100E12-F2 | EvalBoard for EconoDUAL™3 Modules using 1-ch isolated gate driver with DESAT | Half Bridge | 1ED020112-F2 | ✓ | | | ✓ | | ✓ |
|  | 2ED250E12-F | EvalBoard for PrimePACK™ Modules using 1-ch isolated gate driver with DESAT | Half Bridge | 1ED020112-F2 | ✓ | | | ✓ | | ✓ |
|  | 2ED300E17-SFO | EvalBoard of IGBT driver boards for all IGBT modules up to 1700 V | Half Bridge | 2ED300C17-S / -ST | ✓ | | | ✓ | | ✓ |
|  | 6ED100E12-F2 | Evalboard for EconoPACK™+ IGBT modules using 1-ch isolated gate driver with DESAT | 3-Phase | 1ED020112-F2 | ✓ | | | ✓ | | ✓ |
|  | EVAL_PS_DP_MAIN | Mother board of the universal Discrete evaluation platform for 600 V - 1200 V device in TO-247 3-/4-pin | Half Bridge | | ✓ | ✓ | | ✓ | ✓ | ✓ |
|  | EVAL-1ED020112F2-DB | Daughter Board of EVAL_PS_DP_MAIN to evaluate 1-ch isolated gate driver with DESAT with CoolSiC™ | Half Bridge | 1ED020112-F2 | ✓ | ✓ | | ✓ | | ✓ |
|  | REF-SIC-D2PAK-MC | Daughter Board of EVAL_PS_DP_MAIN to evaluate 1200 V CoolSiC™ MOSFET in TO263-7 | Half Bridge | IMBG120R030M1H, 1EDC20I12MH | ✓ | ✓ | | ✓ | ✓ | ✓ |
|  | REF-SIC-D2PAK-BP | Daughter Board of EVAL_PS_DP_MAIN to evaluate 1200 V CoolSiC™ MOSFET in TO263-7 | Half Bridge | IMBG120R030M1H, 1EDI20H12AH | ✓ | ✓ | | ✓ | ✓ | ✓ |
|  | REF-1EDC20I12MHDPV2 | Daughter Board of EVAL_PS_DP_MAIN to evaluate 1EDC20I12MH | Half Bridge | 1EDC20I12MH | ✓ | ✓ | | ✓ | ✓ | ✓ |
|  | REF-1EDC60H12AHPV2 | Daughter Board of EVAL_PS_DP_MAIN to evaluate 1EDC60H12AH | Half Bridge | 1EDC60H12AH | ✓ | ✓ | | ✓ | ✓ | ✓ |
|  | EVAL_PS_SIC_DP_MAIN | Mother board of 1200 V CoolSiC™ MOSFET evaluation platform to evaluate the switching behaviour | Half Bridge | IMZ120R045M1 | ✓ | ✓ | | ✓ | ✓ | ✓ |
|  | REF_PS_SIC_DP1 | Daughter board of EVAL_PS_SIC_DP_MAIN with 1-ch isolated driver with Miller clamp | Half Bridge | 1EDC20I12MH | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
|  | REF_PS_SIC_DP2 | Daughter board of EVAL_PS_SIC_DP_MAIN with 1-ch isolated driver with Bipolar supply | Half Bridge | 1EDC60H12AH | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
|  | EVAL-1ED3121MX12H | Evalboard for 2300 V, 5.5 A, 1-ch isolated driver with separate output and TRENCHSTOP™ IGBT | Half Bridge | 1ED3121MC12H, IKQ75N120CH3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
|  | EVAL-1ED3122MX12H | Evalboard for 2300 V, 10 A, 1-ch isolated driver with Miller clamp and TRENCHSTOP™ IGBT | Half Bridge | 1ED3122MC12H, IKQ75N120CH3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
|  | EVAL-1ED3124MX12H | Evalboard for 2300 V, 14 A, 1-ch isolated driver with separate output and TRENCHSTOP™ IGBT | Half Bridge | 1ED3124MC12H, IKQ75N120CH3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
|  | EVAL-1ED3241MC12H | Evalboard for 2300 V, 18 A, 1-ch isolated driver with 2 level slew rate control | Half Bridge | 1ED3241MC12H | ✓ | ✓ | | ✓ | | ✓ |



Infineon gate driver evaluation boards

| Board Picture | Product | Board Description | Topology | Highlighted products | Battery powered applications | | | | | | | |
|---------------|-------------------|--|-----------------|-------------------------------|------------------------------|-------------|----------------|-----|------------------------|------|-------|---|
| | | | | | CAV | EV-charging | Home appliance | LEV | Motor control & drives | SMPS | Solar | |
| | EVAL-1ED3251MC12H | Evalboard for 2300 V, 18 A, 1-ch isolated driver with 2 level slew rate control and Miller clamp | Half Bridge | 1ED3251MC12H | ✓ | ✓ | | | ✓ | | ✓ | |
| | EVAL-1ED3321MC12N | Evalboard for 2300V, up to 8.5A 1-ch isolated driver with short-circuit protection and Miller Clamp | Half Bridge | 1ED3321MC12N | ✓ | ✓ | | | ✓ | | ✓ | |
| | EVAL-1ED3491MX12M | Evalboard for 2300 V, 9 A, 1-ch isolated driver with register configurability, DESAT, Miller clamp, Soft-off | Half Bridge | 1ED3491MC12M | ✓ | ✓ | | | ✓ | | ✓ | |
| | EVAL-1ED3890MX12M | Evalboard for 2300 V, 9 A, 1-ch isolated driver with I2C configurability, DESAT, active Miller clamp, Soft-off | Half Bridge | 1ED3890MC12M | ✓ | ✓ | | | ✓ | | ✓ | |
| | EVAL-1ED38X0DCT | Companion board for EVAL-1ED3890MX12M for gate driver configuration purposes | Half Bridge | XMC4200 | ✓ | ✓ | | | ✓ | | ✓ | |
| | EVAL-PSIR2085 | Power supply board to support the EiceDRIVER™ isolated driver boards, such as the EVAL-1ED3122MX12H | Half-Bridge | IR2085S | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| | EVAL-1ED020112-B2 | EvalBoard for 1-ch isolated gate driver with DESAT and IGBT module | Half Bridge | 1ED020112-B2, FS25R12W1T4_B11 | ✓ | ✓ | | | ✓ | | ✓ | |
| | EVAL-1ED020112-BT | EvalBoard for 1-ch isolated gate driver with DESAT and two-level turn-off and TRENCHSTOP™ IGBT | Half Bridge | 1ED020112-BT, IKW25N120H3 | ✓ | ✓ | | | ✓ | | ✓ | |
| | EVAL-1EDI60112AF | Evalboard for 1200 V, 10 A, 1-ch isolated driver with separate output and TRENCHSTOP™ IGBT | Half Bridge | 1EDI60112AF, IKW50N65F5 | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| | EVAL-1EDS20112SV | Evalboard with 1200 V, 2 A, 1-ch isolated driver with slew rate control and DESAT and EconoDUAL™3 modules | Half Bridge | 1EDS20112SV, FF600R12ME4_B11 | ✓ | | | | ✓ | | ✓ | |
| | EVAL-2ED020112-F2 | Evalboard for 1200 V, 2 A, 2-ch isolated driver with DESAT and Miller clamp and TRENCHSTOP™ IGBT | Half Bridge | 2ED020112-F2, IKP20N60H3 | ✓ | ✓ | | | ✓ | | ✓ | |
| | EVAL-1ED44173N01B | A simple adapter board that can integrate into an already existing board to evaluate the 1ED44173N01B | Low-side switch | 1ED44173N01B | | | ✓ | ✓ | | ✓ | ✓ | ✓ |
| | EVAL-1ED44175N01B | A simple adapter board that can integrate into an already existing board to evaluate the 1ED44175N01B | Low-side switch | 1ED44175N01B | | | ✓ | ✓ | | ✓ | ✓ | ✓ |
| | EVAL-1ED44176N01F | Show the functionalities and key features of the low-side gate driver with integrated overcurrent protection | Low-side switch | 1ED44176N01F, IRLML2803TRPBF | | | ✓ | ✓ | | ✓ | ✓ | ✓ |
| | EVAL-2EDL05I06PF | EvalBoard for 600 V, 0.5 A half bridge SOI driver and TRENCHSTOP™ IGBT | Half Bridge | 2EDL05I06PF, IKD04N60RF | ✓ | | | ✓ | ✓ | ✓ | ✓ | |
| | EVAL-2EDL23I06PJ | EvalBoard for 600 V, 2.3 A half bridge SOI driver and TRENCHSTOP™ IGBT | Half Bridge | 2EDL23I06PJ, IKP20N60H3 | ✓ | | | ✓ | ✓ | ✓ | ✓ | |
| | EVAL-2EDL23N06PJ | EvalBoard for 600 V, 2.3 A half bridge SOI driver and CoolMOS™ | Half Bridge | 2EDL23N06PJ, IPL60R199CP | ✓ | | | ✓ | ✓ | ✓ | ✓ | |
| | EVAL-6EDL04I06PT | EvalBoard for 600 V, 0.4 A 3-phase SOI driver and TRENCHSTOP™ IGBT | 3-Phase | 6EDL04I06PT, IKD04N60R | | | | ✓ | ✓ | ✓ | | |



Infineon gate driver evaluation boards

| Board Picture | Product | Board Description | Topology | Highlighted products | Battery powered applications | | | | | |
|---|------------------------|--|-----------------|--|------------------------------|----------------|-----|------------------------|------|-------|
| | | | | | EV-charging | Home appliance | LEV | Motor control & drives | SMPS | Solar |
|  | EVAL-6EDL04N02PR | EvalBoard for 200 V, 0.4 A 3-phase SOI driver and OptiMOS™ | 3-Phase | 6EDL04N02PR, BSB044N08NN3G | ✓ | ✓ | ✓ | ✓ | | |
|  | EVAL_6EDL7141_TRAP_1SH | EvalBoard for 12-24V battery operated motor drive with XMC1404 and available GUI for configuration | 3-Phase | 6EDL7141, BSC007N04LS6, XMC1404 | ✓ | ✓ | ✓ | ✓ | | |
|  | EVAL-IGBT-1200V-247 | Adaptable double pulse tester for IGBTs in TO-247 4pin package | Half Bridge | IKY75N120CH3, 1EDI60I12AH | | ✓ | ✓ | | ✓ | ✓ |
|  | EVAL-IGBT-650V-TO247-4 | Adaptable double pulse tester for IGBTs in TO-247 4pin package | Half Bridge | IKZ50N65EH5, IKZ50N65NH5, IKW50N65H5, 1EDI60I12AF | | ✓ | ✓ | | ✓ | ✓ |
|  | EVAL-PS-IRS200x | Stepper motor board with 200 V half-bridge level shift gate driver | Four phase | IRS2005S, IPP180N10N3 G | ✓ | | ✓ | ✓ | | |
|  | KIT_LGMB_BOM003 | Modular PCB with EiceDRIVER™ SOI half bridge driver for low voltage drives scalable power demoboard platform | Half Bridge | 2EDL23N06PJ, IFX91041EJV50 | ✓ | | | ✓ | ✓ | |
|  | KIT_LGMB_BOM503 | Modular PCB with EiceDRIVER™ SOI half bridge driver for low voltage drives scalable power demoboard platform | Half Bridge | 2EDL23N06PJ | ✓ | | | ✓ | ✓ | |
|  | EVAL-M1-2ED2106S | Evalboard for BLDC motor with driver, IGBTs, can be connected with external controller board (EVAL-M1-101T) | 3-Phase | 2ED2106S06F, IKB10N65ET6 | | | | ✓ | | ✓ |
|  | EVAL-M3-TS6-665PN | Three-phase inverter stage and PFC for motor drives application | 3-Phase, PFC | IRS2890DS, IRS44273L, IKB20N65EH5 | | | | ✓ | | ✓ |
|  | EVAL-PFC5KIKWWR5SYS | Fast switching, analog-controlled two-channel interleaved 5 kW PFC converter | Interleaved PFC | 1ED44175N01B, IKW40N65WR5, IDW60C65D1 | | ✓ | ✓ | | | ✓ |
|  | DEMO-PTOOL-300W-M | Design kit for cordless power tools using the DirectFET™ ME/MF and XMC1300 family | 3-Phase | "IRF7480M, 2EDL05N06PF IFX91041EJ V50" | ✓ | | ✓ | | ✓ | |
|  | REF_FRIDGE_C101T_GED | Reference design board designed for refrigerator compressors. | 3-Phase | 6EDL04I06PT, IKD04N60RC2, IMC101T-T038 | | | | ✓ | | ✓ |
|  | REF-SHA35WRC2SYS | Ceiling fan application reference design kit | 3-Phase, PFC | IRS44273L/1ED44171N01B, IMD112T, IKA08N65H5, IKN03N60RC2 | | | | ✓ | | ✓ |
|  | REF-AIRCON-C302A-IM564 | Three-phase turnkey motor drive starter kit for residential air conditioner | 3-Phase, PFC | 1ED44175N01B, IMC302, IM564-X6D, ICEAR4770BZS | | | | ✓ | | ✓ |



Infineon gate driver evaluation boards

| Board Picture | Product | Board Description | Topology | Highlighted products | | | | | | |
|---------------|--|---|--------------------------------|---|-----|-------------|----------------|------------------------|------|-------|
| | | | | | CAV | EV-charging | Home appliance | Motor control & drives | SMPS | Solar |
| | REF-HAIRDRYER-C101-6ED | Turn-key reference design kit for high-performance, high-efficiency PMSM/BLDC motor drive applications | 3-Phase | 6EDL04I06PT, IMC101T-T038, IKD06N60RF | | | ✓ | ✓ | | |
| | REF-VACUUM_C101_2ED | Reference design for low voltage, high performance & efficiency, and high RPM PMSM/BLDC motor drive | 3-Phase | 2ED2304S06F, IMC101T-T038, BSC030N04NS G | | | ✓ | ✓ | | |
| | EVAL-M5-IGBT7 | 650 V TRENCHSTOP™ IGBT 7 T7 evaluation board optimized for GPD / Servo drives and aircon PFC | 3-phase | IKW40N65ET7, IKW40N120CS7, 1EDI20H12AH | | | ✓ | ✓ | | |
| | EVAL-M5-E1B1245N-SIC | Evalboard for motor drive with CoolSiC™ sixpack module and isolated gate driver. | 3-Phase | FS45MR12W1M1_B11, 1EDI20H12AH, 1ED44176N01F | ✓ | | | ✓ | | |
| | EVAL-M1-IR2214 | Motor drive board with EiceDRIVER™ IR2214SS half-bridge gate driver with DESAT | 3-Phase | IR2214SS, FP50R12KT4G | ✓ | | | ✓ | | |
| | EVAL-M1-6ED2230-B1 | Motor drive board with 1200 V, 3-phase SOI driver with OCP and EasyPIM™ 1B module | 3-Phase | 6ED2230S12T, FP15R12W1T4 | | | | ✓ | | |
| | EVAL-PS-E1BF12-SIC | Eval Board for CoolSiC™ Easy1B half-bridge modules with isolated gate driver for bidirectional buck-boost converter | Buck ; Boost | FF11MR12W1M1_B11, FF23MR12W1M1_B11, 1EDI60I12AF | ✓ | ✓ | | ✓ | ✓ | |
| | EVAL-FFXMR12KM1DR | Evaluation board for 1200 V CoolSiC™ MOSFET 62 mm half-bridge modules | Half Bridge | FF2MR12KM1, 1EDI20I12AH | ✓ | ✓ | | ✓ | ✓ | |
| | REF-DAB11KIZSICSYS | 11 kW SiC bi-directional DC/DC converter board for EV Charging and ESS applications | LLC | IMZ120R030M1H, 1EDC20I12AH | ✓ | ✓ | | ✓ | ✓ | |
| | EVAL_1EDF_G1B_HB_GAN | High-frequency half-bridge evalboard featuring EiceDRIVER™ GaN | Boost, Buck, LLC | IGOT60R070D1, 1EDF5673K | | ✓ | | | ✓ | |
| | EVAL_3K6W_LLC_GAN | 3600W, 385V to 52V LLC DC-DC demonstration board using CoolGaN™ 600V e-mode HEMT IGT60R070D1 | Full Bridge ; LLC | IGT60R070D1, ICE2QR2280Z-1, ICE2HS01G, 1EDI20N12AF, BSC026N08NS5 | | ✓ | | | ✓ | |
| | EVAL_2500W_PFC_GAN_A | 2500W full-bridge totem-pole power factor correction evaluation board using CoolGaN™ 600V e-mode HEMT | Full Bridge ; PFC | IGO60R070D1, IPT65R033G7, 1EDI20N12AF, 1EDI60N12AF, 2EDN7523G | | | ✓ | | ✓ | |
| | EVAL_1K4W_ZVS_FB_CFD7 | Full Infineon solution for the high voltage DC-DC stage of a 1.4 kW server/industrial SMPS | ZVS PSFB | IPL60R140CFD7, 1EDN7512G, 2EDS8265H, XMC4200-F64k256BA, BSC016N06NS | | ✓ | | | ✓ | |
| | EVAL_1K4W_ZVS_FB_SMD | 1.4 kW 12 V phase-shift full-bridge with 600 V CoolMOS™ CFD7 and XMC™ | Buck, ZVS PSFB | IPL60R140CFD7, 1EDN7512G, 2EDS8265H, XMC4200-F64k256BA, BSC016N06NS | | ✓ | | | ✓ | |
| | EVAL_1K6W_PSU_G7_DD | 1.6 kW Titanium server power supply with 600 V CoolMOS™ G7 SJ MOSFET in DPAK package | PFC, LLC | IPDD60R150G7, IPDD60R050G7, 2EDN7524F, IDDD08G65C6, BSC007N04LS6, 1EDI20N12AF | | ✓ | | | ✓ | |
| | EVAL_2500W_PFC_GAN_A | 2.5 kW full-bridge PFC high-efficiency evaluation board using CoolGaN™ 600V e-mode HEMTs | Full Bridge, PFC | IGO60R070D1, IPT65R033G7, 1EDI20N12AF, 1EDI60N12AF, 2EDN7523G, 2EDN7524F | | ✓ | | | ✓ | |
| | EVAL_2K4W_ACT_BRD_S7 | 2.4 kW high power density PFC converter using 600 V CoolMOS™ S7 | Full Bridge, PFC, Single Phase | IPT60R022S7, IPZ60R040C7, IDH12G65C6, ICE3PCS01G, 1EDN8550B, BAT165 | | ✓ | | | ✓ | |



Infineon gate driver evaluation boards

| Board Picture | Product | Board Description | Topology | Highlighted products | EV-charging SMPS | |
|---------------|--|--|------------------------|--|---------------------|---|
| | | | | | ✓ | ✓ |
| | EVAL_2K5W_CCM_4P_V3 | 2.5 kW CCM PFC, 110/230 VAC to 400 VDC, >98% peak efficiency, 65/100 kHz | Buck, PFC, CCM | IPZ60R040C7, IPU95R3K7P7, IDH16G65C5 ICE3PCS01G, 1EDI60N12AF, ICE3RBR4765JZ | ✓ | ✓ |
| | EVAL_2KW_48V_CHAR_P7 | 48 V lead-acid/Li-ion battery charger 2 kW high efficient evaluation board based on CoolMOS™ P7 | Dual-boost PFC, LLC | IPW60R080P7, IPW60R060P7, BSC030N08NS5, 2EDN7524F, IRS21814S, XMC1403 | ✓ | ✓ |
| | EVAL_2KW_ZVS_FB_CFD7 | 2 kW ZVS phase-shift full-bridge evaluation board | ZVS | IPW60R070CFD7, IPP110N20N3 G, 2EDN7524F ICE3RBR4765JZ, 2EDN7524F | ✓ | ✓ |
| | EVAL_3K3W_BIDI_PSF8 | The board consists of a phase shift full bridge with synchronous rectification (SR) in full bridge configuration | Full-bridge | 2EDS8265H | ✓ | ✓ |
| | EVAL_3K3W_LLC_HB_CFD7 | Evaluation board 3.3 kW 52 V LLC with 600 V CoolMOS™ CFD7 | HB LLC | IPW60R018CFD7, BSC037N08NS5, XMC4200, 1EDI20N12AF, 2EDF7275F, IPU80R4K5P7 | ✓ | ✓ |
| | EVAL_3K3W_TP_PFC_CC | CoolMOS™ CCM totem pole PFC - 3.3 kW solution with silicon | CCM, PFC, Single Phase | IPT60R090CFD7, IPT60R022S7, BSZ440N10NS3, IDDD08G65C6, 2EDF7275F | ✓ | ✓ |
| | EVAL_3K3W_TP_PFC_SIC | 3.3 kW CCM bidirectional totem pole PFC using 650 V CoolSiC™, 600 V CoolMOS™ C7 and XMC™ | PFC | IMZA65R048M1, IPW60R017C7, 2EDF7275F ICE5QSAG, IPU95R3K7P7, XMC1404 | ✓ | ✓ |
| | EVAL_3KW_2LLC_C7_20 | 3 kW Dual LLC Evaluation Board | LLC | IPP60R040C7, BSC093N15NS5, 2EDN7524R, 1EDI60N12AF, 2N7002, BSS316N | ✓ | ✓ |
| | EVAL_3KW_2LLC_CFD7 | Full Infineon solution for the high voltage DC-DC stage of a 3 kW telecom/industrial SMPS | LLC | IPW60R031CFD7, 1EDI60N12AF, BSC093N15NS5, 2EDN7524R | ✓ | ✓ |
| | EVAL_3KW_2LLC_P7_47 | Full IFX solution for the HV DCDC stage of a 3 kW Telecom/industrial SMPS | LLC | IPW60R037P7, 1EDI60N12AF, BSC093N15NS5, 2EDN7524 | ✓ | ✓ |
| | EVAL_3KW_50V_PSU | Server and data center 3 kW 50 V PSU | CCM, LLC, PFC | IMZA65R048M1H, IPW60R017C7, 1EDB8275F IPW60R024CFD7, 1EDB9275F, 2EDF7275F | ✓ | ✓ |
| | EVAL_600W_12V_LLC_C7 | 600 W DCDC/LLC stage, 400 V/12 V DC, 97.8% peak efficiency | HB LLC | IPP60R180C7, BSC010N04LS, 2EDL05N06PF, 2EDN7524F | ✓ | ✓ |
| | EVAL_600W_12V_LLC_CFD7 | Full Infineon solution for the high voltage DC-DC stage of a 600 W server and industrial SMPS | HB LLC | IPP60R170CFD7, 2EDL05N06PF, BSC010N04LS, 2EDN7524 | ✓ | ✓ |
| | EVAL_600W_12V_LLC_P7 | Half bridge LLC stage of a server SMPS with the target to meet 80+ Titanium standard efficiency requirements | HB LLC | IPP60R180P7, 2EDL05N06PF, BSC010N04LS, 2EDN7524 | ✓ | ✓ |
| | EVAL_800W_PFC_C7_V2 | PFC demoboard system solution high power density 800W 130kHz platinum server design | PFC | IPP60R180C7, 2EDN7524F, IDH06G65C5, ICE3PCS01G, XMC1402-Q040X0128 AA | ✓ | ✓ |
| | EVAL_800W_PFC_P7 | 800 W 65 kHz Platinum server design | PFC, CCM | IPP60R180P7, 2EDN7524F, IDH06G65C5, ICE3PCS01G, ICE2QR2280Z | ✓ | ✓ |



Infineon gate driver evaluation boards

| Board Picture | Product | Board Description | Topology | Highlighted products | EV-charging | SMPS |
|---------------|-----------------------|--|------------------|---|-------------|------|
| | EVAL_800W_PSU_3P_P7 | This 800 W evaluation board is a cost optimized form, fit and function test platform for server applications | PFC, LLC | IPW60R099P7, IPP60R280P7, BSC014N04LS, 1EDI20N12AF, 2EDN7524F | ✓ | ✓ |
| | EVAL_800W_PSU_4P_C7 | This 800 W evaluation board is intended to be a form, fit and function testplatform for server applications | PFC, LLC | IPZ60R099C7, IPP60R180C7, BSC014N04LS, 1EDI20N12AF, 2EDN7524F | ✓ | ✓ |
| | EVAL_800W_ZVS_FB_CFD7 | Infineon 800 W DC-DC ZVS full-bridge solution for server and industrial SMPS systems | ZVS | IPA60R280CFD7, 2EDN7524F, BSC026N08NS5, XMC4200-F64K256 BA, ICE3RBR4765JZ | ✓ | ✓ |
| | EVAL_HB_BC_1EDN8550B | Evaluate EiceDRIVER™ 1EDN-TDI, which regulate DC and AC shifts between the microcontroller and driver ground | Half-bridge buck | 1EDN8550B, BSC026N08NS5 | ✓ | ✓ |
| | EVAL_HB_PARALLELGAN | Parallel CoolGaN™ 600 V HEMTs in half-bridge configurations for higher power applications | Half Bridge | IGOT60R070D1, 1EDI20N12AF | ✓ | ✓ |
| | EVAL-2ED2101-HB-LLC | 200 W, 500 kHz, HB-LLC evaluation board providing lower EMI, reduced overall system size and BOM cost | Flyback, LLC | 2ED2101S06F, 2ED24427N01F, ICE2HS01G, ICEQSAG, PL60R650P6S, BSC022N04LS | ✓ | ✓ |
| | KIT_ACT_BRD_60R022S7 | Line rectifier module featuring 600 V CoolMOS™ S7 with integrated control and driving scheme | Boost, CCM, PFC | IR11688, IPT60R022S7, 2EDF7275F | ✓ | ✓ |
| | KIT_ACT_BRD_60R040S7 | Line rectifier module featuring 600 V CoolMOS™ S7 with integrated control and driving scheme | Boost, CCM, PFC | IPT60R040S7, IR11688, 2EDF7275F | ✓ | ✓ |
| | KIT_ACT_BRD_60R065S7 | Line rectifier module featuring 600 V CoolMOS™ S7 with integrated control and driving scheme | Boost, CCM, PFC | IPT60R065S7, IR11688, 2EDF7275F | ✓ | ✓ |
| | KIT_DRIVER_1EDN7511B | Evaluation kit for EiceDRIVER™ 1EDN7511B single-channel low-side gate driver IC | Low-side switch | 1EDN7511B | ✓ | ✓ |
| | KIT_DRIVER_1EDN7512B | Evaluation kit for EiceDRIVER™ 1EDN7512B single-channel low-side gate driver IC | Low-side switch | 1EDN7512B | ✓ | ✓ |
| | KIT_DRIVER_1EDN7550B | Test platform for 1-ch non-isolated gate driver EiceDRIVER™ 1EDN7550B in SOT-23-6 | Dual low-side | 1EDN7550B | ✓ | ✓ |
| | KIT_DRIVER_2EDF7275F | Evaluation kit for EiceDRIVER™ 2EDF7275F dual-channel functional isolated gate driver IC | Half Bridge | 2EDF7275F | ✓ | ✓ |
| | KIT_DRIVER_2EDN7524F | Test platform for 2-ch non-isolated gate driver EiceDRIVER™ 2EDN7524F in DSO-8 | Dual low-side | 2EDN7524F | ✓ | ✓ |
| | KIT_DRIVER_2EDN7524G | Test platform for 2-ch non-isolated gate driver EiceDRIVER™ 2EDN7524G in WSON-8 | Dual low-side | 2EDN7524G | ✓ | ✓ |
| | KIT_DRIVER_2EDN7524R | Test platform for 2-ch non-isolated gate driver EiceDRIVER™ 2EDN7524R in TSSOP-8 | Dual low-side | 2EDN7524R | ✓ | ✓ |
| | KIT_DRIVER_2EDS8265H | Evaluation kit for EiceDRIVER™ 2EDS8265H 2-ch reinforced isolated gate driver | Half Bridge | 2EDS8265H | ✓ | ✓ |
| | EVAL_HB_2EDL8x2x | OPEN LOOP BUCK CONVERTER | Buck | 2EDL8024G, BSC040N10NS5 | ✓ | ✓ |
| | REF_600W_FFB_QB | Reference design for 600 W ¼ BRICK FB-FB, 250 kHz, Power Density is 360 W/in3 | Full bridge | DHP1050N10N5, 2EDL8024G | ✓ | ✓ |



Gate driver community

www.infineon.com/gdforum



Gate driver IC simulation model

SPICE model

Home > Products > Power > Gate Driver ICs

Close configuration Compare Share Download

| Product | OPN | Order online | Simulation Model | Product Status | Voltage Class | Output Current Source | Output Current Sink | Channels | Configuration | Qualification |
|---------------------------|-------------------|--------------|------------------|----------------------|---------------|-----------------------|---------------------|----------|---------------|---------------|
| > 1ED3491MU12M NEW | 1ED3491MU12HXUMA1 | Buy Online | Download Model | active and preferred | 2300 V | 11 A | 7.5 A | 1 | High-side | Industrial |
| > 2ED4520-EM NEW | 2ED4520ENXUMA2 | Buy Online | Download Model | active and preferred | 105 V | 1 A | 0.3 A | 2 | High-side | Automotive |
| > 2EDN7484F NEW | 2EDN7424FXTHA1 | Buy Online | Download Model | active and preferred | 20 V | 4 A | 4 A | 2 | Low-side | Industrial |
| > 2EDN7533B NEW | 2EDN7533BXTSA1 | Buy Online | Download Model | active and preferred | 20 V | 5 A | 5 A | 2 | Low-side | Industrial |
| > 2EDN7533F NEW | 2EDN7533FXTHA1 | Buy Online | Download Model | active and preferred | 20 V | 5 A | 5 A | 2 | Low-side | Industrial |
| > 2EDN7534B NEW | 2EDN7534BXTSA1 | Buy Online | Download Model | active and preferred | 20 V | 5 A | 5 A | 2 | Low-side | Industrial |
| > 2EDN7534F NEW | 2EDN7534FXTHA1 | Buy Online | Download Model | active and preferred | 20 V | 5 A | 5 A | 2 | Low-side | Industrial |

www.infineon.com/gdmodel



Gate driver IC brochures and sample boxes



Gate Driver Selection Guide
www.infineon.com/gdbrochure



Power and Sensing Selection Guide
<http://www.infineon.com/powerandsensing-selectionguide>



Industrial Galvanically Isolated Gate Driver
www.infineon.com/gdiso
 工业级隔离型门极驱动芯片
www.infineon.com/gdiso-cn

EiceDRIVER™ 100-1200 V level shift and low side gate driver ICs

| Gate driver | 1-Channel | 2-Channel | 3-Channel | 4-Channel | 5-Channel | 6-Channel | 7-Channel | 8-Channel |
|---------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Low side gate driver ICs | ● | ● | ● | ● | ● | ● | ● | ● |
| Non-Isolated (N-ISO) | ● | ● | ● | ● | ● | ● | ● | ● |
| Level shift gate driver ICs | ● | ● | ● | ● | ● | ● | ● | ● |
| Silicon On Insulator (SOI) | ● | ● | ● | ● | ● | ● | ● | ● |
| Industrial Galvanically Isolated (IG) | ● | ● | ● | ● | ● | ● | ● | ● |
| High-side gate driver ICs | ● | ● | ● | ● | ● | ● | ● | ● |
| Complementary Transistor (CT) | ● | ● | ● | ● | ● | ● | ● | ● |
| System building blocks | ● | ● | ● | ● | ● | ● | ● | ● |

www.infineon.com/gatedriver

EiceDRIVER™ Level shift and low side gate driver sample box (available @ ISAR):
 Type: KIT_GD_LS_SAMPLE; OPN: KITGDLSSAMPLETOB01

| | | | | |
|--|---|--|---|--|
| 1ED4417N01B 25V, 3.0A, 2.5A, single low-side, SOI, PAUK, 24 | 1ED4417N01F 25V, 3.0A, 2.5A, single low-side, SOI, PAUK, 24 | 2ED24427N01F 25V, 3.0A, 2.5A, dual low-side, 24 | 2ED2106506F/2ED21064506J 40V, 2.0A, 1.5A, high-side/low-side, Implem. SOI | 2ED2109506F 40V, 2.0A, 1.5A, half-bridge, Implem. SOI |
| 2ED2181506F/2ED21814506J 40V, 2.0A, 1.5A, half-bridge, Implem. SOI | 2ED2182506F/2ED21824506J 40V, 2.0A, 1.5A, half-bridge, Implem. SOI | 2ED2184506F/2ED21844506J 40V, 2.0A, 1.5A, half-bridge, Implem. SOI, SO | 2EDL23N06PJ 40V, 1.5A, 1.5A, half-bridge, Implem. SOI, SOI, PAUK, 24 | 6EDL04106PT 40V, 1.5A, 1.5A, 3-phase, Implem. SOI, SOI, PAUK, 24 |
| 2ED2230512T Implem. SOI, SOI, PAUK, 24 | 2ED28073J06F 40V, 1.5A, 1.5A, half-bridge, Implem. SOI, SOI, PAUK, 24 | IRIS2007M/IRIS2007S 40V, 2.0A, 1.5A, half-bridge, Implem. SOI, SOI, PAUK, 24 | IRIS2011S 40V, 1.5A, 1.5A, high-side/low-side, Implem. SOI, SOI, PAUK, 24 | IRIS2145S 40V, 1.5A, 1.5A, half-bridge, Implem. SOI, SOI, PAUK, 24 |

EiceDRIVER™ galvanically isolated gate driver ICs and solid state relays

| Gate driver | 1-Channel | 2-Channel | 3-Channel | 4-Channel | 5-Channel | 6-Channel | 7-Channel | 8-Channel |
|---------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Isolated gate driver ICs | ● | ● | ● | ● | ● | ● | ● | ● |
| Complementary Transistor (CT) | ● | ● | ● | ● | ● | ● | ● | ● |
| Low side gate driver ICs | ● | ● | ● | ● | ● | ● | ● | ● |
| Non-Isolated (N-ISO) | ● | ● | ● | ● | ● | ● | ● | ● |
| Level shift gate driver ICs | ● | ● | ● | ● | ● | ● | ● | ● |
| Silicon On Insulator (SOI) | ● | ● | ● | ● | ● | ● | ● | ● |
| Industrial Galvanically Isolated (IG) | ● | ● | ● | ● | ● | ● | ● | ● |
| High-side gate driver ICs | ● | ● | ● | ● | ● | ● | ● | ● |
| Complementary Transistor (CT) | ● | ● | ● | ● | ● | ● | ● | ● |
| System building blocks | ● | ● | ● | ● | ● | ● | ● | ● |

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| | | | | |
|---|---|--|--|--|
| 1ED312MU12H 120V, 1.0A, 1.0A, 1.0A, single high-side, SOI, PAUK, 24 | 1ED312MU12H 120V, 1.0A, 1.0A, 1.0A, single high-side, SOI, PAUK, 24 | 1ED3124MU12H 120V, 1.0A, 1.0A, 1.0A, 1.0A, single high-side, SOI, PAUK, 24 | 1ED3131MU12H 120V, 1.0A, 1.0A, 1.0A, 1.0A, single high-side, SOI, PAUK, 24 | 1ED3491MU12M 120V, 1.0A, 1.0A, 1.0A, 1.0A, single high-side, SOI, PAUK, 24 |
| 1ED3880MU12M 120V, 1.0A, 1.0A, 1.0A, 1.0A, single high-side, SOI, PAUK, 24 | 1ED30012-F2 120V, 1.0A, 1.0A, 1.0A, 1.0A, single high-side, SOI, PAUK, 24 | 2ED30012-F2 120V, 1.0A, 1.0A, 1.0A, 1.0A, dual high-side, SOI, PAUK, 24 | 2ED30012-F1 120V, 1.0A, 1.0A, 1.0A, 1.0A, half-bridge, SOI, PAUK, 24 | 1ED35012J2V 120V, 1.0A, 1.0A, 1.0A, 1.0A, single high-side, SOI, PAUK, 24 |
| 1ED30012M/F/1ED30012M 120V, 1.0A, 1.0A, 1.0A, 1.0A, single high-side, SOI, PAUK, 24 | 1ED60N12AF/1ED60N12AH 120V, 1.0A, 1.0A, 1.0A, 1.0A, single high-side, SOI, PAUK, 24 | PVX6012 Solid state relay (photoresistor, relay), SOI, PAUK, 24 | PV1050NS Solid state relay (photoresistor, isolation), SOI, PAUK, 24 | PV6612S Solid state relay (photoresistor, relay), SOI, PAUK, 24 |

EiceDRIVER™ isolated driver and solid state relays sample box (available @ ISAR):
 Type: KIT_GD_ISO_SAMPLE ; OPN: KITGDISOSAMPLETOB01



1EDN/2EDN Sample Kit (available @ ISAR):
 Type: KIT_1EDN_2EDN_SA_V1 ;
 OPN: KIT1EDN2EDNSAV1TOB01



Gate driver selection tool

To simplify the gate driver selection process, Infineon offers an online easy-to-use gate driver selection tool. By selecting a few key parameters, the tool quickly guides you in finding the right driver for your application.

Visit the gate driver selection tool by going to www.infineon.com/gdfinder

The screenshot shows the 'Gate Driver Finder' tool interface. It includes sections for 'Parameter Selection', 'Feature Selection', and 'Availability'. Below these is a table with 439 results. The table columns include Product, OPA, Product Status, Order online, Infineon Package name, Subjective Price, Configuration, Output Current, Voltage Class, Isolation Type, Output Current, Channels, Switch Type, Qualification, and Features.

www.infineon.com/gdfinder

[Home](#) > [Products](#) > [Cross Reference](#)

Cross Reference Results for FAN7380

Find the best possible replacement for the FAN7380. Infineon's cross reference search lets you easily find compatible devices to the FAN7380 for your design.

Enter partial or full manufacturer's device number and manufacturer

Products 'FAN7380' (2)

| Vendor Product | Vendor Name | Infineon Product | Datasheet | Product Status | Order Online | Short Description | Similarity Info |
|----------------|-------------------------|------------------|-----------------------------|----------------------|----------------------------|---|-----------------|
| FAN7380 | Fairchild Semiconductor | > 2ED2304S06F | 2ED2304S06F | active and preferred | Buy online | 650 V, 0.7 A, half bridge gate driver with integrated bootstrap diode | Upgrade |
| FAN7380 | Fairchild Semiconductor | > IRS2304S | IRS2304S | active and preferred | Buy online | 600 V, 0.6 A, half bridge gate driver | Direct |

Legend:

Direct: Direct Replacement, Same footprint, pinout and functionality

Similar: Same package (and missing features can be compensated, e.g. Output Voltage can be achieved using external components with the Adjustable version)

Similar Functionality: self explanatory, different package type, possible different pin-out

Upgrade: Same footprint and pinout with improved parametric performance

www.infineon.com/crs



My Infineon sharing platform



Website Tools

- › Infineon gate drivers home page / 中文版
- › Gate driver finder tool (Web)
- › Gate driver X-reference (Web)
- › Simulation tools (Web)
- › Evaluation boards (Web)

- › www.infineon.com/gatedriver / www.infineon.com/gatedriver-cn
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Product promotion page

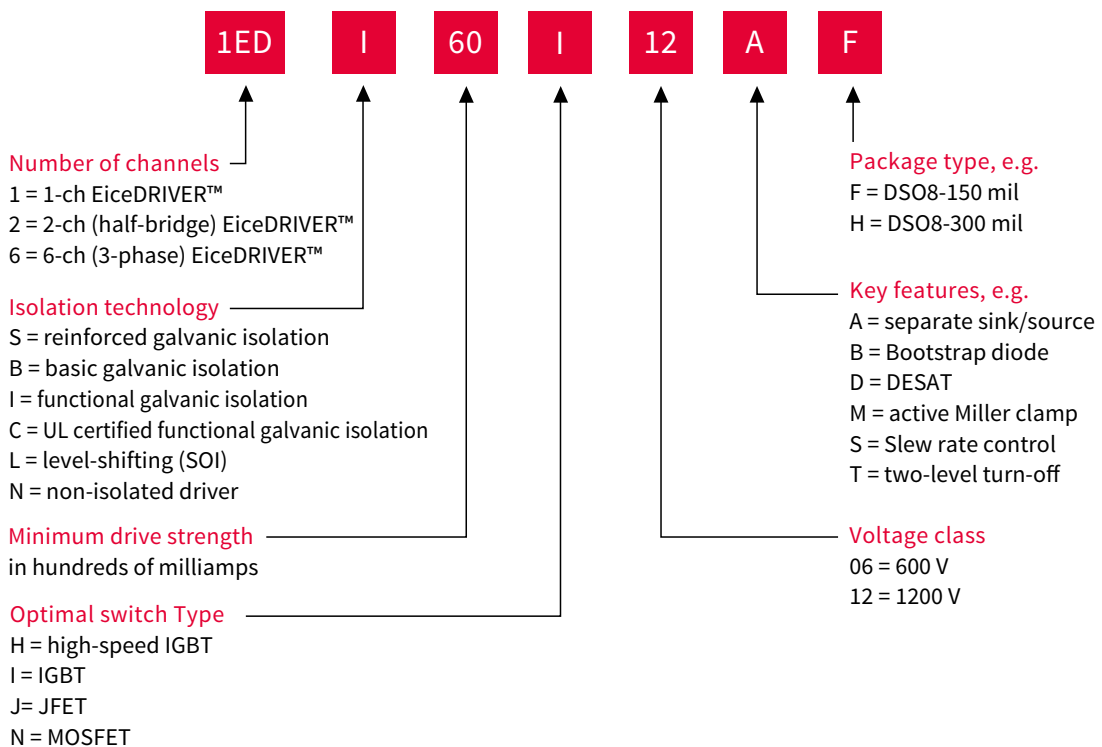
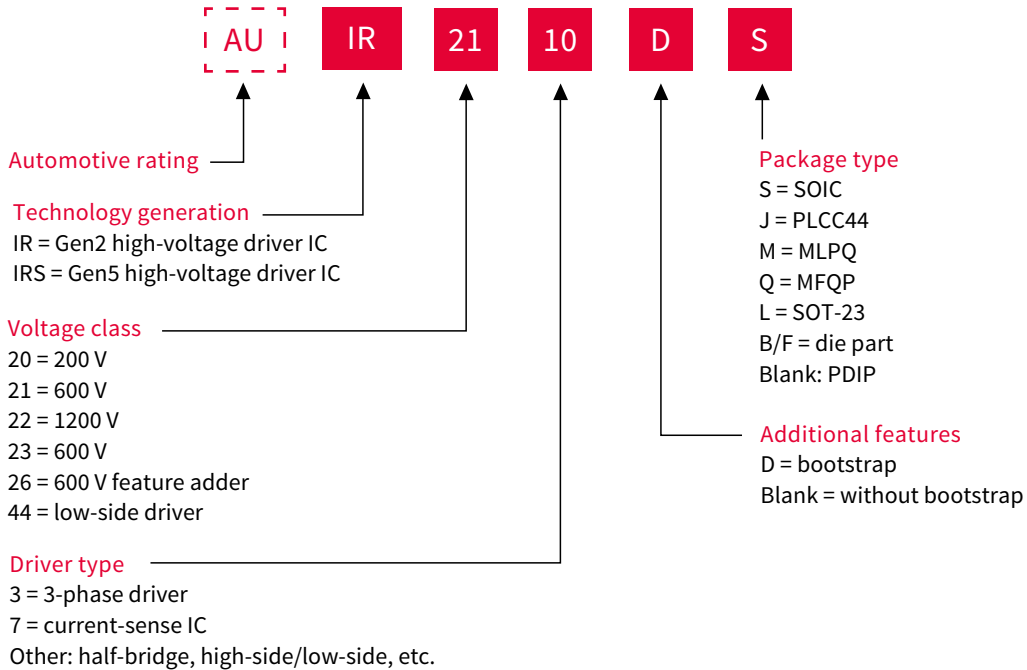
- › EiceDRIVER™ 200 V level-shift gate driver ICs
- › EiceDRIVER™ 500 - 700 V level-shift gate driver ICs
- › EiceDRIVER™ 1200 V level-shift gate driver ICs
- › EiceDRIVER™ SiC MOSFET gate driver ICs/中文版
- › EiceDRIVER™ Compact isolated driver ICs
- › EiceDRIVER™ Enhanced isolated driver ICs
- › EiceDRIVER™ Slew-Rate Control /中文版
- › EiceDRIVER™ 1EDN gate driver ICs
- › EiceDRIVER™ 2EDN gate driver ICs
- › EiceDRIVER™ TDI gate driver ICs
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Infineon gate driver naming convention

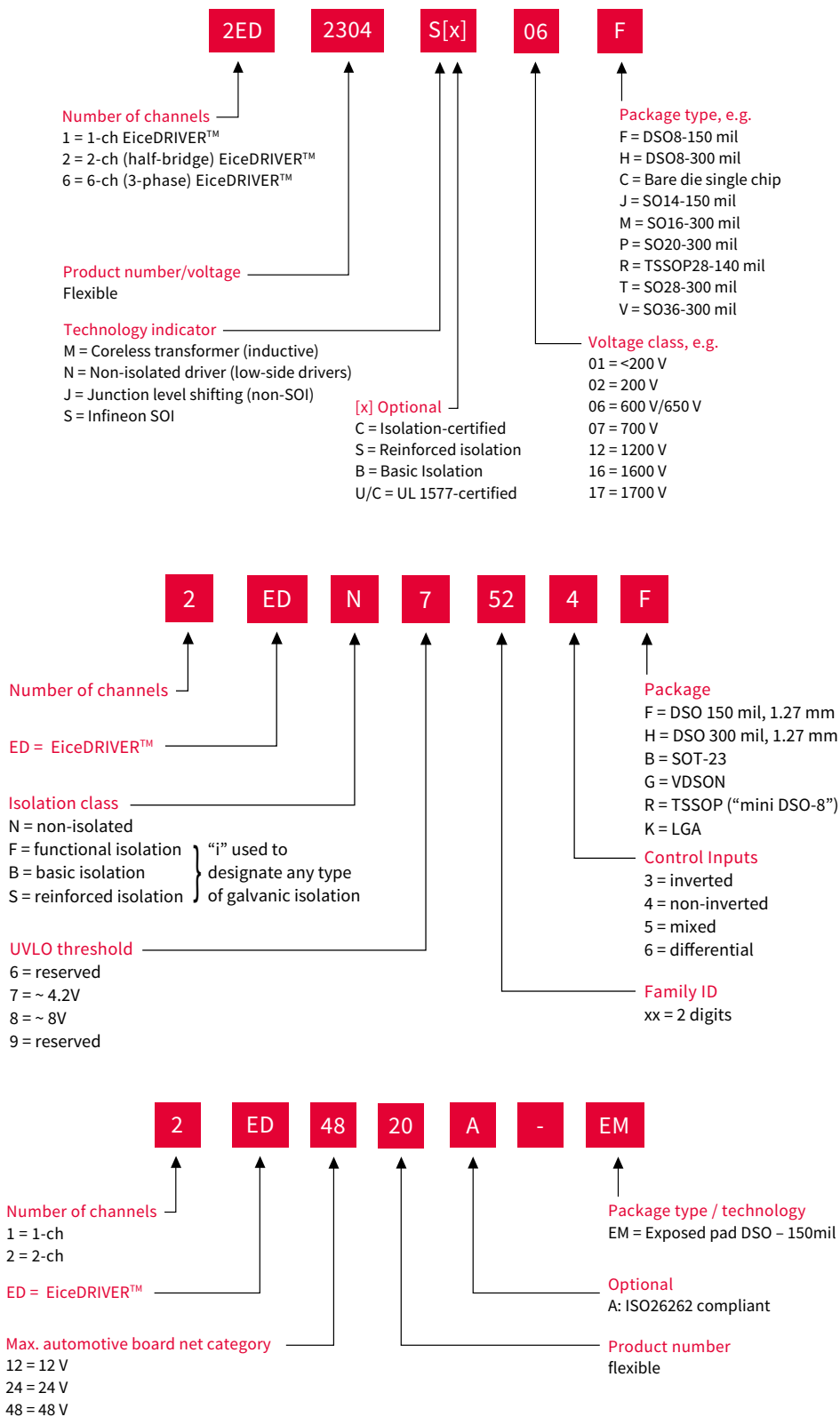
Naming convention for existing families of gate driver ICs





Infineon gate driver naming convention

Naming convention for new and upcoming families of gate driver ICs



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