

New Product Introduction

infineon

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XENSIV[™] pressure sensors - KP212F1701 and KP212K1409 Infineon® Power Chip EiceDRIVER[™] low side driver - 2ED24427N01F EiceDRIVER[™] 2EDL8 product family - 2EDL8024G EasyPIM[™] 3B power module with TRENCHSTOP[™] IGBT7 650 V Hybrid CoolSiC[™] IGBT 650 V CoolMOS[™] CFD7A 600 V CoolMOS[™] CFD7 in DDPAK package XDP[™] digital power - XDPS21081

TLE986x/7x - Embedded Power ICs family extension

AURIX™ TC3xx Motor Control Application Kit

XENSIV[™] 2-wheeler dedicated manifold absolute pressure sensors - KP212F1701 & KP212K1409

The Infineon XENSIV[™] MAP family is growing with its two new analog MAP sensors - KP212F1701/KP212K1409 - both dedicated for 2wheeler market. These automotive qualified (AEC-Q103) analog MAP sensors are characterized by their high precision pressure sensing (± 1.4 kPa), as well as their dedicated transfer functions. This calibrated transfer function converts a pressure of 15 kPa to 115 kPa into a voltage range of 0.5 V to 4.5 V. KP212 temperature range of -40°C to 125° C is perfectly addressing typical 2-wheeler requirements.

KP212 for 2-wheelers: For lower emission, better combustion and higher efficiency.

Features

- > High precision pressure sensing
 - > KP212K1409: ± 1.0 kPa
 - > KP212F1701: ± 1.4 kPa
- > Ratiometric analog output
- > 2-wheeler temperature range (-40°C to 125°C)
- > Broken wire detection
- > Clamping
- > "Green" 8 pin SMD housing
- > Automotive qualified, AEC-Q103

Block diagram



Product overview incl. data sheet link

| OPN | SP Number | Package |
|-----------------|-------------|-----------|
| KP212F1701XTMA1 | SP005435487 | PG-DSOF-8 |
| KP212K1409XTMA1 | SP005435491 | PG-DSOF-8 |

Benefits

- > Dedicated 2-wheeler transfer functions
- > Lower CO2 emissions
- > Lower fuel consumption

Competitive advantage

- > Integrated filters reduce the need for external filters & therefore optimize the customer's bill-of-materials
- > The Miller clamp option in combination with SiC MOSFETs or IGBT7 avoid harmful parasitic turn-ons and enable superior application safety

Target applications

> 2-wheelers

Product collaterals / Online support

Product page KP212F1701 Product page KP212K1409



Infineon® Power Chip

We designed the new welding diodes with improved losses for medium frequency resistance welding and high current rectifier applications. The low on-state voltage allows very high forward current of around 10-15% more than our current types 38DN06, 46DN06, 56DN06B01 and 65DN06.



Features

- > Housingless diode for welding
- > Compact: 65 respectively 56 mm diameter, 5 mm height
- > Forward current up to 10 15% higher than current types
- > Low losses
- > Highest reliability
- > Best-in-class power cycling capability
- > Mechanically compatible to previous products

Benefits

> Best-in-class performance and lifetime ratio

Target applications

> Industrial heating and welding

Competitive advantage

Electrical and thermal contact optimized for extreme load cycling requirements

Block diagram



Product overview incl. data sheet link

| OPN | SP Number | Package |
|--------------------|-------------|-------------|
| 56DN06B02ELEMXPSA1 | SP005414447 | BG-D_ELEM-1 |
| 65DN06B02ELEMXPSA1 | SP005414452 | BG-D_ELEM-1 |

Product collaterals / Online support

Product page 56DN06B02 Product page 65DN06B02 Product family page

EiceDRIVER[™] 24 V dual channel +/- 10 A low side driver - 2ED24427N01F

The 2ED24427N01F is a dual channel +/-10 A driver (typical) in a SOIC-8 package with power pad for increased thermal efficiency. It includes one enable pin for both channels and under-voltage lockout (UVLO) protection that is compatible (11.5 V) with IGBTs and MOSFETs.

The 2ED24427N01F is ideal for higher power or faster switching systems and can be used to drive paralleled IGBTs or MOSFETs in different applications such as interleaved PFC, Industrial Drives, Synchronous Rectification, and as transformer driven applications used in power conversion such as Industrial SMPS and UPS.

Features

- > 10 A sink and 10 A source typical driver capability
- > 11.5 V under voltage lockout compatible with IGBTs and MOSFETs
- > 24 V maximum supply voltage; 2 kV HBM ESD
- > Enable function
- > Power pad SOIC-8 package

Target applications

- > DC-DC
- > Fast EV charging
- > Industrial drives
- > Motor control and drives
- > Power Management (SMPS)

System diagram



Product overview incl. data sheet link

| OPN | SP Number | Package |
|-------------------|-------------|----------|
| 2ED24427N01FXUMA1 | SP005349592 | PG-DSO-8 |

Benefits

- > Enables higher power applications with a single device that would typically require at least two competing devices with 4 A to 6 A source and sink drive capability
- > Enables higher frequency applications to help reduce system BOM cost enabling use of smaller and less expensive passive components
- > Power pad enables higher power density by efficiently dissipating heat to the PCB ground plane.

Competitive advantage

- > Dual channel +/- 10 A source and sink current capability is two times higher than competitive products enables higher power, faster switching applications, and smaller PCB size.
- > 24 V maximum voltage supply support provides margin and headroom compared to 20 V based drivers
- Under-voltage lockout (UVLO) provides protection not available in discrete PNP / NPN based buffer driver solutions and enable input provides flexibility
- > Power SOIC-8 package with thermal pad provides excellent thermal behavior and reduction of conduction losses leading to improved full load efficiency.

Product collaterals / Online support

Product page



EiceDRIVER™ 2EDL8 product family - 2EDL8024G

2EDL8x2x is a high-side low-side driver designed for advanced switching converters such as in telecom and datacom applications. 2EDL802x takes in independent inputs with built-in hysteresis for enhanced noise immunity, whereas 2EDL812x takes in differential input with built-in hysteresis for enhanced noise immunity. 2EDL812x's inherent shoot-through protection ensures the robustness of the system. 6 ns maximum delay matching ensures volt-second balance and avoids magnetic core saturation.



Features

- > 120 V boot-strap diode integrated
- > Low resistance rail-to-rail outputs:
 - Low-side: 4 A pull-up, 6 A pull-down
 - High-side: 4 A pull-up, 5 A pull-down
- > 4 ns delay matching
- > Differential inputs, optional

Target applications

- > Telecom DC/DC converter
- > Datacom DC/DC converter
- > Two-switch forward converter
- > Active clamp forward converter
- > Class D audio amplifier

System diagram



Product overview incl. data sheet link

| OPN | SP Number | Package |
|----------------|-------------|------------|
| 2EDL8023GXUMA1 | SP005406439 | PG-VDSON-8 |
| 2EDL8024GXUMA1 | SP005406443 | PG-VDSON-8 |
| 2EDL8123GXUMA1 | SP005406431 | PG-VDSON-8 |
| 2EDL8124GXUMA1 | SP005406435 | PG-VDSON-8 |

Benefits

- > No need for external boot strap diode
- > Fast MOSFET switching
- > Strong pull-down current reduces risk of return-on from switching noise
- > Low dead-time losses
- > Inherent shoot-through protection
- > -8 V/+15 V common mode rejection

Competitive advantage

- > Integrated 120 V boot-strap diode
- > Low resistance true rail-to-rail outputs with up to 6 A pulldown current
- > Excellent 2 ns delay matching
- > Differential inputs option

Product collaterals / Online support

Product family page

EasyPIM[™] 3B power module with TRENCHSTOP[™] IGBT7

The Easy 3B package with TRENCHSTOP™ IGBT7 technology extends the broad Easy portfolio in industrial drives applications to higher current ratings; 50 A, 75 A and 100 A in PIM configuration.

Thanks to the same height of 12 mm for the whole Easy family, it is perfectly suited for platform designs in industrial applications, such as servo drives, robotics and air-conditioning.

The TRENCHSTOP™ IGBT7 chip is specially optimized for industrial drives with higher power density and lower total losses compared to previous chip generations. The Easy 3B package enables higher current ratings with low R_{th} and high CTI value.



Features

Benefits

- 50 A, 75 A, 100 A at 1200 V >
- **PIM** configuration >
- TRENCHSTOP™ IGBT7 chip technology >
- Enhanced controllability of dv/dt >
- Easy 3B package with 12 mm height >
- High CTI value >
- T_{viop} = 175°C at overload >

Target applications

- Drives
- Industrial robots
- Servo drives
- Aircon >

Block diagram

Brake Chopper

Product overview incl. data sheet link

| OPN | SP Number | Package |
|----------------------|-------------|-------------|
| FP100R12W3T7B11BPSA1 | SP005209864 | AG-EASY3B-1 |

- > Power extension of existing Easy portfolio
- High level of integration leads to reduced system complexity >
- Optimized for drives applications >
- > Complete portfolio in 12 mm height
- Higher operation temperature leads to increase in power density

Competitive advantage

> First 100 A module in EasyPIM[™] 3B

Product collaterals / Online support

Product page Application notes

650 V Hybrid CoolSiC™ IGBT

The new 650 V Hybrid CoolSiC[™] IGBT combines key benefits of the best in class 650 V TRENCHSTOP[™]5 IGBT technology and unipolar structure of co-packed Schottky barrier CoolSiC[™] diode.

Use of a Schottky barrier diode as freewheeling diode co-packed with IGBT allows to extend capabilities of IGBT and enables significant reduction in Eon and overall switching losses.

Fast and easy upgrade of 650 V TRENCHSTOP™5 IGBT designs with Hybrid CoolSiC™ IGBT brings efficiency improvement of 0.1% for each 10 kHz switching frequency.

For example in a half bridge converter working at switching speed of 23 kHz replacement of silicon IGBT with CoolSiC[™] Hybrid IGBT might increase efficiency by ~ 0.23%.

Features

- > Ultra-low switching losses due to the combination of TRENCHSTOP™ 5 and CoolSiC™ diode technology
- > Very low on-state losses
- > Benchmark switching IGBT in hard switching topologies

Target application

- > Industrial UPS
- > Industrial SMPS
- > Solar String Inverter
- > Energy Storage
- > Charger

System diagram



Product overview incl. data sheet link

| OPN | SP Number | Package |
|-------------------|-------------|-------------|
| IKW50N65SS5XKSA1 | SP001668430 | PG-T0247-3 |
| IKW50N65RH5XKSA1 | SP004038142 | PG-TO247-3 |
| IKW40N65RH5XKSA1 | SP004038146 | PG-TO247-3 |
| IKW75N65RH5XKSA1 | SP004038154 | PG-T0247-3 |
| IKW75N65SS5XKSA1 | SP004038158 | PG-TO247-3 |
| IKZA40N65RH5XKSA1 | SP004038198 | TO-247-4pin |
| IKZA50N65RH5XKSA1 | SP004038204 | TO-247-4pin |
| IKZA50N65SS5XKSA1 | SP004038212 | TO-247-4pin |
| IKZA75N65RH5XKSA1 | SP004038216 | TO-247-4pin |
| IKZA75N65SS5XKSA1 | SP004038220 | TO-247-4pin |

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Benefits

- > Highest efficiency
- > Reduced cooling effort
- > Increased power density
- > Plug & play replacement of the pure silicon devices
- > Easy upgrade of existing designs for higher efficiency
- > Excellent for paralleling

Competitive advantage

- > Comprehensive product portfolio
 - current classes from 40 A to 75 A
 - 2 types of package TO-247-3pin and Kelvin emitter TO-247-4pin for superior efficiency at fast switching
 - Cost / performance optimized offer of half-rated and fullrated co-packed CoolSiC[™] Schottky diode

Product collaterals / Online support

Product family page

650 V CoolMOS™ CFD7A - high-voltage superjunction MOSFETs for automotive applications

Infineon's silicon-based 650 V CoolMOS[™] high-voltage SJ power MOSFETs CFD7A are specifically optimized to meet the requirements for electric-vehicle applications such as on-board chargers, HV-LV DC-DC converters, and auxiliary power supplies. With more than 10 years of automotive experience, CoolMOS[™] CFD7A combines highest quality going well beyond the AEC-Q101 standards with unrivalled technology expertise.

The CoolMOS[™] CFD7A family is manufactured on the highly automated 300 mm production line, which contributes to reach the zero-defect target in mass production while fulfilling the growing market demand.

Features

- > Battery voltages up to 475 V without compromising on reliability standards
- > Efficiency improvements in hard- and soft-switching topologies up to 98.4%
- > Kelvin-source concept for further efficiency improvement
- > Intrinsic fast body diode with -30% lower Q_{rr} compared to CoolMOS™ CFDA



Benefits

- Highest reliability in the field meeting automotive lifetime requirements
- > Enabling higher power density designs
- > Scalable as designed for use in PFC and DC-DC stage
- > Granular portfolio available

Target applications

- > On-board charger
 - Hard-switching topologies (with SiC diode)
 - PFC boost stages
 - DC-DC stage of OBC
- > HV-LV DC-DC converter
 - LLC or full-bridge phase shift (ZVS)
- > Auxiliary power supplies

Application diagram



Product overview incl. data sheet link

| OPN | SP Number | Package |
|----------------------|-------------|------------|
| IPB65R190CFD7AATMA1 | SP005550320 | PG-TO263-3 |
| IPBE65R190CFD7AATMA1 | SP005398486 | PG-TO263-7 |
| IPP65R190CFD7AAKSA1 | SP005399500 | PG-TO220-3 |
| IPW65R145CFD7AXKSA1 | SP005398483 | PG-TO247-3 |
| IPW65R190CFD7AXKSA1 | SP005398485 | PG-TO247-3 |

Product collaterals / Online support

Product family page
Product brief

Application note

600 V CoolMOS™ CFD7 in DDPAK package

The 600V CoolMOSTM CFD7 SJ MOSFET is Infineon's latest highvoltage superjunction MOSFET technology. It comes with reduced gate charge (Q_g), improved turn-off behavior and a reverse recovery charge (Q_{rr}) of up to 69% lower compared to the competition, as well as the lowest reverse recovery time (t_{rr}) in the market. Due to these features the devices offer highest efficiency and best-inclass reliability in soft-switching topologies such as LLC and ZVS phase-shift full-bridge.



Benefits

- > Ultra-fast body diode
- > Best-in-class reverse recovery charge (Q_{rr})
- > Improved reverse diode dv/dt and dif/dt ruggedness
- > Lowest FOM R_{DS(on)} x Q_g and E_{oss}
- > Best-in-class R_{DS(on)}/ package combinations

Target applications

> Server

Features

- > Telecom
- > EV-charging
- > SMPS
- > PC power

Block diagram



Product overview incl. data sheet link

| OPN | SP Number | Package |
|---------------------|-------------|-------------|
| IPDD60R045CFD7XTMA1 | SP003803294 | PG-HDSOP-10 |
| IPDD60R055CFD7XTMA1 | SP003803300 | PG-HDSOP-10 |
| IPDD60R075CFD7XTMA1 | SP003803306 | PG-HDSOP-10 |
| IPDD60R090CFD7XTMA1 | SP005060556 | PG-HDSOP-10 |
| IPDD60R105CFD7XTMA1 | SP005060554 | PG-HDSOP-10 |
| IPDD60R125CFD7XTMA1 | SP005060552 | PG-HDSOP-10 |
| IPDD60R145CFD7XTMA1 | SP003803312 | PG-HDSOP-10 |
| IPDD60R170CFD7XTMA1 | SP005060550 | PG-HDSOP-10 |

- > Best-in-class hard commutation ruggedness
- > Highest reliability for resonant topologies
- Highest efficiency with outstanding ease-of-use/performance tradeoff
- > Enabling increased power density solutions

Product collaterals / Online support

Product family page Product brief

Application notes

XDP[™] digital power XDPS21081: A multi-mode, forcedresonant-frequency high-performance flyback controller IC

XDP[™] digital power XDPS21081 is a flyback controller with zero voltage switching (ZVS) on the primary side to achieve high efficiency with simplified circuitry and economical switches resulting in lower BOM cost.



Features

- > Digital configurable flyback controller IC
- > Integrated start-up cell
- > Integrated dual gate driver
- > Improved and optimized ZVS operation with highline input voltage
- > High switching frequency of up to 140kHz
- > Ensuring DCM operation with valley detection
- > Light load control with active burst mode

Benefits

- > High density with high switching frequency
- High efficiency with adaptive ZVS operation and frequency law for variable output design
- > Safe and robust SR operation with DCM operation
- > Ease of design with dual integrated gate drivers and start-up cell
- > Ease of configurable design with GUI tools

Target applications

- > Adapter
- > USB PD charger
- > Smartphone charger

Product collaterals / Online support

Product page

Product brief

Application notes



Product overview incl. data sheet link

| OPN | SP Number | Package |
|----------------|-------------|-----------|
| XDPS21081XUMA1 | SP005415076 | PG-DSO-12 |

System diagram

TLE986x/7x - Embedded Power ICs family extension

Infineon is extending the TLE986x/7x families with the launch of 4 new variants with 256 KB flash and additional package. New variants provide a performance- and cost-optimized solution for automotive BDC/BLDC applications such as wiper.

This portfolio extension addresses the increased need for flash, driven by European car OEMs requiring 30% of free flash at the time the application has SOP and the need for additional flash coming from software-over-the-air (or in the field) updates.

Features

- > 32-bit Arm® Cortex®-M3 core
- > 256 KB flash
- > 8 KB RAM
- > On-chip OSC and PLL for clock generation
- > MOSFET driver including charge pump
- > 1 LIN 2.2 transceiver
- High-speed operational amplifier for motor current sensing via shunt
- > Single power supply from 5.5 V to 27 V
- > TLE9872-2QXA40 has two differential 14-bit sigma-delta ADCs
- > Green package (RoHS compliant)
- > AEC-qualified

Target applications

> Automotive BDC/BLDC applications such as wiper

System diagram



Product overview incl. data sheet link

| OPN | SP Number | Package |
|--------------------|-------------|---------------|
| TLE9862QXA40XUMA1 | SP003365992 | PG-VQFN-48-29 |
| TLE9872QXA40XUMA1 | SP003365998 | PG-VQFN-48-29 |
| TLE98722QXA40XUMA1 | SP004463656 | PG-VQFN-48-29 |
| TLE9872QTW40XUMA1 | SP003348258 | PG-TQFP-48-10 |



Benefits

> Enable cost and board space improvements

> The TLE986x/7x families allow driving MOSFETs at V_{BATT} ≥ 6V with a low number of external components, providing a very cost effective solution on a system level. Minimum number of external components reduces BOM cost.

Enable high levels of system reliability

- > Extensive diagnostics and protections are embedded within the System-on-Chip, more than a discrete approach can offer.
- Support in-cabin and underhood applications with same design
 - > some TLE986x/7x derivatives are available for different temperature ranges (Grade-0 and Grade-1) in different packages to give the customer maximum flexibility while being software and pin compatible.

Competitive advantage

- > System cost: Minimized number of external components save PCB space
- > Design Support: Platform solution for 2- and 3-phase motor control applications; Design-in support with example codes and App Notes
- Increased flash: 256 KB Flash to offer flexibility for increased SW functionality

Product collaterals / Online support

Product family page TLE986x

Product family page TLE987x

Product brief TLE986x

Product brief TLE987x

Evalboard TLE987x_TQFP

Evalboard TLE987x_VQFN

Application notes

AURIX[™] TC3xx Motor Control Application Kit

The AURIX[™] TC3xx Motor Control Application Kit consists of a 3-phase motor control power board equipped with all assembly circuits required for sensor based and sensorless based field-oriented control (FOC), as well for the block commutation control. It includes an AURIX[™] TC387 application kit TFT, 3-phase motor control Power board, a BLDC motor with encoder, Power supply, and pre-flashed SW.

Features

- > 3-phase motor control power board equipped with all assembly circuits required for sensor based and sensorless based field-oriented control (FOC), as well for the block commutation control
- Power board with TLE9180D-31QK 3-phase gate driver IC, MOSFET power stage, and auxiliary components
- > Pre-flashed microcontroller board using the Infineon AURIX™ TC387
- > Field oriented control (FOC) of PMSM, encoder as a position sensor
- > Commands set and basic monitoring via touch screen
- > USB connection between the microcontroller and a PC
- > GUI (One Eye) for easy access to the microcontroller

Competitive advantage

> Motor Control Application Kit featuring AURIX[™] TC387 microcontroller, including everything necessary to start developing motor control applications right away. Provided SW algorithm implementing field-oriented control (FOC).

System diagram



Product overview incl. data sheet link

| OPN | SP Number | Package |
|--------------------------|-------------|---------|
| KITA2GTC387MOTORCTRTOBO1 | SP005422834 | board |



Benefits

- > Everything customer needs to start developing in one package.
- > Possibility to implement Safe and Secure applications, based on AURIX[™] TC3xx family features
- Available Software implementing Field oriented control (FOC) algorithm
- Included Power board is scalable to 3-phase motors with higher / lower power output
- > TFT touch display offers a nice HMI interface
- > Customer can rely on App notes to understand and improve their applications when using the kit

Target applications

- > Motor control
- > BLDC motors
- > Industrial
- > eBikes / eScooters
- > LSEV
- > Drones
- > Automotive
- > Pumps & fans
- > CAV
- > Safety

Product collaterals / Online support

Product page