



New Product Introduction

November 2020

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EiceDRIVER™ X3 - analog & digital isolated gated driver family

A highly flexible high-end single-channel, isolated gate driver family with DESAT, Miller clamp, Soft-off and I2C configurability

The X3 Analog (1ED34xx) & X3 Digital (1ED38xx) mark a highly flexible isolated gate driver family, offering a wide range of configurable features and monitoring options. This enables innovative use cases, such as predictive maintenance.

The gate driver family provides typical peak output currents of 3 A, 6 A and 9 A, high precision DESAT function, an excellent solution for short-circuit protection for IGBTs and SiC MOSFETs; many of those features configurable. This flexibility makes it a unique high-end solution in the market.

A wide range of target applications are enabled, e.g., drives, solar, EV charging or energy storage systems while adding certified galvanic isolation (UL1577).



Features

- > IGBTs, SiC and Si MOSFETs
- > For IGBTs (incl. IGBT7), SiC and Si MOSFETs
- > $\pm 3/6/9$ A typical sinking and sourcing peak output current
- > Precise VCEsat detection (DESAT) with fault output
- > 40 V absolute maximum output supply voltage
- > Flexibility based on feature configuration
 - > Adjustable DESAT filter time and soft-off current level (1ED34XX)
 - > I2C configurability for DESAT, soft-off, UVLO, active Miller clamp, over temperature shutdown, two level turn off (1ED38XX)

Benefits

- > Enables fast design cycles due to low external component count and still offers adjustable DESAT with Soft-off functionality
- > Perfect fit for all applications requiring a reliable DESAT protection (including SiC MOSFET & IGBT7),
- > UL 1577 (pending) VISO = 6 kV (rms) for 1 s, 5.7 kV (rms) for 1 min
- > The precise threshold and timings, combined with UL 1577 certification enable superior application safety

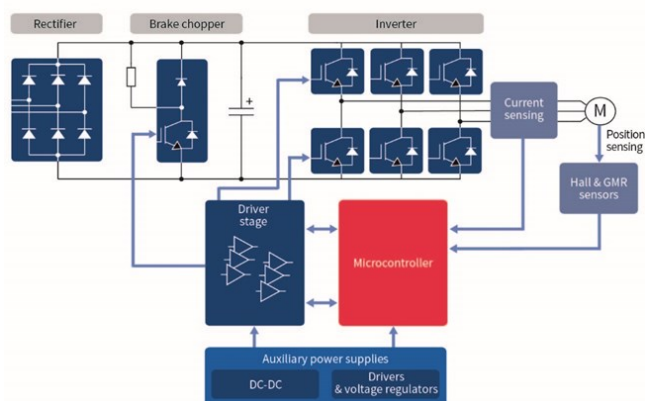
Target applications

- > Industrial motor drives - compact, standard, premium, servo drives
- > Solar inverters
- > UPS systems
- > EV charging
- > Energy storage systems

Competitive advantage

- > Enables fast design cycles due to its configurability & low external component count while still offering adjustable DESAT with Soft-off functionality (1ED34XX)
- > Unique configurability via I2C for DESAT, Soft-off, UVLO, active Miller clamp, over temperature shutdown, two level turn off, highly flexible for customer designs (1ED38XX)

System diagram



Product overview incl. data sheet link

OPN	SP Number	Package
1ED3431MU12MXUMA1	SP005350849	PG-DSO-16
1ED3461MU12MXUMA1	SP005350851	PG-DSO-16
1ED3491MU12MXUMA1	SP005350853	PG-DSO-16
1ED3830MU12MXUMA1	SP005350827	PG-DSO-16
1ED3860MU12MXUMA1	SP005350845	PG-DSO-16
1ED3890MU12MXUMA1	SP005350847	PG-DSO-16
EVAL1ED3491MX12MTOBO1	SP005411273	board

Product collaterals / Online support

[Product family page](#)

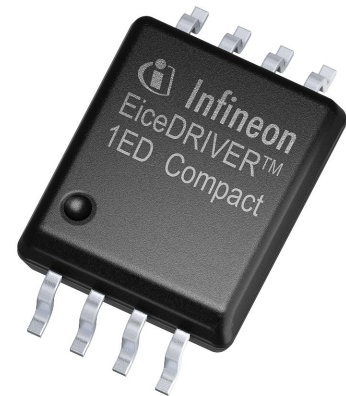
[Application notes](#)

[Product presentation](#)

EiceDRIVER™ X3 - compact isolated gate driver family

The EiceDRIVER™ X3 Compact (1ED31xx) family is the next generation easy-to-design-in single-channel, isolated gate driver family with active Miller clamp or separate outputs.

The gate driver family provides typical peak output currents of up to 14 A, excellent propagation delays and matching. This makes it ideal for conventional IGBTs, MOSFETs or SiC MOSFETs and IGBT7. The active Miller clamp function is highly recommended for SiC MOSFETs and IGBT7 at 0 V turn-off. This avoids parasitic turn-ons and improves the application safety.



Features

- > For IGBTs (incl. IGBT7), SiC and Si MOSFETs
- > 14 A typical output current, 7 ns propagation delay matching
- > 90 ns propagation delay with 30 ns input filter
- > 40 V absolute maximum output supply voltage
- > Separate source and sink outputs or Miller clamp
- > DSO-8 300 mil wide-body package with large creepage distance (>8 mm)
- > 8 V or 10.5 V undervoltage lockout (UVLO) protection with hysteresis

Benefits

- > Integrated filters reduce the need for external filters
- > Tight IC-to-IC turn on propagation delay matching (7 ns max.) improves application robustness & improves system efficiency
- > Suitable for operation in fast switching applications
- > UL 1577 (planned) VISO = 6.8 kV (rms) for 1 s, 5.7 kV (rms) for 1 min
- > The precise threshold and timings, combined with UL 1577 certification enable superior application safety

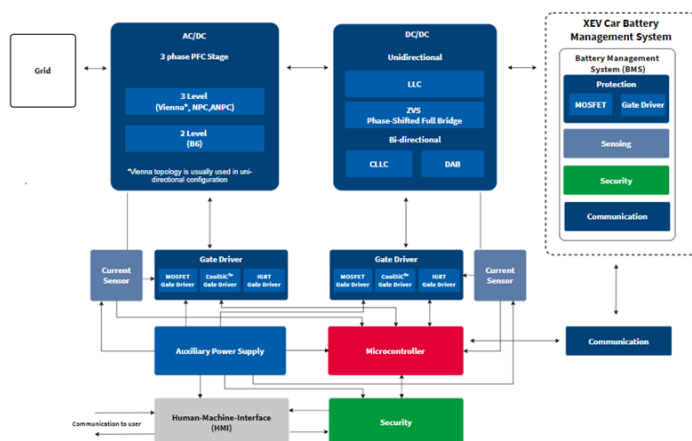
Competitive advantage

- > 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

- > Industrial motor drives - compact, standard, premium, servo drives
- > Solar inverters
- > UPS systems
- > EV charging
- > Energy storage systems

System diagram



Product overview incl. data sheet link

OPN	SP Number	Package
1ED3120MU12HXUMA1	SP005352070	PG-DSO-8
1ED3121MU12HXUMA1	SP005353276	PG-DSO-8
1ED3122MU12HXUMA1	SP005352068	PG-DSO-8
1ED3123MU12HXUMA1	SP005352072	PG-DSO-8
1ED3124MU12HXUMA1	SP005353278	PG-DSO-8
1ED3131MU12HXUMA1	SP005353280	PG-DSO-8
EVAL1ED3122MX12HTOBO1	SP005347593	board
EVAL1ED3121MX12HTOBO1	SP005347597	board
EVAL1ED3124MX12HTOBO1	SP005347599	board

Product collaterals / Online support

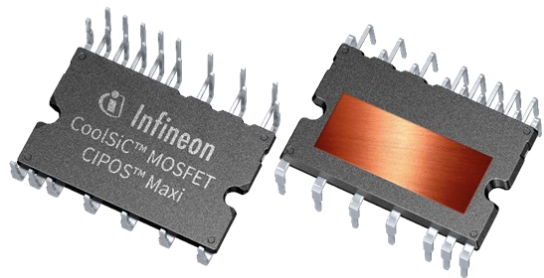
[Product family page](#)

[Application notes](#)

CIPOS™ Maxi SiC IPM - IM828-XCC

High-performance CIPOS™ Maxi transfer molded silicon carbide IPM IM828-XCC integrates 6 CoolSiC™ MOSFETs with an optimized 1200 V 6-channel SOI gate driver to increase reliability, provide excellent protection and optimize PCB size and system costs.

The smallest and most compact package in the 1200 V class, this IPM combines a power rating in excess of 8 kW with exceptional power density, reliability and performance. It offers excellent protections such as under-voltage lockout on all channels, all switches turnoff during protection, cross-conduction prevention, over-current protection, temperature monitoring.



Features

- > Fully isolated dual inline molded module with DCB
- > 1200 V CoolSiC™ MOSFET
- > Rugged 1200 V SOI gate driver technology
- > Integrated bootstrap functionality
- > Overcurrent shutdown
- > Undervoltage lockout on all channels
- > Turnoff of all six switches during protection
- > Cross-conduction prevention
- > Allowable negative VS potential up to -11 V for signal transmission at
 - VBS=-15 V
- > Low-side emitter pins accessible

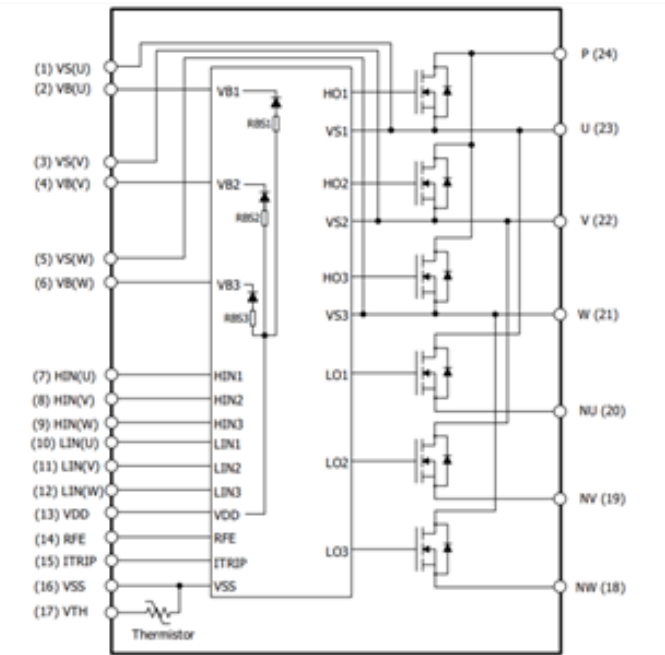
Benefits

- > Smallest package size in 1200 V IPM class with high power density and excellent performance
- > Gate driver technology with enhanced robustness for excellent protection
- > High efficiency up to 99%
- > Wide switching speed range up to 80 kHz
- > Adapted to fast-switching applications with lower power losses
- > Simplified design and manufacturing

Target applications

- > 3-phase PFC
- > Pumps
- > Active filter (active power factor correction) for HVAC
- > Low-power general purpose drives (GPI, servo drives)

Block diagram



Competitive advantage

Infineon is the only company that has released transfer molded SiC MOSFET IPM as of 2020.

Product overview incl. data sheet link

OPN	SP Number	Package
IM828XCCXKMA1	SP002441386	PG-MDIP-24

Product collaterals / Online support

[Product page](#)

[Application notes](#)

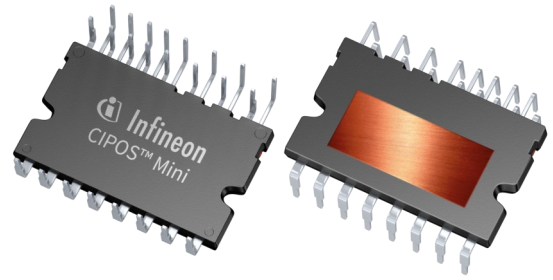
CIPOS™ Mini IPM - IM535-U6D

The IM535-U6D is a new 30 A CIPOS™ Mini intelligent power module (IPM) in three phase inverter configuration. It integrates latest 600 V TRENCHSTOP™ IGBT technology and a new SOI gate driver in DIP 36x21D package to provide higher power density along with enhanced ruggedness and functional improvement.

In these days, almost all the customers are looking for high performance solutions that can meet increasing energy saving requirements, compact size, reliability, as well as system cost, especially for home appliances as well as low to medium power industrial drives.

IM535-U6D perfectly satisfies the requirements with the smallest form factor of 30 A current rating IPM. It provides fully featured compact inverter solution with DCB substrate to provide excellent thermal performance, especially for air conditioners, fans, pump, and motor drives below 3 kW.

In order to support rapid prototyping, EVAL-M1-IM535, evaluation board featuring IM535-U6D is also available.



Features

- > 600 V 30 A 3-phase inverter with open emitters
- > Latest TRENCHSTOP™ IGBT technology
- > New gate driver IC in SOI technology
- > All of 6 switches turn off during protection
- > Under-voltage lockout at all channels
- > Sleep function
- > Built-in temperature monitoring
- > Motor power rating up to 3000 W at 10 kHz
- > UL certified

Competitive advantage

- > High power density with smaller form factor
- > System size reduction and cost improvement

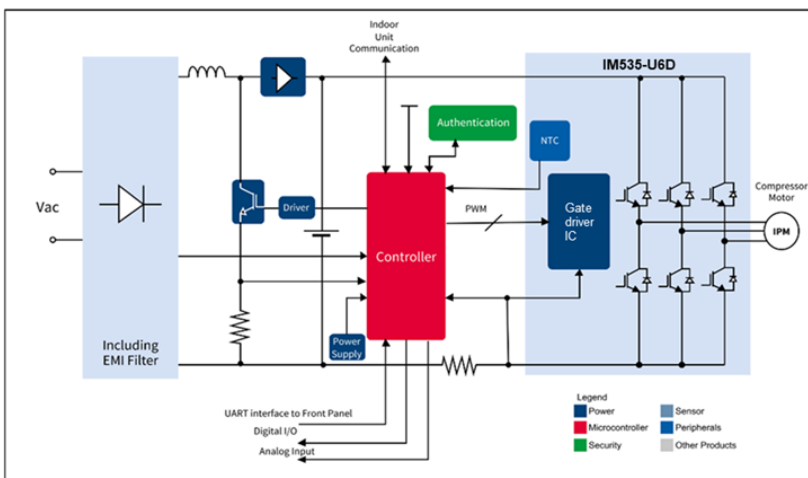
Benefits

- > Optimized performance for home appliances and industrial drives
- > High integrations for easy design and reduced system size
- > Increased reliability and system efficiency
- > Fully featured with multiple protection functions
- > Excellent thermal performance with DCB substrate

Target applications

- > Home appliances
- > Room air conditioners
- > Motor control and drives
- > Motor control for industrial automation
- > Heating ventilation and air conditioning (HVAC)

System diagram



Product overview incl. data sheet link

OPN	SP Number	Package
IM535U6DXKMA1	SP003944830	PG-MDIP-24
EVALM1IM535TOBO1	SP005543566	board

Product collaterals / Online support

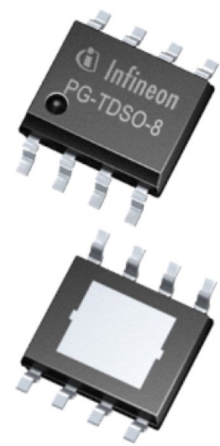
[Product family page CIPOS™ Mini](#)

[Product page](#)

[Application notes](#)

HITFET™ smart low side power switch BTT3018EJ

The BTT3018EJ is a 16 mΩ single channel Smart Low-Side Power Switch within a PG-TDSO-8 exposed package providing embedded protective functions. It is the first 24 V HITFET™ fast Low-Side-Switch driving PWM up to 20 kHz.



Features

- > Slew rate Pin control for PWM
- > Diagnosis via STATUS pin
- > Dynamic temperature protection with Latch shutdown

Benefits

- > Power losses/EMI optimization with SRP pin
- > High short circuit robustness
- > Reset via status pin (configuration of IN to STATUS also possible)

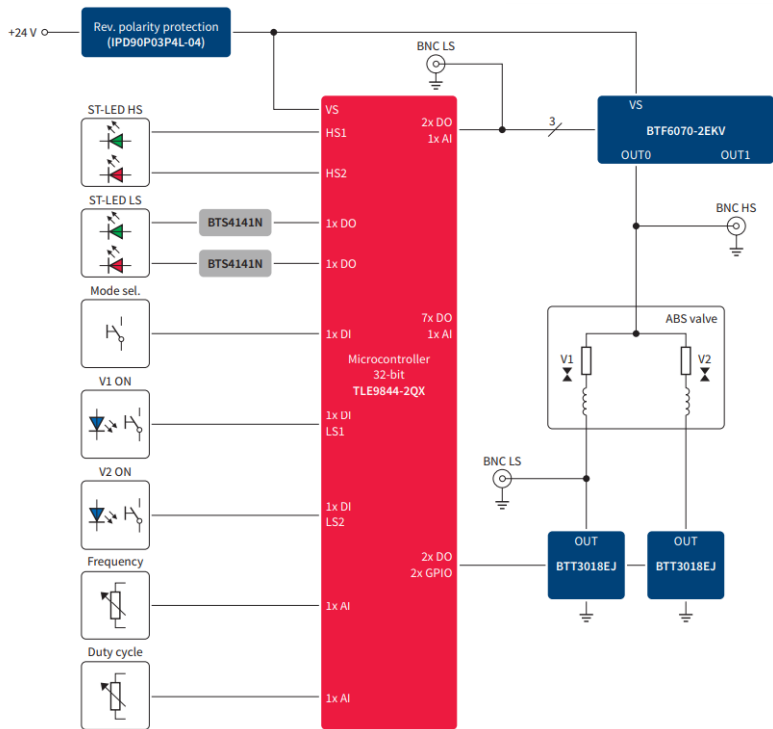
Target applications

- > All types of resistive, inductive and capacitive loads
- > 24 V low-side and high-side loads
- > Suitable for driving applications with high PWM (up to 20 kHz)

Competitive advantage

Highest design flexibility in terms of package variety and $R_{DS(ON)}$ scalability

System diagram



Product overview incl. data sheet link

OPN	SP Number	Package
BTT3018EJXUMA1	SP001676746	PG-TDSO-8

Product collaterals / Online support

- [Product page](#)
- [Product brief](#)

HybridPACK™ DSC S2 half-bridge module - FF450R08A03P2

HybridPACK™ DSC S2 FF450R08A03P2 750 V, 450 A half bridge automotive qualified IGBT module.

The HybridPACK™ DSC S2 is a very compact half bridge module (750 V/450 A) optimized for hybrid and electrical vehicles. This power module combines the benchmark EDT2 IGBT generation with Infineon's Double Sided Cooling package (DSC), on-chip temperature and current sensor. It offers an upgrade path for HybridPACK™ DSC S1 modules targeting inverter designs up to 75 kW power range at up to 320 A_{rms} capability.



Features

Electrical:

- > Blocking voltage 750 V
- > $I_{c\ nom}$ 450 A
- > $T_{vj\ op} = 150^{\circ}C$, short-time extended operation temperature
 $T_{vj\ op} = 175^{\circ}C$
- > EDT2 chip technology optimized in the range of 10 kHz switching frequencies
- > On-chip temperature sensor
- > On-chip current sensor
- > 2.5 kW AC 1min @ 50 Hz insulation
- > Low inductive design (15nH)
- > Low switching losses

Mechanical:

- > Double sided cooling package
- > RoHS compliant

Target applications

- > Main Inverter
- > Hybrid and Battery Electric Vehicles
- > Commercial, Construction and Agriculture Vehicles

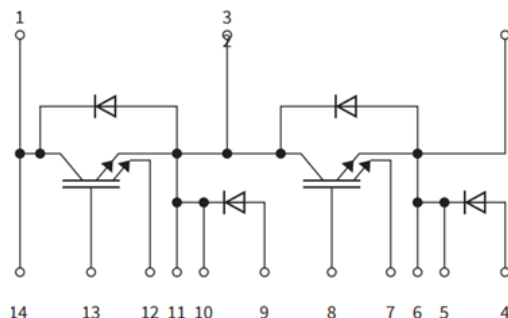
Benefits

- > High current density enabling very compact and cost efficient inverter designs
- > Superior efficiency by EDT2 technology for excellent light load power losses (20% improved compared to IGBT3)
- > Highest reliability by short circuit ruggedness and increased blocking voltage ($V_{CES}=750\ V$)
- > Superior thermal performance (Double-sided cooled molded half-bridge module and Short-term $175^{\circ}C$ chip junction temperature operating capability)
- > Fully qualified for Automotive (AQC324)

Competitive advantage

- > Ramp up and field experience (vs. new competitor molded modules): (1) Off-the shelf solution for short time to market; (2) Reliability: Proven package with over 3.5 million modules used in various hybrid and plug-in hybrid cars around the world
- > Security: On-chip temperature and current sensor allowing faster reaction time on e.g. over temperature die protection
- > System integration due to compact product design and flexible half bridge concept
- > Scalability: upscale possibility to existing HybridPACK™ DSC S1 (FF400R07A01E3_S6) at same package outline
- > V_{CES} 750 V supports advancements in battery technology towards higher $V_{DC-link}$ up to 450 V
- > Integrated isolation: modules can be directly attached to a cooler without external isolation

Block diagram



Product overview incl. data sheet link

OPN	SP Number	Package
FF450R08A03P2XKSA1	SP001630036	PG-MDIP-14

Product collaterals / Online support

[Product page](#)

[Product brief](#)

[Application notes](#)

TRENCHSTOP™ advanced isolation in TO-247 package

This new package concept is able to match the highest requirements in terms of performance, design flexibility and ease of handling. By eliminating the need for thermal grease or thermal interface sheets the TRENCHSTOP™ Advanced Isolation is able to deliver at least 35% lower thermal resistivity and at least 10% system cost reduction, helping designers to lower system complexity, development time, and assembling costs.



Features

Fully Isolated package

- > Plug & play solution
- > 100% isolated
- > Viso: 3.0 kV for 1 sec / 2.5 kV for 60 sec

Best-in-class $R_{th(j-h)}$

- > 35% lower $R_{th(j-h)}$ compared to Iso-foil
- > 50% lower $R_{th(j-h)}$ compared to Full-Paks

Low coupling capacitance

- > 38 pF
- > 36 % lower than standard Isolation foils
- > 25 % lower than MICA
- > Similar to Al_2O_3

Target applications

- > AirCon, MHA, GPI
- > UPS, Solar, Welding

Benefits

Lower assembling costs

- > No need to use isolation material and thermal grease
- > 35 % reduction in assembling time compared to standard TO-247 with Iso-foils

Improved reliability

- > Increased yield eliminating misalignments of isolation foils

Decreased heatsink size or Increased power density

- > Up to 10°C lower T_c compared to standard TO-247 with isolation material
- > Up to 20% I_{out} increase for higher power output

Decreased EMI filter size & decreased system costs

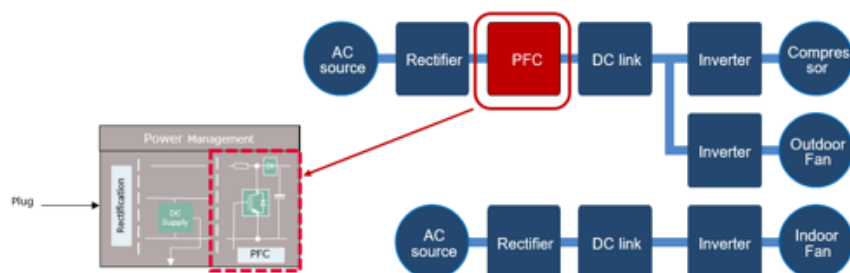
Improved reliability

- > Complete manufacturing process control
- > Easy paralleling

Competitive advantage

- > Reliable electrical insulation of 2.500 V_{RMS} at 50/60 Hz, $t = 1$ min
- > 100% tested isolated mounting surface
- > Up to 35% reduction in assembly time reduces manufacturing costs
- > Improved reliability from higher yield and no isolation foil misalignment

System diagram



PFC and motor drive – example of AirCon system

Product overview incl. data sheet link

OPN	SP Number	Package
IKFW75N65EH5XKSA1	SP001728808	PG-HSIP247-3
IKFW50N65ES5XKSA1	SP001728802	PG-HSIP247-3
IKFW60N65ES5XKSA1	SP001878206	PG-HSIP247-3
IKFW40N65ES5XKSA1	SP005401489	PG-HSIP247-3
IHFW40N65R5SXKSA1	SP001878204	PG-HSIP247-3
IKFW75N65ES5XKSA1	SP001728806	PG-HSIP247-3
IKFW50N65EH5XKSA1	SP001728804	PG-HSIP247-3
IDFW80C65D1XKSA1	SP005423480	PG-HSIP247-3

Product collaterals / Online support

[Product family page](#)

[Product brief](#)

[Application notes](#)

AURIX™ MCU TC3xx family extension - TC37x and TC36x

The first AURIX™ TC3xx superset devices, the TC39x and TC38x were launched in early 2020. The next members of this highly scalable family, the TC37x and TC36x are now available, with optimized feature set for lower end applications, plus extended connectivity with the TC377TX. The TC37x and TC36x are also the first TC3xx devices available in QFP packaging.

No other automotive family can offer such breadth of portfolio whilst offering automotive safety and security. The TC3xx is highly compatible with the previous AURIX™ TC2xx generation and makes the perfect step up in performance and memory.



Features

- > TC37x Upto 3 TriCore™ v 1.6 CPUs with 2 lockstep
- > TC377TX Upto 3 TriCore™ v 1.6 CPUs with 3 lockstep
- > TC36x Upto 2 TriCore™ v 1.6 CPUs with 2 lockstep

Performance:

- > 300MHz Performance as standard

On-chip flash:

- > TC37x and TC377TX: 6 MB Automotive grade program flash
- > TC36x: 4 MB Automotive grade program flash
- > Full suite of high performance peripherals including:
 - ADCs with Delta Sigma
 - GTM v3.1 timers
 - Ethernet: Up to 2 x 1Gbit/s
 - FlexRay
 - CAN FD
 - LIN
 - SENT
 - HSSL
- > ISO-26262 ASIL D Automotive Safety
- > EVITA Full Automotive Security thanks to HSM
- > Software over the air updates (support of SOTA A/B swap)
- > Full Automotive temp range temp range as standard
- > HOT Package (150° Junction) as option for harsh environments
- > Multiple packages per silicon in QFP and BGA

Benefits

AURIX™ TC3xx applies to wide range of use cases across automotive E/E architectures including:

- AURIX™ TC3xx as **application optimized realtime controller** (e.g. inverter, power steering)
- AURIX™ TC3xx as **host controller** (e.g. drive domain, safety domain, body domain, gateway)
- AURIX™ TC3xx as **safe and secure companion chip** (e.g. in fusion domain, telematics box)

Target applications

- > Powertrain
- > xEV
- > Safety and ADAS

Competitive advantage

No other automotive MCU portfolio offers this range of compatible devices, allowing customers the flexibility to go up or down in terms of performance. It's also possible to use AURIX™ TC3xx as a platform solution, targeting multiple applications with one family saving SW investment costs. To have this combination of compatible products and packages with Automotive Safety, Automotive security with HSM as standard and HOT package for harsh environments is unique in the market.

Product overview incl. data sheet link

OPN	SP Number	Package
TC364DP64F300FAAKXUMA1	SP001713956	PG-TQFP-144
TC364DP64F300WAAKXUMA1	SP001714740	PG-LQFP-144
TC365DP64F300WAAKXUMA1	SP001724126	PG-LQFP-176
TC367DP64F300SAKXUMA1	SP001694656	PG-LFBGA-292
TC377TP96F300SAKXUMA1	SP001694648	PG-LFBGA-292
TC377TX96F300SABKXUMA1	SP004950416	PG-LFBGA-292
TC375TP96F300WAAKXUMA1	SP001724106	PG-LQFP-176

Product collaterals / Online support

[Product family page TC37xTP](#)

[Product family page TC36xDP](#)

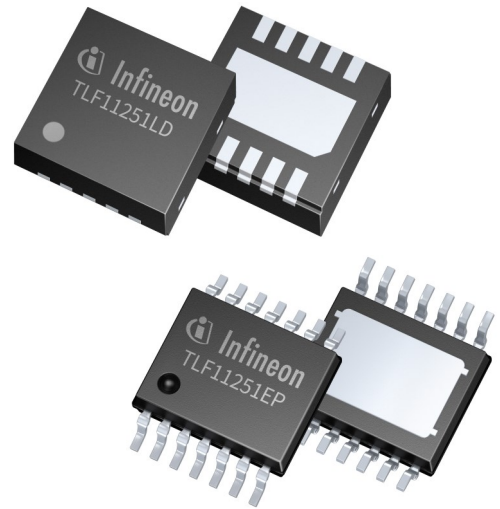
[User manual](#)

TLF11251LD/EP - integrated half-bridge for AURIX™ MCUs

Integrated p/n-half-bridge with driver and level-shifter for AURIX™-μC's Embedded Core Controller (EVRC) replacing the dual-MOSFET of the L/C-DCDC to generate the core-voltage. The integrated protection features like output current sensing and limitation and over-temperature protection are allowing system optimization.

The TLF11251LD is using a small, leadless PG-TSON-10 with thermally enhancing Exposed Pad capable for automated optical inspection.

The TLF11251EP is coming in a Grad 0-qualified PG-TSDSO-14 with thermally enhancing Exposed Pad for extended temperature range.



Features

- > Integrated PMOS and NMOS complementary output bridge with 2.5 A current capability
- > Integrated gate drivers and level-shifters
- > Single control input with an integrated dead-time logic allows for optimized control and high efficiency
- > Output current sensing and limitation
- > Over-temperature protection
- > Low quiescent current
- > No external dead-time adjustment required

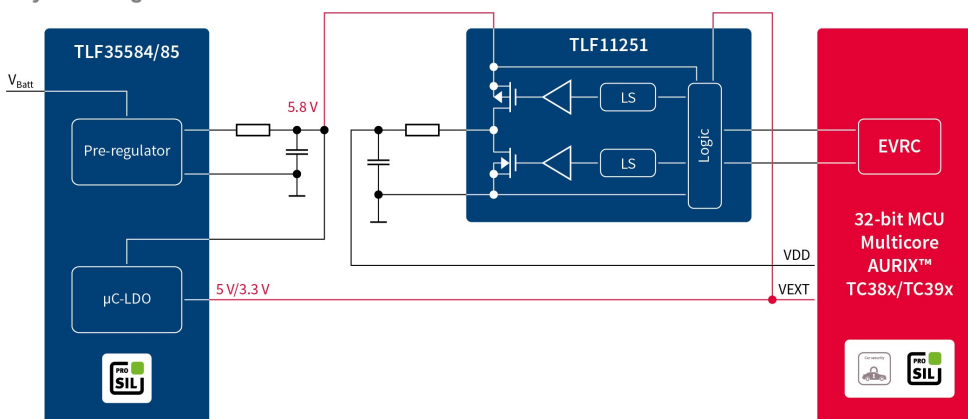
Benefits

- > Efficiency increase by connecting core-supply directly to pre-regulator
- > Thermal optimization
- > Proven operation with high-end 2nd generation TriCore™ AURIX™ 32-bit microcontrollers (TC38x/TC39x/TC3Ex)
- > Package line-up for all use cases

Target applications

- > Together with high-end AURIX™ 2G (TC38x/TC39x/TC3Ex): sensor fusion, domain control, gateway

System diagram



Product overview incl. data sheet link

OPN	SP Number	Package
TLF11251LDXUMA1	SP001688206	PG-TSON-10
TLF11251EPXUMA1	SP001728036	PG-TSDSO-14

Product collaterals / Online support

[Product page TLF11251LD](#)

[Product page TLF11251EP](#)

[Product brief](#)

TLE9877QTW40 and TLE9879QTW40 3-phase bridge driver IC with integrated Arm® Cortex® M3

With the extension of the successful TLE987x family, Infineon is launching 2 new variants with brand-new TQFP package. The new variants, TLE9877QTW40 and TLE9879QTW40, are highly integrated automotive qualified devices enabling cost and space efficient solutions for mechatronic BLDC motor drive applications such as pumps and fans.



Features

- > 32-bit Arm® Cortex®-M3 core, up to 40 MHz clock frequency
- > MOSFET driver including charge pump
- > On-chip OSC and PLL for clock generation
 - PLL loss-of-lock detection
- > 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
- > Temperature range $T_j = -40^{\circ}\text{C}$ to $+175^{\circ}\text{C}$
- > 6 KB RAM
- > TLE9877QTW40 -> 64 KB flash
- > TLE9879QTW40 -> 128 KB flash
- > Package TQFP-48
- > Green package (RoHS compliant)
- > AEC-qualified

Benefits

- > **Enable cost and board space improvements** - The TLE987x family allows driving MOSFETs at $V_{BATT} \geq 6\text{V}$ 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 TLE987x 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.

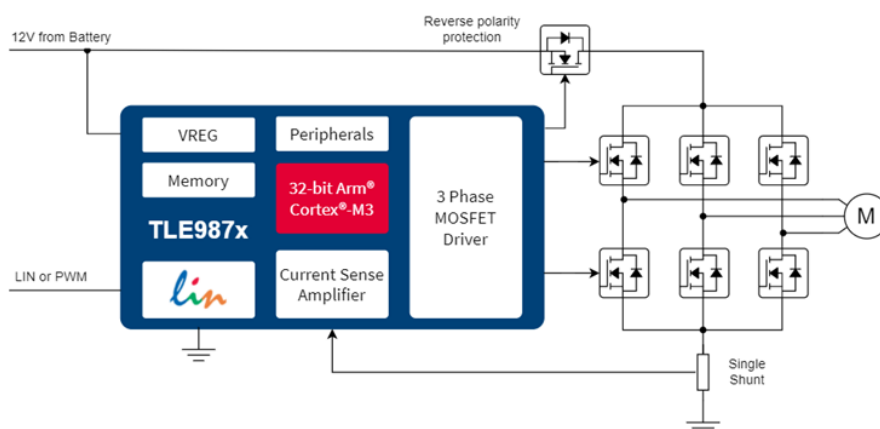
Target applications

- > BLDC motor drive applications such as pumps and fans.

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

Block diagram



Product overview incl. data sheet link

OPN	SP Number	Package
TLE9877QTW40XUMA1	SP004419200	PG-TQFP-48
TLE9879QTW40XUMA1	SP002662482	PG-TQFP-48

Product collaterals / Online support

[Product page TLE9877QTW40](#)

[Product page TLE9879QTW40](#)

[Evaluation board TLE987x TQFP](#)

[Product brief](#)

[Application notes](#)

BGS15MU14 - RF switch for feedback receive

High ISO SP5T RF Switch for feedback receive (FBRx)

BGS15MU14 is a perfect fit for concurrent transmit chains in UL-CA and MIMO RF design scenarios on input port feedback receive (FBRx).

It has a very small form factor with a maximum thickness of just 0.6 mm. BGS15MU14 has been designed to guarantee best-in-class isolation performance up to 6.0 GHz (>50 dB) in high demanding FBRx applications. It has the capability to increase flexibility of RF designs, reduce space and offer BOM cost savings.

The device is MIPI controlled. The on-chip controller allows power-supply voltages from 1.65 to 1.95 V. Unlike GaAs technology, external DC blocking capacitors at the RF Ports are only required if DC voltage is externally applied.



Features

- > Very high isolation of up to 56 dB
- > Control MIPI 2.1
- > Applicable up to 6 GHz
- > Fast switching speed 177ns
- > Low insertion loss

Benefits

- > Reduce design complexity
- > Meet high ISO requirements in FBRx
- > Reduce BOM cost

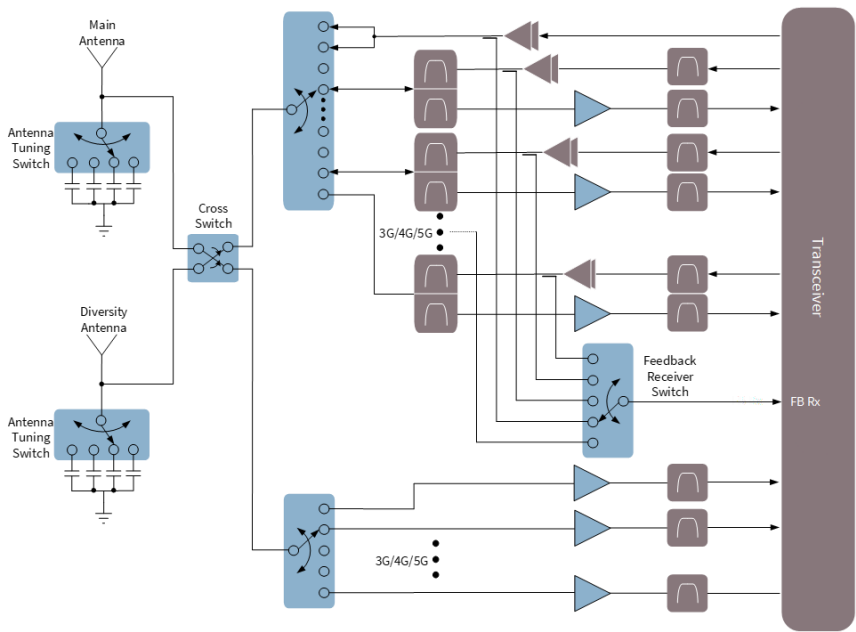
Target application

- > Feedback receive application in 5G mobile devices

Competitive advantage

- > Target FBRx application by meeting high ISO requirements
- > BOM cost reduction through using 1 single device instead 2 or more in cascade

Block diagram



Product overview incl. data sheet link

OPN	SP Number	Package
BGS15MU14E632XTSA1	SP005354435	PG-ULGA-14

Product collaterals / Online support

[Product page](#)

DEMO BGT60LTR11AIP - evaluation kit for 60 GHz radar MMIC

The BGT60LTR11AIP is a fully integrated microwave motion sensor including Antennas in Package (AIP) as well as built-in motion and direction of motion detectors. A state machine enables operation of the device without any external microcontroller. In this autonomous mode, it detects a human target up to 5 m with a low power consumption of less than 5 mW. These features make the small sized radar solution a compelling smart and cost-effective replacement for conventional PIR sensors in low power or battery-powered applications.



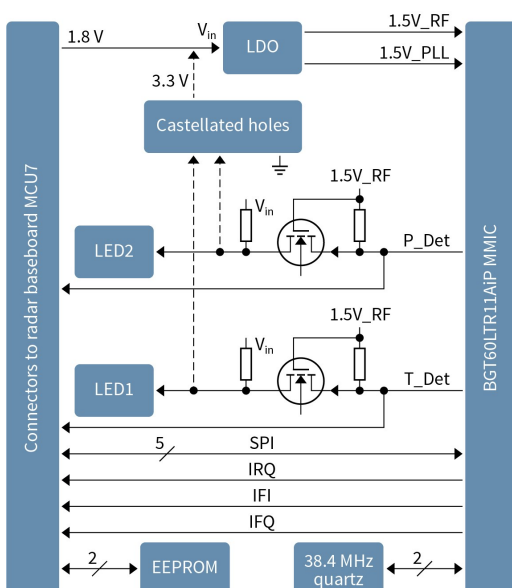
Features

- > 1Tx 1Rx Antennas in Package (AIP) with 80 ° field of view
- > Integrated motion detector
- > Integrated direction of motion detector
- > Multiple modes of operation including a completely autonomous mode
- > Adjustable performance parameters such as detection sensitivity, hold time and frequency of operation

Target applications

- > Smart home devices (Thermostats, smoke detectors, smart speakers, etc.)
- > Smart appliances (Vacuum cleaners, kitchen appliances, etc.)
- > Smart lighting systems
- > Security systems including IP cameras
- > Automated door openers
- > Screen based systems (TV, notebook, tablet, etc.)

System diagram



Product overview incl. product page link

OPN	SP Number	Package
DEMOBGT60LTR11AIP TOBO1	SP005422969	board

Benefits

Autonomous mode (BGT60LTR11AIP shield only):

- > Up to 5 m detection range
- > Less than 5 mW power consumption
- > No knowledge in RF, antenna design or radar signal processing required
- > 4 quad states give flexibility

SPI mode:

- > Up to 10 m detection range
- > Less than 2 mW power consumption possible
- > Extract radar raw data to develop customized algorithms

Competitive advantage

Compared to classical PIR motion sensors:

- > Higher sensitivity
- > Ability to sense the direction of motion
- > Sensing through obstacles/materials → more design flexibility for the end product
- > Smaller size
- > Less prone to environmental influences, e.g. high temperatures

Compared to other radar sensors:

- > Small size (3.3 x 6.7 x 0.56 mm package)
- > Integrated Antennas & Completely autonomous mode --> requiring almost no knowledge in RF engineering, antenna design and signal processing
- > Low power consumption
- > Flexibility by hardware preset pins even in the autonomous mode

Product collaterals / Online support

[Application Note Radar Baseboard MCU7](#)

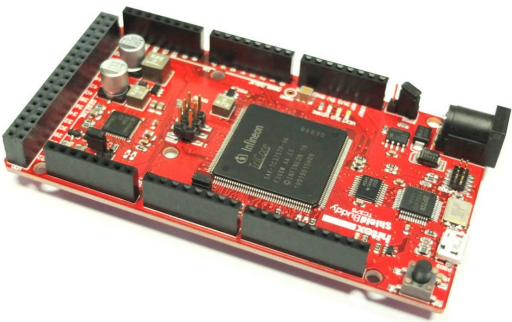
[Application Note BGT60LTR11AIP Shield](#)

AURIX™ MCU ShieldBuddyTC375

ShieldBuddyTC375 – AURIX™ powered Arduino™ UNO R3 hardware compatible platform

The ShieldBuddyTC375 is (currently) the world’s smallest AURIX™ development board. The ShieldBuddyTC375 is fitted with the Infineon TC375 32-bit multicore processor on a board following the Arduino™ standard making it compatible with many of the application shields that are available.

Evaluation licenses for a complete set of development tools are available which makes this kit ideal for getting started on a high end real time embedded industrial or automotive application as well as students and hobbyists.



Features

- > Uses Arduino™ Due/Mega2560 form factor and IO connector pin allocation
- > Development tools based on HighTec Free AURIX™ Toolchain and Arduino™ Processing IDE
- > USB or 9-12V power supply
- > Supplied with basic drivers for DS-ADC, SAR, GTM, GPT, CCU6, ASC, LIN, SPI, QSPI, Ethernet

Benefits

- > ShieldBuddy AURIX™ TC375 with on-board TLF35584 power supply and safety monitor
- > On-board CAN transceiver
- > Direct USB debug interface

Target applications

- > Motor control
- > Industrial
- > Drones
- > Connected Cars
- > CAV
- > Lighting
- > Safety

Competitive advantage

- > Low cost Arduino shield buddy TC375 kit with high performance supported by our new IDE (AURIX™ Development Studio) including codes examples and trainings

Product overview incl. data sheet link

OPN	SP Number	Package
KITA2GTC375ARDSBTOBO1	SP005432164	board

Product collaterals / Online support

[Product page](#)