

Infineon Technologies New Products Introduction

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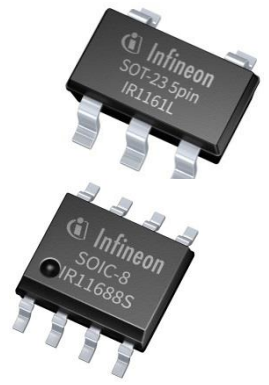
OPTIGA™ Trust E – SLS 32AIA

Easy and cost effective security solution for high value goods

IR1161L and IR11688S

Synchronous rectification controllers for SMPS

Infineon is launching a new synchronous rectification controller family for switch mode power supply. Starting 2016, U.S. DoE and EU CoC standards are demanding higher efficiency from external power supplies, up to 3 percent efficiency improvement is required to meet the new standards. Together with Infineon's best-in-class OptiMOS™ and StrongIRFET™, IR1161L and IR11688S are here to provide a simple way to drive the MOSFETs and therefore improve efficiency by 1 to 3 percent depending on output loads. IR1161L is targeting flyback SMPS, especially charger and adapter applications, while IR11688S is focusing on LLC SMPS applications.



Features & benefits

IR1161L

- > DCM, CrCM/QR mode capable
- > 200 V direct sensing
- > SOT-23 package
- > Cycle-by-cycle MOT protection
- > Low quiescent current
- > Programmable MOT

IR11668S

- > 200 V direct sensing
- > Cycle-by-cycle MOT protection
- > Low quiescent current
- > Programmable MOT

Target applications

IR1161L

- > Flyback SMPS for chargers and adapters

IR11688S

- > LLC SMPS for televisions, desktops, silver boxes, microservers

Further key points

IR1161L

- > 200 V direct sensing eliminates the need for external voltage dividers
- > SOT-23 package, which is 70 percent smaller than popular SOIC-8 package
- > Programmable MOT (minimum on time) protection ensures reliable operation from no load to full load

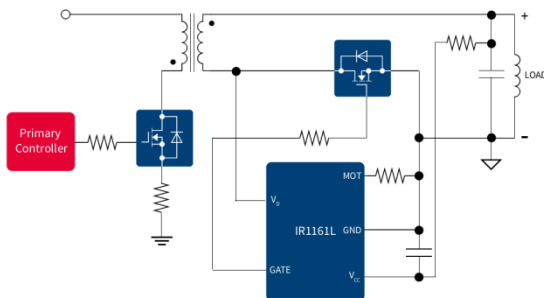
IR11668S

- > Low quiescent current meets standby requirements of new 2016 efficiency standards
- > Programmable MOT (minimum on time) protection ensures reliable operation from no load to full load

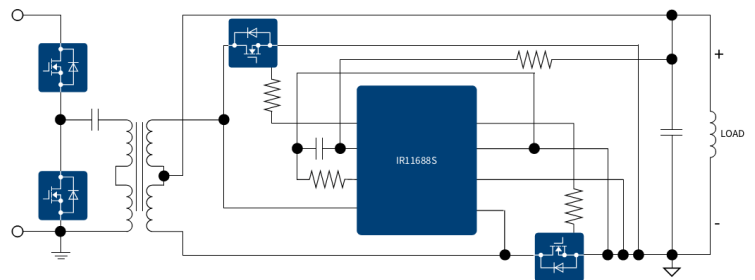
Product collaterals / online support

- > Products [page](#)
- > Synchronous rectification ICs [documents](#)

Block diagram - IR1161L



Block diagram - IR11688S



TLS805 / TLS810

Automotive voltage regulators



Ultra-low current consumption automotive linear voltage regulators with low dropout voltage and wide input voltage range. If you are looking to extend battery life, save PCB space or system costs the automotive High Performance Voltage Regulators TLS805/TLS810 (50mA & 100mA respectively) are the right fit. Infineon's high performance LDO family has ultra-low quiescent current down to 5 μ A and a very wide input voltage range down to 2.75V. The five new products are available in the TSON-10 package. With its very compact 3.3mmx3.3mm footprint it is ~50% smaller than a DSO-8 package. Furthermore, the TSON-10 package allows for Automated Optical Inspection (AOI) and eliminates the need for X-Ray inspection.

Features

- > Enable and reset
- > Output voltage options: 5 V, 3.3 V, adj.
- > Output current
 - TLS810: 100 mA
 - TLS805: 50 mA
- > Current consumption: 5–9 μ A
- > Available in DSO-8 and TSON-10 packages

Target applications

- > Applications with direct battery connection
- > Automotive general ECUs
- > Infotainment, alarm, dashboard
- > RKE, immobilizer, gateway

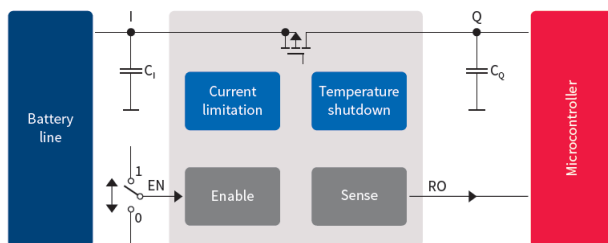
Benefits

- > Functional input voltage range starts at 2.75 V and very low dropout voltage → suitable for cranking
- > Ultra-low quiescent current and current consumption → power saving for battery
- > Stable with 1 μ F output capacitor → PCB space and cost savings
- > Excellent transient robustness → smaller input capacitors hence lower input filtering costs

Completing products

- > CAN transceiver supply
- > Microcontrollers supply for currents up to 100 mA

Block diagram



Product collaterals / online support

- > TLS805B1SJLV [page](#)
- > TLS810C1EJ [page](#)
- > TLS810D1EJ [page](#)
- > TLS810B1LD [page](#)
- > TLS810D1LD [page](#)
- > TLS810B1LDV33 [page](#)
- > TLS810A1LDV50 [page](#)
- > TLS805D1LDV50 [page](#)
- > TLS805B1LDV [page](#)
- > TLS805B1LD [page](#)

TLE984x

Infineon® Embedded Power System-on-Chip



The TLE984x product family brings together the ARM® Cortex®-M0 core and the market proven peripherals of its predecessor TLE983x (XC800 based relay driver). It integrates on a single die all the necessary functions to sense, control and actuate a motor via a relay or via a PN MOSFET Half-Bridge. The TLE984x family offers scalability in terms of flash memory sizes ranging from 36kB to 64kB with pin-compatible devices. It is specifically designed to fit to a wide range of LIN-slave motor control applications such as window lifts, wipers, sun roofs, fans and blowers to name a few.

Features

- > Two protected low-side switches (min. 270mA)
- > Up to two protected high-side switches (min. 150mA)
- > Up to five high-voltage inputs with wake up functionality
- > Integrated LIN transceiver compatible with LIN 2.2 and SAE-J2602
- > Two full duplex serial interface (UART) with LIN support
- > Two synchronous serial channel (SSC), compatible with SPI
- > On-chip oscillator and PLL for clock generation
- > Measurement unit:
 - 8-bit ADC module with 7 multiplexed inputs for system supervision
 - 10-bit ADC module with 13 multiplexed inputs
 - On chip temperature and battery voltage measurement
- > Independent programmable window watchdog
- > 5V/1.5V Internal supplies
- > External Supply (VDDEXT): 5V+/-2% @ 20mA
- > Power saving modes
 - MCU slow-down Mode
 - Sleep & stop mode
 - Cyclic wake-up from Sleep Mode or Stop Mode

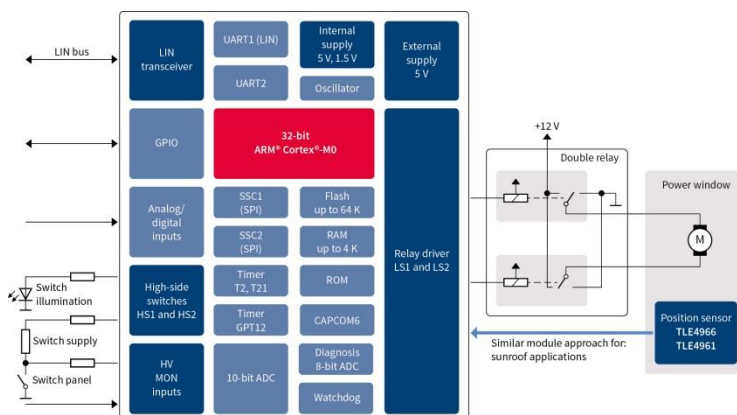
Benefits

- > Complete System-Chip for a wide range of LIN based Mechatronic Window Lift and Sunroof applications
- > One platform for relay or low-end PN FET DC Motor Control
- > Minimum number of external components for reduced BOM cost
- > VQFN package with 7x7mm footprint resulting in PCB space saving

Completing products

- > Sensors =TLE4966, TLE4966V, TLE4961
- > OptiMOS™ Power MOSFETs =e.g. NMOS IPD75N04S4-06, PMOS IPD90P04P4-05,
- > OptiMOS™-T2 = e.g. NMOS IPC60N04S4-06

Block diagram



Features of the integrated Microcontroller and its peripherals

- > 32 bit ARM® Cortex® M0 Core, 25/40 MHz clock frequency
- > 36kB to 64kB flash memory for code and data
- > Boot ROM for startup firmware and Flash routines
- > Up to 4 kByte RAM memory
- > Thumb® + Thumb-2® Instruction Set
- > Nine 16-Bit timers
- > Capture/compare unit for PWM signal generation (CCU6) with 2 x 16-bit timers

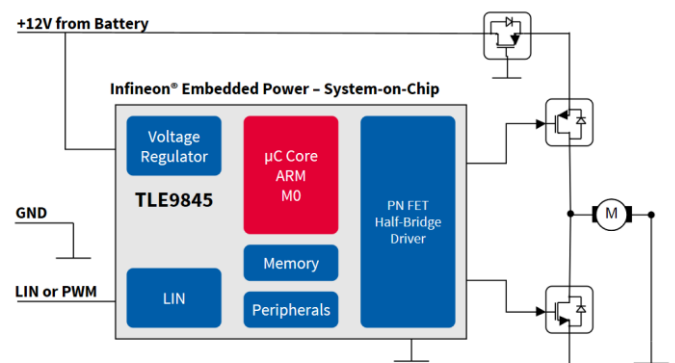
Target applications

- > Window lift
- > Sunroof
- > Wiper
- > Fan/blower motor control
- > Pump motor control
- > LIN addressed relay motor applications

Product collaterals / online support

- > Product family [page](#) (new family TLE984x will be live – middle of July)

Application example

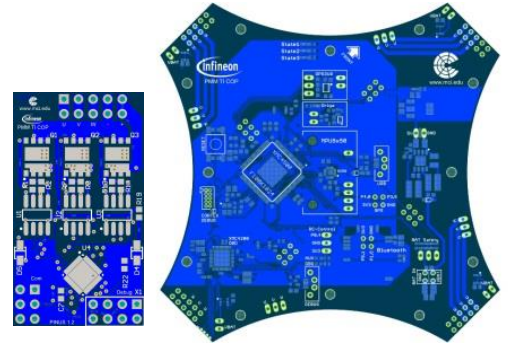


Infinion's multicopter demonstration board

A complete solution with 58 Infineon products for multicopters

Commercial multicopters have come a long way in their innovations, evolving from toys to the state-of-the-art technology integrated programmable aircrafts for recording, filming, detecting and other sophisticated events. This provides challenges and opportunities for multicopter manufacturers.

Infineon brings ready-to-use multicopter solutions to the high potential emerging market. As a leading semiconductor company, Infineon offers a complete system solution including every critical semiconductor solution from power electronics, to controllers, to securities, authentication and sensors. Flying is the most critical application in terms of performance, efficiency and control. We cover all those points and address precisely what you need to design a highly efficient multicopter, which is capable of what counts most to consumers: long airtime. Besides, the state-of-the-art security solutions can secure strong identity and brand protection.



Features

Flight controller source code:

- > Open source IMU using standard interfaces/connectors to work with any commercial Engine Speed Control (ESC) and Radio Control (RC)
- > Software is used for academic education in several universities and hosted from MCI Innsbruck

Inertial Measurement Unit (IMU):

- > Breakout board for IMU Invensense MPU9050
- > 9-axis and 6-axis mode

DPS310:

- > High resolution pressure sensor for altitude stabilization

Authentication:

- > ORIGA™ onboard
- > Demonstrator for ORIGA™ – XMC™ coupling

GPS:

- > Interface for GPS breakout board
- > Infineon offers a large product portfolio for GPS LNA

Bluetooth Low Energy (BLE):

- > BLE interface possible (breakout board)
- > BLE based Android App for control of the multicopter

Target applications

- > Multicopter

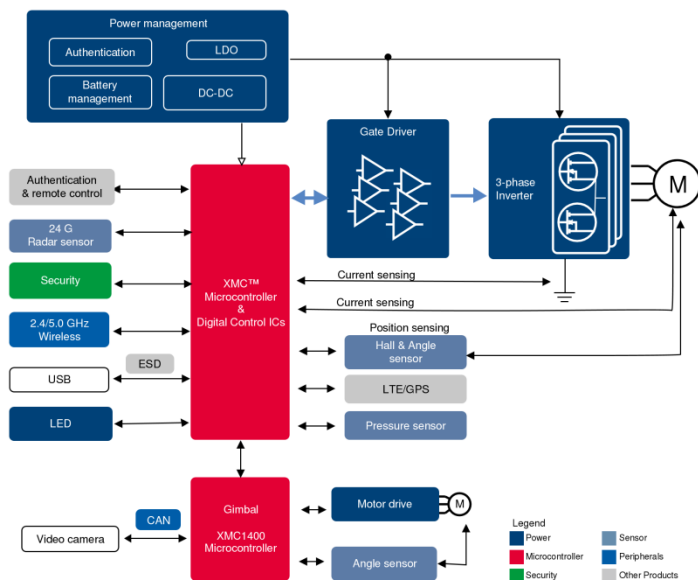
Benefits

- > Cost saving and optimization with the ready-to-use solution, ease-of-use iMotion™ and open DAVE™ platform
- > Authentication and securities with the state-of-the-art security products which are easy to integrate
- > Accuracy and easy control with the benefits of multifunction sensors and firmware algorithm
- > Lighter with the contribution of high efficiency products and packages

Completing products (P2S)

- > OptiMOS™, XMC™, iMotion™, angle sensor, ORIGA™, OPTIGA™ Trust

Application example - home entertainment multicopter



Product collaterals / online support

- > Multicopter [page](#)
- > XMC4500 Multicopter Demoboard [page](#)
- > Multicopter LARIX evaluation board switching circuit [PCB layout](#)
- > Webinar – [Powering multicopters with Infineon power semiconductors](#)
- > Multicopter Evaluation Board LARIX DAVE™ 3 [Installation Tutorial](#)
- > Multicopter Evaluation Board LARIX [Quick Start Guide](#)

BGA524N6

Silicon Germanium Low Noise Amplifier for Global Navigation Satellite Systems (GNSS)

The BGA524N6 is a Silicon Germanium Low Noise Amplifier for Global Navigation Satellite Systems (GNSS) in the range from 1550 MHz to 1615 MHz. The LNA provides 19.6 dB gain and down to 0.7 dB noise figure in the application.



Features

- > High insertion power gain: 19.6 dB
- > Out-of-band input 3rd order intercept point: -4dBm
- > Input 1 dB compression point: -12 dBm
- > Low noise figure: 0.55 dB
- > Very low current consumption: 2.5 mA
- > Operating frequencies: 1550 - 1615 MHz
- > Supply voltage: 1.5 V to 3.3 V
- > Digital on/off switch (1V logic high level)
- > Ultra-small TSNP-6-2 leadless package (footprint: 0.7 x 1.1 mm²)
- > B7HF Silicon Germanium technology
- > RF output internally matched to 50 Ω
- > Only 1 external SMD component necessary
- > 2kV HBM ESD protection (including AI-pin)
- > Pb-free (RoHS compliant) package

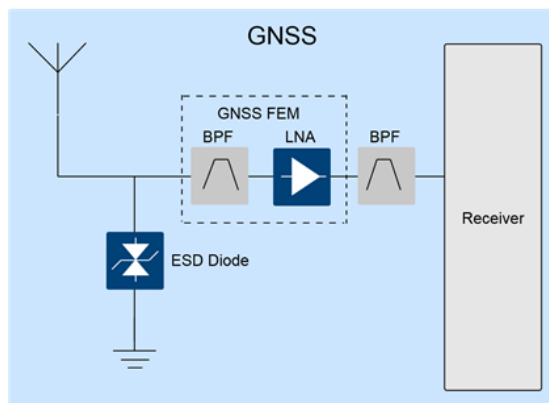
Target applications

Ideal for all Global Navigation Satellite Systems (GNSS) applications like:

- > GPS (US GNSS) working in the L1 band at 1575.42 MHz
- > GLONASS (Russian GNSS) working in the L1 band from 1598.0625 MHz to 1605.3125 MHz
- > Galileo (European GNSS) working in the E1 band from 1559.052 MHz to 1591.788 MHz
- > Beidou (Chinese GNSS) working in E2 band at 1561.098 MHz

Application example

Global Navigation Satellite Systems (GNSS)



Evaluation board

- > [BGA524N6 BOARD](#)

Product collaterals / online support

- > [Simulation models](#)
- > Product [landing page](#)

Benefits

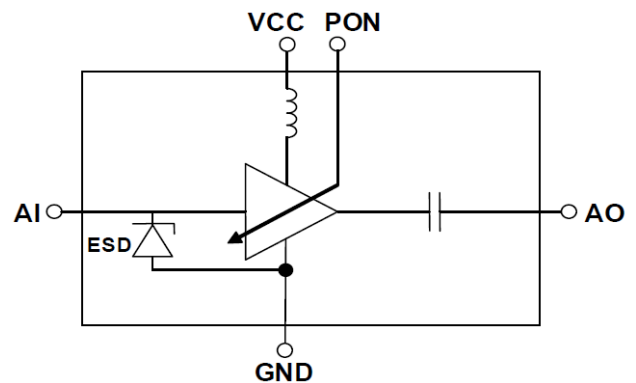
GPS/GLONASS/COMPASS navigation devices require a Low Noise Amplifier to enhance receiver sensitivity for best localization even under bad conditions. Most of the smartphones today feature navigation applications, which impose even greater demands on linearity, size and power consumption compared to stand alone personal navigation devices (PNDs).

Infineon BGA524N6 is optimized to provide best performance in terms of system sensitivity, interference immunity, low power consumption and miniaturized designs:

- > Best-in-class noise figure & high gain
- > High linearity
- > Integrated on/off features
- > Low current consumption
- > Ultra-small form factor

All Infineon LNAs are developed in close association with major OEMs to satisfy all performance criteria and to enable easy and fast system design.

Block diagram



OPTIGA™ Trust E – SLS 32AIA

Easy and cost effective security solution for high value goods

NEW: Compliant with USB Type-C Standard

The OPTIGA™ Trust family of products consists of turn-key and programmable solutions that give you the benefit of easy and convenient integration whilst offering you the most suitable security to protect your business and product. It contains a full range of embedded security products addressing the device authentication market which enables the right features and the right level of security for your projects such as the protection of embedded systems against counterfeiting, unauthorized products, intentional attacks, and unintentional operator errors.



As turnkey security solution for industrial automation systems, smart homes, consumer devices and medical devices, this new advanced security controller comes with full system integration support for easy and cost effective deployment to offer reliable security for your assets. The OPTIGA™ Trust E comes with an advanced security controller built on Elliptic Curve Cryptography (ECC) with 256 bit and SHA-256. This new security technology greatly enhances your overall system security. Furthermore the OPTIGA™ Trust E solution is compliant with USB Type -C standard and features key management, certificate generation and validation as well as PKI support.

Features

- > High-end security controller
- > Turnkey solution
- > Full system integration support
- > I2C interface
- > Up to 3 Kbytes user memory
- > ECC 256 bit, SHA-256
- > Standard & extended temperature range (-40 °C to +85 °C)
- > PG-USON-10 package (3 x 3 mm)
- > Compliant with USB Type-C Standard

Benefits

- > Protection of IP and data
- > Protection of business case
- > Protection of company image
- > Safeguard quality and safety
- > Reduced design-in and integration effort

Target applications

- > Industrial automation
- > Smart Home
- > Medical devices
- > Internet of things (IoT)
- > Consumer electronics
- > PKI networks
- > More: Surveillance Cameras, 3D Printers, Telehealth Systems, robotics, smart lighting, etc.

Application examples

- > Brand protection
- > Secured Firmware updates
- > Platform integrity
- > Secured programming
- > IP protection

Completing products

- > XMC™, MiPAQ™ Pro

Product collaterals / online support

- > Product [page](#)
- > [Product briefs and application brochures](#)
- > [Fighting guide](#)
- > [OPTIGA Trust Crypto Video](#)
- > [OPTIGA™ Trust – Security for Smart Homes Demonstration](#)
- > [Security Solutions for Industrial Automation with OPTIGA™ Trust Family](#)
- > [IoT security eBrochure](#)
- > [IoT security webinar series](#)