

# Infineon Technologies New Products Introduction

October 2017

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Linear Post Regulator with 5V output voltage, enable pin and 150mA maximum output current

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Optimized balance of ease-of-use and highest energy efficiency

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1200V galvanically isolated, UL certified single-channel wide body gate driver IC family

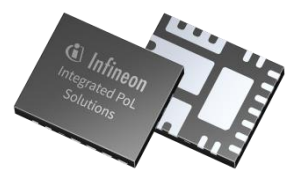
## **TLE9250SJ, TLE9250LE, TLE9250VSJ, TLE9250VLE, TLE9250XSJ, TLE9250XLE, TLE9251VSJ, TLE9251VLE**

Automotive CAN Transceivers

## **BCR430U**

Linear LED driver IC with ultra-low voltage drop

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# IR38163, IR38165, IR38263, IR38265, IR38363, IR38365

## OptiMOS™ integrated POL with parallel VID, Intel SVID, PMBUS/I2C

This family of OptiMOS™ IPOL devices offers easy-to-use, fully integrated and highly efficient DC/DC regulators with Intel SVID and I2C/PMBus interface. The on-chip PWM controller and co-packaged low duty cycle optimized MOSFETs make these devices a space-efficient solution, providing accurate power delivery for low output voltage and high current applications that require an Intel SVID interface.

These versatile devices offer programmability of switching frequency, output voltage, and fault/warning thresholds and fault responses while operating over a wide input range. Thus, they offer flexibility as well as system level security in event of fault conditions. The switching frequency is programmable from 150 kHz to 1.5 MHz for an optimum solution.

The on-chip sensors and ADC along with the SVID and PMBus interfaces (IR18163 and IR38363) or SVID and I2C interfaces (IR38165 and IR38365) make it easy to monitor and report input voltage, output voltage, output current and temperature.

### Features

- > SVID for VCCIO & VMCP Intel
- > 3-bit PVID for PVNN Intel and ASIC/FPGA power
- > 5x7 mm up to 30 A
- > 300 kHz-1500 kHz switching frequency
- > Gen3 voltage mode engine for ultra-low jitter and less caps
- > Extensive PMBUS support (70 commands)
- > Pin compatible options with/ without PMBUS
- > Pre-programmed for Intel VR13 rails

### Benefits

- > 50% space saving compared to 2-chip solutions
- > 1Mhz capable for less caps
- > SFET6 for very high efficiency
- > Thermally able of up to 30 A with minimum airflow

### Target applications

- > Server and workstations
- > Telecom
- > Netcom
- > Storage

### Application examples

- > Switches, routers, storage cards, Ethernet cards, SSD PCIe, SAS, RAID, base stations, Intel servers VCCIO, VMCP, PVNN rails, Core power for ASIC, FPGA

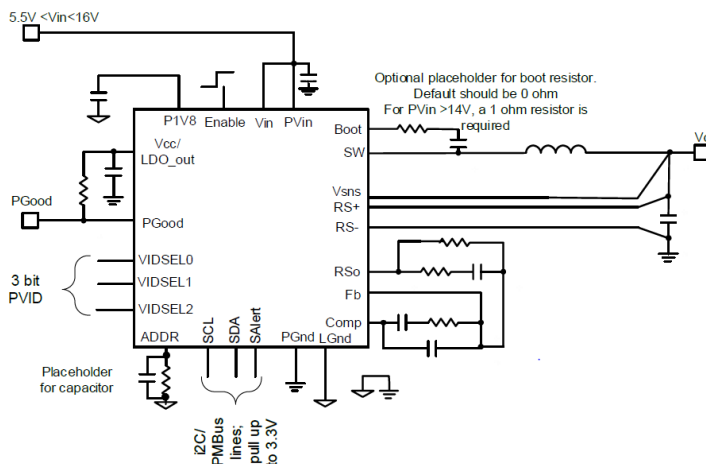
### Product collaterals / online support

- > Product [page](#)

### Evaluation board

- > EVAL\_IR38263\_PVID (EV111) in ISAR/IDIS
- > IR38163\_Intel VCCIO CPU Rail (on demand, marketing)
- > IR38263\_Intel PVNN PCH Rail (on demand, marketing)

### Basic application block diagram



### Product overview incl. datasheets links

OPN	SP Number	Package
<a href="#">IR38163MTRPBFAUMA1</a>	SP001618602	PG-IQFN-34
<a href="#">IR38165MTRPBFAUMA1</a>	SP001618604	PG-IQFN-34
<a href="#">IR38263MTRPBFAUMA1</a>	SP001618606	PG-IQFN-34
<a href="#">IR38265MTRPBFAUMA1</a>	SP001618608	PG-IQFN-34
<a href="#">IR38363MTRPBFAUMA1</a>	SP001618610	PG-IQFN-34
<a href="#">IR38365MTRPBFAUMA1</a>	SP001618612	PG-IQFN-34



# TLS202B1MB V50

Linear Post Regulator with 5V output voltage, enable pin and 150mA maximum output current

The TLS202B1 is a monolithic integrated fixed linear voltage post regulator for load currents up to 150 mA. The IC regulates an input voltage  $V_{in}$  up to 18 V to a fixed output voltage of 5.0 V with a precision of  $\pm 3$  percent. The component can be enabled/disabled via the enable input.

It is requiring a permanent connection to a pre-regulator e.g. a DC-DC converter. The regulator is not designed to operate with a direct connection to automotive 12 V battery. A pre-regulator has to be placed in front.

The device is designed for the harsh environment of automotive applications. Therefore it is protected against overload, short circuit and overtemperature conditions by output current limitation and an overtemperature shutdown circuit.

The device is available in a very small surface mounted SCT595 package. (Footprint 2.3 mm x 2.9 mm).

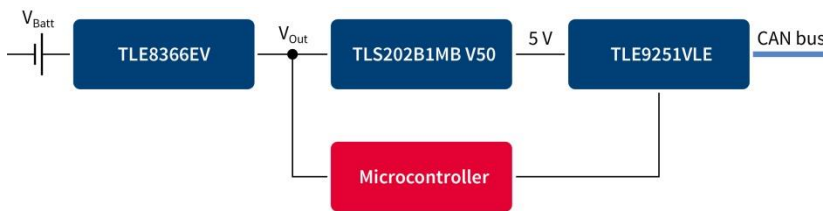
## Features

- > Output voltage: adj., 3.3 V 5.0 V
- > Input current: 150 mA
- > Low current consumption: 50  $\mu$ A
- > Drop voltage: 470 mV at 150 mA
- > Tiny package SCT595 with excellent thermal performance  $R_{thJA} = 81$  K/W
- > Enable

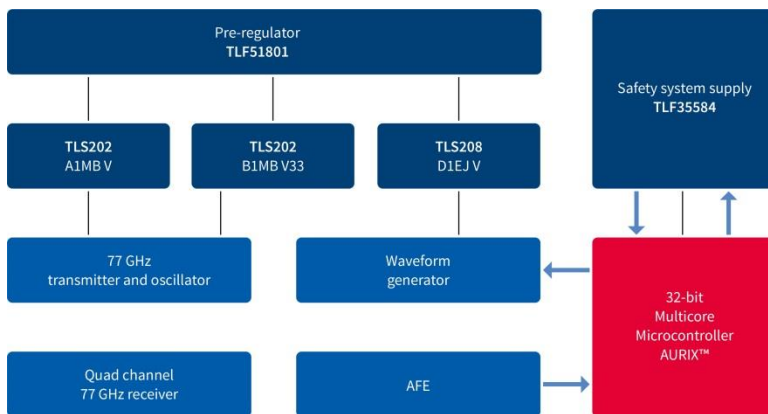
## Target applications

- > ADAS systems like radar and camera
- > Infotainment
- > Instrument cluster
- > CPUs
- > Any automotive application

## Application example: TLS202B1MB V50 as CAN supply



## Application example: 77GHz Radar



## Product overview

OPN	SP Number	Package
TLS202B1MBV50HTSA1	SP001643316	SCT595-5
TLS202B1MBV50BOARDTOB01	SP001883564	N/A

## Benefits

- > Less system cost
- > Less filtering after DC-DC output
- > Very high ripple rejection
- > Suitable for cranking – 2.7 V input voltage
- > Power saving with enable feature
- > Excellent thermal management

## Product collaterals / online support

- > Product [page](#)
- > Benefits of using post regulators [video](#)
- > TLS202B1MB V50 BOARD [page](#)

## Completing products

- > TLE9251VLE, TLE8366EV

# 600 V CoolMOS™ P7 SJ MOSFET (portfolio extension)

## Optimized balance of ease-of-use and highest energy efficiency



Infineon extends the large portfolio of the 600 V CoolMOS™ P7, offering a granular  $R_{DS(on)}$  selection of high voltage SJ power MOSFETs. CoolMOS™ P7 is Infineon's best balanced technology, with optimized balance of ease-of-use and highest energy efficiency.

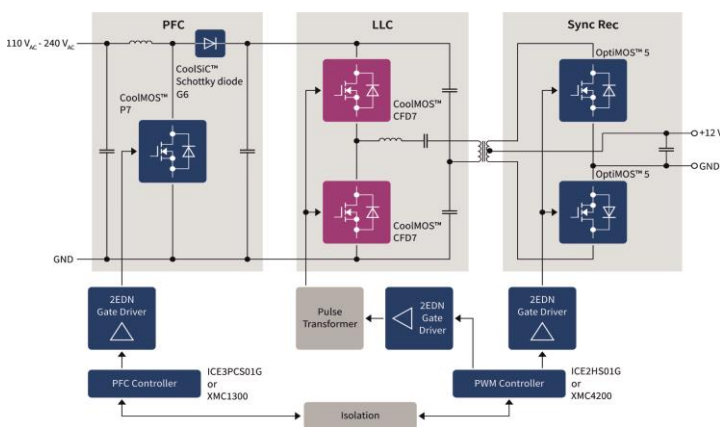
### Features

- > Outstanding commutation ruggedness
- > Optimized balance between efficiency and ease-of-use
- > Significant reduction of switching and conduction losses
- > Excellent ESD robustness >2 kV (HBM) for all products
- > Better  $R_{DS(on)}$ /package products compared to competition enabled by a low  $R_{DS(on)}$  X A (below  $1 \Omega \times \text{mm}^2$ )
- > Large portfolio with granular  $R_{DS(on)}$  selection qualified for a variety of industrial and consumer grade applications

### Target applications

- > Server, telecom, PC power, solar, EV charging, lighting and TV

### Block diagram



### Product overview incl. data sheets link

OPN	SP Number	Package
<a href="#">IPL60R065P7AUMA1</a>	SP001657396	PG-VSON-4-1
<a href="#">IPL60R085P7AUMA1</a>	SP001657404	PG-VSON-4-1
<a href="#">IPL60R105P7AUMA1</a>	SP001657410	PG-VSON-4-1
<a href="#">IPL60R125P7AUMA1</a>	SP001657416	PG-VSON-4-1
<a href="#">IPL60R285P7AUMA1</a>	SP001657424	PG-VSON-4-1
<a href="#">IPB60R360P7ATMA1</a>	SP001664948	PG-TO263-3-2
<a href="#">IPB60R280P7ATMA1</a>	SP001664942	PG-TO263-3-2
<a href="#">IPB60R180P7ATMA1</a>	SP001664934	PG-TO263-3-2
<a href="#">IPB60R120P7ATMA1</a>	SP001664922	PG-TO263-3-2
<a href="#">IPB60R099P7ATMA1</a>	SP001664910	PG-TO263-3-2
<a href="#">IPB60R080P7ATMA1</a>	SP001664898	PG-TO263-3-2
<a href="#">IPB60R060P7ATMA1</a>	SP001664882	PG-TO263-3-2

### Benefits

- > Suitable for hard and soft switching (PFC and LLC)
- > Ease-of-use and fast design-in through low ringing tendency and usage across PFC and PWM stages
- > Simplified thermal management due to low switching and conduction losses
- > Higher manufacturing quality due to >2 kV ESD protection
- > Increased power density solutions enabled by using products with smaller footprint
- > Suitable for a wide variety of applications and power ranges

### Completing products

- > 1EDN EiceDRIVER™, 2EDN EiceDRIVER™

### Product collaterals / online support

- > Product family [page](#)
- > 600 V CoolMOS™ P7 – Infineon's most well balanced High Voltage MOSFET technology [video](#)
- > Getting introduced to CoolMOS™ P7 series [webinar](#)
- > 600 V CoolMOS™ P7 power MOSFET [product brief](#)
- > 3kW dual-phase LLC evaluation board with 600V CoolMOS™ P7 [application note](#)
- > 600V CoolMOS™ P7 [application note](#)

# TRENCHSTOP™ IGBT6

IKA08N65ET6, IKA10N65ET6, IKA15N65ET6

Low loss discrete IGBTs in trench and field-stop technology with soft, fast recovery anti-parallel rapid diode. 8 – 15 A in TO-220 FullPAK

The TRENCHSTOP™ IGBT6 family of discrete devices has been designed to meet specific market requirements of motor drives applications, such as longer lifetimes, higher reliability and higher efficiency. It has been optimized for the lowest switching losses by co-packing with soft, fast recovery rapid 1 anti-parallel diodes, especially important in systems with higher switching frequencies of up to 30 kHz.



With a higher blocking voltage at 650 V, and a short circuit rating, the new TRENCHSTOP™ IGBT6 is a key contributor to robust motor designs.

## Features

- > Very low  $V_{CE(sat)}$  and  $V_f$
- > 650 V blocking voltage
- > 3  $\mu$ sec short-circuit protection capability
- > Optimized for switching frequencies from 8–30 kHz

## Benefits

- > Good thermal performance, especially at higher frequencies
- > Low losses to meet energy efficiency requirements
- > Increased design margin and reliability
- > Leading price/performance

## Application examples

- > Fans, Pumps, and other BDLC motors

## Target application

- > Major home appliances
- > Small home appliances
- > Industrial sewing machines
- > General Purpose Drives

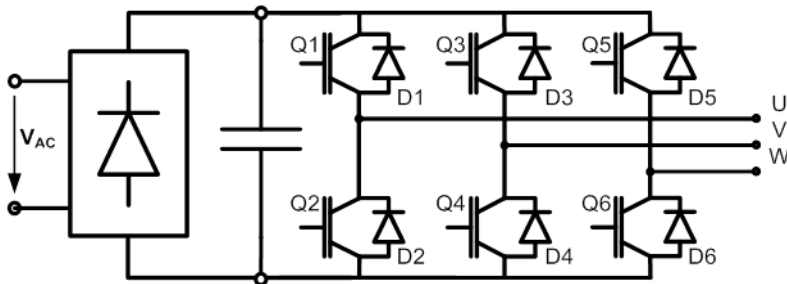
## Product collaterals / online support

- > Product family [page](#)
- > IKA08N65ET6 product [page](#)
- > IKA10N65ET6 product [page](#)
- > IKA15N65ET6 product [page](#)

## Completing products

- > 1, 2, and 6 channel driver ICs, similar to IRS2890DS

## Block diagram



## Product overview incl. data sheets links

OPN	SP Number	Package
<a href="#">IKA08N65ET6XKSA1</a>	SP001701332	PG-TO220-3 FP
<a href="#">IKA10N65ET6XKSA2</a>	SP001701334	PG-TO220-3 FP
<a href="#">IKA15N65ET6XKSA2</a>	SP001701336	PG-TO220-3 FP

# 1EDC EiceDRIVER™ Compact 300 mil

1200V galvanically isolated, UL certified single-channel wide body gate driver IC family



Expanding our EiceDRIVER™ Compact family portfolio, we now offer our 300 mil compact drivers with UL certification. The 1EDC family of products are recognized under UL1577 with  $V_{iso} = 3000 V_{rms}$  for 1 s. The EiceDRIVER™ Compact family consists of galvanically isolated drivers based on our coreless transformer technology, enabling a world class common mode transient immunity of 100 kV/μs. With current drive strengths of up to 6 A on separate output pins for sourcing and sinking, they are ideal for IGBT based applications such as photovoltaic string inverters, charge stations for electric vehicles, industrial drives, welding equipment, induction heating appliances, and power supplies for servers and telecommunication systems.

## Features

- > Recognized under UL1577 with  $V_{iso} = 3 kV_{rms}$  for 1 s
- > Single channel high-voltage gate driver IC
- > DSO-8 300 mil wide body package with 8 mm creepage distance
- > Drives high voltage power MOSFETs and IGBTs
- > Up to 6 A minimum peak rail-to-rail output
- > Separate source and sink outputs or active Miller clamp
- > Coreless transformer designed for highest  $dv/dt$  – CMTI 100 kV/μs
- > High voltage range to achieve very low  $R_{on}$
- > Smallest temperature drift and tight propagation delay matching +/- 15 ns

## Target applications

- > Charge stations for electric vehicles
- > AC and brushless DC motor drives
- > High voltage DC/DC-converter and DC/AC-inverter
- > Induction heating resonant application
- > UPS-systems
- > Welding equipment
- > General purpose inverters
- > Photovoltaic inverters

## Product collaterals / online support

- > Gate driver [finder](#)
- > Product family [page](#)

## Evaluation board

- > EVAL1EDC20H12AHSICTOBO1 (SP001801620)
- > EVAL1EDI20H12AHSICTOBO1 (SP001726796)

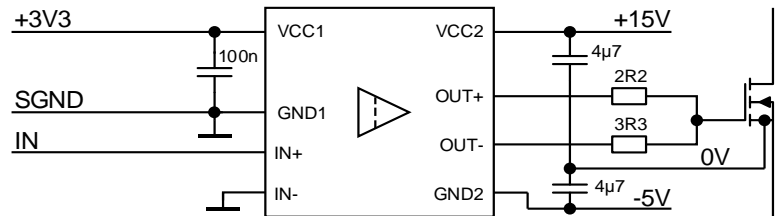
## Benefits

- > Complete automation kit gateway
- > Combine powerful microcontroller with EtherCAT® slave application
- > Isolated interfaces for automation and industrial control
- > Ethernet connectivity with software examples available
- > 24V supply
- > CAN connectivity
- > Full software DAVE™ examples

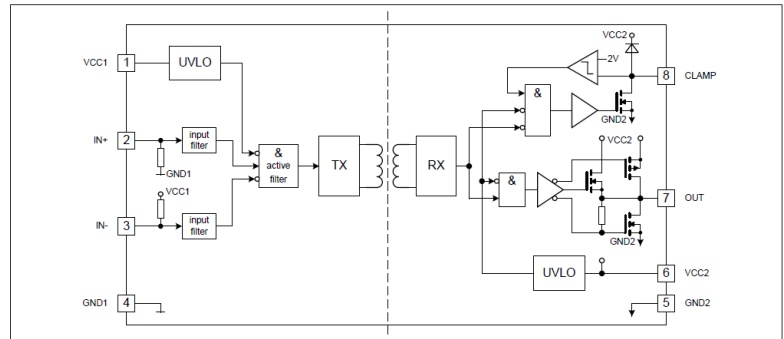
## Completing products

- > CoolSiC™ MOSFETs, 600 V/650 V/1200 V IGBTs and MOSFETs

## Typical application diagram



## Block diagram



## Product overview incl. product pages

OPN	SP Number	Package
<a href="#">1EDC60I12AHXUMA1</a>	SP001645070	DSO-8 300 mil
<a href="#">1EDC60H12AHXUMA1</a>	SP001645074	DSO-8 300 mil
<a href="#">1EDC40I12AHXUMA1</a>	SP001645082	DSO-8 300 mil
<a href="#">1EDC20I12AHXUMA1</a>	SP001645086	DSO-8 300 mil
<a href="#">1EDC05I12AHXUMA1</a>	SP001645098	DSO-8 300 mil
<a href="#">1EDC30I12MHXUMA1</a>	SP001645106	DSO-8 300 mil
<a href="#">1EDC20I12MHXUMA1</a>	SP001645110	DSO-8 300 mil
<a href="#">1EDC10I12MHXUMA1</a>	SP001645114	DSO-8 300 mil
<a href="#">1EDC20H12AHXUMA1</a>	SP001645120	DSO-8 300 mil

# TLE9250SJ, TLE9250LE, TLE9250VSJ, TLE9250VLE, TLE9250XSJ, TLE9250XLE, TLE9251VSJ, TLE9251VLE

## Automotive CAN Transceivers



Infineon offer the first 8-pin CAN FD 5Mbit/s transceiver family being fully compatible and tested according the new ISO 11898-2:2016 standard. Four different pinout variants do support an easy drop in transition of existing designs to the new and faster CAN FD. Additionally the four variants are also offered in tiny TSON-8 packages for applications, where a tight packaging envelope mandates the usage of the smallest package possible. The bus wake up capable TLE9251V is not only designed for the newly introduced ISO wake up behavior, but also fulfills both the NAFTA region and the European TxD filter time.

### Status

- > The TLE925x 8-pin CAN FD 5Mbit/s transceiver family in DSO-8 package is in mass production. The TSON-8 package variants will ramp up by end of 2017. The TLE925x 8-pin transceiver family has passed the IBEE, UL and C&S conformance tests and is already approved by many OEMs

### Features

- > First CAN FD transceiver fully compliant to ISO 11898-2:2016
- > Four different pinout variants being pin compatible to existing transceivers
- > Vio reference input on three variants for 3.3V / 5V  $\mu$ C interfacing
- > CMOS level switching thresholds instead of TTL
- > Fulfills 1.8  $\mu$ s and 5  $\mu$ s wake filter time requirements
- > Lowest possible quiescent current in low power modes
- > Offered in standard DSO-8 and tiny TSON-8 package

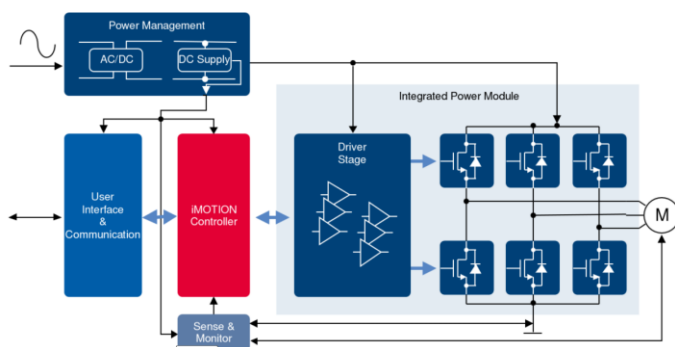
### Target applications

- > Power Steering, Vehicle Stability Control, Braking, Chassis/Safety Domain Control, Airbag, Suspension, Radar, Lidar, Sensor Fusion Box, eCall, Telematics, Advanced Lighting, OTA (Over the air) Update Module, Body Control Module, Gateway, OTA Gateway, Seat Control Module, Door Control Module, HVAC Module, Light Control Module, Engine Management, Transmission Control, Battery Management, Starter-Generator, Transfer Case, H/E Vehicle Inverter, DC/DC Converter, ...

### Completing products

- > AURIX™, AURIX™ 2G

### Block diagram



### Product overview incl. datasheet link

OPN	SP Number	Package
<a href="#">TLE9250SJXUMA1</a>	SP001358154	PG-DSO-8
<a href="#">TLE9250VSJXUMA1</a>	SP001358156	PG-DSO-8
<a href="#">TLE9250XSJXUMA1</a>	SP001358158	PG-DSO-8
<a href="#">TLE9251VSJXUMA1</a>	SP001358162	PG-DSO-8

### Available samples

- > Samples are available for all DSO-8 and TSON-8 variants

### Benefits

- > Mandatory for future OEM approval
- > Easy drop in transition of existing designs towards CAN FD
- > Enables usage of either a 5V or 3.3V microcontroller interface
- > Resulting in best signal symmetry and therefore in best EMC behavior
- > Meeting the European and NAFTA OEM requirements
- > Meeting the tough ECU level quiescent current requirements
- > Tiny variants are the perfect fit for applications with small package envelope.

### Application examples

- > The bus wake up functionality of the TLE9251VSJ and the TLE9251VLE fits perfect to the requirements of Body Domain Controller applications.
- > Safety relevant applications like Braking, EPS and Chassis Domain Controller require more than one switch off capabilities. The TLE9250SJ and the TLE9250LE supports that application by providing two independent switch off capabilities.

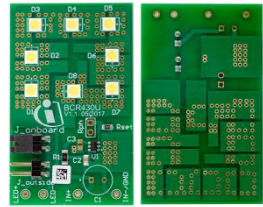
### Product collaterals / online support

- > Product family [page](#)



# BCR430U

## Linear LED driver IC with ultra-low voltage drop



With BCR430U the voltage drop at the integrated LED driver stage can go down to 200 mV at 50 mA and less improving the overall system efficiency and providing extra voltage headroom to compensate for tolerances of LED forward voltage or supply voltage.

### Features

- > Typ. 135 mV saturation voltage at 50 mA
- > Supply voltage from 6 to 42 V
- > Controls up to 100 mA LED current
- > LED current precision  $\pm 5\%$
- > Smart over temperature protection

### Target applications

- > LED lighting
- > LED strip lighting
- > LED signage and display
- > Architectural lighting

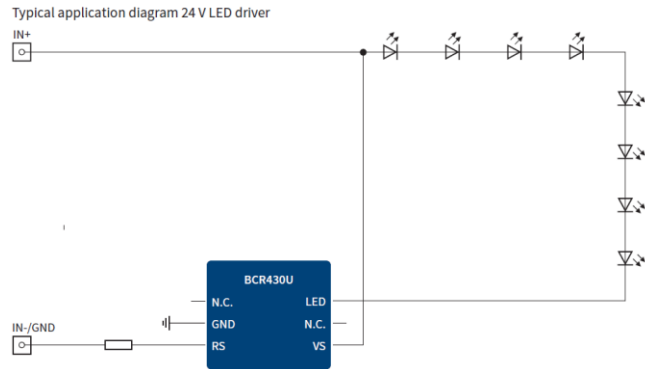
### Benefits

- > Very low voltage drop allows to use more LEDs (in a string)
- > Stable output current for homogenous light output
- > Smart over temperature protection to avoid degradation of LEDs over lifetime

### Evaluation board

- > The BCR430U LED board features Infineon's BCR430U LED driver IC, regulating the LED current in standalone operation without any external power transistor and powers eight LEDs. The LED current level can be adjusted from 5 mA to 100 mA connecting a high ohmic resistor Rset to pin RS.

### Block diagram



### Product collaterals / online support

- > Product family [page](#) (live CW47)
- > BCR430U LED Board Engineering Report, product brief, calculation tool & customer connector available in [NPI overview folder](#)

### Product overview

OPN	SP Number	Package
BCR430UXTSA1	SP001659266	SOT23-6
BCR430ULEDBOARDTOBO1	SP001709472	N/A