

Infineon Technologies New Products Introduction

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Content

40 V StrongIRFET™ MOSFET in the D²PAK 7pin+ package

IRL40SC209, IRL40SC228

OptiMOS™ fast diode 200 V, 250 V, 300 V in SuperSO8

To support higher power density designs and improved robustness

AUIRS1170S

Smart secondary-side driver IC for automotive applications

iMOTION™ MADK Power Boards

EVAL-M1-CM610N3

BFQ790

A single stage driver amplifier with very high linearity

BFP 196WN

Low noise silicon bipolar RF transistor

1200V PrimePACK™2 dual IGBT module

FF1200R12IE5, FF1200R12IE5P

Second generation of 34 mm solder bond modules

TT160N16SOF, TD160N16SOF, TT190N16SOF, TD190N16SOF, DD180N16S

40 V StrongIRFET™ MOSFET in the D²PAK 7pin+ package

IRL40SC209, IRL40SC228



The new 40 V StrongIRFET™ MOSFETs in the D²PAK 7pin+ package offers extremely low $R_{DS(on)}$ and the industry's highest current carrying capability for the industrial market. These devices expand upon an already diverse package offering providing designers flexibility in selecting the most optimal device for their application.

Features and Benefits

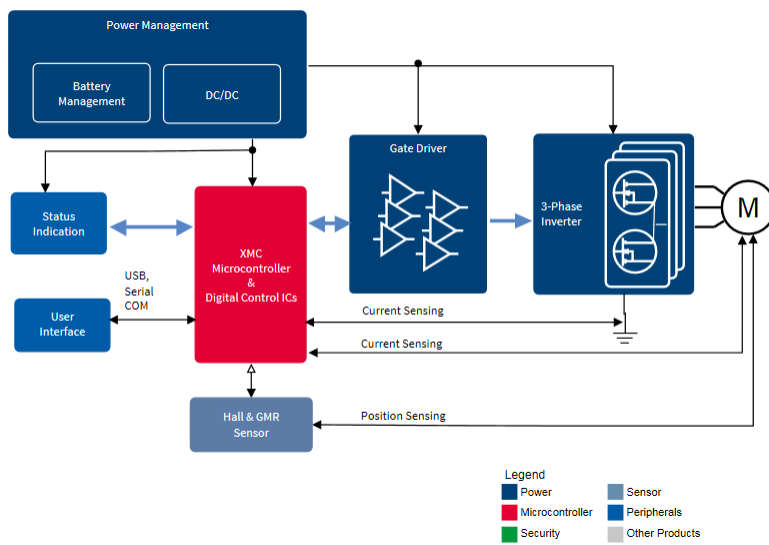
- > Best in class $R_{DS(on)}$
- > High-current carrying capability, highest in the industry
- > Interchangeable with traditional D²PAK 7pin and ST's H2PAK
- > Multiple lead trim options
- > Softer body diode improved performance in low frequency applications
- > Logic level capable threshold voltage for ease of drive

Product collaterals / online support

- > Product family [page](#)
- > Product landing pages
[IRL40SC209](#)
[IRL40SC228](#)
- > Product datasheet pages
[IRL40SC209](#)
[IRL40SC228](#)

Block diagram

Battery powered application motor control and drives



Target applications

- > LV drives
- > Power tools
- > Light electric vehicles (LEV)

Application examples

- > Battery powered hand tools

OptiMOS™ fast diode 200 V, 250 V, 300 V in SuperSO8

To support higher power density designs and improved robustness



The new SuperSO8 devices offer an enhanced temperature capability of 175°C to support higher power density designs and improved robustness. Over and above 150°C rated devices, a 175°C offers either more power at a higher operating junction temperature or longer lifetime at the same operating junction temperature. They are especially designed to withstand extreme conditions such as in fan-less or hot-airflow environments.

Features

- > Improved hard commutation ruggedness
- > Optimized hard switching behavior
- > Enhanced 175°C capability
- > Ultra-low $R_{DS(on)}$
- > Improved FOM
- > Low reverse recovery charge

Benefits

- > Higher robustness
- > Lower voltage overshoot
- > Thermal robustness
- > Highest efficiency and power density
- > Higher power density
- > Minimized conduction losses
- > Lowest switching losses

Target applications

- > Telecom/server AC-DC / DC-DC
- > Multi-level, cascaded inverters
- > Solar inverters/optimizers
- > Industrial power supplies
- > Class-D audio amplifiers
- > Motor control

Product collaterals / online support

- > Product family [page](#)
- > Product landing pages
[BSC350N20NSFD](#)
[BSC670N25NSFD](#)
[BSC13DN30NSFD](#)
- > Product datasheet pages
[BSC350N20NSFD](#)
[BSC670N25NSFD](#)
[BSC13DN30NSFD](#)

AUIRS1170S

Smart secondary-side driver IC for automotive applications



AUIRS1170S is an automotive qualified smart secondary-side driver IC designed to drive N-Channel power MOSFETs used as Synchronous Rectifiers (SR) in isolated resonant, flyback and forward converters.

Features

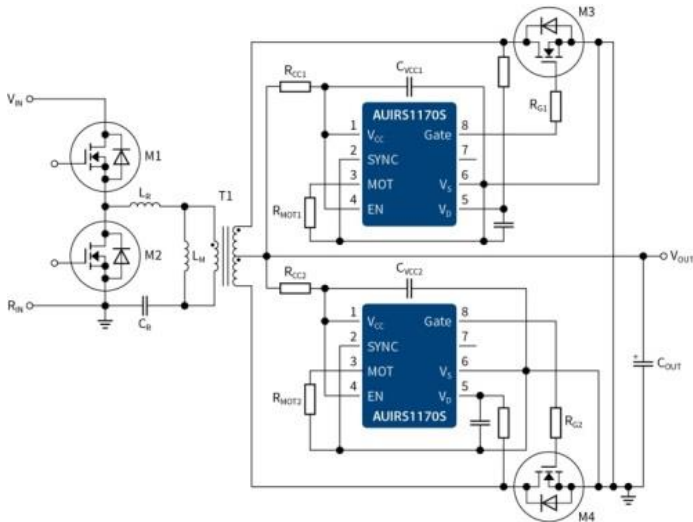
- > Secondary side high speed SR controller
- > Flyback, forward and half-bridge topologies
- > CCM operation with SYNC function
- > 200V proprietary IC technology
- > Max 500KHz switching frequency
- > Anti-bounce logic and UVLO protection
- > 6A peak turn off drive current
- > Micropower start-up & ultra low quiescent current
- > 10.7V gate drive clamp
- > 60ns turn-off propagation delay
- > Vcc range from 11V to 20V
- > Enable function synchronized with MOSFET VDS transition
- > Cycle by Cycle MOT Check Circuit prevents multiple false trigger GATE pulses
- > Automotive qualified
- > Lead free, RoHS compliant

Target applications

- > Synchronous rectification controller in transformer isolated SMPS topologies, such as isolated resonant, flyback and forward converters

Application examples

On board chargers and DC-DC converters in automotive applications



Benefits

- > Very cost efficient solution due to simplified application schematic
- > No external control signal needed
- > Most powerful (6A output) and reliable (EMC immunity) on the market

Product collaterals / online support

- > Product family [page](#)
- > Product landing [page](#)
- > Product datasheet [page](#)
- > Article - [A novel high efficient approach to input bridges](#)

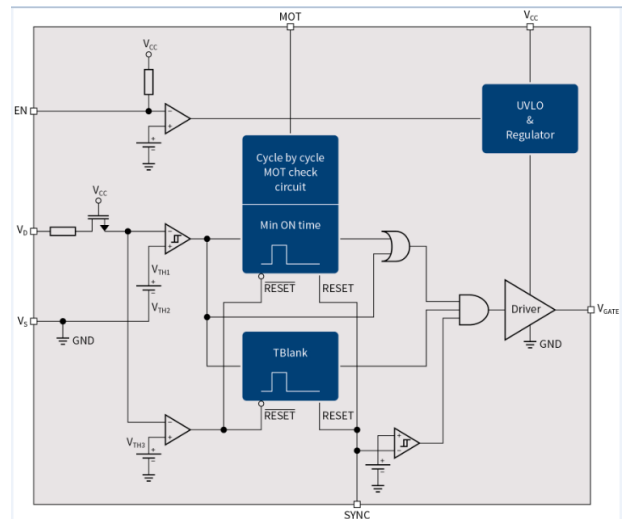
Support / Tools / Software

- > Application note: [AN1205 - Design of Secondary Side Rectification using the AUIRS1170S Smart-Rectifier Control IC](#)

Completing products (P2S)

- > OptiMOS™, up to 200V, used in Synch Rectification stages

Block diagram



iMOTION™ MADK Power Boards

EVAL-M1-CM610N3



With these new power boards Infineon further expands the iMOTION™ evaluation platform for motor drive applications up to 750W. The board is based on the CIPOS™ mini IPM IKCM10H60GA from Infineon with power ratings of 600V/10A DC current. In combination with control-boards equipped with the M1 20pin interface connector, like EVAL-M1-1302 or EVAL-M1-099M, designers only need a few steps to run the motor: plug the cards into the PC, motor and grid equivalent voltage supply, download, install and set the parameters of the software.

Features

- > Complete power stage with 230V AC input and signal electronic power generation
- > Power stage to drive 3-phase motor AC output
- > 750W output power with passive cooling
- > Easy accessible measurement hooks to analyze behavior easily
- > Testpads with hooks to attach standard oscilloscope probes
- > Standard MADK™ M1 interface connector

Benefits

- > Complete powerstage reduces evaluation time significant-fast time to market
- > Evaluate the CIPOS™ mini IKCM10H60GA for your application within one hour
- > Make a derivation of the design for your needs

Target applications

- > Continuous running 3-phase motors, like BLDC or AC machines in range to 750W, like light compressors, air conditioner, air dryer, gate shutter or workshop-lifts

Product collaterals / online support

- > Product landing [page](#)
- > iMOTION™ MADK – Sensorless FOC with XMC™ – Getting Started Guide [here](#)
- > Product brief [page](#)
- > EVAL-M1-CM610N3 videos are available [here](#)

Completing products (P2S)

- > iMOTION™ MADK Eval-M1-1302 or Eval-M1-099M control boards

BFQ790

A single stage driver amplifier with very high linearity



The BFQ790 is a single stage driver amplifier with very high linearity. Its output 1dB compression point is 27 dBm. The device is housed in the halogen-free industry standard package SOT89. The high thermal conductivity of silicon substrate and the low thermal resistance of the package add up to a thermal resistance of only 35 K/W, which leads to moderate junction temperatures even at high dissipated power values. The proper die attach with good thermal contact is 100% tested to ensure the thermal properties. The special design of the emitter/base diode makes it robust and yields to a high maximum RF input power capability.

Features

- > OP1dB of 500 mW / 27 dBm at 5 V Supply
- > Enhanced 3rd order (IP3/CTB) & 2nd order (IP2/CSO) distortion
- > Linear amplifiers with OIP3 > 35 dBm
- > 40% collector efficiency at OP1dB for BFQ790
- > 400 MHz to 3500 MHz frequency range
- > High gain at 900 MHz and at 2.6 GHz

Benefits

- > Easy to use large signal compact (VBIC) model in development
- > Cost effective NPN SiGe technology running in very high volume
- > Easy to use Pb-free (RoHS compliant) and halogen-free industry standard package SOT89

Target applications

- > In home appliance for solid state cooking in microwave ovens
- > Automotive radio links
- > Smart Metering (AMR /AMI)
- > In infrastructure for Pico, Micro and Macro base stations
- > Buffers for local oscillators
- > Gain Block in fiber optic systems for laser drivers

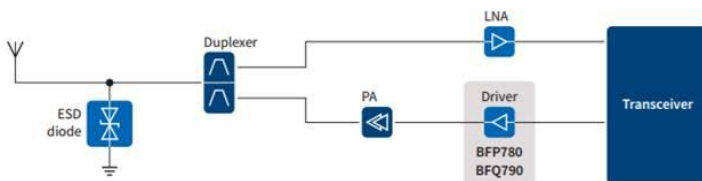
Product collaterals / online support

- > Product family [page](#)
- > Product landing [page](#)
- > Product datasheet [page](#)

Application examples

- > Smart Metering (AMR /AMI)
- > Solid State Microwave oven

Block diagram



Completing products (P2S)

Stage	Component	Part number	Usage
Power	PFC MOS	IPW60R070P6	1
	PFC diode	IDH06G65C5	1
	PFC controller	ICE3PCS01G	1
	PFC MOS driver	2EDN7524	1
	LLC MOS	IPW60R099P6	2
	LLC HB driver	IR21834	1
	LLC controller	ICE1HS01G-1	1
	Sync rec LVMOS	IPP020N08N5	2
	Sync rec LVMOS driver	IR1167	1
	Aux	ICE2QR1765	1
LDO	IFX1963TEV	2	
Wifi (optional)	5G Band LNA	BFP840ESD	1
MCU	MCU	XMC4500	1
RF	Power Amp.	BFQ790	2
	LD MOS FET Pre-Driver	PTFC270101M	2
	LD MOS FET Final Stage	PXFD252207NF	2

BFP 196WN

Low noise silicon bipolar RF transistor



NPN silicon planar epitaxial transistor in 4pin dual-emitter SOT-343 package for low noise and low distortion wideband amplifiers. This RF transistor benefits from Infineon's long-term experience in RF components and combines ease-of-use to stable volumes production, at benchmark quality and reliability.

Features

- > For high voltage applications $V_{CE} < 12\text{ V}$
- > Maximal power $P_{tot} = 700\text{ mW}$
- > Transition frequency $f_T = 7.5\text{ GHz}$
- > Noise figure $NF_{min} = 1.3\text{ dB}$ at 900 MHz
- > Easy to use Pb-free (RoHS compliant) and halogen-free industry standard SOT-343 package with visible leads

Target applications

- > GNSS active antenna
- > Amplifiers in antenna and telecommunications systems
- > CA TV
- > Power amplifier for DECT and PCN systems

Product collaterals / online support

- > Product landing [page](#)
- > Product datasheet [page](#)

Benefits

Technical benefits:

- > Signal improvement in transmitting and receiving paths
- > Energy savings and extended battery life

Customer benefits:

- > Optimized system sensitivity performance at low frequencies
- > Efficiency performance
- > Ease of use and design in and reduced time-to-market
- > Competitive lead-times
- > Industry quality and reliability benchmarks

1200V PrimePACK™2 dual IGBT module

FF1200R12IE5, FF1200R12IE5P



1200V PrimePACK™2 dual IGBT module with IGBT5 and .XT interconnection technology, TRENCHSTOP™ IGBT5, Emitter Controlled 5 diode and NTC. It is available also with pre-applied Thermal Interface Material, TIM (=FF1200R12IE5P).

Features

- > Extended operating temperature ($T_{vjop} = 175^{\circ}\text{C}$)
- > Output current increased by more than 25% in the same footprint
- > Copper Bonds for high current carrying capabilities
- > Sintering of chips for highest power cycling capabilities
- > Total losses reduced by up to 20%
- > Package with CTI > 400

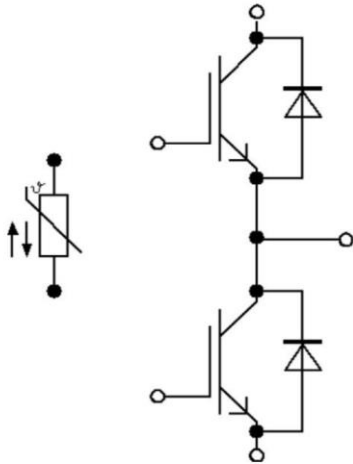
Additionally for FF1200R12IE5P:

- > Pre-applied Thermal Interface Material

Target applications

- > Motor control and drives
- > UPS systems
- > Solar energy systems
- > Commercial, construction and agricultural vehicles (CAV)

Block diagram



Benefits

- > Increase in Power Density by up to 25%
- > Up to 10 times longer lifetime
- > Less cooling effort for same output power
- > Enables higher system overload conditions

Product collaterals / online support

- > Product promo [page](#)
- > Product landing pages
[FF1200R12IE5](#), [FF1200R12IE5P](#)
- > Product datasheet pages
[FF1200R12IE5](#), [FF1200R12IE5P](#)

Support / Tools / Software

- > [IPOSIM](#)

Second generation of 34 mm solder bond modules

TT160N16SOF, TD160N16SOF, TT190N16SOF, TD190N16SOF, DD180N16S



Infineon Technologies Bipolar extended their Eco Line with the second generation of 34 mm modules in solder bond technology. These modules are now available for high production volumes in 1600 V. Solder bond modules are ideal for applications where the high robustness of pressure contact technology is not necessarily a must. Typical applications for the 34 mm modules are drives, power supplies, UPS and welding.

Features

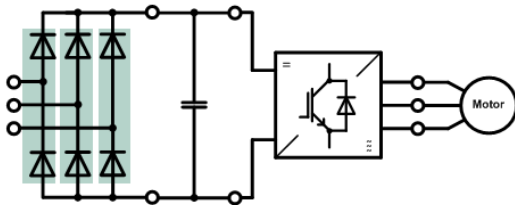
- > Current: 192 A
- > Blocking Voltages: 1600 V
- > Industrial standard package
- > Electrically insulated copper base plate

Target applications

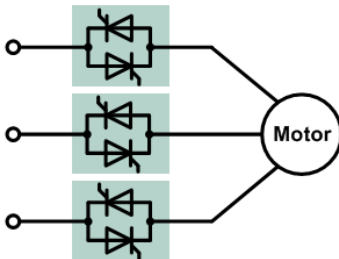
- > Drives
- > Power supplies
- > UPS
- > Welding

Application examples and diagrams

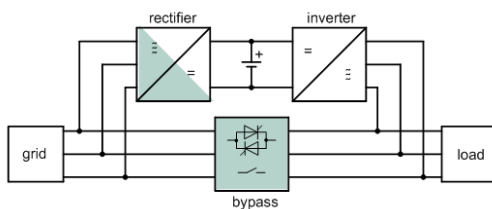
Input rectifier for drives



Low voltage soft starter



Input rectifier and bypass for UPS



Benefits

- > Cost effective solution for higher competitiveness
- > Solid base plate for fast and easy mounting
- > Predictably high performance and lifetime due to 100% x-ray monitoring
- > Excellent design-in support

Product collaterals / online support

- > Product promo [page](#)
- > Product landing pages
[TT160N16SOF](#), [TD160N16SOF](#), [TT190N16SOF](#),
[TD190N16SOF](#), [DD180N16S](#)
- > Product datasheet pages
[TT160N16SOF](#), [TD160N16SOF](#), [TT190N16SOF](#),
[TD190N16SOF](#), [DD180N16S](#)

Support / Tools / Software

- > [IPOSIM](#)

Static switch

