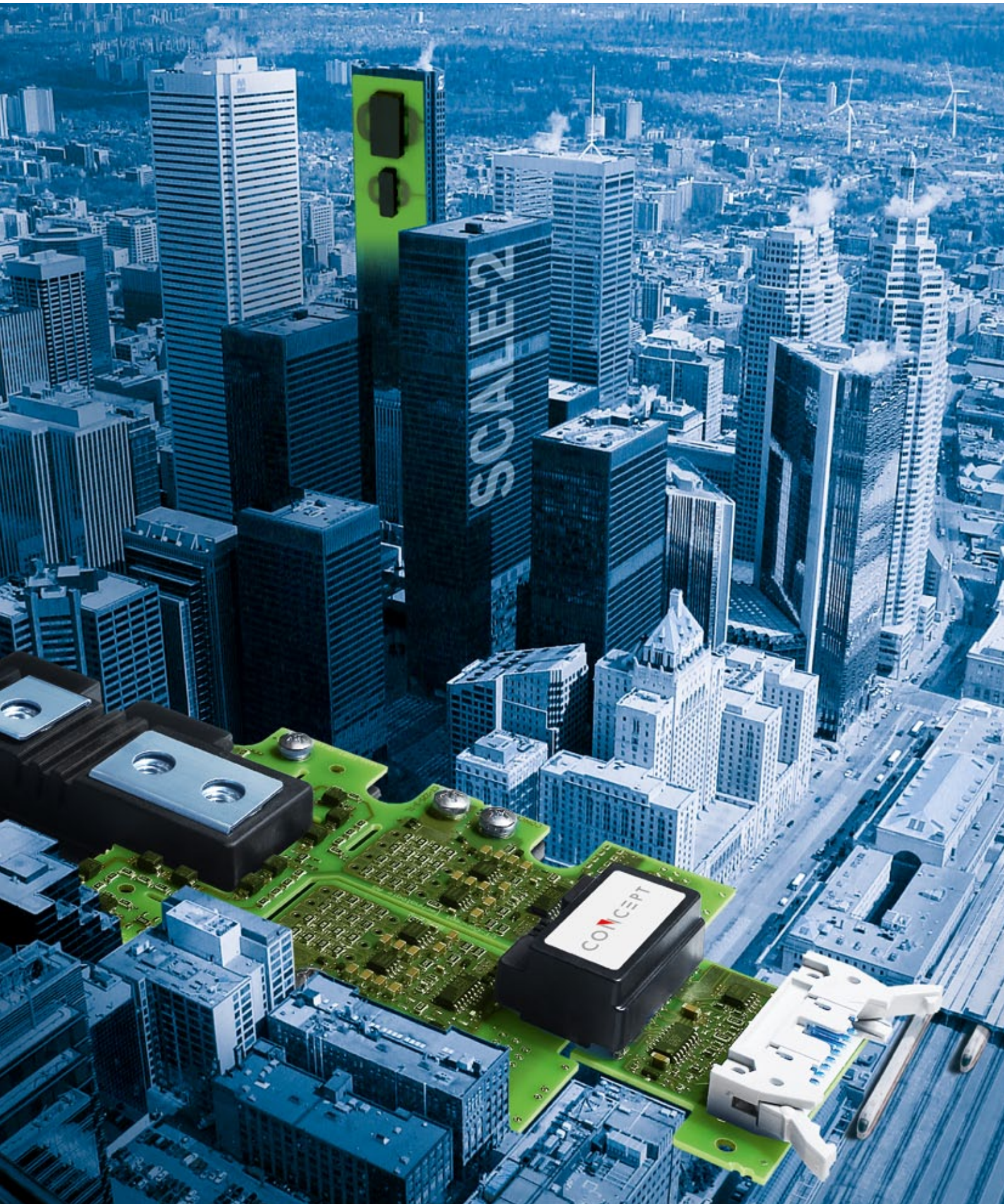


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CONCEPT

INTELLIGENT POWER ELECTRONICS





Who we are ...

CT-Concept Technologie AG is worldwide technology and market leader in the sector of IGBT gate drivers for medium to high-power applications and looks back onto more than 20 years of successful experience

Products

CONCEPT offers an unequalled selection of IGBT drivers for the most varied requirements. All our products are distinguished by leading-edge technology, outstanding functionality, unrivalled quality and a first-class price/performance ratio.

Our SCALE IGBT drivers have defined the pioneering standards against which our competitors have to measure themselves. These SCALE drivers are based on the unique SCALE ASIC chipset (ASIC = Application-Specific Integrated Circuit).

Research and development

As an innovative company from the power electronics sector, we not only focus on research and development of leading-edge products but are also committed to customisation and project implementation in direct cooperation with our customers.

Applications

Our products are used worldwide in all conceivable sectors and applications including drives, traction, railway applications, wind, solar and power technology, medium-voltage converters (two level and multilevel), medical

engineering, industrial process technology, RF technology, inductive heating and welding technology, military applications, telecoms and research.

Technology awards

CONCEPT products have repeatedly won first prizes in technology and innovation competitions: these have included the prestigious Swiss Technology Award for exceptional performance in the R&D sector as well as the special ABB prize for the best project in power electronics. These awards underscore our leading position in the sector of power electronics.

Contact us

We are aware that our success is based on the high flexibility and reliability of our products in conjunction with many years of experience in working together with our customers. So our daily motivation is to offer you the optimal solution for your needs.

We will be pleased to let you have detailed information about our products and services.

Renewable energy and power distribution are core applications



The problem that we have solved ...

CONCEPT has solved the challenges of gate drive units with a sophisticated ASIC chipset called SCALE

Relevance of the problem

Typical inverter topologies consist of a logic part and a power part. While the logic part of the application is dominated by know-how concerning the microcontroller and the related software, the power subassembly deals inherently with the IGBT or MOSFET, which is the most expensive part.

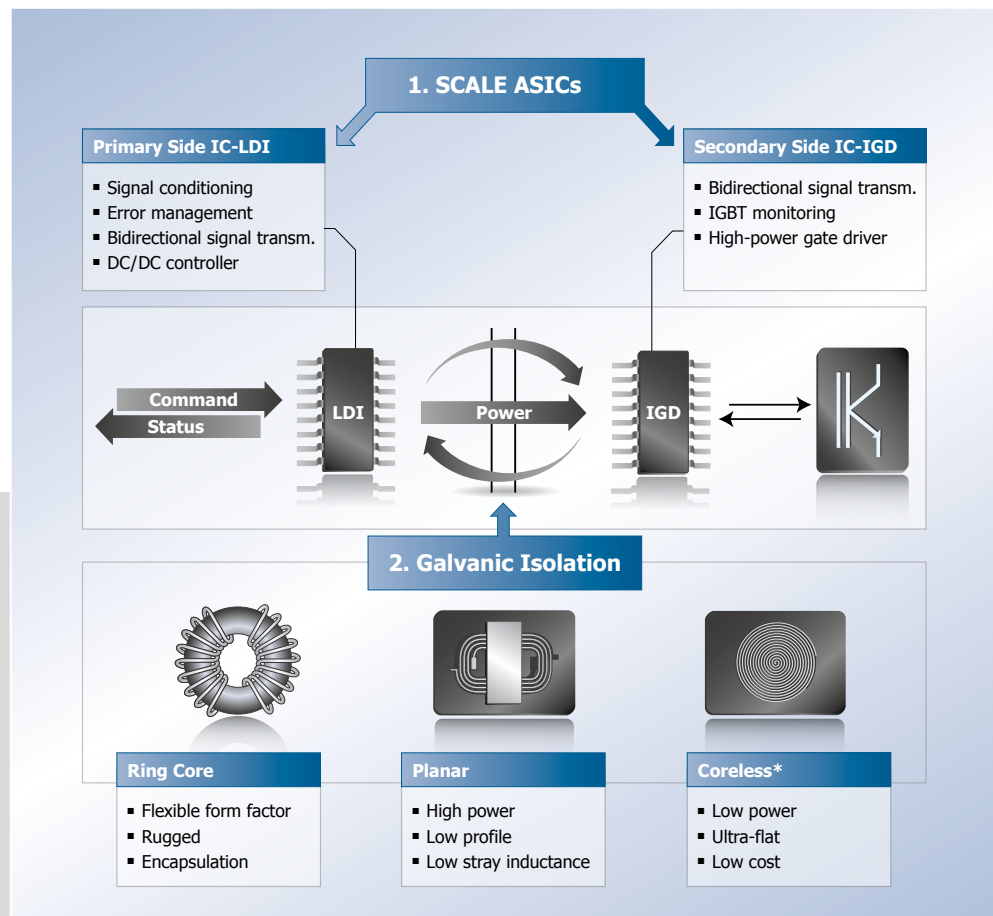
When these two main parts need to be matched, the gate drive unit comes into play. It should not only communicate the low-voltage microcontroller signals to the high-voltage level of the power module but also feed the system status back from there. This job requires the gate driver to provide insulation, noise immunity, error management and power for the secondary side to ensure safe and appropriate operation.

Solution approach

CONCEPT has solved the challenges of IGBT and MOSFET gate drive units for medium and high-power applications with a sophisticated ASIC chip set called SCALE. Thanks to their extensive know-how in analog and mixed signal chip design and transformer technologies, as well as broad experience in driving high-power semiconductors, our engineers have created this highly integrated, scalable and rugged ASIC.

Our gate drive solutions, which are based on this chipset, therefore offer best-in-class price/performance ratios without compromising on system efficiency, performance or flexibility.

The picture shows the requirements of the application and the core competence of CONCEPT



What we offer ...

Our IGBT drivers can generally be assigned to two categories: Driver Cores and Plug-and-Play Drivers



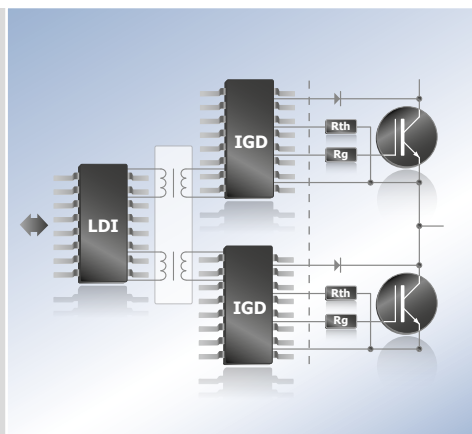
SCALE Driver Cores

SCALE Driver Cores are PCB-based modules equipped with all the basic functions of a driver such as galvanic isolation, protective functions, DC/DC converters etc. They are mounted on a circuit board containing all the additional components required to match the driver to specific IGBTs or applications, such as an input interface, gate resistors, active clamping and more. Driver cores for IGBTs are available with reverse voltages from 600V to 3300V and driving powers from 1W to 20W per channel. They are also suited for driving power MOSFETs operating at switching frequencies up to 500kHz.



SCALE Plug-and-Play Drivers

SCALE Plug-and-Play Drivers are complete ready-to-use IGBT drivers that have been perfectly matched by CONCEPT to a large selection of IGBTs. They are available for high-power and high-voltage IGBT modules with reverse voltages from 1200V to 6500V. All Plug-and-Play Drivers are complete solutions and are equipped with DC/DC converters (external for 4.5 - 6.5kV), short-circuit protection, active clamping, supply monitoring etc. Users only need to mount them onto the corresponding IGBT module. The system can then be put into immediate operation with no further development or matching effort.



Engineering and custom-specific solutions

On the basis of our chipset and our broad experience in gate drive design, we can support our customers with specific solutions. Please contact our support team (Support@IGBT-Driver.com) to discuss your challenges in gate-driver design.

The meaning of "SCALE" ...

SCALE is a brand name for the award-winning, highly integrated and precisely operating ASIC chipset that comprises the entire driving functionality

The abbreviation SCALE

The name "SCALE" is an acronym for the most outstanding properties of the SCALE series of drivers: **S**caleable, **C**ompact, **A**ll purpose, **L**ow cost, **E**asy to use.

Scaleable

The SCALE driver chip set can be used to implement solutions for diverse drive currents (gate currents) and various drive powers. SCALE drivers are well suited for almost any switching frequency, any modulation mode and not least for isolation voltages of practically any magnitude. Thus SCALE drivers can be used to construct power sections from the kilowatt to the multi-megawatt range.

Compact

SCALE drivers accommodate all the necessary components on a minimum surface area. They cover the following functions: driving, monitoring, status acknowledgement, isolated voltage supply (DC/DC converters) and electrical isolation of all signals between the control electronics and the power section.

All purpose

The SCALE driver chip set offers maximum flexibility of operation: by switching the mode accordingly, a choice can be made between half-bridge or direct-mode operation.

In half-bridge operation, the chip set can generate the required dead times directly. In direct mode, there are no links between the individual channels of a multiple driver.

Low cost

SCALE drivers are high-quality driver circuits for IGBTs and power MOSFETs with an outstanding price/performance ratio. A SCALE driver contains all the components that can possibly be integrated. It encompasses the driver function itself, plus monitoring, acknowledgement, power supply (DC/DC converter) and electrical isolation of all signals.

Easy to use

The interface to the electronics is very simple: the SCALE driver chip set can handle all standard logic levels between 5V and 15V (3.3V to 15V for SCALE-2). The inputs have a Schmitt trigger characteristic and make no special demands on the input signals. The status acknowledgements are designed as open-collector outputs and are thus compatible with all the usual logic levels.

Applications which require highest power and reliability are perfectly served with CONCEPT drivers





How we support you ...

Comprehensive online documentation and a responsive sales and support team guarantee qualified information in good time

Online documentation

On our website you will find all relevant technical information needed to apply our gate driver units to your application. Comprehensive datasheets and application manuals may be viewed together with articles and additional helpful information. The links to the IGBT environment are always up to date and make our homepage www.IGBT-Driver.com a central starting point for fast, reliable and cost-effective inverter design.

Sales and support team

Our qualified team will respond to your requests on pricing, lead times and technical matters. We promise to give you an immediate answer within 48 hours. Please go to www.IGBT-Driver.com/go/sales for any commercial questions and www.IGBT-Driver.com/go/support for all technical matters.

Quality and reliability

Besides their perfect functionality, our products are designed for production in order to ensure the highest level of quality. The high integration level possible for gate drive units keeps the component count to a minimum. This means that the number of components and solder points, which represent an inherent risk during production and for reliability, have also been minimized.

Should any failures occur on the customer side, we will carry out a fast professional analysis to identify the root cause. In fact, the number of field returns is remarkably low, proving the quality and reliability of our products.

Gate Driver Cores



1SC2060P



2SC0650P



2SC0108T



2SD106AI



1SD1548AI



IGD616



6SD106EI



IGD515EI

Type	Output Power	Gate Current	Blocking Voltage	Frequency Max.	SCALE Generation	Topology Features	
	[W/Channel]	[A/Channel]	[V]	[kHz]		Multi-level	Parallel-ing



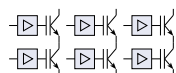
Single Channel Driver Cores

1SD1548AI	15	48	1700	150	1	-	-
1SC2060P	20	60	1700	500	2	opt.	✓
IGD515EI	5	15	1700/3300	100	-	✓	-
IGD616	6	16	1700	150	1	-	-



Dual Channel Driver Cores

2SC0108T*	1	8	1200/1700	75	2	opt.	✓
2SD106AI	1	6	1200/1700	100	1	-	-
2SD315AI	3	15	1700/2500/3300	100	1	-	-
2SD300C17*	4	30	1200/1700	60	2	-	-
2SC0435T**	4	35	1200/1700	100	2	✓	✓
2SC0650P*	6	50	1700	150	2	opt.	✓
IHD 260/660	1	6	1700	100	1	-	-



Six Channel Driver Core

6SD106EI	1	6	1200/1700	100	1	-	-
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*New product summer 2009 / **New product fall 2009

Plug-and-Play Driver



2SP0320V



2SP0320T



6SD312EI + EB01



2SB315A



1SD535F2



1SD536F2



1SD418F2



1SD210F2 + ISO3116I

Driver Family	Blocking Voltage [V]	Signal Interface	SCALE Generation	Topology Features	
				Multi-level	Paralleling

EconoDUAL™ – Fuji, Infineon, Ixys

2SD316EI + DB01	1200/1700	Electrical	1	-	-
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EconoPACK™+ – Fuji, Infineon, Ixys

6SD312EI + EB01	1200/1700	Electrical	1	-	-
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PrimePACK™ – Infineon

2SP0320T	1200/1700	Electrical	2	✓	✓
2SP0320V	1200/1700	Fiber Optic	2	✓	-
2SP0320S	1200/1700	Fiber Optic (ST)	2	✓	-

IHM/IHV 130 – ABB, Dynex, Fuji, Hitachi, Infineon, Mitsubishi, Powerex

2SB315A	1200/1700	Electrical	1	-	-
2SB315B	1200/1700	Fiber Optic	1	-	-
1SD535F2	1200/1700/2500/3300	Fiber Optic	1	✓	-
1SD536F2	1200/1700/2500/3300	Fiber Optic	1	✓	-
1SD418F2	1700/2500/3300	Fiber Optic	1	✓	-
1SD312F2 + ISO3116I	4500	Fiber Optic	1	✓	-
1SD210F2 + ISO3116I	4500/6500	Fiber Optic	1	✓	-

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