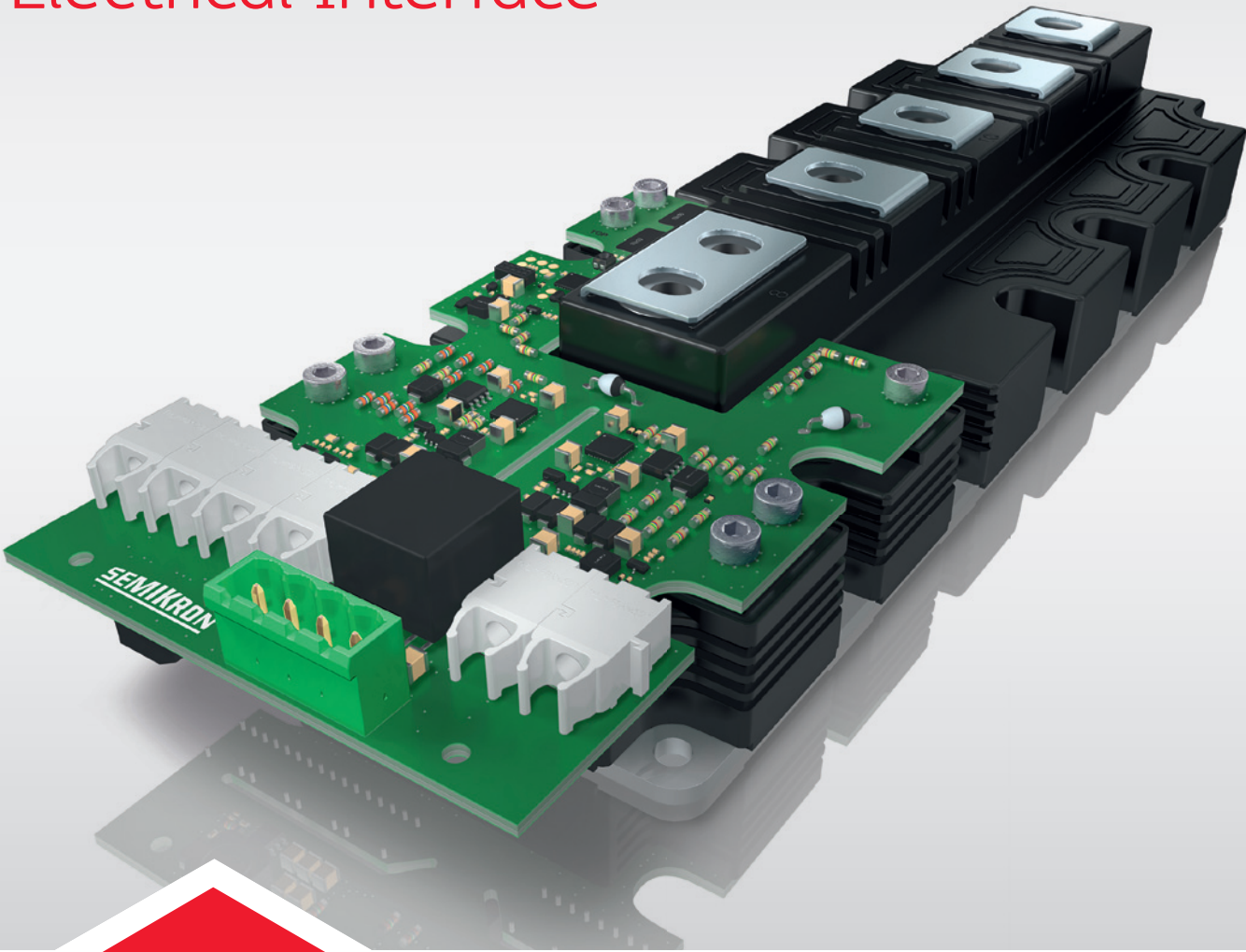


IGBT Driver with Insulated Sensor Signals Via Optical or Electrical Interface



SKYPER[®] Prime 0

Drives up to 1400A and 1700V



Wind Energy



Solar Energy



Power Quality



Urban Transport Equipment



SKYPER® Prime Family



Plug & Play driver with integrated and galvanically insulated sense signals for SEMITRANS 10 and PrimePack modules with optical or electrical interface.

Benefits

Regenerative converters are driven by two main market requirements. Increasing the output power and reduction of cost. SKYPER Prime offers galvanically insulated and very accurate sensor signals. Thus, the customer saves the cost of external power supplies, external sensing circuits and their insulation. The sensor data is available as digital signals which can be directly fed to the customer's controller. A / D conversions or level adjustments, which reduce the accuracy, are omitted. Thanks to this high accuracy, the customer can go to the limits of the IGBT modules.

SKYPER Prime is a fully qualified Plug and Play driver with optimised SOA characteristics. This saves costly qualification and redesign loops and at the same time offers significant performance advantages. The new SEMIKRON ASIC chipset allows for maximum integration and thus a very high reliability rate: MTBF >5million hours at full load.

To maximise the performance, a new concept has been developed for paralleling the drivers. Very accurate switching behaviour with digital signal processing, parallel fault management and symmetric signal paralleling provide maximum output power. As a new version, an optical interface is available. Additional to the switching and error signals, the temperature and DC link signals are transmitted directly to the control unit. Electrical and optical versions are available as coated types for tough applications.

Applications

SKYPER Prime can drive IGBTs up to 1400A and 1700V. Thanks to its built-in sensor signal processing and the paralleling concept SKYPER Prime provides the optimum IGBT driver solution for high performance applications up to the megawatt range. Applications benefiting most from that performance and from the long service life are large power supplies and regenerative inverters. The qualification level and the coating option allow the direct use in traction applications.

Portfolio

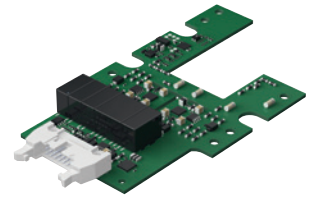
SKYPER Prime

L506680x

Module type: electrical 20pin interface

I_c [A]: up to 1400

V_{ce} [V]: up to 1700



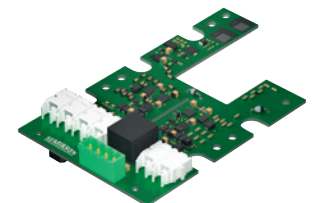
SKYPER Prime O

L506810x

Module type: optical interface

I_c [A]: Up to 1400

V_{ce} [V]: Up to 1700



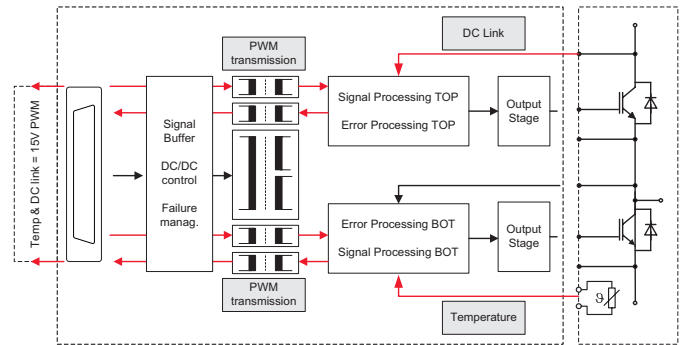
Key features

- Insulated DC link signal
- Insulated temperature signal
- Digital sensor signals for direct connection to the μC
- Fast V_{ce} detection
- SoftOff with separated output stage
- UL recognised, safe electrical insulation
- ROHS compliant
- Stabilised positive and negative gate voltages
- Qualified SOA of driver + IGBT module
- Paralleling with accurate switching
- Internal dead time generation
- Double side under-voltage protection
- Short pulse suppression
- EMC optimised layout
- New ASIC chipset for long service life

Maximum Output Power with Highly Accurate Sense and Switching Signals

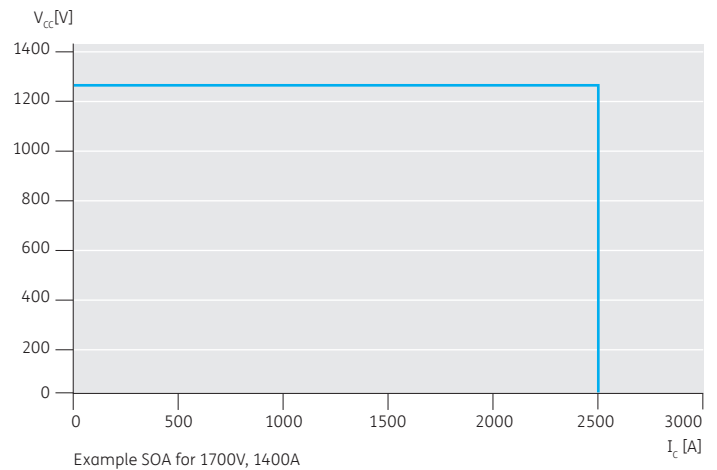
Insulated and digitised sense signals

- Digital sensor signals allow direct μC connection
- No external insulation nor supply - saves cost at system level
- Temperature and DC-link signals for maximum protection
- High accuracy $<2\%$
- Fast detection with 2kHz bandwidth
- Optical and electrical interface for all signals



Approved SOA for maximum safety

- Qualified driver module bundle provides a maximum safe operation area (SOA) without limits by clamping
- The module optimised driver settings reduce switching losses significantly
- Plug & Play principle saves approval and modification processes at customer side
- New markets, new applications can be entered fast and without risk

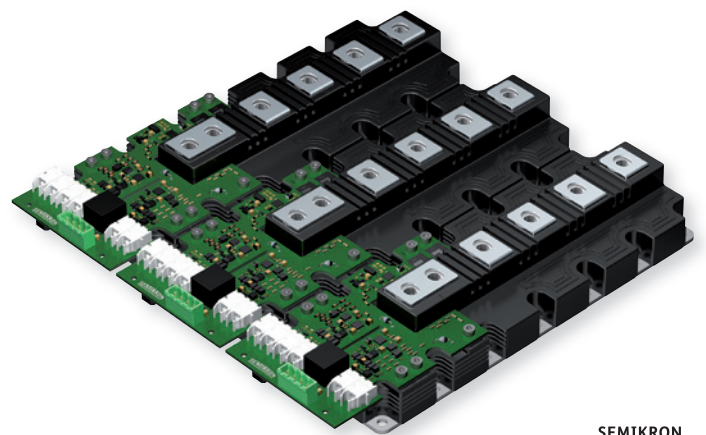


Performance

Power supply voltage	V_s	15V
Collector emitter voltage	V_{CE}	up to 1700V
Collector current	I_c	up to 1400A
Peak output / channel	$I_{outpeak}$	30A
Gate voltage stabilised	V_G	+15V/-8V
Gate charge	Q_G	17 μC
MTBF (SN29500)	>	5 x 10 ⁶ hours
PWM	V_i	15V
Accuracy DC-Link	<	2%
Interface of sense signals	Modulated, electrically or optically	
Insulation of sense signals	Galvanically insulated	

Application proved design

- Full coating of both sides available
- Mechanics, lifetime and EMC are qualified according to traction applications
- Sensor signal performance validated for efficient control





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SEMIKRON INTERNATIONAL GmbH

Sigmundstrasse 200
90431 Nuremberg, Germany
Tel: +49 911 6559 6663
Fax: +49 911 6559 262
sales@semikron.com

www.semikron.com
shop.semikron.com

