Модуль, igbt, semikron купить в Минске

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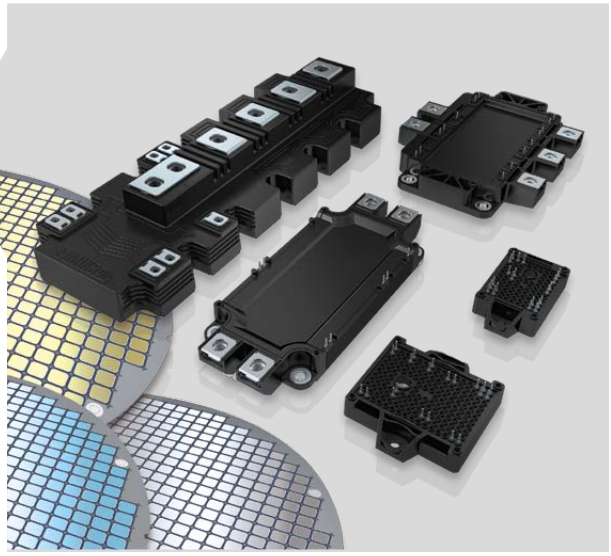
learn more...

SEMIKRON
innovation + service

Our Products for Your Reliable Supply Chain

Catalogue
2016/2017



Innovation is our Passion

Pushing the boundaries of packaging technologies.

Standard Packages are our Foundation

Meeting your needs is our mission.

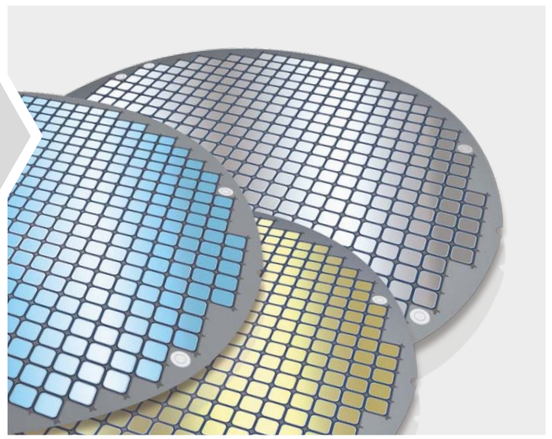
More than 60 years of experience in the field of power electronics, a comprehensive portfolio of chips, modules and inverter systems, a global network of production plants and sales offices as well as our highly qualified staff – these are our success factors. SEMIKRON's power electronics components and systems primarily address the medium output range (approx. 2kW up to 10MW).

Our products are at the heart of modern energy efficient motor drives and industrial automation systems. Further application areas include power supplies, renewable energies (wind and solar power) and utility vehicles. SEMIKRON's innovative power electronic products enable our customers to develop smaller, more energy efficient power electronic systems. These systems in turn reduce the global energy demand.

Highlights

SEMITOP® E1/E2

2nd Source



SEMITOP® E1/E2

The alternative to consolidated standard industrial packages for customers' supply chain safety
SEMITOP 2nd generation fulfils the SEMIKRON target to offer a safety supply chain to the customers. The new packages represent the SEMITOP platform's natural evolution at the same high performance levels, set to offer the best footprint, a flexible architecture and high performing solutions at optimised system cost. Full compatibility with the existing standard industrial packages is ensured: modules with 12mm height, without baseplate, two lateral mounting screws coupled with a solder-free pin grid philosophy. The latest Si and SiC chip technologies can be integrated so to offer a competitive platform. Thus able to address the power modules demanding environment where high performance, innovation and differentiation are the key winning factors. Thanks to a comprehensive portfolio with a large variety of configurations, SEMITOP E1 and E2 can address different markets like UPS, solar, motor drives, power supplies and the new emerging EV battery charger market.

Motor Drives · Solar Energy · Power Supplies · Utility Vehicles

2nd Source

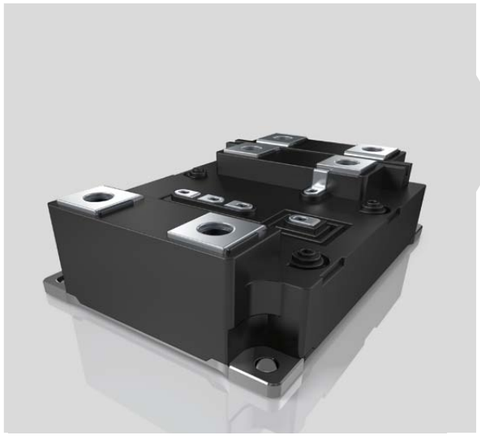
Supply chain safety, exceeding the standard
Ensuring the highest supply chain safety to the customer is one of the main targets for SEMIKRON. The development and release of industry standard packages as well as the introduction of new IGBT chip sources reflect that strategy. Beside the Infineon and Fuji chips also Vishay, ABB and Renesas IGBT chips are available in 650V, 1200V and 1700V.

Thanks to thermal and switching performance optimisations in the standard packages and the integration of additional functionality such as AC current measurement shunts in the modules SEMIKRON is even exceeding the industry standard.

Motor Drives · Wind Energy · Solar Energy · Power Quality · Utility Vehicles · Urban Transport Equipment

Highlights

SEMITRANS® 20

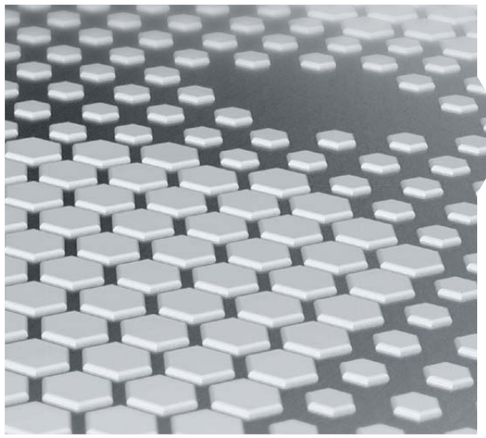


SEMITRANS® 20

New standardised medium voltage package – the SEMITRANS20 overcomes the limits of conventional medium voltage module concepts and provides a new design approach for inverters in applications such as transportation, industrial drives and grid infrastructure. Optimised for the medium voltage market with the latest 3.3kV IGBTs, the SEMITRANS20 is designed as a half bridge configuration featuring a build-in temperature sensor and opposite DC and AC power terminals. Compared to conventional modules, the stray inductance is reduced by up to 75%, thus providing higher operational safety and easy paralleling. The new SEMITRANS20 allows a higher degree of scalability and flexibility in medium voltage inverter design. The standardised package meets the increasing demands for lower cost, higher efficiency and durability for power electronics in industry, transportation and infrastructure.

Motor Drives · **Wind Energy** · **Solar Energy** · **Power Quality** · **Urban Transport Equipment**

High Performance Thermal Paste

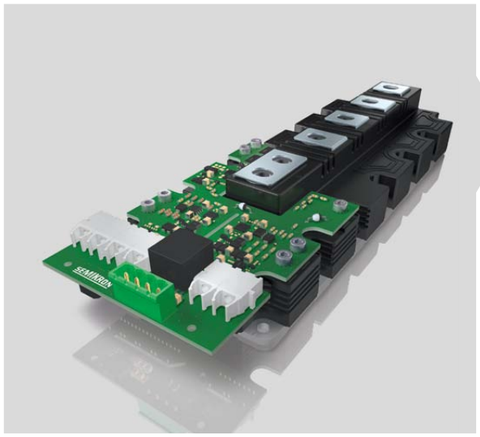


High Performance Thermal Paste

Outstanding thermal performance – Beside a standard silicone based and a silicon free thermal grease, a phase change material and the new high performance thermal paste with an improved thermal performance are available. SEMIKRON formulated a clear strategy that phase change materials will be applied on modules with baseplate only and thermal greases on modules without a baseplate. The new high performance thermal paste is the SEMIKRON solution to boost the performance for modules without baseplate. A reduction of the thermal resistance by up to 50% is possible which goes along with a module output power increase by up to 25% or a lifetime enhancement by several decades.

Highlights

SKYPER® Prime O

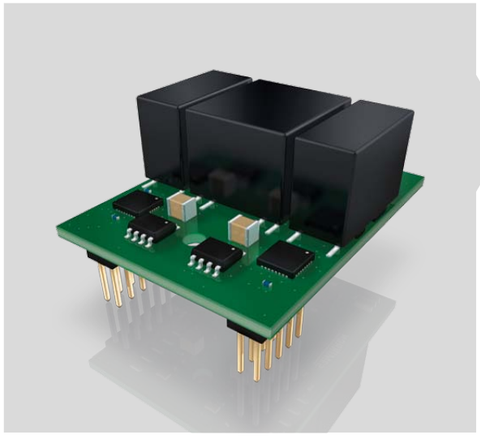


SKYPER® Prime O

Regenerative converters are driven by two main market requirements. Increasing the output power and reduction of cost. SEMITRANS10 and SKYPER Prime O is a fully qualified Plug & Play bundle with optimised SOA characteristics. This saves costly qualification and redesign loops and at the same time offers significant performance advantages in various applications. SKYPER Prime O offers galvanically insulated, highly accurate DC-link and temperature signals as a PWM signal to the controller. So very compact high power inverters can be built without costly sense circuits, cabling effort or power supplies. In addition, second source requirements are covered even on the driver and module side. Electrical and optical interfaces are available.

Wind Energy · Solar Energy · Power Quality · Urban Transport Equipment

SKYPER® 12



SKYPER® 12

New solutions in drives focus on improving the power density and by that reducing size and cost. SKYPER12 is an IGBT driver core, smaller than a matchbox but with a 20A output stage. Thanks to a complete ground layer, adjustable input filter and optimised transformers with low coupling capacitance, the driver core can work properly in very compact designs with a high level of electromagnetic compatibility. The new ASIC chipset offers safe short circuit handling with soft switch off and fast mode detection. Thanks to integration, an MTBF rate of up to eight million hours at full load can be realised. With that feature set the SKYPER12 IGBT driver core offers the optimised platform for IGBT modules in the range from 80A - 300A. Reference circuits for SEMiX5, MiniSKiiP Dual and SEMiX3 Press-Fit support customers for efficient driver integration.

Motor Drives · Solar Energy · Power Quality · AC | DC Power Supplies

Highlights

SEMIKUBE®

SEMIKUBE®

2-level but 1500V DC with intelligent switching
Following the solar trend to increase DC voltage, SEMIKUBE extends its range with a 1300A, 2-level inverter, able to operate up 1500V. Using state-of-the-art IntelliOff driving technology, the inverter provides safe operation under all conditions. The high robustness of the CAL diode against cosmic rays, gives a very low failure rate. Designed within the same footprint as standard size 3, the known benefits of the SEMIKUBE are present, to provide a fast and cost effective alternative to 3-level solutions.

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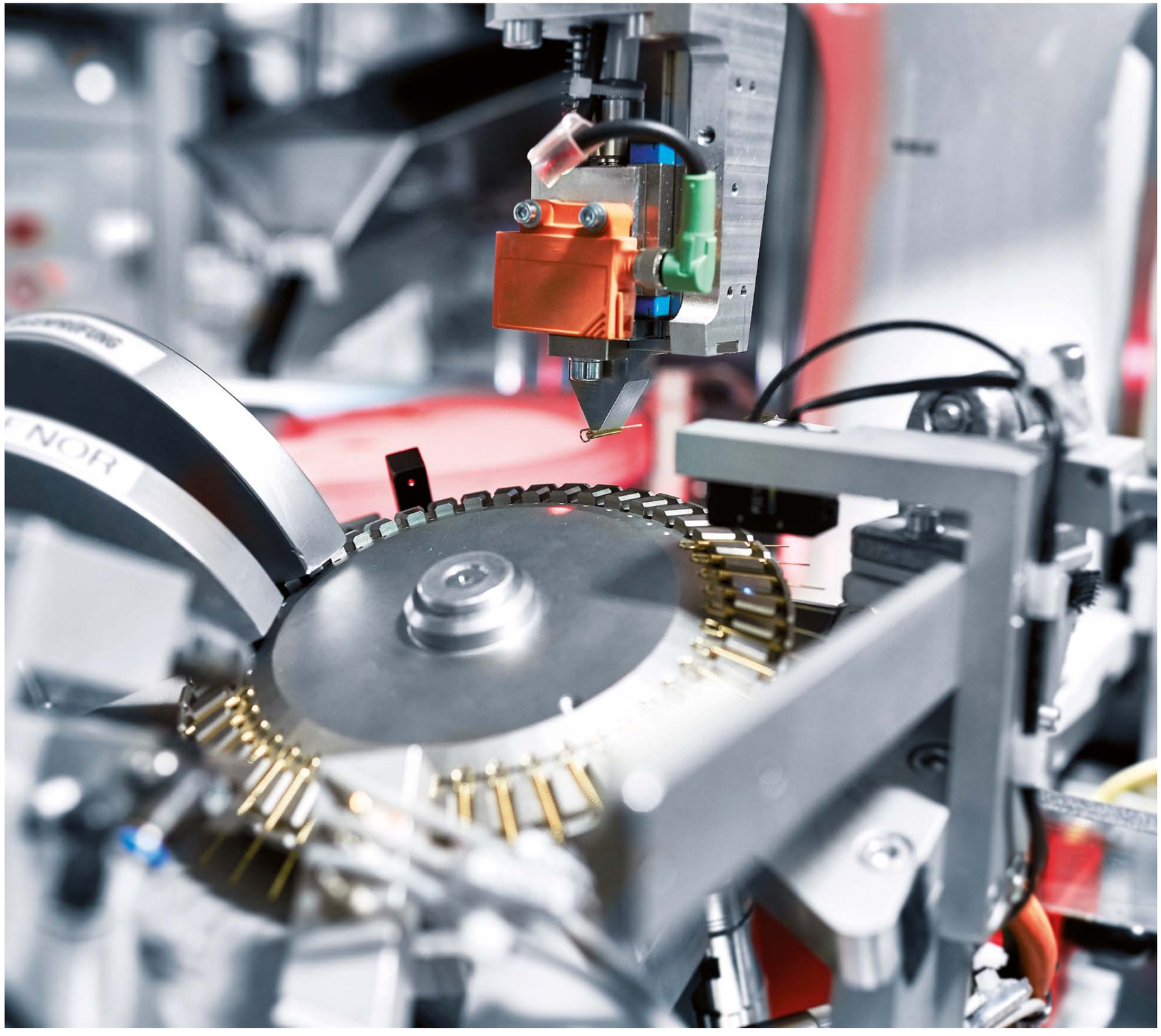
CLASSIC SKSE

CLASSIC SKSE

Modular high current rectifier – Extending the CLASSICS range, the CLASSICS SKSE is a modular product specially optimised for rectifiers, but other configurations can be realised as well. Using the well established capsule technology, the new Z5 heatsink profile, simplify stack construction and provide modularity. Able to accommodate high performance axial fans, customisation is possible to achieve fan redundancy, or other fan supply voltages. The CLASSICS SKSE range, dedicated to low voltage applications (500Vac), is by design, easily scalable to a higher voltage range.

Motor Drives | Wind Energy | AC | DC Power Quality

Content



Product Lines

Product Classes

Service & Contact

Product Lines

Modules

IGBT Driver

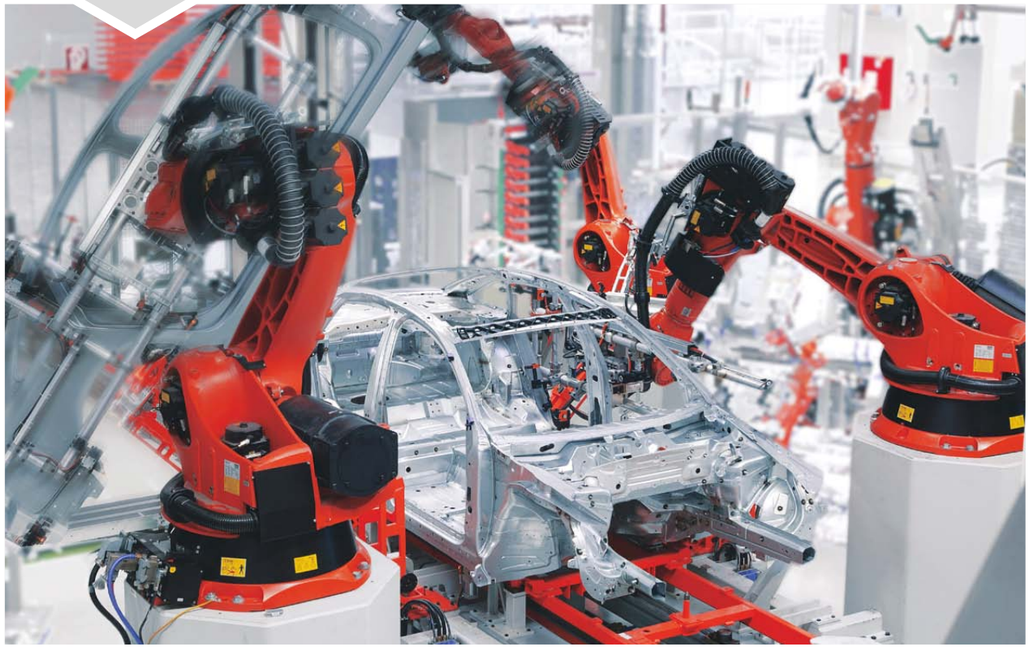
Stacks

Systems

Discretes

MiniSKiiP®

- Low cost assembly, high production run rate, high yield
- Small and compact inverter design
- High reliability and long product life time



Motor Drives | Solar Energy | Power Quality | Power Supplies

Fast, cost efficient and reliable one screw mounting

Benefits

An important mechanical feature of MiniSKiiP modules is the outstanding easy assembly and service friendly spring-contact for load and gate terminals. Compared to conventionally soldered modules, where expensive soldering equipment is required for time-consuming solder processes, no special tools are needed for MiniSKiiP assembly. Instead, a single screw connection is used. The printed circuit board (PCB), the power module and the heat sink are assembled in one mounting step.
This connection technology features a number of additional advantages: the PCB can be more flexible in design, as the power circuit board does not need to include holes for solder pins. The springs provide a flexible connection between the PCB and the power circuitry which is far superior to a soldered joint, particularly under thermal or mechanical stress conditions which can affect lifetime. Thanks to the high mechanical pressure provided by the springs, an air-tight, reliable electrical connection is achieved.

Applications

With almost 2 decades of field experience and more than 30 million modules in the field, this module platform has proven successful in all standard applications. Key applications include all kinds of inverters, such as standard drives, stand-alone drives, servo drives, system drives, solar inverters, UPS systems and welding machines. Due to the high reliability of spring contacts, applications such as agricultural vehicles or pitch motors of windmills benefit from the MiniSKiiP technology as well.

Product range

MiniSKiiP modules are designed for 600V/650V, 1200V and 1700V with 4A - 400A nominal chip currents, and feature Trench IGBT technology in combination with the SEMIKRON CAL diodes. 1200V Trench IGBT4 and CAL 4 diodes are designed for maximum junction temperatures of 175°C. In addition to CIB, 6-pack, twin 6-pack, H-bridge, half bridge, 3-level and uncontrolled/ half-controlled rectifiers plus brake chopper, customer-specific modules are also available. For fast evaluation, lab test boards can be ordered for each module type.

Key features

- Solder-free SPRiNG Technology for fast and easy assembly
- Without copper baseplate for cost efficient concept
- Easy and flexible PCB routing without pin holes
- Current range 4A to 400A for inverter range up to 90kW with one product platform
- Comprehensive setup of topologies: CIB, 6-pack, twin 6-pack, H-bridge, half bridge, 3-level, bridge rectifiers with brake chopper

Further information:
www.semikron.com/miniskiip

SEMITOP®

- Complex topologies in compact space
- Simple pin routing thanks to terminal edge positioning
- Low inductance design philosophy coupled with latest chip technologies

Solar Energy · Power Quality · Motor Drives · AC | DC Power Supplies

Flexibility for high integration level and high performances

Benefits

Complete family of fully compatible 12mm height modules for solder or solder free assembly to the PCB. One screw module for easy, fast and reliable assembly. Pins on the edges allow for more internal available space to fit the most complex topologies. Three level inverters are, for example, integrated in SEMITOP3 and SEMITOP4 housings. Low inductance design approach together with Si and SiC technologies available to offer the best in class solutions.

Applications

SEMITOP is a useful product in the low and medium power range where flexibility and high integration levels are required. Latest available chip technologies and the ability to offer compact designs make this product suitable for different and new high performing configurations like three level inverter (NPC and TNPC), double boost and interleaved boost applications covering different markets like UPS, solar, motor drives and welding.

Product range

SEMITOP may include fast Si diode, fast IGBTs and MOSFETs even for high voltage. SiC Schottky diode and MOSFET can be evaluated as well. Thus a lot of different configuration with different chip combinations are possible:

- NPC inverter up to 150A/650V
- TNPC inverter up to 150A/1200V-100A/650V
- Three-phase inverter up to 200A/600V and 100A/1200V
- CIB configurations up to 100A/600V and 50A/1200V
- MOSFET configurations up to 300A
- Three-phase bridge rectifier with DC output current up to 100A
- Many other configurations are available

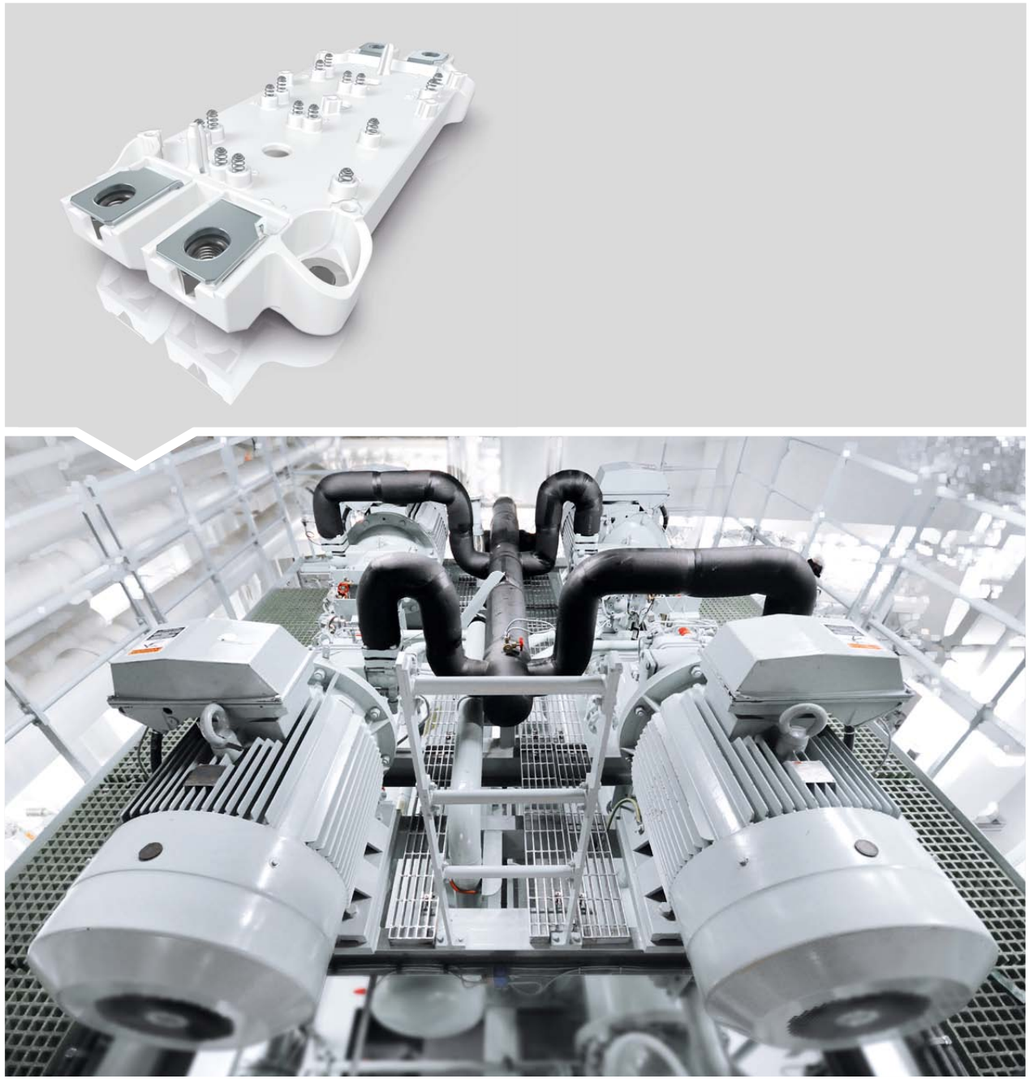
Key features

- One central mounting screw for low mounting cost
- Non-baseplate design
- Insulated module
- Low thermal resistance thanks to homogeneous pressure distribution
- Through hole solder pin terminals and press-fit terminals
- High integration level possible for compact design
- 12mm height

Further information:
www.semikron.com/semitop

SEMiX®

- Reliable spring or press-fit connection
- Direct driver assembly
- Flat and compact inverter design



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IGBT and rectifier module family for solder-free mounting

Benefits

The family concept of SEMiX includes a unification of IGBT and rectifier housings. All have the same height (17mm) and can be connected by one principle DC-link design, due to having the same interface for IGBT and rectifier stage. This saves development time and makes a simple and low-inductance DC-link profile possible. Spring or press-fit contacts allow for a gate driver mounted directly on top of the module. So there is no risk of noise on wires or loose connectors. With the flat package and separated AC and DC terminals a state-of-the-art inverter construction is possible, which is very compact. The auxiliary contacts avoid solder joints and offer highly reliable pressure contacts. This leads to an increased product reliability and lifetime. The solder-free contacts offer a fast and easy assembly process and especially spring contacts are user friendly with regard to servicing. Production at the customer site can be optimised by uniform direction of assembly (everything top down). This simplifies logistics and reduces manufacturing costs. Using the scalability of SEMiX housings, with one basic design a complete inverter line can be built with less effort. In consequence the overall costs can be reduced.

Applications

SEMiX is a flexible and application oriented module. On the basis of a scalable platform concept, modern chip technology is integrated into IGBT and rectifier modules which are used in a wide variety of applications, such as AC motor drives, switching power supplies and current source inverters. Other typical applications include matrix converters, uninterruptible power supplies and electronic welding devices.

Product range

Eight different housing sizes are available in the voltage classes 600V, 1200V and 1700V for the IGBT modules. Half-bridge, 6-pack and chopper topologies are available with a current range from 75A to 600A. Besides IGBT 3 and IGBT 4 chips, the 1200V range also includes a series with V-IGBT devices. Controlled, half-controlled and uncontrolled rectifier modules with identical footprint and 17mm height are also available. Latest packages are available with current sensing shunt resistor, 3-level topologies (NPC, T-NPC) or as buck-boost converters.

Key features

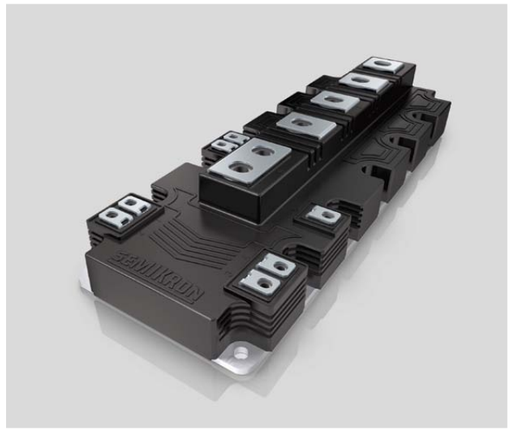
- Available in 600V, 1200V and 1700V and from 75A to 600A
- Multiple IGBT sources
- Solder free contacts for highest durability
- Comprehensive topologies for 2- and 3-level applications

Now also available with current sensing shunt resistor

Further information:
www.semikron.com/semix

SEMITRANS®

- Safe operation with high DC-link voltages
- Maximum power output
- Multiple IGBT sources



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Low inductance package design down to 10 nH

Benefits

The SEMITRANS package provides a low-inductive design down to 10nH which can be used for AC/DC inverters from 20kW to 1.5MW. The modules are available up to 1400A and 1700V. Availability is ensured by different IGBT sources. With a market experience of over 25 years the SEMITRANS packages offers a well proven standard design.

Applications

The proven package is designed for a broad range of applications like regenerative inverters and power supplies.
The long service life fits perfectly to ambitious applications like AC drives, switched reluctance and DC motors.

Product range

The SEMITRANS family offers a broad range of topologies and power ranges. All standard voltage classes from 600V to 1700V can be chosen. The current rating extends from 25A to 1400A. And the SEMITRANS package is available as half bridge, chopper, single switch, MLI and common emitter.

Key features

- Topologies: half bridge, chopper, single switch, MLI, common emitter
- Isolated copper baseplate using DBC Technology
- With integrated gate resitor
- High isolation voltage

Further information:
www.semikron.com/semitrans

SKiM®

- No solder delamination thanks to sintered chips – SKiM 63/93
- 1500 temperature cycles without failure – SKiM 63/93
- More than 60000 power cycles with a temperature swing of 110K – SKiM 63/93
- Pressure contact SKiiP-Technology
- Up to 23% more performance with AlCu-bonded diodes and high performance thermal grease

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100% solder-free ensures durability

Benefits

The SKiM modules can increase the reliability of inverters by several factors, even under substantial active and passive temperature swings. In addition to sintered chips, pressure contacts and springs technologies with AlCu-bonded diodes and high performance thermal grease the SKiM63/93 module shows up to 23.3% performance improvement with the same chip-set and same lifetime or twice the power cycling capability in comparison to standard sinter modules.

Applications

The SKiM 63/93 is designed for applications that require high inverter reliability. First of all this applies, of course, to automotive applications such as electric powertrains in electric utility vehicles, heavy-duty construction machinery and tractors, or even provide leading-edge performance in super sports and race cars. The SKiM 4/5 with its proven 3-level topologies can be found in ambitious applications such as solar and UPS.

Product range

The SKiM 4/5 modules are available as 6-pack, MLI and TMLI configuration with nominal currents from 200A to 600A. The SKiM 63/93 offers 3-phase inverter topologies at 600V, 1200V and 1700V. The power ranges from 20kW to 180kW with nominal currents of 300A to 900A. Modules in buck and boost configuration for 1200V, 600A complete the portfolio.
Driver solutions are available as well as an optimised water cooler for fast and customer friendly evaluation. In addition, paralleling boards for a simple and powerful half-bridge configuration are also available.

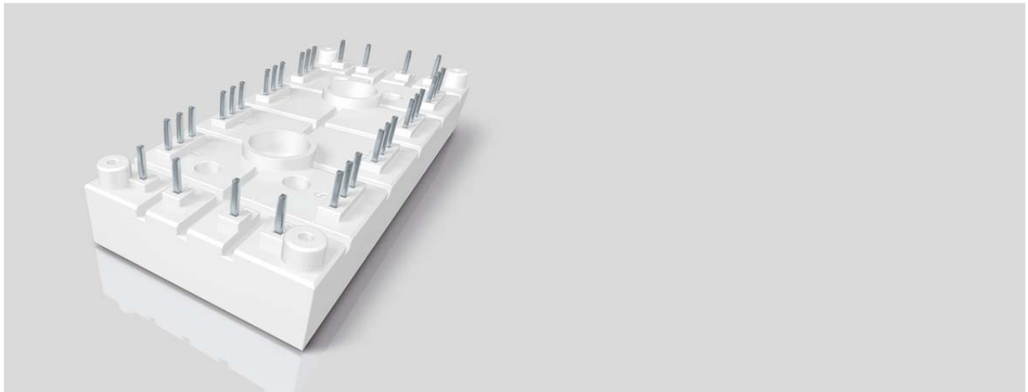
Key features

- IGBT power module in 6-pack configuration with 3 separated half bridges – SkiM 63/93
- Available in 600V, 1200V and 1700V and from 200A to 900A
- MLI and TMLI configuration – SKiM4/5
- In 1200V, 600A also available in buck/boost configuration – SKiM 63/93
- Solder-free design for highest durability – SKiM 63/93
- Design without baseplate
- Solder-free mounting of the module and the driver PCB
- Low inductive design thanks to symmetrical layout

Further information:
www.semikron.com/skim

SEMIPONT®

- Compact packages with screw, fast on or lead terminals
- High insulation voltages
- Diode, thyristor rectifier, rectifier/brake chopper and AC controller



Power Quality

Compact package with various configurations

Benefits

With blocking voltages up to 1.8kV the SEMIPONT family offers high ruggedness for harsh industrial applications. The different housings with soldered PCB connection allow for compact inverter design.

Applications

Typical application areas for the broad field of SEMIPONT power bridge rectifiers include AC and DC drives, servo drives, (controlled) field rectifiers for DC motors, (controllable) rectifiers for power supplies, input rectifiers for variable frequency drives, soft motor starters, temperature control, (controlled) battery charger rectifiers, DC motor field controllers, DC motor controllers and DC power supplies.

Product range

The SEMIPONT bridge rectifier family is available in various configurations with diode and thyristor rectifiers, rectifier/brake chopper or AC controller. The compact screw mounted packages enable fast PCB mounting. High blocking voltages of up to 1800V, high ruggedness for hard industrial application, high insulation voltages are also available.

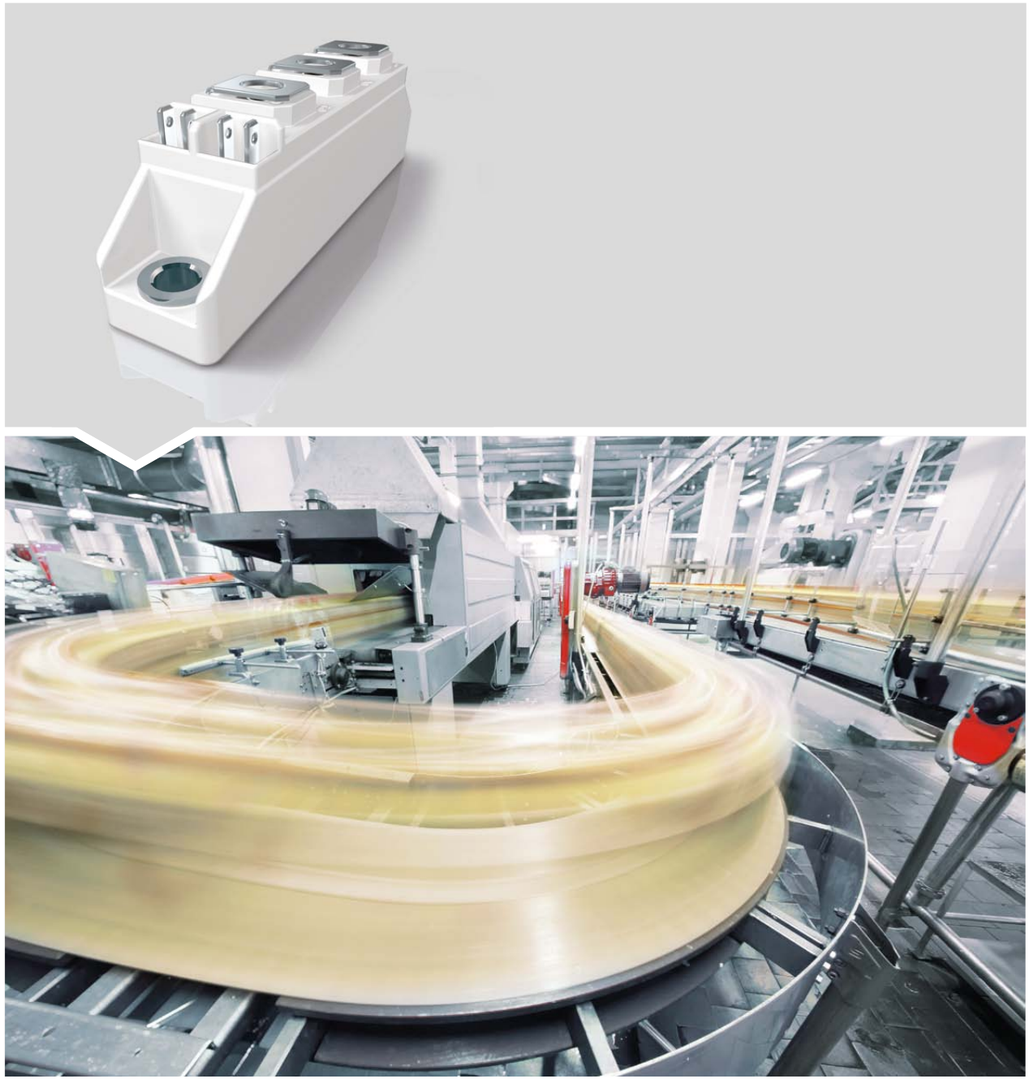
Key features

- Diode, thyristor rectifier, rectifier/brake chopper and AC controller
- From 400V up to 1.8kV blocking voltages
- From 28A up to 207A
- Compact packages with screw, fast on or lead terminals

Further information:
www.semikron.com/semipont

SEMIPACK®

- Well established thyristor diode package
- Market experience over 40 years
- Broad power and topology range



Motor Drives | Power Quality | AC | DC Power Supplies

Comprehensive product range – industrial standard

Benefits

SEMIPACK was the first insulated module on the market, and more than 40 years later, it is still state-of-the-art. It is a well established industrial standard with regard to footprint and module outline. Due to the comprehensive product range, the optimal solution can be found for any application.
With SemiSel, the free online calculation and simulation tool for losses and temperature, the power electronic system developer is able to make the perfect power module choice.

Applications

The target applications for the thyristor, thyristor/diode or diode modules include input rectifiers (single-phase, three-phase, uncontrolled, half-controlled or controlled) for inverters or UPS systems, soft start applications and control systems.

Product range

The SEMIPACK product line offers a comprehensive product range with seven module lines: with voltages from 800V to 2200V, insulation voltages of 3.6kV, 4.8kV@1s and a current range from 15A to 1200A. Uncontrolled, half-controlled and controlled rectifier modules are available as well as single thyristor or diode modules. Also, fast diodes come in SEMIPACK modules. Furthermore, different contact technologies – soldered contact, bonded contact or pressure contact modules – are available.

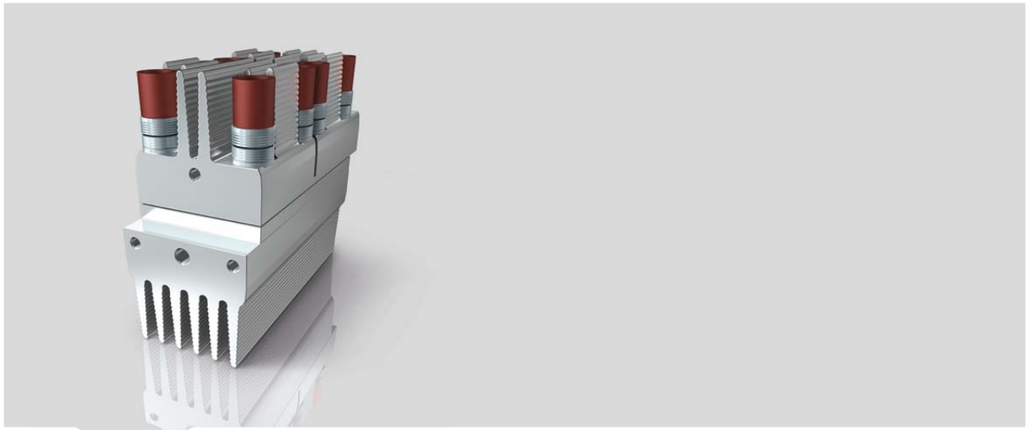
Key features

- 800V up to 2200V
- 15A up to 1200A
- Uncontrolled, half-controlled and controlled rectifier
- Single thyristors and diodes

Further information:
www.semikron.com/semipack

SEMiSTART®

- Double-sided cooling for high load cycle capability
- Robust pressure contact technology
- Low thermal resistance



Motor
Drives

Robust thyristor package

Benefits
The main advantage of this power module is the high current capability in a new compact design. A 400kW soft-starter featuring SEMiSTART has just one sixth of the volume of the same device with conventional capsule thyristors.

Applications
SEMiSTART, the anti-parallel thyristor module is designed with an integrated heatsink for soft-start applications.

Product range
The SEMiSTART thyristor module is offered in five current classes, two voltages classes and three sizes.
In addition, due to pressure contact technology and double-sided chip cooling, these new thyristor modules can withstand overload currents of up to 3000A for a 20s duration of overload.

Key features

- 500A up to 3000A overload
- Double sided cooling
- Pressure contact

Further information:
www.semikron.com/semistart

SKiiP®

- 3-in-1: Driver, semiconductors and cooling
- 2-3 times higher power cycling capability due to sinter technology
- Completely assembled and 100% tested – including 1 hour burn-in test

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Sintered chips – for high operating temperatures

Benefits

SKiiP4 is the most powerful IPM on the market. SKiiP4 modules enable the production of converter units with outputs of up to 2.1MW. The power semiconductors used in SKiiP4 modules can be operated at a junction temperature of up to 175°C. To make sure these components can be reliably used at these temperatures, the power circuitry is 100% solder-free. Sinter technology is used to create a sintered silver layer instead of the solder layer which could limit the service life of power modules. Reliability during active and passive thermal cycling is greatly improved. A further benefit is the better load cycling capability as compared to solder-based modules.
The integrated gate driver in the SKiiP4 sets new standards in terms of reliability and functionality. The digital driver guarantees safe isolation between the primary and secondary side, both for switching signals and all measurement parameters, such as temperature and DC link voltage. This means the user no longer has to introduce complex and costly circuit components to provide safe isolation. For the first time, the SKiiP drive features a CANopen diagnosis channel for the integration of additional functions.

Applications

The success story of the SKiiP family has progressed hand in hand with the advancement of the wind power market. The 4th generation SKiiP modules are a further improvement of the powerful SKiiP series. The mainstay of SKiiP4 modules is the wind power sector, with approximately 57GW out of the 122GW of wind power installed worldwide (at the end of 2009) featuring SEMIKRON solutions, in many cases SKiiP technology. Besides wind power applications, SKiiP modules can also be found in elevators, solar power and railway applications – in fact, in any area where powerful, safe and reliable IGBT IPMs are a must.

Product range

SKiiP4 is available for 1200V and 1700V. In both of these voltage classes, SKiiP4 modules come in the topologies 3GB 1800A, 4GB 2400A and – new to the SKiiP family – 6GB 3600A. The wide range of accessories is now available for both SKiiP3 and SKiiP4. Among them the fiber optic boards, the boards for paralleling of SKiiP systems and the adapter board for connection of SKiiP4 to SKiiP3 controller.

Key features

System

- DC-Link monitoring (SKiiP3, SKiiP4)
- Current sensors (SKiiP3, SKiiP4)
- Temperature measurement (SKiiP3, SKiiP4)
- CAN diagnostic interface (SKiiP4)
- 100% solder-free (SKiiP4)
- Water, air and customized cooler

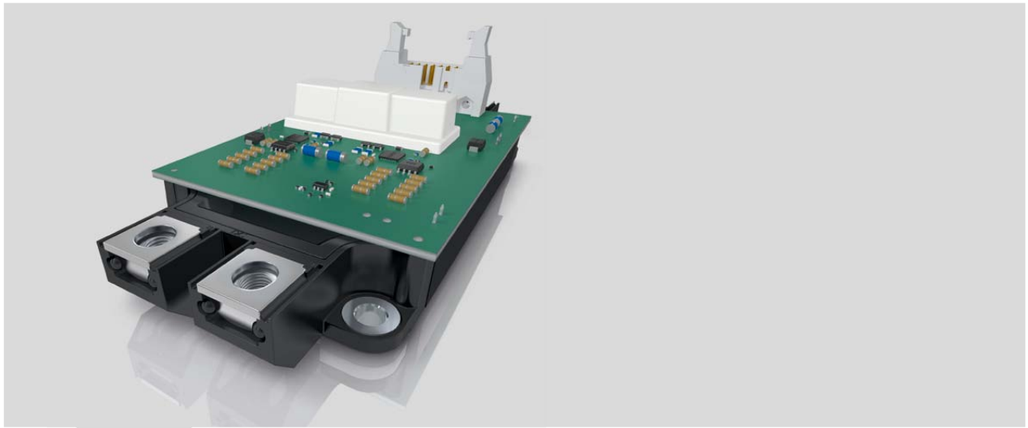
Production and Test

- 100% tested
  (function, isolation, protection function)
- Burn-In
  (SKiiP3 on request, SKiiP4 = 100%)

Further information:
www.semikron.com/skiip

SKYPER®

- MTBF rate of 5 x 10^6 hours (29500) with new SEMIKRON ASIC chipset
- Safe gate control with separate signal transmission
- 7kV burst durability due to interlayer connection and metal pad ASICs



Motor Drives
Solar Energy
Power Quality
Urban Transport Equipment

SKYPER drives 3 x longer

Benefits

The high integration of SEMIKRON's new ASIC chipset provides for safe IGBT gate control over the whole lifecycle. Short circuits are managed very fast by separate error channels.
SoftOff and over voltage feedback avoid dangerous overvoltages. The mixed signal ASICs guarantee lowest tolerances over the full temperature range. MLI or paralleled IGBT topologies are managed by the adjustable error handling.
With an optimized interface and the adjustable filter setting the SKYPER IGBT driver survives external interferences over 100% of EN standards.

Applications

The new SKYPER 42 LJ offers the benefits of digital signal consistency while maintaining full performance. Ambitious applications such as medical or large drives up to 300kW are securely powered. SKYPER 32 is the perfect solution for industrial drives and process control applications. SKYPER 42 meets the requirements of induction heating/welding applications that call for high currents, durable solar inverters and motor drives between 300kW and 1.5MW. SKYPER Prime drives Primepack and SEMITRANS 10 modules up to 1700V and 1400A. The new SKYPER 12 PF is the benchmark for motor drives applications based on 17mm press fit modules.

Product range

The SKYPER drivers are available as IGBT driver cores and plug and play driver. The SKYPER platform can drive 600V, 1200V and 1700V IGBT modules. SKYPER 32 drives with a standard and a PRO version 1W per channel. The PRO version has additional protection features like external failure inputs and SoftOff. The SKYPER 42 has 4W per channel and can drive up to 2500A IGBTs. The SKYPER 42 LJ with 2W per channel closes the gap between SKYPER 32 and 42. With the new ASIC chipset, the fast failure management and the consistent signal conditioning the 42LJ is the latest driver core of SEMIRKON. The latest IGBT drivers are SKYPER Prime and SKYPER 12 PF. Both offer as fully qualified Plug & Play driver maximum performance when using SEMiX P or SEMITRANS 10 modules.

Key features

- Two driver channels for IGBT single and half bridges
- For 600V, 1200V and 1700V IGBT modules
- Driving up to 2500A
- Short pulse suppression and EMC cage
- SoftOff and separate error channels
- Adjustable filter and failure management
- Customized adapter boards on request

Further information:
www.semikron.com/skyper

SEMISTACK® CLASSICS

Off-the-shelf product range

Air cooled power assemblies

Ready for integration

Motor Drives

Power Quality

Urban Transport Equipment

Standards for LV diode/thyristor rectifiers

Benefits

The SEMISTACK CLASSICS family range has been set up for fast integration of an industrial rectifier. Each power bridge has been sized to embed semi-conductors with suitable RC commutation circuit, proper AC fuses and cooling devices. The high power range of rectifier has been improved using a new heatsink profile, allowing for modularity, fan options, easy maintenance and weight reduction.

Applications

- Regulated/unregulated power supplies
- Alternator excitation
- Motor control
- Soft starters
- Soft charge
- Industrial heating

Product range

The SEMISTACK CLASSICS family range consists of a 137 item list, corresponding to four electrical topologies B6C, B6HK, B6U, W3C. These products are available in natural of forced cooling, with or without fuses.
They include RC protection circuit and are ready for cabinet integration, independently from their semiconductor devices technology (isolated or not).

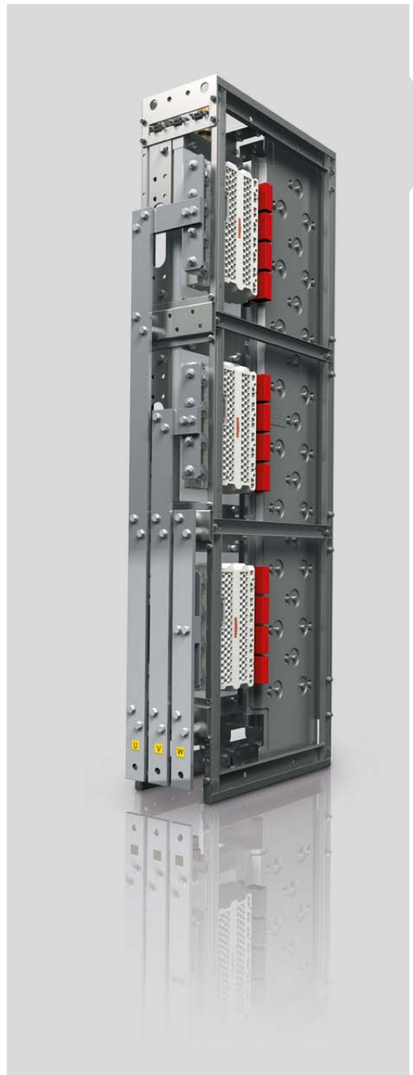
Key features

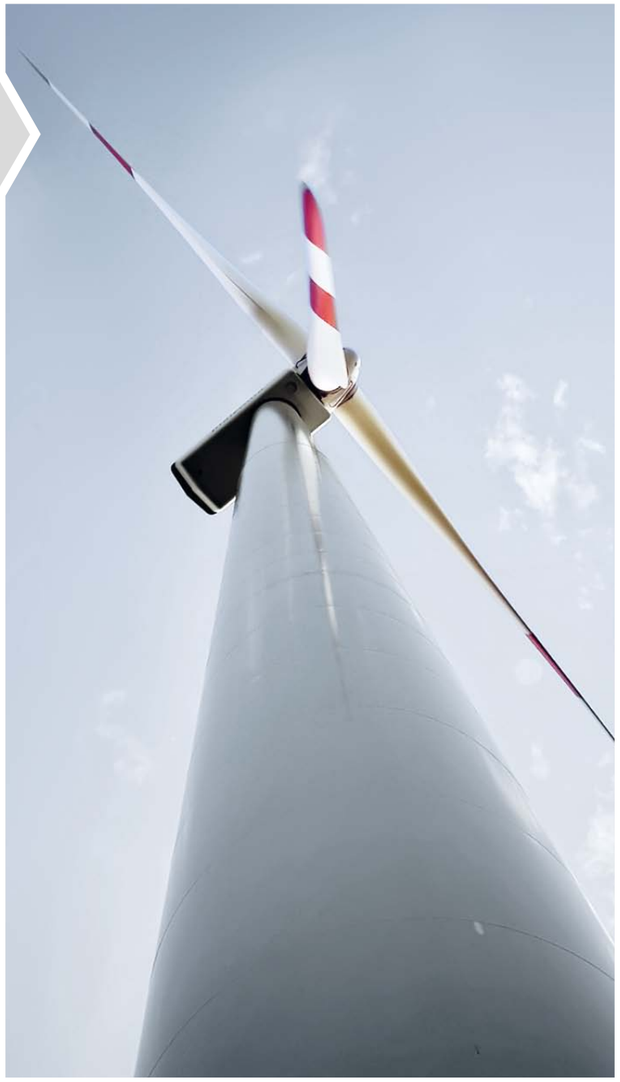
- 4 topologies B6C, B6U, B6HK, W3C
- Maximum continuous DC current from 60A up to 4015A_{DC}
- Rectifier AC voltage up to 500V_{AC}
- DC bus voltage up to 670V_{DC}
- RC, fuses, cooling fans and thermo switches included

Further information:
www.semikron.com/semistack-classics

SEMISTACK®RE

- Pre-qualified water cooled IGBT power assemblies
- IGBT inverter power density up to 11.4kVA/L
- 2- and 4-quadrant 3-phase converter
- Long life expectancy





Wind Energy

Solar Energy

Low voltage optimized converter for wind and solar PV

Benefits

The SEMISTACK RE offers a pre-qualified power assembly ready for integration following rigorous SEMIKRON qualification and current environmental standards (IEC 60721-3).
The platform design has been optimized to get the best compromise cost/performance for a water-cooled power inverter in the megawatt power range.
The book format enables a compact integration in standard industrial cabinets to achieve high power up to 6MVA low voltage.
Specified for wind turbine applications, the SEMISTACK RE offers a high IGBT cycling capability and a high capacitor bank lifetime, reducing maintenance.

Applications

The SEMISTACK RE complies with wind turbine requirements, offering the capability to built 4-quadrant converters suitable with synchronous generator and double fed induction generators, with an optional brake chopper design. The platform flexibility allows to match requirement of solar PV central inverters with a DC bus voltage up to 900VDC continuous.
Alternatively, SEMISTACK RE can be used in low-voltage applications requiring high power and high reliability, such as 3-phase inverters in a shipyard or in a battery energy storage unit installed close to renewable energy power plants.

Product range

The SEMISTACK RE platform offers a standard inverter size HWD 1500 x 230 x 510 mm to fit two power sub-assemblies into a 600 x 600 x 2000 mm cabinet. The standard size has a current distribution between 1000A and 1400A.
For applications with lower current rating or with a stronger constraint on the cabinet size, a smaller inverter size HWD 1250 x 230 x 510 mm offers continuous output current rated from 600A to 900A_{RMS}.

The SEMISTACK RE embeds the SKiiP IPM product family which integrates the IGBT gate driver and monitoring analogue outputs (temperature, output current and DC bus voltage).
As an option, a CAN interface for supervising the SKiiP.
To increase power capacity up to 6MVA, SEMISTACK RE can be put in parallel, connected together through the DC bus and controlled all-like-one with a SEMIKRON paralleling board.
As an option, SEMISTACK RE platform can be offered as an integration into an industrial cabinet with suitable AC and/or DC power filters, electrical and hydraulic distribution.

Key features

- Maximum continuous output current from 600A up to 1400A_{RMS}
- Switching frequency up to 5kHz
- Inverter output voltage up to 690V_{AC}
- DC bus voltage up to 1250V_{DC}
- DC bus polypropylene capacitor bank lifetime rated at 100,000 hours at 40 °C
- Analogue measurement T, V_{BUS}, I_{OUT}
- CAN interface (configuration and monitoring)
- Brake chopper optional

Further information:
www.semikron.com/semistack-re

SEMIKUBE®

- Air cooled IGBT power assembly
- Maximum output current from 150A up to 1500A
- Fits into 300mm cabinets
- Fully integrated safety management

Motor Drives | Solar Energy | AC | DC Power Supplies

Air cooled IGBT converter family up to 1MVA

Benefits

Extending the SEMIKUBE portfolio, the SEMIKUBE SlimLine platform is a family of pre-qualified power assemblies which follow the same rigorous SEMIKRON qualification and certifications. The platform integrates advanced technologies which maximize performance and power density.
SEMIKUBE SlimLine platform has been designed to fit applications in severe environments. Suitable for outdoor cabinets, the platform can be placed in environments subject to high temperature fluctuations. Extremely slim, the platform can be mounted into 300mm deep cabinets.
SEMIKUBE, by its modular design and patented DC clamp, enables the construction of various converter topologies. The platform design facilitates easy arrangement in the cabinet owing to the separation of the main cooling air flow through the heatsink and its IP54 rated mounting flange. The new SEMIKUBE 1500V, with its state of the art driver, provides a fast and cost effective alternative to 3 level solutions.

Applications

Following the philosophy of the SEMIKUBE, the SEMIKUBE SlimLine is optimised for solar PV central inverters. Sized for the most commonly used central inverter ratings on the market, i.e. 500kW, 670kW up to 900kW, the SEMIKUBE SlimLine 3-phase inverter operates up to 1000VDC bus voltage. Designed in accordance with IEC 62109, the platform is poised to obtain UL 1000V recognition. SEMIKUBE SlimLine complies with most AC drives application requirements. The current measurement precision of 1% (at 25°C) allows for premium motor control required for highly dynamic applications and motion control systems.

Product range

The SEMIKUBE offers four frame sizes of continuous rated current from 150A to 1500A, using SEMITRANS 1200V IGBT Trench E4 modules. SEMIKUBE SlimLine design is optimised for 3-phase inverter topologies. Dedicated rectifier with 3-phase inverter and optional brake chopper may be added.
The IGBTs are controlled by a SEMIKRON embedded driver, which provides error management, and analogue outputs of current, DC voltage and heatsink temperature. A CAN interface is available for parameter configuration and diagnostics monitoring.
Air cooling for SEMIKUBE SlimLine is provided by highly efficient long life axial fans, realizing maximum power within a compact package.
SEMIKUBE is a more versatile product, allowing converter construction around a common DC link, including four quadrant converters, multiphase converters and newly developped 1500V inverter for solar central system.

Key features

- Power density up to 7.5kVA/L
- Four frame sizes ranging from 75kVA up to 1500kVA
- AC output voltage up to 690V_{ac}
- Current measurement accuracy <1%
- $T_{HEATSINK}$, V_{BUS}, I_{OUT}: analogue measurement or CAN monitoring
- Operating temperature range: -30°C to +60°C
- Integration into 300mm deep cabinet
- UL1741 1000V ready
- 100% tested in production

Further information:
www.semikron.com/semikube

SKiiPRACK®

- Pre-qualified water cooled IGBT power assemblies
- IGBT Inverter power density at 10.4kVA/L
- Flexible mounting
- High reliability and long life expectancy

Motor Drives

Wind Energy

Versatile high power inverter platform

Benefits

The SKiiPRACK offers a pre-qualified power assembly ready for integration following rigorous SEMIKRON qualification and current environmental standards (IEC 60721-3).
Based on a “Cell” construction, the SKiiPRACK platform offers high flexibility for designing numerous electrical topologies and for a convenient integration into standard industrial cabinets.
The SKiiPRACK has been designed for applications requesting high reliability and a long life time up to 20 years. Totally dismountable, the cell concept eases maintenance phases, reducing the time of handling and application stops.

Applications

The SKiiPRACK complies with wind turbine requirements, offering the capability to build 4-quadrant converters suitable for synchronous generators and double fed induction generators, with an optional brake chopper design.
The platform flexibility allows matching electrical topologies of AC drive applications to power AC induction motors up to 1MW, in particular for pumps or in shipyards.

Product range

The SKiiPRACK platform consists of a cell HWD 525 x 375 x 470 mm to be assembled with others cells to create a functional unit in standard cabinets 600 mm deep and 2,000mm high. A cell can integrate an H-bridge, a 1-phase leg + brake chopper or 12-pulse rectifier, and combination of them can create 3-phase inverter, 4-quadrant converter or 3-phase rectifier and inverter.
The output current range offers scalability from 600A to 1200A continuous.

The SKiiPRACK embeds the SKiiP IPM product family which integrates the IGBT gate driver and monitoring analogue outputs (temperature, output current and DC bus voltage).
As an option, a CAN interface for supervising the SKiiP.
To increase power capacity up to 5MVA, SKiiPRACK can be put in parallel, connected in a very flexible way (horizontal or vertical) together through the DC bus and controlled all-like-one with a SEMIKRON paralleling board. As an option, SKiiPRACK platform can be offered with integration in an industrial cabinet with suitable AC and/or DC power filters, electrical and hydraulic distribution.

Key features

- Maximum continuous output current from 600A up to 1200A_{RMS}
- Switching frequency up to 5kHz
- Inverter output voltage up to 690V_{AC}
- DC bus voltage up to 1100 $_{VDC}$
- DC bus polypropylene capacitor bank lifetime rated at 100,000 hours at 40 °C
- Analogue measurement T, V_{BUS}, I_{OUT}
- As possible options:
- Brake chopper, additional capacitor bank, DC bus electrolytic capacitor bank, diode/thyristor rectifier cells

Further information:
www.semikron.com/skiiprack

SKAI®2

- Suitable for battery voltages 24V up to 800V
- Sintered power semiconductors
- EMI compliant
- “off-the-shelf” variants with gate driver interface, vector control software, automotive power connections

Utility Vehicles

Urban Transport Equipment

Most compact power electronic system „off-the-shelf“ for electro-mobility

Benefits

The SKAI power electronic platform – now in its 2nd generation – comprises highly integrated motor controller which provide the ideal powertrain solution for mobile electric and hybrid applications. Power densities of up to 20 kVA / liter provide a notable size reduction compared with other available standard motor controller products. The systems are designed to operate with supply voltages of 24V up to 800V and with output power ratings of up to 250 kVA.

The IGBT-based SKAI 2 HV motor controller operates on sintered 100% solder-free 600V or 1200V power semiconductors and it features polypropylene film DC-link capacitors. The MOS-based SKAI 2 LV motor controller uses the established SkiiP technology with a very low-inductive connection to the DC-link capacitors, driver electronics, latest generation DSP controller, current, voltage and temperature sensors. It is integrated in a waterproof IP67 enclosure. The compact motor controller withstand high vibration amplitudes up to 10g rms. QUASAR motor control software functionally complements the system and completes this tried-and-tested package. SEMIKRON provides engineering services to support customers in the integration of the SKAI 2 motor controller systems. Available services include, for instance, lifetime estimation, field application support, individual parameterization of motor control software etc.

Applications

The SKAI 2 ”Off-the-Shelf“ power electronic building block family has been introduced to cover a broad range of vehicle electrification applications. Examples are electric drivetrains with standardized motor/generator flanges to fit or retrofit the drives easily into existing vehicle designs. These types of drivetrains have been developed for many vehicle types , i.e. buses, light trucks, agriculture and construction machinery as well as marine applications or cars.

Product range

There are versatile SKAI 2 HV ”Off-the-Shelf“ variants available. The SKAI 2 LV is available as single or dual motor controller for supply voltages between 24V and 115V. Cooling methods are liquid, forced air cooling or base plate. There are different optional services available like end-of-line flashing of customer specific software, lifetime estimation based on application profile analysis, field application support, individual parameterization of motor control software and further services on request.

Key features

- Compact integration in IP 67 enclosure
- Voltage, current and temperature sensors
- Gate driver with protection
- IGBT/ MOSFET power semiconductors
- Fully programmable digital signal processor
- EMI filters
- Versatile cooling system (liquid cooled, forced air cooled, base plate)
- DC link capacitors
- Motor control software

Further information:
www.semikron.com/skai

Discrete Diodes / Discrete Thyristors / Rectifier Bridges

- Discrete diodes and thyristors for low to high power applications
- Rectifier bridges for low to medium power applications
- Available in voltage classes from 200V to 5000V
- Current ratings from 1A to 6000A
- Wide range of case designs

Motor Drives | Solar Energy | AC | DC Power Supplies

Discrete devices – robust and easy to use

Discrete benefits
Discrete components are used in a wide variety of applications. Particular benefits are achieved whenever high current, uncommon topologies, natural cooling or resistance to harsh conditions are required.
The SEMIKRON portfolio includes axial leaded diodes up to 6A, diodes and thyristors in screw fit (stud) and capsule housings which range from 6000A and 5000V for diodes, to 1200A and 1800V for thyristors.

- Easy assembly
- Hermetic sealing
- Rugged construction

Rectifier bridge benefits
When performance, space and fast production are paramount, SEMIKRON rectifier bridges are the solution in many applications. Single or 3-phase topologies using diodes, thyristors and IGBTs in isolated compact cases can be realised. Whether your preference is connection by solder, solderless through spring or press-fit contacts, mechanically with screws, fast-on or busbars, SEMIKRON has a product.

- Flexible designs achievable
- Customised terminations possible

Discrete applications
Key uses include welding machines, battery chargers, electroplating, soft starters, DC motor control, AC controllers (e.g. for temperature control), alternators and several others. With sealed cases, discrete devices are convenient for both natural convection and forced cooling allowing wider application fields. With over 50 years of field experience and millions of units produced every year, the SEMIKRON portfolio enables competitive, flexible and highly reliable options.

Avalanche diodes
- No over-voltage suppressors are needed
- Insensitive to short term reverse overloads
- High blocking voltages possible without static or dynamic voltage sharing circuits

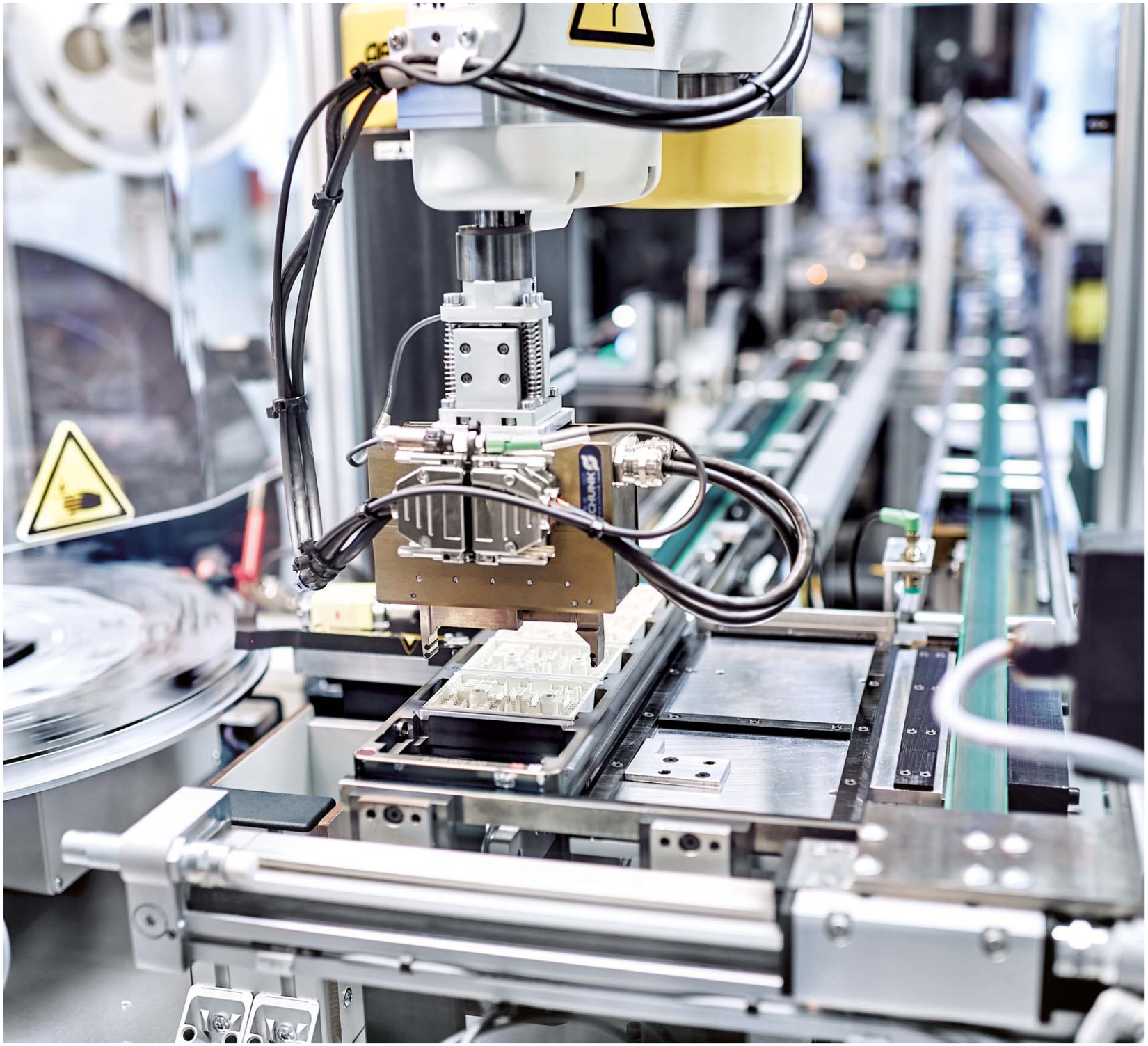
Rectifier bridge applications
Key applications include battery chargers, motor drive input rectifiers, power supplies, DC motor control, rectifiers with PFC, AC controllers, static switches (SKWT types) for natural convection or forced cooling.

Key features

- Recommended for forced air and water cooling
- Compact case with high current capability
- Stud and disc types: forward drop selections available for easy paralleling
- Axial diodes for PCB mounting
- Standard and fast types

Further information:
www.semikron.com/discretes

Product Classes



IGBT Modules for Maximum Performance

SEMIKRON offers IGBT (insulated-gate bipolar transistor) modules in SEMITRANS, SEMiX, SKiM, MiniSKiiP and SEMITOP packages in different topologies, current and voltage ratings. Starting from 4A to 1400A in voltage classes from 600V to 1700V.

The IGBT modules are used in a variety of applications offering key technologies like sintering, spring or pressfit contacts for easy and fast assembly.

Different topologies like CIB (converter inverter brake), halfbridge, H-bridge, 6-pack and 3-level are available in order to cover almost all application fields.

The latest IGBT chip and diode technologies offer optimized switching performance up to Tj max= 175°C.

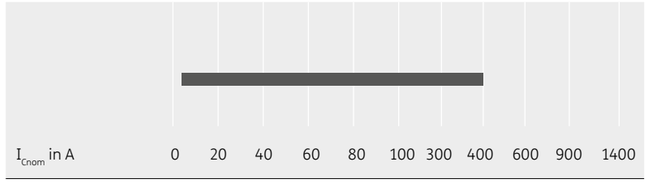
For detailed information please refer to data sheets.

Further information:
www.semikron.com/igbt-modules

MiniSKiiP®

6-pack
3-level
H-bridge
CIB
half bridge
twin 6-pack

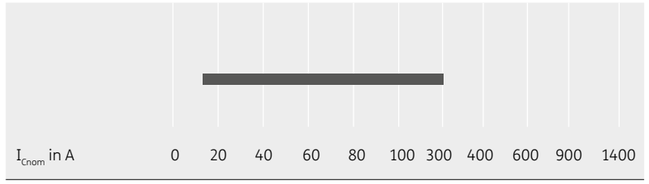
600V up to 1700V



SEMITOP®

half bridge
6-pack
3-level
chopper
H-bridge
CIB

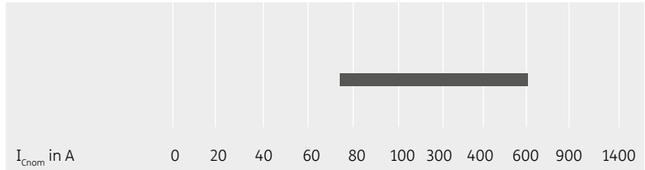
600V up to 1200V



SEMiX®

half bridge
6-pack
3-level
chopper
buck-boost converter

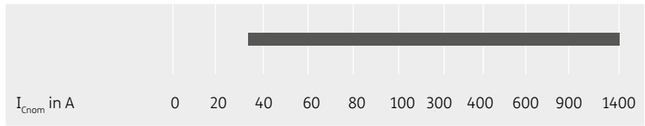
600V up to 1700V



SEMITRANS®

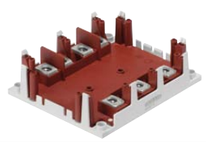
half bridge
6-pack
chopper
single switch

600V up to 1700V

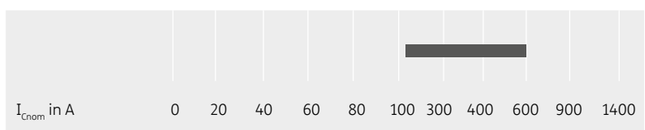


SKiM®4/5

6-pack
3-level

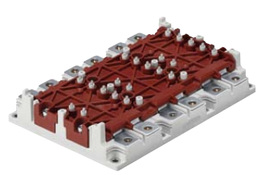


600V up to 1700V

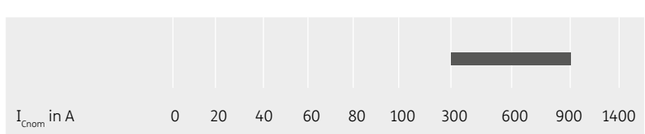


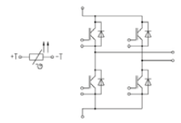
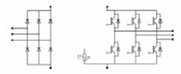
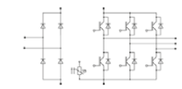
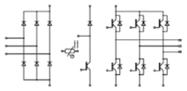
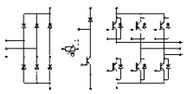
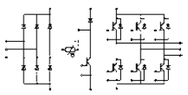
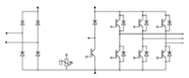
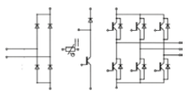
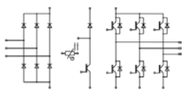
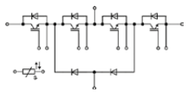
SKiM®63/93

6-pack
chopper



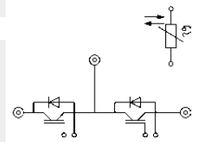
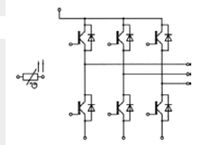
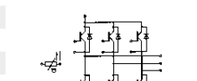
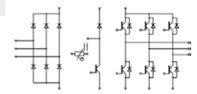
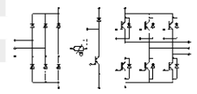
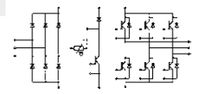
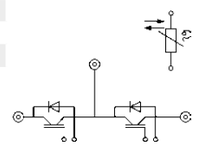
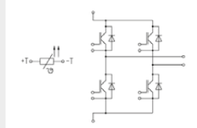
600V up to 1700V



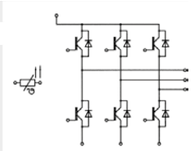
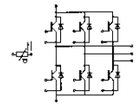
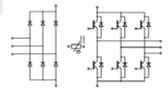
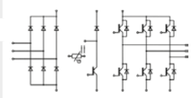
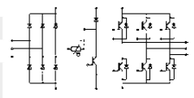
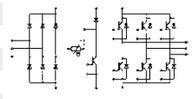
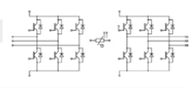
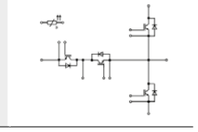
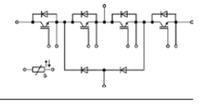
Type	IGBT						Diode				Rectifier		Module	
	I_C @ T_S= 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F@ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	I_{FSM} @ T_j = 25°C	$R_{th(j-s)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W	A	K/W		
600V - IGBT3 (Trench)														
SKiiP 16GH066V1	65	50	1.45	1.7	1.7	0.95	56	1.50	1.3	1.6	-	-	II 1	
SKiiP 27GH066V1	88	75	1.45	2.7	3	0.75	77	1.50	1.8	1.2	-	-	II 2	
SKiiP 28GH066V1	112	100	1.45	3.4	3.5	0.6	112	1.30	3.3	0.8	-	-	II 2	
SKiiP 01NAC066V3	12	6	1.45	0.3	0.2	2.4	12	1.30	0.2	3	220	1.5	II 0	
SKiiP 02NAC066V3	20	10	1.45	0.5	0.3	2	20	1.30	0.5	2.5	220	1.5	II 0	
SKiiP 01NEC066V3	12	6	1.45	0.3	0.2	2.4	12	1.30	0.2	3	220	1.5	II 0	
SKiiP 02NEC066V3	20	10	1.45	0.5	0.3	2	20	1.30	0.5	2.5	220	1.5	II 0	
SKiiP 03NEC066V3	27	15	1.45	0.6	0.5	1.8	28	1.40	0.5	2.5	220	1.5	II 0	
SKiiP 11NAB066V1	12	6	1.45	0.3	0.2	2.4	12	1.30	0.2	3	220	1.5	II 1	
SKiiP 12NAB066V1	20	10	1.45	0.5	0.3	2	20	1.30	0.5	2.5	220	1.5	II 1	
SKiiP 13NAB066V1	27	15	1.45	0.6	0.5	1.8	28	1.40	0.5	2.5	220	1.5	II 1	
SKiiP 14NAB066V1	33	20	1.45	0.75	0.7	1.6	31	1.60	0.55	2.5	220	1.5	II 1	
SKiiP 25NAB066V1	43	30	1.45	0.9	1.2	1.35	39	1.50	1.1	2.1	370	1.5	II 2	
SKiiP 26NAB066V1	65	50	1.45	1.6	1.6	0.95	56	1.50	1.3	1.6	370	1.5	II 2	
SKiiP 37NAB066V1	88	75	1.45	2.7	3	0.75	77	1.50	1.8	1.2	700	0.9	II 3	
SKiiP 38NAB066V1	112	100	1.45	3.4	3.5	0.6	112	1.30	3.3	0.8	700	0.9	II 3	
SKiiP 02NEB066V3	20	10	1.45	0.5	0.3	2	20	1.30	0.5	2.46	220	1.5	II 0	
SKiiP 03NEB066V3	27	15	1.45	0.6	0.5	1.8	28	1.40	0.5	2.5	220	1.5	II 0	
SKiiP 25NEB066V1	43	30	1.45	0.9	1.2	1.35	39	1.50	1.1	2.1	370	1.5	II 2	
600V - NPT IGBT (Standard)														
SKiiP 11NAB065V1 [3]	12	6	2.00	0.3	0.2	1.9	12	1.30	0.2	2.5	220	1.5	II 1	
SKiiP 12NAB065V1 [3]	20	10	2.00	0.3	0.3	1.5	20	1.40	0.2	2.5	220	1.5	II 1	
SKiiP 13NAB065V1 [3]	24	15	2.00	0.6	0.3	1.4	26	1.40	0.4	2.2	220	1.5	II 1	
SKiiP 14NAB065V1 [3]	29	20	2.00	0.7	0.4	1.25	26	1.60	0.4	2.2	370	1.25	II 1	
650V - IGBT3 (Trench)														
SKiiP 26MLI07E3V1 [2]	98	75	1.45	2.8	2.8	0.6	75	1.54	1.4	1	-	-	II 2	
SKiiP 27MLI07E3V1 [2]	110	100	1.45	4.2	4.2	0.6	107	1.40	3.5	0.8	-	-	II 2	
SKiiP 28MLI07E3V1 [2]	135	150	1.45	5.5	5.6	0.55	126	1.40	5.5	0.75	-	-	II 2	
SKiiP 39MLI07E3V1 [2]	159	200	1.45	3.6	8.9	0.5	163	1.39	8.3	0.6	-	-	II 3	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs

IGBT Modules / MiniSKiiP

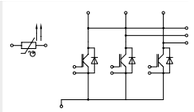
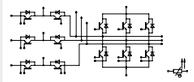
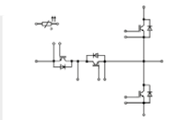
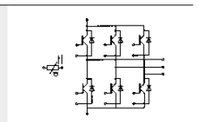
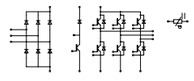
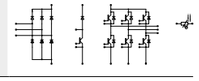
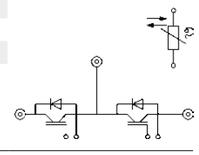
Type	IGBT						Diode				Rectifier		Module	
	I_C @ T_S= 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F@ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	I_{FSM} @ T_j = 25°C	$R_{th(j-s)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W	A	K/W		
650V - IGBT3 (Trench)														
SKiiP 24GB07E3V1 [2]	185	150	1.45	2.2	5.1	0.33	161	1.54	3.7	0.45	-	-	II 2	
SKiiP 26GB07E3V1 [2]	229	200	1.45	4.4	7.4	0.28	235	1.40	4.5	0.35	-	-	II 2	
SKiiP 38GB07E3V1 [2]	287	300	1.45	5.5	10.6	0.25	310	1.40	5.1	0.28	-	-	II 3	
1200V - IGBT3 (Trench)														
SKiiP 11AC126V1 [3]	16	8	1.70	0.9	1	1.5	14	1.90	0.9	2.5	-	-	II 1	
SKiiP 12AC126V1 [3]	28	15	1.70	1.7	1.9	1.15	26	1.60	1.2	1.95	-	-	II 1	
SKiiP 13AC126V1 [3]	41	25	1.70	4.1	3.1	0.9	30	1.80	2.2	1.7	-	-	II 1	
SKiiP 23AC126V1 [3]	41	25	1.70	3.7	3.1	0.9	30	1.80	2.6	1.7	-	-	II 2	
SKiiP 24AC126V1 [3]	52	35	1.70	4.2	4.4	0.75	38	1.80	3.5	1.5	-	-	II 2	
SKiiP 25AC126V1 [3]	73	50	1.70	5.8	6.5	0.55	62	1.60	5.1	1	-	-	II 2	
SKiiP 26AC126V1 [3]	88	70	1.70	9	7.7	0.5	91	1.50	7.5	0.7	-	-	II 2	
SKiiP 37AC126V2 [3]	97	75	1.70	9.6	8.7	0.45	90	1.60	9.6	0.7	-	-	II 3	
SKiiP 38AC126V2 [3]	118	105	1.70	13.1	13	0.4	118	1.60	11.2	0.55	-	-	II 3	
SKiiP 39AC126V2 [3]	157	140	1.70	19.9	17.2	0.3	167	1.50	16.2	0.4	-	-	II 3	
SKiiP 11NAB126V1 [3]	16	8	1.70	0.8	1	1.5	14	1.90	0.9	2.5	220	1.5	II 1	
SKiiP 12NAB126V1 [3]	28	15	1.70	2	1.9	1.15	26	1.60	1.3	1.95	220	1.5	II 1	
SKiiP 23NAB126V1 [3]	41	25	1.70	3.5	3	0.9	30	1.80	2.5	1.7	370	1.25	II 2	
SKiiP 23NAB126V10 [3]	41	25	1.70	3.5	3	0.9	30	1.80	2.5	1.7	635	0.9	II 2	
SKiiP 24NAB126V1 [3]	52	35	1.70	4.6	4	0.75	38	1.80	3.3	1.5	370	1.25	II 2	
SKiiP 24NAB126V10 [3]	52	35	1.70	4.6	4	0.75	38	1.80	3.3	1.5	635	0.9	II 2	
SKiiP 35NAB126V1 [3]	73	50	1.70	6.5	6.1	0.55	62	1.60	4.7	1	700	0.9	II 3	
SKiiP 36NAB126V1 [3]	88	70	1.70	9	7.7	0.5	91	1.50	7.5	0.7	700	0.9	II 3	
1200V - IGBT4 (Trench)														
SKiiP24GB12T4V1 [2]	170	150	1.85	10.8	15.6	0.32	157	2.17	10.3	0.41	-	-	II 2	
SKiiP26GB12T4V1 [2]	224	200	1.80	13.6	22.1	0.25	194	2.20	13.4	0.34	-	-	II 2	
SKiiP38GB12E4V1 [2]	329	300	1.85	19.1	34.6	0.17	267	2.20	21.5	0.26	-	-	II 3	
SKiiP39GB12E4V1 [1]	388	400	1.80	24	48.5	0.16	330	2.20	28.9	0.22	-	-	II 3	
SKiiP 26GH12T4V11	90	70	1.85	9.5	7.1	0.55	83	2.17	5.6	0.75	-	-	II 2	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs

Type	IGBT						Diode				Rectifier		Module	
	I_C @ T_S= 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F@ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	I_{FSM} @ T_j = 25°C	$R_{th(j-s)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W	A	K/W		
1200V - IGBT4 (Trench)														
SKiiP 11AC12T4V1	12	8	1.85	0.87	0.75	1.84	15	2.33	0.53	2.53	-	-	II 1	
SKiiP 12AC12T4V1	18	15	1.85	1.65	1.5	1.3	23	2.38	0.79	1.92	-	-	II 1	
SKiiP 13AC12T4V1	41	25	1.85	3.7	2.4	1	32	2.41	1.64	1.52	-	-	II 1	
SKiiP 23AC12T4V1	41	25	1.85	3.7	2.4	1	32	2.41	1.64	1.52	-	-	II 2	
SKiiP 24AC12T4V1	52	35	1.85	3.7	3	0.85	44	2.30	2.3	1.2	-	-	II 2	
SKiiP 25AC12T4V1	69	50	1.85	6	4.5	0.71	60	2.22	3.2	0.95	-	-	II 2	
SKiiP 26AC12T4V1	90	70	1.85	9.5	7.1	0.55	83	2.17	5.6	0.75	-	-	II 2	
SKiiP 37AC12T4V1	90	75	1.85	11.5	6.8	0.58	83	2.17	5.5	0.75	-	-	II 3	
SKiiP 38AC12T4V1	115	100	1.80	13.7	9.7	0.48	100	2.20	6.5	0.66	-	-	II 3	
SKiiP 39AC12T4V1	167	150	1.85	22.5	14	0.33	136	2.14	11.4	0.52	-	-	II 3	
SKiiP 02NAC12T4V1	6	4	1.85	0.66	0.37	2.49	7.5	1.82	0.34	2.53	220	1.5	II 0	
SKiiP 03NAC12T4V1	7.5	8	1.85	0.9	0.7	1.84	9	2.33	0.5	2.53	220	1.5	II 0	
SKiiP 10NAB12T4V1	6	4	1.85	0.66	0.37	2.49	7.5	1.82	0.34	2.53	220	1.5	II 1	
SKiiP 11NAB12T4V1	12	8	1.85	0.87	0.74	1.84	15	2.33	0.57	2.53	220	1.5	II 1	
SKiiP 12NAB12T4V1	28	15	1.85	1.4	1.3	1.3	23	2.40	1.1	1.92	220	1.5	II 1	
SKiiP 23NAB12T4V1	37	25	1.85	2.65	2.3	1.2	32	2.40	1.6	1.52	370	1.25	II 2	
SKiiP 23NAB12T4V10	37	25	1.85	2.65	2.3	1.2	30	2.41	1.6	1.52	700	0.9	II 2	
SKiiP 24NAB12T4V1	48	35	1.85	4.3	3.25	1	44	2.30	2.4	1.2	370	1.25	II 2	
SKiiP 24NAB12T4V10	48	35	1.85	4.3	3.25	1	44	2.30	2.4	1.2	700	0.9	II 2	
SKiiP 34NAB12T4V1	52	35	1.85	4.3	3.3	0.85	44	2.30	2.4	1.2	370	1.25	II 3	
SKiiP 34NAB12T4V10 [1]	52	35	1.85	4.3	3.3	0.85	44	2.30	2.4	1.2	700	0.9	II 3	
SKiiP 35NAB12T4V1	69	50	1.85	6	4.7	0.71	60	2.25	3.4	0.95	700	0.9	II 3	
SKiiP 37NAB12T4V1	90	75	1.85	9.7	6.8	0.58	83	2.17	4.9	0.75	700	0.9	II 3	
SKiiP 37NAB12T4V10	90	75	1.85	9.7	6.8	0.58	83	2.17	4.9	0.75	850	0.85	II 3	
SKiiP 38NAB12T4V1	115	100	1.80	11.2	10	0.48	99	2.20	6.5	0.66	1000	0.7	II 3	
SKiiP 12ACC12T4V10 [2]	28	15	1.85	2.1	1.6	1.3	23	2.38	0.8	1.92	60	2.5	II 1	
SKiiP 23ACC12T4V10 [2]	41	25	1.85	3.5	2.7	1	32	2.41	1.15	1.52	65	1.92	II 2	
SKiiP 24ACC12T4V10 [2]	52	35	1.85	3.9	3.5	0.85	44	2.30	2.3	1.2	100	1.52	II 2	
SKiiP 39TMLI12T4V2 [2]	235	200	1.80	7.5	12.8	0.23	194	2.20	9.7	0.34	-	-	II 3	
SKiiP 39MLI12T4V1 [1]	167	150	1.85	11.1	16.9	0.33	134	2.14	10.9	0.53	-	-	II 3	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs

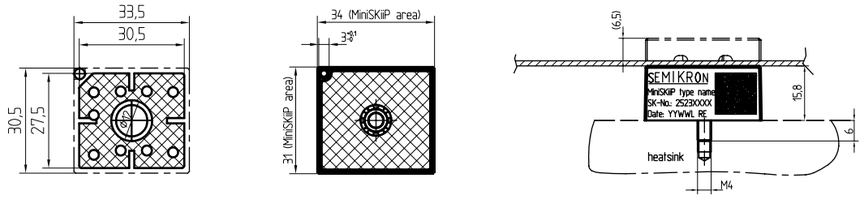
IGBT Modules / MiniSKiiP

Type	IGBT						Diode				Rectifier		Module	
	I_C @ T_S= 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F@ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	I_{FSM} @ T_j = 25°C	$R_{th(j-s)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W	A	K/W		
1200V - IGBT4 (Trench)														
SKiiP 39GA12T4V1 [2]	167	150	1.85	22.5	14	0.33	136	2.14	11.4	0.52	-	-	II 3	
1200V - IGBT4 (Fast Trench)														
SKiiP 35TMLI12F4V2 [1]	54	40	2.05	-	-	0.75	44	2.30	-	1.2	-	-	II 3	
SKiiP 28TMLI12F4V1 [2]	93	80	2.05	3.4	2.2	0.49	76	2.17	1.7	0.86	-	-	II 2	
SKiiP 29TMLI12F4V1 [1]	153	150	2.05	-	-	0.33	148	2.17	-	0.45	-	-	II 2	
1700V - IGBT3 (Trench)														
SKiiP 38AC176V2 [2]	-	100	2.00	23.8	32.2	-	-	1.76	26.2	-	-	-	II 3	
SKiiP 24NAB176V1 [2]	38	29	2.00	5.1	6.3	0.91	48	2.00	4.9	1.14	370	1.32	II 2	
SKiiP 34NAB176V3 [2]	67	58	2.00	11.2	12.8	0.57	66	2.06	6.6	0.84	635	0.86	II 3	
1700V - IGBT4 (Trench)														
SKiiP 22GB17E4V1 [2]	117	100	1.90	22.2	30.7	0.43	91	2.00	20.9	0.7	-	-	II 2	
SKiiP 24GB17E4V1 [2]	177	150	1.90	26	46	0.28	149	2.00	32.4	0.41	-	-	II 2	
SKiiP 36GB17E4V1 [2]	224	200	1.90	37	66	0.23	193	2.00	47	0.32	-	-	II 3	
SKiiP 38GB17E4V1 [2]	341	300	1.90	47	102	0.15	267	2.00	69	0.24	-	-	II 3	

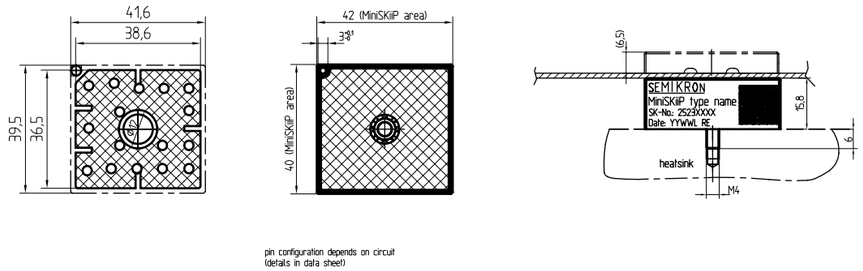
Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs

Cases

MiniSKiiP II 0

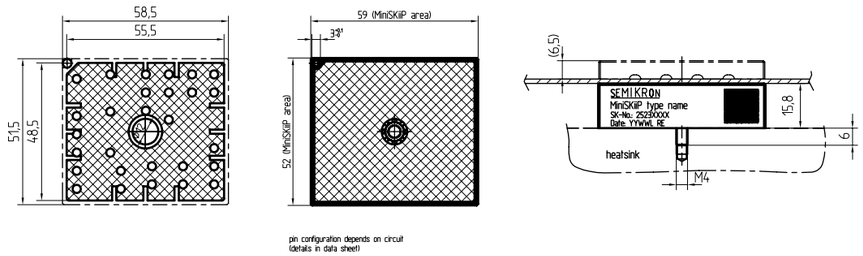


MiniSKiiP II 1



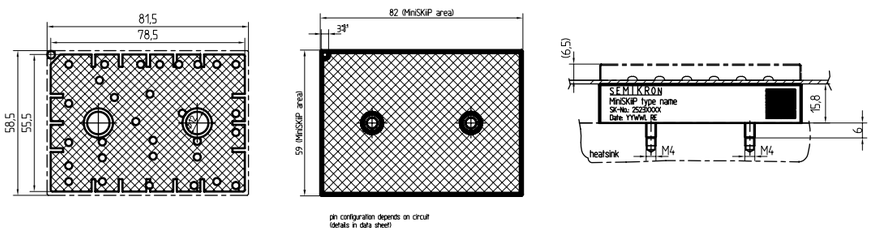
pin configuration depends on circuit (details in data sheet)

MiniSKiiP II 2



pin configuration depends on circuit (details in data sheet)

MiniSKiiP II 3

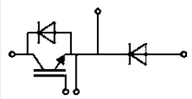
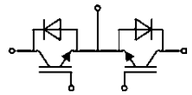
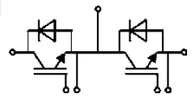
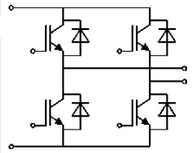
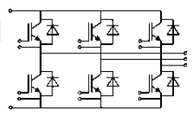
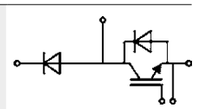
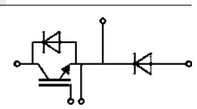
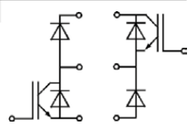
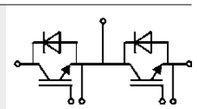
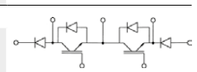


pin configuration depends on circuit (details in data sheet)

Dimensions in mm

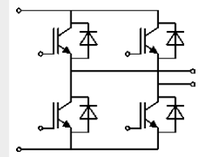
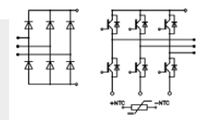
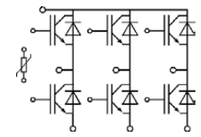
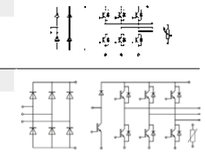
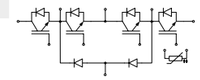
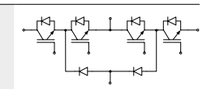
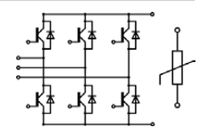
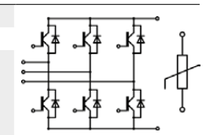
Type	IGBT						Diode				Rectifier		Module	
	I_C @ T_S= 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F@ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	$R_{th(j-s)}$	I_{FSM} @ T_j = 25°C	Case	Topology Picture
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W	K/W	A		
600V - IGBT3 (Trench)														
SK 75 GB 066 T [2]	77	75	1.45	3.1	2.8	0.94	62	1.35	0.85	1.55	-	-	3	
SK 100 GB 066 T [2]	96	100	1.45	7	6	0.78	108	1.35	1.7	0.91	-	-	3	
SK 150 GB 066 T [2]	124	150	1.45	6.25	5.7	0.55	135	1.35	1.7	0.73	-	-	3	
SK 30 GBB 066 T [2]	40	30	1.45	0.97	1.77	1.65	36	1.45	0.26	2.1	-	-	3	
SK 50 GBB 066 T [2]	60	50	1.45	2.2	1.73	1.11	56	1.50	0.72	1.7	-	-	3	
SK 75 GBB 066 T [2]	77	75	1.45	3.1	2.8	0.94	77	1.35	0.85	1.55	-	-	3	
SK 20 MLI 066	30	20	1.45	0.4	1.07	1.95	30	1.60	0.2	2.46	-	-	3	
SK 30 MLI 066	40	30	1.45	0.97	1.77	1.65	37	1.50	0.26	2.3	-	-	3	
SK 30 MLI 066p [1]	37	30	1.45	0.97	1.77	1.65	34	1.50	0.26	2.3	-	-	3p	
SK 50 MLI 066	60	50	1.45	1.46	2.02	1.11	56	1.50	1.07	1.7	-	-	3	
SK 75 MLI 066 T	83	75	1.45	1.7	2.8	0.75	92	1.50	1.1	1.2	-	-	4	
SK 100 MLI 066 T	105	100	1.45	2.5	4.2	0.65	110	1.35	1.9	0.9	-	-	4	
SK 150 MLI 066 T	151	150	1.45	2.7	5.9	0.55	115	1.50	2.6	0.72	-	-	4	
SK 75 GD 066 T	83	75	1.45	3.1	2.8	0.75	92	1.35	0.85	1.2	-	-	4	
SK 100 GD 066 T	105	100	1.45	7	6	0.65	99	1.30	1.7	0.8	-	-	4	
SK 150 GD 066 T	151	150	1.45	6.25	5.7	0.55	198	1.30	1.7	0.54	-	-	4	
SK 200 GD 066 T	174	200	1.45	13.9	12	0.45	99	1.30	3.4	0.8	-	-	4	
SK 20 GD 066 ET [2]	30	20	1.45	0.34	0.63	1.95	31	1.45	0.2	2.46	-	-	3	
SK 30 GD 066 ET [2]	40	30	1.45	0.97	1.77	1.65	36	1.45	0.26	2.1	-	-	3	
SK 50 GD 066 ET [2]	60	50	1.45	2.2	1.73	1.11	56	1.50	0.72	1.7	-	-	3	
SK 20 DGDL 066 ET [2]	30	20	1.45	0.3	0.6	1.95	27	1.40	0.2	2.46	2.15	220	3	
SK 30 DGDL 066 ET	40	30	1.45	0.55	1.15	1.65	36	1.50	0.53	2.3	1.7	370	3	
SK 50 DGDL 066 T	69	50	1.45	2.2	1.74	0.95	54	1.35	0.73	1.6	1.5	370	4	
SK 75 DGDL 066 T	81	75	1.45	3.1	2.8	0.75	64	1.35	0.9	1.2	0.9	700	4	
SK 100 DGDL 066 T	106	100	1.45	4.4	3.5	0.65	99	1.10	1.45	0.8	0.9	700	4	
600V - NPT IGBT (Standard)														
SK 45 GAL 063	45	50	2.10	1.4	1.2	1	57	1.45	0.25	1.2	-	-	2	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs

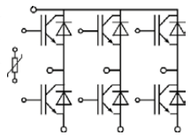
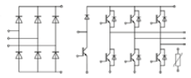
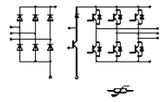
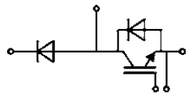
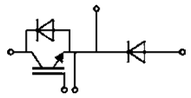
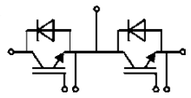
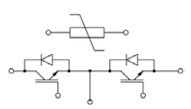
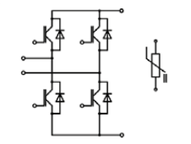
Type	IGBT						Diode				Rectifier		Module	
	I_C @ T_S = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F @ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	$R_{th(j-s)}$	I_{FSM} @ T_j = 25°C	Case	Topology Picture
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W	K/W	A		
600V - NPT IGBT (Standard)														
SK 45 GAR 063	45	50	2.10	1.4	1.2	1	57	1.45	0.25	1.2	-	-	2	
SK 80 GM 063	81	100	2.00	3	2.3	0.6	105	1.30	0.2	1.2	-	-	2	
SK 45 GB 063	45	50	2.10	1.4	1.2	1	57	1.45	0.25	1.2	-	-	2	
SK 80 GB 063	81	100	2.10	4	3	0.6	79	1.40	1.2	0.9	-	-	3	
SK 15 GH 063	20	15	2.00	0.71	0.4	1.9	20	1.45	0.45	1.2	-	-	2	
SK 25 GH 063	30	30	2.10	1.1	0.8	1.4	36	1.45	0.25	1.7	-	-	2	
SK 45 GH 063	45	50	2.10	1.4	1.2	1	57	1.30	0.9	1.2	-	-	3	
SK 13 GD 063	18	10	2.10	0.6	0.4	2	22	1.45	0.1	2.3	-	-	3	
SK 25 GD 063	30	30	2.10	1.3	0.9	1.4	36	1.45	0.25	1.7	-	-	3	
SK 45 GD 063	45	50	2.10	1.4	1.2	1	36	1.45	0.25	1.7	-	-	3	
600V - NPT IGBT (Ultrafast)														
SK 50 GAL 065 [3]	54	60	2.00	1.1	0.7	0.85	57	1.30	0.2	1.2	-	-	2	
SK 50 GAR 065 [3]	54	60	2.00	1.1	0.7	0.85	57	1.30	0.2	1.2	-	-	2	
SK 55 GARL 065 E	54	60	1.70	1.1	0.76	0.85	36	1.45	0.9	1.7	-	-	3	
SK 75 GARL 065 E	80	90	1.70	2.71	2.75	0.6	57	1.30	0.2	1.2	-	-	3	
SK 50 GB 065	54	60	2.00	1.1	0.7	0.85	64	1.45	0.55	1.1	-	-	2	
SK 50 GARL 065 F [2]	54	60	1.70	1.03	0.8	0.85	82	1.70	-	2.3	-	-	2	
SK 50 GARL 065 USA [3]	54	60	1.70	1.07	0.76	0.85	64	1.40	-	2.3	-	-	2	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs

IGBT Modules / SEMITOP

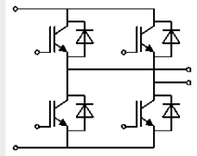
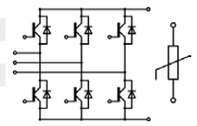
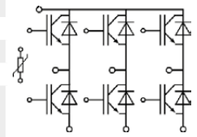
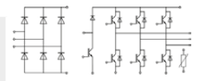
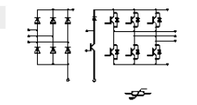
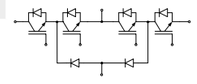
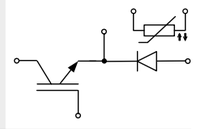
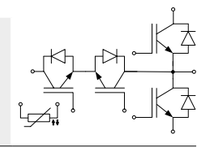
Type	IGBT						Diode				Rectifier		Module	
	I_C @ T_S = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F @ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	$R_{th(j-s)}$	I_{FSM} @ T_j = 25°C	Case	Topology Picture
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W	K/W	A		
600V - NPT IGBT (Ultrafast)														
SK 50 GH 065 F [2]	54	60	2.00	1.07	1.76	0.85	82	1.10	0.42	1.1	-	-	3	
SK 9 DGD 065 ET	12	6	2.00	0.22	0.12	2.6	20	1.35	0.31	2.7	2.15	220	3	
SK 20 DGD 065 ET	26	20	2.00	0.66	0.4	1.7	25	1.60	-	1.7	1.7	370	3	
SK 35 GD 065 ET	45	50	2.00	1.3	0.6	1	36	1.90	0.9	1.7	-	-	3	
SK 10 BGD 065 ET	17	6	2.00	0.18	0.13	2	22	1.30	0.18	2.3	2.7	220	3	
SK 9 BGD 065 ET	12	6	2.00	0.22	0.12	2.6	20	1.35	0.31	2.7	2.15	220	3	
SK 10 DGDL 065 ET	17	6	2.00	0.18	0.13	2	22	1.30	0.18	2.3	2.7	220	3	
SK 20 DGDL 065 ET	24	20	2.00	0.69	0.39	1.7	25	1.60	-	1.7	2	220	3	
650V - IGBT4 (Fast Trench)														
SK100MLI07F3TD1p [1]	92	100	1.85	2	3.36	0.65	118	1.37	1.9	0.72	-	-	4p	
SK150MLI07F3TD1p [1]	119	150	1.85	3	5.04	0.55	118	1.37	1.9	0.72	-	-	4p	
SK50MLI07F3D1p [1]	51	50	1.85	1	1.18	1.11	56	1.37	0.95	1.55	-	-	3p	
SK100GD07F3TD1 [2]	104	100	1.85	3.92	2.1	0.54	95	1.35	0.92	0.85	-	-	4	
1200V - IGBT3 (Trench)														
SK 50 GD 126 T	68	50	1.70	4.6	6.3	0.6	62	1.35	3.6	1	-	-	4	
SK 75 GD 126 T	88	75	1.70	11.3	10	0.5	91	1.46	6	0.7	-	-	4	
SK 100 GD 126 T	114	100	1.70	9.8	11.7	0.4	118	1.50	7.3	0.55	-	-	4	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs

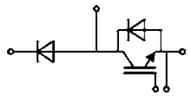
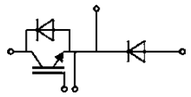
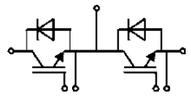
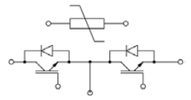
Type	IGBT						Diode				Rectifier		Module	
	I_C @ T_S= 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F@ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	$R_{th(j-s)}$	I_{FSM} @ T_j = 25°C	Case	Topology Picture
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W	K/W	A		
1200V - IGBT3 (Trench)														
SK 10 GD 126 ET	15	8	1.70	1	1	2	25	1.90	1.4	2.1	-	-	3	
SK 15 GD 126 ET	22	15	1.70	2	1.8	1.6	25	1.60	1.4	2.1	-	-	3	
SK 25 GD 126 ET	32	25	1.70	3.3	3.1	1.2	28	1.80	2.1	1.9	-	-	3	
SK 35 GD 126 ET	40	35	1.70	4.6	4.3	1.05	34	1.80	2.9	1.7	-	-	3	
SK 10 DGDL 126 ET	15	8	1.70	1	1	2	25	1.90	1.4	2.1	2.7	220	3	
SK 15 DGDL 126 ET	22	15	1.70	2	1.8	1.6	25	1.60	1.1	2.1	2	220	3	
SK 25 DGDL 126 T	41	25	1.70	2.8	3.1	0.9	30	1.50	2	1.7	1.5	370	4	
SK 35 DGDL 126 T	52	35	1.70	3.7	4.8	0.75	38	1.50	3	1.5	1.25	370	4	
SK 50 DGDL 126 T	68	50	1.70	4.6	6.3	0.6	62	1.35	3.6	1	0.9	700	4	
1200V - IGBT4 (Trench)														
SK 35 GAL 12T4	44	35	1.85	3.27	3.3	1.21	38	2.30	1.46	1.55	-	225	2	
SK 35 GAR 12T4 [1]	44	35	1.85	3.27	3.3	1.21	38	2.30	1.46	1.55	-	225	2	
SK 25 GB 12T4 [2]	37	25	1.85	2.27	2.7	1.31	30	2.40	1.28	1.91	-	-	2	
SK 35 GB 12T4 [2]	44	35	1.85	3.27	3.3	1.21	40	2.30	1.46	1.55	-	-	2	
SK 50 GB 12T4 T [2]	71	50	1.85	8.3	5	0.9	50	2.20	2.15	1.24	-	-	3	
SK 75 GB 12T4 T [2]	80	75	1.85	13.6	8.2	0.74	70	2.10	3.39	0.97	-	-	3	
SK 100 GB 12T4 T [2]	100	100	1.85	16.6	10	0.6	85	2.25	5.2	0.87	-	-	3	
SK 50 GH 12T4 T [2]	75	50	1.80	8.3	5	0.65	56	2.20	2.15	1.05	-	-	4	
SK 100 GH 12T4 T [2]	126	100	1.80	16.6	10	0.43	102	2.20	5.2	0.62	-	-	4	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs

IGBT Modules / SEMITOP

Type	IGBT						Diode				Rectifier		Module	
	I_C @ T_S= 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F@ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	$R_{th(j-s)}$	I_{FSM} @ T_j = 25°C	Case	Topology Picture
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W	K/W	A		
1200V - IGBT4 (Trench)														
SK 25 GH 12T4 [2]	35	25	1.85	2.27	2.7	1.31	28	2.41	1.28	1.91	-	-	3	
SK 50 GD 12T4 T [2]	75	50	1.85	8.3	5	0.65	60	2.20	2.15	0.97	-	-	4	
SK 50 GD 12T4 Tp [1]	75	50	1.85	8.3	5	0.65	60	2.22	2.15	0.97	-	-	4p	
SK 75 GD 12T4 T [2]	102	75	1.85	13.6	8.2	0.51	83	2.20	3.38	0.75	-	-	4	
SK 75 GD 12T4 Tp [1]	99	75	1.85	13.6	8.2	0.51	83	2.17	3.38	0.75	-	-	4p	
SK 100 GD 12T4 T [2]	126	100	1.85	16.6	10	0.43	102	2.25	5.2	0.62	-	-	4	
SK 10 GD 12T4 ET [2]	17	8	1.85	0.41	0.76	2.2	15	2.38	0.41	2.7	-	-	3	
SK 15 GD 12T4 ET [2]	27	15	1.85	0.83	1.52	1.65	21	2.38	0.82	2.34	-	-	3	
SK 25 GD 12T4 ET [2]	37	25	1.85	2.27	2.7	1.31	30	2.40	1.28	1.91	-	-	3	
SK 25 GD 12T4 ETp [1]	37	25	1.85	2.27	2.7	1.31	28	2.41	1.28	1.91	-	-	3p	
SK 35 GD 12T4 ET [2]	44	35	1.85	3.27	3.3	1.21	40	2.30	1.46	1.55	-	-	3	
SK 10 DGDL 12T4 ET [2]	17	8	1.85	0.41	0.75	2.2	15	2.38	0.41	2.7	2	220	3	
SK 15 DGDL 12T4 ET [2]	27	15	1.85	0.82	1.52	1.65	21	2.38	0.82	2.34	2	220	3	
SK 25 DGDL 12T4 T [2]	45	25	1.85	2.27	2.7	0.96	30	2.40	-	1.7	1.25	370	4	
SK 35 DGDL 12T4 T [2]	58	35	1.85	3.27	3.3	0.8	46	2.30	1.46	1.37	1.25	370	4	
SK 50 DGDL 12T4 T [2]	75	50	1.85	8.3	5	0.65	60	2.22	2.15	0.97	0.9	700	4	
SK35MLI12T4p	43	35	1.85	1.6	3.27	1.21	38	2.30	1.73	1.55	-	-	3p	
SK70MLI12T4Tp	90	70	1.85	1.6	3.27	0.55	78	2.30	1.73	0.73	-	-	4p	
1200V - IGBT4 (Fast Trench)														
SK25GAR12F4TSC [1]	37	25	2.05	2.27	2.7	1.01	30	1.40	1.46	1.38	-	225	2	
SK150TMLI12F4Tp [1]	148	150	2.05	7.2	4.5	0.35	103	2.20	4	0.62	-	-	4p	
SK80TMLI12F4Tp [1]	88	80	2.05	1.64	3.7	0.54	83	2.17	3.56	0.75	-	-	3p	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs

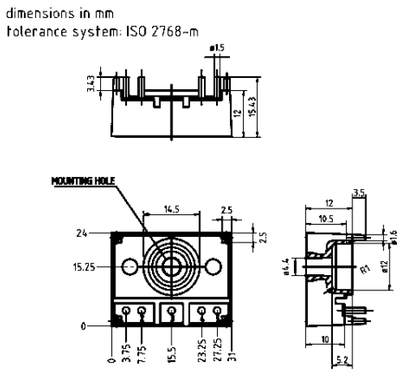
Type	IGBT						Diode				Rectifier		Module	
	I_C @ T_S = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F@ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	$R_{th(j-s)}$	I_{FSM} @ T_j = 25°C	Case	
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W	K/W	A		Topology Picture
1200V - NPT IGBT (Ultrafast)														
SK 60 GAL 125	51	50	3.20	8.36	3.32	0.6	43	2.00	2	1.16	-	-	2	
SK 60 GAR 125 3)	51	50	3.20	8.36	3.32	0.6	43	2.00	2	1.16	-	-	2	
SK 60 GB 125 2)	51	50	3.20	8.36	3.32	0.6	57	-	2	0.9	-	-	3	
SK 80 GB 125 T	85	75	3.20	9.9	5	0.32	90	2.00	1	0.65	-	-	3	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs

Cases

SEMITOP 1

dimensions in mm
tolerance system: ISO 2768-m

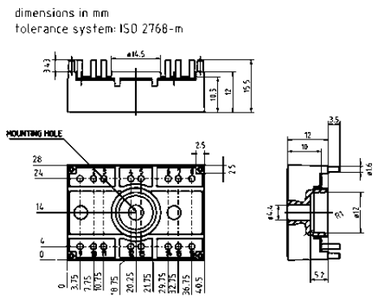


Dimensions in mm

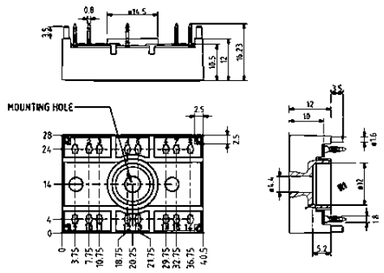
Cases

SEMITOP 2

dimensions in mm
tolerance system: ISO 2768-m

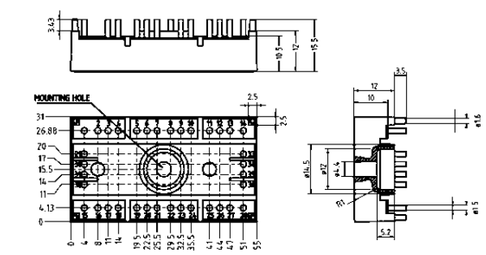


SEMITOP 2 Press-Fit

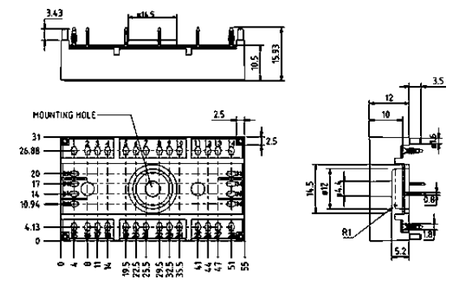


SEMITOP 3

dimensions in mm
tolerance system: ISO 2768-m

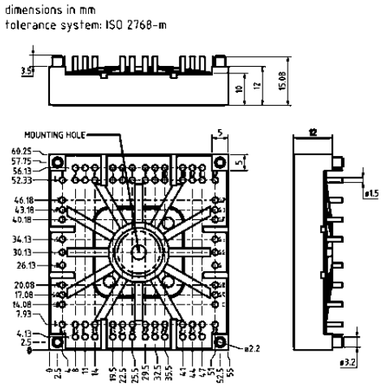


SEMITOP 3 Press-Fit

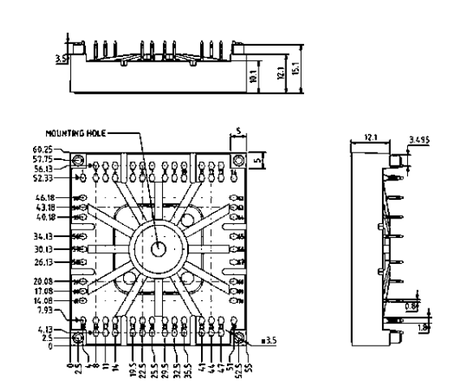


SEMITOP 4

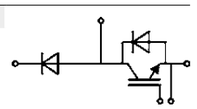
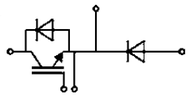
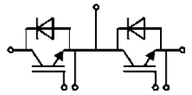
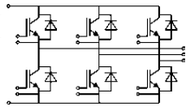
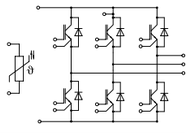
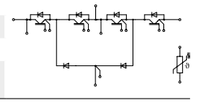
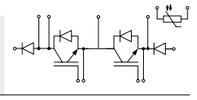
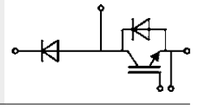
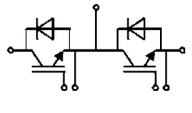
dimensions in mm
tolerance system: ISO 2768-m



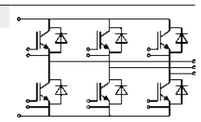
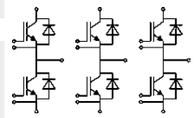
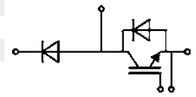
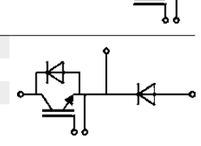
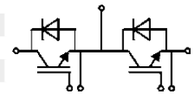
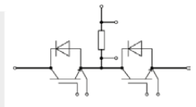
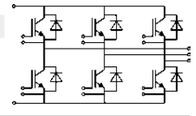
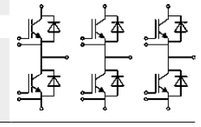
SEMITOP 4 Press-Fit



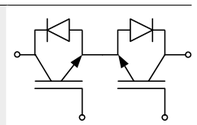
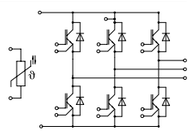
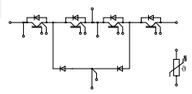
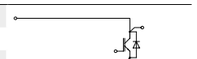
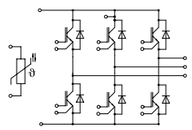
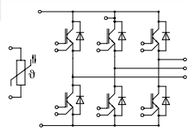
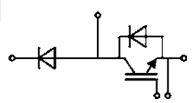
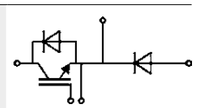
Dimensions in mm

Type	IGBT						Diode				Module		
	I_C @ T_C = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F @ T_C = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-c)}$	Case	$R_{th(c-s)}$	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		K/W	
600V - IGBT3 (Trench)													
SEMiX402GAL066HDs	502	400	1.45	22	24	0.12	543	1.40	10	0.15	2s	0.045	
SEMiX603GAL066HDs	720	600	1.45	12	43	0.087	771	1.40	13	0.11	3s	0.04	
SEMiX402GAR066HDs	502	400	1.45	22	24	0.12	543	1.40	10	0.15	2s	0.045	
SEMiX603GAR066HDs	720	600	1.45	12	43	0.087	771	1.40	13	0.11	3s	0.04	
SEMiX202GB066HDs	272	200	1.45	6	8	0.21	291	1.40	6.5	0.27	2s	0.045	
SEMiX302GB066HDs	379	300	1.45	12	15	0.16	419	1.40	7.5	0.19	2s	0.045	
SEMiX402GB066HDs	502	400	1.45	22	24	0.12	543	1.40	10	0.15	2s	0.045	
SEMiX603GB066HDs	720	600	1.45	12	43	0.087	771	1.40	13	0.11	3s	0.04	
SEMiX101GD066HDs	139	100	1.45	3	4	0.41	151	1.40	4.5	0.51	13	0.04	
SEMiX151GD066HDs	200	150	1.45	3.8	6.1	0.29	219	1.40	5.8	0.36	13	0.04	
SEMiX201GD066HDs	258	200	1.45	5	8	0.23	284	1.40	7.5	0.28	13	0.04	
650V - IGBT4 (Trench)													
SEMiX305GD07E4 [1]	325	300	1.55	5.5	21	0.2	335	1.40	5	0.25	5p	t.b.d	
SEMiX155MLI07E4 [2]	187	150	1.55	1	6	0.32	145	1.40	2.3	0.51	5p	0.009	
SEMiX205MLI07E4 [2]	262	200	1.55	2	10	0.22	255	1.40	4.5	0.31	5p	0.008	
SEMiX305MLI07E4 [2]	388	300	1.55	2.5	16	0.15	294	1.40	7.7	0.25	5p	0.005	
SEMiX405MLI07E4 [2]	498	400	1.55	6.1	20	0.12	366	1.40	5.5	0.22	5p	0.007	
SEMiX405GARL07E3 [1]	457	400	1.45	28	28	0.14	86	1.37	6.3	0.81	5p	0.017	
SEMiX305GARL07E3 [1]	353	300	1.45	21	21	0.18	86	1.37	4.7	0.81	5p	0.018	
1200V - V-IGBT													
SEMiX151GAL12Vs	231	150	1.75	19	17	0.19	189	2.14	12	0.31	1s	0.075	
SEMiX151GB12Vs	231	150	1.75	19	17	0.19	189	2.14	12	0.31	1s	0.075	
SEMiX202GB12Vs	310	200	1.75	25	24	0.14	229	2.20	15	0.26	2s	0.045	
SEMiX223GB12Vs	323	225	1.85	20	27	0.14	263	2.17	16	0.23	3s	0.04	
SEMiX302GB12Vs	448	300	1.75	37	36	0.1	356	2.14	22	0.17	2s	0.045	
SEMiX303GB12Vs	448	300	1.75	27	36	0.1	327	2.20	21	0.19	3s	0.04	
SEMiX404GB12Vs	596	400	1.75	39	52	0.075	440	2.20	34	0.14	4s	0.03	
SEMiX453GB12Vs	673	450	1.75	40	54	0.067	516	2.14	33	0.12	3s	0.04	
SEMiX603GB12Vs	800	600	1.85	50	83	0.057	516	2.42	40	0.12	3s	0.04	
SEMiX604GB12Vs	880	600	1.75	59	79	0.051	707	2.14	50	0.086	4s	0.03	

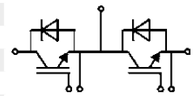
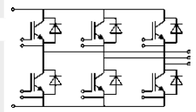
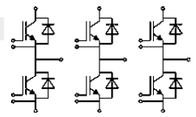
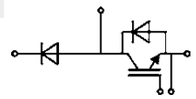
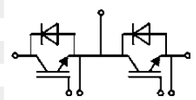
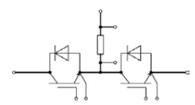
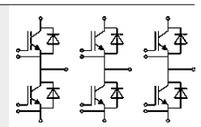
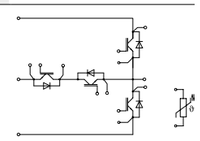
Footnotes: 1) Sample status / 2) In production new

Type	IGBT						Diode				Module		
	I_C @ T_C = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F @ T_C = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-c)}$	Case	$R_{th(c-s)}$	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		K/W	
1200V - V-IGBT													
SEMiX101GD12Vs	159	100	1.75	13	11	0.27	121	2.20	7.7	0.48	13	0.04	
SEMiX151GD12Vs	231	150	1.75	19	17	0.19	189	2.14	12	0.31	13	0.04	
SEMiX223GD12Vc	323	225	1.85	20	27	0.14	263	2.17	16	0.23	33c	0.014	
SEMiX303GD12Vc	448	300	1.75	27	36	0.1	327	2.20	21	0.19	33c	0.014	
SEMiX453GD12Vc	673	450	1.75	40	54	0.067	516	2.14	33	0.12	33c	0.014	
1200V - IGBT4 (Trench)													
SEMiX151GAL12E4s	232	150	1.80	17	18	0.19	189	2.14	8.9	0.31	1s	0.075	
SEMiX302GAL12E4s	463	300	1.80	30	44	0.096	356	2.14	19	0.17	2s	0.045	
SEMiX453GAL12E4s	683	450	1.80	45	67	0.065	544	2.14	28	0.11	3s	0.04	
SEMiX604GAL12E4s	916	600	1.80	35	110	0.049	707	2.14	44	0.086	4s	0.03	
SEMiX151GAR12E4s	232	150	1.80	17	18	0.19	189	2.14	8.9	0.31	1s	0.075	
SEMiX302GAR12E4s	463	300	1.80	30	44	0.096	356	2.14	19	0.17	2s	0.045	
SEMiX453GAR12E4s	683	450	1.80	45	67	0.065	544	2.14	28	0.11	3s	0.04	
SEMiX604GAR12E4s	916	600	1.80	35	110	0.049	707	2.14	44	0.086	4s	0.03	
SEMiX151GB12E4s	232	150	1.80	17	18	0.19	189	2.14	8.9	0.31	1s	0.075	
SEMiX202GB12E4s	312	200	1.80	22	28	0.14	229	2.20	12	0.26	2s	0.045	
SEMiX223GB12E4p [1]	326	225	1.85	15	30	0.14	287	2.17	20	0.2	3p	0.009	
SEMiX302GB12E4s	463	300	1.80	30	44	0.096	356	2.14	19	0.17	2s	0.045	
SEMiX303GB12E4s	466	300	1.80	30	41	0.095	338	2.20	18	0.18	3s	0.04	
SEMiX303GB12E4p [2]	469	300	1.80	23	38	0.094	378	2.20	23	0.15	3p	0.009	
SEMiX404GB12E4s	618	400	1.80	27	60	0.072	440	2.20	26	0.14	4s	0.03	
SEMiX453GB12E4s	683	450	1.80	45	67	0.065	544	2.14	28	0.11	3s	0.04	
SEMiX453GB12E4p [2]	678	450	1.80	25	57	0.066	578	2.14	37	0.1	3p	0.009	
SEMiX604GB12E4s	916	600	1.80	35	110	0.049	707	2.14	44	0.086	4s	0.03	
SEMiX603GB12E4p [2]	1110	600	1.80	69	80	0.037	856	2.08	40	0.065	3p	0.009	
SEMiX453GB12E4Ip [2]	678	450	1.80	33	57	0.066	578	2.14	39	0.1	3Ip	0.009	
SEMiX603GB12E4Ip [2]	1110	600	1.80	63	80	0.037	856	2.08	40	0.065	3Ip	0.009	
SEMiX71GD12E4s	115	75	1.85	7.5	9	0.38	97	2.17	5.3	0.58	13	0.04	
SEMiX101GD12E4s	160	100	1.80	11	13	0.27	121	2.20	6.5	0.48	13	0.04	
SEMiX151GD12E4s	232	150	1.80	14	19	0.19	189	2.14	8.9	0.31	13	0.04	
SEMiX223GD12E4c	333	225	1.85	22	31	0.135	270	2.17	17	0.22	33c	0.014	
SEMiX303GD12E4c	466	300	1.80	29	42	0.095	338	2.20	23	0.18	33c	0.014	
SEMiX453GD12E4c	683	450	1.80	52	68	0.065	544	2.14	28	0.11	33c	0.014	

Footnotes: 1) Sample status / 2) In production new

Type	IGBT						Diode				Module		
	I_C @ T_C= 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F@ T_C = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-c)}$	Case	$R_{th(c-s)}$	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		K/W	
1200V - IGBT4 (Trench)													
SEMiX453GM12E4p [1]	678	450	1.80	25	57	0.066	578	2.14	37	0.1	3Ip	0.009	
SEMiX205GD12E4 [2]	281	200	1.80	14	23	0.18	224	2.20	16	0.27	5p	0.005	
SEMiX155MLI12E4 [1]	237	150	1.85	3.5	20	0.18	199	2.17	5.6	0.28	5p	t.b.d	
SEMiX205MLI12E4 [1]	326	200	1.80	5	28	0.13	241	2.20	8	0.24	5p	t.b.d	
SEMiX205TMLI12E4B [2]	318	200	1.80	3	14	0.136	229	2.20	5.9	0.26	5p	0.008	
SEMiX305TMLI12E4B [2]	479	300	1.80	4.5	21	0.09	363	2.20	8.8	0.16	5p	0.006	
SEMiX405TMLI12E4B [2]	636	400	1.80	6	28	0.068	461	2.20	12	0.13	5p	0.005	
SEMiX155GD17E4 [1]	245	150	1.90	-	-	0.18	175	2.00	-	0.32	5p	t.b.d	
1200V - IGBT4 (Fast Trench)													
SEMiX155GD12T4 [1]	163	150	1.80	13	20	0.35	120	2.14	12	0.63	5p	t.b.d	
SEMiX105GD12T4 [1]	138	100	1.80	13	20	0.35	102	2.20	12	0.63	5p	t.b.d	
1200V - IGBT3 (Trench)													
SEMiX452GAL126HDs	455	300	1.70	35	45	0.083	394	1.60	33	0.15	2s	0.045	
SEMiX703GAL126HDs	642	450	1.70	32	68	0.061	561	1.60	60	0.11	3s	0.04	
SEMiX703GAR126HDs	642	450	1.70	32	68	0.061	561	1.60	60	0.11	3s	0.04	

Footnotes: 1) Sample status / 2) In production new

Type	IGBT						Diode				Module		
	I_C @ T_C= 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F@ T_C = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-c)}$	Case	$R_{th(c-s)}$	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		K/W	
1200V - IGBT3 (Trench)													
SEMiX252GB126HDs	242	150	1.70	20	21	0.15	228	1.60	18	0.24	2s	0.045	
SEMiX302GB126HDs	311	200	1.70	30	26	0.12	292	1.60	23	0.19	2s	0.045	
SEMiX353GB126HDs	364	225	1.70	27	33	0.1	329	1.60	29	0.17	3s	0.04	
SEMiX452GB126HDs	455	300	1.70	35	45	0.083	394	1.60	33	0.15	2s	0.045	
SEMiX503GB126HDs	466	300	1.70	28	44	0.08	431	1.60	33	0.13	3s	0.04	
SEMiX604GB126HDs	590	400	1.70	36	60	0.065	533	1.60	46	0.11	4s	0.03	
SEMiX703GB126HDs	642	450	1.70	32	68	0.061	561	1.60	60	0.11	3s	0.04	
SEMiX904GB126HDs	821	600	1.70	60	88	0.05	752	1.60	75	0.081	4s	0.03	
SEMiX101GD126HDs	129	75	1.70	10	11	0.27	117	1.60	9	0.46	13	0.04	
SEMiX151GD126HDs	168	100	1.70	12	14	0.21	152	1.60	12	0.36	13	0.04	
SEMiX251GD126HDs	242	150	1.70	19	22	0.15	207	1.60	15	0.28	13	0.04	
SEMiX353GD126HDc	364	225	1.70	27	33	0.1	329	1.60	29	0.17	33c	0.014	
SEMiX503GD126HDc	466	300	1.70	28	44	0.08	412	1.60	33	0.14	33c	0.014	
SEMiX703GD126HDc	642	450	1.70	32	68	0.061	561	1.59	60	0.11	33c	0.014	
1700V - IGBT4 (Trench)													
SEMiX302GAL17E4s [2]	516	300	1.90	140	122	0.083	324	1.98	70	0.184	2s	0.045	
SEMiX453GAL17E4s [2]	762	450	1.90	250	190	0.056	482	1.98	100	0.125	3s	0.04	
SEMiX151GB17E4s [2]	260	150	1.90	52	60	0.162	169	1.98	41	0.345	1s	0.075	
SEMiX202GB17E4s [2]	321	200	1.90	75	82	0.122	213	2.00	55	0.276	2s	0.045	
SEMiX302GB17E4s [2]	516	300	1.90	140	122	0.083	324	1.98	70	0.184	2s	0.045	
SEMiX303GB17E4s [2]	477	300	1.90	140	125	0.083	311	2.00	85	0.191	3s	0.04	
SEMiX404GB17E4s [2]	633	400	1.90	190	165	0.062	412	2.00	97	0.145	4s	0.03	
SEMiX453GB17E4s [2]	762	450	1.90	250	190	0.056	482	1.98	100	0.125	3s	0.04	
SEMiX453GB17E4p [2]	731	450	1.90	131	146	0.06	557	1.98	72	0.1	3p	0.009	
SEMiX603GB17E4p [1]	981	600	1.95	225	205	0.037	794	1.88	130	0.073	3p	0.009	
SEMiX604GB17E4s [2]	1015	600	1.90	255	255	0.042	629	1.98	150	0.095	4s	0.03	
SEMiX453GB17E4Ip [2]	731	450	1.90	153	150	0.06	557	1.98	73	0.1	3Ip	0.009	
SEMiX453GD17E4c [2]	762	450	1.90	186	183	0.056	482	1.98	122	0.125	33c	0.014	
SEMiX305TMLI17E4C [1]	472	280	1.90	42	51	0.076	388	2.00	45	0.137	5p	t.b.d	

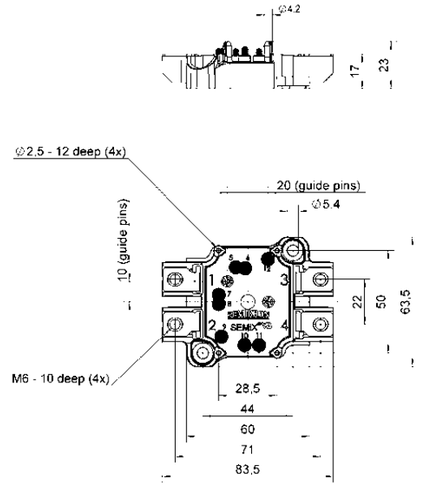
Footnotes: 1) Sample status / 2) In production new

Type	IGBT						Diode				Module		
	I_C @ T_C= 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F@ T_C = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-c)}$	Case	$R_{th(c-s)}$	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		K/W	
1700V - IGBT3 (Trench)													
SEMiX653GAL176HDs	619	450	2.00	300	180	0.054	545	1.70	73	0.11	3s	0.04	
SEMiX653GAR176HDs	619	450	2.00	300	180	0.054	545	1.70	73	0.11	3s	0.04	
SEMiX252GB176HDs	246	150	2.00	90	55	0.12	288	1.55	32	0.19	2s	0.045	
SEMiX302GB176HDs	308	200	2.00	130	77	0.1	389	1.50	43	0.15	2s	0.045	
SEMiX353GB176HDs	353	225	2.00	155	85	0.086	428	1.55	45	0.13	3s	0.04	
SEMiX452GB176HDs	437	300	2.00	180	110	0.073	389	1.70	46	0.15	2s	0.045	
SEMiX453GB176HDs	444	300	2.00	215	125	0.071	545	1.50	65	0.11	3s	0.04	
SEMiX604GB176HDs	567	400	2.00	215	165	0.058	740	1.50	95	0.081	4s	0.03	
SEMiX653GB176HDs	619	450	2.00	300	180	0.054	545	1.70	73	0.11	3s	0.04	
SEMiX854GB176HDs	779	600	2.00	300	250	0.045	740	1.70	170	0.081	4s	0.03	
SEMiX353GD176HDc	353	225	2.00	155	85	0.086	428	1.55	45	0.13	33c	0.014	
SEMiX453GD176HDc	444	300	2.00	215	125	0.071	545	1.50	65	0.11	33c	0.014	
SEMiX653GD176HDc	619	450	2.00	300	180	0.054	545	1.70	73	0.11	33c	0.014	

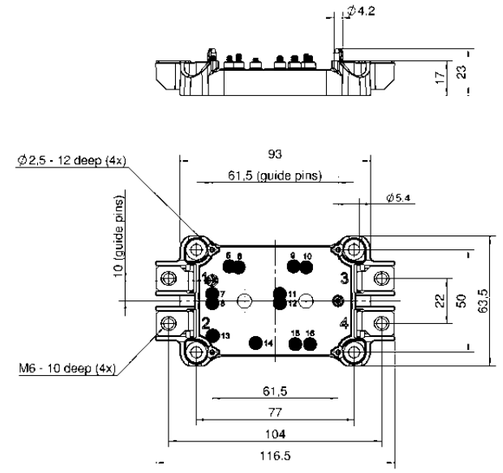
Footnotes: 1) Sample status / 2) In production new

Cases

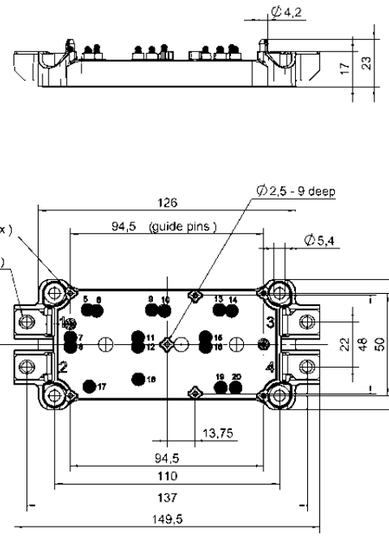
SEMiX 1s



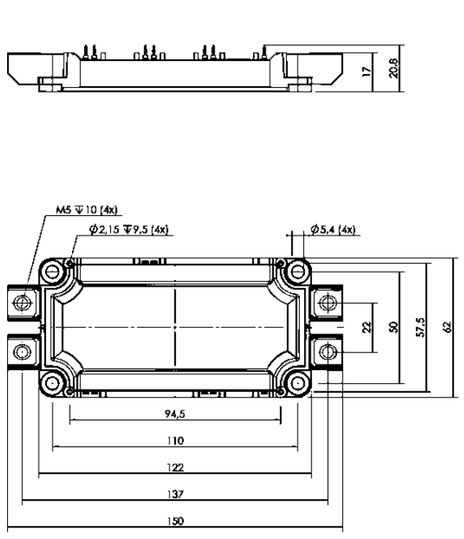
SEMiX 2s



SEMiX 3s



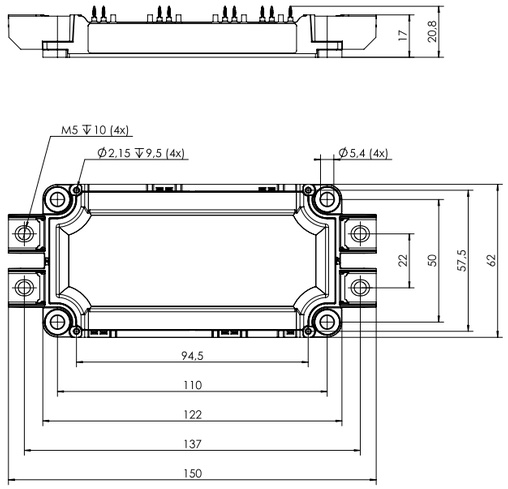
SEMiX 3p



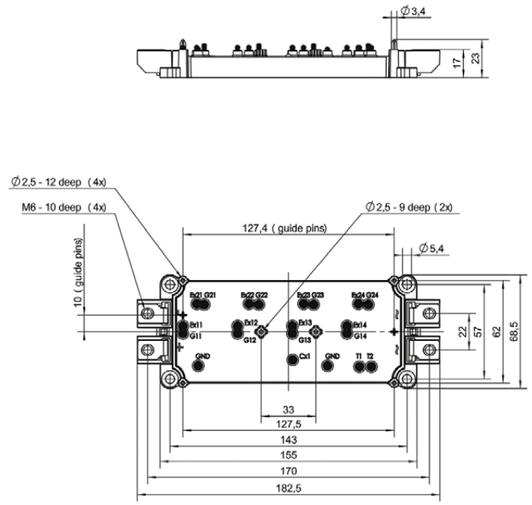
Dimensions in mm

Cases

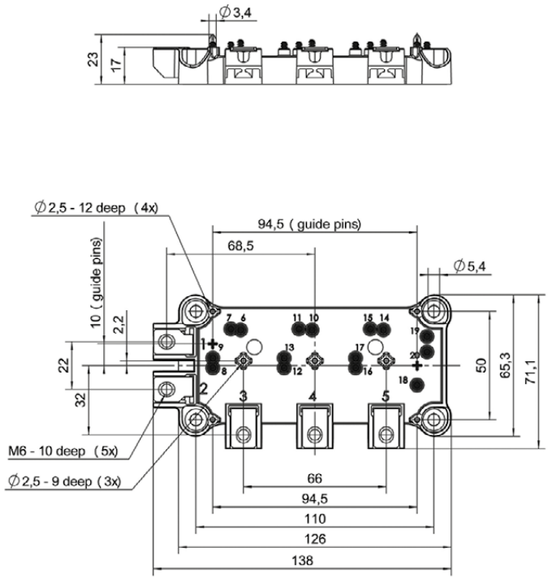
SEMiX 3Ip



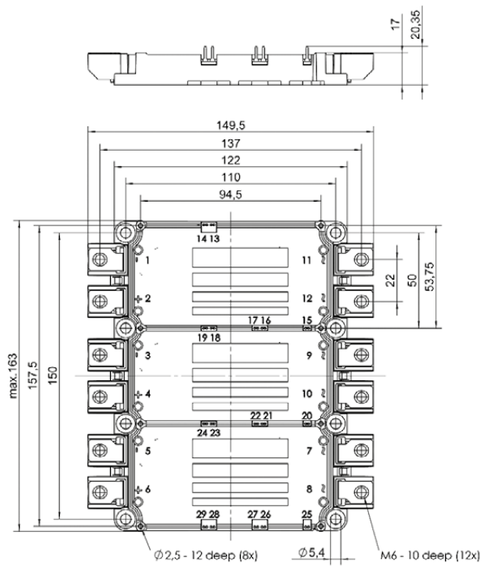
SEMiX 4s



SEMiX 13



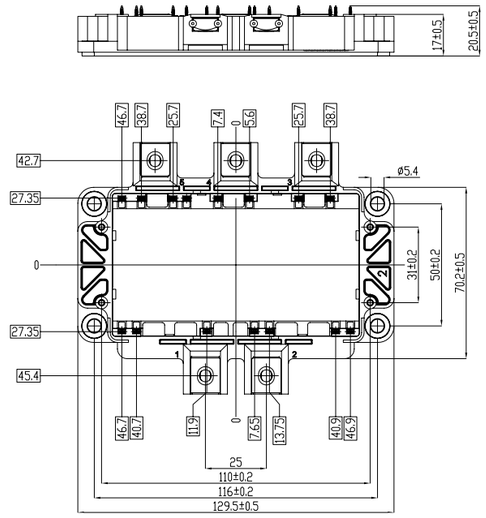
SEMiX 33c



Dimensions in mm

Cases

SEMiX 5p



Dimensions in mm

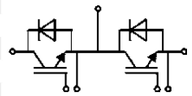
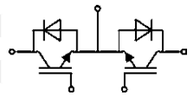
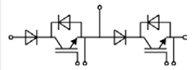
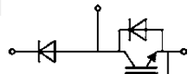
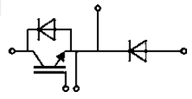
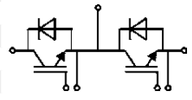
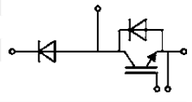
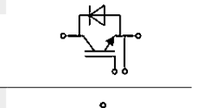
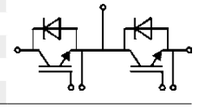
Type	IGBT						Diode				Module	
	I_C @ T_C = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F @ T_C = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-c)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		
600V - IGBT3 (Trench)												
SKM145GB066D	195	150	1.46	8.5	5.5	0.3	150	1.40	3.5	0.5	2	
SKM195GB066D	265	200	1.46	14	8	0.22	200	1.40	5.6	0.4	2	
SKM300GB066D	390	300	1.45	7.5	11.5	0.15	350	1.38	10.5	0.25	3	
SKM400GB066D	500	400	1.45	8	16	0.12	450	1.40	14	0.2	3	
SKM600GB066D	760	600	1.45	7.5	29.5	0.08	700	1.40	25	0.125	3	
SKM200GARL066T [2]	280	200	1.45	2.24	7.89	0.21	270	1.45	4	0.39	5	
SKM300GARL066T [2]	400	300	1.45	3.5	10.1	0.15	400	1.45	4	0.26	5	
SKM400GARL066T [1]	504	400	1.45	4.48	15.78	0.12	421	1.54	8	0.28	5	
SKM150MLI066TAT [1]	200	150	1.45	1.7	5.1	0.29	200	1.35	2	0.52	5	
SKM200MLI066TAT [2]	280	200	1.45	2.53	6.82	0.21	270	1.4	4	0.39	5	
SKM300MLI066TAT [2]	400	300	1.45	3.5	10.1	0.15	324	1.35	4	0.25	5	
600V - NPT IGBT (Standard)												
SKM75GAL063D [3]	100	75	2.1	3	2.5	0.35	75	1.55	0.53	0.72	2	
SKM300GAL063D [3]	400	300	2.1	14	13	0.09	250	1.65	4	0.25	3	
SKM75GAR063D [3]	100	75	2.1	3	2.5	0.35	75	1.55	0.53	0.72	2	
SKM300GAR063D [3]	400	300	2.1	14	13	0.09	250	1.65	4	0.25	3	
SKM50GB063D [3]	70	50	2.10	2.5	1.8	0.5	75	1.35	0.48	1	2	
SKM75GB063D [3]	100	75	2.1	3	2.5	0.35	75	1.55	0.53	0.72	2	
SKM100GB063D [3]	130	100	2.1	4	3	0.27	100	1.55	1.5	0.6	2	
SKM200GB063D [3]	260	200	2.1	11	7.5	0.14	200	1.55	2.1	0.3	3	
SKM300GB063D [3]	400	300	2.1	14	13	0.09	250	1.65	4	0.25	3	
1200V - V-IGBT												
SKM150GAL12V	231	150	1.75	13.5	14.2	0.19	189	2.14	8.9	0.31	2	
SKM200GAL12VL2 [1]	299	200	1.86	-	-	0.14	189	2.14	8.9	0.31	2	
SKM400GAL12V	612	400	1.74	39	42	0.072	440	2.20	26	0.14	3	
SKM400GAR12V	612	400	1.74	39	42	0.072	440	2.20	26	0.14	3	
SKM300GA12V	420	300	1.84	23	33	0.11	353	2.17	21	0.17	4	
SKM400GA12V	612	400	1.74	39	42	0.072	440	2.20	26	0.14	4	
SKM600GA12V	908	600	1.75	76	76	0.049	707	2.14	43	0.086	4	
SKM50GB12V	77	50	1.84	5	4	0.53	65	2.22	3.6	0.84	2	
SKM75GB12V	114	75	1.84	6.7	7.1	0.38	97	2.17	4.2	0.58	2	
SKM100GB12V	159	100	1.75	10.7	8.7	0.27	121	2.20	5.7	0.48	2	
SKM150GB12V	231	150	1.75	13.5	14.2	0.19	189	2.14	8.9	0.31	2	
SKM150GB12VG	222	150	1.86	10	16.5	0.2	187	2.17	11	0.31	3	
SKM200GB12V	311	200	1.76	14	22	0.14	229	2.20	13	0.26	3	
SKM300GB12V	420	300	1.84	23	33	0.11	353	2.17	21	0.17	3	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs / 11) Values at T_j=150°C

IGBT Modules / SEMITRANS

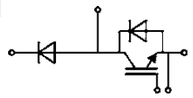
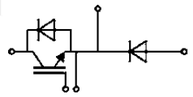
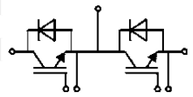
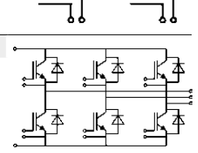
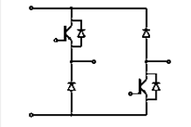
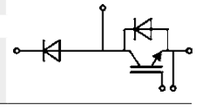
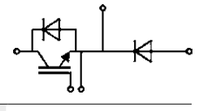
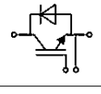
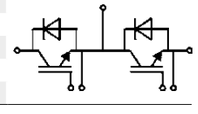
Type	IGBT						Diode				Module	
	I_C @ T_C = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F @ T_C = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-c)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		
1200V - V-IGBT												
SKM400GB12V	612	400	1.74	39	42	0.072	440	2.20	26	0.14	3	
1200V - IGBT4 (Trench)												
SKM200GAL12E4	313	200	1.80	21	27	0.14	229	2.20	13	0.26	3	
SKM300GAL12E4	422	300	1.85	27	39	0.11	353	2.17	23	0.17	3	
SKM400GAL12E4	616	400	1.80	33	56	0.072	440	2.20	30.5	0.14	3	
SKM200GAR12E4	313	200	1.80	21	27	0.14	229	2.20	13	0.26	3	
SKM300GAR12E4	422	300	1.85	27	39	0.11	353	2.17	23	0.17	3	
SKM400GAR12E4	616	400	1.80	33	56	0.072	440	2.20	30.5	0.14	3	
SKM300GA12E4	422	300	1.85	23.4	35	0.11	353	2.17	22.2	0.17	4	
SKM400GA12E4	616	400	1.80	28	59	0.072	440	2.20	37	0.14	4	
SKM600GA12E4	913	600	1.80	74	84	0.049	707	2.14	38	0.086	4	
SKM900GA12E4	1305	900	1.83	130	121	0.035	871	2.31	53	0.07	4	
SKM200GB12E4	313	200	1.80	21	27	0.14	229	2.20	13	0.26	3	
SKM300GB12E4	422	300	1.85	27	39	0.11	353	2.17	23	0.17	3	
SKM400GB12E4	616	400	1.80	33	56	0.072	440	2.20	30.5	0.14	3	
SKM450GB12E4	700	450	1.84	32	60	0.062	440	2.31	28	0.14	3	
SKM450GM12E4 [1]	700	450	1.84	32	60	0.062	440	2.31	28	0.14	3	
1200V - IGBT4 Fast (Trench)												
SKM50GAL12T4	81	50	1.85	5.5	4.5	0.53	65	2.22	3.6	0.84	2	
SKM100GAL12T4	160	100	1.80	15	10.2	0.27	121	2.20	5.9	0.48	2	
SKM150GAL12T4	232	150	1.81	19.2	15.8	0.19	189	2.14	13	0.31	2	
SKM200GAL12T4	313	200	1.80	21	20	0.14	229	2.20	13	0.26	3	
SKM300GAL12T4	422	300	1.85	27	29	0.11	353	2.17	23	0.17	3	
SKM400GAL12T4	616	400	1.80	33	42	0.072	440	2.20	30.5	0.14	3	
SKM150GAR12T4	232	150	1.81	19.2	15.8	0.19	189	2.14	13	0.31	2	
SKM400GAR12T4	616	400	1.80	33	42	0.072	440	2.20	30.5	0.14	3	
SKM300GA12T4	422	300	1.85	23.4	26	0.11	353	2.17	22.2	0.17	4	
SKM400GA12T4	616	400	1.80	28	44	0.072	440	2.20	37	0.14	4	
SKM600GA12T4	913	600	1.80	74	63	0.049	707	2.14	38	0.086	4	
SKM50GB12T4	81	50	1.85	5.5	4.5	0.53	65	2.22	3.8	0.84	2	
SKM75GB12T4	115	75	1.85	11	6.9	0.38	97	2.17	4.7	0.58	2	
SKM100GB12T4	160	100	1.80	15	10.2	0.27	121	2.20	5.9	0.48	2	
SKM100GB12T4G	154	100	1.90	16.1	8.6	0.29	118	2.22	6	0.49	3	
SKM150GB12T4	232	150	1.81	19.2	15.8	0.19	189	2.14	13	0.31	2	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs / 11) Values at T_j=150°C

Type	IGBT						Diode				Module	
	I_C @ T_C = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F@ T_C = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-c)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		
1200V - IGBT4 Fast (Trench)												
SKM150GB12T4G	223	150	1.85	18.7	14.1	0.2	183	2.17	9	0.32	3	
SKM200GB12T4	313	200	1.80	21	20	0.14	229	2.20	13	0.26	3	
SKM300GB12T4	422	300	1.85	27	29	0.11	353	2.17	23	0.17	3	
SKM400GB12T4	616	400	1.80	33	42	0.072	440	2.20	30.5	0.14	3	
SKM450GB12T4 2)	699	450	1.84	32	49	0.062	461	2.31	28	0.13	3	
SKM150GM12T4 1)	232	150	1.81	19.2	15.8	0.19	189	2.14	13	0.31	2	
SKM150GM12T4G	229	150	1.85	19.2	15.8	0.19	187	2.17	13	0.31	3	
SKM200GM12T4	313	200	1.80	21	20	0.14	229	2.20	13	0.26	3	
SKM300GM12T4	422	300	1.85	27	29	0.11	353	2.17	23	0.17	3	
SKM400GM12T4	616	400	1.80	33	42	0.072	440	2.20	30.5	0.14	3	
SKM300GBD12T4	422	300	1.85	27	29	0.11	56	2.41	30.5	0.94	3	
1200V - IGBT4 High Speed (Trench) (new product series, target data)												
SKM100GAL12F4 1)	143	100	2.10	-	-	0.27	-	-	-	0.48	2	
SKM400GAL12F4 1)	553	400	2.04	-	-	0.072	-	-	-	0.14	3	
SKM100GAR12F4 1)	143	100	2.10	-	-	0.27	-	-	-	0.48	2	
SKM400GAR12F4 1)	553	400	2.04	-	-	0.072	-	-	-	0.14	3	
SKM75GB12F4 1)	104	75	2.08	-	-	0.38	-	-	-	0.58	2	
SKM100GB12F4 1)	143	100	2.10	-	-	0.27	-	-	-	0.48	2	
SKM150GB12F4G 1)	203	150	2.05	-	-	0.2	-	-	-	0.32	3	
SKM200GB12F4 1)	281	200	2.06	-	-	0.14	-	-	-	0.26	3	
SKM300GB12F4 1)	422	300	2.06	-	-	0.11	-	-	-	0.17	3	
SKM400GB12F4 1)	553	400	2.04	-	-	0.072	-	-	-	0.14	3	
1200V - IGBT3 (Trench)												
SKM195GAL126D	220	150	1.71	16	24.5	0.16	143	2.00	5.8	0.32	2	
SKM200GAL126D	260	150	1.71	18	24	0.13	200	1.60	18	0.3	3	
SKM400GAL126D	470	300	1.69	29	48	0.08	352	1.60	27	0.18	3	
SKM600GAL126D	660	400	1.70	39	64	0.055	490	1.60	41	0.125	3	
SKM600GA126D	660	400	1.70	39	64	0.055	490	1.60	41	0.125	4	
SKM800GA126D	910	600	1.70	65	95	0.042	703	1.60	59	0.09	4	
SKM195GB126D	220	150	1.71	16	24.5	0.16	143	2.00	5.8	0.32	2	
SKM200GB126D	260	150	1.71	18	24	0.13	200	1.60	18	0.3	3	
SKM300GB126D	310	200	1.70	21	33	0.12	250	1.60	18	0.25	3	
SKM400GB126D	470	300	1.69	29	48	0.08	352	1.60	27	0.18	3	
SKM600GB126D	660	400	1.70	39	64	0.055	490	1.60	41	0.125	3	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs / 11) Values at T_j=150°C

IGBT Modules / SEMITRANS

Type	IGBT						Diode				Module	
	I_C @ T_C = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F@ T_C = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-c)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		
1200V - NPT IGBT (Ultrafast)												
SKM200GAL125D	200	150	3.3	14	8	0.09	200	2.06	8	0.25	3	
SKM400GAL125D	400	300	3.3	17	18	0.05	390	2.06	16	0.125	3	
SKM200GAR125D	200	150	3.3	14	8	0.09	200	2.06	8	0.25	3	
SKM400GAR125D	400	300	3.3	17	18	0.05	390	2.06	16	0.125	3	
SKM600GA125D	580	400	3.3	30	22	0.041	500	2.00	24	0.09	4	
SKM800GA125D	760	600	3.20	88	48	0.03	720	2.3	28	0.07	4	
SKM100GB125DN	100	75	3.3	9	3.5	0.18	95	2.06	4	0.5	2N	
SKM200GB125D	200	150	3.3	14	8	0.09	200	2.06	8	0.25	3	
SKM300GB125D	300	200	3.3	16	11	0.075	260	2.00	13	0.18	3	
SKM400GB125D	400	300	3.3	17	18	0.05	390	2.06	16	0.125	3	
SKM25GD125D 2)	39	25	3.20	3.9	1.6	0.56	47	2.13	1.1	1	6	
SKM50GD125D 2)	73	50	3.20	8	3.2	0.32	77	2.00	2.1	0.6	6	
SKM25GAH125D 2)	39	25	3.20	3.9	1.6	0.56	47	2.13	1.1	1	6	
1700V - IGBT3 (Trench)												
SKM145GAL176D	160	100	2.00	60	38	0.19	140	1.6	27.5	0.36	2	
SKM200GAL176D	260	150	2.01	93	58	0.12	210	1.70	31	0.25	3	
SKM400GAL176D	432	300	1.99	170	118	0.075	440	1.70	78	0.125	3	
SKM400GAR176D	432	300	1.99	170	118	0.075	440	1.70	78	0.125	3	
SKM600GA176D	660	400	2.00	255	155	0.044	600	1.6	102	0.09	4	
SKM800GA176D	830	600	2.00	335	245	0.04	630	1.6	155	0.07	4	
SKM75GB176D	80	50	2.00	25	18	0.38	80	1.70	14.5	0.55	2	
SKM100GB176D	125	75	1.98	44	28.5	0.24	100	1.6	21.4	0.45	2	
SKM145GB176D	160	100	2.00	60	38	0.19	140	1.6	27.5	0.36	2	
SKM200GB176D	260	150	2.01	93	58	0.12	210	1.70	31	0.25	3	
SKM400GB176D	432	300	1.99	170	118	0.075	440	1.70	78	0.125	3	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs / 11) Values at T_j=150°C

Type	IGBT						Diode				Module	
	I_C @ T_C = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F @ T_C = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-c)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		
1700V - NPT IGBT (Standard)												
SKM200GAL173D [3]	220	150	3.4	95	45	0.1	150	2.2	21	0.32	3	
SKM200GAR173D [3]	220	150	3.4	95	45	0.1	150	2.2	21	0.32	3	
SKM400GA173D [3]	440	300	3	180	10	0.05	300	2.2	46	0.17	4	
SKM75GB173D [3]	75	50	3.4	18	13	0.25	60	2.2	10.5	0.75	2	
SKM100GB173D [3]	110	75	3.4	35	21	0.2	80	2.2	11.5	0.63	2	
SKM150GB173D [3]	150	100	3.4	60	32	0.125	125	2.2	14	0.4	3	
SKM200GB173D [3]	220	150	3.4	95	45	0.1	150	2.2	21	0.32	3	
1700V - IGBT4 (Trench)												
SKM100GAL17E4 [2]	164	100	1.90	43	39	0.234	113	2.00	26	0.504	2	
SKM200GAL17E4 [2]	321	200	1.90	69	79	0.122	213	2.00	45	0.276	3	
SKM400GAL17E4 [2]	614	400	1.92	156.5	180	0.066	443	2.00	130	0.13	3	
SKM100GAR17E4 [2]	164	100	1.90	43	39	0.234	113	2.00	26	0.504	2	
SKM200GAR17E4 [2]	321	200	1.90	69	79	0.122	213	2.00	45	0.276	3	
SKM400GAR17E4 [2]	614	400	1.92	156.5	180	0.066	443	2.00	130	0.13	3	
SKM600GA17E4 [2]	1021	600	1.90	258	246	0.042	629	1.98	132	0.095	4	
SKM75GB17E4 [2]	125	75	1.93	30	29	0.304	88	2.00	21	0.632	2	
SKM100GB17E4 [2]	164	100	1.90	43	39	0.234	113	2.00	26	0.504	2	
SKM150GB17E4 [2]	261	150	1.90	67	59	0.162	169	1.98	32	0.345	2	
SKM150GB17E4G [1]	242	150	1.90	-	-	0.161	163	2.00	-	0.356	3	
SKM200GB17E4 [2]	321	200	1.90	69	79	0.122	213	2.00	45	0.276	3	
SKM300GB17E4 [2]	476	300	1.91	88	121	0.083	314	2.00	77	0.19	3	
SKM400GB17E4 [2]	614	400	1.92	156.5	180	0.066	443	2.00	130	0.13	3	
SKM400GM17E4 [2]	614	400	1.92	156.5	180	0.066	443	2.00	130	0.13	3	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs / 11) Values at T_j=150°C

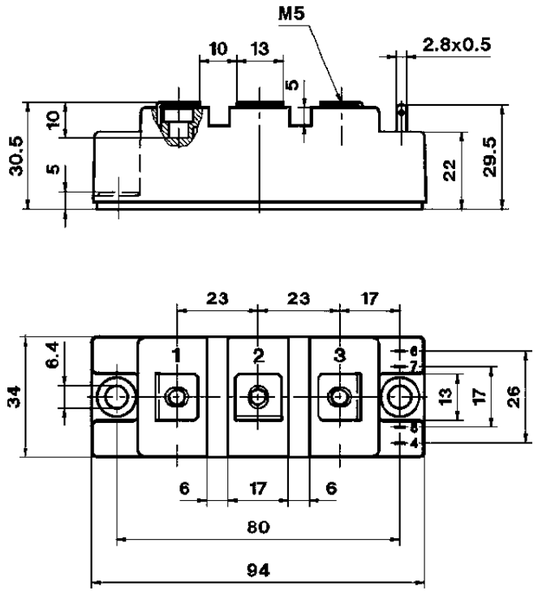
IGBT Modules / SEMITRANS

Type	IGBT						Diode				Module	
	I_C @ T_C = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F @ T_C = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-c)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		
1700V - IGBT4 (Trench) chip - dedicated for humid environment (target data)												
SKM75GB17E4H16 [1]	118	75	1.93	37	29	0.304	88	2.00	18	0.632	2	
SKM150GB17E4GH16 [1]	228	150	1.96	69	59	0.161	163	2.00	36	0.356	3	
SKM300GB17E4H16 [1]	449	300	1.97	106	122	0.083	314	2.00	71	0.19	3	
1700V - SPT ++ (new product series, target data)												
SKM1000GAL17S2 [1]	1460	1000	2.30	395	326	0.027	1427	1.78	185	0.043	10	
SKM1400GAL17S2 [1]	1947	1400	2.31	712	417	0.021	1672	1.84	215	0.038	10	
SKM1000GAR17S2 [1]	1460	1000	2.30	395	326	0.027	1427	1.78	185	0.043	10	
SKM1400GAR17S2 [1]	1947	1400	2.31	712	417	0.021	1672	1.84	215	0.038	10	
SKM1000GB17S2 [2]	1460	1000	2.30	395	326	0.027	1427	1.78	185	0.043	10	
SKM1400GB17S2 [1]	1947	1400	2.31	712	417	0.021	1672	1.84	215	0.038	10	
3300V - N-Channel F-IGBT (new product series, target data)												
SKM450GB33F [1] [11]	-	450	2.85	750	770	0.033	-	2.45	740	0.051	20	

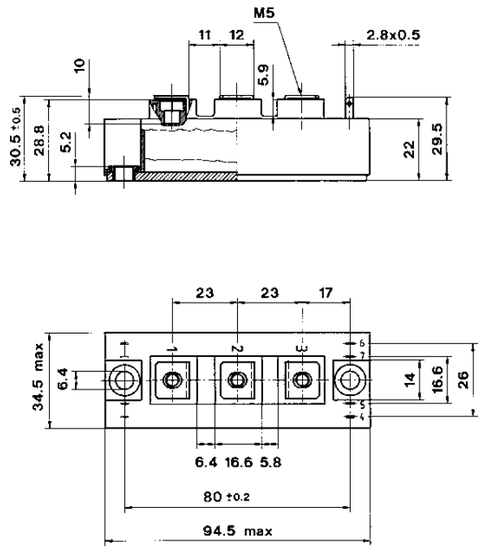
Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs / 11) Values at T_j=150°C

Cases

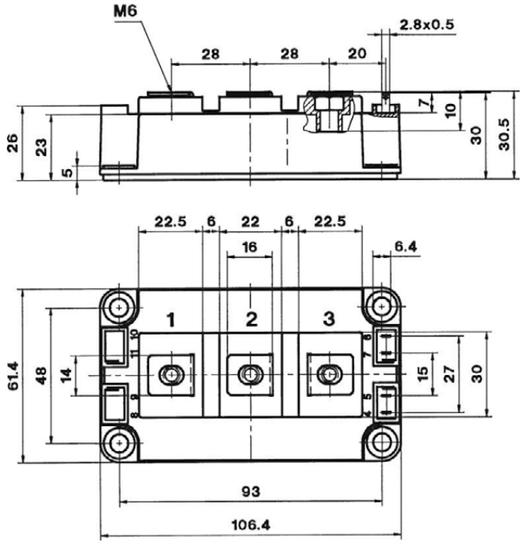
SEMITRANS 2



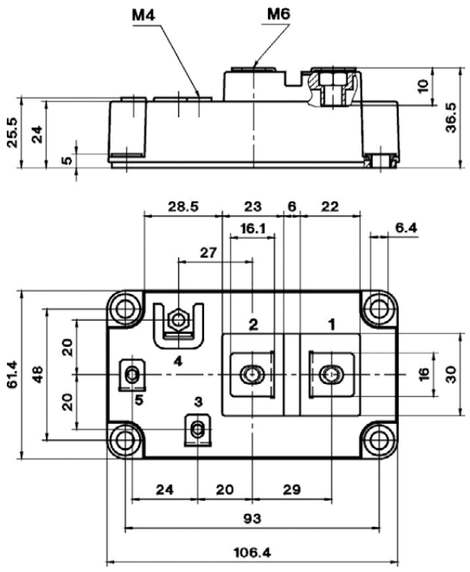
SEMITRANS 2N



SEMITRANS 3



SEMITRANS 4

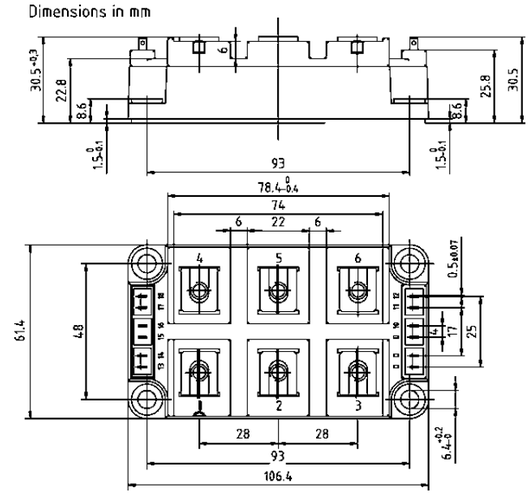


Dimensions in mm

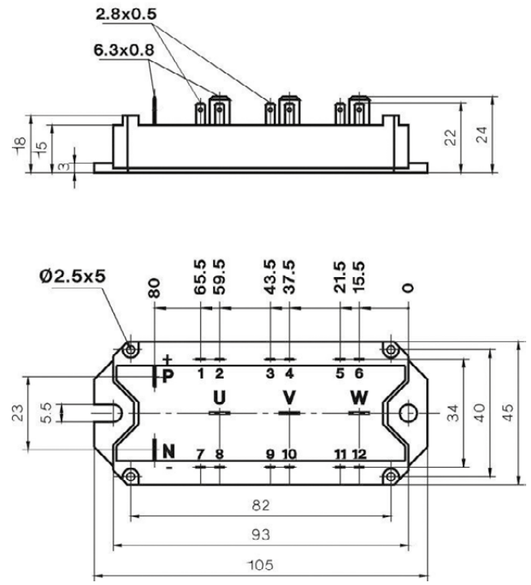
Cases

SEMITRANS 5

Dimensions in mm



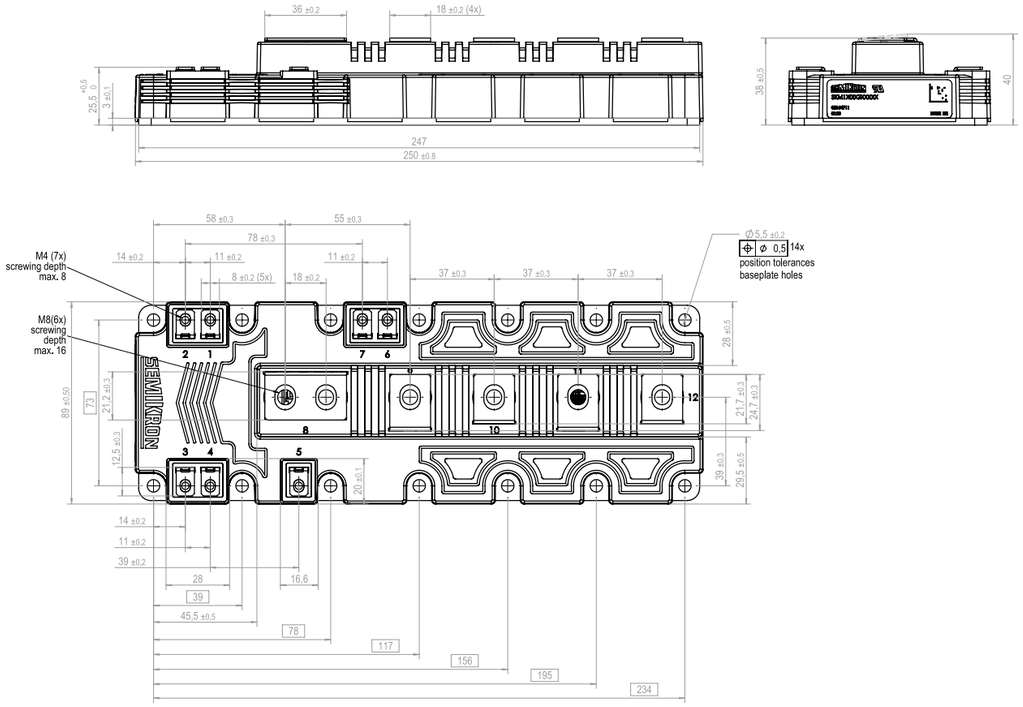
SEMITRANS 6



Dimensions in mm

Cases

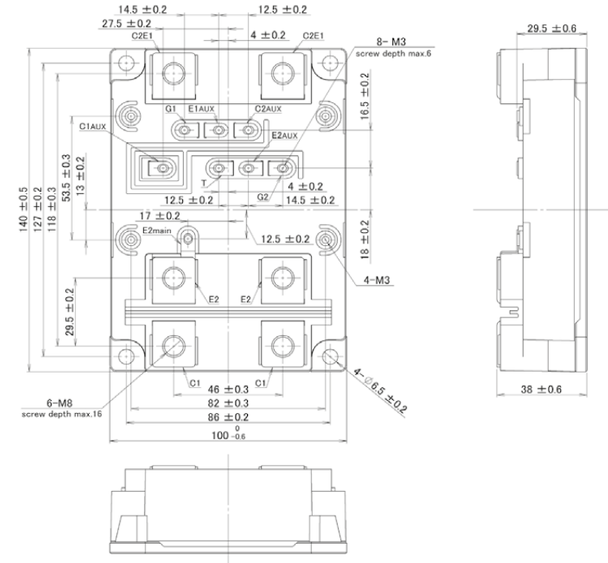
SEMITRANS 10



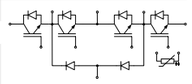
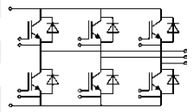
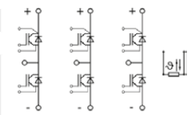
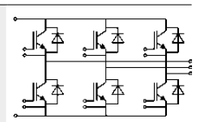
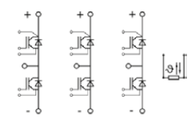
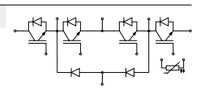
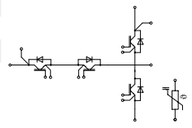
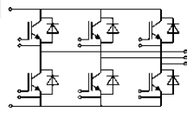
Dimensions in mm

Cases

SEMITRANS 20

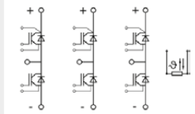


Dimensions in mm

Type	IGBT						Diode				Module	
	I_C @ T_S = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F@ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		
600V - IGBT3 (Trench)												
SKiM301MLI07E4 [2]	252	300	1.55	2.8	17	0.3	177	1.40	-	0.53	4	
SKiM401MLI07E4 [2]	314	400	1.55	3.3	21	0.25	289	1.40	1.8	0.31	4	
SKiM601MLI07E4 [2]	433	600	1.55	6.1	44	0.19	318	1.39	2.4	0.31	4	
1200V - IGBT3 (Trench)												
SKiM200GD126D [3]	-	200	1.65	15	25	-	152	2.39	-	0.35	4	
SKiM300GD126D	265	300	1.70	28	47	0.2	260	1.92	-	0.285	4	
SKiM300GD126DL [3]	265	300	1.65	28	47	0.2	260	1.92	-	0.285	4	
SKiM400GD126DM	330	300	1.70	29	46	0.134	300	1.92	-	0.19	4	
SKiM400GD126DLM	330	300	1.65	29	46	0.134	300	1.92	-	0.19	4	
SKiM450GD126D	390	450	1.70	42	70	0.13	345	1.92	-	0.19	5	
SKiM450GD126DL [3]	390	450	1.65	42	70	0.13	345	1.92	-	0.19	5	
SKiM600GD126DLM	480	450	1.65	42	70	0.09	450	1.92	-	0.125	5	
SKiM601GD126DM	480	450	1.70	42	70	0.09	450	1.92	-	0.125	5	
1200V - IGBT4 (Trench)												
SKiM304GD12T4D [3]	312	300	1.80	-	-	0.19	221	2.33	-	0.25	4	
SKiM455GD12T4D1 [3]	400	450	1.80	34	40	0.14	295	2.33	28	0.19	5	
SKiM201MLI12E4 [2]	206	200	1.80	15	23	0.29	187	2.20	15	0.36	4	
SKiM301MLI12E4 [2]	311	300	1.80	22	34	0.19	282	2.20	15	0.24	4	
SKiM301TMLI12E4B [2]	311	300	1.80	6.6	19	0.19	249	2.20	1.8	0.29	4	
SKiM301TMLI12E4C [1]	294	300	1.80	6.6	19	0.21	274	2.20	1.8	0.25	4	
SKiM401TMLI12E4B [2]	388	400	1.80	8.8	26	0.16	311	2.20	2.4	0.24	4	
SKiM601TMLI12E4B [2]	529	600	1.80	11	45	0.125	495	2.14	4.4	0.15	4	
1700V - IGBT3 (Trench)												
SKiM120GD176D	110	125	2	72	46	0.4	105	1.6	22	0.56	4	
SKiM220GD176DH4	220	250	2	145	100	0.21	220	1.7	65	0.26	4	

Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs

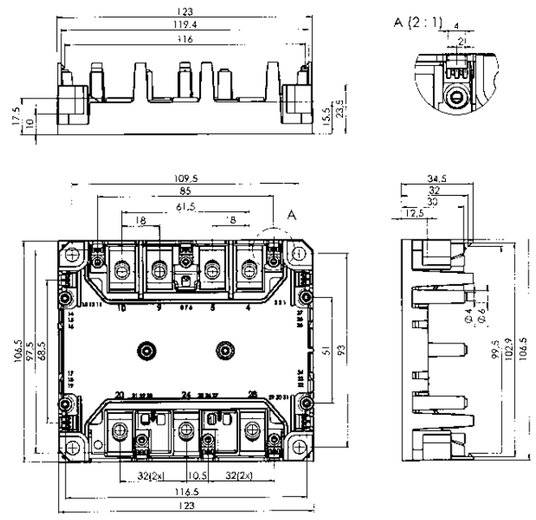
IGBT Modules / SKiM 4/5

Type	IGBT						Diode				Module	
	I_C @ T_S = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F@ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		
1700V - IGBT3 (Trench)												
SKiM270GD176D	260	300	2.00	170	120	0.175	215	1.7	-	0.29	5	

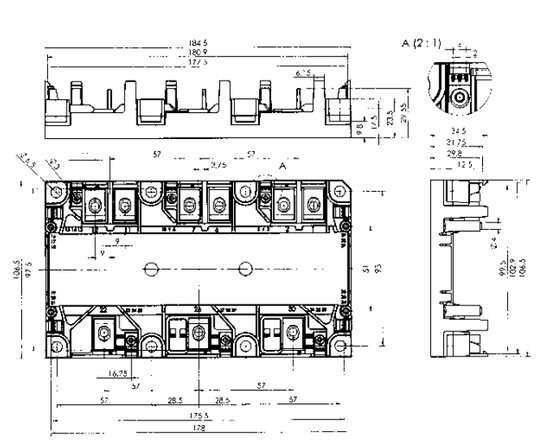
Footnotes: 1) Sample status / 2) In production new / 3) Not for new designs

Cases

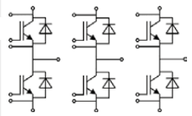
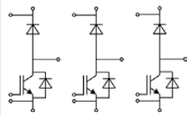
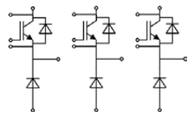
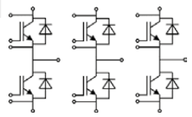
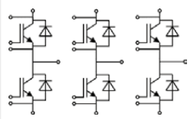
SKiM 4



SKiM 5



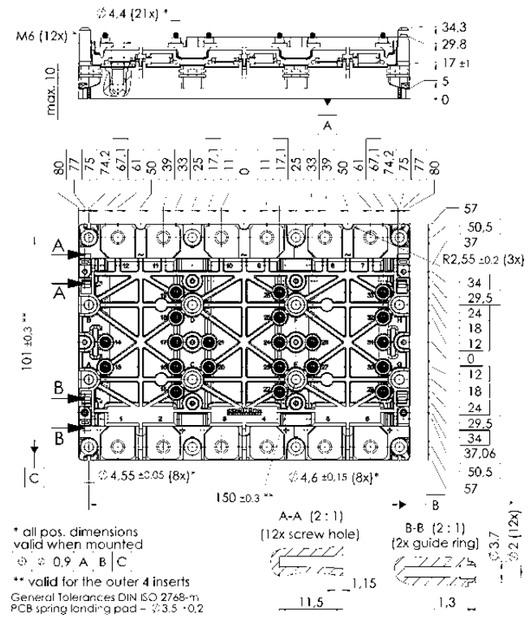
Dimensions in mm

Type	IGBT						Diode				Module	
	I_C @ T_S = 25°C	I_{Cnom}	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F@ T_S = 25°C	V_F @ T_j = 25°C typ.	E_{rr}	$R_{th(j-s)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	mJ	K/W		
600V - IGBT3 (Trench)												
SKiM406GD066HD[10]	468	400	1.45	8	25	0.135	360	1.53	12	0.243	63	
SKiM606GD066HD[10]	641	600	1.45	16	53	0.105	453	1.60	21	0.201	63	
SKiM909GD066HD[10]	899	900	1.45	36	88	0.078	712	1.52	29	0.135	93	
1200V - IGBT4 (Trench)												
SKiM609GAL12E4[2]	748	600	1.85	136	83	0.068	1397	1.7	39	0.048	93	
SKiM609GAR12E4[2]	748	600	1.85	136	83	0.068	1397	1.7	39	0.048	93	
SKiM306GD12E4[10]	410	300	1.85	19	39	0.116	302	2.14	21	0.218	63	
SKiM459GD12E4[10]	556	450	1.85	22	57	0.092	438	2.14	40	0.155	93	
1700V - IGBT4 (Trench)												
SKiM429GD17E4HD[2) 10)]	595	420	1.90	245	180	0.079	413	1.66	99	0.169	93	

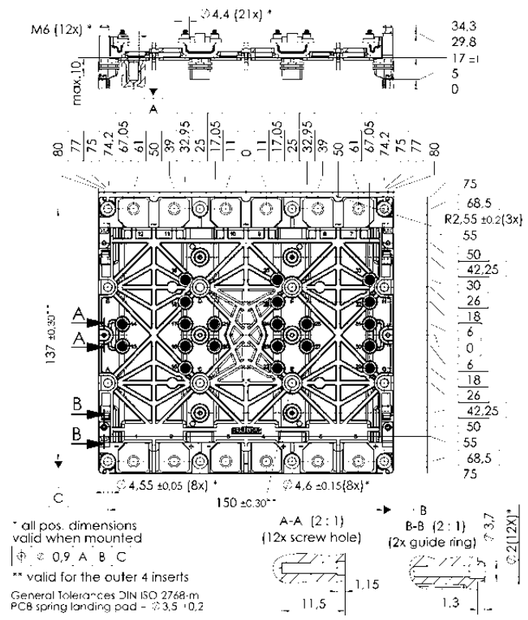
Footnotes: 2) In production new / 10) Also available with new HpTp, see Accessories/Thermal Interface Materials

Cases

SKiM 63



SKiM 93



Dimensions in mm

Silicon Carbide Modules for Highest Energy Efficiency

SEMIKRON offers hybrid and full silicon carbide power modules in MiniSKiiP, SEMITOP, SEMITRANS3, SEMiX3 Press-Fit and SKiM63/93. Latest IGBT technology is combined with SiC Schottky diodes to increase the switching frequency and reduce power losses at the same time. Silicon carbide MOSFETs, either with or without anti-parallel SiC Schottky diodes, create even higher gains in switching frequency and power density.

The SEMIKRON silicon carbide power modules are available from 8A to 500A in 1200V. Covered topologies are 6-packs, also with split output configurations, half bridges and triple boost converters. Additionally further topologies like 3-level or H-bridge designs are easily adaptable to silicon carbide and will complete the portfolio.

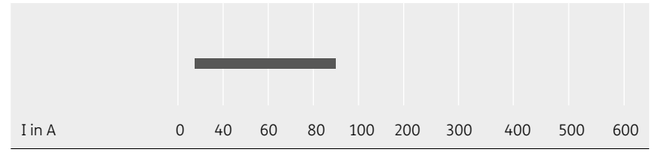
For detailed information please refer to data sheets.

Further information:
www.semikron.com/full-sic
www.semikron.com/hybrid-sic

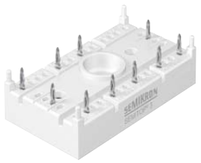
Silicon Carbide Modules

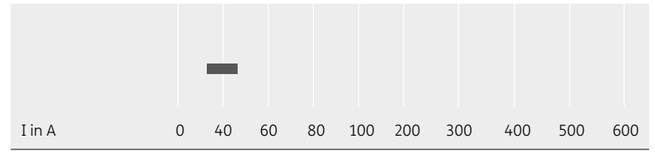
Full SiC

MiniSKiiP®
6-pack

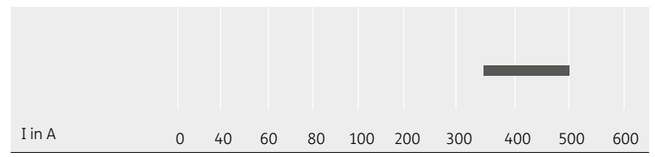


SEMITOP®
6-pack
chopper
H-bridge



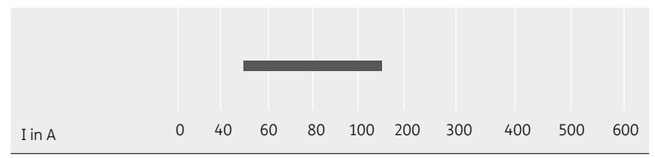


SEMITRANS®
half bridge

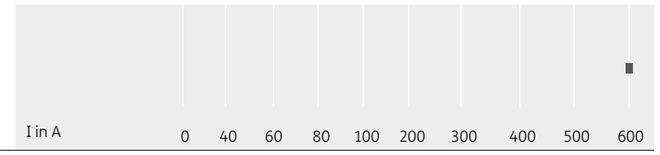


Hybrid SiC

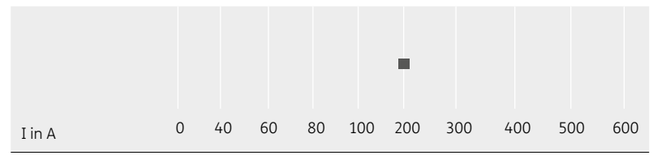
MiniSkiiP ®
6-pack



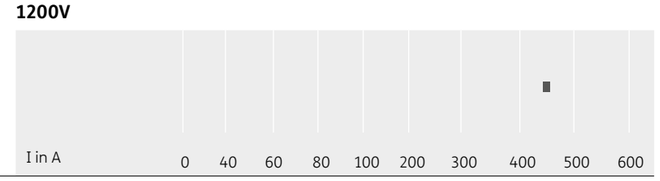
SEMiX Press-Fit®
half bridge

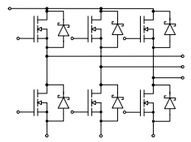
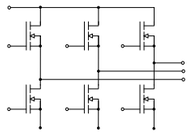
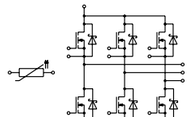


SEMITRANS®
half bridge



SKiM®63/93
6-pack

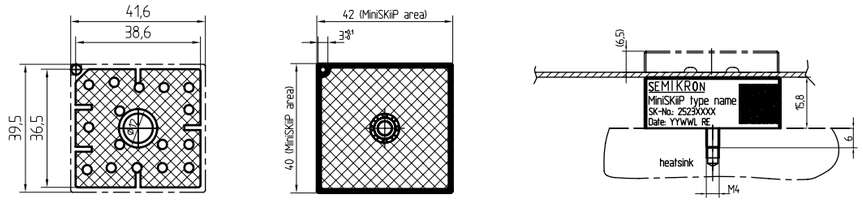


Type	V_{DS}	I_D @ T_C = 25°C	$R_{DS(on)}$ @ T_j = 25°C typ.	$R_{th(j-s)}$	Case	Circuit
	V	A	mΩ	K/W		
1200V - SiC MOSFET						
SKiiP 13ACM12V17 [1]	1200	25	80	1.5	II 1	
SKiiP 13ACM12V18 [1]	1200	25	80	1.5	II 1	
SKiiP 26ACM12V17 [1]	1200	75	23	0.6	II 2	

Footnotes: 1) Sample status

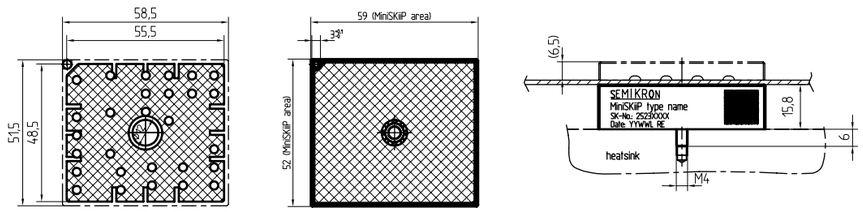
Cases

MiniSKiiP II 1



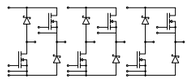
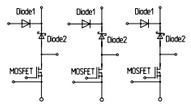
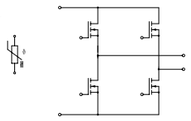
pin configuration depends on circuit (details in data sheet)

MiniSKiiP II 2



pin configuration depends on circuit (details in data sheet)

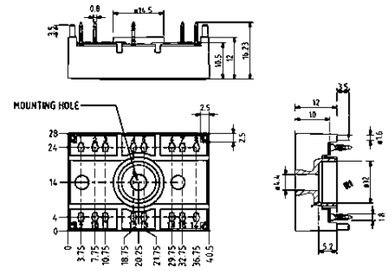
Dimensions in mm

Type	V_{DS}	I_D @ T_C = 25°C	$R_{DS(on)}$ @ T_j = 25°C typ.	$R_{th(j-s)}$	Case	Circuit
	V	A	mΩ	K/W		
1200V - SiC MOSFET						
SK45MAHT12SCp [1]	1200	41	45	1	3p	
SK45MLET12SCp [1]	1200	41	45	1	3p	
SK45MH120TSCp [1]	1200	41	45	1	2p	
SK25MH120TSCp [1]	1200	26	80	1.4	2p	

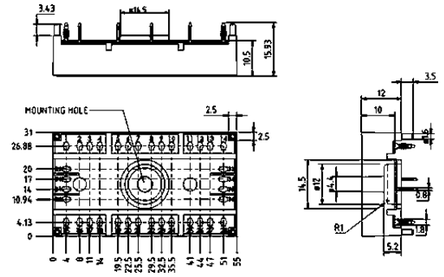
Footnotes: 1) Sample status

Cases

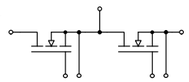
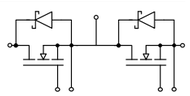
SEMITOP 2 Press-Fit



SEMITOP 3 Press-Fit



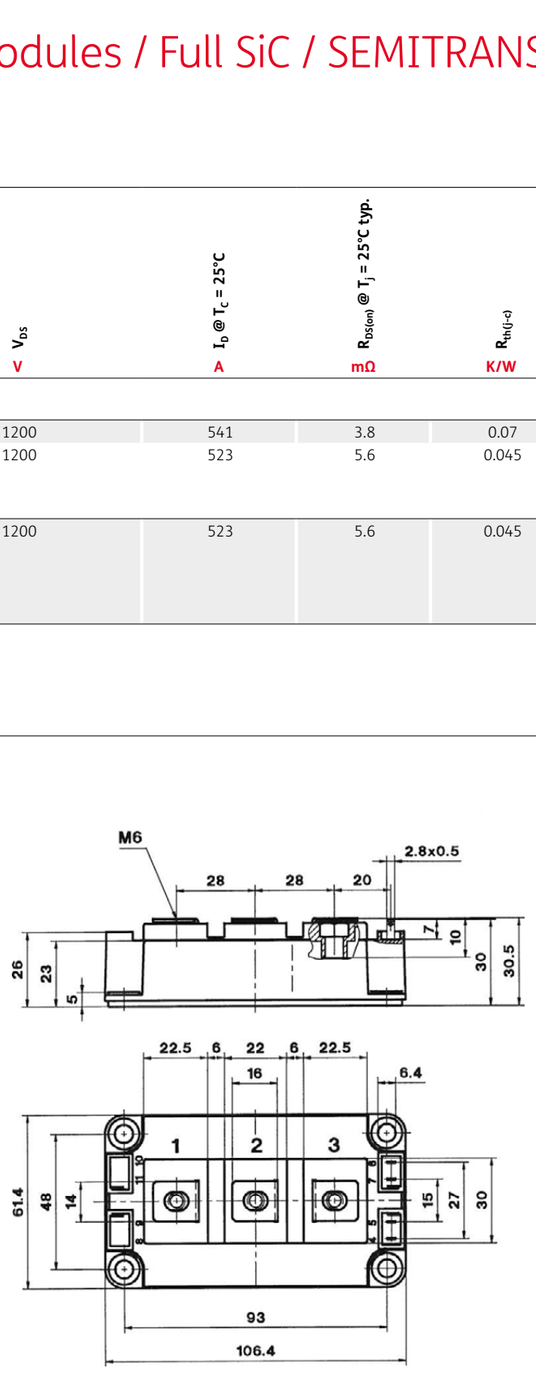
Dimensions in mm

Type	V_{DS}	I_D @ T_C = 25°C	$R_{DS(on)}$ @ T_j = 25°C typ.	$R_{th(j-c)}$	Case	Circuit
	V	A	mΩ	K/W		
1200V - SiC MOSFET						
SKM500MB120SC [1)]	1200	541	3.8	0.07	3	
SKM350MB120SCH15 [1)]	1200	523	5.6	0.045	3	
SKM350MB120SCH17 [1)]	1200	523	5.6	0.045	3	

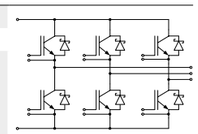
Footnotes: 1) Sample status

Cases

SEMITRANS 3



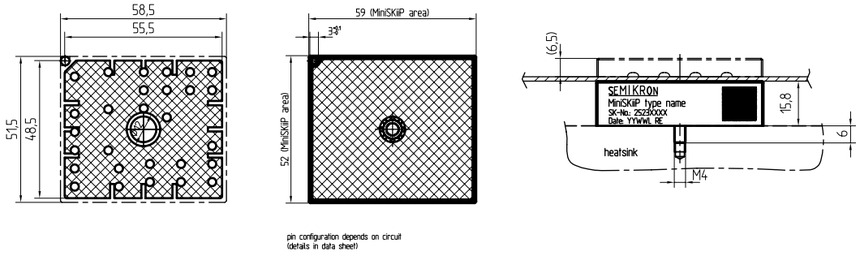
Dimensions in mm

Type	IGBT						Diode			Module	
	I_C @ T_S= 25°C	Current (A)	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F@ T_S = 25°C	V_F	$R_{th(j-s)}$	Case	Circuit
	A	A	V	mJ	mJ	K/W	A	V	K/W		
1200V - IGBT4 (Fast Trench)											
SKiiP25AC12F4V19[1)]	72	50	2.05	2.2	2.8	0.53	49	1.40	0.98	II 2	
SKiiP38AC12F4V19[1)]	128	100	2.05	6.4	6.3	0.33	71	1.40	0.72	II 3	
SKiiP39AC12F4V19[1)]	175	150	2.05	9.6	9.4	0.26	76	1.40	0.33	II 3	

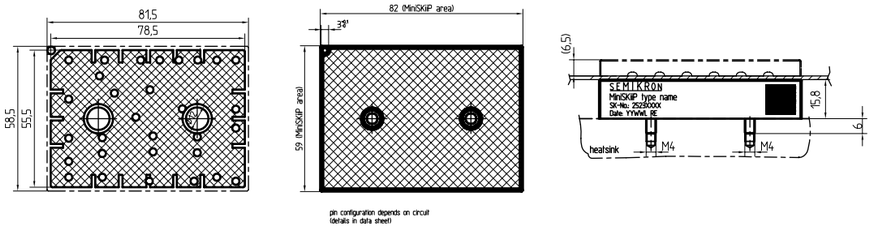
Footnotes: 1) Sample status

Cases

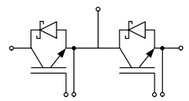
MiniSKiiP II 2



MiniSKiiP II 3



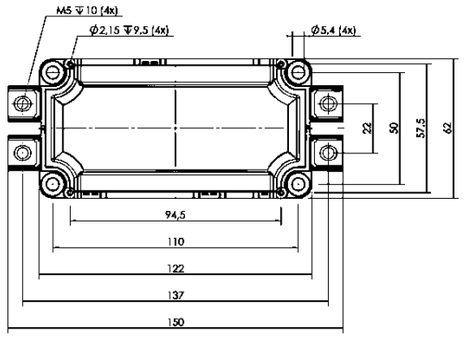
Dimensions in mm

Type	IGBT						Diode			Module		
	I_C @ T_C = 25°C	Current (A)	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F @ T_C = 25°C	V_F	$R_{th(j-c)}$	Case	$R_{th(c-s)}$	Circuit
	A	A	V	mJ	mJ	K/W	A	V	K/W		K/W	
1200V - IGBT4 (Trench)												
SEMiX603GB12E4SiCp [1]	1110	600	1.80	28	80	0.037	390	1.40	0.14	3p	0.012	

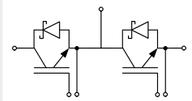
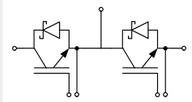
Footnotes: 1) Sample status

Cases

SEMiX 3p



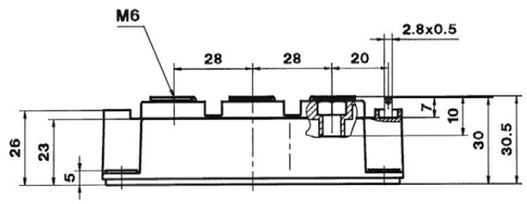
Dimensions in mm

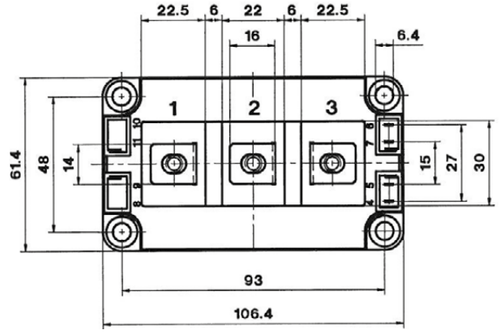
Type	IGBT						Diode			Module		
	I_C @ T_C = 25°C	Current (A)	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-c)}$	I_F @ T_C = 25°C	V_F	$R_{th(j-c)}$	Case	$R_{th(c-s)}$	Circuit
	A	A	V	mJ	mJ	K/W	A	V	K/W		K/W	
1200V - IGBT4 (Fast Trench)												
SKM200GB12F4SiC2 [1]	281	200	2.06	7	17	0.14	246	1.40	0.21	3	0.038	
1200V - IGBT4 (Trench)												
SKM200GB12T4SiC2 [1]	313	200	1.80	7	20	0.14	246	1.40	0.21	3	0.038	

Footnotes: 1) Sample status

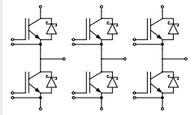
Cases

SEMITRANS 3





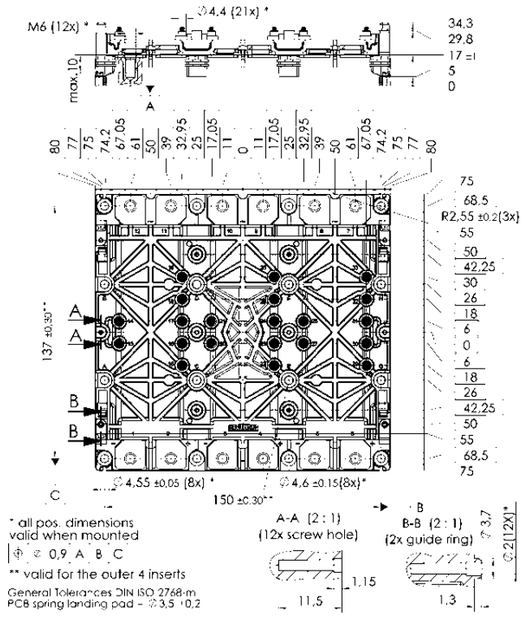
Dimensions in mm

Type	IGBT						Diode			Module	
	I_C @ T_S= 25°C	Current (A)	$V_{CE(sat)}$ @ T_j = 25°C typ.	E_{on}	E_{off}	$R_{th(j-s)}$	I_F @ T_S = 25°C	V_F	$R_{th(j-s)}$	Case	
	A	A	V	mJ	mJ	K/W	A	V	K/W		Circuit
1200V - IGBT4 (Fast Trench)											
SKiM459GD12F4SC4 1)	507	450	2.05	9	35	0.092	375	1.40	0.15	93	

Footnotes: 1) Sample status

Cases

SKiM 93



Dimensions in mm

MOSFET Modules
Best in Class Switching Performance

SEMIKRON produces MOSFET (Metal Oxide Semiconductor Field Effect Transistor) modules in single switch, halfbridge, H-bridge and 6-pack configuration in SEMITOP and SEMITRANS packages.

The available MOSFET modules in the voltage range of 55V up to 600V and current ratings of 40A up to 290A are especially designed for high-speed switching offering low switching losses.

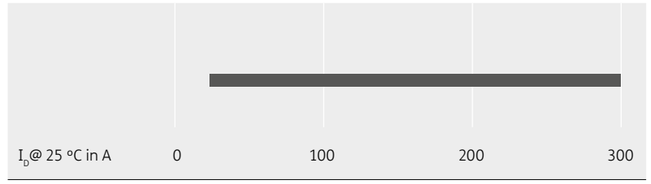
For detailed information
please refer to data sheets.

Further information:
www.semikron.com/mosfet-modules

SEMITOP®

6-pack
H-bridge
half bridge

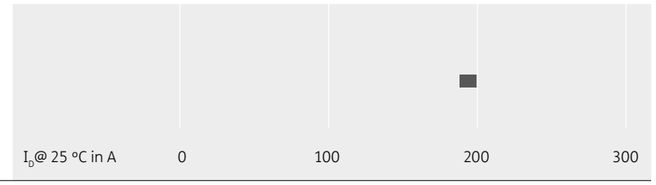
55V up to 600V

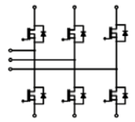
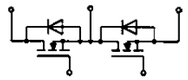
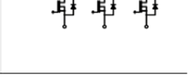


SEMITRANS®

single switch

100V up to 200V

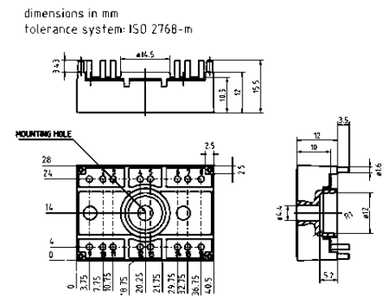


Type	V_{DS}	I_D @ T_C = 25°C	$R_{DS(on)}$ @ T_j = 25°C typ.	$R_{th(j-s)}$	Case	Topology Picture
	V	A	mΩ	K/W		
55V						
SK 80 MBBB 055	55	117	2.2	1.1	3	
75V						
SK 300 MB 075 3)	75	290	-	0.45	3	
100V						
SK 260 MB 10	100	230	-	0.45	3	
SK 85 MH 10 T	100	80	-	1.1	2	

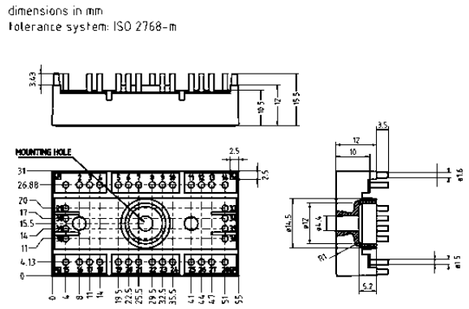
Footnotes: 3) Not for new designs

Cases

SEMITOP 2



SEMITOP 3



Dimensions in mm

Модуль, igbt, semikron купить в Минске

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подробно смотрите ниже: описание, технические характеристики, datasheet , фото, каталог
QR код