

ENGINEERING

PRODUCTION

GvA SOLUTIONS

DISTRIBUTION



POWER

IS IN OUR NATURE!

→ WELCOME TO
THE HOUSE OF COMPETENCE

www.gva-leistungselektronik.de

GvA
Power Electronics

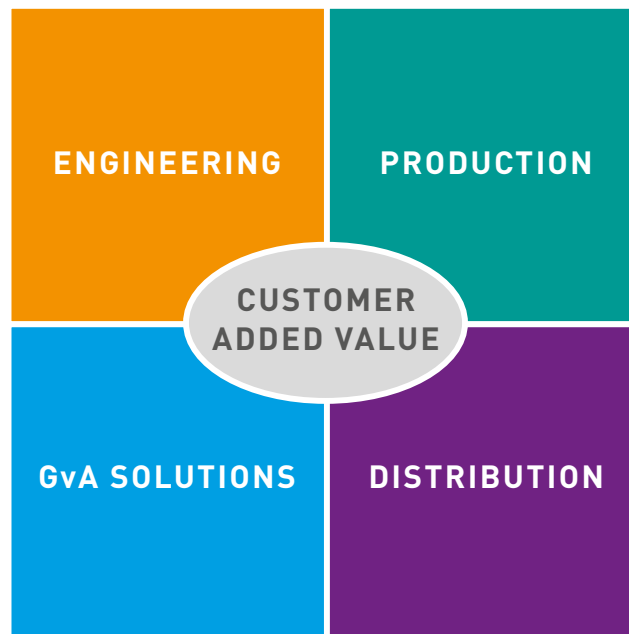
YOUR ADDED VALUE: OUR EXPERIENCE

As a power electronics competence centre, we master the entire scale of our market. We thus occupy a unique position, because we offer our customers networked

competence in the following areas: engineering, production, system solutions and distribution.

→ Quick design-to-product using state-of-the-art technologies

→ Short time-to-market with innovative plug&play system solutions



→ Extensive production experience with maximum flexibility

→ Vast product knowledge and consulting expertise

CONSULTATION, DEVELOPMENT AND DESIGN

Thanks to the special structure of GvA as an engineering office, manufacturer and distributor, the latest developments of our trading partners also provide impulses for our own development work. We are therefore in a position to implement individual solutions for our customers

always at the state-of-the-art level of the industry. Our independence with regard to the components used ensure reliable cost- and benefit-optimised results in such varied applications as:

- E-Mobility
- Induction heating
- Ripple control transmission
- Uninterruptible power supply
- Starters for motors and transformers
- Current and voltage sources
- Drives
- Traction

- Medium and high voltage rectifiers
- Active harmonic filters
- Surge current switches (pulse power)
- Solar technology
- Wind power
- Mining
- Marine
- etc.

KNOW-HOW & FLEXIBILITY

Our production capacities are oriented to customer-specific prototypes and their subsequent series production. The variety of mechanical and electrical designs requires maximum flexibility of operations and logistics. This is why our specialised staff master this field in an optimal way.

PROTOTYPE CONSTRUCTION

The constant exchange of information between employees from production and development helps to detect critical issues at an early date. This minimises costly problems during the subsequent assembly.

Short channels and a high degree of flexibility make it easy for our customers to exert influence during the manufacture of the prototypes. The scope of services includes a detailed documentation.

SERIES PRODUCTION

Our series production encompasses devices in the range from 10 kW to 3,000 kW and system outputs of up to 10s of MW. Optimised storage and flexible production planning make reliably short delivery times possible.

QUALITY ASSURANCE

Following completion, all products are subjected to a 100% output test.

The previously agreed scope of testing can be assigned to each individual device in the form of test reports. Tests that cannot be carried out on our premises are carried out at the client or at appropriate institutes.

All GvA business units are ISO 9001-certified and are subject to constant monitoring by external and internal auditors.



3D design of a 3-phase converter with sine filter for 1300 kVA system output



VARIS™ – THE MODULAR CONVERTER SYSTEM

Modular, variable, sustainable and efficient

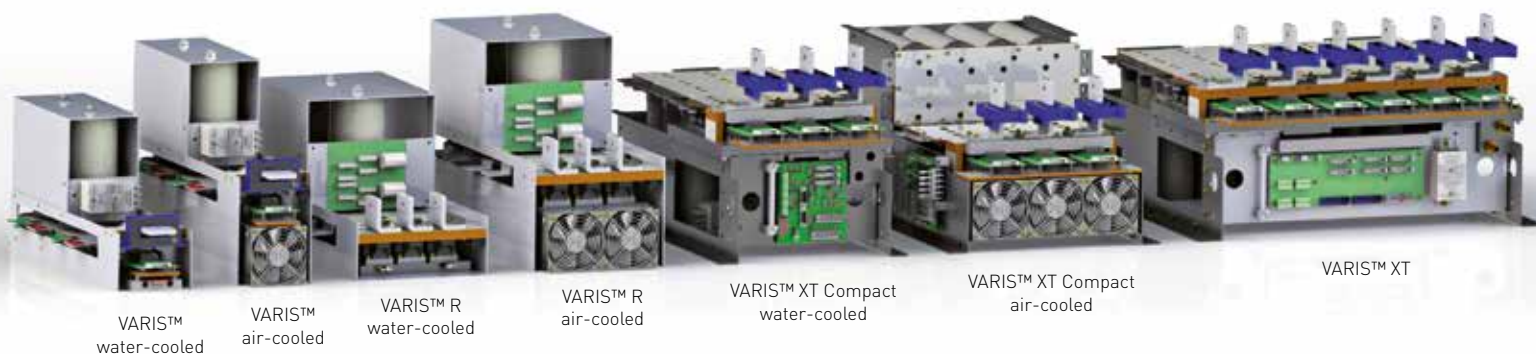
The VARIS™ concept is a modular system in which individual phase components are defined as a standard and can be combined flexibly with one another depending on the power required.

Individual half-bridge modules are configured into single-phase or three-phase inverter topologies and connected in parallel according to the required total power. This ensures scalability to various power classes.

With the open VARIS™ concept, a high degree of sustainability is achieved through the use of standard components, which can also be easily replaced if necessary.

VARIS™ XT – compact and powerful

VARIS™ XT and VARIS™ XT Compact featuring a compact design are the powerful alternatives to individual VARIS™ phase legs. Three or six half-bridge modules sharing one heat sink generate a power output of 300 kW to more than 2 MW. The parallel connection of VARIS™ XT components with the interlinking system of the DC link for multiplying the power of the entire system is as easy as with the basic version VARIS™. An interface board collects the IGBT signals as well as current, voltage and temperature values and transfers them to the plant control system.



IGBT DRIVERS FOR PRIMEPACK®

High level of information depth, also in terms of activation

The GvA plug & play driver for the PrimePACK® modules has already been available on the market for some time. In addition to the actual driver functions, it is also equipped with an analog or pulse-width-modulated temperature output for the thermal monitoring of the IGBTs.

Moreover the driver features short-circuit disconnection and status feedback of the individual IGBTs to the user's control system. The signal transmission may be either optical or electrical. An optional interface board gathers all measurement signals and the IGBT activation and status signals, thus simplifying connection to the user's system.



PrimePACK® is a trademark of the Infineon Technologies AG, Germany

IPSS – INDUCTIVE POWER SUPPLY SYSTEM

Electrical isolation made easy

With IPSS, GvA enables the separate supply of components with different electrical potentials.

IPSS is used, for example, for the switching modules in high voltage applications or for the series connection of power semiconductors.

The highlights of this system:

- ➔ Modular, flexible structure
- ➔ One basic unit replaces many individual power supply units
- ➔ Implementation as individual or integrated solution on the driver board
- ➔ Broad input voltage range
- ➔ System voltage up to 12 kV_{rms}
- ➔ Selectable output voltage
- ➔ Various decoupling units in the same current loop



GVA POWER SUPPLY SYSTEM GPSS

Powerful and partial discharge free

The new potential-free GPSS enables the powerful power supply of components with different electrical potentials - partial discharge free up to 21 kV. GPSS is available in a 2-channel version. The modular design allows the system to be easily extended to a 4 or 6 channel power supply.

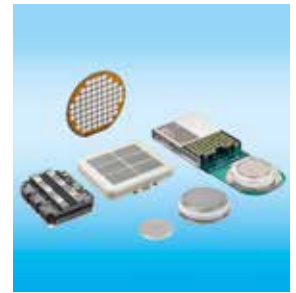
Highlights of GPSS in brief:

- ➔ Partial discharge free up to 21 kV
- ➔ Output power 150 W per channel
- ➔ Status of all connected devices
- ➔ Short circuit and overcurrent protected
- ➔ Monitoring of the input voltage
- ➔ Temperature monitoring
- ➔ High efficiency



ABB SWITZERLAND LTD SEMICONDUCTORS

- ➔ **IGBT** 1700 V - 6500 V / 150 A - 2400 A
- ➔ **IGCT** 4500 V - 6500 V / 520 A - 4000 A
- ➔ **GTO** 2500 V - 4500 V / 600 A - 4000 A
- ➔ **Fast Diodes** 2500 V - 6000 V / 170 A - 2620 A
- ➔ **Thyristors** 1600 V - 8000 V / 440A - 6000 A
- ➔ **Fast thyristors** 1200 V - 3000 V / 520 A - 2670 A
- ➔ **Diodes** 200 V - 6000 V / 662 A - 13500 A

**PROTON-ELECTROTEX JSC**

- ➔ **Thyristors** 100 V - 6500 V / 160 A - 5000 A
- ➔ **Fast thyristors** 1000 V - 4000 V / 250 A - 2000 A
- ➔ **Diodes** 1000 V - 6500 V / 200 A - 7100 A
- ➔ **Fast Diodes** 1000 V - 4400 V / 200 A - 2000 A
- ➔ **Avalanche diodes** 1000 V - 3200 V / 320 A - 5000 A
- ➔ **Diode modules** 1000 V - 6500 V / 155 A - 1280 A
- ➔ **Thyristor modules** 100 V - 6500 V / 115 A - 1250 A
- ➔ **IGBT modules** 1200 V - 1700 V / 75 A - 300 A

**FUJI ELECTRIC CO.**

- ➔ **Power integrated modules** 600 V - 1200 V, 10 A - 150 A
- ➔ **6-packs** 600 V - 1700 V, 50 A - 550 A
- ➔ **Chopper modules** 1200 V, 50 A - 400 A
- ➔ **1- & 2-packs** 600 V - 1700 V, 75 A - 900 A
- ➔ **High power modules** 1200 V - 3300 V, 600 A - 3600 A
- ➔ **PrimePACK®** 1200 V - 1700 V, 600 A - 1400 A
- ➔ **Intelligent power modules** 600 V - 1200 V, 15 A - 400 A
- ➔ **Discretes** 600 V - 1200 V, 15 A - 75 A
- ➔ **Super-junction MOS-FETs** 600 V, 20 A - 68 A

**PETERCEM**

- ➔ **Industrial current sensors** 5 A - 40000 A
- ➔ **Traction current sensors** 300 A - 40000 A
- ➔ **Traction voltage sensors** 50 V - 5000 V
- ➔ **Voltage detector** 50 V - 1500 V

**ELECTRONICON KONDENSATOREN GMBH**

- ➔ **Low induction DC capacitors** 600 V - 3000 V / 50 μ F - 7000 μ F
- ➔ **AC / DC capacitors** 700 V - 5000 V / 0,1 μ F - 2000 μ F
- ➔ **Low induction AC / DC capacitors** 550 V - 5000 V / 1 μ F - 250 μ F
- ➔ **DC link / DC filter capacitor in rectangular housing**
500 V - 6000 V / 90 μ F - 56000 μ F

**NANTONG JIANGHAI CAPACITOR CO., LTD.**

- ➔ **Electrolytic Capacitors**
- ➔ **Film Capacitors**
- ➔ **Polymer Capacitors**
- ➔ **Customized Products**



MECC.AL S.R.L.

- ➔ Extruder coolers
- ➔ Welded coolers
- ➔ Coolers with clip system for discrete semiconductors
- ➔ High-performance coolers (variable compressed elements)
- ➔ Cooler with bonded cooling fins
- ➔ Customer-specific liquid cooler



AMANTYS POWER ELECTRONICS LTD.

- ➔ **Power Drive™ for IGBT activation in high-performance applications** with 1.2 kV, 1.7 kV, 3.3 kV, 4.5 kV, 6.5 kV blocking voltage and up to 3600 A current carrying capacity
- ➔ **Amantys Power Insight™** revolutionary drivers based on a software platform for the monitoring, checking and protection of high-performance IGBTs
- ➔ **Compatible with modules from::** ABB, Dynex, Fuji Electric, Hitachi, Infineon, Mitsubishi, StarPower, Toshiba



POWER INTEGRATIONS, INC., SAN JOSE (USA)

- ➔ **Scale-2 Driver Cores** 600 V - 6500 V / 1 W - 20 W
- ➔ **Scale-2 Plug-and-Play Drivers** Ready-to-use Drivers 1200 V - 6500 V
- ➔ **SCALE-iDriver IC Family** Up to 8 A Single Channel IGBT/Mosfet Gate Drivers 600 V - 1200 V
- ➔ **DC-DC Converters** for 4.5 kV and 6.5 kV Drivers



NEOGRAF SOLUTIONS, LLC

HITHERM™ HT-C3200 Thermal Interface Material (TIM)

- ➔ Compressible graphite sheet
- ➔ Thermal performance that matches traditional thermal grease
- ➔ Simple and clean assembly and disassembly
- ➔ No pump-out effect
- ➔ No dry-out
- ➔ Defined and reproducible thermal resistance
- ➔ High reliability even in high temperature ranges (ready for SiC)

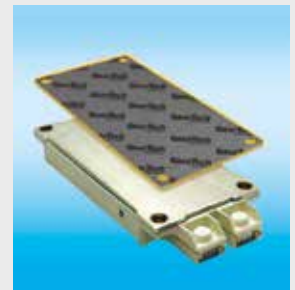


ABB SWEDEN

- ➔ **Clamping units** 3 kN - 135 kN
- ➔ **Water coolers** for 4" - 7" semiconductors



ENGINEERING



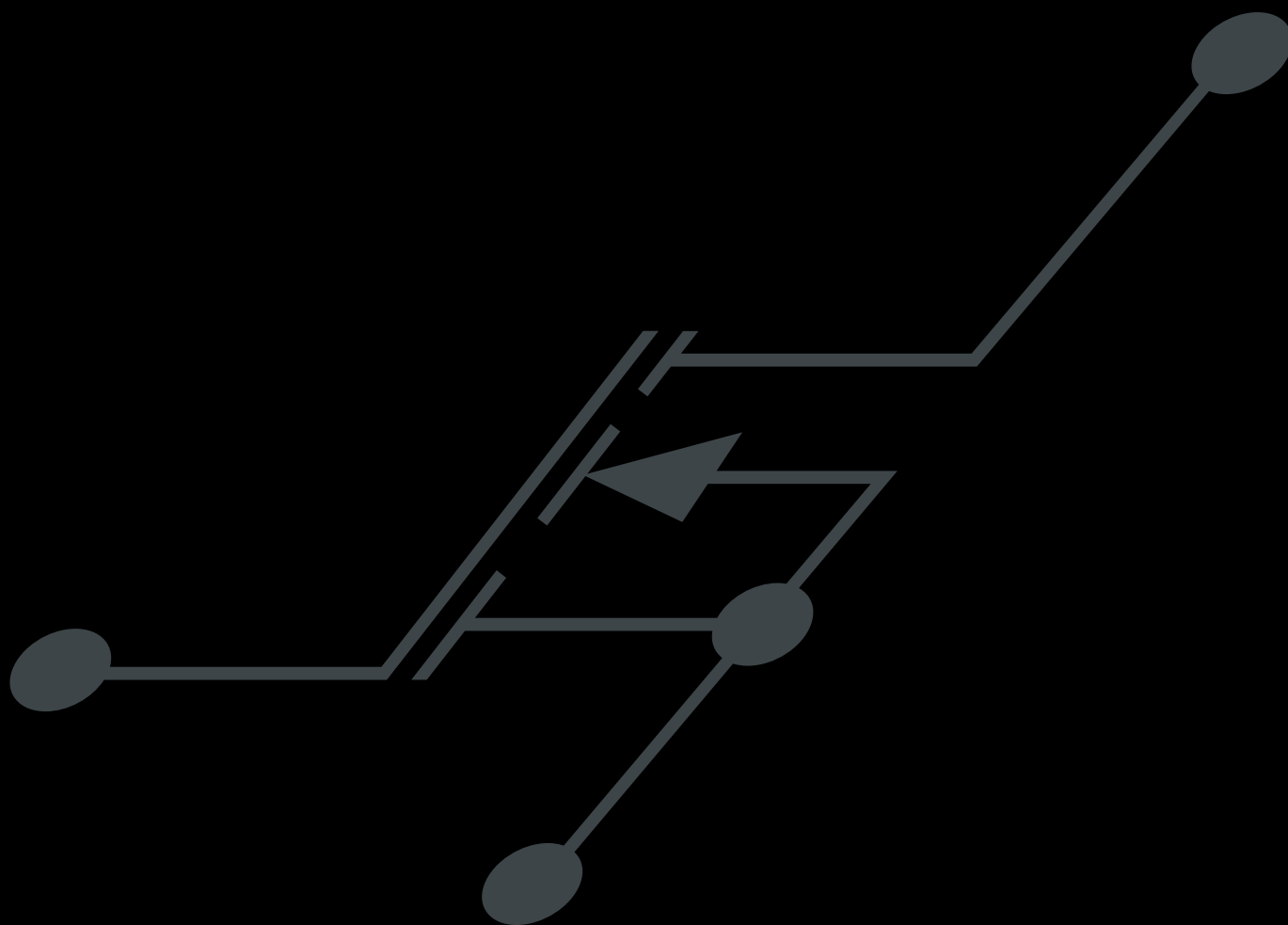
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