

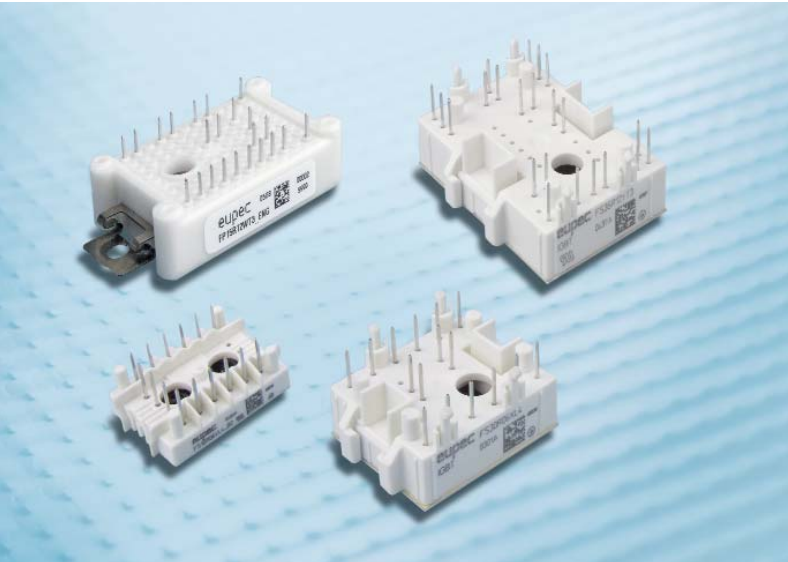
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your application demands

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PCIM



Never stop thinking



## EasyPIM™, EasyPACK

The easy way with compact modules

### Product range

600 V, 6 A - 200 A  
1,200 V, 10 A - 150 A

### Circuit design

- Bridge rectifier
- PIM
- FourPACK, SixPACK
- Dual, halfbridge

### Applications

- Air-conditioning
- Household appliances
- General purpose drives from 150 W up to 30 kW
- Pumps, fans
- Uninterruptible power supplies

### Features

- Compact module concept
- High reliability and power density
- Configuration flexibility
- Low cost design of modules
- Modules without base plates
- Easy's with clamping system and integrated Pin-Rivet
- Latest IGBT<sup>3</sup> chip technology
- IGBT<sup>3</sup> 600 V with improved reliability @  $t_{top}$  of 150 °C
- High automated production line
- RoHS compliant



## EconoPIM™, EconoPACK™

Trendsetting in case design and IGBT technology

### Product range

600 V, 10 A - 200 A  
1,200 V, 10 A - 200 A  
1,700 V, 50 A - 100 A

### Circuit design

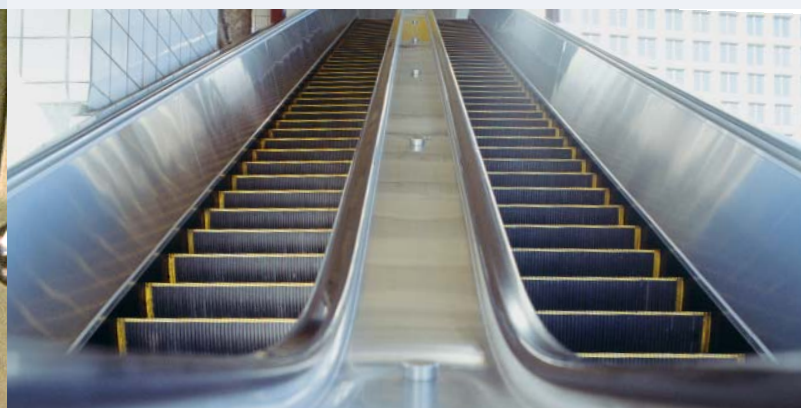
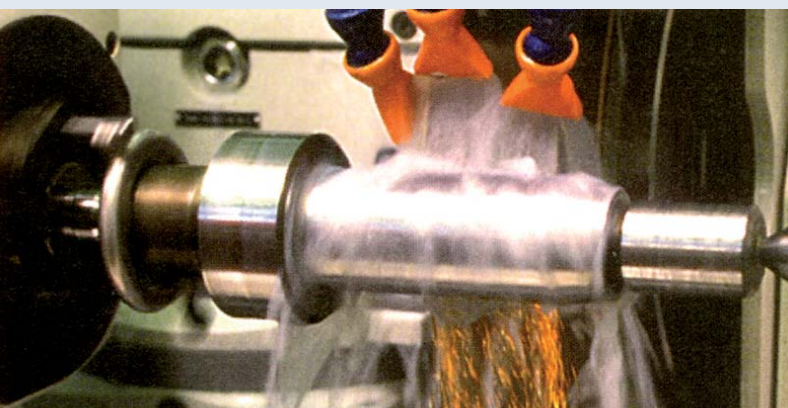
- TriPACK
- FourPACK, SixPACK
- PIM
- Shunt modules

### Applications

- Variable speed drives
- Uninterruptible power supplies
- Welding applications
- Inductive heating
- Renewables

### Features

- Module with copper base plate
- Optimized heat spread
- Included thermistor (NTC)
- Flexible pinning for customized configurations
- High reliability and power density
- Latest IGBT<sup>3</sup> chip technology
- Press-Fit new mounting technology for EconoPACK™ and EconoPIM™ modules







## 34 mm, 62 mm, EconoPACK™+, EconoDUAL™ modules

The most competitive line of IGBTs from the expert

### Product range

- 34 mm/62 mm modules
  - 600 V, 50 A - 400 A
  - 1,200 V, 25 A - 800 A
  - 1,700 V, 25 A - 600 A
- EconoPACK™+, EconoDUAL™
  - 1,200 V, 125 A - 450 A
  - 1,700 V, 125 A - 450 A Ic

### Circuit design

- 34 mm/62 mm modules
  - Single
  - Halfbridge
  - Chopper module
  - Diode module
- EconoPACK™+, EconoDUAL™
  - Dual module
  - SixPACK

### Applications

- Variable speed drives
- Uninterruptible power supplies
- Resonant converters
- Welding applications
- Renewables
- Inductive heating

### Features

- High reliability
- Full product range in various configurations
- Latest IGBT<sup>3</sup> chip technology for maximum power density and best parallel switching performance
- Symmetrical construction for even and low stray inductance
- EconoDUAL™ module concept enables more compact inverter designs
- RoHS-compliant



## IGBT high current modules IHM

The best in class, solution for high power applications

### Product range

- IHM module
  - 1,200 V, 400 A - 3,600 A
  - 1,700 V, 400 A - 3,600 A
- PrimePACK™
  - 1,200 V, 400 A - 2,400 A
  - 1,700 V, 400 A - 1,800 A

### Circuit design

- Single
- Halfbridge
- Chopper
- H-bridges
- FourPACK, SixPACK
- Diode modules

### Applications

- Variable speed drives
- Commuter trains
- Tramways and trolleybuses
- Welding applications
- Medical X-ray technology
- Uninterruptible power supplies
- Renewables
- Inductive heating

### Features

- High power density
- Modules setting a world standard in their class
- Broad range of products
- Increased creepage and clearance for use in rough environments
- Robust module design
- Good saturation and switching characteristics with wide RBSOA
- RoHS-compliant





## IGBT high voltage modules IHV

Devices for traction and high power industrial drives

### Product range

3,300 V, 200 A - 1,200 A  
6,500 V, 200 A - 600 A

### Circuit design

- Single
- Dual
- Chopper
- Diode modules

### Applications

- Industrial drives for medium AC voltage
- Traction (commuter trains as well as rapid trains)
- Large drives

### Features

- High power density for compact converter design
- AlSiC base plate for highest reliability and high power cycling capability
- Increased creepage and clearance for use in rough environments
- Lightweight materials for reduction of overall converter weight
- Extended DC stability
- New package material with  $CTI > \text{or} = 600$
- Fulfills NFF fire and smoke standards



## Bridge rectifiers and AC controllers,

## EasyBRIDGE™, EconoBRIDGE™, IsoPACK™

... for a more compact converter design

### Product range

- EasyBRIDGE™  
800 V, 30 A - 50 A  
1,600 V, 30 A - 65 A
- IsoPACK™  
1,600 V, 85 A up to 205 A
- EconoBRIDGE™  
1,600 V, 85 A up to 145 A

### Circuit design

- 3-phase rectifier in uncontrolled, half controlled and full controlled bridge
- 3-phase AC switches

### Applications

- Frequency converters in drive design
- Power supplies for welding equipment
- Uninterruptible power supplies
- Chopped power supplies for high power SMPS
- Soft starters

### Features

- EasyBRIDGE™ and EconoBRIDGE™
  - Solderpin modules with Brake IGBT and optional NTC resistor in rectifier configuration
  - Housing concept matches the EasyPACK and EconoPACK™ inverter module series
  - EasyBRIDGE™ module also available for single phase application
  - RoHS-compliant
- IsoPACK™ bridges
  - Module with screwable power terminals
  - Concept designed for replacing  $3 \times 20$  mm SCR/diode halfbridges







## Thyristor and diode modules PowerBLOCK

A product range for optimum design

### Product range

- Phase control thyristor PowerBLOCK  
800 V - 3,600 V, 60 A - 800 A
- Rectifier diode PowerBLOCK  
800 V - 4,400 V, 85 A - 1,070 A
- Fast thyristor PowerBLOCK  
800 V - 1,300 V, 46 A - 200 A
- Asymmetrical thyristor PowerBLOCK  
800 V - 1,300 V, 50 A - 220 A
- Fast Diode PowerBLOCK  
800 V - 2,600 V, 46 A - 240 A

### Circuit design

- Modules with single diode or thyristor
- Modules with two diodes, thyristors or in combination of both
- In halfbridge configuration for phase rectifier or AC switches

### Applications

- Industrial drives
  - Soft starters
  - Power supplies
  - Renewables
  - Welding applications
  - Electrolysis
  - Traction
- Features**
- Modules in pressure contact technology with screwable power terminals for high current and blocking voltage
  - Highest robustness and reliability
  - Nearly all configurations are available for easy rectifier assemblies

## Thyristor and diode PressPACK

When maximum power output is required at minimum power losses



### Product range

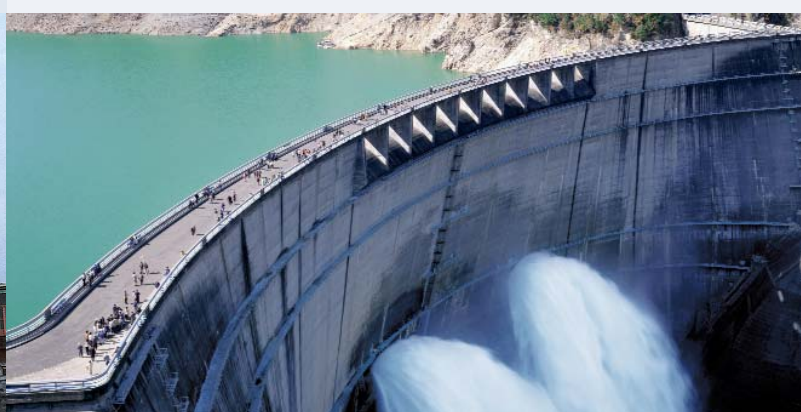
- Phase control disc thyristors  
200 V - 8,000 V  
86 A - 4700 A
- Light-triggered thyristors LTT  
5,200 V - 8,000 V  
500 A - 4000 A
- Fast disc thyristors  
200 V - 2,000 V  
72 A - 1,100 A
- Fast asymmetrical disc thyristor  
1,000 V - 1,300 V  
158 A - 438 A
- Rectifier disc diodes  
200 V - 9,000 V  
120 A - 8,000 A
- Fast rectifier disc diodes  
600 V - 6,500 V  
56 A - 1,460 A

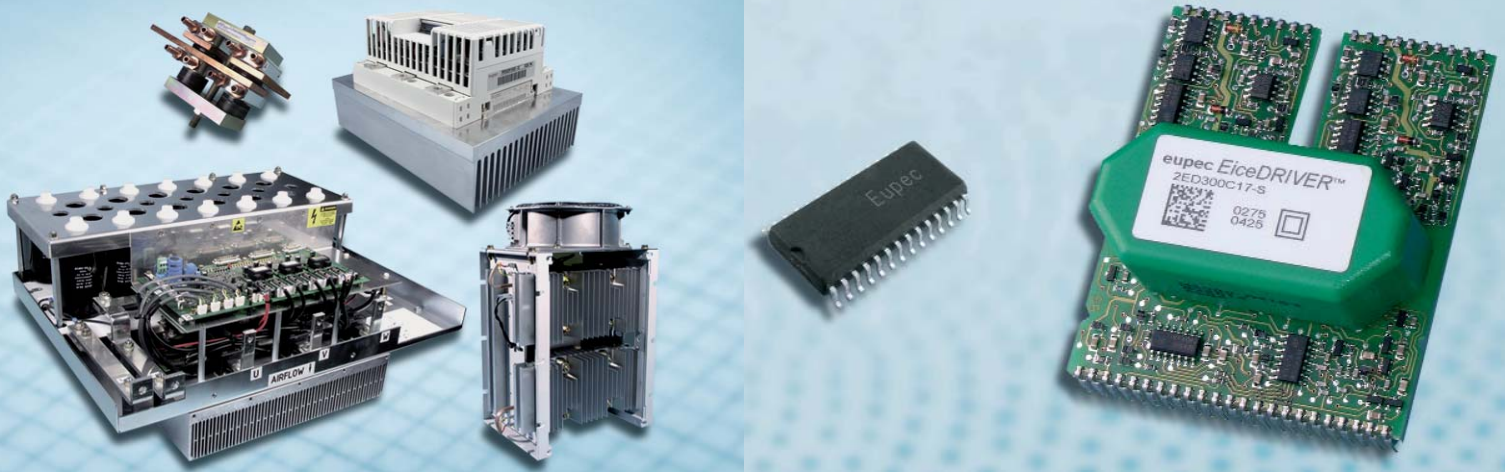
### Applications

- Electric energy mains
- Industrial drives
- Soft starters
- Traction
- Power supplies
- Welding applications
- Electrolysis
- Renewables
- Pulsed power applications
- HVDC line transmission systems
- Static VAR compensation (SVC)

### Features

- Wide product range
- High current
- High blocking voltage
- Light-triggered
- High robustness
- High reliability





## Stacks and subassemblies

We are the experts for cooling management

## EiceDRIVER™ IGBT driver boards and ICs

Driving the intelligent way

### Product range

- SCR/diode stacks and sub-assemblies thyristor  
180 V - 2,500 V, 10 A - 5,000 A
- IGBT ModSTACK™  
180 V - 690 V, 50 kVA - 4 MVA
- IGBT PrimeSTACK  
1,200 V IGBT, up to 1,600 A  
1,700 V IGBT, up to 1,200 A

### Applications

- Electric energy mains
- Industrial drives
- Soft starters
- Traction
- Power supplies
- Welding applications
- Electrolysis
- Renewables
- Pulsed power applications
- HVDC line transmission systems
- Static VAR compensation (SVC)

### Features

- Shortened customers development time
- Cost advantage by providing an ideal power section with optimized cooling management
- Offering water and air-cooled heat sinks
- Integrated thermal management
- Modular approach
- Easily expandable by paralleling units
- Low inductance design

### 2ED300C17 - S/ST

#### Features

- For 1,200 V / 1,700 V IGBT modules
- $V_{CEsat}$  monitoring
- “Soft shut down” for fault conditions
- Safe electrical isolation according to EN 50178
- Integrated DC - DC SMPS 8 W
- High peak output current 30 A
- 15 V secondary drive voltage

#### Applications

- Traction
- Large drives
- Distributed power
- Other applications > 100 kVA

### 2ED02012 - F

#### Features

- Fully operational to 1,200 V
- Gate drive supply range from 13 V to 18 V
- Gate drive currents of +1 A / - 2 A
- Matched propagation delay for both channels
- High dV/dt immune
- General purpose operational amplifier
- General purpose comparator

#### Applications

- General purpose drives
- Other applications up to 15 kVA







## Philosophy

### Our business philosophy is “our customers first”

WE ARE ALWAYS ANXIOUS to have an open dialogue with our customers. This includes that if any problems occur we always choose a direct way of finding solutions together quickly. Our customers benefit from innovative technologies and services and we support them as far as successful marketing of their products is concerned. Many product innovations were developed on this basis.

WE HAVE AN EXPERIENCED TEAM of regional application engineers supporting our customers in designing our products into their solutions. We create evaluation boards to enable a fast and reliable solution for the integration of our modules and devices in renewable power systems.

REGULAR QUALITY CERTIFICATION AUDITS of our company operated together with our customers strength our confidence and make our high reliable production processes more transparent.

OUTSTANDING CUSTOMER SATISFACTION verifies the success of our work. Content customers are not conceivable without excellent connections to our suppliers. An open and intensive cooperation in all areas is the basis for long-term partnerships. Both sides consider this to be most important.

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