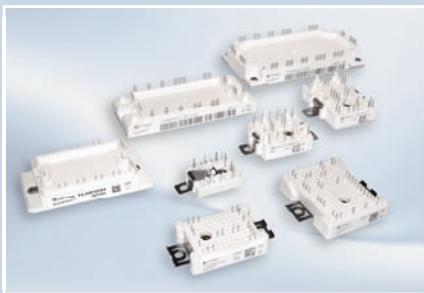




## Solutions for Industrial Drives

Electronic speed-control systems save energy and increase performance





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best in class active  
power switches.**

## Introduction

ELECTRICAL DRIVE SYSTEMS play a key role in energy savings. They account for two-thirds of power in industry and they are a central feature of automation systems. Two different groups in the industrial drive technology can be recognised. The first group includes electrically driven machines requiring speed control systems for process technology. This group includes, for example, machine tools and metering machines for which precision in movement is required. The second group includes, for example, pumps and fans where precision torque or speed control systems are not needed. A common disadvantage of this group is large energy consumption where poor efficiency is a result of an electric machine operating in a non-optimal fashion.

THE ENERGY CONSUMPTION can be significantly improved by increasing drive system efficiency overall. This important task can be completed by electronic speed control systems where wasted energy is transferred to an electrical machine in a controlled matter. The energy transformation occurs in a converter where moderated output frequency, voltage, and modulated phase current operate the machine most efficiently. These converters connected to e-machine are commonly known as Variable Speed Drives and are available at power levels from watts up to megawatts.

THE PERFORMANCE OF A DRIVE with an electronic speed control can meet the highest technological and commercial requirements. Using Infineon's high-quality components allows designers to build reliable and cost-optimised converters. Choosing the right components will ensure the best efficiency and satisfaction.





## Our contribution to your success

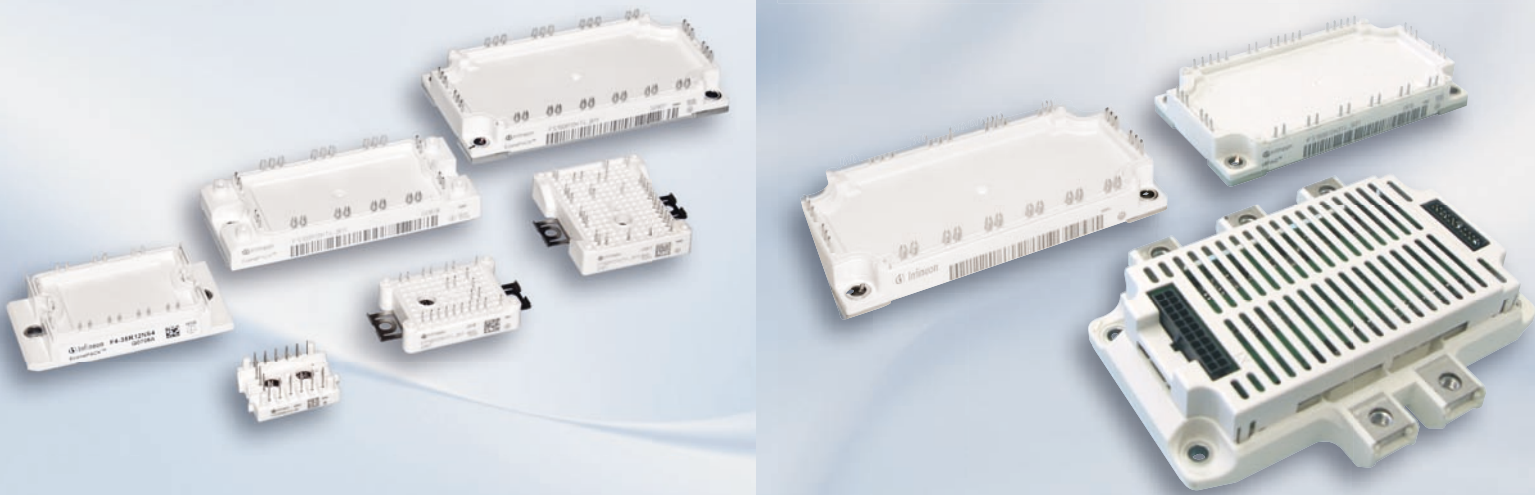
INFINEON TECHNOLOGIES AG provides the latest chip technology embedded into innovative mechanical module designs. This enables our customers to develop highly reliable and efficient solutions. Based on our leading industrial technology, the highest quality, and manufacturing know-how, we offer:

- A wide portfolio of innovative power components
- Reliable and highest-quality products

WE SHORTEN CUSTOMER DEVELOPMENT CYCLE TIME and cost by providing design-in support with:

- A worldwide application engineering team
- Evaluation boards for fast prototyping and testing
- In-depth technical and system expertise support from a dedicated regional team

BY THE EFFECTIVE COMBINATION of customer know-how and Infineon's in-depth technical support, our customers achieve cost-competitive and innovative solutions.

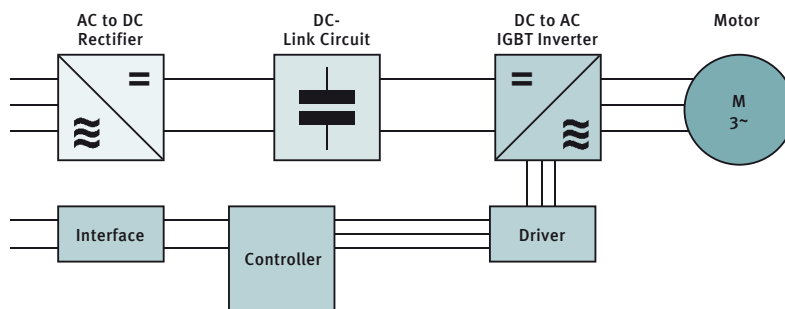


## Power-converter solution

### Application examples

- Fans
- Pumps
- Compressors
- Air-conditioning systems
- Washing machines
- General-purpose drives

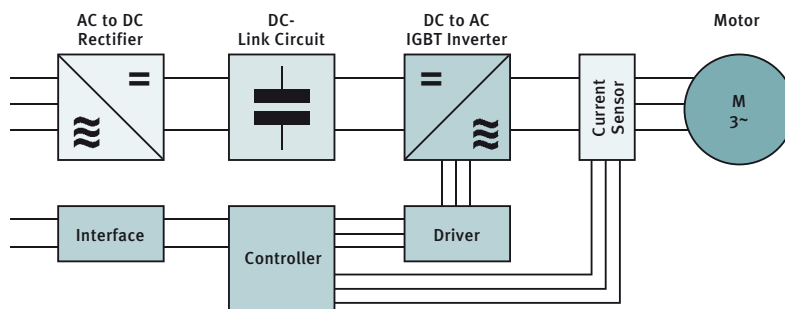
### Motor-control solution

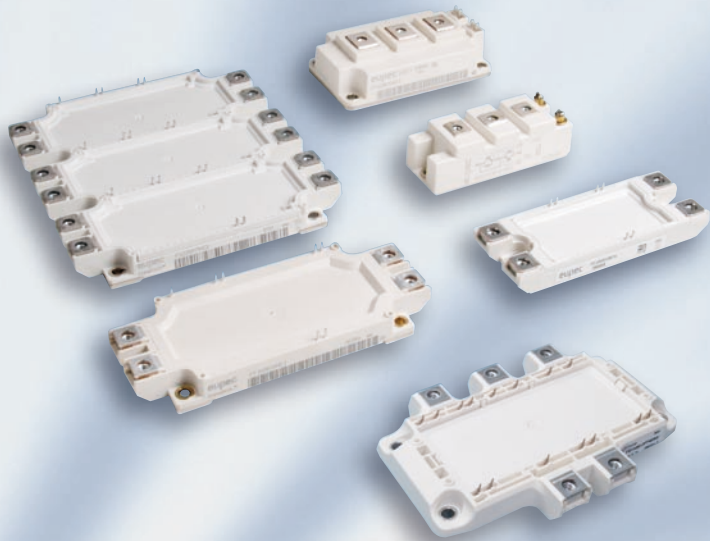


### Application examples

- General-purpose drives
- Servo drives
- CNC machines
- Process controls
- Robotics
- High-precision drives

### High-performance motor-control solution





## Application examples



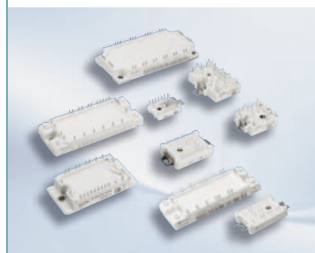
Low-power Modules



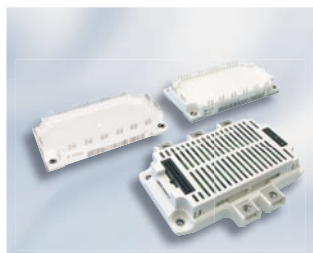
Medium-power Modules



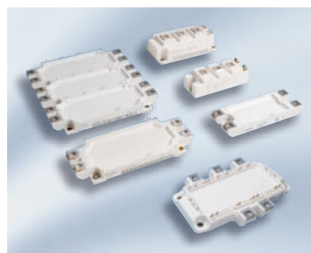
High-power Modules



500 W



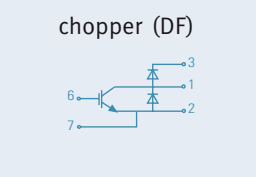
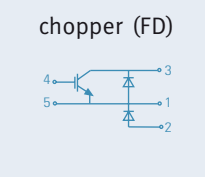
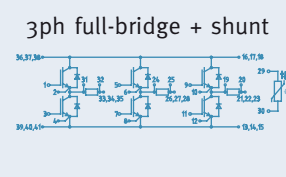
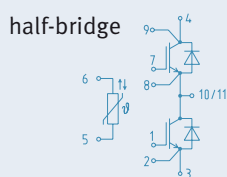
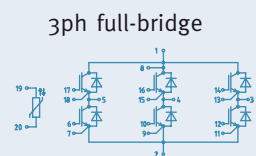
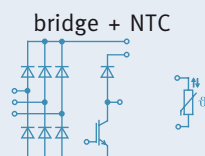
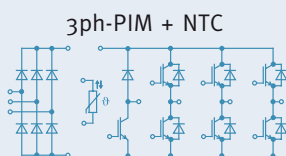
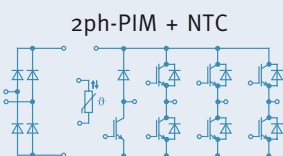
Inverter Output Power



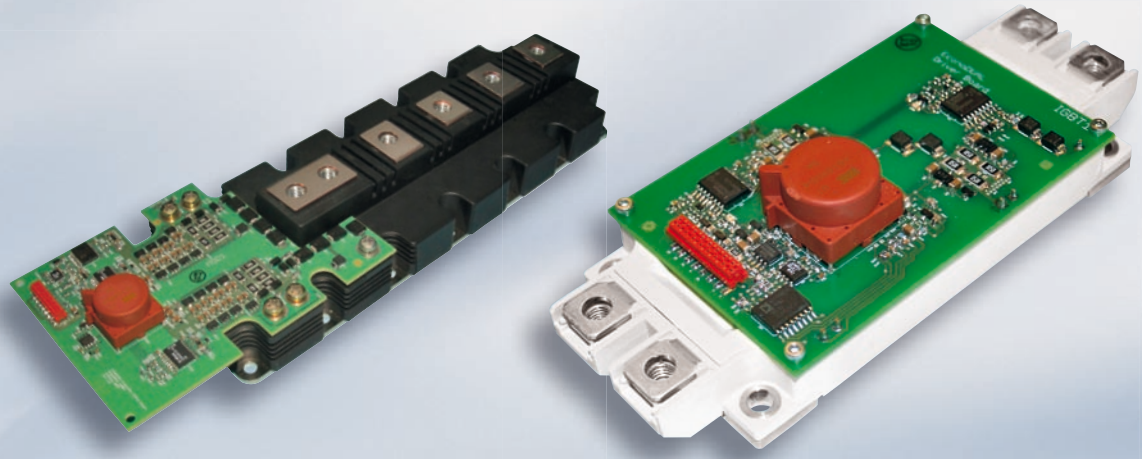
2MW



## Examples of module configurations







## The EiceDRIVER™ family

### Features

- For Infineon IGBT modules up to 1700 V
- Matching requirements of recent IGBT technology
- Designed to meet application requirements

### Applications

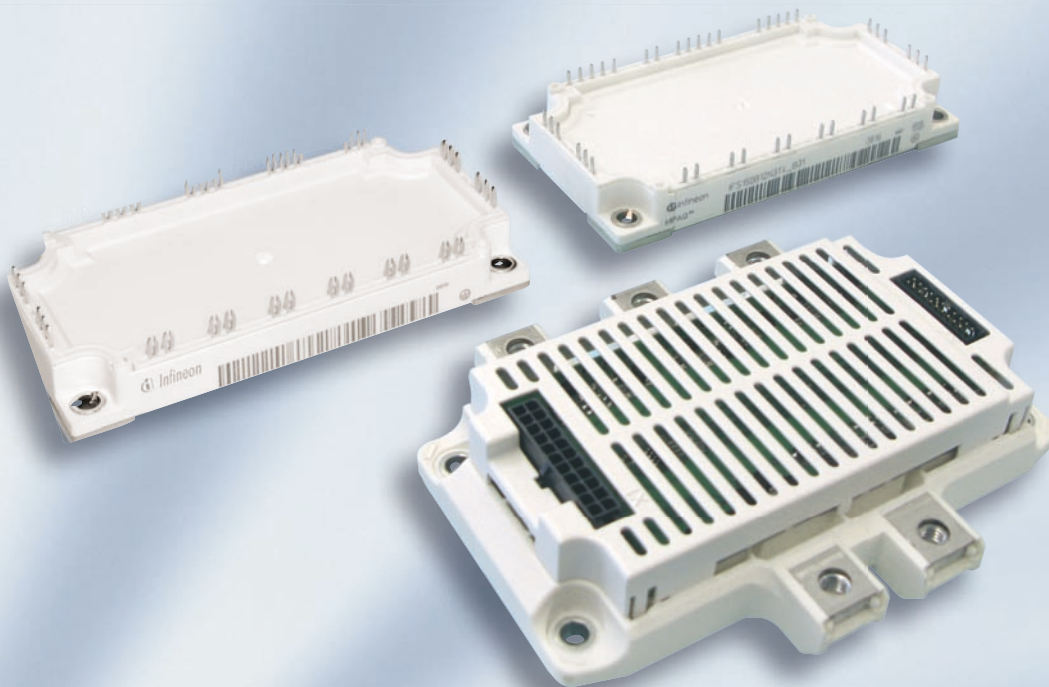
- General-purpose Drives
- Servo Drives
- Decentralized Drives
- Direct Drives
- Active Front Ends

EiceDRIVER™ are a range of IGBT drivers that are matched to Infineon IGBT modules

EiceDRIVER™ ICs OFFER an alternate solution to optocouplers and level-shifters by using Coreless Transformer Technology. These drivers will provide exceptional performance with respect to speed and temperature range.

EiceDRIVER™ BOARDS are intended to drive IGBT modules requiring higher power and isolation voltages. These boards also have some interesting features that are important for parallel operation of IGBT modules.

EiceDRIVER™ Evaluation Boards are offered as an application support tool. These boards are accompanied by a comprehensive application note containing all the information needed to test, modify and qualify a design for production.



## MIPAQ™

MIPAQ™ IS A NEW FUNCTIONAL product family that is dedicated to useful integration of electronics into power modules.

THE MIPAQ™ FAMILY was developed in order to offer Modules Integrating Power, Application and Quality. It is a functional product family within Infineon's IGBT modules portfolio. The combination of an IGBT module and the integration of sensing and driving electronics is an optimized solution for mastering the challenge of designing powerful and compact inverters for low and medium power. These products reduce costs, contribute to energy savings, improve profitability, and protect our environment at the same time.

THE MIPAQ™ FAMILY includes three products that offer significant board space savings:

- MIPAQ™ base
- MIPAQ™ sense
- MIPAQ™ serve

THE MIPAQ™ base module integrates shunts, while the MIPAQ™ sense module has an additional current measurement feature that is fully digital with galvanically isolated output signals. The MIPAQ™ serve module includes driver electronics.

### Applications

- General-purpose Drives
- Servo Drives
- Air-conditioning systems
- Solar inverters
- Uninterruptible Power Supplies (UPS)



## Summary

THE TECHNOLOGY OF ENERGY CONVERSION systems for VSDs (Variable Speed Drives) is often driven by innovations in power electronic switches. Improvements on Infineon's semiconductor technology and packaging enable our customers to meet the most demanding technical and commercial requirements.

### Chip technologies

INFINEON'S NEW IGBT chip technologies with trench structures and field stop concept together with innovative packaging guarantee robust and reliable devices with the highest power integration and the lowest power losses. Infineon satisfies various customers by offering a broad range of IGBT modules from EasyPIM™/EasyPACK for low-power applications up to 6,5kV IHV devices enabling systems rated at megawatts.

### Packaging

OVER THE YEARS, INFINEON HAS SET the module packaging standards. Our leading position is historically proven by standardisation of products that were introduced early. Most of them such as 62mm, 34mm, EconoPACK™, EconoPIM™, IHM, and IHV are widely in use. Recently introduced PrimePACK™ IGBT modules housing have again become a worldwide industry standard.

WE BELIEVE our competence in implementing the latest technologies in power electronic switches have revolutionised the industrial drive market. We provide high-quality products and meet the most challenging customer requirements.

### Great opportunities

- Best energy efficiency
- Innovative module housings and interfaces
- Well-known high quality
- Broad product portfolio by voltage and current range
- Popular topologies often implemented into one module housing
- Easy modularity and scalability
- Reliability proven by best connection techniques





## Our business philosophy is “our customers first”

WE ARE ALWAYS anxious to have an open dialogue with our customers. 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 have been 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 fast and reliable solutions for the integration of our modules and devices in variable-speed drives.

REGULAR QUALITY certification audits of our company operated together with our customers strengthen our confidence and make our highly reliable production processes more transparent.

OUTSTANDING CUSTOMER SATISFACTION verifies the success of our work. Customers cannot be satisfied without having excellent connections to their suppliers. An open and intensive cooperation in all areas is the basis for long-term partnerships.

WE WORK TOGETHER. Visit [www.infineon.com](http://www.infineon.com) and find the right product.

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