

We empower a world of  
unlimited clean energy



Infineon Technologies Bipolar



[www.ifbip.com](http://www.ifbip.com)



We make life easier, safer and greener – with technology that achieves more, consumes less and is accessible to everyone.

# Part of your life. Part of tomorrow.

The demand for energy increases year after year. The driving factors are, of course, the raising population around the globe and on the other hand the steadily increasing living standard which leads to more and more energy consumption per person.

Naturally, this conducts to an increase in energy production. In many countries the sources for energy production are far away from the centers of energy consumption.

This is especially true for green energy production such as hydro, wind and solar power plants. In other projects the

distance may be shorter, but the installation of the power connection is complex; for example, if a sub-sea cable connection is required. In these cases High Voltage Direct Current (HVDC) transmission is the best solution to connect source and consumer site.

Since there is a new demand for increased power transmission capabilities, new concepts based on Press Pack IGBT with an external freewheeling diode have come into focus as an alternative realization for VSC architectures.

# Quality made in Germany

Our markets are dynamic. In the semiconductor industry it is important to foresee changes and make them possible quickly. This is why Infineon Technologies AG and Siemens AG decided in 2007 to jointly shape the path into the future, setting up a joint venture for the purpose: Infineon Technologies Bipolar.

The competencies of these two global corporations come together at our headquarters in Warstein. Surrounded by nature, just a few kilometers from Lake Möhnesee, you will find all the central functions of the company as well as chip production. In addition, a large number of customer-specific assemblies are also manufactured here every year. The back-end production is located south of Budapest in Cegléd (Hungary).



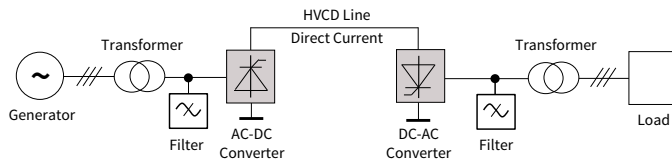




# HVDC transmission applications

The typical HVDC systems – about 100 thyristors in series connection in a single valve

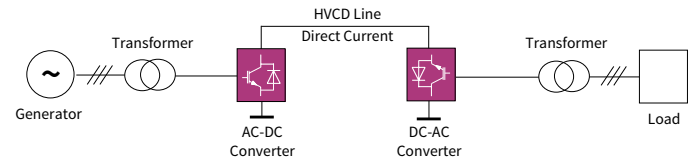
## Line Commutated Converters (LCC)



### Line-Commutated Current-Sourced Converter (LCC/CSC)

› Thyristor with turn-on capability only

## Voltage Sourced Converters (VSC)



### Self-Commutated Voltage-Sourced Converter (SCC/VSC)

› Semiconducting switches with turn-on and turn-off capability, e.g. IGBTs



# Transmission & Distribution (T&D)

## HVDC

### LCC

(Line Commutated Converters)

#### Thyristors

- › 9.5 kV ETTs (Electrically Triggered Thyristors)
  - › T1901N80TOH
  - › T2871N80TOH
  - › T7300N85X203

- › 9.5 kV LTTs (Light Triggered Thyristors)
  - › T1503N80TOH
  - › T2563N80TOH
  - › T6900N92L204



### VSC

(Voltage Sourced Converters)

#### Freewheeling Diodes (FWD)

- › D1600U45T
- › D2700U45T
- › D3900U45T
- › D4600U45T

#### Protection Thyristors

- › T1930N33T
- › T1800N45T
- › C3100N65T

#### Rectifier Diodes

- › D3300P90X152

#### Press Pack IGBTs

- › P2000D45X168
- › P3000Z45X168



## FACTS

### SVC

(Static Var Compensators)

#### 9.5 kV ETTs (Electrically Triggered Thyristors)

- › T1901N80TOH
- › T2871N80TOH

#### 9.5 kV LTTs (Light Triggered Thyristors)

- › T533N80TOH
- › T1503N80TOH
- › T2563N80TOH



### STATCOM

(Static Synchronous Compensators)

#### Freewheeling Diodes (FWD)

- › D1600U45T
- › D2700U45T
- › D3900U45T
- › D4600U45T

#### Press Pack IGBT

- › P2000D45X168

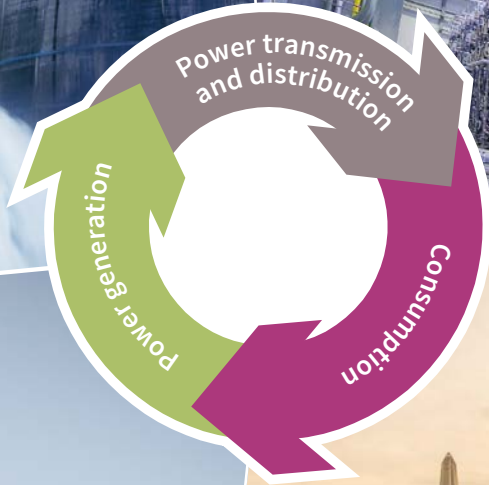
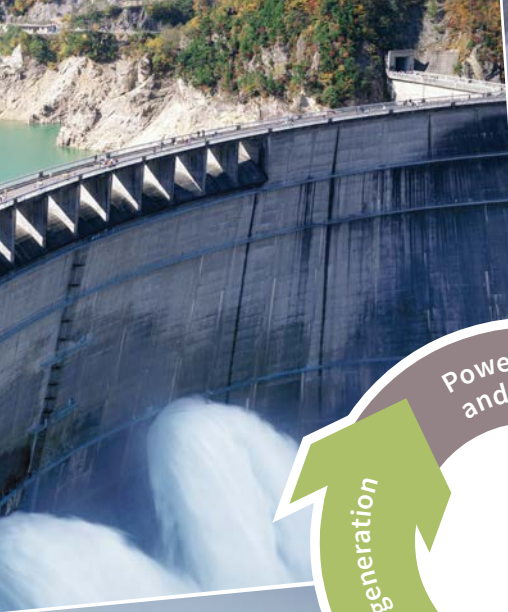


# When quality and performance decide:

- › Over 75 HVDC projects are installed under extreme conditions – from hot middle east to polar regions all around the globe.
- › We served 15 HVDC projects to transmit Hydro Power with nearly 50 GW transmission power.
- › We served 8 HVDC Offshore Windpower projects with more than 5 GW transmission power.
- › Infineon devices for HVDC applications offer highest quality and reliability due to robust design and outstanding production processes.







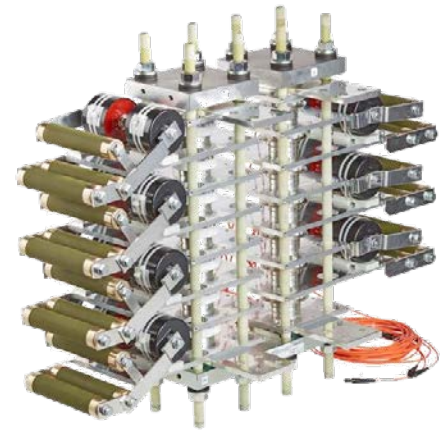


# How can Infineon help you to be successful?

Infineon is the leading supplier of high-power semiconductors in the world. Investments in production capacity in Germany and Hungary took place as well investments into Test Lab in Warstein (Germany) and Beijing (China) for high-power semiconductors which shows the company's commitment into power electronics development and manufacturing.

With our comprehensive portfolio of stack assemblies with power semiconductors we offer our support as leading manufacturer of power semiconductors.

For evaluations with our components, we can equip you with assemblies - tailored to your needs. From more than 25,000 assembly variants we realize together with you the best fitting Power Stack specifically for your requirements.







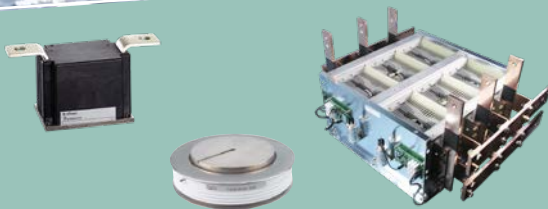
# Ready for Infineon® Power Stacks?

Infineon® Power Stacks with bipolar power semiconductors are used in most varied applications in a power range from a few kilowatts up to several megawatts. The modular portfolio of our System Line covers solutions with thyristors, Press-Pack IGBTs and diodes and is optimized to the respective requirements.

## 4 steps to your individual Power Stack

We support your requests flexible with building blocks:

1. Find a module or disc which supports your application needs
2. Choose one of the building blocks for basic circuits
3. Define the stack from blocks according the applications needs
4. Add accessories according the applications needs





## Your possible choice

22

heatsink designs

75

block designs

over

8,600

block variants

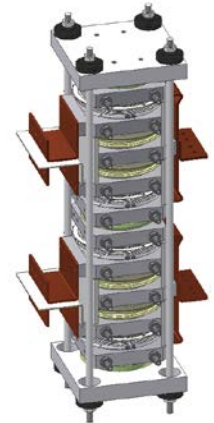
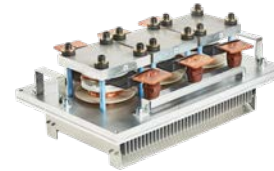
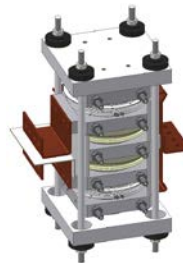
over

25,700

stack designs

### Applications

- › Industrial AC and DC drives
- › Soft starters, STATs
- › Rectifiers and static by-passes in UPS
- › Wind energy systems
- › Welding, plating
- › Electrolysis
- › Electric heat
- › High voltage LCC, VSC (HVDC) transmission systems
- › Flexible AC transmission systems (FACTS)
- › TAP changers for transformers
- › Controllable transformers
- › Pulsed Power, Crowbars
- › Freewheeling and clamping circuits
- › Exiter devices
- › Rectifiers for VSI



# What we promise

The protection of our earth through sustainably handling with energy is one of the biggest challenge in the 21th century. Therefore we develop and manufacture the advanced bipolar power semiconductors which are used in most applications along the whole energy supply chain. Our products ensure lowest loss in energy conversion and transmission.

A technology that achieves more, wastes less and is accessible for everyone.

That is our contribution for a worth living future.



Martin Hierholzer



Martin Obertriffter





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