

Product Brief

Stacks

We are the experts in power systems

To shorten customers time to market, we provide reliable and highest quality stacks and assemblies offering optimized thermal management. These advanced systems provide design support and help to optimize system costs.

The PrimeSTACK™ family is a complete switch solution for power electronic circuits, also containing all necessary components for current, voltage and temperature measurements.

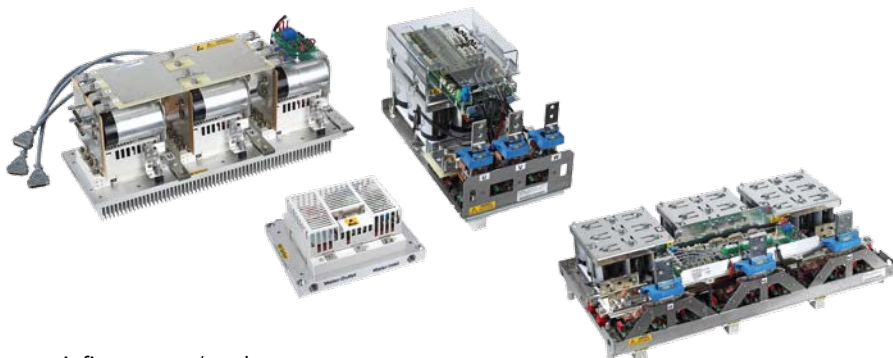
Control electronics and the power connections are fully separated from each other by “reinforced isolation”. With several superior monitor functions, PrimeSTACK™ offers a self-protecting switch function and enables designers to quickly and easily develop highly efficient and safe inverters. The product scope covers current ratings from 300 A up to 1800 A at 1200 V or 1700 V.

The ModSTACK™ family includes our IGBT modules with IGBT drivers to achieve current ratings from 800 A up to 3000 A at line supply up to 690 VAC. Appropriate interfaces and thermal management are included. Standard inverter topologies, such as half-bridge or 3-phase bridge, are available, as are various converter topologies.

Product Range

- > PrimeSTACK™: 200 kW – 900 kW
- > ModSTACK™ HD: 600 kW – 8 MW
- > ModSTACK™ C: 600 kW – 1.2 MW
- > ModSTACK™ 3: 800 kW – 3.0 MW ¹⁾
- > ModSTACK™ HD: 500 kW – 8.0 MW ¹⁾

¹⁾ by paralleling



Key features

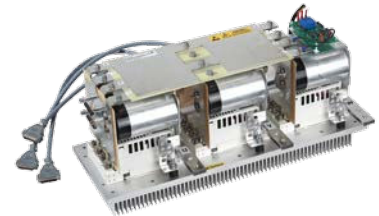
- > Short time to market and reduced system costs due to “ready-to-use” power section
- > Flexible system for power solutions due to modular approach
- > Modular stack design for industrial approved cabinets
- > Power range up to 8 MW in parallel operation mode
- > Easy paralleling
- > Optimized integrated thermal management
- > Low inductance IGBT stack design

Applications

- > Industrial drives and elevators
- > Renewable energy
- > Distributed power generation systems
- > UPS
- > Traction
- > Energy treatment and HVDC conversion
- > Galvanic, electrolysis
- > Electroplating
- > Pulsed power
- > Asynchronous power links

PrimeSTACK™

The primary IGBT stack for your system



ModSTACK™ case size	C3	C4	CF (3 x C4)
Width x depth x height [mm] including heat sink, but excluding optional parts like capacitor box	216 x 280 x 167	216 x 360 x 167	645 x 438 x 167

General features

- > Available with 1200V & 1700V IGBT
- > Based on 62 mm modules
- > Various standard heat sinks with forced air- or liquid cooling
- > EiceDRIVER™ inside
- > Reinforced isolation according to EN50178
- > Optional DC link voltage monitoring
- > Temperature sense
- > Current sense of every output leg
- > Analog output of all sensor signals
- > Optional with capacitor box

ModSTACK™ C

1700 V_{CES}, V_{AC} = 690 V_{RMS}

	I _{rms} ¹⁾ [A]	f _{swmax} [kHz]	V _{DCmax} [V]	Cooling	Topology	Voltage sensor	Current sensor	Temperature sensor	DC link Capacitor	Housing ³⁾	Driver signal
2LS20017E42W	1520	4	1216	liquid	1/2B2I		X	X		MS C2 (205 x 399 x 118)	electrical

1) simulated at 3kHz, all other parameters refer to datasheet conditions

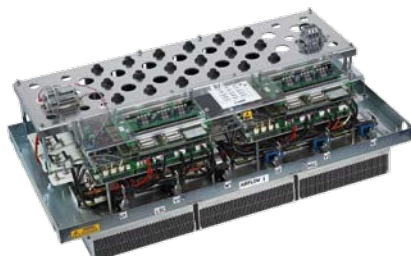
3) Width x depth x height [mm] including heatsink, but excluding optional parts like DC link capacitor box

Available configurations

Description	Circuit
1/2B2I	

ModSTACK™ 3 and ModSTACK™ HD

A cost-effective approach for megawatt control



ModSTACK™ case size	ModSTACK™ 3	
Width x depth x height [mm]	1090 x 596 x 345	
Topology	B6I	
Cooling	forced air	liquid
Max. current [A_{RMS}] ¹⁾	816	1120
Approximate maximum power ²⁾ with $\cos(\phi) = 0.85$	840 kVA 710 kW	1290 kVA 1100 kW

¹⁾ simulated at 3Khz, all other parameters refer to datasheet conditions

²⁾ typical output current at $V_{DC} = 1100V$, $f_{sw} = 3\text{ kHz}$, $V_{AC} = 690V$, $f_o = 50\text{ Hz}$, $\cos(\phi) = 0.85$, $T_A = 40^\circ\text{C}$, $T_J \leq 150^\circ\text{C}$



ModSTACK™ case size	ModSTACK™ HD1	ModSTACK™ HD3
Width x depth x height [mm]	338 x 590 x 375	1090 x 596 x 366
Cooling	liquid	liquid
Topology	B6I	B6I
Max. current ¹⁾ [A_{RMS}]		
Approximate maximum power ²⁾ with $\cos(\phi) = 0.85$	813 kVA 691 kW	2438 kVA 2072 kW

¹⁾ simulated at 3Khz, all other parameters refer to datasheet conditions

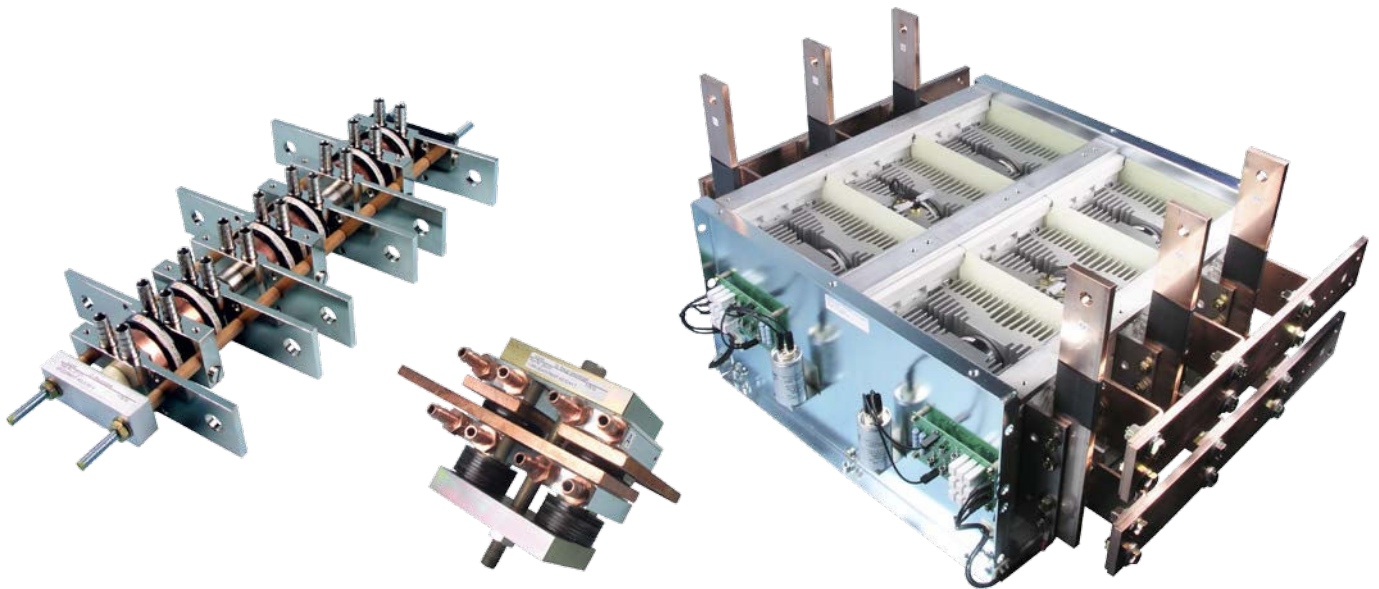
²⁾ typical output current at $V_{DC} = 1100V$, $f_{sw} = 3\text{ kHz}$, $V_{AC} = 690V$, $f_o = 50\text{ Hz}$, $\cos(\phi) = 0.85$, $T_A = 40^\circ\text{C}$, $T_J \leq 150^\circ\text{C}$

General features

- > Modular stack system designed for industrial approved cabinets
- > Low inductance DC link with polypropylene or electrolytic capacitors
- > Integrated IGBT EiceDRIVER™
- > Voltage signals for control and monitoring (currents, voltages, short circuit, heat sink temperature, failure signals)
- > Liquid or forced air cooling available
- > Up to 4 units can be operated in parallel
- > Electrical or optical interface for digital control signals available

BIP-Stacks

Optimized solutions directly from Infineon Technologies Bipolar



Benefits

Diode/SCR-Assemblies and Stacks from leading manufacturer of power semiconductors

- › Minimize risks and reduce time to market
- › Use our direct technical support
- › Ask for customization to optimize your system performance

Main features

- › Modules- and discs-assemblies up to several 10 kA / 40 kV
- › Additional parts like water connectors, fans, fuses, snubbers and sensors
- › Over 4,000 customized designs in portfolio
- › Benefit from over 40 years of experience

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