

Product brief

HybridPACK™ Drive 750 V

FS820R08A6P2x, FS660R08A6P2Fx, FS770R08A6P2x, FS950R08A6P2x

The HybridPACK™ Drive is a very compact power module optimized for hybrid and electric vehicle main inverter applications (xEV). The lead type FS820R08A6P2B (820 A/750 V) is a six-pack module optimized for 150 kW inverters. The power module implements the new EDT2 IGBT chip generation, which is an automotive Micro-Pattern Trench-Field-Stop cell design. The chipset has benchmark current density combined with short circuit ruggedness and increased blocking voltage for reliable inverter operation under harsh environmental conditions. The EDT2 IGBTs also show excellent light load power losses, which help to improve the system efficiency over a real driving cycle significantly. The chipset was optimized for switching frequencies in the range of 10 kHz.

The new power module family HybridPACK™ Drive comes with mechanical guiding elements supporting easy assembly processes for customers. Furthermore, the press-fit pins for the signal terminals avoid time consuming selective solder processes, which provide cost savings on system level and increases system reliability.

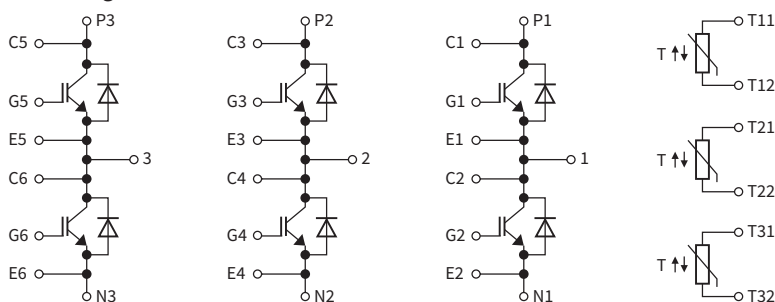
The lead type FS820R08A6P2B has a PinFin baseplate for an optimized direct fluid cooling and thus high current density. The Wave product derivate (FS770R08A6P2x) offers optimized costs for fluid cooling with a Ribbon-bond baseplate. The flat baseplate options FS660R08A6P2Fx enable cost savings in case lower inverter performances are suitable. The performance FS950R08A6P2B introduces Silicon Nitride ceramic resulting in highest power rates within the Drive family.

The HybridPACK™ Drive power module comes with high clearance and creepage distances and makes this new module family also well suited for increased system working voltages. Furthermore, the flexible signal pin and power tab concept allows further product variants and thus support best modular inverter approaches.

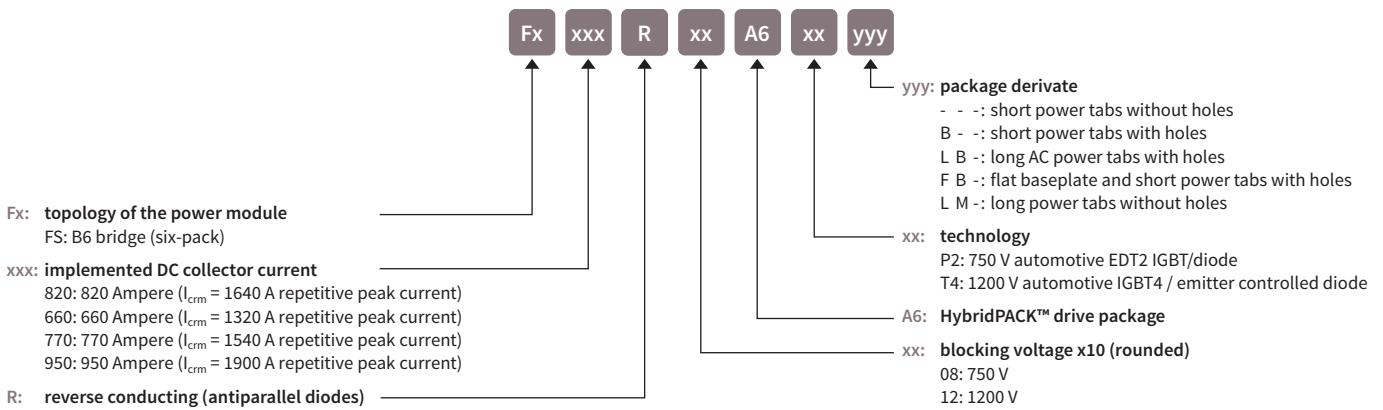
Key features

- > Benchmark current density and improved light load power losses for extended EV driving ranges
- > 750 V EDT2 IGBT and diodes chipset for up to $T_{vj} = 175^{\circ}\text{C}$ switching operation
- > Extreme low conduction losses
- > Single digit stray inductance and smooth, efficient switching behavior
- > Short circuit ruggedness up to $T_{vj} = 175^{\circ}\text{C}$ for reliable inverter operation under extreme conditions
- > Press-fit signal pins
- > Mechanical guiding elements for efficient and cost-saving inverter assembly

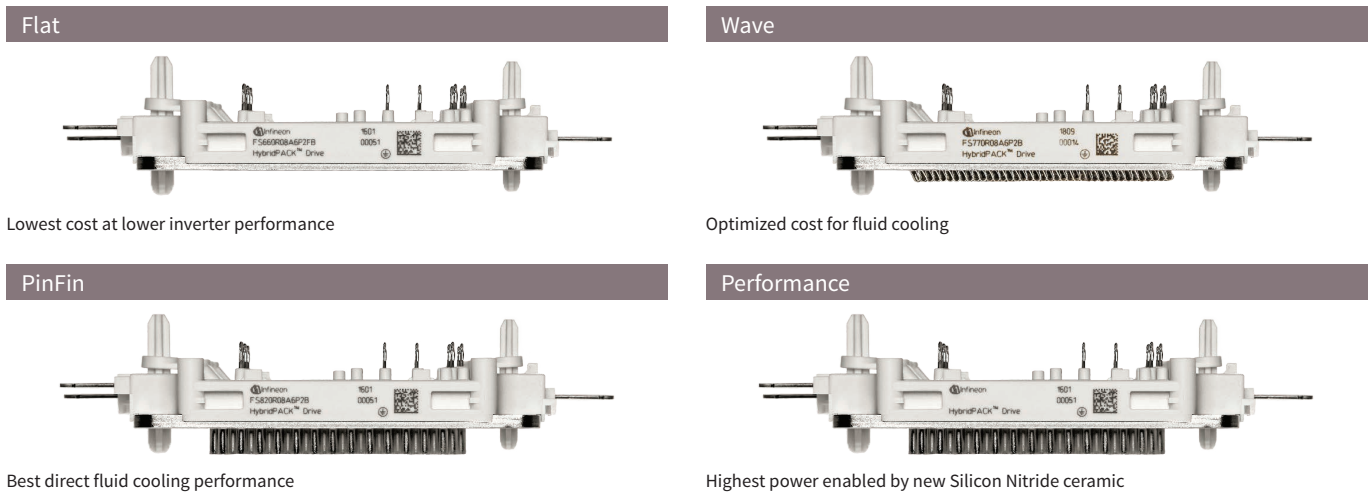
Block Diagram



Sales code nomenclature



Typical appearance of HybridPACK™ Drive 750 V modules



Product table

Type	Description	Electrical characteristics	Ordering code	Product status
FS820R08A6P2	HybridPACK™ Drive PinFin	750 V/820 A	SP001499702	In production
FS820R08A6P2B	HybridPACK™ Drive PinFin	750 V/820 A	SP001499708	In production
FS820R08A6P2LB	HybridPACK™ Drive PinFin	750 V/820 A	SP001611366	In production
FS660R08A6P2FB	HybridPACK™ Drive Flat	750 V/660 A	SP001632426	In development
FS660R08A6P2FLB	HybridPACK™ Drive Flat	750 V/660 A	SP001850450	In development
FS770R08A6P2B	HybridPACK™ Drive Wave	750 V/770 A	SP001706976	In development
FS770R08A6P2LB	HybridPACK™ Drive Wave	750 V/770 A	SP001987412	In development
FS950R08A6P2B	HybridPACK™ Drive Performance	750 V/950 A	SP001720776	In development

Published by
 Infineon Technologies AG
 81726 Munich, Germany

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