

# Easy 1B/2B Automotive Power Modules

## Power Module for Hybrid- and Electric Vehicles

Infineon®'s Easy 1B and Easy 2B automotive power modules provide a platform for different Hybrid- and Electrical Vehicle (xEV) applications for a power range up to about 10kW. The most common applications are auxiliary drives, DC/DC-converters (HV/LV), PTC heaters and onboard chargers.

The Easy automotive power module series is based on the well established industrial Easy Module version. Improved materials are applied to achieve the required robustness for automotive applications. The unique module identification with both, data matrix chip on the ceramic substrate and data matrix code on the module housing is the core for a seamless traceability over the entire supply chain.

The system assembly with the Easy power modules is simple, fast, reliable and can be achieved at very low costs. This is achieved by using Infineon's highly reliable PressFIT contact technology. Time consuming heating processes for solder profiles are no more required with this innovative contact technique. The back of the power module is isolated and tested for 2.5kV<sub>rms</sub> 50Hz 1min. This allows a direct assembly on cooling systems with a conventional low cost thermal grease as interface. The integrated mounting clamps in the housing ensure the right pressure of the module to the cooling system over the entire life time.

The Easy automotive power modules are available with different configurations like B6 bridges (FS modules) for inverter applications, multiple high side and low side switches (FZ modules) for PTC heater applications and H-bridges (F4 modules) for DC/DC converter applications as an example. With the Easy automotive power module series, all required xEV auxiliary applications can be addressed. The usage of the same power module leads to lower tooling, process as well as engineering costs at the customer side.

The flexibility of the package provides a platform for several applications. Please contact your local sales representative for the latest chip and topology configurations within the Easy automotive module series.

### Applications

- Hybrid Electric Vehicle (H)EV
- Air conditioning compressor (HVAC)
- Oil pump
- PTC heater
- DC/DC-converter (HV/LV)
- Onboard charger

### Key Features

- All power switches with NTC in one module
- Different configurations and current ratings available
- Isolated module
- Improved Al<sub>2</sub>O<sub>3</sub> ceramics
- Robust PressFIT technology
- Integrated mounting clamps
- DMX chip for seamless traceability
- Flexible platform for several topologies

### Benefits

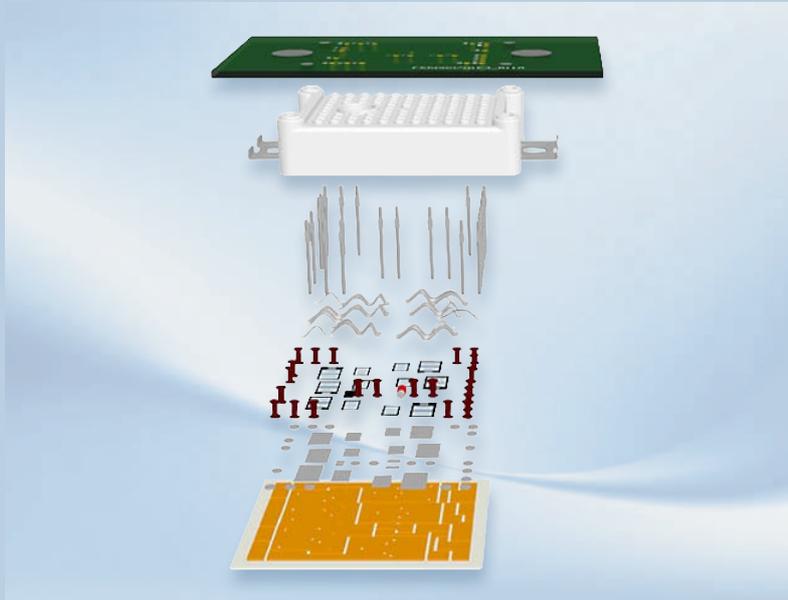
- Cost efficient system approach
- High reliability
- Enables compact design
- Automotive qualified

Sales Name	I <sub>CN</sub> [A]	V <sub>ces</sub> [V]	Package	Topology	Typical Application
FS30R07W1E3_B11A	30	650	Easy 1B	B6-bridge	Aux motor drives, oil pump, HVAC
FS50R07W1E3_B11A	50	650	Easy 1B	B6-bridge	Aux motor drives, oil pump, HVAC
FS75R07W2E3_B11A	75	650	Easy 2B	B6-bridge	Aux motor drives, oil pump, HVAC, direct wheel drives
FZ30R07W1E3_B31A	30	650	Easy 1B	2 Highside 4 Lowside switches	PTC heater, capacitive loads
F4-50R07W1H3_B11A	50	650	Easy 1B	H-bridge	Up to 3kW 100kHz DC/DC-converters

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## Power Module for Hybrid- and Electric Vehicles

Module Construction (Explosion view of Easy 1B)



Housing with integrated mounting clamps  
Filled with isolation gel

PressFIT pins for fast and reliable assembly

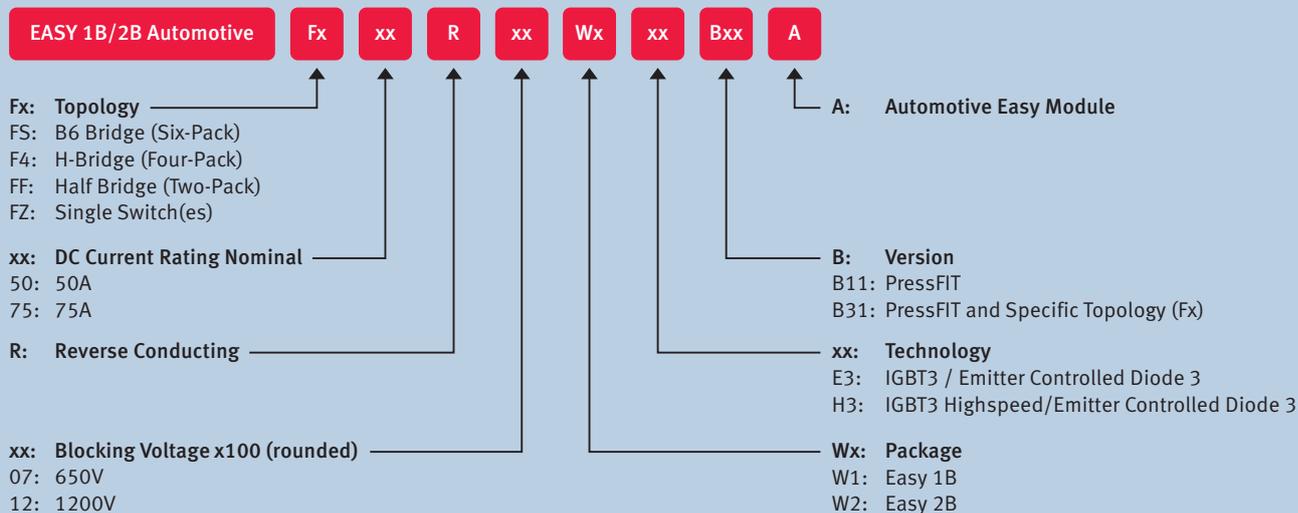
Enhanced Al wire bonding

Leading silicon technology  
IGBT3, IGBT3 HighSpeed, Emitter controlled diode 3,...  
Rivet for PressFIT pins, NTC, DMX chip

Enhanced high temperature solder

Improved Al<sub>2</sub>O<sub>3</sub> ceramic  
Isolation tested for 2.5kV 50Hz 1min

### Easy 1/2B Automotive Power Module Family



Further configurations and blocking voltages < 1200V on request.

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