

## 3-Phase Motor Drive Application Kit for Permanent Magnet Synchronous Motor and Induction Motor



### Ordering Code

- 3-Phase Motor Drive Application Kit v1.0

### Key Features

- Complete application kit capable of running FOC for motor drives up to 750W power rating
- Leading-edge Infineon semiconductors for the power and control stage: CIPOST™ and XC886
- On-board switched mode power supply realized by COOLSET™
- Implemented protection features for high system reliability
- Digitally isolated real time monitoring tool
- Optimized sensorless FOC source code for PMSM
- Source code for V/f control for ACIM for quick evaluation
- Free tool chain including SDCC compiler and IDE

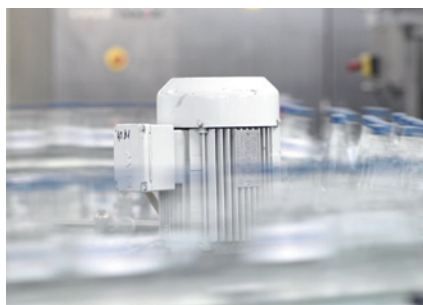
### Applications

- Home appliances such as washing machines
- Industrial motor control, e. g. pumps, fans

ADVANCED MOTOR CONTROL TECHNIQUES are increasingly used in consumer and industrial drives owing to the growing design focus on higher efficiency, better dynamic response and reduced audible noise. In order to enable rapid development of cost-effective designs, Infineon offers now a new 3-phase motor drive application kit.

THE KIT IS BUILT around the 8-bit XC886 MCU capable of running field oriented control (FOC) and CIPOST™ - an intelligent power module (IPM), which provides a high level of system integration. This combination offers excellent electrical performance at low costs and reduces board space requirements. The on-board switched mode power supply based on COOLSET™ enables quick start-up and evaluation. The optimized motor control software as well as the digitally isolated real time monitoring tool makes the kit an easy-to-use reference platform. The power stage is capable of driving both permanent magnet synchronous motors (PMSM) and induction motors (ACIM) with power rating of up to 750W peak load.

THE APPLICATION KIT enables hardware and software designers to shorten time-to-market for energy efficient motor control designs targeting excellent speed control, reduced noise and high system reliability.



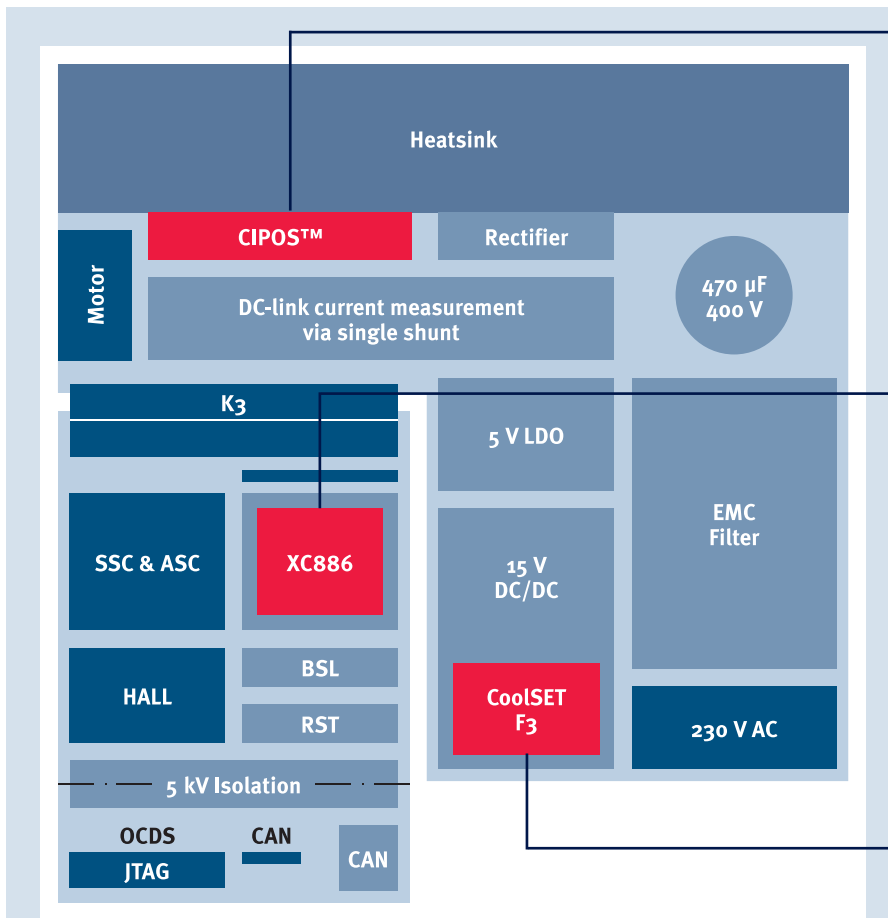
[www.infineon.com/3-phase-drive](http://www.infineon.com/3-phase-drive)

Power Management & Drives  
Microcontrollers



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## Schematic diagram of the application board



### CIPOST™ Single-Inline IPM IKCS12F60AA

- Fully isolated package with best-in-class thermal resistance
- TrenchStop™ IGBTs with lowest VCEsat = 1.6V @ 25°C
- Ruggedness against negative transient voltage

### 8-bit MCU XC886

- Cost-effective 8-bit µCs with 16-bit motor-control performance
- Built-in vector computer for Field Oriented Control
- Powerful motor control peripheral set: CAPCOM6 and 10-bit ADC

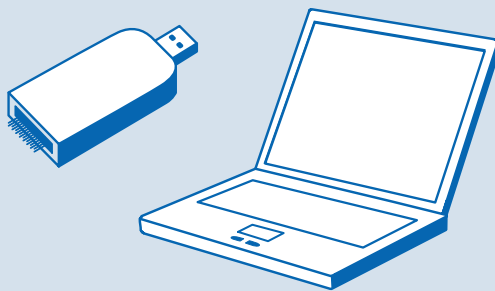
### COOLSET™ auxiliary power supply ICE3Bo565G

- Integration of a PWM & protection control IC with a high voltage power MOSFET
- Very low standby power < 100mW
- Best-in-class on-resistance

### Complete software package including

- DriveMonitor
  - Graphical User Interface for real time control and monitoring
  - USB-CAN bridge
- Optimized sensorless FOC source code for PMSM
  - Speed PI controller
  - Two current PI controller (Id and Iq)
- Source code for V/f control for ACIM for quick evaluation
- Free tool chain including SDCC compiler and IDE
- Fast flash programming via JTAG

### Real time DriveMonitor and debugger



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