Product brief

iMOTION™ MADK evaluation platform

Scalable system solution for 3-phase motor drives

Infineon Technologies' iMOTION™ Modular Application Design Kit (MADK) is a modular and scalable evaluation platform for testing different Infineon's products targeting 3-phase PMSM/BLDC motor drives. iMOTION™ MADK platform offers to users system flexibility and scalability at multiple levels:

- Various controller options – iMOTION™ motor controller ICs or XMC1302 ARM® Cortex®-M0 MCU
- Inverter boards with maximum power ranging between 20 W and 2 kW
- Inverters with or without active PFC control
- Boost or totem pole PFC options
- Power stage maximum voltages ranging between 40 V and 1200 V
- Discrete or IPM-based power stages

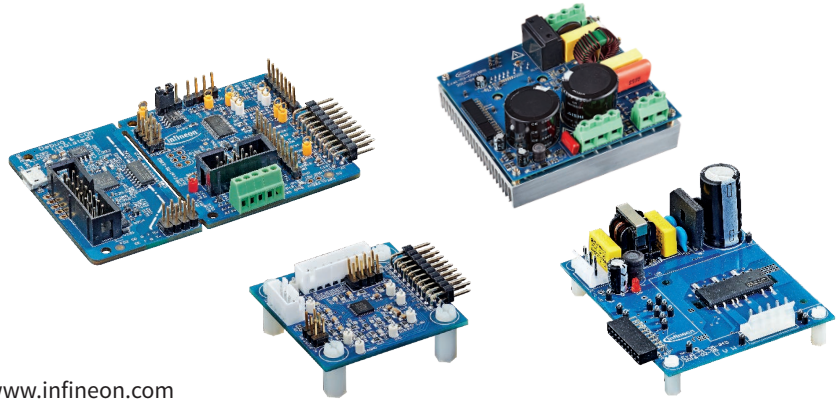
The iMOTION™ MADK modular approach with a standardized interfaces between different controller and power boards allows users to mix and match different control and power stage options for a maximum flexibility and scalability during evaluation and development phase at affordable cost. This flexibility and scalability on the hardware level is complemented by the state-of-the-art motor control algorithms delivered for both control board options:

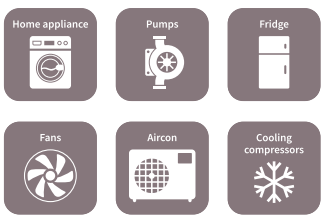
- iMOTION™ ICs on control boards are pre-programmed with ready-to-use sensorless FOC motor control firmware which can be parametrized and tuned by using iMOTION™ PC tools
- XMC1302 control board is delivered with matching FOC motor control library, supported by µC Probe-based GUI

Infineon will keep expanding the iMOTION™ MADK platform with new control and power board options for inverterized BLDC motor control, to enable users to test latest Infineon products in their familiar evaluation environment.
Visit www.infineon.com/madk for the full list of available iMOTION™ MADK boards.

Key features

- Several control boards with iMOTION™ controllers using field-proven Motion Control Engine (MCE) to fit different use cases:
  - With or without additional MCU core for system control
  - With or without active PFC control
- XMC1302 MCU control board supported by:
  - µC Probe-based GUI for motor parametrization and tuning
  - FOC motor control library
  - Free-of-charge DAVE™ IDE and other 3rd party ARM® IDEs
- Growing number of inverter boards offering flexibility and scalability in many ways:
  - Different CIPOS™ IPMs with various packages, switching elements (IGBT or FET), and power ratings
  - Power stages based on discrete components (IGBT/FETs + gate drivers)
  - Power stages without PFC, with boost PFC and with totem pole PFC options





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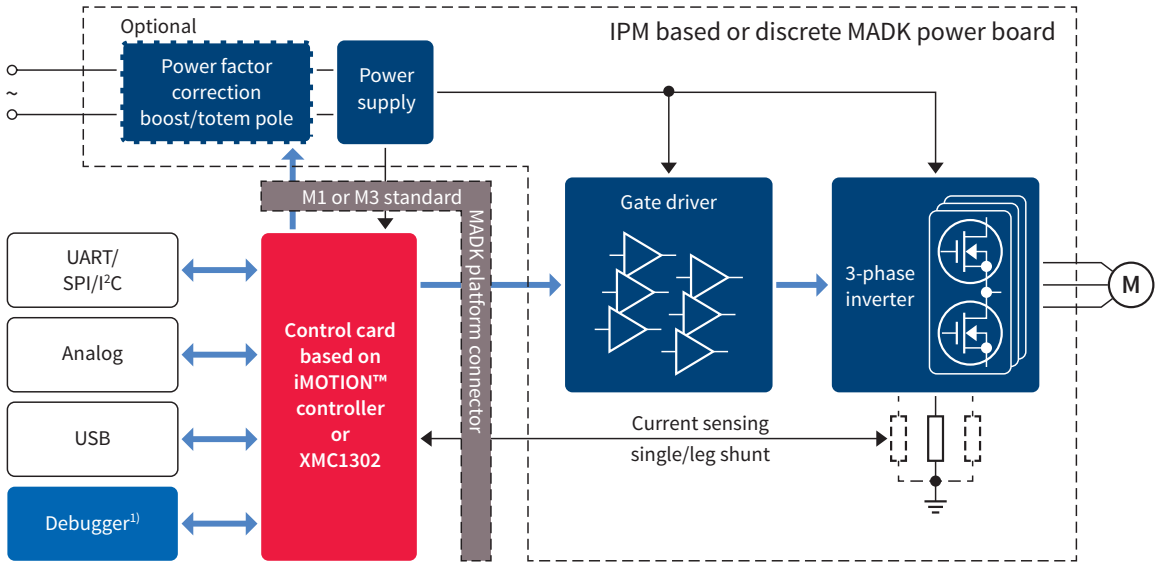
Overview



1) External MCETOOLV2 debugger (sold separately) is required for some older iMOTION control boards

Ordering information

Control boards

Product	Controller	PFC
EVAL-M1-099M-C	IRMCK099M	–
EVAL-M1-1302	XMC1302-T038X0200	–
EVAL-M1-183M	IRMCF183M	–
EVAL-M3-188	IRMCF188	boost
EVAL-M1-101T	IMC101T-T038	–
EVAL-M3-102T	IMC102T-F064	boost, totem pole

Kits

Product	Controller board	Inverter board
EVAL-M1-1302_05-65D	EVAL-M1-1302	EVAL-M1-05-65D
EVAL-M1-1302_05-84D	EVAL-M1-1302	EVAL-M1-05-84D
EVAL-M1-1302_36-45A	EVAL-M1-1302	EVAL-M1-36-45A
EVAL-M1-1302_36-84A	EVAL-M1-1302	EVAL-M1-36-84A

Inverter boards

Product	Power stage	PFC	V_{max} [V]	P_{max} [W]
EVAL-M1-05-65D	IRSM505-065DA2	–	500	90
EVAL-M1-05-84D	IRSM505-084DA2	–	250	90
EVAL-M1-36-45A	IRSM836-045MA	–	500	80
EVAL-M1-36-84A	IRSM836-084MA	–	250	80
EVAL-M1-05F310	IRSM005-301MH	–	100	160
EVAL-M1-05F804	IRSM005-800MH	–	40	160
EVAL-M1-CM610N3	IKCM10H60GA	–	100	750
EVAL-M3-CM615PN	IFCM15S60GD	boost	600	750
EVAL-M3-CM615TN	IKCM15H60GA IKP20N65H5 2ED2304S06F	totem pole	600	1500
EVAL-M3-TS6-665PN	IKD06N65ET6 IKB20N65H5 IRS2890DS IRS44273L	boost	600	150

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