

*i*Motion™* Integrated Design Platform for Air Conditioners

FEATURES

Digital Control

- Simultaneously controls two sensor-less PMSM motors and power factor correction
- Motion Control Engine™ eliminates control software coding
- Customer application code in co-integrated 60MIPS microcontroller

Analog Interface

- Embedded Analog Signal Engine™ integrates all signal conditioning and conversion circuits for single current shunt sensor-less control of PMSM
- Benchmark high voltage ICs for analog interface
- Latest Trench IGBTs for efficient inverter switches

Power Modules

- Intelligent power modules integrate HVIC and Trench IGBTs to deliver complete power stage

THE IR ADVANTAGE

Digital Control

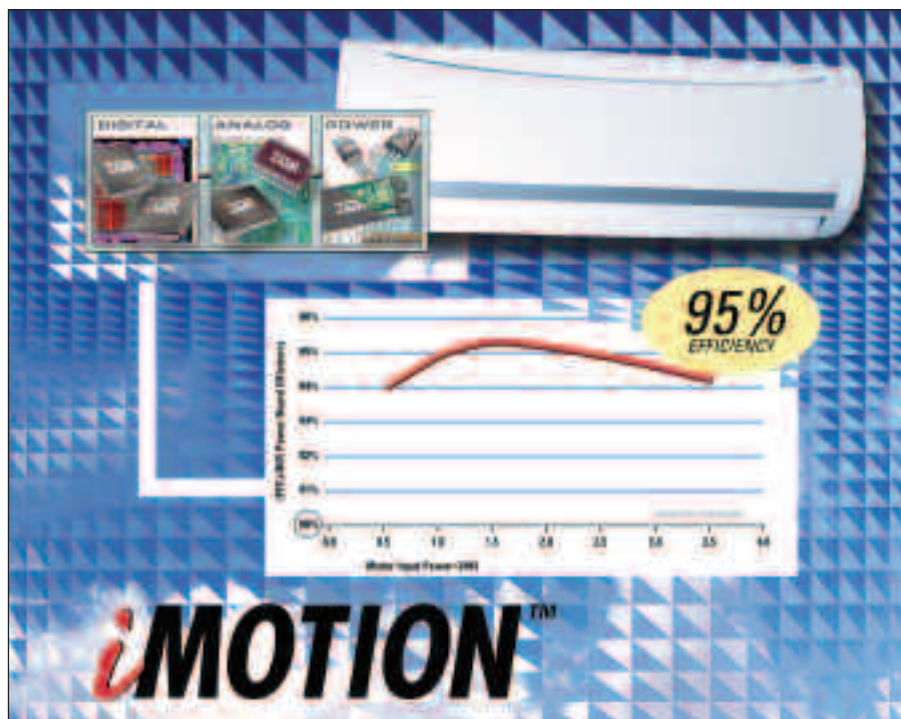
- Simplifies design
- Speeds up development for faster time-to-market
- Eliminates need for external microcontroller

Analog Interface

- Minimizes noise and increases performance
- Greater protection and increased reliability
- Efficient, low thermal unit cost

Power Modules

- Simplifies assembly
- Reduces thermal unit cost



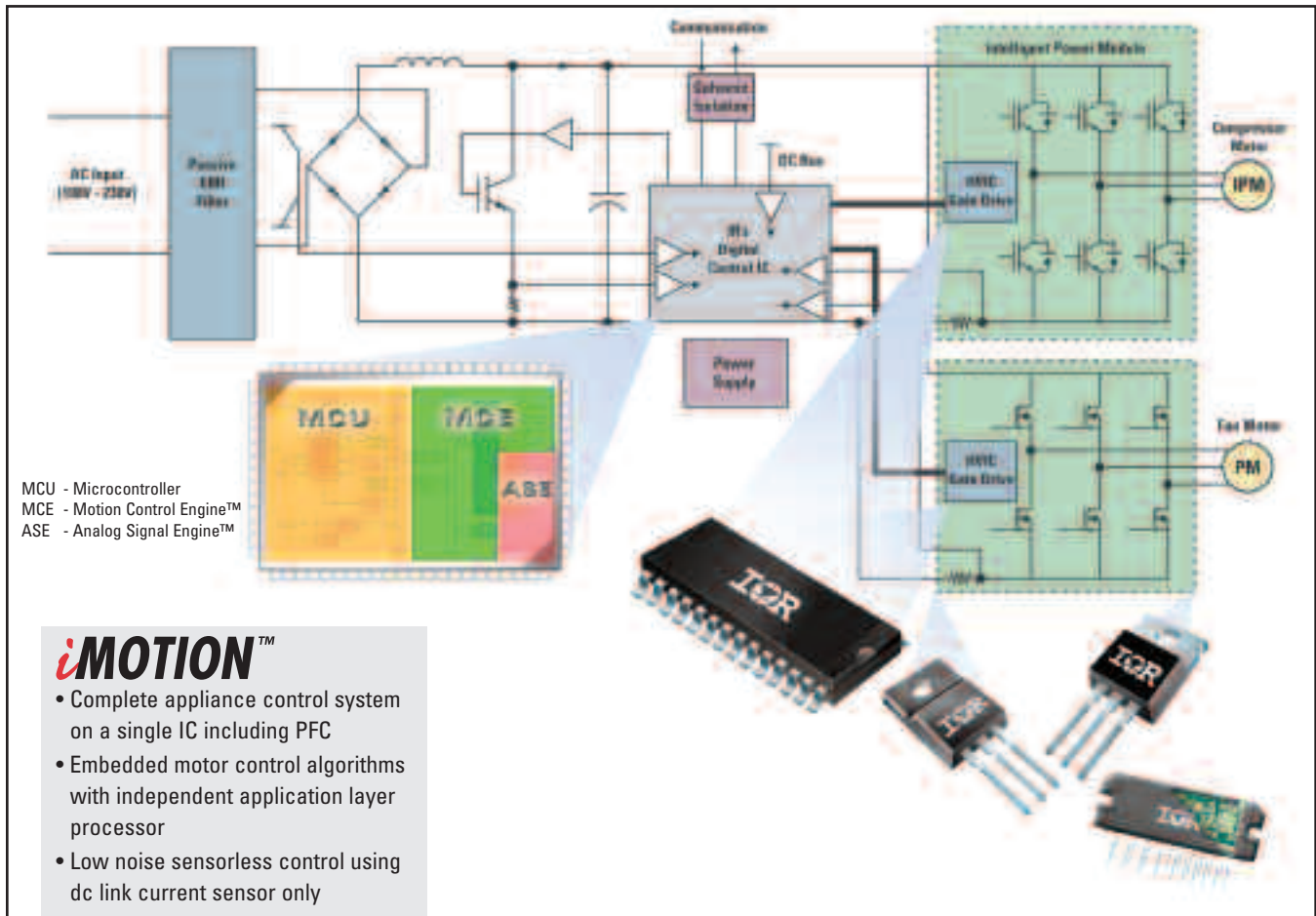
95% Efficiency; 100% Motor Control Simplicity

IR's *i*MOTION Integrated Design Platform delivers everything you need to design a complete motion control subsystem for variable-speed air conditioning. From the front panel and power entry to the motor terminals, *i*MOTION brings powerful digital, analog and power silicon together with algorithms, development software and design tools.

The *i*MOTION platform enables energy-saving, variable-speed sinusoidal current control without the need for position sensors in either compressor or fan for smooth torque control and lower acoustic noise. The digital control features a unique algorithm for interior permanent magnet synchronous motors (IPMSM) in the compressor and fan as well as power factor correction (PFC). This, combined with IR's application-specific HVICs and discrete trench IGBTs, achieves 95% converter efficiency with the added benefits of low design risk and fast time-to-market at no additional system cost.

*IR's *i*MOTION (ai mo shan), representing the intelligent motion control; Motion Control Engine and Analog Signal Engine are trademarks of International Rectifier.

iMOTION Integrated Design Platform for Air Conditioners

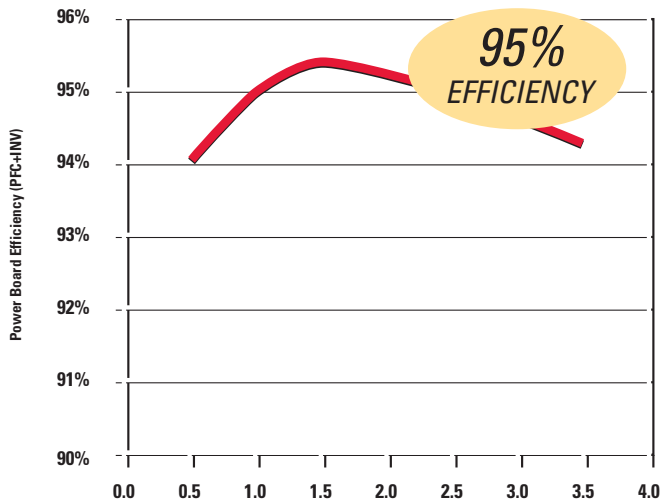


iMOTION™

- Complete appliance control system on a single IC including PFC
- Embedded motor control algorithms with independent application layer processor
- Low noise sensorless control using dc link current sensor only
- Appliance-specific HVICs and intelligent power modules

Simple, sensor-free motion control for air conditioning.

Efficiency Comparison @ 5200rpm



Higher performance

Designed for air conditioners with a rating of mid- to high-power (750W to 4KW), the iMOTION Integrated Design Platform delivers a proven solution capable of achieving 95% inverter efficiency and low acoustic noise while the sinusoidal current sensorless PMSM motor control eliminates Hall sensors in the fan and delivers smooth torque to both motors.



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For more information, call 310.252.7105 or visit us at www.irf.com