



Specifications

Part Number	Size (mm)	Voltage	I _O (DC at 25°C)	Motor Current		Motor Power V _O = 150/75V _{RMS}	Topology
				w/o HS	W HS		
IRSM836-024MA	12x12	250V	2A	47mA	550mA	60W/72W	3P Open Source
IRSM836-044MA	12x12	250V	4A	750mA	850mA	95W/110W	3P Open Source
IRSM836-025MA	12x12	500V	2A	360mA	440mA	93W/114W	3P Open Source
IRSM836-035MB	12x12	500V	3A	420mA	510mA	108W/135W	3P Common Source
IRSM836-035MA	12x12	500V	3A	420mA	510mA	110W/130W	3P Open Source
IRSM836-045MA	12x12	500V	4A	550mA	750mA	145W/195W	3P Open Source
IRSM808-105MH	8x9	500V	10A	1.1A	1.3A	285W/390W	Half-Bridge
IRSM807-105MH	8x9	500V	10A	1.1A	1.3A	285W/390W	Half-Bridge

**RMS, Fc=16kHz, 2-phase PWM, $\Delta T_{CA} = 70^{\circ}\text{C}$, $T_A = 25^{\circ}\text{C}$



Qualifying Questions

- Is the customer interested in?
 - A compact solution
 - Ease-of-use
 - Improved thermal performance
 - Reduction in overall system cost



Key Points

- The $\mu\text{IPM}^{\text{TM}}$ family offers a new benchmark in size versus any equivalent competitor solutions; up to 60% smaller than the existing smallest 3-phase motor control Power ICs.
- House in QFN-like packages, the $\mu\text{IPM}^{\text{TM}}$ family is comprised of a series of fully integrated 3-phase or single-phase (half-bridge) motor control circuit solutions. By adopting the most rugged and efficient high voltage FREDFET MOSFET switches, specifically optimized for variable frequency drives, and IR's most advanced HV driver ICs, the $\mu\text{IPM}^{\text{TM}}$ product family has ratings ranging from 0.4A to 10A.
- With the $\mu\text{IPM}^{\text{TM}}$ family, designers can implement smaller and more efficient motor drives solutions for embedded applications where high volume and higher density is required. By using QFN packaging technology, assembly is simplified by eliminating through-hole second pass assembly and improving thermal performances versus the traditional dual in-line module solution from the competition.
- The $\mu\text{IPM}^{\text{TM}}$ product family offers a scalable solution for applications that require different current ratings by delivering a wide spectrum of parts with common pin-out and package size, optimized to address specific load power levels.
- The IRSM808-105MH and IRSM807-105MH half-bridge $\mu\text{IPM}^{\text{TM}}$ power modules provide designers with even greater scalability, in addition to offering up to a 60% smaller footprint compared to existing leading solutions and delivering advantages in output current capability and system efficiency cost-effectively.



Competition

Figures 1 and 2 compare the performance of the IRSM636-015MB versus the Fairchild FSB50x50 family of modules, driving the same motor at identical bias and switching conditions. Tests were performed without an external heat sink. A lower ΔT_{CA} indicates better performance, while a missing bar indicates that the module was unable to drive the motor at the specified switching frequency.

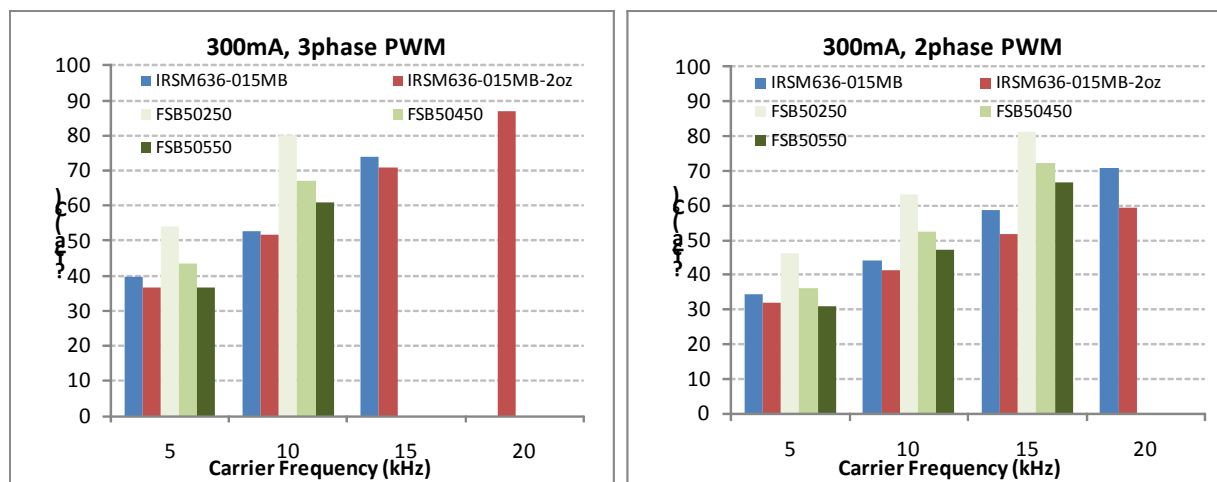
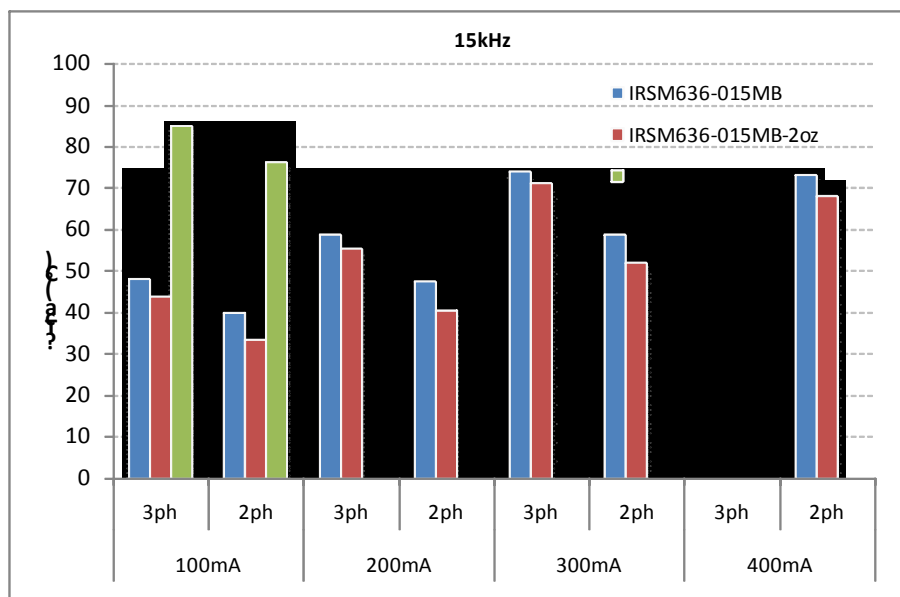


Figure 3 compares the performance of the IRSM836-015MB versus the Mitsubishi M81500FP module driving the same motor at identical bias and switching conditions. Tests were performed without an external heat sink. A lower ΔT_{CA} indicates better performance, while a missing bar indicates that the module was unable to drive the motor at the specified switching frequency.



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