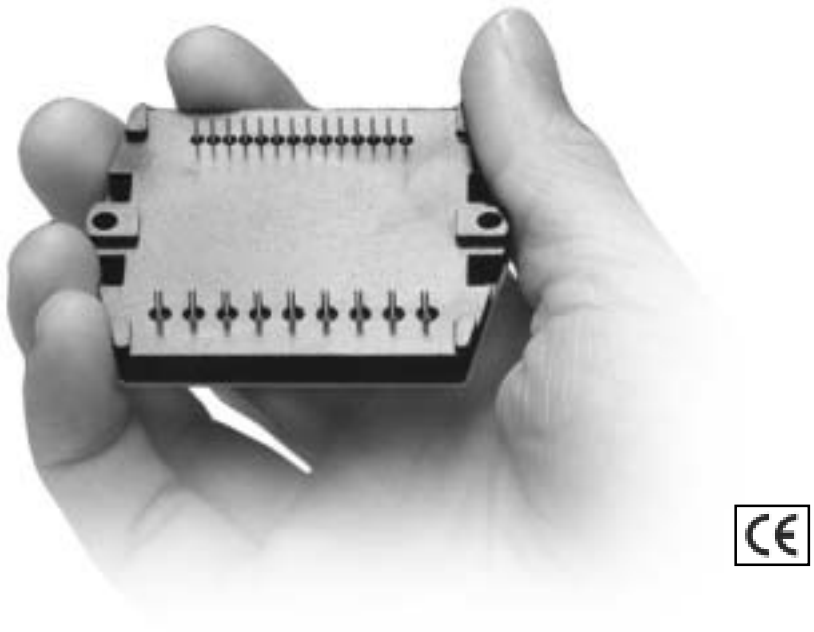
IM483H AND IM805H

HIGH-PERFORMANCE ULTRA-MINIATURE MICROSTEPPING DRIVER



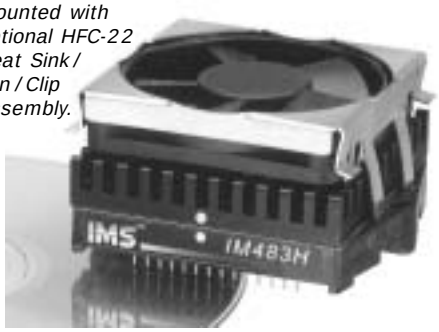
FEATURES

- Very Low Cost
- Ultra Miniature Size
  (2.10 x 2.6 x 0.362 inches)
  (53.34 x 66.04 x 9.19 mm)
- Advanced Hybrid Design
- High Input Voltage (+12 to +48VDC / +24 to +75VDC)
- High Output Current (3A RMS, 4A Peak / 5A RMS, 7A Peak)
- Up to 10MHz Step Clock Rate
- No Minimum Inductance
- FAULT Input and Output
- Short Circuit and Over Temperature Protection
- Microstep Resolution to 51,200 Step / Rev. (1.8° Motor)
- Microstep Resolutions can be Changed "On-The-Fly" Without Loss of Motor Position
- 20 kHz Chopping Rate
- Automatically Switches Between Slow and Fast Decay for Unmatched Performance
- 14 Selectable Resolutions Both in Decimal and Binary
- Adjustable Automatic Current Reduction
- At Full Step Output
- Optional Cooling Fan (HFC-22)
- Optional Receptacle Carrier (PR-22)

DESCRIPTION

The IM483H and IM805H are high performance, low-cost microstepping drivers that utilize advanced hybrid technology to greatly reduce size without sacrificing features. Both are exceptionally small, easy to interface and use, and yet powerful enough to handle the most demanding applications.

OPTION: Hybrid Mounted with Optional HFC-22 Heat Sink / Fan / Clip Assembly.



The IM483H and IM805H have 14 built-in microstep resolutions (both binary and decimal). The resolution can be changed at any time without the need to reset the driver. This feature allows the user to rapidly move long distances, yet precisely position the motor at the end of travel without the expense of high-performance controllers. In many instances mechanical gearing can be replaced with microstepping. This reduces cost and system size, and eliminates potential maintenance while increasing accuracy and smoothness.

With the development of proprietary and patented circuits, ripple current has been minimized to reduce the motor heating that is common with other designs. This feature allows the use of low inductance motors to improve high-speed performance and system efficiency.

The IM483H / IM805H microstepping hybrids are designed to be soldered directly into a PC board. This eliminates the need for wiring and mounting, thus saving design and assembly time, reducing system cost and increasing reliability.

The ultra-small size reduces the overall space required in your system. In addition, each unit is 100% tested and comes with a 2-year warranty.

Available as options for the IM483H / IM805H are the HFC-22 Heat Sink / Fan / Clip assembly and the PR-22 Pin Receptacles with throwaway carrier. The HFC-22 provides a unique cooling solution and was designed specifically for the IM483H and IM805H Microstepping Hybrid Drivers. The HFC-22 will easily maintain a reliable rear plate temperature without using large heat sinks and cumbersome mounting hardware. The heat sink and fan are easily mounted to the driver by means of a removable clip developed by IMS, and when fully assembled with the IM483H or IM805H takes up only 6.8 cubic inches of space!

For applications where ease of removal is required, the PR-22 provides a reliable, high quality receptacle which comes attached to a high temperature plastic throwaway carrier that facilitates wave soldering.

These drives, because of their ultra-small size, advanced technology and low-cost, provide designers with affordable state-of-the-art solutions for the competitive edge needed in today's market.

IM483H/IM805H SPECIFICATIONS

ELECTRICAL

Input Voltage (Motor)* ..... +12 to +48 VDC / +24 to +75 VDC
Input Voltage (Logic) ..... +5 VDC
Output Current (Per Phase) ..... 0.4 to 4 A Peak (Max 3 A RMS) / 1 to 7 A Peak (Max 5 A RMS)
Step Clock Frequency (Max) 10MHz
Steps per Revolution (1.8° Motor) 400, 800, 1000, 1600, 2000, 3200, 5000, 6400, 10000, 12800, 25000, 25600, 50000, 51200
Protection ..... Thermal, Phase to Phase, V_{IN} to Phase

*Includes motor back EMF, Power Supply Ripple and High Line.

TEMPERATURE

Storage ..... -40 to +125° C
Rear Mounting Surface ..... 0 to +65° C

OPTIONS

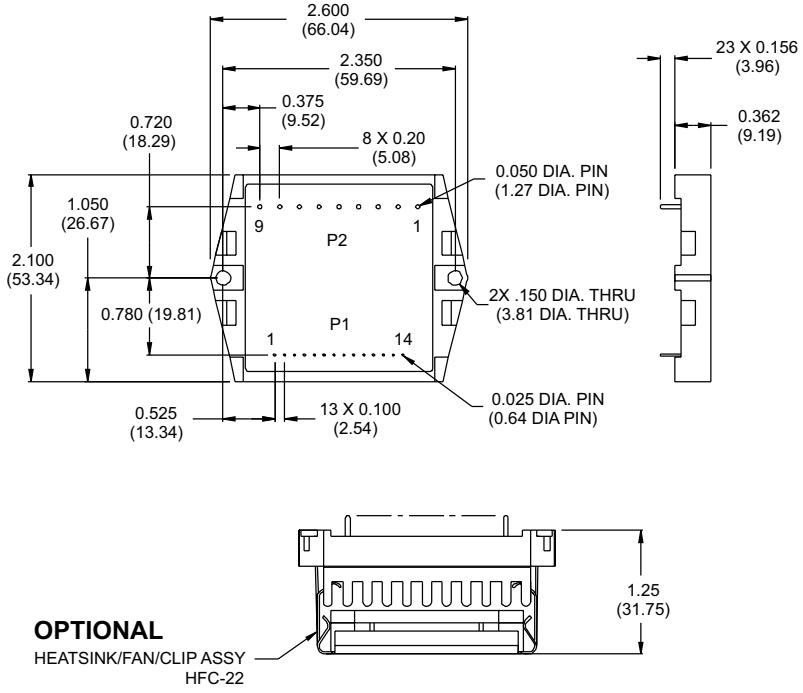
TN-22H ..... Thermal Pad (Included with Driver)
HFC-22 ..... Heat Sink / Fan / Clip Assembly
INT-483H / INT-805H ..... Driver Interface Board
IM483H / IM805H-DK1 ..... Developer's Kit (Includes Driver, Interface Board, Heat Sink / Fan / Clip Assembly)
PR-22 ..... 23 Pin Receptacles with Throwaway Carrier
PB-22 ..... Small Pry Bar (To Remove Throwaway Carrier / Driver From Pin Receptacles)
OSC-805H ..... Analog Speed Control Board for IM805H Driver
MB-22 ..... Mounting L-Bracket

IM483H / IM805H
Pin Assignments and Functions

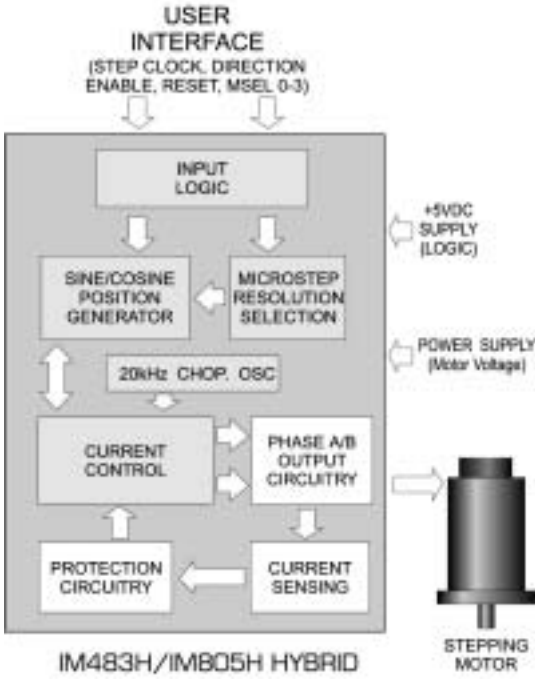
CONNECTOR P1: 14 PIN		
PIN #	**FUNCTION**	
1	Current Reference	
2	Current Adjust	
3	Current Reduction	
4	Fault Input	
5,6,7,8	Resolution Select 0-3	
9	Step Clock	
10	Direction	
11	Enable	
12	On Full Step	
13	Fault Output	
14	Reset	
CONNECTOR P2: 9 PIN		
PIN #	**FUNCTION**	
	IM483H	**IM805H**
1	Phase B	Phase B
2	GND B	GND B
3	Phase $\overline{B}$	Phase $\overline{B}$
4	GND	GND
5	+V	+V
6	+5V Input	+5V Input
7	Phase A	Phase $\overline{A}$
8	GND A	GND A
9	Phase $\overline{A}$	Phase A

MECHANICAL SPECIFICATIONS

Dimensions in Inches (mm)

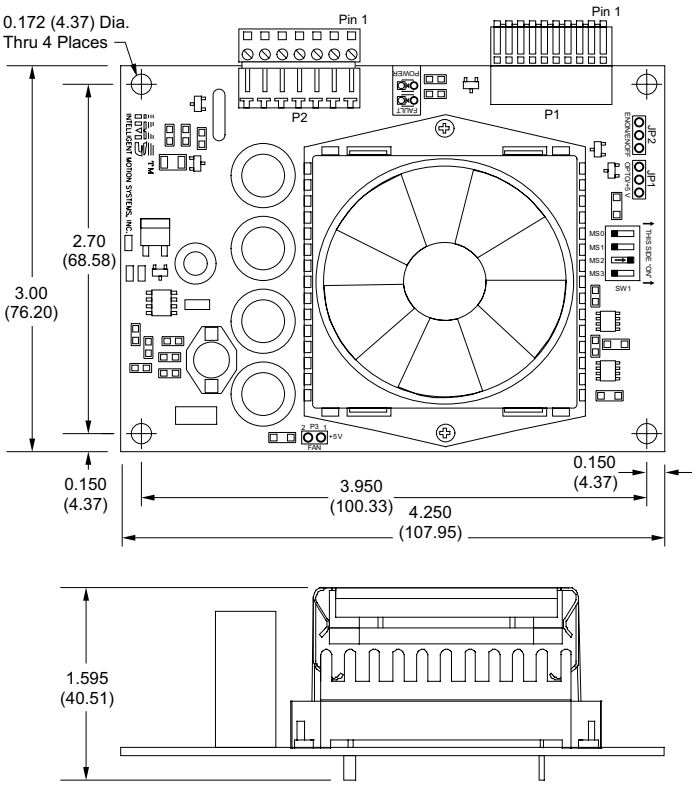


BLOCK DIAGRAM



DEVELOPER'S KIT / INTERFACE BOARD

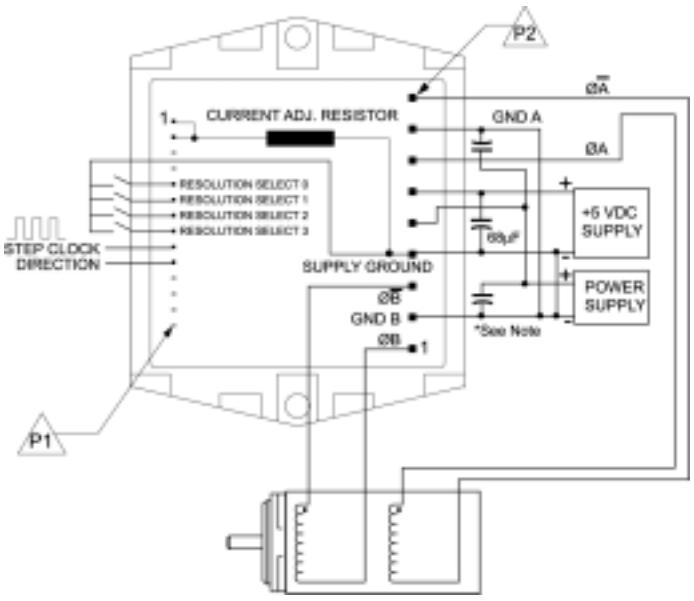
The Developer's Kit provides all of the tools needed for rapid prototyping and product evaluation of the IM483H / IM805H Hybrid Drivers. Included in the Kit are a Driver, an Interface Board and its schematic, and an HFC-22 assembly. The INT-483H / INT-805H interface board features an on-board +5V supply, additional fault protection, opto isolation for logic inputs, and removable screw terminals for easy prototyping. The interface board schematic provides a useful guide for PC board layout when completing a system design using the IM483H / IM805H Hybrid. The HFC-22 Heat Sink / Fan / Clip assembly is designed specifically for use with the IM483H / IM805H and provides a unique, compact cooling solution.



INT-483H / INT-805H
Pin Assignments and Descriptions

CONNECTOR P1: 10 POSITION PHOENIX		
PIN#	**PIN NAME**	**DESCRIPTION**
1	Opto Supply	+5 to +24 VDC
2	Current Reduction	Phase Current Reduction Input
3	Current Adjust	Phase Current Adjust Input
4	GND	Ground
5	Reset	Active LOW Reset Input
6	Enable	Active HIGH Motor Phase Enable Input
7	Direction	Motor Direction Input
8	Step Clock	Motor Step Clock Input
9	Full Step	Open Drain on Full Step Output
10	Fault	Open Drain Fault Output
CONNECTOR P2: 7 PIN SCREW TERMINAL		
PIN#	**PIN NAME**	**DESCRIPTION**
1, 2	Phase A	Phase A Output
3, 4	Phase B	Phase B Output
5, 6	Ground	Supply Voltage Ground (Return)
7	+V	Supply Voltage Input

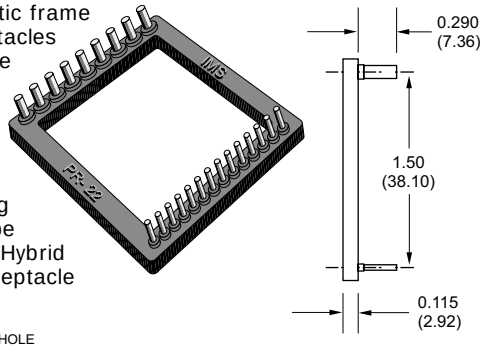
MINIMUM CONNECTIONS

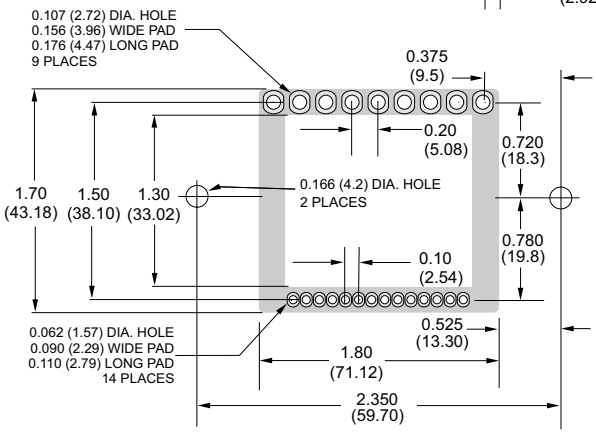


NOTE: Low impedance electrolytic capacitors MUST be placed between +V and the phase grounds for each phase (Pins P2: 2 & 8). In addition, a 68mF electrolytic capacitor MUST be placed between the +5 VDC output of the +5 volt supply and ground. Capacitors should be placed as close as possible to the driver.

PR-22 RECEPTACLE CARRIER

Disposable plastic frame holds 23 receptacles in place for wave or hand solder, then simply pry the plastic frame free and throw away.
NOTE: Mounting screws MUST be used to secure Hybrid when using Receptacle Carrier.





Dimensions in Inches (mm)