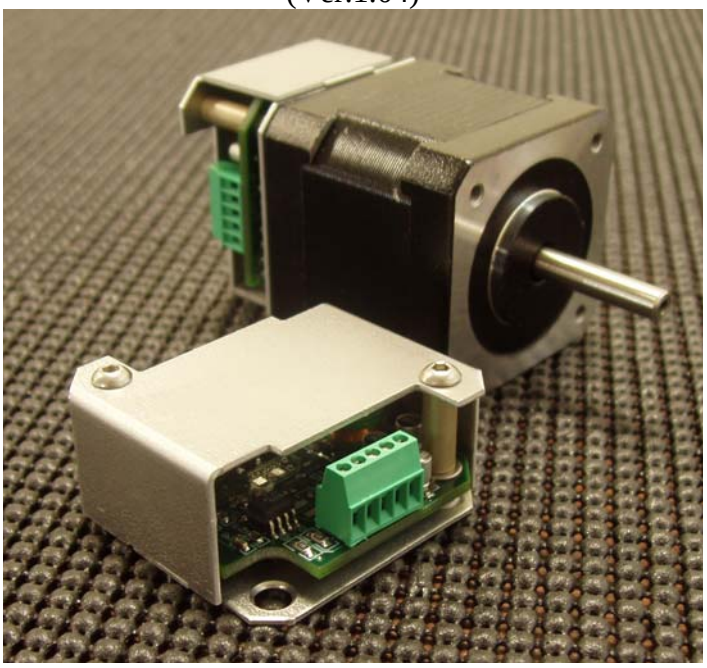
NPAD10BF Manual

(Ver.1.04)



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Revision History:
Manual Ver 1.04 May 30 07 (D06-001)
Manual Ver. 1.03 May-25-07 (D06-001)
Manual Ver. 1.02: Mar-9-07 (D05-006)
Manual Ver.1.01: Sep-24-06 (0D-005)
Manual Ver.1.00: Sep-11-06 (D05-004)
Preliminary version: Preliminary Aug-11-06 (D05-003)

1. Description

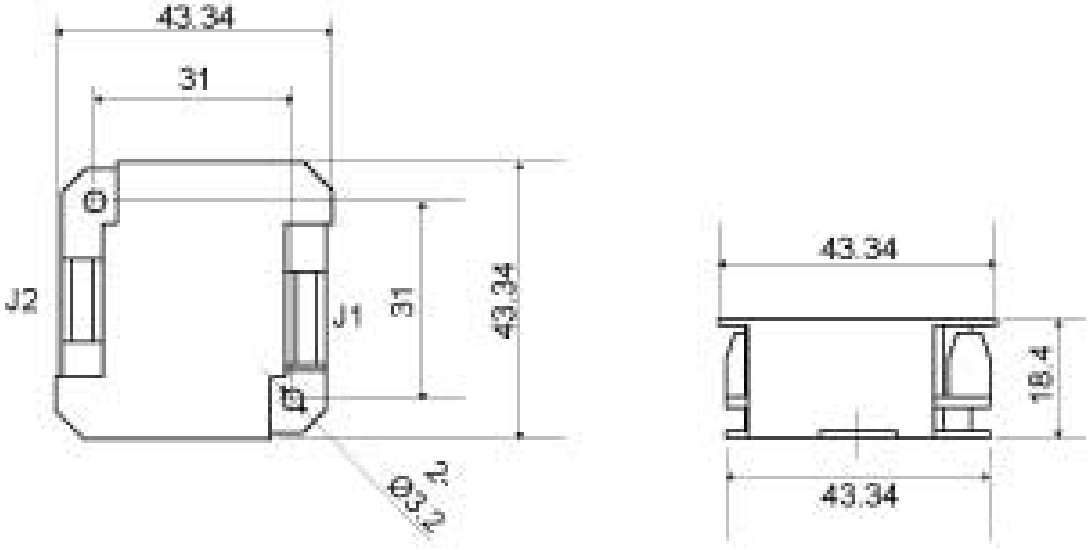
The NPAD10BF is a bipolar chopping driver. The excitation mode (microstepping) NPAD10BF can be set up to 1/16 microstepping. The NPAD10BF has a wide input voltage range from 12 to 30Vdc, and has an output current up to 1.2A/phase (peak), which is capable of driving most of the two–phase stepping motors. The NPAD10BF driver is capable of driving tin-can and hybrid stepping motors, especially our products, the PF/PFC series and the LinearStep series (linear stepper motor).

The NPAD10BF driver includes an on board switching voltage regulator, an automatic current reduction function, and a reset for sequence and disenable.

2. Electric Specifications

DC input voltage: 12 to 30V
Peak phase current: 1.2A
Input signal: Isolated input signals (Pulse, Dir, Enable and Reset)

3. Dimensions (mm)



Dimensions in mm

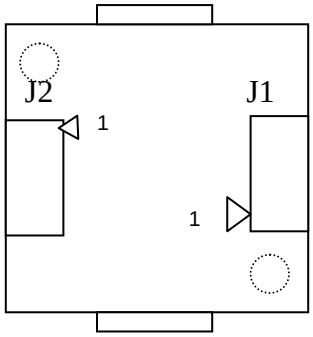
4. Connection information

4-1. J1 (Connection for Motor and Power)

#	Function	Descriptions
1	A	Phase A
2	/A	Phase /A
3	B	Phase B
4	/B	Phase /B
5	GND	GND (Power)
6	Power	12-30Vdc input

4-2. J2 (Connection for signal)

#	Function	Descriptions
1	+5V	Optocoupler supply
2	Pulse	Pulse signal input
3	Dir	Direction signal input
4	Enable	Enable (low active)
5	Reset	Reset sequence (low active)



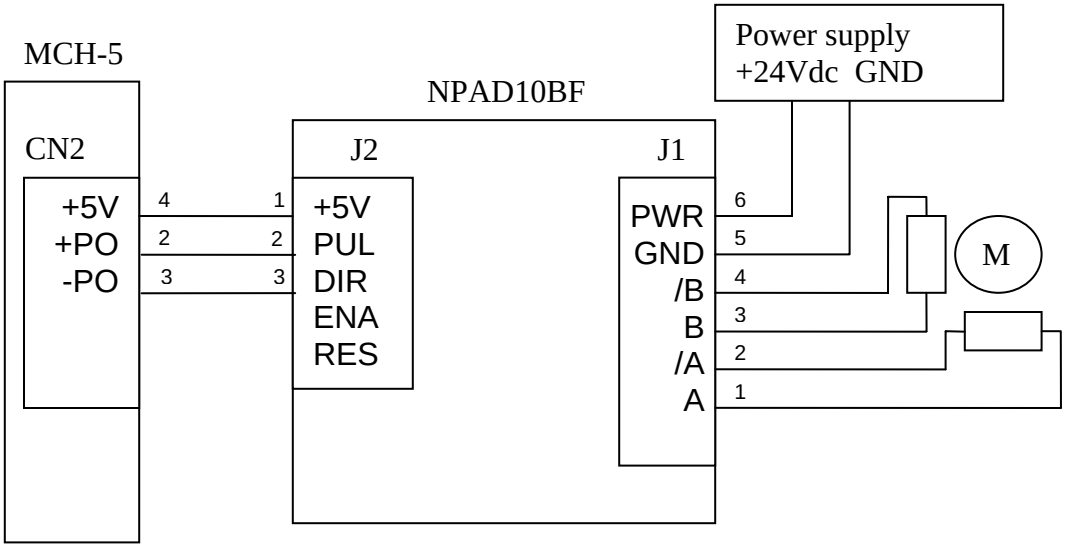
View from Top

Fig. 4-1 Position of connectors

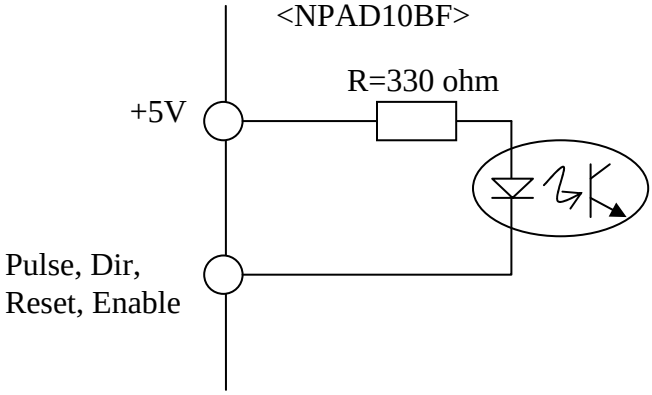
5. Pins function

- Pulse: It is for pulse input.
- Dir: It is for direction signal. When the optcoupler is ON, the motor will be CCW. When the optocoupler is OFF, the motor will be CW.
- Enable: When optocoupler is ON, the motor shaft will be free. When optocoupler is off, the motor shaft will be energized.
- Reset: The reset input sets the translator to a predefined Home state, and turns off all of the DMOS outputs. ALL STEP inputs are ignored until the RESET input is set to Optocoupler off.

6. Connection Diagram (example: MCH5, NPAD10BF and PR motor)



7. Interface of input Signals



8. DIP-switch S1 (Microstep resolution)

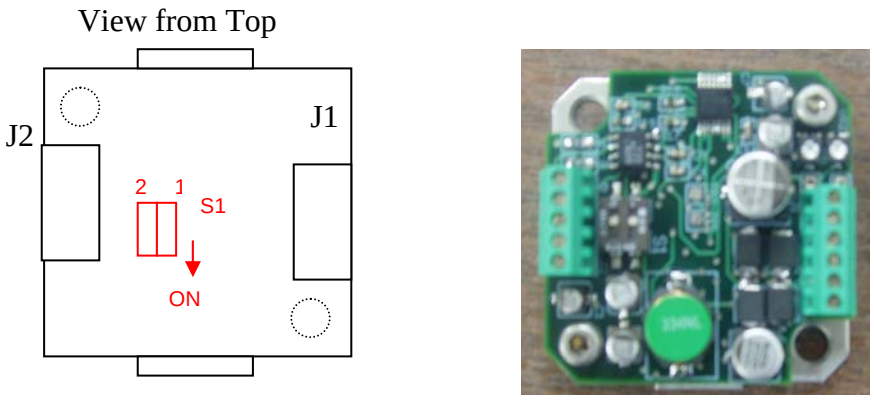


Fig. 6-1 Position of S1

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	Full	Half	1/4	1/16
1	ON	OFF	ON	OFF
2	ON	ON	OFF	OFF

9. Motor Current Adjustment

When you adjust the current for the motor, please use an oscilloscope or multimeter. TP3 is V_{ref} for setting the current of the coil. TP4 is GND. VR1 is adjustment current when motor is idling (stopping). VR2 is adjustment current when motor is running.

When you need to adjust the current with motor running, you will need to input the pulse signal and then adjust VR2. CW direction of volume will increase the current and CCW direction will decrease it. Also, when you need to adjust the current with motor stopped, you will need to adjustment VR1 without pulse signal inputs. You must see voltage on display of oscilloscope. The top (peak) of voltage wave showing actual current at motor coil.

This is conversion for the current.

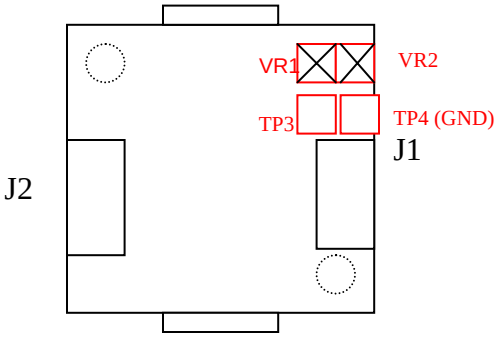
I_M (A) = Vref / 3.2

Ex>

If you need to set 1(amp), Vref should be 3.2(v)

Vref = 1amp x 3.2 = 3.2(v)

So, when you need to set 1A for the running motor, you will need to set 3.2V with VR adjustment while oscilloscope or multimeter meets.



View from Top

Fig. 7-1 Positions of VR1&2 and Test pads