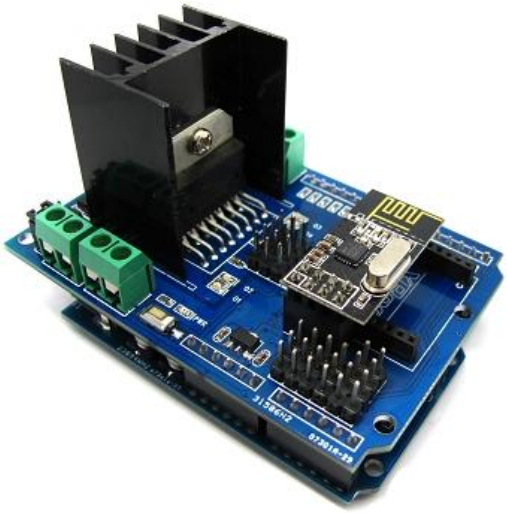
MotoMama V1.0

-Multifunction motor driver shield

Overview



MotoMama is an H-Bridge motor driver shield bases on ST L298N chip. It is a high voltage, high current dual full-bridge driver which designed to accept standard TTL logic levels and drive inductive loads such as relays, solenoids, DC motor and stepping motors. MotoMama is designed to be easy with other sensors or wireless modules.

Features

- Light Weight, small dimension
- Super driver capacity
- FED protection
- Heavy load heat sink
- 2 DC motor/4 coil dual phrase stepper motor output
- Motor direction indication LED
- Pulse protection
- XBee/nRF24L01+ socket break out
- UART/IIC/Ads socket break out
- 4 standard mounting holes

Specifications

PCB size	80.36mm X 56.12mm X 1.6mm
Indicators	PWR, Motor direction
Power supply	7~15V
Communication Protocol	XBee, nRF24L01+,UART, IIC,
RoSH	Yes

Electrical Characteristics

Specification	Min	Type	Max	Unit
Power Voltage(Vlogic)	4.5	5	5.5	VDC
Power Voltage(Vsupply)	3.3	-	20	VDC
Input Voltage VH:	4.5	5	5.5	V
Input Voltage VL:	-0.3	0	0.5	V
Current Consumption	-	-	2000	mA

Hardware

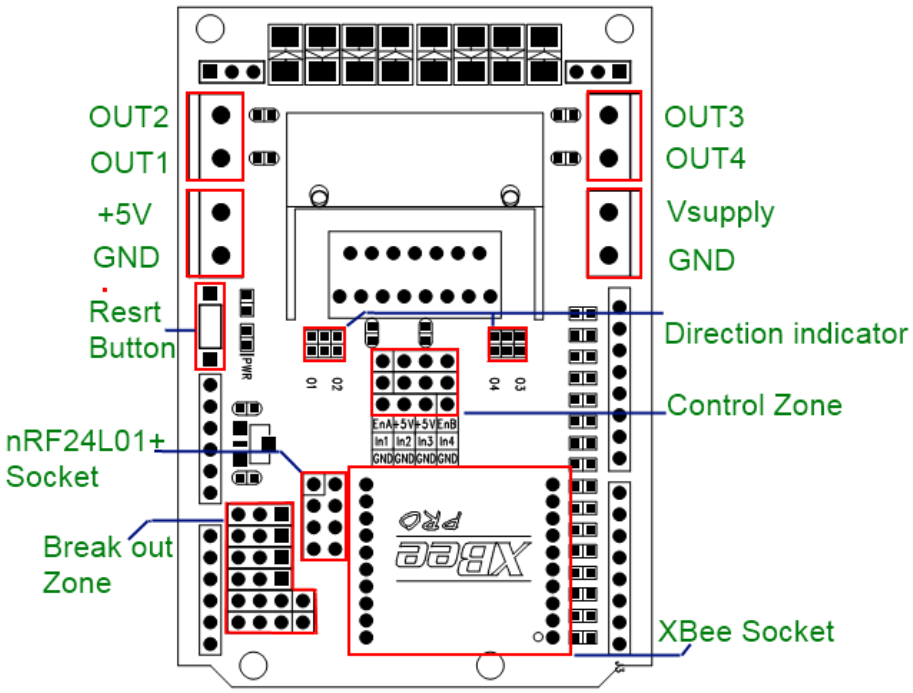


Figure 1 Top Map

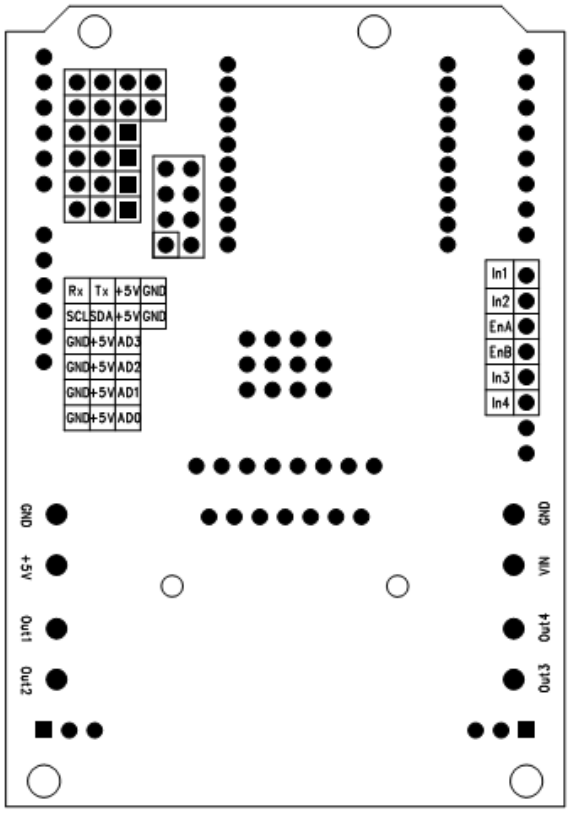


Figure 2 Bottom Map

Interface	Pin	Description
UART	1	Ground
	2	5V supply
	3	Tx
	4	Rx
AD0/1/2	1	AD0/1/2
	2	5V supply
	3	Ground
IIC	1	Ground
	2	5V supply
	3	Data wire of IIC
	4	Clock wire of IIC
nRF24L01 + Socket	1	GND
	2	VCC33
	3	CE(Chip Enable)
	4	SPI_CS
	5	SPI_SCK
	6	SPI_MOSI
	7	SPI_MISO
	8	nRF24L01+ IRQ Output
XBee Socket	1	VCC33
	2	Dout

	3	Din
	10	GNF
	4,5,6,7,8,9,11,12,13,14,15,16,17,18,19,20	No Connect

Arduino Socket defination

Pin	Description
D0	XBee_Dout/UART_Rx
D1	XBee_Din/UART_Tx
D2	nRF24L01+_MISO
D3	nRF24L01+_MOSI
D4	nRF24L01+_SCK
D5	nRF24L01+_CS
D6	nRF24L01+_CE
D7	NC
D8	In1
D9	In2
D10	EnA
D11	EnB
D12	In3
D13	In4
A0	AD0
A1	AD1
A2	AD2
A3	AD3
A4	IIC_SCL
A5	IIC_SDA

Installation

MotoMama can drive two DC motors at the same time.
OUT1/OUT2 is completely symmetrical as OUT3/OUT4 on the board. These pins is connect to the DC motors. The output voltage depends on VIN.
DC motor control input port A has three pins, In1, In2 and EnA. In1 and In2 are digital ports which be used to control the direction of the motor, EnA is connecting with PWM port of control board to control the speed of motor.

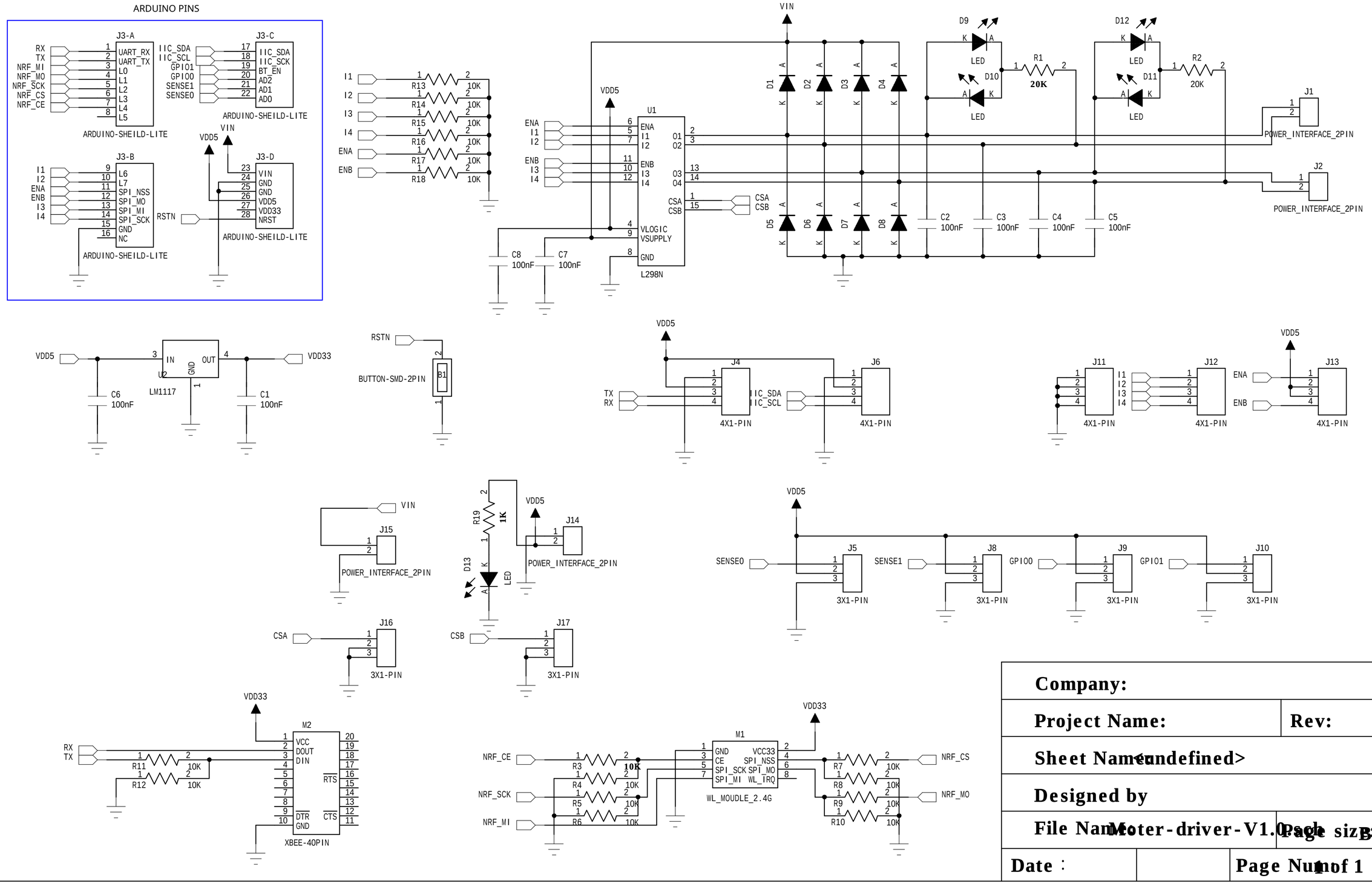
EnA	In1	In2	Description
0	X	X	Free Running Motor Stop
1	1	0	Forward
1	0	1	Reverse
1	In1=In2		Fast Motor Stop

EnB	In3	In4	Description
0	X	X	Free Running Motor Stop
1	1	0	Forward
1	0	1	Reverse
1	In3=In4		Fast Motor Stop

Port A is used to control the motor that connect with OUT1 and OUT2, Port B is used to control the motor that connect with OUT3 and OUT4.
The EnA, EnB, In1, In2, In3, In4 can be used to drive the 4-wire stepping motor which connects with OUT1, OUT2, OUT3 and OUT4.

Revision History

Rev.	Description	Release date
v1.0	Initial version	2011-4-19



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