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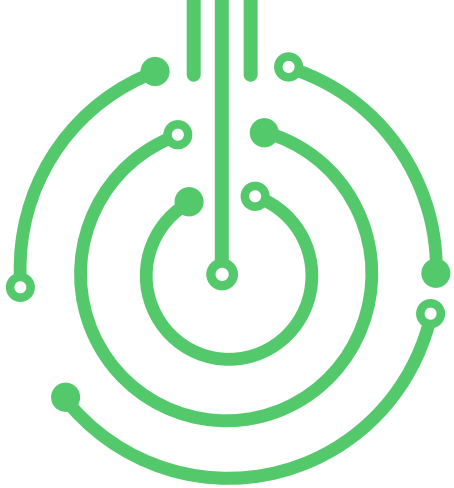


Arduino 8 Channels High-Side Switch

SKU: EL153689

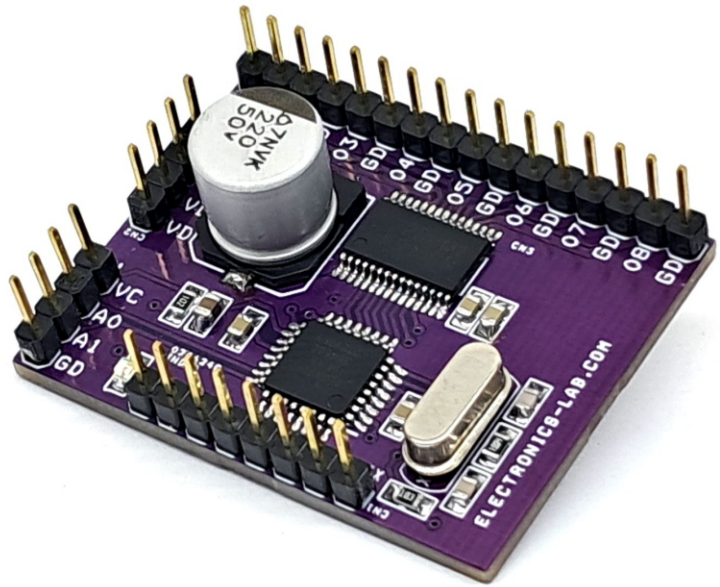
MOTOR CONTROL

Arduino 8 Channels High-Side Switch

The project presented here is a high-side switch (8 channels) with MOSFET output. The Arduino board consists of an Arduino-compatible microcontroller ATMEGA328 and TPD2015FN – 8 Channels MOSFET switch. All 8 inputs of TPD2015FN are TTL compatible. The project is suitable for driving inductive and resistive loads such as industrial programmable logic controllers, motors, and lamps in factory automation equipment, etc. This product has built-in overcurrent and over-temperature protection functions, which contribute to improved stability of the system.

FEATURES

- Power Supply Load 8V to 40V
- 8-channels of N-channel MOSFET and charge pump are built-in.
- This IC can drive the power load directly.
- Built-in protection against over temperature and over current.
- 8-channels access enables space-saving design.
- Low on resistance: 0.55Ω (max) @ VDD = 12V, IOUT = 0.5A, Tj = 25 (per channel)
- Parallel operation is possible.
- Over current protection operating time 3mS
- Over current protection Threshold 1.8A
- Over temperature detection Threshold 175C
- Switching time 6uS
- PCB Dimensions 41.28 X 33.02MM



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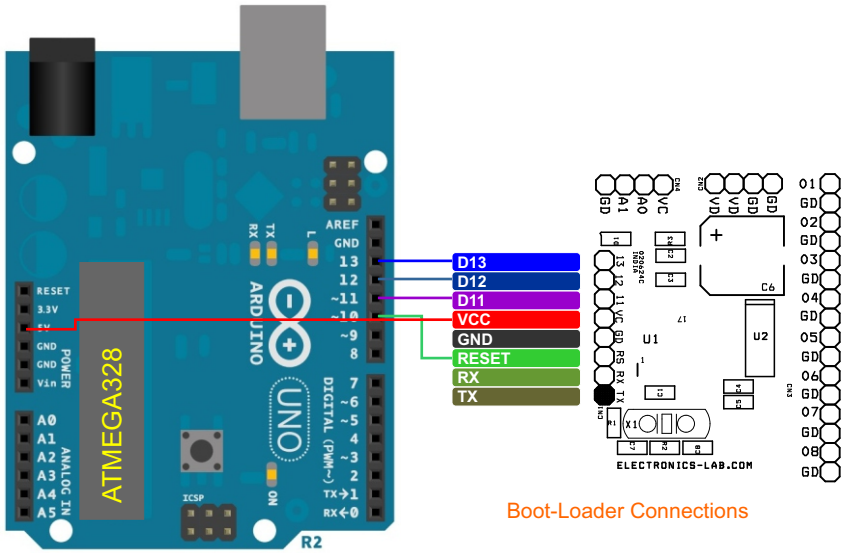
Arduino Programming and Bootloader

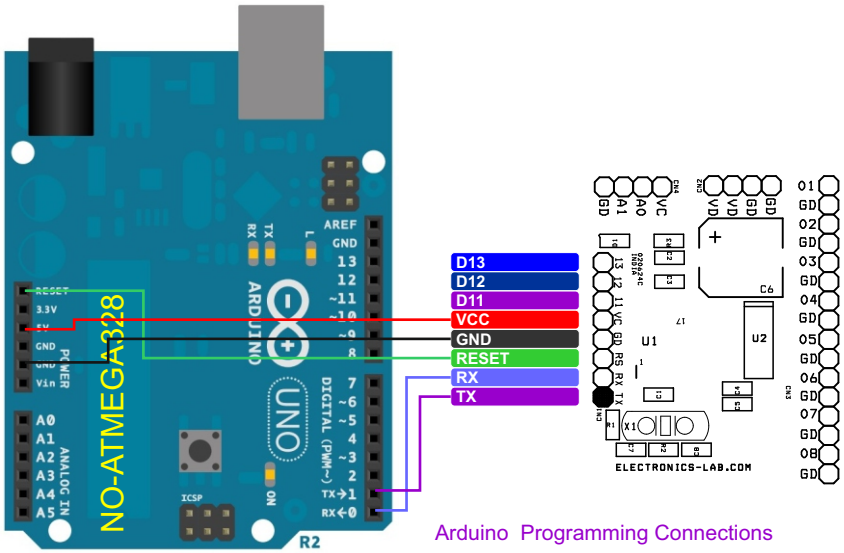
Connector CN1 is provided for loading the bootloader and Arduino programming.

Refer to the connection diagram for Bootloader and Arduino Programming

more info: https://docs.arduino.cc/built-in-examples/arduino-isp/ArduinoToBreadboard/



Boot-Loader Connections



Arduino Programming Connections

Unipolar Stepper Driver Application

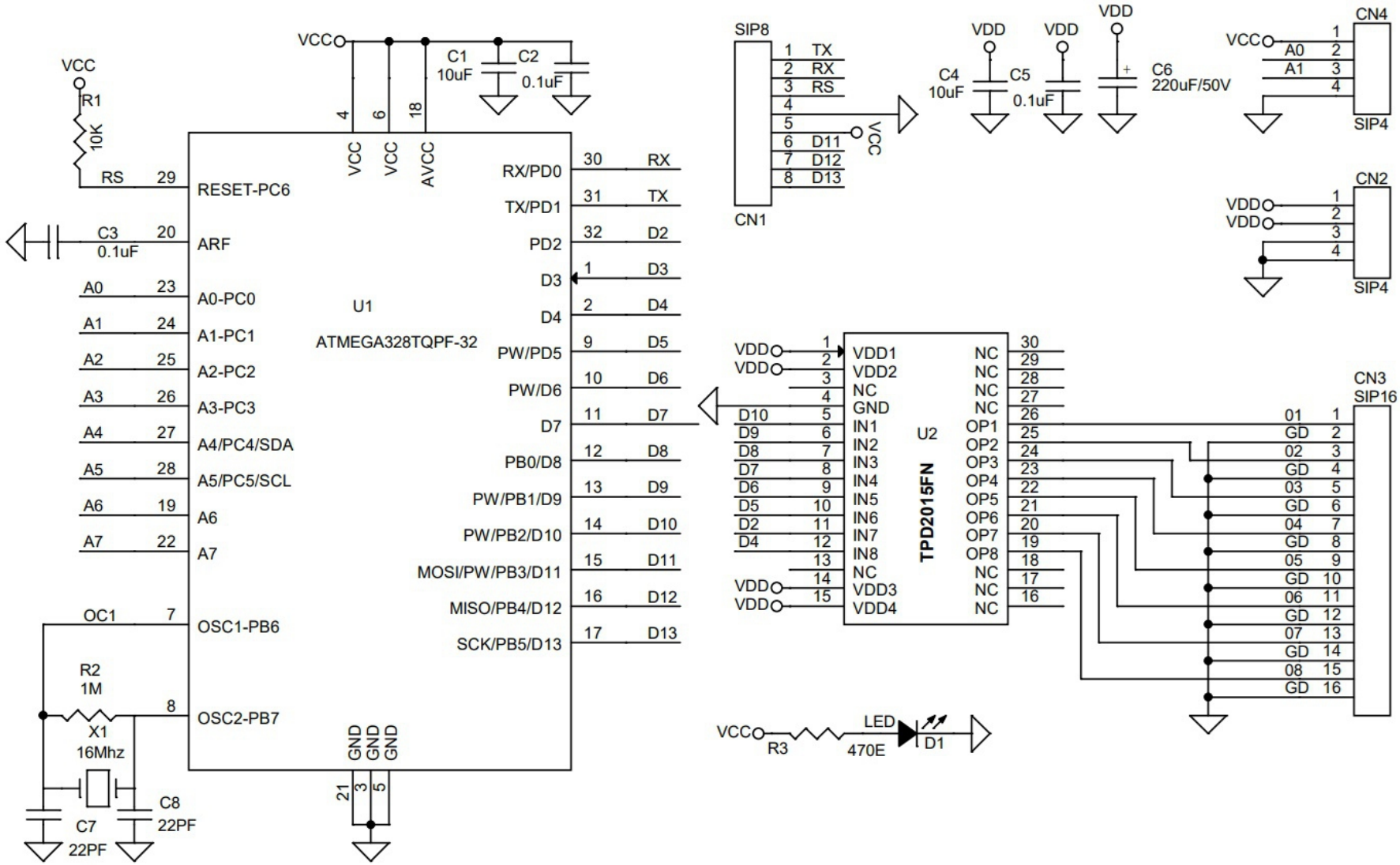
This board can be used to drive a unipolar stepper motor. The user will be able to control the speed of the small (low current) unipolar stepper motor using this hardware and potentiometer connected to A0 analog pin. Sample Arduino code is available as a download below.

TPD2015FN is a high-side switch (8-channels) with MOSFET outputs. This is the monolithic power IC that can be driven directly from CMOS, TTL logic circuitry (MCU, etc.) and has over-current and over-temperature protection features.

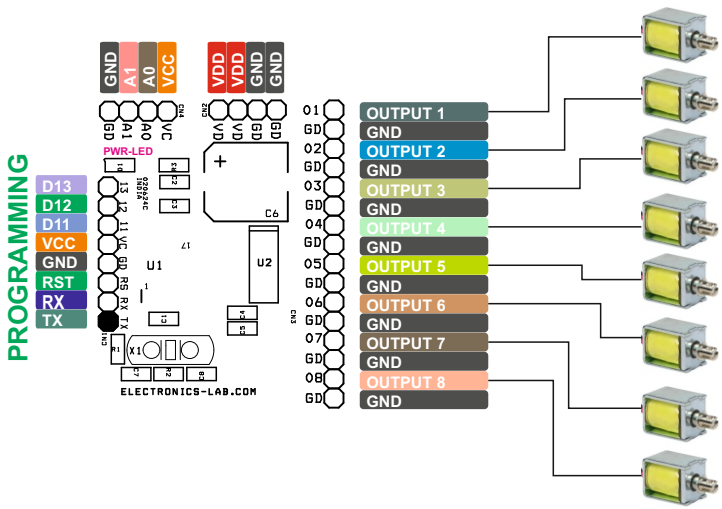
Arduino Pins Vs TPD2015FN Pins

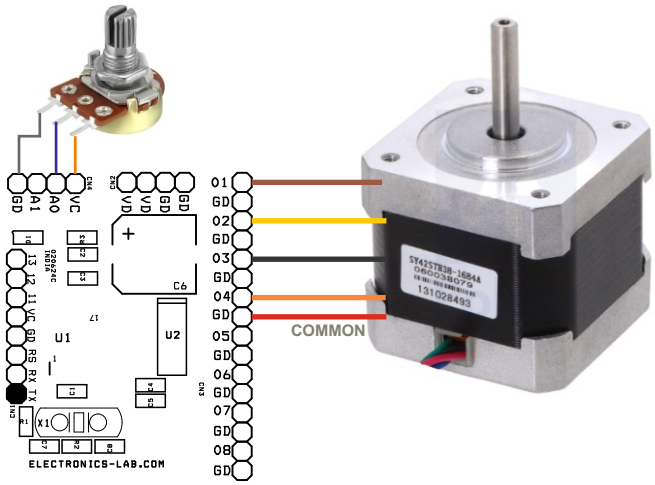
- Digital Pin D10 >> In1
- Digital Pin D9 >> In2
- Digital Pin D8 >> In3
- Digital Pin D7 >> In4
- Digital Pin D6 >> In5
- Digital Pin D5 >> In6
- Digital Pin D2 >> In7
- Digital Pin D3 >> In8

Schematic


VCC
R1
10K
RS
29
RESET-PC6
C3
0.1uF
20
ARF
A0
23
A0-PC0
A1
24
A1-PC1
A2
25
A2-PC2
A3
26
A3-PC3
A4
27
A4/PC4/SDA
A5
28
A5/PC5/SCL
A6
19
A6
A7
22
A7
OC1
7
OSC1-PB6
R2
1M
8
OSC2-PB7
X1
16Mhz
C7
22PF
C8
22PF
VCC
C1
10uF
C2
0.1uF
4
6
18
VCC
VCC
AVCC
GND
GND
GND
21
3
5
U1
ATMEGA328TQPF-32
RX/PD0
30
RX
TX/PD1
31
TX
PD2
32
D2
D3
1
D3
D4
2
D4
PW/PD5
9
D5
PW/D6
10
D6
D7
11
D7
PB0/D8
12
D8
PW/PB1/D9
13
D9
PW/PB2/D10
14
D10
MOSI/PW/PB3/D11
15
D11
MISO/PB4/D12
16
D12
SCK/PB5/D13
17
D13
SIP8
1 TX
2 RX
3 RS
4
5
6 D11
7 D12
8 D13
CN1
VCC
C4
10uF
C5
0.1uF
VDD
VDD
VDD
C6
220uF/50V
CN4
VCC
A0
A1
1
2
3
4
SIP4
CN2
VDD
VDD
1
2
3
4
SIP4
VDD
VDD
1
2
3
4
D10
5
D9
6
D8
7
D7
8
D6
9
D5
10
D2
11
D4
12
13
14
VDD
15
VDD
VDD1
VDD2
NC
GND
IN1
IN2
IN3
IN4
IN5
IN6
IN7
IN8
NC
VDD3
VDD4
U2
TPD2015FN
NC
NC
NC
NC
OP1
OP2
OP3
OP4
OP5
OP6
OP7
OP8
NC
NC
NC
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
CN3
SIP16
01 1
GD 2
02 3
GD 4
03 5
GD 6
04 7
GD 8
05 9
GD 10
06 11
GD 12
07 13
GD 14
08 15
GD 16
VCC
R3
470E
LED
D1

Connections

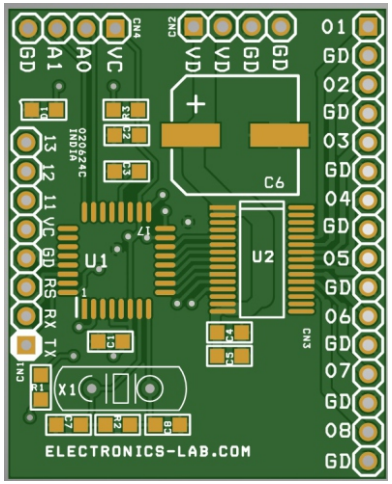


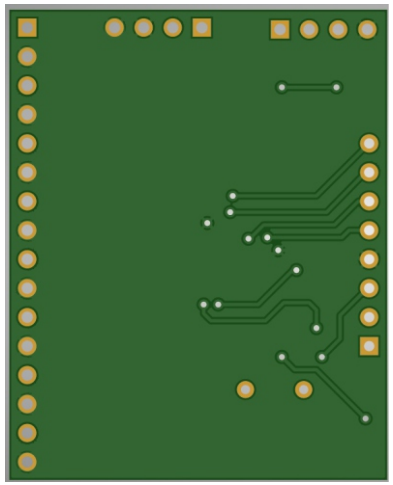


Connections

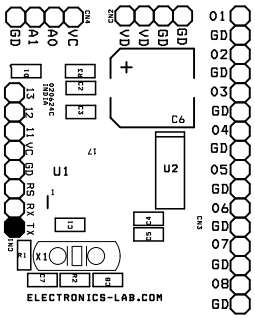
- CN1: Arduino Programming/Bootloader Pin1 = TX, Pin 2 = RX, Pin 3 = Reset, Pin 4 = GND, Pin 5 = VCC, Pin 6 = D11, Pin 7 = D12, Pin 8 = D13
- CN2: Pin 1,2 = Load Power Supply, Pin 3,4 = GND
- CN3: Pin 1 = Output 1, Pin 3 = Output 2, Pin 5 = Output 3, Pin 5 = Output 3, Pin 7 = Output 4, Pin 9 = Output 5, Pin 11 = Output 6, Pin 13 = Output 7, Pin 15 = Output 8, Pin 2,4,6,8,10,12,14,16 = GND
- CN4: Pin 1 VCC 5V DC for Micro-Controller, Pin 2 Analog 0, Pin 3 Analog 1, Pin 4 = GND
- D1: Power LED

PCB

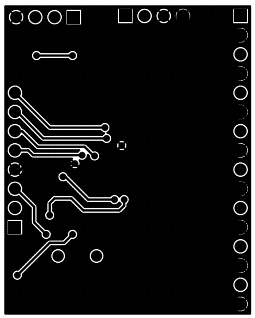




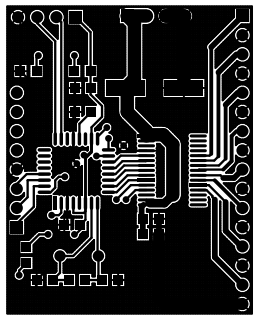
PCB GERBER FILES AVAILABLE



SILK SCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 41.28 X 33.02MM

Parts List

BOM						
NO	QNTY.	REF	DESC	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	CN1	8 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5321-ND
2	2	CN2,CN4	4 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5317-ND
3	1	CN3	16 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5327-ND
4	2	C1,C4	10uF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
5	3	C2,C3,C5	0.1uF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
6	1	C6	220uF/50V	PANASONIC	DIGIKEY	PCE3921CT-ND
7	2	C7,C8	22PF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
8	1	D1	LED RED SMD SIZE 0805	OSRAM	DIGIKEY	475-1278-1-ND
9	1	R1	10K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
10	1	R2	1M 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
11	1	R3	470E 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
12	1	U1	ATMEGA328TQPF-32	MICROCHIP	DIGIKEY	ATMEGA328PB-AURCT-ND
13	1	U2	TPD2015FN	TOSHIBA	DIGIKEY	264-TPD2015FNL1F(SCT-ND
14	1	X1	16Mhz	ECS INC	DIGIKEY	X1103-ND

Notes

APP

Android App

DOWNLOAD

Android App launched in 2017 and has 100k+ downloads - rated with 4.5 stars.

SCAN QR CODE

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