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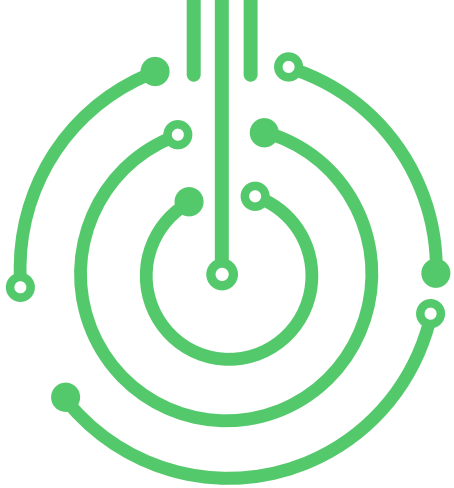


RC PWM Signal to Stepper Pulse Generator

SKU: EL150101

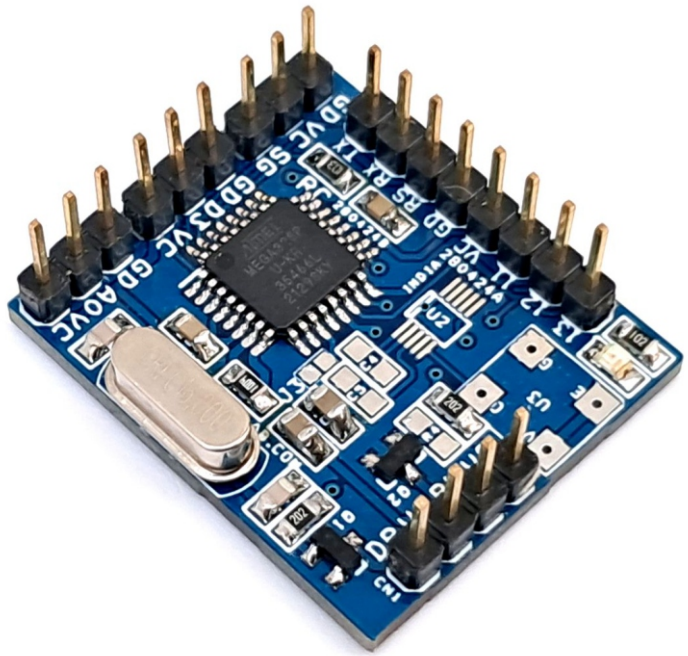
MOTOR CONTROL

RC PWM Signal to Stepper Pulse Generator

This simple Arduino compatible project reads an RC PWM signal (1000µs to 2000µs) and provides 0 to 500Hz pulse output to drive a stepper motor. Step and Direction outputs are open collector types 5V signals. Both signals can directly drive LEDs of optocoupler of stepper drivers. The board consists of ATMEGA328 chip and 2 x BC847 transistors. The transistor helps drive the optocouplers.

FEATURES

- Power Supply 5V DC @ 30mA
- Outputs are Capable to Driver 5V TTL Load (Step/Dir)
- Outputs are Open Collector Type
- RC PWM Signal Range 1000 To 2000uS
- Output Frequency 0 to 500Hz
- On Board Header Connector for Bootloader and Arduino Programming
- Very Small Board
- PCB Dimensions 30.32X25.72MM



Arduino Code

A sample Arduino code is available to test the project.

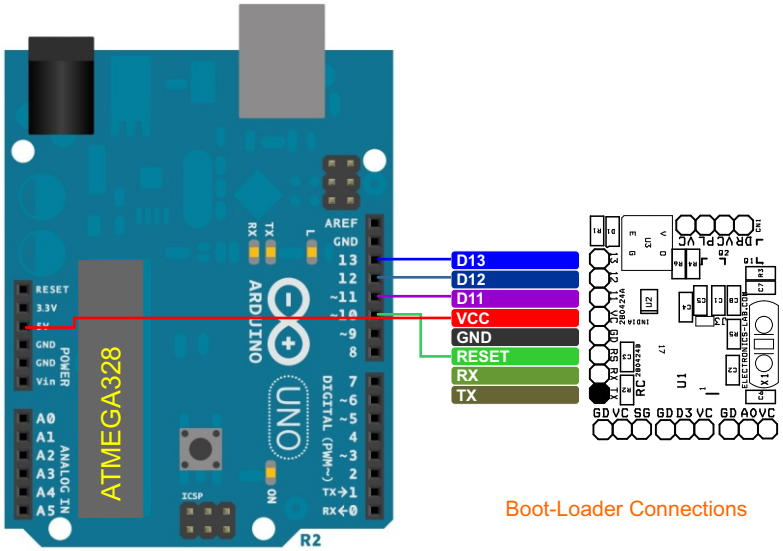
Burn the bootloader and Arduino code into the new ATMEGA328 microcontroller using an onboard programming connector. Refer to the bootloader and Arduino programming diagram for Connections.

Credits: This is modified code, original code written by:

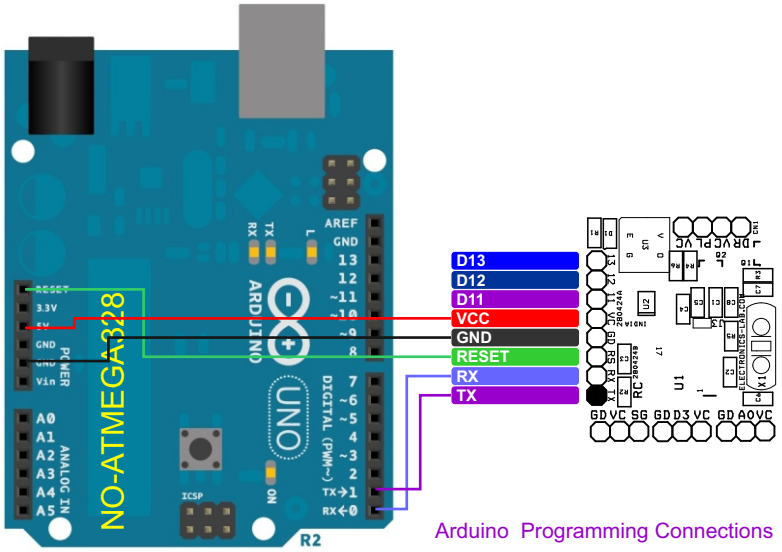
Brandon Tsuge (theboredrobot.com)

Bootloader information:
https://docs.arduino.cc/retired/hacking/software/Bootloader/

Arduino Bootloader and Arduino Programming:
https://docs.arduino.cc/built-in-examples/arduino-isp/ArduinoToBreadboard/

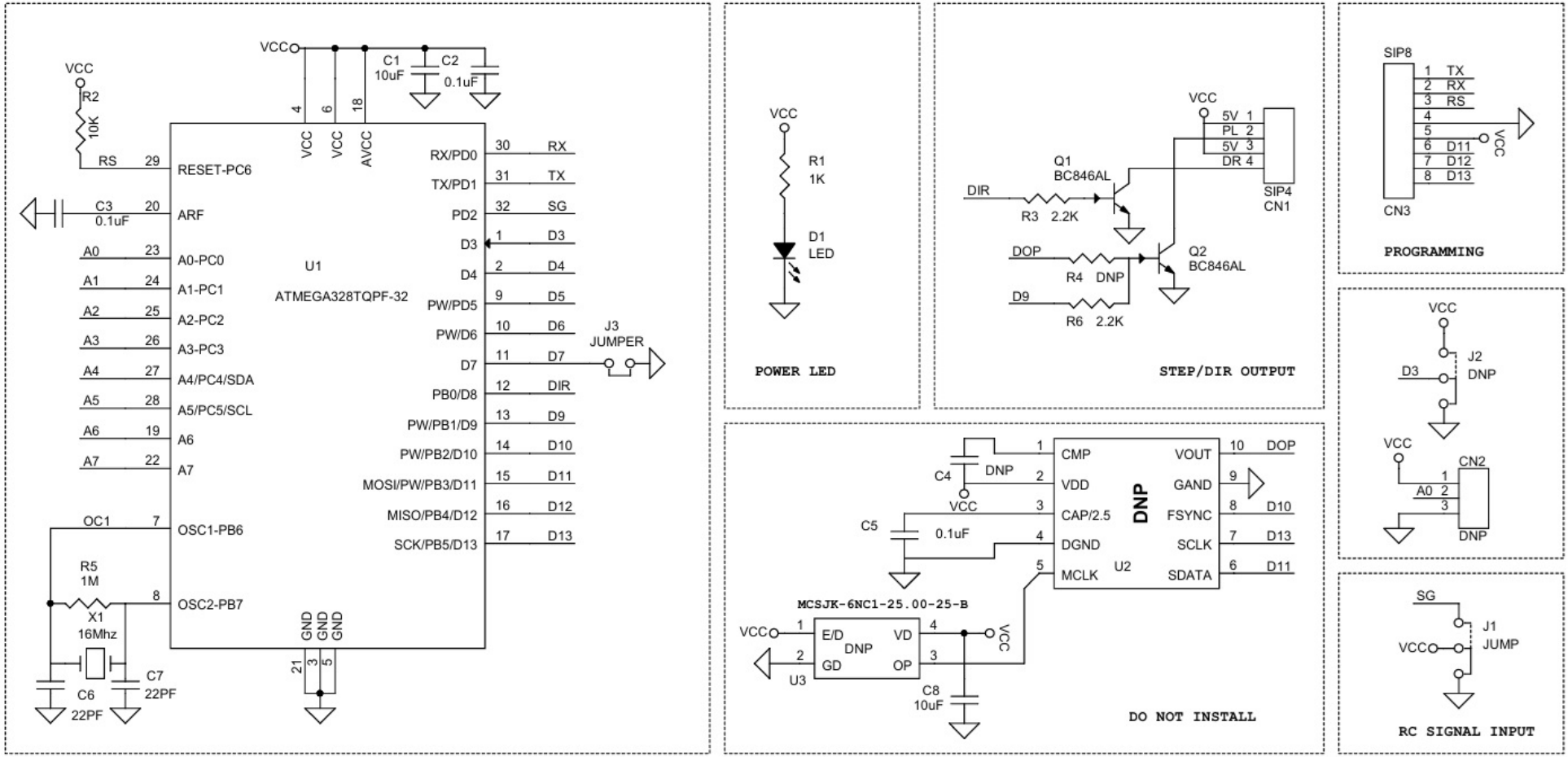


Boot-Loader Connections



Arduino Programming Connections

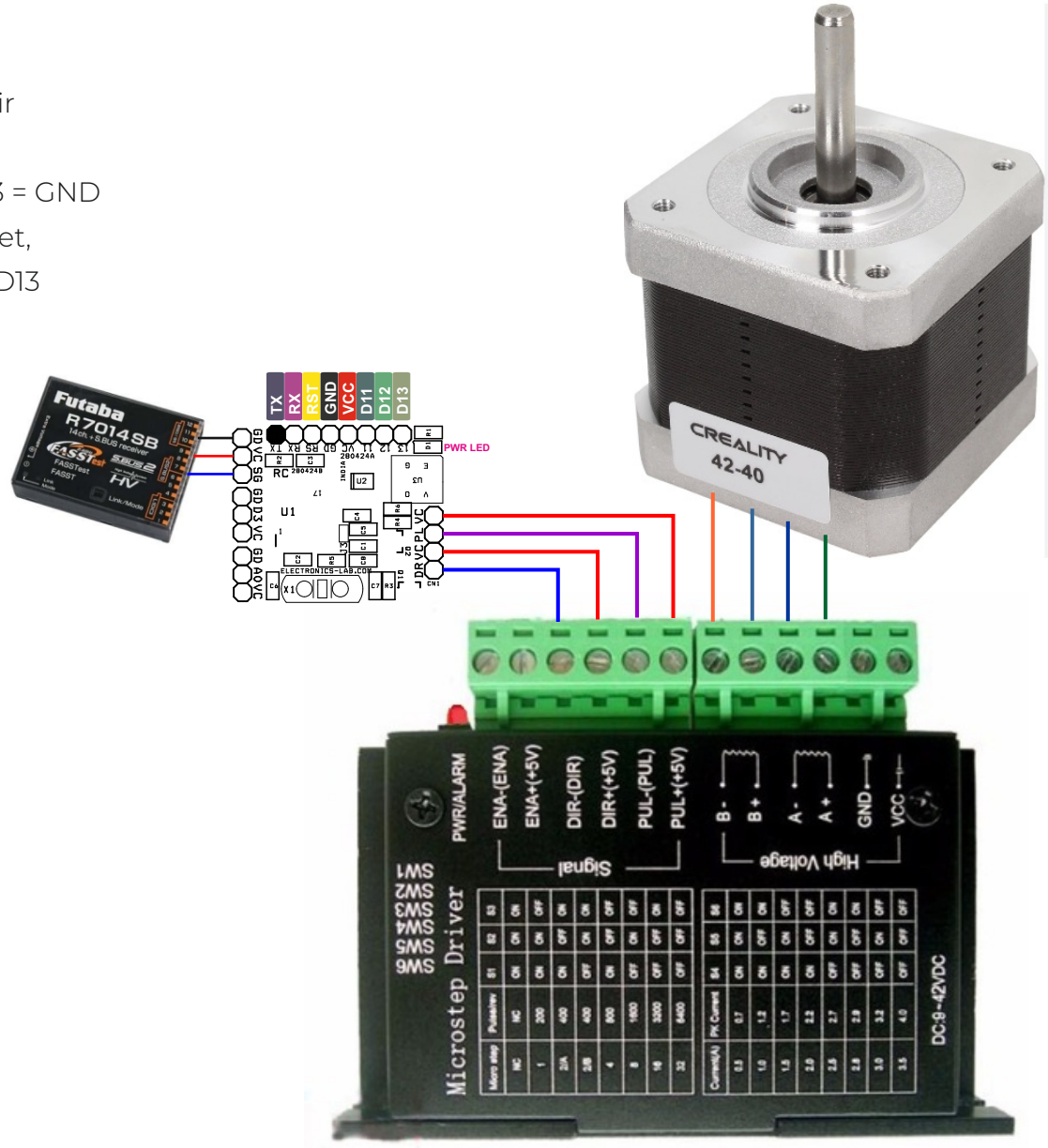
Schematic


VCC
R2
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
R5
1M
8
OSC2-PB7
X1
16Mhz
C6
22PF
C7
22PF
C1
10uF
C2
0.1uF
4
6
18
VCC
VCC
AVCC
21
3
5
GND
GND
GND
U1
ATMEGA328TQPF-32
RX/PD0
30
RX
TX/PD1
31
TX
PD2
32
SG
D3
1
D3
D4
2
D4
PW/PD5
9
D5
PW/D6
10
D6
D7
11
D7
PB0/D8
12
DIR
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
J3
JUMPER
POWER LED
R1
1K
D1
LED
STEP/DIR OUTPUT
Q1
BC846AL
Q2
BC846AL
DIR
R3 2.2K
DOP
R4 DNP
D9
R6 2.2K
5V 1
PL 2
5V 3
DR 4
SIP4
CN1
PROGRAMMING
SIP8
1 TX
2 RX
3 RS
4
5
6 D11
7 D12
8 D13
CN3
J2
DNP
D3
CN2
A0
DNP
C4
DNP
C5
0.1uF
CMP
VDD
CAP/2.5
DGND
MCLK
VOUT
GAND
FSYNC
SCLK
SDATA
DOP
D10
D13
D11
U2
DNP
MCSJK-6NC1-25.00-25-B
E/D
GD
VD
OP
U3
C8
10uF
DO NOT INSTALL
SG
J1
JUMP
RC SIGNAL INPUT

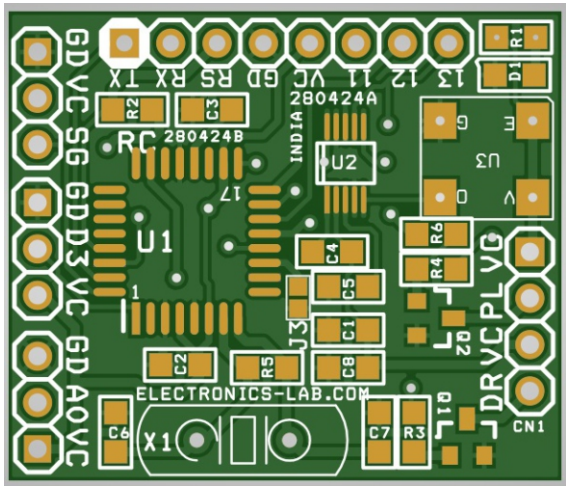
Connections

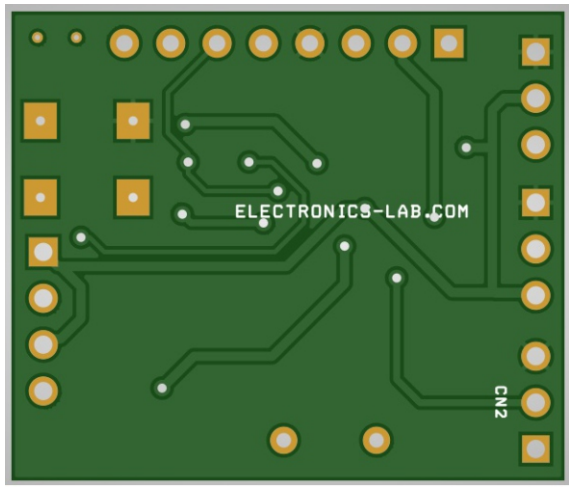
Connections

- CN1: Pin 1 5V, Pin 2 = Step Pules Output, Pin 3 = 5V, Pin 4 = Dir
- CN2: Do Note Install (Can be configured as Limit Switch)
- J1: RC Signal Input, Pin 1 = RC Signal Input, Pin 2 = VCC, Pin 3 = GND
- CN3: Programming Connector Pin 1 = TX, Pin 2 RX, Pin 3 Reset,
  Pin 4 = GND, Pin 5 = VCC/5V, Pin 6 = D11, Pin 7 = D12, Pin 8 = D13
- D1: Power LED

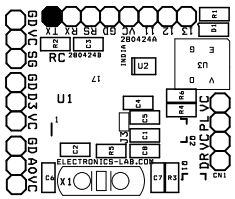


PCB

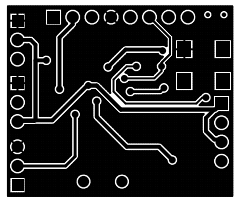




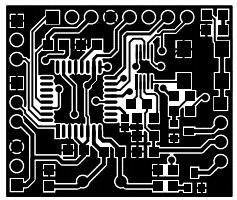
PCB GERBER FILES AVAILABLE



SILK SCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 30.32X25.72MM

Parts List

BOM						
NO.	QNTY.	REF,	DESC.	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	CN1	4 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5317-ND
2	6	U2,J2,CN2,U3,R4,C4	DNP			DO NOT INSTALL
3	1	CN3	8 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5321-ND
4	2	C1,C8	10uF/10V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
5	3	C2,C3,C5	0.1uF/50V CERAMD SIZE 0805MIC	YAGEO/MURATA	DIGIKEY	
6	2	C6,C7	22PF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
7	1	D1	LED SMD SIZE 0805	OSRAM	DIGIKEY	475-1278-1-ND
8	1	J1	3 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5316-ND
9	1	J3	SOLDER JUMPER-PCB			NO USE
10	2	Q1,Q2	BC847	NEXPERIA	DIGIKEY	1727-2924-2-ND
11	1	R1	1K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
12	1	R2	10K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
13	2	R3,R6	2.2K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
14	1	R5	1M 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
15	1	U1	ATMEGA328TQPF-32	MICROCHIP	DIGIKEY	ATMEGA328PB-AURCT-ND
16	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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