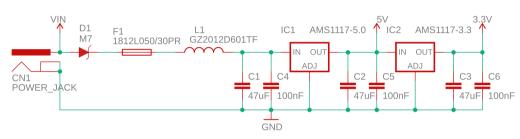# Power input and 5V and 3.3V generation

VIN

D1
M7

F1
1812L050/30PR

L1
GZ2012D601TF

IC1 AMS1117-5.0

5V IC2 AMS1117-3.3

3.3V

IN OUT
ADJ

IN OUT
ADJ

CN1
POWER_JACK

C1   C4
47uF 100nF

C2   C5
47uF 100nF

C3   C6
47uF 100nF

GND

Power selection

VIN

3.3V

5V

R4
100K

2
8 LM358D
1

R5
100K

3
4 IC3A

GND

VUSB

T1 AO3401A

5V

C11
100nF

GND

Disabled

5V

R13
100K

5
7 IC3B

R14
100K

6
LM358D

GND

5V

USB connector

F2
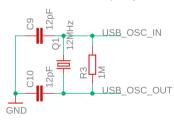1812L050/30PR

L2
GZ2012D601TF

VBUS 1 XUSB   VUSB
D-   2 XUSB_D_M   R1   USB_D_M
D+   3 XUSB_D_P   22R
ID   4   R2   USB_D_P
GND   5   22R

SHIELD   SH1*6 GND USB_SHIELD

CN2
47346-0001

USB to UART chip crystal

C9
12pF

Q1
12MHz

USB_OSC_IN

C10
12pF

R3
1M

USB_OSC_OUT

GND

USB to UART chip

C7
100nF

5V U1

16 VCC TXO 2 D0_RX
4   V3   RXI 3 D1_TX
15 R232 RTS 14
USB_D_P 5 UD+ DTR 13 USB_DTR
USB_D_M 6 UD- DCD 12
USB_OSC_IN 7 XI RI 11
USB_OSC_OUT 8 XO DSR 10
1 GND CTS 9

GND

GND CH340G

5V

C8
100nF

GND

LED indicators

5V — LED1 GREEN — R7 1K — GND
5V — LED2 BLUE — R8 1K — D0_RX
5V — LED3 BLUE — R9 1K — D1_TX
5V — LED4 YELLOW — R10 1K — T2 2N7002 — D13_SCK — GND

Main MCU crystal

C12 12pF
Q2 16MHz
C13 12pF
R6 1M
MCU_OSC_IN
MCU_OSC_OUT
GND

Main MCU reset

USB_DTR — C18 100nF — SJ1 1 2 USB_RESET — R12 10K 5V — RESET
R11 1K — GND
S1 RESET — GND

SJ1 should be closed by default to enable MCU reset from host over USB-UART chip

Main MCU

U2 — ATMEGA328P-AU

Pin	Name	Name	Pin	Signal
29	PC6(/RESET)	PC0(ADC0)	23	A0
18	AVCC	PC1(ADC1)	24	A1
4	VCC	PC2(ADC2)	25	A2
6	VCC	PC3(ADC3)	26	A3
		PC4(ADC4/SDA)	27	A4_SDA
20	AREF	PC5(ADC5/SCL)	28	A5_SCL
		ADC6	19	
		ADC7	22	
7	PB6(XTAL1/TOSC1)	PD0(RXD)	30	D0_RX
8	PB7(XTAL2/TOSC2)	PD1(TXD)	31	D1_TX
		PD2(INT0)	32	D2
		PD3(INT1)	1	D3_PWM
		PD4(XCK/T0)	2	D4
		PD5(T1)	9	D5_PWM
		PD6(AIN0)	10	D6_PWM
		PD7(AIN1)	11	D7
		PB0(ICP)	12	D8
		PB1(OC1A)	13	D9_PWM
21	AGND	PB2(SS/OC1B)	14	D10_SS
3	GND	PB3(MOSI/OC2)	15	D11_MOSI
5	GND	PB4(MISO)	16	D12_MISO
		PB5(SCK)	17	D13_SCK

RESET
5V
MCU_OSC_IN
MCU_OSC_OUT
AREF
GND

Arduino connectors

CN3 DIGITAL10
A5_SCL 1, A4_SDA 2, AREF 3, D13_SCK 4, D12_MISO 5, D11_MOSI 6, D10_SS 7, D9_PWM 8, D8 9, 10
GND

CN4 DIGITAL8
D7 1, D6_PWM 2, D5_PWM 3, D4 4, D3_PWM 5, D2 6, D1_TX 7, D0_RX 8

CN5 ICSP
D12_MISO 1 — 2 5V
D13_SCK 3 — 4 D11_MOSI
RESET 5 — 6 GND

CN6 POWER8
8 7 6 5 4 3 2 1
5V RESET 3.3V 5V VIN
GND

CN7 ANALOG6
6 5 4 3 2 1
A0 A1 A2 A3 A4_SDA A5_SCL

C19 100nF AREF — GND
C14 100nF 5V — GND
C15 100nF 5V — GND
C16 100nF 5V — GND
C17 10uF 5V — GND

(c) Andriy Golovnya

RSN URL

TITLE: Uno_v1.0

Document Number: ARD-UNO-0010

REV: 1.0

Date: 02-May-21 13:56

Sheet: 2/3

Main MCU (extra optional footprint)

U3

Pin	Signal		Pin	Signal

RESET 25 PC6(/RESET)
5V
16 AVCC
3 VCC

AREF 17 AREF

MCU_OSC_IN 5 PB6(XTAL1/TOSC1)
MCU_OSC_OUT 6 PB7(XTAL2/TOSC2)

PC0(ADC0) 19 A0
PC1(ADC1) 20 A1
PC2(ADC2) 21 A2
PC3(ADC3) 22 A3
PC4(ADC4/SDA) 23 A4_SDA
PC5(ADC5/SCL) 24 A5_SCL

PD0(RXD) 26 D0_RX
PD1(TXD) 27 D1_TX
PD2(INT0) 28 D2
PD3(INT1) 1 D3_PWM
PD4(XCK/T0) 2 D4
PD5(T1) 7 D5_PWM
PD6(AIN0) 8 D6_PWM
PD7(AIN1) 9 D7

PB0(ICP) 10 D8
PB1(OC1A) 11 D9_PWM
PB2(SS/OC1B) 12 D10_SS
PB3(MOSI/OC2) 13 D11_MOSI
PB4(MISO) 14 D12_MISO
PB5(SCK) 15 D13_SCK

4 GND
18 GND
PAD GND

GND

ATMEGA328P-MU

(c) Andriy Golovnya

TITLE: Uno_v1.0

Document Number:
ARD-UNO-0010

REV:
1.0

Date: 02-May-21 13:56

Sheet: 3/3