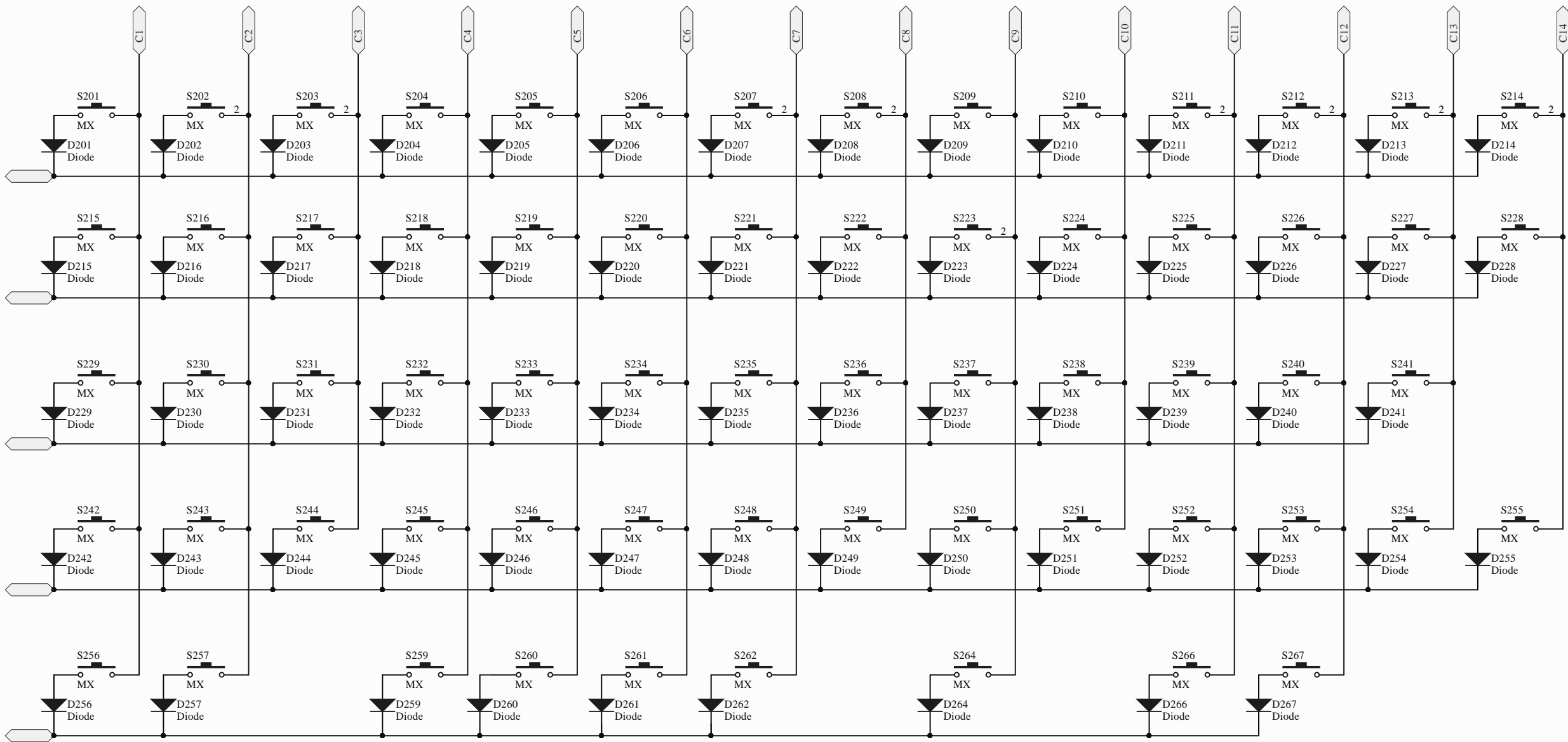


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Keyboard matrix



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## USB Connectors

The diagram illustrates the internal wiring of three USB connectors: a 2.54mm header, a USB-C connector, and a JST-connector. Each connector is connected to a specific USB Type-C port (CON301A, CON301B, CON307) via various components like fuses, resistors, and headers.

- 2.54mm header:** Connected to CON301A. The header pins are labeled RAW, USB\_D\_PRE\_P, USB\_D\_PRE\_N, and Header 4. The connector pins are labeled 4, 3, 2, and 1.
- USB-C:** Connected to CON301B. The connector pins are labeled RAW, F301 (Fuse Thermal), GND, and SHIELD. The connector is labeled TYPE-C-31-M-12. The USB-C pins are labeled CC1, CC2, DP1, DP2, DN1, DN2, SBU1, and SBU2. The connector is labeled TYPE-C-31-M-12. The USB-C pins are labeled USB\_D\_PRE\_P and USB\_D\_PRE\_N. The connector is labeled TYPE-C-31-M-12.
- JST-connector:** Connected to CON307. The connector pins are labeled RAW, USB\_D\_PRE\_N, and USB\_D\_PRE\_P. The connector is labeled Header 5. The connector pins are labeled 1, 2, 3, 4, and 5.

## ICSP Headers

The diagram illustrates the ICSP (In-Circuit Serial Programming) headers for two microcontroller models: ATmega328P and ATmega168P. Both models use a 6-pin header for programming.

**ATmega328P (Top Diagram):**

- Pin 1:** MISO (Master In Slave Out)
- Pin 3:** SCLK (Serial Clock)
- Pin 5:** RST (Reset)
- Pin 7:** MOSI (Master Out Slave In)

**ATmega168P (Bottom Diagram):**

- Pin 1:** MISO (Master In Slave Out)
- Pin 3:** SCLK (Serial Clock)
- Pin 5:** RST (Reset)
- Pin 7:** MOSI (Master Out Slave In)

Both diagrams show the pins connected to a 5V supply and ground. The ATmega328P is labeled "CON302" and "TC2030-IDC". The ATmega168P is labeled "CON303" and "Header 3X2".

# ESD-protection

The diagram illustrates an ESD protection circuit for USB D+ and D- lines. A P-channel MOSFET, labeled D301, is used for protection. The gate of the MOSFET is connected to a network consisting of a 10k resistor and a 100nF capacitor, which is then connected to ground. The source of the MOSFET is connected to the VCC pin of the IC. The drain of the MOSFET is connected to the USB D+ and D- lines. The IC pins are labeled VCC, IO2, IO1, and GND. The IC is identified as PRT85V0U2X.

## Decoupling

The diagram illustrates a decoupling circuit. It shows a horizontal power rail at the top and a ground symbol at the bottom. Three capacitors are connected in parallel between these two rails. From left to right, they are labeled C302 (0.1uF), C303 (0.1uF), and C304 (4,7uF). The capacitors are represented by two parallel lines of varying lengths to indicate their values.

**MCU**

**U301E**  
XTAL1  
XTAL2  
ATMEGA32U2

X301  
XTAL

C305  
36pF

C306  
36pF

**CON305**  
2  
1  
Header 2

RST

USB D PRE N  
USB D PRE P

R305  
Res1  
22

USB D N

R306  
Res1  
22

USB D P

**U301D**  
DN  
DP  
ATMEGA32U2

**U301B**  
RST  
PD7 - HWB  
ATMEGA32U2

R302  
Res1  
10K

R301  
Res1  
10K

S301  
SW-PB

S302  
SW-PB

Button to enter DFU

**U301C**  
GND  
UGND  
VCC  
UVCC  
AVCC  
UCAP  
ATMEGA32U2

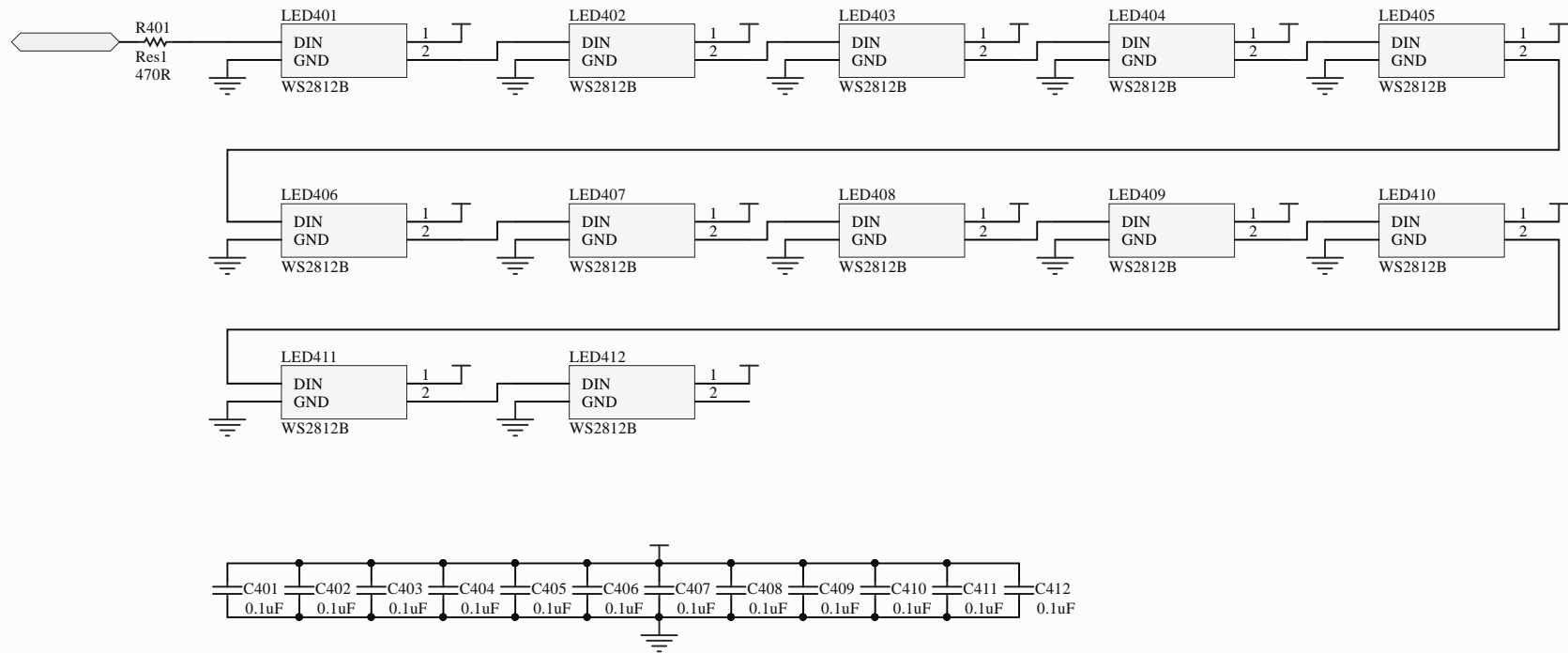
C301  
1uF

**U301A**

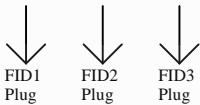
PC2	PC2
PD0	PD0
PD1	PD1
PD2	PD2 - RXD1
PD3	PD3 - TXD1
PD4	PD4
PD5	PD5
PD6	PD6
PB0	PB0
PB1	PB1 - SCKL
PB2	PB2 - MOSI
PB3	PB3 - MISO
PB4	PB4
PB5	PB5
PB6	PB6
PB7	PB7
PC7	PC7
PC6	PC6
PC5	PC5
PC4	PC4

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RGB Underglow



Fiducials



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