

# Barleycorn Keyboard

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Assembly Instructions



YIANCAR DESIGNS



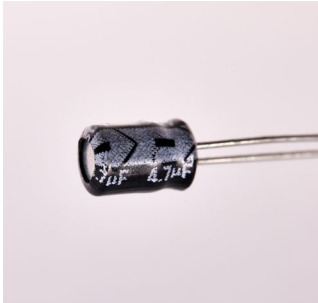
# Welcome to your new Barleycorn Keyboard.

Before we start, make sure you have the following:

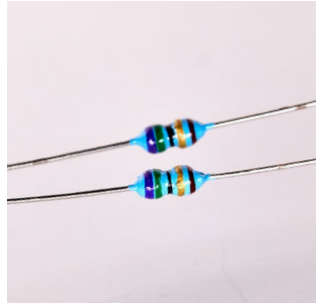
- Soldering Iron
- Solder
- Cutters
- Stabilizers
- Mechanical Switches (preferably PCB mount)
- Keycaps
- USB C cable

This kit is designed with only through-hole components.

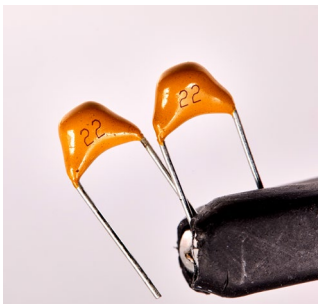
## Component Identification



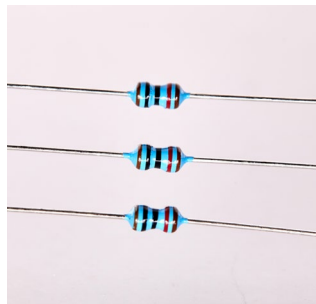
4.7uF Electrolytic Capacitor



750 Ohm Resistors  
Colours: Purple, Green, Black Gold, Brown



22pF Ceramic Capacitors  
Markings: 22



10k Ohm Resistor  
Colours: Brown, Black, Black, Red, Brown



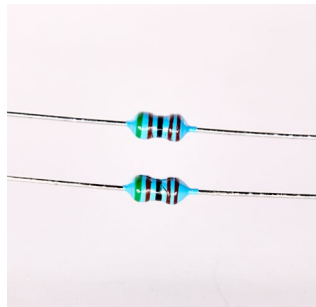
100nF Ceramic Capacitors  
Markings: 104



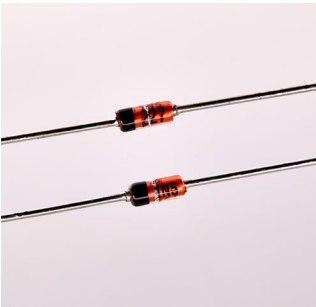
1.5k Ohm Resistors  
Colours: Brown, Green, Black, Brown, Brown



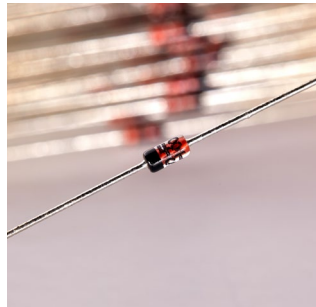
500mA Fuse



5.1k Ohm Resistors  
Colours: Green, Brown,  
Black, Brown, Brown



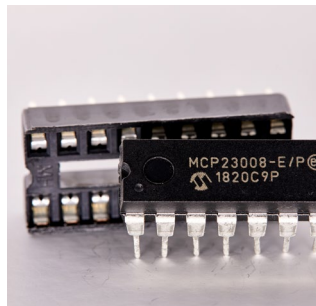
Zener Diodes  
3.6V,  
x2 loose pieces



1N4148 Diodes  
in a roll



16Mhz Crystal



MCP23017 Port  
Expander and  
Socket



Green and red  
LEDs  
Note: long leg is  
positive



M2 Screws /  
M2 Nuts



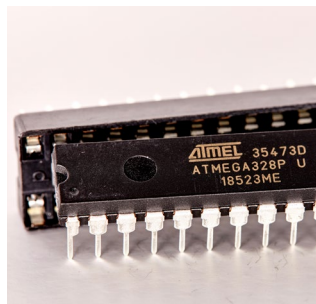
M2 Spacers



Reset and Boot  
Switches



Rubber Feet



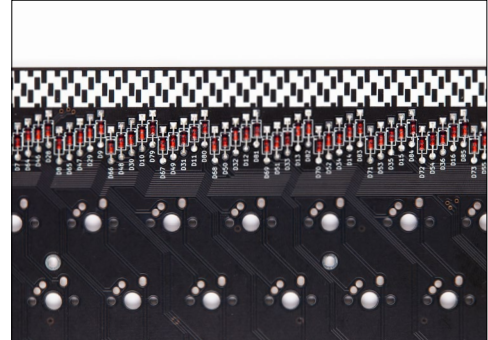
ATmega328P  
Microcontroller and  
Socket



# Assembly Instructions

## Step 1

Solder 1N4148 Diodes under the graphic as shown in the picture. The black line from the diodes goes to the top.



## Step 2

Solder the x3 10k Ohm resistors; R4, R5, and R6. Those components have no specific orientation.



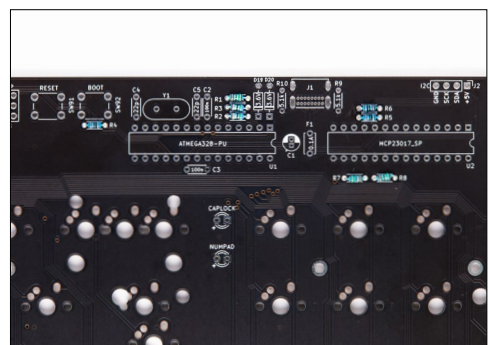
## Step 3

Solder the x3 1.5k Ohm resistors; R1, R7, and R8. Those components have no specific orientation.



## Step 4

Solder the x2 75 Ohm resistors; R2 and R3. Those components have no specific orientation.

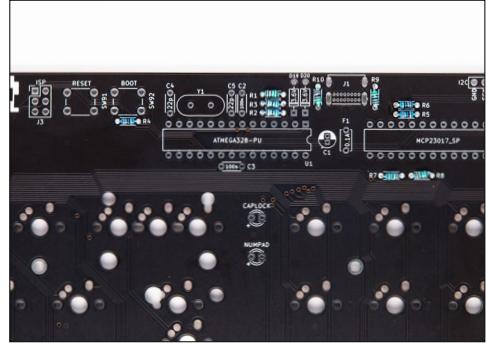




# Assembly Instructions

## Step 5

Solder the x2 5.1k Ohm resistors; R9 and R10. These components have no specific orientation.



## Step 6

Solder the x2 Zener diodes; D19 and D20. The black line is at the bottom.



## Step 7

Solder the x2 22pF capacitors; C4 and C5.

Note: Do not over-pull the legs through the PCB. These capacitors are very fragile and can crack. These components have no specific orientation.

Solder the x2 100nF capacitors; C2 and C3. These components have no specific orientation.

Solder the fuse, F1. This component has no specific orientation.







# Assembly Instructions

## Step 8

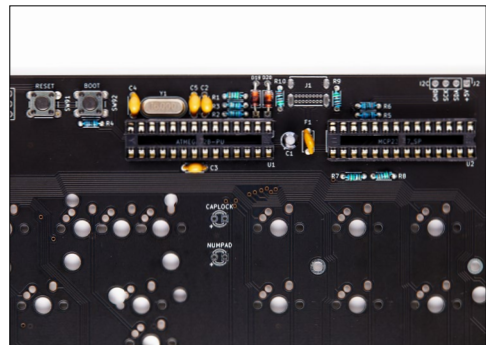
Solder the x2 switches; SW91 and SW92. These components have no specific orientation.



## Step 9

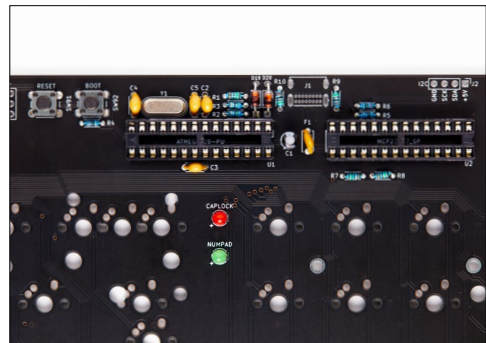
Solder the electrolytic capacitor, C1. Negative (-) goes at the top.

Solder the x2 chip sockets. The small one goes to the U2 and the big one goes to U1, as in the picture.



## Step 10

Solder the LEDs as shown in the picture. The long leg is the positive.



## Step 11

Solder the USB socket. The small pins might not come through the PCB but still add plenty of solder and flux. Solder the shield pins last.





# Assembly Instructions

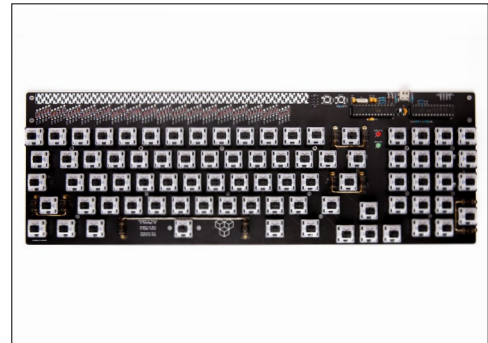
## Step 12

Put the x2 chips in their sockets. The MCU is pre-programmed with the default ANSI keymap. Re-programming instructions are on page 9. The U1 chip's semi-circle mark goes to the right. The U2 semi-circle mark goes to the right. Bend the legs of the chips inwards to fit in the sockets!



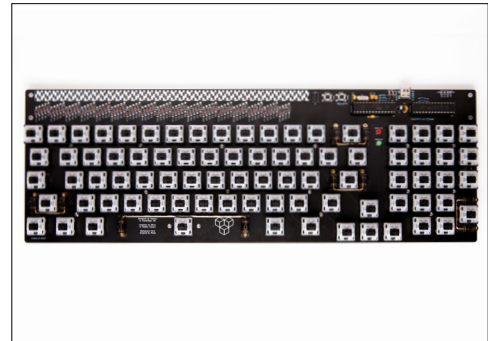
## Step 13

Solder all the switches according to your desired layout. Add the stabilizers.



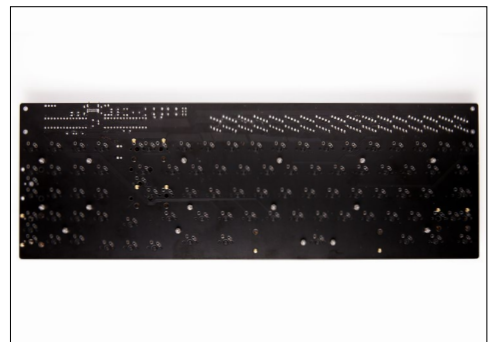
## Step 14

Screw the x16 M2 screws as shown in the picture. Don't add screws at the 4 top holes for the plexyglass. The screws are inserted from the top of the PCB.



## Step 15

Screw x2 M2 nuts on each of the 16 screws from the bottom.





# Assembly Instructions

## Step 16

Put the x4 M2 screws from the bottom of the bottom PCB. These screws are for the plexiglass.

Add x2 M2 nuts for each screw from the top of the bottom PCB.



## Step 17

Insert the bottom PCB and the top PCB together. Secure the x4 plexiglass screws with the x4 spacers.



## Step 18

Place the plexiglass on top of the spacers and secure it with x4 M2 screws.



## Step 19

Turn the keyboard upside down and secure the bottom PCB with the last x16 M2 nuts.



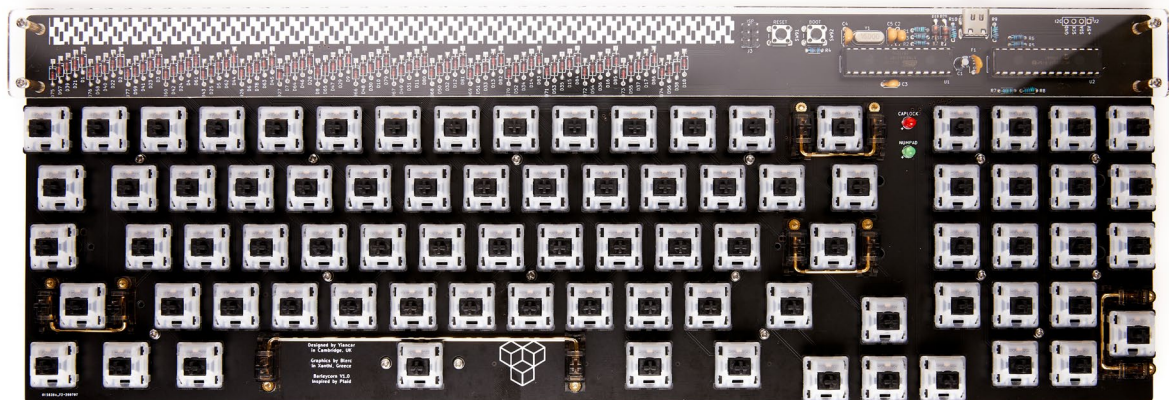




# Assembly Instructions

## Step 20

Place the x8 rubber feet at the bottom.  
Done!



Please see below for Programming Instructions.



# Programming Instructions Using VIA

Currently, media and mouse keycodes cannot be used using VIA.

The keyboard is shipped with VIA enabled. If you have programmed using QMK configurator and want to go back to VIA please flash the VIA keymap from our website.

## Step 1

Download VIA from:

<https://github.com/the-via/releases/latest>



## Step 2

With the keyboard connected, open VIA.

## Step 3

To change the keymap, press on the desired key and then select the new keycode from below. The change is instantaneous.

To change layouts, use the layout tab.



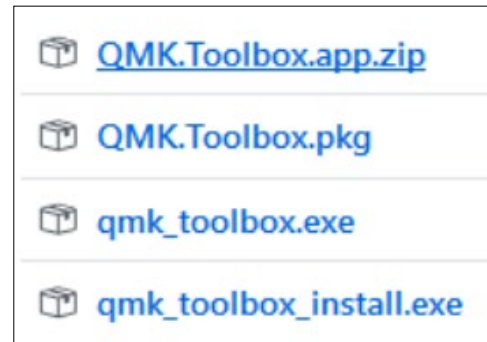
# Programming Instructions Using QMK

## Step 1

Download the latest QMK Toolbox from:

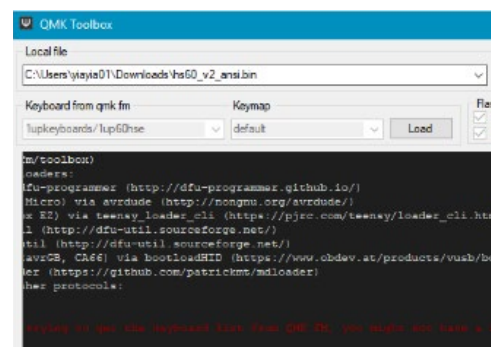
[https://github.com/qmk/qmk\\_toolbox/releases](https://github.com/qmk/qmk_toolbox/releases)

If you are using Windows download the “.exe”. If you are using MacOS download the “.pkg”.



## Step 2

Install the downloaded package.



## Step 3

Create your desired keymap from:

[https://config.qmk.fm/#/barleycorn/LAYOUT\\_all](https://config.qmk.fm/#/barleycorn/LAYOUT_all)

Select the desired layout first.



## Step 4

Press Compile button. Make sure the compilation has completed successfully.





# Programming Instructions Using QMK

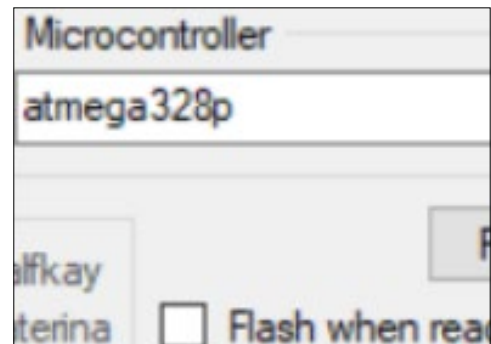
## Step 5

Press FIRMWARE button to download the “.hex”.



## Step 6

In QMK toolbox press Open and select the downloaded “.hex”. Select atmega328p from the microcontroller menu.



## Step 7

Press and hold the BOOT button. Press and release the RESET button. Release the BOOT button, QMK toolbox should detect USBasp.

## Step 8

Press the Flash button in QMK toolbox. Once you see the Success message, press the RESET button.

Done! Enjoy your new keymap!



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