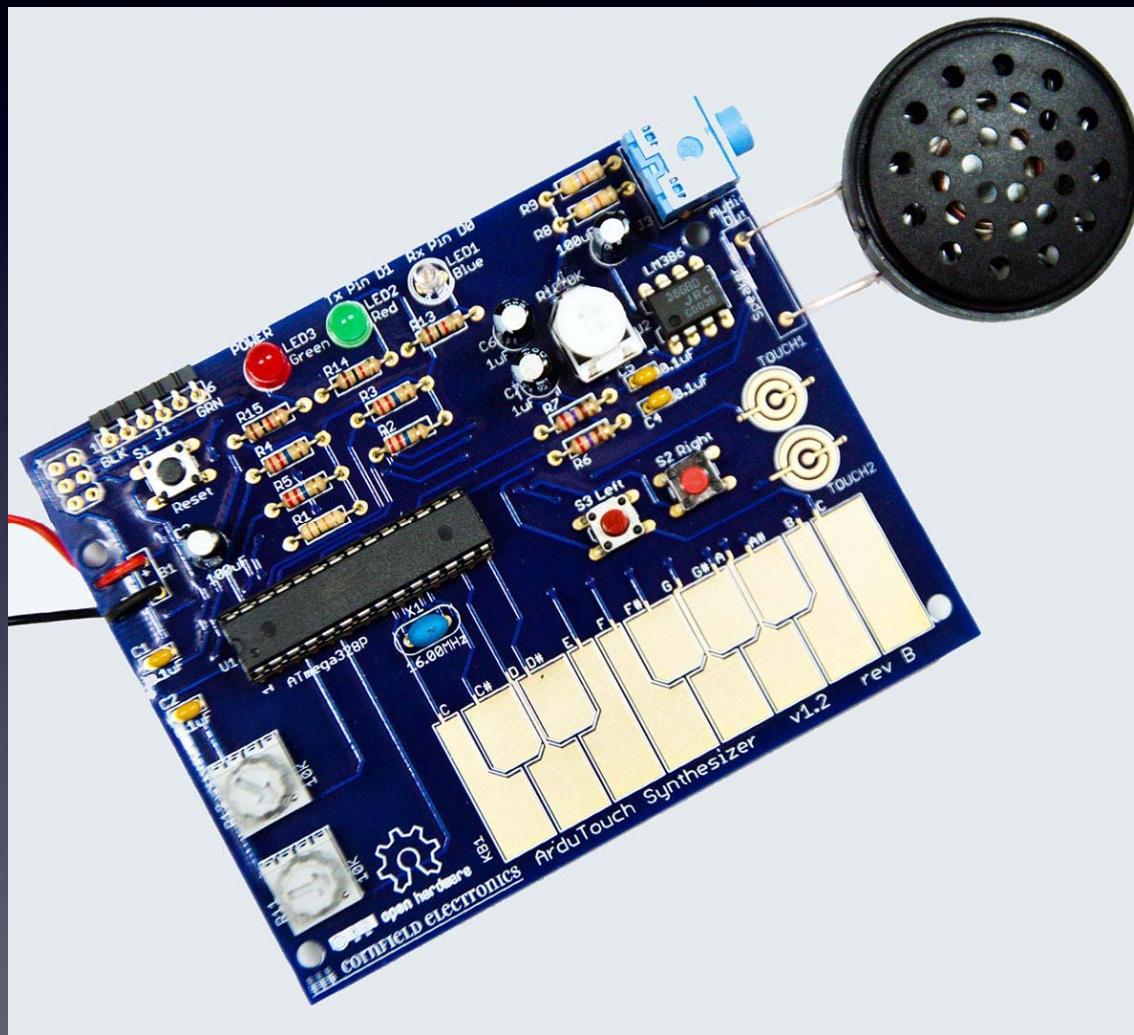


# *ArduTouch Music Synthesizer*

## Assembly Instructions



rev B

# *ArduTouch Music Synthesizer*

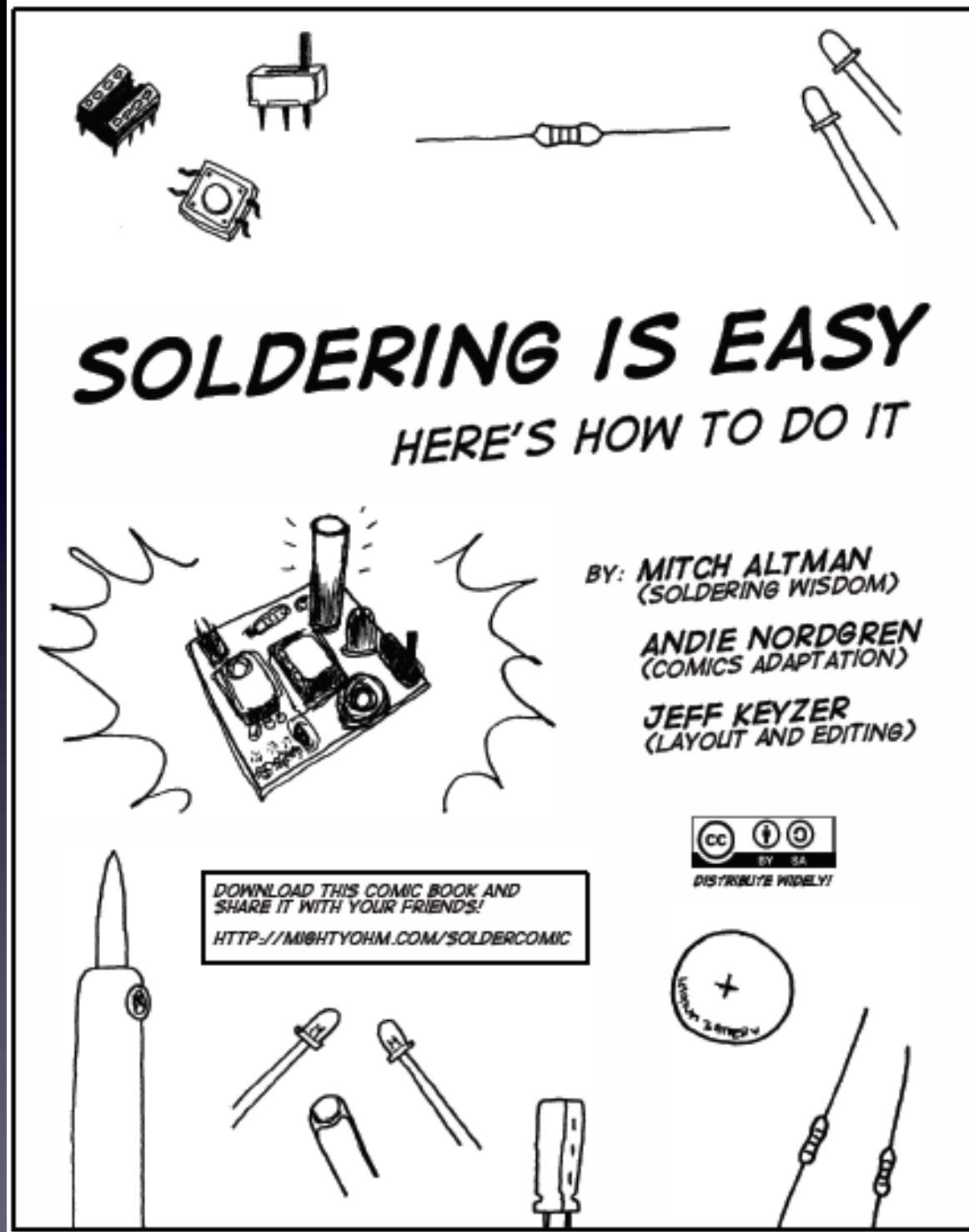
## Assembly Instructions

### Note:

These assembly instructions are modified from the instructions for assembling the rev A board, so please don't get confused when you see some photos that are similar, but a little different than your rev B board.

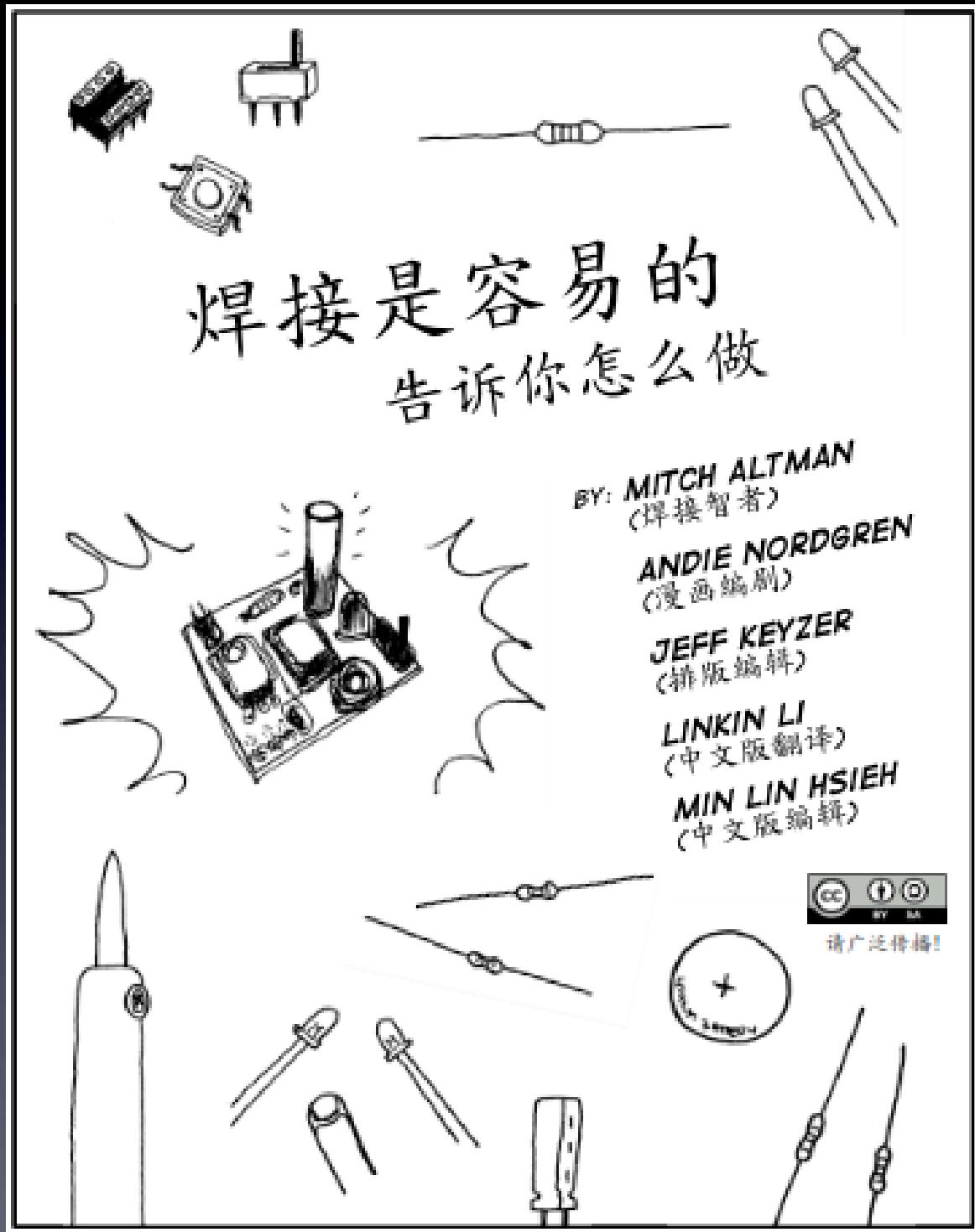
rev B

# Learn To Solder



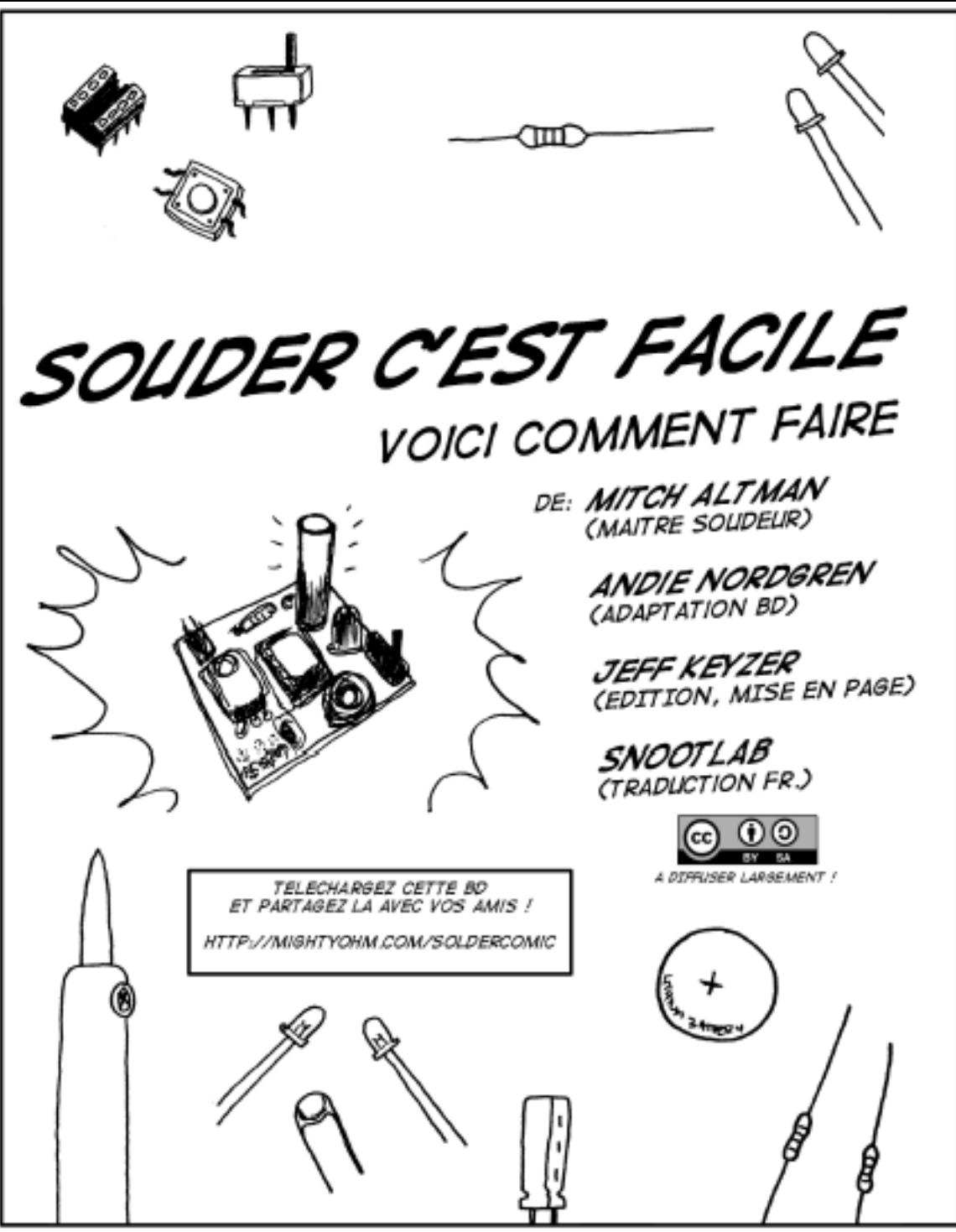
download for free at:  
<http://mightyohm.com/soldercomic>

# Learn To Solder



Download in the language of your choice for free at:  
<http://mightyohm.com/soldercomic>

# Learn To Solder



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# Learn To Solder

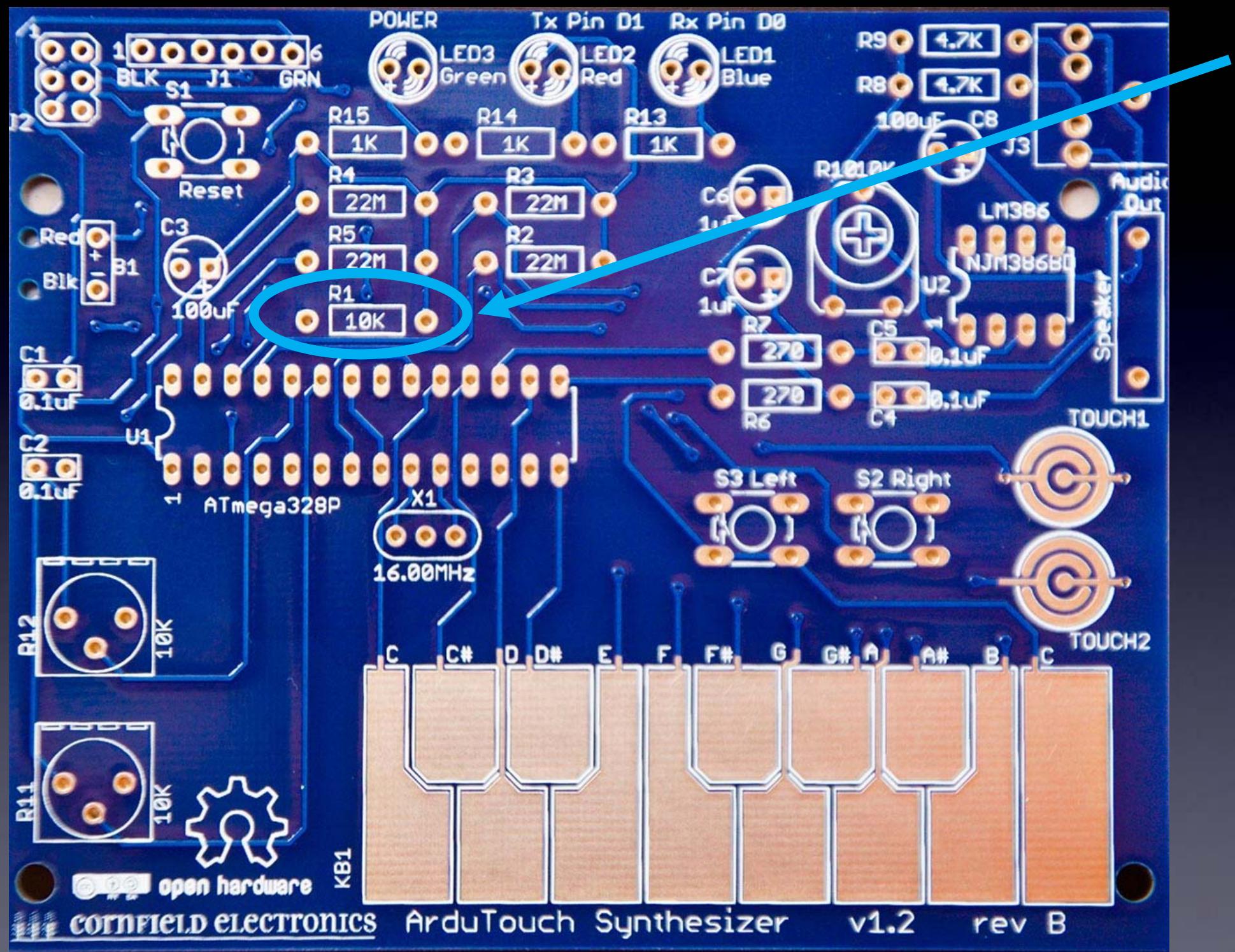


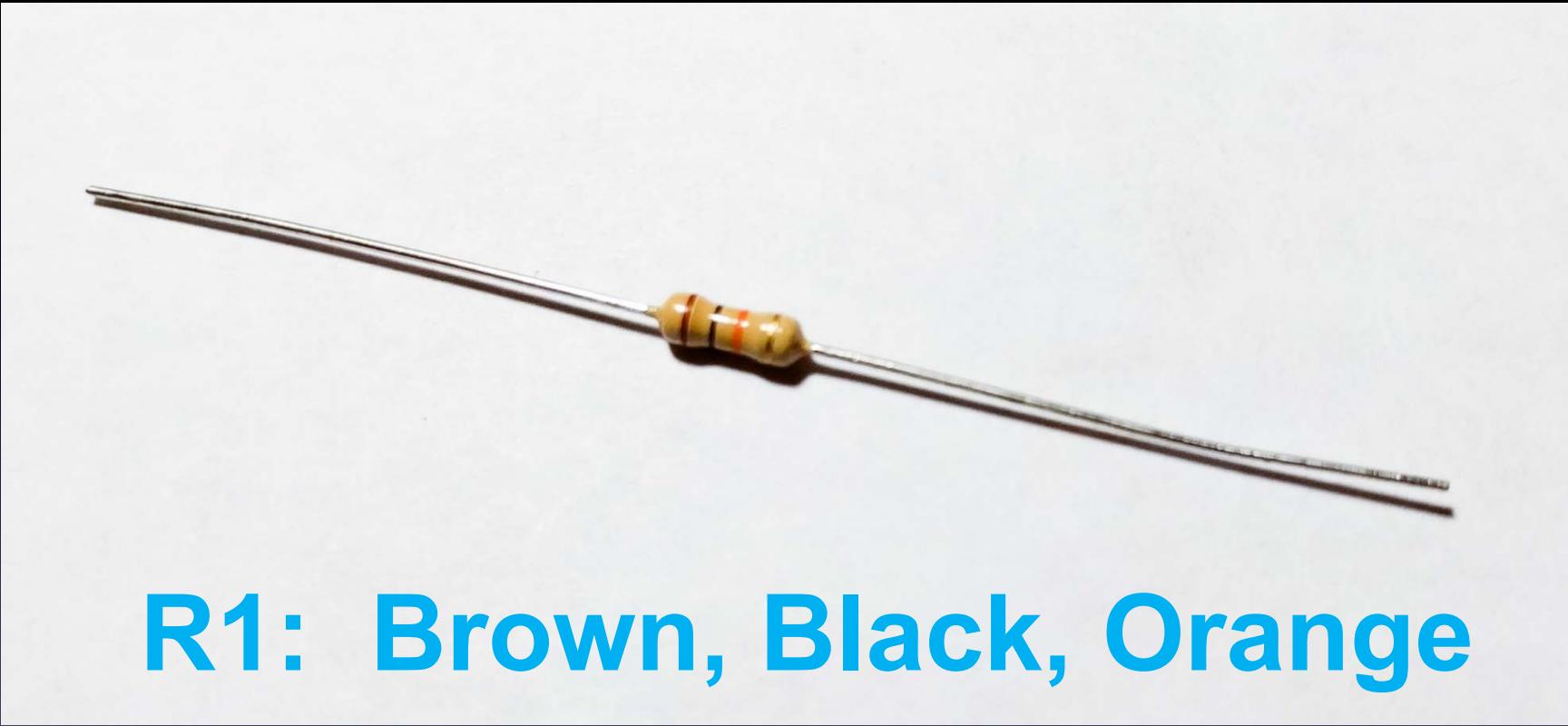
Download in the language of your choice for free at:  
<http://mightyohm.com/soldercomic>

# Learn To Solder



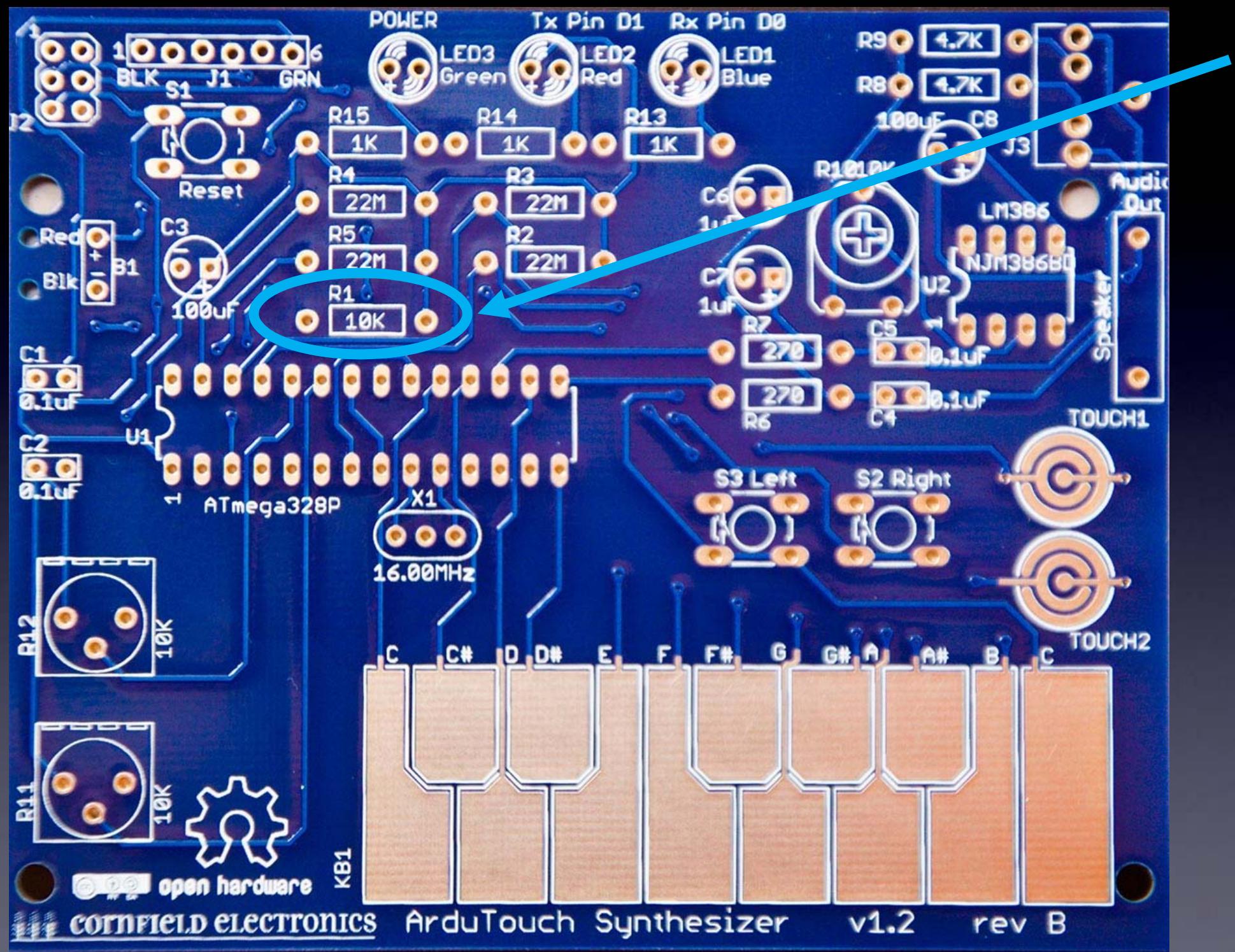
Download in the language of your choice for free at:  
<http://mightyohm.com/soldercomic>



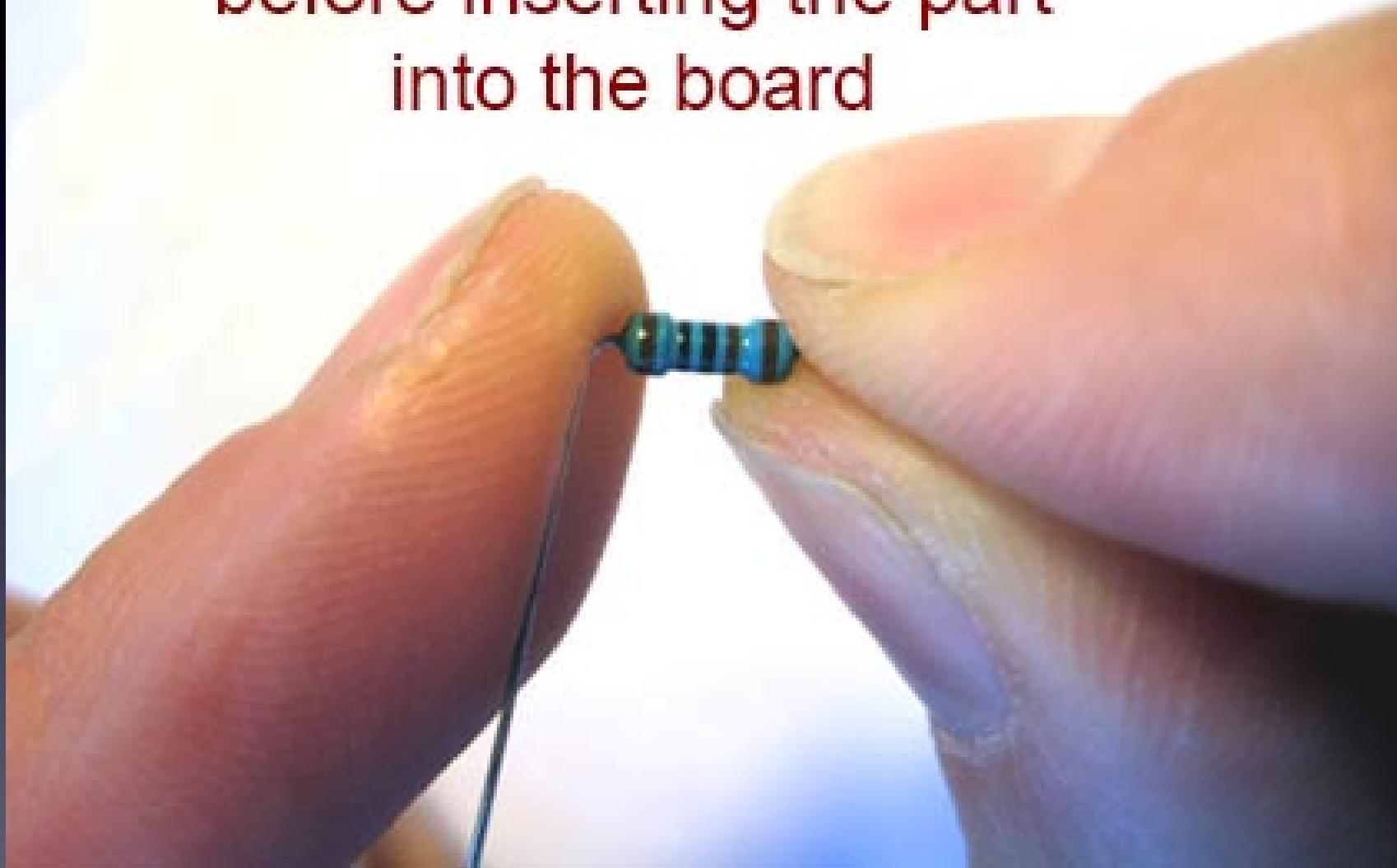


R1: Brown, Black, Orange

(not Brown, Black, Red)

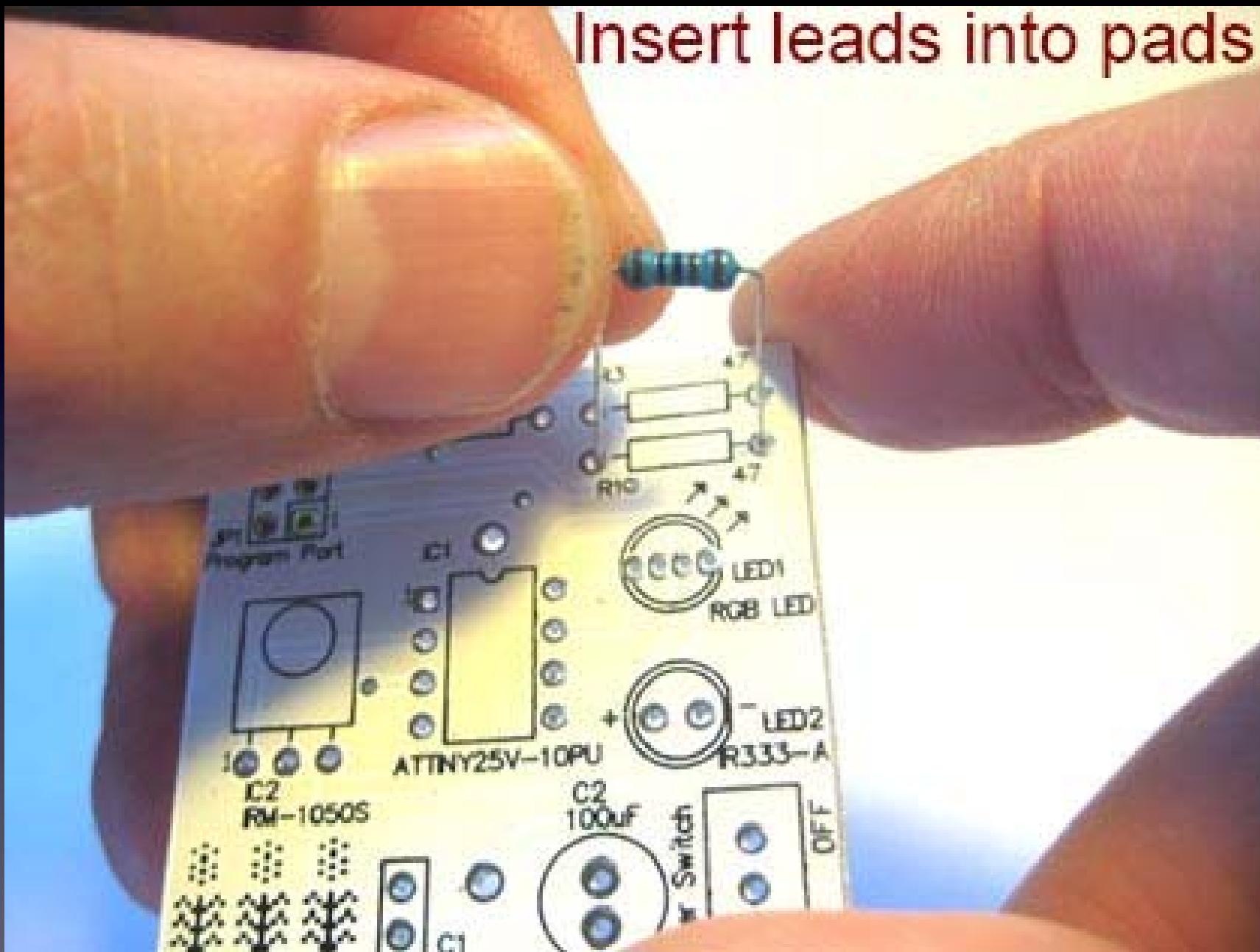


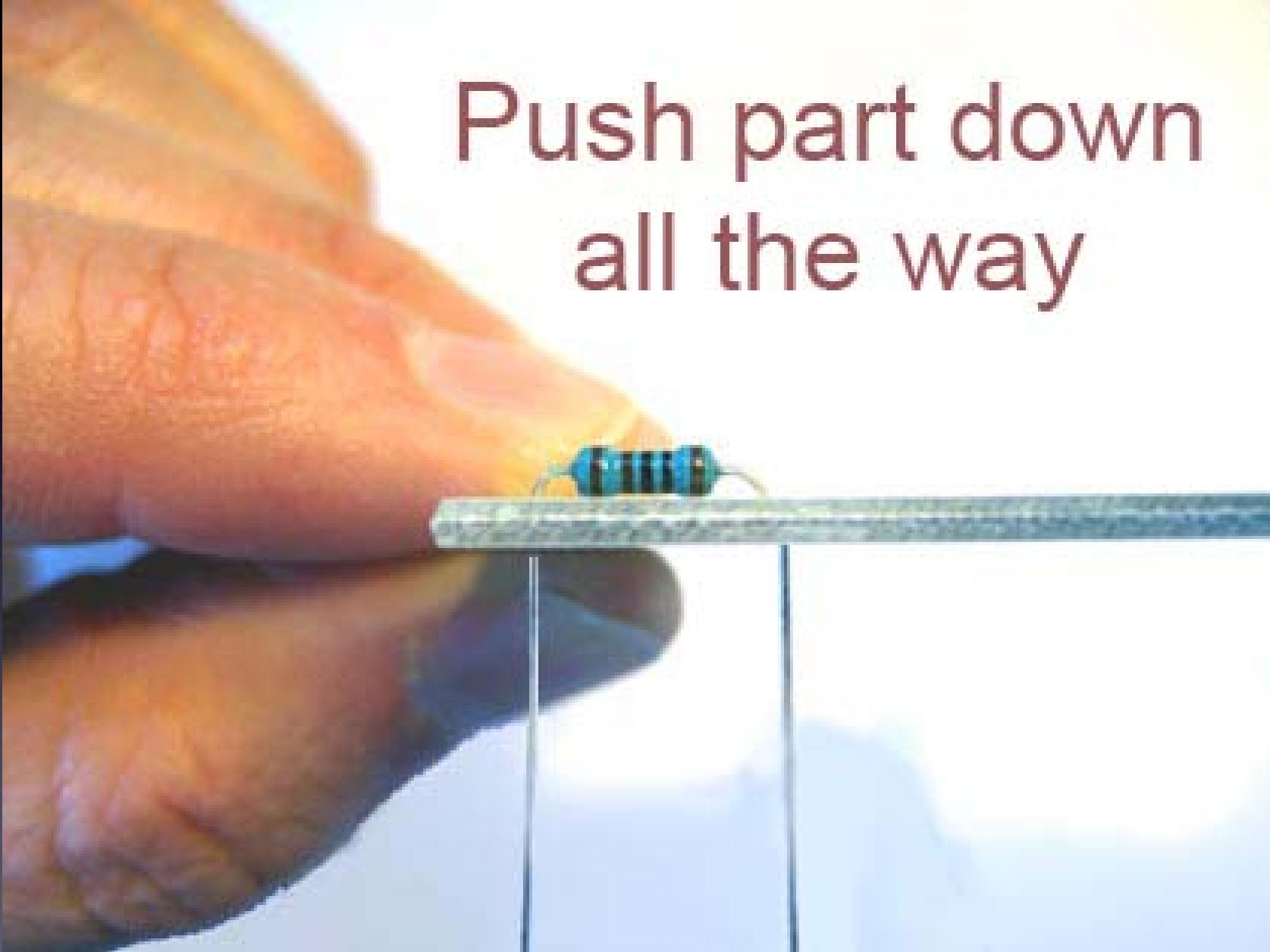
Bend leads  
before inserting the part  
into the board





# Insert leads into pads

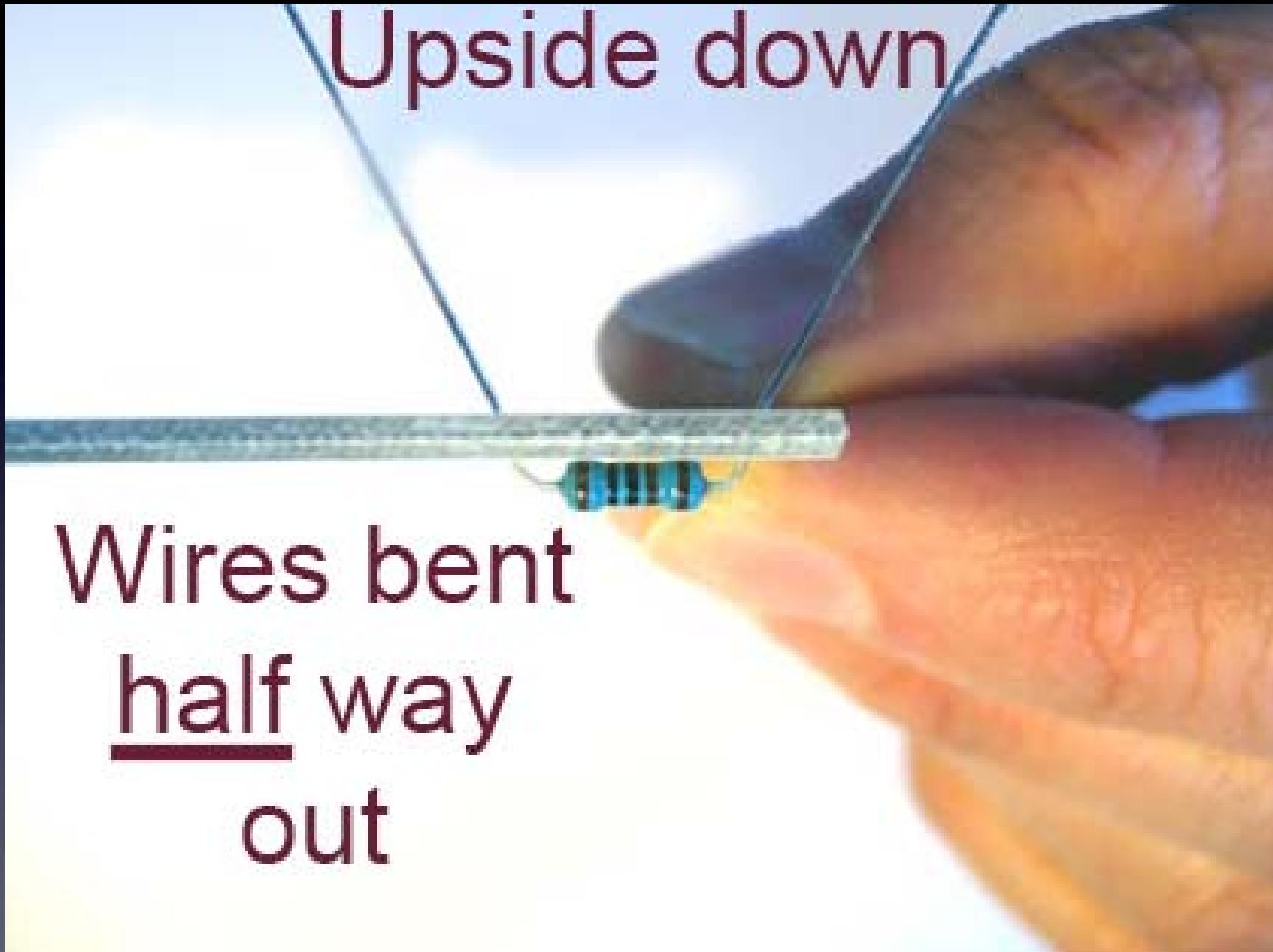


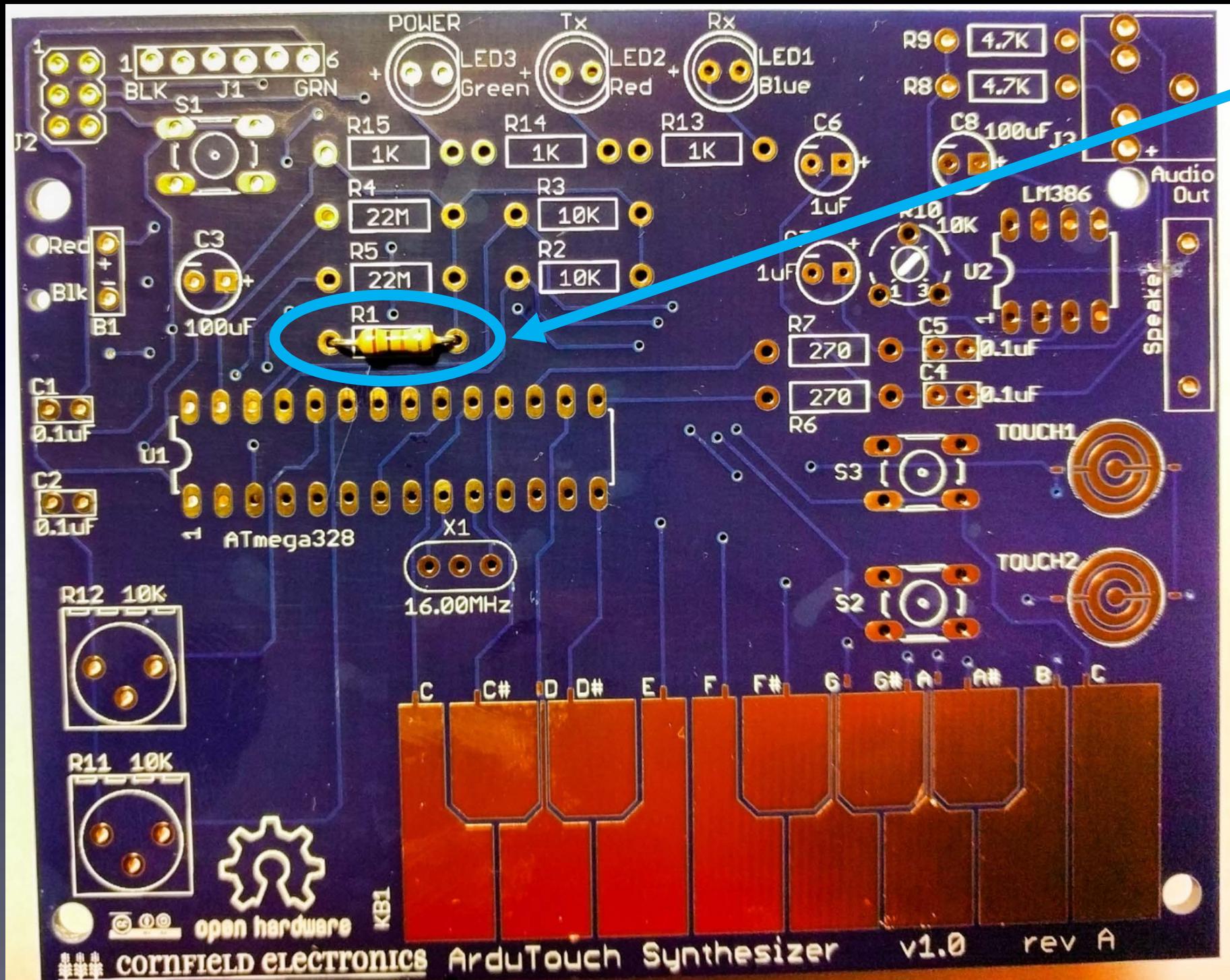


Push part down  
all the way

Upside down

Wires bent  
half way  
out





# How to hold a soldering iron

(Like a pencil – held from underneath)

The perfect kind of  
solder for electronics:

60/40 rosin core,  
0.031" diameter (or smaller)

# 3 Safety Tips...

# Safety Tip #1:

Hot !!

## Safety Tip #2:

Lead (Pb) is toxic

But it easily washes off your hands with  
soap and water

# Safety Tip #3:

*(coming soon)*

2 secrets  
to good soldering...

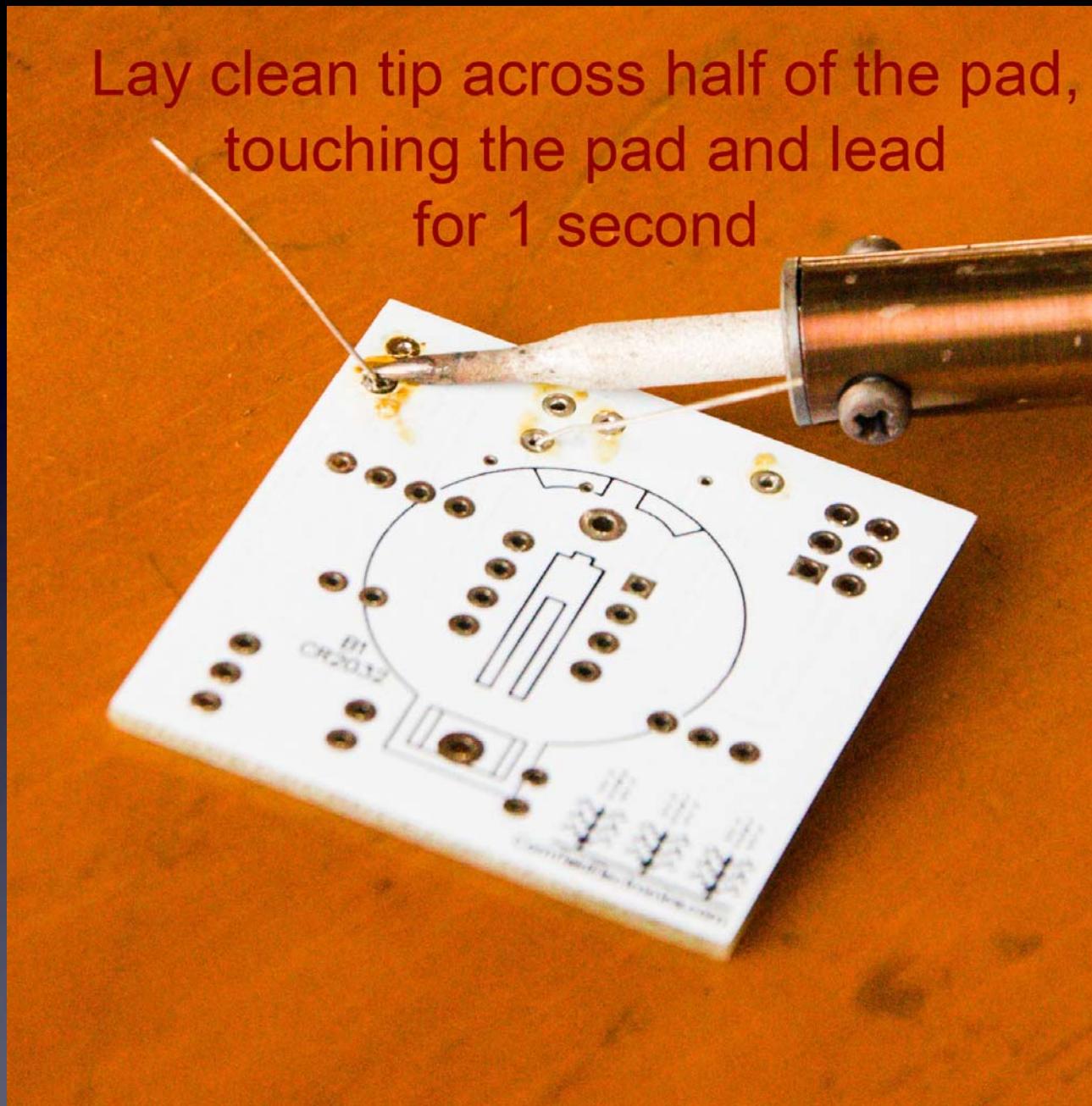
Secret #1:

Clean the tip!

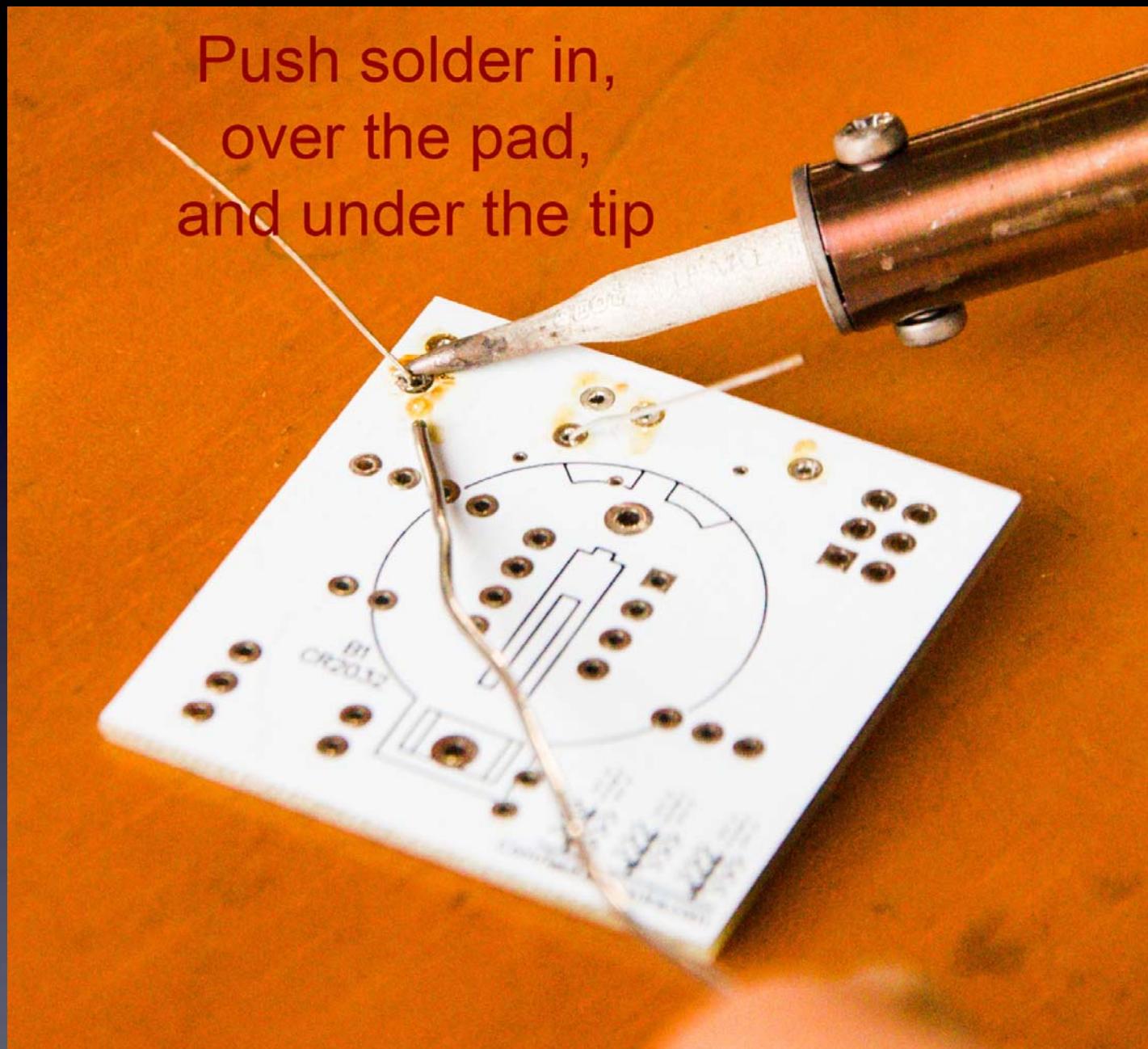
(before every solder connection)

Bang 3 times,  
Swipe, Rotate, Swipe:  
Keep the tip shiny silver!

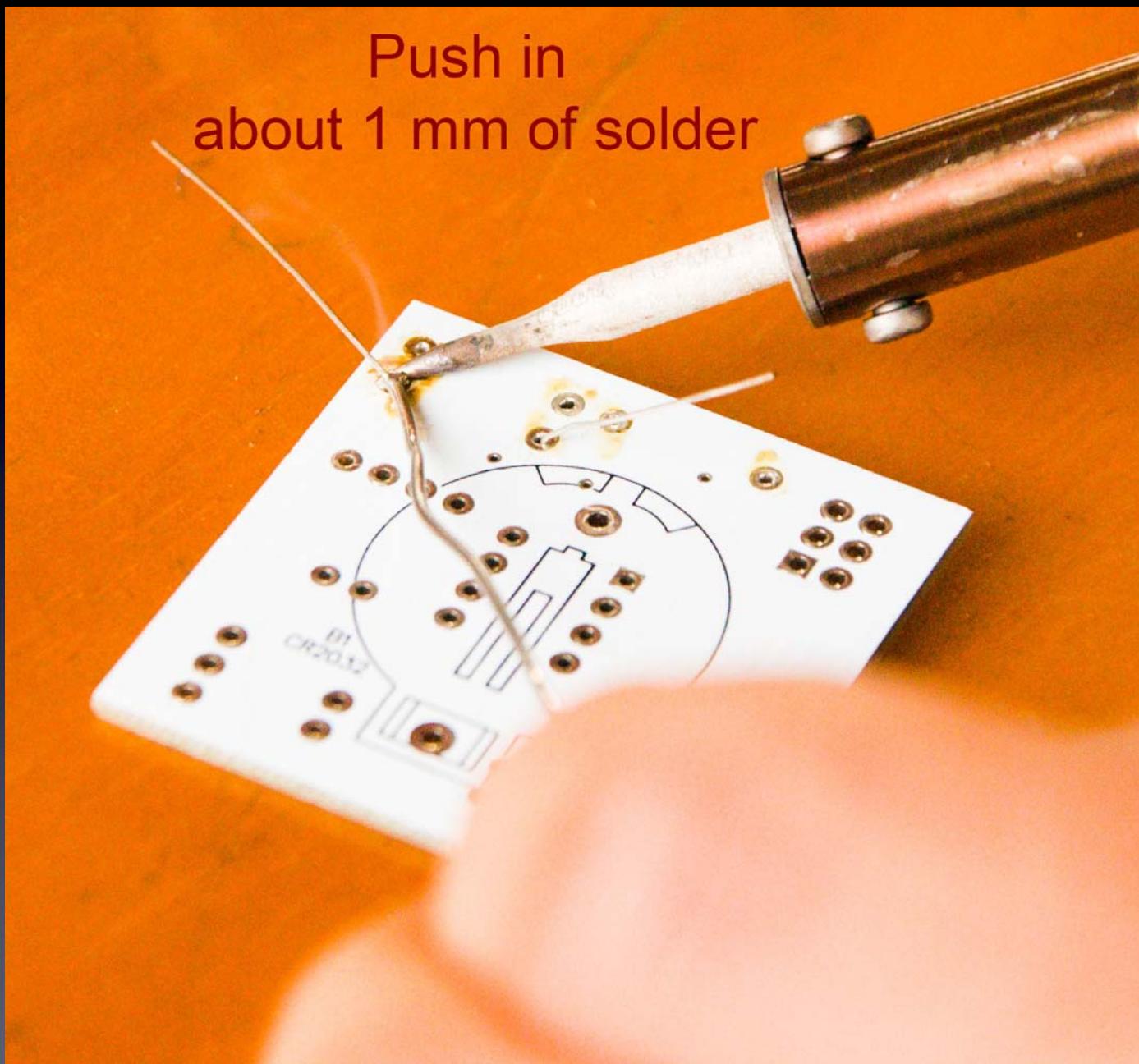
Lay clean tip across half of the pad,  
touching the pad and lead  
for 1 second



Push solder in,  
over the pad,  
and under the tip



Push in  
about 1 mm of solder



Make sure solder melts on the underside of the soldering iron  
(not the side or top of the soldering iron tip)!



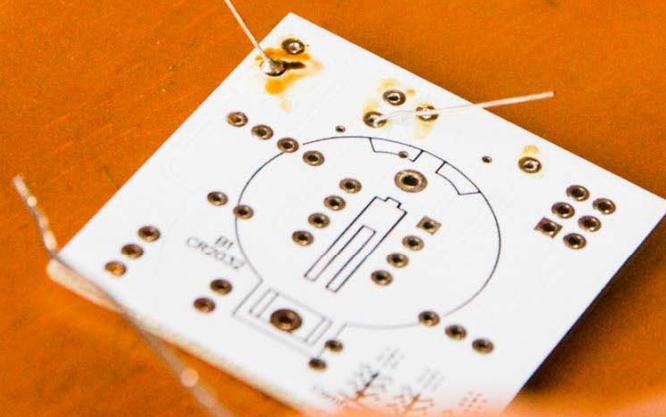
Pull solder away,  
**But keep holding soldering iron down**  
for 1 more second

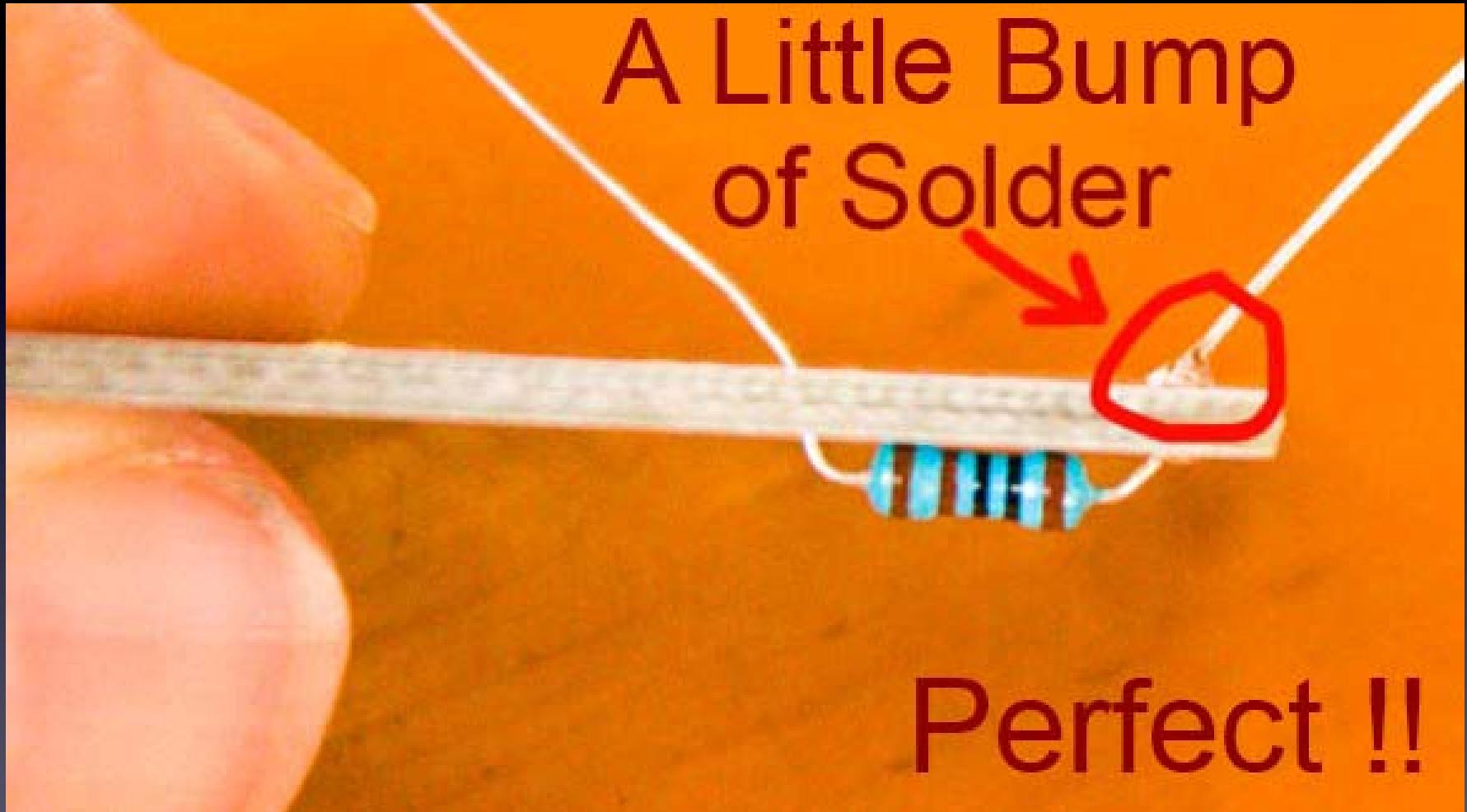
# Secret #2:

Keep hot tip down  
1 second  
for solder to flow !!

Now

Lift soldering iron



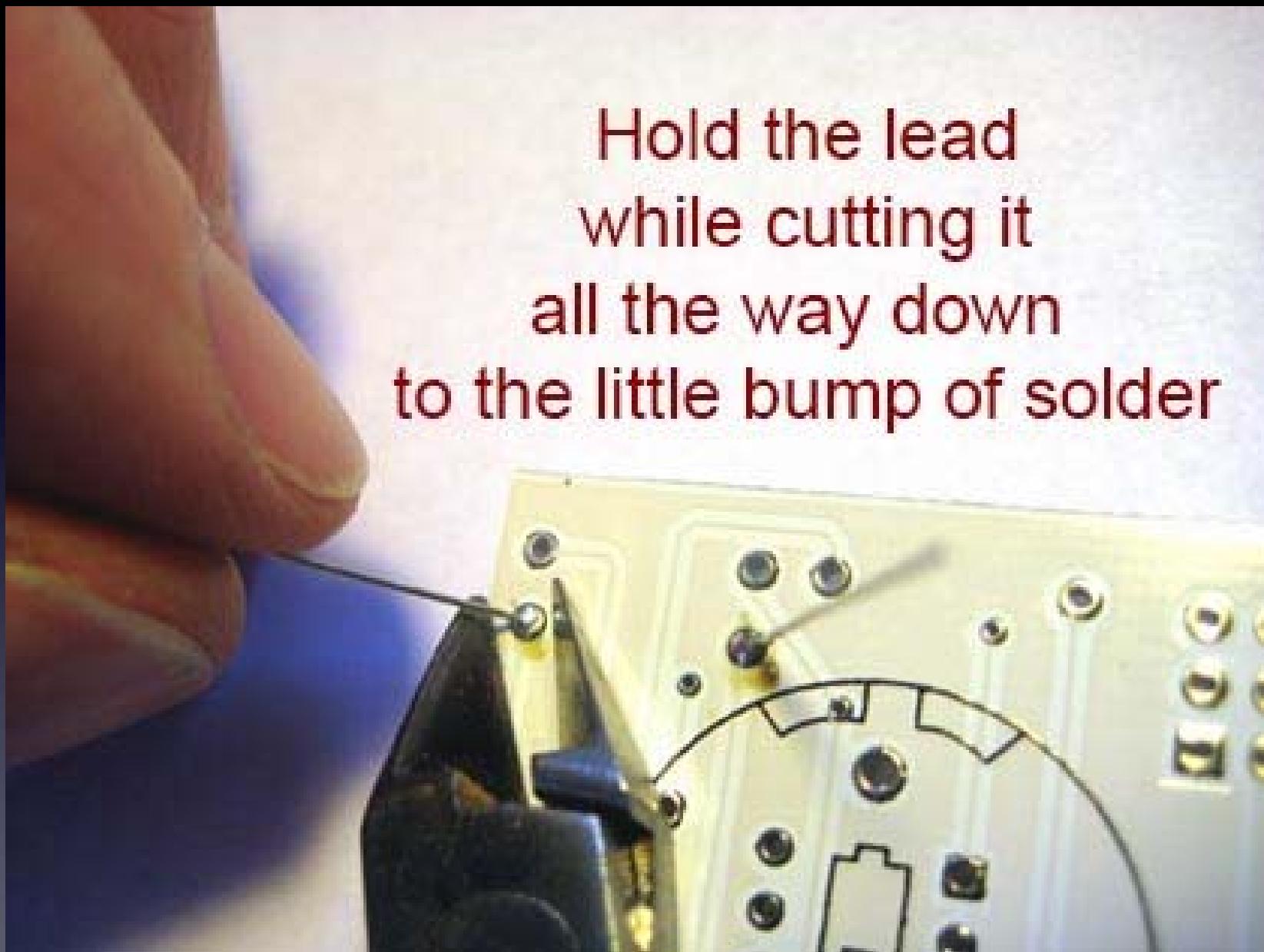


A Little Bump  
of Solder

Perfect !!

If you can see any of the pad, or the hole, you need more solder – so, just do all the steps again to make it perfect.

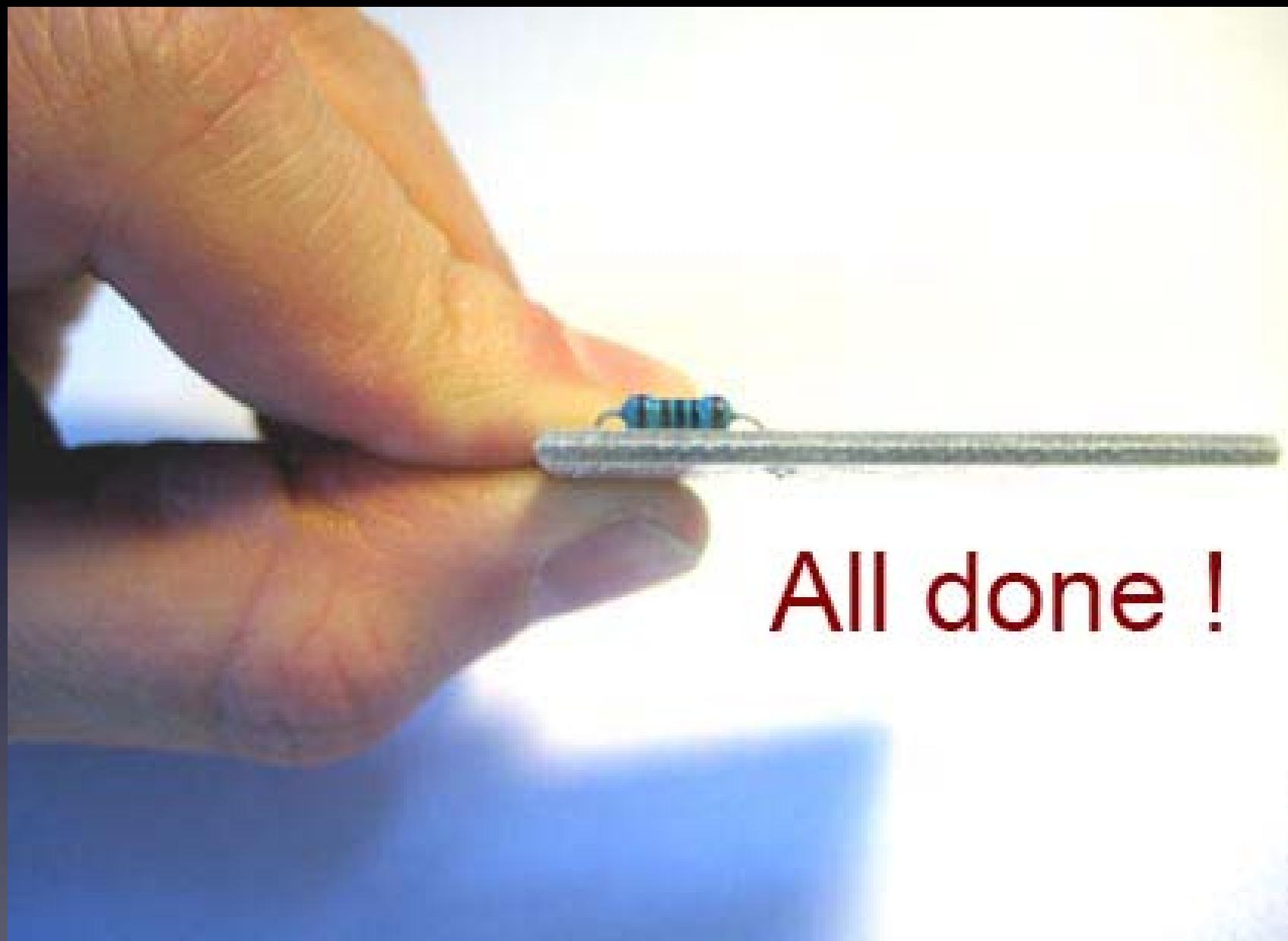
Hold the lead  
while cutting it  
all the way down  
to the little bump of solder



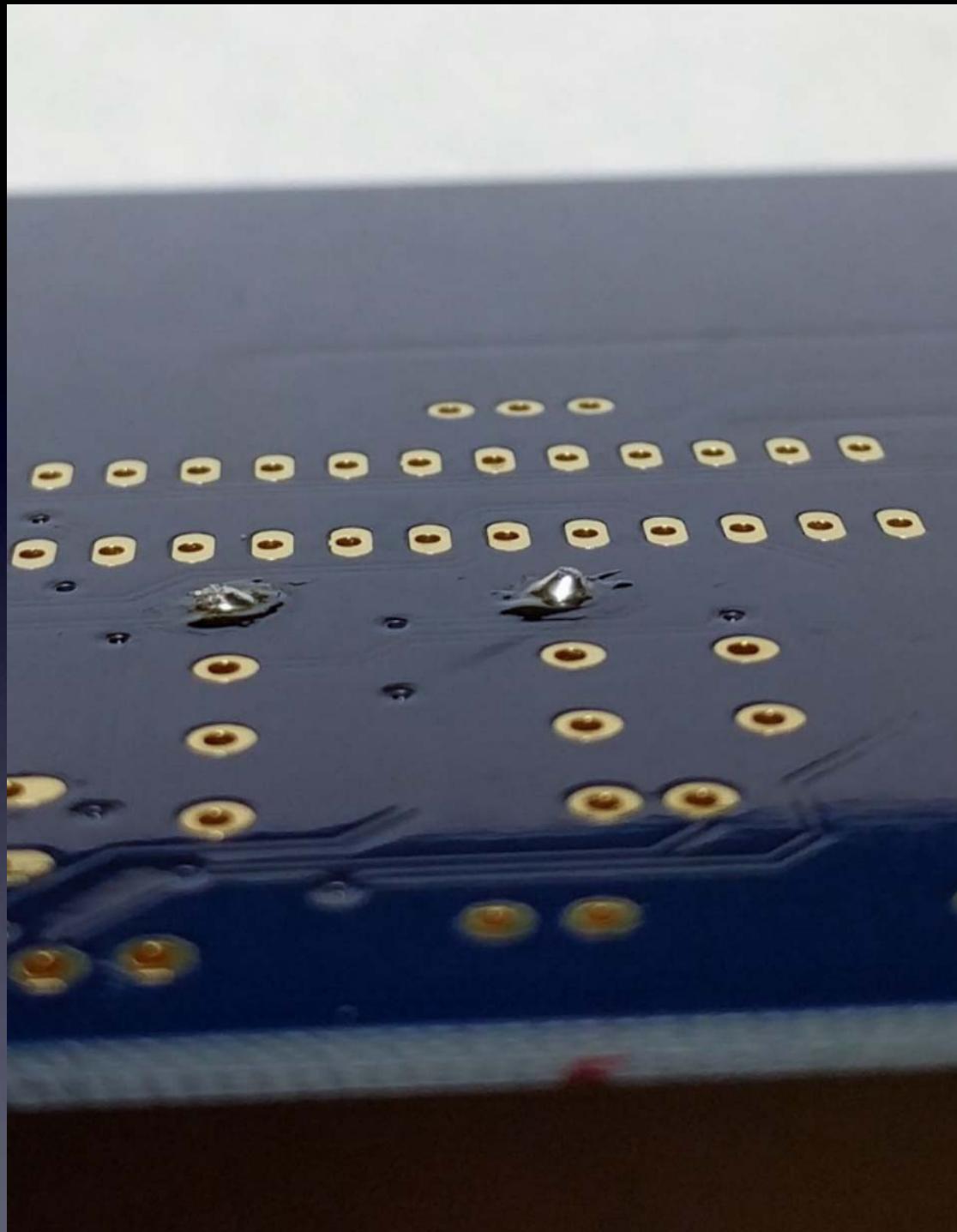
Cutting with the tip of the wire cutter gives you more control

# Safety Tip #3:

Hold or cover the lead !

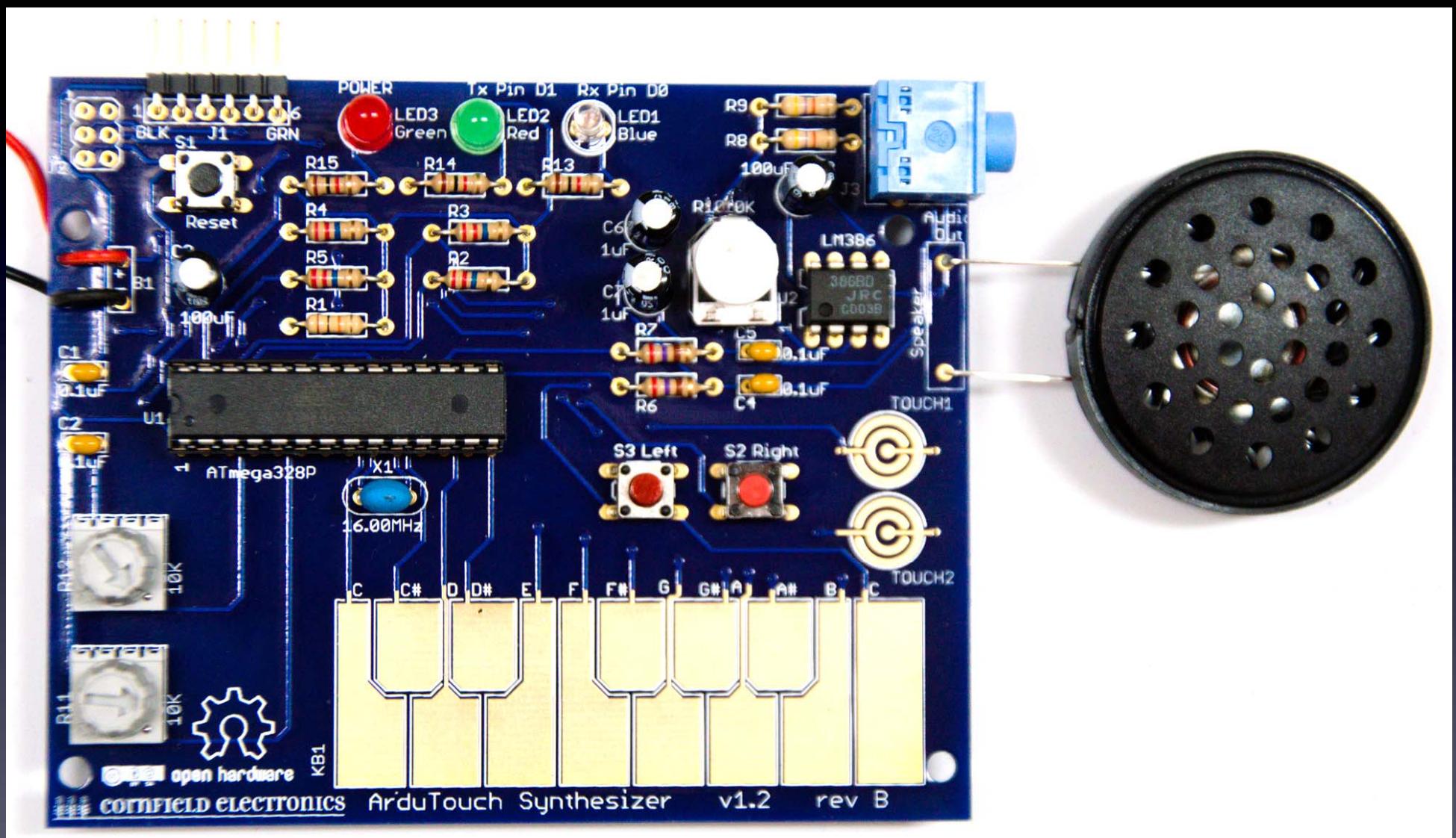


No wire sticking out



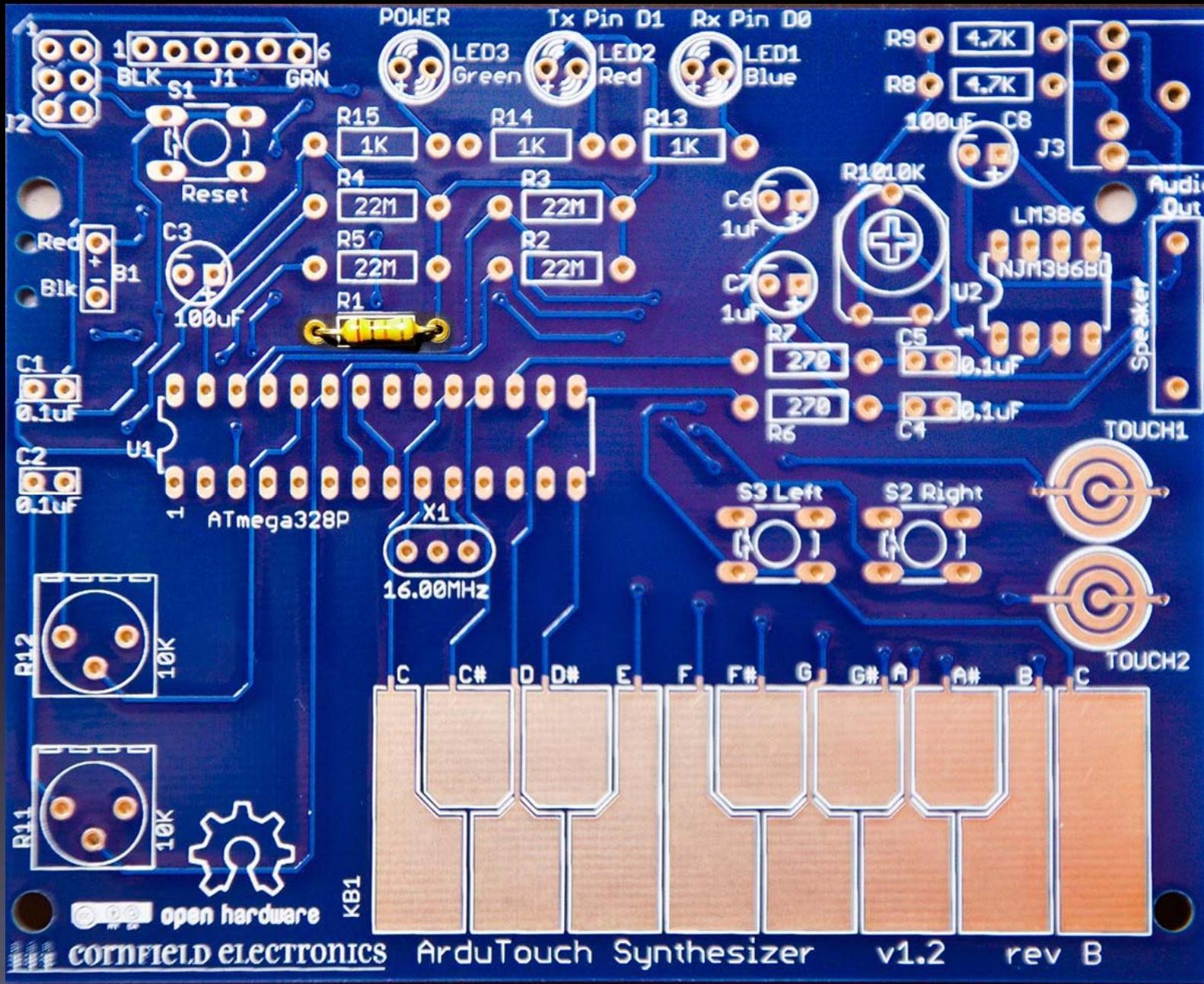
One part at a time

Till all the parts are soldered



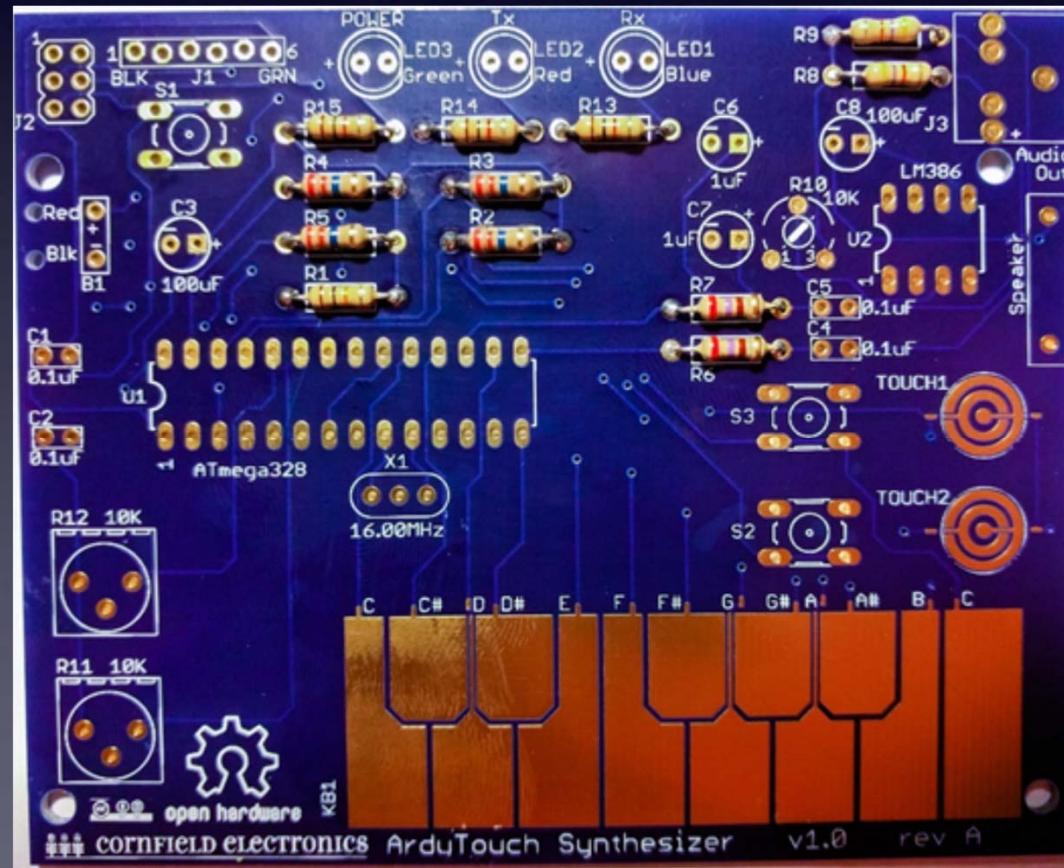
And it will look like this when you're done.

Let's start!

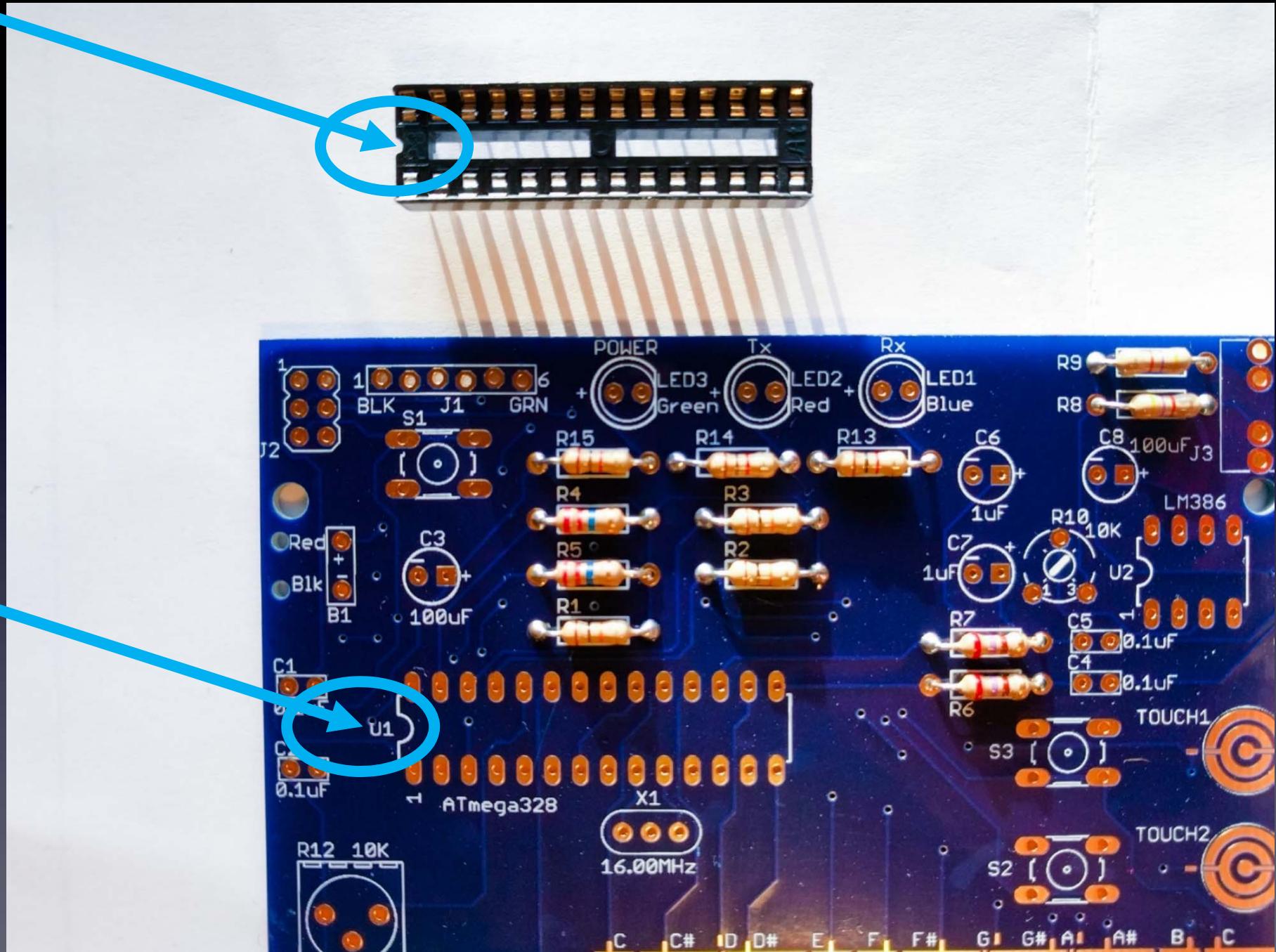


If you haven't done so already, solder R1: brown, black, orange

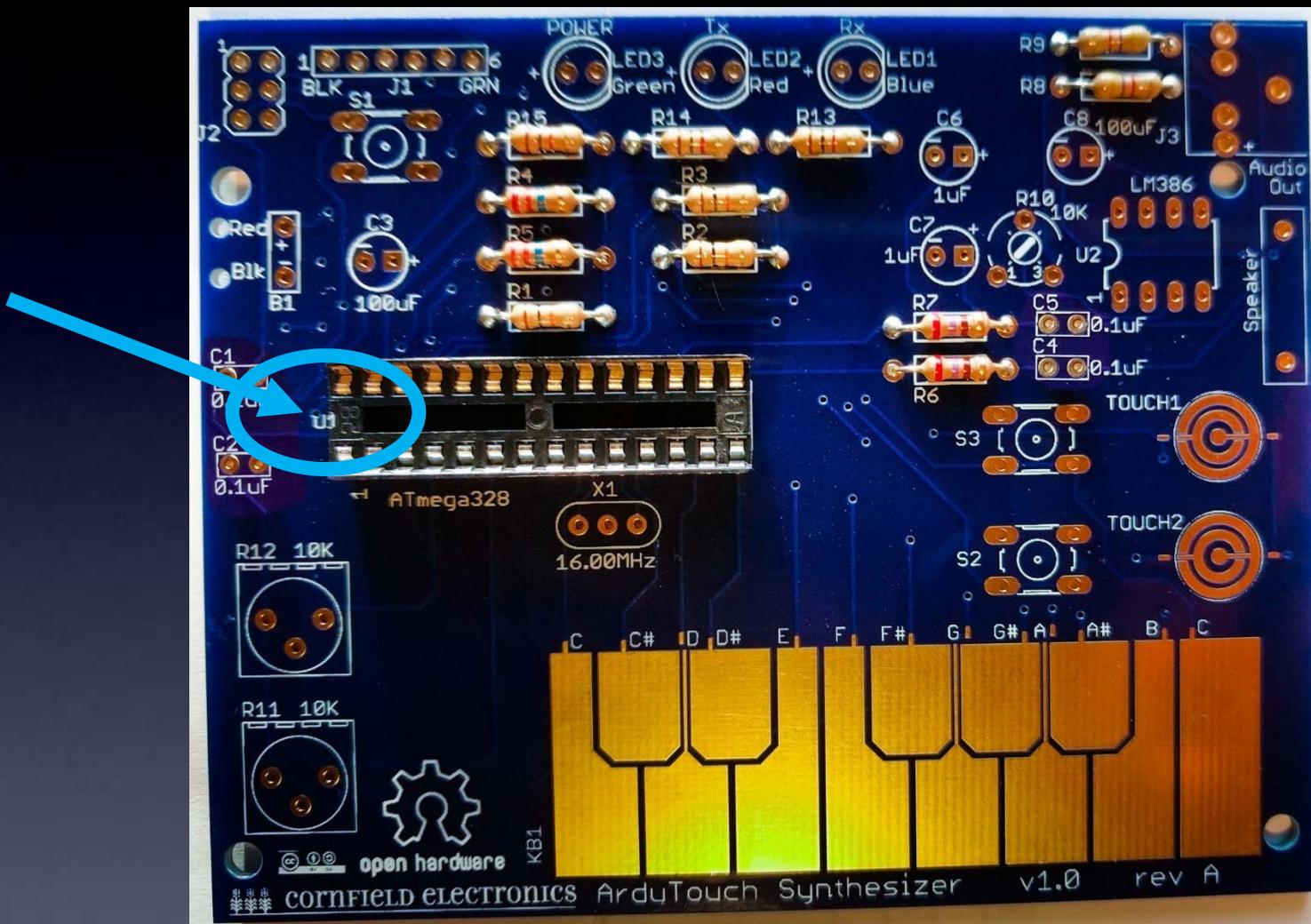
R1:		10K: Brown, Black, Orange
R2, R3, R4, R5:		22M: Red, Red, Blue
R6, R7:		270: Red, Violet, Brown
R8, R9:		4.7K: Yellow, Violet, Red
R13, R14, R15:		1K: Brown, Black, Red



# U1: microcontroller socket



# U1: microcontroller socket

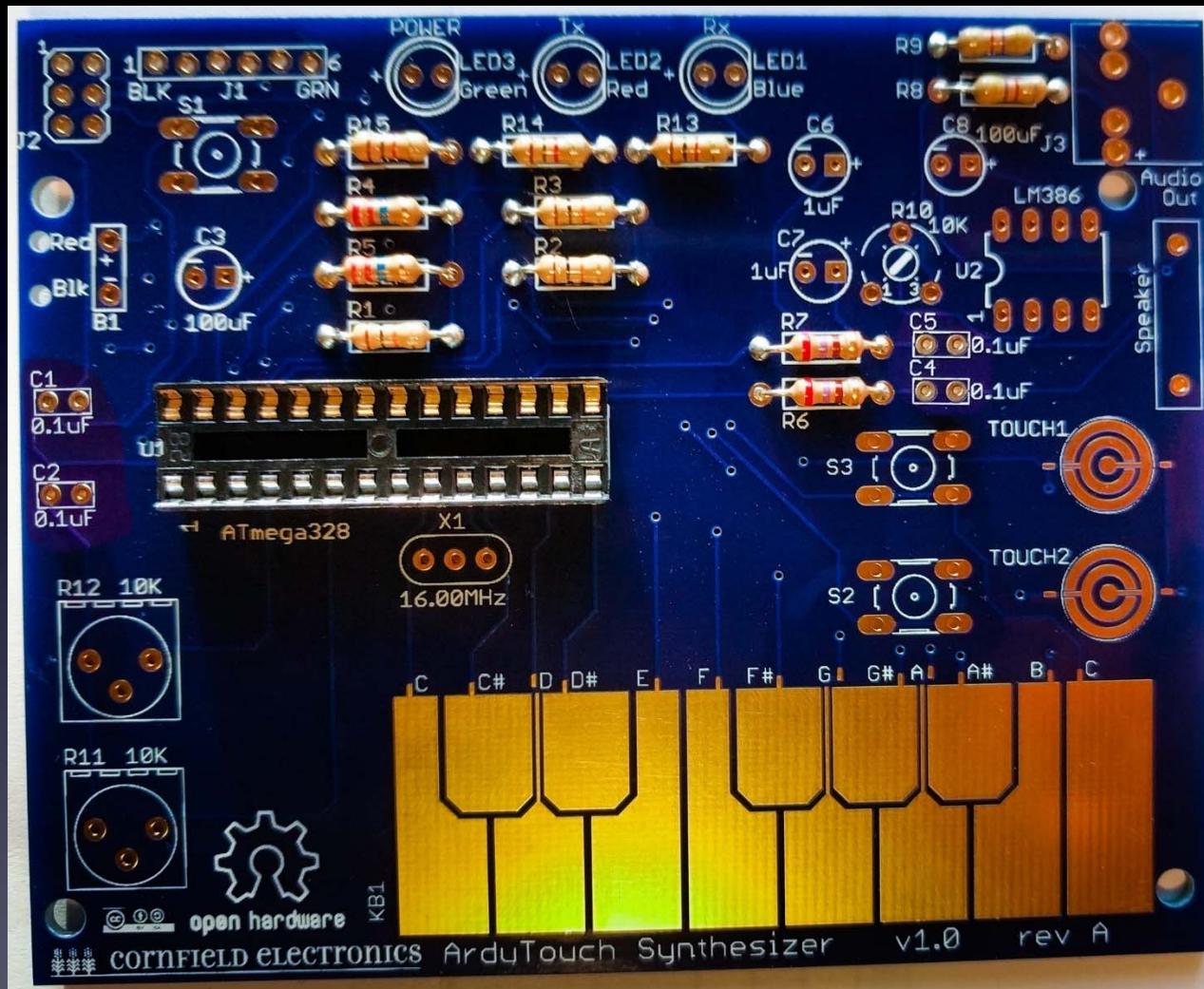


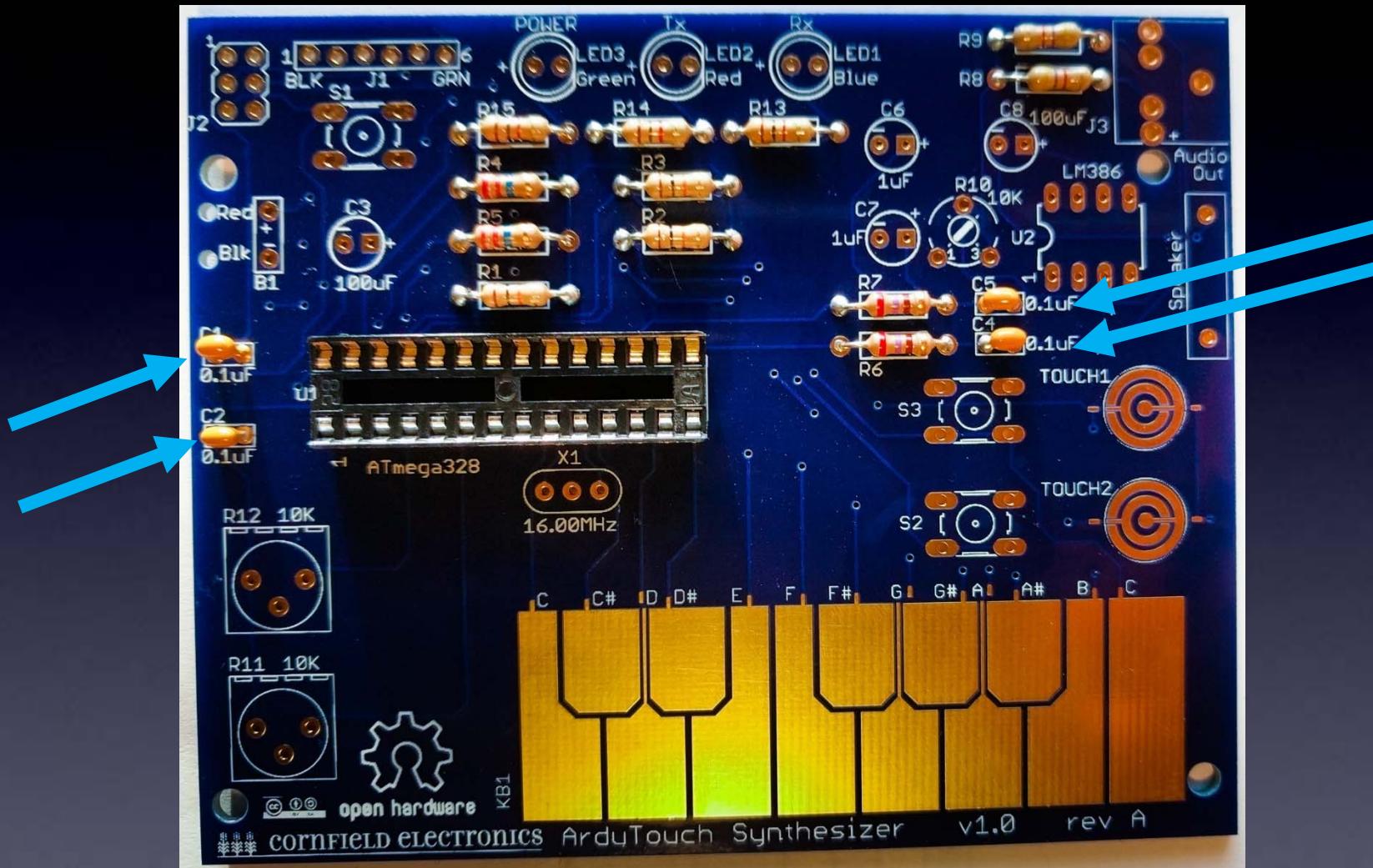
# U1: microcontroller socket



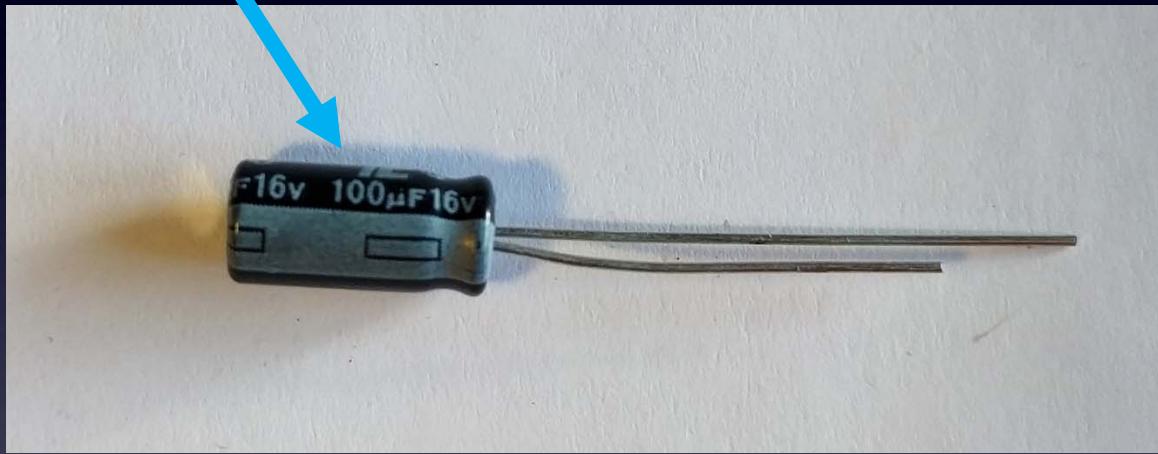
bend pins down on corners,  
and solder all 28 leads to the board

# U1: microcontroller socket

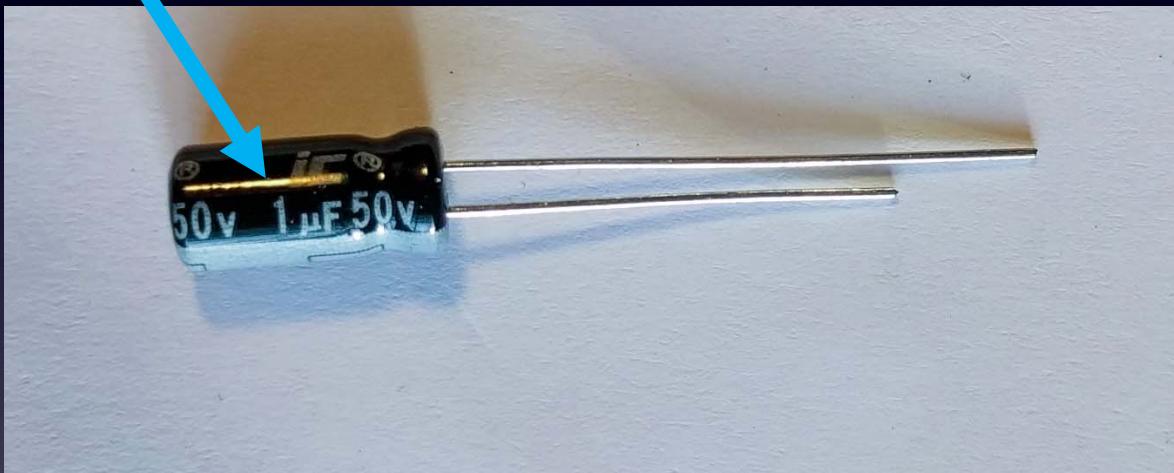




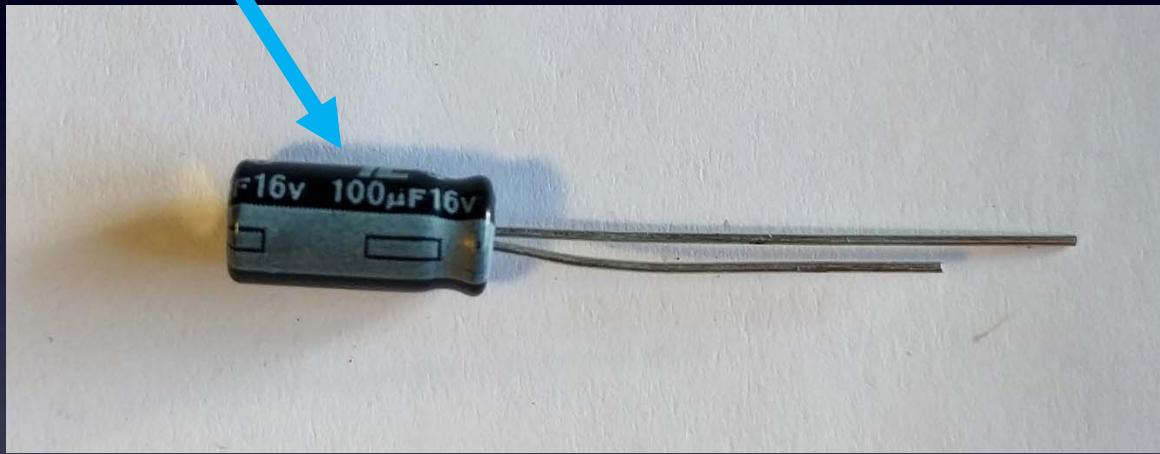
C1, C2, C4, C5



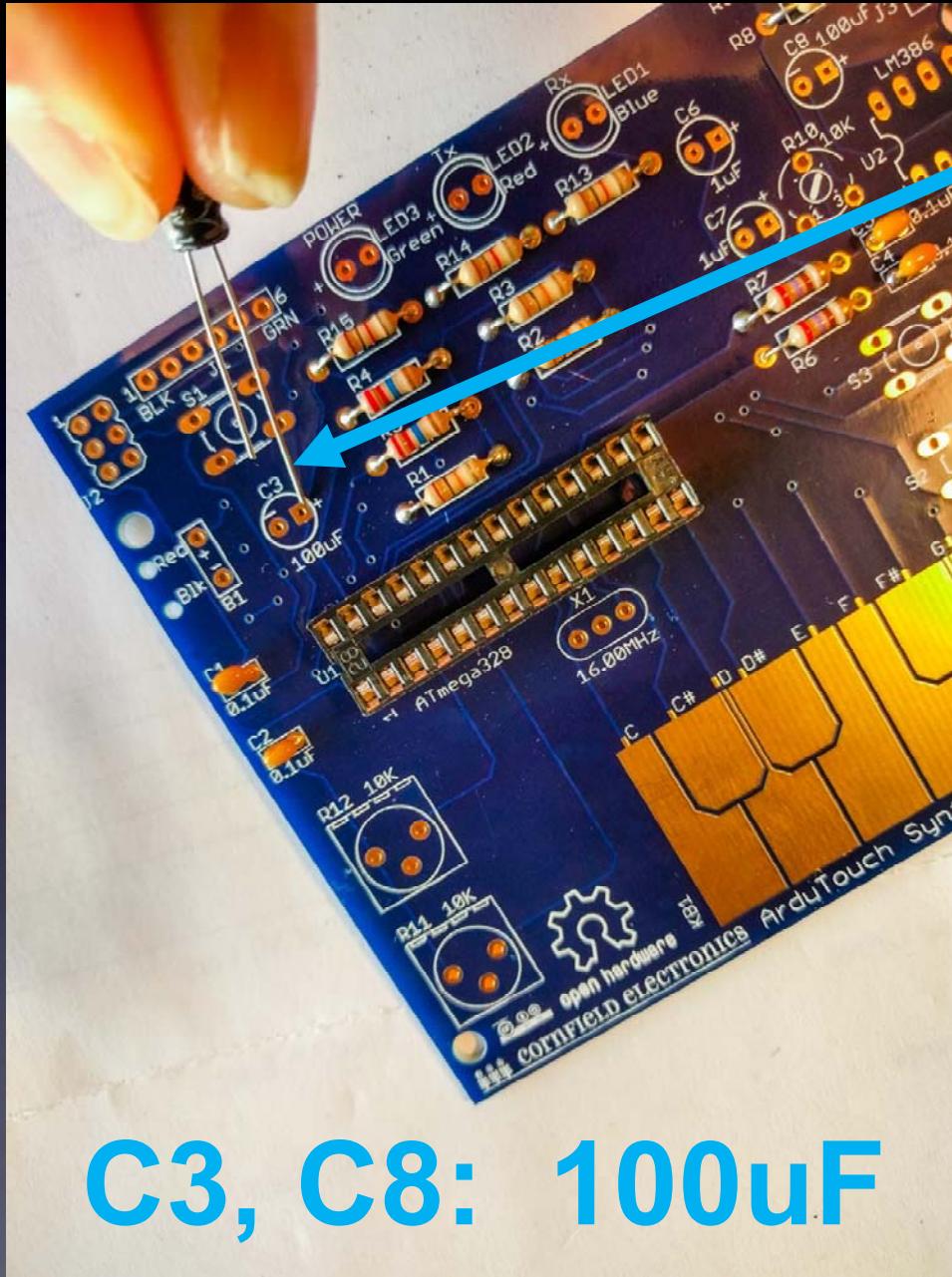
C3, C8: 100uF



C6, C7: 1uF

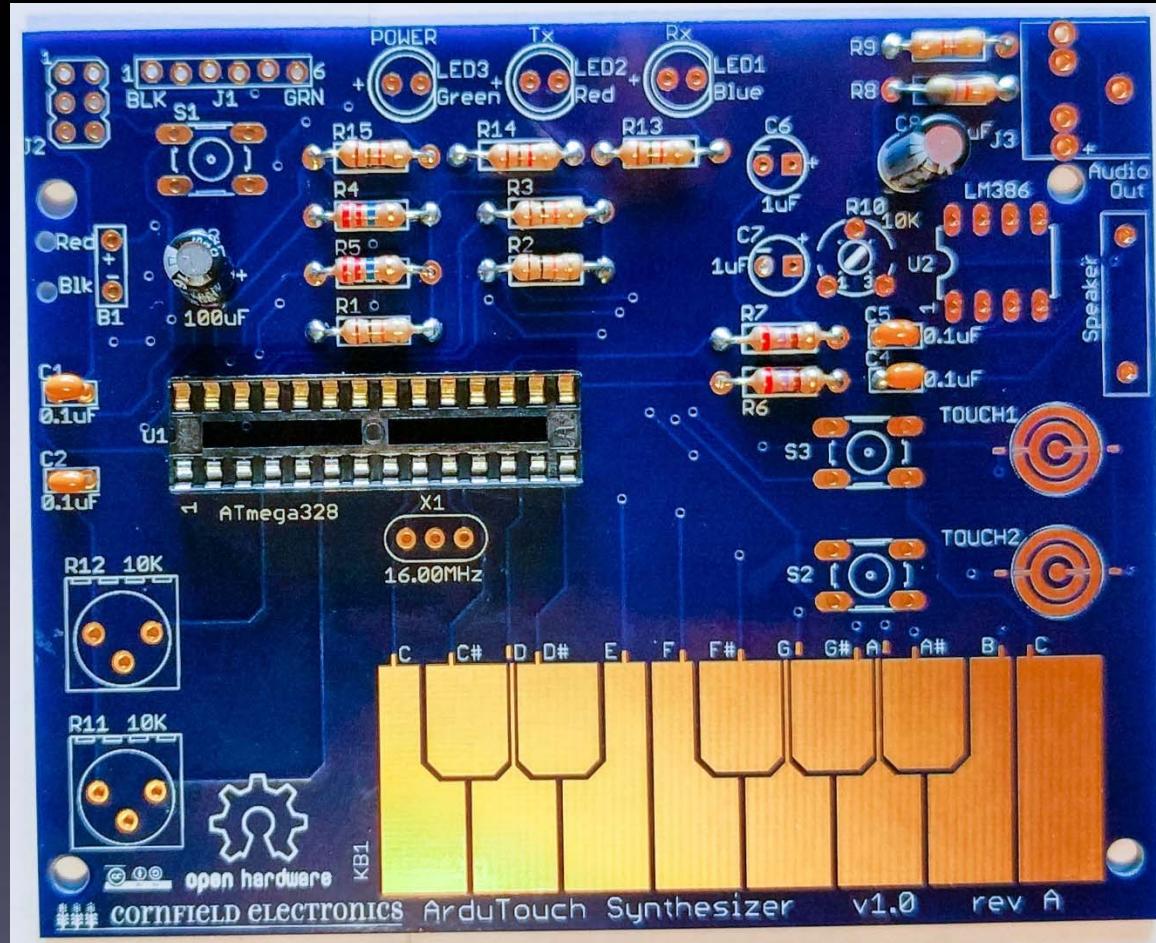


C3, C8: 100uF

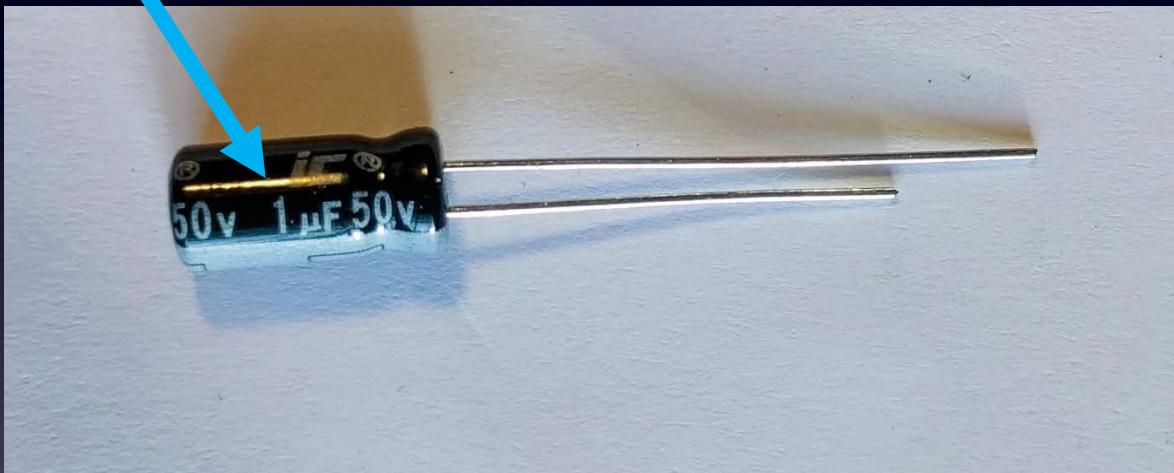


C3, C8: 100uF

C3, C8:  
Long Lead “+”

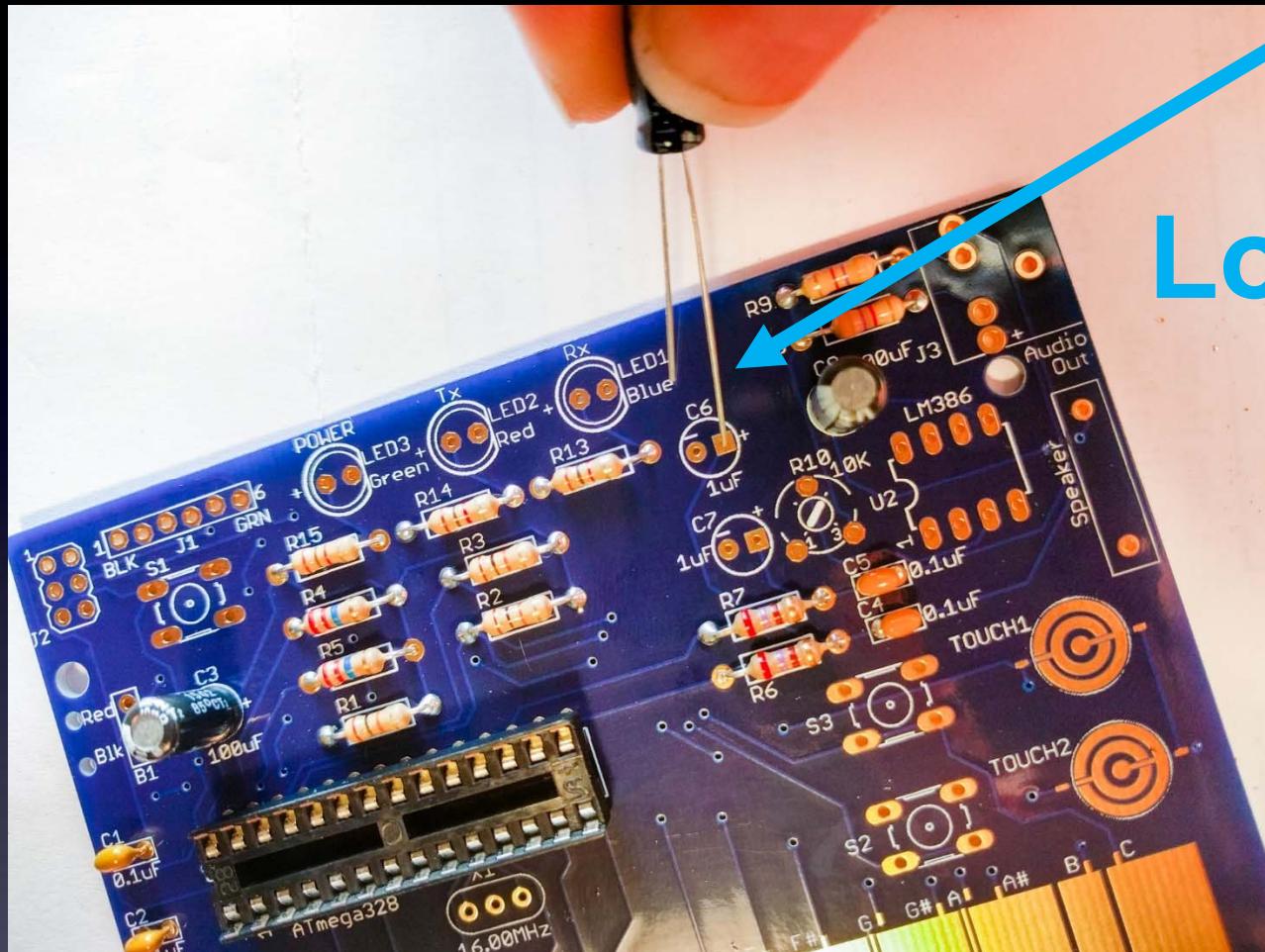


C3, C8: 100uF

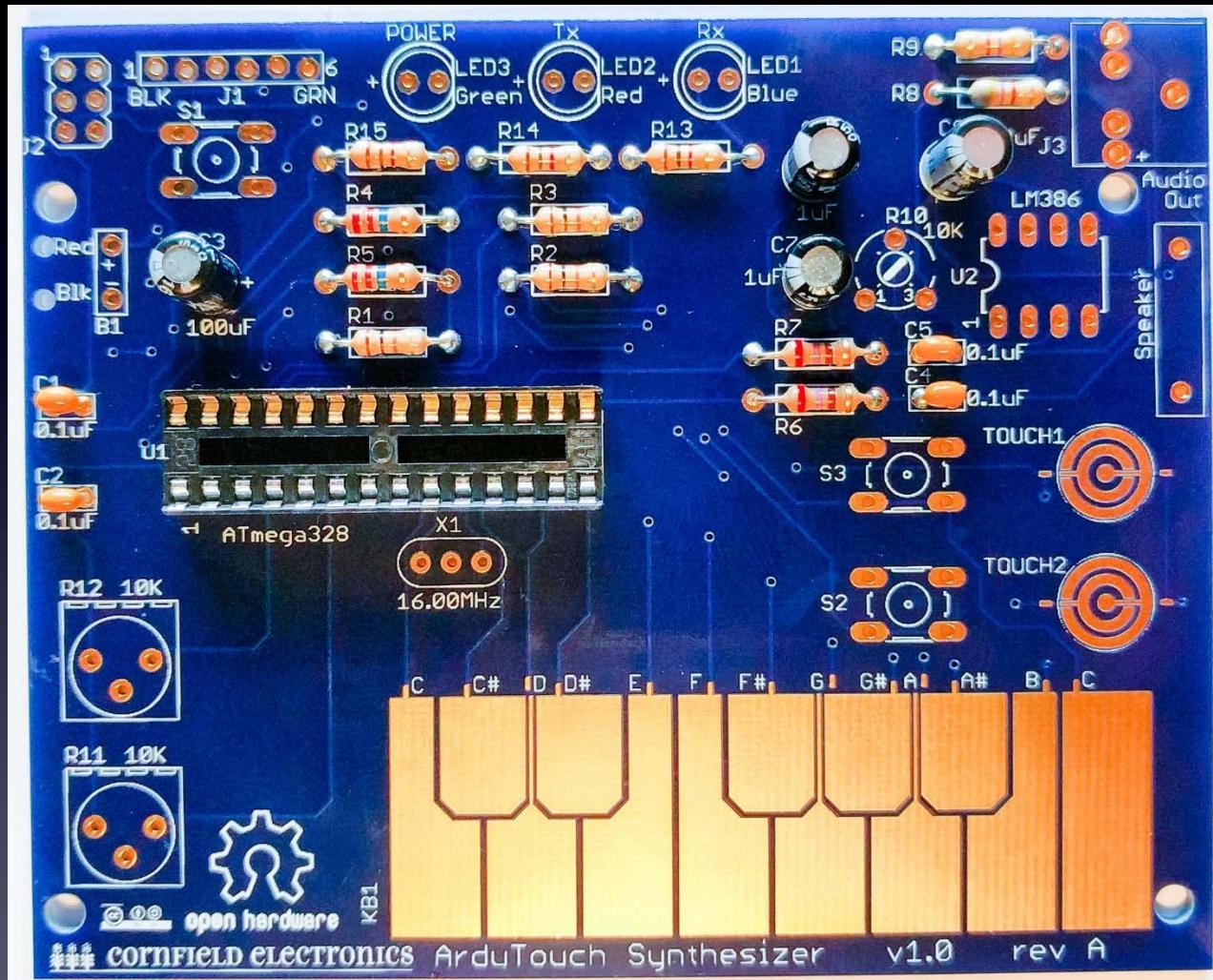


C6, C7: 1uF

C6, C7:  
Long Lead “+”

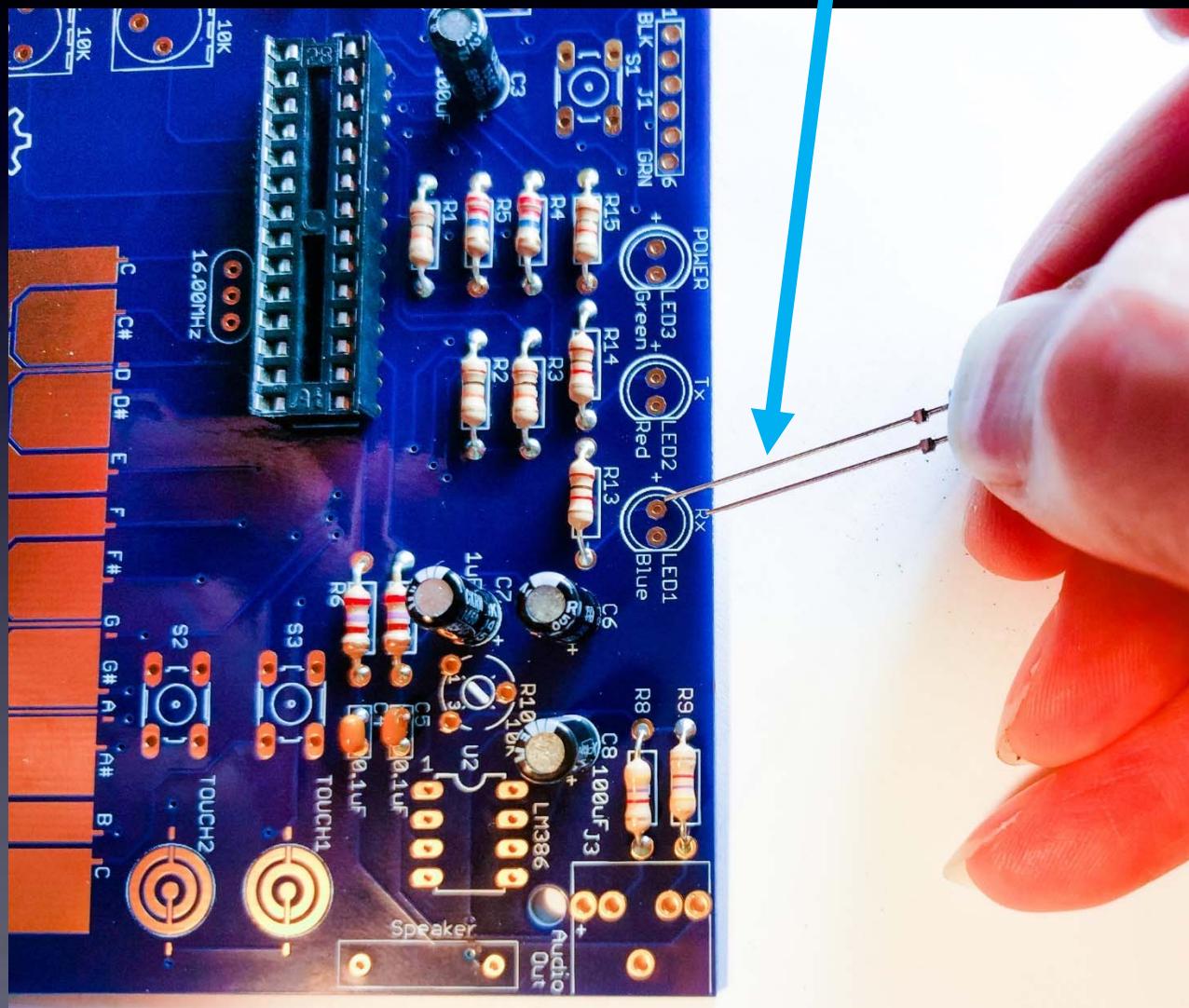


C6, C7: 1uF



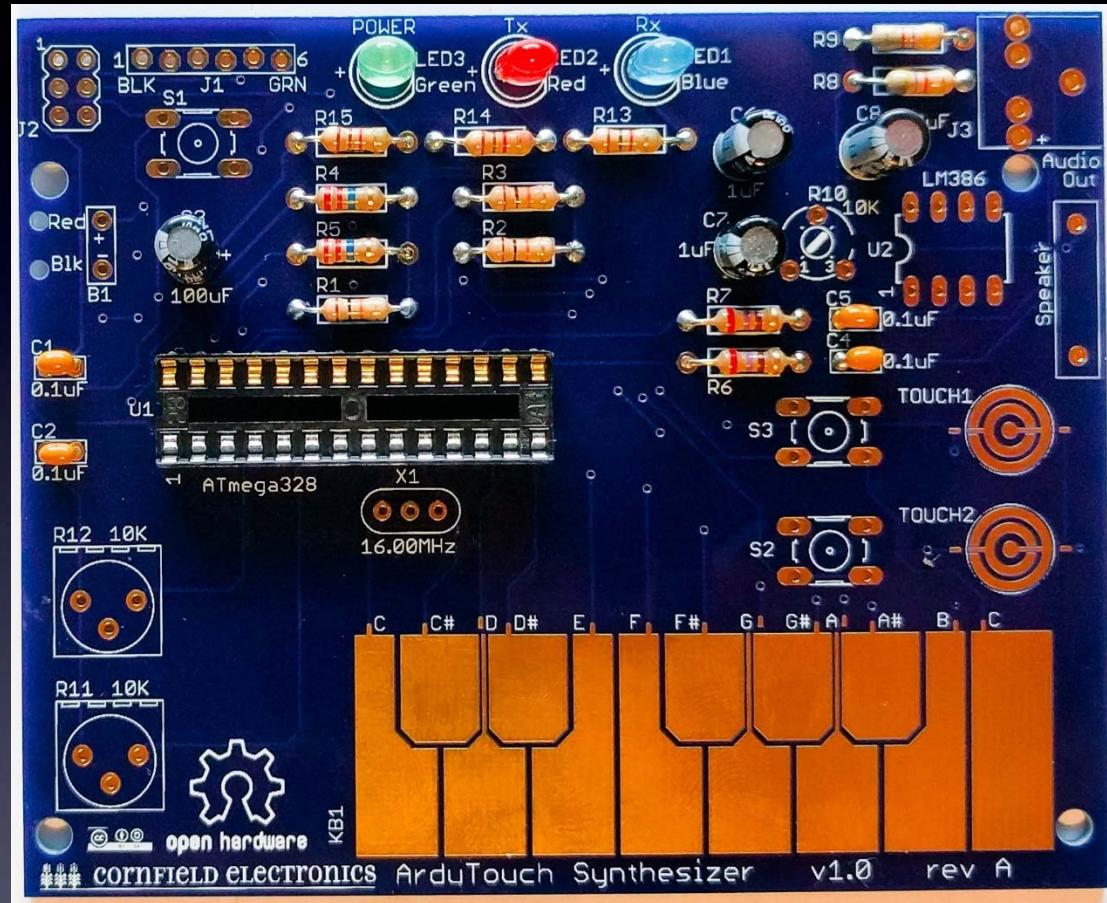
C6, C7: 1uF

# LED1, LED2, LED3: Long Lead “+”

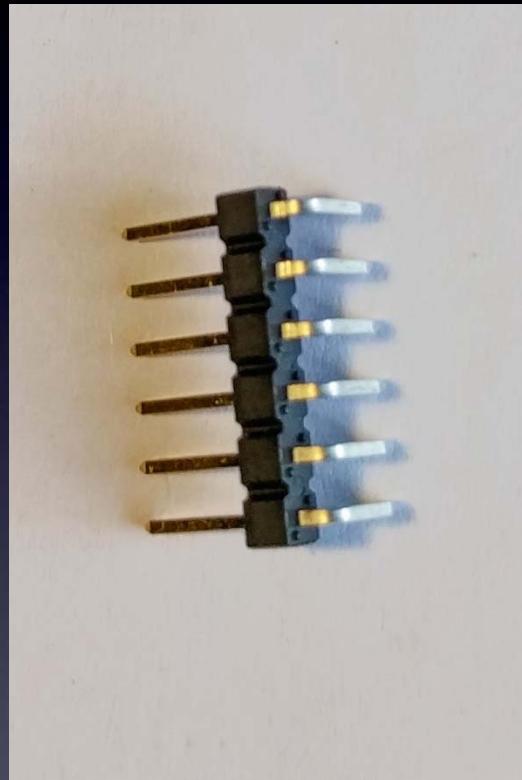


Save  
these leads

We'll use them for the speaker

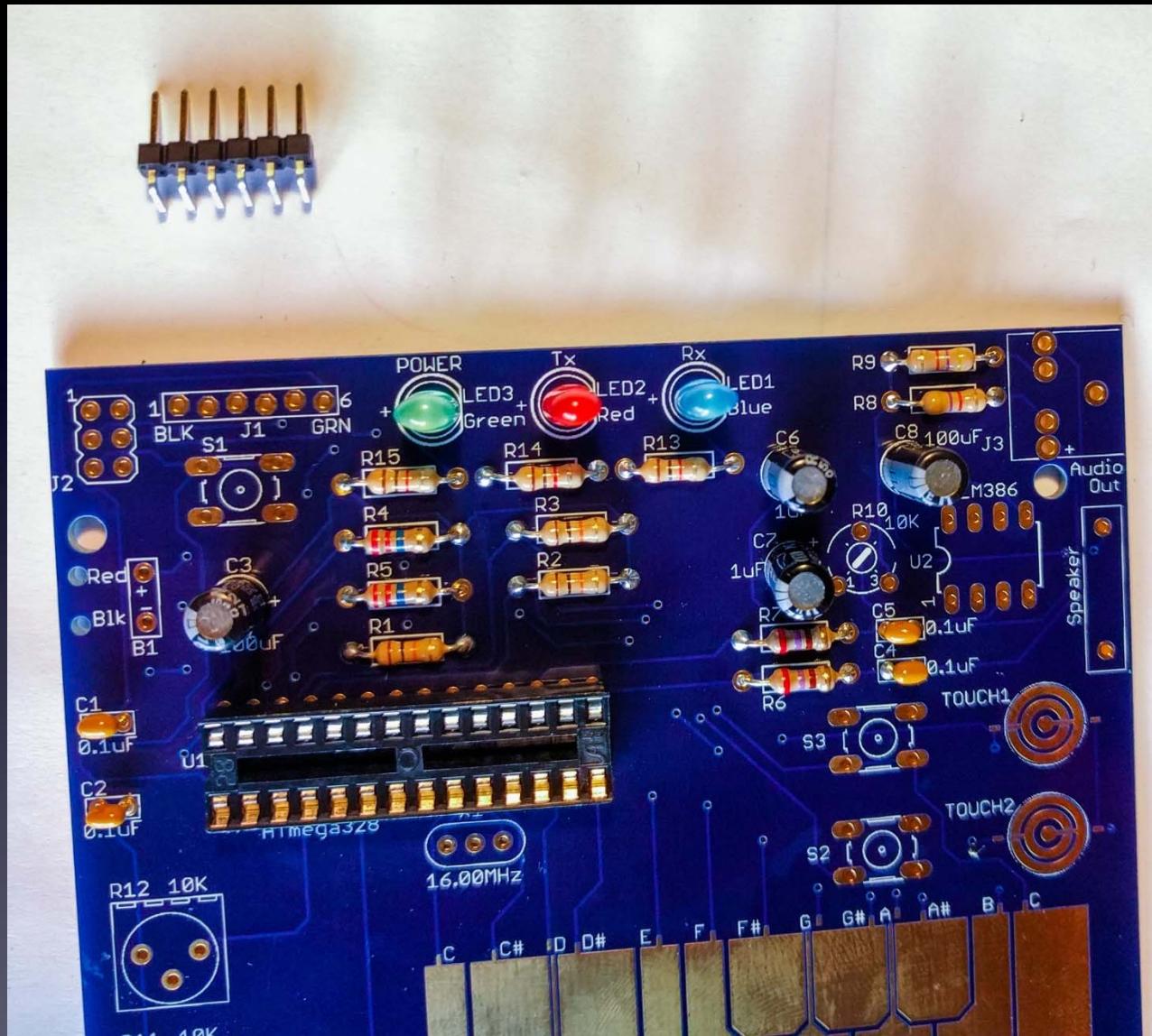


**LED1, LED2, LED3**  
**Green, Red, Blue**



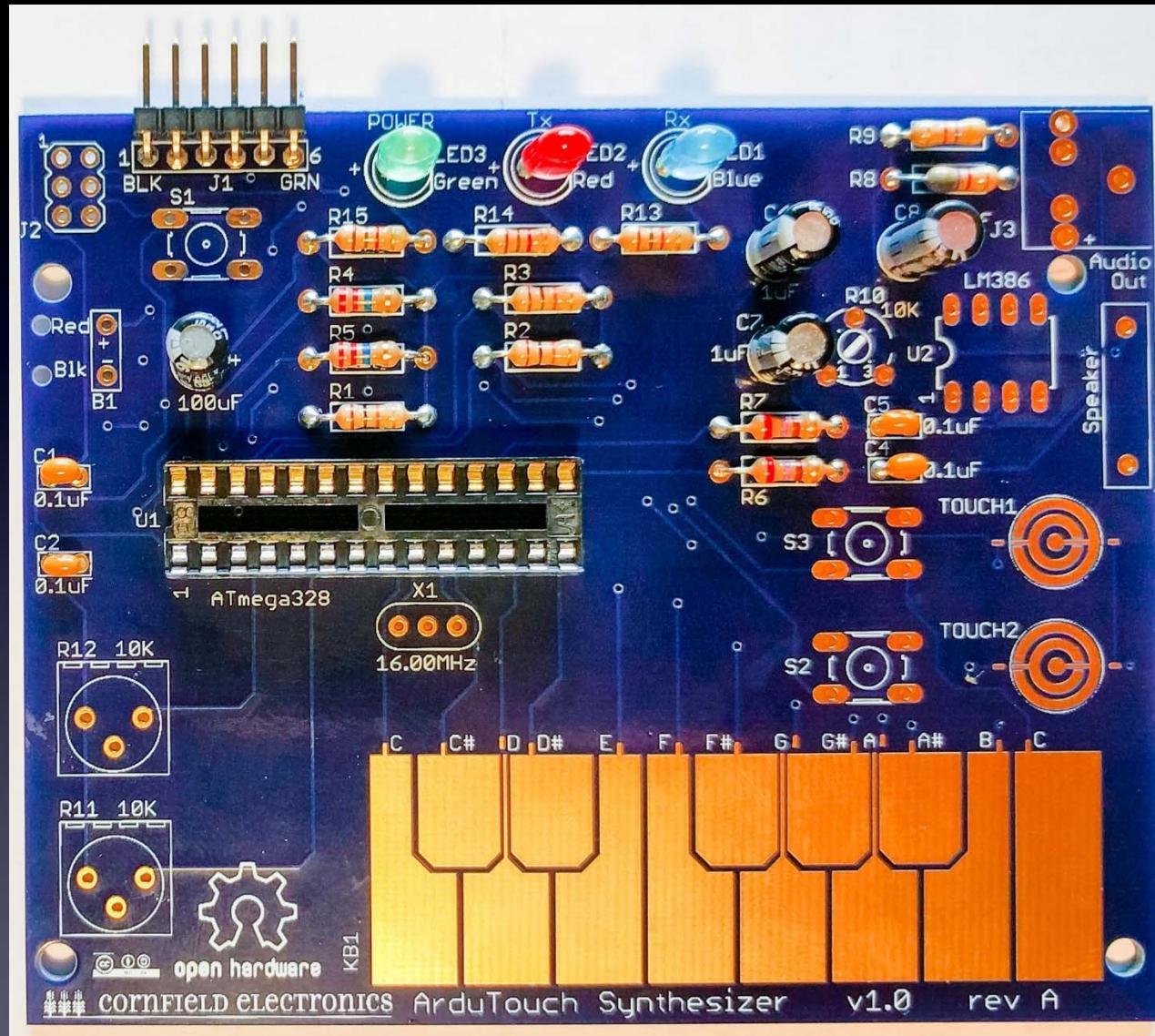
J1

# Short leads into board

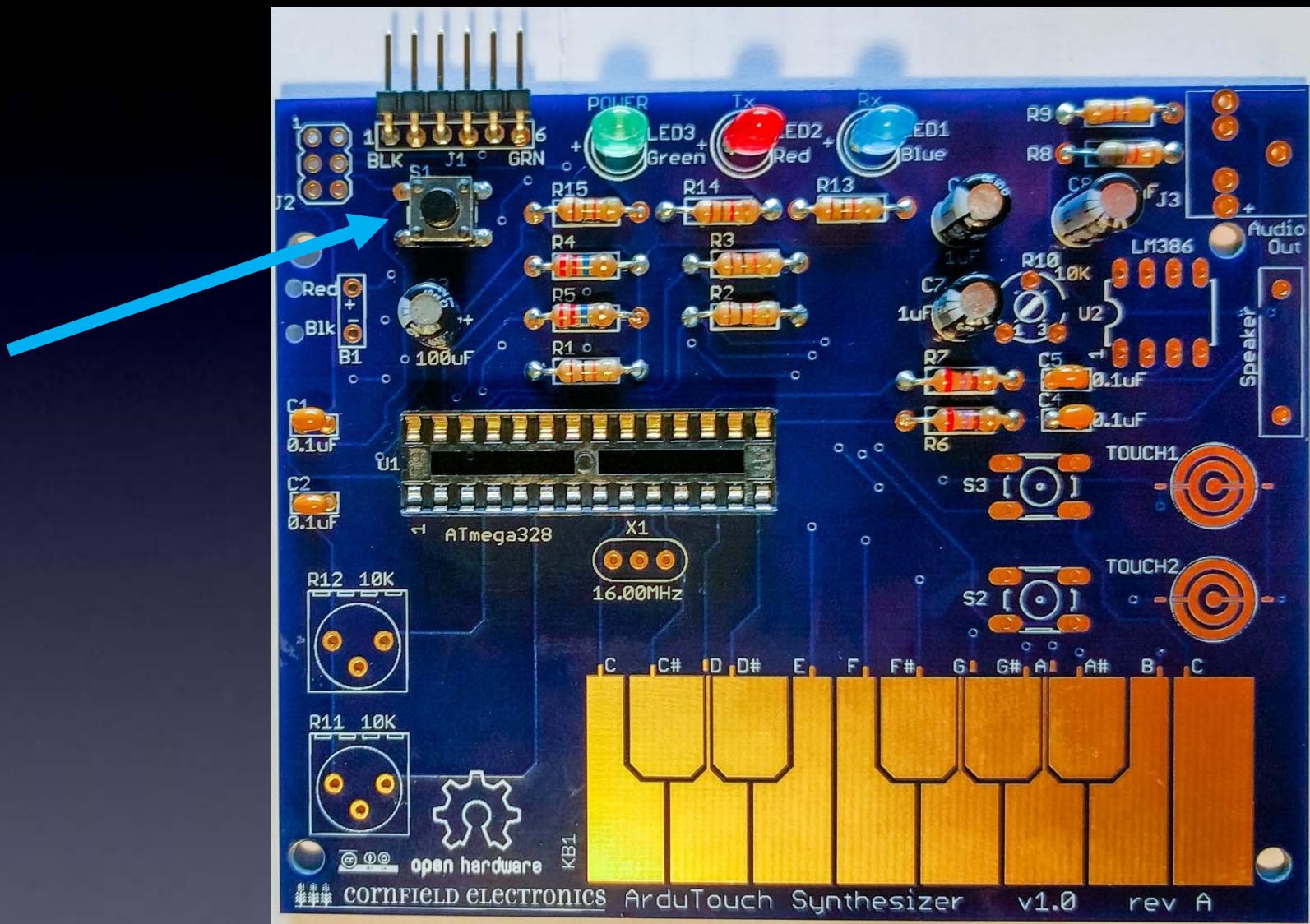


J1

(if it falls out, solder one lead on the top of the board, then turn over the board and solder the other 5 leads)

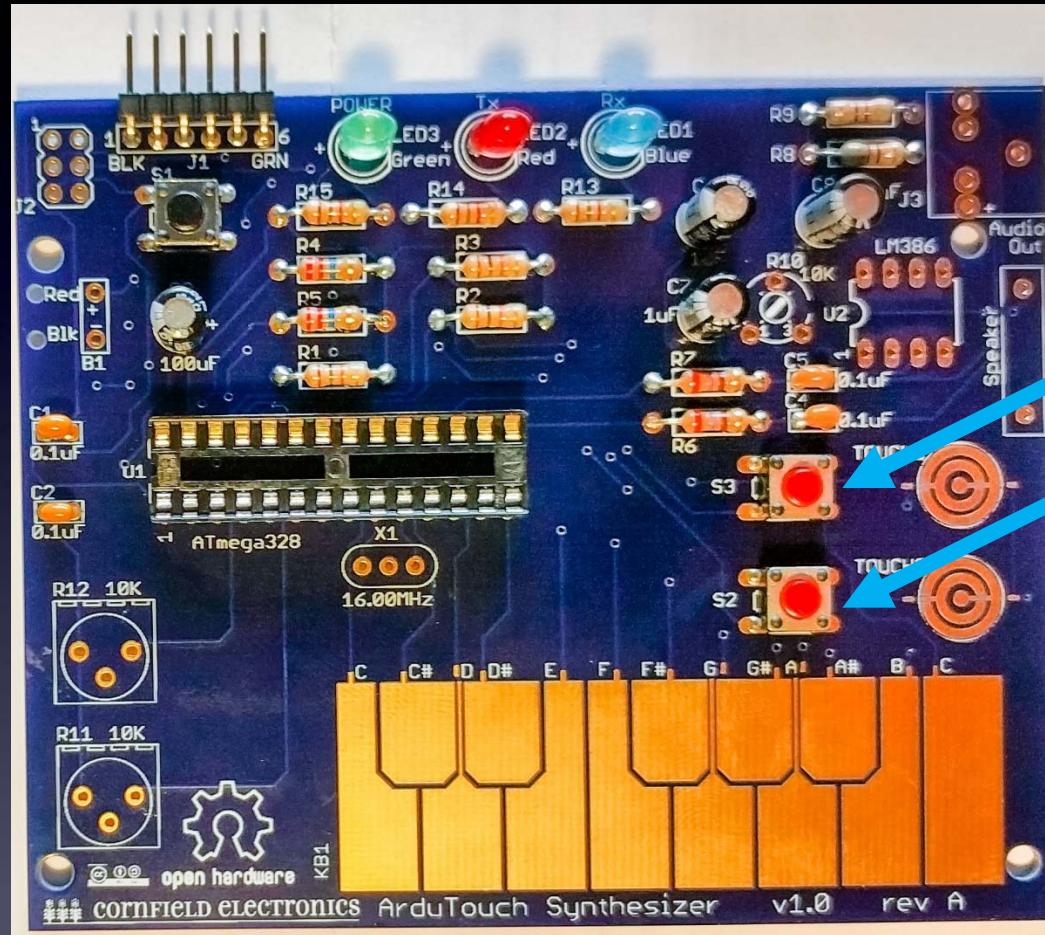


J1

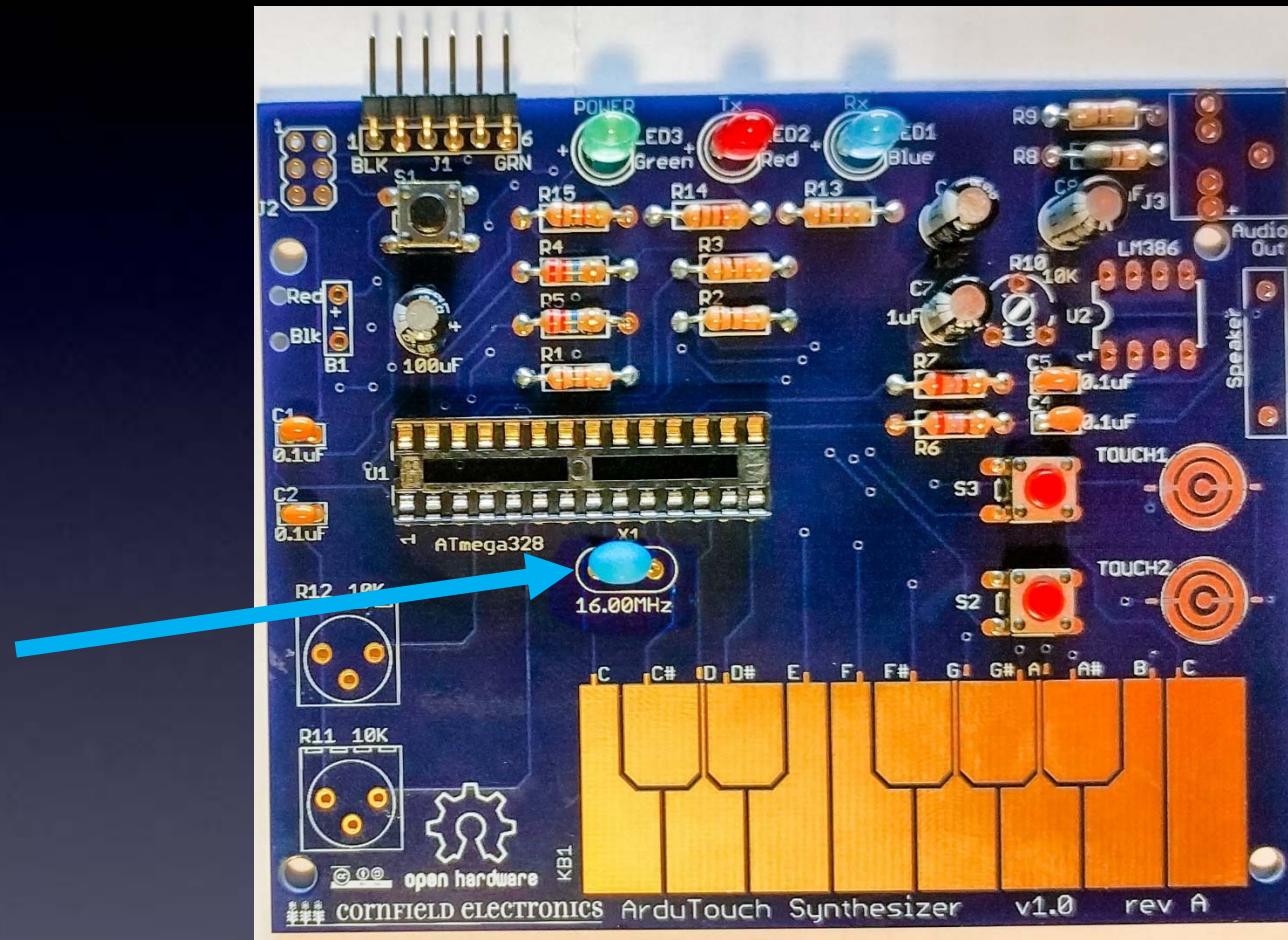


S1: black Reset button

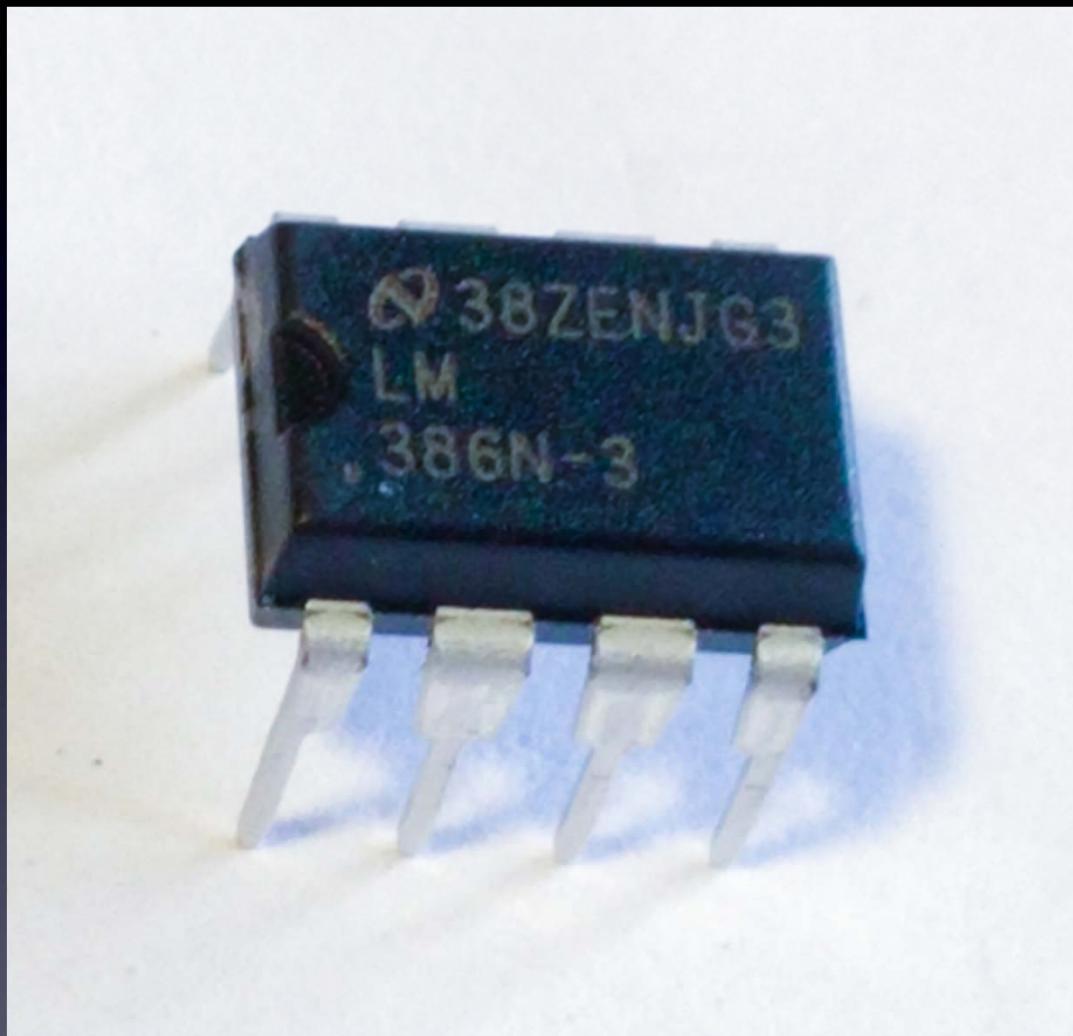
# S2, S3: Red buttons

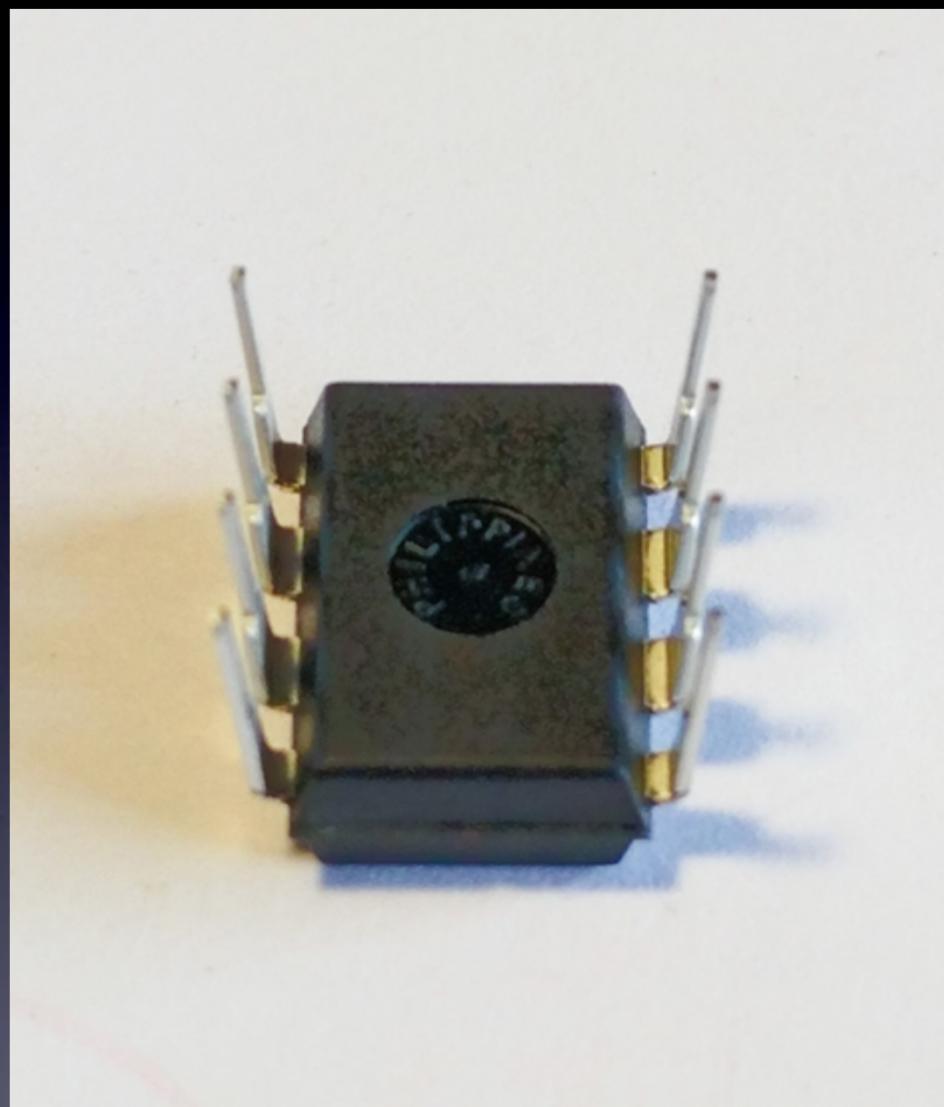


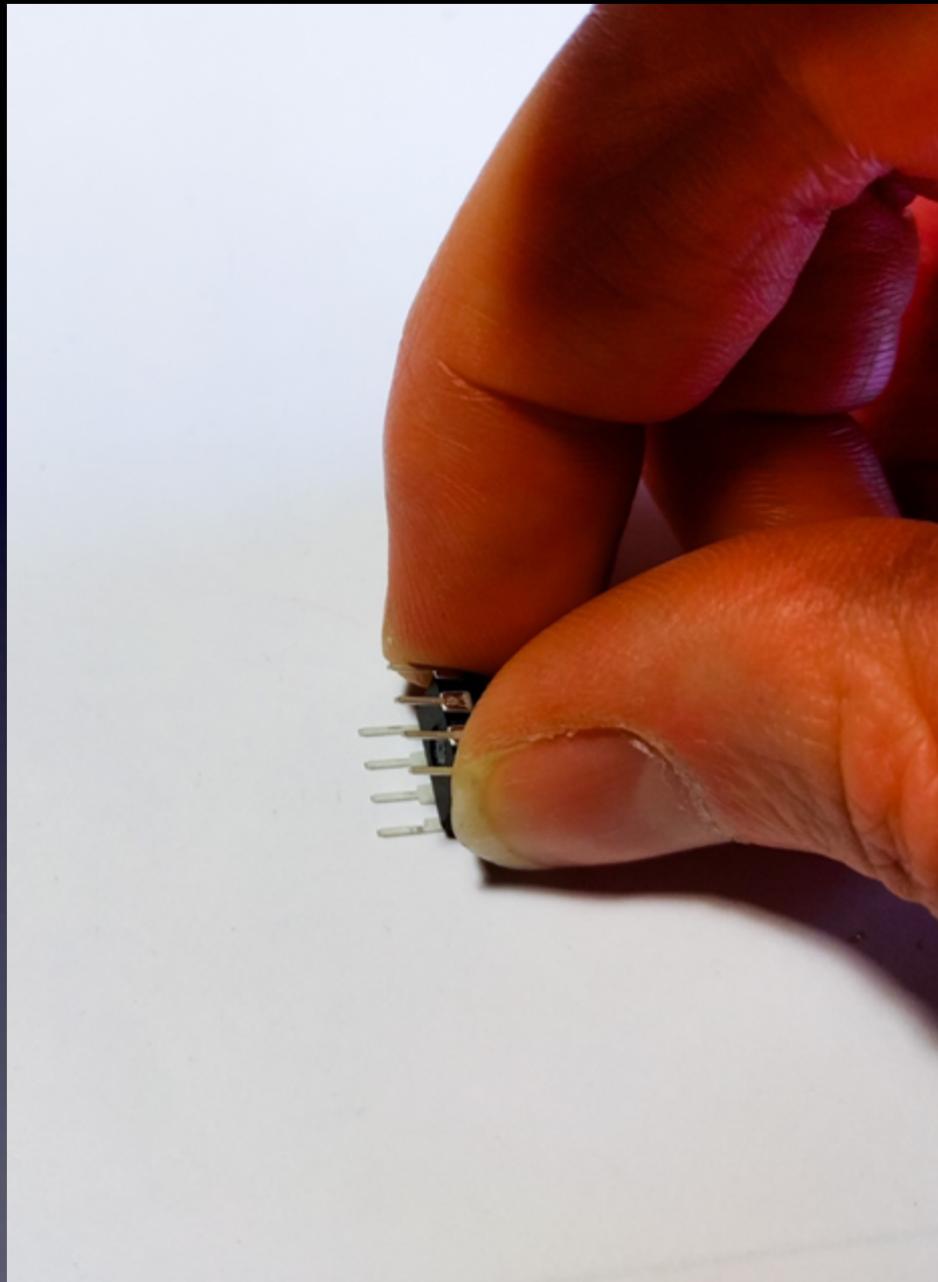
on the rev B board these are side by side  
(instead of on top of each other)



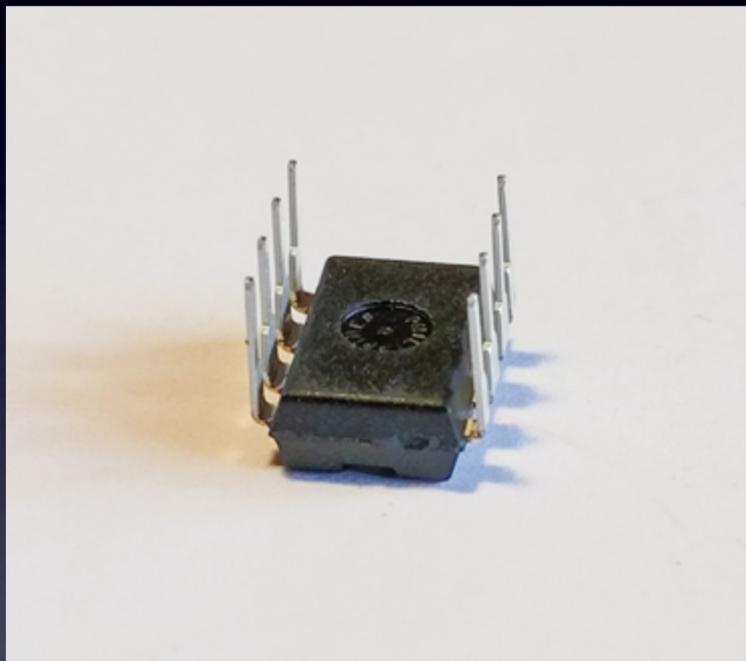
X1

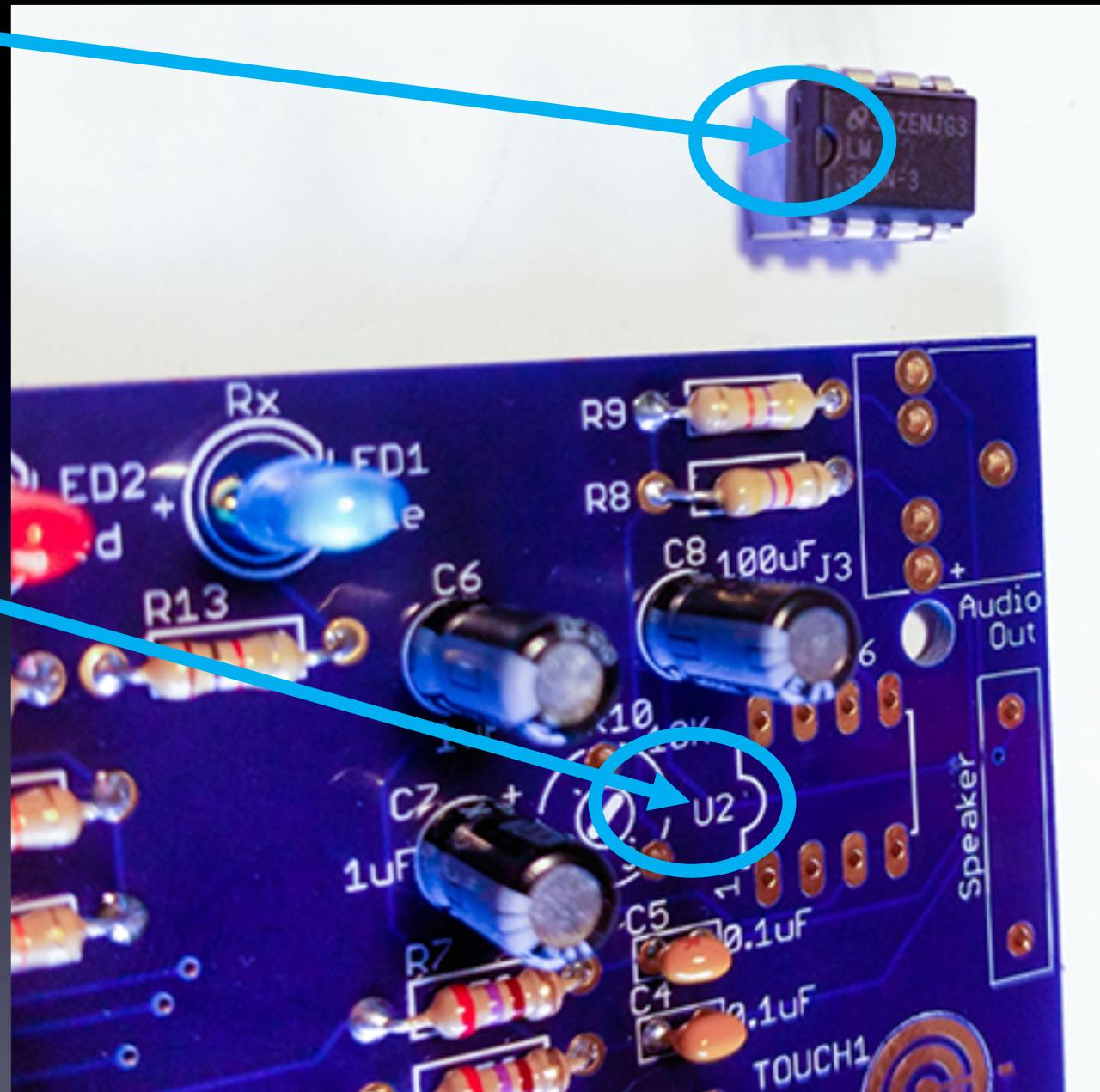




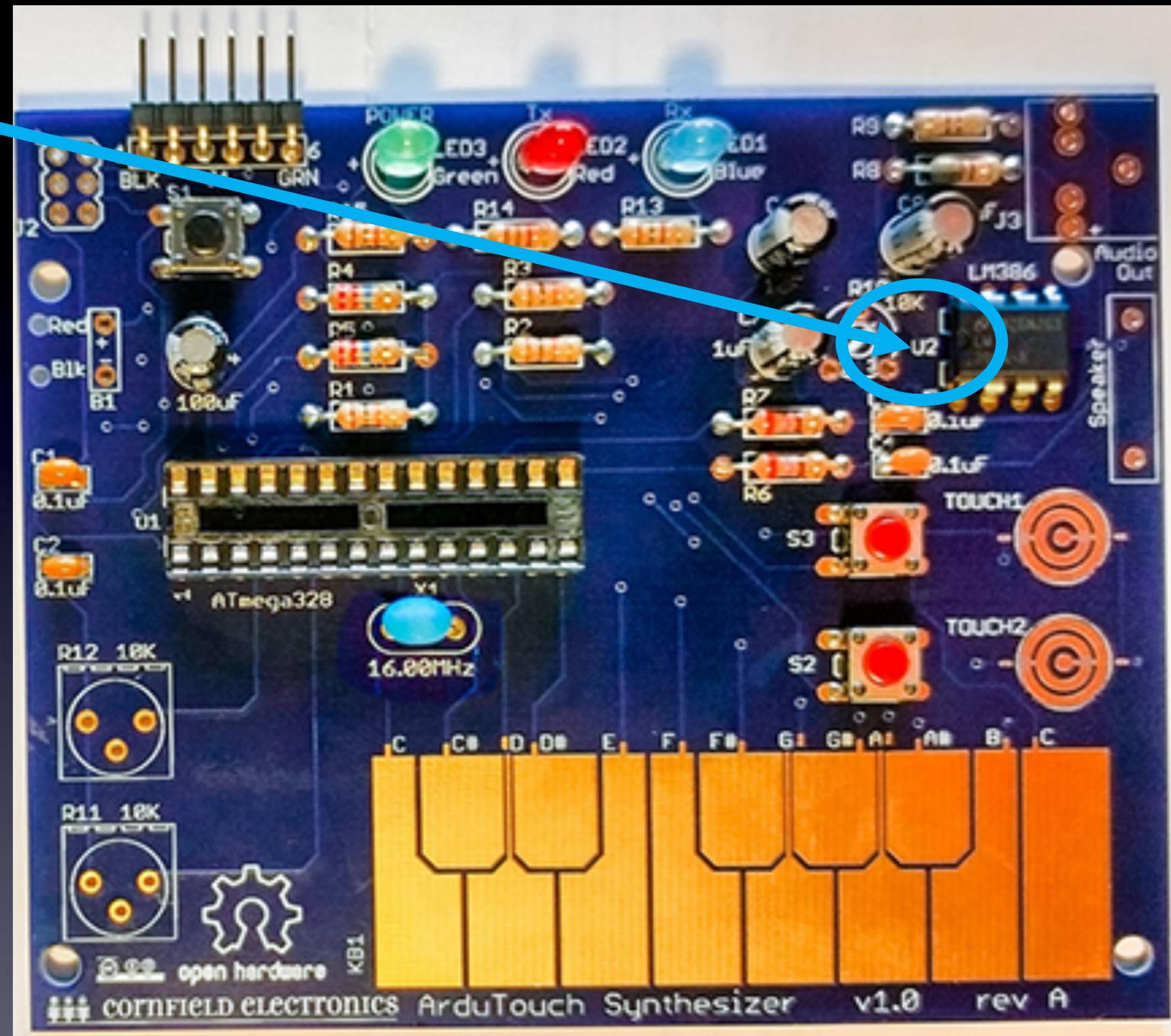


**Carefully  
bend leads  
so they're straight  
and parallel**



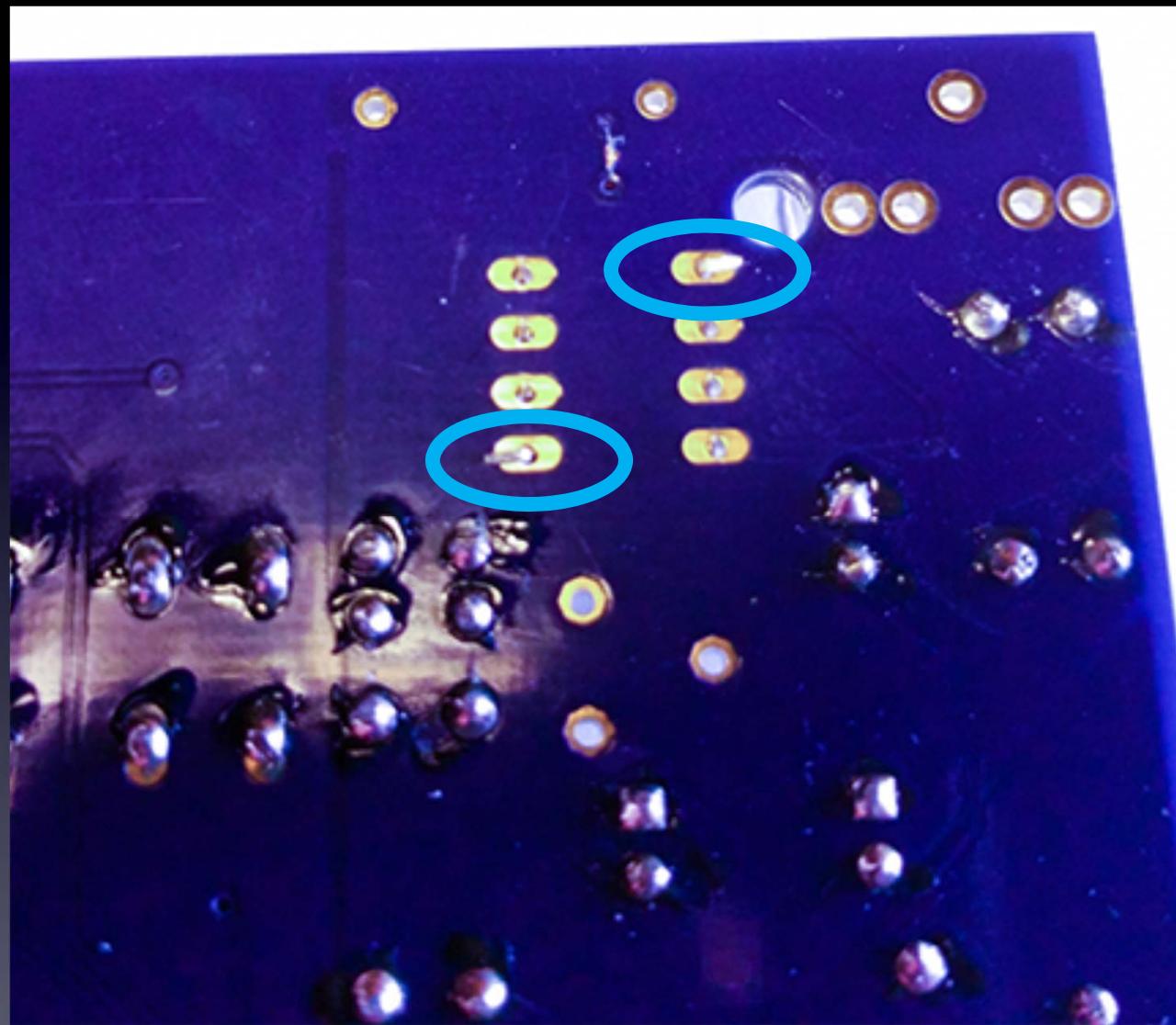


**U2: audio amp chip**

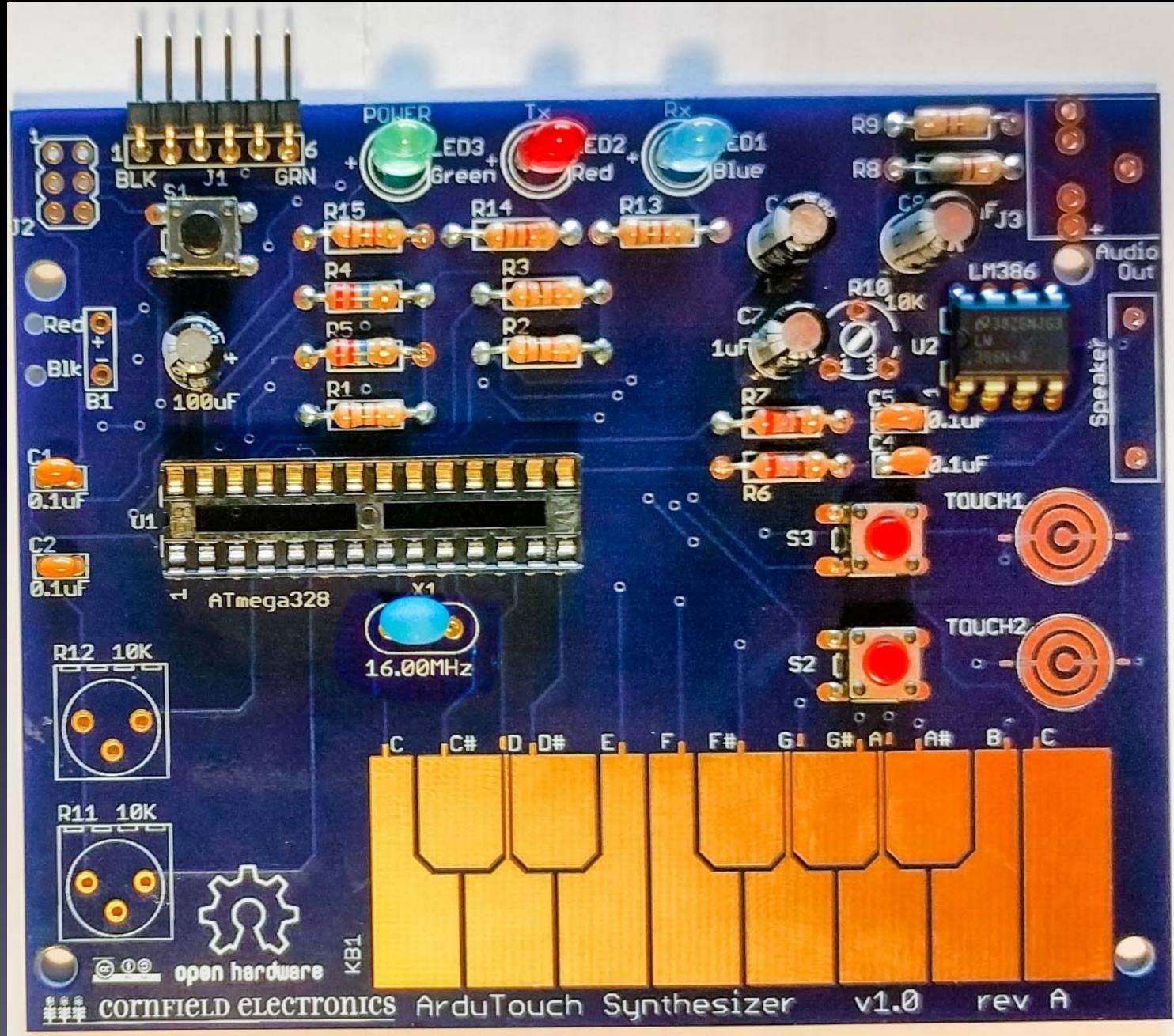


U2: audio amp chip

# U2: audio amp chip

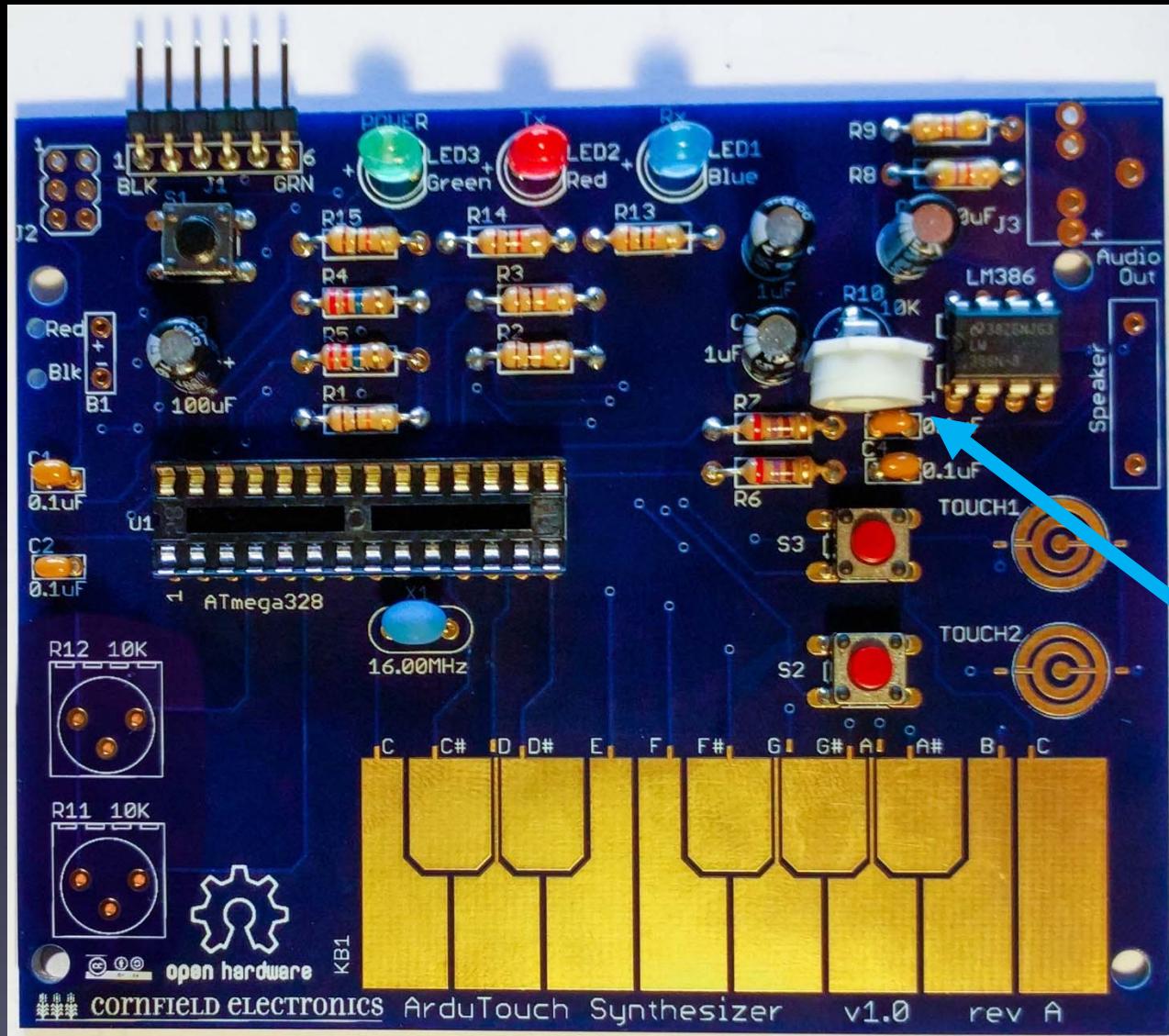


bend pins down on corners,  
and solder all 8 leads to the board

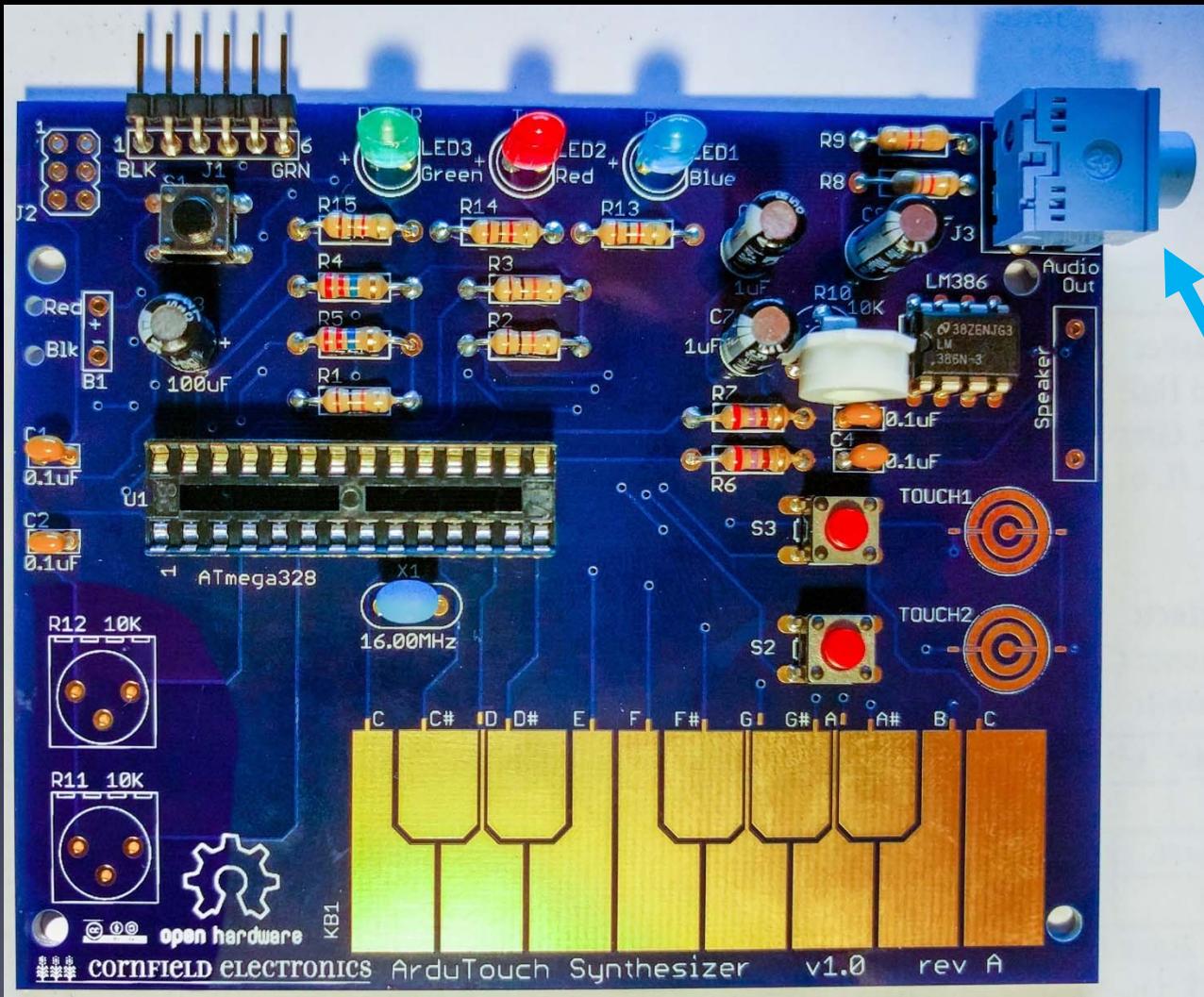


U2: audio amp chip

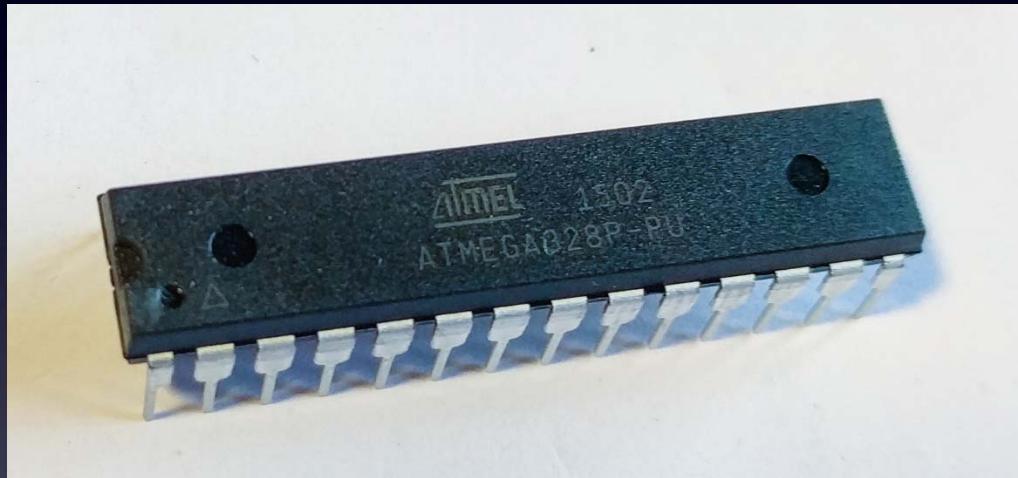
# R10: volume control



on the rev B board, R10 lays flat  
(and the pins don't fit in the holes well, so just push it in as far as it goes without forcing it, and solder)



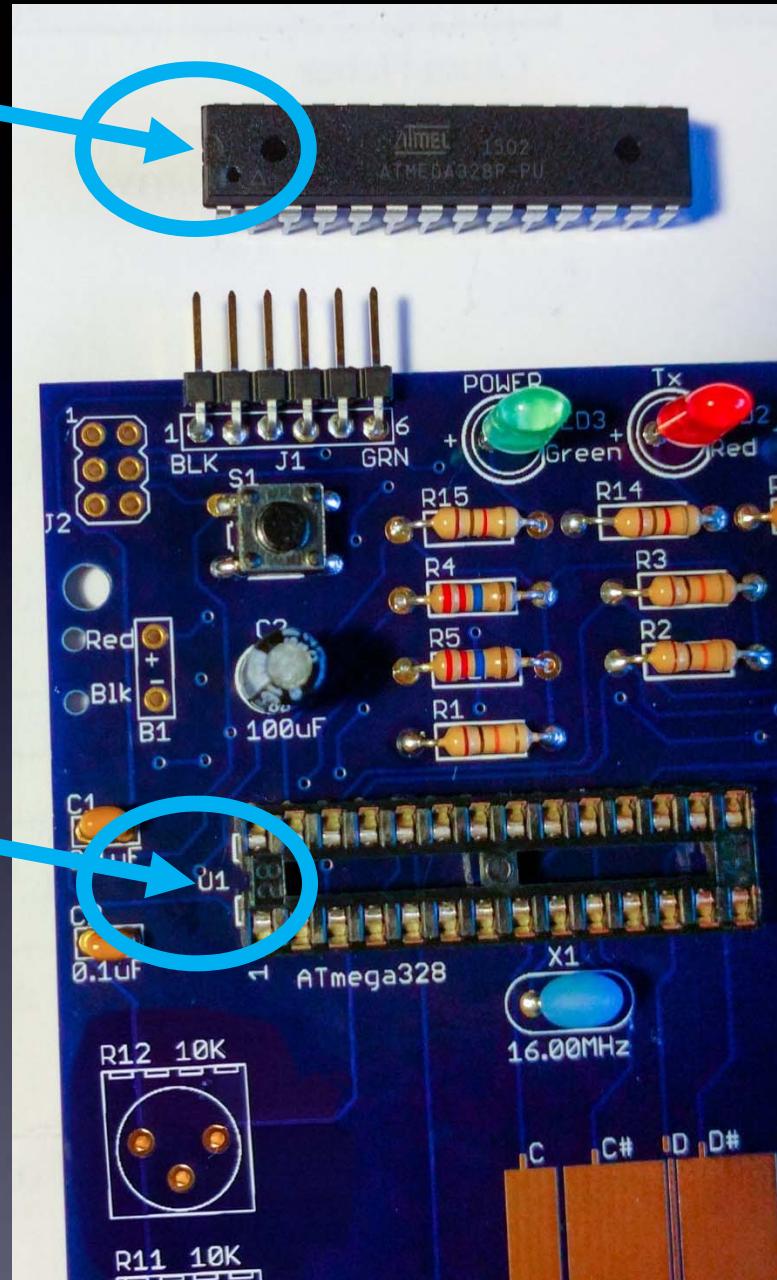
J3: headphone / output jack



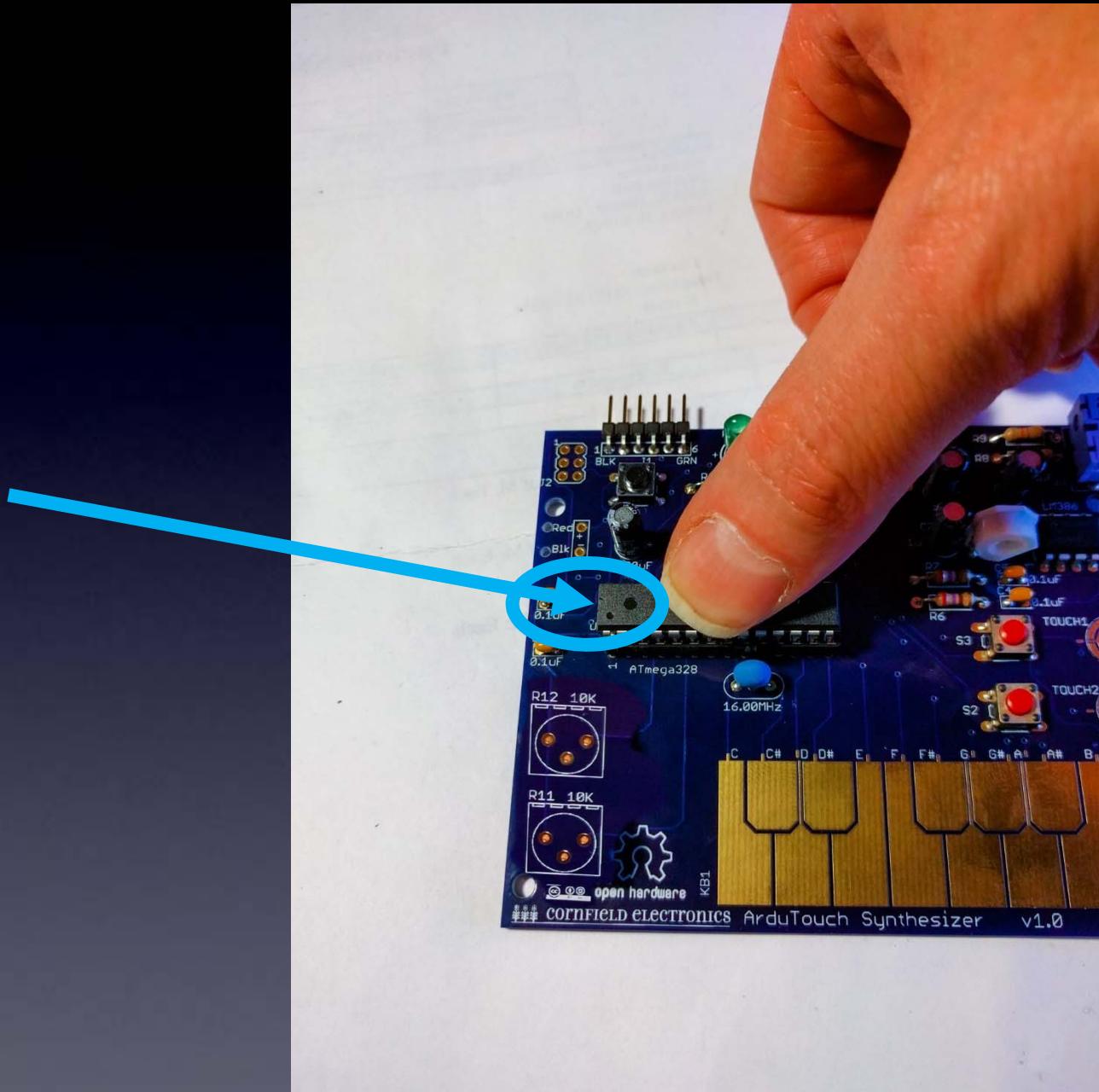
**U1: microcontroller**



**U1: microcontroller**



**U1: microcontroller**

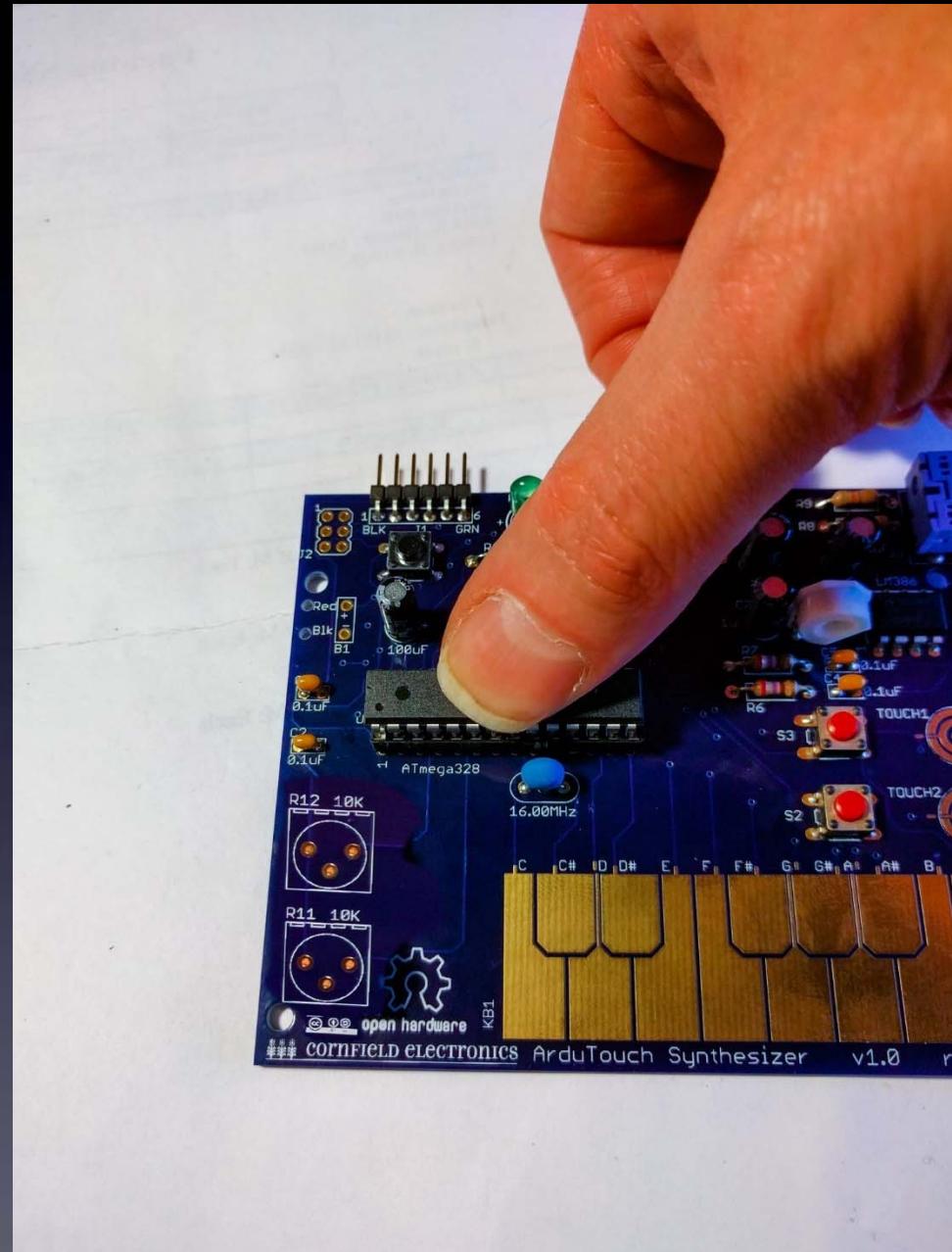


U1: microcontroller

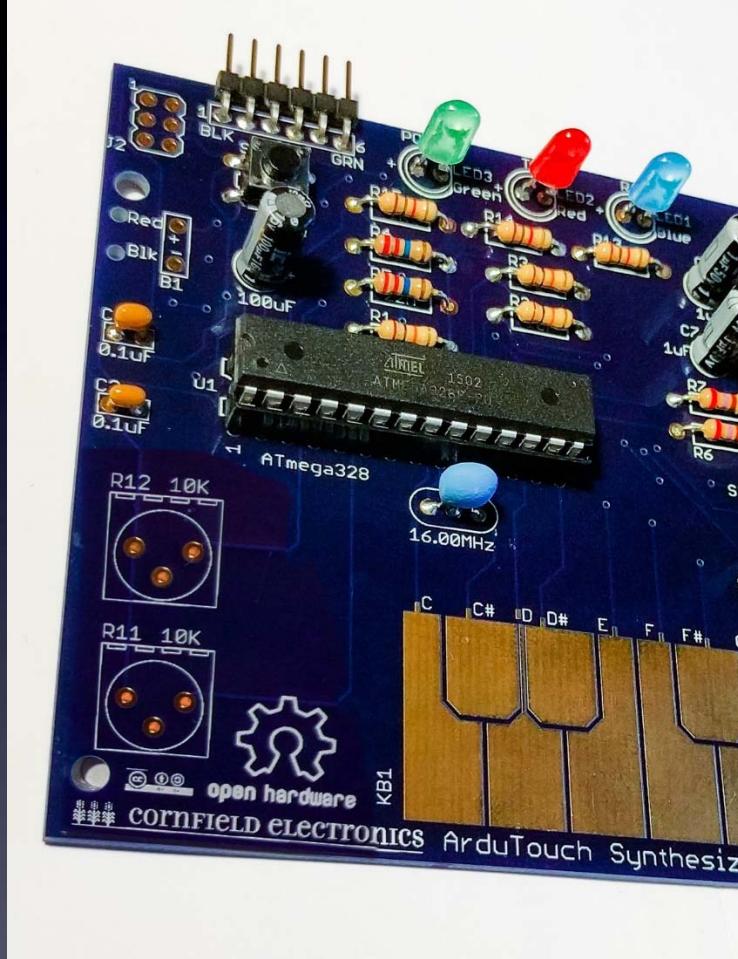
**Use two thumbs to push microcontroller into the socket**

**Make sure all 28 pins  
are in place,  
and push it into its socket.**

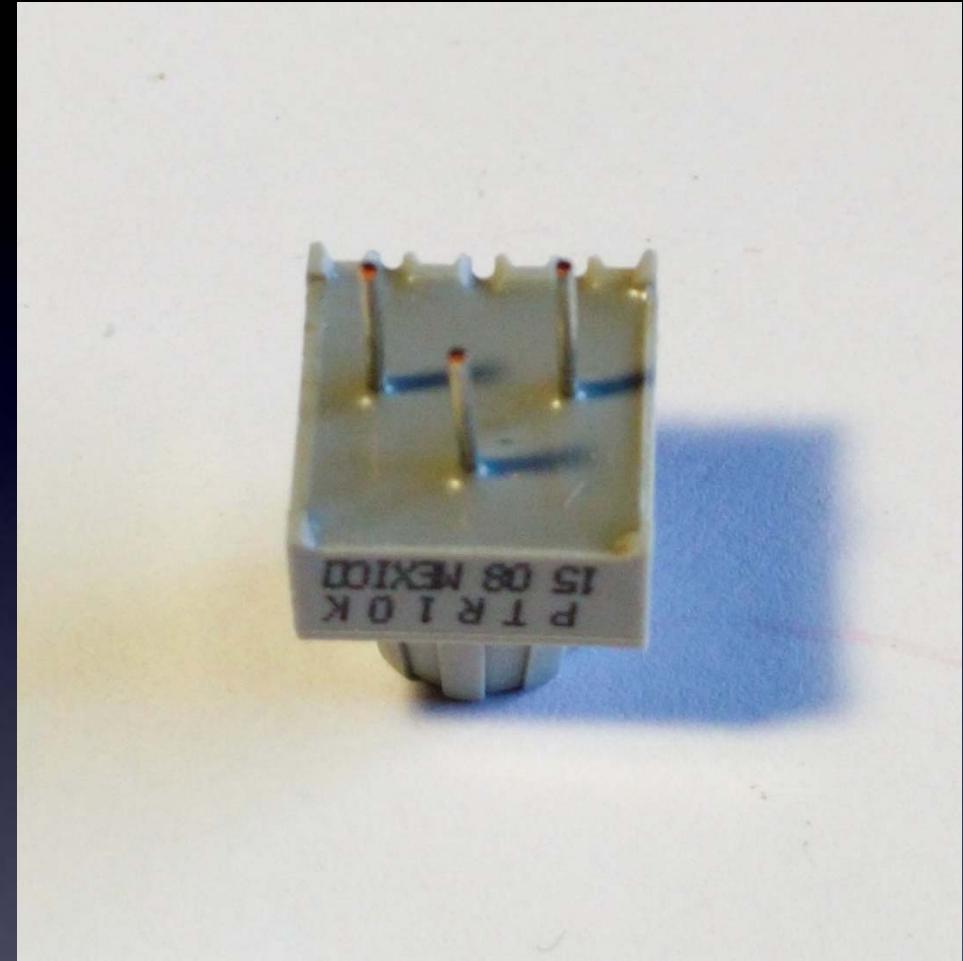
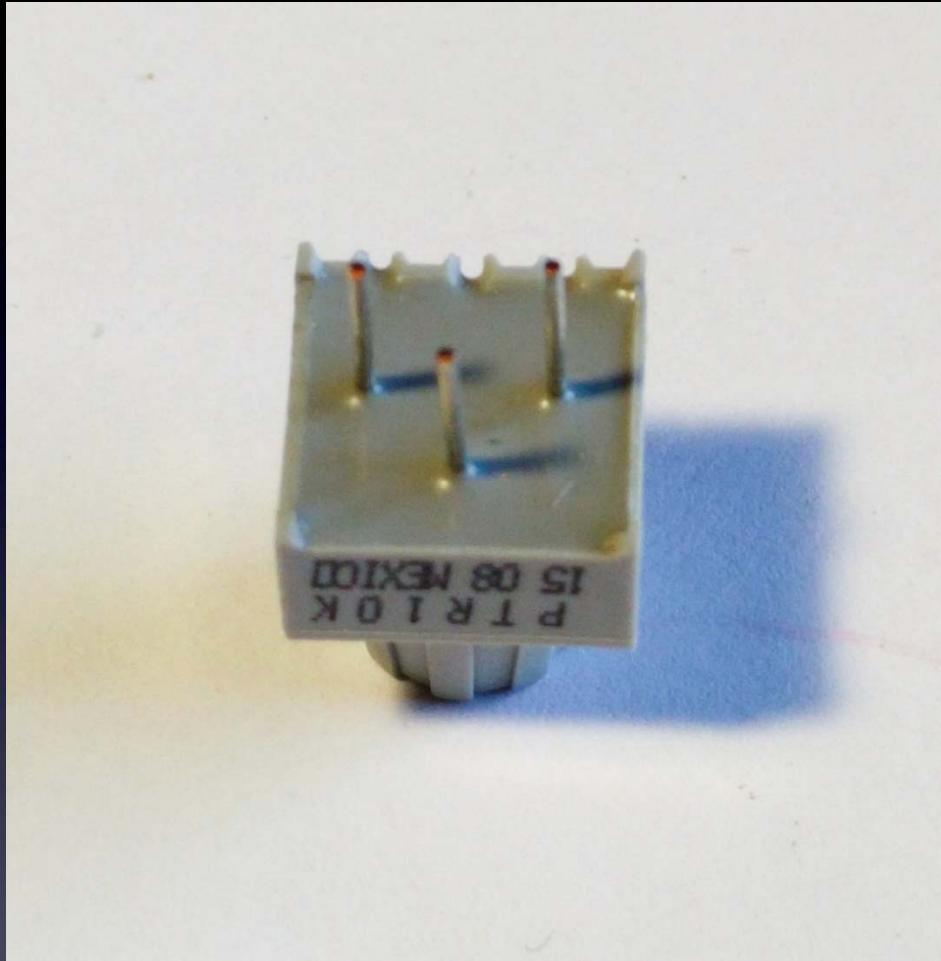
**(This is actually easier  
with 2 thumbs.)**



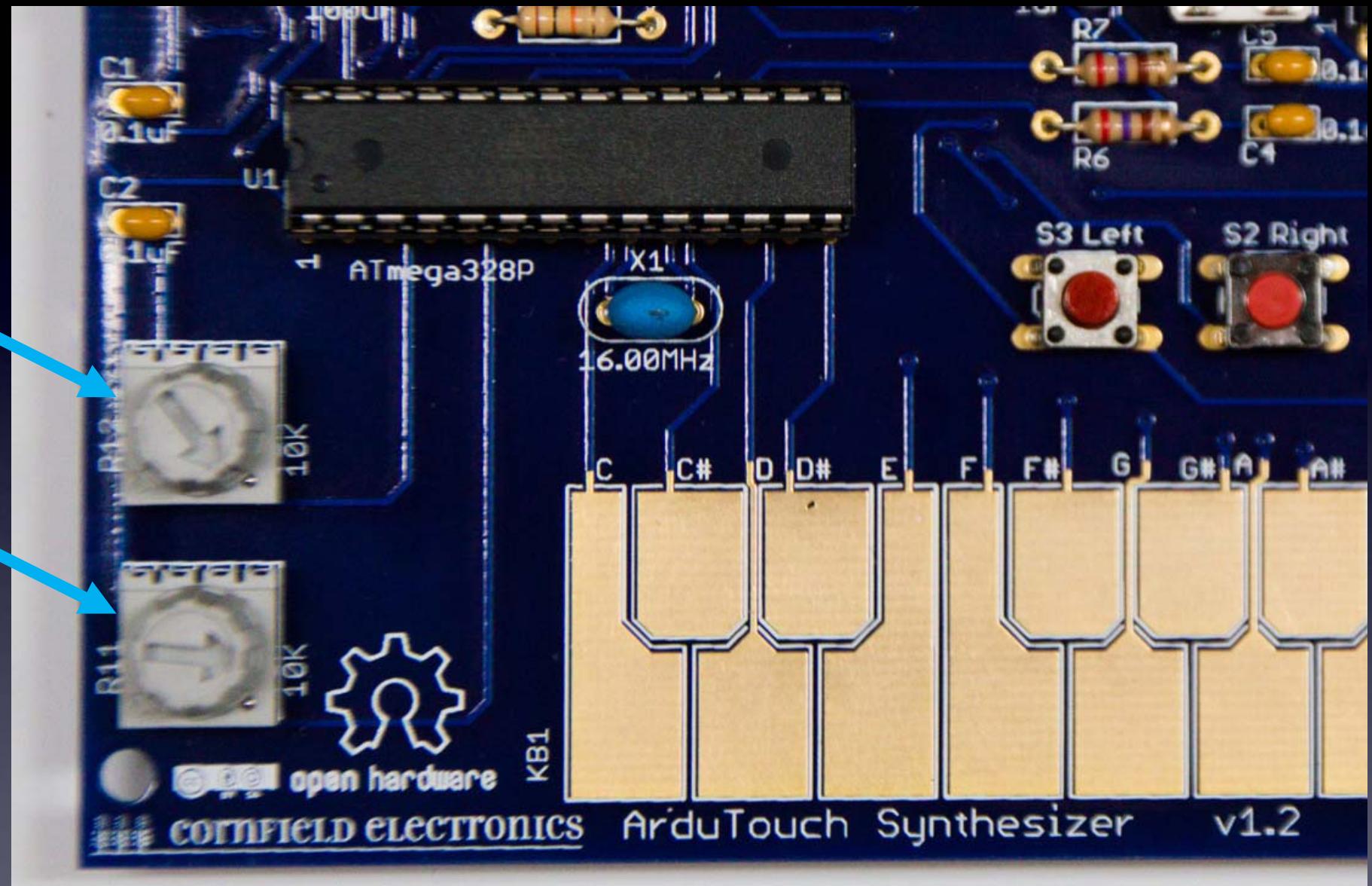
**U1: microcontroller**



# U1: microcontroller



R11 & R12: potentiometers

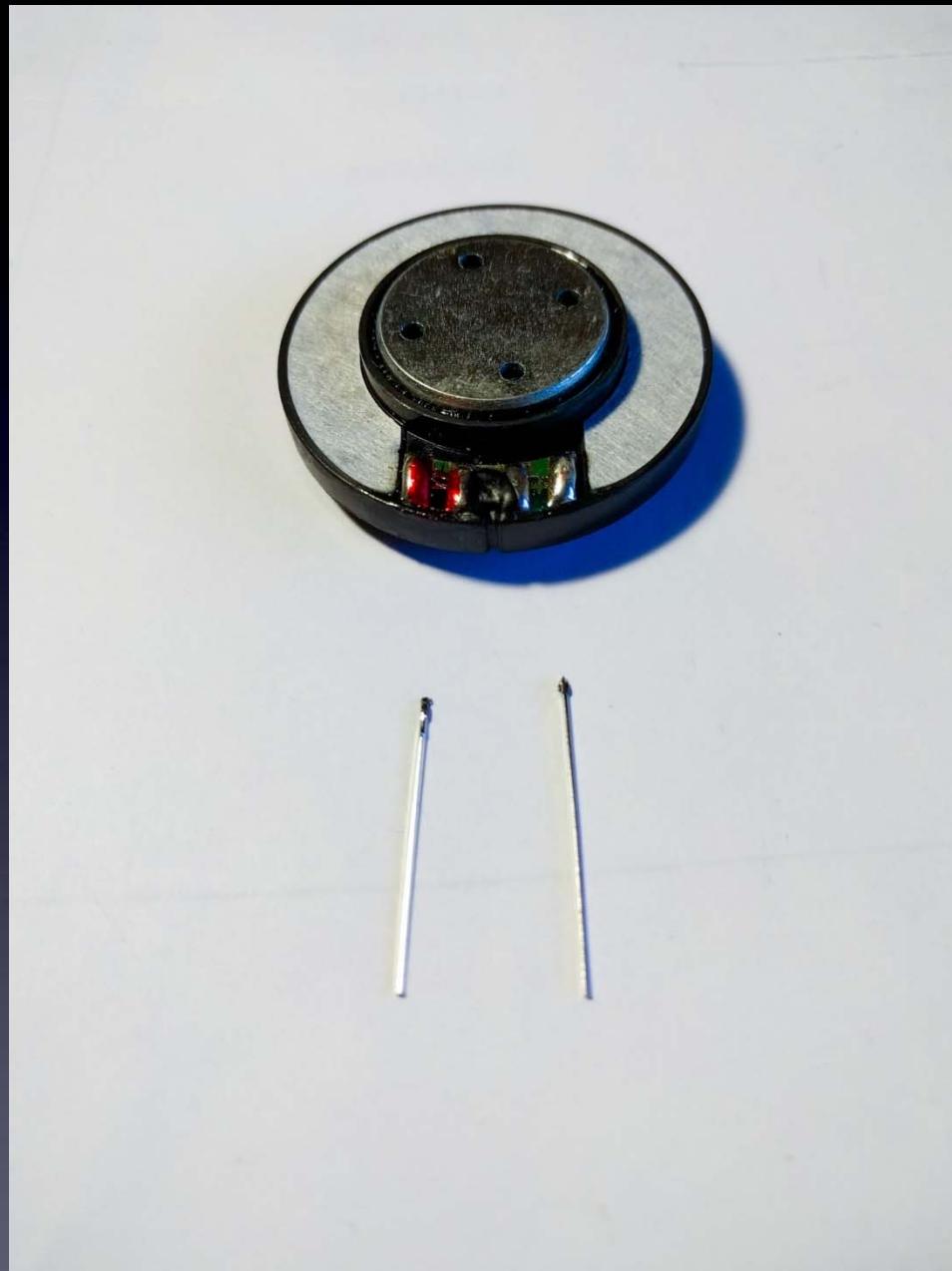


R11 & R12: potentiometers



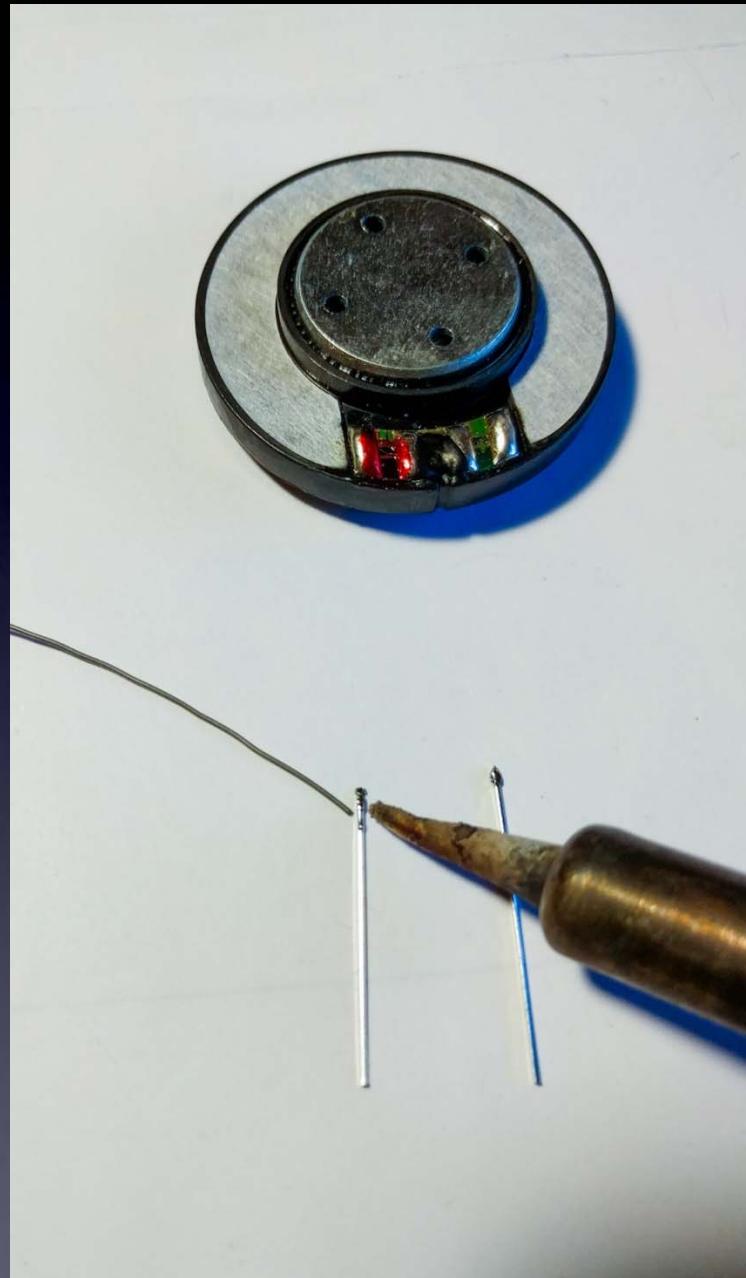
# Speaker

We'll add leads  
to the speaker



Speaker

**Tin one side  
of each lead**

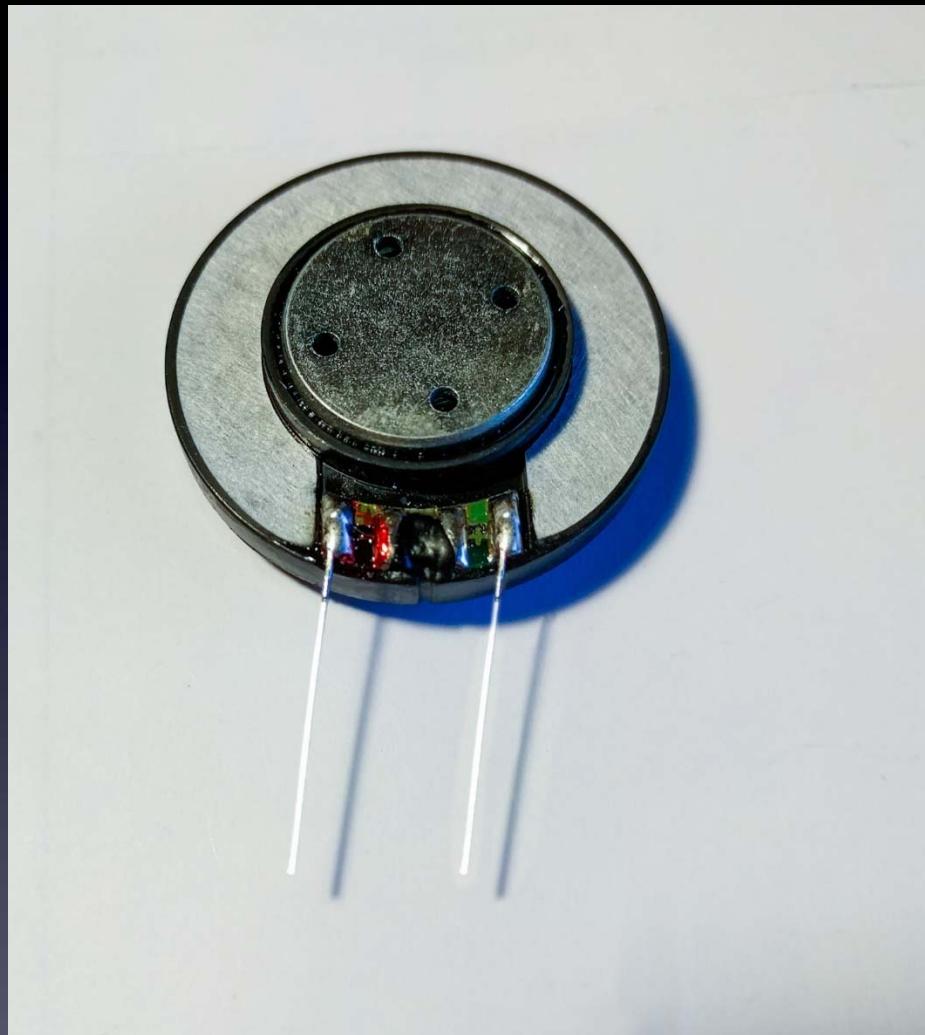


**Speaker**

**Solder lead  
to speaker**

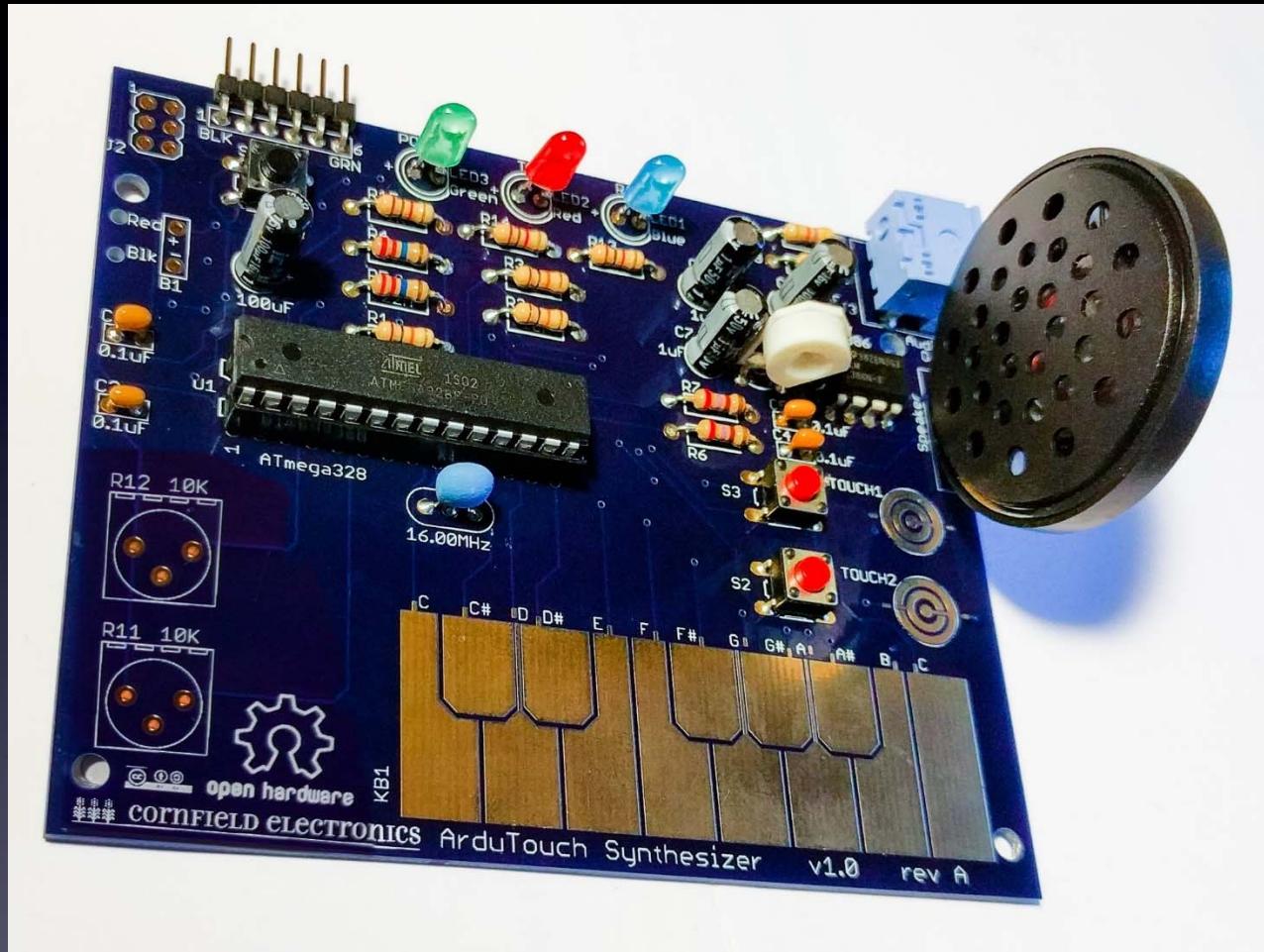


**Solder next lead  
to speaker**



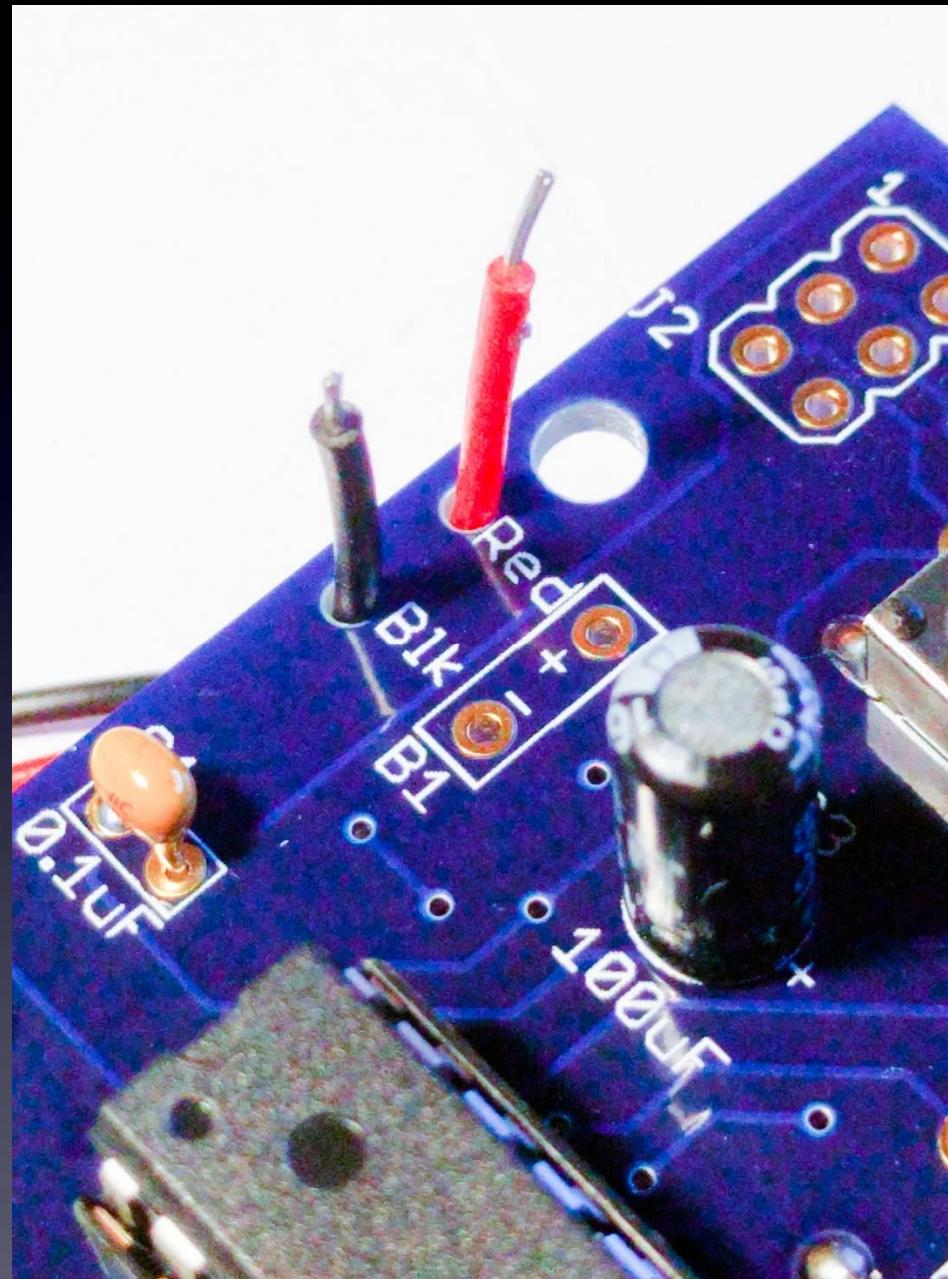
**Speaker**

**Solder  
speaker  
to board**



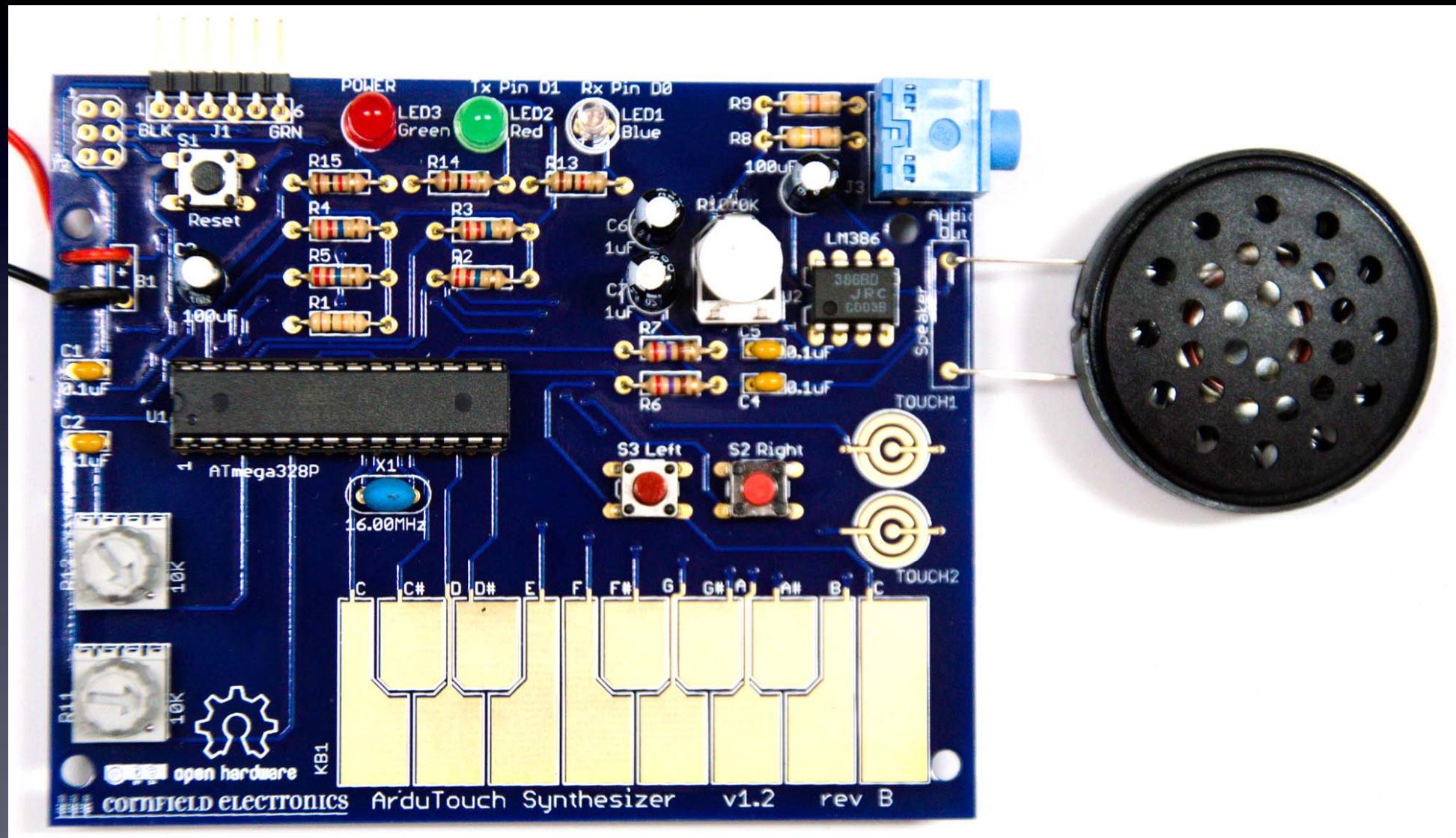
**Speaker**

**Push battery pack  
leads through holes,  
loop into pads,  
and solder.**



**Battery pack**

# Done!



# Let's make noise!

