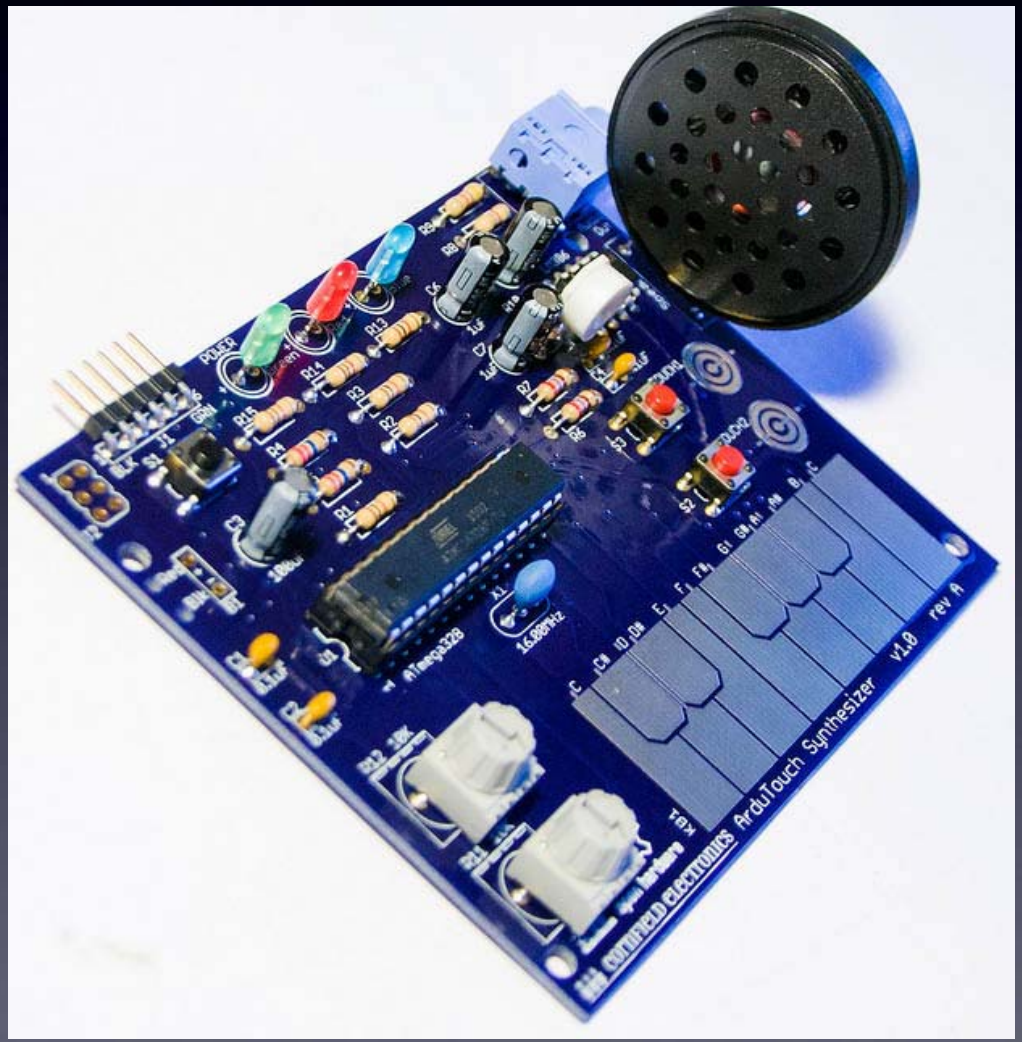
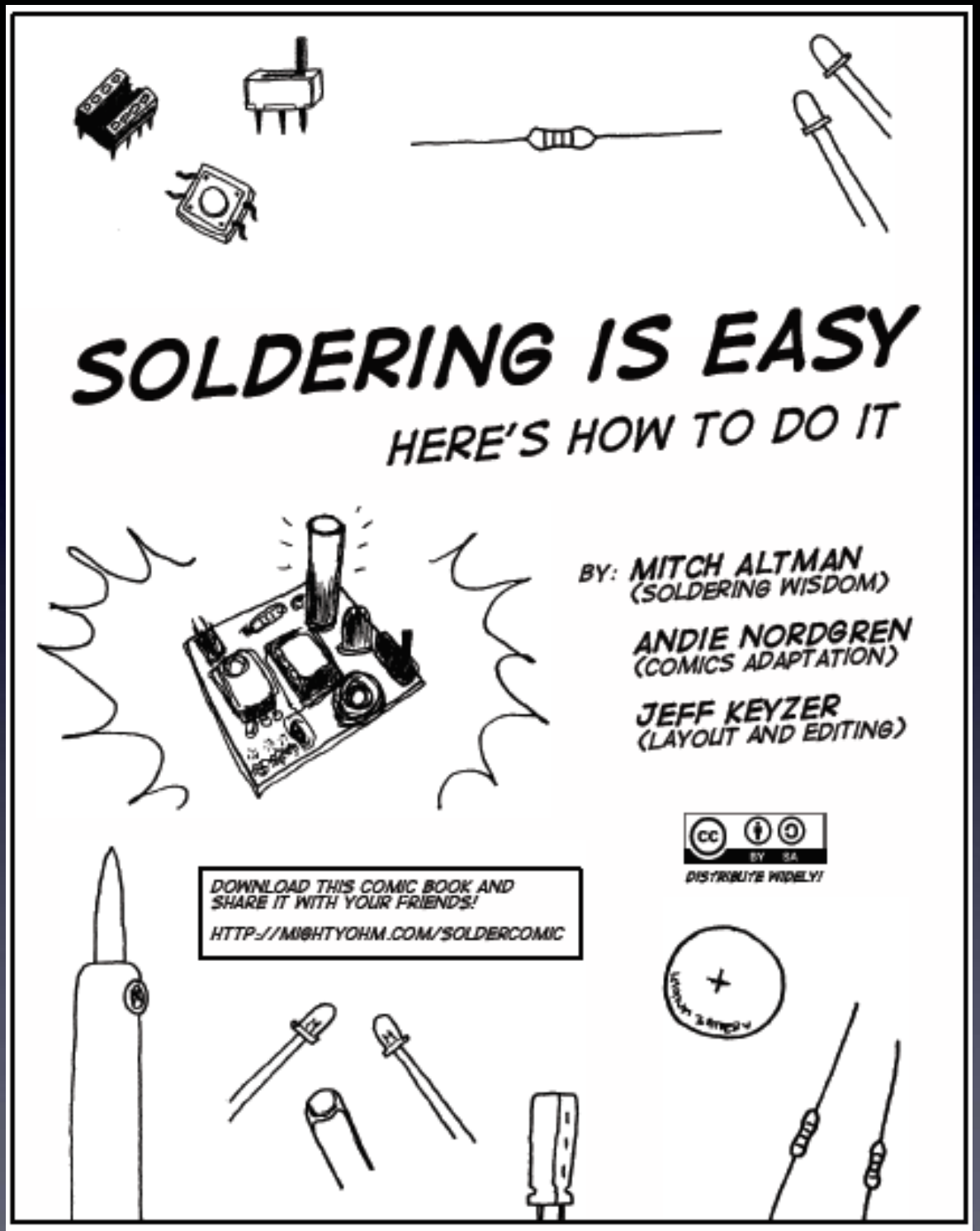
ArduTouch Music Synthesizer

Assembly Instructions



Learn To Solder



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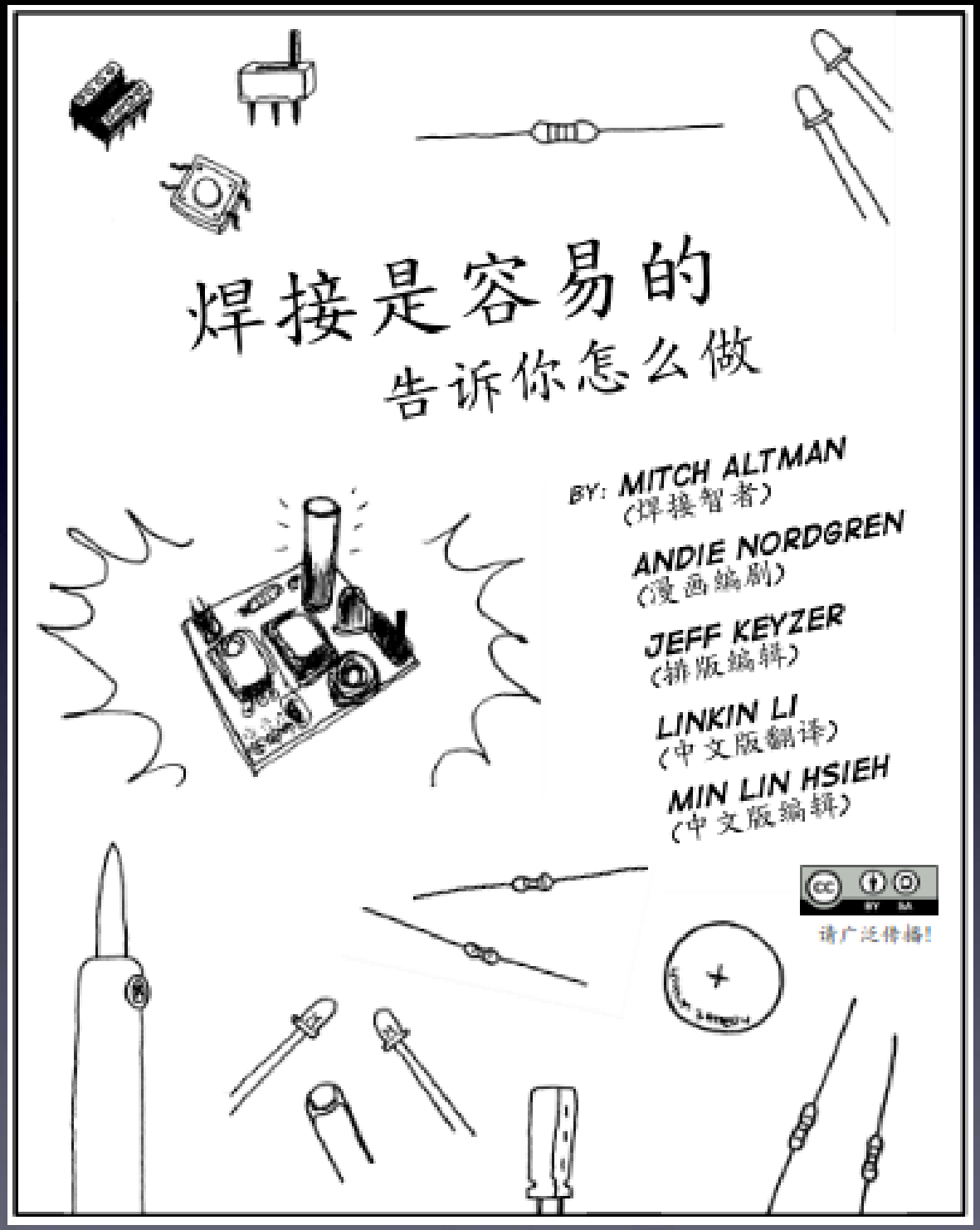

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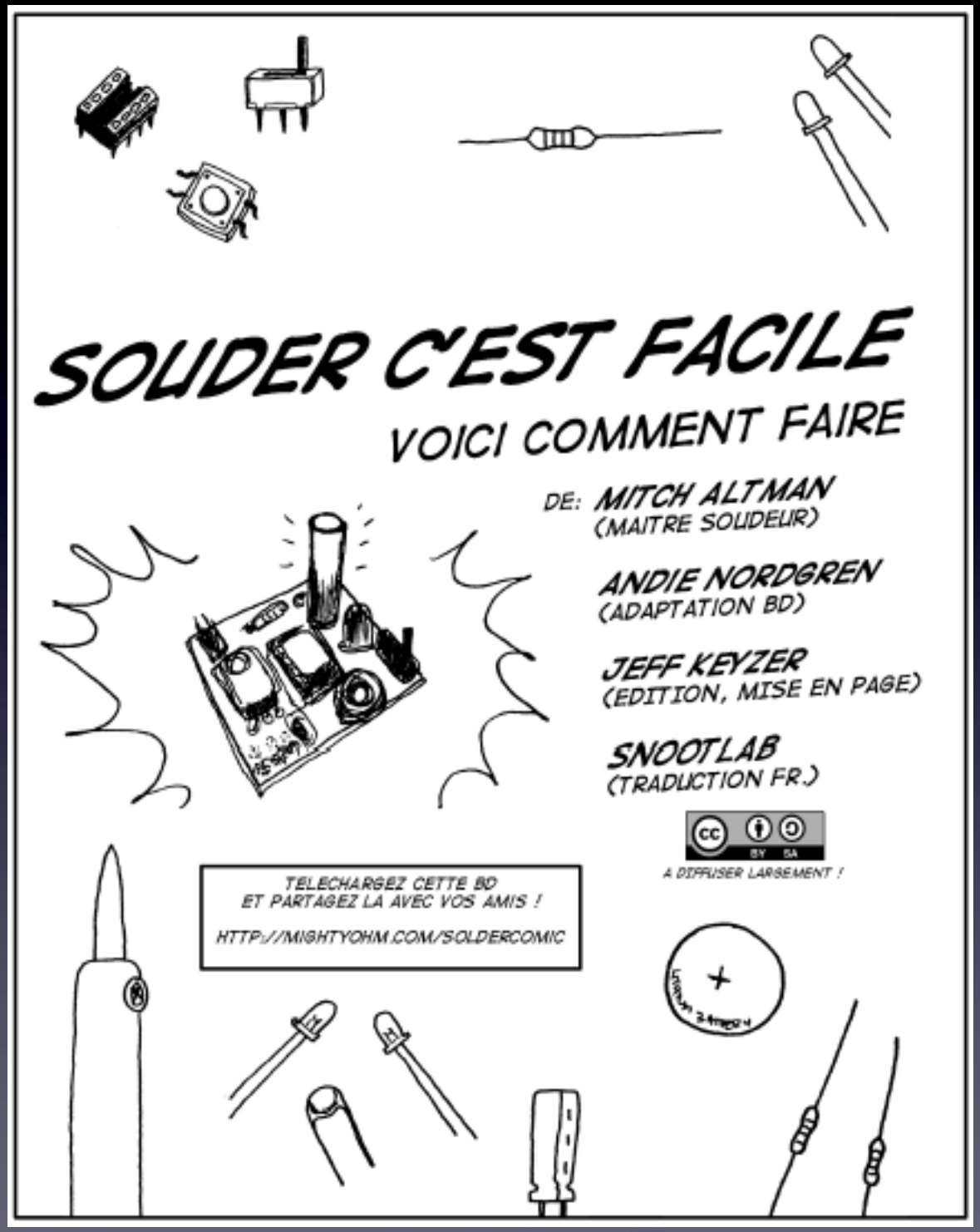

Learn To Solder

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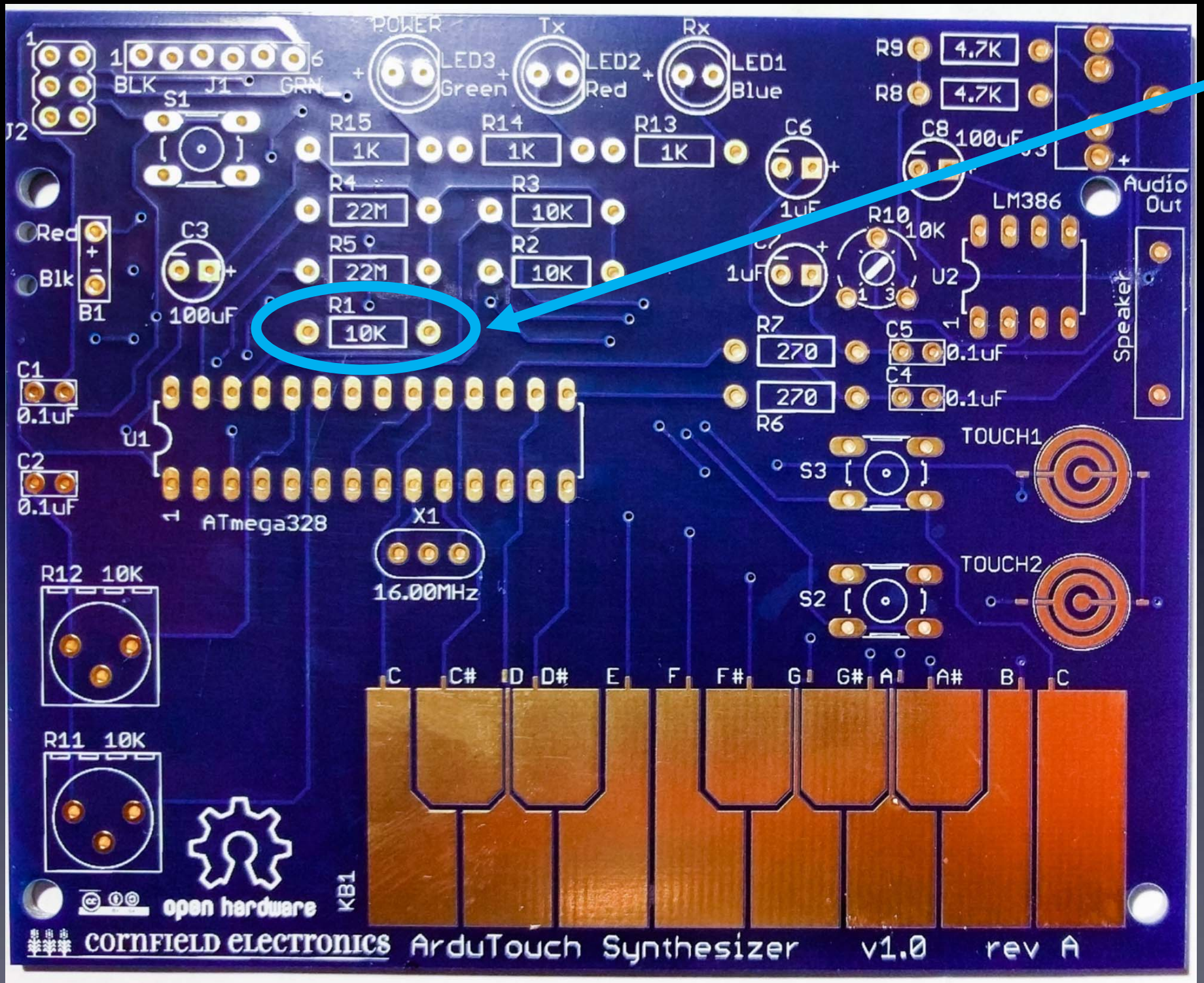
POWER
LED3
Green
Tx
LED2
Red
Rx
LED1
Blue
J1
BLK
GRN
J2
S1
R15 1K
R14 1K
R13 1K
R4 22M
R3 10K
R5 22M
R2 10K
R1 10K
C6 1uF
C8 100uF
R9 4.7K
R8 4.7K
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U2
C7 1uF
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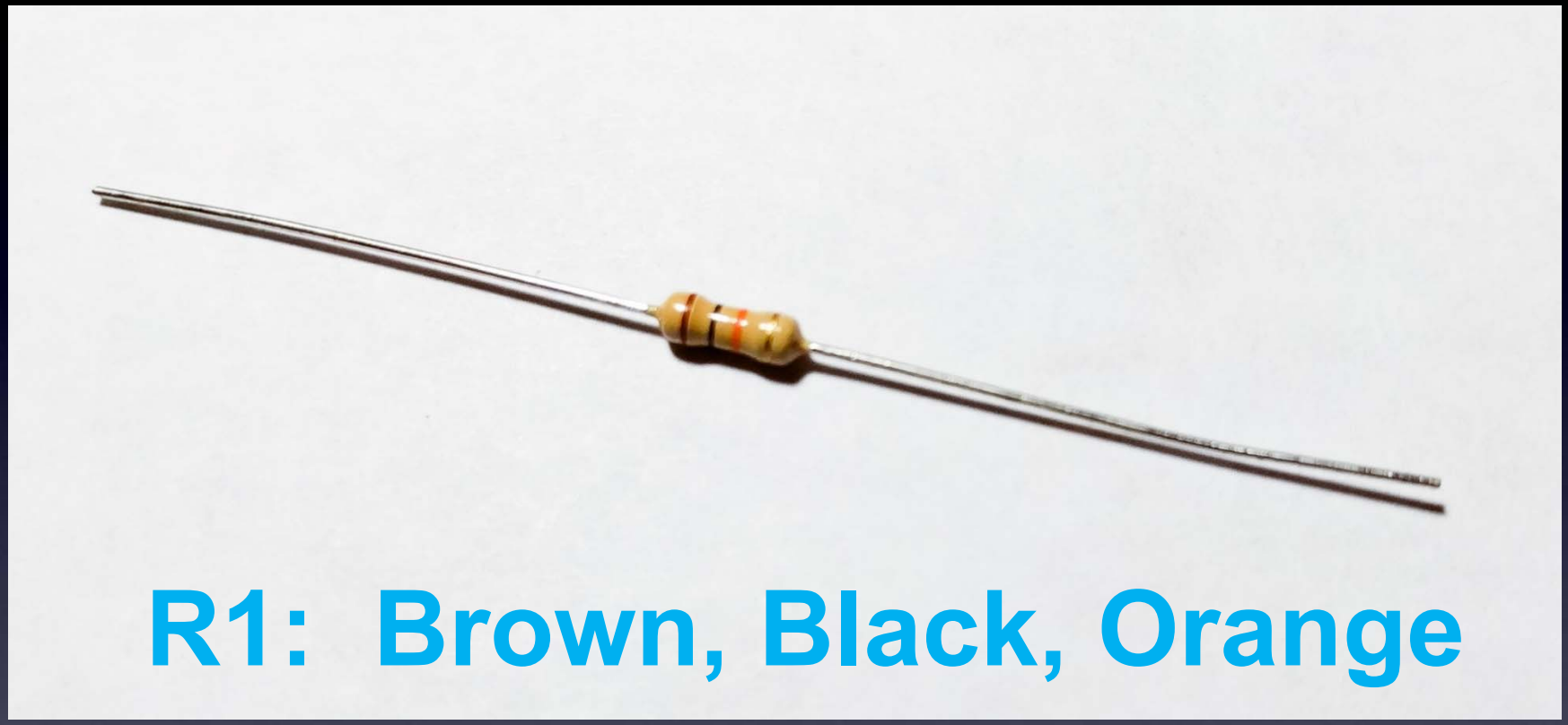
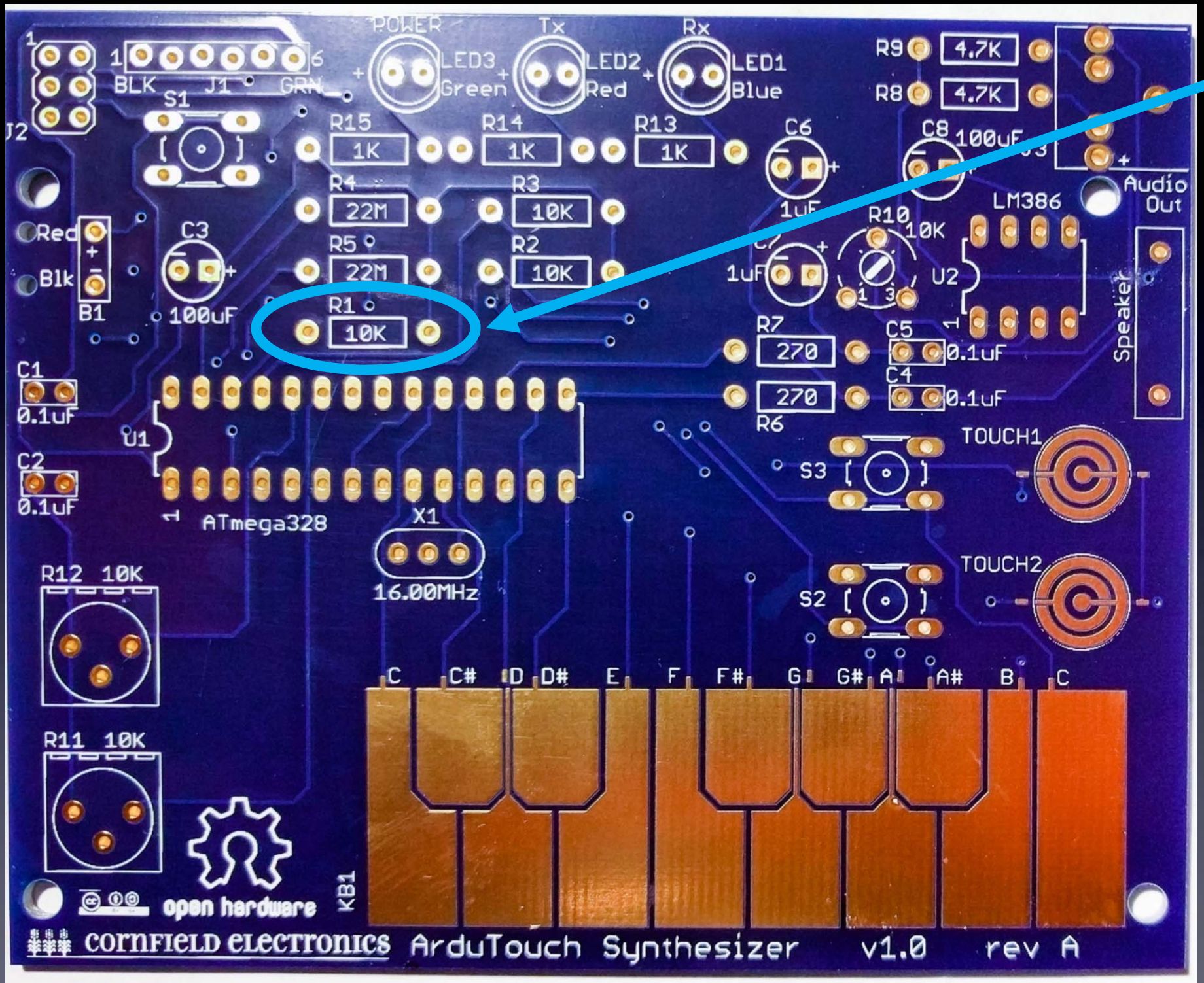
C C# D D# E F F# G G# A A# B C
KB1
open hardware
CORNFIELD ELECTRONICS
ArduTouch Synthesizer
v1.0
rev A



R1: Brown, Black, Orange

(*not* Brown, Black, Red)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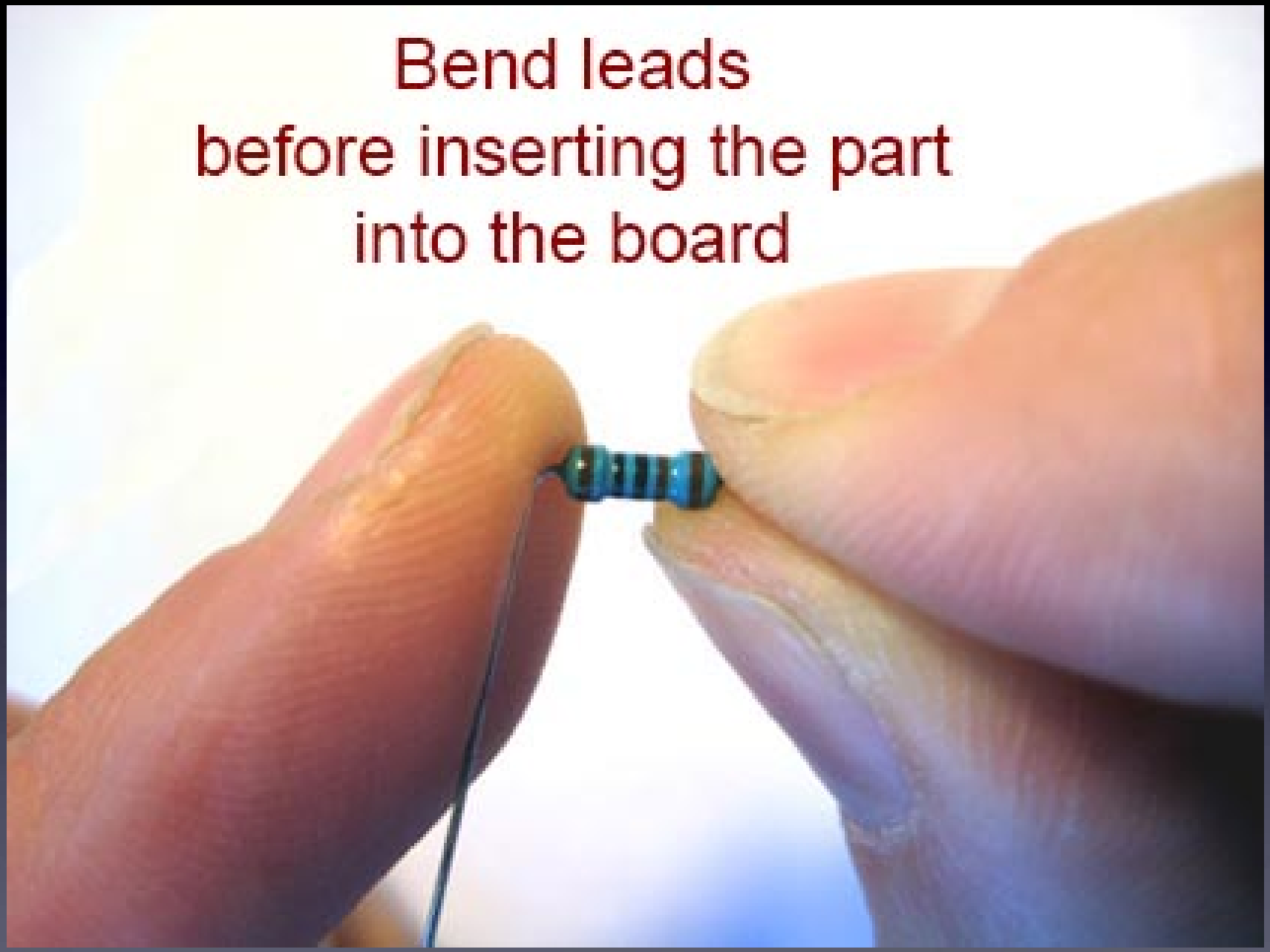
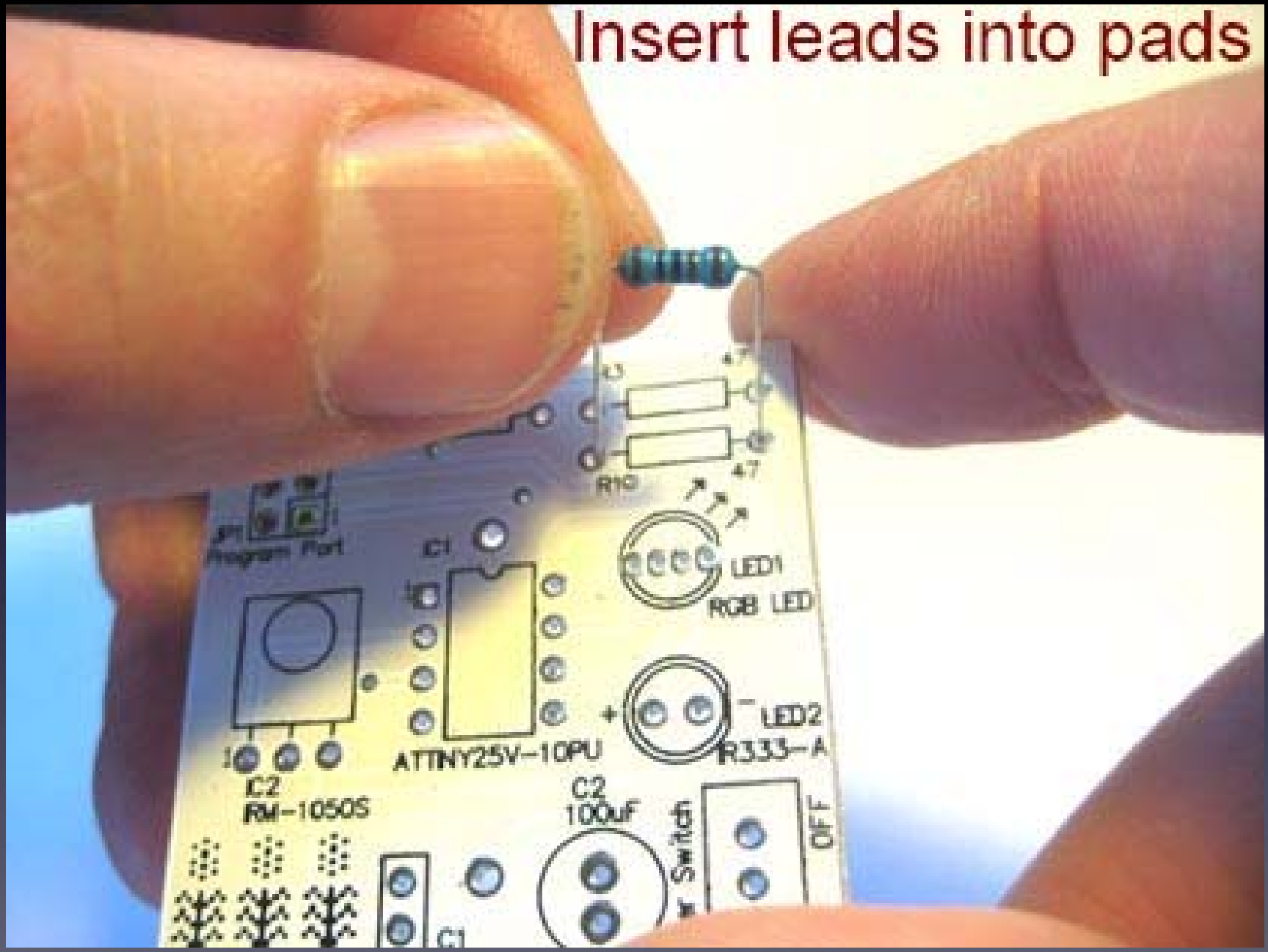
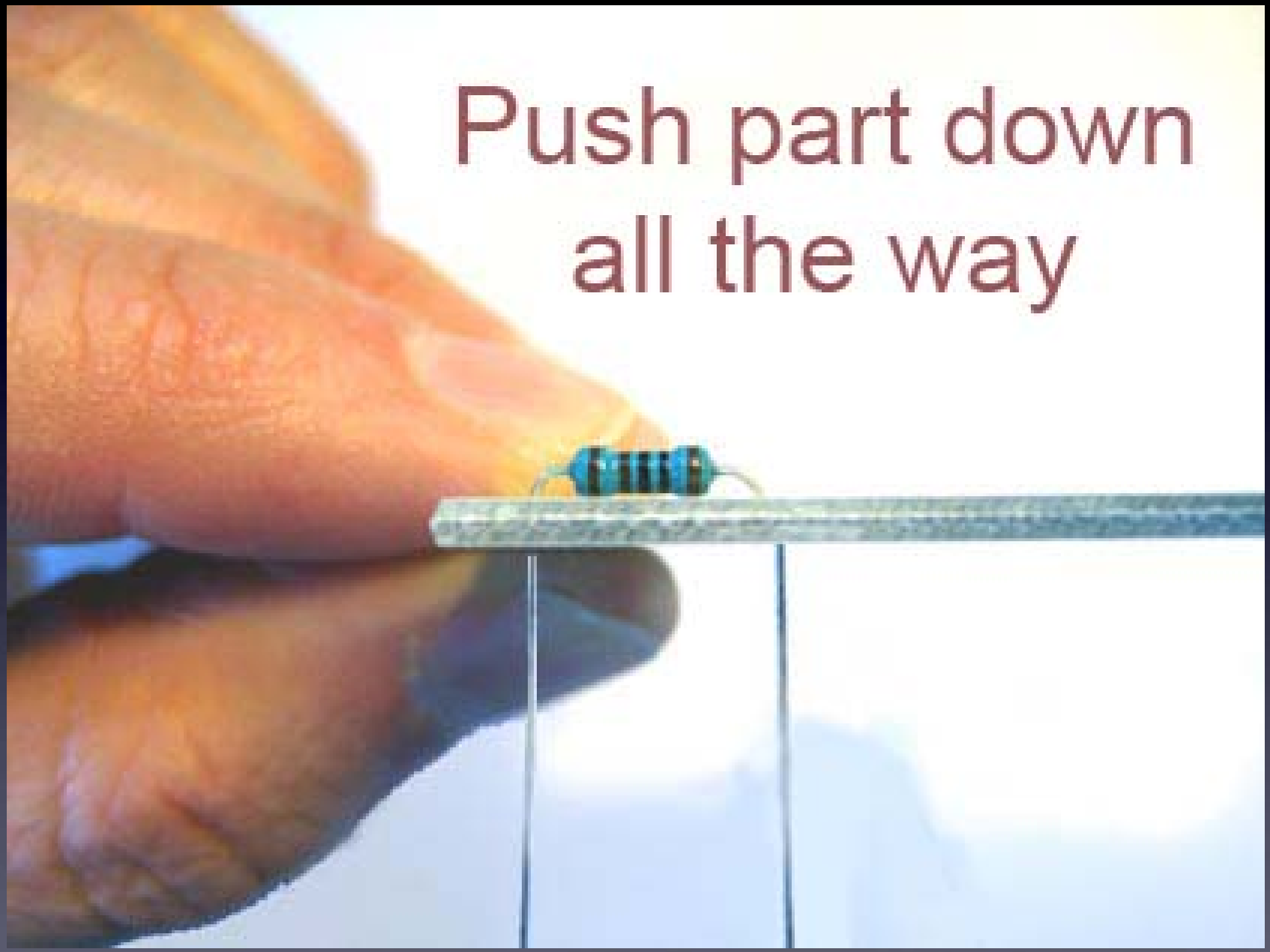
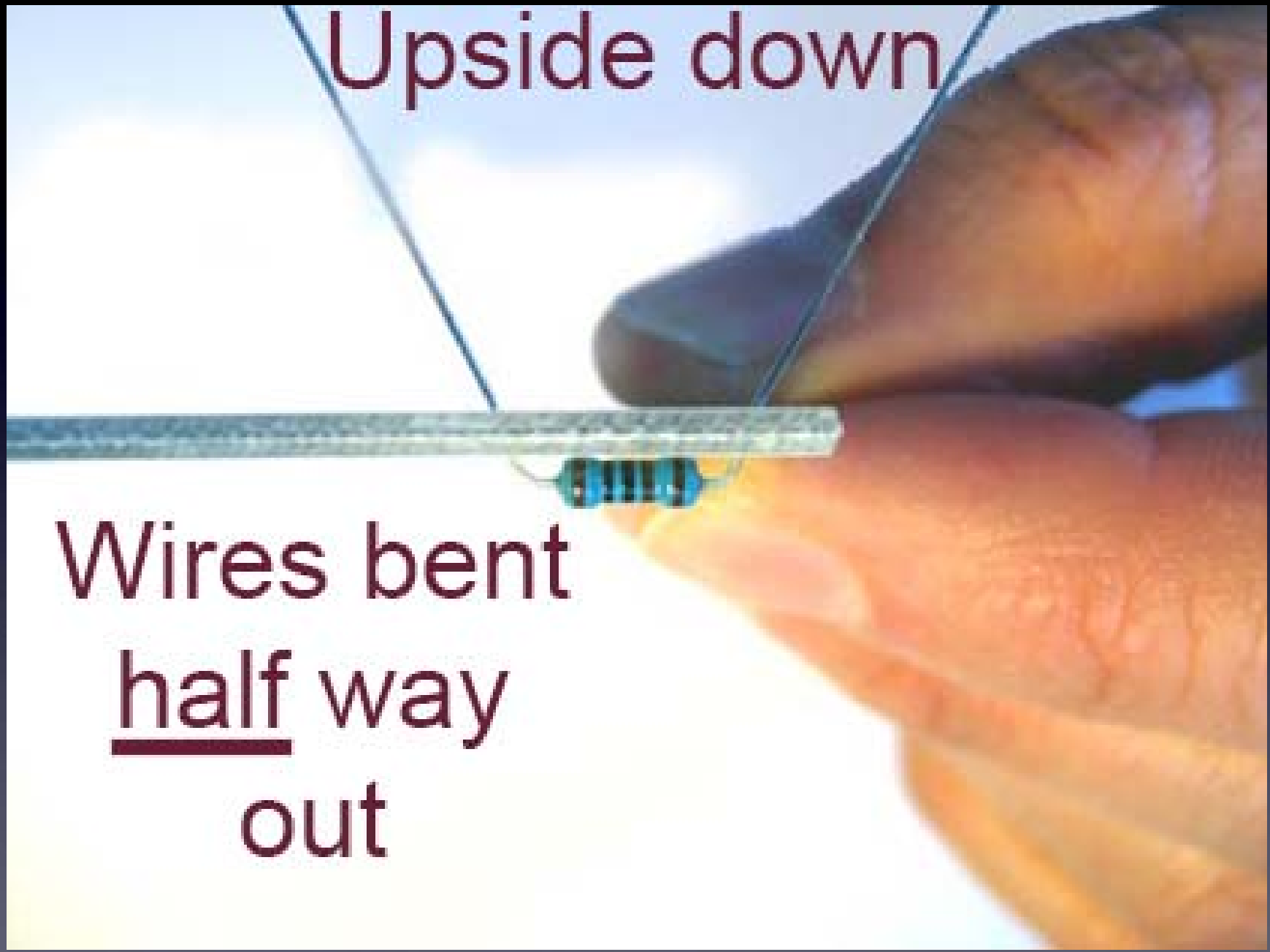
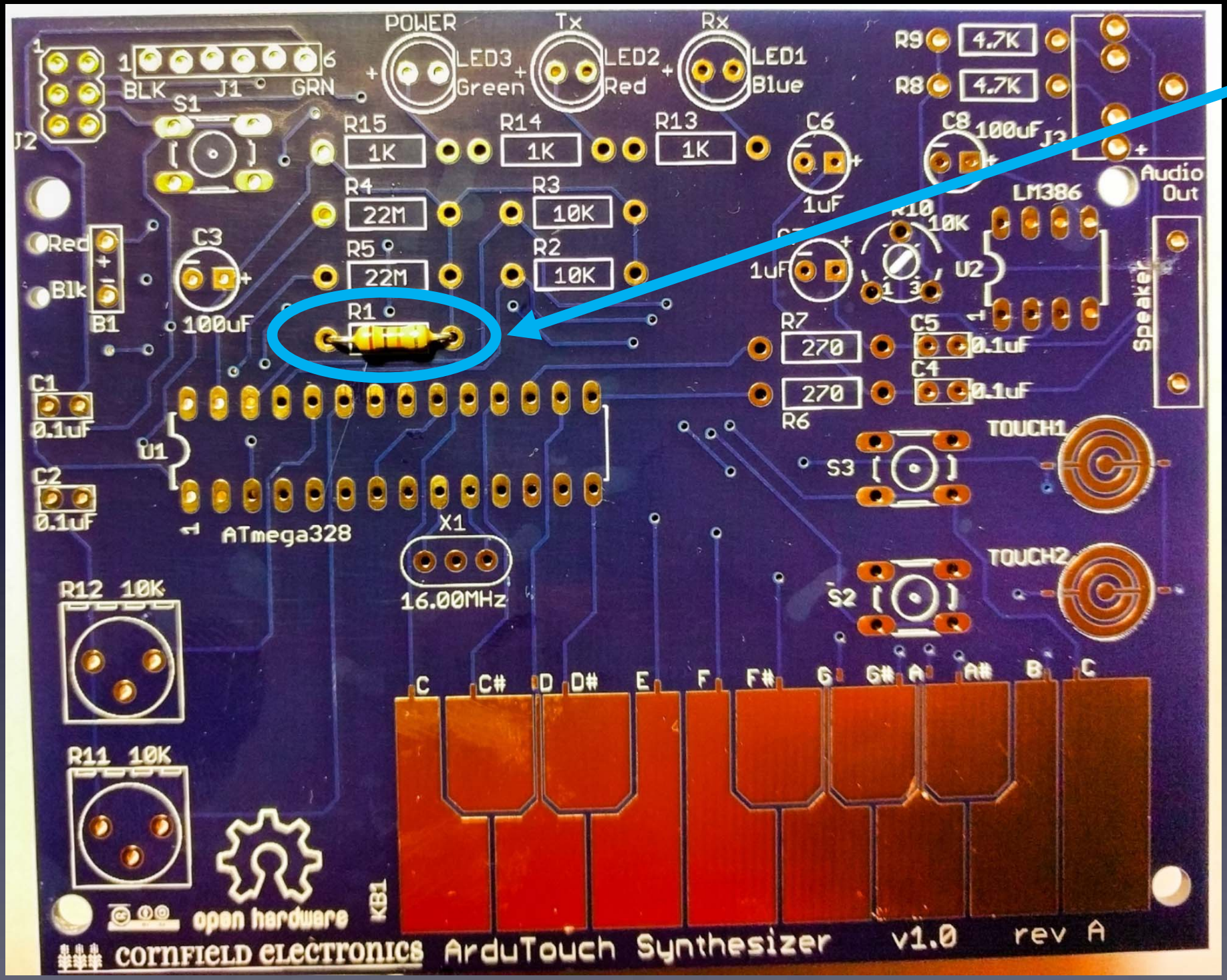

Bend leads
before inserting the part
into the board


Insert leads into pads
R10
LED1
RGB LED
IC1
ATTINY25V-10PU
LED2
IR333-A
IC2
RM-1050S
C2
100uF
Switch
OFF
C1


Push part down
all the way


Upside down
Wires bent
half way
out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1K
R13
1K
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R7
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F
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G
G#
A
A#
B
C
open hardware
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How to hold a soldering iron

The perfect kind of solder for electronics:

60/40 rosin core,

0.031” diameter

3 Safety Tips…

Safety Tip #1:

Hot !!

Safety Tip #2:

Lead (Pb) is toxic

Safety Tip #3:

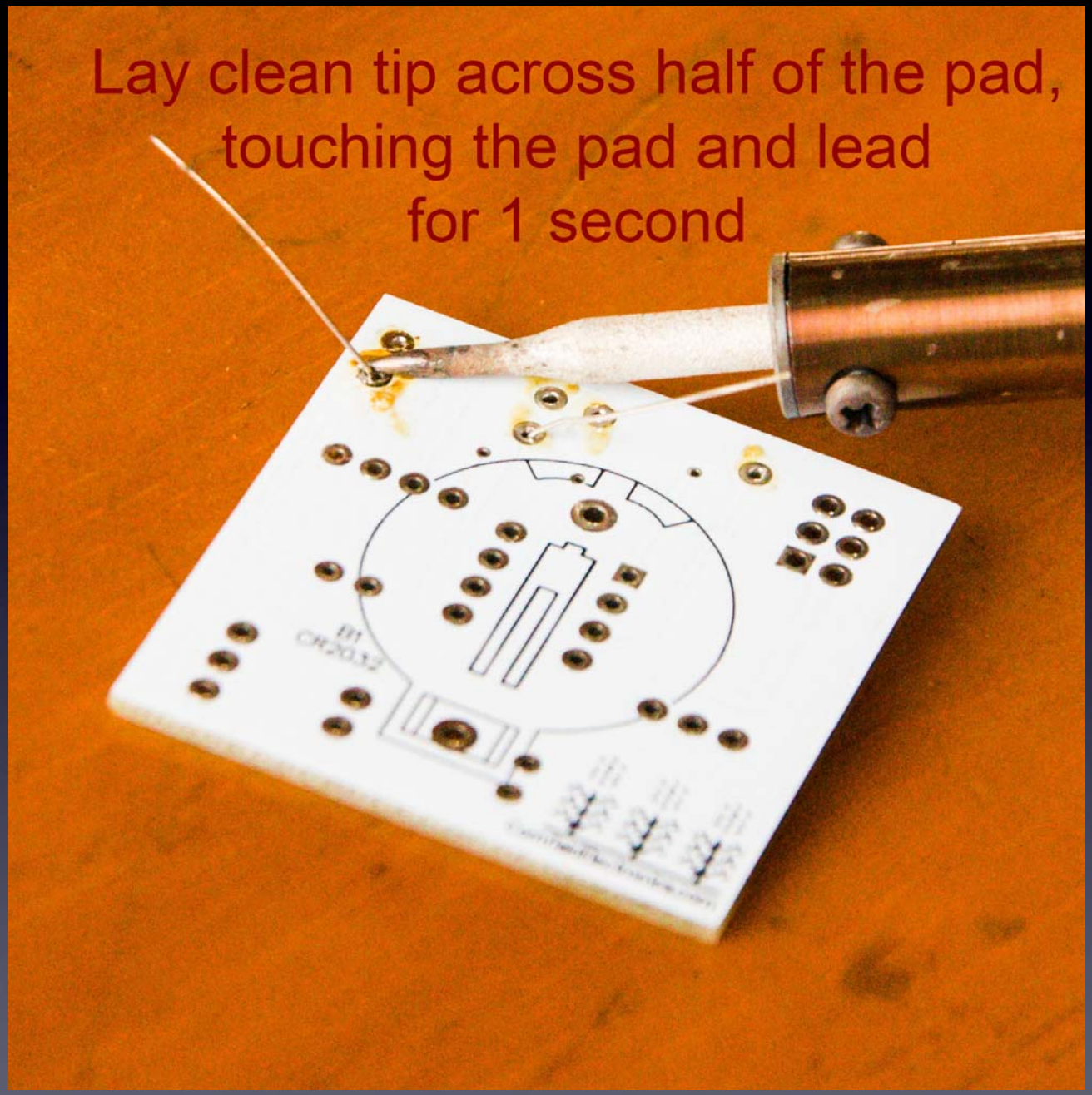
(coming soon)

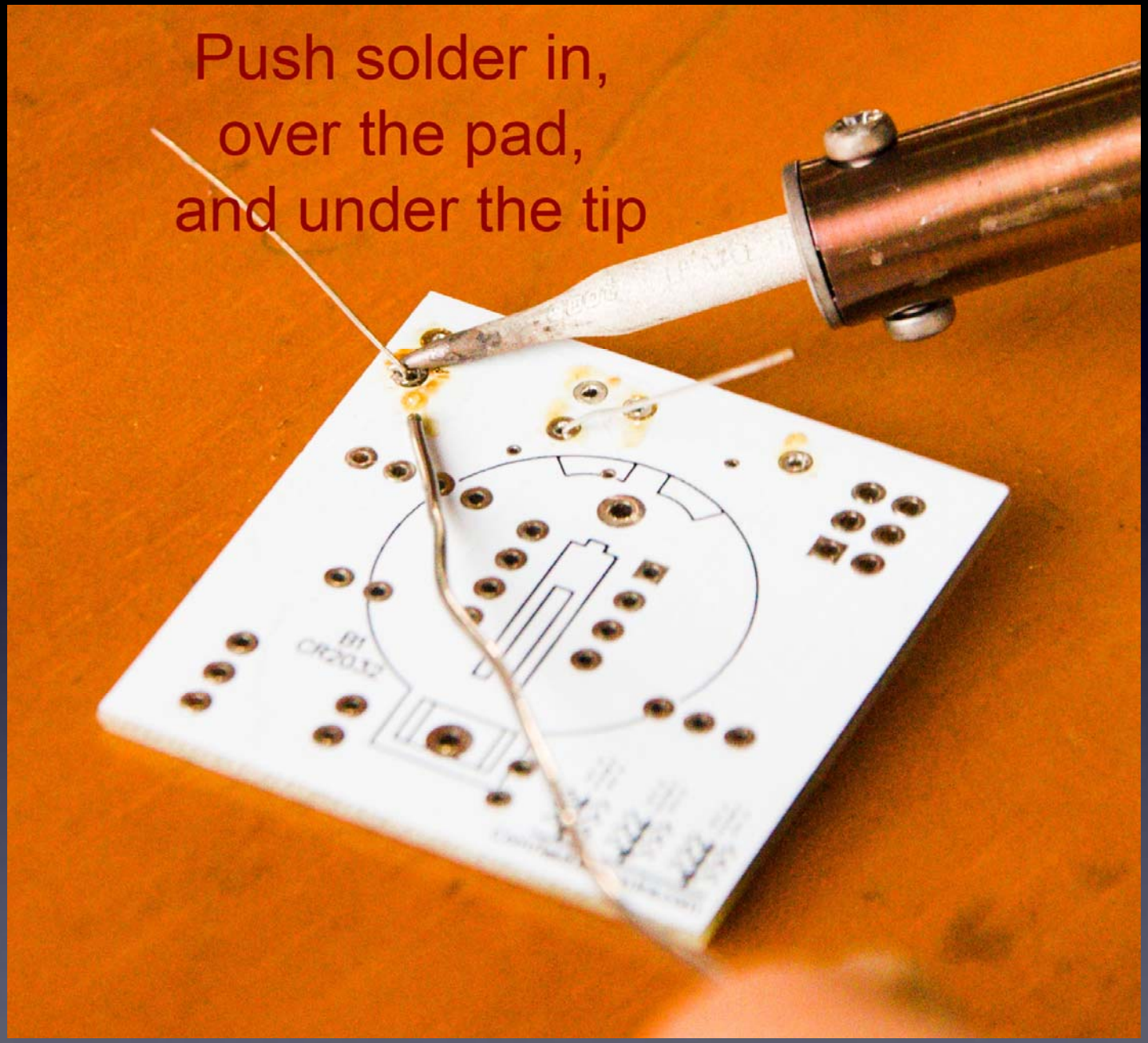
2 secrets
to good soldering…

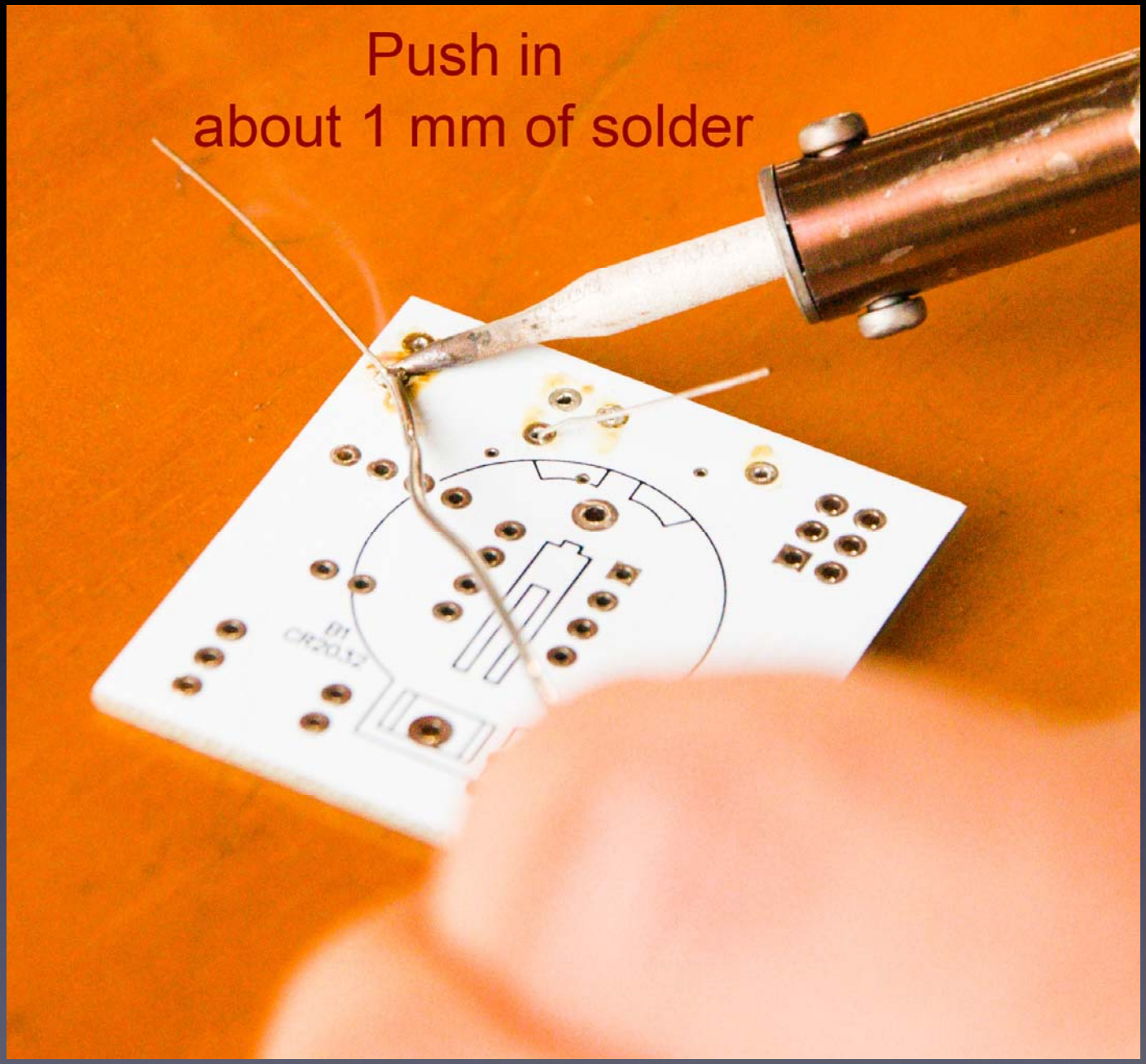
Secret #1:

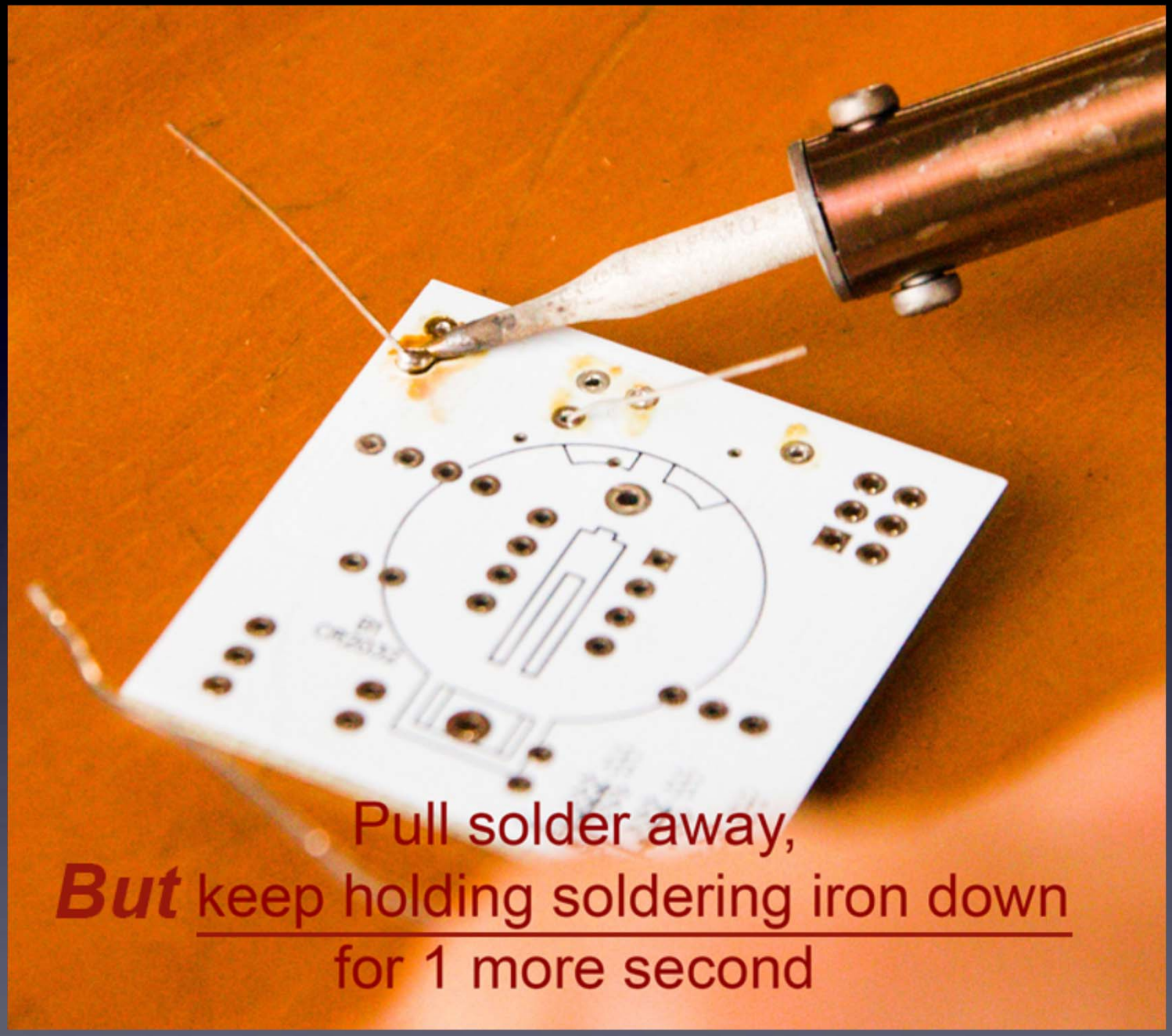
Clean the tip!

Bang 3 times,
Swipe, Rotate, Swipe


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

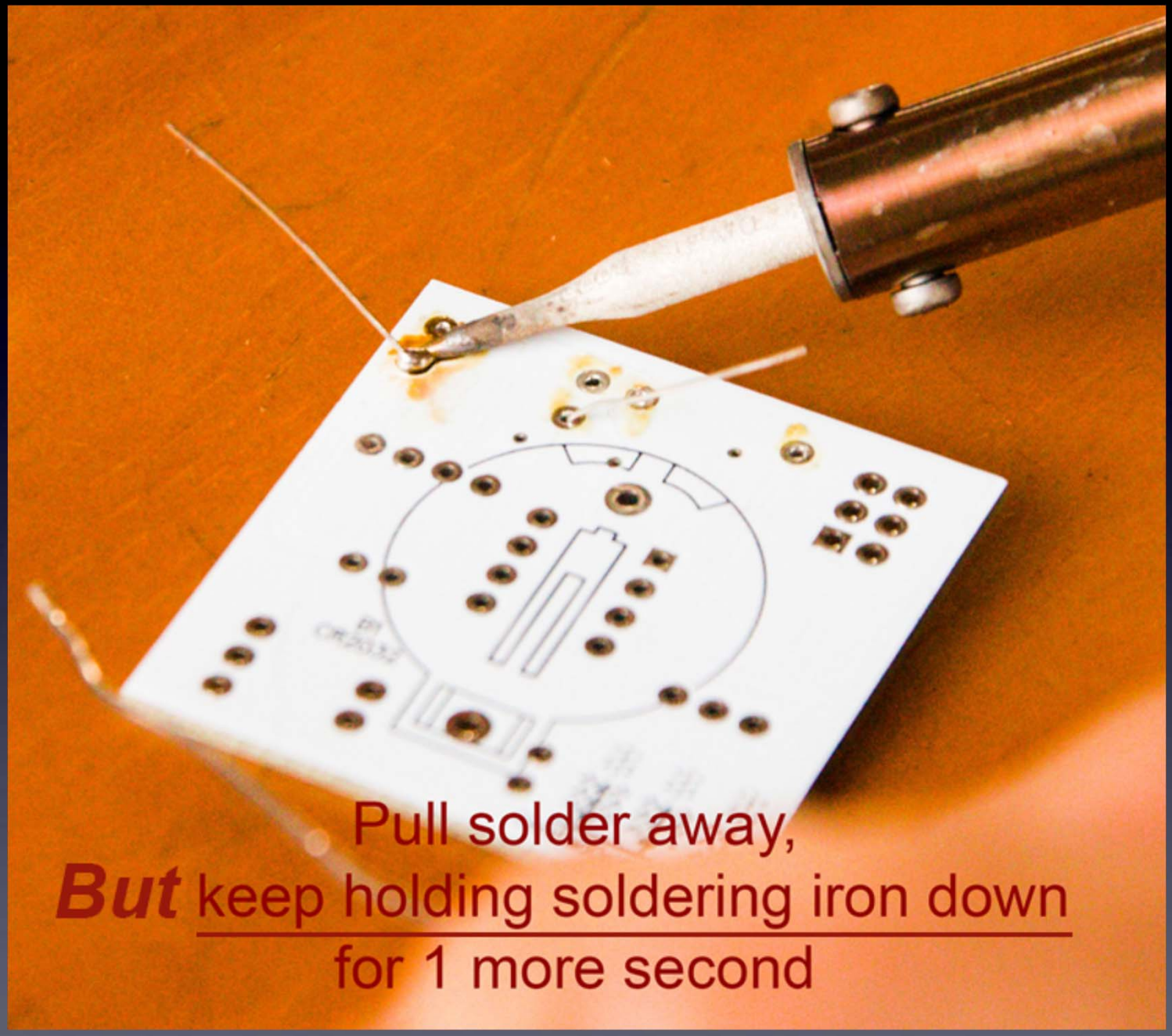

Push solder in,
over the pad,
and under the tip

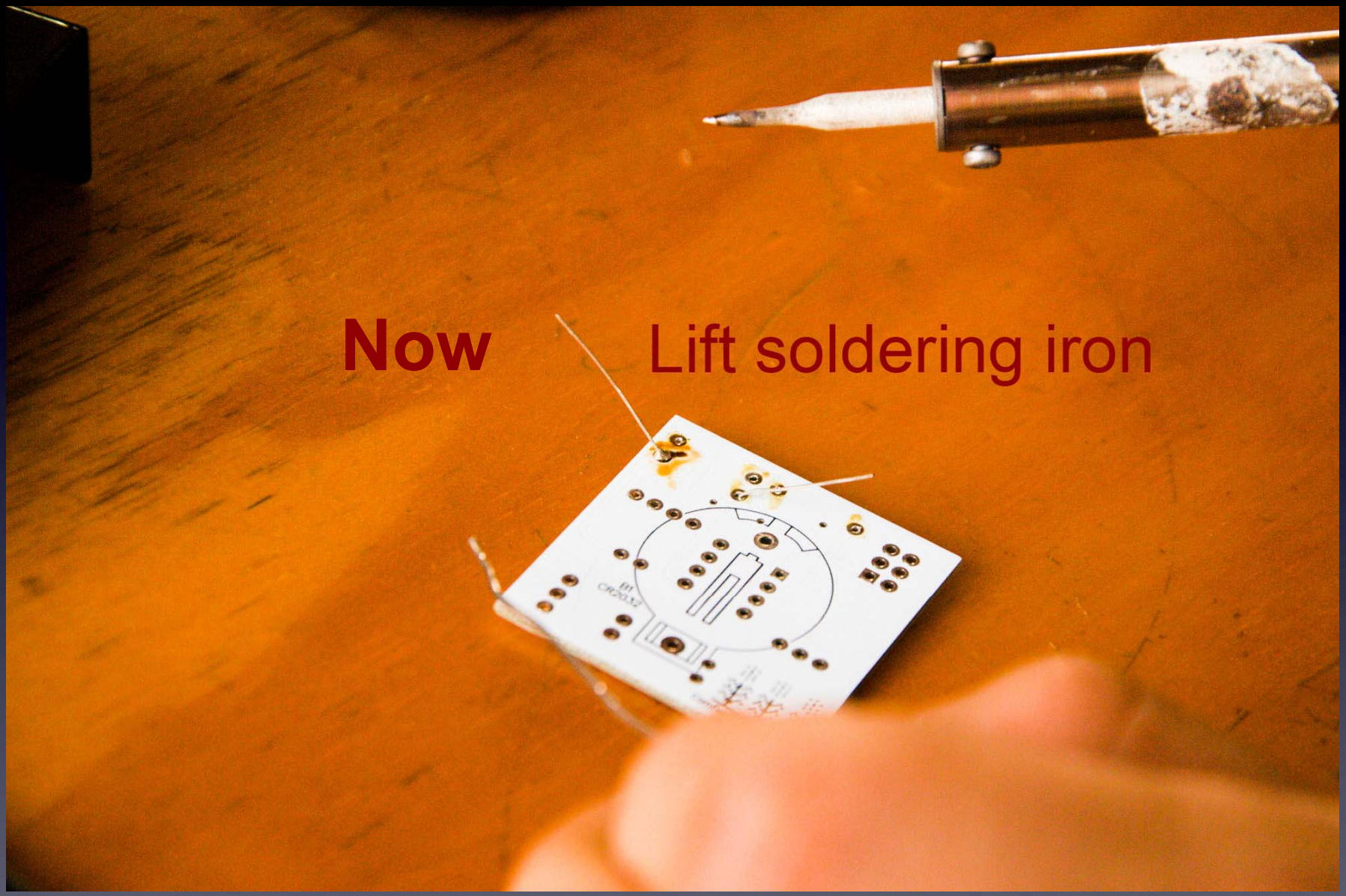

Push in
about 1 mm of solder

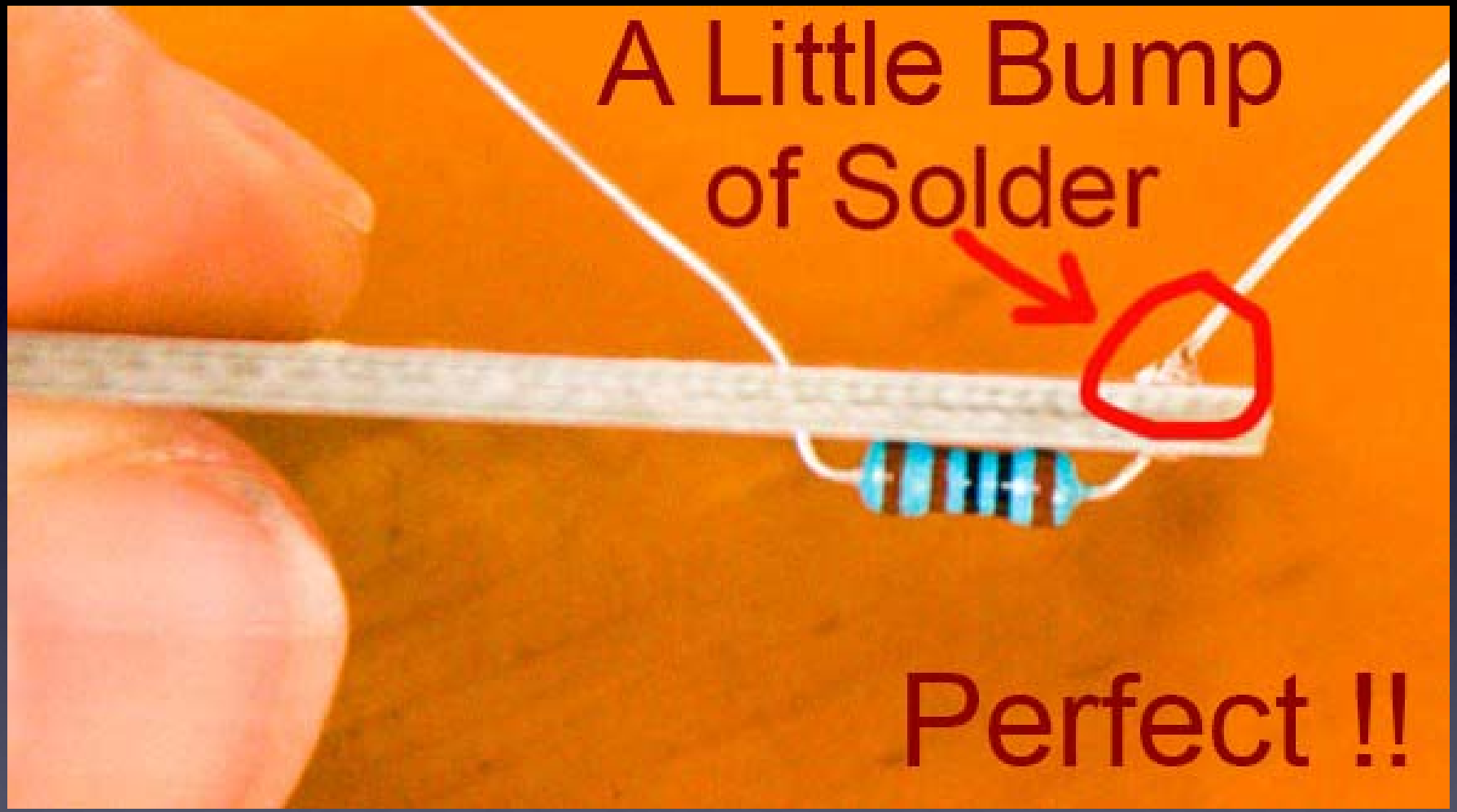

Pull solder away,
But keep holding soldering iron down
for 1 more second

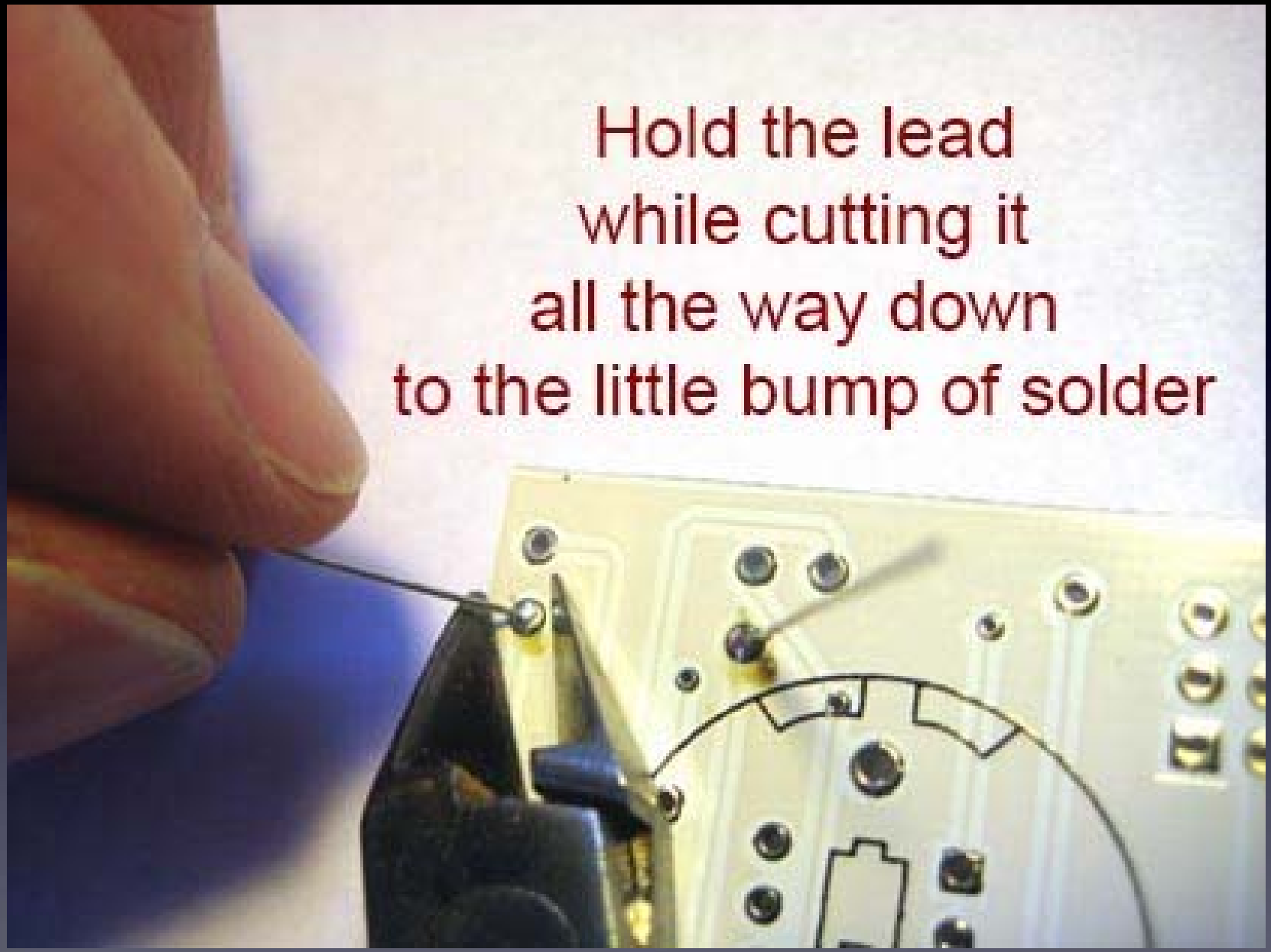
Secret #2:

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


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


Now
Lift soldering iron


A Little Bump
of Solder
Perfect !!


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

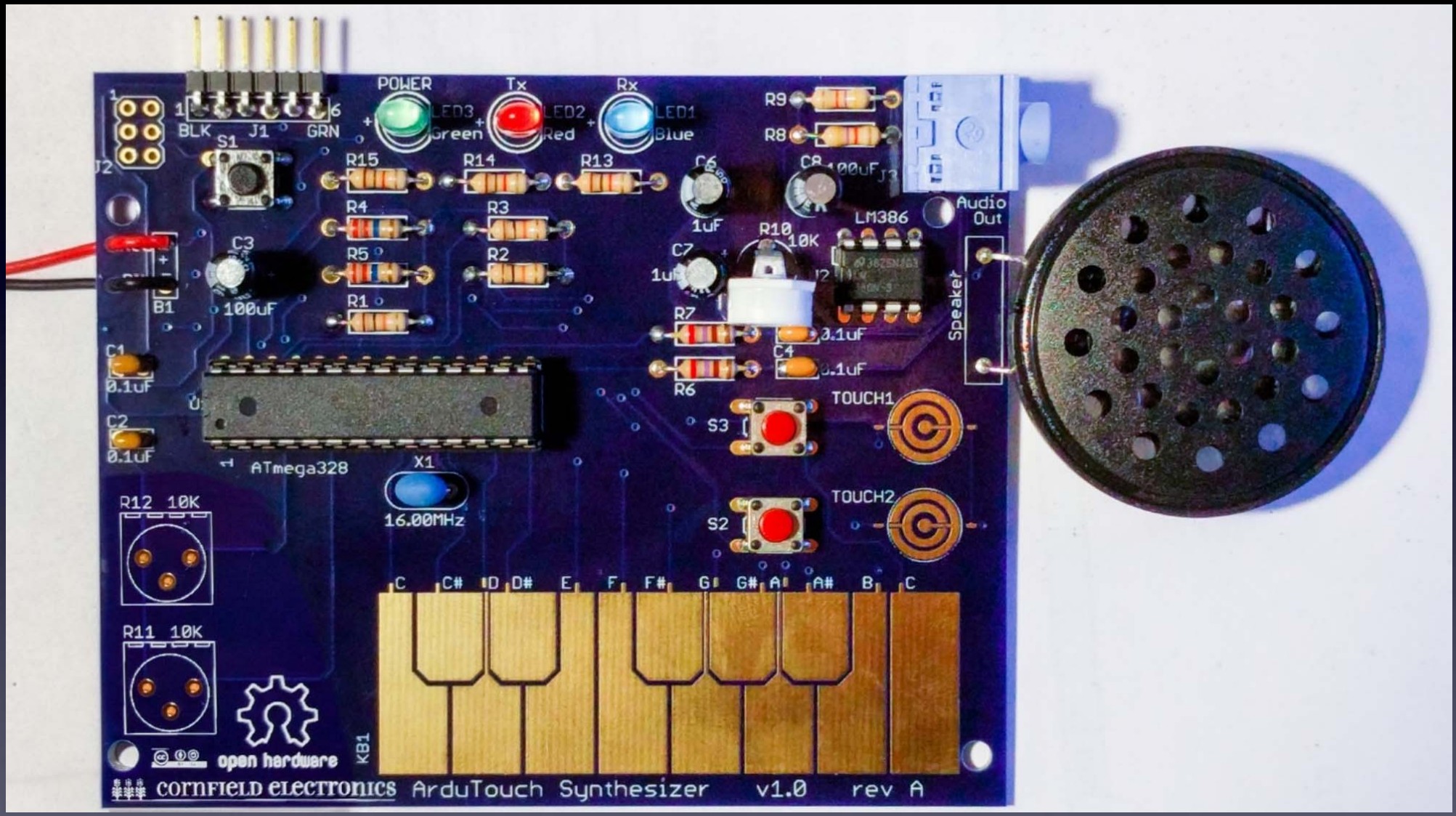
Safety Tip #3:

Hold or cover the lead !

All done !

One part at a time

Till all the parts are soldered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Audio Out
Speaker
TOUCH1
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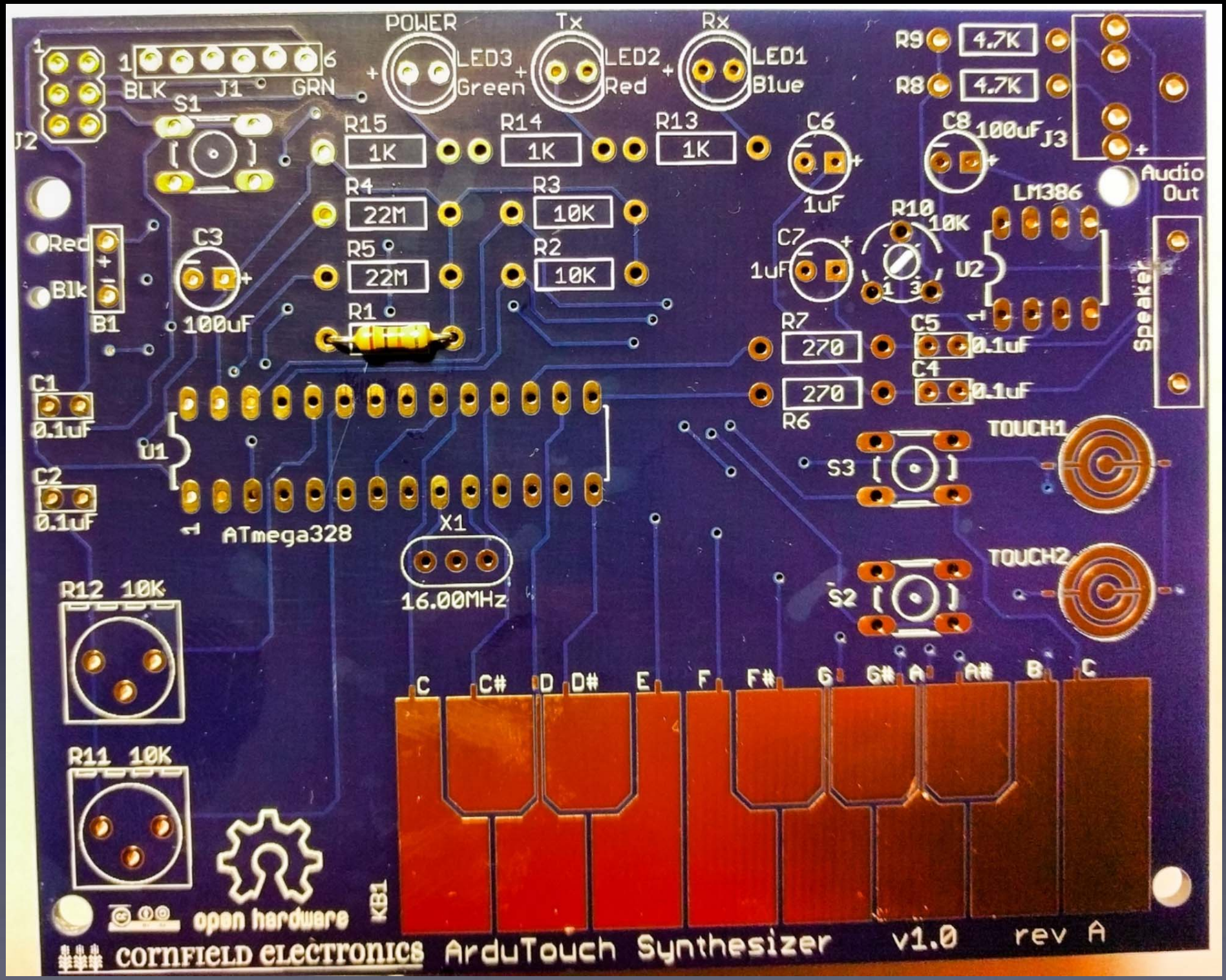
C C# D D# E F F# G G# A A# B C
KB1
open hardware
CORNFIELD ELECTRONICS ArduTouch Synthesizer v1.0 rev A


POWER
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LED3 Green
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BLK
GRN
S1
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R8 4.7K
C6 1uF
C8 100uF
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R2 10K
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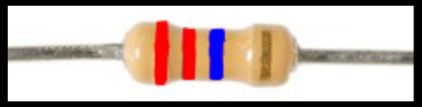
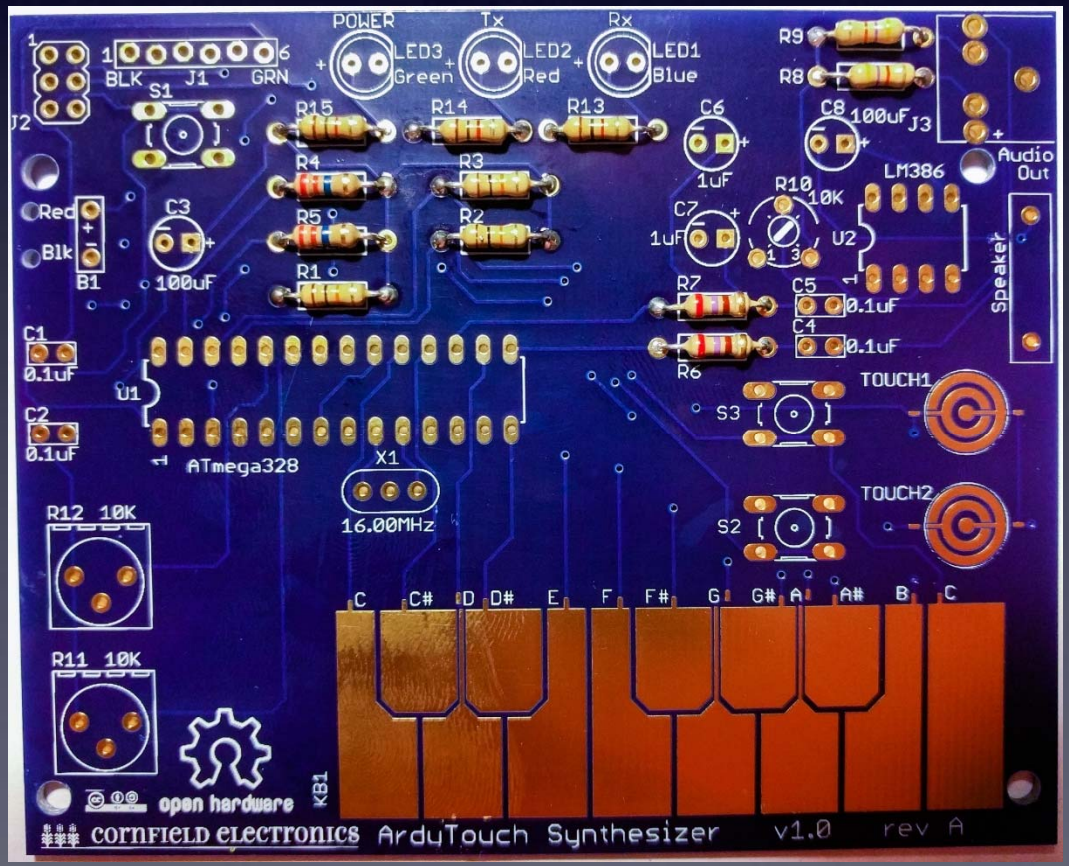
R1, R2, R3: 10K: Brown, Black, Orange

R4, R5:  22M: Red, Red, Blue

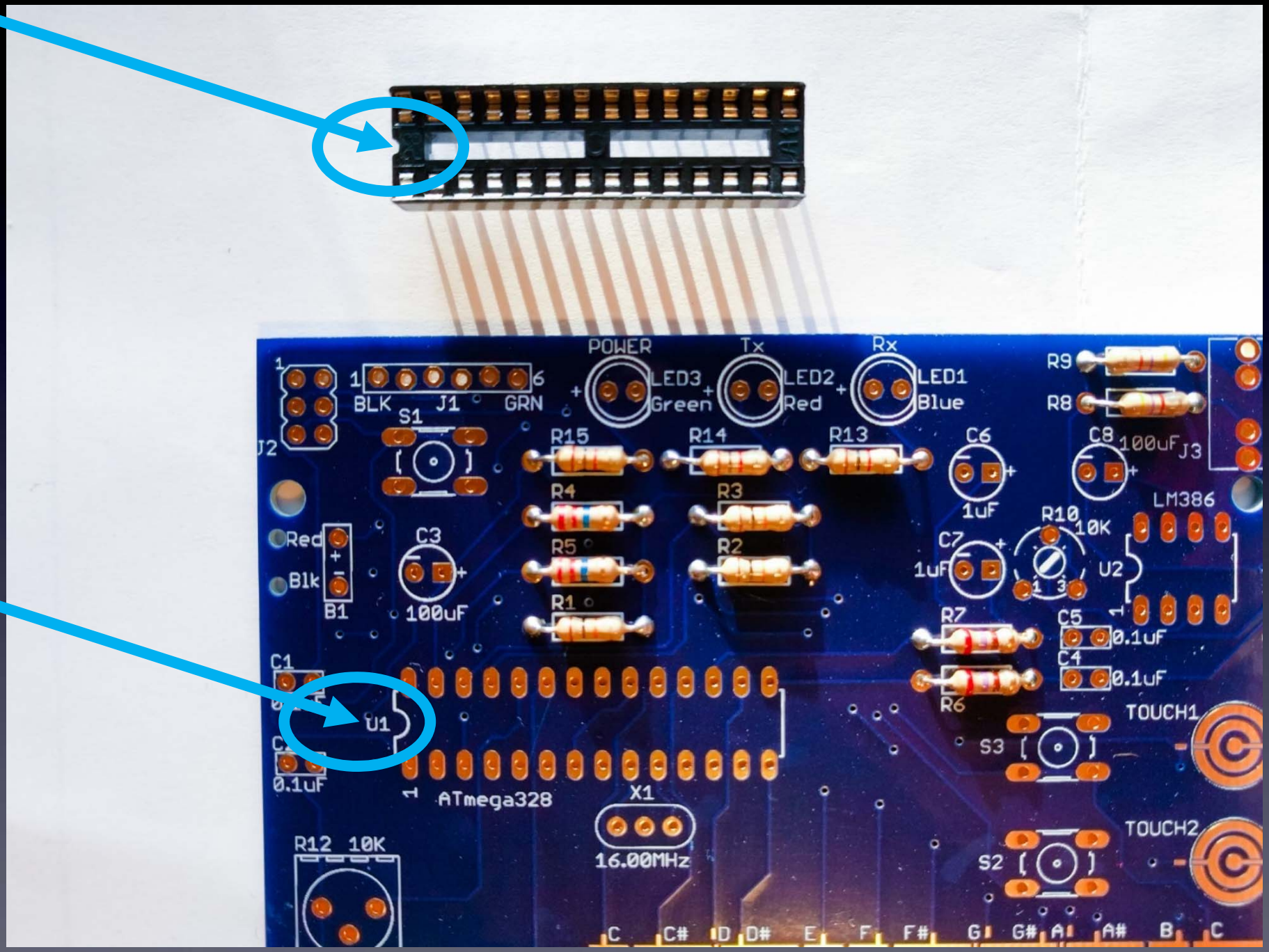
R6, R7: 270: Red, Violet, Brown

R8, R9: 4.7K: Yellow, Violet, Red

R13, R14, R15: 1K: Brown, Black, Red



U1: microcontroller socket



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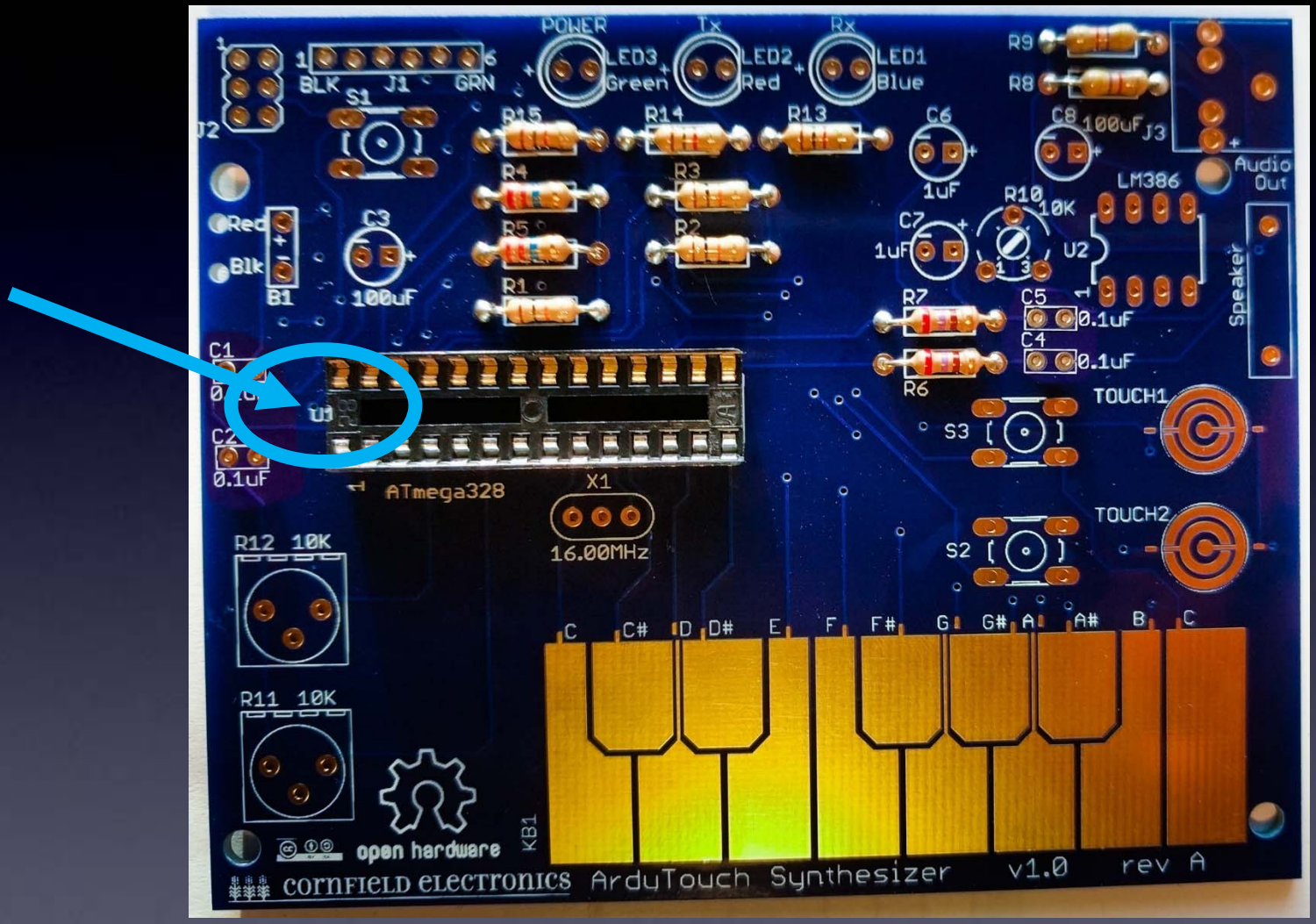

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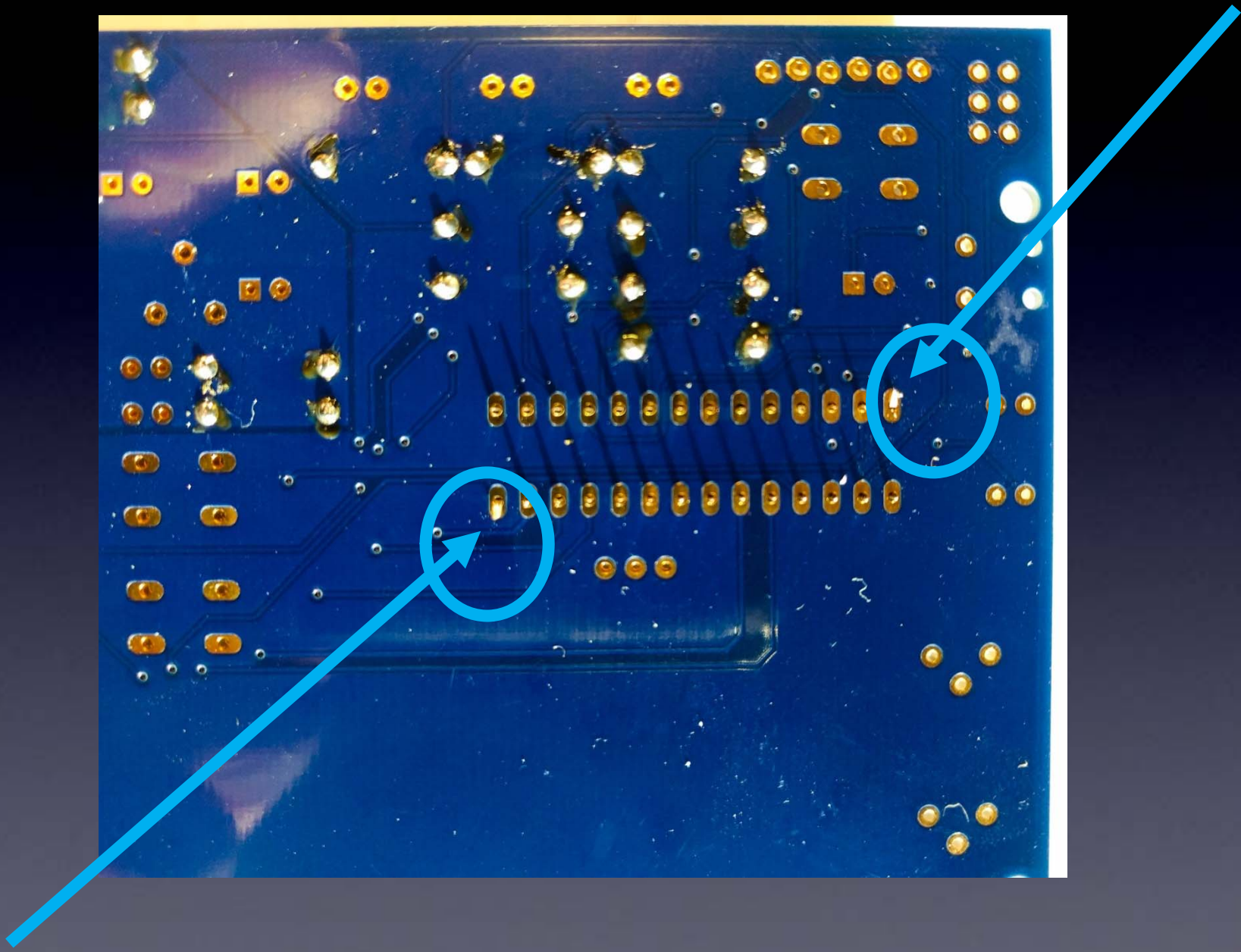

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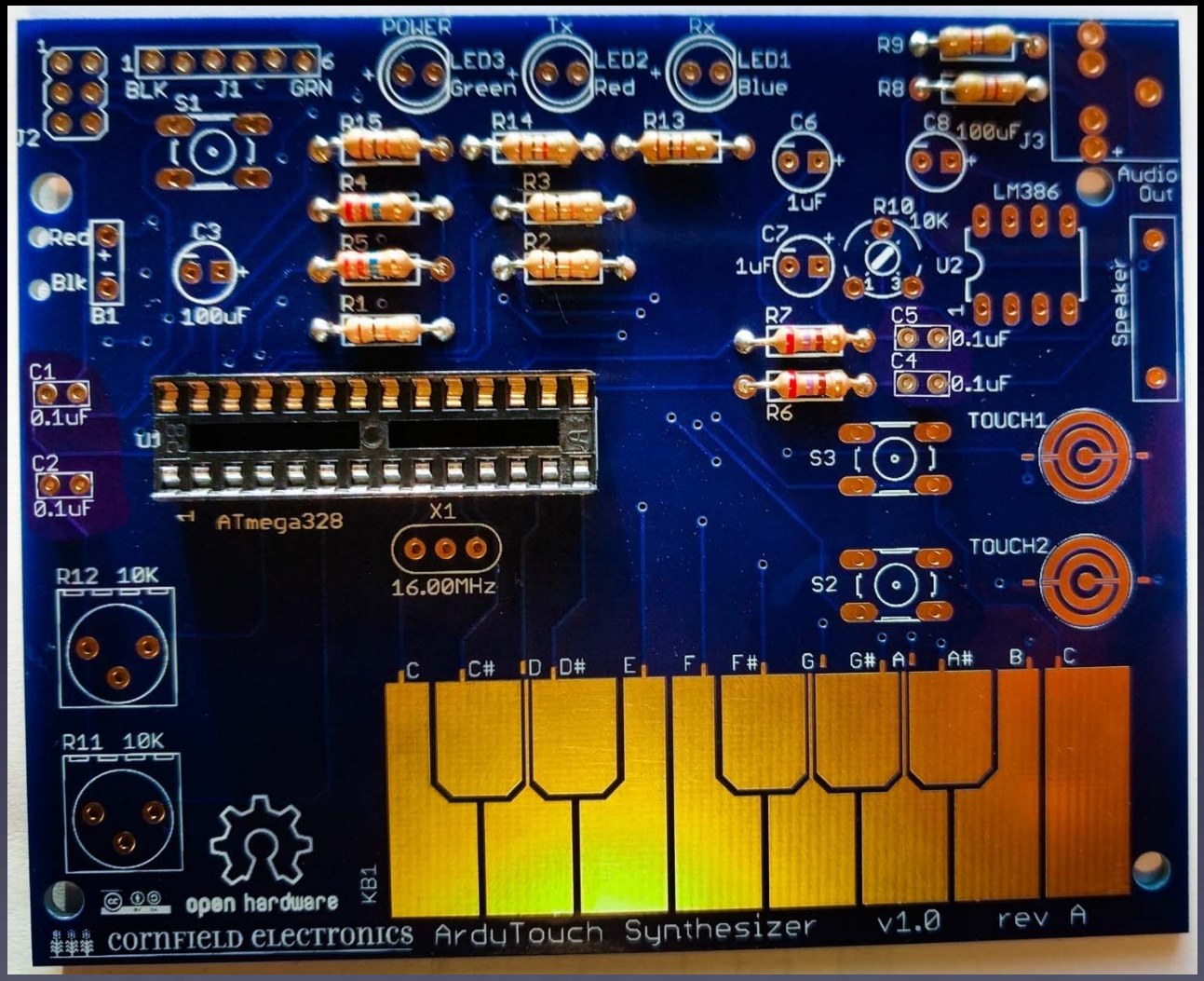

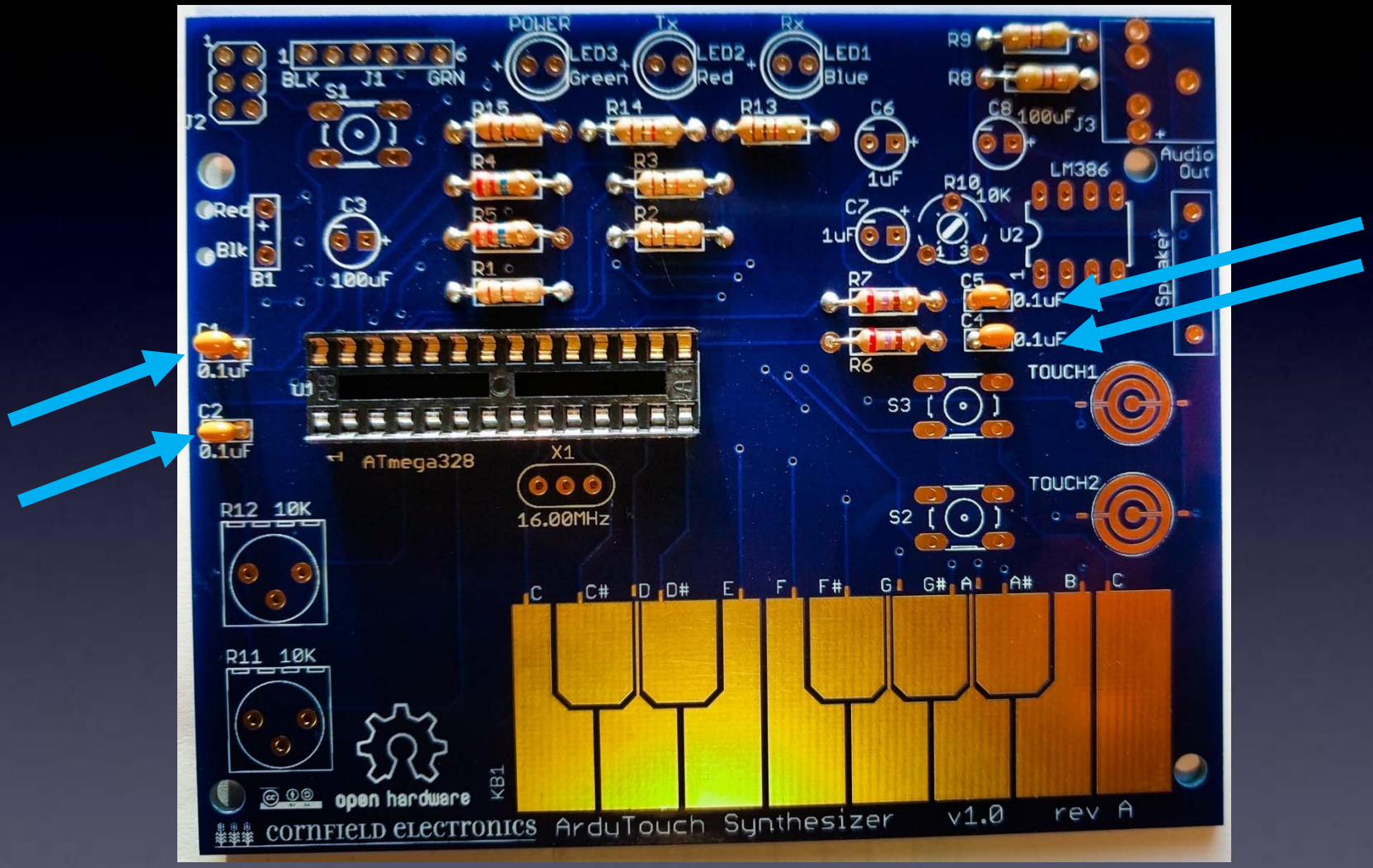
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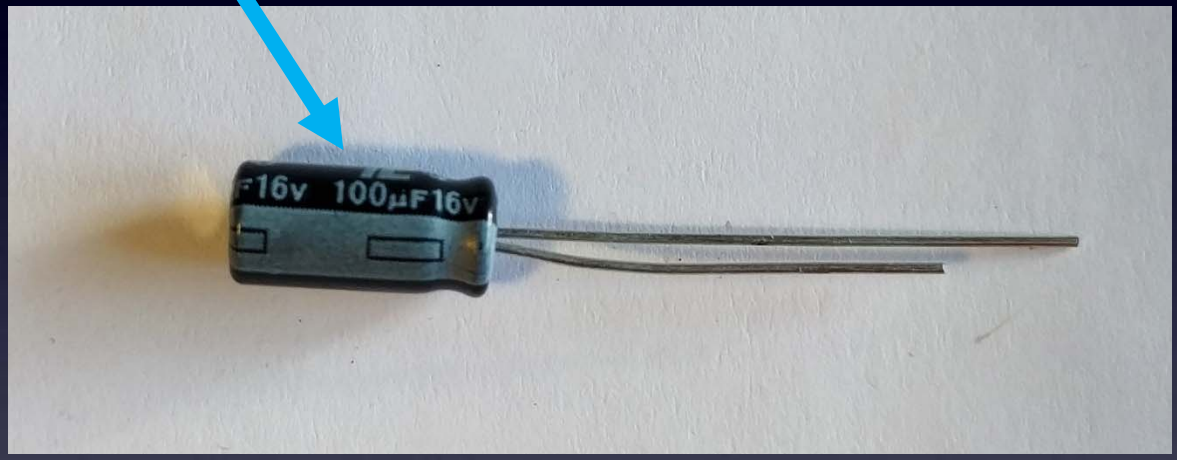
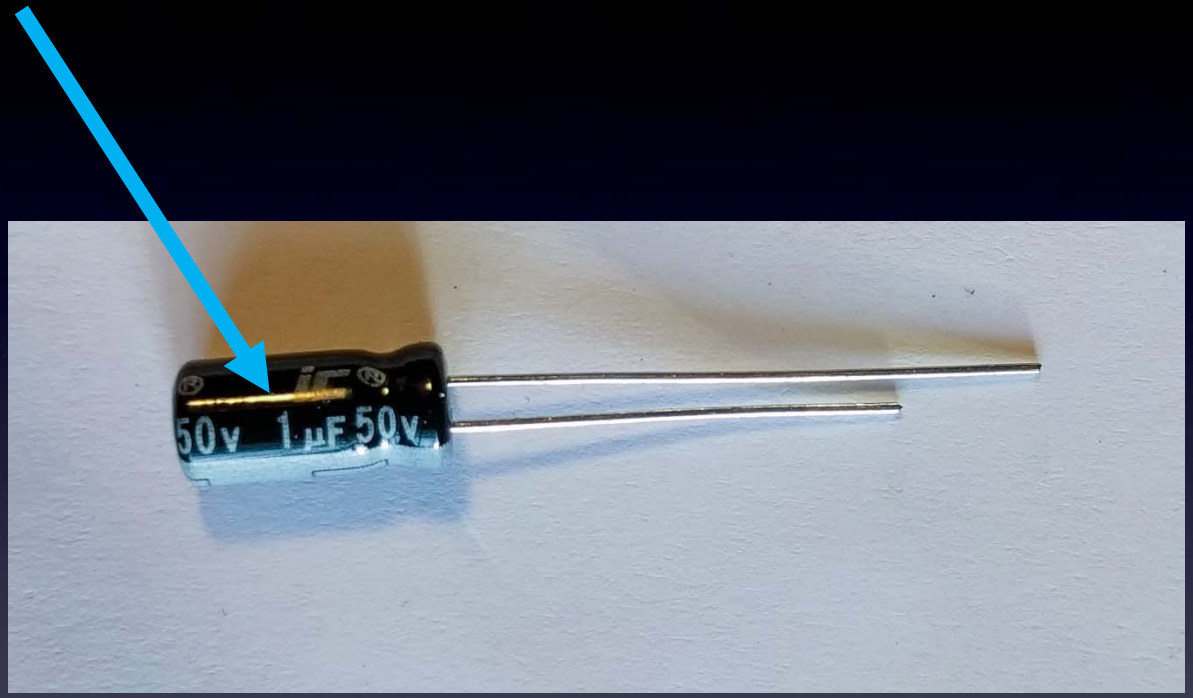
open hardware
CORNFIELD ELECTRONICS ArduTouch Synthesizer v1.0 rev A

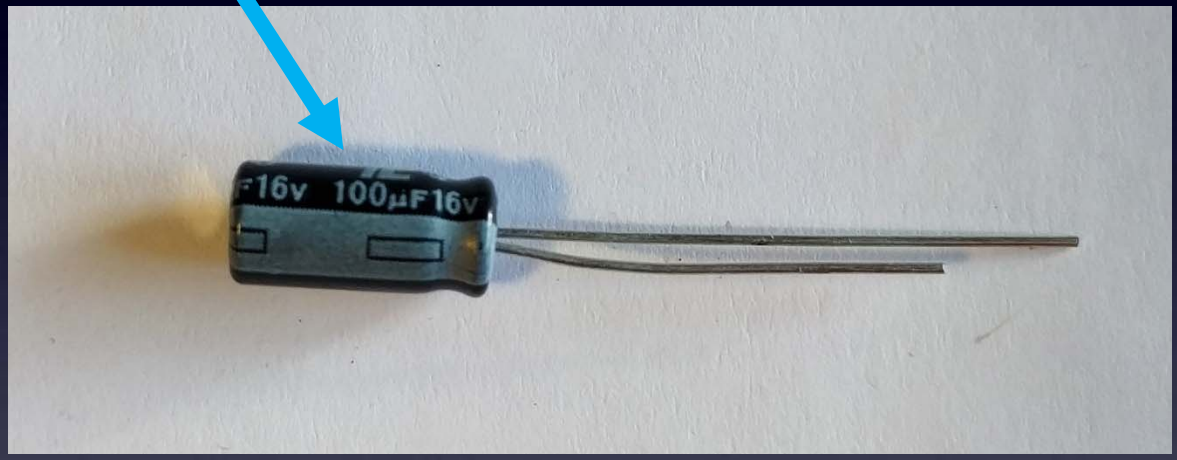
C1, C2, C4, C5



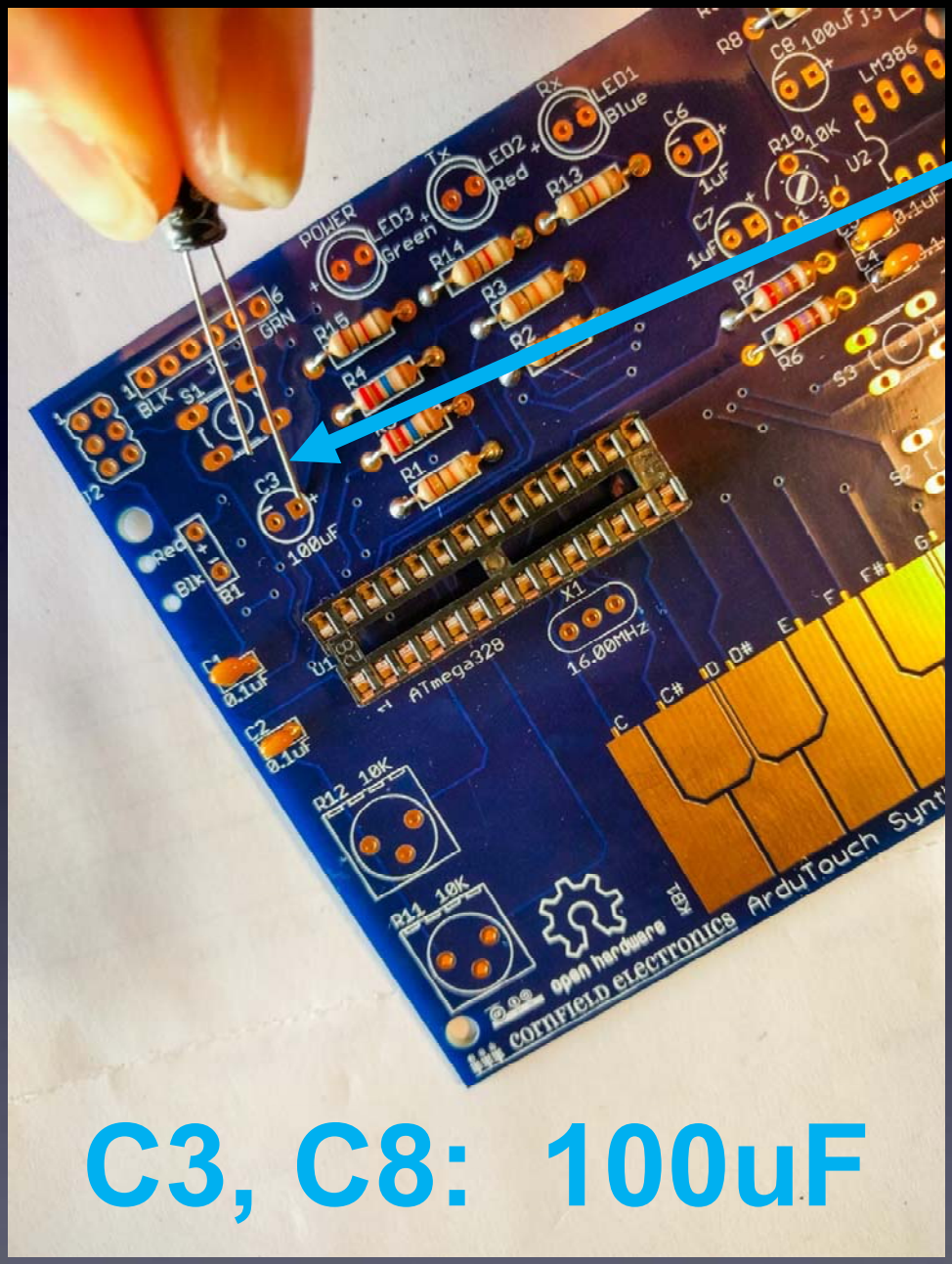
C3, C8: 100uF



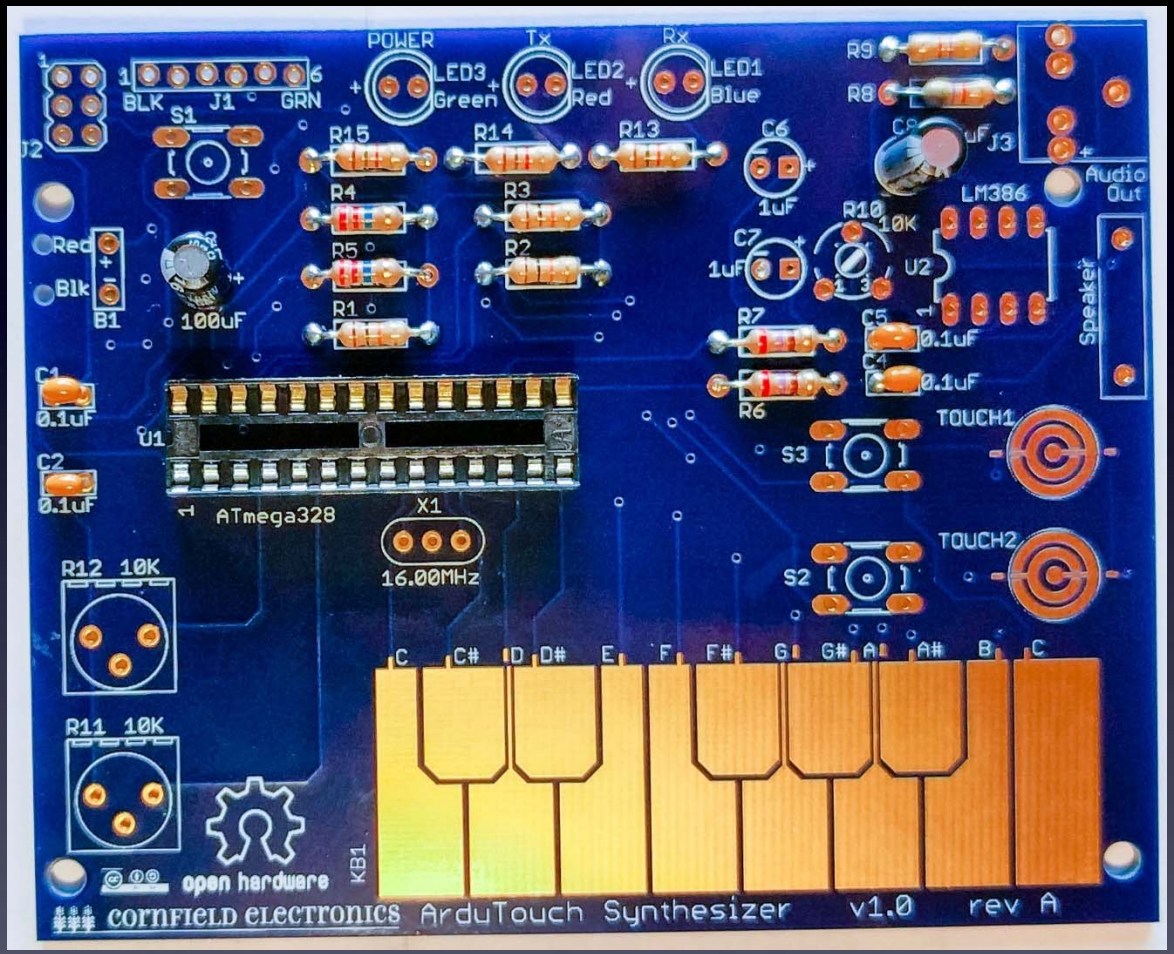
C6, C7: 1uF



C3, C8: 100uF



C3, C8:
Long Lead “+”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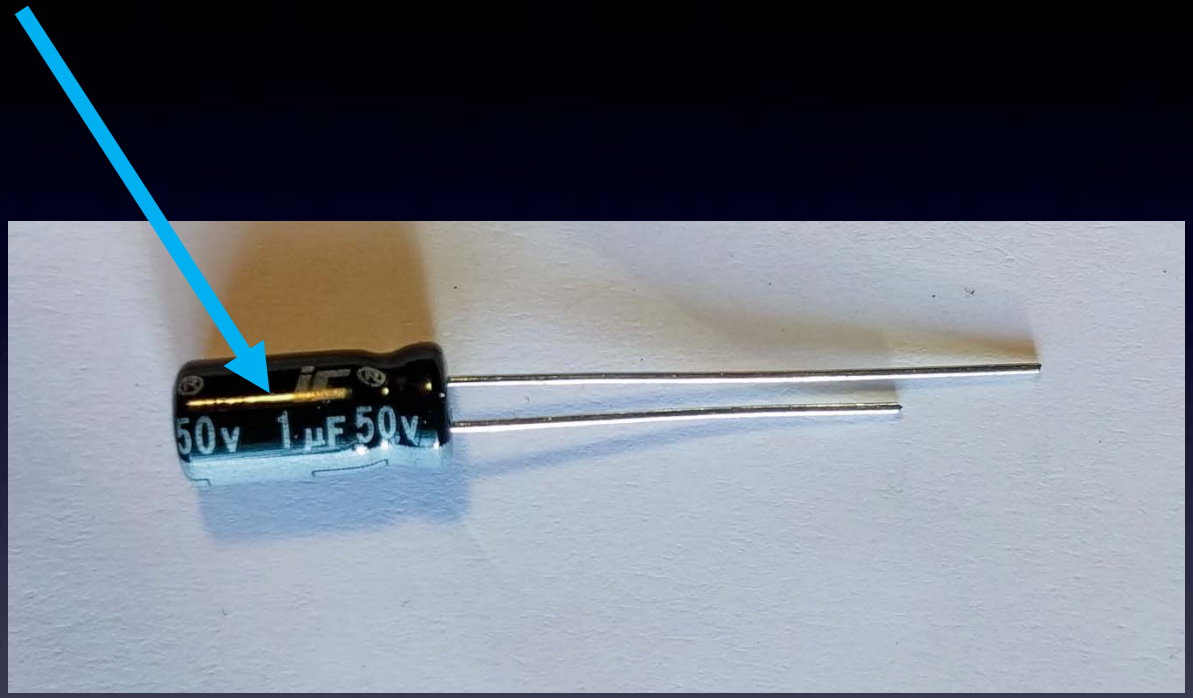
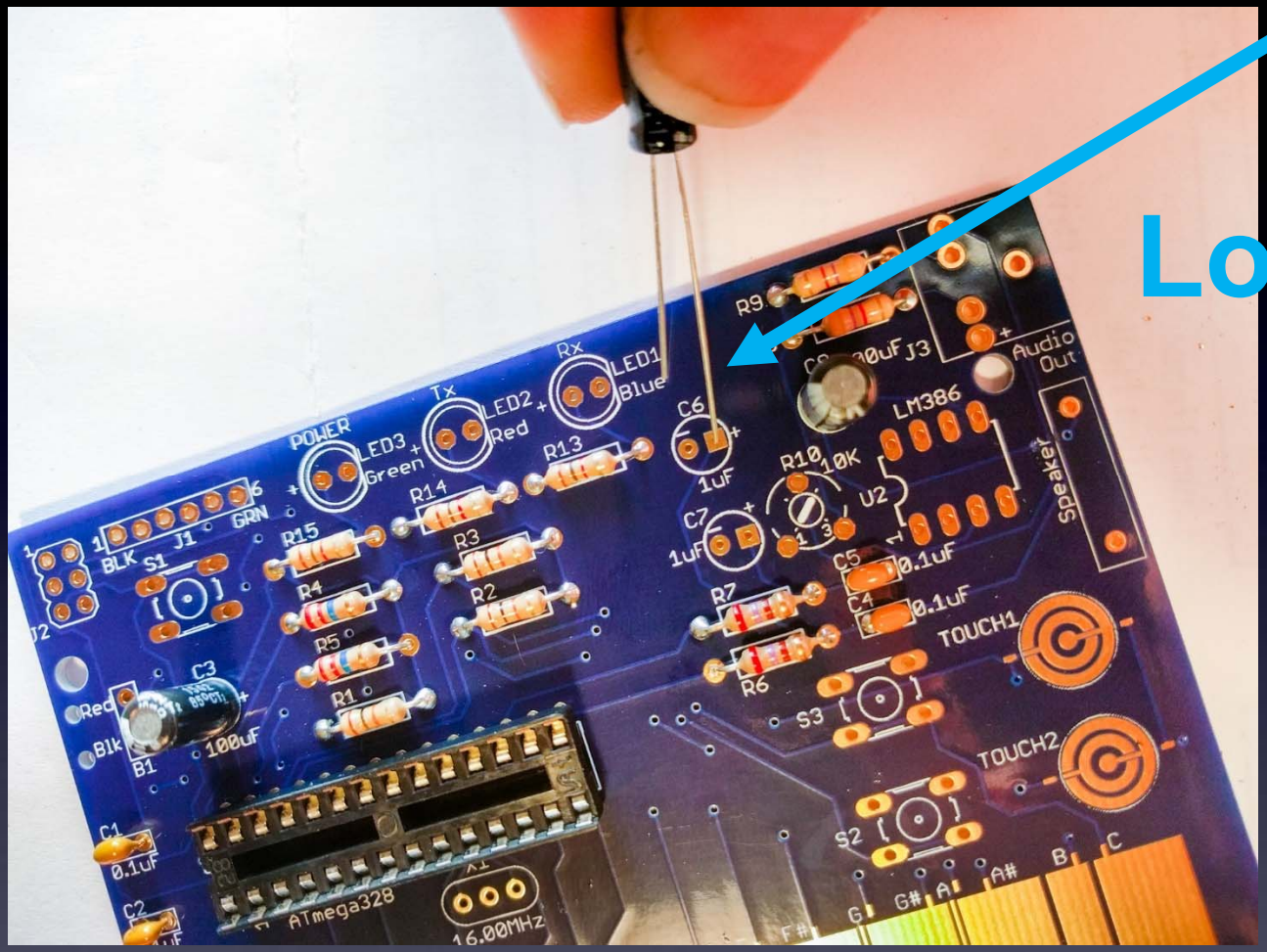
CORNFIELD ELECTRONICS ArduTouch Synthesizer v1.0 rev A

C3, C8: 100uF

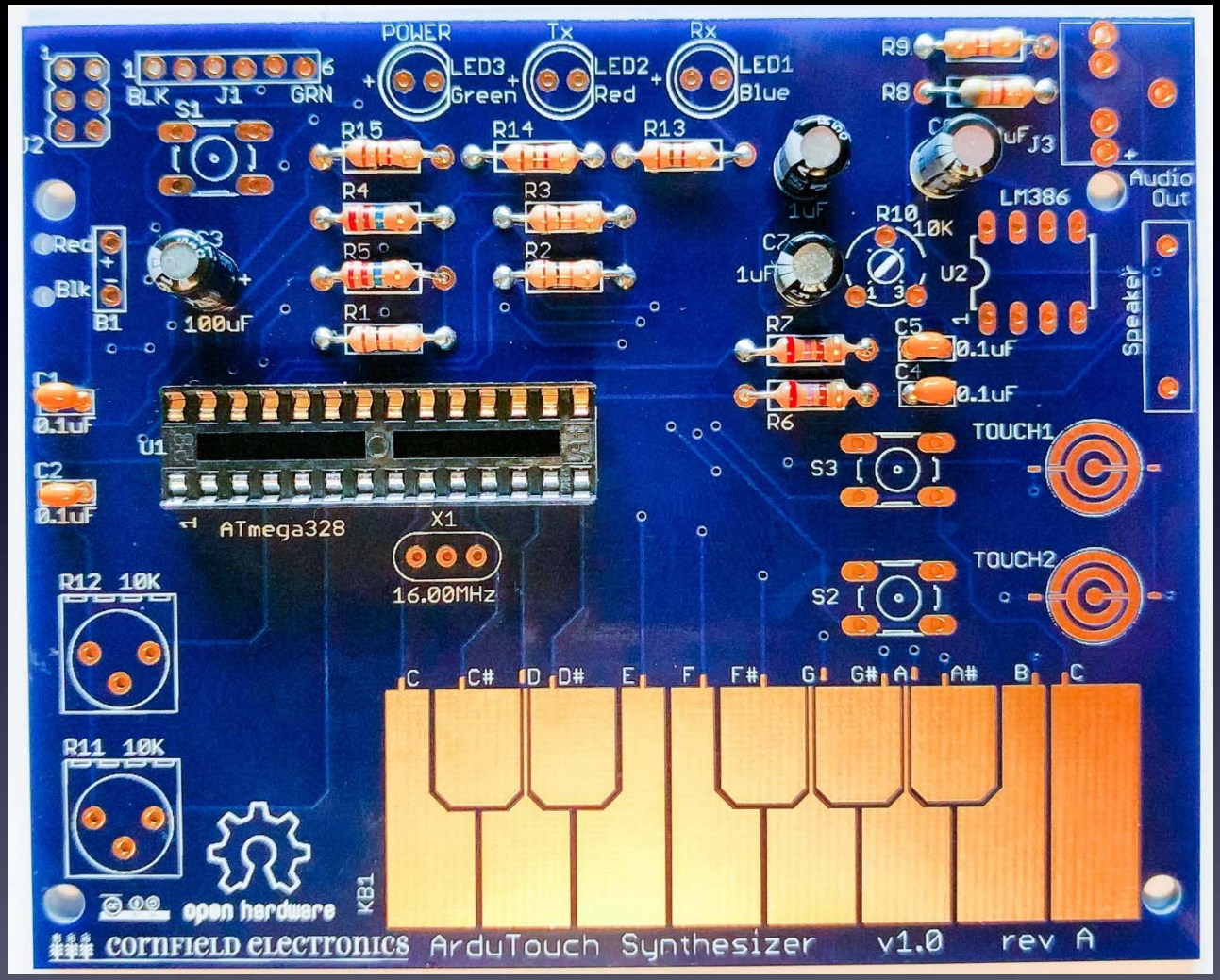


C6, C7: 1uF



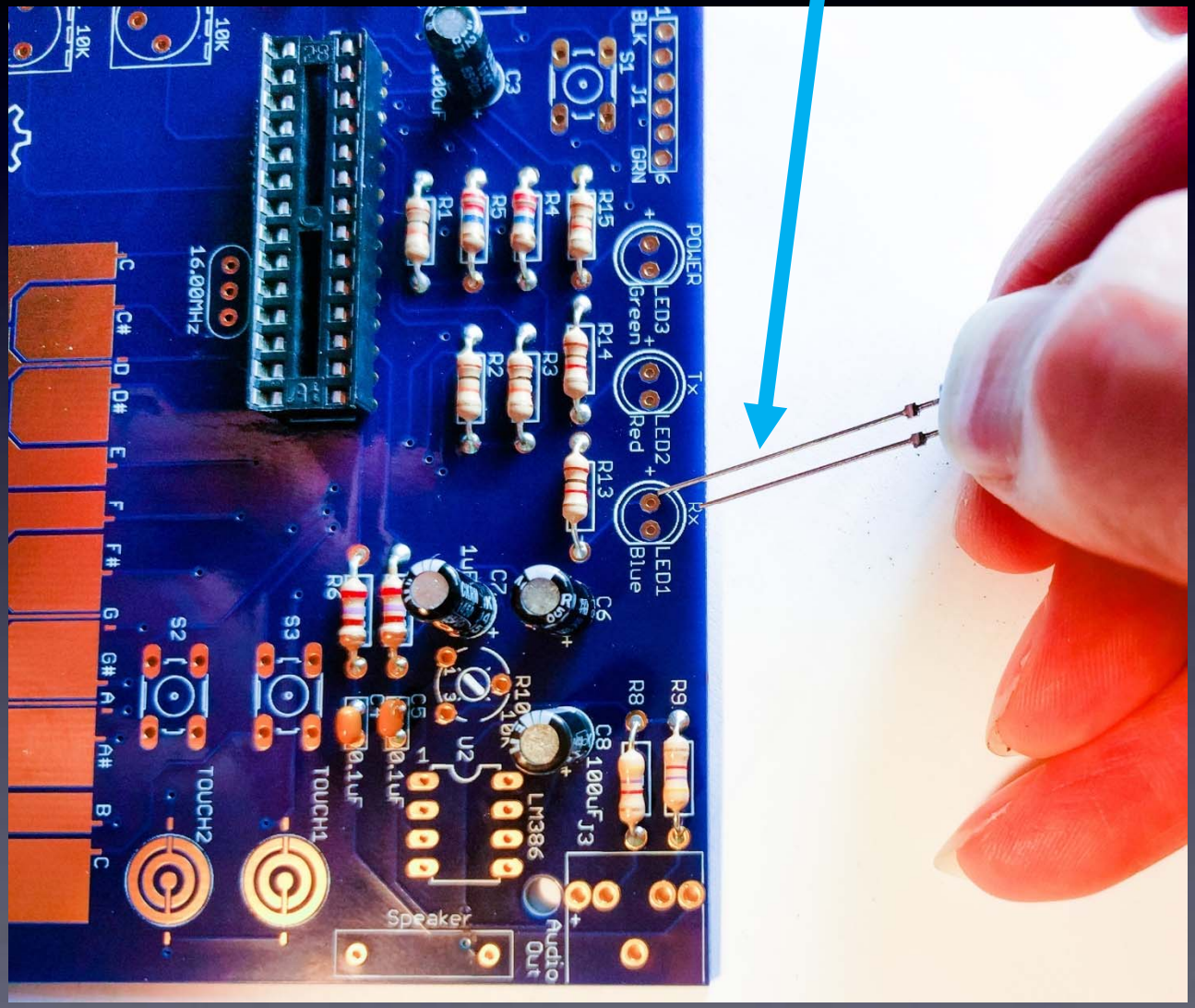
C6, C7: Long Lead “+”

C6, C7: 1uF


POWER
Tx
Rx
LED3 Green
LED2 Red
LED1 Blue
BLK
J1
GRN
S1
R15
R14
R13
R4
R3
R5
R2
R1
S3
100uF
Red
Blk
B1
1uF
C7
1uF
R10 10K
LM386
U2
R9
R8
J3
Audio Out
Speaker
R7
C5 0.1uF
C4 0.1uF
R6
C1 0.1uF
C2 0.1uF
U1
ATmega328
X1
16.00MHz
S3
TOUCH1
S2
TOUCH2
R12 10K
R11 10K
C C# D D# E F F# G G# A A# B C
KB1
open hardware
CORNFIELD ELECTRONICS
ArduTouch Synthesizer
v1.0
rev A

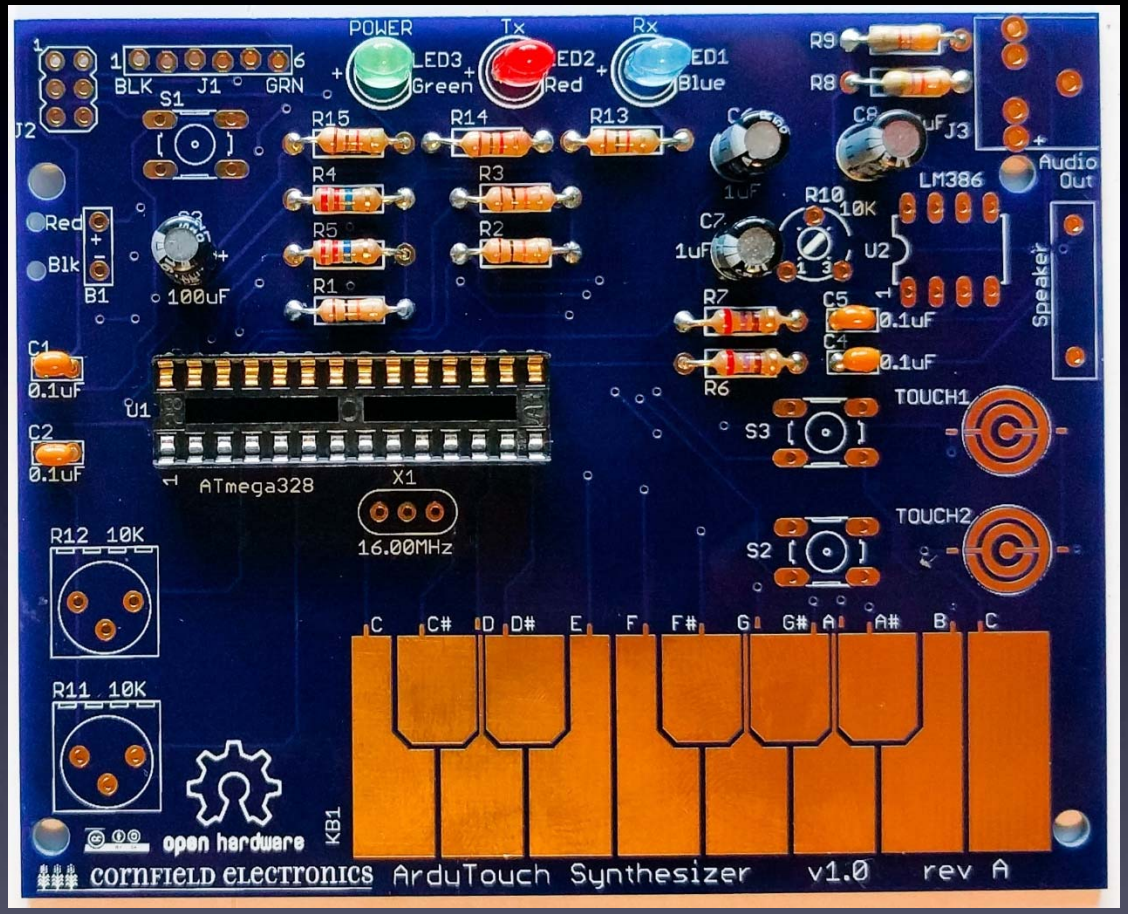
C6, C7: 1uF

LED1, LED2, LED3: Long Lead “+”



Save these leads

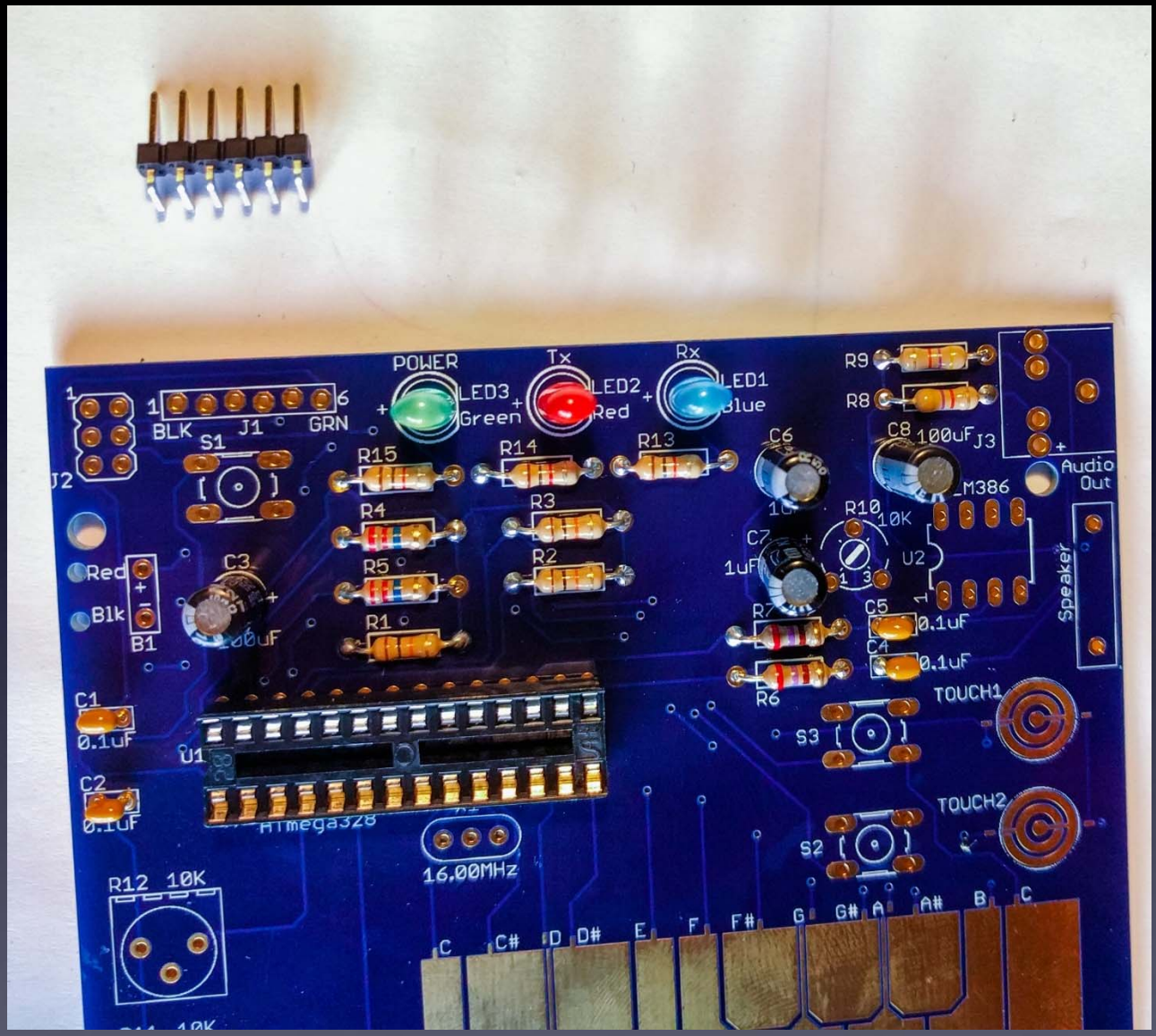
We’ll use them for the speaker



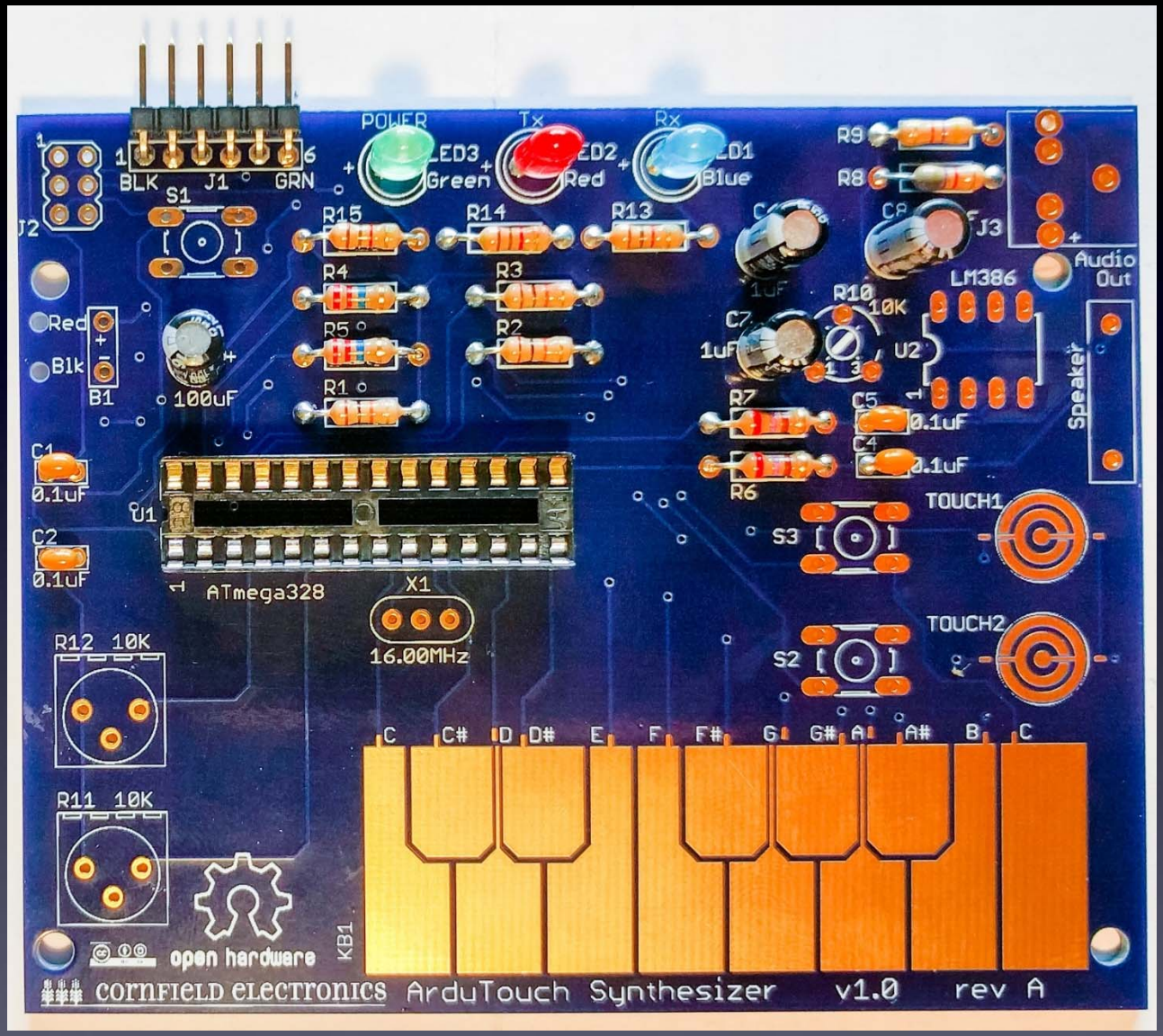
LED1, LED2, LED3

J1

Short leads into board



J1


POWER
Tx
Rx
LED3
Green
LED2
Red
LED1
Blue
BLK
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R15
R14
R13
R9
R8
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Audio
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R3
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R1
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C5
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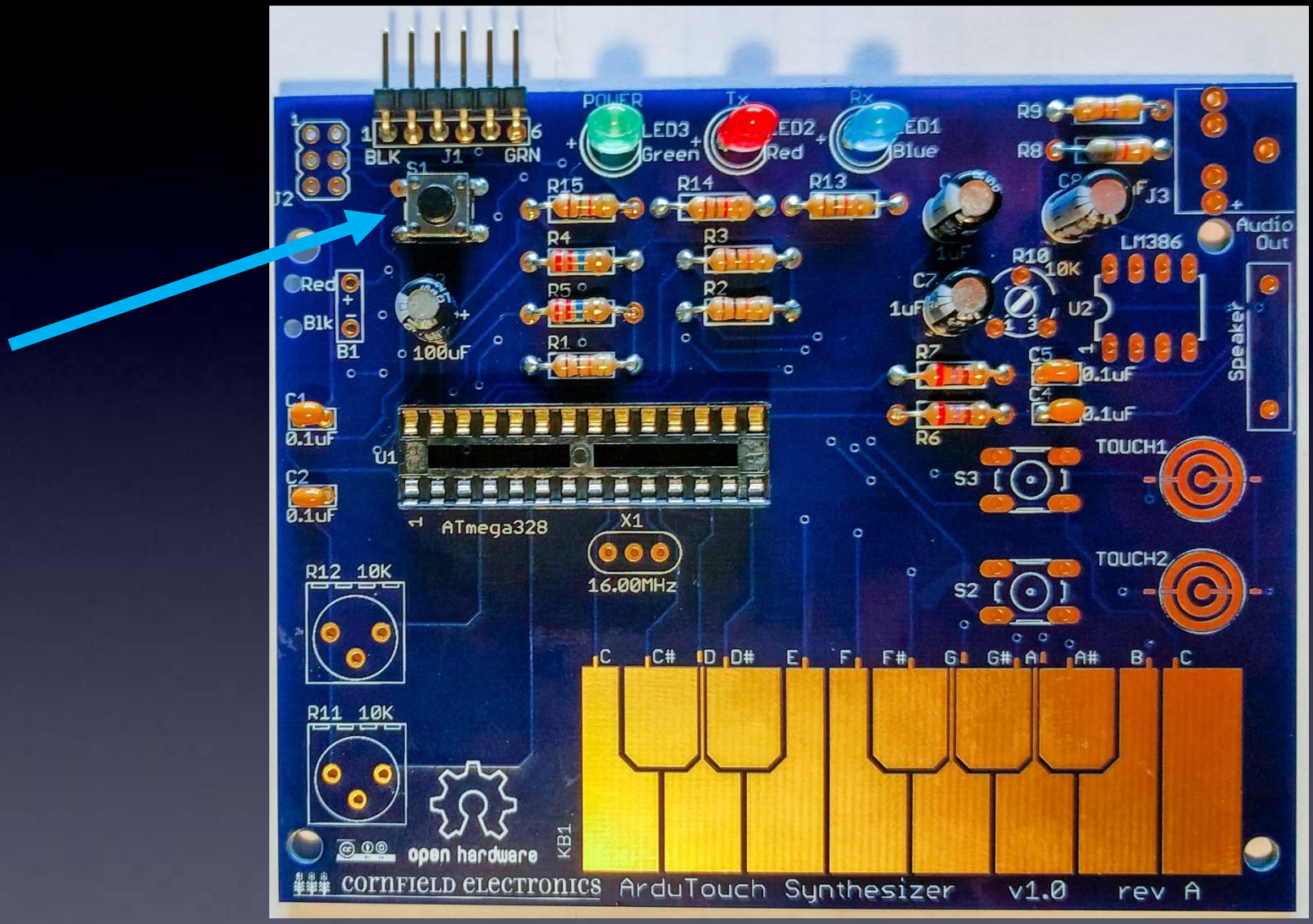
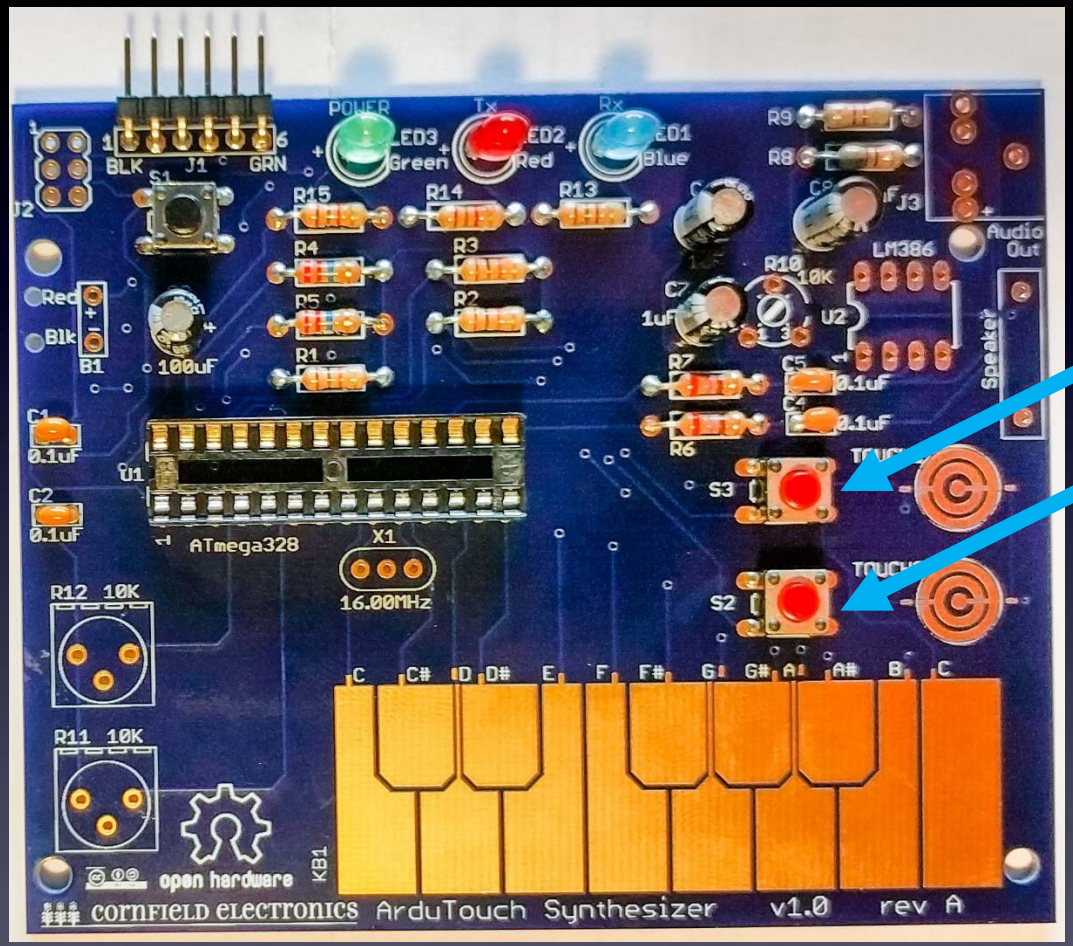
C4
0.1uF
R6
C1
0.1uF
U1
C2
0.1uF
ATmega328
X1
16.00MHz
S3
TOUCH1
S2
TOUCH2
R12 10K
R11 10K
C C# D D# E F F# G G# A A# B C
open hardware
KB1
CORNFIELD ELECTRONICS
ArduTouch Synthesizer v1.0 rev A

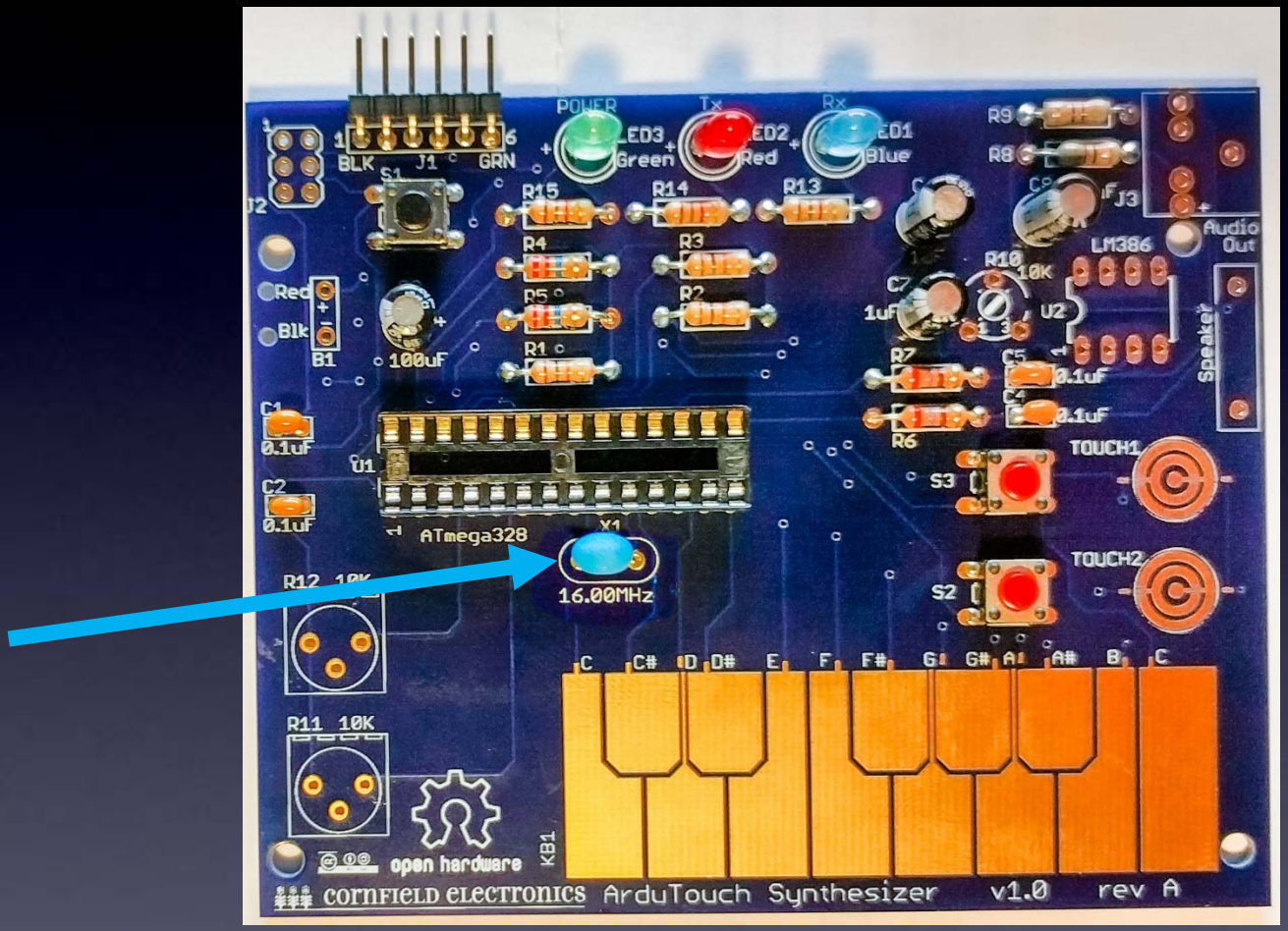
J1



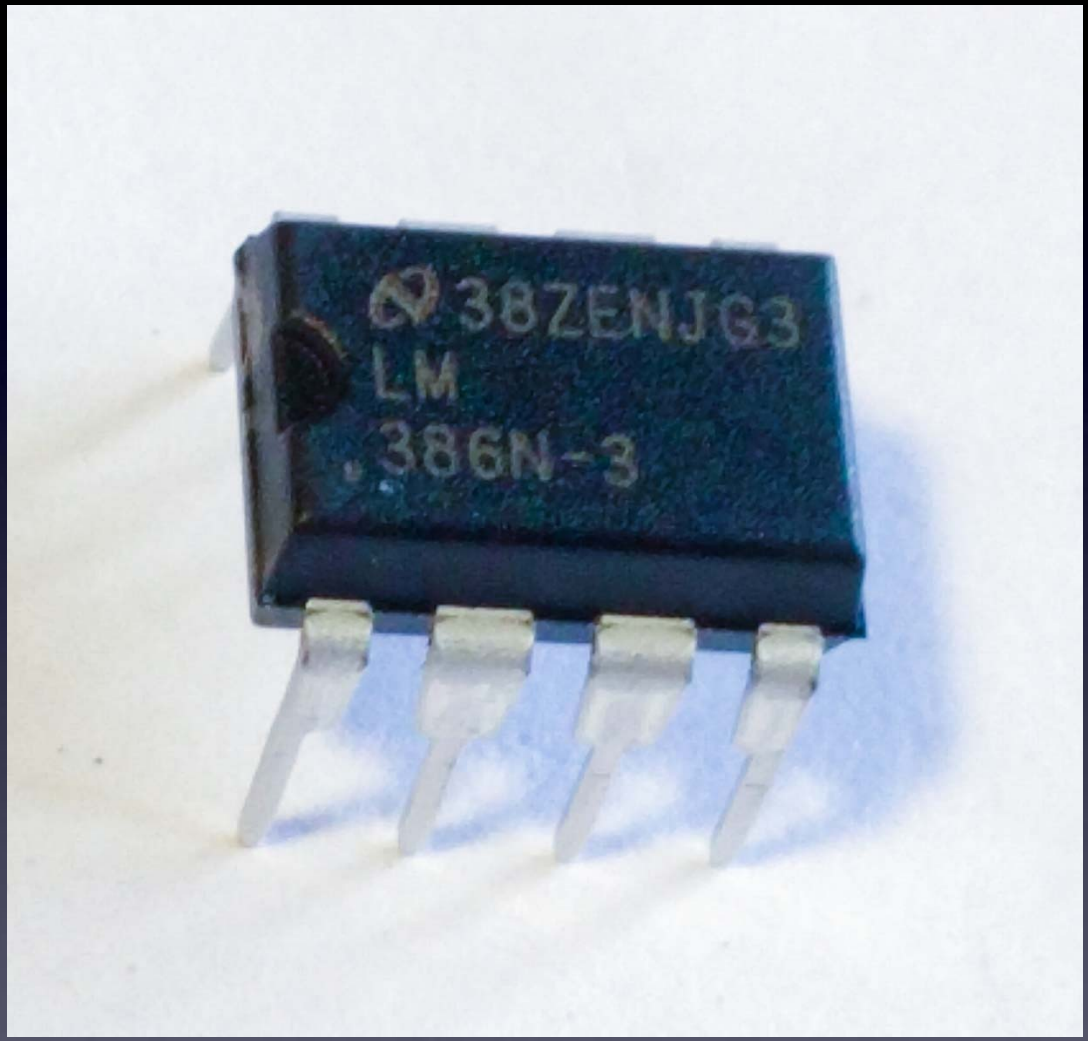
S1: black Reset button

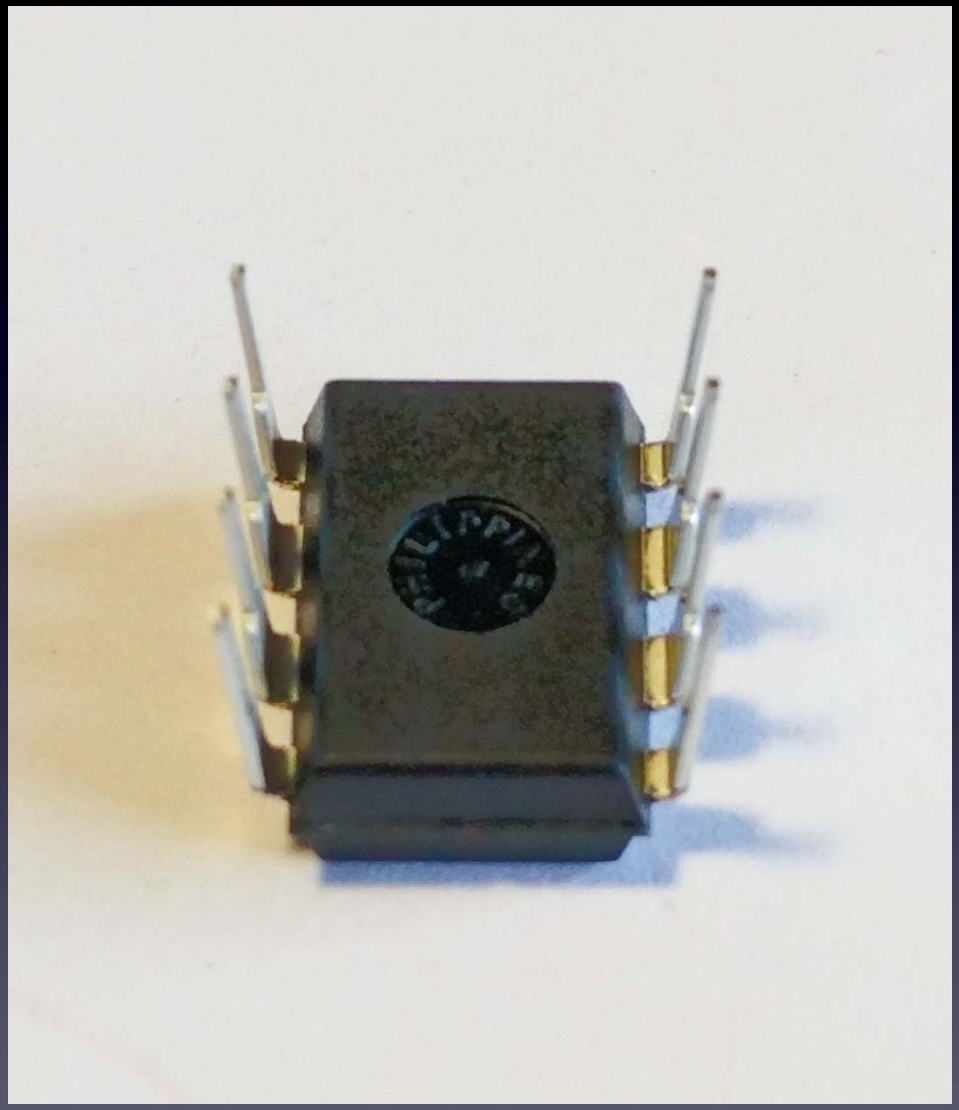


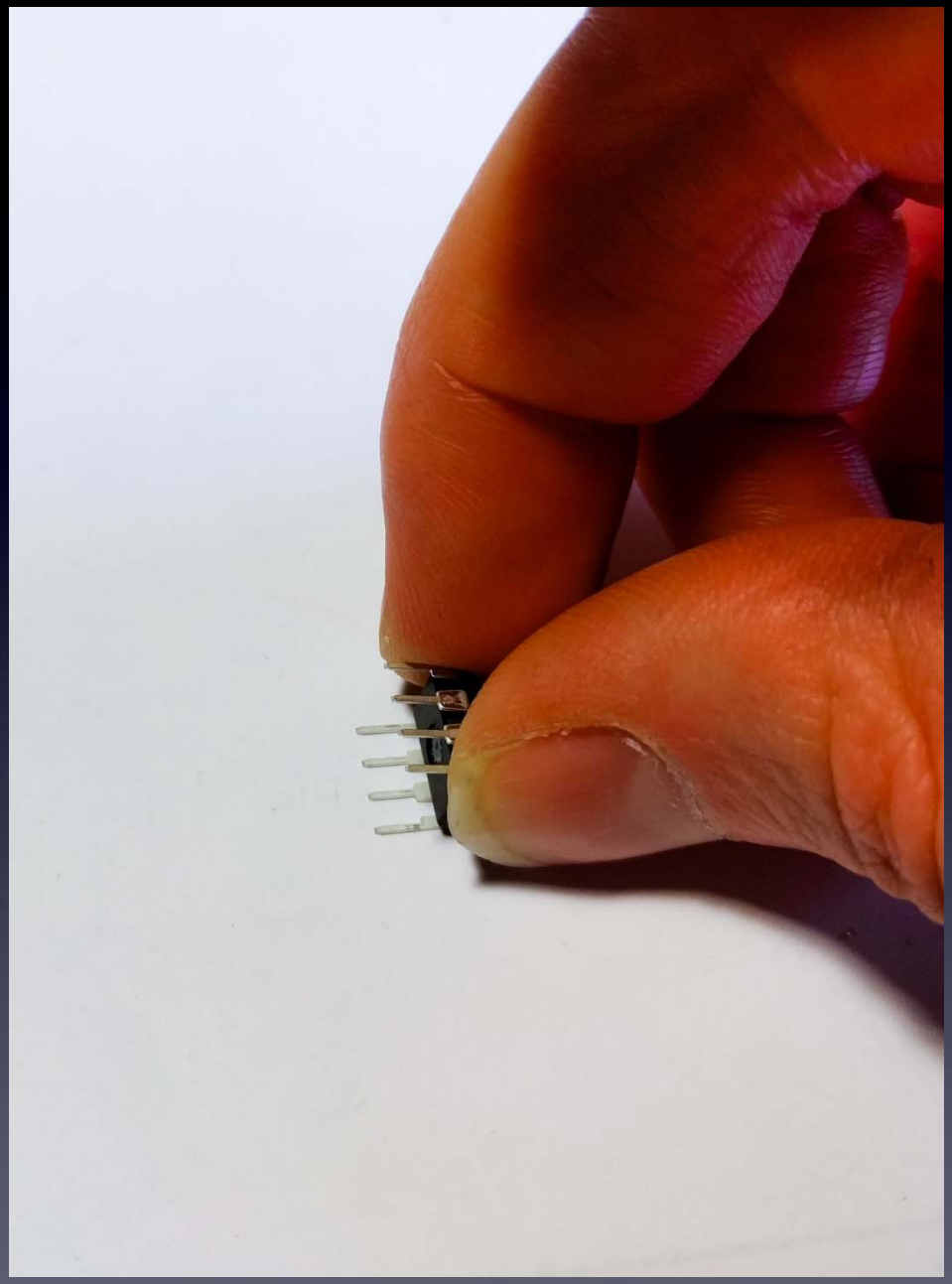
S2, S3: Red buttons

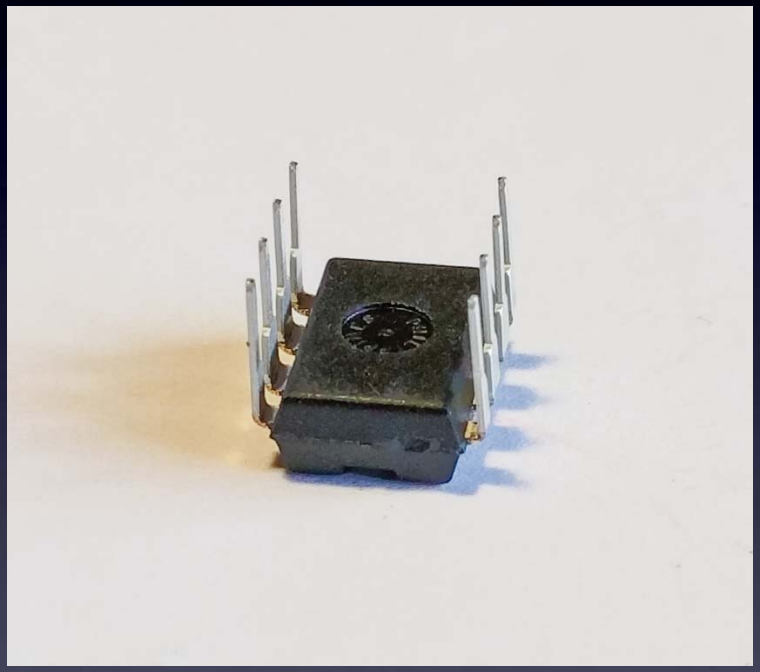

POWER
Tx
Rx
LED3 Green
LED2 Red
LED1 Blue
BLK
J1
GRN
S1
R15
R14
R13
R4
R3
R5
R2
R1
R9
R8
J3
Audio Out
LM386
R10 10K
C7 1uF
U2
Red
Blk
B1
100uF
R7
C5 0.1uF
C4 0.1uF
R6
Speaker
C1 0.1uF
U1
TOUCH1
S3
C2 0.1uF
ATmega328
X1
16.00MHz
TOUCH2
S2
R12 10K
C C# D D# E F F# G G# A A# B C
R11 10K
open hardware
KB1
CORNFIELD ELECTRONICS ArduTouch Synthesizer v1.0 rev A

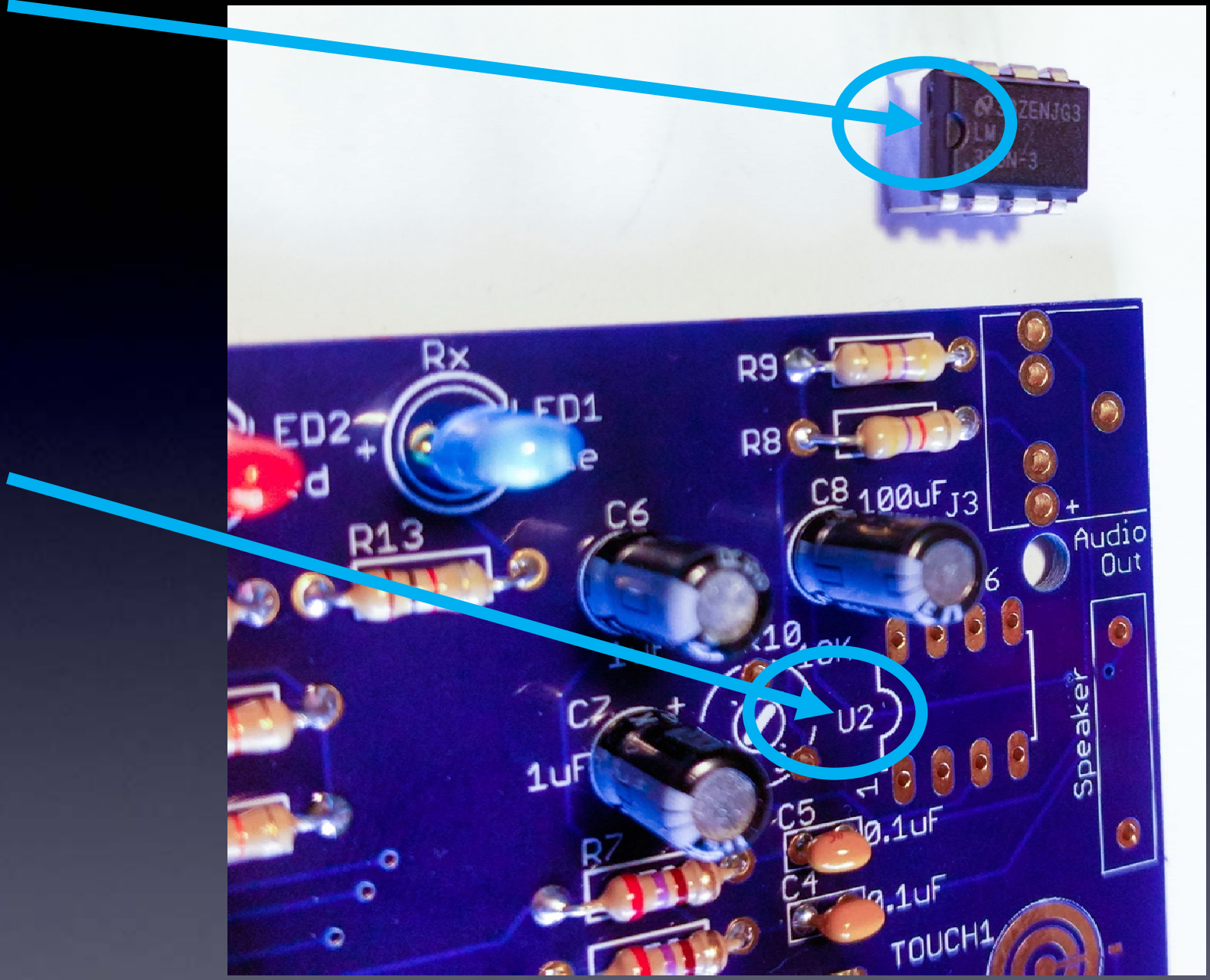
X1


38ZENJG3
LM
386N-3

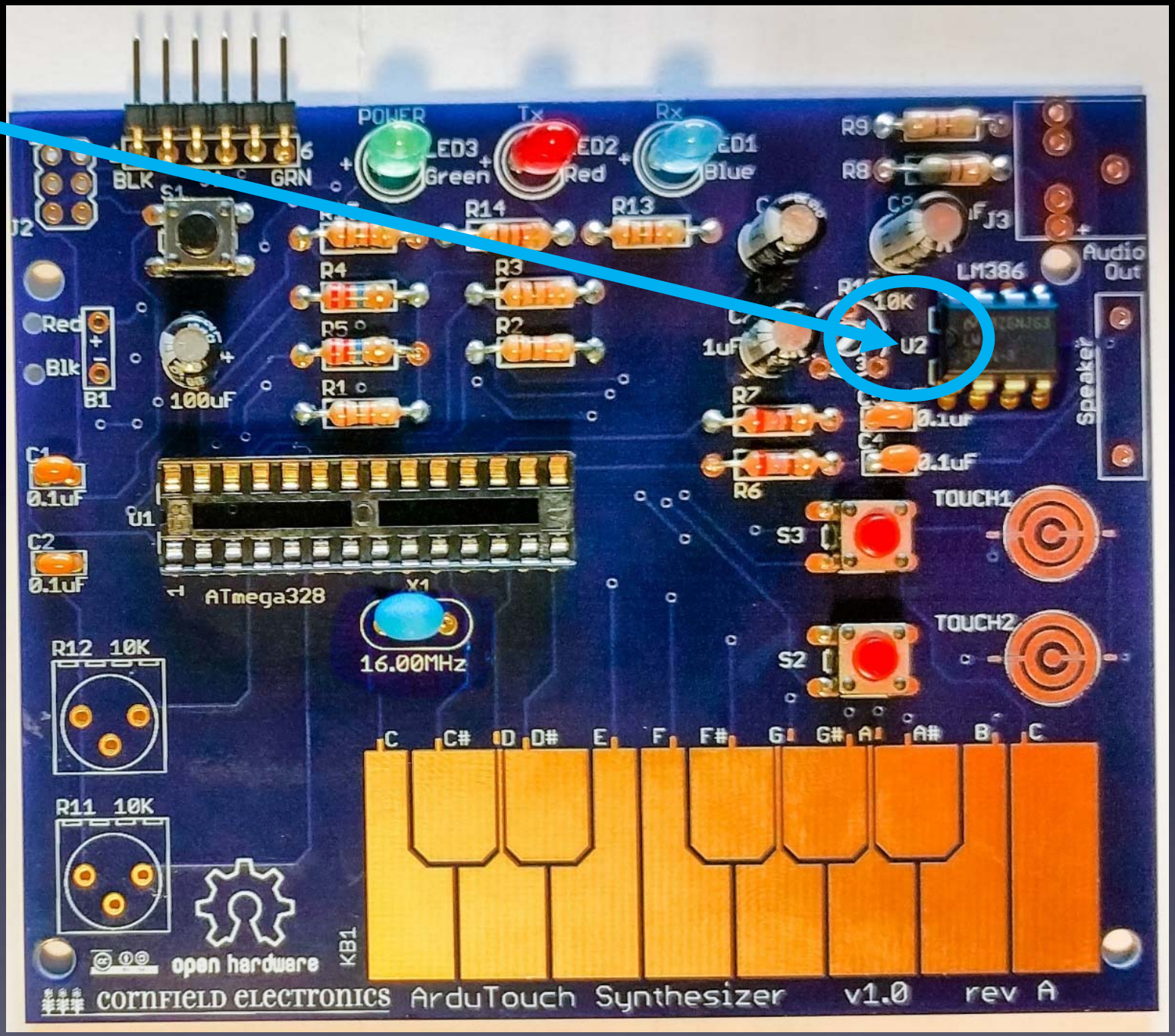




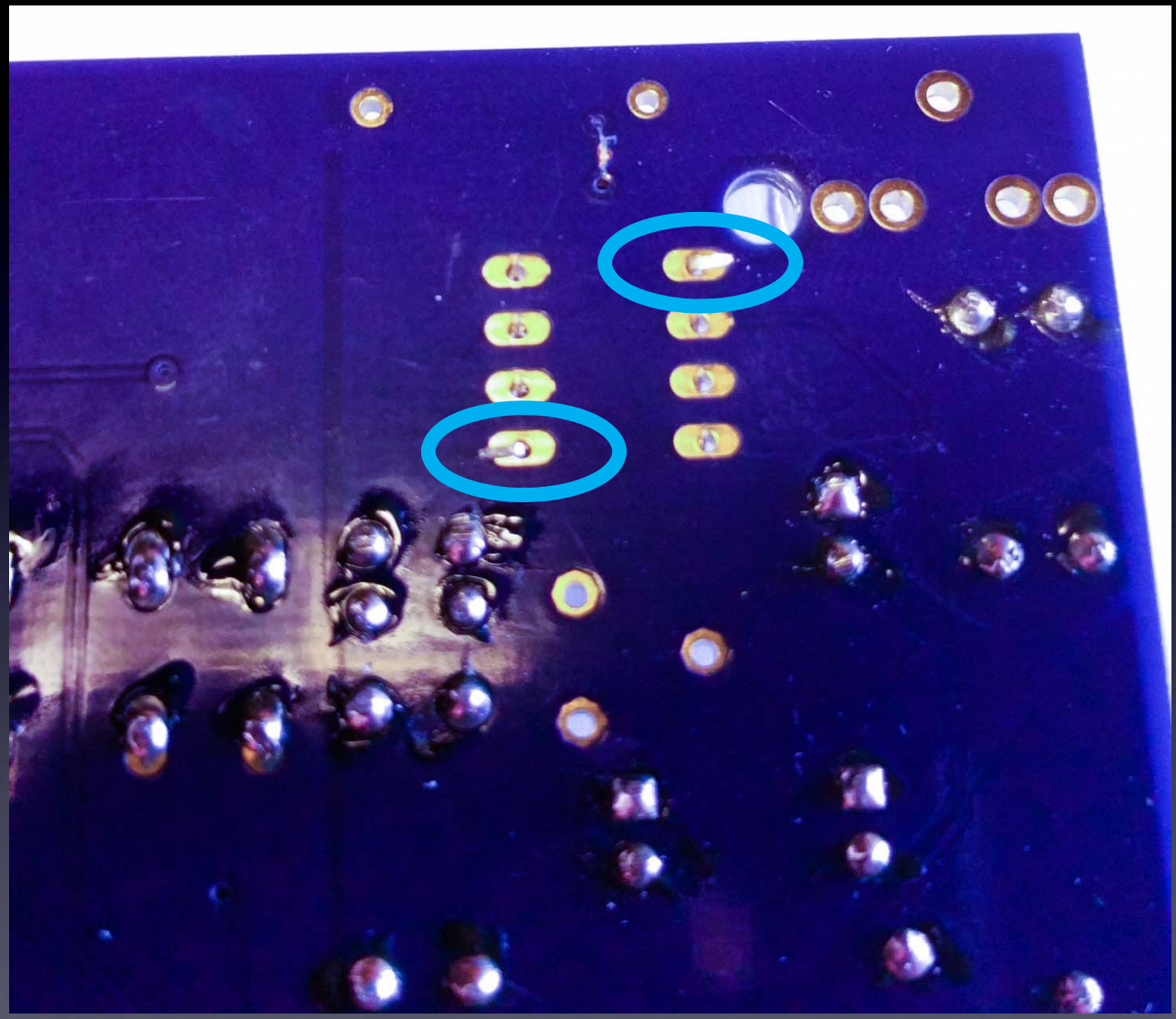




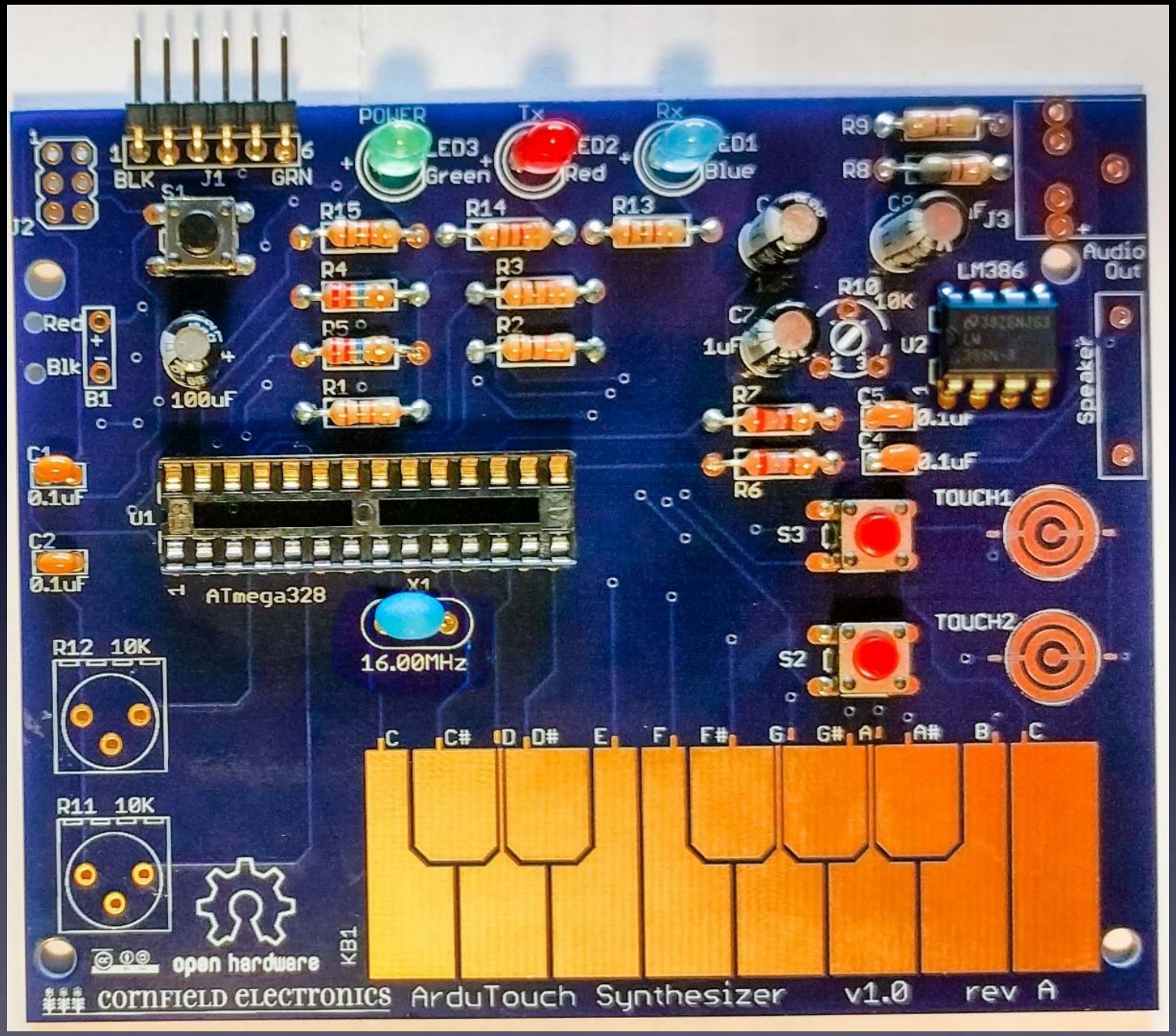
U2: audio amp chip



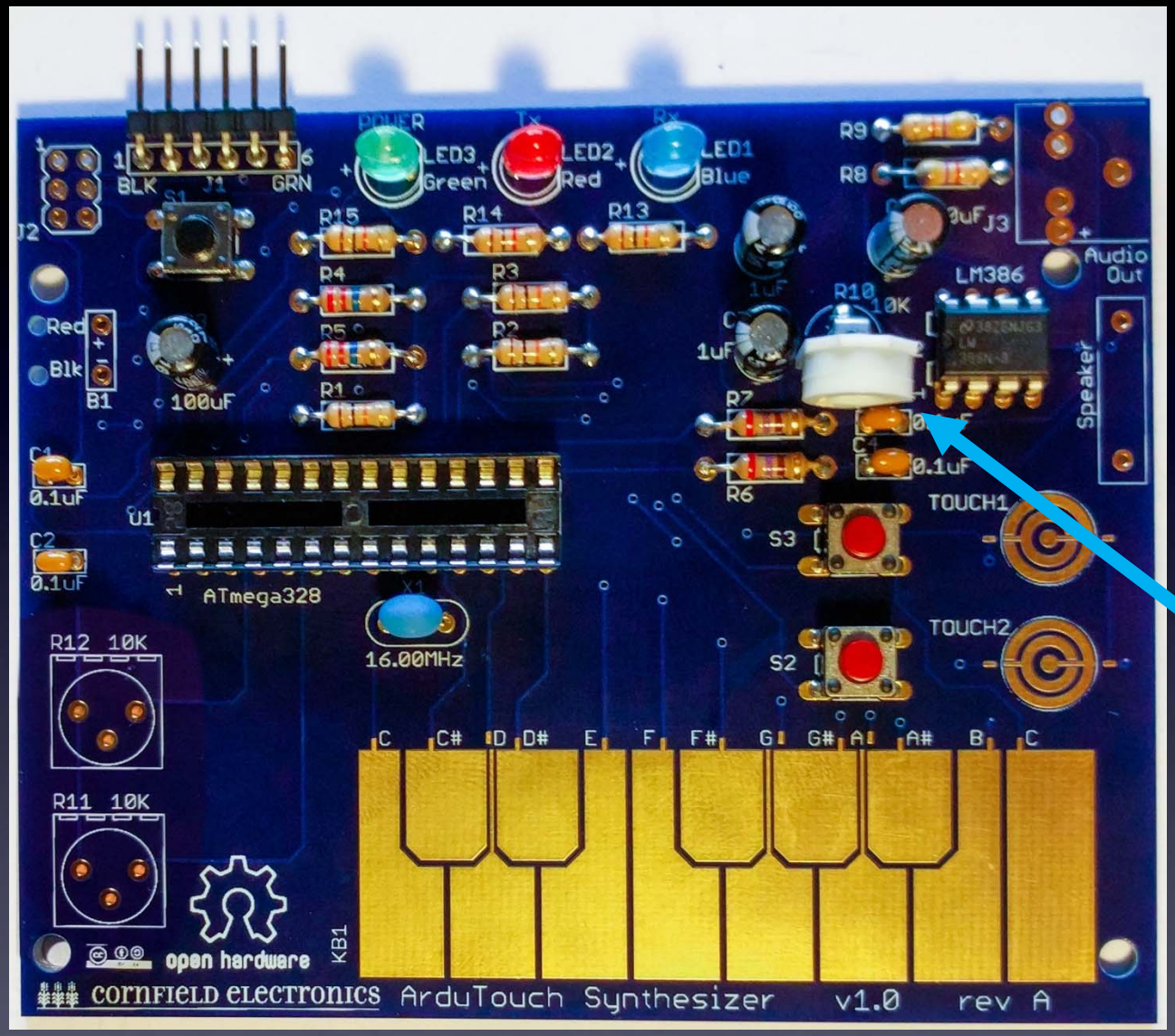
U2: audio amp chip



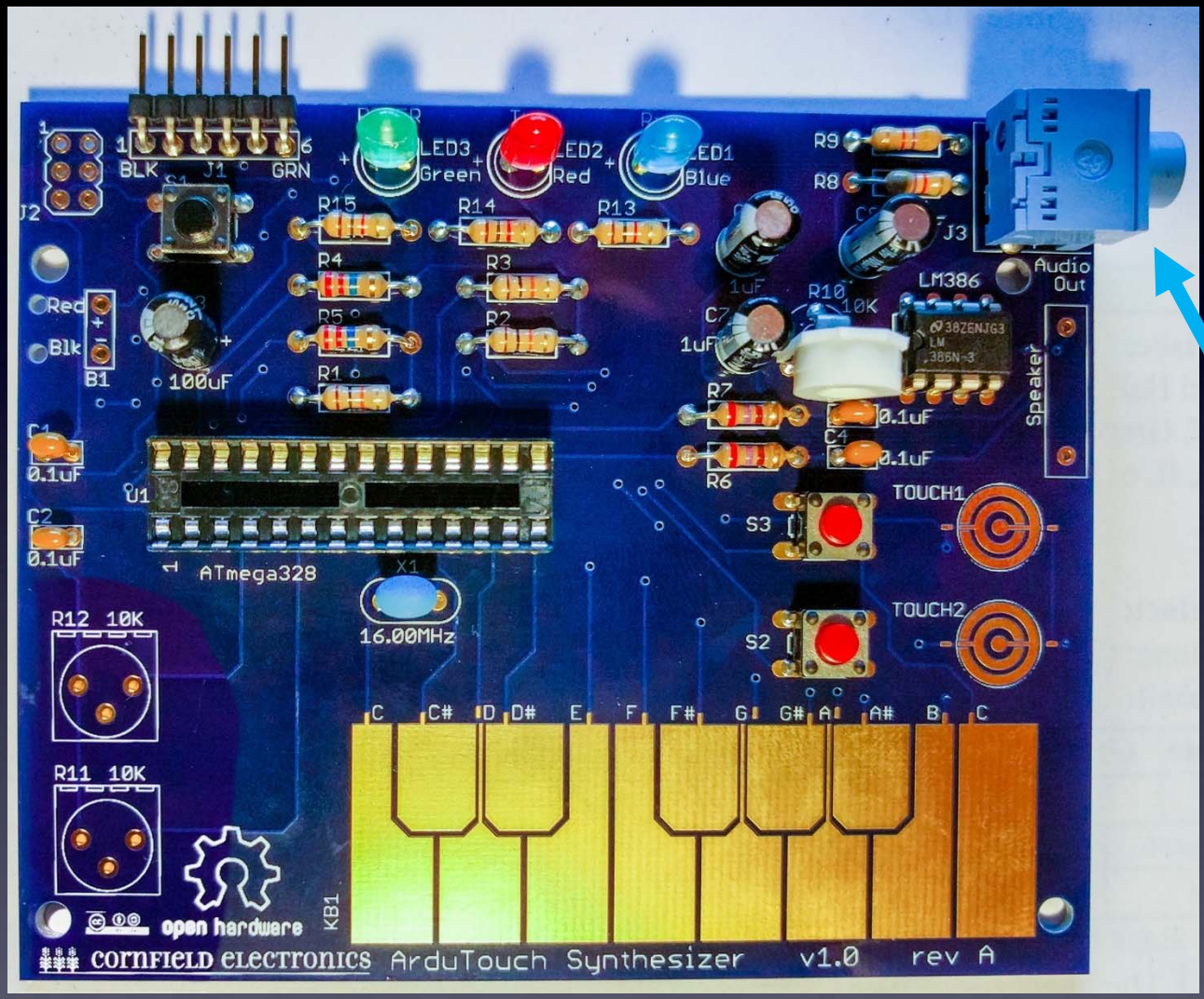
U2: audio amp chip



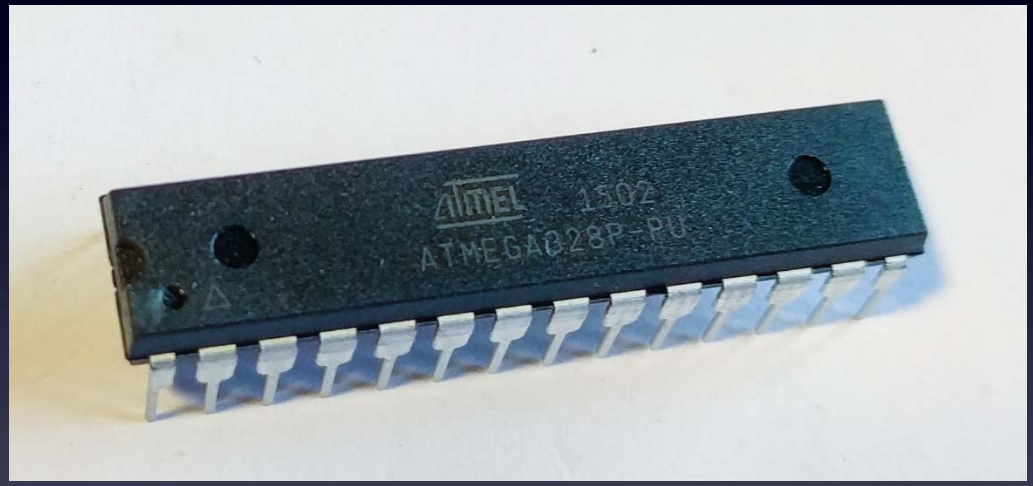
U2: audio amp chip



R10: volume control

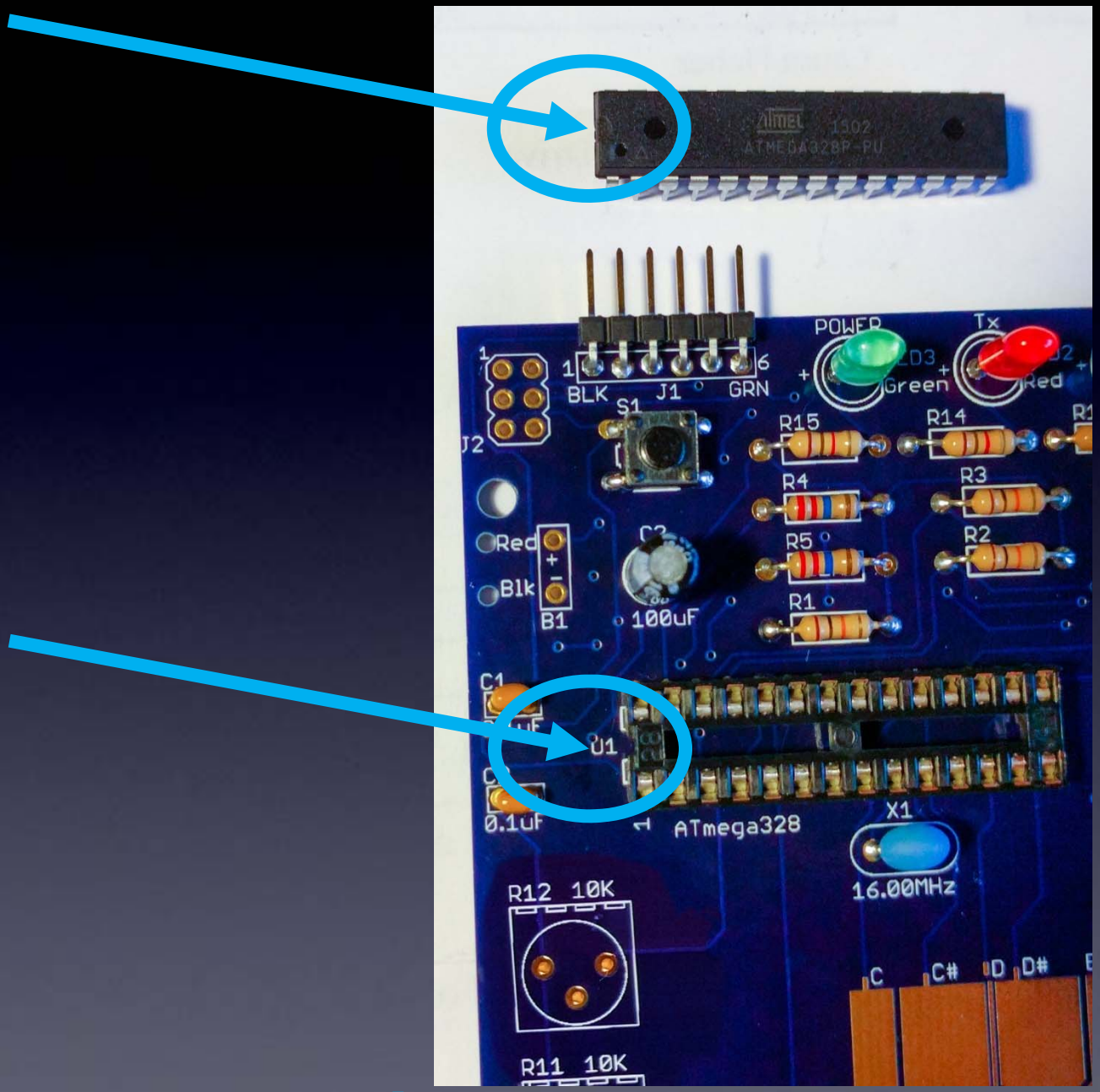


J3: headphone / output jack

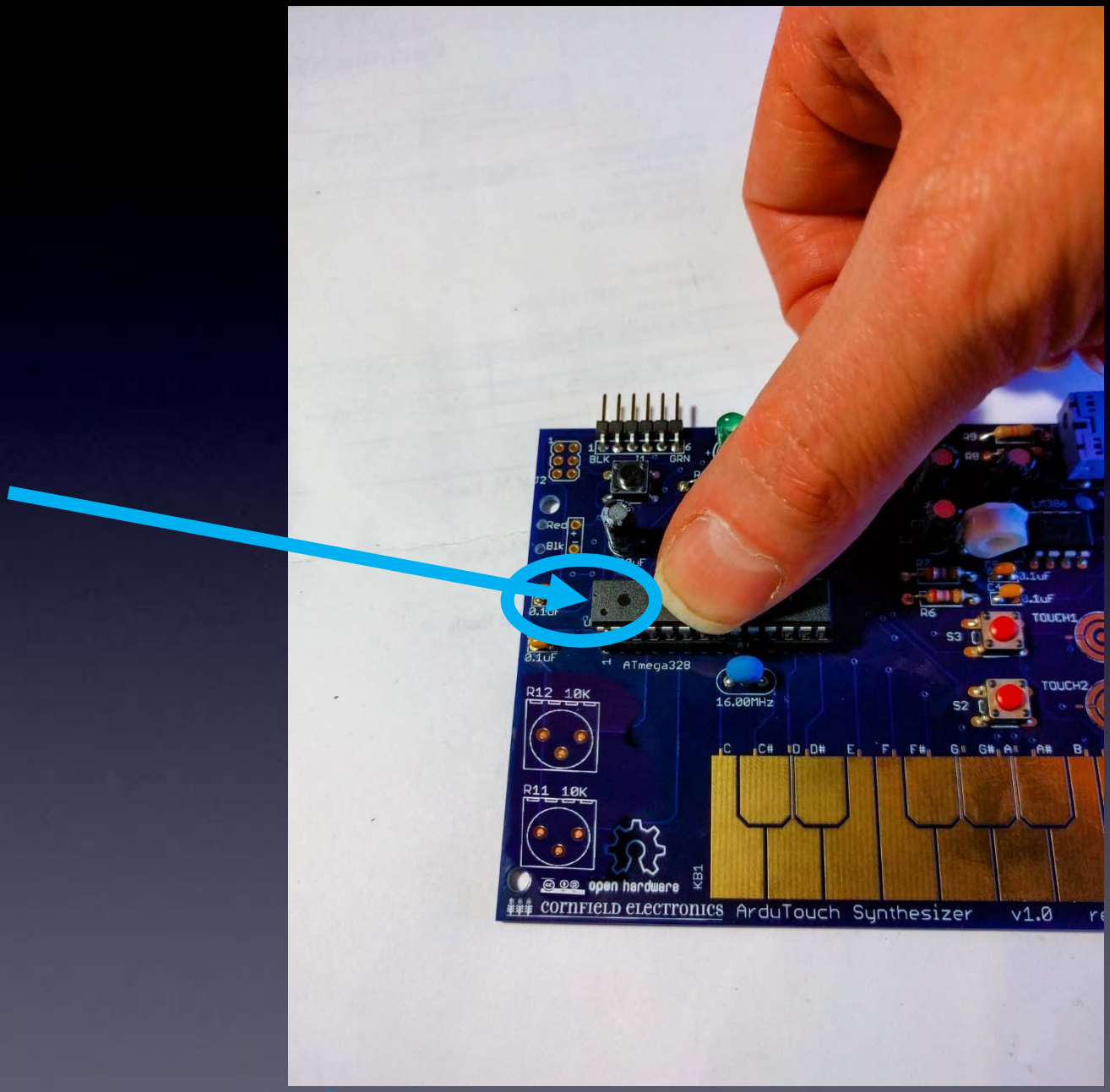


U1: microcontroller

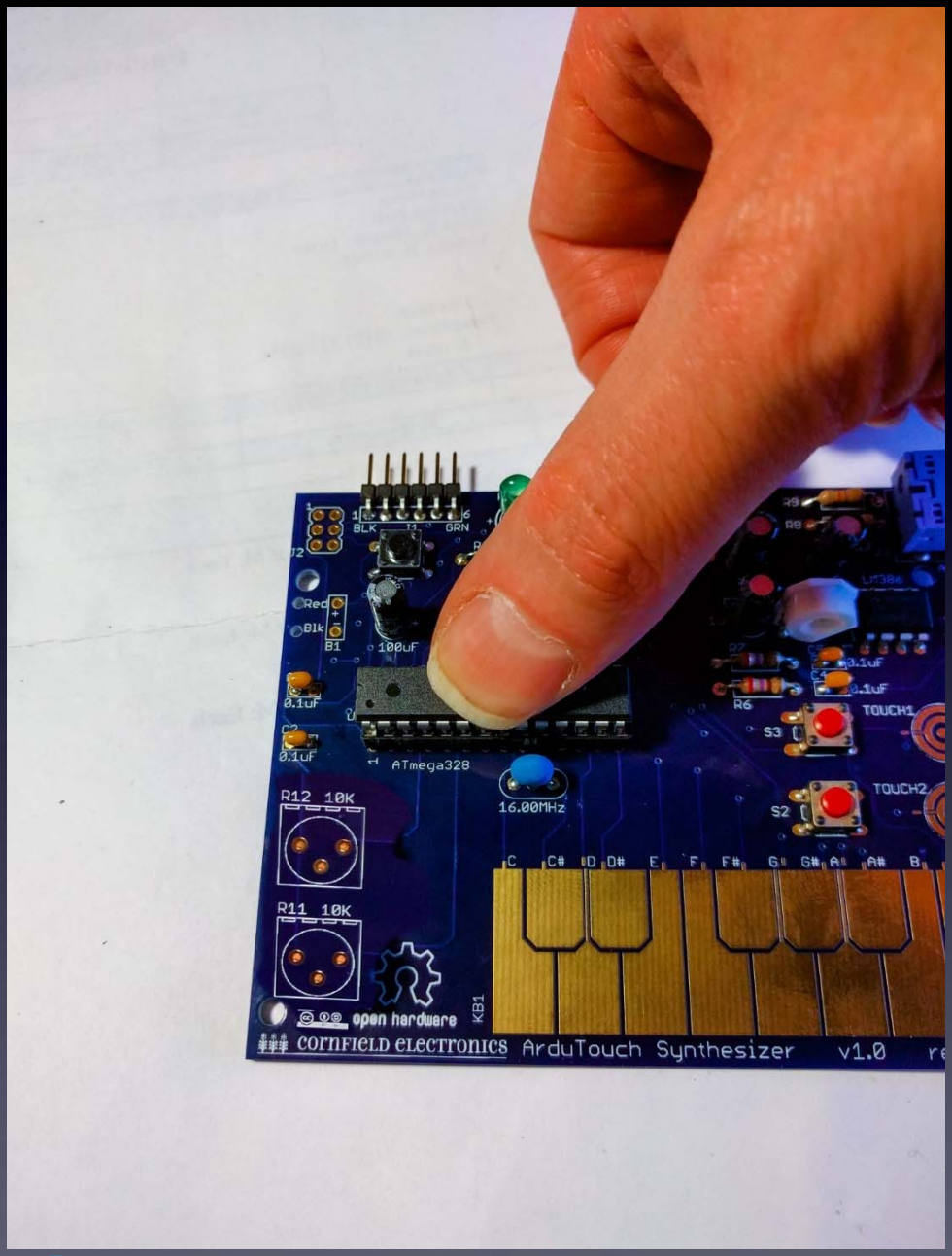
U1: microcontroller



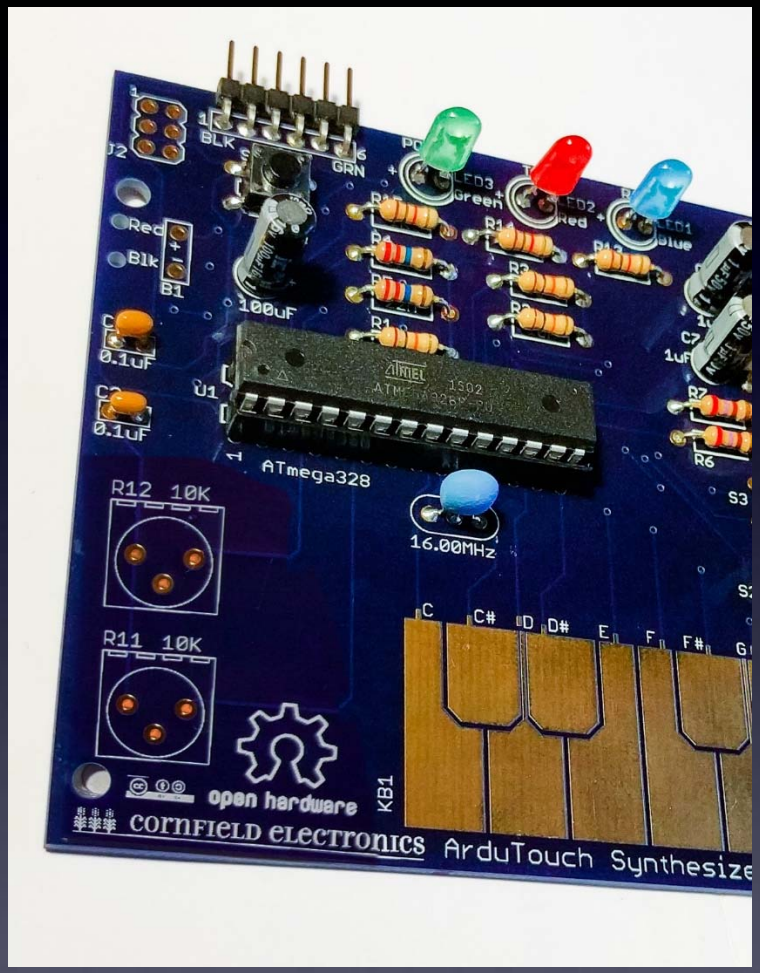
U1: microcontroller



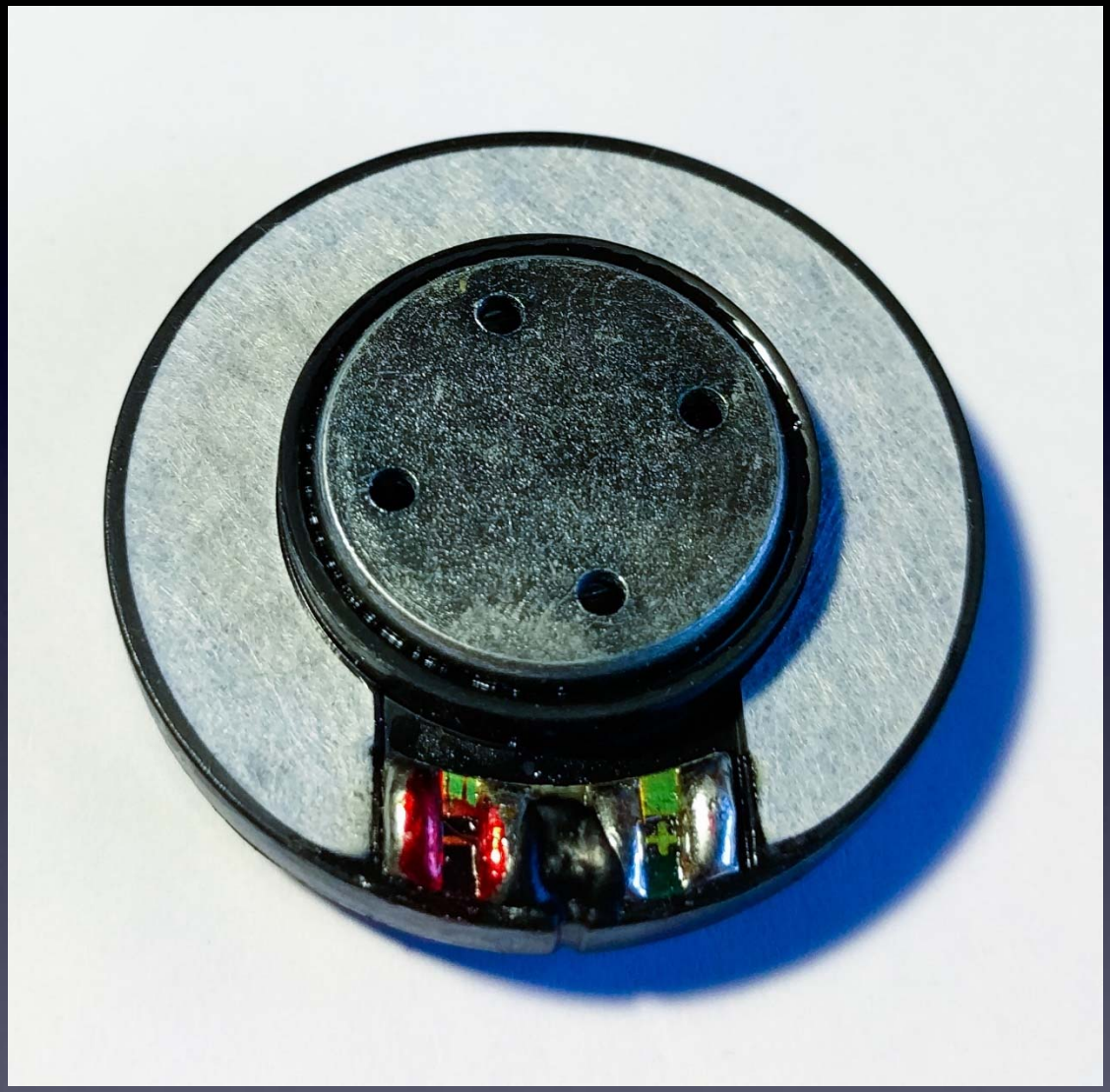
U1: microcontroller



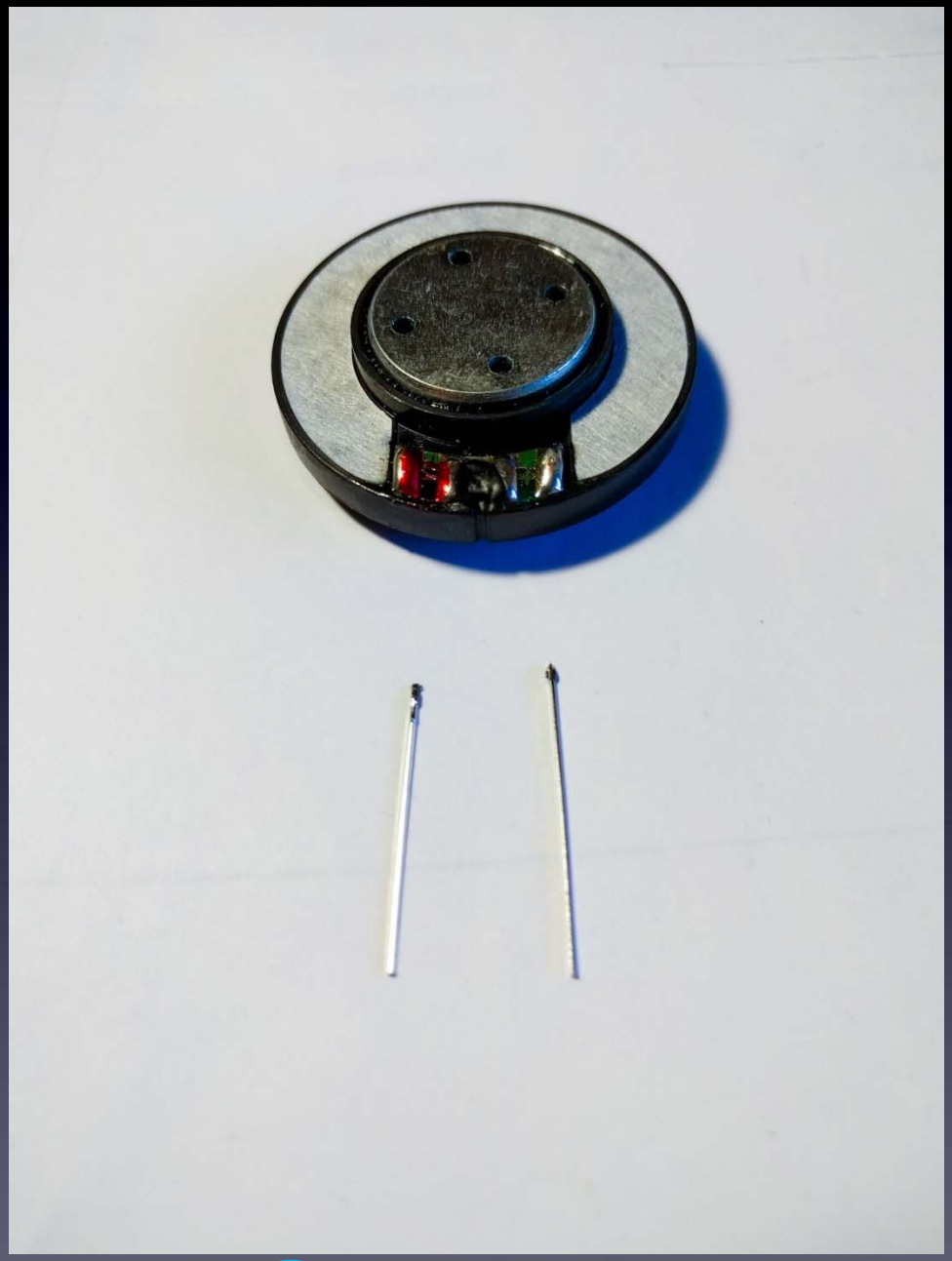
U1: microcontroller



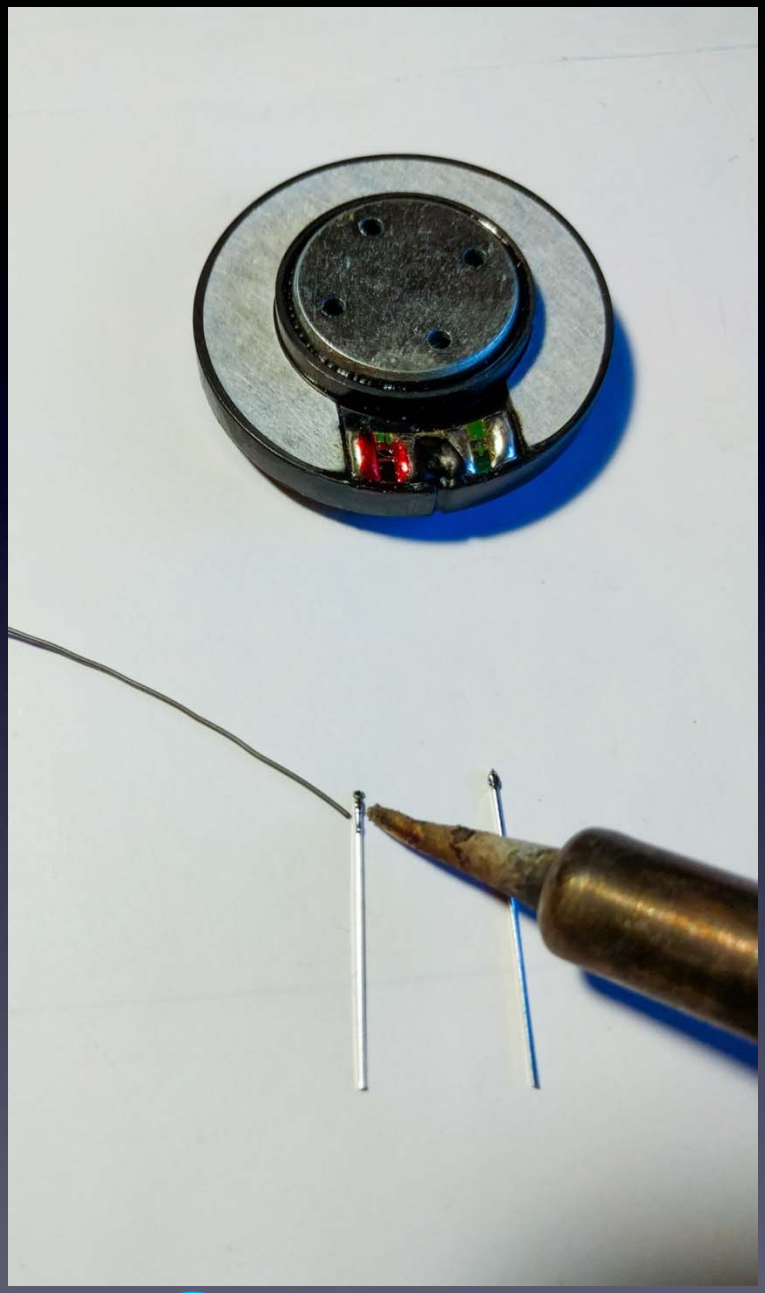
U1: microcontroller



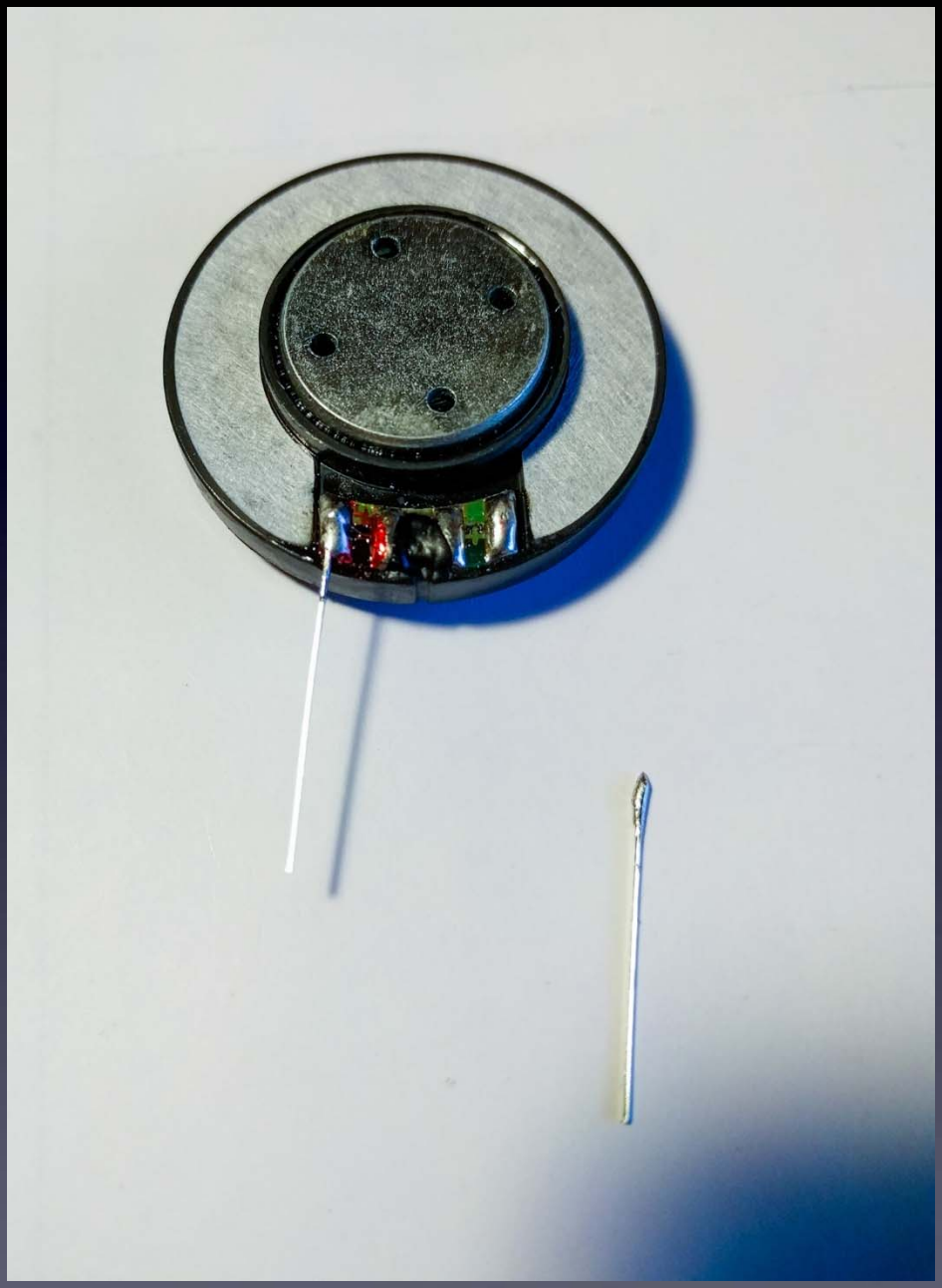
Speaker

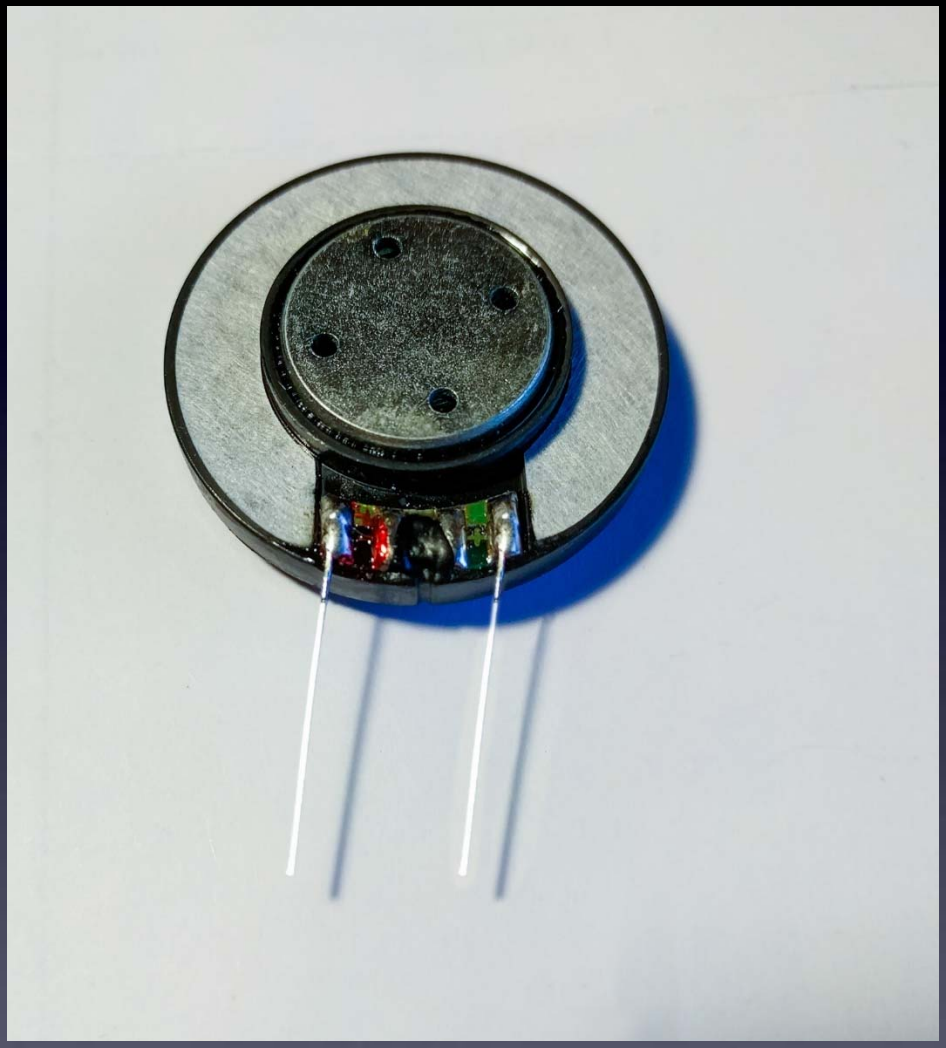


Speaker

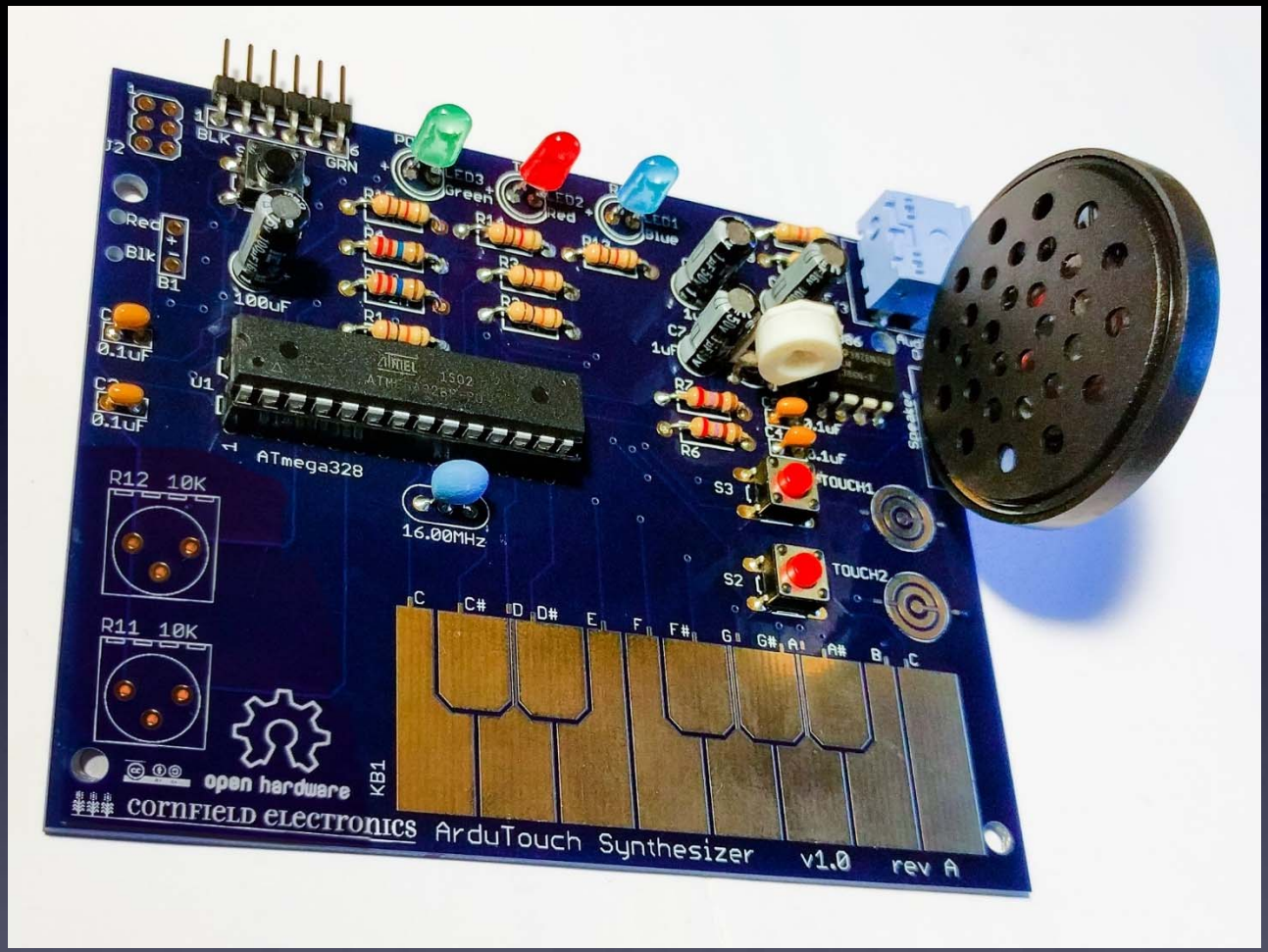


Speaker





Speaker


BLK
GRN
LED3
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Blk
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R12 10K
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S3
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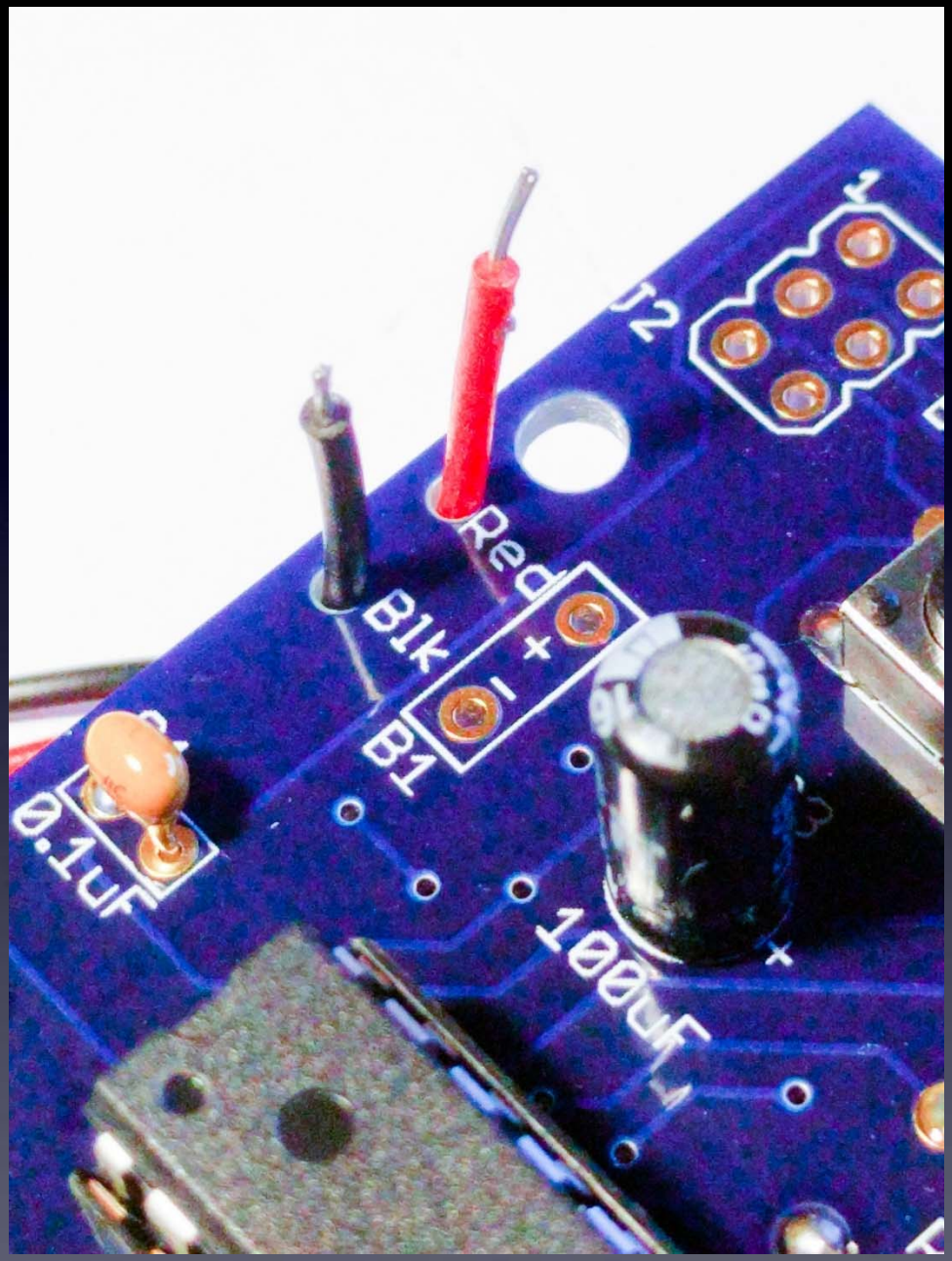
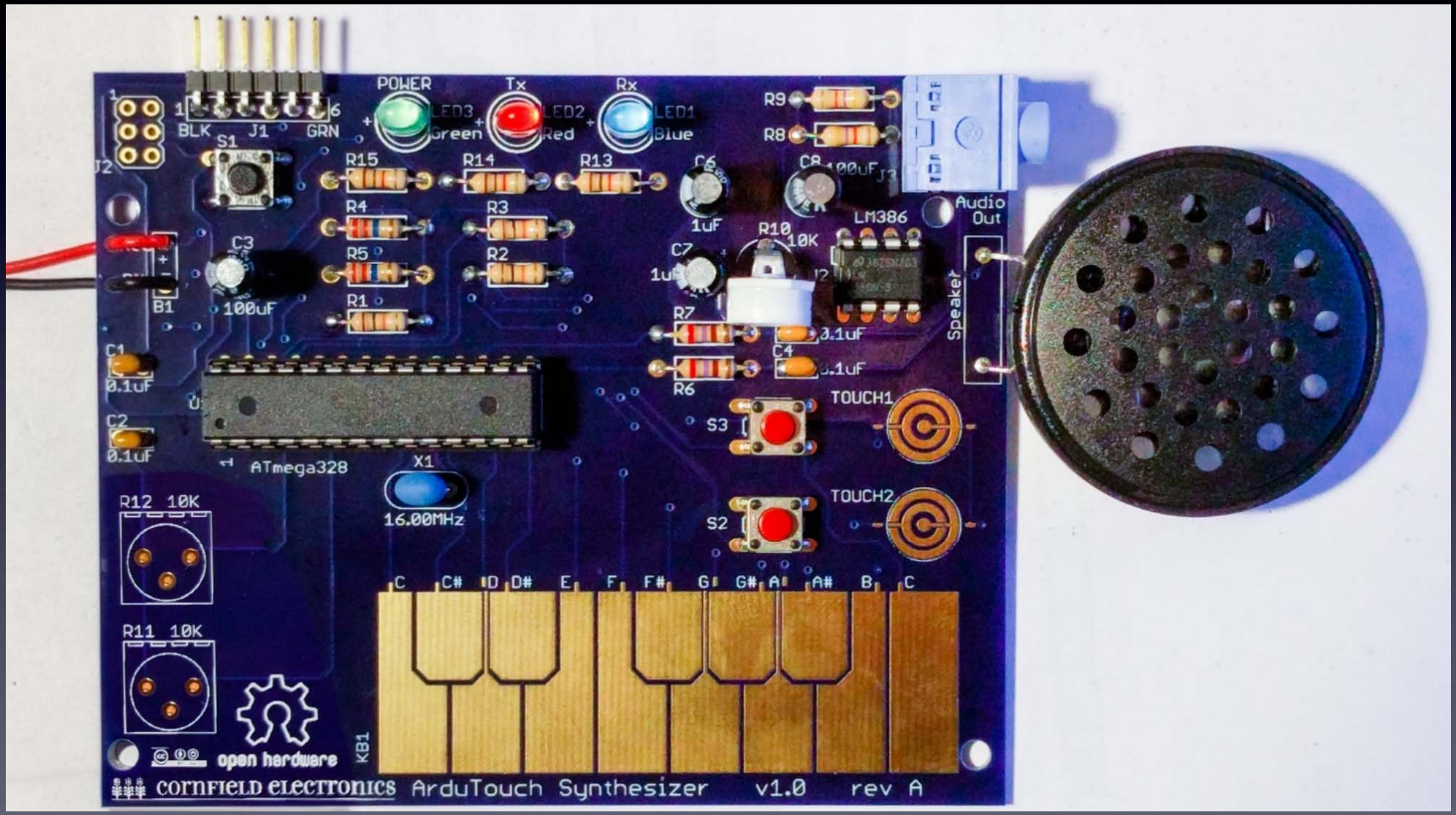
C C# D D# E F F# G G# A A# B C
KB1
open hardware
CORNFIELD ELECTRONICS ArduTouch Synthesizer v1.0 rev A

Speaker



Battery pack

Done!


POWER
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CORNFIELD ELECTRONICS
ArduTouch Synthesizer
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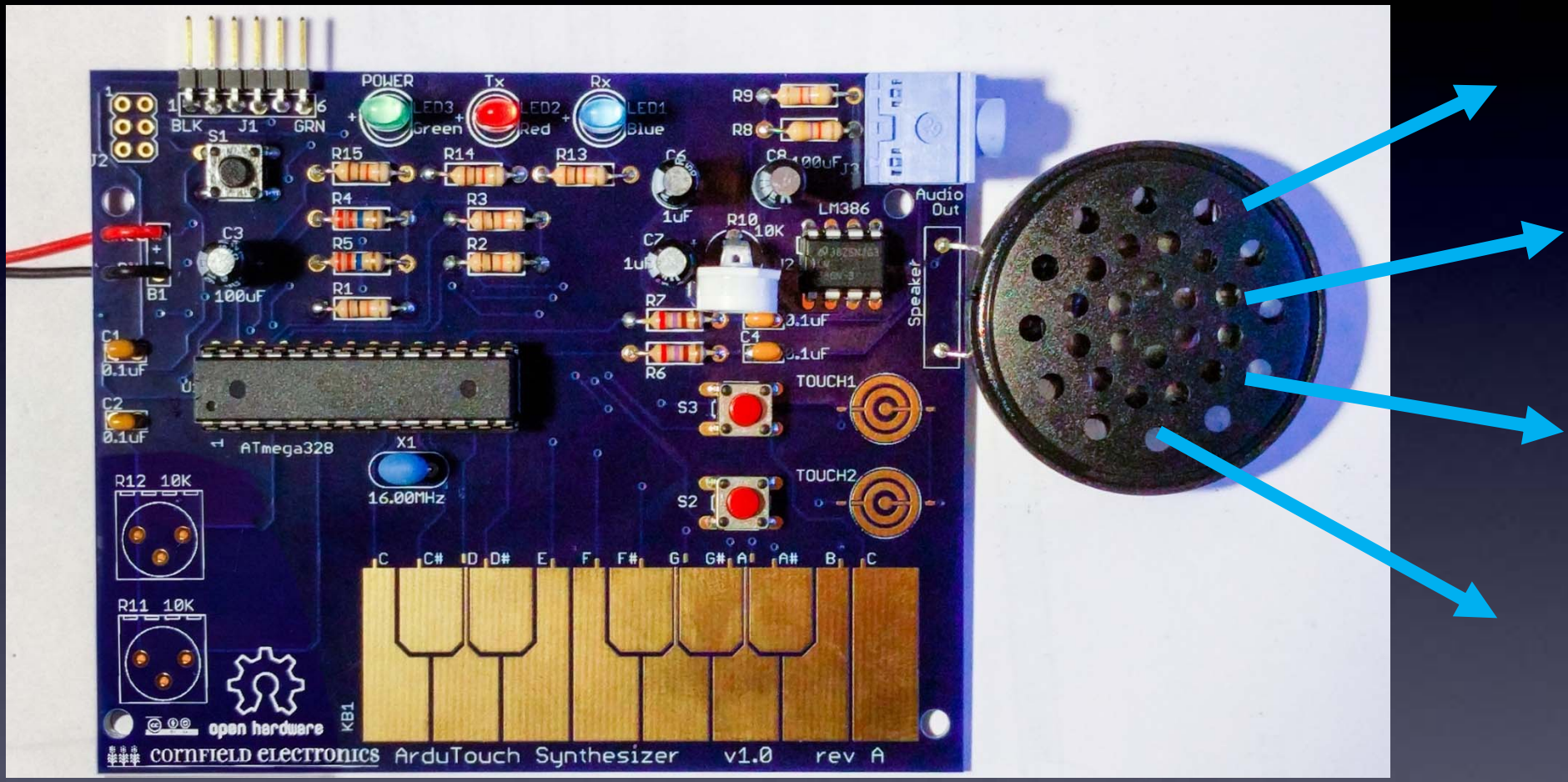
Let’s make noise!