

Soldering Is Easy!

Mitch Altman

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Inventor of **TV-B-Gone** universal remote controls

Co-founder of **3Ware** (successful Silicon Valley startup)

Pioneer of **VR** (in the mid-1980s)

Founding mentor at **HAX** (1st and biggest hardware accelerator)

Co-founder of **Noisebridge** (San Francisco hackerspace)

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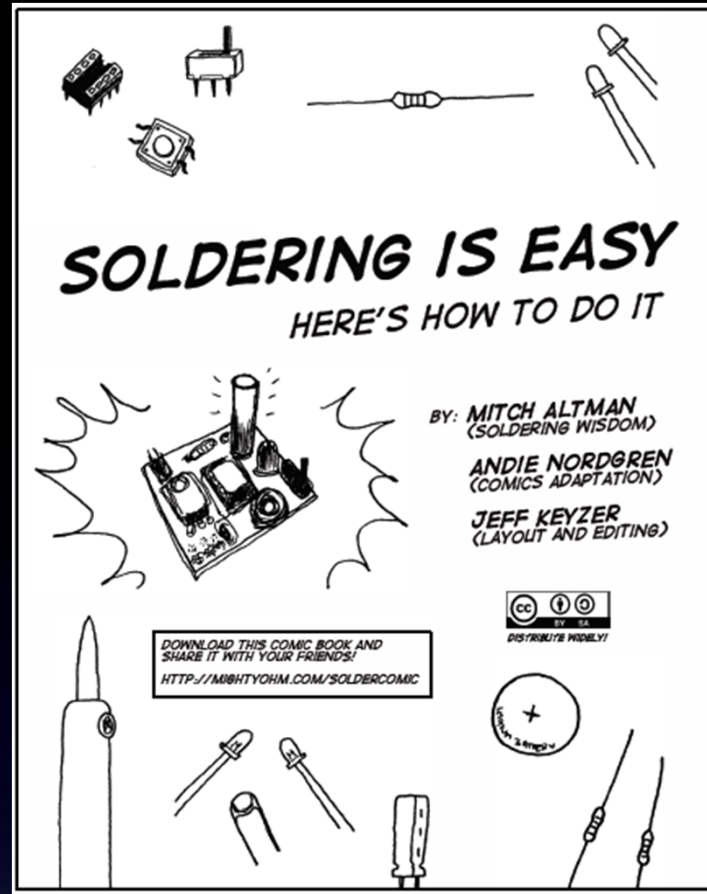
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CORNFIELD ELECTRONICS

useful electronics for a better world

Learn To Solder



The following photos will show you how to solder.

But feel free to download the “Soldering Is Easy” comic book for free!

(In many different languages.)

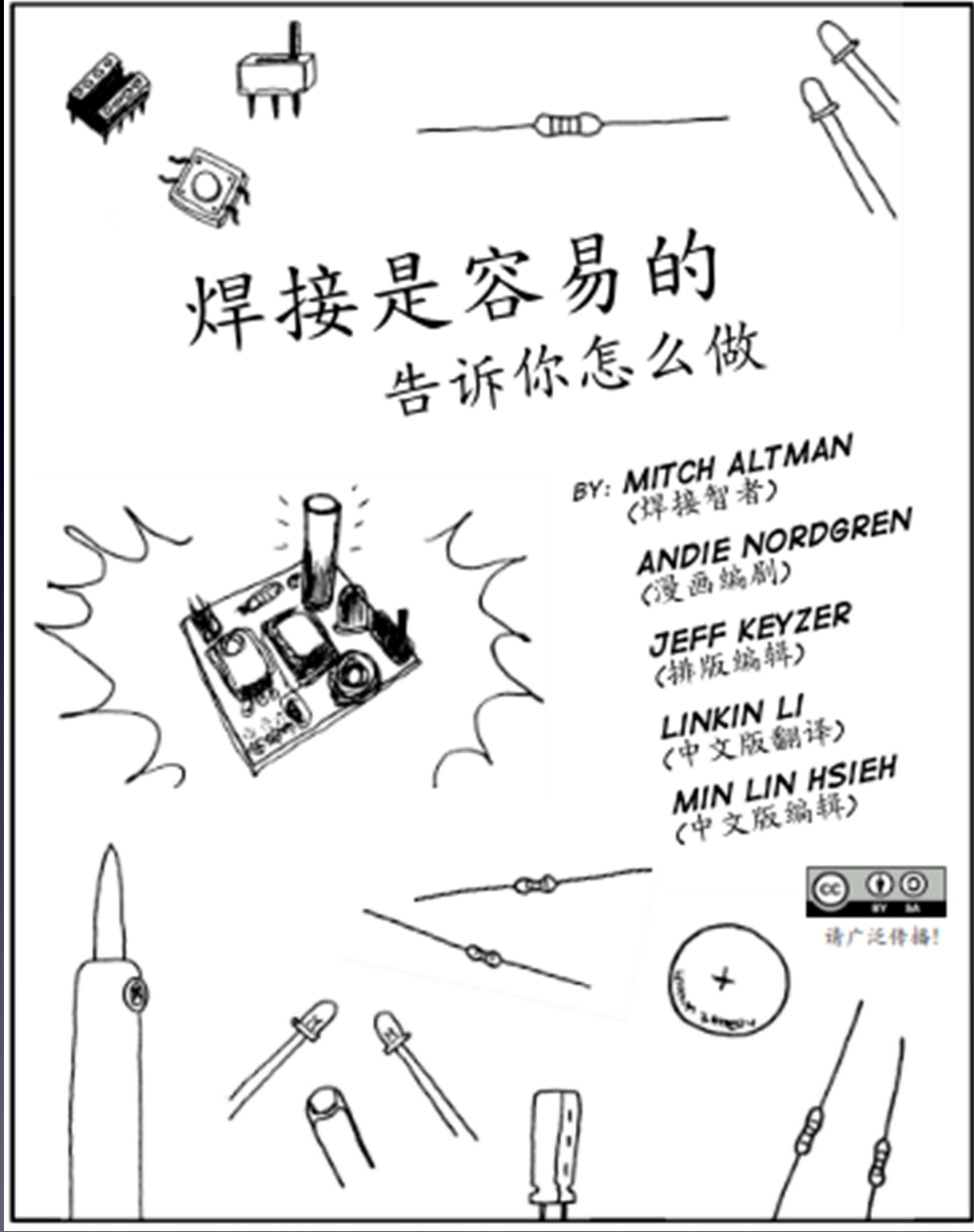
download for free at:
<http://mightyohm.com/soldercomic>

Learn To Solder



download for free at:
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Learn To Solder



Download in the language of your choice for free at:

<http://mightyohm.com/soldercomic>

Learn To Solder

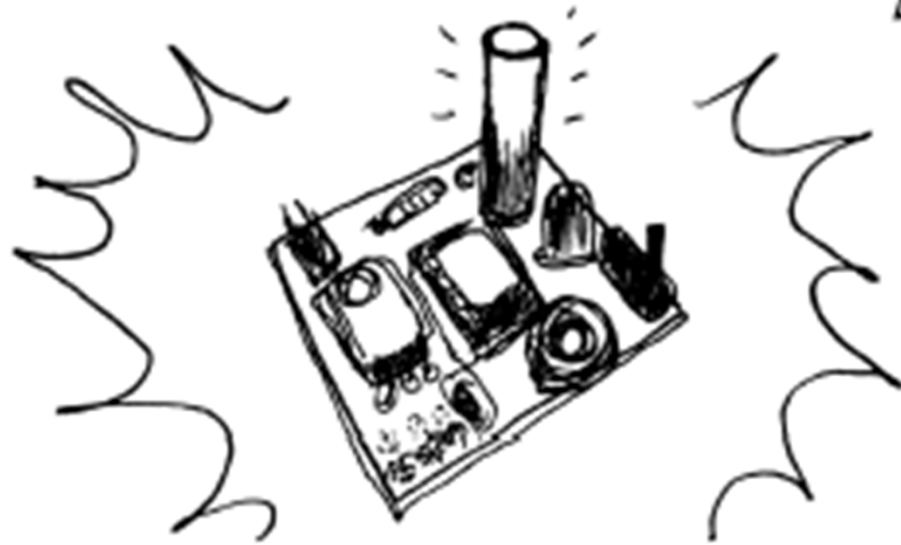
SOLDER C'EST FACILE ***VOICI COMMENT FAIRE***

DE: ***MITCH ALTMAN***
(MAITRE SOUDEUR)

ANDIE NORDGREN
(ADAPTATION BD)

JEFF KEYZER
(EDITION, MISE EN PAGE)

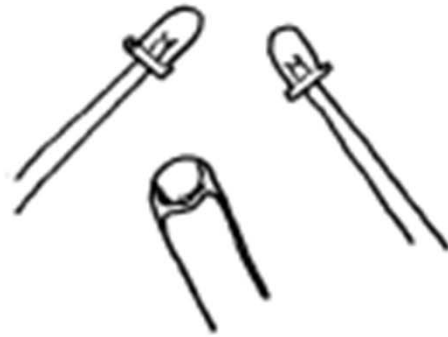
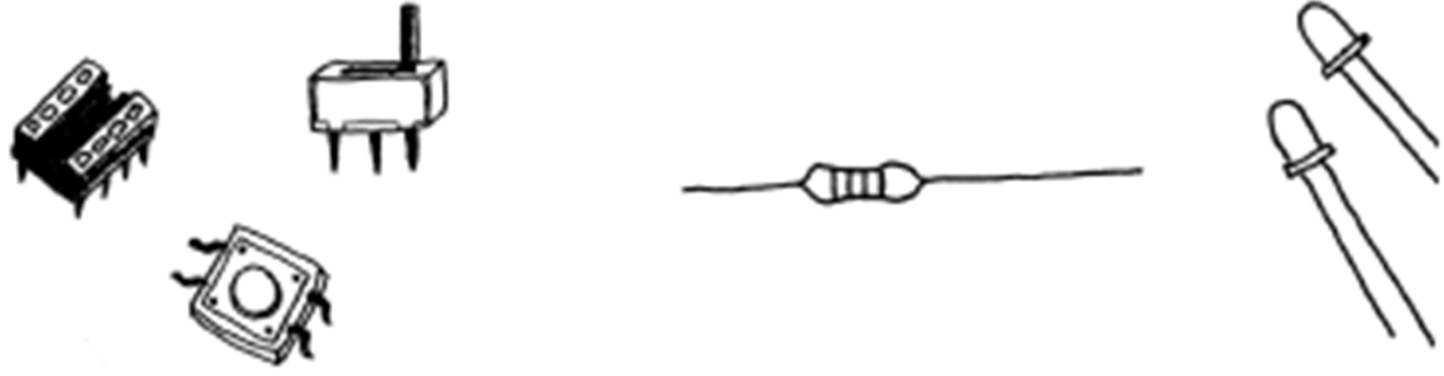
SNOOTLAB
(TRADUCTION FR.)



TELECHARGEZ CETTE BD
ET PARTAGEZ LA AVEC VOS AMIS !
[HTTP://MIGHTYOHM.COM/SOLDERCOMIC](http://mightyohm.com/soldercomic)



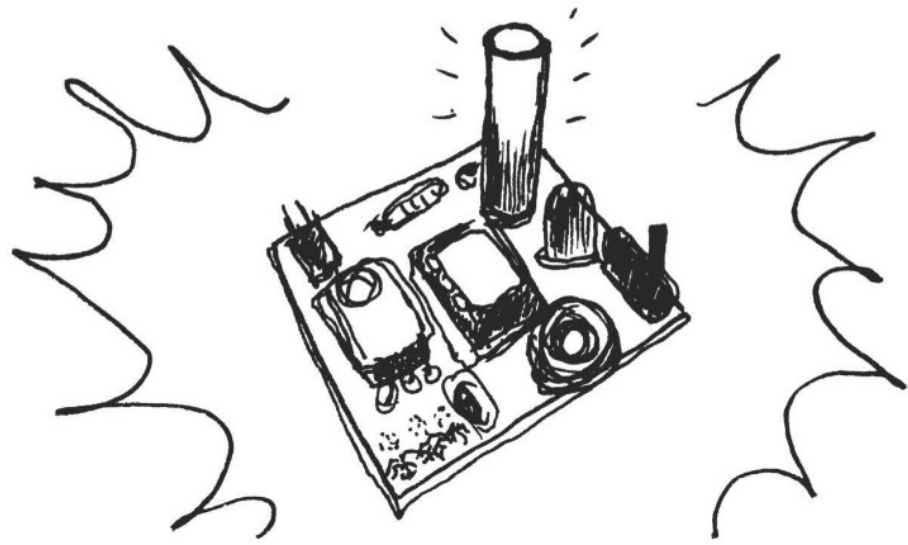
A DIFFUSER LARGEMENT !



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

Learn To Solder

SOLDAR ES FÁCIL! APRENDE CÓMO HACERLO



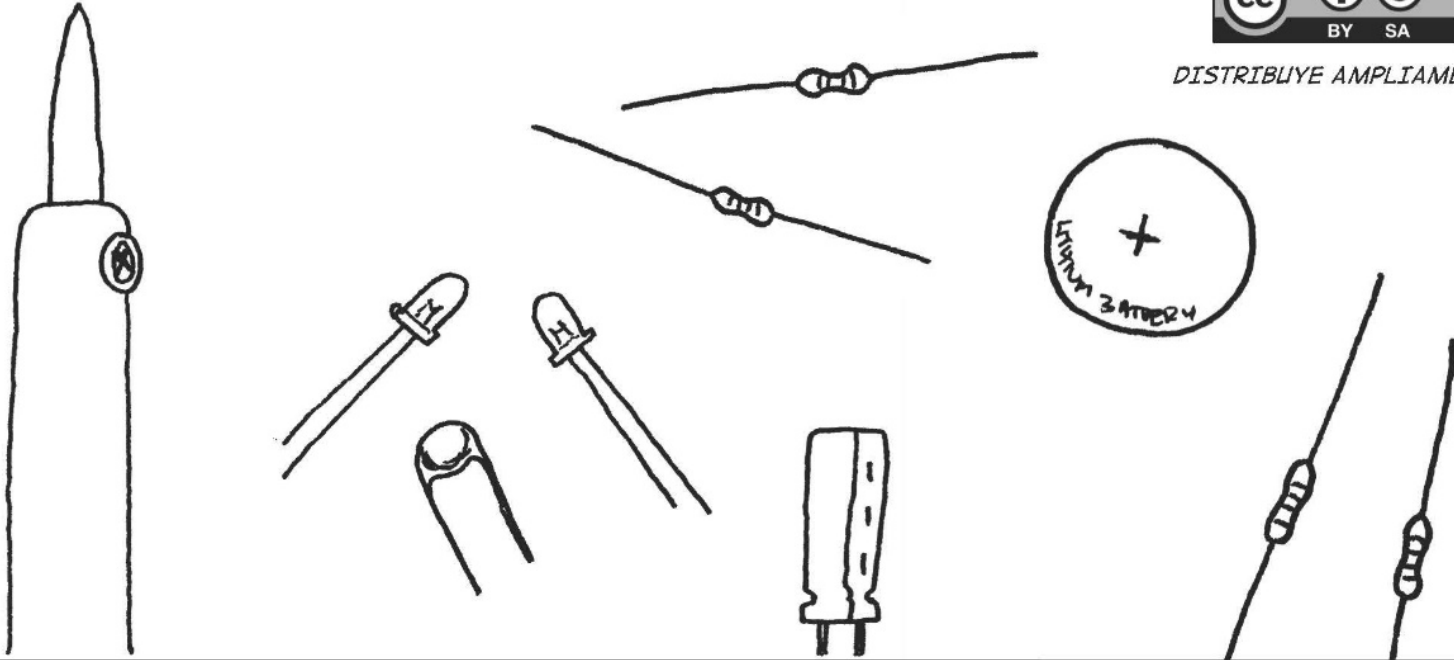
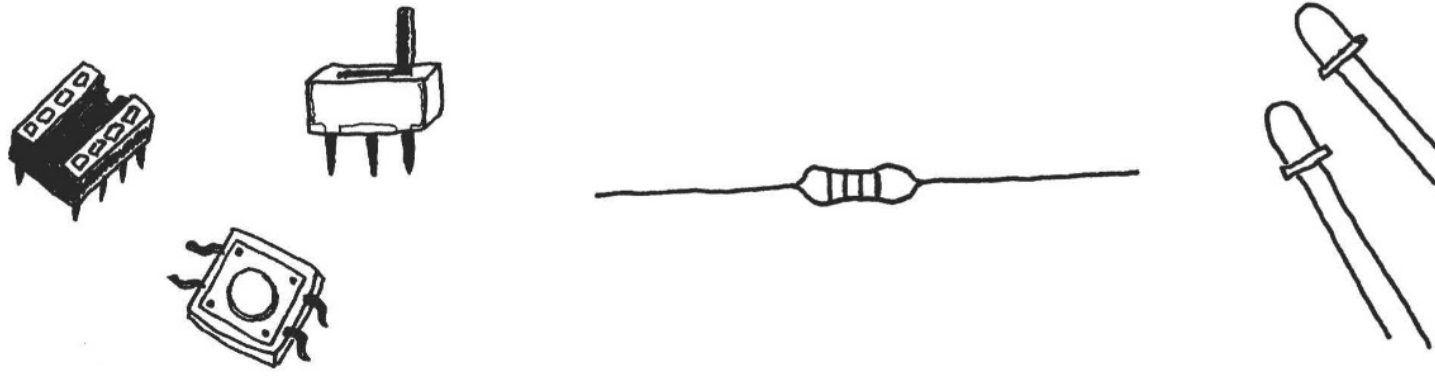
POR: **MITCH ALTMAN**
(SABIDURÍA EN SOLDADO)

ANDIE NORDGREN
(ADAPTACIÓN A COMIC)

JEFF KEYZER
(DISEÑO Y EDICIÓN)



DISTRIBUYE AMPLIAMENTE!



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

Learn To Solder



LÖTEN IST EINFACH SO WIRD ES GEMACHT

VON: MITCH ALTMAN
(LÖTWEISHEITEN)

ANDIE NORDGREN
(KOMIK-UMSETZUNG)

JEFF KEYZER
(LAYOUT UND BEARBEITUNG)

ALEXANDER BODORA
(ÜBERSETZUNG UND BEARBEITUNG)

RICHARD MEINSEN
(ÜBERARBEITUNG UND KORREKTUR)



WEITER
VERTEILEN!

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Important:
Use solder WITH lead (Pb) !!
Unleaded solder
has very poisonous fumes!

The tools you'll need:

- soldering Iron (35W or less)
- solder (60/40 Sn/Pb, rosin core, 0.031" diameter or less)
- soldering iron stand
- cellulose kitchen sponge (*not plastic!*)
- *small* wire cutter

Soldering Iron Stand (with sponge)



Solder



Wire Cutters

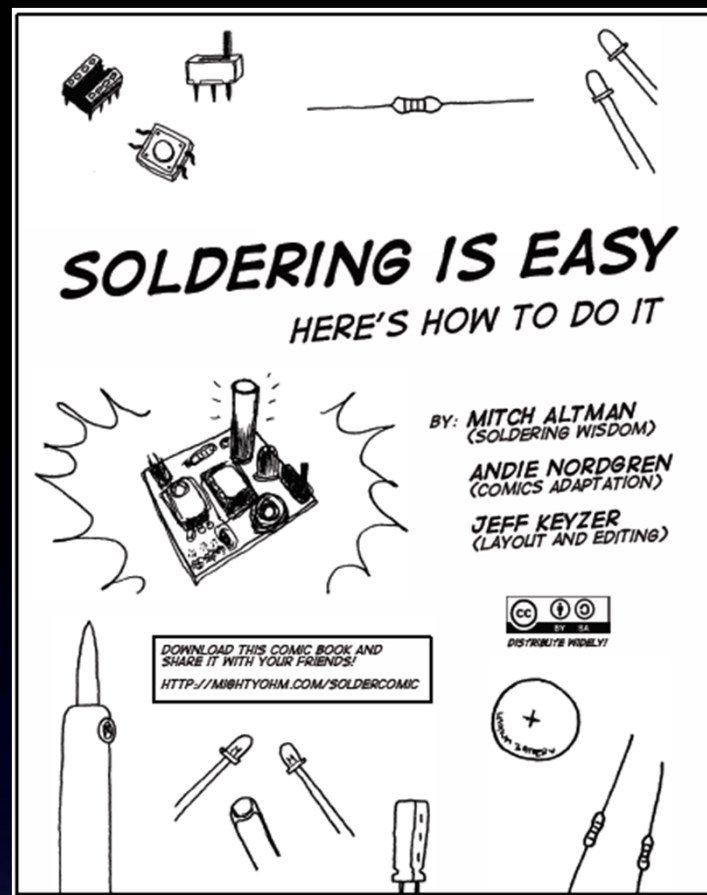


Solder Comic

Soldering iron

These are available at:
<https://CornfieldElectronics.com>

Learn To Solder



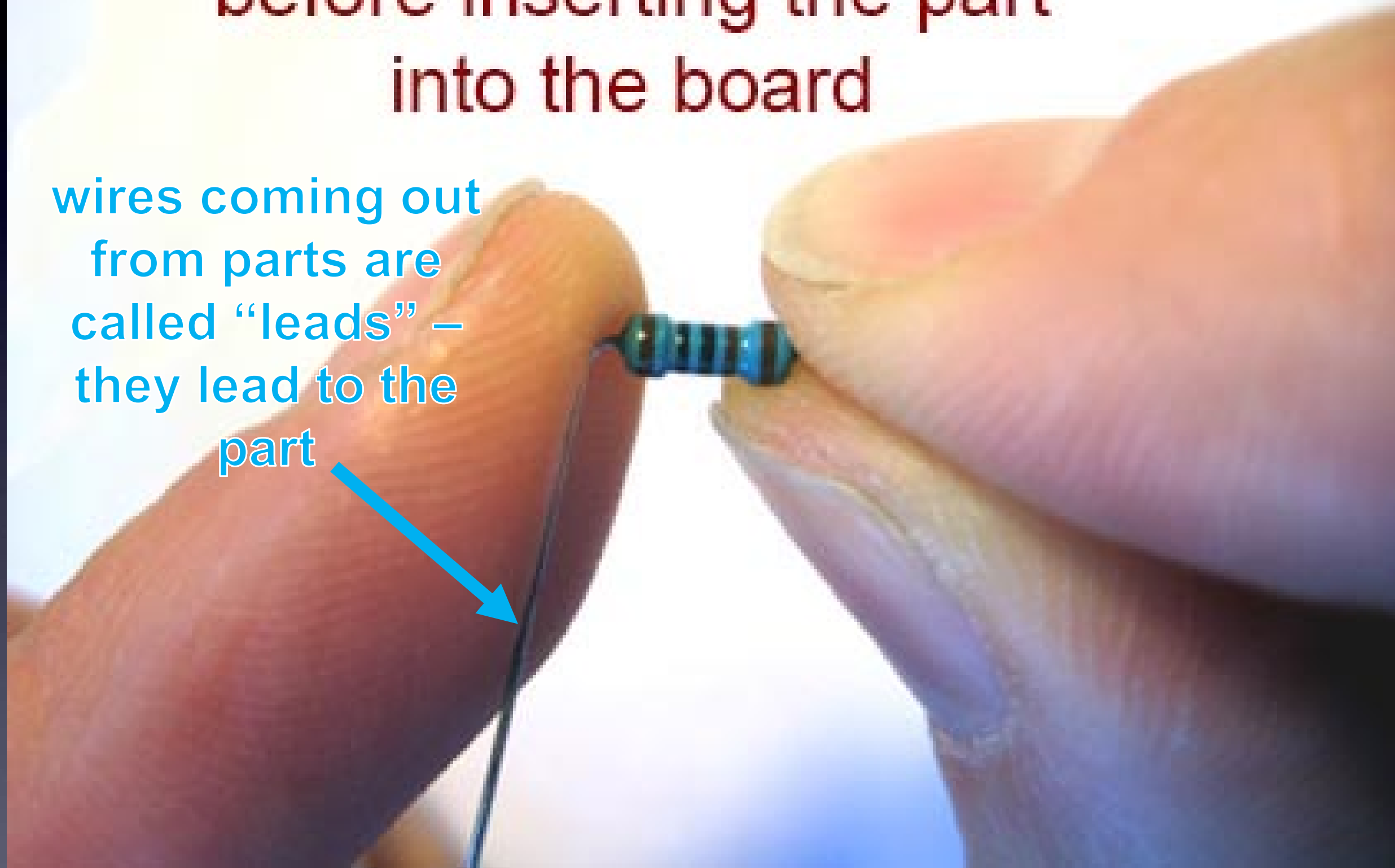
The following photos will show you how to solder a resistor.

There are no resistors in some kits. But the soldering procedure is the same for all parts.

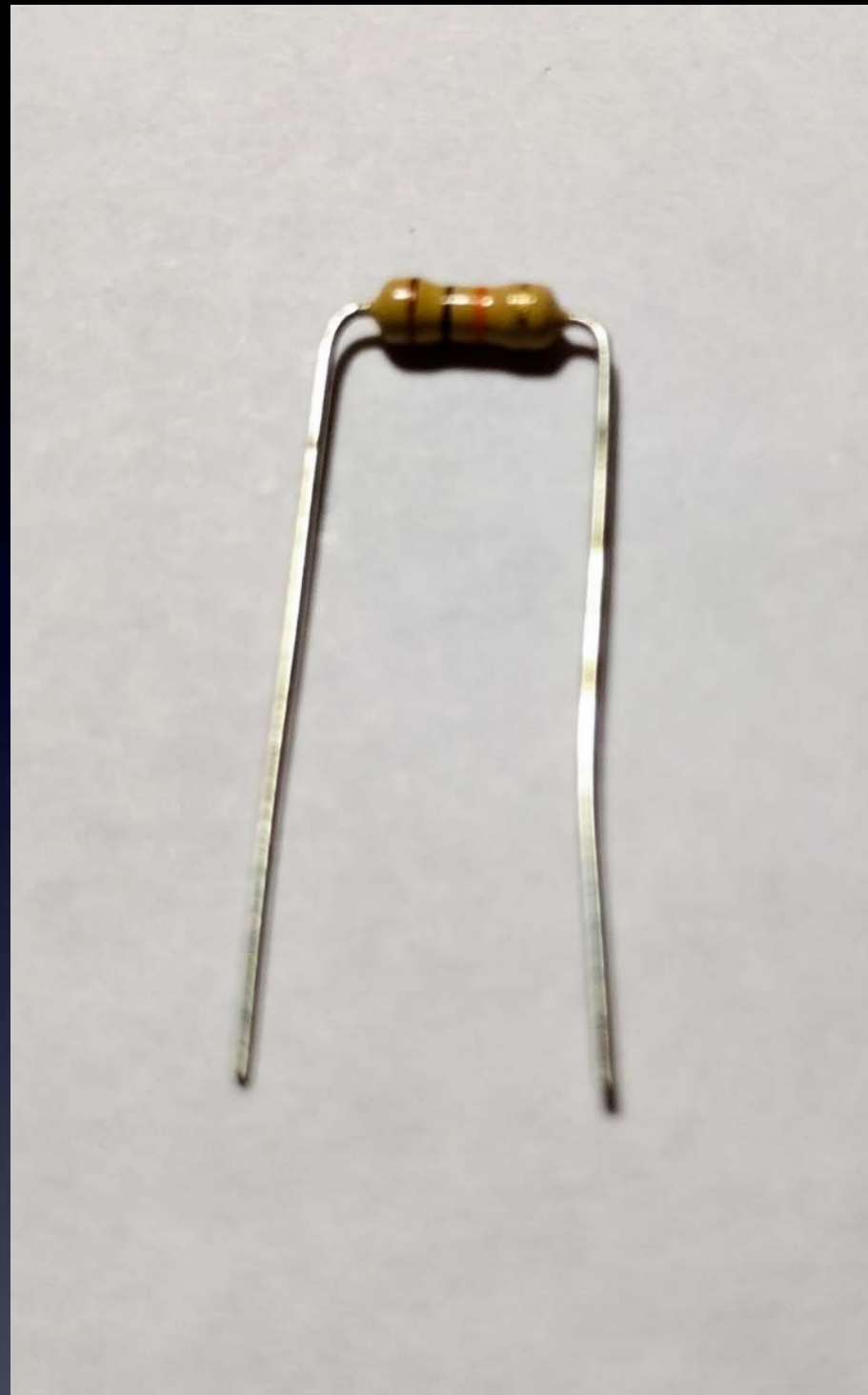
Most kits have resistors, like this part:

If necessary, Bend leads
before inserting the part
into the board

wires coming out
from parts are
called "leads" –
they lead to the
part



Most kits have resistors, like this part:

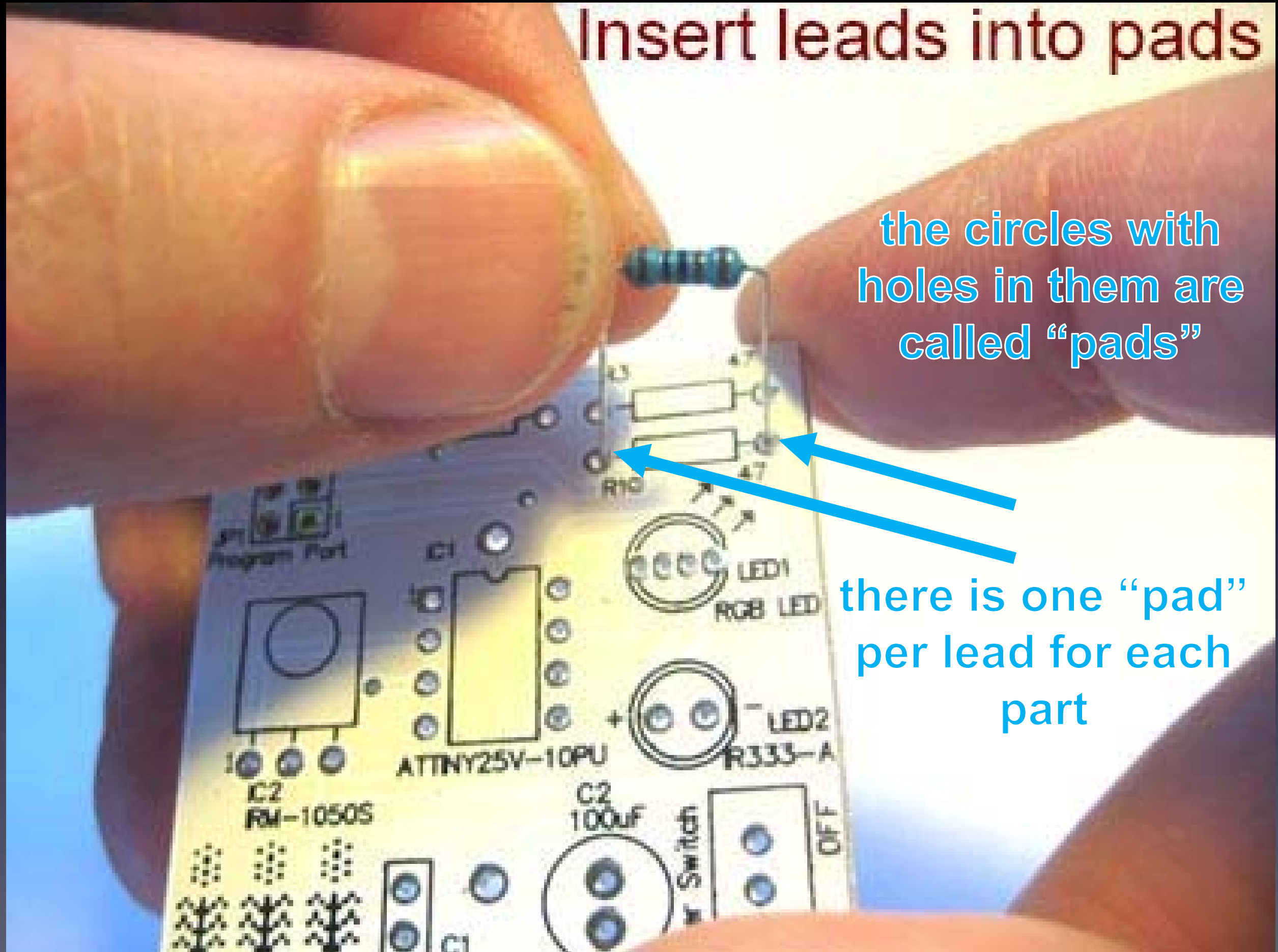


this is how a resistor will look *before* inserting it into the board

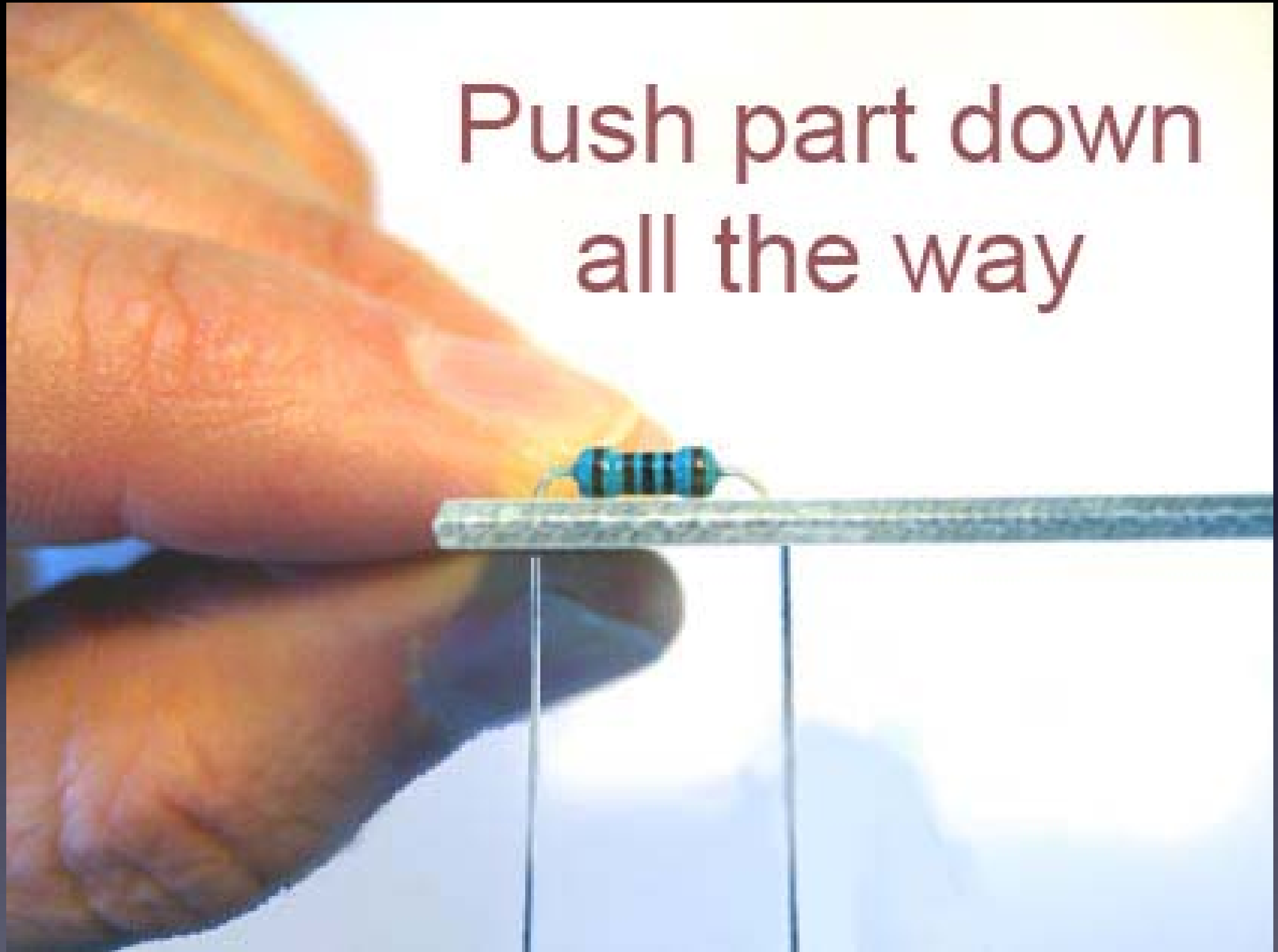
Insert leads into pads

the circles with holes in them are called "pads"

there is one "pad" per lead for each part



Push part down
all the way





Upside down

Wires bent
half way
out (only half way)
like a “V”

so that the part won't fall out while soldering it



How to hold a soldering iron iron

(Like a pencil – held from underneath)

Important

The perfect kind of solder for
electronics:

60/40 rosin core,

0.031" (0.7mm) diameter (or smaller)

(63/37 is also good)

Important:

Use solder WITH lead (Pb) !!
lead-free solder
has very poisonous fumes!

3 Safety Tips...

Safety Tip #1:

Hot !!

(When you touch the tip,
you will let go quickly every time!)

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)

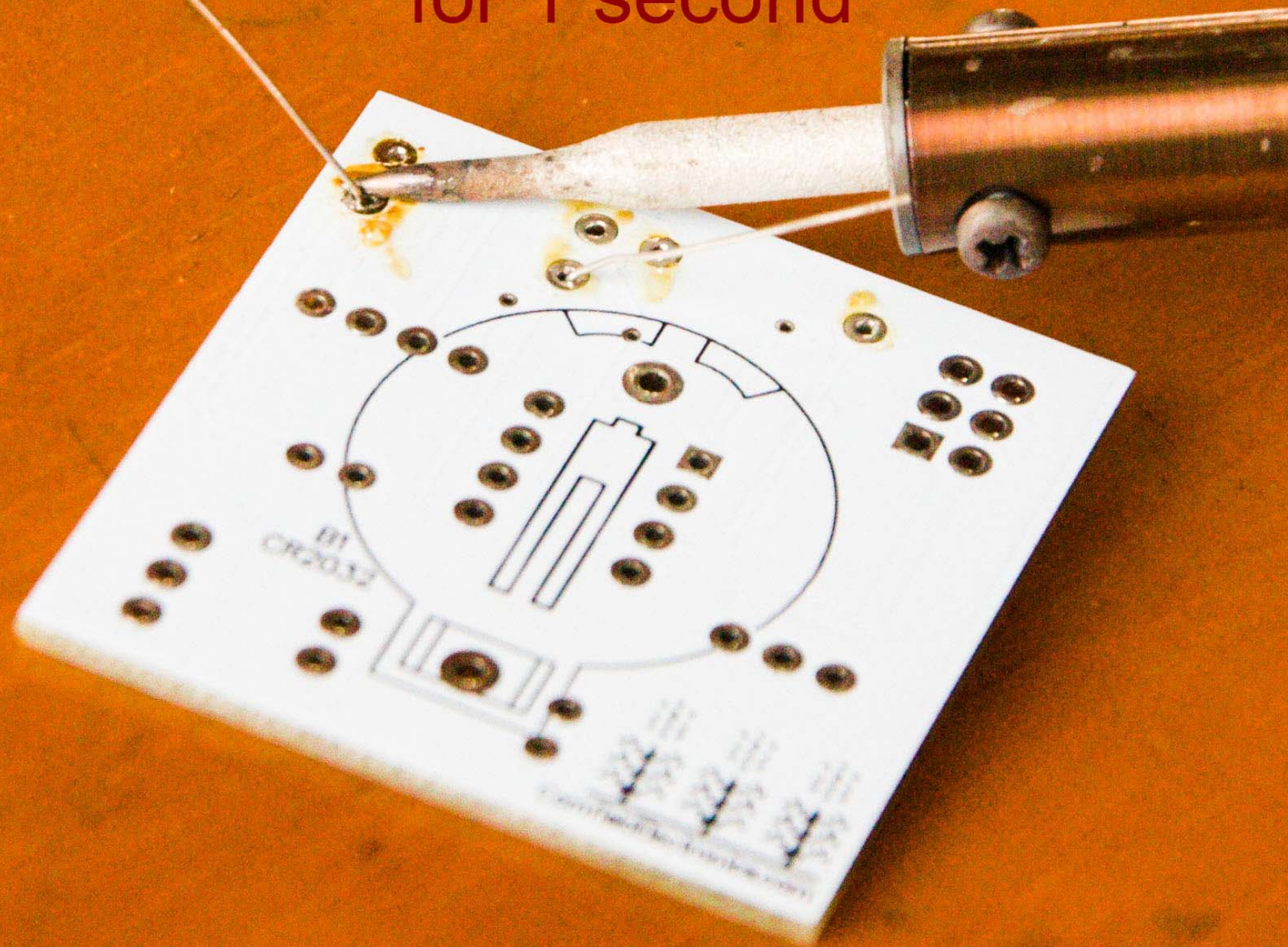
Bang (lightly) 3 times,

Swipe, Rotate, Swipe (on the sponge):

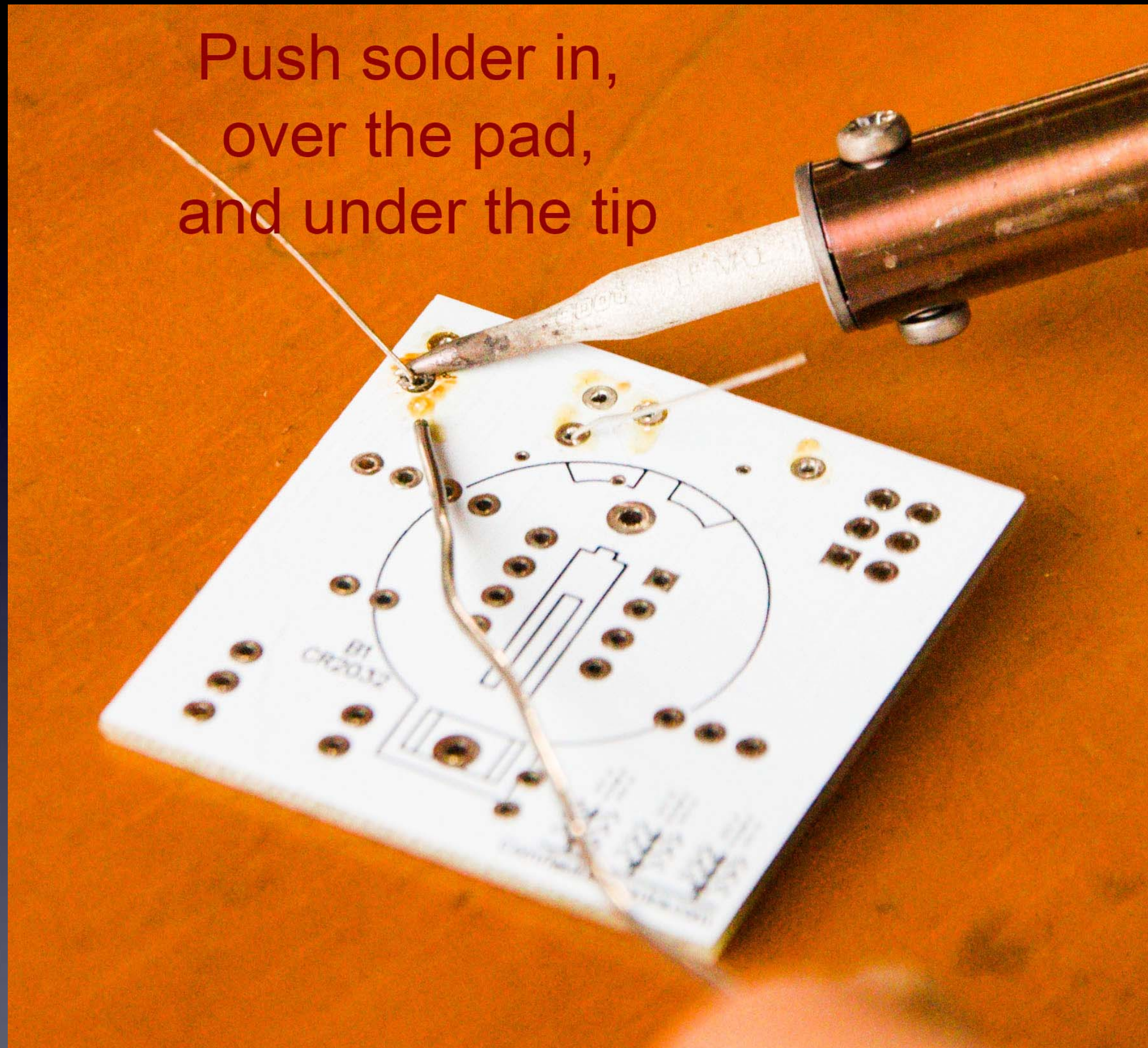
Keep the tip shiny silver!

knock solder off the tip

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



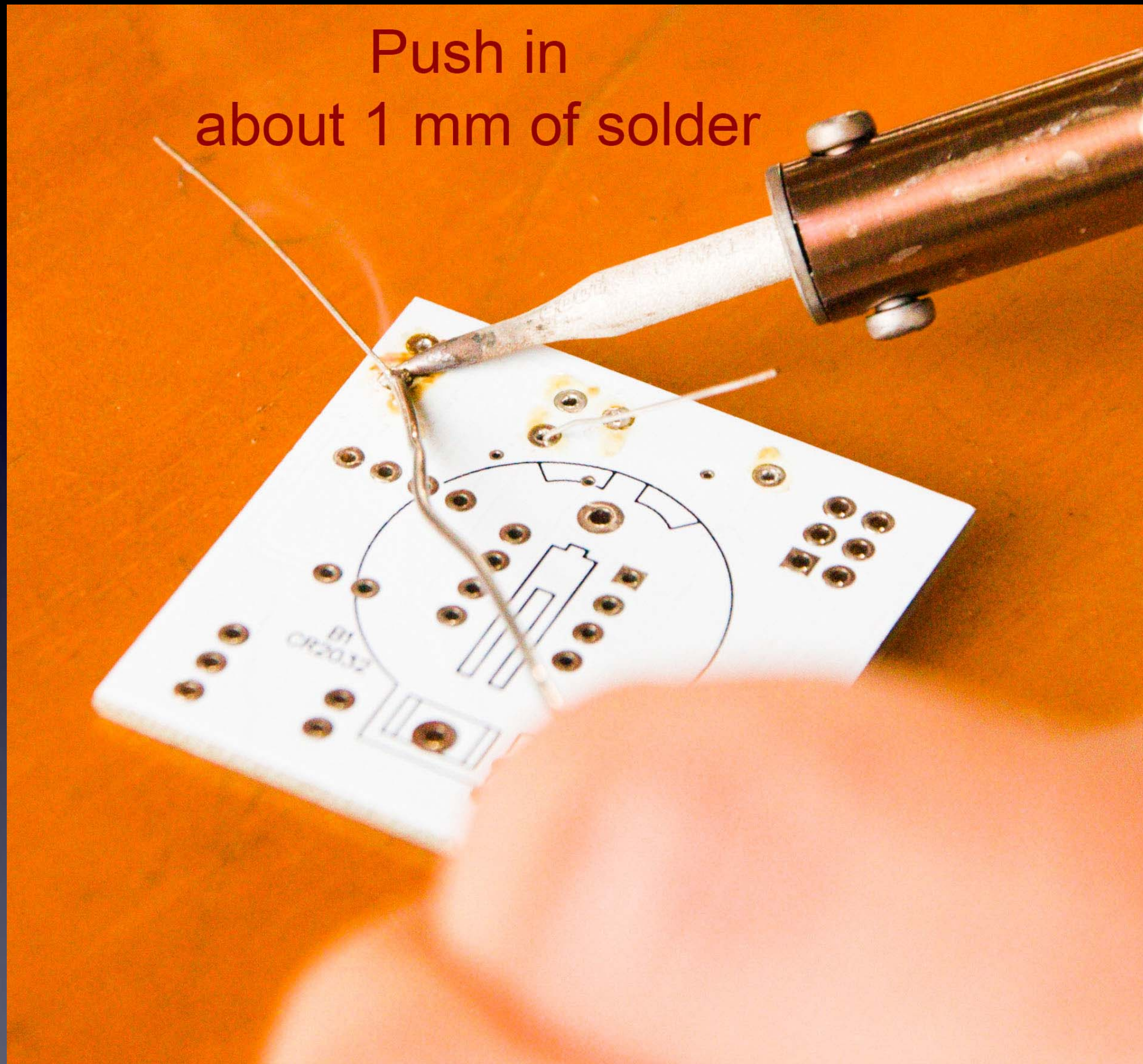
Do this quickly (slowly doesn't work well) – solder in & out in about 1 second



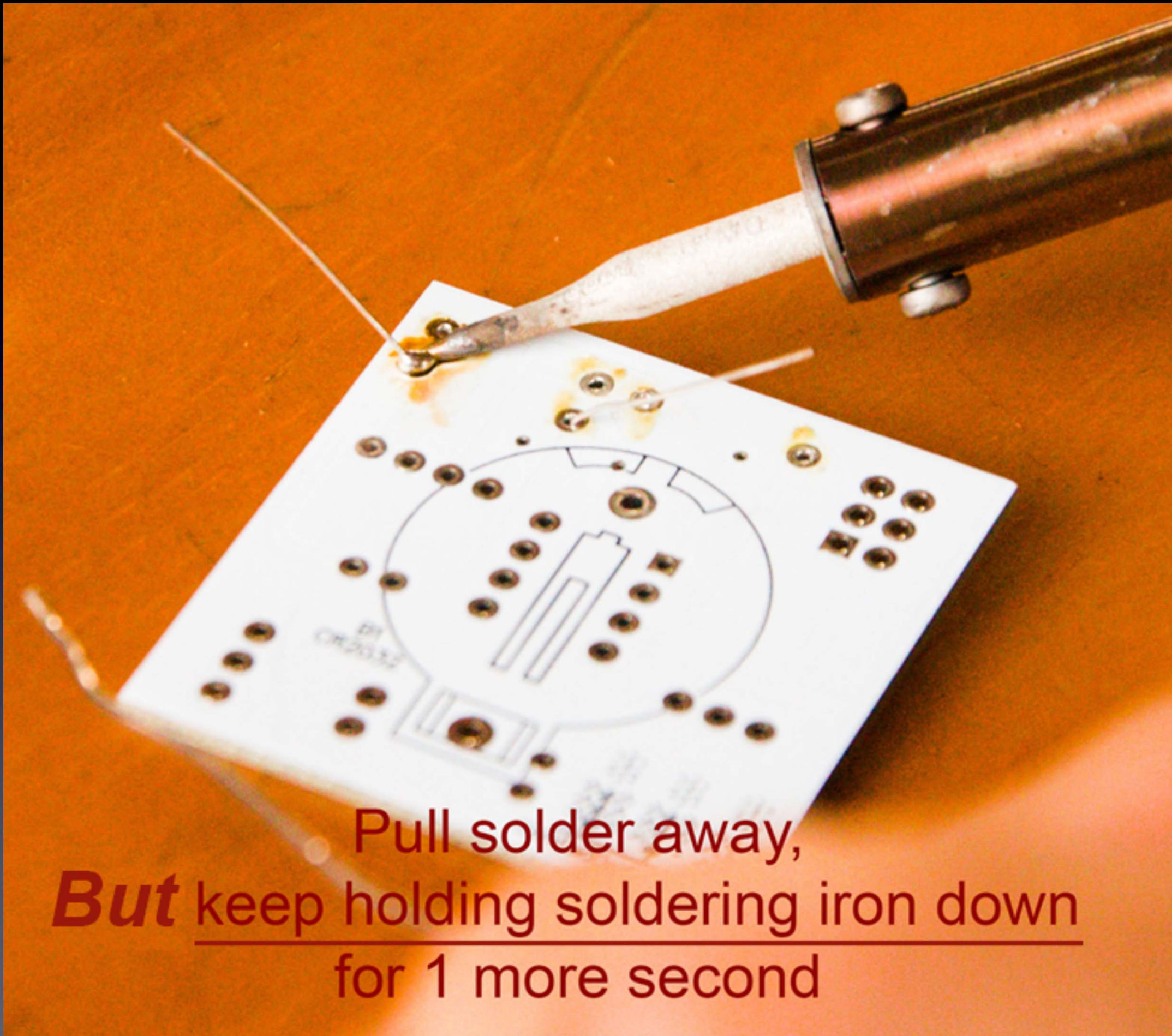
Push solder in,
over the pad,
and under the tip

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

Do this quickly (slowly doesn't work well) – solder in & out in about 1 second



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



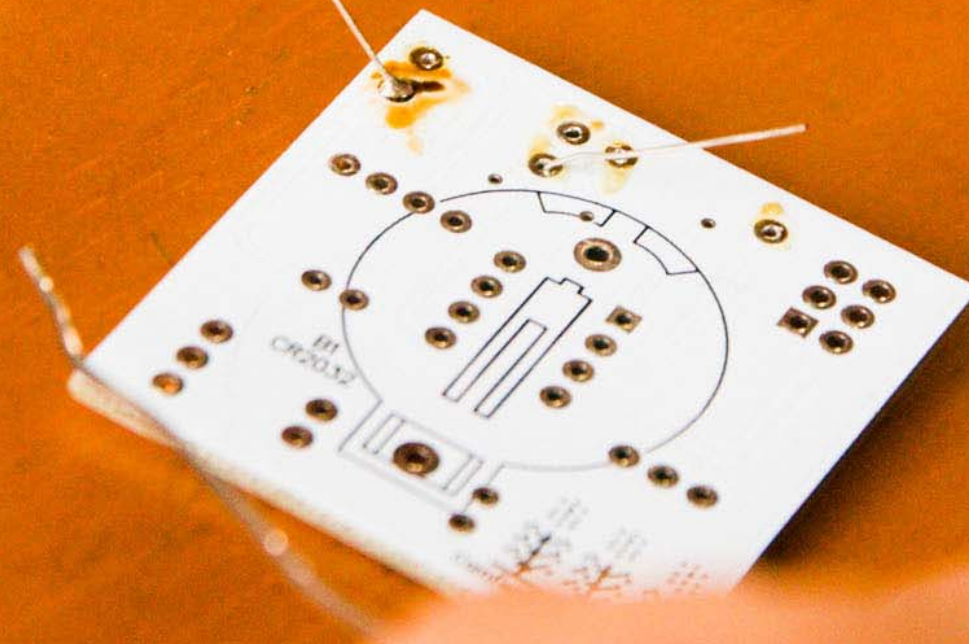
Pull solder away,
But keep holding soldering iron down
for 1 more second

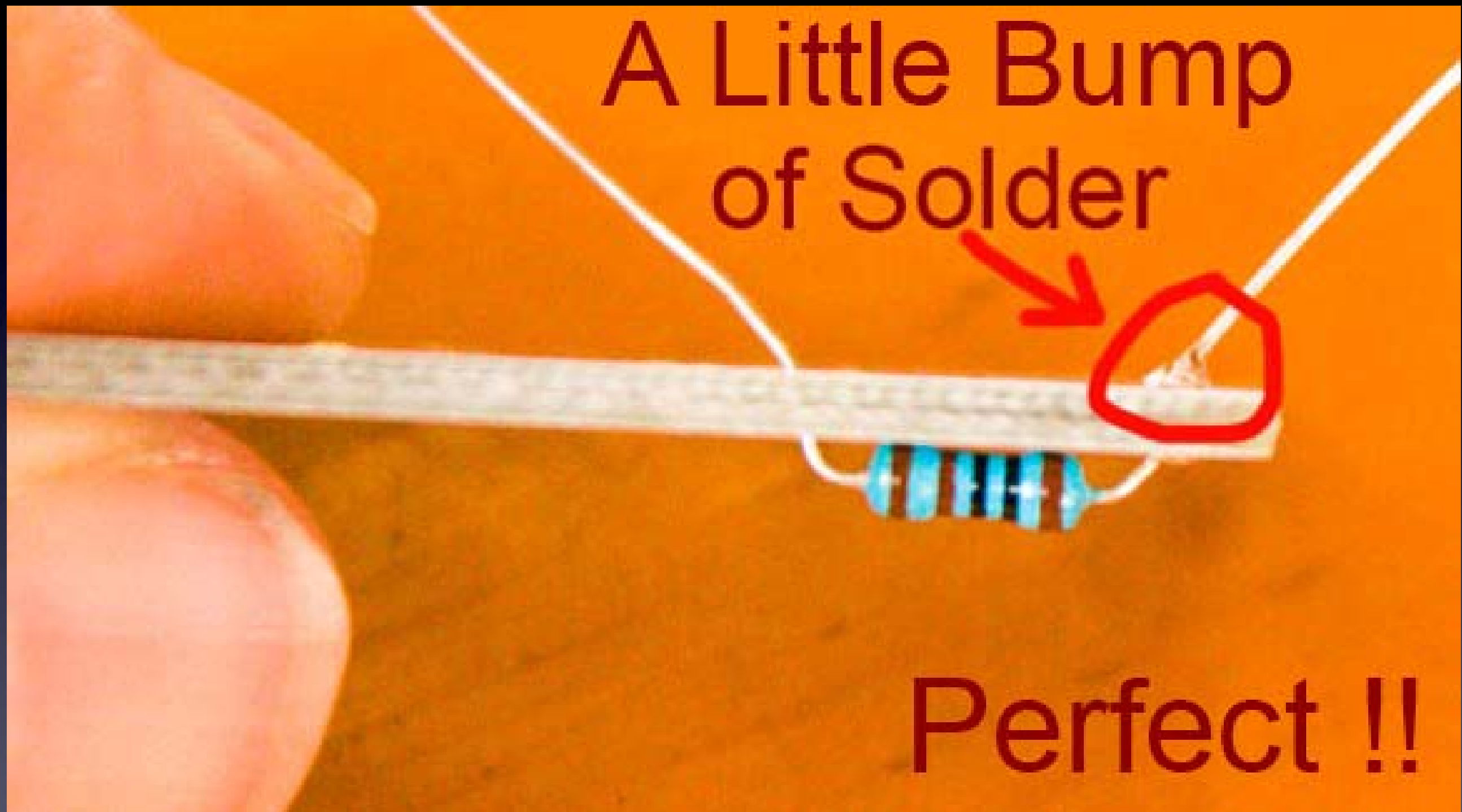
Secret #2:

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

Now

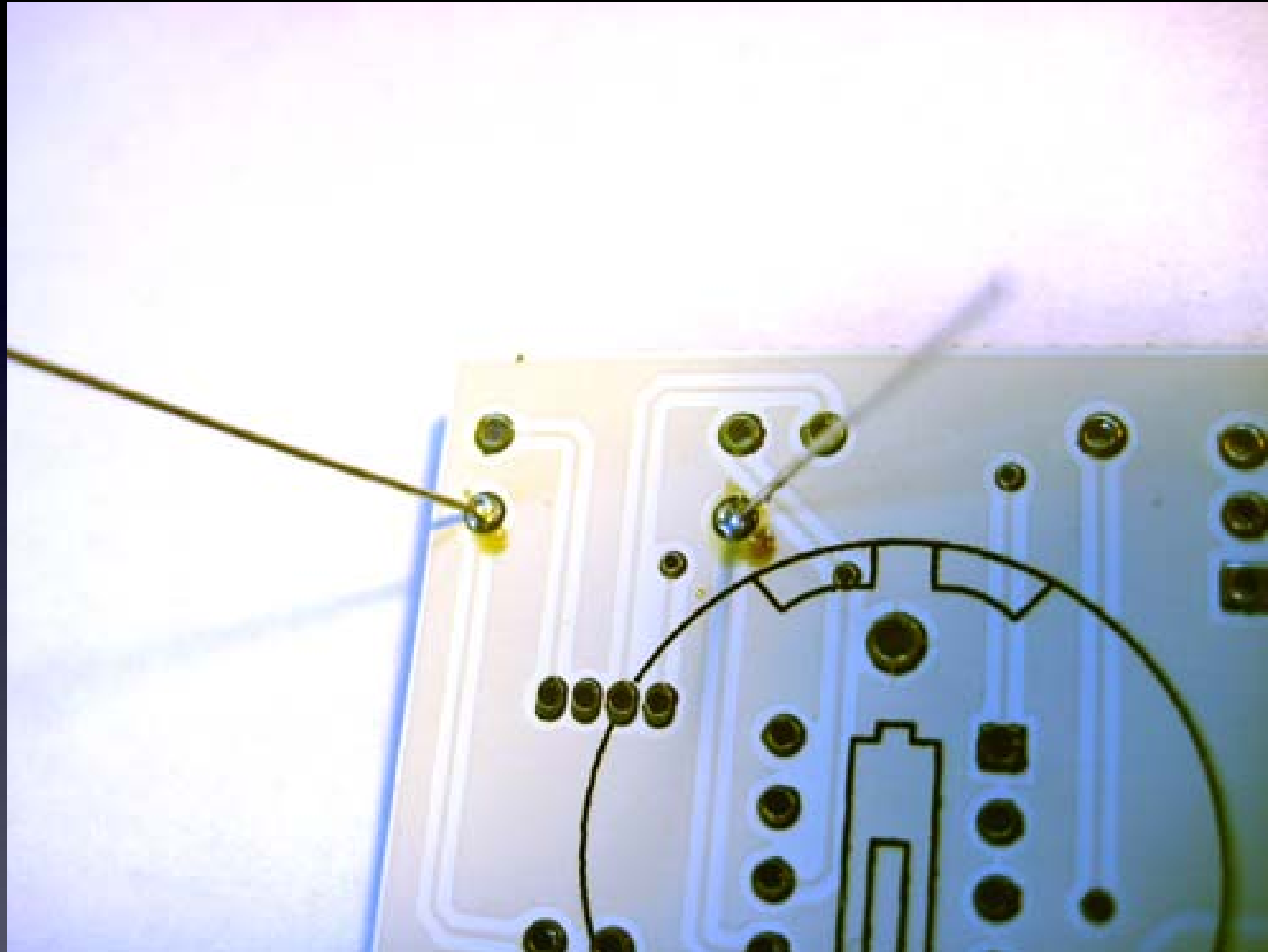
Lift soldering iron





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.

Solder all of the leads of the part to the board

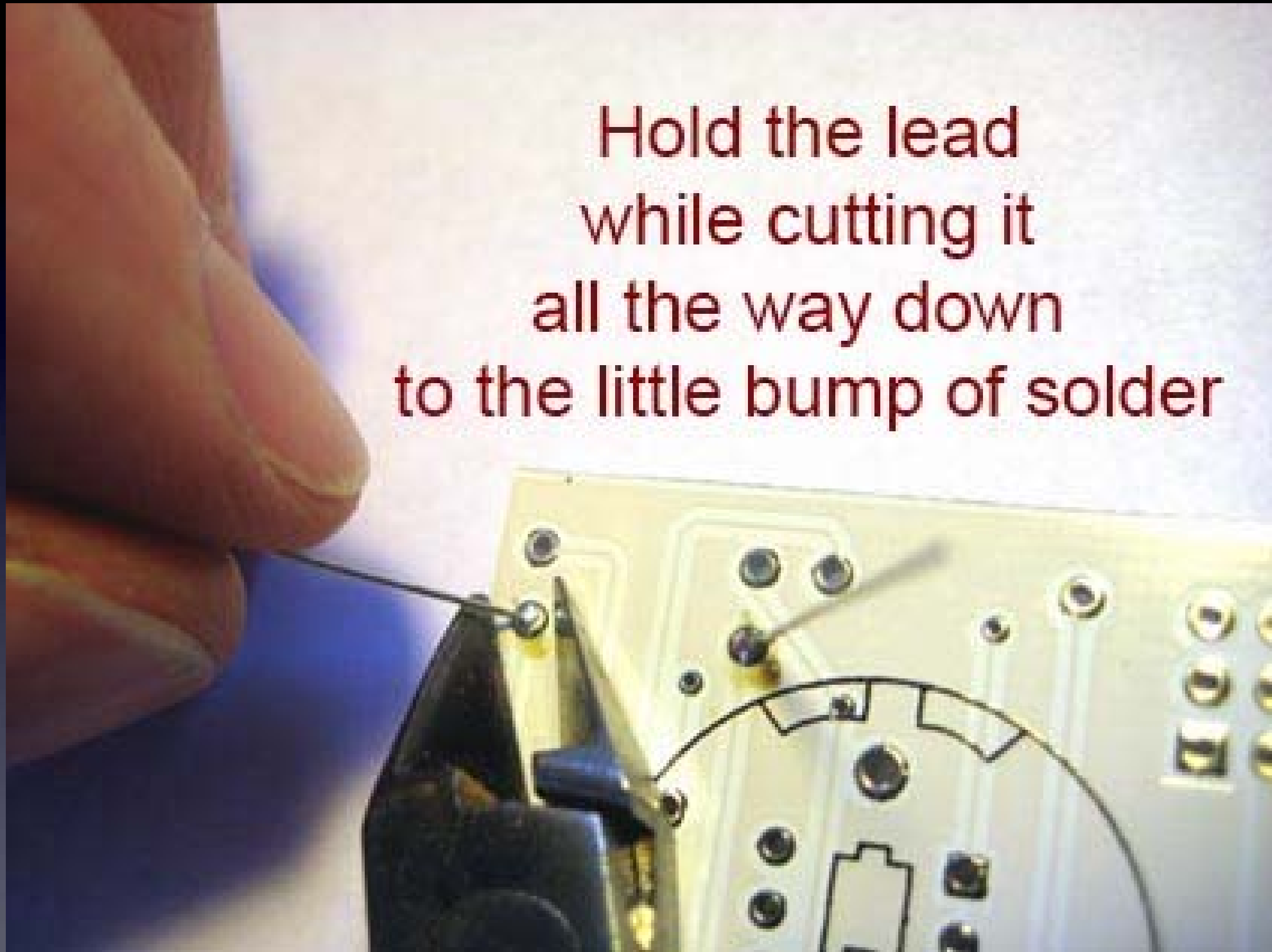


For this part, there are two leads

Here you can see two good solder connections

Now cut the leads short

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 !

(or it will fly into your eye!)

(They like doing that – so please hold or cover the lead when you cut.)



All done !

No wires sticking out

One part at a time

Till all the parts are soldered

Then put in the batteries,

Turn it on,

And it works!

(Or you start debugging.)



I
CAN
SOLDER