

Soldering Is Easy!

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Author of **The Brain Machine** in MAKE Magazine #10

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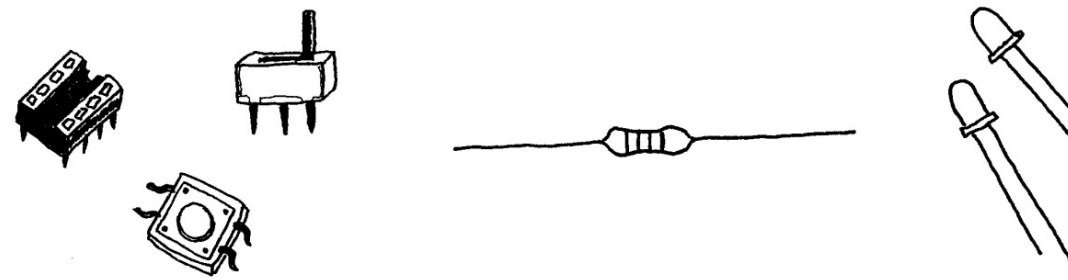
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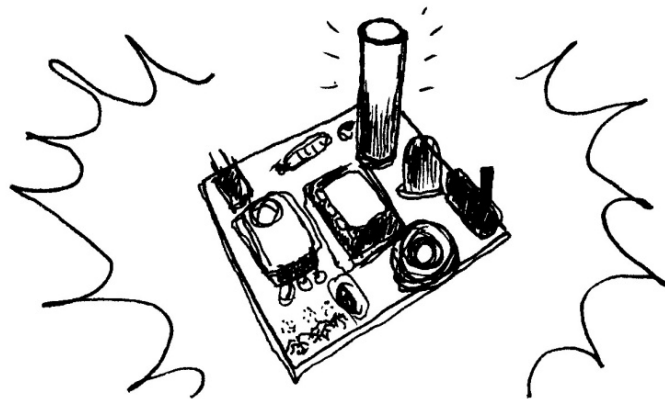
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SOLDERING IS EASY

HERE'S HOW TO DO IT



BY: **MITCH ALTMAN**
(SOLDERING WISDOM)

ANDIE NORDGREN
(COMICS ADAPTATION)

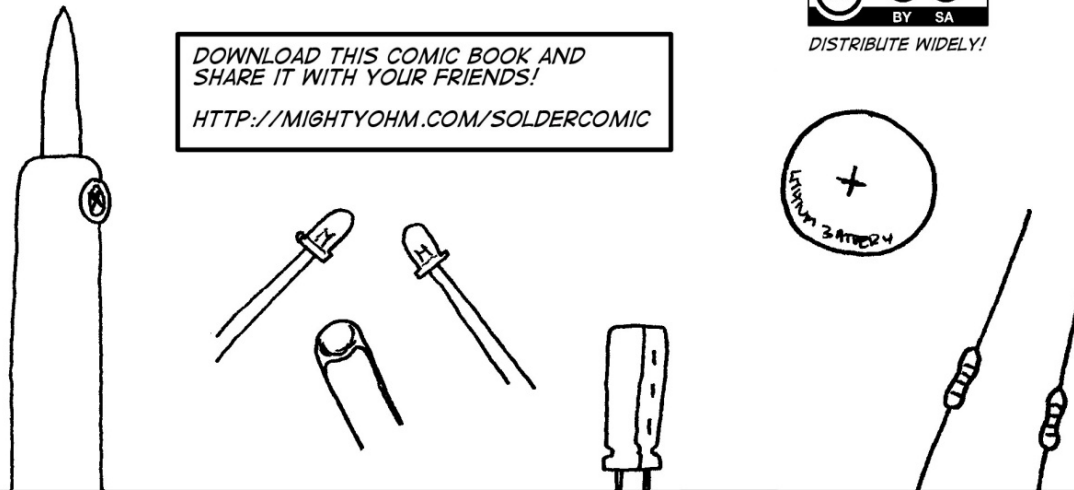
JEFF KEYZER
(LAYOUT AND EDITING)

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[HTTP://MIGHTYOHM.COM/SOLDERCOMIC](http://mightyohm.com/soldercomic)



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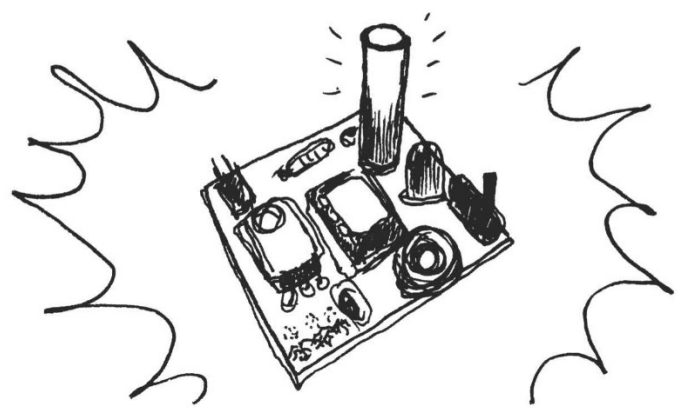


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SOLDAR ES FÁCIL!

APRENDE CÓMO HACERLO



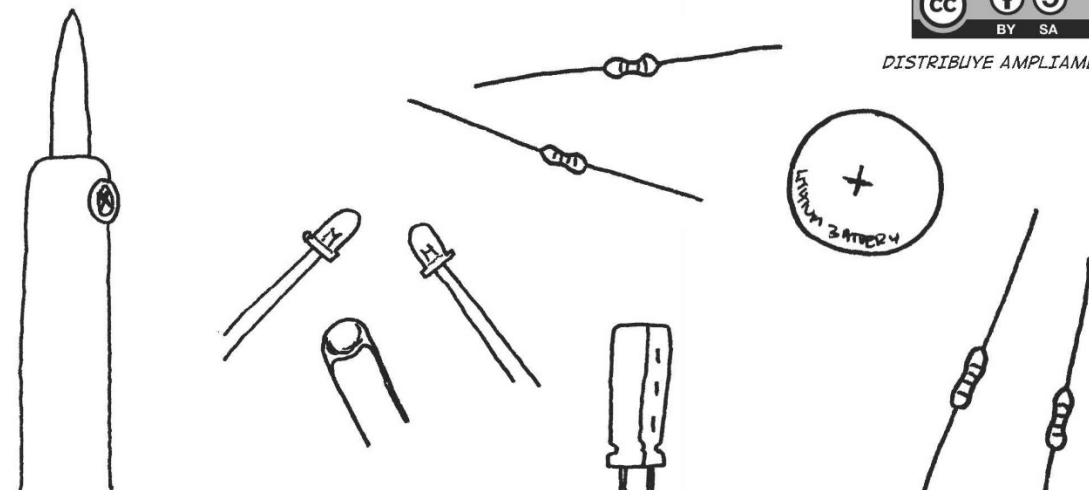
POR: MITCH ALTMAN
(SABIDURÍA EN SOLDADO)

ANDIE NORDGREN
(ADAPTACIÓN A COMIC)

JEFF KEYZER
(DISEÑO Y EDICIÓN)



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LÖTEN IST EINFACH SO WIRD ES GEMACHT

VON: MITCH ALTMAN
(LÖTWEISHEITEN)

ANDIE NORDGREN
(KOMIK-UMSETZUNG)

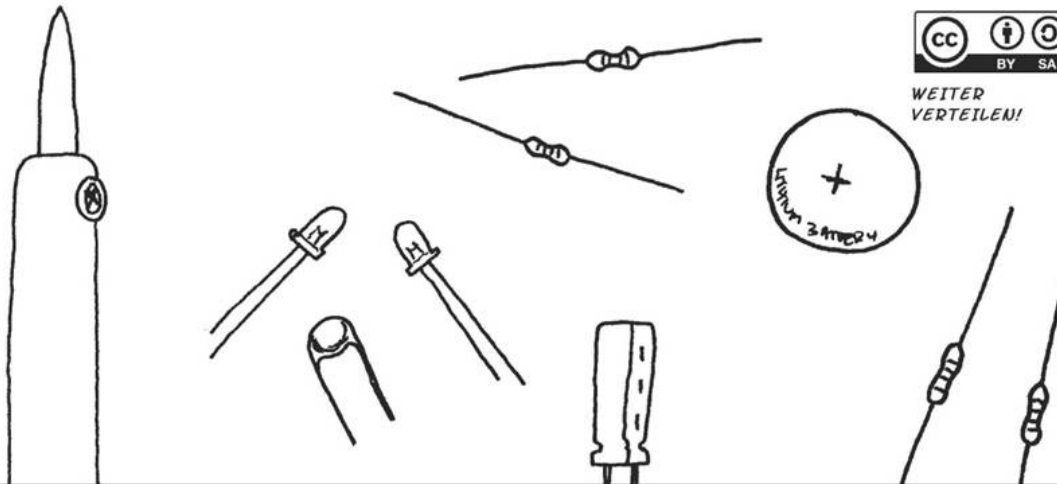
JEFF KEYZER
(LAYOUT UND BEARBEITUNG)

ALEXANDER BODORA
(ÜBERSETZUNG UND BEARBEITUNG)

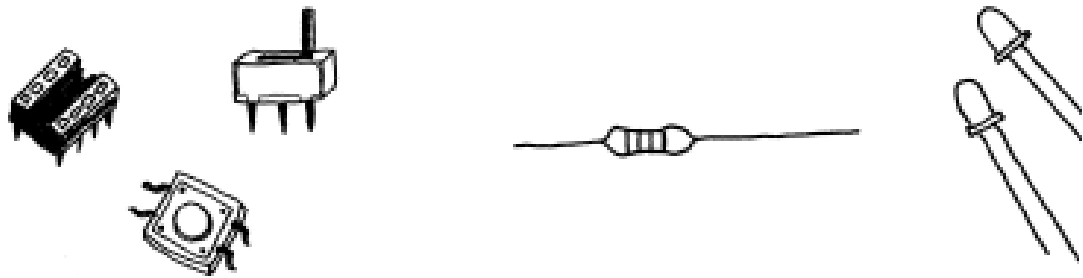
RICHARD MEINSEN
(ÜBERARBEITUNG UND KORREKTUR)



WEITER
VERTEILEN!

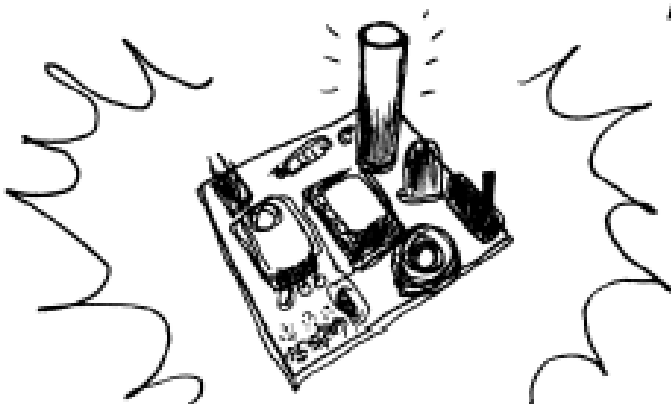


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SOLDER C'EST FACILE

VOICI COMMENT FAIRE



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

ANDIE NORDGREN
(ADAPTATION BD)

JEFF KEYZER
(EDITION, MISE EN PAGE)

SNOOTLAB
(TRADUCTION FR.)

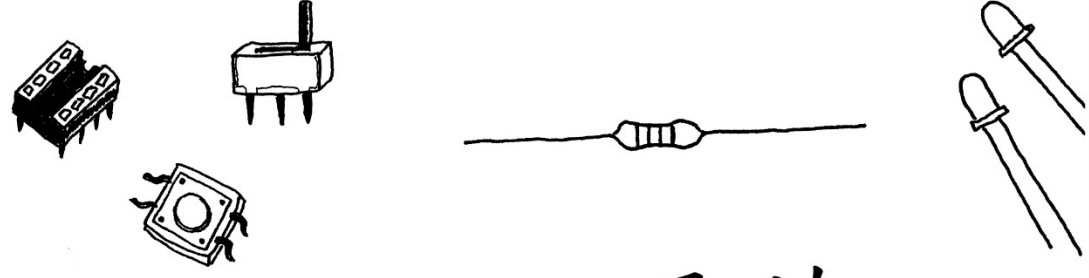


A DIFFUSER LARGEMENT !

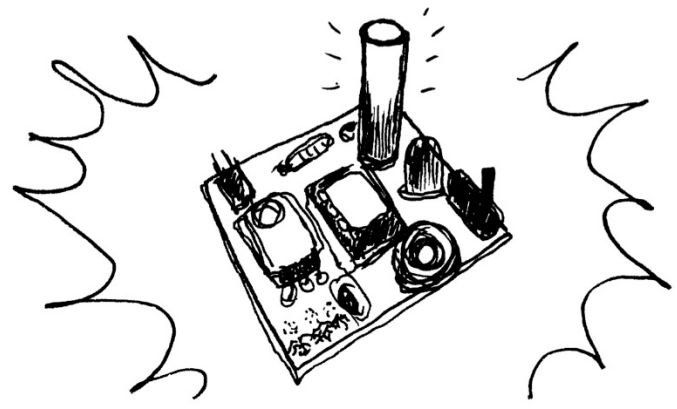
TELECHARGEZ CETTE BD
ET PARTAGEZ LA AVEC VOS AMIS !
[HTTP://MIGHTYOHM.COM/SOLDERCOMIC](http://mightyohm.com/soldercomic)



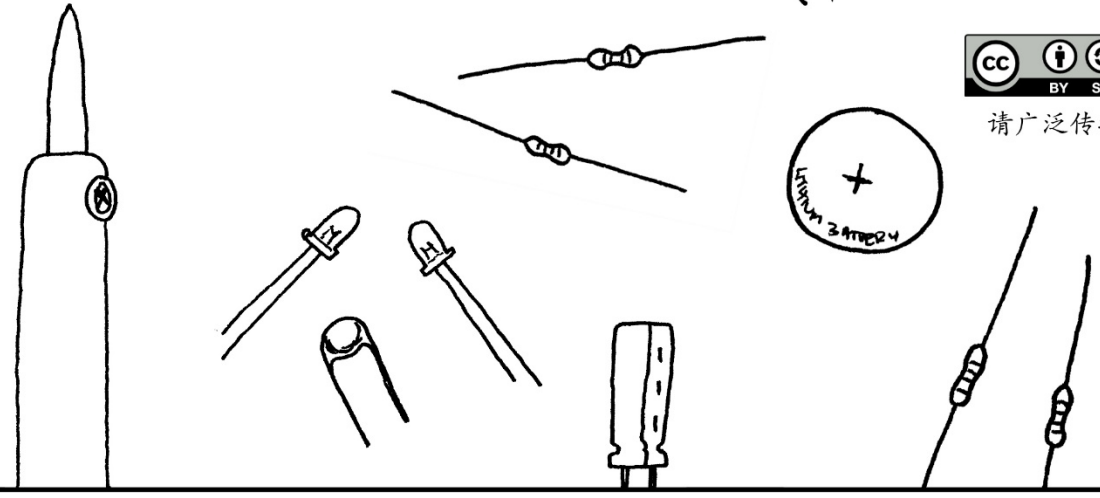
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焊接是容易的 告诉你怎么做



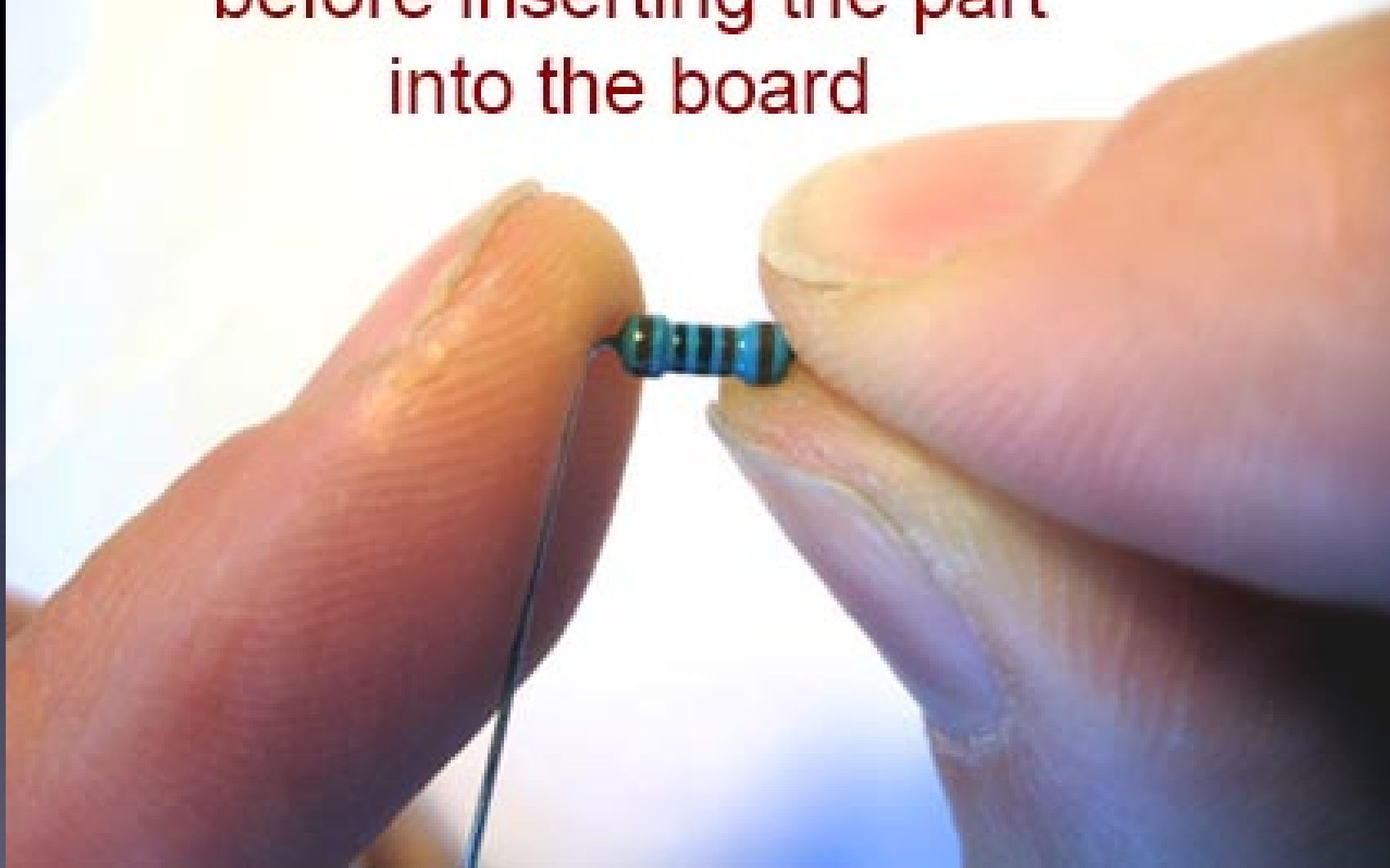
BY: **MITCH ALTMAN**
(焊接智者)
ANDIE NORDGREN
(漫画编剧)
JEFF KEYZER
(排版编辑)
LINKIN LI
(中文版翻译)
MIN LIN HSIEH
(中文版编辑)



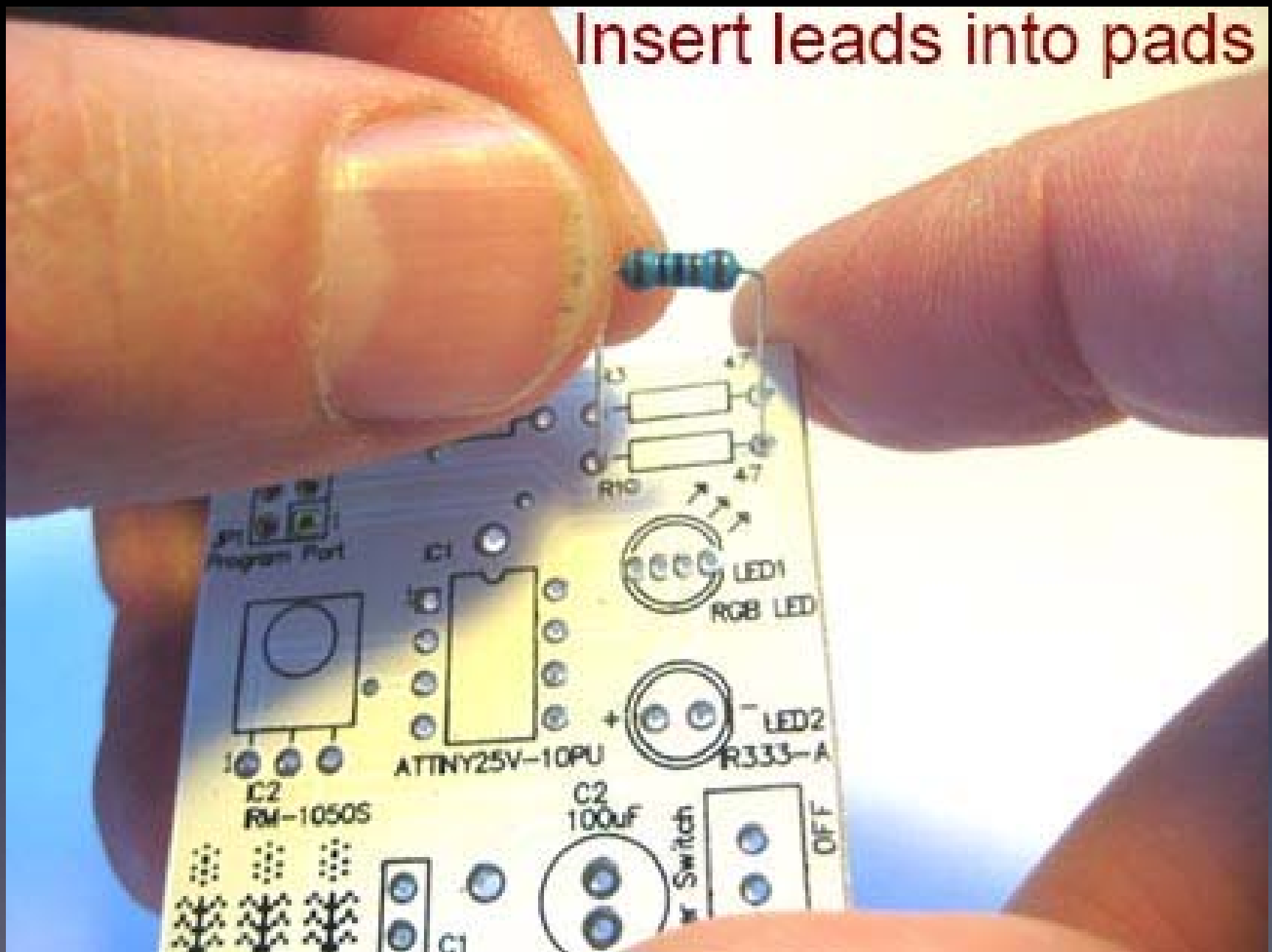
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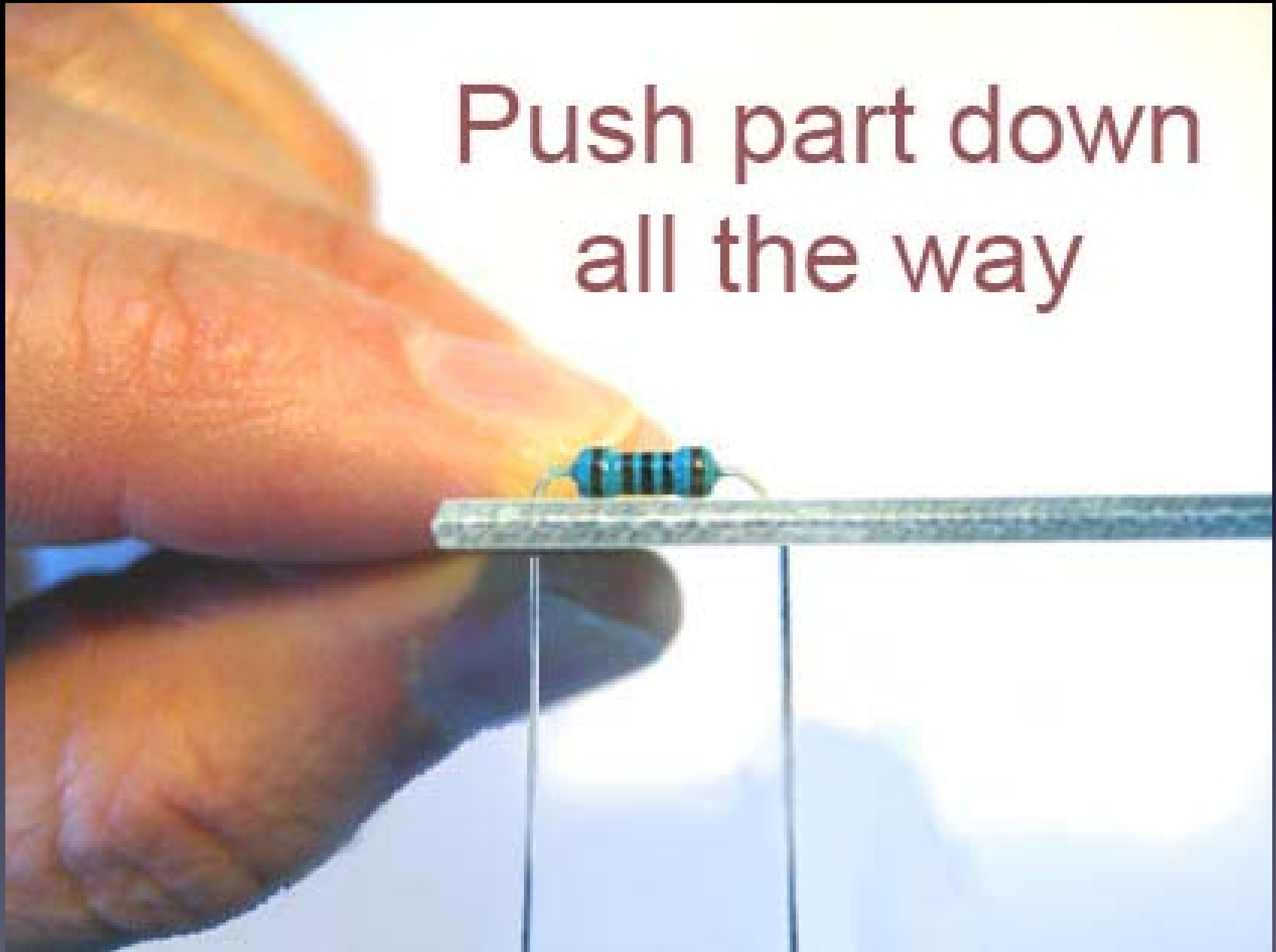
Bend leads
before inserting the part
into the board



Insert leads into pads



Push part down
all the way



A close-up photograph of a person's hand holding a thin metal wire. A small blue resistor is attached to the wire. The wire is bent at a 90-degree angle. The text 'Upside down' is written in red at the top, and 'Wires bent half way out' is written in red on the left side. The background is a bright, slightly blurred outdoor scene.

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!

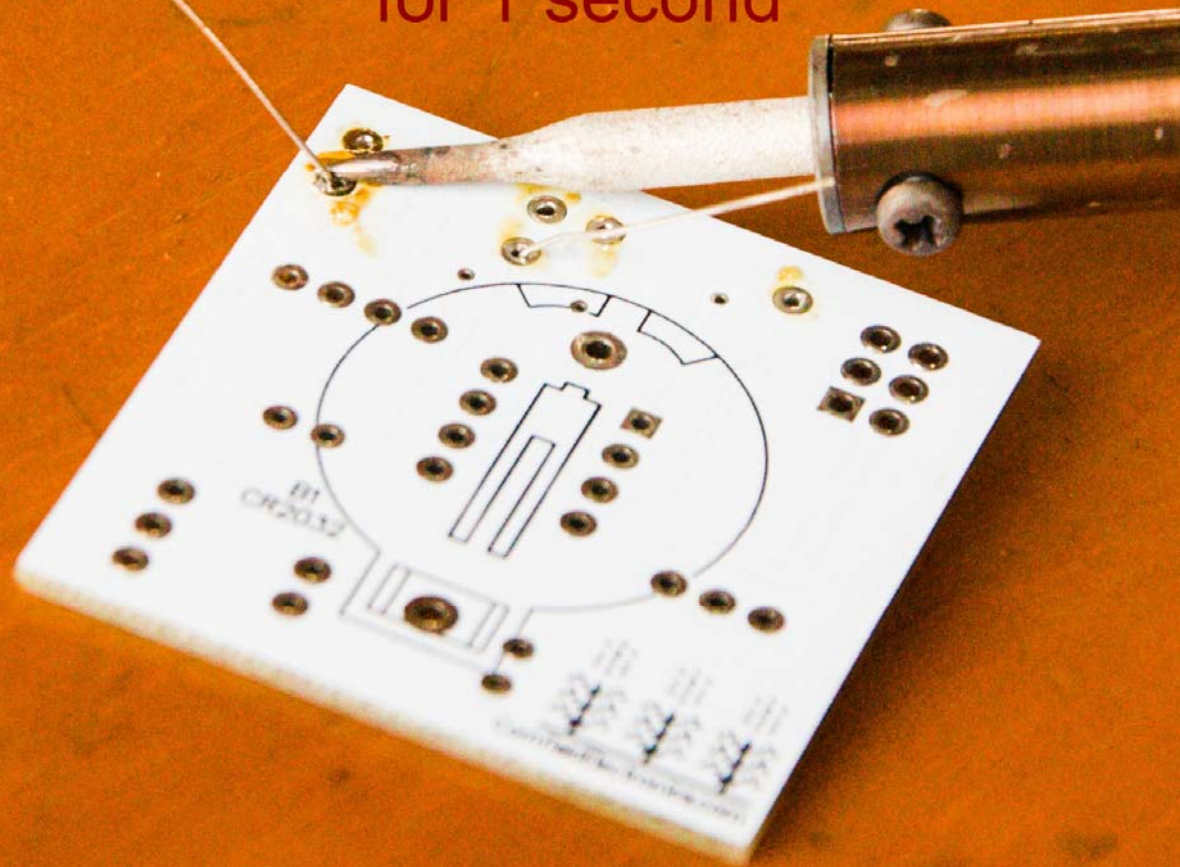
(before every solder connection)

Bang 3 times,

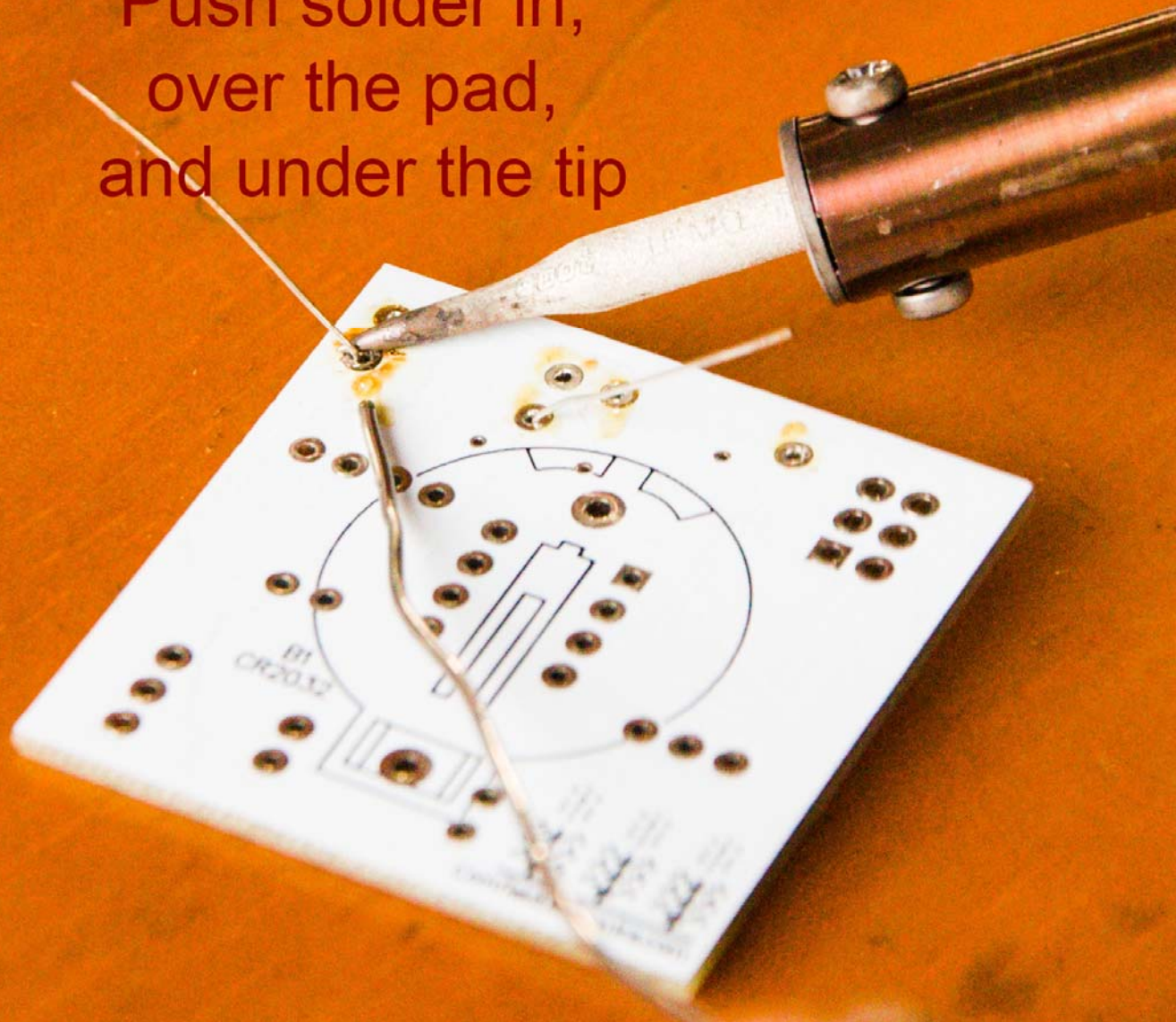
Swipe, Rotate, Swipe:

Keep the tip shiny silver!

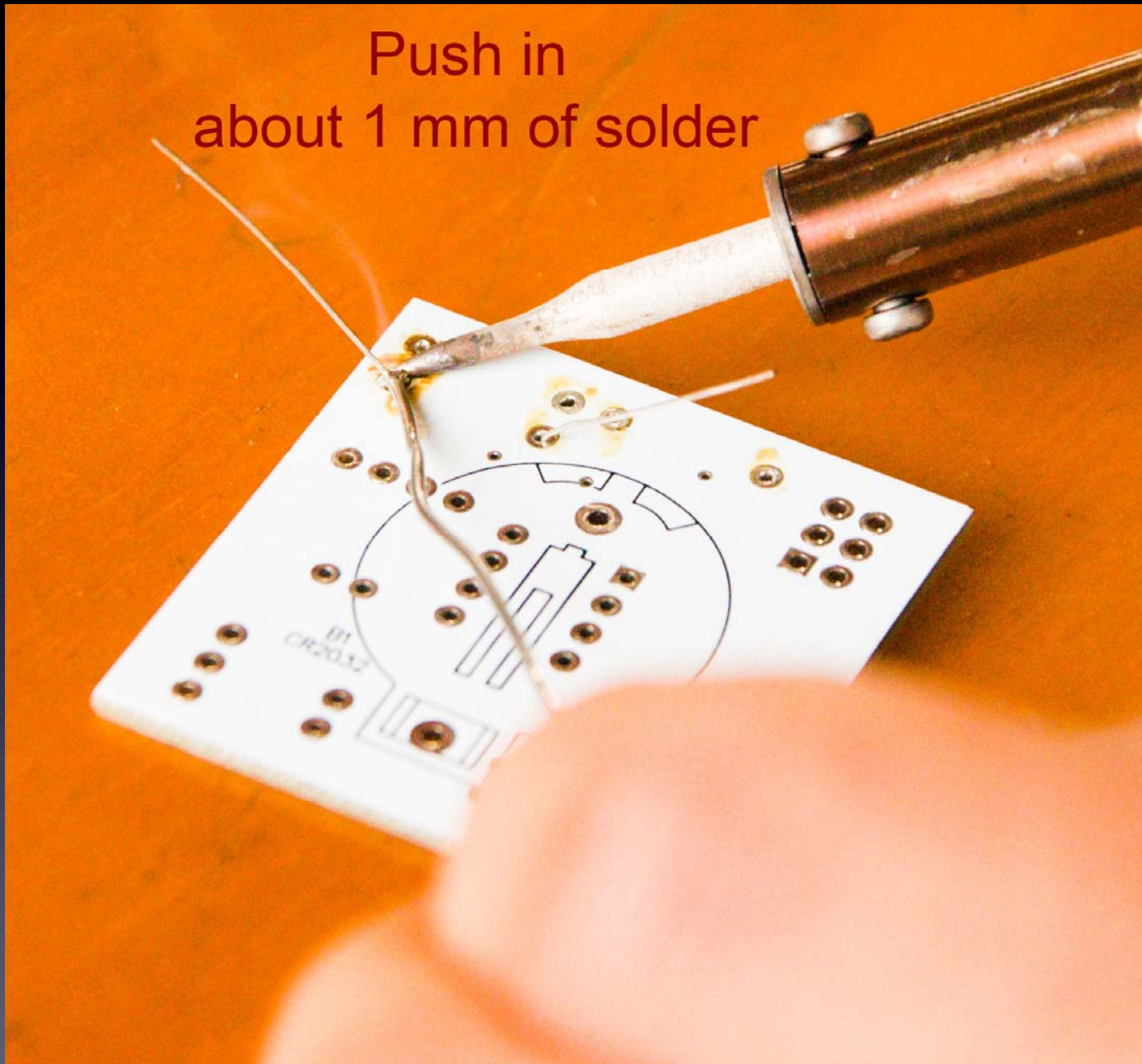
Lay clean tip across half of the pad,
touching the pad and lead
for 1 second



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)!



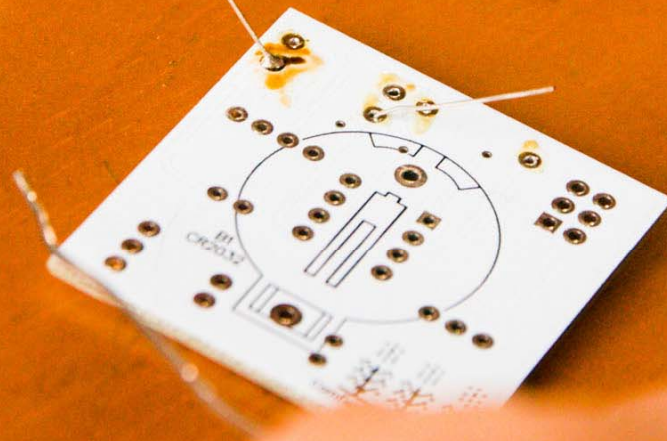
Pull solder away,
But keep holding soldering iron down
for 1 more second

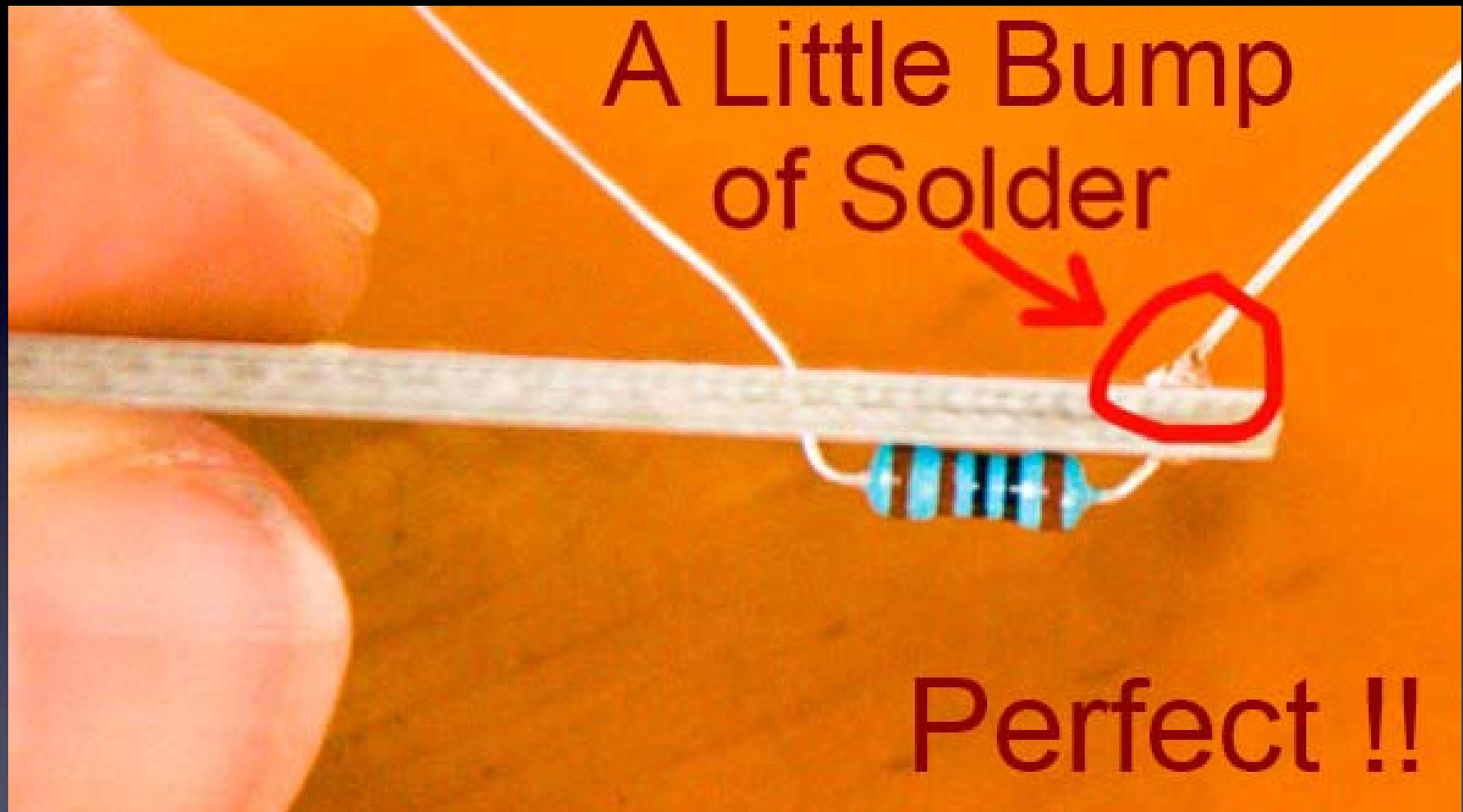
Secret #2:

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

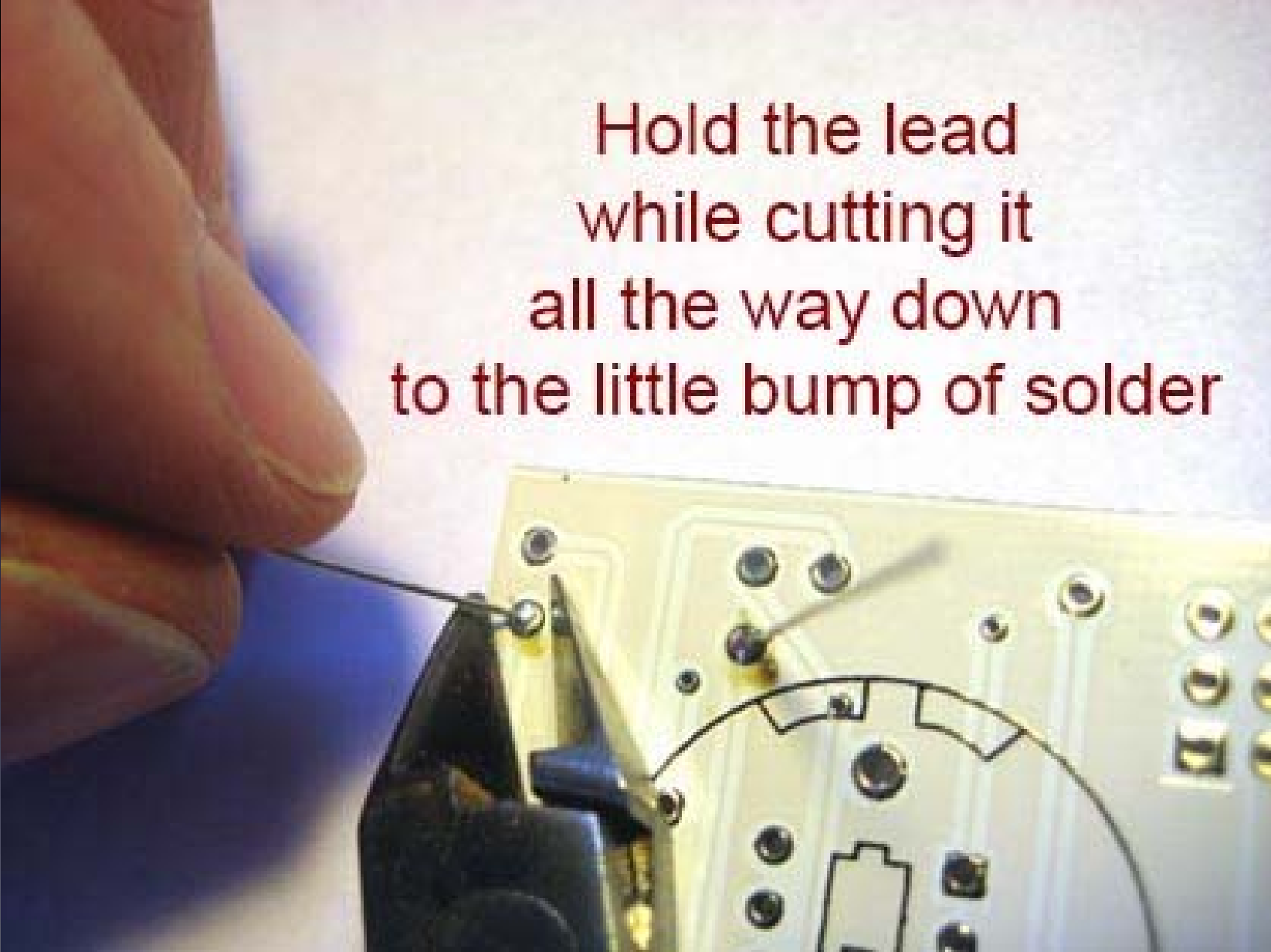
Now

Lift soldering iron





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 !

(Keep the leads from turning into missiles that go into your eyes!)



All done !

No wire 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.)