Stuff I got on Amazon

Original Presentation June 14 2018

1. Frequency Counter
2. Component Tester
3. Assorted Bits

Eric O / KE6MLF

Frequency Counter – **Listing**

Frequency counter $5.19

Actual Amazon item was “Counter - TOOGOO (R) 50 MHz Crystal Oscillator Frequency Counter Testers DIY Kit 5 Resolution Digital Red:

Item B01B2O80P4

Color: Red, Simple Construction, compact design, easy to install and debug.

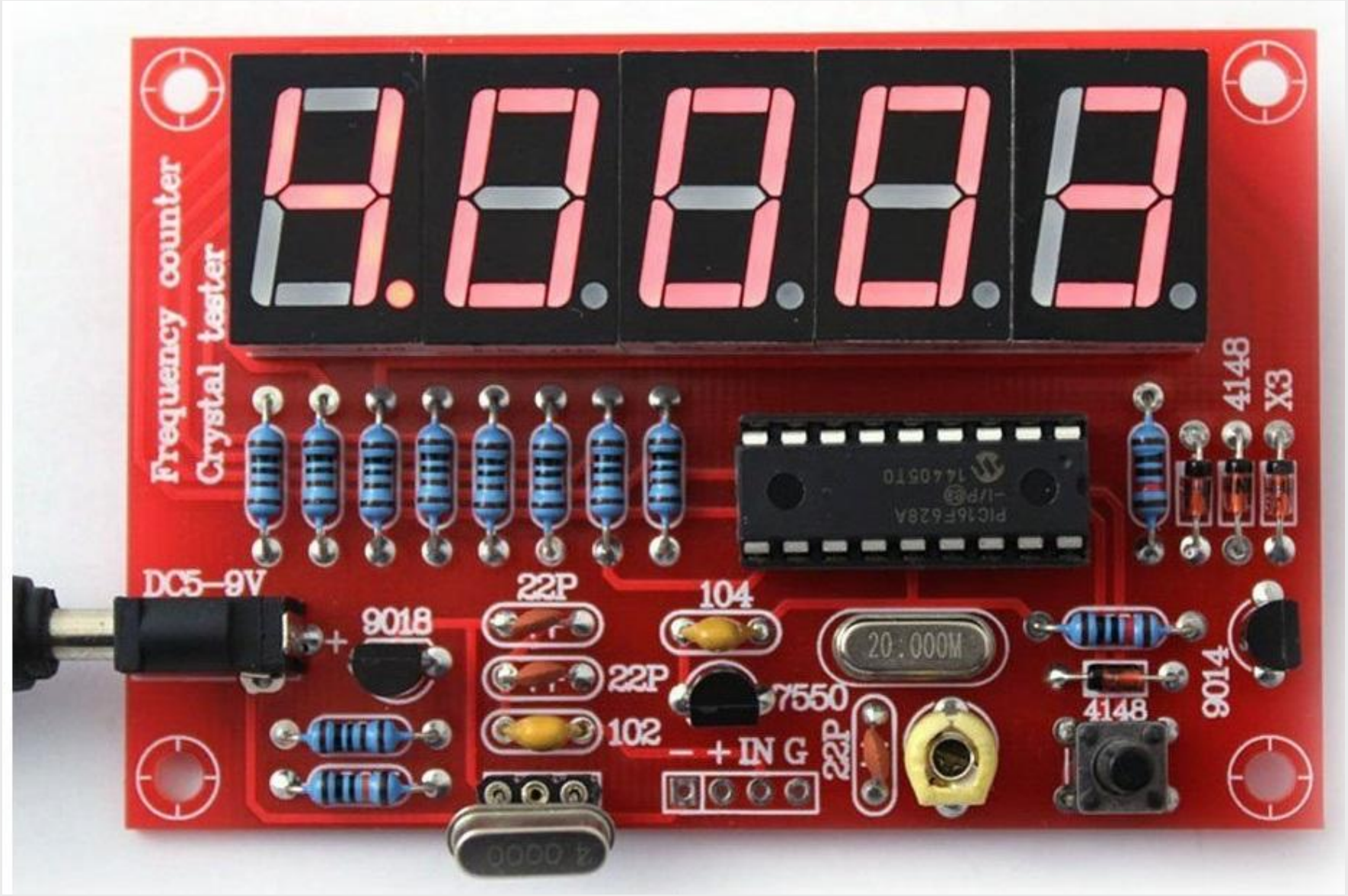
Designed to measure the frequency of oscillation of most crystal oscillators.

Based on PIC microcontroller can measure the frequency of 1 Hz to 50 MHz.

Five digits of precision, for example kHz x.xxxx, MHz or xx.xxx x.xxxx MHz.

General for feeding USB interface can be used for power supply, AC adapter or a battery of 9 V can be used too, it is used.

Frequency Counter Photo



Frequency Counter **Advertised** Specifications

TOOGOO is a registered trademark. ONLY Authorized seller of TOOGOO can sell under TOOGOO listings.Our products will enhance your experience to unparalleled inspiration.

Counter - TOOGOO (R) 50 MHz Crystal Oscillator Frequency counter Testers DIY Kit 5 Resolution Digital Red

Optional mode of power saving: can automatically convert the display if the frequency does not change significantly in 15 seconds

Very small number of components: a PIC16F628, 5, 7-segment LED screens, a 20 MHz crystal and some resistors

Material: PCB;. Frequency range: 1 Hz-50 MHz

Glass Test Range: 4 KHz-48 KHz

Built Item Size: 8 * 5.5 * 0.7 cm / 3.2 * 2.2 * 0.3 inches

List package: 1 * Frequency Counter

Note:Light shooting and different displays may cause the color of the item in the picture a little different from the real thing.The measurement allowed error is +/-1-3 cm.

Frequency Counter – **Source Design**

Copied by several cheap Chinese manufactures

Originally designed by Woflgang Buscher, DL4YHF.

Design details at http://www.qsl.net/dl4yhf/freq_counter/freq_counter.html

This web page describes the construction of small frequency counter with a cheap PIC microcontroller and a few seven-segment LED digits.

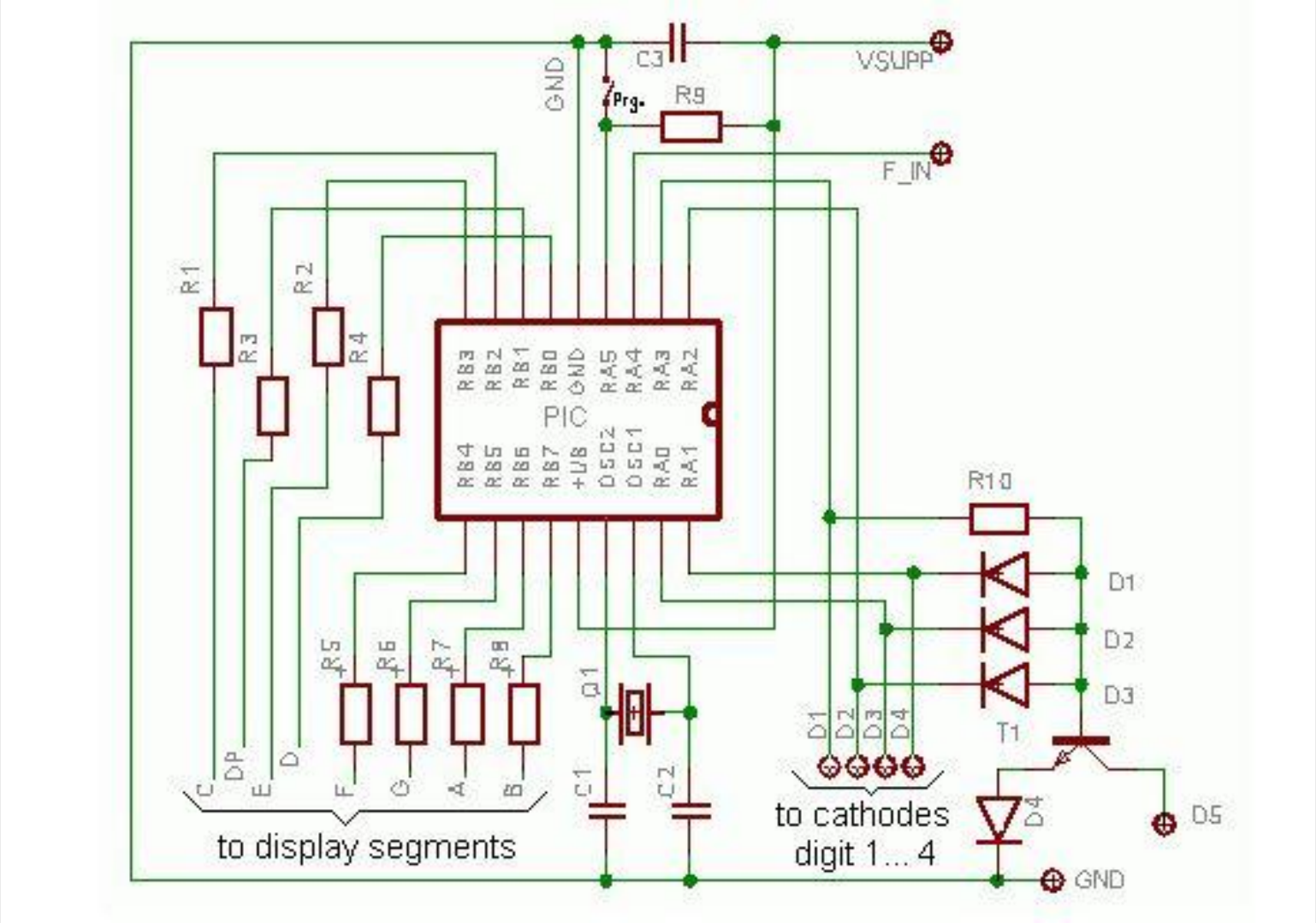
Frequency Counter **Real** Specifications

From Wolfgang's page: The main features of the frequency counter are:

- frequency range 1 Hz ... 50 MHz (prototype worked up to 60 MHz but this exceeds the PIC's timing specifications)
- four or five digits resolution (display for example x.xxx kHz, x.xxx MHz, or xx.xx MHz); or 6 digits with F8FII's modification
- automatic range switching with different gate times
- optional addition or subtraction of a frequency offset (programmable)
- optional preamplifier for the input signal
- can be built on a single-sided 'breadboard-style' circuit board
- firmware available for common-cathode as well as common anode displays
- very low component count: a PIC 16F628, or 5 7-segment LED displays, 4- or 20-MHz crystal and a few resistors, optionally one transistor and a few diodes to drive the 5th digit, optionally one other transistor for the preamplifier.
- since 2006-05: preprogrammed frequency offset for transceivers with 4.0 MHz IF
- optional (configurable) power-saving mode which automatically turns the display off of the frequency didn't change significantly within 15 seconds

Frequency Counter Kit – **No Instructions**

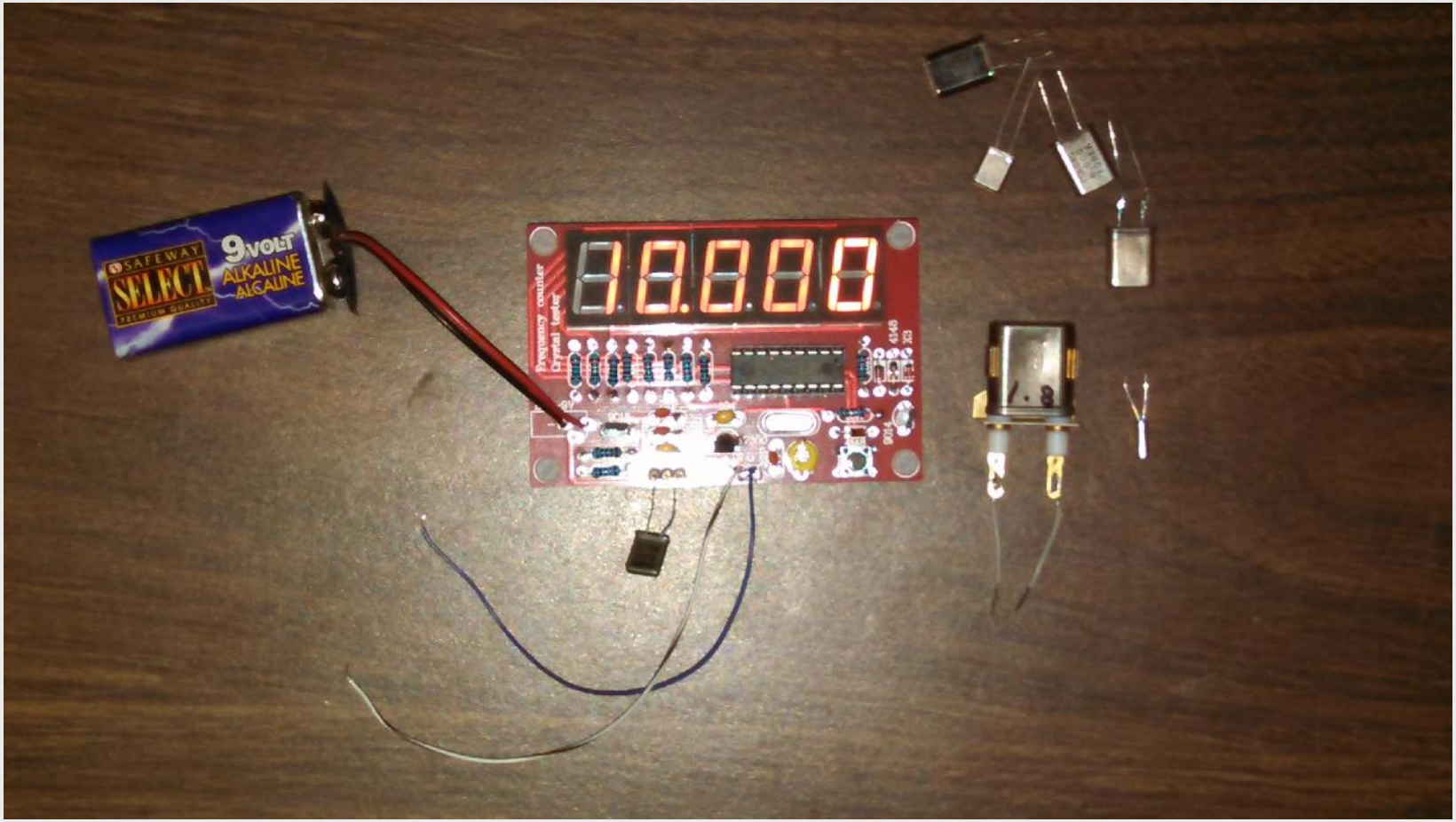
Frequency Counter Schematic



Frequency Counter - Finished

Crystal checker **does not** drive every crystal.

The input goes directly to a 5 volt powered device input. Will only work with signals from 0.8 volts low and 2.0 volts high or greater. **Needs an input buffer and protection.**



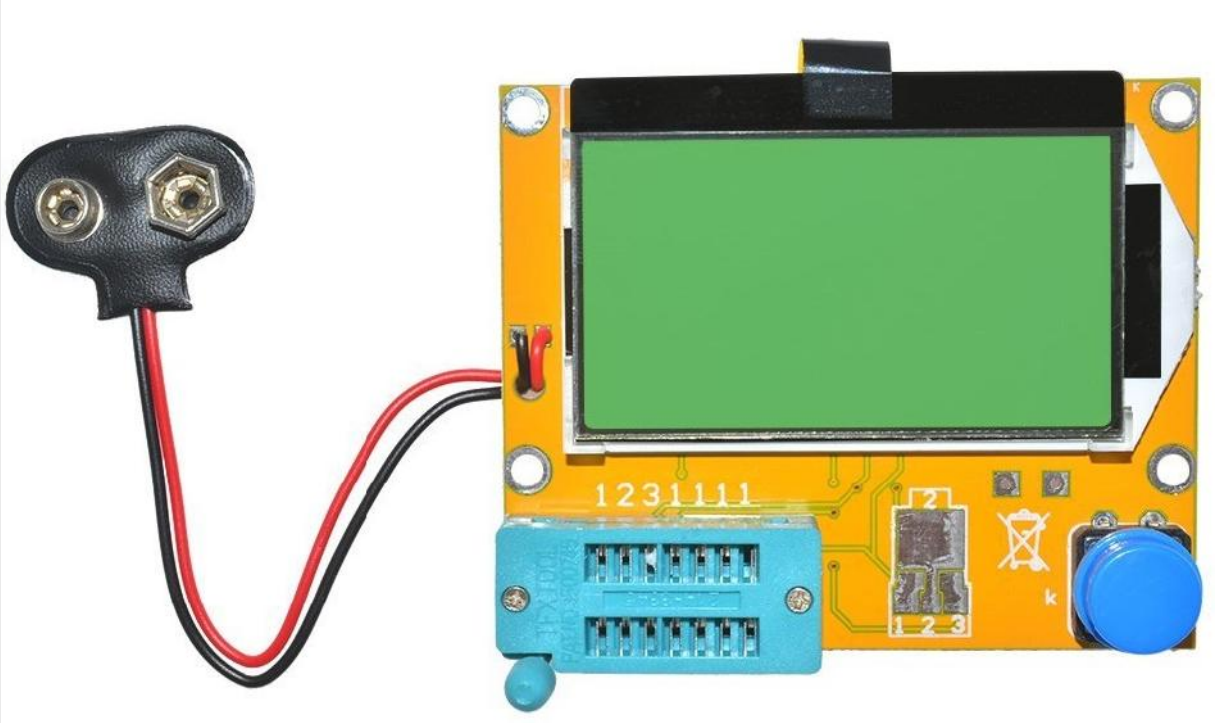
Component Tester - **Listing**

Component tester $13

Item B01L706PI2

Multifunction Mega328 Transistor Tester Diode Triode Capacitance ESR Meter MOS PNP/NPN M328 with Capacitor ESR

2013 latest M328 version of the software, more functions (Chip: Atmega328).128*64 big Backlight LCD display, only 2mA when stand by. Using 9V battery (Not included). Use 12864 liquid crystal display with green backlight.



Component Tester – **As Advertised**

Can simultaneously measure two resistors and resistor symbol is displayed. Displayed on the right with a decimal value of 4. Resistance symbol on both sides shows the pin number. You can measure the potentiometer. If the potentiometer wiper is not transferred to an extreme position, we can distinguish the middle and both ends of the pin.

Automatic detection of NPN and PNP transistors, n-channel and p-channel MOSFET, diode (including double diode), thyristor, transistor, resistor and capacitor and other components. Automatic test the pin of a component, and display on the LCD.

Can measure a single diode reverse capacitance. If the bipolar transistor connected to the base and collector or emitter of a pin. It can measure the collector or emitter junction reverse capacitance.

Automatically detect NPN, PNP bipolar transistors, N -channel and P -channel MOS FET, JFET, diodes, two diodes, thyristors small power unidirectional and bidirectional thyristor. Automatic identification components pin arrangement.

Component Tester - **Source**

The original design was a Transistor Tester by Karl-Heinz Kubbeler.

TransistorTester with AVR microcontroller and a little more

Version 1.13k Karl-Heinz Kubbeler

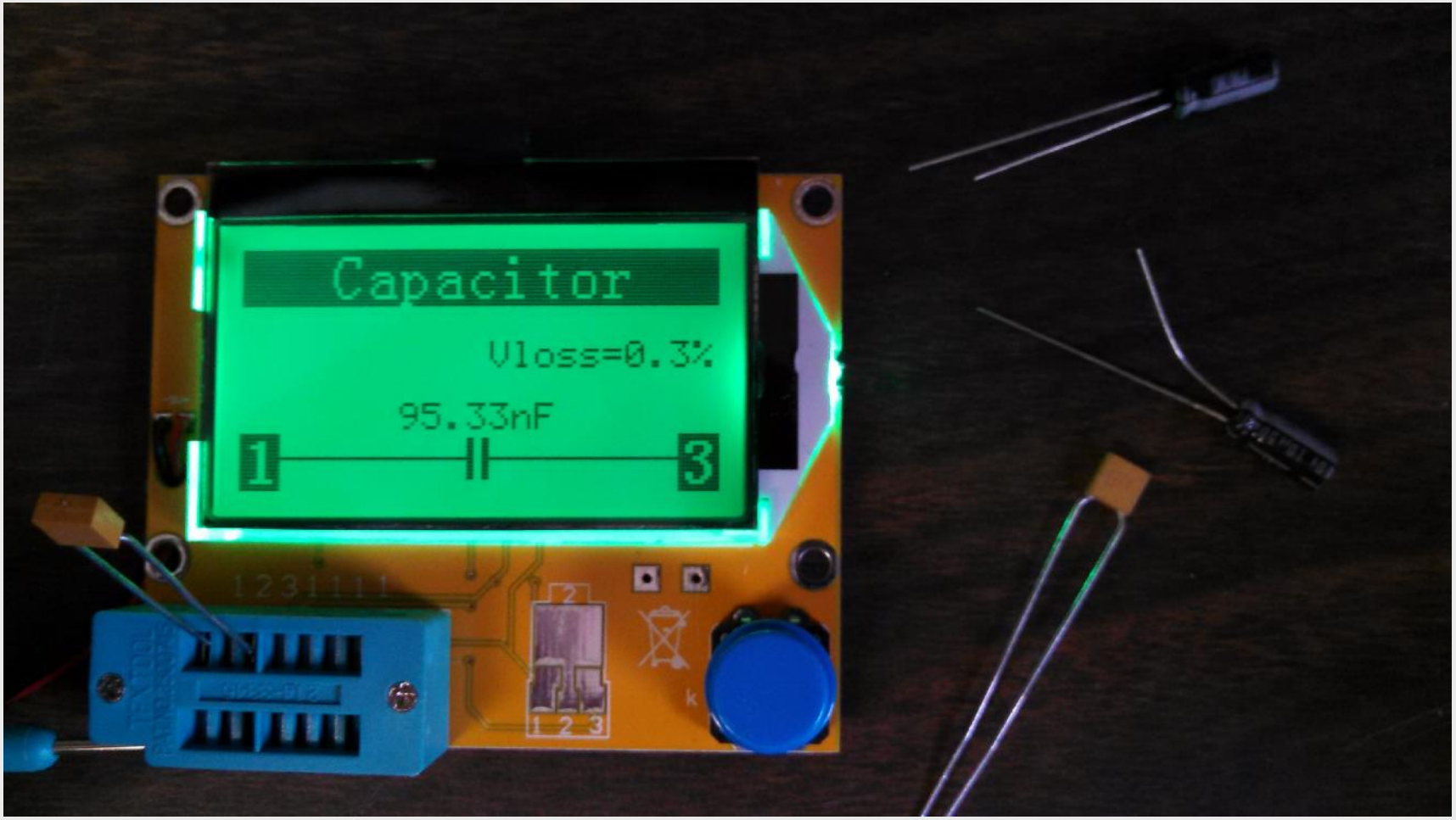
Kh_kuebbeler@web.de

October 31, 2017

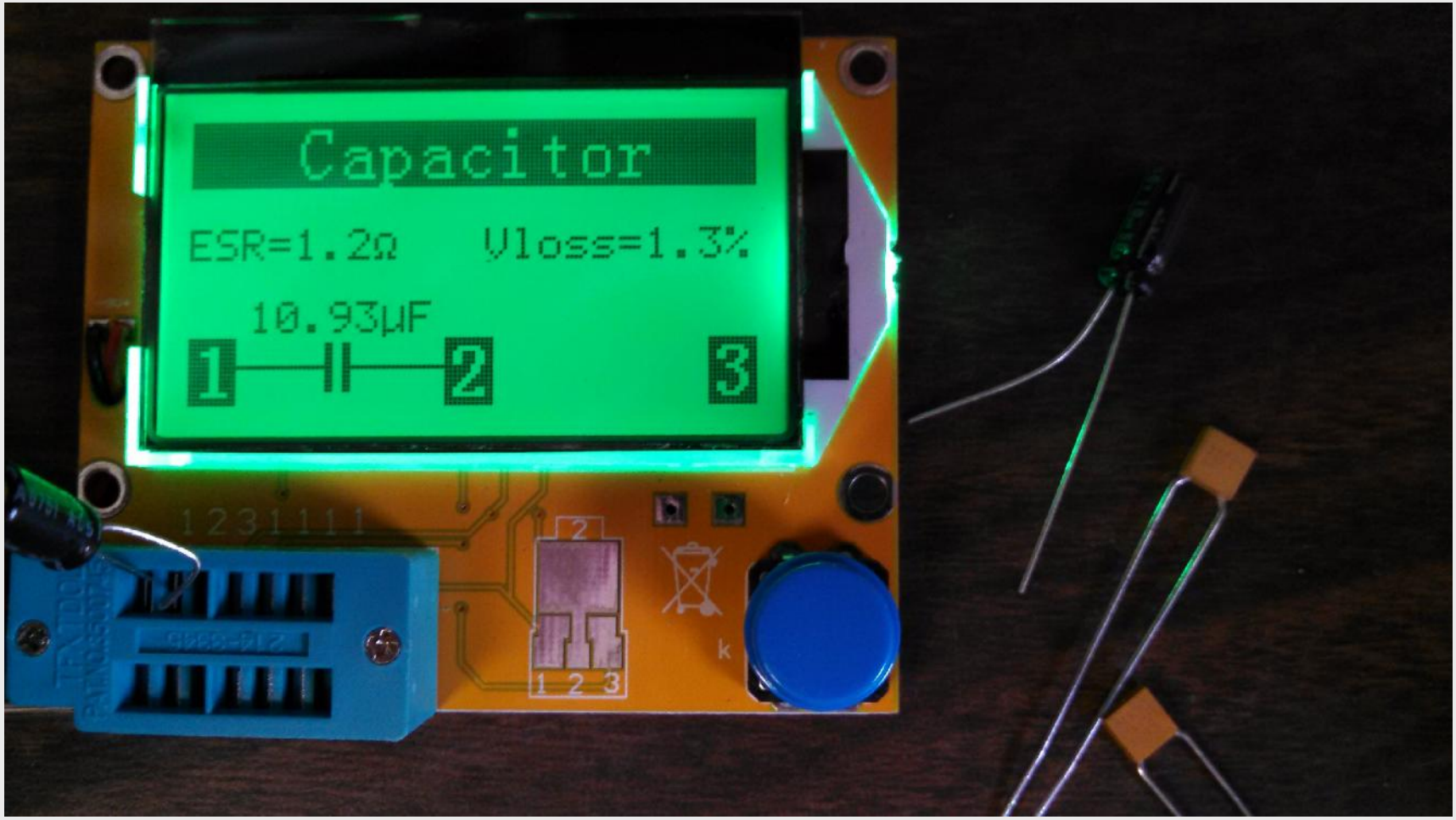
A 130 page original document describes the design and many options.

Copied by several cheap Chinese manufactures.

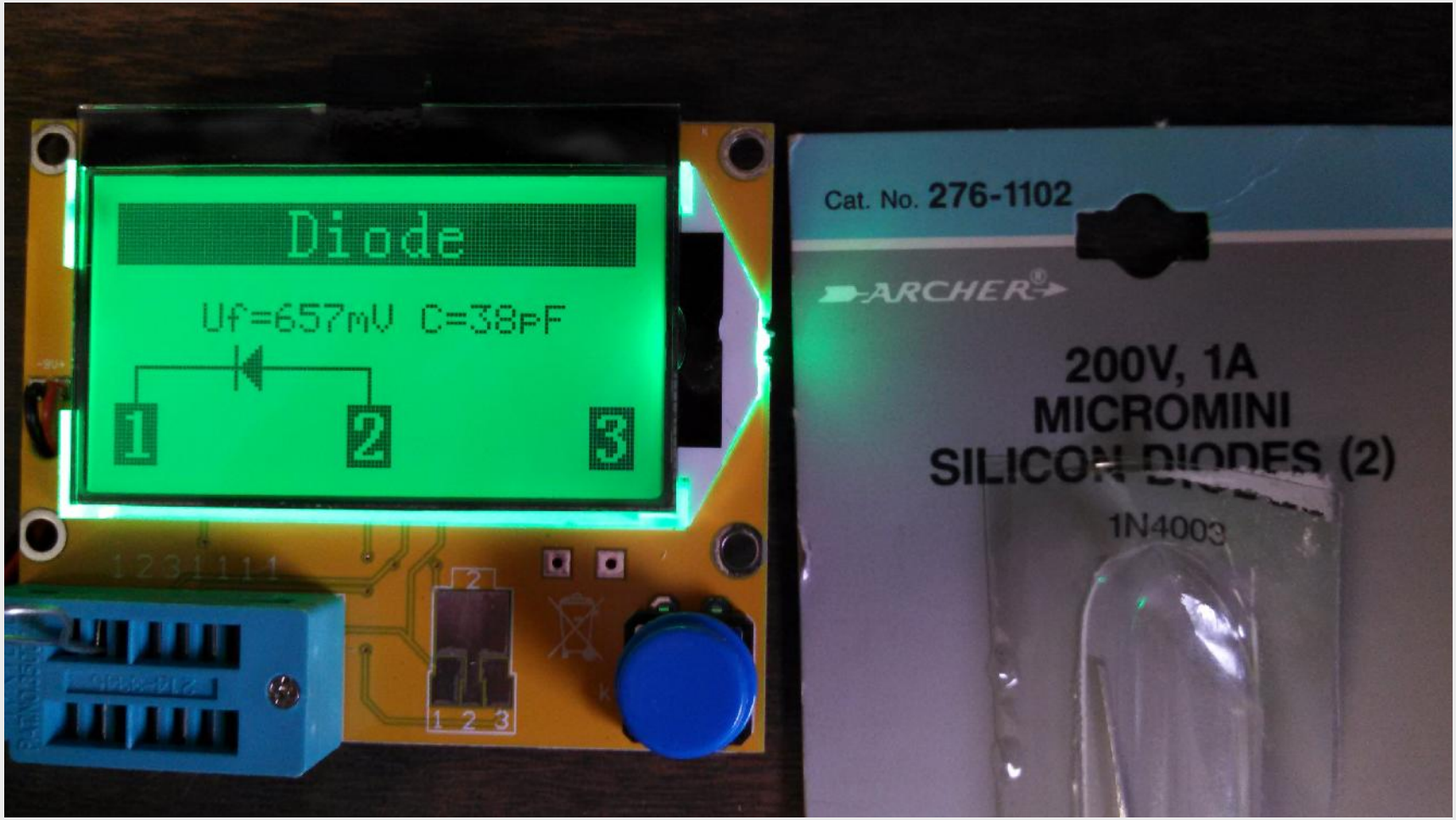
Component Tester - **Small capacitor**



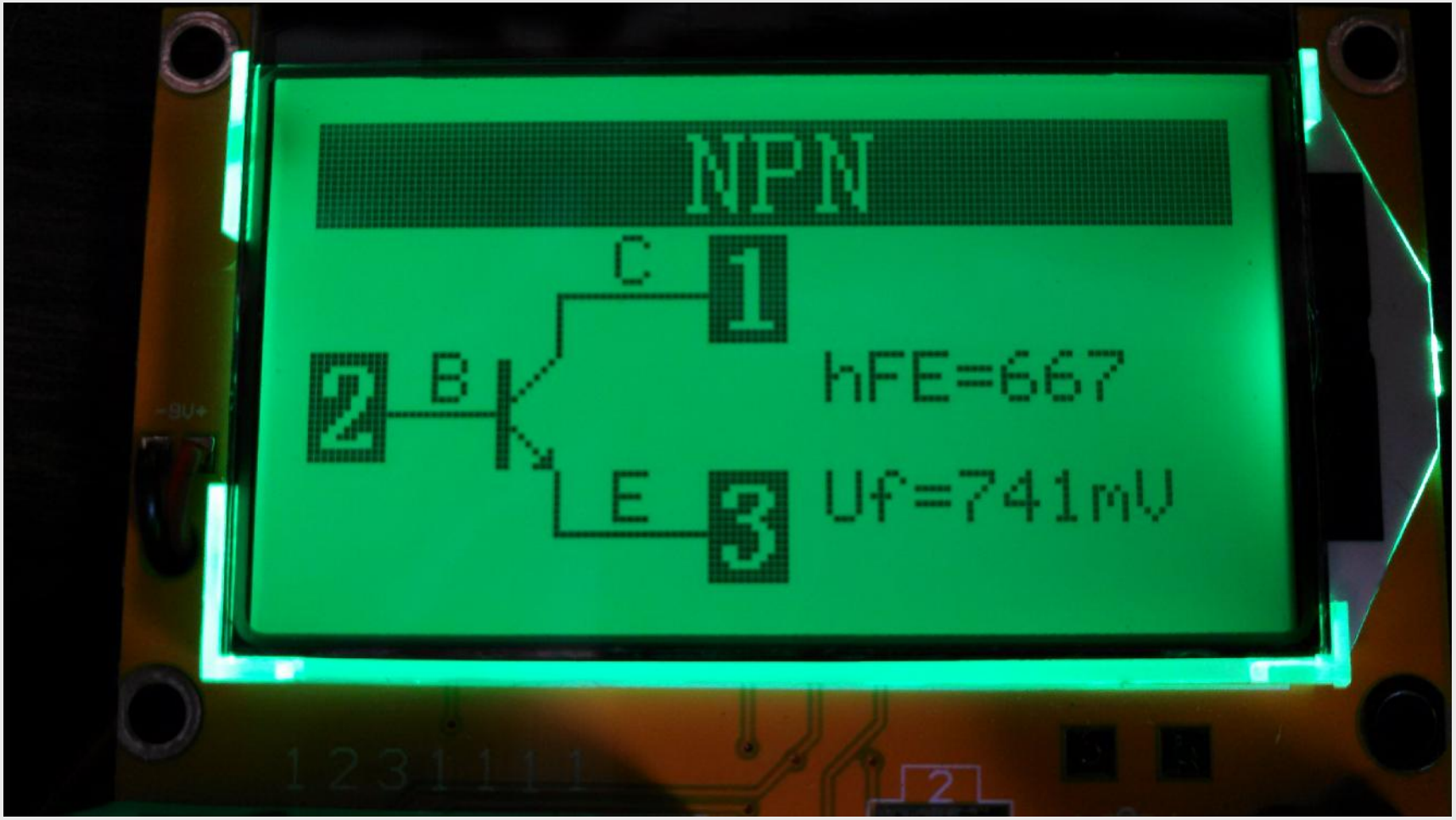
Component Tester - **Large capacitor**



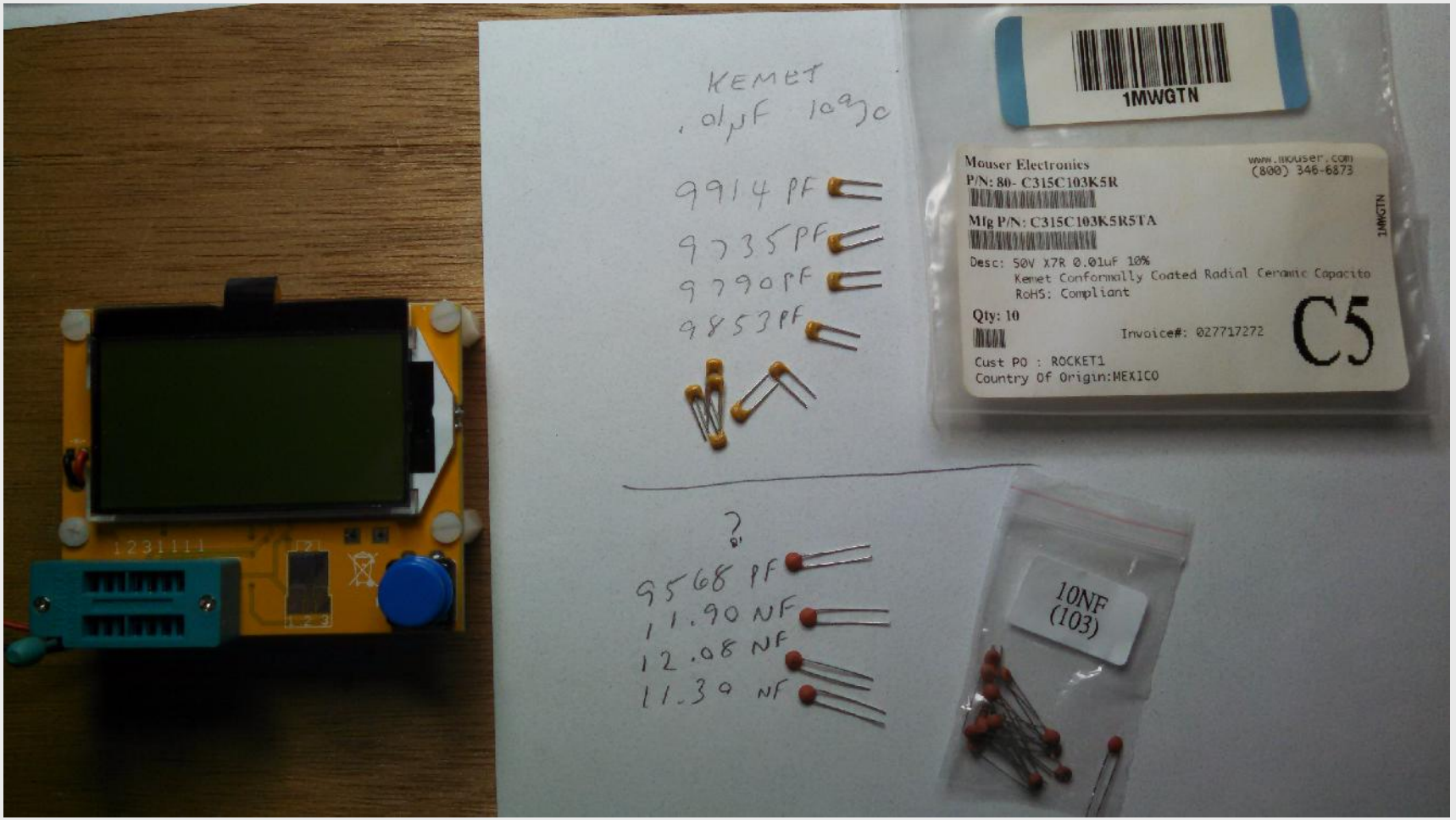
Component Tester - **Diode**



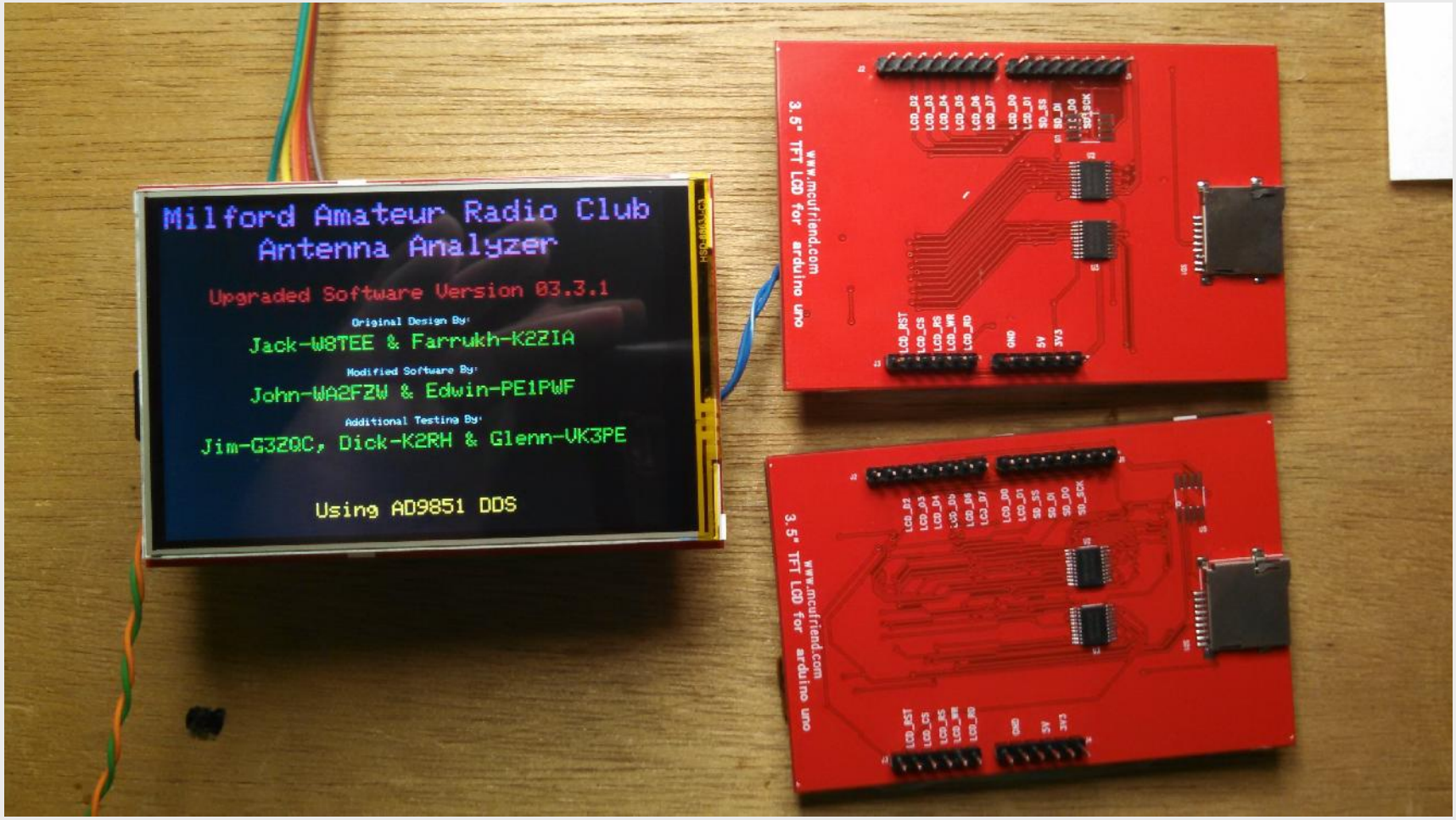
Component Tester - **Transistor**



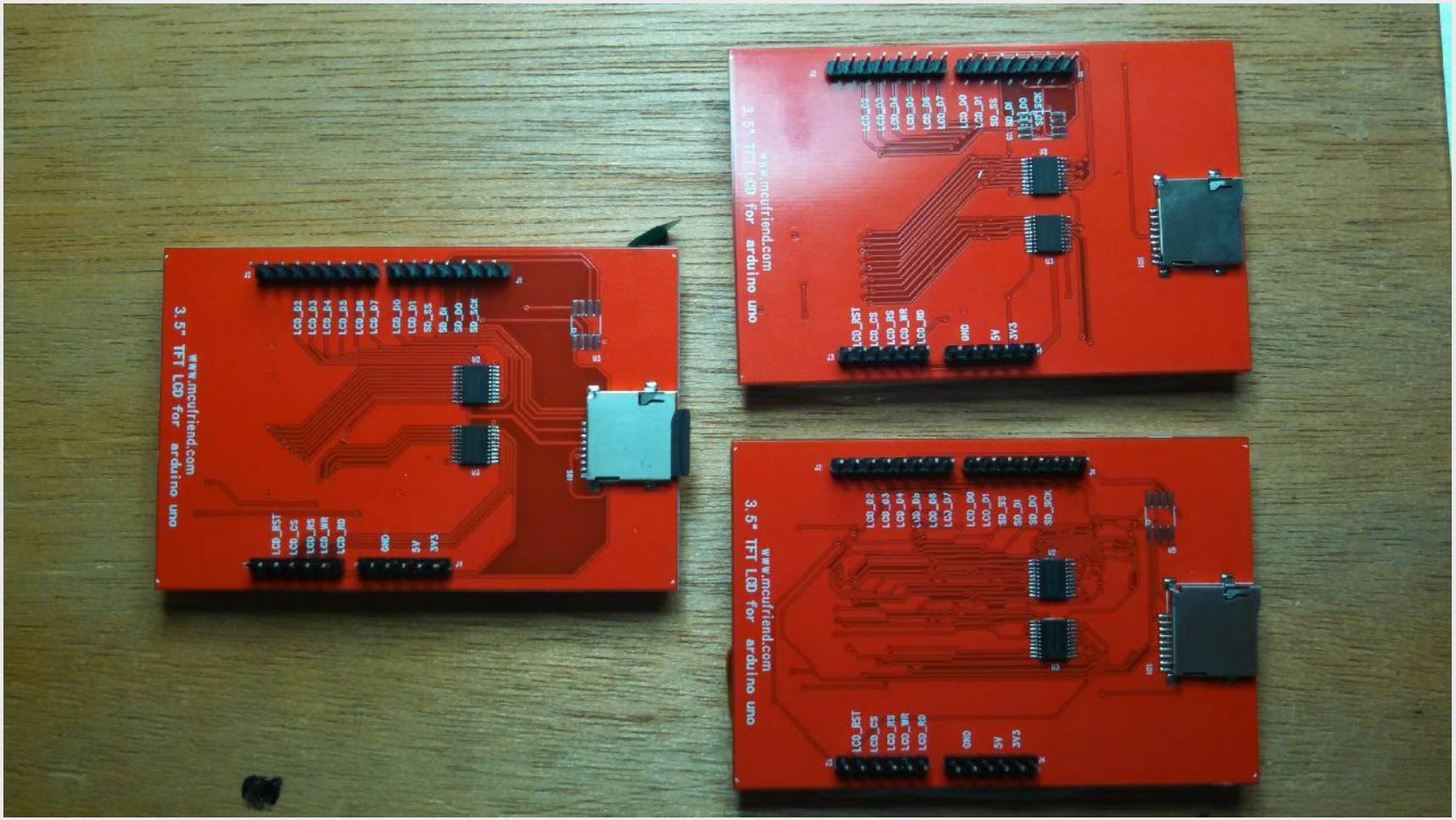
Capacitor Testing
$7.99 for 1000 values!



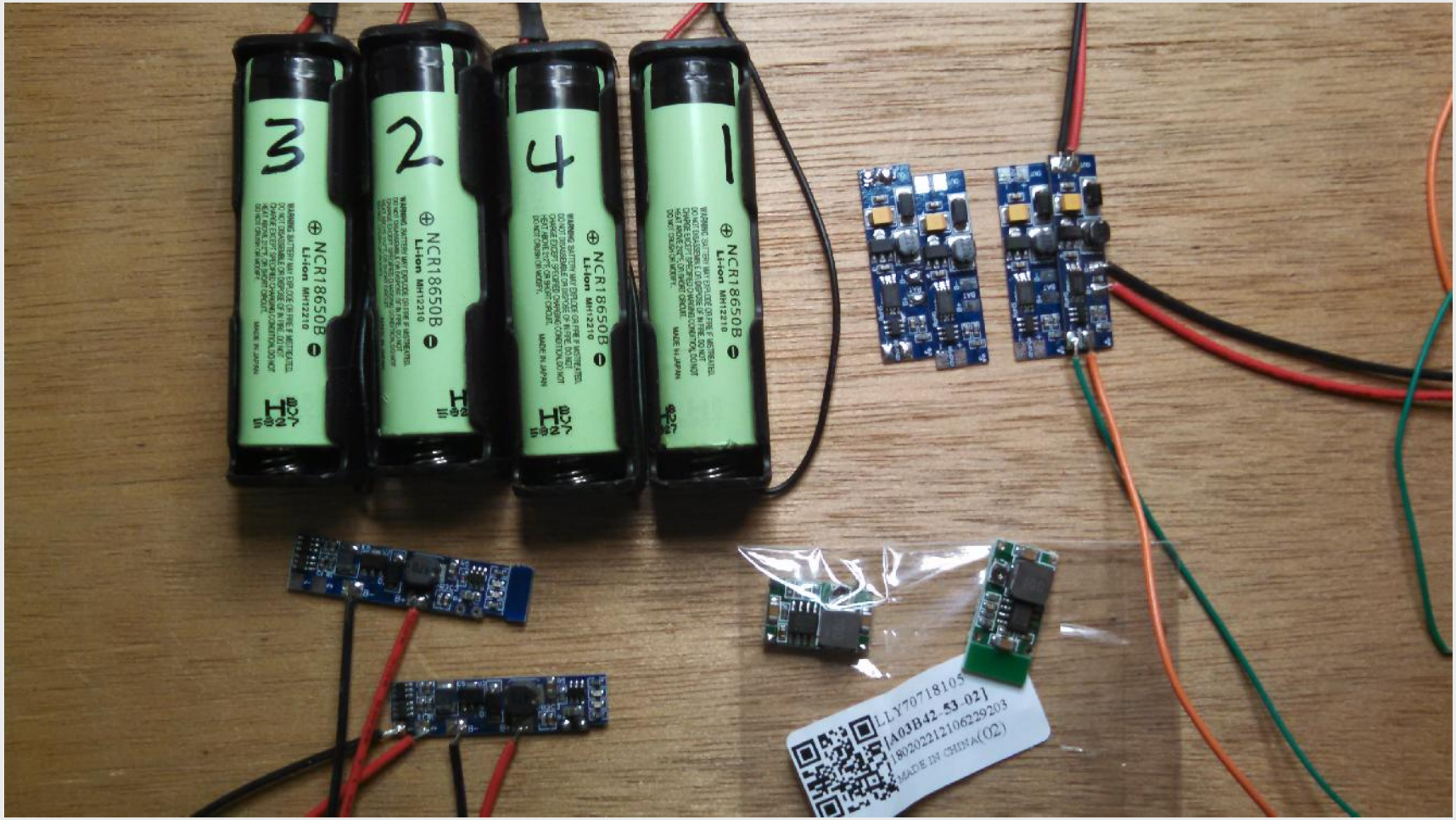
LCD Display
All the same description…



LCD Display – Copies?

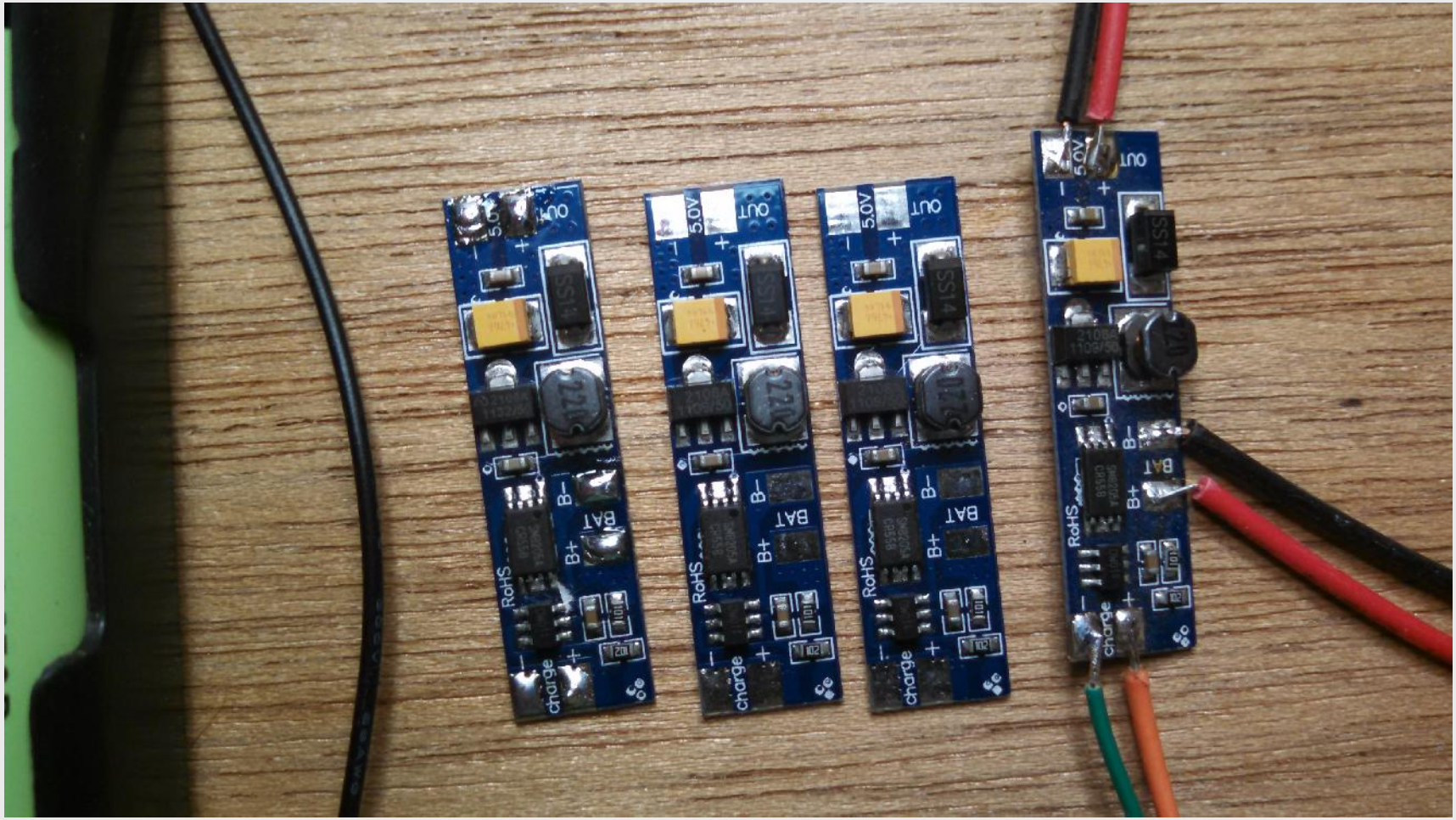


Batteries and power bits

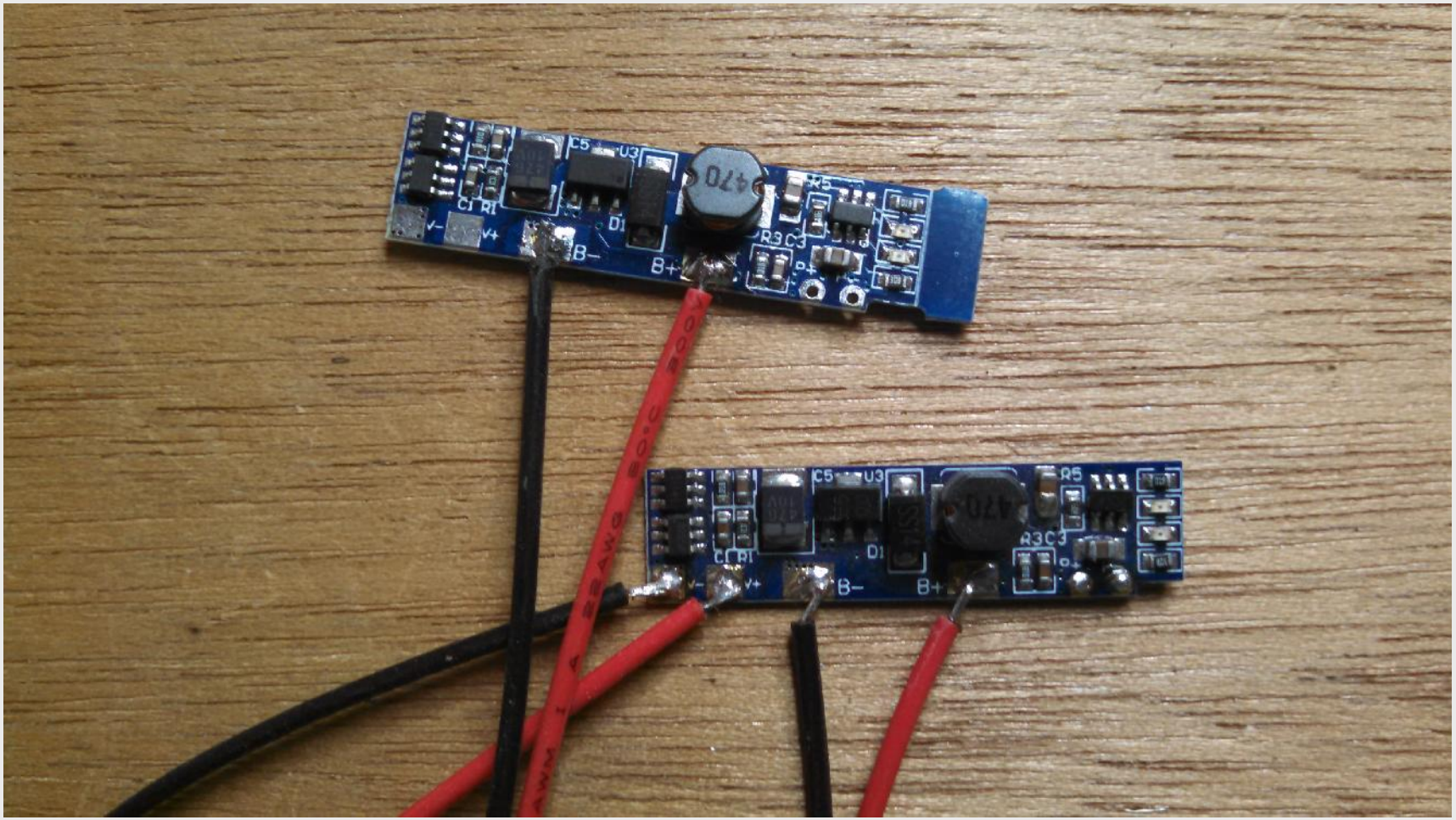


Batteries – Genuine?
$11.99 for Panasonic Li-Ion 3400 mA

Li-Ion controller 1 - $2.10
Charge cutoff, discharge cutoff, boost 5V



LoPo controller 2
Charge cutoff, discharge cutoff, boost 5V



Buck Converters - $0.99 for 3
4.75 – 23 V in, 1 – 17 V out