

TKEY-0

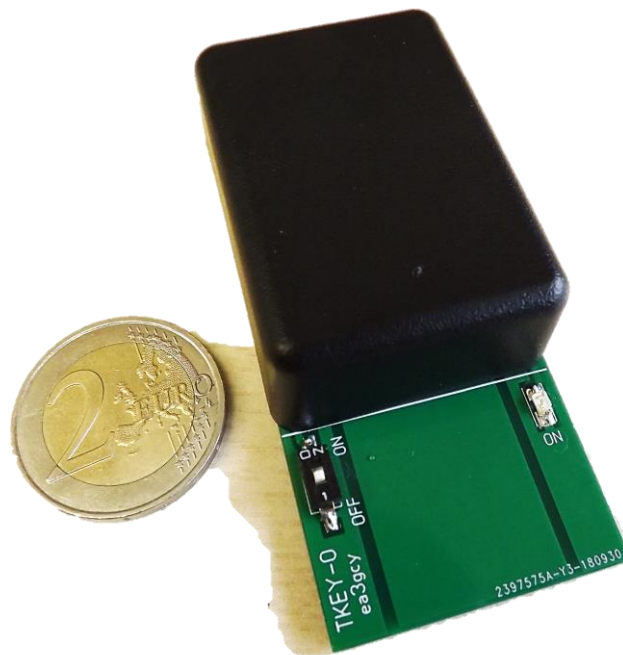
CW touch key
(no electromechanical contacts)

Assembly manual

Last update: November 01, 2018

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Updates and news at: www.grphamradiokits.com



Thanks for constructing the **TKEY-0** CW touch key

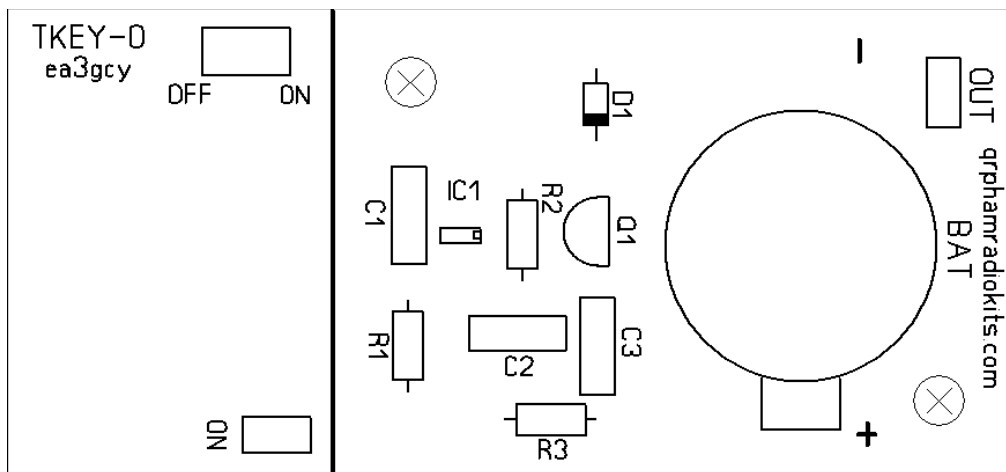
Have fun assembling it and enjoy QRP! 73 Javier Solans, ea3gcy

SPECIFICATIONS

- **Keying:** touch-surface actuated.
- **Sensing mode:** capacitive.
- **Output:** open collector transistor.
- **Power supply:** 3V inner CR2032 battery
- **Calibration:** self-calibrating at power-up.
- **It is not affected by humidity, dryness or dirt.**
- **Printed circuit board dimensions:** 75 x 35 mm
- **Box size:** 50 x 35 x 17 mm
- SMD components are pre-installed.
- **Kit includes all parts, board, plastic box, battery and cable (no jack).**

PARTS LIST

Electronic components					
	Quantity	Reference	Value	Component type	Identification
	1	R1	22K	1/4W resistors	red-red-orange
	2	R2, R3	10K	1/4W resistors	brown-black-orange
	1	C1	2n2	2200pF capacitors	0.022, 2n2, 2K2 or 222K
	2	C2, C3	100nf	100nF capacitors	104 or 0.1
	1	D1	1N4148	diode	4148
	1	Q1	BC547	NPN transistor	BC547
	1	IC1	AT42QT1011	Touch sensor IC (pre-installed)	AT42QT1011
	1	OFF-ON	--	OFF-ON micro switch (pre-installed)	--
	1	ON Led	--	SMD Led (pre-installed)	--
	1	BAT	CR2032	2V Battery	CR2032
	1	Socket	--	CR2032 Socket battery	
	1	TKEY-0 PCB	--	TKEY-0 Board	--
	1	1551GBK	--	Plastic BOX	--



TIPS FOR FIRST TIME BUILDERS

Tools required:

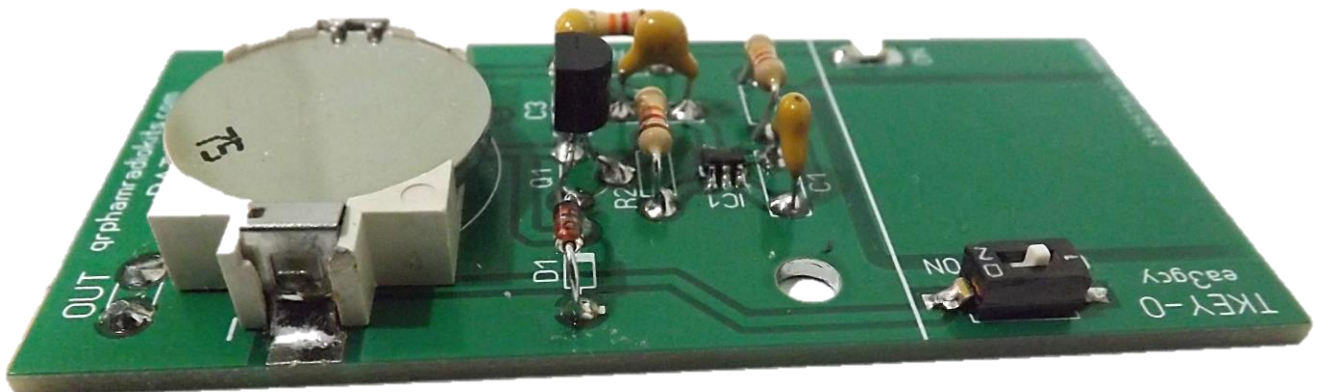
- A 30W soldering iron, good-quality electronic-type solder, small diagonal wire cutters, needle-nose pliers, tweezers, screwdriver and a wrench for the nuts of.
- You will need good lighting and a magnifying glass to see the fine print on the components and other assembly details.

Soldering:

There are two important things which need to be done to insure successful operation of a kit. The first is to put the component into the proper place on the circuit board; the second is good soldering.

To solder properly, you must use an electronic-type solder of the highest quality possible and the correct type of iron. Use a quality-brand soldering iron with a short, fine-pointed tip. For this kit, the soldering iron should be about 30-35 Watts (if it is not thermostatically controlled). Use only high-quality electronic-type solder. NEVER use any extra flux. You should hold the hot soldering iron in contact with both the circuit board and the component lead for about two seconds to heat them up. Then, keeping the soldering iron in place, touch the solder at the junction of the lead and trace and wait about two seconds or so until the solder flows between the lead and the trace to form a good joint. Now remove the soldering iron. The soldering iron should have been in contact with the work piece for a total time of about 4 seconds. When soldering leads that connect to large trace surfaces, you will need to preheat the junction for a little longer so that the solder flows correctly.

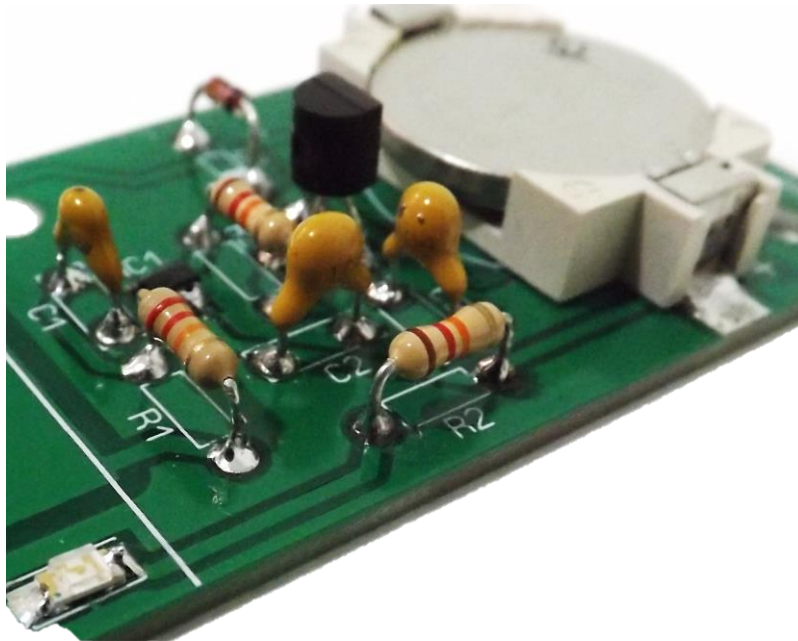
You should clean the soldering tip before soldering each joint. This prevents accumulating solder on the tip and mixing in residues from previous soldering operations with the next one.



RECOMMENDED ASSEMBLY SEQUENCE

INSTALLING COMPONENTS

Note that the board has no holes for the parts. The parts are soldered on board as shown in the image.



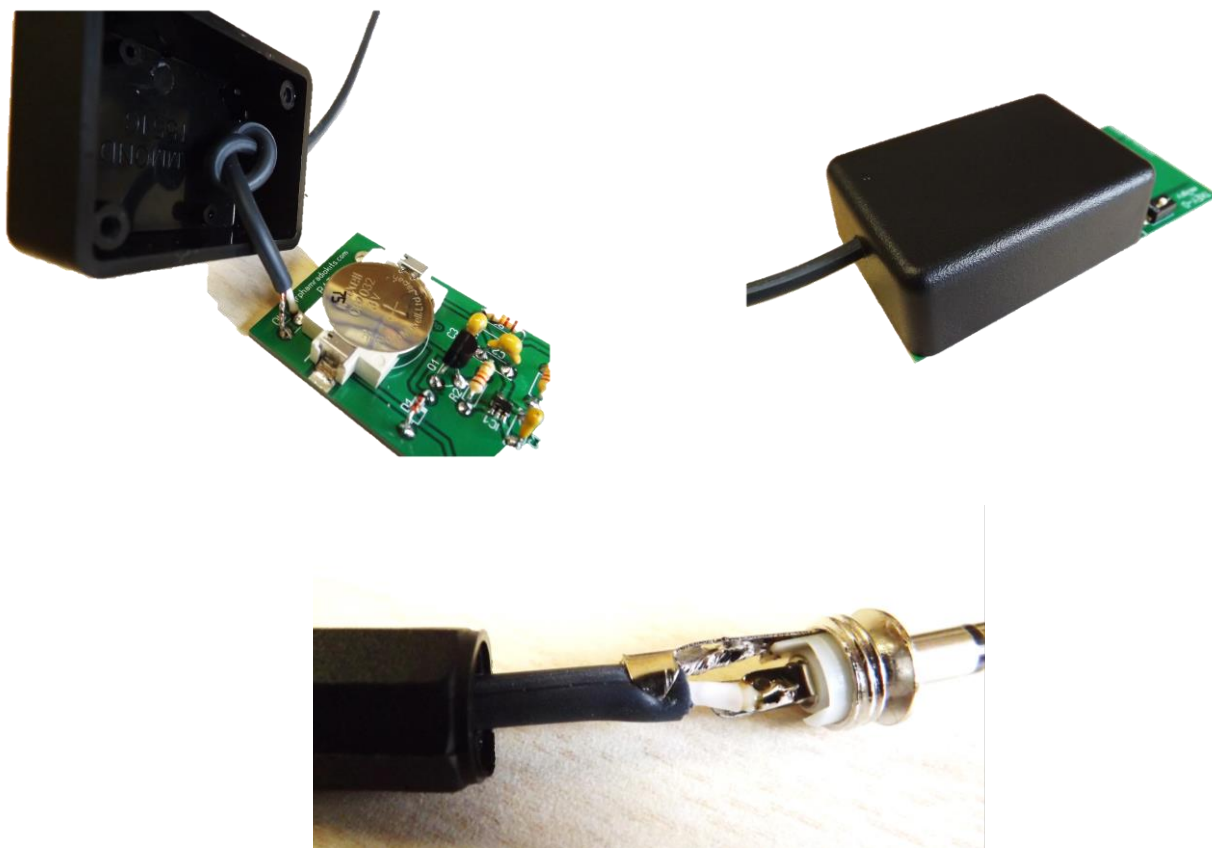
- 1.- Place and solder Q1 BC547 transistor.
- 2.- Next place and solder R1 (22K), and R2, R3 (10K) resistors. Bend and cut the leads so that the resistor can be placed on the board as show the image.
- 3.- Following the parts list, place and solder the C1 2n2 (marked 222) and C2, C3, 100nF capacitors (marked 104) in their positions as printed on the board.
- 3.- Place and solder D1 1N4148 diode. Before soldering them, make sure that it is placed in their correct position. The black band must match the silhouette printed on the board.
- 4.- Place and solder the battery socket. Make sure that it is placed in their printed position on the board. Symbols + and - must match those marked on the socket.



CONNECTIONS

- 1.- Use thin audio coaxial cable. You must make a small hole in the plastic box to pass the cable.
- 2.- Solder the coax cable to the "OUT" pads on the board and at the other end solder the appropriate jack for the KEY input of your radio equipment. Respect its polarity.

VERY IMPORTANT: The polarity of the cable must be respected. The wire mesh must go to GND (pad that is connected to the ground plane of the board) and the live wire (central wire) goes to the pad that goes to the track of the board. See the following images.



Theoretically the output of the TKEY-0 will work with 99.9% of the equipment on the market. You should consult the manual of your radio to know how to connect the jack. You can use a mono or stereo jack, but use only the tip contact.

However, if you have a question regarding connection to your equipment, you may consult with Javier, EA3GKY qrpamradiokits by email at ea3gcy@gmail.com.

Now you can insert the battery into the socket, turn on the ON/OFF switch, the led on will light up and it has to work now!!

LIMITED WARRANTY

Please read carefully BEFORE building your kit

All electronic components and hardware supplied with the kit are under warranty in case of any manufacturing defect for the period of one year after purchase. The warranty does not include the transmitter final amplifier transistor.

The original purchaser has the option of examining the kit and manual for 10 days. If, within this period, the buyer decides not to build the kit, he/she may return the entire unassembled kit at their own expense for the shipping expenses. The shipping expenses and sales commissions (i.e. bank, Ebay, and Paypal commissions) included in the purchase price will not be returned.

Please, BEFORE returning a product, request instructions by email at: ea3gcy@gmail.com

Javier Solans, EA3GCY, warrants this device to function according to the specifications, provided that it is assembled and adjusted as described in this documentation, and used correctly according to all provided instructions.

It is your responsibility to follow all the instructions in the manual, to identify all the components correctly, and to use good workmanship and proper tools and instruments in the construction and adjustment of this kit.

REMEMBER: This kit will not work as a commercially manufactured product; however, it can often give similar results. Do not expect great performance, BUT YOU ARE SURE TO HAVE LOTS OF FUN!

If you believe that there is a missing component for the kit, please do a thorough inventory of all parts using the parts list in the manual. Check all bags, envelopes and boxes carefully. If needed, you may email me and I will replace any component that you are missing. Even if you can find the exact part locally, please let me know so that we are aware of the problem to help other customers.

I can also supply any part that you have lost, damaged or broken accidentally.

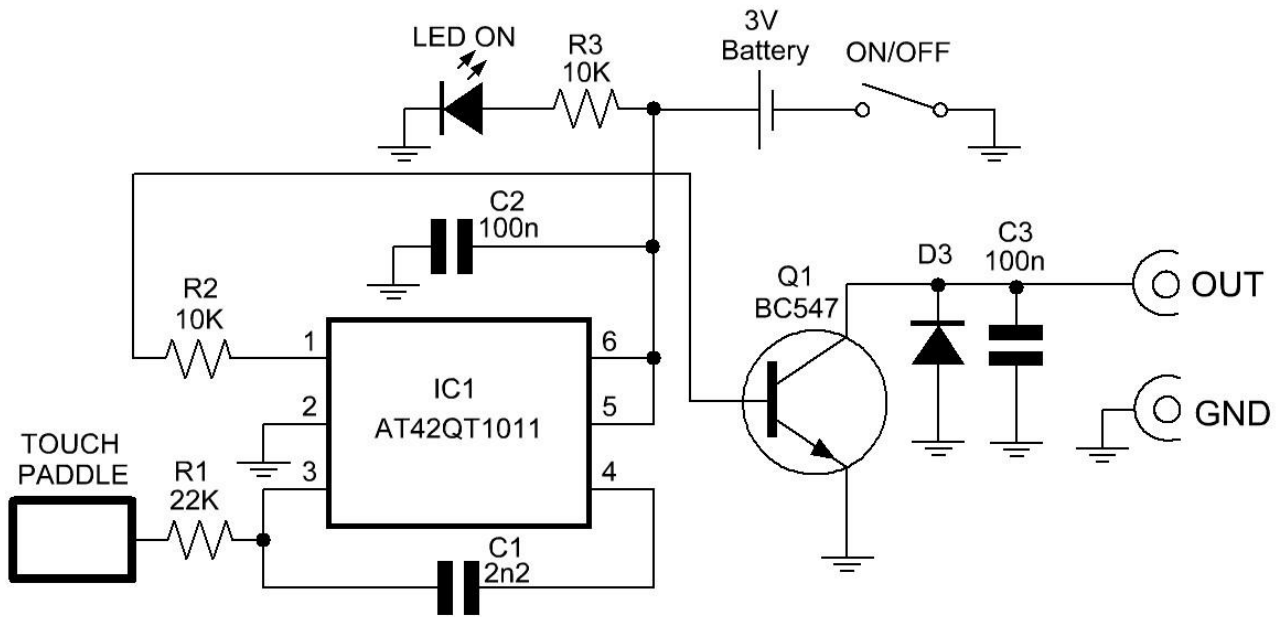
If you find any errors in this manual or would like to make a comment, please do not hesitate to contact me at: ea3gcy@gmail.com

THANK YOU for building the TKEY-0 kit.

Enjoy QRP!

73 Javier Solans, EA3GCY

SCHEMATIC



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