

12/23/2013  
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Some general guidelines on building the SMT keyer kit:

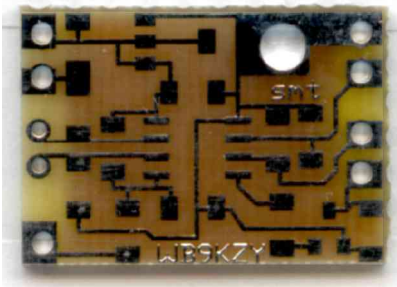
Note that U1 (the keyer chip), U2 (the optional voltage regulator) and Q1 (the keying transistor) are static sensitive parts. Build the keyer on an anti-static mat (or at least a conductive surface such as a metal cookie sheet). Also, use an anti-static wrist strap while building the keyer.

Surface mount circuit boards can be assembled using a variety of techniques, but I use a low power soldering iron with a fine tip with regular 60/40 rosin flux solder. Some kind of magnification is recommended along with strong lighting – these parts are small ! Also, good quality tweezers are a must for handling the small parts. Use a high quality de-soldering wick to clean up solder bridges and excess solder – I like the Soder Wick brand available at DigiKey. The assembly sequence shown later starts in the middle with the keyer chip and then builds out and around.

First, the part to be soldered is positioned in place, orienting the leads of the part with the board traces. The part is then held in place with some kind of hold-down device (there are many designs on the internet) or just with the tweezers. Then one pin is soldered to tack the part in place. Recheck the positioning of the part and redo if required. Then solder the rest of the leads and finally, clean up any excess solder (and bridging) with the desoldering braid.

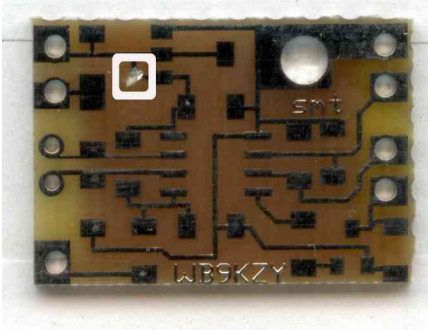
## Suggested building sequence for the SMT keyer kit

The bare keyer board:

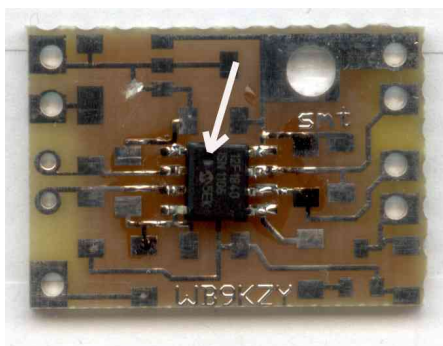


This circuit board is used for all of the various keyer chips currently for sale: the PK-Basic, Norcal, Norcal Pacificon, PK-4 and MegaPK-II.

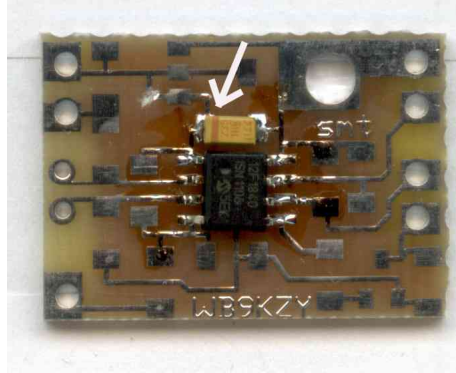
Step 1 - if a regulator will be used, cut the trace as shown (inside the white box):



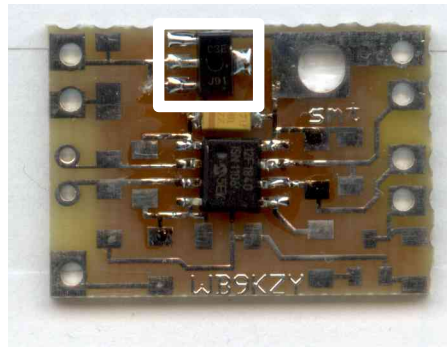
Step 2 - position and solder the keyer chip, U1, as shown with the white arrow, with the pin 1 dimple towards the top edge:



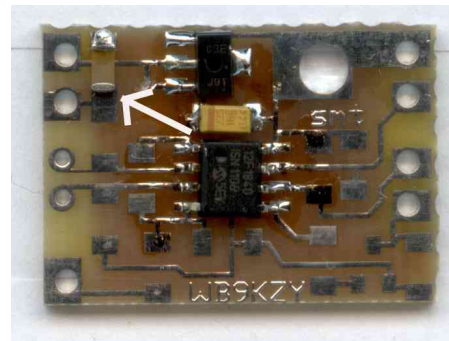
Step 3 - skip this step for a no-regulator kit.  
position and solder the tantalum 2.2 uF cap, C2, as shown (see the white arrow) with the red stripe towards the left edge of the circuit board:



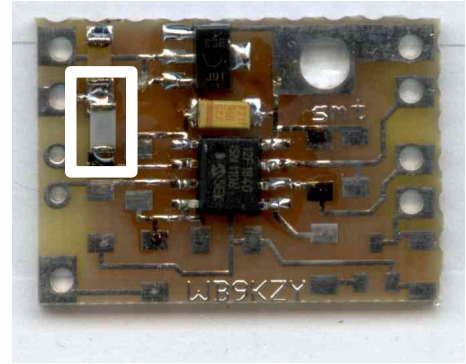
Step 4 - skip this step for a no-regulator kit.  
position and solder the regulator chip, U2, as shown above C2:



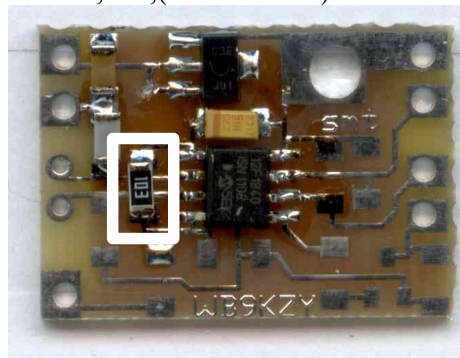
Step 5 - position and solder the .1 uF cap, C1, as shown, solder the side at the top edge only, the arrow indicates where the other side should be left unsoldered:



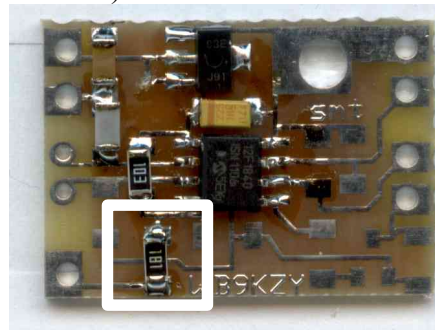
Step 6 - position and solder the .01 uF timing cap, C6, as shown, also solder the other side of C1:



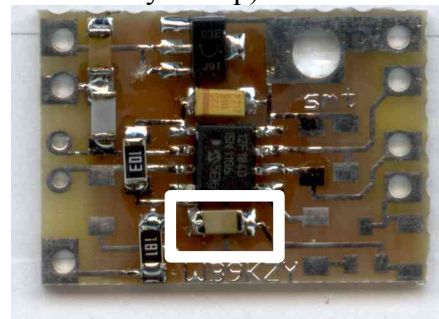
Step 7 - skip this step for the MegaPK-II or PK-Basic versions  
Position and solder the 10 k ohm resistor, R1,(marked 103) as shown:



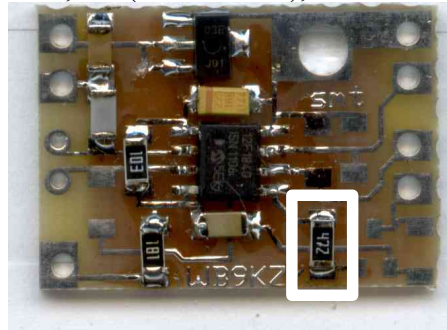
Step 8 - position and solder the 180 ohm resistor, R4, (marked 181) as shown:



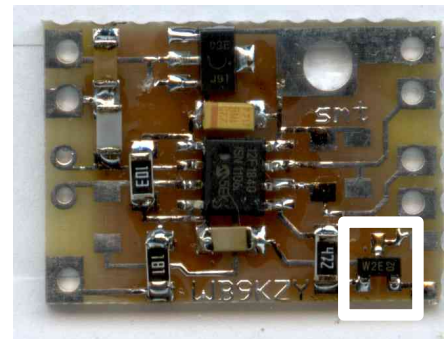
Step 9 - position and solder the .01 uF cap, C7, as shown (below the keyer chip):



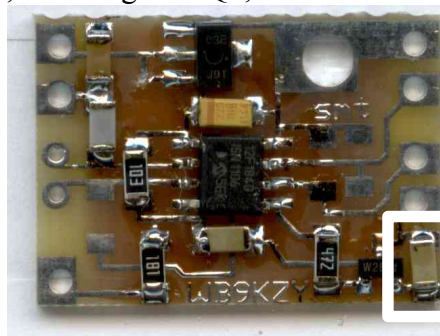
Step 10 - position and solder the 4.7 k ohm resistor, R2 (marked 472), as shown:



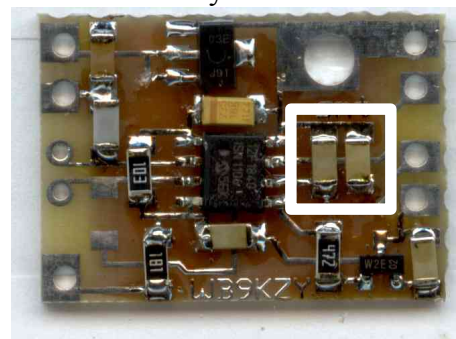
Step 11 - position and solder the keying transistor, Q1, to the right of R2 as shown:



Step 12 - position and solder the .01 uF cap, C3, to the right of Q1, as shown:



Step 13 - position and solder the last two items, both .01 uF caps, C4 and C5 side by side:



Step 14 - see the hookup diagram for wiring up the SMT keyer board to external components.

Step 15 - use the manual for the keyer chip selected for more info on debugging / using the keyer.