

OUTBOARD RELAY MODIFICATION.

ubitx

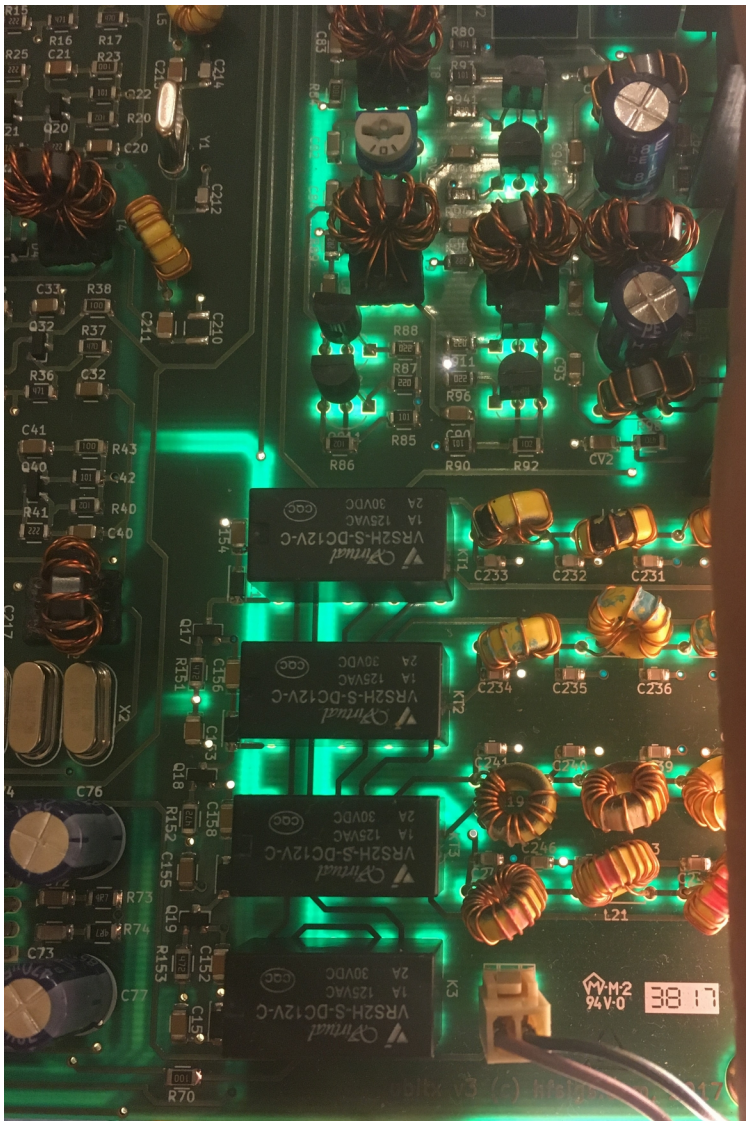
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Version 1.0

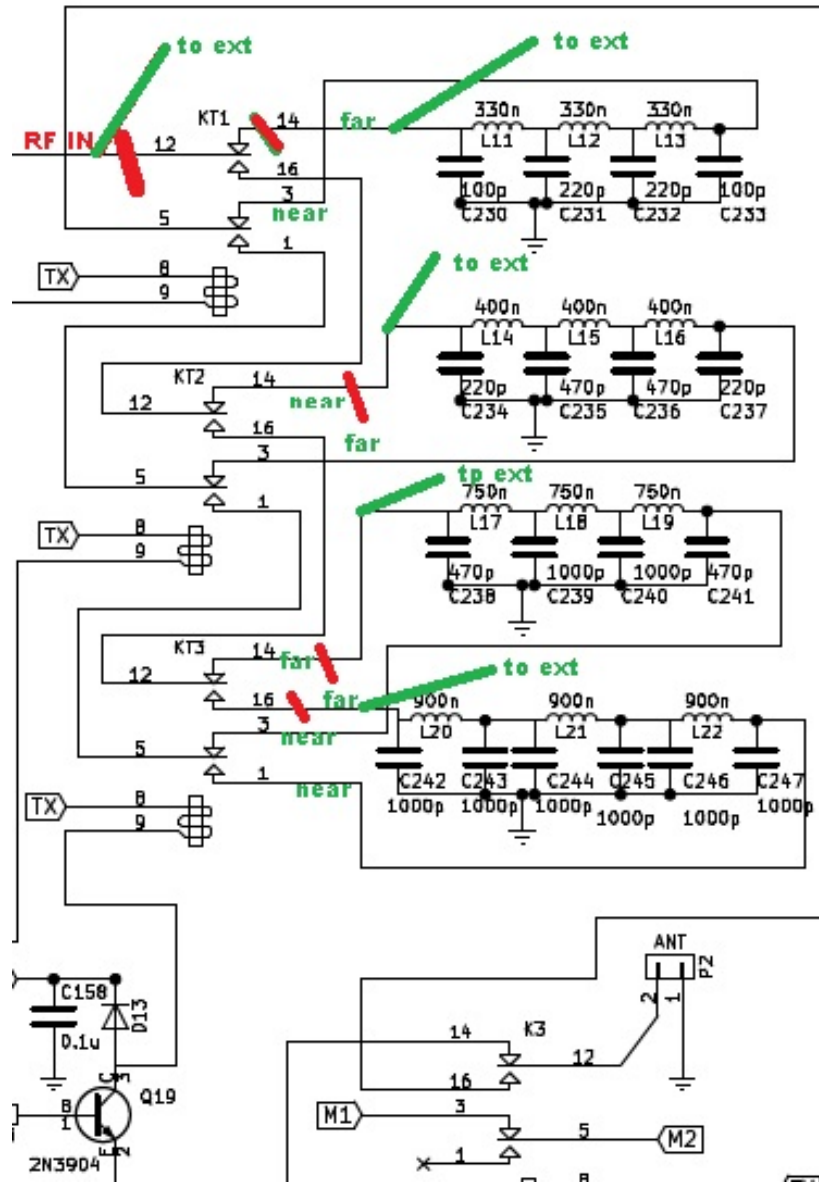
8/12/2018

- Move FIVE signal wires to an external daughterboard.
- Move FOUR relay control lines to the external daughterboard.

Existing pcb traces:



SCHEMATIC OF SIGNAL LINE CUTS TO EXISTING UBITX BOARD



CIRCUIT DESCRIPTION

The basic idea is that we turn the job of switching the inputs of the low pass filters over to an external daughter board. The reason we switch the inputs is that the majority of the filter inputs are near the EDGE of the board and therefore a short distance to a daughterboard. The switching of the output of the filters is still handled by the existing circuitry. The daughterboard circuitry grounds the input of any “higher frequency” filter when as lower and lower frequency filter are selected, to reduce any blow-by through those filters.

PANASONIC RELAY MECHANICAL

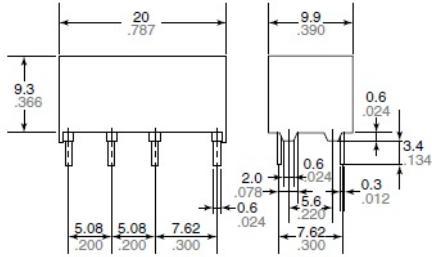
DIMENSIONS (mm inch)

The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://industrial.panasonic.com/ac/e/>

Single side stable

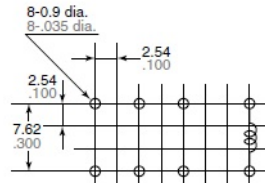
CAD Data

External dimensions



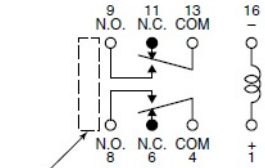
General tolerance: $\pm 0.3 \pm .012$

PC board pattern (Copper-side view)



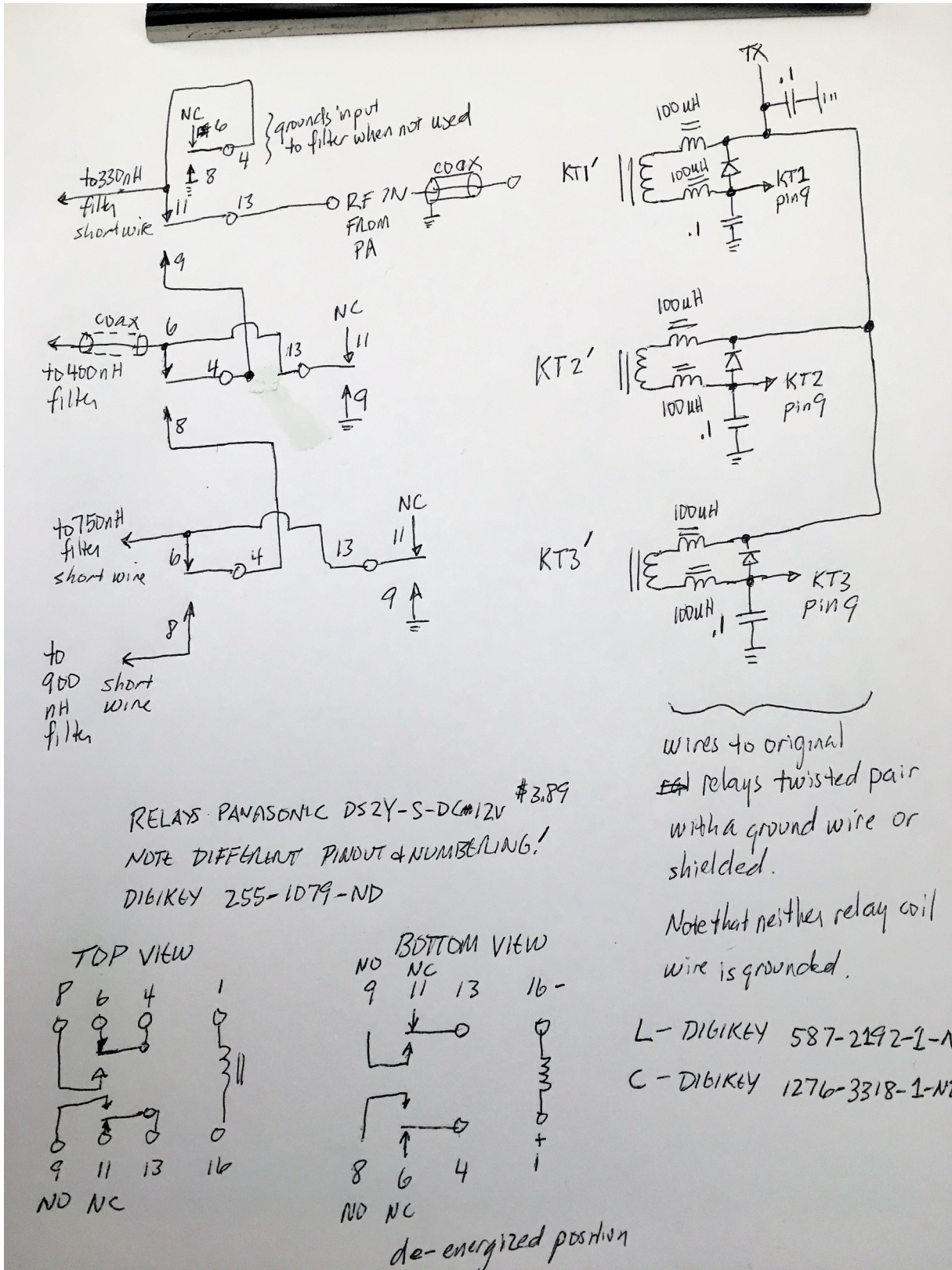
matching 16 pin IC socket
Tolerance: $\pm 0.1 \pm .004$

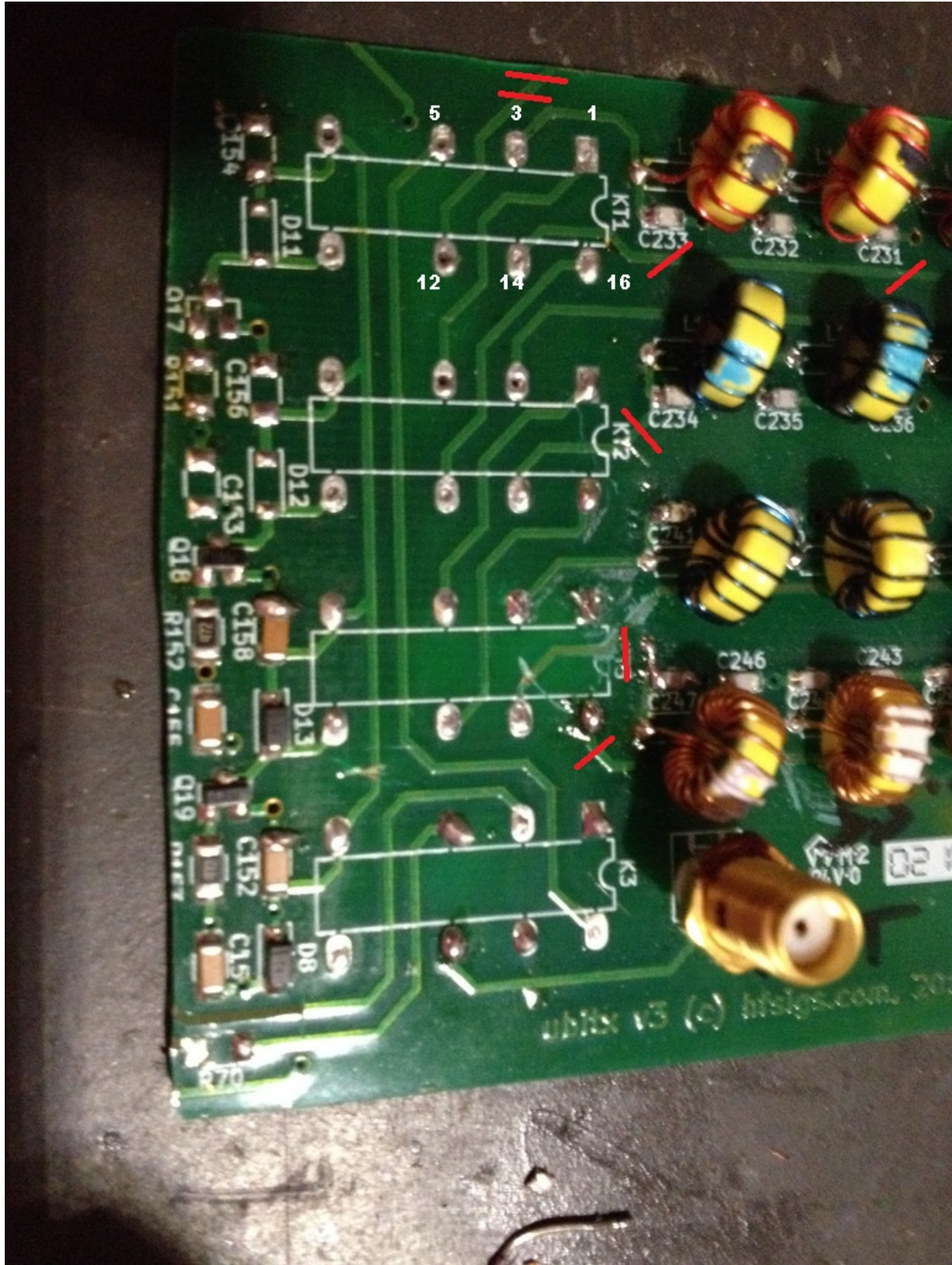
Schematic (Bottom view)
(Deenergized position)



Direction indication*
*A polarity bar shows the relay direction.

SCHEMATIC OF DAUGHTER BOARD





EXTERNAL RELAY DAUGHTERBOARD

RELAY COIL WIRING:

TX AND KT1, KT2 KT3 WIRES – 4 WIRES PLUS A GROUND

Ground wire heavy from one board to the other if not soldered together.

TX switched +12 line.

Three relay controllines

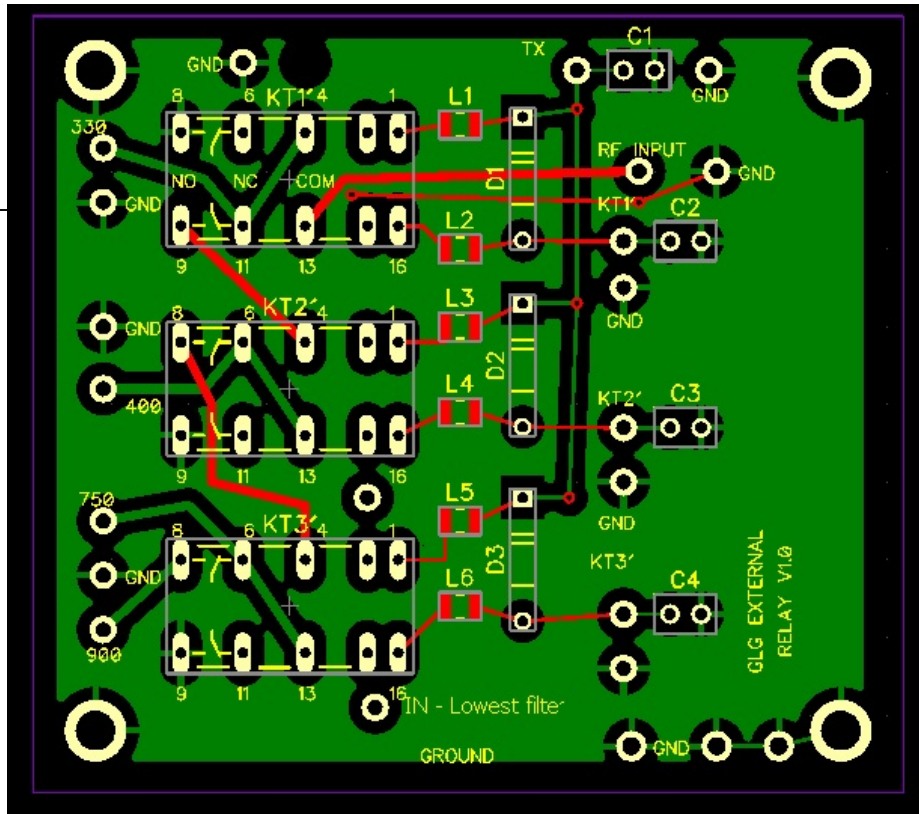
KT1 pin 9 goes to KT1' ("prime")

KT2 pin 9 goes to KT2' ("prime")

KT3 pin 9 goes to KT3' ("prime")

If possible, twist these wires together and either put some kind of shield around them connected to ground. The goal here is to reduce their ability to act as antennas picking up RF energy and coupling it to the COIL of KT1, KT2, KT3, and from there capacitively coupling to the output of the transmitted. Their ends on the daughterboard are all bypassed to ground with 0.1 uf capacitors but a little more shielding is probably good.

NOTE
CAREFULLY
THAT THE
PINOUT AND



CONSTRUCTION OF THESE PANASONIC DS2-S-DC 12V relays is different from that of the relay on the uBitx --- N.O. and N.C. have switched positions, and the numbering is different also. Correction (thanks Gary Anderson! The functions are the same, the numbering is different....

Part numbers:

Capacitors Digikey 1276-3318-1-ND 23 cents
 Inductors Digikey 587-2192-1-ND 18 cents
 Relay: Digikey 255-1079-nD \$3.89 each.

