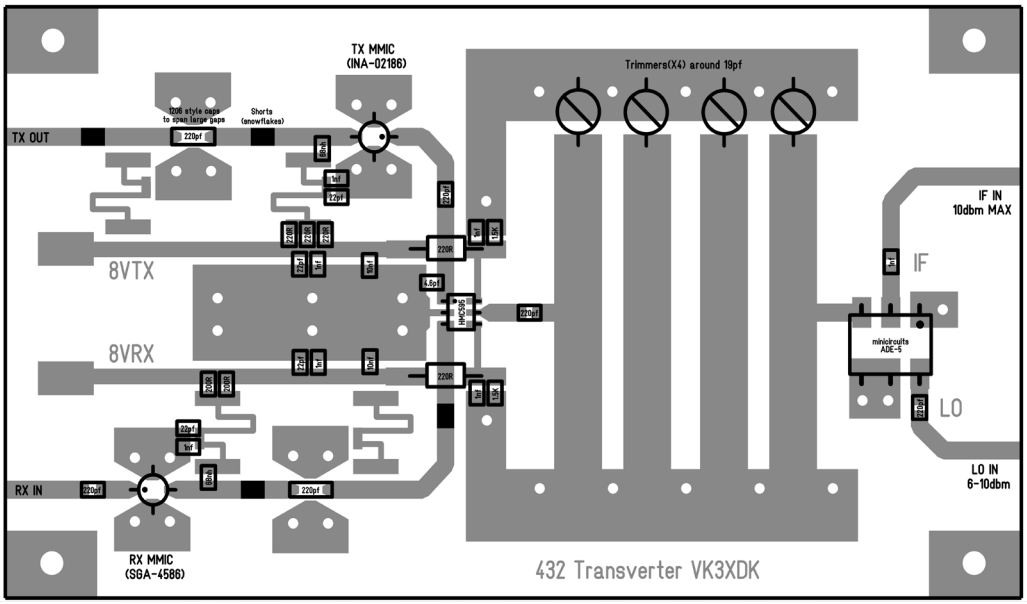
432 Transverter VK3XDK



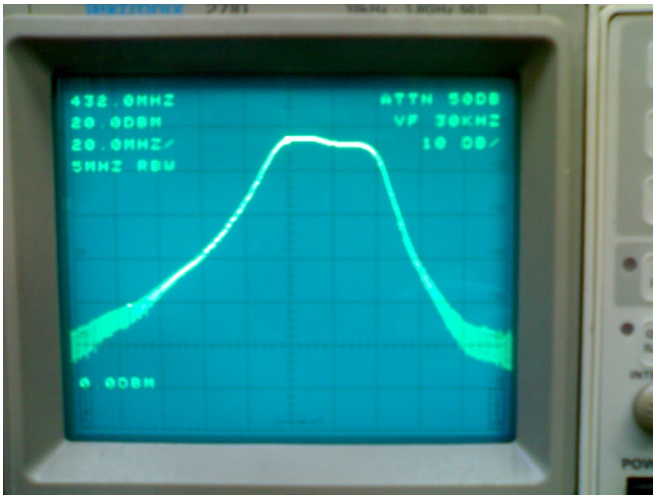
Standard Layout. (87mm X 50mm)

The 432 Transverter is a very basic yet good performing board. Could be very handy as a second conversion for a higher transverter? OR for use alone on the 70cm band.

The active devices shown work well but other devices (such as those in your junkbox) may perform just as well. Remember to re-bias to suit. The board was originally designed for two devices on both RX and TX but was found to have too much gain, therefore I don't recommend using the spare pads.

The HMC595 (TR switch) can be omitted (see Alternative layout). Although not technically correct, it has been found to work just as well. You may need to experiment with applying dc power to both RX and TX together or separately for best result in this configuration.

The trimmers should be of good quality and need to be adjusted to around 19pf. The idea when tuning the caps is to get the band pass starting at around 430Mhz. This will help with the LO rejection. (Low side injection). I normally tune before installing the mixer by shorting out the two left-uppermost mixer pads.
Alternatively the filter can be tuned with a power meter for maximum output at 432MHz while maintaining Minimum output at the LO frequency.

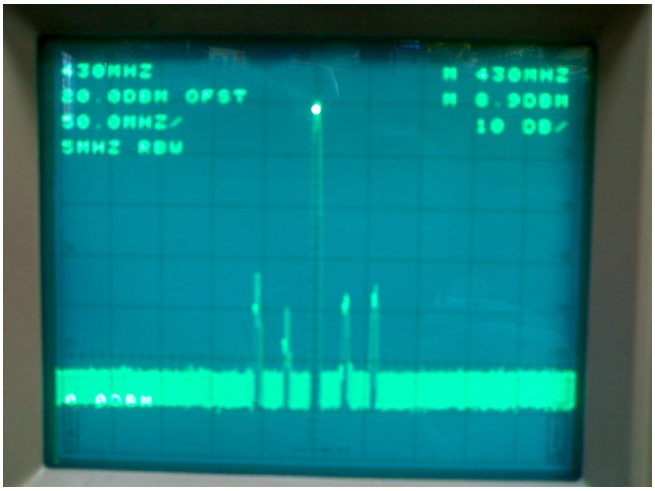


The Board offers very good image rejection when using 144MHz (2M) or 50Mhz (6M) IF, It will also work well with a 28Mhz (10M) IF, but the LO images will be higher (around 32db down). LO frequency is chosen to suit required IF. (ie. for a 50Mhz IF a 382Mhz LO is needed) The mixer works at its best with an LO level of around 6-10dbm.

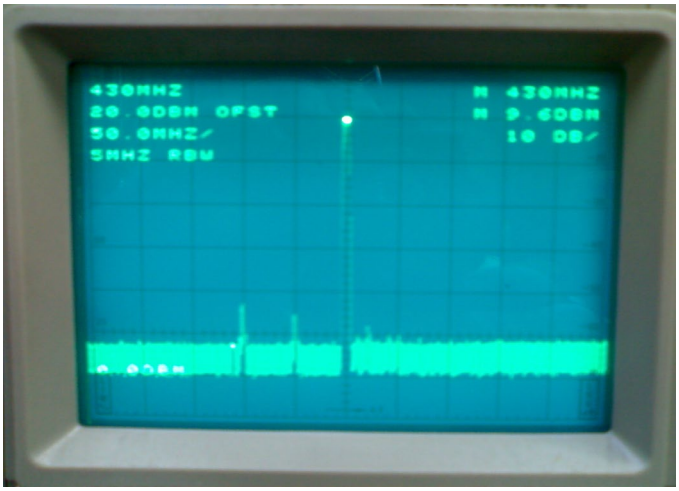
Maximum (no damage) levels to the mixer on the IF port are around 13dbm and it should be found that a IF input of around 0-5dbm should give maximum output. (Maximum output depends on the TX mmic and is typically 10-19dbm at 432Mhz)
There should be plenty of output to drive a “brick” style amplifier.

RX (conversion gain) depends on the chosen mmic; I’ve used the sga4586 due to its very good noise figure and find conversion gain is over 12db.

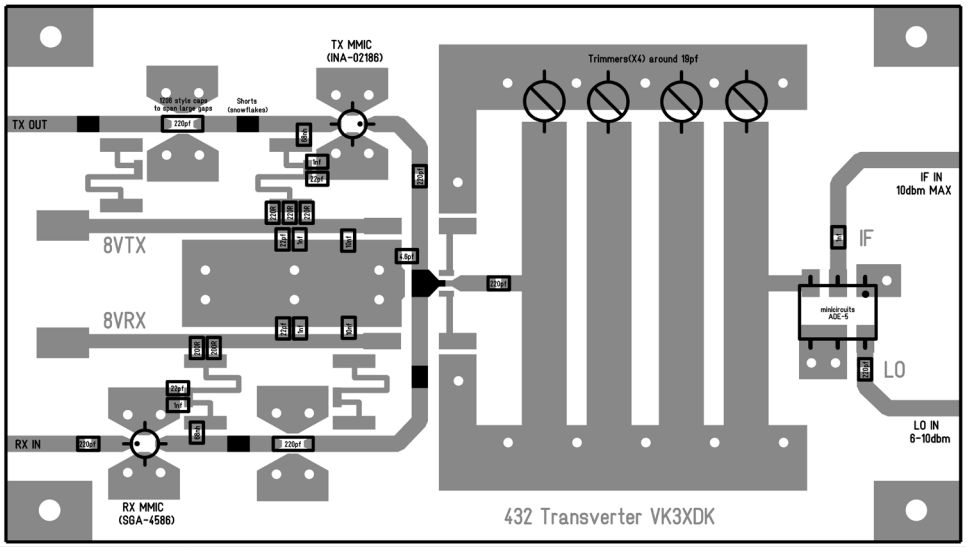
The board is designed for 8vdc (regulated) but can be re biased for other voltages.



TX output with 28Mhz IF



TX output with 50Mhz IF



Alternative Layout

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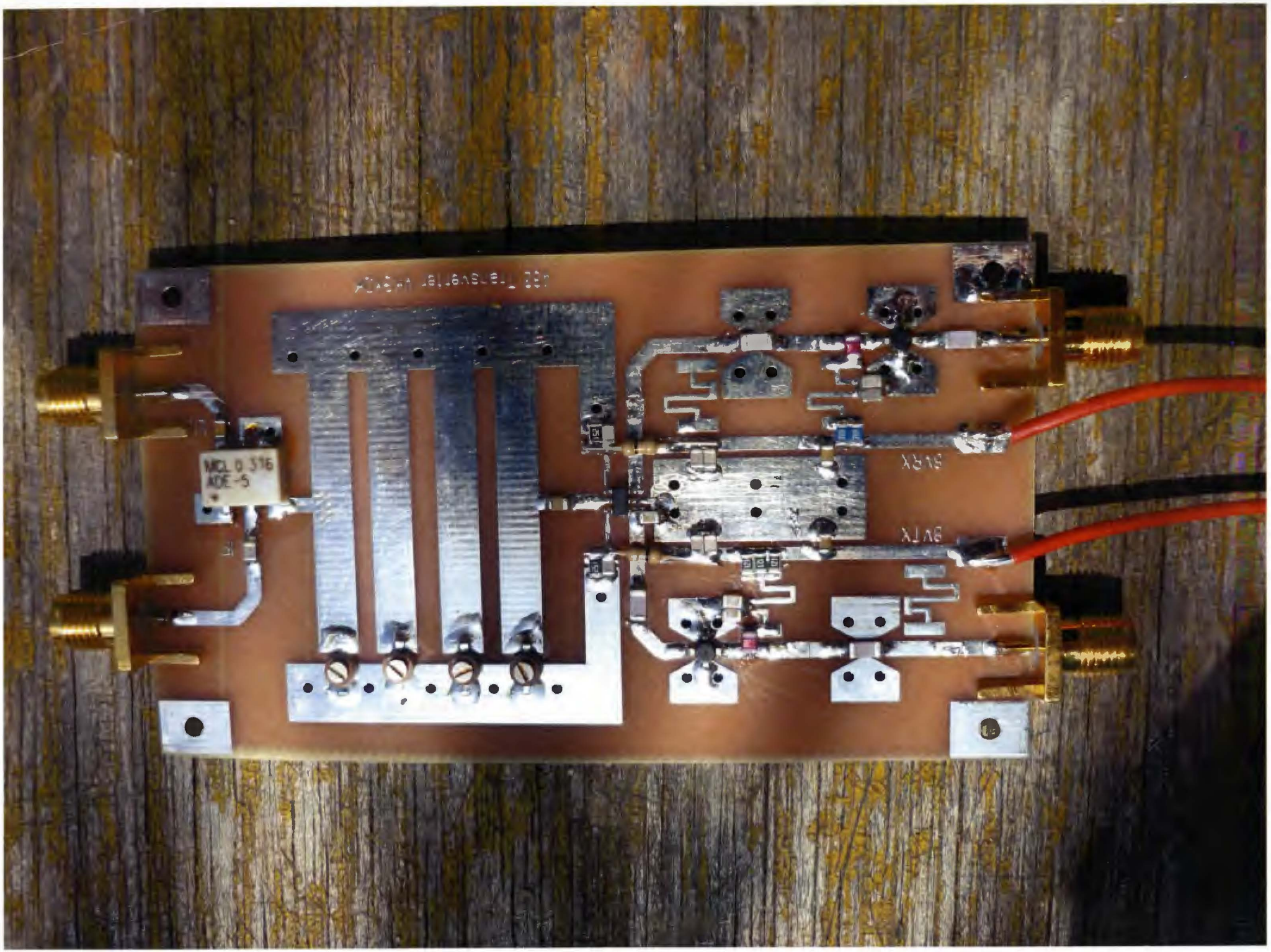
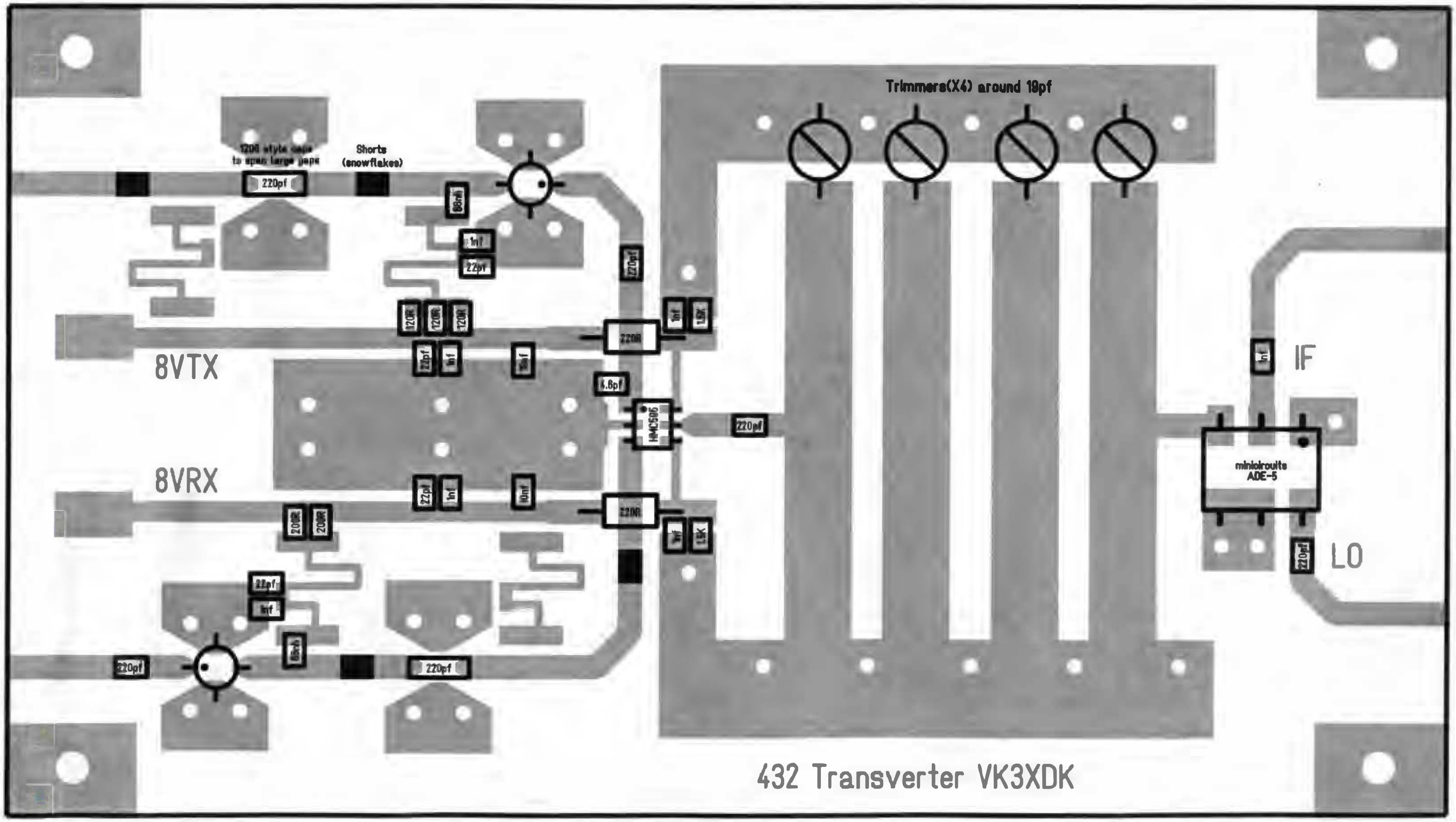

MCL 0-376
ADE-5


Trimmers(X4) around 18pf
1206 style caps to span large gaps
Shorts (snowflakes)
220pf
68nh
1nf
22pf
120R
8VTX
8VRX
22pf
1nf
10nf
220R
6.8pf
HMC596
1.5K
200R
miniciruits ADE-5
IF
LO
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