

The SPRAT Counter

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It had been a glimpse of an idea. I wanted to design a counter for qrp riglets, so it had to be Simple-Practical-Reliable-Affordable-Tiny. You'll really see that there are only a few parts, and when Dieter, DL2BQD, says that even he could operate it then it must be fairly easy! Dietmar DL2BZE EAGLE'd the board and then he and Dieter did the HF-tests together. I made a first prototype on veroboard which did a jolly good job and was also very small. There will soon be an SMD version, then only the crystal will be a real giant compared to the board. But that's for the minimalists among us.

Operation is straightforward: simply use the only push button, press briefly or hold a tad longer, it's all self explaining. Attach the 10-12 V and you will hear the frequency announced in a wonderful cw sound, the PIC push button now waiting for a friendly soft, short touch. When you think of the fact that you built the counter in no time at all - it sounds marvellous! (Without an rf-signal input you will hear a melody of 0000 or 0001 as well. You won't believe how satisfying these 0s can be at this moment! In fact it is a 5-character output of the frequency but in this format the leading 0 is suppressed.

For example if the input is 7.031 254 MHz you'll hear 7031.

In case of 14.123 362 MHz you'll hear 14 123. Hold the push button a wee longer and you will be surprised by the cw symphony of the full readout of 14 123 36 . Between the MHz and KHz there is a tiny break – an acoustic decimal point. Set up: switch off the counter, wait a moment and switch it on again with the push button (pb) pressed. Immediately you'll hear "SP?" i.e. chose cw speed (you may release the pb at the first sound). Press the pb, hold it and you will hear dits with increasing speed, starting again after the peak if you don't release the pb. Chose that speed you want by releasing the pb at the right moment, and it will be stored in the non-volatile memory and confirmed with "OK".

You can do it as often as you like. A symphony of cw. But you have always to begin as described above. You can simply toggle continuously through the ring menu

"SP? Reset? IF? AD? SU? R1? R2?...R7? R8? SP? Reset?" etc..

With reset you chose the standard mode without IF-offset and in read-out format R1.

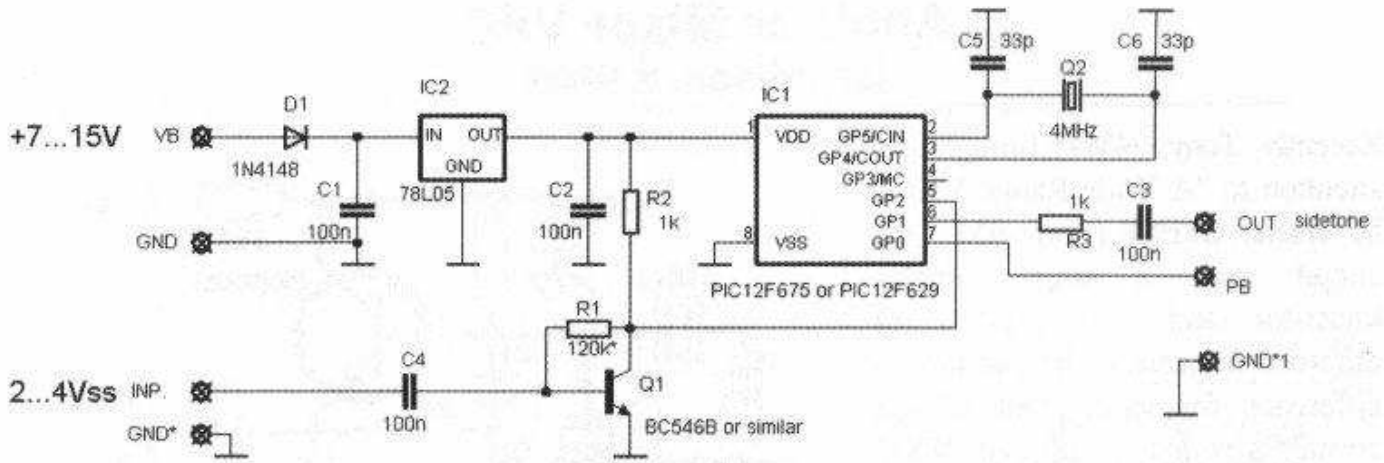
If you want to use your SPRAT counter in an RX you can measure the VFO frequency, then add or subtract the intermediate frequency (IF) and you will get the RX frequency then.

Example: feed an rf-signal (BFO, RX or external generator) into SPRAT ; there should be an amplitude level of 2...4 Vpp and toggle till you hear "IF?" Press pb a bit longer, you hear "OK" and all is stored. Then go on "AD?" or "SU?" and "OK". You are finished.

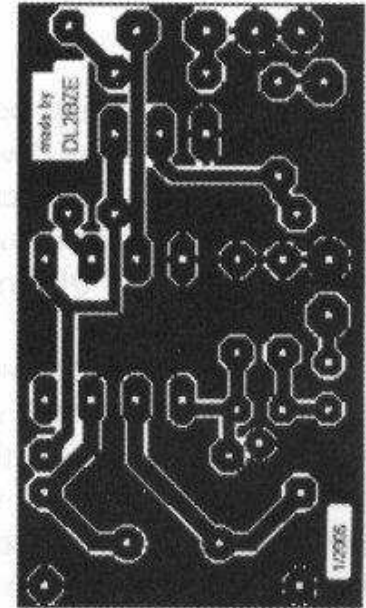
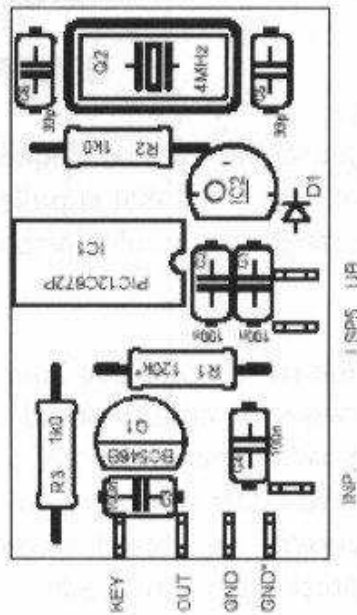
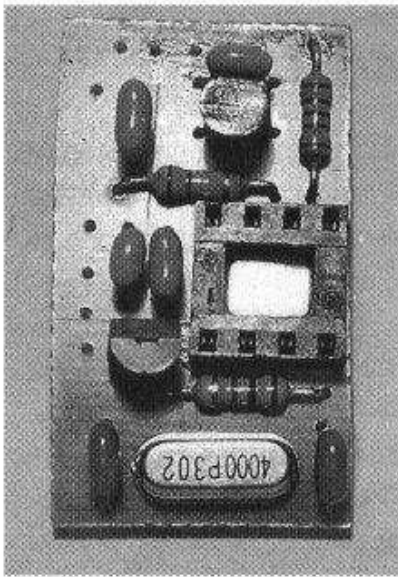
Enjoy!

The hex-code is available at : dj3kk@darz.de

Programmed PICs are also available for the project.



R1 adjust Uce to 1.9...2.6V DC without PIC



Note:

Fred mentions that Dietmar, DL2BZE, has produced some little boards for the counter and tested the SPRAT counter using an HF Generator (see Member's News in this issue) to a design from a book from Hans Nussbaum, DJ1UGA, (see left). Fred commends this book (in German) as an excellent source of practical test equipment. The book is listed as ISBN 3- 88180 804- 3 and costs 9,80 Euro for 75 pages.