

The KESTX01 and KESTX02 are designed for use in the 290-470MHz region, with a push-pull output stage designed to reduce second harmonic emissions when a suitable balanced output circuit is used. There is a requirement for low power transmitters operating in the 900MHz region, and this can be met with the KESTX01 and KESTX02 by connecting the push pull outputs together and using the output stage as a 'push-push doubler' - a well known technique with tubes in the 1930's.

The circuit arrangement used for evaluation is shown in Fig. 1. For each supply voltage, the optimum load impedance was achieved by the use of the 2 stub tuner, and the output power at the various unwanted frequencies was measured with a spectrum analyser - Tables 1 and 2.

Table 1: output powers, (spurious and wanted), optimum load and supply voltage for 917MHz wanted output

| 458.5MHz | 917MHz | 1374MHz | 1834MHz | Optimum load (ohms) | V supply volts |
|----------|----------|---------|---------|---------------------|----------------|
| -37.5dBm | -16.5dBm | -52dBm | -55dBm | 12.5 + j20 | 3.0 |
| -38dBm | -5.5dBm | -50dBm | -29dBm | 5.5 + j9 | 3.5 |
| -38dBm | -6dBm | -50dBm | -30dBm | 4.5 + j6 | 4.0 |
| -36dBm | -3dBm | -50dBm | -33dBm | 6 + j10 | 4.5 |
| -40dBm | -2dBm | -45dBm | -24dBm | 6.5 + j10 | 5.0 |
| -36dBm | -3dBm | -48dBm | -25dBm | 7 + j12 | 5.5 |
| -34dBm | -1.5dBm | -44dBm | -27dBm | 8 + j11 | 6.0 |
| -36dBm | -1dBm | -46dBm | -25dBm | 8.5 + j8.5 | 6.5 |
| -37dBm | -2dBm | -47dbm | -25dBm | 7.5 + j10 | 7.0 |
| -40dBm | -1dBm | -44dBm | -24dBm | 7 + j7 | 7.5 |

Table 2: output powers, (spurious and wanted), optimum load and supply voltage for 867.2MHz wanted output

| 433.6MHz | 867.2MHz | 1300MHz | 1734MHz | Optimum load (ohms) | V supply volts |
|----------|----------|---------|---------|---------------------|----------------|
| -39dBm | -15dBm | -51dBm | -48dBm | 19 + j17 | 3.0 |
| -38dBm | -7dBm | -50dBm | -34dBm | 9 + j16 | 3.5 |
| -38dBm | -3dBm | -40dBm | -27dBm | 6 + j15 | 4.0 |
| -36dBm | -3dBm | -40dBm | -28dBm | 9 + j23 | 4.5 |
| -35dBm | -3dBm | -41dBm | -28dBm | 9 + j22 | 5.0 |
| -35dBm | -2dBm | -42dBm | -31dBm | 12 + j21 | 5.5 |
| -34dBm | -2dBm | -45dBm | -33dBm | 14 + j22 | 6.0 |
| -34dBm | -2dBm | -40dBm | -29dBm | 17 + j30 | 6.5 |
| -32dBm | -2dBm | -39dBm | -33dBm | 17 + j20 | 7.0 |
| -29dBm | -2dBm | -40dBm | -35dBm | 20 + j20 | 7.5 |

These results show that operation with low powers at these frequencies is practical; However, some additional antenna selectivity will be required to meet regulatory requirements (-42dBm EIRP)

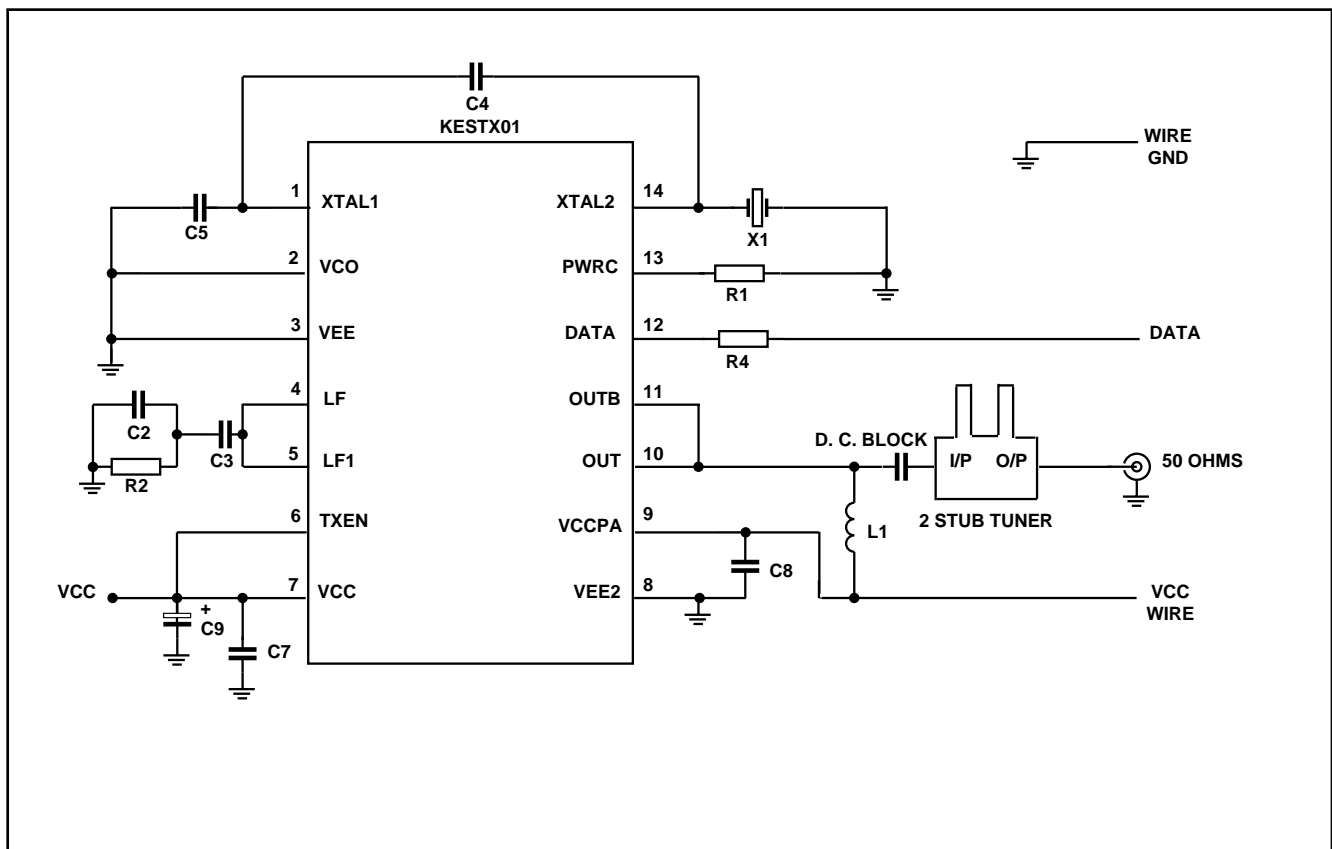


Fig. 1 KESTX01/02 at 900MHz

Component List

| | | | |
|----|-------|------------|-------|
| C2 | 3.9nF | R1 | 2K |
| C3 | 22nF | R2 | 820 |
| C4 | 18pF | R4 | 4.7k |
| C5 | 18pF | TXENLINK | 0Ω |
| C8 | 1μF | L1 | 82nH |
| C9 | 10μF | D.C. Block | 100pF |



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