

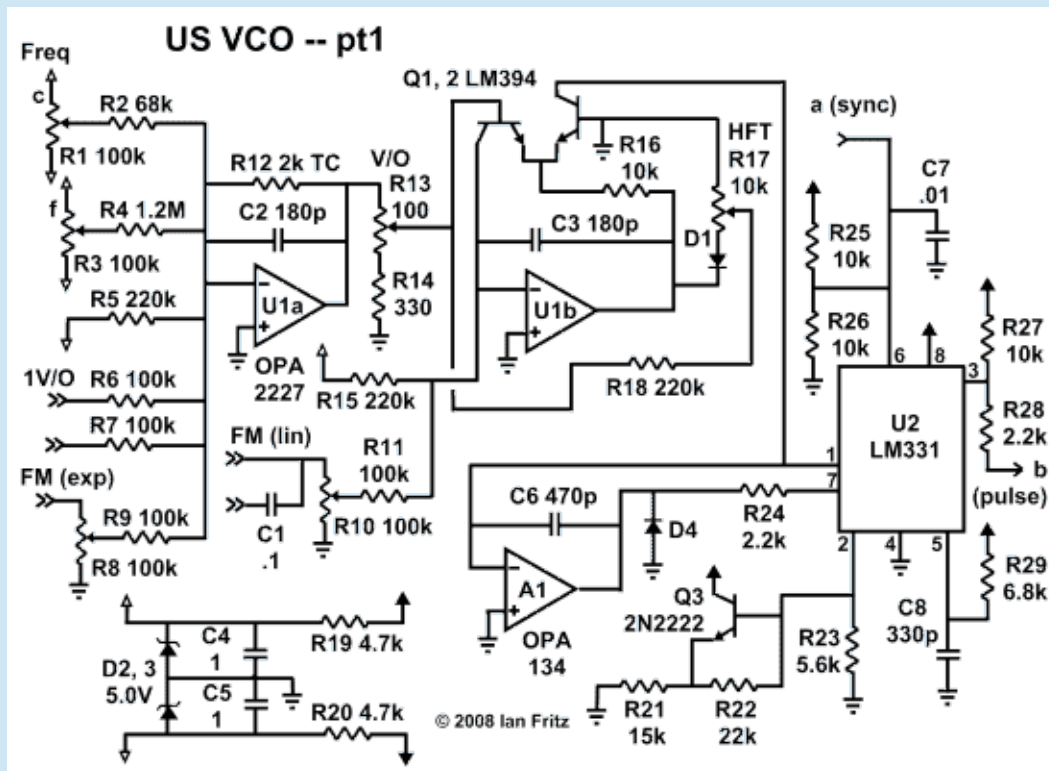
The DoubleDeka VCO

This unique VCO consists of an ultrasonic oscillator core followed by a parallel pair of waveform generators. Each waveform generator consists of a switched multi-octave divider followed by circuitry to generate a 10-step waveform using a set of 10 slider potentiometers. Also included are a novel synchronization circuit with two different operating modes and a built-in "digital ring modulator" (DRM) for producing a wide variety of synchronized and anharmonic sounds. The oscillator core is highly stable (better than 20 ppm/K in the prototype) and features wide-range, accurate tracking (better than 0.05% over fifteen octaves). The variable waveform generator provides fine control over an enormous range of available timbers.

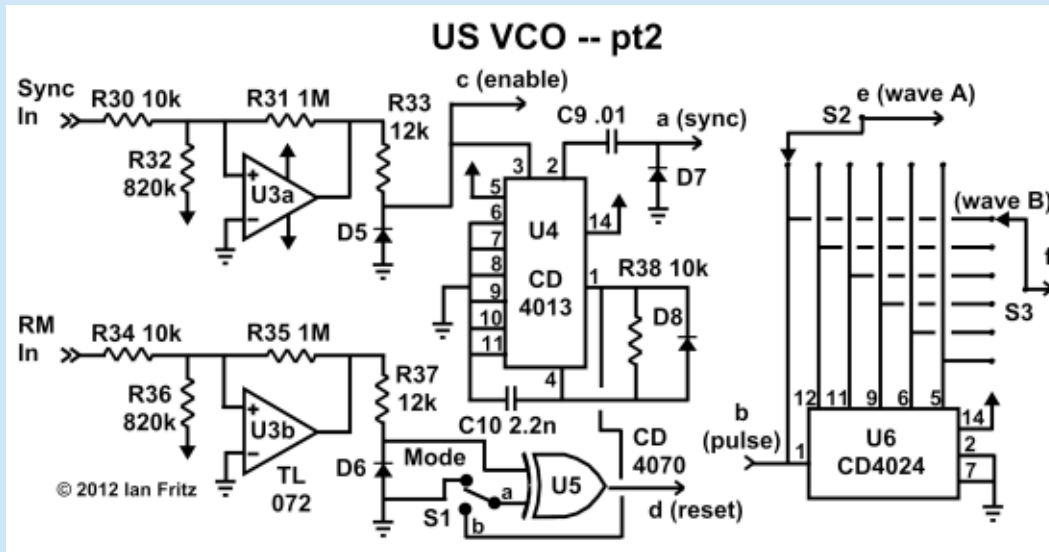
Schematics:

The schematic is divided into three parts representing (1) the VCO core, (2) the synchronization, DRM and octave division circuitry, and (3) the waveform generators.

The oscillator core is built around the LM331 V/F converter chip, set up as recommended in the National Semiconductor application notes.



The second diagram contains the circuitry for synchronization (harmonic or anharmonic), "digital" ring modulation and two switch selectable octave dividers. The Sync and RM functions act differently from those in standard VCOs.



The third diagram shows the pair of ten-step waveform generators. The waveform is "drawn" by setting the slider positions.

