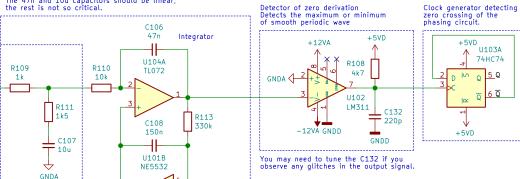


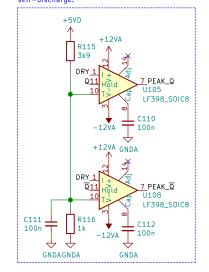
90 degrees phasing circuit (integrator with DC servo and phase compensation at LF end) Maintains +90deg phase (+- 0.25deg) from 67 Hz and higher. It has a "resonance" at 32 Hz which is the reason for notch filter on input. The 47n and 10u capacitors should be linear, the rest is not so critical.



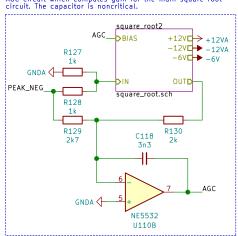
DC servo R114 330k

 \uparrow \uparrow GNDAGNDA

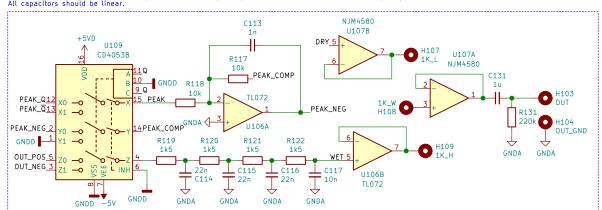
Peak detector, detects peaks synchronously by detecting zero corssing of the phasing circuit. Capacitors can be of any type with low self-discharge.



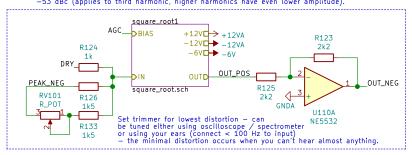
AGC circuit which computes gain for the main square root circuit. The capacitor is noncritical.

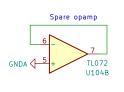


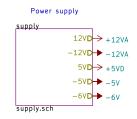
Analog switches which do most of the magic. Switch A switches between the two peak detectors.
Switch B serves as a "compensating" switch which reduces the effect of switch resistance on the performance of the inverting amplifier.
Switch C switches polarity of the output waveform — required part of the transformation to half frequency.
All capacitors should be linear.



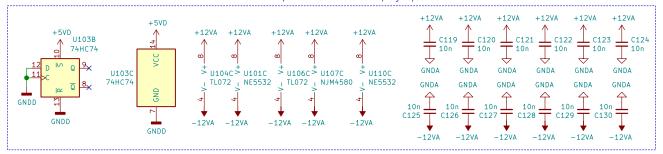
Main square root finder. For sine wave, this circuit can achieve harmonics suppression at least -53 dBc (applies to third harmonic, higher harmonics have even lower amplitude).







Power pin connections and decoupling capacitors



An effect which produces half the input frequency without any PLL or DSP. This effect works well for sinewave, for other waveforms, expect high distortion.

Petr Polasek

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