

Re: Dual sine wave generator with variable frequency and 90 degree phase difference

Source: <http://sci.tech-archive.net/Archive/sci.electronics.design/2008-09/msg00735.html>

- *From:* George Herold <gherold@xxxxxxxxxxxxxx>
 - *Date:* Sat, 6 Sep 2008 19:04:10 -0700 (PDT)
-

On Sep 6, 2:42 pm, JosephKK <quiettechb...@xxxxxxxxxx> wrote:

On Sat, 6 Sep 2008 07:32:27 -0700 (PDT), George Herold

<gher...@xxxxxxxxxxxxxx> wrote:

On Sep 4, 2:55 am, Robert Baer <robertb...@xxxxxxxxxxxxxx> wrote:

Jan Panteltje wrote:

On a sunny day (Wed, 03 Sep 2008 09:42:57 -0400) it happened Steve <st...@xxxxxxxxxxxxxx> wrote in <205tb41td5tfa5n3esvim42940ikvhh...@xxxxxxxxxx>:

I'm looking for a waveform generator that outputs two sine waves of the same frequency with 90 degree phase difference (sine and cosine).. I need a variable frequency between 0.05 Hz and 10 Hz. Is there an analog design that uses a single potentiometer or perhaps is voltage controlled ? Low distortion is not a requirement.

Re: Dual sine wave generator with variable frequency and 90 degree phase difference

Steve

2 x EPROM sine and cosine lookup table,
4046 VCO variable clock generator,
binary counter on EPROM address lines,
2 x 8 bits wide DA converter, 2 x lowpass.

For a 256 values per sine wave form, your
clock should be max 2560 Hz.

NOT analog.

Use a ramp oscillator for constant amplitude; one stage
generates a
square wave for integrating to the ramp.

Run a comparitor off the ramp (triangle); that will be 90
degrees WRT
the square wave.

The 2 square waves can be filtered with a simple 3-stage
phase retard
filter.– Hide quoted text –

– Show quoted text –

I was going to suggest a ramp generator also... as a analog
solution..But I don't know if you can build the filter to work at 0.05
Hz! How much distortion can you handle?
George

Diode ladder waveshaping can handle triangle to sine conversion, down
to about 0.1 % THD. OP does not seem to be all that distortion
sensitive.– Hide quoted text –

– Show quoted text –

There you go a diode ladder waveshaper (do you have a reference?) and
and ramp-triangle wave circuit. I've copied a ramp generator out of
H&H that I run down to 1–2 mHz or so. (That's a small m as in 10^{-3}
Hz.) It uses a 100uF tantalum cap at the low freq. end.