

Re: Missing Schmitt Gates??

Source: <http://sci.tech-archive.net/Archive/sci.electronics.design/2007-12/msg00550.html>

- *From:* John Fields <jfields@xxxxxxxxxxxxxxxxxxxxxx>
 - *Date:* Tue, 04 Dec 2007 19:54:53 -0600
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On Tue, 04 Dec 2007 16:47:14 -0800, John Larkin
<jjlarkin@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx> wrote:

On Tue, 04 Dec 2007 16:45:54 -0700, Jim Thompson
<To-Email-Use-The-Envelope-Icon@xxxxxxxxxxxxxxxx> wrote:

On Tue, 04 Dec 2007 15:40:47 -0800, D from BC
<myrealaddress@xxxxxxxx> wrote:

On Tue, 04 Dec 2007 22:17:36 GMT, Rich Grise
<rich@xxxxxxxx> wrote:

On Mon, 03 Dec 2007 19:07:08 -0800, John
Larkin wrote:

On Mon, 3 Dec 2007
17:57:28 -0800, "Joel
Koltner"

"D from
BC"
<myrealaddress@xxxxxxxx>
wrote in
message

A
crystal
needs
a
good
linear
amp.

Re: Missing Schmitt Gates??

Everything
is linear if
you look
closely
enough...

I am being a
little obtuse
here — the
kind of
oscillator I
was
thinking
of was your
canoncial
microcontroller/FPGA
clock that
doesn't need
to be
particularly
accurate —
it's common
to use 50 or
even
100ppm
rocks in
such
systems;
this is a
completely
different
league of
oscillator
than
those you
build for,
e.g., fancy
RF
applications
where
you're after
2.5ppm or
better.

I was never able to get the
Schmitts to oscillate
anywhere near the
supposed crystal frequency.

Re: Missing Schmitt Gates??

Maybe it's a little late in the thread to bring this up, but I'd think that with the Schmitt characteristics of the input, the crystal would have to be drastically overdriven, just to get the gate to notice that there's a feedback signal.

But I wouldn't have any qualms about an HCU inverter or 3. ;-)

Cheers!
Rich

I think Ht for Logic with Schmitt inputs is about 1V @ 5V.

A crystal..well... isn't it just tiny jiggling piece of rock?
Ooops...I might be thinking piezo..
Damn..forgot all my crystal theory...cuts, shapes, modes and all that jazz.
Anyways.. I can imagine that one has to be kind to a tiny piece of crystal and not bash it with lots of drive.
However....depends on the precision required..
As someone posted, for clocking an uC or CPU ...who cares about some drift..

D from BC

A crystal oscillator using an inverter with hysteresis WILL NOT self-start.

...Jim Thompson

Of course it will self-start. It just won't run anywhere near the crystal frequency!

Nope.

There's no guarantee that it'll self-start because you've only got one delta V (on turn-on) to cause the crystal to ring, and if it

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doesn't ring hard enough to get to the opposite switching threshold
it'll just sit there, squeezed.

The right way to do it is to use an inverter which can be biased so
that the input and the output are both at about $V_{cc}/2$ and then let
noise tickle the crystal until it takes off.

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JF

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