

Re: Something to ponder

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From: John Larkin (jjlarkin_at_highSNIPlandTHIStechPLEASEnology.com)

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On Wed, 06 Oct 2004 09:31:01 -0400, Spehro Pefhany
<speffSNIP@interlogDOTyou.knowwhat> wrote:

>On 06 Oct 2004 12:51:22 GMT, the renowned chrisgibbogibson@aol.com

>(ChrisGibboGibson) wrote:

>

>>Also, originally, after a reading, the ramp was left to run high and I noticed
>>that this affected the following reading quite dramatically. Ensuring it always
>>runs to the same height made a big improvement.

>

>BTW, I've used this effect to advantage in a commercial product to
>deliberately de-linearize an ADC to match a certain sensor's (slight)
>nonlinearity. It works okay for small amounts of nonlinearity relative
>to the desired accuracy of the ADC, but the tolerances of inexpensive
>capacitors are nothing to write home about, so it's probably not as
>applicable if you need something really nonlinear. Essentially I made
>an artificial capacitor with huge DA.

>

You can do the reverse: feed back a bit of the ramp voltage into the
guts of the current source such as to increase the current as the ramp
runs. This adds a t-squared term to the curve, nearly compensating
shunt resistance or any other effects that bow the ramp down. I've
done this with 25 ns ramps.

Reminds me of the old RTD linearization trick. Well, sort of.

John