

## ASK THE EXPERTS

### Another Pulse Stretcher Idea

Editor:

In the new issue of *High Frequency Electronics* magazine, March 2005, there is a request by Mr. Onuffer for a pulse stretcher circuit.

I can possibly offer a solution. I have just designed a simple pulse generator with 74123 integrated circuits which can generate "stretched" output pulses upon triggering by short pulses. In my case I used ~100 ns pulses for triggering but have verified that these ICs work well from ~20 ns pulse length. In fact, the pulse edge is ~10 ns and this triggers the circuit.

What seems to be more complicated is Mr. Onuffer's requirement that the pulse stretcher has to respond with "identical pulse peak amplitude." I am afraid no real circuit would be able to do so without being quite complex. My 74123 circuits operate with TTL levels. It means the input pulses should have the edges positively- or negatively-going between <0.1V and >3V, and the output pulses also extend from near zero to about 5V max.

With smaller and/or larger pulses one would need a limiting amplifier and another attenuator/amplifier at pulse stretcher output to obtain back the original amplitude.

I am afraid the amplitude conserving requirement is not achievable otherwise.

In my opinion, using a faster A/D converter capable of directly measuring the short input pulse amplitude is the correct way to go. Or using a sampling circuit to hold the peak voltage for a slower A/D converter.

Thank you for an interesting magazine!

Jiri Polivka  
Space Labs. Inc.

### Editorial Feedback

We received a number of comments on my January 2005 editorial with predictions for 2005 and "Some Things I Find Puzzling." Here are a few excerpts.

—Gary Breed, Editorial Director

#### Re: HDTV

"It's a complex (or maybe not so complex) combination of price and compatibility coupled with desire. ... I don't want to out-date some of the great equipment I already own. I want to do other things with my time and money ... Maybe the reason sales have been so lackluster is that I'm not the only one who feels this way."

—Ben Kamen

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"...with regards to HDTV, I've had one for about three years. The problem with it is that there is hardly anything to watch in high definition. ... I can get a couple of channels off the air and there are a few on satellite. Maybe when more high definition transmissions are available, more people will move to HDTV.

—Dale Edwards

#### Re: Cell Phone Service

"Customers today are brain washed into not expecting anything better for cellular service than what they are putting up with now. The carriers have them trained to expect dropped calls, to expect distorted voices and no coverage in places they want to go."

—Jim Szalajeski

"You are right on the money—Convenience trade-off for quality. I don't get that one either. ... Phones used to be these abusable things... now they are fragile, easy to lose and provide sketchy service... (shrug)"

—Ben Kamen

### Even More Writing Suggestions

Editor:

Regarding the March 2005 issue of *High Frequency Electronics*, under "More Writing Suggestions, Books and Journals," you might want to add:

*Reference Manual for Telecommunications Engineering*, 3rd ed., John Wiley,  
*Telecommunication Transmission Handbook*, 4th ed., John Wiley, and  
*A Manual of Style*, US Govt. Printing Office.

Others, more specialized, are:

*Radio System Design for Telecommunications*, 3rd ed., John Wiley,  
*Practical Data Communications*, 2nd. ed., John Wiley, and  
*Fiber Optic Systems for Telecommunications*, John Wiley.

Roger Freeman  
Roger Freeman Associates

Roger,

Thanks for the added suggestions. Some of them are more accurately described as general technical references rather than writing aids, but they certainly provide needed background for writing tasks. —ed.