

Re: Peak detector

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"Tom Bruhns" <k7itm@xxxxxxx> wrote in message
<news:1142982305.166420.219460@xx>

50 usec is a very long time in terms of response of modern electronic circuits. It should be possible to capture the peak using either analog or digital techniques. How accurately do you wish to capture it, and what amplitude is it? (What is the range of possible amplitudes, including the peak and the value at other times?)

A digital method: let a very simple microprocessor (or even a logic circuit) monitor the output of an ADC that's taking reading at an appropriate rate, say 100k/second, and hold the maximum value in a register. If a new ADC reading is higher than the value in the register, replace the register contents with the new reading. This could easily be equipped with a digital readout and a reset button, or it could respond to an external electronic reset line and provide its register value to a computer...lots of flexibility.

An analog method: there are many op amp peak detector circuits around. I'd look on the TI and Analog Devices and National Semiconductor websites for ideas, or look in op amp databooks. I particularly remember some good ones in the Burr-Brown data books (now part of TI). You can read out the value with an ADC or digital voltmeter; beware that the design has low droop rate. It should be possible with modern parts to get a value held to 1% accuracy for more than 10,000 times as long as it takes to acquire the peak value. The peak is held on a capacitor, and the ability to hold a value a long time is set by having a high ratio between leakage currents that affect the capacitor voltage and the current available to charge the cap to the peak value to be held. It's capturing the held value quickly enough to avoid droop problems in the analog circuit that make the digital solution particularly attractive. (Analog methods are probably more appropriate for capturing very short peaks.)

Obviously, you can make two such circuits to monitor the two inputs. And you can arrange gating to enable each, either digital or analog, only for a "window" of time around when you need the result.

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Cheers,
Tom

Thanks Tom. I forgot to mention, these are single pulses. I also thought of using an AD on a pic chip. If I have to go that far, I will add memory and display the waves on a laptop using my favorite graph program (Dplot). Then I could instruct the operator to save the files, and I could evaluate them at a latter date. I was hoping to avoid all that however. I was looking for a simple one chip solution just to capture peak amplitude, do some math and give a go – no go indication. I can assume the waves to be similar if the gain difference is where it should be. I found Analog devices makes the PKD01, I don't know if it can detect a single pulse – I will read the datasheet latter.

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