

Re: OSC and unity gain buffer

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- *From:* Tim Wescott <tim@xxxxxxxxxxxxxxxxxxx>
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eeaj2002 wrote:

Hi all,

I need help with my circuit please. I have a one MHz osc fed into the positive input of the opamp LMC6484 and the negative terminal is connected to the output (unity gain buffer). At the positive input terminal I have the 1MHz. from the oscillator and I should see one MHz at the output as well but I see distorted sine wave signal. If the gain bandwidth of the opamp is 1.5MHz. should not I see one MHz. at the output of the opamp as well. I did run the oscillator at 3.0 Volts and the opamp at 15V.

Thanks for you help in advance,

John.

You really don't want to run an op-amp right up against it's gain-bandwidth product. The design philosophy of an op-amp is that you use a crappy amplifier with tons of excess gain, and fix all of the amplifier problems with tons of feedback. When you get close to the loop bandwidth, you no longer have tons of excess gain with which to generate tons of feedback, and all you're left with is a crappy amplifier.

I'd be looking for an op-amp with a G-B product of 10MHz or more (and 10x is still wimpy), or if my circuit only needed to be AC coupled I'd seriously consider using an emitter- or source-follower to buffer my oscillator.

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