

Re: Op amp newbie

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- *From:* Mac <foo@xxxxxxx>
 - *Date:* Fri, 01 Jul 2005 19:22:36 GMT
-

On Fri, 01 Jul 2005 04:42:34 +0100, Pooh Bear wrote:

> Mac wrote:

>

>> On Thu, 30 Jun 2005 07:28:34 +0100, Pooh Bear wrote:

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>>> Mac wrote:

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>>>> On Wed, 29 Jun 2005 06:29:12 -0700, Yvan wrote:

>>>>

>>>>> Hi,

>>>>>

>>>>> I have a very simple question to ask. Say my required Gain-bandwidth product is $1\text{kHz} * 1 = 1\text{k}$, what is the minimum gain-bandwidth product of the op amp in order to assume an infinite gain?

>>>>>

>>>>> In the book "sensors and signal conditioning", they gave an example of an application that had a GBW of 30 Khz. It mentioned that a opamp GBW of 5 Mhz was large enough to assume infinite gain. $5\text{Mhz}/30\text{khz}=167$ times. Is there a rule of thumb would help in figuring if a given opamp is suitable for my application in terms of GBW?

>>>>>

>>>>> Thank you,

>>>>>

>>>>> Yvan

>>>>>

>>>> It depends somewhat on what you are doing.

>>>>

>>>> 10 or even less might be good in some cases. I imagine that 1000 would be good enough all the time.

>>>>

>>>> The problem is that as you get closer and closer to the limit, then there will be less and less feedback available to linearize the circuit at higher frequencies and you will have more and more distortion. If the op-amp is followed by an aggressive low-pass filter, the distortion might be tolerable, since the filter will knock it down quite a bit.

>>>>

>>>> Filter ?

>>>>

Re: Op amp newbie

>> > What filter ?

>> >

>> > Graham

>>

>> Graham, I said "if the op-amp is followed by an aggressive low-pass

>> filter, the distortion might be tolerable since the filter will knock it

>> down quite a bit."

>>

>> I don't know why I'm quoting it; it is still visible above. ;-)

>>

>> But anyway, does it make sense now? If not, I really don't know what to

>> say!

>

> It sounded like an odd thing to do. Can't say I've ever seen such an

> arrangement. Have you ?

Yes. In a sampled IF system. IF bandwidth is 50 MHz.

> The cost of a passive LP filter would be such that it

> would simply make sense to use a better op-amp I would have thought.

>

Well, since it is a sampled IF system, a brickwall anti-aliasing filter is mandatory anyway. And finding op-amps which can drive 50 Ohms at 50 MHz with low distortion is not necessarily trivial.

> Graham

--Mac

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• **References:**

◆ **[Re: Op amp newbie](#)**

◇ *From:* Mac

◆ **[Re: Op amp newbie](#)**

◇ *From:* Pooh Bear

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