

Re: Pls help me find extremely small 1:1 voltage-tracking regulator

Source: <http://sci.tech-archive.net/Archive/sci.electronics.components/2005-05/msg00200.html>

- *From:* "Bo-Ming Tong" <cyberstudio@xxxxxxx>
 - *Date:* 25 May 2005 12:05:16 -0700
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Yes, thanks for the advice...

I am rethinking this a bit due to the advice of you and Walter. The reason why I wanted my power supply to track the other power supply is that I am afraid of the I/O pin protection clamp diode conducting (on either side), blowing things up. But as I think about it, using a high-current rail-to-rail opamp leads me back to exactly the same original problem that I am trying to solve. I am just dealing with a protection diode in a different place. And on top of that I need to worry about output capacitance like you said.

As you can see I have about 0.3V voltage difference between the 2 power supplies. I guess I can just add 10k resistors to each pin of the interface. If the power supply differences turns out to be great enough to trip the protection diodes (in the normal case this should not happen), the protection resistors should be able to limit the current and saving me from blowing things up.

Is there going to be any problem if I interface two CMOS logic systems together with a constant Vcc difference of 0.3V ? I wish the design to be both durable and reliable. I think the durable part has been addressed by protection resistors, but I am not so sure about the reliable part. I had the pleasure (sarcastic) to deal with an alarm in my car where the control signals would get mixed up, such as the door lock control crossing over to the siren, when the not-so-well-designed zener diode protection circuit to the ULN2003 driver IC kicks in. And because of this lesson I don't want my own product to act crazy under any situation.

Thanks again to the advice.

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- *Follow-Ups:*
 - ◆ ***Re: Pls help me find extremely small 1:1 voltage-tracking regulator***

Re: Pls help me find extremely small 1:1 voltage-tracking regulator

◇ *From:* William P . N . Smith

◆ ***Re: Pls help me find extremely small 1:1 voltage-tracking regulator***

◇ *From:* Spehro Pefhany

• **References:**

◆ ***Pls help me find extremely small 1:1 voltage-tracking regulator***

◇ *From:* Bo-Ming Tong

◆ ***Re: Pls help me find extremely small 1:1 voltage-tracking regulator***

◇ *From:* Walter Harley

◆ ***Re: Pls help me find extremely small 1:1 voltage-tracking regulator***

◇ *From:* Bo-Ming Tong

◆ ***Re: Pls help me find extremely small 1:1 voltage-tracking regulator***

◇ *From:* Spehro Pefhany

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