

Re: What's the hi-side current sense chip du jour?

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- *From:* "miso@xxxxxxxx" <miso@xxxxxxxx>
  - *Date:* Sun, 31 May 2009 12:26:20 -0700 (PDT)
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On May 31, 11:55 am, John Larkin  
<jjlar...@xx> wrote:

On Sat, 30 May 2009 15:22:33 -0700, Joerg

<notthisjoerg...@xxxxxxxxxxxxxxxxxxxxxxxx> wrote:

John Larkin wrote:

On Sat, 30 May 2009 13:46:46 -0700 (PDT),  
"m...@xxxxxxxx"  
<m...@xxxxxxxx> wrote:

On May 29, 8:30 pm, John Larkin  
<jjlar...@xx>  
wrote:

[...]

They discontinued the part without warning, in fact when shipments were long overdue. They then announced their "drop-in replacement" – the MAX9691 – which is the only comparator I've ever heard of that has BACK-TO-BACK DIODES BETWEEN ITS INPUTS. Imagine what that

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did to a  
capacitor-linear-ramp/dac  
time delay trimmer circuit.

grrrrrr.

John

I can see this happening. My original  
comment was about parts being  
non-functional right out the chute.

But the 9690 was a bipolar part. Hard to  
believe oxide has that  
effect.

I don't know the physics. The behavior was as stated.  
Whatever went  
wrong, it could be annealed out.

I've only used bipolar inputs in bicmos for  
ASICs. The clamping under  
those conditional is not that unusual, then  
again, I'm setting up the  
operating conditions. If you yank a  
differential pair far apart, two  
ugly things can happen. One could be a  
polarity reversal in the  
comparator, which depends on a lot of  
things. The other more sneaky  
problem is the offset of the differential pair  
shifts. The whole  
reason you went through the pain of using  
bipolar inputs (speaking  
from a BICMOS point of view) is the low  
untrimmed offset off the  
differential pair.

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Clamps are fine for opamps; not for comparators. Don't be shocked, but comparator + and - inputs are sometimes driven to \*quite different voltages\*! On purpose!

Especially since they obviously wrote or said "drop-in replacement". The engineer who ECO'd that statement should have his head examined.

That was a Gain Technology design. Those guys spent way too much time in the Arizona sun and fried their brains. While you end users may think you are the judge of component quality...

Yeah, what the hell do we know? When a comparator output is entirely wrong, I should ask a process engineer if that's OK.

Old American business rule #2: A product is only as good as the customer says it is.

I've found a number of horrible bugs in chips, some of which the chip designers were unaware, some of which they knew about and did their best to keep a secret.

John

Other than simple op amps, Gain designs were terrible. This comes from some stupid management that thinks all engineers are the same. I assure you the stuff designed in the valley (Maxim HQ) was thoroughly flogged before shipping, not that the occasional bug doesn't get through. I don't consider anything the Arizona boys designed to be Maxim products, but unfortunately, the Maxim brand is on their designs.

I'm not sure if LTC still has that Singapore design center, but when it was opened up, they sent one of their employees to run it, which insures it was done to the valley's "home of the gurus" standards.

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One thing management doesn't get is that a customer judges your company by the crappiest stuff you are willing to put your brand on. This should be obvious, but Dilbert is more than just a comic strip. The old HP really understood this, and nothing they sold was junk. [If a connector reached the outside world, it had to do 25kv ESD. If you couldn't deliver, they would add parts to make sure that happened. Obviously, some test instruments can't do that, but certainly their consumer gear was done to that standard.] Carly came along and Chinesed up the computer line with crap, and nearly sunk the company. The current HP stuff seems to be more under control, but how do you win back the customers that got burnt.

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