Re: Ever heard of Potato Semiconductor?

Source: http://sci.tech−archive.net/Archive/sci.electronics.design/2008−07/msg01031.html

- *From*: "Joel Koltner" <zapwireDASHgroups@xxxxxxxxx>
- *Date*: Tue, 8 Jul 2008 09:52:09 −0700

Hi Bill,

<bill.sloman@xxxxxxxx> wrote in message
news:a982f47e−bf5a−434e−b3be−bc78d7918373@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
"All
the design engineers got stuck with cleaning out design flaws between
projects − it was felt to be a useful part of their education."

Yes, agreed.

"I had to clean up after a few specific regular old design engineers,
and I didn't think they were worth all that much either − one guy
didn't seem to appreciate that most op amps oscillate if you use then
to drive a capacitive load directly, and consistently loaded the
outputs of 741 op amps with 100nF to ground. The outputs were still
oscillating, but at an amplitude of a few millivolts, which wasn't
easily visible on an oscilliscope."

That falls squarely in the arena of "stuff they don't (usually) teach in college" and "typically not learned on the job until it either (1) comes back to bite you directly, (2) some more experienced engineer points this out, or (3) (probably least common) you have enough initiative to keep studying design techniques on your own to eventually realize there migiht be a problem."

I much lament that fact that spectrum analyzers have been banished from pretty much all undergraduate labs these days... (and it's kinda iffy whether most digital scopes with FFT functions could "see" a few millivolts on, say, 10V...)

"Most of these schemes were quicker and easier
than the procedure suggestred by the original designers, but had a
painful tendecy to force the integrated circuits involved to operate
outside their guaranteed voltage or current ranges."

That's always a bit dicey, although sometimes it might make sense to characterize the ICs yourself to ascertain how much "margin" there is in the specs. (E.g., if you're running your tests at 20C, clearly the IC will be able to perform much better than the worst case specs that apply over the entire temperature range.)

−−−Joel

.