

Re: Transistors

Source: <http://sci.tech-archive.net/Archive/sci.electronics.design/2007-11/msg02910.html>

- *From:* Winfield Hill <hill@xxxxxxxxxxx>
 - *Date:* Mon, 19 Nov 2007 08:42:09 -0800 (PST)
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On Nov 18, 6:02 pm, Jan Panteltje <pNaonStpealm...@xxxxxxxxxx> wrote:

On a sunny day (Sun, 18 Nov 2007 09:09:36 -0800 (PST)) it happened Winfield Hill <h...@xxxxxxxxxxx> wrote in <c6715fdf-9c29-4f67-a00b-6e0279b82...@xx>:

I was sort of looking at a different output a bit like your class A,

<ftp://panteltje.com/pub/amp1.jpg>

This is classic and has about 50 Ohm output.
Have only simulated DC... have to find some transistors.
What do you think of the output stage?
(Never mind the rest I just filled in what I felt like).

That's a good example of a circuit that will get into serious trouble above 100kHz or so... No good way to rapidly turn off the unused transistors.

.....OK, :-) if you say so.

Oh well, I had to import some Zetex spice models in swcad, and these are not the ones I want. I get 30 degrees phase shift at 10MHz, with 250MHz ft transistors, there are much better ones. Removed some stuff too (makes little difference).

ftp://panteltje.com/pub/amp1_ac.jpg

It does not have so many, what do you call it, 'ripples' as that chip. I am sure with the right transistors this will do 50MHz. Actually I used it in the past several times.... for other things. So what do you have against that configuration?

This is with lower emitter io resistors:

ftp://panteltje.com/pub/amp1_ac2.jpg

Re: Transistors

Small-signal spice tests (frequency sweeps) of power-amplifier circuits like that, at high-frequencies, are close to meaningless – useful for no-signal loop stability perhaps, but certainly not for evaluating how an amplifier can do at delivering power at high frequencies. You can try transient full-power tests with spice, but I'd want to verify the component models on the bench before giving it much credence. And of course, when the failure mode is thermal, and your spice model isn't set up to handle self-heating, well... What you can do with spice, after you've got models you can trust, is to evaluate the continuing emitter current in a class AB transistor after it's supposed to have gone off or nearly off each cycle. Doing this will help teach you what's badly wrong with that circuit for high-frequency high-power use.

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