Subject: who likes drawing composite curves?
Posted by PakProtector on Mon, 20 Dec 2004 11:29:31 GMT
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Hey-Hey!!!,Is anybody a bit frustrated by the slightly confusing process of drawing composite curves for analyzing a Push-Pull power stage design? SE, while a bit simpler, just doesn't cut it for me.regards,Douglas....damn Thrintun!

Subject: Me, of course! (Just joking...)
Posted by Damir on Mon, 20 Dec 2004 12:39:19 GMT
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Hey, Doug - good morning! Here`s peace and quiet a little...maybe some of our "most popular" themes is needed :-).Not that it`s incredible hard, there`s some "step by step" sources for doing it, but I`m just too lazy. I like when "most of the action" is happening in class A, anyway... Then just analize one half like ordinary SE amp working in Ra, and our Raa = 2*Ra... It work, good enough for me...

Subject: mmmhhh!...Class A
Posted by PakProtector on Mon, 20 Dec 2004 13:36:59 GMT
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Hey-Hey!!!,Class A is soo much easier for a quick analysis. Draw the load line on the single tube curves, and then double it for the a-a primary load. This will usually give you a larger than expected number. The traditional a-a loads are from the 'Max Power' days for the most part.If you want to look at an AB1 amp, all on a sudden things get more complex as the load changes from a-a/2 to a-a/4 when the other side cuts off. Not that that doesn't happen to a lesser extent in A...but, the first or second 'cut' analysis isn't going to need the details. regards,Douglas....damn Thrintun!

Subject: Re: mmmhhh!...Class A
Posted by Thermionic on Mon, 20 Dec 2004 18:38:21 GMT
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I'm sure you guys probably know this already, but just in case here's a remarkably easy and convenient method I prefer for drawing composite load lines. Using your Windows Paint program, paste on a duplicate of the characteristic curves turned around so that the plate voltage increases

towards the left, and current increases going down, so the zero plate current and and quiescent voltage lines will line up when you draw the loadline and derivative voltage/current lines. Save it as "6KG6-EL509 Push Pull Curves" or whatever. Draw out your operating point, and if it's a bad operating point, simply close Paint without saving the changes. Click on your "6KG6-EL509 Push Pull Curves" file, and you now have a blank set of curves again. Paint draws straight lines (no straightedge or pencil!) and will snap lines vertical or horizontal for you when you hold down Shift while drawing. Use the paintbrush to draw marker dots. When you get something you like, simply save it separately under a new name, like "6KG6 Amp Ops Point." My 2 cents worth.Thermionic

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Subject: Norman C sez...
Posted by OldBrownEyes on Tue, 21 Dec 2004 15:57:22 GMT
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the load is 1/4 a-a. The crackheads over yonder say 1/2 a-a.A little reading last night showed that the guys down under were on crack way back when too. See RDH4, chapter 13, section 5, pages 571 and 572. In particular is the passage...I'll paraphrase...If you remove one valve the effective load resistance on the remaining valve becomes 1/4 a-a which is what it would be in class AB when one of the valves reaches cut-off.I'll neither confirm nor deny this post if a certain transformer winder should happen to read it:)Later gators!

Subject: Re: Norman C sez...
Posted by Thermionic on Tue, 21 Dec 2004 18:49:49 GMT
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Before there was "Stormin' Norman" Schwartzkopf, there was the original, Norman Crowhurst! He was da man. Thermionic

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Subject: Brown eyed handsome man...
Posted by Damir on Tue, 21 Dec 2004 18:53:42 GMT
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Hmm, I don`t know exactly what NC says, but it`s easy to mix up actual load that every tube "sees" in class A (Raa/2) with composite load lines "model", where "composite" tube substitutes both tubes from PP pair, working in half winding load (1/4Raa).Well, this discussion actually shows that you can`t actually belive in all the books/citations/authorities/"gurus"/profesionals. Have no fear, the "winder" is now allright, Raa/2 is now allowed :-).
Brown eyed handsome man

Subject: Norman said two different things.
Posted by PakProtector on Tue, 21 Dec 2004 19:08:23 GMT
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Hey-hey!!!,Finally this gets passed around again. Norman contradicted himself. I will leave it to you to get the Glass Audio pdf and read the second paragraph and figure out what the load/slope of Norman's dashed line. It is quite easy to see that it is not the a-a/4, and that it is less...It happens to be quite close to a-a/2, until it gets near cut off.there are a whole lot of funny things wrong with a-a/4 for a class A pair. Where whould you like me to start? things like conservation of energy troubles for one. The load each valve works into is half a-a. Even for a real OPT and 2A3's, keep the plate swing small and it is -a-a/2. When palte z changes it is time to re-evaluate and account for differences. But for a first cut... Which one is a-a/4? what happened to the rest? if one is working into a quarter, what is the other working into?regards,Douglas....damn Thrintun!

Subject: Re: Norman said two different things.
Posted by Damir on Tue, 21 Dec 2004 20:08:04 GMT
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Two questions:1.) Is it possible to find this article? In one old "Glass Audio" I found this mentioned like "the definitive explanation" of the theory of PP pair:Melehay:"Push-Pull Audio Amplifier Theory", Trans. IRE on Audio, Jul./Aug. 1957., pp. 86-89I`m interested what "definitive" explanation says (on 4 pages?!)... Most of the sources we have, IMO are not 100% "definitive".2.) Who is Thrintun?

Subject: moniker Explanation...
Posted by PakProtector on Tue, 21 Dec 2004 20:26:49 GMT
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Hey-Hey!!!,I am a science fiction fan. I grew up watching Star Trek instead of MASH. I put a hot link from a first page result of puting my moniker into Google.regards,Douglas....damn Thrintun!
http://tnuctipun.exsudo.com/

Subject: audio classroom link
Posted by PakProtector on Tue, 21 Dec 2004 20:35:19 GMT
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The one you want is GA400ac, designing your own power amp, part 4b,

push-pull.regards,Douglas
http://www.audioxpress.com/resource/audioclass/index.htm