
Subject: Damping factor - SE vs. PP

Posted by [Damir](#) on Tue, 11 Oct 2005 11:45:59 GMT

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Just to add - PP amp doesn't have a larger damping factor (or lower output resistance) than SE amp per se, but from the fact that most PP amps have a global negative feedback loop and SE amp mostly do not. If we have a typical 300B SE amp with say $R_a=3k$, we can expect $DF \sim 3$ without neg. feedback, or $DF=R_a/(r_p+R_w)$. We can express DF on the secondary side, like ratio $DF=R_{sp}/R_{out}$, where R_{out} is r_p+R_w (anode resistance and windings resistances "referred" to the secondary). Then, we can have 300B PP amp, class A, say with $R_{aa}=6k$. Primary reflected impedance is doubled, but we now have two output tubes, and $DF=R_{aa}/(2r_p+R_w)$. We can see that in both examples (SE & PP) we have about the same DF. In fact, if we use typical UL PP output stage coupled with somewhat lower R_{aa} (AB1 amp), then we can expect maybe $DF \sim 1$ without feedback. Simplified, and there's a more about PP/SE things...
