Subject: TDA7293 parallel design DIY
Posted by hydrovac on Fri, 06 Mar 2015 03:30:22 GMT
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Hi all,

As part of my home theater build, have decided to go for 3 way actives for front LCR... so, need to build 9 power amps for fronts and 8 amps for surrounds... to pair up with my Sherbourn PT-7020A pre/pro. I needed something as easy, but more powerful. This is when I and my friend John found the datasheet of TDA7293. This IC can run up to 100V, low distortion, and can easily be paralleled.

I have been looking for a source of PCBs using parallel TDA7293s... there are not many out there that you can buy. We then decided to do our own PCB. Our schematic is almost the same as in datasheet... the board layouts in the datasheet are flawed and little clumsy... we used them only as guidance with component arrangement on our PCB after few futile attempts to route the board with minimum jumper count.

Pin out on TDA7293 is tricky, so single-sided board is difficult to draw, and in the end contains more jumpers between lines than tracks... so, this one is made as double sided.

I thought it would be good to share my project with the community... maybe someone finds it useful.

Tentative double side PCB layout, top and bottom sides... have to check pitch and spacing with actual components we have before fabricating the PCB.

File Attachments
1) pNIYkzb.jpg, downloaded 4990 times

Subject: Re: TDA7293 parallel design DIY
Posted by Wayne Parham on Fri, 06 Mar 2015 15:20:19 GMT
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Very cool!

Subject: Re: TDA7293 parallel design DIY
Posted by hydrovac on Sat, 07 Mar 2015 09:47:55 GMT
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Thanks Wayne,

Between each revision, John will suggest this and suggest that, to improve the schematic and layout. Revised and final layout, film ready... will be sending out for fabrication.

File Attachments

1) isqy3iw_1.jpg, downloaded 4541 times
2) isqy3iw_2.jpg, downloaded 4526 times
3) isqy3iw_3.jpg, downloaded 4469 times
4) isqy3iw_4.jpg, downloaded 4512 times

Subject: Re: TDA7293 parallel design DIY
Posted by hydrovac on Sat, 30 May 2015 11:13:01 GMT
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Ok, further on the project:
I found an old enclosure which can accommodate the amp board, heat sink, power transformer rectifier and filter capacitors... the trafo is a 32-0-32 250VA... searches seem to suggest this is the absolute upper limit for TDA7293 setup.

The heat sink I have, also cannibalized from a fried receiver is 11" wide, 3.25" tall, and sports 22 fins, each being 2" long. It weighs about 1.5 kg., give or take. Assuming I can get a decent enough thermal contact for each IC, does this heat sink sound like it will have enough mass to support two TDA7293s? (Yeah, I know there's a lot of thermodynamics data that would be needed to get an accurate reading on whether/how well this 'sink will work, but all I can give are raw measurements.)

For the smoothing circuit, I'm using quad 1200uF capacitors (low-ESR caps designed for power-supply filter applications) per board, in addition to the dual 6,800uF caps in the supply rails. Will this be adequate at least initially, or would it be wise to snag a few 10,000uF monsters to add to the power filtration?
That's all I can think of right now... more as I come up with it.

File Attachments
1) sgl5z1I.jpg, downloaded 4150 times
2) xREnlJe.jpg, downloaded 4148 times
3) TS5KQmm.jpg, downloaded 4193 times
4) znmMpn0.jpg, downloaded 4184 times

Subject: Re: TDA7293 parallel design DIY
Posted by Wayne Parham on Sun, 31 May 2015 14:54:03 GMT
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Lookin' good!