Subject: Power supply rectifiers
Posted by Wayne Parham on Fri, 04 Feb 2005 23:57:17 GMT
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While building the Stoetkit, I noticed that it uses 1N400x rectifiers. All of the signal capacitors are nice, and the transformers are great. But the power supply uses electrolytics and plain ol' 1N400x diodes. So I think maybe I could probably improve some there, just with component substitutions.We've had discussions on this forum about fast recovery diodes, FREDs and HEXFREDs and also about Schottky diodes. I'm thinking one of my first upgrades will be to improve the rectifiers, but I'm wondering which to go with. I'll probably grab some datasheets and give this some thought, and I'd also like to hear your experiences.

Subject: Re: Power supply rectifiers
Posted by Manualblock on Sat, 05 Feb 2005 12:23:33 GMT
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I replaced all the 5014's in my AES pre-amp with schottkey's. It actually made quite a difference in the sound, more full and sweet with better, deeper bass and lot's more prescence.

Subject: SiC Schottky by Cree
Posted by PakProtector on Sun, 06 Feb 2005 02:26:14 GMT
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i think tube Builder i Maryland stocks these. They were an improvement over Fairchild Stealth (fast/soft recovery) in one of my amps. I would not have paid $12.50 each for the 1k2V/5A versions, but since Cree saw fit to sample me 8 of them...I share my positive experience when ever possible.regards,Douglas

Subject: Re: Power supply rectifiers
Posted by BillEpstein on Sun, 06 Feb 2005 12:23:46 GMT
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I had trouble getting Tube Builder to reply when I bought my second set so went to Digikey for Infineon brand:Infineon 600V @ DigikeyThe Infineons seemed a bit less fragile also.No question they are MUCH quieter and allow more detail of the music thru.

Subject: Re: Try a Snubber Filter, too...
Posted by TubeCraft on Sun, 06 Feb 2005 16:50:28 GMT
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The Bottleheads swear by them. I think all the parts can be had at the Rat Shack. It's just like a Pi filter but with an identical resistor in both lines. Use RS ceramic .01 1.5kv for the caps and cheap 10R 10W cement resistors (the more inductive the better). The resistors really help the inrush problem too. I built my regulated bench supply this way.Transformer>snubber>diodes>PS filter--|--VVVV--|--->|--- = = |--|--VVVV--|--->|--Just a thought.Regards,TC

Subject: Re: So much for my attempt at ASCII....
Posted by TubeCraft on Sun, 06 Feb 2005 16:52:06 GMT
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...schematic drawing :>)

Subject: I gotcha
Posted by Wayne Parham on Sun, 06 Feb 2005 17:50:35 GMT
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I understood what you meant. An RF filter on the AC input.

Subject: I gotcha
Posted by PakProtector on Sun, 06 Feb 2005 22:38:49 GMT
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Hey-hey!!!,I got forced into using a common TX for both the B+ and a DC filament supply. It is Schottky rectified and L-C, but there is still a little bit of buzz which matches the switching of the diodes. It is just at edge of perception, but knowing why it is there is bugging me. Guess I'll put a dedicated TX under there and be done with it. this'll give me a few more options for other experiments. I am going to put .01 uF caps across each of the Schottky diodes and see if that helps first...regards,Douglas

Subject: Re: Power supply rectifiers

Posted by Poindexter on Sun, 20 Feb 2005 02:45:47 GMT
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Hey, Wayne,Sorry to enter the fray so late. My budget fave is Diodes, Inc. ultrafast switching rectifiers, their number UF1007, which have otherwise the exact same specs as 1N4007. Digi-Key sells these for 29¢, if you buy a hundred; a lifetime supply for a hobbyist. They are not 'soft' recovery, but their PN burst is very high-freek and short duration; thus very easily shuntable. I use a .01µF 716P on each side of the diode set (transformer and filter), and have gotten very good results; clear, fast, quiet.How many you need for your Stoetkit? I'll send them along.Poinz

Subject: Re: Power supply rectifiers
Posted by Wayne Parham on Sun, 20 Feb 2005 10:06:09 GMT
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Cool, thanks! The Stoetkit uses four.

Subject: Re: Power supply rectifiers
Posted by Poindexter on Mon, 21 Feb 2005 00:21:09 GMT
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Rite on. Drop me your mailing address at my linked mailbox, and I'll get 'em rite off.Poinz

Subject: Re: Power supply rectifiers
Posted by Wayne Parham on Mon, 21 Feb 2005 14:29:40 GMT
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Thanks!

Subject: Re: I gotcha
Posted by Wayne Parham on Sun, 20 Mar 2005 23:53:08 GMT
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It does more than help. It completely eliminates the buzz. Check out the measurements I made on the Stoetkit amplifier, which uses a bridge rectifier using 1N4007 diodes followed with an RC hum filter. After installing 0.22uF caps across the diodes, the switching artifact was completely eliminated.