10W POWER-AMP V1.1A

Big power in a small package

OVERVIEW

A slimline solid state amplifier that provides up to 10W and runs on a 9V or 12V supply.

GENERAL

This small beast offers a Hi-Fi quality solid state amp for almost any usage you can imagine. Be it a spare amp for your pedalboard or and external amp to party with your iPod!
I have successfully rocked the house with an iPod and my 2x12 speaker cabinet. Hey, this gets loud!

You will need at last a 1Ampere wall wart to get sufficient power for this project!

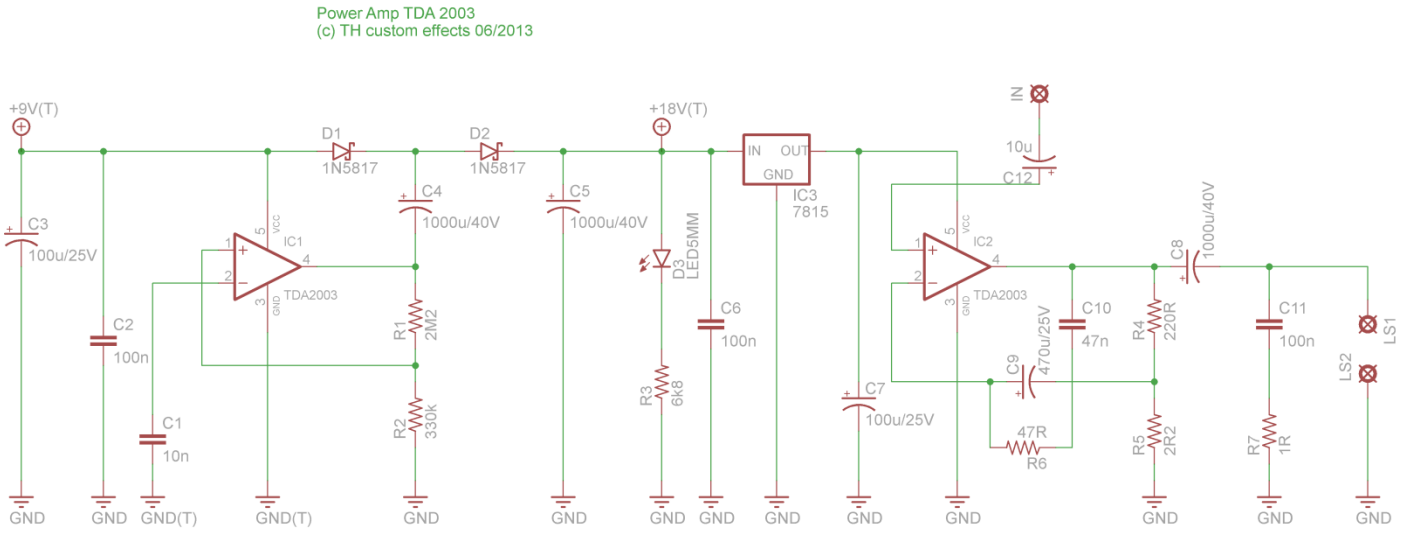
If you combine this with other 9V circuits it is recommended to run them on separate power supplies to avoid any unwanted noise!

This cool circuit is utilizing the same IC (TDA 2003) as a power multiplier and as the main solid state amplifier. In between a voltage regulator is needed to stabilize the power supply to make this amp quiet and reliable.

The input signal can come directly from a guitar preamp or your favorite mp3-player.

V1.1a fixed the values for C6/C11 in the BOM

SCHEMATIC



BILL OF MATERIALS

	Device#	*Qty*	*Value*	*Comment*
Resistors	R1	1	2M2	
	R2	1	330k	
	R3	1	6k8	Test with LED first for brightness
	R4	1	220R	
	R5	1	2R2	
	R6	1	47R	
	R7	1	1R- 1W	
Capacitors	C1	1	10n	box film
	C2 C6,C11	3	100n	box film
	C4,C5,C8	3	2200u/40V	polarized electro (max. 12mm Ø)
	C7,C3	1	100u/25V	polarized electro (max. 5mm Ø)
	C9	1	470u/25V	polarized electro (max. 8mm Ø)
	C10	1	47n	box film
	C12	1	10u	polarized electro
Diodes	D1,D2	2	1N5817	
	D3	1	LED	
ICs	IC1,IC2	2	TDA 2003	
	IC3*	1	LM2940CT-15 (9V supply) uA 7818 (12V supply)	The 15V LDO version is available from mouser P# LM2940-15/NOPB
Other	Heatsink**	1	anything that fits the three TO220 ICs on one piece.	Running without heatsink will destroy one or more ICs!

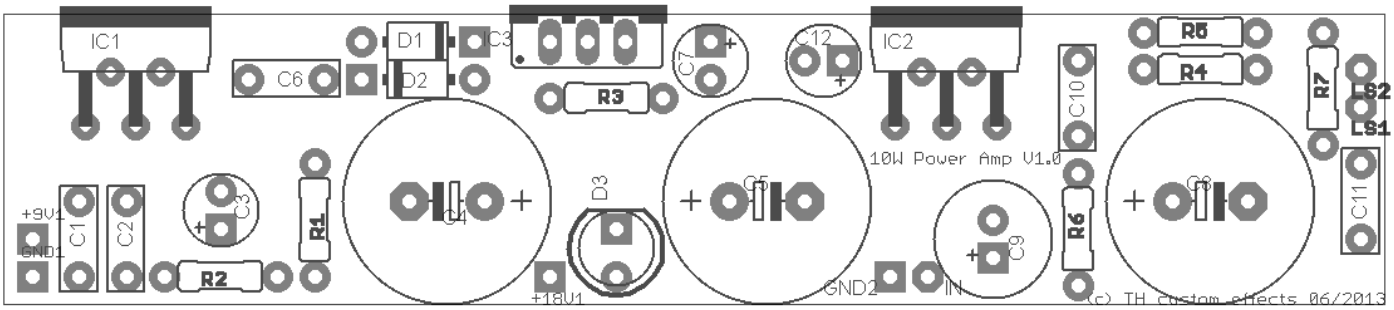
*If you run this with a 12V wall mart you can use a 7818 voltage regulator. If running from a 9V supply you need the LM2940-15/NOPB regulator which successfully can stabilizee the approx. 16V coming from the voltage doubler in front. A normal 7815 will not be sufficient!

**If you use a box (i.e. 1590B) you can use the box as heatsink. Just drill three holes and put screws through the ICs to mount them to the enclosure. Else try to find a heatsink that can onboard the three TO220 ICs. They are very common and do not need to be very big.

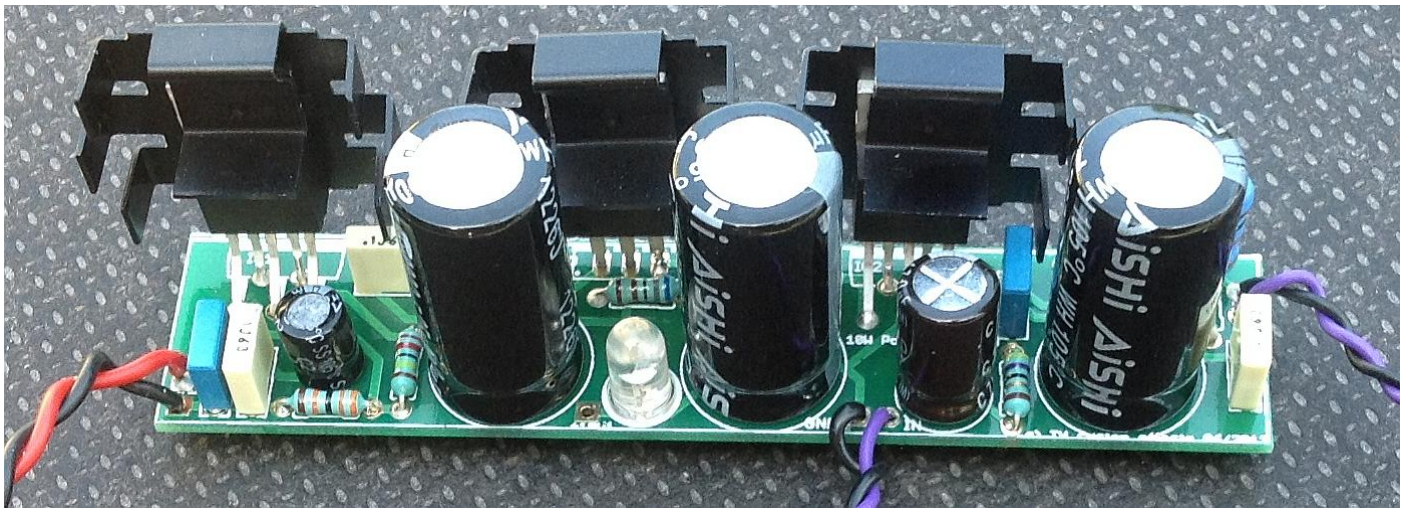
BUILDING

Start populating the diodes and resistors first. Then the smaller caps and the small polarized electro caps. Then put in the ICs and the large caps go in last.

When soldering the ICs make sure the drilled holes in their enclosure line up on the same height to make mounting them to the heatsink easier. The position of the components on the board was specifically choosen so that you can access the mounting holes easily with a screwdriver or your fingers.



The heatsinks in this picture were for testing only and are not sufficient for permanent heat dissapation.



FINALLY

This slimline power brick has so many uses it surely will do what you need.

Have fun and make noise !

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