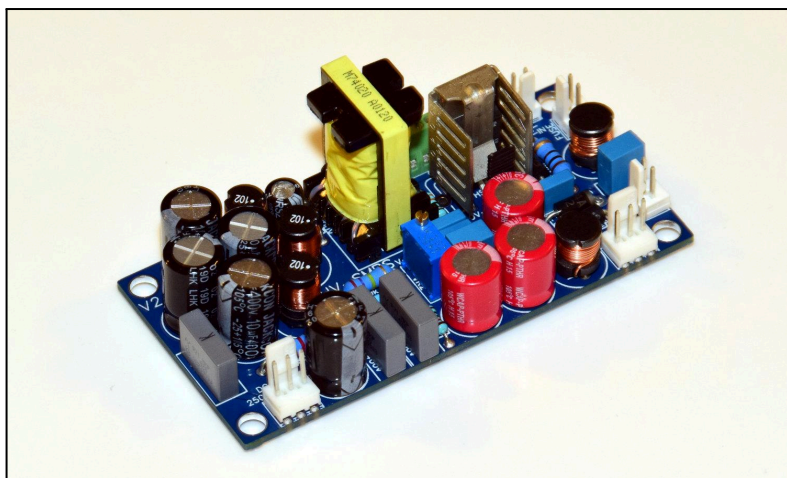


Application & Purpose:

Switch-mode Linear Regulated Power supply for providing High Voltage DC to Tube Phono and Pre-amps. Capable of 20mA at 290v. Dual voltage outputs, typically 290v and 250v - can be adjusted with resistor swaps.

Output current up to 20mA.
Sufficient to power one phono amp or one pre amp.

WARNING: Very high DC voltage device. Care must be taken to avoid painful electric shock.



Specification:

PCB Dimensions	87mm x 42mm x 1.6mm
Voltage Input	18v DC - wall-wart type supply min 2.5A
Transformer Required	10-20W Myrra 74010, 74020 or 74014
Max Output Current	20mA
Output Device	10-20W Flyback Transformer (Myrra)
Ripple	< 1mv
Hash	10-20mv - depending on load
Output Voltage	290v and 250v - adjustable
Switching Frequency	140kHz

Details:

Power supply for running ZinAmp Class-A Tube Phono or Pre-Amplifiers. Switch-mode 'flyback' type, with very low levels of ripple and hash. 50-60Hz ripple is barely measurable and some minimal hash is measurable above 120KHz and is less than 50mV. This can be considered a 'quiet' switch mode supply.

PCB has terminals for power switch, a barrel fuse and a 18v DC output for connecting a 12v regulated supply for powering tube filaments. This is a relatively straightforward module to build, but the very high DC output voltages mean extreme care must be taken during testing and connection. Whilst low current, it is unlikely to kill, but a 280vDC shock will be painful and debilitating!

Outputs and Voltages:

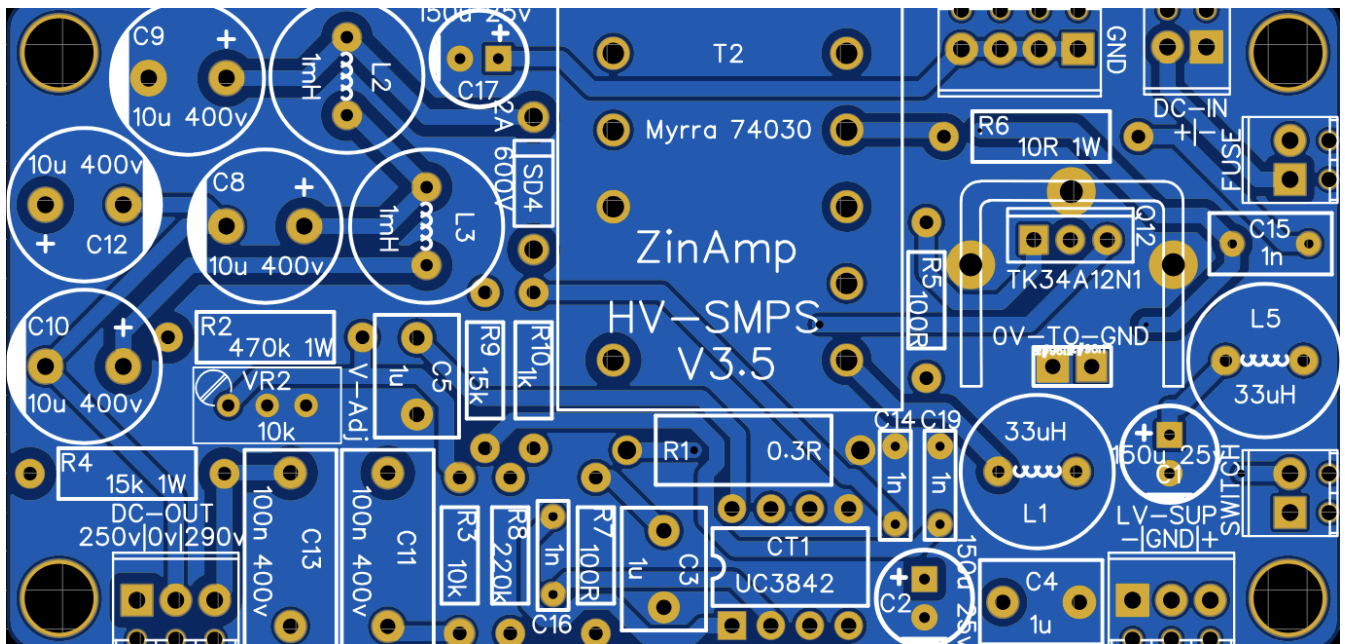
- Phono Amp - (250v and 290v DC)
- Pre-amp (270v and 290vDC) - requires modification
- note: only one of these modules can be powered at a time - not both

This supply can run in two modes - split rail and single rail - these are explained below

Safety:

WARNING: Very high DC voltage device. Care must be taken to avoid painful electric shock.

Bare PCB:



Operating Mode - Split Rail or Single Rail

The supply can be run in either split rail, mode or in single rail mode.

A pair of jumper terminals marked 0V-TO-GND can be jumpered to run the supply in Single-rail mode. Removing these jumpers will cause the rails to float in Split-rail mode. Only run in Split-rail mode if using a 12.6v Split-rail regulated supply running a ZinAmp Moving Coil Head Amp. No MC Head Amp? then run Single-rail i.e. connect or solder a link across the 0V-TO-GND terminals

Voltage Setting and Testing

The trimmer VCR2 is used to set the voltage between 0v/GND and the 290v terminal. Turn anti-clockwise to increase. Note that the 250v terminal will still read 290v with no load as this terminal is attenuated by R4 which is a 15k resistor.

250v will be seen when connected to a ZinAmp valve phono amp module. If you are running a ZinAmp valve pre-amp module, you will need this output at 270v so swap R4 for a 10k 1W resistor.

Parts List:

Parts available from [RS Online](#). Also try [Farnell](#), [Mouser](#) and other online suppliers.

Parts from different manufacturers can be substituted where spec is sufficient

Designator	Value/Spec	Qty	Manufacturer	Manufacturer Part	Supplier Part
R5	100R	1	TE Connectivity	LR1F100R	125-1155
R4	15k 1W	1	Vishay	PR01000101502JA100	683-5405
SD4	2A 600V	1	ST Micro	STTH2R06	795-8486
R9	15k	1	TE Connectivity	LR1F100R	125-1155
R6	10R 1W	1	Vishay	PR01000101009JA100	683-5366
Q12	TK34A12N1	1	ST Micro	STP17NK40ZFP	761-0049
C1,C2,C17	150u 25v	3	Rubycon	25ZLJ150M6.3X11	725-8944
T2	Myrra 74030	1	Myrra	74030	418-5543
C14,C16,19, C15	1n	4	Vishay	KP1830210631	117-814
R7	100R	1	TE Connectivity	LR1F100R	125-1155
HS1	AAVID_7141DG	1			
R2	470k 1W	1	Vishay	PR01000104703JA100	683-5524
R8	220k	1	TE Connectivity	LR1F220K	149-060
VR2	10k	1	Bournes	521-9647	164-00-720
C3	1u	1	Wima	MKS2C041001F00KSSD	108-2592
R1	0.3R	1	TE Connectivity	ER74R33KT	151-530
R10	1k	1	TE Connectivity	LR1F1K0	125-1159
C4,C5	1u	2	Wima	MKS2C041001F00KSSD	108-2592
CT1	UC3842	1	ST Micro	UC3842BN	686-5033
DC-IN		1			790-1098
0V-TO-GND	Jumper	1			soldered wire link
GND	0v	1			790-1092
LV-SUP	- GND +	1			790-1098
L5,L1	33uH	2	Würth	744772330	489-0059
L3,L2	1mH	2	Bournes	RLB9012-102KL	736-1217
DC-OUT	250v 0v 290v	1			790-1092
FUSE,SWITCH	O R	2			790-1098
C11,C11	100n 400v	2	Epcos	B32921C3104M189	241-6616
R3	10k	1	Vishay	MRS25000C1002FRP00	830-7501
C10,C8,C12,C9	10u 400v	4	Würth	860021375011	840-4700