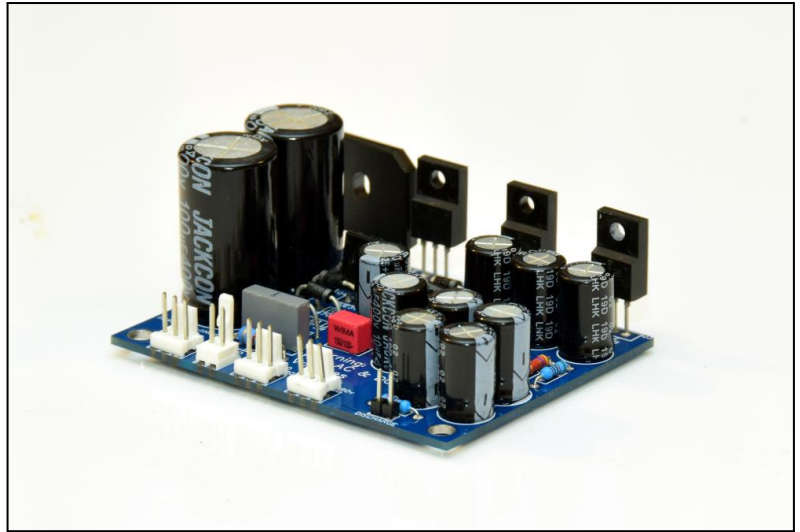


### Application & Purpose:

Actively regulated linear high voltage supply, delivering 250, 270 and 290v DC to ZinAmp tube Phono and Pre Amp modules.

Output current up to 50mA.  
Sufficient to power one phono amp and one pre amp.

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



### Specification:

<b>PCB Dimensions</b>	77mm x 61mm x 1.6mm
<b>Voltage Input</b>	220v AC.
<b>Transformer Required</b>	Min 10 VA - 20VA recommended
<b>Max Output Current</b>	50mA - limited by overload protection
<b>Output Devices</b>	3 x Toshiba TTD1409B Power Darlingtons
<b>Ripple</b>	1-5mv - depending on load
<b>Output Voltage</b>	250v, 270v and two outputs at 290v

### Details:

Power supply for running ZinAmp Class-A Tube Phono and Pre-Amplifiers. Output devices are power darlingtons to ensure amplifier linearity with all transient signal demands. Regulation is achieved using an actively regulated feedback loop. Ripple is very low; unmeasurable with no load. Typically 1-5mV with two amplifier modules connected - normal load 16mA.

An Auto-power-off (APO) terminal is provided for connection to the start-up timer module. After 50mins of no music, the timer module will open this switch and the DC supply to the pre-amps will be cut. If no timer module is being used, these terminals will need to be jumpered.

A heatsink is required as a small amount of heat is dissipated from the output transistors. The heatsinks supplied with your ZinAmp are ample for this. Alternatively, the metal wall of your installation is a good-enough heatsink. Running this supply with no heatsink will result in device failure within a few minutes. Isolate the backs of the output devices from

the metal-wall of the chassis if the output devices have metal backs. The output devices specced here do not have metal backs, so isolation pads are not normally necessary. If you substitute these devices for ones of a similar spec and they have metal backs, you must use silicon or mica isolation pads. Exposing metal backs of the output devices to the metal chassis will result in a short circuit!

**Outputs and Voltages:**

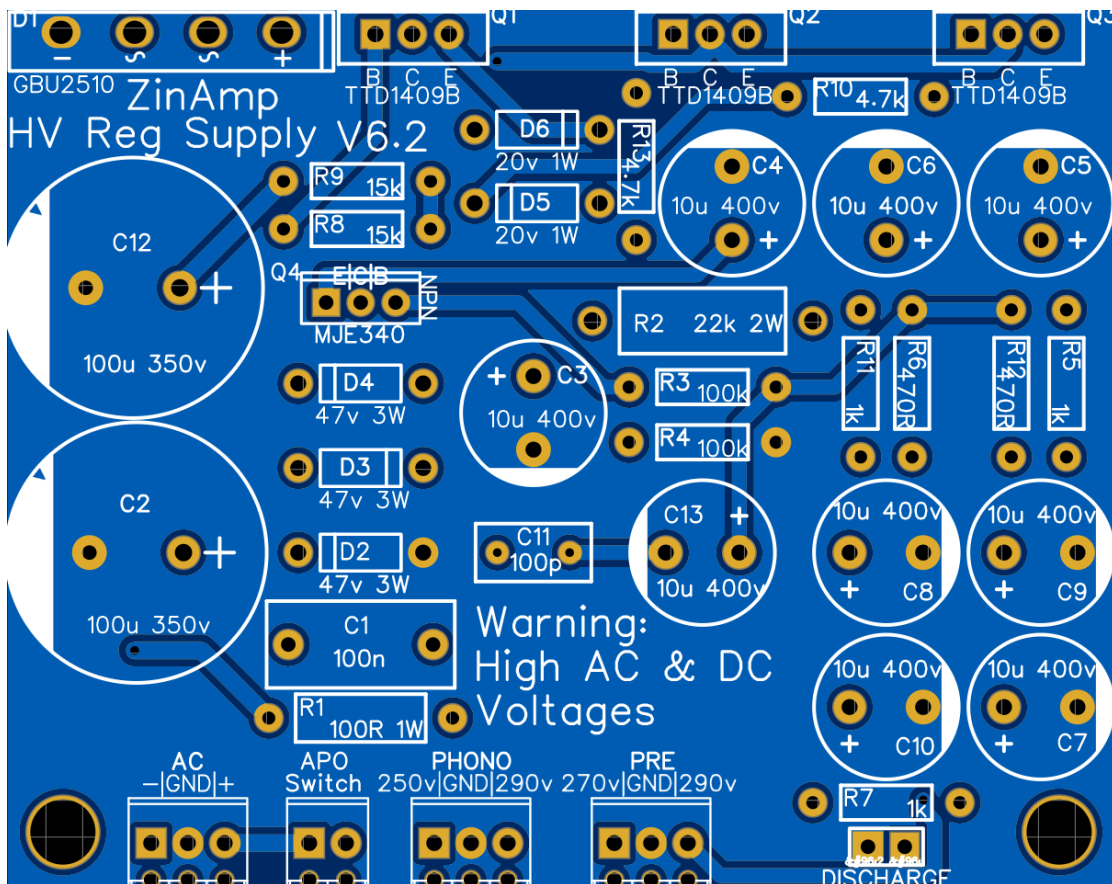
- Phono Amp - (250v and 290v DC)
- Pre-amp (270v and 290vDC)

**Safety:**

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

Always discharge the supply before removing and/or handling. A discharge terminal is provided that discharges the capacitors through a resistor without sparking. Switch off the amplifier, remove the AC power cord and place a screwdriver across the discharge terminals for 10 seconds. Test the voltage with a meter - if less than 2v, it is safe to handle. *NEVER attempt to discharge the supply with AC power connected, EVER!! You will blow the discharge resistor and probably damage the filter capacitors.*

**Bare PCB - see discharge terminal, bottom-right:**



## Parts List:

CONNECTORS: Both blank and ready-built PCB requires connectors be purchased and soldered on by the constructor. This is to give the constructor a choice of how they wire their own particular installation. Terminal block connectors are indicated in the list below in [blue](#) and can be swapped for equivalent 2.54mm pitch connectors e.g. Molex KK254 headers, which are provided to the constructor in self-wire kits.

**Please note:** We now advise that the 47v Zener Diodes are 3W, not 1W as marked on the board. Also a 22k resistor is now recommended for R2, not 15k as may appear on your board. See below in [yellow](#):

Designator	Value/Spec	Qty	Manuf	Manuf Part	Supplier Part
220V	2 Pole Terminal (self-wire only)	1	RS-PRO	790-1098	790-1098
AC, PHONO, PRE	3 Pole Terminal (self-wire only)	3	RS-PRO	790-1092	790-1092
C11	100p	1	Wima	FKP2/100/100/6	484-1979
C2,C12	100u	2	RS-PRO	711-2002	711-2002
C1	100n 400v	1	Kemet	R46KF310040P1M	126-2250
C4,C5,C6,C7,C8,C9,C10,C13	10u 400v	8	RS-PRO	711-2034	711-2034
D1	GBU2510	1	HY	GBU2510	923-5472
<a href="#">D2,D3,D4</a>	<a href="#">47v 3W</a>	<a href="#">3</a>	<a href="#">OnSemi</a>	<a href="#">BZT03C47-TR</a>	<a href="#">168-2147</a>
D6,D5	20v 1W	2	Taiwan Semi	1N4747A R0	687-5465
DISCHARGE	1 Row Jumper	1	RS-PRO	251-8086	251-8086
Q1,Q2,Q3	TTD1409B	3	Toshiba	TTD1409B,S4X	144-5246
Q4	MJE340	1	On Semi	MJE340G	464-205
R2	22k 1W	1	TEConnectivity	ROX1SJ22K	214-1311
R3,R4	100k	2	TE Connectivity	LR1F100K	<a href="#">125-1168</a>
R6,R12	470R 1W	2	TEConnectivity	ROX1SJ470R	<a href="#">214-1096</a>
R1	100R 1W	1	TE Connectivity	ROX1SJ100R	125-1174
<a href="#">R8,R9</a>	<a href="#">15k</a>	<a href="#">2</a>	<a href="#">Vishay</a>	<a href="#">MRS25000C1502FCT00</a>	<a href="#">683-3055</a>
R10,R13	4.7k	2	Vishay	MRS25000C4701FCT00	683-3799
R7,R5,R11	1k	1	Vishay	MRS25000C1001FCT00	683-3165

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

Parts from different manufacturers can be substituted where spec is sufficient

Supplier trading names may differ by country.