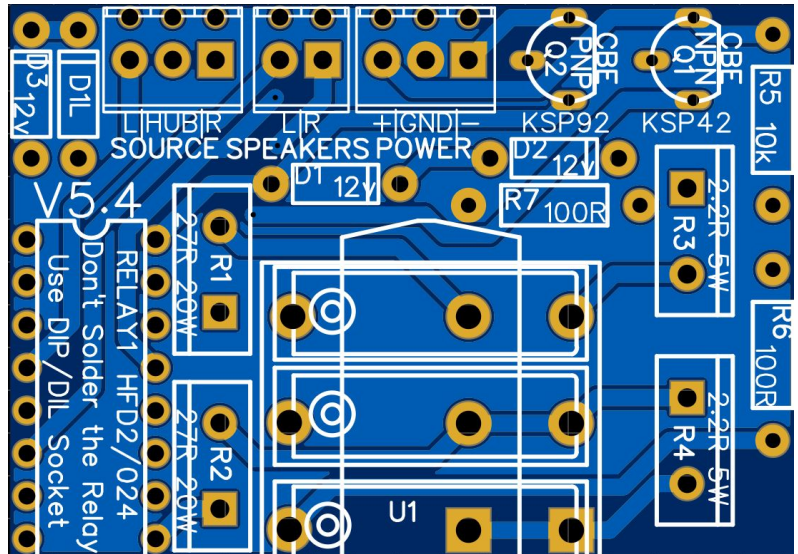


**Application & Purpose:**

PCB with headphone socket, mute relay and a network of audio resistors. The resistors attenuate the power-amp output to a lower voltage suitable for headphones. The relay cuts the speaker output when the headphones are inserted.

The headphone socket footprint on the PCB can be used with two different types of headphone socket with different pin spans; 11.4mm and 16.5mm



Bare PCB

**Specification:**

<b>Voltage Input</b>	Min -/+35v Max -/+55v DC - from power-amp supply
<b>Max Current Load</b>	15mA
<b>Functions</b>	- Speaker Output attenuation for use with phones - Speaker Muting when headphones inserted
<b>Main devices</b>	1 x DPDT Relays Switched Headphone socket

**Details:**

PCB with headphone socket, mute relay and a network of high power audio resistors. The resistors attenuate the power-amp output to the low voltage required by headphones. The relay cuts the speaker output when the headphones are inserted.

**Relays:**

A single relay is fitted to the timer and can be replaced by pulling it from it's DIP/DIL socket and reinserting a replacement. Relays are a tried, tested and very effective way of muting loudspeakers, however, they do occasionally fail, but can be easily replaced. Do not solder a relay directly to the board - always fit an DIP/DIL socket.

## Installation and Safety:

The headphone adaptor is in the main audio output path from the power amplifier to the speakers. Large audio loudspeaker currents pass through this module so care must be taken not to touch this module while music is playing or while the power is on.

The module is also connected to the main power amplifier power supply which typically runs at  $-47/+47\text{v}$  DC. Do not remove or handle the headphone adaptor with the amplifier switched on or severe electric shock may result. Switch off, remove the AC power lead and discharge the Power Amp power supply by placing a screwdriver across its discharge terminals for 10 seconds. Test the voltage - if less than 2v, it is safe.

### Connections:

- Loudspeakers - Main audio path from the power amps to the loudspeakers
- Power Amp Power supply - high voltage DC - always disconnect and discharge before handling
- Power Earth - 0v connection for the +/- DC power supply
- Audio earth - for the headphone connection

### Earths:

Audio and Power earths must not touch on the headphone adaptor or use the same earth wire, otherwise hum will be audible in the headphones and possibly in the speakers. Power and Audio earths must make their own separate connections to the Earth Hub or star point.

### Metal Headphone socket sleeves:

If using a headphone socket with a metal sleeve, the sleeve should be isolated from the amplifier chassis using a suitable shoulder washer inserted from the inside of the box - we recommend **Switchcraft Part No. SWC-S1029** or similar spec. The metal nut can also be isolated on the outside of the box using a piece of masking tape or round adhesive-paper cut to size. Neither the metal nut nor metal sleeve should touch the chassis, as this may introduce an earth-loop, resulting in hum.

PLEASE NOTE: Extensive testing of this has been inconclusive in that we have not been able to introduce hum by allowing the metal headphone socket sleeve to touch the amplifier chassis. However, if you experience hum, we advise you investigate this as a potential cause and if necessary, follow the steps above to eliminate it.

## 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.

Designator	Value/Spec	Qty	Manufacturer	Manufacturer Part	RS Part
R6,R7	100R	2	TE Connectivity	LR1F100R	125-1155
D1,D2,D3	12v	3	On Semi	BZX79-C12,113	<a href="#">544-4477</a>
D4 (aka D1L)	50v 1A	1	Vishay	1N4001-E3/54	628-8931
Relay1	16 Pin DIP Socket	1	Winslow	W30516TRC	<a href="#">813-137</a>
SPEAKERS	2 Pole Terminal (self-wire only)	1	RS-PRO	790-1098	790-1098
R4,R3	2.2R 5W	2	TE Connectivity	SQMW52R2J	199-7668
R1,R2	27R 20W	2	Arcol	AP821 27R J 100PPM	810-1417
SOURCE	3 Pole Terminal (self-wire only)	1	RS-PRO	790-1092	790-1092
POWER	4 Pole Terminal (self-wire only)	1	RS-PRO	790-1102	790-1102
R5	10k	1	TE Connectivity	LR1F10K	125-1164
U1	6.35mm PCB JACK	1	RS-PRO	175-0155	175-0155
Q1	KSP42TA	1	On Semi	KSP42TA	739-0505
Q2	KSP92TA	1	On Semi	KSP92TA	806-4627
Relay1	HFD2/024	1	Hongfa	HFD2/024-S-D	<a href="#">176-2943</a>

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.