ELTIM high-end Buffer/converter modules

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LoutBin-124x Balanced > RCA Output modules

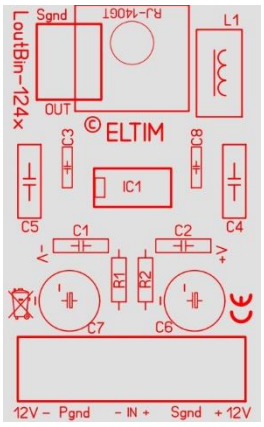
With this module we provide a tiny line output circuitry, which Is fed by an internal balanced signal, f.e. coming from a DAC or DSP.

- **Convert your internal balanced signal to a line output.**
- **Amazing high CMRR of 90dB**

With the THAT 124x chip you obtain a very good balanced input with a CMRR ratio of over an unbeaten 90dB! RF interfering signals are also taken care of in the best possible way right at the inputs and immediately before the RCA output connector, as it always should be…….

Lout/Bin-124x layout

The tiny, 34x55mm PCB contains all the parts required and a quality XLR female chassis connector.

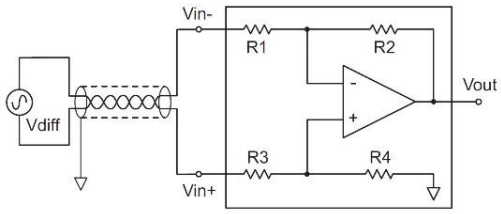


Mounting

The RCA connector fits in a hole of Ø 12mm, fitted with a single external nut.
Since the module has about no weight, further mounting steps are not required.

Theory of operation

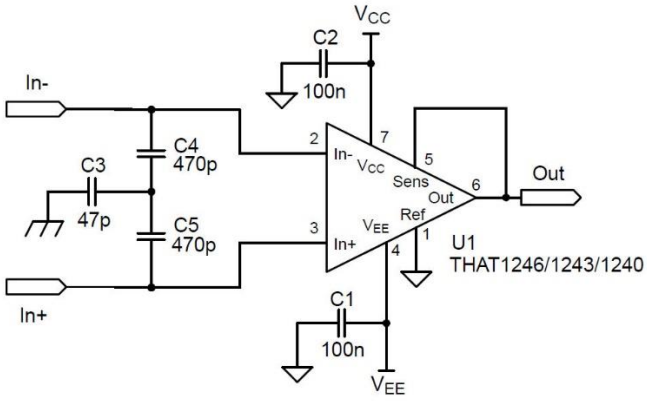
On these Lout/Bin-124x modules we provide the most commonly used Opamp layout as in the picture below, where a balanced internal signal is converted by a very high quality Opamp to a single line signal to the RCA.
This circuit converts two counter phase lines into a single line as shown in the next picture:



R1-4 are laser trimmed (0,1%) gain setting resistors and in the 8-pin DIP package already. Values depend on the chip type.

Circuit

Since the ultra-precision laser trimmed resistors are on the chip, the actual schematics looks very simple. The practical schematics as we used on our Lout/Bin-124x circuit:



We just added some Supply parts, two 100 ohms resistors in the input lines and an LC-filter output network, blocking RF-interference coming from the (possible) long output cable is also mounted.
The gold plated (RJ140G) RCA chassis Line output connector is mounted on the board. Mounting this in the chassis is sufficient.
You could mount a 2-pole screw terminal instead for internal use.
Then you can fix the module with a single M3 bolt.

The input signals are connected to the two centre connections at the 6-pole screw terminal at the bottom.

Power Supply
There are power supply connections (+12V and -12V) for use in low voltage applications below +/-13V.
Do not use higher voltages here, since these lines are paralleled by 15V Zener diodes which will draw severe currents otherwise!

In a Power Amplifier there is mostly no low supply voltage available, so we arranged some extra's.
Higher PS voltages can be applied to the extra V+/V- pins in the range of ±18 - 75Vdc. These are then connected to f.e. the amps power supply rails.
15mA Constant Current Diodes (CCD) provide a constant current over this wide voltage range. Then 15V Zener diodes regulate the internal supply to ±15Vdc. 3mA flows into the IC, the other 12mA via the zeners.

Models

This laser trimmed chip is available in three versions with different amplification values:
0dB (mostly 1Volt), -3dB (2 Volt balanced signal / 1V line) and -6dB (4 Volt balanced / 1V line signal).
Normally we supply the 0dB variant, -3/-6dB on request where higher than normal internal signal levels are used. Just change the chip to a 1243 or 1246 type, that's all.

- LoutBin-1240 Balanced in/RCA Line out with 0dB gain
- LoutBin-1243 Balanced in/RCA Line out with -3dB gain
- LoutBin-1246 Balanced in/RCA Line out with -6dB gain

We add an extra letter behind the type number for the connector type: R = RCA, S = Screw.

On request we can also provide models with +3 and +6dB gain.
For that, we need to change the PCB layout though, so only for quantities!

Some figures

Input impedance:	18 kohms
Frequency range:	> 8,6MHz.
Output voltage max.	V power Supply -2V
Slew rate:	> 12V/uS
Distortion:	< 0,0006% THD
Noise figure:	< 104dBu
CMRR:	> 90dB @60Hz under all circumstances
Power Supply voltage:	+/- 4 to 13Vdc @ ±12Vdc connections (3mA)
	+/- 18 to 75Vdc @ +V and –V connections (15mA)
Dimensions	55x34x27mm (LxWxH) with RCA connector mounted.

The circuit is able to withstand a short period of shortcutting the output (25mA).

DIY
We like to invite you to visit our webshop where over 15.000 products can be found, all for high quality audio DIY. You'll find our own wide range of modules, drive units, crossover parts, connectors, cabinets, etc. etc.

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