

BOARD ASSEMBLY INSTRUCTION



Guide to the Evolution construction, I base model
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INTRODUCTION

This document has the purpose to introduce some simple practical elements and of structural knowledge of the stereo amplifier board “My_Evolution”, basic version, built from the MY_E01 code PCB. This printed circuit it develops on 2 layers, and uses a mixed technology, SMD (superficial assemblage) on the in general weldings and traditional on the component side. The part in SMD is furnished already joined with industrial technology, “lead free” compatible, in accordance with the recent provisions in vigor (UE). This solution allows to submit to the possible DiY only the burden to assemble the little traditional components. Is advices to undertake the road of the DIY exclusively if is disposed of a good technical baggage in subject. In alternative, is possible to get a already assembled and tested board , opting for behaviour autonomously only the part of mechanical assemblage and final wirings.

The mechanical structure of this board has been studied to adapt to the best to a specific type of case, the Galaxy mag. GX288 model, produced of series from the HI_FI 2000 firm (www.hifi2000.it) and distributed enough regularly in Italy.

The distribution of the components and connectors on the board (PCB layout) has been studied for “normalize” to more possible the performances of the circuit. In practice himself is present to an example of “forcing cabling” of all the critical sections. In particular the distribution of the PSU lines is “shielding” that avoids to produce forms of THD for inductive effect, the wirings is reduced to the minimum.

Traditional components BOM for Evolution base version

NAME	VALUE	REF	DESCRIPTION
1N4002	1N4002	D12	1A-100V Diode
		D13	1A-100V Diode
		D14	1A-100V Diode
BYW29	BYW29-100 Alternative: MUR820	D15	TO220 8A-100V ultra fast Diode
		D17	TO220 8A-100V ultra fast Diode
		D2	TO220 8A-100V ultra fast Diode
		D23	TO220 8A-100V ultra fast Diode
		D25	TO220 8A-100V ultra fast Diode
		D4	TO220 8A-100V ultra fast Diode
		D7	TO220 8A-100V ultra fast Diode
		D5	TO220 8A-100V ultra fast Diode
C102-043X133	100nF	C10	MKT Philips 386 100V p10 43*133 Box Capacitor
		C50	MKT Philips 386 100V p10 43*133 Box Capacitor
	220nF	C23	MKT Philips 386 100V p10 43*133 Box Capacitor
		C44	MKT Philips 386 100V p10 43*133 Box Capacitor
CP-2-5_6-3	22uF 25V	C27	Radial (6.3mm) EL. Capacitor
CP-3-5_08	100uF 25V	C26	Radial (8mm) EL. Capacitor
CP-35_snap	10000uF	C12	50V Snap-in (30 or 35mm) EL. Capacitor
		C13	50V Snap-in (30 or 35mm) EL. Capacitor
		C47	50V Snap-in (30 or 35mm) EL. Capacitor
		C48	50V Snap-in (30 or 35mm) EL. Capacitor
CP-5_10	220uF	C21	50V 105°Radial (10mm) EL. Capacitor
		C22	50V 105°Radial (10mm) EL. Capacitor
		C30	50V 105°Radial (10mm) EL. Capacitor
		C46	50V 105°Radial (10mm) EL. Capacitor
		C51	50V 105°Radial (10mm) EL. Capacitor
	470uF 25V	C24	Radial (10mm) EL. Capacitor
		C25	Radial (10mm) EL. Capacitor
		C31	Radial (10mm) EL. Capacitor
		C32	Radial (10mm) EL. Capacitor
Faston_cs	Faston_cs	PL1	6.3mm Faston male
		PL2	6.3mm Faston male
		PL3	6.3mm Faston male
		PL4	6.3mm Faston male
		PL5	6.3mm Faston male
		PL6	6.3mm Faston male
		PL7	6.3mm Faston male
		PL8	6.3mm Faston male
LM3886	LM3886TF	U4	TO220-11 ISO 68W Power Amp
		U8	TO220-11 ISO 68W Power Amp
R-0_25W	470	R33	Resistor 1/4 W 1%
		R40	Resistor 1/4 W 1%
		R67	Resistor 1/4 W 1%
		R72	Resistor 1/4 W 1%
	1R	R4	Resistor 1/4 W 1%
		R80	Resistor 1/4 W 1%
R-0_5W	20K .5W	R65	Resistor 1/2 W 5%
R-1W	180 2W	R41	Resistor 2W 5%
	47 1W	R81	Resistor 1W 5%
R-CER-7W	0.47 5W	R32	Low ESL Cement Wire Resistor 5 W 5%
		R79	Low ESL Cement Wire Resistor 5 W 5%
RELAY1	24Vdc 2 N.O. 5A	RL1	Fujitsu FTR-F1 -24
		RL2	Fujitsu FTR-F1 -24

PCB BOARD AND ELECTRONIC COMPONENTS

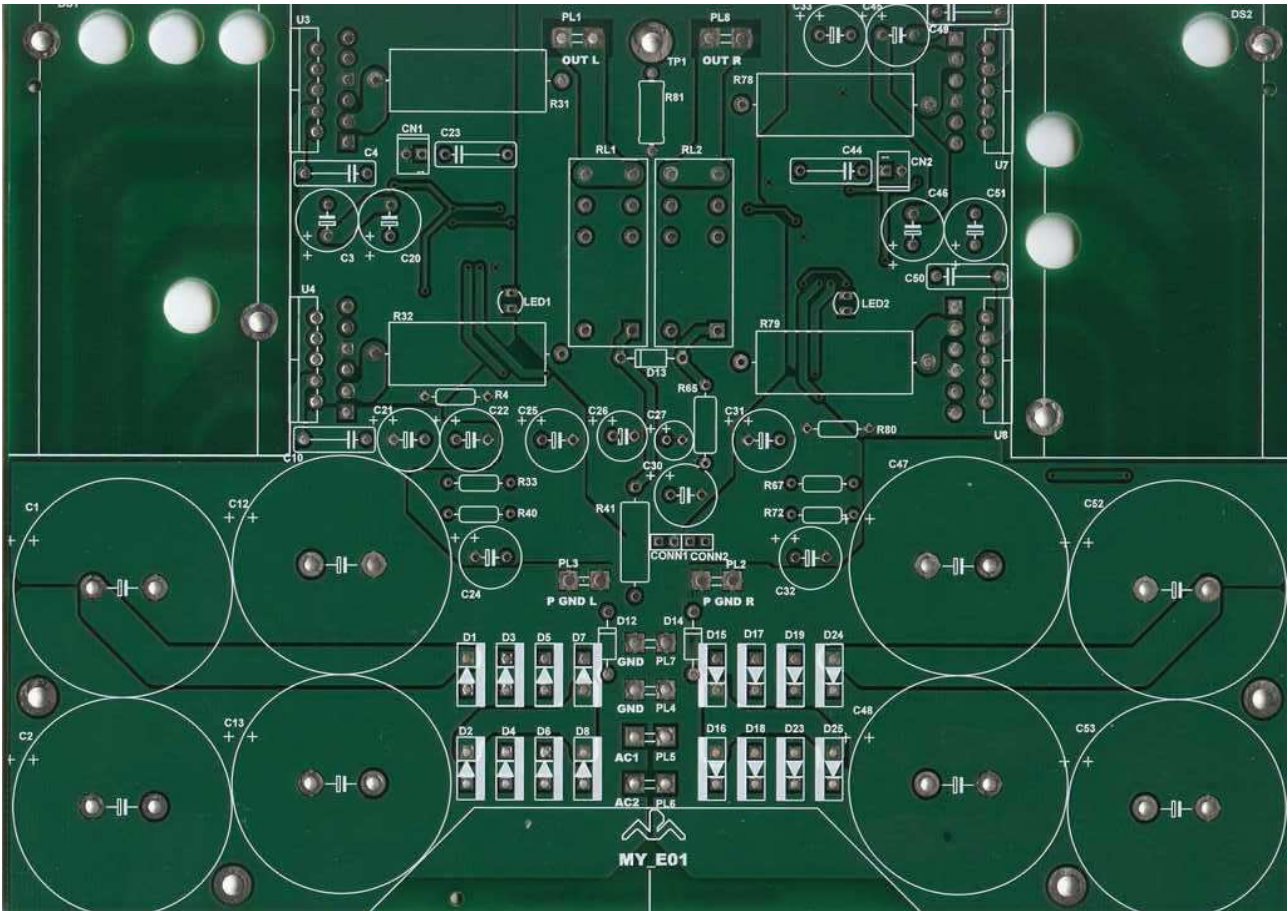


Fig1 PCB board MY_E01, top view

Note:

The MY_E01 board is predisposed for 2 diverge assemblages, the basic “base” version and “full” version. The diverge solution not is “complementary”, but only two separate solution.

FASE2: Solder of the Power diodes, relays and R32-R79.



Fig4 Mounting detail of diodes and power resistors

Mounting all the TO220 power diodes, foreseed in the list (as from photo).

Later on, solder the Power resistors, 2-4mm over the PCB plan.

Solder the relays. RL1 and RL2.

FASE3: Fixing the lateral headsinks and LM3886 chips

Before completing the assemblage with the components the more bulky (electrolytic and others), it is convent fix LM3886 to the headsink, put in position the all and solder the LM3886 pins.

This procedure is slightly more nonelementary than the precedents, because they serve a minimum of appraisal report in the positioning and centring the headsinks to board

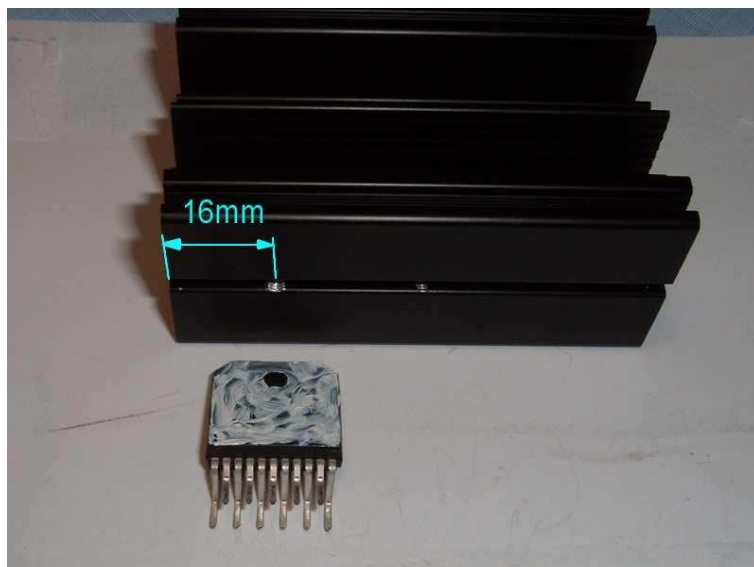


Fig5 preparation of LM3886 and fixing edging

How to first operation, is convenient to screw in a screw 3MA*10mm to a distance of 16mm from the inner side of the headsink (Fig5). is useful to do it before lead in position the chip because extracts it special is predisposed for the 3MA edging but opposes a certain resistance to the edging. Enough it use a simple 3MA tools to pre-fillet.

Clean (with alcohol) the headsink and smears a thin layer of thermal grease (Fig5)

Fixing the chip, With 3MA*10mm screw (Fig6).



Fig6 LM3886 fix to headsink

PS: The headsink has the side asymmetrical prefit. Fixed the chips to the 17mm from the fund

To increase the ability of thermal dispersion and facilitate the vertical positioning of LM3886 has to climb on the headsink to a distance of about 1-1, 5mm from the PCB board. To get this result is enough to interpose among the two elements a washer with outside diameter of about 8mm, in proximity of the holes of fixing. To facilitate the thing it be necessary fix it with some glue (Fig7).

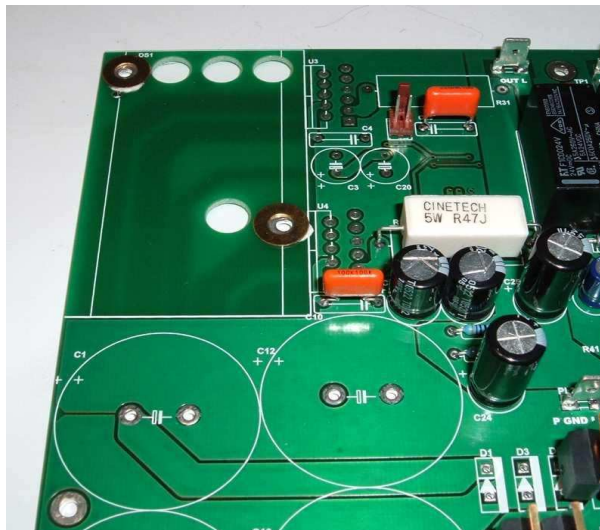


Fig7 positioning of washer

Fixing the headsink + LM3886 on board with the 3MA*10mm screws.

Verifying the perfect alignment with the (external) edges of the board (Fig8).

Only after having fixed the headsink it may soldering the LM3886 pins.



Fig8 verify the PCB-headsink (lateral) alignment

At the end, solder all the remaining components and cabling...

M.P.