ELTIM® high-end AMPLIFIER modules

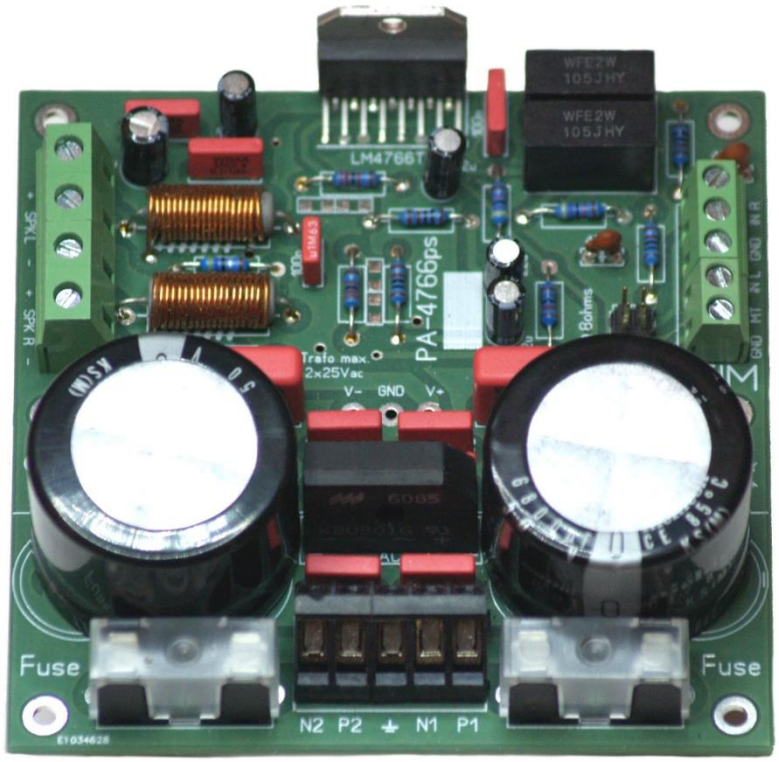
updated February 9th, 2021

PA-4766(ps) v2 Amplifier modules

Despite the fact that there are many amplifier modules on the market using the high quality IC LM4766, we decided to develop modules with this IC as well. Why? We are sure that about all are constructed way to simple, where the PCB's don't match the capabilities of the IC itself. Due to this, the IC cannot perform as it actually is supposed to do.

With around 2x 50Wrms this most easy to build and to use module will fit in a lot of projects like small stereo amplifiers and active speaker systems. We also have models with an integrated power Supply where you just need to connect a suitable transformer. Also a very nice project for starters (schools!) actually. With a clever PCB design we also could implement some nice extra features.

As an environmental friendly company, we use the LM4766T, RoHS compliant and Lead-free. It is capable of delivering 8A+ of audio currents. With our **DOUBLE LAYER** copper (**35um, FR4+) PCB** we made the power grid and speaker lines 4mm wide and where possible even wider. Our tracks are capable of feeding 10A+. Close to the IC we go some smaller, but added short tracks on the other side there.
Despite the fact that a double sided PCB costs more, we believe this IC deserves it and give it the ELTIM design/sound signature as requested by some people, where this nice and cost effective IC truly can show what it is capable of. Of course, we only use ORIGINAL and brand new parts.



PA-4766ps LKS

Module with complete linear Power Supply with 2x NICHICON LKS 6800uF/50V, 105ºC, low profile.
We have several models, where the only difference is the size and quality of the power supply capacitors.

How we do it

An IC as used here always struggles with the fact that it is hard to connect the required components in the shortest way AND at the same time have sufficient wide PCB tracks, able to let the currents flow. With the over 8A this IC can do, the only correct way to do this job is by a double sided PCB. Even then, regular 15um thick copper is not enough, so we use (2x) 35um copper layers. Due to the double sided board, we also could make the tracks as short and wide as possible. Together with quality components, this IC now shows what it really can do.
We use an EU manufactured double sided FR4+ board with parts printing, solder mask, etc. You won't find better quality! Now it even makes sense to use high quality connectors and wiring.

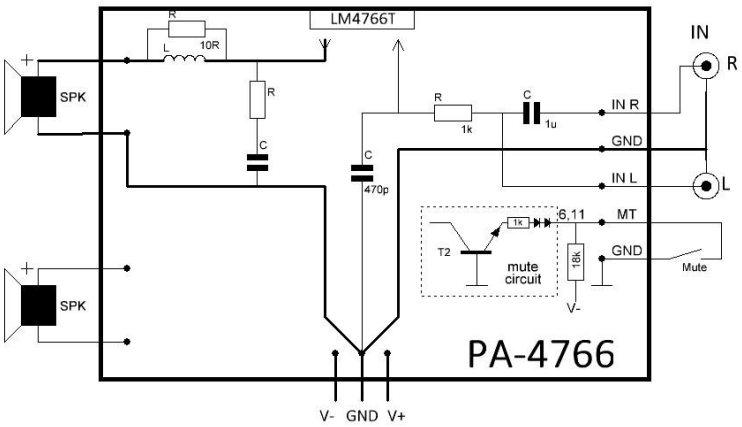
The TI datasheet strongly recommends to keep the speaker tracks as thick and as short as possible and as far away from the input circuitry, so we did. Actually, shorter than we do is not possible.
The speaker grounds go directly to the power Supply capacitors and the central ground connection.
Also, we kept the input ground apart from the output ground as strongly recommended by TI (we always do).
The input ground also leads directly to this centre ground pin, so not affected by speaker currents.
Both use large surface area's at both sides ground planes, so about 50% of both sides is actually grounded.

As also recommended by the TI datasheet, we use an output coil, so capacitive loads (as more and more speaker systems tend to show) will be accepted more easy. We wound this coil around a 10R/3W MOX resistor, which is also recommended by TI.

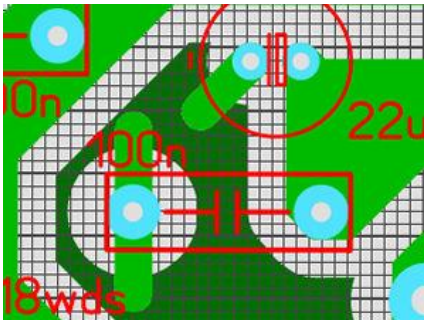
Besides way to thin copper tracks and mostly counterfeited IC's, In the cheap Internet modules you'll also find the cheapest input capacitor one can find and so, acting as a filter already.
Our Ready built modules and kits are delivered with a nice MKP Panasonic ECWFW-1,0uF/450V, pitch 10mm.
If you want other types, just mention it in the order form comment line.

As it always should be, RF interference from outside is blocked by an RC network in the input circuit and the gain of the IC is limited beyond the audio range by the TI listed circuit, avoiding oscillations and other mishaps. Ringing, "motorboating" and oscillation effects will not occur in (any of) our designs.

As it should be done always (increasing GSM, 4G, Wifi, etc. signals), the inputs are filtered by RC network (1k/470p) networks. The gain and bandwidth of the IC is limited beyond the audio range by the TI listed circuit, avoiding oscillations and other mishaps. Unfortunately, we found out that more simple solutions to be found at the internet tend to show oscillations and severe "motorboating" effects! So, don't use those simplified schematics.



As in about all our designs, we use 1% MOX resistors of course. In some of our top models we even use 0,1%.



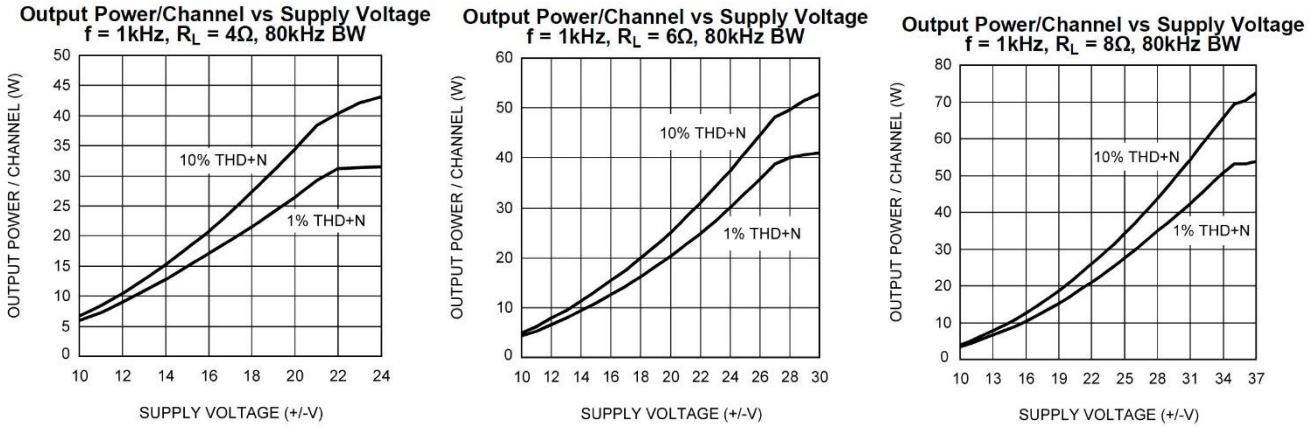
The PCB's have that much copper that it normally would be hard to solder larger parts to it, since the board takes all the heat away. Around heat sensitive/large parts we took precautions and partly decoupled them from the main track.
Still, you need a 60W iron to solder several parts, f.e. the rectifier and power supply capacitors.

The boards are EU made, so NO (China/India) pollution and no people doing the job about for free for you. We would be ashamed.

Output power

We see all kinds of output data for the LM4766 on the internet, mostly just by copying each other. The data there is just general information, so specified for the least performing types. Basically it's the data of the ORIGINAL plastic versions. Copies perform even less power. The TI datasheet shows following graphs:

This text copying, mostly by non-technicians only reading the first page of a datasheet, results in incorrect or incomplete info. Better is to study the TI datasheet completely, which may be believed to be true and interesting data. The Texas Instruments LM4766 datasheet shows us following graph:



These graphs show what an ORIGINAL T-version (with metal back plate) can perform: 2x **50W+** @8ohms.
Note that if you load it with 4 or 6 ohms, the current protection comes in if you exceed the listed power in the according graphs! This is specifically the case if it is driving woofers. Use supply voltages as listed in the graphs.
If you use it to drive 4 or 6 ohms midranges and tweeters, it will be no problem to supply up to +/- 35V.
Due to the small power content above 300Hz the required power will be below the current limited value (4A).

So, it's not 40Wrms @ 8 ohms as we read everywhere, but **50W** instead. But then the PCB must be designed properly with wide tracks, etc. And use the T-version with metal back, as we do.
You can't lead over 8A (IC specs.) of dynamic current over a 1mm wide (or even smaller) track and expect to get a dynamic, rich sound. We don't understand this, since everybody agrees that a speaker cable has to be as thick as possible…. And fed by a tiniest possible track? Weakest chain!
Our calculations show that you need at least 3mm tracks with a thickness of 35um of copper as we do.
Safe side calcs. 1% distortion is an acceptable figure in a stereo application like this.

Cooling

You need to cool the IC properly with sufficient cooling surface. The IC datasheet helps you out.
Please note that the metal mounting strip of the IC is connected to V-, so NOT to ground!
Due to this, you need to isolate the IC somehow. 95% of all modules are using plastic versions where this "problem" doesn't occur, accepting the loss of power, dynamics, sound quality, life cycle, etc.
With our metal versions you need to isolate it by use of a (quality) thermal pad and mounted by a nylon M3 bolt. Unfortunately this gives a small thermal resistance, but is still way better than while using plastic versions. With our modules and kits we supply both a high quality thermal pad (Silpad 400) and a nylon M3 bolt. Even better is to use an insulated heatsink for maximum heat exchange. There an insulating pad is not required. Actually, only then the IC can show what it can do at 100% of its capabilities.

Mute function

In their datasheet TI recommends to connect pin 6 and 11 (MT) via a resistor and a switch to V- for (de)activating the mute circuit, which is most unpractical, due to the fact that the switch is connected to V-, mostly around -35V. In that case some extra electronics would be required to come to TTL/CMOS level resp. ground.
After studying the internal schematics and some controlling measurements on our prototype, we found a way better solution. We mounted a 18k resistor directly from pin 6/11 to V-, causing a current out of pins 6/11 from 0,42-0,85mA, depending supply voltage. Due to this, the amp is active (Gain 0dB), see graph below.

With this fixed mounted connection to V- by a resistor, the MT lines of the IC is at a potential of around -2,7V, where the base of the internal mute transistor is at ground level, so conducting > sound. See the picture at former page where we also drew the internal mute circuitry.

By connecting this MT line to ground or a higher level, the internal transistor will lead no current since the BE part of it is <0,5V and so the circuit is in mute mode, that's it ! Now you can use a switch to ground or an active circuit via f.e. a processor system.
Any applied voltage higher than aprox. -1V will activate the mute function. Due to the internal diodes, this can even be a quite high voltage. The MT pin on our boards take hardly any current (diodes/transistor blocked), so it can be driven by any circuit. While MT is not connected, the amplifier is active.

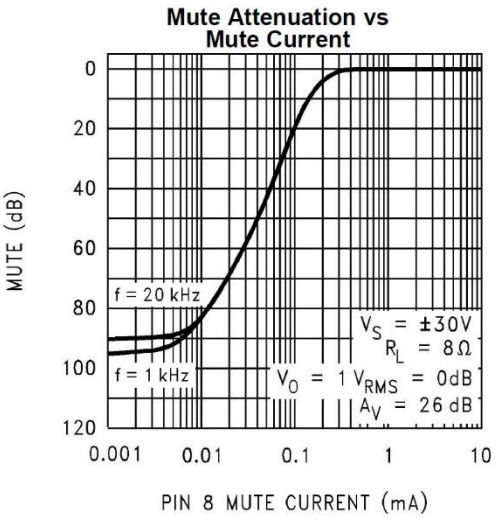


Figure 44.

Sinking around 0,05mA or less gives a gain of around -93dB, while 0,35mA or more sets the gain at 0dB, see graph above. So, in a range of 0,3mA, you could control the gain from 0 to -93dB. Sink this current to V- !
You could use a variable resistor of 500k in series with a 18k resistor, connected to MT and V-.
This comes in place of our 18k resistor, so cut this one off the board or put the potmeter in series with it.
Please note that we did NOT try this ourselves and it is not meant to function this way!

By mounting a some larger capacitor from MT to V+, the amplifier's sound will fade in slowly after the power is switched on. While uncharged it will connect MT to V+ first. Then it's charged by the 39k resistor causing the voltage on MT dropping. After passing around -1V at the – pole (=MT), the sound comes in faded.
Since the MT line will reach -2,7V, connect the – pole of the cap to MT ! The voltage of the cap needs to be V+ + 3V at least. You could mount it on the marked PCB position. We placed a 22uF/50V already.

Power Supply
An impulse rich current draining device as these amplifier modules require a Power Supply capable of delivering this. Most Switched Mode Power Supplies (SMPS) CANNOT perform this and are meant to feed quite constant currents! Also, they mostly contain lots of the high frequency residue on the power rails and even worse, the impedance rises with load frequency, together resulting in poor bass and screaming highs.

We use a symmetrical, LINEAR power supply instead of a single one where an audio degrading output capacitor is required. While using a single supply, the output swings around ½ V+, causing the need of a large value (4700uF) POLARISED electrolytic capacitor. However, capacitors like these are totally incapable of passing ac signals, especially the cheap ones we see on the Ebay/Alibaba modules. Those are only meant to store dc energy in a Power Supply! You get a "70's sound" where with the first solid state amps this principle was common! Also, 50% of the time this cap is polarised the wrong way, shortening it's lifetime and degrading sound quality. With a symmetrical supply as we use, the output swings around ground level and so, no capacitor is required. Instead, you'll find the recommended output coil. Due to this coil also capacitive loads, as many speakers tend to show today, can be powered as well.

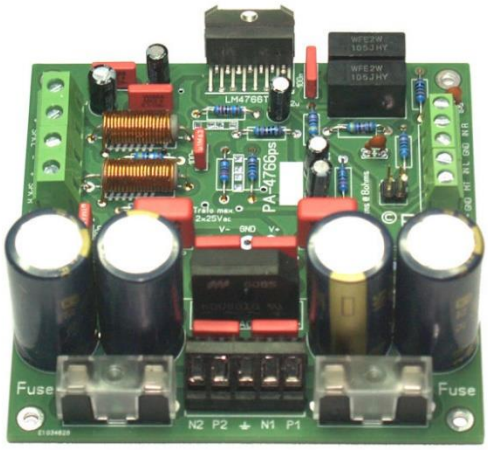
On our PA-4766 modules we mounted a pair of supply capacitors as assistance to a connected supply.

On our PA-4766ps modules, we use a LINEAR symmetrical power supply, where a variety of types can be mounted. Since these capacitors are part of the audio chain (!) they have an influence on the sound quality. As we do with about all our modules where Power Supply capacitors come in action, you can decide for several types and qualities. Since prices (read: qualities) of electrolytic capacitors differ a lot, we can make a range of modules with different pricing this way. All other electronics is exactly the same.

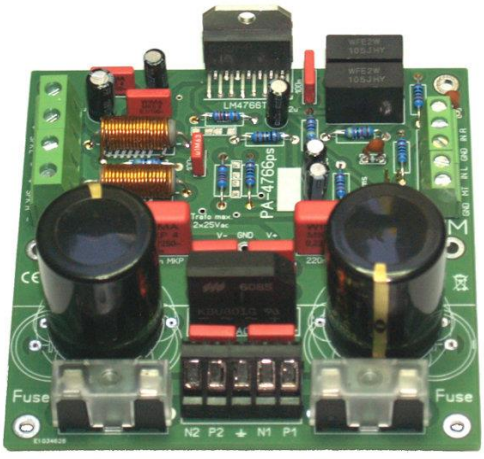
NOTE: if you buy a kit version, there NEVER are power supply capacitors included!
While doing so, you can decide yourself what price/quality/brand you want to use.

ELTIM PA-4766(ps) TECHNICAL SPECIFICATIONS:	
Frequency range:	20-230.000Hz (-3dB)
Gain:	26dB
Harmonic distortion:	0,06% (@30W/8ohms)
Intermodulation distortion:	0,004% (60Hz/7kHz, 4:1)
Channel separation:	60dB
Output power:	See graph above
Output current limit:	2x 4A (low impedance loads are restricted!)
Slew rate:	9V/uS
Signal to noise ratio:	98dB (@1kHz/1W/A weighted)
Power Supply voltage on basic models:	+/- 10 – 39Vdc (@ 8 ohms, all versions)
Max. supply voltages @ 4 ohms loads @ 6 ohm loads @ 8 ohms loads	Standard and ps models (ps versions trafo voltages) 2x 22Vdc (2x 15Vac) 30Wrms/channel 2x 30Vdc (2x 20Vac) 40Wrms/channel 2x 37Vdc (2x 25Vac) 50Wrms/channel ***Power is limited with heavier loads due to internal protection circuits!***
Power Supply capacitance:	Depending the model
Dimensions:	100 x 65mm (basic versions) 100 x 100mm (ps versions with power supply) The Supply capacitors decide the height of the module

Note: since there is only little power above 300Hz, you can use these amps in a 3-way system in combination with our PA-3886 models which then needs to be connected to the woofer. Despite the above data, you then can also use 4ohms midranges/tweeters due to the low power.

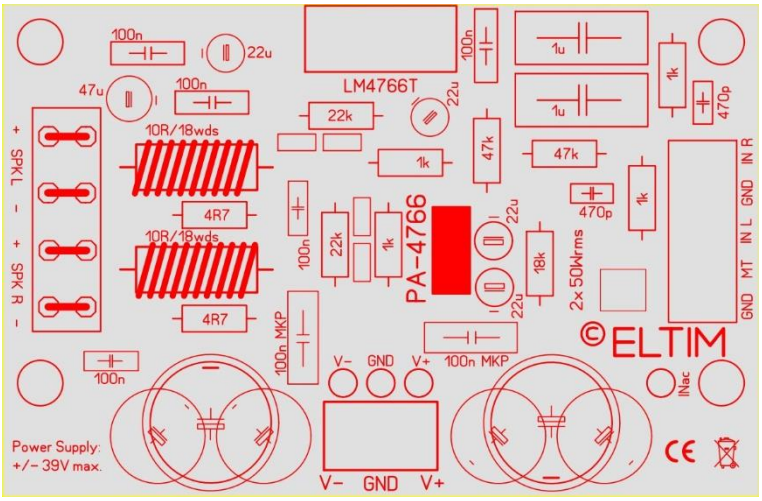


PA-4766ps NHG



PA-4766ps MLGO

ELTIM PA-4766, module without Power Supply:



ELTIM PA-4766, 100x65mm
Scale 1 : 1 Connect a symmetrical Power Supply, +/-39Vdc max.

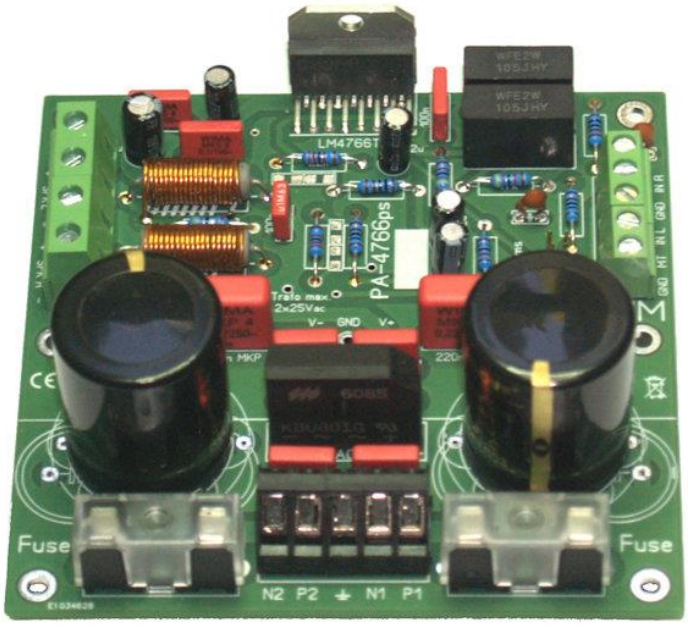
This module is meant to connect to a decent (so, preferable not a cheap SMPS!) power supply with sufficient capacity on board. We have some in our program. Most SMPS supplies have RF on the power lines, which can cause a deterioration in audio quality or worse: oscillation of the amplifier! We did all possible to prevent this, but it still is possible if the added power is of poor quality and/or contains significant high frequency content.

This ELTIM PA-4766 PCB requires about all energy from an external Power Supply, but fits 2x Ø16/18mm or 2x2 Ø12,5mm electrolytic capacitors to bring some extra energy reserve closer to the IC.
If you mount some, use quality caps like NICHICON Fine Gold (85ºC)! You will be rewarded with better sound. Low ESR capacitors like these only make sense while mounting them close to the load with thick/wide tracks as we do. Unlike the cheap internet modules, we use serious AND Audio Grade capacitors on our ready built modules with sufficient capacity and a long life span to do the job properly.
Furthermore we added 150nF MKP capacitors close to the supply connections in order to keep RF outside and increasing high frequency quality. We also added some extra capacitors over the power rails, as close to the IC as possible, a 100n and a 22u type as recommended in the TI datasheet, not seen anywhere else.

Since we mostly build all our modules on demand you can ask in the comment line of the order form for other types of electrolytic capacitors. We will respond with an offer to you. We can supply about any type. While building it as a kit you could mount up to 2x 3300uF/35V actually, but they are way higher and Ø18mm, but fit. As always, in DIY kits we leave out the Power Capacitors, since many want to use their own preferenced caps. So, if you want them from us anyway, order the capacitors you like, matching your requirements/wallet.

We always try to get some more out of a specific module design. Since we also hobby (for over 40 years now), we mostly can and do think as many do, meaning that we try to make our modules as useful as possible.
In this case, with these small modules we also found a nice extra, without any extra costs.
You can sandwich-mount this one, even on top of our version with its own Power Supply as shown at the next pages. Mount it on top of a PA-4766ps (or PA-3886ps) module, using some distance holders. Three straight copper leads form the power lines of a full pack. On the PA-4766ps version and the extra capacitor “booster pack” PS-BOOSTER there are holes exactly at the same location, so the copper rods are easy to mount.
With this sandwich possibility, you become a solid pack for stereo, parallel, bridged, 2- or 3-way active setups, etc., all fed by just a single transformer, connected to the PA-4766ps module, but 8A (±300W output) max.
We also see a function where multiple PA-4766 units are connected to a PA-4766ps, for multichannel purposes like home theatre systems or for shopping malls, etc. as improved replacement of 70/100V systems. In that case, also mount at least one PS-BOOSTER. See our example at the last page of this document.
If all carry the same signal, feed it to only one and add a small copper rod just below the input capacitors, similar as the Power Supply rods we mention below ! All INac lines are connected then. Mount the jumper! This line even goes through any type of PS-BOOSTER module at the same PCB location.

ELTIM PA-4766ps v2, module with integrated linear Power Supply:



100x100mm with on board Power Supply
Scale 1:1 Just connect a transformer, 2x25Vac max. (@8 ohms only!)
With higher loads you need to reduce the transformer voltage, see specifications table.

This module is technically identical to the basic PA-4766, except for a full functioning linear, symmetrical Power Supply with quality secondary fuse holders, a rectifier + small caps around it and required larger capacitors. The PCB is designed in a way that several types fit without degrading the PCB track widths:

- 2x Ø25/30/35mm radial capacitors, so indeed and even serious ones can be mounted.
  With these total could become only 22mm high, being the IC height + PCB. (Ø35mm NEW on v2)
- 2x2 Ø16/18mm, basically used in low cost (NHG) setups. You can even use (very) long Ø18mm ones (f.e. 4700uF/50V), even if a PA-4766 or PA-4766 is mounted on top, see the horizontal marking.
- 2x 4 Ø16mm, mostly used for low profile or low cost setups, depending the quality of the capacitors. v1 only could have 2x3 of these caps, new v2 version can mount 2x4 of these.
- 2x 7 Ø12,5mm. (on V1 it was Ø10mm). Some prefer to use multiple small caps (Nichicon Fine Gold is fantastic) electrolytic capacitors. Here only relatively small values fit, f.e. 2x7 Nichicon 330uF/50V "Fine Gold", which we believe is insufficient for 80W bass output. With this supply capacitance it is meant for low power purposes or driving midranges/tweeters only or assisted by our PS-BOOSTER module! In that case its best to use capacitors of the same "family" in both modules. You could mount higher value/lower voltage types! The 60º positioning looks nice too -)

NOTE: we always use quality capacitors with a temperature range up to 105ºC. MLGO version even 125ºC.

Bridge mode operation
Our PA-4766(ps) modules can be used in bridged mode as well. However, since the heat production of the IC will increase by a factor four the power is limited, where the chip temperature and the current limiters (4A) will determine the max. power produced. Just based on the limiters, the output could reach around 120W@8ohms. Lower impedance loads will work, but with reduced power since the temperature limiter will be activated, @4ohms around 65W. Optimal thermal contact with a suitable heatsink is very important here.

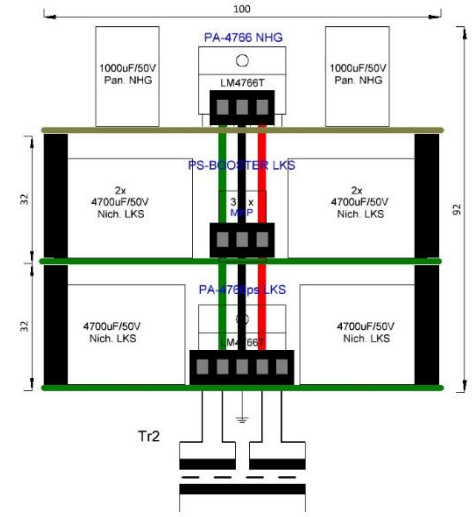
Transformer
In order to complete this module in a working power amplifier, you only need to connect a (quality), regular transformer. The transformer secondary windings are connected to P1/N1 and P2/N2.
Fuse them (NOT included!) as listed with the transformer data. Since even these are part of the chain, we use good quality fuse holders, not the cheap basic ones. *Fuse the primary side of the transformer accordingly !*

Sandwich mounting
We designed our PCB's in a way that they can be sandwich mounted as well, requiring a minimum of space. While using ONE PA-3886ps (1x80W) or PA-4766ps module, all are fed by just a single transformer.
Please note that the mounted rectifier can cope 8A continues current maximum! This is around 250Wrms. The mounted supply capacitors will flatten out the larger peak currents sufficiently.

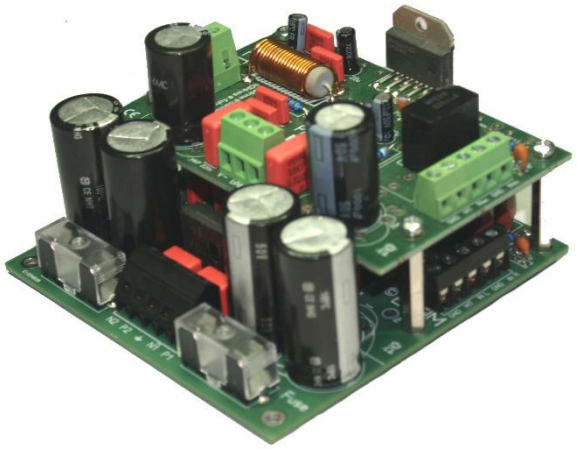
The V+, GND, V- and input signal can be fed to other sandwich mounted units by 1,5mm² solid copper rods. So, f.e. you can mount one or more of our PA-4766 (and PA-4766) modules on top of each other, also mixed. For even better performance you could connect a PS-BOOSTER module with extra power supply capacity in the same way. We recommend to use this one where three or more amplifier modules are sandwiched this way.

Also with this module the INac line can be fed through to all sandwiched modules. Mount the jumper! Then, all the amps receive the same signal and you just have to feed the signal to any one of them.

NOTE: Since the rectifier only has diodes inside, you can ALSO connect a symmetrical dc power supply to it! Connect the V+ and V- of this supply to P1 and N2, no matter the polarity. The rectifier will correct it. Ground of this external supply goes to the middle GND (earth) contact and/or P2/N1. All three are connected on PCB.



Just use three 1,5mm² copper rods to feed the Power Supply rails to all units


Sandwiched example with PA-4766ps NHG + PA-3886 FC

In the left example the bottom one is a PA-4766ps here, providing the rectified supply power and aprox. 120W/8ohms in bridged mode for the woofer. In the middle is our PS-booster module for extra supply capacitance. The upper one is a PA-4766 here in 2-channel mode (50W each/8ohms) for midrange and tweeter. The total pack forms an active driven 3-way speaker setup, 120 + 50 + 50W.
Note that around 70% of total power is below 300Hz, so 50W for mid and tweeter is way enough!
With this one there will be way enough sound in any living room. An (DSP?) active driven/filtered speaker sounds louder than passive somehow! You would need over 300W in a passive system for similar sound level.
You can combine as many modules as you like in a random mix of PA-3886 and PA-4766 modules.

With this impressive amplifier pack you just need connect a single transformer and signal connectors.
NOTE that PA-4766 modules accept max. +/- 39Vdc (trafo 2x 25Vac). Use this transformer voltage max. in a combination with PA-3886 ! This one will them produce around 75W@8ohms.

Following products are available from our webshop and dealers:

Ready built and tested basic modules (100x65mm):

PA-4766 NHG	with 2x	1000uF/50V	Panasonic NHG capacitors	Height 27mm
PA-4766 UFG	with 2x2	330uF/50V	Nichicon Fine Gold capacitors	Height 23mm

Ready built and tested modules with integrated 8A Power Supply (100x100mm):

PA-4766ps NHG LP	with 2x7	470uF/50V	Panasonic NHG capacitors	Height 22mm
PA-4766ps NHG	with 2x2	3300uF/50V	Panasonic NHG capacitors	Height 34mm
PA-4766ps FRA	with 2x4	1000uF/50V	Panasonic FR-A capacitors	Height 28mm
PA-4766ps UFG LP	with 2x7	330uF/50V	Nichicon Fine Gold capacitors	Height 22mm
PA-4766ps UFG	with 2x4	1000uF/50V	Nichicon Fine Gold capacitors	Height 32mm
PA-4766ps LKS	with 2x	6800uF/50V	NICHICON LKS capacitors	Height 27mm
PA-4766ps MLGO	with 2x	10000uF/**40V**	Mundorf MLGO capacitors	Height 42mm

Note that we mostly use 50V capacitors. Why? A 25Vac transformer (most common) produces unloaded 27,1Vac. Vdc = 1,42 * Vac = 38,5Vdc ! Most modules like this use 35V types, where you just can't use 25V trafo's, or accept that the caps are overloaded, causing shortening of lifecycle and/or even blow out within weeks of use.
While using 50V types, the price difference is worth the increase of quality and lifecycle. It's ELTIM signed -)

On request, we can assemble any combination of the above as a multichannel combination. Also with PA-3886 !
Just mention this in the comment line of the order form. We do this free of extra charge for now!

DIY kits:

PA-4766 kit	with all parts, except power supply capacitors.
PA-4766ps kit	with all parts, except power supply capacitors and trafo.

Instructions and wiring diagrams can be found on our website.

Please note that pricing (margin) of DIY kits doesn't allow us to give technical help at any time!
In the case you are not able connecting a ready built module
or (assembling) a DIY kit, we can help you at € 60,-/hour charge.
Just send back and write the problem you face with it. Don't forget to mention your name and address.

We did NOT attempt to make these modules as cheap as possible but as good and multifunctional instead.

We have an increasing number of audio related modules, also available for dealers. Inquire here.

Other electronic parts

Besides our amplifier- and Power Supply modules/kits we also have a numerous number of quality parts in our webshop, all together around 12000 items. Drive units, Gramophone cartridges and styli, capacitors, coils, resistors, power transistors, nice electronics cabinets, connectors, cable, damping material, etc.

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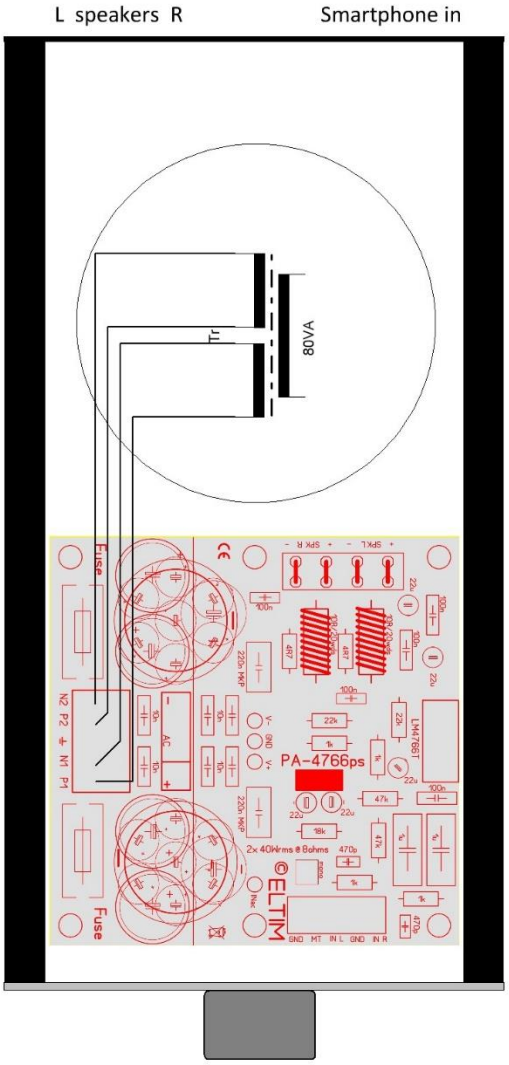
Smartphone/Monoblock power amplifier example with:

- 1x PA-4766ps Power amplifier,
2x 50Wrms @ 8ohms (4ohms not recc. !)
- Toroidal transformer 80VA/2x25V (just fits)
- MODU Galaxy cabinet, 124x230x40mm



Recommended cabinet:
MODU Galaxy 124 x 230 x 40/80mm

Just connect your smartphone/tablet and enjoy powerful, quality sound, 2x 50Wrms @ 8ohms.
Mount some 15-47ohms resistors (as earpiece dummies) over the input connector as load for the smartphone output for better sound, especially at higher frequencies.

Monoblock
Have some fun and build the probably smallest true analogue MONOBLOCK in bridged mode!
Only 124x280x40mm in a MODU Galaxy cabinet.
Feed it directly with a balanced signal, but better use one of our buffer input modules in order to do it as it should be done.
This one could make around 60Wrms/8ohms (only).
In order to avoid overheating use a 2x18V /80VA transformer. This one just fits (36mm)!
Use a 80mm high cabinet and make it a stereo one.

While using a 80mm high cabinet there could be around 100W with a 2x22V/120VA transformer.
Also just fits in width (94mm).

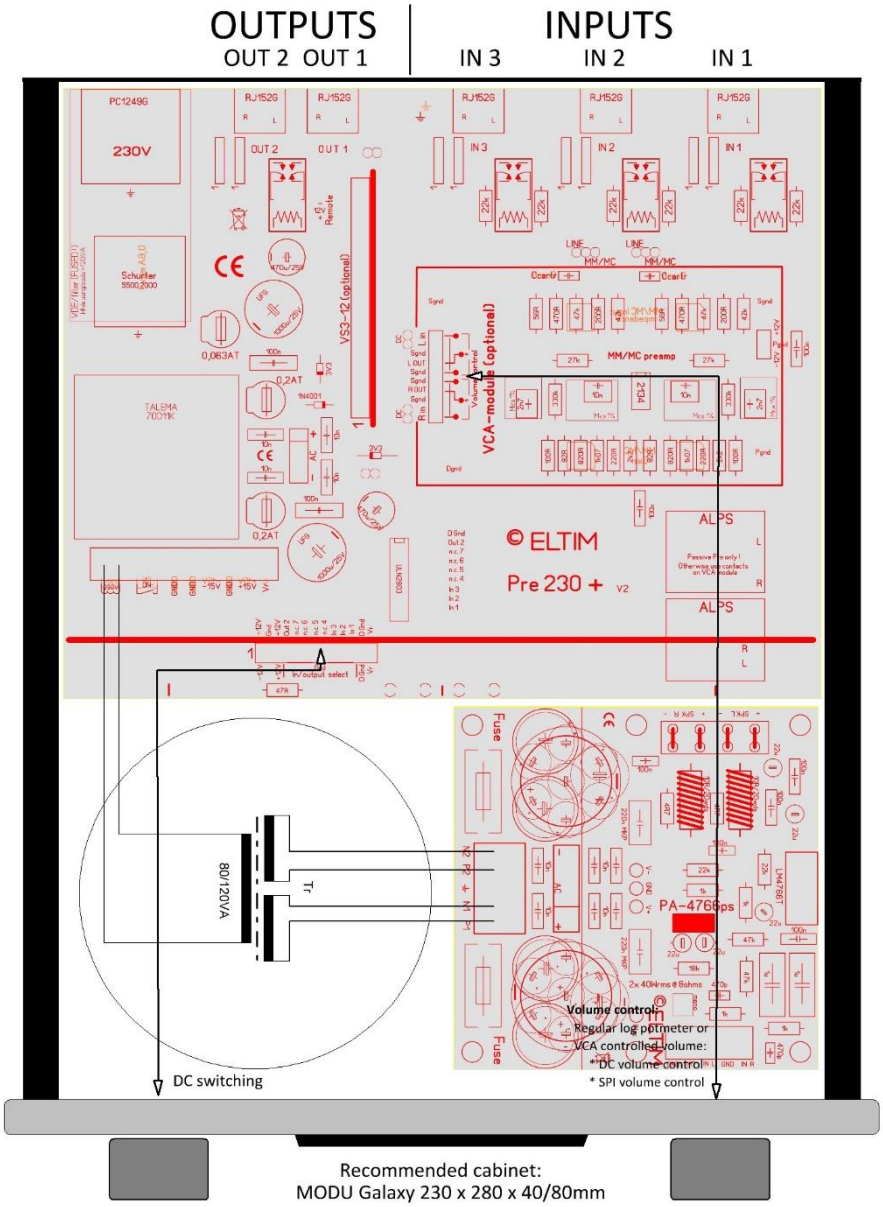
In both cases only 8 ohms loads or higher !
If you need to drive 4 ohms, use a PA-3886ps module instead, doing around 65W/4ohms.
A pair of those can also be used in bridged mode in the same cabinet construction (80mm) and can deliver over 100W, limited by the possible transformer size fitting.

Cooling
For optimal airflow we let the IC stick out 2mm, so air can flow between the heatsink and PCB > better performance.
Since this Galaxy cabinet has an internal width of 104mm, there is also 2mm left at the other side of the PCB. *Less heat > Better performance*

Not by coincidence, while fitting two modules upside down AND reversed (one IC to each flank) on top of each other we come to 104mm, being exactly the internal width of this cabinet.
Supply wires of a PA-4766 can directly lead to a PA-4766ps then without crossing lines, so you only need one with an integrated supply.
So, you even could make it a stereo bridged amp. in a tiny 124 x 230 x 80mm high cabinet.
For mounting details see the PA-3886 document.

Integrated micro amplifier example with:

- PRE 230 preamplifier, 3 inputs, 2 outputs, independent Power Supply
- 1x PA-4766ps Power amplifier, 2x 50Wrms @ 8ohms (pref. no 4ohms!)
- Toroidal transformer 120VA/2x25V
- MODU Galaxy cabinet, 230x280x40/80mm



The PA-4766ps module is mounted against one of the profiled flanks. At the other side there is just enough space for a 120VA transformer (80mm cabinets only due to height of this trafo). An 80 VA will fit in a 40mm cabinet though.
As shown, simple and straight wired, both primary and secondary.

An ALPS potentiometer could be mounted on the PRE-230 with a 6mm rod to the front or use one of our VCA volume control modules, where you just need to feed a DC voltage or SPI data for volume control.

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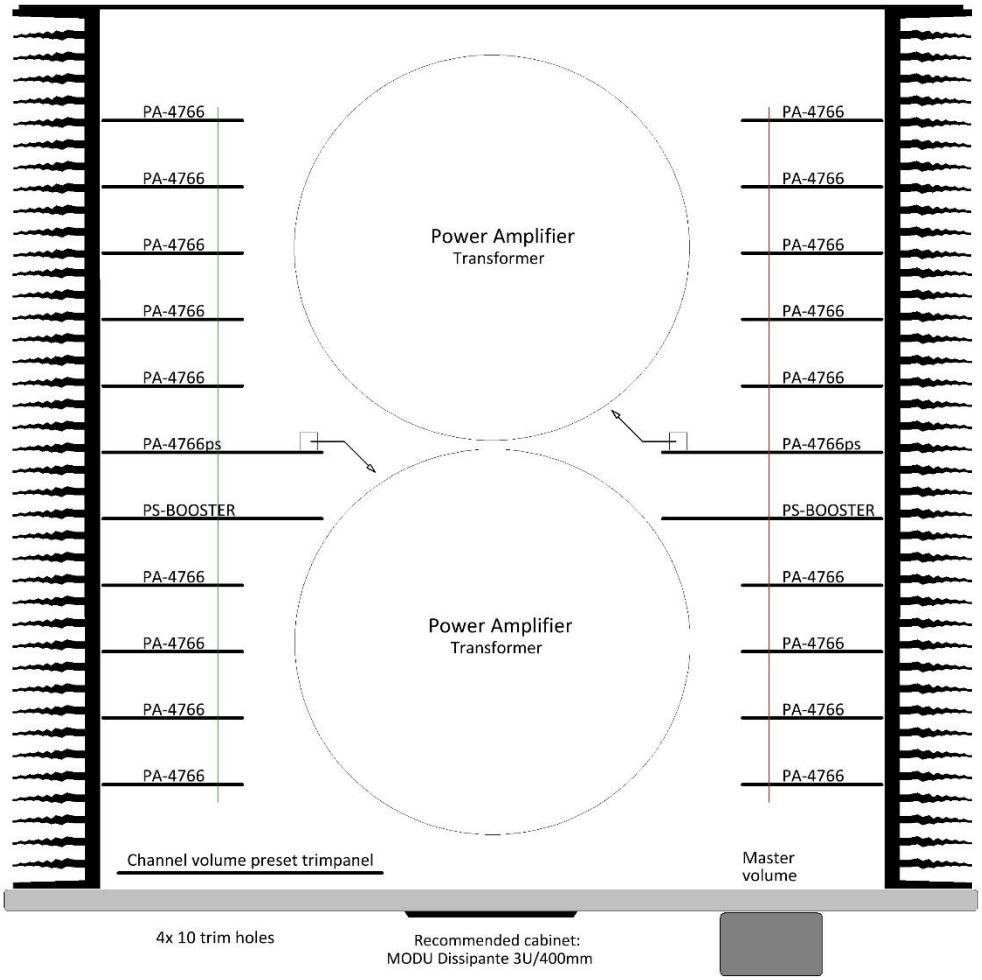
Multichannel setup example:

As a sound quality improving alternative of 100V PA systems in f.e. exhibition halls, shopping malls, fun parks, etc., multichannel setups can be made with our PA-4766 modules. Connect every speaker separately to an output and adjust the levels. Could be muted separately or all together by grounding the mute pin(s).
Max. 40x 50W/8ohms…… (2kW audio power total). This one will drain about full 16A from the power grid -)



Here about the max. number of channels possible :
20x2 in a MODU Dissipante 400mm deep, 120mm high cabinet.
This one provides way enough cooling for constant (professional) use in f.e. shopping malls, fun parks, etc.
With 40x 50W = 2000W, there will be enough sound……
Yet, if it is going that loud, you need to use a specific Power Supply PCB we then make. The on board supply can handle 8A (400W) max.

In the middle a PA-4766ps with integrated power supply (low power, 8A max!). Just beneath it a PS-BOOSTER “booster” module with extra supply capacitors. All the others are PA-4766 models. For all, select the quality you want.
In order to “feed” them right use one of our line or balanced buffer input modules.

You could random mix with our PA-3886 range for even higher power as well.

You could build it yourself, but we can do this for you as we can with all our modules.
For this we have a separate website with some examples: www.eltimaudio.com
Just contact us and explain wat you require. We’ll respond with an offer.