

PS-7xx, Universal low profile Power Supply modules with encapsulated toroidal PCB transformers

Our PS-7xx series Power Supply modules are meant to feed your (Phono) Pre-amplifier, DAC, DSP, Sat/cable tuner, Streamers, Headphone amplifier, mixing console or any other electronics where a stable and reliable voltage is required. Check your existing equipment and find poor supplies! You mostly can improve the quality and life span of this equipment by use of our supplies. We provide this range in single voltage variants as well as symmetrical (+/-) ones.

With the use of [TALEMA 700xxK-series](#) encapsulated low profile, toroidal transformers, our Power Supply modules are about 65% in height compared to regular ones. This means that you can mount most of these PS-70000x series even in a 40mm (1U) high cabinet.

We can mount all kinds of capacitor qualities and sizes on these PCB's.

Tracks and parts are all over dimensioned and long lasting. We also used high quality FR4 PCB's. Due to all this, our PS-7xx series provide a clean EMI- and noise free power, produces about no magnetic field, are completely silent and will last very long.

Besides that, the efficiency is around 15% higher compared to switched mode supplies !

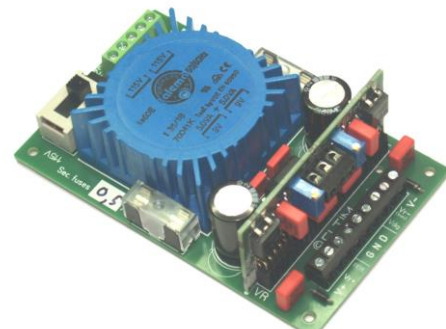
The range of these high quality potted transformers we use is available in 1,6VA up to 50VA, every time in 6 voltage outputs. A selection of 5-25VA brings us to 30 versions, both single and symmetrical voltage variants. We produce the modules on demand, taking around a week. By doing so, we can modify it to your needs.



Single voltage model



Symmetrical \pm voltage model



The both lower pictures show the modules with mounted voltage regulator parts (optional) .

We designed it with full options, as a high quality Power Supply module should have. So, we used small noise cancelling capacitors over the rectifier, an MKP foil capacitor over the voltage rails, etc.

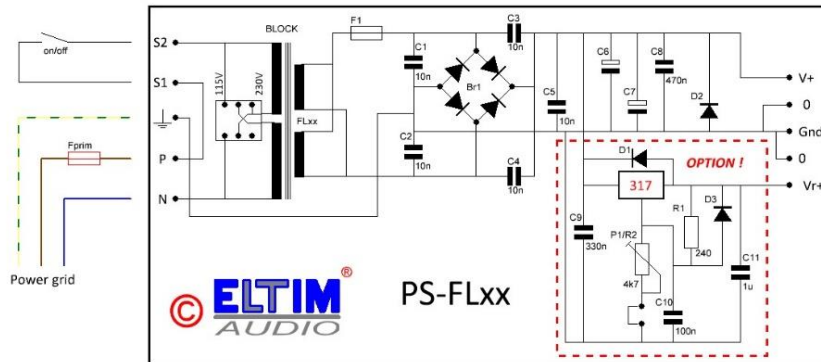
We also used professional, high quality FR4+ (EU) PCB's instead of the carton like hobby boards we see everywhere. Since the electrolytic capacitors define the lifespan of an electronic circuit, these Power Supply modules last at least for 10.000 hours while using [PANASONIC FR series](#) in Ø16mm size with very low ESR.

Single voltage Power Supply modules.

Our single voltage variants only provides a single, positive supply voltage. They use two capacitors over the power line, which makes sense since they can deliver the double current compared to the symmetrical ones.

On the larger ones a Ø25mm capacitor also could fit.

As is demanded in most countries there is a secondary fuse!



ELTIM PS-7xx single Power Supply modules range:

| PS-7xx | Output voltage (V) | | | I max. (mA) | Size LxWxH | Capacitors Panasonic FR |
|----------|--------------------|-----------|---------|----------------|---------------|----------------------------|
| | No load | Full Load | Average | | | |
| 5VA: | | | | | | |
| PS705-10 | 12,6 | 8,4 | 10,5 | 397 | 75x120x23mm | 2x 2200uF/16V |
| PS705-12 | 16,1 | 10,8 | 13,5 | 310 | 75x120x23mm | 2x 1800uF/16V |
| PS705-15 | 22,1 | 14,4 | 18,3 | 226 | 75x120x23mm | 2x 1500uF/25V |
| PS705-20 | 27,7 | 18,0 | 22,8 | 181 | 75x120x23mm | 2x 1200uF/35V |
| PS705-25 | 33,2 | 21,6 | 27,4 | 151 | 75x120x28mm | 2x 1000uF/35V |
| PS705-30 | 39,7 | 26,4 | 33,0 | 126 | 75x120x28mm | 2x 820uF/50V |
| 7VA: | | | | | | |
| PS707-10 | 12,4 | 8,4 | 10,4 | 567 | 75x120x27mm | 2x 2700uF/16V |
| PS707-12 | 15,9 | 10,8 | 13,3 | 441 | 75x120x27mm | 2x 2200uF/16V |
| PS707-15 | 21,1 | 14,4 | 17,7 | 332 | 75x120x27mm | 2x 1800uF/25V |
| PS707-20 | 26,4 | 18,0 | 22,2 | 265 | 75x120x27mm | 2x 1500uF/35V |
| PS707-25 | 31,6 | 21,6 | 26,6 | 222 | 75x120x28mm | 2x 1200uF/35V |
| PS707-30 | 38,6 | 26,4 | 32,5 | 181 | 75x120x28mm | 2x 1000uF/50V |
| 10VA: | | | | | | |
| PS710-10 | 10,8 | 8,4 | 9,6 | 927 | 77x125x30mm | 2x 3300uF/16V |
| PS710-12 | 14,0 | 10,8 | 12,4 | 712 | 77x125x30mm | 2x 2700uF/16V |
| PS710-15 | 18,7 | 14,4 | 16,6 | 534 | 77x125x30mm | 2x 2200uF/25V |
| PS710-20 | 23,4 | 18,0 | 20,7 | 427 | 77x125x30mm | 2x 1800uF/25V |
| PS710-25 | 28,2 | 21,6 | 24,9 | 354 | 77x125x30mm | 2x 1500uF/35V |
| PS710-30 | 35,0 | 27,4 | 31,2 | 286 | 77x125x30mm | 1x 3300uF/40V* |
| 15VA: | | | | | | |
| PS715-10 | 11,6 | 8,4 | 10,0 | 1296 | 80x130x32mm | 2x 3900uF/16V |
| PS715-12 | 14,4 | 10,8 | 12,6 | 1040 | 80x130x32mm | 2x 3300uF/16V |
| PS715-15 | 19,2 | 14,4 | 16,8 | 780 | 80x130x32mm | 2x 2700uF/25V |
| PS715-20 | 24,1 | 18,0 | 21,0 | 624 | 80x130x32mm | 2x 2200uF/25V |
| PS715-25 | 28,9 | 21,6 | 25,2 | 520 | 80x130x32mm | 2x 1800uF/35V |
| PS715-30 | 35,4 | 26,4 | 30,9 | 424 | 80x130x32mm | 1x 3900uF/40V* |

25VA:

| | | | | | | |
|----------|------|------|------|------|-------------|----------------|
| PS725-10 | 10,8 | 8,4 | 9,6 | 2317 | 80x130x43mm | 2x 4700uF/16V |
| PS725-12 | 13,9 | 10,8 | 12,4 | 1797 | 80x130x43mm | 2x 3900uF/16V |
| PS725-15 | 18,6 | 14,4 | 16,5 | 1345 | 80x130x43mm | 2x 3300uF/25V |
| PS725-20 | 23,1 | 18,0 | 20,6 | 1080 | 80x130x43mm | 2x 2700uF/25V |
| PS725-25 | 27,8 | 21,6 | 24,7 | 899 | 80x130x43mm | 2x 2200uF/35V |
| PS725-30 | 34,1 | 26,4 | 30,2 | 734 | 80x130x43mm | 1x 4700uF/40V* |

* 1x EPCOS 40V / Ø25mm instead of Panasonic FR.

Regulated, single output voltage option.

On the single voltage variants, there is a built in option to add a Voltage Regulator based on the well-known LM317 type in TO220

on these PCB's, including a PCB mounted heatsink. With that, the regulated output is adjustable from 1,2V up to (Vout - 3V).

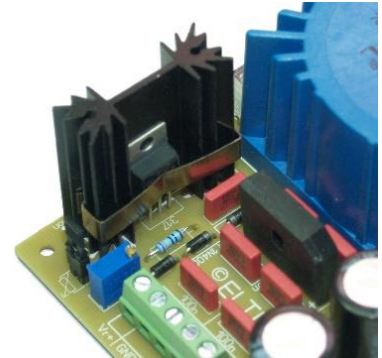
Make sure you select the correct PS-7xx module (Vout at max. current).

You can find the locations at left top of the PCB drawings.

Max. current is the PS-7xx module capacity or where over temperature protection comes in action. We did all to prevent this event actually.

Venting holes around the heatsink provide maximum cooling, so this event will happen way later compared to about all other circuits in the market where no air flows through the PCB's. Using a heatsink without

flowing air around it makes no sense to us. Also, the size of the heatsink matches the capacity of the PS7xx module. It always has about the same height of the transformer.



By exchanging the trimmer by a potentiometer (or any other circuit bringing a resistance from 0-6kohm to ground) you could build a relatively small Laboratory Power Supply with one of these.

This option contains not only a 317 regulator, but also a suitable heatsink and all other parts as recommended in the [317 datasheet](#) at page 7, fig. 20. So, with full options as we don't see anywhere else....

Max. current is the module's limit, with a max. of 1,5A or T heatsink = 150°C, whatever comes first.

The regulator is SOA, shortcut and over temperature (@ 150°C) protected.

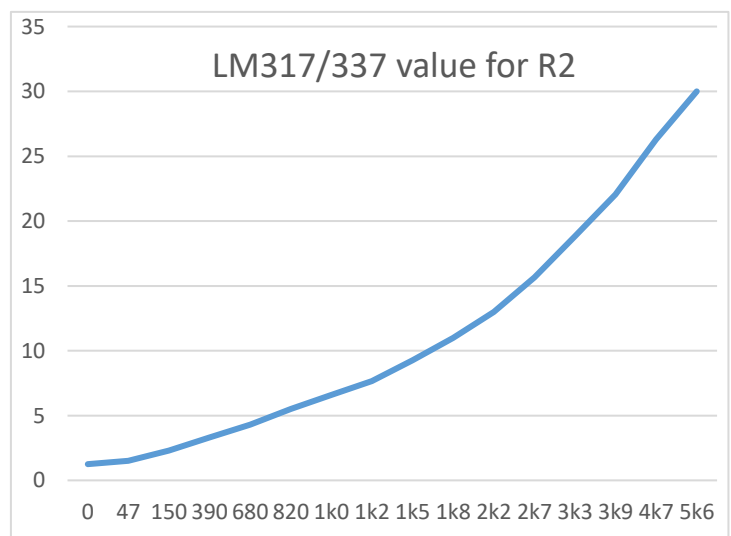
The larger (higher) the transformer gets, the larger heatsink we use. The capabilities (heat dissipation) of the 317 regulator match that way at maximum with the power rating of the transformer used, without giving it more height as the transformer already does. [PANASONIC FR-A Elco's](#) we use are also selected that way.

In the right upper corner we mounted a jumper, normally connecting the trimmer to ground. With the 5k trimmer on board, the output voltage can be trimmed to about 25V. You could raise this voltage by removing the jumper and solder a 2k2 resistor on the pins. Doing so, you can reach 30V with the 30V modules.

Instead of P1 a fixed resistor fits or you can mount a potentiometer and regulate the voltage externally.

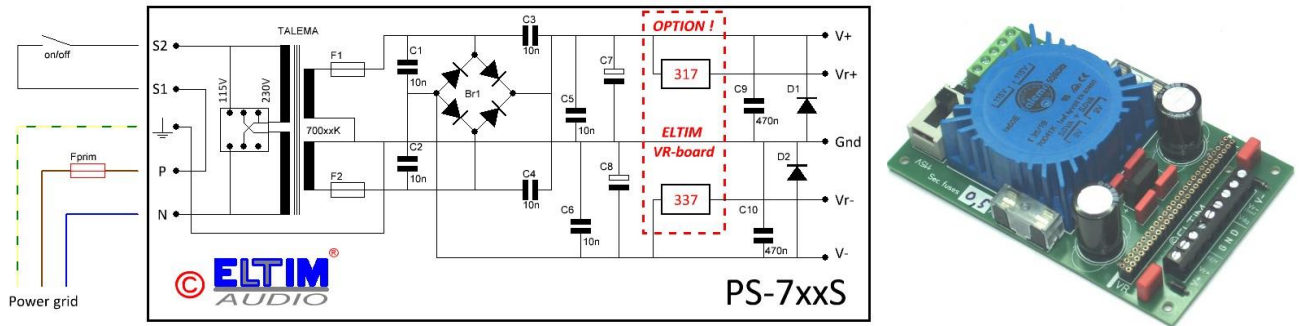
With the trimmer you can shift up the working area of this potentiometer.

Note that the electrolytic, heat sensitive caps are away from the heatsink as far as even possible and so come more close to their maximum lifespan of 10.000 hours.



Symmetrical, \pm voltage Power Supply modules.

The symmetrical Power Supply boards we present here show a fully symmetrical layout and use of quality components like [TALEMA/NUVOTEM 700xxK](#) series potted toroidal PCB transformers, long lifespan (Panasonic FR, 10.000 hours@105°C) electrolytic capacitors, etc. The schematics of these modules is as this:



These symmetrical use two secondary fuses and so complies to the rules in most countries! This series provides a symmetrical \pm voltage, available in a wide voltage range and power load capability.

[ELTIM PS-7xx S](#) symmetrical, \pm Power Supply modules range:

| TYPE | Output voltage (± V) | | | I max (± mA) | Size LxWxH | Capacitors Panasonic FR |
|-----------|----------------------|-----------|---------|-----------------|---------------|----------------------------|
| | No load | Full Load | Average | | | |
| 5VA*: | | | | | | |
| PS705S-10 | 12,3 | 8,3 | 10,3 | 203 | 75x120x23mm | 2x 2200uF/16V |
| PS705S-12 | 15,7 | 10,6 | 13,2 | 159 | 75x120x23mm | 2x 2200uF/25V |
| PS705S-15 | 21,6 | 14,2 | 17,9 | 116 | 75x120x23mm | 2x 1500uF/25V |
| PS705S-20 | 27,1 | 17,7 | 22,4 | 92 | 75x120x23mm | 2x 1000uF/35V |
| PS705S-25 | 32,4 | 21,2 | 26,8 | 77 | 75x120x28mm | 2x 1000uF/35V |
| PS705S-30 | 38,7 | 26,0 | 32,3 | 65 | 75x120x28mm | 2x 820uF/50V |

* Also suitable to connect one of our [switching regulator devices](#), delivering up to 3 completely independent voltages.

| | | | | | | |
|--------------|------|------|------|-----|-------------|---------------|
| 7VA*: | | | | | | |
| PS707S-10 | 12,1 | 8,3 | 10,2 | 290 | 75x120x27mm | 2x 3300uF/16V |
| PS707S-12 | 15,5 | 10,6 | 13,1 | 226 | 75x120x27mm | 2x 2200uF/25V |
| PS707S-15 | 20,6 | 14,2 | 17,4 | 170 | 75x120x27mm | 4x 1000uF/25V |
| PS707S-20 | 25,8 | 17,7 | 21,7 | 136 | 75x120x27mm | 4x 680uF/35V |
| PS707S-25 | 30,9 | 21,2 | 26,1 | 113 | 75x120x28mm | 4x 680uF/35V |
| PS707S-30 | 37,7 | 26,0 | 31,8 | 93 | 75x120x28mm | 2x 1000uF/50V |

* Also suitable to connect one of our [switching regulator devices](#), delivering up to 3 completely independent voltages.

| | | | | | | |
|---------------|------|------|------|-----|-------------|---------------|
| 10VA*: | | | | | | |
| PS710S-10 | 10,5 | 8,3 | 9,4 | 474 | 77x125x30mm | 2x 3300uF/16V |
| PS710S-12 | 13,7 | 10,6 | 12,2 | 365 | 77x125x30mm | 2x 3300uF/25V |
| PS710S-15 | 18,3 | 14,2 | 16,2 | 273 | 77x125x30mm | 4x 1500uF/25V |
| PS710S-20 | 22,9 | 17,7 | 20,3 | 219 | 77x125x30mm | 4x 1000uF/35V |
| PS710S-25 | 27,6 | 21,2 | 24,4 | 181 | 77x125x30mm | 4x 1000uF/35V |
| PS710S-30 | 33,4 | 26,0 | 29,7 | 150 | 77x125x30mm | 4x 680uF/50V |

* Also suitable to connect one of our [switching regulator devices](#), delivering up to 3 completely independent voltages.

15VA:

| | | | | | | |
|-----------|------|------|------|-----|-------------|---------------|
| PS715S-10 | 11,3 | 8,3 | 9,8 | 664 | 80x130x32mm | 2x 3900uF/16V |
| PS715S-12 | 14,1 | 10,6 | 12,4 | 532 | 80x130x32mm | 2x 3900uF/25V |
| PS715S-15 | 18,8 | 14,2 | 16,5 | 399 | 80x130x32mm | 2x 2700uF/25V |
| PS715S-20 | 23,5 | 17,7 | 20,6 | 319 | 80x130x32mm | 2x 2200uF/35V |
| PS715S-25 | 28,2 | 21,2 | 24,7 | 266 | 80x130x32mm | 2x 2200uF/35V |
| PS715S-30 | 34,5 | 26,0 | 30,3 | 217 | 80x130x32mm | 2x1500uF/50V |

25VA:

| | | | | | | |
|-----------|------|------|------|------|-------------|---------------|
| PS725S-10 | 10,5 | 8,3 | 9,4 | 1186 | 80x130x43mm | 2x 4700uF/16V |
| PS725S-12 | 13,6 | 10,6 | 12,1 | 920 | 80x130x43mm | 2x 4700uF/25V |
| PS725S-15 | 18,2 | 14,2 | 16,2 | 688 | 80x130x43mm | 2x 3300uF/25V |
| PS725S-20 | 22,6 | 17,7 | 20,2 | 553 | 80x130x43mm | 2x 3300uF/35V |
| PS725S-25 | 27,2 | 21,2 | 24,2 | 460 | 80x130x43mm | 2x 2200uF/35V |
| PS725S-30 | 33,3 | 26,0 | 29,6 | 376 | 80x130x43mm | 2x 1800uF/50V |

All our symmetrical Supply variants are equipped with [Panasonic FR-A](#) capacitors with a lifespan of 5000-10000 hours and very low ESR figures, 105°C.

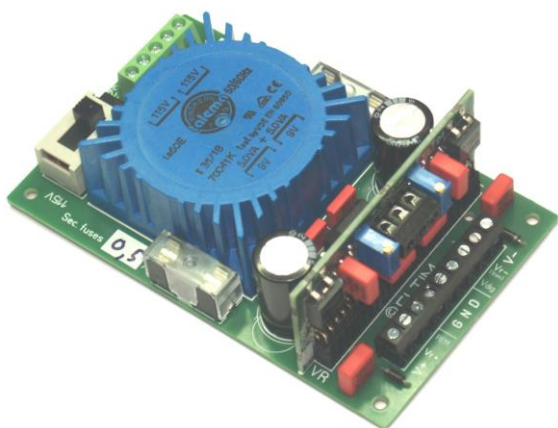
NOTE: China made supplies use cheapest available, 1000 hours, 85°C and very poor ESR figures!

Optional regulated, symmetrical voltage

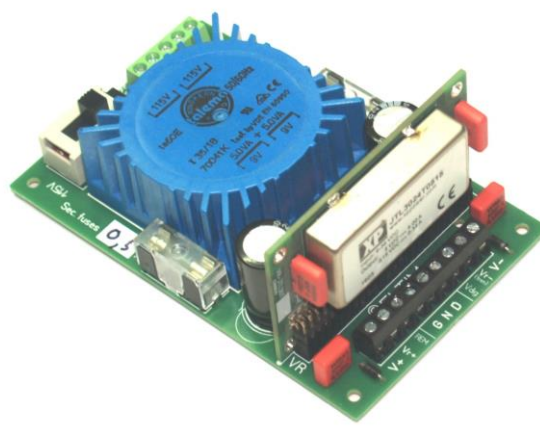
Since our VR-modules (Symmetrical Voltage Regulator) we already use in our amplifier designs only need a footprint of about 8cm² as a stack-on module, we added a connector to make the use of these possible.

So, besides an unregulated, symmetrical voltage you could decide to use (also) one of the four VR-modules we have in our program and so also have a symmetrical regulated voltage available as well. Just keep in mind that the regulators need at least 2V to regulate properly, so the unregulated voltage needs to be at least 2V higher as the required regulated voltage, see the table at former page.

With the 30V versions over 25V regulated is possible. Actually, all four types of our [VR-modules](#) fit on any of the PS7xx Power Supplies shown above. While using a VR-4 though on PS705-PS725, this Voltage Regulator board will “stick out” on both sided and the heat sinks also stick out! It makes no sense to use a VR-4 though, because a VR-3 matches the possibilities of these boards already.



ELTIM PS-710S + VR3
lineair regulator board



ELTIM PS-710S + JTL30
switching, 3 outputs regulator module

The most recent developed PS-705S, PS-707S and PS-710S now also fit our [switched mode regulator modules](#).

Besides the \pm voltages provided by these PS-7xxS modules you can also make 3,6V, 5V, (\pm)12V and (\pm)15V, regulated voltages, **regardless** the V+ and V- voltages (so, even higher!) of the PS-7xx modules. Some make even three voltages. The one in the right picture makes \pm 12V unregulated, \pm 15V regulated and +5V regulated (for f.e. digital circuits).

Remarks

NOTE: All our PS-7xx modules can be set for **115V or 230V** (50-60Hz) primary voltage by a PCB switch. The switch shifted towards the input connector is 230V.

We also developed 35VA and 50VA models, but can't find the required transformers anywhere (yet).

The voltage drop in our PS-7xx-series is lower than in common supplies you'll find all over the internet, since they mostly use very cheap (humming) and too small transformers, capacitors and PCB tracks. If you believe you don't need this high quality level supply, you could consider using our [PS-FLxx series](#) instead. Due to the use of a regular, yet low profile PCB transformer and Panasonic FC caps the prices are some lower.

This PS-7xx series is also available as DIY kit, providing all required parts. DIY makes FUN !

WARNING: for safety and legal reasons, a suitable, separate mounted primary fuse is required while using these PS-7xx series !

There is/are secondary fuse(s) on board of these PS7xx modules, matching the values of the transformer used. This is demanded in most countries, but we hardly see them on other supplies somehow.

Why using more expensive toroidal transformers?

Fact is that, besides way less hum and about no magnetic fields these potted toroidal transformers produce, they show a way lower internal resistance compared to regular PCB transformers of this capacity. Due to this lower resistance there are less losses, less voltage variances with different loads, less magnetic field, better dynamic response, less space, and no audible hum while using these [Talema 700xx series](#) toroidal transformers.

Compared to SMPS power supplies: our PS-7xx is also free of EMI and RF-interference on the power lines and inside the cabinet. They also hardly become warm, unlike about all SMPS supplies, so show a way higher efficiency and lifespan. An SMPS as used more and more is around 65-70% efficient, ours around 95% actually.

Note that in the end the quality of the power supply largely defines the quality of your audio signal, since it is part of the AC-chain, just as about all other parts do. Regarding this AC behaviour, a power supply should have the lowest possible impedance over a wide frequency range. Ours comply to this, most SMPS's don't ! Experiencing screaming and/or "hissing" highs? This mostly is caused by high impedance of the power lines. So, why make all the efforts in quality parts, cables, connectors, etc. and then use a cheap power supply? It's like a top athlete doing a lot of training, but eating junk food only. Makes no sense to us. In order to let all electronics work best, especially the supply line(s) should be as stable as possible. Open your cable/satellite tuner, CD/DVD player, streamer, etc. and be shocked what's inside..... More than once we saw just "naked" versions of cheap in wall supplies having just enough power available. With one of our PS7xx(S) modules the sound quality will mostly increase dramatically.

These modules are, like our Amplifier modules and more nice DIY stuff,
available at our dealers and in our [webshop](#).
You can buy them as [built and tested](#) modules.
We also have them available as [DIY-kit](#).

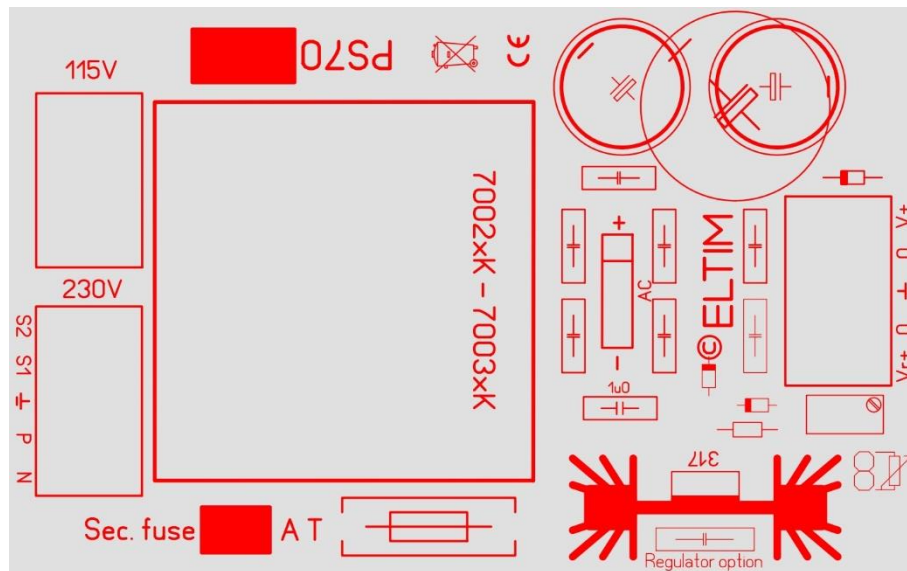
Questions or special requests? [MAIL](#).

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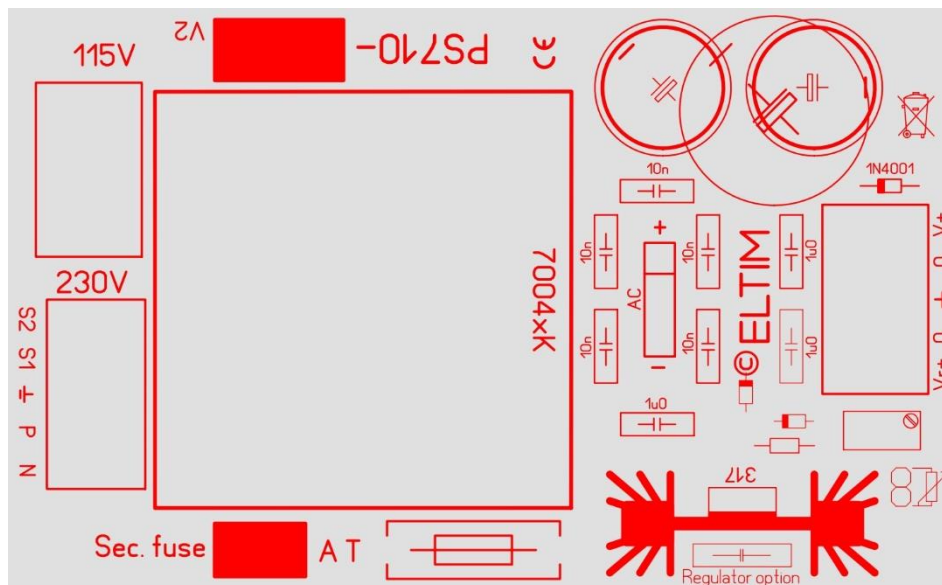
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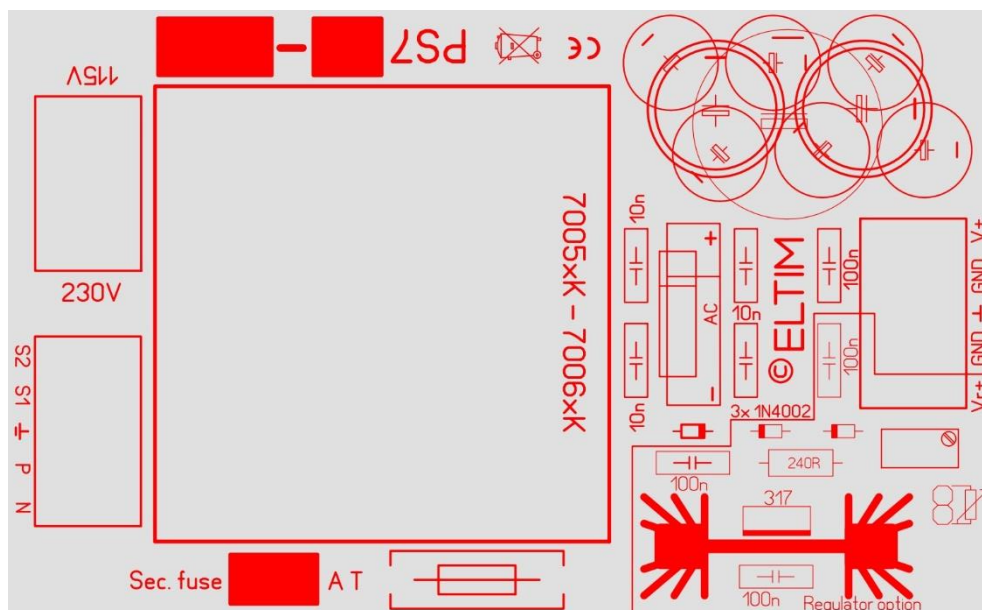
PS7xx, single power supplies layouts:



PS705 PS707

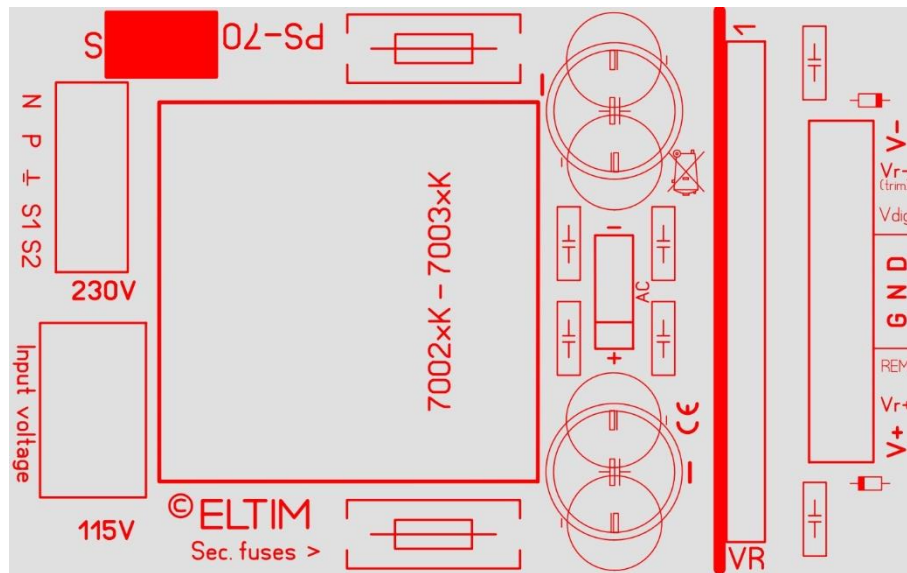


PS710



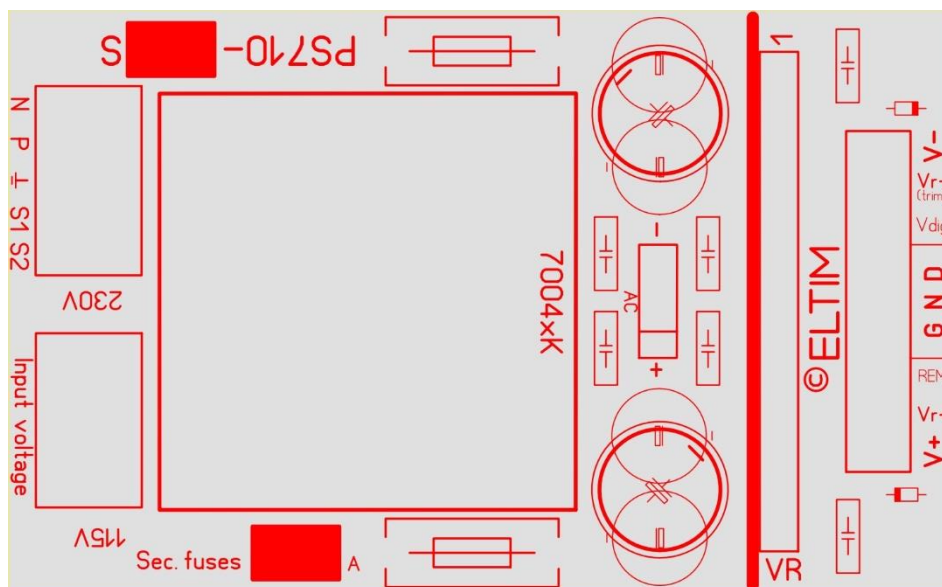
PS-715 PS-725

PS7xx S, symmetrical power supplies layouts:

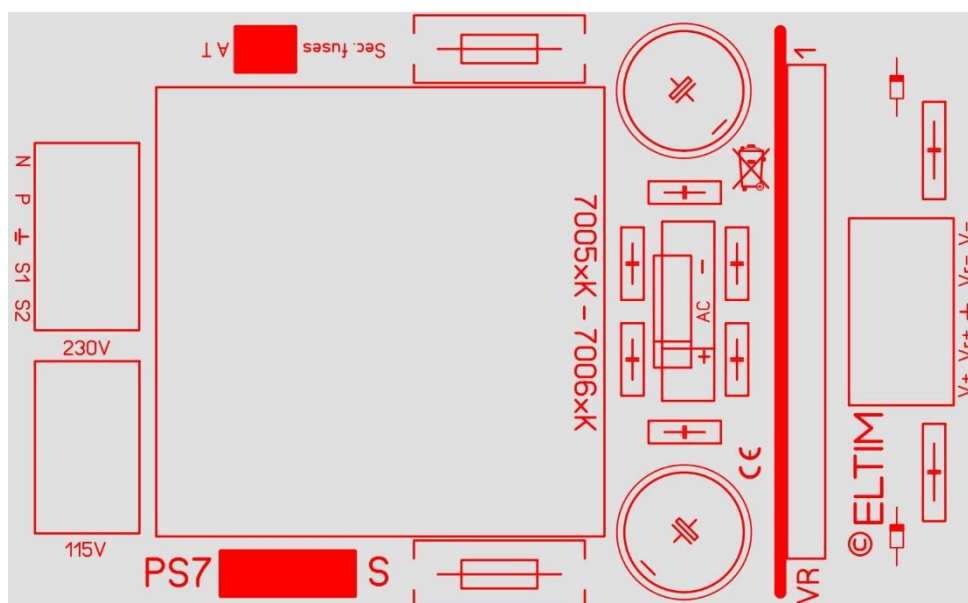


PS-705S*

PS-707S*



PS-710S* (upper (V-) Elco identifier wrong on PCB, correct shown here!)



PS-715S

PS-725S