

CHARDONNAY-SST

A very special RIAA-Phono-Pre-Amp

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This maybe is the most delicate Phono-Pre-Amp you ever noticed.

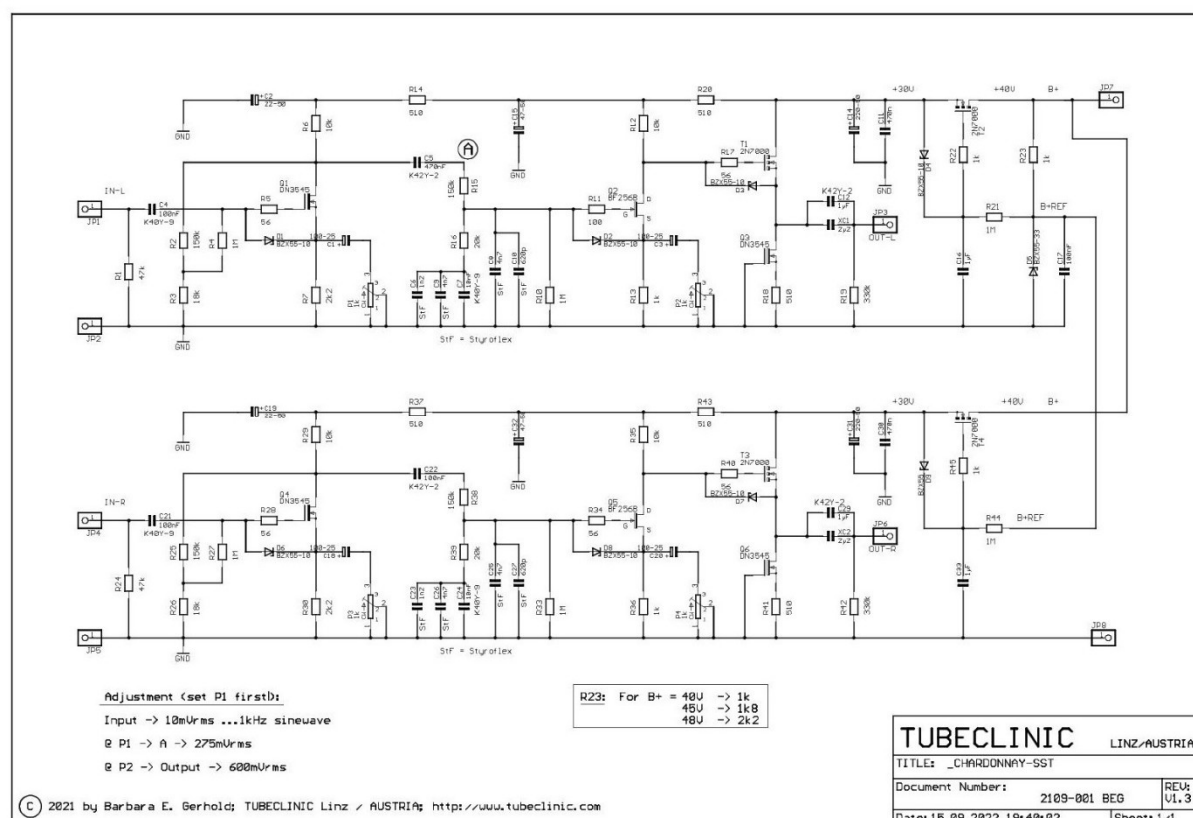
But how can this be – I can't see any triodes?

But – however – had you heard it yet? No? You won't believe it ...

INTRO

I talked to a lot of people, including so-called experts, and no one wanted to believe me at the beginning that this solid-state design could sound better than a tube construction. If someone had told me that 25 years ago, I probably wouldn't have believed it either. Since I now have my new "sweetheart" playing at home, more and more colleagues, friends and acquaintances come for a listening session. Afterwards everyone looked for the (non-existent) tubes, but unfortunately did not find them until today.

THE SCHEMATIC



THE WAY IT WORKS

The input stage

In a Phono-Pre-Amp, the input stage is the most important stage in the whole concept. This is because most of the total amplification is applied there. In this case, it is done by means of a D-NMOS and a special circuit technology (for which I do not yet have a suitable name). The D-NMOS (Q1 - DN3545 or DN2540) is important here because it has a lower gate capacitance than conventional NMOS and is also self-conducting, which is why its U_{gs} (like the JFET or a triode) has a negative value. If you raise its gate a little by means of its own drain voltage, a BIAS effect is created, which has a very positive effect on stability. Maybe you already know this arrangement from the power amp CABERNET. At the same time, the clarity of the playback is also increased, which in the end benefits the imaging and the purity of the total performance.

⇒ Usage with a MC-cartridge

This design of CHARDONNAY is intended for use with MM-, MD- or MI-cartridges. In case you want to run it with an MC-cartridge, you will need to install a "Step-Up-Transformer" (SUT) in front of the input. There are special transformers for most MC-cartridges, but there are also universal transformers on the market, which must then be adapted to your cartridge. I plan to write a separate article about it, so please see there.

Unfortunately, the special transformers developed for a specific system are much more expensive than the universal transformers. This also makes it economically worth to adapt. You can get high-quality universal transformers from PIKATRON, for example.

The RIAA-Filter-stage

The RIAA-filter-section is located right behind it. This is a well-known passive topology, which I have already used in older Phono-Pre-Amps. That's why I know its behavior and trusted it again this time - "never change a winning team ..."

Both halves of the filter are equipped with practically lossless STYROFLEX™ capacitors. With only one exception – C7/10nF – is a RuPIO. It contributes some fire and spice to the sound.

The output gain-stage

Right behind it is the catch-up amplifier of the filter stage. Because an absolutely resistive input impedance and the smallest possible gate-capacitance are required here, I decided to use a JFET (Q2 - BF256B, BF245B or J112) at this point.

Together with the input stage, the arrangement totally produces about 46dB of gain, but can also be adjusted to lower values.

The output driver

Similar to all other developments of this line, there is a special arrangement according to my development "Versatile Line Driver" as an interface to the following line pre-amp. This means that we also have a NMOS source follower (T1 - 2N7000) that "rides" on a D-NMOS CCS (Q3 - DN3545 or DN2540). This is currently the best possible configuration of a unity gain output driver that I know. It delivers (... by the way, like all other CSA variants), phase-rigid current at its output.

Supply section

In the power supply of the stage, an NMOS (T2 - 2N7000) works independently per channel as a gyrator. This helps to filter the supply voltage (gyrator = "choke, built from sand") and further improves channel separation and thus imaging.

THE CHOICE OF COMPONENTS

Caps are MKP-X2 by TENTA and/or WIMA as well as some additional gems of NOS MIL RuPIOs (pls. refer to the schematic). Parts inside the RIAA-filter are vintage, lossless STYROFLEX™ types by ERO or SIEMENS.

El. caps are only NICHICON Muse AUDIO GOLD, type UKZ. Only in the supply I used standard NICHICON, type VY.

Resistors are standard metal film 1%, type SMA-0207 or -0414.

JFETs by Philips, ON or Fairchild; **NMOS** are by IR and **D-NMOS** are by IXYS and/or by Supertex.

Diodes and **Z-diodes** are from several brands. Pls. refer to the schematic.

OUTRO

If you've ever been looking for a perfect Phono-Pre-Amp, but the handling of a tube device was too complicated and too cumbersome for you, you've come to the right place. No matter whether you integrate this device into an existing or yet to be built preamplifier, you will have a lot of fun with it. It is also highly recommended as a stand-alone device.

You won't recognize your LP because you'll discover things – especially details and timbres – that you didn't know before. Now choirs unfold and unravel into individual voices and also wind- or brass-sections into individual, separate instruments. The space between the individual voices and instruments is suddenly present and it is also "deep black" without the well-known blurring in between.

Individual instruments sound like you know it from a purely acoustic experience and sometimes it will startle you because you suspect the singer or an instrument and its player in the room. How can this happen? Well, as far as I know, the image quality can no longer be improved, the basic quality of the topology and the PCB design can no longer be improved and last but not least, the nature and quality of the components used can no longer be increased. In addition, the Phono-Pre-Amp is designed and built without an "overall NFB". The entire device impresses with its continuous phase rigidity and thus creates its unique sense of spatiality.

Please remember that all the individual devices in this CSA series are coordinated with each other and that the ultimate level of quality can only be achieved by using all components. A chain is only as strong as its weakest link.

As you know - all information about the printable, full-size schematic and the PCB is again situated in a binder enclosed to this website.

If you have any further question, you can contact me via eMail.