

Our **Ianus Series** amplifiers is a showcase of our unique TriodeFet technology.

After years of developing and refining our technologies we are proud to introduce the TriodeFet technology, and our Series of amplifiers that implements this truly innovative technology.

The Ianus Series is promising to offer a fourth and final answer to the tri-lemma of: Tube vs Solid State vs Hybrid battle.

Our technology is neither a hybrid topology (in the usual sense of a tube-driving-solid state stage type), nor a solid state-driving-tube kind of stage. Note: Usually a hybrid topology is implemented as either a tube voltage gain stage-driving a transistor output stage/current buffer, or in some cases, as a solid state voltage gain driving a tube power stage.

The TriodeFet is not a Hybrid technology but a rather new way of using hollow and solid state devices.

A bit of history.

We developed an early version of this technology back in 2012, and launched our first design using the TriodeFet - the **Ianus monoblock**.

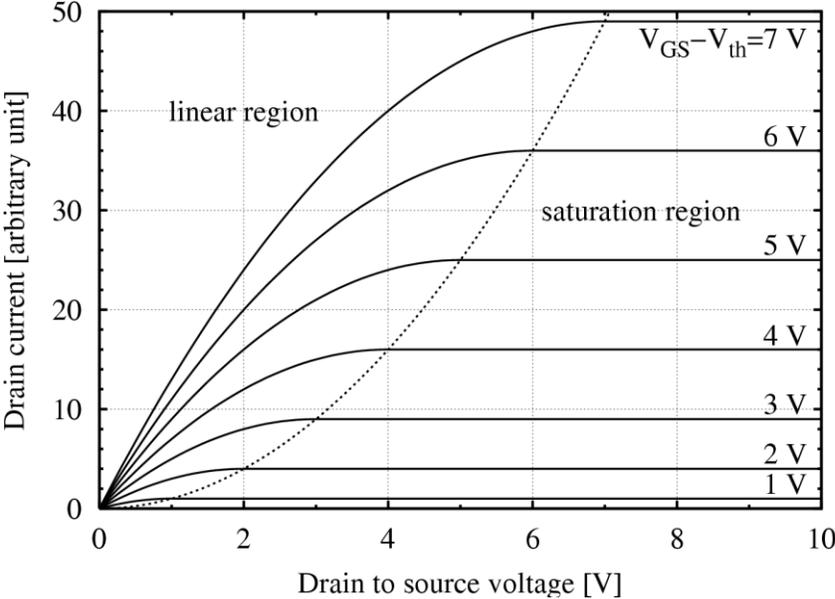
After 7 years of rethinking how we could further refine and retune the system, we developed the second generation of the TriodeFet technology.



Ianus (Mk1) monoblock amplifiers, circa 2013. These amplifiers were based on Generation1 TriodeFet technology

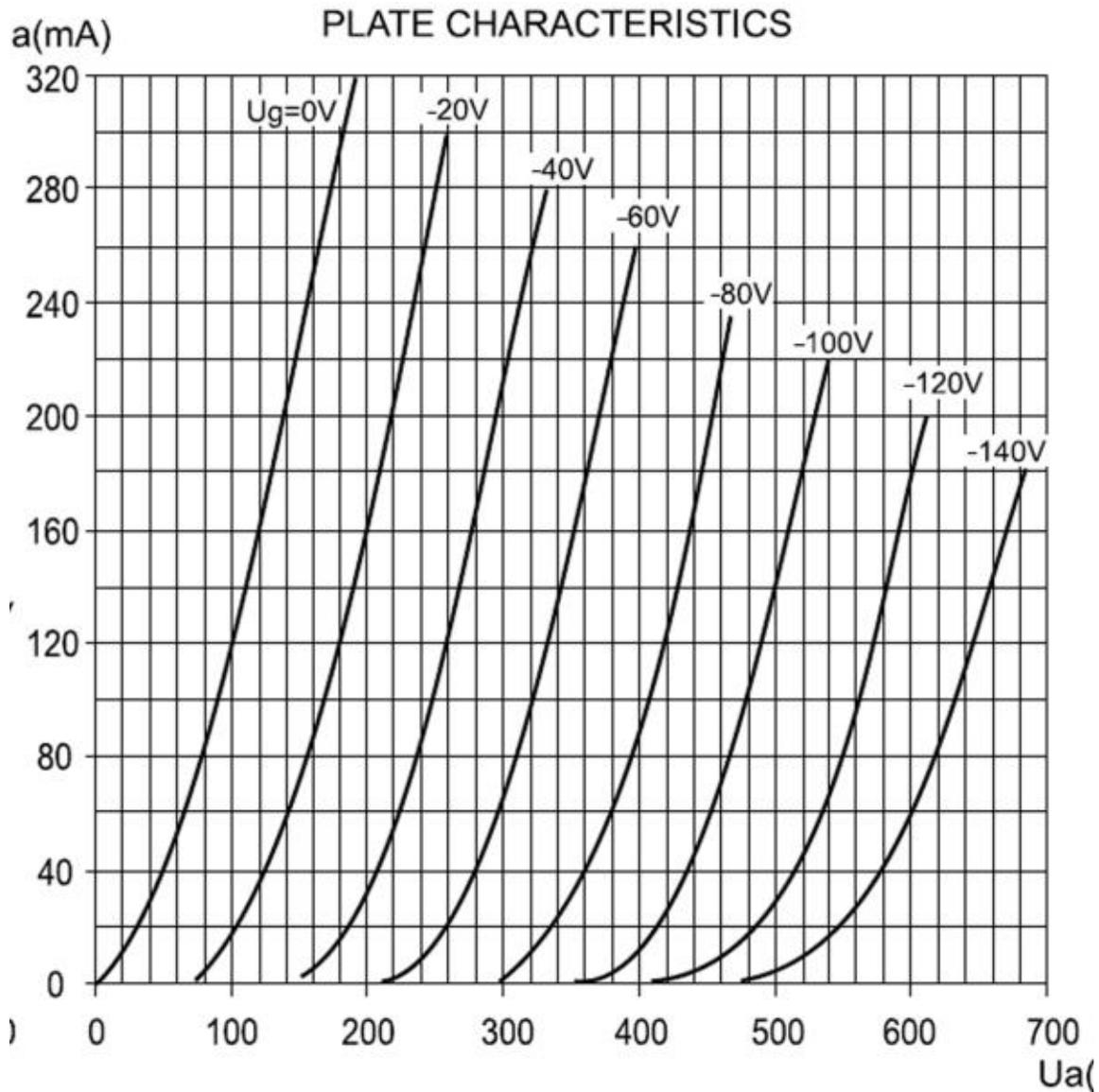
In General

Fets, of Field Effect transistors, used in many audio amplifiers, present the following characteristic transfer curves.



Typical Mosfet transfer curves

Below is the characteristic transfer curves of a typical triode.



Typical triode transfer curves

Triodes are probably the most linear active element engineers have ever invented. Their linearity is unmatched by any silicon based active element. However, the triode is a high-output impedance, high voltage/low current device, making the use of impedance matching transformers mandatory when driving low impedance loads - such as our loudspeakers. In a hybrid design, a tube will usually provide voltage gain, and a transistor stage will act as current buffer to the low impedance load (speaker).

However the problem arises when you try to implement circuits that are designed to be only using tubes together with circuits designed to be only using transistors. For each of the voltage and current stage, regardless of being tube or solid state, the transfer curves of each active element will dictate the distortion characteristics of each stage (voltage and current). Not only in level, but also (especially so) in harmonic distribution.

So...What if we had a low voltage/high current active device, which had the linearity of a triode and at same time would be able to source enough current to drive low impedance loads directly?

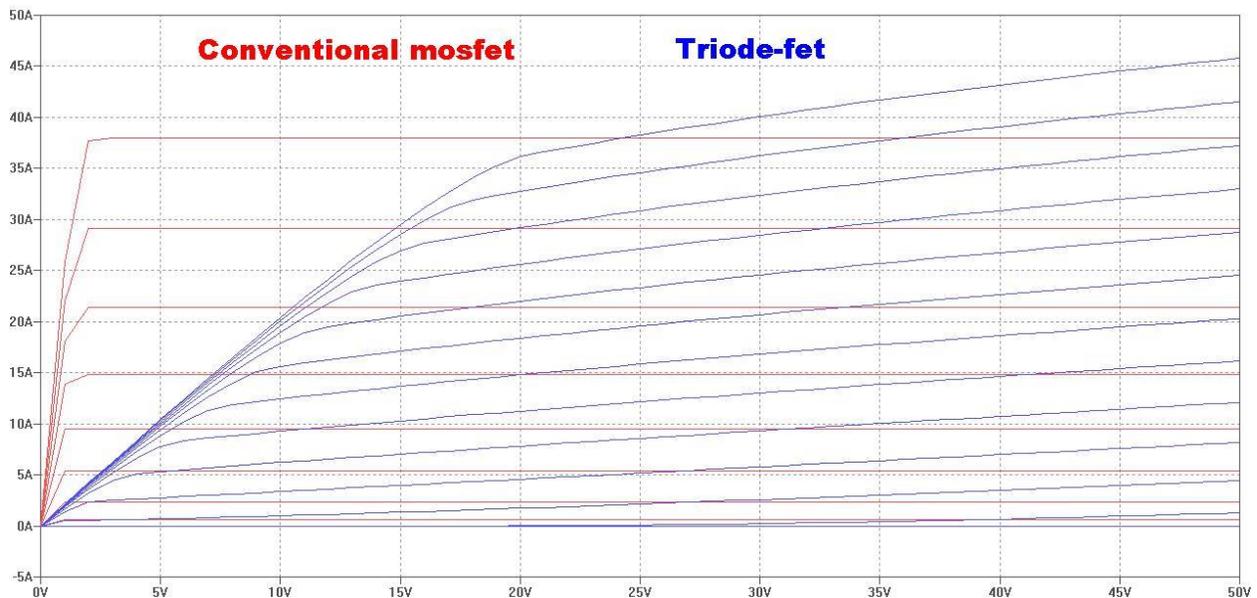
Enter the TriodeFet.

What is a TriodeFet

The TriodeFet, can be seen as a three terminal active element, just like a Mosfet or a triode.

The real breakthrough is that its transfer curves are identical of a true high quality triode, with the only differentiator from a true triode is that, the Y-axis (current) is in scaled in Amperes and not milliamperes.

What this means, is that you can design circuits that were never before possible either by using tubes or transistors. This new active element can be used to develop simple, very linear circuits, which are stable down to very low impedances, while the TriodeFet's inherent linearity is making the use of the problematic negative feedback redundant.



Generation 1 TriodeFet transfer curves



Generation 2 TriodeFet transfer curves

By using the TriodeFet device as output active element, we can make full use of its triode like transfer curves, and transistor-like low voltage/high-current operation, and come up with very simple and straight-forward designs that have very high linearity, benefiting from the inherent linearity of the TriodeFet. This new active element can be used in very high bandwidth circuits, with high degree of linearity, without the use of global or local feedback, or use of other degeneration techniques etc.

The Ianus Series

After we finalized our second Generation of TriodeFet technology, we felt it was time to re-launch the Ianus name, under a Series of designs using the newest developments.

Ianus is the two-faced Roman god. It symbolizes the duality of the nature of the TriodeFet. At the same time, the two-faced god gazes in opposite directions, symbolizing the past and present. We felt that this name symbolism is completely appropriate for this project.

Our first design to come out, is our flagship of the Series, is the Geminae. Its smaller brother, the Essentia will follow, in Q4, 2020.

Geminae:

This is a Class A amplifier, using a floating circlotron using TriodeFets acting as output stage. It delivers 130W @8ohm 260W @4ohm while never leaving true Class A operation, even at very low loads.

To be able to deliver all its power in Class A, it is heavily biased at 12 Ampere idle (idle current is user adjustable), and its OTL TriodeFet output stage is working as a floating circlotron. The floating circlotron is self-centering and does not need any long term adjustment or DC servos to stabilize. The AC decoupling of the stage is accomplished using custom super-spec capacitors. These special capacitors have internal resistance (ESR) less than a piece of copper wire (less than 2mohm), and were designed to be able to surge 30,000A max. They are the most transparent capacitors associated with current delivery.

The Geminae amplifier is a two stage design and its input stage, is a transformer-coupled small SET amplifier, with its separate tube rectified PSUs and low noise negative bias system. The input stage drives the TriodeFet stage by floating secondaries of the coupling transformer, so the floating nature of the output stage is not interfered.

The amplifier is fully adjustable on-the-fly, with a bias monitor system for all parameters of the TriodeFet system and real time adjustments, while the input stage bias system can be monitored and adjusted as well.

The Geminae comes with variable gain inputs, using very high quality Transformer Volume Control (TVC) system, a sonically transparent solution only found in top shelf preamplifiers.

The topology does not need any servo correcting mechanisms, nor any feedback nests/loops or output monitor/relay protection system. The system is protected by real-time non-invasive protection circuits that will sense any overcurrent of the output stage and put the amplifier on stand-by. You cannot damage the amplifier even by shorting its outputs.

The Geminae distortion harmonic distribution profile is indistinguishable from that of a SOTA SET amplifier, and though the level of distortions is much lower, and output impedance is 100 times lower than a typical SET amplifier, the distribution and profile of the harmonics is indistinguishable of that of a simple SE design.

The amplifiers stand 70cm tall, 60cm deep, and weigh 200kg each.

The smaller brother, the Essentia

We are very excited to also announce that the lanus Series will be adding a smaller mono amplifier to be launched in Q4 2020.

This amplifier uses the same TriodeFet technology, but has features that make it unique in the already innovative lanus range.

The new smaller monoblocks will have very different topology, as this is a Single Ended design.

However, not only is it Single Ended, but it is also a Single Stage design! There is no driver and no input stage. Only one TriodeFet stage, fed directly, and used as a simple SE amplifier.

Power delivery is at the 40W mark (8ohm).

Inputs include our proprietary AC link input as well (as option) the TransformerVolumeControl (TVC) variable gain input as found on the bigger brother. The triode-like transfer curves of the TriodeFet means that it sounds like a true SOTA SE tube amplifier, but is able can deliver more current, is maintenance free (the internal tubes used for curve creation are rated at 10,000hours lifespan) and its unique single stage nature means that it is as sonically transparent as it can get.