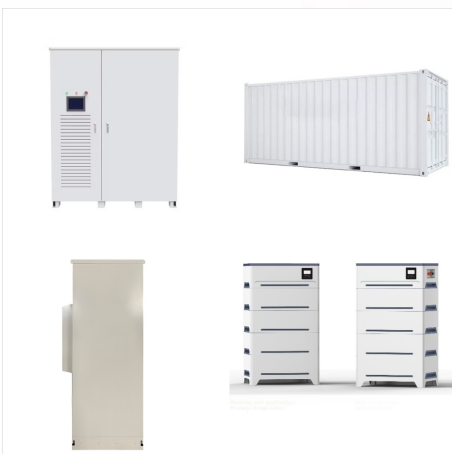




The 5E3 amp kit phenomenon is still going strong so there's lots of new tube amp guitarists that would like a not-too-technical explanation of how the amp works, what each component does, and how changing those components will affect the amp's voice. V2 Preamp & Phase Inverter, V3 and V4 Power Tubes, and V5 Rectifier Tube at far left. The



The long-tail pair phase inverter is generally the best choice for a push-pull guitar amplifier. It provides a balanced and warm power amp gain structure and very workable headroom. Solid State. Models solid-state power amplifiers, which use transistors (such as BJTs, FETs and MOSFETs).

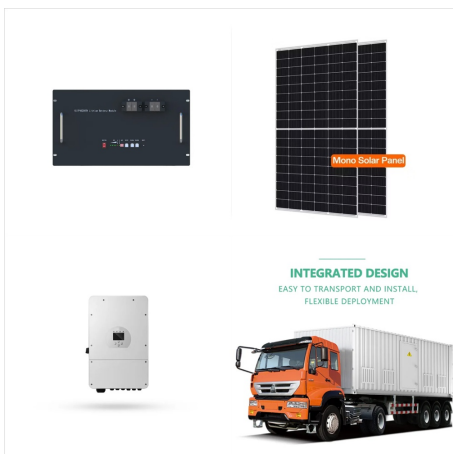


The phase inverter can use various circuits, and the gain of this position in the circuit can vary from less than 1 (split-load/cathodyne inverter by itself) to $\sim 1/4$ of μ (long-tail pair, as used in most amps) to $\sim 1/2 \mu$???

SOLID STATE PHASE INVERTER TUBE AMP



Phase inverters are typically but not always the second stage in a power amp. Phase inverters have two outputs, either from two plates if using two triodes or from the plate and from the cathode if using one triode. along with filters) comes in. The rectifier may be tube or solid state, and there are lots of variations. Some terms to look



They also protect the amp from a rectifier tube short. When solid state is selected with the Rectifier Switch both sets of diodes work together to directly supply the rectified B+ . The second pair shares the load and add redundancy by protecting from a failed, shorted diode. Phase inverter double frequency blocking distortion is the reason



The joyful distortion you hear in a shredding guitar solo is created either through a tube preamplifier or a complex solid-state setup engineered to emulate soft clipping. Phase Inverters. While some small tube amps use a simple single-ended circuit, most tube guitar amps on the market today use a double-ended "push-pull" or "Class AB

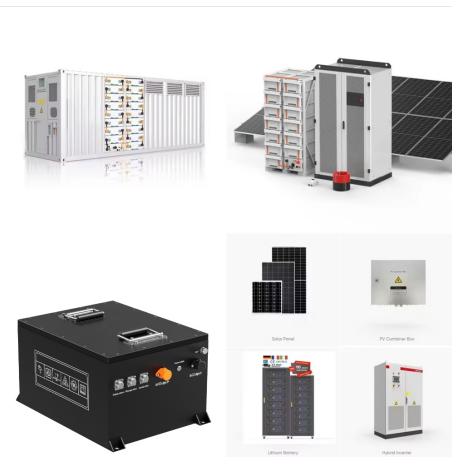
SOLID STATE PHASE INVERTER TUBE AMP



So I had to test it out myself. I have a 5W single ended tube amp that has a solid state rectifier. The heater winding does not have a center tap but the schematic uses two 100 ohm resistors to artificially create one. to the cathode of the two EL84's and then a 4k7 resistor in series to the phase inverter's cathode. It made a sweeping



The power supply uses solid-state diodes, which some view as a compromise to a tube amp design. There are also several power supplies on one board; 460 VDC B+ for power tubes, 220 VDC screen supply, a -25 VDC grid bias supply, 12 VDC for the audio switching relay, +6 VDC for the driver/phase inverter filaments.



I built an Op-amp phase inverter in a little box. Works great! Did what I wanted. BUT, I'm not up on my circuit knowledge and only designed this with the bare minimum of parts. WHen I was trying to improve a solid state effects loop I had it came with a TL072. FAQ and General Tube Amp Electronics Troubleshooting; ??? FAQs; Shop Talk

SOLID STATE PHASE INVERTER TUBE AMP



As the cold clipper distortion comes on it blends seamlessly into the downstream phase inverter and power tube distortion into a cacophony of delicious high gain tone. You might compare the two magnetic circuits to solid state amps versus tube amps, where the solid state amp gives it all its got then clips hard, while a tube amp compresses



The solid-state diodes used in older Fender amps are rather primitive compared to modern devices--if you wish slightly better performance, suggest speaking to a service technician about replacing the diodes with modern fast -recovery epitaxial (FRED) diodes. Sixth tube is the phase inverter and vibrato tube. 7025 specified. Suggest a 12AX7



The power section of solid state amps designed to be stay as clean as possible, but it doesn't mean that they cannot be cranked. In solid state amps the power amp stage starts to distort when the volume is turned up to 8 while a tube amp ???

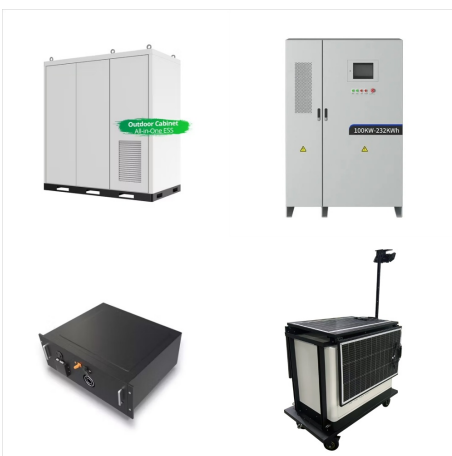
SOLID STATE PHASE INVERTER TUBE AMP



Most of the classic amps use feedback around the output stage, from speaker to the phase inverter (or the stage ahead of the inverter in a split-load circuit). The feedback acts to linearize the output stage and reduce ???



Yes, I am looking for a phase inverter that can drive a quad of 6l34s or 6l6s into full breakup. I want an inverter that is better balanced than the typical long tail pair phase inverter (which tends to be unbalanced if you crank the amp). Still, this is only a 100w guitar amp, so even a 12bh7 driver is perhaps too much. a 12au7 might suffice



A post phase inverter Volume control allows the phase inverter to be overdriven while still having control of the final output volume. In this way overdrive can be generated even at extremely low volumes, or you can turn the Volume up and overdrive both the 12ax7 phase inverter and the 12au7 power tube.

SOLID STATE PHASE INVERTER TUBE AMP



When using tube rectification they share the load with the tube rectifier and protect the amp from a rectifier tube short. When solid state is selected with the Rectifier Switch both sets of diodes work together to directly supply the rectified B+ . If installing it in a Marshall amp with a pre-phase inverter master volume I would move the



The Iconic still has the same amount of tube gain stages as the 5150 III amps, the difference is that it uses FETs for the input stage and the phase inverter, which provide a cleaner signal in ???



In addition, the usual 12AX7 or 12AT7 phase inverter plate impedance is so high that it can't pull the output tube grid positive in the face of grid current, so the grid of the output tube is hard-clipped at $V_{gk}=0V$. This clipping can be as harsh as any solid state situation.

SOLID STATE PHASE INVERTER TUBE AMP



Often found in more vintage style lower power valve amps. Solid state rectifiers are much more efficient and way faster responding so are the ticket when a faster response is wanted. There are other stages in amps which can cause their own types of compression anyway: preamp, phase inverter, power amp biasing system (notably cathode biasing



The amp can drive 40W into a 4 Ω (C) or 8 Ω (C) load. In order to apply feedback, it is necessary to invert the feedback signal. This is accomplished with an active feedback stage using a single wideband op-amp configured as an inverter. The op-amp also scales the feedback to the desired level: in the circuit shown, a reduction of 20:1. The op-amp is



This is accomplished with an active feedback stage using a single wideband op-amp configured as an inverter. The op-amp also scales the feedback to the desired level: in the circuit shown, a reduction of 20:1. The op-amp is easily powered from the same source that is used to power the vacuum tube heaters.

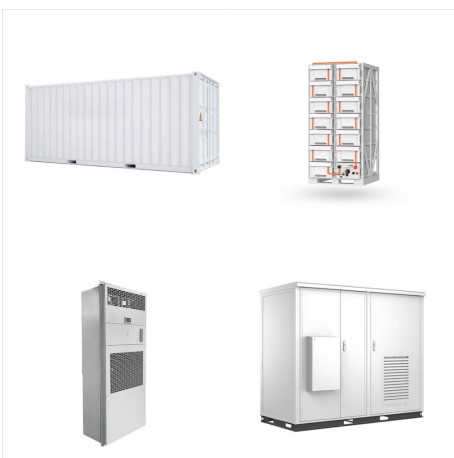
SOLID STATE PHASE INVERTER TUBE AMP



These are symptoms that a vacuum tube is failing. Often power loss that seems like the amp is performing at half power or less will be one or more bad power tubes, or even a dying phase inverter tube. In a high gain guitar amp the clean channel may be distorted and overdrive channels will be extremely distorted and unusable.



Several guys have alluded to that "event" and have said that it was this that caused Musicman to retrofit any 12ax7 PI amps that came in on warantee calls and hastily convert their line production amps to ss phase inversion.so quickly, that many early solid state PI amps still have the sealed-off hole where the 9-pin tube socket would have gone.



It's also worth putting some thought into the phase-inverter tube. The phase inverter is the last stage in the amp before the output tubes, and in all amps other than single-ended types with just one output tube (Fender Champ and Vox AC4, for example), this stage splits the signal into two reverse-phase strands to send on to those big bottles

SOLID STATE PHASE INVERTER TUBE AMP

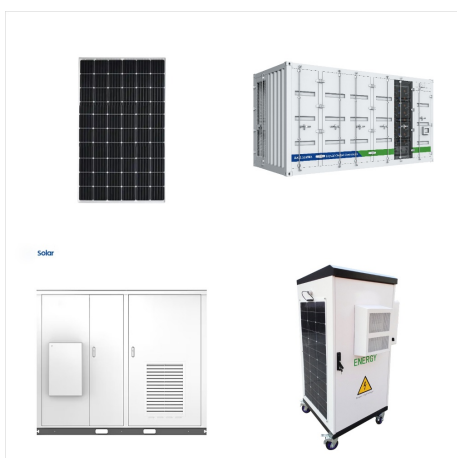


All class-AB amps have phase inverters whose purpose is to duplicate and invert the original signal into two separate signal chains that are fed into each of the two (or four) power tubes. In the Princeton, there's a budget-level phase inverter based on only one-half of a 12AX7 tube, compared to a full-current-strong 12AT7 in other AB763 amps.



All the MM have solid state preamps. All of the 65 and 130 amps use a 12AX7 as a phase inverter to drive the power amp tubes. I could find no schematics that did not include that tube circuit.

_____ Michael Brebes Instrument/amp/ pickup repair MSA D10 Classic/Rickenbacher B6/ Dickerson MOTS/Dobro D32 Hawaiian/ Goldtone Paul Beard Reso



With the 100% local feedback that a split load phase inverter offers, it seems like a mosfet might be a reasonable choice to use here. Even though FETs in general are closer solid state analogs to tubes than bipolars are, it may be viewed by some as akin to using a solid state preamp on a tube amp.
dcgillespie Fisher SA-100 Clone