

HEADCODE TRIAD



REFERENCE STANDARD
THREE CHANNEL

STEREO HEADPHONE
AMPLIFIER

Designed By Philip P
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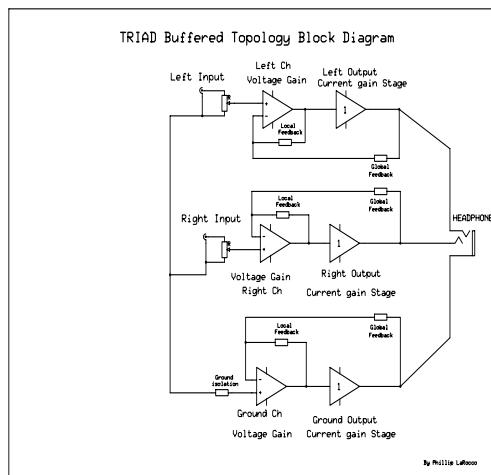
1. TRIAD platform Advantage over conventional Dual Mono and stereo has consistently proved a superior method of powering Headphones, By Driving the Headphones differentially We are eliminating the back EMF of the Drivers from contaminating the quiet signal ground, since the TRIAD draws current equally from both supply rails as opposed to one half of the supply being unloaded with the other half carrying the full load as conventional Grounded Headphones.

2. The Symmetry of the TRIAD Method provides a natural balance for powering Dynamic Drivers and presents symmetrical slewing rates with equal ascending and descending speed.

3. TRIAD Technology offers all the important advantages of fully balanced systems while retaining the conventional three-wire Headphone plug configuration.

WHAT ELSE SHOULD I KNOW?

This Amplifier will find use whenever the absolute state of the art in Headphone Amplification for Dynamic headphones is required The Headcode Triad will serve as the finest in Dynamic Headphone Amplification for stationary installations in the company of the finest in auxiliary components. The transition from loudspeakers to headphones is not just painless but Exciting and involving.



WHY DO I NEED A HEADPHONE AMPLIFIER IN MY HIGH END AUDIO SYSTEM

The vast majority of High End Audiophile Music systems do not have any provisions for connecting Headphones, thus, the pleasure one obtains from their primary music system by allowing use during late hours and other times one does not want to disturb those around them.

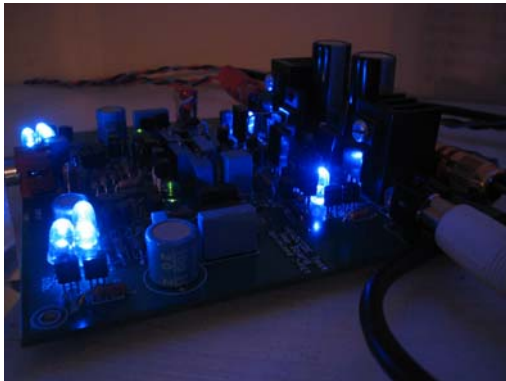
The Listening experience with Headphones while presenting a different sound space than Loudspeakers has the advantage of close Driver to ear placement and eliminating Listening room coloration with out unsightly acoustical treatment, while at the same time providing unmatched delineation of Detail with retrieval of subtle Nuances completely missed by any loudspeaker system.

WHY SHOULD I CHOOSE THIS HEADCODE TRIAD

“DEFINING
THE ART IN
AMPLIFICATION”

REDEFINING THE ART IN HEADPHONE AMPLIFICATION

Someone once stated that “You must come full circle to know the Truth”. This is what I have found to also be applicable to Audio and in this instance Audio Amplification. During my long and arduous quest for the perfect Amplifier I completely investigated every conceivable circuit design ever used in Amplification history. The Journey was filled with wondrous achievements and downright flops. These contrasts merely demonstrated that some ideas are just what the doctor ordered and produced results greater than expected while others were best left alone.



ACCUTRACK OUTPUT STAGE BIASING

For optimum Bias and elimination of crossover distortion under Dynamically Changing Output Conditions

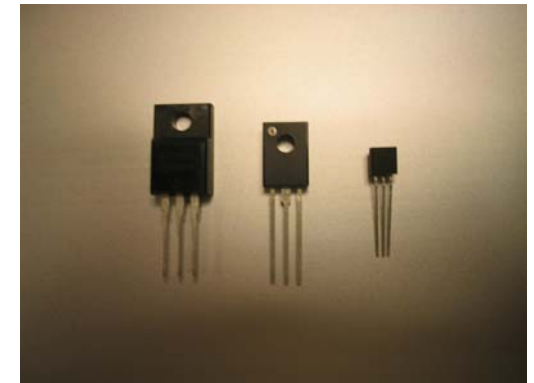
The **ACCUTRACK** Dynamic Bias system uses two separate bias circuits. One bias is fixed and thus provides a reference for the second Bias circuit. The second bias circuit monitors the actual output voltage and current levels and adjusts the standing bias current in the output stage as required by the dynamically changing output conditions.

This is accomplished by operating The Output stage upper casscode to the Amplifier Output as opposed to Ground This allows the output stage to maintain an ideal amount of Bias current for the Output stage that is changing in response to the amplifiers output conditions at any given instant and change the bias to the optimum amount on the Fly without delay.

Newly added to this topology is complementary symmetrical active current sourcing of the output devices so as to keep both transistors on only while the output transitions the dead zone.

TRIPPLE DARLINGTON OUTPUT STAGE

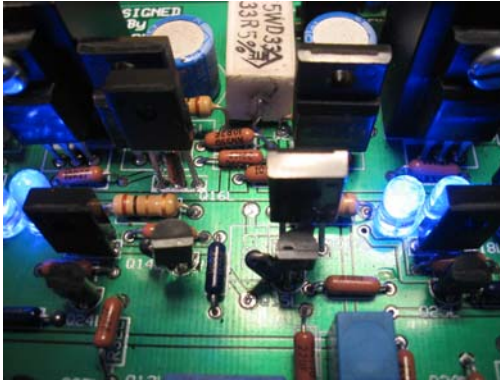
Triple Darlington output stages provide purely resistive loading of the fully complementary voltage amplifier stages used in the HEADCODE under any and all operating conditions, the major benefit is increased input impedance of the output stage, reducing current requirements for the previous stage, and reduced output impedance which reduces load-dependence of the Amplifier by increasing the control the Amplifier has over the Transducers. This quite dramatically improves the linearity of the Amplifier...



With this triple Darlington arrangement a lower current is required to operate the Voltage Amplification Stage thus allowing use of lower power transistors with a lot lower internal capacitance thus allowing a substantial increase in Open Loop Bandwidth of the Amplifier and substantially improving the speed and distortion performance.

IMPROVING UPON PERFECTION

*THE HEADCODE EMPLOYS A
COMPLETELY SYMMETRICAL
COMPLEMENTARY ARCHITECTURE
FROM INPUT TO OUTPUT AND
THUS TAKES ADVANTAGE OF THE
NATURAL TENDENCY OF
COMPLEMENTARY CIRCUITS TO
CANCEL OUT DISTORTION.
CASCODING IS UTILISED ON EACH
AND EVERY CIRCUIT WITHIN THE
HEADCODE, IN CONCERT WITH
CASCODING EVERYTHING WE
OBTAIN AS CLOSE TO PERFECTION
AS POSSIBLE...*



NATURAL BALANCE

The complementary symmetrical design from input to output by virtue of the inverse PNP/NPN transistor relationship naturally eliminates large amounts of even order harmonics by self-cancellation allowing the limited use of overall feedback to remove simple distortions. Each stage is completely stable on its own so that transient distortions characteristic of feedback amplifiers don't occur with The Headcode design.

J-FET AND BIPOLAR

Both J-FET and Bipolar Transistors are employed in the HEADCODE Circuit by a creative method that exploits the virtues of each Technology to its fullest.

J-FETS are Voltage controlled high Impedance devices and as such are perfect for Input devices because of J-FETS lower Input Bias currents. J-FET transistors are also a fantastic current source and the HEADCODE utilize J-FETS for all constant current sources throughout the Amplifier.

Bipolar Transistors are Current operated devices and thus are a natural for use in the Output stage where current Amplification is required. The HEADCODE exploits this by using bipolar transistors exclusively in the Output stage. Bipolar Transistors also excel at low Noise and High gain and this quality is the reason that bipolar transistors are also used in the Critical Voltage Amplification stage.

CASCODE CIRCUIT DESIGN

Cascode gain Blocks are used from the first Input stage of the Amplifier all the way including the output Stage. The Resulting amplifier possesses such Linearity at all signal levels that a new level of sonic purity is obtained. In Cascode operation, one Transistor is used as the Active Gain device and another is used as a shield and maintains a consistent operating environment for the Active Transistor.

Cascode provides an ideal gain stage that is devoid of The Inconsistencies that plague other topologies, so we start with a naturally clean gain stage. We use proprietary enhancements to the Cascode to further improve upon its natural Linearity. The resulting "Enhanced" Cascode is as close to the proverbial Straight wire with gain as technically possible, it removes the requirement of large amounts of overall negative feedback to obtain superb Performance specifications. The sound Quality and Musicality of this Amplifier are also enhanced from this technology.

This project has been a long time in Development and has had many a success as well as failures however the resultant fruit is so sweet that the investment is well worth the time and expense involved, to obtain the absolute finest in Musical enjoyment available from any Amplifier be it Valve or Solid State.

Headcode is based upon our Ultra linear amplification Method, The Bar is now raised for reference Quality Headphone Amplification.

Although true complementary design from input to output and classcode operation have been used on their own and produced amplifiers of great respect, it took our creative vision plus esoteric concepts and component parts To synergistically merge both into one splendid amplifier.

Each stage is completely stable on its own so that transient distortions characteristic of feedback amplifiers don't occur with The Headcode design.

SPEED WITH CONTROL

The high slew rate that's equal for both ascending and descending waveforms is naturally inherent to our topology so no artificial slew enhancement is needed. Slew enhanced designs look good on paper but sound strained and grainy on mid and high frequency transients. The ultra wide bandwidth of the HEADCODE provides a transparent window into the Music by being devoid of virtually all Phase abnormalities from DC to beyond human hearing.

PURLY NATURAL DESIGN

The **HEADCODE** Topology has a monotonic distortion curve. Monotonic in nature is the rule and circuits that are no monotonic are not natural sounding. The Headcode defines the basic true essence of natural analog audio reproduction; because its science is derived from old school design practices some dating before the advent of electricity

ANOTHER SOLID FOUNDATION ON WHICH TO BUILD

This new milestone in the Headcode's evolution will provide a high performance platform for incorporating any future improvements be they from better

component parts or a deeper insight into the topology just like the previous version provided for this upgrade. Thus we have a continuing tradition of excellence from the Headcode so as it will continue to "DEFINE THE ART" in Headphone Amplifiers.

COMING SOON BATTERIES INCLUDED

This same magnificent Amplifier is contained within two separate extruded Aluminum cases that have External Dimensions of 6.5"X12.9"X2" One houses the Power supply's and the Other contains the Amplifier's, the two are interconnected with a DB9 computer Monitor cable. This cable supplies DC power from the power supplies to the Amplifier. The Power supply is equipped with an IEC mains socket to accept any IEC type power cable.

It may be hard to believe that anyone would consider traveling with anything as large and heavy as this Device however there is at least one person so captivated by the Sonics an Amplifier of this caliber delivers that it must be Listened to out in the wonders of the World in that magic place that would be perfect if Bach would come out and play so real soon We are going to add Batteries to the Amplifier Case and a charger Circuit to the Power supply...