

# HEADCODE BASIC



## AUDIOPHILE STANDARD TWO CHANNEL

## STEREO HEADPHONE AMPLIFIER

Designed By Philip P

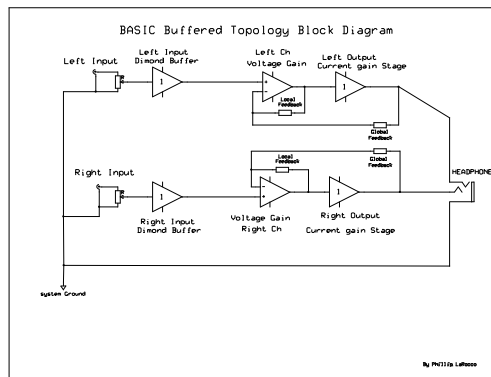
LaRocco

1. BASIC Is the same marvelous Full Complementary All cascode Circuit of the REFERENCE STANDARD TRIAD HEADCODE, However reduced to its most Basic Platform In The standard Stereo Configuration...

2. Technically the Primary difference Between the One Box BASIC and the two Box TRIAD is (2) Channels rather than (3) and (1) Power Supply rather than (3)

## 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 BASIC 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

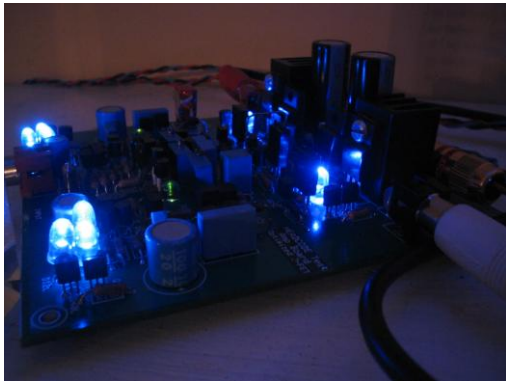
Most of us who are in the look for audiophile equipment usually share true passion for music and music reproduction. Nowadays many of us spend a big portion of our lives in front of desktops and computers, this time can often be accompanied by the sweet tones of our favorite music, but no

matter how good our audiophile system might be, we can not use it near our desktops for obvious reasons Further more, while most of our days are spend away from our home reference audio system, the time that we do get to have at home is usually shared by other members of our families that often prefer music free surroundings. For these cases of wanting to enjoy music with fidelity and being deprived of that pleasure, an audiophile grade headphone set comes to the rescue. The Listening experience with Headphones offers a totally different sound space and image than Loudspeakers, there are even some that claim headphones to have the advantage of close Driver to ear placement, and the elimination of listening room coloration. This provides delineation of detailed sound with retrieval of subtle nuances that are hard to achieve by most loudspeaker system. In the end, a headphone set does not come to replace your favorite speaker system but rather to complete it by expending the moments in which you can enjoy music.

## REDEFINING THE ART IN HEADPHONE AMPLIFICATION

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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

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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.

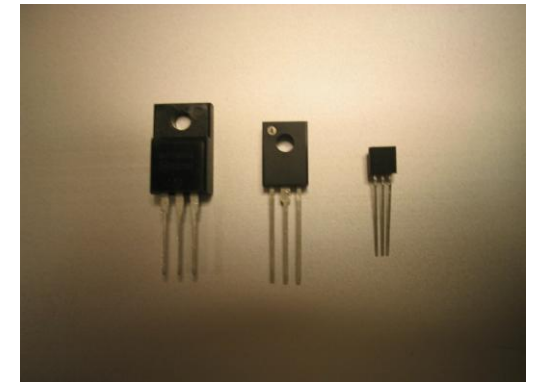
This is accomplished by operating The Output stage upper casscode to the Amplifier Output as opposed to Ground This allows the output stage to maintain an ideal amount of Bias current for the Output stage that is changing in response to the amplifiers output conditions at any given instant and change 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

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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...

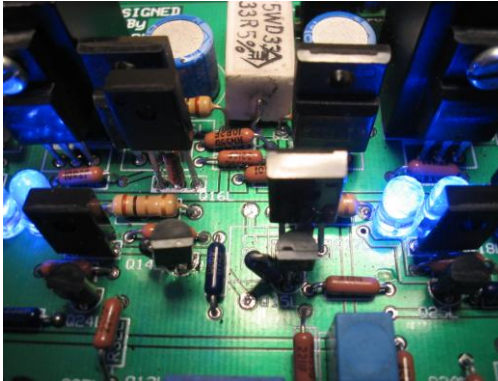


With this triple Darlington arrangement a lower current is required to operate the Voltage Amplification Stage thus allowing use of lower power transistors with a lot lower internal capacitance thus allowing a substantial increase in Open Loop Bandwidth of the Amplifier and substantially improving the 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  
CIRCUIT WITHIN THE HEADCODE,  
IN CONCERT WITH CASCODING  
EVERYTHING WE OBTAIN AS CLOSE  
TO PERFECTION AS POSSIBLE...*

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## 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 do not 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.

Cascoding 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

### HIGH PERFORMANCE SIMPLY

This new milestone in the Headcode's evolution Provides High Performance In ONE BOX with simple Installation. Simply Connect the IEC AC mains CORD your Headphones, Source Interconnects, and Play...

### AN IDEAL DESKTOP AMP

One box with External Dimensions of 6.5"X12.9"X2" houses all the Circuitry of the HEADCODE BASIC. No external Boxes are required.

Flexibility for this application Includes such Unique Features Like the 120 ohm 1/8" Mini Jack Output to accommodate High Performance Audiophile IEM type Ear monitors.

For the first time Ever in my designs This Amp Has PAR-A-BASS Control. This allows a smooth continuous adjustment of the Bass turnover points from 300Hz -1,000 Hz Whose action is completely independent of the Bass Boost Control. The Bass Boost along with The PAR-A-BASS control can accommodate almost any Lifestyle and Headphones. If you liked my previous Bass boost you will love the PAR-A-BASS ability to fine tune the bass to just YOUR Liking..

The Medical grade Filtered Power entry Module located on the Rear of the Amp contain all the required AC Mains functions all in one Place Voltage switching, Fusing and Power on/off...

Just what you need in Inputs simply the Best Cardas RCA Type INPUTS with the same CARDAS RCA Loop through output...