



Ampzilla

The Ampzilla All-Complementary circuit is truly push-pull from input to output. It utilizes full complementary dual-differential inputs, full complementary driver transistors, and full complementary series-connected output transistors. Since most amplifiers employ only a single differential input circuit and a single driver transistor, they are essentially single-ended designs. Virtually all power amplifiers can accurately reproduce sine waves fed into their inputs. However, it is not necessarily true that all amplifiers will accurately reproduce music and voice signals which are generally asymmetrical and thus rarely have positive and negative peaks that are equal in amplitude. A solution to amplifying these asymmetrical music and voice signals accurately is to use separate amplifiers for the positive and the negative half cycles. If the amplifiers are identical, it is then possible to obtain a virtually "perfect" symmetrical amplifier. Due to its unique symmetrical complementary mirror-image design, Ampzilla is an almost perfect amplifier.

The positive and negative half-cycle amplifiers in Ampzilla also share a common feedback loop, an advantage for any source that must drive the amplifier. And in addition its exclusive Servo Control Circuit for rock steady DC stability.

Ampzilla also employs a unique integrated-circuit biasing system that contains five operational amplifiers. The op amps in this IC track the quiescent output current in such a way as to maintain continuously minimum crossover notch as well as to make thermal runaway impossible.

Zwei Kanal Leistungsverstärker

Der Klang des Ampzilla läßt sich nicht mit seinem Datenblatt erklären. Es wurde bei seiner Schaltungstechnik von einer gezielten, höheren Subjektivität ausgegangen und erst dann die ausgereiftesten Überlegungen moderner Technik zur Anwendung gebracht. Alle Faktoren, die tatsächlich die „Gehörlichkeit“ eines HiFi-Verstärkers bestimmen, finden im Ampzilla ihre Niederschlag.

Ampzilla arbeitet komplett als Gegentaktstufe, auch am Eingang. Dabei werden vollkommen komplementäre, zweifach-differenziale Eingänge, vollkommen komplementäre Treibertransistoren sowie vollkommen komplementär seriengeschaltete Ausgangstransistoren eingesetzt. Da herkömmliche Verstärkerschaltungen fast ausnahmslos nur Einfach-Differenzialeingänge und einen einzigen Treibertransistor aufweisen, arbeiten sie keineswegs symmetrisch. Obwohl viele Verstärker reine Sinustöne sauber und verzerrungsfrei verarbeiten, bedeutet das noch lange nicht, daß sie die meist asymmetrischen Amplitudenungleichen positiven und negativen Halbwellen eines Musikprogrammes mit absoluter Genauigkeit zu reproduzieren vermögen. Durch die Anwendung getrennter Verstärkerkreise für die positive und die negative Halbwellen ist jedoch die genaue Verstärkung asymmetrischen Programmmaterials sehr wohl möglich. Sind dann diese getrennten Verstärkerkreise identisch, ist die beinahe vollkommen symmetrische Verstärkerschaltung perfekt. Das ist Ampzilla, die fast vollkommen symmetrische, fast vollkommene Hochleistungs-Stereoendstufe.

The output stage of Ampzilla operates partially in a class-A mode, while the driver and slave output stages are operated class A for the full cycle. Only the driven output transistors are operated class B. However, these transistors do not switch from positive to negative. Rather, they traverse back through the class-A region at the zerocrossing point. This eliminates the crossover notch customarily found in most other power amplifiers.

The complementary differential input pairs are supplied with current by a floating regulator circuit which provides a delay that eliminates any possibility of sound thumps at turn-on or turn-off.

The output stages of the amplifier are full-complementary series operated, employing epitaxial-base power transistors that feature high-frequency response five times that of conventional output transistors.

The power transformer has a special bifilar winding of heavy-gauge copper with a square cross section. The bifilar winding technique locates the center tap exactly to eliminate ground loops thus minimizing any evidence of power supply hum.

The main filter capacitors have unusually high capacity values of 16800 μ F so that only the minimum amount of feedback need be used to optimize the stability factor and also provide no loss of power output at 20Hz. Other circuit details have been included which provide stable operation even when driving electrostatic speakers which are equivalent to a 20 μ F load.

Augmenting Ampzilla's familiar look is the addition of two headphone jacks on the front panel. One jack accommodates conventional electro-dynamic headphones; the second jack has higher-voltage output for use with electrostatic headphones.

Internally, Ampzilla's power transformer is supported by heavy-duty steel bracing to withstand the most severe handling and shipping conditions.

Die für die positive und negative Halbwelle getrennt vorgesehenen Verstärker des Ampzilla werden über den gleichen Gegenkoppelungskreis mit dem Eingang verbunden, was bei allen Programmen große technische Vorteile mit sich bringt.

Ein mit fünf Operationsverstärkern bestückter IC zur Regelung des Ruhestromes stellt eine weitere Neuerung des Ampzilla dar. Minimale Übernahmeverzerrungen sowie Schutz vor thermischer Überlastung der Endstufe werden durch die ständige Überwachung des Ruhestromes durch die IC-Operationsverstärker immer gewährleistet.

Die Stromversorgung des komplementär-differentialen Eingangspaares übernimmt ein unabhängiger Regelschaltkreis, der zusätzlich eine Zeitverzögerung zur Unterdrückung eines eventuellen Einschaltknacks bzw. von Geräuschen beim Ausschalten vorsieht.

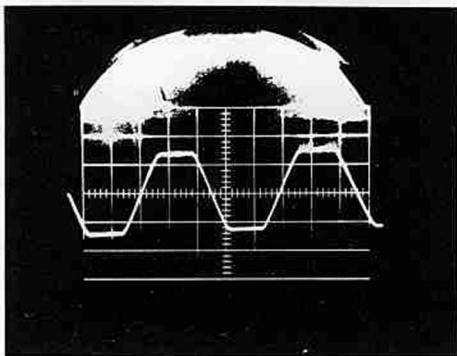
Eine gegenüber herkömmlichen Leistungstransistoren fünffache Steigerung der hochfrequenten Übertragungsgrenze erreicht die vollkommen komplementär arbeitende, mit Epitaxialbasis-Transistoren bestückte Leistungsendstufe des Ampzilla.

Der außerordentlich massive Netztrafo des Ampzilla weist eine besondere Bifilar-Kupferwicklung quadratischen Querschnitts auf, die die Mittenanzapfung der Sekundärwicklung genau zentriert und somit Brummanteile der Versorgungsspannung minimiert.

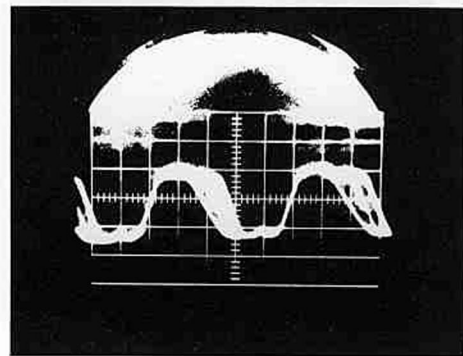
Die Siebkettenelemente des Netzteils haben den sehr hohen Wert von 2 x 16800 μ F (!), womit die Stabilität des Verstärkers sowie volle Leistungsreserve auch bei 20 Hz durch nur geringe Rückkoppelung optimiert wird. Die Betriebsstabilität auch bei angeschlossenen elektrostatischen Lautsprechern, die eine kapazitative Last bis zu 20 μ F darstellen, wird durch weitere besondere schaltungstechnische Maßnahmen sichergestellt.

Bezeichnend für das neue Ampzilla Design sind auf der Frontplatte die beiden Ausgänge für Kopfhörer, einen für normale elektro-dynamische Kopfhörer, den zweiten mit höherer Ausgangsspannung für den direkten Betrieb von elektrostatischen Kopfhörern.

Im Inneren wird der Netztransformator durch besondere Stahlverstrebungen gehalten, um auch extremen Transportbedingungen zu widerstehen.



Ampzilla at clipping (240 watts R.M.S.) at 20-KHz – Note practically zero recovery time.



Competitive Unit at clipping at 20-KHz – Note breakup instability and oscillations.

Press comments

Audio

Listening Tests

This reviewer has spent a lot of time listening to Ampzilla, having had one for several months. Speakers have included the reviewer's own arrays, Dalhquist DQ-10s, and Magnepan MG-2167Fs. The conclusion is inescapable. Ampzilla is the best sounding commercially available bipolar solid-state amplifier heard so far. The low end is incredibly tight and solid, the mid range clean and defined, and the high end is light, airy and virtually free of edginess and grit. When listening in comparison to other good solid-state amplifiers, there is a feeling that their sound isn't as transparent and that an amplifier per se is more identifiably in the reproducing chain.

StereOpus

In sound quality, Ampzilla is just about in a class by itself. It is extremely neutral, imparting very little sonic coloration. It has none of the dry qualities of the DC-300A and none of the metallic hardness that is sometimes evident in the Phase Linear 700B. It seems neither bright nor dull, merely neutral. Bass is less tight than a Phase 700B but more neutral with most speakers. Grain is less evident than in any other solid state amp of which I am aware, including the Marantz 500. Highs are clean and beautifully defined with less evident hardness than any of these other designs. Midrange is superb; vocalists were far more natural on switching over from the other amps. For the first time I got the feeling that 'this is the way the human voice is supposed to sound'. The Ampzilla seems to be the amplifier for the Dahlquists and Magnaplanar's bass and midrange panels. It is also the amp to use with Dayton Wright's electrostatics, at least within its power capabilities. (We understand that G.A.S. intended Ampzilla's big brother "Godzilla" - at 1000 watts mono into 2 ohms - to be king of the Dayton-Wrights.)

Probably the most impressive comparison I've seen with Ampzilla involved powering of 4 (very well equalized) JBL C-50 control monitors in a high intensity discotheque sound system. A Phase Linear 700B normally runs this system but when Ampzilla was switched in for the night the difference was incredible and absolutely overwhelming! For the first time the characteristic 'JBL sound' was gone. I have never heard a disco system sound so sweet and finely detailed! I tend to believe (partly on the basis of this experience) that the better JBL speakers are quite amplifier sensitive. Certainly this incident seems to speak quite well of Ampzilla, for the latest Phase 700B's are very good sounding amplifiers. I could go on much longer about how great a unit Ampzilla is, but dealers and other reviewers are filling your ears with that. One real question of interest is: how about the Audio Research Dual 76 vs the G.A.S. product? My initial impressions are that Ampzilla is superior to the 76 in both bass and midrange on about 90% of program material; when properly adjusted, however the high end of the Dual 76 is still slightly sweeter. The problem is, of course, that 75 watts per channel is often insufficient with many of today's speakers.

Was Kritiker zu Ampzilla sagen

High Fidelity

As far as our own listening tests are concerned, Ampzilla just isn't there - it seems to have no effect whatever on program material passing through it. While this cannot be literally true, the lab data insists that it very nearly is. Rather than waste time in trying to describe the indescribable, in trying to delineate near absence of coloration, we will let the lab data speak for itself. The unit is, of course, not cheap. But, considering its outstanding performance, its price seems very reasonable. If you are in the market for a monster power amplifier, you would do well to consider Ampzilla. It is, in a word, superb.

Popular Electronics

User Comment

Ampzilla is a state-of-the-art amplifier in its electrical characteristics. Unlike other amplifiers of comparable ratings, this one runs literally cool to the touch even after extended full-power operation. (The middle-speed cooling fan was incorporated in the test unit.) In fact, at the conclusion of our tests, which frequently overheat amplifiers and trip their thermal protective devices, the heat sinks on Ampzilla were still cool to the touch. The only signs of heat were in the vicinity of our test load resistors.

All in all, we cannot imagine a less expensive way of obtaining several hundred watts of cool audio power with truly insignificant distortion than is available with Ampzilla.

Ampzilla Specs

Technische Daten

POWER OUTPUT

8 OHMS

Minimum 200 watts per channel, both channels driven,
20 Hz to 20 KHz

16 OHMS

Minimum 125 watts per channel, both channels driven,
20 Hz to 20 KHz

TOTAL HARMONIC DISTORTION & I.M. DISTORTION

8 & 16 OHMS

Less than .05% at any frequency or combination of frequencies,
and at any power level to clipping.

INPUT SENSITIVITY

1.6 Volts R.M.S. for 200 Watts into 8 Ohms.

INPUT IMPEDANCE

7.5 K Ohms

CROSSOVER NOTCH

Non existent

FREQUENCY RESPONSE

8 & 16 OHMS

at rated power or any level less than rated power.
Better than ± 0.1 dB, 20 Hz to 20 KHz
Better than ± 1 dB, 1 Hz to 100 KHz

RISE TIME AT 8 OHMS

Better than 2 μ seconds. AT FULL POWER AT 20 KHz.
Slew rate equal to 40 Volts per μ second.

DUTY CYCLE

Low-noise integral fan provides continuous operation at ambient
temperatures up to 50 °C (125 °F).

STABILITY

100% stable into any load angle 0° to 90°, capacitive or inductive,
regardless of waveshape – sine, square, triangular. No oscillations
or modulation noise.

OVERLOAD PROTECTION

Transistorized dynamic short-circuit protection. Thermal breaker
also protects against overheating.

NOISE

Better than 100 dB below full power (unweighted, wide band).
112 dB below full power (wide band with R. F. filter).

SIZE

483 mm (W) x 178 (H) x 230 (D).

SHIPPING WEIGHT

22,5 kg

**AUDIO
INT'L**
Box 56 02 29
6 Frankfurt 56
W. Germany