

CLASS-A STEREO POWER AMPLIFIER A-47



Accuphase Laboratory, Inc.

1

Accuphase has 3 lineups of Class-A Stereo Power Amplifiers; A-7x series, A-4x series, and A-3x series. Above all, A-4x series is the bestselling line of them. A-47 is the succession model of top-selling power amplifier A-46.

A-47's technical features are Low Noise, Low Total Harmonic Distortion, and High Damping Factor.

Front and rear view



A-47 has analog power meters with peak-hold function. Two sets of speaker terminals are equipped. They are very useful for bi-wiring connection or using two sets of speaker systems.

Internal view



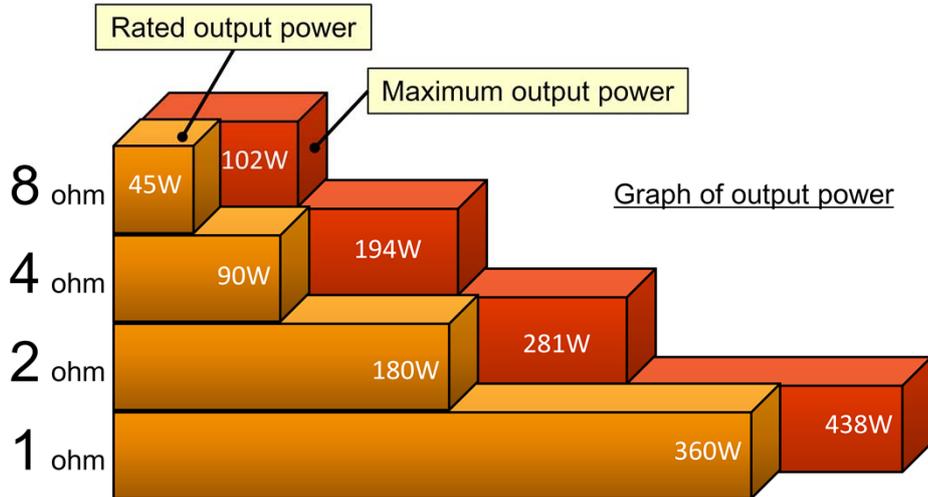
Accuphase Laboratory, Inc.

3

Strong power supply by high-efficiency large toroidal transformer and a pair of 56,000 μ F capacitors are installed.

Output power

- Class-A 45W / 8 ohm, 360W / 1 ohm



Accuphase Laboratory, Inc.

4

The continuous average output power is 45W into 8 ohm load. Also it is Class-A operation area.

However, A-47 has the bigger headroom for maximum output power as 102W into 8 ohm and 438W into 1 ohm load.

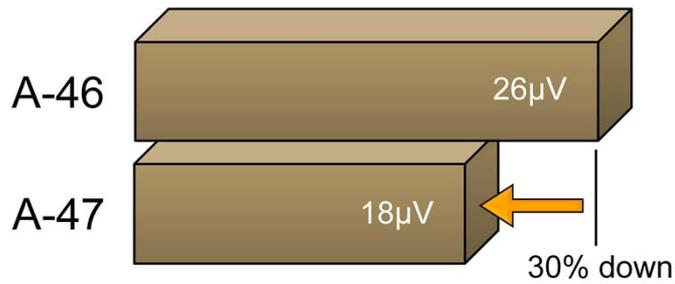
This maximum output power was enhanced from former model by the improvement of power amplifier circuit.

The maximum output power table

| Load | 8 ohm | 4 ohm | 2 ohm | 1 ohm |
|------|--------------|--------------|--------------|--------------|
| A-47 | <u>102 W</u> | <u>194 W</u> | <u>281 W</u> | <u>438 W</u> |
| A-46 | 99 W | 175 W | 276 W | 376 W |

Noise performance

- 30% lower than former model
 - S/N ratio: 116dB guarantee

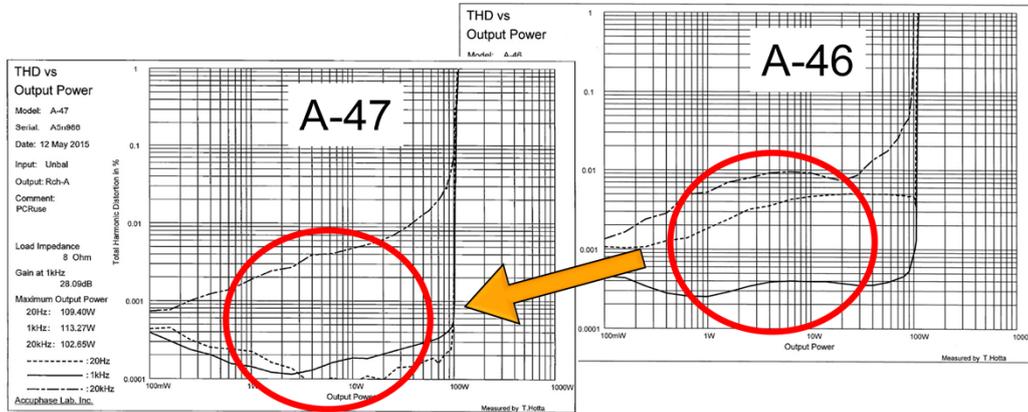


Graph of actual output noise @Maximum gain setting

A-47 guarantees 116dB of S/N ratio.
In actual measurement, the output noise voltage is 30% lower than the former model.

Total Harmonic Distortion

- THD performance has been drastically improved from the former model.



Graph of THD vs. Output power @8 ohm load

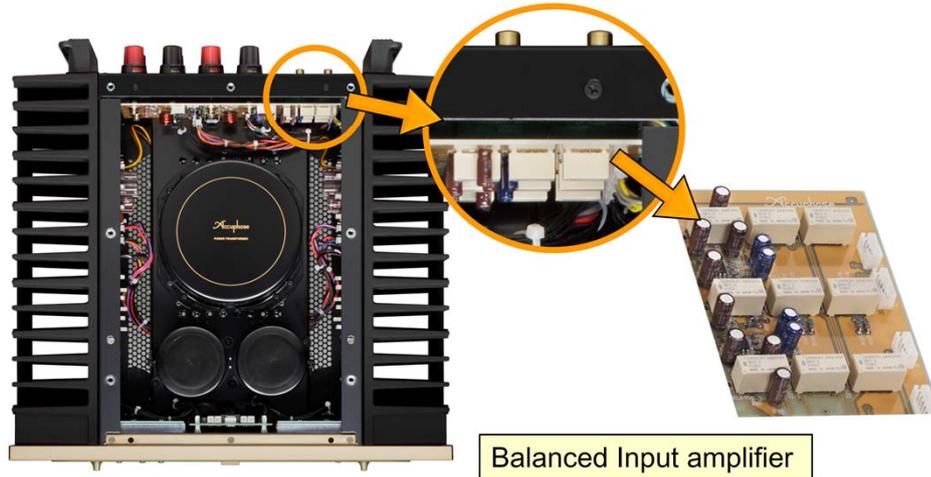
Accuphase Laboratory, Inc.

6

Total Harmonic Distortion performance of A-47 has been drastically improved from the former model.

Technologies for low noise, low THD

- Optimally-located and Balanced Input Amplifier of low impedance



Accuphase Laboratory, Inc.

7

Following technologies realize Low Noise & Low THD performance.

1. Proximately-located input terminals and Balanced Input amplifier eliminates the effects of noise.
2. Balanced Input Amplifier of low impedance helps to reduce thermal noise.
3. Balanced Input Amplifier employs High-performance operational Amplifier ICs.

Damping-Factor: DF

- 20% higher than former model
 - DF: 600 guaranteed



Graph of guaranteed DF

Accuphase Laboratory, Inc.

8

A-47 does guarantee 600 of Damping-Factor(DF). It is 20% higher than the former model. 600 of DF is the guaranteed specification. Actually, A-47 has over 700 of DF.

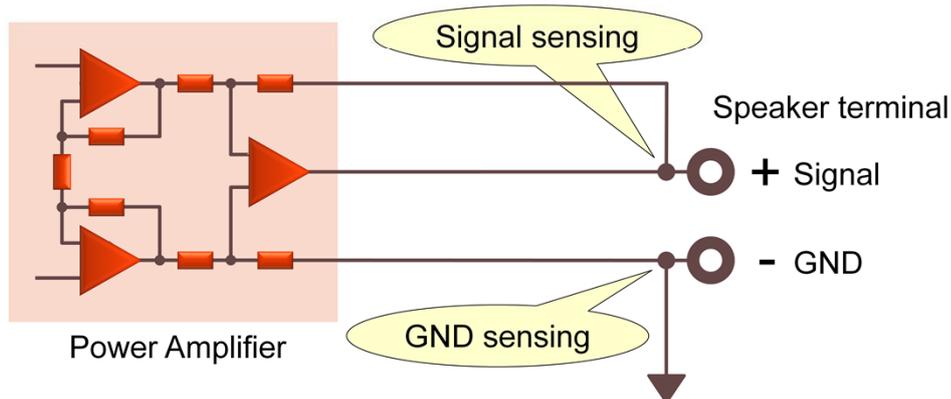
*Damping-Factor, DF:

A index of speaker driving ability. Higher DF amplifier has higher speaker driving ability.

$DF = 8 \text{ ohm} / \text{Output-impedance}$

Technology for high DF

- Balanced Remote-sensing
 - Feedback from speaker terminal proximity
 - Signal-line and GND-line sensing



Accuphase Laboratory, Inc.

9

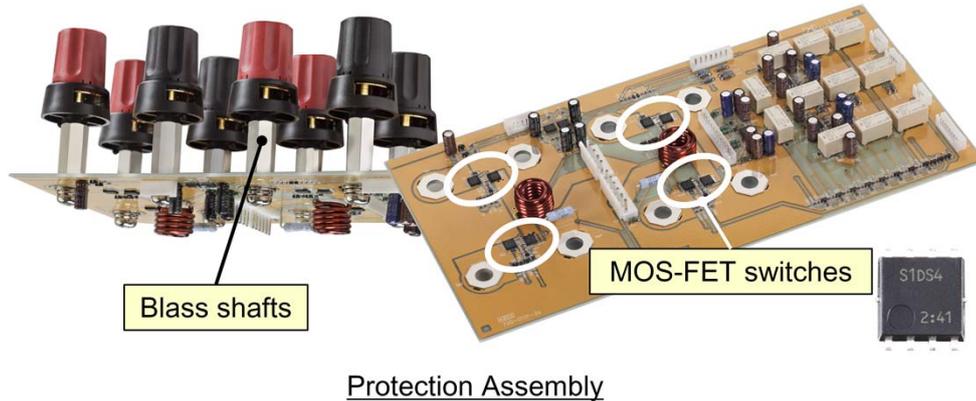
Remote-sensing is the technique to obtain lower output impedance of amplifier by negative feedback with signal sensing from close-up the speaker terminals.

Balanced Remote-sensing is the technique to make impedance even lower by GND sensing and the negative feedback of GND level with adding the signal sensing.

Not only Damping-factor but Total Harmonic Distortion and Intermodulation Distortion are improved by Balanced Remote-sensing.

Technologies for high DF

- Speaker protection equipped with MOS-FET switches.
- Short signal path configuration



Accuphase Laboratory, Inc.

10

Although mechanical relay is the most popular component for speaker protection, it does not have high reliability and low contact resistance either.

A-47 applies MOS-FET switch instead of mechanical relay for speaker protection.

Damping-Factor, reliability and sound quality are improved by MOS-FET switch.

For former model A-46, MOS-FET switches also has been used, but A-47 employs lowered ON-Resistance MOS-FET switches

ON-Resistance of MOS-FET switch

| | ON-Resistance |
|--------|-----------------|
| A-47's | <u>1.9m ohm</u> |
| A-46's | 2.6m ohm |

Making signal path thick-and-short attains low impedance.