Class-A MONOPHONIC POWER AMPLIFIER

A-300

Accuphase Laboratory, Inc.

Pure class-A power amplifiers with rich expressions are irreplaceable products; they take audiophiles' hearts and won't let go.

Accuphase has been developing over 20 models of pure class-A power amplifiers reflecting the latest technologies on a moment-to-moment basis.

The A-300 is the ideal power amplifier that aims to surpass the sound quality and electrical performance of the A-250 launched in 2017.

The A-300 achieved the unprecedented low noise characteristic and high output power with the latest technologies and accumulated knowledge cultivated in the flagship model development.

Dimensions and weight

- Unit dimensions and weight are the same as A-250

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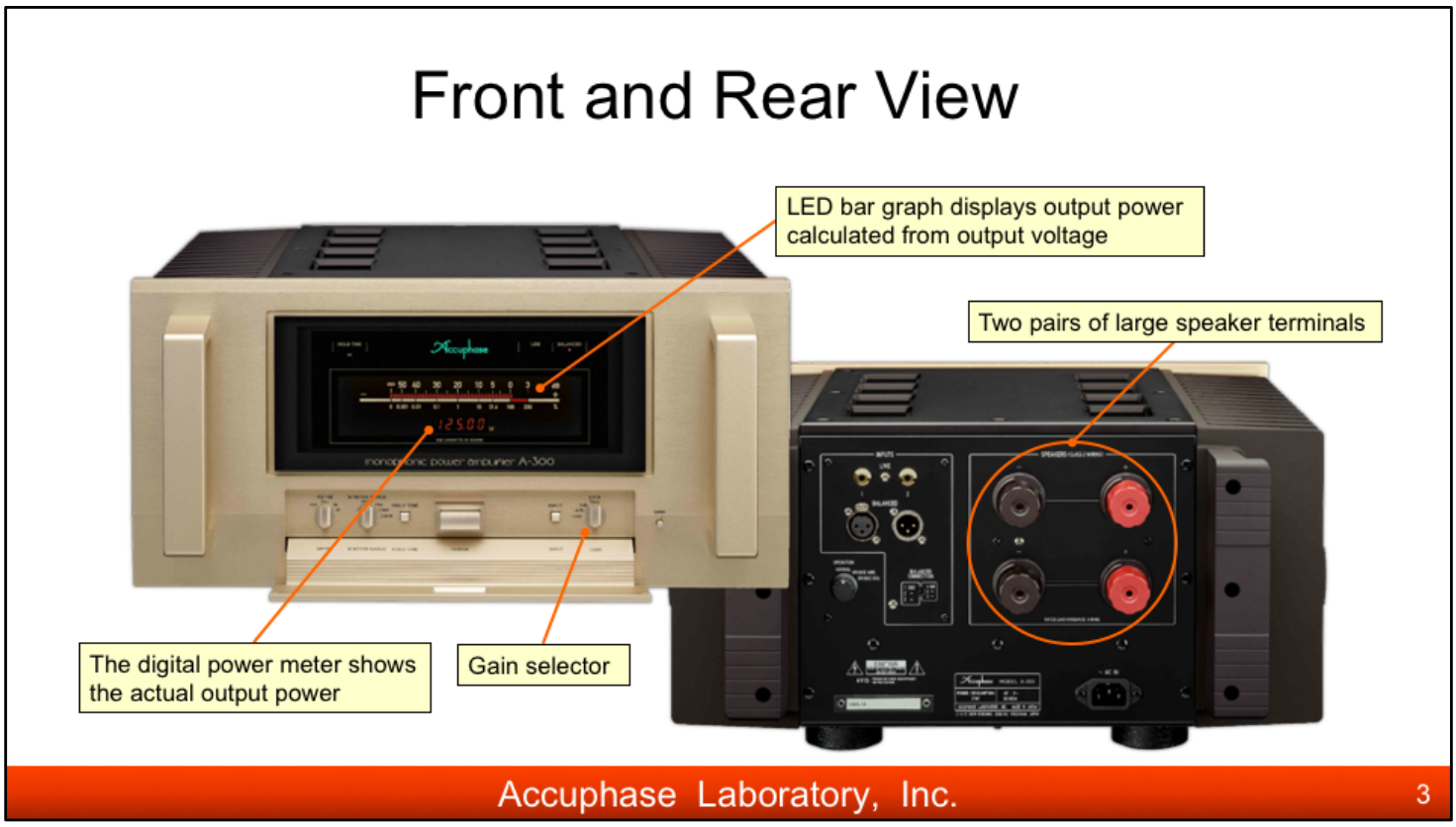
Unit dimensions and weight are the same as the former model A-250.

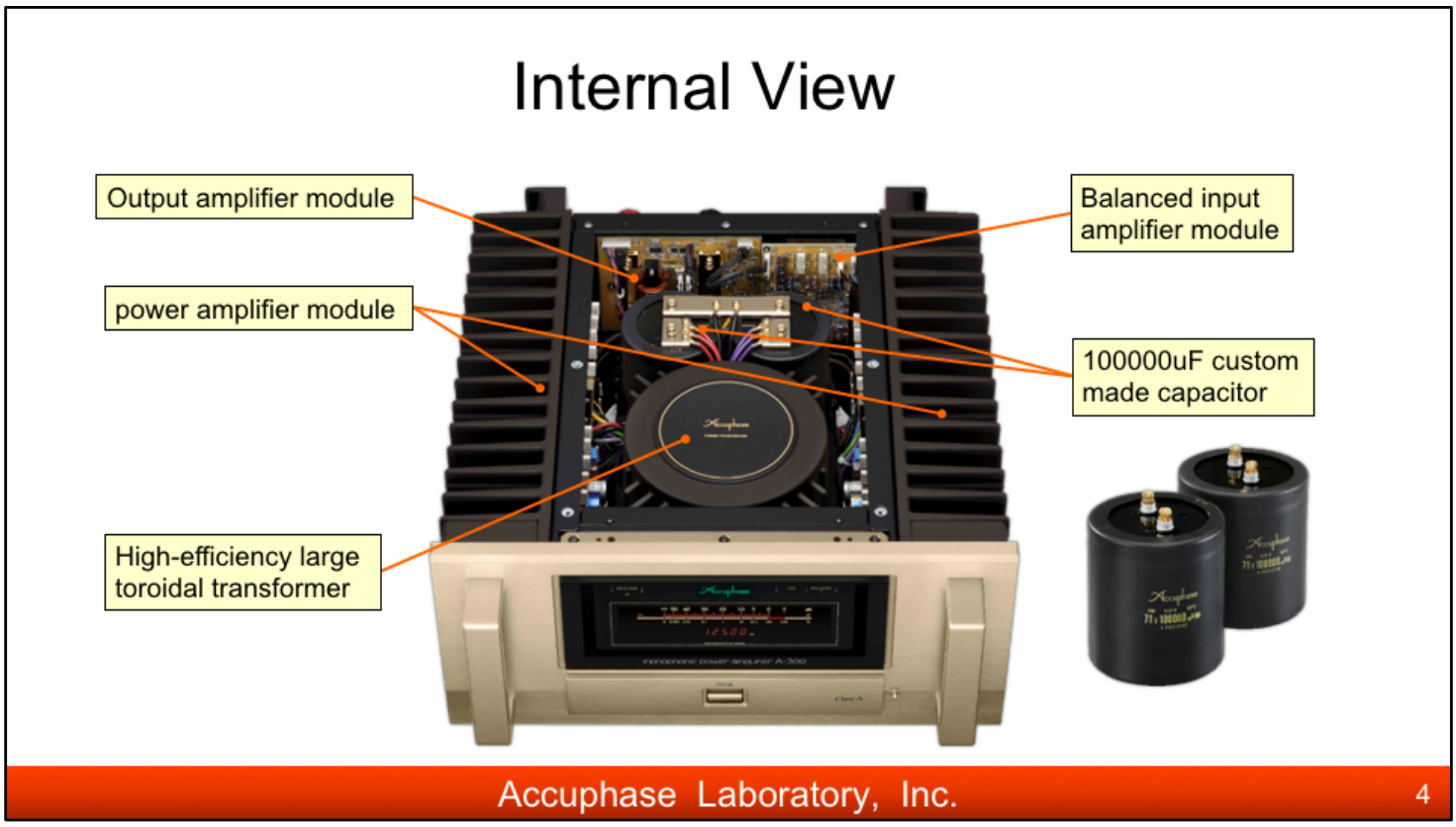


The digital power meter shows the actual output power without any effects of speaker impedance.
An LED bar graph displays output power calculated from the output voltage.

The gain selector on the front panel allows the user to select the appropriate gain level from four settings: "Max, -3dB, -6dB, and -12dB ".

This gain switching is achieved by controlling the gain of the input amplifier section rather than attenuating the input signal with an attenuator.
Therefore, the A-300 can reduce the residual noise by selecting a lower gain position.

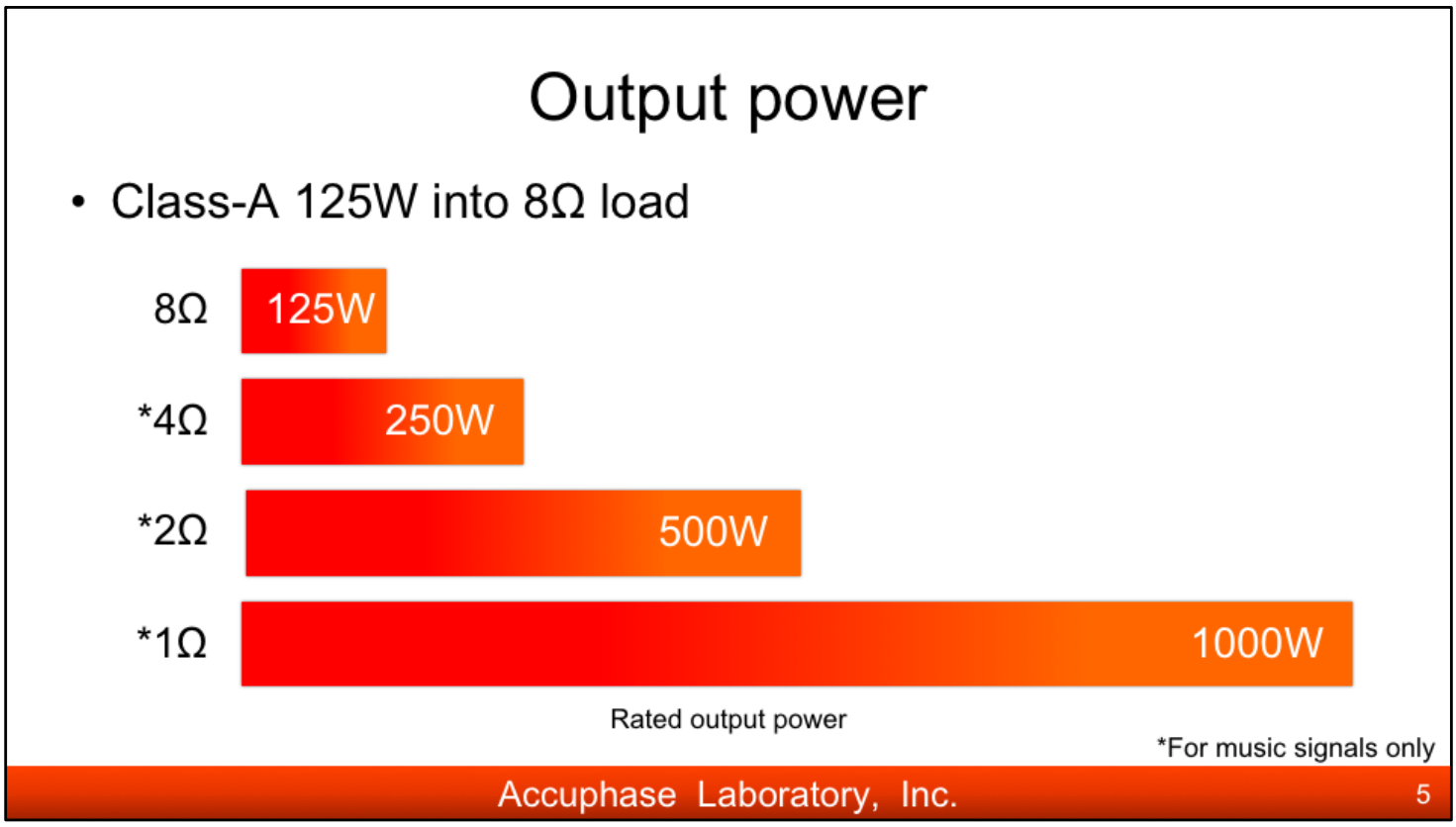
Two pairs of large speaker terminals offer beneficial bi-wiring connections with loudspeakers.



It contains an intense power supply, a massive special-made high-efficiency toroidal transformer, and two sizeable 100000μF special-made filtering capacitors in the unit's center.

The major difference between the A-300 and the A-250 is the position of the power transformer and filtering capacitors. The A-300 placed the power transformer away from the input amplifier, which helped to minimize the influence of leakage flux from the power transformer.

A-250

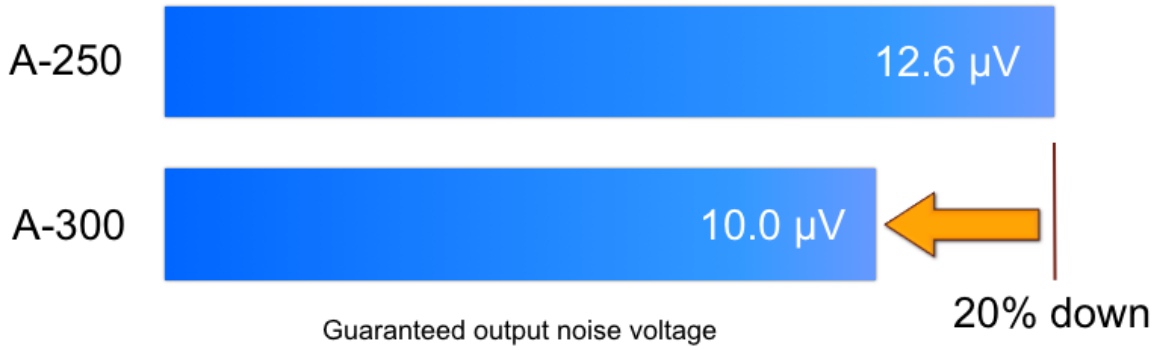


The A-300 enhanced the class-A operation area by 25%, as 125W into 8Ω load.

Rated output power is double when the load impedance becomes 1/2; it reaches 1kW into a 1-ohm load.

Ultra low noise

- 20% lower than the former model
  - Guaranteed output noise voltage: 10μV (SN-ratio 130dB)



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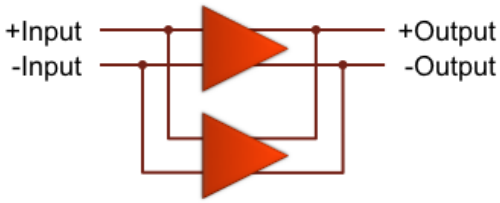
The former model A-250 has excellent noise performance; however, the A-300 achieves even 20% lower guaranteed output noise voltage than the A-250.

The A-300 is the lowest noise power amplifier in the formidable Accuphase power amplifier lineups.

Technology for ultra-low noise

- Parallel operation in balanced input amp
- Full discrete configuration with low noise device for balanced input amp
- Placing the balanced input amp as close to the input terminal as possible



Parallel operation


Balanced input amplifier module

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The A-300 achieves extraordinary noise characteristics through the following technologies.

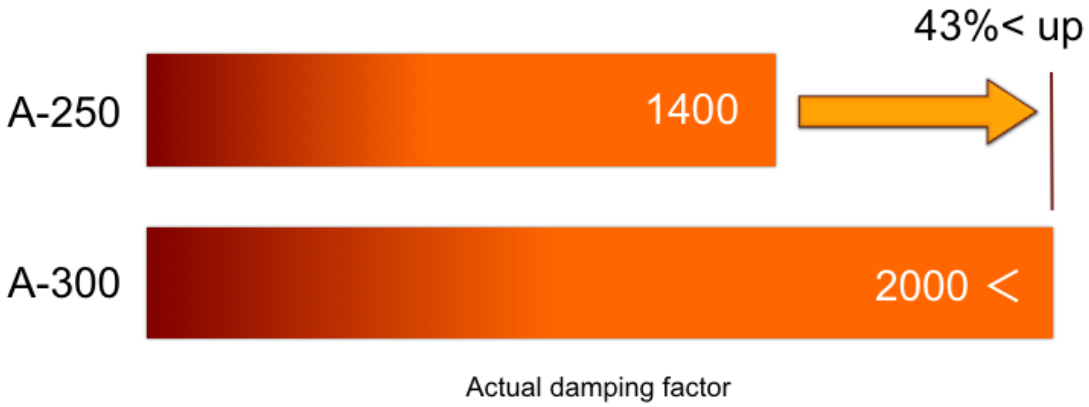
Two amplifiers, consisting of balanced input amplifier parts, are operated in parallel, which contributes to ideally decreasing the output noise to 70%.

Discrete amplifiers with low-noise devices are also effective for low-noise characteristics.

The Balanced Input amplifier is placed as close to the input terminal as possible and succeeds in minimum external noises.

Super high damping factor

- The actual damping factor is more than 43% higher than the former model
  - Guaranteed damping factor: 1000



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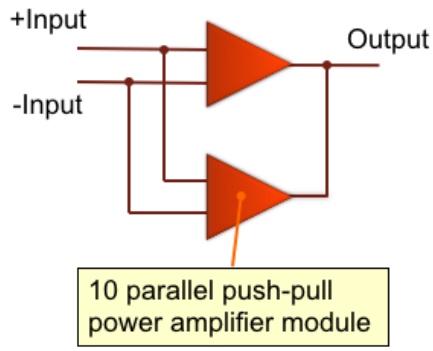
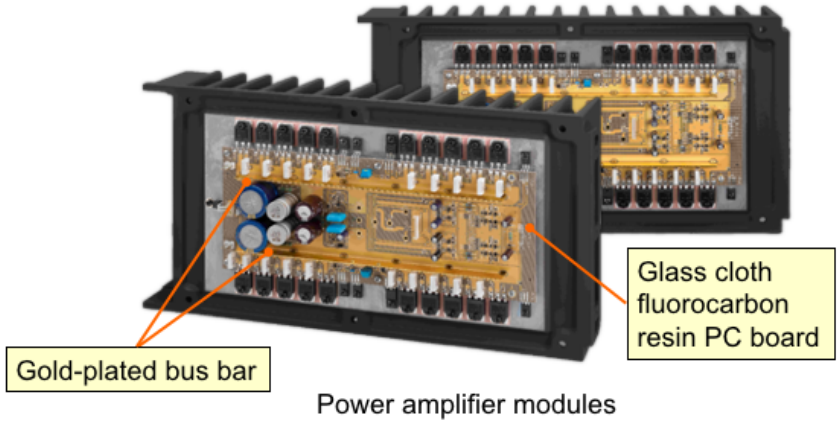
The A-300 has a guaranteed Damping Factor of 1000. It is the same as the A-250, but the actual measured value is over 2000, which is 43% higher than the former model.

*Damping-Factor, DF:
An index of speaker driving ability. A Higher Damping-Factor amplifier has higher speaker driving ability.
DF = 8Ω / Output-impedance

Technology for high damping factor

- Parallel operation in a 10-parallel push-pull MOS-FET power amplifier module





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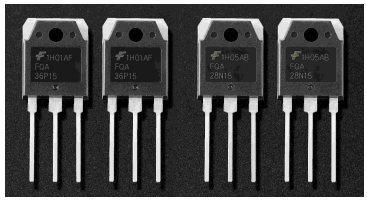
Power MOS-FET devices in a ten-fold parallel push-pull configuration halve the output impedance.

The gold-plated glass cloth fluorocarbon resin print circuit board helps to improve lower impedance and reliability.

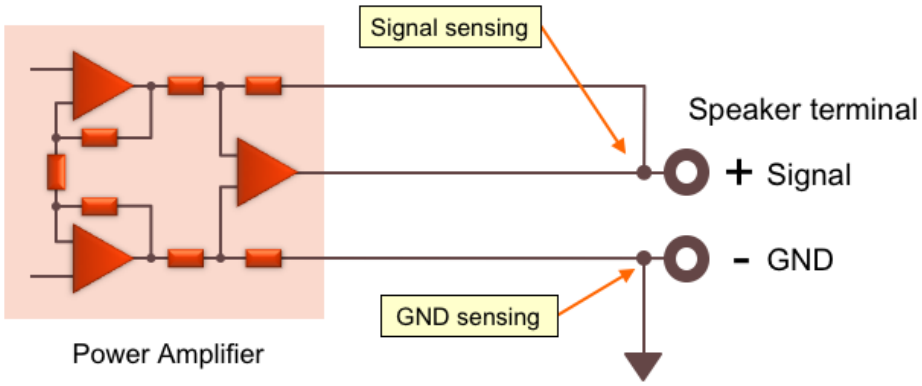
The gold-plated big bus bars are on the paths where large current flows. They contribute to the lower impedance for the circuits and allow ample output power transmission to the loudspeakers.

For the A-300, a more heavy-duty MOS-FET device is used in the final power amplification stage than the A-250 one.
*Current capacity of power MOS-FET
A-250 MOS-FET: 10A
A-300 MOS-FET: 33A



Technology for high damping factor

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



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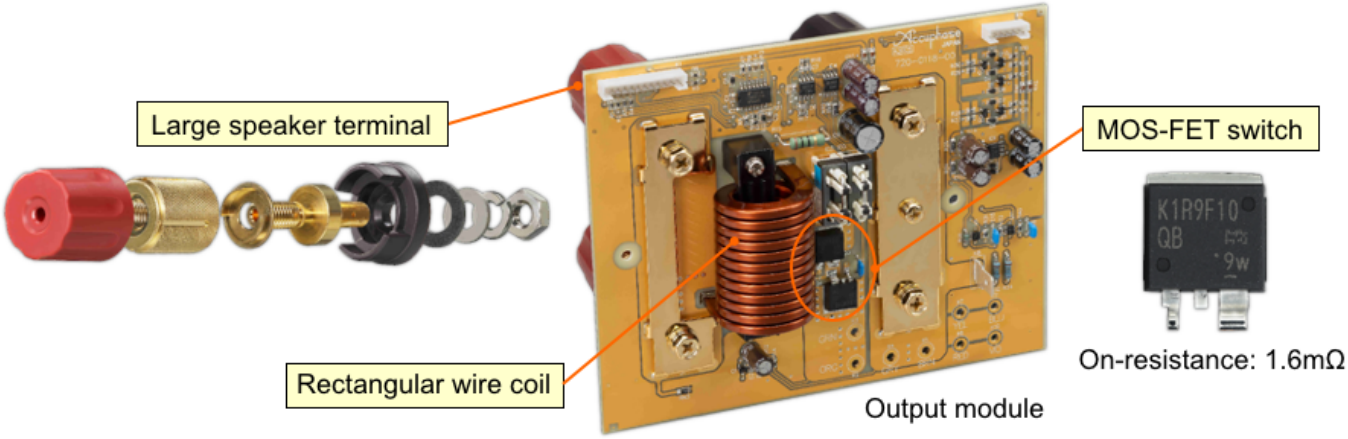
Remote sensing is the technique to lower the amplifier's output impedance by the negative feedback with signal sensing from nearby the speaker terminals.

Balanced remote sensing is also the technique to lower the output impedance by both the signal sensing and the GND senses, that is, the negative feedback of the GND level.

Balanced remote sensing improves not only the Damping Factor but also the Total Harmonic Distortion and the Intermodulation Distortion.

Technology for high damping factor

- Speaker protection equipped with the MOS-FET switch circuit
- Short signal path configuration



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A mechanical relay is a typical speaker protection component, but its contact resistance is higher than people think.

Therefore, Accuphase has chosen the MOS-FET switch instead of conventional mechanical relays for speaker protection. Thanks to this MOS-FET switch, the damping factor, reliability, and sound quality are all improved.

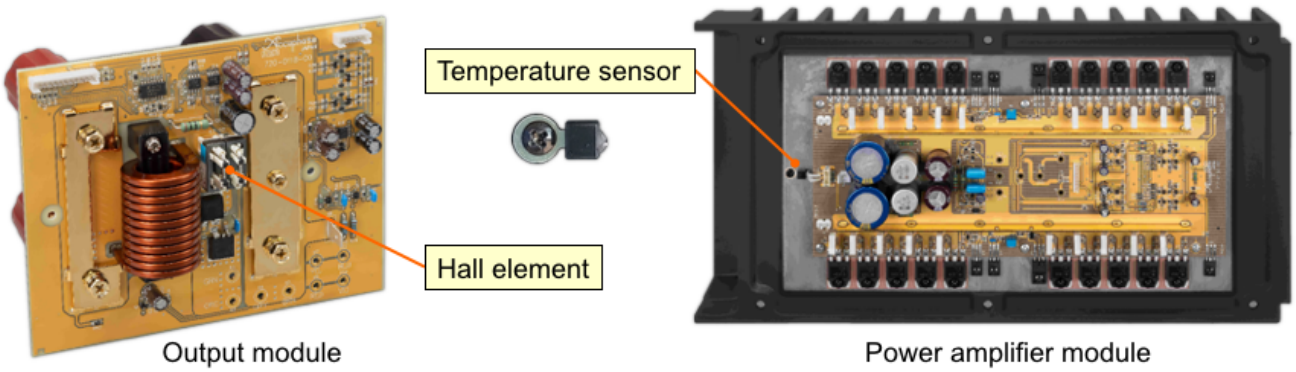
The A-300 adopts a new MOS-FET, with a very low on-resistance of 1.6mΩ. (A-250 used 2.0mΩ on-resistance MOS-FET.)

The A-300 also employs carefully-selected very low-impedance components such as large speaker terminals, rectangular wire coils, etc.

Making signal paths thick and short helps to attain low impedance as well.

Pursuing further product safety and reliability

- Power amplifier
  - Hall element detects the excessive output current
  - Temperature sensors are installed on the heatsink



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The newly designed output protection circuit can detect any short-circuiting of the speaker terminals with due consideration for product safety.

The A-300 adopts temperature sensors that detect the heatsink temperature; thanks to this, the unit accurately ascertains the high-temperature alarm in the power amplifier module.

Keeping the negative influence to a minimum, the hall elements detect the excessive current when the output is short-circuited.

*When these protection circuits are activated, the unit completely interrupts the speaker output and makes the power meters flash to indicate the abnormal condition.