

# Class-A INTEGRATED STEREO AMPLIFIER E-700



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1

E-700 is a succession model of E-650, the 6th generation Accuphase Class-A integrated stereo amplifier.

The preamplifier section provides a Balanced AAVA volume control with a fully refined ANCC circuit, and the distortion and noise performance are pursued to the limit.

The power amplifier section adopts the MOS-FET in a four-fold parallel push-pull arrangement, expanding the class-A operating range to 35W into an 8Ω load.

E-700 combines the ambiance and musical expression only a superlative class-A amplifier can offer.

## Dimensions and Weight

- Same unit dimensions but lighter weight than E-650
  - Width 465mm
  - Height 191mm
  - Depth 428mm
  - Weight 24.9kg



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2

The dimensions are the same, but the weight is slightly lighter than E-650 (E-650: 25.3kg).

## Internal View



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3

E-700 inherits Accuphase's traditional amplifier construction of a mono-block structure.

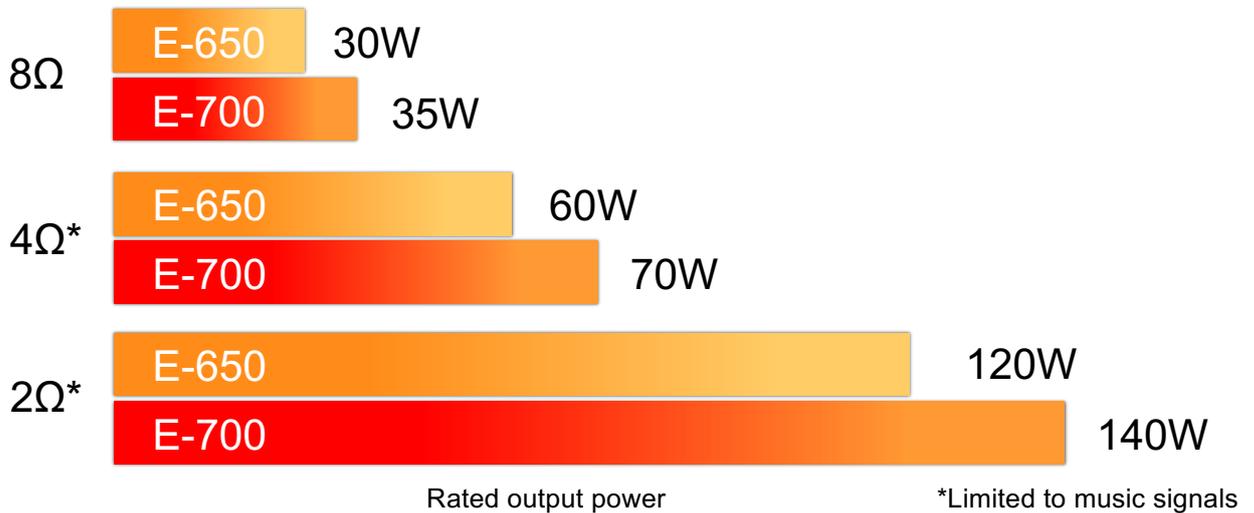
Large power transformer and capacitors are positioned between L and R channel separated the power amplifier blocks.

Accuphase newly developed high-capacity 56000 $\mu$ F filter capacitor after repeated sound quality studies and also installed a custom-made volume sensor mechanism, which has distinguished operation feeling and ultimate reliability.

The balanced AAVA circuit block is located near the front panel.

# Output power

- Rated output power is increased by 16% from E-700



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4

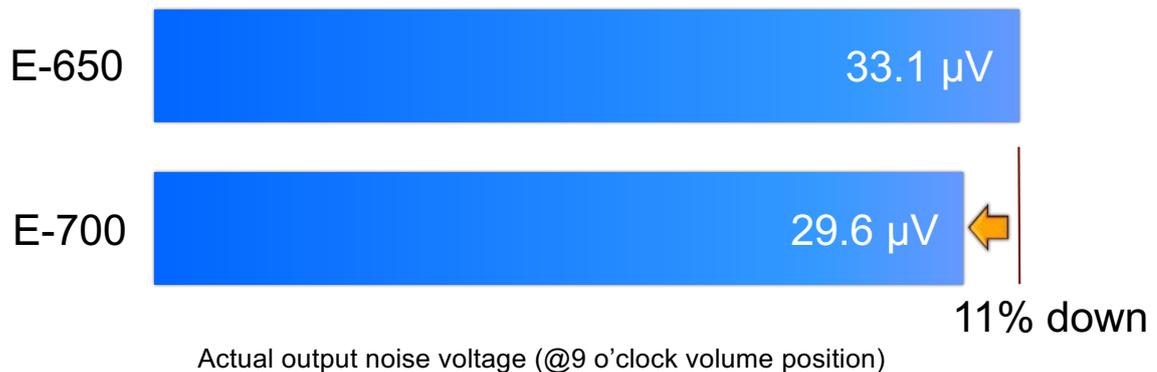
E-700's rated continuous output power is 35W/8Ω in class-A.

This output value is a 16% increase compared to E-650, meaning the Class-A operating range has been expanded to 35W.

The clipping output power is more than 70W/8Ω. E-700 perfectly drives any loudspeaker, even in low impedance conditions.

## Ultra low noise

- Actual output noise voltage 11% lower than the E-650
  - Guaranteed SN-ratio: 103dB



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5

E-700 shows remarkable progress in noise performance than E-650.

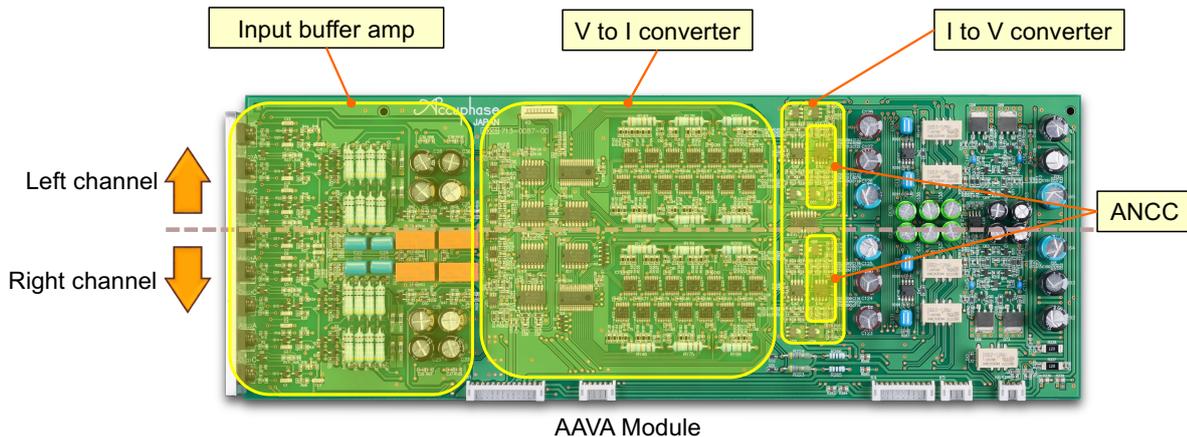
The actual output noise voltage at the normal volume position when listening to the music is 11% lower than the previous model.

The guaranteed SN ratio is 103dB, which is 1dB better than E-650.

Improving noise performance is important to convey the emotion of the music. Accuphase will make all efforts to reduce noise as much as possible with each new product.

# Technology for ultra low noise

- Balanced AAVA Architecture
- ANCC installed for noise and distortion cancellation



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6

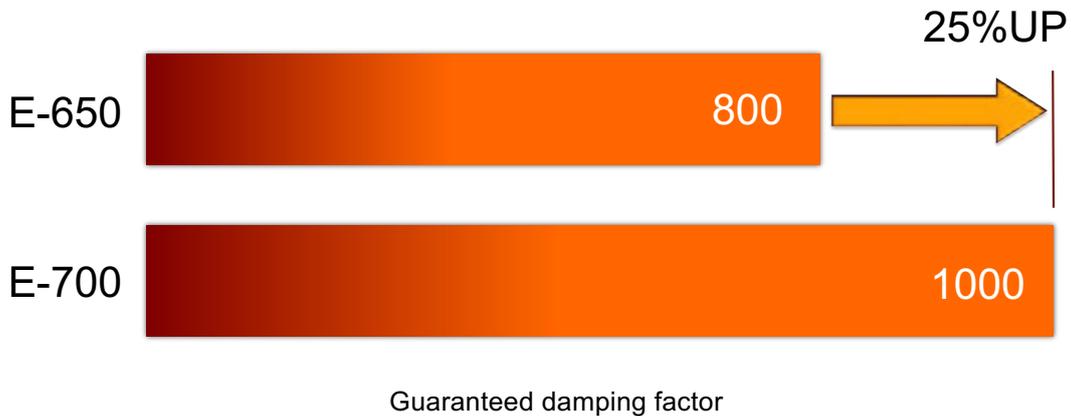
For E-700, Accuphase thoroughly reviewed the Balanced AAVA implementations.

Balanced AAVA places a buffer amplifier that produces a strong current at the front of the VI converter to reduce noise.

In addition, a buffer amplifier is placed in the front stage of the VI converter to drive the entire AAVA powerfully.

## Super high damping factor

- 25% higher than the former model E-650 and has the same value as Class-A stereo power amp A-80



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7

E-700 achieves a guaranteed damping factor of 1000.

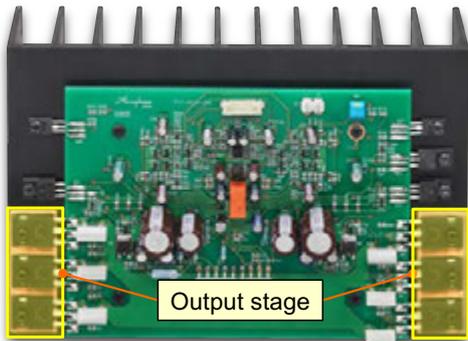
It is 25% higher than the former model E-650 and has the same value as the Class-A stereo power amplifier A-80.

\*Damping-Factor, DF: An index of speaker driving ability. A higher Damping-Factor amplifier has higher speaker driving ability.

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

# Technology for high damping factor

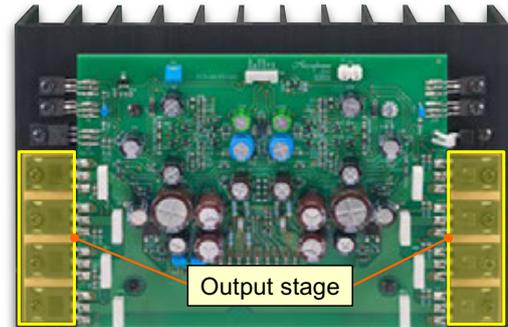
- Very low output impedance power amplifier engine
  - MOSFET 4 parallel push-pull output stage
  - Same circuit configuration as Class-A stereo power amp A-80



E-650 Power Amplifier Module



Power MOSFET



E-700 Power Amplifier Module

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8

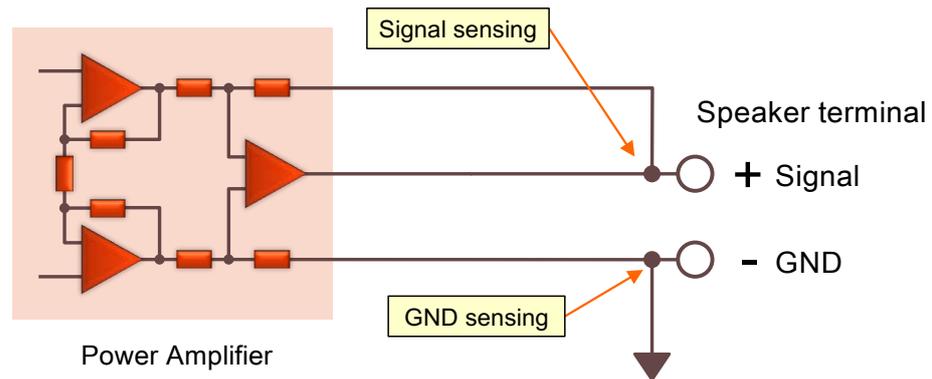
E-700 power amplifier engine is significantly enhanced and more powerful than the former model.

The output impedance is lower by four-fold parallel push-pull output stage arrangements of MOSFETs.

\*E-650 has three-fold parallel push-pull output stage arrangements of MOS-FET.

# Technology for high damping factor

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



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9

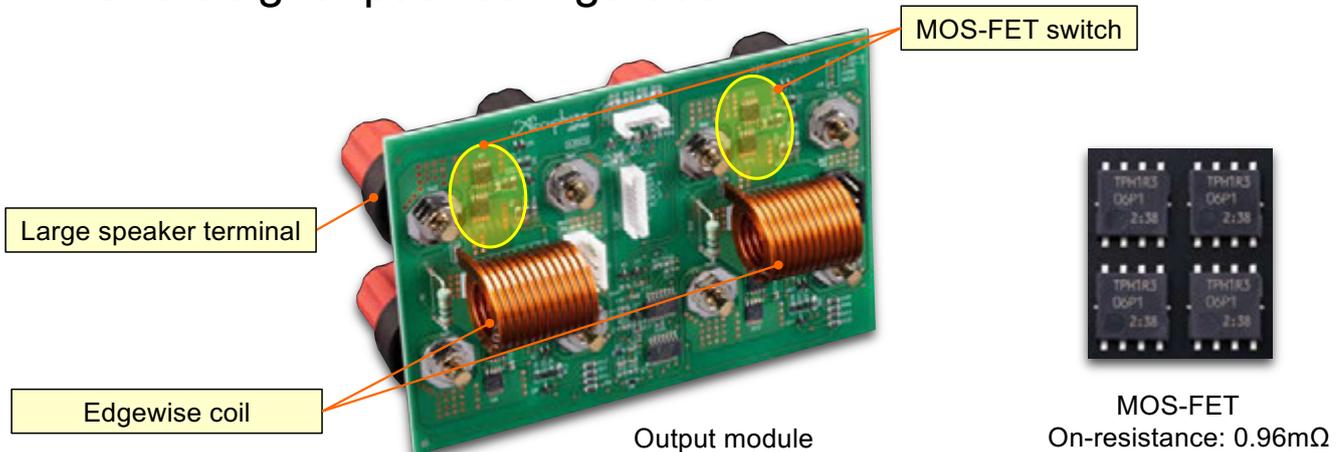
Remote sensing is the technique to lower the amplifier's output impedance by the negative feedback with signal sensing from nearby the speaker terminals.

Balanced remote sensing is the technique to lower the output impedance by signal sensing and the GND senses.

Balanced remote sensing improves the Damping Factor and Total Harmonic Distortion and Intermodulation Distortion.

# Technology for high damping factor

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



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10

Mechanical relays are the typical components for speaker protection, but the contact resistance of mechanical relays is higher than people think.

Also, mechanical relays have physical contact, making them unreliable for long-term use.

Therefore, Accuphase has chosen the MOS-FET switch instead of conventional mechanical relays for speaker protection.

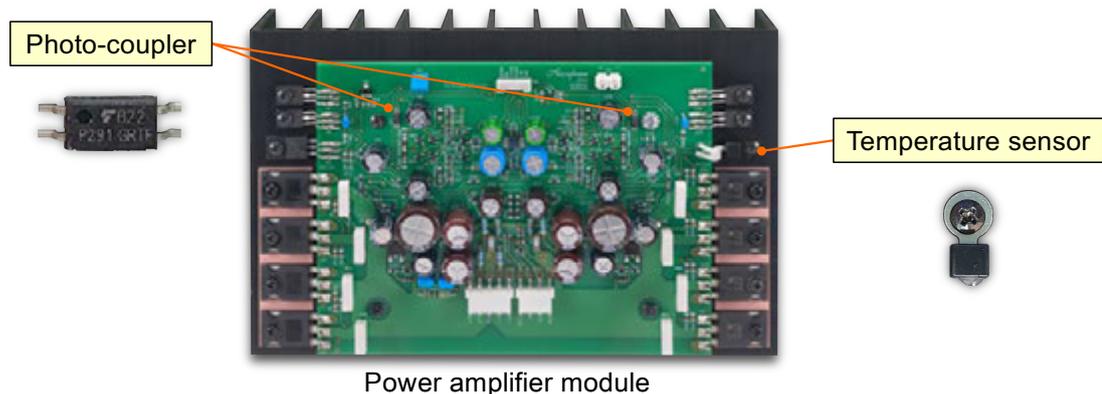
Thanks to this MOS-FET switch, the damping factor, reliability, and sound quality are all improved.

E-700 adopted a new MOS-FET with a low on-resistance of 0.96mΩ (E-650 used 1.6mΩ on-resistance MOS-FET).

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

# Pursuing further product safety and reliability

- Power amplifier
  - Newly-developed protection circuit using Photo-couplers
  - Temperature sensors are installed on the heatsink



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11

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

Temperature sensors that detect the heatsink temperature are installed on the heatsink. Thanks to this, the unit accurately ascertains the high-temperature alarm in the power amplifier section.

Thanks to the photo-coupler, the detected short-circuiting information is completely isolated from the music signal to minimize the negative effects on the sound quality.

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

## Furthermore...

- Ready for the option board DAC-60 and AD-60
  - Sampling frequency on the front display
  - Input impedance, MC/MM, Subsonic filter selectable



Option Boards



Multi-function display



Input selector for the option boards

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12

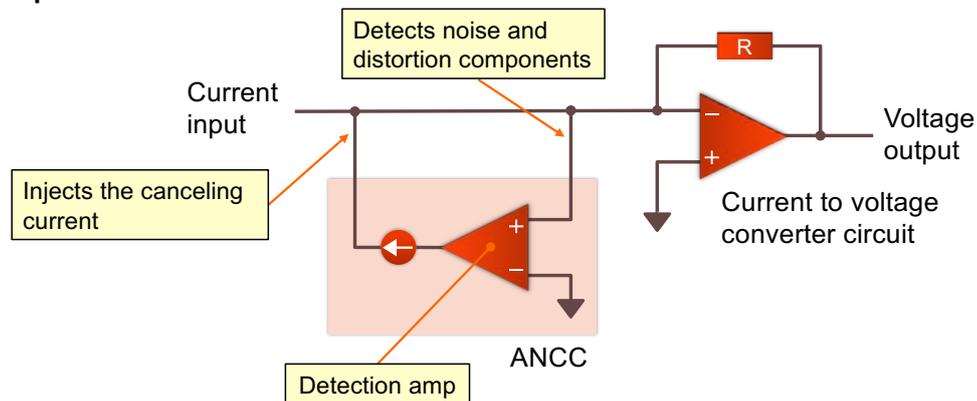
E-700 accepts the digital input board DAC-60 and analog input board AD-60.

You can see the figure of the sampling frequency input of DAC-60 on display and can choose any preferred input sources with the selector on the front panel.

The gain values of AD-60 can be set to 66dB for MC and 40dB for MM, and the MC Input impedance can be selected from 4 values, "200 ohms" is newly added.

## Appendix “ANCC”

- ANCC: Accuphase Noise and distortion Canceling Circuit
  - To detect and cancel the noise and distortion at the input stage of the amplifier



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13

ANCC: "Accuphase Noise and Distortion Canceling Circuit" is installed in AAVA's current-to-voltage converter.

Canceling noise and distortion are realized by detecting the components of noise and distortion at the input stage of an I-V converter circuit and by injecting the canceling current, which contains the reversed polarity of those components.

ANCC is a highly effective technology at any volume position.