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 - › ASHATA 500W Single Channel Class D Power Amplifier Board User Manual (Model: ASHATAfmqgrxunph)

ASHATA ASHATAfmqgrxunph

ASHATA 500W Single Channel Class D Power Amplifier Board User Manual

Model: ASHATAfmqgrxunph

1. INTRODUCTION

This manual provides comprehensive instructions for the ASHATA 500W Single Channel Class D Power Amplifier Board. This module is designed for DIY sound systems, home theater applications, and other audio projects requiring a high-power mono amplifier. It features circuit optimization, speaker relay protection, and a unique design to minimize switch-on/off shock sounds.

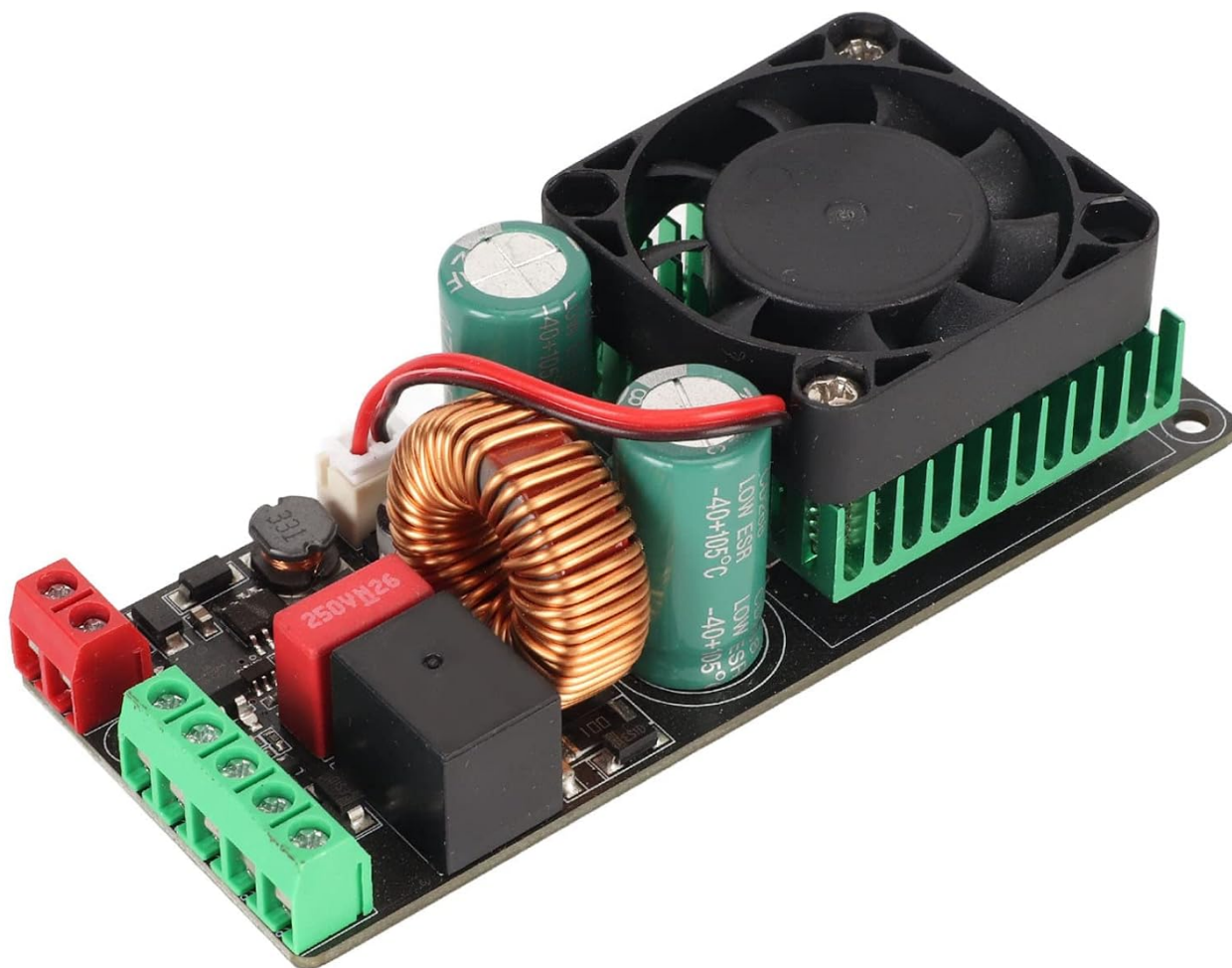


Figure 1: Overview of the ASHATA 500W Power Amplifier Board. This image displays the compact design of the amplifier board, featuring a cooling fan, heat sink, capacitors, inductor, and various input/output terminals.

2. SAFETY INFORMATION

- Always disconnect power before making any connections or disconnections.
- Ensure proper ventilation to prevent overheating. The board includes a cooling fan, but adequate airflow is still necessary.
- Handle the board with care to avoid damage to electronic components.
- Observe correct polarity for all power and signal connections. Incorrect wiring can damage the amplifier and connected devices.
- This product operates with high voltage. Exercise extreme caution during installation and operation. If you are unsure, seek professional assistance.

3. PRODUCT FEATURES

- **500W Class D Amplification:** Provides high power output with efficiency.
- **Single Channel (Mono) Design:** Ideal for subwoofer amplification or single-speaker setups.
- **Speaker Relay Protection:** Incorporates a relay to protect connected speakers from power-on/off transients.
- **Optimized Circuitry:** Designed to minimize switch-on delay and instantaneous break, reducing audible thumps.
- **Flexible Power Input:** Supports dual DC power supply and external AC input for the relay.

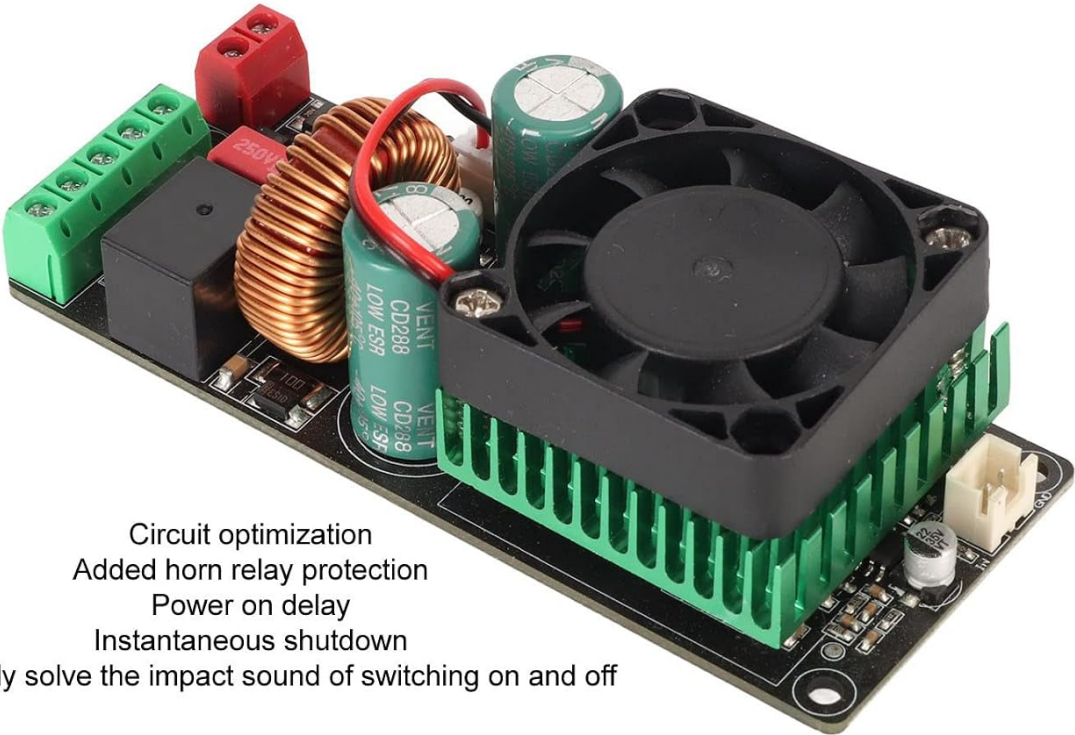
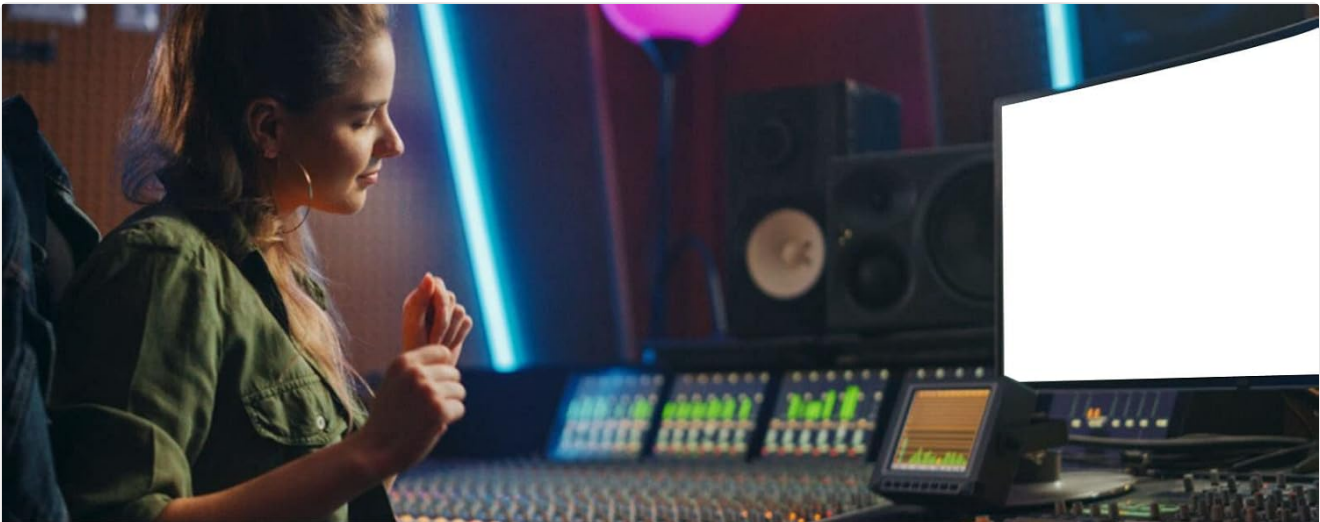


Figure 2: Amplifier board highlighting circuit optimization. This image shows the board's components and text indicating features like circuit optimization, added horn relay protection, power-on delay, and instantaneous shutdown to effectively solve impact sound.

4. SPECIFICATIONS

Specification	Value
Product Dimensions	3.94 x 3.54 x 1.57 inches (105mm x 43mm x 28mm)

Specification	Value
Item Model Number	ASHATAfmqgrxunph
Weight	3.88 ounces
Voltage (Recommended)	65 Volts (DC)
Maximum Supply Voltage	70 Volts (DC)
Minimum Supply Voltage	45 Volts (DC)
Amplifier Type	Class D, Single Channel



Figure 3: Dimensions of the amplifier board. This image illustrates the physical measurements of the board, showing its length (105mm/4.13in), width (43mm/1.69in), and height (28mm/1.10in).

5. SETUP INSTRUCTIONS

5.1 Power Supply Connection

The amplifier board requires a dual DC power supply for its main operation. The recommended voltage is **$\pm 65\text{V DC}$** , with a permissible range of **$\pm 45\text{V DC}$ to $\pm 70\text{V DC}$** . Additionally, the relay protection circuit requires an external **110V or 220V AC** power supply.



Amplifier power supply for dual DC $\pm 45 \Rightarrow \pm 70\text{V}$,
recommended $\pm 65\text{V}$ AC 110V 220V only to the
relay power supply

Figure 4: Power supply requirements. This image indicates that the amplifier power supply is for dual DC $\pm 45\text{V}$ to $\pm 70\text{V}$, with a recommended $\pm 65\text{V}$. It also notes that AC 110V/220V is only for the relay power supply.

5.2 Wiring Instructions

Refer to the diagram below for correct wiring connections. Ensure all connections are secure and observe proper polarity.

Wiring instructions:



Figure 5: Wiring instructions for the amplifier board. This diagram clearly labels the input and output terminals: Sound Input (+ and -), Sound Output (+ and -), Power (+, Ground, -), and AC Input (110V/220V).

- **Sound Input:** Connect your audio source (e.g., preamplifier, mixer) to the 'Sound input +' and 'Sound input -' terminals.
- **Sound Output:** Connect your speaker to the 'Sound Out+' and 'Sound Output-' terminals.
- **Power Input (DC):** Connect your dual DC power supply to the 'Power+', 'Power Ground-', and 'Power-' terminals. Ensure the ground connection is central.
- **AC Input (for Relay):** Connect your 110V or 220V AC power source to the 'AC input' terminals. This powers the speaker protection relay.

6. OPERATING INSTRUCTIONS

Once all connections are securely made and verified:

1. Apply power to the amplifier board. The integrated power-on delay feature will prevent immediate output, protecting your speakers from turn-on thumps.

2. Begin playing audio from your source. Adjust volume levels from your audio source or preamplifier as needed.
3. When powering off, the instantaneous break feature will quickly disconnect the output, preventing turn-off thumps.

7. MAINTENANCE

The ASHATA 500W Power Amplifier Board is designed for reliable operation with minimal maintenance. Follow these guidelines:

- **Keep Clean:** Periodically clean the board and cooling fan to prevent dust buildup, which can impede cooling and affect performance. Use a soft brush or compressed air.
- **Ventilation:** Ensure the amplifier is always operated in a well-ventilated area to allow for proper heat dissipation.
- **Inspect Connections:** Occasionally check all wiring connections to ensure they remain tight and secure.
- **Avoid Moisture:** Protect the board from moisture and extreme temperatures.

8. TROUBLESHOOTING

If you encounter issues with your amplifier board, consider the following troubleshooting steps:

- **No Sound Output:**
 - Verify all power connections (DC and AC for relay) are correctly wired and receiving the specified voltage.
 - Check audio input and output connections for proper seating and polarity.
 - Ensure your audio source is active and producing a signal.
- **Distorted Sound:**
 - Check if the input signal level is too high, causing clipping. Reduce the input volume.
 - Ensure speaker impedance matches the amplifier's capabilities.
 - Inspect speaker wiring for shorts or loose connections.
- **AC Power for Relay Not Working:**
 - Confirm the AC input voltage (110V or 220V) is correct for your region and properly connected to the designated terminals.
 - Check the AC power source itself.
- **Overheating:**
 - Ensure the cooling fan is operating correctly.
 - Verify there is adequate airflow around the board and that the heat sink is not obstructed.
 - Reduce the load or operating volume if consistently overheating.

9. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the documentation provided at the time of purchase or contact your retailer. Keep your purchase receipt as proof of purchase.

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