

## Marhynchus Marhynchusdg1q8mg3yi (TPA3255)

# Marhynchus TPA3255 Class D Digital Amplifier Board Instruction Manual

Model: Marhynchusdg1q8mg3yi (TPA3255)

## 1. INTRODUCTION

This document provides comprehensive instructions for the Marhynchus TPA3255 Class D Digital Amplifier Board. The TPA3255 is a high-performance Class D power amplifier designed to deliver high-fidelity audio. This manual covers its features, specifications, proper setup, operation, maintenance, and troubleshooting to ensure optimal performance and longevity.

## 2. PRODUCT FEATURES

- High Performance Class D Amplification:** Utilizes the TPA3255 chip for true high-end audio quality.
- Versatile Load Handling:** Capable of driving up to 2 x 315W into 4Ω loads and 2 x 150W into 8Ω loads (unshipped power) in AD mode with 10% THD.
- Analog Input Interface:** Features a 2 VRMS analog input for seamless connection with high-performance DACs.
- Advanced Feedback Design:** Incorporates an integrated feedback design and high-speed gate driver error correction for ultra-low distortion across the entire audio frequency band.
- High Precision Components:** Equipped with high-precision chip resistors to ensure an excellent signal-to-noise ratio.
- Robust Power Support:** Features 2 x 4700UF 63V main filter electrolytic capacitors for strong and continuous power delivery.

## 3. SPECIFICATIONS

| Parameter                  | Value            |
|----------------------------|------------------|
| Working Mode               | Class D          |
| Quiescent Current          | 60mA             |
| Work Efficiency            | >90%             |
| Output Power (4Ω, 10% THD) | 315W per channel |

| Parameter                   | Value                           |
|-----------------------------|---------------------------------|
| Output Power (8Ω, 10% THD)  | 185W per channel                |
| Output Power (4Ω, 1% THD)   | 260W per channel                |
| Output Power (8Ω, 1% THD)   | 150W per channel                |
| Frequency Response          | 20Hz to 20KHz                   |
| Dynamic Range               | >100dB                          |
| Signal-to-Noise Ratio (SNR) | >111dB                          |
| Working Voltage             | DC40-48V switching power supply |
| Material                    | PCB                             |
| Mounting Type               | Surface Mount                   |
| Number of Channels          | 2                               |
| Item Weight                 | 14.3 ounces                     |
| Package Dimensions          | 7.87 x 5.12 x 2.36 inches       |

## 4. SETUP INSTRUCTIONS

Proper setup is crucial for the optimal performance of your amplifier board. Please follow these steps carefully:

- Power Supply Connection:** Connect a DC40-48V switching power supply to the designated power input terminals on the board. Ensure correct polarity (+ and -).
- Audio Input Connection:** Connect your audio source (e.g., DAC, preamplifier) to the RCA input connectors labeled 'INPUT' on the amplifier board. Use high-quality RCA cables for best results.
- Speaker Output Connection:** Connect your passive speakers to the speaker output terminals (L-OUT for left channel, R-OUT for right channel). Ensure correct polarity (+ and -) for each speaker. The board supports 4Ω or 8Ω speakers.
- Secure Mounting:** Mount the amplifier board securely in a well-ventilated enclosure to prevent overheating. Ensure no metallic parts of the enclosure come into contact with the circuit board, which could cause short circuits.
- Initial Power On:** After all connections are made and verified, connect the power supply to the mains. Observe the indicator lights on the board for proper operation.

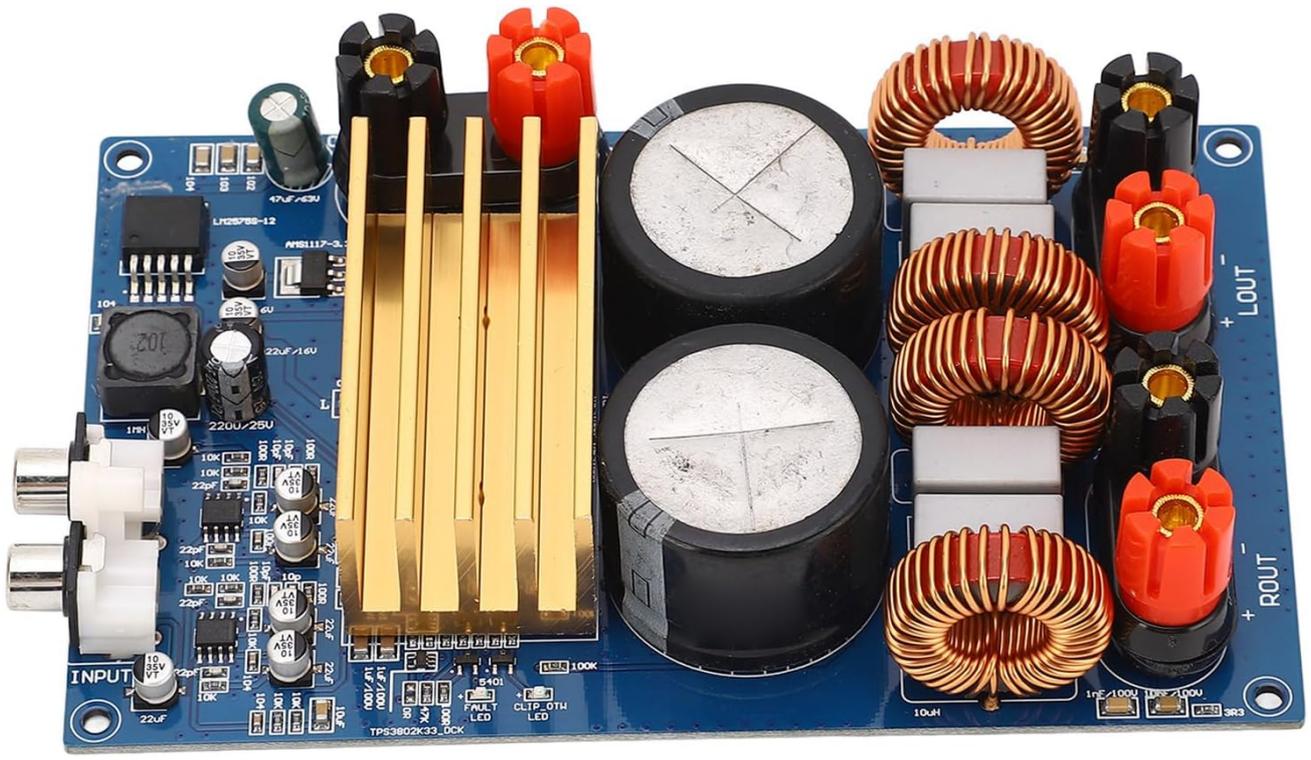


Figure 1: Top view of the Marhynchus TPA3255 Amplifier Board, showing the overall layout including input, output, and power components.

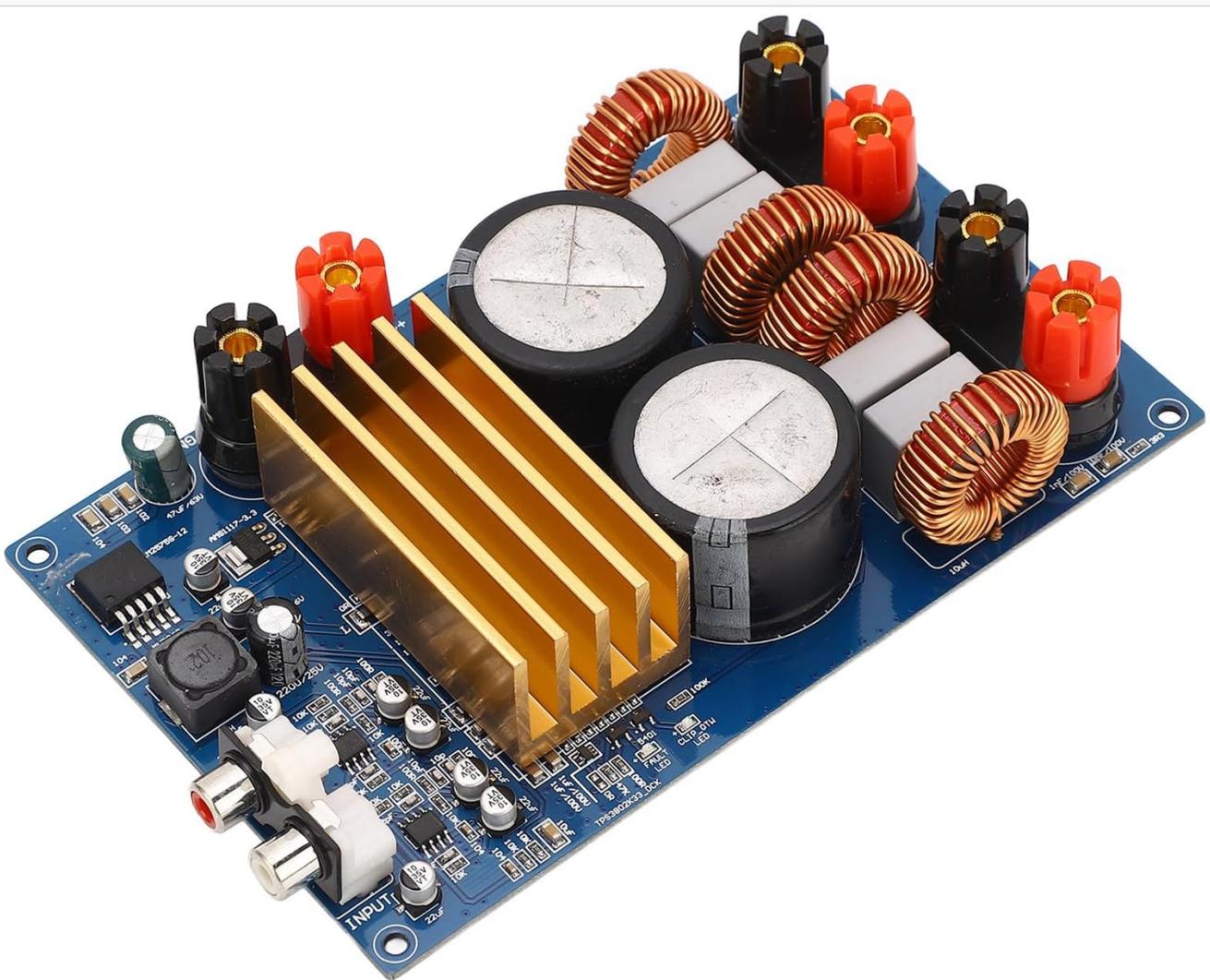


Figure 2: Angled view of the amplifier board, highlighting the gold-colored heat sink and various input/output terminals.



Figure 3: Rear angled view of the amplifier board, focusing on the power input and speaker output terminals, which are color-coded for easy identification.

## 5. OPERATING INSTRUCTIONS

Once the amplifier board is correctly set up and powered on, it operates automatically. There are no user-adjustable controls on the board itself. The audio signal from your source will be amplified and sent to the connected speakers.

- Ensure your audio source is providing a clean, unclipped signal.
- Adjust volume levels using your audio source or preamplifier, not directly on the amplifier board.
- Avoid operating the amplifier at maximum volume for extended periods to prevent potential overheating or damage to speakers.

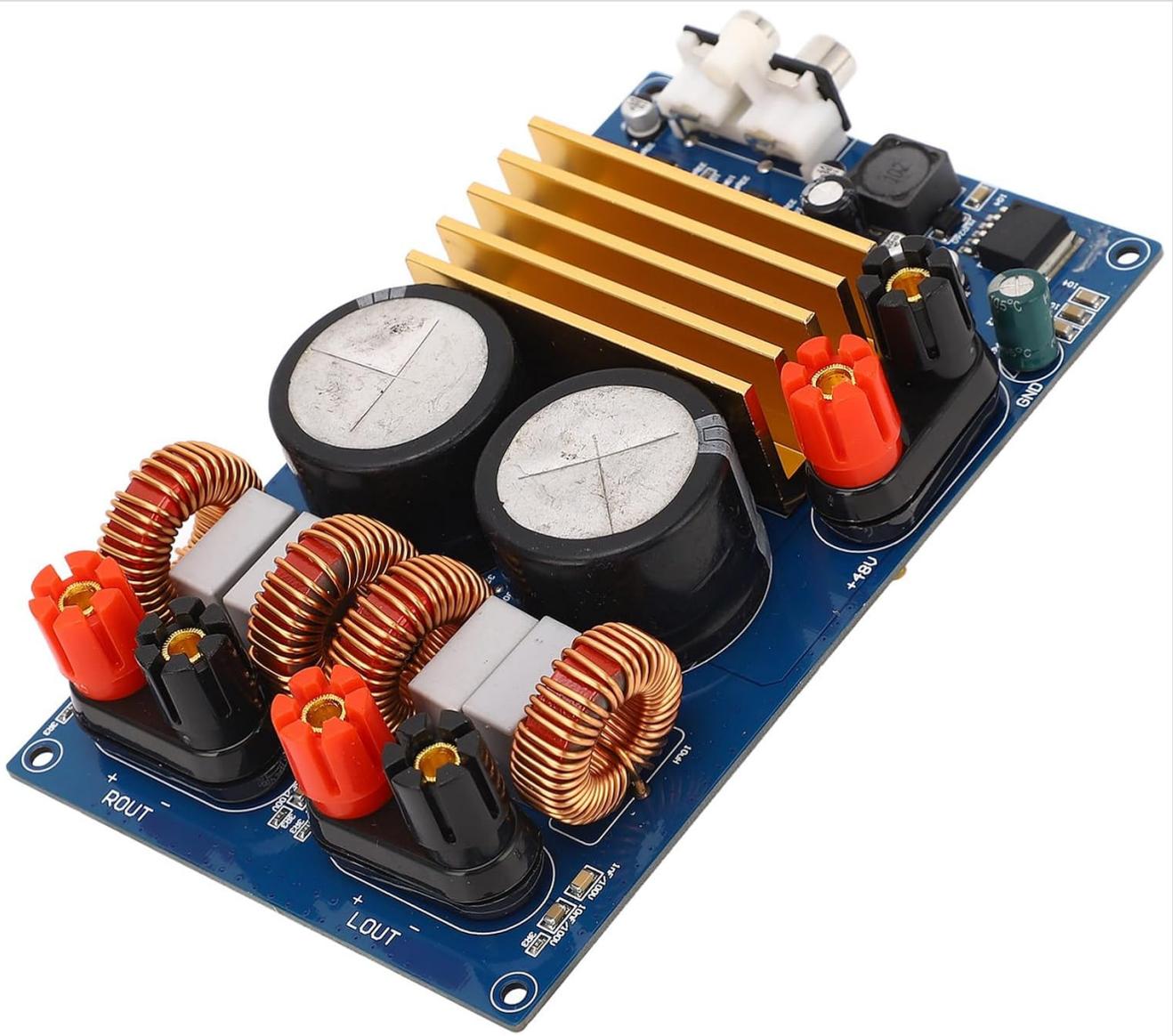


Figure 4: Top-down view of the amplifier board, highlighting the large main filter electrolytic capacitors and output inductors, crucial for stable power delivery.

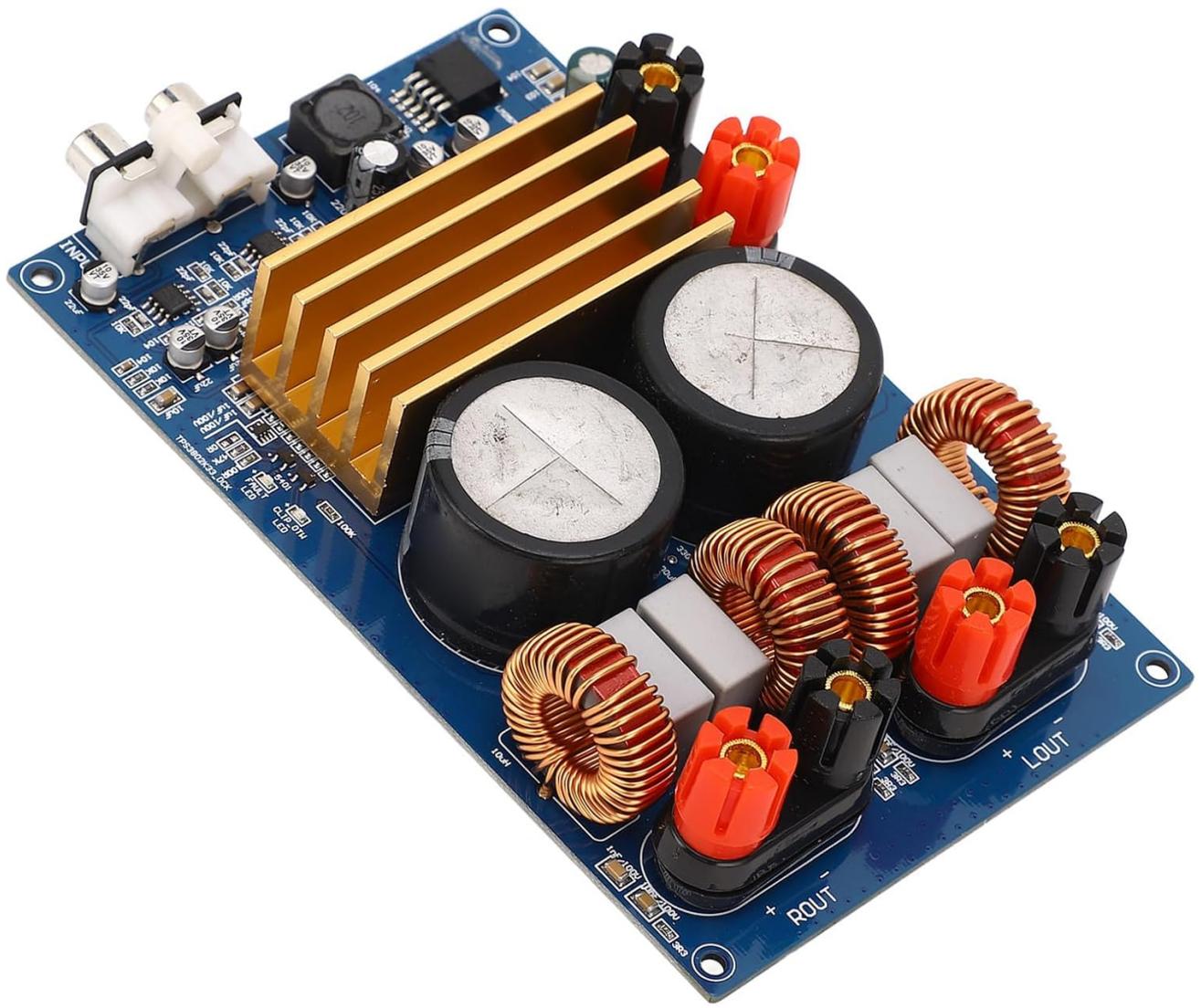


Figure 5: Angled view from the input side, clearly showing the RCA input connectors and associated smaller components on the circuit board.

## 6. MAINTENANCE

The Marhynchus TPA3255 Amplifier Board requires minimal maintenance. Adhering to these guidelines will help ensure its longevity:

- **Keep Clean:** Regularly clean the board with a soft, dry brush to remove dust accumulation, especially from the heatsink and component areas. Ensure the power is disconnected before cleaning.
- **Ventilation:** Ensure the amplifier board is installed in an environment with adequate airflow to prevent overheating. Do not obstruct the heatsink.
- **Avoid Moisture:** Protect the board from moisture, liquids, and extreme humidity.
- **Temperature Control:** Operate the board within its specified temperature range. Avoid direct sunlight or placement near heat sources.



Figure 6: Oblique view of the amplifier board, providing a comprehensive look at the component placement and overall circuit design.

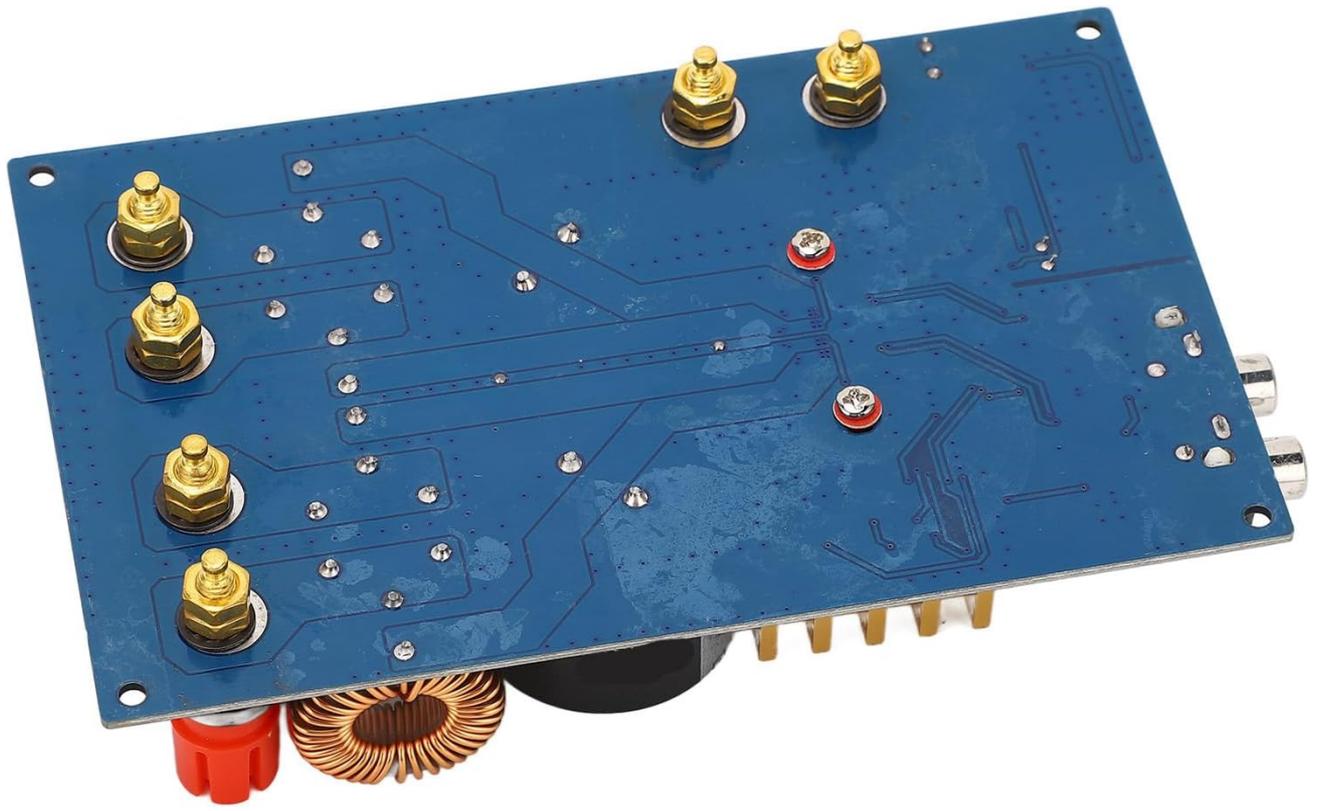


Figure 7: Bottom view of the Printed Circuit Board (PCB), showing the solder points, traces, and mounting holes.

## 7. TROUBLESHOOTING

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

- **No Sound:**

- Check if the power supply is correctly connected and providing the specified voltage (DC40-48V).
- Verify that audio input cables are securely connected to both the source and the amplifier board.
- Ensure speaker cables are correctly connected to the output terminals and to the speakers, with correct polarity.
- Confirm the audio source is playing and its volume is not muted or too low.

- **Distorted Sound:**

- Reduce the volume level from your audio source. Overdriving the input can cause distortion.
- Check speaker impedance. Ensure it matches the amplifier's capabilities (4Ω or 8Ω).
- Inspect all cable connections for loose contacts or damage.

- **Overheating:**

- Ensure adequate ventilation around the amplifier board. Remove any obstructions to airflow.
- Verify the power supply voltage is within the specified range (DC40-48V).
- Avoid operating at excessively high volumes for prolonged periods, especially with lower impedance speakers.

- **Intermittent Sound:**

- Check all connections for intermittent contact.
- Ensure the power supply is stable and not fluctuating.

If the issue persists after following these steps, please contact Marhynchus customer support for further assistance.

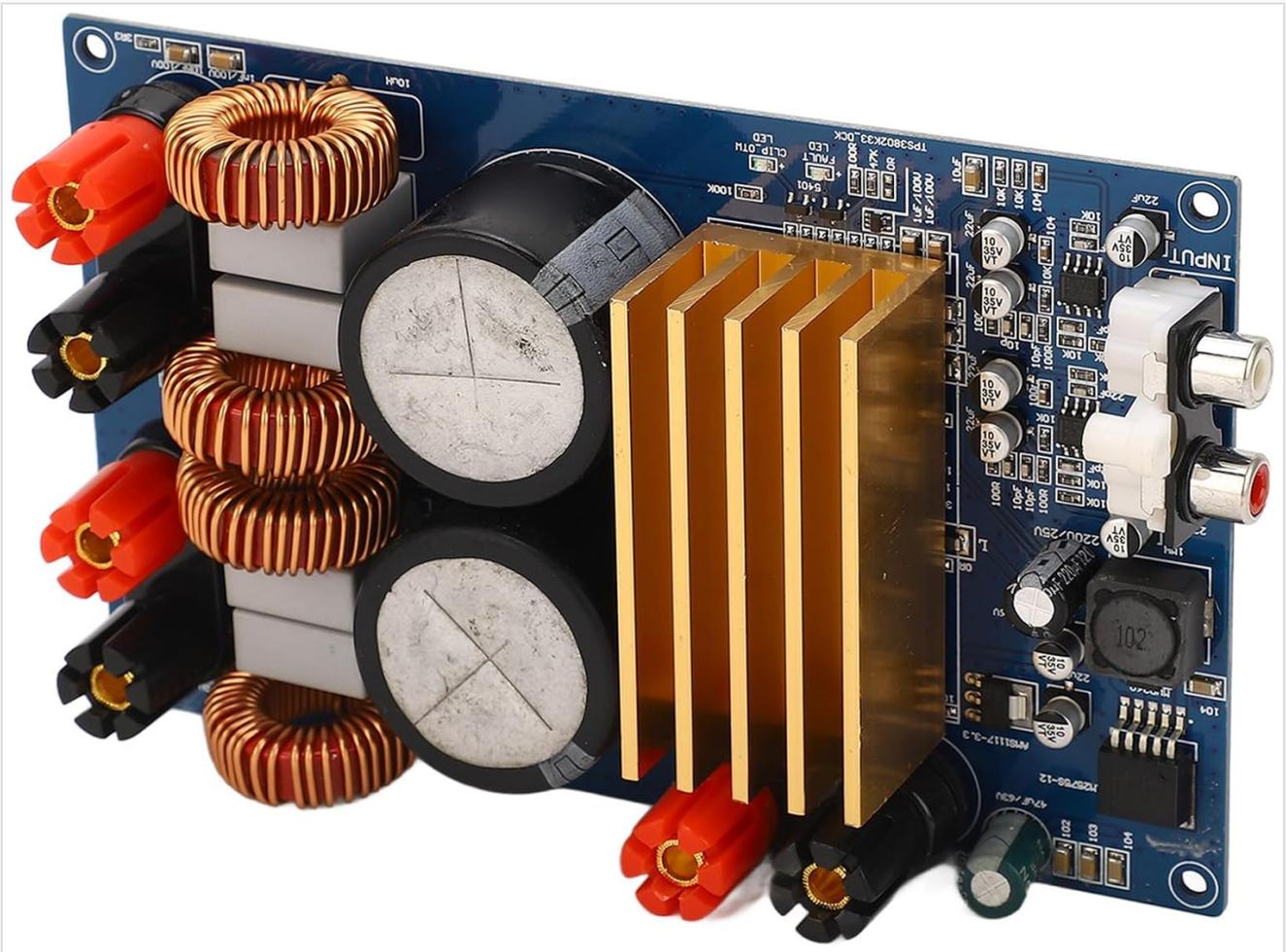


Figure 8: Close-up view of the output section, detailing the speaker terminals and the large output inductors responsible for filtering the Class D output.

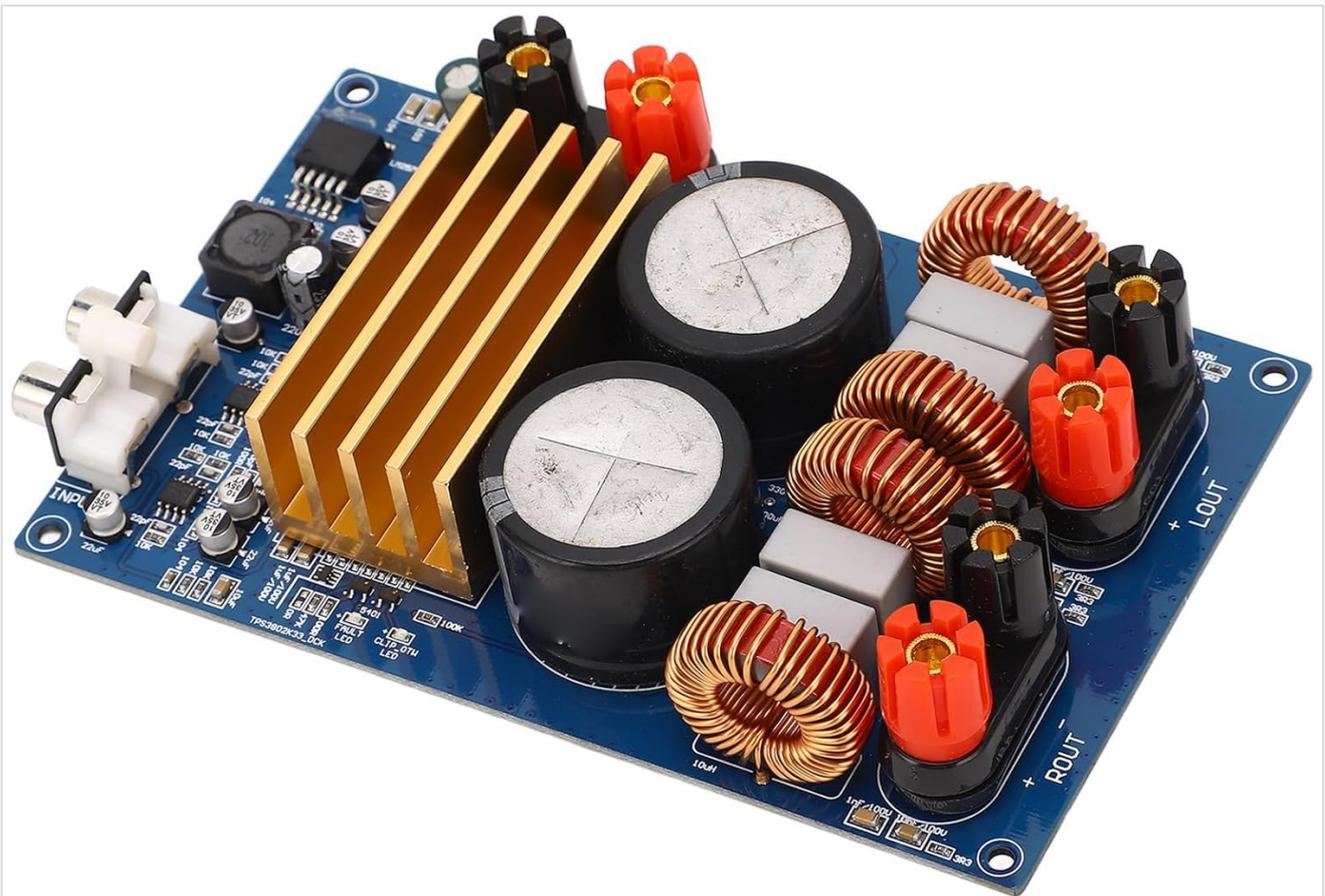


Figure 9: Detailed view of the input section, showing the RCA connectors and the surrounding smaller electronic components that process the incoming audio signal.

## 8. PACKAGE CONTENTS

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The package for the Marhynchus TPA3255 Amplifier Board typically includes:

- 1 x Marhynchus TPA3255 Amplifier Board

*Note: Additional accessories such as power supplies, audio cables, or speaker wires are usually sold separately.*

## 9. IMPORTANT NOTES

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- The color of certain components, such as capacitors, may vary due to manufacturing availability. For example, if black capacitors are unavailable, they may be replaced with green or yellow ones. This variation does not affect the product's performance or specifications.
- This product is an electronic component and should be handled with care. Static electricity can damage sensitive components.
- Installation should ideally be performed by individuals with experience in electronics to ensure proper and safe connection.

## 10. WARRANTY AND SUPPORT

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For warranty information, technical support, or any inquiries regarding your Marhynchus TPA3255 Amplifier Board, please refer to the seller's return policy or contact Marhynchus customer service directly through the platform of purchase. Please have your purchase details and model number (Marhynchusdg1q8mg3yi) ready when contacting support.