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Comimark X20X0-1-2050

Comimark TDA2050 Mono Audio Power Amplifier Board Module User Manual

Model: X20X0-1-2050

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1. Product Overview

The Comimark TDA2050 Mono Audio Power Amplifier Board Module is designed for single-channel audio amplification applications. It utilizes the TDA2050 amplifier chip to deliver output power ranging from 5W to 120W, suitable for various audio projects. This module operates with a DC/AC input voltage between 5V and 24V and supports speaker impedances from 4 to 16 ohms.
Key features include:

- Integrated TDA2050 amplifier chip.
- Single-channel (mono) audio output.
- Wide input voltage range: DC/AC 5-24V.
- Adjustable output power: 5W-120W.
- Compatible with 4-16 ohm speakers.

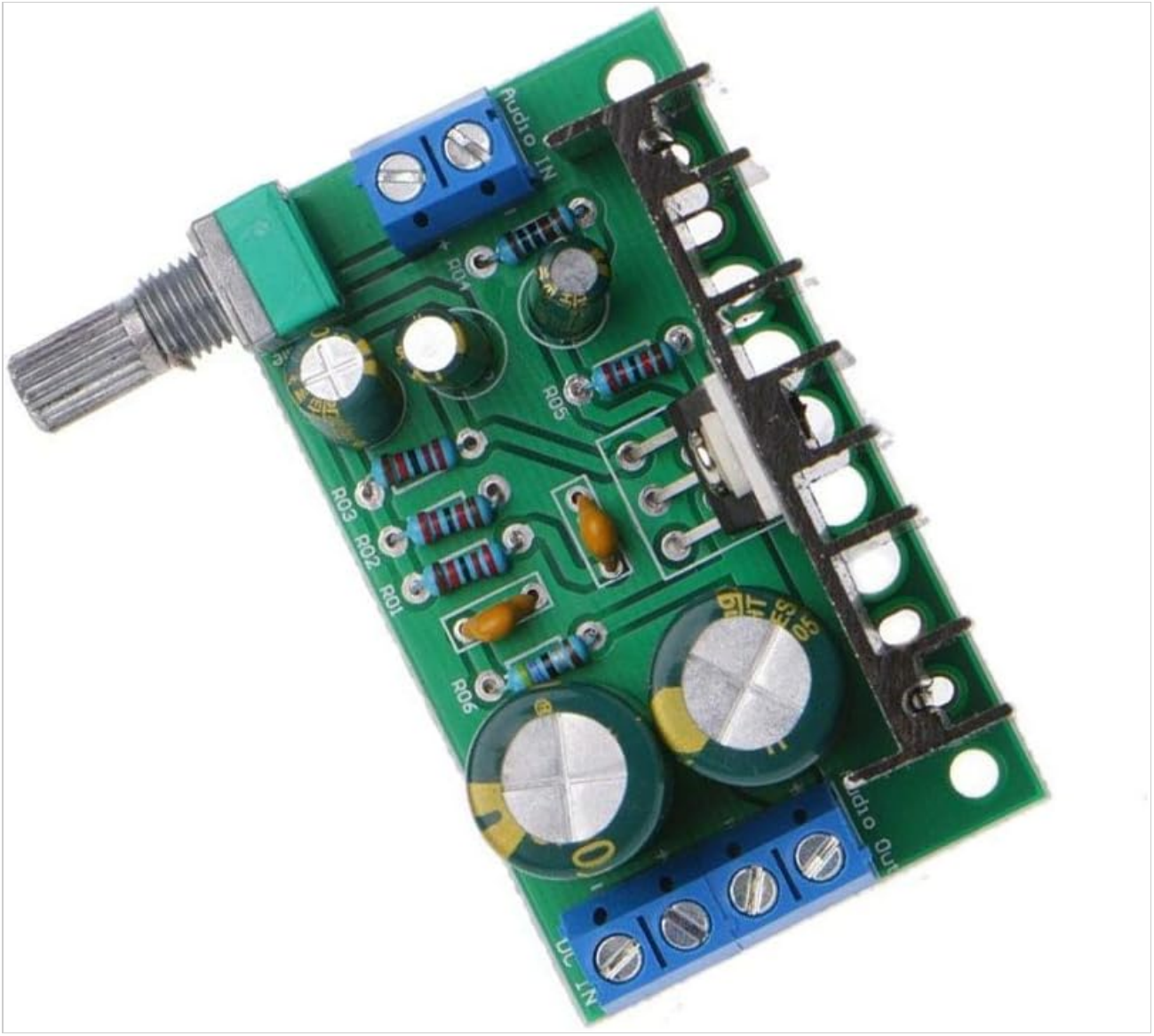


Figure 1: Overview of the Comimark TDA2050 Mono Audio Power Amplifier Board Module. This image shows the overall layout of the amplifier board, including the main components and the volume potentiometer.

2. Safety Information

- **Power Supply:** Ensure the input voltage is within the specified range of DC/AC 5-24V. Exceeding this range can damage the module.
- **Polarity:** Always observe correct polarity when connecting the power supply. Incorrect polarity can cause immediate damage.
- **Heat Dissipation:** The amplifier chip generates heat during operation. Ensure adequate ventilation or consider additional heatsinking, especially for prolonged use at higher power outputs.
- **Handling:** Handle the board with care to avoid damaging components or breaking solder joints. Electrostatic discharge (ESD) precautions are recommended.
- **Short Circuits:** Avoid short circuits between output terminals or between output and ground, as this can lead to component failure.
- **Professional Installation:** If you are unfamiliar with electronics, consider seeking assistance from a qualified professional for installation and wiring.

3. Technical Specifications

Feature	Specification
Model	X20X0-1-2050
Amplifier Chip	TDA2050
Number of Channels	1 (Mono)
Input Voltage	DC/AC 5-24V
Output Power	5W-120W
Output Impedance	4-16 ohms
Dimensions (L x W)	60mm x 35mm (2.36" x 1.38")
Material	Printed Circuit Board (PCB)
Item Weight	1.44 ounces



Figure 2: Physical dimensions of the amplifier board. This image illustrates the length and width of the module, which are approximately 6cm and 3.5cm respectively.

4. Setup and Connections

Before making any connections, ensure the power supply is disconnected. Refer to Figure 3 for a visual guide to the connection points.

product details

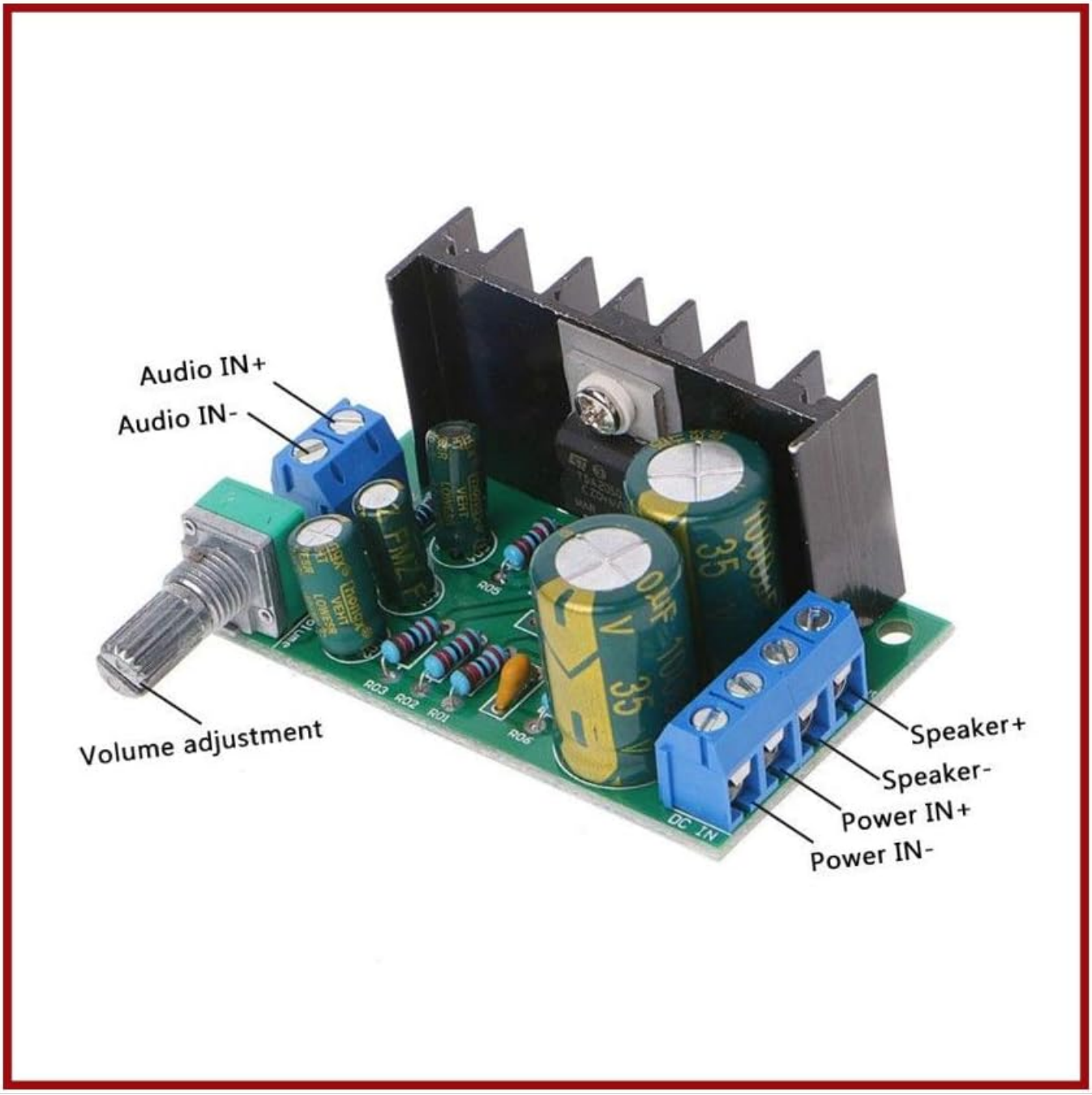


Figure 3: Detailed connection points for the amplifier board. This image clearly labels the audio input, power input, speaker output terminals, and the volume adjustment potentiometer.

1. **Audio Input Connection:**
    - Connect your audio source (e.g., smartphone, MP3 player, preamplifier) to the "Audio IN+" and "Audio IN-" terminals.
    - "Audio IN+" is for the positive audio signal, and "Audio IN-" is for the negative/ground audio signal.
2. **Speaker Output Connection:**
    - Connect your speaker to the "Speaker+" and "Speaker-" terminals.
    - Ensure your speaker's impedance is between 4 and 16 ohms.
3. **Power Supply Connection:**
    - Connect your DC or AC power supply (5-24V) to the "Power IN+" and "Power IN-" terminals.

- "Power IN+" is for the positive voltage, and "Power IN-" is for the negative/ground connection.
- ***Important:*** *Double-check polarity before applying power to prevent damage to the module.*

4. **Volume Adjustment:**
    - The module includes a potentiometer for volume adjustment. This knob controls the output level of the amplifier.

5. Operation

1. **Initial Power-Up:** After all connections are securely made, connect the power supply to the module.
2. **Volume Control:** Start with the volume adjustment knob set to its minimum position to avoid sudden loud sounds.
3. **Play Audio:** Begin playing audio from your connected source.
4. **Adjust Volume:** Slowly turn the volume adjustment knob clockwise to increase the audio output to your desired level.
5. **Power Down:** To turn off the amplifier, disconnect the power supply.

For optimal performance, ensure your audio source provides a clean signal. The TDA2050 chip is designed for robust audio amplification.

6. Maintenance

- **Cleaning:** Keep the module free from dust and debris. Use a soft, dry brush or compressed air for cleaning. Do not use liquid cleaners.
- **Environment:** Operate the module in a dry environment, away from moisture and extreme temperatures.
- **Inspections:** Periodically inspect solder joints and connections for any signs of loosening or corrosion, especially if the module is subjected to vibrations.
- **Component Integrity:** Avoid physical stress on components, particularly the capacitors and the heatsink, to prevent damage.

7. Troubleshooting

Problem	Possible Cause	Solution
No sound output	◦ No power or incorrect power connection. ◦ Incorrect audio input connection. ◦ Speaker not connected or faulty. ◦ Volume knob at minimum. ◦ Faulty audio source.	◦ Verify power supply voltage and polarity. ◦ Check "Audio IN+" and "Audio IN-" connections. ◦ Ensure speaker is correctly wired and functional. ◦ Increase volume gradually. ◦ Test with a different audio source.
Distorted or unclear sound	◦ Input signal too strong (clipping). ◦ Speaker impedance mismatch. ◦ Loose or poor connections. ◦ Power supply issues (e.g., ripple, insufficient current).	◦ Reduce the volume from the audio source. ◦ Ensure speaker impedance is 4-16 ohms. ◦ Inspect all wiring for secure connections. ◦ Use a stable and adequately rated power supply.

Module gets excessively hot	◦ Operating at high power for extended periods. ◦ Inadequate ventilation. ◦ Short circuit on output.	◦ Reduce output power or operating time. ◦ Ensure proper airflow around the heatsink. ◦ Check speaker connections for shorts.
Sudden pop or component failure	◦ Incorrect power supply voltage or polarity. ◦ Short circuit. ◦ Manufacturing defect (e.g., broken solder joint).	◦ Immediately disconnect power. ◦ Carefully inspect for visible damage or broken connections. ◦ If damage is significant, the module may need replacement.

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