

DollaTek TPA3116D2 Mono Digital Amplifier Board User Manual

Model: TPA3116 D2

1. Introduction

The DollaTek TPA3116D2 Mono Digital Amplifier Board is a high-efficiency Class D audio amplifier module designed for various audio applications, including DIY audio projects, home theater systems, and car audio setups. This board utilizes the TPA3116D2 chip, known for its efficiency and low idle loss, and features the NE5532 dual op-amp for enhanced audio performance. This manual provides essential information for the safe and effective use of your amplifier board.

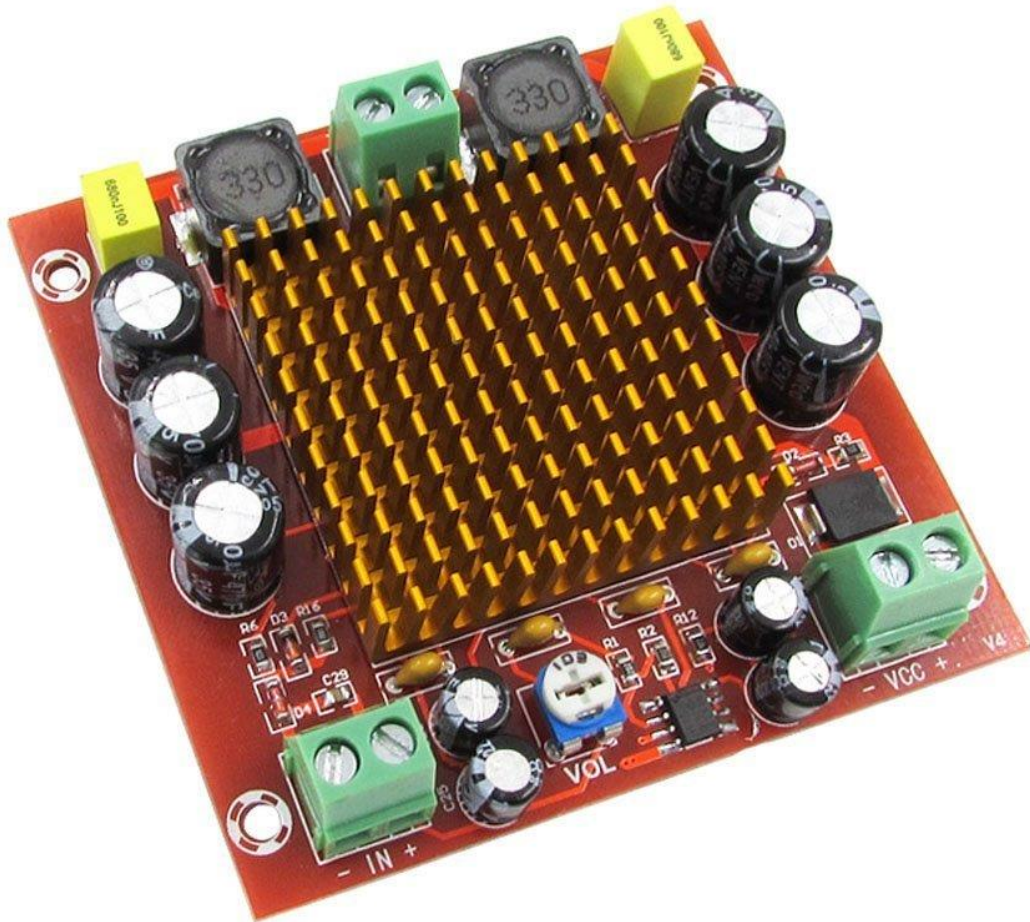


Figure 1: DollaTek TPA3116D2 Mono Digital Amplifier Board (Top View)

2. Safety Information

Please read and understand all safety instructions before operating this device. Improper use can lead to damage to the amplifier board or other components.

- **Power Supply:** Ensure the power supply voltage is within the specified range of **DC 12-26V**. Using an incorrect voltage can permanently damage the board.
- **Polarity:** Always observe correct polarity when connecting the power supply. Incorrect polarity will damage the board.
- **Speaker Impedance:** Connect speakers with appropriate impedance. Mismatched impedance can lead to overheating and damage.
- **Heat Management:** The board includes a heatsink. Ensure adequate ventilation to prevent overheating, especially during prolonged high-power operation.
- **Handling:** Avoid touching components on the board while it is powered on. Static electricity can also damage sensitive electronic components.
- **Environment:** Do not expose the board to moisture, extreme temperatures, or corrosive environments.

3. Package Contents

Upon opening the package, verify that all items are present and in good condition:

- 1x DollaTek TPA3116D2 Mono Digital Amplifier Board

4. Product Features

- Utilizes the TPA3116D2 chip for efficient Class D amplification.
- Wide operating voltage range: DC 12V to 26V.
- High performance dual op-amp NE5532 ICs for superior audio quality.
- Mono channel output.
- Equipped with 35V 470MF large capacity capacitors (rated up to 105 °C) for stable operation.
- Compact design with European terminals for easy connection.

5. Specifications

Feature	Specification
Chip Type	TPA3116D2
Op-Amp	NE5532
Supply Voltage	DC 12-26V
Output Power (Max)	150W (DC12V/50W, DC20V/100W, DC26V/150W)
Signal-to-Noise Ratio (SNR)	100dB
Number of Channels	1 (Mono)
Product Dimensions (L x W x H)	77.5 x 73 x 16mm (3.05 x 2.87 x 0.63in)
Net Weight	67g (0.15 lb)

6. Setup Instructions

Follow these steps to correctly set up your amplifier board:

6.1. Identify Terminals

Locate the input, output, and power terminals on the board. Refer to Figure 2 for visual guidance.

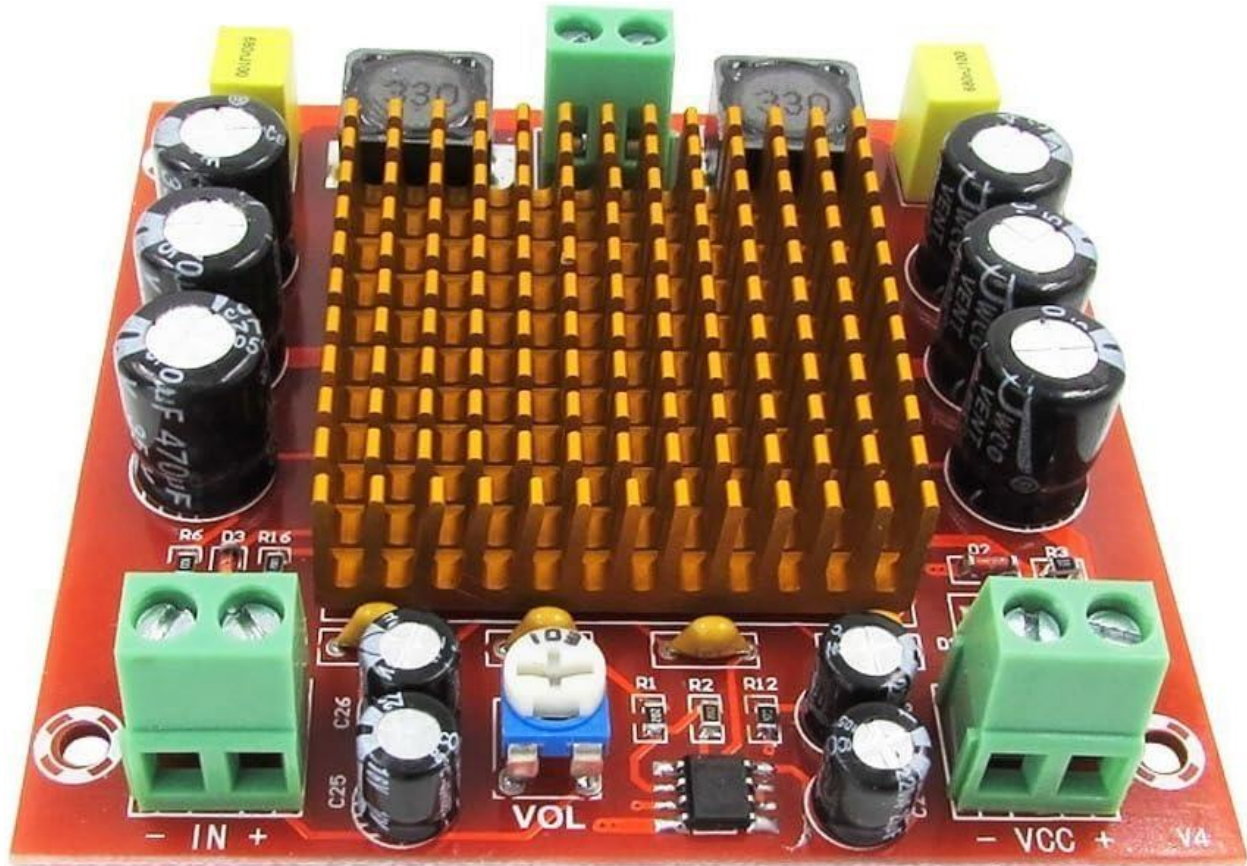


Figure 2: Input and Power Terminals

6.2. Power Supply Connection

1. Connect your DC 12-26V power supply to the **VCC** terminals. The positive (+) terminal of the power supply connects to the '+' terminal on the board, and the negative (-) terminal connects to the '-' terminal.
2. Ensure the power supply is off before making any connections.

6.3. Audio Input Connection

1. Connect your audio source (e.g., smartphone, MP3 player, pre-amplifier) to the **IN** terminals. The positive (+) audio signal connects to the '+' terminal, and the negative (-) audio signal (ground) connects to the '-' terminal.
2. Use shielded audio cables to minimize noise interference.

6.4. Speaker Output Connection

1. Connect your speaker to the **OUT** terminals. The positive (+) speaker terminal connects to the '+' terminal on the board, and the negative (-) speaker terminal connects to the '-' terminal.
2. Ensure your speaker's impedance is compatible with the amplifier board.

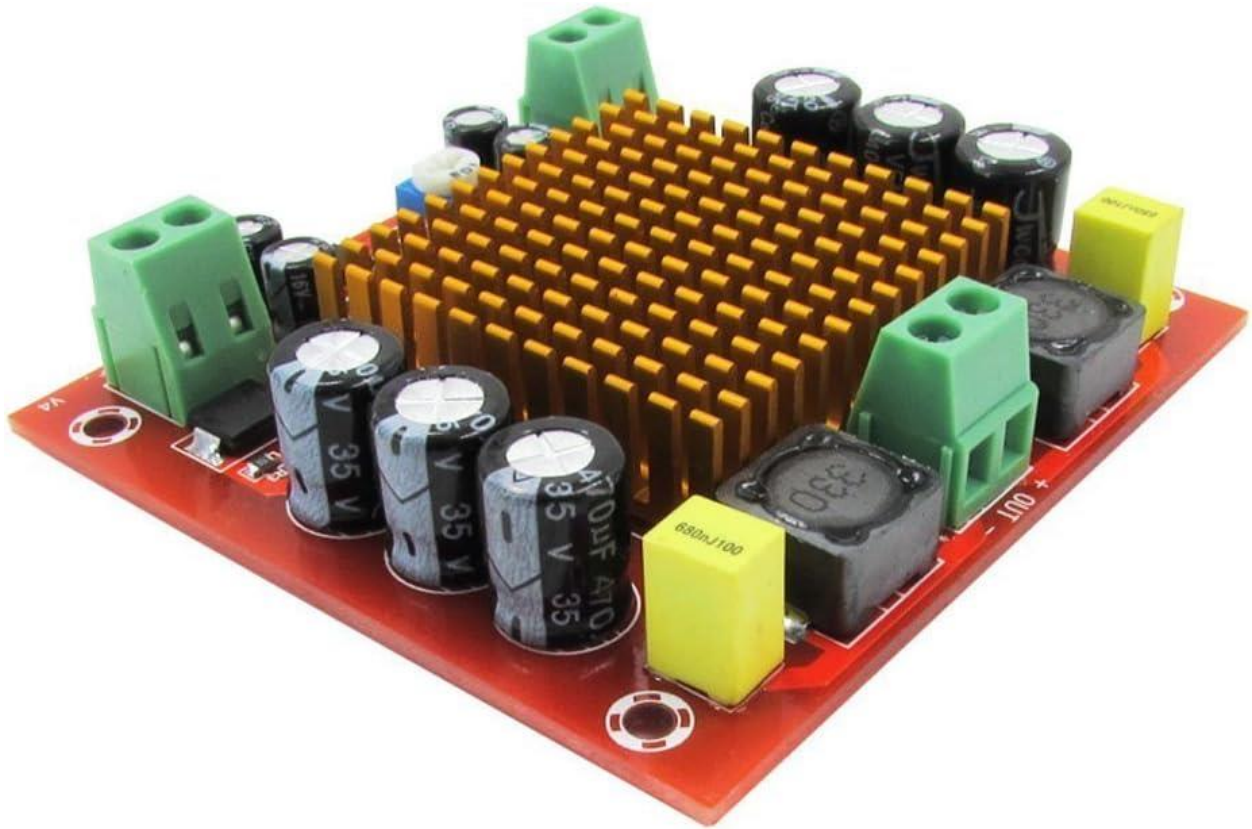


Figure 3: Speaker Output Terminals

7. Operating Instructions

1. **Initial Volume Setting:** Before powering on, turn the volume potentiometer (labeled 'VOL') to its minimum setting (fully counter-clockwise).
2. **Power On:** Connect the power supply to an electrical outlet. The board should power on.
3. **Play Audio:** Start playing audio from your connected source.
4. **Adjust Volume:** Slowly rotate the volume potentiometer clockwise to increase the audio output to your desired level.
5. **Power Off:** To turn off the amplifier, first reduce the volume to minimum, then disconnect the power supply.

8. Maintenance

Proper maintenance ensures the longevity and optimal performance of your amplifier board.

- **Cleaning:** Use a soft, dry cloth to gently clean the board. Avoid using liquids or abrasive cleaners. Ensure the board is powered off and disconnected before cleaning.
- **Ventilation:** Regularly check that the heatsink is free from dust and debris to maintain effective heat dissipation.
- **Storage:** When not in use for extended periods, store the board in a dry, cool environment, away from direct sunlight and moisture.
- **Inspections:** Periodically inspect connections for looseness or corrosion.

9. Troubleshooting

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

9.1. No Sound Output

- **Check Power:** Ensure the power supply is connected correctly and providing the specified voltage (DC 12-26V).
- **Verify Connections:** Confirm all audio input and speaker output connections are secure and correctly polarized.
- **Volume Level:** Ensure the volume potentiometer on the board and on your audio source is turned up.
- **Audio Source:** Test with a different audio source to rule out issues with the input device.
- **Speaker Functionality:** Test your speaker with another audio device to confirm it is working.

9.2. Distorted or Unclear Sound

- **Input Level:** Reduce the input volume from your audio source. Overdriving the input can cause distortion.
- **Power Supply:** A weak or unstable power supply can cause distortion. Ensure your power supply can deliver sufficient current.
- **Speaker Impedance:** Verify that the speaker impedance matches the amplifier's requirements.
- **Connections:** Check for loose or corroded connections.

9.3. Excessive Heat

- **Ventilation:** Ensure the board has adequate airflow around the heatsink. Do not enclose it in a sealed space without ventilation.
- **Load:** Operating at maximum power for extended periods or with an incorrect speaker load can cause excessive heat.
- **Power Supply Voltage:** While the board supports up to 26V, higher voltages generate more heat. Consider a lower voltage power supply if heat is a persistent issue at moderate volumes.

10. Warranty and Support

DollaTek products are designed for reliability and performance. For specific warranty information or technical support, please refer to the retailer or platform where the product was purchased. Keep your purchase receipt as proof of purchase.

For general inquiries or further assistance, you may visit the DollaTek official website or contact their customer service channels if available.