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› HiLetgo TPA3110 XH-A232 Digital Stereo Audio Amplifier Board User Manual

HiLetgo XH-A232

HiLetgo TPA3110 XH-A232 Digital Stereo Audio Amplifier Board User Manual

Model: XH-A232

1. PRODUCT OVERVIEW

The HiLetgo TPA3110 XH-A232 is a compact and efficient Class D digital stereo audio amplifier board. Designed for various audio projects, it delivers 30W + 30W output power, making it suitable for driving 2.0 channel speaker systems. Its small form factor and wide operating voltage range offer flexibility for integration into custom audio setups.

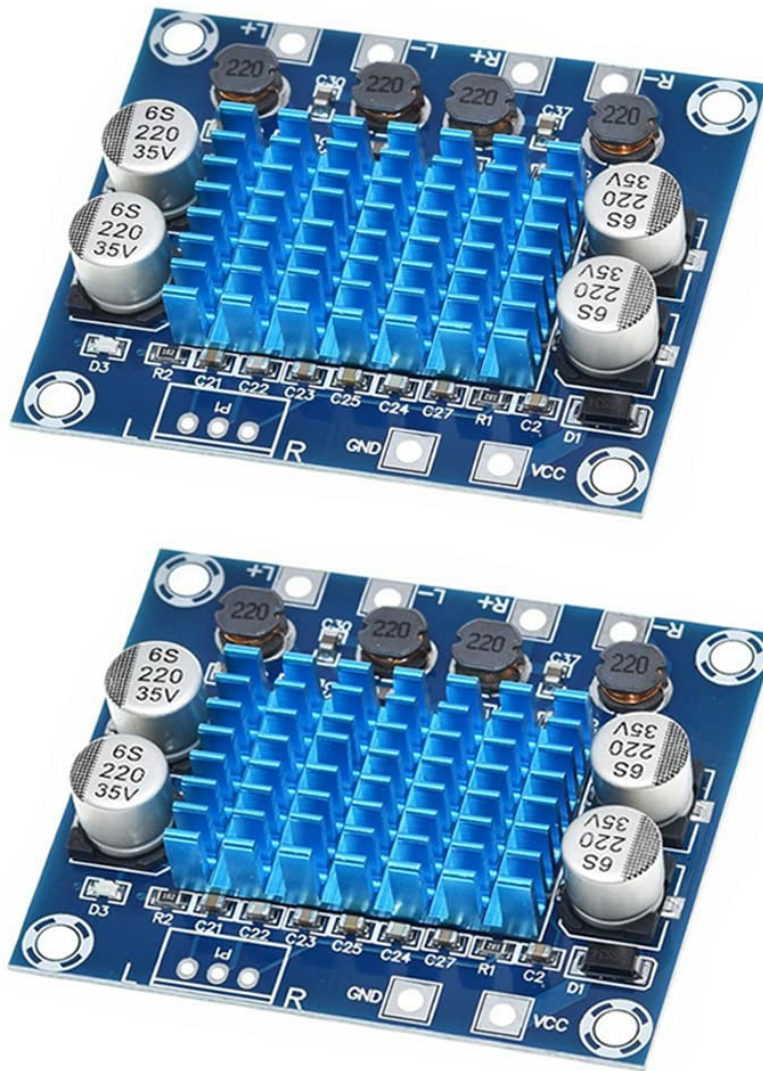


Figure 1: Top view of the HiLetgo TPA3110 XH-A232 Digital Stereo Audio Amplifier Board.

2. SPECIFICATIONS

This section details the technical specifications of the TPA3110 XH-A232 amplifier board.

Parameter	Value
Chip	TPA3110
Amplifier Type	Class D
Supply Voltage	DC 8V - 26V
Output Power	30W + 30W (60W Total)
Channels	2.0 Stereo
Output Impedance	4-8 Ohm

Parameter	Value
Current Requirement	Greater than 3A
Signal to Noise Ratio (SNR)	100dB
Dimensions	53mm x 45mm x 14mm
Weight	21g
Material Type	PCB
Mounting Type	Surface Mount
Certification	FCC

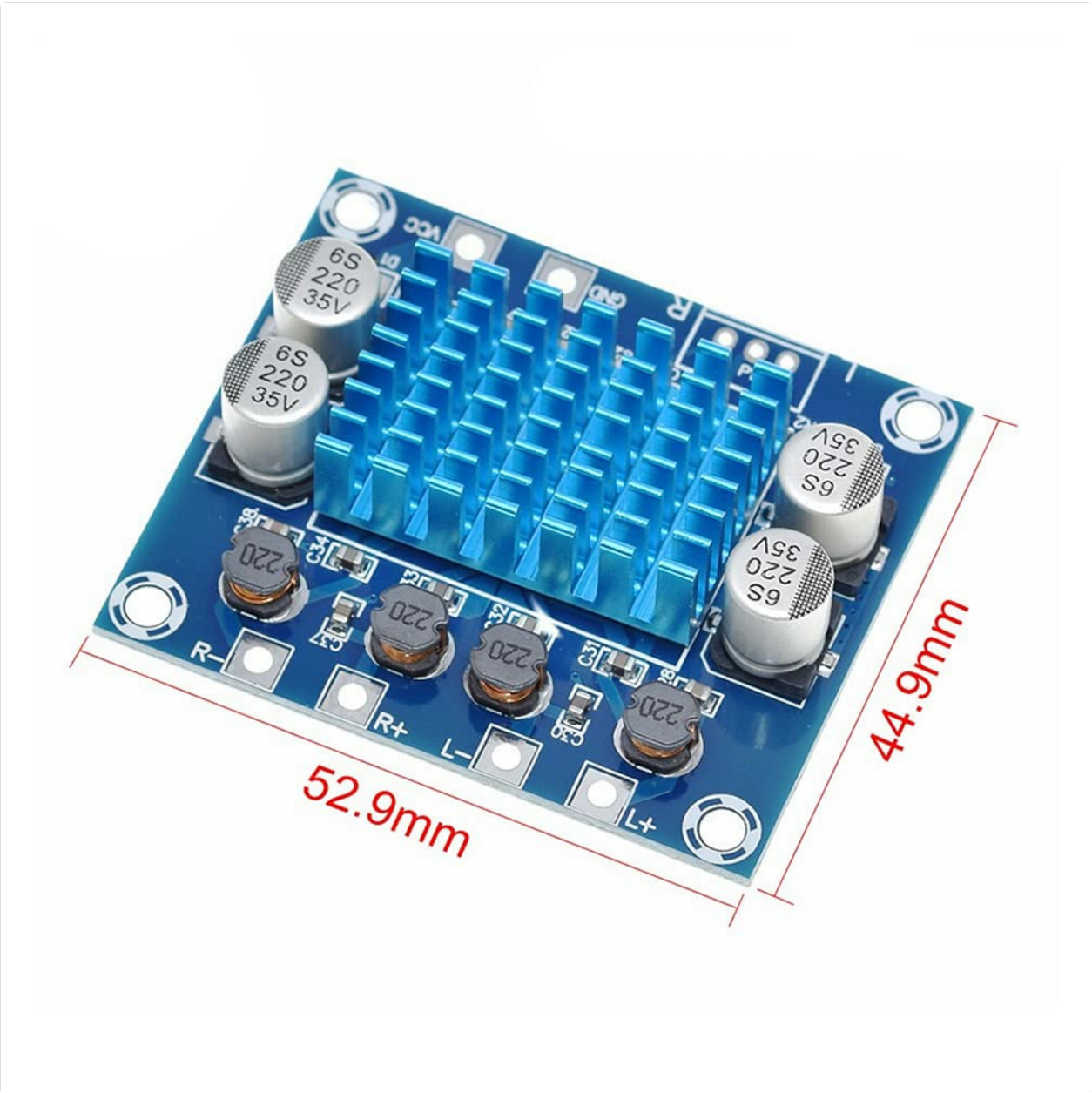


Figure 2: Amplifier board dimensions.

3. SETUP INSTRUCTIONS

Follow these steps to correctly set up your HiLetgo TPA3110 XH-A232 amplifier board.

1. **Power Supply Connection:** Connect a DC power supply within the 8V-26V range to the VCC (positive) and GND (negative) terminals. Ensure the power supply can provide at least 3A of current.
2. **Audio Input Connection:** Connect your audio source (e.g., smartphone, MP3 player, PC) to the audio input terminals. The board typically has designated L (Left), R (Right), and GND (Ground) input points.
3. **Speaker Connection:** Connect your 4-8 Ohm passive speakers to the output terminals. The board provides L+ / L- for the left channel and R+ / R- for the right channel. Ensure correct polarity for optimal sound quality.

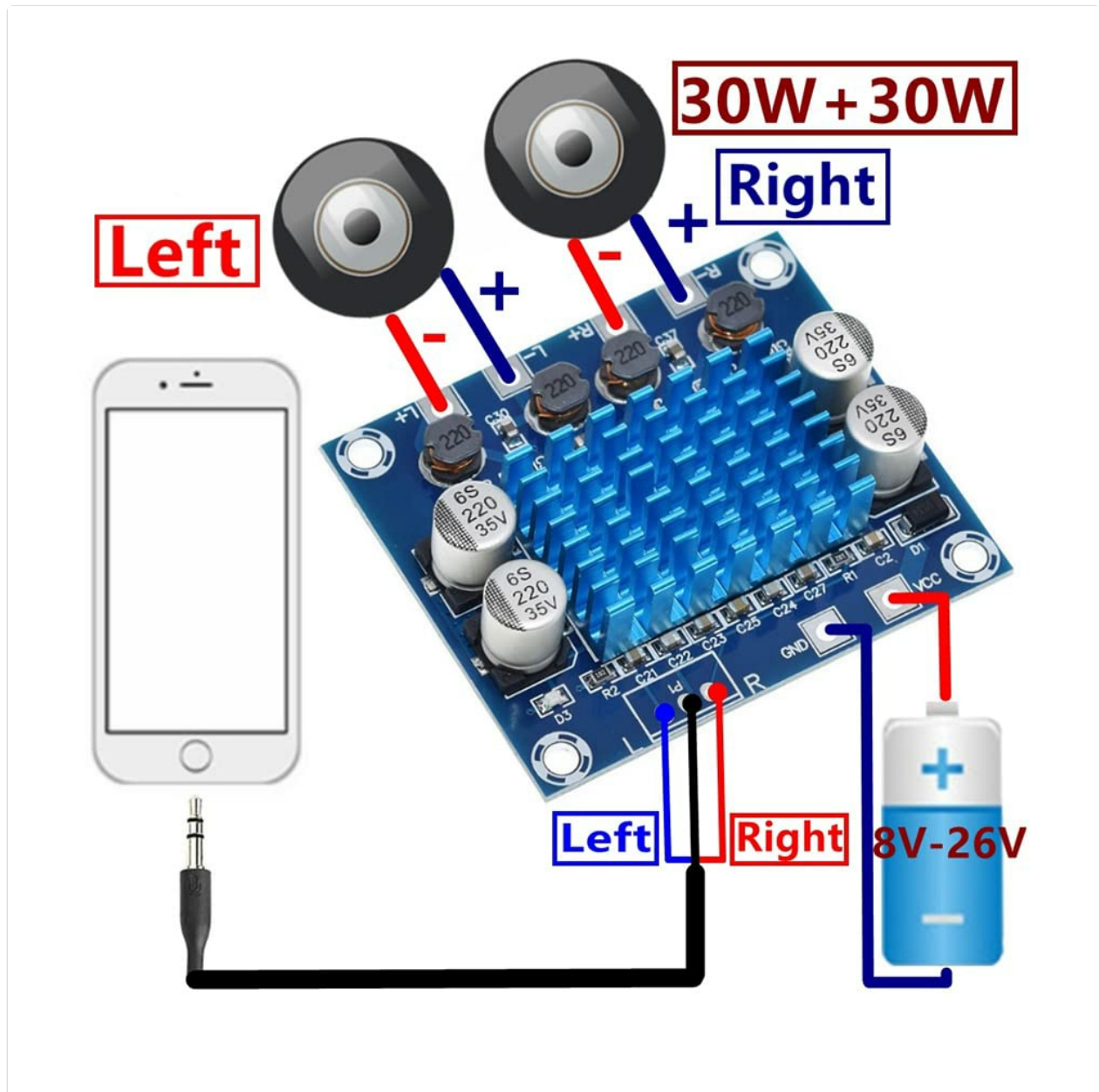


Figure 3: Connection diagram for the amplifier board.

Important Note on Speaker Polarity: Some users have reported that the silkscreen markings for speaker polarity on the board (R- R+ L- L+) might be reversed compared to standard conventions or the chip's schematics. If you experience poor audio quality or phase issues, try reversing the polarity of one or both speakers (e.g., connect R+ to R- and R- to R+). Listen for improved sound clarity and bass response.

4. OPERATING INSTRUCTIONS

Once the amplifier board is correctly wired, operating it is straightforward:

1. **Power On:** Apply power to the DC 8V-26V input terminals. The board will typically power on immediately.
2. **Audio Playback:** Start playing audio from your connected source.
3. **Volume Control:** Volume is controlled directly from your audio source device (e.g., smartphone, PC). The amplifier board itself does not have onboard volume controls.
4. **Power Off:** Disconnect the power supply from the board to turn it off.

5. MAINTENANCE

To ensure the longevity and optimal performance of your amplifier board, consider the following maintenance guidelines:

- **Keep Clean:** Regularly clean the board with a soft, dry brush to remove dust and debris. Avoid using liquids or harsh chemicals.
- **Proper Ventilation:** Ensure the board is installed in an environment with adequate airflow to prevent overheating, especially during prolonged operation at high volumes. The integrated heatsink helps dissipate heat, but external ventilation is still beneficial.
- **Avoid Physical Stress:** Handle the board carefully to prevent damage to components or solder joints.
- **Stable Power Supply:** Use a stable and regulated DC power supply within the specified voltage range. Fluctuations or insufficient current can lead to distortion or damage.

6. TROUBLESHOOTING

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

- **No Sound:**
 - Verify that the power supply is connected correctly and providing the specified voltage (8V-26V DC) and sufficient current (over 3A).
 - Check all audio input and speaker connections for proper wiring and secure contact.
 - Ensure your audio source is playing and its volume is turned up.
- **Distorted Sound:**
 - Reduce the volume from your audio source. Overdriving the input can cause distortion.
 - Ensure your power supply is stable and can deliver enough current. Insufficient current can lead to clipping and distortion, especially at higher volumes or with 4 Ohm loads. Consider adding a capacitor bank to the power input if using a 'just adequate' supply.
 - Check speaker impedance. Ensure it is within the 4-8 Ohm range.
 - Review speaker polarity. As noted in the Setup section, incorrect polarity can cause phase issues and poor sound. Try reversing the connections for one or both speakers.
- **Overheating:**
 - Ensure adequate ventilation around the board.
 - Verify that the output impedance of your speakers matches the recommended range (4-8 Ohm). Using speakers with too low impedance can cause excessive heat.

- Reduce the operating volume if the board consistently runs hot.

7. SUPPORT

For technical assistance or if you encounter any issues with your HiLetgo TPA3110 XH-A232 Digital Stereo Audio Amplifier Board, please contact our support team:

Email: support@hiletgo.com

Please provide your product model (XH-A232) and a detailed description of the issue when contacting support to facilitate a quicker resolution.

8. PACKAGING INFORMATION



Figure 4: Example of HiLetgo product packaging.

The HiLetgo TPA3110 XH-A232 amplifier boards are typically supplied in a cardboard box or sealed plastic bags, ensuring protection during transit. The packaging includes branding and contact information for support.

