



Real Strength
Full Protection
Power Indicator
High Sound Quality
Easy for Integration
Optimized Thermal Control
Support Volume Control Board- VC01 (Optional)



Mid-Power Audio Amplifier Board Series - Mono

For Desktop Amplifier, Personal Computers,
Home DIY, Vending Machines, Lifts,
Interactive Kiosks, Home Theater Receiver, Car Audio,
Musical Instrument Amplifiers, Consumer Audio
Applications, etc.

1 Overview



1 x 30Watt Class D Audio Amplifier Board - TPA3110 (AA-AB31471)

- 3 x 2 inches PCB Size
- Output Power
 - 30W@4Ohm 16V DC THD+N 10%
 - 20W@4Ohm 16V DC THD+N 1%
- Power Indicator
- Heat Dissipation through PCB Copper
- Over Current Protection
- Over Temperature Protection
- Input Reverse Polarity Protection
- Shutdown Function
- Weight: 128g/0.28 lbs (±10%)
- Typical Load: 4Ohm
- Power Supply Range: DC 10V-19V



1 x 40Watt Class D Audio Amplifier Board - TPA3110 (AA-AB31521)

- 3.6 x 2.7 inches PCB Size
- Output Power
 - 40W@4Ohm 19V DC THD+N 10%
 - 31W@4Ohm 19V DC THD+N 1%
- Power Indicator
- Heat Dissipation through PCB Copper
- Over Current Protection
- Over Temperature Protection
- Input Reverse Polarity Protection
- Shutdown Function
- Weight: 156g/0.34 lbs (±10%)
- Typical Load: 4Ohm
- Power Supply Range: DC 10V-24V



1 x 60Watt Class D Audio Amplifier Board - TPA3118 (AA-AB31211)

- 3.6 x 2.7 inches PCB Size
- Output Power
 - 60W@4Ohm 24V DC THD+N 10%
 - 50W@4Ohm 24V DC THD+N 1%
- Power Indicator
- Over Current Protection
- Over Temperature Protection
- Input Reverse Polarity Protection
- Heat Dissipation through PCB Copper
- Mute and Standby Function
- Weight: 158g/0.35 lbs (±10%)
- Typical Load: 4Ohm
- Power Supply Range: DC 10V-26V



1 x 100 Watt Class D Audio Amplifier Board - TPA3116 (AA-AB31184)

- 3.6 x 2.7 inches PCB Size
- Output Power
 - 100W@2Ohm 21V DC THD+N 10%
 - 87W@2Ohm 21V DC THD+N 1%
- Power Indicator
- Negative Heat Dissipation
- Over Current Protection
- Over Temperature Protection
- Input Reverse Polarity Protection
- Optimized Heatsink Design
- Mute and Standby Function
- Weight: 225g/0.50 lbs (±10%)
- Typical Load: 2Ohm
- Power Supply Range: DC 10V-24V



1 X 200 Watt Class D Audio Amplifier Board - T-AMP (AA-AB31282)

- 4.8 x 3.6 inches PCB Size
- Output Power
 - 200W@3Ohm 34V DC THD+N 10%
 - 150W@3Ohm 34V DC THD+N 1%
- Power and Clip Indicator
- Support Volume Control Board (VC01)
- BTL Configuration
- Temperature Control Fan (Optional)
- Over Current Protection
- Over Temperature Protection
- Optimized Heatsink Design
- 4-screw Easy Installation
- Shutdown Function
- Weight: 398g/0.88 lbs (±10%)
- Typical Load: 3Ohm
- Power Supply Range: DC 15V-36V

2 Applications



Soundbox



Jukebox



Desktop Audio



Jukecase



Coffee Machine



Vending Machine



Game Machine



Toy



ATM



Ticket Checker



Guide Machine



Recreational Vehicle



Yacht



Motorcycle



Home Furnishing



Hotel

3 Benefits

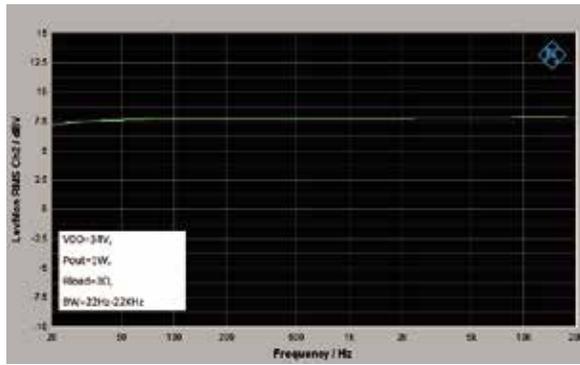
High Sound Quality

High sound quality is one of primary goals that this series focuses to achieve. All original and authorized components can help vastly reduce distortion caused by the output filters and compensate any frequency response variations due to the different loads connected to the amplifier. Besides, layout of the PCB is of great importance in this kind of amplifiers. In addition, ten years of experience contributes to such exceptional audio fidelity. Engineers of Sure Electronics, with ten years' experience of Hi-Fi and Hobby audio, have been dedicated to bringing sophisticated sound to customers through Class- D. With supreme features like signal loop and components optimization during design and measurement, we can provide better sound quality products, with higher SNR more than 96dB and lower THD+N as 0.0051%*.

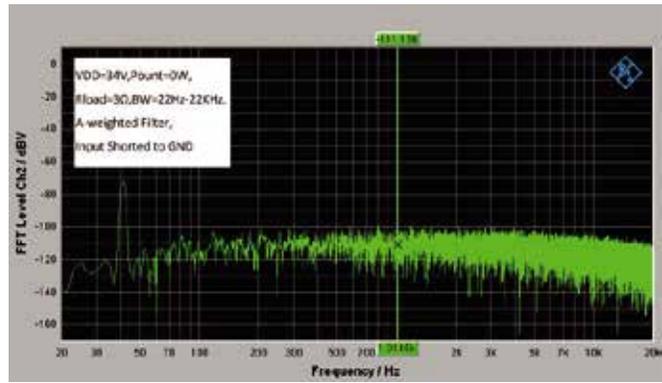
For most mid power (30W - 100W, 100W not included) applications, the robust heatsink on board provides enough cooling. For higher power ($\geq 100W$) applications, a low noise cooling fan would be mounted atop the robust heat-sink for a drastic reduction for the system temperature meanwhile making sure excellent hearing experience.

*Notes: SNR and THD+N vary to boards. Please refer to datasheet for detailed information.

Frequency Response

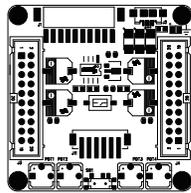
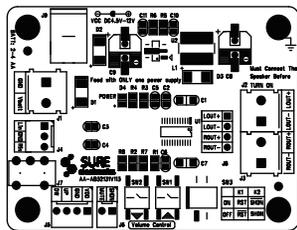
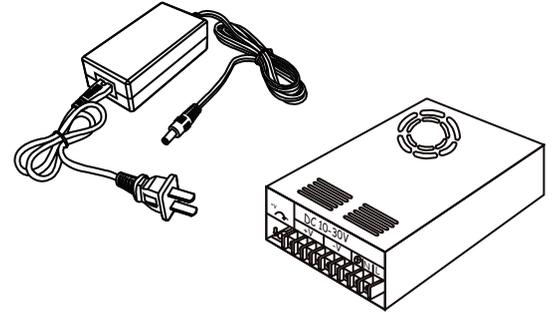


Noise Floor



Power Supply Solution

For audio amplifier, performance depends on its quality, plus some external factors, like power supply. Sure Electronics provides full range power supplies from several watts to several kilo watts from Mean Well, Huntkey and Delta. All of three manufacturers are top five manufacturers of industry power supplies and power adapters. When comparing different solutions by cost, board space, efficiency and performance, they will provide good performance with high efficiency.

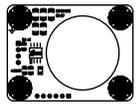


DSP

Full Set of Solution Available

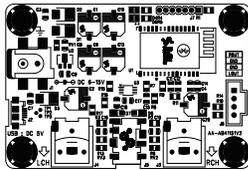
As an audio solution provider, Sure Electronics is committed to offering full set of audio system solution for customers' requirements, from power supply to speaker, including signal transceiver, signal processor, crossover and so on. Considering the facilitation of system integration, we choose conventional but corresponding connectors on different products. This series can connect with Sure's volume control board, Bluetooth receiver board and DSP through RCA jack on each board for more functions assembly.

Please kindly be noticed that when using amplifier boards with other Sure's products such as Bluetooth receiver board, noise may occur if they are not connected in common ground. In this case, two boards should be powered by separate power supply or customers can connect 'GND' of two boards. Any problems please contact store@sure-electronics.com for technical support.



Volume Control Board

Bluetooth Receiver Board



High Efficiency

This series combines highly efficient audio amplifiers which meanwhile dissipate low power in idle or standby mode. All the boards are very optimally designed to provide a low power consumption with superb efficiency, which is over 90% at full output power, nearly twice as efficient as Class-AB amplifiers, the highest reaching 95%, contributing to the save of customers' cost. For amplifiers whose power per channel is lower than 100W, over 90% efficient Class-D operation eliminates need for heat sinks, resulting in their small and light feature. For AA-AB31282 and AA-AB31184, optimized heatsink has been equipped for better heat dissipation, ensuring the reliability and durability.

Easy for Integration

We provide L-style bracket with four holes at the edge for customers' convenience, which immobilizes the amplifier boards in installation.

It sounds great if customers can realize the control of their amplifier boards simply, such as adjusting the volume, muting or shutting down the board without powering off. This series achieves easy operation through the pin for 'Mute', 'Standby' or 'Shutdown' on the board. Customers can plug out these functions through cables too. (The control functions are not all the same of all boards. Please take reference to manuals for detailed information.) The terminals are not all installed in advance, which are optional and available. Any requirements on terminals please contact us.



L-style Bracket

Ready for FCC, CE

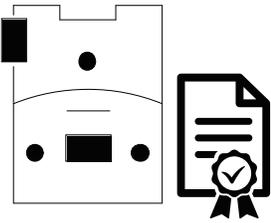
This series has passed the pre-test of FCC and CE in EMI and EMC parts, which simplifies the task of customers achieving certifications for the final product, saving much valuable time and costs. The FCC and CE certification is directed at final products with enclosure. So we have done the pre-test for EMC part in the laboratory but we didn't issue the paper certifications. The final equipment must be re-confirmed that it still meets EMC directives.

The whole series has inherited Sure's consistent solid built quality and been added all relevant protection features to ensure long-time usage and outstanding reliability which can minimize customers' maintenance costs.



Great Components from Great Suppliers

Diverse interfaces have been equipped in the standard products of this series, such as RCA jack for audio input, power supply jack for power adapter and Molex connector for speaker output, to provide customers handy connection without worries of confusing the function of each connector. For industrial customers who may not need these connectors, we also provide customization service as unsoldering the interfaces to save customers' labor cost and time- to- market. In addition, customization services as soldering the optional terminal connectors for power supply, audio input, control can be offered too. Please send email to store@sure-electronics.com for further discussion if you have requirements on customization. To provide customers with reliable products, Sure Electronics guarantee that all components we used are from original manufacturer or authorized distributors only. We can always provide commercial invoices from our suppliers - only original or authorized.



5 Years Product Life

Sure Electronics guarantees at least 5 years PLC (Product Life Cycle) to our customers, this means, once products are launched to the market, you can place order and get technical support from Sure Electronics and Sure Electronics' distributors within 5 years. For any halt production caused by the discontinued core materials, Sure Electronics will provide full pin to pin, screw to screw compatible solutions for you to ensure you a smooth Production Transition.



Zero Stock for Customers

Sure Electronics always prepares full back-up for customers, which greatly reduces the delivery time to fit for the customers' 'Just - in - Time' manufacturing and 'Zero Stock' Policy.

We guarantee each standard product at least 100 pieces inventory while best sellers have more than 1000 pieces inventory. This means Sure Electronics keeps at least 100K pieces circuit board in stock at any time. With more than 80 CBM of finished products and more than 100 CBM half-finished products, Sure Electronics can ship more than 98% requirements of our standard products to save customers' time and cost.

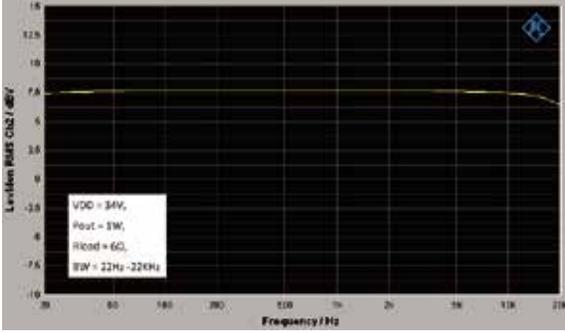


Full Protection

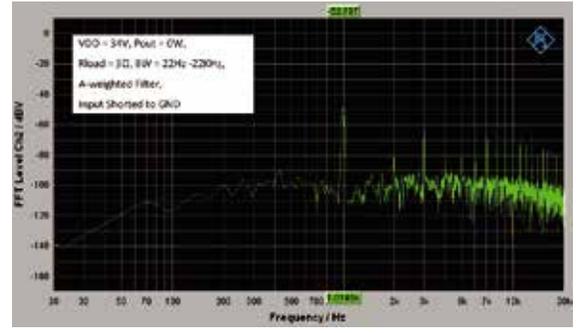
The whole series has been equipped with overcurrent protection and over temperature protection to avoid any damages caused to amplifier boards or personals. Amplifier boards would turn off automatically if it is overheated or the current has reached the limit value. Besides of the above two protection, input anti- reversing protection has been employed (except AA-AB31282), helping to avoid permanent stress caused by improper operation and improving the reliability and safety.

4 Typical Performance Graphs

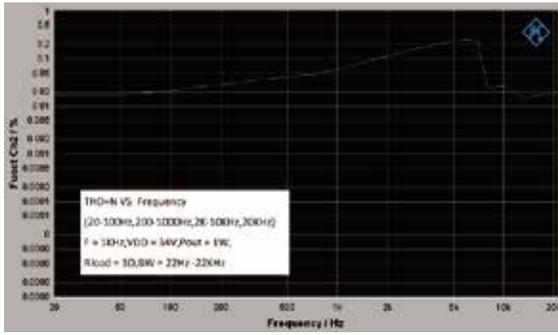
Frequency Response



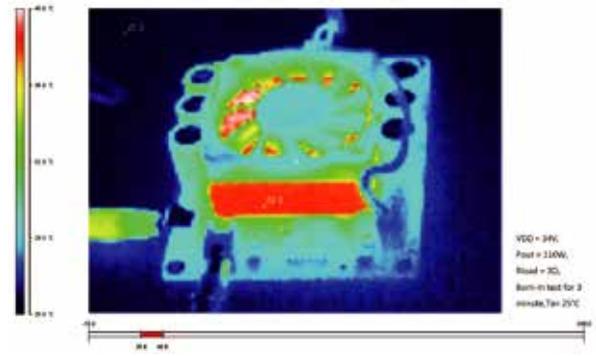
Noise Floor



Distortion Spectrum

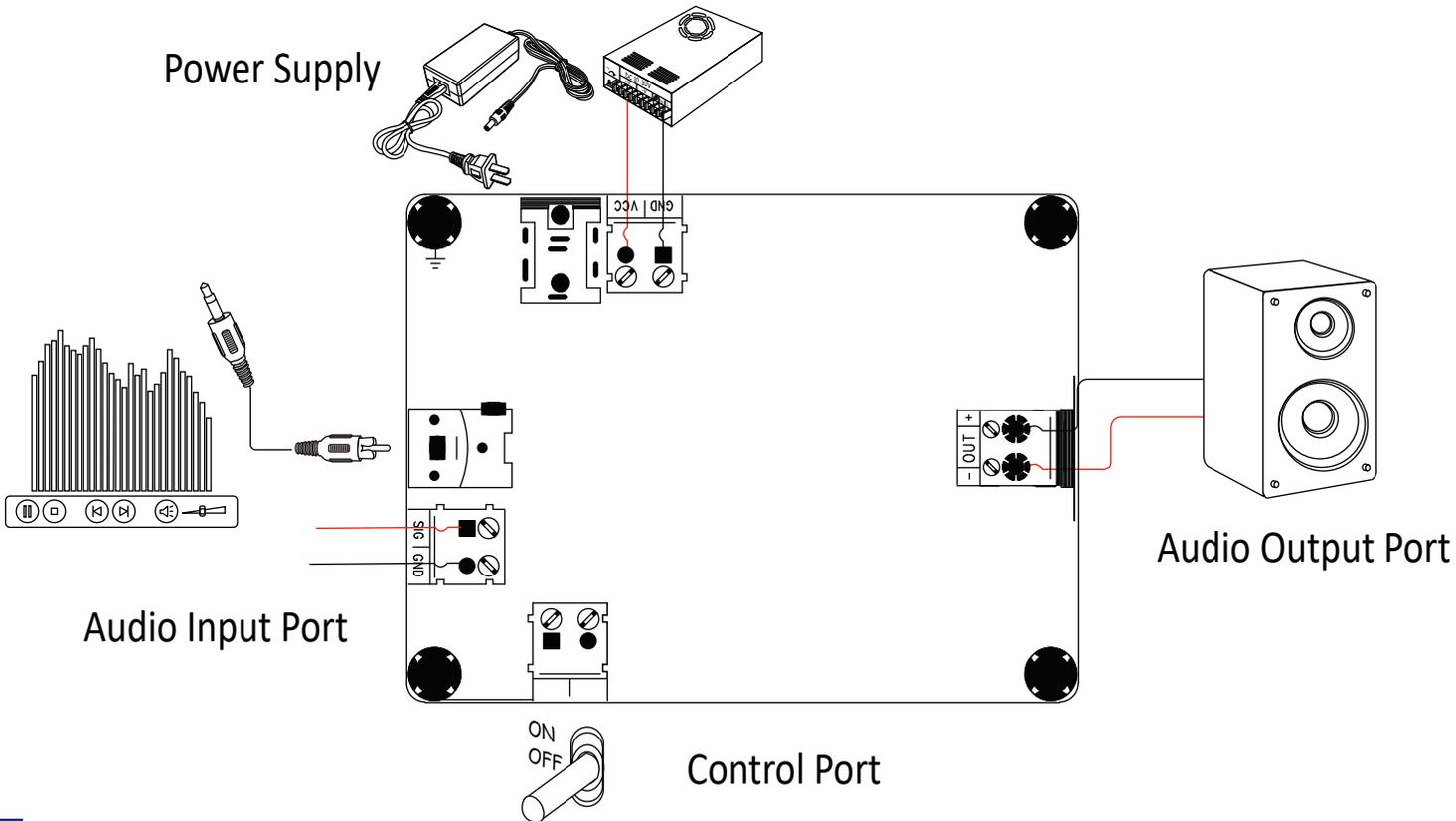


Thermal Image



Typical performance graphs adopt from 1 X 220 Watt 3 Ohm Class D Audio Amplifier Board - TDA7498E (AA-AB31371). All parameters were tested with Rohde & Schwarz UPV audio analyzer (AES17 filter enabled) and Audio Precision AUX0025 filter. For customers who ask for more detailed specifications and parameter settings, please send an inquiry e-mail to store@sure-electronics.com.

5 Connection



6 Model Selection Guide

Model Number	Output Power	Power Supply Range	Typical Load	Amplifier IC	Dimensions	Listed Price
AA-AB31471	1 X 30Watt	DC10-19V	4Ω	TPA3110	3"X2"#1	\$16.90
AA-AB31521	1 X 40Watt	DC10-24V	4Ω	TPA3110	3.6"X2.7"#2	\$19.90
AA-AB31211	1 X 60Watt	DC10-26V	4Ω	TPA3118	3.6"X2.7"	\$22.90
AA-AB31184	1 X 100Watt	DC 10-24V	2Ω	TPA3116	3.6"X2.7"	\$26.90
AA-AB31282	1 X 200Watt	DC 15-36V	3Ω	T-AMP	4.8"X3.6"#3	\$39.90

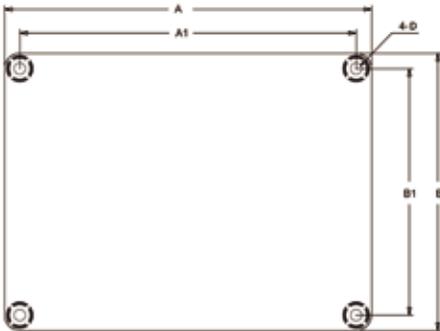
Notes:

1. Reliable power supply solutions can be provided for any audio applications. Sure Electronics is also a power supply provider of Mean Well, Delta and HuntKey. Send an e-mail to store@sure-electronics.com if you need a power supply solution.
2. The output power is rated at the condition THD+N 10%, 1KHz sine wave. None typical load may cause rating power reduction.
3. If you'll buy the same model of amplifier board for the second time at the MOQ 100, please inform us the version and time of last purchase in order to avoid application incompatibility brought by version upgrade.

7 Mechanical Dimensions

Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.02 (±0.50)
- Sure Electronics provides connecting and dimensional diagrams for customers. Under no circumstance do we provide schematics.



Dimensions	A (inch/mm)	A1 (inch/mm)	B (inch/mm)	B1 (inch/mm)	D (inch/mm)
#1	3.0/76.2	2.7/68.58	2.0/50.8	1.7/43.18	0.12/3.1
#2	3.6/91.44	3.3/83.82	2.7/68.58	2.4/60.96	0.14/3.6
#3	4.80/121.92	4.40/111.76	3.60/91.44	3.20/81.28	0.15/3.8

8 Disclaimers

1. Sure Electronics reserves the right to wipe off the characters, logos and patterns on the surface of the chips without any notification. Any inquiries about the models of the chips will be ignored. Sure Electronics will guarantee all the chips are original ones and the performance and quality will not be affected by such operations.
2. Amplifier boards are recommended for experienced users only with the proper equipment to measure the voltage output of the power supplies. Failure to use the minimum recommended power supply voids the warranty of amplifier boards.
3. Sure Electronics only takes responsibility for the loss caused by the audio amplifier board itself. We are not responsible for any joint liability.
4. Power supply at rated voltage are required for operation to dedicate its full output potential for maximum output.

9 Contact Us



3F, Building F6,
No.9, Weidi Road, Xianlin, Qixia Dist.,
Nanjing, China
Tel: +86-25-85260045
Fax: +86-25-85260046
Web: www.wondom.com
store.sure-electronics.com
Email: store@sure-electronics.com
Skype: sureelectronics