

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



# Mid-Power Audio Amplifier Board Series - Stereo

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

# 1 Overview



**2 x 30 Watt Class D Audio Amplifier Board - TPA3118 (AA-AB32472)**

- 3.60 x 2.70 inches PCB Size
- Output Power
  - 30W@8Ohm 24V DC THD+N 10%
  - 23W@8Ohm 24V DC THD+N 1%
- Power Indicator
- Heat Dissipation through PCB Copper
- Overcurrent Protection
- Overtemperature Protection
- Reverse Polarity Protection
- Mute and Standby Function
- Weight: 169g/0.37 lbs (±10%)
- Typical Load: 8Ohm
- Power Supply Range: DC 10V-26V



**2 x 50Watt Class D Audio Amplifier Board - TPA3116 (AA-AB32178)**

- 3.6 x 2.7 inches PCB Size
- Output Power
  - 50W@40hm 21V DC THD+N 10%
  - 36W@40hm 21V DC THD+N 1%
- Power Indicator
- Optimized Heatsink Design
- Overcurrent Protection
- Overtemperature Protection
- Reverse Polarity Protection
- Mute and Standby Function
- Weight: 213g/0.47 lbs (±10%)
- Typical Load: 40hm
- Power Supply Range: DC 10V-24V



**2 x 50Watt Class D Audio Amplifier Board - TDA7492 (AA-AB32174)**

- 4.8 x 3.6 inches PCB Size
- Output Power
  - 50W@60hm 24V DC THD+N 10%
  - 39W@60hm 24V DC THD+N 1%
- Power Indicator
- Optimized Heatsink Design
- Overcurrent Protection
- Overtemperature Protection
- Reverse Polarity Protection
- Mute and Standby Function
- Gain Adjustable
- Weight: 396g/0.87 lbs (±10%)
- Typical Load: 60hm
- Power Supply Range: DC 10V-27V



**2 x 50Watt Class D Compact Audio Amplifier Board - TDA7492 (AA-AB32179)**

- 3.6 x 2.7 inches PCB Size
- Output Power
  - 50W@60hm 24V DC THD+N 10%
  - 38W@60hm 24V DC THD+N 1%
- Power Indicator
- Optimized Heatsink Design
- Overcurrent Protection
- Overtemperature Protection
- Reverse Polarity Protection
- Mute and Standby Function
- Weight: 225g/0.50 lbs (±10%)
- Typical Load: 60hm
- Power Supply Range: DC 10V-27V



**2 x 100Watt Class D Audio Amplifier Board - TDA7498 (AA-AB32189)**

- 4.8 x 3.6 inches PCB Size
- Output Power
  - 100W@60hm 36V DC THD+N 10%
  - 99W@60hm 36V DC THD+N 1%
- Power Indicator
- Temperature Control Fan
- Overcurrent Protection
- Overtemperature Protection
- Reverse Polarity Protection
- Mute and Standby Function
- Gain Adjustable
- Weight: 427g/0.94 lbs (±10%)
- Typical Load: 60hm
- Power Supply Range: DC 15V-36V



**2 x 100Watt Class D Audio Amplifier Board - T-AMP(AA-AB32971)**

- 4.8 x 3.6 inches PCB Size
- Output Power
  - 100W@40hm 27V DC THD+N 10%
  - 72W@40hm 27V DC THD+N 1%
- Power and Clip Indicator
- Optimized Heatsink Design
- Overcurrent Protection
- Overtemperature Protection
- Standby Function
- Temperature Control Fan
- Support Volume Control Board (VC01)
- Weight: 482g/1.06 lbs (±10%)
- Typical Load: 40hm
- Power Supply Range: DC 15V-27V



**2 x 150Watt Class D Audio Amplifier Board - TAS5613 (AA-AB32221)**

- 6 x 4.5 inches PCB Size
- Output Power
  - 150W@40hm 36V DC THD+N 10%
  - 144W@40hm 36V DC THD+N 1%
- Power Indicator
- Optimized Heatsink Design
- Temperature Control Fan
- Overcurrent Protection
- Overtemperature Protection
- Shutdown Function
- Weight: 636g/ 1.40 lbs (±10%)
- Typical Load: 40hm
- Power Supply Range: DC 20V-36V



**2 x 160Watt Class D Audio Amplifier Board - TDA7498E (AA-AB32361)**

- 4.8 x 3.6 inches PCB Size
- Output Power
  - 160W@40hm 36V DC THD+N 10%
  - 111W@40hm 36V DC THD+N 1%
- Power Indicator
- Low Noise Cooling Fan
- Overcurrent Protection
- Overtemperature Protection
- Mute and Standby Function
- Gain Adjustable
- Weight: 416g/ 0.92 lbs (±10%)
- Typical Load: 40hm
- Power Supply Range: DC 15V-36V



**2 x 200Watt Class D Audio Amplifier Board - T-AMP(AA-AB32281)**

- 4.8 x 3.6 inches PCB Size
- Output Power
  - 200W@30hm 36V DC THD+N 10%
  - 128W@30hm 36V DC THD+N 1%
- Power and Clip Indicator
- Optimized Heatsink Design
- Overcurrent Protection
- Overtemperature Protection
- Shutdown Function
- Temperature Control Fan
- Support Volume Control Board (VC01)
- Weight: 518g/ 1.14 lbs (±10%)
- Typical Load: 30hm
- 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

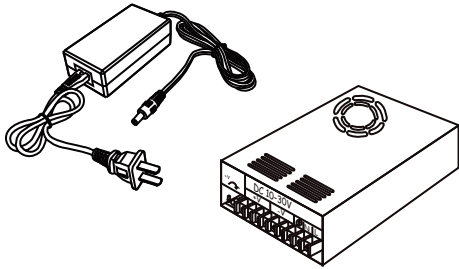
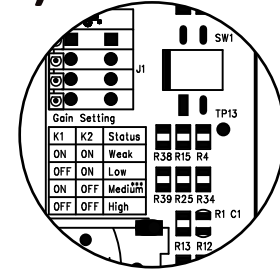
High sound quality is one of primary goals that this series focuses to achieve. All original and authorized components can help vastly reduce distortion caused by the output filters and compensate any frequency response variations due to the different loads connected to the amplifier. Besides, layout 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 94dB and lower THD+N as 0.039% (@40hm, 10W, 1kHz)\*.

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.

\*Note: The SNR and THD+N is different from board to board. Please refer to datasheet for detailed information of each model.

# Four Fixed Gain Setting Adjustable (Optional)

Four fixed gain setting is available to allow for volume control at the source. Please be aware that no potentiometer is provided to manually adjust the volume and a 50kΩ potentiometer can be installed by customers themselves, which may cause signal attenuation. It is recommended that the output signal amplitude is no larger than the power supply voltage once the input signal reaches the peak.

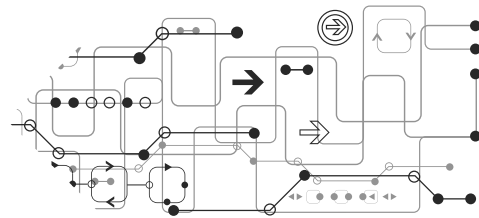


## Power Supply Solution

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.

## High Efficiency

All boards are very optimally designed to provide a low power consumption with superb efficiency. Sure Electronics has selected high efficiency chipset from companies that enjoy a great reputation for amplifier design. Elaborate PCB layout makes all amplifier boards in this series feature high efficiency no less than that of original chip.



## Real Strength for Any Applications

The entire series is designed with the fundamental concept of reliability and ruggedness and inherits Sure Electronics' coherent design style. With selected components integrated, the load capacity and robustness have been highly improved. Amplifier boards are tested by 1kW resistor dummy load and 2550W air conditioner in parallel. The whole series sustained tough extensive environmental testing to ensure the module robustness. These tests include e.g. thermal shock and cycling, humid condensing and non-condensing conditions and procession, which are made to ensure each amplifier can survive in the roughest industrial environment or subwoofer applications. For customers with requirements of high power and high reliability, this series is the fully-deserving choice with high cost-effective. Contact Sure Electronics with [store@sure-electronics.com](mailto:store@sure-electronics.com) to feel the true RMS and real strength.

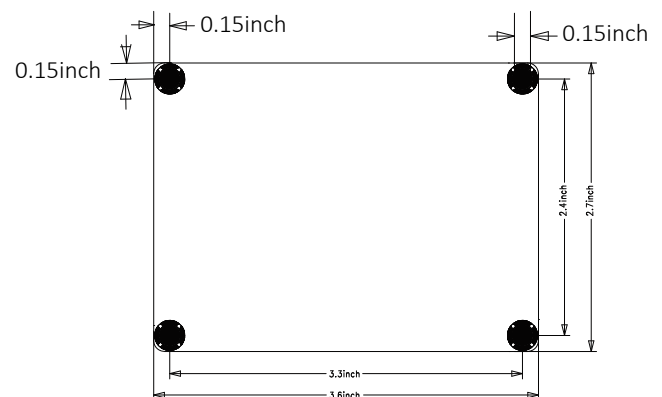
## Easy for Integration

- Easy Installation with 4 Screws

Immobilization of the board is the key of system integration, taking which into consideration, 4 standard screw holes are provided at four corners on all boards for customers' convenience. The specific dimension is shown in left picture. Any requirements of standoffs and screws, please contact us.

- 4:3 PCB Size

Dimension is a paramount consideration in audio system, which must fit in perfectly to save cost and space. 95% of Sure Electronics' products realize 4:3 PCB size with different dimensions (3.6 x 2.7 inches, 4.8 x 3.6 inches, 6 x 4.5 inches, 9 x 6 inches), meeting diverse demands of customers and simplifying installation difficulties. Please contact [store@sure-electronics.com](mailto:store@sure-electronics.com) if you have any problem or customization requirements.



**\*Note: This is dimension of amplifier boards in 3.6 x 2.7inches PCB size. Any requirements on other size please contact us.**

- **Diverse Terminals for Swift Connection**

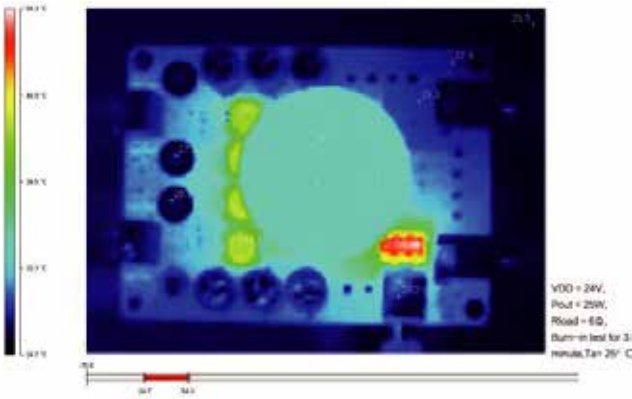
Potential problems may occur due to improper operation of cables plugging in falsely in assembling. To prevent the problems at the utmost, diverse connectors have been used for different functions on these boards for common use. A 5.5mm/2.5mm DC power adapter jack is provided on boards for convenient power connection meanwhile two ports for switching power supply are available too. When the boards are powered, customers can use either of the two ports for powering other boards with same power supply range. RCA jack is used for audio input and RJ128 is mounting on for audio output. Ports for audio line input are reserved on all boards for customers' potential demands but please note that connectors are not installed in standard products in advance. Any requirements on the connectors, please contact us at [store@sure-electronics.com](mailto:store@sure-electronics.com).

Power indicator is available in all boards for easy identification of whether the boards are powered, concise and explicit. Port for control (Standby, shut down or mute. It differs to boards, please take the silkscreen on boards for reference.) is designed on boards but please note that the connectors are not provided in standard products. Any requirements please contact us.

## Full Protection, Robust Performance

The whole series is equipped with full set of protection carefully designed to prevent the device from any permanent damages caused by short circuits and over temperature. Since the amplifier is designed for audio application, the output power will not be continuous and transitory peak current may occur due to high music output. To avoid accidental shutdown of above situation, overcurrent protection allows some time for judgement. When the output stage of amplifier boards are shorted circuited, overcurrent protection will be activated to prevent damage to boards.

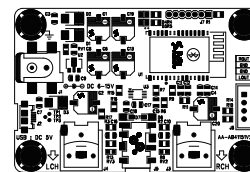
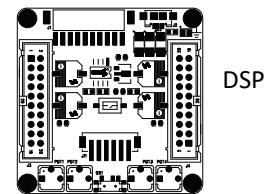
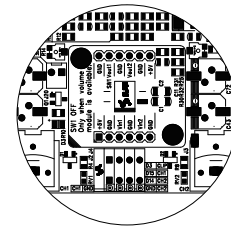
Over temperature protection will be triggered when the internal die temperature exceeds  $150^{\circ}\text{C}$  ( $\pm 15^{\circ}\text{C}$ ) due to high ambient temperature or high load for a long time, in which situation, the power supply shut down and the output are disabled for sake of protection. The amplifier will restart to work automatically without any need of extra operations once the temperature decreases to normal value.



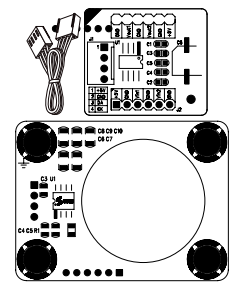
## Full Set of Solution Available

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](mailto:store@sure-electronics.com) for technical support.



Bluetooth Receiver Board



Volume Control Board

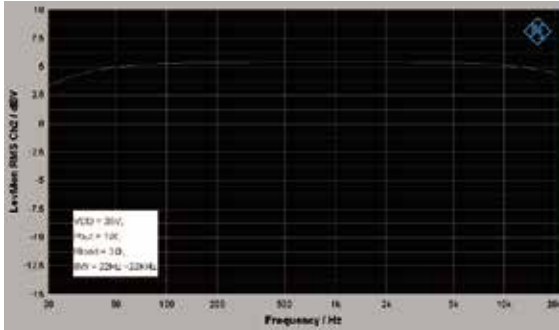
## 5 Years Product Life

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.

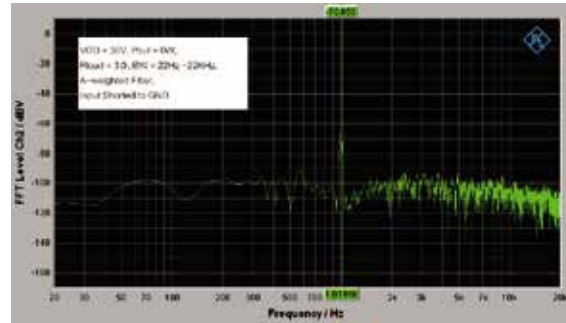


# 4 Typical Performance Graphs

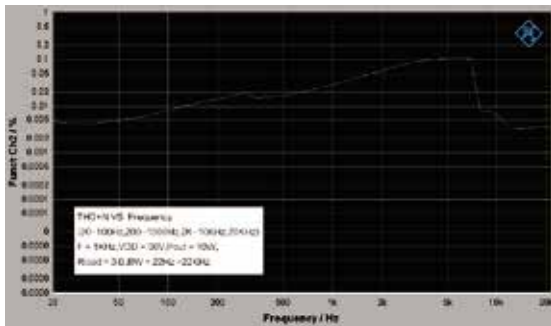
Frequency Response



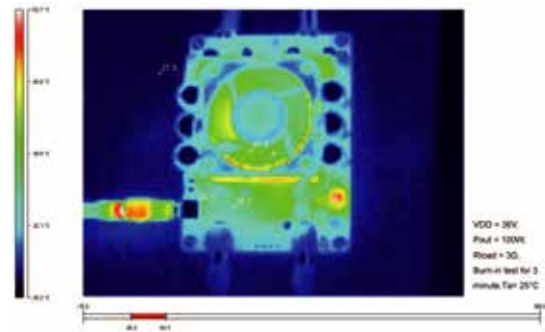
Noise Floor



Distortion Spectrum

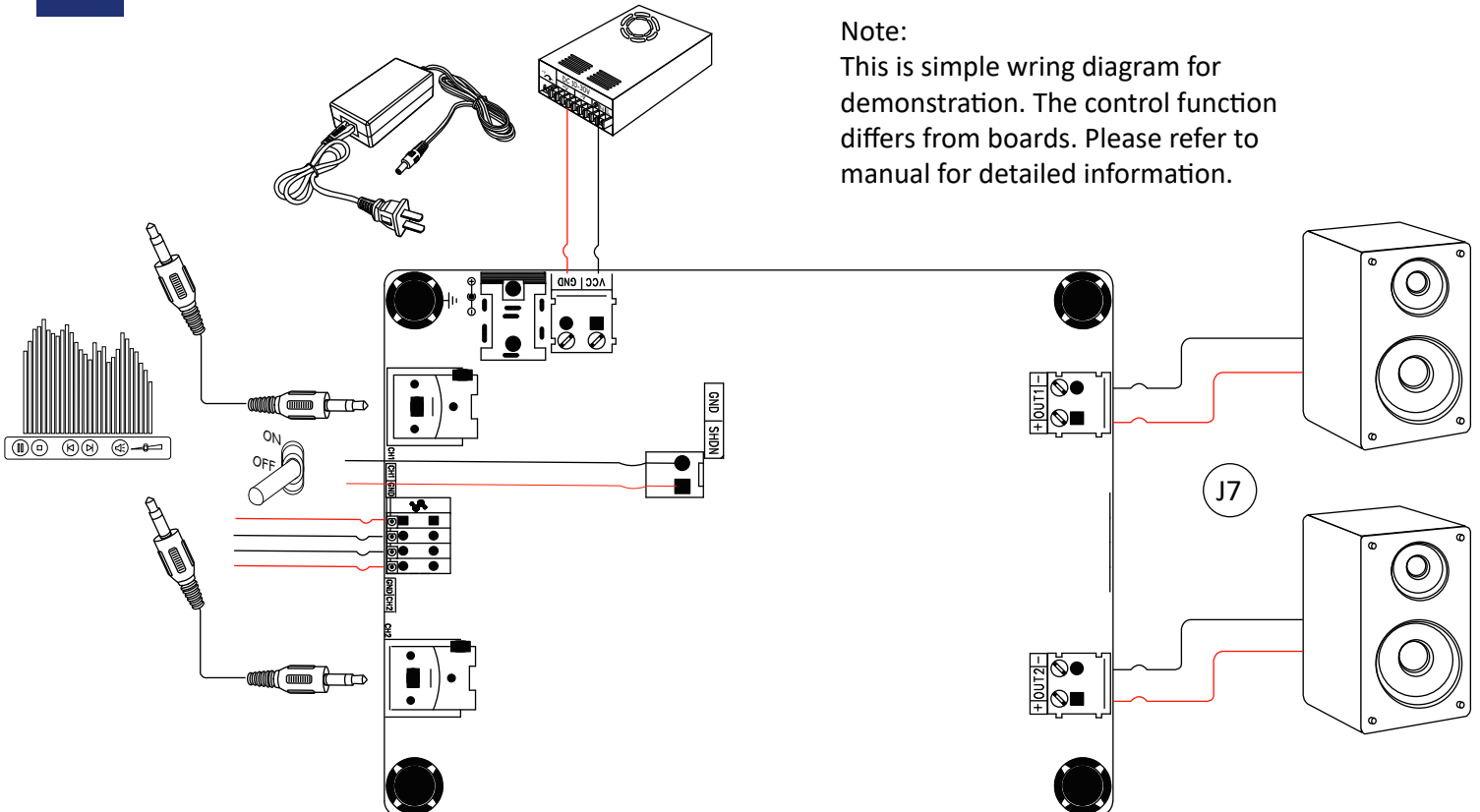


Thermal Image



Typical performance graphs adopt from 2 X 200Watt 3 Ohm Class D Audio Amplifier Board - T-AMP (AA-AB32281). 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](mailto:store@sure-electronics.com).

# 5 Connection



Note:  
This is simple wiring diagram for demonstration. The control function differs from boards. Please refer to manual for detailed information.

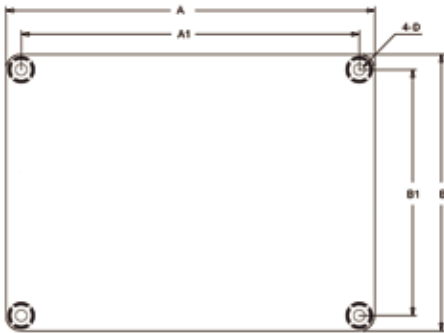
## 6 Model Selection Guide

Model Number	Output Power	Power Supply Range	Typical Load	Amplifier IC	Dimensions	Listed Price
AA-AB32472	2 X 30Watt	DC10-26V	8Ω	TPA3118	3.6"X2.7"	\$24.90
AA-AB32178	2 X 50Watt	DC10-24V	4Ω	TPA3116	3.6"X2.7"	\$26.90
AA-AB32174	2 X 50Watt	DC10-27V	6Ω	TDA7492	4.8"X3.6"	\$29.90
AA-AB32179	2 X 50Watt	DC10-27V	6Ω	TDA7492	3.6"X2.7"	\$24.90
AA-AB32189	2 X 100Watt	DC 15-36V	6Ω	TDA7498	4.8"X3.6" <sup>#1</sup>	\$34.90
AA-AB32971	2 X 100Watt	DC 15-27V	4Ω	T-AMP	4.8"X3.6"	\$34.90
AA-AB32221	2 X 150Watt	DC 20-36V	4Ω	TAS5613	6"X4.5" <sup>#2</sup>	\$44.90
AA-AB32361	2 X 160Watt	DC 15-36V	4Ω	TDA7498E	4.8"X3.6"	\$39.90
AA-AB32281	2 X 200Watt	DC 15-36V	3Ω	T-AMP	4.8"X3.6"	\$49.90

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](mailto: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.

Dimension	A (inch/mm)	A1 (inch/mm)	B (inch/mm)	B1 (inch/mm)	D (inch/mm)
#1	3.6/91.44	3.3/83.82	2.7/68.58	2.4/60.96	0.14/3.6
#2	4.80/121.92	4.40/111.76	3.60/91.44	3.20/81.28	0.15/3.8
#3	6.00/152.40	5.60/142.24	4.50/114.3	4.10/104.14	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



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