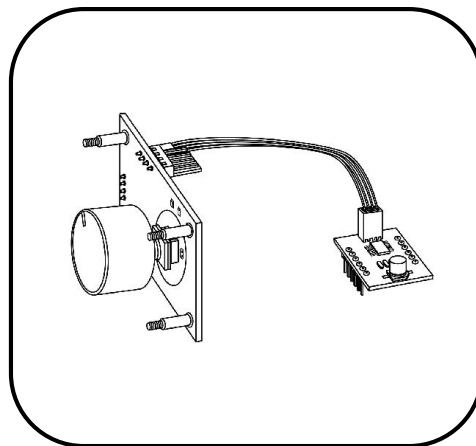
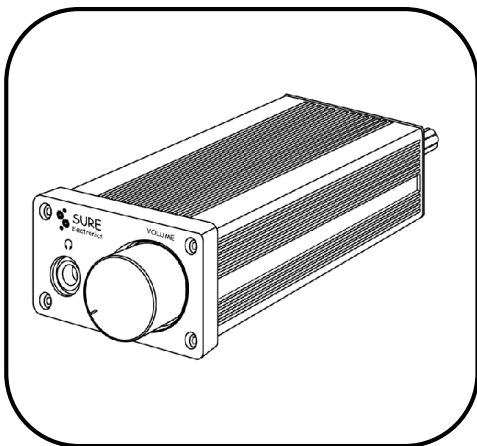
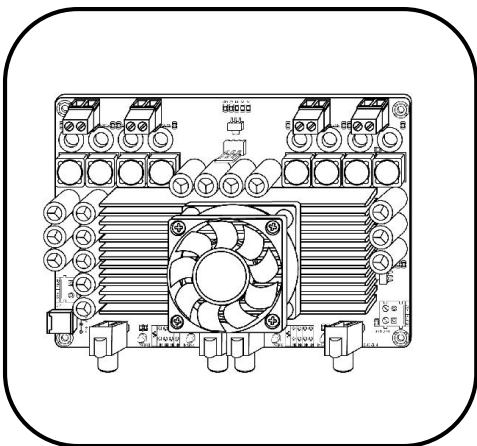




Audio Amplifier



World Audio Spreading

Sure Electronics Co., Ltd.



About Us

Our Company

Sure Electronics is an online retail store that provides electronics hobbyists and business partners the middleware which can help reduce customers' development difficulties and save their precious time-to-market by making the products directly released into the market.

The worldwide trade in audio amplifier and other relative fields is the main business of Sure Electronics. Sure HiFi, an independent department to Sure Electronics, is active in DIY Audio Hardware and Audiophile Accessories.

As we have standard products in stock, and if your order is less than \$500, we can assure you of our timely delivery so that you can achieve the zero inventories, or if it's over \$500, we can guarantee a prompt turn production and you can get a wholesale discount.

We also provide OEM, ODM businesses in such categories to some partners according to Sure's Policies.

We are striving to be a market leader in the field of audio amplifier, providing reliable, quality products and excellent customer service. Good and close contact with customers is one of important factors for our success.

Competence, quality and customer orientation form the basis for everything we do. To help our customers attain more success and satisfaction, we do our best to offer mature solutions and quick, reliable product supply.

Our Value and Vision

Spiffy

In Sure, we ensure each product has high quality and performance with good-looking design.

We're focused on making each product an excellent artwork

Unity

Each individual works with common values and aspirations to achieve our organizational goals.

We perfectly blend individual efforts with teamwork to build a first-class enterprise.

Rigorous

We are responsible for each product.

We strive to provide our customers with products of high quality and finest value.

We exercise strict control over each step of all projects to attain our customers' maximum satisfaction with our products.

Energic

Each member in Sure HiFi has good teamwork spirit with common interest and aim.

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Safety Precautions



- **Please keep the manual well**
After reading this instruction, please keep it well along with the warranty card, which will be helpful when there are faults. Attention please. In order to explain clearly to users, the graphic representation in this user's manual may be some different from the real device. In order to protect product and extend its service lifetime, please read the following warnings carefully since warranties will be voided if you do not observe the warnings.
- **When you go out**
If you don't use this product in a long time, e.g. when you go out for a trip, you must pull out the plug from the power socket.
- **Protect the amplifier**
Use soft cloth to clean dust. Please follow the instructions in this user's manual when you use the fabric which is made from Chemical material.
- **Avoid metal objects**
Protect this product well and move away metal objects from this product.
- **Use stable power supply**
Please read this manual carefully before you use the product and check if the product is a good one. Never use this product in an extreme condition.
- **Adjust the volume**
In order to protect amplifier, please turn the volume output to the minimum when hooking up the amplifier and you may readjust the volume when you are sure that the amplifier is functioning properly.



- **Care the power cord**
When you pull out the plug from the socket, do not pull the power cord but hold the plug.
- **Prevention of the high temperature**
Never put the product in the place exposed by the sun or near to the heating equipment.
- **Caution of the rack or amplifier installation**
Never put this product in a closed rack.
- **Never open the cover**
It's dangerous to open the bottom chassis or put your hand in the chassis, so do not open it. If this product has something wrong, pull out the power plug immediately and contact us.
- **Protect the amplifier**
Avoid spraying insecticides near the product. Do not wipe the product with liquid like gasoline, water or other solvents, which easily cause the change of the quality or the color.
- **Prevent sundries from falling into this product**
Be especially careful to prevent the sundries like needles, hairpins, coins from falling into this product.
- **Take care with humidity, water, dust, fire and electric shock**
Do not put this product in the highly humid position or the position with much dust. Do not place vases or something with water in on this product and prevent the fire or electric shock.
- **Warranty lapses**
The warranty lapses if quality-related issues due to potentiometers installed by buyers and incorrect use or your negligence.



Audio Amplifier Board User's Guide

Audio Amplifier Board

Selection Guide

Product No.	CH	Power	Vin	Typical Load	Amplifier IC	Dimension	Page
AA-AB32261	2	150 mW	DC8V-24V	8	LM4881	3 inch*2 inch	10
AA-AB32131	2	2 W	DC4V-12V	4	PAM8803	3 inch*2 inch	11
AA-AB32231	2	8 W	DC8V-19V	6	TPA3110	3.6 inch*2.7 inch	12
AA-AB32992	2	15 W	DC8V-28V	8	MAX9736A	3.6 inch*2.7 inch	13
AA-AB32996	2	15W	DC10V-26V	8	TPA3110	3.6 inch*2.7 inch	14
AA-AB32155	2	15 W	DC9V-12V	4	TA2024	3.6 inch*2.7 inch	15
AA-AB32186	2	100 W	DC10V-30V	4	STA508	4.8 inch*3.6 inch	18
AA-AB33182	4	100 W	DC10V-30V	4	STA508	6 inch*4.5 inch	19
AA-AB32165	2	25 W	DC14V-19V	6	TDA7492	4.8 inch*3.6 inch	20
AA-AB32174	2	50 W	DC14V-27V	6	TDA7492	4.8 inch*3.6 inch	21
AA-AB32187	2	50 W	DC8V-26V	4	TPA3116	3.6 inch*2.7 inch	17
AA-AB32189	2	100 W	DC12V-39V	6	TDA7498	4.8 inch*3.6 inch	22
AA-AB33184	4	100 W	DC14V-39V	6	TDA7498	6 inch*4.5 inch	23
AA-AB34181	6	100 W	DC14V-39V	6	TDA7498	6 inch*4.5 inch	24
AA-AB31193	1	300 W	DC14V-41V	8	TDA8950	4.8 inch*3.6 inch	25
AA-AB32222	2	150 W	DC19V-41V	4	TDA8950	4.8 inch*3.6 inch	26
AA-AB31313	1	400 W	DC19V-41V	8	TDA8954	4.8 inch*3.6 inch	27

Audio Amplifier Board

AA-AB32222	2	200 W	DC19V-41V	4	TDA8954	4.8 inch*3.6 inch	28
AA-AB32221	2	150 W	DC20V-36V	4	TAS5613	6 inch*4.5 inch	29
AA-AB31191	1	300 W	DC20V-36V	2	TAS5613	6 inch*4.5 inch	30
AA-AB32191	2	300 W	DC20V-50V	4	TAS5630	6 inch*4.5 inch	31
AA-AB31241	1	600 W	DC20V-50V	2	TAS5630	6 inch*4.5 inch	32
AA-AB32321	2	125 W	DC50V-65V	8	IRS2092	6 inch*4.5 inch	33
AA-AB32291	2	250 W	DC55V-65V	8	IRS2092	6 inch*4.5 inch	34
AA-AB32431	2	750 W	DC60V-80V	4	IRS2092	6 inch*4.5 inch	35
AA-AB32391	2	1000 W	DC60V-80V	2	IRS2092	6 inch*4.5 inch	36
AA-AB32381	2	2000 W	DC60V-94V	2	IRS2092	6 inch*4.5 inch	37

Note: For dimension of all boards, please refer to Chapter 4.



NOTES :

Document Version : Ver 1.0

Chapter 1. Overview

1.1 Overview

Welcome to use our Class-D audio amplifier board series by Sure Electronics.

Our products integrate high performance chips supporting single, dual, quadruple or sextuple channel audio amplification. Each channel is capable of outputting nominal power simultaneously and continuously. It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

Resistance and capacity components of high quality, including X7R ceramic capacitors, Metalized Polyester (PET) Capacitors and lower ESR electrolytic capacitors, high performance inductors are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

1.2 Features

- Perfect "Class D" architecture.
(Class AB series: AA-AB32261, AA-AB12271)
- Frequency response: 20 Hz to 22 KHz ($\pm 3\text{dB}$).
- Under voltage protection.
- Over current protection.
- Short Circuit and Over Temperature Protection.
- Click & Pop Noise Reduction.

1.3 Benefits

- Ultrahigh efficiency, environmental protection.
- Flexible and diverse wiring methods facilitate connection
- Excellent heat dissipation eliminates the requirement of an extra heat sink.
- Solid and durable, complete burn-in test and high electrical stability.
- Sturdy construction.

1.4 Applications

Low Power ($\leq 100\text{W}$)

- Desktop Amplifier
- Personal Computers
- Microphone Preamplifier
- Home DIY
- Vending Machines, Lifts, Interactive Kiosks
- Home Theater Receiver
- Car Audio
- Multi-channel Distribution
- Background Music Systems
- Musical Instrument Amplifiers

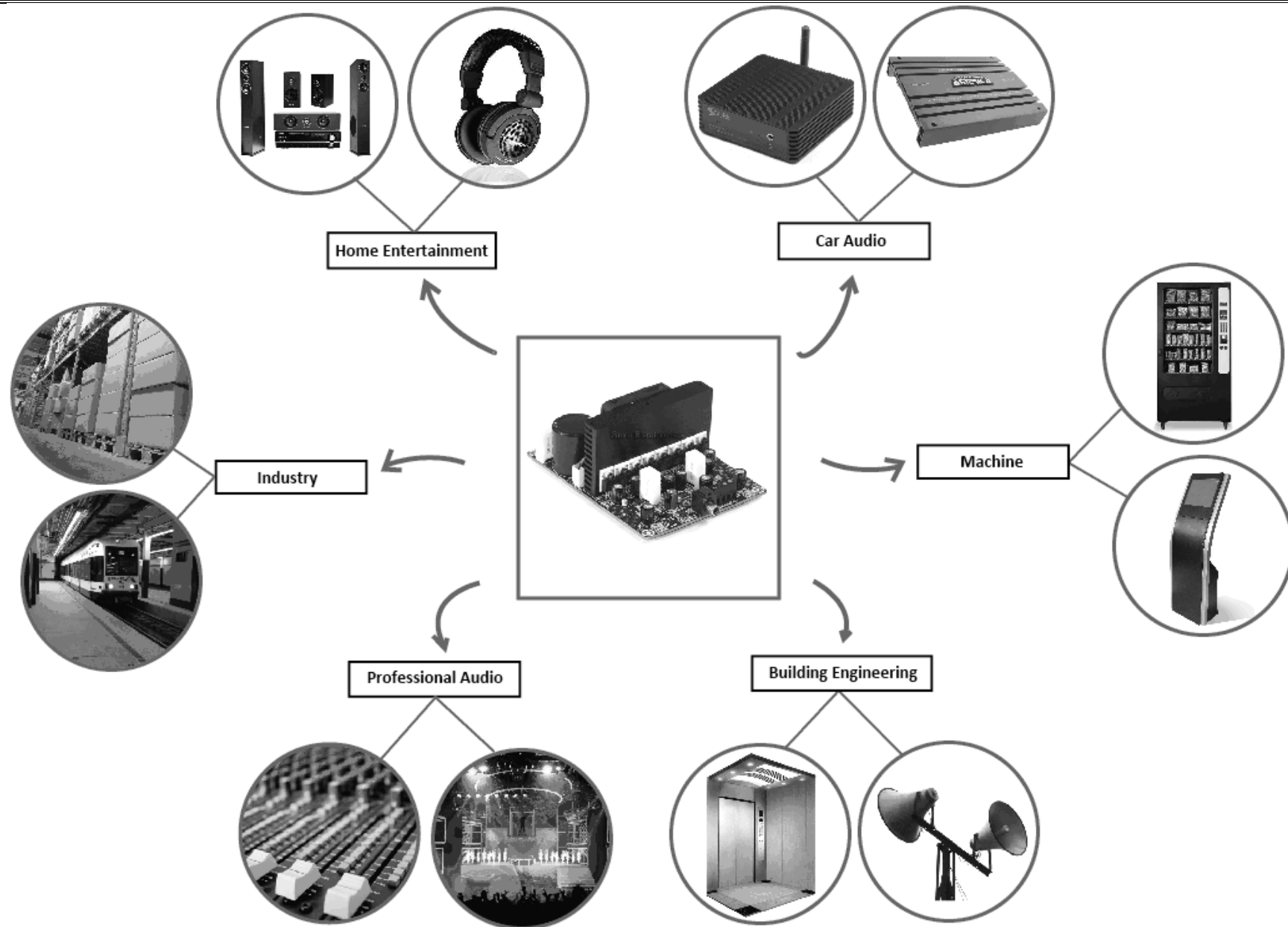
Medium Power (101~500W)

- Home Theater Receiver
- Car Audio
- Multi-channel Distribution
- Background Music Systems
- Musical Instrument Amplifiers
- Prototype for Recording Studios, Post-production, Live Sound and HiFi Applications
- PA System

High Power ($\geq 500\text{W}$)

- Musical Instrument Amplifiers
- Prototype for Recording Studios, Post-production, Live Sound and HiFi Applications
- PA System
- Broadcast System
- Active Subwoofer

Overview

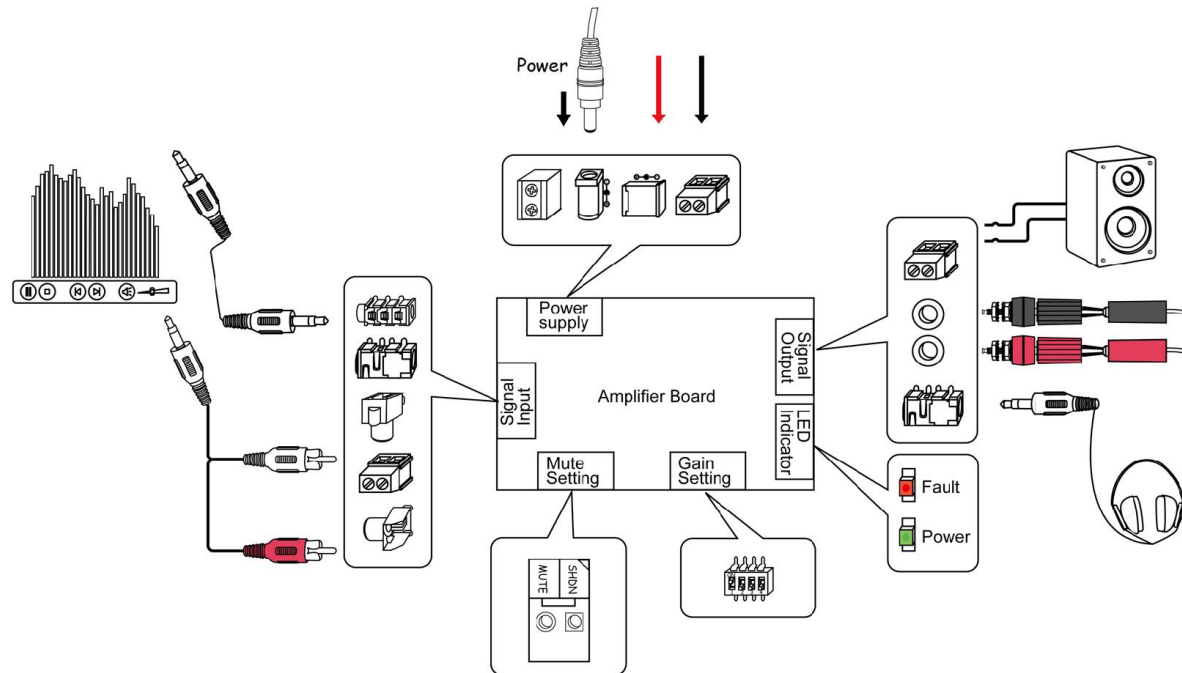


Overview

1.5 Quick Start

Suggested connection is shown in figure 1-3. Before using products, please make sure correct connection.

FIGURE 1-3 CONNECTION SCHEMATIC



Note: Please observe the following steps to complete verification so as to ensure the products are intact during transit.

1. Open the amplifier package and make sure the product is intact (No missing or damaged components and no deformation).
2. Please observe the connection schematics when connecting the amplifier board. Use a nearby sound source, such as MP3 or CD player to have a trial. This amplifier board can be deemed as qualified if you can hear the sound corresponding to that sound source
3. It's suggested to make sure the polarity of the wires first and then connect the audio cables, wires. Turn down the output to the lowest and then power the board.

Chapter 2. Hardware Detail

2.1 Power Connection

To power amplifier boards, kinds of power solutions have been provided. Both DC jack and terminal blocks have been used. Please pay attention to the polarity when connecting power supply.

Note:

1. You are allowed to use only one way to power the amplifier board at a time.
2. AWG16 wires are recommended when boards are powered by using terminal blocks. The length of power supply cable must be minimized. Increasing length of PSU cable is equal to increasing the distortion for the amplifier at high output levels and low frequencies.

2.2 Input Connections

To meet different requirements, kinds of signal input solutions have been provided - RCA connectors, 3.5mm jack, terminal blocks, optical, coaxial, Bluetooth wireless, etc.

Note: You are allowed to feed only one signal to each pair of stereo channels at a time.

2.3 LED Indicators

Most amplifiers have 1 or 2 power LED indicators – green and red. Green LED is used on most boards for indicating power-on or power-off. Red LED is used for indicating good or failure operating.

2.4 Gain Setting

On-board DIP switches or buttons are provided for gain setting on some amplifier boards. For details, please refer to Chapter 3.

2.5 Output Connections

To meet different requirements, kinds of signal input solutions have been provided - banana connectors, 3.5mm jack or terminal blocks, etc.

Note:

1. Never connect more than one group of speaker to each of the audio output
2. Refer to on-board descriptions for connection details.
3. Both positive and negative speaker outputs are floating and may not be connected to ground (e.g., through an oscilloscope).

2.6 Notes

In order to protect amplifier board and extend its service lifetime, please read the following warnings carefully since warranties will be voided if you do not observe the following warnings:

Warning 1:

Quality-related issues caused by potentiometers installed by buyers.

Warning 2:

In order to achieve a better sound quality, please use stable power supply since a bad or unstable power supply may worsen the sound quality or even cripple the amplifier board.

Warning 3:

Never equip a pre-amplifier to the audio input since the amplifier itself has powerful amplification ability and a high signal input will burn out the amplifier chip.

Warning 4:

In order to protect amplifier and speaker, please turn the volume output to the minimum when hooking up the amplifier and you may readjust the volume when you are sure that the amplifier is functioning properly.

Chapter 3. Product Details

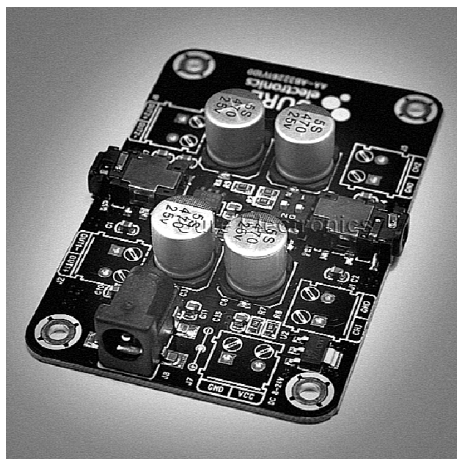
LM4881 Series

2 X 150 mW 8 Ohm Class-AB Headphone Amplifier Board - LM4881

(AA-AB32261)

Welcome to use this self-made 2 x 150mW headphone amplifier board which has perfect class-AB architecture and integrated LM4881 chip to achieve the 150mW per channel power output. This board can be powered by any DC power supply ranging from 8 to 24V, which can be used to drive any headphone whose typical impedance is 8 ohm, 16ohm or 32ohm.

FIGURE 3-1 OVERVIEW



Features

- Size: 3 " x 2 "
- Supply voltage: DC 8V to 24V
- Gain adjustable
- Thermal shutdown protection

Applications

- Mini/Micro systems
- Personal computers
- Microphone amplifier
- Preamplifier
- Portable audio amplifier

TABLE 3-1 SPECIFICATIONS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of LM4881 chip.

$T_A = 25^\circ\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 4\Omega$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	8	12	24
Quiescent Current (mA)	$V_{IN} = 0V$, $I_O = 0A$	-	3.6	6.0
Input Sensitivity (V)	$R_L = 8\Omega$	-	0.194	-
Input Impedance (Kohm)	SW1 ON	-	1.7	-
	SW1 OFF	-	3.3	
Gain (dB)	SW1 OFF	-	9.6	-
	SW1 ON	-	15.7	
Output Power (mW rms)	THD= 0.1%; $f_{IN} = 1\text{ kHz}$; $R_L = 8\Omega$	-	150	-
Efficiency (%)	-	-	22.7	-
Minimum Load (ohm)	-	-	8	-
			16	
			32	
Frequency Response (Hz)	$\pm 3\text{dB}$	50	-	600K
Operating Temperature ($^\circ\text{C}$)	-	0	20	50

Audio Amplifier Board

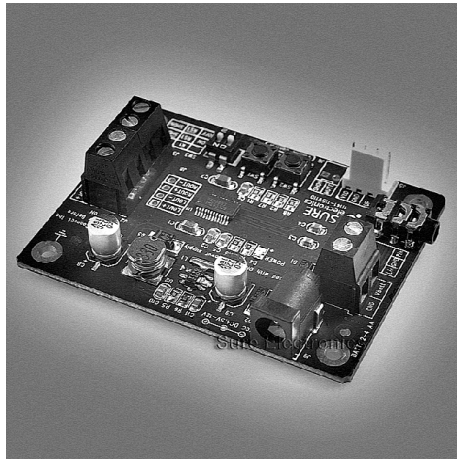
PAM8803 Series

2 X 2 Watt 4 Ohm Class D Audio Amplifier Board - PAM8803

(AA-AB32131)

This is a high-quality dual-channel class-D audio amplifier board capable of delivering 2W per channel of output power into a 4Ω load. It employs PAM's PAM8803 IC which offers 64-step digital volume control and low THD+N, allowing it to produce high-quality sound reproduction. It's especially suitable for small speakers. This amplifier board can also be used to drive passive 4Ω or 8Ω speakers.

FIGURE 3-3 OVERVIEW



Features

- Size: 3 " x 2 "
- Volume control settings
Two methods:
 - on-board tactile switches
 - external rotary encoder board (AA-AB41134)
- Supply voltage: DC 4V to 12V
- Thermal shutdown protection

Applications

- Mini/Micro systems
- Personal computers
- Microphone preamplifier
- Preamplifier
- Portable audio amplifier
- Home DIY

TABLE 3-3 SPECIFICATIONS

Following table lists all typical data. For full specification, please refer to the PAM's data sheet of PAM8803 chip.

$T_A = 25^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 8\Omega$. (Unless otherwise stated)

Parameter		Condition	Min	Typ	Max
Supply Voltage (V)		-	4	-	12
Quiescent Current (mA)		DC12V, No load	-	100	-
Input Sensitivity (V)		A = 0dB	-	0.720	-
Input Impedance (Kohm)		-	-	60	-
Gain (dB)	Volume adjustable	K1 = OFF	-75	-	23.8
	Volume not adjustable	K1 = ON	-	2.6	-
Output Power (W rms)	THD+N<1%	R _L = 4Ω, f _{IN} = 1 kHz	-	1.5	-
		R _L = 8Ω, f _{IN} = 1 kHz		1.0	
	THD+N<10%	R _L = 4Ω, f _{IN} = 1 kHz		2.0	
		R _L = 8Ω, f _{IN} = 1 kHz		1.2	
Efficiency (%)		1.2W 8Ω	-	85	-
		2.0W 4Ω		88	
Minimum Load (ohm)		-	3.2	-	-
Frequency Response (Hz)		±3dB	20	-	22k
Operating Temperature (°C)		-	0	20	50

Audio Amplifier Board

TPA3110 Series

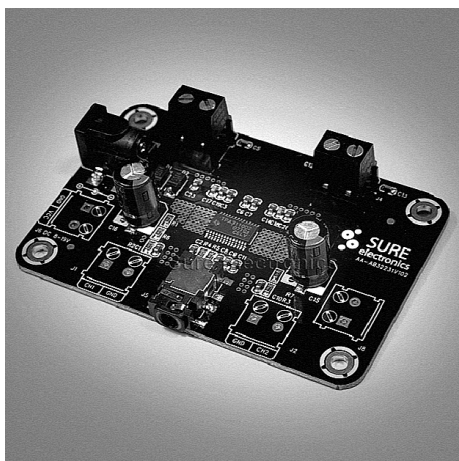
2 X 8 Watt 6 Ohm Class D Audio Amplifier Board - TPA3110

(AA-AB32231)

Welcome to use this self-made 2 x 8W audio amplifier board which has perfect class-D architecture and integrated TPA3110D2 chip to achieve the 8W per channel power output. This board can be powered by any DC power supply ranging from +8 to 19V, which can be used to drive any 4Ω or 8Ω passive speakers.

High quality components, high efficiency chip and self-dissipation make this product perfect for hi-fi applications.

FIGURE 3-4 OVERVIEW



Features

- Size: 3.6 " x 2.7 "
- External mute control port
- Supply voltage: DC 8V to 19V
- Over/under voltage protection
- Over current protection
- Over temperature protection

Applications

- Desktop amplifier
- Personal computers
- Microphone preamplifier
- Home DIY
- Vending machines, Lifts, Interactive kiosks

TABLE 3-4 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of TI's TPA3110 chip.

$T_A = 20^\circ\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 4\Omega$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	8	12	19
Quiescent Current (mA)	SD = 2V, No load, $V_{CC} = 12\text{V}$	-	20	35
Input Sensitivity (V)	Gain = 26dB	-	0.283	-
Input Impedance (Kohm)	-	-	30	-
Gain (dB)	-		26	
Output Power (W rms)	THD+N = 10%, $V_{CC} = 12\text{V}$	-	8	-
Efficiency (%)	$V_{CC} = 12\text{V}$, $R_L = 8\Omega$, $P_O = 5\text{W}$	-	86	-
Minimum Load (ohm)	-	3.2	4	-
Frequency Response (Hz)	$\pm 3\text{dB}$	20	-	22k
Operating Temperature ($^\circ\text{C}$)	-	-40	20	65

Audio Amplifier Board

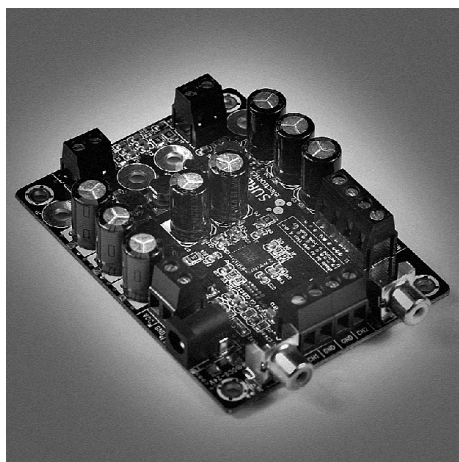
MAX9736A Series

2 x 15 Watt 8 Ohm Class D Audio Amplifier Board - MAX9736A

(AA-AB32992)

The MAX9736A Class D amplifiers provide high-performance, thermally efficient amplifier solutions. MAX9736A delivers 2 x 15W into 8Ω loads. This device operates from 8V to 28V and provides a high PSRR, eliminating the need for a regulated power supply. The MAX9736 offers up to 88% efficiency at 12V supply. Comprehensive click-and-pop reduction circuitry minimizes noise coming into and out of shutdown or mute.

FIGURE 3-5 OVERVIEW



Features

- Size: 3.6 " x 2.7 "
- Mute and standby function
- Supply voltage: DC 8V to 28V
- Thermal and output current protection

Applications

- Desktop amplifier
- Personal computers
- Microphone preamplifier
- Home DIY
- Vending machines, Lifts, Interactive kiosks
- Home theater receiver
- Car audio

TABLE 3-5 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of MI's MAX9736A chip.

TA = 25°C, f_{IN} = 1 kHz sine wave, R_L = ∞, V_{VS} = 5V. (Unless otherwise stated)

Parameter	Conditions	Min	Typ	Max
Supply Voltage (V)	Inferred from PSRR test	8	-	28
Quiescent Current (mA)	R _L = ∞, V _{REGEN} = 5V, V _{VS} = open	T _A = +25°C	30	45
		T _A = T _{MIN} to T _{MAX}	-	50
	R _L = ∞, V _{REGEN} = 0V, V _{VS} = 5V	T _A = +25°C	14	20
		T _A = T _{MIN} to T _{MAX}	-	22
Input Sensitivity (V)	-	-	0.833	-
Input Impedance (Kohm)	-	-	22	-
Gain (dB)	MAX9736A	16.5	17	17.5
Output Power (THD+N= 1%) (W rms)	V _{PVDD} = 12V	R _L = 8Ω	-	8
		R _L = 4Ω	-	13
	V _{PVDD} = 18V	R _L = 8Ω	-	13.5
		R _L = 4Ω	-	13.5
Output Power (THD+N= 10%) (W rms) (Thermal limited)	V _{PVDD} = 12V	R _L = 8Ω	-	10
		R _L = 4Ω	-	15
	V _{PVDD} = 18V	R _L = 8Ω	-	15
		R _L = 4Ω	-	15
Efficiency (%)	P _O = 8W, MAX9736A, PVDD = 12V, R _L = 8Ω	-	88	-
Minimum Load (ohm)	-	-	8	-
Frequency Response (Hz)	±3dB	20	-	22k
Operating Temperature (°C)	-	0	20	50

Audio Amplifier Board

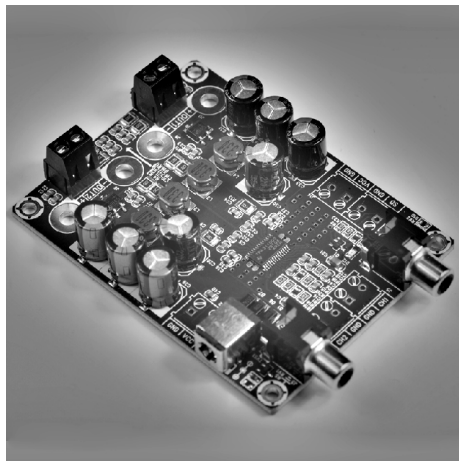
TPA3110 Series

2 x 15 Watt 8 Ohm Class D Audio Amplifier Board – TPA3110

(AA-AB32996)

Welcome to use this self-made 2*15W audio amplifier board which is a perfect class-D architecture integrated TPA3110 chip to achieve the single-channel 15W power output. With high efficiency, it especially is available for the outdoor venues where power supply is always in consideration. Resistance and capacity components of high quality are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-5 OVERVIEW



Features

- Size: 3.6 " x 2.7 "
- MUTE and SLEEP inputs
- Supply voltage: DC 10V to 26V
- Turn-on & turn-off pop suppression
- Intelligent short-circuit protection
- Intelligent over-temperature protection
- Connects to any passive 8Ω speakers

Applications

- Desktop amplifier
- Personal computers
- Microphone preamplifier
- Home DIY
- Vending machines, Lifts, Interactive kiosks
- Home theater receiver
- Car audio

TABLE 3-6 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of TI's TPA3110 chip.

VDD = 24V, f = 1kHz, Measurement Bandwidth = 22kHz, RL = 8Ω, TA = 15 °C, Package heat slug soldered to 2.8 square-inch PC pad.

Parameter	Conditions	Min	Typ	Max
Supply Voltage (V)	Inferred from PSRR test	10	24	26
Quiescent Current (mA)	V _{in} = 16V	-	50	80
Input Sensitivity (V)	RL=8Ω,Vin=16V, P=2*15W	-	0.900	-
Input Impedance (Kohm)	-	-	22	-
Gain (dB)	TPA3110	25	26	27
Output Power (W rms)	THD+N = 0.1% RL = 8Ω	-	7.5	-
	THD+N = 10 % RL = 8Ω	-	15	-
Efficiency (%)	P _O = 8W, TPA3110, PVDD = 12V ,RL = 8Ω	-	90	-
Minimum Load (ohm)	-	-	8	-
Frequency Response (Hz)	±3dB	20	-	22k
Operating Temperature (°C)	-	0	20	50

Audio Amplifier Board

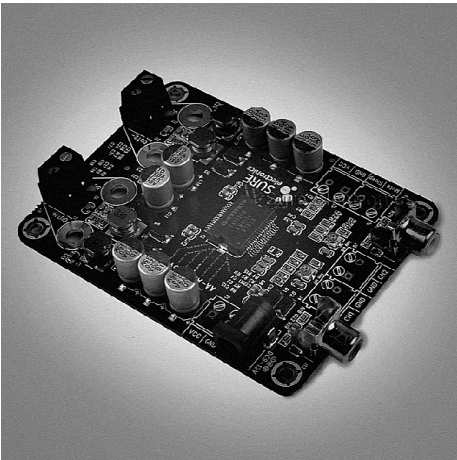
TA2024 Series

2 X 15 Watt 4 Ohm Class D Audio Amplifier Board - TA2024

(AA-AB32155)

TA2014, an enduring integrated audio amplifier chip of low power in Tripath corporation, provides High-Fidelity sound, extremely high efficiency and durable construction. With compact layout and perfect quiescent dissipation control, along with mute and sleep functions, this chip can be widely used in DIY, desktop, kiosks and other projects.

FIGURE 3-6 OVERVIEW



Features

- Size: 3.6 " x 2.7 "
- Class-T architecture
- Mute and sleep control
- Supply voltage: 9V to 12V
- Intelligent short-circuit protection
- Intelligent over-temperature protection
- Connects to any passive 4/8Ω speakers

Applications

- Personal computers
- Microphone preamplifier
- Home DIY
- Vending machines, Lifts, Interactive kiosks
- Home theater receiver
- Car audio

TABLE 3-6 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of TA2024 chip.

T_A = 25 °C, f_{IN} = 1 kHz sine wave, R_L = 4Ω, V_{DD} = 12V. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	9	-	12
Quiescent Current (mA)	V _{IN} = 0 V	-	61	75
Input Sensitivity (V)	R _L = 4Ω	-	1.024	-
Input Impedance (Kohm)	-	-	22	-
Gain (dB)	-	-	22	-
Output Power (W rms)	THD+N = 0.1% R _L = 4Ω	9	11	-
	R _L = 8Ω	5.5	6	
	THD+N = 10% R _L = 4Ω	12	15	
	R _L = 8Ω	8	10	
Efficiency (%)	P _O = 10W/Channel, R _L = 8Ω	-	90	-
Minimum Load (ohm)	-	-	4	8
Frequency Response (Hz)	±3dB	20	-	22k
Operating Temperature (°C)	-	0	20	50

Audio Amplifier Board

TPA3123 Series

2 X 15 Watt 4 Ohm Class D Audio Amplifier Board – TPA3123

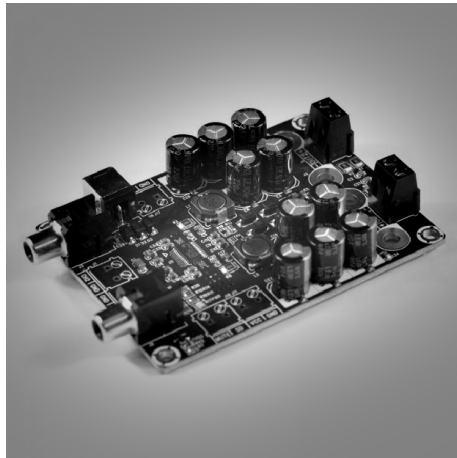
(AA-AB32167)

Welcome to use this self-made 2*25W audio amplifier board which is a perfect class-D architecture integrated

TPA3123 chip to achieve the single-channel 25W power output. With high efficiency, it especially is available for the outdoor venues where power supply is always in consideration.

Resistance and capacity components of high quality are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-6 OVERVIEW



Features

- Size: 3.6 " x 2.7 "
- Class-T architecture
- Requires single +24V power source
- No heat sink required up to 25W per channel
- MUTE and SLEEP inputs
- Turn-on & turn-off pop suppression
- Intelligent short-circuit protection
- Intelligent over-temperature protection
- Connects to any passive 4/8Ω speakers

Applications

- Personal computers
- Microphone preamplifier
- Home DIY
- Vending machines, Lifts, Interactive kiosks
- Home theater receiver
- Car audio

TABLE 3-6 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of TPA3123 chip.

VDD = 24V, f = 1kHz, Measurement Bandwidth = 22kHz, RL = 4Ω, TA = 25 °C, Package heat slug soldered to 2.8 square-inch PC pad.

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	10	24	30
Quiescent Current (mA)	RL=4Ω,Vin=27V	-	25	-
Input Sensitivity (V)	RL = 4Ω	-	0.900	-
Input Impedance (Kohm)	-	-	22	-
Gain (dB)	-	-	22	-
Output Power (W rms)	THD+N = 0.08% RL = 4Ω	-	10	-
	RL = 8Ω		5	
	THD+N = 10% RL = 4Ω		20	
	RL = 8Ω		10	
Efficiency (%)	PO = 15W/Channel, RL = 4Ω	-	90	-
Minimum Load (ohm)	-	-	4	8
Frequency Response (Hz)	±3dB	20	-	22k
Operating Temperature (°C)	-	0	20	50

Audio Amplifier Board

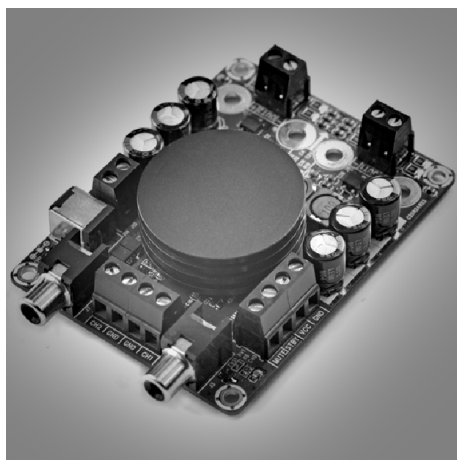
TPA3116 Series

2 x 50 Watt 4 Ohm Class D Audio Amplifier Board – TPA3116

(AA-AB32187)

The TPA3116 Class D amplifiers provide high-performance, thermally efficient amplifier solutions. TPA3116 delivers 2 x 50W into 8Ω loads. This device operates from 8V to 26V and provides a high PSRR, eliminating the need for a regulated power supply. The TPA3116 offers up to 88% efficiency at 12V supply. Comprehensive click-and-pop reduction circuitry minimizes noise coming into and out of shutdown or mute.

FIGURE 3-5 OVERVIEW



Features

- Size: 3.6 inch x 2.7 inch
- Mute and standby function
- Supply voltage: DC 8V to 26V
- Thermal and output current protection

Applications

- Desktop amplifier
- Personal computers
- Microphone preamplifier
- Home DIY
- Vending machines, Lifts, Interactive kiosks
- Home theater receiver
- Car audio

TABLE 3-5 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of MI's TPA3116 chip.

TA = 25°C, f_{IN} = 1 kHz sine wave, R_L = ∞, V_{V_S} = 5V. (Unless otherwise stated)

Parameter	Conditions		Min	Typ	Max
Supply Voltage (V)	Inferred from PSRR test		8	-	26
Quiescent Current (mA)	R _L = ∞, MUTE = open, STBY = open	T _A = +25°C		30	40
		T _A = T _{MIN} to T _{MAX}	-	-	45
	R _L = ∞, MUTE= open, STBY = GND	T _A = +25°C		8	10
		T _A = T _{MIN} to T _{MAX}	-	-	12
Input Sensitivity (V)	-		-	0.74	-
Input Impedance (Kohm)	-		-	22	-
Gain (dB)	TPA3116		25	26	27
Output Power (THD+N= 0.1%) (W rms)					
	V _{PVDD} = 21V	R _L = 4Ω	-	25	-
Output Power (THD+N= 10%) (W rms) (Thermal limited)					
	V _{PVDD} = 14.4V	R _L = 4Ω	-	25	-
	V _{PVDD} = 21V	R _L = 4Ω	-	50	-
Efficiency (%)	P _O = 25W, TPA3116, PVDD = 12V ,R _L = 4Ω		-	90	-
Minimum Load (ohm)	-		-	4	-
Frequency Response (Hz)	±3dB		20	-	22k
Operating Temperature (°C)	-		0	20	50

Audio Amplifier Board

STA5XX Series

2 X 100 Watt 4 Ohm Class D Audio Amplifier Board - STA508

(AA-AB32186)

Welcome to use this self-made 2 x 100W audio amplifier board which has perfect class-T architecture and integrated with high performance STA508 chip supporting dual channel audio amplification. Powered by any DC voltage from 10V to 32V, this high efficiency amplifier board is capable of outputting up to 100W per channel. It can be used to drive 4Ω or 8Ω passive speakers. Resistance and capacity components of high quality are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-7 OVERVIEW



Features

- Size: 4.8 " x 3.6 "
- Mute and standby function
- Supply voltage: DC 10V to 32V
- Over/under voltage protection
- Over current protection
- Over temperature protection

Applications

- Personal computers
- Home DIY
- Home theater receiver
- Car audio
- Multi-channel distribution
- Background music systems
- Musical instrument amplifiers

TABLE 3-7 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's STA508 chip.

$T_A = 25^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $V_{CC} = 30\text{V}$. (Unless otherwise stated)

Parameter		Condition	Min	Typ	Max
Supply Voltage (V)		-	10	27	32
Quiescent Current (mA)		DC12V, No load	-	100	-
		MUTE= 0	-	10	40
Input Sensitivity (mV)		A = 0dB	720	771	800
Input Impedance (Kohm)		-	11	22	-
Gain (dB)			23	24	25
Output Power (W rms)	THD+N<0.01%	R _L = 4Ω, f = 1kHz	-	50	-
		R _L = 8Ω, f = 1kHz	-	35	
	THD+N<10%	R _L = 4Ω, f = 1kHz	-	100	
		R _L = 8Ω, f = 1kHz	-	60	
Efficiency (%)		V _{CC} = 32V, R _L = 4Ω, P _O = 117W	-	86	-
		V _{CC} = 32V, R _L = 4Ω, P _O = 46W		82	
		V _{CC} = 32V, R _L = 8Ω, P _O = 60W		88	
Minimum Load (ohm)		-	3.2	-	-
Frequency Response (Hz)		±3dB	20	-	22k
Operating Temperature (°C)		-	0	20	50

Audio Amplifier Board

STA5XX Series

4 X 100 Watt 4 Ohm Class D Audio Amplifier Board – STA508

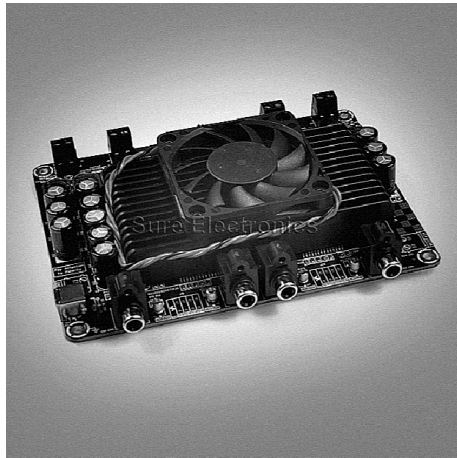
(AA-AB33182)

Welcome to use this self-made 4 x 100W audio amplifier board which has perfect class-T architecture and integrated with high performance STA508 chip supporting dual channel audio amplification. Powered by any DC voltage from 10V to 30V, this high efficiency amplifier board is capable of outputting up to 100W per channel. It can be used to drive 4Ω or 8Ω passive speakers.

Resistance and capacity components of high quality are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

Four-channel amplifier makes it a perfect choice for the car audio and home theatre applications.

FIGURE 3-8 OVERVIEW



Features

- Size: 6" x 4.5"
- Mute and standby function
- Supply voltage: DC 10V to 30V
- Over/under voltage protection
- Over current protection
- Over temperature protection

Applications

- Personal computers
- Home DIY
- Home theater receiver
- Car audio
- Multi-channel distribution
- Background music systems

TABLE 3-8 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's STA508 chip.

$T_A = 25^\circ\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $V_{CC} = 30\text{V}$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	10	27	30
Quiescent Power (W)	$V_{\text{mute}} = 0\text{V}$ $V_{CC} = 30\text{V}$	-	12.6	-
Input Sensitivity (mV)	$P_O = 100\text{W}$	-	520	-
Input Impedance (Kohm)	-	-	10	-
Gain (dB)	-	-	32	-
Output Power (W rms)	$R_L = 4\text{ohm}$, $V_{CC} = 30\text{V}$ 1% THD+N	-	64	-
	$R_L = 4\text{ohm}$, $V_{CC} = 30\text{V}$ 10% THD+N		108	
Efficiency (%)	$P_O = 100\text{W}$	-	90.3	-
Minimum Load (ohm)	-	3.2	4	-
Frequency Response (dB)	$V_{CC} = 30\text{V}$	-3	1.01	3
Operating Temperature ($^\circ\text{C}$)	-	0	20	50

Audio Amplifier Board

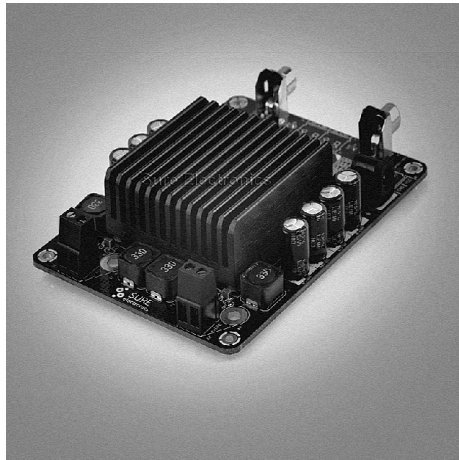
TDA749X Series

2 X 25 Watt 6 Ohm Class D Audio Amplifier Board – TDA7492

(AA-AB32165)

This amplifier is a state-of-the-art dual channel Class-D audio amplifier which integrates ST's TDA7492 as the driver. This amplifier is capable of delivering dual-channel amplification with each channel up to 25W. High quality and high performance components are used making this amplifier high-quality amplifier. Powered by 14V to 19V supply, it can be used in many applications like Background Music Systems. It also features thermal protection. In addition, on-board heat sink ensures excellent heat dissipation.

FIGURE 3-12 OVERVIEW



Features

- Size: 4.8 " x 3.6 "
- Standby and mute function
- Supply voltage: DC 14V to 19V
- Gain adjustable
- Over/under voltage protection
- Over current protection
- Over temperature protection

Applications

- Desktop amplifier
- Personal computers
- Microphone preamplifier
- Home DIY
- Vending machines, Lifts, Interactive kiosks
- Home theater receiver
- Car audio

TABLE 3-12 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA7492 chip.

$T_A = 25\text{ }^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 8\Omega$, $V_{CC} = 25\text{V}$. (Unless otherwise stated)

Parameter	Conditions	Min	Typ	Max
Supply Voltage (V)	AA-AB32165	14	16	19
Quiescent Current (mA)	FAN ON,STBY Disable	-	90	-
	FAN ON,STBY Enable	-	50	-
	FAN OFF,STBY Disable	-	40	-
	FAN OFF,STBY Enable	-	10	-
Input Sensitivity (mV)	21.6dB	-	257	-
	27.6dB		258	
	31.1dB		258	
	33.6dB		258	
Input Impedance (Kohm)	-	48	60	-
Gain (dB)	GAIN0 = L, GAIN1 = L	20.6	21.6	22.6
	GAIN0 = L, GAIN1 = H	26.6	27.6	28.6
	GAIN0 = H, GAIN1 = L	30.1	31.1	32.1
	GAIN0 = H, GAIN1 = H	32.6	33.6	34.6
Output Power (W rms)	$R_L = 6\Omega$, THD = 10%, $V_{CC} = 25\text{V}$	-	25	-
Efficiency (%)	Both channels output rating power.	-	>90	-
Minimum Load (ohm)	-	-	6	-
Frequency Response (dB)	$\pm 3\text{dB}$	20	-	22k
Operating Temperature ($^{\circ}\text{C}$)	-	0	20	50

Audio Amplifier Board

TDA749X Series

2 X 50 Watt 6 Ohm Class D Audio Amplifier Board – TDA7492

(AA-AB32174)

This amplifier is a state-of-the-art dual channel Class-D audio amplifier which integrates ST's TDA7492 as the driver. This amplifier is capable of delivering dual-channel amplification with each channel up to 50W. High quality and high performance components are used making this amplifier high-quality amplifier. Powered by 14V to 27V supply, it can be used in many applications like Background Music Systems. It also features thermal protection. In addition, on-board heat sink and cooling fan ensures excellent heat dissipation.

FIGURE 3-13 OVERVIEW



Features

- Size: 4.8 " x 3.6 "
- Standby and mute function
- Supply voltage: DC 14V to 27V
- Gain adjustable
- Over/under voltage protection
- Over current protection
- Over temperature protection

Applications

- Desktop amplifier
- Personal computers
- Microphone preamplifier
- Home DIY
- Vending machines, Lifts, Interactive kiosks
- Home theater receiver
- Car audio

TABLE 3-13 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA7492 chip.

$T_A = 25\text{ }^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 8\Omega$, $V_{CC} = 25\text{V}$. (Unless otherwise stated)

Parameter	Conditions	Min	Typ	Max
Supply Voltage (V)	AA-AB32174	14	24	27
Quiescent Current (mA)	FAN ON,STBY Disable	-	90	-
	FAN ON,STBY Enable	-	50	-
	FAN OFF,STBY Disable	-	40	-
	FAN OFF,STBY Enable	-	10	-
Input Sensitivity (mV)	21.6dB	-	2060	-
	27.6dB		1060	
	31.1dB		717	
	33.6dB		538	
Input Impedance (Kohm)	-	48	60	-
Gain (dB)	GAIN0 = L, GAIN1 = L	20.6	21.6	22.6
	GAIN0 = L, GAIN1 = H	26.6	27.6	28.6
	GAIN0 = H, GAIN1 = L	30.1	31.1	32.1
	GAIN0 = H, GAIN1 = H	32.6	33.6	34.6
Output Power (W rms)	$R_L = 6\Omega$, THD = 10%, $V_{CC} = 25\text{V}$	-	50	-
Efficiency (%)	Both channels output rating power.	-	>90	-
Minimum Load (ohm)	-	-	6	-
Frequency Response (dB)	$\pm 3\text{dB}$	20	-	22k
Operating Temperature ($^{\circ}\text{C}$)	-	0	20	50

Audio Amplifier Board

TDA749X Series

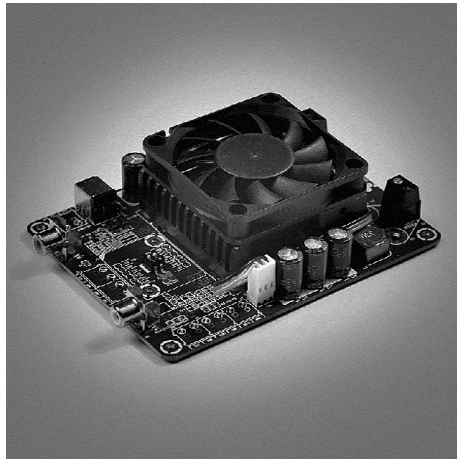
2 X 100 Watt 6 Ohm Class D Audio Amplifier Board –TDA7498

(AA-AB32189)

Welcome to use this 2 x 100W Class-D audio amplifier board series by Sure Electronics. It integrates ST's high performance TDA7498 supporting dual channel audio amplification. Both of channels are capable of outputting nominal power simultaneously and continuously.

Resistance and capacity components of high quality, including X7R ceramic capacitors and lower ESR electrolytic capacitors, are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-14 OVERVIEW



Features

- Size: 4.8 " x 3.6 "
- Standby and mute function
- Supply voltage: DC 14V to 40V
- Gain adjustable
- Over/under voltage protection
- Over current protection
- Over temperature protection

Applications

- Personal computers
- Home DIY
- Home theater receiver
- Car audio
- Background music systems
- Musical instrument amplifiers

TABLE 3-14 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA7498 chip.

$T_A = 25\text{ }^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 6\Omega$, $V_{CC} = 36\text{V}$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (v)	AA-AB32189	14	36	40
Quiescent Current (mA)	FAN ON,STBY Disable	-	90	-
	FAN ON,STBY Enable	-	50	-
	FAN OFF,STBY Disable	-	40	-
	FAN OFF,STBY Enable	-	10	-
Input Sensitivity (mV)	25.6dB	-	1356	-
	31.6dB		696	
	35.1dB		460	
	37.6dB		341	
Input Impedance (Kohm)	-	48	60	-
Gain (dB)	GAIN0 = L, GAIN1 = L	24.6	25.6	26.6
	GAIN0 = L, GAIN1 = H	30.6	31.6	32.6
	GAIN0 = H, GAIN1 = L	34.1	35.1	36.1
	GAIN0 = H, GAIN1 = H	36.6	37.6	38.6
Output Power (W rms)	THD = 10%	-	100	-
Efficiency (%)	Both channels output rating power.	-	>90	-
Minimum Load (ohm)	-	-	6	-
Frequency Response (dB)	$\pm 3\text{dB}$	20	-	22k
Operating Temperature ($^{\circ}\text{C}$)	-	0	20	50

Audio Amplifier Board

TDA749X Series

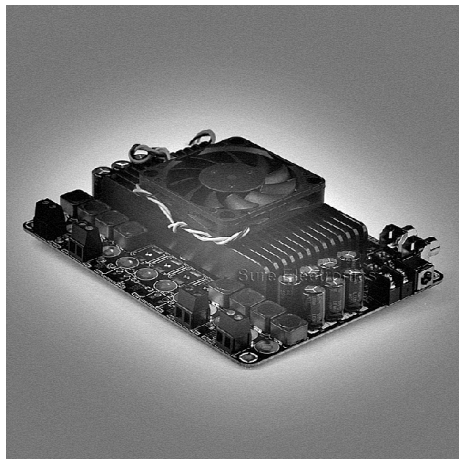
4 X 100 Watt 6 Ohm Class D Audio Amplifier Board – TDA7498

(AA-AB33184)

Welcome to use this self-made 4 x 100W audio amplifier board which has perfect class-D architecture and integrated TDA7498 chip to achieve the 100W per channel power output. With high efficiency, it especially is available for the outdoor venues where power supply is always in consideration.

Resistance and capacity components of high quality, including X7R ceramic capacitors and lower ESR electrolytic capacitors, are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-15 OVERVIEW



Features

- Size: 6 " x 4.5 "
- Standby and mute function
- Supply voltage: DC 14V to 39V
- Gain adjustable
- Over/under voltage protection
- Over current protection
- Over temperature protection

Applications

- Personal computers
- Home DIY
- Vending machines, Lifts, Interactive kiosks
- Home theater receiver
- Car audio
- Multi-channel distribution
- Background music systems

TABLE 3-15 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA7498 chip.

$T_A = 25\text{ }^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 6\Omega$, $V_{CC} = 36\text{V}$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	14	36	39
Quiescent Current (mA)	No LC filter, No load	-	40	60
Input Sensitivity (mV)	25.6dB	-	1356	-
	31.6dB		696	
	35.1dB		460	
	37.6dB		341	
Input Impedance (Kohm)	-	48	60	-
Gain (dB)	GAIN0 = L, GAIN1 = L	24.6	25.6	26.6
	GAIN0 = L, GAIN1 = H	30.6	31.6	32.6
	GAIN0 = H, GAIN1 = L	34.1	35.1	36.1
	GAIN0 = H, GAIN1 = H	36.6	37.6	38.6
Output Power (W rms)	THD = 10%	-	100	-
Efficiency (%)	P=100W+100W	-	90	-
Minimum Load (ohm)	-	-	6	-
Frequency Response (dB)	$\pm 3\text{dB}$	20	-	22k
Operating Temperature ($^{\circ}\text{C}$)	-	0	20	50

Audio Amplifier Board

TDA749X Series

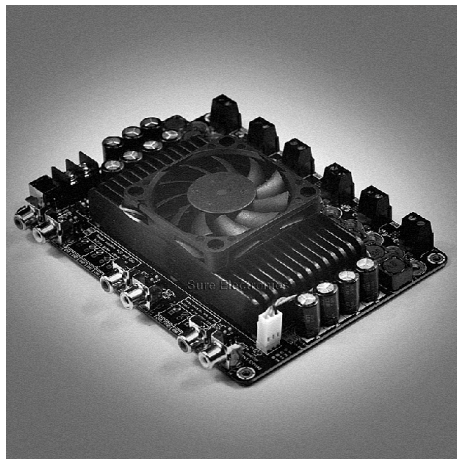
6 X 100 Watt 6 Ohm Class D Audio Amplifier Board – TDA7498

(AA-AB34181)

Welcome to use this self-made 6 x 100W audio amplifier board which has perfect class-D architecture and integrated TDA7498 chip to achieve the 100W per channel power output. With high efficiency, it especially is available for the outdoor venues where power supply is always in consideration.

Resistance and capacity components of high quality, including X7R ceramic capacitors and lower ESR electrolytic capacitors, are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-16 OVERVIEW



Features

- Size: 6 " x 4.5 "
- Standby and mute function
- Supply voltage: DC 14V to 39V
- Gain adjustable
- Over/under voltage protection
- Over current protection
- Over temperature protection

Applications

- Personal computers
- Home DIY
- Home theater receiver
- Car audio
- Multi-channel distribution
- Background music systems

TABLE 3-16 BASIC PARAMETERS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA7498 chip.

$T_A = 25\text{ }^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 6\Omega$, $V_{CC} = 36\text{V}$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	14	36	39
Quiescent Current (mA)	No LC filter, No load	-	40	60
Input Sensitivity (mV)	25.6dB	-	1356	-
	31.6dB		696	
	35.1dB		460	
	37.6dB		341	
Input Impedance (Kohm)	-	48	60	-
Gain (dB)	GAIN0 = L, GAIN1 = L	24.6	25.6	26.6
	GAIN0 = L, GAIN1 = H	30.6	31.6	32.6
	GAIN0 = H, GAIN1 = L	34.1	35.1	36.1
	GAIN0 = H, GAIN1 = H	36.6	37.6	38.6
Output Power (W rms)	THD = 10%	-	100	-
Efficiency (%)	P=100W+100W	-	90	-
Minimum Load (ohm)	-	-	6	-
Frequency Response (dB)	$\pm 3\text{dB}$	20	-	22k
Operating Temperature ($^{\circ}\text{C}$)	-	0	20	50

Audio Amplifier Board

TDA895X Series

1 X 300 Watt 8 Ohm Class D Audio Amplifier Board – TDA8950

(AA-AB31193)

Welcome to use this 1 x 300W Class-D audio amplifier board by Sure Electronics. It integrates NXP's high performance TDA8950 supporting single channel audio amplification.

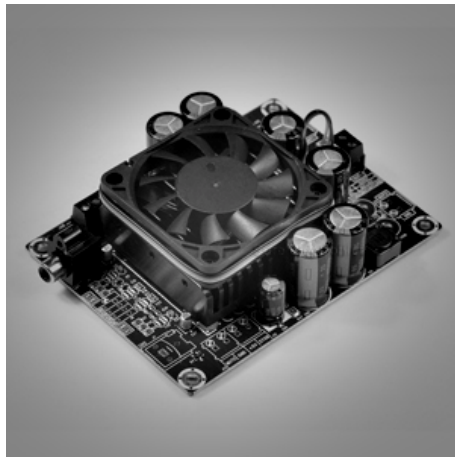
Both of channels are capable of outputting nominal power simultaneously and continuously with appropriate symmetrical power supply.

It has built-in linear FAN controller based on the temperature rise to keep noise from the FAN as low as possible while ensure the prompt heat dissipation.

High reliability is ensured due to extensive protection, including overtemperature turn-off, over current protection, over voltage protection.

It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

FIGURE 3-16 OVERVIEW



Features

- Size : 4.8 " x 3.6 "
- Supply voltage: $\pm 19V$ to $\pm 41V$
- Fixed Gain: 36dB
- RCA Socket Input
- External mute & standby control compatible 5V COMS & TTL level
- Enhanced input and output protection
- High efficiency

Applications

- Background music systems
- Musical instrument amplifiers
- Prototype for recording studios,
- Post-production, Live sound and Hi-Fi applications
- PA system

TABLE 3-16 BASIC PARAMETERS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA8950 chip.

$T_A = 25\text{ }^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 8\Omega$, $V_{CC} = 36V$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	19	41	42.5
Quiescent Current (mA)	-	-	280mA (FAN ON,STBY NC) 220mA (FAN OFF,STBY NC) < 10mA (FAN ON,STBY =5V)	-
Input Sensitivity (mV)	37.6dB		341	
Input Impedance (Kohm)	-	-	45	56
Gain (dB)	-	-	36	-
Output Power (W rms)	THD = 10%, $R_L = 8\Omega$	-	400	-
Efficiency (%)	-	-	> 90	-
Minimum Load (ohm)	-	-	8	-
Frequency Response (dB)	$\pm 3dB$	20	-	22k
Operating Temperature ($^{\circ}\text{C}$)	-	0	20	50

Audio Amplifier Board

TDA895X Series

2 X 150 Watt 4 Ohm Class D Audio Amplifier Board – TDA8950

(AA-AB32222)

Welcome to use this 2 x 150W Class-D audio amplifier board by Sure Electronics. It integrates NXP's high performance TDA8950 supporting dual channel audio amplification.

Both of channels are capable of outputting nominal power simultaneously and continuously with appropriate symmetrical power supply.

It has built-in linear FAN controller based on the temperature rise to keep noise from the FAN as low as possible while ensure the prompt heat dissipation.

High reliability is ensured due to extensive protection, including overtemperature turn-off, over current protection, over voltage protection.

It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

FIGURE 3-16 OVERVIEW



Features

- Size : 4.8 " x 3.6 "
- Supply voltage: $\pm 19V$ to $\pm 41V$
- Fixed Gain: 30dB
- RCA Socket Input
- External mute & standby control compatible 5V COMS & TTL level
- Enhanced input and output protection
- High efficiency

Applications

- Background music systems
- Musical instrument amplifiers
- Prototype for recording studios,
- Post-production, Live sound and Hi-Fi applications
- PA system

TABLE 3-16 BASIC PARAMETERS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA8950 chip.

$T_A = 25\text{ }^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 4\Omega$, $V_{CC} = 36V$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	19	41	42.5
Quiescent Current (mA)	-	-	280mA (FAN ON,STBY NC) 220mA (FAN OFF,STBY NC) < 10mA (FAN ON,STBY =5V)	-
Input Sensitivity (mV)	37.6dB		900	-
Input Impedance (Kohm)	-	-	45	56
Gain (dB)	-	-	30	-
Output Power (W rms)	THD = 10%, $R_L = 4\Omega$	-	200	-
Efficiency (%)	-	-	> 90	-
Minimum Load (ohm)	-	-	4	-
Frequency Response (dB)	$\pm 3dB$	20	-	22k
Operating Temperature ($^{\circ}\text{C}$)	-	0	20	50

Audio Amplifier Board

TDA895X Series

1 X 400 Watt 8 Ohm Class D Audio Amplifier Board – TDA8954

(AA-AB31313)

Welcome to use this 1 x 400W Class-D audio amplifier board by Sure Electronics. It integrates NXP's high performance TDA8954 supporting single channel audio amplification.

Both of channels are capable of outputting nominal power simultaneously and continuously with appropriate symmetrical power supply.

It has built-in linear FAN controller based on the temperature rise to keep noise from the FAN as low as possible while ensure the prompt heat dissipation.

High reliability is ensured due to extensive protection, including overtemperature turn-off, over current protection, over voltage protection.

It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

FIGURE 3-16 OVERVIEW



Features

- Size : 4.8 " x 3.6 "
- Supply voltage: $\pm 19V$ to $\pm 41V$
- Fixed Gain: 36dB
- RCA Socket Input
- External mute & standby control compatible 5V COMS & TTL level
- Enhanced input and output protection
- High efficiency

Applications

- Background music systems
- Musical instrument amplifiers
- Prototype for recording studios,
- Post-production, Live sound and Hi-Fi applications
- PA system

TABLE 3-16 BASIC PARAMETERS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA8954 chip.

$T_A = 25^\circ C$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 8\Omega$, $V_{CC} = 36V$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	19	41	42.5
Quiescent Current (mA)	-	-	270mA (FAN ON,STBY NC) 210mA (FAN OFF,STBY NC) < 10mA(FAN ON,STBY =5V)	-
Input Sensitivity (mV)	37.6dB		341	
Input Impedance (Kohm)	-	-	45	56
Gain (dB)	-	-	36	-
Output Power (W rms)	THD = 10%, $R_L = 8\Omega$	-	400	-
Efficiency (%)	-	-	> 90	-
Minimum Load (ohm)	-	-	8	-
Frequency Response (dB)	$\pm 3dB$	20	-	22k
Operating Temperature ($^\circ C$)	-	0	20	50

Audio Amplifier Board

TDA895X Series

2 X 200 Watt 4 Ohm Class D Audio Amplifier Board – TDA8954

(AA-AB32222)

Welcome to use this 2 x 200W Class-D audio amplifier board by Sure Electronics. It integrates NXP's high performance TDA8954 supporting dual channel audio amplification.

Both of channels are capable of outputting nominal power simultaneously and continuously with appropriate symmetrical power supply.

It has built-in linear FAN controller based on the temperature rise to keep noise from the FAN as low as possible while ensure the prompt heat dissipation.

High reliability is ensured due to extensive protection, including overtemperature turn-off, over current protection, over voltage protection.

It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

FIGURE 3-16 OVERVIEW



Features

- Size : 4.8 " x 3.6 "
- Supply voltage: $\pm 19V$ to $\pm 41V$
- Fixed Gain: 30dB
- RCA Socket Input
- External mute & standby control compatible 5V COMS & TTL level
- Enhanced input and output protection
- High efficiency

Applications

- Background music systems
- Musical instrument amplifiers
- Prototype for recording studios,
- Post-production, Live sound and Hi-Fi applications
- PA system

TABLE 3-16 BASIC PARAMETERS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA8954 chip.

$T_A = 25^\circ C$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 4\Omega$, $V_{CC} = 36V$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	19	41	42.5
Quiescent Current (mA)	-	-	270mA (FAN ON,STBY NC) 210mA (FAN OFF,STBY NC) < 10mA(FAN ON,STBY =5V)	-
Input Sensitivity (mV)	37.6dB		341	
Input Impedance (Kohm)	-	-	45	56
Gain (dB)	-	-	30	-
Output Power (W rms)	THD = 10%, $R_L = 4\Omega$	-	200	-
Efficiency (%)	-	-	> 90	-
Minimum Load (ohm)	-	-	4	-
Frequency Response (dB)	$\pm 3dB$	20	-	22k
Operating Temperature ($^\circ C$)	-	0	20	50

Audio Amplifier Board

TAS56XX Series

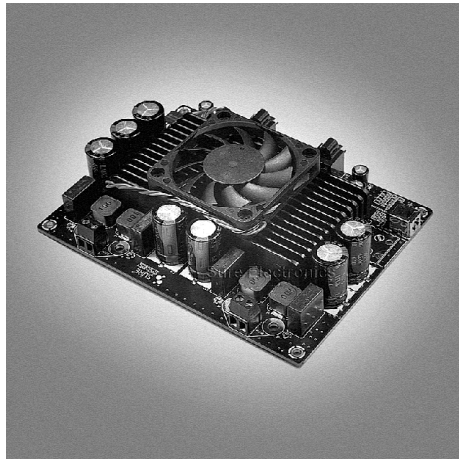
2 X 150 Watt 4 Ohm Class D Audio Amplifier Board – TAS5613

(AA-AB32221)

Welcome to use this 2 x 150W Class-D audio amplifier board series by Sure Electronics. It integrates TI's high performance TAS5613 supporting dual channel audio amplification. Both of channels are capable of outputting nominal power simultaneously and continuously. It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

Resistance and capacity components of high quality, including X7R ceramic capacitors, Metallized Polyester (PET) Capacitors and lower ESR electrolytic capacitors, high performance inductors are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-17 OVERVIEW



Features

- Size: 6 " x 4.5 "
- Supply voltage: DC 18V to 38V
- Gain adjustable
- Under voltage protection
- Over current protection
- Short circuit and over temperature protection

Applications

- Home theater receiver
- Car audio
- Background music systems
- Musical instrument amplifiers
- Prototype for recording studios, Post-production, Live sound and Hi-Fi applications

TABLE 3-17 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of TI's TAS5613 chip.

$T_C = 75^\circ\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 4\Omega$, $V_{DD} = 12\text{V}$. (Unless otherwise stated)

Parameter	Condition	Min.	Typ	Max
Supply Voltage (V)	AA-AB32221	18	36	38
Quiescent Current (mA)	FAN ON	-	150	-
Input Sensitivity (mV)	20dB	-	2450	-
	26dB		1225	
	30dB		766	
	32dB		583	
Input Impedance (Kohm)	-	13	-	16.7
Gain(SW1, SW2, SW3, SW4 Setting) (dB)*	K1 ON, K2 ON	-	20	-
	K1 ON, K2 OFF	-	26	-
	K1 OFF, K2 ON	-	30	-
	K1 OFF, K2 OFF	-	32	-
Output Power (W rms)	$R_L = 4\Omega$, 10% THD+N	-	150	-
Efficiency (%)	Both channels output rating power.	-	>90	-
Minimum Load (ohm)	-	3	4	-
Frequency Response (dB)	$\pm 3\text{dB}$	20	-	22k
Operating Temperature ($^\circ\text{C}$)	-	0	20	50

* Please set SW1, SW2, SW3 and SW4 in the same way to make sure the same gains.

Audio Amplifier Board

TAS56XX Series

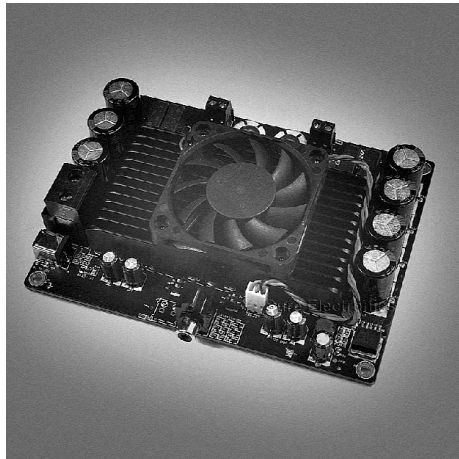
1 X 300 Watt 2 Ohm Class D Audio Amplifier Board – TAS5613

(AA-AB31191)

Welcome to use this 1 X 300W Class-D audio amplifier board series by Sure Electronics. It integrates TI's high performance TAS5613 supporting single channel audio amplification. Single channel is capable of outputting nominal power simultaneously and continuously. It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

Resistance and capacity components of high quality, including X7R ceramic capacitors, Metallized Polyester (PET) Capacitors and lower ESR electrolytic capacitors, high performance inductors are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-18 OVERVIEW



Features

- Size: 6" x 4.5"
- Supply voltage: DC 18V to 38V
- Gain adjustable
- Under voltage protection
- Over current protection
- Short circuit and over temperature protection

Applications

- Home theater receiver
- Car audio
- Background music systems
- Musical instrument amplifiers
- Prototype for recording studios, Post-production, Live sound and Hi-Fi applications
- PA system

TABLE 3-18 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of TI's TAS5613 chip.

$T_C = 75^\circ\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 4\Omega$, $V_{DD} = 12\text{V}$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	AA-AB31191	18	36	38
Quiescent Current (mA)	FAN ON	-	100	-
Input Sensitivity (mV)	20 dB(gain)	-	2450	-
	26 dB(gain)	-	1225	-
	30 dB(gain)	-	766	-
	32 dB(gain)	-	583	-
Input Impedance (Kohm)	-	13	-	16.7
Gain(SW1, SW2, SW3, SW4 Setting) (dB)*	K1 ON, K2 ON	-	20	-
	K1 ON, K2 OFF	-	26	-
	K1 OFF, K2 ON	-	30	-
	K1 OFF, K2 OFF	-	32	-
Output Power (W rms)	$R_L = 2\Omega$, 10% THD+N	-	300	-
Efficiency (%)	-	-	>90	-
Minimum Load (ohm)	300w 10%THD+N,	-	2	-
Frequency Response (dB)	$\pm 3\text{dB}$	20	-	22k
Operating Temperature ($^\circ\text{C}$)	-	0	20	50

* Please set SW1, SW2, SW3 and SW4 in the same way to make sure the same gains.

Audio Amplifier Board

TAS56XX Series

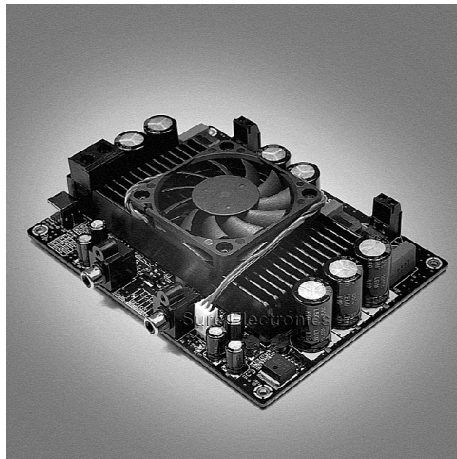
2 X 300 Watt 4 Ohm Class D Audio Amplifier Board – TAS5630

(AA-AB32191)

Welcome to use this 2 x 300W Class-D audio amplifier board series by Sure Electronics. It integrates TI's high performance TAS5630 supporting dual channel audio amplification. Both of channels are capable of outputting nominal power simultaneously and continuously. It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

Resistance and capacity components of high quality, including X7R ceramic capacitors, Metallized Polyester (PET) Capacitors and lower ESR electrolytic capacitors, high performance inductors are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-19 OVERVIEW



Features

- Size: 6 " x 4.5 "
- Supply voltage: DC 25V to 52.5V
- Gain adjustable
- Under voltage protection
- Over current protection
- Short circuit and over temperature protection

Applications

- Home theater receiver
- Car audio
- Background music systems
- Musical instrument amplifiers
- Prototype for recording studios, Post-production, Live sound and Hi-Fi applications
- PA system

TABLE 3-19 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of TI's TAS5630 chip.

$T_C = 75^\circ\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 4\Omega$, $V_{DD} = 12\text{V}$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	AA-AB32191	25	50	52.5
Quiescent Current (mA)	FAN ON	-	150	-
Input Sensitivity (mV)	23dB	-	2030	-
	29dB		1010	
	33dB		630	
	35dB		480	
Input Impedance (Kohm)	-	13	-	16.7
Gain(SW1, SW2, SW3, SW4 Setting) (dB)*	K1 ON, K2 ON	-	23	-
	K1 ON, K2 OFF	-	29	-
	K1 OFF, K2 ON	-	33	-
	K1 OFF, K2 OFF	-	35	-
Output Power (W rms)	$R_L = 4\Omega$, 10% THD+N, clipped output signal	-	300	-
Efficiency (%)	Both channels output rating power.	-	>90	-
Minimum Load (ohm)	-	3.5	4	-
Frequency Response (dB)	$\pm 3\text{dB}$	20	-	22k
Operating Temperature ($^\circ\text{C}$)	-	0	20	50

* Please set SW1, SW2, SW3 and SW4 in the same way to make sure the same gains.

Audio Amplifier Board

TAS56XX Series

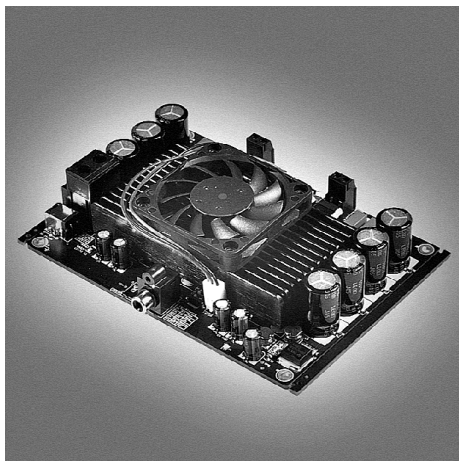
1 X 600 Watt 2 Ohm Class D Audio Amplifier Board – TAS5630

(AA-AB31241)

Welcome to use this 1 x 600W Class-D audio amplifier board series by Sure Electronics. It integrates TI's high performance TAS5630 supporting single channel audio amplification. Single channel is capable of outputting nominal power simultaneously and continuously. It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

Resistance and capacity components of high quality, including X7R ceramic capacitors, Metallized Polyester (PET) Capacitors and lower ESR electrolytic capacitors, high performance inductors are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-20 OVERVIEW



Features

- Size: 6 " x 4.5 "
- Supply voltage: DC 25V to 50V
- Gain adjustable
- Under voltage protection
- Over current protection
- Short circuit and over temperature protection

Applications

- Musical Instrument amplifiers
- Prototype for recording studios, Post-production, Live sound and Hi-Fi applications
- PA system
- Broadcast system
- Active subwoofer

TABLE 3-20 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of TI's TAS5630 chip.

$T_C = 75^\circ\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 2\Omega$, $V_{DD} = 12\text{V}$. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	AA-AB31241	25	50	50
Quiescent Current (mA)	FAN ON	-	100	-
Input Sensitivity (mV)	23 dB(gain)	-	2450	-
	29 dB(gain)	-	1230	-
	33 dB(gain)	-	775	-
	35 dB(gain)	-	615	-
Input Impedance (Kohm)	-	13	-	16.7
Gain(SW1, SW2, SW3, SW4 Setting) (dB)*	K1 ON, K2 ON	-	23	-
	K1 ON, K2 OFF	-	29	-
	K1 OFF, K2 ON	-	33	-
	K1 OFF, K2 OFF	-	35	-
Output Power (W rms)	$R_L = 2\Omega$, 10% THD+N, clipped output signal	-	600	-
Efficiency (%)	-	-	>90	-
Minimum Load (ohm)	600w 10%THD+N, clipped output signal	-	2	-
Frequency Response (dB)	$\pm 3\text{dB}$	20	-	22k
Operating Temperature ($^\circ\text{C}$)	-	0	20	50

* Please set SW1, SW2, SW3 and SW4 in the same way to make sure the same gains.

Audio Amplifier Board

IRS2092 Series

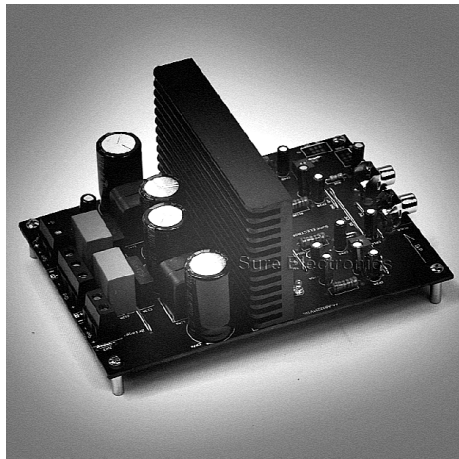
2 X 125 Watt 8 Ohm Class D Audio Amplifier Board – IRS2092

(AA-AB32321)

Welcome to use this 2 x 125W Class D audio amplifier board by Sure Electronics. It integrates high performance IRS2092 supporting dual channel audio amplification. Both of channels are capable of outputting nominal power simultaneously and continuously. It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

Resistance and capacity components of high quality, including Metallized Polyester (PET) Capacitors and lower ESR electrolytic capacitors, high performance inductors are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-30 OVERVIEW



Features

- Size: 6 " x 4.5 "
- Supply voltage: DC 55V to 65V
- Under voltage protection
- Over current protection
- Short circuit and over temperature protection

Applications

- Home theater receiver
- Car audio
- Background music systems
- Musical instrument amplifiers
- Prototype for recording studios, Post-production, Live sound and Hi-Fi applications

TABLE 3-30 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of IRS2092 chip.

-40°C ≤ T_J ≤ 125°C, f_{IN} = 1 kHz sine wave, R_L = 2Ω, V_S = COM = 0 V. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	±55	±60	±65
Quiescent Current (mA)	FAN ON	-	-	50
Input Sensitivity (mV)		-	479	-
Input Impedance (Kohm)	-	13	-	16.7
Gain (dB)	Voltage gain	-	32	-
Output Power (W rms)		-	125	-
Efficiency (%)	Both channels output rating power.	-	90	-
Minimum Load (ohm)	-	3.5	4	-
Frequency Response (dB)	±3dB	20	-	22k
Operating Temperature (°C)	-	0	20	50

Audio Amplifier Board

IRS2092 Series

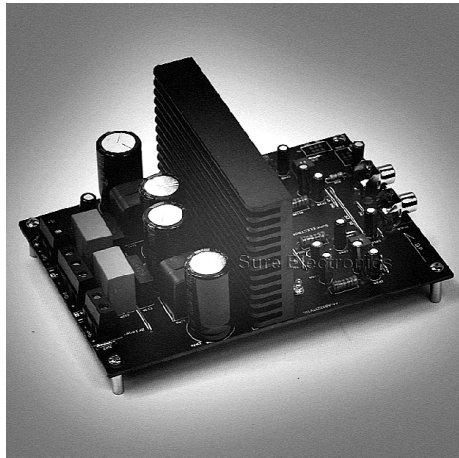
2 X 250 Watt 8 Ohm Class D Audio Amplifier Board – IRS2092

(AA-AB32291)

Welcome to use this 2 x 250W Class D audio amplifier board by Sure Electronics. It integrates high performance IRS2092 supporting dual channel audio amplification. Both of channels are capable of outputting nominal power simultaneously and continuously. It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

Resistance and capacity components of high quality, including Metallized Polyester (PET) Capacitors and lower ESR electrolytic capacitors, high performance inductors are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-31 OVERVIEW



Features

- Size: 6 " x 4.5 "
- Supply voltage: DC 55V to 65V
- Under voltage protection
- Over current protection
- Short circuit and over temperature protection

Applications

- Home theater receiver
- Car audio
- Background music systems
- Musical instrument amplifiers
- Prototype for recording studios, Post-production, Live sound and Hi-Fi applications
- PA system

TABLE 3-31 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of IRS2092 chip.

-40°C ≤ T_J ≤ 125°C, f_{IN} = 1 kHz sine wave, R_L = 2Ω, V_S = COM = 0 V. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	±55	±60	±65
Quiescent Current (mA)	FAN ON	-	-	50
Input Sensitivity (mV)	-	-	678	-
Input Impedance (Kohm)	-	13	-	16.7
Gain (dB)	Voltage gain	-	32	-
Output Power (W rms)	-	-	250	-
Efficiency (%)	Both channels output rating power.	-	90	-
Minimum Load (ohm)	-	3.5	4	-
Frequency Response (dB)	±3dB	20	-	22k
Operating Temperature (°C)	-	0	20	50

Audio Amplifier Board

IRS2092 Series

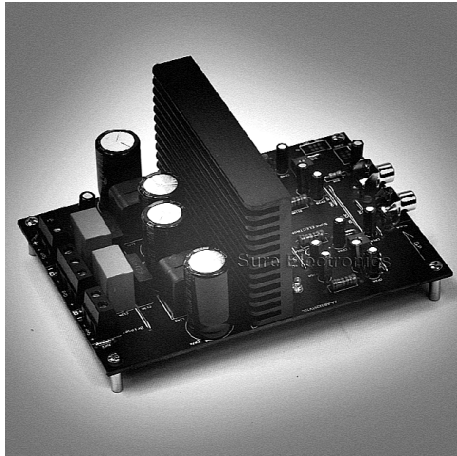
2 X 750 Watt 4 Ohm Class D Audio Amplifier Board – IRS2092

(AA-AB32431)

Welcome to use this 2 x 750W Class D audio amplifier board by Sure Electronics. It integrates high performance IRS2092 supporting dual channel audio amplification. Both of channels are capable of outputting nominal power simultaneously and continuously. It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

Resistance and capacity components of high quality, including Metallized Polyester (PET) Capacitors and lower ESR electrolytic capacitors, high performance inductors are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-32 OVERVIEW



Features

- Size: 6 " x 4.5 "
- Supply voltage: DC 60V to 80V
- Under voltage protection
- Over current protection
- Short circuit and over temperature protection

Applications

- Musical Instrument amplifiers
- Prototype for recording studios, Post-production, Live sound and Hi-Fi applications
- PA system
- Broadcast system
- Active subwoofer

TABLE 3-32 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of IRS2092 chip.

-40°C ≤ T_j ≤ 125°C, f_{IN} = 1 kHz sine wave, R_L = 2Ω, V_S = COM = 0 V. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	±60	±75	±80
Quiescent Current (mA)	FAN ON	-	-300 +84	-
Input Sensitivity (mV)	R _L = 2Ω	-	1173	-
Input Impedance (Kohm)	-	-	3.6	-
Gain (dB)	Voltage gain	-	30	-
Output Power (W rms)	-	-	750	-
Efficiency (%)	Both channels output rating power.	-	90	-
Minimum Load (ohm)	-	-	4	-
Frequency Response (dB)	±3dB	20	-	22k
Operating Temperature (°C)	-	0	20	50

Audio Amplifier Board

IRS2092 Series

1 X 2500 Watt 2 Ohm Class D Audio Amplifier Board – IRS2092

(AA-AB31491)

Welcome to use this 1 x 2500W Class D audio amplifier board by Sure Electronics. It integrates high performance IRS2092 and IR MOSFET IRFB4227 supporting single channel audio amplification.

It features self-oscillating half-bridge topology with optional clock synchronization.

It is capable of outputting full range up to 2500W RMS @ 2 Ohm continuously.

It can be bridged with another one for higher output, around 5000W RMS @ 4 Ohm, without external circuitry.

High reliability is ensured due to extensive protection, including overtemperature turn-off, DC offset speaker protection, over current protection over voltage protection.

It utilizes a noiseless fan along with temperature sensors to maintain the amplifier's target temperature.

It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

It is targeted to high-end / high power sound systems like disco, active speakers, large subwoofers for PA (Professional Audio), high power studio monitors and high power hi-end hi-fi systems.

FIGURE 3-32 OVERVIEW



Features

- Size: 6 inch x 4.5 inch
- Supply voltage: DC $\pm 60V$ to $\pm 94V$
- Under voltage protection
- Over current protection
- Over temperature protection
- DC offset protection
- High efficiency and optimal heatsink

Applications

- Musical instrument amplifiers
- Prototype for recording studios, Post-production, Live sound and Hi-Fi applications
- PA system
- Broadcast system
- Active subwoofer

TABLE 3-32 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of IRS2092 chip.

$-40^{\circ}C \leq T_j \leq 125^{\circ}C$, $f_{IN} = 1$ kHz sine wave, $R_L = 2\Omega$, $V_S = COM = 0$ V. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	60	85	94
Quiescent Current (mA)	FAN OFF $V = \pm 80V$ $R_L = 2\Omega$	-	-75 +21	-
Input Sensitivity (mV)	$R_L = 2\Omega$	-	2400	-
Input Impedance (Kohm)	-	-	3.6	-
Gain (dB)	Voltage gain	-	30	-
Output Power (W rms)	-	-	2500	-
Efficiency (%)	Output rating power.	-	90	-
Minimum Load (ohm)	-	-	1	-
Frequency Response (dB)	$\pm 3dB$	20	-	22k
Operating Temperature ($^{\circ}C$)	-	0	20	50

Audio Amplifier Board

IRS2092 Series

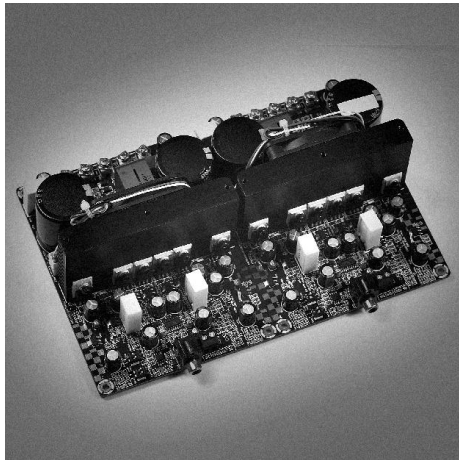
2 X 1500 Watt 2 Ohm Class D Audio Amplifier Board – IRS2092

(AA-AB32391)

Welcome to use this 2 x 1500W Class D audio amplifier board by Sure Electronics. It integrates high performance IRS2092 supporting dual channel audio amplification. Both of channels are capable of outputting nominal power simultaneously and continuously. It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

Resistance and capacity components of high quality, including Metallized Polyester (PET) Capacitors and lower ESR electrolytic capacitors, high performance inductors are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-33 OVERVIEW



Features

- Size: 6 " x 4.5 "
- Supply voltage: DC 60V to 80V
- Under voltage protection
- Over current protection
- Short circuit and over temperature protection

Applications

- Musical instrument amplifiers
- Prototype for recording studios, Post-production, Live sound and Hi-Fi applications
- PA system
- Broadcast system
- Active subwoofer

TABLE 3-33 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of IRS2092 chip.

-40°C ≤ T_j ≤ 125°C, f_{IN} = 1 kHz sine wave, R_L = 2Ω, V_S = COM = 0 V. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	±60	±75	±80
Quiescent Current (mA)	FAN OFF V = ±80V R _L = 2Ω	-	-300 +84	-
Input Sensitivity (mV)	R _L = 2Ω	-	1650	-
Input Impedance (Kohm)	-	-	3.6	-
Gain (dB)	Voltage gain	-	30	-
Output Power (W rms)	-	-	1500	-
Efficiency (%)	Both channels output rating power.	-	90	-
Minimum Load (ohm)	-	-	2	-
Frequency Response (dB)	±3dB	20	-	22k
Operating Temperature (°C)	-	0	20	50

Audio Amplifier Board

IRS2092 Series

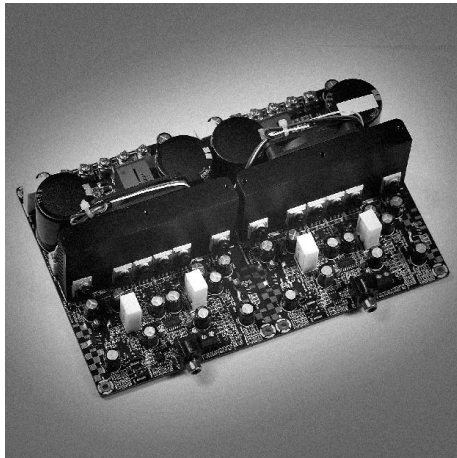
2 X 2500 Watt 2 Ohm Class D Audio Amplifier Board – IRS2092

(AA-AB32381)

Welcome to use this 2 x 2500W Class D audio amplifier board by Sure Electronics. It integrates high performance IRS2092 supporting dual channel audio amplification. Both of channels are capable of outputting nominal power simultaneously and continuously. It's suitable for amplifier enthusiasts or hobbyists to finish a complete amplifier system.

Resistance and capacity components of high quality, including Metallized Polyester (PET) Capacitors and lower ESR electrolytic capacitors, high performance inductors are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

FIGURE 3-34 OVERVIEW



Features

- Size: 6 " x 4.5 "
- Supply voltage: DC 60V to 94V
- Under voltage protection
- Over current protection
- Short circuit and over temperature protection

Applications

- Musical instrument amplifiers
- Prototype for recording studios, Post-production, Live sound and Hi-Fi applications
- PA system
- Broadcast system
- Active subwoofer

TABLE 3-34 ELECTRICAL CHARACTERISTICS

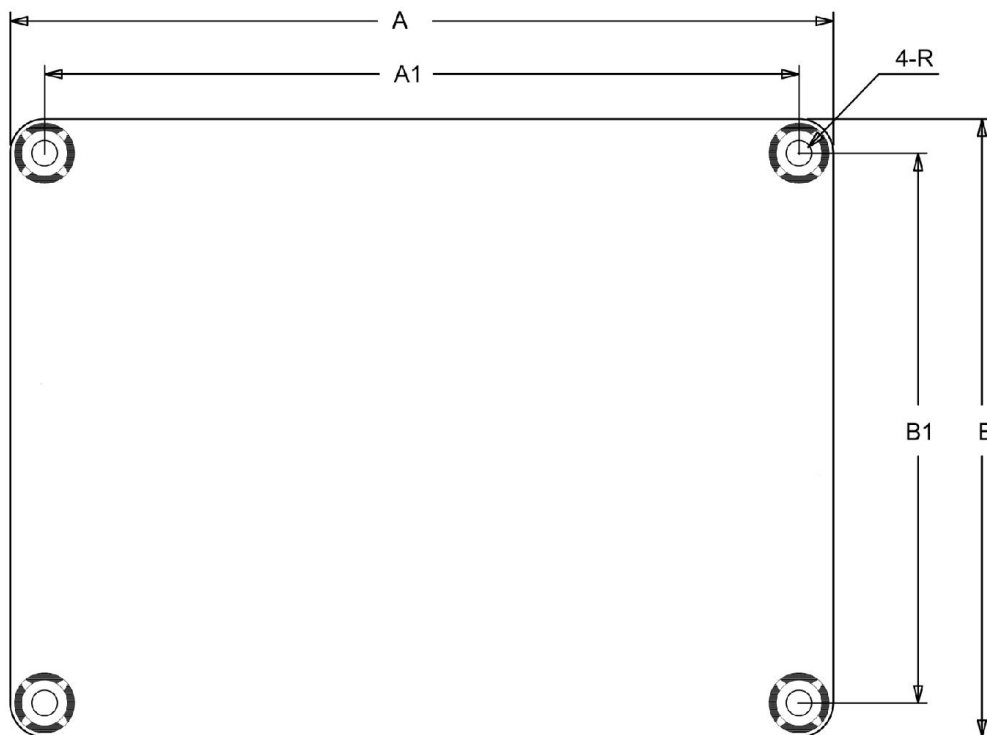
Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of IRS2092 chip.

-40°C ≤ T_j ≤ 125°C, f_{IN} = 1 kHz sine wave, R_L = 2Ω, V_S = COM = 0 V. (Unless otherwise stated)

Parameter	Condition	Min	Typ	Max
Supply Voltage (V)	-	60	85	94
Quiescent Current (mA)	FAN OFF V = ±80V R _L = 2Ω	-	-75 +21	-
Input Sensitivity (mV)	R _L = 2Ω	-	2400	-
Input Impedance (Kohm)	-	-	3.6	-
Gain (dB)	Voltage gain	-	30	-
Output Power (W rms)	-	-	2500	-
Efficiency (%)	Output rating power.	-	90	-
Minimum Load (ohm)	-	-	1	-
Frequency Response (dB)	±3dB	20	-	22k
Operating Temperature (°C)	-	0	20	50

Chapter 4. Mechanical Drawing

FIGURE 4-1 MECHANICAL DRAWING



Dimension	A (inch/mm)	A1 (inch/mm)	B (inch/mm)	B1 (inch/mm)	R (inch/mm)
D1	2.40/61.00	2.00/50.80	1.80/45.70	1.40/35.56	
D2	3.00/76.20	2.60/66.00	2.00/50.80	1.60/40.60	0.06/1.55
D3	3.60/91.40	3.20/81.30	2.70/68.60	2.30/58.42	
D4	4.80/121.90	4.40/111.80	3.60/91.40	3.20/81.30	0.08/1.89
D5	6.00/152.40	5.60/142.20	4.50/114.30	4.10/104.10	0.06/1.55
D6	9.00/228.60	8.60/218.44	6.00/152.40	5.60/142.20	



Class D Audio Amplifier User's Guide

Selection Guide

Product No.	CH	Power	Vin	Load	Amplifier IC	Dimension(L*W*H)	Page
AA-AB32159	2	15 W	DC9V-14V	4ohm	TA2024	6.4inch*2.9inch*1.9inch	
AA-AS32171	2	50 W	DC9V-24V	6ohm	TDA7492	6.4inch*2.9inch*1.9inch	
AA-AS32186	2	100 W	DC14V-36V	6ohm	TDA7498	8.3inch*4.9inch*1.9inch	
AA-AS32184	2	100 W	DC14V-36V	6ohm	TDA7498	8.3inch*4.9inch*1.9inch	

Note: For dimension of all boards, please refer to Chapter 4.



NOTES:

Document Version : Ver 1.0

AUDIO AMPLIFIER USER'S GUIDE

Chapter 1. Overview

1.1 Overview

This class D audio amplifier series, produced by Sure Electronics, has the characteristics of high quality, outstanding performance and reasonable price. It consists of four categories (Modesty, Inspiration and Enthusiasm). We design elegant and solid aluminum alloy lamp housing for customers, with comprehensive and friendly human-machine interaction interface. Resistance and capacity components of high quality, including X7R ceramic capacitors and lower ESR electrolytic capacitors, are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

This audio amplifier series provides customers with multiple application choices, such as desktop, parlor, car, ship, school, hospital, theater, building, outdoors, industry etc.

1.2 Features

- A perfect "Class D" architecture
- Frequency response: 20Hz to 22KHz(±3dB)
- Fully made from aluminum alloy, compact, pleasing, fashionable and durable
- High-quality audio processor IC and high performance chip ensures long time use
- High input sensitivity
- Smart amplifier, auto-detect input and output connection. Suitable for the input of many kinds of audio signals
- MCU based, more fashionable and attractive, creating dynamic LED breathing effect
- Over / under voltage turn off
- Over current protection
- Over temperature protection

1.3 Applications

Power (≤50W)

- Home Theater
- Desktop Amplifier
- Powered DVD Systems
- Mini/Micro Systems
- MP3, Video CD output Amplification

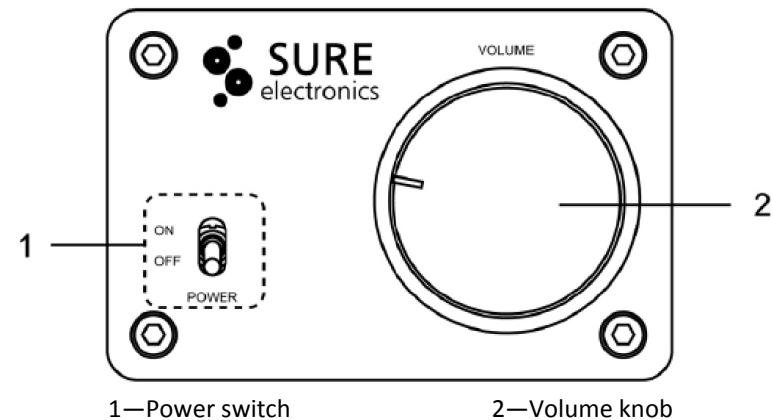
Power (51~100W)

- Desktop amplifier for both PC and portable devices
- Enhanced amplifier for TV or TOPBOX system
- Wireless audio receiver and amplifier
- Great partner for Apple TV or other devices with TOSLINK output

1.4 Components and Function

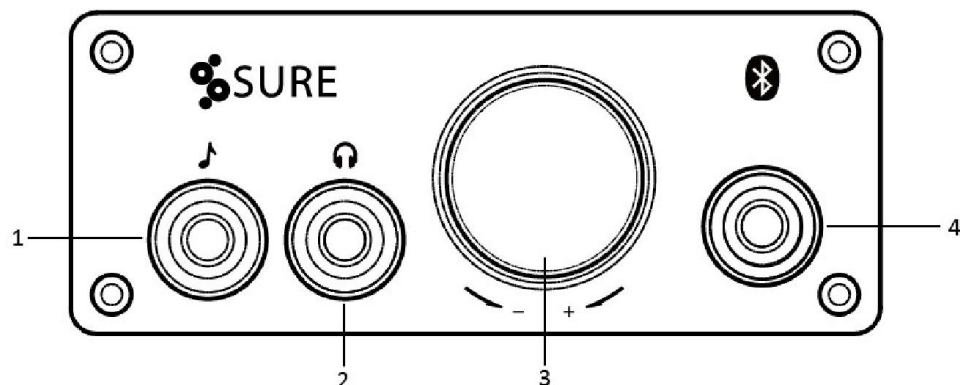
Modesty Series

FRONT PANEL FIGURE 1-1 (AA-AB32159)



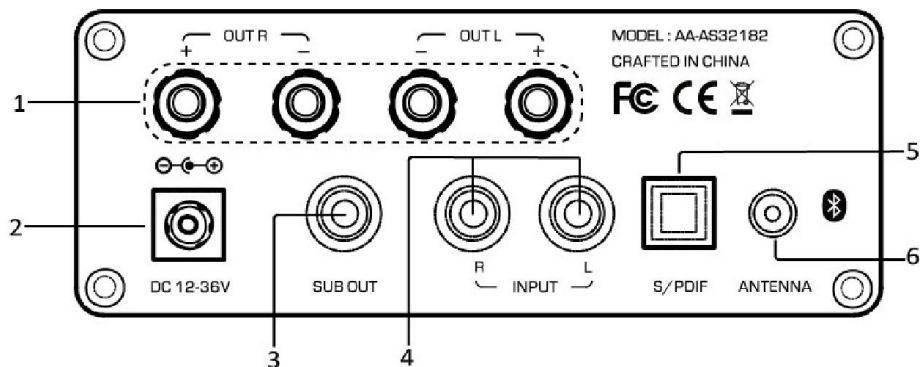
Overview

FRONT PANEL FIGURE 1-2 (AA-AS32186)



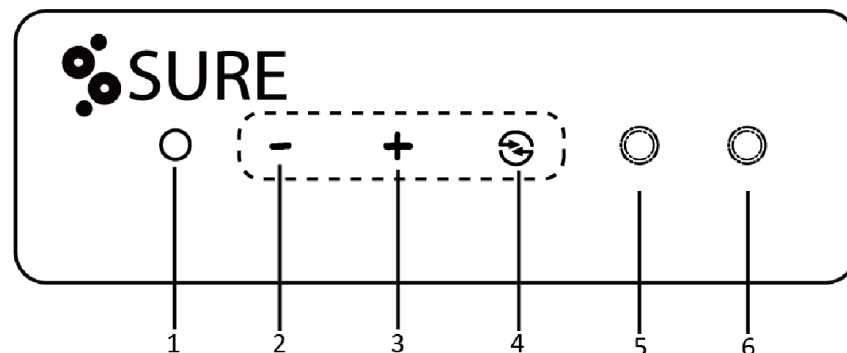
- 1—3.5mm audio input
- 2—3.5mm headphone output
- 3—Volume knob
- 4—IR remote receiver

REAR PANEL FIGURE 1-3 (AA-AS32186)



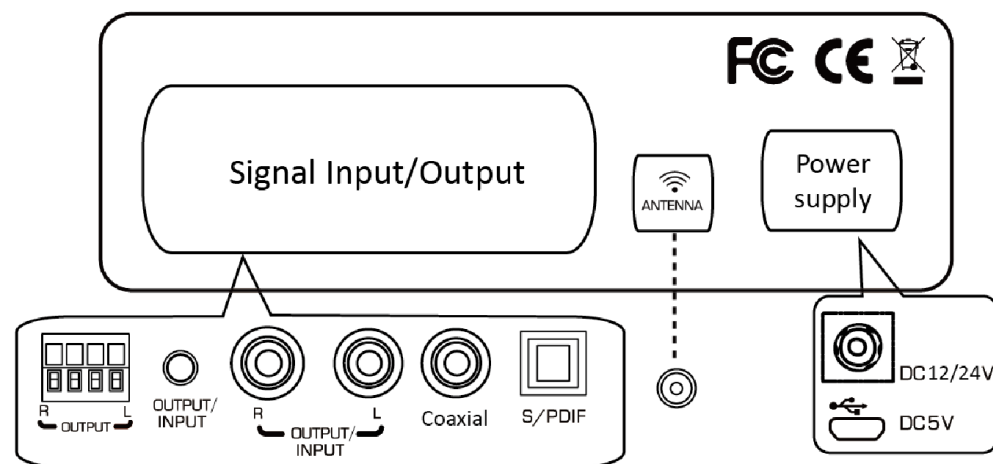
- 1—Speaker output terminal
- 2—Power input
- 3—Subwoofer output
- 4—Audio signal input terminal (RCA)
- 5—Optical fiber input
- 6—Bluetooth receiver

Inspiration Series
FRONT PANEL FIGURE 1-4



- 1—LED indicator
- 2—Volume down (touch sensitive)
- 3—Volume up (touch sensitive)
- 4—Input channel switch (touch sensitive)
- 5—3.5mm headphone output
- 6—3.5mm audio input/output

REAR PANEL FIGURE 1-5



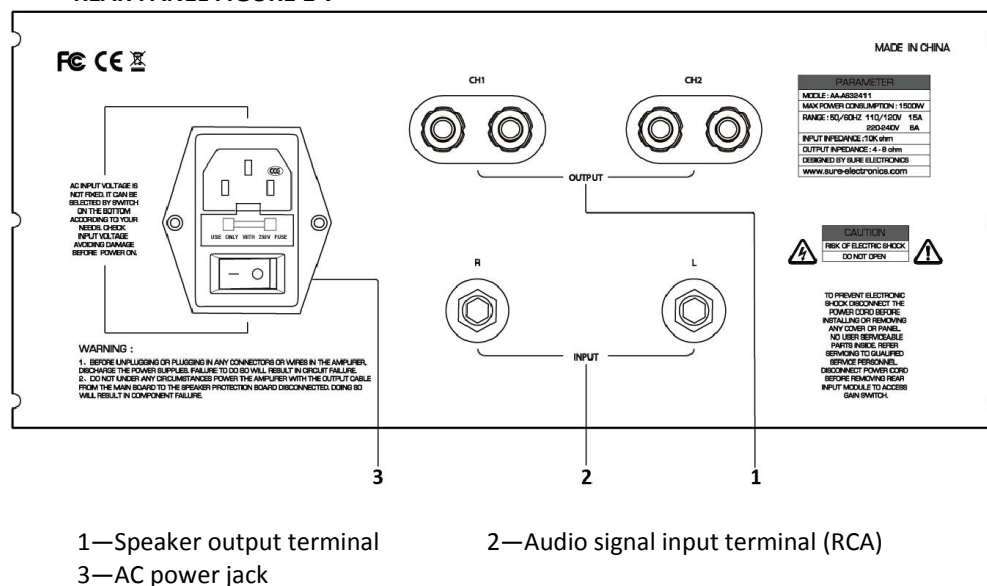
Overview

Enthusiasm Series

FRONT PANEL FIGURE 1-6



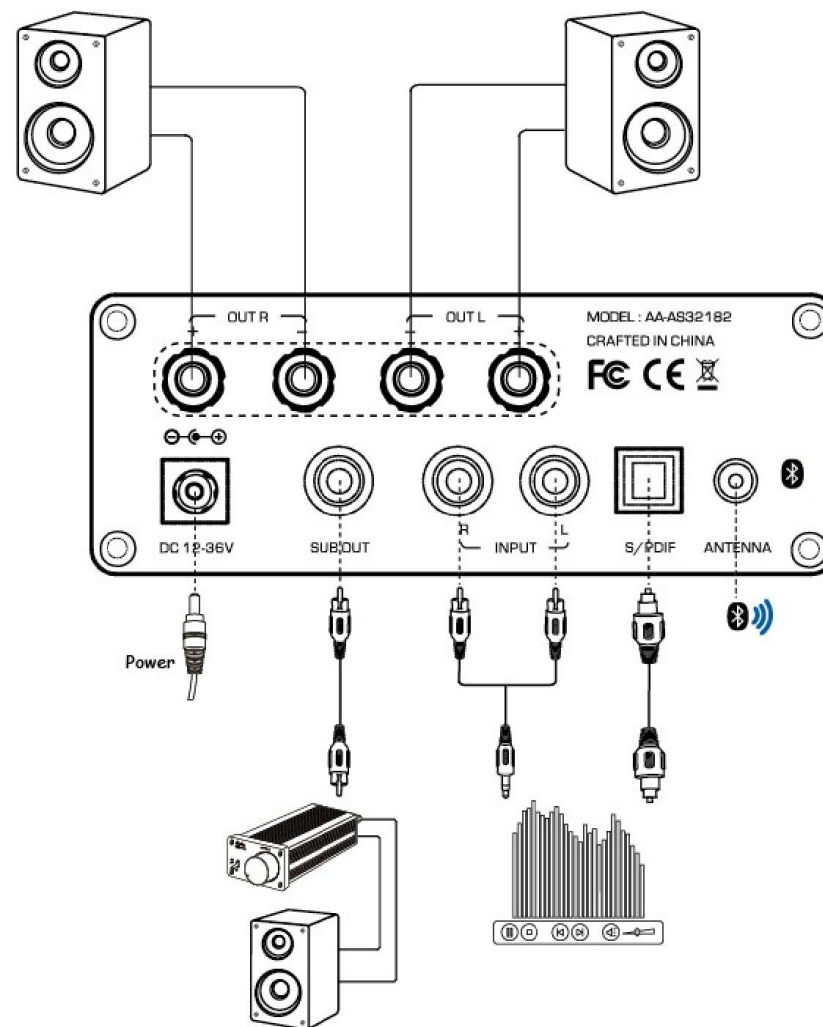
REAR PANEL FIGURE 1-7



1.5 Connection

Modesty Series

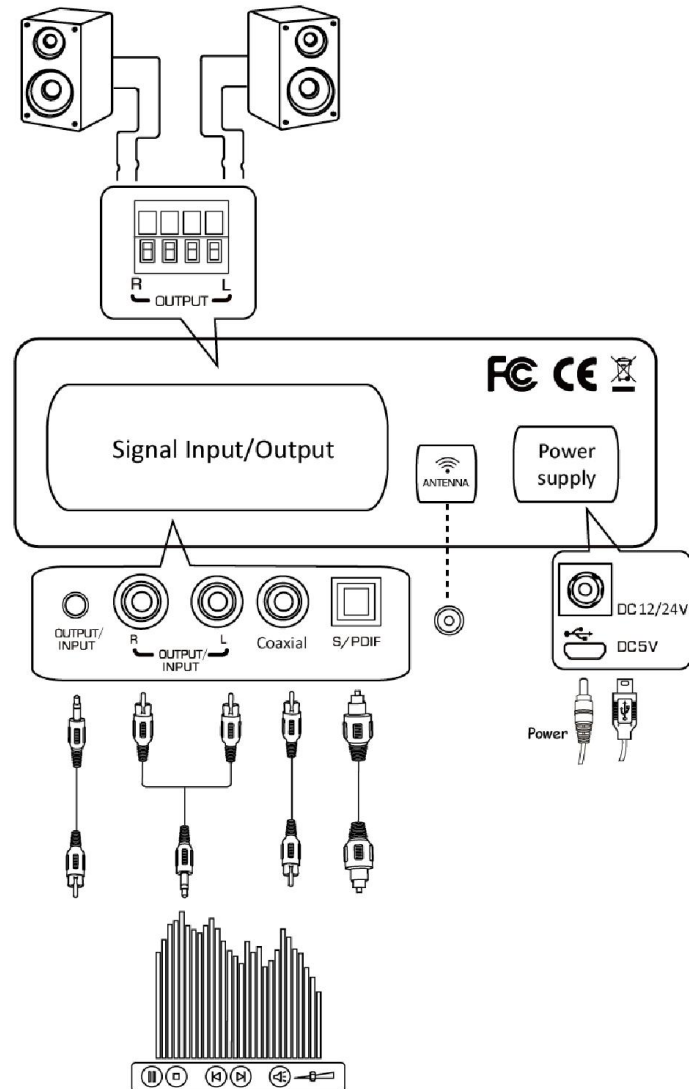
FIGURE 1-8 CONNECTING SCHEMATICS



Overview

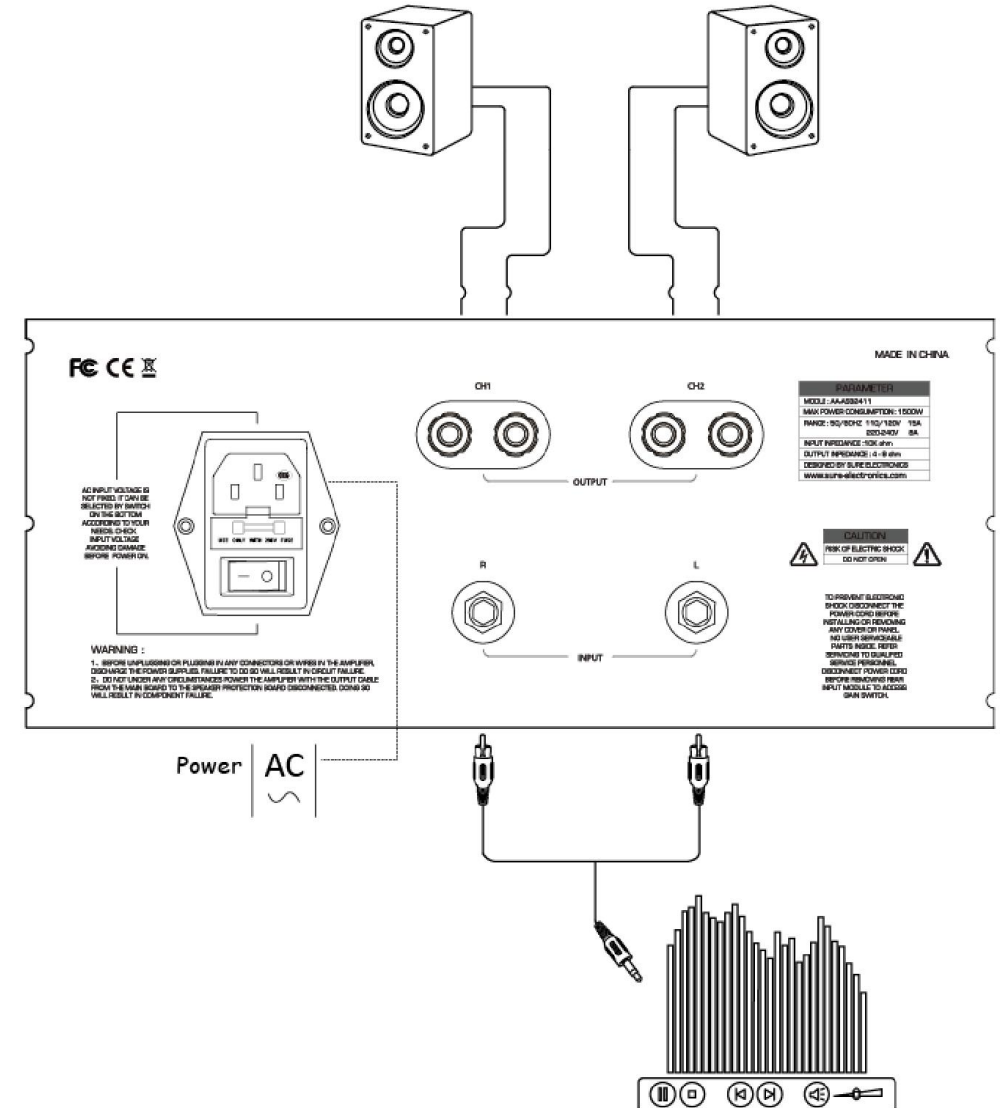
Inspiration Series

FIGURE 1-9 CONNECTING SCHEMATICS



Enthusiasm Series

FIGURE 1-10 CONNECTING SCHEMATICS



Chapter 2. Hardware Detail

2.1 Power Connection

A voltage-regulated power of high-performance is necessary to provide basic and enough power so that this product could work stably, otherwise any problem caused by poor power is out of the warranty.

2.2 Switch Setting

Modesty Series

(AA-AB32159)

When the switch is ON, the machine is working and LED is lighting all the time. When the switch is OFF, the machine is in standby mode and LED shows breathing-effect lighting.

TABLE 2-1 SWITCH FUNCTION

State	Function	LED state
ON	Amplifier working	LED always lighting
OFF	Amplifier not working	LED lighting in a breathing-effect state

(AA-AS32171) (AA-AS32186) (AA-AS32184)

When powered up, the machine is staying in standby mode with warm LED breathing behind. After switched to operation mode the LED will turn off and the amplifier will start to work.

Push on the volume knob to switch between operation mode and standby mode.

TABLE 2-2 SWITCH FUNCTION

State	Function	LED state
Standby	Amplifier not working	LED lighting in a breathing-effect state
Operation	Amplifier working	LED turn off

Inspiration Series

When the power is connected, the machine is working and LED lighting in a breathing-effect state. When the Bluetooth connection is successful, the LED is lighting all the time.

TABLE 2-3 SWITCH FUNCTION

State	LED state
Power ON	LED lighting in a breathing-effect state
Bluetooth connected	LED always lighting

2.3 Input Connection

There are four various methods for audio amplifier.

- Audio signal input terminal (HP)
- Audio signal input terminal (RCA)
- Optical fiber input terminal
- Bluetooth signal input

The priority of Input signals: Bluetooth > Optical fiber > Hp > RCA

You can switch channels by using remote control.

2.4 Output Connection

The most high-end version adopts -

- Amplified output signal for headphone at the front panel
- Banana socket with two output channels to output amplified audio signal. Pay attention that LOUT+ and LOUT- are Left Output Channels, ROUT+ and ROUT- are Right Output Channels.
- Subwoofer output signal.

Note: LOUT- and ROUT- are not in the same net and can not be connected together. Moreover, LOUT+, LOUT-, ROUT+, ROUT- can not be connected to the ground.

Hardware Detail

2.5 Volume Control

We adopt digital volume potentiometer of high-quality in Modesty series which can adjust the volume precisely after long-time use. You can touch the induction (“+”, “-”) to adjust the volume in Inspiration series.

2.6 LED Indicators

Our products are based on MCU which controls the indicators to display dynamic LED state and make our products more fashionable and attractive. Please refer to table 2-1, 2-2, 2-3 for details.

2.8 Fault Tracing

If the amplifier does not work well, please read the following table:

TABLE 2-3 CORRECTIVE MAINTENANCE

Situation	Solutions
No sound	1. Check if it is connected with the power and confirm that the voltage regulator works well. If not, connect the power according to the schematics. 2. Check if the signal input cable is connected correctly and if there is signal. If not, connect the lines according to the schematic and input the audio signal. 3. Check if the output cable is damaged and if the speaker works or not. If not, change the output cable and the speaker. 4. Check if the LED keeps off or not. If not, restart it and ensure that the LED displays breathing effect in standby. If it still doesn't work, remove the power and contact us.
Suddenly no sound when the product is working	1. Check if the product has worked for long time or if the audio signal is too high. If it is, turn off the power and turn it on again.
LED off	1. Check if it is connected with the power and confirm that the voltage regulator works well or not. If not, correctly connect it to the power according to the schematics.

Note: If the problems above still cannot be solved, maybe the product has something wrong. Now please turn off the power, pull out the power cord from the socket and then contact us. Please refer to chapter five for our contact information.

2.7 Infrared remote (Modesty Series)

With the remote controller accompanying our product, you could operate several functions as follow:

- a) Switching audio signal channel.
- b) Volume control.
- c) Input channel switch.



Chapter 3. Electrical Characteristics

Modesty Series

2 X 15 Watt 4 Ohm Class D Audio Amplifier

(AA-AB32159)

This product integrated with TA2024 which is currently popular around the world, it not only provides dream sound but also has high efficiency, thus it can dissipate the heat after long-time working to ensure that the amplifier can works in a stable condition for long time.

AA-AB32159 integrates a high-quality rotary encoder which employs high-quality digital volume control IC ensuring precise shaft rotation and accurate volume adjustment.

AA-AB32159 supports dual-channel amplification and each channel is rated at 15W. With built-in MCU, this product can provide over/under voltage protection, low current protection and display LED state.

This product can be powered by any DC power supply ranging from 9 to 14V. You can use it to drive any 4Ω or 8Ω passive speakers.

FIGURE 3-1 OVERVIEW



Features

- Size: 6.4 inch x 2.9 inch x 1.9 inch
- Signal Noise Ratio: 90dB
- Power supply: DC 9V to 14V

Applications

- Home Theater
- Desktop Amplifier
- Powered DVD Systems
- Mini/Micro Systems
- MP3, Video CD output Amplification

TABLE 3-1 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp. For full specification, please refer to the data sheet of TA2024 chip.

$T_A = 25\text{ }^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 4\Omega$, $V_{DD} = 12\text{V}$. (Unless otherwise stated)

Parameter	Min	Typ	Max
Supply Voltage (V)	9	12	14
Quiescent Current (mA)	-	100	-
Input Sensitivity (mV)	642	662	680
Input Impedance (Kohm)	10	20	-
Gain (dB)	25	27.6	-
Output Power (W rms) ($V_{CC} = 12\text{V}$, $R_L = 8\Omega$)	-	10W @ 8ohms, THD+N<10%	-
Efficiency (%)	-	84% @ 15W, 4Ω 90% @ 10W, 8Ω	-
Minimum Load (ohm)	3.2	4	-
Frequency Response (dB)	20	-	22k
Operating Temperature ($^{\circ}\text{C}$)	0	25	55

Audio Amplifier

Modesty Series

2 X 50 Watt 6 Ohm Class D Audio Amplifier

(AA-AS32171)

This product integrated with TDA7492 which is currently popular around the world, it not only provides dream sound but also has high efficiency, thus it can dissipate the heat after long-time working to ensure that the amplifier can works in a stable condition for long time.

Besides traditional RCA input jacks, a stereo phone jack is provided to make it much easier to be used with your second device such as mobile phone or portable players. A high quality headphone amplifier is also provided at the front panel.

AA-AS32171 integrates a high-quality rotary encoder which employs high-performance audio processor IC ensuring precise shaft rotation and accurate volume adjustment. AA-AS32171 supports dual-channel amplification and each channel is rated at 50W. With built-in MCU, this product can provide input/output auto-override, over/under voltage protection, low current protection and display LED state.

This product can be powered by any DC power supply ranging from 9 to 24V. You can use it to drive any 4Ω or 8Ω passive speakers.

FIGURE 3-2 OVERVIEW



Features

- Size: 6.4 inch x 2.9 inch x 1.9 inch
- Power supply: DC 9V to 24V
- Over / under voltage turn off
- Over current protection
- Over temperature protection

Applications

- Home Theater
- Desktop Amplifier
- Powered DVD Systems
- Mini/Micro Systems
- MP3, Video CD output Amplification

TABLE 3-2 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA7492 chip.

$T_A = 25\text{ }^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 8\Omega$, $V_{CC} = 25\text{V}$. (Unless otherwise stated)

Parameter	Min	Typ	Max
Supply Voltage (V)	9	19	24
Quiescent Current (mA)	-	40	-
Input Sensitivity (mV)	-	3500	-
Input Impedance (Kohm)	-	60	-
Gain (dB)	20.6	21.6	22.6
Output Power (W rms) ($V_{CC} = 24\text{V}$, $R_L = 6\Omega$)	-	40W, THD+N<1% 50W, THD+N<10%	-
Efficiency (%)	-	>80% @ 2 x 40W	-
Minimum Load (ohm)	4	6	-
Frequency Response (dB)	20	-	22k
Operating Temperature ($^{\circ}\text{C}$)	0	25	55

Audio Amplifier

Modesty Series

2 X 100 Watt 6 Ohm Class D Audio Amplifier Starter

(AA-AS32186)

Welcome to use this self-made 2 x 100W Audio Amplifier Starter version. With appropriate power supply you will get 100W RMS output @ 6ohm speaker from both channels at the same time. Besides, a high performance headphone amplifier is provided at the front panel to achieve flexible switch whenever you want. There is a stereo analog input in single-ended mode: TOSLINK input in S/PDIF format. This is also a “smart” amplifier. Thanks to the integrated micro controller, this amp can tell you what she is doing via her breathing “eyes”. She can work in two modes: auto and manual. And she will take great protection of herself. Some additional functions make this amplifier even more powerful and convenient. There is a subwoofer output via RCA jack at the rear panel. When this jack is plugged in, the amplifier will cut off the low frequency part of the speaker output and transmit it via the RCA. You can feed this output signal to your own subwoofer amplifier. We strongly recommend (AA-AB31241), IRS (2*1500) to you. Remote control function is also provided to help you use the amplifier in a much easier way and keep you away from the amp to focus on what you are listening. (Remote controller is a separate purchase)

FIGURE 3-3 OVERVIEW



Features

- Size: 8.3 inch x 4.9 inch x 1.9 inch
- Power supply: DC 14V to 36V
- Over / under voltage turn off
- Over current protection
- Over temperature protection

Applications

- Desktop amplifier
- Enhanced amplifier for TV or TOPBOX system
- Wireless audio receiver and amplifier
- Great partner for Apple TV or other devices with TOSLINK output

TABLE 3-3 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA7498 chip.

$T_A = 25\text{ }^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 6\Omega$, $V_{CC} = 36\text{V}$. (Unless otherwise stated)

Parameter	Min	Typ	Max
Supply Voltage (V)	14	32	36
Quiescent Current (mA)	-	100	-
Input Sensitivity (mV)	RCA input	496	-
	3.5mm input	294	
Input Impedance (Kohm)	-	19	-
Gain (dB)	-	37.6	-
Output Power (W rms) ($V_{CC} = 32\text{V}$, $R_L = 6\Omega$)	-	100W, THD+N<1%	-
Efficiency (%)	-	90% @ 2 x 100W	-
Minimum Load (ohm)	4	6	-
Frequency Response (dB)	20	-	22k
Operating Temperature ($^{\circ}\text{C}$)	0	20	50

Audio Amplifier

Modesty Series

2 X 100 Watt 6 Ohm Class D Audio Amplifier Explorer

(AA-AS32184)

Welcome to use this self-made 2 x 100W Audio Amplifier Explorer version.

With appropriate power supply you will get 100W RMS output @ 6ohm speaker from both channels at the same time. Besides, a high performance headphone amplifier is provided on the front panel to achieve flexible switch whenever you want.

There are two stereo analog inputs in single-ended mode, one TOSLINK input in S/PDIF format and one Bluetooth audio input.

This is also a “smart” amplifier. Thanks to the integrated micro controller, this amp can tell you what she is doing via her breathing “eyes”. She can only work in manual modes. And she will take great protection of herself.

Some additional functions make this amplifier even more powerful and convenient.

There is a subwoofer output via RCA jack at the rear panel. When this jack is plugged in, the amplifier will cut off the low frequency part of the speaker output and transmit it via the RCA. You can feed this output signal to your own subwoofer amplifier. We strongly recommend (AA-AB31241), IRS (2*1500) to you.

Remote control function is also provided to help you use the amplifier in a much easier way and keep you away from the amp to focus on what you are listening.

FIGURE 3-4 OVERVIEW



Features

- Size: 8.3 inch x 4.9 inch x 1.9 inch
- Power supply: DC 14V to 36V
- Over / under voltage turn off
- Over current protection
- Over temperature protection

Applications

- Desktop amplifier
- Enhanced amplifier for TV or TOPBOX system
- Wireless audio receiver and amplifier
- Great partner for Apple TV or other devices

TABLE 3-4 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA7498 chip.

$T_A = 25\text{ }^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 6\Omega$, $V_{CC} = 36\text{V}$. (Unless otherwise stated)

Parameter		Min	Typ	Max
Supply Voltage (V)		14	32	36
Quiescent Current (mA)		-	100	-
Input Sensitivity (mV)	RCA input	-	496	-
	3.5mm input		294	
	optical fiber input		1430	
	BT input		228	
Input Impedance (Kohm)		-	19	-
Gain (dB)		-	37.6	-
Output Power (W rms) ($V_{CC} = 32\text{V}$, $R_L = 6\Omega$)		-	100W, THD+N<1%	-
Efficiency (%)		-	90% @ 2 x 100W	-
Minimum Load (ohm)		4	6	-
Frequency Response (dB)		20	-	22k
Operating Temperature ($^{\circ}\text{C}$)		0	20	50

Audio Amplifier

Inspiration Series Audio Amplifier

Dreamed of enjoying HiFi music with your TV system?
 Wanted to appreciate a concert while taking a bath?
 Disappointed at the poor quality of the vehicle audio?
 Confused by various audio formats from different devices?
 Audiophiles might have met so many blocks standing on the way to their destinations.
 To help you get what you need expediently, we designed the Inspiration - our new amplifier series.

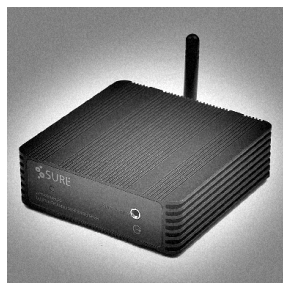
HiFi amplifier, external sound card, wireless audio receiver, audio format converter, signal isolator and splitter, every inspiration series amplifier focuses on its specific field to achieve the best performance. Rigorous designed thermal solution and carefully selected components make these amplifiers more perfect in every detail.

The inspiration series amplifiers are designed to be energetic. Thanks to the high compatible interfaces and multiple installation methods, they can be combined freely to work as desktop amplifier, wireless media center, car audio amplifier...open your mind!

More than that, with spiffy and compact black aluminum enclosure, the inspiration series amplifier keeps in low-key as a gentleman. When combined together and used everywhere, they will be more like agent Smith in Matrix – uniform and powerful.

The inspiration series amplifiers will be extended unlimitedly on the way of pursuing the perfection of music.

FIGURE 3-5 OVERVIEW



2x20W Bluetooth Audio Amplifier (with outputs display)

This is a high integrated 2 x 20W audio amplifier in inspiration series from Sure Electronics. With such small case, it provides 2 x 20W full RMS output from one analog input and one Bluetooth 3.0 wireless input. It also provides one stereo high performance headphone amplifier output to meet your possible requirements. Meanwhile, it has a RJ-45 communication interface which can be used with our LED Smartie product series to show the information (Title, Artist, Album, etc.) of the music you are playing (The Bluetooth audio source must support AVRCP 1.3 or higher).

It is a perfect choice to be used as desktop amplifier, portable PC amplifier and car amplifier.

TABLE 3-5 ELECTRICAL CHARACTERISTICS

Following table lists all typical data of the Amp board. For full specification, please refer to the data sheet of ST's TDA7498 chip.

$T_A = 25\text{ }^{\circ}\text{C}$, $f_{IN} = 1\text{ kHz}$ sine wave, $R_L = 6\Omega$, $V_{CC} = 36\text{V}$. (Unless otherwise stated)

Parameter	Min	Typ	Max
Supply Voltage (V)	14	32	36
Quiescent Current (mA)	-	100	-
Input Sensitivity (mV)	-	RCA input	496
		3.5mm input	294
		optical fiber input	1430
		BT input	228
Input Impedance (Kohm)	-	19	-
Gain (dB)	-	37.6	-
Output Power (W rms) ($V_{CC} = 32\text{V}$, $R_L = 6\Omega$)	-	100W, THD+N<1%	-
Efficiency (%)	-	90% @ 2 x 100W	-
Minimum Load (ohm)	4	6	-
Frequency Response (dB)	20	-	22k
Operating Temperature ($^{\circ}\text{C}$)	0	20	50

Audio Amplifier

Bluetooth Series

Bluetooth Audio Receiver with Aluminum Enclosure BT4.0 Starter

(AA-AS41114)

Welcome to use this self-made Bluetooth audio receiver starter. This product could work well together with Bluetooth adapter in your Laptop or Desktop computer, or mobile phones with Bluetooth audio stream output support. It supports Bluetooth V4.0 +EDR and A2DP protocol; it has a built in 3.5mm audio jack as well as a pair of RCA jacks for audio output. The distance from this unit and the Bluetooth transmitter could be up to 10meters but please notice that it may vary much based on the environment.

Resistance and capacity components of high quality, including X7R ceramic capacitors and lower ESR electrolytic capacitors, are used to gain the perfect timber, finally realize high S/N ratio, low THD+N, wide frequency response range etc.

This product has power defense plug protection function. The part of analog and digital audio are supported by two independent power chips, which eradicates interference of radio frequency and digital signals with audio at the extreme. Bluetooth 4.0 wireless audio receiver. Enjoy your music with no limitation between wireless and HiFi.

FIGURE 3-6 OVERVIEW



Features

- Size:
- Single-end audio signal output
- LED status indicator
- External power and signal output connector
- Power defense plug protection function
- It supports APT-X decoding algorithm, which expand the Bluetooth frequency range from 16-20 KHz.
- Short corresponding time

Applications

- Desktop Wireless Music Receiver
- Wireless audio source for amplifiers
- Wireless headphone driver (HP amp needed to use with some headphones)

TABLE 3-11 SPECIFICATIONS

Following table lists all typical data of the Bluetooth Audio Receiver Starter.

Parameter	Condition	Min.	Typ.	Max.
Supply Voltage (V)	-	8	12	14
Degree Of Audio Output Distortion (%)		≤0.5		
Quiescent Current (mA)	VIN=12V		10	-
Operating Temperature (°C)	-	0	20	50
Storage Temperature (°C)	-	-20	20	105
Thermal Shutdown (°C)	-	-	150	-

Note:

- Stresses beyond the listed maximum power supply voltage may cause the permanent damage to components on board.

SPDIF to Analog signal Converter ATV Starter version (AA-AS41116)

Analog signal to SPDIF Converter ATV Starter version (AA-AS41115)

FIGURE 3-7 OVERVIEW



Bi-directional digital/analog audio signal converter. Help you build your digital audio system in an easier way.

Characteristics:

- Supply Voltage : 5V/DC
- Word lengths : 24bit
- Dynamic Range : 90 Db(S/A) , 95 Db(A/S)
- Total Harmonic Distortion + Noise : -88(S/A) , -91(A/S)
- Full Scale Output Voltage : 3.5 Vpp(S/A) , 2.8 Vpp(A/S)
- Quiescent Voltage : 2.2 VDC(S/A), 7.5 MΩ(A/S)

Audio Amplifier

Audio Signal Isolator - Digital solution (AA-AS41122)

FIGURE 3-8 OVERVIEW



High performance audio signal isolator. Get rid of grounding issue and enjoy pure music. Two power isolation modules and EMI solution make interference of voltage on audio signals to a minimum.

Parameter	Condition	Min.	Typ.	Max.
Supply Voltage (V)	-		5	
Quiescent Current (mA)	VIN=5V		20	-
Operating Temperature (°C)	-	0	20	50
Storage Temperature (°C)	-	-20	20	105
Thermal Shutdown (°C)	-	-	150	-

Bidirectional Single-ended/ Differential signal Converter (AA-AS41122)

FIGURE 3-9 OVERVIEW



High performance single-ended/differential converter. A HiFi solution to connect different kinds of devices together.

Parameter	Condition	Min.	Typ.	Max.
Supply Voltage (V)	-		5	
Quiescent Current (mA)	VIN=5V		20	-
Operating Temperature (°C)	-	0	20	50
Storage Temperature (°C)	-	-20	20	105
Thermal Shutdown (°C)	-	-	150	-

USB External Sound Card with Headphone Amplifier (AA-AS41118)

FIGURE 3-10 OVERVIEW



This product is an output switching device which converts USB stereo into analog and S/PDIF. USB protocol controller is able to run without software code support, can revise some areas with external ROM like our self-produced PICKIT3. The on-chip analog phase locked loop (PLL) with SpAct can realize playback under low-clock-jitter circumstance.

Features:

- Without special device driver
- Full speed receive and dispatch
- Fully compatible with USB 2.0
- S/PDIF output with SCMS

Characteristics:

- THD+N: 0.006% RL>10kΩ
0.025% RL=32Ω
- SNR: 98dB
- Dynamic Range : 98dB
- PO=12mW, RL=32

1 to 4 Splitter & Volume Controller (AA-AS41119)

FIGURE 3-11 OVERVIEW



1 to 4 audio signal splitter and volume controller. Feed your single source to several devices and control them separately.

Parameter	Condition	Min.	Typ.	Max.
Supply Voltage (V)	-		5	
Quiescent Current (mA)	VIN=5V		30	-
Operating Temperature (°C)	-	0	20	50
Storage Temperature (°C)	-	-20	20	105
Thermal Shutdown (°C)	-	-	150	-

Audio Amplifier

Enthusiasm Series

2*1500W 2ohm Audio Amplifier

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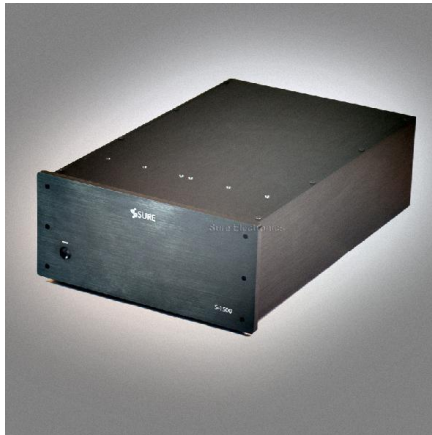
The D1500 is a 2-channel amplifier that's ideal for stage monitors, PA systems, and more. It will provide 1500W RMS per channel of clean power to a 2 ohm load, 750W RMS per channel to 4 ohms.

High reliability is ensured due to extensive protection, including over temperature turn-off, DC offset speaker protection, over current protection, over voltage protection.

D1500 also features very low distortion, >100 dB. Global feedback system reduces THD and achieves almost load-independent frequency response, even with very low impedance loads and utilizes a noiseless fan along with temperature sensors to maintain the amplifier's target temperature.

Its efficiency is above 95%. But equally important, only dissipates 5.5W with no signal when in ON mode (around 2W when in stand-by).

FIGURE 3-12 OVERVIEW



Features

- Size: 19 inch x 12.1 inch x 5.2 inch
- Supply voltage: Switchable 50/60HZ 100-120V AC15A, 200-240V AC8A
- Built-in inrush current limiter bypass relay
- Quick response to speaker DC offset
- Single ended analog audio input
- Low power Standby mode by the switch on panel

Applications

- Live bands
- Office paging system
- Public announcement
- high power studio monitors
- high power Hi-End Hi-Fi systems
- Professional Audio

TABLE 3-12 SPECIFICATIONS

Following table lists all typical data of the Cube Audio Amplifier.

Parameter	Min	Typ	Max
Supply Voltage (V)	200	220	240
Quiescent Current (mA)	-	50	-
Input Sensitivity (mV)	-	2000	-
Input Impedance (Kohm)	-	3.6	-
Gain (dB)	-	33	-
Output Power (W rms) (1 kHz, 2 ohms)	-	1500	-
Efficiency (%)	-	95	-
Minimum Load (ohm)	-	2	4
Frequency Response (dB)	10	-	30k
Operating Temperature (°C)	0	20	50

Audio Amplifier

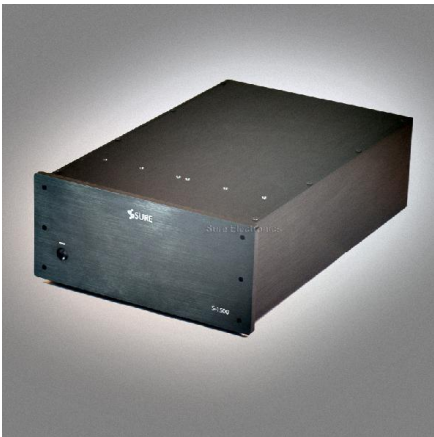
Enthusiasm Series

1*1500W 4ohm Cube Audio Amplifier

()

The S1500 is a mono-channel amp that's ideal for stage monitors, PA systems, and more. It will provide 1500W RMS of clean power to a 4 ohm load, 750W RMS per channel to 8 ohms. High reliability is ensured due to extensive protection, including over temperature turn-off, DC offset speaker protection, over current protection, over voltage protection. S1500 also features very low distortion,>100 dB. Global feedback system reduces THD and achieves almost load-independent frequency response, even with very low impedance loads and utilizes a noiseless fan along with temperature sensors to maintain the amplifier's target temperature. Its efficiency is above 95%. But equally important, only dissipates 5.5W with no signal when in ON mode (around 2W when in stand-by).

FIGURE 3-13 OVERVIEW



Features

- Size: 19 inch x 12.1 inch x 5.2 inch
- Supply voltage:
Switchable 50/60HZ 100-120V AC15A,
200-240V AC8A
- Built-in inrush current limiter bypass relay
- Quick response to speaker DC offset
- Single ended analog audio input
- Low power Standby mode by the switch on panel

Applications

- Live bands
- Office paging system
- Public announcement
- high power studio monitors
- high power Hi-End Hi-Fi systems
- Professional Audio

TABLE 3-13 SPECIFICATIONS

Following table lists all typical data of the Cube Audio Amplifier.

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Supply Voltage (V)	200	220	240
Quiescent Current (mA)	-	50	-
Input Sensitivity (mV)	-	2000	-
Input Impedance (Kohm)	-	3.6	-
Gain (dB)	-	33	-
Output Power (W rms) (1 kHz, 2 ohms)	-	1500	-
Efficiency (%)	-	95	-
Minimum Load (ohm)	-	4	8
Frequency Response (dB)	10	-	30k
Operating Temperature (°C)	0	20	50

Chapter 4. Mechanical Drawing

MODESTY SERIES AUDIO AMPLIFIER MECHANICAL DRAWING

FIGURE 4-1-1 Front panel

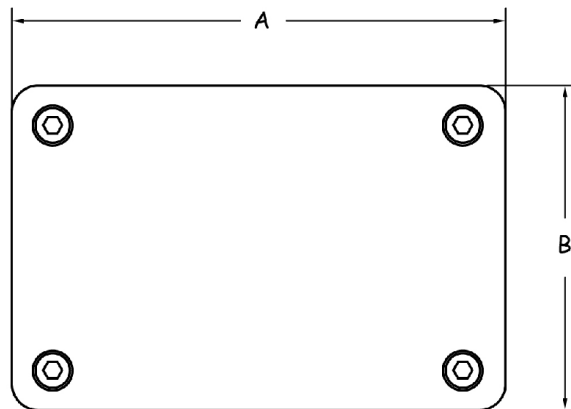


FIGURE 4-1-2 Rear panel

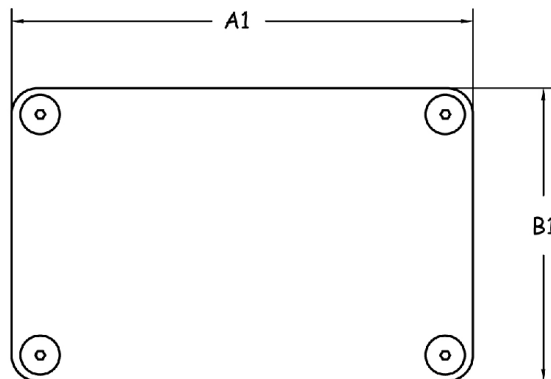
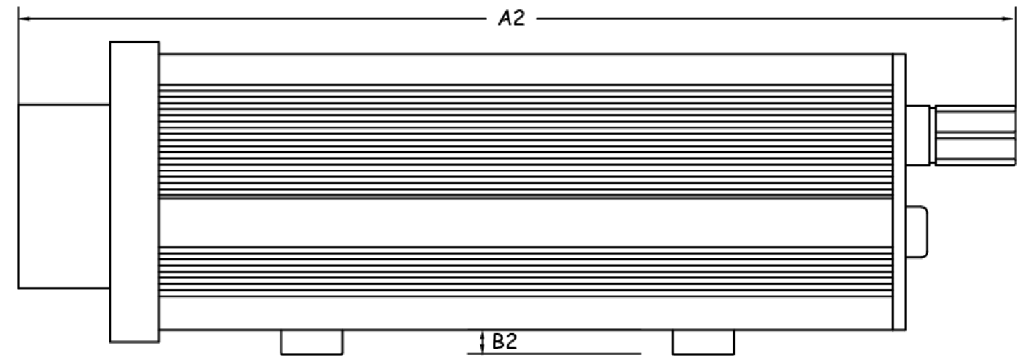


FIGURE 4-1-3 Side view



Dimension	D1(inch/mm)	D2(inch/mm)
A	2.94/74.6	4.88/124
A1	2.78/70.6	4.72/120
A2	6.41/162.7	8.36/212.4
B	1.93/49	1.93/49
B1	1.77/45	1.77/45
B2	0.16/4	0.16/4

Mechanical Drawing

INSPIRATION SERIES AUDIO AMPLIFIER MECHANICAL DRAWING

FIGURE 4-2-1 Front panel

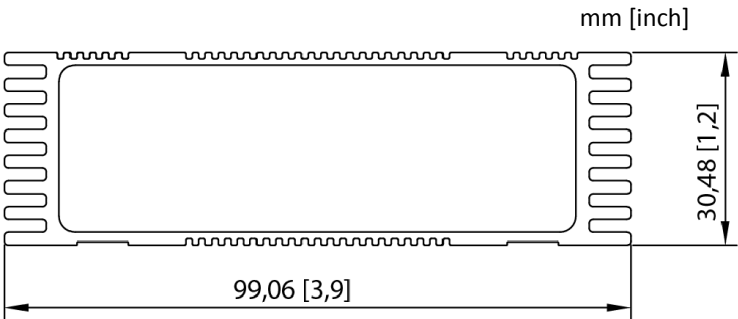
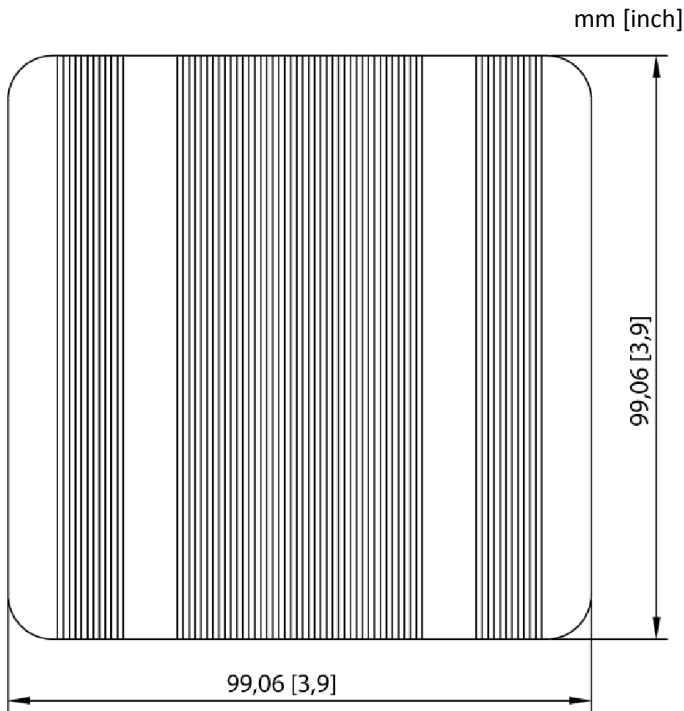


FIGURE 4-2-2 Top view



ENTHUSIASM SERIES AUDIO AMPLIFIER MECHANICAL DRAWING

FIGURE 4-2-3 Front panel

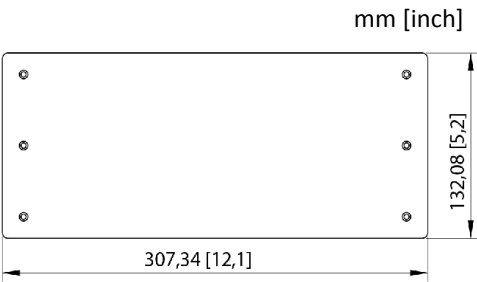


FIGURE 4-2-4 Front panel

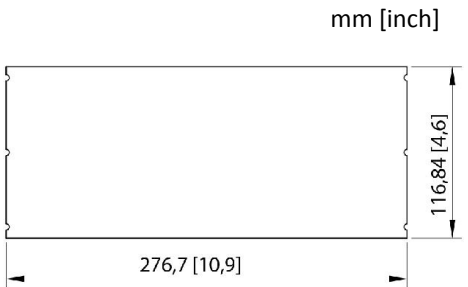
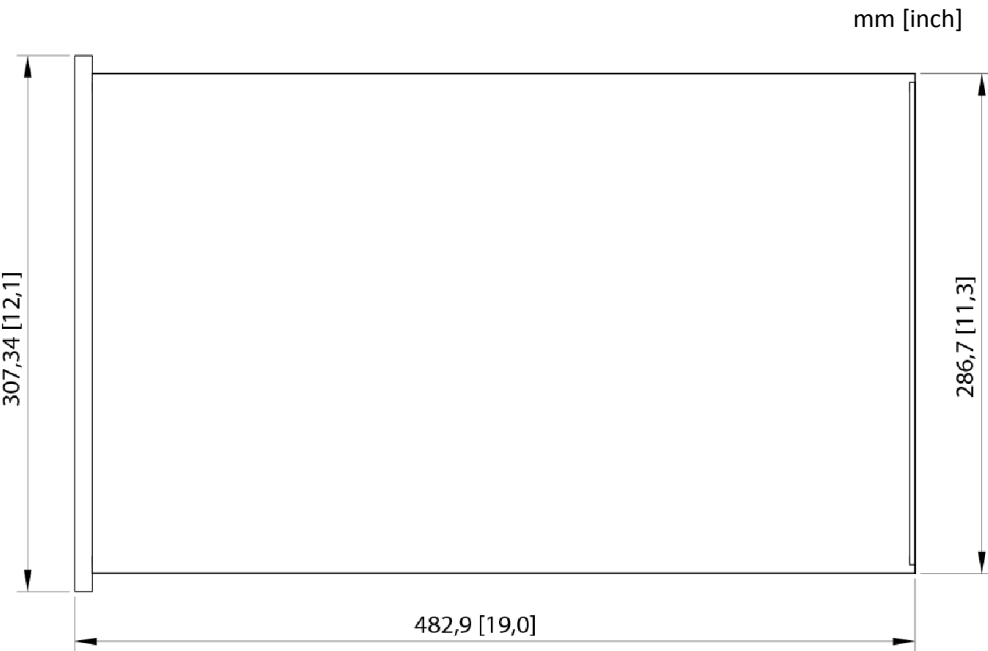


FIGURE 4-2-5 Top view



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