



High Sound Quality
Audio DSP Integration
2.0/ 0.1 Mode Selectable
User Interface (APP) Supported
Signal Level Sensor System
Power Management Circuit
Hardware Control Integrated



JAB Series Audio Amplifier Board with ADAU1701 DSP

For Wireless Speaker, Game Machine,
Portble Bluetooth Speaker, Jukebox,
Recreational Vehicle, Yatch,
Consumer Audio Applications, etc.

1 Overview



\$29.9

**AA-JA32473 2 x 30 Watt 8 Ohm
Class D Audio Amplifier with Audio
DSP**



\$34.9

**AA-JA32172 2 x 50 Watt 4 Ohm
Class D Audio Amplifier with Audio
DSP**



\$29.9

**AA-JA31211 1 x 60 Watt 4 Ohm
Class D Audio Amplifier Board w
DSP**



\$34.9

**AA-JA31181 1 x 100 Watt 2 Ohm
Class D Audio Amplifier Board w
DSP**

Key Features:

- 3.6 x 2.7 Inches PCB Size
- ADAU1707 Audio DSP Integrated
- Compatible with JAB2
- Low Voltage Dropout
- PBTL Configurable
- Headphone/Line Amplifier Integrated
- Debug Port for SigmaStudio through original USBi or WONDOM In-Circuit Programmer ICP1/ ICP2
- Abundant External Ports for Display and Control
- Aluminium Heatsink (2 x 50 Watt/ 1 x 100 Watt)
- Hardware Control (Potentiometers on board)
- UI control through ICP1-B (with Bluetooth BLE integrated)

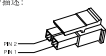
2 Quick Installation



During the practical Jukebox / kiosk amplifier installation, up to several dozens of minutes will be spent on connection and debugging in the last step of assembly and test. Power pins reverse polarity, the channel's order of multi-channel amplifier, volume adjustment of each channel, signal channel disconnection caused by the poor contact may cause potential problems. In order to solve problems mentioned above and improve connection and pass rate of test effectively, we take advantage of different forms of connectors for power connections, speaker connections, signal input connections and potentiometer connections. For example, 2POS Molex Micro-Fit vertical headers, 4POS/ 6POS JST PH SMT top entry type headers are populated in JAB3 for easy recognition. Furthermore, we also provide the matched extension cables for different connectors, which can be easily distinguished from each other by different cable colors. We spare no effects in improving the connection and debugging efficiency and saving the cost on installations and debugging.

Any customizable requirements on interfaces, materials and length of cables, please contact with store@sure-electronics.com.

(1) Model No./型号 mulex 436-05-0200

Description/描述:

(2) Model No./型号 AXM1007 AM20

Description/描述:

Rated Temperature/额定温度: 80°C

Rated Voltage/额定电压: 300V

Insulation/绝缘体: PVC/聚氯乙烯

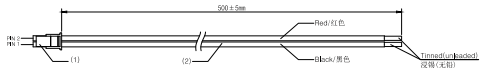
Conductor/导体: Bare Copper/裸铜线

Color/颜色: Black, Red/黑色, 红色

(3) Model No./型号

Description/描述:

(4) Model No./型号

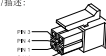
Description/描述:

(5) Model No./型号

Description/描述:

Power Cable

(1) Model No./型号 mulex 43025-0000

Description/描述:

(2) Model No./型号 AXM1007 AM20

Description/描述:

Rated Temperature/额定温度: 80°C

Rated Voltage/额定电压: 300V

Insulation/绝缘体: PVC/聚氯乙烯

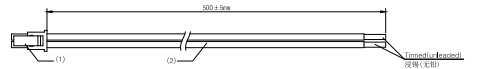
Conductor/导体: Bare Copper/裸铜线

Color/颜色: Black/黑色

(3) Model No./型号

Description/描述:

(4) Model No./型号

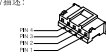
Description/描述:

(5) Model No./型号

Description/描述:

Speaker Cable

(1) Model No./型号 JST PHR-6-BK

Description/描述:

(2) Model No./型号 AXM1007 AM24

Description/描述:

Rated Temperature/额定温度: 80°C

Rated Voltage/额定电压: 300V

Insulation/绝缘体: PVC/聚氯乙烯

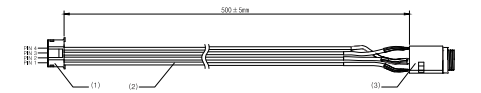
Conductor/导体: Bare Copper/裸铜线

Color/颜色: Black/黑色

(3) Model No./型号 PJ-31140-1P

Description/描述:

(4) Model No./型号

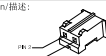
Description/描述:

(5) Model No./型号

Description/描述:

3.5mm AUX IN Cable

(1) Model No./型号 JST PHR-2-BK

Description/描述:

(2) Model No./型号 AXM1007 AM24

Description/描述:

Rated Temperature/额定温度: 80°C

Rated Voltage/额定电压: 300V

Insulation/绝缘体: PVC/聚氯乙烯

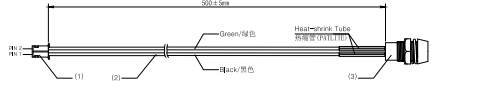
Conductor/导体: Bare Copper/裸铜线

Color/颜色: Black, Green/黑色, 绿色

(3) Model No./型号

Description/描述:

(4) Model No./型号

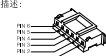
Description/描述:

(5) Model No./型号

Description/描述:

External LED Indicator Cable (Green)

(1) Model No./型号 JST PHR-6-BK

Description/描述:

(2) Model No./型号 AXM1007 AM24

Description/描述:

Rated Temperature/额定温度: 80°C

Rated Voltage/额定电压: 300V

Insulation/绝缘体: PVC/聚氯乙烯

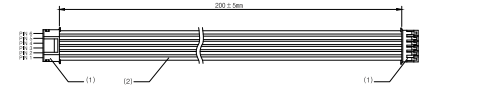
Conductor/导体: Bare Copper/裸铜线

Color/颜色: Black/黑色

(3) Model No./型号

Description/描述:

(4) Model No./型号

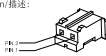
Description/描述:

(5) Model No./型号

Description/描述:

Connection Cable for JAB2 & JAB3

(1) Model No./型号 JST PHR-2-BK

Description/描述:

(2) Model No./型号 AXM1007 AM24

Description/描述:

Rated Temperature/额定温度: 80°C

Rated Voltage/额定电压: 300V

Insulation/绝缘体: PVC/聚氯乙烯

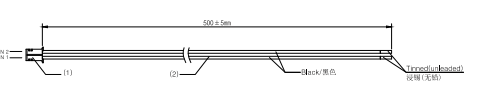
Conductor/导体: Bare Copper/裸铜线

Color/颜色: Black/黑色

(3) Model No./型号

Description/描述:

(4) Model No./型号

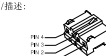
Description/描述:

(5) Model No./型号

Description/描述:

Control Cable for JAB2

(1) Model No./型号 JST PHR-6-BK

Description/描述:

(2) Model No./型号 AXM1007 AM24

Description/描述:

Rated Temperature/额定温度: 80°C

Rated Voltage/额定电压: 300V

Insulation/绝缘体: PVC/聚氯乙烯

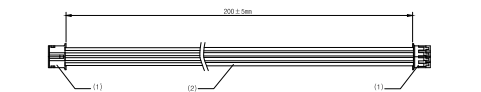
Conductor/导体: Bare Copper/裸铜线

Color/颜色: Black/黑色

(3) Model No./型号

Description/描述:

(4) Model No./型号

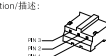
Description/描述:

(5) Model No./型号

Description/描述:

Battery Board Connection Cable

(1) Model No./型号 JST PHR-3-BK

Description/描述:

(2) Model No./型号 AXM1007 AM24

Description/描述:

Rated Temperature/额定温度: 80°C

Rated Voltage/额定电压: 300V

Insulation/绝缘体: PVC/聚氯乙烯

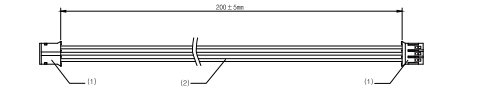
Conductor/导体: Bare Copper/裸铜线

Color/颜色: Black/黑色

(3) Model No./型号

Description/描述:

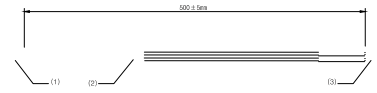
(4) Model No./型号

Description/描述:

(5) Model No./型号

Description/描述:

Control Connection Cable for JAB2 & JAB3

(1) Model No./型号 JST PHR-2HR Description/描述: 	
(2) Model No./型号 ARH1007 AWG24 Description/描述: Rated Temperature/额定温度: 80℃ Rated Voltage/额定电压: 300V Insulation/绝缘体: PVC/聚氯乙烯 Conductor/导体: Bare Copper/裸铜线 Color/颜色: Black, Red/黑色, 红色	
(3) Model No./型号 Description/描述:	
(4) Model No./型号 Description/描述:	
(5) Model No./型号 Description/描述:	External LED Indicator Cable (Red)

(1) Model No./型号 JST PHR-2HR Description/描述: 	
(2) Model No./型号 ARH1007 AWG24 Description/描述: Rated Temperature/额定温度: 80℃ Rated Voltage/额定电压: 300V Insulation/绝缘体: PVC/聚氯乙烯 Conductor/导体: Bare Copper/裸铜线 Color/颜色: Black, Blue/黑色, 蓝色	
(3) Model No./型号 Description/描述:	
(4) Model No./型号 Description/描述:	
(5) Model No./型号 Description/描述:	External LED Indicator Cable (Blue)

- Functional Cables Kit for Connection of JAB3 and JAB2 (AA-JA11116):

Battery Board Connection Cable x 1,

Connection Cable for JAB2 & JAB3 x 1,

Control Cable for JAB2 x 1,

Control Connection Cable for JAB2 & JAB3 x 1,

External LED Indicator Connection Cable x 3,

● Basic Cables Kit (Included in JAB3 main board):

Power Cable x 1,

Speaker Cable x 1,

3.5mm AUX IN Cable x 1
- ## Disclaimers:
- Signal Level Sensor System has been employed in JAB3 for low power consumption. JAB3 will enter into standby mode when audio signal is not detected for long time (1min). Once audio signal is detected under this circumstance, JAB3 will restart to work. It is not malfunction if JAB3 enters into standby mode.
 - The default setting of four potentiometers is shown in the ‘Function of Potentiometers’ part. Any customizable enquiries, please contact store@sure-electronics.com.
 - JAB3 is designed for an enhanced audio delivery system that can be incorporated with WONDOM JAB2 to get 2.1/4.0/0.2 system or can be installed independently as 2.0/0.1 system. Must be noticed that only use JAB3 and JAB2 in pair, other usages (ex. JAB1) may be void.
 - Sure Electronics will update the hardware of JAB2 to make it fully compatible with JAB3. This means, when using JAB3 with this version JAB2 (PCB Version: AA-JA13217V150), some compatibility problem, like popping noise, may occur but will not affect the normal use. For more information about JAB2, contact us at store@sure-electronics.com.
 - JAB3 can be connected with JAB2 through J5 port on JAB3 with a 6pin cable. This cable is provided in the Functional Cables Kit Package for Connection of JAB3 and JAB2.
 - JAB3 is equipped with built-in undervoltage protection, which will be activated when the voltage is under the threshold - 10.4V. Please kindly be noticed that there is little difference in the threshold of JAB2 and JAB3 or the different mode of JAB3.
 - The Interface Extension Board (AA-JA11112) will be malfunction when connected with JAB3, no matter when JAB3 is used independently or JAB3 is used with JAB2.
 - JAB3 can be powered by 3S18650 Lithium Battery Balance and Protection Extension Board (AA-JA11113), which is designed for protecting batteries and balancing voltage. Please kindly be noticed that the battery charging circuit is integrated in JAB1/2, which means that JAB1/2 is a requisite if you want to charge battery board.
 - JAB series is launched not only for Audio Hobbyists, but also targeted at commercial and industrial markets. This means, we will provide a standard setting and easy access (integrated potentiometers and IOS/Android APP) for hobbyists. If you want to modify the default setting of the four potentiometers on JAB3, please make sure that you have a general knowledge of SigmaStudio before purchasing, since we will not offer any technical support of how to program. Any customizable requirements regarding of the Hardware Control and User Interface, contact us at store@sure-electronics.com.
 - When new generation of JAB released, different versions may appear in the market at the same time. Sure Electronics will reserve the right to stop supporting or provide limited support for the old version. This means, when using new generation with old version, some functions may be invalid. For example, JAB3 can work with JAB2, but it is not suggested to work with JAB1.
- 3

3 Build for Your Applications

Sure Electronics provides customizable service. For some customization requirements, 500 pieces MOQ or engineering cost will be applied.

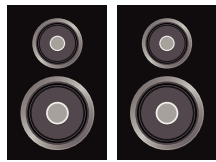
Customizable service includes:

- Integration with Audio DSP
- PBTl Mode Configuration
- Output Power Configuration
- Number of Output Channel
- Audio Performance Optimization
- Cable Interfaces & Cable Length
- Safety Certification
- Special Package
- Manufacturing

4 Applications



Soundbox



Studio Monitor Speaker



Desktop Audio



Jukecase



Coffee Machine



Vending Machine



Game Machine



Solar Amplifier



ATM



Ticket Checker



Guide Machine



Recreational Vehicle



Yacht



Motorcycle



Home Furnishing



Toy

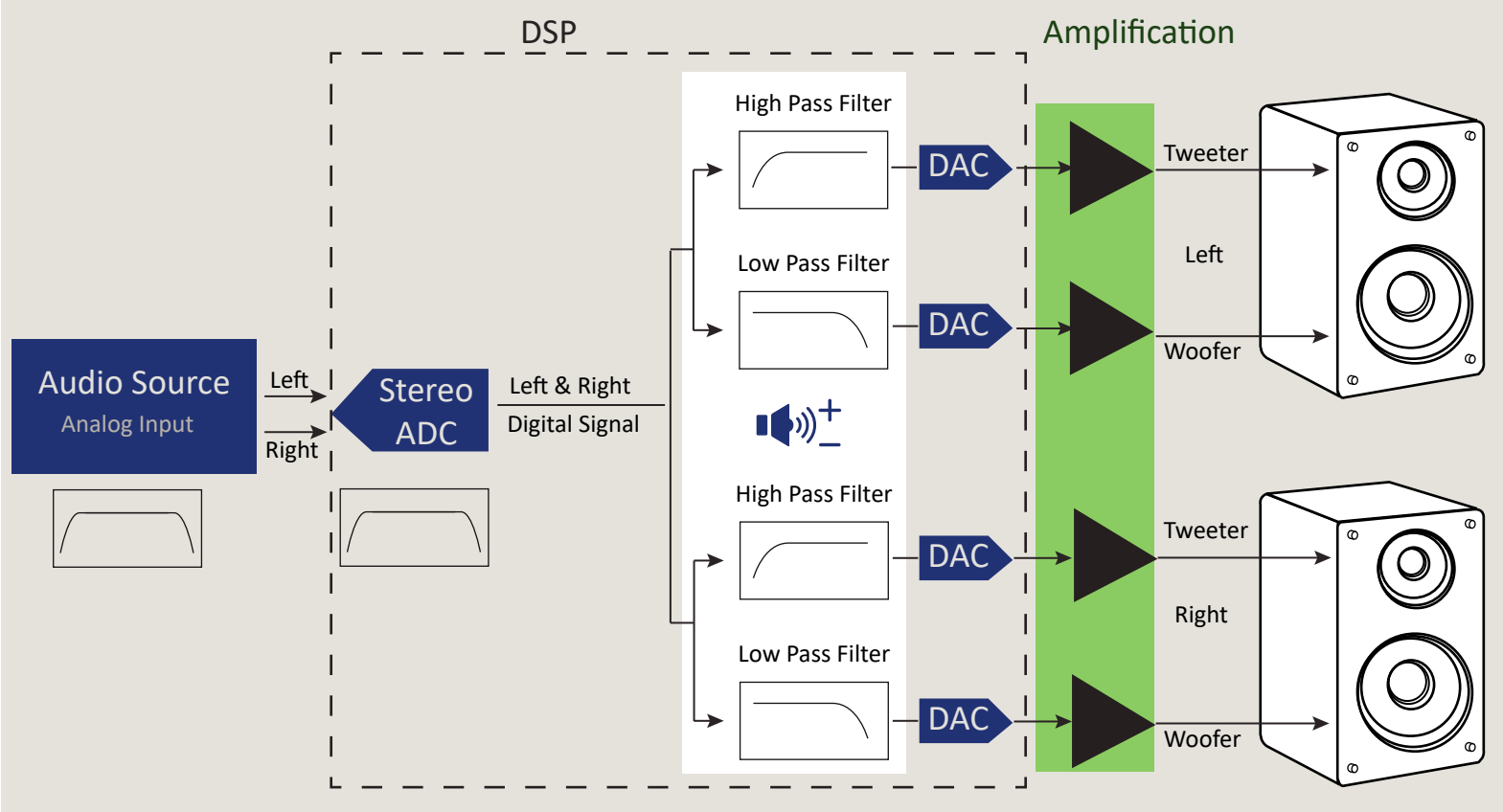
Typical Application - Digital Crossover - Studio Monitor Speakers

As we all know, the audio frequency is 20Hz-20kHz. It is difficult for single speaker to faithfully reproduce the audio since the speaker's effective frequency range is not wide enough. It would be better if the audio signal can be divided into different frequency range then be sent to corresponding speaker by the amplifier,

in which condition, the speakers can give full play to its advantage and the sound reproduction of each frequency band in the audio system appears more balanced.

With stereo ADC and DSP integrated, WONDOM JAB3 is a good choice for Studio Monitor Speakers. The system diagram is as follows.

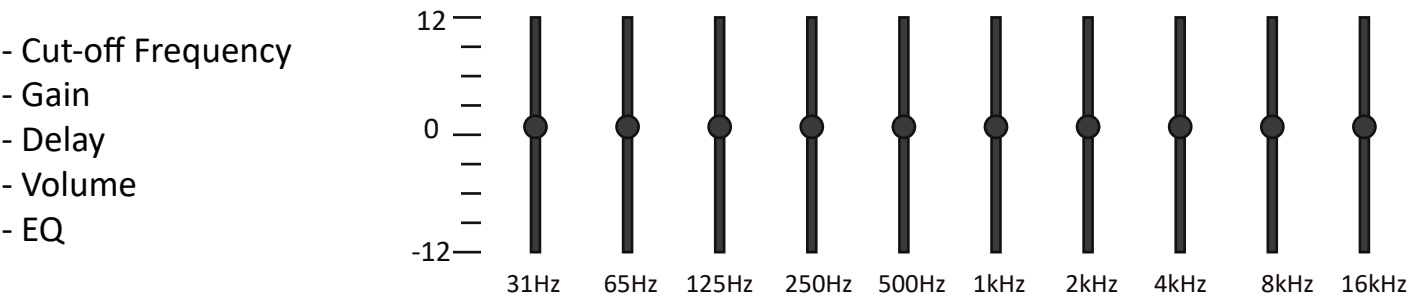
- System Diagram

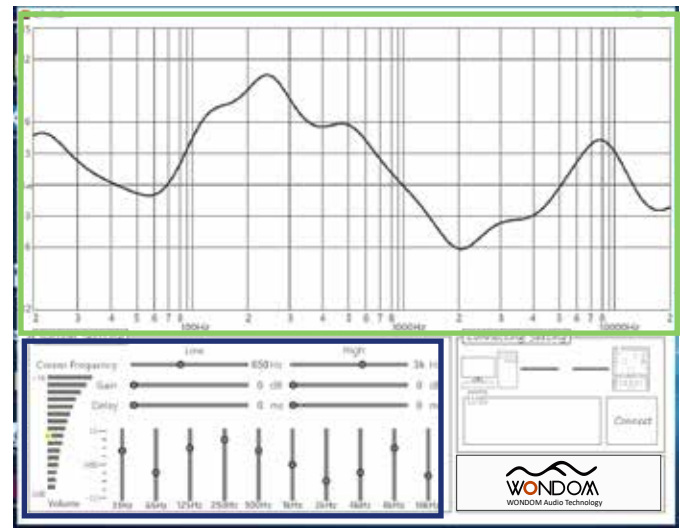
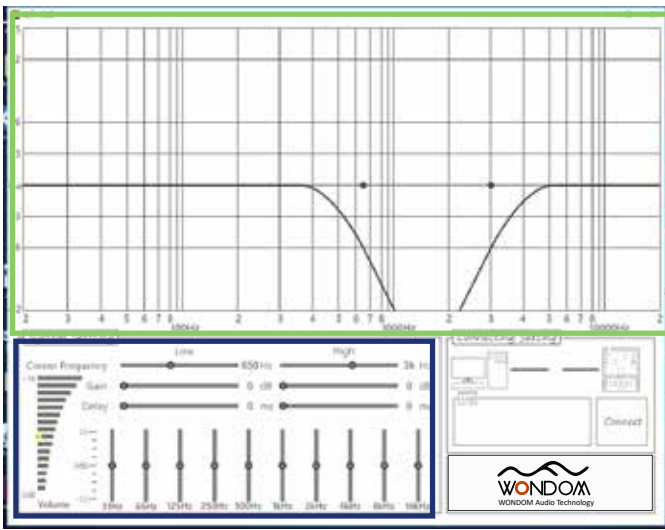


Sure Electronics provides AUX IN jack or Bluetooth (JAB2) as input methods for customers' choice. The input audio is stereo and full-band analog signal, and it will become digital signal by integrated stereo ADC. With the built-in DSP in JAB3, full-band signal will be divided into proper frequency band in each channel and be sent to corresponding tweeter or woofer. The cut-off frequency has been preset default values and the value can be changed by customers through programming.

- UI Control

Sure Electronics provides UI control for active crossover applications, through which customers can conveniently adjust system parameters on PC. Even customers who know little about programming can operate easily with the concise interface. Graphical and operation interfaces are offered simultaneously. Once the parameter is adjusted, there will be corresponding change in the curve.





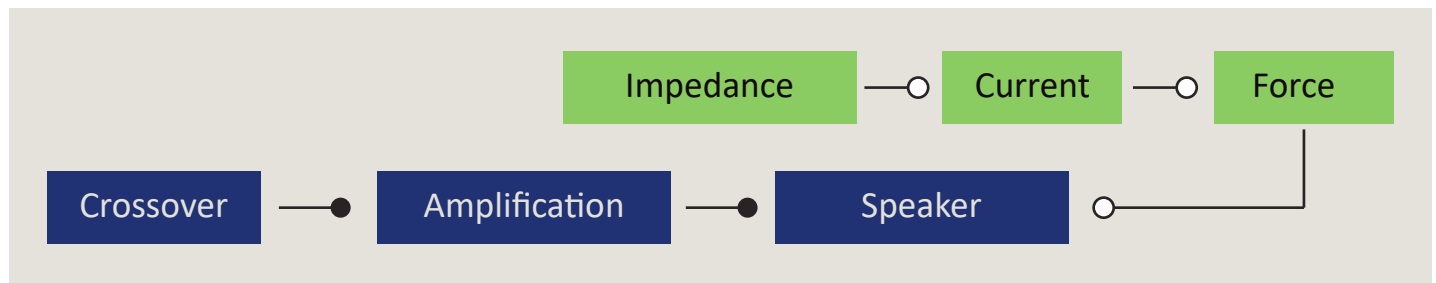
Operation Interface Graphical Interface

- Benefits

Improved Transient Response

When speaker is driven by audio signal, there will be induced electromotive force, which determines the speed of diaphragm returning to original position. Induced electromotive force will generate current then generate the force in the opposite direction of the diaphragm to pull back the diaphragm. How much current can be generated depends on the impedance of the circuit between amplifier and speaker, namely the smaller impedance is, the faster diaphragm of speaker returns.

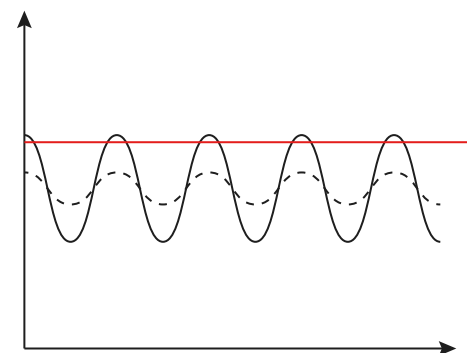
In active crossover applications, the crossover circuit precedes the amplification part so the impedance is small. Therefore, the transient response gets improved and the sound becomes clean.



Improved Dynamic Range

Audio signal will be amplified in full-band by common amplifier without active crossover, which may cause clipping and distortion since all frequency are amplified in same multiples.

When signal is divided before amplification, high frequency and low frequency signal are amplified independently. There is much headroom for the amplifier, which would improve the audio quality.



5 Benefits

High Sound Quality

High sound quality is one of primary goals that this series focuses to achieve. All original and authorized components can help vastly reduce distortion caused by the output filters and compensate any frequency response variations due to the different loads connected to the amplifier. Besides, layout of the PCB is of great importance to high sound quality in this kind of amplifiers. Taking advantage of engineers' over 10 years' experience in audio design based on applications, this series gives consideration to both reliability and best possible audio reproduction with high SNR up to 88dB and 0.03% THD+N (1W@20Ω, 200Hz).

PBTL (Mono) Mode Configurable

JAB3 amplifier boards support Parallel Bridge Tied Load mode, under which two outputs in stereo mode are mixed together as one channel. Namely under PBTL (mono) mode, if customers use stereo 3.5mm input, the outputs are mixed. Connect the positive and negative output together for best efficiency.

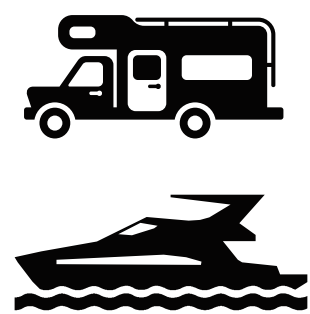
Sure Electronics has released four models of JAB3, two in stereo mode (AA-JA32173 and AA-JA32473), which are used as audio 2.0 system, and another two in mono mode (AA-JA31211 and AA-JA31181), using as audio 0.1 system.

BTL	PBTL
2	0
0	1

Compatible with JAB2

As we have mentioned above, JAB3 can be used independently as the audio 2.0/0.1 system in stereo mode or mono mode. JAB3 also provides a flexible DSP solution. This means, when working with JAB2 main boards, it is a complete 4.0 (Both JAB2 and JAB3 are stereo mode.), 2.1 (One is stereo mode and another is mono mode.) and 0.2 (Both are mono mode) audio system with control interfaces and signal processing. The application ranges from active loudspeaker concepts (digital 3 way 3 unit, 2 way 2 unit crossover, bass enhancement, etc.) and realizes the transformation from 2.0 to 2.1 (when used with JAB2). With four potentiometers, customers can get the default function and adjust the volume of audio input, high-pass and bandpass. (For detailed information about functions of potentiometers, refer to 'Function of Potentiometers'.) Customers can connect the JAB3 with JAB2 via the JST-PH-6POS connectors on board. For more detailed connection information, please refer to the installation chapter.

BTL	PBTL
4	0
2	1
0	2



Adaptive Power Supply Module for RV/Yacht Application

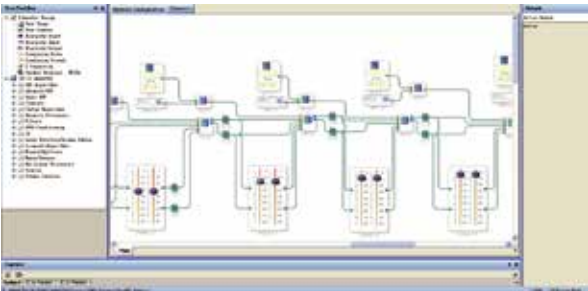
If your projects are powered by the battery system of the RV or Yacht, we could provide the adaptive power supply which always outputs DC 24V when the input voltage is not less than 10V and no more than 40V. And the power supply module is capable of delivering 100W continuously and 200W with the efficiency up to 85%, which is suitable for audio power amplifier application.

* The power voltage range of JAB3 series is 12 - 24V, typical 19V. For any input voltage requirement, please feel free to contact with store@surrelectronics.com.

DSP Integration

With integrated debug port for SigmaStudio, customers can pre-program with Sure Electronics ICP1, ICP2 or the original Analog USBi to get more functions which includes equalization, crossover, bass enhancement, multiband dynamics processing, delay compensation, etc.

The on board fully programmable 28-/56-bit audio DSP ADAU1701 from Analog device is competent in various signal processing applications. This process can compensate for real-world limitations of speakers, amplifiers, and listening environments, providing dramatic improvements in perceived audio quality.



SigmaStudio graphical tool

Most process is done in full 56-bit, double precision mode, resulting in very good low level signal performance. Two Σ - Δ ADCs and four Σ - Δ DACs integrated in this DSP provide a 98.5 dB analog input to analog output dynamic. Each ADC has a THD + N of -83 dB, and each DAC has a THD + N of -90dB. The popular applications are active loudspeaker, public address system and active subwoofer, including stereo high pass filter and mixed low pass filter, also named with powered speaker controller, demonstrated on this board as follows.

1. Original Analog USBi EVAL-ADUSB2EBZ

Sure Electronics provide the original Analog USBi EVAL-ADUSB2Z for our customers. We will provide one 10 pin cornoid, one 6 pin cable and one pinboard. Customers can use the pinboard to connect original Analog USBi and DSP Kernel Board. By using SigmaStudio™ software, customers can program by themselves easily. The Programming kit costs \$99.9.

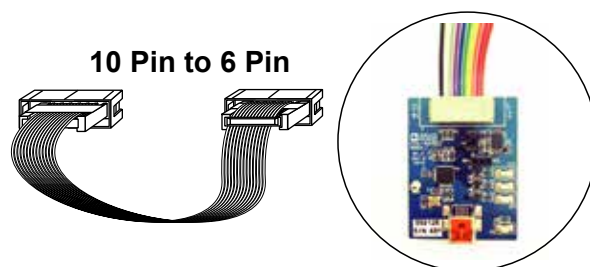
2. In-Circuit Programmer - ICP2

Sure Electronics provide an open-source USBi with a pinboard for easy connection with DSP kernel board. The open-source USBi can be connected to the pinboard directly without a 10 pin cornoid. This kit named In-Circuit Programmer - ICP2. With a 6 pin cable, the ICP2 and DSP Kernel Board can be connected easily. The Programming kit costs \$14.9.

3. In-Circuit Programmer - ICP1*

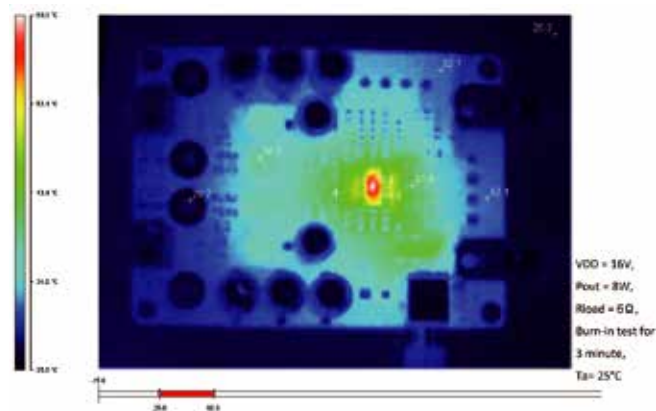
Sure Electronics provide our own programming board named In-Circuit Programmer - ICP1, which is the gospel for customer preferring simple style. It can be connected directly to DSP Kernel Board by a 6 pin cable without a pinboard. The APM can be controlled by Sure Electronics ICP1 or ICP2. On-board self-boot EEPROM is included in ICP1 for operating the board independently of the Analog Devices, Inc., SigmaStudio™ software. The Programming kit costs \$19.9.

*A new version of ICP1 integrated with Bluetooth is planned to be released soon. Customers can control JAB3 through APP in the phone when connecting with the upgraded ICP1.



Stereo Headphone/Line Amplifier Integration

The headphone amplifier delivers up to 125mW per channel into a 32ohm load and has low 0.02% THD+N. It uses capless Direct-drive architecture to produce a ground-referenced output from a single power supply, eliminating the need for large DC-blocking capacitors for output, and saving cost, board space, and component height. For detailed information and specifications, please refer to datasheet.



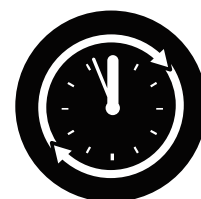
Fully Protection, Robust Performance

The amplifier board series employs the TPA311/2x series from TI as the main chip. All of them are equipped with overcurrent and over-temperature protection, which is able to avoid permanent stress caused by improper operation. Besides built-in chip protection, ESD and spike protection components are used throughout input and output of the amplifier board to ensure its robustness and reliability. And all the available input and output pins are presented as Molex headers which facilitate mating and prevent accidental mismatching during assembly.

Extreme Low Power Consumption

The JAB3 can offer playback time up to 24 hours continuously, which was tested with 3.5mm AUX input plugged in and the song 'Yesterday Once More' playing.

Equipped with Signal Level Sensor System, JAB3 will cut off the part



24 hours Playback

which consumes most power automatically if the audio signal is not detected for a long time (1min), effectively avoiding unnecessary power loss and lengthening usable time of the whole system.

Thanks to engineers' delicate design and reliable components employed in JAB3, its power consumption is extreme low, ensuring the high efficiency. When powered by battery board, the quiescent current of JAB3 is only several mA, meanwhile, the standby power is only 100mW (STBY connected to GND) when connected with 24V external power supply. (The specific value of power consumption changes to different model. For more specifications on power consumption, please refer to the manual of JAB3.)



Low Power Consumption

Lithium Battery Balance and Protection Extension Board Optional

The Sure Electronics 3 cells in series 18650 Lithium-ion battery balance and protection extension board (AA-JA11113) is especially designed for 3 cells 18650 type batteries in series. JAB3 can be powered by battery board provided by Sure Electronics. Please kindly be noticed that the battery charging circuit is integrated in JAB1/2, which means JAB1/2 is requisite if customers want to charge the battery board. 3 Lithium-ion batteries in series output more than 12.6V when fully charged. Customer could also connect 2 pieces lithium battery balance and protection extension boards in parallel to get higher voltage. More detailed information on usage of battery board, please refer to JAB Series Brochure and battery board manual.

If customers have requirements on the cells of battery board, please send an enquiry email to store@sure-electronics.com. Sure Electronics shall not be responsible for any damage caused by customers' abuse.



Batteries are not included in package

L-style Aluminium Bracket Optional



It is quite difficult to assemble the audio amplifier board into a closed space in most Kiosk and Jukebox applications. To improve the connection and debugging efficiency and save the cost on installations, Sure Electronics provides a L-style aluminum bracket for JAB series. The aluminum bracket supports vertical and horizontal installation ways to satisfy different installation requirements. With screw lock standoffs and pre-drilled mounting holes, the JAB series audio amplifier boards could be installed on the bracket easily.

5 Years Product Life

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

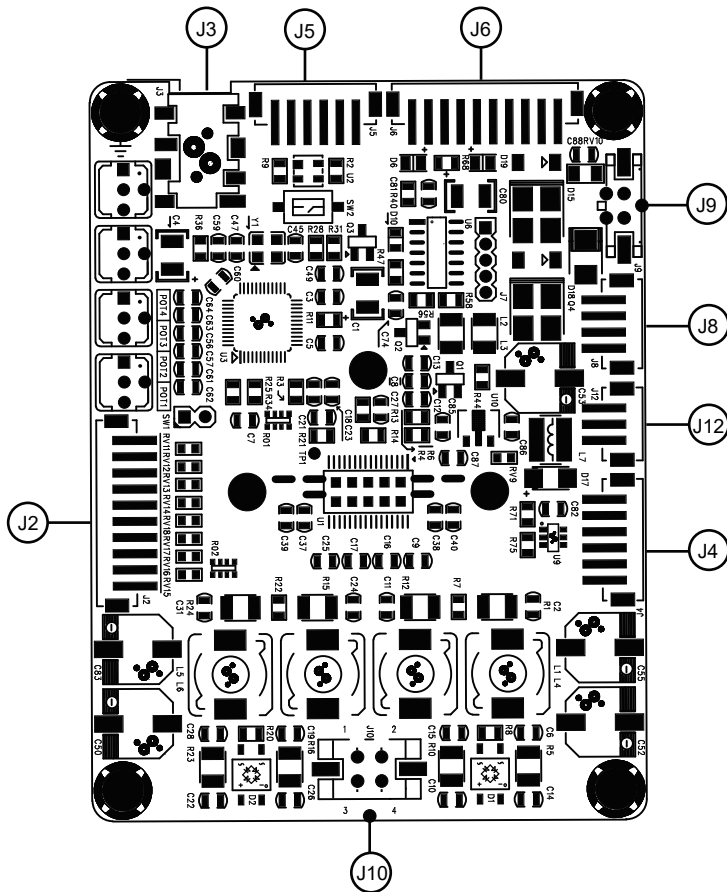


Zero Stock for Customers

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

We guarantee each standard product at least 100 pieces inventory while best sellers have more than 1000 pieces inventory. This means Sure Electronics keeps at least 100K pieces circuit board in stock at any time. With more than 80 CBM of finished products and more than 100 CBM half-finished products. Sure Electronics can always short the lead time to save customers' previous time to market.

6 PIN Definition



DSP Extension Port:

J2 PH-10PIN-2MM

Pin	Definition	Pin	Definition
1	GND	6	MP00
2	DATA	7	MP01
3	LRCLK	8	MP05
4	BCLK	9	MP04
5	MP07	10	+3.3V

*Notes:

1. Short circuit 'STBY' and 'GND' to enter into 'Standby' mode.
2. Don't short circuit 'MUTE' and 'GND' at any time. This position is used to synchronize with 'MUTE' pin on JAB2 to eliminate the popping noise.
3. When JAB3 is used separately, the 'MUTE' position will malfunction; when JAB3 is used together with JAB2, J12 must be connected with the 3pos control port on JAB2 for controlling the whole system. Short circuit 'EN' with 'GND' on JAB2 for system control.

Audio Output Connector:

J3, 3.5mm Headphone Connector

Speaker Output Connector:

J10 MOLEX-4PIN-3MM

Pin	Definition
1	LOUT+
2	ROUT+
3	LOUT-
4	ROUT-

Switch Control Connector*:

J12 PH-3PIN-2MM

Pin	Definition
1	STBY
2	GND
3	MUTE

Programming Port:

J4 PH-6PIN-2MM

Pin	Definition
1	SDA
2	SCL
3	WP
4	GND
5	VIN
6	RST

Power Connector:

J9 MOLEX-2PIN-3MM

Pin	Definition
1	VCC
2	GND

3.5mm AUX IN Connector:

J6 PH-10PIN-2MM

Pin	Definition
1	VCC
2	VCC
3	GND
4	LED1
5	KEY1
6	LIN
7	GND
8	RIN
9	KEY2
10	LED2

Battery Board Connector:

J8 PH-4PIN-2MM

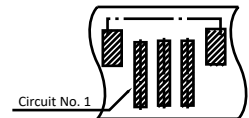
Pin	Definition
1	VBAT
2	VBAT
3	GND
4	GND

Audio Extension and Compatible Port:

J5 PH-6PIN-2MM

Pin	Definition
1	LIN
2	LOUT
3	GND
4	GND
5	ROUT
6	RIN

Top View of PH Connector



Circuit No. 1

7 Specification

AA - JA32473 2 x 30 Watt 4 Ohm Class D Audio Amplifier with Audio DSP

Parameter		Conditions	Min.	Typ.	Max.	Units
Operating Voltage		@200Hz, 8Ohm	12	24	26	V
Idle Power		Signal detected	-	2	-	W
		No Signal detected	-	60	-	mW
Standby Power		SD short to GND, only when low power module available	-	120	-	mW
Under Voltage Protection		-	10.0	10.4	10.8	V
Amp Gain		@8Ohm, 200Hz	-	26	-	dB
DSP Gain	SE1(Single Amp)	@8Ohm, 200Hz	-60	-	0	dB
	SE2 (Headphone)	@8Ohm,200Hz	-60	-	6.5	dB
Output Power		24V@8 Ω	-	2x30	-	W

AA-JA32172 2 x 50 Watt 4 Ohm Class D Audio Amplifer Board with Audio DSP

Parameter		Conditions	Min.	Typ.	Max.	Units
Operating Voltage		@200Hz, 4Ohm	12	24	26	V
Idle Power	Signal detected		-	2	-	W
	No Signal detected		-	60	-	mW
Standby Power		SD short to GND, only when low power module available	-	120	-	mW
Under Voltage Protection		-	10.0	10.4	10.8	V
Amp Gain		@4Ohm, 200Hz	-	26	-	dB
DSP Gain	SE1(Single Amp)	@4Ohm, 200Hz	-60	-	0	dB
	SE2 (Headphone)	@4Ohm,200Hz	-60	-	6.5	dB
Output Power		24V@4 Ω	-	2x50	-	W

AA - JA31211 1 x 60 Watt 4 Ohm Class D Audio Amplifer Board w DSP

Parameter		Conditions	Min.	Typ.	Max.	Units
Operating Voltage		@200Hz, 4Ohm	12	24	26	V
Idle Power	Signal detected		-	2	-	W
	No Signal detected		-	80	-	mW
Standby Power		SD short to GND, only when low power module available	-	150	-	mW
Under Voltage Protection		-	10.0	10.4	10.8	V
Amp Gain		@4Ohm, 200Hz	-	26	-	dB
DSP Gain	SE1(Single Amp)	@4Ohm, 200Hz	-60	-	10	dB
	SE2 (Headphone)	@4Ohm,200Hz	-60	-	2	dB
Output Power		24V@4 Ω	-	1x60	-	W

AA - JA31181 1 x 100 Watt 2 Ohm Class D Audio Amplifer Board w DSP

Parameter		Conditions	Min.	Typ.	Max.	Units
Operating Voltage		@200Hz, 2Ohm	12	24	26	V
Idle Power	Signal detected		-	2	-	W
	No Signal detected		-	80	-	mW
Standby Power		SD short to GND, only when low power module available	-	150	-	mW
Under Voltage Protection		-	10.0	10.4	10.8	V
Amp Gain		@2Ohm, 200Hz	-	26	-	dB
DSP Gain	SE1(Single Amp)	@2Ohm, 200Hz	-60	-	10	dB
	SE2 (Headphone)	@2Ohm,200Hz	-60	-	2	dB
Output Power		24V@2Ω	-	1x100	-	W

8

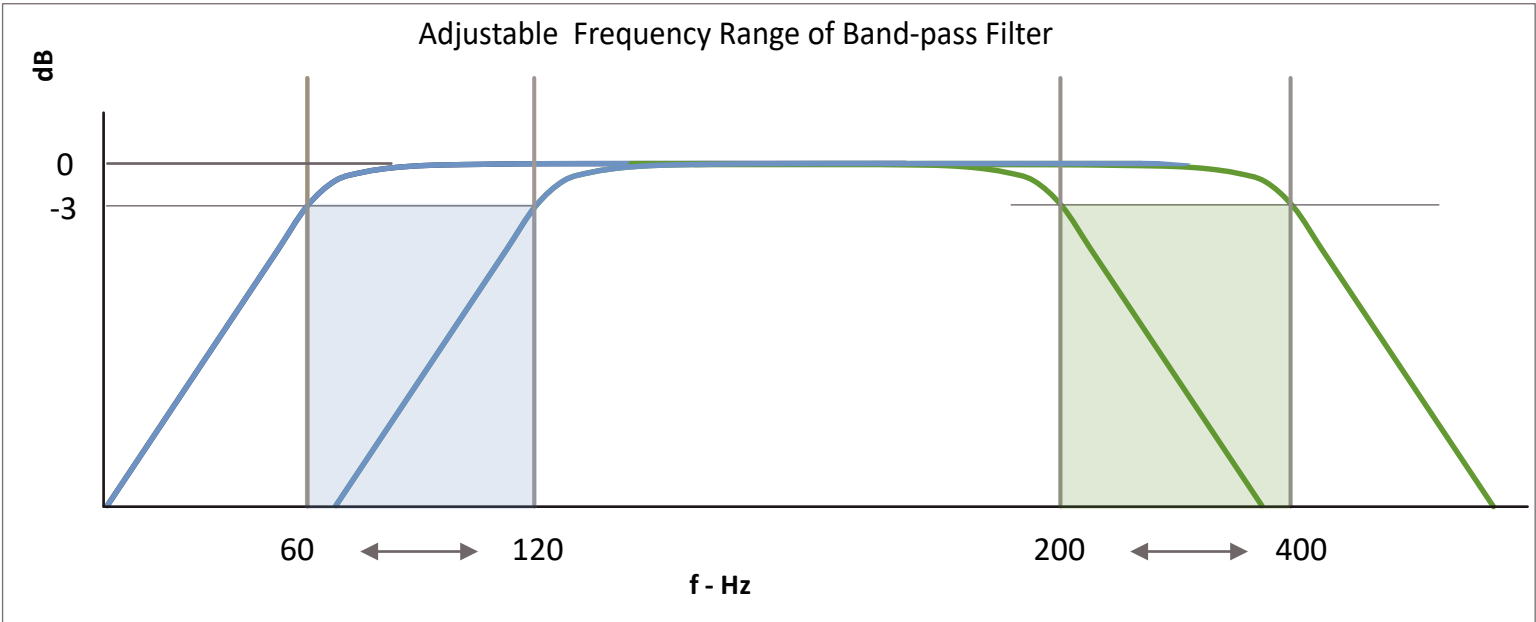
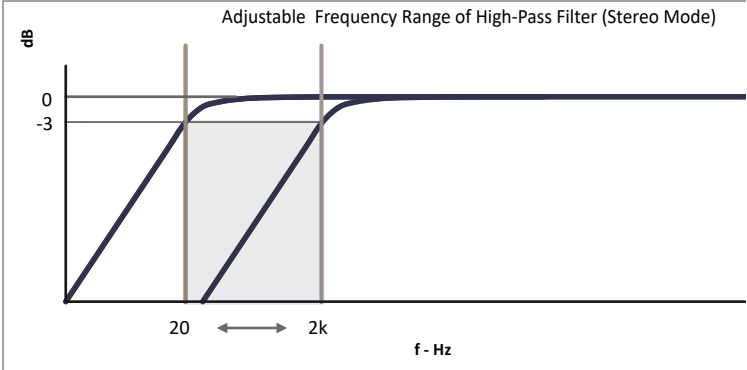
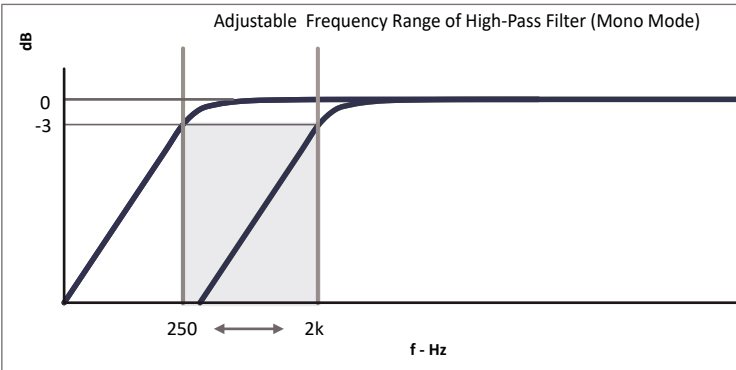
Function of Potentiometers

Functions of potentiometers based on specific applications					
Port	Function	JAB3S	JAB3M	JAB3S+ JAB2	JAB3M+ JAB2
POT1	CH2 Gain	Gain of 3.5mm Headphone Output	Gain of 3.5mm Headphone Output	Gain of Stereo of JAB2	Gain of Stereo of JAB2
POT2	CH2 HPF	High-pass Filter of 3.5mm Headphone Output	High-pass Filter of 3.5mm Headphone Output	High-pass Filter of Stereo of JAB2	High-pass Filter of Stereo of JAB2
POT3	CH1 HPF or BPF	High-pass Filter of Speaker Output	Band-pass Filter of Speaker Output	High-pass Filter of Speaker Output of JAB3	Band-pass Filter of Speaker Output of JAB3
POT4	CH1 & CH2 Volume	Volume of Speaker & 3.5mm Headphone Output	Volume of Speaker & 3.5mm Headphone Output	Overall Volume of JAB3 & JAB2	Overall Volume of JAB3 & JAB2

- Note:
1. The speaker output (J10) of the board with potentiometers is defined as CH1; 3.5mm headphone output (J3) or other integrated circuit output of the board with potentiometers is defined as CH2.
 2. JAB3S refers to JAB3 in stereo mode, namely 2 x 50 Watt Class D Audio Amplifier Board w DSP - JAB3 (AA-JA32172) or 2 x 30 Watt Class D Audio Amplifier Board w DSP - JAB3 (AA-JA32473); JAB3M refers to JAB3 in mono mode, namely 1 x 100 Watt Class D Audio Amplifier Board w DSP - JAB3 (AA-JA31181) or 1 x 60 Watt Class D Audio Amplifier Board w DSP - JAB3 (AA-JA31211).
 3. HPF refers to High-pass Filter; BPF refers to Band-pass Filter.
- When CH1 is stereo output, the function of POT3 is HPF; when CH1 is mono output, the function of POT3 is BPF.
4. Four applications are exemplified in this datasheet. For the functions of potentiometers when used in other applications, please contact us at store@sure-electronics.com.

Adjustable Frequency Range

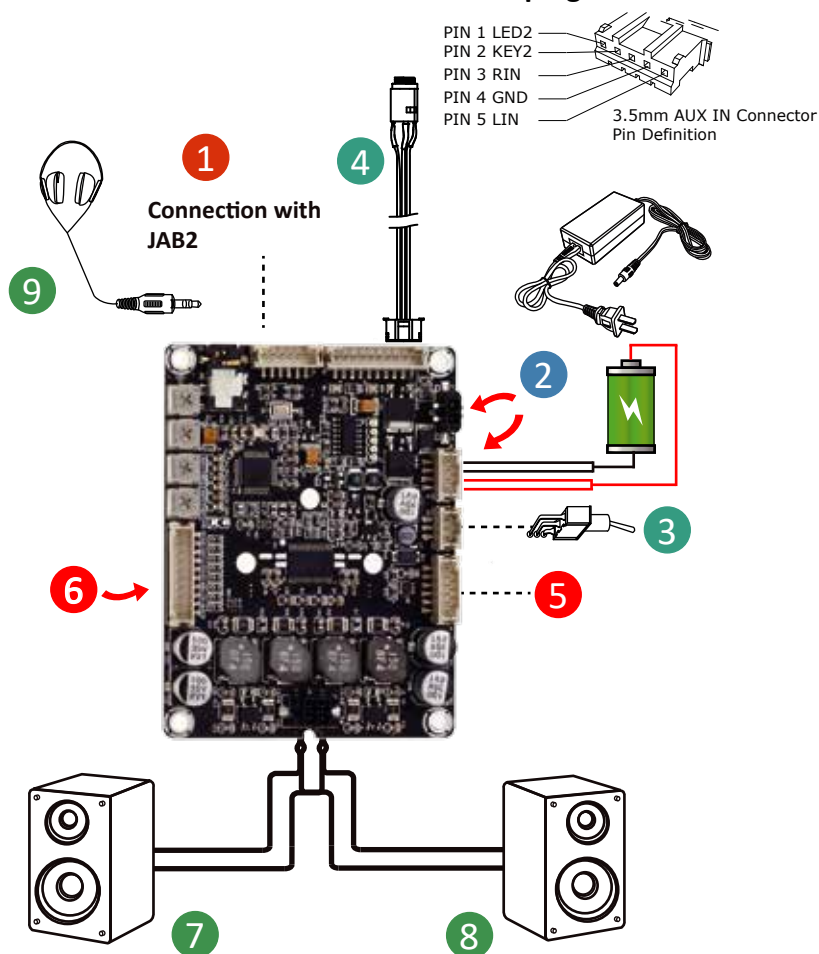
Function	Range of Frequency
High-pass Filter (Stereo Mode)	20Hz- - 2kHz
High-pass Filter (Stereo Mode)	250Hz- - 2kHz
Band-pass Filter (Adjusting in Frequency band)	60HZ-120Hz (High-pass)
	200Hz-400Hz (Low-pass)



- Adjustable Range of Lower Frequency of Band-pass Filter
- Adjustable Range of Upper Frequency of Band-pass Filter

9 Installation

How to plug in AUX line-in cable?



10 Price List

Package List	P/N	Item	Listed Price
JAB1	AA-JA32151	2 x 15 Watt Class D Audio Amplifier Board w Bluetooth Ver2.1	\$19.90
JAB2-230	AA-JA32472	2 x 30 Watt Class D Audio Amplifier Board w Bluetooth Ver4.0	\$32.90
JAB2-250	AA-JA32171	2 x 50 Watt Class D Audio Amplifier Board w Bluetooth Ver4.0	\$37.90
JAB3-160	AA-JA31211	1 x 60 Watt Class D Audio Amplifier Board w DSP	\$29.90
JAB3-230	AA-JA32473	2 x 30 Watt Class D Audio Amplifier Board w DSP	\$29.90
JAB3-1100	AA-JA31181	1 x 100 Watt Class D Audio Amplifier Board w DSP	\$34.90
JAB3-250	AA-JA32172	2 x 50 Watt Class D Audio Amplifier Board w DSP	\$34.90
JAB-FC1	AA-JA11114	Functional Cables Package	\$4.99
JAB-FC2	AA-JA11116	Functional Cables Package for connecting JAB3 and JAB2	\$4.99
JAB-INT	AA-JA11112	Interface Extension Board with USB Charge Only and 3.5mm AUX	\$5.99
JAB-BE	AA-JA11113	3S 18650 Lithium Battery Balance and Protection Extension Board	\$7.99
JAB-AB	AA-JA11115	L-style Aluminium Bracket for 3.6 x 2.7 inches JAB	\$2.99

Note:

Basic cables kit includes one piece 4 Pin Molex micro-fit speaker cable, one piece 2 Pin Molex micro-fit power cable and one piece 3.5mm AUX IN cable. Length of listed cables above is 50cm. Additional \$0.29 will be charged for each extra 50cm length.

11 Contact Us



Online Shop



Videos

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