



Professional Power Amplifier

USER'S MANUAL

900BV-1200BV- 1800BV-2400BV

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IMPORTANT PRECAUTIONS



1. Read all documentation before operating your equipment. Retain all documentation for further reference.
2. Mains voltage must be correct and the same as that printed on the rear of the unit. Damage caused by connection to improper AC voltage is not covered by any warranty.
3. Always operate the unit with the AC ground wire connected to the electrical system ground. Precautions should be taken so that the means of grounding of a piece of equipment is not defected.
4. After connected to power supply, Standby LED illuminated, some components inside already electrified.
5. Output port at bridge status of the amplifier links with oscillograph is prohibited, or it would cause damage to the amplifier and the equipment.
6. The output level of the amplifier does not exceed the marked sensitivity.
7. Do not run the output of any amplifier channel back into another channel's input. Do not parallel or series connect an amplifier output with any other amplifier output.
8. In system setup, amplifier's output power must be greater 50%-100% than the loaded loudspeaker's rated power.
9. Make sure the signal correctly connect to the amplifier's input channel at current input mode.
10. Please turn off the power switch, when pull off the power cord and signal cable or select the input mode switch.
11. In typical use, Please set the volume to -0dB position.
12. Sometime, one signal to more than one amplifier, suggest use signal distributor.
13. If needs to supply power for more than one unit power amplifiers, to eliminate the big surge current interfere to the electricity net and cause the voltage fluctuate abnormal thereby lead to amplifiers and other equipments with same line defective while switch on the amplifier, we recommend you use the Sequence Power.
14. Do not obstruct the air entrance and exit.

Safety instructions

Read all safety instructions before operating amplifier

Install equipment as follows:

- Install in a flat place, not bending or curved.
 - Do not install near water and moisture.
 - Place power amplifier away from heat sources, such as radiators or other heat source.
- Keep in mind the following when connecting amplifiers:
- Read the user manual before connecting the amplifier.
 - Connect each connection of the amplifier perfectly. If not, it may cause hum, damage, electric shock in case of disconnection.
 - To prevent electric shocks, do not open top cover.
 - Connect the power cord with safety after check the AC power.



CAUTION

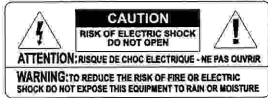
Warning: with dangerous voltage non insulation components inside enough to cause electric shock. do not open. return to authorized service center or repaired by specified people if failed. to reduce the risk of fire or electric shock do not expose this equipment to rain or moisture.

Function description

1. Power supply
 - 1.1 It is a very high density power level of SMPS amplifier: It can supply constant 1.2kw sine wave power in 2U height and 11 inch depth case. It is the top level in this industry.
 - 1.2 It use LLC SMPS to provide power safely and efficiently. It turn on ZVS when 0 voltage and shut off ZCS when 0 current. And it depress the interfering to the amplifier.
 - 1.3 The normal SMPS load is invariable, but SMPS load of amplifier is fluctuate for impedance change fastest in 0.0001s. And the shortest time from 0 current to rated current is also 0.0001s. The SMPS used by us designed in view of the critical working situation and full fill the dynamic requirement of music playing.
 - 1.4 Power circuit is all high frequency circuit to avoid the high frequency current pass through the low frequency current capacitor & electro analysis.
 - 1.5 SMPS has good performance from 180-260V and will not destroyed.
2. Amplifier
 - 2.1 SMPS amplifier has very high working efficiency in 8Ohms & 4 Ohms. BV series is Class AB amplifier, working efficiency at rated power can reach 65% & 60% at 8Ohms & 4 Ohms.
 - 2.2 It can provide 1200w constant sine wave power in 1/2of 2U case.
 - 2.3 The output transistor connect with the heat sink directly can increase the heat transmit efficiency and extend the transistors life.
 - 2.4 Center the air passage and heat sink, and let the 80x80 fan between the power supply module and main module can increase the efficiency of fan and separate the 2 working modules as well as to decrease the noise.
 - 2.5 The main amplifier circuit and protection system designed separately improved the complete signal circuitry.
 - 2.6 The most process technics is SMT.
 - 2.7 The amplifier case is made of steel and all the PCB is supported by copper column. It is more firmly and represent the high quality of professional amplifier.

Ex-factory setting

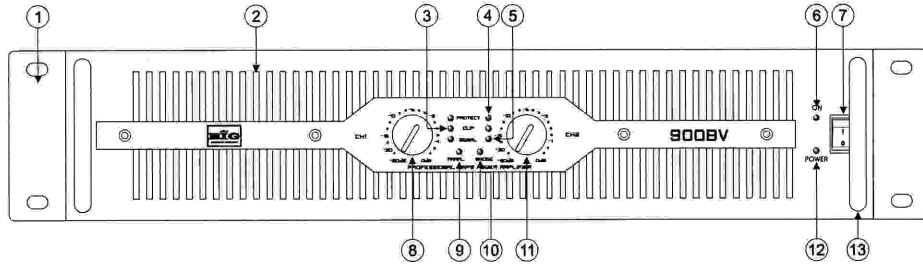
1. All the volume adjustment button was set at "-80" .
2. The power switch was set at "OFF" .
3. Working mode selector switch was set at "STEREO" .
4. Sensitivity selector switch was set at "0.775V" .



Important direction: Other control functions and adjustment functions that do not introduce in the user's manual, may cause mechanical danger or radiation due to other outside factors.

BV series panel description

900BV-1200BV-1800BV-2400BV front panel

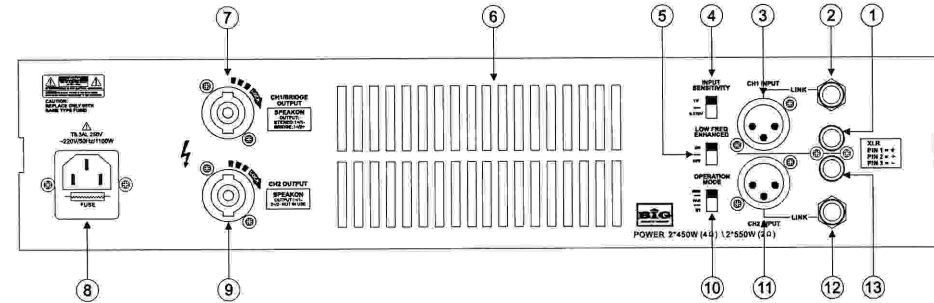


900BV-1200BV-1800BV-2400BV front panel function introduce

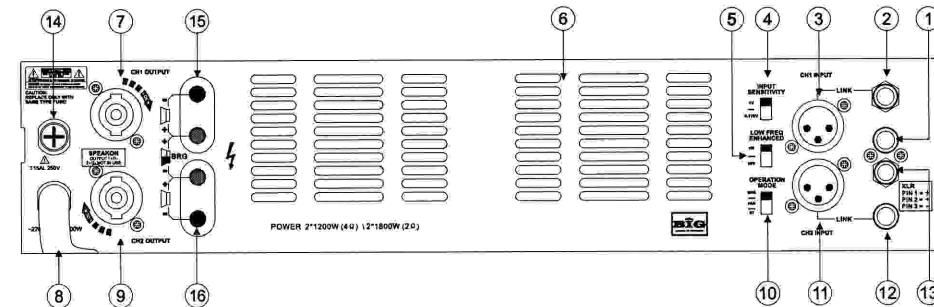
- 1. Installation Socket**
Use to fix when install to the rack.
- 2. Air Entrance**
This part is the air entrance. Don't obstruct it.
- 3. CLIP indicator (CLIP)**
When this indicator is on, it means the amplifier has reached its maximum output power (CLIP). The distortion is about 0.5%. Then you need to turn down the input signal to make sure the amplifier work under low distortion.
- 4. Protection Indicator (PROT)**
When this indicator is illuminated, it means the amplifier is on the protection status, includes output short circuit, over-heat, DC, VHF, constant non-music high frequency signal (self-excitation or long time whistle).
- 5. Signal Indicator (SIG)**
When this indicator on, it means the output port of the amplifier already has signal, and the sensitivity is about 0.35V.
- 6. "Power ON" Indicator**
When this indicator is on, it means the main power supply system of amplifier has been working. Otherwise, it is opposite.
- 7. Power switch**
This switch is used for power on and off. Press the upper part to switch on, and lower part to switch off.
- 8. CH1 volume control**
In bridge mode, this potentiometer controls two channels volume, the CH2 potentiometer invalid. In stereo or parallel mode: this potentiometer just controls CH1 volume. Gain control range: -80dB~0dB, available turning angle is 280 degree.
- 9. "Parallel" indicator in orange color**
While this indicator lights, the amplifier is on parallel mode.
- 10. "Bridge" indicator in orange color**
While this indicator illuminated, the amplifier is on bridge mode.

- 11. CH2 volume control**
In bridge mode, this potentiometer invalid, the volume is controlled by CH1 potentiometer. In stereo or parallel mode, the potentiometer just controls CH2 volume. Gain control range: -80dB~0dB, available turning angle is 280 degree.
- 12. Stand-by Power Indicator**
While connect the power cable of the equipment, this indicator lights, until the power switch turn to ON, the power ON indicator illuminated, then this indicator extinguish.
- 13. Handles**
Handles are used for easy transportation.

900BV-1200BV rear panel



1800BV-2400BV rear panel



900BV-1200BV-1800BV-2400BV rear panel function introduce

- 1. CH1 unbalance RCA input**
- 2. CH1 bypass socket**
It is parallel connection with CH1 XLR input, providing output signal save as the input signal.

900BV-1200BV-1800BV-2400BV rear panel function introduce

3.Channel 1 XLR input

This XLR input is the balanced input. It connects to upper audio processors.

4.Input sensitivity switch

This selector is to select the input sensitivity 0.775V/1V

5.Low frequency increase function switch

When turn on this switch, you can obviously feel that the low frequency is saturated and the sound quality is even better.

6.Air exit

This part is the air exit, do not block it.

7.CH1 SPEAKON output

Use this output socket (SPEAKON) to connect the speaker. Stereo mode: 1+ connects to the positive port, 1- connects to the negative port. Bridge mode: 1+ connects to the positive port, 2+ connects to the negative port.

8.Power supply cord(socket)(build-in fuses tube) (1800BV/2400BV NO INTERNAL FUSE)

This fuse holder includes a standard specification fuse inside. It is used to protect amplifier from damages. If the amplifier was connected to power supply but the LED is not illumed, please check the fuse situation. If you found the fuse broken, you must replace with a same specification fuse after troubleshooting.

9.CH2 speakon output

Use this output socket(SPEAKON)to connect the speaker. 1+ connects to the positive port, 1- connects to the negative port. When the amplifier in bridge mode, this port is not used.

10.Operation mode selector

This switch is used to choose the operation mode of the power amplifier.

STEREO mode: Two channels are independently input and output.

PARALLEL mode: One channel independently input (input from CH1) and two channels independently output.

BRIDGE mode: One channel input (input from CH1) , output from positive port of CH1 and CH2.

11.CH2 XLR input

The XLR input is the balanced input, it connects to the upper audio processors.

12.CH2 unbalanced RCA input.

13.CH2 bypass socket

It is parallel connection with XLR input of CH2, providing output signal same as the input signal.

14.Fuses tube socket(1800BV/2400BV)

Standard fuses tube build in the fuses tube socket and work as protection in over current and trouble. If the amplifier have connected power and power stand-by led is not bright,please check the fuses tube. If you find the fuses have been burnt,you should replace the same standard fuses after troubleshooting.

15.Channel 1 speaker connection pole output (1800BV/2400BV)

Red port connect speaker positive port and black port connect the negative port .Just use the red connection port in bridge mode.

16.Channel 2 speaker connection pole output (1800BV/2400BV)

Red port connect speaker positive port and black port connect the negative port .Just use the red connection port in bridge mode.

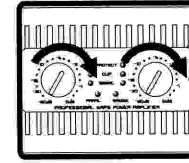
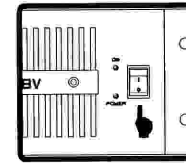
Basic operation

Switch on

1.Connect to the signal source and then connect the plug to the power supply, thus the amplifier inside is electrified and on standby status.

2.Switch on: Press the power switch at " I ", then the amplifier turns on, the stand-by indicator is extinct and the power indicator (ON) is on.

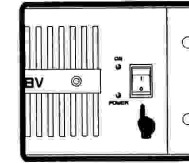
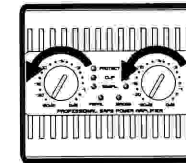
3.When the amplifier is electrified, the protection indicator is on and the amplifier will test automatically for 10 seconds. The indicator will be extinct when test finished. Then you may adjust the volume control button on the panel to set the volume you need.



Switch Off

After using the amplifier, please adjust the CH1/CH2 volume control button to the lowest position(-80dB), then you can turn off the amplifier safely.

Switch Off: Press the power button to "O", then the amplifier turns off, the power indicator (ON) extinguishes and the stand-by indicator lights.



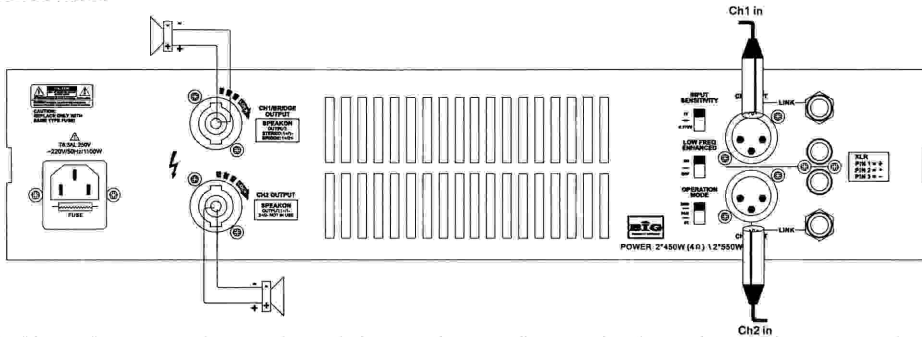
Note:

1.Cannot connect or disconnect the signal source when the amplifier turns on, otherwise there will be impact and which will make damages to the amplifier and the speaker.

2.When the amplifier connects to power supply, it means it has power inside, although the power switch is at the "off" place, the amplifier is still in "standby" working mode. If you do not use the amplifier over 3 hours, you should put off the power cord.

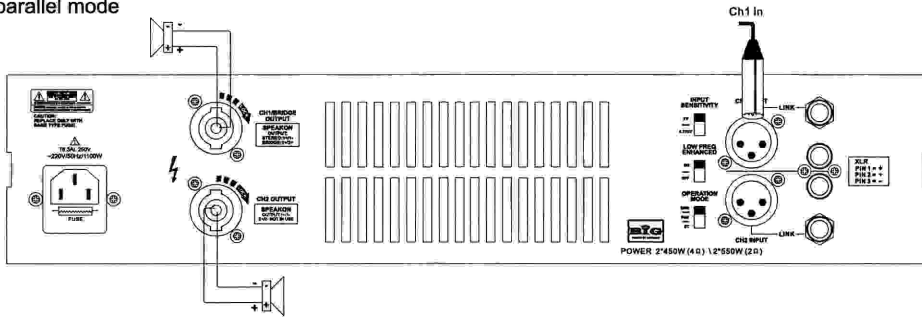
Set up connection mode for 900BV-1200BV

stereo mode



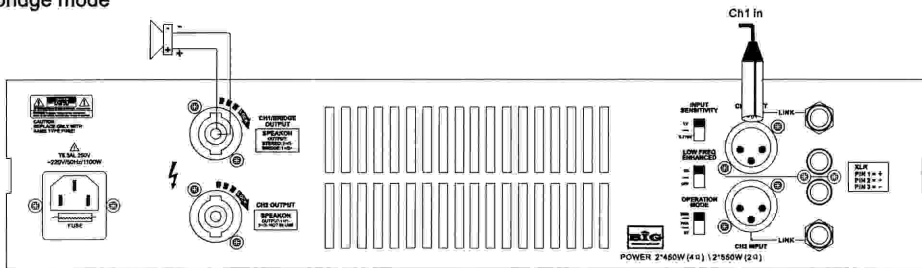
In this mode, connect the two channels input to the sound source (such as mixer, CD) output, set the mode at "STEREO" adjust the two channels volume to a suitable position, connect the two SPEAKON to two speakers.

parallel mode



In this mode, connect the CH1 input to the sound source (such as mixer, CD) output, set the mode at "PARALLEL" adjust the two channels volume to a suitable position, connect the two SPEAKON to two speakers.

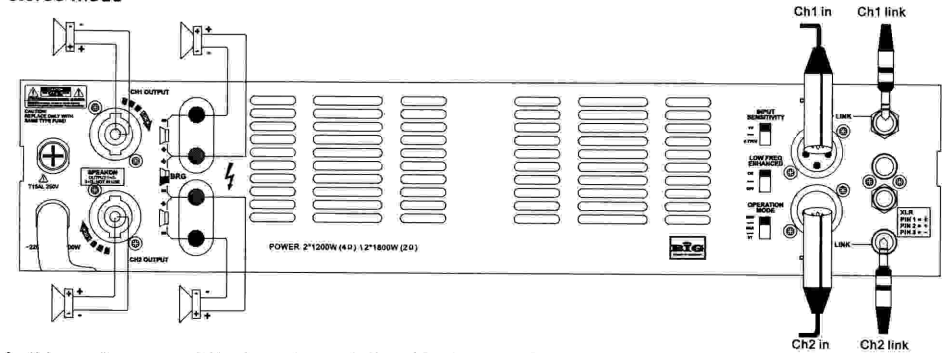
bridge mode



In this mode, connect the CH1 input to the sound source (such as mixer, CD) output, set the mode at "BRIDGE" adjust the CH1 volume to a suitable position, connect the SPEAKON of the BRIDGE OUTPUT to the speaker.

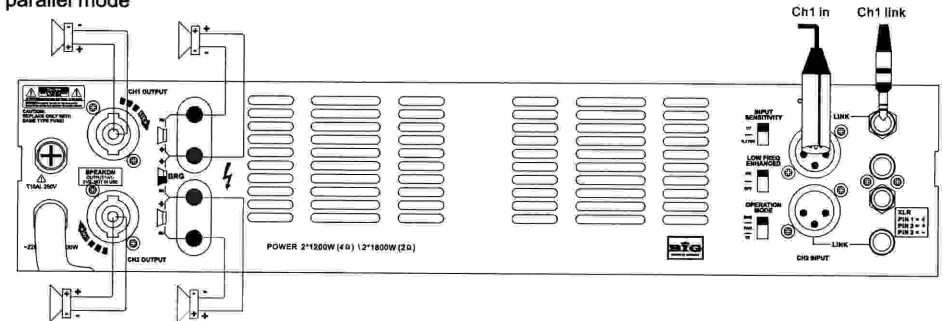
Set up connection mode for 1800BV-2400BV

stereo mode



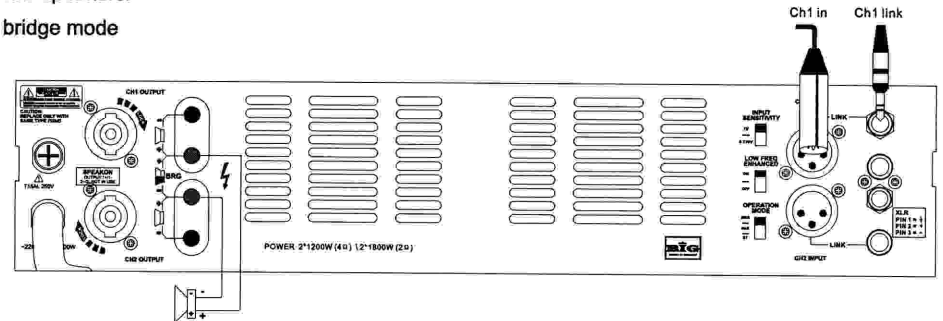
In this mode, connect the two channels input to the sound source (such as mixer, CD) output, set the mode at "STEREO" adjust the two channels volume to a suitable position, connect the two SPEAKON to two speakers.

parallel mode



In this mode, connect the CH1 input to the sound source (such as mixer, CD) output, set the mode at "PARALLEL" adjust the two channels volume to a suitable position, connect the two SPEAKON to two speakers.

bridge mode



In this mode, connect the CH1 input to the sound source (such as mixer, CD) output, set the mode at "BRIDGE" adjust the CH1 volume to a suitable position, connect the SPEAKON of the BRIDGE OUTPUT to the speaker.

Reliability protection function

1. CLIP/Limit

This function is used for preventing dangerous clip signal damage the speakers, CLIP/Limit monitors the distortion produced by amplifier output, when distortion exceeds 0.5%, CLIP/Limit will reduce the input signal to ensure signal not distortion (CLIP).

Note: If input signal already has CLIP or exceeds linearity working range of input circuit, then the CLIP/Limit is not valid!

2. Over-heat protection

If the amplifier works at full loading for a long time, the fans have reached the highest speed. If this status continue and the temperature rise up to over 105 degree, the amplifier will go into over-heat protection status and the protection indicator (PROT) on the front panel lights on, and no output. Therefore, the users are suggested to correctly operate the amplifier, the loading is not lower than 2 ohm, and maintain the airflow good and free. The status of no power output because of over-heat protection usually won't happen if the environment temperature not higher than 30 degree.

3. VHF protection

If the amplifier output reaches a certain range and frequency exceeds 10KHz, such as MIC feedback noise, then amplifier may go into VHF protection after 3 seconds, the protection indicator (PROT) on the front panel will be on and the speakers do not have sound, but will recover automatically after protection circuit startup for 10 seconds. If the output signal does not change, it will keep on VHF protection.

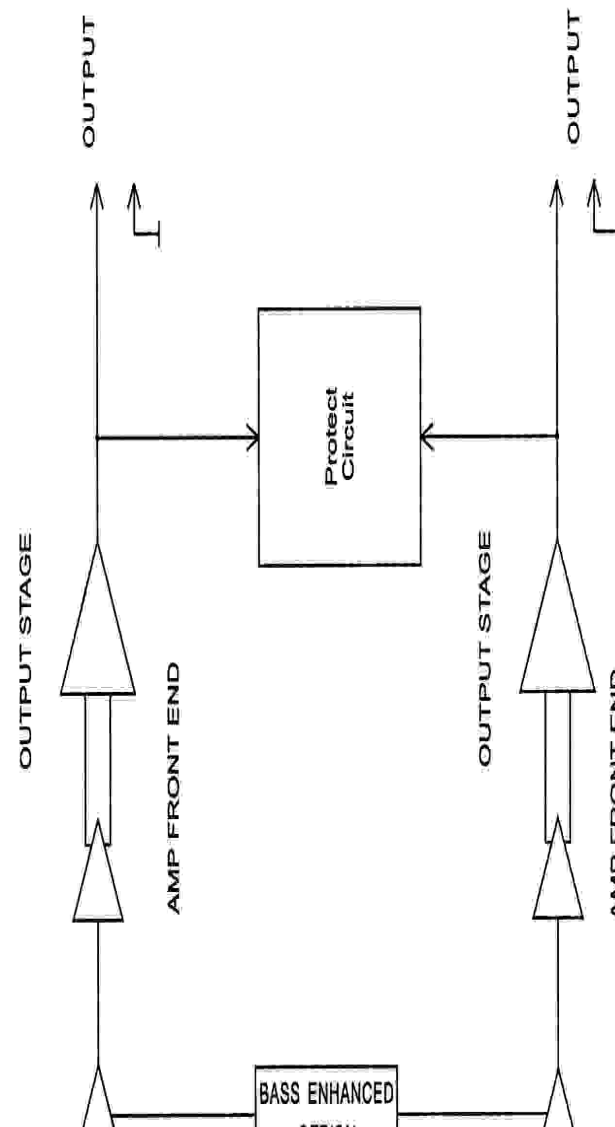
4. Short circuit protection

All the series amplifier of our company has short circuit protection. This protection make the output transistors work at safe range. When output is in short circuit, the protection indicator (PROT) on the front panel will be on and the amplifier has no output. The equipment will be recovered after 10 seconds after terms of short circuit removed.

5. AC local power protection

If the AC power voltage lower than the allowed working voltage (~160V), the power supply will be turned off automatically until the power voltage is normal.

Schematic illustration



Specifications

Model	Tolerance	900BV	1200BV	1800BV	2400BV
8ohm stereo power*	-2.5%,10%	200WX2	310WX2	450WX2	600WX2
4ohm stereo power*	-2.5%,10%	450WX2	600WX2	900WX2	1200WX2
2ohm stereo power**	---	550WX2	700WX2	1600WX2	1800WX2
8ohm bridge power*	-2.5%,10%	600W	1000W	1500W	2000W
4ohm bridge power**	---	600W	1200W	2000W	2600W
Frequency response	+0/-0.5dB	20Hz-20KHz@8Ω, -0.5dB (+/-0.5dB)			
THD+N	±0.01%	<0.1%	<0.1%	<0.1%	<0.1%
Slew Rate	±2V/μs	15V/μs	20V//μs	20V/μs	20V/μs
Damping Factor	+30/-10	>100	>200	>200	>200
Dynamic Range	±5dB	≥80dB	≥80dB	≥80dB	≥80dB
S/N rate	±5dB	≥85dB	≥90dB	≥90dB	≥90dB
Crosstalk	±5dB	≥65dB	≥70dB	≥70dB	≥70dB
Input Sensitivity	±50mV	1.0V/0.775V	1.0V/0.775V	1.0V/0.775V	1.0V/0.775V
Voltage Gain	±0.5dB	26dB /32dB	38dB	26dB/32dB	26dB/32dB
Input Impedance	---	Balance20K Unbalance10K	Balance20K Unbalance10K	Balance20K Unbalance10K	Balance20K Unbalance10K
Output Impedance	---	≥2Ω	≥2Ω	≥2Ω	≥2Ω
Output Circuitry	---	Class AB	Class AB	Class 2H	Class 2H
Total Efficiency	±5%	62%	≥65%	≥68%	≥68%
G.W. (kg)	±0.5	7KG	9KG	11KG	11KG
Packing Dimensions(mm)	±0.5	595x460x170	595x510x170		

Note:*, The power are tested under the condition of 1KHz, THD1%, 40ms burst.

※The above result was tested under the term of standard power wave and constant voltage.