
harman/kardon
Service Manual

SB 15/230

Soundbar with wireless subwoofer



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ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor "chip" components.

The following techniques should be used to help reduce the incidence of component damage caused by static electricity.



1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge build-up or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical change sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material.)
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES devices.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing.

Components identified with the IEC symbol  in the parts list are special significance to safety. When replacing a component identified with , use only the replacement parts designated, or parts with the same ratings or resistance, wattage, or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

Harman Kardon® SB 15/230

Introduction

Thank you for purchasing the Harman Kardon® SB 15/230 speaker system, with which you're about to begin many years of listening enjoyment. The SB 15/230 has been custom-designed to provide the excitement and power of the cinema experience in your own living room.

While sophisticated electronics and state-of-the-art speaker components are hard at work within the SB 15/230, hookup and operation are simple.

To obtain maximum enjoyment from your new soundbar speaker system, we urge you to take a few minutes to read through this manual. This will help ensure that the connections you make are correct. In addition, a few minutes spent learning the functions of the various controls will enable you to take advantage of all the power and refinement the SB 15/230 is able to deliver.

If you have any questions about this product, its installation or its operation, please contact your dealer, the best local source of information.

Description and Features

The SB 15/230 is a complete home theater speaker system that includes:

- A video-shielded stereo soundbar speaker (the SB 15CNTR) with two-way dual-driver left and right speakers and built-in 25-watt x 2 stereo amplifier
- A 10-inch (250mm), 100-watt wireless powered subwoofer (the SB15SUB)
- Wall-mount brackets for the soundbar
- A 6.5-foot (2m) stereo audio cable for connecting the system directly to your TV's audio output.

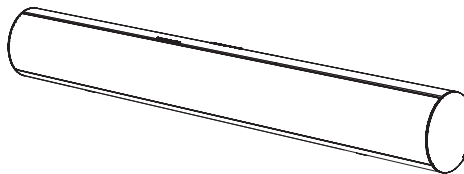
The SB 15CNTR soundbar contains the system's left and right speakers and stereo amplifiers, and features digital signal processing with virtual 3D surround circuitry that creates a complete surround-sound experience without any extra speakers or wires. You can set the soundbar on a table in front of your TV, and the system includes hardware that makes it easy to mount the soundbar on the wall along with your flat-panel TV. You can program the soundbar to respond to your TV remote's volume, power and source commands.

The SB15SUB subwoofer receives its signal from the SB 15CTR soundbar via wireless technology, so you can place it anywhere in your room without having to run any wires. Its 10-inch (250mm) woofer and built-in 100-watt amplifier deliver a movie's impact and excitement. Other conveniences include a volume control, a phase switch for fine-tuning bass response to suit your listening environment, and an efficient switching system that senses the presence of an audio signal and automatically switches the subwoofer on.

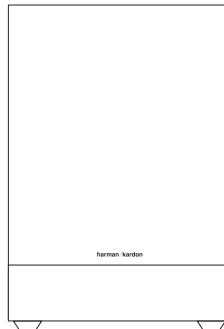
Harman Kardon invented the high-fidelity receiver more than 50 years ago. With state-of-the-art features and time-honored circuit designs, the SB 15/230 will turn your flat-screen TV into a fun and exciting home theater.

Included

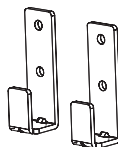
One SB 15CNTR soundbar speaker



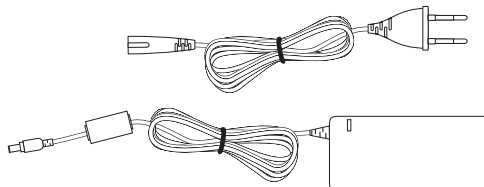
One SB 15SUB 10-inch (250mm) 100-watt wireless subwoofer



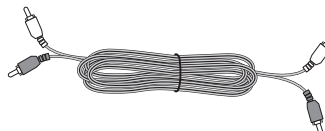
Two wall-mount brackets for the SB 15CNTR soundbar



One 24V DC power supply and AC power cord for the SB 15CNTR speaker



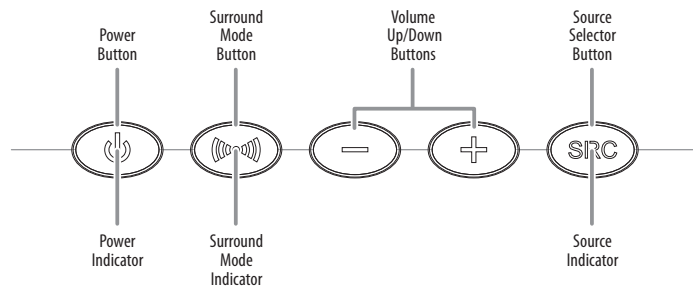
One 6.5-foot (2m) stereo audio cable



Important

If anything is missing, or if any part of your SB 15/230 system fails to operate properly, contact your dealer immediately.

Soundbar Top-Panel Controls



Power Button: When the soundbar is in the Standby mode (the Power Indicator is amber), press this button to turn the SB 15/230 system On. (The Power Indicator turns blue.) NOTE: When the soundbar is in the Standby mode, it will automatically turn On whenever it detects an audio signal at the Source 1 (analog) inputs.

When the SB 15/230 system is On:

- Momentarily press the Power button to mute the SB 15/230 system. (The Power Indicator flashes blue.)
- Hold down the Power button for three seconds to put the soundbar in the Standby mode. (The Power Indicator turns amber.) NOTE: The subwoofer will remain on for approximately 15 minutes after the audio signal ceases, then will automatically go into the Standby mode.

Surround Mode Button: This button turns the SB 15/230 system's 3D Surround processing On and Off. The **Surround Mode Indicator** turns blue when 3D Surround is active, and turns white when 3D Surround is not active (normal stereo sound). See *Soundbar Surround Mode Button*, on page 8, for more information.

Volume Up/Down Buttons: Press the (-) button to reduce the volume; press the (+) button to increase the volume.

Source Selector Button: This button switches between the sources connected to the Source 1 (analog) and Source 2 (digital) inputs. When Source 1 is active, the **Source Indicator** turns white; when Source 2 is active, the Source Indicator turns blue.

Soundbar Rear-Panel Controls and Connections

Wireless Code Switch: Selects between four different channels for the wireless subwoofer signal.

IMPORTANT: Be sure to set the subwoofer's Wireless Code switch to the same channel that you set the soundbar's Wireless Code switch. See *Wireless Code Switches*, on page 9, for more information.

EQ Switch: This switch adjusts the soundbar's bass for either wall or table mounting. If you're mounting the soundbar on a wall with the included wall-mount brackets, set this switch to the *Wall* position for the most natural-sounding bass performance. If you are placing the soundbar on a table, set the EQ switch to the *Table* position for the most natural-sounding bass performance.

Trim Switch: This switch adjusts the soundbar's input sensitivity so it will work with TVs that have different audio signal output levels. See *Soundbar Trim Switch*, on page 9, for more information.

Source 1 Connection (analog): Use the included stereo audio cable to connect the stereo analog outputs of your TV, DVD player or cable/satellite tuner here.

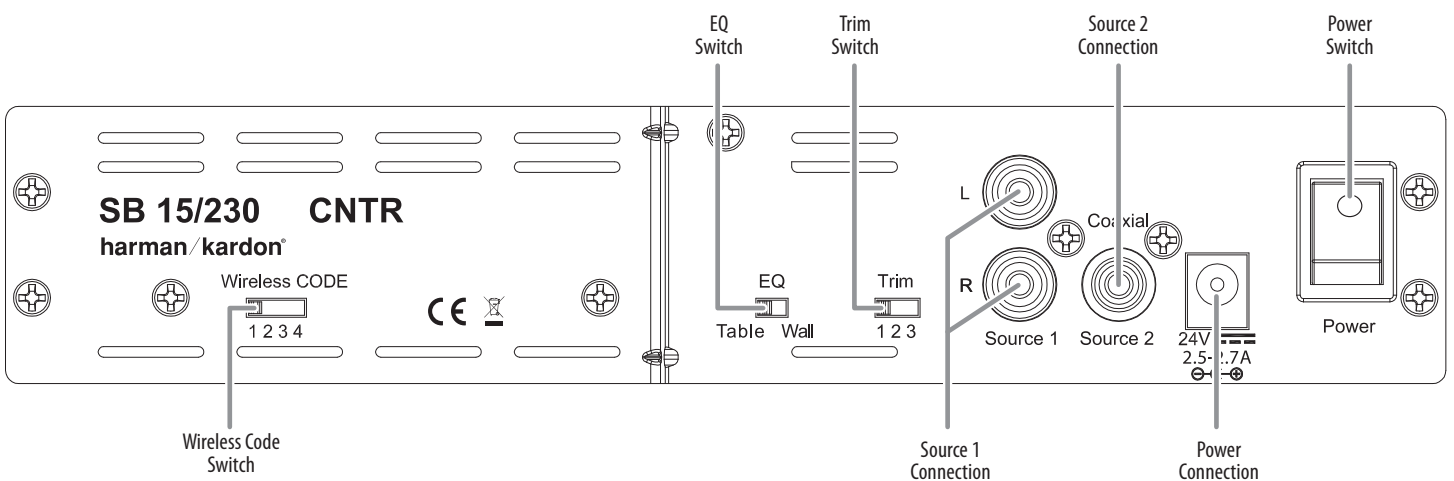
Source 2 Connection (digital): If your TV, DVD player or cable/satellite tuner has a coaxial digital output, you can connect it here.

NOTE: If you connect your TV or another component to the soundbar's Source 1 connection, you can connect a different component to the Source 2 connection.

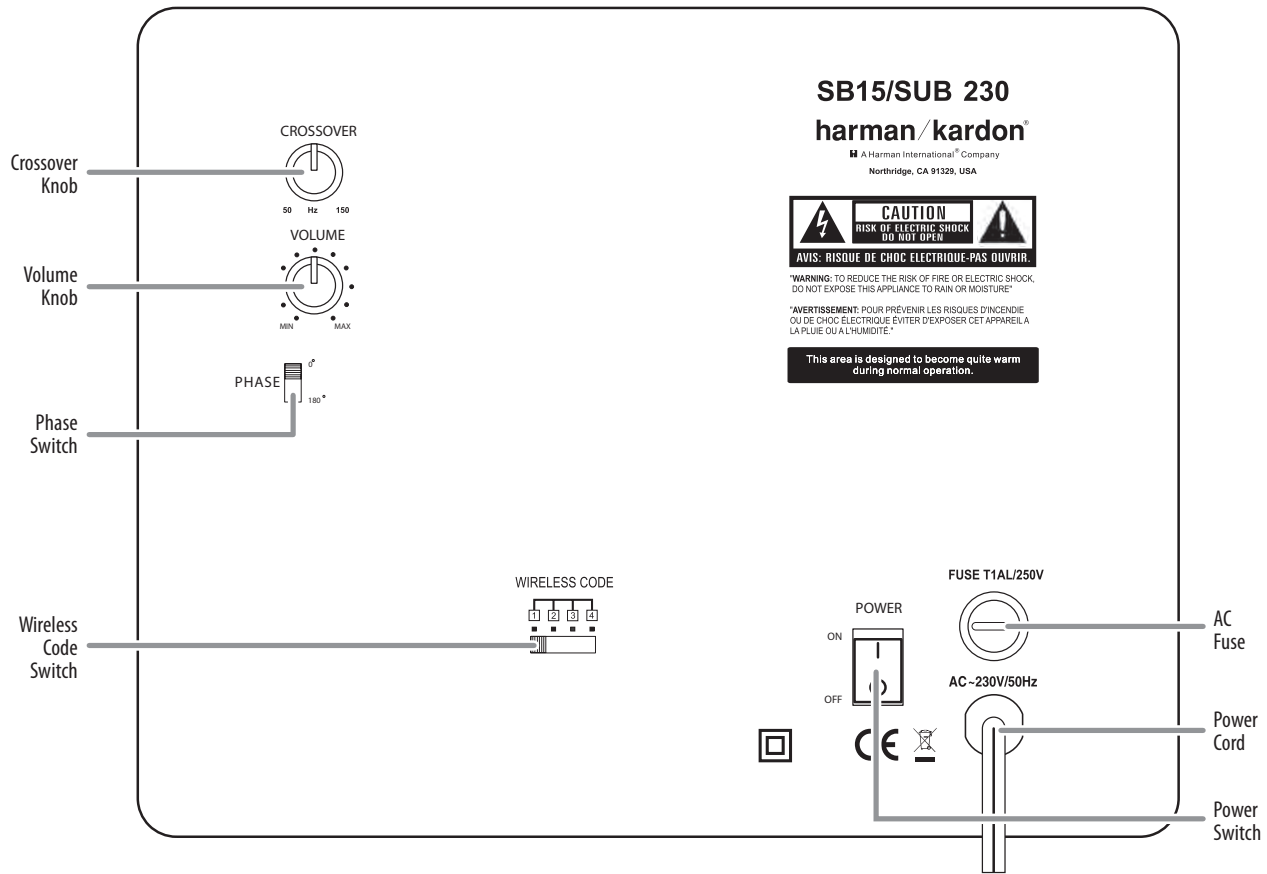
Power Connection: Connect the included DC power supply here. See *Power Connections*, on page 7, for more information.

IMPORTANT: Do not connect the power supply's AC cord to an AC outlet until you have made and verified all connections.

Power Switch: Set this switch to the On position (press the switch's white dot) to activate the soundbar. In normal operation, this switch will be left in the On position. See *Turning the Soundbar On and Off*, on page 8, for more information.



Subwoofer Rear-Panel Controls



Crossover Knob: This knob adjusts the subwoofer’s crossover between 50Hz and 150Hz. The higher you set the Crossover knob, the higher in frequency the subwoofer will operate and the more its bass will “overlap” that of the soundbar. This adjustment helps achieve a smooth transition of bass frequencies between the subwoofer and the soundbar for a variety of different rooms and subwoofer locations. See *Subwoofer Crossover Knob*, on page 9, for more information.

Volume Control: Use this control to balance the subwoofer’s volume with that of the soundbar. Turn the knob clockwise to increase the subwoofer’s volume; turn it counterclockwise to decrease the subwoofer’s volume.

Phase Switch: This switch determines whether the subwoofer driver’s piston-like action moves in and out in phase with the speakers in the soundbar. If the subwoofer were to play out of phase with the soundbar speakers, some of the sound waves produced by the subwoofer or soundbar could be canceled, reducing bass performance and sonic impact. This phenomenon depends in part on the relative placement of the speakers in the room. See *Subwoofer Phase Switch*, on page 9, for more information.

Wireless Code Switch: Selects between four different channels for the wireless subwoofer signal. **IMPORTANT:** Be sure to set the soundbar’s Wireless Code switch to the same channel as you set the subwoofer’s Wireless Code switch. See *Wireless Code Switches*, on page 9, for more information.

AC Fuse: The SB 15SUB is factory-equipped with a T1A1/250V 1A – 250V AC fuse. If the fuse ever blows:

1. Unplug the power cord from the wall.
2. Use a screwdriver to remove the blown fuse.
3. Replace the fuse with an identical T1A1/250V 1A – 250V AC fuse.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE, REPLACE THE FUSE ONLY WITH THE SAME TYPE AND RATING.

Power Cord: Plug this cord into an active, unswitched AC outlet. See *Power Connections*, on page 7, for more information.

Power Switch: Set this switch to the On position to activate the subwoofer. In normal operation, this switch will be left in the On position. See *Turning the Subwoofer On and Off*, on page 8, for more information.

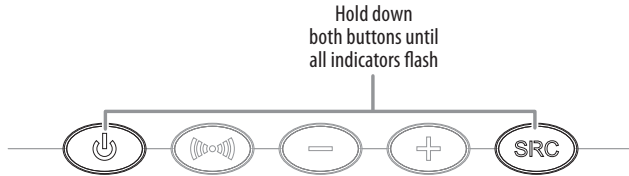
Status Indicator (on top of unit, not shown): Lights blue when the subwoofer’s power switch is in the On position; lights amber when the subwoofer is in Standby; turns off when the subwoofer’s Power switch is in the Off position.

Programming the Soundbar to Respond to Your TV Remote

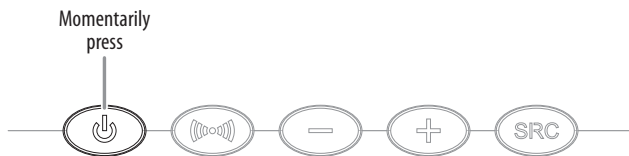
You can program the soundbar so it will respond to your TV remote's Power, Mute, Volume Up, Volume Down and Source commands. This lets you control your whole home theater system with a single remote. Before beginning to program the soundbar, have your TV remote handy. We recommend sitting down in front of the soundbar. The steps will time-out, so read through the entire procedure before you begin.

To program the power command:

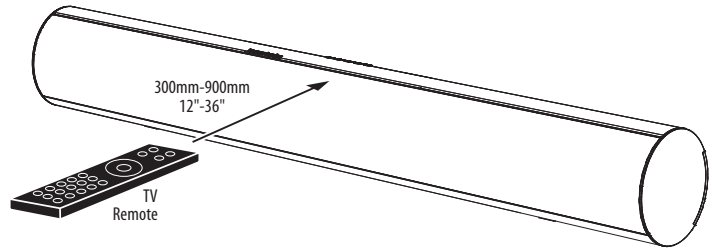
1. With the soundbar turned on, hold down the soundbar's Power and Source Selector (SRC) buttons together until all the soundbar button indicators flash. This enters the learning mode.



2. Momentarily press the soundbar's Power button. It will turn amber.



3. Aim the TV remote at the front of the soundbar from about 300mm-900mm (about 12-36 inches) away.



4. Hold down the TV remote's Power button for one second, then release it. Do this a total of four (4) times. When the soundbar has learned the power command, its Power Indicator will turn blue, and the Surround Mode and Source Selector Indicators will flash blue.

- If the Power Indicator flashes amber, the procedure failed. Repeat Steps 1 – 4.

To program the source, volume + and volume – commands:

Follow Steps 1–4 as above, but in Steps 2 and 4, substitute the soundbar and TV remote's Source Selector and Volume Up/Down buttons for the Power buttons.

To program the mute command:

Follow Steps 1-4 as above, but in Step 2, hold down the soundbar's Power button for 2-3 seconds. In step 4, substitute the TV remote's Mute button for its Power button.

To erase all remote programming:

Hold down the soundbar's Surround Mode and Volume Up buttons at the same time for 2-3 seconds.

Troubleshooting

If the soundbar does not turn on:

- Check that the soundbar power supply's AC cord is plugged into a working AC outlet, and that the power supply is plugged into the soundbar.
- Check that the soundbar's Power switch is in the On position.

If the subwoofer does not turn on:

- Check that the subwoofer's power cord is plugged into a working AC outlet.
- Check that the subwoofer's Power switch is in the On position.
- Check if the subwoofer's AC fuse has blown. See *Subwoofer Rear-Panel Controls: AC fuse*, on page 5, for instructions on checking and changing the fuse.

If there is no sound coming from both the soundbar and the subwoofer:

- Check that the soundbar is on (the Power Indicator is illuminated blue).
- Check that the cable connecting the TV or other source component to the soundbar is properly connected at both ends.
- Check that the soundbar's Source Selector is set to the correct source (the Source Indicator illuminates white for Source 1 – analog, and illuminates blue for Source 2 – digital), and that the source is playing an audio signal.
- Check that the system is not muted (when the system is muted, the soundbar's Power Indicator flashes blue). Momentarily press the Power button to un-mute the system.
- Check that the soundbar's volume is not turned all the way down (the lowest setting of the Volume Down button will mute the system).

If there is no sound coming from just the subwoofer:

- Check that the Subwoofer Volume Control is not turned all the way down (fully counterclockwise).
- Check that the Wireless Code switches on the subwoofer and soundbar are both set to the same setting number.
- Move the subwoofer closer to the soundbar. (The maximum wireless operation distance is 50 feet (15.3m).

If the soundbar's sound is distorted:

- Set the soundbar's Trim switch to a lower setting.
- Check the source component to see if the distortion is coming from it, and not the soundbar.

If the system's sound is too quiet, even when the soundbar's volume is turned all the way up:

- Set the soundbar's Trim switch to a higher setting.
- If the TV or source component is connected via a variable output, check its instructions to be sure that the output is not turned down too low.

The bass output is not loud enough:

- Turn up the subwoofer's Volume knob.
- Move the subwoofer into a corner of the room.
- Move the subwoofer closer to the seating location.

The soundbar won't learn your TV remote's commands:

- Carefully follow steps 1 – 4 of *Programming the Soundbar to Respond to Your TV Remote*, on page 9.
- Hold the TV remote 12 inches (300mm) in front of the soundbar during the learning procedure.
- Although the soundbar will learn commands from most TV remotes, there may be some IR codes that it cannot learn.

If you press your TV remote's Power button and the soundbar turns off when the TV turns on (or vice versa):

- Press the Power button on either the soundbar or the TV (but not both) one time. This will put them back in sync so they will turn on and off together when you press the TV remote's Power button.

Specifications

SB 15/230 System

Frequency Response
50Hz–20kHz

SB 15CNTR Soundbar

Input Rating
DC 24V, 2.5–2.7A

Amplifier Power
25 watts x 2

Tweeter
Two 3/4" domes (one per channel),
video-shielded

Midrange
Four 3" drivers (two per channel), video-
shielded

Dimensions (H x W x D)
110mm x 920mm x 89mm
(4-5/16" x 36-1/4" x 3-1/2")

Weight
8 lb (3.6kg)

SB 15SUB Subwoofer

Input rating:
AC 230V, 50Hz, 100W

Amplifier Power
100 watts RMS

Woofers
10" cone, vented enclosure

Dimensions (H x W x D)
480mm x 380mm x 380mm
(18-7/8" x 13-3/8" x 13-3/8")

Weight
34 lb (15.4kg)

H Harman International

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www.harmankardon.com

Made in China

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Part No. 406-000-06124-E

NEW SECTION FOR THE SB 15 OWNER’S MANUAL.

SB 15/230 How to Switch the system on:

Manually:

If the SB 15/230 is manually put into Standby on the ON/OFF Button on the SB 15 unit itself, it can only be switched back ON by manually pressing the ON/OFF button again.

Auto Turn on:

The SB 15/230 automatically enters Standby-mode after approx. 15 minutes if no audio signal is detected. This can also be forced by learning (for example) the TV set’s remote control “Off” code into the SB 15/230 (See owner’s manual).

Due to Power saving regulations, the SB 15 does not “listen” to the Audio Inputs, unless it senses a remote signal first, which can be any kind of remote signal (it does not have to be a learned remote code - turning ON the TV or sending any other infrared remote code will be enough). The remote signal will tell the SB 15/230 to start up automatically as soon as audio is detected on (first) the Digital or (second) the Analog audio Input. If no signal is detected by the Inputs, the SB 15 will go back into total Standby again after approx 15 minutes.

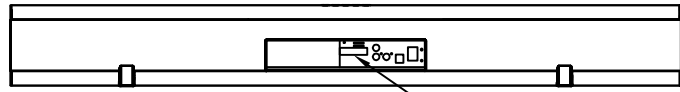
MATRIX OF ON/OFF FUNCTIONS.

Power OFF function	SB 15 Status	Way to Power On	Comment
Manual Power Off Button on SB 15 unit	Music sense OFF. Remote sense OFF.	Manual Power On Button only!	Remote sense is OFF to avoid unit powering ON.
Auto Standby (Automatic if audio is Off or not present for more than 15 min)	Music sense OFF, Remote sense ON.	SB 15 switches music sense ON by IR signal, then powers ON 5-10secs after music is sensed on either (first) digital or (second) analog Inputs. Or press SB 15 manual Power button.	IR Activity from any remote (TV/SAT/VCR/DVD/...) sensed by the SB 15 switches the music sense ON. There is no need to learn any remote code to do this.
By remote control (usually TV Remote, but any remote will do).	Music sense OFF, Remote sense ON.	SB 15 switches music sense ON by IR signal, then powers ON 5-10secs after music is sensed on either (first) digital or (second) analog Inputs. Or press SB 15 manual Power button.	IR Activity from any remote (TV/SAT/VCR/DVD/...) sensed by the SB 15 switches the music sense ON. There is no need to learn any remote code to do this.

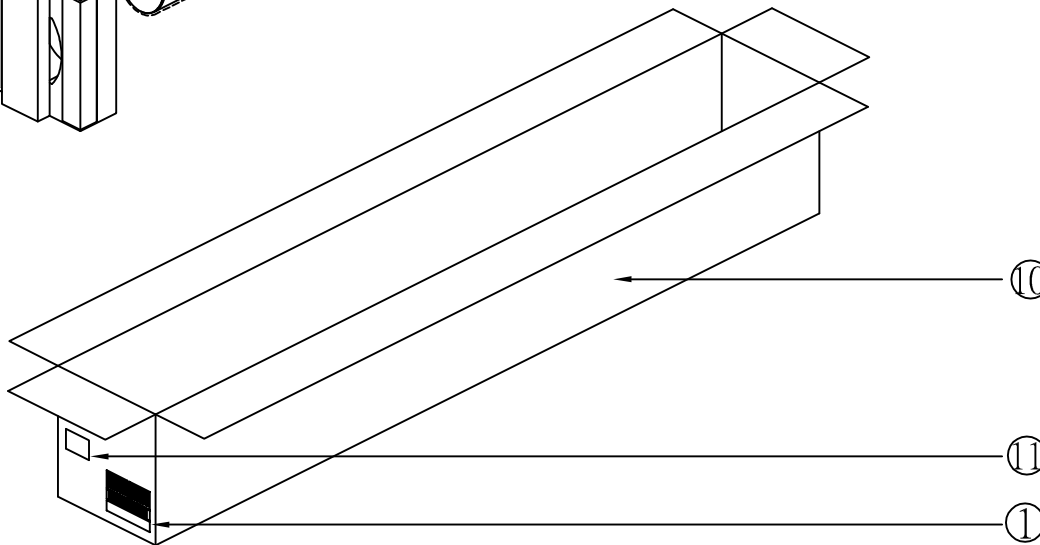
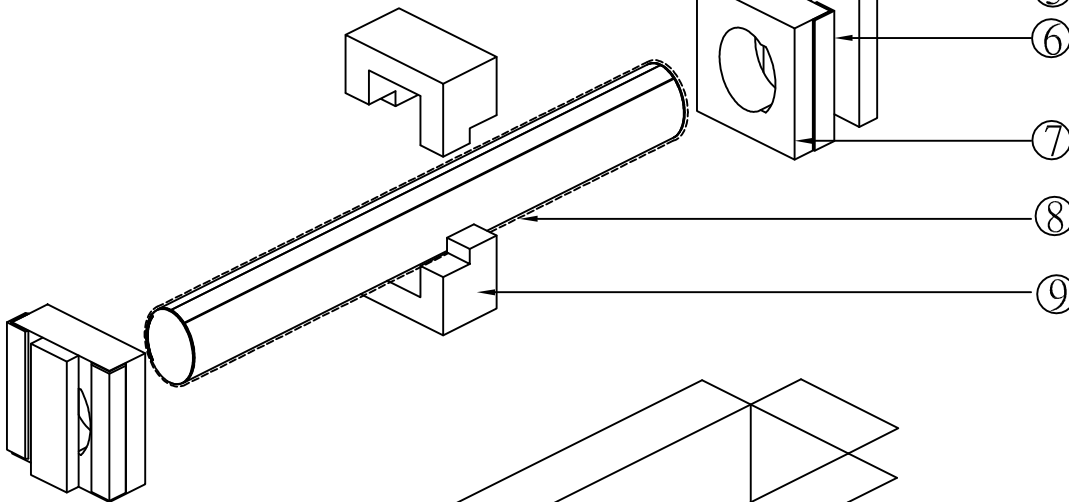
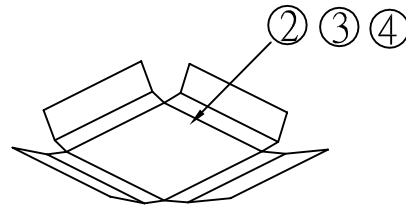
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	✓	✓	NO. 1	REV. 0	MODEL: SB 15CNTR/230

1	Serial label	411-000-08483-E	1.0
2	Power adapter	151-E1105301-E	1.0
3	Signal cable	165-020001101-E	1.0
4	Accessory bag	376-000-01249-0BAE	1.0
5	Paper frame	403-000-05796-E	1.0
6	Edge boards	435-000-05196-E	4.0
7	EPE	431-000-07021-E	2.0
8	Pearl-cottn bag	430-002-05391-E	1.0
9	EPE	431-000-07026-E	2.0
10	Gift Box	402-000-06333-E	1.0
11	Coo label	413-000-06384-E	1.0
ITEM	NAME	PART NO.	QTY

SOUNDBAR REAR VIEW

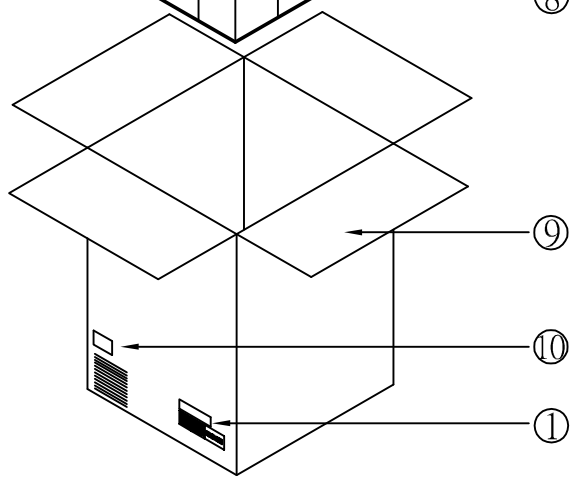
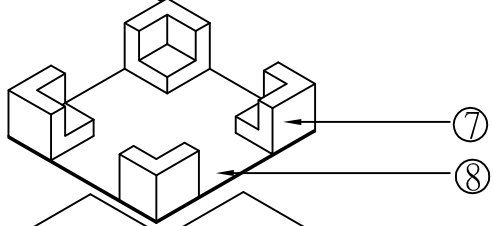
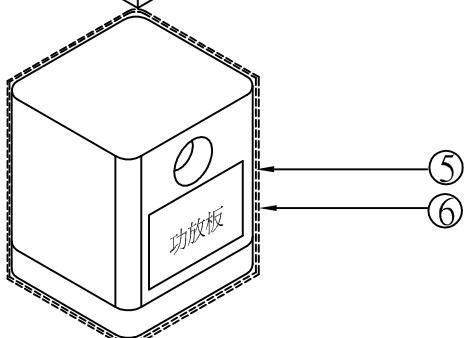
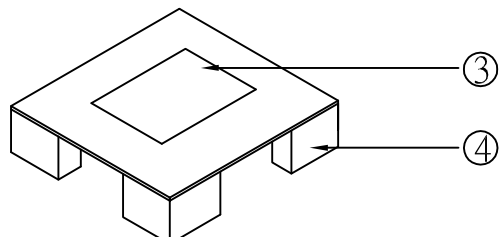
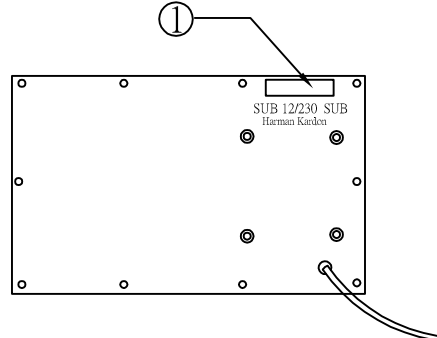
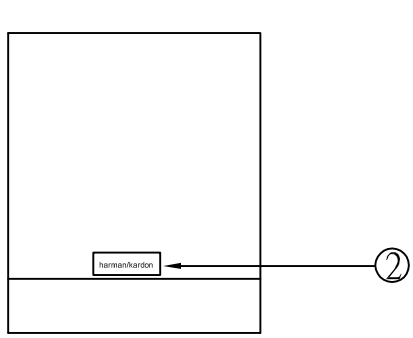


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	Apvd. By	Engineer	Check. By	Dsgn. By

QC	MAKER	PACKAGE GUIDE		HARMAN-KARDON
✓	✓	NO. 1	REV. 0	MODEL: SB 15SUB/230



1	Serial label	411-000-08482-E	1.0
2	Coo label	413-000-05591-E	1.0
3	O/M	406-000-06124-E	1.0
4	EPE+PAPER	431-000-07022-E	1.0
5	Non-woven cloth	283-001-05105-0WAE	1.0
6	PO Bag	424-000-00185-E	1.0
7	EPE+PAPER	431-000-07023-E	1.0
8	Drier	398-000-00304-E	1.0
9	Gift Box	402-000-06334-E	1.0
10	Coo label	413-000-06384-E	1.0
ITEM	NAME	PART NO.	Q'TY

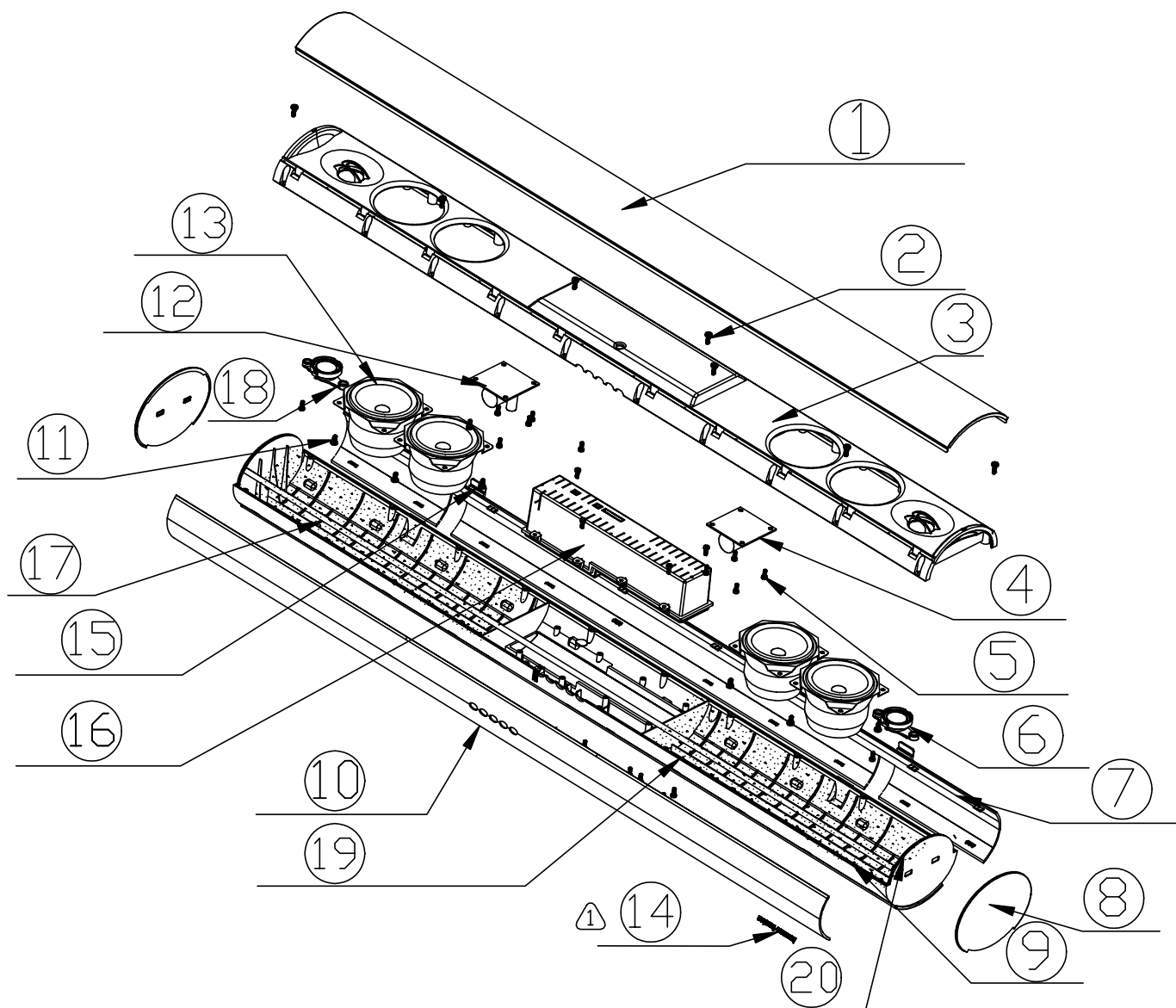
		Apvd. By	Engineer	Check. By	Dsgn. By

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SB 15CNTR/230



				(12)	Crossover	013-7600-05766-E	1
				(11)	Screw for woofer	352-AM04008C1334-E	16
				(10)	Top panel	315-ABS-05230-0BAE	1
				(9)	Rear Enclosure	247-030-05099-0BAE	1
				(8)	Side Cap	305-ABS-05037-0BAE	2
				(7)	Bottom panel	315-ABS-05231-0BAE	1
	(20)	Gasket	214-000-05409-0BAE	4			
	(19)	Gasket	214-000-05408-0BAE	4			
	(18)	Gasket	398-ABS-05062-E	2			
	(17)	Insulation foam	328-000-05855-0WAE	2			
	(16)	Amplifier	010-0N25-05265-E	1			
	(15)	Foot	320-NBR-05214-0BAE	2			
	(14)	LOGO	316-AG-00556-0VAE	1			
	(13)	Woofer	32PF55JZP-PW02-E	4			
				(6)	Tweeter	32DM20AX-HT03-E	2
				(5)	Screw for crossover	352-AM03008C1086-E	22
				(4)	Crossover	013-7600-05766-1E	1
				(3)	Baffle	243-030-05259-0BAE	1
				(2)	Screw for Amplifier	352-AM03510D112-E	20
				(1)	Grille	329-030-05464-0BAE	1

DISASSEMBLY OF THE SB 15 SOUNDBAR UNIT:

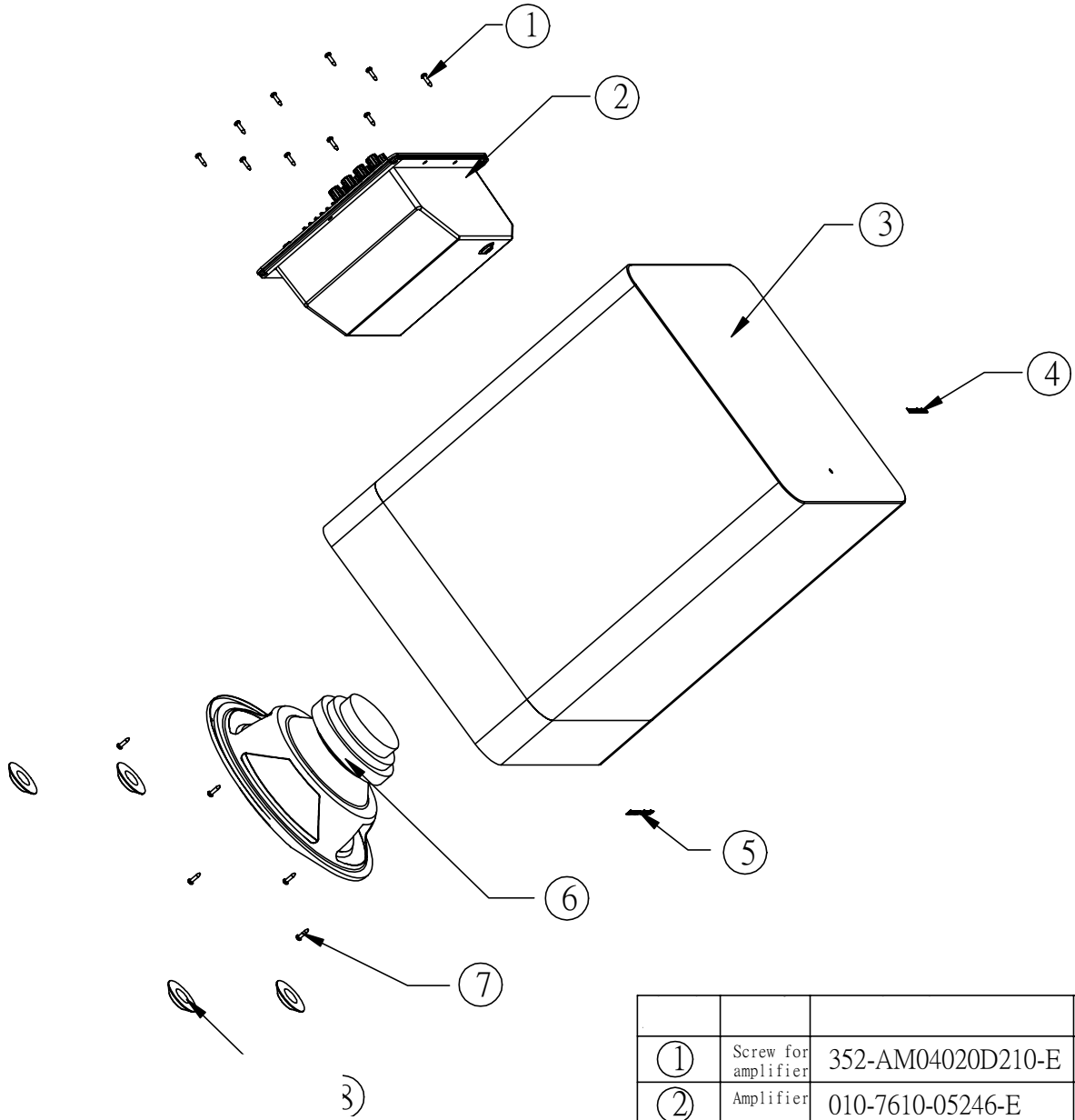
- 1 - Take out the plastic end caps of the Sound-bar.
 - 2 - Remove the 2 glossy plastic panels carefully
 - 3 - Unscrew the 2 halves of the plastic housing (16-20 screws)
 - 4 - gently pull apart the 2 halves of the Sound-bar speaker.
- Re-assemble in reverse order...

2009/12/03

0

1

SB 15 SUB/230



①	Screw for amplifier	352-AM04020D210-E	10
②	Amplifier	010-7610-05246-E	1
③	Wood Cabinet	241-100-00613-2BCE	1
④	Logo	316-AG-00557-E	1
⑤	Logo for grille	316-AL-00553-E	1
⑥	Woofer	25PF12DZB-FW01-E	1
⑦	Screw for woofer	352-FM04020D605-E	5
⑧	Rubber Foot	320-RUB-00057-0BAE	4

△						
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ISSUE	REVISIONS	DATE	NAME			2009/12/03

Harman/Kardon SB15 Soundbar with wireless subwoofer. System Parts list.

SB15 Center

Part Number	Part Description
013-7600-05766-1E	Crossover
352-AM03008C1086-E	Screw for Crossover
32DM20AX-HT03-E	Tweeter
315-ABS-05231-0BAE	Bottom Panel
305-ABS-05037-0BAE	Side Cap
247-030-05099-0BAE	Rear Enclosure
315-ABS-05230-0BAE	Top Panel
352-AM04008C1334-E	Screw for woofer to rear enclosure
013-7600-05766-E	Crossover
32PF55JZP-PW02-E	Woofer
316-AG-00556-0VAE	LOGO
320-NBR-05214-0BAE	Rubber Foot
010-0N25-05265-E	Amplifier
328-000-05855-0WAE	Insulation foam
243-030-05259-0BAE	Baffle
329-030-05464-0BAE	Grill

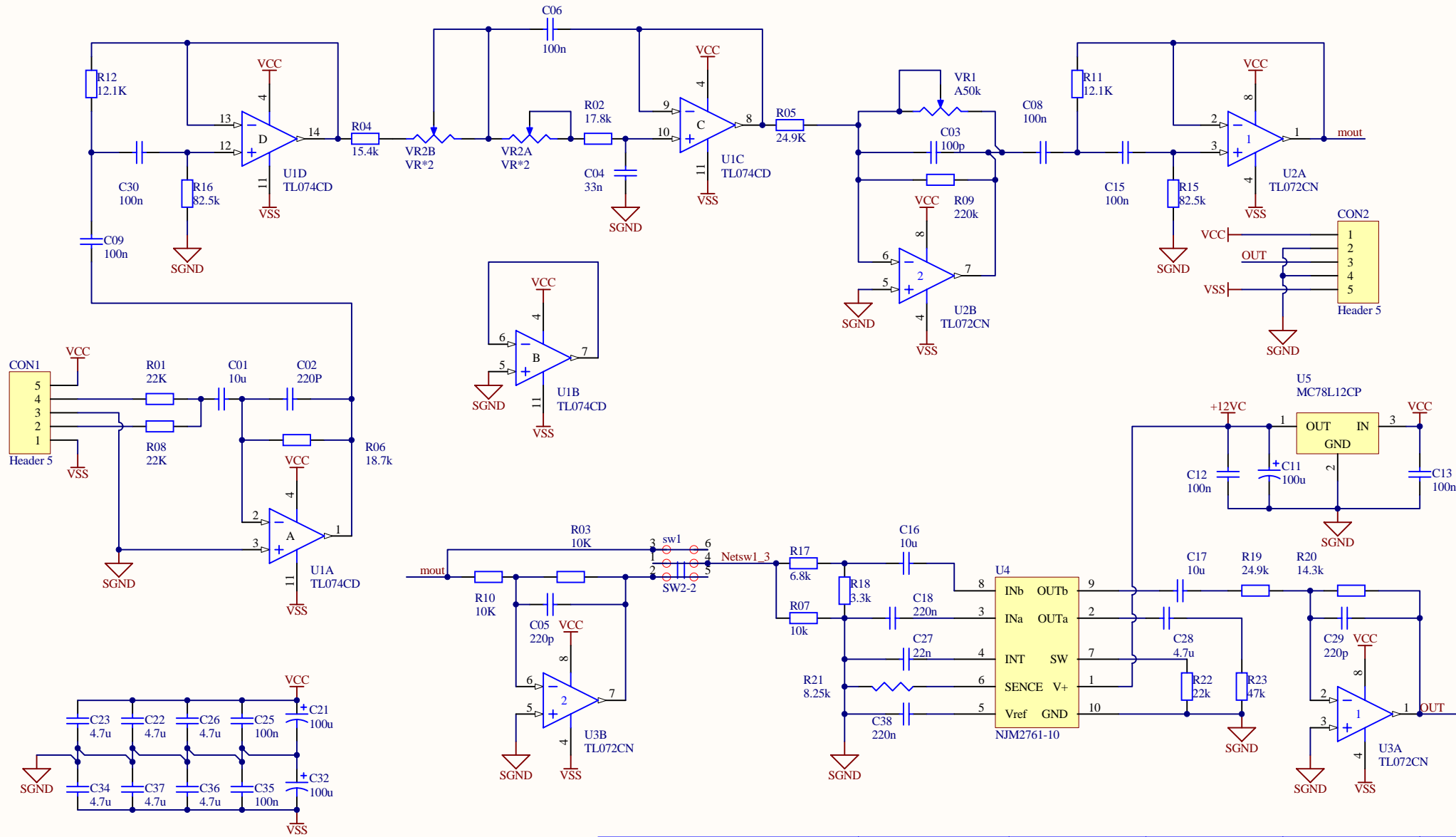
SB15 Sub

Part Number	Part Description
352-AM04020D210-E	Screw for Subwoofer
010-7610-05246-E	Amplifier SB15/230 SUB
241-100-00613-2BCE	Wood Cabinet
316-AG-00557-E	Harman Kardon Logo for the Sub top board
316-AL-00553-E	Logo for grille
25PF12DZB-FW01-E	10" Subwoofer
352-FM04020D605-E	Screw for woofer to wood cabinet
320-RUB-00057-0BAE	Rubber pad for subwoofer cabinet
051-A05264D-E	STANDBY POWER PCB ASSY SB15 SUB
051-A05264C-E	WIRELESS PCB ASSY SB15 SUB
051-A05264B-E	DIGITAL POWER AMP PCB SB15 SUB
051-A05264A-E	PREAMP PCB ASSY SB15 SUB
302-FE-05275-0BAE	Subwoofer Amplifier panel
150-E0764201-E	Transformer
152-V60202603-E	Power Cord
154-V09006T0-E	Fuse
155-520020-E	Fuse holder
162-50652003-E	Speaker Wire
180-P3024DB-E	Power Rock Switch
306-ABS-05082-0BAE	Rear Enclosure
323-AL-05184-0LAE	Aluminum heat sink
335-NYL-00002-0BAE	Power Cord Strain Relief
311-ABS-00028-0BAE	Knob

Accessories and package

Part Number	Part Description
151-E1105301-E	Power adapter
165-020001101-E	Signal cable for Ext. Trigger input jack
376-000-01249-0BAE	L brackets (2pcs) Accessory bag for Soundbar
403-000-05796-E	Accessory box for Soundbar
435-000-05196-E	Protective boards for Soundbar

431-000-07021-E	EPE for Soundbar carton end
430-002-05391-E	Pearl-cotton bag for Soundbar
431-000-07026-E	EPE for Soundbar mid-carton
402-000-06333-E	Gift Box for Soundbar Cntr
406-000-06124-E	Owner Manual
431-000-07022-E	EPE Material for Subwoofer (top)
283-001-05105-0WAE	Non-woven cloth bag
424-000-00185-E	PO bag
431-000-07023-E	EPE Material for Subwoofer (bottom)
398-000-00304-E	Drier
402-000-06334-E	Gift Box for SB15 Sub/230



CUSTOMER:JBL	APPROVED	CHECKED	CHECKED	PREPARED	REV
MODEL:SB 15SUB/230					1.0
BOARD: PERAMP					
DETA:SEP.01.2009					
PAGE	2/5				

A

B

C

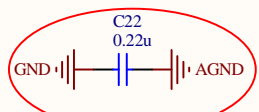
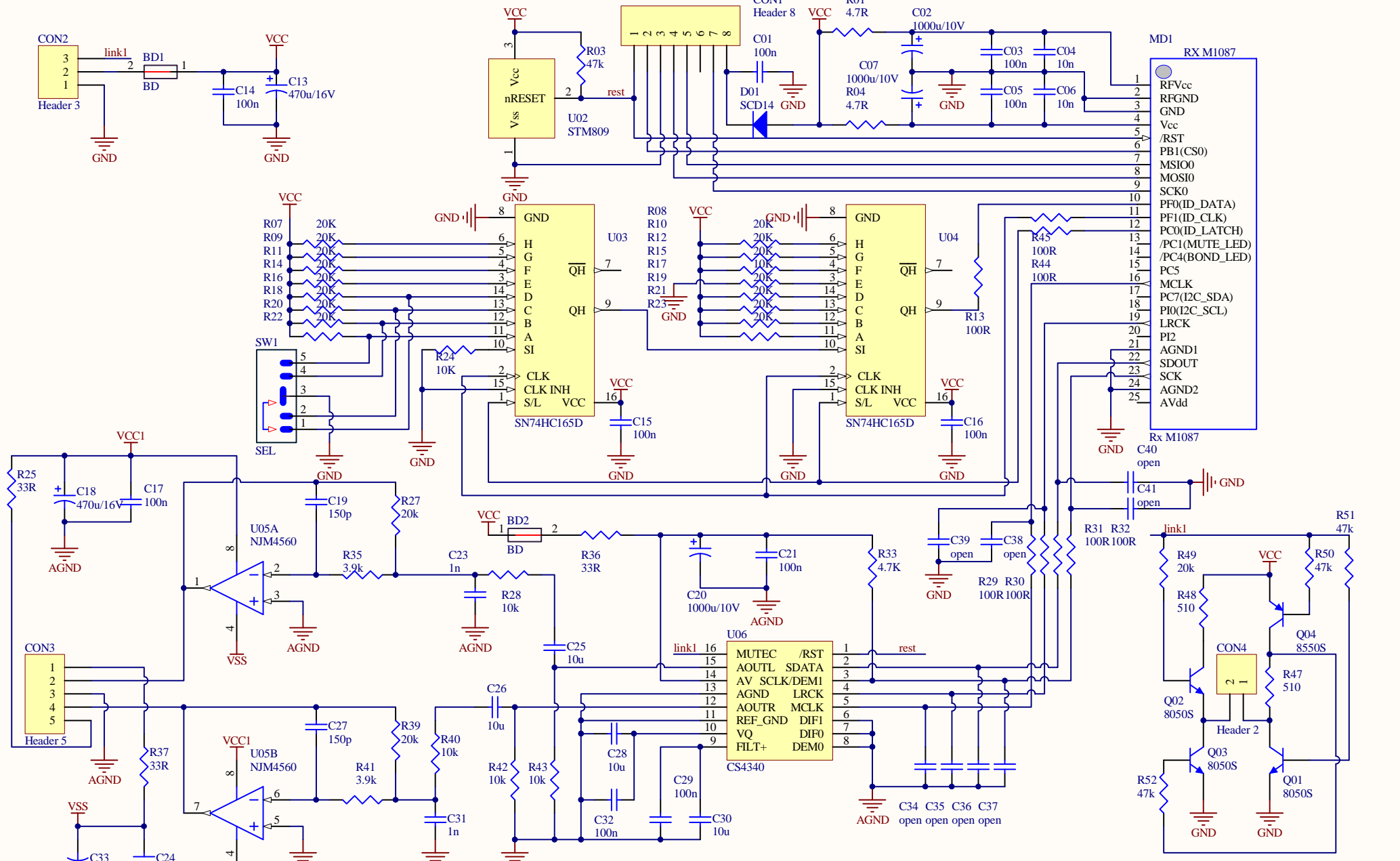
D

A

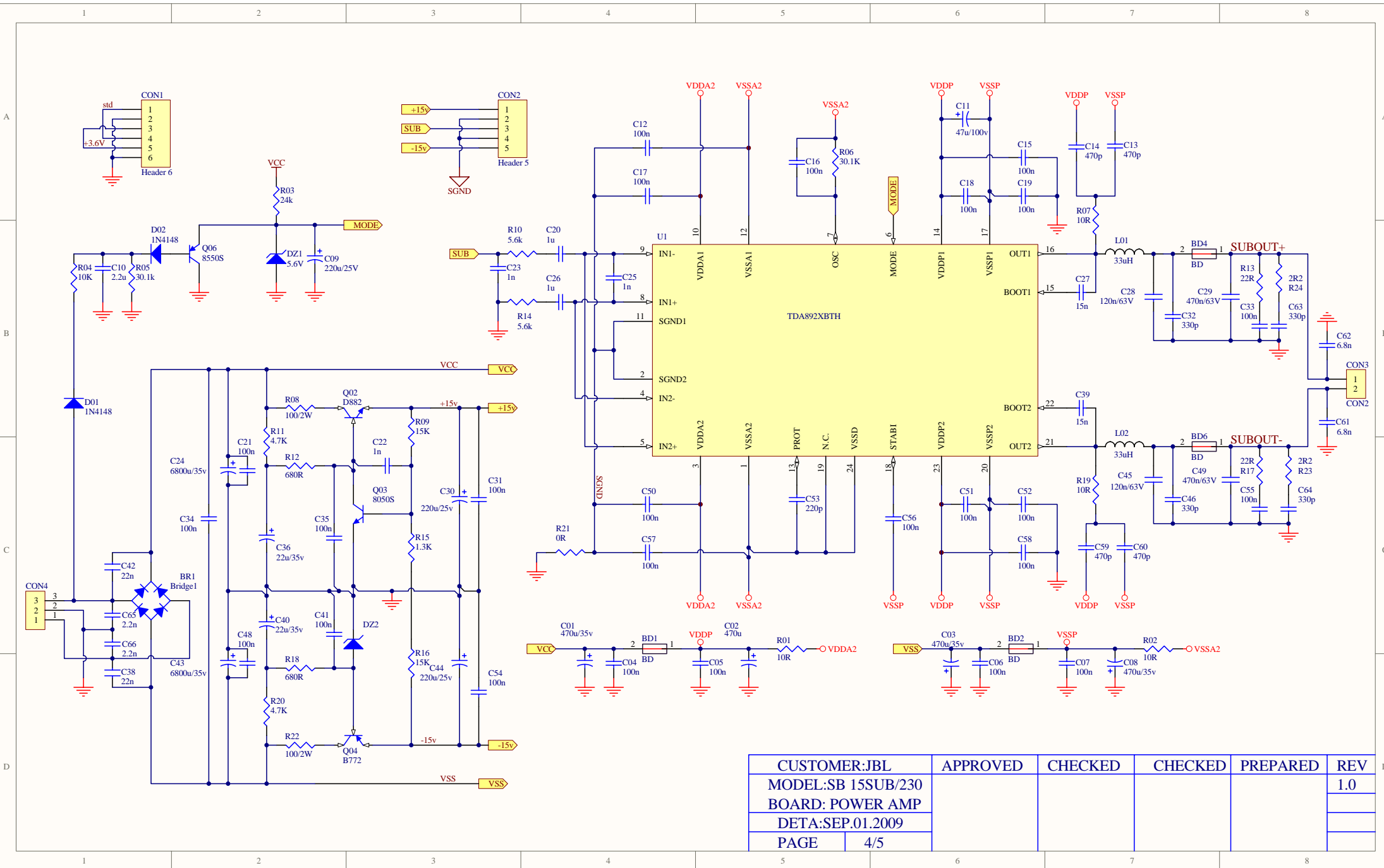
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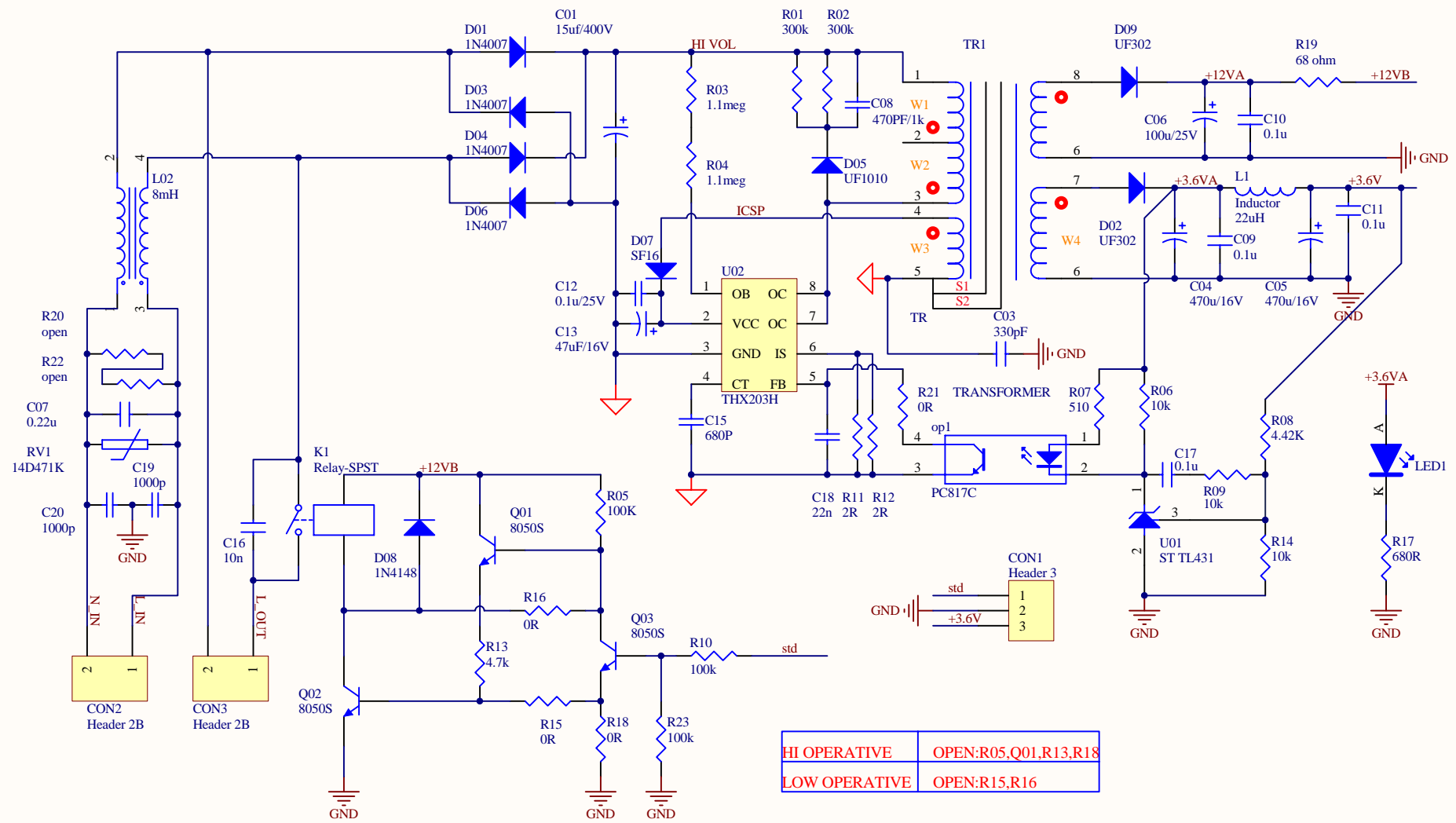
D



CUSTOMER:JBL	APPROVED	CHECKED	CHECKED	PREPARED	REV
MODEL:SB 15SUB/230					1.0
BOARD: WIRELESS					
DETA:SEP.01.2009					
PAGE	3/5				



CUSTOMER:JBL	APPROVED	CHECKED	CHECKED	PREPARED	REV
MODEL:SB 15SUB/230					1.0
BOARD: POWER AMP					
DETA:SEP.01.2009					
PAGE	4/5				

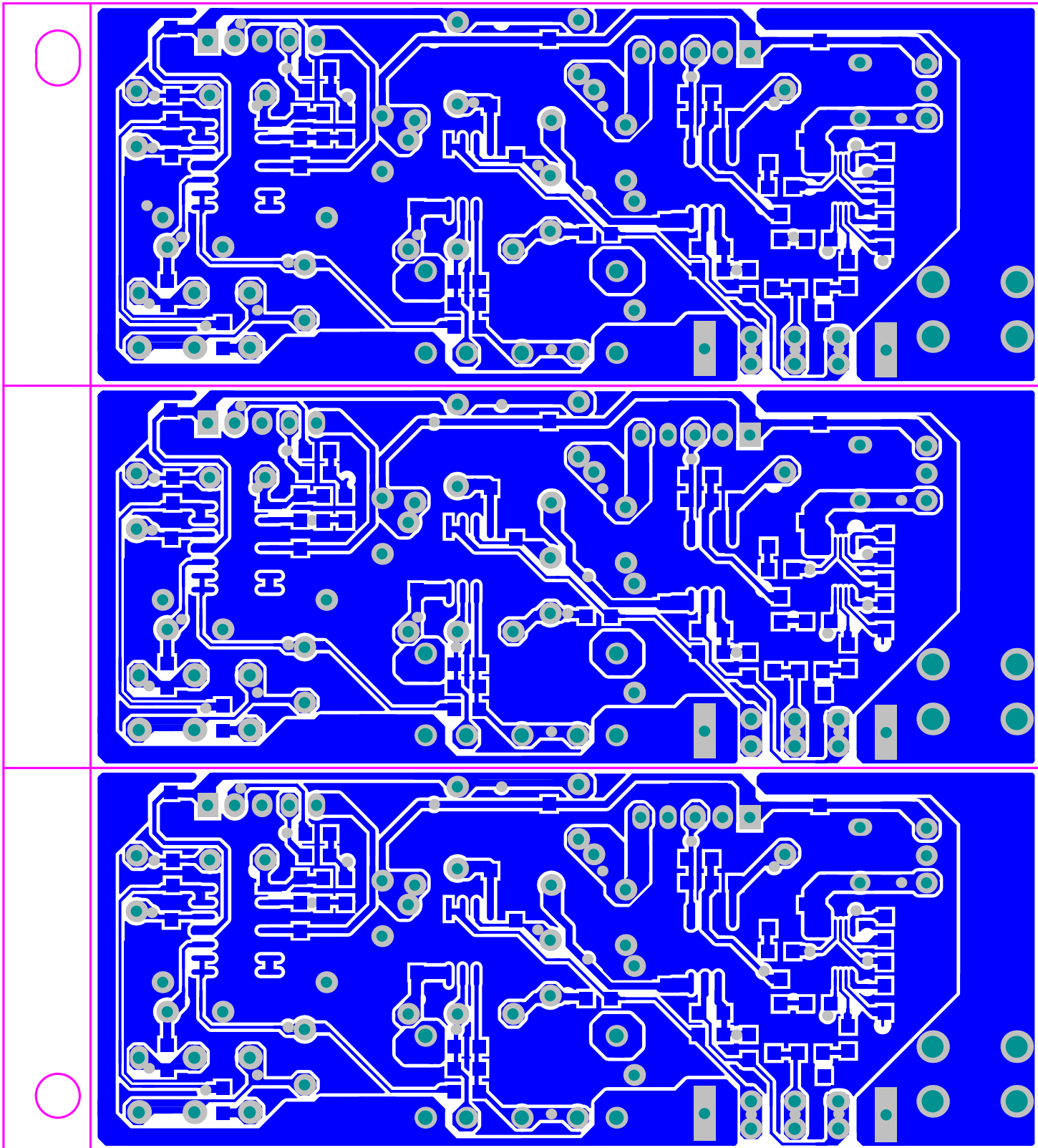


HI OPERATIVE	OPEN:R05,Q01,R13,R18
LOW OPERATIVE	OPEN:R15,R16

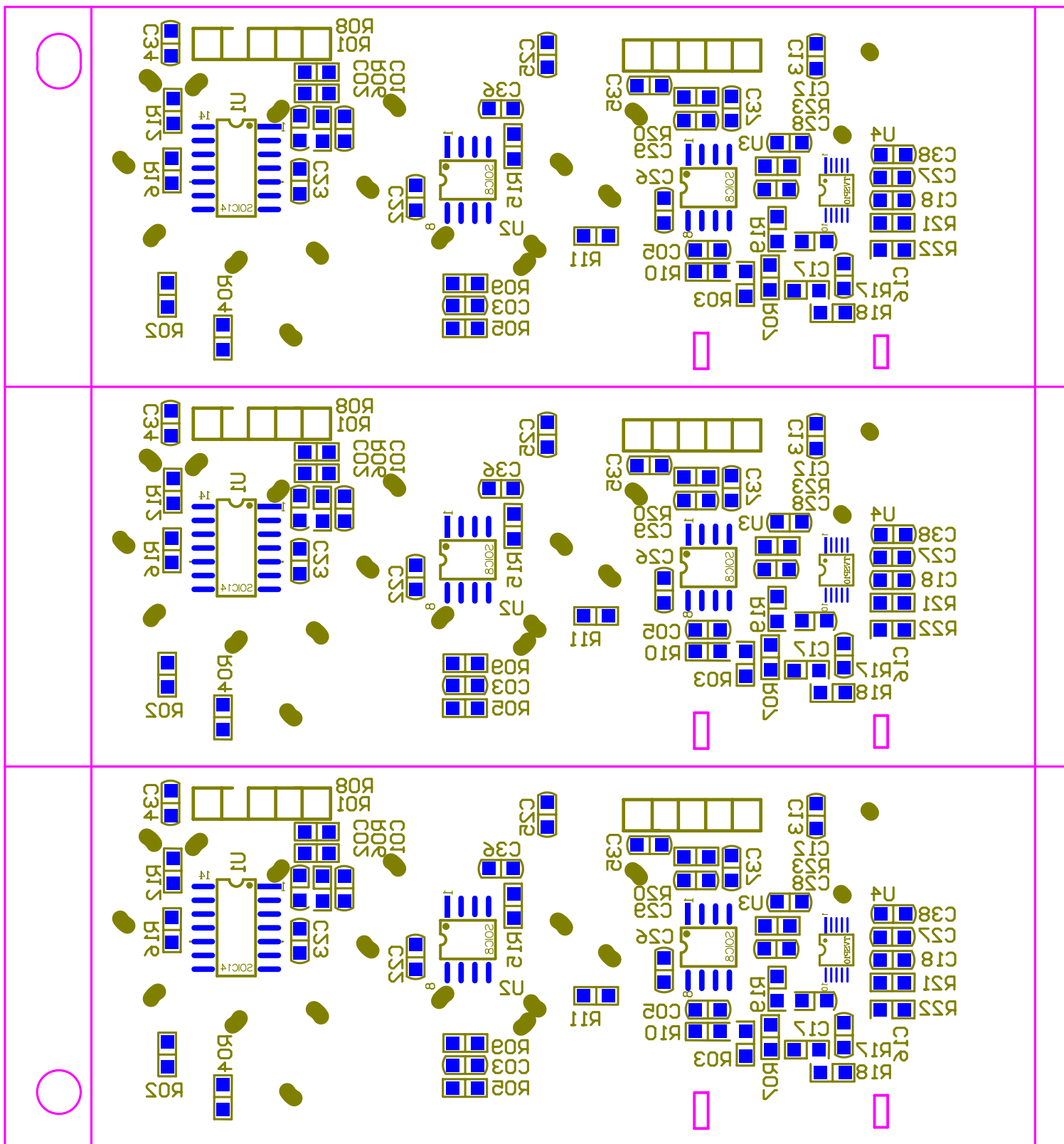
CUSTOMER:JBL	APPROVED	CHECKED	CHECKED	PREPARED	REV
MODEL:SB 15SUB/230					1.0
BOARD: STANDBY POWER					
DETA:SEP.01.2009					
PAGE	5/5				

98 (mm)

105 (mm)

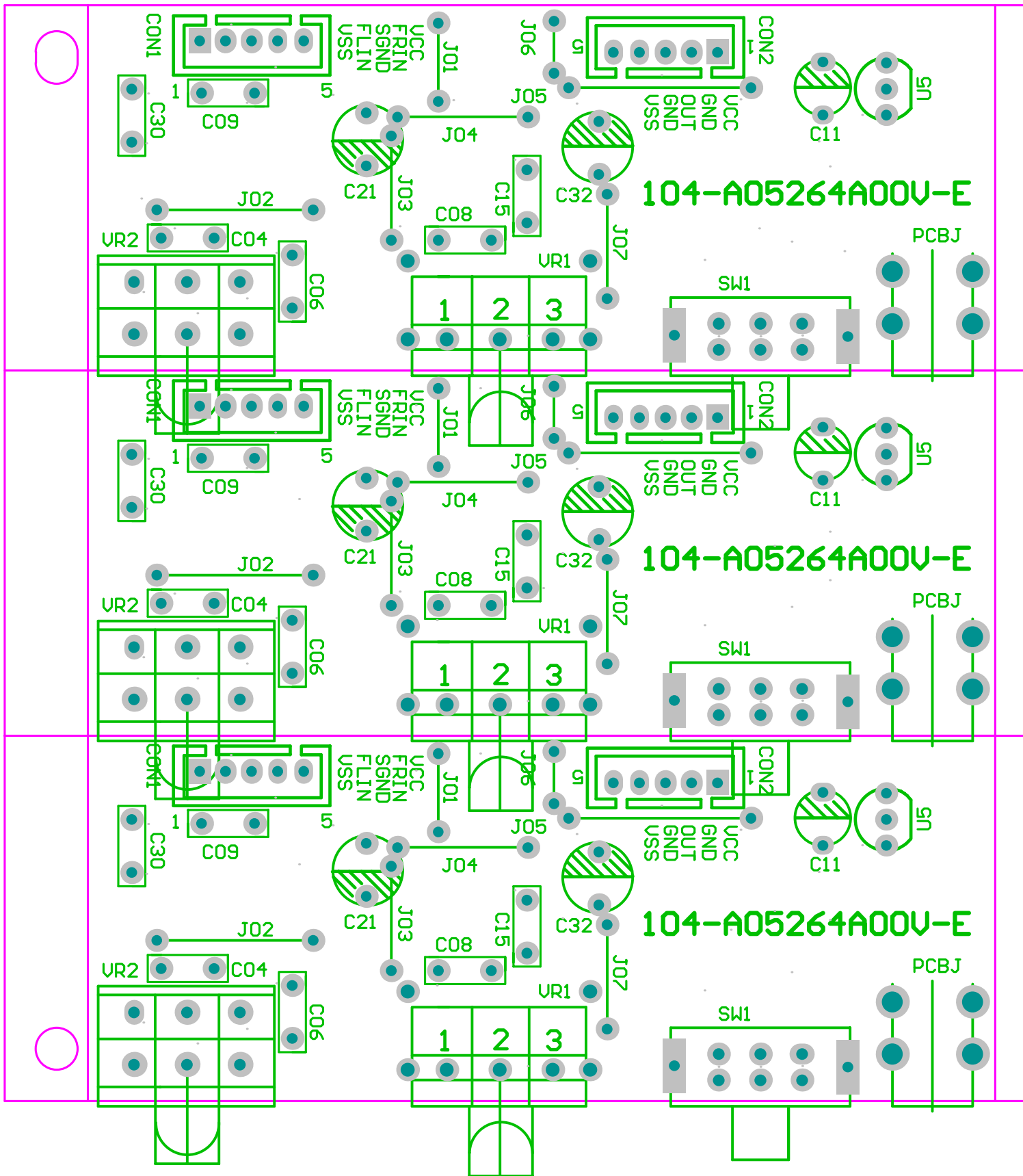


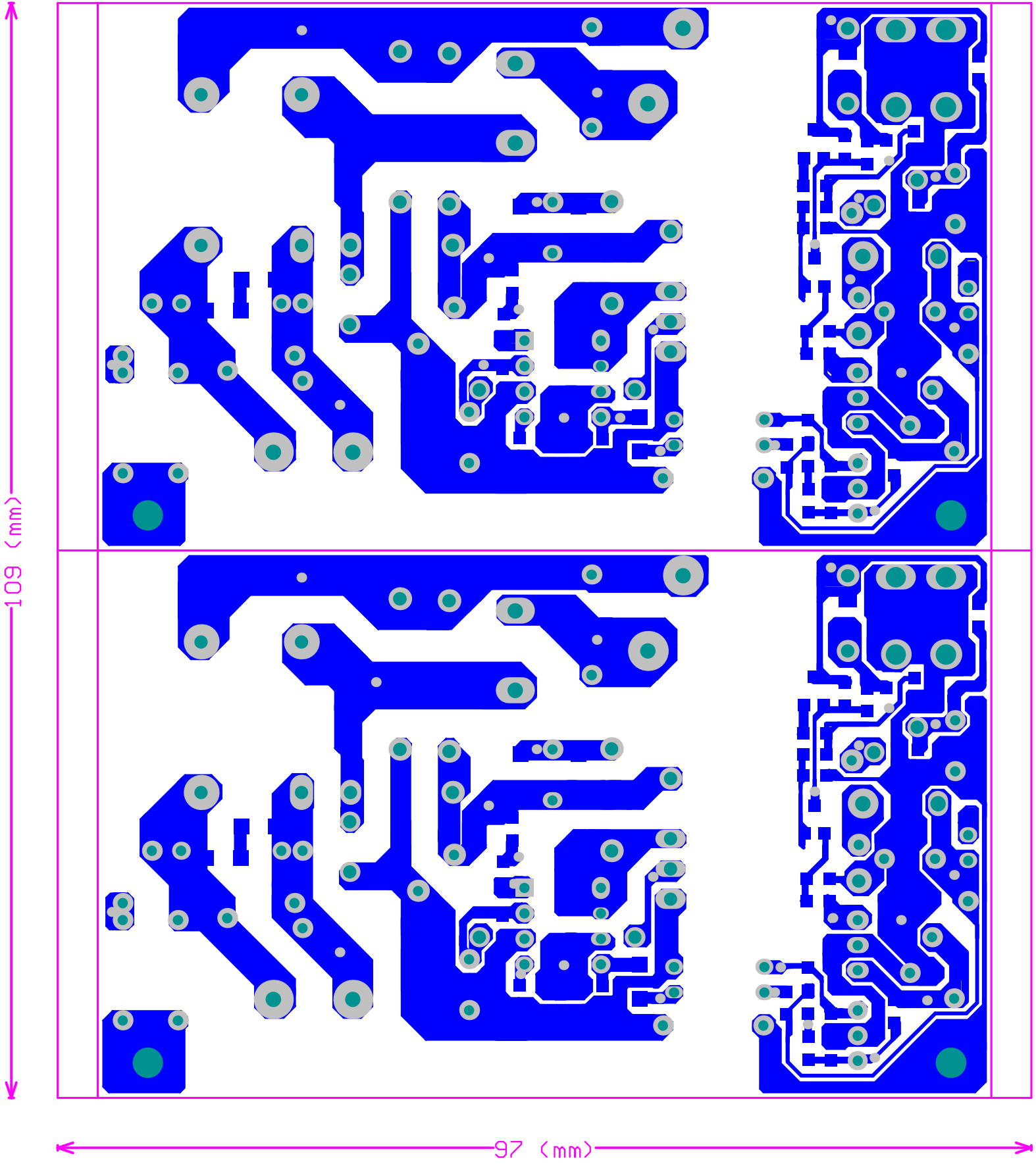
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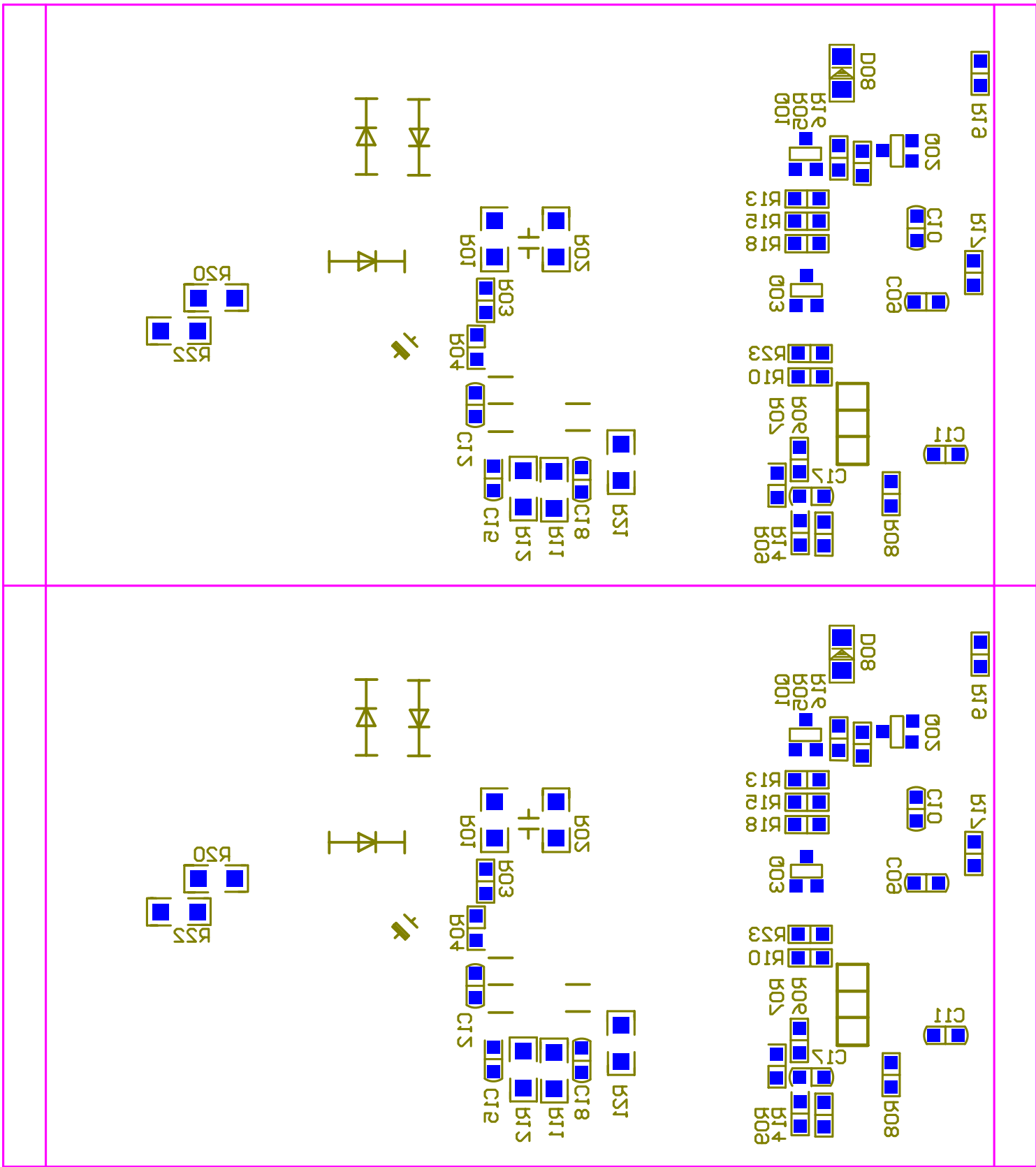


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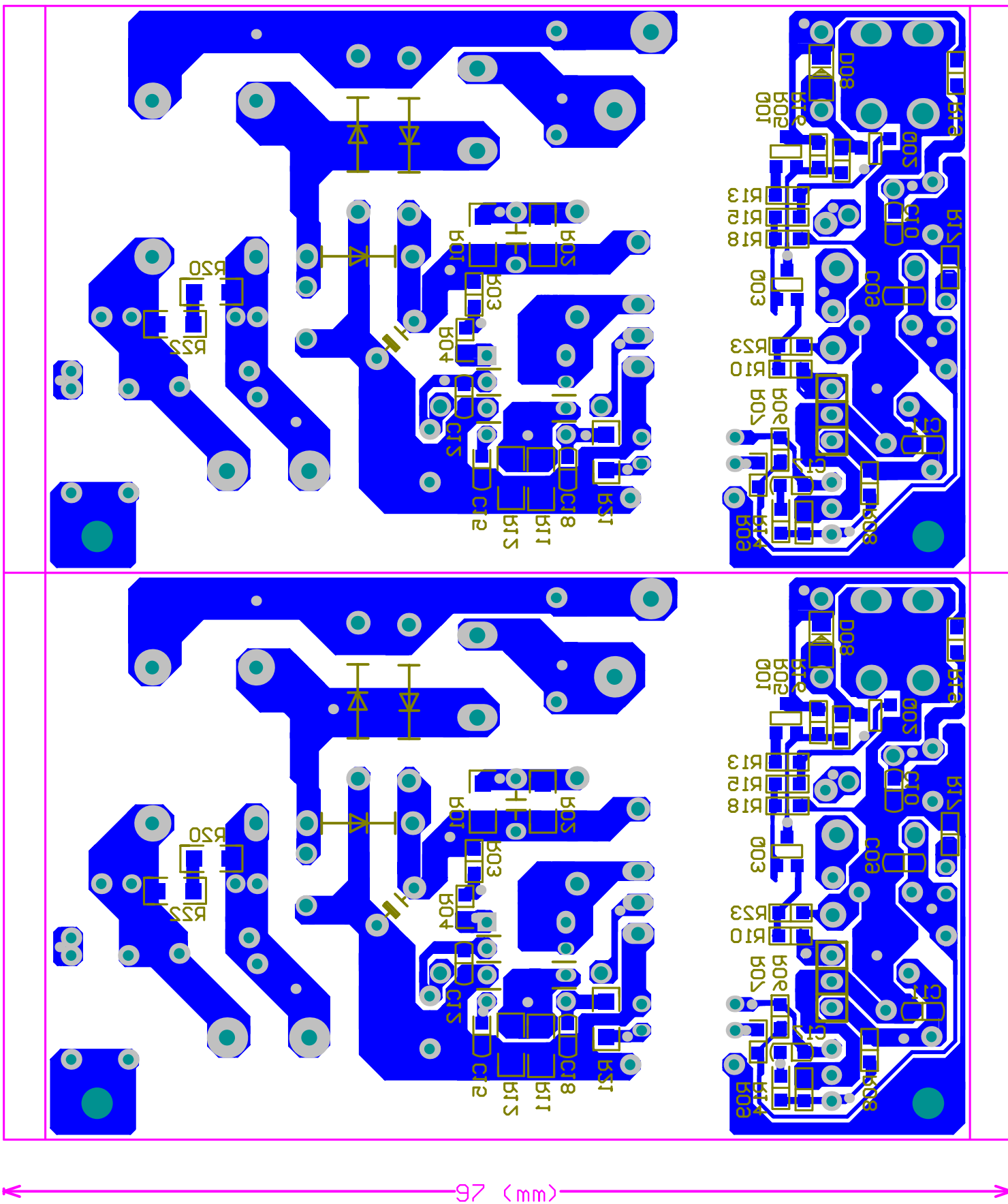
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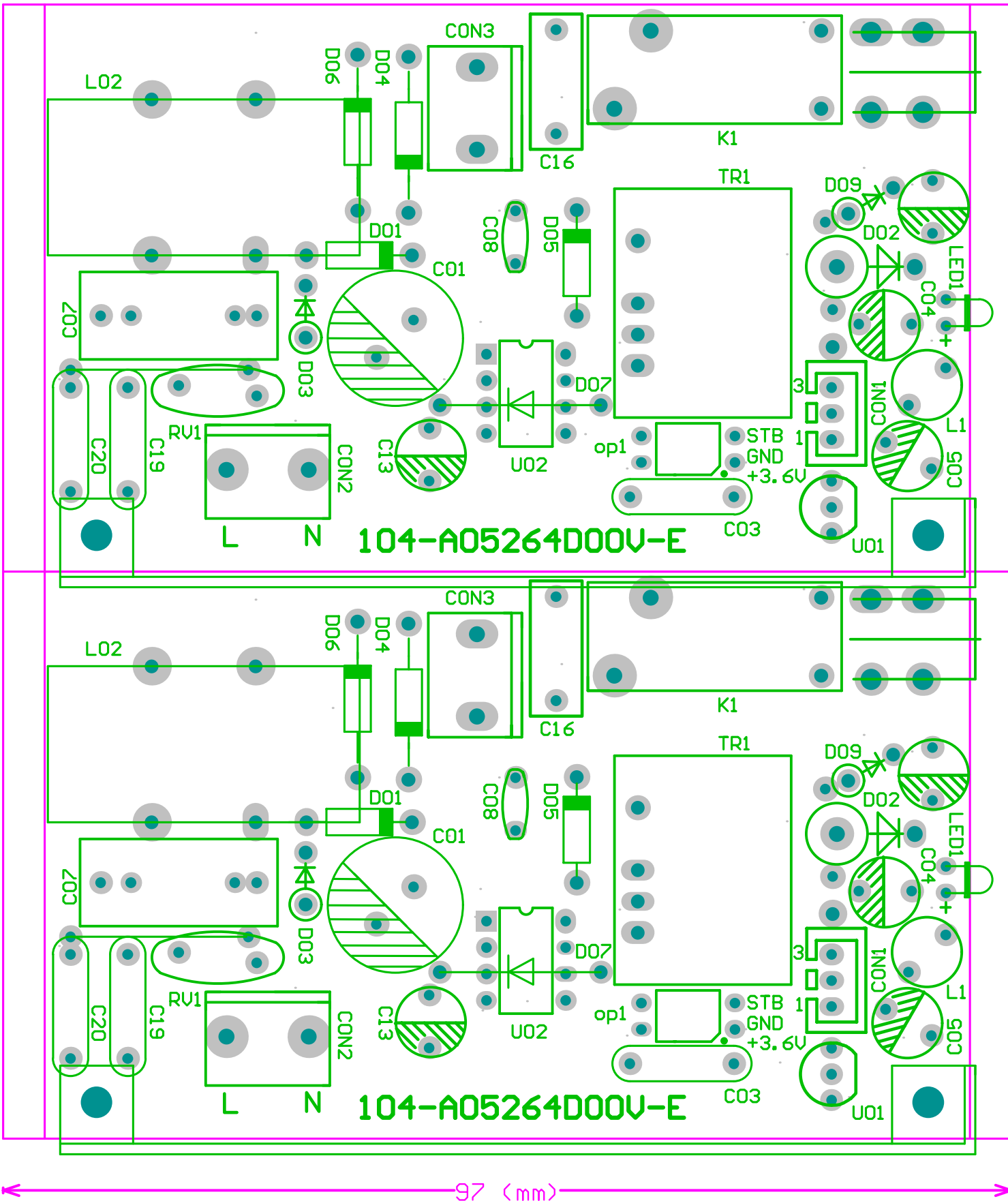




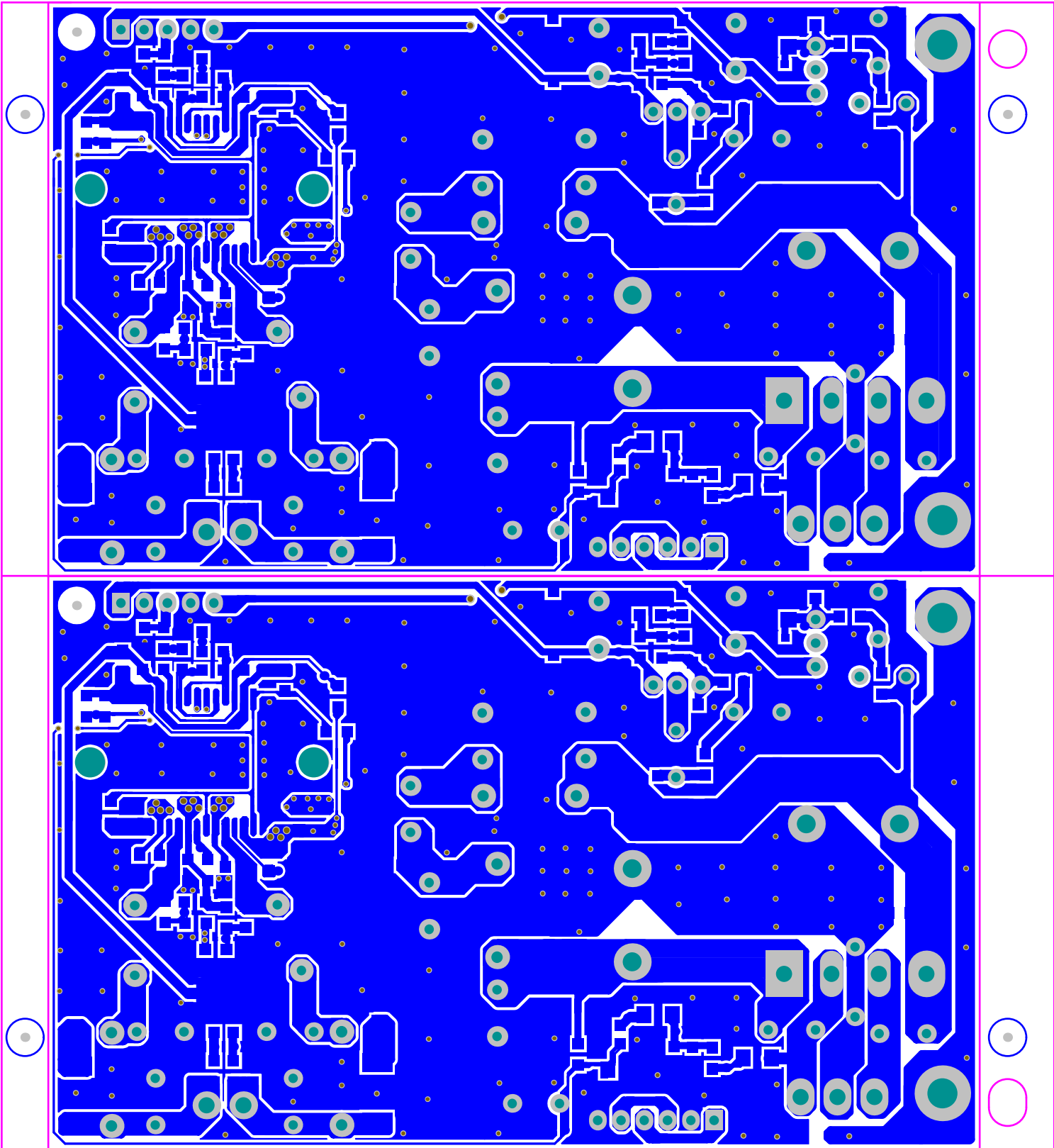


97 (mm)



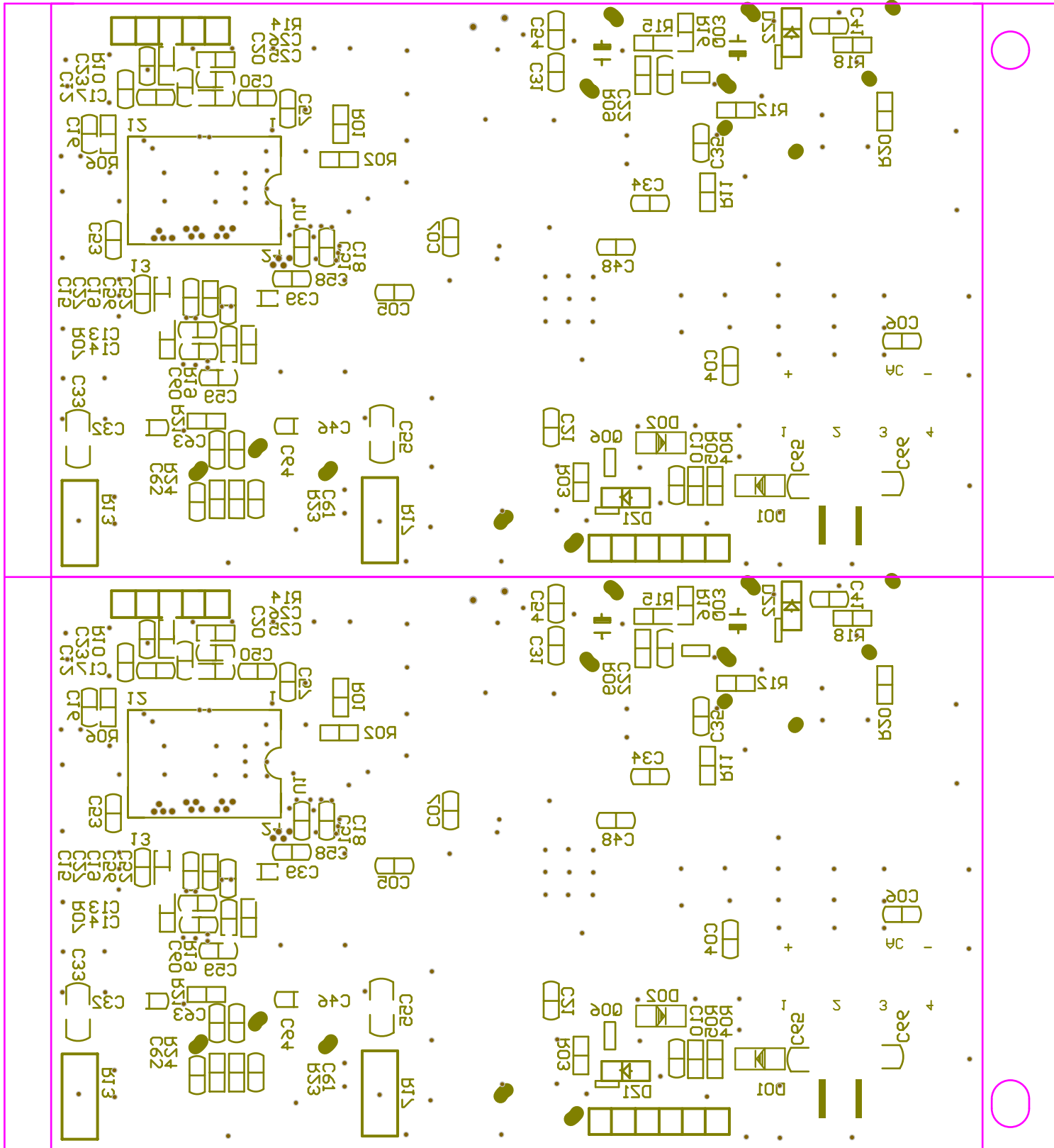


123 (mm)

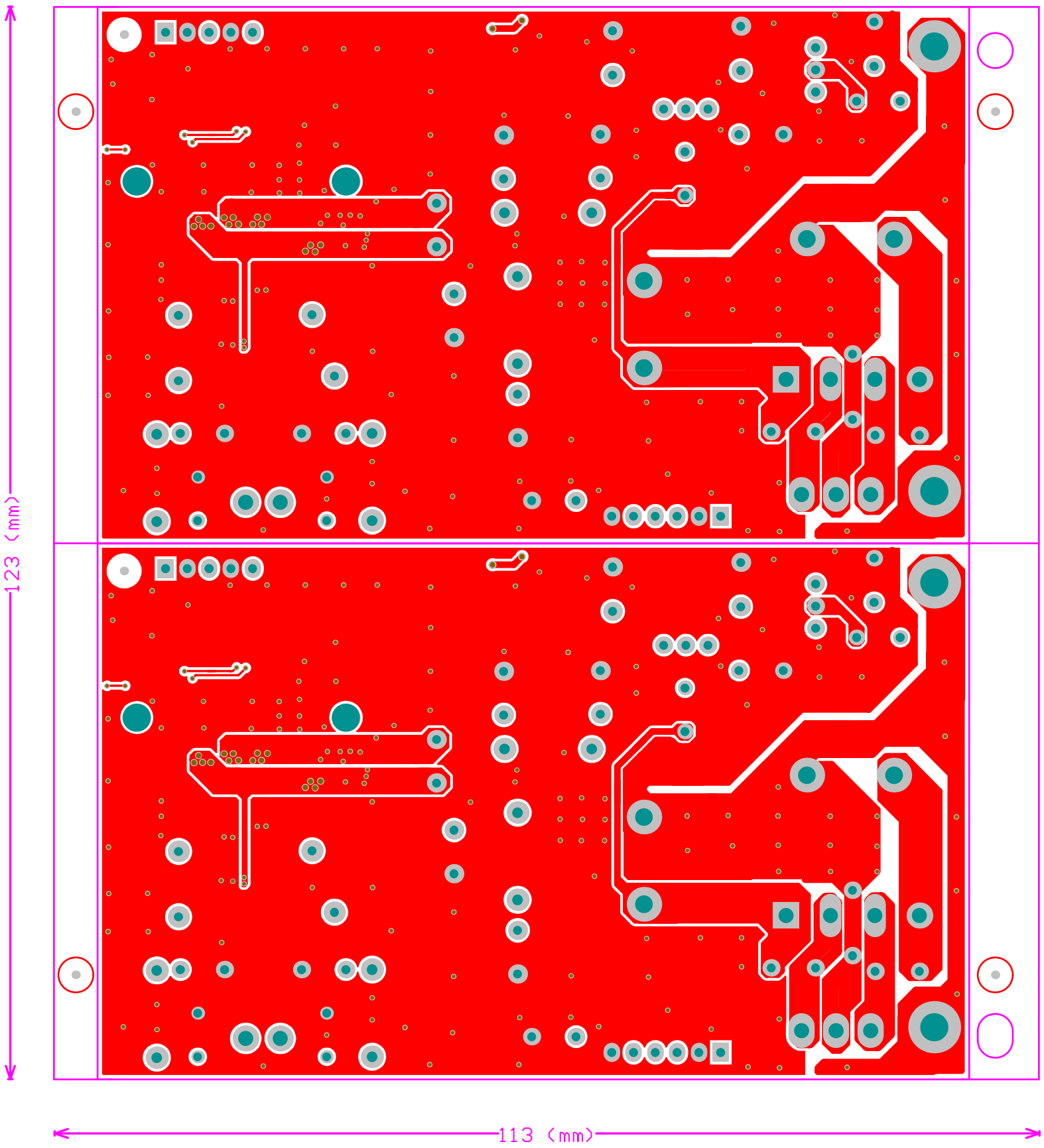


113 (mm)

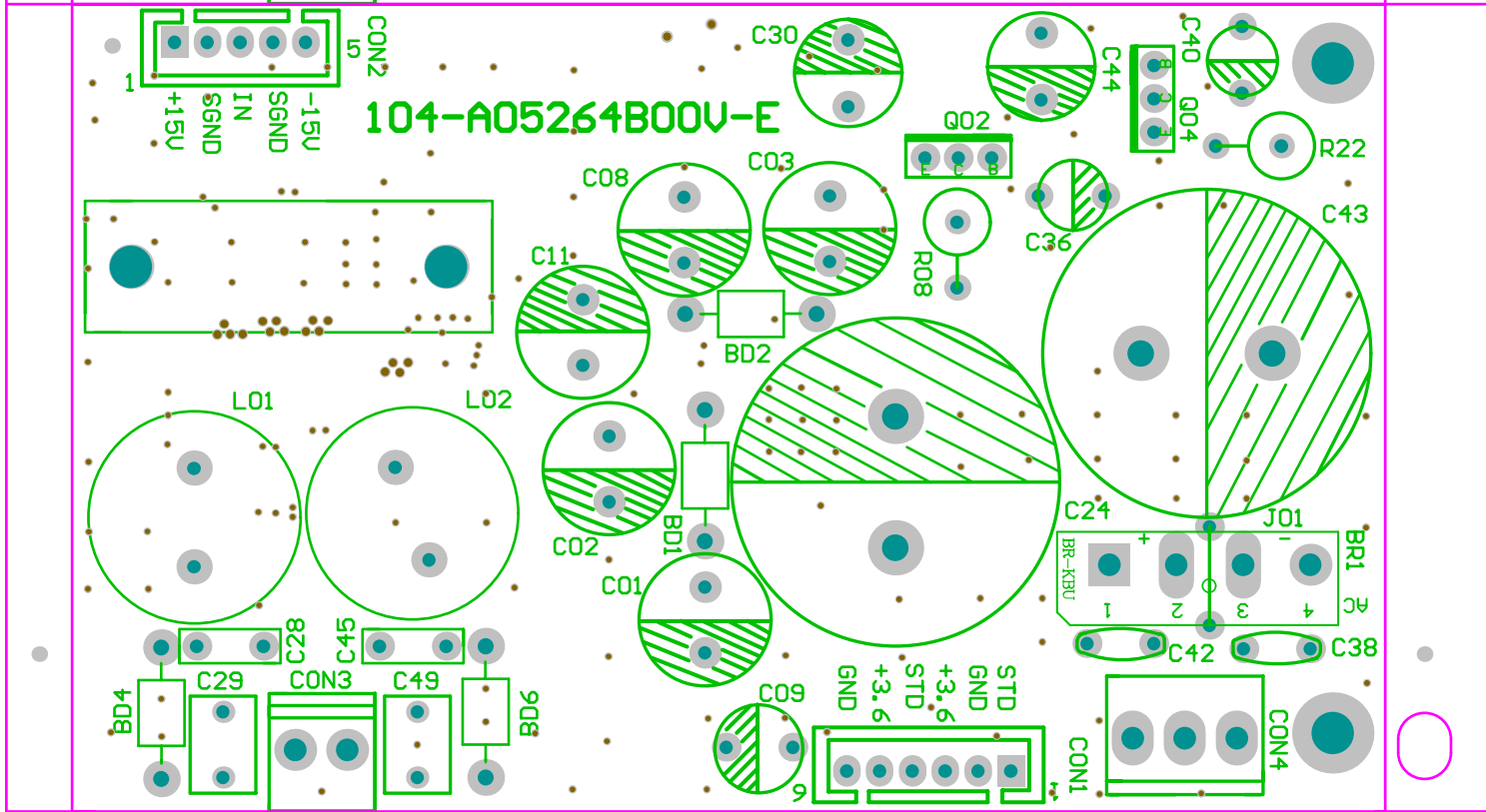
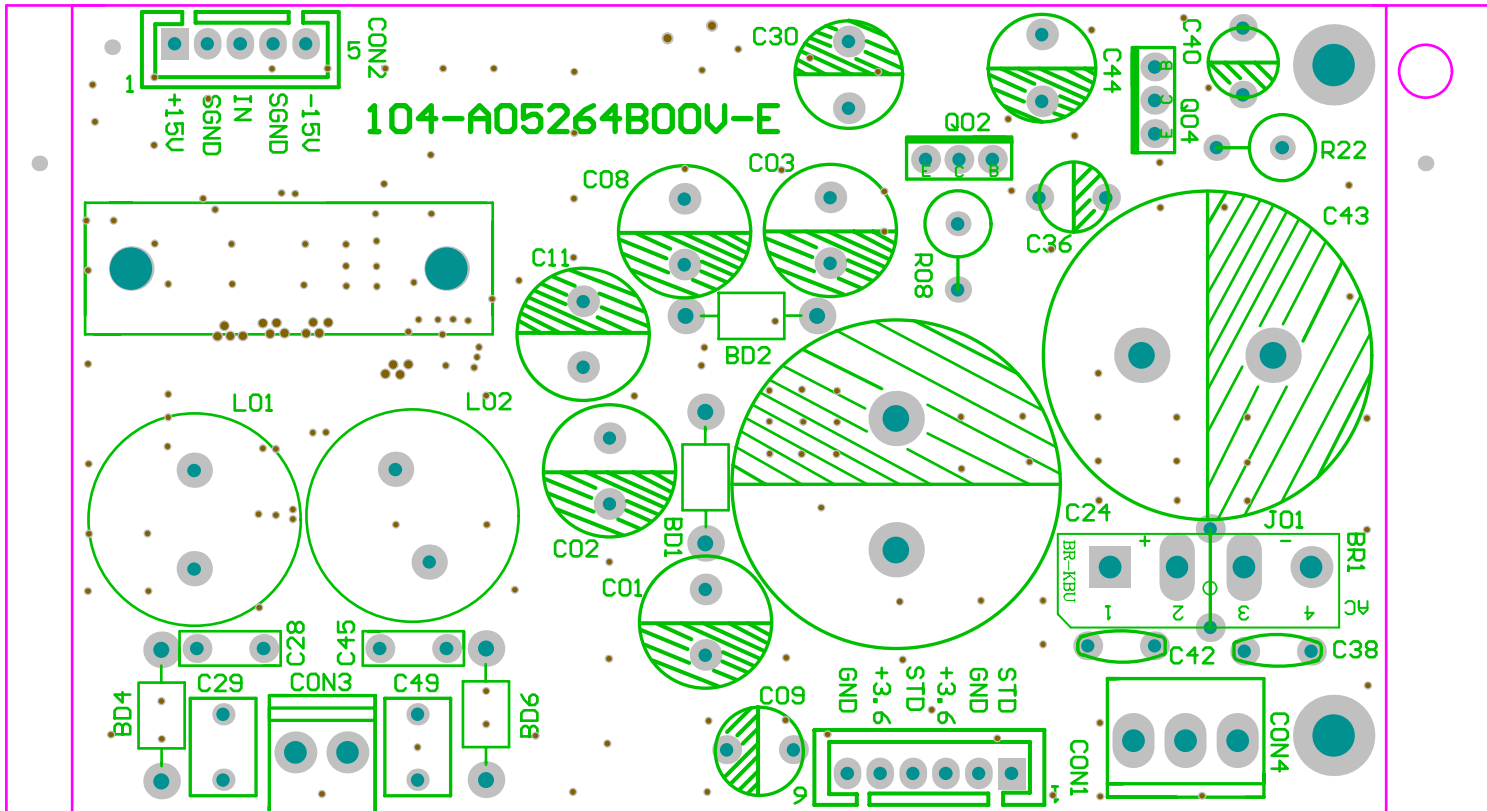
123 (mm)



113 (mm)



123 (mm)



113 (mm)