



# Service Manual

## CPi2000 Cinema Processor





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## SAFETY INSTRUCTIONS

**For your own safety and to avoid invalidation of the warranty please read this section carefully.**

### IMPORTANT SYMBOLS



#### **Caution**

Alerts the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



#### **Warning**

Alerts the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



#### **Protect your ears**

Alerts the user that the product is capable to produce sound which, when monitored through an amplifier or headphones, can damage hearing over time.

### SAFETY INSTRUCTIONS

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Clean the apparatus only with a dry cloth.
- Do not install near any heat sources such as radiators, heat resistors, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
- Do not use this apparatus near water.
- Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been

damaged in any way such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When the cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- No naked flame sources, such as lighted candles or cigarettes etc., should be placed on the apparatus.
- No user serviceable parts. Refer all servicing to a qualified service engineer, through the appropriate JBL dealer.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.



**THIS UNIT MUST BE EARTHED. Under no circumstances should the mains earth be disconnected from the mains lead.**



**All maintenance and service on the product should be carried out by JBL or its authorized agents. JBL cannot accept any liability whatsoever for any loss or damage caused by service, maintenance or repair by unauthorized personnel.**



**WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not expose the apparatus to dripping or splashing and do not place objects filled with liquids, such as vases, on the apparatus. No naked flame sources, such as lighted candles, should be placed on the apparatus.**



**Ventilation should not be impeded by covering the ventilation openings with items such as newspapers, table cloths, curtains etc.**

# CPI2000

## CINEMA PROCESSOR



### HIGHLIGHTS ■

#### **Built-in Crossover**

Converts up to 7.1 channel audio to passive, bi-amp or tri-amp

#### **Supports TMS Communication**

Convenient for remote control and saves system operation cost

#### **JBL Cinema Speaker Presets**

Reduces tuning time

#### **Specifically-designed GUI Software**

Makes operation intuitive and simple

#### **Large LCD Display**

System status at one glance

#### **USB Connector**

For preset file import and export

### DESCRIPTIONS ■

CPI2000 is a professional-grade processor developed by JBL to provide audio enhancement and volume control for cinemas. It features DSP processing, room EQ tuning, volume control and system fault detection and can be configured through a tailor-designed GUI software.

CPI2000 offers four input options – Analog Input, Digital Input, Non-Sync Input and mono Mic Input. The Analog Input and Digital Input accept audio signal from any cinema server. Non-Sync Input receives line level stereo signal from a CD or DVD player for background music playback. Mic Input normally connects to a RTA microphone for room tuning.

CPI2000 installs ten (10) HD-15 Analog Output connectors for passive, bi-amp or tri-amp connection and a 25-pin Analog Output connector for connection with a third-party audio system. Its Redundant Output (work together with Analog Input) connector will bypass the CPI2000 system and directly output audio signals while power failure occurs.

The large LCD display on the front panel is easy for technicians to run a quick check of system status. To make global output volume control easy and quick, the volume knob is designed front accessible. Thanks to the specially-designed GUI software, setting up cinema audio system now becomes less demanding.

CPI2000 provides a 1/3 octave GEQ for room tuning via the GUI software and is built-in with a list of variable crossover presets to accept a wide range of cinema speakers.

Designed to use with CROWN cinema amplifiers and JBL cinema speakers, CPI2000 is able to detect faults of amplifiers or speakers and send the fault information to a TMS or a 3rd party control system via its RJ45 connector.



GUI software

# CPi2000

## CINEMA PROCESSOR



### FRONT PANEL CONTROLS



- **LCD Display:** The display is 320x160 pixels. When the unit is powered on, the home screen shows the hall name, IP address and the global output volume.
- **Menu Button:** By pressing the button, the LCD display will navigate to the menu section. Using the Volume/Edit Encoder, the following parameters can be checked or edited: INPUT LEVEL, OUTPUT LEVEL, IP ADDRESS, 5.1/7.1 INPUT, FAULT DETECTION, USB IMPORT/EXPORT, etc.
- **Analog Input Button:** Press the button to choose signal from the Analog Input Connector.
- **Mic Input Button:** Press the button to choose signal from the Mic Input Connector.
- **Digital Input Button:** Press the button to choose signal from the Digital Input Connector.
- **Music (Non-Sync) Input Button:** Press the button to choose signal from the Music (Non-Sync) Input.
- **Power Button:** Press the button to switch on or off the unit.
- **Mute Button:** Press the button to mute or unmute the global output.
- **Volume/Edit Encoder:** Supports long-press, short-press and rotating actions and can be used to unlock front panel controls, set the global output volume, and navigate through menu screens or edit parameters.

### REAR PANEL CONTROLS

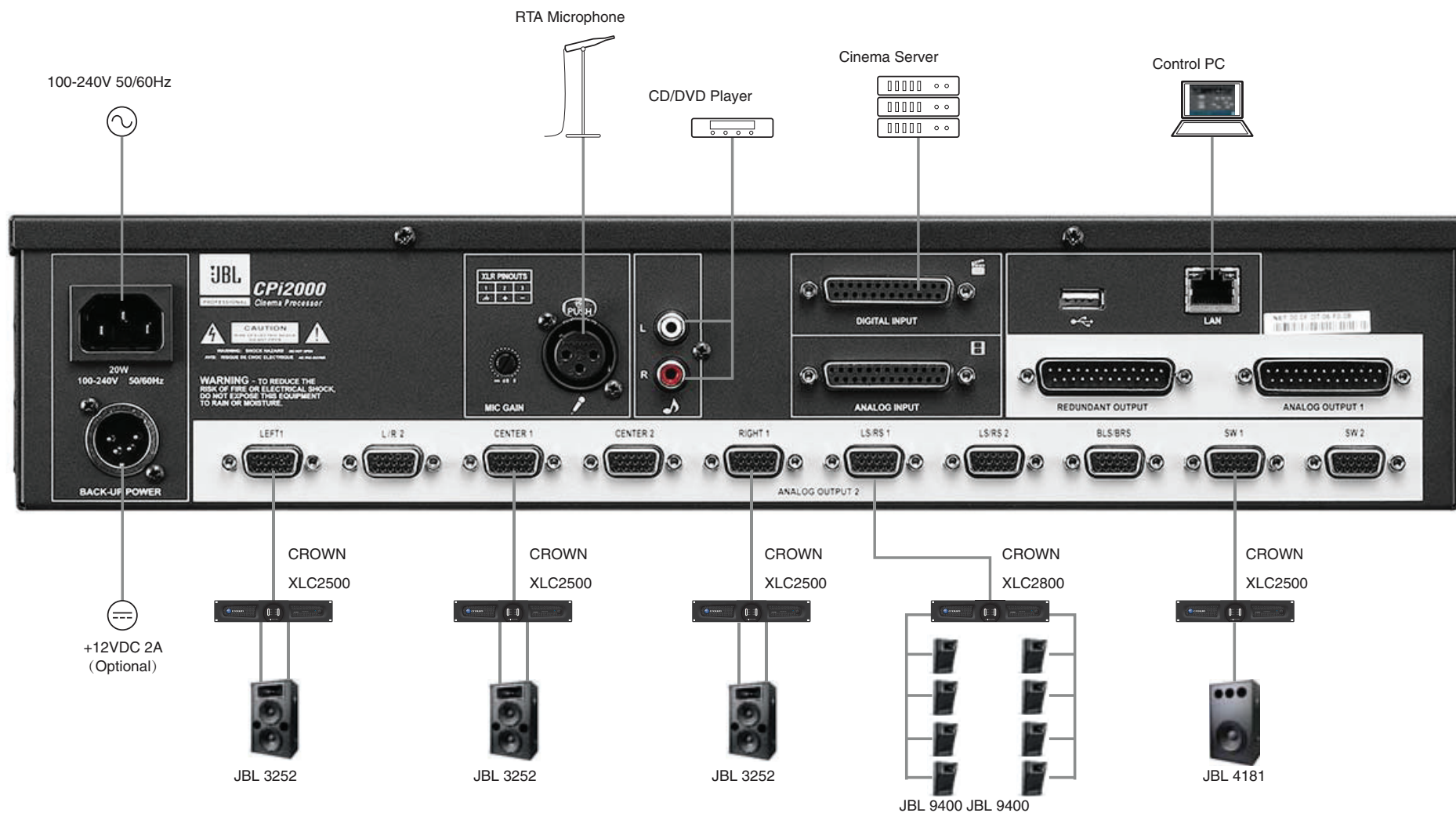


- **AC Power Input:** Accepts mains power of 100-240 VAC, 50-60Hz, 20W.
- **Mic Input:** Uses a XLR connector to accept balanced or unbalanced signal with adjustable gain of  $-\infty$  dB - 40 dB. +12V phantom power is available. It normally connects to a RTA microphone for room tuning.
- **Music (Non-Sync) Input:** Uses RCA L-R connectors to accept stereo signal from a CD or DVD player.
- **Digital Input:** Uses a female HD-25 connector to connect a cinema server. This input supports up to 7.1-channel audio input and accommodates PCM audio at 96, 48, 44.1 kHz and 32 kHz (16, 20 and 24 bits) and Dolby Digital at all data rates and sample rates.
- **Analog Input:** Uses a female HD-25 connector to accept 8 channels of signals and is designed to receive 300mVRMS (ref) inputs from external sources.
- **USB Connector:** Type-A USB connector and can be used for preset saving or loading.
- **Redundant Output:** Installs a male HD-25 connector which will bypass the CPi2000 system and directly output audio signals when power failure occurs. It must work together with Analog Input.
- **LAN Port:** Uses a RJ45 connector with activity LEDs. Can be used for TMS (heatre Management System) communication, GUI software operation and firmware upgrade.
- **Analog Output 1:** The 8-channel output uses a male HD-25 connector and is compatible with third party audio systems.
- **Backup DC Power Input:** Uses a 4-pin female XLR connector to connect a +12V 2A DC power adapter (sold separately).
- **Analog Output 2:** Includes ten male HD-15 connectors (Left 1, L/R 2, Center 1, Center 2, Right 1, LS/RS 1, LR/RS 2, BLS/BRS, SW 1, SW 2) and connects to CROWN cinema amplifiers for analog audio output and fault detection signal input.



# CPi2000 CINEMA PROCESSOR

## APPLICATION EXAMPLE ■





# CPI2000

## CINEMA PROCESSOR



### SPECIFICATIONS

INPUT		
Digital Input	Connector	Female HD-25 Balanced
	Impedance	110 Ohms
	Input level	0.5 - 10 Vpp
Analog Input	Connector	Female HD-25 Balanced or Unbalanced
	Impedance	50K Ohms (Balanced) or 25K Ohms (Unbalanced)
	Max. input level	+14.2 dBu
Mic Input	Connector	Female XLR Balanced or Unbalanced
	Impedance	660 Ohms (Balanced) or 330 Ohms (Unbalanced)
	Total gain	40 dB
	E.I.N.	>113dB, 20K Hz Bandwidth
Music (Non-Sync) Input	Connector	RCA
	Impedance	25K Ohms
	Max. input level	+14.2 dBu
OUTPUT		
Analog Output 1 & Redundant Output	Connector	Male HD-25 Balanced or Unbalanced
	Impedance	30 Ohms (Balanced) or 15 Ohms (Unbalanced)
	Max. level	+14.2 dBu
	Frequency response	20 Hz - 20K Hz, Ref 1K Hz +/-1dB
	THD + N	<0.01%, 20 Hz - 20K Hz
	Dynamic range	>102 dB
Analog Output 2	Connector	10 x Female HD-15 Balanced or Unbalanced
	Impedance	30 Ohms (Balanced) or 15 Ohms (Unbalanced)
	Max. level	+14.2 dBu
	Frequency response	20 Hz - 20K Hz, Ref 1K Hz +/-1dB
	THD + N	<0.01%, 20 Hz - 20K Hz
	Dynamic range	>102 dB
POWER		
AC Power Input	100-240VAC, 50-60Hz	
DC Power Input	+12VDC, 2A	
GENERAL		
Rack space	2U	
Dimensions (W x H x D)	482 x 88 x 231 mm	
Net Weight	4.0 kg	
Shipping Weight	5.6 kg	



**HARMAN PROFESSIONAL CHINA**  
Add.: Rm. 3004, Chong Hing Finance Center, #288, West Nanjing Road, Shanghai  
Website: [www.harmanpro.com.cn](http://www.harmanpro.com.cn)  
Tel.: 021-2306 0000



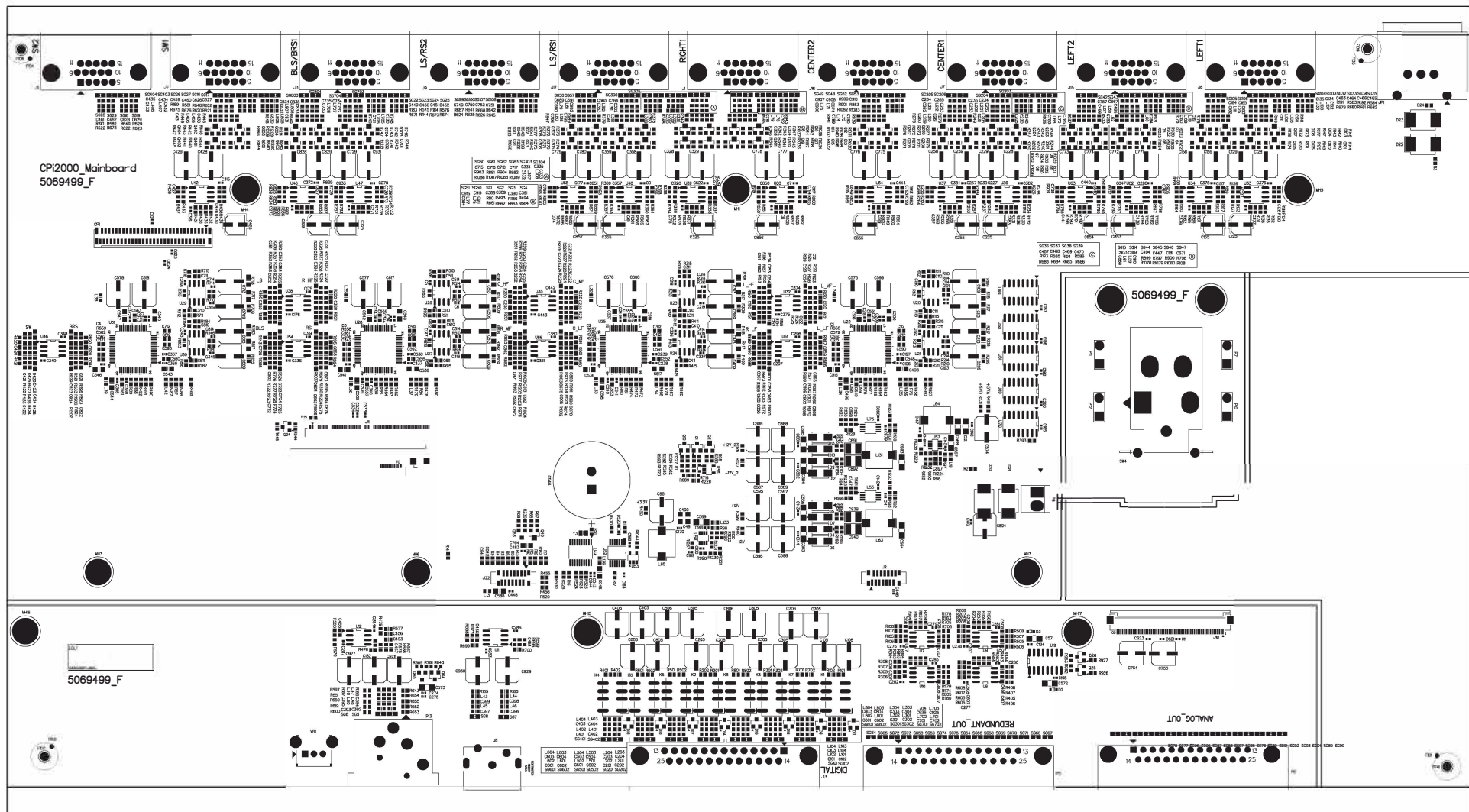
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# Board Layouts



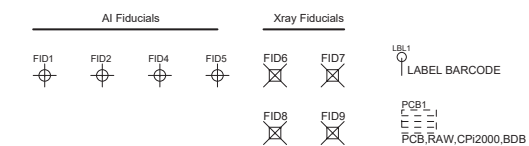
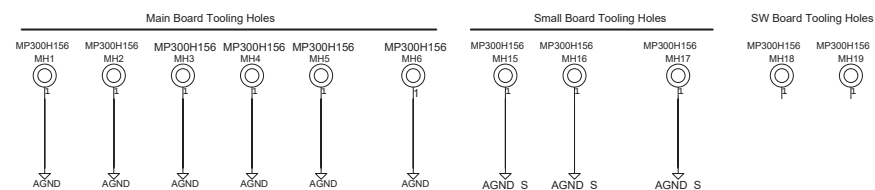
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# CPI2000

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DATE	REV	DESCRIPTION	BY	CHKD	APPD
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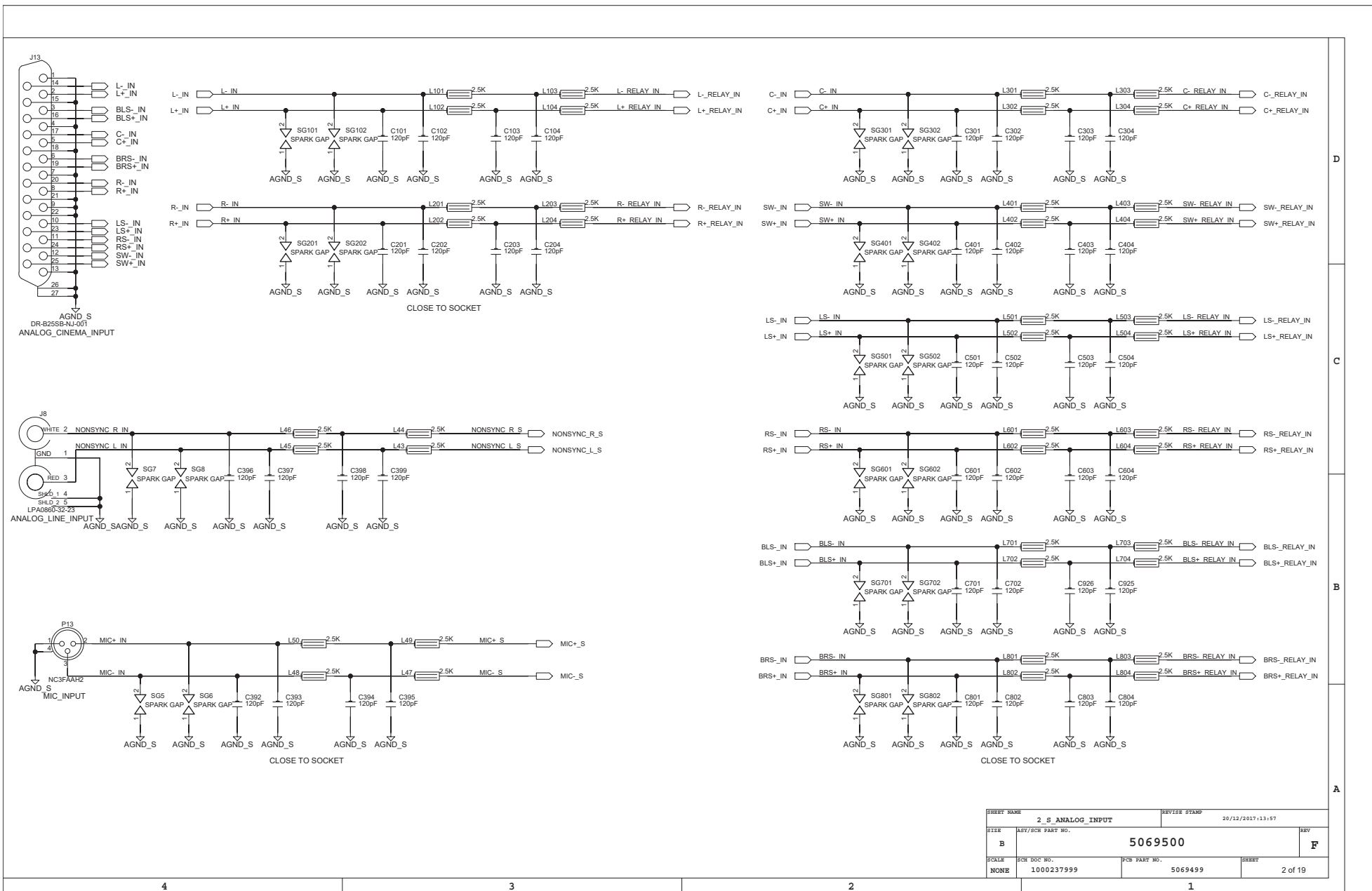
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<b>PAGE 10</b> LEFT2 OUTPUT	<b>PAGE 11</b> CENTER1 OUTPUT	<b>PAGE 12</b> CENTER2 OUTPUT	<b>PAGE 13</b> RIGHT1 OUTPUT	<b>PAGE 14</b> LS/RS1 OUTPUT	<b>PAGE 15</b> LS/RS2 OUTPUT	<b>PAGE 16</b> BLS/BRS OUTPUT FAULT DETECT	<b>PAGE 17</b> SW1/2 OUTPUT	<b>PAGE 18</b> RTC_INTERFACE
<b>PAGE 19</b> POWER SUPPLY								

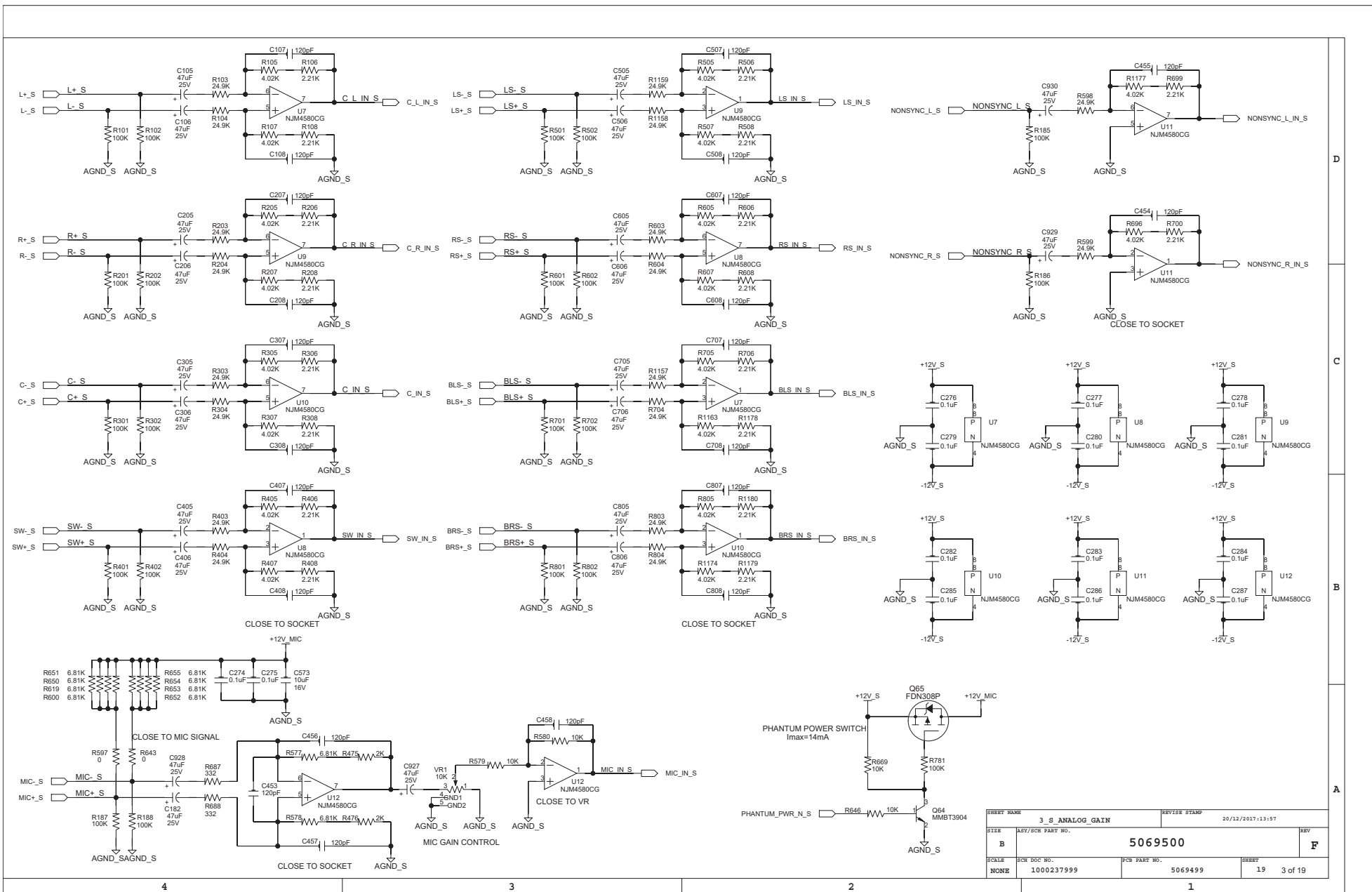


**ROHS**  
RESTRICTION OF HAZARDOUS SUBSTANCES  
ALL MATERIALS USED IN THIS PART MUST BE ROHS COMPLIANT.  
SUPPLIER SHALL PROVIDE A CERTIFICATE OF ROHS COMPLIANCE WITH THE FIRST ARTICLE.  
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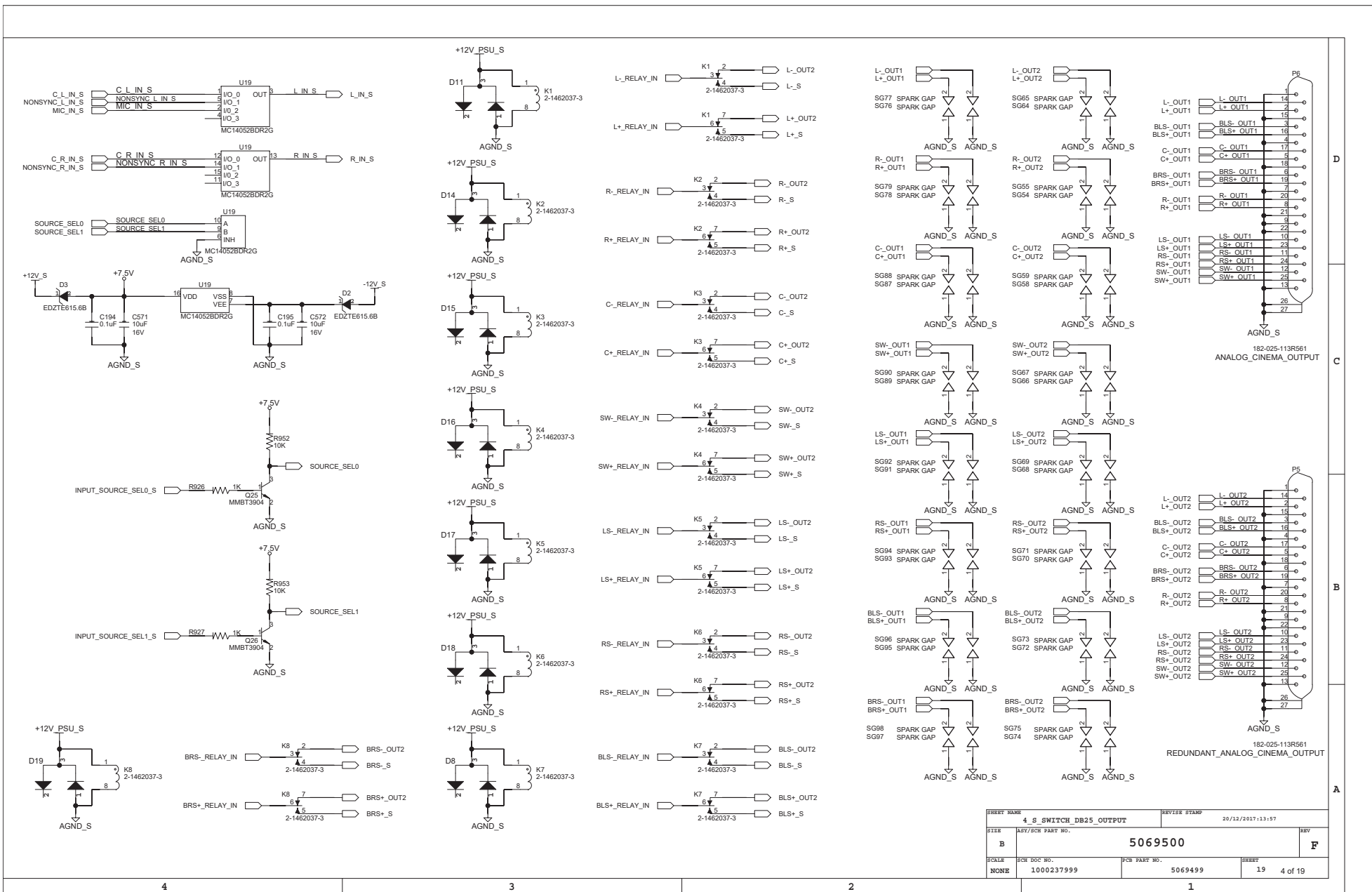
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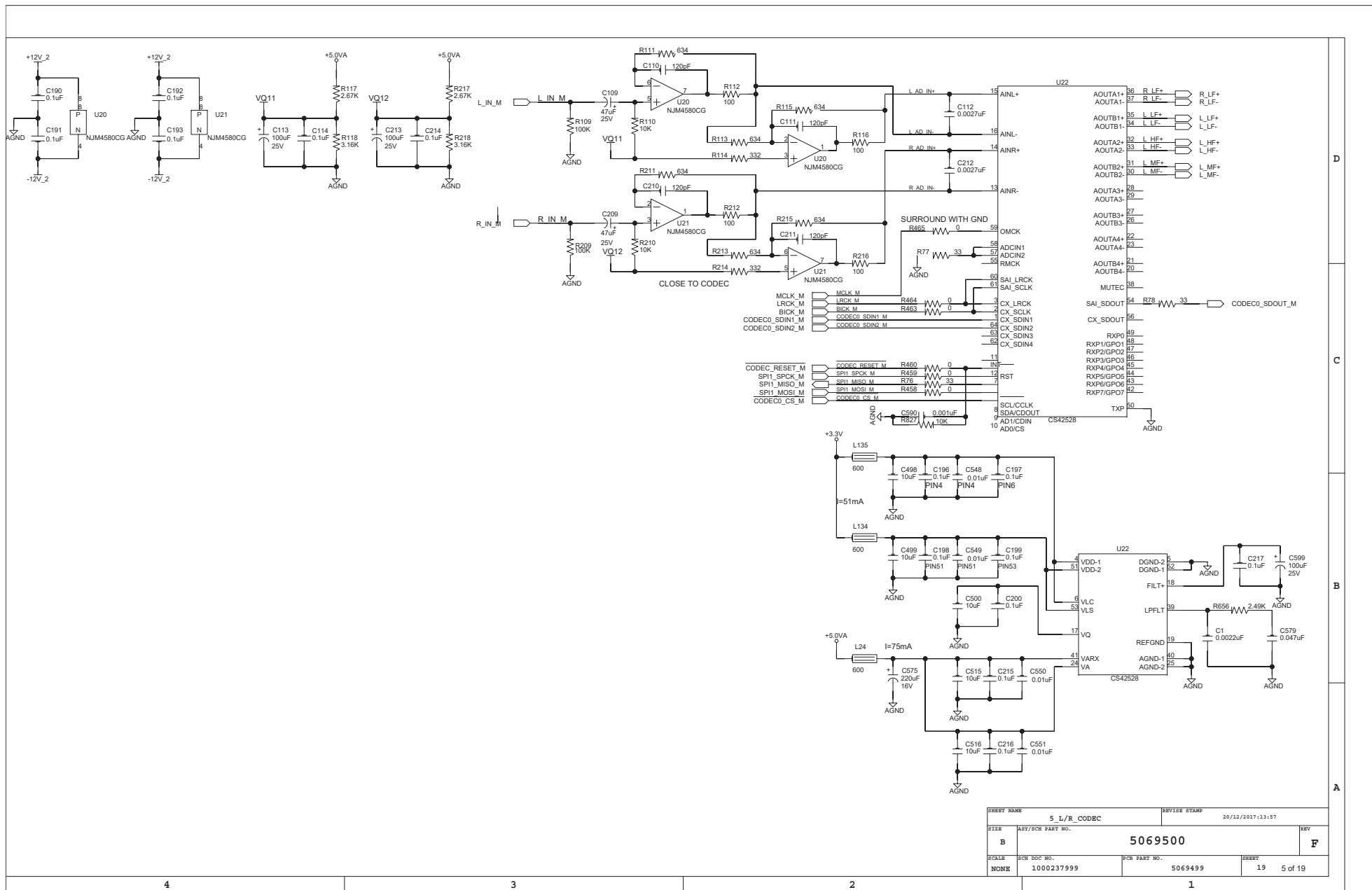




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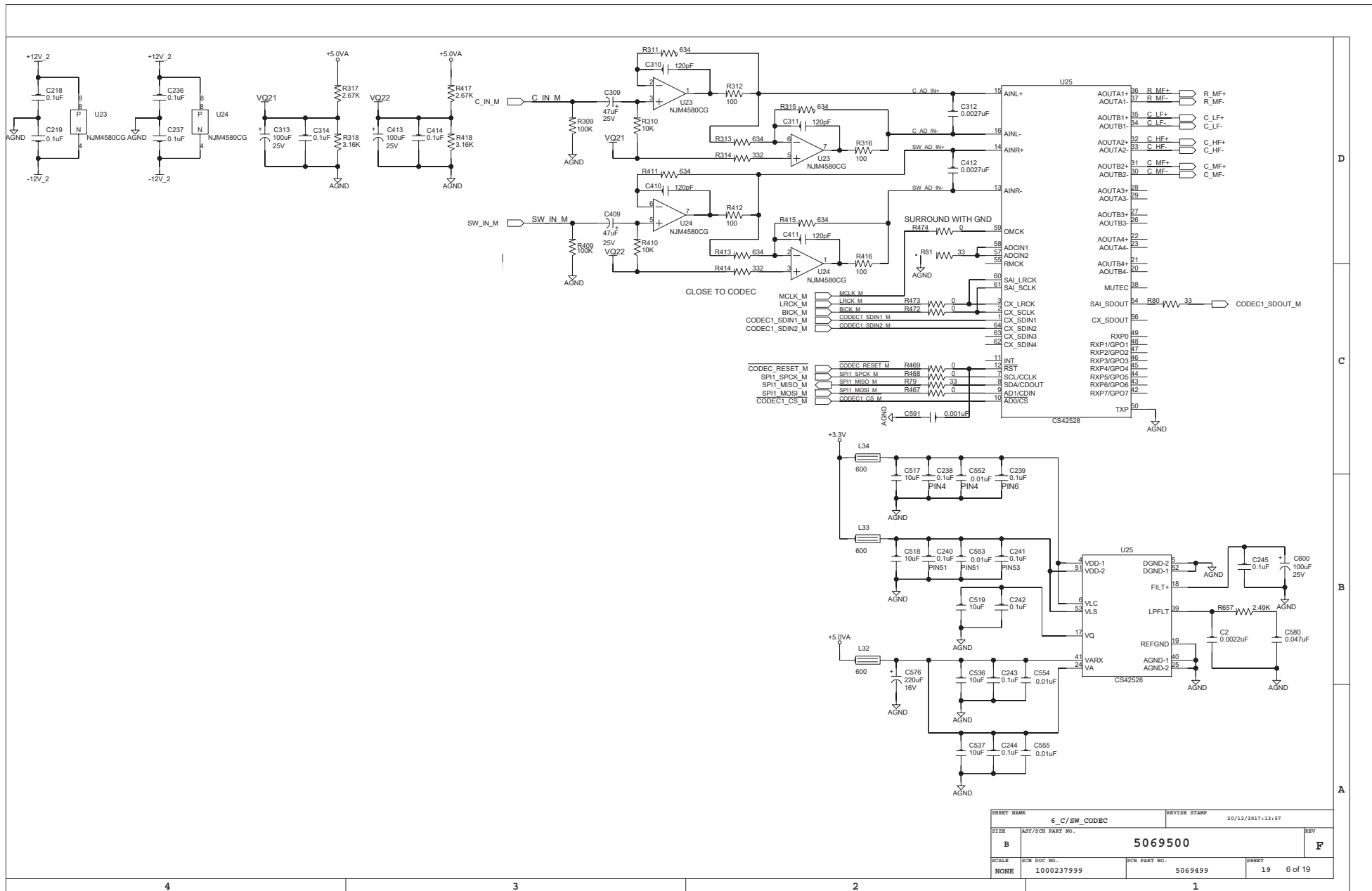
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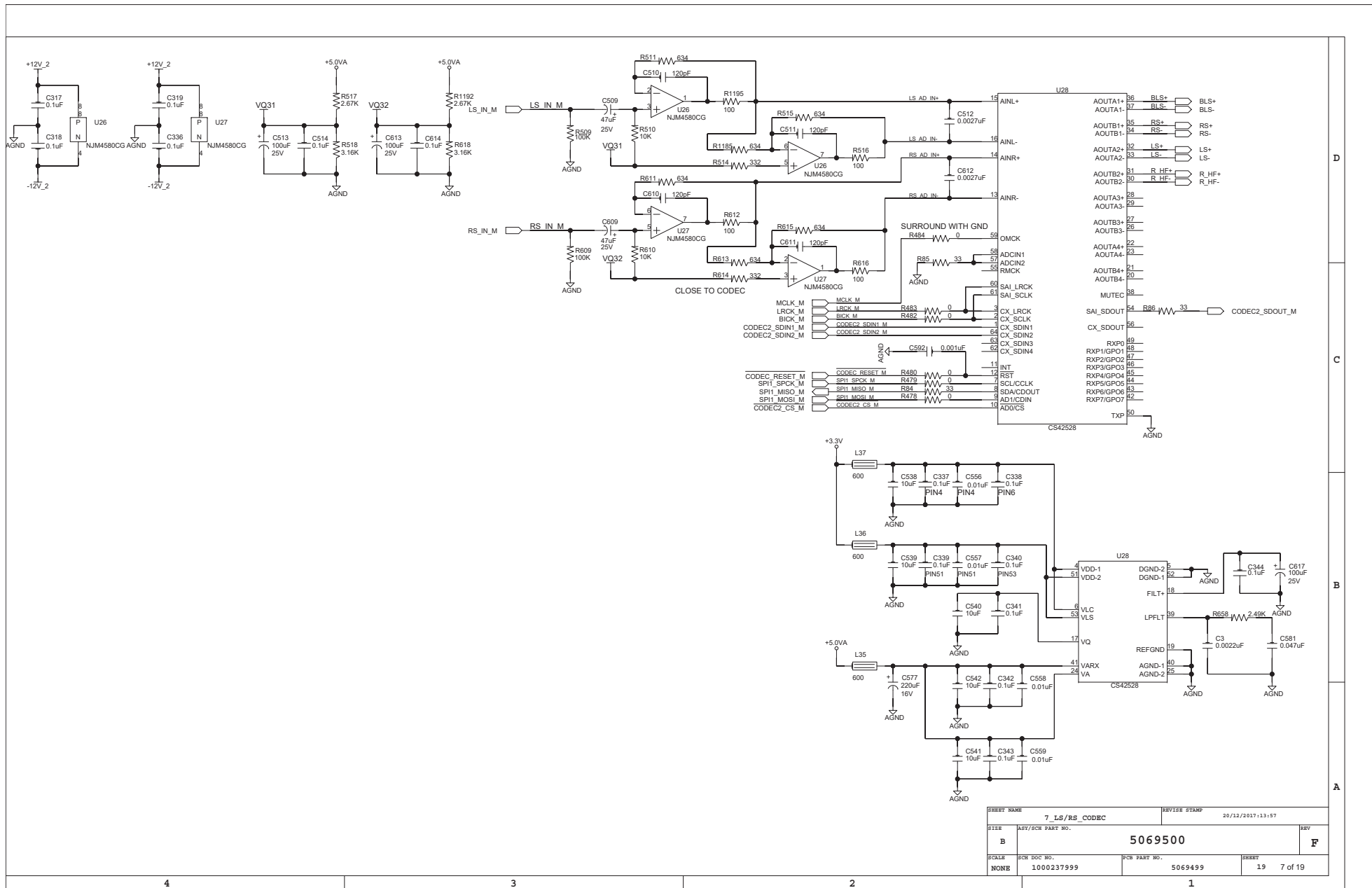
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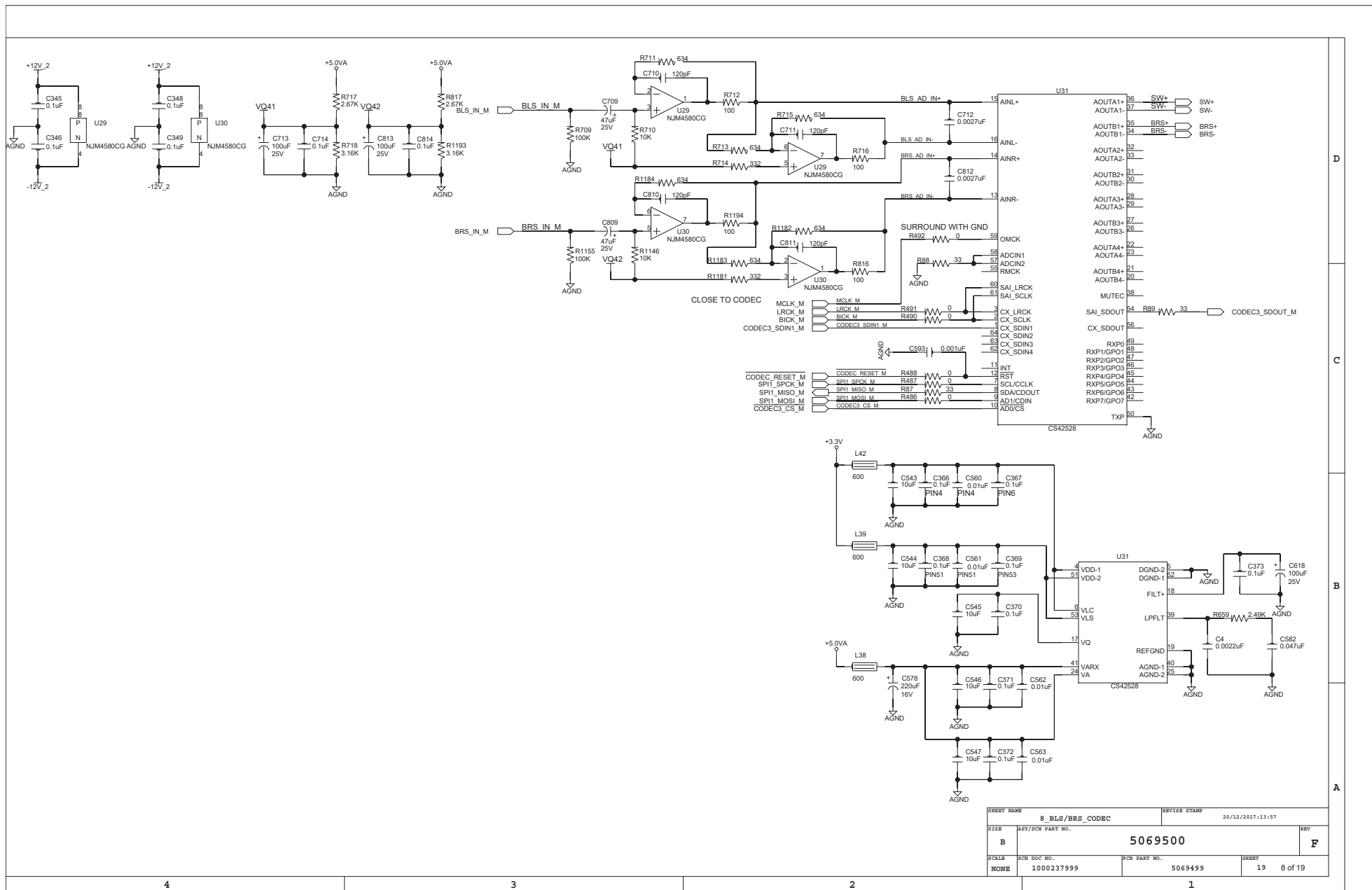


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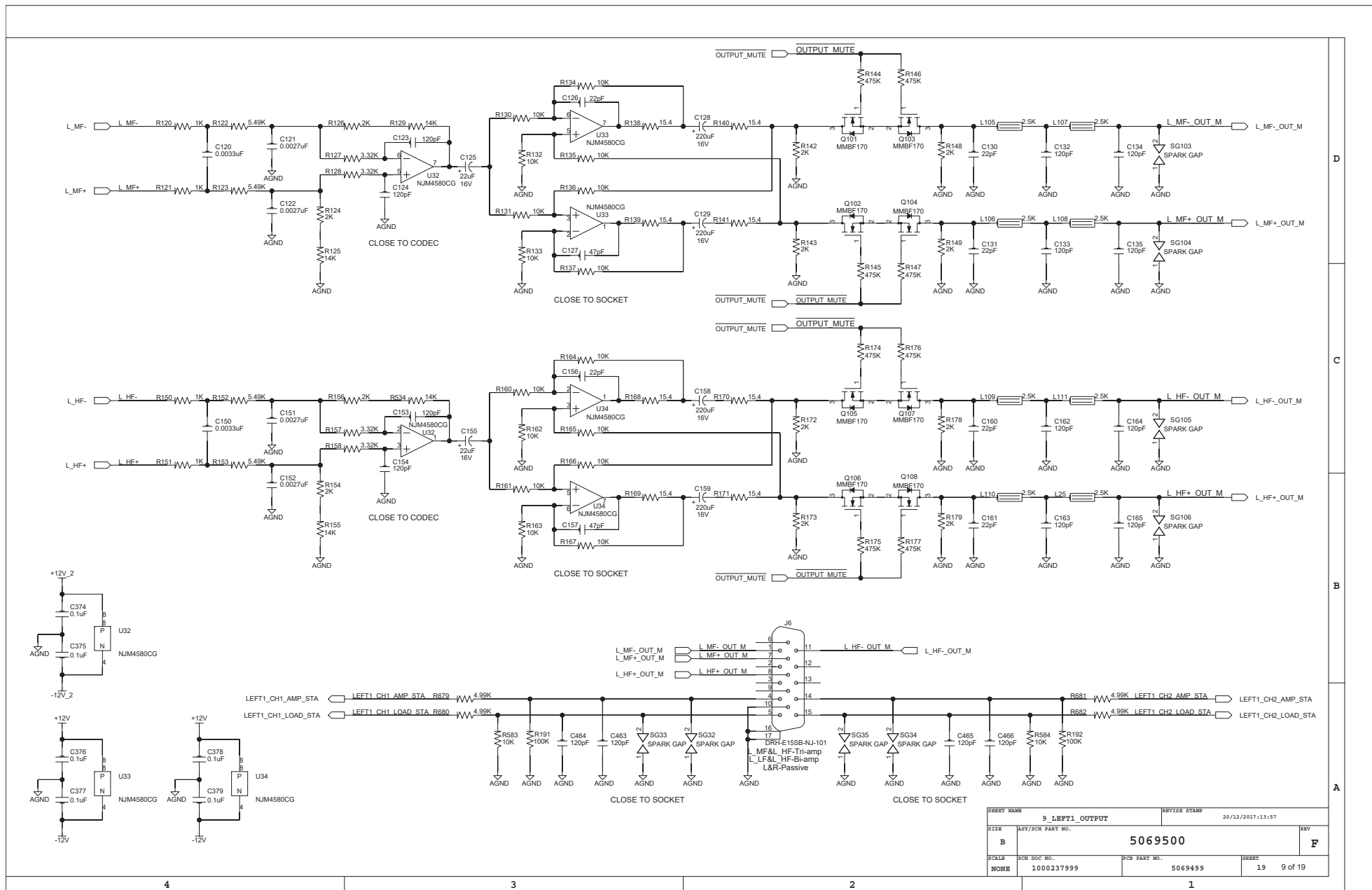


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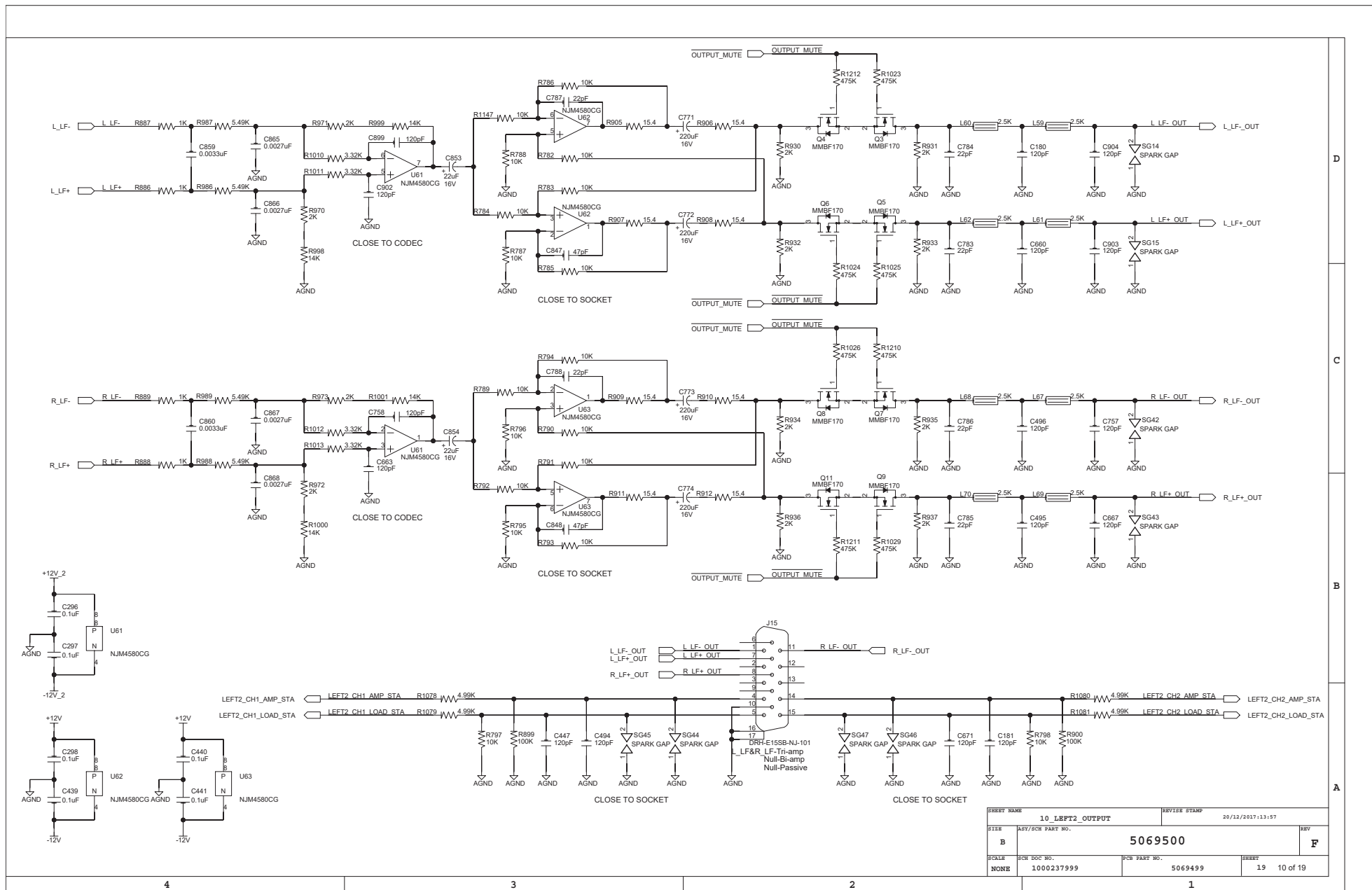
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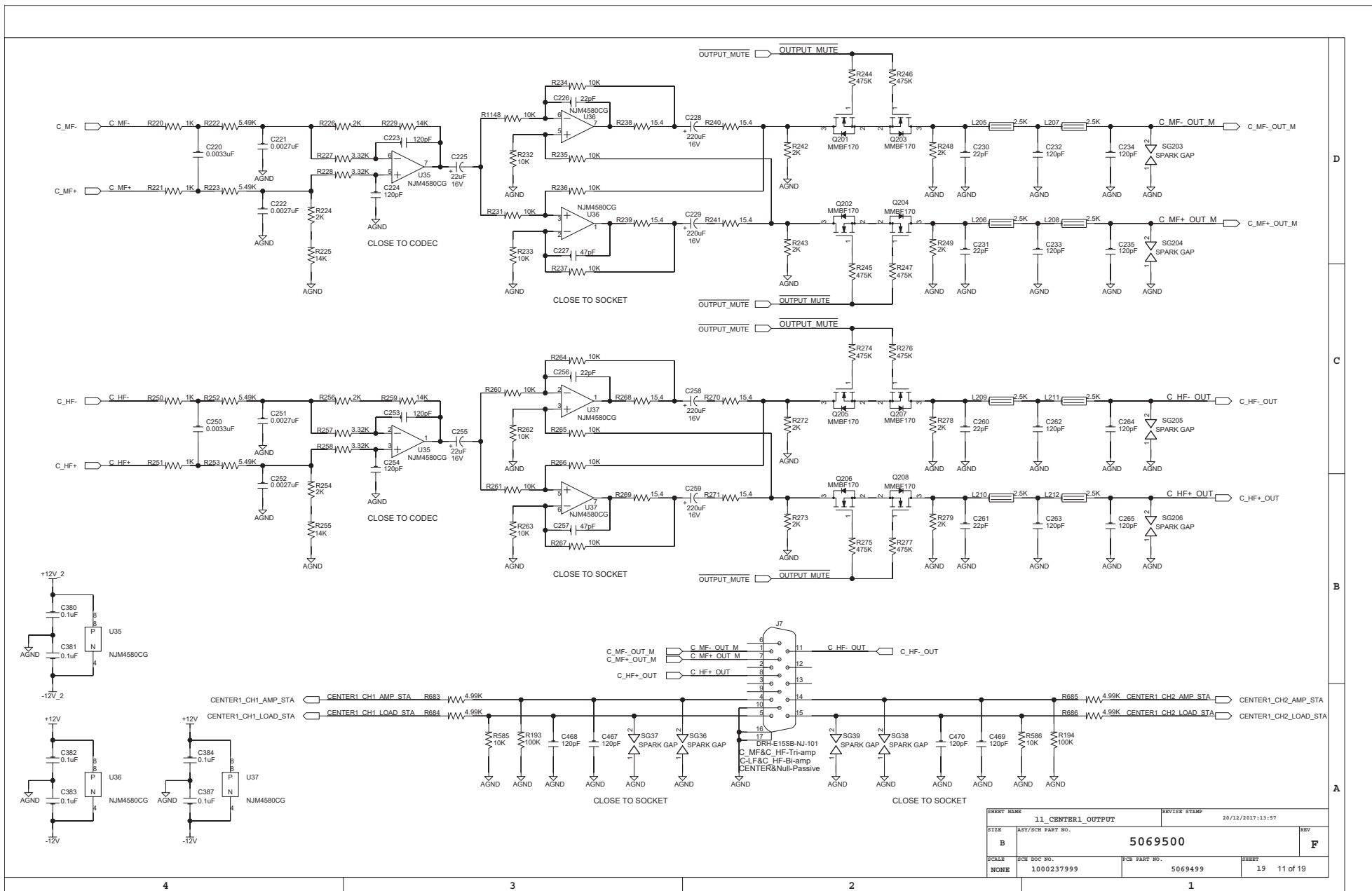
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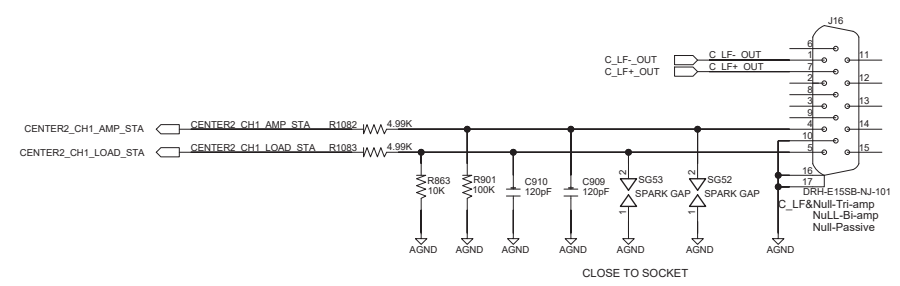
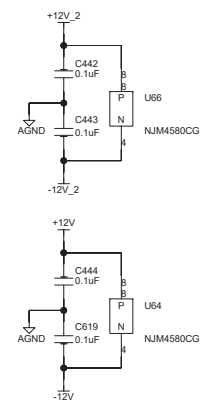
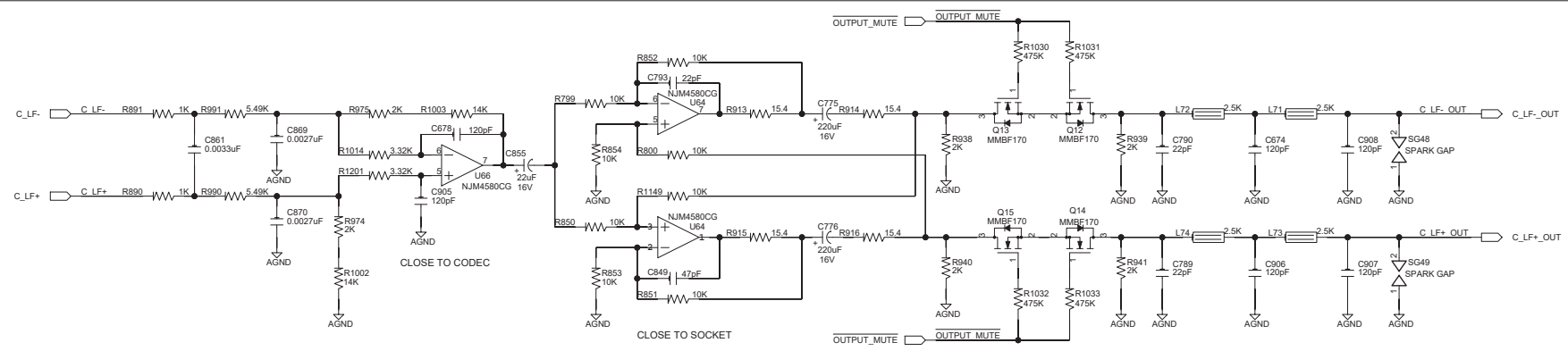
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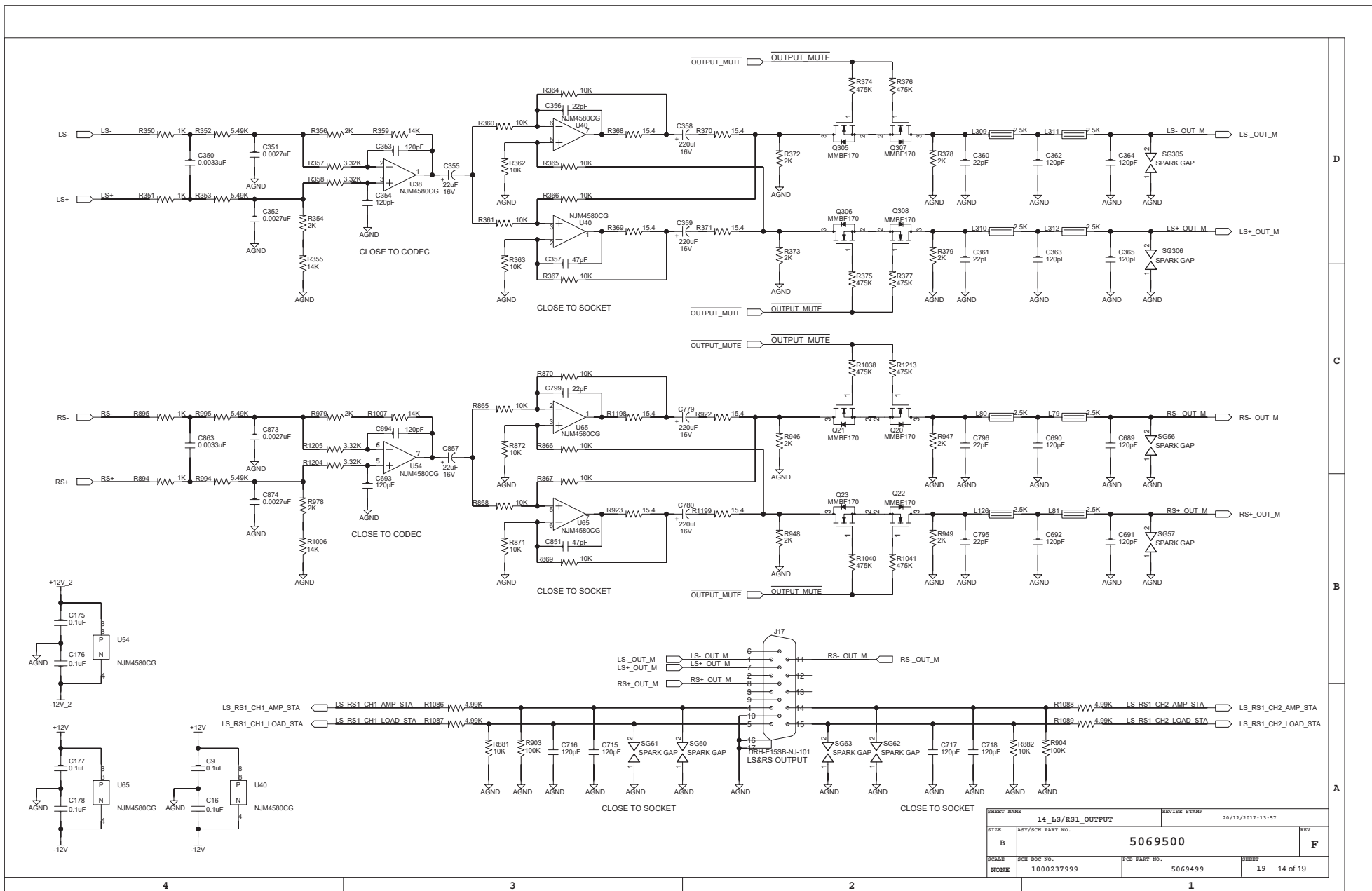
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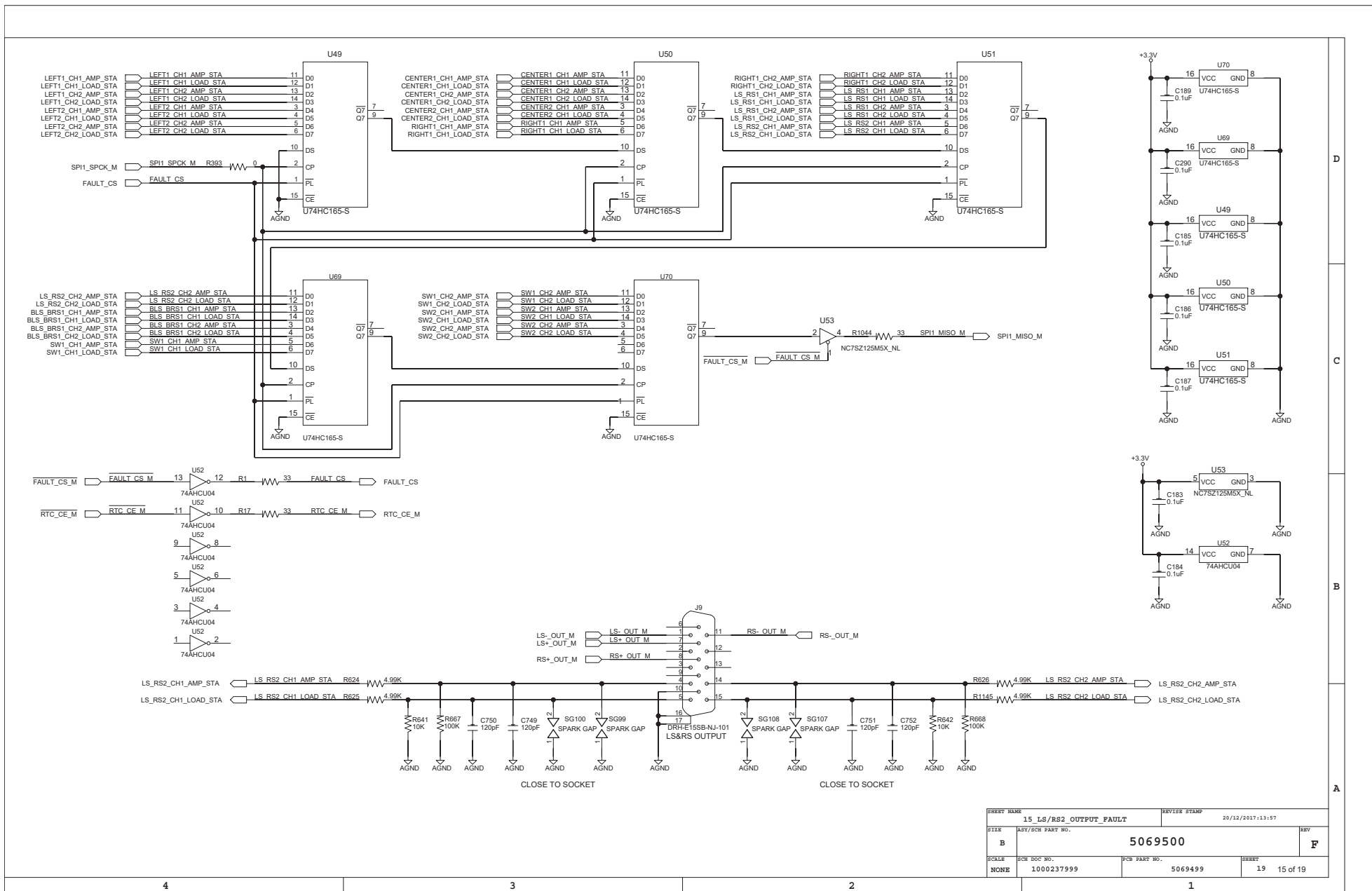
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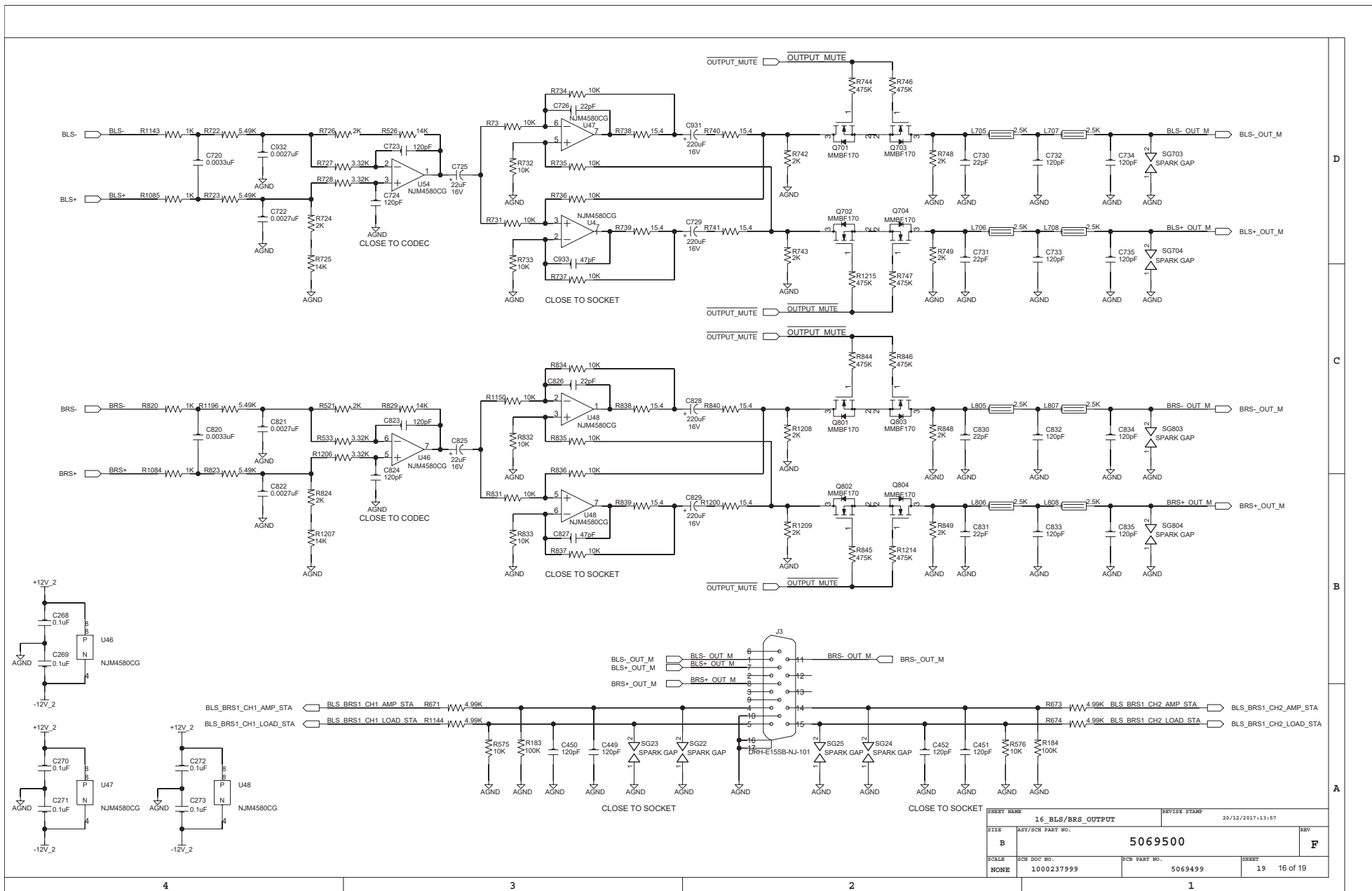
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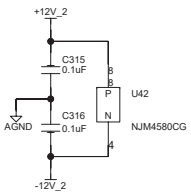
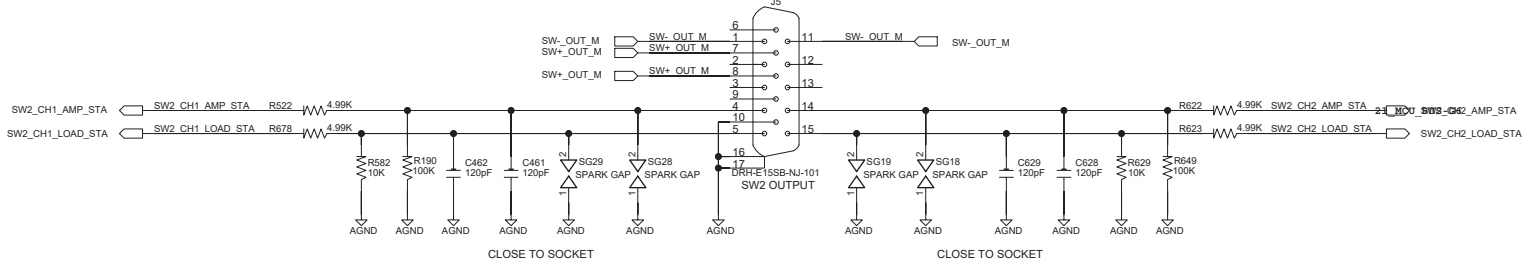
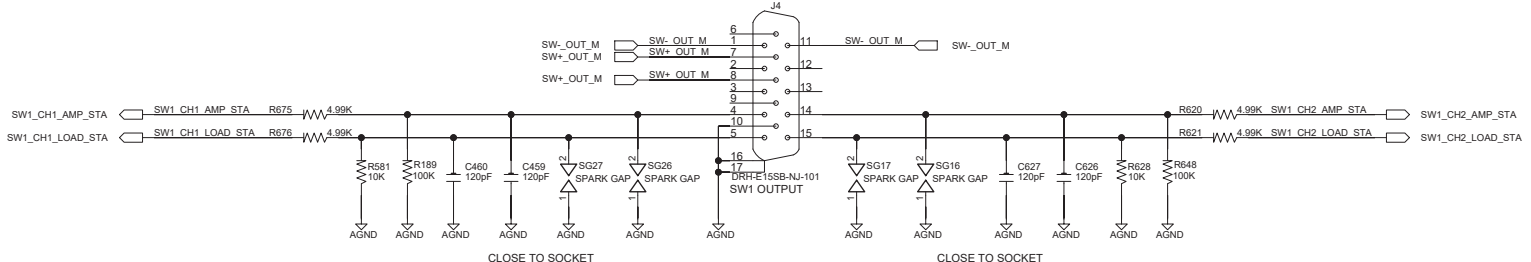
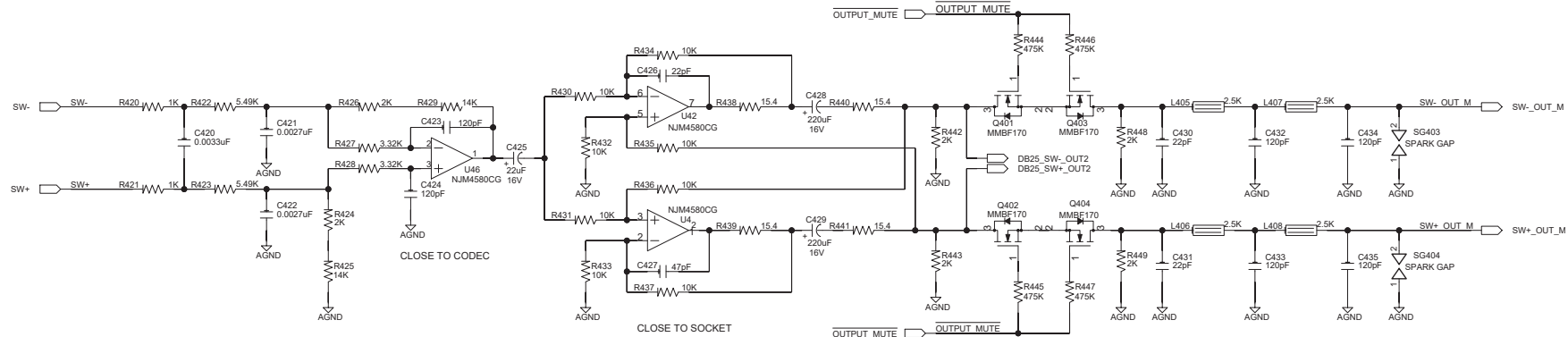
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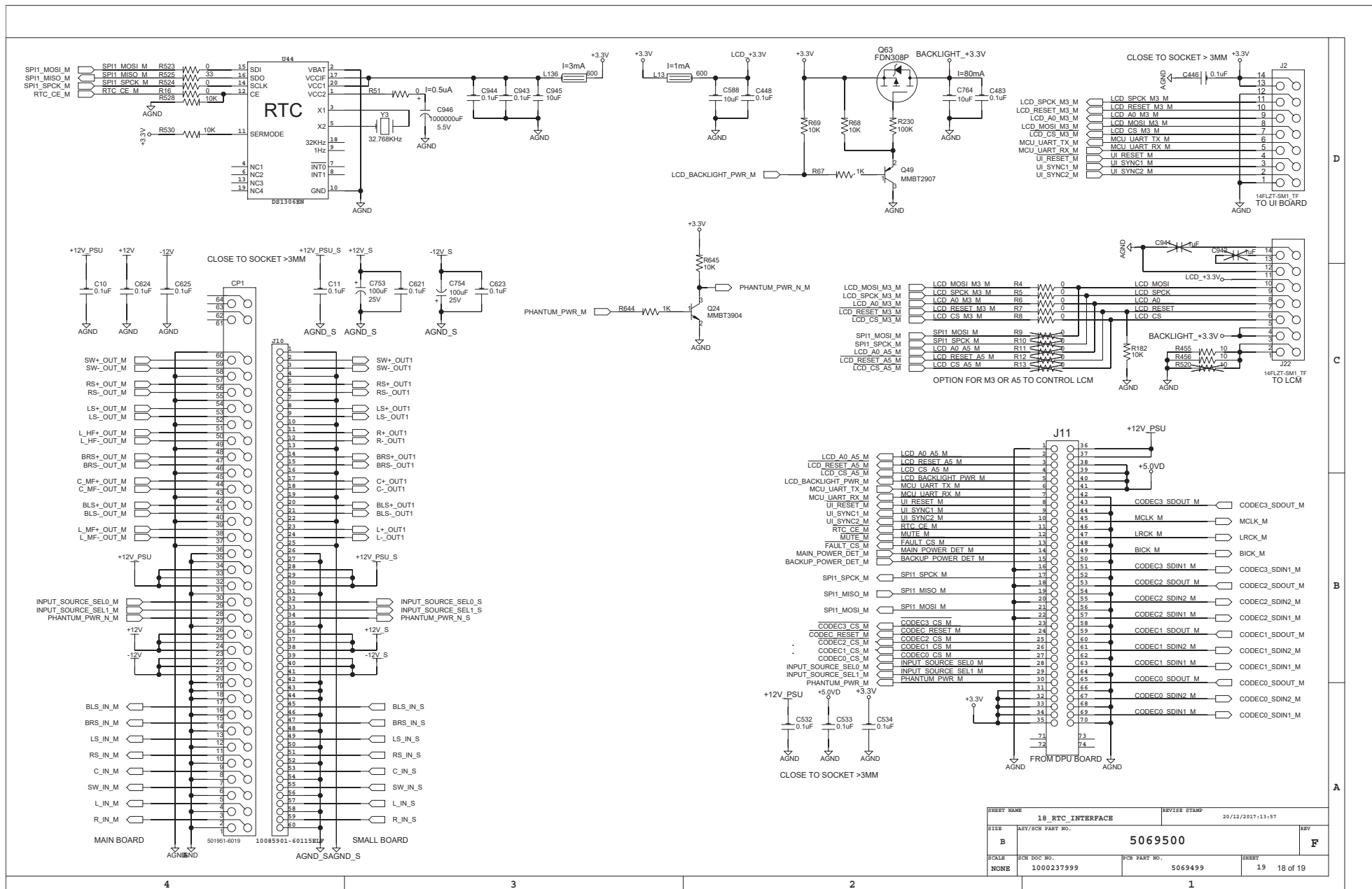
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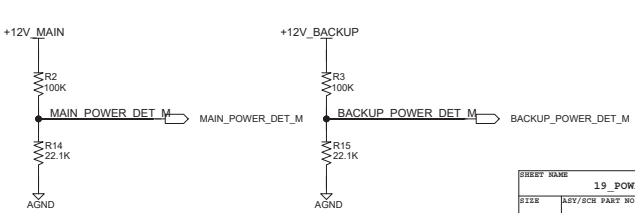
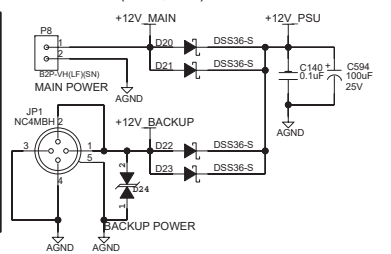
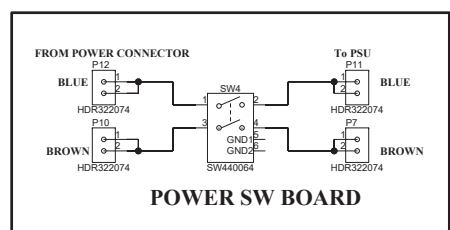
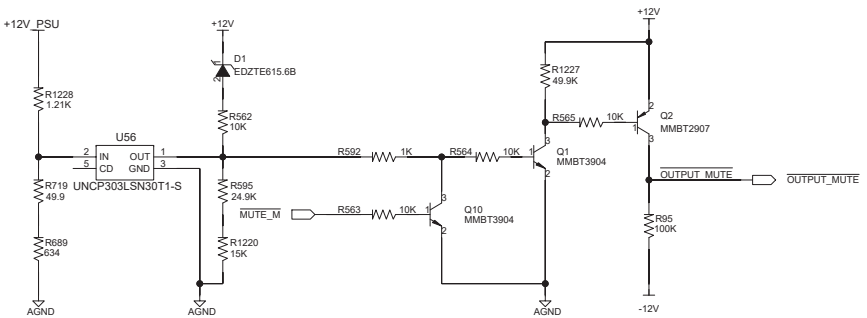
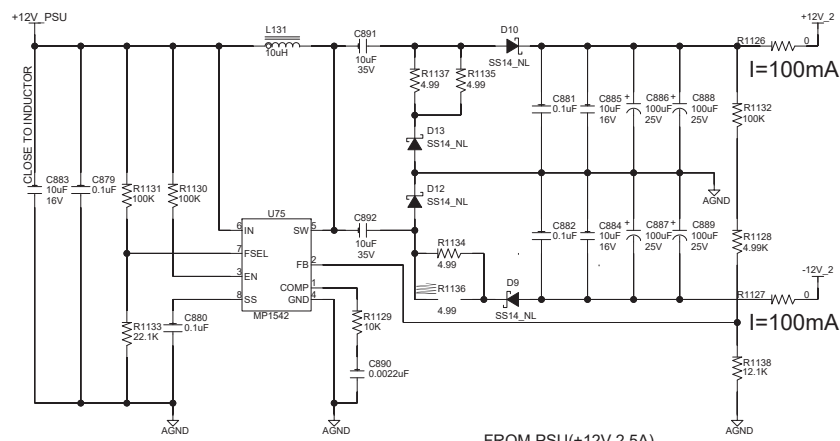
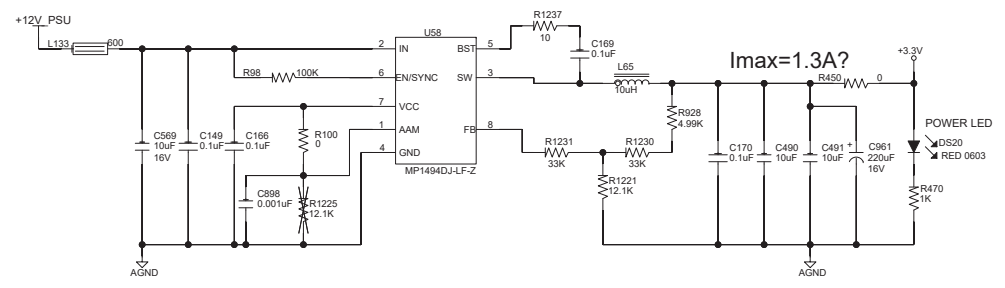
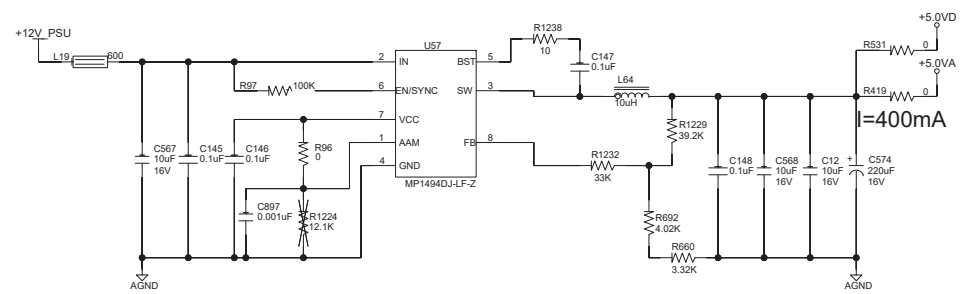
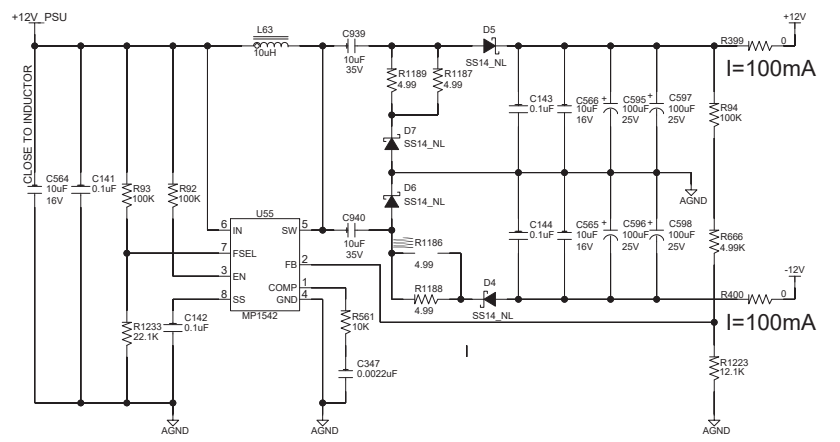
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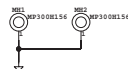
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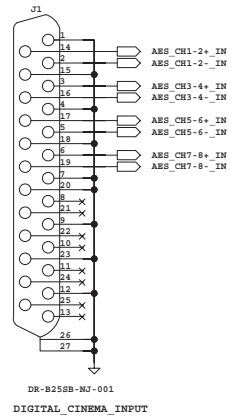
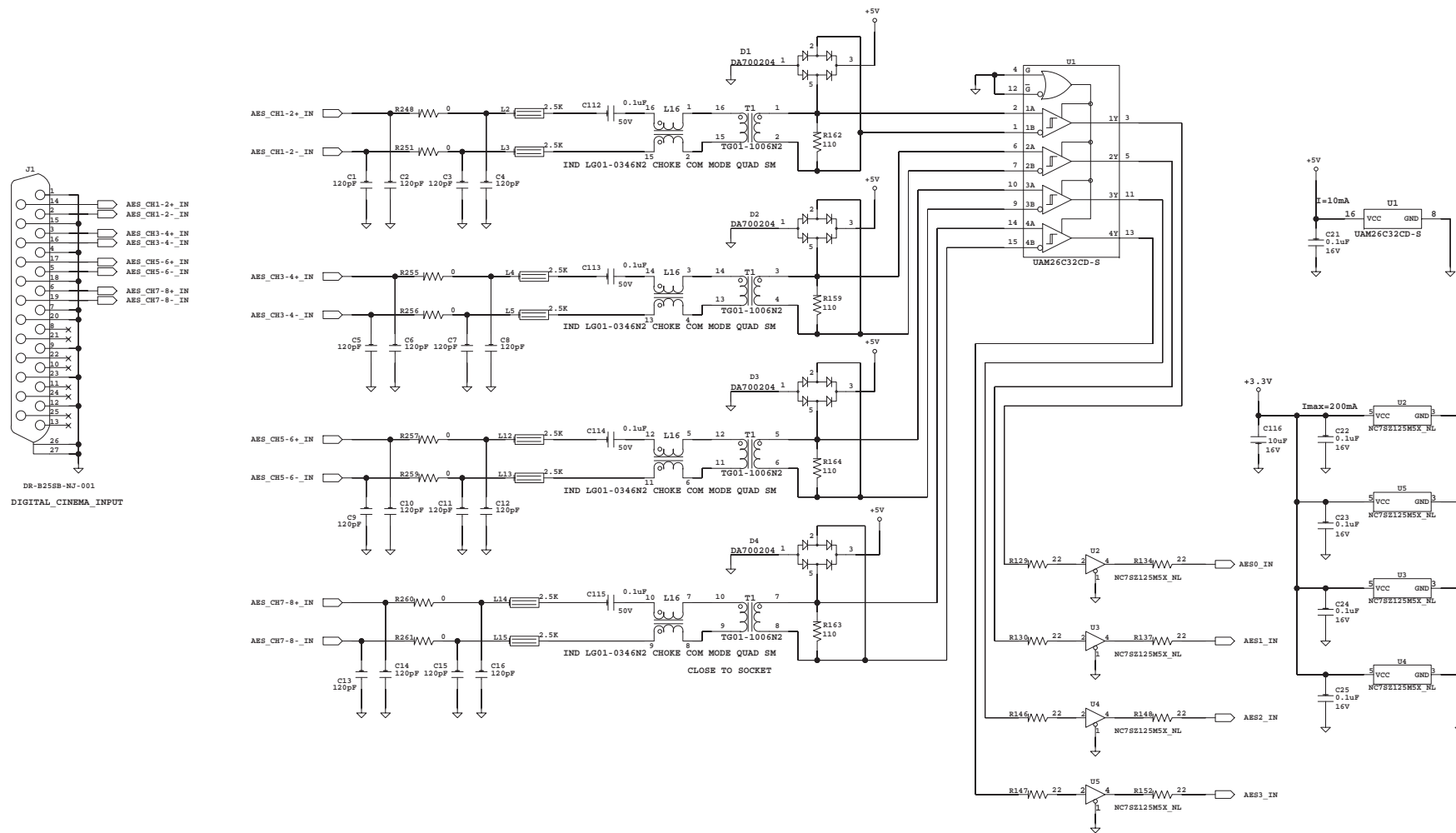
REVISION HISTORY				
DATE	REV	DESCRIPTION	BY	CHKD
	-	SEE CHANGE NOTICE FOR HISTORY		

1	Component Map - Top Side
2	Component Map - Bottom Side
3	Title Page
4	PHY
5	AES INPUT
6	SRC
7	DSP
8	CONNECTORS
9	MCU DDR
10	MCU DDR POWER
11	ALWAYS ON POWER SUPPLIES
12	JTAG
13	NAND FLASH
14	MCU BANK ABCD

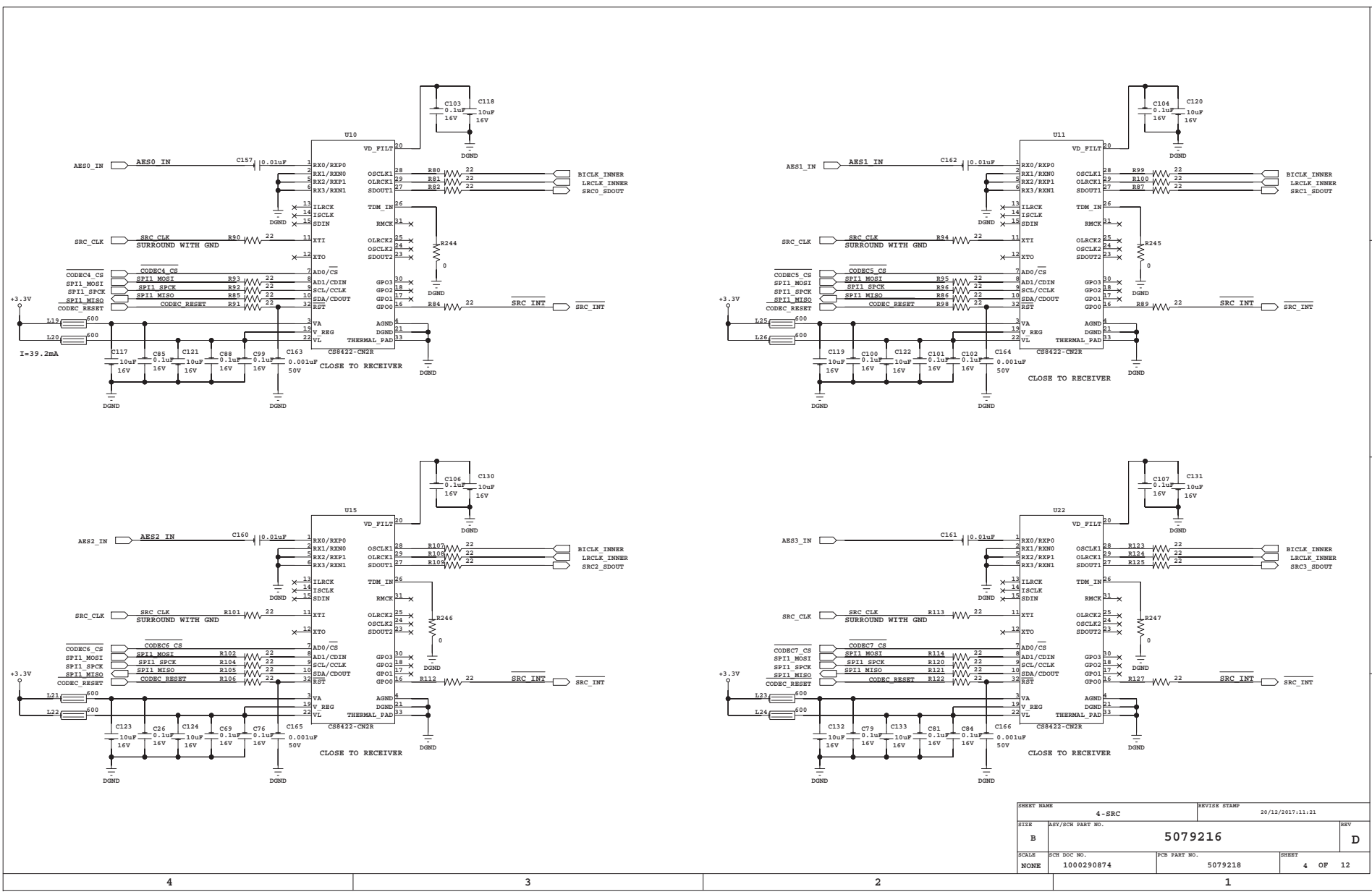


<b>RoHS</b> RESTRICTION OF HAZARDOUS SUBSTANCES ALL MATERIALS USED IN THIS PART MUST BE RoHS COMPLIANT. SUPPLIER SHALL PROVIDE A CERTIFICATE OF RoHS COMPLIANCE WITH THE FIRST ARTICLE. PROPRIETARY AND CONFIDENTIAL PROPERTY OF HARMAN. DO NOT DISCLOSE, REPRODUCE, OR PUBLISH WITHOUT APPROVAL.		<b>CAUTION:</b> CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).		SHEET NAME: 1-Title Page REVISION: 20/12/2017:11:21	
DRAWN BY: <b>sea</b> DATE: 20DEC2017		TITLE: <b>HARMAN</b> PCB SCH, PCB,ASY,CPi2000 DPU,AV1		SHEET: 1 OF 12	
CHECKED BY: <b>sea</b> DATE: 20DEC2017		TITLE: <b>C</b> PART/PCB PART NO.: <b>5079216</b>		REV: <b>D</b>	
SCALE: <b>NONE</b>		PCB DOC NO.: 1000290874		PCB PART NO.: 5079218	





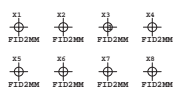
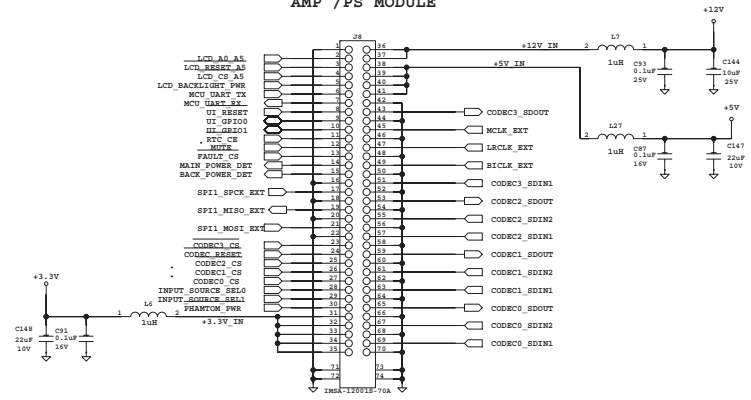
SHEET NAME		REVISE DATE	
3-ABS INPUT		20/12/2017:11:21	
SHEET NO.	REV	REV	
B		5079216	D
SCALE	PCB PART NO.	SHEET	OP
NONE	1000290874	5079218	3 OF 12



SHEET NAME		4-SRC		REVISE stamp		20/12/2017:11:21	
SHEET NO.		B		REV		D	
SHEET DOC NO.		1000290874		PCB PART NO.		5079216	
SHEET		4 OF 12		SHEET		5079216	



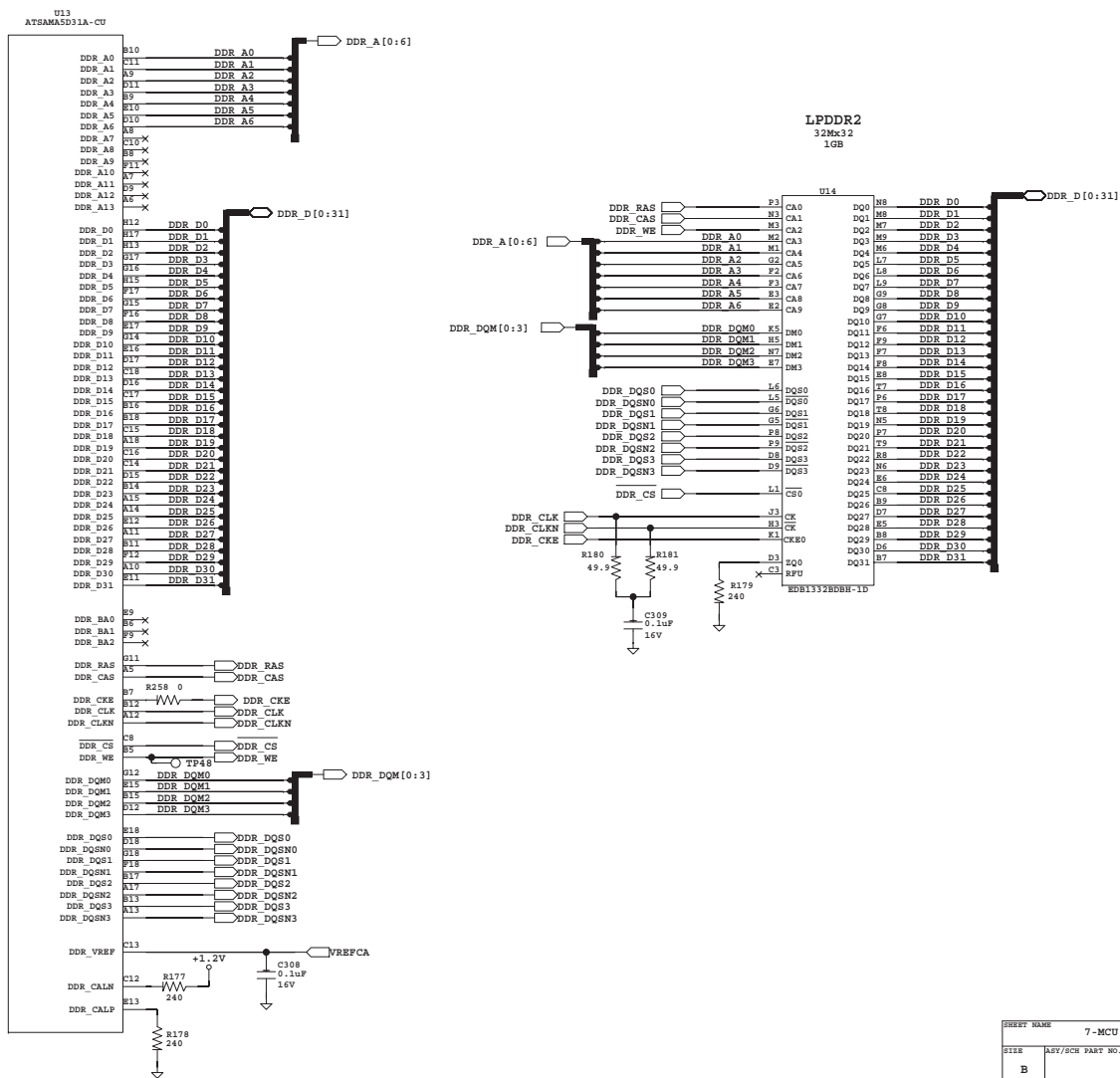
AMP /PS MODULE



1463  
LABEL BARCODE  
PCB, RAM, LEXCP12000, BDB

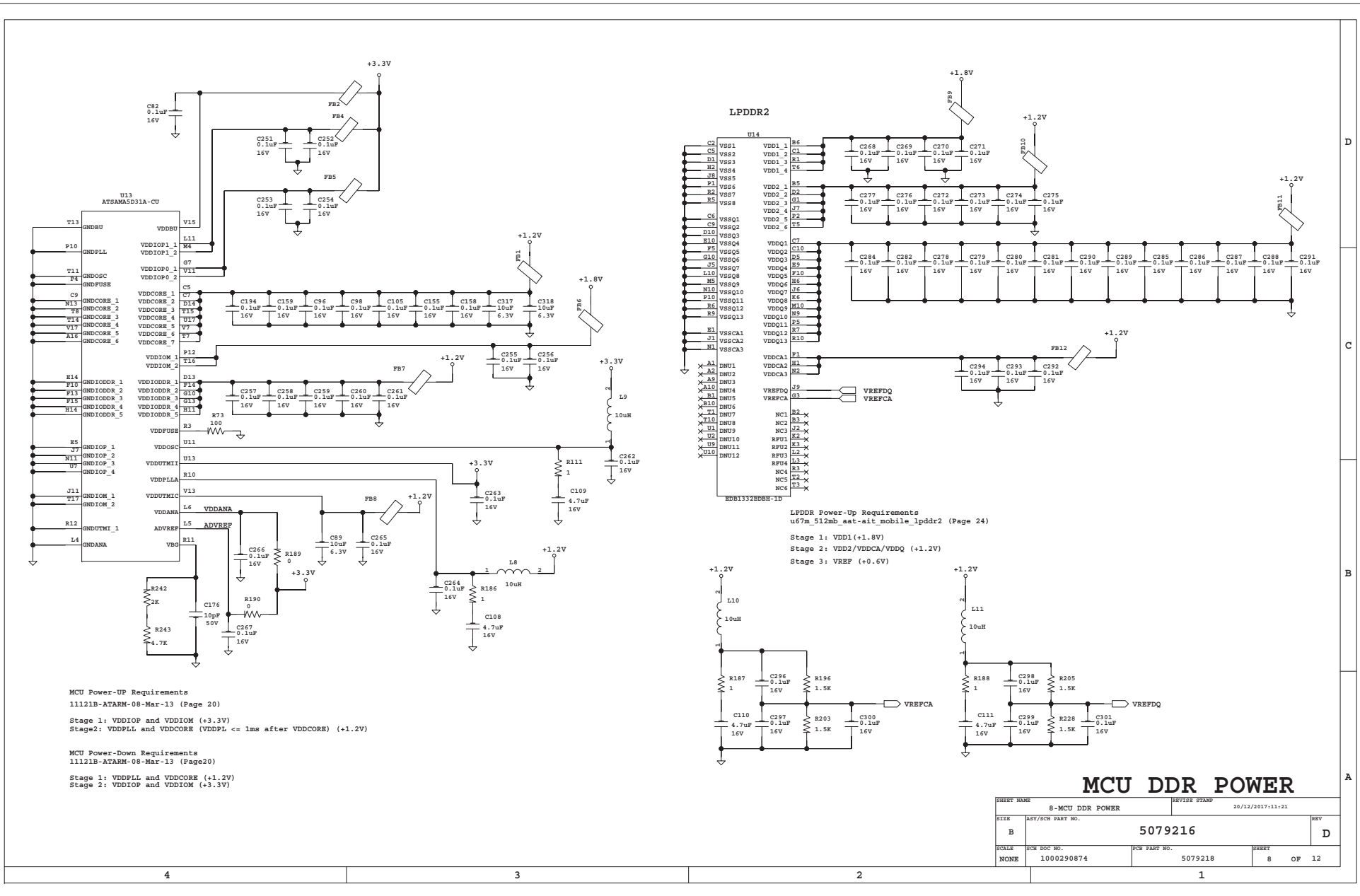
CONNECTORS

SHEET NAME		6-CONNECTORS		DATE/REV		20/12/2017/11:21	
FILE		REV/PCB PART NO.		5079216		REV	
C						D	
SCALE	PCB PART NO.	PCB PART NO.	SHEET	REV			
NONE	1000290874	5079218	6	OP 12			
1							



### MCU DDR

SHEET NAME		REVISED STATE	
7-MCU DDR			
SHEET	ASV/DCR PART NO.	DATE	REV
B	5079216	20/12/2017:11:21	D
SCALE	DCR DOC NO.	PCB PART NO.	SHEET
NONE	1000290874	5079218	7 OF 12



### MCU DDR POWER

SHEET NAME		REVISED DRAWN	
8-MCU DDR POWER		20/12/2017:11:21	
SIZE	REV/CHG PART NO.	REV	
B	5079216	D	
SCALE	PCB DOC NO.	SHEET	OF
NONE	1000290874	5079218	8 OF 12

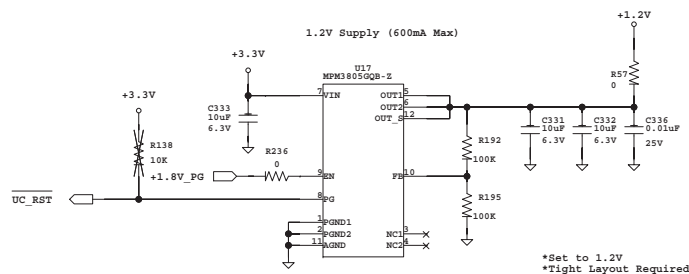
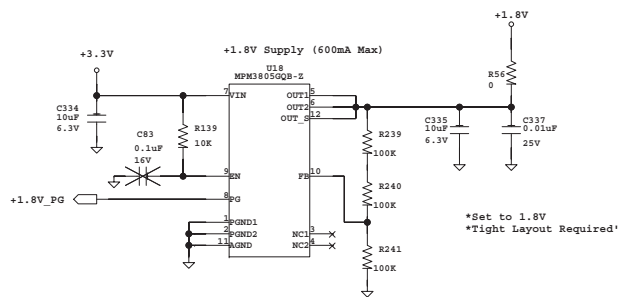
4

3

2

1





Power Sequence  
 +3.3V  
 ↓  
 +1.8V  
 ↓  
 +1.2V

**ALWAYS ON POWER SUPPLIES**

SHEET NAME 9 - POWER SUPPLIES		REVISION 20/12/2017:11:21	
SIZE B	REV/SCR PART NO. 5079216		REV D
SCALE NONE	SCR DOC NO. 1000290874	PCR PART NO. 5079218	SHEET 9 OF 12

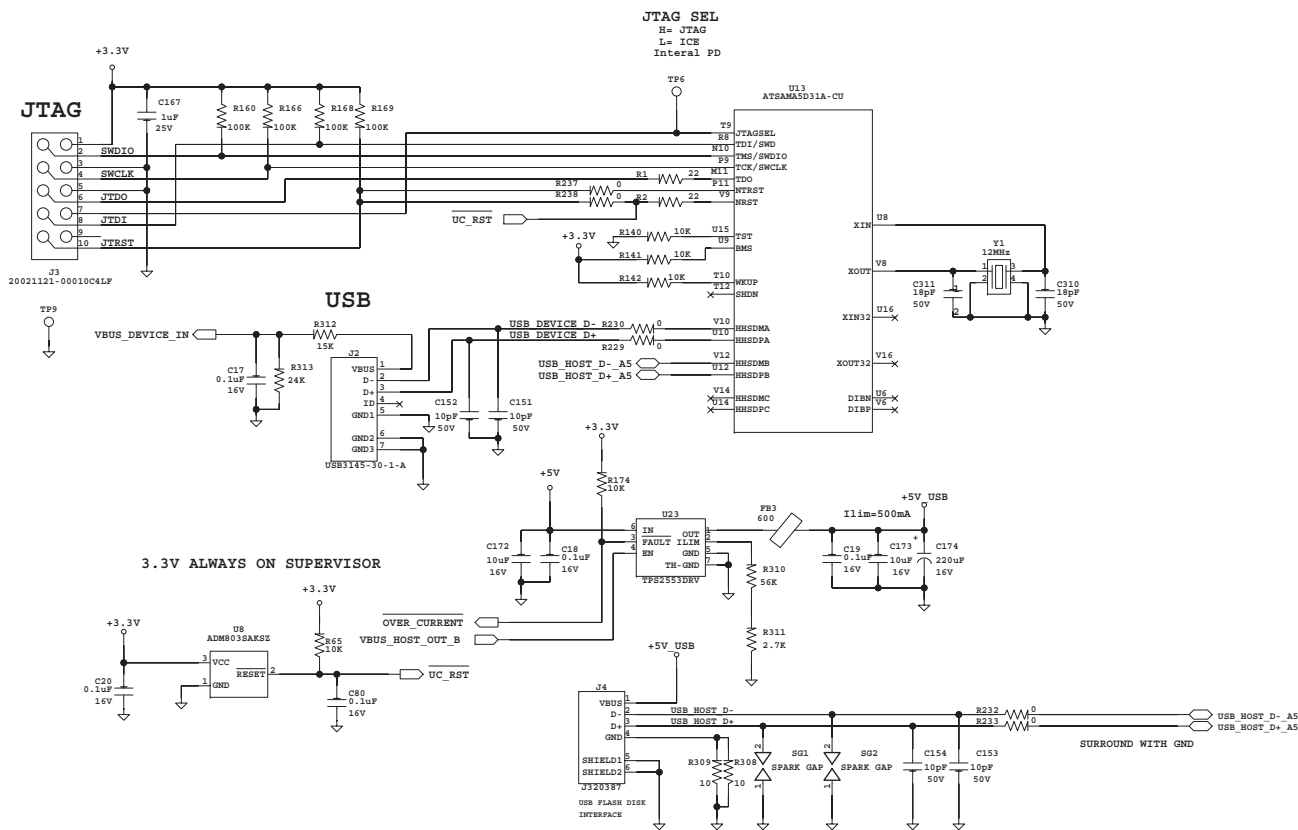
4

3

2

1

D  
C  
B  
A



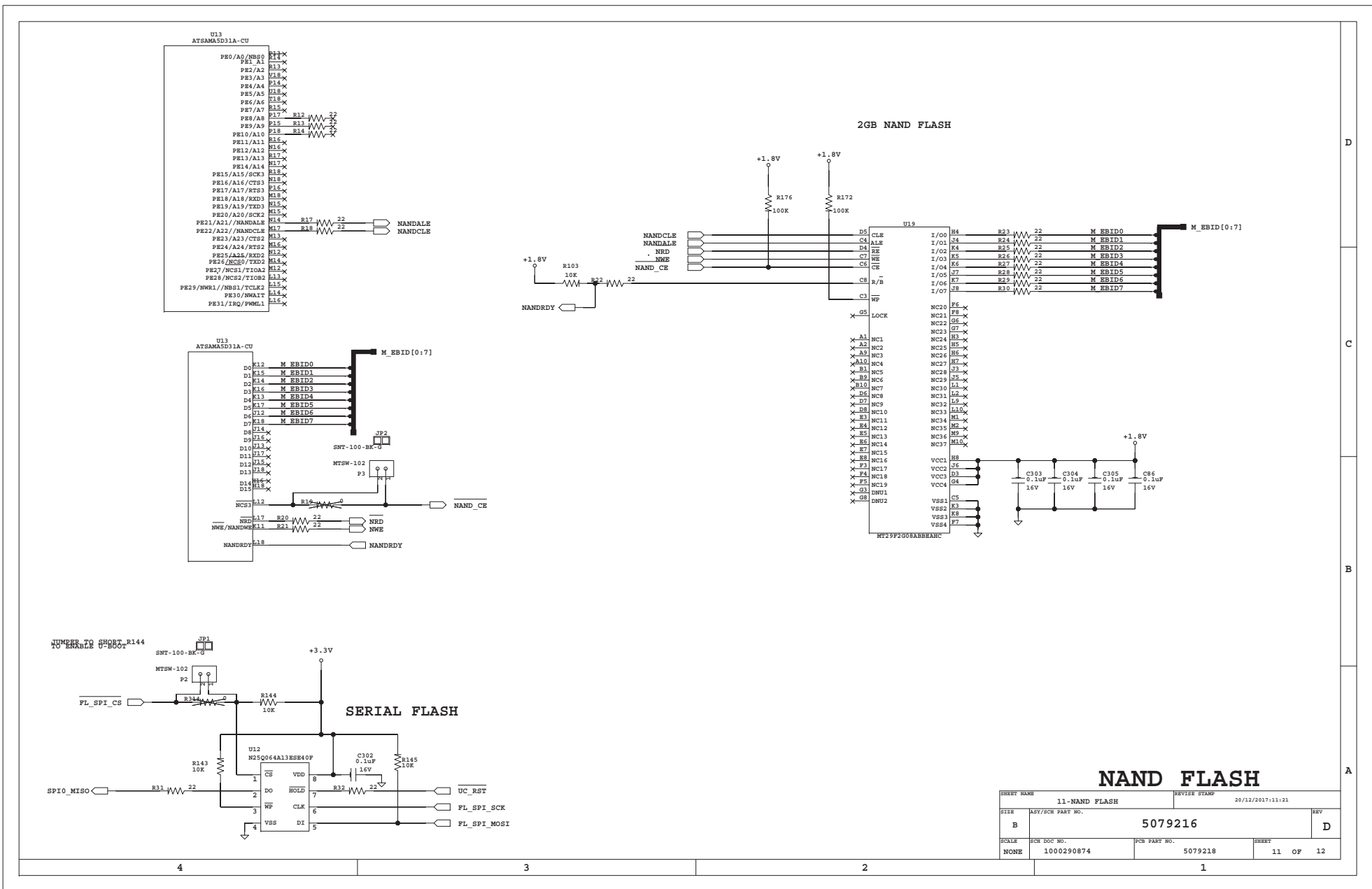
SHEET NAME		REVISE DRAW	
10-JTAG			
SHEET	REV/CHG PART NO.	DATE	REV
B	5079216	20/12/2017:11:21	D
SCALE	SCH DOC NO.	PCB PART NO.	SHEET
NONE	1000290874	5079218	10 OF 12

4

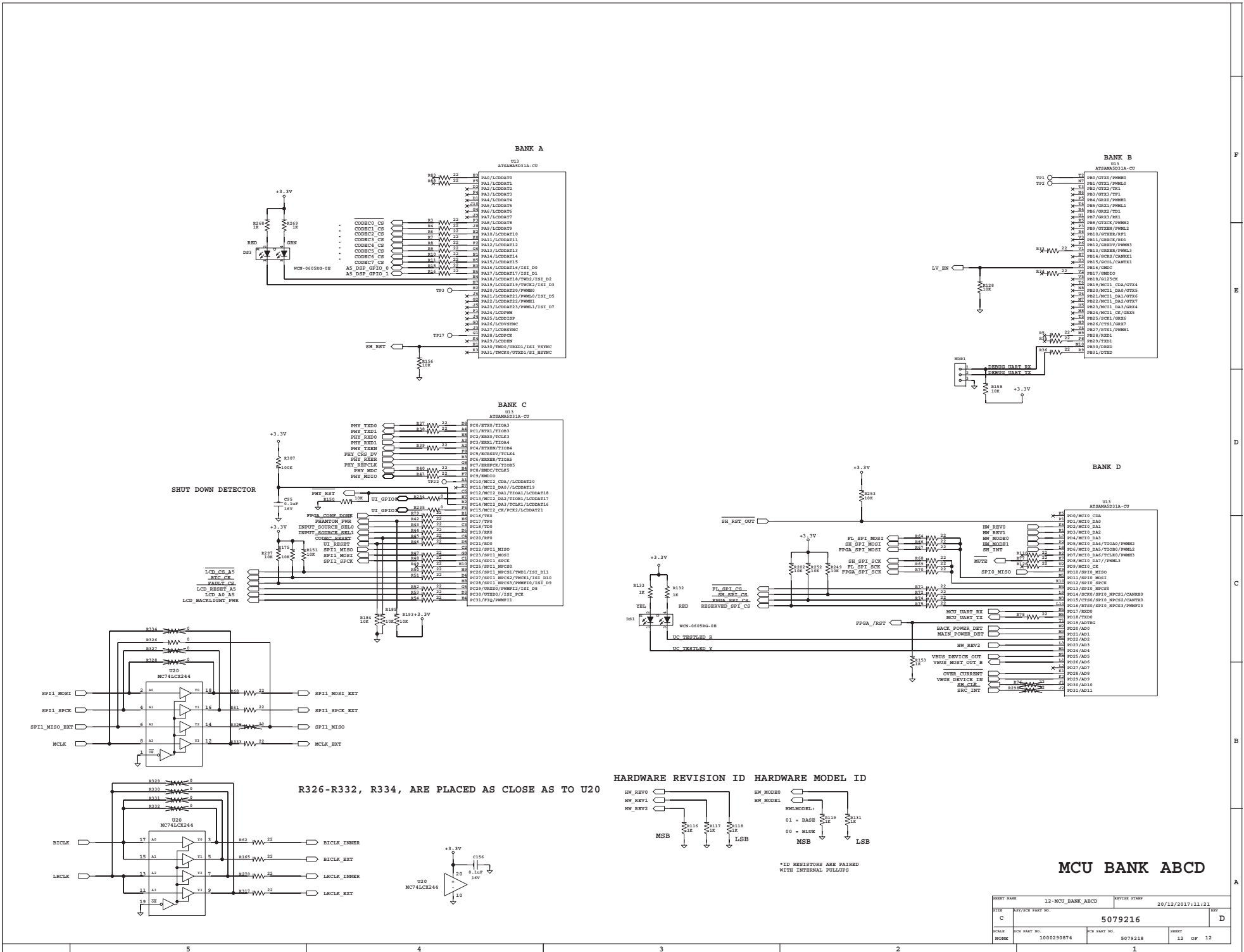
3

2

1

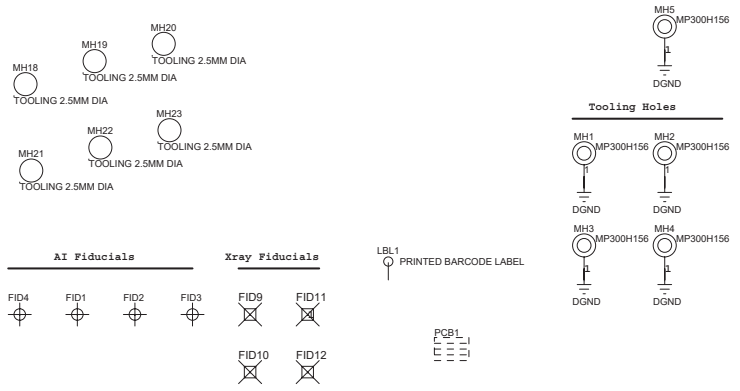


D  
C  
B  
A



SHEET NAME		12-MCU_BANK_ABCD		REVISED STAMP		20/12/2017/11:21	
FILE	REV/CHG PART NO.	5079216				REV	D
SCALE	CHG PART NO.	1000290874	CHG PART NO.	5079218	HEET	12 OF 12	
MOORE							1

REVISION HISTORY					
DATE	REV	DESCRIPTION	BY	CHKD	APVD
	-	SEE CHANGE NOTICE FOR HISTORY			



**ROHS**  
RESTRICTION OF HAZARDOUS SUBSTANCES  
ALL MATERIALS USED IN THIS PART MUST BE  
ROHS COMPLIANT.  
SUPPLIER SHALL PROVIDE A CERTIFICATE OF  
ROHS COMPLIANCE WITH THE FIRST ARTICLE.  
PROPRIETARY AND CONFIDENTIAL PROPERTY OF  
HARMAN. DO NOT DISCLOSE, REPRODUCE, OR  
PUBLISH WITHOUT APPROVAL.

**CAUTION:**  
CONTAINS PARTS AND ASSEMBLIES  
SUSCEPTIBLE TO DAMAGE BY  
ELECTROSTATIC DISCHARGE (ESD).

DRAWN BY: EvanZhong  
ENGINEER: EvanZhong  
DATE: 20DEC2017

SHEET NAME	1	REVISE STAMP	20/12/2017:10:57
<p><b>HARMAN</b></p> <p>PCB SCH, Primary</p>		REV	
		C	
TITLE	DATA,CPI2000 UI		
SCALE	NONE	PCB PART NO.	5079224
DATE	20DEC2017	SHEET	3 1 OF 3

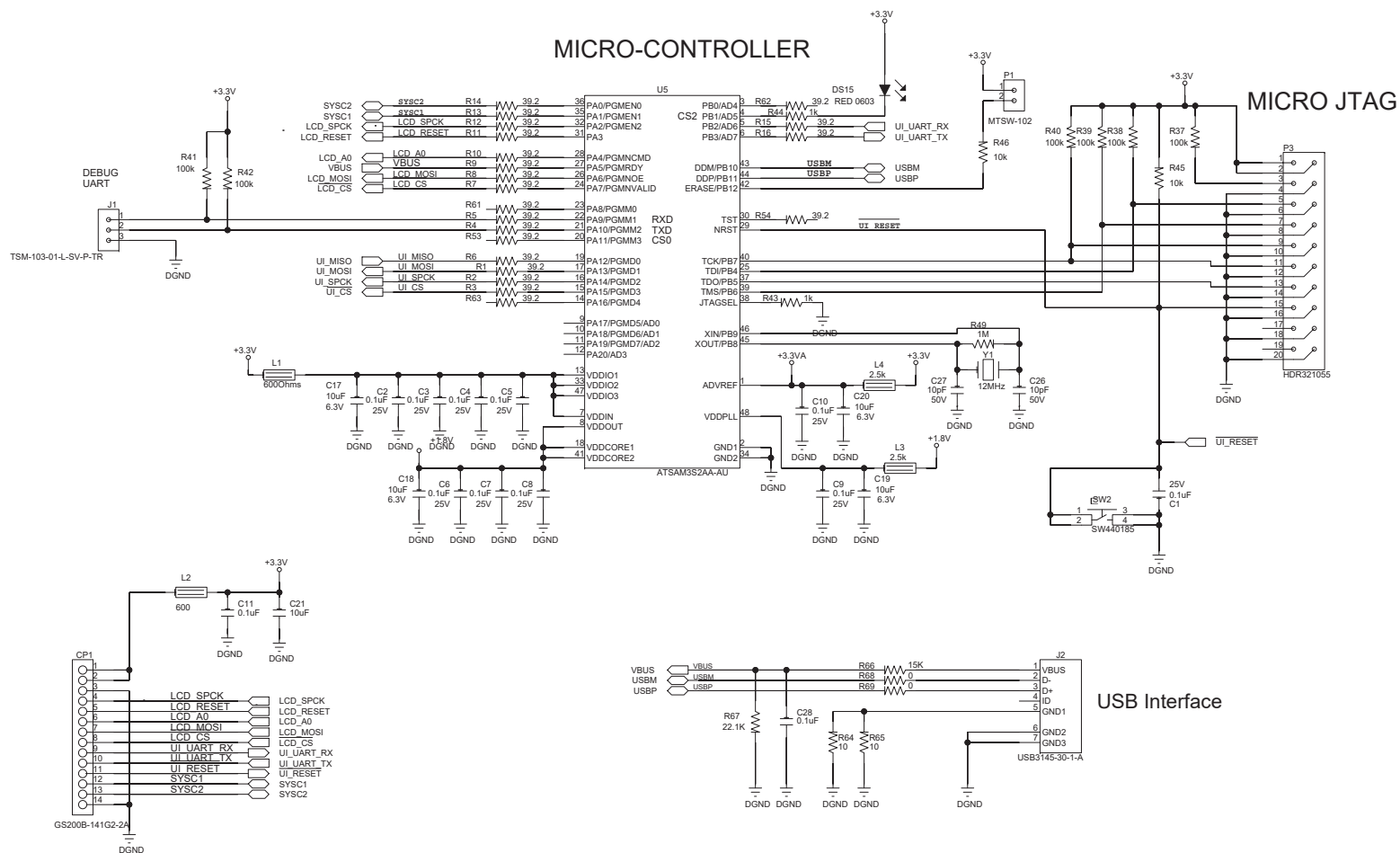
4

3

2

1

D  
C  
B  
A



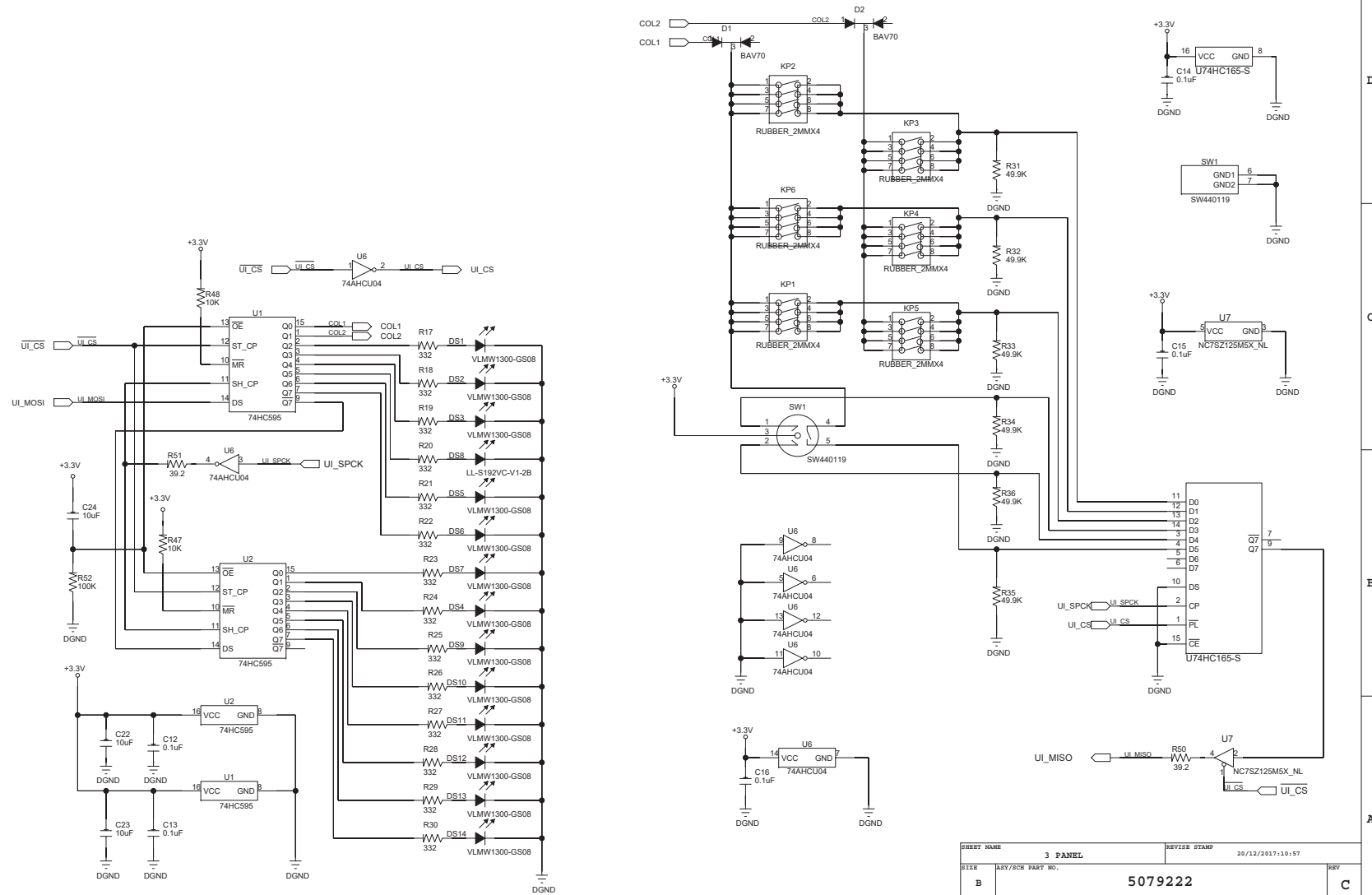
SHEET NAME		2 MCU	REVISE STAMP	20/12/2017:10:57
SEER	REV	REV	5079222	
SCALE	PCB DOC NO.	PCB PART NO.	SHEET	3 2 OF 3
NONE	1000290882	5079224		

4

3

2

1



SHEET NAME		3 PANEL		REVISE STAMP		20/12/2017:10:57	
SEER	REV/CHN PART NO.	5079222				REV	C
SCALE	SCH DOC NO.	1000290882		PCB PART NO.	5079224		SHEET 3 OF 3

4 3 2 1

## Bill of Materials - CPI2000

Bill of Materials			
Ref ID	P/N	Description	QTY
	CPI2000-CH	CPI2000,CINEMA PROCESSOR,CH,100-240V	
1	36-0123	CBL,PCRD,AC CHINA,2.5M,CCC APVD	1
2	5069500	PCB,ASY,CPI2000,AV1	1
3	141937-1	CON, RCA F 2P BRT TH VRT	1
4	32-0219	CON JACK XLR RA PC LATCH AA SERIES N	1
5	44-0064	SW DPST PWR PUSH-PUSH 8A 250V	1
6	5018349	CON,HDR,14PIN,2X7 0.5MM, SPC ZIF FM VRT SM	2
7	5021802	CON,DSUB,RIGHT ANGLE,FEMALE 15PIN,PTH	10
8	5021803	CON,DSUB,RIGHT ANGLE,FEMALE 25PIN,PTH	1
9	5032053	CON,FPC,60WAY,0.5mm,SM,VERT	1
10	5039902	CON,FFC,60 POS,0.5mm,ZIF,SM	1
11	5056055	CON,DSUB,RA,25PIN,MALE	2
12	5059488	CON,FPC,F,70P,ZIF,LCH,HOR,SM	1
13	5060458	CON,HDR,1X2,3.96mm,MALE,VERT	1
14	5080554	CON,XLR,RA,4PIN,ML,CHAS,MT,MET	1
15	72-5146	IC RELAY DPDT 12VDC POL SM	8
16	5069972	MECHASY,CPI2000	1
17	28-0078	SCRW #4X1/4 PH PAN STL PLST THRD BLK BIN	5
18	28-0278	SCREW 4-40X1/4 PHIL PAN EX SEMS ZINC	7
19	28-1069	STDF HEX 6-32x15/16 ML/FM 1/4 STL BIN	5
20	32-0180	CON JACK 3PIN AC W/GND WIRE & LUG	1
21	5009110	FSTNR,MSCR,6-32x1/4,POZI,PAN,BLK	10
22	5009114	FSTNR,MSCR,PH-PNH,6-32x1/4,EX SEMS,Zn	16
23	5021585	HDW,SWCAP,RND DIA 8.8mm,SFT 3.3mm,BLK	1
24	5059840	HDW,CBL,FFC,70P,OPP SIDES,100MM	1
25	5069840	LBL,PRNT,OVLY,LOGO,CPI2000	1
26	5069841	LBL,PRNT,OVLY,MODEL,CPI2000	1
27	5069842	LBL,PRNT,OVLY,MAIN CTRL,CPI2000	1
28	5069882	CBL,WA,1CND,8.5" BLU W/FASTON 2 ENDS	1
29	5070128	CBL,WA,1CND,8.5" BRN W/FASTON 2 ENDS	1
30	5070211	CBL,WA,2CND,18AWG,8.5" BRN/BLU EXT LOCK	1
31	5075515	PSU,OEM,12V,DC,2.5A,100-240VAC	1
32	5075639	HDW,KNOB,D-SHFT,CPI2000,W/LTPP	1
33	5075649	HDW,SEAL,4.5",CPI2000 LCD	2
34	5075650	HDW,SEAL,2.1",CPI2000 LCD	2
35	5075665	OPT,LTPP,KEYPAD,CPI2000 CTRL	1
36	5078308	OPTO,DSPL,LCD,320x160,NEG,LED,BLACK,12 O'CLK	1
37	5080838	HDW,CBL,FFC,58WAY,45mm,0.5mm	1
38	5080839	HDW,CBL,FFC,14WAY,110mm,0.5mm	1
39	5079216	PCB,ASY,CPI2000_DPU,AV1	1
40	141349-1	CON, HDR F 25P 0.5MM SM VRT	1
41	32-0320	CON,HDR,2X7,2.54mm,VERT,ML,SM	1
42	32-0387	CON JACK USB SHLD I/O TYPE A HOR	1
43	32-1013	CON,HDR,1X2,2.54mm,VERT,ML	2



Ref ID	P/N	Description	QTY
44	5009346	CON,SKT,RJ45,10/100,1x1,TAB-UP,w/LED	1
45	5021803	CON,DSUB,RIGHT ANGLE,FEMALE 25PIN,PTH	1
46	5059488	CON,FPC,F,70P,ZIF,LCH,HOR,SM	1
47	5064686	CON,HDR,3PIN,1X3,2.54MM,VR,MALE,SM	2
48	5064687	CON,HDR,10PIN,2X5,1.27MM,VR,MALE,SM	1
49	5067185	CON,USB,MICRO,I/O,TYPE B,VERT,RCPT,2.3MM TAIL	1
50	5100515-00	IC,PROG,CPI2000 DPU,FLASH,SPI,64Mb,SO8W	1
51	5100516-00	IC,PROG,CPI2000 DPU,NAND FLASH,2G,x8,63-VFBGA	1
52	5094032-00	MECHASY,PCBA,CPI2000 UI	1
53	5079222	PCB,ASY,CPI2000_UI,AV1	1
54	32-1013	CON,HDR,1X2,2.54mm,VERT,ML	1
55	32-1055	CON,HDR,2X10,2.54mm,VERT,ML	1
56	44-0119	ENCDR ROT 11mm 30DNT 20mm D-SFT W/SW VRT	1
57	44-0185	SW SPST LITE MINI W/PLUNGER 50mA12VDC SM	1
58	5044195	CON,FFC,14WAY,0.5mm,ZIF,RA,SM	1
59	5064686	CON,HDR,3PIN,1X3,2.54MM,VR,MALE,SM	1
60	5067185	CON,USB,MICRO,I/O,TYPE B,VERT,RCPT,2.3MM TAIL	1
61	5100514-00	IC,PROG,CPI2000 FRONT PANEL,64K,CORTEX M3,LQFP48	1
62	5094031-00	HDW,BRKT,CPI2000 VR	1