

Service  
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# Service Manual

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# 1. Revision List

Manual xxxx xxx xxxx.0

- First release.

# 2. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

[2.1 Technical Specifications](#)

[2.2 Directions for Use](#)

[2.3 Connections](#)

[2.4 Chassis Overview](#)

Notes:

- Figures can deviate due to the different set executions.
- Specifications are indicative (subject to change).

## 2.1 Technical Specifications

For on-line product support please use the links in [Table 2-1](#). Here is product information available, as well as getting started, user manuals, frequently asked questions and software & drivers.

Table 2-1 Described Model Numbers:

Model Number	Styling	Published in
<a href="#">32PFL5404/12</a>	P&S	3122 785 18400
<a href="#">32PFL5404/60</a>		
<a href="#">42PFL5604/60</a>		

**Note:** The given Model Numbers are subject to change.

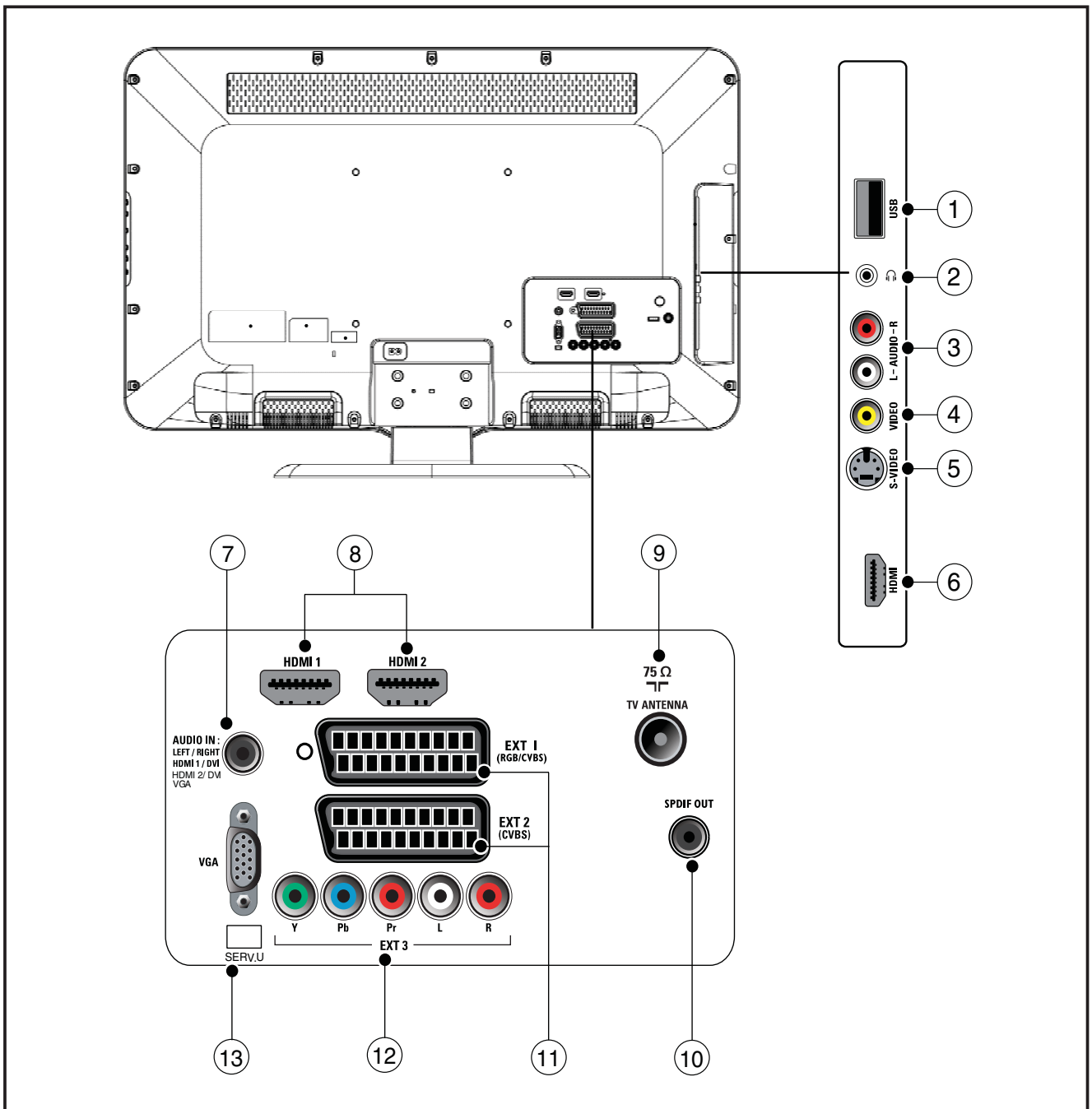
## 2.2 Directions for Use

Directions for use can be downloaded from the following websites:

<http://www.philips.com/support>

<http://www.p4c.philips.com>

2.3 Connections



18400\_001\_090301.eps  
090615

Figure 2-1 Connection overview

**Note:** The following connector colour abbreviations are used:  
Bk = Black, Bu = Blue, Gn = Green, Gy = Grey, Rd = Red,  
Wh = White, Ye = Yellow.

2.3.1 Side Connections

1 - USB2.0

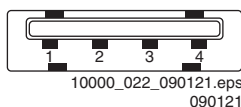


Figure 2-2 USB (type A)

- |      |   |                              |
|------|---|------------------------------|
| 1    | - +5V                                     |                              |
| 2    | - Data (-)                                |                              |
| 3    | - Data (+)                                |                              |
| 4    | - Ground                                  |                              |
|      | Gnd                                       |                              |
| <br> |   |                              |
| 2    | <b>Head phone (Output)</b>                |                              |
| Bk   | - Head phone                              | 32 - 600 Ω / 10 mW           |
| <br> |   |                              |
| 3    | <b>Cinch: Audio - In</b>                  |                              |
| Rd   | - Audio R                                 | 0.5 V <sub>RMS</sub> / 10 kΩ |
| Wh   | - Audio L                                 | 0.5 V <sub>RMS</sub> / 10 kΩ |
| <br> |   |                              |
| 4    | <b>Cinch: Video CVBS - In, Audio - In</b> |                              |
| Ye   | - Video CVBS                              | 1 V <sub>PP</sub> / 75 Ω     |

**5 - S-Video (Hosiden): Video Y/C - In**

1	- Ground Y	Gnd	⊥
2	- Ground C	Gnd	⊥
3	- Video Y	1 V <sub>PP</sub> / 75 Ω	⊕
4	- Video C	0.3 V <sub>PP</sub> / 75 Ω	⊕

**6 - HDMI: Digital Video, Digital Audio - In**

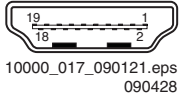


Figure 2-3 HDMI (type A) connector

1	- D2+	Data channel	⊕
2	- Shield	Gnd	⊥
3	- D2-	Data channel	⊕
4	- D1+	Data channel	⊕
5	- Shield	Gnd	⊥
6	- D1-	Data channel	⊕
7	- D0+	Data channel	⊕
8	- Shield	Gnd	⊥
9	- D0-	Data channel	⊕
10	- CLK+	Data channel	⊕
11	- Shield	Gnd	⊥
12	- CLK-	Data channel	⊕
13	- Easylink	Control channel	⊕
14	- n.c.		
15	- DDC_SCL	DDC clock	⊕
16	- DDC_SDA	DDC data	⊕
17	- Ground	Gnd	⊥
18	- +5V		⊕
19	- HPD	Hot Plug Detect	⊕
20	- Ground	Gnd	⊥

**2.3.2 Rear Connections**

**7 - VGA: Video RGB - In**

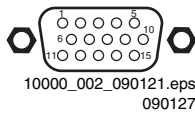


Figure 2-4 VGA Connector

1	- Video Red	0.7 V <sub>PP</sub> / 75 Ω	⊕
2	- Video Green	0.7 V <sub>PP</sub> / 75 Ω	⊕
3	- Video Blue	0.7 V <sub>PP</sub> / 75 Ω	⊕
4	- n.c.		
5	- Ground	Gnd	⊥
6	- Ground Red	Gnd	⊥
7	- Ground Green	Gnd	⊥
8	- Ground Blue	Gnd	⊥
9	- +5V <sub>DC</sub>	+5 V	⊕
10	- Ground Sync	Gnd	⊥
11	- n.c.		
12	- DDC_SDA	DDC data	⊕
13	- H-sync	0 - 5 V	⊕
14	- V-sync	0 - 5 V	⊕
15	- DDC_SCL	DDC clock	⊕

**- VGA Audio - In**

Bk	- VGA Audio	32 - 600 Ω / 10 mW	⊕
----	-------------	--------------------	---

**8 - HDMI 1/2: Digital Video, Digital Audio - In**  
See [6 - HDMI: Digital Video, Digital Audio - In](#).

**9 - Aerial - In**

-	- IEC-type (EU)	Coax, 75 Ω	⊥
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**10 - Cinch: S/PDIF - Out**

Bk	- Coaxial	0.4 - 0.6V <sub>PP</sub> / 75 Ω	⊕
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**11 - EXT1 - 2: Video RGB/YC - In, CVBS - In/Out, Audio -In/Out**

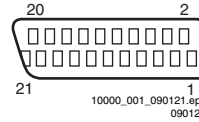


Figure 2-5 SCART connector

1	- n.c.		
2	- Audio R	0.5 V <sub>RMS</sub> / 10 kΩ	⊕
3	- n.c.		
4	- Ground Audio	Gnd	⊥
5	- Ground Blue	Gnd	⊥
6	- Audio L	0.5 V <sub>RMS</sub> / 10 kΩ	⊕
7	- Video Blue	0.7 V <sub>PP</sub> / 75 Ω	⊕
8	- Function Select	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	⊕
9	- Ground Green	Gnd	⊥
10	- n.c.		
11	- Video Green	0.7 V <sub>PP</sub> / 75 Ω	⊕
12	- n.c.		
13	- Ground Red	Gnd	⊥
14	- Ground Data	Gnd	⊥
15	- Video Red	0.7 V <sub>PP</sub> / 75 Ω	⊕
16	- Status/FBL	0 - 0.4 V: INT 1 - 3 V: EXT / 75 Ω	⊕
17	- Ground Video	Gnd	⊥
18	- Ground FBL	Gnd	⊥
19	- n.c.		
20	- Video CVBS	1 V <sub>PP</sub> / 75 Ω	⊕
21	- Shield	Gnd	⊥

**12 - EXT3: Cinch: Video YPbPr - In**

Gn	- Video Y	1 V <sub>PP</sub> / 75 Ω	⊕
Bu	- Video Pb	0.7 V <sub>PP</sub> / 75 Ω	⊕
Rd	- Video Pr	0.7 V <sub>PP</sub> / 75 Ω	⊕

**EXT3: Cinch: Audio - Out**

Rd	- Audio - R	0.5 V <sub>RMS</sub> / 10 kΩ	⊕
Wh	- Audio - L	0.5 V <sub>RMS</sub> / 10 kΩ	⊕

**13 - Service Connector (UART)**

1	- UART_TX	Transmit	⊕
2	- Ground	Gnd	⊥
3	- UART_RX	Receive	⊕

**2.4 Chassis Overview**

Refer to chapter [9. Block Diagrams](#) for PWB/CBA locations.

## 3. Precautions, Notes, and Abbreviation List

### Index of this chapter:

[3.1 Safety Instructions](#)

[3.2 Warnings](#)

[3.3 Notes](#)

[3.4 Abbreviation List](#)

### 3.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the set to the Mains/AC Power via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol **▲**, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard. Of de set ontploft!

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the Mains/AC Power lead for external damage.
- Check the strain relief of the Mains/AC Power cord for proper function.
- Check the electrical DC resistance between the Mains/AC Power plug and the secondary side (only for sets that have a Mains/AC Power isolated power supply):
  1. Unplug the Mains/AC Power cord and connect a wire between the two pins of the Mains/AC Power plug.
  2. Set the Mains/AC Power switch to the "on" position (keep the Mains/AC Power cord unplugged!).
  3. Measure the resistance value between the pins of the Mains/AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 M $\Omega$  and 12 M $\Omega$ .
  4. Switch "off" the set, and remove the wire between the two pins of the Mains/AC Power plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

### 3.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD **⚡**). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

### 3.3 Notes

#### 3.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground ( $\perp$ ), or hot ground ( $\downarrow$ ), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and

picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).

- Where necessary, measure the waveforms and voltages with ( $\perp$ ) and without ( $\downarrow$ ) aerial signal. Measure the voltages in the power supply section both in normal operation ( $\textcircled{I}$ ) and in stand-by ( $\textcircled{S}$ ). These values are indicated by means of the appropriate symbols.

#### 3.3.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 k $\Omega$ ).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220  $\Omega$ ).
- All capacitor values are given in micro-farads ( $\mu = \times 10^{-6}$ ), nano-farads ( $n = \times 10^{-9}$ ), or pico-farads ( $p = \times 10^{-12}$ ).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (\*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed on the Philips Spare Parts Web Portal.

#### 3.3.3 Spare Parts

For the latest spare part overview, consult your Philips Spare Part web portal.

#### 3.3.4 BGA (Ball Grid Array) ICs

##### Introduction

For more information on how to handle BGA devices, visit this URL: <http://www.atyourservice-magazine.com>. Select "Magazine", then go to "Repair downloads". Here you will find Information on how to deal with BGA-ICs.

##### BGA Temperature Profiles

For BGA-ICs, you **must** use the correct temperature-profile. Where applicable and available, this profile is added to the IC Data Sheet information section in this manual.

#### 3.3.5 Lead-free Soldering

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free soldering tin. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able:
  - To reach a solder-tip temperature of at least 400°C.
  - To stabilize the adjusted temperature at the solder-tip.
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature of around 360°C - 380°C is reached and stabilized at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch "off" unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly **to avoid** mixed regimes. If this cannot be avoided, carefully clear the solder-joint from old tin and re-solder with new tin.

### 3.3.6 Alternative BOM identification

It should be noted that on the European Service website, "Alternative BOM" is referred to as "Design variant".

The **third digit** in the serial number (example: AG2B0335000001) indicates the number of the alternative B.O.M. (Bill Of Materials) that has been used for producing the specific TV set. In general, it is possible that the same TV model on the market is produced with e.g. two different types of displays, coming from two different suppliers. This will then result in sets which have the same CTN (Commercial Type Number; e.g. 28PW9515/12) but which have a different B.O.M. number.

By looking at the third digit of the serial number, one can identify which B.O.M. is used for the TV set he is working with. If the third digit of the serial number contains the number "1" (example: AG1B0335000001), then the TV set has been manufactured according to B.O.M. number 1. If the third digit is a "2" (example: AG2B0335000001), then the set has been produced according to B.O.M. no. 2. This is important for ordering the correct spare parts!

For the third digit, the numbers 1...9 and the characters A...Z can be used, so in total: 9 plus 26= 35 different B.O.M.s can be indicated by the third digit of the serial number.

**Identification:** The bottom line of a type plate gives a 14-digit serial number. Digits 1 and 2 refer to the production centre (e.g. AG is Bruges), digit 3 refers to the B.O.M. code, digit 4 refers to the Service version change code, digits 5 and 6 refer to the production year, and digits 7 and 8 refer to production week (in example below it is 2006 week 17). The 6 last digits contain the serial number.



Figure 3-1 Serial number (example)

### 3.3.7 Board Level Repair (BLR) or Component Level Repair (CLR)

If a board is defective, consult your repair procedure to decide if the board has to be exchanged or if it should be repaired on component level.

If your repair procedure says the board should be exchanged completely, do not solder on the defective board. Otherwise, it cannot be returned to the O.E.M. supplier for back charging!

### 3.3.8 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages.** While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

### 3.4 Abbreviation List

0/6/12	SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16 : 9 format, 12 = play 4 : 3 format
AARA	Automatic Aspect Ratio Adaptation: algorithm that adapts aspect ratio to remove horizontal black bars; keeps the original aspect ratio
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature box
AM	Amplitude Modulation
AP	Asia Pacific
AR	Aspect Ratio: 4 by 3 or 16 by 9
ASF	Auto Screen Fit: algorithm that adapts aspect ratio to remove horizontal black bars without discarding video information
ATSC	Advanced Television Systems Committee, the digital TV standard in the USA
ATV	See Auto TV
Auto TV	A hardware and software control system that measures picture content, and adapts image parameters in a dynamic way
AV	External Audio Video
AVC	Audio Video Controller
AVIP	Audio Video Input Processor
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz
BLR	Board-Level Repair
BTSC	Broadcast Television Standard Committee. Multiplex FM stereo sound system, originating from the USA and used e.g. in LATAM and AP-NTSC countries
B-TXT	Blue TeleteXT
C	Centre channel (audio)
CEC	Consumer Electronics Control bus: remote control bus on HDMI connections
CL	Constant Level: audio output to connect with an external amplifier
CLR	Component Level Repair
ComPair	Computer aided rePair
CP	Connected Planet / Copy Protection
CSM	Customer Service Mode
CTI	Color Transient Improvement: manipulates steepness of chroma transients
CVBS	Composite Video Blanking and Synchronization
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DDC	See "E-DDC"
D/K	Monochrome TV system. Sound carrier distance is 6.5 MHz
DFI	Dynamic Frame Insertion
DFU	Directions For Use: owner's manual
DMR	Digital Media Reader: card reader
DMSD	Digital Multi Standard Decoding
DNM	Digital Natural Motion

DNR	Digital Noise Reduction: noise reduction feature of the set		uses 8 bit or 10 bit data words, and has a maximum data rate of 270 Mbit/s, with a minimum bandwidth of 135 MHz.
DRAM	Dynamic RAM		
DRM	Digital Rights Management		
DSP	Digital Signal Processing	ITV	Institutional TeleVision; TV sets for hotels, hospitals etc.
DST	Dealer Service Tool: special remote control designed for service technicians	LS	Last Status; The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according to the customer's preferences
DTCP	Digital Transmission Content Protection; A protocol for protecting digital audio/video content that is traversing a high speed serial bus, such as IEEE-1394	LATAM	Latin America
DVB-C	Digital Video Broadcast - Cable	LCD	Liquid Crystal Display
DVB-T	Digital Video Broadcast - Terrestrial	LED	Light Emitting Diode
DVD	Digital Versatile Disc	L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
DVI(-d)	Digital Visual Interface (d= digital only)		LG.Philips LCD (supplier)
E-DDC	Enhanced Display Data Channel (VESA standard for communication channel and display). Using E-DDC, the video source can read the EDID information form the display.	LPL	Loudspeaker
EDID	Extended Display Identification Data (VESA standard)	LS	Low Voltage Differential Signalling
EEPROM	Electrically Erasable and Programmable Read Only Memory	Mbps	Mega bits per second
EMI	Electro Magnetic Interference	M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
EPLD	Erasable Programmable Logic Device	MIPS	Microprocessor without Interlocked Pipeline-Stages; A RISC-based microprocessor
EU	Europe	MOP	Matrix Output Processor
EXT	EXternal (source), entering the set by SCART or by cinches (jacks)	MOSFET	Metal Oxide Silicon Field Effect Transistor, switching device
FDS	Full Dual Screen (same as FDW)	MPEG	Motion Pictures Experts Group
FDW	Full Dual Window (same as FDS)	MPIF	Multi Platform InterFace
FLASH	FLASH memory	MUTE	MUTE Line
FM	Field Memory or Frequency Modulation	NC	Not Connected
FPGA	Field-Programmable Gate Array	NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, mainly used in Europe.
FTV	Flat TeleVision	NTC	Negative Temperature Coefficient, non-linear resistor
Gb/s	Giga bits per second	NTSC	National Television Standard Committee. Color system mainly used in North America and Japan. Color carrier NTSC M/N= 3.579545 MHz, NTSC 4.43= 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
G-TXT	Green TeleteXT		
H	H_sync to the module		
HD	High Definition		
HDD	Hard Disk Drive		
HDCP	High-bandwidth Digital Content Protection: A "key" encoded into the HDMI/DVI signal that prevents video data piracy. If a source is HDCP coded and connected via HDMI/DVI without the proper HDCP decoding, the picture is put into a "snow vision" mode or changed to a low resolution. For normal content distribution the source and the display device must be enabled for HDCP "software key" decoding.	NVM	Non-Volatile Memory: IC containing TV related data such as alignments
HDMI	High Definition Multimedia Interface	O/C	Open Circuit
HP	HeadPhone	OSD	On Screen Display
I	Monochrome TV system. Sound carrier distance is 6.0 MHz	OTC	On screen display Teletext and Control; also called Artistic (SAA5800)
I <sup>2</sup> C	Inter IC bus	P50	Project 50: communication protocol between TV and peripherals
I <sup>2</sup> D	Inter IC Data bus	PAL	Phase Alternating Line. Color system mainly used in West Europe (color carrier= 4.433619 MHz) and South America (color carrier PAL M= 3.575612 MHz and PAL N= 3.582056 MHz)
I <sup>2</sup> S	Inter IC Sound bus	PCB	Printed Circuit Board (same as "PWB")
IF	Intermediate Frequency	PCM	Pulse Code Modulation
IR	Infra Red	PDP	Plasma Display Panel
IRQ	Interrupt Request	PFC	Power Factor Corrector (or Pre-conditioner)
ITU-656	The ITU Radio communication Sector (ITU-R) is a standards body subcommittee of the International Telecommunication Union relating to radio communication. ITU-656 (a.k.a. SDI), is a digitized video format used for broadcast grade video.	PIP	Picture In Picture
	Uncompressed digital component or digital composite signals can be used. The SDI signal is self-synchronizing,	PLL	Phase Locked Loop. Used for e.g. FST tuning systems. The customer can give directly the desired frequency
		POD	Point Of Deployment: a removable CAM module, implementing the CA system for a host (e.g. a TV-set)
		POR	Power On Reset, signal to reset the uP
		PTC	Positive Temperature Coefficient, non-linear resistor
		PWB	Printed Wiring Board (same as "PCB")

PWM	Pulse Width Modulation	Y	Luminance signal
QRC	Quasi Resonant Converter	Y/C	Luminance (Y) and Chrominance (C) signal
QTNR	Quality Temporal Noise Reduction		
QVCP	Quality Video Composition Processor	YPbPr	Component video. Luminance and scaled color difference signals (B-Y and R-Y)
RAM	Random Access Memory		
RGB	Red, Green, and Blue. The primary color signals for TV. By mixing levels of R, G, and B, all colors (Y/C) are reproduced.	YUV	Component video
RC	Remote Control		
RC5 / RC6	Signal protocol from the remote control receiver		
RESET	RESET signal		
ROM	Read Only Memory		
RSDS	Reduced Swing Differential Signalling data interface		
R-TXT	Red TeleteXT		
SAM	Service Alignment Mode		
S/C	Short Circuit		
SCART	Syndicat des Constructeurs d'Appareils Radiorécepteurs et Téléviseurs		
SCL	Serial Clock I <sup>2</sup> C		
SCL-F	CLock Signal on Fast I <sup>2</sup> C bus		
SD	Standard Definition		
SDA	Serial Data I <sup>2</sup> C		
SDA-F	DAta Signal on Fast I <sup>2</sup> C bus		
SDI	Serial Digital Interface, see "ITU-656"		
SDRAM	Synchronous DRAM		
SECAM	SEequence Couleur Avec Mémoire. Color system mainly used in France and East Europe. Color carriers= 4.406250 MHz and 4.250000 MHz		
SIF	Sound Intermediate Frequency		
SMPS	Switched Mode Power Supply		
SoC	System on Chip		
SOG	Sync On Green		
SOPS	Self Oscillating Power Supply		
SPI	Serial Peripheral Interface bus; a 4-wire synchronous serial data link standard		
S/PDIF	Sony Philips Digital InterFace		
SRAM	Static RAM		
SRP	Service Reference Protocol		
SSB	Small Signal Board		
STBY	STand-BY		
SVGA	800 × 600 (4:3)		
SVHS	Super Video Home System		
SW	Software		
SWAN	Spatial temporal Weighted Averaging Noise reduction		
SXGA	1280 × 1024		
TFT	Thin Film Transistor		
THD	Total Harmonic Distortion		
TMDS	Transmission Minimized Differential Signalling		
TXT	TeleteXT		
TXT-DW	Dual Window with TeleteXT		
UI	User Interface		
uP	Microprocessor		
UXGA	1600 × 1200 (4:3)		
V	V-sync to the module		
VESA	Video Electronics Standards Association		
VGA	640 × 480 (4:3)		
VL	Variable Level out: processed audio output toward external amplifier		
VSF	Vestigial Side Band; modulation method		
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound		
WXGA	1280 × 768 (15:9)		
XTAL	Quartz crystal		
XGA	1024 × 768 (4:3)		



## 4. Mechanical Instructions

### Index of this chapter:

[4.1 Cable Dressing](#)

[4.2 Service Positions](#)

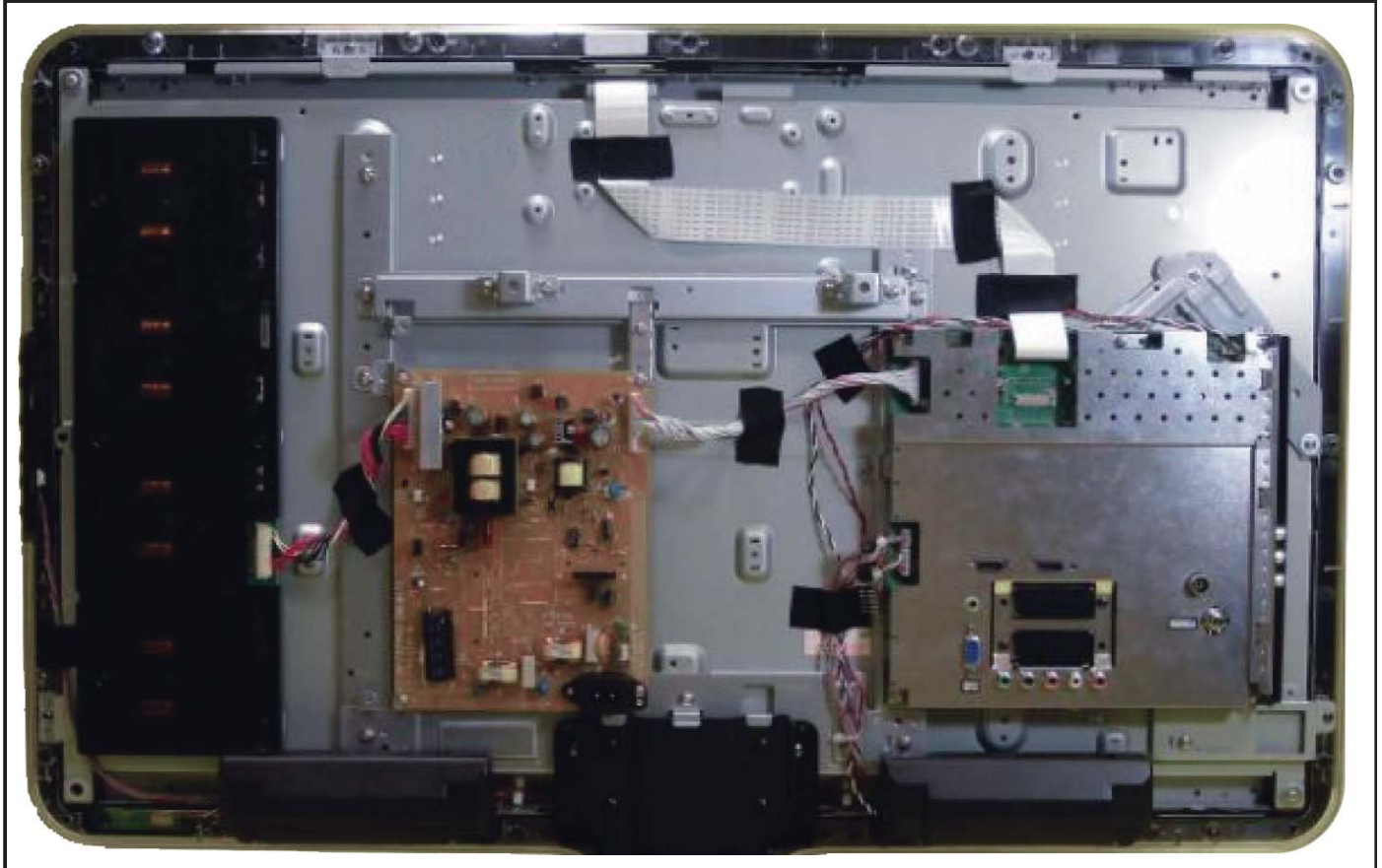
[4.3 Assy/Panel Removal TPM3.1E LA Styling](#)

[4.4 Set Re-assembly.](#)

### Notes:

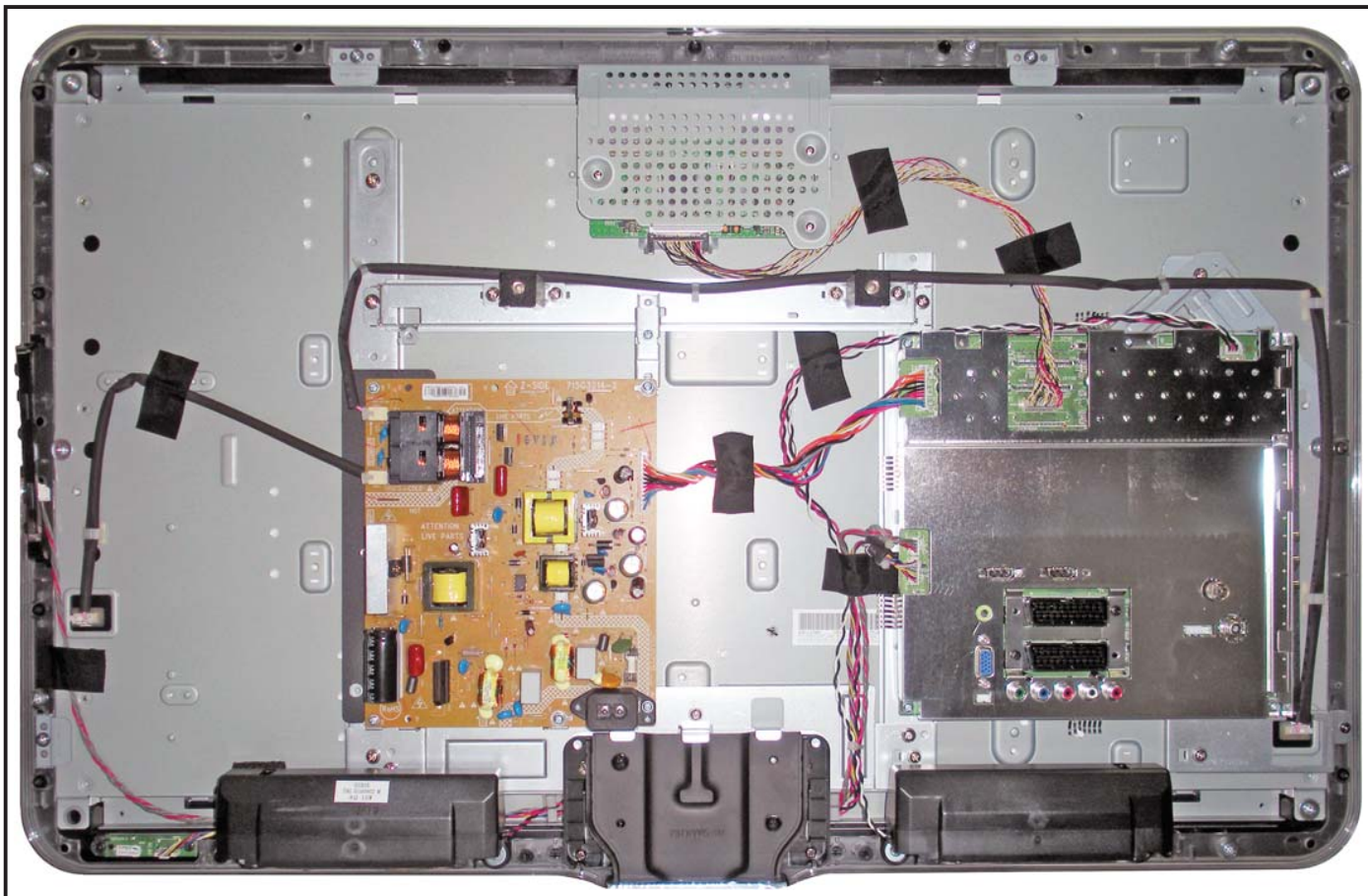
- Figures below can deviate slightly from the actual situation, due to the different set executions.

### 4.1 Cable Dressing



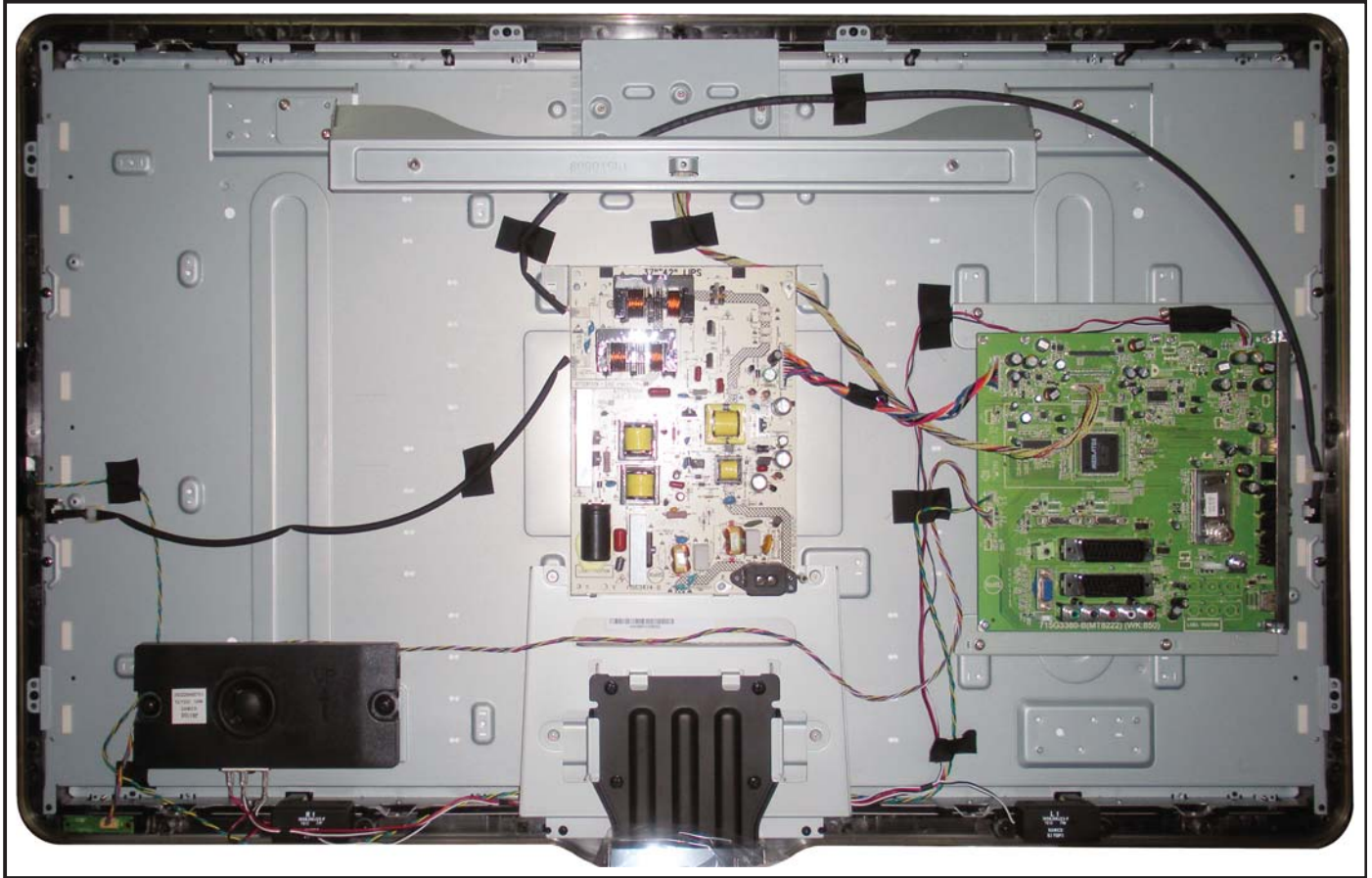
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Figure 4-1 Cable dressing 32" set with AUO panel



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Figure 4-2 Cable dressing 32" set with LGD panel



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Figure 4-3 Cable dressing 42" set

## 4.2 Service Positions

For easy servicing of this set, there are a few possibilities created:

- The buffers from the packaging.
- Foam bars (created for Service).

### 4.2.1 Foam Bars

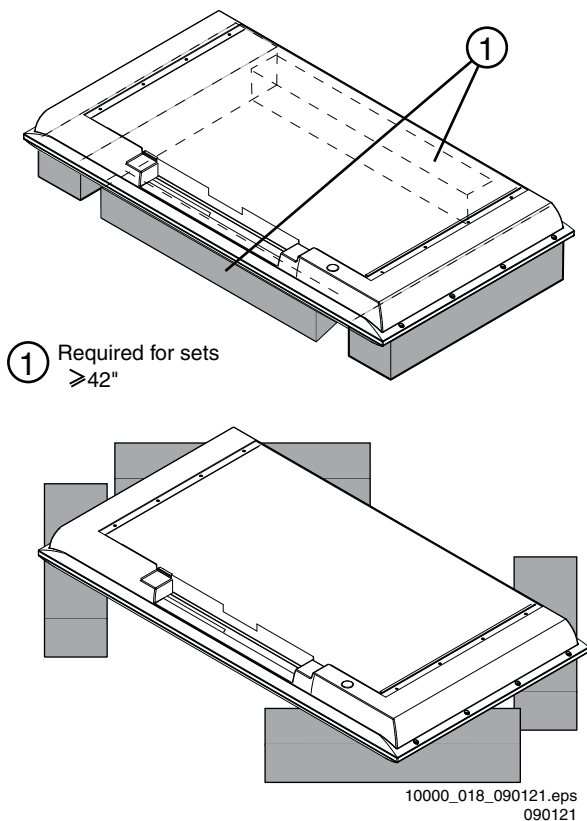


Figure 4-4 Foam bars

The foam bars (order code 3122 785 90580 for two pieces) can be used for all types and sizes of Flat TVs. See [Figure 4-4](#) for details. Sets with a display of 42" and larger, require **four** foam bars [1]. Ensure that the foam bars are always supporting the cabinet and **never** only the display.

**Caution:** Failure to follow these guidelines can seriously damage the display!

By laying the TV face down on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments. By placing a mirror under the TV, the screen can be monitored.

## 4.3 Assy/Panel Removal TPM3.1E LA Styling

### 4.3.1 Rear Cover

**Warning:** Disconnect the mains power cord before removing the rear cover.

1. Remove the fixation screws that secure the rear cover.
2. Lift the rear cover from the TV. Make sure that wires and flat foils are not damaged while lifting the rear cover from the set.

### 4.3.2 Small Signal Board (SSB)

**Caution:** it is mandatory to remount all different screws at their original position during re-assembly. Failure to do so may result in damaging the SSB.

1. Unplug LVDS connector.  
**Caution:** be careful, as these are very fragile connectors!
2. Unplug all other connectors.
3. Remove all fixation the screws.
4. The SSB can now be taken out of the set.

### 4.3.3 Power Board

1. Unplug the power board connectors.
2. Remove the screws.
3. Lift the unit and take it out of the set.  
When defective, replace the whole unit.

### 4.3.4 Speakers

1. Unplug the speaker cable connector from the SSB.
2. Take the speakers out together with their casing.  
When defective, replace the whole unit.

### 4.3.5 Key Board

1. Release the clip at the top and take whole the unit out.
2. Unplug the connector.
3. Remove the fixation screws and take the panel from the unit.

When defective, replace the whole unit.

### 4.3.6 IR Board

1. Remove the speaker that covers the IR board.
2. Unplug the IR board connector.
3. Remove the screw closest to the connector.
4. Lift the IR board and take it out of the set.  
When defective, replace the whole board.

### 4.3.7 Display Panel

1. Unplug the backlight and LVDS connectors.
2. Take the speakers out of their fixation position.
3. Release the key board unit from the bezel.
4. Release the IR board connector.
5. Remove the four fixation screws that fix the subframe to the front bezel.
6. Lift the complete subframe with boards and speakers from the front bezel.
7. Remove the four fixation screws from the side of the subframe that fix the LCD panel to the subframe.
8. Lift the complete subframe from the LCD panel.  
When defective, replace the whole unit.

## 4.4 Set Re-assembly

To re-assemble the whole set, execute all processes in reverse order.

### Notes:

- While re-assembling, make sure that all cables are placed and connected in their original position. See [Figure 4-1](#).
- Pay special attention not to damage the EMC foams on the SSB shields. Ensure that EMC foams are mounted correctly.

## 5. Service Modes, Error Codes, and Fault Finding

### Index of this chapter:

- [5.1 Service Modes](#)
- [5.2 Software Upgrading](#)
- [5.3 Error Codes](#)
- [5.4 Fault Finding and Repair Tips](#)

### 5.1 Service Modes

The Customer Service Mode (CSM) is used for communication between the call centre and the customer, while the Factory Mode offers several features for the service technician.

This chassis also offers the option of using ComPair, a hardware interface between a computer and the TV chassis. It offers the abilities of structured troubleshooting, error code reading, and software version read-out for all chassis.

#### 5.1.1 Customer Service Mode (CSM)

##### **Purpose**

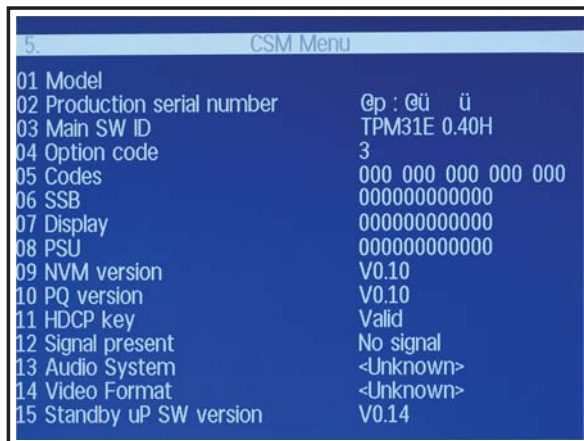
The Customer Service Mode shows error codes and information on the TV's operation settings. The call centre can instruct the customer (by telephone) to enter CSM in order to identify the status of the set. This helps the call centre to diagnose problems and failures in the TV set before making a service call.

The CSM is a read-only mode; therefore, modifications are not possible in this mode.

##### **How to Activate CSM**

Key in the code "123654" via the standard RC transmitter.

**Note:** Activation of the CSM is only possible if there is no (user) menu on the screen!



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Figure 5-1 CSM Menu

##### **How to Navigate**

By means of the "CURSOR-DOWN/UP" knob (or the scroll wheel) on the RC-transmitter, can be navigated through the menus.

##### **Contents of CSM**

###### **General**

- **Model.** Philips model type
- **Production serial number**  
Philips serial number
- **Software version**

Format:TPAA.AA V2.XX Y Z

TPAA.AA is the chassis name

V2.XX is the revision

Y is the display code (1 digit).

Z is the panel revision code (1 digit).

- **Codes**

Show the latest 5 error codes (layer 2)status:

000 = No problem, 011 = I<sup>2</sup>C bus error, 012 = tuner error

- **SSB**

Philips 12NC of SSB (small signal board)

- **Display**

Philips 12NC of display (LCD panel)

- **PSU**

Philips 12NC of PSU (Power Supply Unit)

- **NVM version**

Revision (4 letters)

- **PQ Version**

Revision (4 letter)

- **HDCP key**

HDCP status (Valid, Invalid)

- **Signal quality/present**

DTV shows (Digital percentage)

ATV shows (analog Yes/No)

- **Audio system**

Mono, Stereo, Dual

- **Video format**

PAL, SECAM, NTSC

- **Standby uP SW version**

Revision (4 letters)

##### **How to Exit CSM**

Press "INFO" on the RC-transmitter.

#### 5.1.2 Factory mode

##### **How to enter**

To enter the factory mode, use the following method:

- Press the following key sequence on the remote control transmitter: "062596" directly followed by the "INFO" button. After entering the factory mode, the following screen is visible on the top and right of the panel.

Brand	PHILIPS
Version	TPM31E 0.40H
Date	Mar 05 2009
Options	3
Scaler	MT8222a
Panel type	LGD_19
Current source	TV
Auto color	GO
Gain	R 0 G 0 B 0
Offset	R 0 G 0 B 0
Color temp	Cool
Gain	R 100 G 73 B 127
Burn in	Off
EEPROM init	GO
Backlight time	4.0 hr(s)
Error Code	000 000 000 000 000
Clear error	GO
Reset PBS setting	GO
NVM copy	Copy to USB Copy from USB
Virgin mode	Off
ACI	On
ATS	On
Exit	

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Figure 5-2 Factory Mode Menu

**How to Navigate**

With the up/down cursor keys can be navigated around the items, with the Left/Right cursor the values can be changed.

**How to EXIT**

Choose "EXIT", then press "OK" button.

**5.2 Software Upgrading****5.2.1 ComPair****Introduction**

ComPair (Computer Aided Repair) is a Service tool for Philips Consumer Electronics products. and offers the following:

1. ComPair helps to quickly get an understanding on how to repair the chassis in a short and effective way.
2. ComPair allows very detailed diagnostics and is therefore capable of accurately indicating problem areas. No knowledge on I<sup>2</sup>C or UART commands is necessary, because ComPair takes care of this.
3. ComPair speeds up the repair time since it can automatically communicate with the chassis (when the uP is working) and all repair information is directly available.
4. ComPair features TV software up possibilities.

**Specifications**

ComPair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The ComPair II interface box is connected **to the PC** via an USB cable. For the TV chassis, the ComPair interface box and the TV communicate via a bi-directional cable via the service connector(s).

The ComPair fault finding program is able to determine the problem of the defective television, by a combination of

automatic diagnostics and an interactive question/answer procedure.

**How to Connect**

This is described in the chassis fault finding database in ComPair.

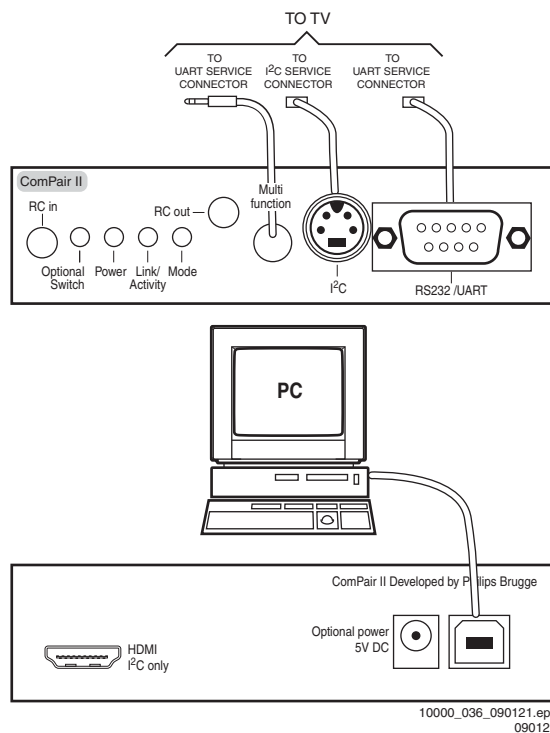


Figure 5-3 ComPair II interface connection

**Caution:** It is compulsory to connect the TV to the PC as shown in the picture above (with the ComPair interface in between), as the ComPair interface acts as a level shifter. If one connects the TV directly to the PC (via UART), ICs will be blown!

**How to Order**

ComPair II order codes:

- ComPair II interface: 3122 785 91020.
- Programming software can be downloaded from the Philips Service portal.
- ComPair UART interface cable for TPS2.2x xx. (using JST PHR-3, 2 mm pitch connector): 3122 785 90630.

**Note:** While having problems, contact the local support desk.

**5.3 Error Codes**

The error code buffer contains all errors detected since the last time the buffer was erased. The buffer is written from left to right. When an error occurs that is not yet in the error code buffer, it is displayed at the left side and all other errors shift one position to the right.

**5.4 Fault Finding and Repair Tips****5.4.1 Exit "SAM"**

Choose "EXIT", then press "OK" button. Turn off the TV and then turn on the TV.

#### 5.4.2 Speakers

Make sure that the volume is set to minimum during disconnecting the speakers in the ON-state of the TV. The audio amplifier can be damaged by disconnecting the speakers during ON-state of the set!

#### 5.4.3 Tuner

Attention: In case the tuner is replaced, always check the tuner options.

# 6. Alignments

- Index of this chapter:**  
[6.1 General Alignment Conditions](#)  
[6.2 TV Mode display adjust](#)  
[6.3 PC mode Display Adjustment](#)  
[6.4 Serial Number Definition](#)

**Note:** The Service Mode are described in chapter 5. Menu navigation is done with the CURSOR UP, DOWN, LEFT or RIGHT keys of the remote control transmitter.

## 6.1 General Alignment Conditions

Perform all electrical adjustments under the following conditions:

- Power supply voltage (depends on region):
    - 195 V to 264 V<sub>AC</sub>, 50/60 ±3 Hz.
  - Connect the set to the mains via an isolation transformer with low internal resistance.
  - Allow the set to warm up for approximately 15 minutes.
  - Measure voltages and waveforms in relation to correct ground (e.g. measure audio signals in relation to AUDIO\_GND).
- Caution:** It is not allowed to use heatsinks as ground.
- Test probe: R<sub>i</sub> > 10 MΩ, C<sub>i</sub> < 20 pF.
  - Use an isolated trimmer/screwdriver to perform alignments.

## 6.2 TV Mode display adjust

### 6.2.1 White balance adjustment

**General set-up:**

- Equipment Requirements: Colour analyser.
- Input requirements:
  - Input Signal Type:
    - RF signal
    - Set to PAL B/G system, frequency is decided in factory
    - Pattern is white of 100%
- Input Signal Strength: 10 mV (80 dBμV) terminal voltage.
- Input Injection Point: TV Tuner input

**Colour Temp Alignment**

Apply full white pattern, and smart picture setting to be standard (Brightness 50, Contrast 50, and Colour 50). Adjusting SCALER GAIN R G B to reach W/D and luminance in factory mode as below.  
 Adjust the colour temperature in the factory mode OSD by adjusting RGB Gain from 127. The CIE1931 chromaticity (X, Y) co-ordinates shall be:

**Table 6-1 Reading with Minolta CA-210**

Colour Temp	x	y
Normal	0.289 ± 0.004	0.291 ± 0.004
Warm	0.314 ± 0.004	0.319 ± 0.004
Cool	0.278 ± 0.004	0.278 ± 0.004

**If you do not have a colour analyser,** you can use the default values. This is the next best solution. The default values are average values coming from production (statistics).

- Select a COLOUR TEMPERATURE (e.g. COOL, NORMAL, or WARM).
- Set the RED, GREEN and BLUE default values according to the values in [Table 6-2](#).
- When finished return to the SAM root menu and press STANDBY on the RC to store the aligned values to the NVM.

**Table 6-2 Tint settings**

Colour Temp	R	G	B
Normal	85	74	85
Warm	84	63	49
Cool	75	63	85

Luminance:

- >360 cd/m<sup>2</sup> for AUO T315XW02
- >400 cd/m<sup>2</sup> for LGD LC320WXE

In the centre of the screen when Smart mode at “Vivid” or set brightness to 100.

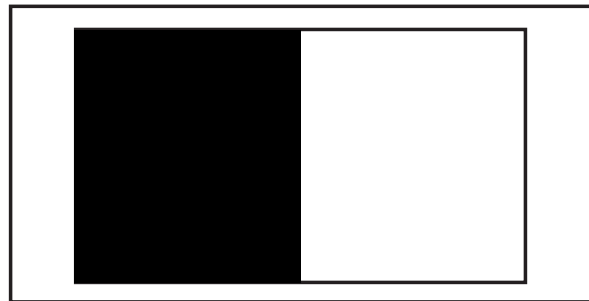
**Note:** These group settings about colour temp are also applied automatically into HDMI1/HDMI2/Side HDMI/CVI1/CVI2/SIDE AV/VGA. That means TV/HDMI/CVI/PC are used the same setting.

## 6.3 PC mode Display Adjustment

**Auto colour adjustment**

Set Brightness 100 and Contrast 50 and apply 1024 × 768 at 60 Hz mode with 50 Black and 50 White pattern at the factory mode.

Activate AUTO-COLOR function for auto ADC offset and gain setup.



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**Figure 6-1 50-Black 50-White**

Colour temperature alignment is automatically set during TV alignment.

Apply full white pattern, check picture must satisfy following table.

**Table 6-3 Reading with Minolta CA-210**

Colour Temp	x	y
Normal	0.289 ± 0.015	0.291 ± 0.015

**If you do not have a colour analyser,** you can use the default values. This is the next best solution. The default values are average values coming from production (statistics).

- Select NORMAL COLOUR TEMPERATURE.
- Set the RED, GREEN and BLUE default values according to the values in the “Tint settings” table.
- When finished return to the SAM root menu and press STANDBY on the RC to store the aligned values to the NVM.

**Table 6-4 Tint settings**

Colour Temp	R	G	B
Normal	85	74	85



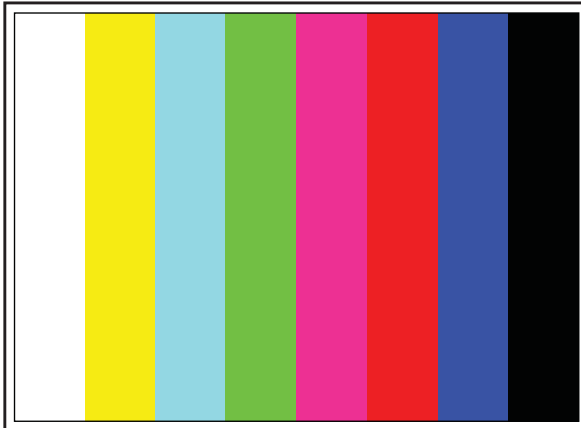
### 6.3.1 Comp video Mode display adjust

#### **Auto Colour Adjustment**

General set-up:

Equipment: Quantum Data Pattern Generator 802G or 802R or 882.

Apply 720p/50 Hz, and the pattern TVBAR100 as shown in [Figure 6-2](#).



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**Figure 6-2 TVBAR100 pattern**

Initial Set-up: Set Smart picture as "Personal" (Brightness to 50, Contrast to 50 and Colour to 50). Access to factory OSD first, then to enable AUTO-COLOR to get HD ADC OFFSET and HD ADC GAIN. Check if 32 gray scales can be distinguished.

Colour temperature alignment is automatically done during TV alignment.

## 6.4 Serial Number Definition

BOM Code:

**Table 6-5 BOM Code**

Panel Supplier	Code
AU	1
CPT	2
LPL(LG)	3
QDI	4
CMO	5
HSD	6
SVA	7

## 7. Circuit Descriptions

### Index of this chapter:

[7.1 Introduction](#)

[7.2 Block Diagram](#)

[7.3 MT8222TMMU](#)

### Notes:

- Only **new** circuits (circuits that are not published recently) are described.
- Figures can deviate slightly from the actual situation, due to different set executions.
- For a good understanding of the following circuit descriptions, please use the wiring, block (chapter 9) and circuit diagrams (chapter 10). Where necessary, you will find a separate drawing for clarification.

Pre-Audio out signal is sent through the DAC out and is amplified to main speaker by audio amplifier MAX9728AETC + TPA3123D2 and is simultaneously amplified to head phone by audio amplifier MAX9728AETC.

### 7.1 Introduction

This platform LCD-TV uses two main ICs: MT8222TMMU (One Chip LCD-TV Controller) and WT6703F (Stand-by MCU). The MediaTek MT8222TMMU is an ultra highly integrated single chip for flat panel TV supporting multimedia video/audio input and output format up to full HDTV. It includes advanced 3D comb filter TV decoder to retrieve the best image from popular composite signals and embedded HDTV/VGA decoders for the high bandwidth input signals perfectly reproducing.

The new 4th generation advanced motion adaptive and motion estimation de-interlace converts accordingly the interlace video into progressive one with overlay of a 2D graphic processor. Independent two flexible scalars provide wide adoption to various LCD panels for two of different video sources at the same time. On-chip audio processor decodes analog signals from tuner with lip sync control, delivering high quality post-processed sound effect to customers.

The WT6703F is mainly for TV stand-by remaining function during off/stand-by mode. When TV set enters to off/stand-by mode, MT8222 CLD will be totally shutdown and remain only WT6703F to meet the lowest power consumption.

The WT6703F is a micro controller for system power manager with Turbo 8051 compatible (3T) CPU, flash memory, SRDAM, two pulse width modulators, DPMS detector, double timers and UART, three slave I<sup>2</sup>C interface, a 4 channel 8-bit A/D converter, real time clock, watch-dog timer, embedded ISP, power down mode and embedded ICE mode.

### 7.2 Block Diagram

#### 7.2.1 Features

See [Block diagram Functional diagram](#) for details.

The tuner supports NTSC/PAL/SECAM RF signals.

For TV signal, MT8222TMMU with single high-quality 4th generation TV decoder Automatic TV standard detection supporting NTSC, NTSC-4.43, PAL (B, G, D, H, M, N, I, Nc), PAL (Nc), PAL, SECAM New 4th generation NTSC/PAL/PAL-M/PAL-N Motion Adaptive 3D comb filter Embedded VBI decoder for Closed-Caption/XDS/ Teletext/ WSS/VPS Supporting macrovision detection.

The platform supports different I/O sources:

- CVI supports YPbPr component input, it can support SD/ HD format
- SIDE-AV supports CVBS, S-Video signal shares with same audio.
- HDMI supports up to HDMI 1.3a with CEC & HDCP function, audio included and also supports PC DVI signal with HDCP function, the audio shares with PC audio connector via PC mini-jack
- PC supports analog PC input via 15 pin D-sub input
- Analog audio out supports via RCA jack

Each video/audio signal of all sources will directly deliver to MT8222TMMU for video/audio further digital processing.

## 7.2.2 32" &amp; 42" SSB Cell Layout

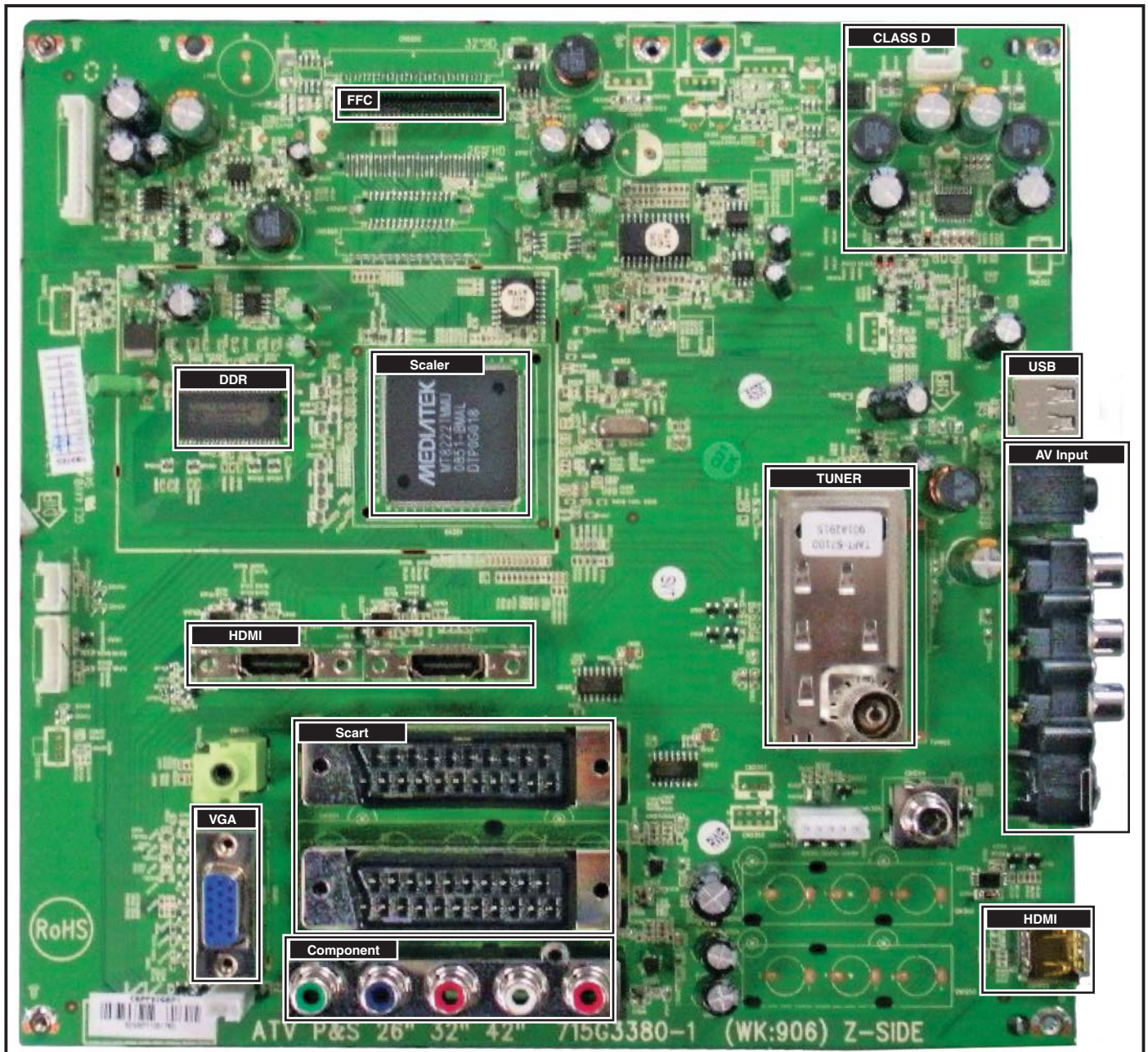
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Figure 7-1 32" &amp; 42" SSB layout

## 7.3 MT8222TMMU

## 7.3.1 Function Description

**Analog front end**

- set of high resolution ADC with corresponding PGAs adopting to 0.5 V to 2 V input dedicated for TV/AV/SV input signals.
- 3 high speed ADCs dedicated for VGA/HDTV input signals up to 160 MHz.
- All 8-bit programmable gain pre-amplifiers.
- Embedded Schmitt trigger and de-glitch circuits on  $H_{sync}$ / $V_{sync}$ /SOG/SOY inputs.

**Video Input**

Embedded input multiplexers without external switch including.

- 8 for TV/AV/S-video input pins available for any possible combination.
- 3 sets for VGA/Component/Scart/D-connector with differential input pairs.
- 3 sets of HDMI/DVI input port with internal multiplexers.
- Input sources can be flexibly routed to Main/PIP internally.

**Sync Processor**

- Two enhance sync processors for all timing detection supporting Macrovision detection.
- Enhanced measuring mechanism for VGA auto adjustment.

**Decoder****TVD**

- Single high-quality 4th generation TV decoder.

- Automatic TV standard detection supporting NTSC, NTSC-4.43, PAL (B, G, D, H, M, N, I, Nc), PAL (Nc), PAL, SECAM.
- New 4th generation NTSC/PAL/PAL-M/PAL-N Motion Adaptive 3D comb filter.
- Embedded VBI decoder for Closed-Caption/XDS/Teletext/WSS/VPS.
- Supporting Macrovision detection.

#### **YPbPr/Scart/D-connector**

- Supporting HDTV 480i/480p/576i/576p/720p/1080i/1080p input.
- Smart detection on Scart function for European region.
- Smart detection on D-connector for Japan region.
- Supporting SCART RGB inputs mixed with composite signal by adjustable horizontal delay.

#### **VGA**

- Supporting various VGA input timings up to UXGA (1600 × 1200 @ 60 Hz).
- Supporting Separate/Composite/SOG sync types.

#### **HDMI**

- Supports DTV (480i/576i/480p/576p/720p/1080i/1080p) and PC (VGA/XGA/SXGA/UXGA) resolution up to 165 MHz (using dual edge to transmit video data for pixel clock over 112 MHz).
- HDMI 1.3/DVI 1.0/EIA/CEA-861B/HDCP 1.1 supported.
- Three HDMI input ports with internal high speed multiplexers realize flexible design.

#### **VBI**

- Dual VBI decoders for the application of V-Chip/Closed-Caption/XDS/ Teletext/WSS/VPS
- Supporting external VBI decoder by YPrPb input
- VBI decoder up to 4000 pages Teletext (L1.5).

#### **MJC/ME/MC**

- Support 120 Hz motion judder compensation for horizontal motion. (option)
- Support 60 Hz to 120 Hz, 50 Hz to 100 Hz in 100/120 Hz panel
- Support 24 Hz to 60 Hz, 25 Hz to 50 Hz in 50/60 Hz panel

#### **Video Processor**

##### **Noise Reduction**

- All input sources with 2D/3D adaptive noise reduction to realize pure clean picture

##### **Colour Management**

- Advanced flesh tone and multiple-colour enhancement. (For skin, sky, grass and white level) to get purely natural picture quality.
- Advanced Colour Transient Improvement (CTI).
- Saturation/hue adjustment for flexible design.

##### **Contrast/Brightness/Sharpness Management**

- Sharpness and DLTI/DCTI
- Brightness and contrast adjustment
- Black level extender to get more detail at dark scene
- White peak level limiter
- Adaptive Luma/Chroma management.

##### **De-interlacing**

- 4th generation advanced Motion adaptive de-interlacing with motion estimation & motion compensation de-interlacing.
- Automatic detect film or video source.
- 3 : 2/2 : 2 pull down source detection.

##### **Scaling**

- 4th generation high resolution arbitrary ratio vertical/horizontal scaling of video, from 1/32x to 32x.

- Advanced linear and non-linear Panorama scaling.
- Programmable Zoom viewer.
- Picture-in-Picture (PIP).
- Picture-Out-Picture (POP).

#### **Display**

- Advanced dithering processing for LCD display with 8/10 bit output.
- Gamma correction
- Supporting alpha blending for Video and OSD planes.
- Frame rate conversion
- Gamma/anti-Gamma correction to optimise the display device performance

#### **Seamless performance comparing demonstration function**

- Support Left/Right video processing comparing function without additional resources (DRAM) for customers demonstration
- All the video functions (De-interlace/3D comb/NR/Flesh tone/CTI) can be included

#### **Video Output**

- Programmable output timing up to 1920 × 1080 @ 60 Hz panel support.
- Dual-channel 8/10-bit LVDS, single channel 8/10-bit LVDS
- One CVBS output with CVBS / S-video mixed input
- Spread spectrum function to eliminate display clock EMI issue on board

#### **Audio Features**

- Supporting BTSC/EIAJ/A2/NICAM decode
- Stereo demodulation, SAP demodulation
- Mode selection (Main/SAP/Stereo)
- Equalizer
- Sub-woofer/Bass enhancement
- MTK proprietary 3D surround processing (Virtual surround)
- Audio and video lip synchronization
- Supporting Reverberation

#### **Audio Input/Output**

- Decode audio AF from Tuner
- 2 channels audio L/R digital line in.
- Supports 1-channel (1 R/L pairs) analog audio input.
- Embedded internal 3-ch (L/R) audio DAC & could bundle with 8292 (MTK audio OP & MUX).
- Supporting 1 tuner audio decoder and 1 digital input and both output for SCART1/2 output application
- Support SPDIF in/output

#### **2D-Graphic/OSD processor**

- Embedded one bitmap OSD plane to support 4-/8-bpp index colour mode, and 16-/32-bpp direct colour mode with horizontal/vertical scaling function
- Another character based OSD plane to support 1-/2-/4-/8-bpp index colour mode for low DRAM usage setup menu and Teletext / Close-caption display
- Supporting alpha blending among these two planes and video
- Supporting Text/Bitmap decoder
- Supporting line/rectangle/gradient fill
- Supporting bitblt
- Supporting Colour Key function
- Supporting Clip Mask

#### **Host Micro controller**

- RISC microprocessor & 8032 dual core CPU inside.
- Supporting serial type flash interface
- Supporting 5/3.3-Volt. FLASH interface
- IR control serial input

- Supporting two RS232 interfaces for external source communication (Including one RS232 port speeding up to 3 Mbps)
- Supporting up to 4 PWM outputs
- Programmable GPIO setting for complex external device control

**Multi-Media Engine**

- Supports HD JPEG decode
- Supports SD MPEG-1/2/4 decode
- Support RM decode (option)

**DRAM Controller**

- Supporting up to 32M-bytes DDRI/SDR DRAM
- Supporting 16 bits DDRI/SDR bus interfaces
- Build in a DRAM interface programmable clock to optimise the DRAM performance
- Programmable DRAM access cycle and refresh cycle timings
- Supporting 2.5/3.3 Volt DDRI/SDR Interface

**Flash Usage**

- Flash is used to store FW code, fonts, bitmaps, big tables for VGA, Video, Gamma.
- For single country, we need around 20KB to store font data.
- For more bitmaps, we need more flash space to store them.

**USB Host**

- Embedded host controller
- Compliant with USB specification Rev. 2.0 at high-speed and full-speed data transfer rate
- Complies with USB Storage Class specification Rev. 1.0
- Support independent USB 2 channel & copy function

**FCI**

- Supports SD/MMC/MS/MS-Pro type flash card.

**Outline**

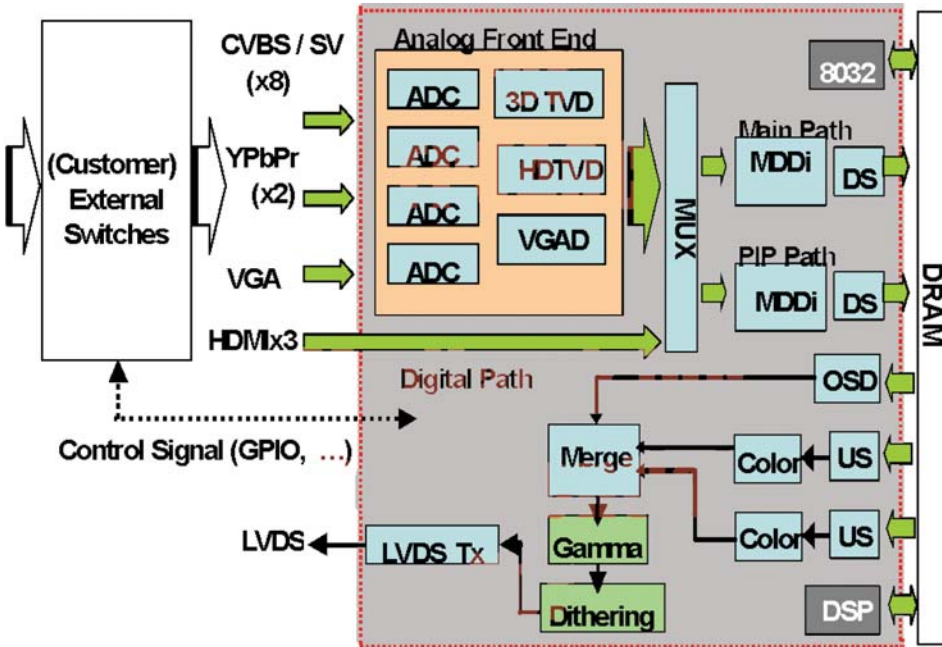
- 256-pin LQFP package
- 3.3/2.5/1.0-Volt. operating voltages
- Advanced 90um process.

# 8. IC Data Sheets

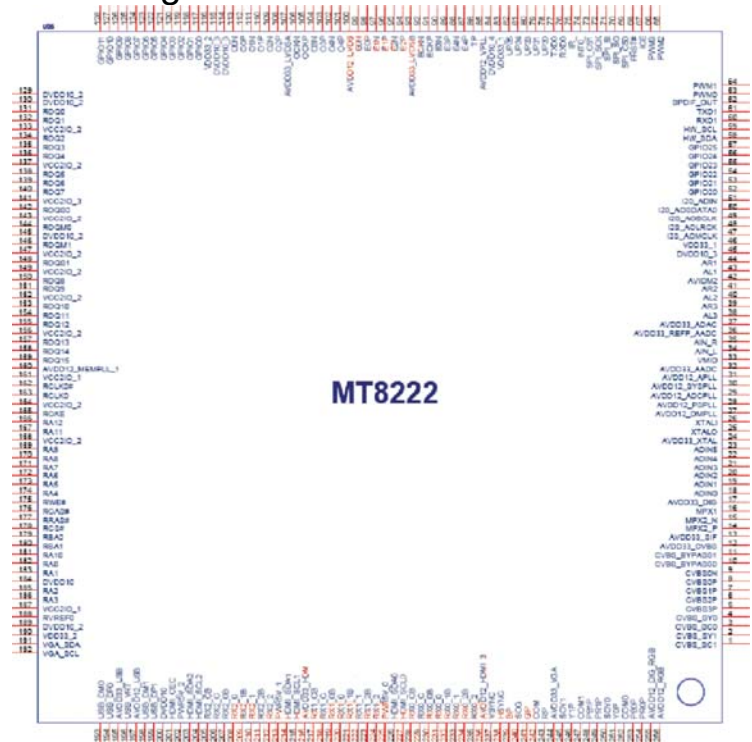
This section shows the internal block diagrams and pin configurations of ICs that are drawn as “black boxes” in the electrical diagrams (with the exception of “memory” and “logic” ICs).

## 8.1 MT8222TMMU/B (IC U4201)

### Block Diagram



### Pin Configuration

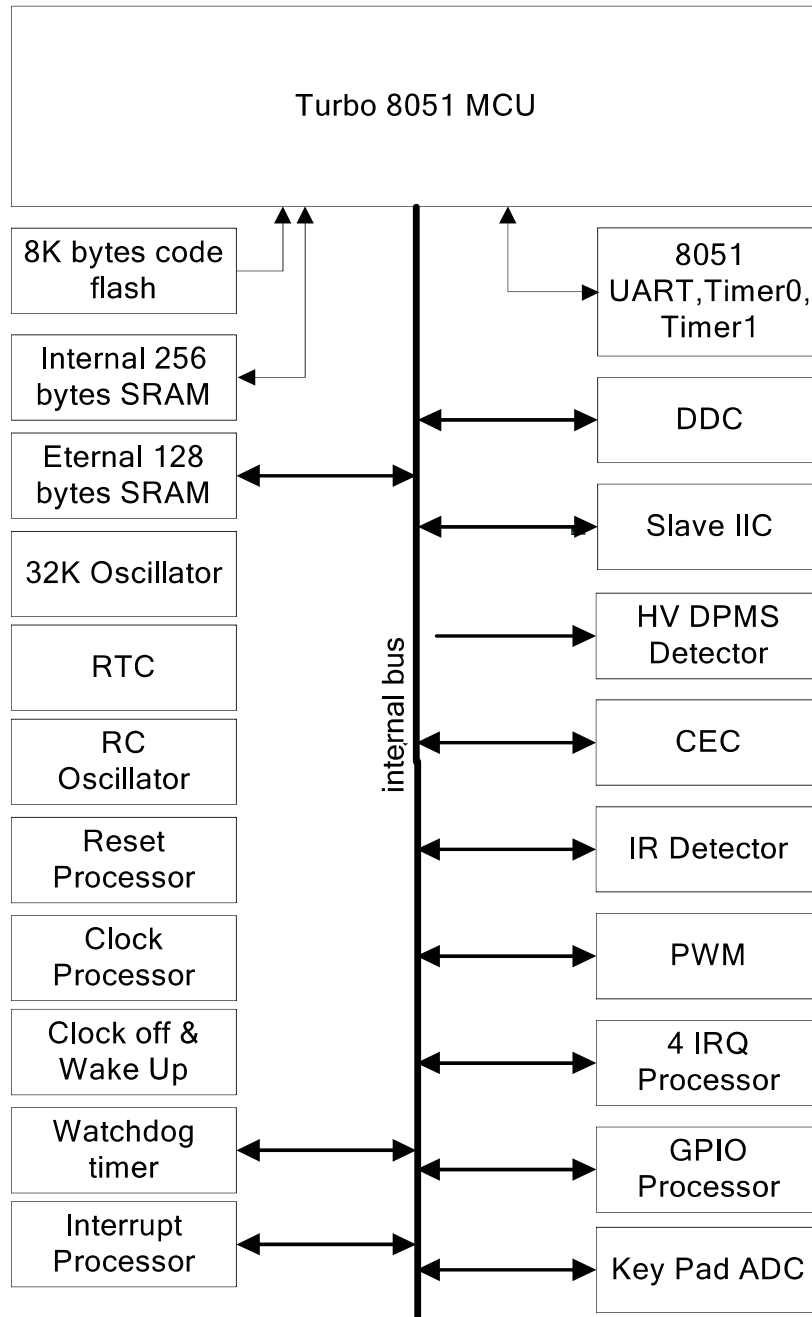


18400\_300\_090301.eps  
090619

Figure 8-1 Internal block diagram and pin configuration

8.2 WT6703F (IC U4101)

Block Diagram



Pin Configuration

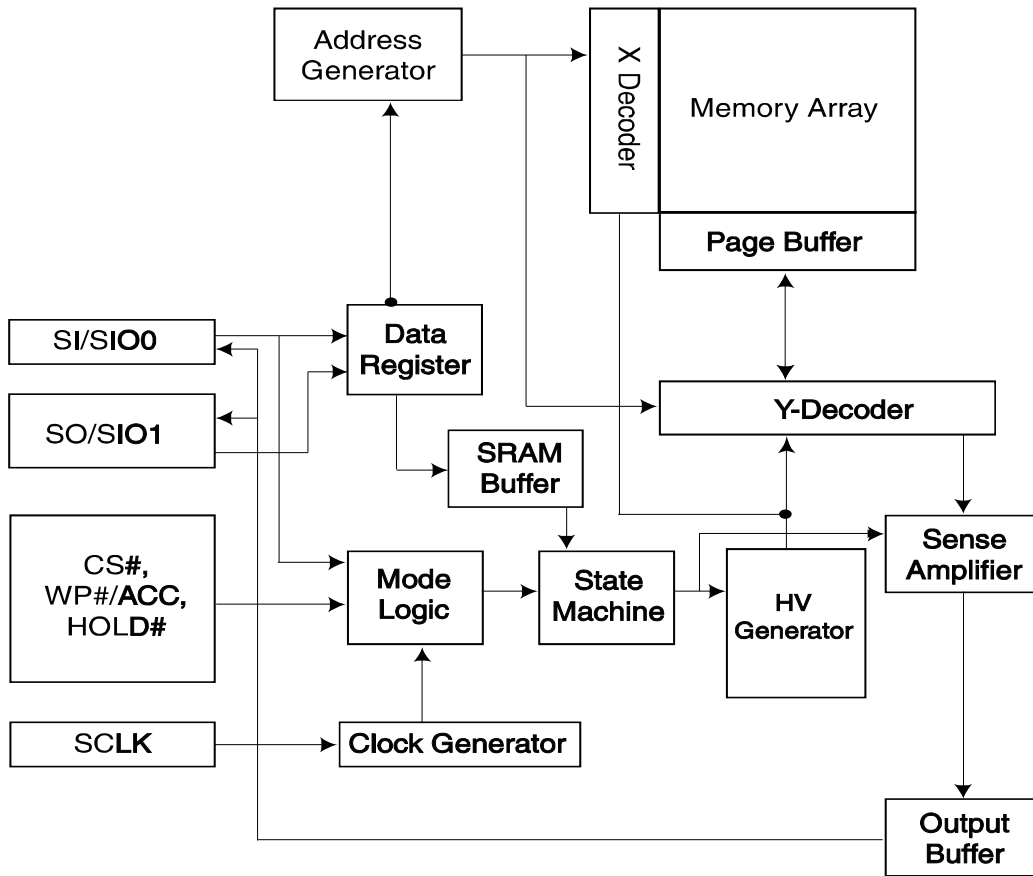


18400\_301\_090301.eps  
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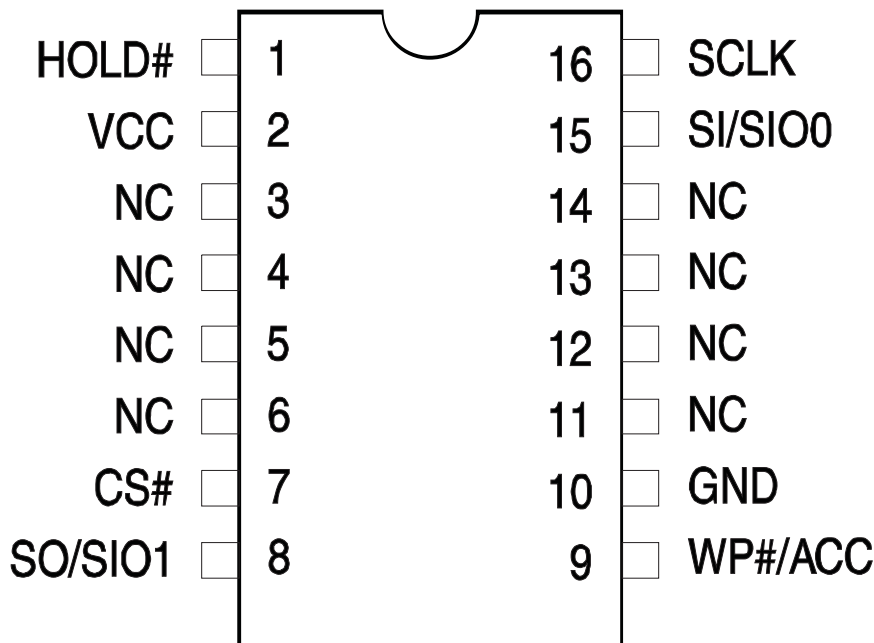
Figure 8-2 Internal block diagram and pin configuration

8.3 MX25L6405DMI (IC U4105)

### Block Diagram



### Pin Configuration



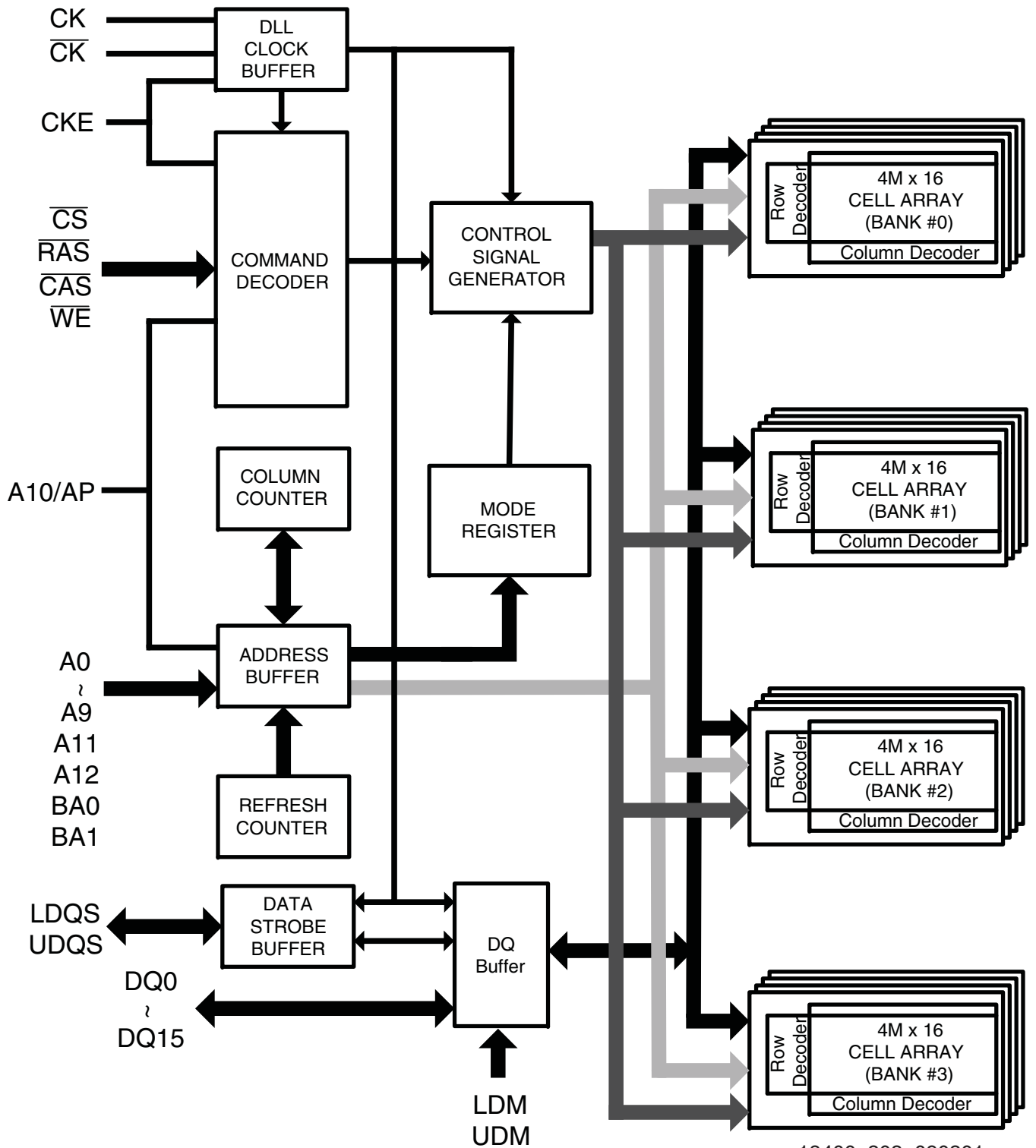
18400\_302\_090301.eps  
090619

Figure 8-3 Pin configuration



8.4 EM6AA160TS (IC U5101)

Block Diagram

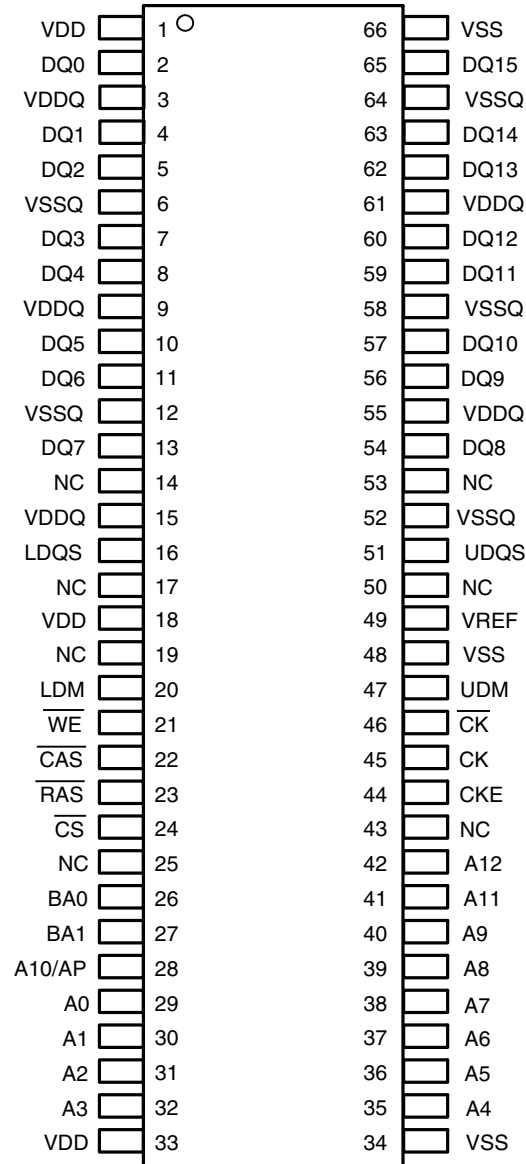


18400\_303\_090301.eps  
090619

Figure 8-4 Internal block diagram

8.5 EM6AA160TS (IC U5101)

Pin Configuration

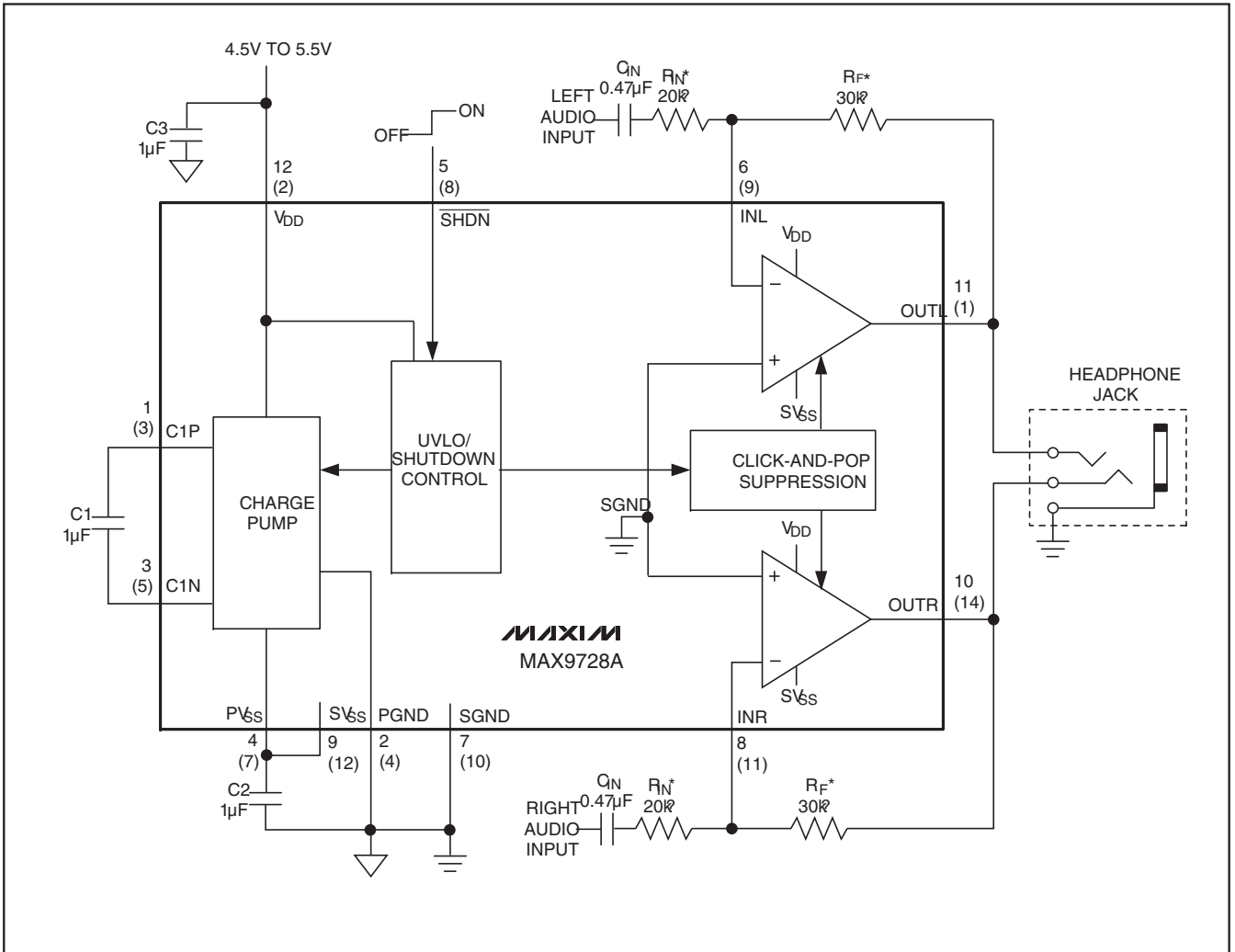


18400\_304\_090301.eps  
090619

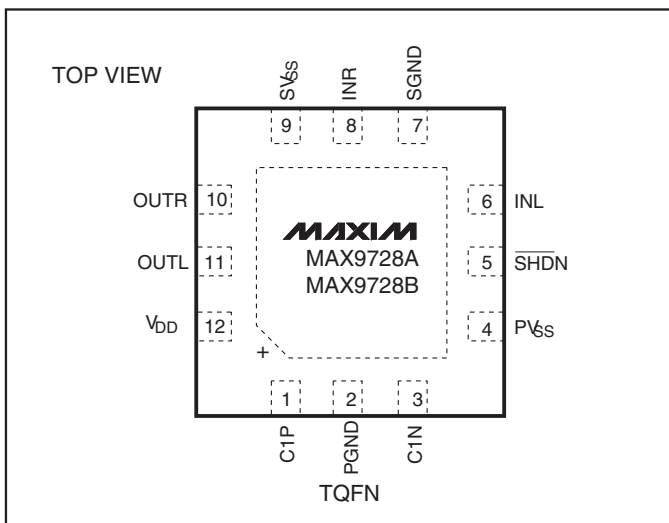
Figure 8-5 Pin configuration

8.6 MAX9728AETC (IC U1501, U1502, U6202)

Block Diagram



Pin Configuration

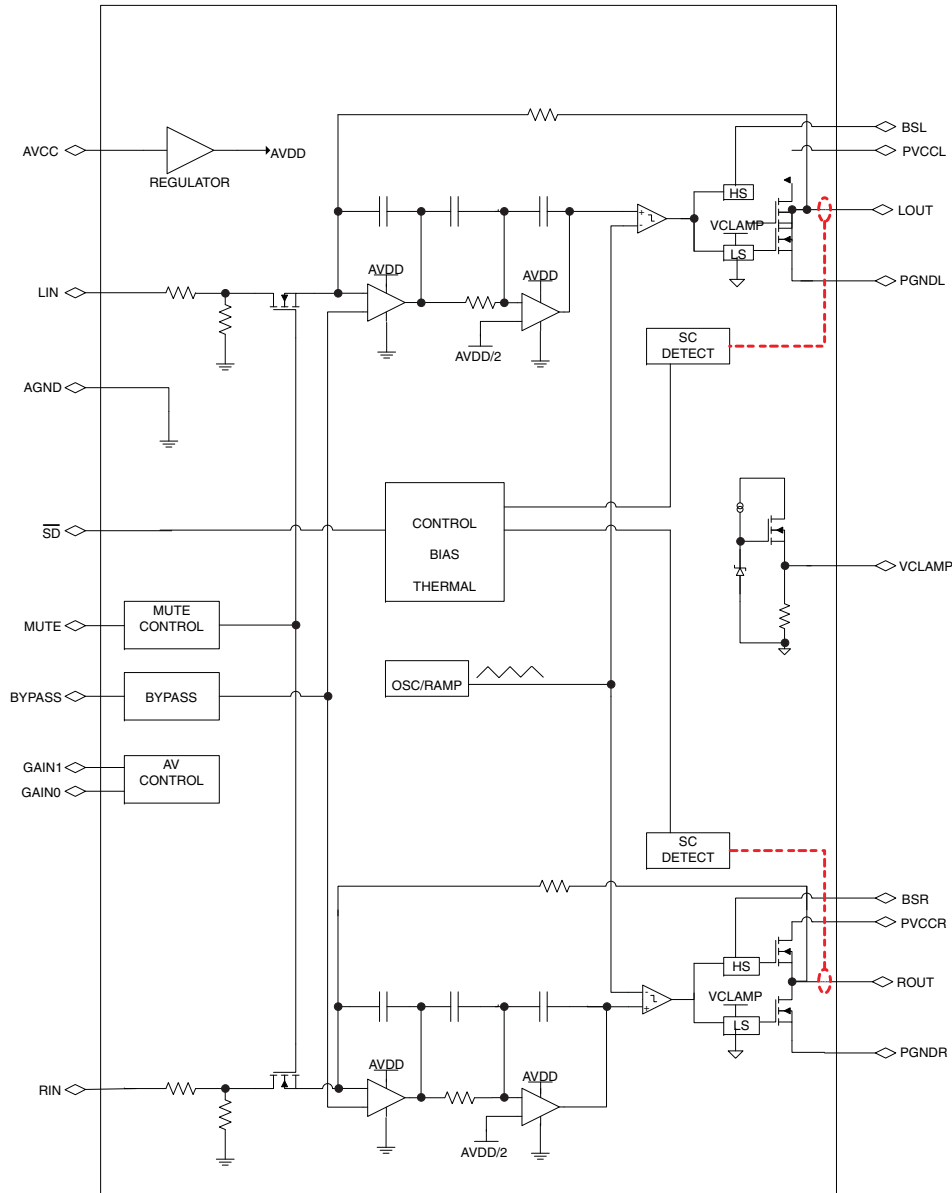


18400\_305\_090301.eps  
090619

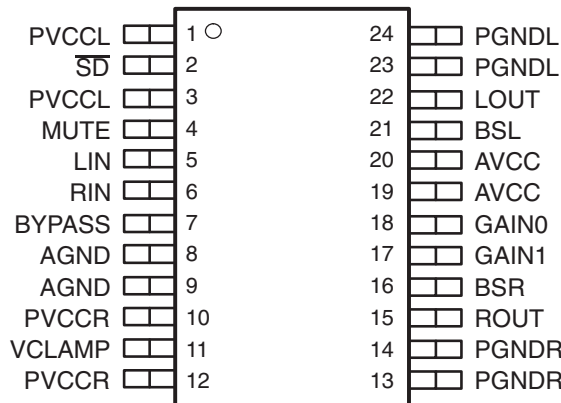
Figure 8-6 Internal block diagram and pin configuration

8.7 TPA3123D2PWPR (IC U6301)

Block Diagram



Pin Configuration

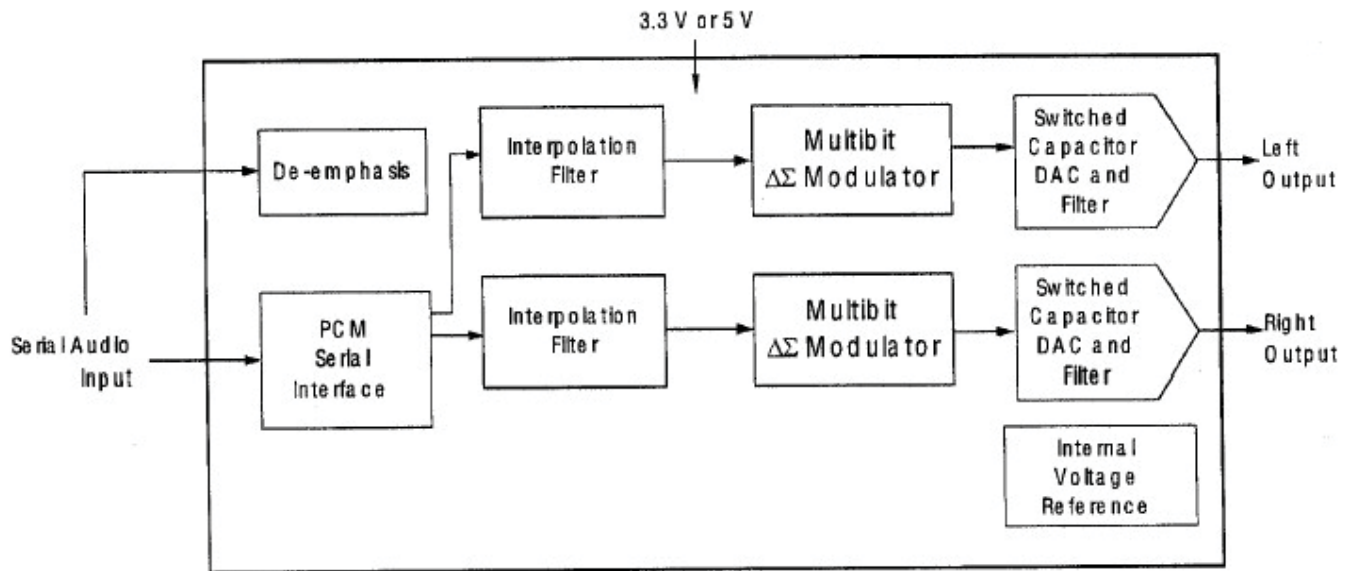


18400\_307\_090301.eps  
090619

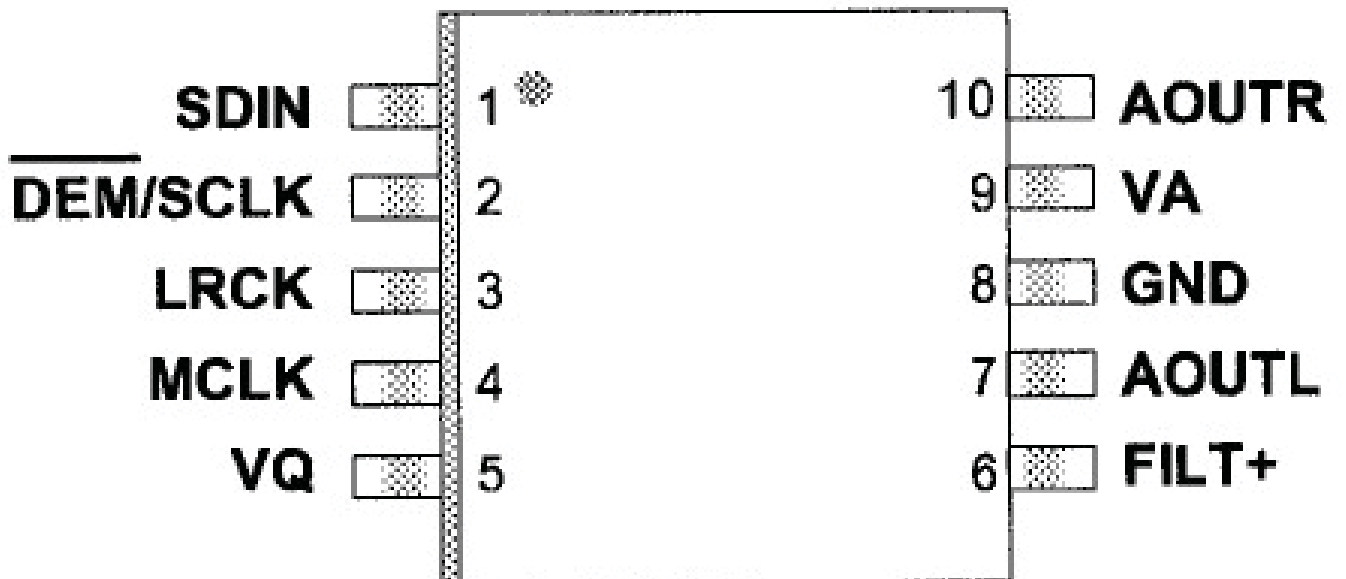
Figure 8-7 Internal block diagram and pin configuration

8.8 CS4344 (IC U4203)

Block Diagram



Pin Configuration



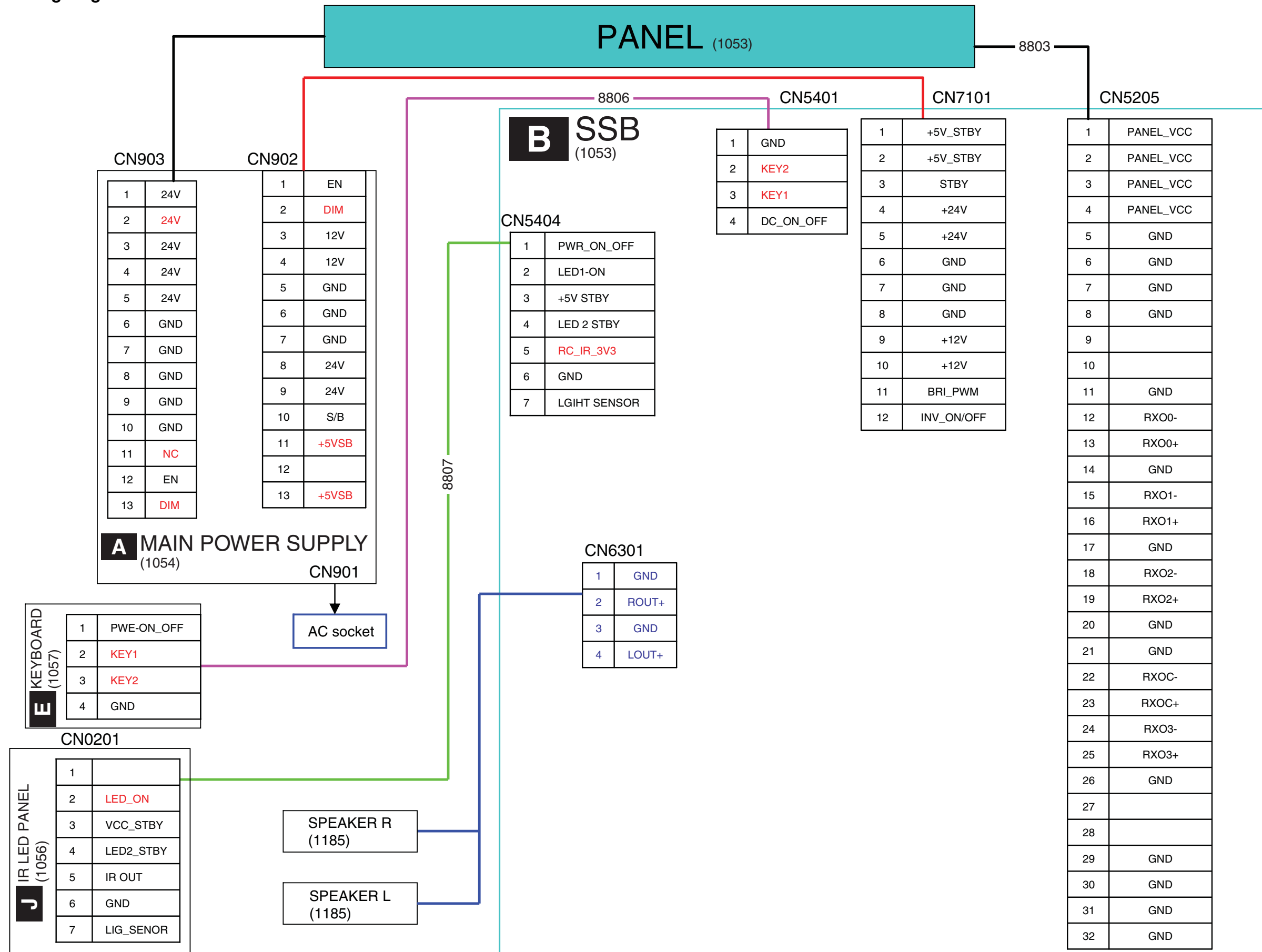
18400\_308\_090301.eps  
090619

Figure 8-8 Pin configuration

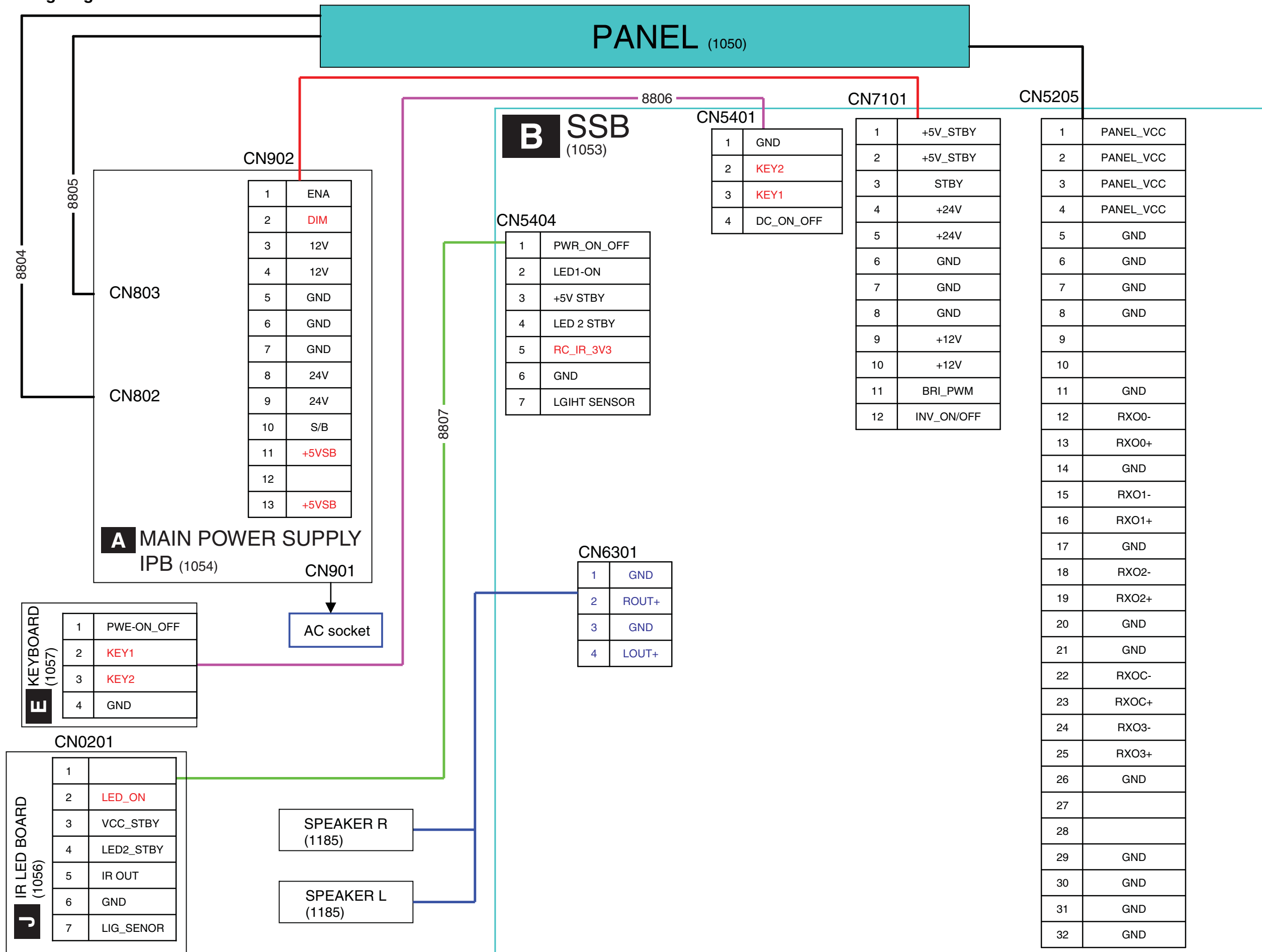


## 9. Block Diagrams

Wiring diagram 32PFL54xx AUO Panel

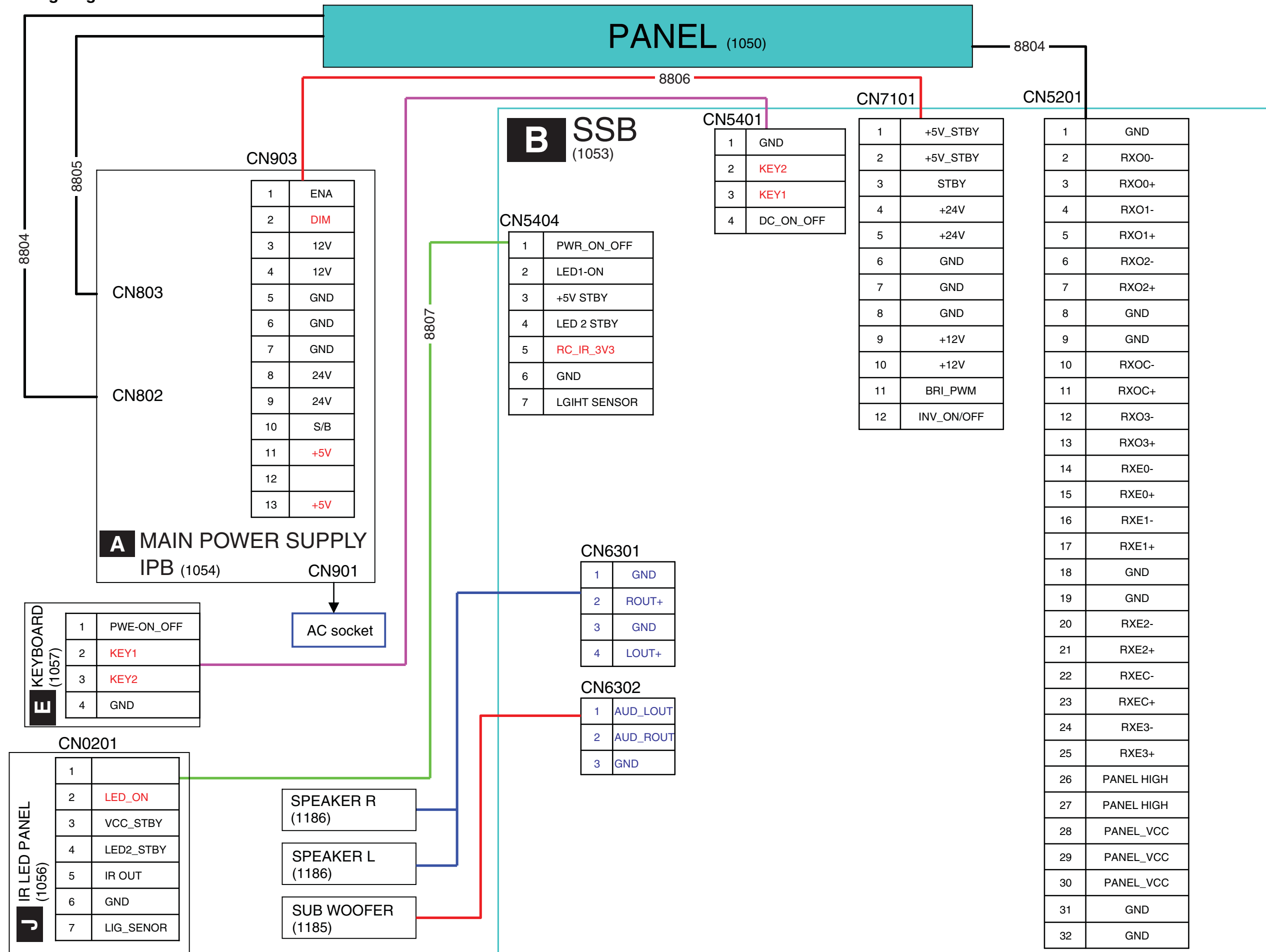


Wiring diagram 32PFL54xx LGD Panel

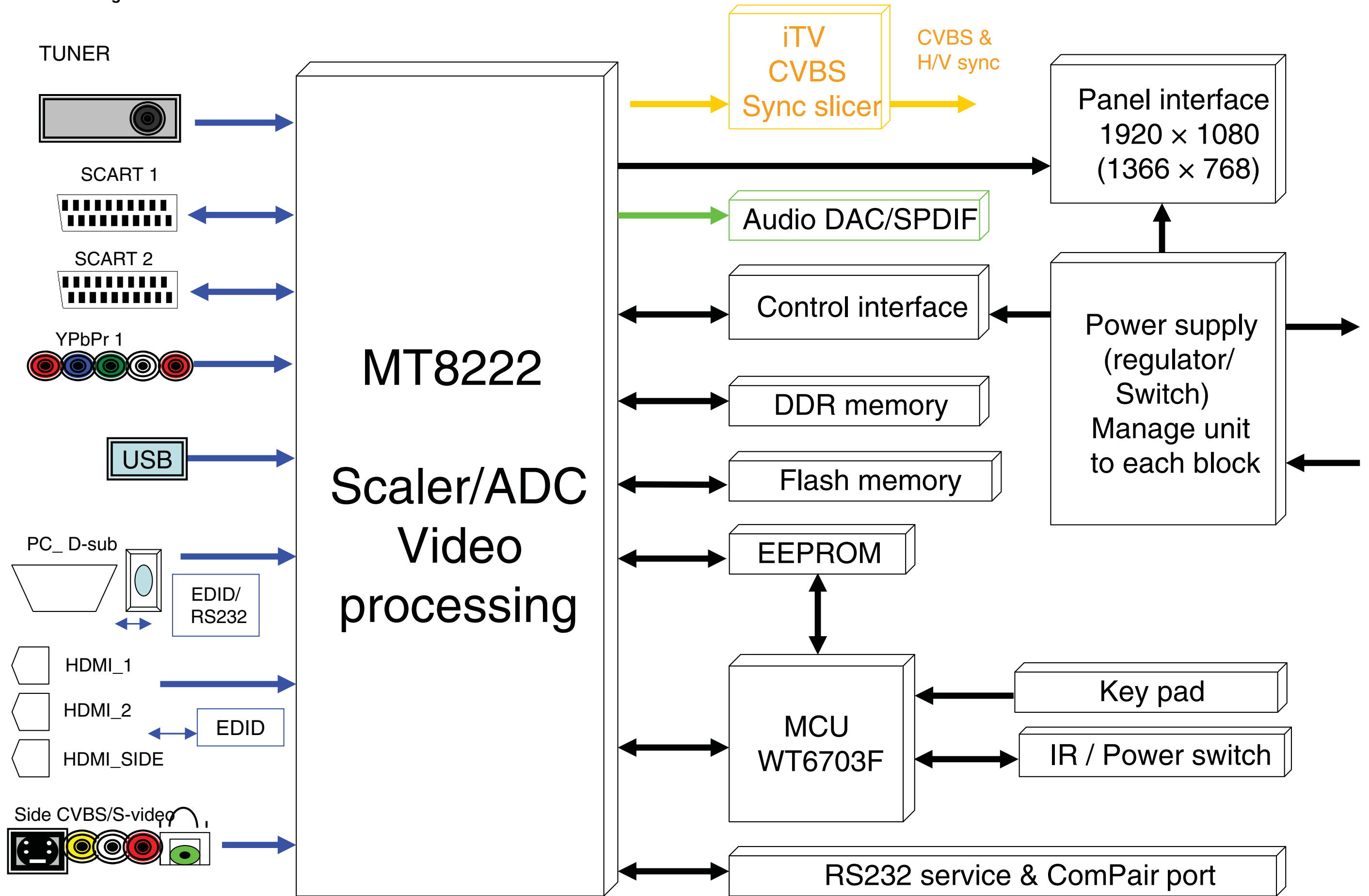


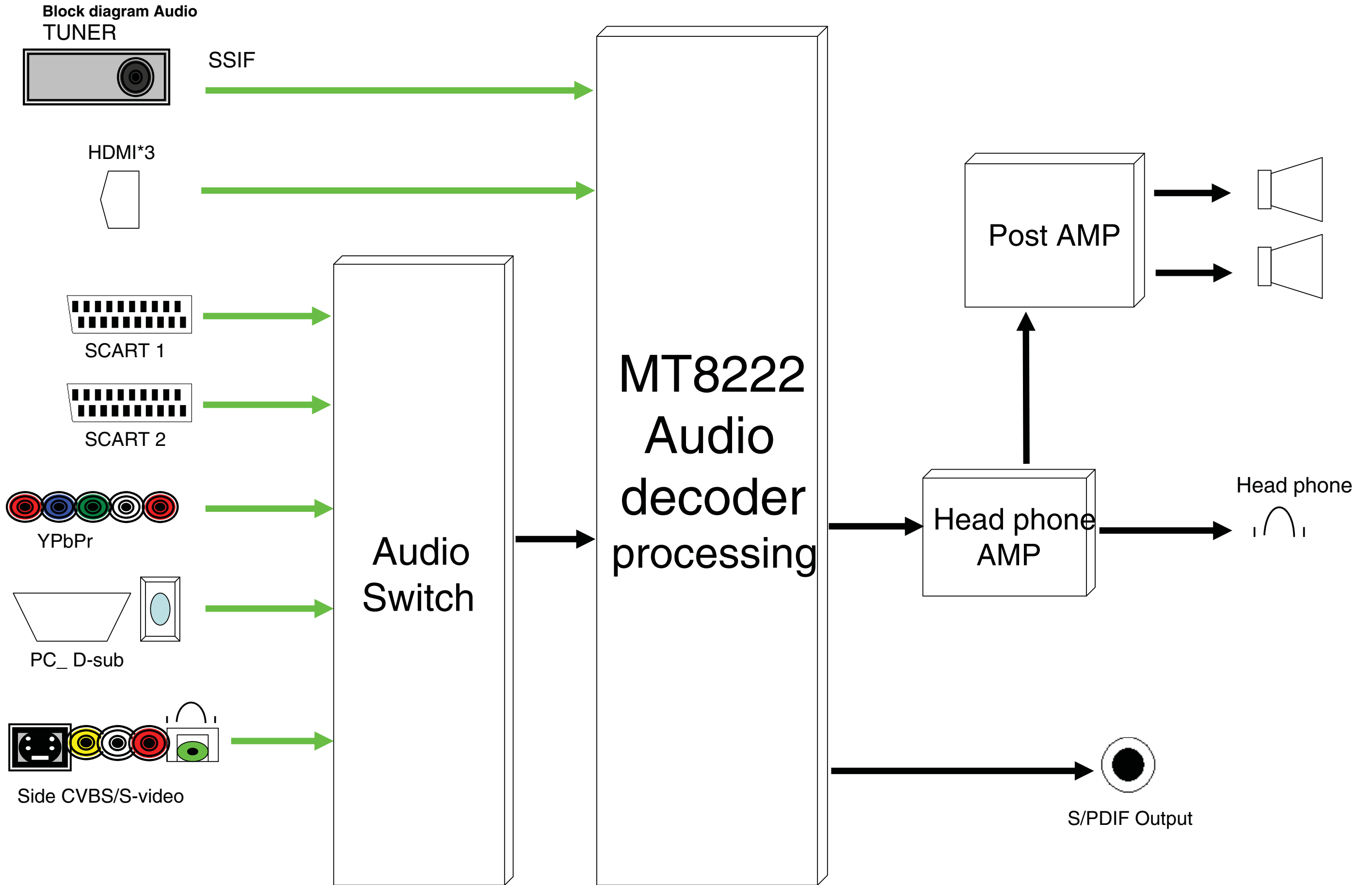


Wiring diagram 42PFL56xx

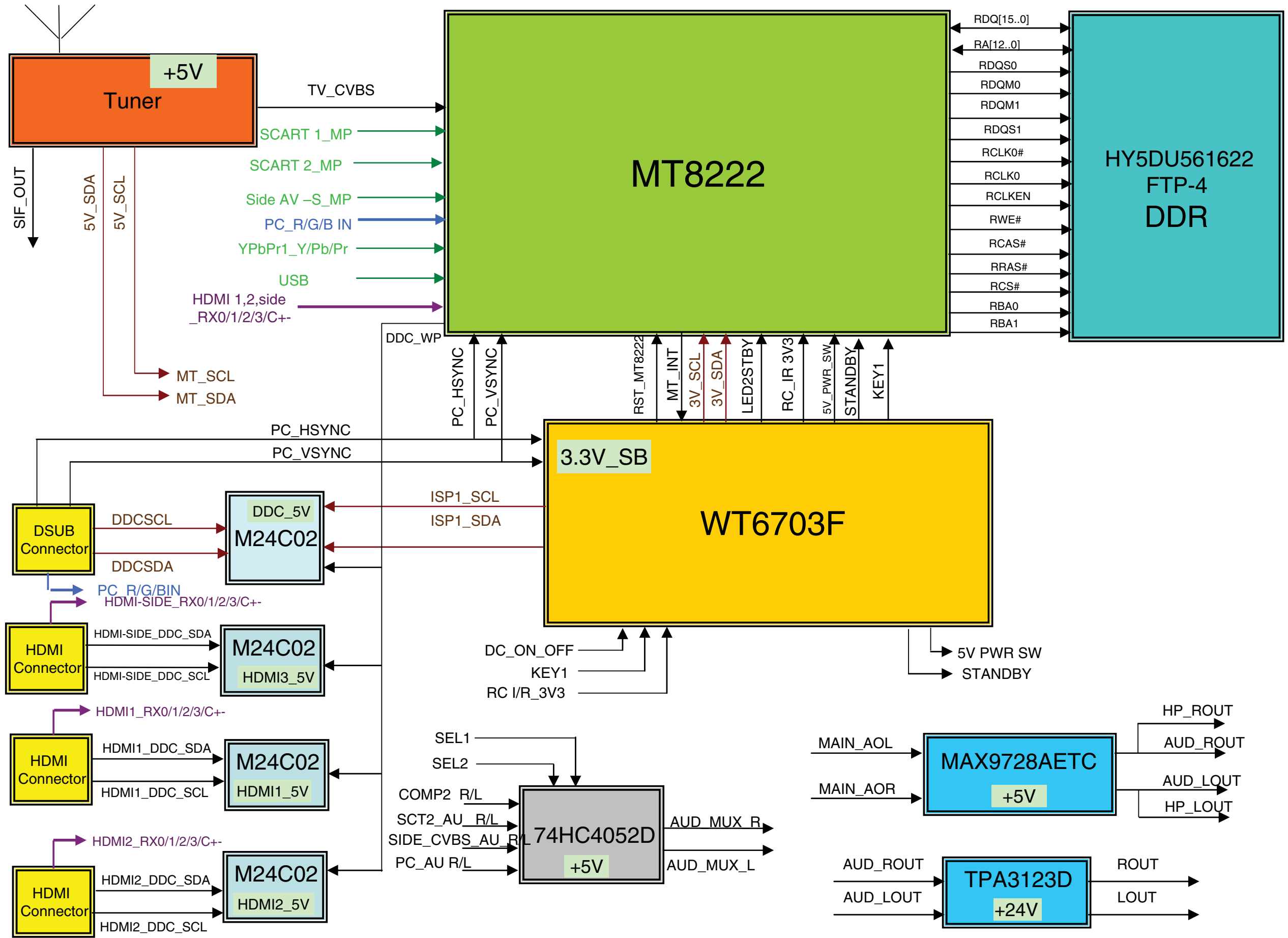


Block diagram Video

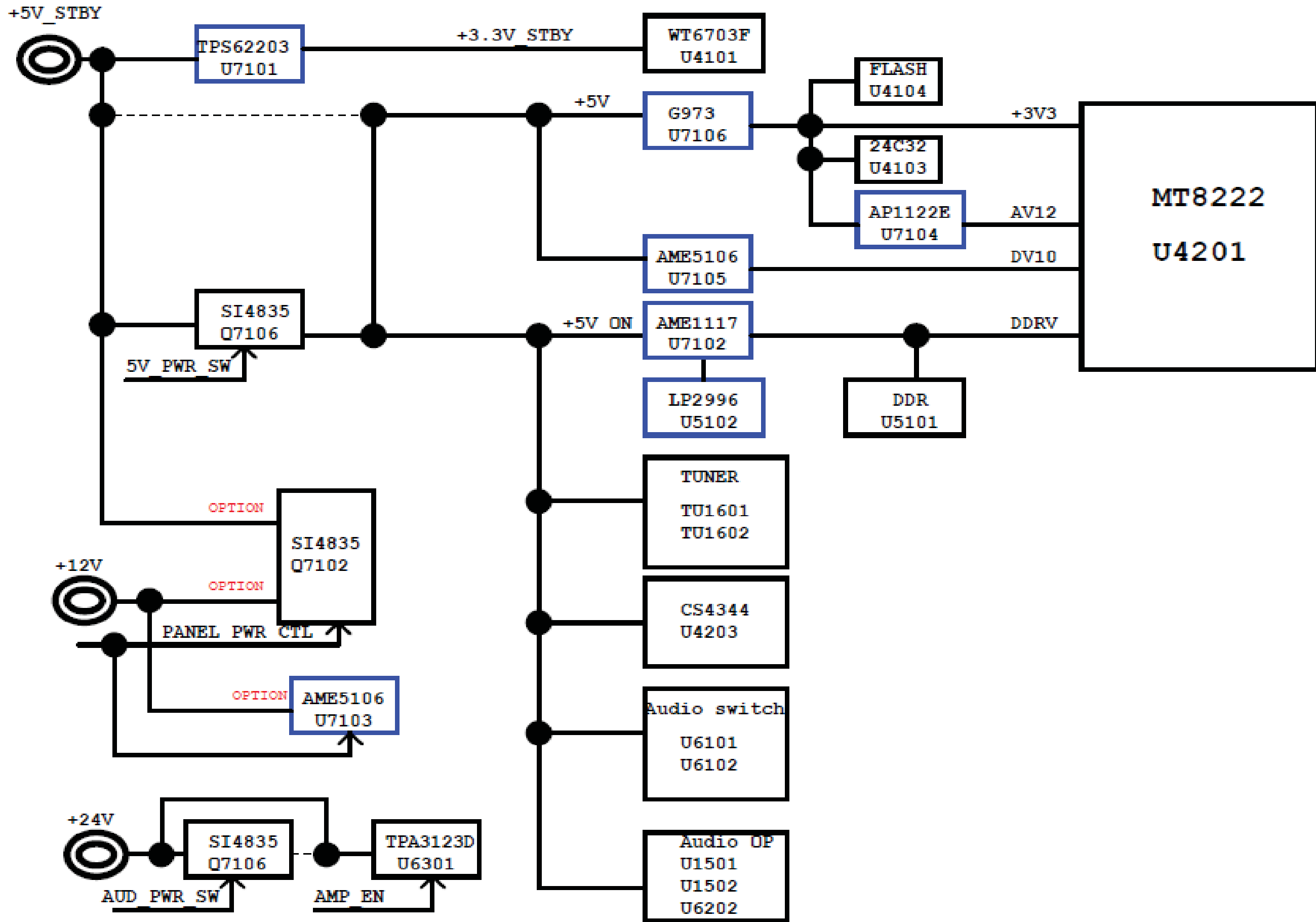




Block diagram Functional diagram

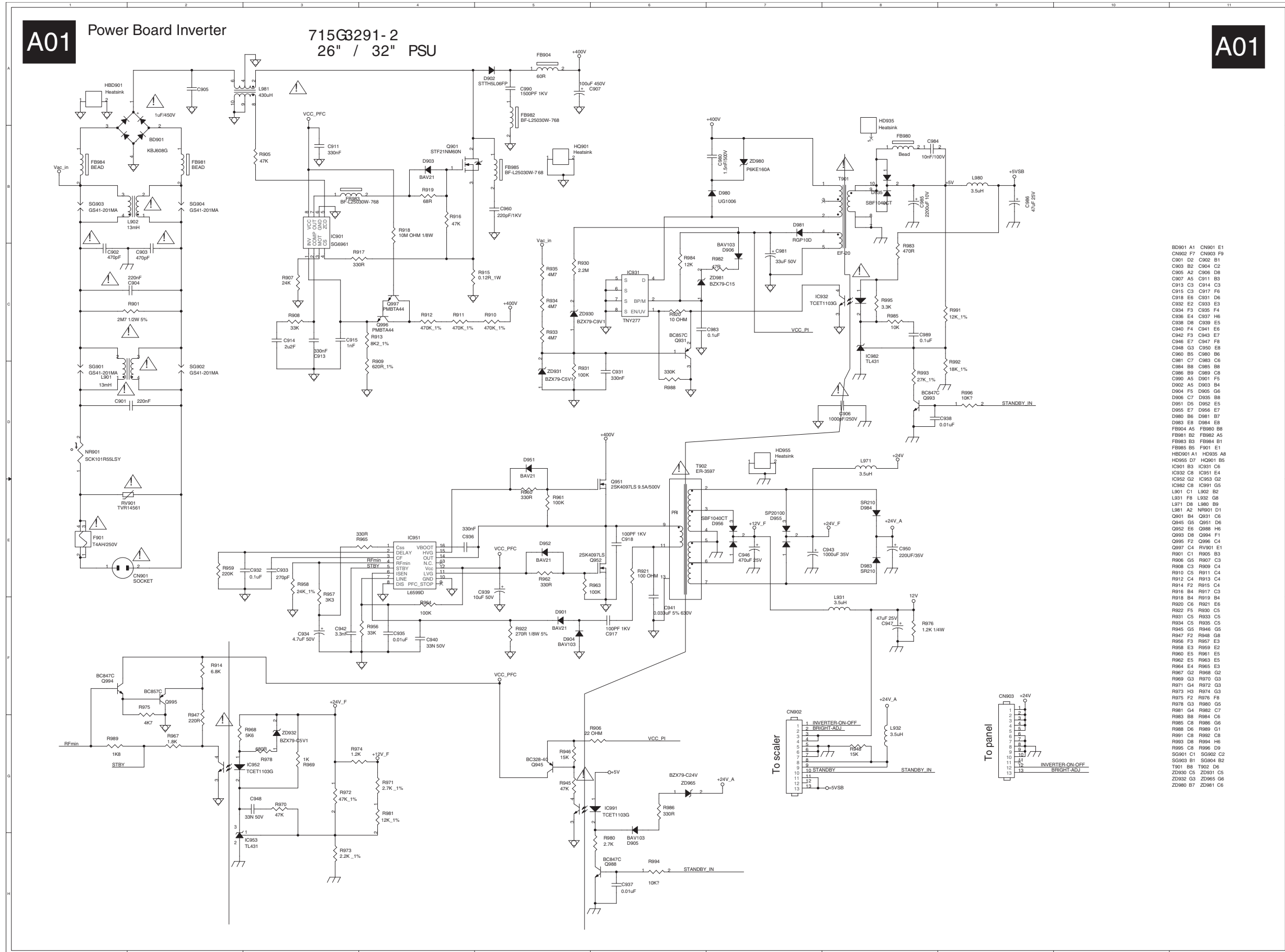


Block Diagram Power diagram

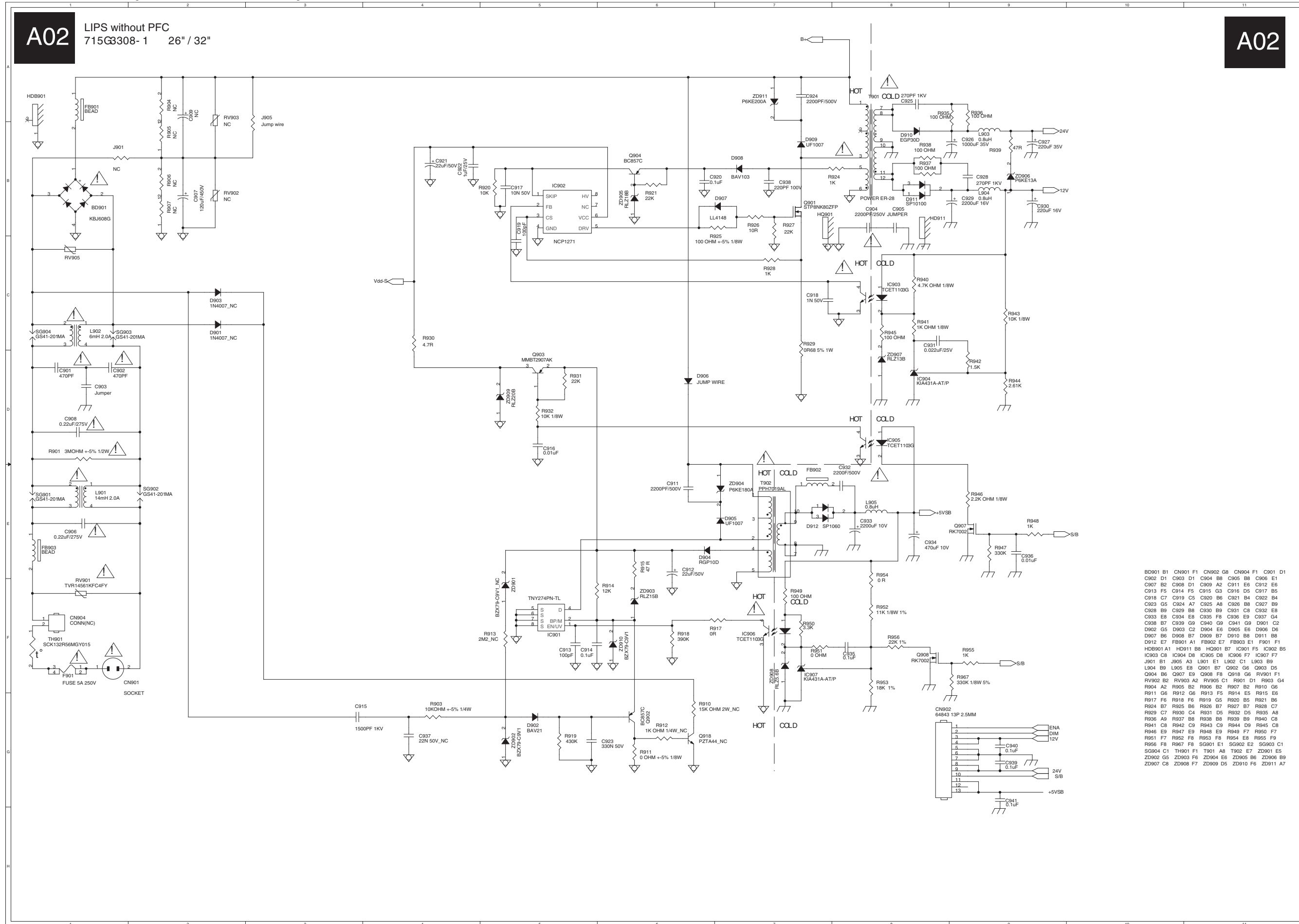


# 10. Circuit Diagrams and PWB Layouts

## Power Board Inverter, 32PFL54xx AUO panel



Power Board Adapter, 32PFL54xx LGD panel

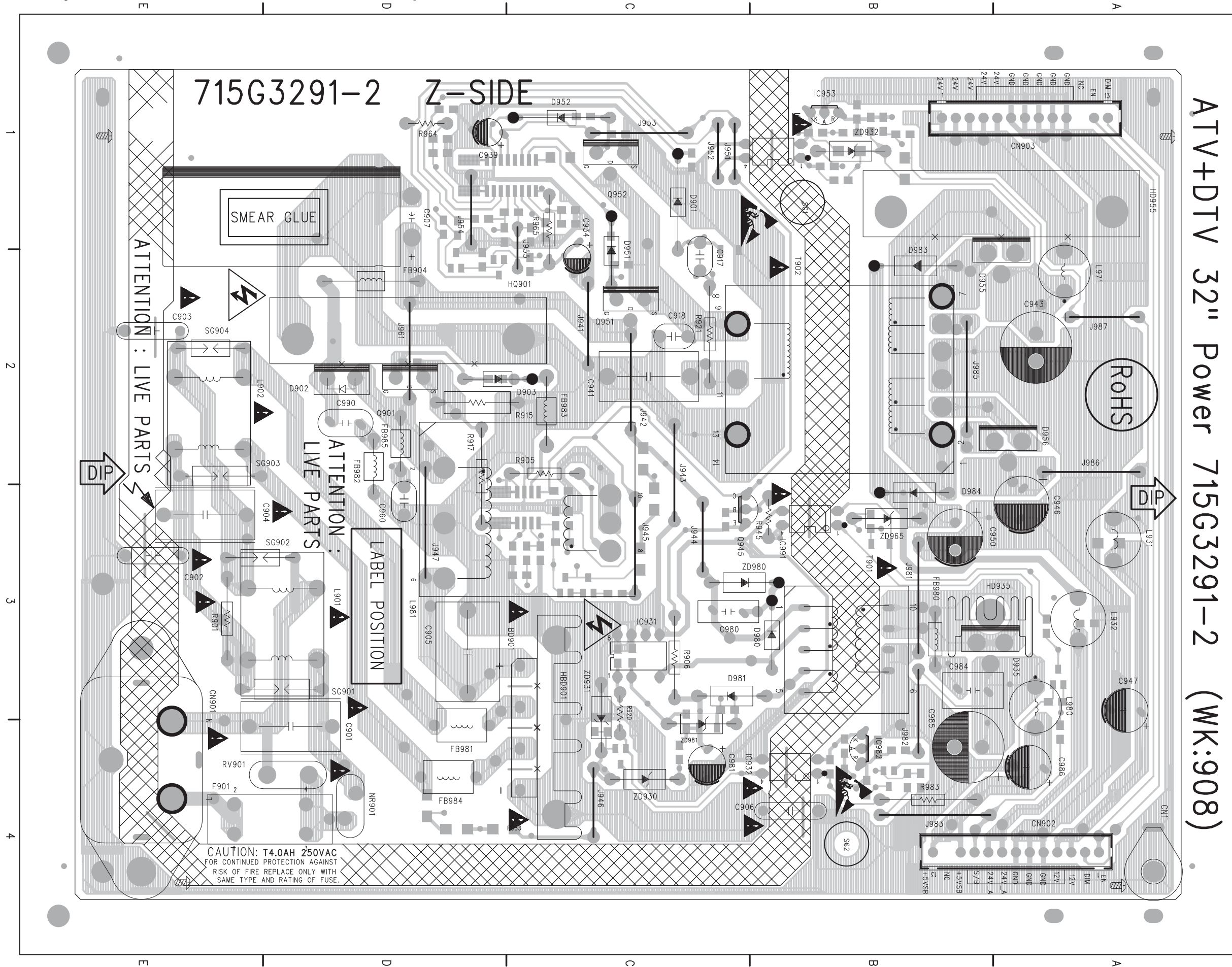


**A02** LIPS without PFC  
715G3308-1 26" / 32"

**A02**

- BD901 B1 CN901 F1 CN902 G8 CN904 F1 C901 D1
- C902 D1 C903 D1 C904 B8 C905 B8 C906 E1
- C907 B2 C908 D1 C909 A2 C911 E5 C912 E6
- C913 F5 C914 F5 C915 G3 C916 D5 C917 B5
- C918 C7 C919 C5 C920 B6 C921 B4 C922 B4
- C923 G5 C924 A7 C925 A8 C926 B8 C927 B9
- C928 B9 C929 B8 C930 B9 C931 C8 C932 E8
- C933 E8 C934 E8 C935 F8 C936 E9 C937 G4
- C938 B7 C939 G9 C940 G9 C941 G9 D901 C2
- D902 G5 D903 C2 D904 E6 D905 E6 D906 D6
- D907 B6 D908 B7 D909 B7 D910 B8 D911 B8
- D912 E7 F901 A1 F902 E7 F903 E1 F901 F1
- HDB901 A1 HD901 B8 HQ901 B7 IC901 F5 IC902 B5
- IC903 C8 IC904 D8 IC905 D8 IC906 F7 IC907 F7
- J901 B1 J905 A3 L901 E1 L902 C1 L903 B9
- L904 B9 L905 E8 Q901 E7 Q902 G6 Q903 D5
- Q904 B8 Q907 E9 Q908 F8 Q918 G6 RV901 F1
- RV902 B2 RV903 A2 RV905 C1 R901 D1 R903 G4
- R904 A2 R905 B2 R906 B2 R907 B2 R910 G6
- R911 G6 R912 G6 R913 F5 R914 E5 R915 E6
- R917 F6 R918 F6 R919 G5 R920 B5 R921 B6
- R924 B7 R925 B6 R926 B7 R927 B7 R928 C7
- R929 C7 R930 C4 R931 D5 R932 D5 R935 A8
- R936 A9 R937 B8 R938 B8 R939 B9 R940 C8
- R941 C8 R942 C9 R943 C9 R944 D9 R945 C8
- R946 E9 R947 E9 R948 E9 R949 F7 R950 F7
- R951 F7 R952 F8 R953 F8 R954 E8 R955 F9
- R956 F8 R967 F8 SG901 E1 SG902 E2 SG903 C1
- SG904 C1 TH901 F1 T901 A8 T902 E7 ZD901 E5
- ZD902 G5 ZD903 F6 ZD904 E6 ZD905 B6 ZD906 B9
- ZD907 C8 ZD908 F7 ZD909 D5 ZD910 F6 ZD911 A7

Layout Power Board, 32PFL54xx AUO Panel Top Side

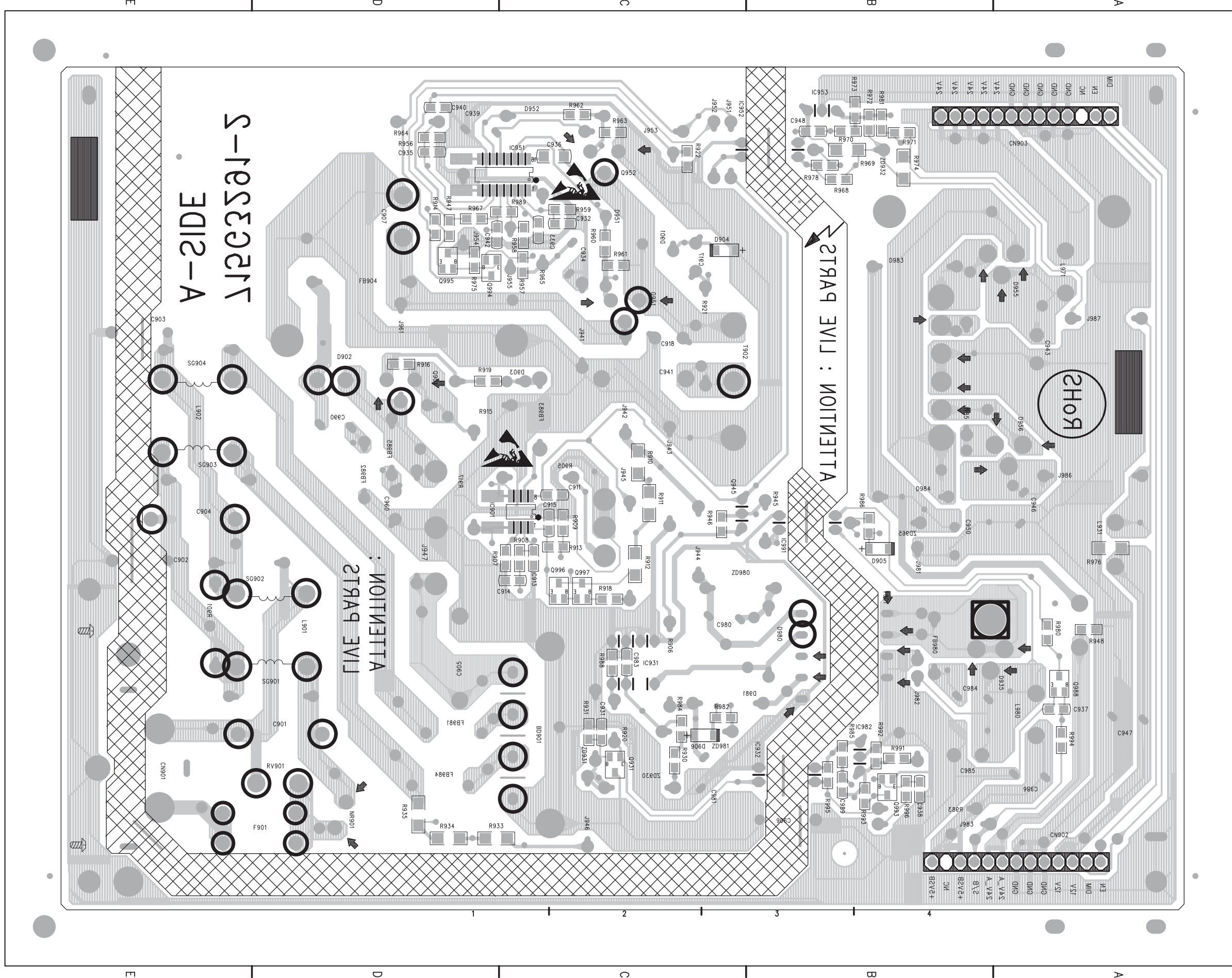


BD901	C4	IC991	B3
C901	D4	J941	C2
C902	E3	J942	C2
C903	E2	J943	C3
C904	E3	J944	B3
C905	C4	J945	C3
C906	B4	J946	C4
C907	D1	J947	D3
C917	B2	J951	B1
C918	C2	J952	B1
C934	C2	J953	C1
C939	C1	J954	C1
C941	C2	J955	C2
C943	A2	J961	D2
C946	A3	J981	A3
C947	A4	J982	A4
C950	A3	J983	A4
C960	D3	J985	A2
C980	B3	J986	A3
C981	B4	J987	A2
C984	A4	L901	D3
C985	A4	L902	E2
C986	A4	L931	A3
C990	D2	L932	A3
CN901	E4	L971	A2
CN902	A4	L980	A4
CN903	A1	L981	C3
D901	C1	NR901	D4
D902	D2	Q901	D2
D903	C2	Q945	B3
D935	A4	Q951	C2
D951	C2	Q952	C1
D952	C1	R901	E3
D955	A2	R905	C3
D956	A3	R906	C4
D980	B3	R915	C2
D981	B4	R917	C3
D983	A2	R920	C4
D984	A3	R921	B2
F901	D4	R945	B3
FB904	D2	R964	D1
FB980	A4	R965	C2
FB981	D4	R983	A4
FB982	D3	RV901	D4
FB983	C2	SG901	D4
FB984	D4	SG902	D3
FB985	D3	SG903	E3
HBD901	C4	SG904	E2
HD935	A3	T901	B4
HD955	A2	T902	B2
HQ901	D2	ZD930	C4
IC931	C4	ZD931	C4
IC932	B4	ZD932	B1
IC952	B1	ZD965	B3
IC953	B1	ZD980	B3
IC982	B4	ZD981	B4

CAUTION: T4.0AH 250VAC  
FOR CONTINUED PROTECTION AGAINST  
RISK OF FIRE REPLACE ONLY WITH  
SAME TYPE AND RATING OF FUSE.



Layout Power Board, 32PFL54xx AUO Panel Bottom Side

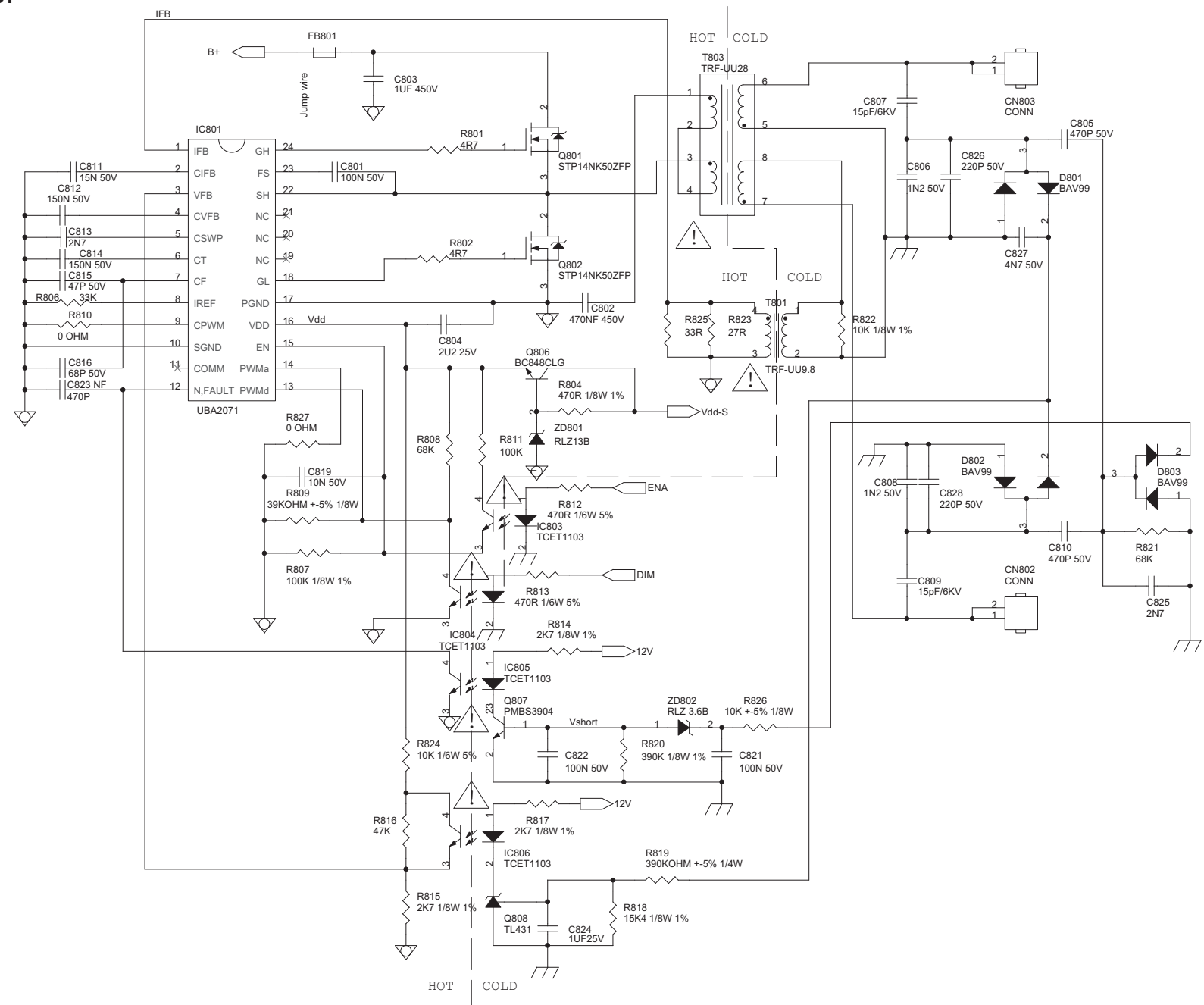


C911	C3	R933	C4
C913	C3	R934	D4
C914	C3	R935	D4
C915	C3	R946	B3
C931	C4	R947	D2
C932	C2	R948	A3
C933	C2	R956	D1
C935	D1	R957	C2
C936	C1	R958	C2
C937	A4	R959	C1
C938	A4	R960	C2
C940	D1	R961	C2
C942	C2	R962	C1
C948	B1	R963	C1
C983	C4	R967	C1
C989	B4	R968	B1
D904	B2	R969	B1
D905	B3	R970	B1
D906	B4	R971	B1
IC901	C3	R972	B1
IC951	C1	R973	B1
Q931	C4	R974	A1
Q988	A4	R975	C2
Q993	B4	R976	A3
Q994	C2	R978	B1
Q995	D2	R980	A3
Q996	C3	R981	B1
Q997	C3	R982	B4
R907	C3	R984	B4
R908	C3	R985	B4
R909	C3	R986	B3
R910	C3	R988	C4
R911	C3	R989	C1
R912	C3	R991	B4
R913	C3	R992	B4
R914	D2	R993	B4
R916	D2	R994	A4
R918	C3	R995	B4
R919	C2	R996	A4
R922	B1		
R930	C4		
R931	C4		

Power Board Inverter, 32PFL54xx LGD panel

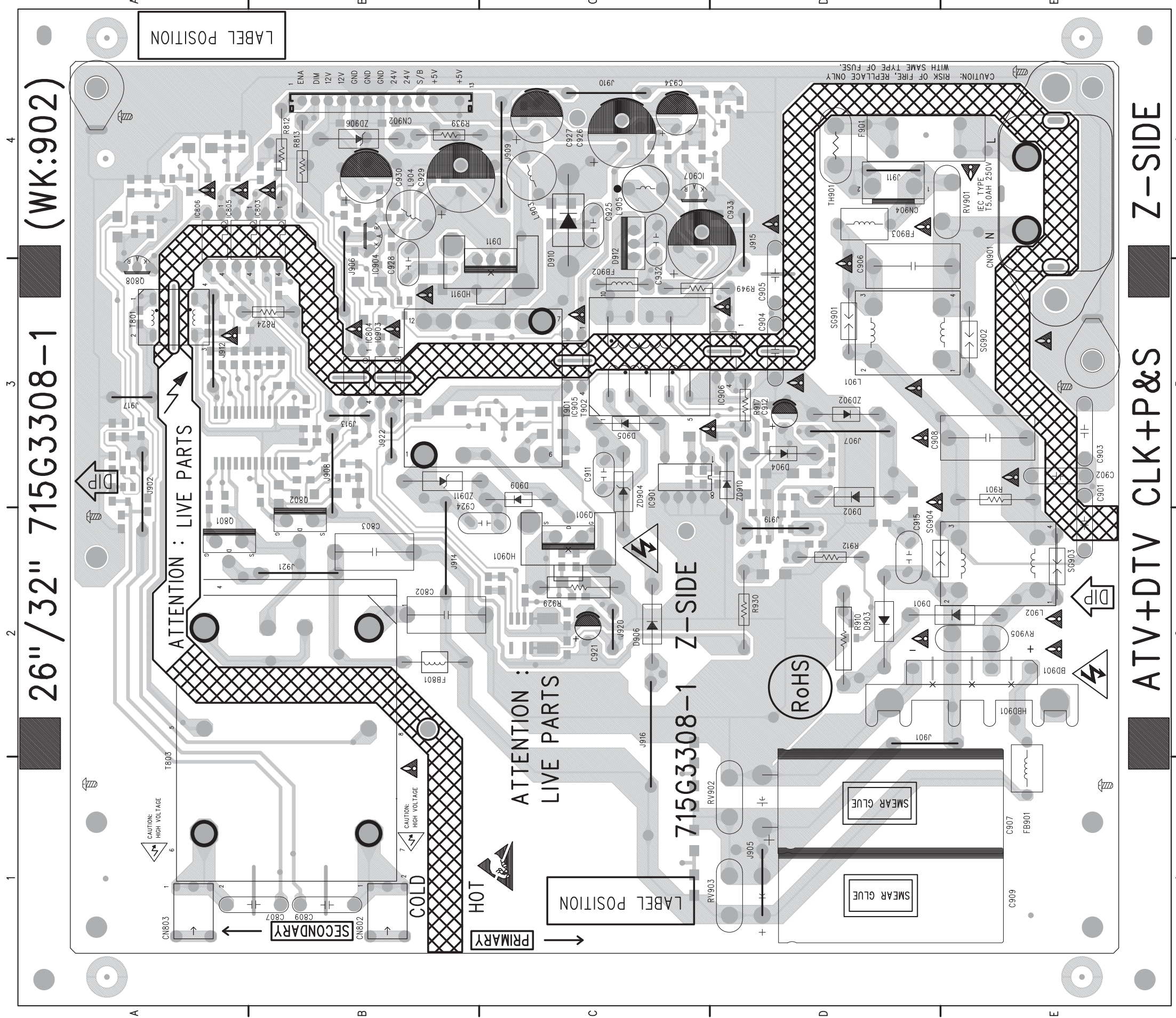
A01 Inverter

A01



- CN802 D8
- CN803 A8
- C801 B4
- C802 C5
- C803 B4
- C804 C5
- C805 B8
- C806 B7
- C807 B7
- C808 D7
- C809 D7
- C810 D8
- C811 B2
- C812 B2
- C813 B2
- C814 C2
- C815 C2
- C816 C2
- C819 D4
- C821 E6
- C822 E5
- C823 C2
- C824 F5
- C825 D9
- C826 B8
- C827 B8
- C828 D7
- D801 B8
- D802 D8
- D803 D9
- FB801 A4
- IC801 B3
- IC803 D5
- IC804 D5
- IC805 E5
- IC806 F5
- Q801 B5
- Q802 B5
- Q806 C5
- Q807 E5
- Q808 F5
- R801 B5
- R802 C5
- R804 C5
- R806 C2
- R807 D4
- R808 D5
- R809 D4
- R810 C2
- R811 D5
- R812 D5
- R813 D5
- R814 E5
- R815 F4
- R816 F4
- R817 F5
- R818 F6
- R819 F6
- R822 E6
- R821 D9
- R822 C7
- R823 C6
- R824 E4
- R825 C6
- R826 E6
- R827 D4
- T801 C7
- T803 B6
- ZD801 D5
- ZD802 E6

**Layout Power Board, 32PFL54xx LGD Panel Top Side**

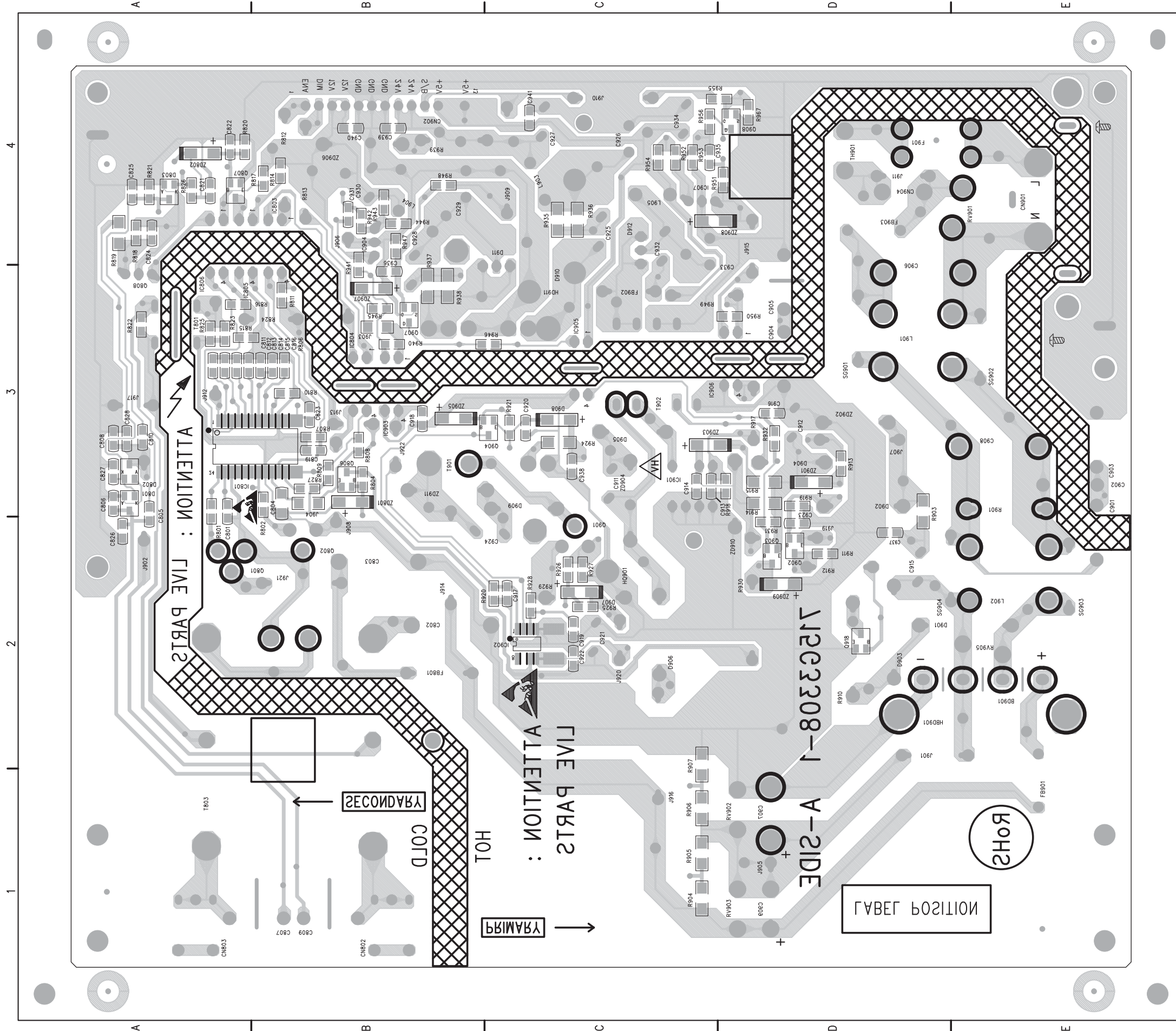


26" / 32" 715G3308-1 (WK:902)

26" / 32" 715G3308-1

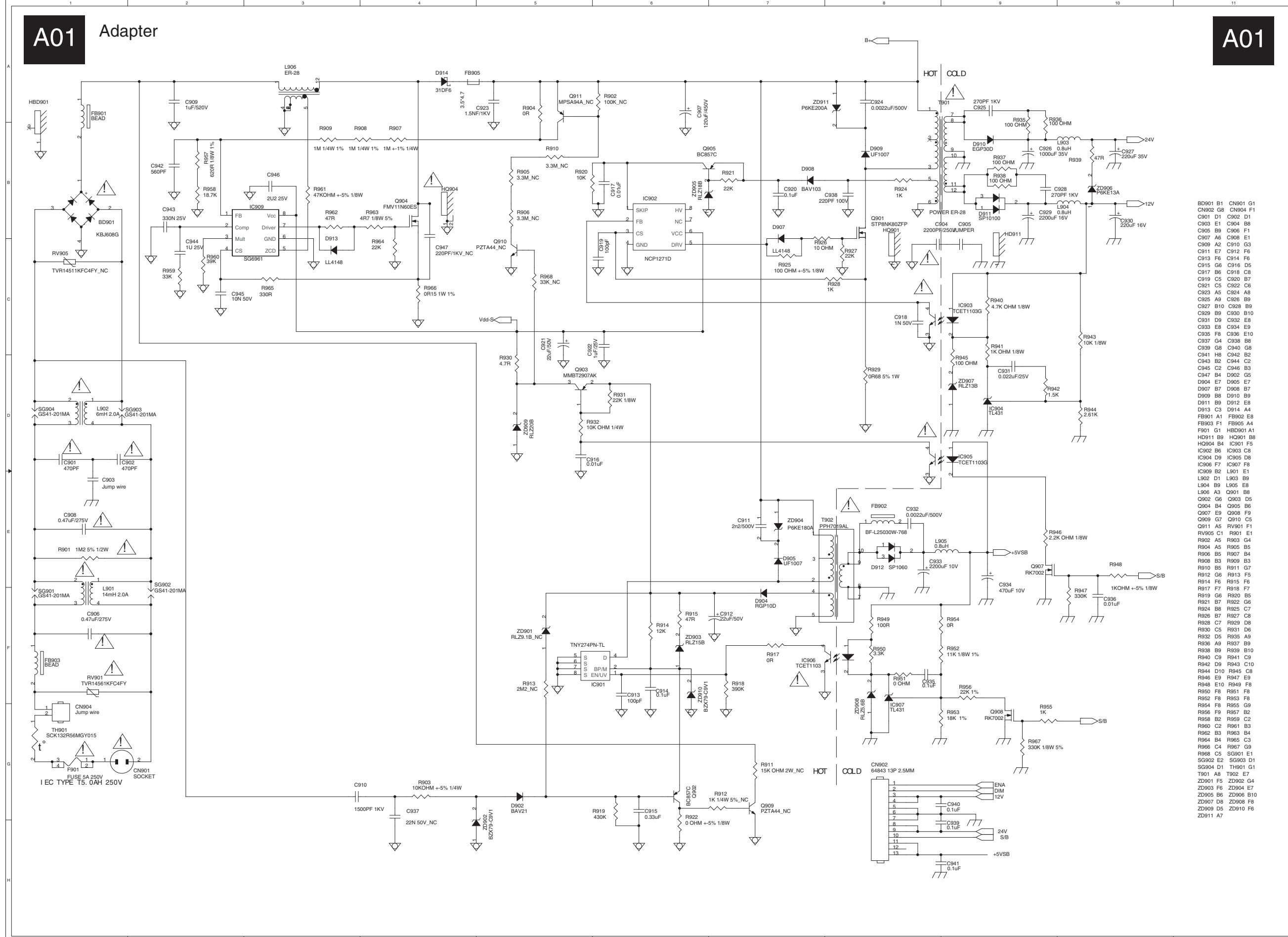
BD901	E2	IC806	A4	T801	A4
C802	B2	IC901	C3	T803	A2
C803	B3	IC903	B3	T901	B3
C807	A1	IC904	B4	T902	C3
C809	A1	IC905	C4	TH901	D4
C901	E3	IC906	C4	ZD902	D3
C902	E3	IC907	C4	ZD904	C3
C903	E3	J901	D2	ZD906	B4
C904	D3	J902	A3	ZD910	C3
C905	D4	J905	D1	ZD911	B3
C906	D4	J906	B4		
C907	D1	J907	D3		
C908	E3	J908	A3		
C909	D1	J909	B4		
C911	C3	J910	C4		
C912	D3	J911	D4		
C915	D3	J912	A3		
C921	C2	J913	B3		
C924	B3	J914	B3		
C925	C4	J915	C4		
C926	C4	J916	C2		
C927	B4	J917	A3		
C928	B4	J919	D3		
C929	B4	J920	C2		
C930	B4	J921	A2		
C932	C4	J922	B3		
C933	C4	L901	D4		
C934	C4	L902	E2		
CN802	B1	L903	B4		
CN803	A1	L904	B4		
CN901	E4	L905	C4		
CN902	B4	Q801	A3		
CN904	D4	Q802	A3		
D901	D2	Q808	A4		
D902	D3	Q901	C3		
D903	D2	R812	A4		
D904	D3	R813	A4		
D905	C3	R824	A4		
D906	C2	R901	E3		
D909	B3	R910	D2		
D910	C4	R912	D3		
D911	B4	R917	C3		
D912	C4	R929	C2		
F901	D4	R930	C2		
FB801	B2	R939	B4		
FB901	E2	R949	C4		
FB902	C4	RV901	D4		
FB903	D4	RV902	C1		
HBD901	E2	RV903	C1		
HD911	B4	RV905	E2		
HQ901	C3	SG901	D4		
IC803	A4	SG902	E3		
IC804	B3	SG903	E2		
IC805	A4	SG904	D3		

Layout Power Board, 32PFL54xx LGD Panel Bottom Side



C801	A3	Q908	C4	R945	B4
C804	A3	Q918	D2	R946	B4
C805	A3	R801	A3	R947	B4
C806	A3	R802	A3	R948	B4
C808	A3	R804	B3	R950	C4
C810	A3	R806	A3	R951	C4
C811	A3	R807	A3	R952	C4
C812	A3	R808	B3	R953	C4
C813	A3	R809	A3	R954	C4
C814	A3	R810	A3	R955	C4
C815	A3	R811	A4	R956	C4
C816	A3	R814	A4	R967	C5
C819	A3	R815	A4	ZD801	B3
C821	A4	R816	A4	ZD802	A4
C822	A4	R817	A4	ZD901	D3
C823	A3	R818	A4	ZD903	C3
C824	A4	R819	A4	ZD905	B3
C825	A4	R820	A4	ZD907	B4
C826	A3	R821	A4	ZD908	C4
C827	A3	R822	A4	ZD909	D2
C828	A3	R823	A4		
C913	C3	R825	A4		
C914	C3	R826	A4		
C916	D3	R827	A3		
C917	B2	R903	D3		
C918	B3	R904	C1		
C919	C2	R905	C1		
C920	B3	R906	C1		
C922	C2	R907	C2		
C923	D3	R911	D3		
C931	B4	R913	D3		
C935	C4	R914	D3		
C936	B4	R915	D3		
C937	D3	R918	C3		
C938	C3	R919	D3		
C939	B4	R920	B2		
C940	B4	R921	B3		
C941	B4	R924	C3		
D801	A3	R925	C2		
D802	A3	R926	C3		
D803	A4	R927	C3		
D907	C2	R928	B2		
D908	C3	R931	D3		
IC801	A3	R932	D3		
IC902	B2	R935	C4		
J903	B4	R936	C4		
J904	A3	R937	B4		
Q806	B3	R938	B4		
Q807	A4	R940	B4		
Q902	D3	R941	B4		
Q903	D3	R942	B4		
Q904	B3	R943	B4		
Q907	B4	R944	B4		

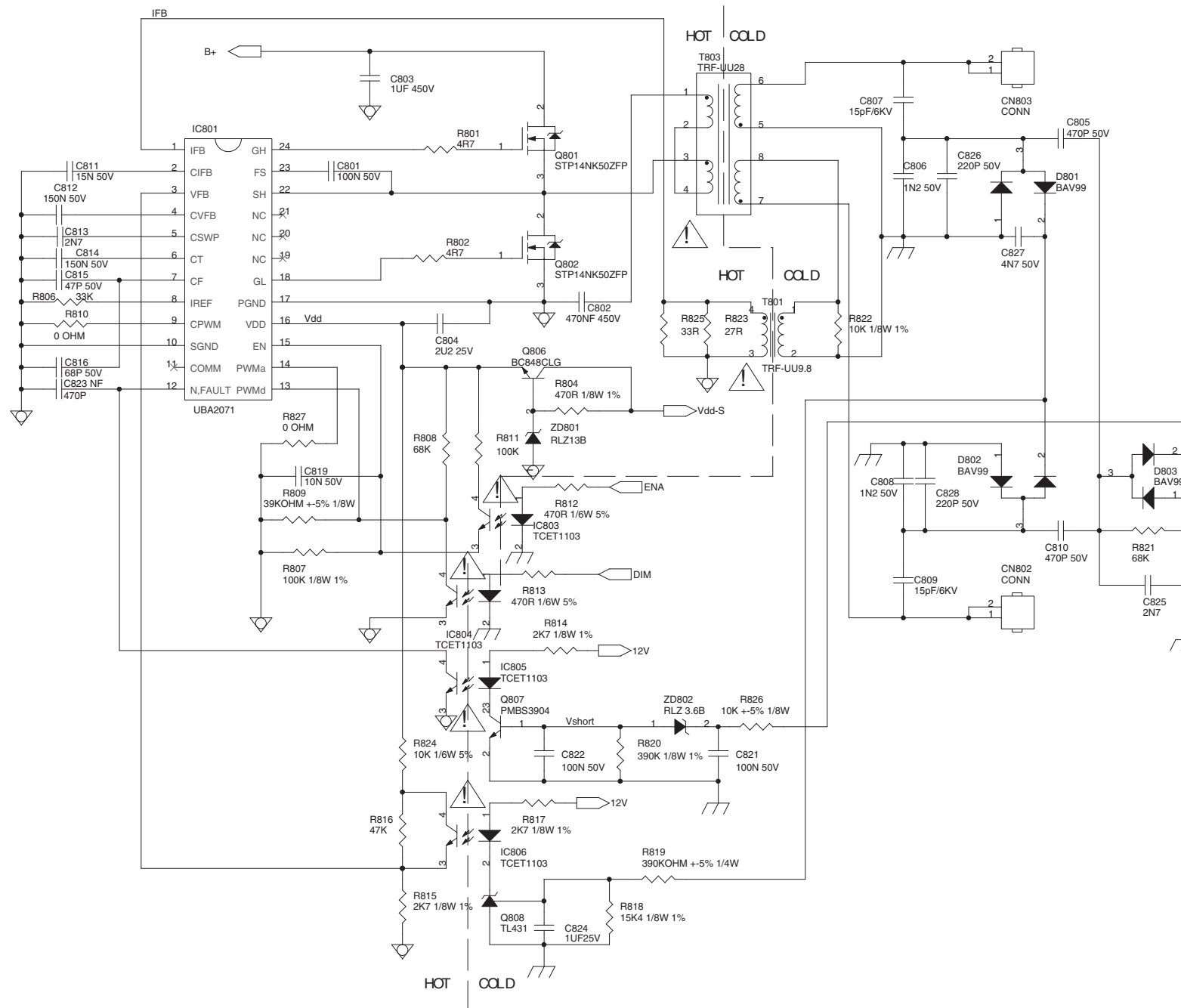
Power Board Adapter, 32PFL56xx



Power Board Inverter, 32PFL56xx

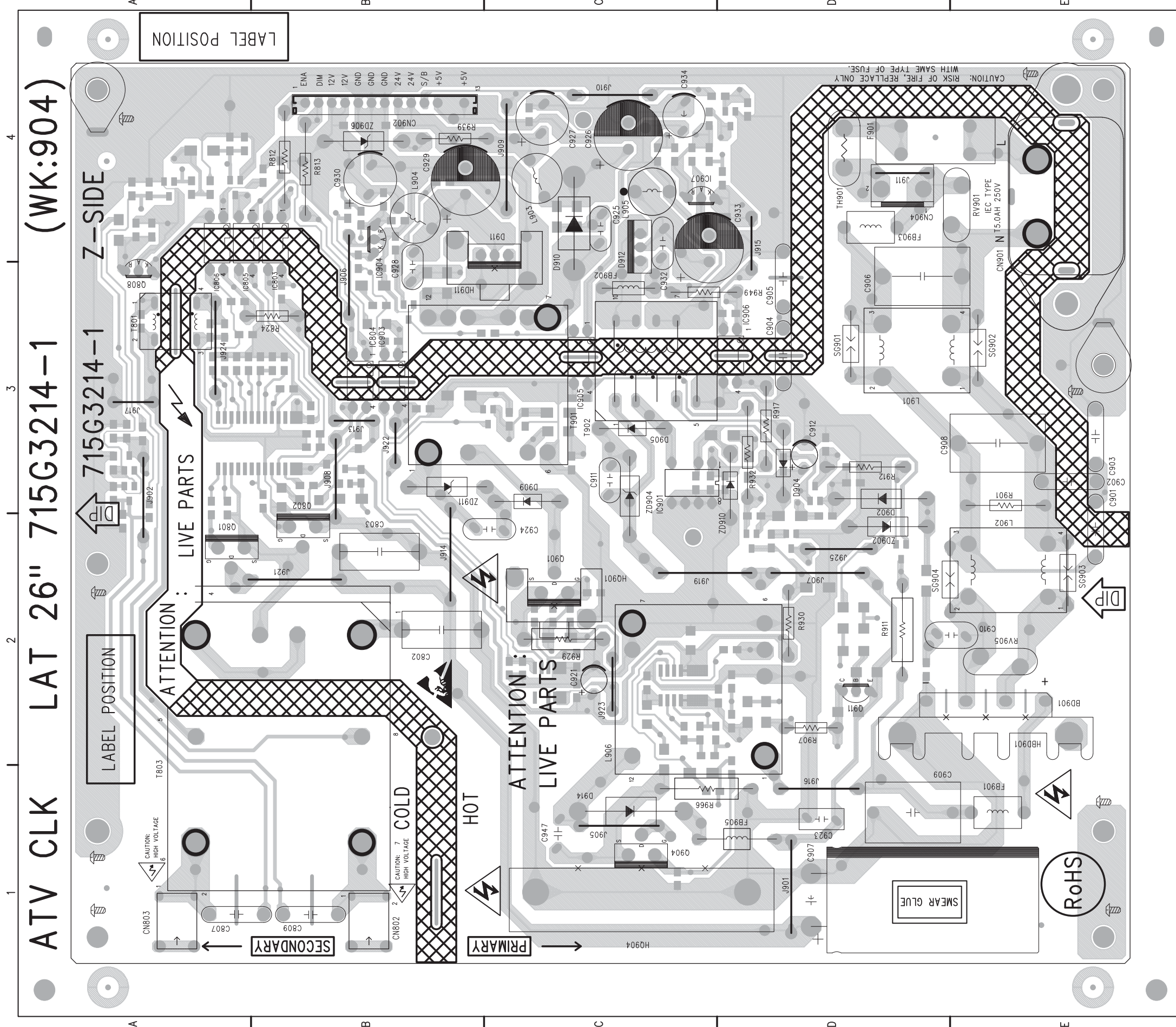
A02 Inverter

A02



- CN802 E8
- CN803 B8
- C801 C4
- C802 C6
- C803 B4
- C804 C5
- C805 B8
- C806 C7
- C807 B7
- C808 D7
- C809 E7
- C810 E8
- C811 C3
- C812 C3
- C813 C3
- C814 C3
- C815 C3
- C816 D3
- C819 D4
- C821 F6
- C822 F5
- C823 D3
- C824 G5
- C825 E9
- C826 C8
- C827 C8
- C828 D6
- D801 C8
- D802 D6
- D803 D9
- IC801 C4
- IC803 E5
- IC804 E5
- IC805 E5
- IC806 F5
- Q801 B5
- Q802 C5
- Q806 D5
- Q807 F5
- Q808 G5
- R801 C5
- R802 C5
- R804 D6
- R806 C3
- R807 E4
- R808 D5
- R809 E4
- R810 C3
- R811 D5
- R812 D6
- R813 E5
- R814 E6
- R815 G5
- R816 F5
- R817 F5
- R818 G6
- R819 G6
- R820 F6
- R821 E9
- R822 C7
- R823 C6
- R824 F5
- R825 C6
- R826 F7
- R827 D4
- T801 C7
- T803 B6
- ZD801 D5
- ZD802 F6

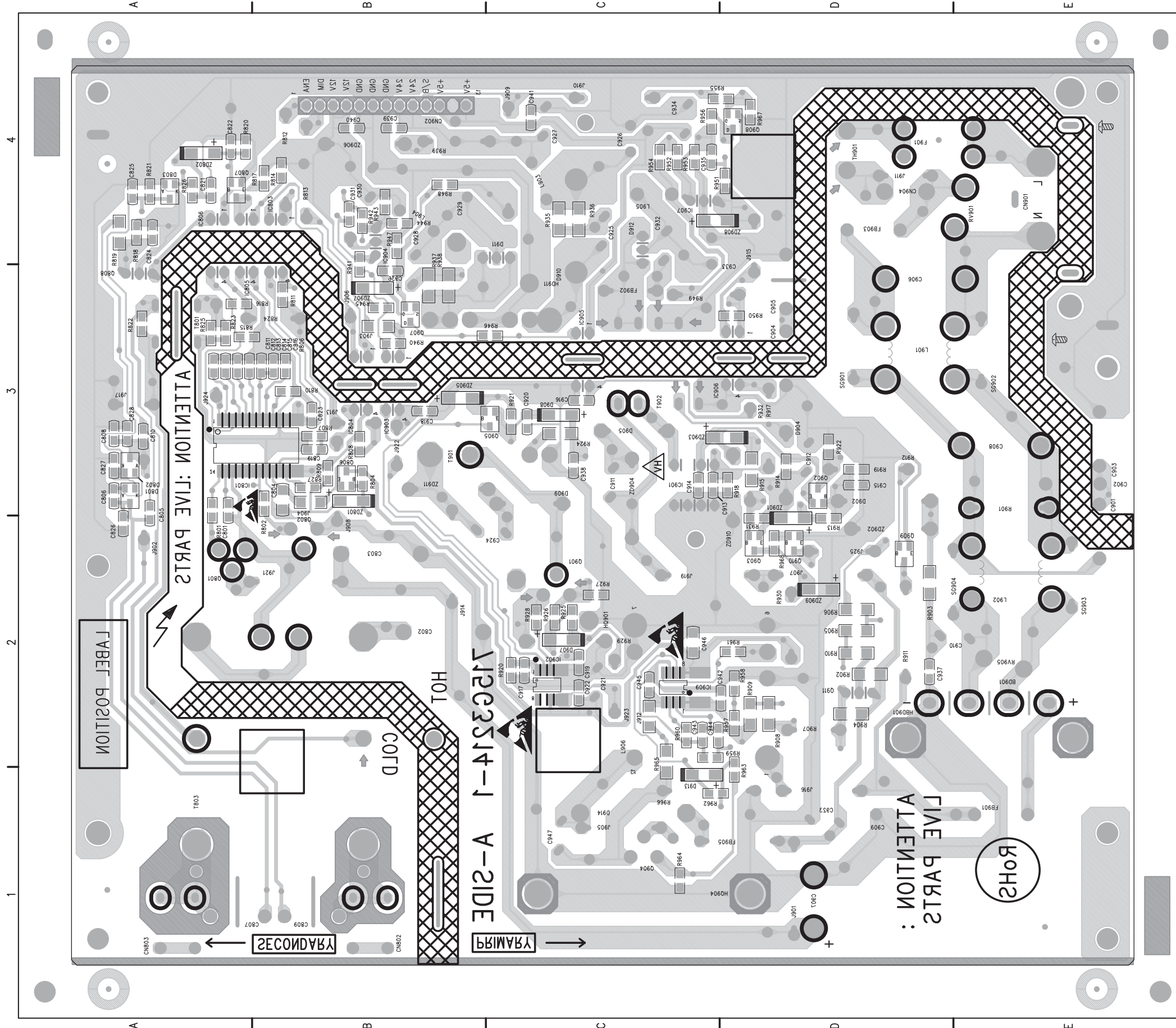
Layout Power board, 32PFL56xx Top Side



ATV CLK LAT 26" 715G3214-1 (WK:904)

BD901 E2	IC805 A4	RV901 D4
C802 B2	IC806 A4	RV905 E2
C803 B3	IC901 C3	SG901 D3
C807 A1	IC903 B3	SG902 E3
C809 A1	IC904 B4	SG903 E2
C901 E3	IC905 C4	SG904 D2
C902 E3	IC906 C4	T801 A4
C903 E3	IC907 C4	T803 A2
C904 D3	J901 D1	T901 B3
C905 D4	J902 A3	T902 C3
C906 D4	J905 C1	TH901 D4
C907 D1	J906 B4	ZD902 D3
C908 E3	J907 D2	ZD904 C3
C909 D1	J908 A3	ZD906 B4
C910 D2	J909 B4	ZD910 C3
C911 C3	J910 C4	ZD911 B3
C912 D3	J911 D4	
C921 C2	J913 B3	
C923 D1	J914 B3	
C924 B3	J915 C4	
C925 C4	J916 D2	
C926 C4	J917 A3	
C927 B4	J919 C2	
C928 B4	J921 A2	
C929 B4	J922 B3	
C930 B4	J923 C2	
C932 C4	J924 A3	
C933 C4	J925 D3	
C934 C4	L901 D3	
C947 C1	L902 E2	
CN802 B1	L903 B4	
CN803 A1	L904 B4	
CN901 E4	L905 C4	
CN902 B4	L906 C2	
CN904 D4	Q801 A3	
D902 D3	Q802 A3	
D904 D3	Q808 A4	
D905 C3	Q901 C2	
D909 B3	Q904 C1	
D910 C4	Q911 D2	
D911 B4	R812 A4	
D912 C4	R813 A4	
D914 C1	R824 A4	
F901 D4	R901 E3	
FB901 E1	R907 D2	
FB902 C4	R911 D2	
FB903 D4	R912 D3	
FB905 C1	R917 D3	
HBD901 E2	R929 C2	
HD911 B4	R930 D2	
HQ901 C2	R932 C3	
HQ904 C1	R939 B4	
IC803 A4	R949 C4	
IC804 B3	R966 C2	

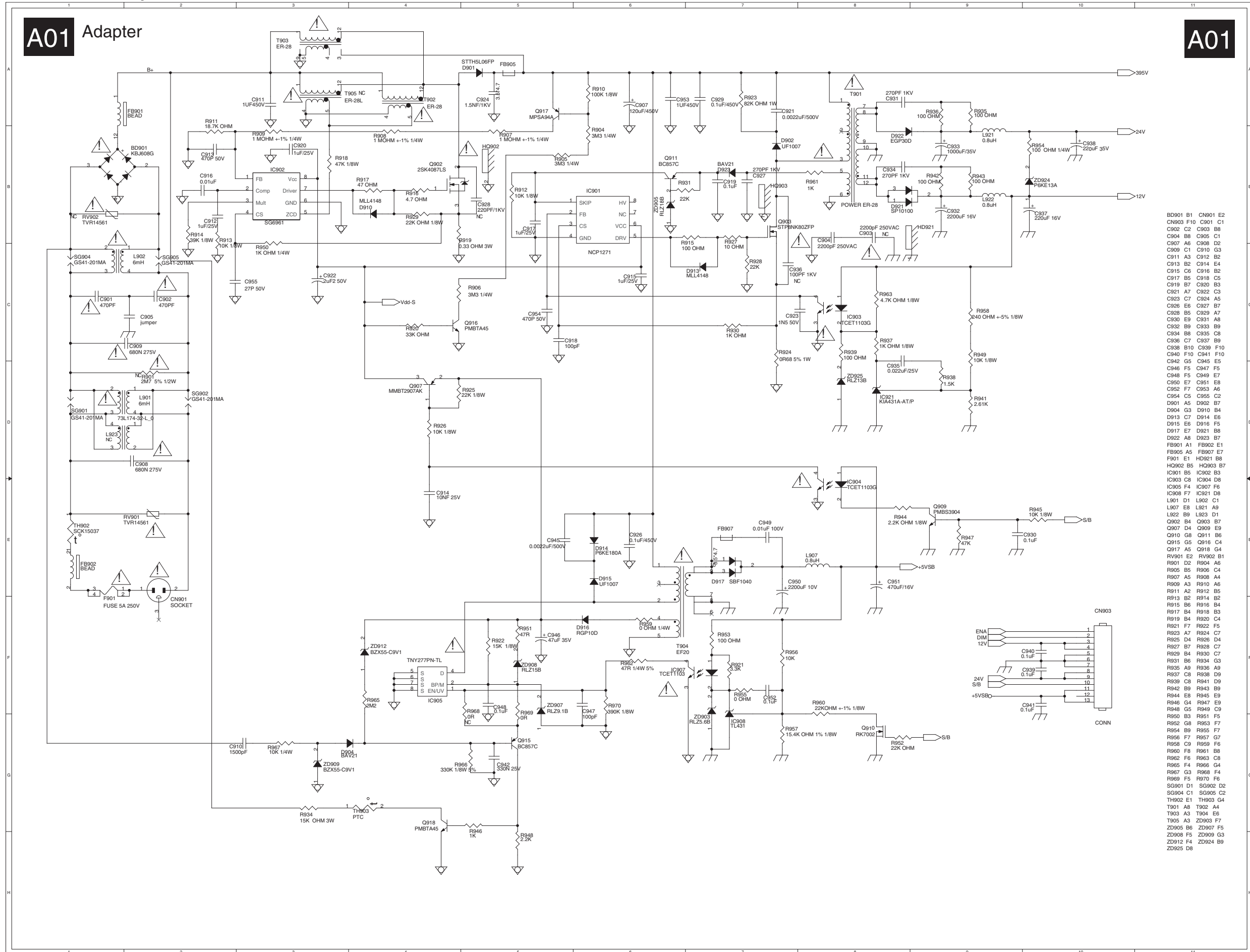
Layout Power Board, 32PFL56xx Bottom Side



C801	A3	R815	A4	J903	B4	R955	C4
C804	A3	R816	A4	J904	A3	R956	C4
C805	A3	R817	A4	J912	C2	R957	C2
C806	A3	R818	A4	Q806	B3	R958	C2
C808	A3	R819	A4	Q807	A4	R959	C2
C810	A3	R820	A4	Q902	D3	R960	C2
C811	A3	R821	A4	Q903	C3	R961	C2
C812	A3	R822	A4	Q905	B3	R962	C2
C813	A3	R823	A4	Q907	B4	R963	C2
C814	A3	R825	A4	Q908	C4	R964	C1
C815	A3	R826	A4	Q909	D3	R965	C2
C816	A3	R827	A3	Q910	D3	R967	C4
C819	A3	R902	D2	R801	A3	R968	D3
C821	A4	R903	D2	R802	A3	ZD801	B3
C822	A4	R904	D2	R804	B3	ZD802	A4
C823	A3	R905	D2	R806	A3	ZD901	D3
C824	A4	R906	D2	R807	A3	ZD903	C3
C825	A4	R908	D2	R808	B3	ZD905	B3
C826	A3	R909	C2	R809	A3	ZD907	B4
C827	A3	R910	D2	R810	A3	ZD908	C4
C828	A3	R913	D3	R811	A4	ZD909	D2
C913	C3	R914	D3	R814	A4		
C914	C3	R915	C3				
C915	D3	R918	C3				
C916	C3	R919	D3				
C917	B2	R920	B2				
C918	B3	R921	B3				
C919	C2	R922	D3				
C920	B3	R924	C3				
C922	C2	R925	C2				
C931	B4	R926	C2				
C935	C4	R927	C2				
C936	B4	R928	B2				
C937	D2	R931	C3				
C938	C3	R935	C4				
C939	B4	R936	C4				
C940	B4	R937	B4				
C941	B4	R938	B4				
C942	C2	R940	B4				
C943	C2	R941	B4				
C944	C2	R942	B4				
C945	C2	R943	B4				
C946	C2	R944	B4				
D801	A3	R945	B4				
D802	A3	R946	B4				
D803	A4	R947	B4				
D907	C2	R948	B4				
D908	C3	R950	C4				
D913	C2	R951	C4				
IC801	A3	R952	C4				
IC902	B2	R953	C4				
IC909	C2	R954	C4				



Power Board Adapter, 42PFL56xx

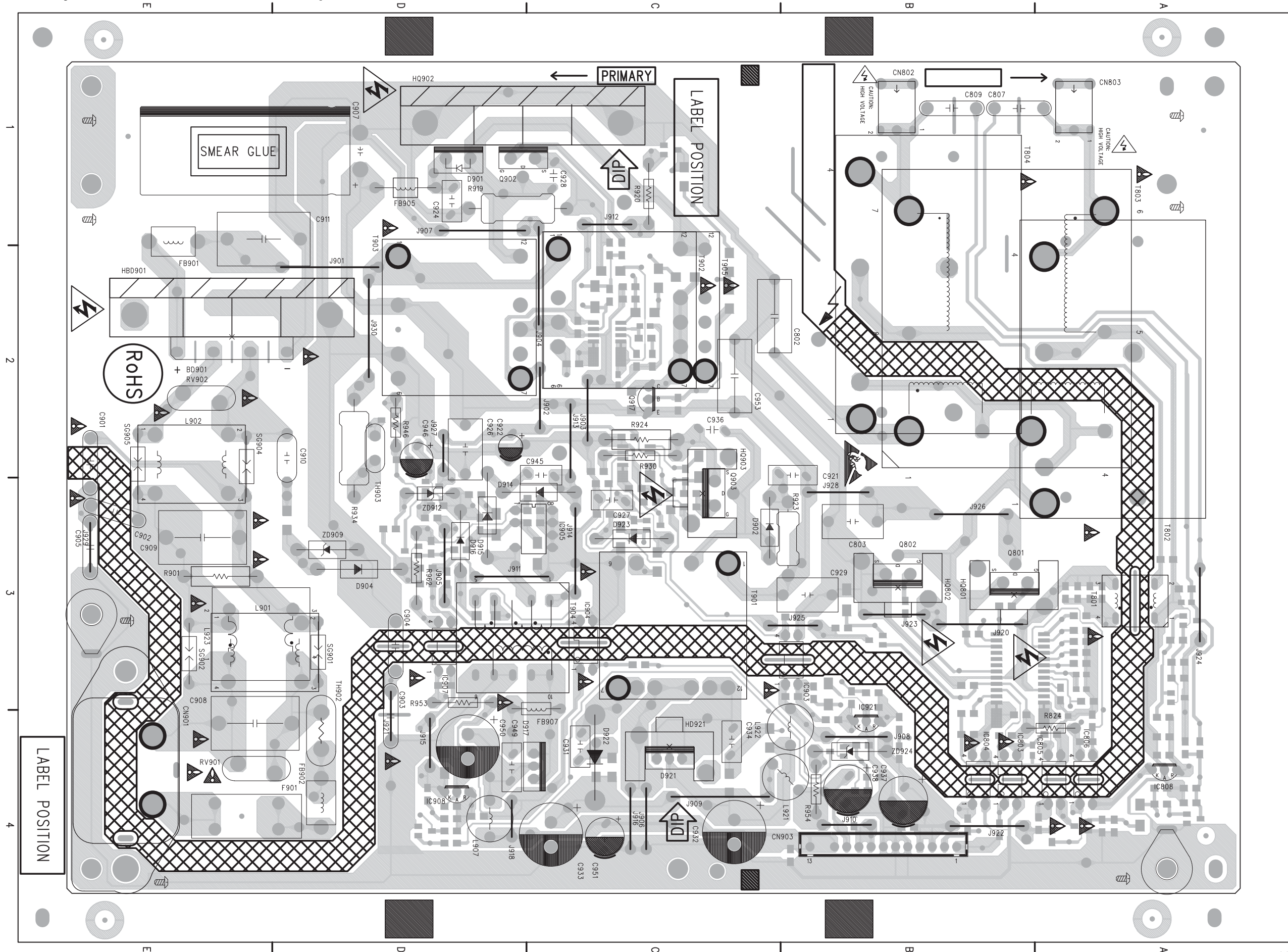


A01

- BD901 B1
- CN903 F10
- C901 C1
- C902 C2
- C903 B8
- C904 B8
- C905 C1
- C907 A6
- C908 D2
- C909 C1
- C910 G3
- C911 A3
- C912 B2
- C913 B2
- C914 E4
- C915 C6
- C916 B2
- C917 B5
- C918 C5
- C919 B7
- C920 B3
- C921 A7
- C922 C3
- C923 C7
- C924 A5
- C926 E6
- C927 B7
- C928 B5
- C929 A7
- C930 E9
- C931 A8
- C932 B9
- C933 B9
- C934 B8
- C935 C8
- C936 C7
- C937 B9
- C938 B10
- C939 F10
- C940 F10
- C941 F10
- C942 G5
- C945 E5
- C946 F5
- C947 F5
- C948 F5
- C949 E7
- C950 E7
- C951 E8
- C952 F7
- C953 A4
- C954 C5
- C955 C2
- D901 A5
- D902 B7
- D904 G3
- D910 B4
- D913 C7
- D914 E6
- D915 E5
- D916 F5
- D917 E7
- D921 B8
- D922 A8
- D923 B7
- FB901 A1
- FB902 E1
- FB905 A5
- FB907 E7
- FB911 E1
- HD921 B8
- HQ902 B5
- HQ903 B7
- IC901 B5
- IC902 B3
- IC903 C8
- IC904 D8
- IC905 F4
- IC907 F6
- IC908 F7
- IC921 D8
- L901 D1
- L902 C1
- L907 E8
- L921 A9
- L922 B9
- L923 D1
- Q902 B4
- Q903 B7
- Q907 D4
- Q909 E9
- Q910 G8
- Q911 B6
- Q915 G5
- Q916 C4
- Q917 A5
- Q918 G4
- RV901 E2
- RV902 B1
- R901 D2
- R904 A6
- R905 B5
- R906 C4
- R907 A5
- R908 A4
- R909 A3
- R910 A6
- R911 A2
- R912 B5
- R913 B2
- R914 B2
- R915 B6
- R916 B4
- R917 B4
- R918 B3
- R919 B4
- R920 C4
- R921 F7
- R922 F5
- R923 A7
- R924 C7
- R925 D4
- R926 D4
- R927 B7
- R928 C7
- R929 B4
- R930 C7
- R931 B6
- R934 G3
- R935 A9
- R936 A9
- R937 C8
- R938 D9
- R939 C8
- R941 D9
- R942 B9
- R943 B9
- R944 E8
- R945 E9
- R946 G4
- R947 E9
- R948 G5
- R949 C9
- R950 B3
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- R952 G8
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- R957 G7
- R958 C9
- R959 F6
- R960 F8
- R961 F6
- R962 F6
- R963 C8
- R965 F4
- R966 G4
- R967 G3
- R968 F4
- R969 F5
- R970 F6
- SG901 D1
- SG902 D2
- SG904 C1
- SG905 C2
- TH902 E1
- TH903 G4
- T901 A8
- T902 A4
- T903 A3
- T904 E6
- T905 A3
- ZD903 F7
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- ZD912 F4
- ZD924 B9
- ZD925 D8

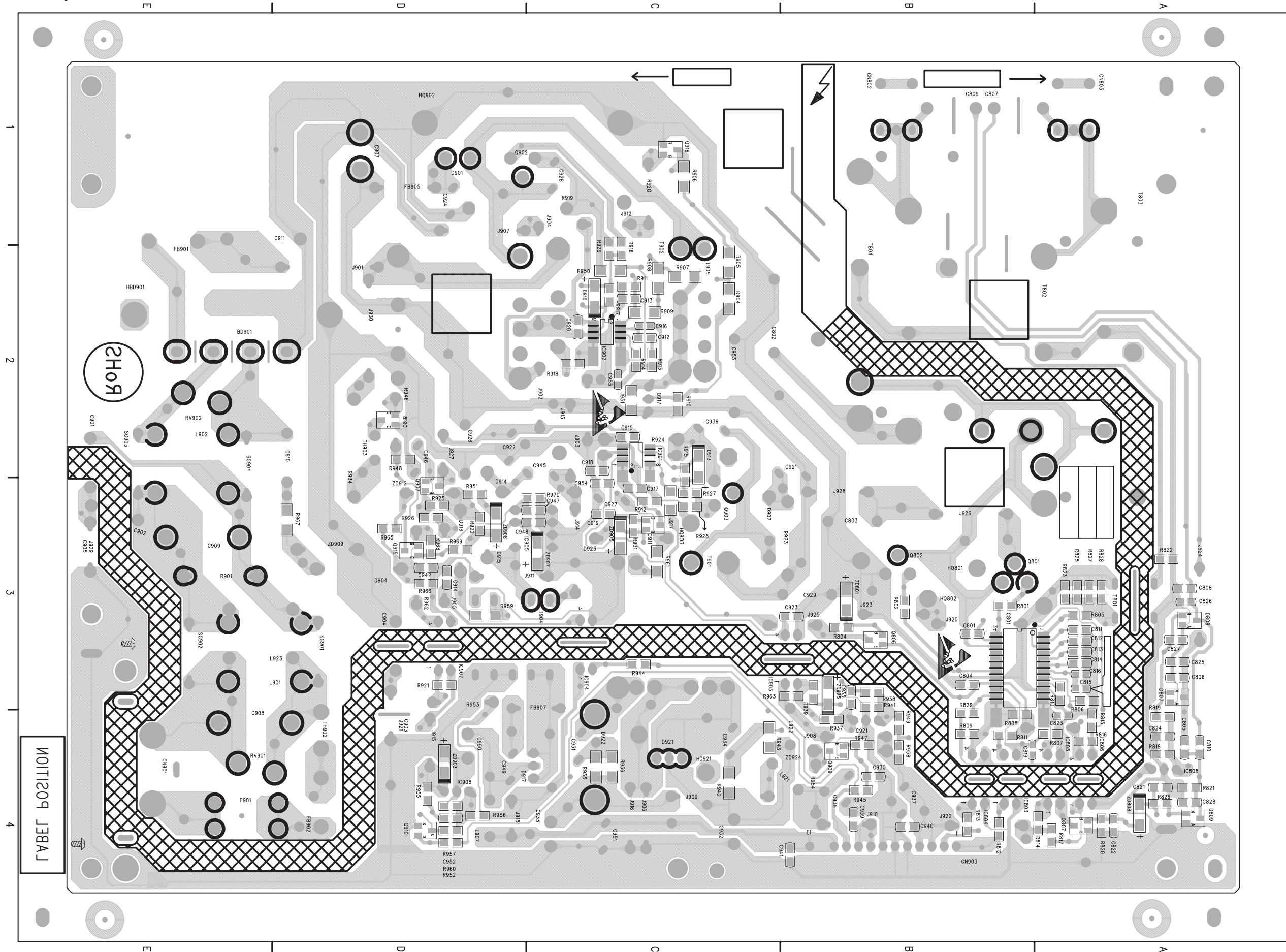


Layout Power Board, 42PFL56xx Top Side



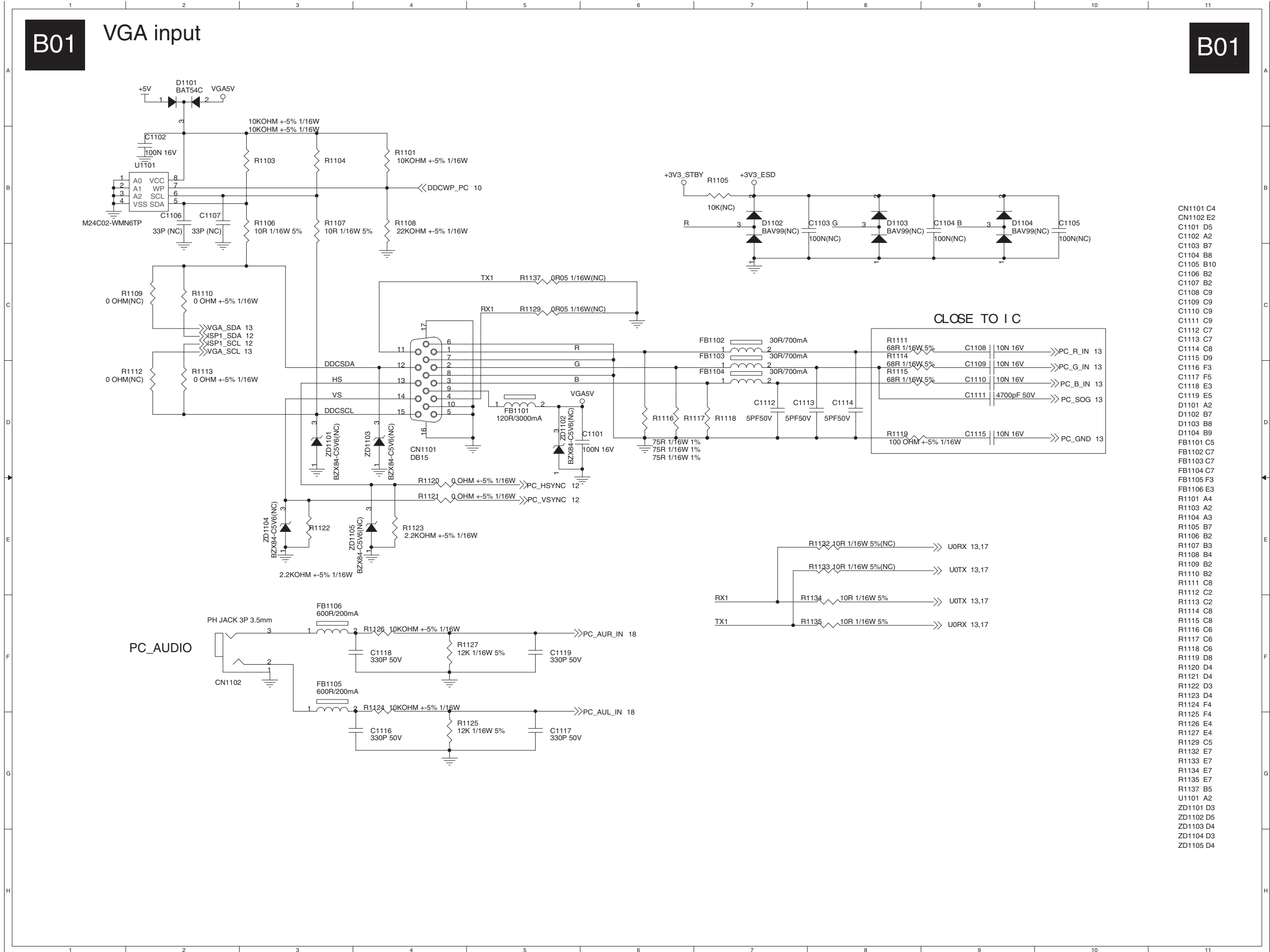
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- HQ903 C3
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- IC805 A4
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- IC808 A4
- IC903 B4
- IC904 C4
- IC905 C3
- IC907 D4
- IC908 D4
- IC921 B4
- J901 D2
- J902 C2
- J903 C2
- J904 C2
- J905 D3
- J906 C4
- J907 D2
- J908 B4
- J909 C4
- J910 B4
- J911 C3
- J912 C2
- J913 C3
- J914 C3
- J915 D4
- J916 C4
- J918 C4
- J920 A3
- J921 D4
- J922 A4
- J923 B3
- J924 A3
- J925 B3
- J926 A3
- J927 D3
- J928 B3
- J929 E3
- J930 D2
- L901 D4
- L902 E3
- L907 C4
- L921 B4
- L922 B4
- L923 D3
- O801 A3
- O802 B3
- Q902 C1
- Q903 C3
- Q917 C2
- R824 A4
- R901 E3
- R919 C1
- R920 C1
- R923 B3
- R924 C3
- R930 C3
- R934 D3
- R946 D2
- R953 D4
- R954 B4
- R962 D3
- RV901 D4
- RV902 E2
- SG901 D4
- SG902 E4
- SG904 E3
- SG905 E3
- T801 A3
- T802 A2
- T803 A2
- T804 B2
- T901 B3
- T902 C2
- T903 D2
- T904 C4
- T905 C2
- TH902 D4
- TH903 D3
- ZD909 D3
- ZD912 D3
- ZD924 B4
- BD901 E2
- C802 B2
- C803 B3
- C807 A1
- C809 B1
- C901 E3
- C902 E3
- C903 D4
- C904 D4
- C905 E3
- C907 D1
- C908 D4
- C909 E3
- C910 D3
- C911 D2
- C921 B3
- C922 C3
- C924 D1
- C926 D3
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- C928 C1
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- C931 C4
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- C933 C4
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- C936 C3
- C937 B4
- C938 B4
- C945 C3
- C946 D3
- C949 C4
- C950 D4
- C951 C4
- C953 B2
- CN802 B1
- CN803 A1
- CN901 E4
- CN903 B4
- D901 D1
- D902 B3
- D904 D3
- D914 C3
- D915 C3
- D916 D3
- D917 C4
- D921 C4
- D922 C4
- D923 C3
- D923 C3
- FB901 E4
- FB901 E2
- FB902 D4
- FB905 D1
- FB907 C4
- HBD901 E2

Layout Power Board, 42PFL56xx Bottom Side

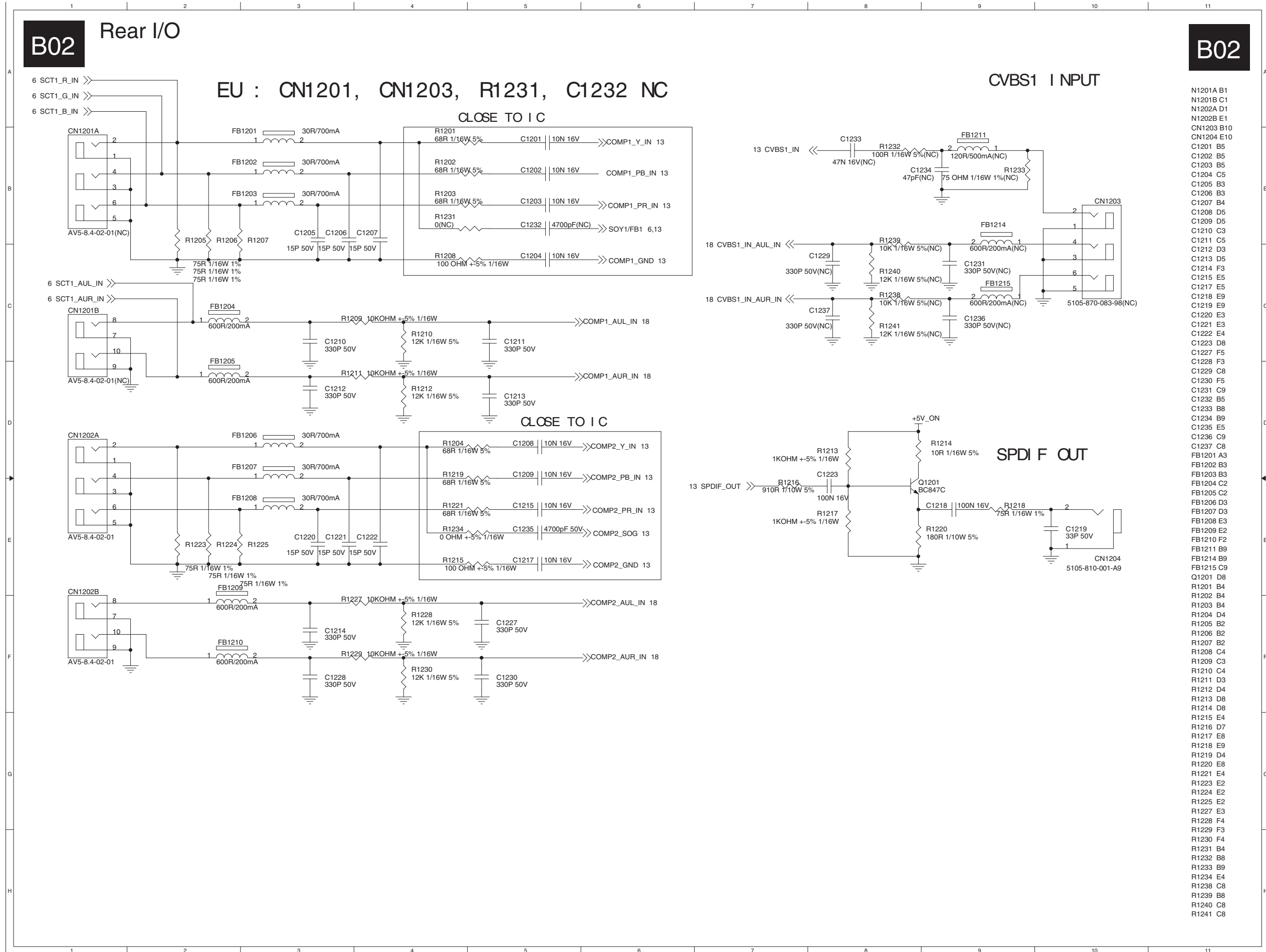


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- R824 A4
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- R828 A3
- R829 A4
- R830 B2
- R831 B2
- R832 C1
- R833 C2
- R834 C2
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- R994 A4
- R995 A4
- R996 A4
- R997 A4
- R998 A4
- R999 A4
- R1000 A4

SSB: VGA input 32PFL54xx



SSB: Rear I/O



B02

- N1201A B1
- N1201B C1
- N1202A D1
- N1202B E1
- CN1203 B10
- CN1204 E10
- C1201 B5
- C1202 B5
- C1203 B5
- C1204 C5
- C1205 B3
- C1206 B3
- C1207 B4
- C1208 D5
- C1209 D5
- C1210 C3
- C1211 C5
- C1212 D3
- C1213 D5
- C1214 F3
- C1215 E5
- C1217 E5
- C1218 E9
- C1219 E9
- C1220 E3
- C1221 E3
- C1222 E4
- C1223 D8
- C1227 F5
- C1228 F3
- C1229 C8
- C1230 F5
- C1231 C9
- C1232 B5
- C1233 B8
- C1234 B9
- C1235 E5
- C1236 C9
- C1237 C8
- FB1201 A3
- FB1202 B3
- FB1203 B3
- FB1204 C2
- FB1205 C2
- FB1206 D3
- FB1207 D3
- FB1208 E3
- FB1209 E2
- FB1210 F2
- FB1211 B9
- FB1214 B9
- FB1215 C9
- Q1201 D8
- R1201 B4
- R1202 B4
- R1203 B4
- R1204 D4
- R1205 B2
- R1206 B2
- R1207 B2
- R1208 C4
- R1209 C3
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- R1217 E8
- R1218 E9
- R1219 D4
- R1220 E8
- R1221 E4
- R1222 E2
- R1224 E2
- R1225 E2
- R1227 E3
- R1228 F4
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- R1230 F4
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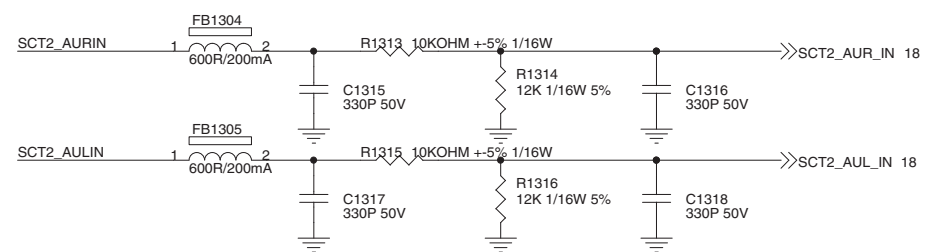
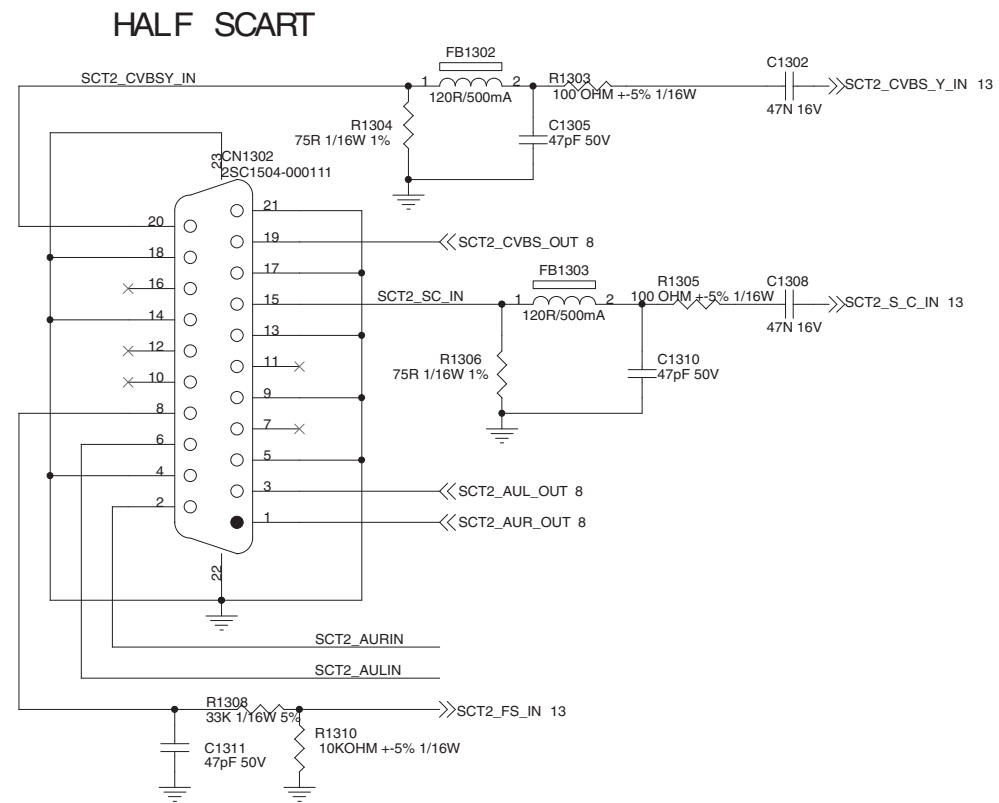
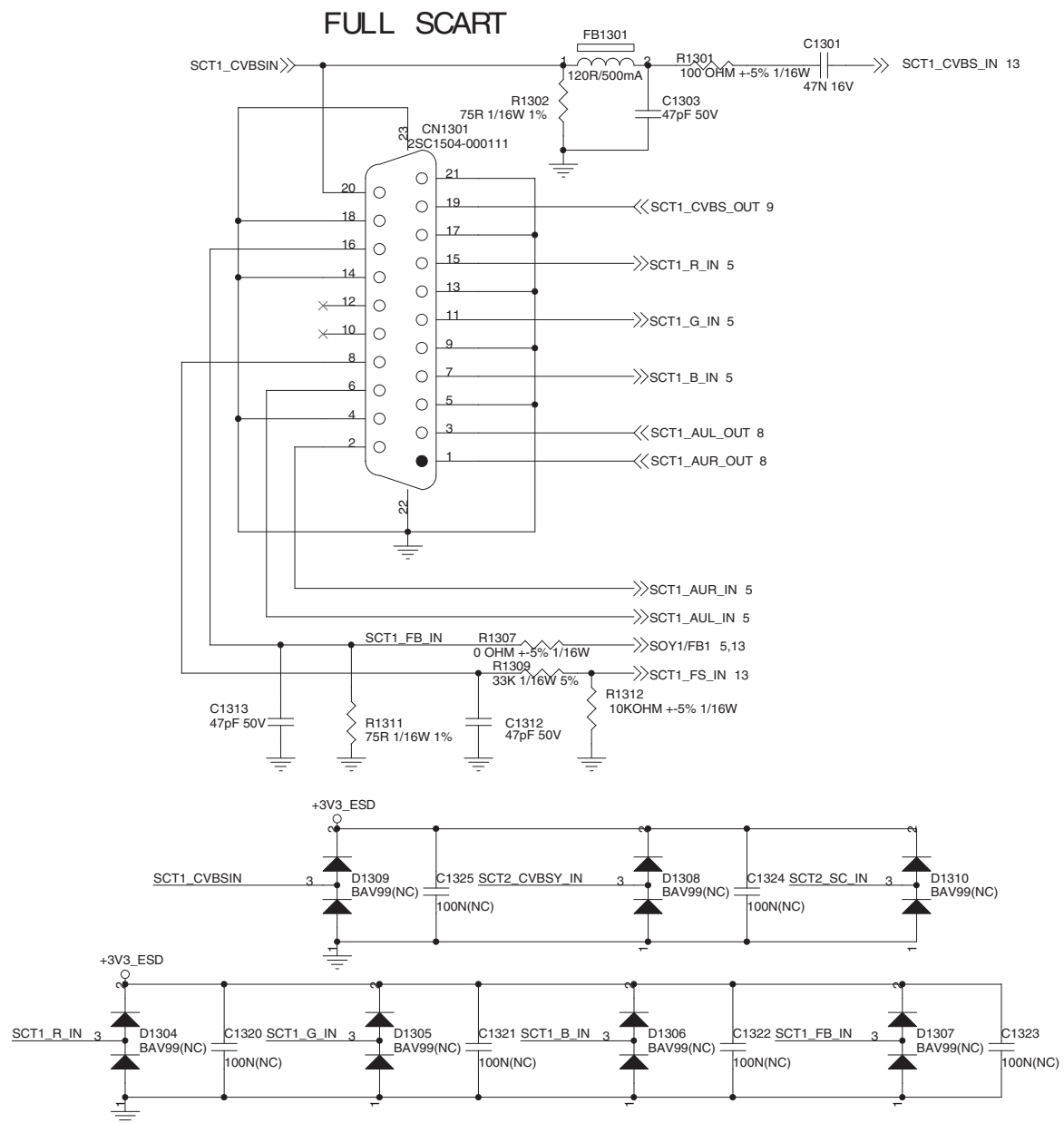
SSB: SCART

B03

Scart

ROW: CN1301, CN1302 NC

B03

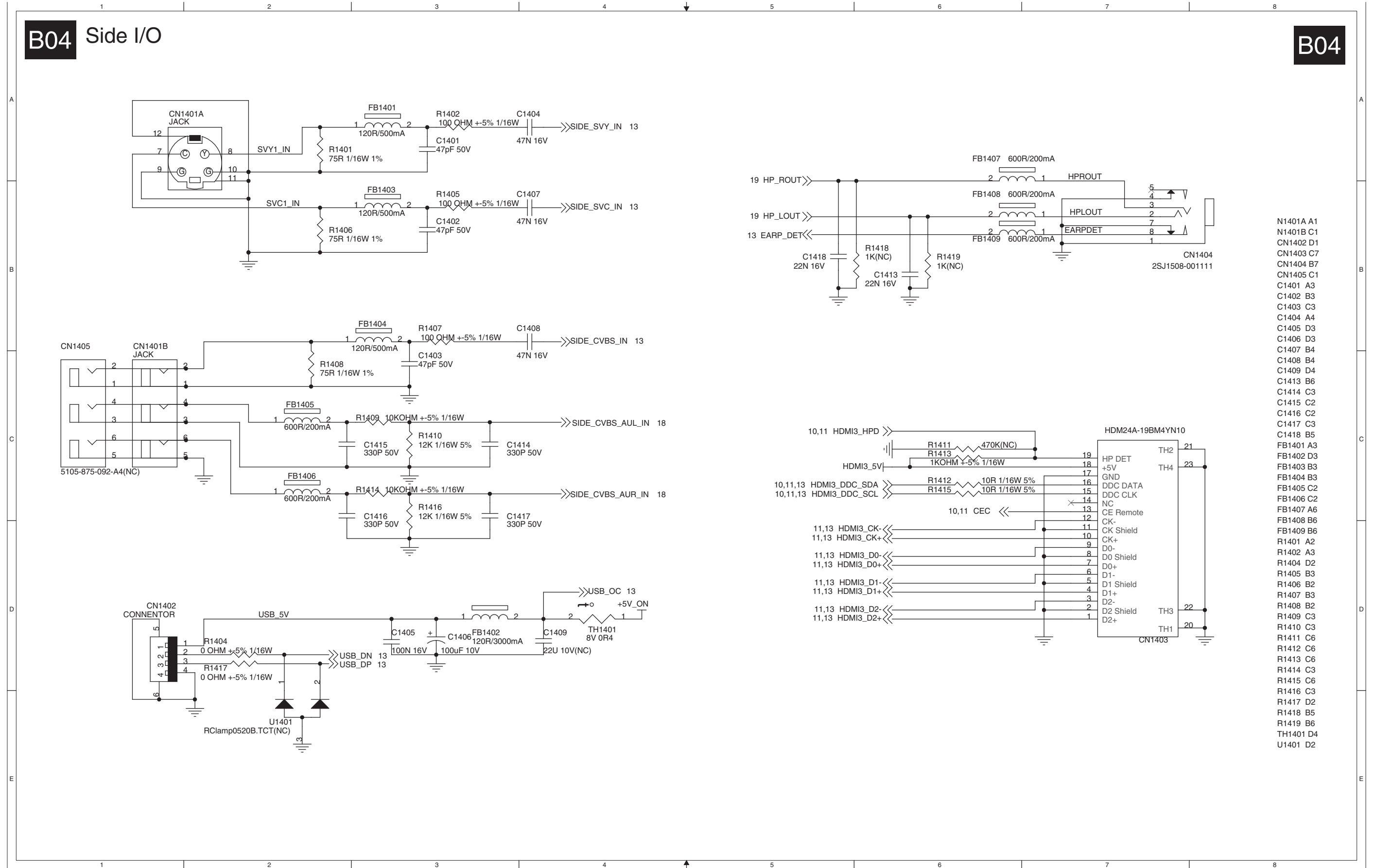


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- C1301 A5
- C1302 A9
- C1303 B4
- C1305 B8
- C1308 B9
- C1310 C9
- C1311 D7
- C1312 D3
- C1313 D2
- C1315 E7
- C1316 E9
- C1317 F7
- C1318 F9
- C1320 F2
- C1321 F3
- C1322 F4
- C1323 F5
- C1324 E4
- C1325 E3
- D1304 F1
- D1305 F2
- D1306 F4
- D1307 F5
- D1308 E4
- D1309 E2
- D1310 E5
- FB1301 A3
- FB1302 A8
- FB1303 B8
- FB1304 E7
- FB1305 E7
- R1301 A4
- R1302 A3
- R1303 A8
- R1304 A8
- R1305 B9
- R1306 C8
- R1307 D3
- R1308 D7
- R1309 D3
- R1310 D7
- R1311 D2
- R1312 D3
- R1313 E8
- R1314 E8
- R1315 E8
- R1316 F8

SSB: Side I/O

B04 Side I/O

B04



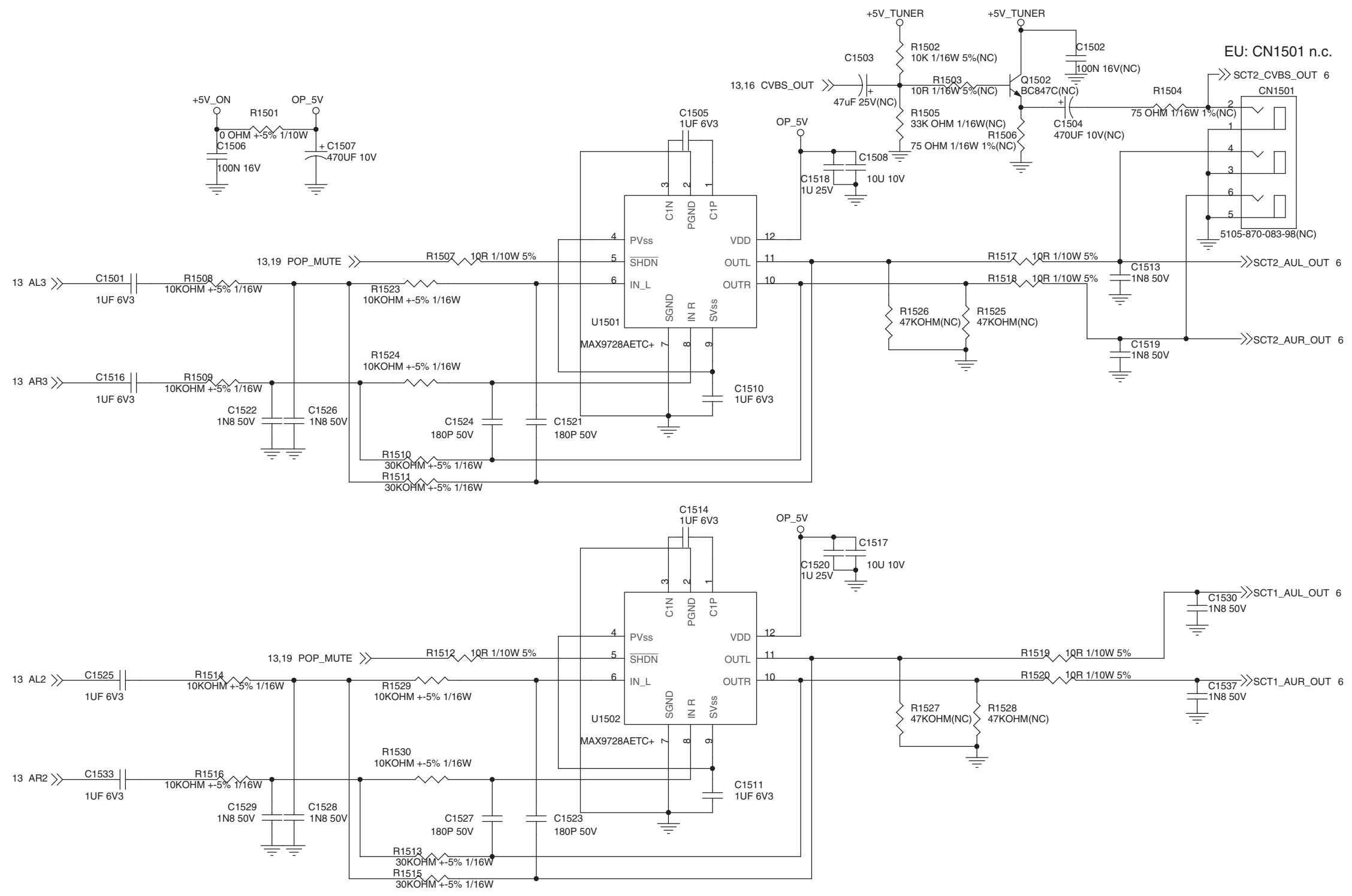
- N1401A A1
- N1401B C1
- CN1402 D1
- CN1403 C7
- CN1404 B7
- CN1405 C1
- C1401 A3
- C1402 B3
- C1403 C3
- C1404 A4
- C1405 D3
- C1406 D3
- C1407 B4
- C1408 B4
- C1409 D4
- C1413 B6
- C1414 C3
- C1415 C2
- C1416 C2
- C1417 C3
- C1418 B5
- FB1401 A3
- FB1402 D3
- FB1403 B3
- FB1405 C2
- FB1406 C2
- FB1407 A6
- FB1408 B6
- FB1409 B6
- R1401 A2
- R1402 A3
- R1404 D2
- R1405 B3
- R1406 B2
- R1407 B3
- R1408 B2
- R1409 C3
- R1410 C3
- R1411 C6
- R1412 C6
- R1413 C6
- R1414 C3
- R1415 C6
- R1416 C3
- R1417 D2
- R1418 B5
- R1419 B6
- TH1401 D4
- U1401 D2



SSB: CVBS, Audio out

B05 CVBS, Audio out

B05



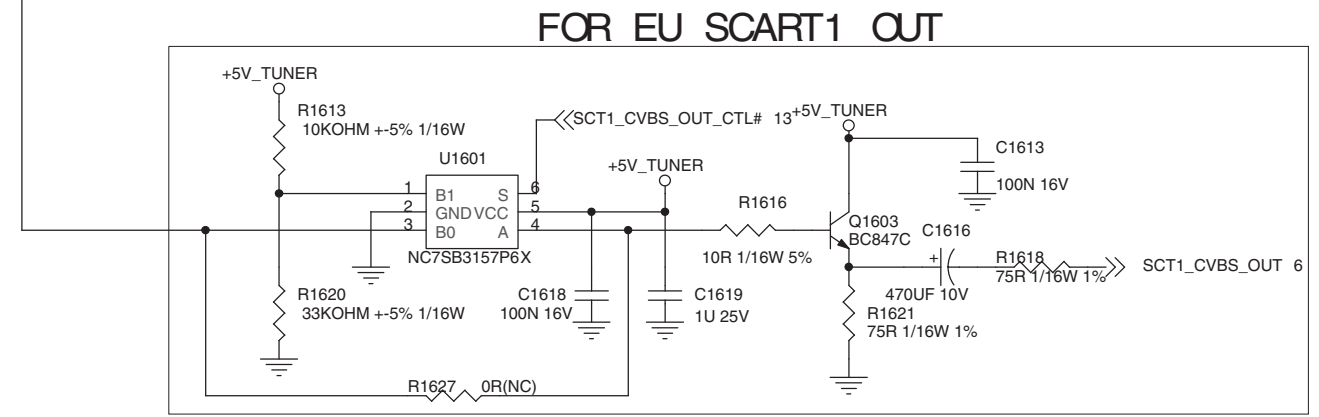
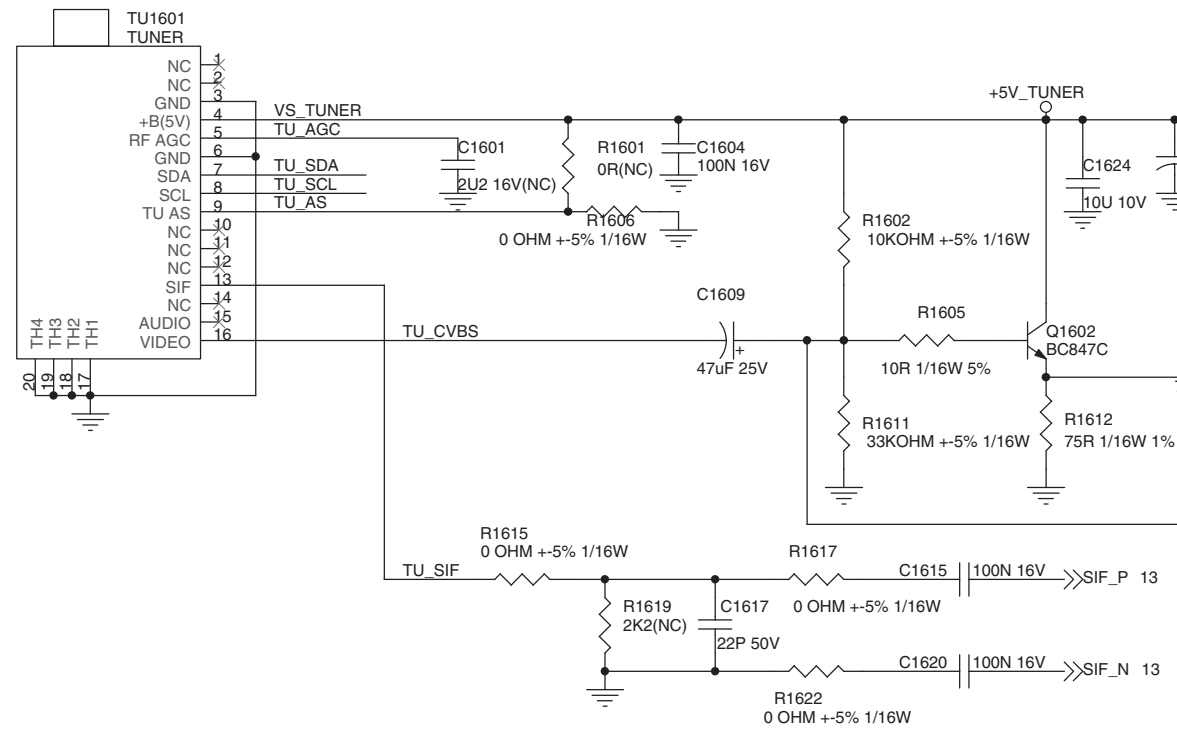
- CN1501 A7
- C1501 B2
- C1502 A6
- C1503 A5
- C1504 A6
- C1505 A5
- C1506 A2
- C1507 A3
- C1508 A5
- C1510 C5
- C1511 D5
- C1513 B7
- C1514 C5
- C1516 B2
- C1517 C5
- C1518 A5
- C1519 B7
- C1520 C5
- C1521 C4
- C1522 C3
- C1523 E4
- C1524 C4
- C1525 D2
- C1526 C3
- C1527 E4
- C1528 E3
- C1529 E3
- C1530 D7
- C1533 D2
- C1537 D7
- Q1502 A6
- R1501 A3
- R1502 A6
- R1503 A6
- R1504 A7
- R1505 A6
- R1506 A6
- R1507 B4
- R1508 B2
- R1509 B2
- R1510 C3
- R1511 C3
- R1512 D4
- R1513 E3
- R1514 D2
- R1515 E3
- R1516 D2
- R1517 B6
- R1518 B6
- R1519 D6
- R1520 D6
- R1523 B3
- R1524 B3
- R1525 B6
- R1526 B6
- R1527 D6
- R1528 D6
- R1529 D3
- R1530 D3
- U1501 B4
- U1502 C4

**SSB: Tuner**

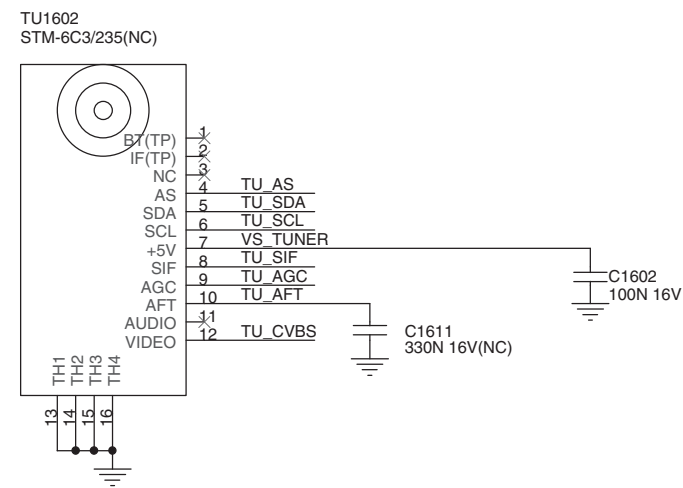
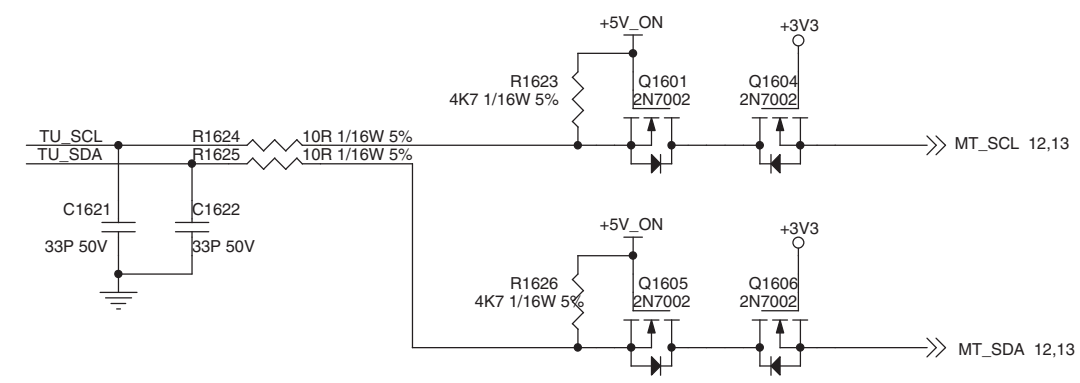
**B06** Tuner

**B06**

- C1306 B6 C1601 A2
- C1602 D3 C1603 A4
- C1604 A3 C1609 B3
- C1610 B6 C1611 D2
- C1612 B5 C1613 C7
- C1615 C4 C1616 C7
- C1617 C3 C1618 C6
- C1619 C6 C1620 C4
- C1621 D5 C1622 D5
- C1624 A4 L1601 A5
- Q1601 D6 Q1602 B4
- Q1603 C7 Q1604 D7
- Q1605 E6 Q1606 E7
- R1601 A3 R1602 B3
- R1605 B4 R1606 B3
- R1608 B5 R1609 B5
- R1610 B5 R1611 B3
- R1612 B4 R1613 C5
- R1615 C3 R1616 C7
- R1617 C3 R1618 C7
- R1619 C3 R1620 C5
- R1621 C7 R1622 C3
- R1623 D6 R1624 D5
- R1625 D5 R1626 E6
- R1627 D6 TU1601 A1
- TU1602 C1 U1601 C6



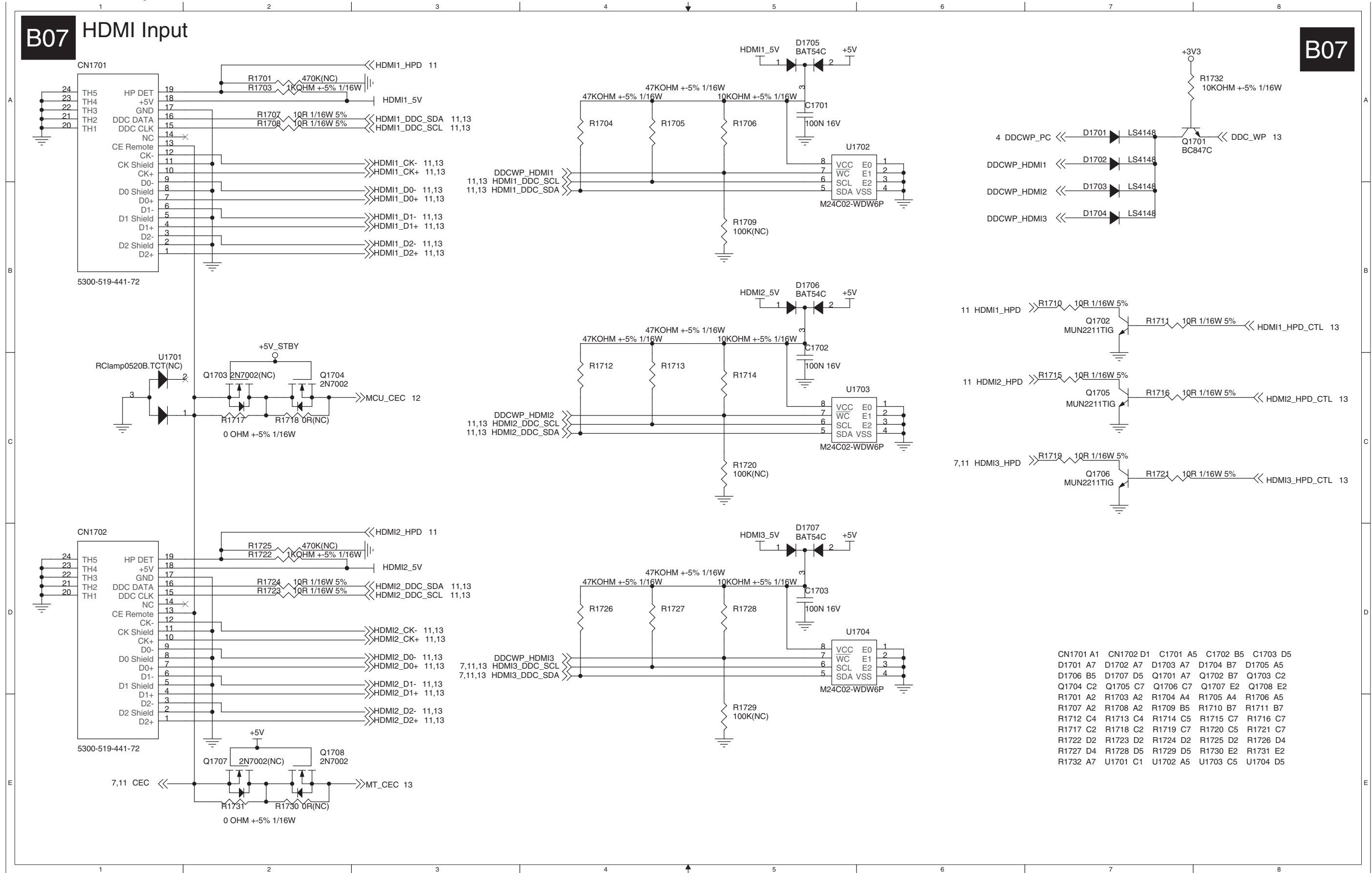
**I I C LEVEL SHIF T**



SSB: HDMI Input

B07 HDMI Input

B07

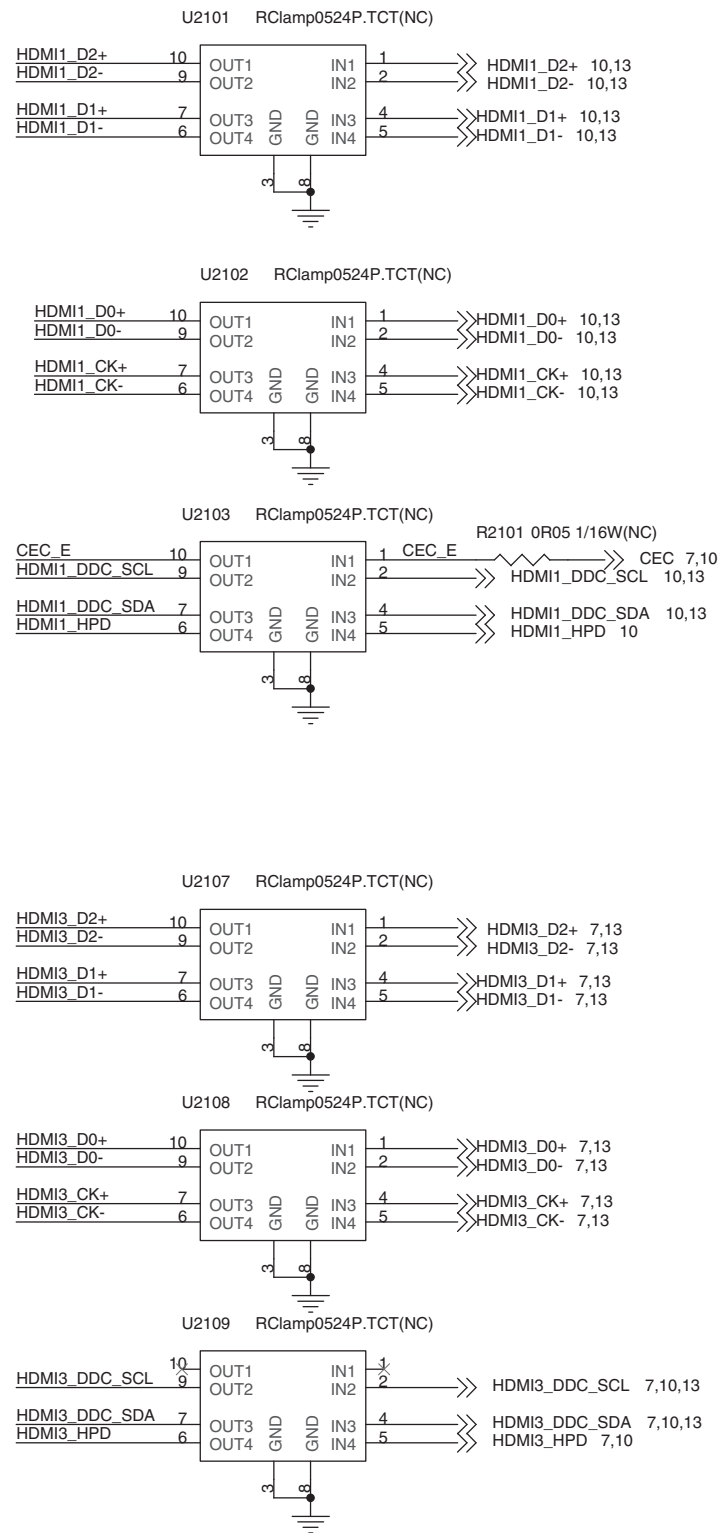


CN1701 A1	CN1702 D1	C1701 A5	C1702 B5	C1703 D5
D1701 A7	D1702 A7	D1703 A7	D1704 B7	D1705 A5
D1706 B5	D1707 D5	Q1701 A7	Q1702 B7	Q1703 C2
Q1704 C2	Q1705 C7	Q1706 C7	Q1707 E2	Q1708 E2
R1701 A2	R1703 A2	R1704 A4	R1705 A4	R1706 A5
R1707 A2	R1708 A2	R1709 B5	R1710 B7	R1711 B7
R1712 C4	R1713 C4	R1714 C5	R1715 C7	R1716 C7
R1717 C2	R1718 C2	R1719 C7	R1720 C5	R1721 C7
R1722 D2	R1723 D2	R1724 D2	R1725 D2	R1726 D4
R1727 D4	R1728 D5	R1729 D5	R1730 E2	R1731 E2
R1732 A7	U1701 C1	U1702 A5	U1703 C5	U1704 D5

SSB: HDMI ESD protection

B08 HDMI ESD protection

B08



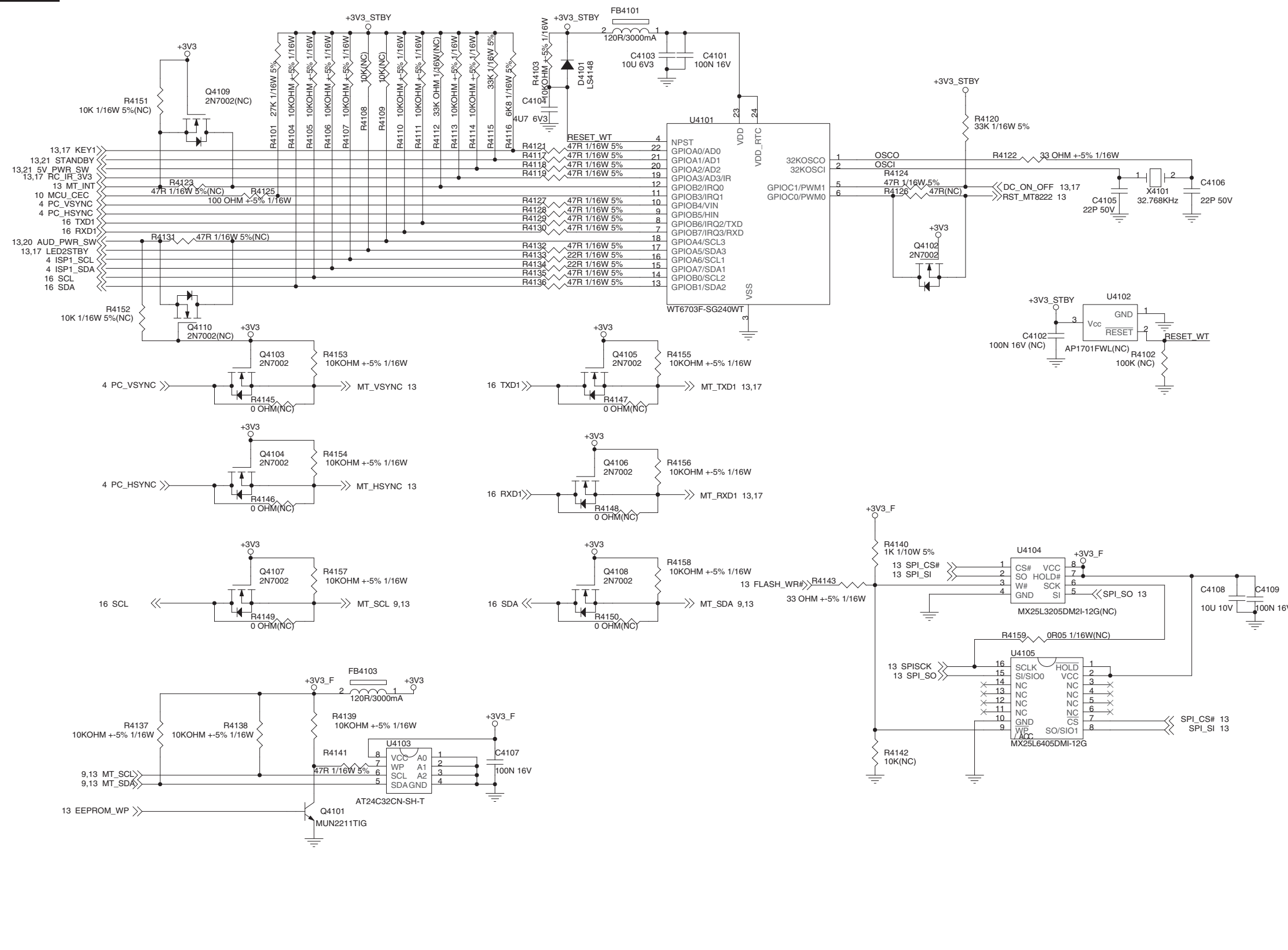
- R2101 B3
- U2101 A2
- U2102 B2
- U2103 B2
- U2104 B6
- U2105 B6
- U2106 C6
- U2107 C2
- U2108 D2
- U2109 E2

SSB: Stand-by MCU

B09

Stand-by MCU

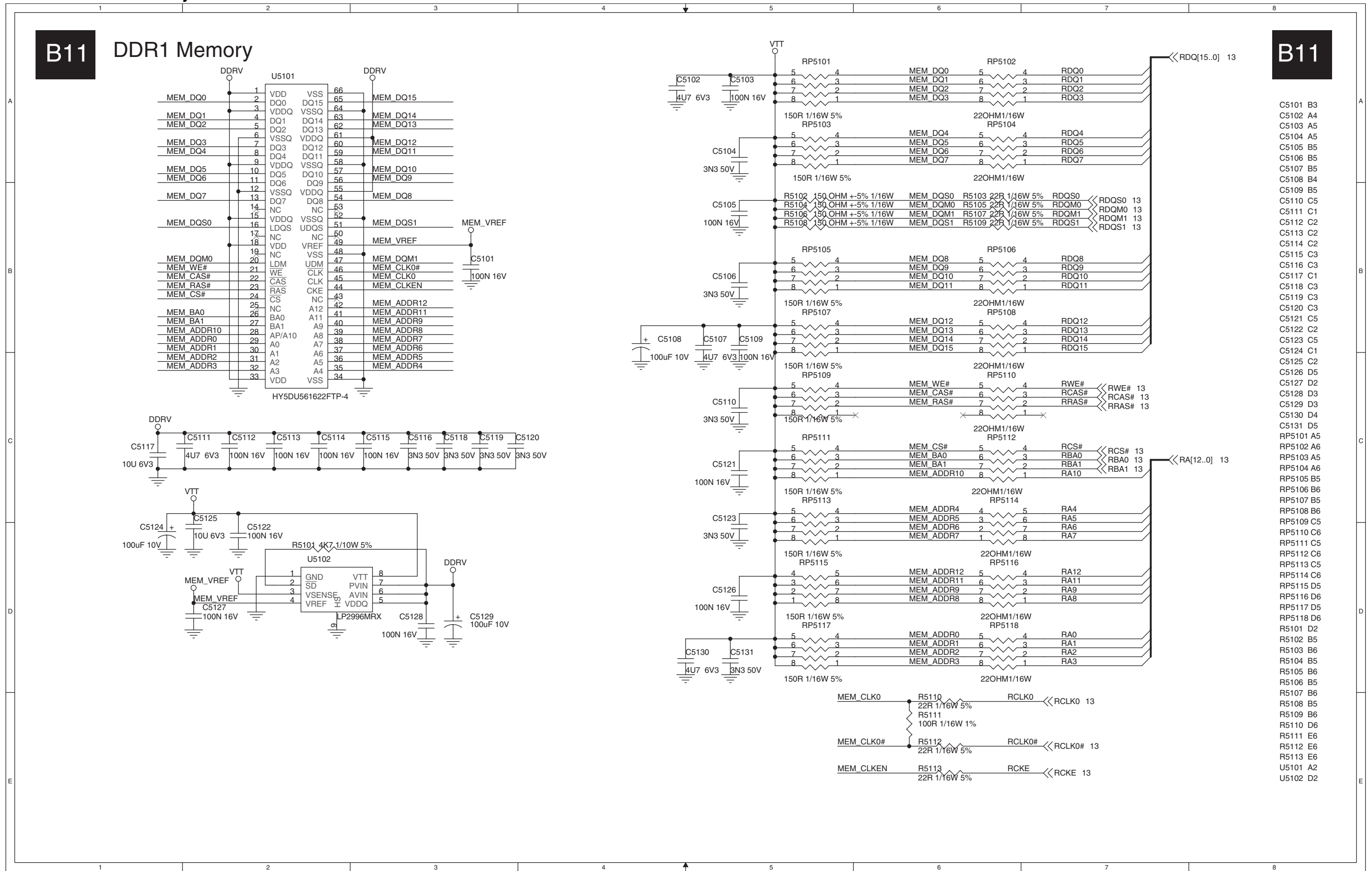
B09



- C4101 A6
- C4102 C9
- C4103 A6
- C4104 A5
- C4105 B9
- C4106 B10
- C4107 F4
- C4108 E10
- C4109 E10
- D4101 A5
- FB4101 A5
- FB4103 E3
- Q4101 F3
- Q4102 B7
- Q4103 C2
- Q4104 D2
- Q4105 C5
- Q4106 D5
- Q4107 E2
- Q4108 E5
- Q4109 A2
- Q4110 C2
- R4101 A3
- R4102 C9
- R4103 A5
- R4104 A3
- R4105 A3
- R4106 A3
- R4107 A3
- R4108 A3
- R4109 A3
- R4110 A4
- R4111 A4
- R4112 A4
- R4113 A4
- R4114 A4
- R4115 A4
- R4116 A4
- R4117 B5
- R4118 B5
- R4119 B5
- R4120 A8
- R4121 B5
- R4122 B8
- R4123 B2
- R4124 B7
- R4125 B2
- R4126 B7
- R4127 B5
- R4128 B5
- R4129 B5
- R4130 B5
- R4131 B2
- R4132 B5
- R4133 B5
- R4134 B5
- R4135 B5
- R4136 C5
- R4137 F2
- R4138 F3
- R4139 F3
- R4140 D7
- R4141 F3
- R4142 F7
- R4143 E7
- R4145 C3
- R4146 D3
- R4147 C5
- R4148 D5
- R4149 E3
- R4150 E5
- R4151 A2
- R4152 C2
- R4153 C3
- R4154 D3
- R4155 C6
- R4156 D6
- R4157 E3
- R4158 E6
- R4159 E8
- U4101 A6
- U4102 C9
- U4103 F4
- U4104 E8
- U4105 E8
- X4101 B9



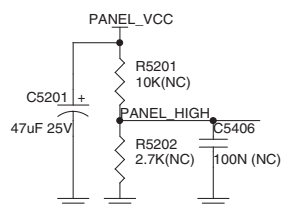
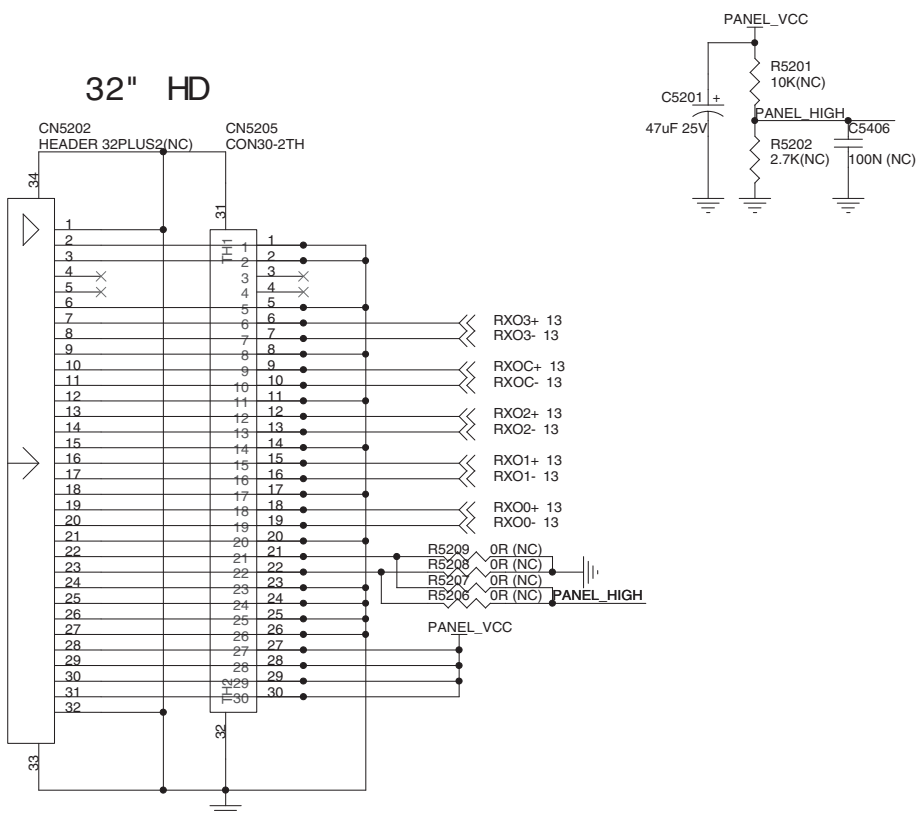
SSB: DDR1 Memory



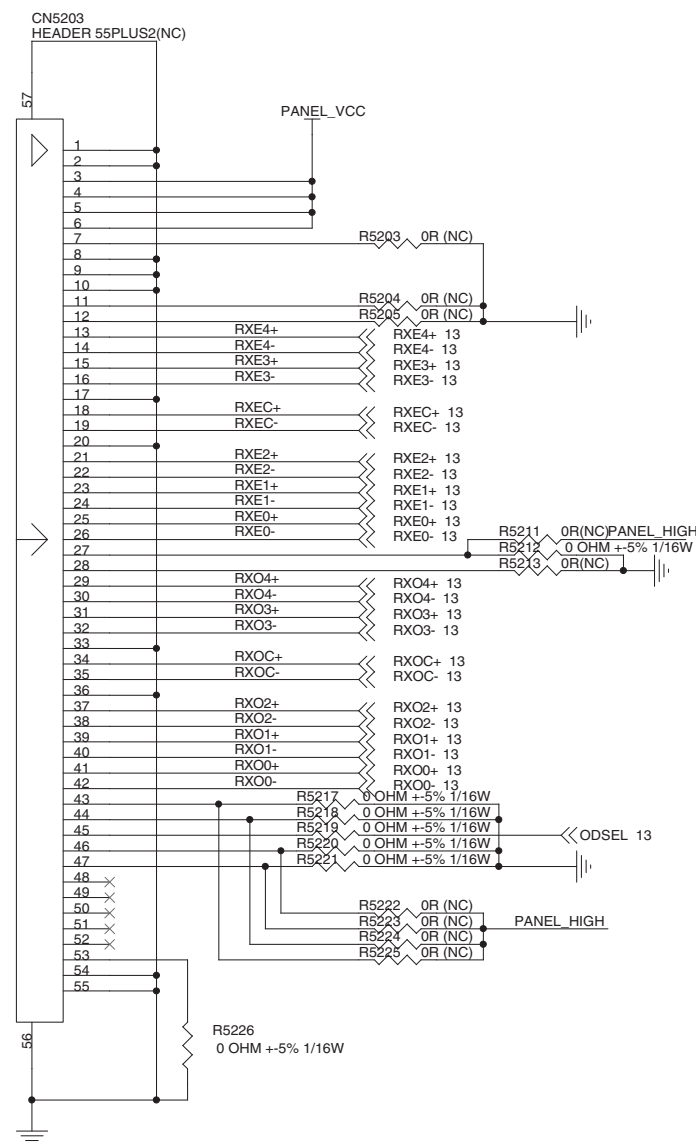
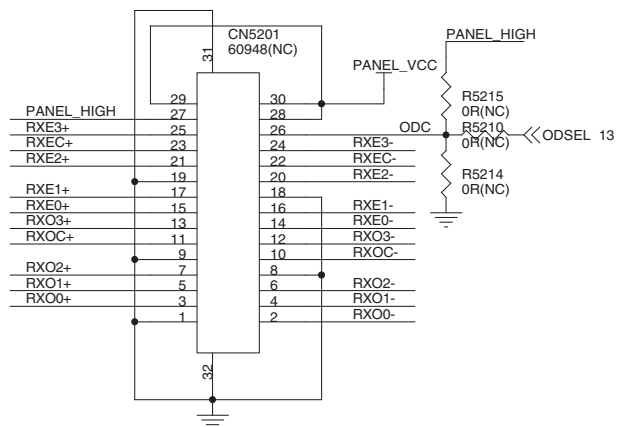
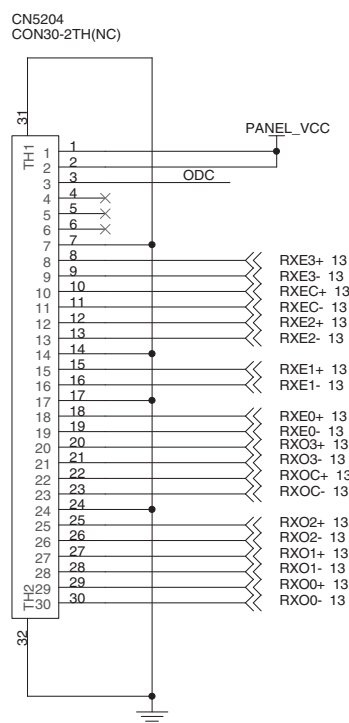
SSB: Panel Interface

B12 Panel Interface

B12



27" FHD



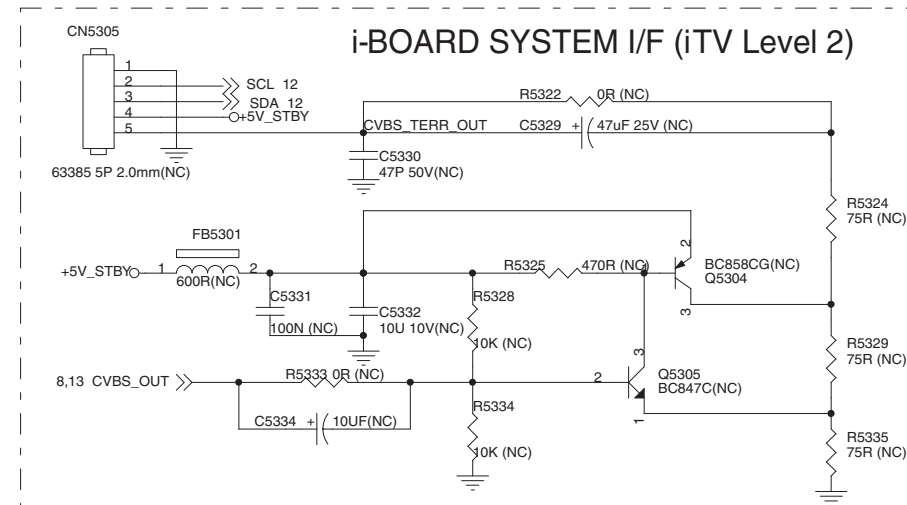
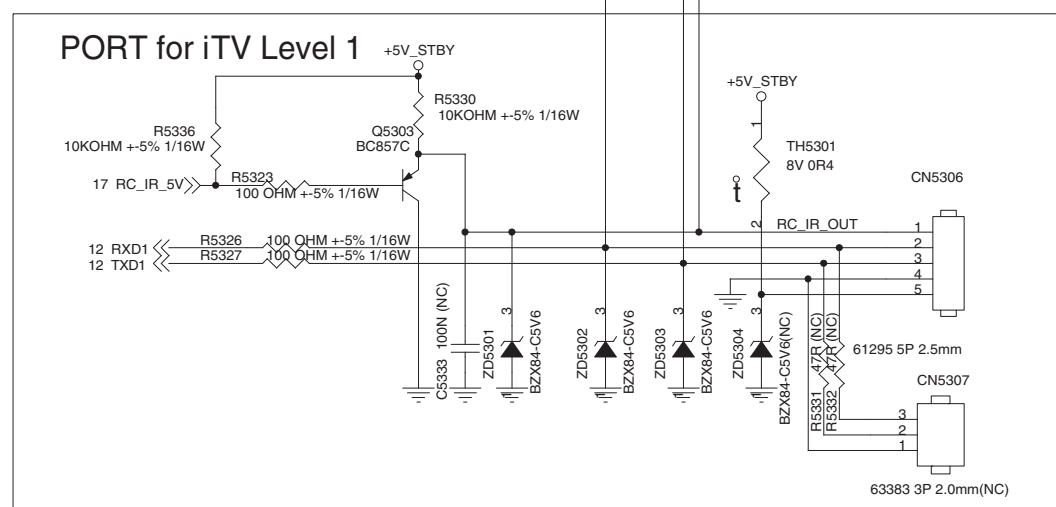
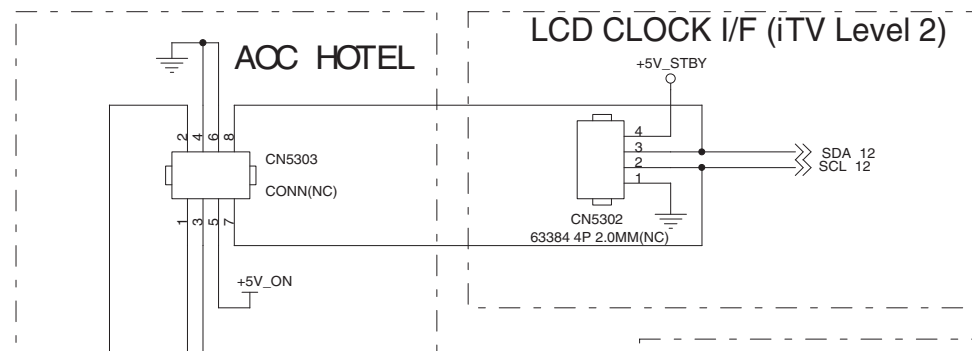
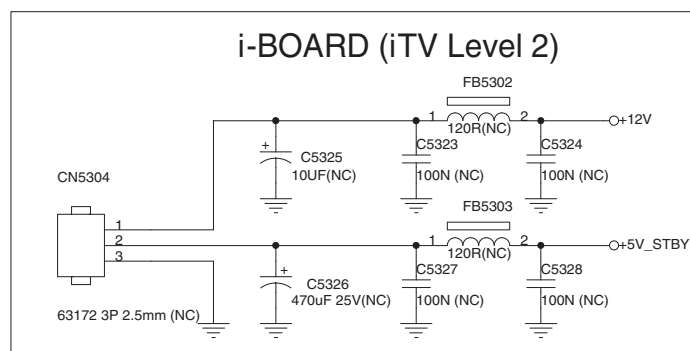
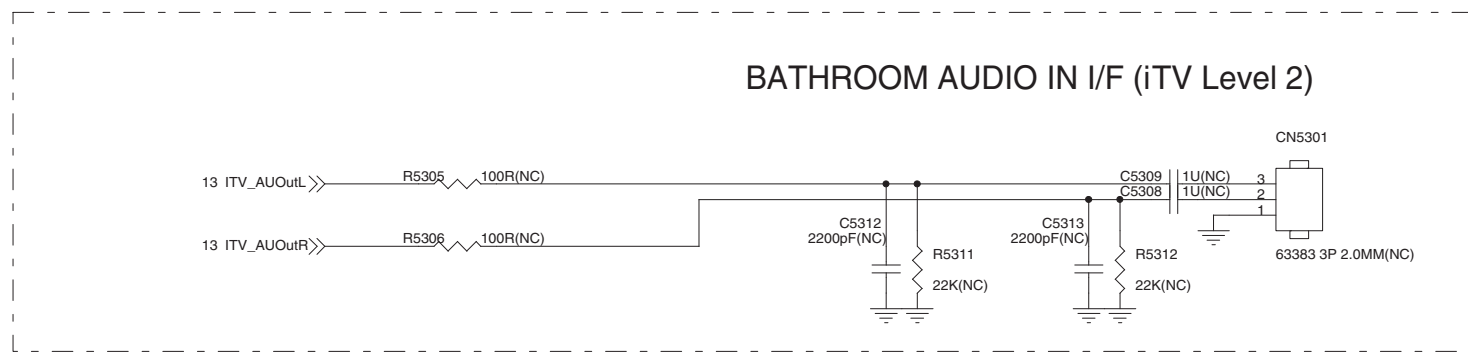
- CN5201 E4
- CN5202 B1
- CN5203 B8
- CN5204 B6
- CN5205 B2
- C5201 A4
- C5406 B5
- R5201 A4
- R5202 B4
- R5203 B9
- R5204 B9
- R5205 B9
- R5206 D3
- R5207 D3
- R5208 C3
- R5209 C3
- R5210 E5
- R5211 C10
- R5212 C10
- R5213 C10
- R5214 E5
- R5215 E5
- R5217 D9
- R5218 D9
- R5219 E9
- R5220 E9
- R5221 E9
- R5222 E9
- R5223 E9
- R5224 E9
- R5225 E9
- R5226 E8



SSB: iTV Interface and AOC Hotel

B13 iTV Interface and AOC Hotel

B13



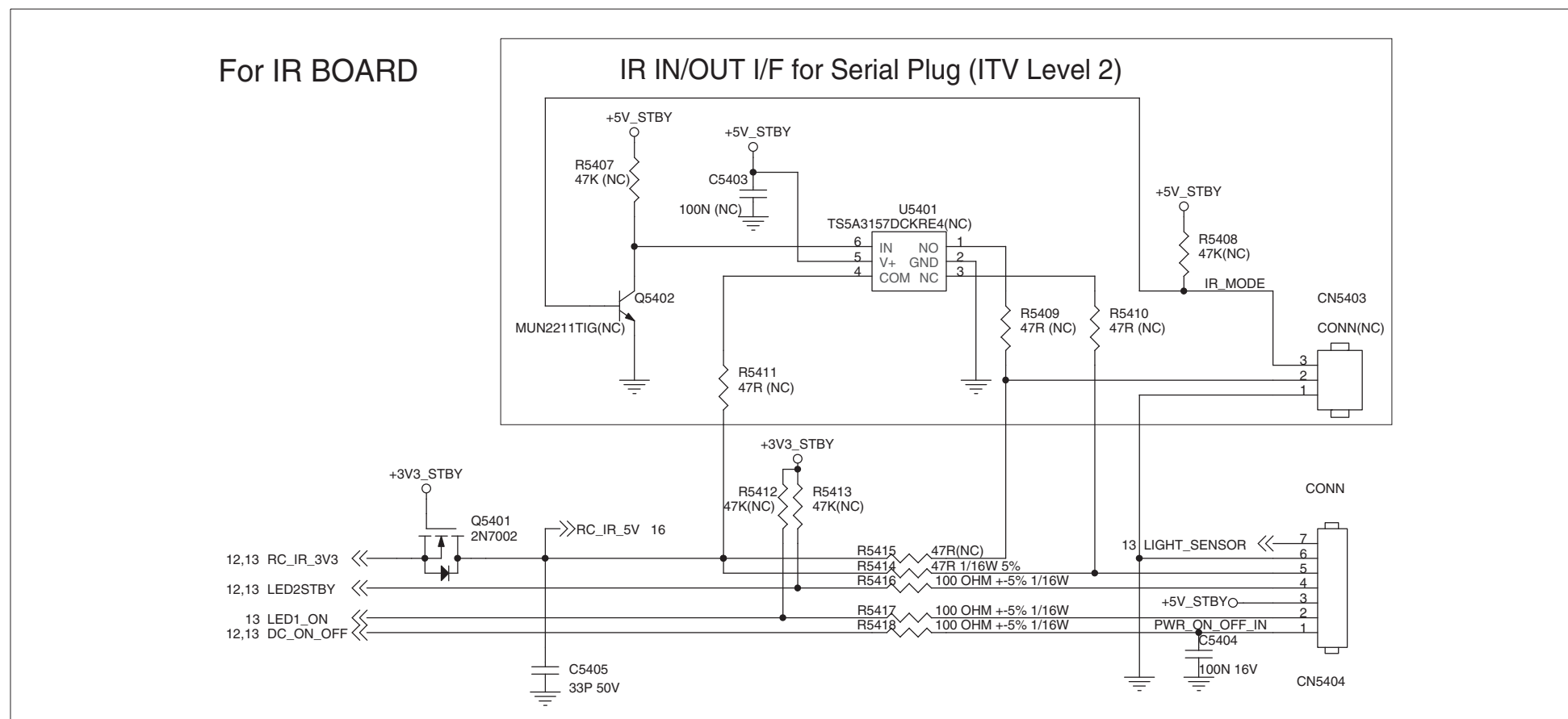
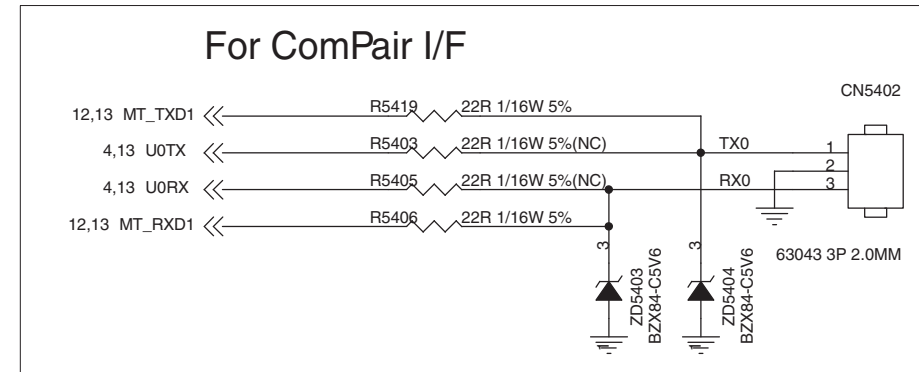
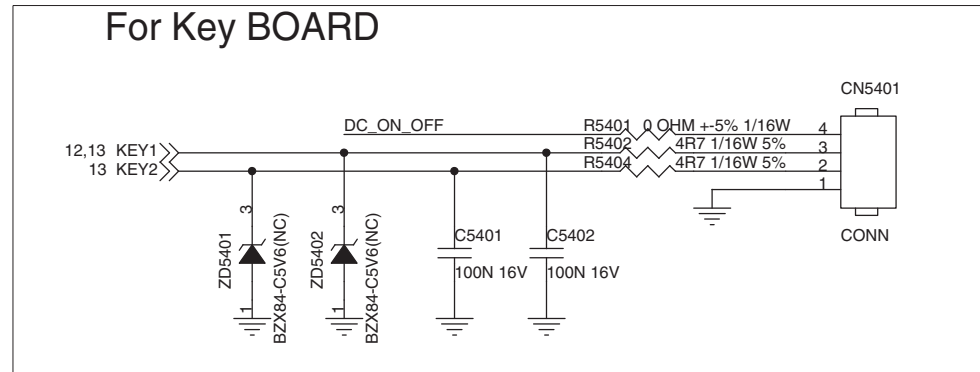
- CN5301 A7
- CN5302 C6
- CN5303 C4
- CN5304 C1
- CN5305 D7
- CN5306 E6
- CN5307 F6
- C5308 A7
- C5309 A7
- C5312 B5
- C5313 B6
- C5323 C2
- C5324 C3
- C5325 C2
- C5326 D2
- C5327 D2
- C5328 D3
- C5329 E9
- C5330 E8
- C5331 E8
- C5332 E8
- C5333 F4
- C5334 F8
- FB5301 E7
- FB5302 C3
- FB5303 D3
- Q5303 E3
- Q5304 E9
- Q5305 F9
- R5305 A3
- R5306 A3
- R5311 B6
- R5312 B6
- R5322 D9
- R5323 E3
- R5324 E10
- R5325 E9
- R5326 E3
- R5327 E3
- R5328 E8
- R5329 E10
- R5330 E3
- R5331 F5
- R5332 F5
- R5333 F8
- R5334 F8
- R5335 F10
- R5336 E2
- TH5301 E5
- ZD5301 F4
- ZD5302 F4
- ZD5303 F5
- ZD5304 F5

SSB: Keyboard, IR & ComPair interface

B14

Keyboard, IR & ComPair interface

B14

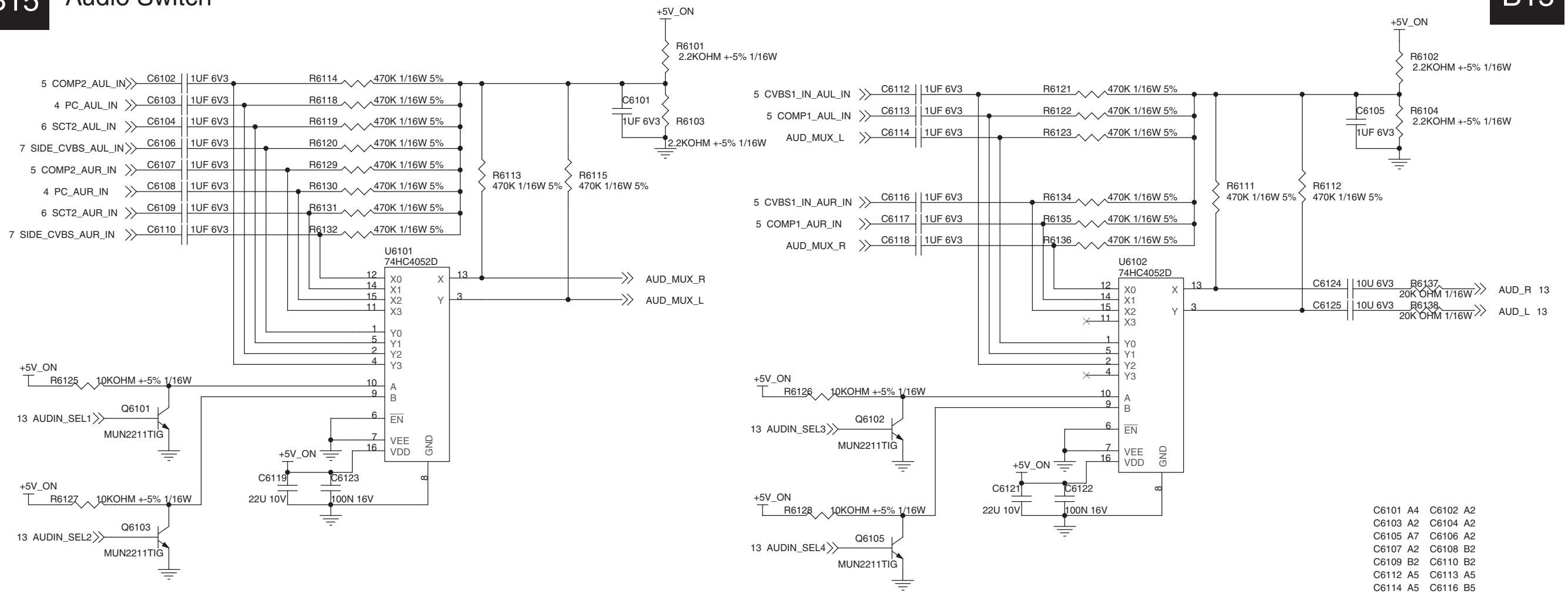


- CN5401 A4
- CN5402 A7
- CN5403 C6
- CN5404 D6
- C5401 B3
- C5402 B3
- C5403 C4
- C5404 D6
- C5405 D3
- Q5401 D3
- Q5402 C4
- R5401 A3
- R5402 A3
- R5403 A5
- R5404 A3
- R5405 A5
- R5406 A5
- R5407 C4
- R5408 C6
- R5409 C5
- R5410 C5
- R5411 C4
- R5412 D4
- R5413 D4
- R5414 D5
- R5415 D5
- R5416 D5
- R5417 D5
- R5418 D5
- R5419 A5
- U5401 C4
- ZD5401 A2
- ZD5402 A2
- ZD5403 B6
- ZD5404 B6

**SSB: Audio Switch**

**B15** Audio Switch

**B15**



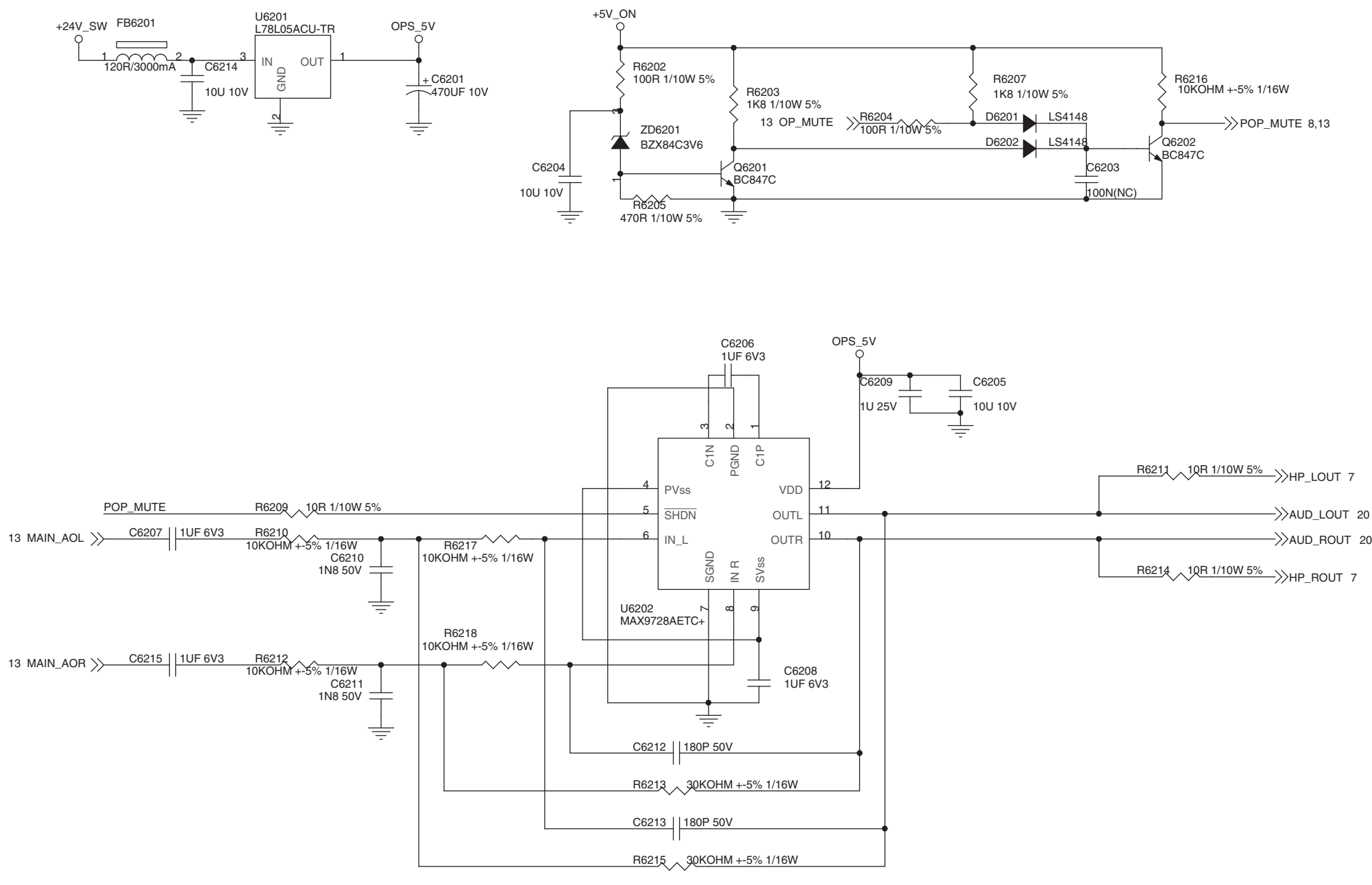
- C6101 A4 C6102 A2
- C6103 A2 C6104 A2
- C6105 A7 C6106 A2
- C6107 A2 C6108 B2
- C6109 B2 C6110 B2
- C6112 A5 C6113 A5
- C6114 A5 C6116 B5
- C6117 B5 C6118 B5
- C6119 C2 C6121 C6
- C6122 C6 C6123 C2
- C6124 B7 C6125 B7
- Q6101 C1 Q6102 C5
- Q6103 C1 Q6105 C5
- R6101 A4 R6102 A7
- R6103 A4 R6104 A7
- R6111 B7 R6112 B7
- R6113 A3 R6114 A2
- R6115 A3 R6118 A2
- R6119 A2 R6120 A2
- R6121 A6 R6122 A6
- R6123 A6 R6125 C1
- R6126 C5 R6127 C1
- R6128 C5 R6129 A2
- R6130 B2 R6131 B2
- R6132 B2 R6134 B6
- R6135 B6 R6136 B6
- R6137 B8 R6138 B8
- U6101 B3 U6102 B6

Audi o i nput	AUDI N_SEL1	AUDI N_SEL2	AUDI N_SEL3	AUDI N_SEL4
PC_AU_I N	1	0	1	1
COMP1_AU_I N	x	x	0	1
COMP2_AU_I N	0	0	1	1
SCT2_AU_I N	0	1	1	1
CVBS1_AU_I N	x	x	1	0
SI DE_AU_I N	1	1	1	1

SSB: Audio Preamplifier

B16 Audio Preamplifier

B16

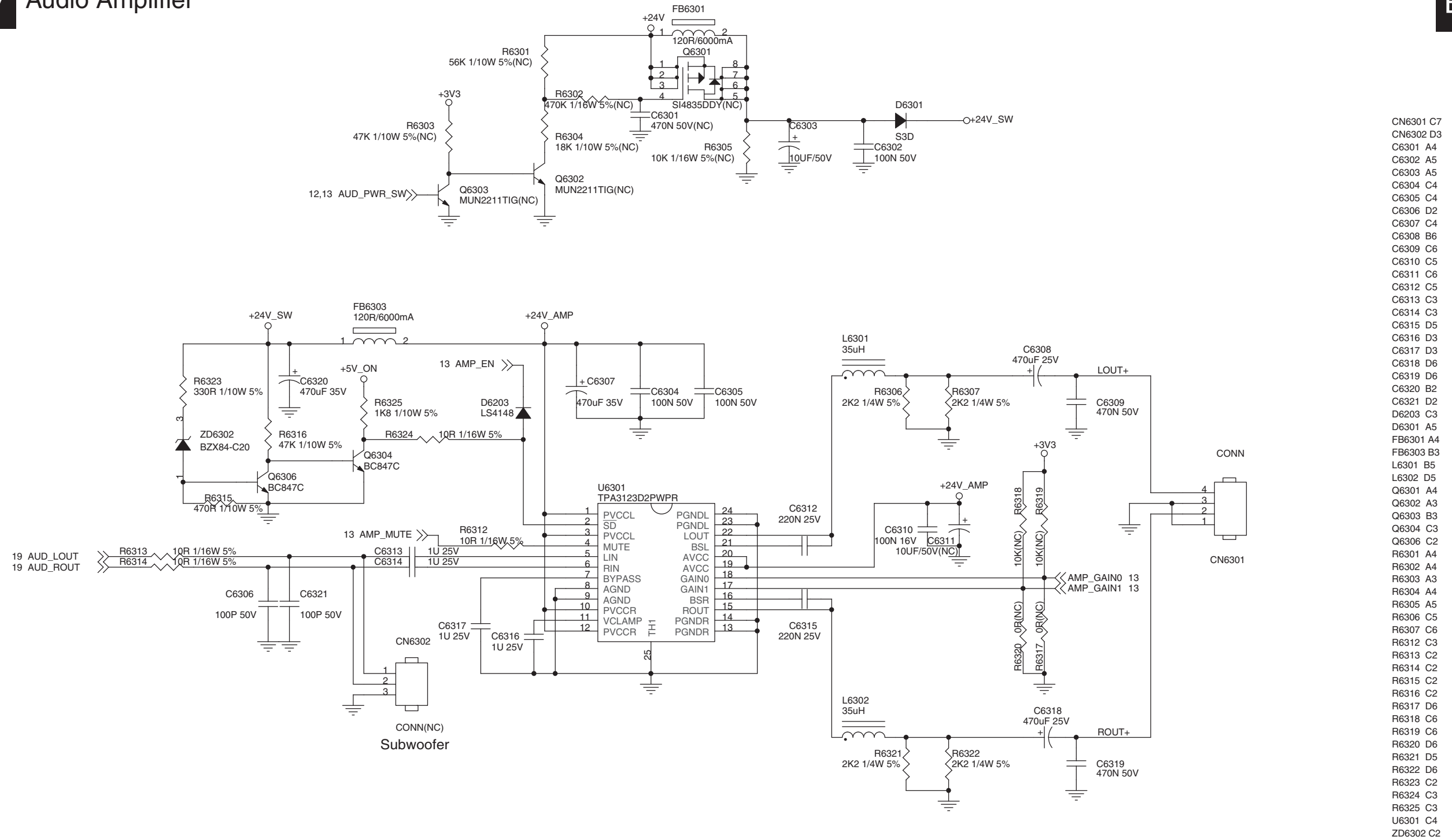


- C6201 A3
- C6203 B6
- C6204 B4
- C6205 C5
- C6206 C4
- C6207 C2
- C6208 D4
- C6209 C5
- C6210 C3
- C6211 D3
- C6212 D4
- C6213 D4
- C6214 A2
- C6215 D2
- D6201 B5
- D6202 B5
- FB6201 A2
- Q6201 B4
- Q6202 B6
- R6202 A4
- R6203 A4
- R6204 B5
- R6205 B4
- R6207 A5
- R6209 C2
- R6210 C2
- R6211 C6
- R6212 D2
- R6213 D4
- R6214 C6
- R6215 E4
- R6216 A6
- R6217 C3
- R6218 D3
- U6201 A2
- U6202 C4
- ZD6201 B4

SSB: Audio Amplifier

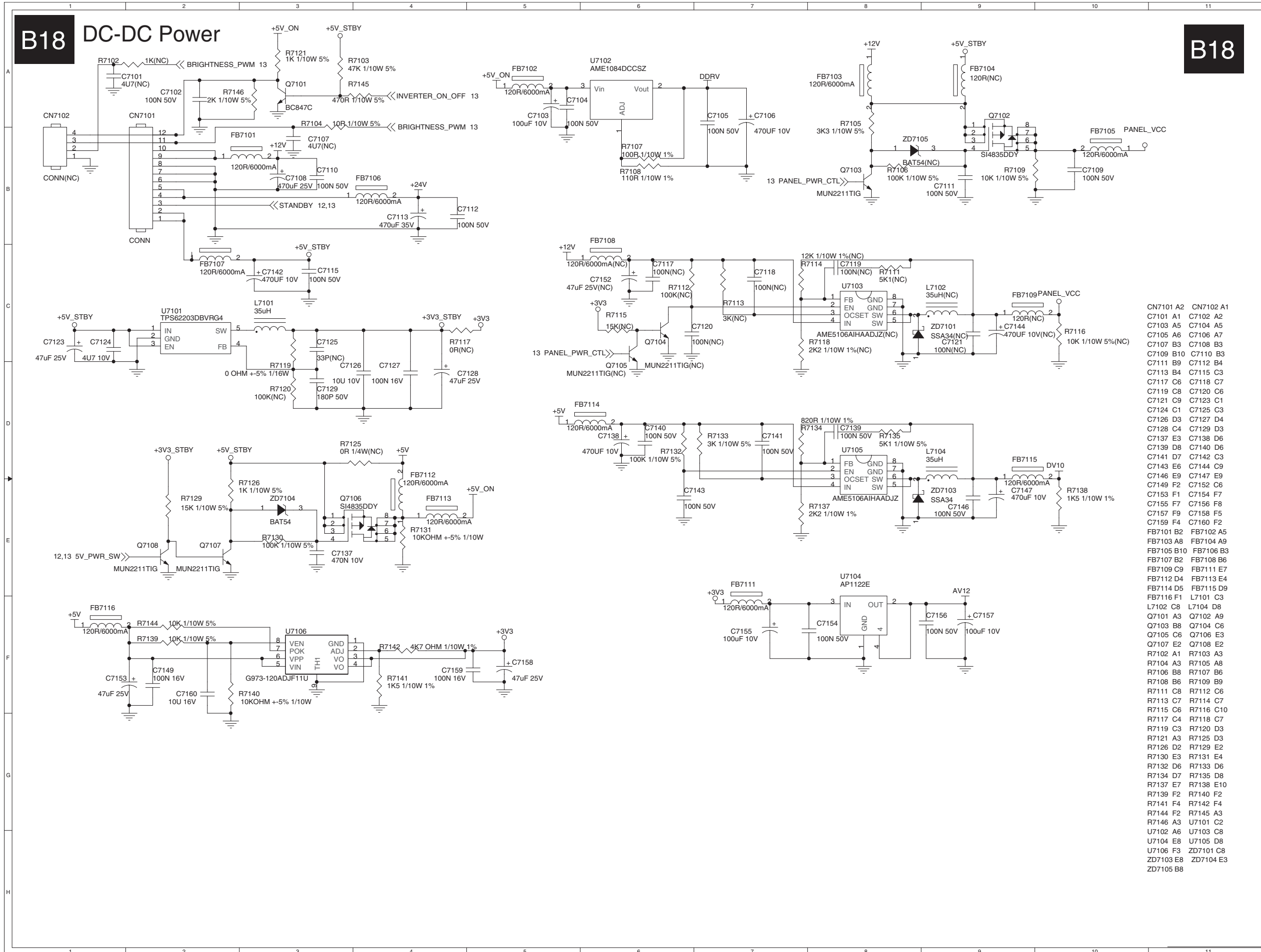
B17 Audio Amplifier

B17

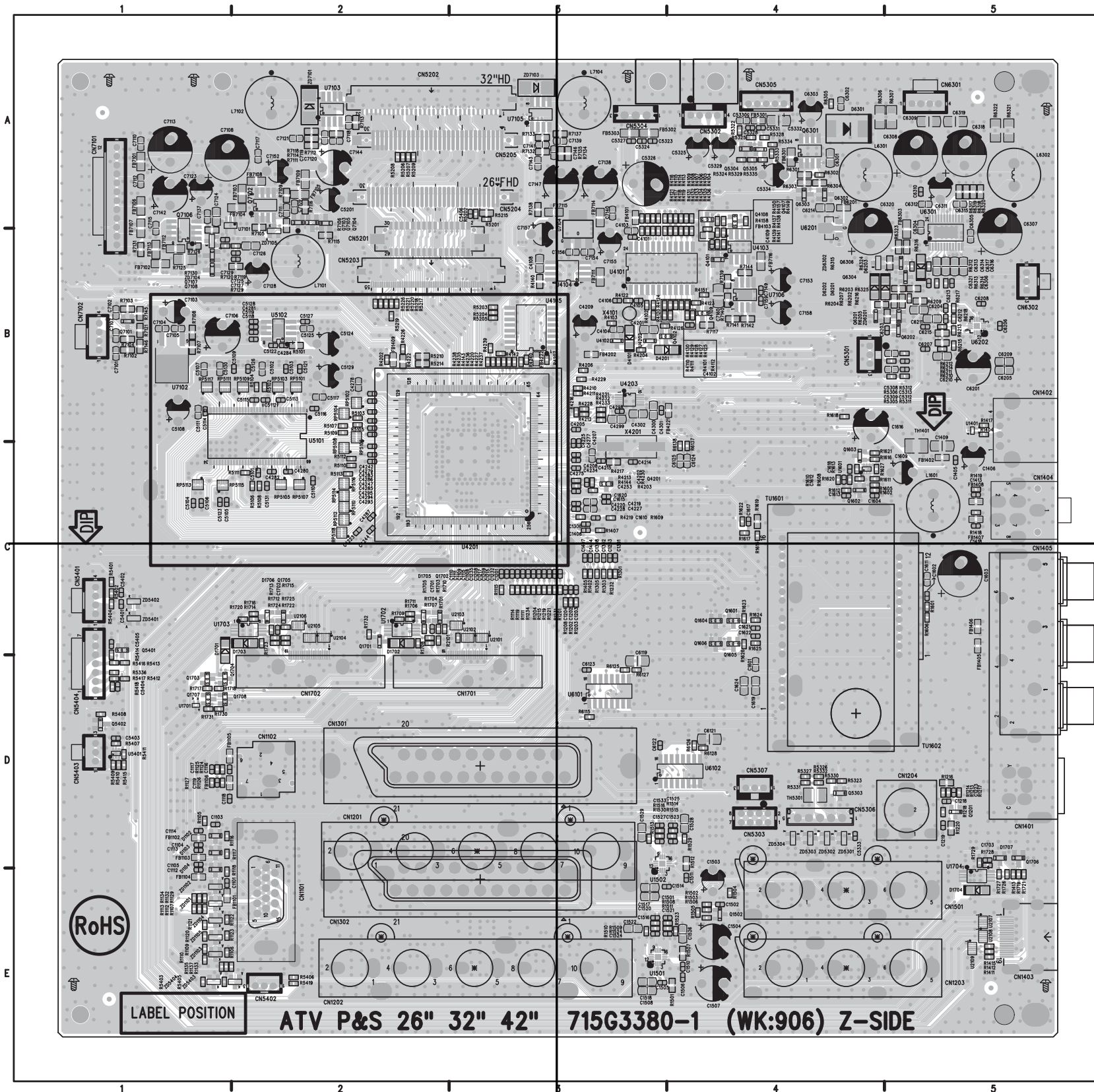


- CN6301 C7
- CN6302 D3
- C6301 A4
- C6302 A5
- C6303 A5
- C6304 C4
- C6305 C4
- C6306 D2
- C6307 C4
- C6308 B6
- C6309 C6
- C6310 C5
- C6311 C6
- C6312 C5
- C6313 C3
- C6314 C3
- C6315 D5
- C6316 D3
- C6317 D3
- C6318 D6
- C6319 D6
- C6320 B2
- C6321 D2
- D6203 C3
- D6301 A5
- FB6301 A4
- FB6303 B3
- L6301 B5
- L6302 D5
- Q6301 A4
- Q6302 A3
- Q6303 B3
- Q6304 C3
- Q6306 C2
- R6301 A4
- R6302 A4
- R6303 A3
- R6304 A4
- R6305 A5
- R6306 C5
- R6307 C6
- R6312 C3
- R6313 C2
- R6314 C2
- R6315 C2
- R6316 C2
- R6317 D6
- R6318 C6
- R6319 C6
- R6320 D6
- R6321 D5
- R6322 D6
- R6323 C2
- R6324 C3
- R6325 C3
- U6301 C4
- ZD6302 C2

SSB: DC-DC Power

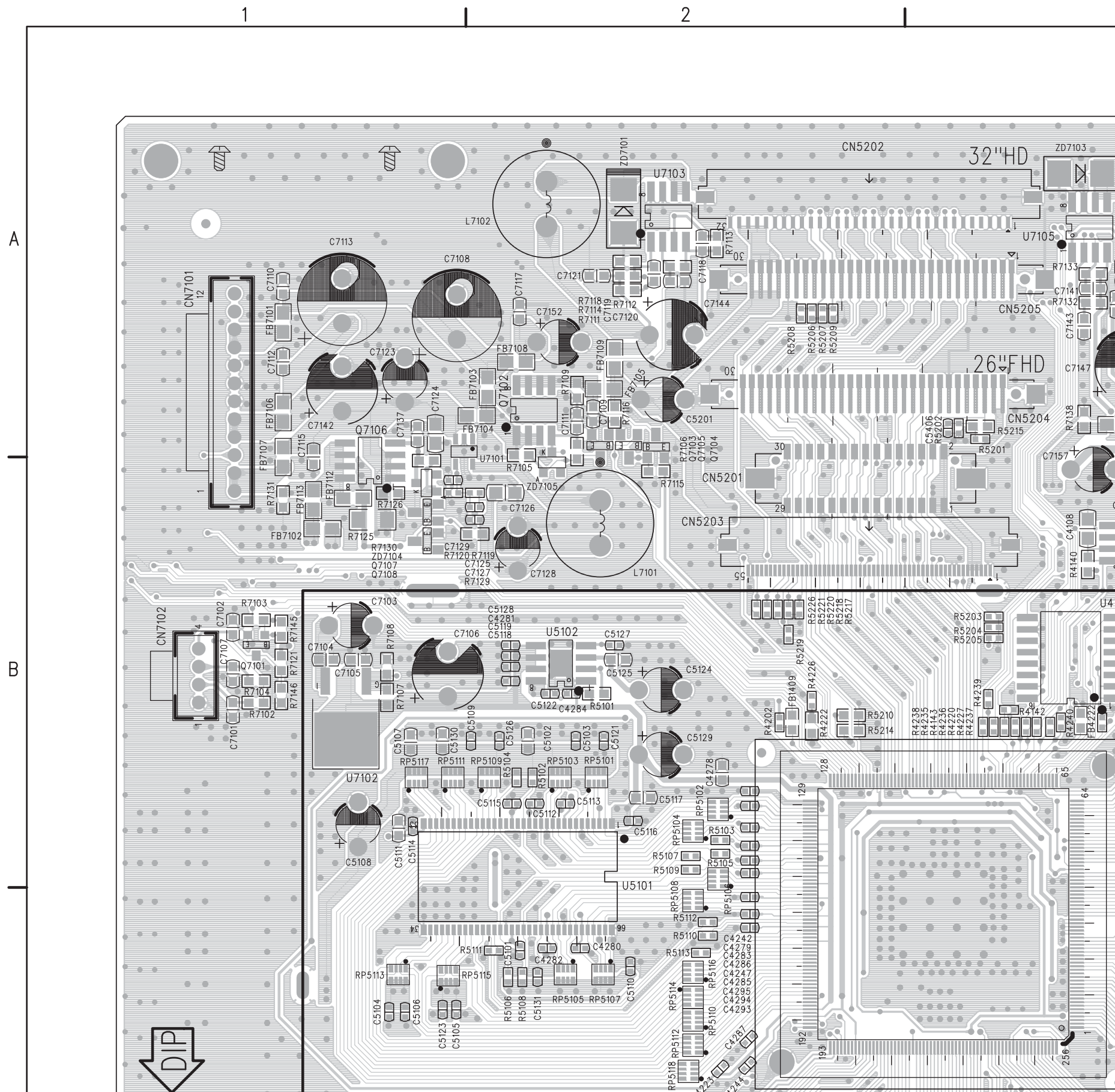


SSB Layout Top view



C1101	D2	C1702	C2	C5325	A4	C7140	A3	FB5301	A4	R1123	E2	R1703	C3	R4211	B3	R5415	D1	RP5102	B2
C1103	D2	C1703	D5	C5326	A4	C7141	A3	FB5302	A4	R1124	D2	R1704	C3	R4212	B3	R5416	C1	RP5103	B2
C1104	D1	C4101	A4	C5327	A4	C7142	A1	FB5303	A4	R1125	D2	R1705	C3	R4213	B3	R5417	C1	RP5104	B2
C1105	D1	C4102	B4	C5328	A4	C7143	A3	FB6201	A5	R1126	D2	R1706	C2	R4216	B3	R5418	C1	RP5105	B2
C1108	C3	C4103	A4	C5329	A4	C7144	A2	FB6301	A4	R1127	D1	R1707	C3	R4217	B4	R5419	E2	RP5106	B2
C1109	C3	C4104	B4	C5330	A4	C7146	A3	FB6303	A5	R1129	E1	R1708	C3	R4219	C3	R6115	D3	RP5107	B2
C1110	C3	C4105	B4	C5331	A4	C7147	A3	FB7101	A1	R1132	E1	R1709	C2	R4220	B3	R6125	C4	RP5108	B2
C1111	C3	C4106	B4	C5332	A4	C7149	A4	FB7102	A1	R1133	E2	R1710	C3	R4222	B2	R6126	D4	RP5109	B2
C1112	D1	C4108	A3	C5333	D5	C7152	A2	FB7103	A2	R1134	E1	R1711	C2	R4226	B2	R6127	C4	RP5110	C2
C1113	D1	C4109	A4	C5334	A4	C7153	A4	FB7104	A2	R1135	E2	R1712	C2	R4227	B3	R6128	D4	RP5111	B2
C1114	D1	C4201	B4	C5401	C1	C7154	A3	FB7105	A2	R1137	E2	R1713	C2	R4228	B3	R6137	B4	RP5112	C2
C1115	C3	C4202	B3	C5402	C1	C7155	A3	FB7106	A1	R1201	C3	R1714	C2	R4229	B3	R6138	B4	RP5113	B1
C1116	D2	C4205	B3	C5403	D1	C7156	A3	FB7107	A1	R1202	C3	R1715	C2	R4230	B3	R6205	B5	RP5114	C2
C1117	D1	C4207	B3	C5404	C1	C7157	A3	FB7108	A2	R1203	C3	R1716	C2	R4231	B3	R6203	A5	RP5115	B2
C1118	D2	C4208	B3	C5405	C1	C7158	B4	FB7109	A2	R1204	C3	R1717	C1	R4232	B3	R6204	B5	RP5116	B2
C1119	D2	C4209	B3	C5406	A3	C7159	B4	FB7111	A3	R1208	C3	R1718	C2	R4233	B3	R6205	B5	RP5117	B1
C1201	C3	C4214	B4	C6119	C4	C7160	A4	FB7112	A1	R1213	D5	R1719	D5	R4235	B3	R6207	B5	RP5118	C2
C1202	C3	C4215	B3	C6121	D4	CN1101	E2	FB7113	A1	R1214	D5	R1720	C2	R4236	B3	R6209	B5	TH1401	B5
C1203	C3	C4219	C3	C6122	D4	CN1102	D2	FB7114	A3	R1215	C3	R1721	D5	R4237	B3	R6210	B5	TH5301	D5
C1204	C3	C4220	C3	C6123	C3	CN1201	D3	FB7115	A3	R1216	D5	R1722	C2	R4238	B3	R6211	B5	TU1601	D5
C1208	C3	C4223	C2	C6124	B4	CN1202	E3	FB7116	A4	R1217	D5	R1723	C2	R4239	B3	R6212	B5	TU1602	D5
C1209	C3	C4225	B3	C6125	B4	CN1203	E5	L1601	C5	R1218	D5	R1724	C2	R4240	B3	R6213	B5	U1401	B5
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C1217	C3	C4228	C3	C6203	B5	CN1301	D3	L6302	A5	R1220	D5	R1726	D5	R5102	B2	R6215	B5	U1502	D4
C1218	D5	C4234	B3	C6204	B5	CN1302	D3	L7101	A2	R1221	C3	R1727	D5	R5103	B2	R6216	A5	U1601	B5
C1219	D5	C4242	B2	C6205	B5	CN1401	C5	L7102	A2	R1231	C3	R1728	D5	R5104	B2	R6217	B5	U1701	D1
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C1232	C3	C4247	B2	C6207	B5	CN1403	E5	Q1201	D5	R1234	C3	R1730	D2	R5106	B2	R6301	A4	U1703	C2
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C1301	C4	C4277	B3	C6210	B5	CN1501	E5	Q1602	B5	R1305	C3	R2101	C3	R5109	B2	R6304	A5	U2102	C3
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C1407	C3	C4284	B2	C6302	A5	CN5205	A3	Q1703	C1	R1413	D5	R4107	A4	R5203	B3	R6315	A5	U2109	E5
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C1418	C5	C4293	B2	C6306	A5	CN5304	A4	Q1707	D1	R1419	B5	R4111	B4	R5207	A2	R6319	A5	U4104	A3
C1501	E4	C4294	B2	C6307	A5	CN5305	A4	Q1708	D2	R1501	E4	R4112	B4	R5208	A2	R6320	A5	U4105	B3
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C1505	E4	C4300	B4	C6311	A5	CN5402	E2	Q4108	A4	R1505	E4	R4116	A4	R5215	A3	R6324	A5	U5101	B2
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C1516	E4	C5105	C2	C6318	A5	D1102	D2	Q5402	D1	R1512	D4	R4123	B4	R5305	B5	R7107	B1	U6301	A5
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C1520	E4	C5108	B1	C6321	A5	D1701	C2	Q6301	A4	R1515	D4	R4126	B4	R5312	B5	R7111	A2	U7103	A2
C1521	E4	C5109	B2	C7101	B1	D1702	C2	Q6302	A5	R1516	D4	R4127	B4	R5322	A4	R7112	A2	U7104	A3
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C1523	D4	C5111	B1	C7103	B1	D1704	E5	Q6304	A5	R1524	E4	R4129	B4	R5324	A4	R7114	A2	U7106	A4
C1524	E4	C5112	B2	C7104	B1	D1705	C3	Q6305	A5	R1529	D4	R4130	B4	R5325	A4	R7115	A2	X4101	B4
C1525	D4	C5113	B2	C7105	B1	D1706	C2	Q7101	B1	R1530	D4	R4131	A4	R5326	D5	R7116	A2	X4201	B4
C1526	E4	C5114	B1	C7106	B2	D1707	D5	Q7102	A2	R1601	C5	R4132	A4	R5327	D4	R7117	B4	ZD1101	E2
C1527	D4	C5115	B2	C7107	B1	D4101	B4	Q7103	A2	R1602	B5	R4133	A4	R5328	A4	R7118	A2	ZD1102	E2
C1528	D4	C5116	B2	C7108	A2	D4201	B4	Q7104	A2	R1605	B5	R4134	A4	R5329	A4	R7119	A2	ZD1103	E2
C1529	D4	C5117	B2	C7109	A2	D6201	A5	Q7105	A2	R1606	C5	R4135	A4	R5330	D5	R7120	A2	ZD1104	E2
C1533	D4	C5118	B2	C7110	A1	D6202	A5	Q7106	A1	R1608	B5	R4136	A4	R5331	D4	R7121	B1	ZD1105	E2
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C1602	C5	C5121	B2	C7112	A1	D6301	A5	Q7108	A1	R1610	B5	R4138	A4	R5333	A4	R7126	A1	ZD5302	D5
C1603	C5	C5122	B2	C7113	A1	FB1101	E2	R1105	D1	R1611	B5	R4139	A4	R5334	A4	R7129	A2	ZD5303	D4
C1604	C5	C5123	C2	C7115	A1	FB1102	D1	R1106	E2	R1612	B5	R4140	A3	R5335	A4	R7130	A1	ZD5304	D4
C1609	B5	C5124	B2	C7117	A2	FB1103	D1	R1107	E1	R1613	B5	R4141	A4	R5336	C1	R7131	A1	ZD5401	C1
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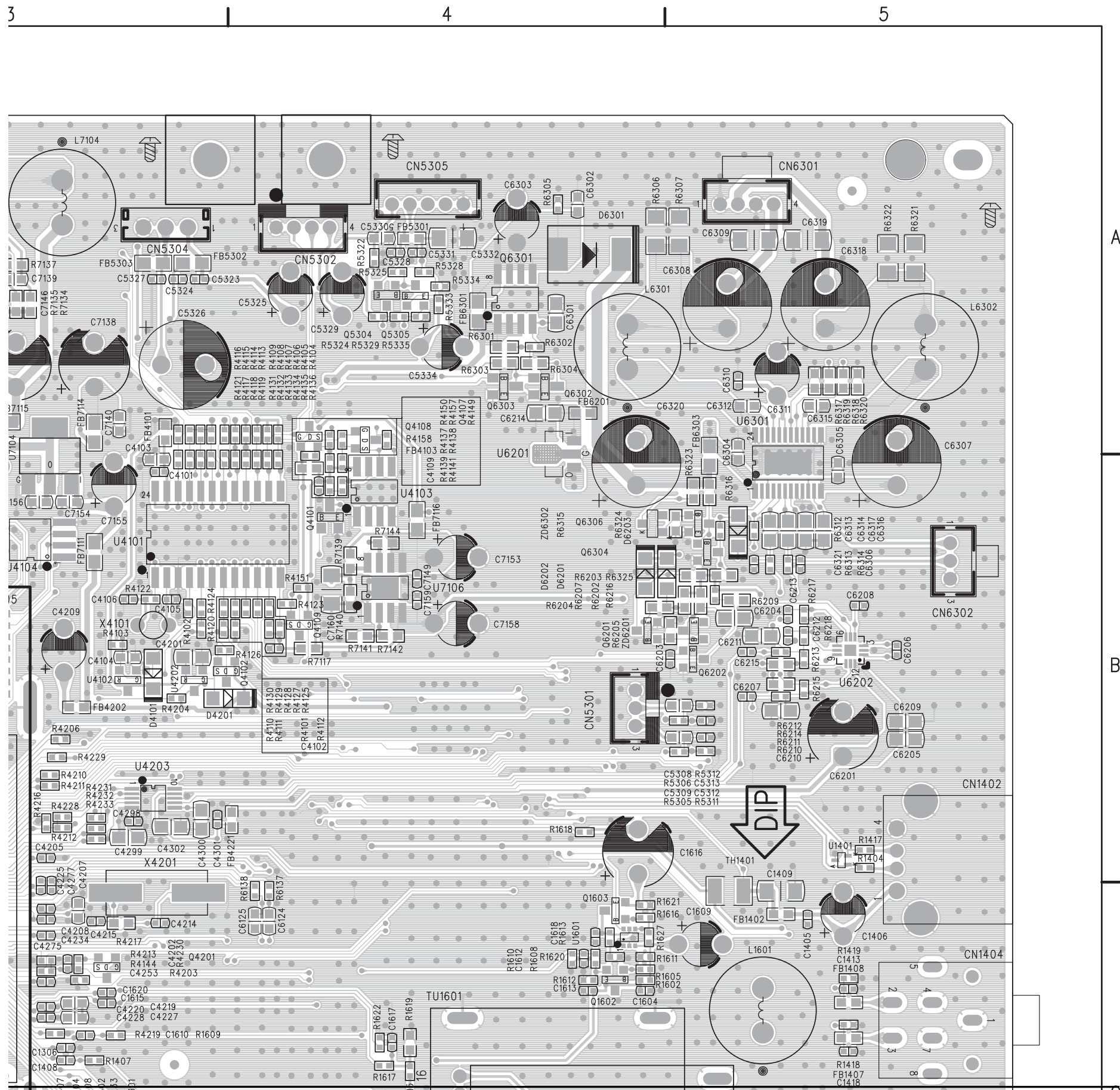
SSB Layout: Part 1 Top side



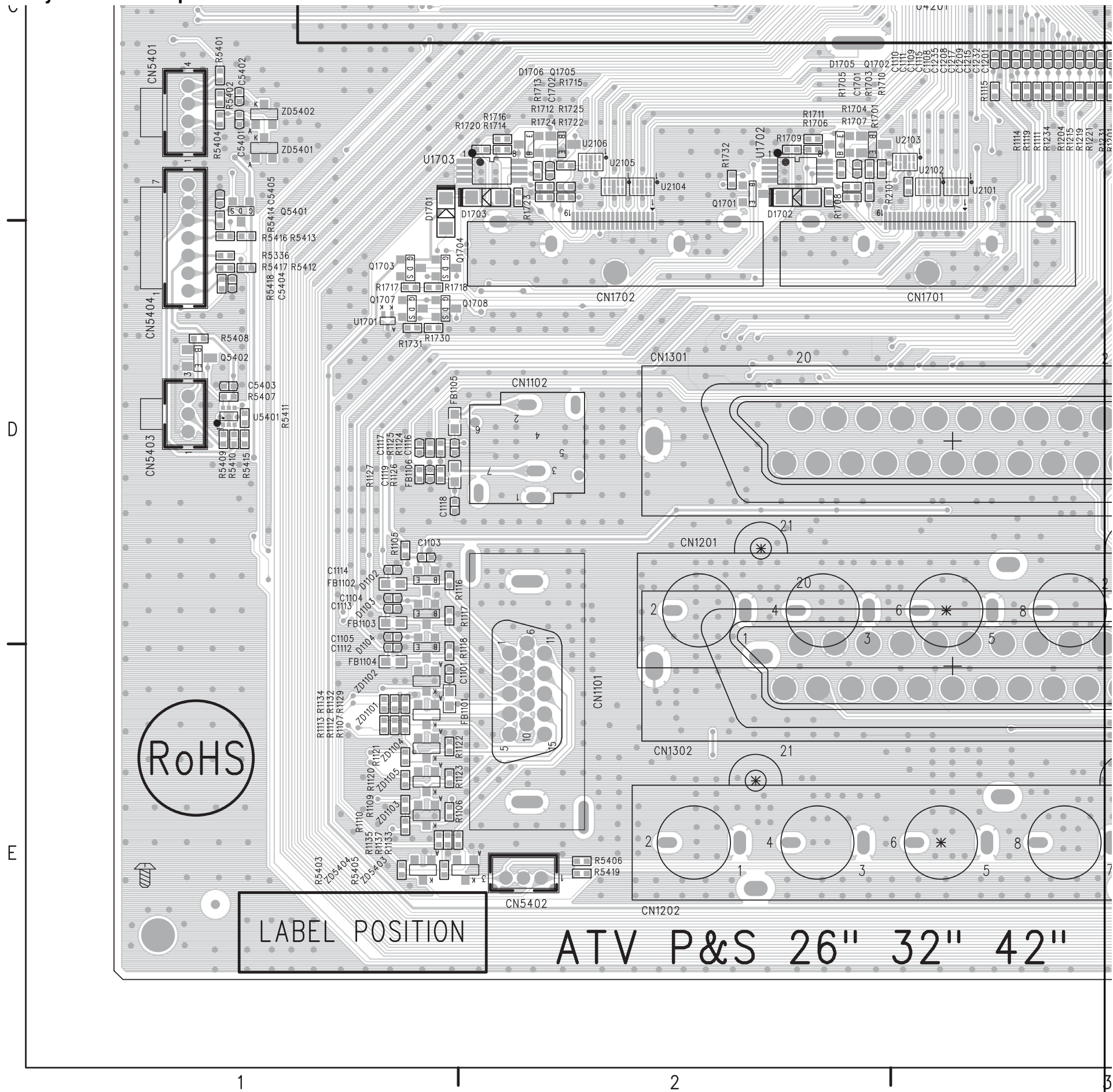
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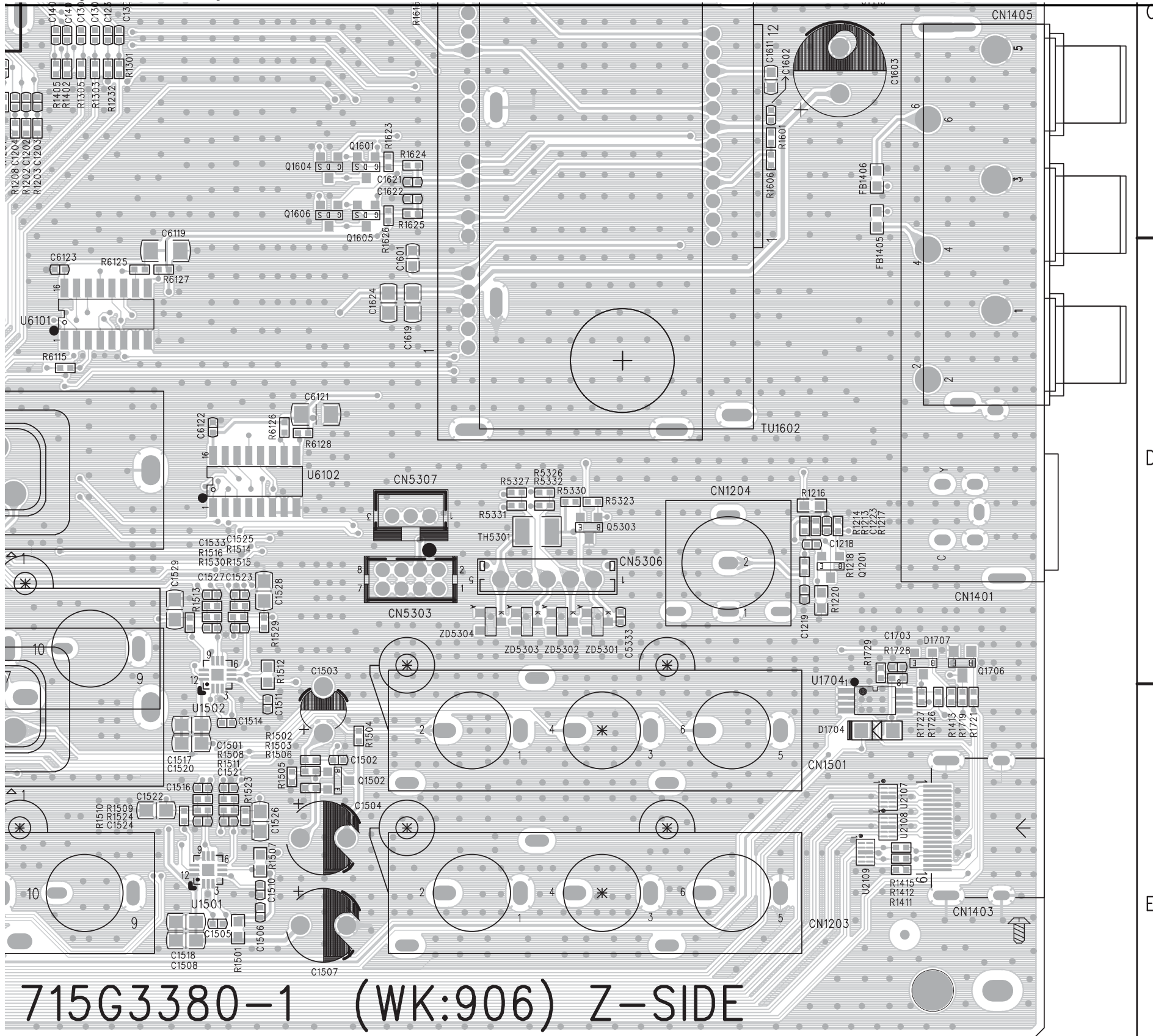
SSB Layout: Part 2 Top side



SSB Layout: Part 3 Top side



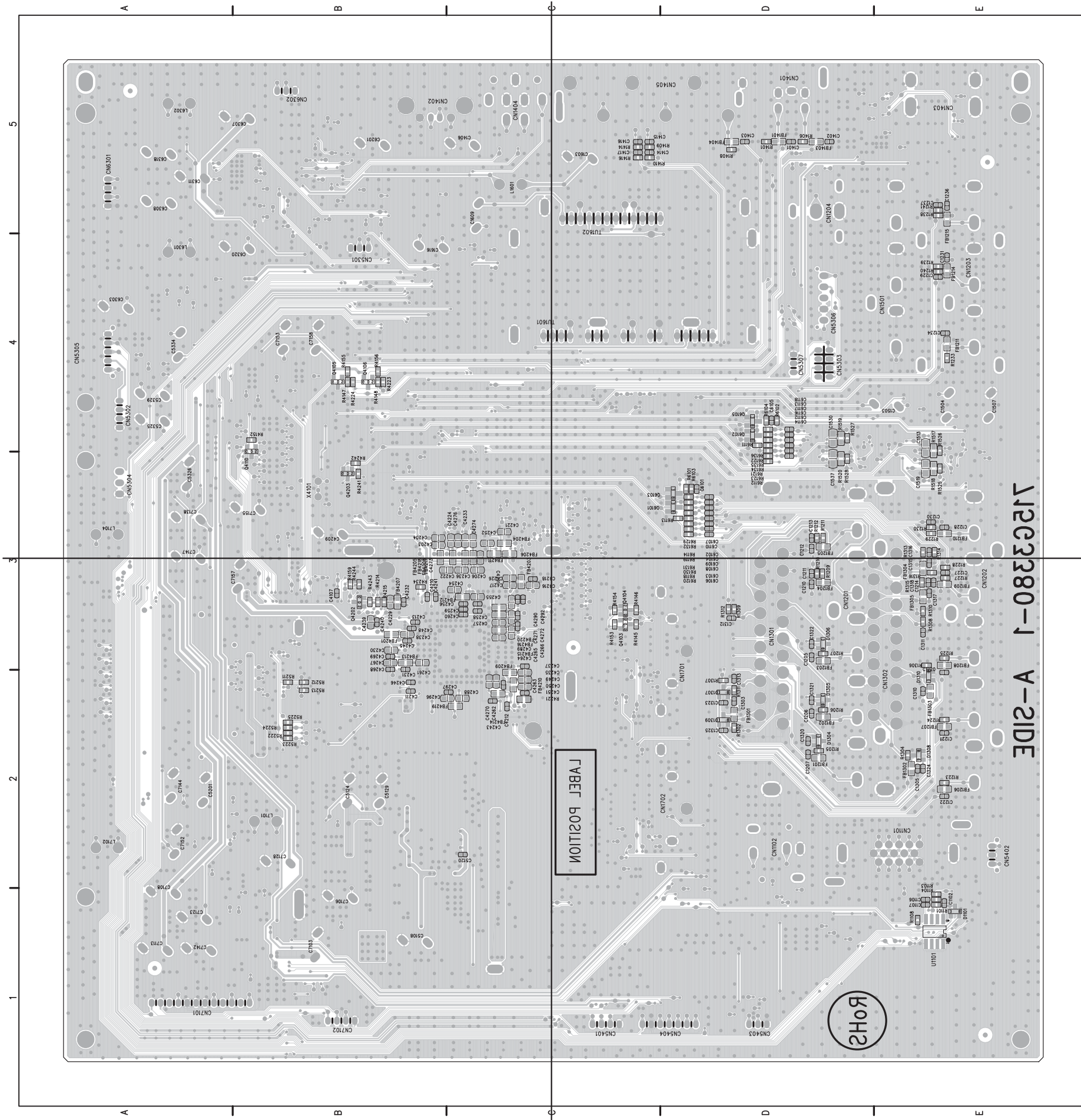
SSB Layout: Part 4 Top side



4

5

SSB Layout: Bottom view

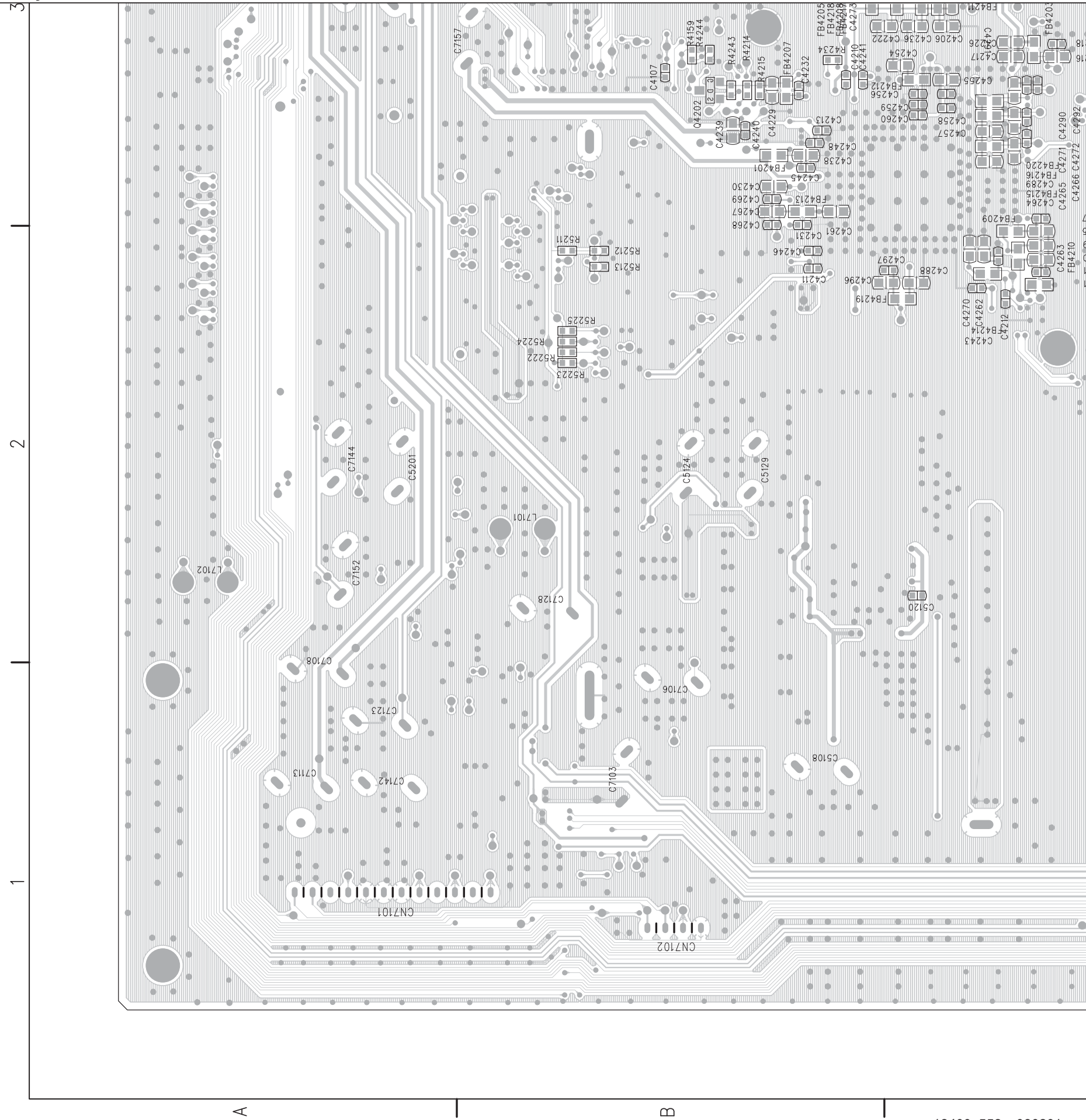


- C1102 E2 FB1208 E3
- C1106 E2 FB1209 E3
- C1107 E2 FB1210 E3
- C1205 D3 FB1211 E4
- C1206 D2 FB1214 E5
- C1207 D2 FB1215 E5
- C1210 D3 FB1301 D2
- C1211 D3 FB1302 E2
- C1212 D3 FB1303 E3
- C1213 D3 FB1304 E3
- C1214 E3 FB1305 E3
- C1220 E3 FB1401 D5
- C1221 E2 FB1403 D5
- C1222 E2 FB1404 D5
- C1227 E3 FB4201 B3
- C1228 E3 FB4203 C3
- C1229 E5 FB4204 C3
- C1230 E3 FB4205 B3
- C1231 E5 FB4206 C3
- C1234 E4 FB4207 B3
- C1236 E5 FB4208 B3
- C1237 E5 FB4209 C3
- C1303 D3 FB4210 C3
- C1305 E2 FB4211 B3
- C1310 E3 FB4212 B3
- C1311 E3 FB4213 B3
- C1312 D3 FB4214 B3
- C1313 D3 FB4215 B3
- C1315 E3 FB4216 B3
- C1316 E3 FB4217 B3
- C1317 E3 FB4218 B3
- C1318 E3 FB4219 B2
- C1320 D2 FB4220 B3
- C1321 D3 Q4103 C3
- C1322 D3 Q4104 C3
- C1323 D3 Q4105 B4
- C1324 E2 Q4106 B4
- C1325 D2 Q4110 A4
- C1401 D5 Q4202 B3
- C1402 D5 Q4203 B4
- C1403 D5 Q6101 C3
- C1414 C5 Q6102 D4
- C1415 C5 Q6103 C4
- C1416 C5 Q6105 D4
- C1417 C5 R1101 E2
- C1513 E4 R1103 E2
- C1519 E4 R1104 E2
- C1530 D4 R1108 E1
- C1537 D4 R1205 D2
- C4107 B3 R1206 D2
- C4203 B3 R1207 D3
- C4204 B3 R1209 D3
- C4206 B3 R1210 D3
- C4210 B3 R1211 D3
- C4211 B3 R1212 D3
- C4212 C2 R1223 E2
- C4213 B3 R1224 E2
- C4216 C3 R1225 C3
- C4217 C3 R1227 E3
- C4218 C3 R1228 E3
- C4221 C3 R1229 E3
- C4222 B3 R1230 E3
- C4224 B3 R1233 E4
- C4226 C3 R1238 E5
- C4229 B3 R1239 E5
- C4230 B3 R1240 E5
- C4231 B3 R1241 E5
- C4232 B3 R1302 D2
- C4233 B3 R1304 E2
- C4235 C3 R1306 E3
- C4236 B3 R1307 D3
- C4237 C3 R1308 E3
- C4238 B3 R1309 D3
- C4239 B3 R1310 E3
- C4240 B3 R1311 D3
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- C4243 B3 R1313 E3
- C4245 B3 R1314 E3
- C4246 B3 R1315 E3
- C4248 B3 R1316 E3
- C4249 C3 R1401 D5
- C4250 C3 R1406 D5
- C4251 C3 R1408 D5
- C4252 B3 R1409 C5
- C4254 B3 R1410 C5
- C4255 B3 R1414 C5
- C4256 B3 R1416 C5
- C4257 B3 R1517 E4
- C4258 B3 R1518 E4
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- C4263 C3 R1527 D4
- C4264 B3 R1528 D4
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- C4272 C3 R4155 B4
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- C4276 B3 R4214 B3
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- C4291 C3 R4224 B4
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- C5120 B2 R4243 B3
- C6101 D4 R4244 B3
- C6102 D3 R5211 A3
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- C6104 D3 R5213 A3
- C6105 D4 R5222 A2
- C6106 D3 R5223 A2
- C6107 D4 R5224 A2
- C6108 D3 R5225 A2
- C6109 D3 R6101 C4
- C6110 D4 R6102 D4
- C6112 D4 R6103 C4
- C6113 D4 R6104 D4
- C6114 D4 R6111 D4
- C6116 D4 R6112 D4
- C6117 D4 R6113 C3
- C6118 D4 R6114 C3
- D1101 E1 R6118 C3
- D1304 D2 R6119 C3
- D1305 D3 R6120 C3
- D1306 D3 R6121 D4
- D1307 D3 R6122 D4
- D1308 E2 R6123 D4
- D1309 D2 R6129 C4
- D1310 E3 R6130 C3
- FB1201 D2 R6131 C3
- FB1202 D2 R6132 C4
- FB1203 D3 R6134 D4
- FB1204 D3 R6135 D4
- FB1205 D3 R6136 D4
- FB1206 E2 U1101 E1
- FB1207 E2

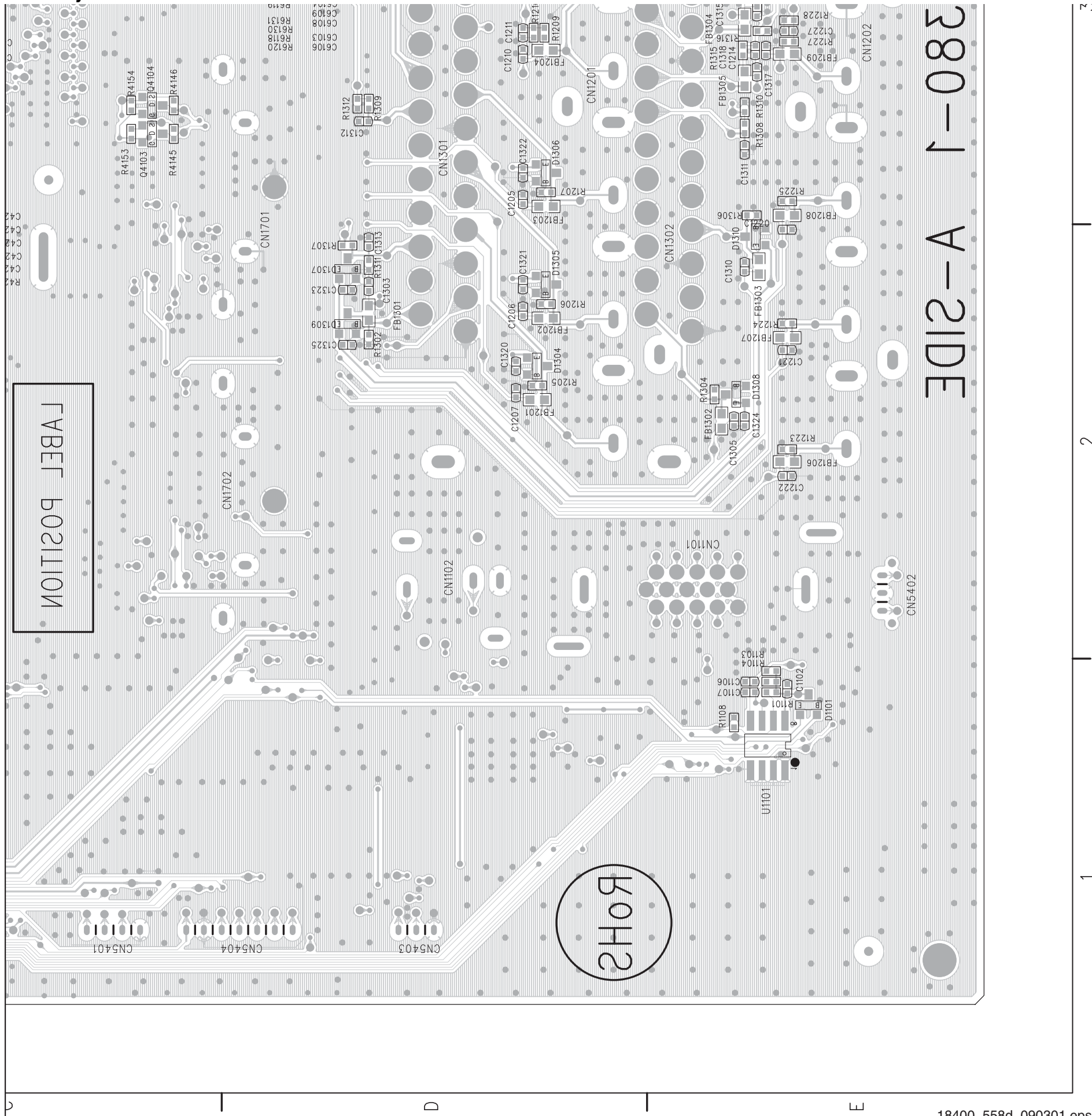




SSB Layout: Part 3 Bottom side

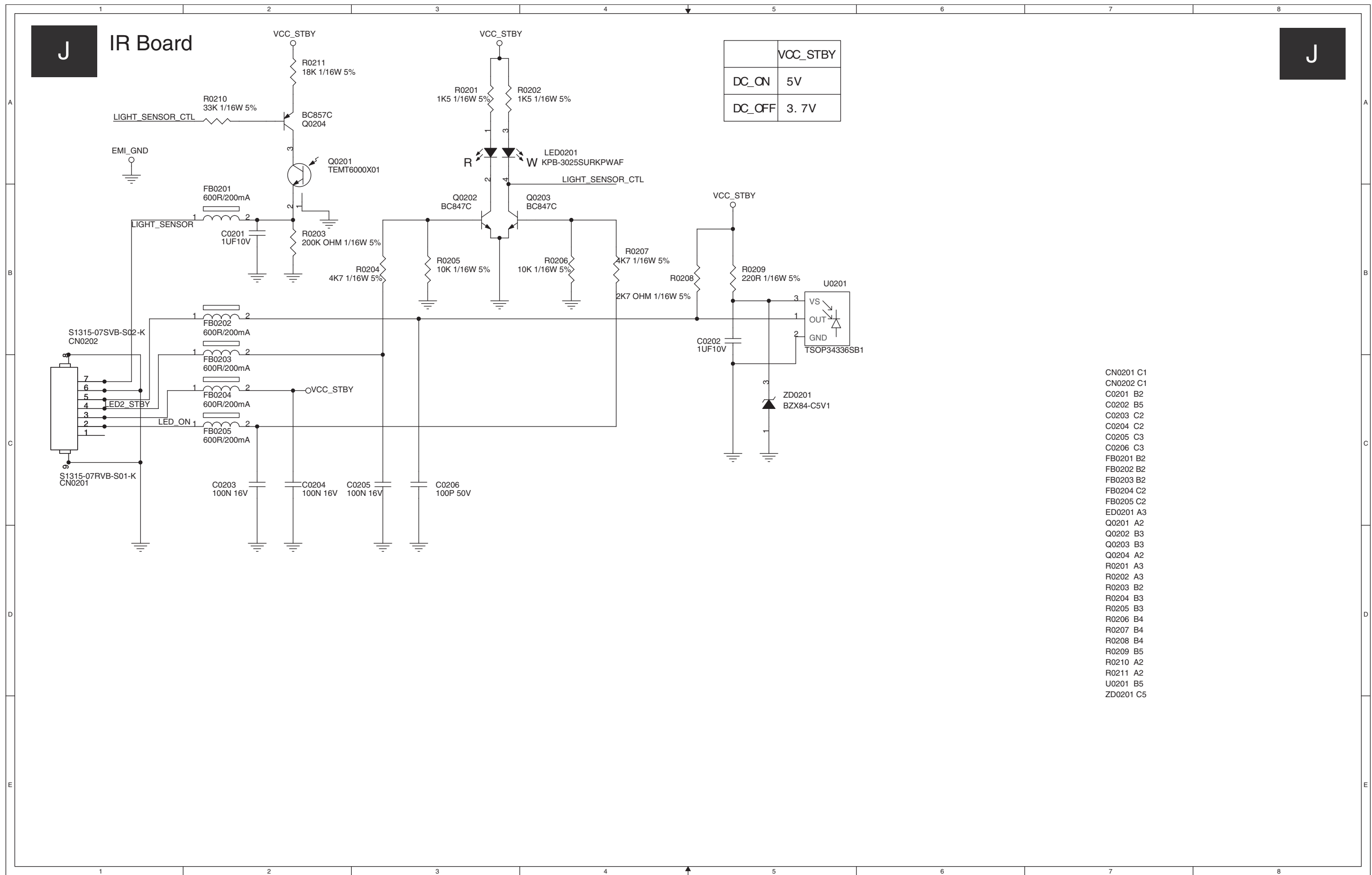


SSB Layout: Part 4 Bottom side



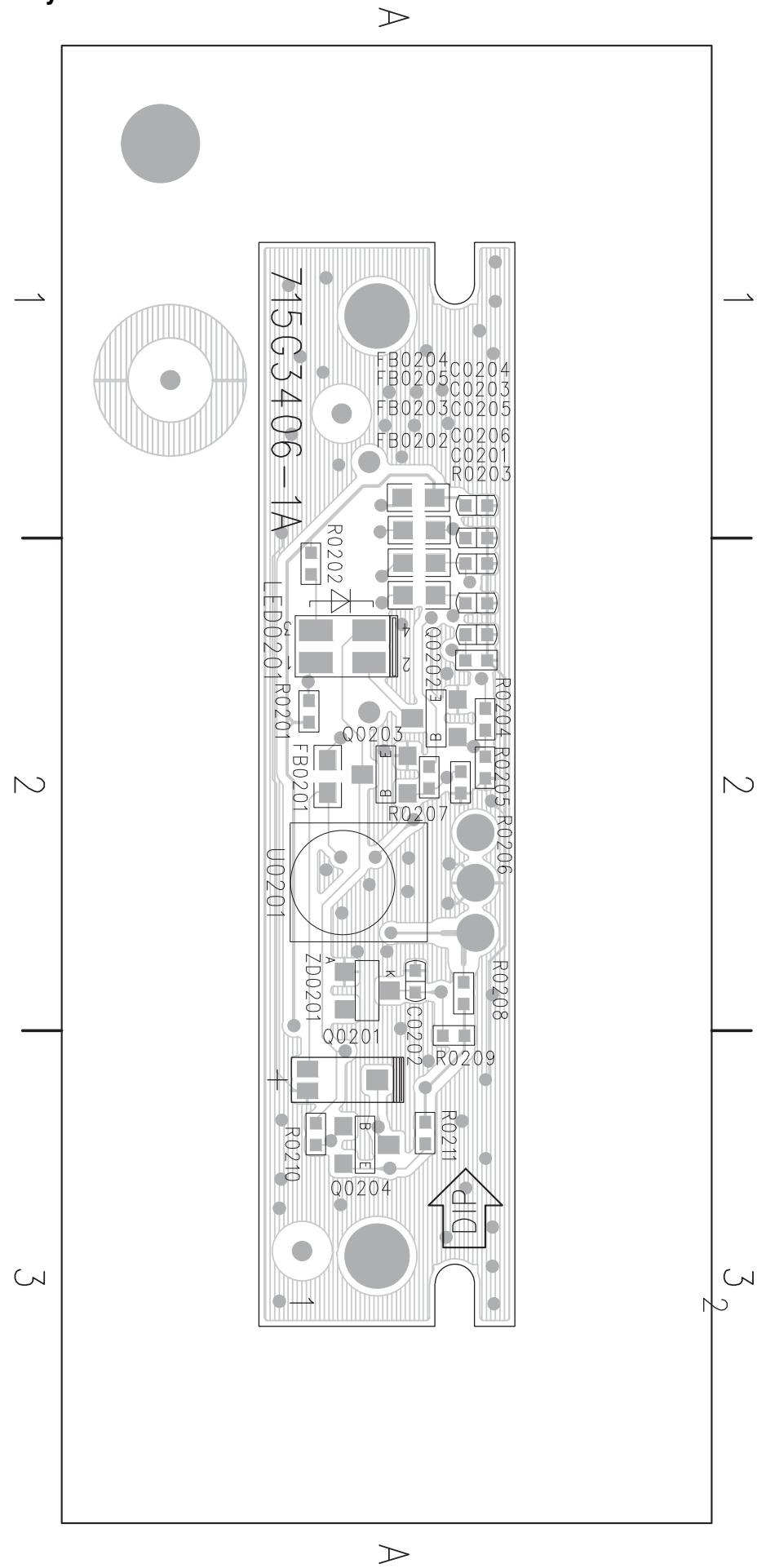


**IR Board**

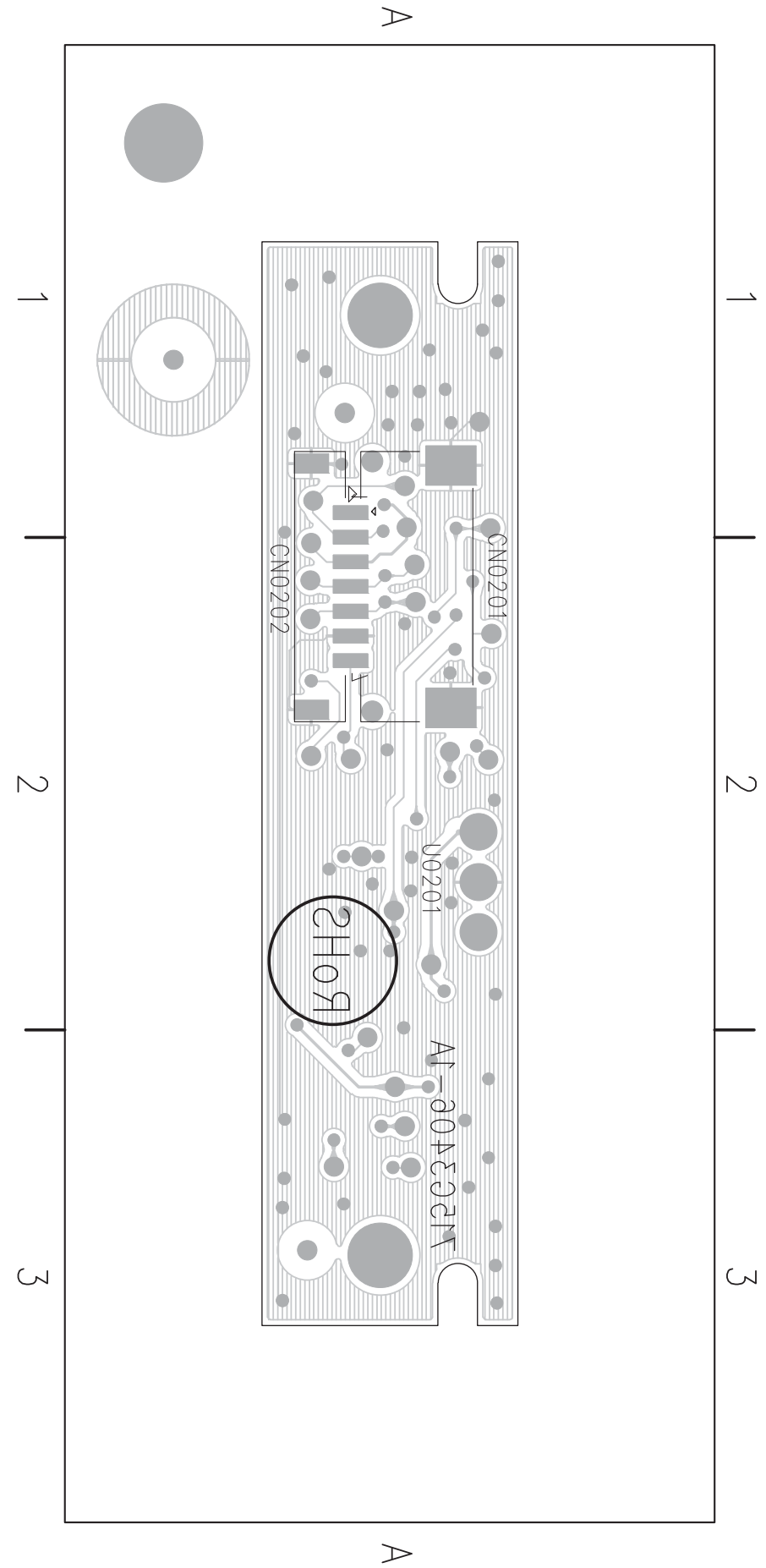


- CN0201 C1
- CN0202 C1
- C0201 B2
- C0202 B5
- C0203 C2
- C0204 C2
- C0205 C3
- C0206 C3
- FB0201 B2
- FB0202 B2
- FB0203 B2
- FB0204 C2
- FB0205 C2
- ED0201 A3
- Q0201 A2
- Q0202 B3
- Q0203 B3
- Q0204 A2
- R0201 A3
- R0202 A3
- R0203 B2
- R0204 B3
- R0205 B3
- R0206 B4
- R0207 B4
- R0208 B4
- R0209 B5
- R0210 A2
- R0211 A2
- U0201 B5
- ZD0201 C5

Layout IR



- C0201 A2
- C0202 A2
- C0203 A2
- C0204 A1
- C0205 A2
- C0206 A2
- FB0201 A2
- FB0202 A2
- FB0203 A2
- FB0204 A1
- FB0205 A1
- LED0201 A2
- Q0201 A3
- Q0202 A2
- Q0203 A2
- Q0204 A3
- R0201 A2
- R0202 A2
- R0203 A2
- R0204 A2
- R0205 A2
- R0206 A2
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- R0209 A3
- R0210 A3
- R0211 A3
- U0201 A2
- ZD0201 A2

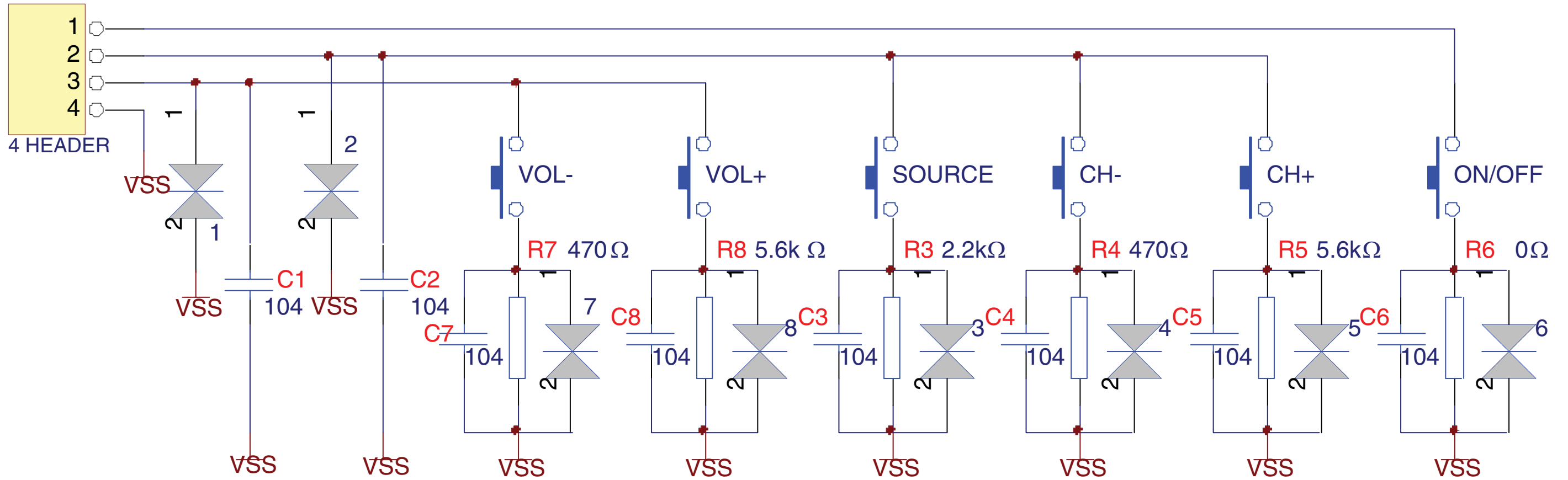


- CN0201 A2
- CN0202 A2

Keyboard control panel

**E** Keyboard control panel

J1



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