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Service Manual

Published by SaS/WS 1161 BU TV Consumer Care, the Netherlands Subject to modification EN 3122 785 18860
2011-Jan-21

PHILIPS

1. Revision List

Manual xxxx xxx xxxx.0
- First release.

2. Technical Specifications, and Connections

Index of this chapter:

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. 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
19PFL3405/12	PICO	3122 785 18860
19PFL3405/60	PICO	3122 785 18860
22PFL3405/12	PICO	3122 785 18860
22PFL3405/60	PICO	3122 785 18860
26PFL3405/12	PICO	3122 785 18860
26PFL3405/60	PICO	3122 785 18860

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

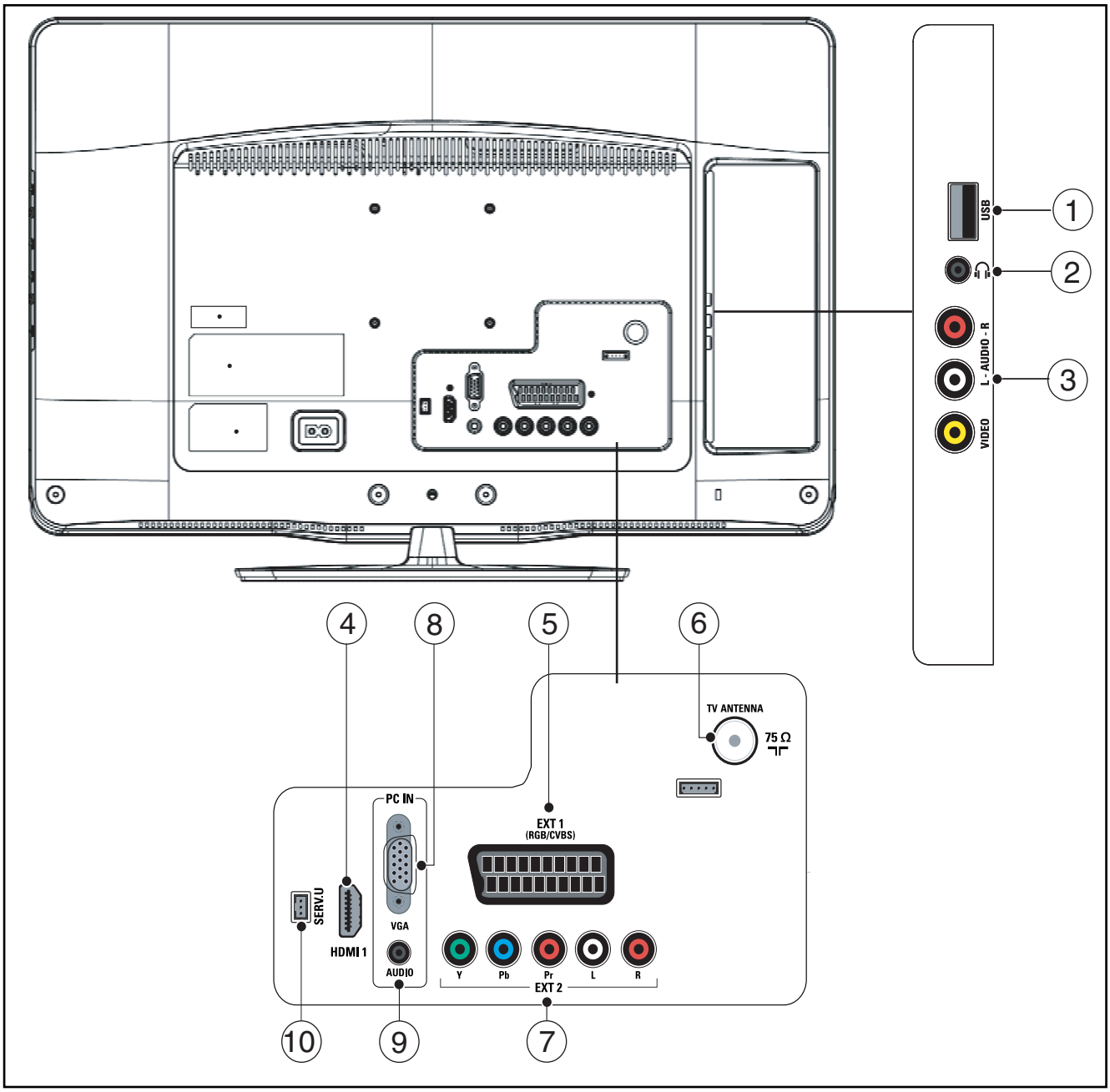

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Figure 2-1 Connection overview

Note: The following connector colour abbreviations are used (acc. to DIN/IEC 757): Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, Ye= Yellow.

2.3.1 Side Connections

1 - USB2.0

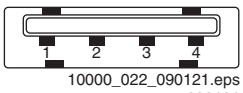

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Figure 2-2 USB (type A)

1 - +5V
2 - Data (-)
3 - Data (+)
4 - Ground Gnd

2 - Head phone (Output)

Bk - Head phone 80 - 600 Ω / 10 mW

3 - Cinch: Audio - In

V_{PP} / 75 Ω
Rd - Audio R 0.5 V_{RMS} / 10 kΩ
Wh - Audio L 0.5 V_{RMS} / 10 kΩ

2.3.2 Rear Connections

4 - HDMI: Digital Video, Digital Audio - In

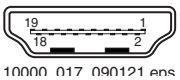

Figure 2-3 HDMI (type A) connector

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	- n.c.		
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	⏚

5 - EXT1: Video RGB/YC - In, CVBS - In/Out, Audio - In/Out

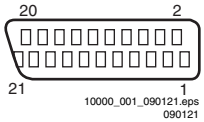

Figure 2-4 SCART connector

1	- Audio R	0.5 V_{RMS} / 1 kΩ	⊖
2	- Audio R	0.5 V_{RMS} / 10 kΩ	⊕
3	- Audio L	0.5 V_{RMS} / 1 kΩ	⊖
4	- Ground Audio	Gnd	⏚
5	- Ground Blue	Gnd	⏚
6	- Audio L	0.5 V_{RMS} / 10 kΩ	⊕
7	- Video Blue/C-out	0.7 V_{PP} / 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_{PP} / 75 Ω	⊕
12	- n.c.		
13	- Ground Red	Gnd	⏚
14	- Ground P50	Gnd	⏚
15	- Video Red/C	0.7 V_{PP} / 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	- Video CVBS	1 V_{PP} / 75 Ω	⊖
20	- Video CVBS/Y	1 V_{PP} / 75 Ω	⊕
21	- Shield	Gnd	⏚

6 - TV ANTENNA - In

Signal input from an antenna, cable or satellite.

7 - EXT2: Video YPbPr - In, Audio - In

Gn	- Video - Y	1 V_{PP} / 75 W	⊕◎
Bu	- Video - Pb	0.7 V_{PP} / 75 W	⊕◎
Rd	- Video - Pr	0.7 V_{PP} / 75 W	⊕◎
Wh	- Audio - L	0.5 V_{RMS} / 10 kW	⊕◎
Rd	- Audio - R	0.5 V_{RMS} / 10 kW	⊕◎

8 - PC IN:VGA

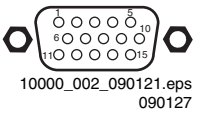

Figure 2-5 VGA connector

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

9 - Audio - In: Left / Right, VGA

Gn	- Audio L/R in	0.5 V_{RMS} / 10 kW	⊕◎

10 - Service / UART

1	- Ground	Gnd	⏚
2	- UART_TX	Transmit	⊖
3	- UART_RX	Receive	⊕

2.4 Chassis Overview

Refer to 9. Block Diagrams for PWB/CBA locations.

3. Precautions, Notes, and Abbreviation List

Index of this chapter:

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.

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 MΩ and 12 MΩ.
  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 (⏚), or hot ground (⏚), 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 (⊓) and without (⊼) aerial signal. Measure the voltages in the power supply section both in normal operation (⏻) and in stand-by (⏻). 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 kΩ).
- Resistor values with no multiplier may be indicated with either an “E” or an “R” (e.g. 220E or 220R indicates 220 Ω).
- 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

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
must

3.3.5 Lead-free Soldering

  - 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: AG**2**B0335000001) 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: AG**1**B033500001), then the TV set has been manufactured according to B.O.M. number 1. If the third digit is a "2" (example: AG**2**B0335000001), 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.

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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
BDS	Business Display Solutions (iTV)
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
DCM	Data Communication Module. Also referred to as System Card or Smartcard (for iTV).
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
DRAM	Dynamic RAM
DRM	Digital Rights Management
DSP	Digital Signal Processing
DST	Dealer Service Tool: special remote control designed for service technicians
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
DVB-C	Digital Video Broadcast - Cable
DVB-T	Digital Video Broadcast - Terrestrial
DVD	Digital Versatile Disc
DVI(-d)	Digital Visual Interface (d= digital only)
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.
EDID	Extended Display Identification Data (VESA standard)
EEPROM	Electrically Erasable and Programmable Read Only Memory
EMI	Electro Magnetic Interference
EPG	Electronic Program Guide
EPLD	Erasable Programmable Logic Device
EU	Europe
EXT	EXTernal (source), entering the set by SCART or by cinches (jacks)
FDS	Full Dual Screen (same as FDW)
FDW	Full Dual Window (same as FDS)
FLASH	FLASH memory
FM	Field Memory or Frequency Modulation
FPGA	Field-Programmable Gate Array
FTV	Flat TeleVision
Gb/s	Giga bits per second
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.
HDMI	High Definition Multimedia Interface
HP	HeadPhone
I	Monochrome TV system. Sound carrier distance is 6.0 MHz
I^2C	Inter IC bus
I^2D	Inter IC Data bus
I^2S	Inter IC Sound bus
IF	Intermediate Frequency
IR	Infra Red
IRQ	Interrupt Request
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. Uncompressed digital component or digital composite signals can be used. The SDI signal is self-synchronizing, 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.
ITV	Institutional TeleVision; TV sets for hotels, hospitals etc.
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
LATAM	Latin America
LCD	Liquid Crystal Display
LED	Light Emitting Diode
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
LPL	LG.Philips LCD (supplier)
LS	Loudspeaker
LVDS	Low Voltage Differential Signalling
Mbps	Mega bits per second
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
MHEG	Part of a set of international standards related to the presentation of multimedia information, standardised by the Multimedia and Hypermedia Experts Group. It is commonly used as a language to describe interactive television services
MIPS	Microprocessor without Interlocked Pipeline-Stages; A RISC-based microprocessor
MOP	Matrix Output Processor
MOSFET	Metal Oxide Silicon Field Effect Transistor, switching device
MPEG	Motion Pictures Experts Group
MPIF	Multi Platform InterFace
MUTE	MUTE Line
MTV	Mainstream TV: TV-mode with Consumer TV features enabled (iTV)
NC	Not Connected
NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, mainly used in Europe.
NTC	Negative Temperature Coefficient, non-linear resistor
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)
NVM	Non-Volatile Memory: IC containing TV related data such as alignments
O/C	Open Circuit
OSD	On Screen Display
OAD	Over the Air Download. Method of software upgrade via RF transmission. Upgrade software is broadcasted in TS with TV channels.
OTC	On screen display Teletext and Control; also called Artistic (SAA5800)
P50	Project 50: communication protocol between TV and peripherals
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)
PCB	Printed Circuit Board (same as “PWB”)
PCM	Pulse Code Modulation
PDP	Plasma Display Panel
PFC	Power Factor Corrector (or Pre-conditioner)
PIP	Picture In Picture
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
PSDL	Power Supply for Direct view LED backlight with 2D-dimming
PSL	Power Supply with integrated LED drivers
PSLS	Power Supply with integrated LED drivers with added Scanning functionality
PTC	Positive Temperature Coefficient, non-linear resistor
PWB	Printed Wiring Board (same as “PCB”)
PWM	Pulse Width Modulation
QRC	Quasi Resonant Converter
QTNR	Quality Temporal Noise Reduction
QVCP	Quality Video Composition Processor
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.
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^2C
SCL-F	CLock Signal on Fast I^2C bus
SD	Standard Definition
SDA	Serial Data I^2C
SDA-F	DAta Signal on Fast I^2C 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
SSC	Spread Spectrum Clocking, used to reduce the effects of EMI
STB	Set Top Box
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
TS	Transport Stream
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
VSB	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)
Y	Luminance signal
Y/C	Luminance (Y) and Chrominance (C) signal
YPbPr	Component video. Luminance and scaled color difference signals (B-Y and R-Y)
YUV	Component video

4. Mechanical Instructions

Index of this chapter:

Notes:

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

4.1 Cable Dressing

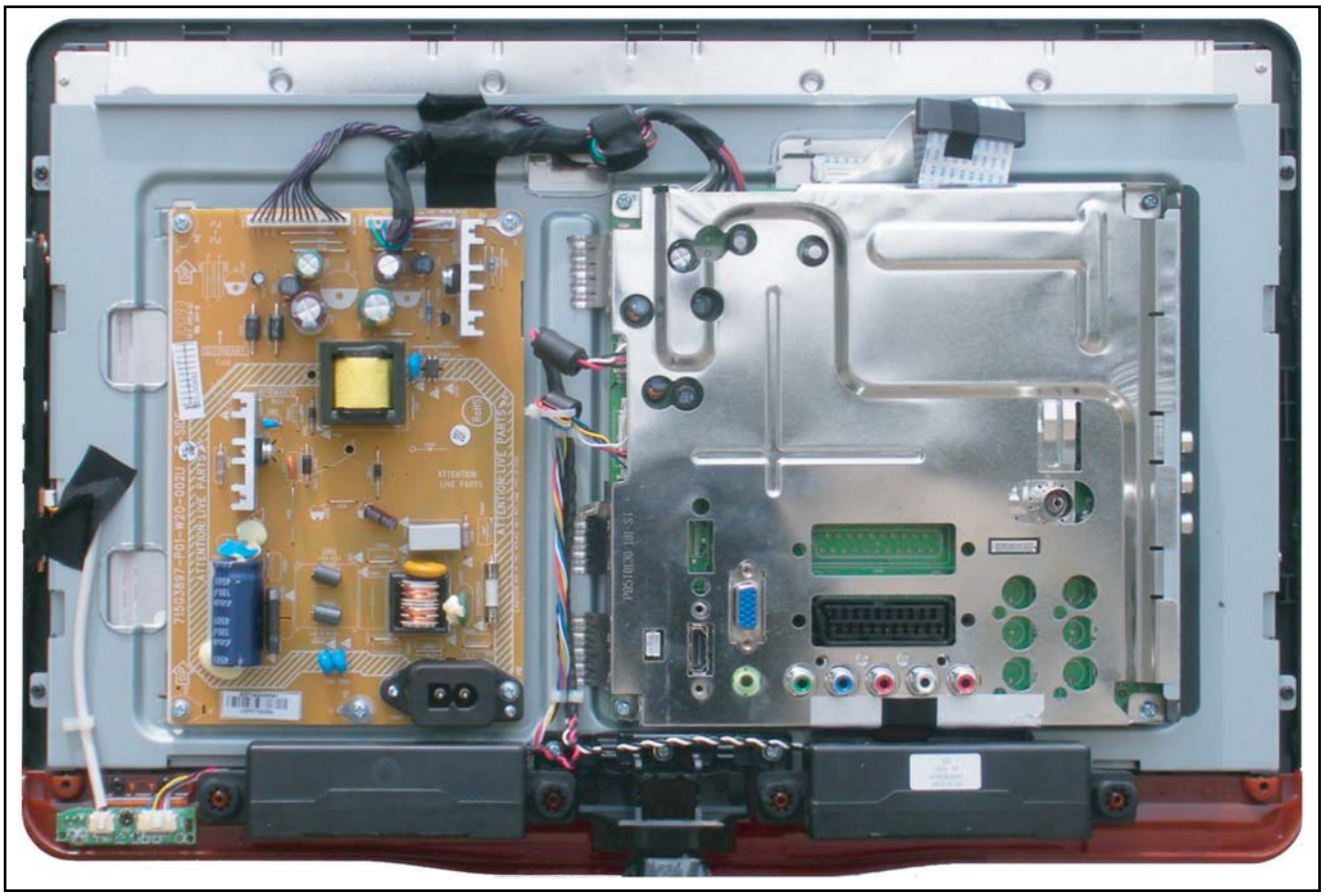

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Figure 4-1 Cable dressing (19")

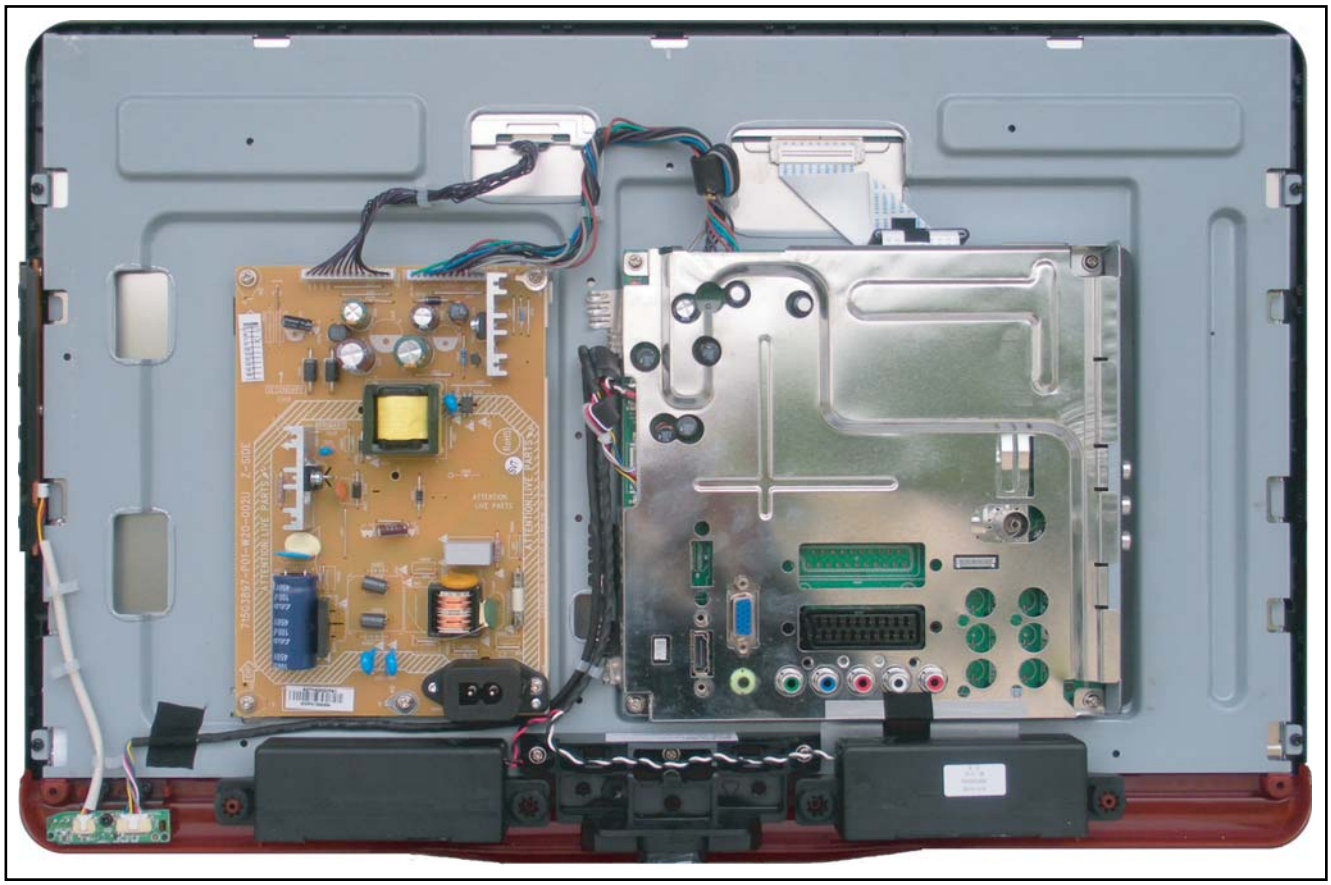

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Figure 4-2 Cable dressing (22")

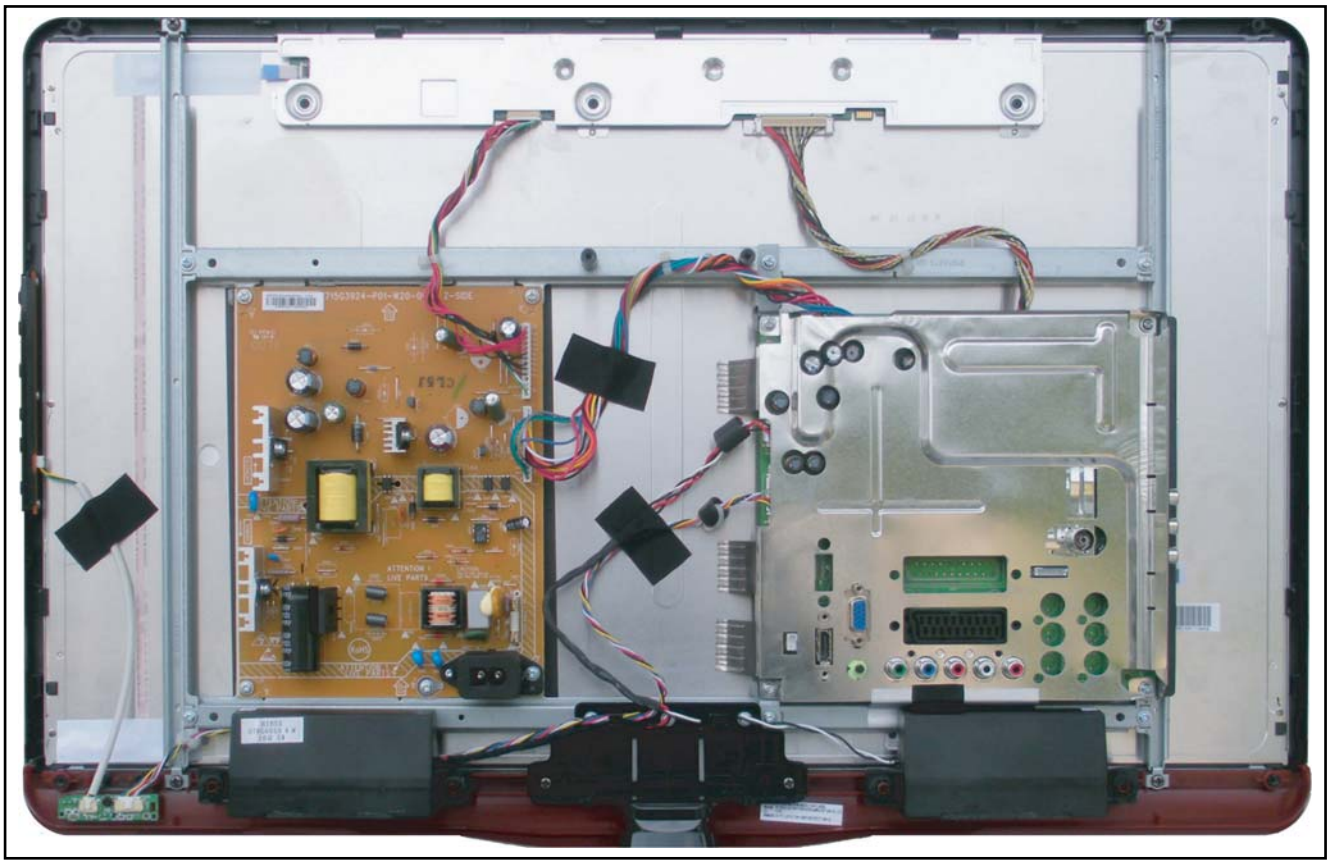

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Figure 4-3 Cable dressing (26")

4.2 Service Positions

For easy servicing of a TV set, the set should be put face down on a soft flat surface, foam buffers or other specific workshop tools. Ensure that a stable situation is created to perform measurements and alignments. When using foam bars take care that these always support the cabinet and **never** only the display. **Caution:** Failure to follow these guidelines can seriously damage the display!
Ensure that ESD safe measures are taken.

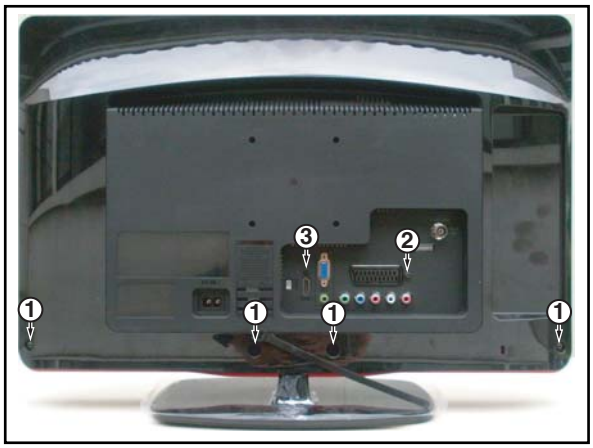
4.3 Assembly/Panel Removal

Instructions below apply to the 22PFL3405/xx, but will be similar for other models.

4.3.1 Rear Cover

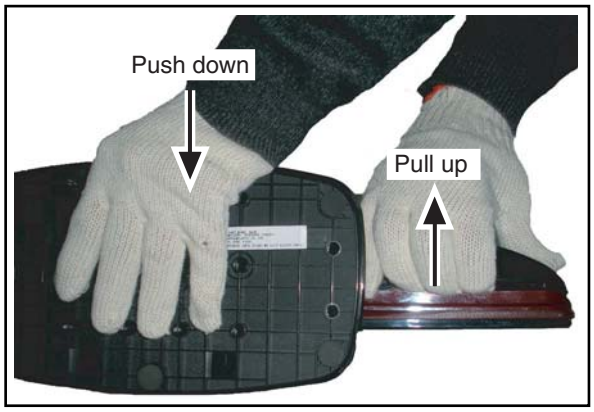
Warning: Disconnect the mains power cord before removing the rear cover.

1. Remove fixation screws [1], [2] and [3] that secure the rear cover. See Figure 4-4. Don't remove the stand.
2. The rear cover is secured with locking clips at the side and top of the cabinet. Pull the rear cover from the TV. This may require more than average force. Push down the stand by one hand and pull up the bottom right corner of the rear cover by the other hand to release the clips at the right side of the rear cover, see Figure 4-5 and Figure 4-6, then use the same method to release the clips at the left side of the rear cover. Lift bottom side of the rear cover to release clips at the top side of rear cover, see Figure 4-7.
3. 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.



18860_104_100428.eps
100428

Figure 4-4 Rear cover removal [1/4]

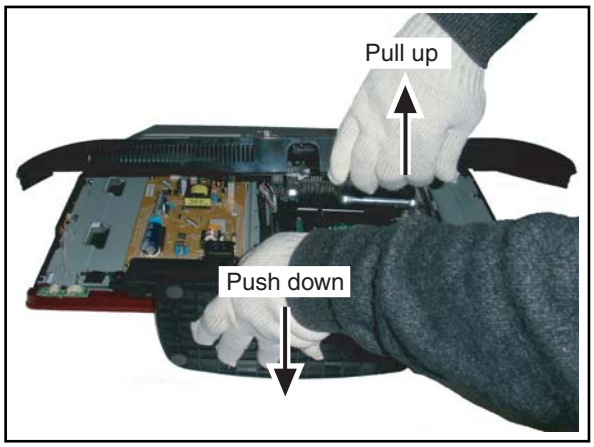


18860_105_100428.eps
100428

Figure 4-5 Rear cover removal [2/4]

18860_106_100428.eps
100428

Figure 4-6 Rear cover removal [3/4]



18860_107_100428.eps
100428

Figure 4-7 Rear cover removal [4/4]

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. Release the tape from near the bottom side of the set from the SSB shielding.
2. Remove the fixation screw near the L-R audio side inputs.
3. Remove all other fixation screws from the SSB.
4. Release the clips from both the Flat Foil connectors.
   Caution: be careful, as these are very fragile connectors! Take the flat foils out of their connectors.
5. Release the other cables from their clamps.
6. Unplug all other connectors.
7. Take the SSB out.
   Caution: be careful not to damage the thermal pad at the bottom side of the SSB.

4.3.3 Power Supply Unit (PSU)

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 PSU.

1. Release the Power board cables from their clamps.
2. Unplug power connectors from the SSB and LCD panel.
3. Remove all fixation screws from the PSU.
4. The PSU can now be taken out of the set.

When defective, replace the whole unit.

4.3.4 Speakers

1. Release the speaker cable from its clamps.
2. Unplug the speaker connector from the SSB.
3. Take the speakers out.

When defective, replace the whole unit.

4.3.5 Stand removal

Caution: it is mandatory to remount all different screws at their original position during re-assembly. Be sure to put the set in the Service Position.

1. Remove the speaker cables as described earlier.
2. Remove the fixation screws.
3. Take the stand out.

4.3.6 IR/LED Board

1. Unplug the connectors from the IR/LED board.
2. Remove the fixation screw.
3. Release the clips that hold the board and take it out from the bezel.

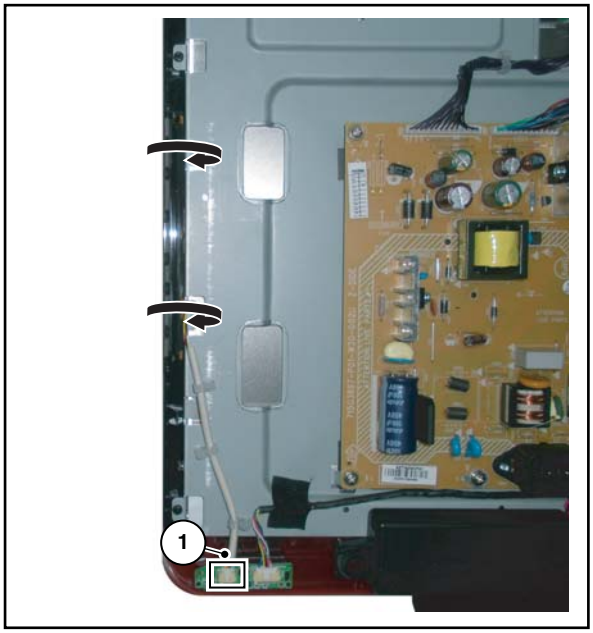
When defective, replace the whole unit.

4.3.7 Keyboard Control Panel

Refer to Figure 4-8.

1. Unplug the connector [1] on the IR/LED board that leads to the Local Control board, as it is not unplug-able at the Local Control board itself (soldered connector).
2. Release the cable from its clamps/tape.
3. Put your thumbs against the front bezel [1] while pulling the Local Control board in the direction of the arrows

When defective, replace the whole unit.



18860_108_100429.eps
100601

Figure 4-8 Keyboard Control Panel

4.3.8 LCD Panel

1. Remove the SSB as described earlier.
2. Remove the PSU as described earlier.
3. Remove the speaker as described earlier.
4. Remove the stand as described earlier.
5. Release the control board cable from its clamps and unplug the control board cable from the IR/LED board.
6. Remove the fixation screws that secure the LCD panel with the bezel.
7. Lift the LCD Panel from the bezel.
8. Remove the fixation screws that secure the panel with the Metal frame.

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, Figure 4-2 and Figure 4-3.
- 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

The Customer Service Mode (CSM) is used for communication between the call centre and the customer, while the Service Alignment Mode (SAM) 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)

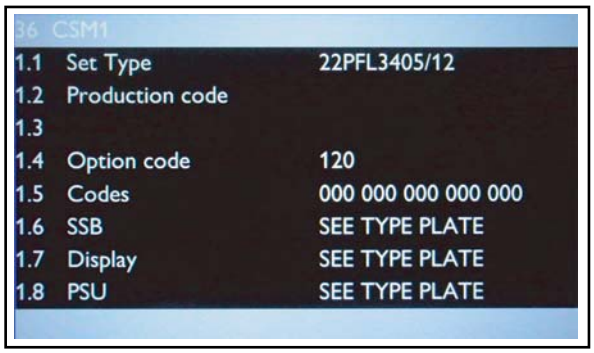
Purpose

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!



18860_200_100429.eps
100429

Figure 5-1 CSM Menu [1/3]

18860_201_100429.eps
100429

Figure 5-2 CSM Menu [2/3]

18860_202_100429.eps
100429

Figure 5-3 CSM Menu [3/3]

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.

General

- **1.1 Set Type** NVM read/write (max. 16 characters).
- **1.2 Production code** NVM read/write (max. 16 characters).
- **1.3 Reserved** Not applicable.
- **1.4 Option Code** Store in NVM (set feature grouping as option) panel code.
- **1.5 Codes** Error code Layer 2. Store in NVM. 10 error buffers: 000 = No problem, 011 = I^2C bus error, 012 = tuner error, 013 = panel.
- **1.6 SSB** 12NC NVM read/write (12 characters).
- **1.7 Display** 12NC NVM read/write (12 characters).
- **1.8 PSU** 12NC NVM read/write (12 characters).
- **2.1 Current Main SW** Detects and displays software version.
- **2.2 Reserved** Not applicable.
- **2.3 Reserved** Not applicable.
- **2.4 NVM-version** Detects and displays software version.
- **3.1 Signal Quality/Present** analog/digital signal strength.
- **3.2 TV lock** Detects and displays.
- **3.3 HDCP key** Detects and displays.
- **3.4 Reserved** Not applicable.
- **3.5 Reserved** Not applicable.
- **3.6 HDMI audio format input** Per supported format e.g. Dolby TrueHD, DTS-HD Master Audio, MPCM.
- **3.7 HDMI video format input** Per Supported format. e.g. 576i 50 Hz, 576p 50 Hz, 720p 50 Hz, 1080i 50 Hz, 1080p 50 Hz

How to Exit CSM
Press “MENU” on the RC-transmitter.

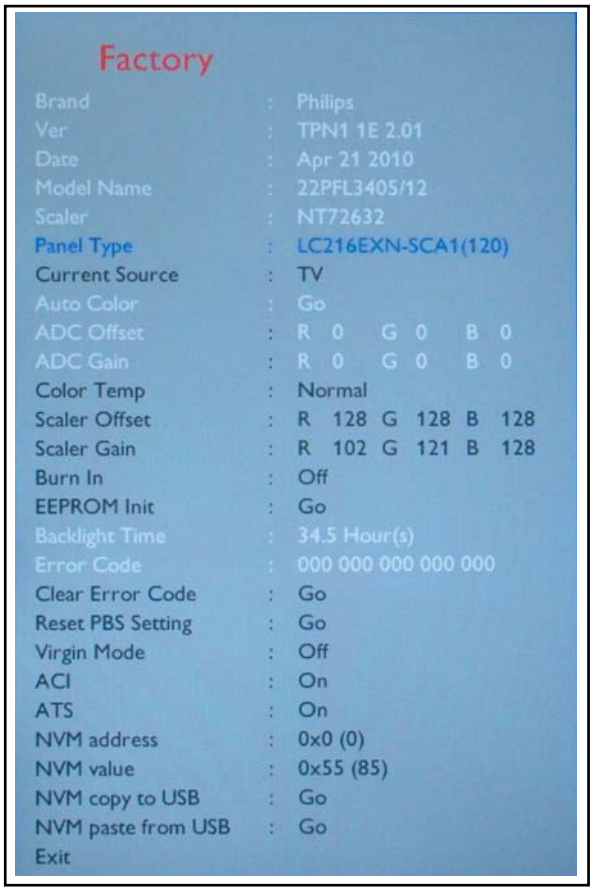
5.1.2 Service Alignment Mode (SAM)

How to enter
To enter the factory mode, use the following method:
- Press the following key sequence on the remote control transmitter: “0 6 2 5 9 6 INFO”.

After entering the factory mode, the following screen is visible on the top and right of the panel.

How to Navigate
With the up/down cursor keys can be used to navigate through the menu, while with the Left/Right cursor the values can be changed.

How to EXIT
Choose “EXIT”, and press the “OK” button.



18860_203_100429.eps
100429

Figure 5-4 Example of SAM

Table 5-1 Contents of SAM

Action Items	Range	Default Value 19"	22"	26"	Description
Brand		PHILIPS	PHILIPS	PHILIPS	brand customer
Ver		TPN1 1E 2.01	TPN1 1E 2.01	TPN1 1E 2.01	software version
Date		Apr 21 2010	Apr 21 2010	Apr 21 2010	software release date
Model name		19PFL3405/12	22PFL3405/12	26PFL3405/12	model name
Scaler		NT72632	NT72632	NT72632	scaler IC type
Panel type		LC185EXN-SCA1(119)	LC216EXN-SCA1(120)	LC260EXN-SCB1(121)	panel type and display code
Current source		TV	TV	TV	select source
Auto color		GO	GO	GO	PC: any pattern has black and white YPbPr: SMPTEbar (colour bar), any timing.
ADC offset	0 - 255	R 0 G 0 B 0	R 0 G 0 B 0	R 0 G 0 B 0	PC: any pattern has black and white YPbPr: SMPTEbar (colour bar), any timing.
ADC gain	0 - 255	R 0 G 0 B 0	R 0 G 0 B 0	R 0 G 0 B 0	PC: any pattern has black and white YPbPr: SMPTEbar (colour bar), any timing.
Color temp		Normal	Normal	Normal	colour temperature, normal, cool, warm
Scaler offset	0 - 255	R 128 G 128 B 128	R 128 G 128 B 128	R 128 G 128 B 128	Back-End Scaler R G B Gain NVM has YPbPr NORMAL, WARM, COOL, CUSTOMER four sets. Other source use offset with hardcoding
Scaler gain	0 - 255	R 113 G 126 B128	R 102 G 121 B128	R 127 G 127 B123	Back-End Scaler R G B Gain NVM has YPbPr NORMAL, WARM, COOL, CUSTOMER four sets. Other source use offset with hardcoding
Burn in		Off	Off	Off	Puts the set in Burn In mode, for factory use only
EEPROM init		GO	GO	GO	resets the EEPROM to initial mode
Backlight time		x hours	x hours	x hours	the set backlight running time
Error code		000 000 000 000 000	000 000 000 000 000	000 000 000 000 000	error code layer 2. Store in NVM.
Clear error code		GO	GO	GO	clears error code Layer 2. in NVM.
Reset PBS setting		GO	GO	GO	resets the PBS setting
Virgin mode		Off	Off	Off	resets the set to manufacturer's mode
ACI		On	On	On	ACI on or off
ATS		On	On	On	ATS on or off
NVM address		0x0 (0)	0x0 (0)	0x0 (0)	NVM address
NVM value		0x49 (73)	0x55 (85)	0x35 (53)	NVM value NVM
NVM copy to USB		GO	GO	GO	use this to copy the NVM data from the TV to the USB
NVM paste from USB		GO	GO	GO	use this to restore the NVM data from the USB to the TV
Exit	Press OK				Exit from factory mode

5.2 Service Tools

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 I²C 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 upgrade possibilities.

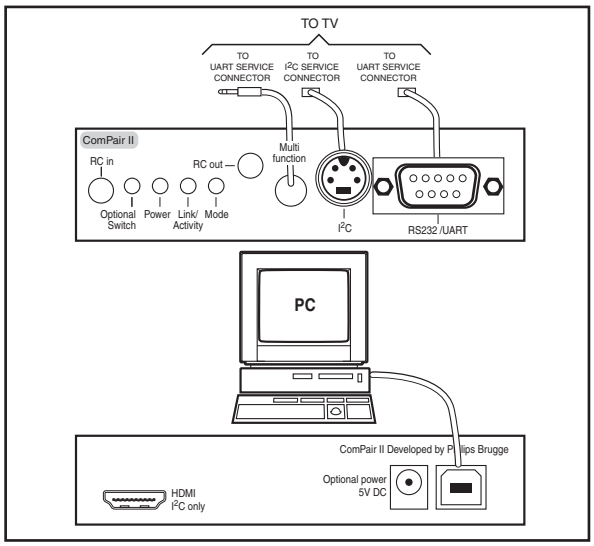
Specifications

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.



10000_036_090121.eps
091118

Figure 5-5 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 damaged!

How to Order

ComPair II order codes:

- ComPair II interface: 3122 785 90630.
- Programming software can be downloaded from the Philips Service portal.
- ComPair UART interface cable for TPN1.1x xx. 3122 785 90630.

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

5.3 Software Upgrading

5.3.1 Introduction

Philips continuously tries to improve its products, and it's recommended to update the TV software when updates are available. Software update files can be downloaded from the Philips website: http://www.philips.com/support.

Preparing a portable memory for software upgrade

The following is required:

1. A personal computer connected to the Internet.
2. An archive utility that supports the ZIP-format (e.g. WinZip for Windows or StuffIt for Mac OS).
3. A USB flash drive (preferably empty).

Note: Only FAT/DOS-formatted flash drives are supported.

5.3.2 Check the current TV software version

Before starting the software upgrade procedure, it is advised to check that the current TV software version:

1. Press the "Menu" button on the remote control.
2. Select "Setup" and press "OK", then select [Software update] > [Current software].

If the current software version of your TV is the same as the latest update file found on http://www.philips.com/support, it is not necessary to update the TV software.

5.3.3 Download the latest software

1. Point the web browser to http://www.philips.com/support.
2. Find information and software related to the TV.
3. Select the latest software update file and download it to your PC.
4. Insert a USB flash drive into one of the USB ports of the PC.
5. Decompress the downloaded ZIP file and copy the "autorun.upg" to the root directory of the USB flash drive.

5.3.4 Update the TV software

1. Turn on the TV.
2. Unplug the AC power cord from the TV.
3. Insert the USB flash drive that contains the software update file.
4. Plug the AC power cord to the TV.
5. The TV will upgrade automatically. The red light at the bottom right side of the TV will flash about 20 seconds when the TV is upgrading. Please wait, when the red light does not flash, it shows the software is upgraded.
6. Unplug the AC power cord from the TV, then unplug the USB flash driver from the TV.
7. Plug the AC power cord to the TV.
8. The red light will flash about 5 seconds, it shows the TV has upgraded to the new version software.

Note:

- Do not remove the USB flash driver during the software update.
- If a power failure occurs during the update, do not remove the USB flash drive from the TV. The TV will continue the software update as soon as power comes back.
- It's not recommended to downgrade to an older version.
- Once the upgrade is finished, use the PC to remove the TV software from the USB portable memory.

5.4 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.

Basically there are three kinds of error codes:

Error Code	Event
000	No problem
011	I^2C bus error
012	Tuner error
013	panel

5.5 Fault Finding and Repair Tips

5.5.1 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!

5.5.2 Tuner

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

6. Alignments

Index of this chapter:

Note: The Service Alignment Mode (SAM) are described in chapter 5. Service Modes, Error Codes, and Fault Finding. 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: 195 - 264 V_{AC}, 50/60 Hz ± 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.
  Caution: It is not allowed to use heatsinks as ground.
- Test probe: R_i > 10 MΩ, C_i < 20 pF.
- Use an isolated trimmer/screwdriver to perform alignments.

6.2 Hardware Alignments

Not applicable.

6.3 Auto Colour for ADC Calibration

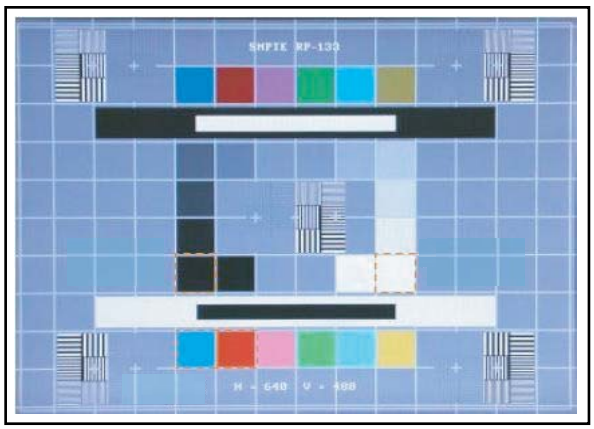
6.3.1 For CVI (Y/Pb/Pr) source

Equipment Requirements:
Use QuantumData 802BT or equivalent equipments.

Input requirements:
Input Signal Type: YPbPr signal

- Set Timing mode at 720P 50 mode.

Pattern:
Apply SMPTE133 Pattern, see Figure 6-1.



18860_204_100507.eps
100806

Figure 6-1 SMPTE133 pattern

Process

1. Press the following key sequence on the remote control transmitter: “0 6 2 5 9 6 INFO”, see Figure 6-2.
2. Press B, y to move cursor to “Auto Color”.
3. Press Go to do “ADC Gain” and “ADC Offset”.
4. “Exit”.

```
Current Source :  EXT2 (TV,EXT1,EXT2,VGA,…)
Auto Color     : Go
ADC Offset     : R xxx    G xxx    B xxx
ADC  Gain      : R xxx    G xxx    B xxx
Color Temp     : Cool
Scaler Offset  : R 128    G 128    B 128
Scaler Gain    : R xxx    G xxx    B xxx
Burn in        : Off
EEPROM Init    : Go
…
Exit
Note: xxx is digit number
```

18860_205_100507.eps
100601

Figure 6-2 OSD in factory mode

6.3.2 For VGA (R/G/B) source

Requirement:

1. Use Chroma 2226 or equivalent equipments.
2. Set Timing mode at 1360 × 768 at 60 Hz.
3. Apply SMPTE-133 pattern, see Figure 6-1.

Process

1. Enter factory mode, then refer to Figure 6-2.

6.4 White Balance Adjustment

6.4.1 General set-up

Equipment Requirements:
QuantumData 802BT and CS-200.

Input requirements:
Flat 80 (Full White Pattern, Gray Level = 80%).

Input Injection Point:
YPbPr input (EXT 2).

Note: The test pattern must always keep same, as well as pattern generation and timing, to avoid “Dynamic Contrast” and “Dynamic Backlight” generating unknown conditions. These parameters are located in the Digital Crystal Clear function of user menu.

6.4.2 Alignment Request in the centre of the screen

Pre-check panel uniformity is OK and Pre-check “White Original Surface Luminance”, Scaler R/G/B gain = 128.

- 19" panel: > 240 cd/m^2.
- 22" panel: > 240 cd/m^2.
- 26" panel: > 320 cd/m^2.

Adjusting “Scaler Gain” in factory mode. The R/G/B gain value should be below 128 to avoid saturation at the 11-step grey pattern.

This group setting of color temp. will be applied automatically in TV / VGA / HDMI / AV source.

Table 6-1 The 1931 CIE chromaticity (x, y) by CS-200

Picture Mode	x	y
Normal (9000K)	0.276 ± 0.010	0.282 ± 0.010
Cool (11000K)	0.287 ± 0.010	0.296 ± 0.010
Warm (6500K)	0.313 ± 0.010	0.329 ± 0.010

Table 6-2 The 1931 CIE chromaticity (x, y) by CA-210

Picture Mode	x	y
Normal (9000K)	0.2792 ± 0.010	0.3012 ± 0.010
Cool (11000K)	0.2909 ± 0.010	0.3150 ± 0.010
Warm (6500K)	0.3148 ± 0.010	0.3522 ± 0.010

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.

- Select a COLOUR TEMPERATURE (e.g. COOL, NORMAL, or WARM).
- Set the RED, GREEN and BLUE default values according to the values in Table 6-3
- When finished press OK on the RC, then press STORE (in the SAM root menu) to store the aligned values to the NVM.

Table 6-4 Display code overview

CTN_ALT BOM#	Panel Type	Panel ID
19PFL3405/12_1	LG LC185EXN-SCA1	119
19PFL3405/12_2		
19PFL3405/60_1	LG LC185EXN-SCA1	119
19PFL3405/60_2		
22PFL3405/12_1	LG LC216EXN-SCA1	120
22PFL3405/12_2		
22PFL3405/60_1	LG LC216EXN-SCA1	120
22PFL3405/60_2		
26PFL3405/12_1	LG LC260EXN-SCB1	121
26PFL3405/12_2		
26PFL3405/60_1	LG LC260EXN-SCB1	121
26PFL3405/60_2		

6.6 Serial Number Definition

Table 6-5 BOM Code

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

- Restore the initial picture settings after the alignments.

Table 6-3 White tone default settings

Picture Mode	Size	Colour temperature		
		Red	Green	Blue
Normal	19"	113	126	128
	22"	102	121	128
	26"	127	127	123
Cool	19"	105	120	128
	22"	96	116	128
	26"	115	125	127
Warm	19"	116	128	116
	22"	112	128	120
	26"	127	124	102

6.5 Option Settings

6.5.1 Reset Options

In SAM, after reset “Reset option code”, restart the set immediately.

7. Circuit Descriptions

Index of this chapter:

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 (see chapter 9. Block Diagrams) and circuit diagrams (see chapter 10. Circuit Diagrams and PWB Layouts).Where necessary, you will find a separate drawing for clarification.

7.1 Introduction

The TPN1.1E LA chassis is using the NT72632 for main processing.

7.1.1 TPN1.1E Architecture Overview

An overview of the TPN1.1E LA architecture can be found in Figure 7-1.

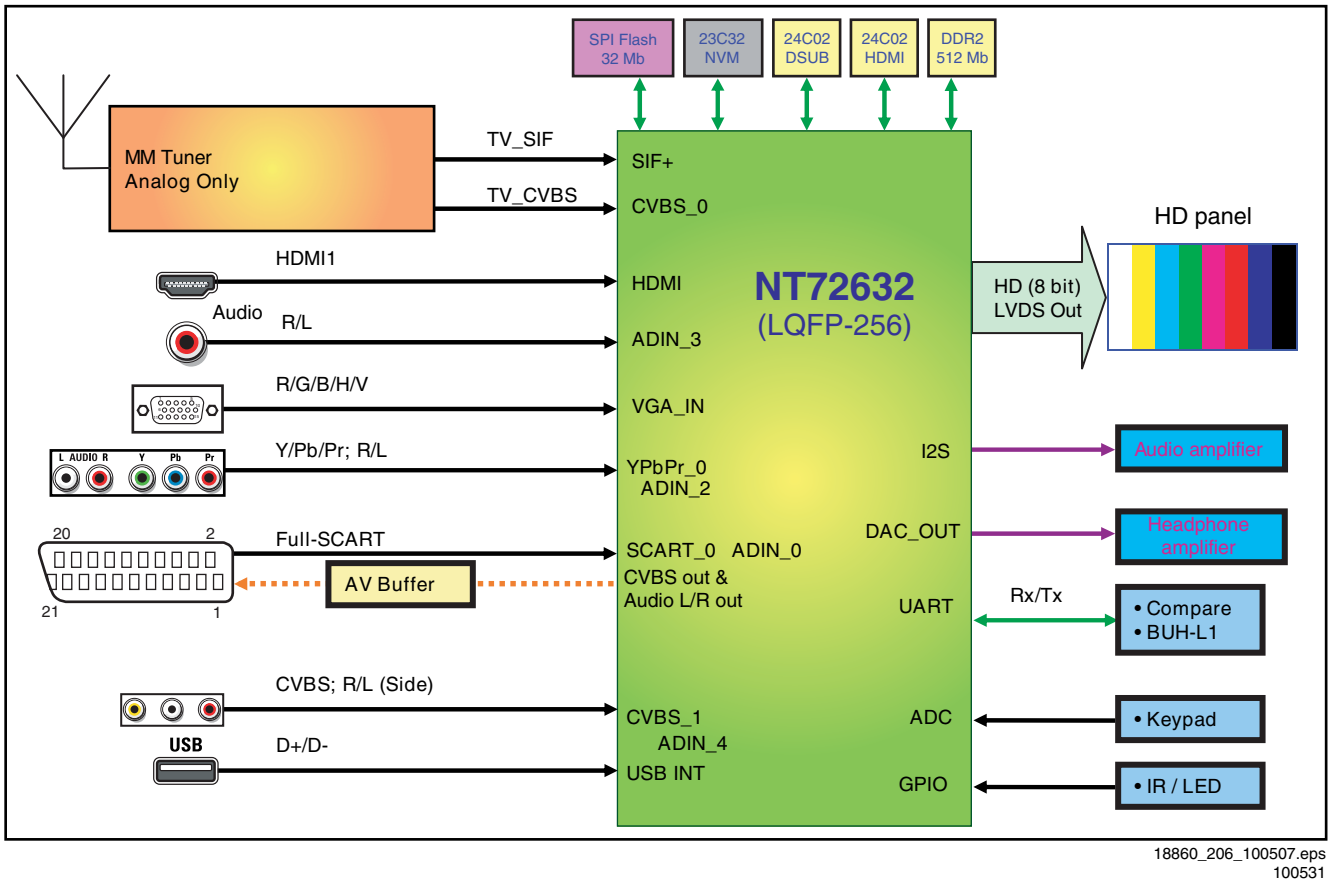
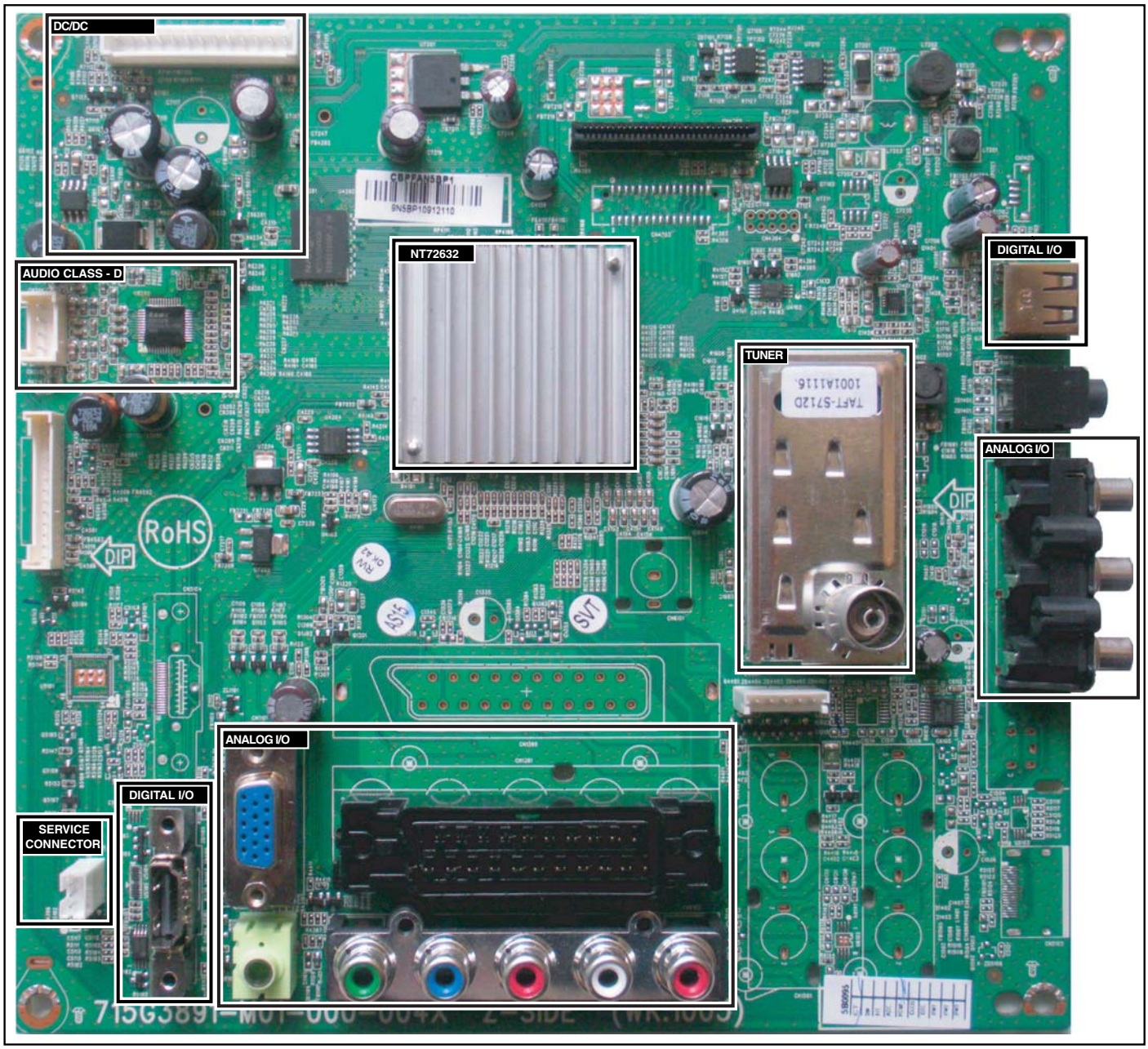


Figure 7-1 Architecture of TPN1.1E LA

7.1.2 SSB Cell Layout

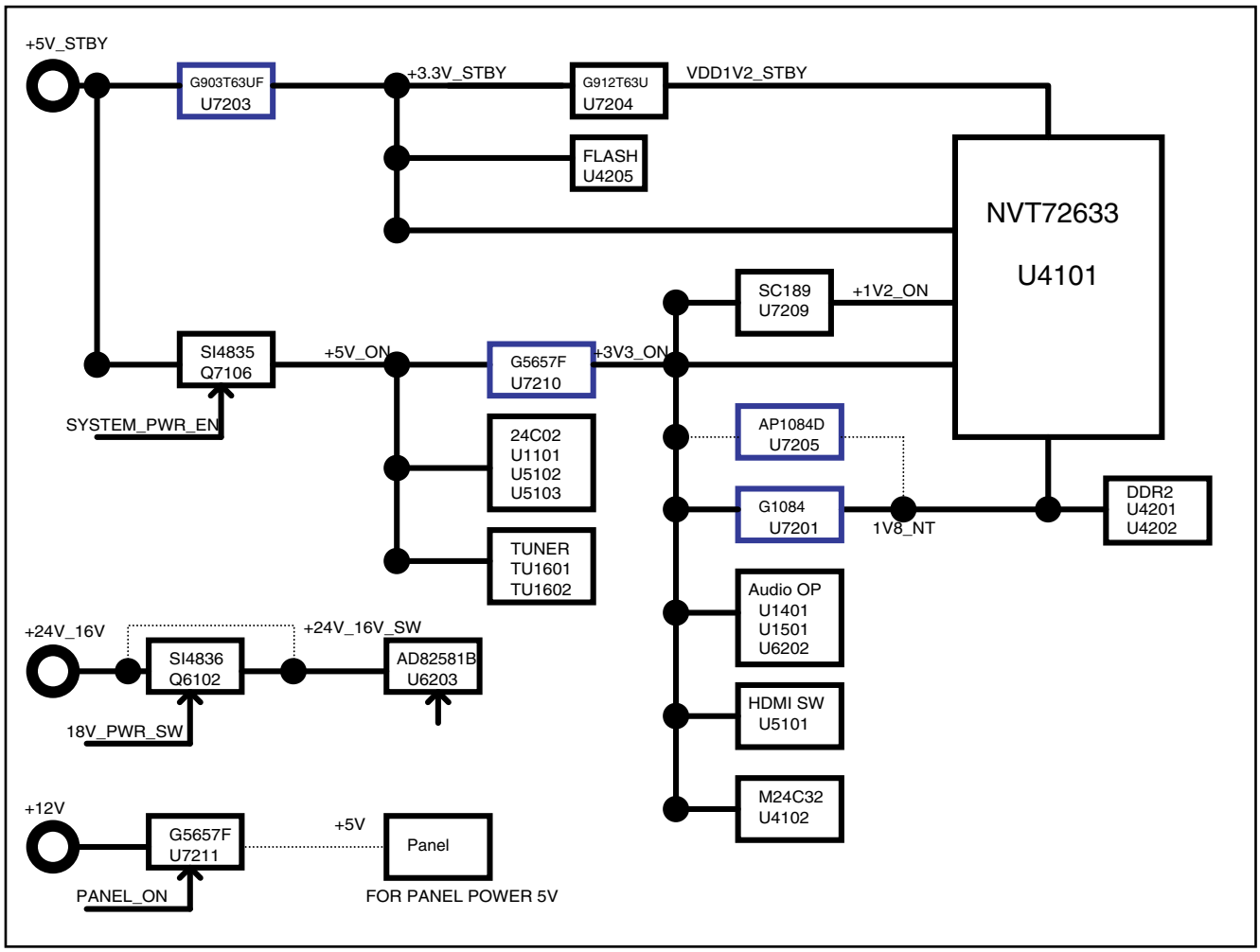


18860_207_100507.eps
100531

Figure 7-2 SSB layout cells (top view)

7.2 Power Architecture

Refer to figure Figure 7-3 for the power architecture of this platform (DC/DC power conversion).



18860_208_100507.eps
100601

Figure 7-3 Power Architecture

7.2.1 Power Supply Unit

All power supplies are a black box for Service. When defective, a new board must be ordered and the defective one must be returned, unless the main fuse of the board is broken. Always replace a defective fuse with one with the correct specifications! This part is available in the regular market. Consult the Service website for the order codes of the boards.

The output voltages to the chassis are:
- +5-STANDBY (stand-by-mode only)
- +12V (panel-on)
- +24V (audio power)

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 Diagram B10 SSB: Scaler NT7263X, NT72632FG/A LQFP-256 (IC U4101)

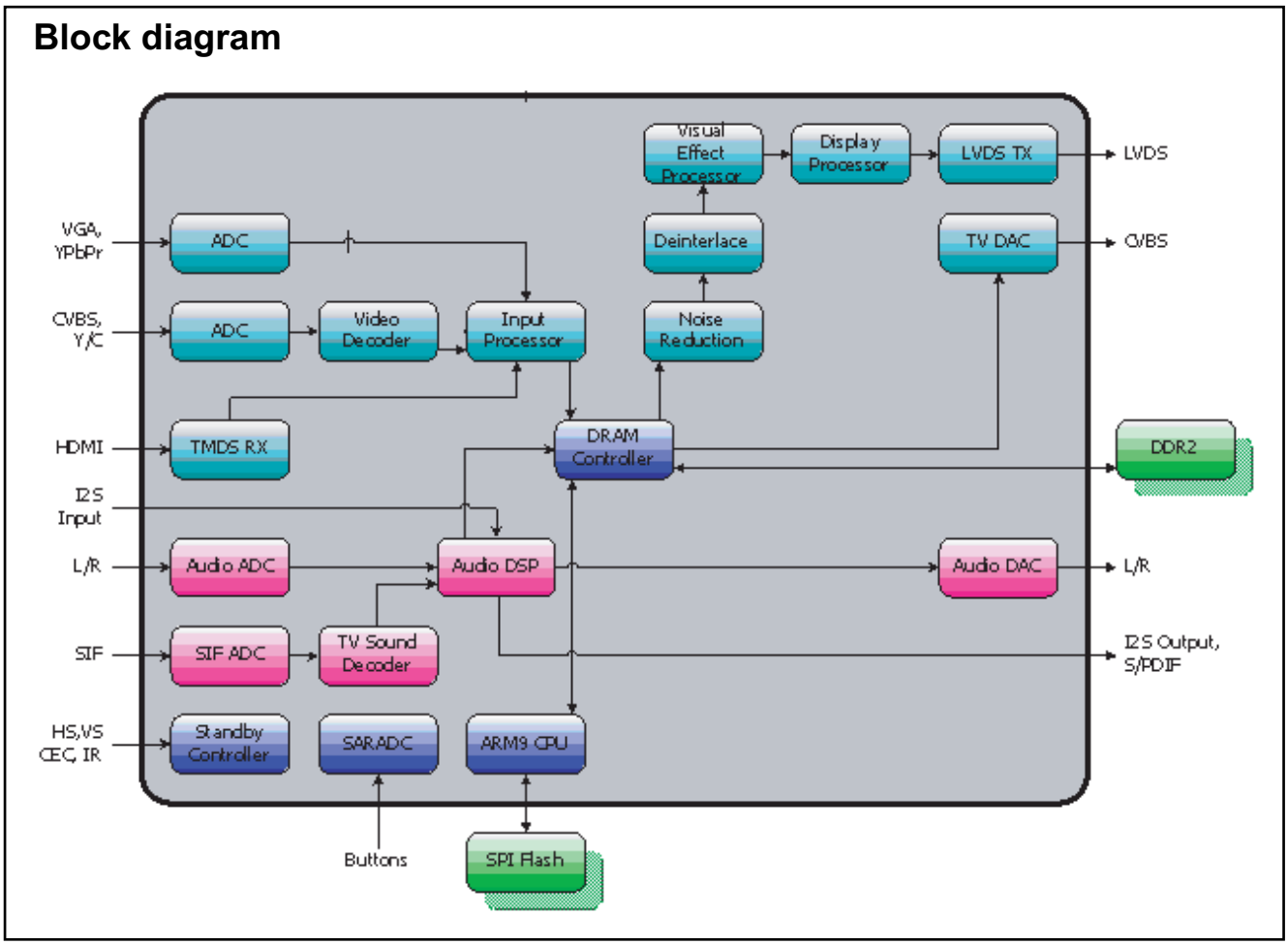


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Figure 8-1 Internal block diagram

Pinning information

No.	Name	No.	Name	No.	Name	No.	Name
1	MDQ1	65	SAR_ADC1	129	AUD_VDD	193	VDD_33
2	MDQ6	66	SAR_ADC2	130	AUD_GND	194	VDD_12
3	MDM0	67	SAR_ADC3	131	DAOUT_L0	195	I2SI_BCLK/ AGPIO24
4	MDQ12	68	STBC_RST	132	DAOUT_R0	196	I2SI_ADCDAT(I)/ AGPIO54
5	VDD_DDR	69	PW_EN/ AGPIO56	133	DAOUT_L1	197	I2SI_WS(I)/ AGPIO55
6	MDQ14	70	VGA_VS/ AGPIO60	134	DAOUT_R1	198	I2SO_DAT1/ AGPIO52
7	MDQ9	71	VGA_HS/ AGPIO59	135	DAOUT_L2	199	I2SO_DAT2/ AGPIO53
8	MDQ11	72	XTAL_GND	136	DAOUT_R2	200	TEST_EN
9	MDQS0	73	XTAL_IN	137	SIF_VDD	201	TEST/ HWRESET#
10	MDQS0#	74	XTAL_OUT	138	SIF_IN-	202	MDQ20
11	MDQS1	75	XTAL_VDD	139	SIF_IN+	203	MDQ19
12	MDQS1#	76	SOGIN2	140	SIF_GND	204	VDD_DDR
13	VDD_DDR	77	SOGIN1	141	VDD_33	205	MDQ17
14	MDQ15	78	SOGIN0	142	VDD_12	206	MDQ22
15	MDQ8	79	ADC3VMID	143	S_SCK/ GPIO03(IO)	207	MDM2
16	MDQ10	80	VGA_B	144	S_SDA/AGPIO04	208	MDQ28
17	MDQ13	81	ADC3M	145	PWM0(O)	209	MDQ30
18	MDM1	82	VGA_G	146	PWM1(O)	210	MDQ25
19	MDQ7	83	ADC2M	147	PWM2(O)	211	MDQ27
20	MDQ0	84	VGA_R	148	GPIO05(IO)	212	MDQS2
21	VDD_DDR	85	ADC1M	149	GPIO04(IO)	213	MDQS2#
22	MDQ2	86	ADC1VMID	150	GPIO09(IO)	214	VDD_DDR
23	MDQ5	87	AVDD_TVADC	151	GPIO08	215	MDQS3
24	GPIO06(IO)	88	AGND_TVADC	152	GPIO07	216	MDQS3#
25	HDCP0_KEY_SCK/ AGPIO00	89	YPbPr0_Pb	153	SPARC_RX/ AGPIO05	217	MDQ31
26	HDCP0_KEY_SDA/ AGPIO01	90	YPbPr0_Y	154	SPARC_TX/ AGPIO12	218	MDQ24
27	VDD_33	91	YPbPr0_Pr	155	VDD_33	219	MDQ26
28	VDD_12	92	SCART0_FB	156	VDD_12	220	VDD_DDR
29	XX	93	YPbPr1_Pb/ SCART0_B	157	UART0 RX(I)/ AGPIO48	221	MDQ29
30	VDDHSRT	94	YPbPr1_Y/ SCART0_G	158	UART0 TX(O)/ AGPIO47	222	MDM3
31	REF	95	YPbPr1_Pr/ SCART0_R	159	ICE TDI/ AGPIO46	223	MDQ23
32	XX	96	SCART0_Y	160	ICE TDO(GOICE)/ AGPIO43	224	MDQ16
33	XX	97	GND_TVADC	161	ICE MS/ AGPIO42	225	MDQ18
34	VDDA	98	VDD_TVADC	162	ICE CLK/ AGPIO44	226	MDQ21
35	XX	99	SCART1_FB	163	ICE RST/ AGPIO45	227	DDR_VDD12
36	RES_IMP	100	SCART1_B	164	M SCK/ AGPIO02	228	DDR_GND
37	VDD_HDMI	101	SCART1_G	165	M SDA/ AGPIO03	229	MCAS#
38	RXACLK-	102	SCART1_R	166	I2SO MCLK/ AGPIO06	230	MA0
39	RXACLK+	103	SCART1_Y	167	I2SO BCLK/ AGPIO11	231	Padbypass0

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Figure 8-2 Pin configuration (1)

Pinning information

40	RXA0-	104	ADC0M	168	I2SO WS/ AGPIO10	232	padbypass1
41	RXA0+	105	S_C	169	I2SO DAT0/AGPIO09	233	MA4
42	RXA1-	106	S_Y	170	LVDS_GND	234	MA6
43	RXA1+	107	CVBS1	171	LVDS_B3+	235	MA8
44	RXA2-	108	CVBS0	172	LVDS_B3-	236	VDD_DDR
45	RXA2+	109	FSADJ	173	LVDS_BCLK+	237	MA11
46	GND_HDMI	110	COMP	174	LVDS_BCLK-	238	MA2
47	HDMI_DDC_SCK/ AGPIO16	111	VDD_TVDAC	175	LVDS_B2+	239	MRAS#
48	HDMI_DDC_SDA/ AGPIO13	112	TV_OUT	176	LVDS_B2-	240	MA9
49	PWR5V/ AGPIO51	113	GND_TVDAC	177	LVDS_B1+	241	MA5
50	HDMI_CEC(IO)/ AGPIO52	114	VDD_12	178	LVDS_B1-	242	MA12
51	STBC_VDD_12	115	VDD_33	179	LVDS_B0+	243	DDR_VREF
52	STBC_VDD_33	116	S/PDIFO(O)/ GPIO10	180	LVDS_B0-	244	MCLK
53	SPI_WS(IO)/ AGPIO53	117	ADIN_L0	181	LVDS_VCC	245	MCLK#
54	SPI_HOLD(IO)/ AGPIO54	118	ADIN_R0	182	LVDS_A3+	246	MA7
55	SPI_CS	119	ADIN_L1	183	LVDS_A3-	247	MA3
56	SPI_CLK	120	ADIN_R1	184	LVDS_ACLK+	248	VDD_DDR
57	SPI_DI	121	ADIN_L2	185	LVDS_ACLK-	249	MA1
58	SPI_DO	122	ADIN_R2	186	LVDS_A2+	250	MA10
59	MCU_GPIO1	123	ADIN_L3	187	LVDS_A2-	251	MBA0
60	MCU_GPIO0	124	ADIN_R3	188	LVDS_A1+	252	MBA1
61	STBC_IRR(I)/ AGPIO55	125	ADIN_L4	189	LVDS_A1-	253	MWE#
62	RTC_UART_RX(I)/ AGPIO58	126	ADIN_R4	190	LVDS_A0+	254	VDD_DLL
63	RTC_UART_TX(O)/ AGPIO57	127	REFIN	191	LVDS_A0-	255	MDQ4
64	SAR_ADC0	128	VMID	192	LVDS_GND	256	MDQ3

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Figure 8-3 Pin configuration (2)

8.2 Diagram B19 SSB: DC-DC Power, G5657F12U (IC U7210)

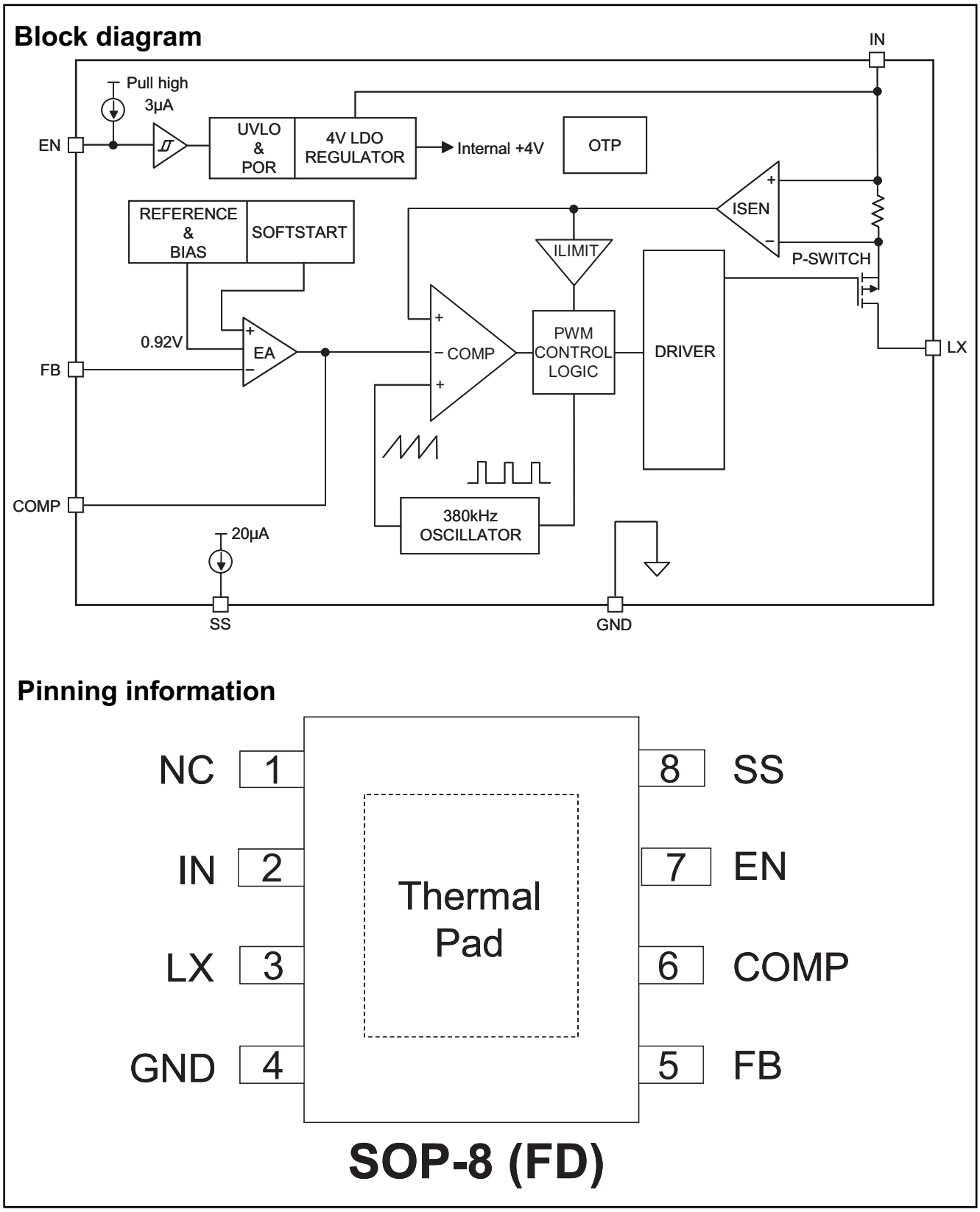

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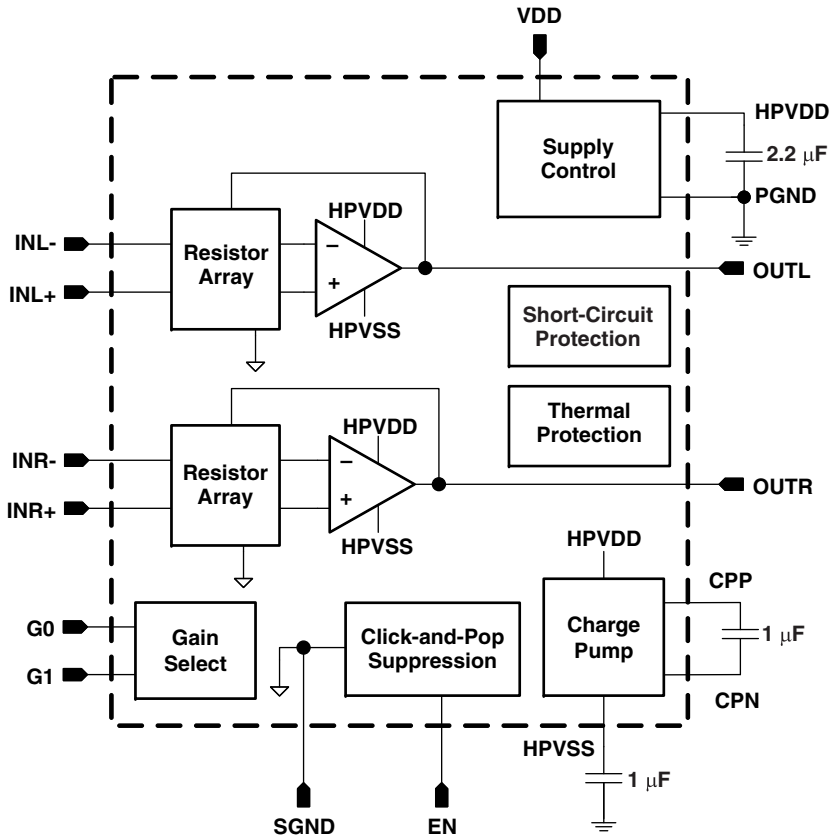
Figure 8-4 Internal block diagram and pin configuration

8.3 Diagram B05 SSB: Side input, TPA6132A2RTER 25mW QFN-16 (IC U1401)

Block diagram



Pinning information

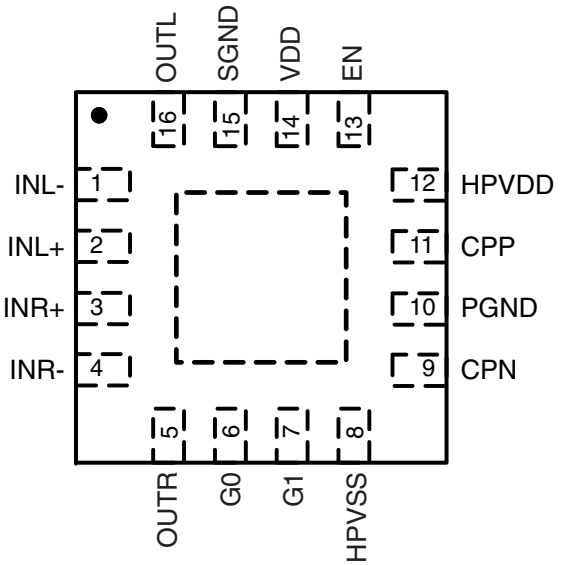


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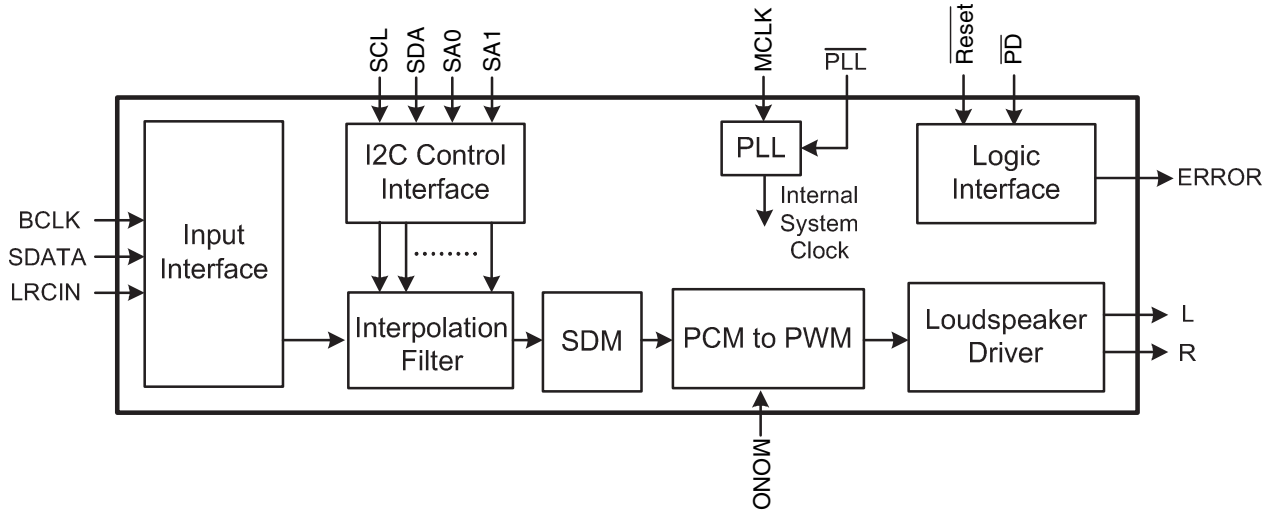
Figure 8-5 Internal block diagram and pin configuration

8.4 Diagram B17 SSB: Audio amplifier, AD82581B-TKG TQFN-48 12W (IC U6202)

Block diagram



Pinning information

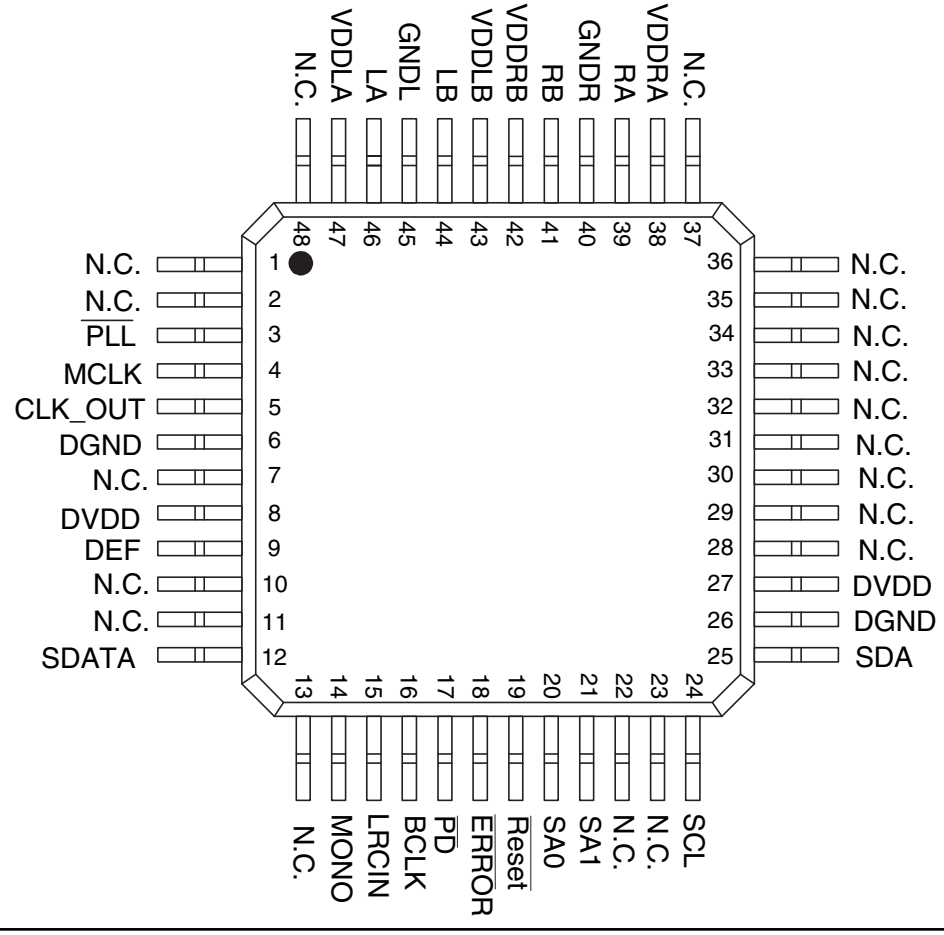


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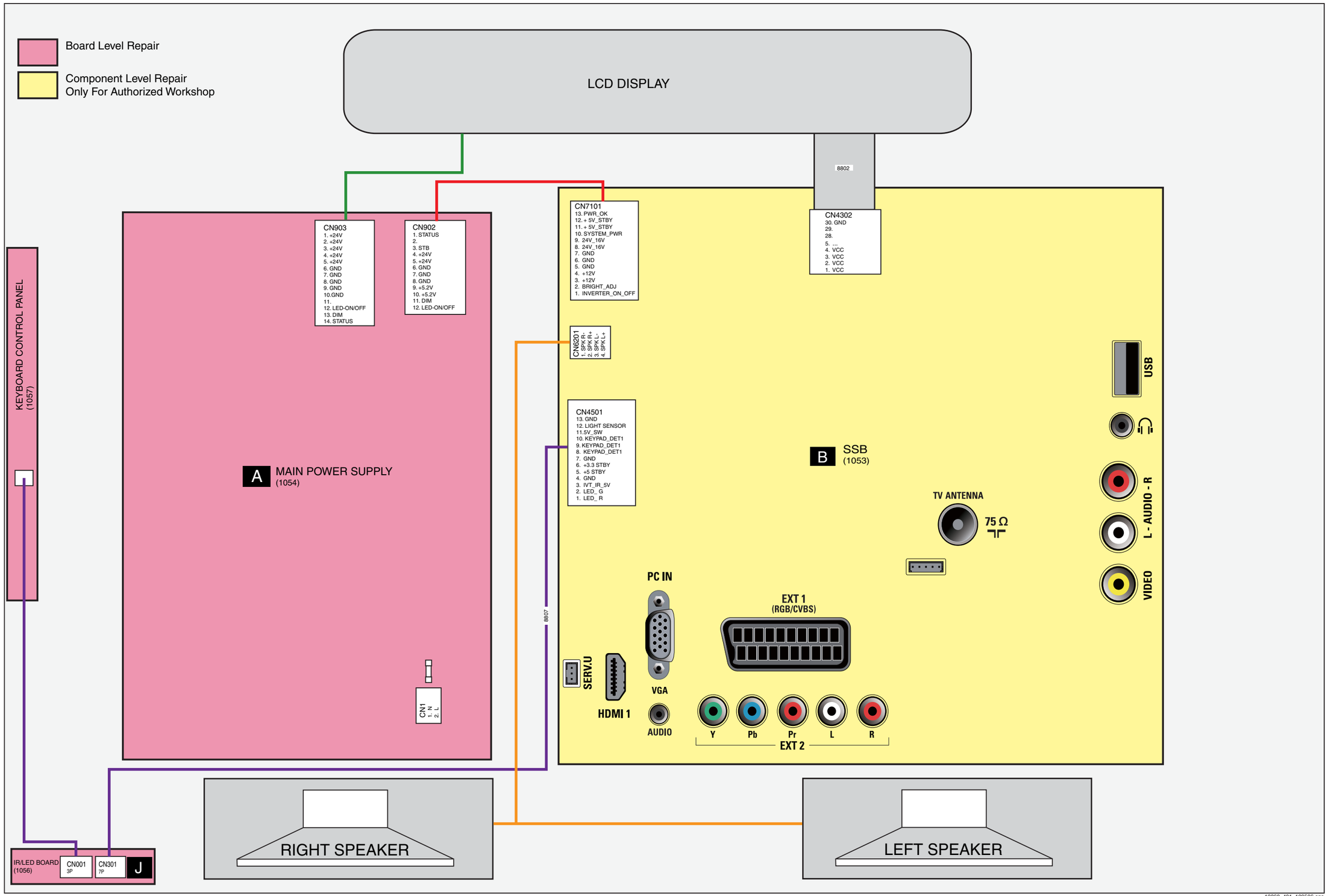
Figure 8-6 Internal block diagram and pin configuration

9. Block Diagrams

Wiring Diagram 19", 22"

WIRING DIAGRAM 19", 22" (Pico styling)



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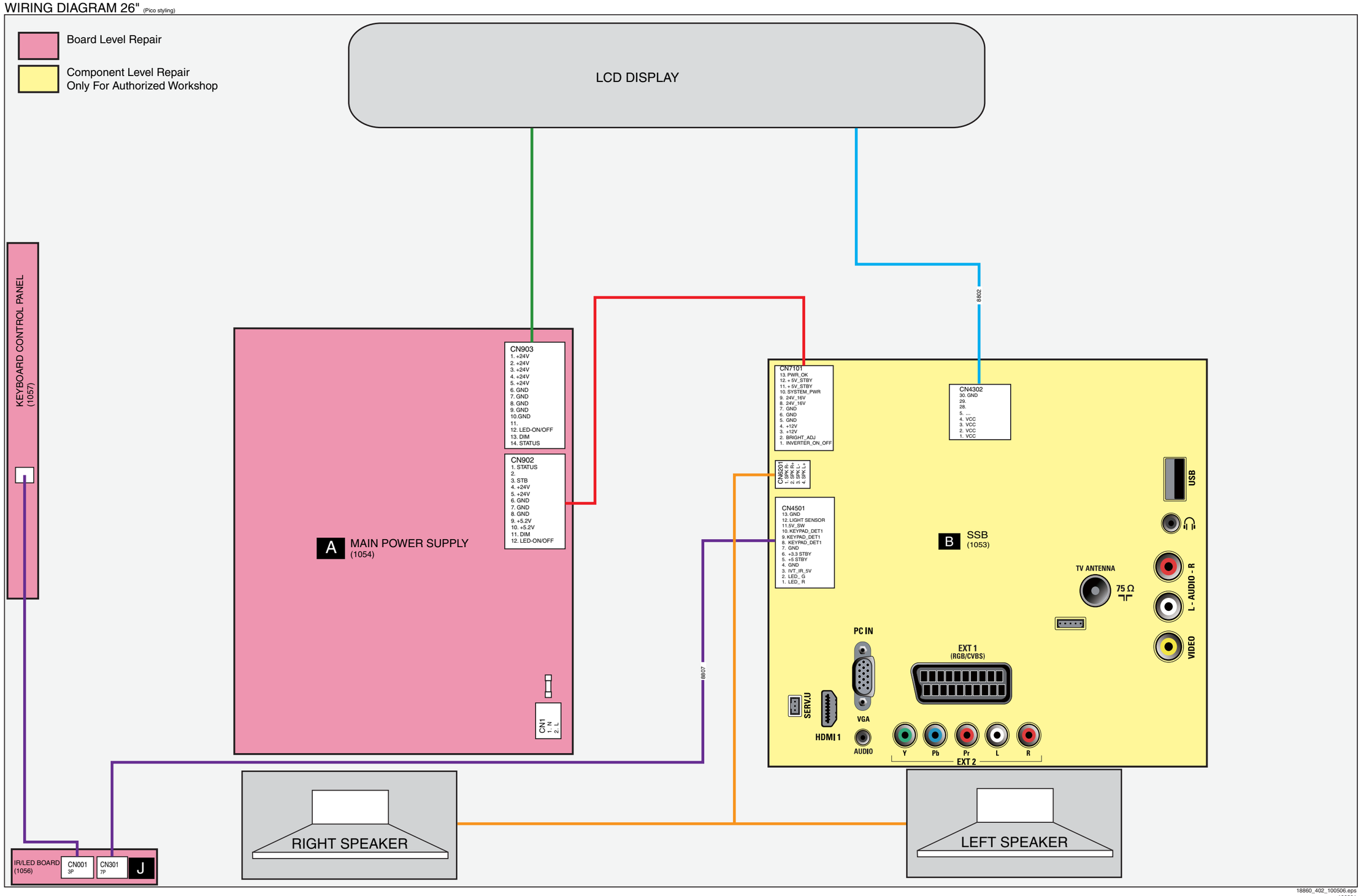
Wiring Diagram 26"

WIRING DIAGRAM 26" (Pico styling)



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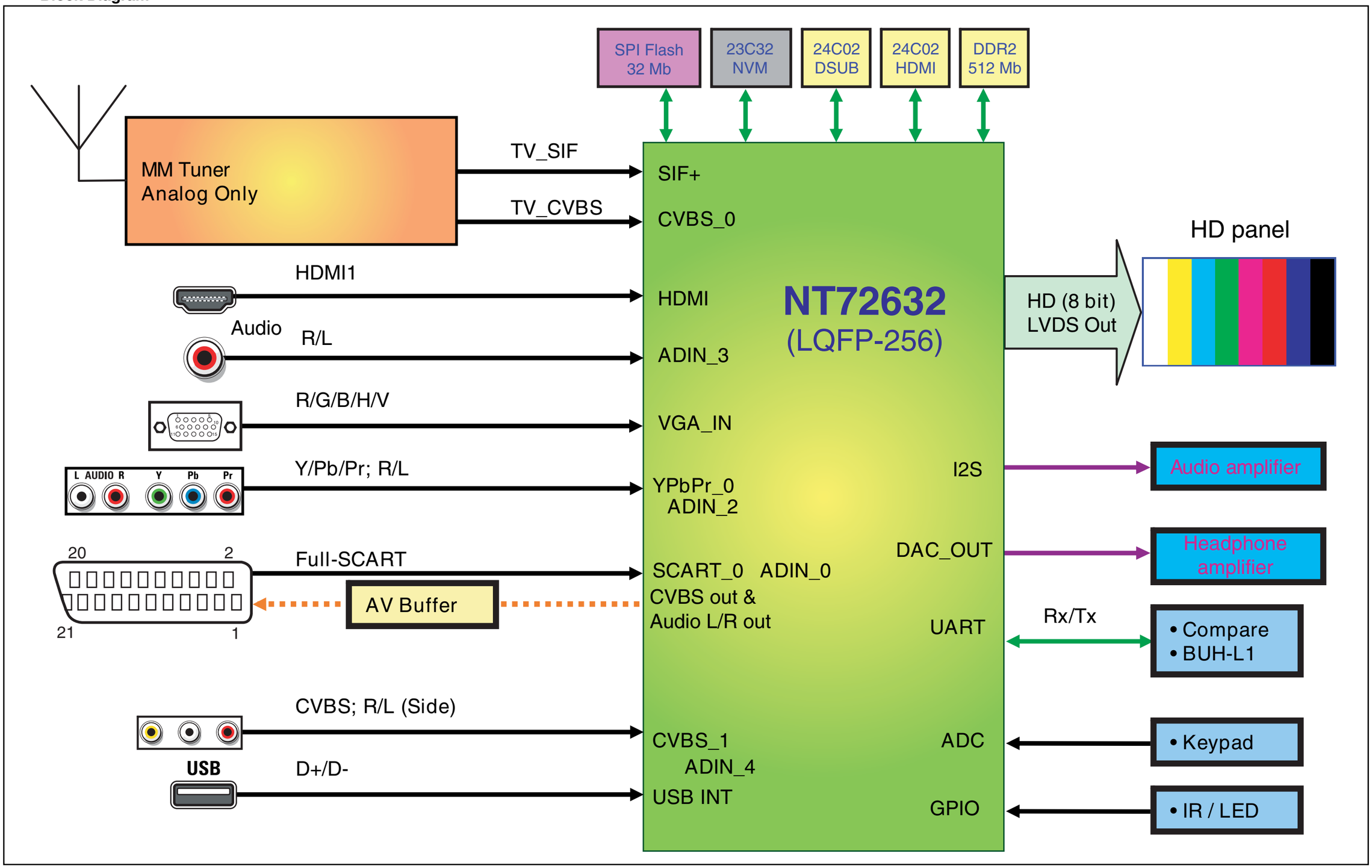
Block Diagram



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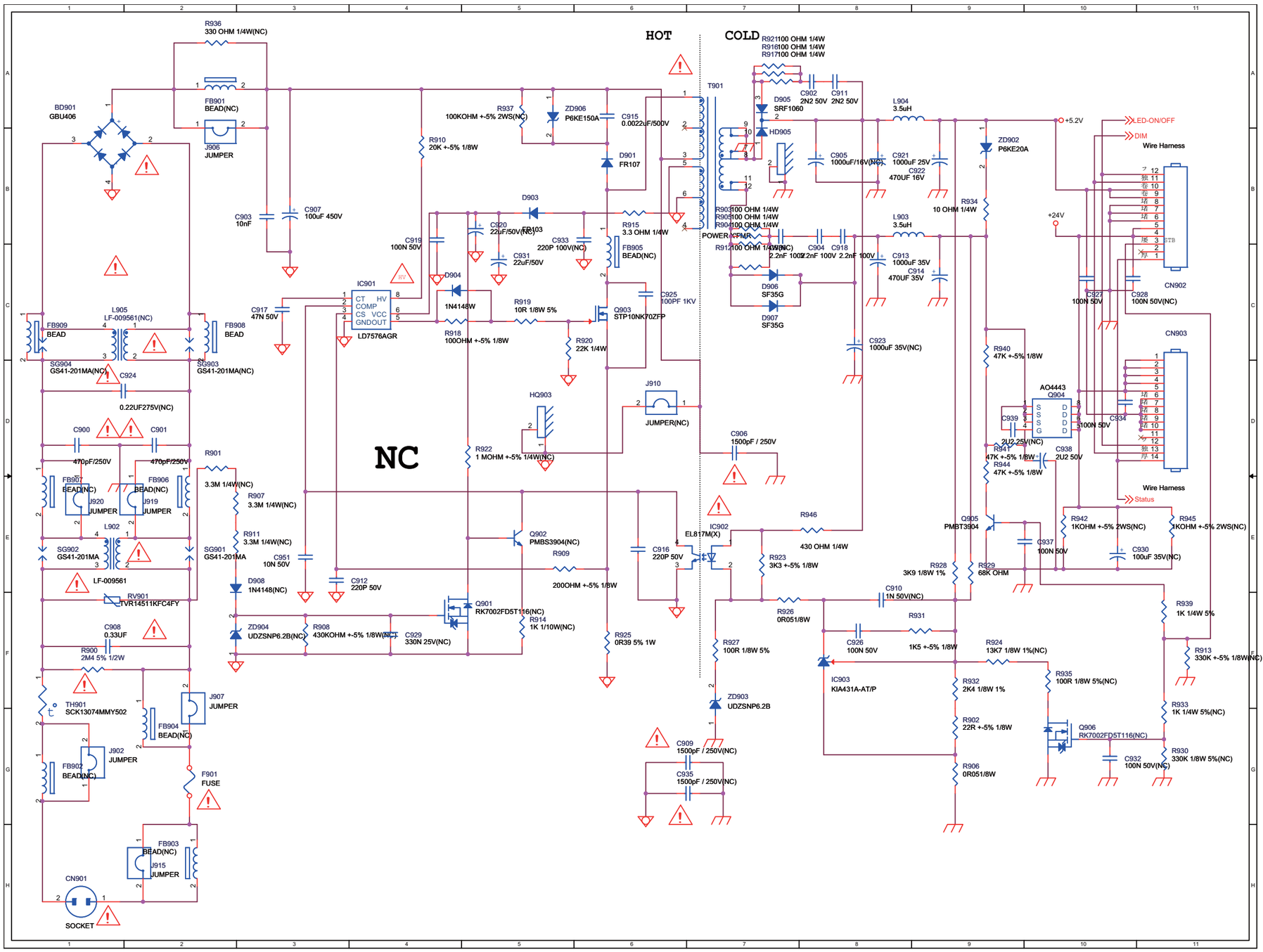
10. Circuit Diagrams and PWB Layouts

Power Board: 19", 22"

A01 Adapter



A01

BD901	A1	J919	E1
C900	D1	J920	E1
C901	D2	L902	E1
C902	A7	L903	B8
C903	B3	L904	A8
C904	B8	L905	C1
C905	B7	Q901	E4
C906	D7	Q902	E5
C907	B3	Q903	C6
C908	F1	Q904	D9
C909	G6	Q905	E9
C910	E8	Q906	F10
C911	A8	R900	F1
C912	E3	R901	D2
C913	C8	R902	F9
C914	C9	R903	B7
C915	A6	R904	B7
C916	E6	R905	B7
C917	C3	R906	G9
C918	B8	R907	E2
C919	B4	R908	F3
C920	B5	R909	E5
C921	B8	R910	B4
C922	B9	R911	E2
C923	C8	R912	C7
C924	D1	R913	F11
C925	C6	R914	F5
C926	F8	R915	B6
C927	C10	R916	A7
C928	C10	R917	A7
C929	F4	R918	C4
C930	E10	R919	C5
C931	C5	R920	C5
C932	G10	R921	A7
C933	B5	R922	D4
C934	D10	R923	E7
C935	G6	R924	F9
C936	B7	R925	F6
C937	E9	R926	E7
C938	D9	R927	F7
C939	D9	R928	E9
C951	E3	R929	E9
CN901	H1	R930	G11
CN902	B11	R931	F8
CN903	C11	R932	F9
D901	B6	R933	F11
D903	B5	R934	B9
D904	C4	R935	F10
D905	A7	R936	A2
D906	C7	R937	A5
D907	C7	R939	E11
D908	E2	R940	C9
F901	G2	R941	D9
FB901	A2	R942	E10
FB902	G1	R944	D9
FB903	H2	R945	E11
FB904	F2	R946	E7
FB905	B6	RV901	E1
FB906	D2	SG901	E2
FB907	D1	SG902	E1
FB908	C2	SG903	C2
FB909	C1	SG904	C1
HD905	B7	T901	A6
HQ903	D5	TH901	F1
IC901	C3	ZD902	B9
IC902	E6	ZD903	F7
IC903	F8	ZD904	F2
J902	G1	ZD906	A5
J906	A2		
J907	F2		
J910	D6		
J915	H2		

Adapter	715G3897	A 2010-04-02

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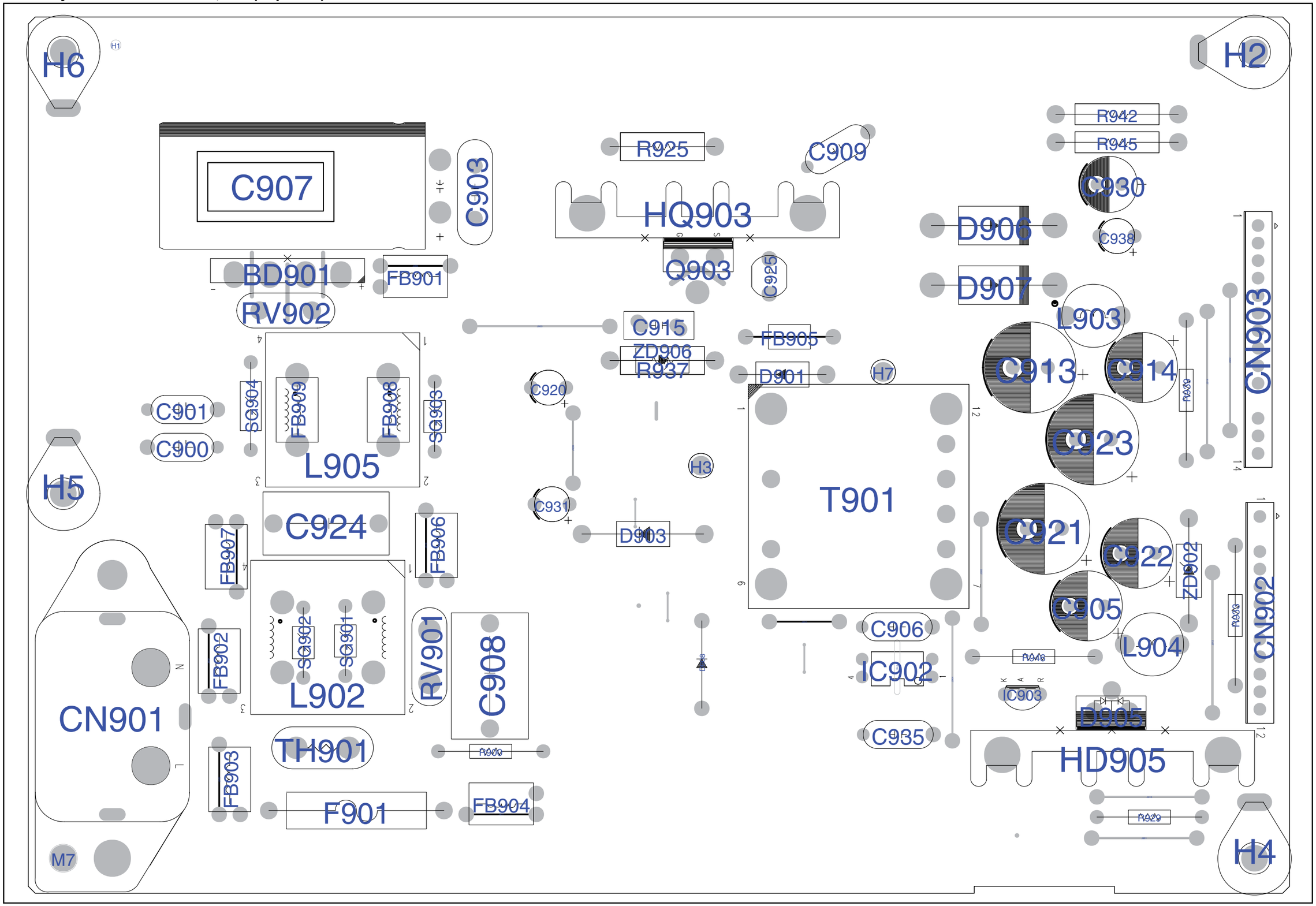
Layout Power Board 19", 22" (Top Side)



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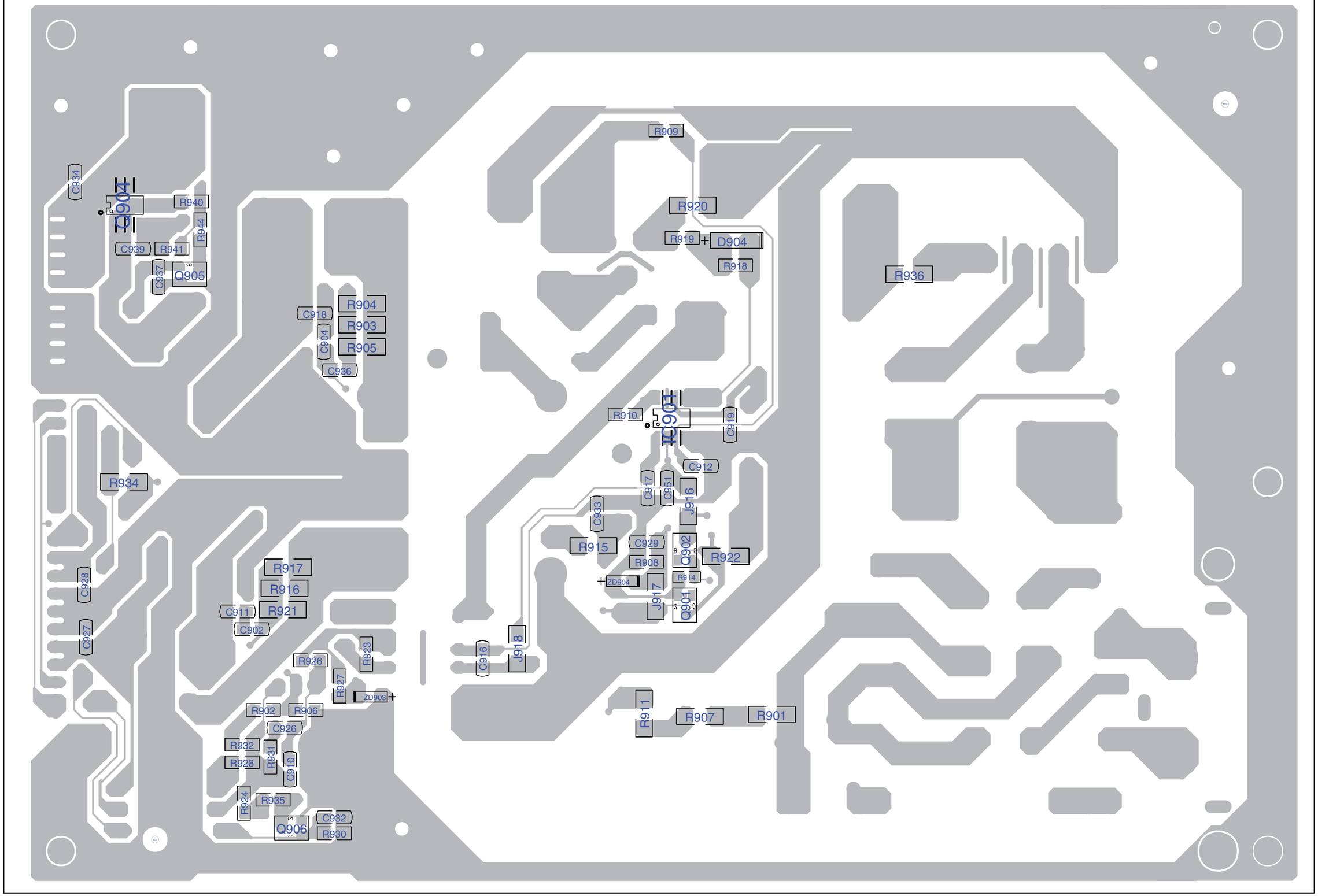
Layout Power Board 19", 22" (Bottom Side)



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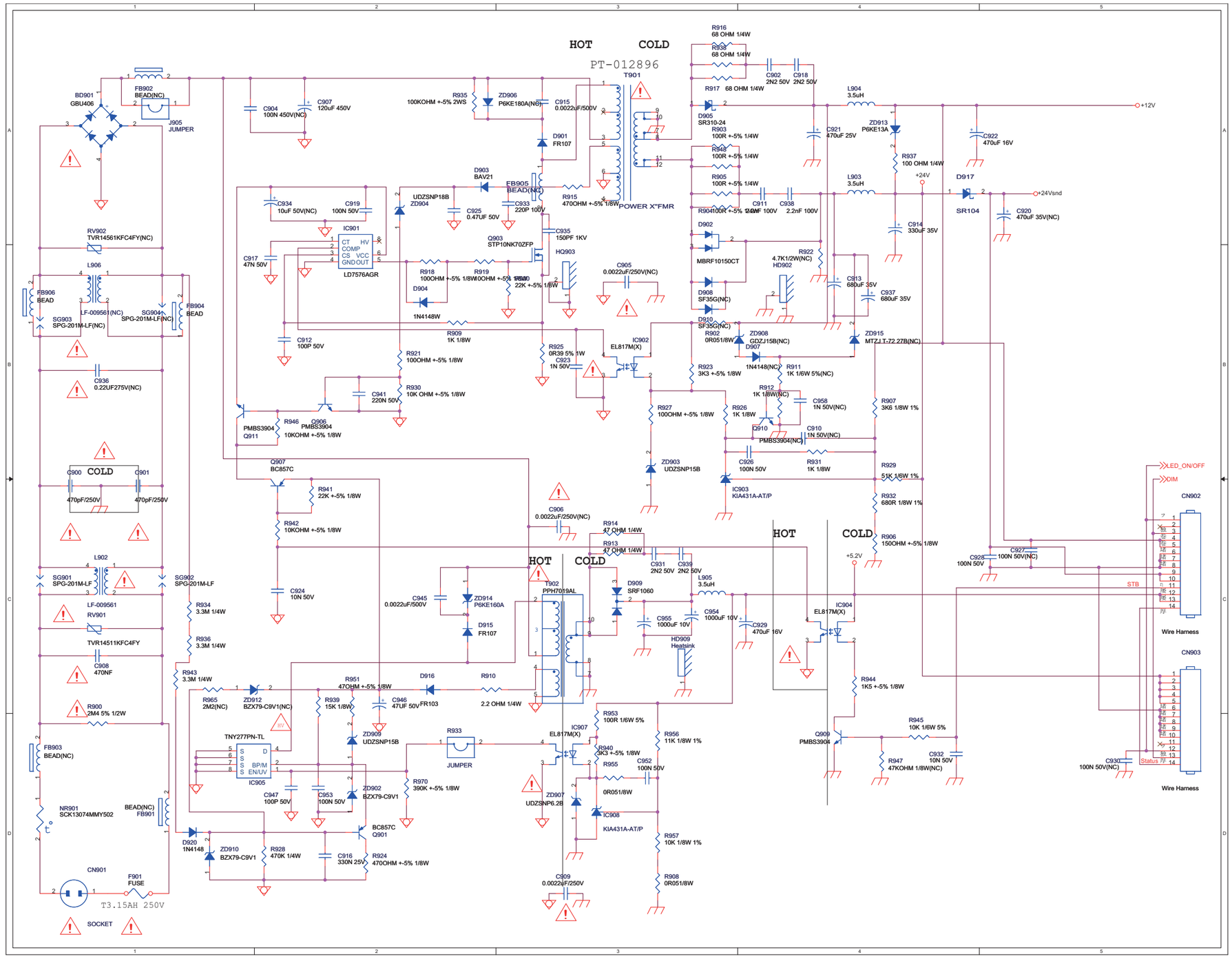
Power Board: 26"

A01 Adapter



A01

BD901	A1	L905	C3
C900	B1	L906	B1
C901	B1	NR901	D1
C902	A4	Q901	D2
C904	A1	Q903	B3
C905	B3	Q906	B2
C906	C3	Q907	B2
C907	A2	Q909	D4
C908	C1	Q910	B4
C909	D3	Q911	B1
C910	B4	R900	C1
C911	A4	R902	B3
C912	B2	R903	A3
C913	B4	R904	A3
C914	A4	R905	A3
C915	A3	R906	C4
C916	D2	R907	B4
C917	B2	R908	D3
C918	A4	R909	B2
C919	A2	R910	C2
C920	A5	R911	B4
C921	A4	R912	B4
C922	A4	R913	C3
C923	B3	R914	C3
C924	C2	R915	A3
C925	A2	R916	A3
C926	B4	R917	A3
C927	C5	R918	B2
C928	C4	R919	B2
C929	C3	R920	B3
C930	D5	R921	B2
C931	C3	R922	B4
C932	D4	R923	B3
C933	A3	R924	D2
C934	A2	R925	B3
C935	A3	R926	B3
C936	B1	R927	B3
C937	B4	R928	D2
C938	A4	R929	B4
C939	C3	R930	B2
C941	B2	R931	B4
C945	C2	R932	C4
C946	C2	R933	D2
C947	D2	R934	C1
C952	D3	R935	A2
C953	D2	R936	C1
C954	C3	R937	A4
C955	C3	R938	A3
C958	B4	R939	C2
CN901	D1	R940	D3
CN902	C5	R941	C2
CN903	C5	R942	C2
D901	A3	R943	C1
D902	A3	R944	C4
D903	A2	R945	D4
D904	B2	R946	B2
D905	A3	R947	D4
D907	B4	R948	A3
D908	B3	R951	C2
D909	C3	R953	C3
D910	B3	R955	D3
D915	C2	R956	D3
D916	C2	R957	D3
D917	A4	R965	C1
D920	D1	R970	D2
F901	D1	RV901	C1
FB901	D1	RV902	A1
FB902	A1	SG901	C1
FB903	D1	SG902	C1
FB904	B1	SG903	B1
FB905	A3	SG904	B1
FB906	B1	T901	A3
HD902	B4	T902	C3
HD909	C3	ZD902	D2
HQ903	B3	ZD903	B3
IC901	A2	ZD904	A2
IC902	B3	ZD906	A2
IC903	B3	ZD907	D3
IC904	C4	ZD908	B3
IC905	D1	ZD909	D2
IC907	D3	ZD910	D1
IC908	D3	ZD912	C1
J905	A1	ZD913	A4
L902	C1	ZD914	C2
L903	A4		
L904	A4		

Adapter	715G3924	A 2010-04-02

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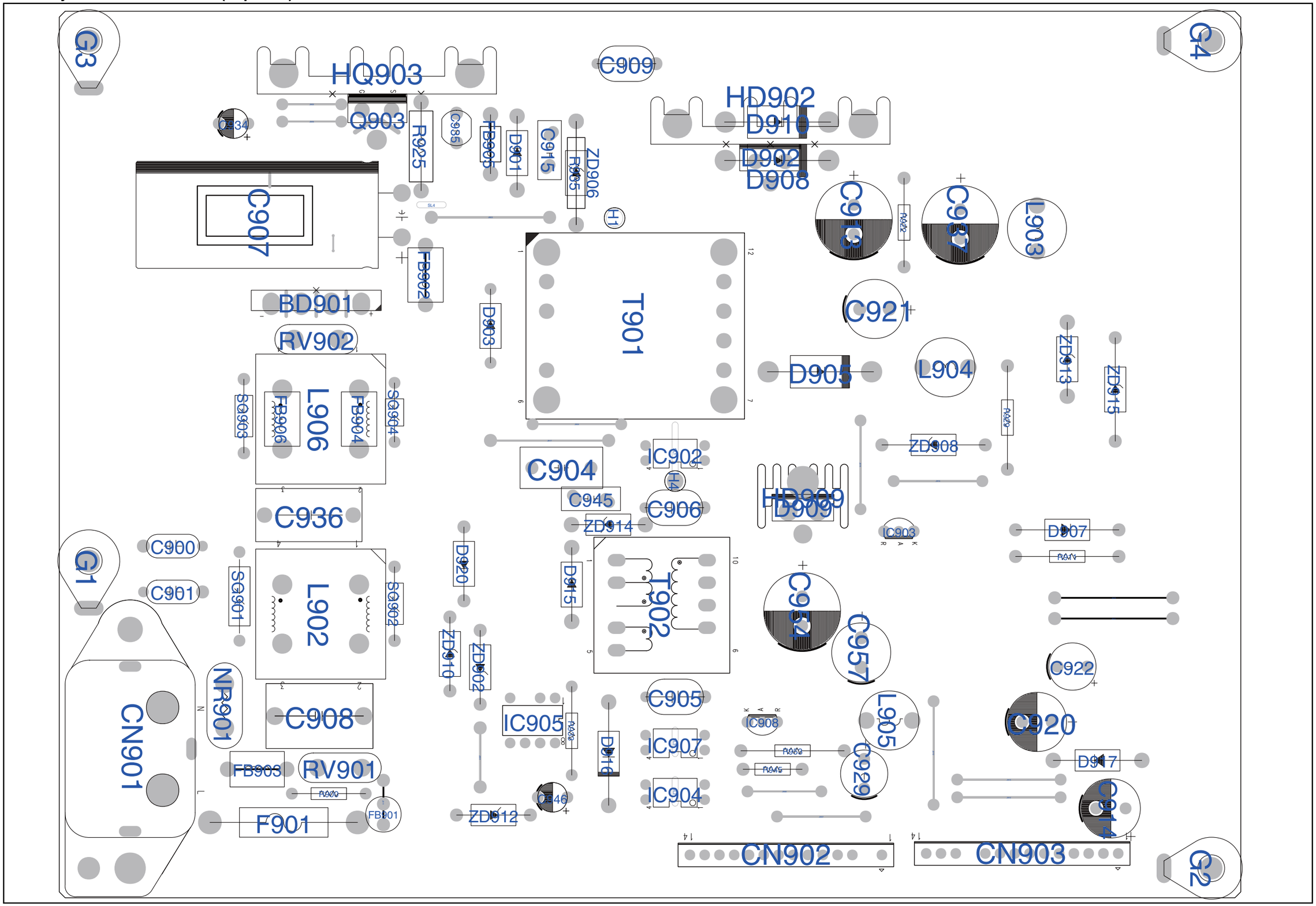
Layout Power Board 26" (Top Side)



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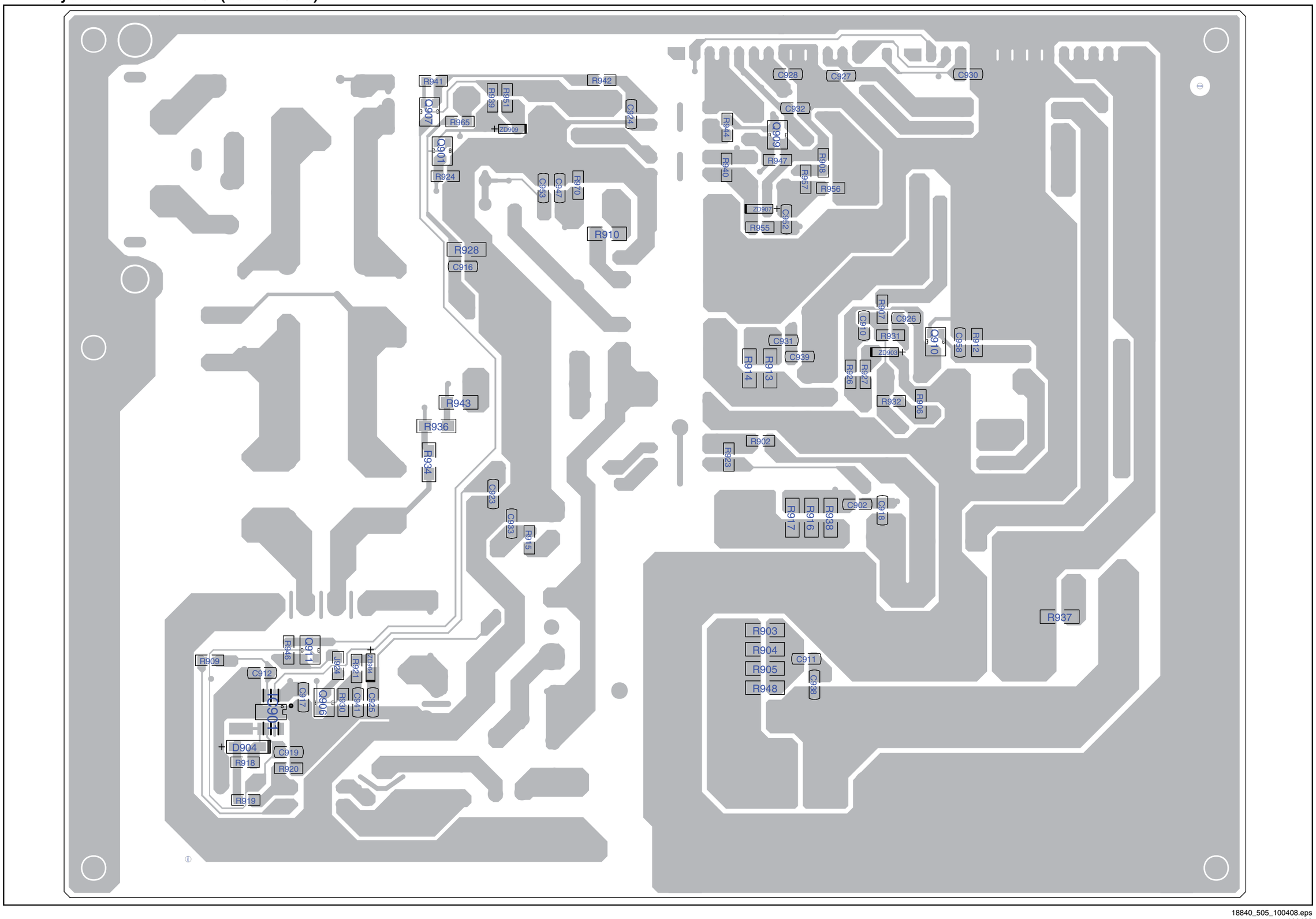
Layout Power Board 26" (Bottom Side)



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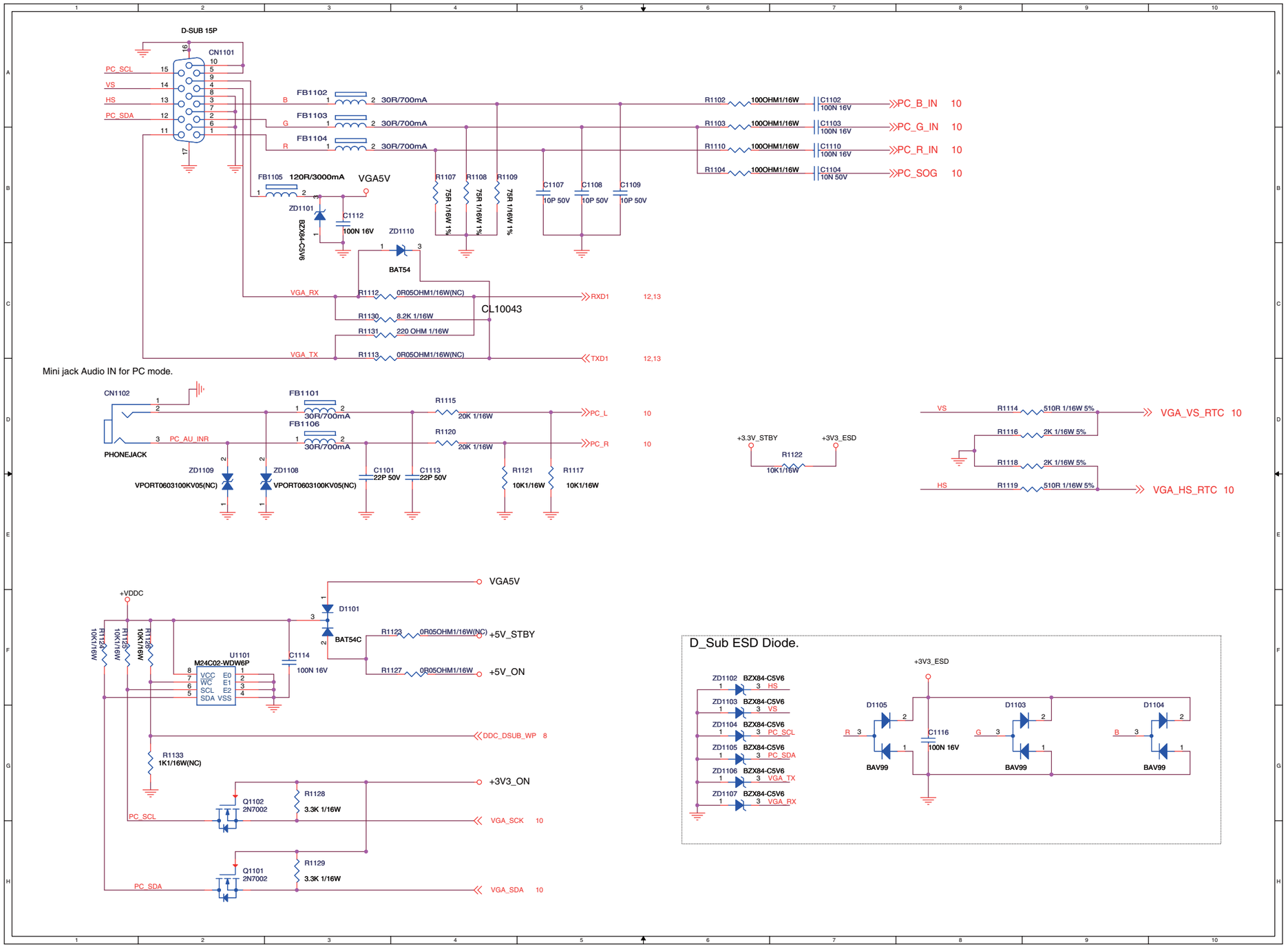
SSB: D-sub input

B01 D-sub input



B01

CN1101 A2 CN1102 D1
C1101 D3 C1102 A7
C1103 A7 C1104 B7
C1107 B5 C1108 B5
C1109 B5 C1110 B7
C1112 B3 C1113 D4
C1114 F3 C1116 G8
D1101 F3 D1103 F8
D1104 F9 D1105 F7
FB1101 D3 FB1102 A3
FB1103 A3 FB1104 B3
FB1105 B2 FB1106 D3
Q1101 H2 Q1102 G2
R1102 A6 R1103 A6
R1104 B6 R1107 B4
R1108 B4 R1109 B4
R1110 B6 R1112 C3
R1113 C3 R1114 D8
R1115 D4 R1116 D8
R1117 D5 R1118 D8
R1119 E8 R1120 D4
R1121 D4 R1122 D7
R1123 F4 R1124 F1
R1125 F1 R1126 F2
R1127 F4 R1128 G3
R1129 H3 R1130 C3
R1131 C3 R1133 G2
U1101 F2 ZD1101 B3
ZD1102 F6 ZD1103 F6
ZD1104 G6 ZD1105 G6
ZD1106 G6 ZD1107 G6
ZD1108 D2 ZD1109 D2

D-SUB INPUT	715G3891	1 2010-04-02

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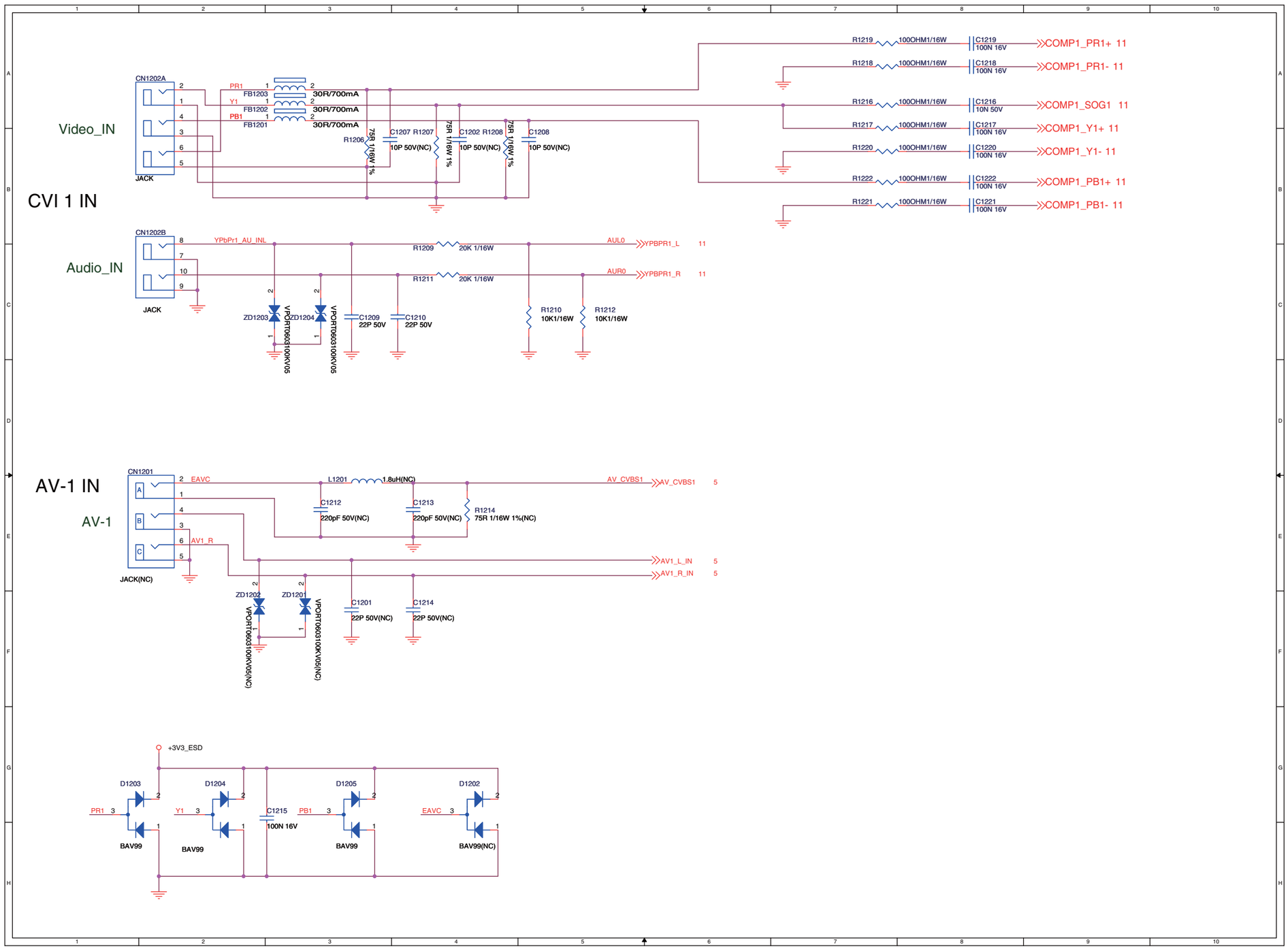
SSB: Rear I/O

B02 Rear I/O

B02



B02

CN1201	D1	N1202A	A1
N1202B	B1	C1201	F3
C1202	B4	C1207	B3
C1208	B4	C1209	C3
C1210	C3	C1212	E3
C1213	E4	C1214	F4
C1215	G2	C1216	A8
C1217	A8	C1218	A8
C1219	A8	C1220	B8
C1221	B8	C1222	B8
D1202	G4	D1203	G1
D1204	G2	D1205	G3
FB1201	A3	FB1202	A3
FB1203	A3	L1201	D3
R1206	B3	R1207	B4
R1208	B4	R1209	B4
R1210	C4	R1211	C4
R1212	C5	R1214	E4
R1216	A7	R1217	A7
R1218	A7	R1219	A7
R1220	B7	R1221	B7
R1222	B7	ZD1201	E3
ZD1202	E2	ZD1203	C2

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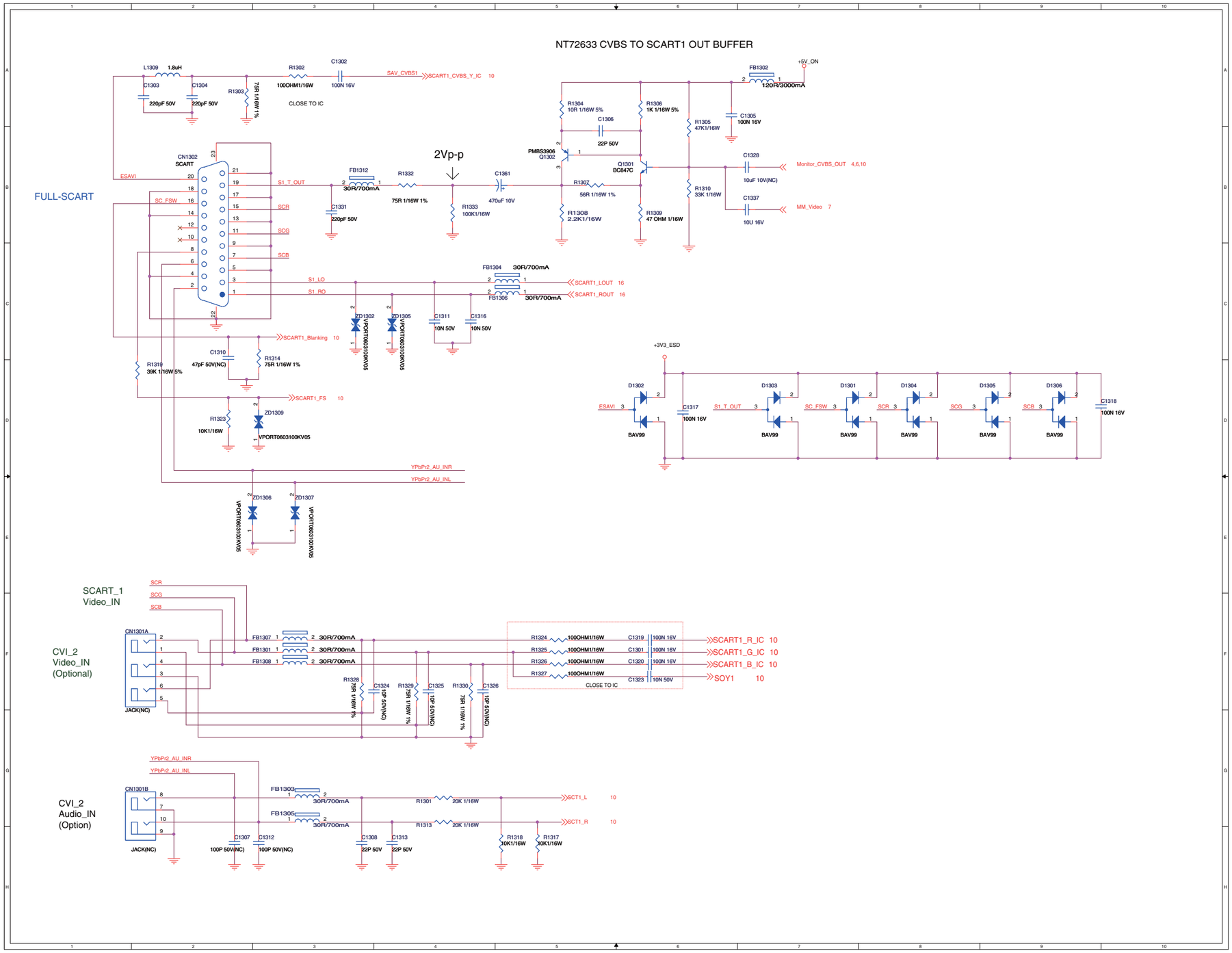
SSB: Scart

B03 Scart

B03



N1301A F1 N1301B G1
CN1302 B2 C1301 F6
C1302 A3 C1303 A2
C1304 A2 C1305 A6
C1306 A5 C1307 H2
C1308 H3 C1310 C2
C1311 C4 C1312 H2
C1313 H4 C1316 C4
C1317 D6 C1318 D9
C1319 F6 C1320 F6
C1323 F6 C1324 F3
C1325 F4 C1326 F4
C1328 B6 C1331 B3
C1337 B6 C1361 B4
D1301 D7 D1302 D6
D1303 D7 D1304 D8
D1305 D8 D1306 D9
FB1301 F3 FB1302 A7
FB1303 G3 FB1304 C4
FB1305 G3 FB1306 C4
FB1307 F3 FB1308 F3
FB1312 B3 L1309 A2
Q1301 B6 Q1302 B5
R1301 G4 R1302 A3
R1303 A2 R1304 A5
R1305 A6 R1306 A6
R1307 B5 R1308 B5
R1309 B6 R1310 B6
R1313 G4 R1314 C2
R1317 G5 R1318 G4
R1319 C1 R1323 D2
R1324 F5 R1325 F5
R1326 F5 R1327 F5
R1328 F3 R1329 F4
R1330 F4 R1332 B4
R1333 B4 ZD1302 C3
ZD1305 C4 ZD1306 E2
ZD1307 E3 ZD1309 D2

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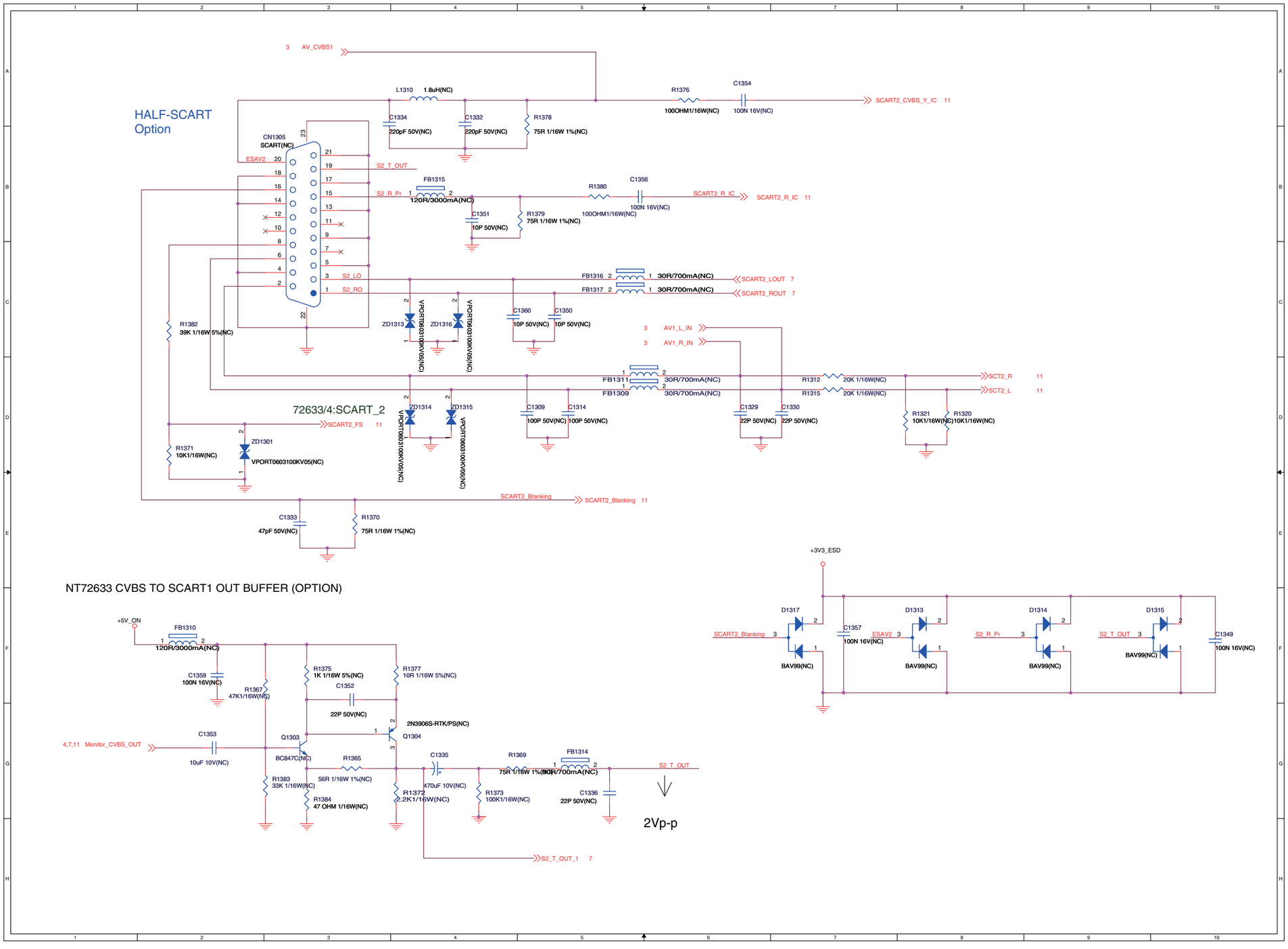
SSB: Scart 2

B04 Scart 2



NT72633 CVBS TO SCART1 OUT BUFFER (OPTION)

B04

CN1305 B3 C1309 D4
C1314 D5 C1329 D6
C1330 D6 C1332 A4
C1333 E3 C1334 A3
C1335 G4 C1336 G5
C1349 F10 C1350 C5
C1351 B4 C1352 F3
C1353 G2 C1354 A6
C1356 B5 C1357 F7
C1359 F2 C1360 C4
D1313 F7 D1314 F8
D1315 F9 D1317 F7
FB1309 D5 FB1310 F2
FB1311 D5 FB1314 G5
FB1315 B4 FB1316 C5
FB1317 C5 L1310 A4
Q1303 G3 Q1304 G3
R1312 D7 R1315 D7
R1320 D8 R1321 D7
R1365 G3 R1367 F2
R1369 G4 R1370 E3
R1371 D2 R1372 G3
R1373 G4 R1375 F3
R1376 A6 R1377 F3
R1378 A4 R1379 B4
R1380 B5 R1382 C2
R1383 G2 R1384 G3
ZD1301 D2 ZD1313 C4
ZD1314 D4 ZD1315 D4

SCART 2	715G3891	1 2010-04-02

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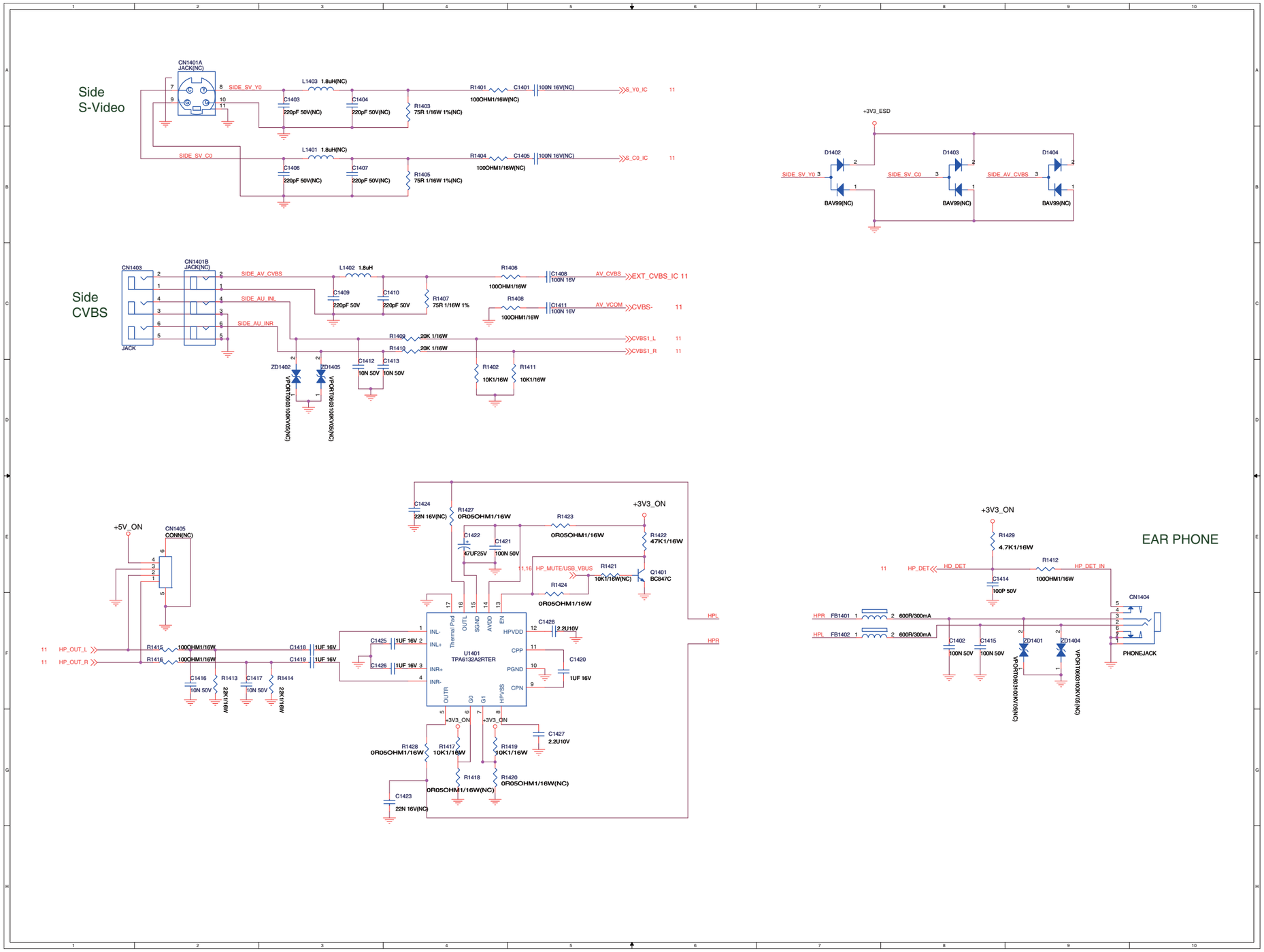
SSB: Side input

B05 Side input



B05

N1401A A2 N1401B C2
CN1403 C1 CN1404 F9
CN1405 E2 C1401 A5
C1402 F8 C1403 A3
C1404 A3 C1405 B5
C1406 B3 C1407 B3
C1408 C5 C1409 C3
C1410 C3 C1411 C5
C1412 D3 C1413 D3
C1414 E8 C1415 F8
C1416 F2 C1417 F2
C1418 F3 C1419 F3
C1420 F5 C1421 E4
C1422 E4 C1423 G3
C1424 E4 C1425 F4
C1426 F4 C1427 G5
C1428 F5 D1402 B7
D1403 B8 D1404 B9
FB1401 F7 FB1402 F7
L1401 B3 L1402 C3
L1403 A3 Q1401 E5
R1401 A4 R1402 D4
R1403 A4 R1404 B4
R1405 B4 R1406 C4
R1407 C4 R1408 C4
R1409 C4 R1410 C4
R1411 D4 R1412 E9
R1413 F2 R1414 F3
R1415 F2 R1416 F2
R1417 G4 R1418 G4
R1419 G4 R1420 G4
R1421 E5 R1422 E6
R1423 E5 R1424 E5
R1427 E4 R1428 G4
R1429 E8 U1401 F4
ZD1401 F9 ZD1402 D3
ZD1404 F9 ZD1405 D3

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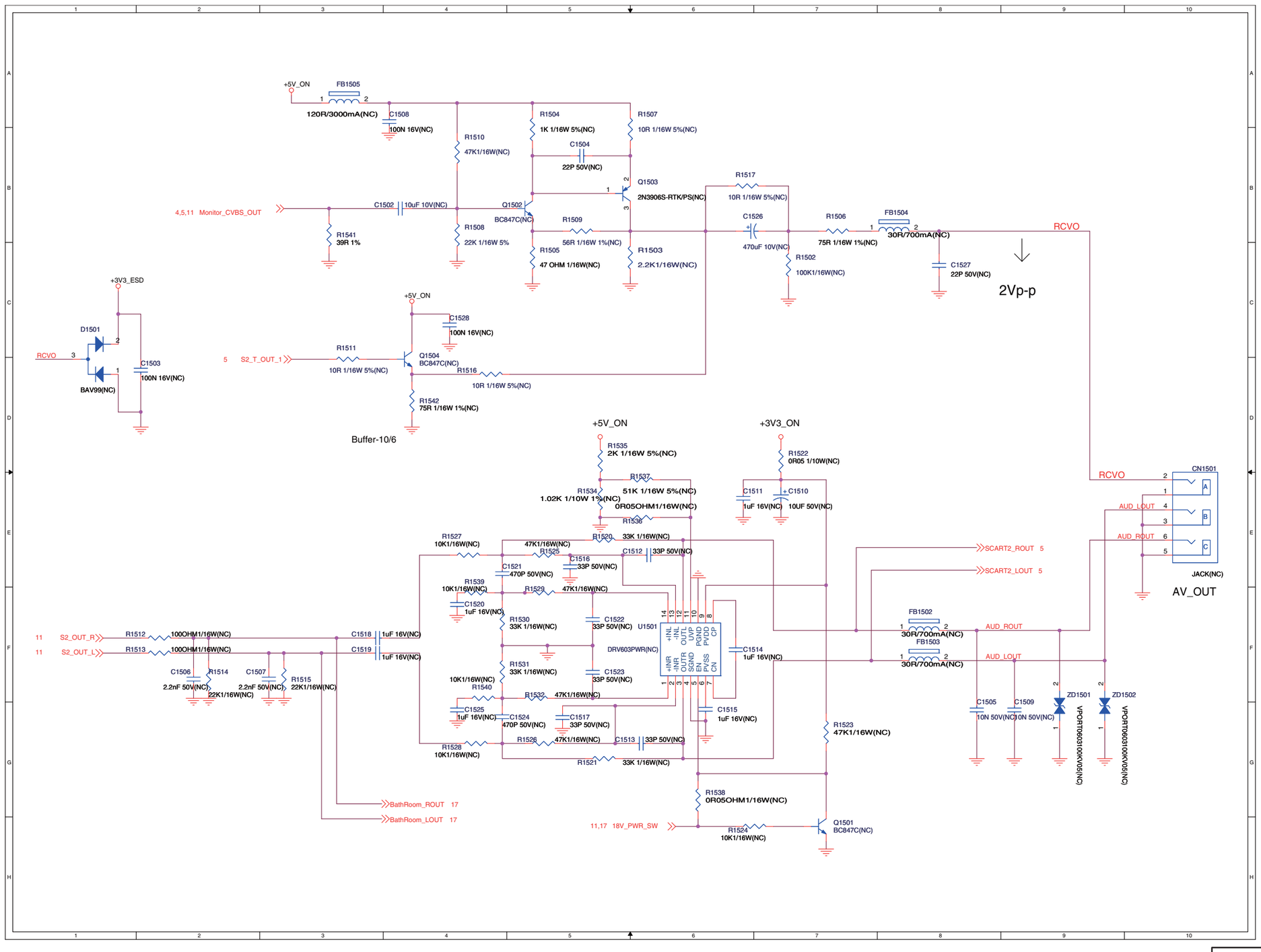
SSB: CVBS audio out

B06 CVBS audio out

B06



CN1501 D10 C1502 B4
C1503 D1 C1504 B5
C1505 F8 C1506 F2
C1507 F2 C1508 A3
C1509 F8 C1510 E7
C1511 E6 C1512 E6
C1513 G6 C1514 F6
C1515 F6 C1516 E5
C1517 G5 C1518 F3
C1519 F3 C1520 F4
C1521 E4 C1522 F5
C1523 F5 C1524 G4
C1525 F4 C1526 B6
C1527 C8 C1528 C4
D1501 C1 FB1502 F8
FB1503 F8 FB1504 B7
FB1505 A3 Q1501 G7
Q1502 B5 Q1503 B5
Q1504 C4 R1502 C7
R1503 C5 R1504 A5
R1505 C5 R1506 B7
R1507 A5 R1508 B4
R1509 B5 R1510 B4
R1511 C3 R1512 F2
R1513 F2 R1514 F2
R1515 F3 R1516 D4
R1517 B6 R1520 E5
R1521 G5 R1522 D7
R1523 G7 R1524 G6
R1525 E5 R1526 G5
R1527 E4 R1528 G4
R1529 E5 R1530 F4
R1531 F4 R1532 F5
R1534 E5 R1535 D5
R1536 E5 R1537 D5
R1538 G6 R1539 E4
R1540 F4 R1541 B3
R1542 D4 U1501 F6
ZD1501 F9 ZD1502 F9

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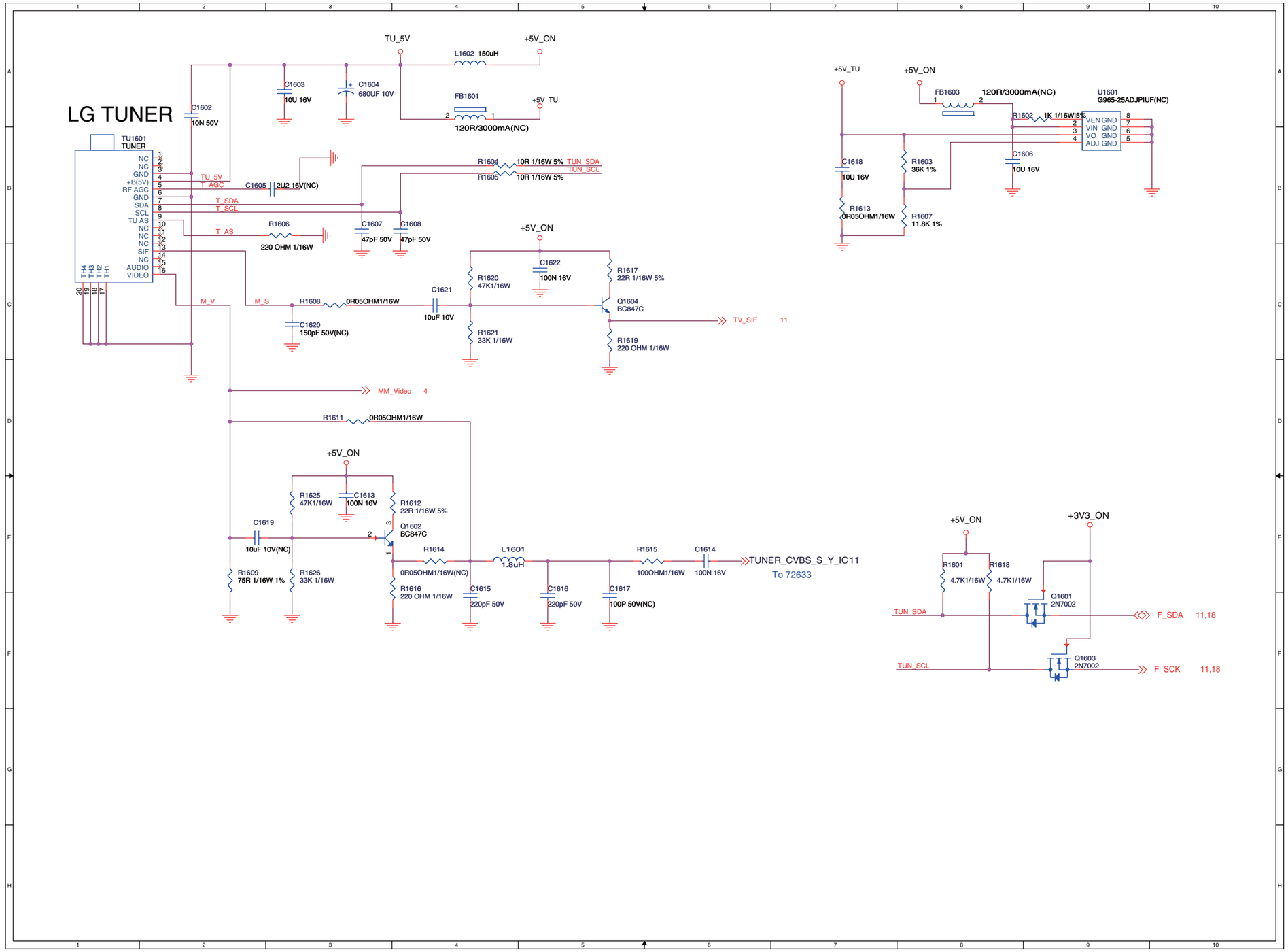
SSB: Tuner

B07 Tuner



B07

C1602	A2	C1603	A3
C1604	A3	C1605	B3
C1606	B8	C1607	B3
C1608	B3	C1613	E3
C1614	E6	C1615	E4
C1616	E5	C1617	E5
C1618	B7	C1619	E2
C1620	C3	C1621	C4
C1622	C5	FB1601	A4
FB1603	A8	L1601	E4
L1602	A4	Q1601	E8
Q1602	E3	Q1603	F9
Q1604	C5	R1601	E8
R1602	A8	R1603	B7
R1604	B4	R1605	B4
R1606	B3	R1607	B7
R1608	C3	R1609	E2
R1611	D3	R1612	E3
R1613	B7	R1614	E4
R1615	E5	R1616	E3
R1617	C5	R1618	E8
R1619	C5	R1620	C4
R1621	C4	R1625	E3
R1626	E3	TU1601	B1

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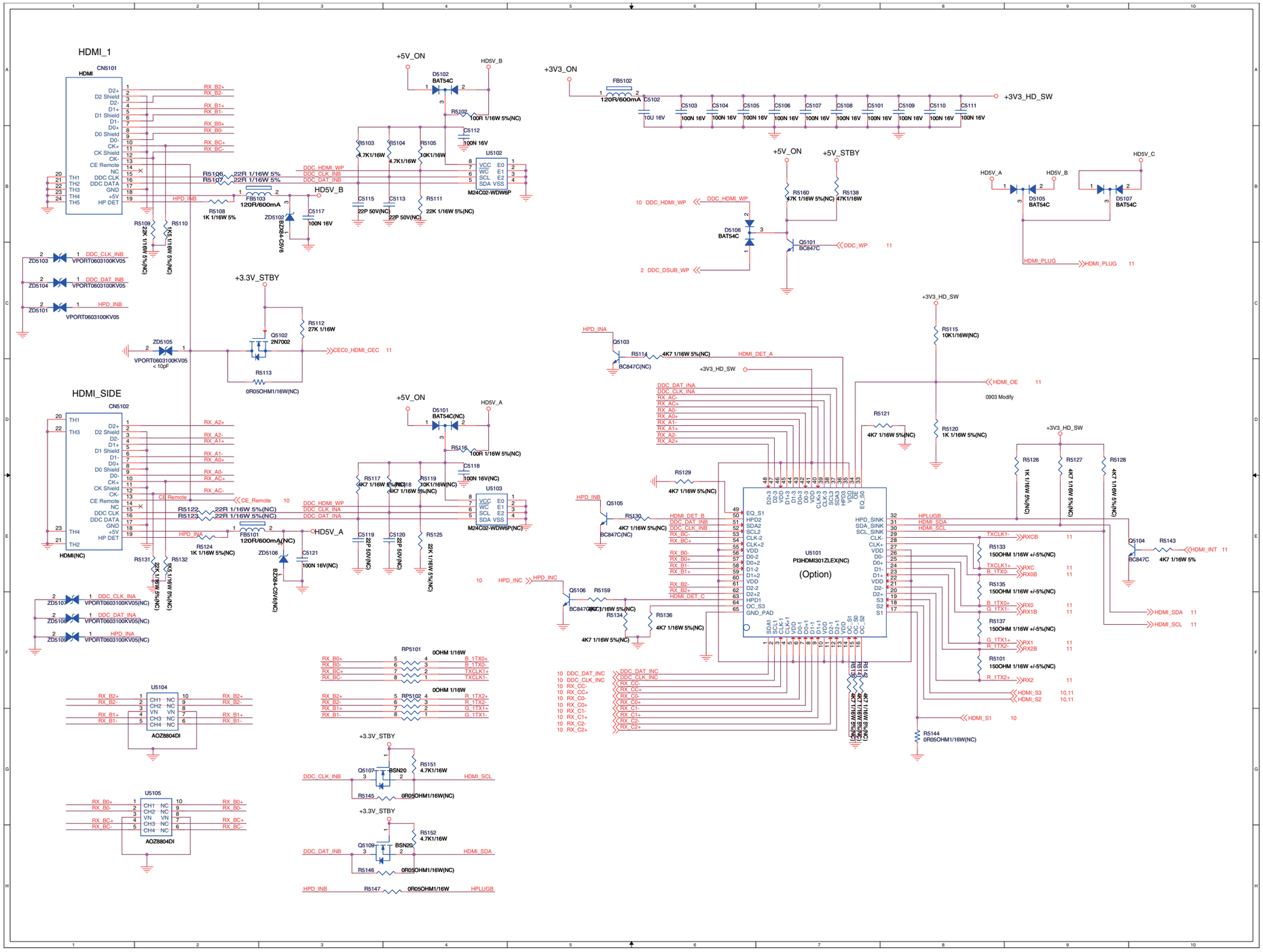
SSB: HDMI input

B08 HDMI input

B08



CN5101	A1	CN5102	D1
C5101	A7	C5102	A6
C5103	A6	C5104	A6
C5105	A6	C5106	A7
C5107	A7	C5108	A7
C5109	A8	C5110	A8
C5111	A8	C5112	B4
C5113	B3	C5115	B3
C5117	B3	C5118	D4
C5119	E3	C5120	E3
C5121	E3	D5101	D4
D5102	A4	D5105	B8
D5106	B6	D5107	B9
FB5101	E2	FB5102	A5
FB5103	B2	Q5101	B7
Q5102	C2	Q5103	C5
Q5104	E9	Q5105	E5
Q5106	E5	Q5107	G3
Q5109	H3	RP5101	F4
RP5102	F4	R5101	F8
R5102	A4	R5103	B3
R5104	B3	R5105	B4
R5106	B2	R5107	B2
R5108	B2	R5109	B2
R5110	B2	R5111	B4
R5112	C3	R5113	D2
R5114	C6	R5115	C8
R5116	D4	R5117	D3
R5118	D3	R5119	D4
R5120	D8	R5121	D7
R5122	E2	R5123	E2
R5124	E2	R5125	E4
R5126	D8	R5127	D9
R5128	D9	R5129	D6
R5130	E5	R5131	E2
R5132	E2	R5133	E8
R5134	F5	R5135	E8
R5136	F6	R5137	F8
R5138	B7	R5139	F7
R5141	F7	R5142	F7
R5143	E10	R5144	G8
R5145	G3	R5146	H3
R5147	H3	R5151	G4
R5152	G4	R5159	E5
R5160	B7	U5101	E6
U5102	B4	U5103	E4
U5104	F2	U5105	G2
ZD5101	C1	ZD5102	B3
ZD5103	C1	ZD5104	C1
ZD5105	C2	ZD5106	E3
ZD5107	E1	ZD5108	F1

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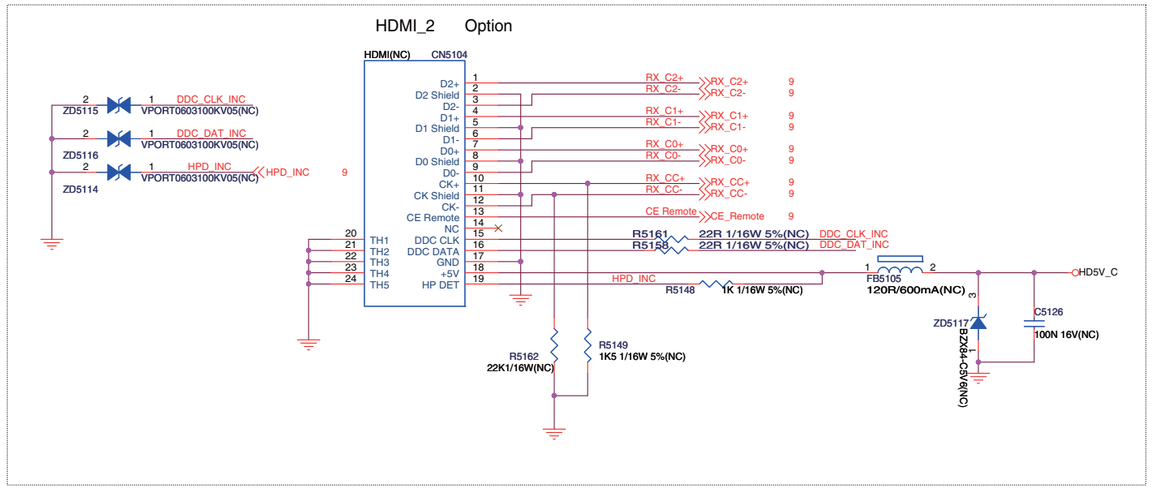
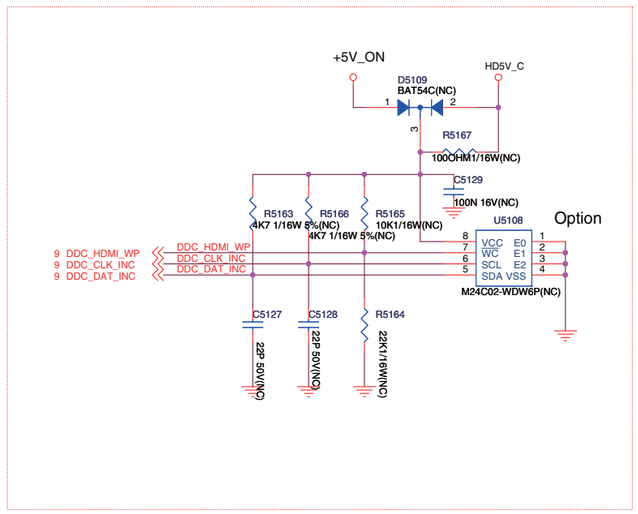
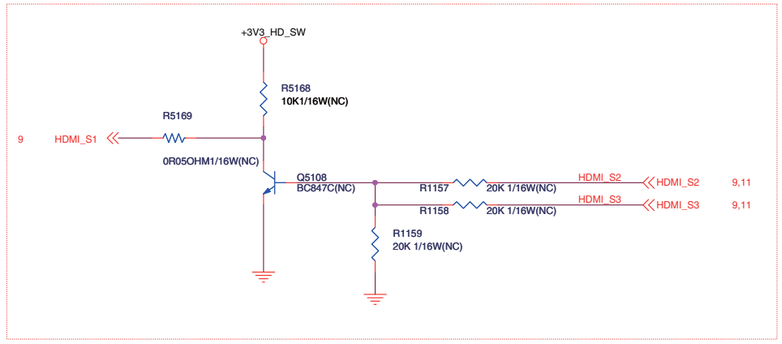
SSB: HDMI input 3

B09 HDMI input 3

B09







CN5104 A2 C5126 B3
C5127 C1 C5128 C1
C5129 C2 D5109 B2
FB5105 A3 Q5108 C4
R1157 C4 R1158 C4
R1159 C4 R5148 A3
R5149 B2 R5158 A2
R5161 A2 R5162 B2
R5163 C1 R5164 C2
R5165 C2 R5166 C1
R5167 C2 R5168 C4
R5169 C3 U5108 C2
ZD5114 A1 ZD5115 A1
ZD5116 A1 ZD5117 A3

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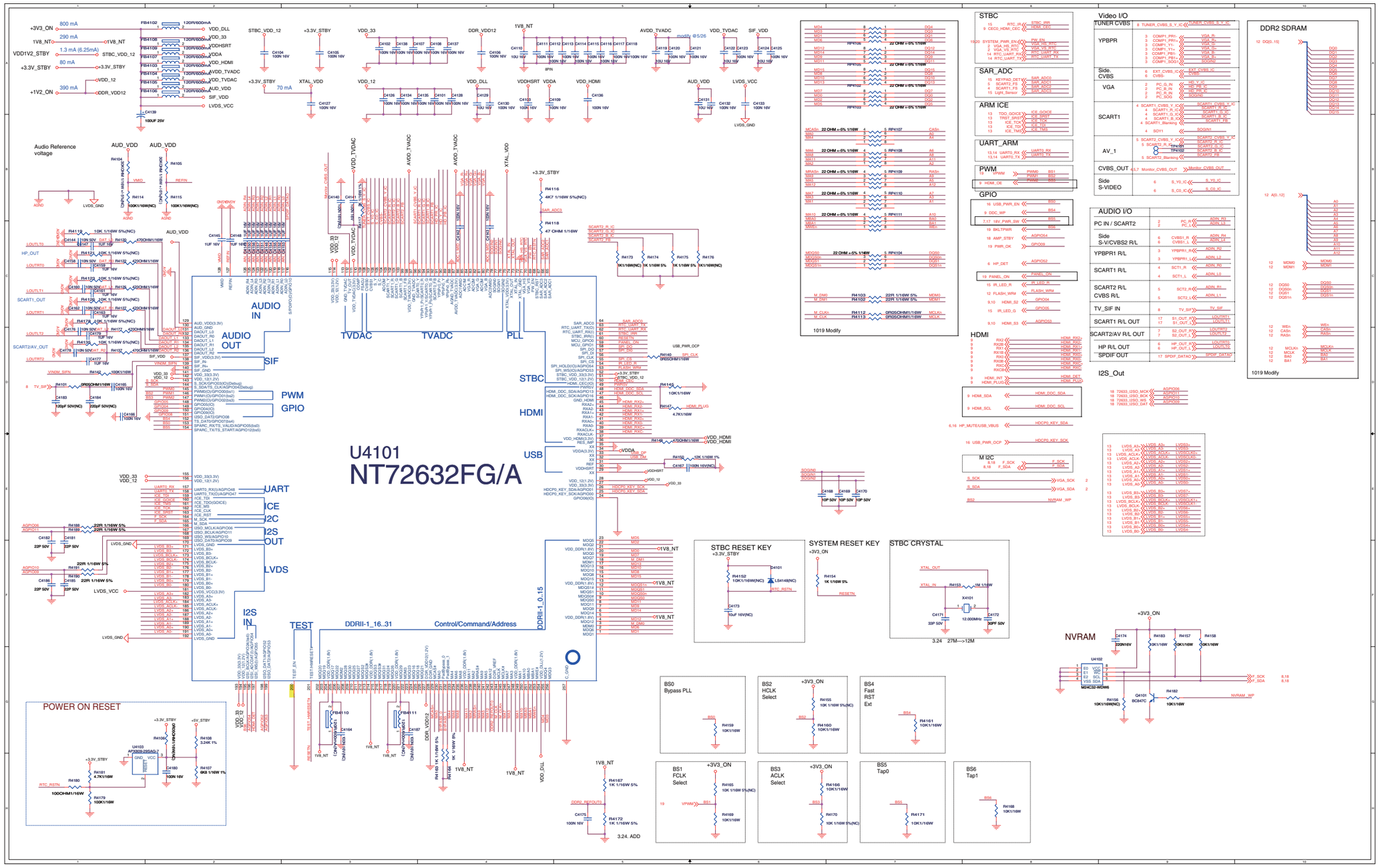
SSB: Scaler NT7263X

B10 Scaler NT7263X



B10

C4101	A4	FB4106	A2				
C4102	A3	FB4107	A2				
C4103	A4	FB4108	A2				
C4104	A2	FB4109	A2				
C4105	A3	FB4110	G3				
C4106	A4	FB4111	G3				
C4107	A3	Q4101	G9				
C4108	A4	R4101	D1				
C4109	A4	R4102	C7				
C4110	A4	R4103	C7				
C4111	A4	R4104	B1				
C4112	A4	R4105	B2				
C4113	A5	R4106	G2				
C4114	A5	R4107	H2				
C4115	A5	R4108	G2				
C4116	A5	R4112	C7				
C4117	A5	R4113	C7				
C4118	A5	R4114	B1				
C4119	A5	R4115	B2				
C4120	A5	R4116	B4				
C4121	A5	R4117	B3				
C4122	A6	R4118	B4				
C4123	A6	R4119	C1				
C4124	A6	R4120	C1				
C4125	A6	R4121	C1				
C4126	A3	R4122	C1				
C4127	A3	R4123	C1				
C4128	A4	R4125	C1				
C4129	A4	R4126	C1				
C4130	A4	R4127	C1				
C4131	A6	R4135	D1				
C4132	A6	R4137	D1				
C4133	A6	R4140	D5				
C4134	A3	R4142	D1				
C4135	A3	R4145	D5				
C4136	A5	R4147	D5				
C4141	B3	R4149	E5				
C4142	C4	R4150	E5				
C4143	C4	R4152	F6				
C4144	C1	R4153	F7				
C4145	C2	R4154	F6				
C4146	C2	R4155	G6				
C4147	C1	R4156	G9				
C4148	C2	R4157	F9				
C4149	C2	R4158	F9				
C4150	C2	R4159	G6				
C4151	C2	R4160	G6				
C4152	C2	R4161	G7				
C4153	C2	R4163	G4				
C4154	C2	R4164	G4				
C4155	C2	R4165	H6				
C4156	C2	R4166	H6				
C4157	C2	R4167	H5				
C4158	C1	R4168	H8				
C4159	C1	R4169	H6				
C4160	C1	R4170	H6				
C4161	C1	R4171	H7				
C4162	C1	R4172	H5				
C4163	C1	R4173	C5				
C4164	G3	R4174	C5				
C4165	D1	R4175	C5				
C4166	D1	R4176	C6				
C4167	E5	R4177	C1				
C4168	E6	R4178	C1				
C4169	E7	R4179	H1				
C4170	E7	R4180	H1				
C4171	F7	R4181	H1				
C4172	F8	R4182	G9				
C4173	F6	R4183	F9				
C4174	F9	R4188	E1				
C4175	H5	R4189	E1				
C4176	C1	R4190	F1				
C4177	D1	R4191	F1				
C4178	D1	RP4102	A7				
C4179	D1	RP4103	A7				
C4180	H2	RP4104	C7				
C4181	E1	RP4105	A7				
C4182	E1	RP4106	A7				
C4183	D1	RP4107	B7				
C4184	D1	RP4108	B7				
C4185	F1	RP4109	B7				
C4186	F1	RP4110	B7				
C4187	G3	RP4111	B7				
D4101	F6	TP4101	B9				
FB4102	A2	TP4102	B9				
FB4103	A2	U4101	C2				
FB4104	A2	U4102	G9				
FB4105	A2	U4103	G1				

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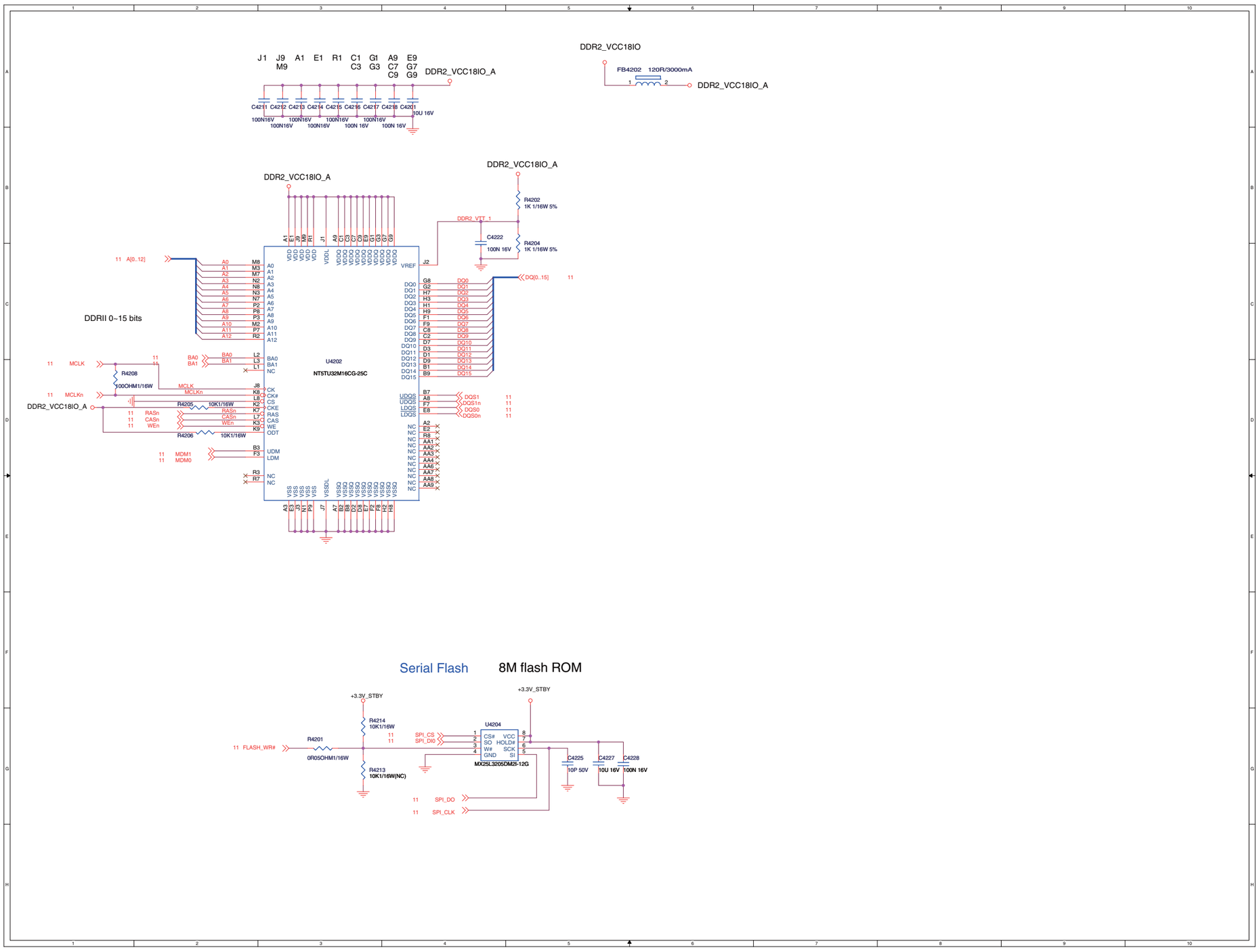
SSB: DDR memory

B11 DDR Memory

B11

C4201 A4 C4211 A2
C4212 A3 C4213 A3
C4214 A3 C4215 A3
C4216 A3 C4217 A3
C4218 A4 C4222 B4
C4225 G5 C4227 G5
C4228 G5 FB4202 A6
R4201 G3 R4202 B5
R4204 B5 R4205 D2
R4206 D2 R4208 D1
R4213 G3 R4214 G3
U4202 C3 U4204 G4



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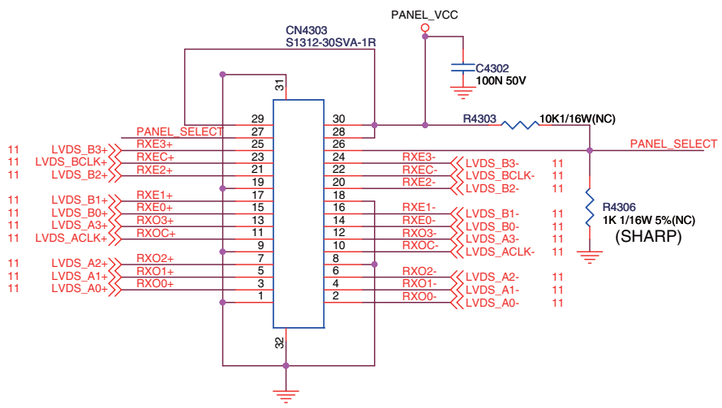
SSB: Panel I/F ICE/UART

B12 Panel I/F ICE/UART

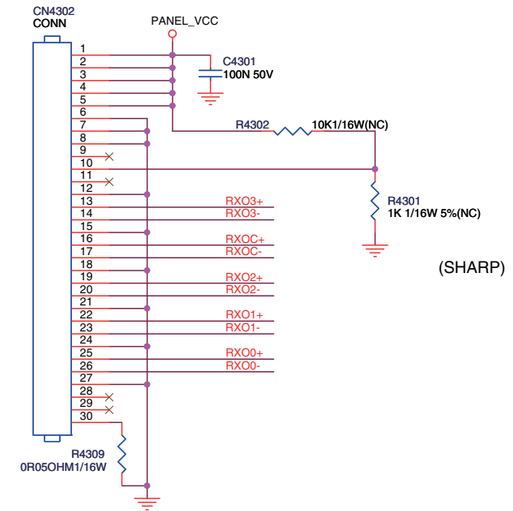
B12

CN4302 B6 CN4303 C2
CN4304 F3 CN4305 F7
CN4306 F7 C4301 B6
C4302 B3 FB4301 F6
R4301 C7 R4302 C7
R4303 C3 R4304 G2
R4305 G2 R4306 C4
R4307 F6 R4308 G6
R4309 E6 R4310 G6

26"~42"

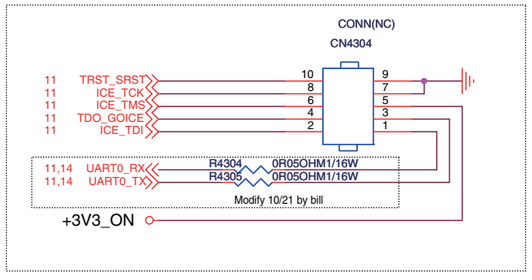


19"~22"

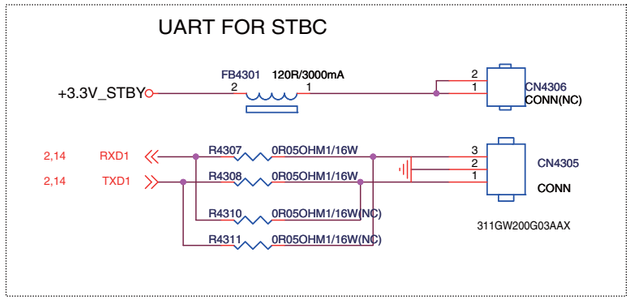


	19" & 22"	26"
CN4302	YES	NC
CN4303	NC	YES

ICE FOR ARM & DSP / UART FOR ARM



UART FOR STBC



PANEL I/F ICE/UART	715G3891	1 2010-04-02

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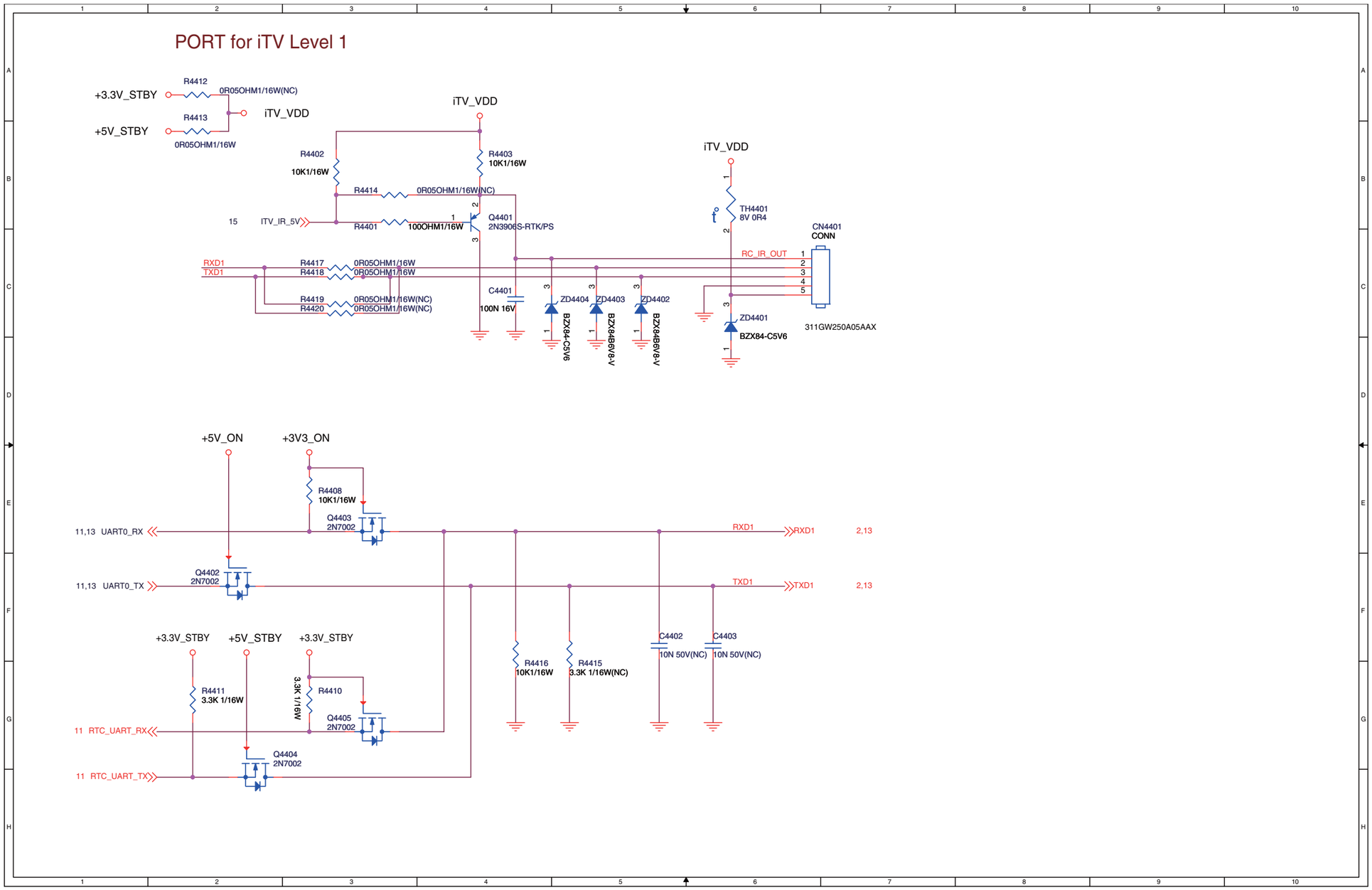
SSB: iTV

B13 iTV

B13



CN4401 C6 C4401 C4
C4402 F5 C4403 F6
Q4401 B4 Q4402 E2
Q4403 E3 Q4404 G2
Q4405 G3 R4401 B3
R4402 B3 R4403 B4
R4408 E3 R4410 G3
R4411 G2 R4412 A2
R4413 A2 R4414 B3
R4415 F5 R4416 F4
R4417 C3 R4418 C3
R4419 C3 R4420 C3
TH4401 B6 ZD4401 C6
ZD4402 C5 ZD4403 C5

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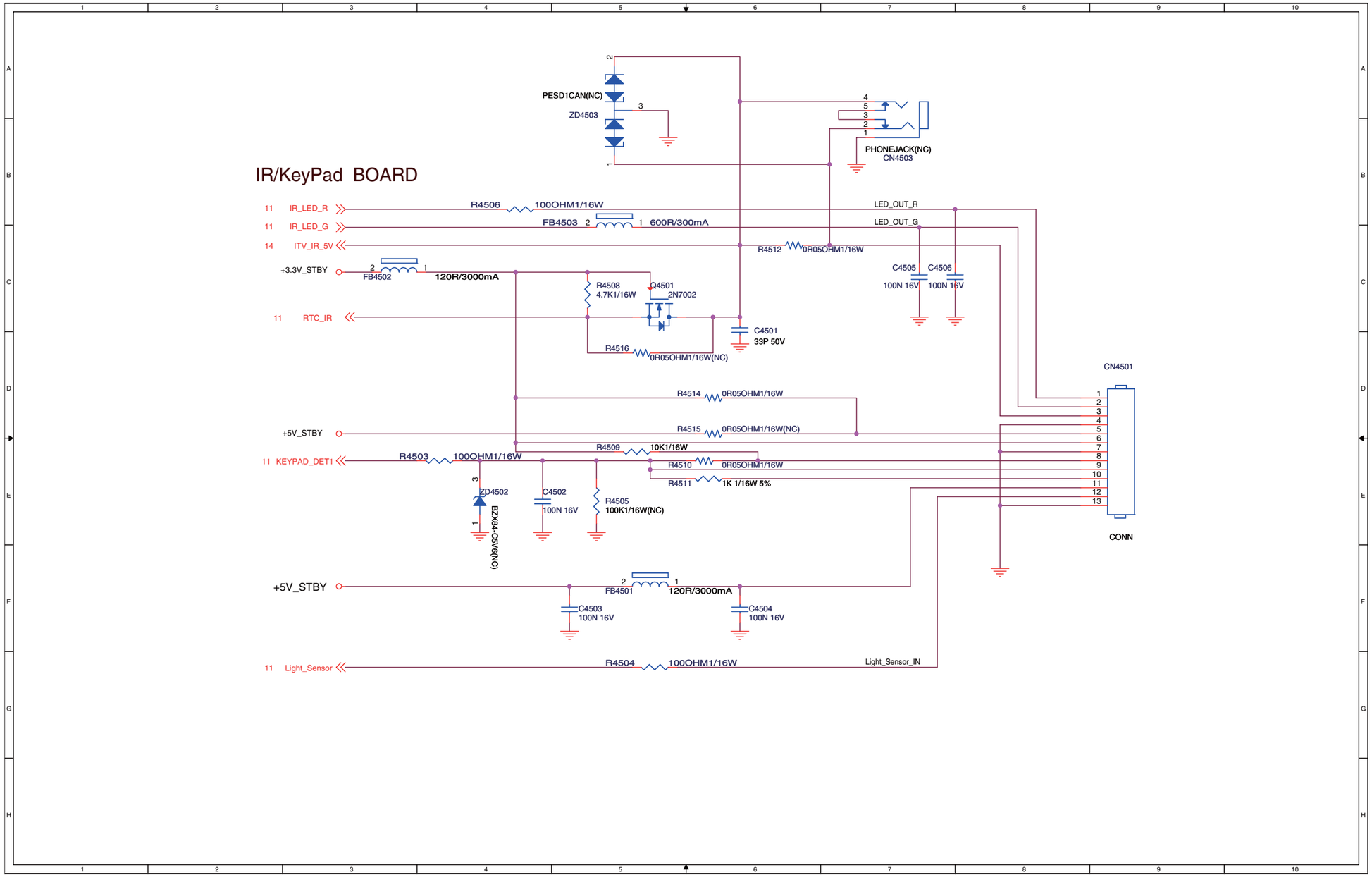
SSB: Key, I/R board

B14 Key- and I/R board

B14

CN4501 D9 CN4503 A7
C4501 C6 C4502 E4
C4503 F5 C4504 F6
C4505 C7 C4506 C7
FB4501 F5 FB4502 C3
FB4503 B5 Q4501 C5
R4503 E4 R4504 F5
R4505 E5 R4506 B4
R4508 C5 R4509 D5
R4510 E6 R4511 E6
R4512 C6 R4514 D6
R4515 D6 R4516 D5
ZD4502 E4 ZD4503 A5



KEY- AND I/R BOARD	715G3891	1 2010-04-02

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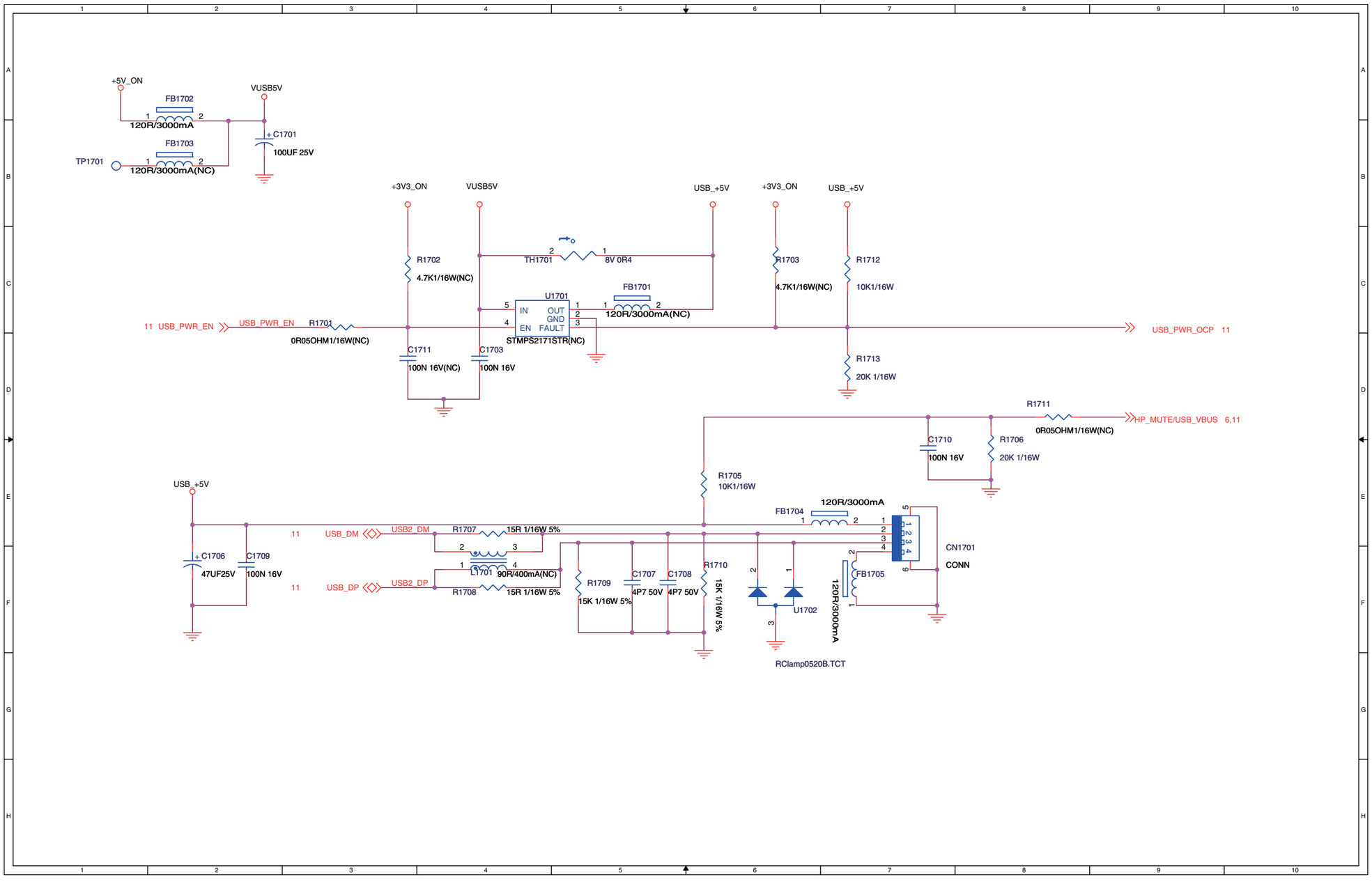
SSB: USB

B15 USB



B15

CN1701 E7 C1701 B2
C1703 D4 C1706 E2
C1707 F5 C1708 F5
C1709 F2 C1710 D7
C1711 D3 FB1701 C5
FB1702 A2 FB1703 B2
FB1704 E6 FB1705 F7
L1701 E4 R1701 C3
R1702 C3 R1703 C6
R1705 E6 R1706 D8
R1707 E4 R1708 F4
R1709 F5 R1710 F6
R1711 D8 R1712 C7
R1713 D7 TH1701 C5
TP1701 B1 U1701 C4

USB	715G3891	1 2010-04-02

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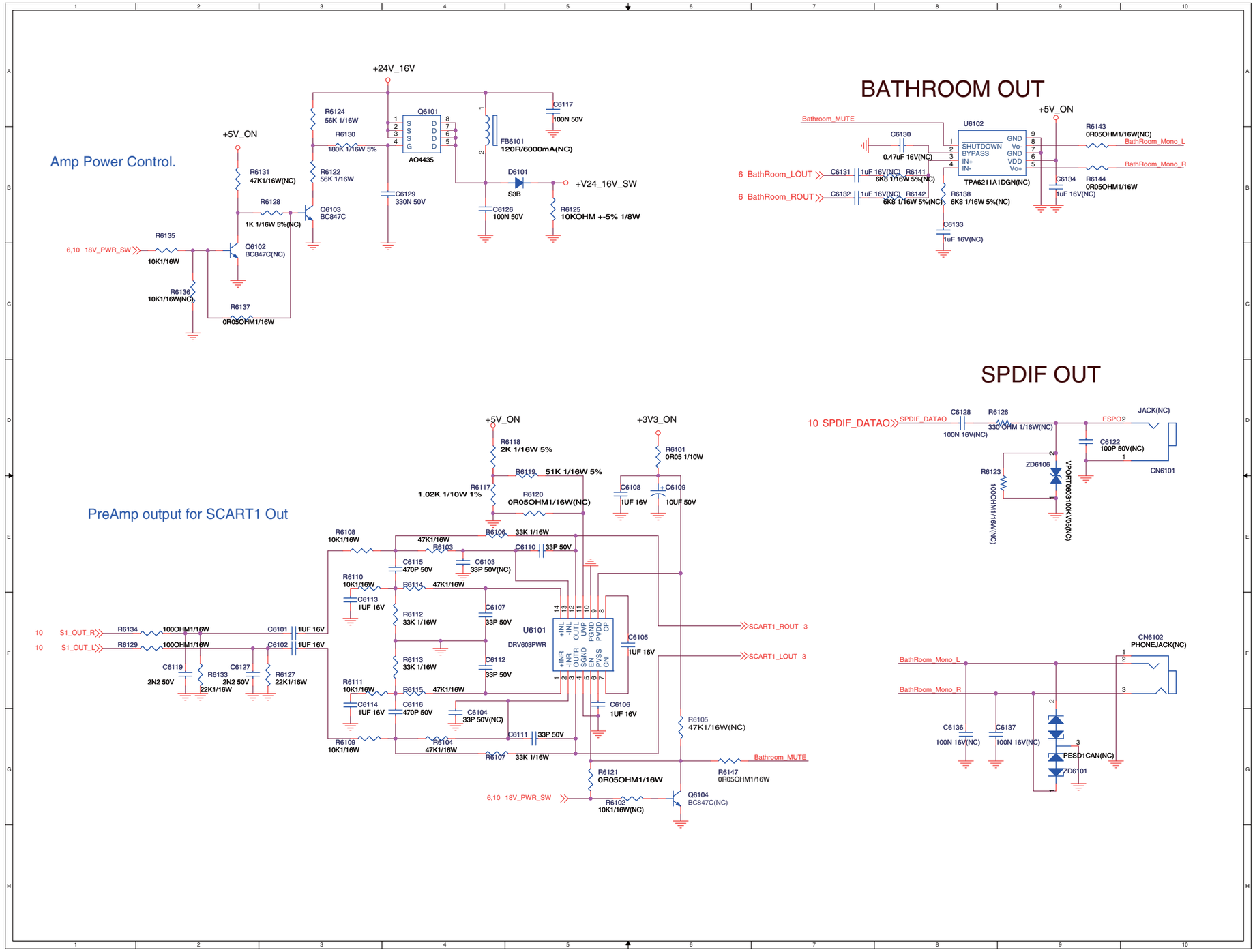
SSB: Scart audio/SPdif out

B16 Scart audio/SPdif out

B16



C6101	F3
C6102	F3
C6103	E4
C6104	F4
C6105	F5
C6106	F5
C6107	F4
C6108	E5
C6109	E6
C6110	E5
C6111	G5
C6112	F4
C6113	E3
C6114	F3
C6115	E4
C6116	F4
C6117	A5
C6119	F2
C6122	D9
C6126	B4
C6127	F2
C6128	D8
C6129	B3
C6130	B8
C6131	B7
C6132	B7
C6133	B8
C6134	B9
C6136	G8
C6137	G8
CN6101	D9
CN6102	F9
D6101	B4
FB6101	A4
Q6101	A4
Q6102	B2
Q6103	B3
Q6104	G6
R6101	D6
R6102	G5
R6103	E4
R6104	G4
R6105	F6
R6106	E4
R6107	G4
R6108	E3
R6109	G3
R6110	E3
R6111	F3
R6112	F4
R6113	F4
R6114	E4
R6115	F4
R6117	E4
R6118	D4
R6119	D5
R6120	E5
R6121	G5
R6122	B3
R6123	D8
R6124	A3
R6125	B5
R6126	D8
R6127	F2
R6128	B2
R6129	F2
R6130	B3
R6131	B2
R6133	F2
R6134	F2
R6135	B2
R6136	C2
R6137	C2
R6138	B8
R6141	B7
R6142	B7
R6143	B9
R6144	B9

B16

SCART AUDIO/SPDIF OUT	715G3891	1 2010-04-02

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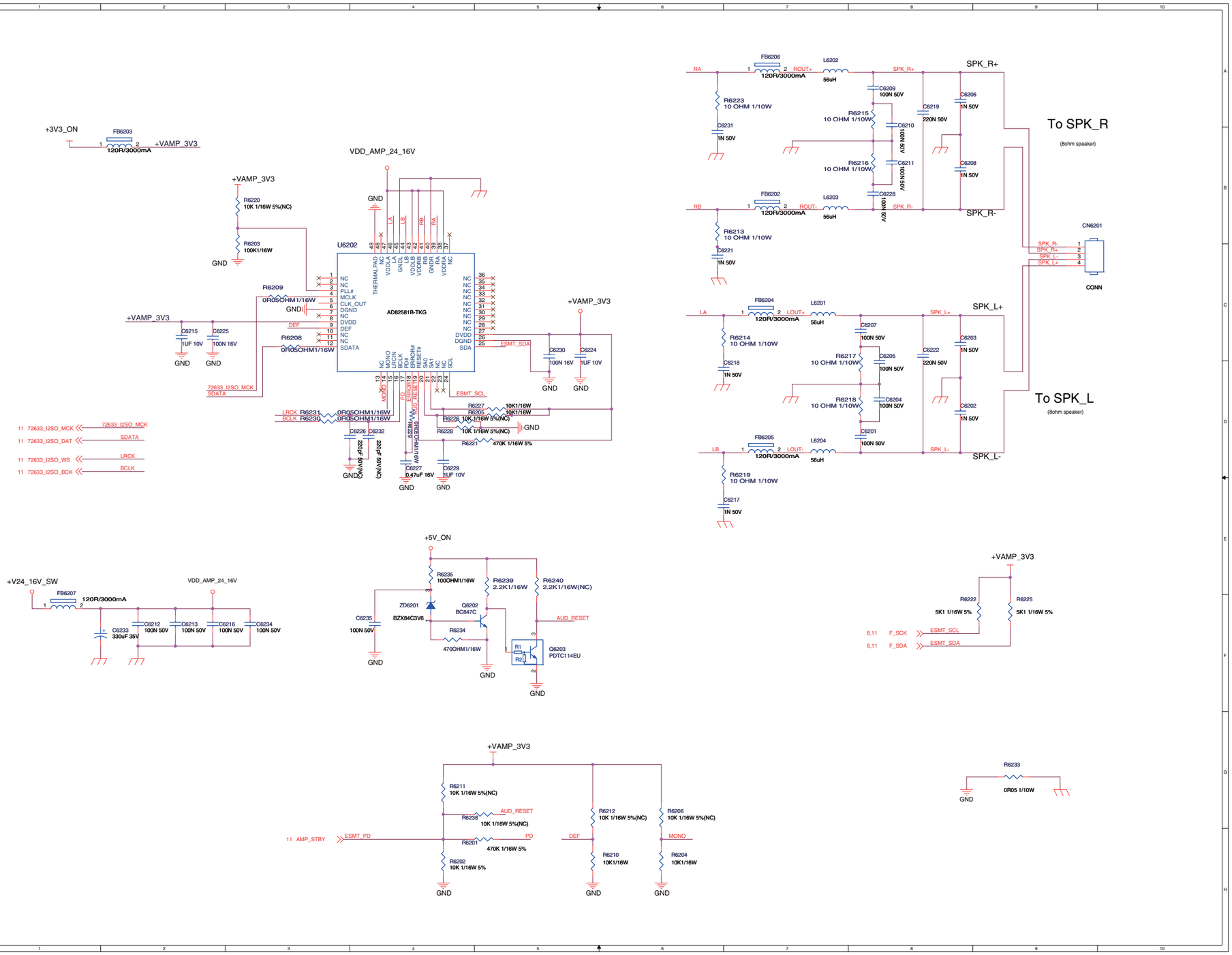
SSB: Audio amplifier

B17 Audio amplifier



B17

C6201	D7
C6202	D8
C6203	C8
C6204	D8
C6205	C8
C6206	A8
C6207	C7
C6208	B8
C6209	A8
C6210	A8
C6211	B8
C6212	F2
C6213	F2
C6215	C2
C6216	F2
C6217	E6
C6218	D6
C6219	A8
C6221	C6
C6222	C8
C6224	C5
C6225	C2
C6226	D3
C6227	D4
C6228	B8
C6229	D4
C6230	C5
C6231	B6
C6232	D4
C6233	F1
C6234	F3
C6235	F4
CN6201	B9
FB6202	B7
FB6203	B2
FB6204	C7
FB6205	D7
FB6206	A7
FB6207	E1
L6201	C7
L6202	A7
L6203	B7
L6204	D7
Q6202	F4
Q6203	F5
R6201	G4
R6202	H4
R6203	B3
R6204	H6
R6205	D5
R6206	G6
R6208	C3
R6209	C3
R6210	H5
R6211	G4
R6212	G5
R6213	B6
R6214	C6
R6215	A8
R6216	B8
R6217	C7
R6218	D7
R6219	D6
R6220	B3
R6221	D4
R6222	F8
R6223	A6
R6225	F9
R6226	D4
R6227	D5
R6228	D4
R6229	D4
R6230	D3
R6231	D3
R6233	G9
R6234	F4
R6235	E4
R6238	G4

AUDIO_AMP_AD82581B	715G3891	1 2010-04-02

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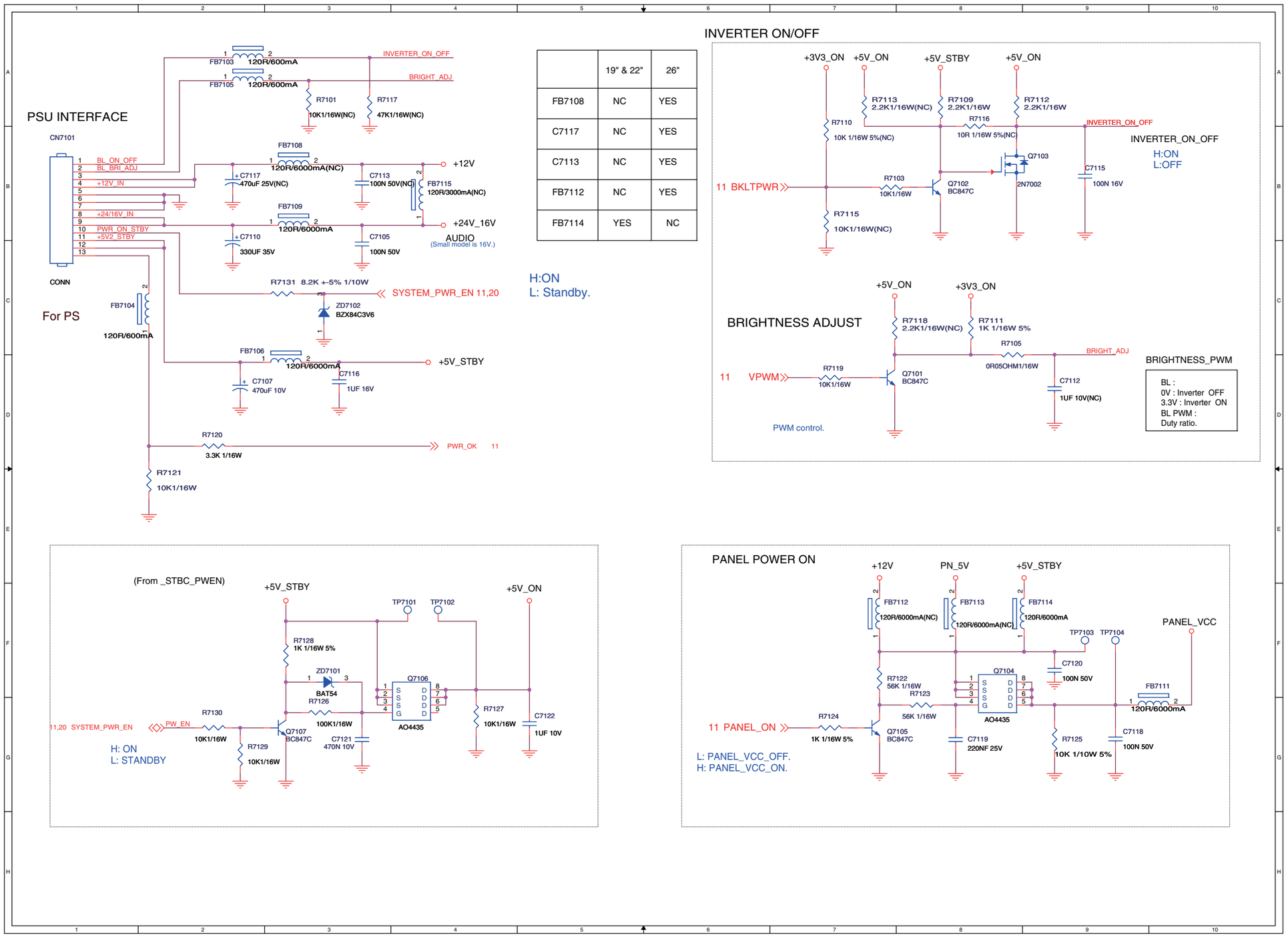
SSB: PSU & Inverter I/F

B18 PSU & Inverter I/F

B18



	19" & 22"	26"
FB7108	NC	YES
C7117	NC	YES
C7113	NC	YES
FB7112	NC	YES
FB7114	YES	NC

CN7101 B1 C7105 B3
C7107 D2 C7110 B2
C7112 D9 C7113 B3
C7115 B9 C7116 D3
C7117 B2 C7118 G9
C7119 G8 C7120 F9
C7121 G3 C7122 G4
FB7103 A2 FB7104 C1
FB7105 A2 FB7106 C3
FB7108 B3 FB7109 B3
FB7111 F9 FB7112 F7
FB7113 F8 FB7114 F8
FB7115 B4 Q7101 D7
Q7102 B8 Q7103 B8
Q7104 F8 Q7105 G7
Q7106 F3 Q7107 G3
R7101 A3 R7103 B7
R7105 C8 R7109 A8
R7110 A7 R7111 C8
R7112 A8 R7113 A7
R7115 B7 R7116 A8
R7117 A3 R7118 C7
R7119 D7 R7120 D2
R7121 D2 R7122 F7
R7123 F8 R7124 G7
R7125 G9 R7126 F3
R7127 F4 R7128 F3
R7129 G2 R7130 G2
R7131 C3 TP7101 F4
TP7102 F4 TP7103 F9
TP7104 F9 ZD7101 F3

PSU & INVERTER I/F	715G3891	1 2010-04-02

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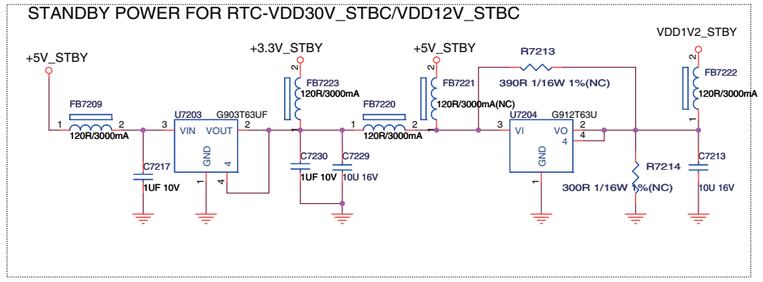
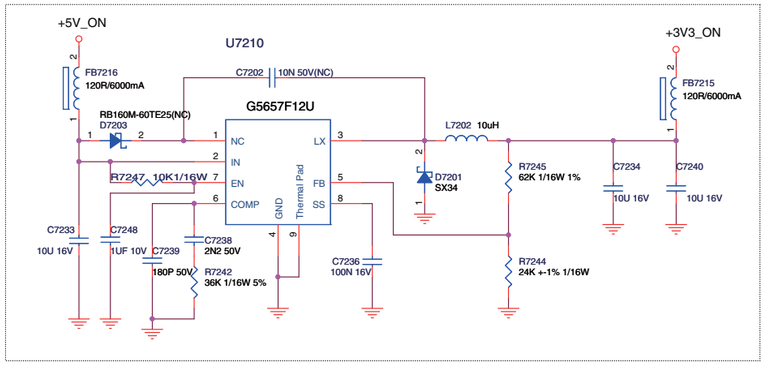
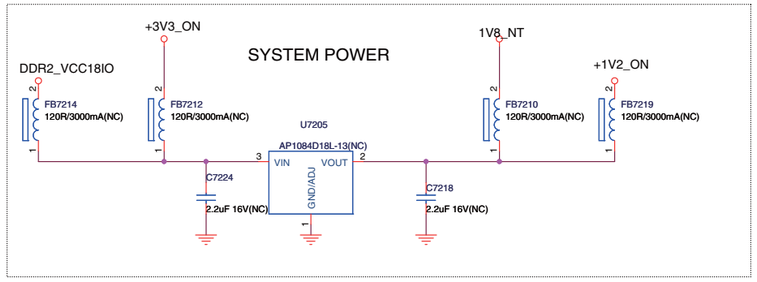
SSB: DC-DC Power

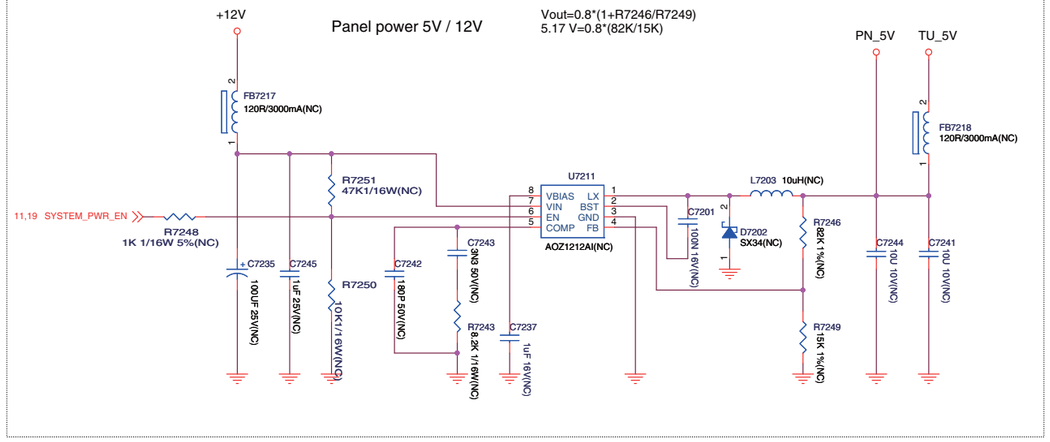
B19 DC-DC Power

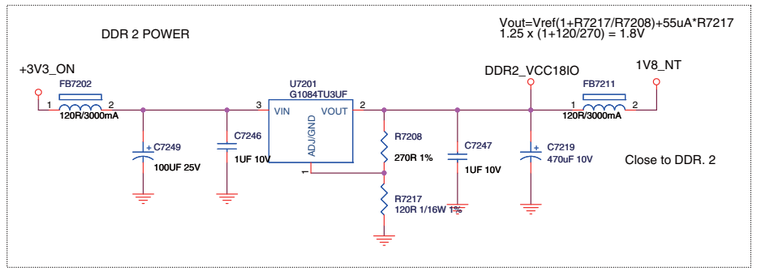
B19

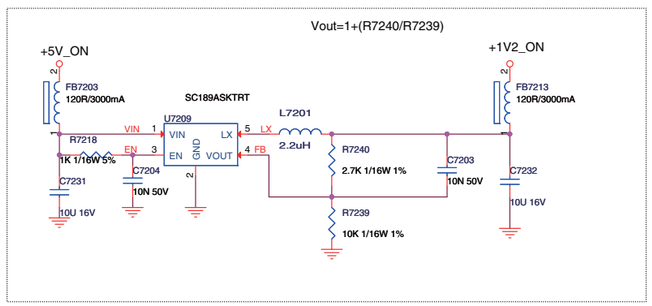












	5V	12V
R7246	82K	210K
R7249	15K	15K

C7201	E8
C7202	A7
C7203	G3
C7204	G1
C7213	B4
C7217	B1
C7218	D3
C7219	E3
C7224	D2
C7229	B2
C7230	B2
C7231	G1
C7232	G3
C7233	B6
C7234	B8
C7235	E6
C7236	B7
C7237	E7
C7238	B6
C7239	B6
C7240	B9
C7241	E9
C7242	E7
C7243	E7
C7244	E9
C7245	E6
C7246	E2
C7247	E3
C7248	B6
C7249	E1
D7201	B7
D7202	E8
D7203	A6
FB7202	E1
FB7203	G1
FB7209	A1
FB7210	C3
FB7211	E4
FB7212	C1
FB7213	G3
FB7214	C1
FB7215	A8
FB7216	A5
FB7217	D6
FB7218	D9
FB7219	C4
FB7220	A3
FB7221	A3
FB7222	A4
FB7223	A2
L7201	G2
L7202	A7
L7203	E9
R7208	E3
R7213	A3
R7214	B4
R7217	F3
R7218	G1
R7239	G2
R7240	G2
R7242	B6
R7243	E7
R7244	B8
R7245	B8
R7246	E9
R7247	B6
R7248	E6
R7249	E9
R7250	E6
R7251	D6
U7201	E2
U7203	A2
U7204	A3
U7205	C2
U7209	G2
U7210	A6

B19

DC-DC POWER | 715G3891 | 1 2010-04-02

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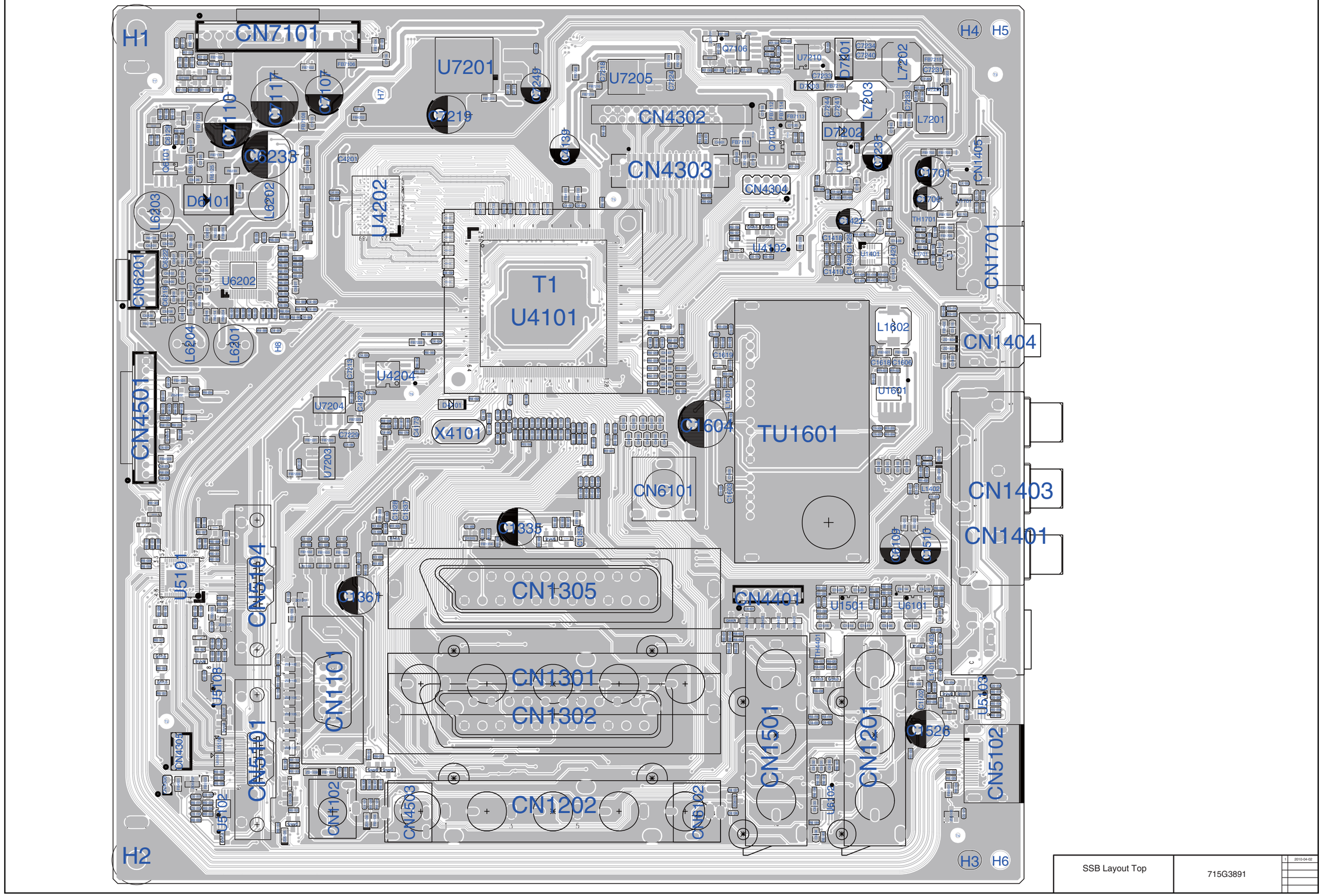
Layout Small Signal Board (Overview Top Side)



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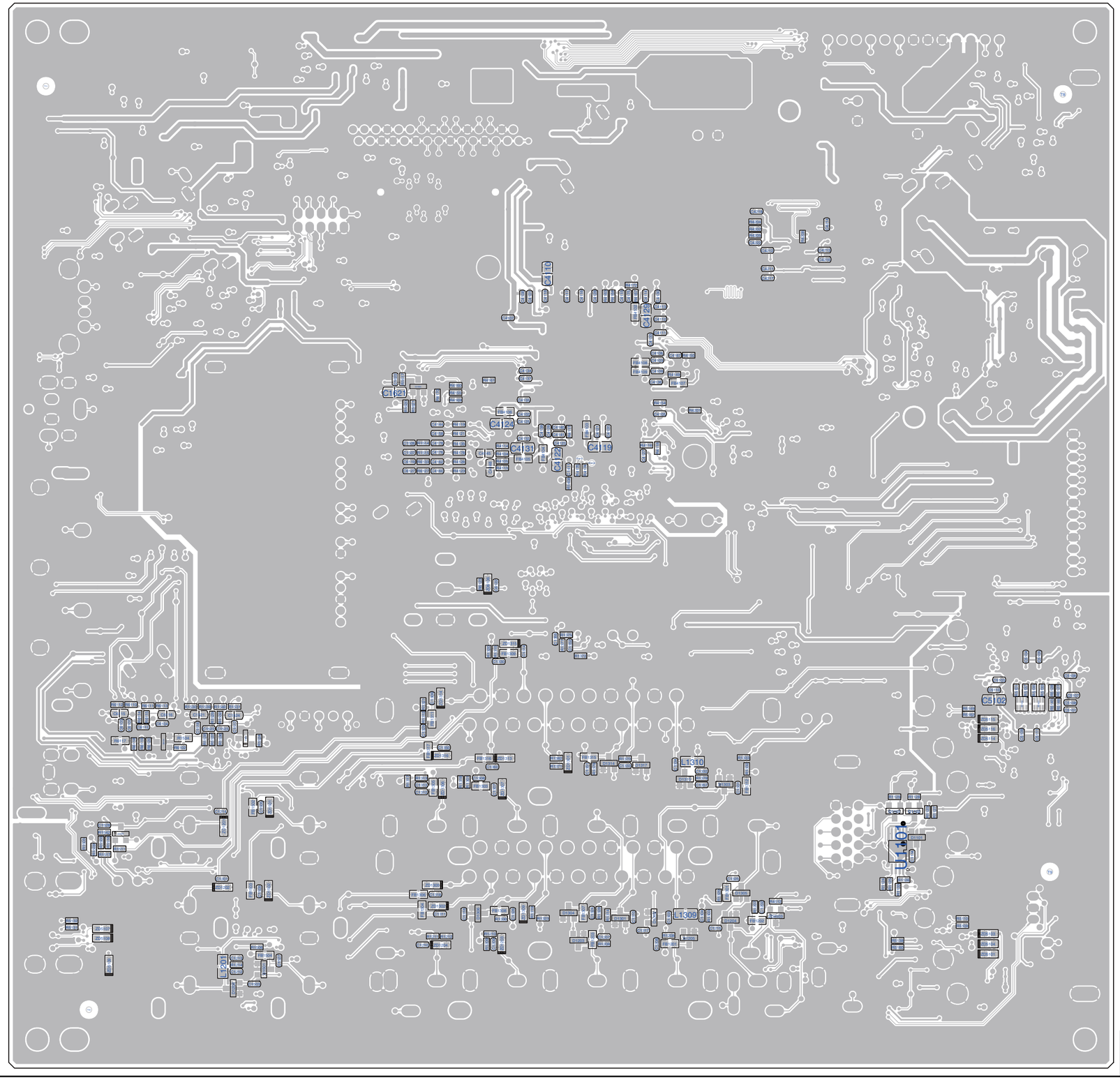
100601

Layout Small Signal Board (Overview Bottom Side)



SSB Layout Bottom	715G3891	1 2010-04-02

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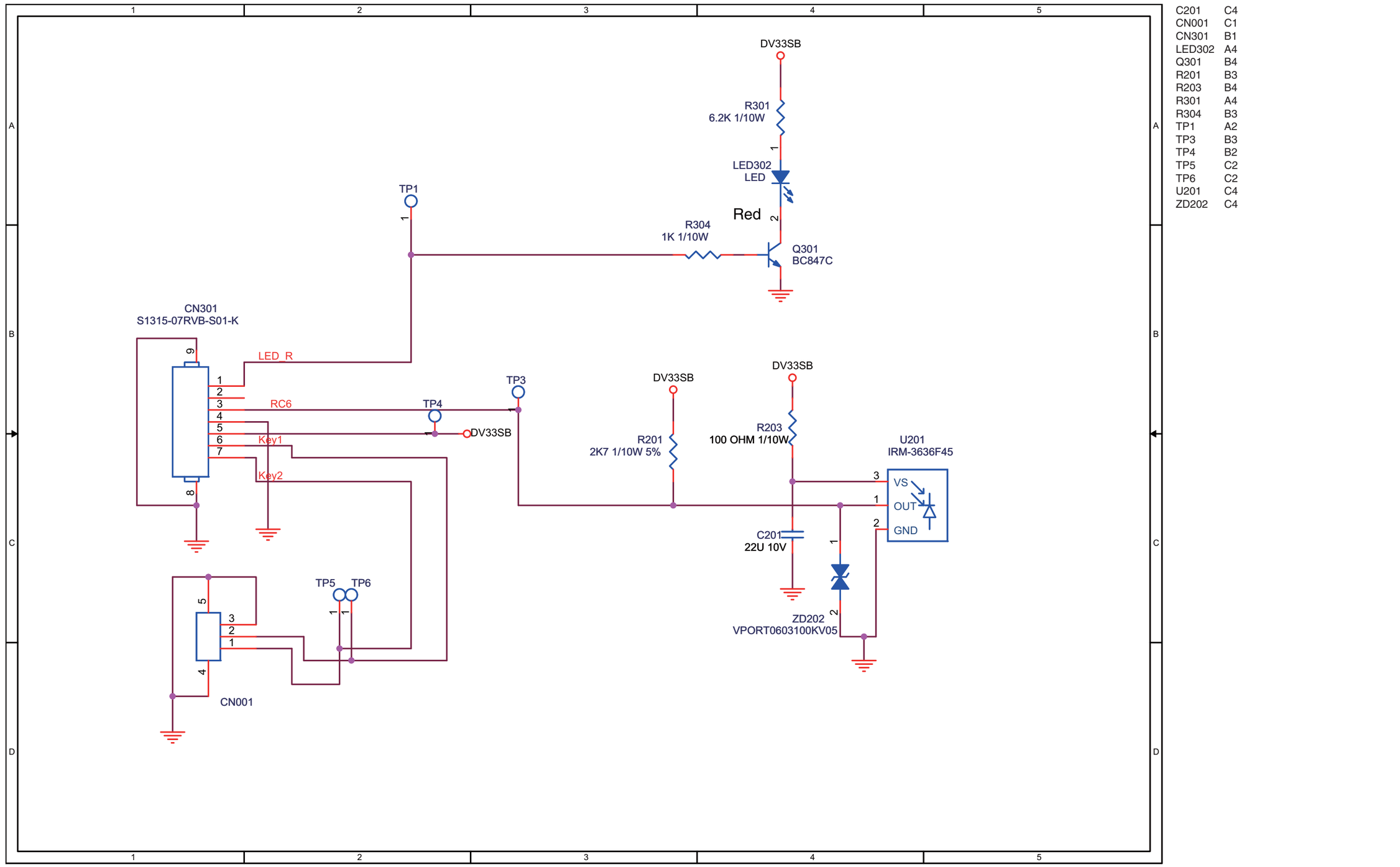
IR/LED Board

J IR/LED Board J



C201	C4
CN001	C1
CN301	B1
LED302	A4
Q301	B4
R201	B3
R203	B4
R301	A4
R304	B3
TP1	A2
TP3	B3
TP4	B2
TP5	C2
TP6	C2
U201	C4
ZD202	C4

IR/LED BOARD	715G3975	A 2010-04-02

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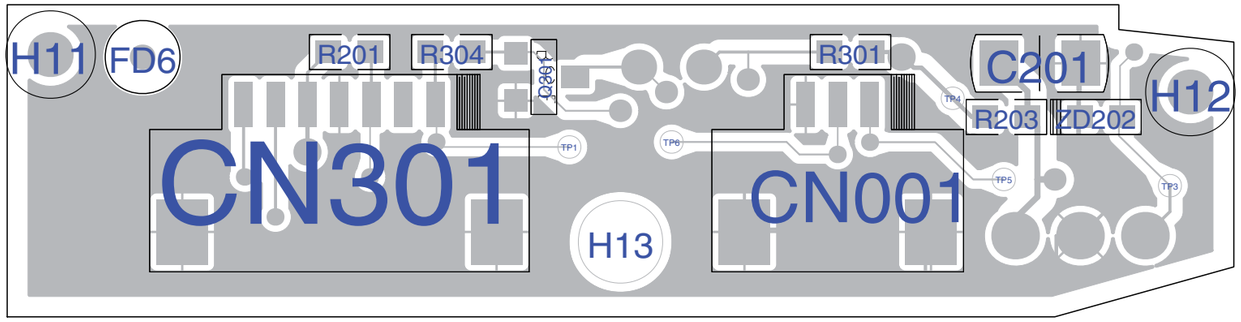
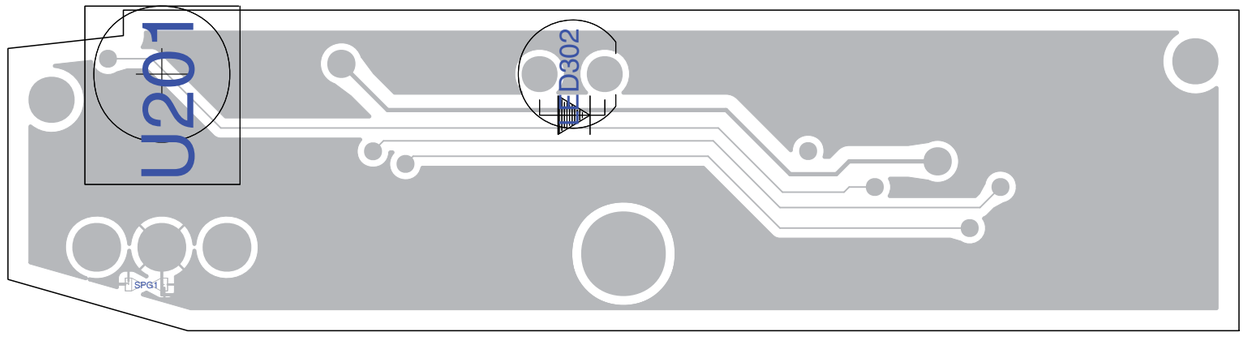
Layout IR/LED Board (Top Side)

Top



Bottom



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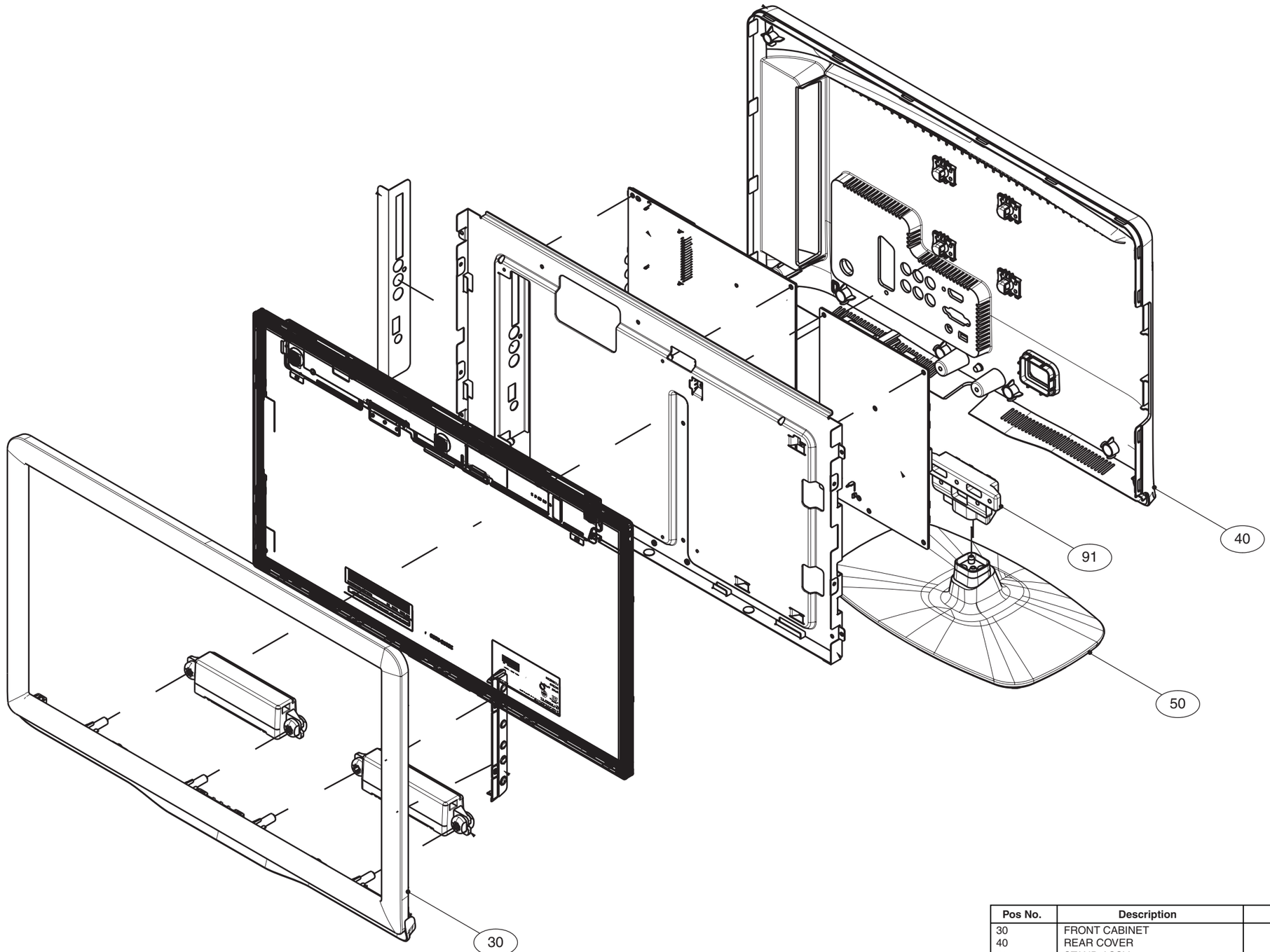
100428

11. Styling Sheets

Styling Sheet 19"

PICO 19"



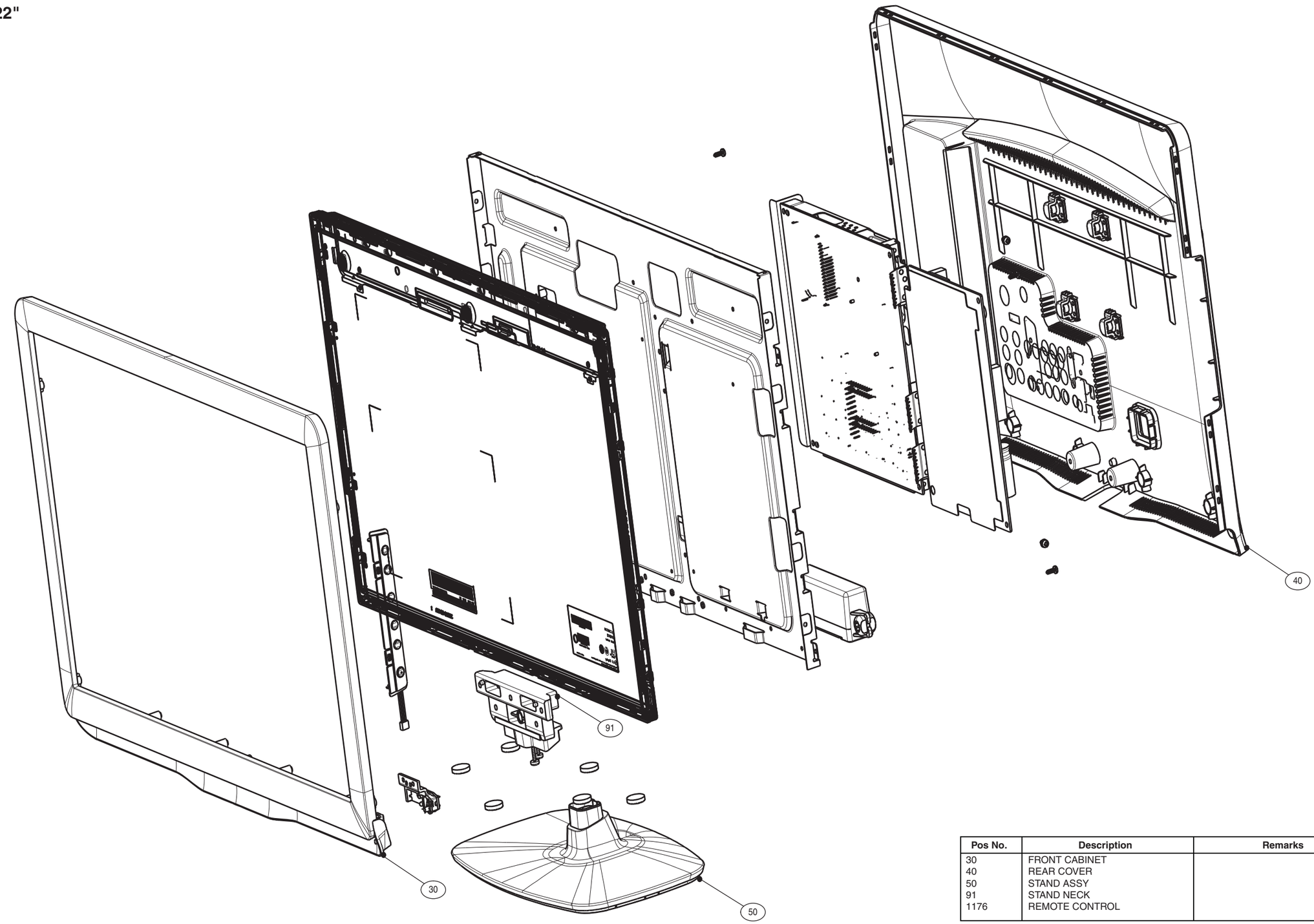
Pos No.	Description	Remarks
30	FRONT CABINET	
40	REAR COVER	
50	STAND ASSY	
91	STAND NECK	
1176	REMOTE CONTROL	

FOR ELECTRICAL PARTS/ASSEMBLIES SEE WIRING DIAGRAM CHAPTER 9

18840_800_100415.eps
100415

Styling Sheet 22"

PICO 22"



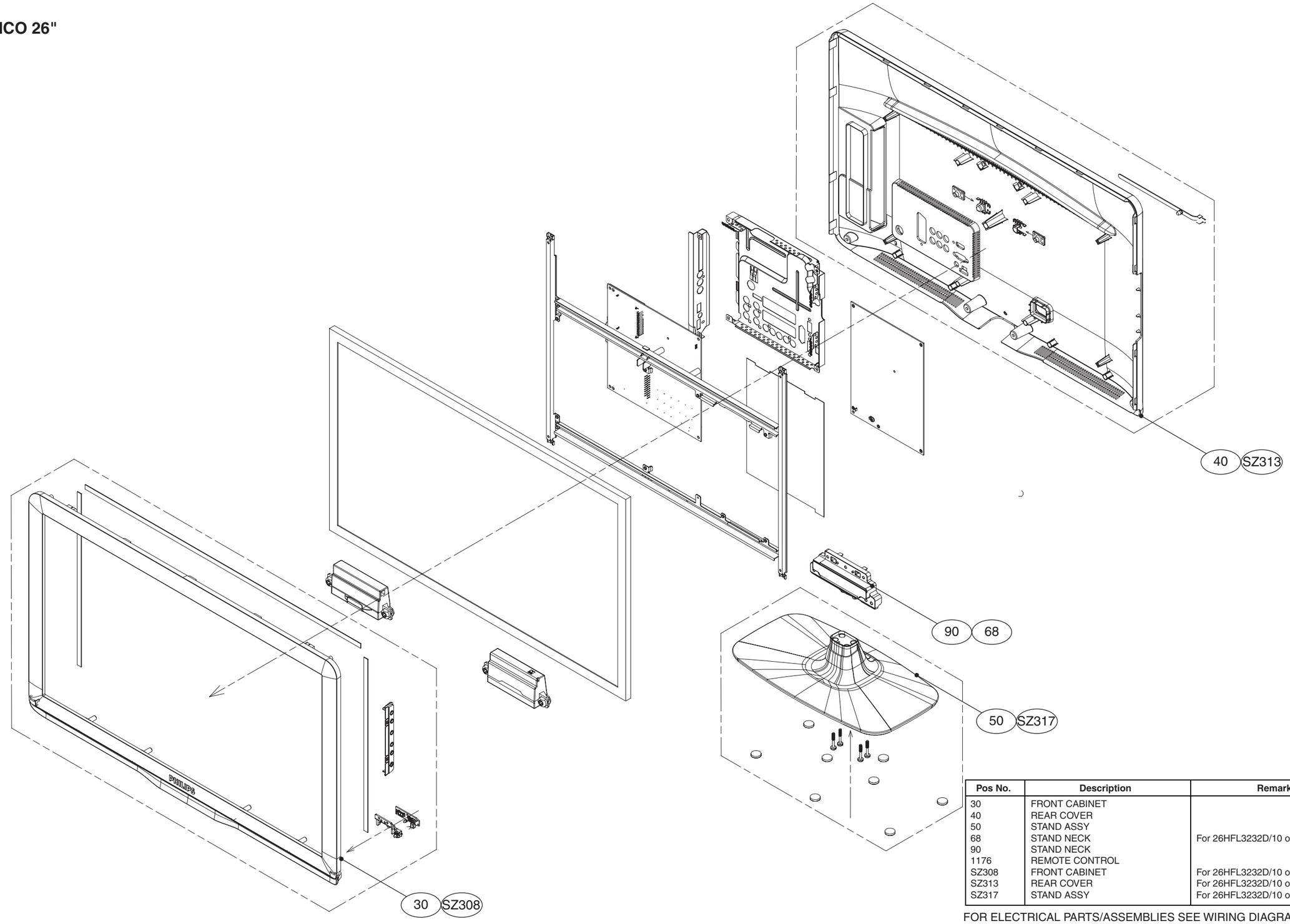
Pos No.	Description	Remarks
30	FRONT CABINET	
40	REAR COVER	
50	STAND ASSY	
91	STAND NECK	
1176	REMOTE CONTROL	

FOR ELECTRICAL PARTS/ASSEMBLIES SEE WIRING DIAGRAM CHAPTER 9

18840_801_100415.eps
100426

Styling Sheet 26"

PICO 26"



Pos No.	Description	Remarks
30	FRONT CABINET	
40	REAR COVER	
50	STAND ASSY	
68	STAND NECK	For 26HFL3232D/10 only
90	STAND NECK	
1176	REMOTE CONTROL	
SZ308	FRONT CABINET	For 26HFL3232D/10 only
SZ313	REAR COVER	For 26HFL3232D/10 only
SZ317	STAND ASSY	For 26HFL3232D/10 only

FOR ELECTRICAL PARTS/ASSEMBLIES SEE WIRING DIAGRAM CHAPTER 9

18840_802_100415.eps
100713