Colour Television

Chassis

Q552.1E

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Service Manual

Published by ER/TY 1062 BU TV Consumer Care, the Netherlands

Subject to modification

EN 3122 785 18770

2010-Feb-19

PHILIPS

1. Revision List

Manual xxxx xxx xxxx.0

- First release.

2. Technical Specifications, Diversity, 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 Table 2-1. Here is product information available, as well as getting started, user manuals, frequently asked questions and software & drivers.

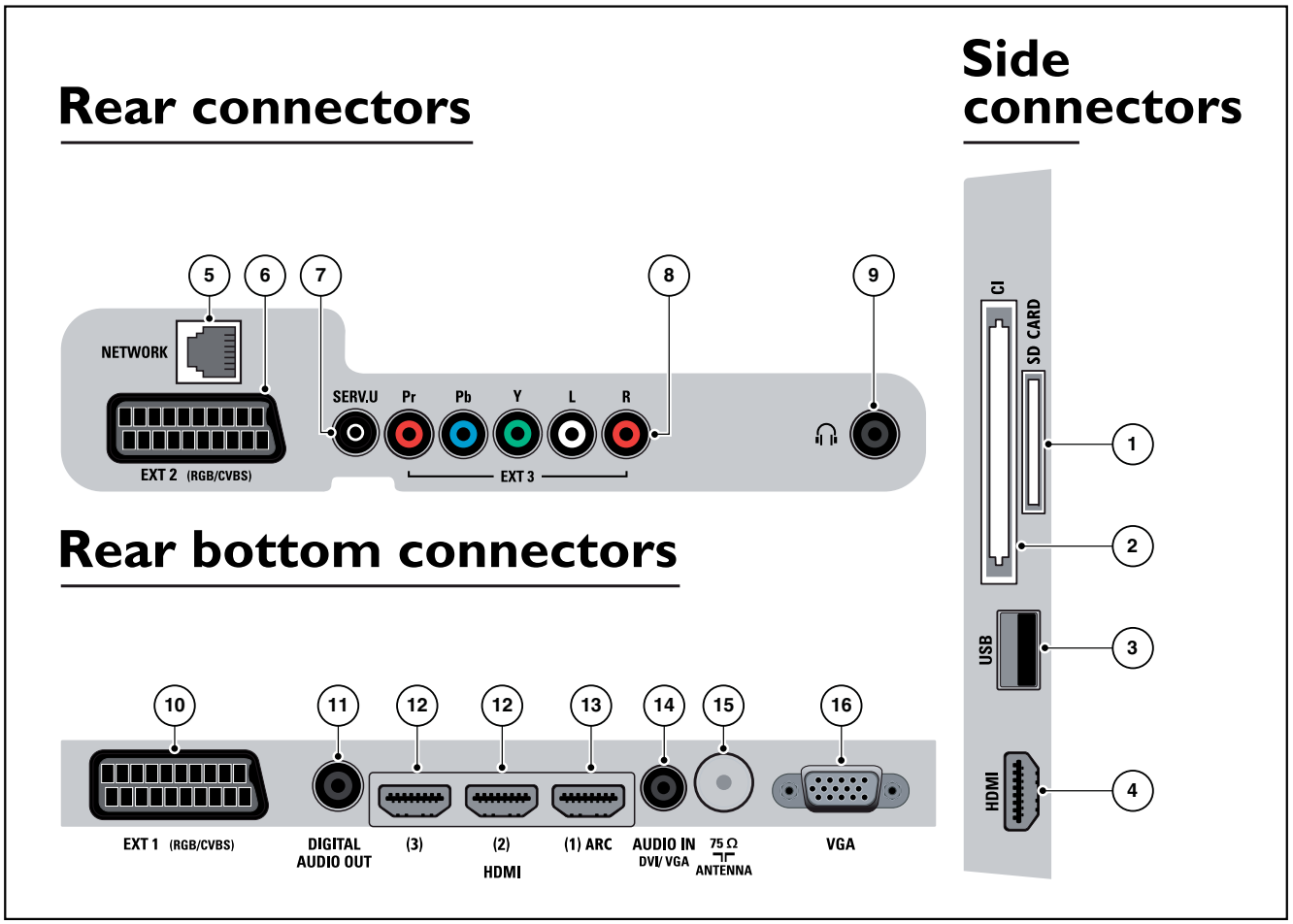
Table 2-1 Described Model numbers and diversity

		SSB		2	4			7				9	10															
				Conn	Mechanics			Descriptions				Wng	Schematics															
CTN	Styling styling sh.	3104 313	Layout		Wire	Assembly Removal	LCD Removal	PSU	Tuner	AmbiLight	TCON	Diagram	ALxx (Ambilight) LiteOn	Layout LiteOn	ALxx (Ambilight) Everlight	Layout Everlight	B01 (Tuner)	B02 (PNX8500)	B03 (DC/DC / Class D)	B04 (I/O)	B05 (DDR)	B06 (non-DVBS-LVDS)	B07 (DVBS-FE)	B08 (DVBS-Supp.)	B09 (non-DVBS-conn.)	B11 (TCON-LGD)	B13 (Ambilight)	B14 (TCON-SHP)
32PFL5405H/05	Rembrandt 11-1	64025	10-31	2.3	4-1	4.5	4.5.9	7.2	7.4.1	-	7.10	9-1	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	10-23	10-25	-
32PFL5405H/12	Rembrandt 11-1	64025	10-31	2.3	4-1	4.5	4.5.9	7.2	7.4.1	-	7.10	9-1	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	10-23	10-25	-
32PFL5405H/60	Rembrandt 11-1	64025	10-31	2.3	4-1	4.5	4.5.9	7.2	7.4.1	-	7.10	9-1	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	10-23	10-25	-
32PFL5605H/05	van Gogh 11-3	64003	10-30	2.3	4-4	4.6	4.6.8	7.2	7.4.1	-	7.10	9-3	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	-	10-25	10-27
32PFL5605H/12	van Gogh 11-3	64003	10-30	2.3	4-4	4.6	4.6.8	7.2	7.4.1	-	7.10	9-3	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	-	10-25	10-27
32PFL5605H/60	van Gogh 11-3	64003	10-30	2.3	4-4	4.6	4.6.8	7.2	7.4.1	-	7.10	9-3	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	-	10-25	10-27
32PFL7605H/05	Matisse 11-4	64064	10-32	2.3	4-7	4.7	4.6.8	7.2	7.4.1	7.9	7.10	9-4	10-1 10-2	10-5	10-6 10-7	10-10	10-11	10-12	10-13	10-14	10-16	-	-	-	-	10-23	10-25	-
32PFL7605H/12	Matisse 11-4	64064	10-32	2.3	4-7	4.7	4.6.8	7.2	7.4.1	7.9	7.10	9-4	10-1 10-2	10-5	10-6 10-7	10-10	10-11	10-12	10-13	10-14	10-16	-	-	-	-	10-23	10-25	-
37PFL5405H/05	Rembrandt 11-2	64025	10-31	2.3	4-2	4.5	4.5.9	7.2	7.4.1	-	7.10	9-2	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	10-23	10-25	-
37PFL5405H/12	Rembrandt 11-2	64025	10-31	2.3	4-2	4.5	4.5.9	7.2	7.4.1	-	7.10	9-2	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	10-23	10-25	-
40PFL5605H/05	van Gogh 11-3	64003	10-30	2.3	4-5	4.6	4.6.8	7.2	7.4.1	-	7.10	9-3	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	-	10-25	10-27
40PFL5605H/12	van Gogh 11-3	64003	10-30	2.3	4-5	4.6	4.6.8	7.2	7.4.1	-	7.10	9-3	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	-	10-25	10-27
40PFL5605H/60	van Gogh 11-3	64003	10-30	2.3	4-5	4.6	4.6.8	7.2	7.4.1	-	7.10	9-3	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	-	10-25	10-27
40PFL7605H/05	Matisse 11-4	63643	10-29	2.3	4-8	4.7	4.6.8	7.2	7.4.1	7.9	7.10	9-5	10-1 10-3	10-5	10-6 10-8	10-10	10-11	10-12	10-13	10-14	10-16	10-18	-	-	10-22	-	-	-
40PFL7605H/12	Matisse 11-4	63643	10-29	2.3	4-8	4.7	4.6.8	7.2	7.4.1	7.9	7.10	9-5	10-1 10-3	10-5	10-6 10-8	10-10	10-11	10-12	10-13	10-14	10-16	10-18	-	-	10-22	-	-	-
42PFL5405H/05	Rembrandt 11-2	64025	10-31	2.3	4-3	4.5	4.5.9	7.2	7.4.1	-	7.10	9-2	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	10-23	10-25	-
42PFL5405H/12	Rembrandt 11-2	64025	10-31	2.3	4-3	4.5	4.5.9	7.2	7.4.1	-	7.10	9-2	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	10-23	10-25	-
42PFL5405H/60	Rembrandt 11-2	64025	10-31	2.3	4-3	4.5	4.5.9	7.2	7.4.1	-	7.10	9-2	-	-	-	-	10-11	10-12	10-13	10-14	10-15	-	-	-	-	10-23	10-25	-

2.2 Directions for Use

You can download this information from the following websites:
http://www.philips.com/support
http://www.p4c.philips.com

2.3 Connections



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100210

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 - SD-Card: Secure Digital Card - In/Out (optional)

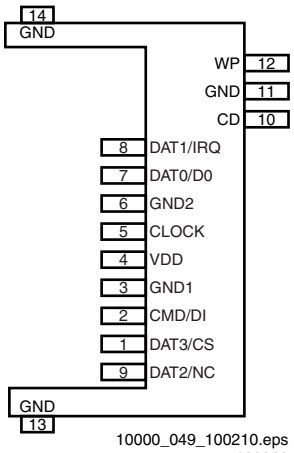

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Figure 2-2 SD-Card connector

1	- DAT3/CS	Signal	
2	- CMD/DI	Signal	
3	- GND1	Gnd	
4	- Vdd	Supply	
5	- CLOCK	Signal	
6	- GND2	Gnd	
7	- DAT0/D0	Signal	
8	- DAT1/IRQ	Signal	
9	- DAT2/NC	Signal	
10	- CD	Signal	
11	- GND	Gnd	
12	- WP	Signal	
13	- GND	Gnd	
14	- GND	Gnd	

2 - Common Interface

68p - See diagram B01F HDMI & CI

3 - USB2.0

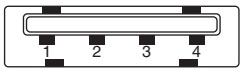

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Figure 2-3 USB (type A)

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

back to div. table

4 - HDMI: Digital Video, Digital Audio - In

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Figure 2-4 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/CEC	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

5 - RJ45: Ethernet (optional)

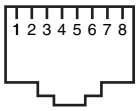

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Figure 2-5 Ethernet connector

1	- TD+	Transmit signal	⊖→
2	- TD-	Transmit signal	⊖→
3	- RD+	Receive signal	⊕→
4	- CT	Centre Tap: DC level fixation	
5	- CT	Centre Tap: DC level fixation	
6	- RD-	Receive signal	⊕→
7	- GND	Gnd	⏚
8	- GND	Gnd	⏚

6 - EXT2: Video RGB - In, CVBS - In/Out, Audio - In/Out

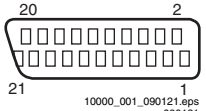

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Figure 2-6 SCART connector

1	- Audio R	0.5 V_{RMS} / 1 kohm	⊖→
2	- Audio R	0.5 V_{RMS} / 10 kohm	⊕→
3	- Audio L	0.5 V_{RMS} / 1 kohm	⊖→
4	- Ground Audio	Gnd	⏚
5	- Ground Blue	Gnd	⏚
6	- Audio L	0.5 V_{RMS} / 10 kohm	⊕→
7	- Video Blue	0.7 V_{PP} / 75 ohm	⊕⊖→
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 ohm	⊕→
12	- n.c.		
13	- Ground Red	Gnd	⏚
14	- Ground P50	Gnd	⏚
15	- Video Red	0.7 V_{PP} / 75 ohm	⊕→
16	- Status/FBL	0 - 0.4 V: INT 1 - 3 V: EXT / 75 ohm	⊕→
17	- Ground Video	Gnd	⏚
18	- Ground FBL	Gnd	⏚
19	- Video CVBS/Y	1 V_{PP} / 75 ohm	⊖→
20	- Video CVBS	1 V_{PP} / 75 ohm	⊕→
21	- Shield	Gnd	⏚

7 - Service Connector (UART)

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

8 - EXT3: Cinch: Video YPbPr - In, Audio - In

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

9 - Head phone (Output)

Bk	- Head phone	32 - 600 ohm / 10 mW	3.5mm

2.3.3 Rear Connections - Bottom

10 - EXT1: Video RGB - In, CVBS - In/Out, Audio - In/Out

See 6 - EXT2: Video RGB - In, CVBS - In/Out, Audio - In/Out

11 - Cinch: S/PDIF - Out

Bk	- Coaxial	0.4 - 0.6V_{PP} / 75 ohm	⊖→◎

12 - HDMI 2 (& 3 optional): Digital Video, Digital Audio - In

See 4 - HDMI: Digital Video, Digital Audio - In

13 - HDMI 1: Digital Video - In, Digital Audio with ARC - In/Out

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Figure 2-7 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/CEC	Control channel	⊕⊖→
14	- ARC	Audio Return Channel	⊖→
15	- DDC_SCL	DDC clock	⊕→
16	- DDC_SDA	DDC data	⊕⊖→
17	- Ground	Gnd	⏚
18	- +5V		⊕→
19	- HPD	Hot Plug Detect	⊕→
20	- Ground	Gnd	⏚

14 - Cinch: Audio - In (VGA/DVI)

Rd	- Audio R	0.5 V_{RMS} / 10 kohm	⊕→◎
Wh	- Audio L	0.5 V_{RMS} / 10 kohm	⊕→◎

15 - Aerial - In

-	- IEC-type (EU)	Coax, 75 ohm	⊤⊢

16 - VGA: Video RGB - In

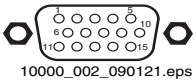

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Figure 2-8 VGA Connector

1	- Video Red	0.7 V_{PP} / 75 ohm	⊕→
2	- Video Green	0.7 V_{PP} / 75 ohm	⊕→
3	- Video Blue	0.7 V_{PP} / 75 ohm	⊕→
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	- n.c.		
12	- DDC_SDA	DDC data	⊕→
13	- H-sync	0 - 5 V	⊕→
14	- V-sync	0 - 5 V	⊕→
15	- DDC_SCL	DDC clock	⊕→

2.4 Chassis Overview

Refer to chapter 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. 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 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

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: 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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100105

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

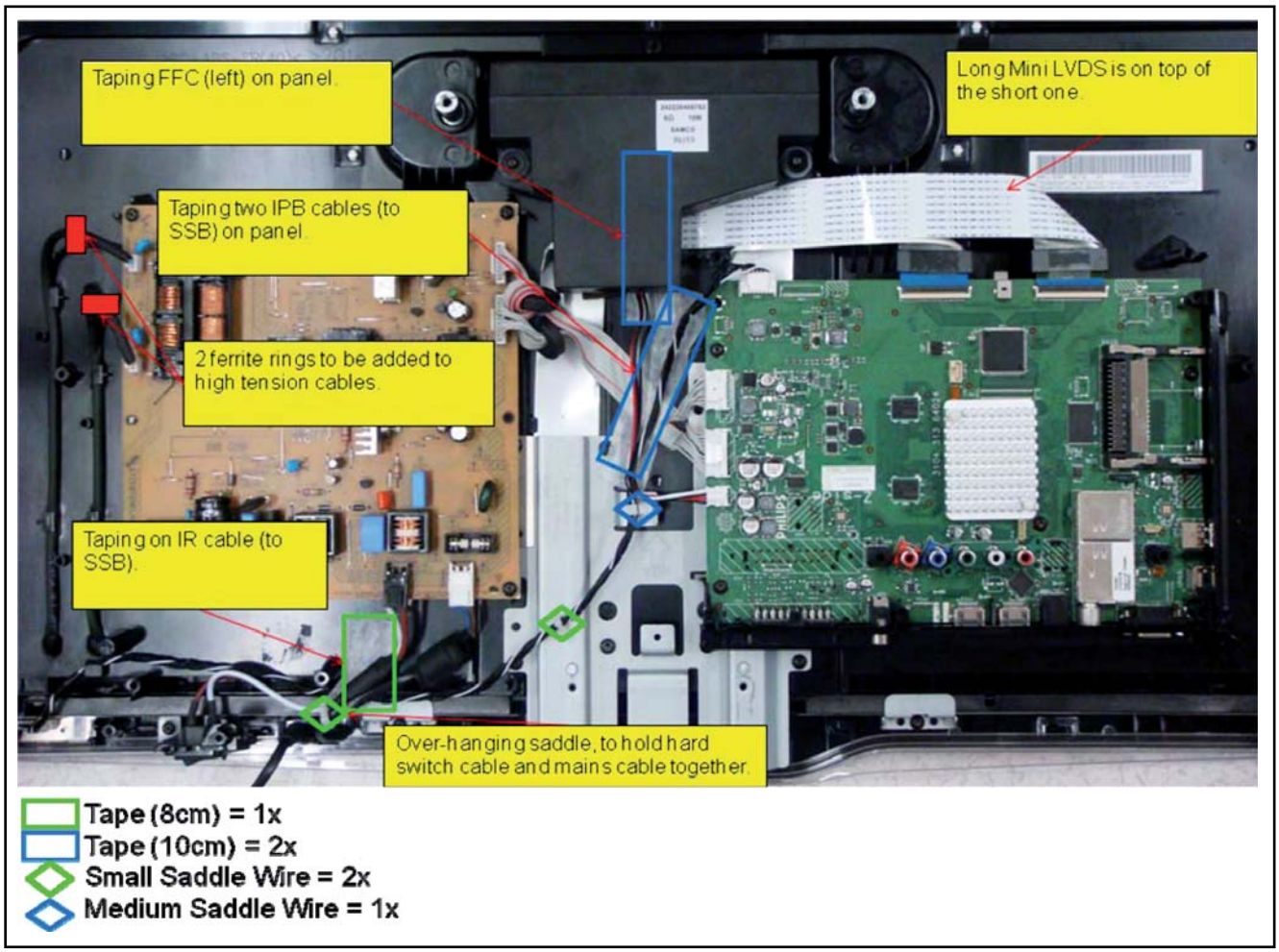
4. Mechanical Instructions

Index of this chapter:

Notes:

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

4.1 Cable Dressing Rembrandt series



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100211

Figure 4-1 Cable dressing 32PFL5405H/xx

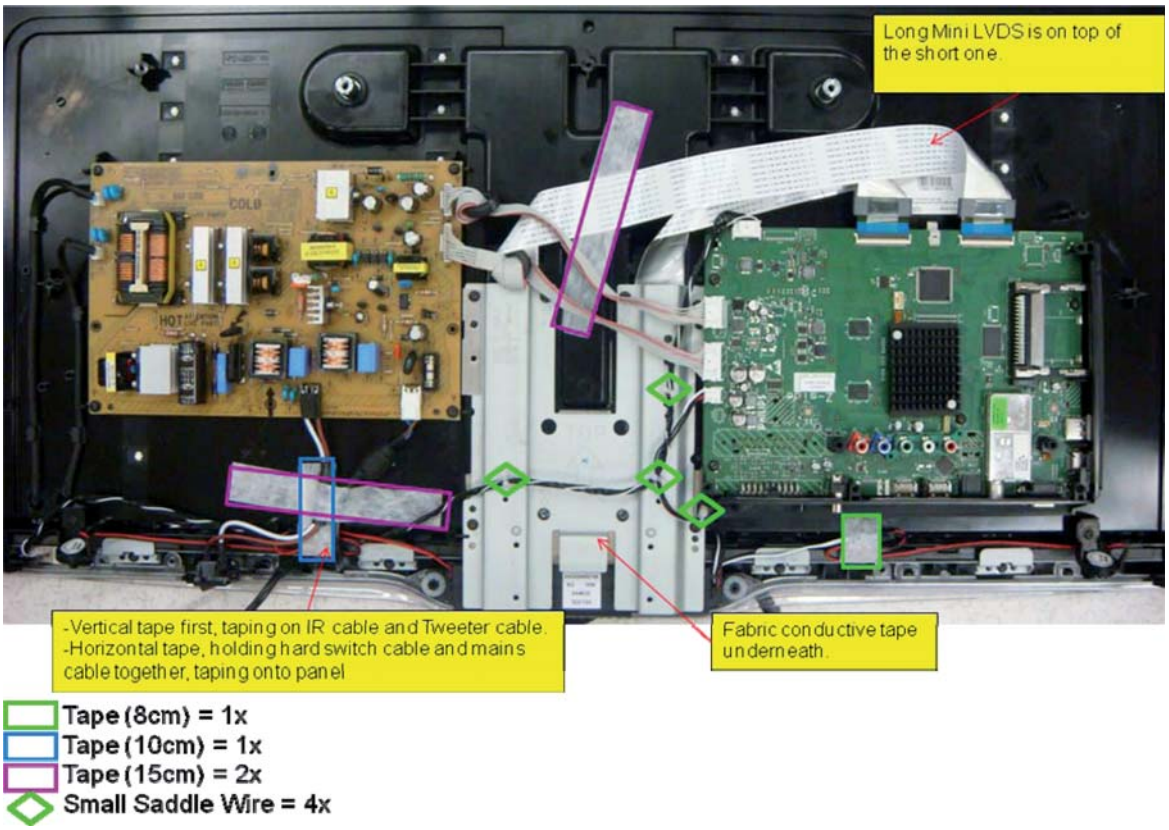

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Figure 4-2 Cable dressing 37PFL5405H/xx

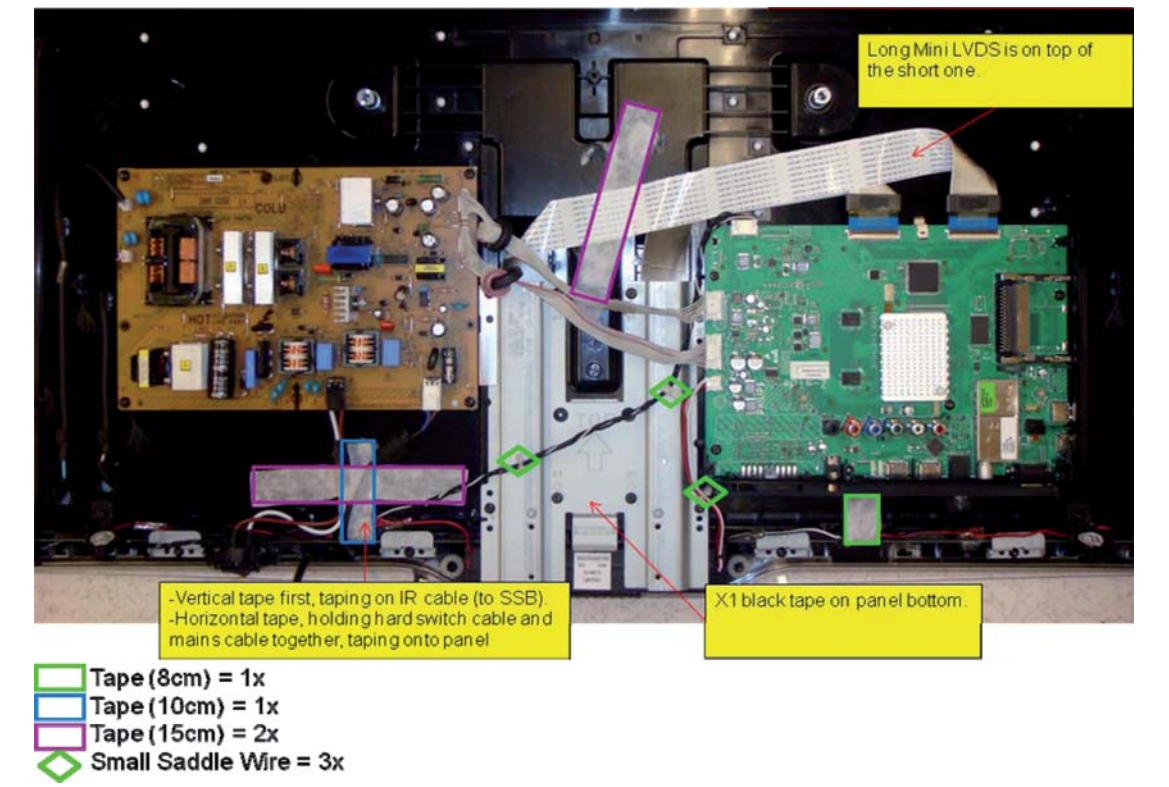

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Figure 4-3 Cable dressing 42PFL5405H/xx

4.2 Cable Dressing Van Gogh styling

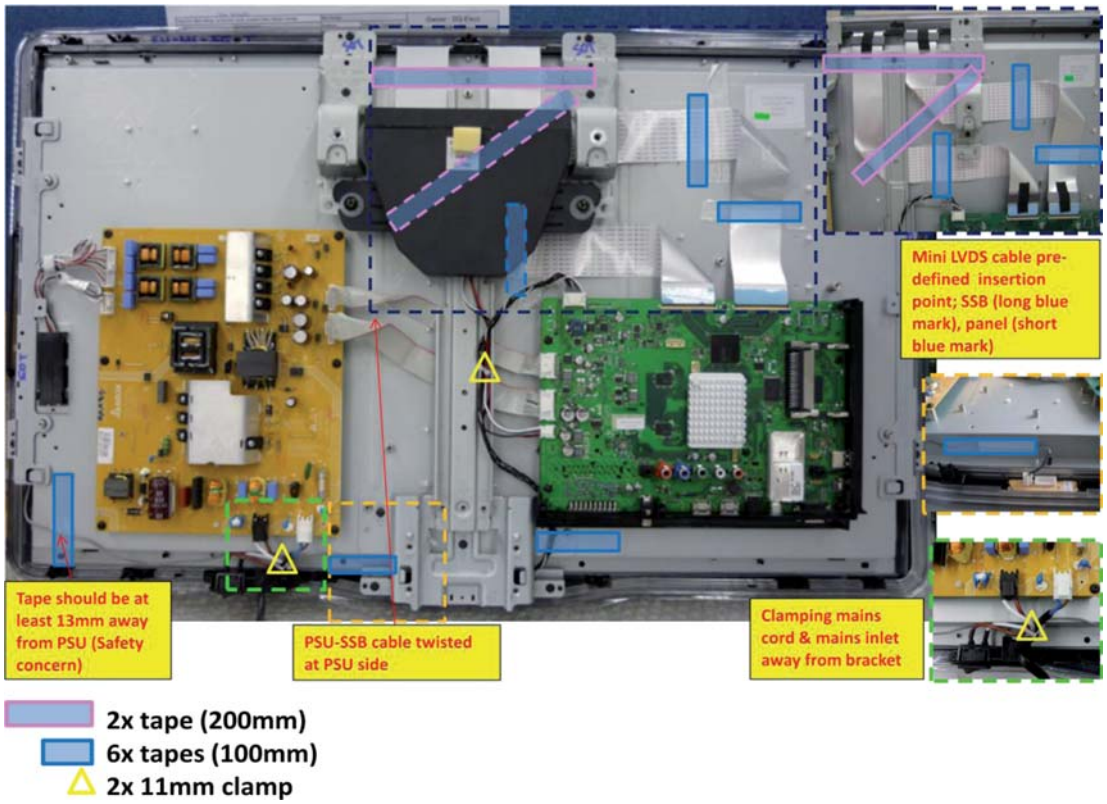

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Figure 4-4 Cable dressing 32PFL5605H/xx

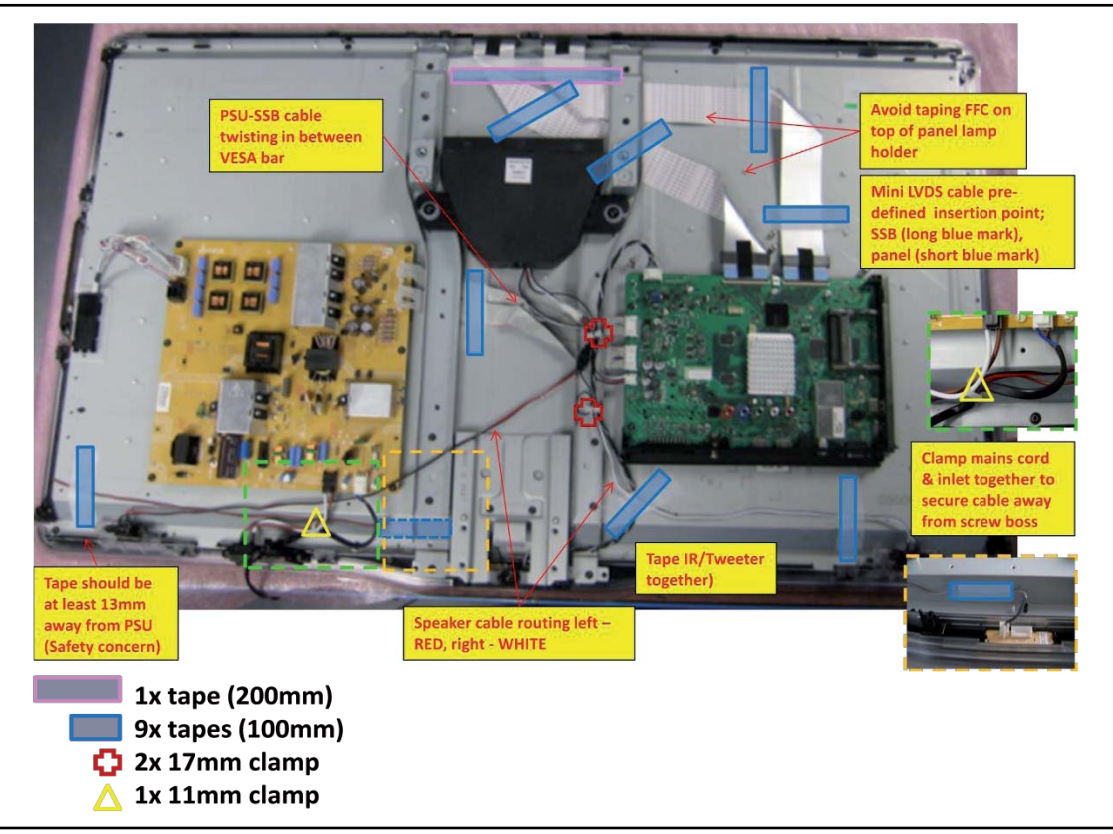

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Figure 4-5 Cable dressing 40PFL5605H/xx without DVB-S

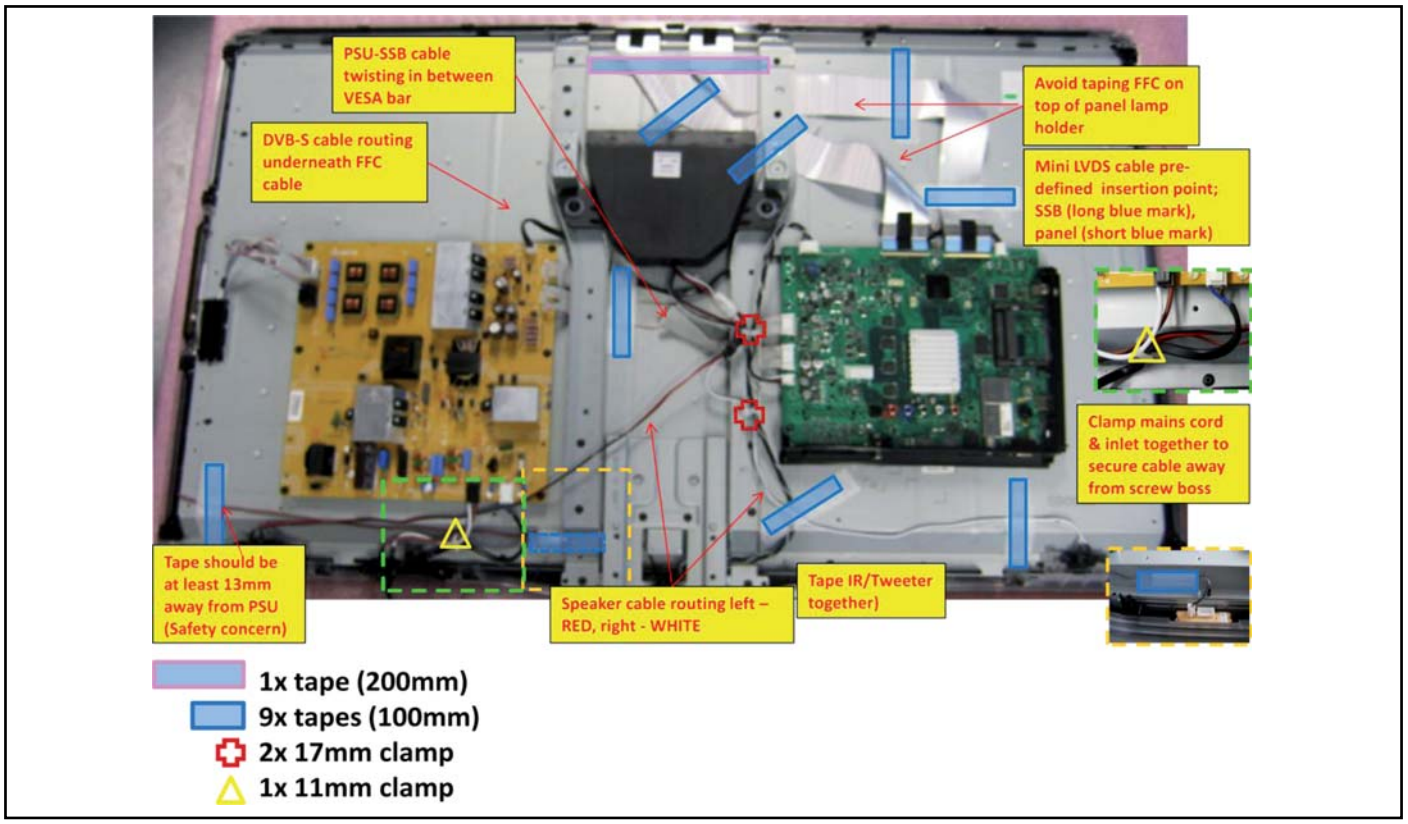

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Figure 4-6 Cable dressing 40PFL5605H/xx with DVB-S

4.3 Cable Dressing Matisse styling

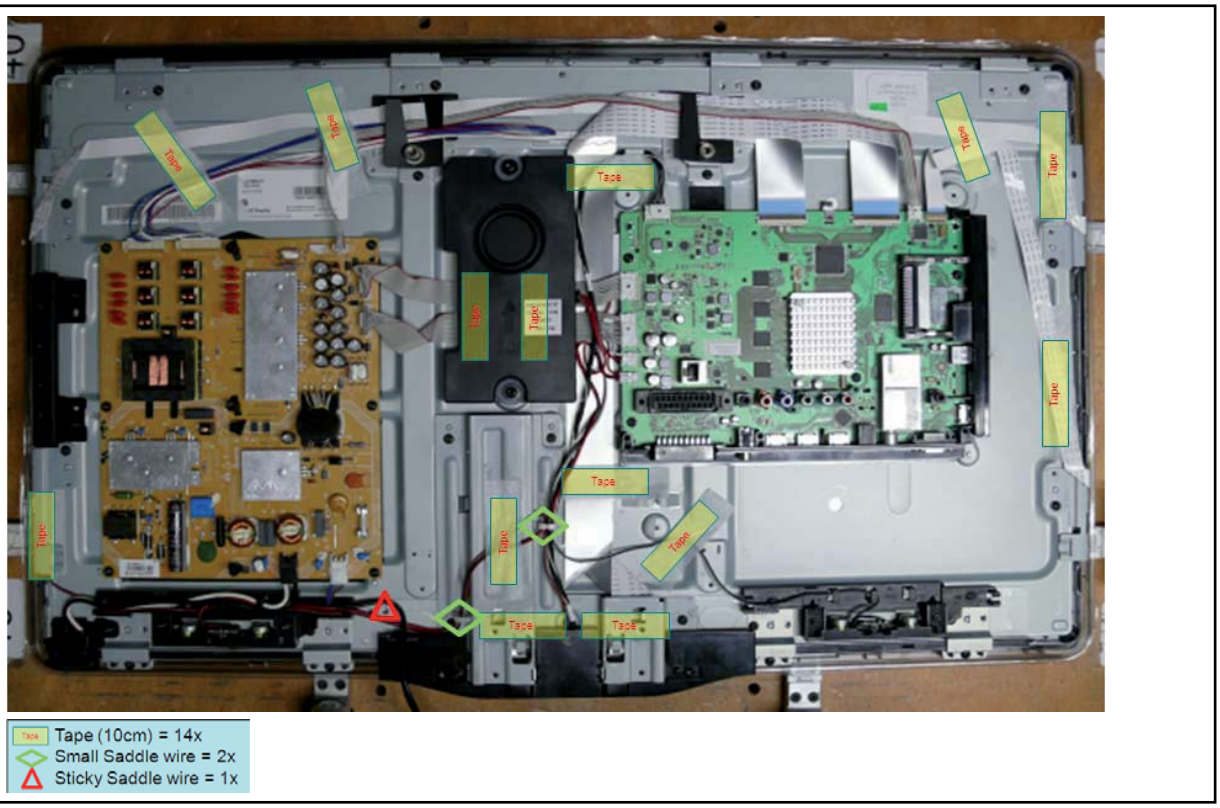

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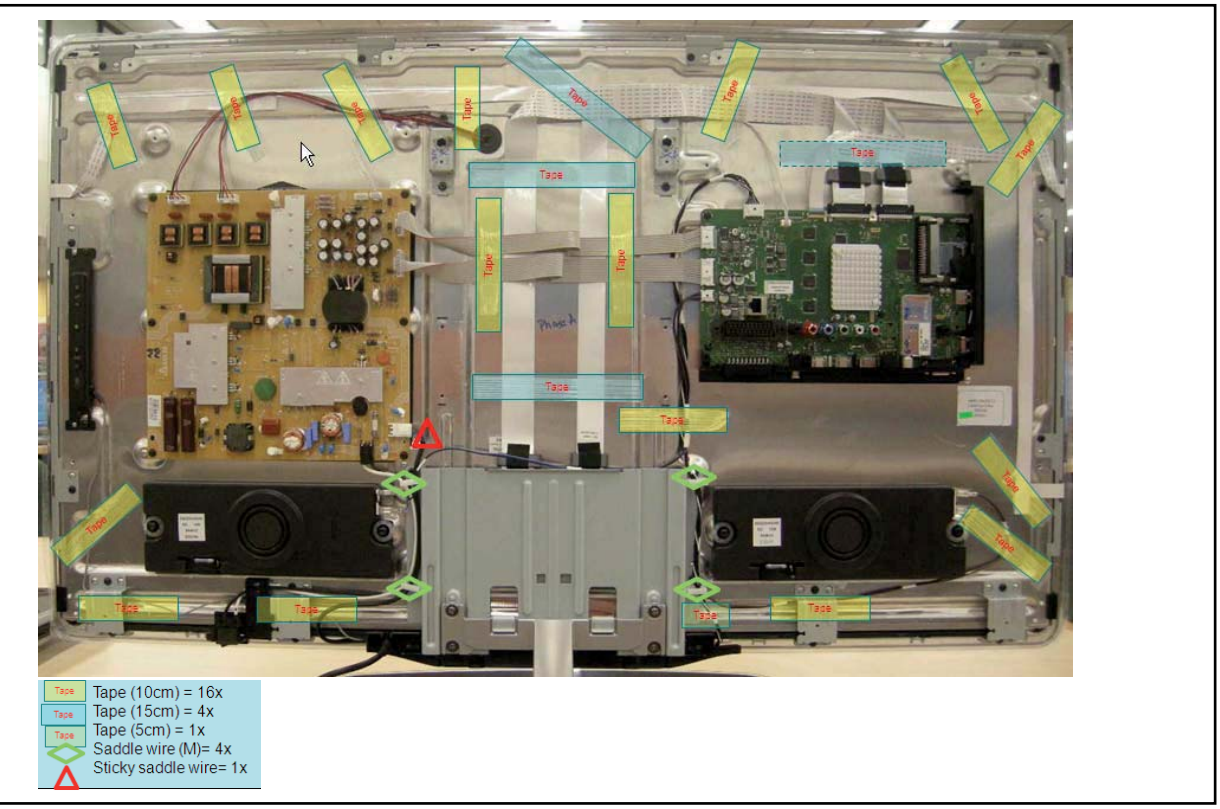
Figure 4-7 Cable dressing 32PFL7605H/xx



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100211

Figure 4-8 Cable dressing 40PFL7605H/xx

4.4 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.

4.5 Assy/Panel Removal Rembrandt Styling

The instructions apply to the 42PFL5405H/xx.

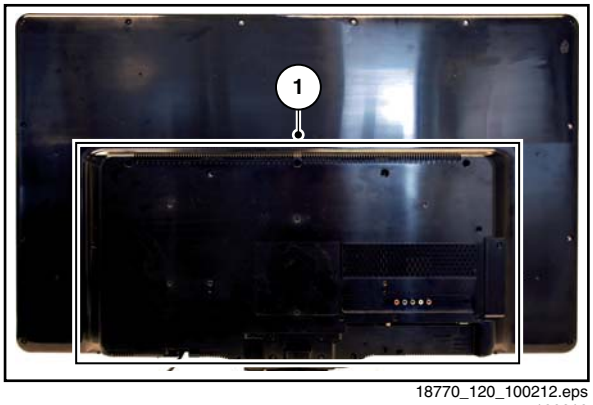
4.5.1 Rear Cover

With the Rembrandt styling, a new concept of housing has been introduced, having consequences for Service when opening the set.

Part of the "back cover" now forms one assy with the LCD panel and will be swapped together with this panel. For opening the set, **only remove the "smaller" part of the rear cover as described below**!

Warning!
The snaps on the backside of the LCD Panel secure the backlight units and should never be released! Release destroys the LCD Panel and voids warranty.
Refer to Figure 4-18 for details.

Warning: Disconnect the mains power cord before you remove the rear cover.
Note: it is **not** necessary to remove the stand while removing the rear cover.
Refer to Figure 4-9 for details.



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100216

Figure 4-9 Rear cover

1. Remove all screws of the rear cover; the part to be removed [1] is indicated on Figure 4-9.
2. Lift the rear cover from the TV. Make sure that wires and flat coils are not damaged while lifting the rear cover from the set.

4.5.2 Speakers

Tweeters
Each tweeter unit is mounted with one screw.
When defective, replace the whole unit.

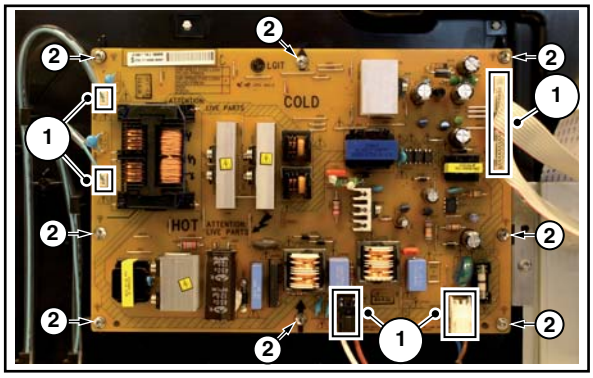
Subwoofer
The central subwoofer is located in the centre of the set, behind the stand and the -subframe, and is secured by two bosses.
The stand and -subframe do **not** need to be removed for removing the central subwoofer.
When defective, replace the whole unit.

4.5.3 Mains Switch

The mains switch is mounted on the front bezel with one screw.

4.5.4 Main Power Supply

Refer to Figure 4-10 and Figure 4-11 for details.



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100216

Figure 4-10 Main Power Supply

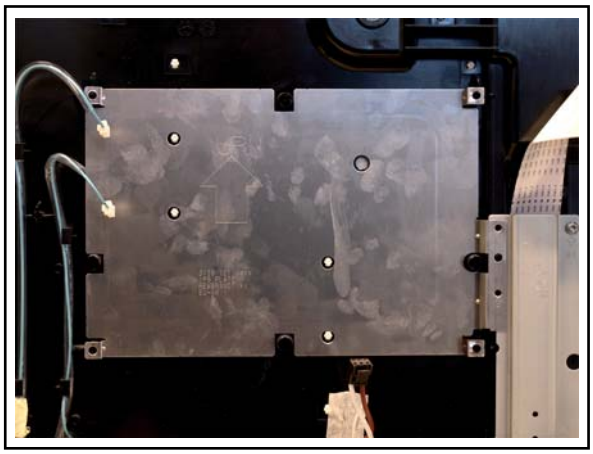

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Figure 4-11 Main Power Supply - back shielding

1. Unplug all connectors [1].
2. Remove the fixation screws [2].
3. Take the board out.

When defective, replace the whole unit.
When remounting, ensure that the back shielding plate is positioned correctly.

4.5.5 Small Signal Board (SSB)

Refer to Figure 4-12 and Figure 4-13 for details.

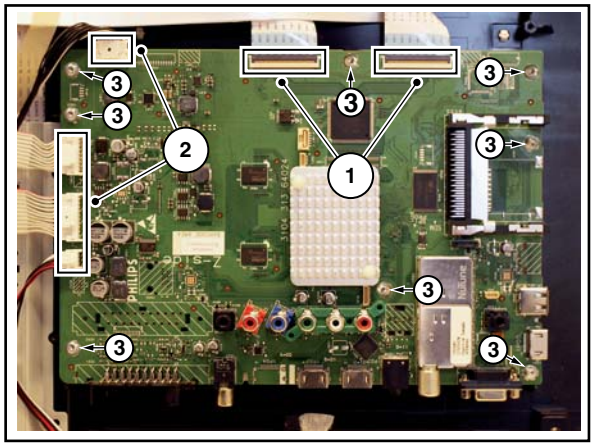

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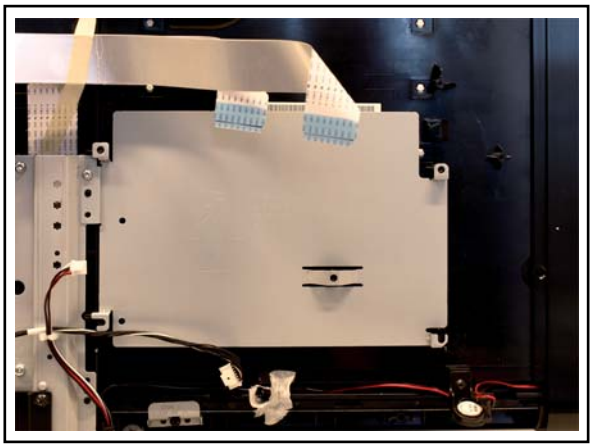
Figure 4-12 SSB



18770_125_100215.eps
100215

Figure 4-13 SSB - back shielding

1. Unplug all connectors [1] and [2].
2. Remove the fixation screws [3].
3. Take the board out.

When defective, replace the whole unit.
When remounting, ensure that the back shielding plate is positioned correctly.

4.5.6 Front Bezel

Refer to Figure 4-14 for details.

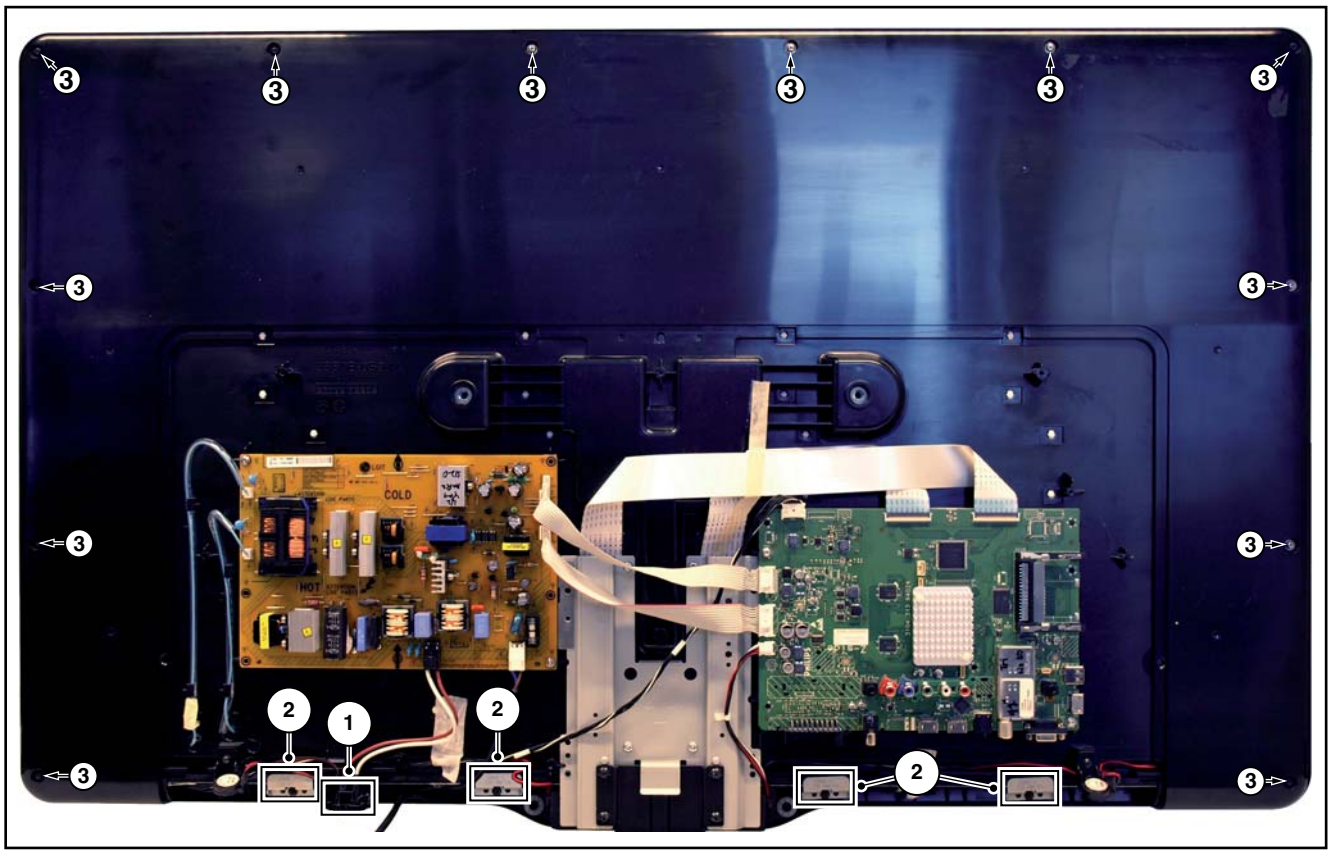


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Figure 4-14 Front Bezel

1. Remove the mains switch as earlier described [1].
2. Remove the clamps [2].
3. Remove the screws [3].

The front bezel will now be detached from the set, together with the IR & LED- and Keyboard Control Panel.

4.5.7 IR & LED Board

Refer to Figure 4-15 for details.

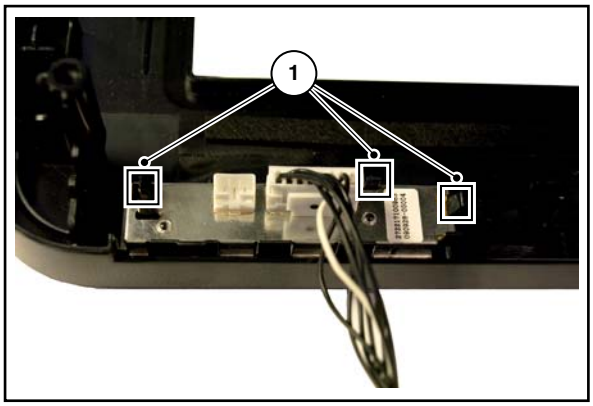

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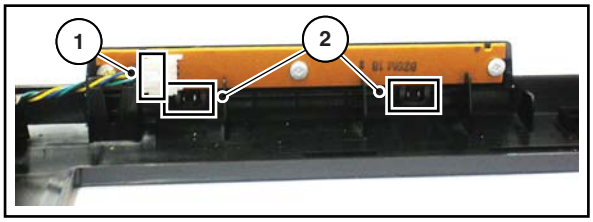
Figure 4-15 IR & LED board

1. Detach the front bezel from the set as earlier described.
2. Release the clips [1] that secure the IR & LED board in the bezel and take the board out.
3. Unplug the connectors.

When defective, replace the whole unit.

4.5.8 Keyboard Control Board

Refer to Figure 4-16 for details.



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100203

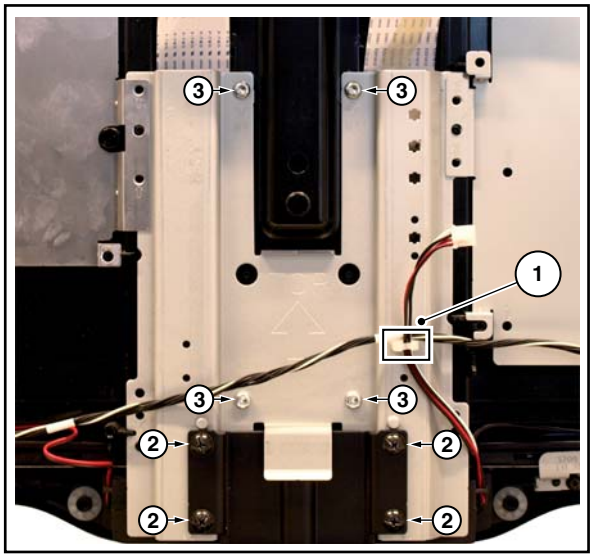
Figure 4-16 Keyboard Control board

1. Detach the front bezel from the set as earlier described.
2. Unplug the connector [1].
3. Release the clips that secure the board [2] and take the board out.

When defective, replace the whole unit.

4.5.9 LCD Panel

Refer to Figure 4-17 and Figure 4-18 for details.



18770_128_100215.eps
100215

Figure 4-17 LCD board -1-

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100212

Figure 4-18 LCD board -2-

Warning!
The snaps on the backside of the LCD Panel secure the backlight units and should never be released!

1. Remove the tweeters as earlier described.
2. Remove the central subwoofer as earlier described.
3. Remove the mains switch as earlier described.
4. Remove the Main Power Supply board as earlier described, together with its back shielding.
5. Remove the Small Signal Board as earlier described, together with its back shielding.
6. Remove the cable from the clamp [1].
7. Remove the stand [2] together with its subframe [3].
8. Detach the front bezel together with the IR & LED board and Keyboard Control board as earlier described.
9. Ensure all (sub-) frames, boards and cables that do not belong to the LCD panel are removed before sending the LCD Panel in.

4.6 Assy/Panel Removal Van Gogh Styling

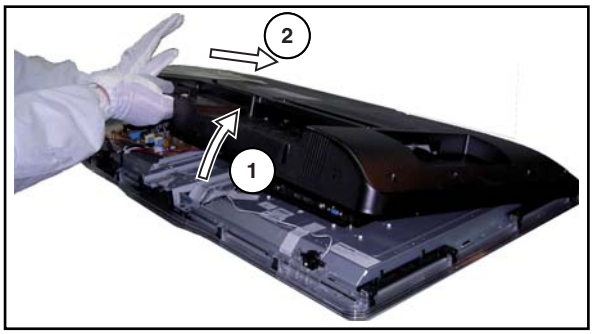
The instructions apply to the 46PFL5605H/xx.

4.6.1 Rear Cover

Warning: Disconnect the mains power cord before you remove the rear cover.
Note: it is **not** necessary to remove the stand while removing the rear cover.

1. Remove all screws of the rear cover.
2. Lift the rear cover from the TV. Make sure that wires and flat coils are not damaged while lifting the rear cover from the set.

Special note for 40" sets
Refer to Figure 4-19 to Figure 4-22 for details.



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100219

Figure 4-19 Rear cover 40" -1-

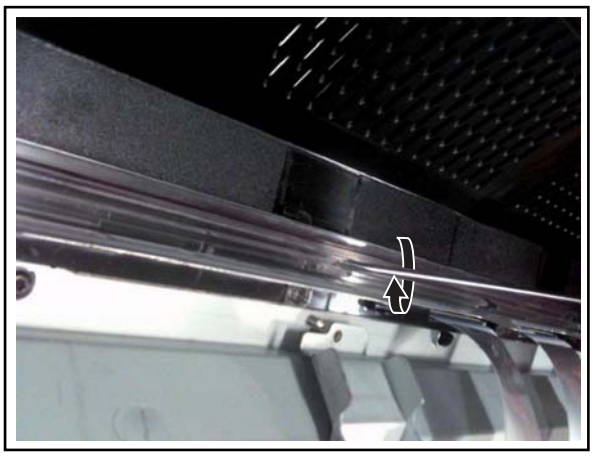

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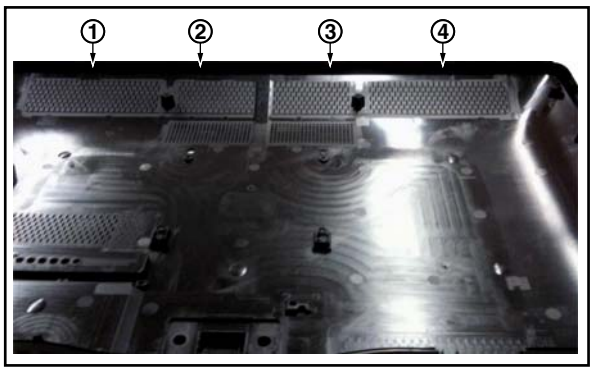
Figure 4-20 Rear cover 40" -2-

18770_152_100218.eps
100218

Figure 4-21 Rear cover 40" -3-



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100218

Figure 4-22 Rear cover 40" -4-

1. Lift the rear cover on the bottom [1].
2. Push back the cover [2] to unlock the catches.
3. If the rear cover catches still lock, place a flat screwdriver between flare and rear cover and turn it until the rear cover and the flare are disassembled from the catch.
4. The location of the catches are indicated with [1], [2], [3] and [4].

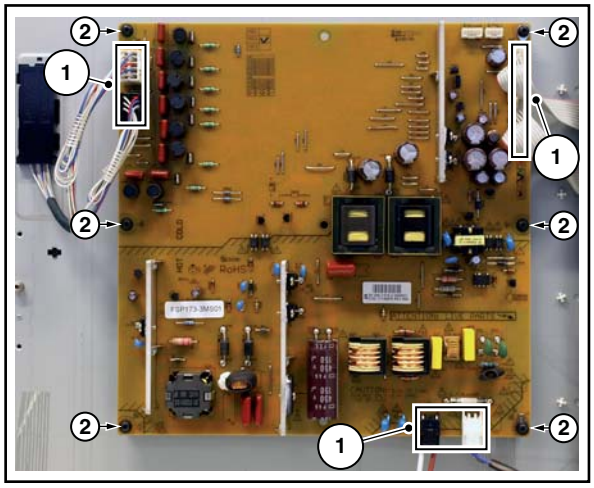
4.6.2 Speakers

Tweeters
Each tweeter unit is mounted with one screw.
When defective, replace the whole unit.

Subwoofer
The central subwoofer is located in the centre of the set, and is mounted with two screws.
When defective, replace the whole unit.

4.6.3 Main Power Supply

Refer to Figure 4-23 for details.



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100217

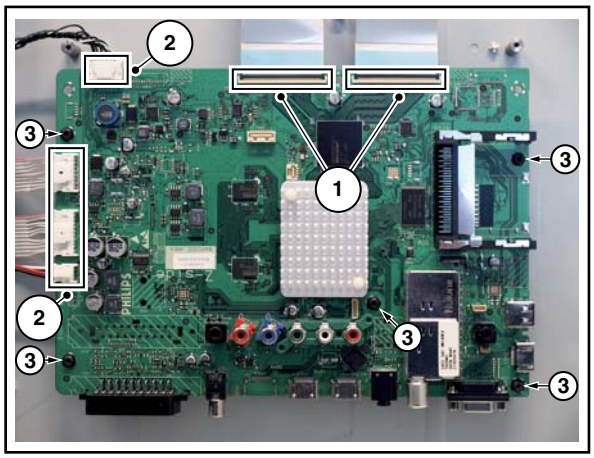
Figure 4-23 Main Power Supply

1. Unplug all connectors [1].
2. Remove the fixation screws [2].
3. Take the board out.

When defective, replace the whole unit.

4.6.4 Small Signal Board (SSB)

Refer to Figure 4-24 for details.



18770_141_100215.eps
100217

Figure 4-24 SSB

1. Unplug all connectors [1] and [2].
2. Remove the fixation screws [3].
3. Take the board out.

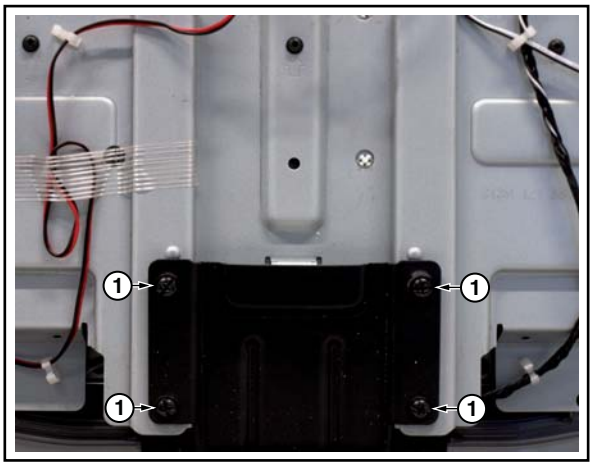
When defective, replace the whole unit.

4.6.5 Mains Switch

The mains switch is mounted on the front bezel with two screws.

4.6.6 IR & LED Board

Refer to Figure 4-25, Figure 4-26 and Figure 4-27 for details.



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100215

Figure 4-25 IR & LED Board -1-

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Figure 4-26 IR & LED Board -2-

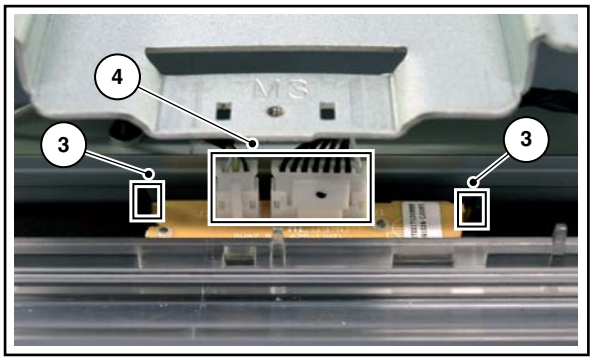

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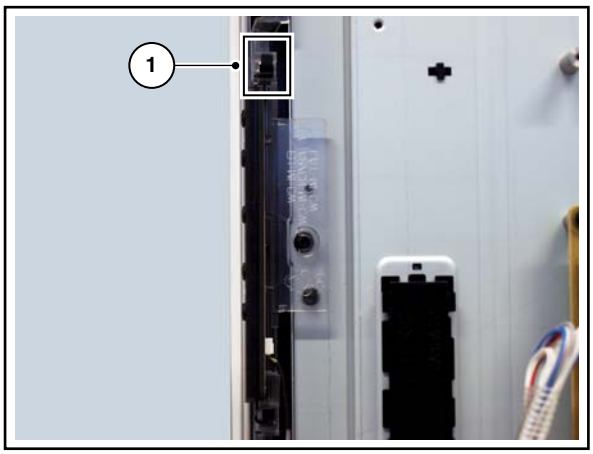
Figure 4-27 IR & LED Board -3-

1. Remove the stand [1].
2. Remove the IR & LED board cover [2].
3. Release the clips [3] that secure the IR & LED board.
4. Remove the connectors [4] on the IR/LED board.

4.6.7 Keyboard Control Board

Refer to Figure 4-28 for details.



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100217

Figure 4-28 Keyboard Control board

1. Unplug the connector on the IR & LED board that leads to the Keyboard Control board as earlier described.
2. Release the cable from its clamps.
3. Release the clip on top of the unit [1] and take the unit out.

When defective, replace the whole unit.

4.6.8 LCD Panel

Refer to Figure 4-29 for details.

1. Remove the stand as earlier described.
2. Remove the brackets [1].
3. Remove the stand support [2].
4. Remove the central subwoofer as earlier described.
5. Remove the tweeters as earlier described.
6. Remove the mains switch as earlier described.
7. Remove the IR & LED board as earlier described.
8. Remove the keyboard control board as earlier described.
9. Remove the clamps [3].
10. Remove the flare.
11. Remove all remaining screws [4].

Now the LCD Panel can be lifted from the front cabinet.

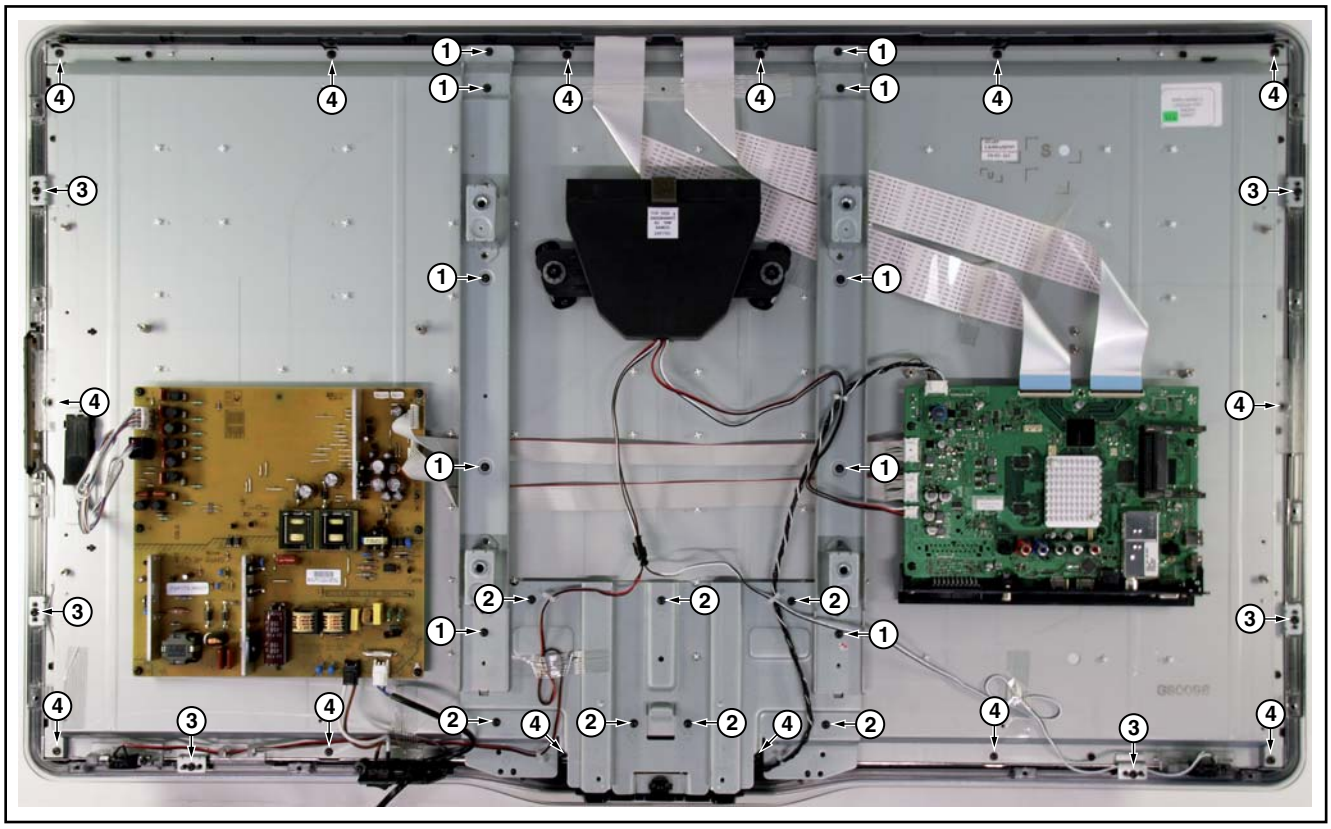

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Figure 4-29 LCD Panel

4.7 Assy/Panel Removal Matisse Styling

The Matisse styling is similar to the Van Gogh styling. No detailed information is available at time of publishing.

4.8 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.
- Pay special attention not to damage the EMC foams in the set. Ensure that EMC foams are mounted correctly.

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

5.1 Test Points

As most signals are digital, it will be difficult to measure waveforms with a standard oscilloscope. However, several key ICs are capable of generating test patterns, which can be controlled via ComPair. In this way it is possible to determine which part is defective.

Perform measurements under the following conditions:
- Service Default Mode.
- Video: Colour bar signal.
- Audio: 3 kHz left, 1 kHz right.

5.2 Service Modes

Service Default mode (SDM) and Service Alignment Mode (SAM) offers several features for the service technician, while the Customer Service Mode (CSM) is used for communication between the call centre and the customer.

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. (see also section "5.4.1 ComPair").

Note: For the new model range, a new remote control (RC) is used with some renamed buttons. This has an impact on the activation of the Service modes. For instance the old "MENU" button is now called "HOME" (or is indicated by a "house" icon).

5.2.1 Service Default Mode (SDM)

Purpose
- To create a pre-defined setting, to get the same measurement results as given in this manual.
- To override SW protections detected by stand-by processor and make the TV start up to the step just before protection (a sort of automatic stepwise start-up). See section "5.3 Stepwise Start-up".
- To start the blinking LED procedure where only LAYER 2 errors are displayed. (see also section "5.5 Error Codes").

Specifications

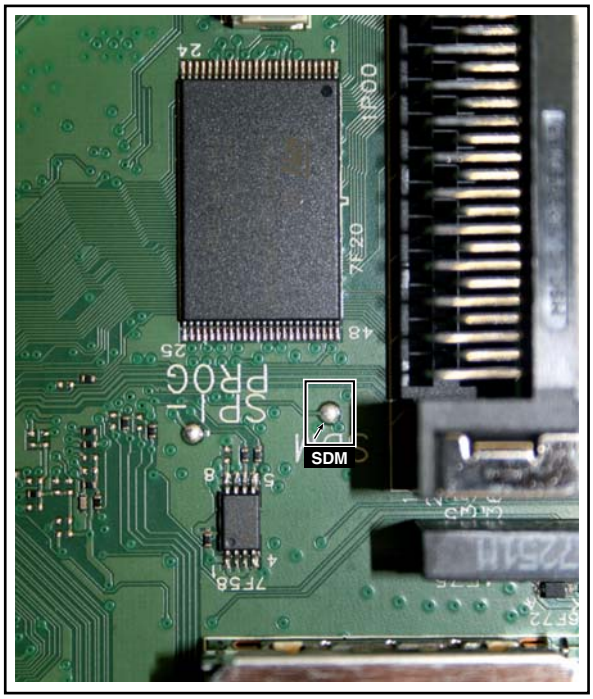
Table 5-1 SDM default settings

Region	Freq. (MHz)	Default system
Europe, AP(PAL/Multi)	475.25	PAL B/G
Europe, AP DVB-T	546.00 PID Video: 0B 06 PID PCR: 0B 06 PID Audio: 0B 07	DVB-T

- All picture settings at 50% (brightness, colour, contrast).
- Sound volume at 25%.
- All service-unfriendly modes (if present) are disabled, like:
  - (Sleep) timer.
  - Child/parental lock.
  - Picture mute (blue mute or black mute).
  - Automatic volume levelling (AVL).
  - Skip/blank of non-favourite pre-sets.

How to Activate SDM

For this chassis there are two kinds of SDM: an **analog SDM** and a **digital SDM**. Tuning will happen according Table 5-1.
- **Analogue SDM**: use the standard RC-transmitter and key in the code "062596", directly followed by the "MENU" (or HOME) button.
  Note: It is possible that, together with the SDM, the main menu will appear. To switch it "off", push the "MENU"(or HOME) button again.
- **Digital SDM**: use the standard RC-transmitter and key in the code "062593", directly followed by the "MENU" (or HOME) button.
  Note: It is possible that, together with the SDM, the main menu will appear. To switch it "off", push the "MENU" (or HOME) button again.
- **Analogue SDM** can also be activated by grounding for a moment the solder path on the SSB, with the indication "SDM" (see Service mode pad).



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100215

Figure 5-1 Service mode pad

After activating this mode, "SDM" will appear in the upper right corner of the screen (when a picture is available).

How to Navigate

When the "MENU" (or HOME) button is pressed on the RC transmitter, the TV set will toggle between the SDM and the normal user menu.

How to Exit SDM

Use one of the following methods:
- Switch the set to STAND-BY via the RC-transmitter.
- Via a standard customer RC-transmitter: key in "00"-sequence.

5.2.2 Service Alignment Mode (SAM)

Purpose

- To perform (software) alignments.
- To change option settings.
- To easily identify the used software version.
- To view operation hours.
- To display (or clear) the error code buffer.

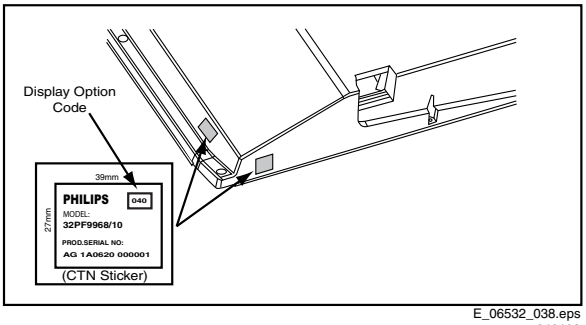
How to Activate SAM

Via a standard RC transmitter: Key in the code “062596” directly followed by the “INFO” button. After activating SAM with this method a service warning will appear on the screen, continue by pressing the “OK” button on the RC.

Contents of SAM (see also Table 6-10)

- **Hardware Info.**
  - **A. SW Version.** Displays the software version of the main software (**example:** Q555X-1.2.3.4 = AAAAB_X.Y.W.Z).
    - **AAAA**= the chassis name.
    - **B**= the SW branch version. This is a sequential number (this is no longer the region indication, as the software is now multi-region).
    - **X.Y.W.Z**= the software version, where X is the main version number (different numbers are not compatible with one another) and Y.W.Z is the sub version number (a higher number is always compatible with a lower number).
  - **B. STBY PROC Version.** Displays the software version of the stand-by processor.
  - **C. Production Code**. Displays the production code of the TV, this is the serial number as printed on the back of the TV set. Note that if an NVM is replaced or is initialized after corruption, this production code has to be re-written to NVM. ComPair will foresee in a possibility to do this.
- **Operation Hours.** Displays the accumulated total of operation hours (not the stand-by hours). Every time the TV is switched “on/off”, 0.5 hours is added to this number.
- **Errors** (followed by maximum 10 errors). The most recent error is displayed at the upper left (for an error explanation see section “5.5 Error Codes”).
- **Reset Error Buffer.** When “cursor right” (or the “OK button) is pressed and then the “OK” button is pressed, the error buffer is reset.
- **Alignments.** This will activate the “ALIGNMENTS” sub-menu. See Chapter 6. Alignments.
- **Dealer Options.** Extra features for the dealers.
- **Options.** Extra features for Service. For more info regarding option codes, 6. Alignments.
  Note that if the option code numbers are changed, these have to be confirmed with pressing the “OK” button before the options are stored. Otherwise changes will be lost.
- **Initialize NVM.** The moment the processor recognizes a corrupted NVM, the “initialize NVM” line will be highlighted. Now, two things can be done (dependent of the service instructions at that moment):
  - Save the content of the NVM via ComPair for development analysis, **before** initializing. This will give the Service department an extra possibility for diagnosis (e.g. when Development asks for this).
  - Initialize the NVM.

Note: When the NVM is corrupted, or replaced, there is a high possibility that no picture appears because the display code is not correct. So, before initializing the NVM via the SAM, a picture is necessary and therefore the correct display option has to be entered. Refer to Chapter 6. Alignments for details. To adapt this option, it’s advised to use ComPair (the correct HEX values for the options can be found in Chapter 6. Alignments) or a method via a standard RC (described below).
Changing the display option via a standard RC: Key in the code “062598” directly followed by the “MENU” (or HOME) button and “XXX” (where XXX is the 3 digit decimal display code as mentioned in Table 6-9). Make sure to key in all three digits, also the leading zero’s. If the above action is successful, the front LED will go out as an indication that the RC sequence was correct. After the display option is changed in the NVM, the TV will go to the Stand-by mode. If the NVM was corrupted or empty before this action, it will be initialized first (loaded with default values). This initializing can take up to 20 seconds.



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240108

Figure 5-2 Location of Display Option Code sticker

- **Store - go right.** All options and alignments are stored when pressing “cursor right” (or the “OK” button) and then the “OK”-button.
- **SW Maintenance.**
  - **SW Events.** Not useful for Service purposes. In case of specific software problems, the development department can ask for this info.
  - **HW Events.** Not useful for Service purposes. In case of specific software problems, the development department can ask for this info.
- **Test settings.** For development purposes only.
- **Development file versions.** Not useful for Service purposes, this information is only used by the development department.
- **Upload to USB.** To upload several settings from the TV to an USB stick, which is connected to the SSB. The items are “Channel list”, “Personal settings”, “Option codes”, “Display-related alignments”, “Identification data” and “History list”. **First a directory “repair\” has to be created in the root of the USB stick.** To upload the settings select each item separately, press “cursor right” (or the “OK” button), confirm with “OK” and wait until “Done” appears. In case the download to the USB stick was not successful “Failure” will appear. In this case, check if the USB stick is connected properly and if the directory “repair” is present in the root of the USB stick. Now the settings are stored onto the USB stick and can be used to download onto another TV or other SSB. Uploading is of course only possible if the software is running and if a picture is available. This method is created to be able to save the customer’s TV settings and to store them into another SSB.
- **Download to USB.** To download several settings from the USB stick to the TV, same way of working needs to be followed as with uploading. To make sure that the download of the channel list from USB to the TV is executed properly, it is necessary to restart the TV and tune to a valid preset if necessary.
- **NVM editor.** For NET TV the set type must be installed.

Also the production code can be entered via the RC-transmitter.

How to Navigate

- In SAM, the menu items can be selected with the “CURSOR UP/DOWN” key on the RC-transmitter. The selected item will be highlighted. When not all menu items fit on the screen, move the “CURSOR UP/DOWN” key to display the next/previous menu items.
- With the “CURSOR LEFT/RIGHT” keys, it is possible to:
  - (De) activate the selected menu item.
  - (De) activate the selected sub menu.

- With the “OK” key, it is possible to activate the selected action.

How to Exit SAM

Use one of the following methods:

- Switch the TV set to STAND-BY via the RC-transmitter.
- Via a standard RC-transmitter, key in “00” sequence, or select the “BACK” key.

5.2.3 Customer Service Mode (CSM)

Purpose

When a customer is having problems with his TV-set, he can call his dealer or the Customer Helpdesk. The service technician can then ask the customer to activate the CSM, in order to identify the status of the set. Now, the service technician can judge the severity of the complaint. In many cases, he can advise the customer how to solve the problem, or he can decide if it is necessary to visit the customer.
The CSM is a read only mode; therefore, modifications in this mode are not possible.

When in this chassis CSM is activated, a testpattern will be displayed during 5 seconds (1 second Blue, 1 second Green and 1 second Red, then again 1 second Blue and 1 second Green). This test pattern is generated by the PNX51X0. So if this test pattern is shown, it could be determined that the back end video chain (PNX51X0, LVDS, and display) of the SSB is working. For TV sets without the PNX51X0 inside, every menu from CSM will be used as check for the back end video chain.

When CSM is activated and there is a USB stick connected to the TV set, the software will dump the complete CSM content to the USB stick. The file (Csm.txt) will be saved in the root of the USB stick. This info can be handy if no information is displayed. To have fast feedback from the field, a flashdump can be requested. While in CSM, push the red button + dial serial digits ‘2679’ (same keys to form the word ‘COPY’ with a cellphone). A file Dump_settype_serienumber.bin will be written on the connected USB device. This can take 1/2 minute, depending on the quantity of data that needs to be dumped.

Also when CSM is activated, the LAYER 1 error is displayed via blinking LED. Only the latest error is displayed. (see also section 5.5 Error Codes).

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!

How to Navigate

By means of the “CURSOR-DOWN/UP” knob on the RC-transmitter, can be navigated through the menus.

Contents of CSM

The contents are reduced to 3 pages: General, Software versions and Quality items. The group names itself are not shown anywhere in the CSM menu.

General

- **Set Type.** This information is very helpful for a helpdesk/ workshop as reference for further diagnosis. In this way, it is not necessary for the customer to look at the rear of the TV-set. Note that if an NVM is replaced or is initialized after corruption, this set type has to be re-written to NVM. ComPair will foresee in a possibility to do this.
- **Production Code.** Displays the production code (the serial number) of the TV. Note that if an NVM is replaced or is initialized after corruption, this production code has to be re-written to NVM. ComPair will foresee a in possibility to do this.
- **Installed date.** Indicates the date of the first installation of the TV. This date is acquired via time extraction.
- **Options 1.** Gives the option codes of option group 1 as set in SAM (Service Alignment Mode).
- **Options 2.** Gives the option codes of option group 2 as set in SAM (Service Alignment Mode).
- **12NC SSB.** Gives an identification of the SSB as stored in NVM. Note that if an NVM is replaced or is initialized after corruption, this identification number has to be re-written to NVM. ComPair will foresee in a possibility to do this. This identification number is the 12nc number of the SSB.
- **12NC display.** Shows the 12NC of the display.
- **12NC supply.** Shows the 12NC of the supply.
- **12NC 200Hz board.** Shows the 12NC of the 200Hz Panel.

Software versions

- **Current main SW.** Displays the build-in main software version. In case of field problems related to software, software can be upgraded. As this software is consumer upgradeable, it will also be published on the Internet.
  Example: Q555X_1.2.3.4
- **Standby SW.** Displays the build-in stand-by processor software version. Upgrading this software will be possible via ComPair or via USB (see section 5.9 Software Upgrading).
  Example: STDBY_88.68.1.2.
- **e-UM version.** Displays the electronic user manual SW-version.

Quality items

- **Signal quality.** bad / average /good
- **Ethernet MAC address.** Dispays the MAC address present in the SSB.
- **Wireless MAC address.** Displays the wireless MAC address to support the Wi-Fi functionality.
- **BDS key.** Indicates if the set is in the BDS status.
- **CI slot present.** If the common interface module is detected.
- **Event counter**.

How to Exit CSM

Press “MENU” (or HOME) / “Back” key on the RC-transmitter.

5.3 Stepwise Start-up

When the TV is in a protection state due to an error detected by stand-by software (error blinking is displayed) **and** SDM is activated via shortcutting the SDM solder path on the SSB, the TV starts up until it reaches the situation just before protection. So, this is a kind of automatic stepwise start-up. In combination with the start-up diagrams below, you can see which supplies are present at a certain moment. Caution: in case the start-up in this mode with a faulty FET 7U0X is done, you can destroy all IC's supplied by the +1V8 and +1v1, due to overvoltage (12V on XVX-line). It is recommended to measure first the FET 7U0X or others FET's on shortcircuit before activating SDM via the service pads.

The abbreviations "SP" and "MP" in the figures stand for:

- SP: protection or error detected by the **S**tand-by **P**rocessor.
- MP: protection or error detected by the MIPS **M**ain **P**rocessor.

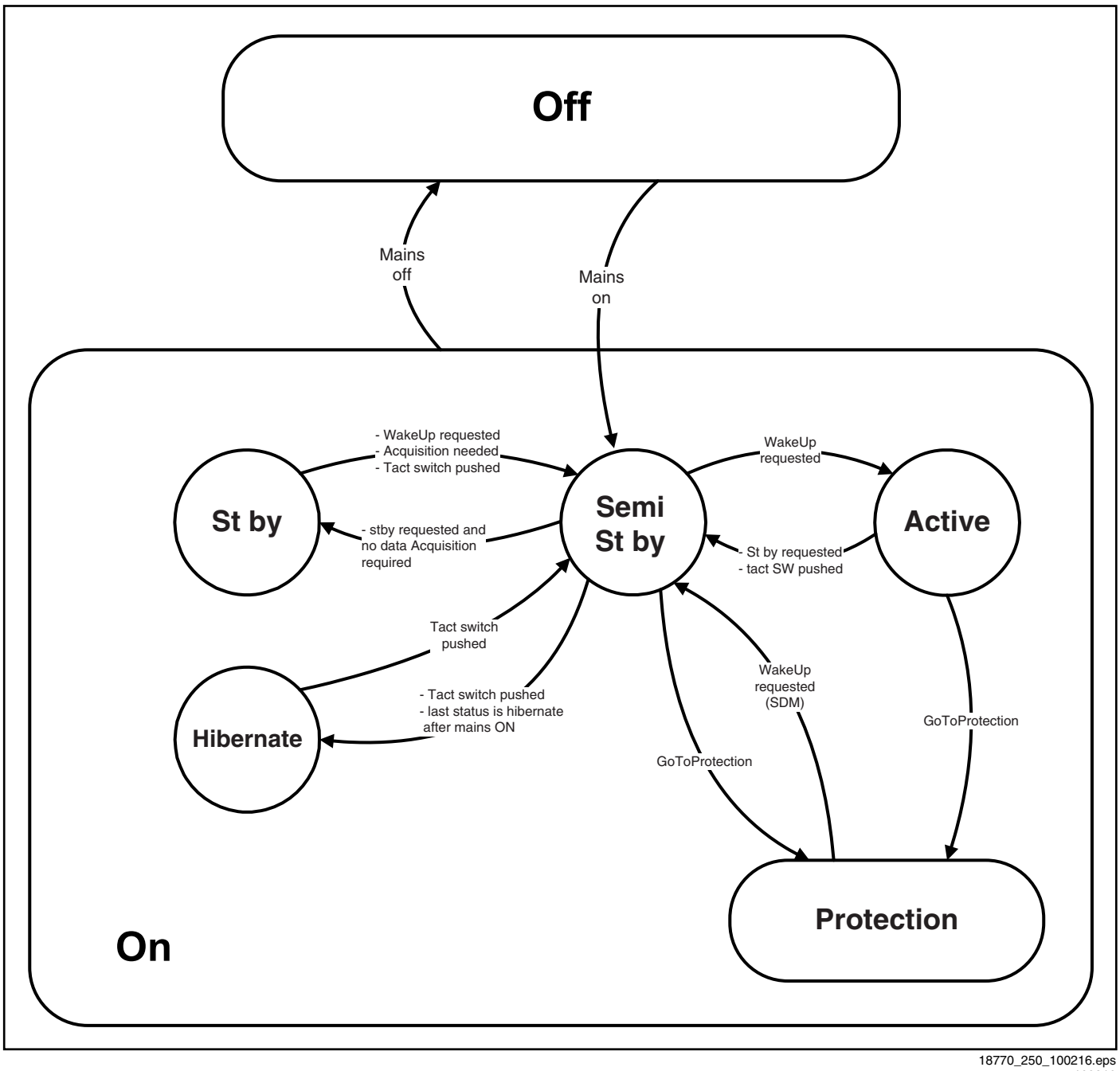

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Figure 5-3 Transition diagram

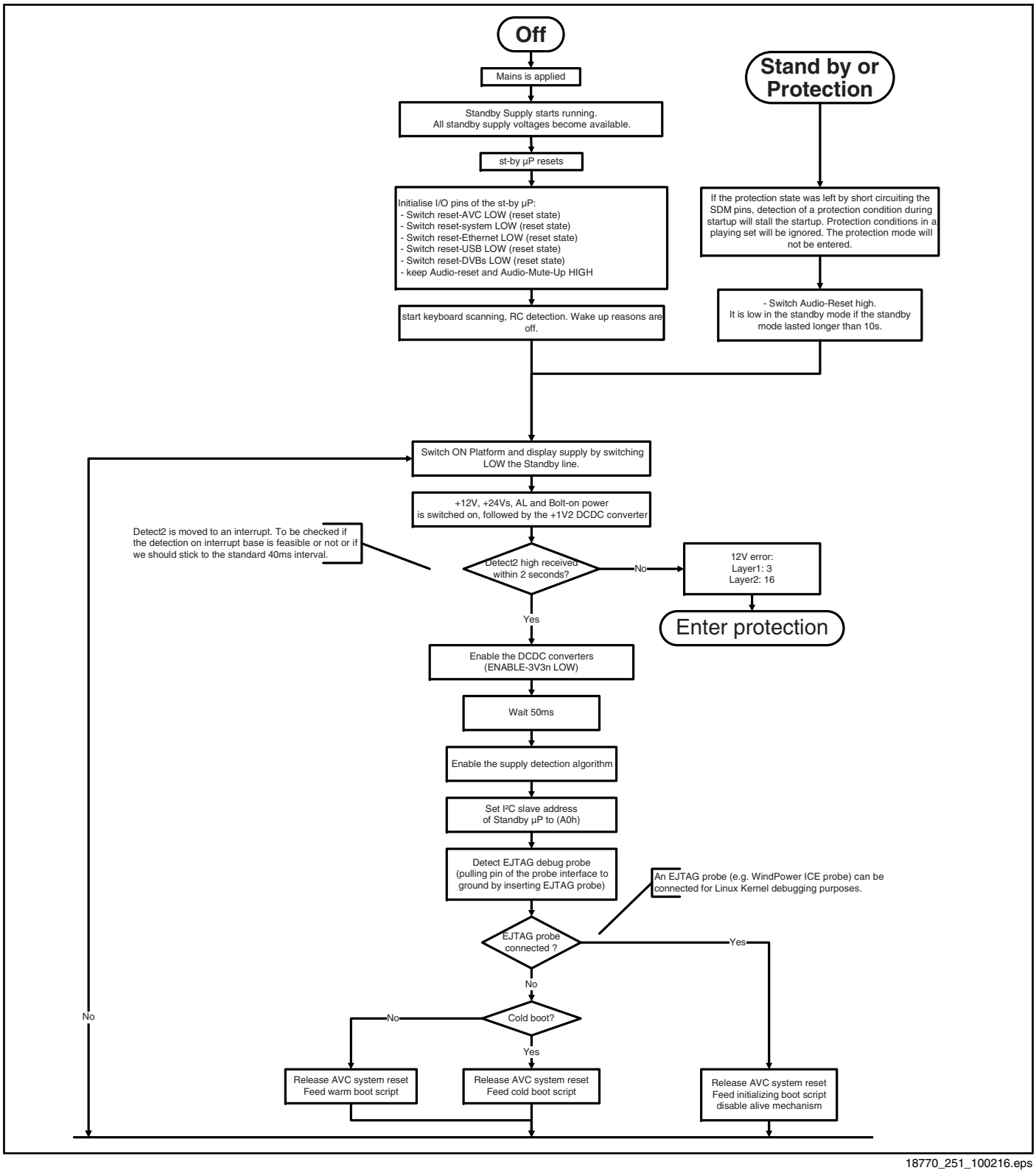

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Figure 5-4 "Off" to "Semi Stand-by" flowchart (part 1)

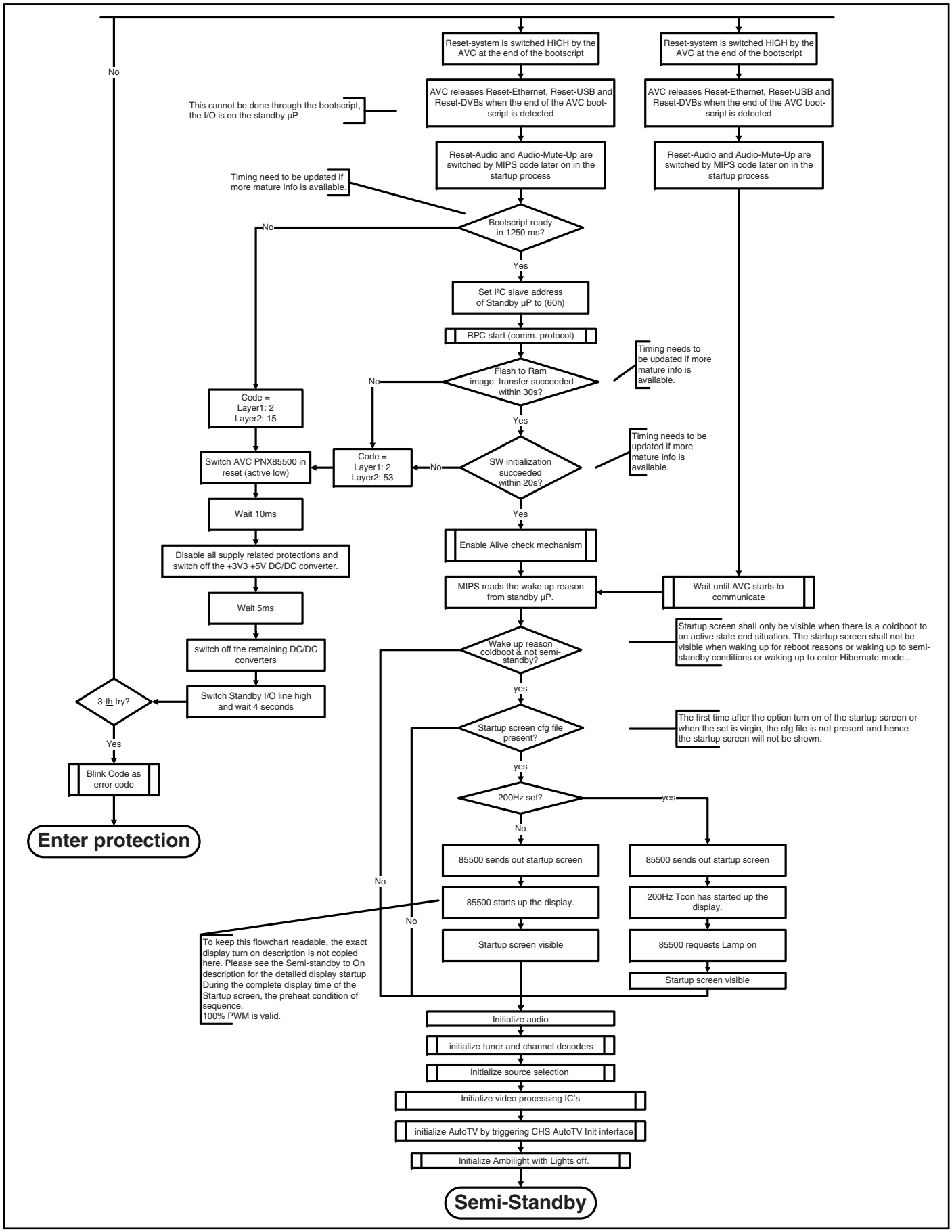

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Figure 5-5 "Off" to "Semi Stand-by" flowchart (part 2)

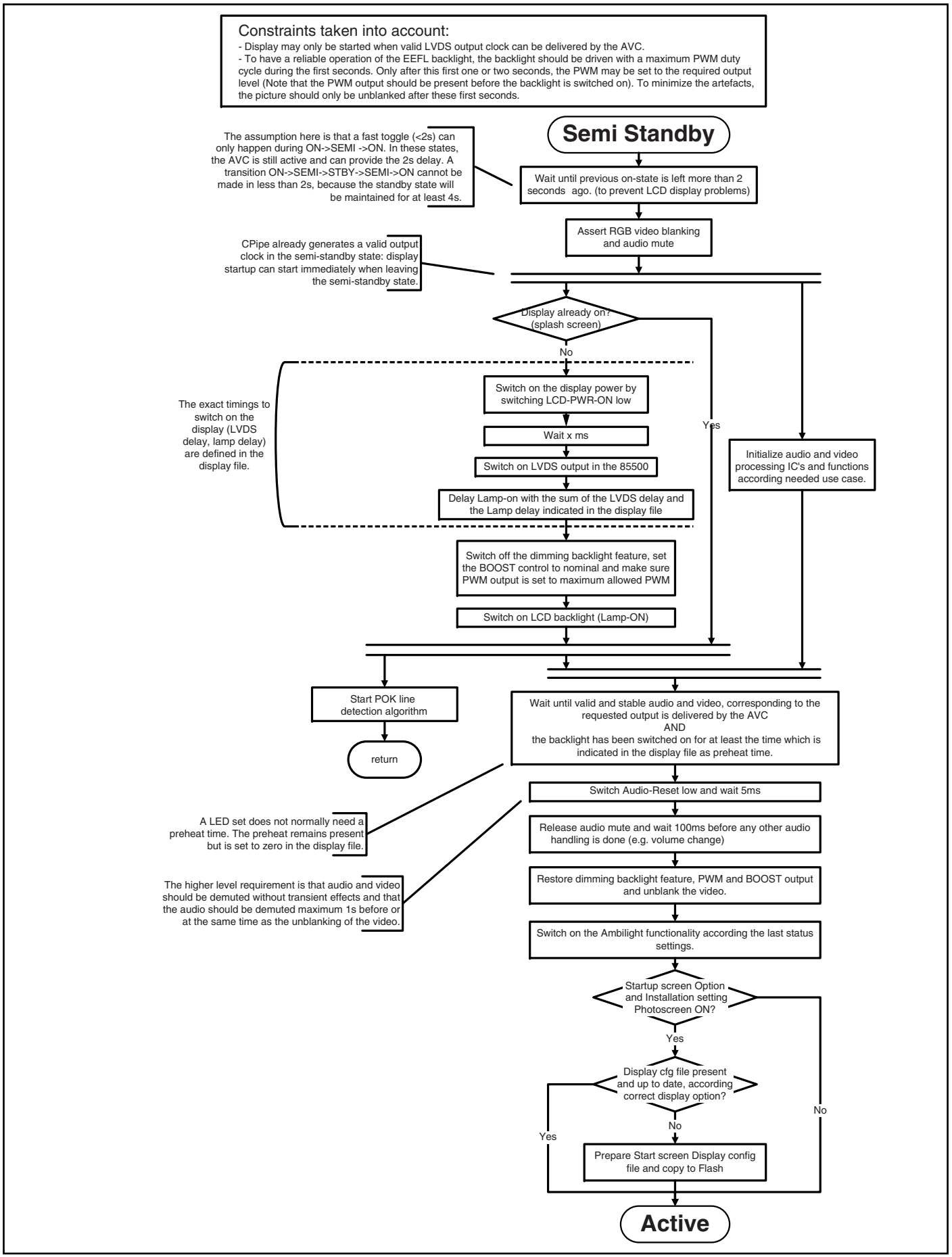

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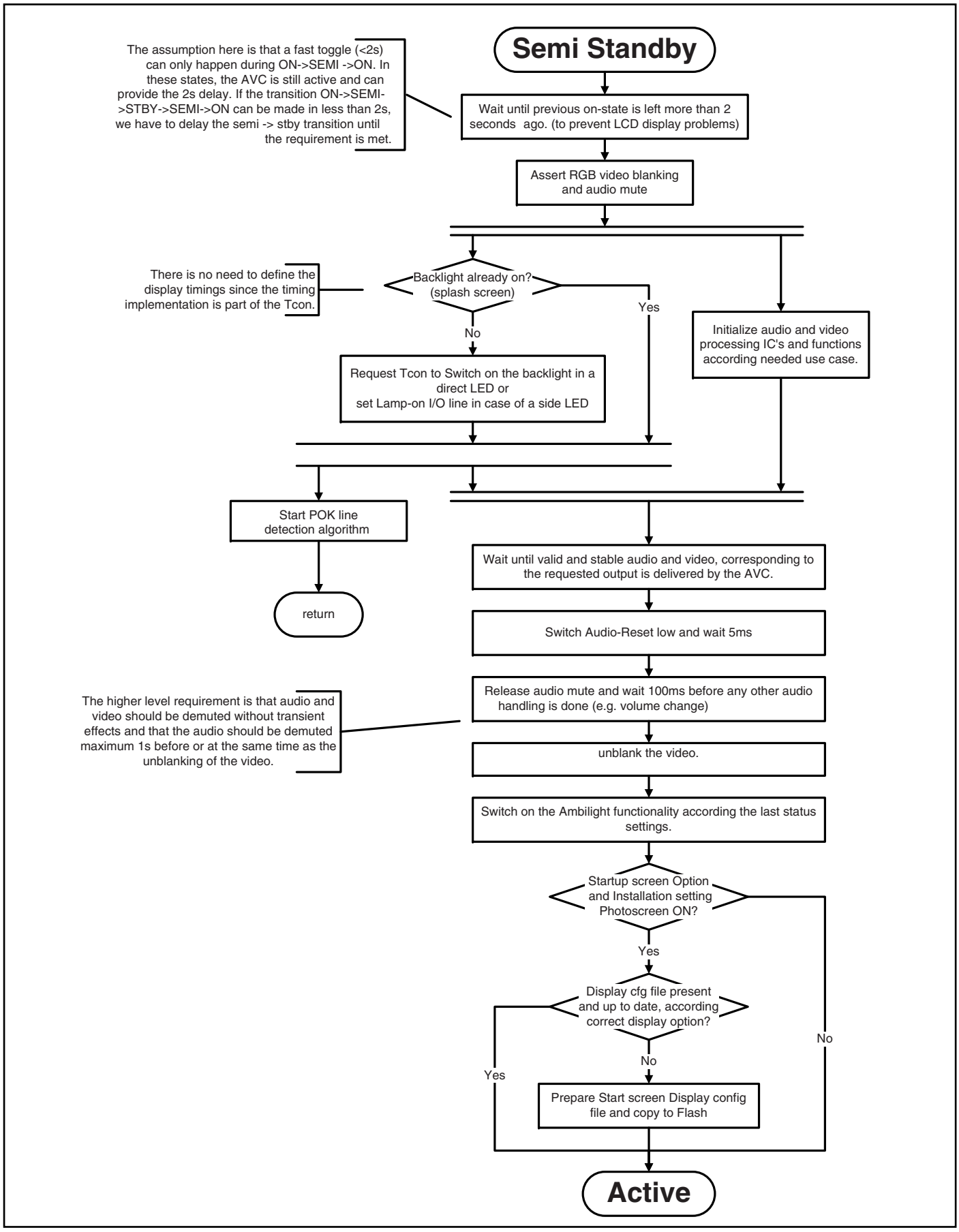
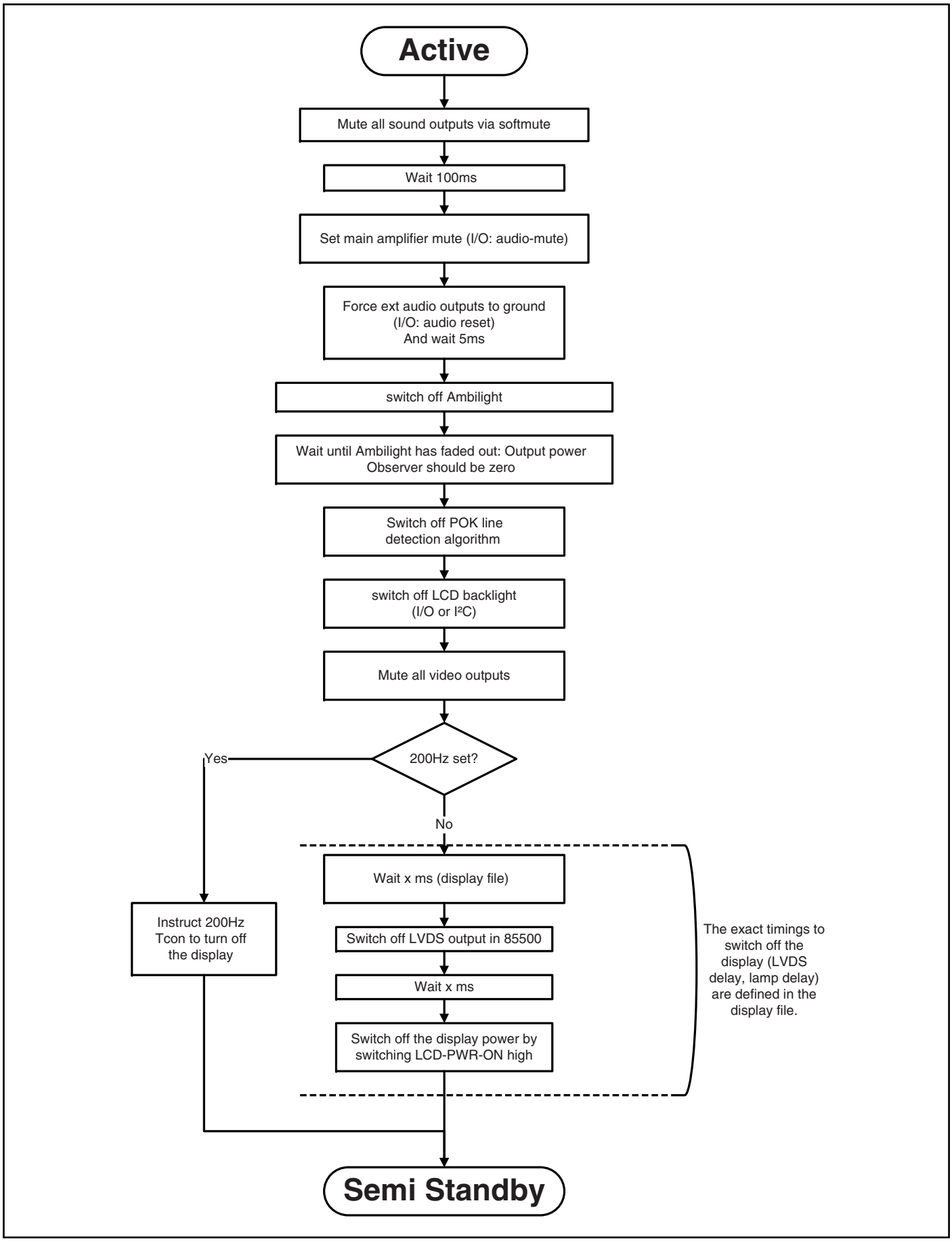
Figure 5-6 “Semi Stand-by” to “Active” flowchart (EEFL or LED backlight 50/100 Hz only)



18770_254_100216.eps
100216

Figure 5-7 “Semi Stand-by” to “Active” flowchart (LED backlight 200 Hz)



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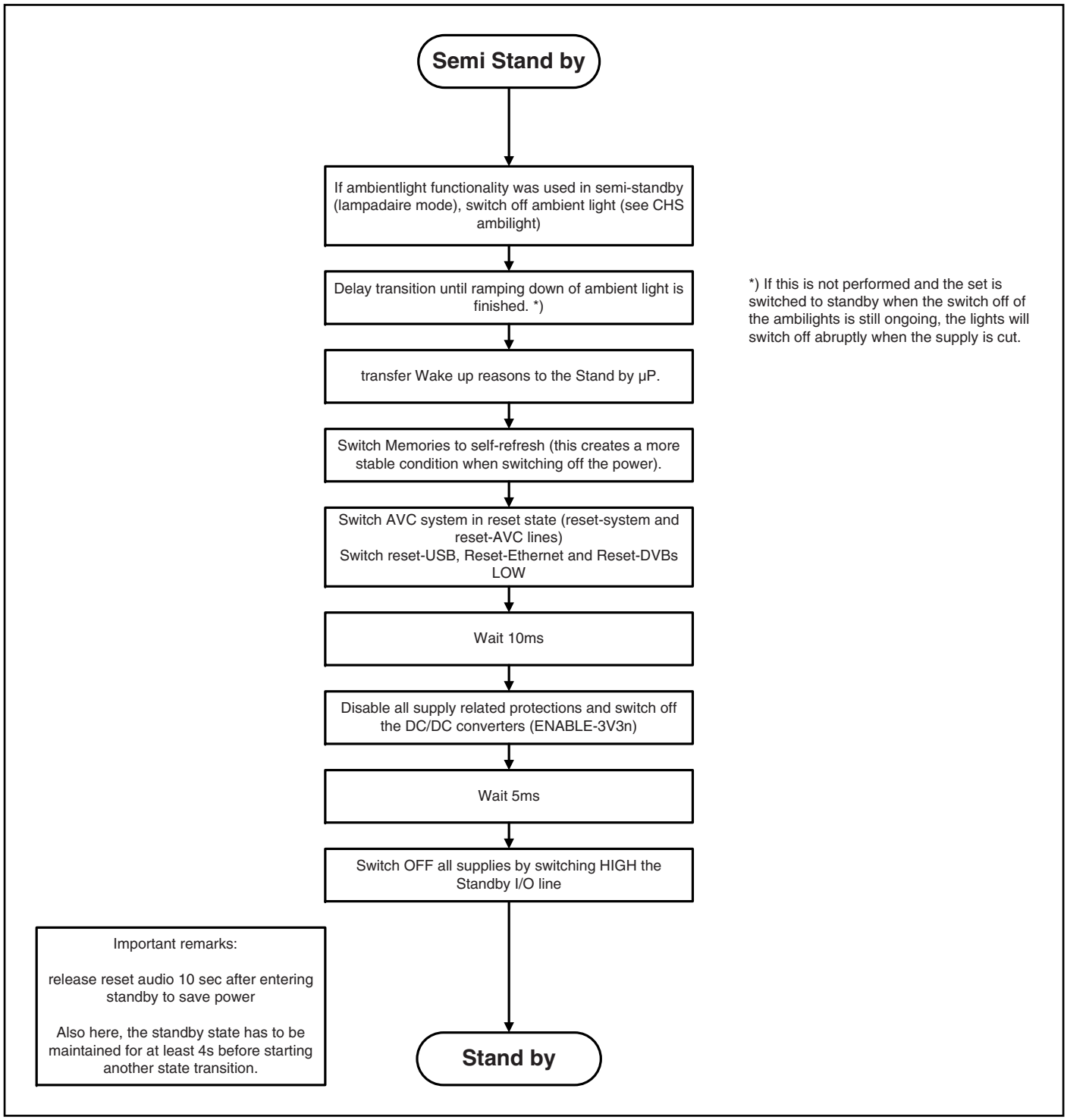
100216

Figure 5-8 “Active” to “Semi Stand-by” flowchart



18770_256_100216.eps
100216

Figure 5-9 “Semi Stand-by” to “Stand-by” flowchart

5.4 Service Tools

5.4.1 ComPair

Introduction

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

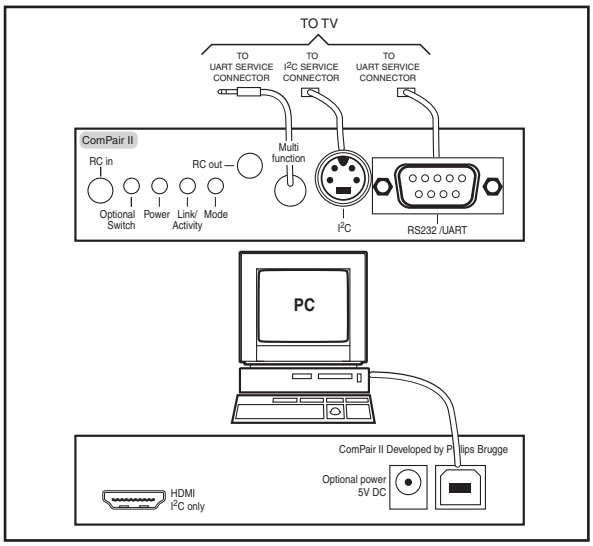
1. ComPair helps to quickly get an understanding on how to repair the chassis in a short and effective way.
2. ComPair allows very detailed diagnostics and is therefore capable of accurately indicating problem areas. No knowledge on I²C or UART commands is necessary, because ComPair takes care of this.
3. ComPair speeds up the repair time since it can automatically communicate with the chassis (when the µP 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.



10000_036_090121.eps
091118

Figure 5-10 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.
- Software is available via the Philips Service web portal.
- ComPair UART interface cable for Q55x.x. (using 3.5 mm Mini Jack connector): 3138 188 75051.

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

5.5 Error Codes

5.5.1 Introduction

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right, new errors are logged at the left side, and all other errors shift one position to the right.
When an error occurs, it is added to the list of errors, provided the list is not full. When an error occurs and the error buffer is full, then the new error is not added, and the error buffer stays intact (history is maintained).
To prevent that an occasional error stays in the list forever, the error is removed from the list after more than 50 hrs. of operation.
When multiple errors occur (errors occurred within a short time span), there is a high probability that there is some relation between them.

New in this chassis is the way errors can be displayed:

- **If no errors are there, the LED should not blink at all in CSM or SDM. No spacer must be displayed as well.**
- **There is a simple blinking LED procedure for board level repair (home repair) so called LAYER 1 errors** next to the existing errors which are LAYER 2 errors (see Table 5-2).
  - LAYER 1 errors are one digit errors.
  - LAYER 2 errors are 2 digit errors.
- **In protection mode**.
  - From consumer mode: **LAYER 1.**
  - From SDM mode: **LAYER 2**.
- **Fatal errors, if I2C bus is blocked and the set reboots, CSM and SAM are not selectable**.
  - From consumer mode: **LAYER 1.**
  - From SDM mode: **LAYER 2**.
- In CSM mode.
  - When entering CSM: error **LAYER 1** will be displayed by blinking LED. Only the latest error is shown.
- In SDM mode.
  - When SDM is entered via Remote Control code or the hardware pins, **LAYER 2** is displayed via blinking LED.
- Error display on screen.
  - In CSM no error codes are displayed on screen.
  - In SAM the complete error list is shown.

Basically there are three kinds of errors:

- **Errors detected by the Stand-by software which lead to protection.** These errors will always lead to protection and an automatic start of the blinking LED LAYER 1 error. (see section "5.6 The Blinking LED Procedure").
- **Errors detected by the Stand-by software which not lead to protection.** In this case the front LED should blink the involved error. See also section "5.5 Error Codes, 5.5.4 Error Buffer, Extra Info". Note that it can take up several minutes before the TV starts blinking the error (e.g. LAYER 1 error = 2, LAYER 2 error = 15 or 53).
- **Errors detected by main software (MIPS).** In this case the error will be logged into the error buffer and can be read out via ComPair, via blinking LED method LAYER 1-2 error, or in case picture is visible, via SAM.

5.5.2 How to Read the Error Buffer

Use one of the following methods:

- On screen via the SAM (only when a picture is visible). E.g.:
  - **00 00 00 00 00**: No errors detected
  - **23 00 00 00 00**: Error code 23 is the last and only detected error.
  - **37 23 00 00 00**: Error code 23 was first detected and error code 37 is the last detected error.
  - **Note that no protection errors can be logged in the error buffer.**

- Via the blinking LED procedure. See section 5.5.3 How to Clear the Error Buffer.
- Via ComPair.

5.5.3 How to Clear the Error Buffer

Use one of the following methods:
- By activation of the "RESET ERROR BUFFER" command in the SAM menu.
- If the content of the error buffer has not changed for 50+ hours, it resets automatically.

5.5.4 Error Buffer

In case of non-intermittent faults, clear the error buffer before starting to repair (**before** clearing the buffer, write down the content, as this history can give significant information). This to ensure that old error codes are no longer present.
If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error code and not the actual cause (e.g. a fault in the protection detection circuitry can also lead to a protection).
There are several mechanisms of error detection:
- Via error bits in the status registers of ICs.
- Via polling on I/O pins going to the stand-by processor.
- Via sensing of analog values on the stand-by processor or the PNX85500.
- Via a "not acknowledge" of an I^2C communication.

Take notice that some errors need several minutes before they start blinking or before they will be logged. So in case of problems wait 2 minutes from start-up onwards, and then check if the front LED is blinking or if an error is logged.

Table 5-2 Error code overview

Description	Layer 1	Layer 2	Monitored by	Error/ Prot	Error Buffer/ Blinking LED	Device	Defective Board
I^2C3	2	13	MIPS	E	BL / EB	SSB	SSB
I^2C2	2	14	MIPS	E	BL / EB	SSB	SSB
I^2C4	2	18	MIPS	E	BL / EB	SSB	SSB
PNX doesn't boot (HW cause)	2	15	Stby µP	P	BL	PNX8550	SSB
12V	3	16	Stby µP	P	BL	/	Supply
Inverter or display supply	3	17	MIPS	E	EB	/	Supply
HDMI mux	2	23	MIPS	E	EB	Sil9x87A	SSB
I2C switch	2	24	MIPS	E	EB	PCA9540	SSB
Channel dec DVB-S	2	28	MIPS	E	EB	STV0903	SSB
Lnb controller	2	31	MIPS	E	EB	LNBH23	SSB
Tuner	2	34	MIPS	E	EB	DTT 71300	SSB
Main nvm	2	35	MIPS	E	EB	STM24C64	SSB
Tuner DVB-S	2	36	MIPS	E	EB	STV6110	SSB
T° sensor SSB/set	2	42	MIPS	E	EB	LM 75	T° sensor
T° sensor LED driver/Tcon	7	42	MIPS	E	EB	LM 75	T° sensor
PNX doesn't boot (SW cause)	2	53	Stby µP	P	BL	PNX8550	SSB
Display	5	64	MIPS	E	BL / EB	Altera	Display

Extra Info
- **Rebooting.** When a TV is constantly rebooting due to internal problems, most of the time no errors will be logged or blinked. This rebooting can be recognized via a ComPair interface and Hyperterminal (for Hyperterminal settings, see section "5.8 Fault Finding and Repair Tips, 5.8.6 Logging). It's shown that the loggings which are generated by the main software keep continuing. In this case diagnose has to be done via ComPair.
- **Error 13 (I^2C bus 3, SSB bus blocked)**. At the time of release of this manual, this error was not working as expected. Current situation: when this error occurs, the TV will constantly reboot due to the blocked bus. The best way for further diagnosis here, is to use ComPair.
- **Error 14 (I^2C bus 2, TV set bus blocked)**. At the time of release of this manual, this error was not working as expected. Current situation: when this error occurs, the TV will constantly reboot due to the blocked bus. The best way for further diagnosis here, is to use ComPair.
- **Error 18 (I^2C bus 4, Tuner bus blocked)**. At the time of release of this manual, this error was not working as expected. Current situation: when this error occurs, the TV will constantly reboot due to the blocked bus. The best way for further diagnosis here, is to use ComPair.
- **Error 15 (PNX8550 doesn't boot)**. Indicates that the main processor was not able to read his bootscript. This error will point to a hardware problem around the PNX8550 (supplies not OK, PNX 8550 completely dead, I^2C link between PNX and Stand-by Processor broken, etc...). When error 15 occurs it is also possible that I^2C1 bus is blocked (NVM). I^2C1 can be indicated in the schematics as follows: SCL-UP-MIPS, SDA-UP-MIPS.
  Other root causes for this error can be due to hardware problems regarding the DDR's and the bootscript reading from the PNX8550.
- **Error 16 (12V)**. This voltage is made in the power supply and results in protection (LAYER 1 error = 3) in case of absence. When SDM is activated we see blinking LED LAYER 2 error = 16.
- **Error 17 (Invertor or Display Supply)**. Here the status of the "Power OK" is checked by software, no protection will occur during failure of the invertor or display supply (no picture), only error logging. LED blinking of LAYER 1 error = 3 in CSM, in SDM this gives LAYER 2 error = 17.
- **Error 23 (HDMI)**. When there is no I^2C communication towards the HDMI mux after start-up, LAYER 2 error = 23 will be logged and displayed via the blinking LED procedure if SDM is switched on.
- **Error 24 (I2C switch)**. When there is no I^2C communication towards the I^2C switch, LAYER 2 error = 24 will be logged and displayed via the blinking LED procedure when SDM is switched on. Remark : this only works for TV sets with an I^2C controlled screen included.
- **Error 28 (Channel dec DVB-S)**. When there is no I^2C communication towards the DVB-S channel decoder, LAYER 2 error = 28 will be logged and displayed via the blinking LED procedure if SDM is switched on.
- **Error 31 (Lnb controller)**. When there is no I^2C communication towards this device, LAYER 2 error = 31

will be logged and displayed via the blinking LED procedure if SDM is activated.
- **Error 34 (Tuner)**. When there is no I²C communication towards the tuner during start-up, LAYER 2 error = 34 will be logged and displayed via the blinking LED procedure when SDM is switched on.
- **Error 35 (main NVM)**. When there is no I²C communication towards the main NVM during start-up, LAYER 2 error = 35 will be displayed via the blinking LED procedure when SDM is switched “on”. All service modes (CSM, SAM and SDM) are accessible during this failure, observed in the Uart logging as follows : "<< ERRO >>> PFPOW_.C : First Error (id19, Layer_1= 2 Layer_= 35)".
- **Error 36 (Tuner DVB-S)**. When there is no I²C communication towards the DVB-S tuner during start-up, LAYER 2 error = 36 will be logged and displayed via the blinking LED procedure when SDM is switched “on”.
- **Error 42 (Temp sensor)**. Only applicable for TV sets equipped with temperature devices.
- **Error 53**. This error will indicate that the PNX8550 has read his bootscript (when this would have failed, error 15 would blink) but initialization was never completed because of hardware problems (NAND flash, ...) or software initialization problems. Possible cause could be that there is no valid software loaded (try to upgrade to the latest main software version). Note that it can take a few minutes before the TV starts blinking LAYER 1 error = 2 or in SDM, LAYER 2 error = 53.
- **Error 64**. Only applicable for TV sets with an I²C controlled screen .

5.6 The Blinking LED Procedure

5.6.1 Introduction

The blinking LED procedure can be split up into two situations:
- Blinking LED procedure LAYER 1 error. In this case the error is automatically blinked when the TV is put in CSM. This will be only one digit error, namely the one that is referring to the defective board (see table “5-2 Error code overview”) which causes the failure of the TV. This approach will especially be used for home repair and call centres. The aim here is to have service diagnosis from a distance.
- Blinking LED procedure LAYER 2 error. Via this procedure, the contents of the error buffer can be made visible via the front LED. In this case the error contains 2 digits (see table “5-2 Error code overview”) and will be displayed when SDM (hardware pins) is activated. This is especially useful for fault finding and gives more details regarding the failure of the defective board.

Important remark:
For an empty error buffer, the LED should not blink at all in CSM or SDM. No spacer will be displayed.

When one of the blinking LED procedures is activated, the front LED will show (blink) the contents of the error buffer. Error codes greater then 10 are shown as follows:
1. “n” long blinks (where “n” = 1 to 9) indicating decimal digit
2. A pause of 1.5 s
3. “n” short blinks (where “n”= 1 to 9)
4. A pause of approximately 3 s,
5. When all the error codes are displayed, the sequence finishes with a LED blink of 3 s (spacer).
6. The sequence starts again.

Example: Error 12 8 6 0 0.
After activation of the SDM, the front LED will show:
1. One long blink of 750 ms (which is an indication of the decimal digit) followed by a pause of 1.5 s
2. Two short blinks of 250 ms followed by a pause of 3 s
3. Eight short blinks followed by a pause of 3 s
4. Six short blinks followed by a pause of 3 s
5. One long blink of 3 s to finish the sequence (spacer).
6. The sequence starts again.

5.6.2 How to Activate

Use one of the following methods:
- **Activate the CSM**. The blinking front LED will show only the latest layer 1 error, this works in “normal operation” mode or automatically when the error/protection is monitored by the standby processor.
  In case no picture is shown and there is no LED blinking, read the logging to detect whether “error devices” are mentioned. (see section “5.8 Fault Finding and Repair Tips, 5.8.6 Logging”).
- **Activate the SDM**. The blinking front LED will show the entire content of the LAYER 2 error buffer, this works in “normal operation” mode or when SDM (via hardware pins) is activated when the tv set is in protection.

5.7 Protections

5.7.1 Software Protections

Most of the protections and errors use either the stand-by microprocessor or the MIPS controller as detection device. Since in these cases, checking of observers, polling of ADCs, and filtering of input values are all heavily software based, these protections are referred to as software protections. There are several types of software related protections, solving a variety of fault conditions:
- **Related to supplies:** presence of the +5V, +3V3 and 1V2 needs to be measured, no protection triggered here.
- **Protections related to breakdown of the safety check mechanism.** E.g. since the protection detections are done by means of software, failing of the software will have to initiate a protection mode since safety cannot be guaranteed any more.

Remark on the Supply Errors
The detection of a supply dip or supply loss during the normal playing of the set does not lead to a protection, but to a cold reboot of the set. If the supply is still missing after the reboot, the TV will go to protection.

Protections during Start-up
During TV start-up, some voltages and IC observers are actively monitored to be able to optimise the start-up speed, and to assure good operation of all components. If these monitors do not respond in a defined way, this indicates a malfunction of the system and leads to a protection. As the observers are only used during start-up, they are described in the start-up flow in detail (see section “5.3 Stepwise Start-up”).

5.7.2 Hardware Protections

The only real hardware protection in this chassis appears in case of an audio problem e.g. DC voltage on the speakers. This protection will only affect the Class D audio amplifier (item 7D10; see diagram B03A) and puts the amplifier in a continuous burst mode (cyclus approximately 2 seconds).

Repair Tip
- There still will be a picture available but no sound. While the Class D amplifier tries to start-up again, the cone of the loudspeakers will move slowly in one or the other direction until the initial failure shuts the amplifier down, this cyclus starts over and over again. The headphone amplifier will also behaves similar.

5.8 Fault Finding and Repair Tips

Read also section "5.5 Error Codes, 5.5.4 Error Buffer, Extra Info".

5.8.1 Ambilight

Due to degeneration process of the LED's fitted on the ambi module, there can be a difference in the colour and/or light output of the spare ambilight modules in comparison with the originals ones contained in the TV set. Via SAM => alignments => ambilight, the spare module can be adjusted.

5.8.2 Audio Amplifier

The Class D-IC 7D10 has a powerpad for cooling. When the IC is replaced it must be ensured that the powerpad is very well pushed to the PWB while the solder is still liquid. This is needed to insure that the cooling is guaranteed, otherwise the Class D-IC could break down in short time.

5.8.3 CSM

When CSM is activated and there is a USB stick connected to the TV, the software will dump the complete CSM content to the USB stick. The file (Csm.txt) will be saved in the root of the USB stick. If this mechanism works it can be concluded that a large part of the operating system is already working (MIPS, USB...)

5.8.4 DC/DC Converter

Description basic board

The basic board power supply consists of 4 DC/DC converters and 5 linear stabilizers. All DC/DC converters have +12V input voltage and deliver :

- +1V1 supply voltage (1.15V nominal), for the core voltage of PNX85500, stabilized close to the point of load; SENSE+1V1 signal provides the DC-DC converter the needed feedback to achieve this.
- +1V8 supply voltage, for the DDR2 memories and DDR2 interface of PNX85500.
- +3V3 supply voltage (3.30V nominal), overall 3.3 V for onboard IC's, for non-5000 series SSB diversities only.
- +5V (5.15V nominal) for USB, WIFI and Conditional Access Module and +5V5-TUN for +5V-TUN tuner stabilizer.

The linear stabilizers are providing:

- +1V2 supply voltage (1.2V nominal), stabilized close to PNX85500 device, for various other internal blocks of PNX85500; SENSE+1V2 signal provides the needed feedback to achieve this.
- +2V5 supply voltage (2.5V nominal) for LVDS interface and various other internal blocks of PNX85500; for 5000 series SSB diversities the stabilizer is 7UD2 while for the other diversities 7UC0 is used.
- +3V3 supply voltage (3V3 nominal) for 5000 series SSB diversities, provided by 7UD3; in this case the 12V to 3V3 DC-DC converter is not present.
- +5V-TUN supply voltage (5V nominal) for tuner and IF amplifier.

+3V3-STANDY (3V3 nominal) is the permanent voltage, supplying the standby microprocessor inside PNX85500.

Supply voltage +1V1 is started immediately when +12V voltage becomes available (+12V is enabled by STANDBY signal when low). Supply voltages +3V3, +2V5, +1V8, +1V2 and +5V-TUN are switched on by signal ENABLE-3V3 when low, provided that +12V (detected via 7U40 and 7U41) is present.

+12V is considered OK (=> DETECT2 signal becomes high, +12V to +1V8, +12V to +3V3, +12V to +5V DC-DC converter can be started up) if it rises above 10V and doesn't drop below 9V5. A small delay of a few milliseconds is introduced between the start-up of 12V to +1V8 DC-DC converter and the two other DC-DC converters via 7U48 and associated components.

Description DVB-S2:

- LNB-RF1 (0V = disabled, 14V or 18V in normal operation) LNB supply generated via the second conversion channel of 7T03 followed by 7T50 LNB supply control IC.It provides supply voltage that feeds the outdoor satellite reception equipment.
- +3V3-DVBS (3V3 nominal), +2V5-DVBS (2V5 nominal) and +1V-DVBS (1.03V nominal) power supply for the silicon tuner and channel decoder. +1V-DVBS is generated via a 5V to 1V DC-DC converter and is stabilized at the point of load (channel decoder) by means of feedback signal SENSE+1V0-DVBS. +3V3-DVBS and +2V5-DVBS are generated via linear stabilizers from +5V-DVBS that by itself is generated via the first conversion channel of 7T03.

At start-up, +24V becomes available when STANDBY signal is low (together with +12V for the basic board), when +3V3 from the basic board is present the two DC-DC converters channels inside 7T03 are activated. Initially only the 24V to 5V converter (channel 1 of 7T03 generating +5V-DVBS) will effectively work, while +V-LNB is held at a level around 11V7 via diode 6T55. After 7T05 is initialized, the second channel of 7T03 will start and generates a voltage higher then LNB-RF1 with 0V8. +5V-DVBS start-up will imply +3V3-DVBS start-up, with a small delay of a few milliseconds => +2V5-DVBS and +1V-DVBS will be enabled.

If +24V drops below +15V level then the DVB-S2 supply will stop, even if +3V3 is still present..

Debugging

The best way to find a failure in the DC/DC converters is to check their start-up sequence at power-on via the mains cord, presuming that the standby microprocessor and the external supply are operational. Take STANDBY signal high-to-low transition as time reference.
When +12V becomes available (maximum 1 second after STANDBY signal goes low) then +1V1 is started immediately. After ENABLE-3V3 goes low, all the other supply voltages should rise within a few milliseconds.

Tips

- Behaviour comparison with a reference TV550 platform can be a fast way to locate failures.
- If +12V stays low, check the integrity of fuse 1U40.
- Check the integrity (at least no short circuit between drain and source) of the power MOS-FETs before starting up the platform in SDM, otherwise many components might be damaged. Using a ohmmeter can detect short circuits between any power rail and ground or between +12V and any other power rail.
- Short circuit at the output of an integrated linear stabilizer (7UC0, 7UD2 or 7UD3) will heat up this device strongly.
- Switching frequencies should be 500 kHz ...600 kHz for 12 V to 1.1 V and 12 V to 1.8 V DC-DC converters, 900 kHz for 12 V to 3.3 V and 12 V to 5 V DC-DC converters. The DVB-S2 supply 24 V to 5 V and 24 V to +V LNB DC-DC converters operates at 300 kHz while for 5 V to 1.1 V DC-DC converter 900 kHz is used.

5.8.5 Exit "Factory Mode"

When an "F" is displayed in the screen's right corner, this means the set is in "Factory" mode, and it normally happens after a new SSB is mounted. To exit this mode, push the "VOLUME minus" button on the TV's local keyboard for 10 seconds (this disables the continuous mode).

Then push the “SOURCE” button for 10 seconds until the “F” disappears from the screen.

5.8.6 Logging

When something is wrong with the TV set (f.i. the set is rebooting) you can check for more information via the logging in Hyperterminal. The Hyperterminal is available in every Windows application via Programs, Accessories, Communications, Hyperterminal. Connect a “ComPair UART”-cable (3138 188 75051) from the service connector in the TV to the “multi function” jack at the front of ComPair II box.
Required settings in ComPair before starting to log :
- Start up the ComPair application.
- Select the correct database (open file “Q55X.X”, this will set the ComPair interface in the appropriate mode).
- Close ComPair

After start-up of the Hyperterminal, fill in a name (f.i. “logging”) in the “Connection Description” box, then apply the following settings:

1. COMx
2. Bits per second = 115200
3. Data bits = 8
4. Parity = none
5. Stop bits = 1
6. Flow control = none

During the start-up of the TV set, the logging will be displayed. This is also the case during rebooting of the TV set (the same logging appears time after time). Also available in the logging is the “Display Option Code” (useful when there is no picture), look for item “DisplayRawNumber” in the beginning of the logging. Tip: when there is no picture available during rebooting you are able to check for “error devices” in the logging (LAYER 2 error) which can be very helpful to determine the failure cause of the reboot. For protection state, there is no logging.

5.8.7 Loudspeakers

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!

5.8.8 PSL

In case of no picture when CSM (test pattern) is activated and backlight doesn’t light up, it’s recommended first to check the inverter on the PSL + wiring (LAYER 2 error = 17 is displayed in SDM).

5.8.9 Tuner

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

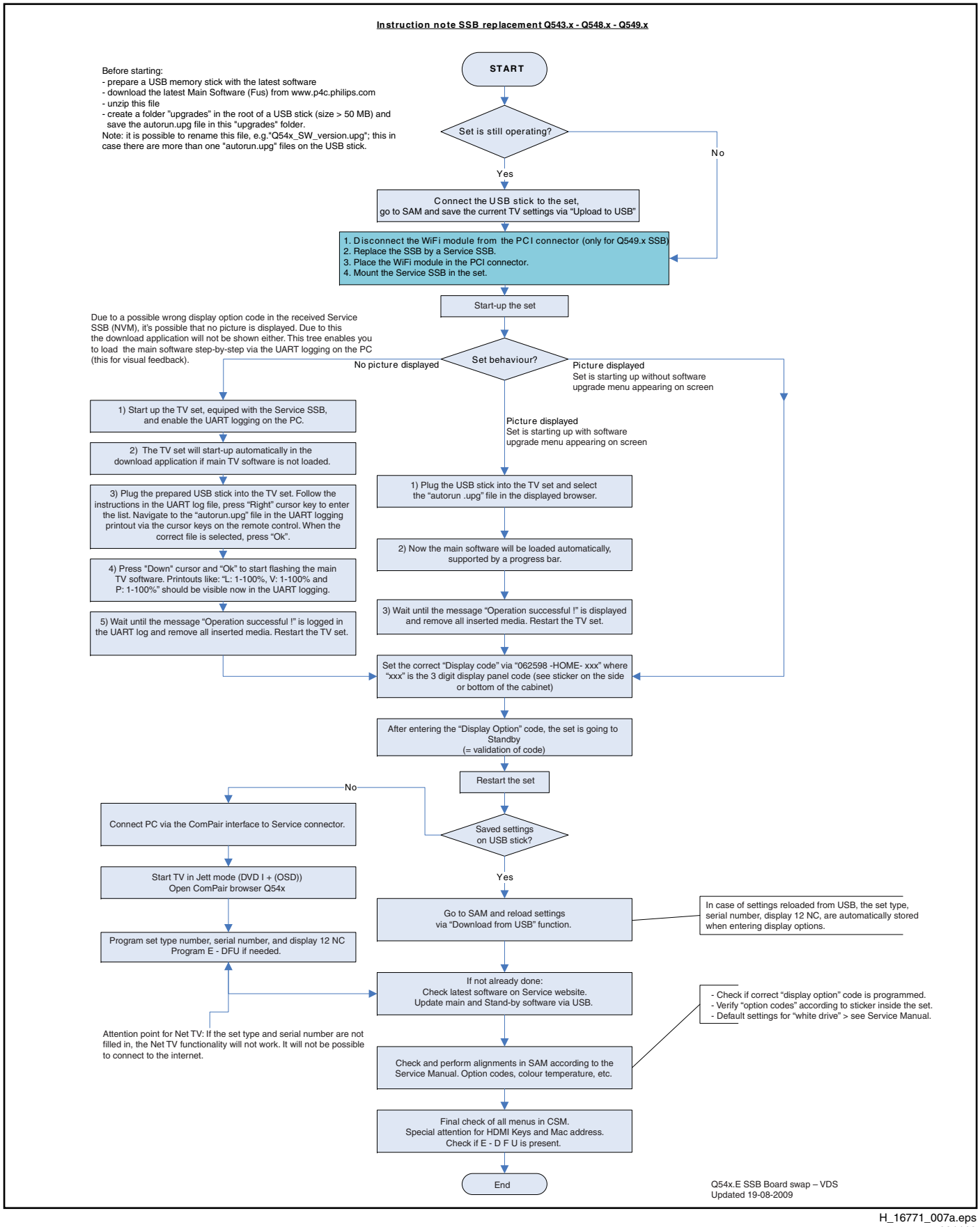
5.8.10 Display option code

Attention: In case the SSB is replaced, always check the display option code in SAM, even when picture is available. Performance with the incorrect display option code can lead to unwanted side-effects for certain conditions.

New in this chassis:
While in the download application (start up in TV mode + “OK” button pressed), the display option code can be changed via 062598 HOME XXX special SAM command (XXX=display option in 3 digits).

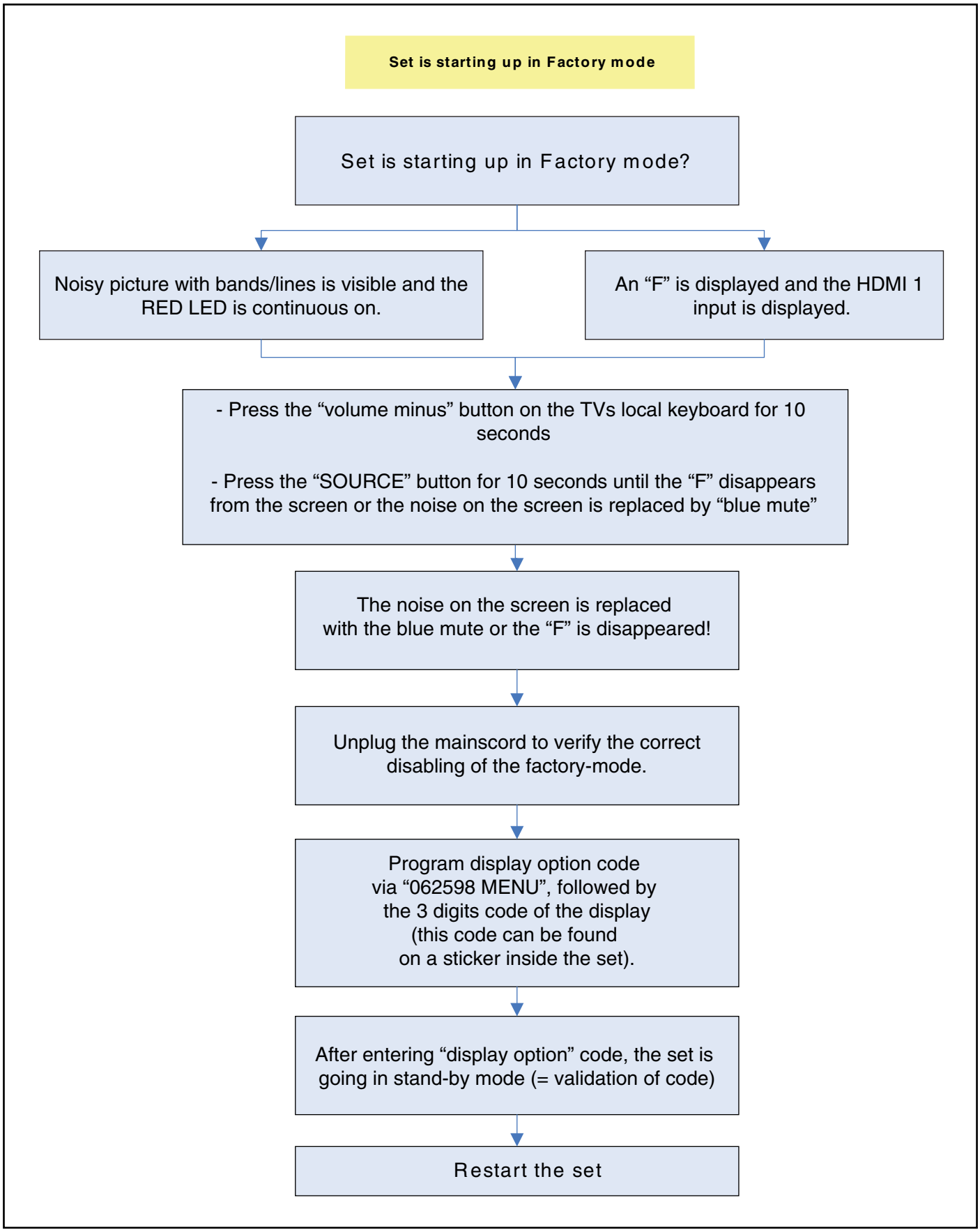
5.8.11 SSB Replacement

Follow the instructions in the flowchart in case a SSB has to be exchanged. See figure “SSB replacement flowchart”.



H_16771_007a.eps
091119

Figure 5-11 SSB replacement flowchart



H_16771_007b.eps
091119

Figure 5-12 SSB replacement flowchart - Factory mode

5.9 Software Upgrading

5.9.1 Introduction

The set software and security keys are stored in a NAND-Flash, which is connected to the PNX85500.

It is possible **for the user** to upgrade the **main** software via the USB port. This allows replacement of a software image in a stand alone set, without the need of an E-JTAG debugger. A description on how to upgrade the main software can be found in the electronic User Manual.

Important: When the NAND-Flash must be replaced, a new SSB must be ordered, due to the presence of the security keys! (CI +, MAC address, ...).
Perform the following actions after SSB replacement:
1. Set the correct option codes (see sticker inside the TV).
2. Update the TV software => see the eUM (electronic User Manual) for instructions.
3. Perform the alignments as described in chapter 6 (section 6.5 Reset of Repaired SSB).
4. Check in CSM if the CI + key, MAC address.. are valid.

For the correct order number of a new SSB, always refer to the Spare Parts list!

5.9.2 Main Software Upgrade

- The “UpgradeAll.upg” file is only used in the factory.

Automatic Software Upgrade
In “normal” conditions, so when there is no major problem with the TV, the main software and the default software upgrade application can be upgraded with the “AUTORUN.UPG” (FUS part of the one-zip file: e.g. 3104 337 05661 _FUS _Q555X_ x.x.x.x_commercial.zip). This can also be done by the consumers themselves, but they will have to get their software from the commercial Philips website or via the Software Update Assistant in the user menu (see eUM). The “autorun.upg” file must be placed in the root of the USB stick.
How to upgrade:
1. Copy “AUTORUN.UPG” to the root of the USB stick.
2. Insert USB stick in the set while the set is operational. The set will restart and the upgrading will start automatically. As soon as the programming is finished, a message is shown to remove the USB stick and restart the set.

Manual Software Upgrade
In case that the software upgrade application does not start automatically, it can also be started manually.
How to start the software upgrade application manually:
1. Disconnect the TV from the Mains/AC Power.
2. Press the “OK” button on a Philips TV remote control or a Philips DVD RC-6 remote control (it is also possible to use a TV remote in “DVD” mode). Keep the “OK” button pressed while reconnecting the TV to the Mains/AC Power.
3. The software upgrade application will start.

Attention!
In case the download application has been started **manually**, the “autorun.upg” will maybe not be recognized.
What to do in this case:
1. Create a directory “UPGRADES” on the USB stick.
2. Rename the “autorun.upg” to something else, e.g. to “software.upg”. Do not use long or complicated names, keep it simple. Make sure that “AUTORUN.UPG” is no longer present in the root of the USB stick.
3. Copy the renamed “upg” file into this directory.
4. Insert USB stick into the TV.
5. The renamed “upg” file will be visible and selectable in the upgrade application.

Back-up Software Upgrade Application
If the default software upgrade application does not start (could be due to a corrupted boot sector) via the above described method, try activating the “back-up software upgrade application”.
How to start the “back-up software upgrade application” manually:
1. Disconnect the TV from the Mains/AC Power.
2. Press the “CURSOR DOWN”-button on a Philips TV remote control while reconnecting the TV to the Mains/AC Power.
3. The back-up software upgrade application will start.

5.9.3 Stand-by Software Upgrade via USB

In this chassis it is possible to upgrade the Stand-by software via a USB stick. The method is similar to upgrading the main software via USB.
Use the following steps:
1. Create a directory “UPGRADES” on the USB stick.
2. Copy the Stand-by software (part of the one-zip file, e.g. StandbySW_CFT72_88.0.0.0.upg) into this directory.
3. Insert the USB stick into the TV.
4. Start the download application manually (see section “ Manual Software Upgrade”.
5. Select the appropriate file and press the “OK” button to upgrade.

5.9.4 Content and Usage of the One-Zip Software File

Below the content of the One-Zip file is explained, and instructions on how and when to use it.
- **FUS_Q5492_x.x.x.x_commercial.zip.** Contains the “autorun.upg” which is needed to upgrade the TV main software and the software download application.
- **StandbySW_CFTxx_x.x.x.x_commercial.zip.** Contains the Stand-by software in “upg” and “hex” format.
  - The “StandbySW_xxxxx_prod.upg” file can be used to upgrade the Stand-by software via USB.
  - The “StandbySW_xxxxx.hex” file can be used to upgrade the Stand-by software via ComPair.
  - The files “StandbySW_xxxxx_exhex.hex” and “StandbySW_xxxxx_dev.upg” may not be used by Service technicians (only for development purposes).
- **UpgradeAll_Q555X_x.x.x.x_commercial.zip.** Only for production purposes, not to be used by Service technicians.
- **ProcessNVM_Q55XX_x.x.x.x.zip.** Default NVM content. Must be programmed via ComPair or can be loaded via USB, be aware that all alignments stored in NVM are overwritten here.

5.9.5 UART logging 2K10 (see section “5.8 Fault Finding and Repair Tips, 5.8.6 Logging)

6. Alignments

Index of this chapter:

6.1 General Alignment Conditions

Perform all electrical adjustments under the following conditions:

- Power supply voltage (depends on region):
  - **AP-NTSC:** 120 VAC or 230 V_{AC} / 50 Hz (± 10%).
  - **AP-PAL-multi:** 120 - 230 V_{AC} / 50 Hz (± 10%).
  - **EU:** 230 V_{AC} / 50 Hz (± 10%).
  - **LATAM-NTSC:** 120 - 230 V_{AC} / 50 Hz (± 10%).
  - **US:** 120 V_{AC} / 60 Hz (± 10%).
- 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 heat sinks as ground.
- Test probe: Ri > 10 MΩ, Ci < 20 pF.
- Use an isolated trimmer/screwdriver to perform alignments.

6.1.1 Alignment Sequence

- First, set the correct options:
  - In SAM, select “Option numbers”.
  - Fill in the option settings for “Group 1” and “Group 2” according to the set sticker (see also paragraph 6.4 Option Settings).
  - Press OK on the remote control before the cursor is moved to the left.
  - In submenu “Option numbers” select “Store” and press OK on the RC.
- OR:
  - In main menu, select “Store” again and press OK on the RC.
  - Switch the set to Stand-by.
- Warming up (>15 minutes).

6.2 Hardware Alignments

Not applicable.

6.3 Software Alignments

Put the set in SAM mode (see Chapter 5. Service Modes, Error Codes, and Fault Finding). The SAM menu will now appear on the screen. Select ALIGNMENTS and go to one of the sub menus. The alignments are explained below.
The following items can be aligned:

- White point
- Ambilight
- TCON Alignment
- Reset TCON Alignment.

To store the data:

- Press OK on the RC **before the cursor is moved to the left**
- In main menu select “Store” and press OK on the RC
- Switch the set to stand-by mode.

For the next alignments, supply the following test signals via a video generator to the RF input:

- **EU/AP-PAL models:** a PAL B/G TV-signal with a signal strength of at least 1 mV and a frequency of 475.25 MHz
- **US/AP-NTSC models:** an NTSC M/N TV-signal with a signal strength of at least 1 mV and a frequency of 61.25 MHz (channel 3).
- **LATAM models:** an NTSC M TV-signal with a signal strength of at least 1 mV and a frequency of 61.25 MHz (channel 3).

6.3.1 White Point

- Choose “TV menu”, “Setup”, “More TV Settings” and then “Picture” and set picture settings as follows:

Picture Setting	
Contrast	100
Brightness	50
Colour	0
Light Sensor	Off
Picture format	Unscaled

- In menu “Picture”, choose “Pixel Plus HD” and set picture settings as follows:

Picture Setting	
Dynamic Contrast	Off
Dynamic Backlight	Off
Colour Enhancement	Off
Gamma	0

- Go to the SAM and select “Alignments”-> “White point”.

White point alignment LCD screens:

- Use a 90% white screen to the HDMI input and set the following values:
  - “Colour temperature”: “Normal”.
  - All “White point” values to: “127”.

In case you have a colour analyser:

- Measure with a calibrated contactless colour analyser (Minolta CA-210 or Minolta CS-200) in the centre of the screen. Consequently, the measurement needs to be done in a dark environment.
- Adjust the correct x, y coordinates (while holding one of the White point registers R, G or B on 127) by means of decreasing the value of one or two other white points to the correct x, y coordinates (see Table 6-1 White D alignment values CCFL backlight panels, 6-2 White D alignment values LED backlight panels - colour analyser Minolta CA-210 or 6-3 White D alignment values LED backlight panels - colour analyser Minolta CS-200). Tolerance: dx: ± 0.002, dy: ± 0.002.
- Repeat this step for the other colour temperatures that need to be aligned.
- When finished press OK on the RC and then press STORE (in the SAM root menu) to store the aligned values to the NVM.
- Restore the initial picture settings after the alignments.

Table 6-1 White D alignment values CCFL backlight panels

Value	Cool (11000K)	Normal (9000K)	Warm (6500K)
x	0.276	0.287	0.313
y	0.282	0.296	0.329

Table 6-2 White D alignment values LED backlight panels - colour analyser Minolta CA-210

Value	Cool (9420K)	Normal (8120K)	Warm (6080K)
x	0.282	0.292	0.320
y	0.298	0.311	0.345

Table 6-3 White D alignment values LED backlight panels - colour analyser Minolta CS-200

Value	Cool (11000K)	Normal (9000K)	Warm (6500K)
x	0.276	0.287	0.313
y	0.282	0.296	0.329

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 6-4.
- When finished press OK on the RC, then press STORE (in the SAM root menu) to store the aligned values to the NVM.
- Restore the initial picture settings after the alignments.

Table 6-4 White tone default setting 32"

White Tone				Black level offset	
Colour Temp	R	G	B	R	G
Normal	t.b.d.	t.b.d.	t.b.d.	t.b.d.	t.b.d.
Cool	t.b.d.	t.b.d.	t.b.d.	t.b.d.	t.b.d.
Warm	t.b.d.	t.b.d.	t.b.d.	t.b.d.	t.b.d.

Table 6-5 White tone default setting 37"

White Tone				Black level offset	
Colour Temp	R	G	B	R	G
Normal	t.b.d.	t.b.d.	t.b.d.	t.b.d.	t.b.d.
Cool	t.b.d.	t.b.d.	t.b.d.	t.b.d.	t.b.d.
Warm	t.b.d.	t.b.d.	t.b.d.	t.b.d.	t.b.d.

Table 6-6 White tone default setting 40"

White Tone				Black level offset	
Colour Temp	R	G	B	R	G
Normal	t.b.d.	t.b.d.	t.b.d.	t.b.d.	t.b.d.
Cool	t.b.d.	t.b.d.	t.b.d.	t.b.d.	t.b.d.
Warm	t.b.d.	t.b.d.	t.b.d.	t.b.d.	t.b.d.

Table 6-7 White tone default setting 42"

White Tone				Black level offset	
Colour Temp	R	G	B	R	G
Normal	127	109	106	t.b.d.	t.b.d.
Cool	124	112	127	t.b.d.	t.b.d.
Warm	127	95	61	t.b.d.	t.b.d.

Table 6-8 TCON default settings

Screen size	TCON Alignment
32"	t.b.d.
37"	t.b.d.
40"	t.b.d.
42"	t.b.d.

6.4.5 Option Code Overview

6.4 Option Settings

6.4.1 Introduction

The microprocessor communicates with a large number of I^2C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence / absence of these PNX51XX ICs (back-end advanced video picture improvement IC which offers motion estimation and compensation features (commercially called HDNM) plus integrated Ambilight control) is made known by the option codes.

Notes:

- After changing the option(s), save them by pressing the OK button on the RC before the cursor is moved to the left, select STORE in the SAM root menu and press OK on the RC.
- The new option setting is only active after the TV is switched “off” / “stand-by” and “on” again with the mains switch (the NVM is then read again).

6.4.2 Dealer Options

For dealer options, in SAM select “Dealer options”.
See Table 6-10 SAM mode overview.

6.4.3 (Service) Options

Select the sub menu's to set the initialisation codes (options) of the model number via text menus.
See Table 6-10 SAM mode overview.

6.4.4 Opt. No. (Option numbers)

Select this sub menu to set all options at once (expressed in two long strings of numbers).
An option number (or “option byte”) represents a number of different options. When you change these numbers directly, you can set all options very quickly. All options are controlled via eight option numbers.
When the NVM is replaced, all options will require resetting. To be certain that the factory settings are reproduced exactly, you must set both option number lines. You can find the correct option numbers on a sticker inside the TV set and in Table 6-9 Option and display code overview.
Example: The options sticker gives the following option numbers:

- 08192 00133 01387 45160
- 12232 04256 00164 00000

The first line (group 1) indicates hardware options 1 to 4, the second line (group 2) indicate software options 5 to 8.
Every 5-digit number represents 16 bits (so the maximum value will be 65536 if all options are set).
When all the correct options are set, the sum of the decimal values of each Option Byte (OB) will give the option number.
See Table 6-9 Option and display code overview for the options.

Diversity
Not all sets with the same Commercial Type Number (CTN) necessarily have the same option code!
Use of Alternative BOM => an alternative BOM number usually indicates the use of an alternative display or power supply. This results in another display code thus in another Option code.
Refer to Chapter 2. Technical Specifications, Diversity, and Connections.

Table 6-9 Option and display code overview

CTN (Alt. BOM#)	Options Group 1	Options Group 2	Disp. code
32PFL5405H/xx	00008 00000 15421 02176	43798 34315 00000 00000	278
32PFL5605H/xx	00008 00000 15421 08192	44009 34315 00000 00000	233
32PFL7605H/xx	02060 00000 12351 30911	43795 34315 00000 00000	275
37PFL5405H/xx	00008 00000 15421 02176	43798 34315 00000 00000	278
40PFL5605H/xx	00008 00000 15421 08192	44009 34315 00000 00000	233
40PFL7605H/xx	02060 00000 12351 30911	43795 34315 00000 00000	275
42PFL5405H/xx	00008 00000 15421 02176	43798 34315 00000 00000	278

Important: after having edited the option numbers as described above, you **must press OK** on the remote control **before the cursor is moved to the left**!

6.5 Reset of Repaired SSB

A very important issue towards a repaired SSB from a service repair shop (SSB repair on component level) implies the reset of the NVM on the SSB.
A repaired SSB in service should get the service Set type “00PF0000000000” and Production code “00000000000000”. Also the virgin bit is to be set. To set all this, you can use the ComPair tool.

After a repaired SSB has been mounted in the set (set repair on board level), the type number (CTN) and production code of the TV has to be set according to the type plate of the set. For this **(new in this platform)**, you can use the NVM editor in SAM. This action also ensures the correct functioning of the “Net TV” feature and access to the Net TV portals. The loading of the CTN and production code can also be done via ComPair (Model number programming).

In case of a display replacement, reset the “Operation hours display” to “0”, or to the operation hours of the replacement display.

6.5.1 SSB identification

Whenever ordering a new SSB, it should be noted that the correct ordering number (12nc) of a SSB is located on a sticker on the SSB. The format is <12nc SSB><serial number>. The ordering number of a “Service” SSB is the same as the ordering number of an initial “factory” SSB.

18310_221_090318.eps
090319

Figure 6-1 SSB identification

6.6 Service SSB delivered without main software loaded

Due to a changed manufacturing process, new **Service SSB’s can be delivered** to the warehouse **without main TV software** loaded. Below you find the steps to follow when such an SSB is received.

6.6.1 When a picture is available

1. Mount the Service SSB into the TV set. After start-up, normally the download application will appear on the screen.
2. Download the latest main software (FUS) from the www.p4c.philips.com website.
3. Create a folder “upgrades” in the root of a USB stick (size > 50 MB) and save the “autorun.upg” file in this “upgrades” folder. **Note:** it is possible to rename this file, e.g. “Q555_SW_version.upg”, this in case there are more than one “autorun.upg” files on your USB stick
4. Plug the prepared USB stick into the TV set, and select the “autorun” file in the displayed browser on the screen
5. Now the main TV software will be loaded automatically, supported by a progress bar
6. Set the correct “display code” via “062598-HOME-xxx”, where “xxx” is the 3-digit display panel code (see sticker on the side/bottom of the cabinet).

6.6.2 When no picture is available

Due to a possible wrong display option code in the received Service SSB (NVM), no picture can be available at start-up and thus no download application will be visible. Here you can proceed and finalize step by step to load the main TV software via the UART logging on the PC (for visual feedback).

1. Start-up the TV set, equipped with the Service SSB, and enable the UART logging on the PC (see for settings 5.8 Fault Finding and Repair Tips 5.8.6 Logging)
2. The TV set will start-up automatically in the download application if main TV software is not loaded
3. Plug the prepared USB stick into the TV set, press cursor “Right” to enter the list, and navigate to the “autorun” file in the UART logging printout via the cursor keys on the remote control. When the correct file is selected, press “OK”
4. Press cursor “Down” and “OK” to start the flashing of the main TV software. Printouts like: “L: 1-100%, V: 1-100% and P: 1-100%” should be visible now in the UART logging
5. Wait until the message “Operation successful!” is displayed and remove all inserted media. Restart the TV set
6. Set the correct “display code” via “062598-HOME-xxx”, where “xxx” is the 3-digit display panel code (see sticker on the side/bottom of the cabinet).

6.6.3 Use of repaired SSBs instead of new

Repaired SSBs on stock will obviously already contain main TV software. This implies that only a main software upgrade is required if you use a “repaired” SSB for board swap instead of a “new” SSB.

6.7 Total Overview SAM modes

Table 6-10 SAM mode overview

Main Menu	Sub-menu 1	Sub-menu 2	Sub-menu 3	Description
Hardware Info	A. SW version	e.g. “Q5521_0.33.0.0		Display TV & Standby SW version and CTN serial number
	B. Standby processor version	e.g. “STDBY_42.42.0.0”		
	C. Production code	e.g. “see type plate”		
Operation hours				Displays the accumulated total of operation hours.TV switched “on/off” & every 0.5 hours is increase one
Errors				Displayed the most recent errors
Reset error buffer				Clears all content in the error buffer
Alignment	White point	Colour temperature	Normal	3 different modes of colour temperature can be selected
			Warn	
			Cool	
		White point red		LCD White Point Alignment. For values, see Table 6-4 White tone default setting 32" until 6-7 White tone default setting 42"
		White point green		
		White point blue		
	Ambilight	Select module		
		Brightness		
		Select matrix		
	TCON alignment			used when a new display code (after a SSB exchange) is keyed-in and if you have alignment values from production; see Table 6-8 TCON default settings
	Reset TCON alignment			used when a new display code (after a SSB exchange) is keyed-in and if you do **not** have alignment values from production
Dealer options	Virgin mode	Off/On		Select Virgin mode On/Off. TV starts up / does not start up (once) with a language selection menu after the mains switch is turned “on” for the first time (virgin mode)
	E-sticker	Off/On		Select E-sticker On/Off (USP’s on-screen)
	Auto store mode	None		
		PDC/VPS		
		TXT page		
		PDC/VPS/TXT		

Main Menu	Sub-menu 1	Sub-menu 2	Sub-menu 3	Description
Options	Digital broadcast	DVB	Off/On	Select DVB On/Off
		DVB - T installation	Off/On or Country dependent	Select DVB T installation On/Off or by country
		DVB - T light	Off/On	Select DVB T light On/Off
		DVB - C	Off/On	Select DVB C On/Off
		DVB - C installation	Off/On or Country dependent	Select DVB C installation On/Off or by country
		DVB - C light	Off/On	Select DVB C light On/Off
		DVB - S	Off/On	Select DVB S On/Off
		Over the air download	Off/On or Country dependent	Select Over the air download On/Off or by country
		8 days EPG	Off/On	Select 8 day EPG On/Off
	Digital features	Ethernet	Off/On	Select Ethernet On/Off
		Wi-Fi	Off/On	Select Wi-Fi On/Off
		DLNA	Off/On	Select DLNA On/Off
		On-line service	On	On-line service is On
		Videostore SD card slot	Off/On	Select Videostore SD card slot On/Off
		Multiview	Off/On	Select Multiview On/Off
		Internet software update	Off	Internet software update is Off
	Display	Screen	237 / LCD Sharp D3GA23 46"	Displayed the panel code & type model
		LightGuide	Off/On	Select LightGuide On/Off
		Display fans	Not present/Present	Select Display fans Present/Not present
		Temperature sensor	No sensor/On backside/In display/ On SSB	Sensor present Yes/No and in case Yes, where
		Temperature LUT	0	N.A.
		E-box & monitor	Off/On	Select E-box & monitor On/Off
	Video reproduction	Light sensor	Off/On	Select Light sensor On/Off
		Light sensor type	0/1/2/3	Select Light sensor type form 0 to 3 (for difference styling)
		Super resolution	Off/On	Super resolution Off/On
		Smart bit enhancement	Off/On	Smart bit enhancement Off/On
		Pixel Plus type	Pixel Plus HD	Select type of picture improvement
			Perfect Pixel HD	
			Pixel Precise HD	
		Natural motion type	Perfect Natural Motion	Natural motion type selection
			HD Natural Motion	
		Ambilight	None	Select type of Ambilight modules use
			2 sided 3/3	
			2 sided 4/4	
			2 sided 5/5	
			2 sided 6/6	
			2 sided 7/7	
			3 sided 5/5/5	
			3 sided 6/6/6	
			3 sided 7/7/7	
			3 sided 6/9/6	
		Ambilight sunset	Off/On	Ambilight sunset On/Off
	Audio reproduction	Acoustic system		Cabinet design used for setting dynamic audio parameters
	Source selection	EXT1/AV1 type	SCART CVBS RGB LR	Select input source when connected with external equipment
			CVBS Y/C YPbPr LR	
			CVBS Y/C YPbPr HV LR	
		EXT2/AV2 type	SCART CVBS RGB LR	Select input source when connected with external equipment
			CVBS LR	
			YPbPr LR	
			None	
		EXT3/AV3 type	None	Select input source when connected with external equipment
			CVBS	
			CVBS LR	
			CVBS Y/C LR	
			YPbPr	
			YPbPr LR	
			YPbPr HV LR	
		SIDE I/O	Off/On	Select SIDE I/O On/Off
		S-VIDEO (Y/C)	Off/On	Select S-VIDEO (Y/C) On/Off
		HDMI 2	Off/On	Select HDMI 2 On/Off
		HDMI 3	Off/On	Select HDMI 3 On/Off
		HDMI side	Off/On	Select HDMI side On/Off
		HDMI CEC Viewport 21:9	Off/On	Select HDMI CEC Viewport 21:9 On/Off
		HDMI CEC OneUX seamless	Off/On	Select HDMI CEC OneUX seamless On/Off
	Miscellaneous	Region	Europe	Select Region/country
			AP-PAL-Multi	
			China	
			Australia	
			Latam	
			Russia	
		Tuner type		Select type of Tuner used
		Hotel mode	Off	Hotel mode is Off

Main Menu	Sub-menu 1	Sub-menu 2	Sub-menu 3	Description
Option numbers	Group 1	e.g. “00008.01793.15421.08192”		The first line (group 1) indicates hardware options 1 to 4
	Group 2	e.g. “44013.34315.00000.00000”		The second line (group 2) indicates software options 5 to 8
	Store			Store after changing
Initialise NVM				N.A.
Store				Select Store in the SAM root menu after making **any** changes
Operation hours display		0003		In case the display must be swapped for repair, you can reset the “”Display operation hours” to “0”. So, this one does keeps up the lifetime of the display itself (mainly to compensate the degeneration behaviour)
Software maintenance	Software events	Display		Display information is for development purposes
		Clear		
		Test reboot		
		Test cold reboot		
		Test application crash		
	Hardware events	Display		Display information is for development purposes
		Clear		
Test setting	Digital info	Centre frequency: 774605208		
		QAM modulation: None		Display information is for development purposes
		Symbol rate:		
		Original network ID: 0		
		Network ID: 0		
		Transport stream ID: 0		
		Service ID: 0		
		Hierarchical modulation: 0		
		Selected video PID: 0		
		Selected main audio PID: 0		
		Selected 2nd audio PID: 0		
	Install start frequency	000		Install start frequency from “0” MHz
	Install end frequency	999		Install end frequency as “999” MHz
	Default install frequency			
	Installation	Digital only		Select Digital only or Digital + Analogue before installation
		Digital + Analogue		
Development file versions	Development 1 file version	Display parameters DISPT6.0.9.8		Display information is for development purposes
		Acoustics parameters ACSTS 0.39.6.16		
		PQ - TV550 1.0.22.1		
		PQS- Profile set		
		PQF - Fixed settings		
		PQU - User styles		
		Ambilight parameters PRFAM 5.0.2.4		
	Development 2 file version	12NC one zip software		Display information is for development purposes
		Initial main software		
		NVM version Q55x1_0.3.1.0		
		Flash units software		
		Temp com file version none		
Upload to USB	All			To upload several settings from the TV to an USB stick
	Channel list			
	Personal settings			
	Option codes			
	Alignments			
	Identification data			
	History list			
Download from USB	All			To download several settings from the USB stick to the TV
	Channel list			
	Personal settings			
	Option codes			
	Alignments			
	Identification data			
NVM editor	Type number	see type plate		NVM editor; re key-in type number and production code after SSB replacement
	AG code	see type plate		

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 Q552.1E LA chassis is part of the TV550 platform and comes with the following stylings: “Rembrandt” (series xxPFL54xx), “van Gogh” (series xxPFL56xx), and “Matisse” (series xxPFL76xx). The TV550 platform is the successor of the TV543 platform.

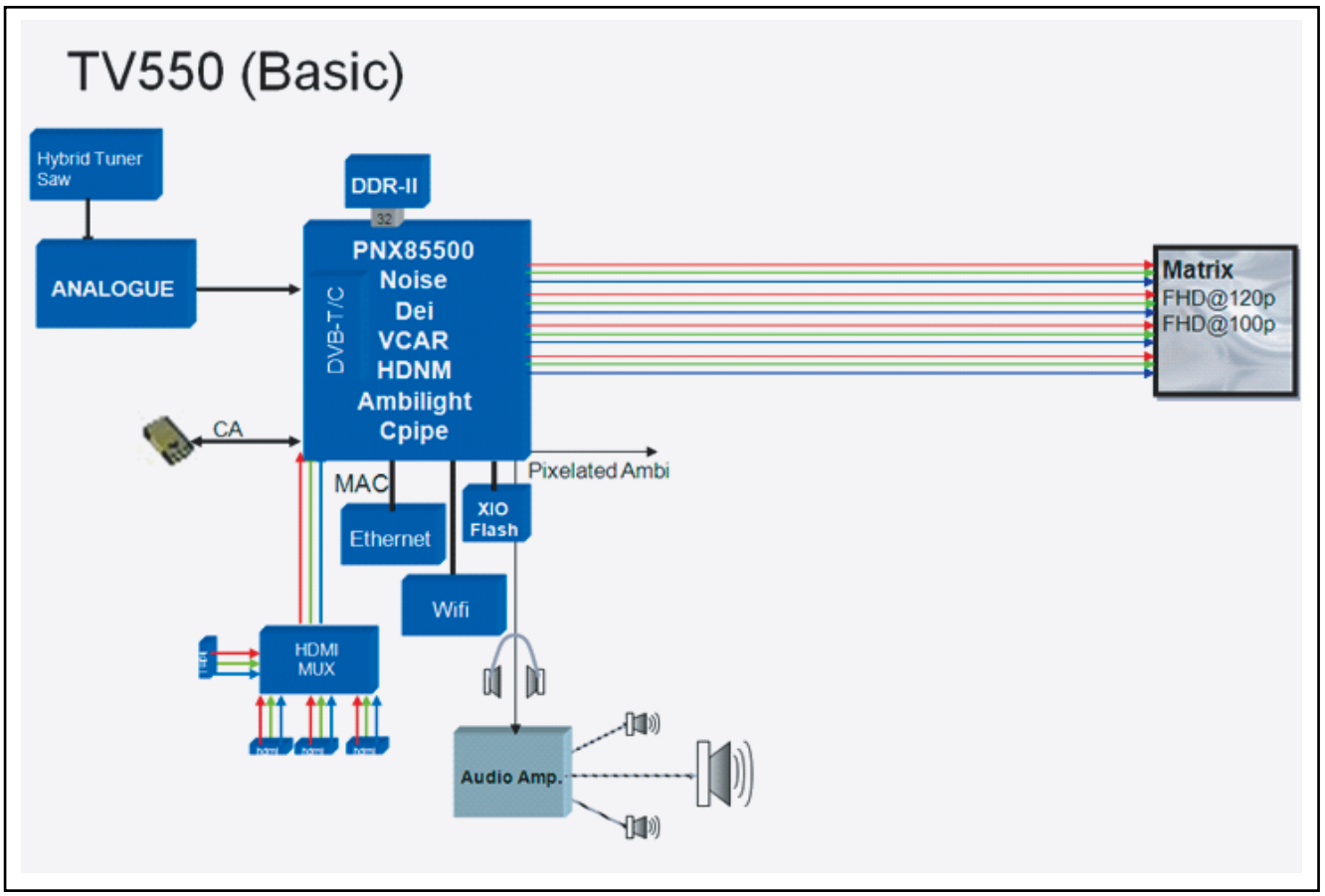
7.1.1 Implementation

Key components of this chassis are:

- PNX85500 System-On-Chip (SOC) TV Processor
- TX31XX Hybrid Tuner (DVB-T/C, analogue)
- STV6110AT DVB-S tuner
- SII9x87 HDMI Switch
- TPA312xD2PWP Class D Power Amplifier
- LAN8710 Dual Port Gigabit Ethernet media access controller.

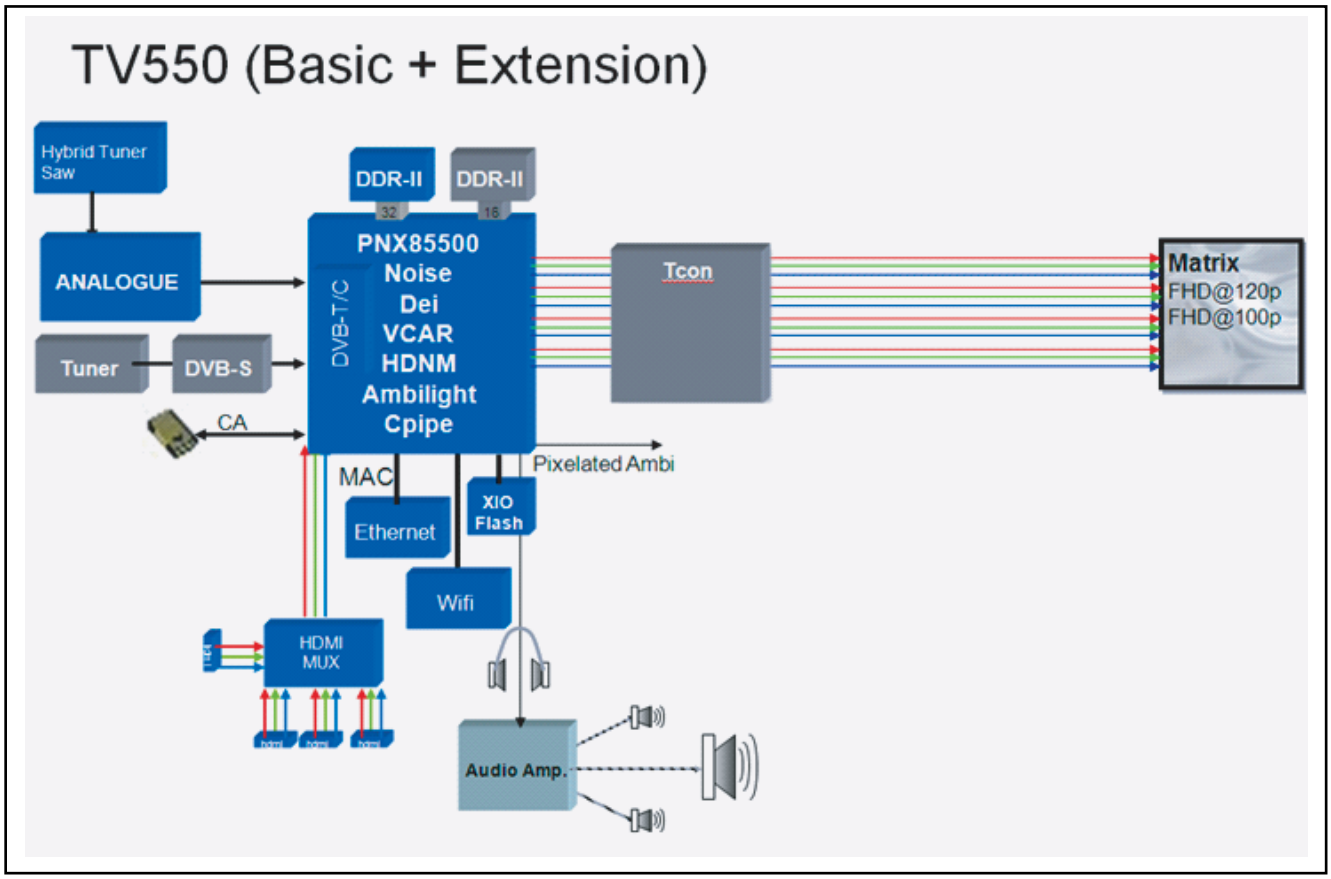
7.1.2 TV550 Architecture Overview

- For details about the chassis block diagrams refer to chapter 9. Block Diagrams. An overview of the TV550 architecture can be found in Figure 7-1.



18770_244_100203.eps
100219

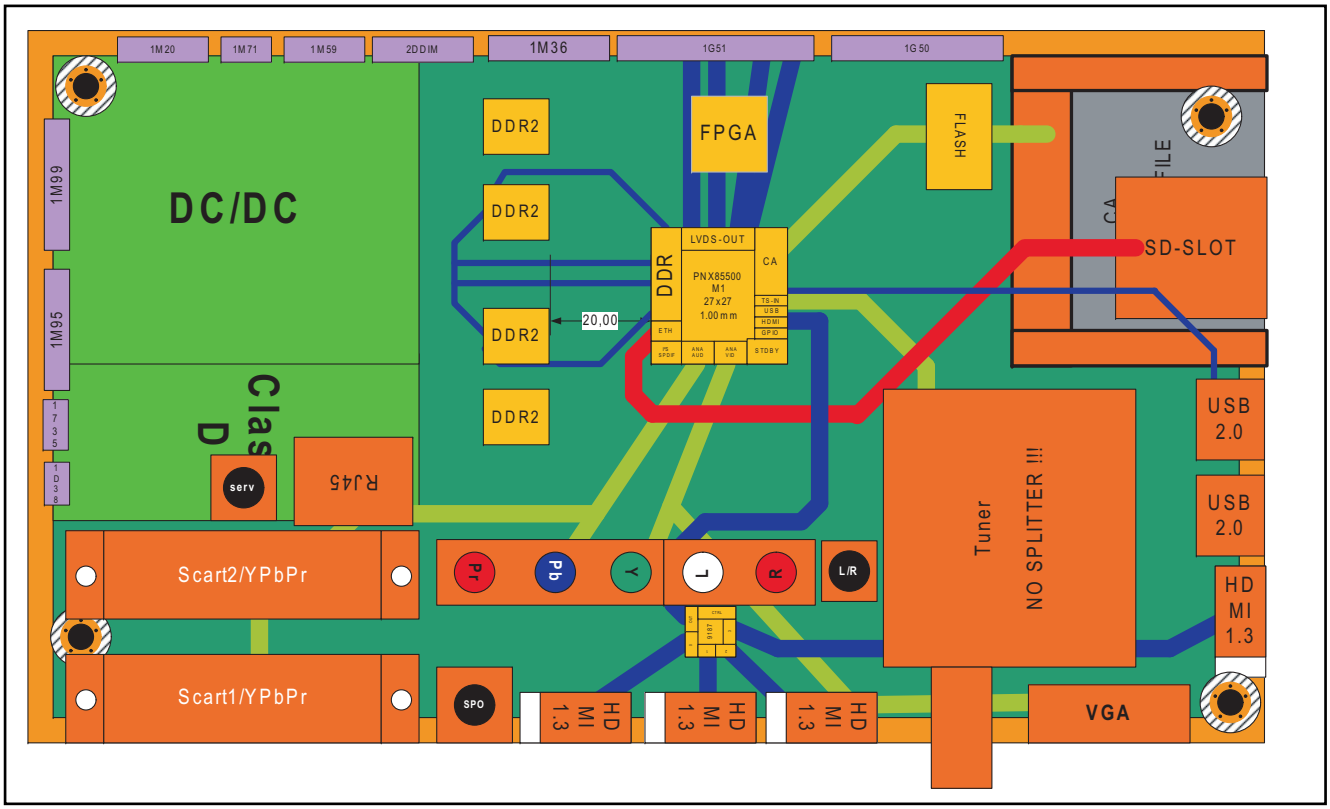
Figure 7-1 Architecture of TV550 platform - TCON integrated in display



18770_245_100203.eps
100219

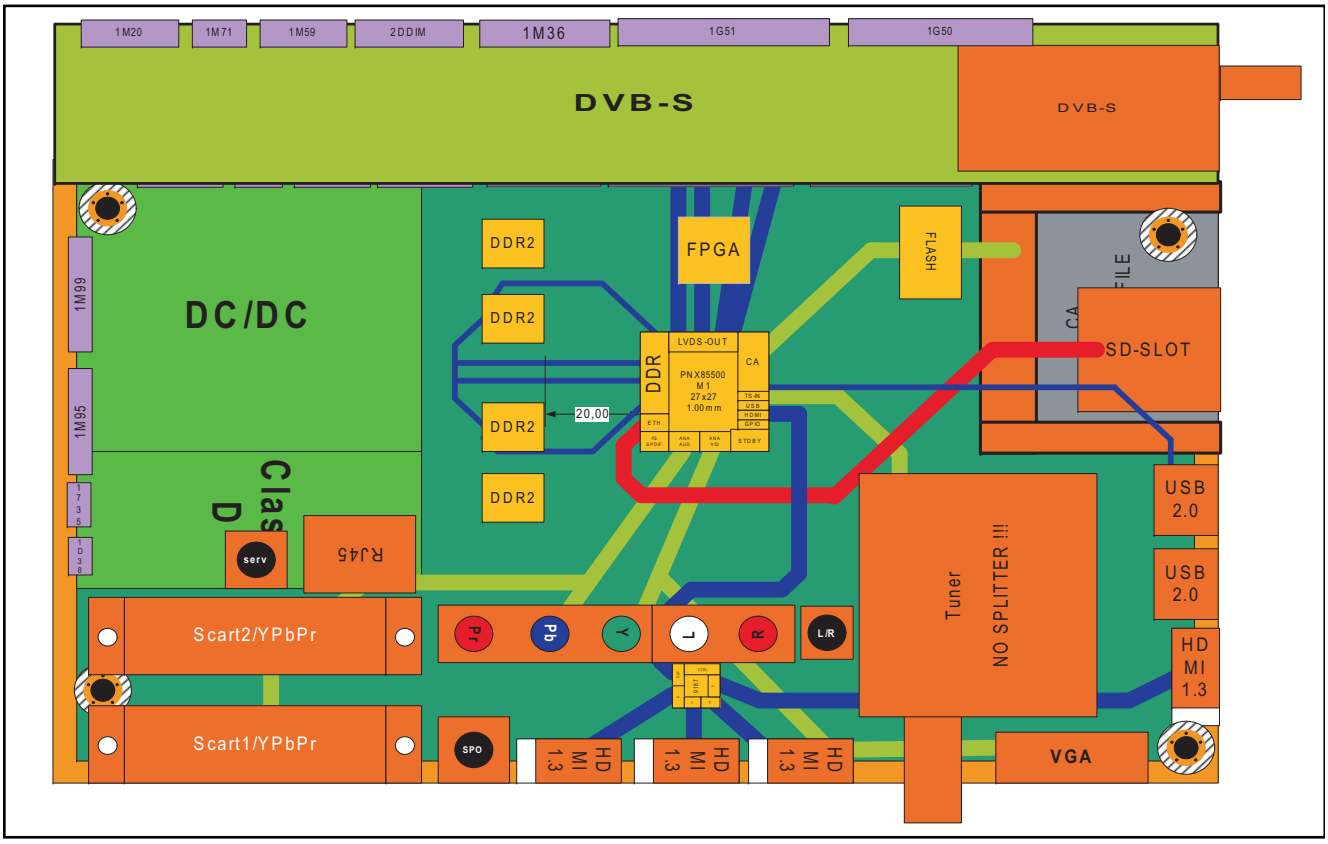
Figure 7-2 Architecture of TV550 platform - TCON integrated on SSB

7.1.3 SSB Cell Layout



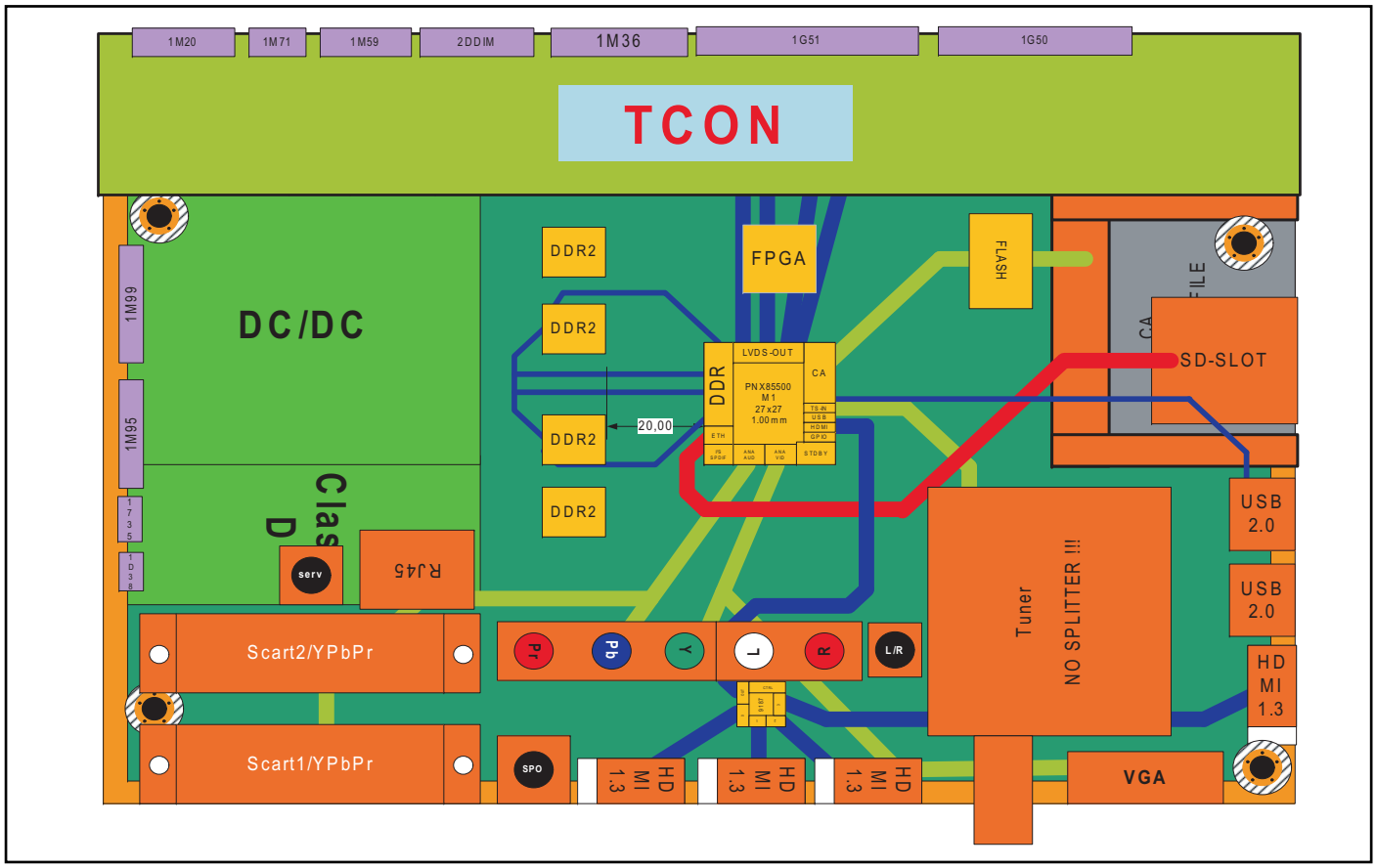
18770_246_100203.eps
100203

Figure 7-3 SSB layout cells (top view) (non-DVBS without TCON)



18770_247_100203.eps
100219

Figure 7-4 SSB layout cells (top view) (DVBS without TCON)

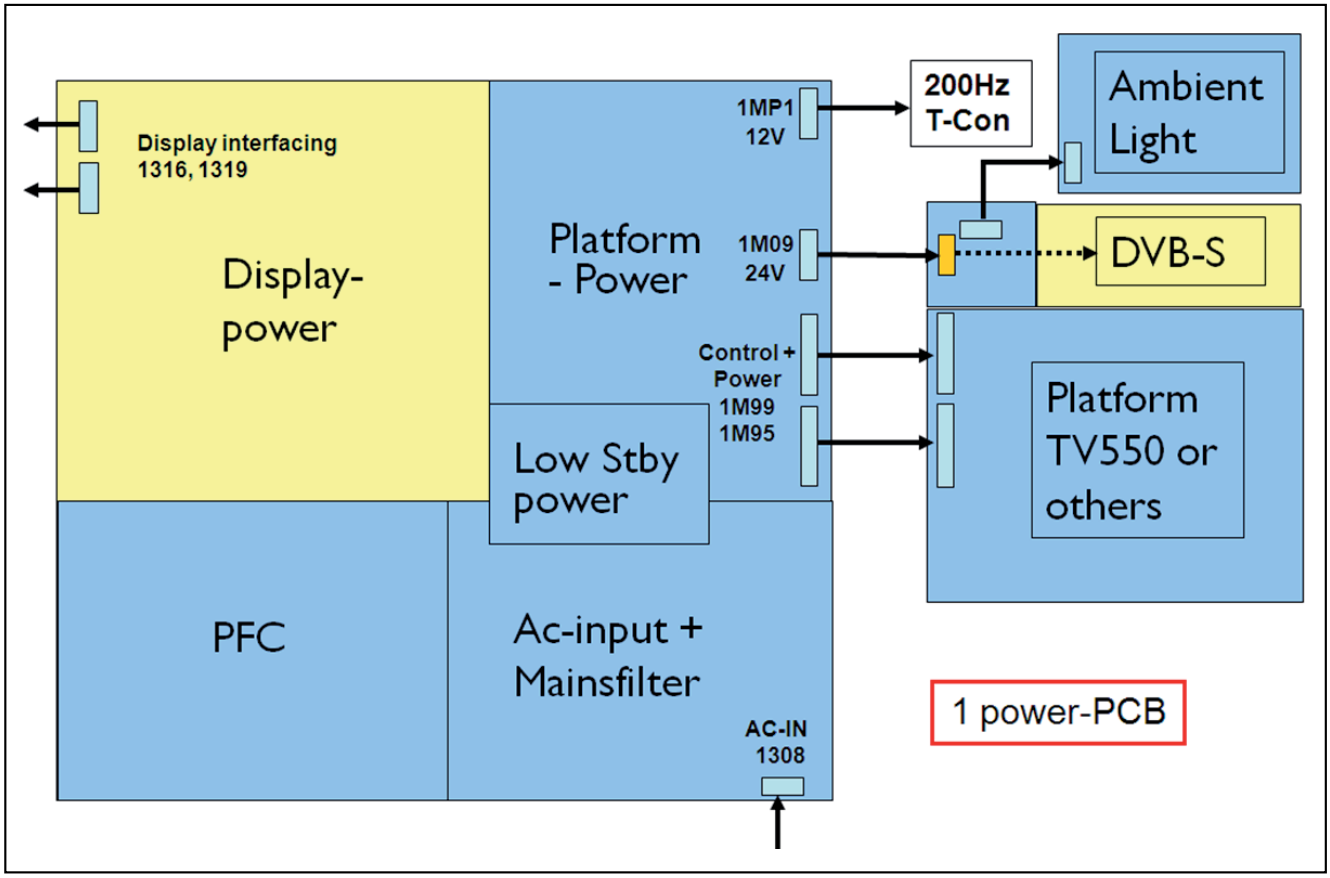


18770_248_100203.eps
100219

Figure 7-5 SSB layout cells (top view) (non-DVBS with TCON)

7.2 Power Architecture

Refer to figure Figure 7-6 for the power architecture of this platform.



18770_234_100127.eps
100127

Figure 7-6 Power Architecture TV550 platform

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.

Important delta's with the TV543 platform are:
- New power architecture for LED backlight (PSL, PSLS, PSDL)
- "Boost"-signal is now a PWM-signal + continuous variable.

The control signals are:
- Standby
- Lamp "on/off"
- DIM (PWM) (not for PSDL)
- Boost (PWM except for IPB)
- Power-OK: indicates that the main converter is functioning (feedback signal to the SSB).

In this manual, no detailed information is available because of design protection issues.

The output voltages to the chassis are:
- +3V3-STANDBY (standby-mode only)
- +12V (on-mode)
- +Vsnd (+24V) (audio power) (on-mode)
- +24V (bolt-on power) (on-mode)
- Output to the display; in case of
  - IPB: High voltage to the LCD panel
  - PSL and PSLS (LED-driver outputs)
  - PSDL (high frequent) AC-current.

7.2.2 Diversity

The diversity in power supply units is mainly determined by the diversity in displays. Table 7-1 Supply diversity lists the different types of displays with its associated PSUs:

Table 7-1 Supply diversity

CTN	Supplier	PSU
32PFL5405H/xx	LGIT	PLHC-P981A B
32PFL5605H/xx	Delta	DPS-138BP A
32PFL7605H/xx	Delta	DPS-199DP-1A
37PFL5405H/xx	LGIT	PLHD-P982A
40PFL5605H/xx	Delta	DPS-206CP A
40PFL7605H/xx	Delta	DPS-199DP A
42PFL5405H/xx	LGIT	PLHF-P983A

The following displays can be distinguished:
- CCFL/EEFL backlight: power board is conventional IPB
- LED backlight:
  - side-view LED without scanning: PSL power board
  - side-view LED with scanning: PSLS power board
  - direct-view LED without 2D-dimming: PSL power board
  - direct-view LED with 2D-dimming: PSDL power board.

PSL stands for **P**ower **S**upply with integrated **L**ED-drivers.
PSLS stands for a **P**ower **S**upply with integrated **L**ED-drivers with added **S**canning functionality (added microcontroller).
PSDL stands for a **P**ower **S**upply for **D**irect-view **L**ED backlight with 2D-dimming.

7.2.3 Connector overview

Table 7-2 Connector overview

	Connector							
no.	1308	1311	1319	1316	1M95	1M99	1M09	1MP1
Descr.	mains	mains	disp.	disp.	to SSB	to SSB	Amb.	T-con
Pin	CN1	CN2	CN3	CN4	CN5	CN6	CN7	CN8
1	N	L'			3V3std	+12V	24Vb	+12V
2	L	L"			Stndby	+12V	24Vb	+12V
3	-	-	-	-	GND1	GND1	GND1	n.c.
4	-	-	-	-	GND1	GND1	GND1	GND1
5	-	-	-	-	GND1	BL_ON _OFF	-	GND1
6	-	-	-	-	+12V	DIM	-	-
7	-	-	-	-	+12V	Boost	-	-
8	-	-	-	-	+12V	n.c.	-	-
9	-	-	-	-	+Vsnd	POK	-	-
10	-	-	-	-	GND_ SND	-	-	-
11	-	-	-	-	n.c.	-	-	-
12	-	-	-	-	-	-	-	-

7.3 DC/DC Converters

The on-board DC/DC converters deliver the following voltages (depending on set execution):

- +3V3-STANDBY, permanent voltage for the standby controller, LED/IR receiver and controls; connector 1M95 pin 1
- +12V, input from the power supply for TV550 common (active mode); connector 1M95 pins 6, 7 and 8
- +24V, input from the power supply for DVB-S2 (in active mode); connector 1M09 pins 1 and 2
- +1V1, core voltage supply for PNX85500; has to be started up first and switched off last (diagram B03B)
- +1V2, supply voltage for analogue blocks inside PNX85500
- +1V8, supply voltage for DDR2 (diagram B03B)
- +2V5, supply voltage for analogue blocks inside PNX85500 (see diagram B03E)
- +3V3, general supply voltage (diagram B03E)
- +5V, supply voltage for USB and CAM (diagram B03E)
- +5V-TUN, supply voltage for tuner (diagram B03E)
- +V-LNB, input voltage for LNB supply IC (item no. 7T50)
- +5V-DVBS, input intermediate supply voltage for DVB-S2 (diagram B08A)
- +3V3-DVBS, clean voltage for silicon tuner and DVB-S2 channel decoder
- +2V5-DVBS, clean voltage for DVB-S2 channel decoder
- +1V-DVBS, core voltage for DVB-S2 channel decoder.

A +12 V under-voltage detector (see diagram B03C) enables the 12V to 3.3V and 12V to 5V DC/DC converters via the ENABLE-3V3-5V line, and the 12V to 1.8V DC/DC converter via the ENABLE-1V8 line. DETECT2 is the signal going to the standby microcontroller and ENABLE-3V3n is the signal coming from the standby microcontroller.

Diagram B03D contains the following linear stabilizers:

- +2V5 stabilizer, built around item no. 7UCO
- +5V-TUN stabilizer, built around items no. 7UA6 and 7UA7
- +1V2 stabilizer, built around items no. 7UA3 and 7UA4.

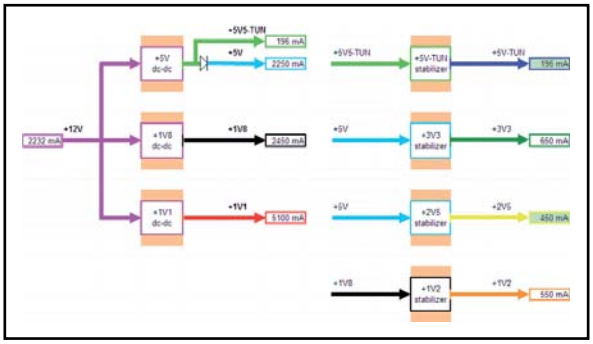
Diagram B08A contains the DVB-S2-related DC/DC converters and -stabilizers:

- a +24V under-voltage detection circuitry is built around item no. 7T04
- the switching frequency of the 24 to 14...20V switched mode converter is 350 kHz (item no. 7T03 and +V-LNB lines)
- the output signal on the +V-LNB line goes to the LNBH23Q (item no. 7T50)
- the LNBH23Q (item no. 7T50) sends a feedback signal via the V0-CNTRL line
- the switching frequency of the +5V-DVBS to +1-DVBS switched mode converter is 900 kHz (item no. 7T00)
- a delay line for the +2V5-DVBS and +1V-DVBS lines is created with item no. 3T03 (R=10k) and 2T06 (C=100n)
- a 3.3V to 2.5V linear stabilizer is built around item no. 7T01
- a 5V to 3.3V linear stabilizer is built around item no. 7T02.

Diagram B08B contains the DVB-S2 LNB supply:

- the +V-LNB signal comes from item no. 7T03
- the V0-CTRL signal goes to item no. 7T03
- the LNB-RF1 goes to the LNB.

Figures gives a graphical representation of the DC/DC converters with its current consumptions:



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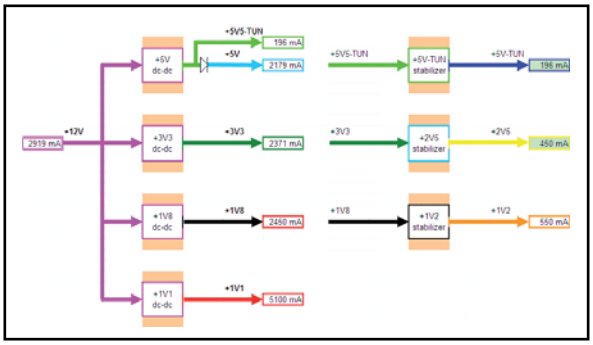
100219

Figure 7-7 DC/DC converters xxPFL5xxx series



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100219

Figure 7-8 DC/DC converters xxPFL6xxx series

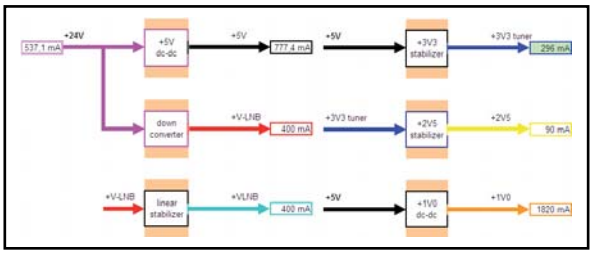

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Figure 7-9 DC/DC converters DVB-S2 devices

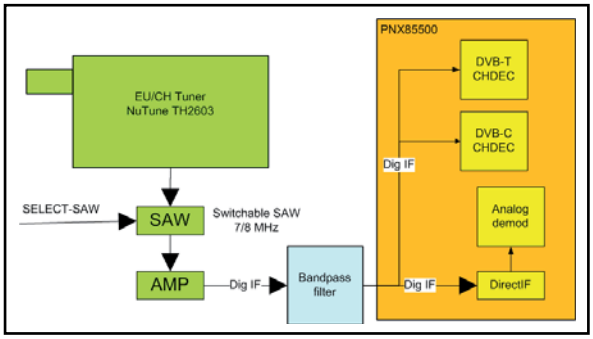
7.4 Front-End Analogue and DVB-T, DVB-C; ISDB-T reception

7.4.1 European/China region

The Front-End for the European/China region consist of the following key components:

- Hybrid Tuner
- Switchable SAW filter 7/8 MHz (Eur.), or single SAW filter (8 MHz) (China)
- Bandpass filter
- Amplifier
- PNX85500 SoC TV processor with integrated DVB-T and DVB-C channel decoder and analogue demodulator.

Below find a block diagram of the front-end application for this region.



18770_235_100127.eps
100219

Figure 7-10 Front-End block diagram European/China region

7.4.2 Brazil region

The Front-End for the Brazil region consist of the following key components:

- Hybrid Tuner with integrated SAW filter and amplifier
- External ISDB-T channel decoder covering the Brazilian digital terrestrial TV standard
- Bandpass filter
- Amplifier
- PNX85500 SoC TV with integrated analogue demodulator.

Below find a block diagram of the front-end application for this region.

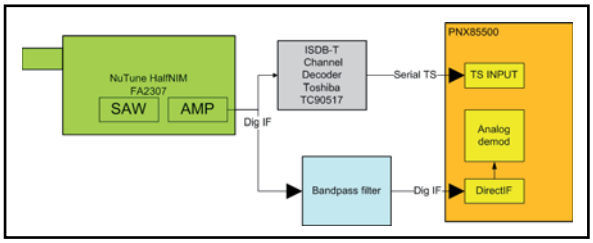


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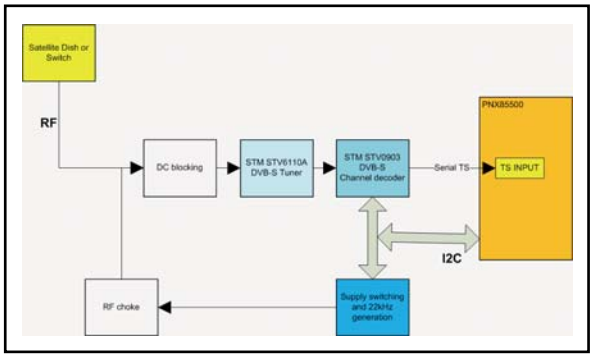
Figure 7-11 Front-End block diagram Brazil region

7.5 Front-End DVB-S(2) reception

The Front-End for the DVB-S(2) application consist of the following key components:

- Satellite Tuner; I²C address 0xC6 (bridged via channel decoder)
- Channel decoder; I²C address 0xD0
- LNB switching regulator; I²C address 0x14
- Amplifier
- PNX85500 SoC TV processor with integrated DVB-T and DVB-C channel decoder and analogue demodulator.

Below find a block diagram of the front-end application for DVB-S(2) reception.



18770_237_100127.eps
100219

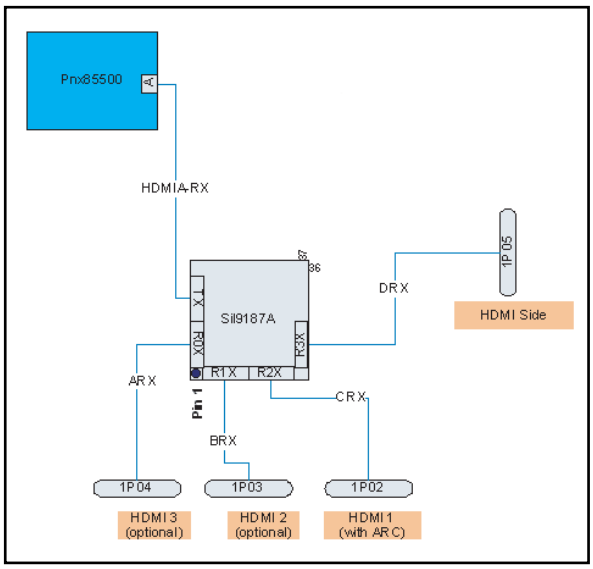
Figure 7-12 Front-End block diagram DVB-S(2) reception

This application supports the following protocols:

- polarization selection via supply voltage (18V = horizontal, 13V = vertical)
- band selection via “toneburst” (22 kHz): tone “on” = “high” band, tone “off” = “low” band
- satellite (LNB) selection via DiSEqC 1.0 protocol
- reception of DVB-S (supporting QPSK encoded signals) and DVB-S2 (supporting QPSK, 8PSK, 16APSK and 32APSK encoded signals), introducing LDPC low-density parity check techniques.

7.6 HDMI

In this platform, the Silicon Image Sil9x87 HDMI multiplexer is implemented. Refer to figure 7-13 HDMI input configuration for the application.



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100203

Figure 7-13 HDMI input configuration

The following multiplexers can be used:

- Sil9187A (does not support “Instaport” technology for fast switching between input signals)

- Sil9287B (supports “Instaport” technology for fast switching between input signals).

The hardware default I²C addresses are:

- Sil9187A: 0xB0/0xB2 (random: software workaround)
- Sil9287B: 0xB2 (fixed).

The Sil9x87 has the following specifications:

- +5V detection mechanism
- Stable clock detection mechanism
- Integrated EDID
- RT control
- HPD control
- Sync detection
- TMDS output control
- CEC control
- EDID stored in Sil9x87, therefore there are no EDID pins on the SSB.

7.7 Video and Audio Processing - PNX85500

The PNX85500 is the main audio and video processor (or System-on-Chip) for this platform. It has the following features:

- Multi-standard digital video decoder (MPEG-2, H.264, MPEG-4)
- Integrated DVB-T/DVB-C channel decoder
- Integrated CI+
- Integrated motion accurate picture processing (MAPP2)
- High definition ME/MC
- 2D LED backlight dimming option
- Embedded HDMI HDCP keys
- Extended colour gamut and colour booster
- Integrated USB2.0 host controller
- Improved MPEG artefact reduction compared with PNX8543
- Security for customers own code/settings (secure flash).

The TV550 combines front-end video processing functions, such as DVB-T channel decoding, MPEG-2/H.264 decode, analog video decode and HDMI reception, with advanced back-end video picture improvements. It also includes next generation Motion Accurate Picture Processing (MAPP2). The MAPP2 technology provides state-of-the-art motion artifact reduction with movie judder cancellation, motion sharpness and vivid colour management. High flat panel screen resolutions and refresh rates are supported with formats including 1366 × 768 @ 100Hz/120Hz and 1920 × 1080 @ 100Hz/120Hz. The combination of Ethernet, CI+ and H.264 supports new TV experiences with IPTV and VOD. On top of that, optional support is available for 2D dimming in combination with LED backlights for optimum contrast and power savings up to 50%.

For a functional diagram of the PNX85500, refer to Figure 7-14.

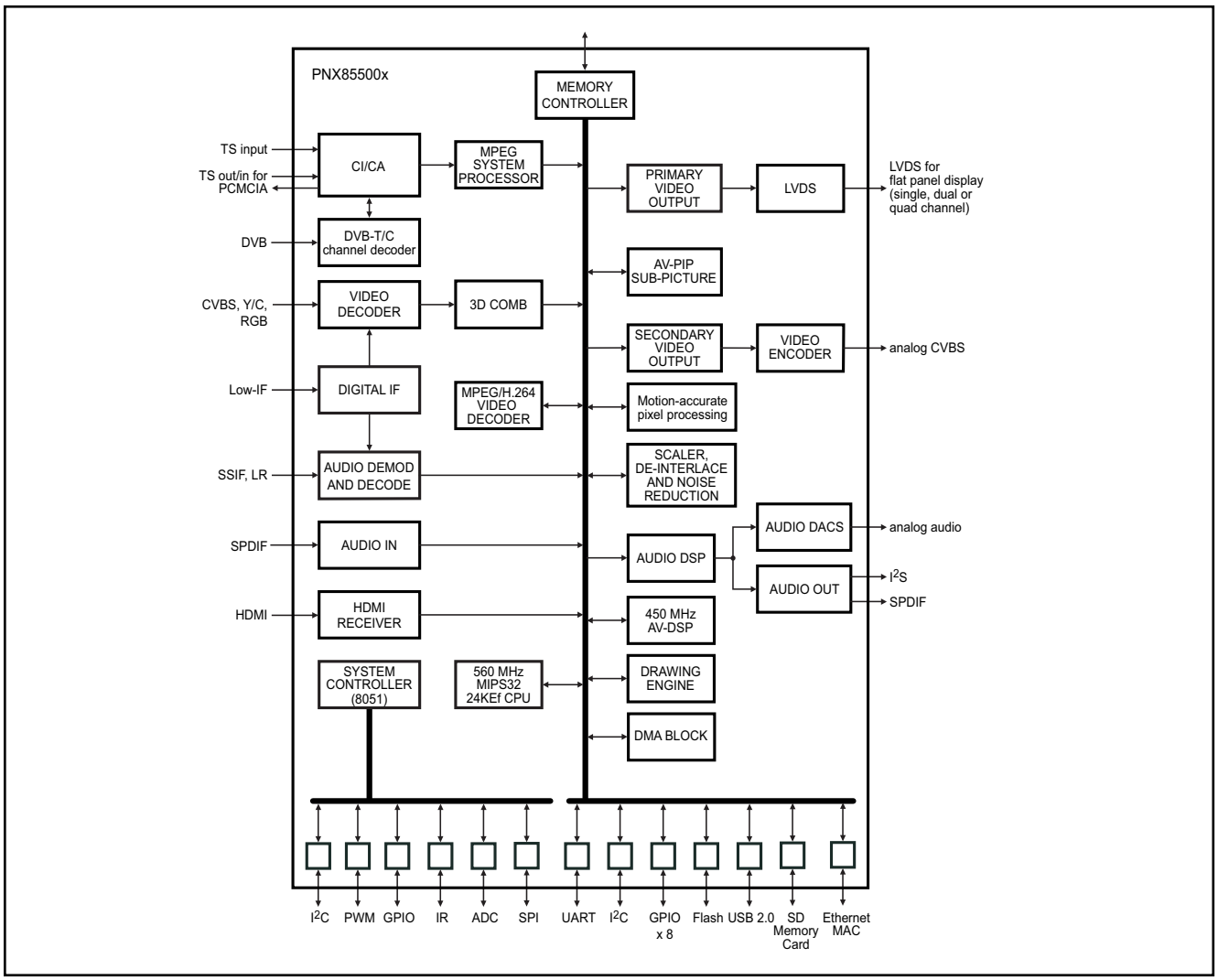

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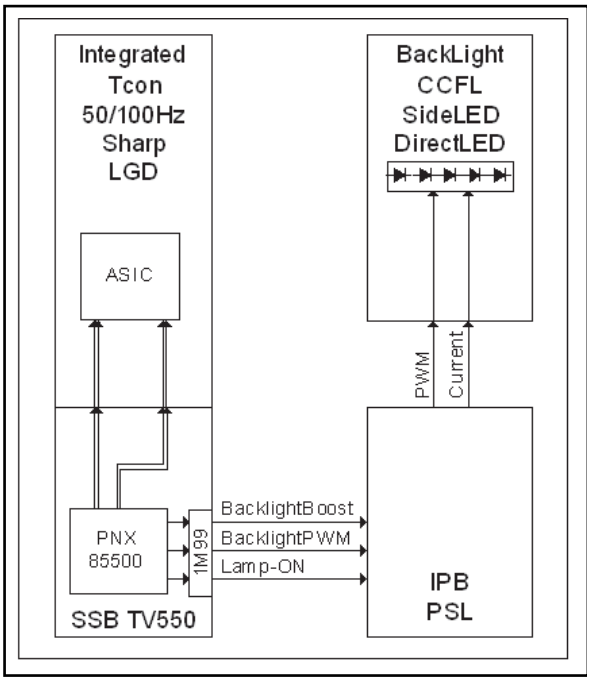
Figure 7-14 PNX85500 functional diagram

7.8 Back-End

The following backlight types can be distinguished:

- CCFL/EEFL backlight; applicable to the xxPFL54xx sets
- LED backlight:
  - side-view (edge) LED without scanning: PSL power board; applicable to xxPFL76xx sets
  - side-view (edge) LED with scanning: PSLS power board; not applicable to this chassis
  - direct-view LED with 0D-dimming: PSL power board; applicable to xxPFL56xx sets
  - direct-view LED with 2D-dimming: PSDL power board; not applicable to this chassis.

Refer to section 7.2.2 Diversity for an in-depth explanation of the different power boards that are used.

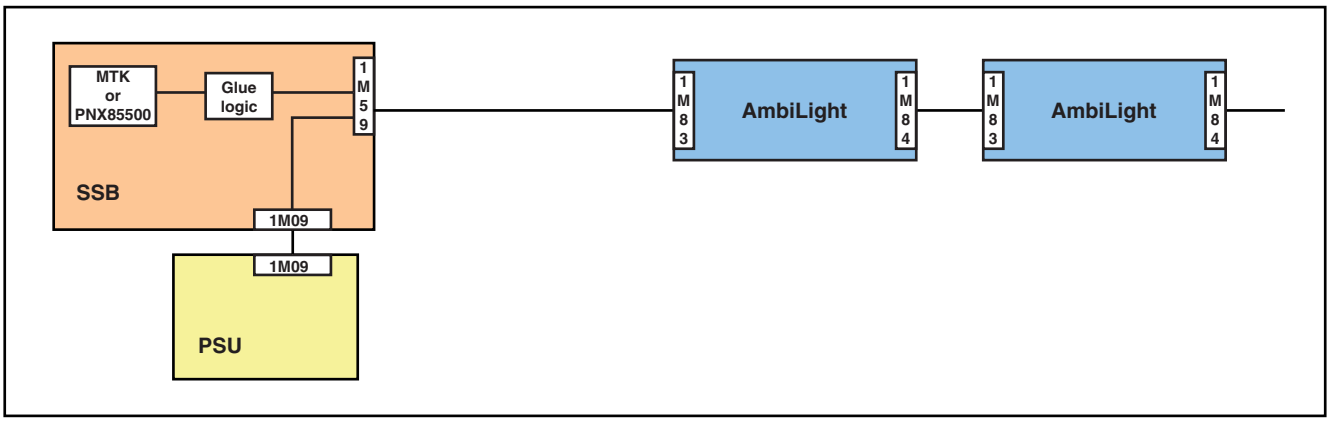


18770_242_100203.eps
100203

Figure 7-15 Backlight (xxPFL54xx, xxPFL56xx, xxPFL76xx sets) application

7.9 Ambilight

In this chassis, only 2-sided Ambilight is implemented. Refer to figure 7-16 Ambilight architecture.



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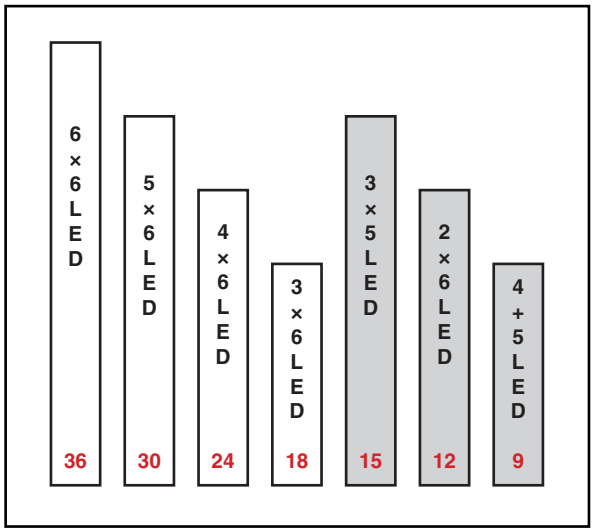
100202

Figure 7-16 Ambilight architecture

For an overview of the LED grouping per board, refer to figure 7-17 LED grouping per board.



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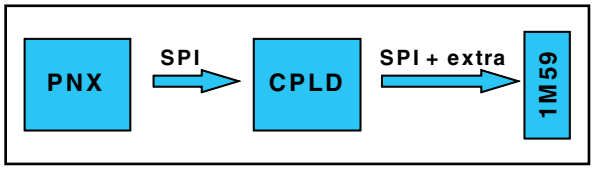
100126

Figure 7-17 LED grouping per board

The communication between PNX85500, Complex Programmable Logic Device (CPLD) and the Ambilight module uses the SPI protocol; refer to figure 7-18 Communication protocol outside LED board. Between the CPLD and the LED driver, as “extra” line is mentioned:

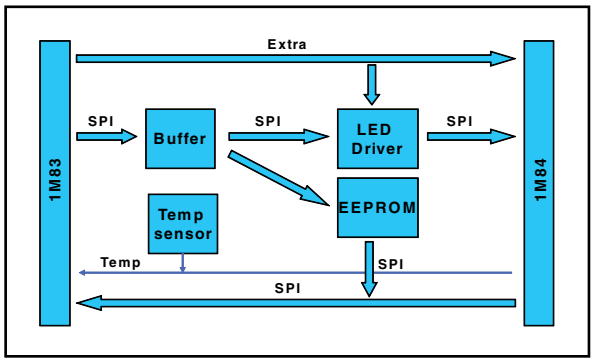
- Non-SPI signals that are required for the LED driver
- Temperature sensor line.



18770_211_100126.eps
100126

Figure 7-18 Communication protocol outside LED board

Refer to figure for an overview of the communication inside the LED board.



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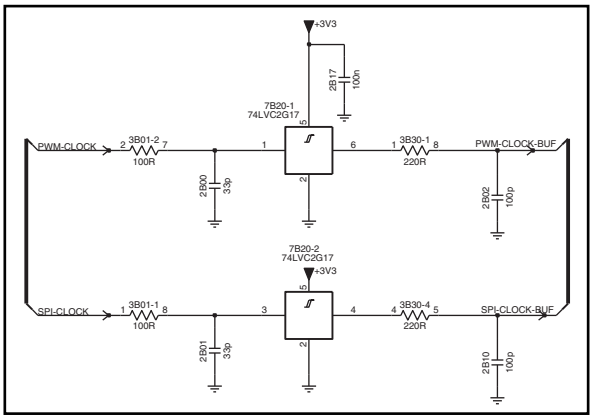
100219

Figure 7-19 Communication protocol inside LED board

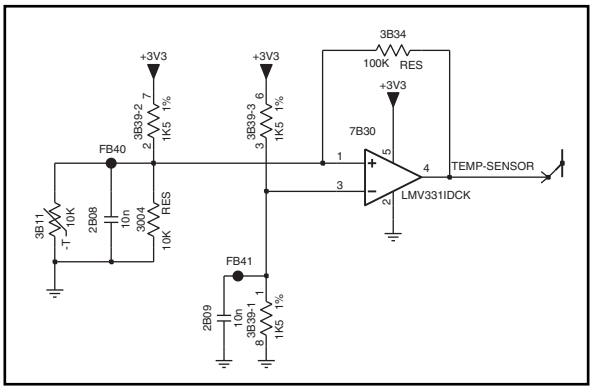
The buffer is built around item no. 7B20 (diagram AL1A) and regenerates the clock signals. Refer to figure 7-20 Ambilight buffer.



18770_214_100126.eps
100126

Figure 7-20 Ambilight buffer

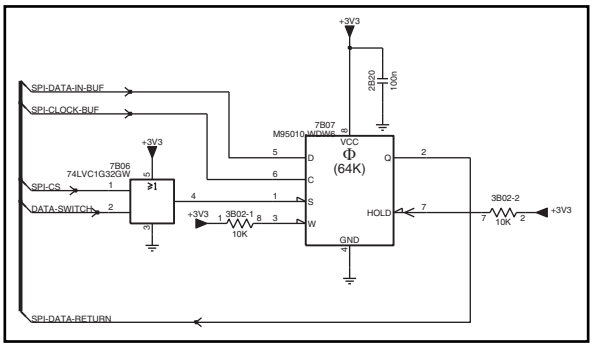
The temperature sensor is built around item no. 7B30 (diagram AL1A) and indicates overtemperature of the board. Refer to figure 7-21 Temperature sensor.



18770_215_100126.eps
100126

Figure 7-21 Temperature sensor

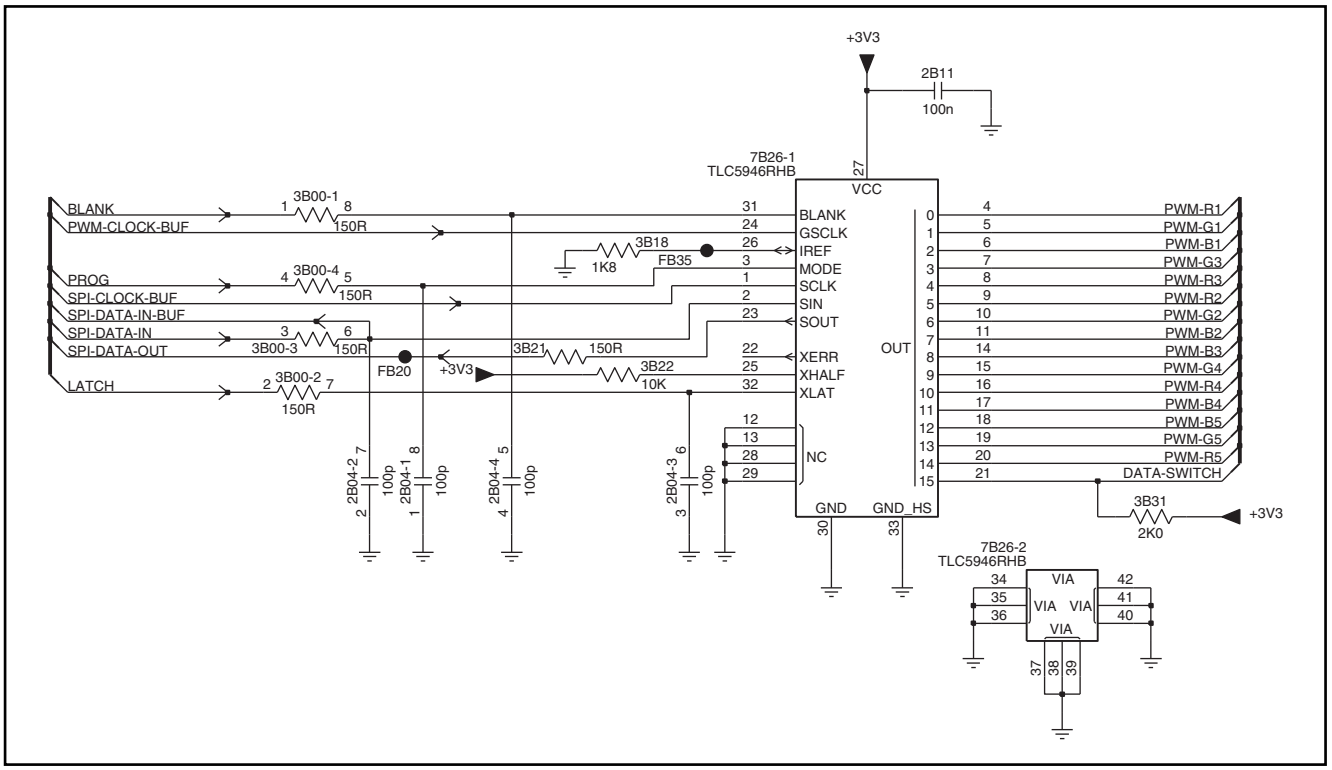
The EEPROM (item no. 7B07; diagram AL1A) contains alignment information about the mounted LEDs and is programmed during the alignment process in production. Refer to figure 7-22 EEPROM.



18770_216_100126.eps
100126

Figure 7-22 EEPROM

The LED driver is built around item no. 7B26 (diagram AL1A) and controls the LEDs. Refer to figure 7-23 LED driver.



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100126

Figure 7-23 LED driver

The Overvoltage Protection Circuit is built around item no. 7B50, 7B51, 7C20 and 7C22 (diagram AL1B). Refer to figure 7-24 Overvoltage Protection Circuit.

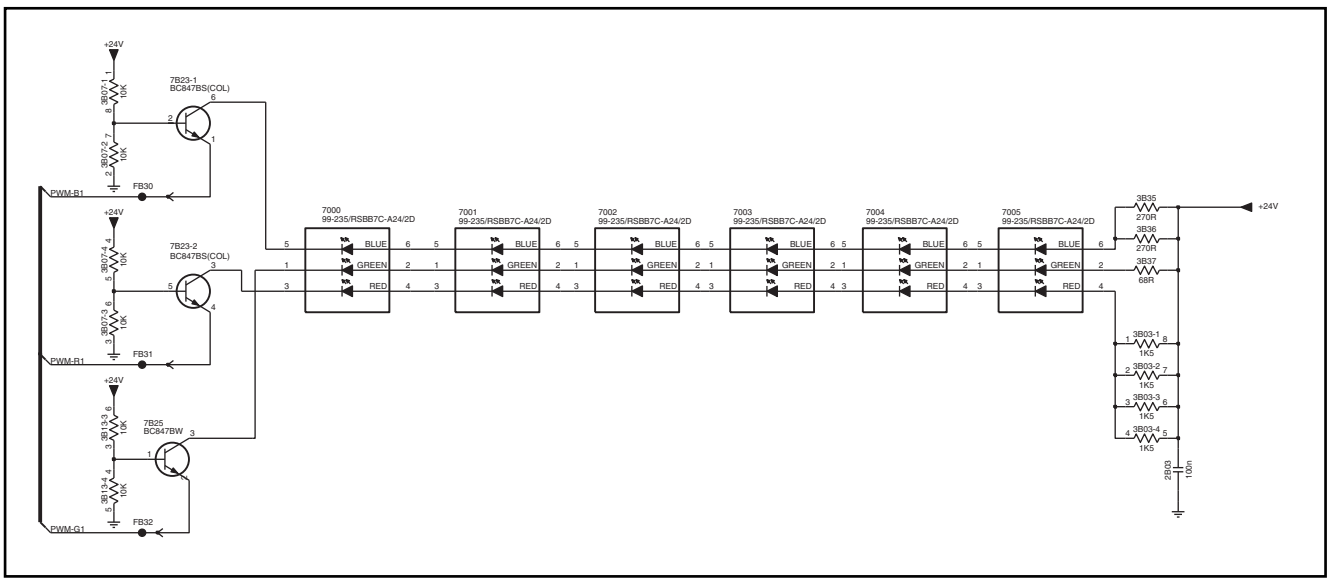

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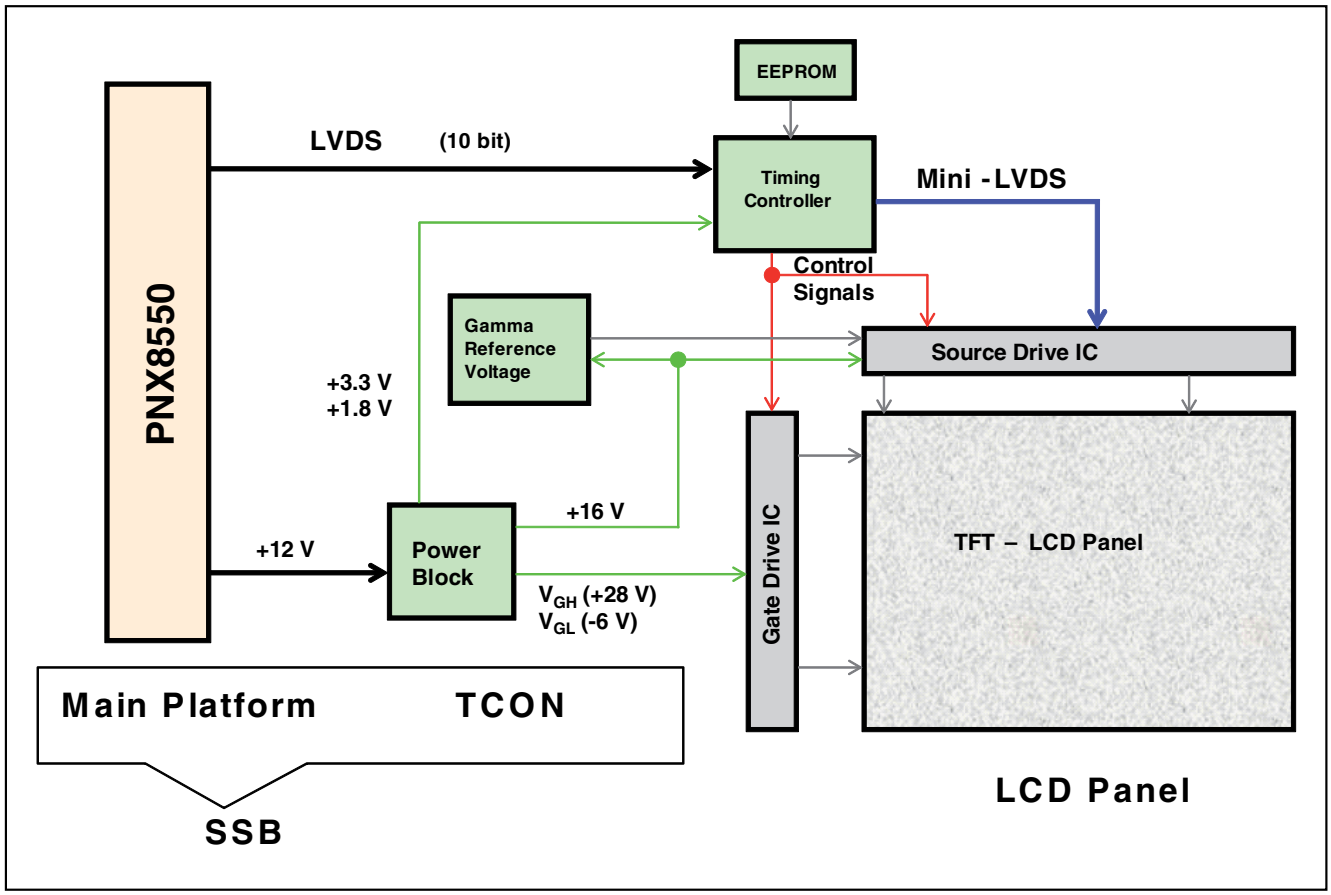
Figure 7-24 Overvoltage Protection Circuit

7.10 TCON

This section describes the application with the TCON integrated on the SSB.

For the basic application, refer to figure 7-25 TCON architecture.



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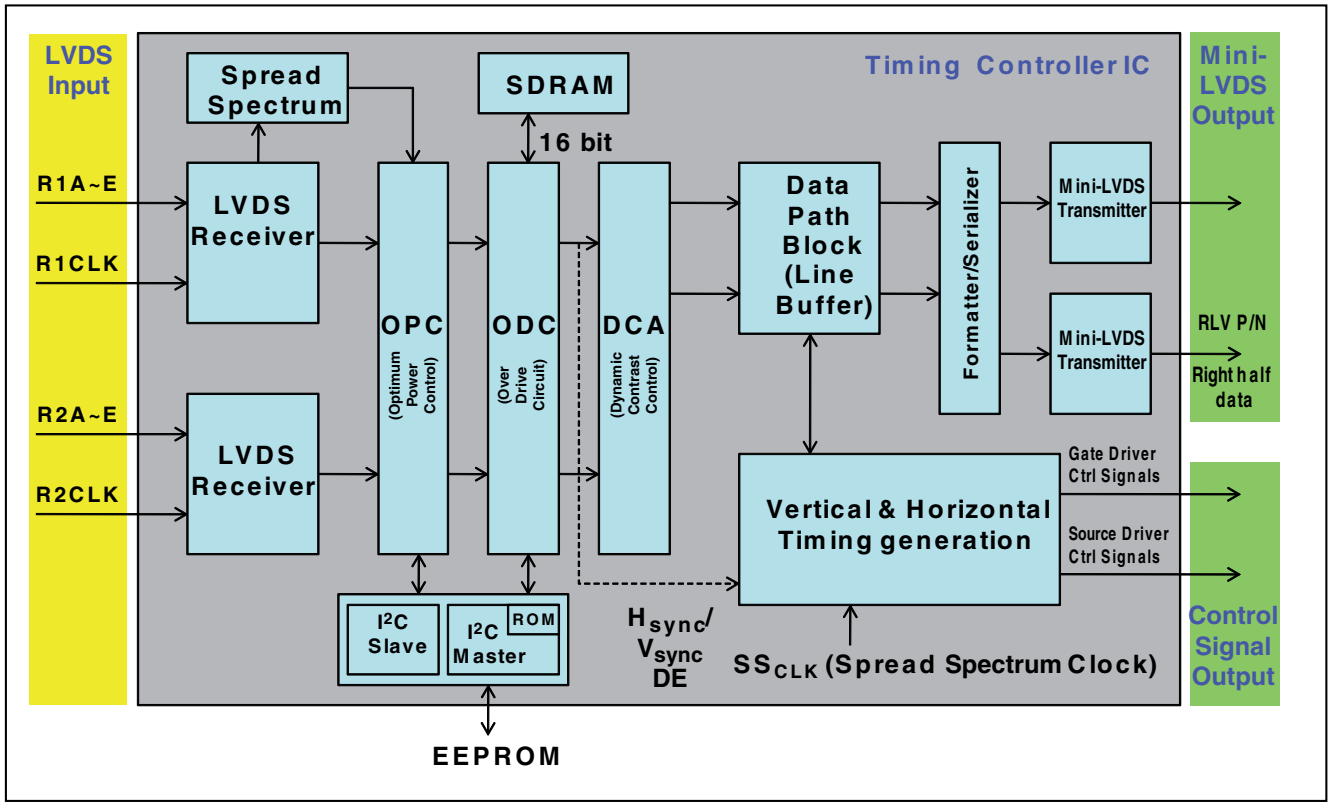
100127

Figure 7-25 TCON architecture

For the TCON block diagram, refer to figure 7-26 TCON block diagram.



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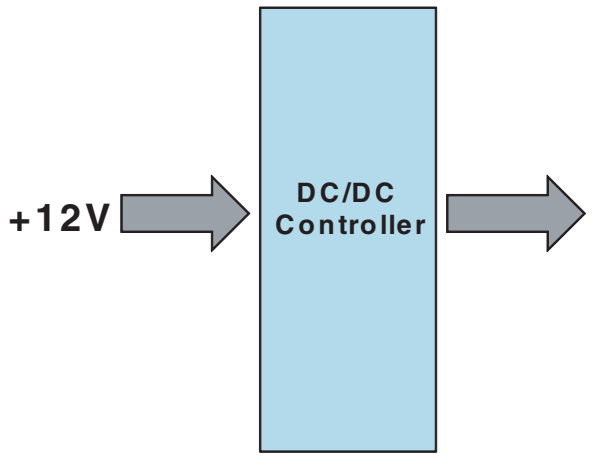
100127

Figure 7-26 TCON block diagram

Notes to figure 7-26 TCON block diagram:

- LVDS receiver: converts the data stream back into RGB data and SYNC signals (Vsync, Hsync, Data Enable - DE)
- ODC: Over Drive Circuit - to improve LC response
- Data Path Block: the video RGB data input to data path block is delayed to align the column driver start pulse with the column driver data
- Timing Control Function: generates control signals to column drivers and row drivers (Source Enable - SOE, Gate Enable - GOE, Gate Start Pulse - GSP).

For an overview of the TCON DC/DC converters, refer to figure 7-27 TCON DC/DC converters.



	LGD	SHP	Where Used
VGH	+28V	+35V	To Gate Drivers (Gate High Voltage)
VGL	-6V	-6V	To Gate Drivers (Gate Low Voltage)
Vcc	+3V3	+3V3	Timing Controller IC Supply Voltage
Vcc	+1V8	+1V2	Timing Controller IC Supply Voltage
Vref	+16V	+15V2	Gamma Reference Voltage
Vdd	+16V	+15V6	Source Driver Supply Voltage

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100128

Figure 7-27 TCON DC/DC converters

7.10.1 TCON Programming

For LGD - TCONs, the EEPROM can be programmed via ComPair (via I^2C communication).
For Sharp - TCONs, the data can be flashed with a “SPI Programmer” (via SPI communication). This device has to be ordered separately.

7.10.2 TCON Alignment

The purpose of TCON alignment is to obtain equal voltages for both positive and negative LC polarity. This is to avoid “flicker” and “image sticking”.

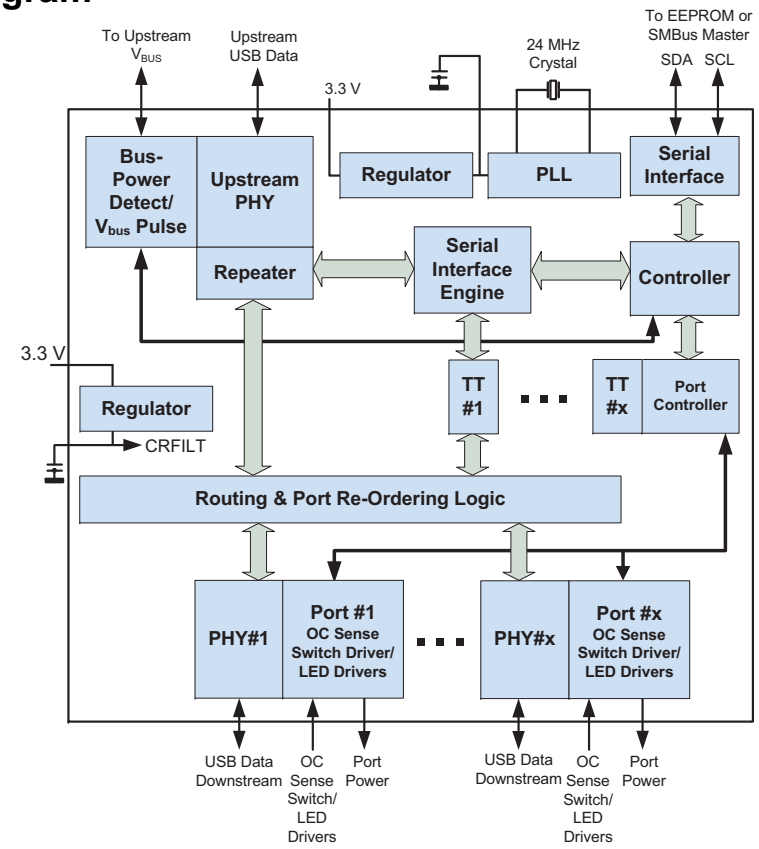
The alignment value for the TCON is stored in the main software and is automatically set to the correct value when you enter the display code via the service menu. No manual alignment is needed.

8. IC Data Sheets

This chapter 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 USB Hub B01C, USB2513B (IC 7F25)

Block diagram



The ‘x’ indicates the number of available downstream ports: 2, 3, 4, or 7.

Note : The LED port indicators only apply to USB2513i.

Pinning information

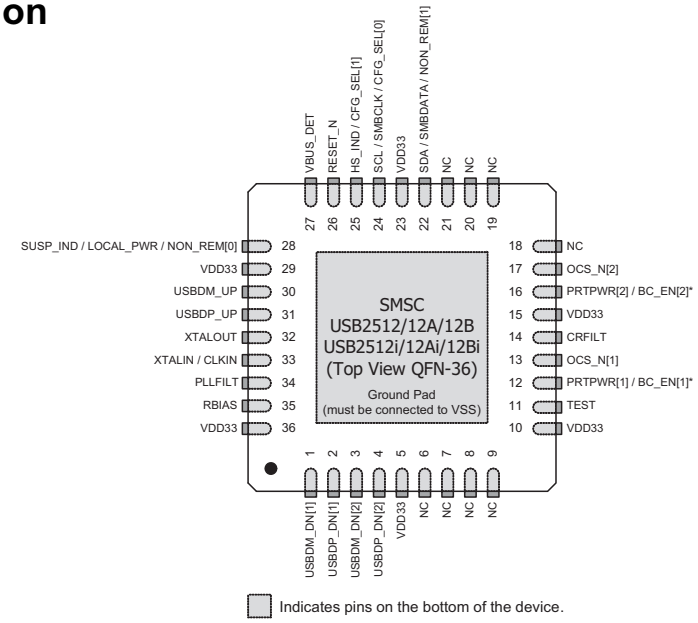


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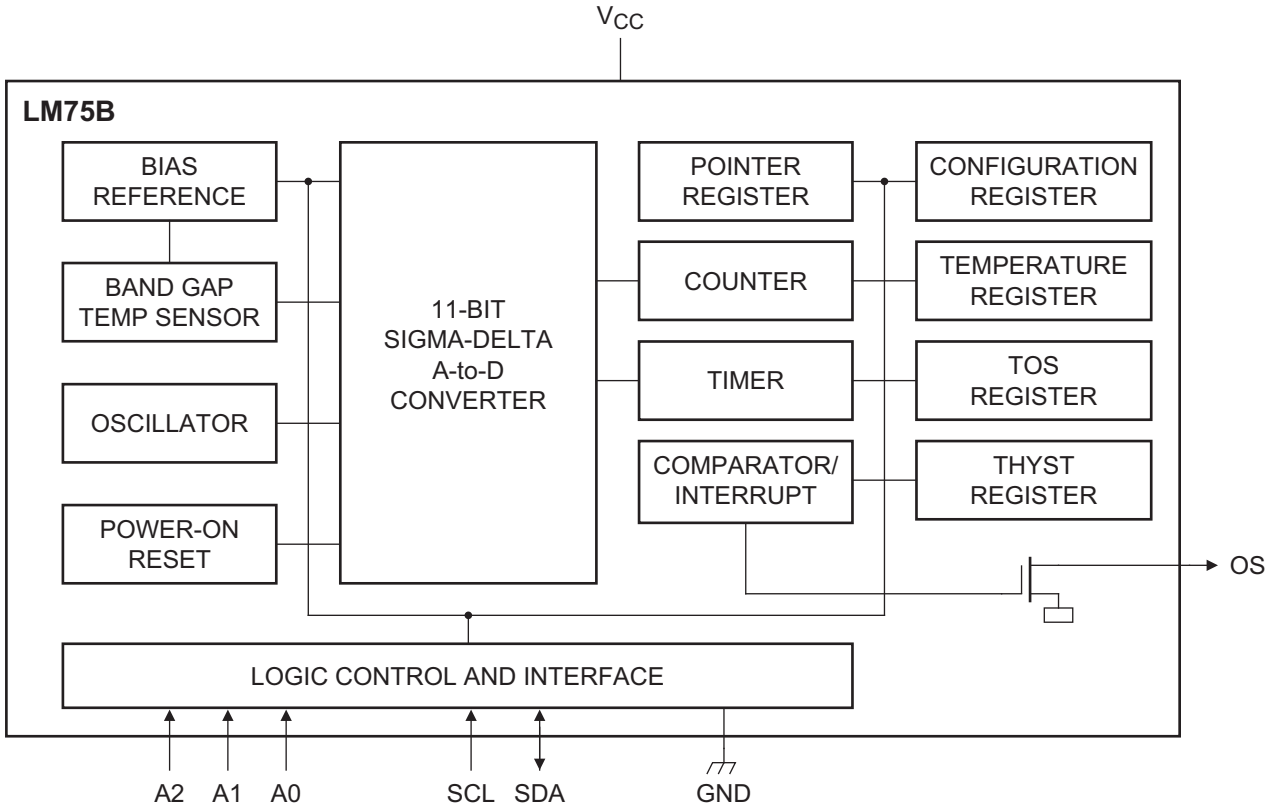
Figure 8-1 Internal block diagram and pin configuration

8.2 Diagram Temp Sensor + Headphone B01J, LM75BDP (IC 7FD1)

Block diagram



Pinning information

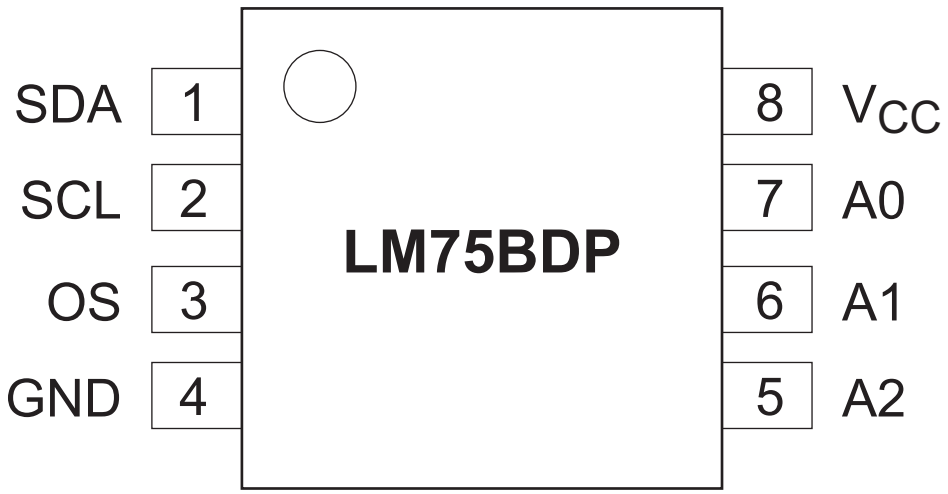


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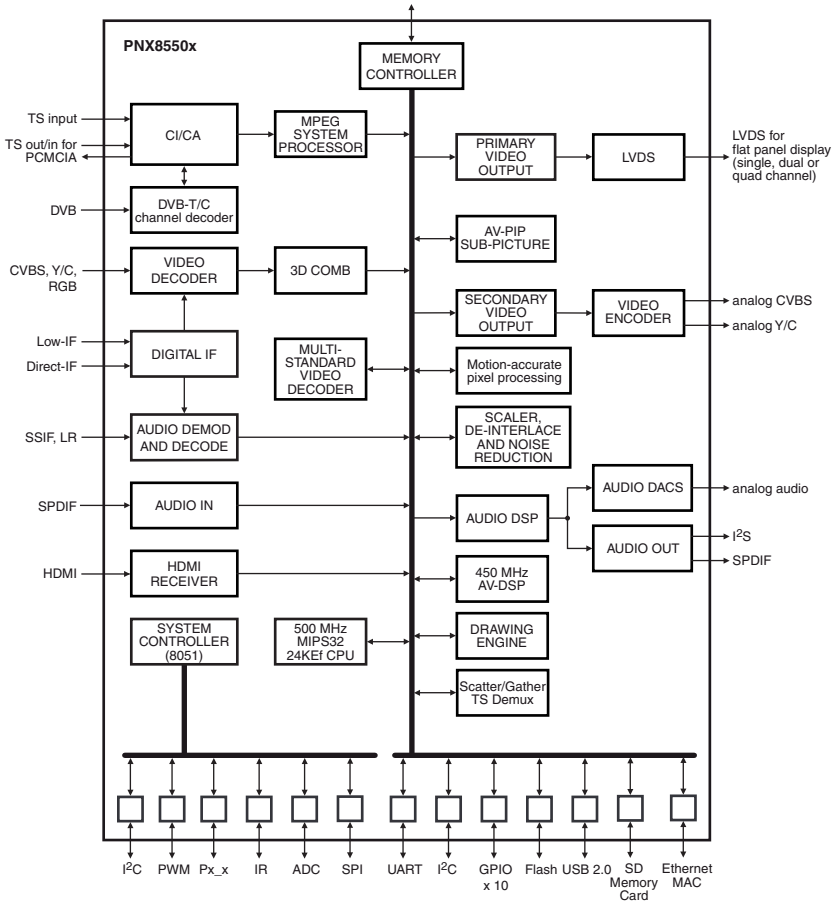
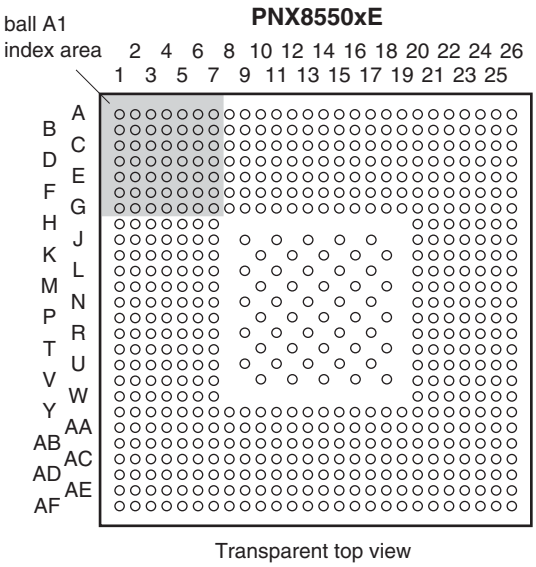
Figure 8-2 Pin configuration

8.3 Diagram PNX NandFlash - Conditional Access B02A, PNX85500 (IC7S00)

Block diagram



Pinning information



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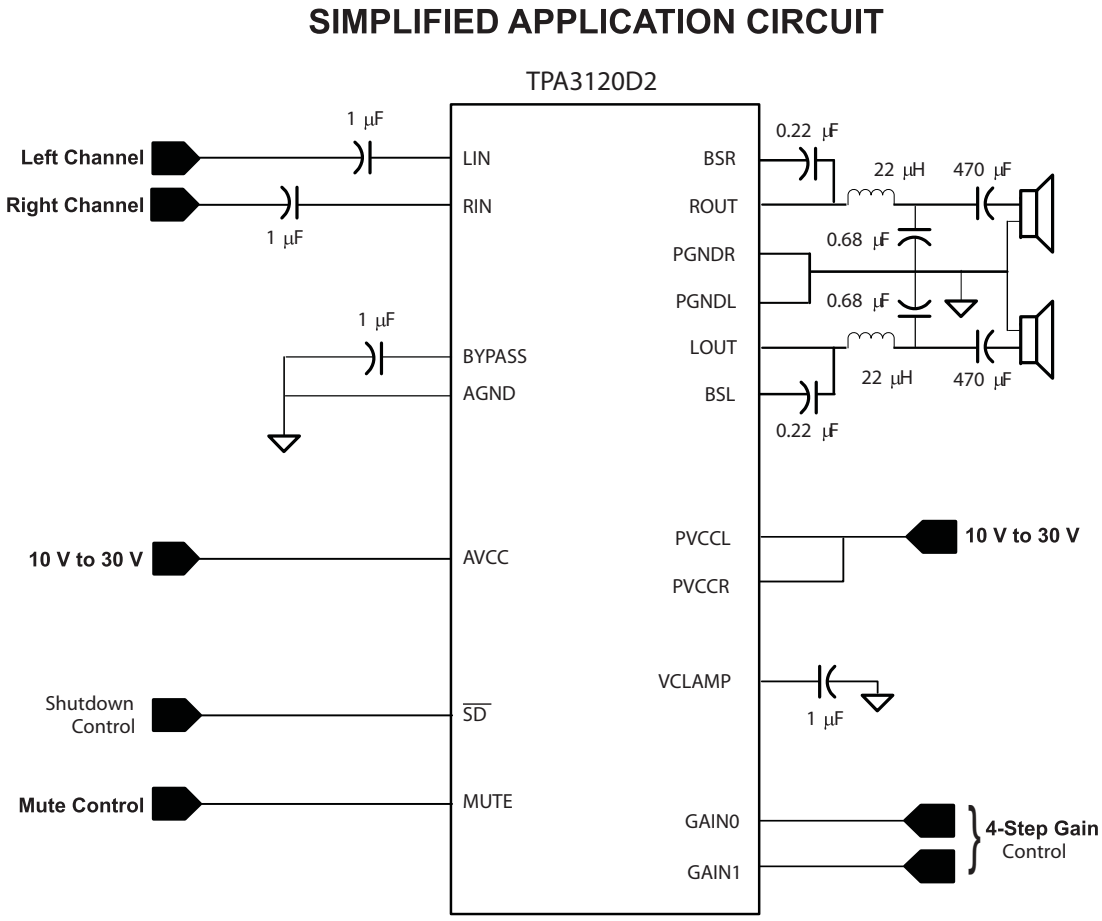
100217

Figure 8-3 Internal block diagram and pin configuration

8.4 Diagram Audio B03A, TPA3120D2PWP (IC7D10)

Block Diagram



Pin Configuration

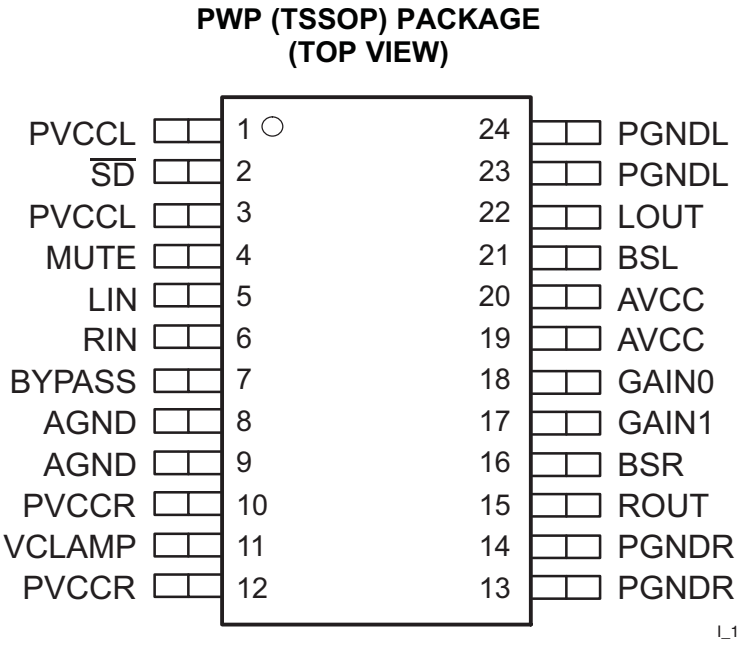
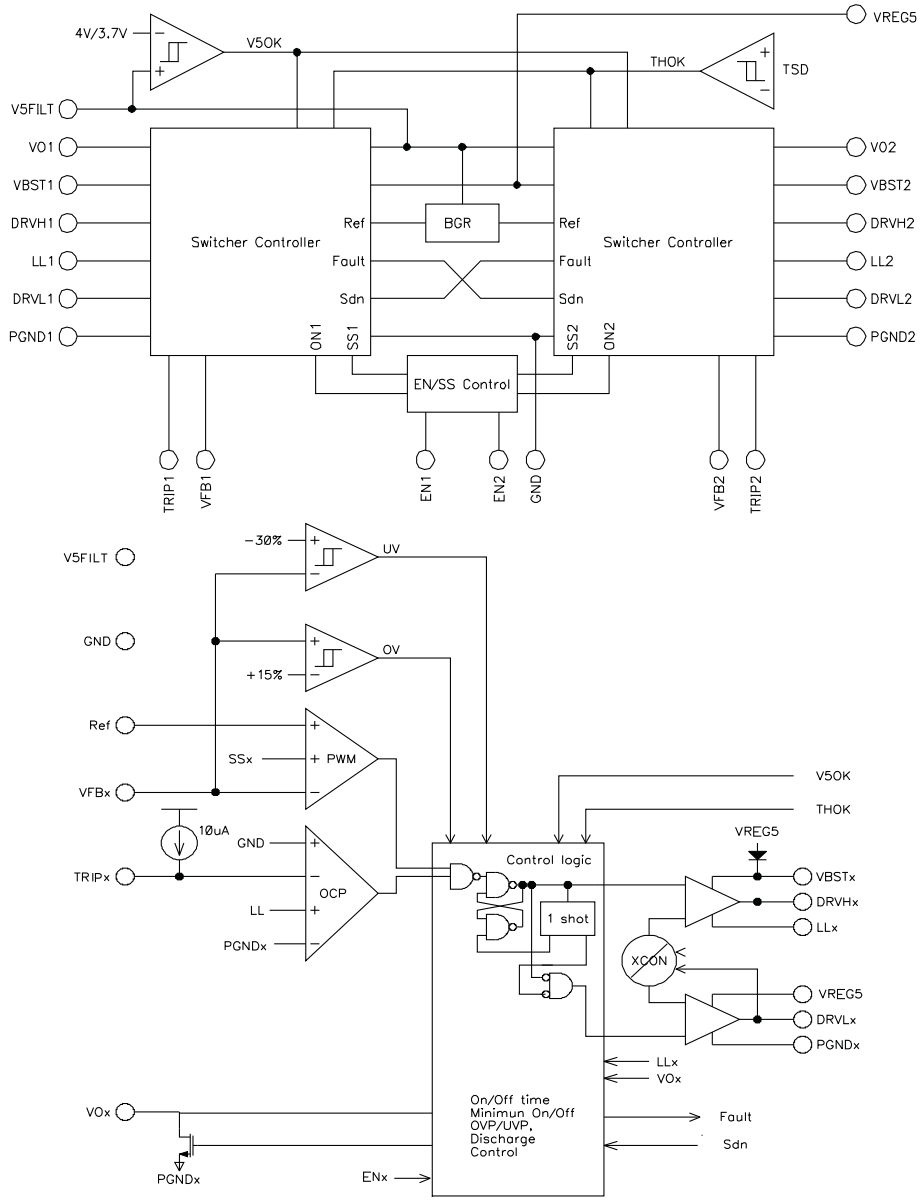


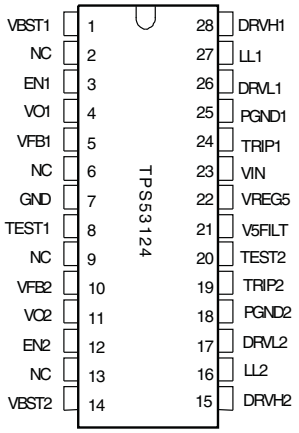
Figure 8-4 Internal block diagram and pin configuration

8.5 Diagram DC/DC B03B, TPS53126PW (IC7U03)

Block Diagram



Pin Configuration

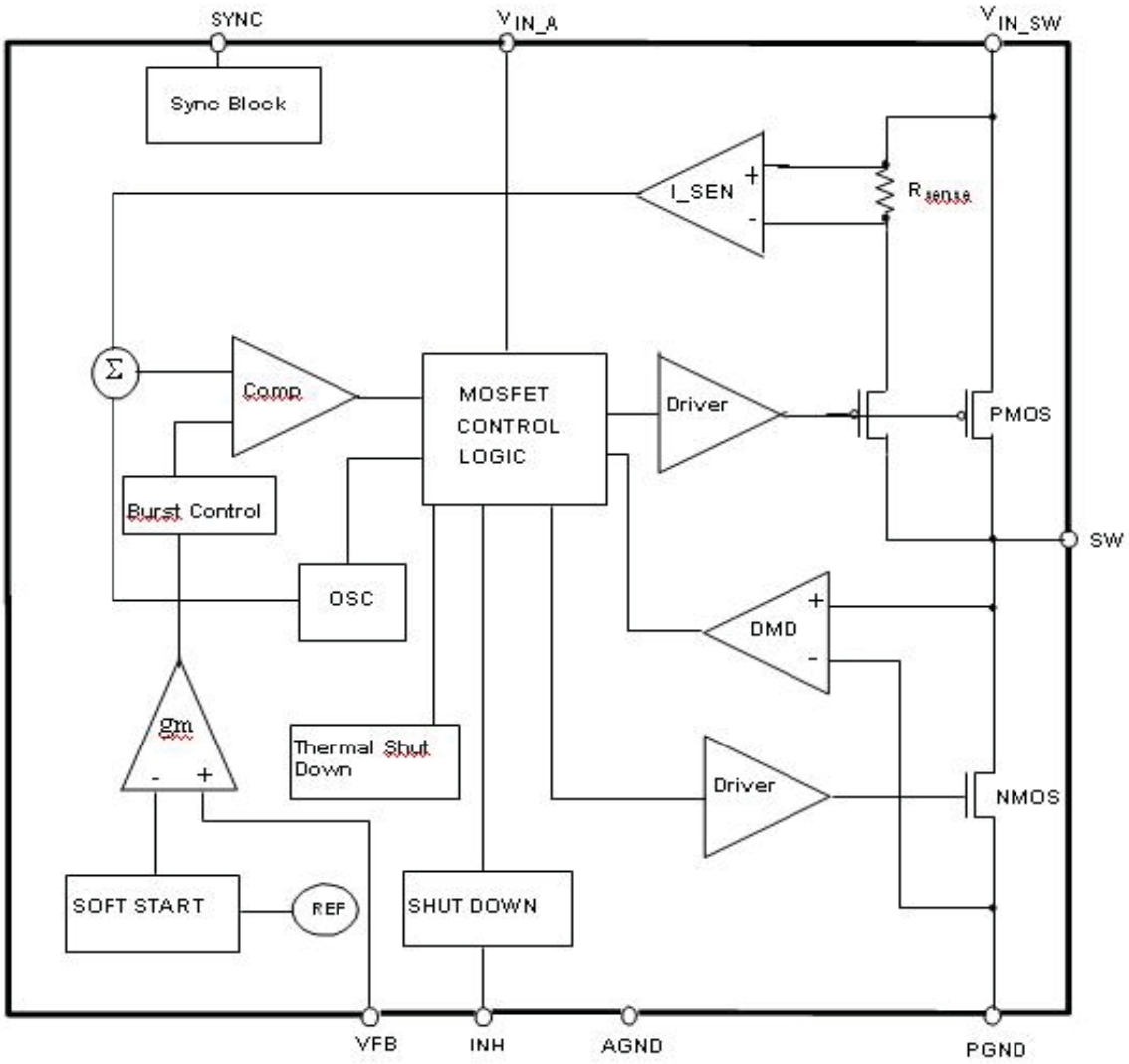


18250_300_090319.eps
090319

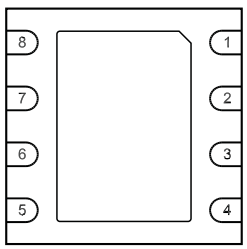
Figure 8-5 Internal block diagram and pin configuration

8.6 Diagram DC/DC B03E, ST1S10PH (IC 7UD0)

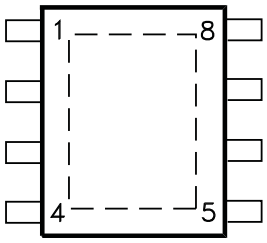
Block Diagram



Pin Configuration



DFN8 (4x4)



PowerSO-8

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130608

Figure 8-6 Internal block diagram and pin configuration

8.7 Diagram DC/DC B03E, LD1117DT25 (IC 7UD2)

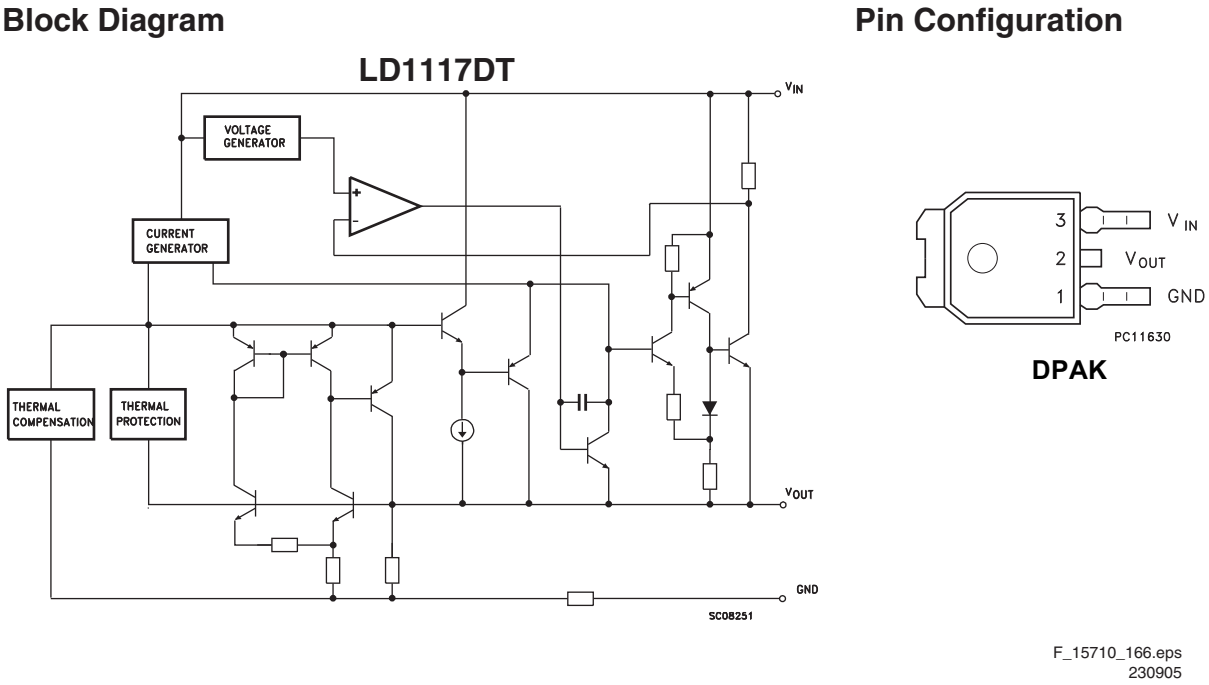
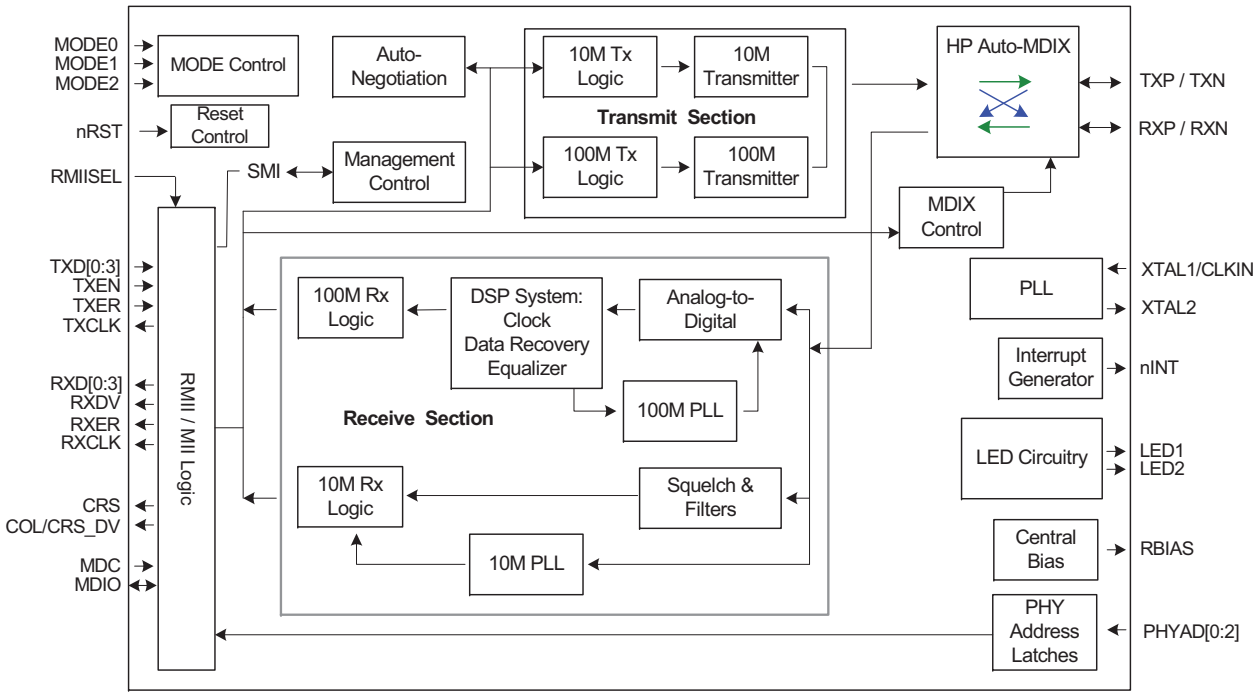


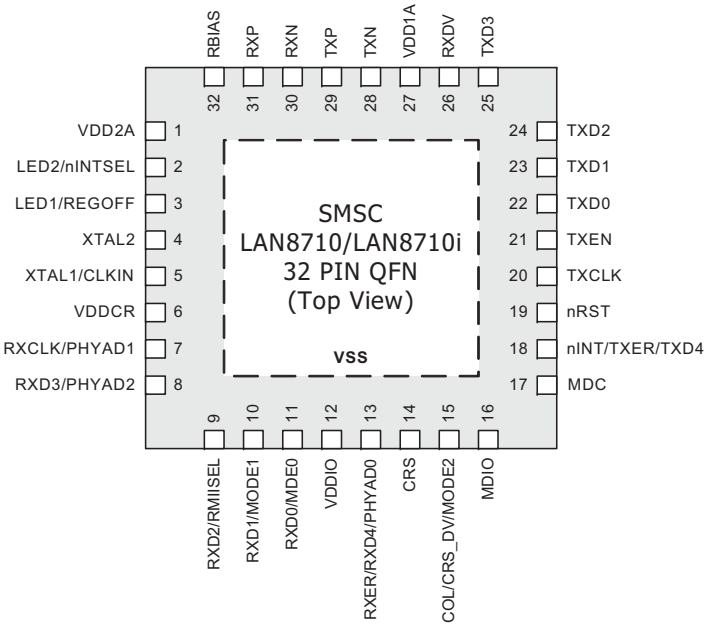
Figure 8-7 Internal block diagram and pin configuration

8.8 Diagram Ethernet + Service B04C, LAN8710A-EZKH (IC 7E10)

Block diagram



Pinning information

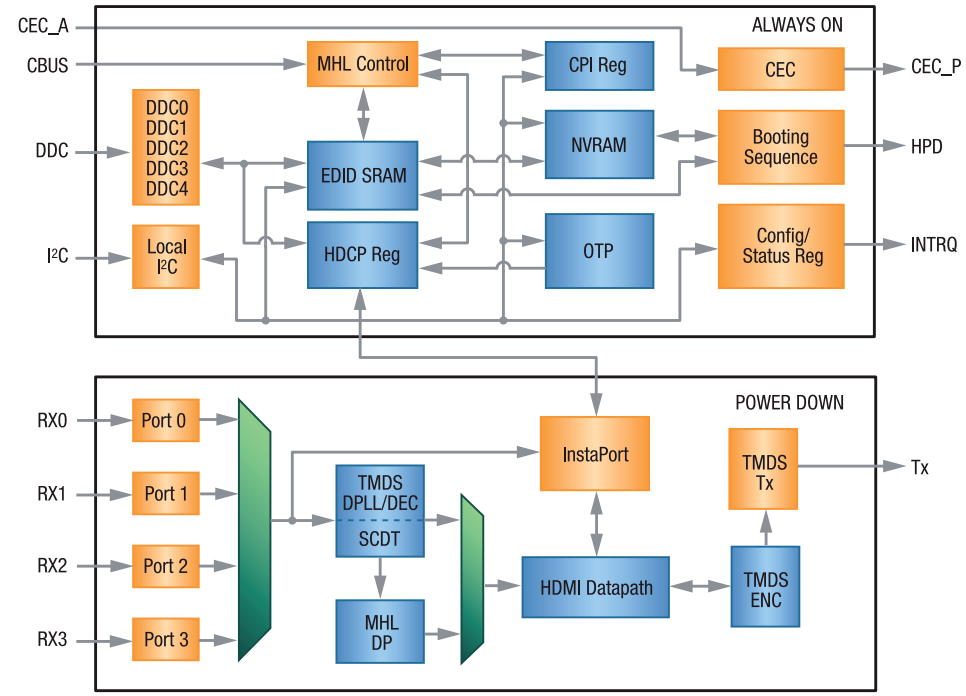


18770_302_100217.eps
100217

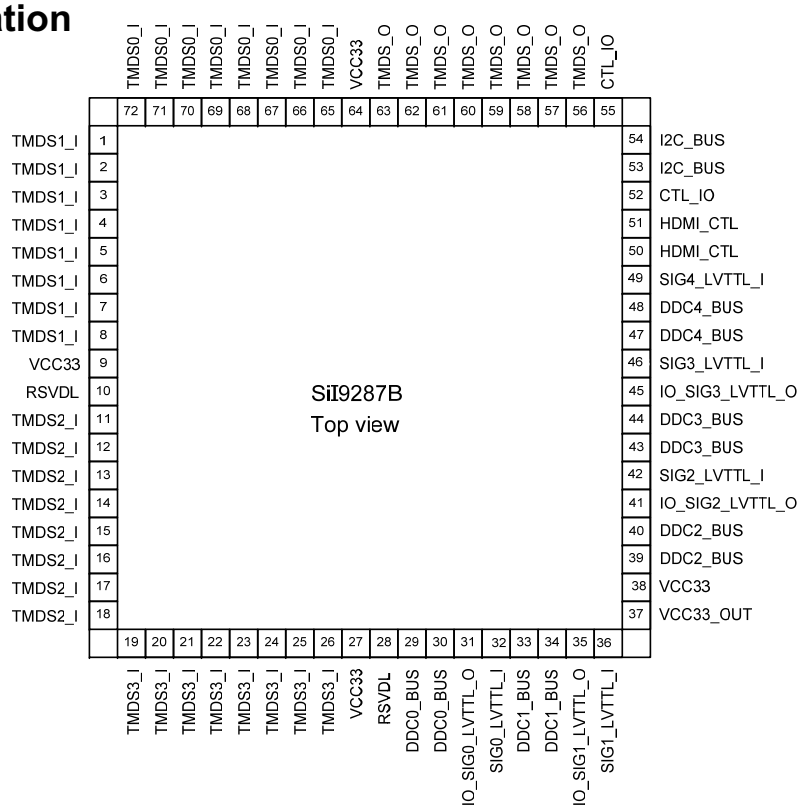
Figure 8-8 Internal block diagram and pin configuration

8.9 Diagram HDMI B04D, SII9287B (IC 7EC1)

Block diagram



Pinning information



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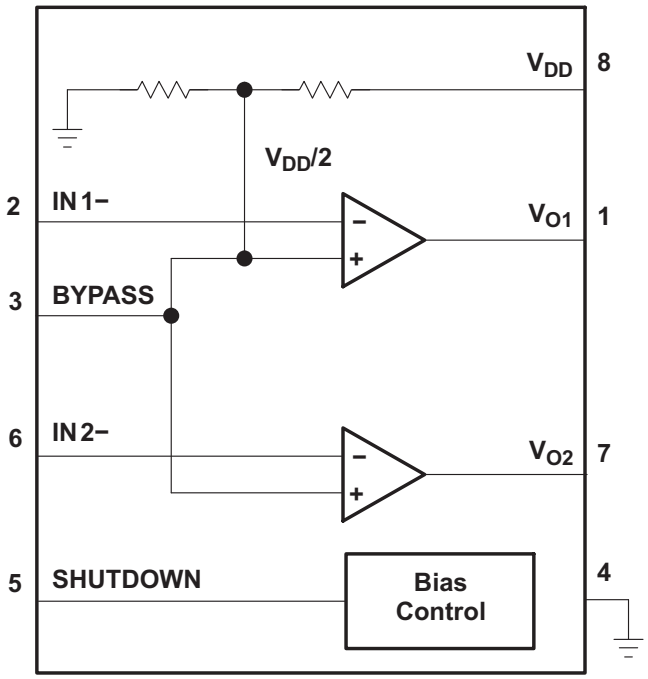
100217

Figure 8-9 Internal block diagram and pin configuration

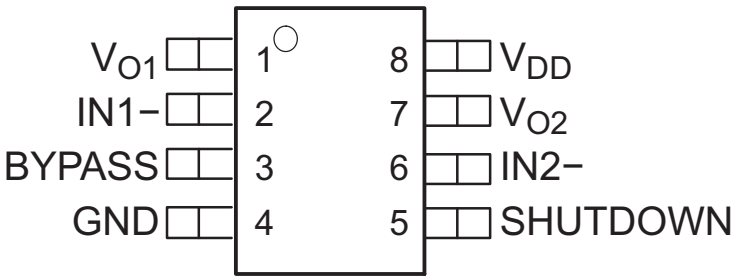
8.10 Diagram Headphone B04E, TPA6111A2DGN (IC 7EE1)

Block diagram



Pinning information

D OR DGN PACKAGE
(TOP VIEW)



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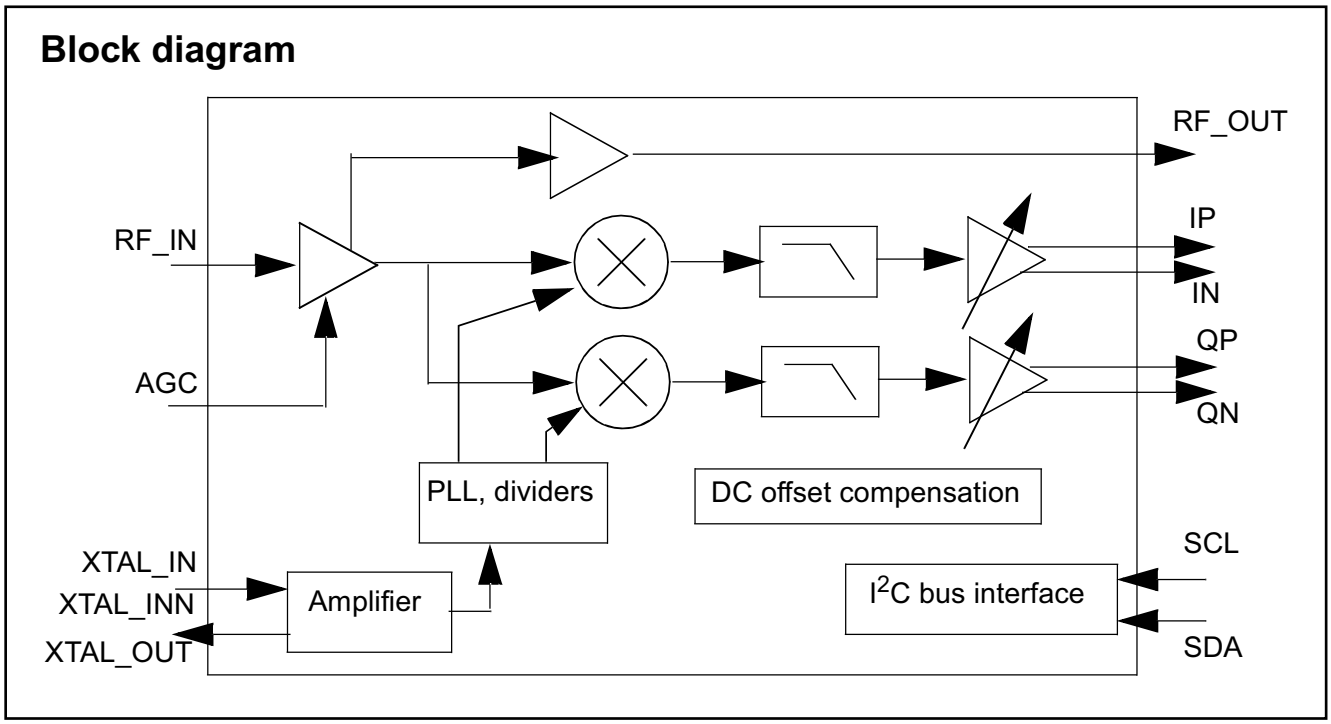
100217

Figure 8-10 Internal block diagram and pin configuration

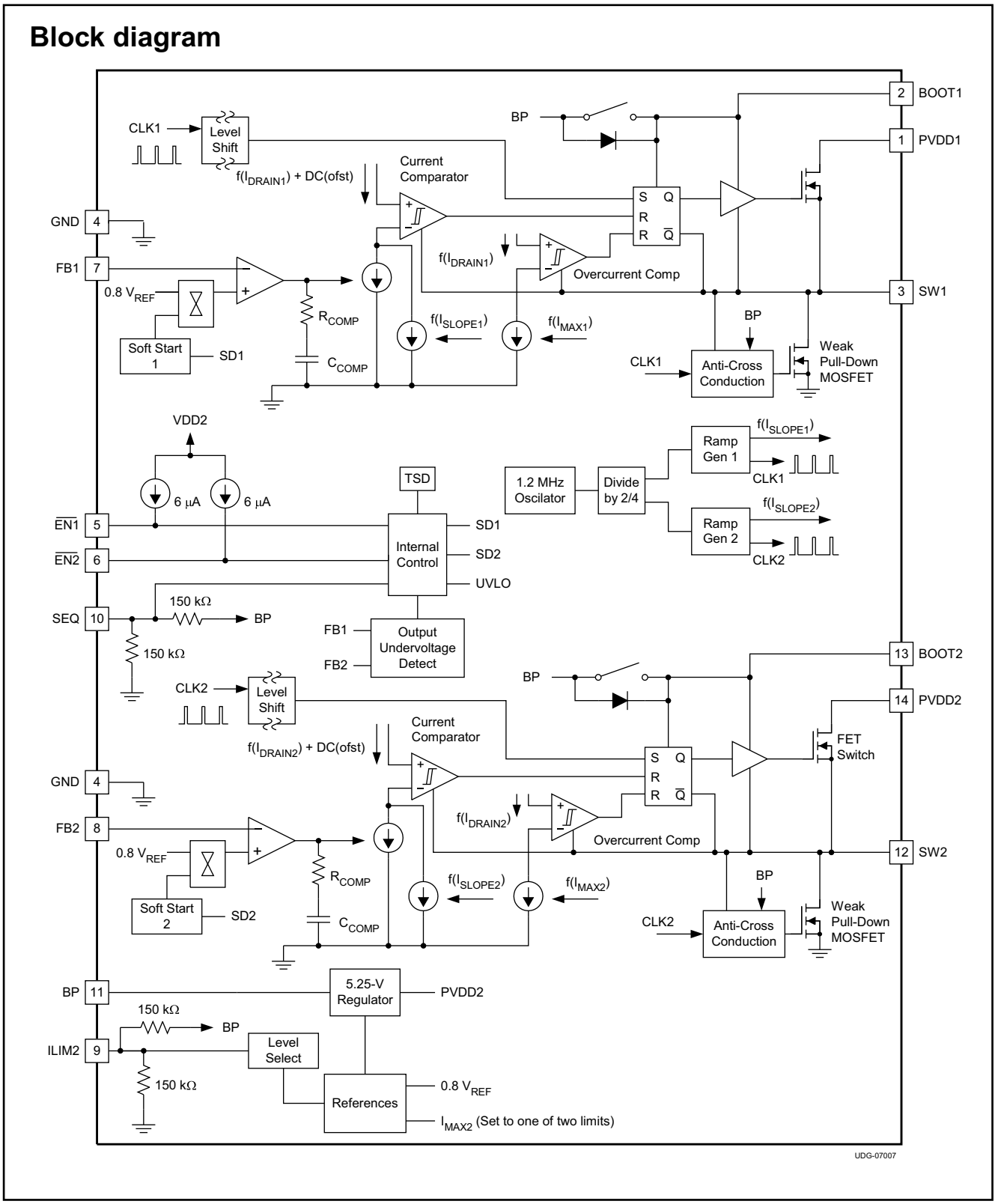
8.11 Diagram Circuit Diagrams and PWB Layouts B07A, STV6110AT (IC 7R02)



18770_304_100217.eps
100217

Figure 8-11 Internal block diagram and pin configuration

8.12 Diagram Circuit Diagrams and PWB Layouts B08A, TPS54283PWP (IC 7T03)



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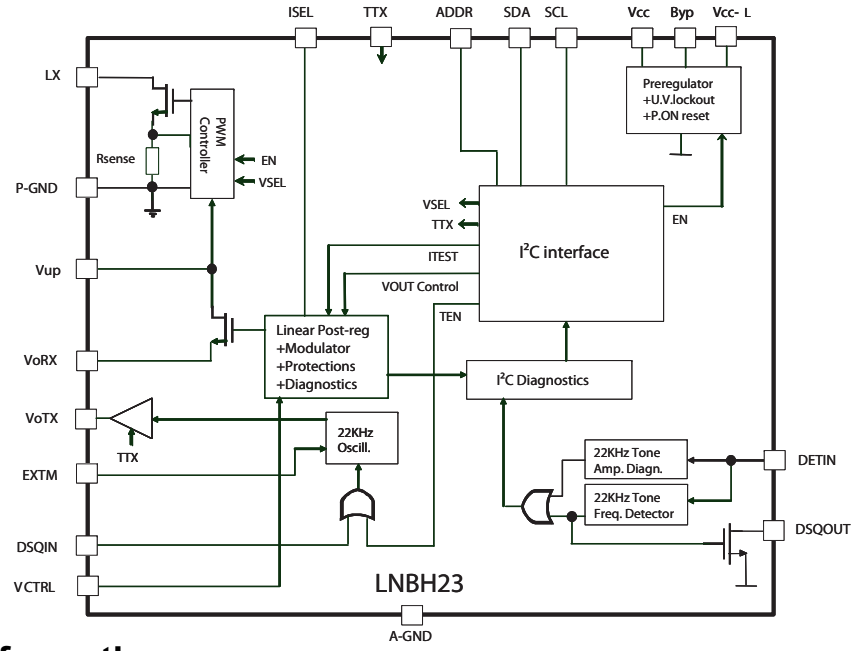
100217

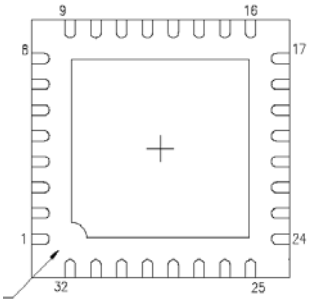
Figure 8-12 Internal block diagram and pin configuration

8.13 Diagram Circuit Diagrams and PWB Layouts B08B, LNBH23Q (IC 7T50)

Block diagram



Pinning information



1	n.c.
2	n.c.
3	n.c.
4	LX
5	P-GND
6	SDA
7	n.c.
8	n.c.
9	SCL
10	ADDR
11	DSQout
12	DSQIN
13	EXTM
14	TTX
15	BYP
16	n.c.
17	n.c.
18	Vcc-L
19	Vcc
20	A-GND
21	VoRX
22	VoTX
23	n.c.
24	n.c.
25	n.c.
26	n.c.
27	Vup
28	ISEL
29	DETIN
30	VCTRL
31	n.c.
32	n.c.

Epad — Connected with power grounds and to the ground layer through vias to dissipate the heat.

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Figure 8-13 Internal block diagram and pin configuration

8.14 Diagram TCON Controller B11A, TL2429MC (IC 7J01)

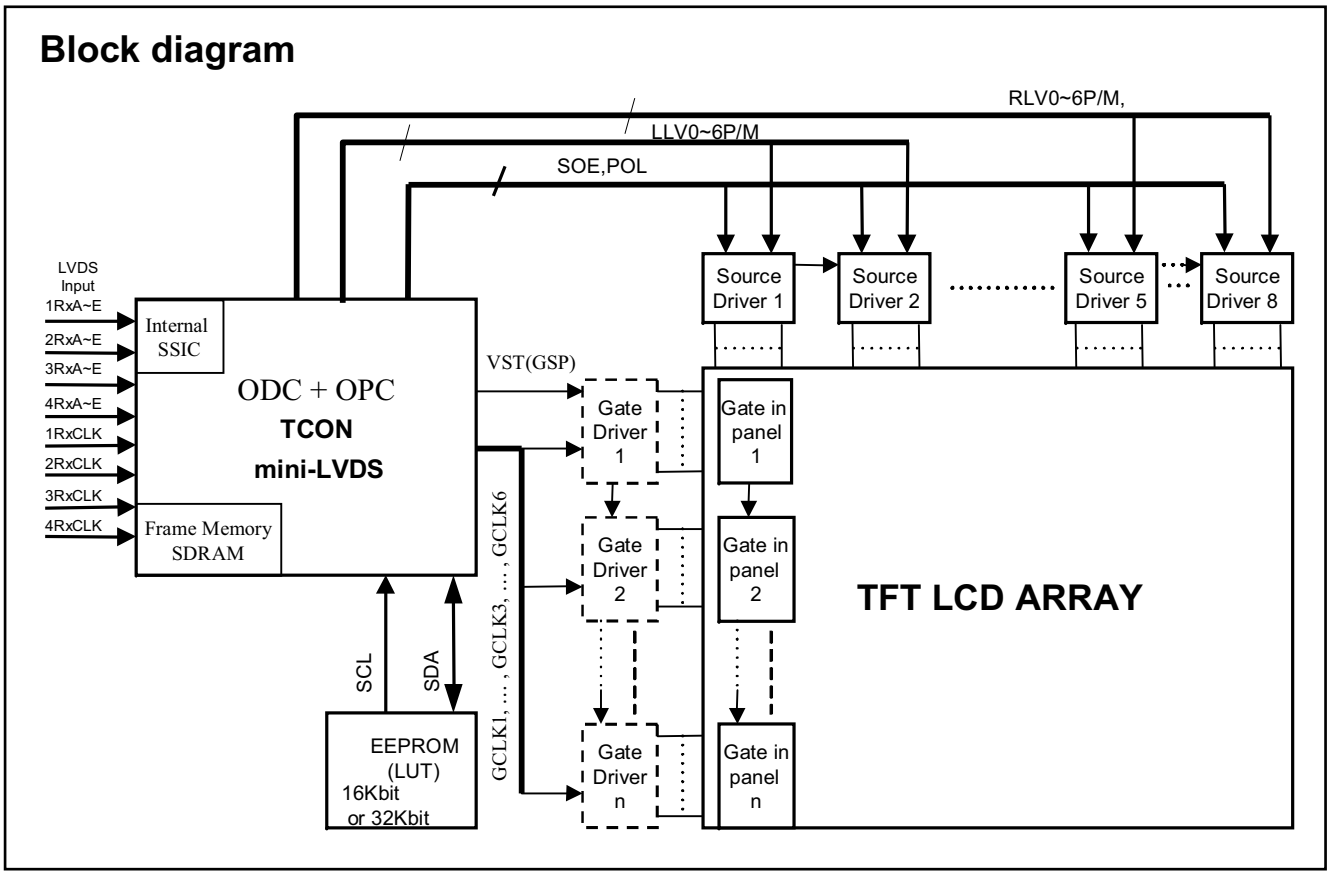

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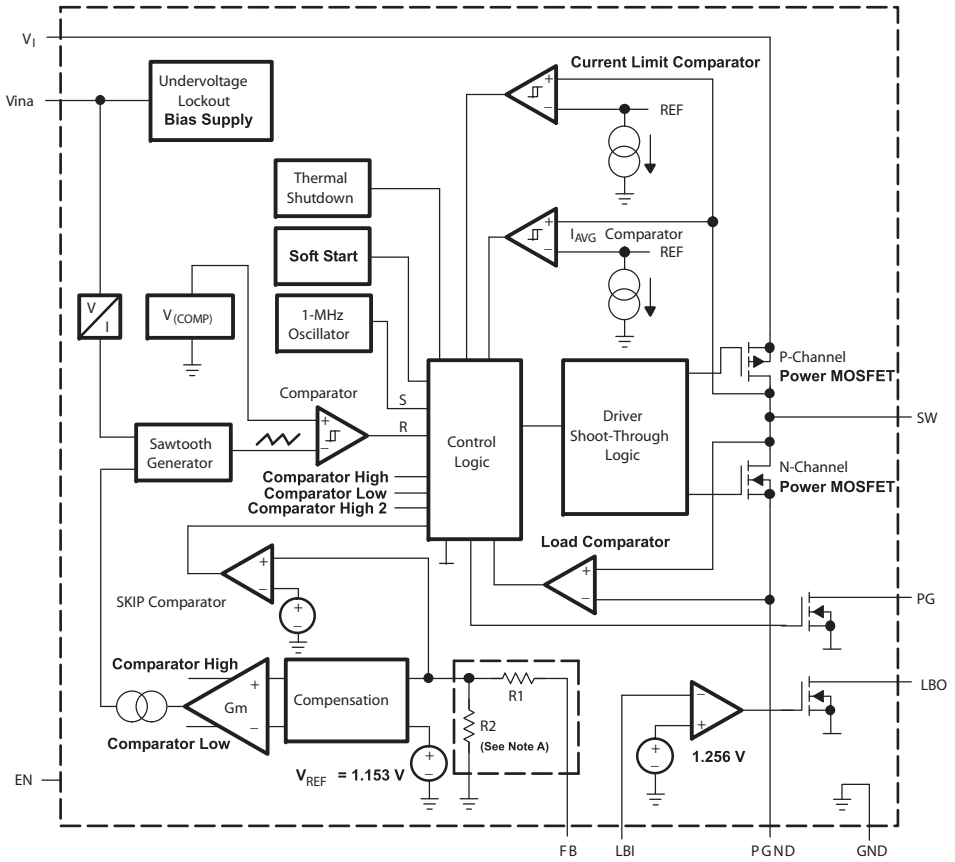
Figure 8-14 Internal block diagram and pin configuration

8.15 Diagram TCON Controller B11B, TPS62110RSA (IC 7JH1)

Block diagram



A. The internal feedback divider is disabled and the FB pin is directly connected to the internal GM amplifier.

Pinning information

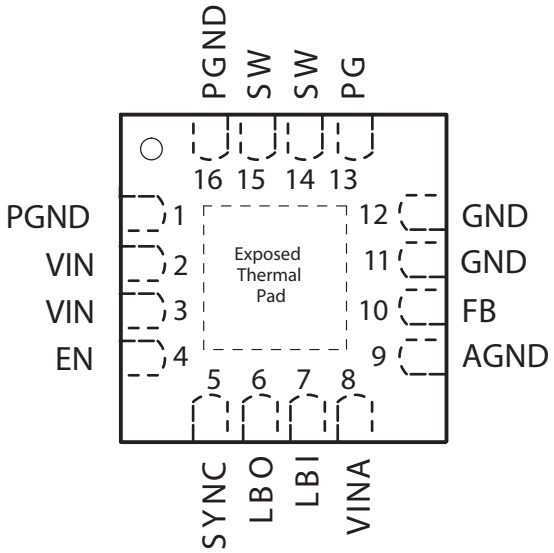


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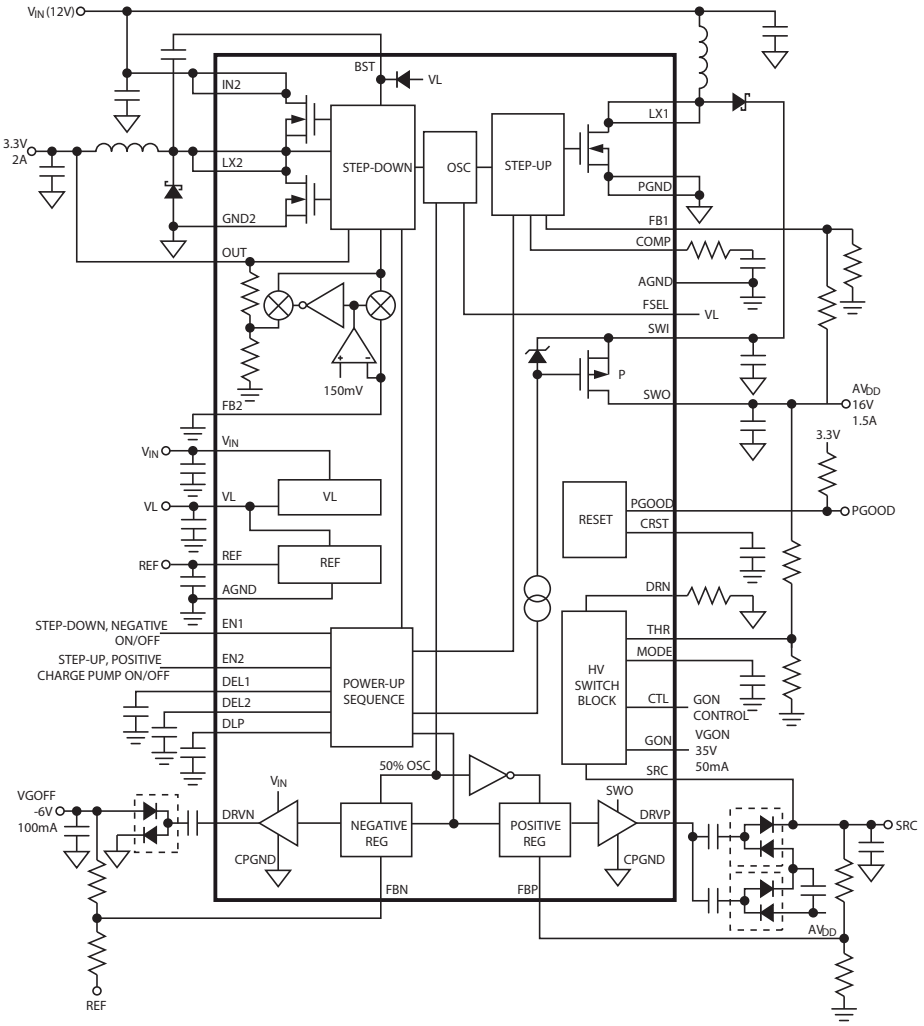
Figure 8-15 Internal block diagram and pin configuration

8.16 Diagram TCON Controller B11B, MAX17113ETL (IC 7JF1)

Block diagram



Pinning information

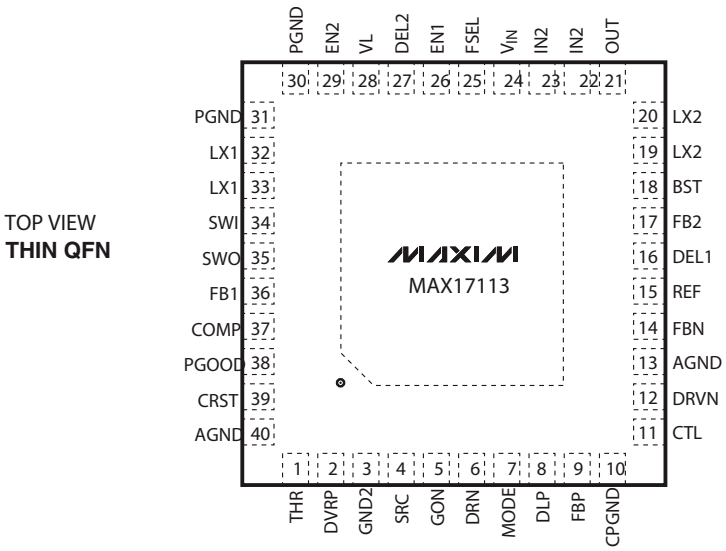


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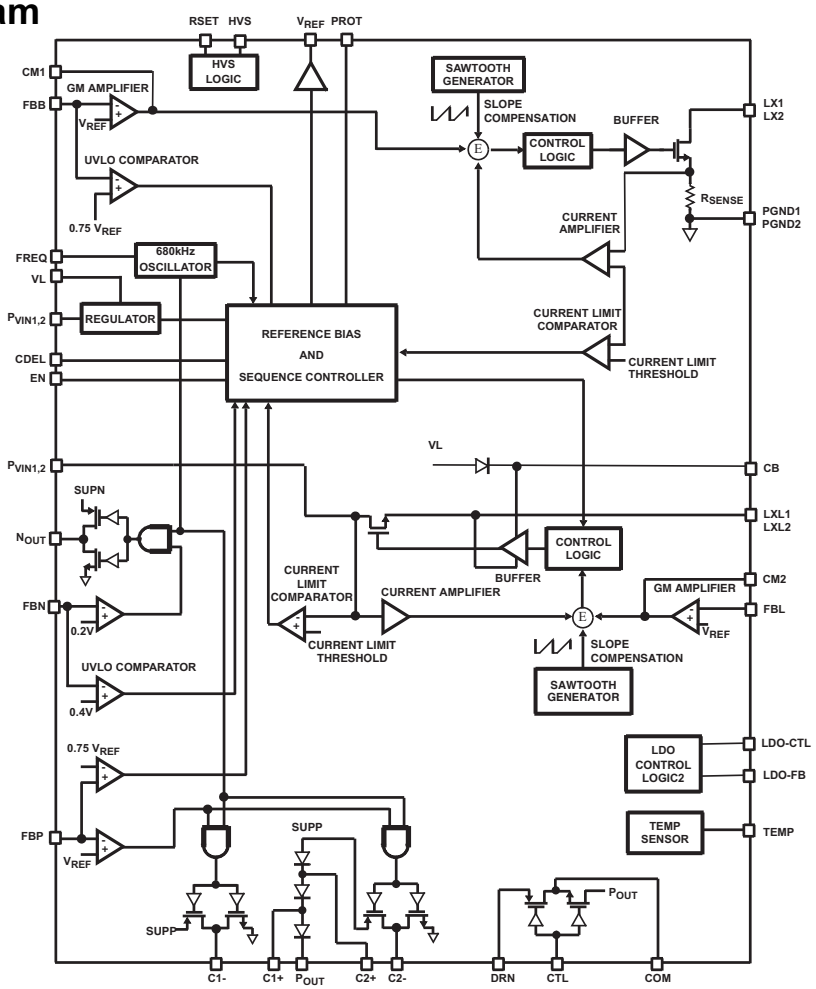
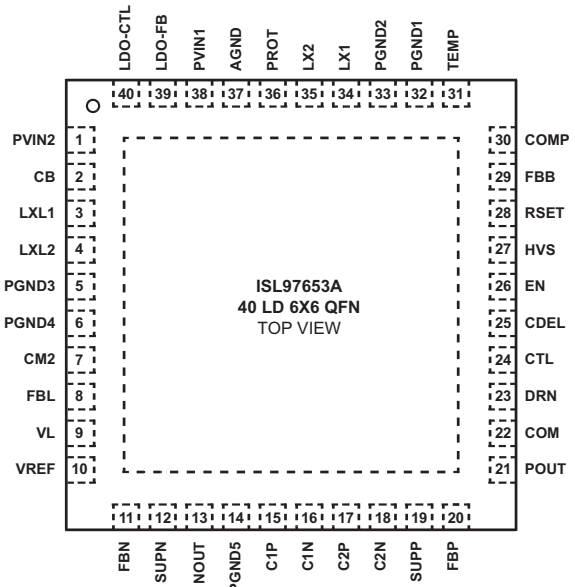
Figure 8-16 Internal block diagram and pin configuration

8.17 Diagram TCON DC/DC B14B, ISL97653AIRZ (IC 7KFA)

Block diagram



Pinning information



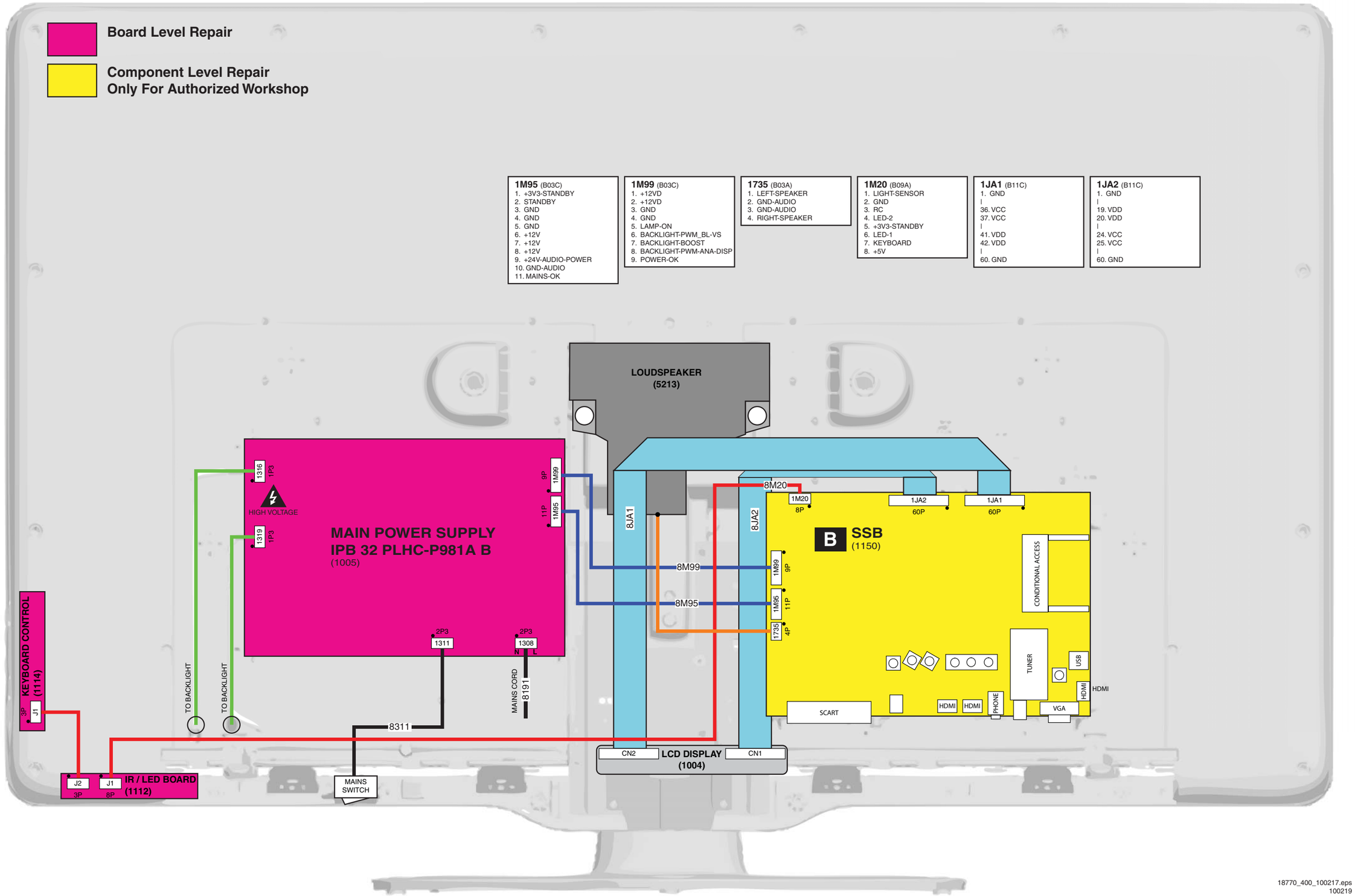
18770_307_100217.eps
100217

Figure 8-17 Internal block diagram and pin configuration

9. Block Diagrams

9-1 Wiring diagram Rembrandt 32"

WIRING DIAGRAM 32" REMBRANDT



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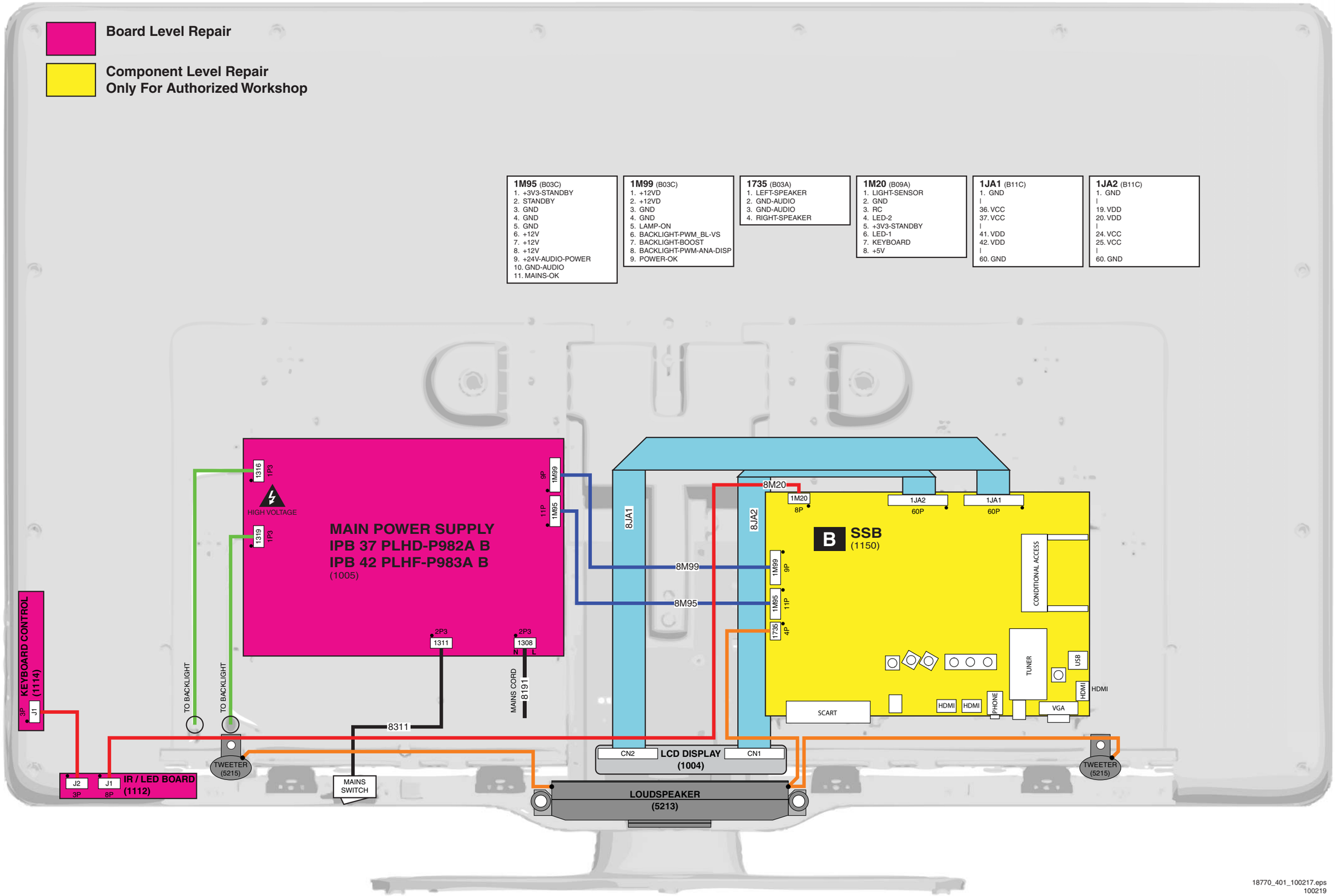
100219

9-2 Wiring diagram Rembrandt 37" - 42"

WIRING DIAGRAM 37"- 42" REMBRANDT

Board Level Repair

Component Level Repair
Only For Authorized Workshop



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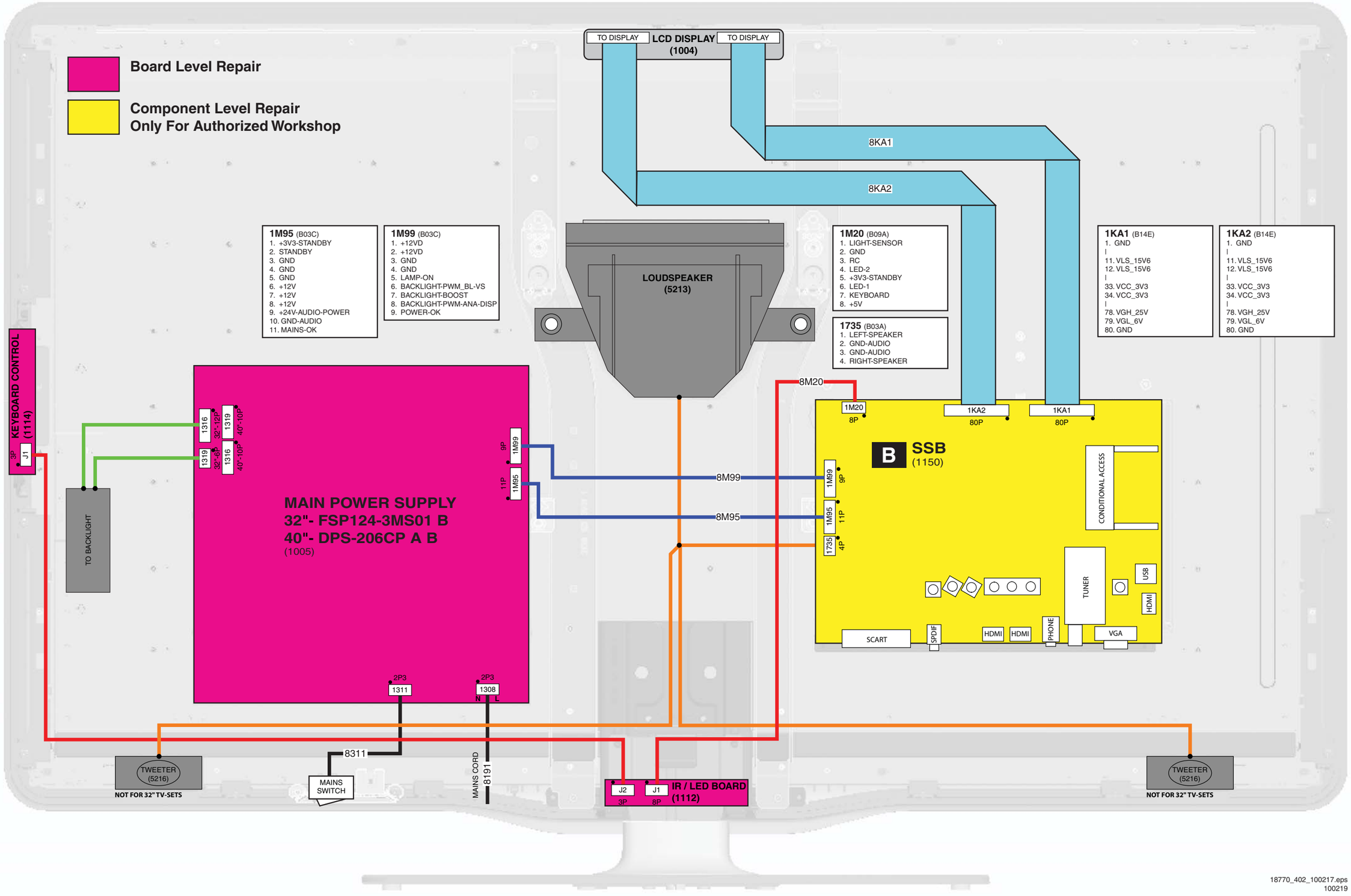
100219

9-3 Wiring diagram Van Gogh 32" - 40"

WIRING DIAGRAM 32"- 40" VAN GOGH



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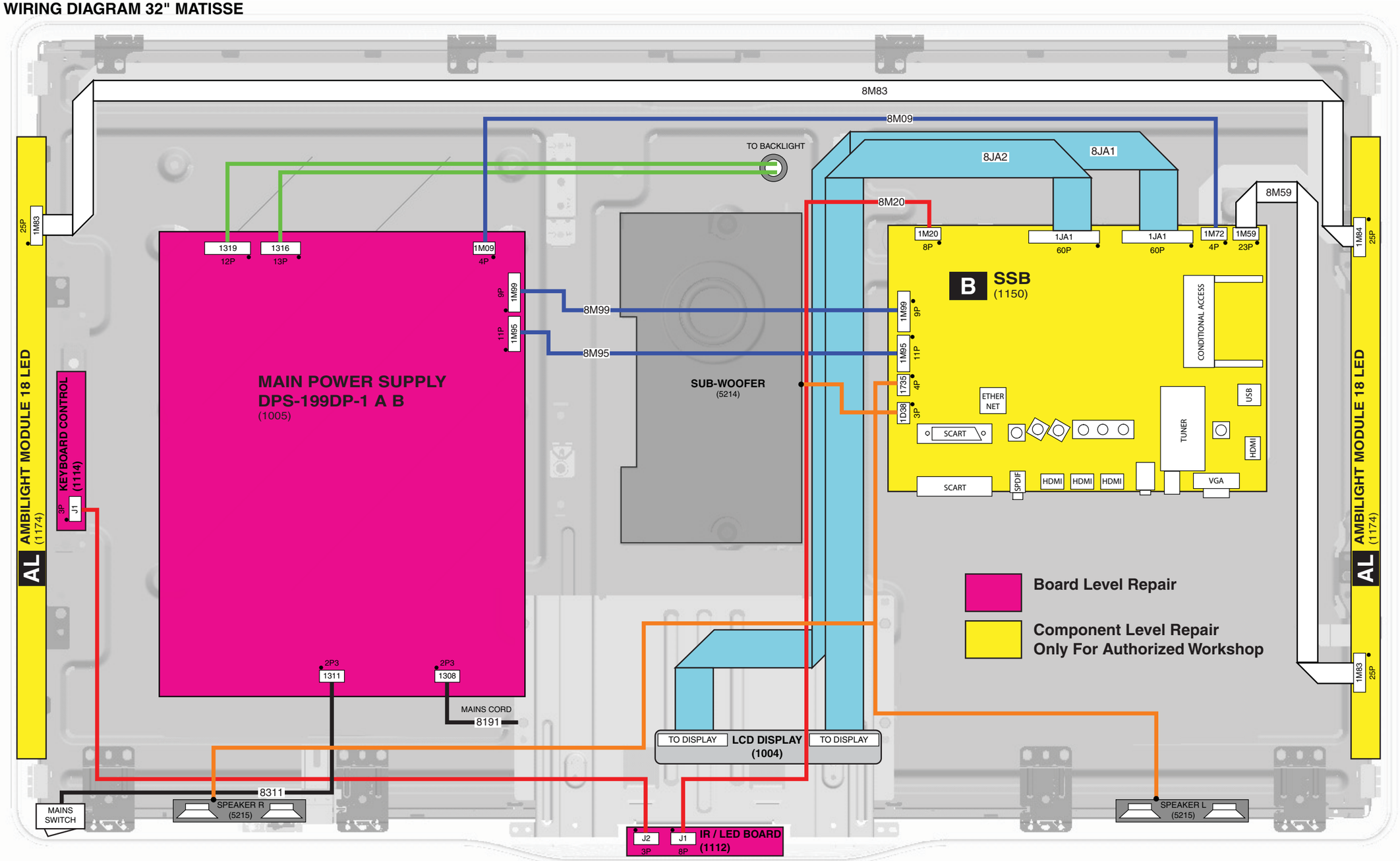
9-4 Wiring diagram Matisse 32"

WIRING DIAGRAM 32" MATISSE



1M38 (AL1A)

1. +24V	14. +3V3
2. +24V	15. BLANK
3. +24V	16. PROG
4. +24V	17. GND
5. +24V	18. LATCH
6. GND	19. SPI-CS
7. GND	20. +3V3
8. GND	21. PWM-CLOCK
9. GND	22. GND
10. GND	23. SPI-DATA-RETURN
11. TEMP-SENSOR	24. SPI-DATA-IN
12. N.C.	25. SPI-CLOCK
13. N.C.	

1M48 (AL2A)

1. SPI-CLOCK-BUF	14. N.C.
2. SPI-DATA-OUT	15. TEMP-SENSOR
3. SPI-DATA-RETURN	16. GND
4. GND	17. GND
5. PWM-CLOCK-BUF	18. GND
6. +3V3	19. GND
7. SPI-CS	20. GND
8. LATCH	21. +24V
9. GND	22. +24V
10. PROG	23. +24V
11. BLANK	24. +24V
12. +3V3	25. +24V
13. N.C.	

1M95 (B03C)
1. +3V3-STANDBY
2. STANDBY
3. GND
4. GND
5. GND
6. +12V
7. +12V
8. +12V
9. +24V-AUDIO-POWER
10. GND-AUDIO
11. MAINS-OK

1M99 (B03C)
1. +12VD
2. +12VD
3. GND
4. GND
5. LAMP-ON
6. BACKLIGHT-PWM_BL-VS
7. BACKLIGHT-BOOST
8. BACKLIGHT-PWM-ANA-DISP
9. POWER-OK

1M20 (B09A)
1. LIGHT-SENSOR
2. GND
3. RC
4. LED-2
5. +3V3-STANDBY
6. LED-1
7. KEYBOARD
8. +5V

1M72 (B13)
1. +24V
2. +24V
3. GND
4. GND

1735 (B03A)
1. LEFT-SPEAKER
2. GND-AUDIO
3. GND-AUDIO
4. RIGHT-SPEAKER

1D38 (B03A)
1. LEFT-SPEAKER
2. GND-AUDIO
3. RIGHT-SPEAKER

1KA1 (B14E)
1. GND
|
11. VLS_15V6
12. VLS_15V6
|
33. VCC_3V3
34. VCC_3V3
|
78. VGH_25V
79. VGL_6V
80. GND

1KA2 (B14E)
1. GND
|
11. VLS_15V6
12. VLS_15V6
|
33. VCC_3V3
34. VCC_3V3
|
78. VGH_25V
79. VGL_6V
80. GND

1M59 (B13)

1. AMBI-SPI-CLK-OU	15. AMBI-TEMP
2. AMBI-SPI-SDO-OUT	16. GND
3. AMBI-SPI-SDI-OUT-GI	17. GND
4. GND	18. GND
5. AMBI-PWM-CLK_B2	19. GND
6. V-AMBI	20. GND
7. AMBI-SPI-CS-OUTn_R2	21. +24V
8. AMBI-LATCH1_G2	22. +24V
9. GND	23. +24V
10. AMBI-PROG_B1	24. +24V
11. AMBI-BLANK_R1	25. +24V
12. V-AMBI	
13. AMBI-LATCH2_DIS	
14. AMBI-SPI-CS-EXTLAMPSn	

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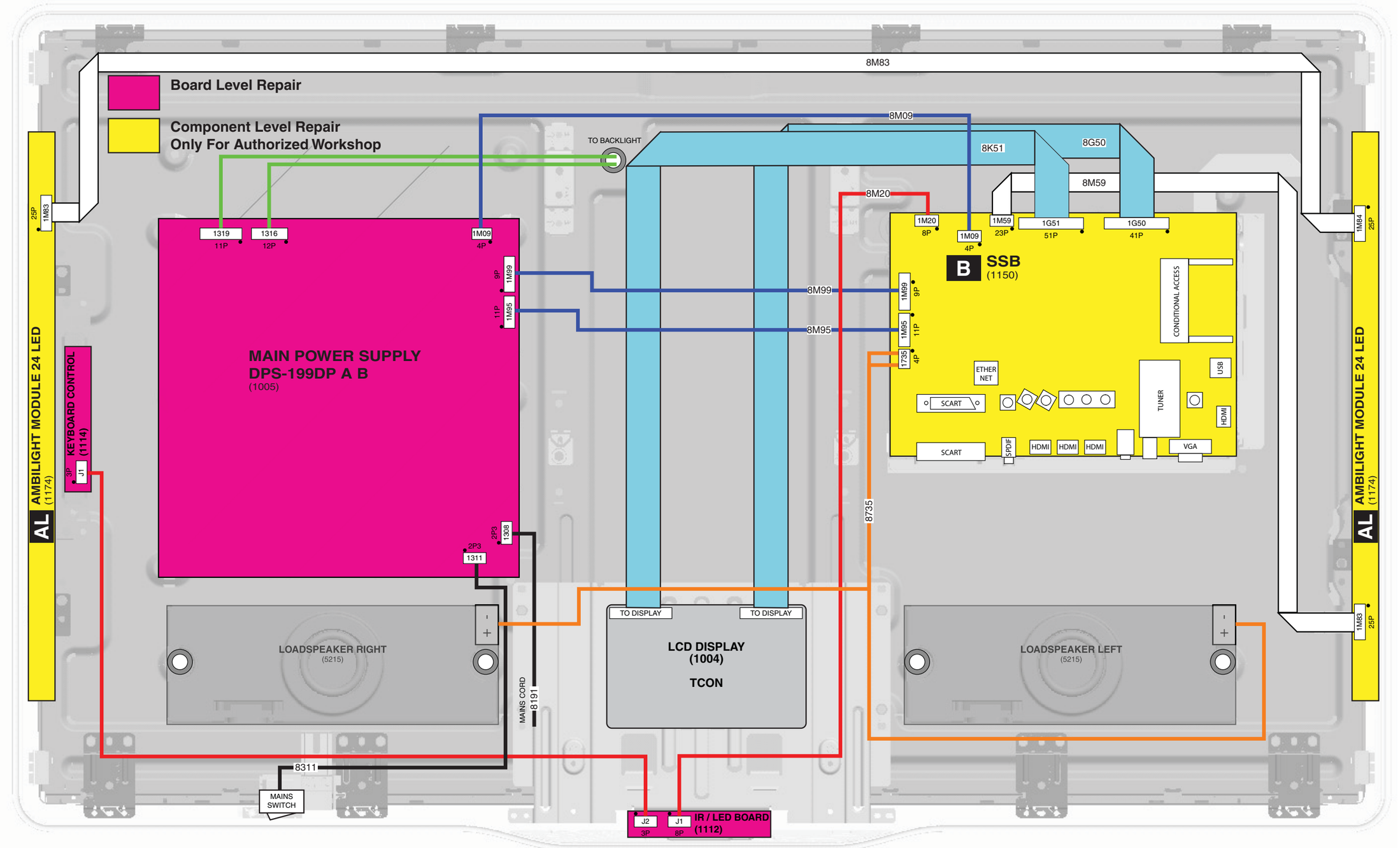
9-5 Wiring Matisse 40"

WIRING DIAGRAM 40" MATISSE



1M59 (B13)
1. AMBI-SPI-CLK-OU
2. AMBI-SPI-SDO-OUT
3. AMBI-SPI-SDI-OUT-GI
4. GND
5. AMBI-PWM-CLK_B2
6. V-AMBI
7. AMBI-SPI-CS-OUTn_R2
8. AMBI-LATCH1_G2
9. GND
10. AMBI-PROG_B1
11. AMBI-BLANK_R1
12. V-AMBI
13. AMBI-LATCH2_DIS
14. AMBI-SPI-CS-EXTLAMPSn
15. AMBI-TEMP
16. GND
17. GND
18. GND
19. GND
20. GND
21. +24V
22. +24V
23. +24V
24. +24V
25. +24V

1M38 (AL1A)
1. +24V
2. +24V
3. +24V
4. +24V
5. +24V
6. GND
7. GND
8. GND
9. GND
10. GND
11. TEMP-SENSOR
12. N.C.
13. N.C.
14. +3V3
15. BLANK
16. PROG
17. GND
18. LATCH
19. SPI-CS
20. +3V3
21. PWM-CLOCK
22. GND
23. SPI-DATA-RETURN
24. SPI-DATA-IN
25. SPI-CLOCK

1M48 (AL2A)
1. SPI-CLOCK-BUF
2. SPI-DATA-OUT
3. SPI-DATA-RETURN
4. GND
5. PWM-CLOCK-BUF
6. +3V3
7. SPI-CS
8. LATCH
9. GND
10. PROG
11. BLANK
12. +3V3
13. N.C.
14. N.C.
15. TEMP-SENSOR
16. GND
17. GND
18. GND
19. GND
20. GND
21. +24V
22. +24V
23. +24V
24. +24V
25. +24V

1M95 (B03C)
1. +3V3-STANDBY
2. STANDBY
3. GND
4. GND
5. GND
6. +12V
7. +12V
8. +12V
9. +24V-AUDIO-POWER
10. GND-AUDIO
11. MAINS-OK

1M99 (B03C)
1. +12VD
2. +12VD
3. GND
4. GND
5. LAMP-ON
6. BACKLIGHT-PWM_BL-VS
7. BACKLIGHT-BOOST
8. BACKLIGHT-PWM-ANA-DISP
9. POWER-OK

1M20 (B09A)
1. LIGHT-SENSOR
2. GND
3. RC
4. LED-2
5. +3V3-STANDBY
6. LED-1
7. KEYBOARD
8. +5V

1735 (B03A)
1. LEFT-SPEAKER
2. GND-AUDIO
3. GND-AUDIO
4. RIGHT-SPEAKER

1M09 (B09)
1. +24V
2. +24V
3. GND
4. GND

1KA1 (B14E)
1. GND
|
11. VLS_15V6
12. VLS_15V6
|
33. VCC_3V3
34. VCC_3V3
|
78. VGH_25V
79. VGL_6V
80. GND

1KA2 (B14E)
1. GND
|
11. VLS_15V6
12. VLS_15V6
|
33. VCC_3V3
34. VCC_3V3
|
78. VGH_25V
79. VGL_6V
80. GND

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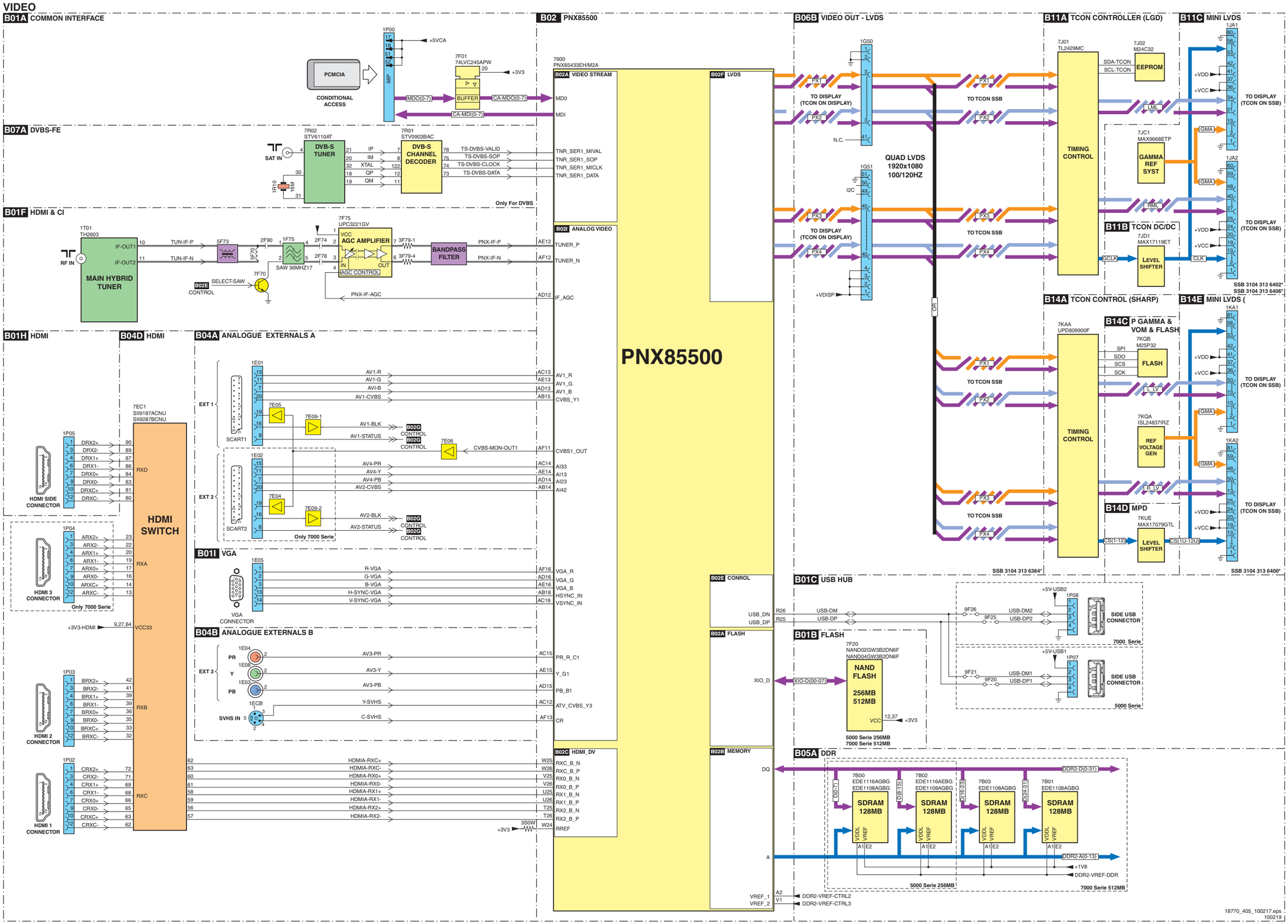
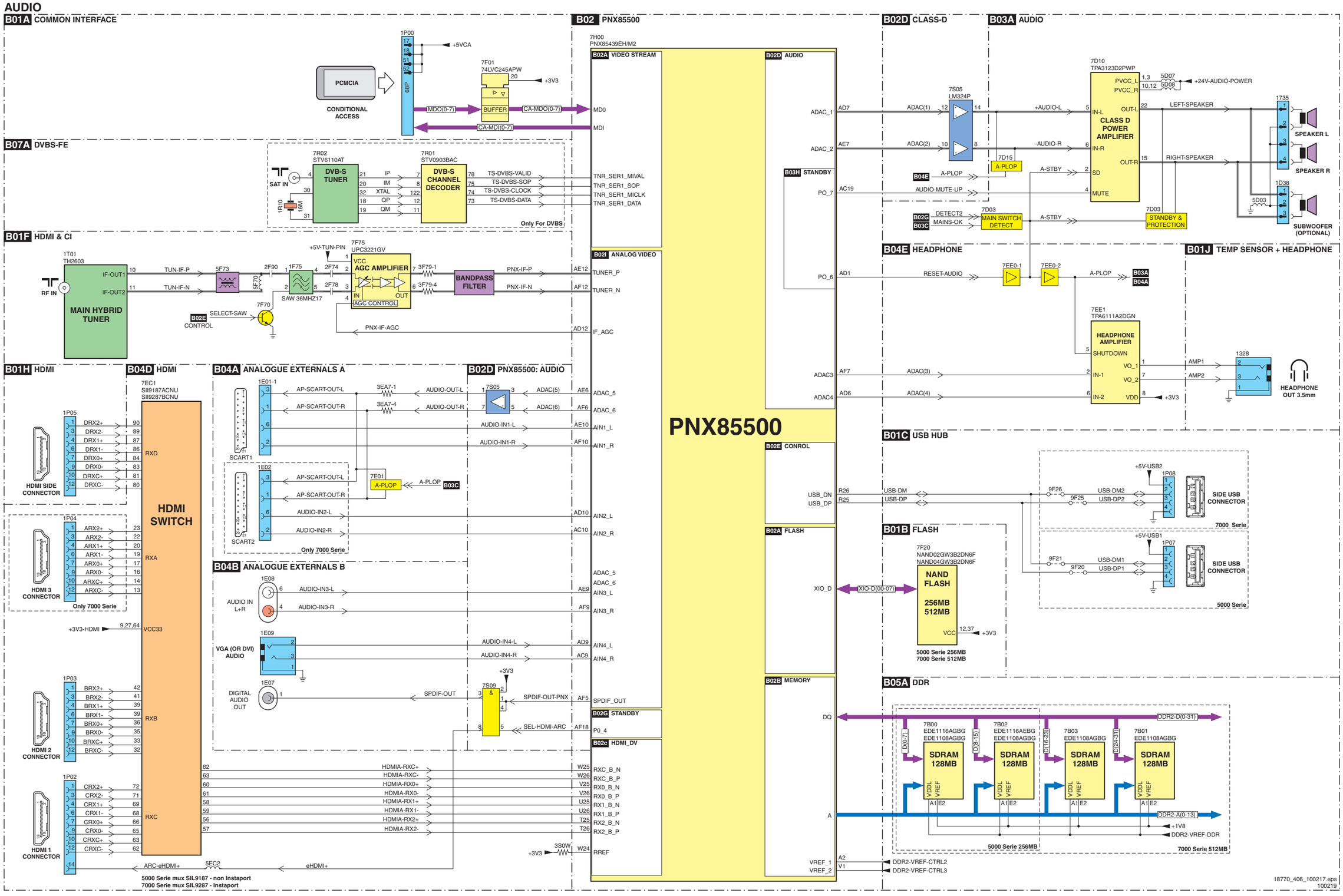
9-6 Block Diagram Video

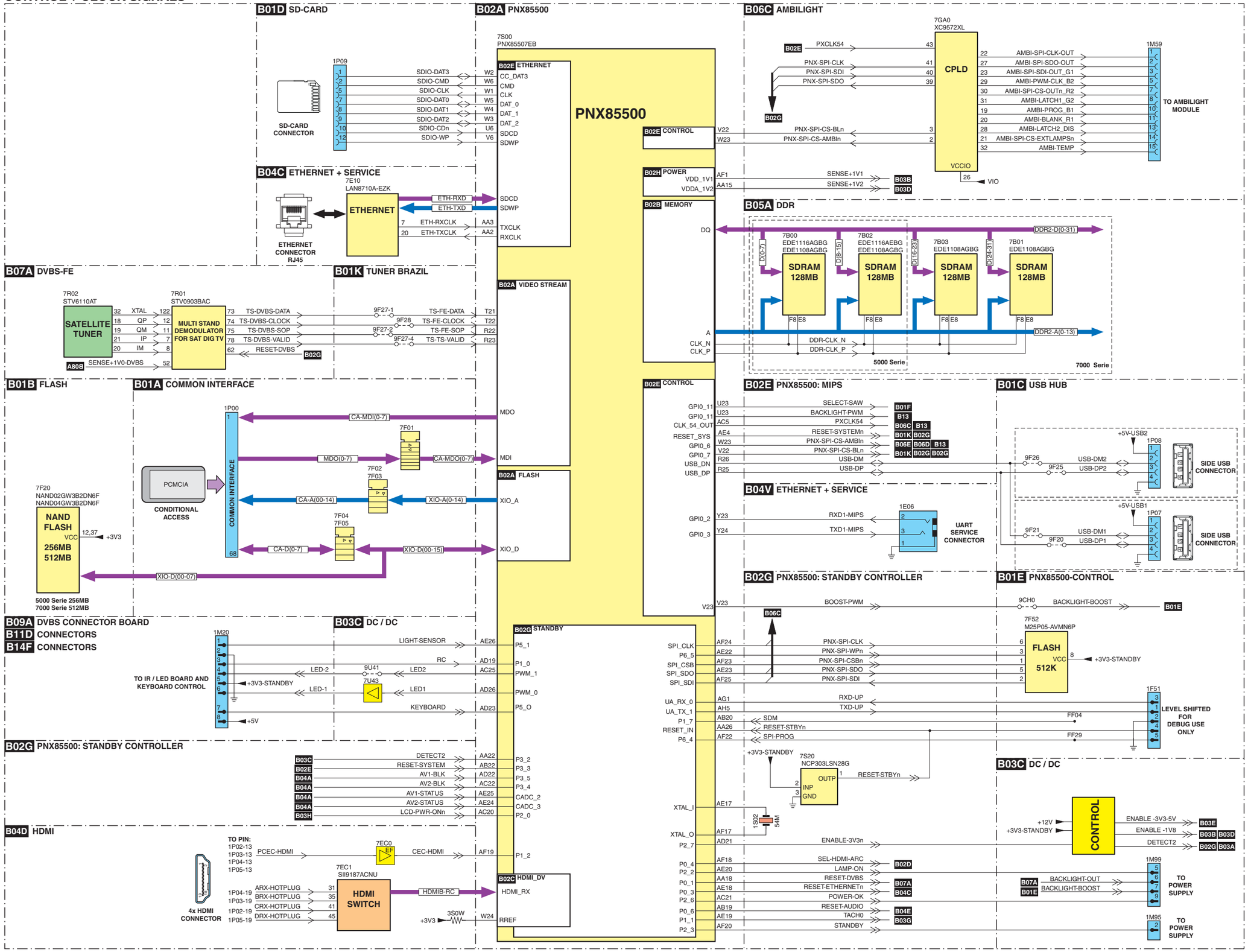


9-7 Block Diagram Audio



9-8 Block Diagram Control & Clock Signals

CONTROL + CLOCK SIGNALS



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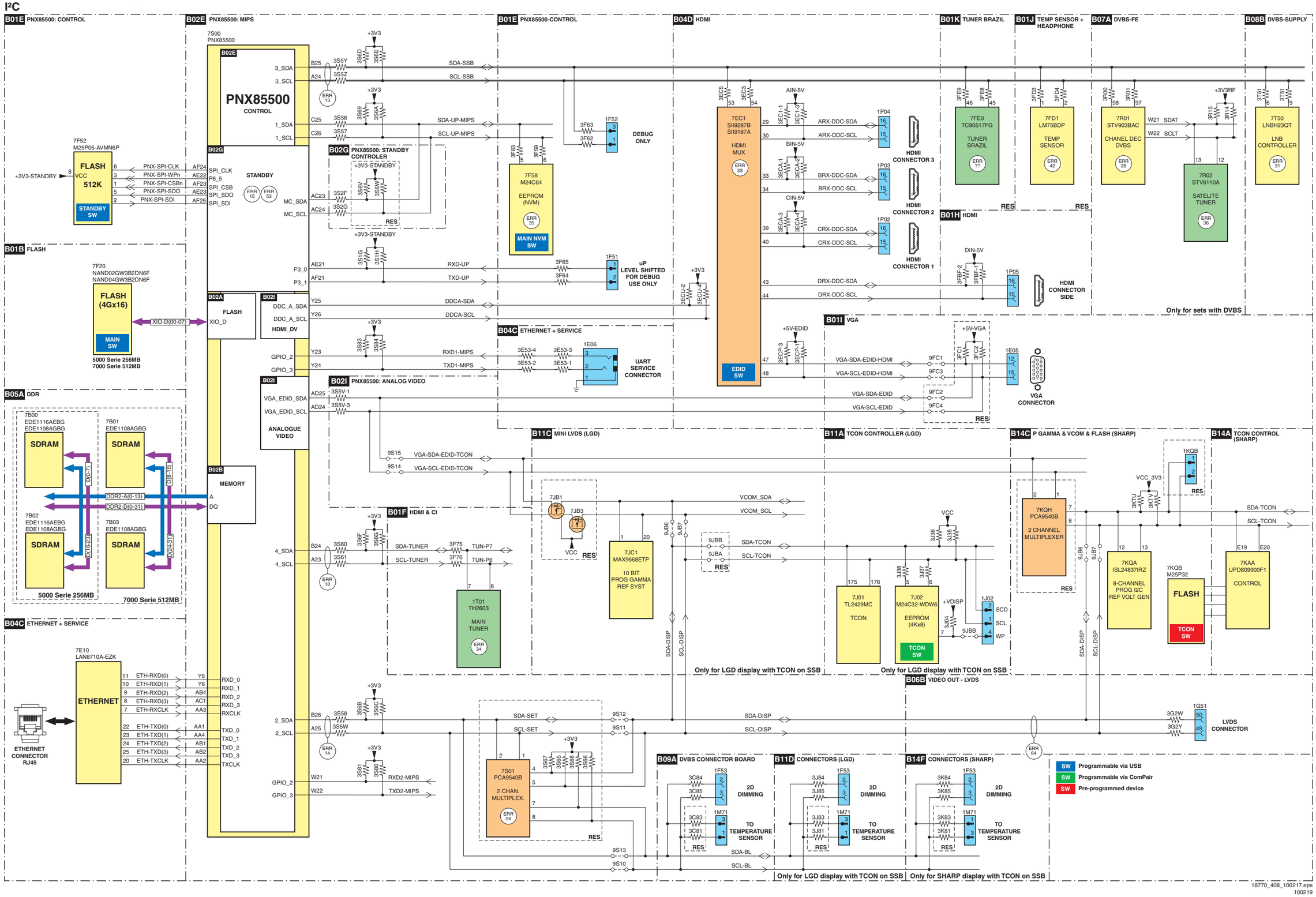
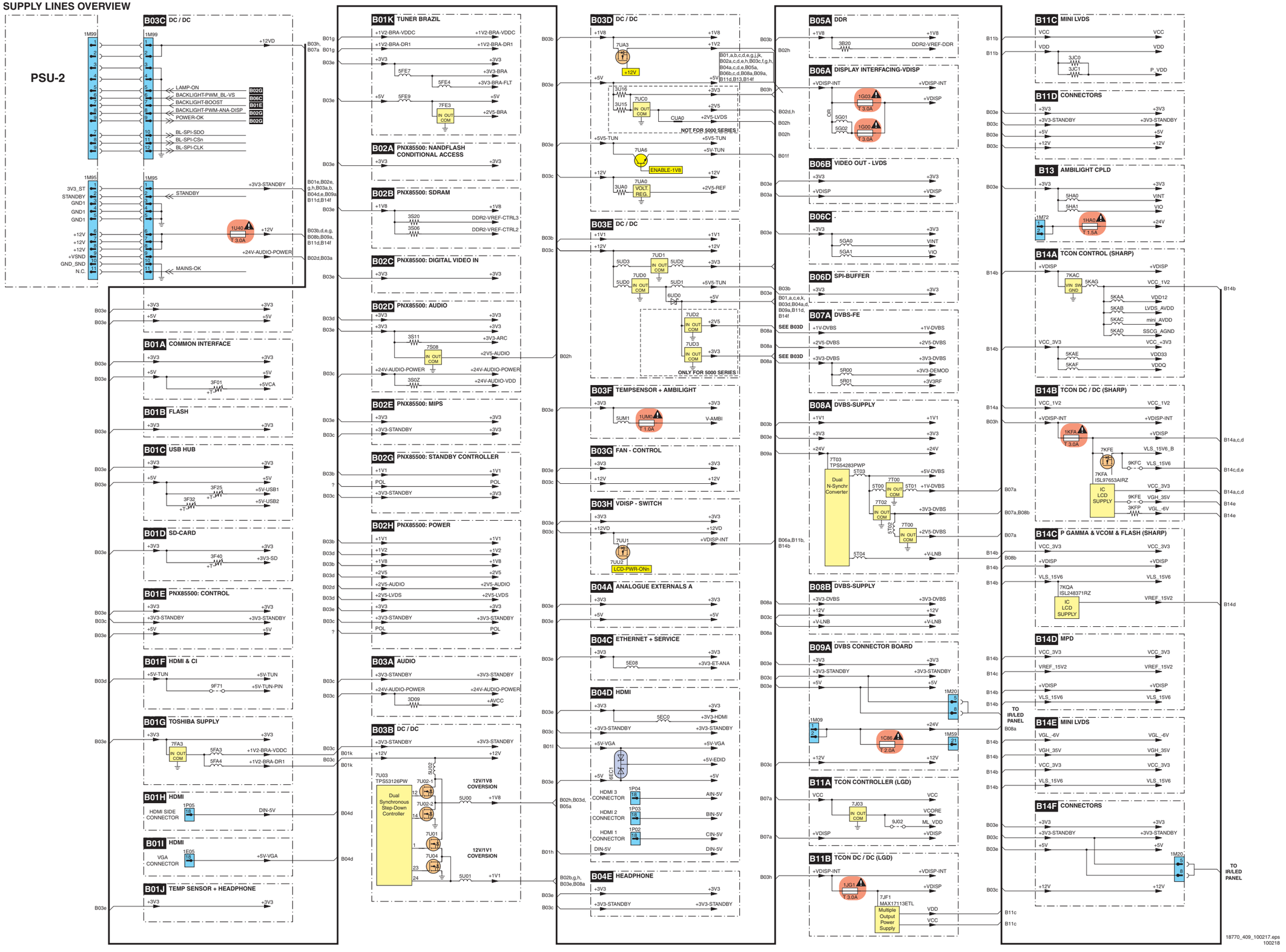
9-9 Block Diagram I²C



9-10 Supply Lines Overview

SUPPLY LINES OVERVIEW



10. Circuit Diagrams and PWB Layouts

10-1 AL1 820400089786 AmbiLight Common

LiteOn LED Common 1

AL1A LiteOn 15 LED Common

AL1A

1M83 C1
2B00 E8
2B01 F8
2B02 E9
2B03 I14
2B04-1 B7
2B04-2 B6
2B04-3 B8
2B04-4 B7
2B08 E12
2B09 E12
2B10 F9
2B11 A9
2B17 D8
2B20 D4
3004 E12
3B00-1 A6
3B00-2 B6
3B00-3 B6
3B00-4 B6
3B01-1 E7
3B01-2 D7
3B02-1 E3
3B02-2 E5
3B03-1 H14
3B03-2 H14
3B03-3 H14
3B03-4 H14
3B07-1 F3
3B07-2 G3
3B07-3 H3
3B07-4 G3
3B11 E12
3B13-3 H3
3B13-4 I3
3B18 A8
3B21 B7
3B22 B8
3B30-1 D9
3B30-4 E9
3B31 B10
3B34 D13
3B35 G14
3B36 G14
3B37 G14
3B39-1 E13
3B39-2 D12
3B39-3 D13
7000 G5
7001 G7
7002 G8
7003 G10
7004 G11
7005 G13
7B06 D3
7B07 D4
7B20-1 D8
7B20-2 E8
7B23-1 F4
7B23-2 G4
7B25 H3
7B26-1 A8
7B26-2 C9
7B30 D13
FB01 A1
FB03 B1
FB04 B1
FB05 B1
FB06 B2
FB07 B1
FB08 B1
FB10 B2
FB11 B1
FB12 B2
FB13 C1
FB15 C1
FB16 C1
FB20 B7
FB30 G3
FB31 H3
FB32 I3
FB35 A8
FB40 D12
FB41 E13

AL 2K10 LiteOn 15 LED Common	8204 000 8978

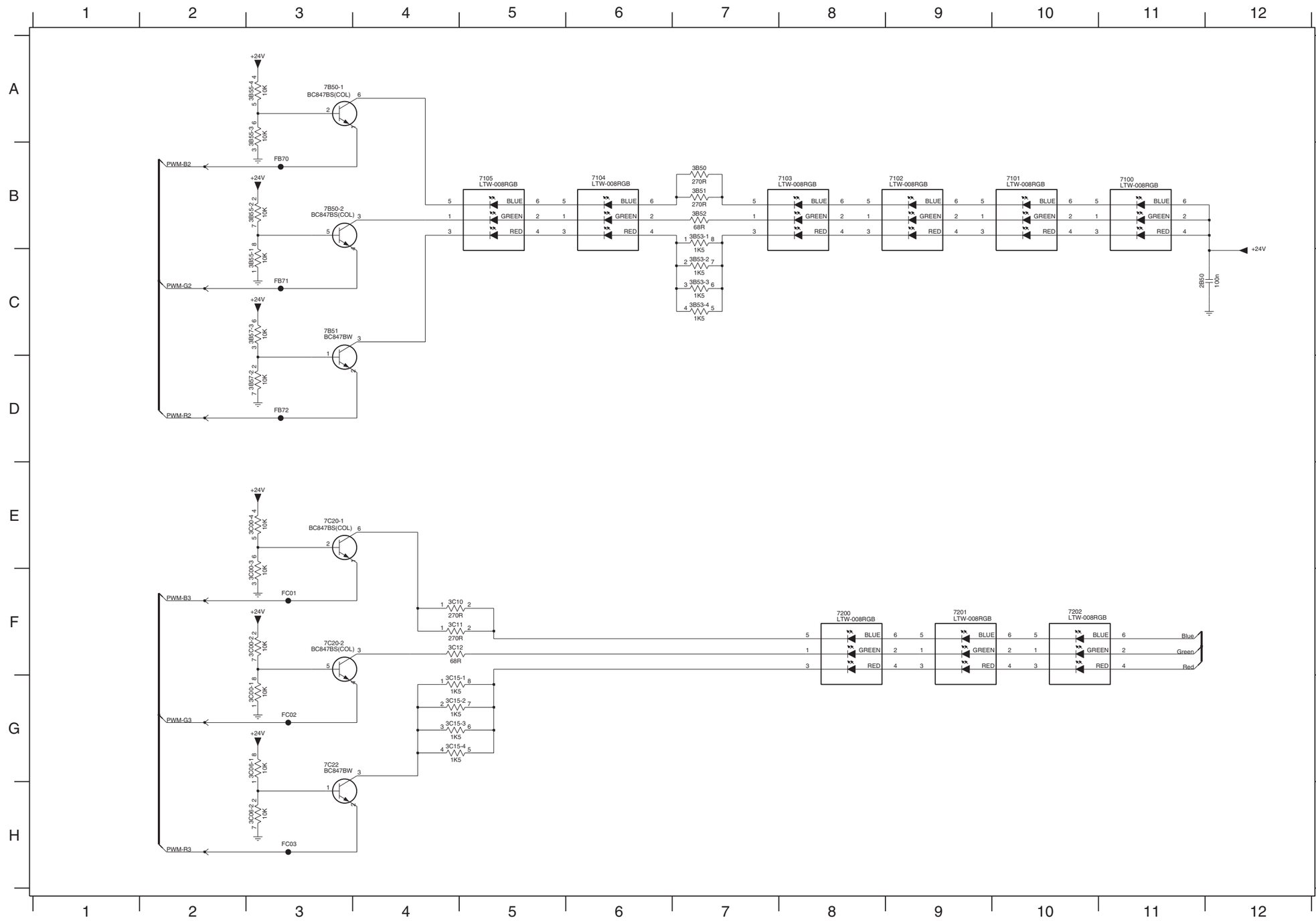
6	2009-12-04
5	2009-10-28
4	2009-10-07
3	2009-08-27
2	2009-07-03

18770_600_100212.eps
100218

LiteOn LED Common 2

AL1B LiteOn 15 LED Common 2

AL1B



2B50 C11
3B50 B7
3B51 B7
3B52 B7
3B53-1 B7
3B53-2 C7
3B53-3 C7
3B53-4 C7
3B55-1 C3
3B55-2 B3
3B55-3 A3
3B55-4 A3
3B57-2 D3
3B57-3 C3
3C00-1 G3
3C00-2 F3
3C00-3 F3
3C00-4 E3
3C06-1 G3
3C06-2 H3
3C10 F4
3C11 F4
3C12 F4
3C15-1 G4
3C15-2 G4
3C15-3 G4
3C15-4 G4
7100 B11
7101 B10
7102 B9
7103 B7
7104 B6
7105 B5
7200 F8
7201 F9
7202 F10
7B50-1 A3
7B50-2 B3
7B51 C3
7C20-1 E3
7C20-2 F3
7C22 G3
FB70 B3
FB71 C3
FB72 D3
FC01 F3
FC02 G3
FC03 H3

AL 2K10 LiteOn 15 LED Common	8204 000 8978	6 2009-12-04 5 2009-10-28 4 2009-10-07 3 2009-08-27 2 2009-07-03

18770_601_100212.eps
100212

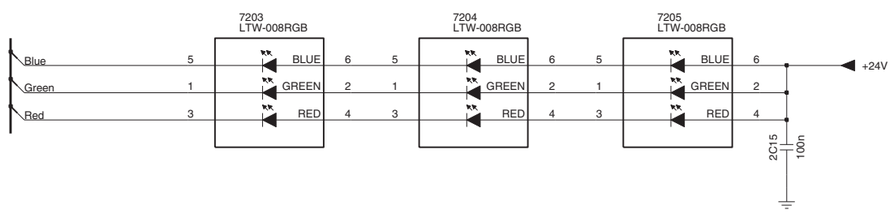
10-2 AL2 820400089773 3 LED LiteOn

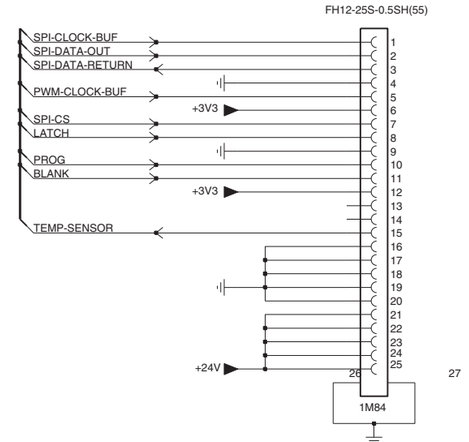
3 LED LiteOn

AL2A 3 LED LiteOn

AL2A

1M84 A10
2C15 B6
7203 A3
7204 A4
7205 A5





B003

3 LED LiteOn AL 2K10	8204 000 8977 3104 313 63895	3 2009-10-07 2 2009-08-27 1 2009-07-20

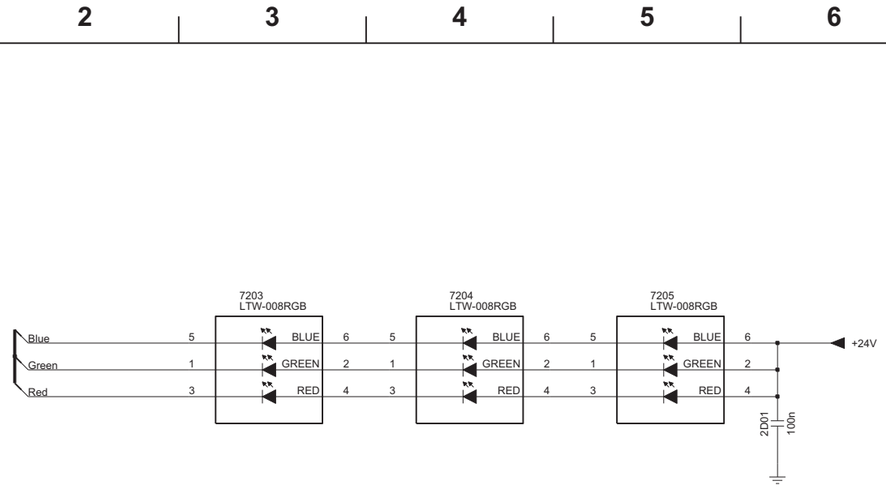
18770_630_100212.eps
100218

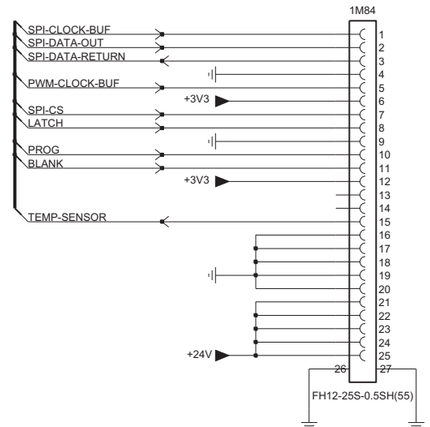
10-3 AL1 820400089691 9 LED LiteOn

9 LED LiteOn

AL2A 9 LED LiteOn

AL2A





1M84 A10
2D01 B6
7203 A3
7204 A4
7205 A5

FD04

B003 B004

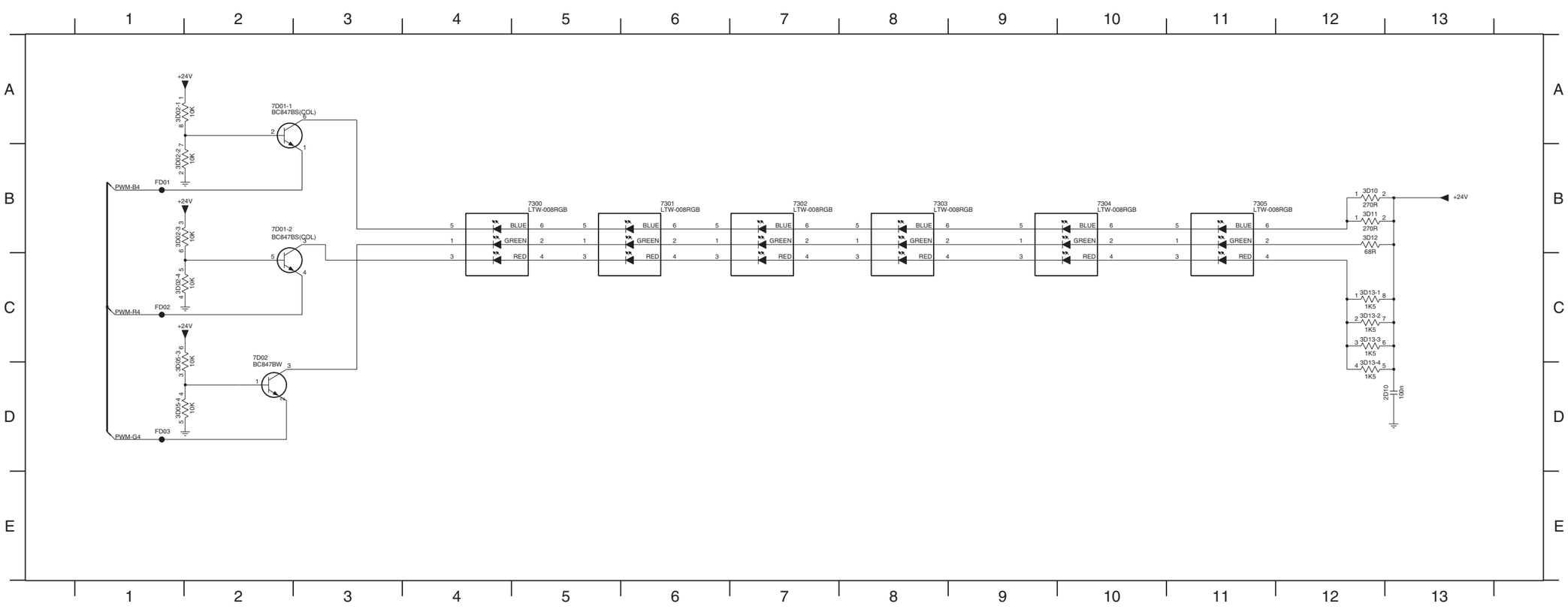
9 LED LiteOn AL 2K10	8204 000 8969 3104 313 63812	1 2009-10-07

18770_610_100212.eps
100218

9 LED LiteOn

AL2B 9 LED LiteOn

AL2B



2D10 D13
3D02-1 A1
3D02-2 B1
3D02-3 B1
3D02-4 C1
3D05-3 C1
3D05-4 D1
3D10 B12
3D11 B12
3D12 B12
3D13-1 C12
3D13-2 C12
3D13-3 C12
3D13-4 D12
7300 B5
7301 B6
7302 B7
7303 B8
7304 B10
7305 B11
7D01-1 A2
7D01-2 B2
7D02 C2
FD01 B1
FD02 C1
FD03 D1

9 LED LiteOn AL 2K10	8204 000 8969 3104 313 63812	1 2009-10-07

18770_611_100212.eps
100212

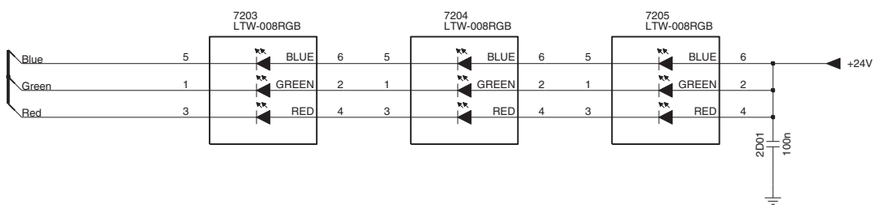
10-4 AL1 820400089703 15 LED LiteOn

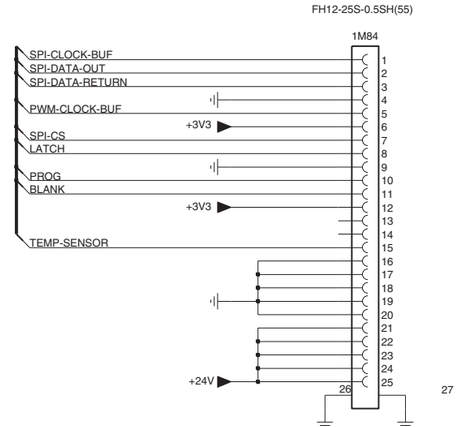
15 LED LiteOn

AL2A 15 LED LiteOn

AL2A

1M84 A10
2D01 B6
7203 A3
7204 A4
7205 A5
FD18 C7





FD18

B003 B004 B005

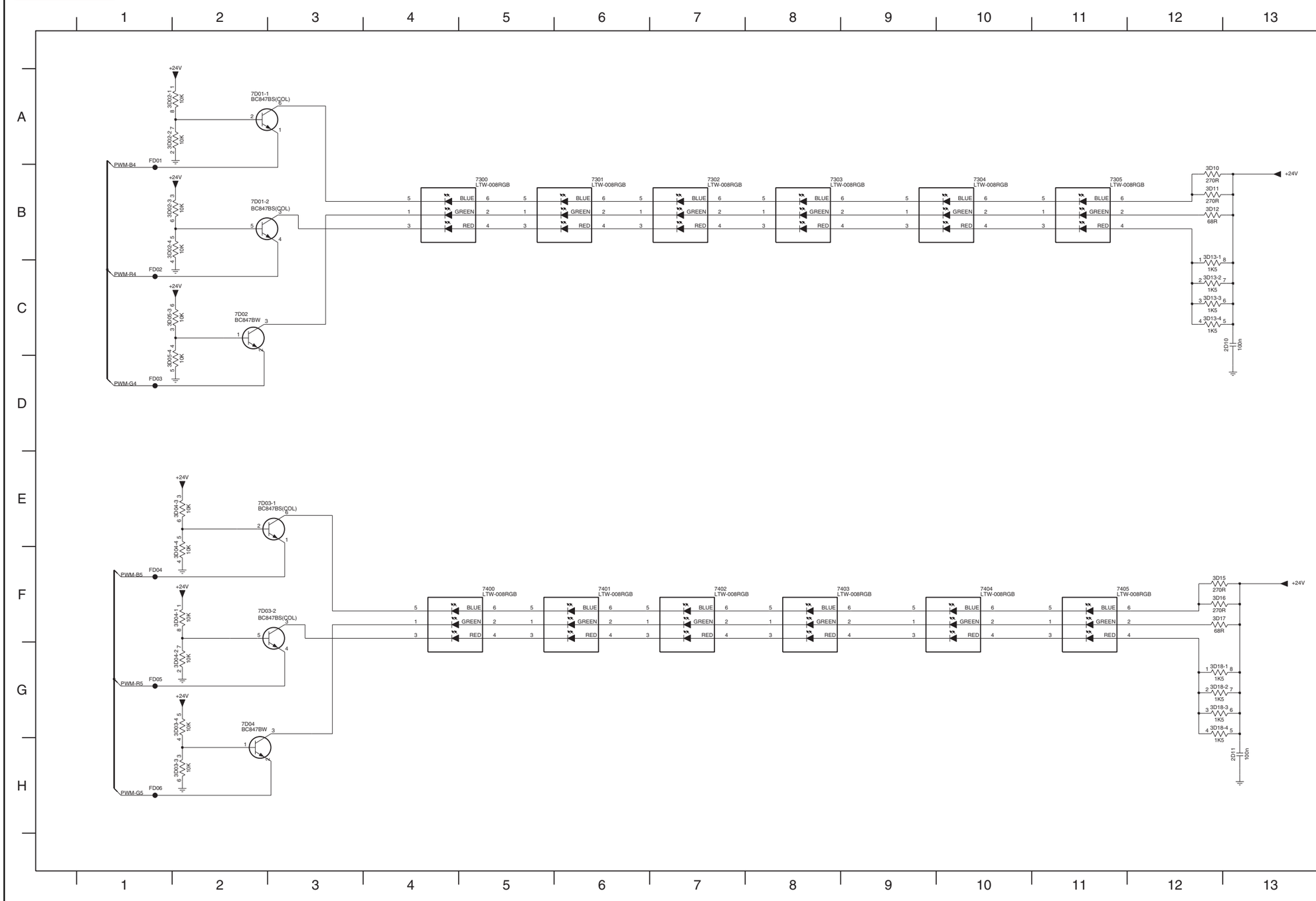
15 LED LiteOn AL 2K10	8204 000 8970 3104 313 63823	3 2009-12-07 2 2009-10-07 1 2009-07-02

18770_620_100212.eps
100218

15 LED LiteOn

AL2B 15 LED LiteOn

AL2B



AL2B

2D10 C13
2D11 H13
3D02-1 A1
3D02-2 A1
3D02-3 B1
3D02-4 B1
3D03-3 H2
3D03-4 G2
3D04-1 F2
3D04-2 G2
3D04-3 E2
3D04-4 F2
3D05-3 C1
3D05-4 D1
3D10 B12
3D11 B12
3D12 B12
3D13-1 B12
3D13-2 C12
3D13-3 C12
3D13-4 C12
3D15 F12
3D16 F12
3D17 F12
3D18-1 G12
3D18-2 G12
3D18-3 G12
3D18-4 G12
7300 B5
7301 B6
7302 B7
7303 B8
7304 B10
7305 B11
7400 F5
7401 F6
7402 F7
7403 F8
7404 F10
7405 F11
7D01-1 A2
7D01-2 B2
7D02 C2
7D03-1 E2
7D03-2 F2
7D04 G2
FD01 A1
FD02 C1
FD03 D1
FD04 F1
FD05 G1
FD06 H1

15 LED LiteOn AL 2K10	8204 000 8970 3104 313 63823	3 2009-12-07 2 2009-10-07 1 2009-07-02

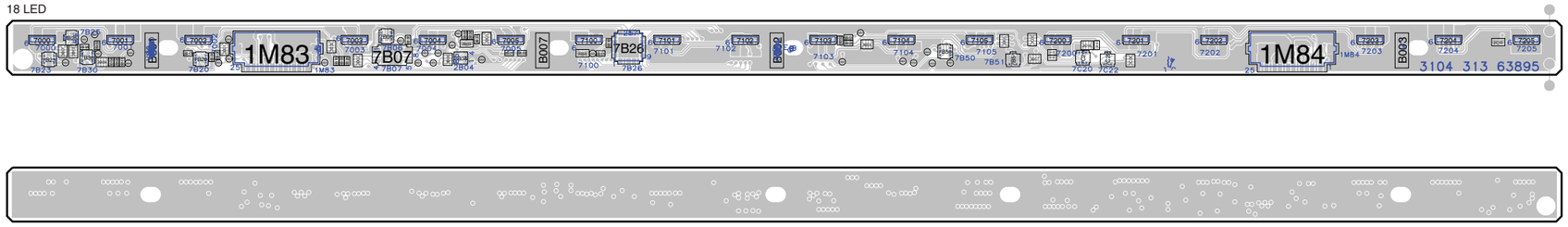
18770_621_100212.eps
100219

10-5 AL1 3104313 - 63895, 63812

Layout AmbiLight LiteOn

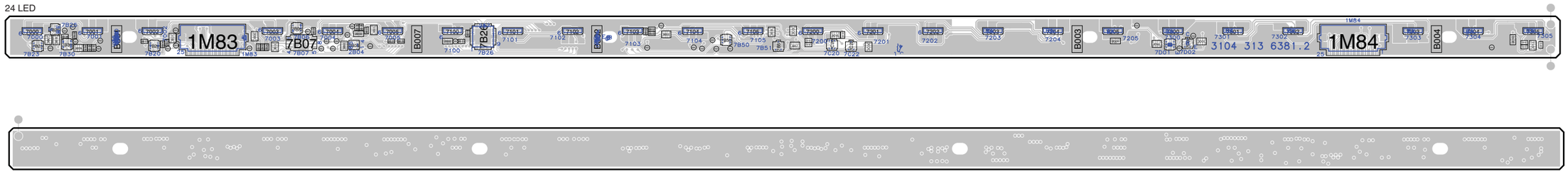
AmbiLight LiteOn

18 LED



3104 313 6389.5

24 LED



3104 313 6381.2

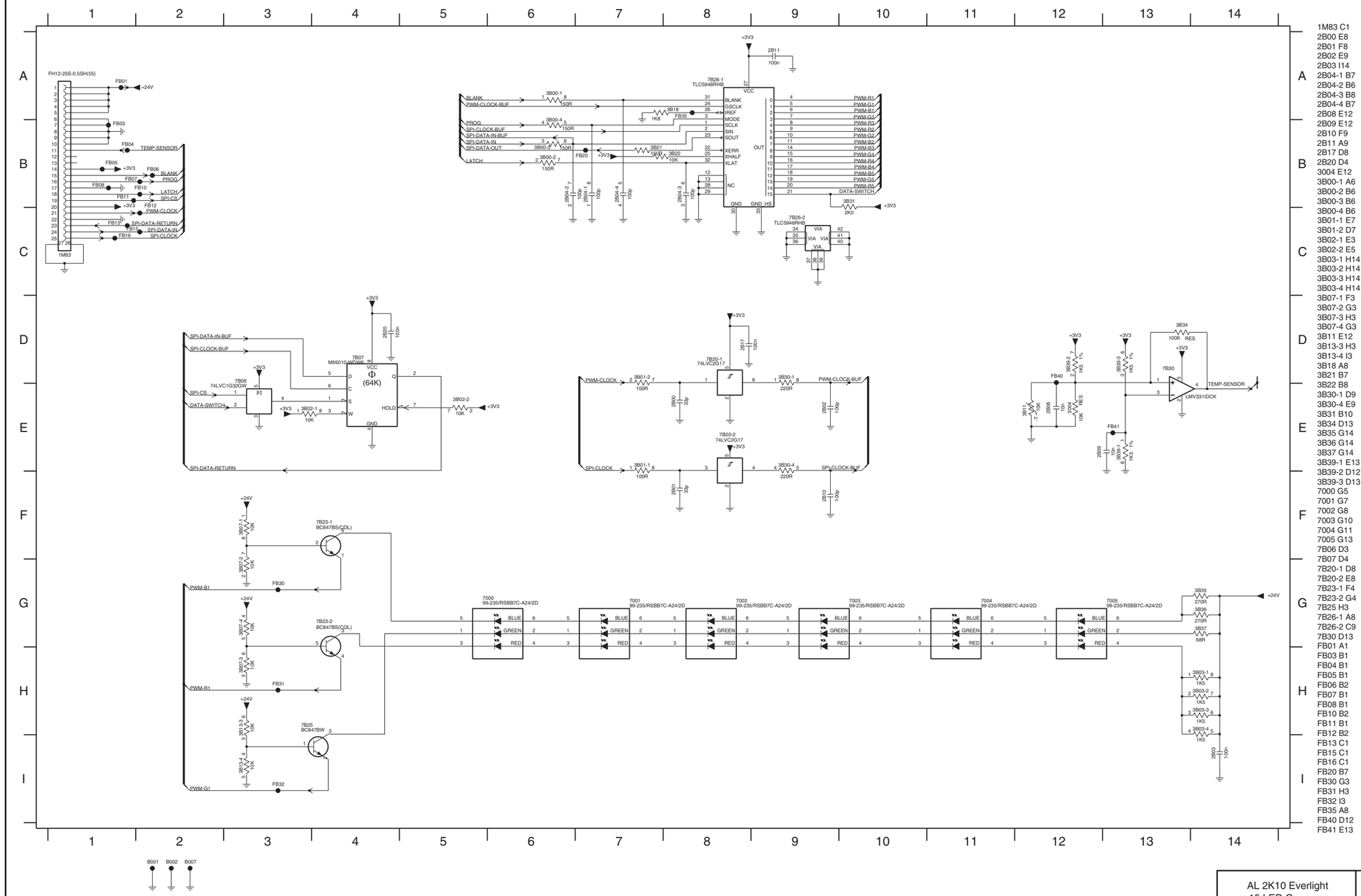
18770_602_100216.eps
100218

10-6 AL1 820400090592 AmbiLight Common

Everlight LED Common 1

AL1A Everlight 15 LED Common

AL1A



1M83 C1
2B00 E8
2B01 F8
2B02 E9
2B03 I14
2B04-1 B7
2B04-2 B6
2B04-3 B8
2B04-4 B7
2B08 E12
2B09 E12
2B10 F9
2B11 A9
2B17 D8
2B20 D4
3004 E12
3B00-1 A6
3B00-2 B6
3B00-3 B6
3B00-4 B6
3B01-1 E7
3B01-2 D7
3B02-1 E3
3B02-2 E5
3B03-1 H14
3B03-2 H14
3B03-3 H14
3B03-4 H14
3B07-1 F3
3B07-2 G3
3B07-3 H3
3B07-4 G3
3B11 E12
3B13-3 H3
3B13-4 I3
3B18 A8
3B21 B7
3B22 B8
3B30-1 D9
3B30-4 E9
3B31 B10
3B34 D13
3B35 G14
3B36 G14
3B37 G14
3B39-1 E13
3B39-2 D12
3B39-3 D13
7000 G5
7001 G7
7002 G8
7003 G10
7004 G11
7005 G13
7B06 D3
7B07 D4
7B20-1 D8
7B20-2 E8
7B23-1 F4
7B23-2 G4
7B25 H3
7B26-1 A8
7B26-2 C9
7B30 D13
FB01 A1
FB03 B1
FB04 B1
FB05 B1
FB06 B2
FB07 B1
FB08 B1
FB10 B2
FB11 B1
FB12 B2
FB13 C1
FB15 C1
FB16 C1
FB20 B7
FB30 G3
FB31 H3
FB32 I3
FB35 A8
FB40 D12
FB41 E13

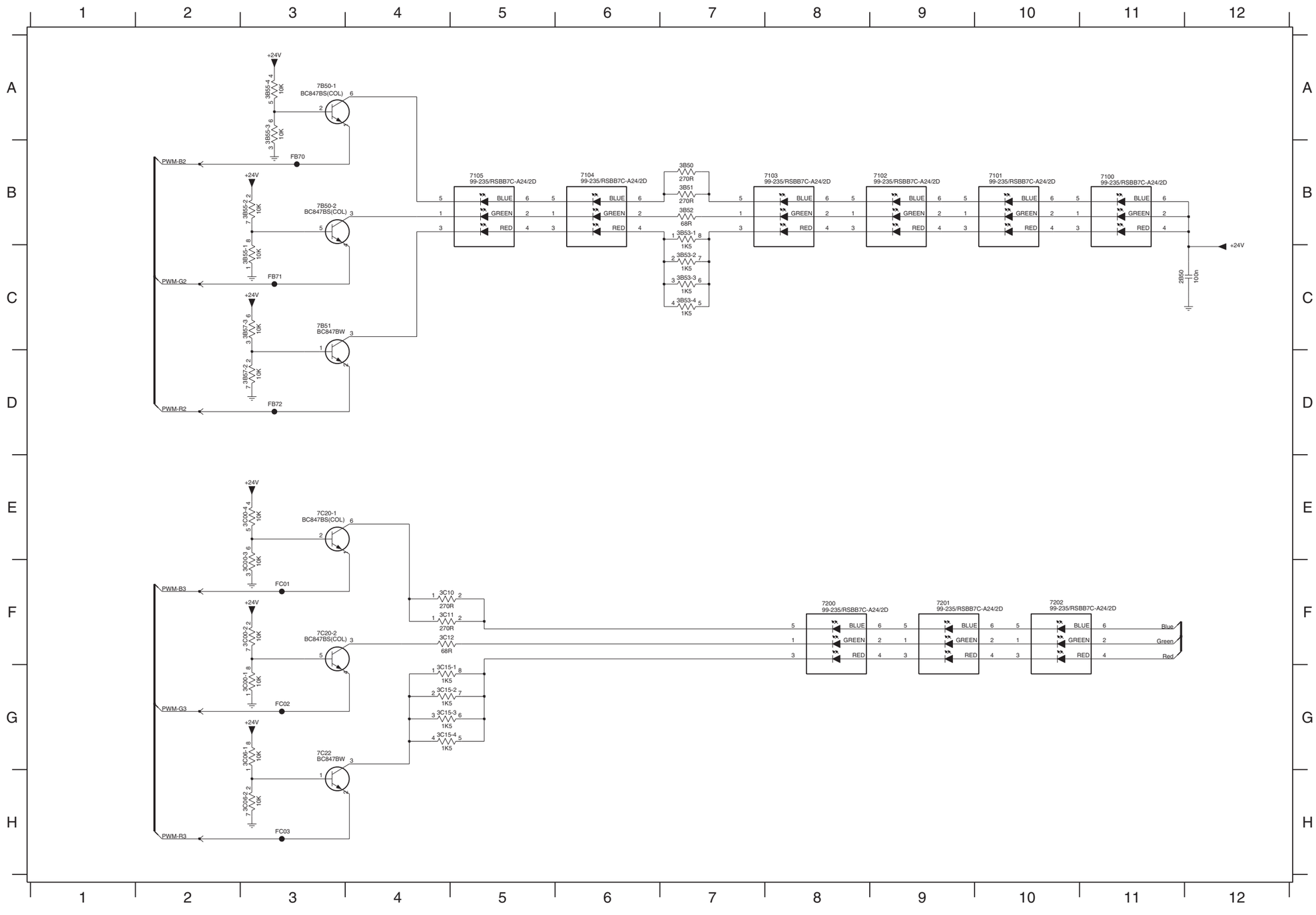
AL 2K10 Everlight 15 LED Common	8204 000 9059	2 2009-11-27 1 2009-11-03

18770_670_100212.eps
100219

Everlight LED Common 2

AL1B Everlight 15 LED Common 2

AL1B



2B50 C11
3B50 B7
3B51 B7
3B52 B7
3B53-1 B7
3B53-2 C7
3B53-3 C7
3B53-4 C7
3B55-1 C3
3B55-2 B3
3B55-3 A3
3B55-4 A3
3B57-2 D3
3B57-3 C3
3C00-1 G3
3C00-2 F3
3C00-3 F3
3C00-4 E3
3C06-1 G3
3C06-2 H3
3C10 F4
3C11 F4
3C12 F4
3C15-1 G4
3C15-2 G4
3C15-3 G4
3C15-4 G4
7100 B11
7101 B10
7102 B9
7103 B7
7104 B6
7105 B5
7200 F8
7201 F9
7202 F10
7B50-1 A3
7B50-2 B3
7B51 C3
7C20-1 E3
7C20-2 F3
7C22 G3
FB70 B3
FB71 C3
FB72 D3
FC01 F3
FC02 G3
FC03 H3

AL 2K10 Everlight 15 LED Common	8204 000 9059	2 2009-11-27 1 2009-11-03

18770_671_100212.eps
100212

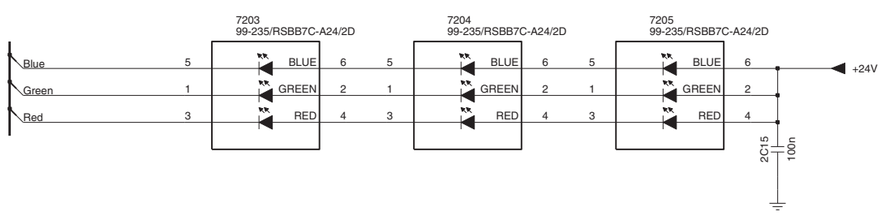
10-7 AL1 820400090611 3 LED Everlight

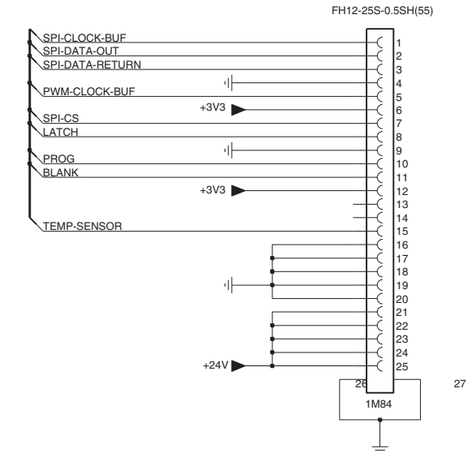
3 LED Everlight

AL2A 3 LED Everlight

AL2A

1M84 A10
2C15 B6
7203 A3
7204 A4
7205 A5





B003

3 LED Everlight
AL 2K10

8204 000 9061
3104 313 64201

1 2009-11-27

18770_650_100212.eps
100219

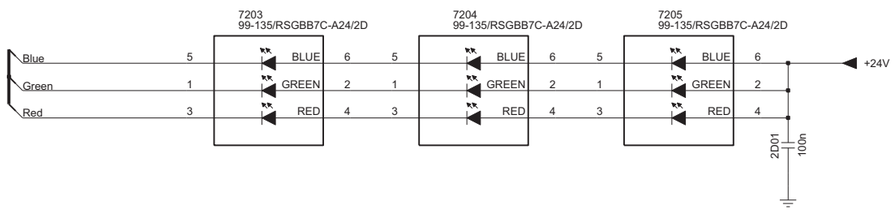
10-8 AL1 820400090601 9 LED Everlight

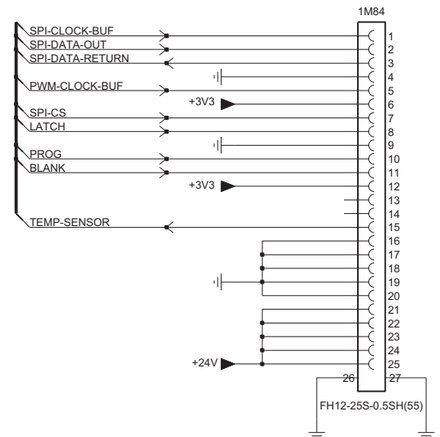
9 LED Everlight

AL2A 9 LED Everlight

AL2A

1M84 A10
2D01 B6
7203 A3
7204 A4
7205 A5





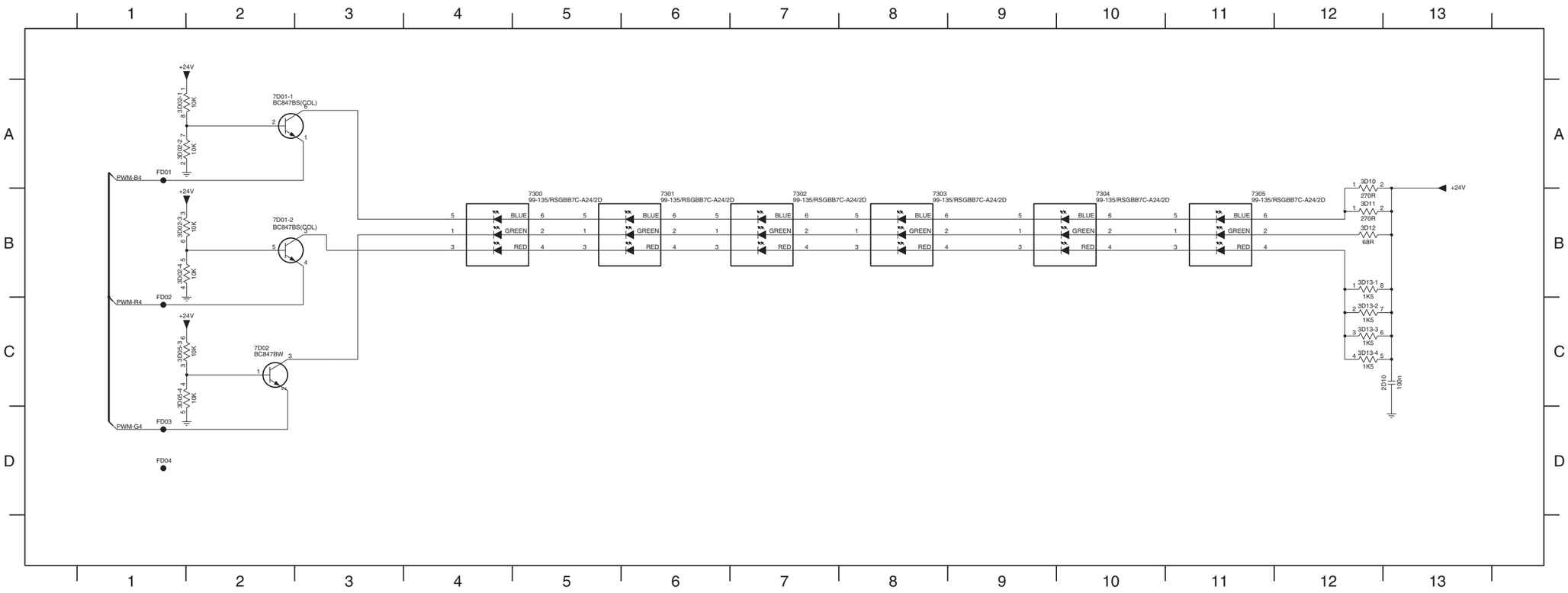
9 LED Everlight AL 2K10	8204 000 9060 3104 313 64191	1 2009-11-03

18770_640_100212.eps
100219

9 LED Everlight

AL2B 9 LED Everlight

AL2B



AL2B

9 LED Everlight AL 2K10	8204 000 9060 3104 313 64191	1 2009-11-03

18770_641_100212.eps
100212

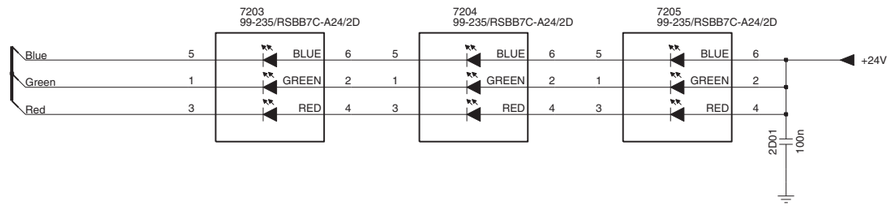
10-9 AL1 820400090621 15 LED Everlight

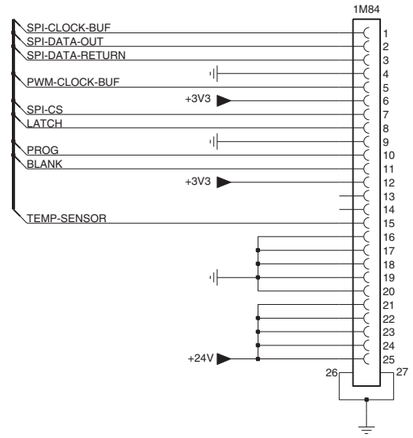
15 LED Everlight

AL2A 15 LED Everlight

AL2A

1M84 A10
2D01 B6
7203 A3
7204 A4
7205 A5
FD18 C7





FD18

B003 B004 B005

15 LED Everlight AL 2K10	8204 000 9062 3104 313 64211

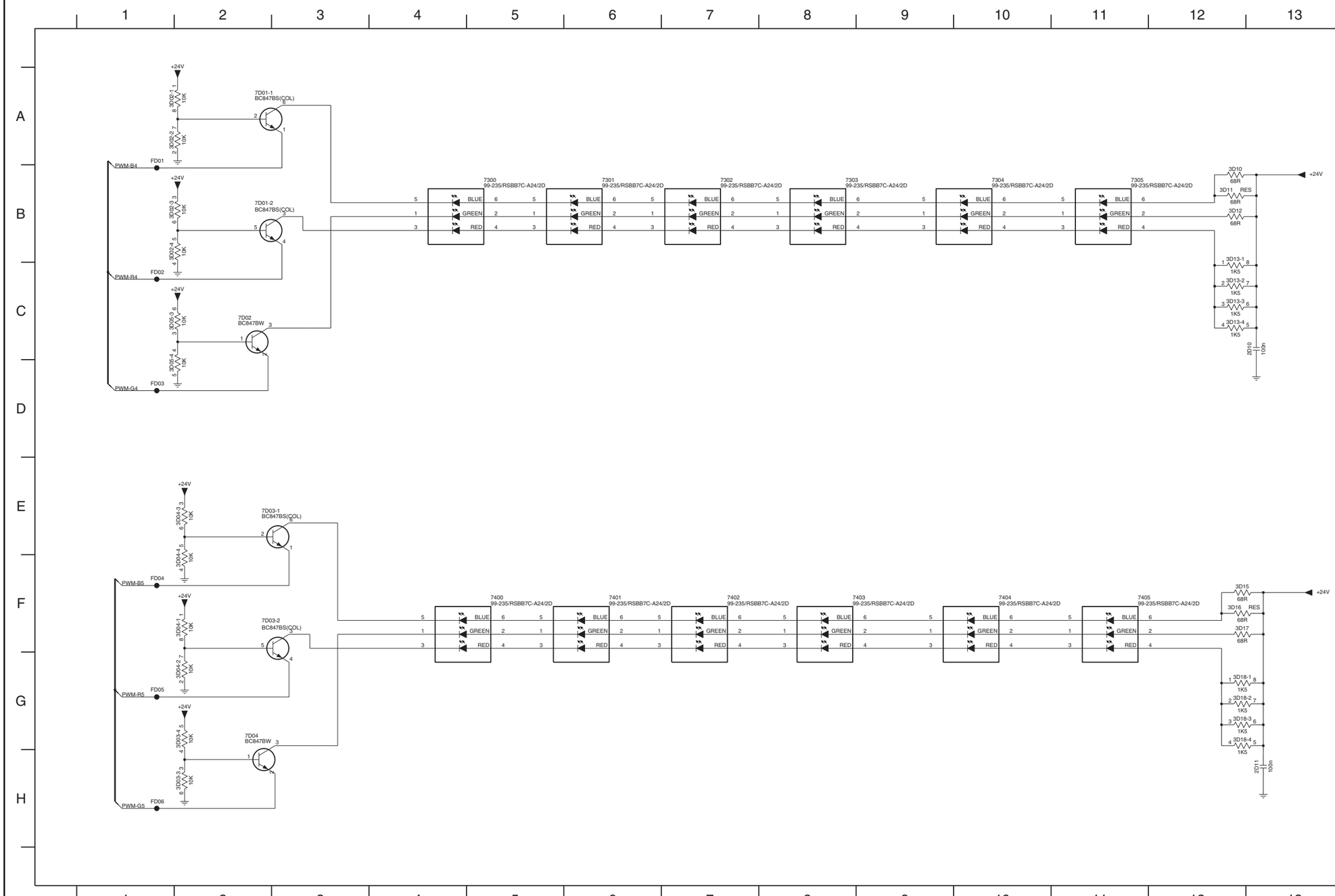
1 2009-11-27

18770_660_100212.eps
100219

15 LED Everlight

AL2B 15 LED Everlight

AL2B



AL2B

2D10 C13
2D11 H13
3D02-1 A1
3D02-2 A1
3D02-3 B1
3D02-4 B1
3D03-3 H2
3D03-4 G2
3D04-1 F2
3D04-2 G2
3D04-3 E2
3D04-4 F2
3D05-3 C1
3D05-4 D1
3D10 B12
3D11 B12
3D12 B12
3D13-1 B12
3D13-2 C12
3D13-3 C12
3D13-4 C12
3D15 F12
3D16 F12
3D17 F12
3D18-1 G12
3D18-2 G12
3D18-3 G12
3D18-4 G12
7300 B5
7301 B6
7302 B7
7303 B8
7304 B10
7305 B11
7400 F5
7401 F6
7402 F7
7403 F8
7404 F10
7405 F11
7D01-1 A2
7D01-2 B2
7D02 C2
7D03-1 E2
7D03-2 F2
7D04 G2
FD01 A1
FD02 C1
FD03 D1
FD04 F1
FD05 G1
FD06 H1

15 LED Everlight AL 2K10	8204 000 9062 3104 313 64211	1 2009-11-27

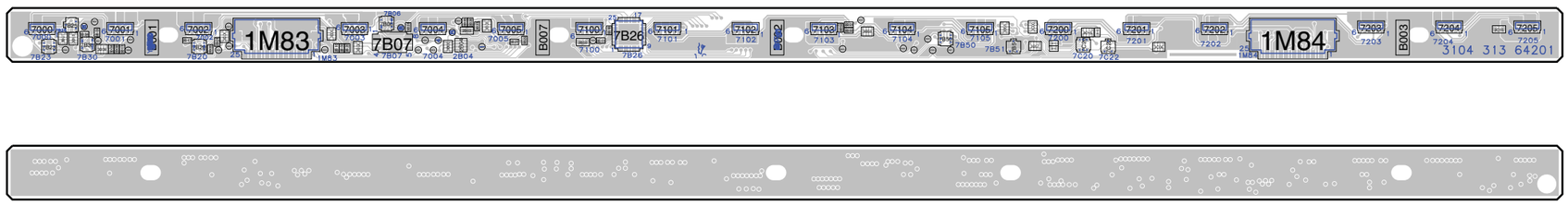
18770_661_100212.eps
100212

10-10 AL1 3104313 - 64201, 64191

Layout AmbiLight Everlight

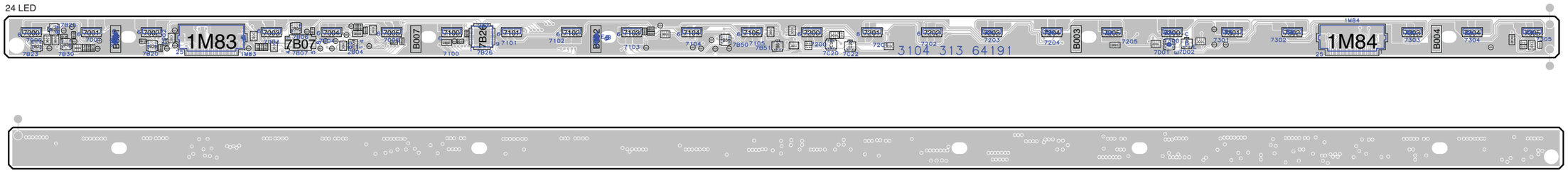
AmbiLight Everlight

18 LED



3104 313 6420.1

24 LED



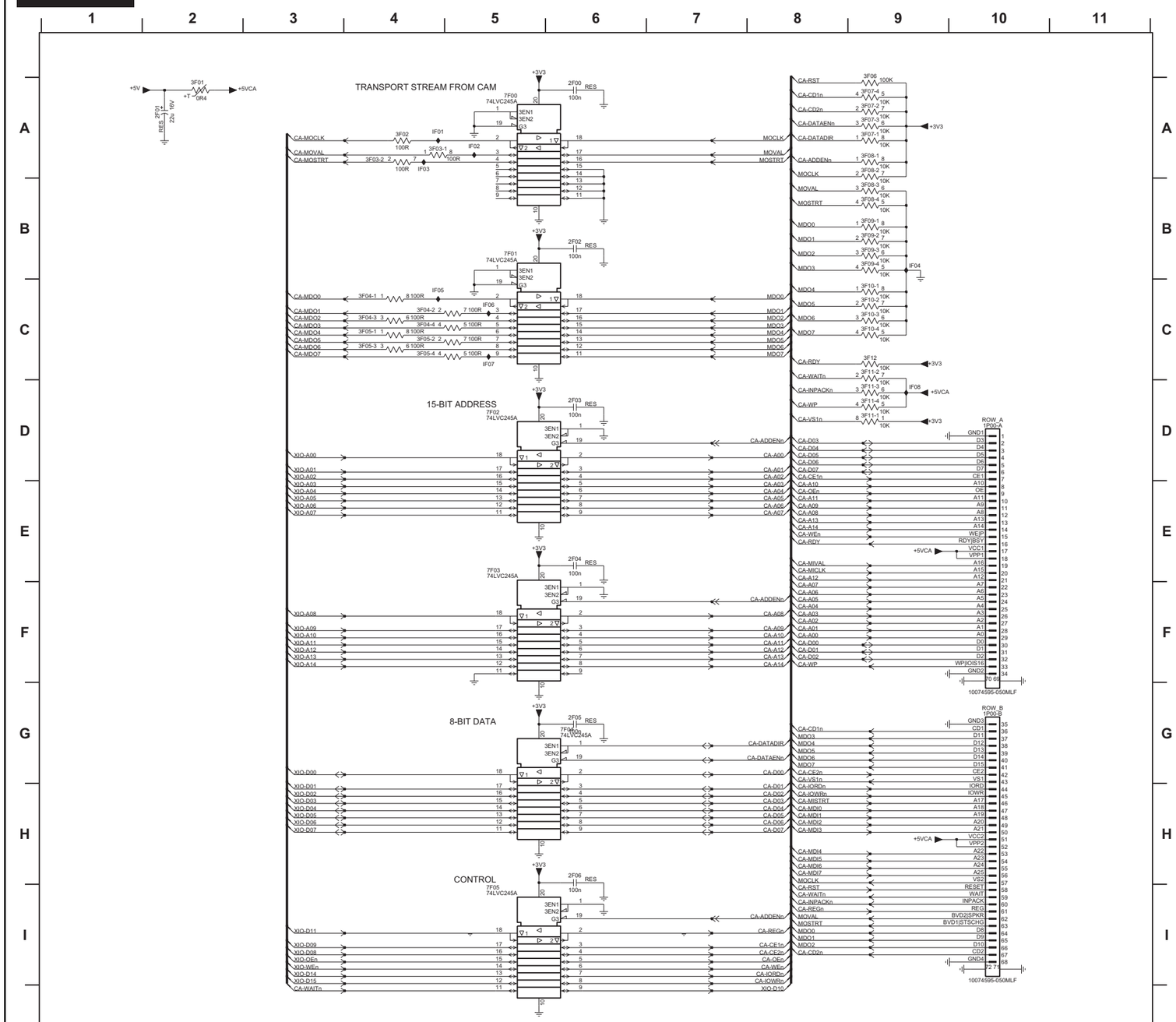
3104 313 6419.1

18770_672_100216.eps
100219

10-11 B01 820400089943 Tuner, HDMI & CI

Common Interface

B01A Common Interface



1P00-A	D10
1P00-B	G10
2F00	A6
2F01	A2
2F02	B6
2F03	D6
2F04	E6
2F05	G6
2F06	H6
3F01	A2
3F02	A4
3F03-1	A4
3F03-2	A4
3F04-1	C4
3F04-2	C4
3F04-3	C4
3F04-4	C4
3F05-1	C4
3F05-2	C4
3F05-3	C4
3F05-4	C4
3F06	A9
3F07-1	A9
3F07-2	A9
3F07-3	A9
3F07-4	A9
3F08-1	A9
3F08-2	A9
3F08-3	B9
3F08-4	B9
3F09-1	B9
3F09-2	B9
3F09-3	B9
3F09-4	B9
3F10-1	C9
3F10-2	C9
3F10-3	C9
3F10-4	C9
3F11-1	D9
3F11-2	C9
3F11-3	D9
3F11-4	D9
3F12	C9
7F00	A5
7F01	B5
7F02	D5
7F03	E5
7F04	G5
7F05	I5
IF01	A4
IF02	A5
IF03	A4
IF04	B9
IF05	C4
IF06	C5
IF07	C5
IF08	D9

TUNER, HDMI & CI	8204 000 8994	3 2009-10-22

18770_500_100118.eps
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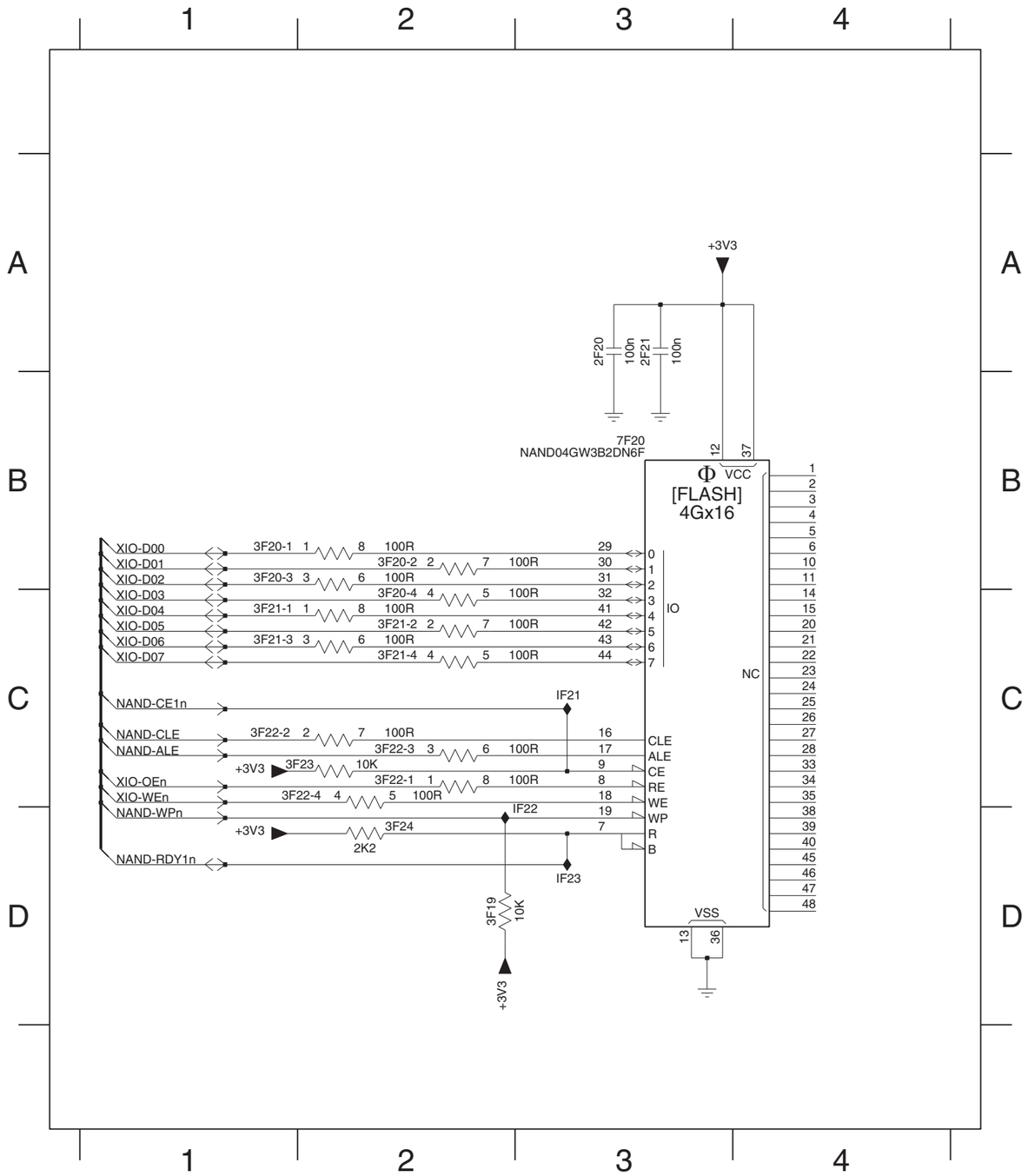
B01B Flash

B01B



2F20 A3	3F20-1 B1	3F20-4 C2	3F21-3 C1	3F22-2 C1	3F23 C2	IF21 C3
2F21 A3	3F20-2 B2	3F21-1 C1	3F21-4 C2	3F22-3 C2	3F24 D2	IF22 D3
3F19 D2	3F20-3 B1	3F21-2 C2	3F22-1 C2	3F22-4 C2	7F20 B3	IF23 D3

TUNER, HDMI & CI	8204 000 8994	3 2009-10-22

18770_501_100118.eps
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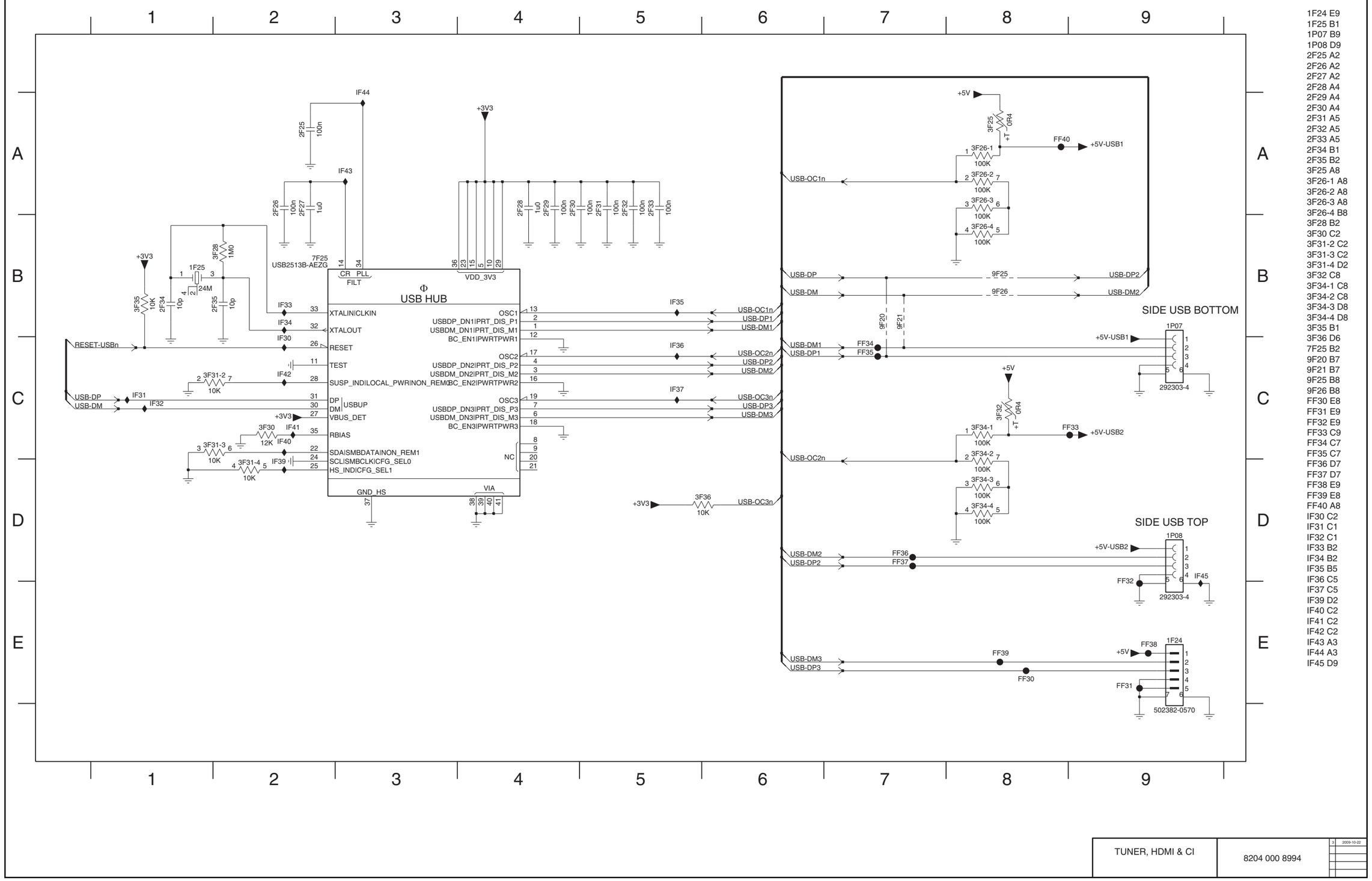
USB Hub

B01C USB Hub

B01C



1F24 E9
1F25 B1
1P07 B9
1P08 D9
2F25 A2
2F26 A2
2F27 A2
2F28 A4
2F29 A4
2F30 A4
2F31 A5
2F32 A5
2F33 A5
2F34 B1
2F35 B2
3F25 A8
3F26-1 A8
3F26-2 A8
3F26-3 A8
3F26-4 B8
3F28 B2
3F30 C2
3F31-2 C2
3F31-3 C2
3F31-4 D2
3F32 C8
3F34-1 C8
3F34-2 C8
3F34-3 D8
3F34-4 D8
3F35 B1
3F36 D6
7F25 B2
9F20 B7
9F21 B7
9F25 B8
9F26 B8
FF30 E8
FF31 E9
FF32 E9
FF33 C9
FF34 C7
FF35 C7
FF36 D7
FF37 D7
FF38 E9
FF39 E8
FF40 A8
IF30 C2
IF31 C1
IF32 C1
IF33 B2
IF34 B2
IF35 B5
IF36 C5
IF37 C5
IF39 D2
IF40 C2
IF41 C2
IF42 C2
IF43 A3
IF44 A3
IF45 D9

TUNER, HDMI & CI	8204 000 8994	3 2009-10-22

18770_502_100118.eps
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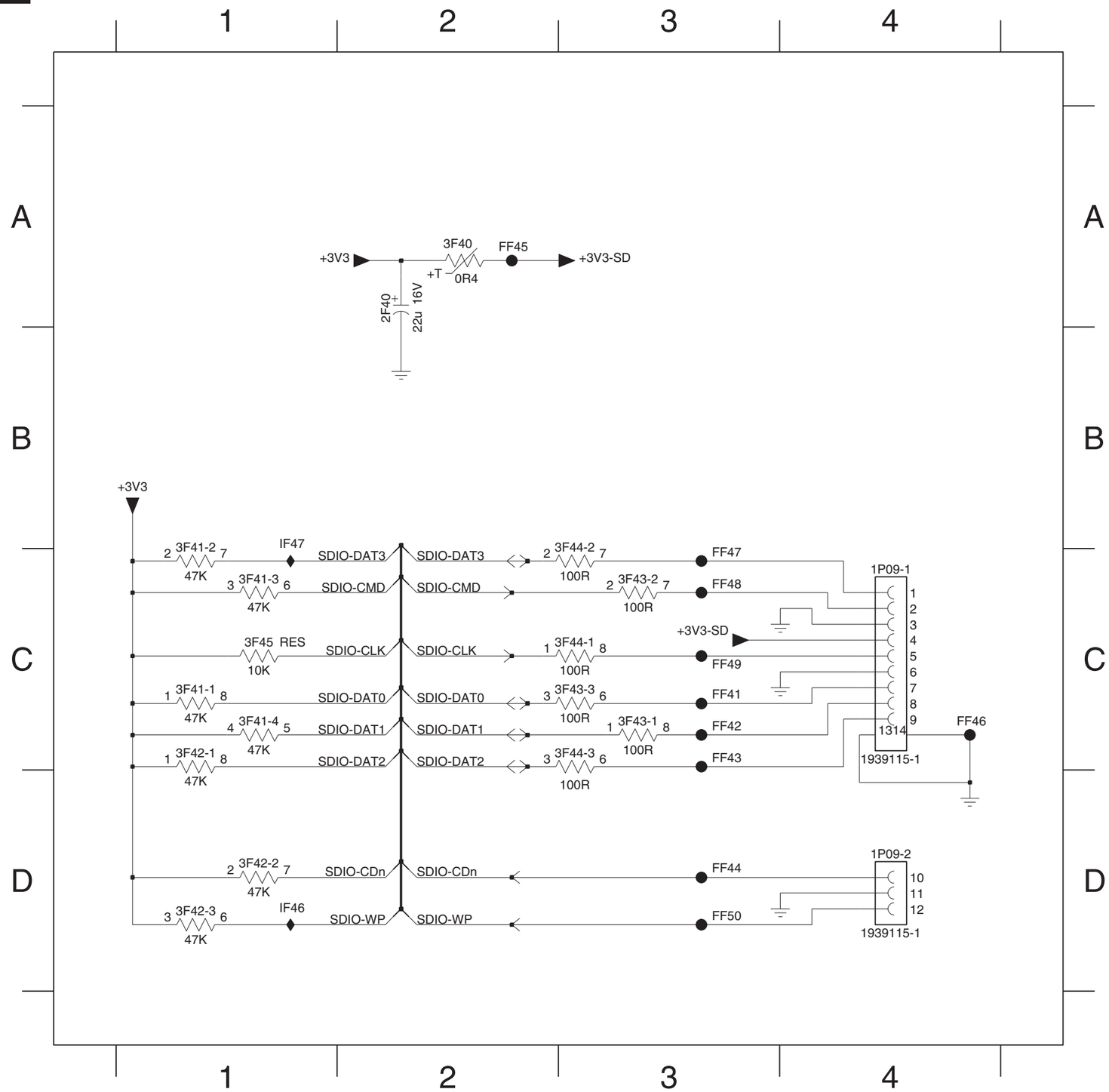
SD Card

B01D SD Card

B01D



1P09-1 C4
1P09-2 D4
2F40 A2
3F40 A2
3F41-1 C1
3F41-2 C1
3F41-3 C1
3F41-4 C1
3F42-1 C1
3F42-2 D1
3F42-3 D1
3F43-1 C3
3F43-2 C3
3F43-3 C3
3F44-1 C3
3F44-2 C3
3F44-3 C3
3F45 C1
FF41 C3
FF42 C3
FF43 C3
FF44 D3
FF45 A2
FF46 C4
FF47 C3
FF48 C3
FF49 C3
FF50 D3
IF46 D1
IF47 B1

TUNER, HDMI & CI	8204 000 8994	3 2009-10-22

18770_503_100118.eps
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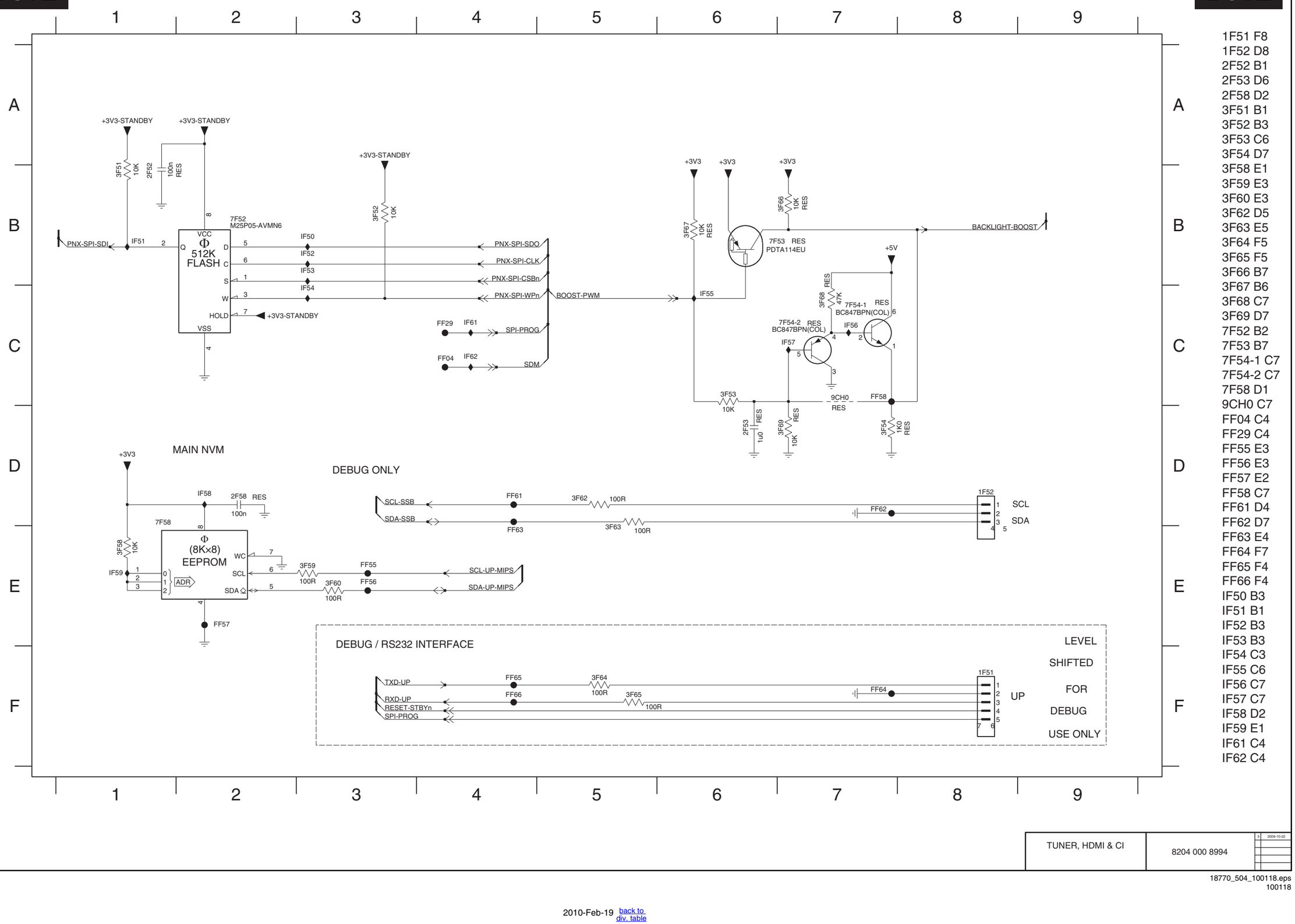
PNX85500 Control

B01E PNX85500 Control

B01E



TUNER, HDMI & CI	8204 000 8994	3 2009-10-22

18770_504_100118.eps
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HDMI & CI

B01F HDMI & CI

B01F

1F75 B5	2F62 B10	2F70 B10	2F75 B8	2F80 B9	2F86 D1	2F93 C2	3F76 C2	3F80 C9	5F71 B9	6F72 C7	9F02 A8	9F71 E4	FF00 B2	FF76 B1	IF12 C9	IF72 C5	IF77 B6	IF82 C4	IF90 D7
1T01 A1	2F63 C9	2F71 A7	2F76 B9	2F81 B1	2F88 E5	2F94 D7	3F77 C4	3F81 C9	5F72 E4	7F70 D8	9F03 A8	AF70 B3	FF01 C4	FF81 C1	IF13 C9	IF73 B6	IF78 B8	IF86 C5	
2F59 B1	2F64 C9	2F72 A9	2F77 B9	2F82 B9	2F90 C6	3F71 C7	3F78 C7	3F82 B10	5F73 C5	7F75 A6	9F04 B3	AF71 B3	FF71 A1	FF82 C2	IF14 C9	IF74 B8	IF79 C5	IF87 C2	
2F60 B1	2F65 B10	2F73 A9	2F78 B6	2F84 C1	2F91 D6	3F72 C7	3F79-1 B8	5F66 C10	5F74 B10	9F00 A6	9F05 C4	AF72 B9	FF74 B1	IF10 A5	IF15 C9	IF75 B6	IF80 B8	IF88 D2	
2F61 B1	2F66 C10	2F74 B6	2F79 B8	2F85 C4	2F92 C7	3F75 D2	3F79-4 B8	5F70 D6	5F76 B10	9F01 A6	9F06 C4	AF73 B9	FF75 B2	IF11 A5	IF16 B10	IF76 B8	IF81 B6	IF89 D5	

TUNER, HDMI & CI	8204 000 8994

3 2009-10-22

18770_505_100118.eps
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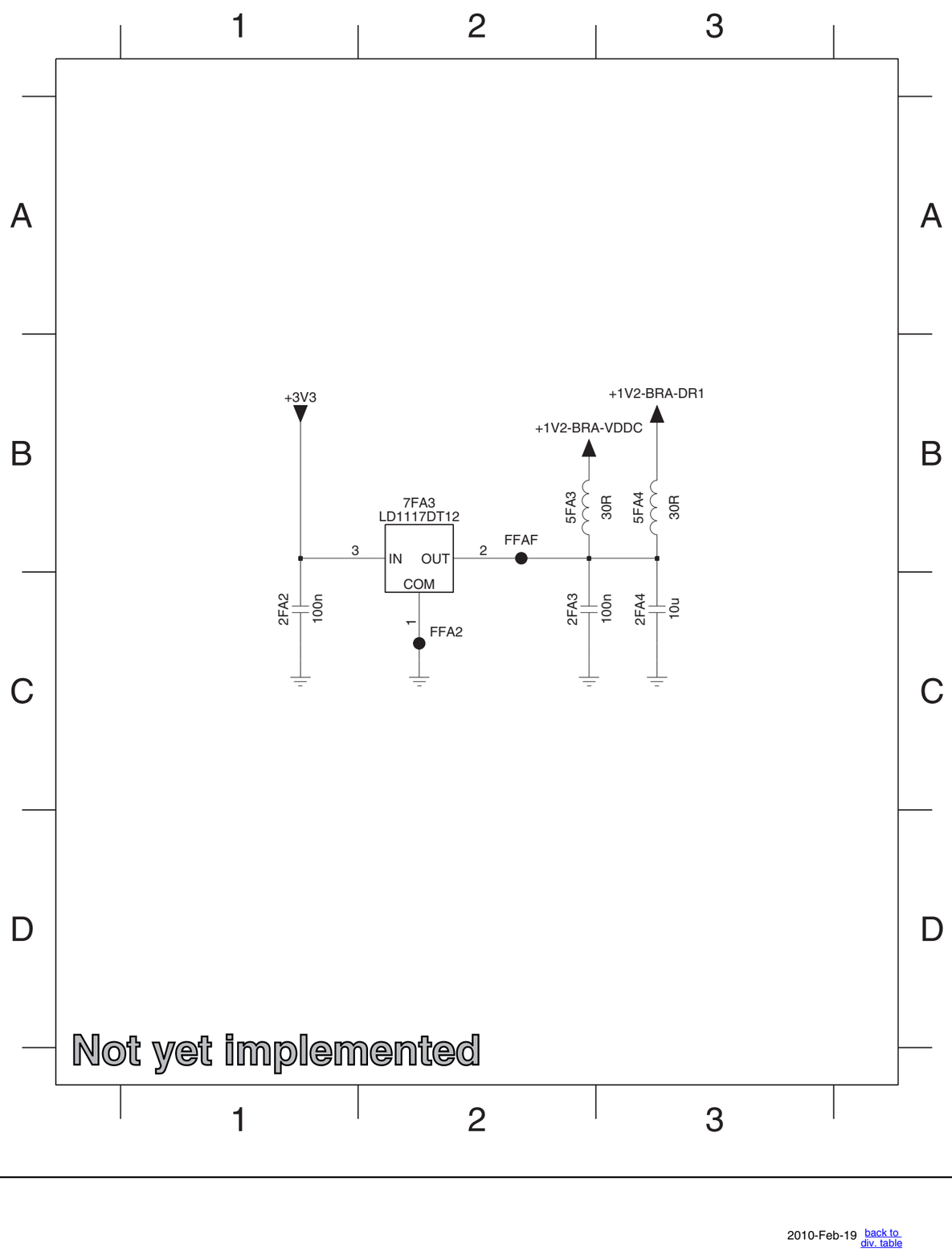
Toshiba Supply

B01G Toshiba Supply

B01G



2FA2 C1
2FA3 C2
2FA4 C3
5FA3 B2
5FA4 B3
7FA3 B2
FFA2 C2
FFAF B2

TUNER, HDMI & CI

8204 000 8994

3 2009-10-22

18770_506_100118.eps
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HDMI

B01H HDMI **B01H**

1P05 B1 3FBF-1 C4 3FBF-2 C4 FFB1 C2 FFB2 C2 FFB3 C2 FFB4 C2 FFB5 C1 FFB6 C2

1 2 3 4

A A

B B

C C

1 2 3 4

HDMI CONNECTOR SIDE

1P05

1 DRX2+
2
3 DRX2-
4 DRX1+
5
6 DRX1-
7 DRX0+
8
9 DRX0-
10 DRXC+
11
12 DRXC-
13 PCEC-HDMI
14
15 FFB1 DRX-DDC-SCL
16 FFB2 DRX-DDC-SDA
17
18 FFB3 DIN-5V
19 FFB4 DRX-HOTPLUG
FFB5 21 20
23 22 FFB6

DIN-5V

3FBF-1 8 47K 1

DRX-DDC-SCL
DRX-DDC-SDA

2 3FBF-2 7 47K DIN-5V

TUNER, HDMI & CI	8204 000 8994	3 2009-10-22

18770_507_100118.eps
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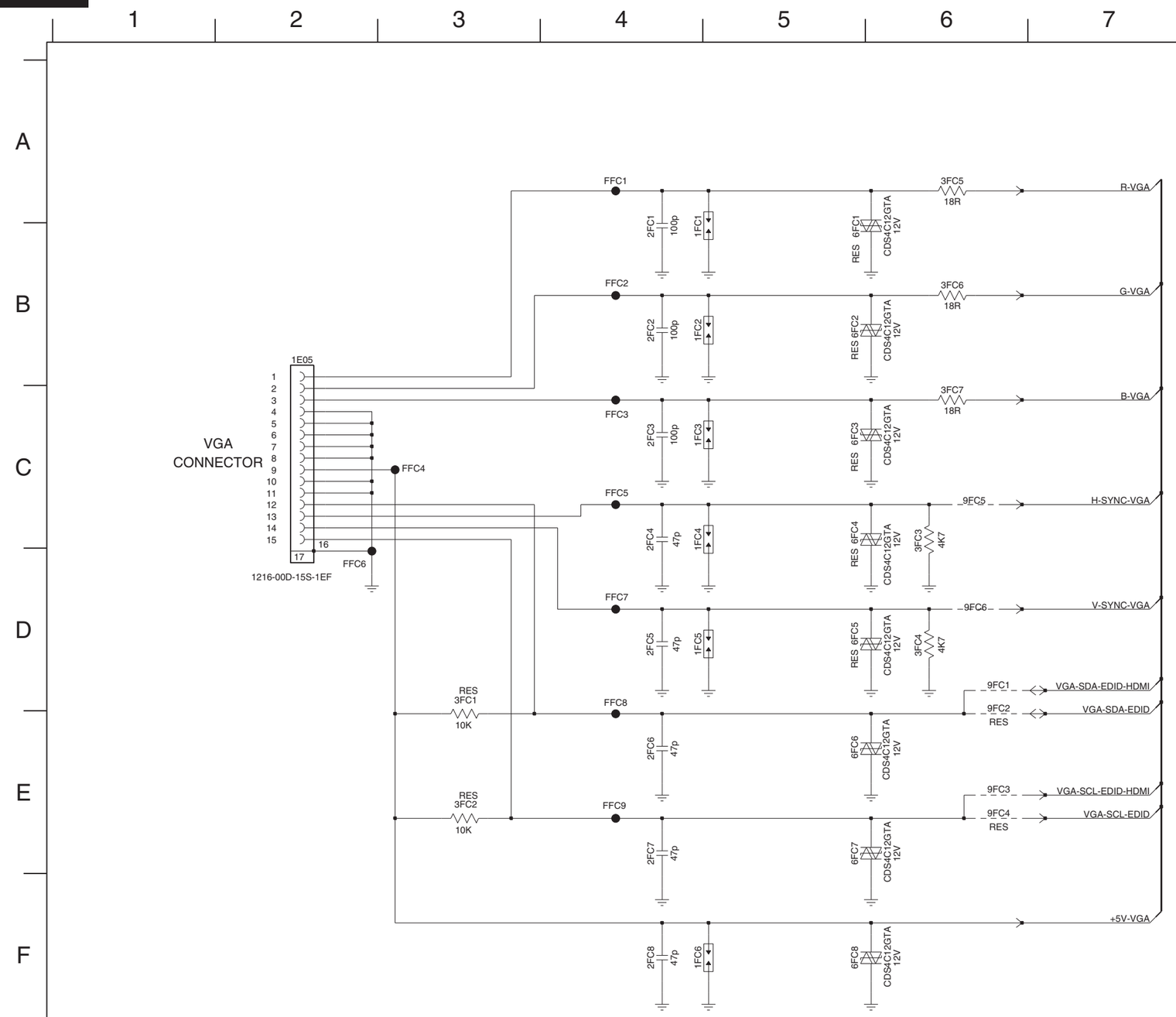
VGA

B01I VGA



B01I

TUNER, HDMI & CI | 8204 000 8994 | 3 | 2009-10-22

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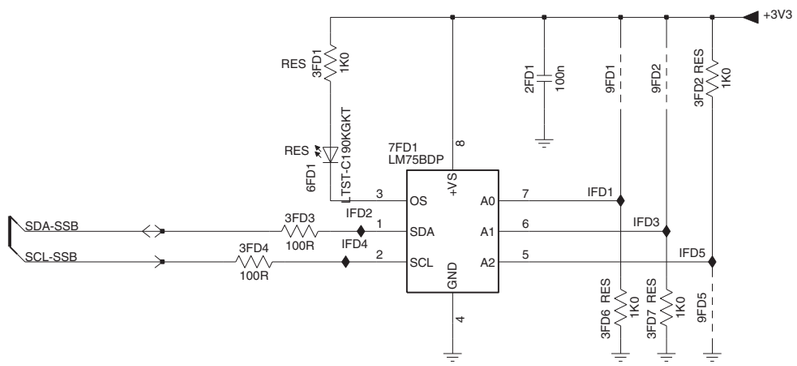
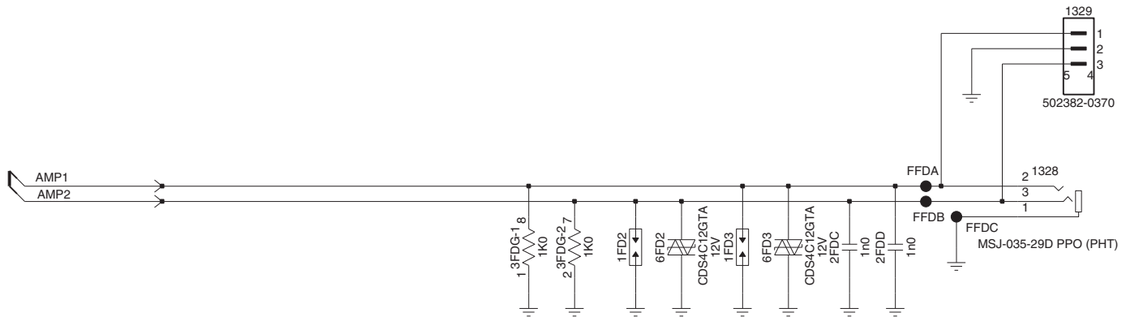
Temp Sensor + Headphone

B01J Temp Sensor + Headphone

B01J





1328 D6
1329 C6
1FD2 D4
1FD3 D5
2FD1 A4
2FDC D5
2FDD D5
3FD1 A3
3FD2 B5
3FD3 B3
3FD4 B2
3FD6 C4
3FD7 C4
3FDG-1 D4
3FDG-2 D4
6FD1 B3
6FD2 D4
6FD3 D5
7FD1 B3
9FD1 A4
9FD2 A4
9FD5 C5
FFDA D5
FFDB D5
FFDC D6
IFD1 B4
IFD2 B3
IFD3 B4
IFD4 B3
IFD5 B4

TUNER, HDMI & CI	8204 000 8994	3 2009-10-22

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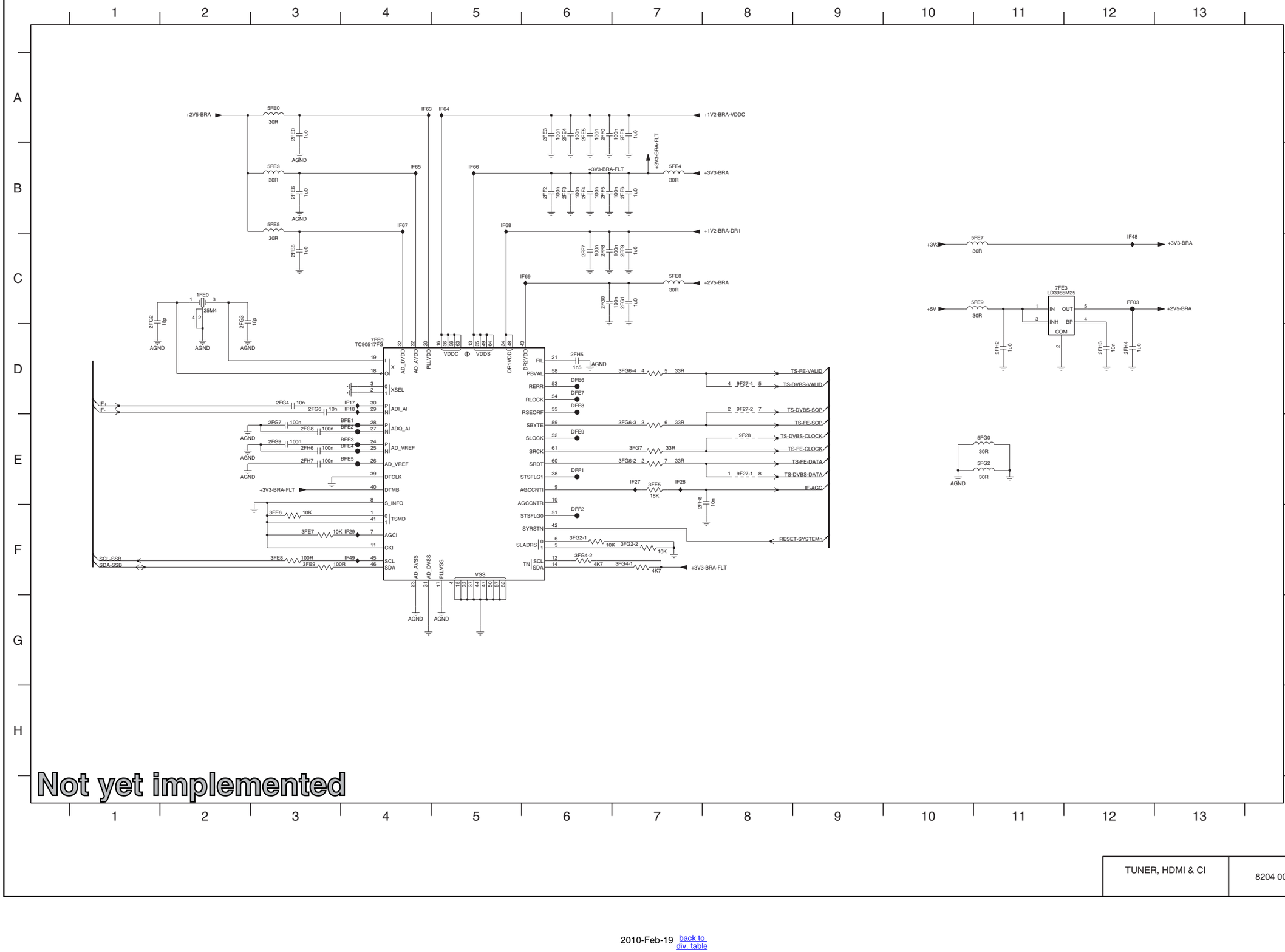
Tuner Brazil

B01K Tuner Brazil

B01K



1FE0 C2
2FE0 A3
2FE3 A6
2FE4 A6
2FE5 A6
2FE6 B3
2FE8 C3
2FF0 A6
2FF1 A7
2FF2 B6
2FF3 B6
2FF4 B6
2FF5 B6
2FF6 B7
2FF7 C6
2FF8 C6
2FF9 C7
2FG0 C6
2FG1 C7
2FG2 C1
2FG3 C2
2FG4 D3
2FG6 D3
2FG7 E3
2FG8 E3
2FG9 E3
2FH2 D11
2FH3 D12
2FH4 D12
2FH5 D6
2FH6 E3
2FH7 E3
2FH8 E7
3FE5 E7
3FE6 F3
3FE7 F3
3FE8 F3
3FE9 F3
3FG2-1 F6
3FG2-2 F7
3FG4-1 F7
3FG4-2 F6
3FG6-2 E7
3FG6-3 E7
3FG6-4 D7
3FG7 E7
5FE0 A3
5FE3 B3
5FE4 B7
5FE5 B3
5FE7 C11
5FE8 C7
5FE9 C11
5FG0 E11
5FG2 E11
7FE0 D4
7FE3 C11
9F27-1 E8
9F27-2 D8
9F27-4 D8
9F28 E8
BFE1 E4
BFE2 E4
BFE3 E4
BFE4 E4
BFE5 E4
DFE6 D6
DFE7 D6
DFE8 D6
DFE9 E6
DFF1 E6
DFF2 F6
FF03 C12
IF17 D4
IF18 D4
IF27 E7
IF28 E7
IF29 F4
IF48 C12
IF49 F4
IF63 A4
IF64 A5
IF65 B4
IF66 B5
IF67 B4
IF68 B5
IF69 C6

Not yet implemented

TUNER, HDMI & CI	8204 000 8994	3	2009-10-22

18770_510_100118.eps
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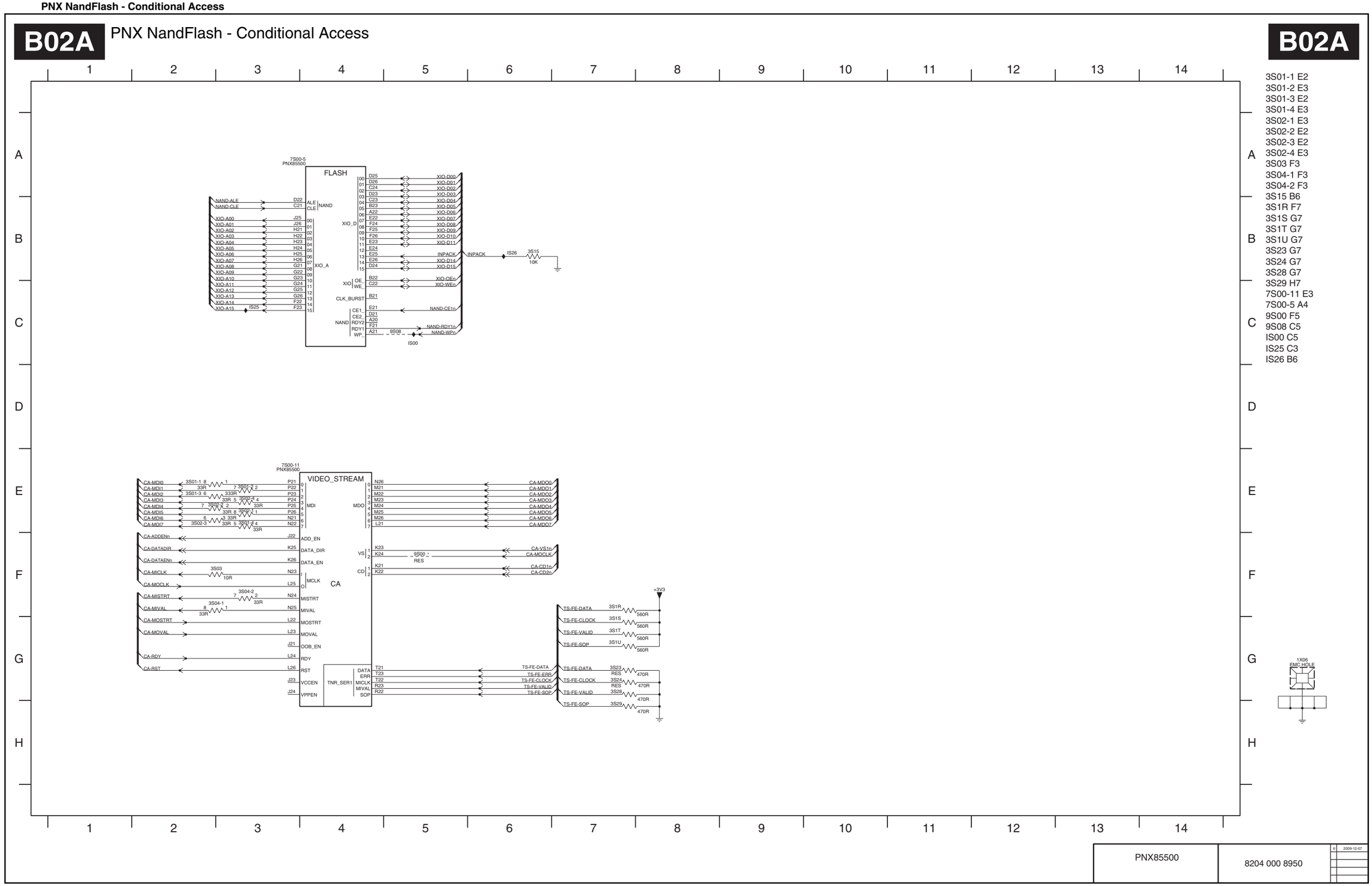
10-12 B02 820400089506 PNX85500

PNX NandFlash - Conditional Access



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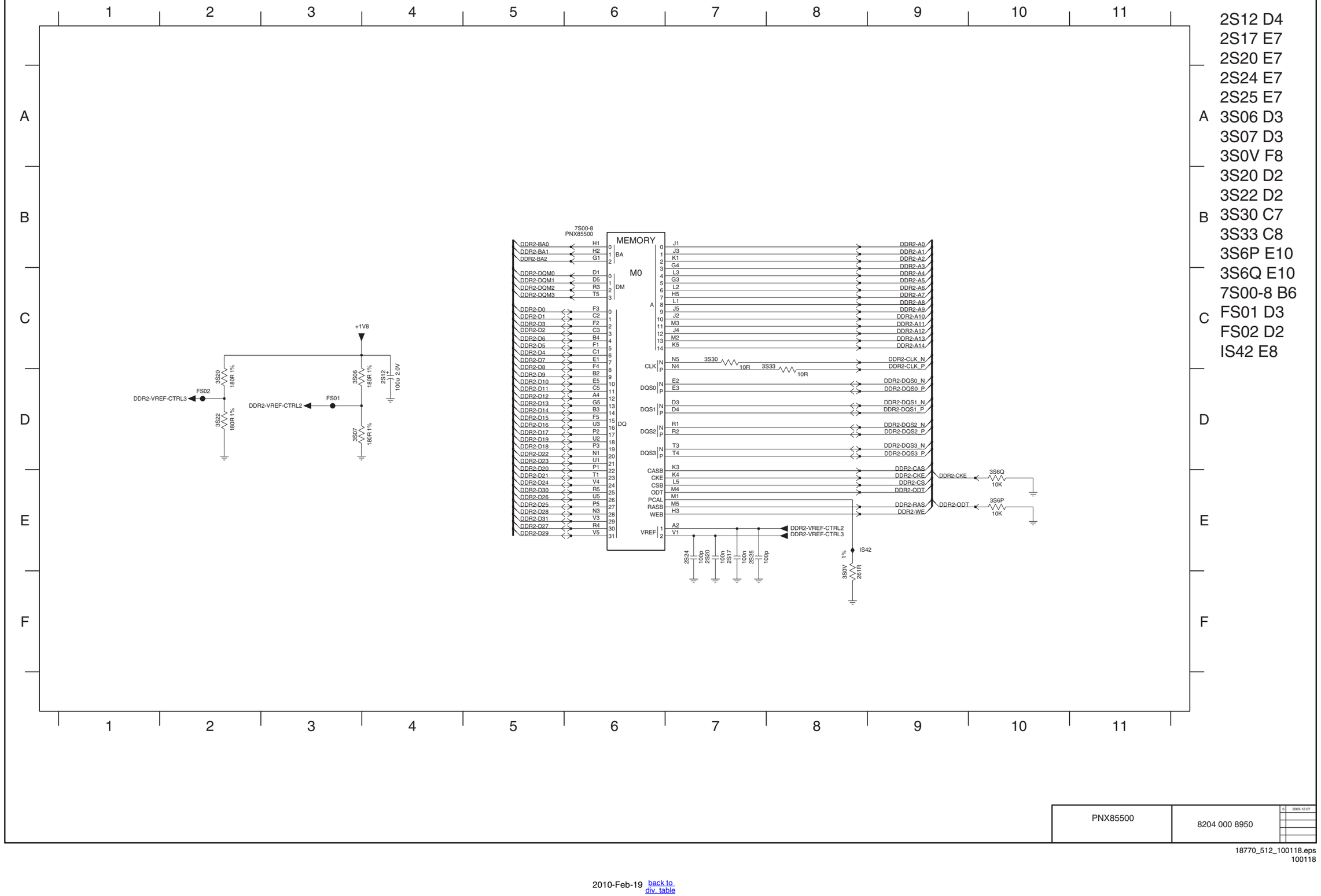
PNX SDRAM

B02B PNX SDRAM

B02B



2S12 D4
2S17 E7
2S20 E7
2S24 E7
2S25 E7
3S06 D3
3S07 D3
3S0V F8
3S20 D2
3S22 D2
3S30 C7
3S33 C8
3S6P E10
3S6Q E10
7S00-8 B6
FS01 D3
FS02 D2
IS42 E8

PNX85500	8204 000 8950	6 2009-12-07

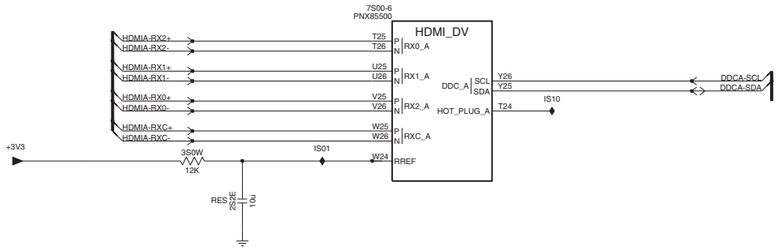
18770_512_100118.eps
100118

PNX Digital Video In

B02C PNX Digital Video In

B02C

2S2E F5
3S0W E5
7S00-6 D6
IS01 E6
IS10 E7



PNX85500

8204 000 8950

6 2009-12-07

18770_513_100118.eps
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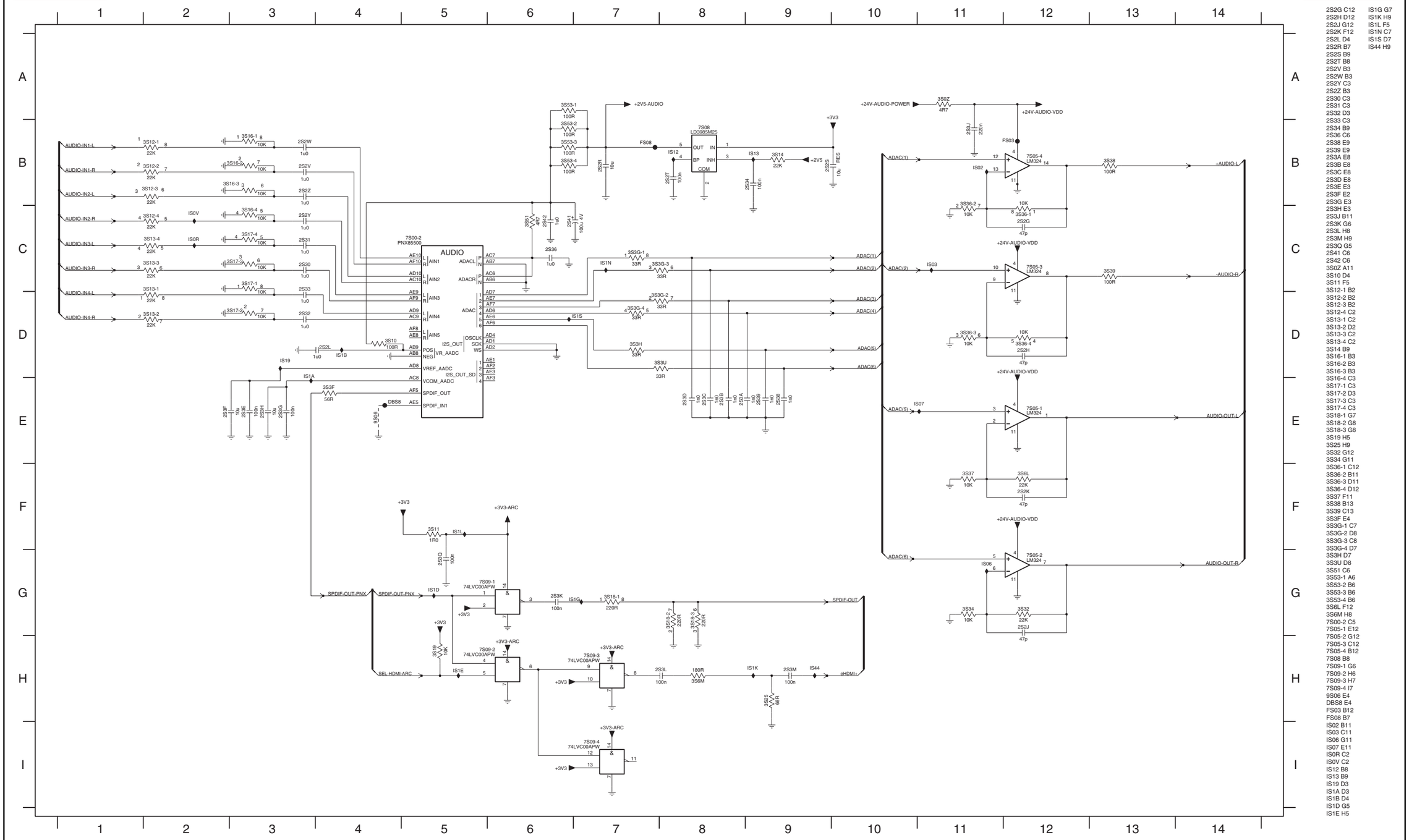
PNX Audio

B02D PNX Audio

B02D



2S2G C12 IS1G G7
2S2H D12 IS1K H9
2S2J G12 IS1L F5
2S2K F12 IS1N C7
2S2L D4 IS1S D7
2S2R B7 IS44 H9
2S2S B9
2S2T B8
2S2V B3
2S2W B3
2S2Y C3
2S2Z B3
2S30 C3
2S31 C3
2S32 D3
2S33 C3
2S34 B9
2S36 C6
2S38 E9
2S39 E9
2S3A E8
2S3B E8
2S3C E8
2S3D E8
2S3E E3
2S3F E2
2S3G E3
2S3H E3
2S3J B11
2S3K G6
2S3L H8
2S3M H9
2S3Q G5
2S41 C6
2S42 C6
3S0Z A11
3S10 D4
3S11 F5
3S12-1 B2
3S12-2 B2
3S12-3 B2
3S12-4 C2
3S13-1 C2
3S13-2 D2
3S13-3 C2
3S13-4 C2
3S14 B9
3S16-1 B3
3S16-2 B3
3S16-3 B3
3S16-4 C3
3S17-1 C3
3S17-2 D3
3S17-3 C3
3S17-4 C3
3S18-1 G7
3S18-2 G8
3S18-3 G8
3S19 H5
3S25 H9
3S32 G12
3S34 G11
3S36-1 C12
3S36-2 B11
3S36-3 D11
3S36-4 D12
3S37 F11
3S38 B13
3S39 C13
3S3F E4
3S3G-1 C7
3S3G-2 D8
3S3G-3 C8
3S3G-4 D7
3S3H D7
3S3U D8
3S51 C6
3S53-1 A6
3S53-2 B6
3S53-3 B6
3S53-4 B6
3S6L F12
3S6M H8
7S00-2 C5
7S05-1 E12
7S05-2 G12
7S05-3 C12
7S05-4 B12
7S08 B8
7S09-1 G6
7S09-2 H6
7S09-3 H7
7S09-4 I7
9S06 E4
DBS8 E4
FS03 B12
FS08 B7
IS02 B11
IS03 C11
IS06 G11
IS07 E11
IS0R C2
IS0V C2
IS12 B8
IS13 B9
IS19 D3
IS1A D3
IS1B D4
IS1D G5
IS1E H5

PNX85500	8204 000 8950	6 2009-12-07

18770_514_100118.eps
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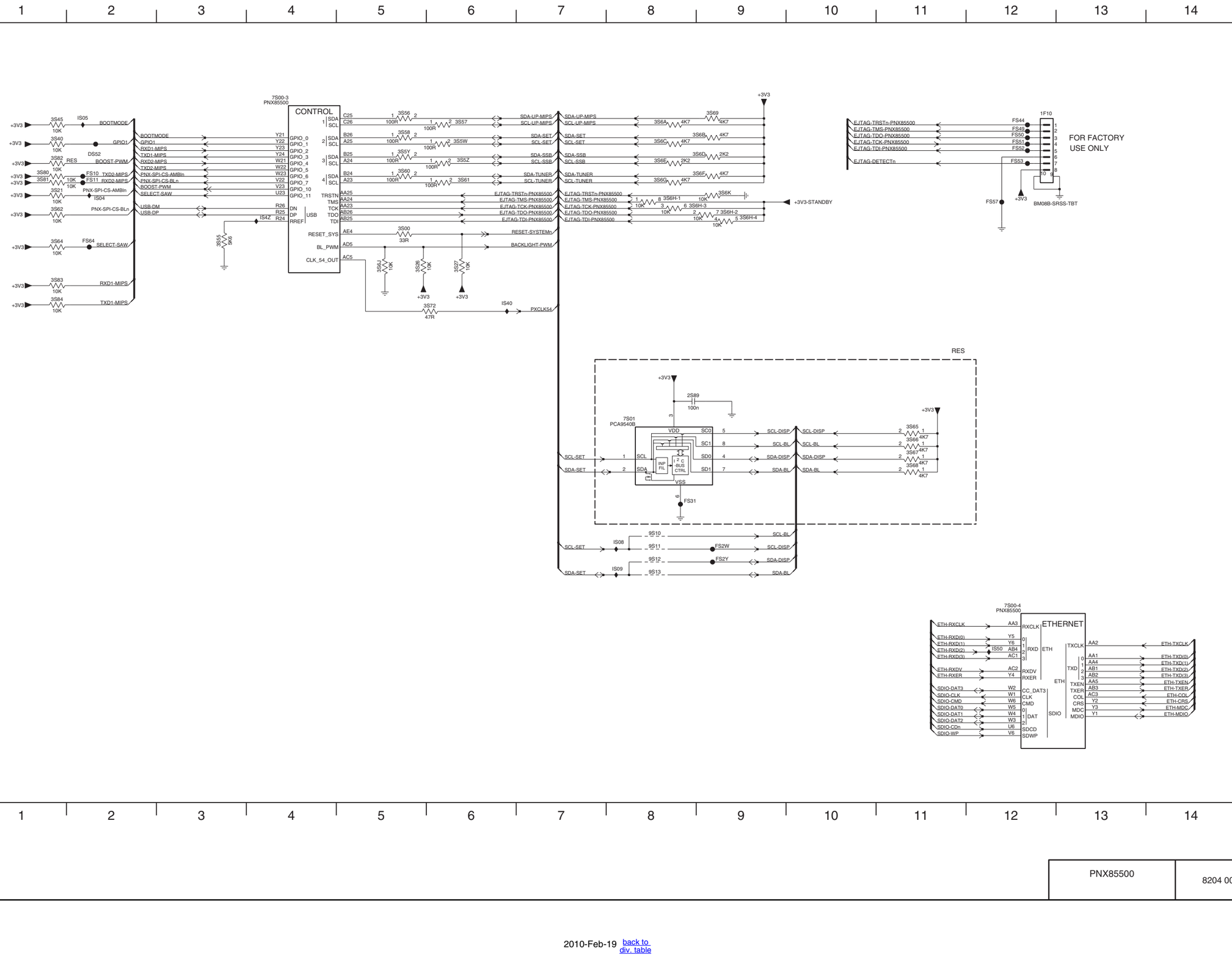
PNX Mips

B02E PNX Mips

B02E



1F10 A12
2S89 D8
3S00 B5
3S21 B1
3S26 C5
3S27 C6
3S40 A1
3S45 A1
3S55 C3
3S56 A5
3S57 A6
3S58 A5
3S5W B6
3S5Y B5
3S5Z B6
3S60 B5
3S61 B6
3S62 B1
3S64 C1
3S65 E11
3S66 E11
3S67 E11
3S68 E11
3S69 A9
3S6A A8
3S6B A9
3S6C B8
3S6D B9
3S6E B8
3S6F B9
3S6G B8
3S6H-1 B8
3S6H-2 B9
3S6H-3 B9
3S6H-4 B9
3S6J C5
3S6K B9
3S72 C6
3S80 B1
3S81 B1
3S82 B1
3S83 C1
3S84 C1
7S00-3 A4
7S00-4 G12
7S01 E8
9S10 F8
9S11 F8
9S12 F8
9S13 F8
DS52 B2
FS10 B2
FS11 B2
FS2W F9
FS2Y F9
FS31 F8
FS44 A12
FS49 A12
FS50 A12
FS51 B12
FS52 B12
FS53 B12
FS57 B12
FS64 C2
IS04 B2
IS05 A2
IS08 F8
IS09 F8
IS40 C6
IS4Z B4
IS50 G12

PNX85500	8204 000 8950	6 2009-12-07

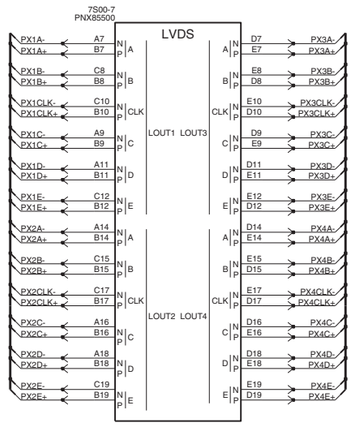
18770_515_100118.eps
100118

PNX Video Out - LVDS

B02F PNX Video Out - LVDS

B02F

7S00-7 C8



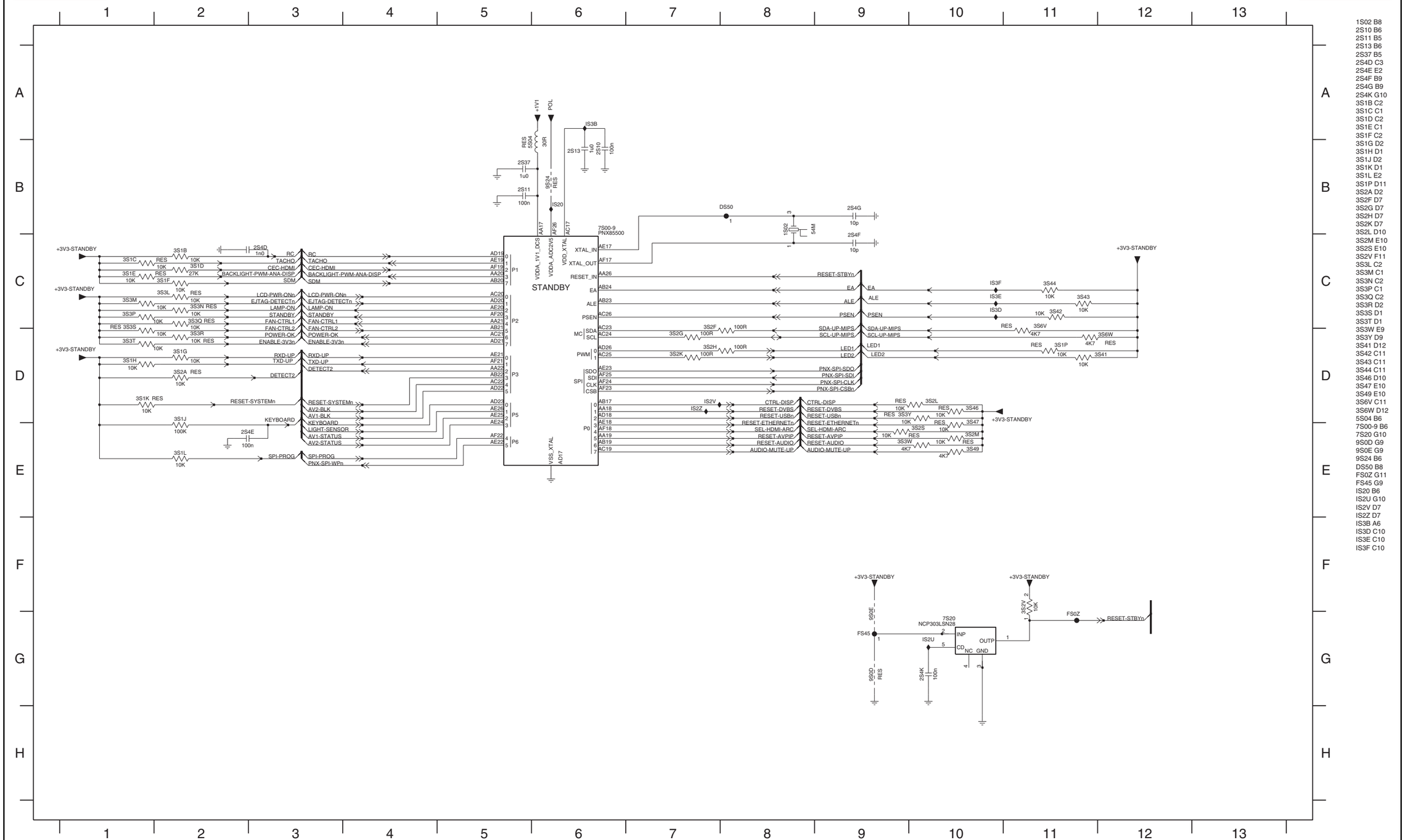
PNX85500	8204 000 8950	6 2009-12-07

18770_516_100118.eps
100118

PNX Stand-by Controller

B02G PNX Stand-by Controller

B02G



1S02 B8
2S10 B6
2S11 B5
2S13 B6
2S37 B5
2S4D C3
2S4E E2
2S4F B9
2S4G B9
2S4K G10
3S1B C2
3S1C C1
3S1D C2
3S1E C1
3S1F C2
3S1G D2
3S1H D1
3S1J D2
3S1K D1
3S1L E2
3S1P D11
3S2A D2
3S2F D7
3S2G D7
3S2H D7
3S2K D7
3S2L D10
3S2M E10
3S2S E10
3S2V F11
3S3L C2
3S3M C1
3S3N C2
3S3P C1
3S3Q C2
3S3R D2
3S3S D1
3S3T D1
3S3W E9
3S3Y D9
3S41 D12
3S42 C11
3S43 C11
3S44 C11
3S46 D10
3S47 E10
3S49 E10
3S6V C11
3S6W D12
5S04 B6
7S00-9 B6
7S20 G10
9S0D G9
9S0E G9
9S24 B6
DS50 B8
FS0Z G11
FS45 G9
IS20 B6
IS2U G10
IS2V D7
IS2Z D7
IS3B A6
IS3D C10
IS3E C10
IS3F C10

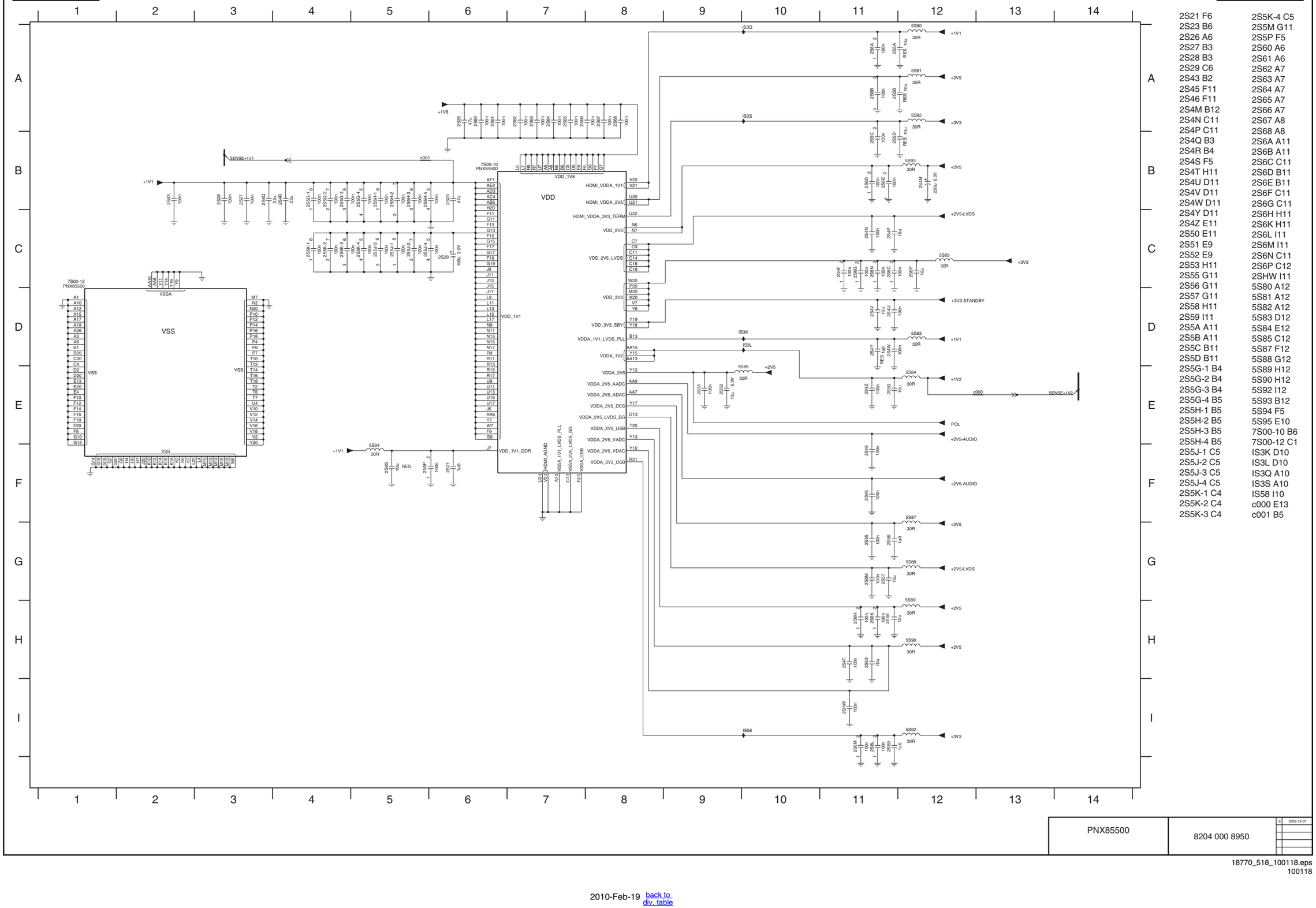
PNX85500	8204 000 8950	6	2009-12-07

18770_517_100118.eps
100118

PNX Power

B02H PNX Power

B02H



2S21 F6	2S5K-4 C5
2S23 B6	2S5M G11
2S26 A6	2S5P F5
2S27 B3	2S60 A6
2S28 B3	2S61 A6
2S29 C6	2S62 A7
2S43 B2	2S63 A7
2S45 F11	2S64 A7
2S46 F11	2S65 A7
2S4M B12	2S66 A7
2S4N C11	2S67 A8
2S4P C11	2S68 A8
2S4Q B3	2S6A A11
2S4R B4	2S6B A11
2S4S F5	2S6C C11
2S4T H11	2S6D B11
2S4U D11	2S6E B11
2S4V D11	2S6F C11
2S4W D11	2S6G C11
2S4Y D11	2S6H H11
2S4Z E11	2S6K H11
2S50 E11	2S6L I11
2S51 E9	2S6M I11
2S52 E9	2S6N C11
2S53 H11	2S6P C12
2S55 G11	2SHW I11
2S56 G11	5S80 A12
2S57 G11	5S81 A12
2S58 H11	5S82 A12
2S59 I11	5S83 D12
2S5A A11	5S84 E12
2S5B A11	5S85 C12
2S5C B11	5S87 F12
2S5D B11	5S88 G12
2S5G-1 B4	5S89 H12
2S5G-2 B4	5S90 H12
2S5G-3 B4	5S92 I12
2S5G-4 B5	5S93 B12
2S5H-1 B5	5S94 F5
2S5H-2 B5	5S95 E10
2S5H-3 B5	7S00-10 B6
2S5H-4 B5	7S00-12 C1
2S5J-1 C5	IS3K D10
2S5J-2 C5	IS3L D10
2S5J-3 C5	IS3Q A10
2S5J-4 C5	IS3S A10
2S5K-1 C4	IS58 I10
2S5K-2 C4	c000 E13
2S5K-3 C4	c001 B5

PNX85500	8204 000 8950	6 2009-12-07

18770_518_100118.eps
100118

PNX Analog Video

B02I PNX Analog Video

B02I

Connectivity

EU: SCART1
AP: -

EU: YPBPR1
AP: YPBPR1

EU: SCART2
AP: YPBPR2 +CVBS

EU: VGA
AP: VGA

AV1-CVBS
AV1-R
AV1-B
AV1-G
YPBPR1-SYNCIN1
AV3-Y
AV3-PR
AV3-PB
AV2-CVBS
YPBPR2-SYNCIN2
AV4-Y
AV4-PR
AV4-PB
R-VGA
G-VGA
B-VGA
H-SYNC-VGA
V-SYNC-VGA
VGA-SCL-EDID
VGA-SDA-EDID
VGA-SCL-EDID-TCON
VGA-SDA-EDID-TCON

7S00-1 PNX85500 ANALOG_VIDEO

Y-SVHS
C-SVHS
CVBS-MON-OUT1
PNX-IF-AGC
PNX-RF-AGC
PNX-IF-P
PNX-IF-N

* = TCON ONLY

PNX85500	8204 000 8950

6 2009-12-07

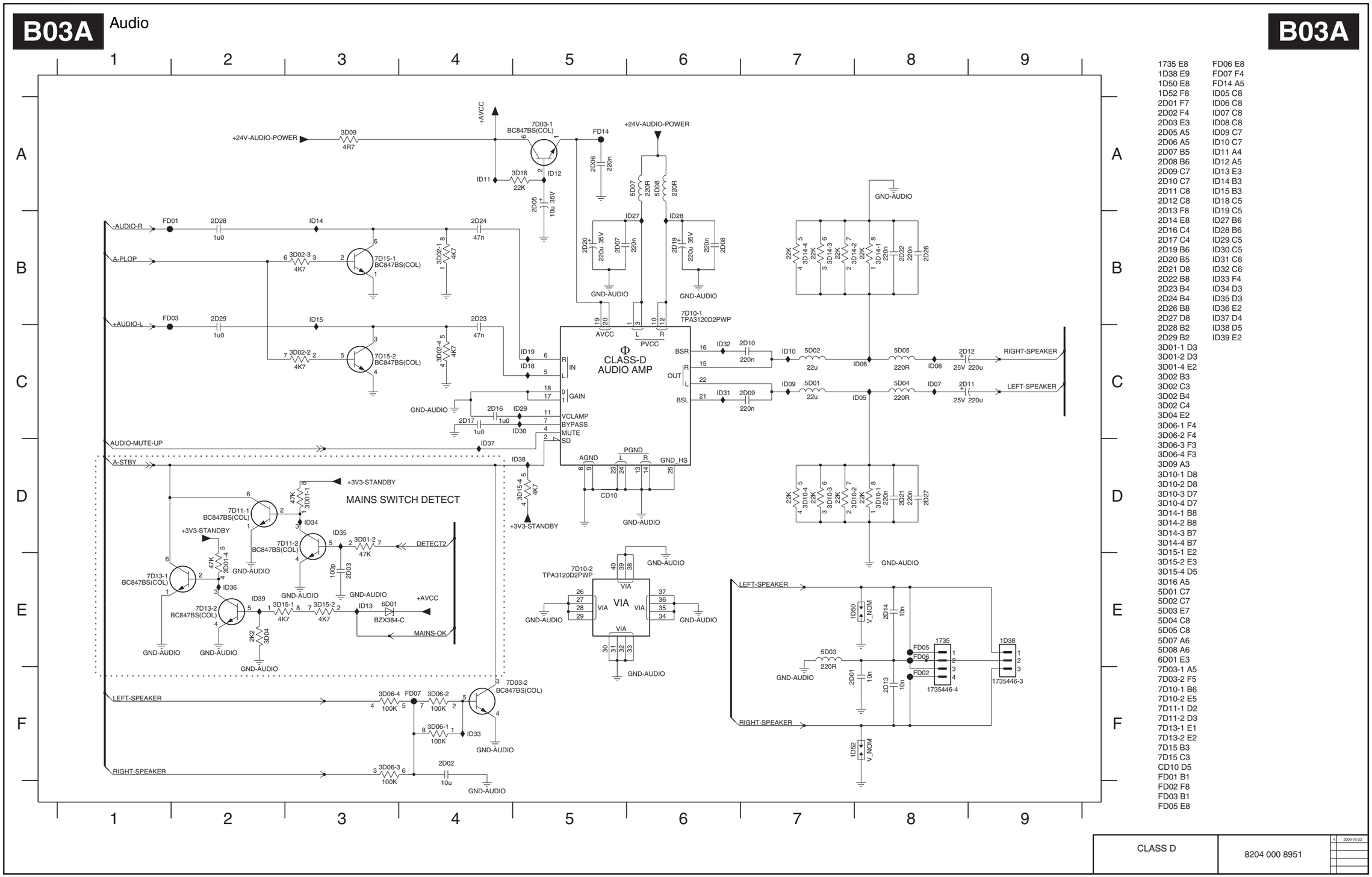
18770_519_100118.eps
100118

2S14 D12
2S15 D12
2S16 D12
2S18 D12
2S19 D12
2S22 A11
2S40 B11
2S75 F11
2S76 F11
2S77 F12
2S78 G12
2S7E G6
2S7H B6
2S7J A6
2S7K B6
2S7L C6
2S7M C6
2S7N D6
2S7P D6
2S7Q E6
2S7R F6
2S7U F6
2S84 G6
2S85 H6
2S86 H6
2S87 A6
2S8A A11
2S8G E6
3S05 A11
3S08 B11
3S09 C11
3S4G G6
3S4J A6
3S4K C6
3S4L B6
3S4P D6
3S4R D6
3S4T D6
3S4U F6
3S4W F6
3S50 H6
3S52 H6
3S54 I6
3S59 A6
3S5B A11
3S5E B11
3S5L E6
3S5S E9
3S5T-1 I5
3S5T-2 I11
3S5T-3 I5
3S5T-4 I11
3S5V-1 I5
3S5V-2 I12
3S5V-3 I5
3S5V-4 I12
3S75 E12
3S76 F12
7S00-1 D8
9S14 I3
9S15 I3
9S17 A13
BS09 F9
BS10 F10
BS13 E9
BS15 F9
BS17 F10
IS11 F13
IS4V B10
IS4W C10
IS5C D9
IS5D E9
IS5E E9
IS5F E9
IS5G E9
IS5H E9
IS5J E9

10-13 B03 820400089514 CLASS D

Audio

B03A Audio



1735 E8	FD06 E8
1D38 E9	FD07 F4
1D50 E8	FD14 A5
1D52 F8	ID05 C8
2D01 F7	ID06 C8
2D02 F4	ID07 C8
2D03 E3	ID08 C8
2D05 A5	ID09 C7
2D06 A5	ID10 C7
2D07 B5	ID11 A4
2D08 B6	ID12 A5
2D09 C7	ID13 E3
2D10 C7	ID14 B3
2D11 C8	ID15 B3
2D12 C8	ID18 C5
2D13 F8	ID19 C5
2D14 E8	ID27 B6
2D16 C4	ID28 B6
2D17 C4	ID29 C5
2D19 B6	ID30 C5
2D20 B5	ID31 C6
2D21 D8	ID32 C6
2D22 B8	ID33 F4
2D23 B4	ID34 D3
2D24 B4	ID35 D3
2D26 B8	ID36 E2
2D27 D8	ID37 D4
2D28 B2	ID38 D5
2D29 B2	ID39 E2
3D01-1 D3	
3D01-2 D3	
3D01-4 E2	
3D02 B3	
3D02 C3	
3D02 B4	
3D02 C4	
3D04 E2	
3D06-1 F4	
3D06-2 F4	
3D06-3 F3	
3D06-4 F3	
3D09 A3	
3D10-1 D8	
3D10-2 D8	
3D10-3 D7	
3D10-4 D7	
3D14-1 B8	
3D14-2 B8	
3D14-3 B7	
3D14-4 B7	
3D15-1 E2	
3D15-2 E3	
3D15-4 D5	
3D16 A5	
5D01 C7	
5D02 C7	
5D03 E7	
5D04 C8	
5D05 C8	
5D07 A6	
5D08 A6	
6D01 E3	
7D03-1 A5	
7D03-2 F5	
7D10-1 B6	
7D10-2 E5	
7D11-1 D2	
7D11-2 D3	
7D13-1 E1	
7D13-2 E2	
7D15 B3	
7D15 C3	
CD10 D5	
FD01 B1	
FD02 F8	
FD03 B1	
FD05 E8	

CLASS D	8204 000 8951	4 2009-10-22

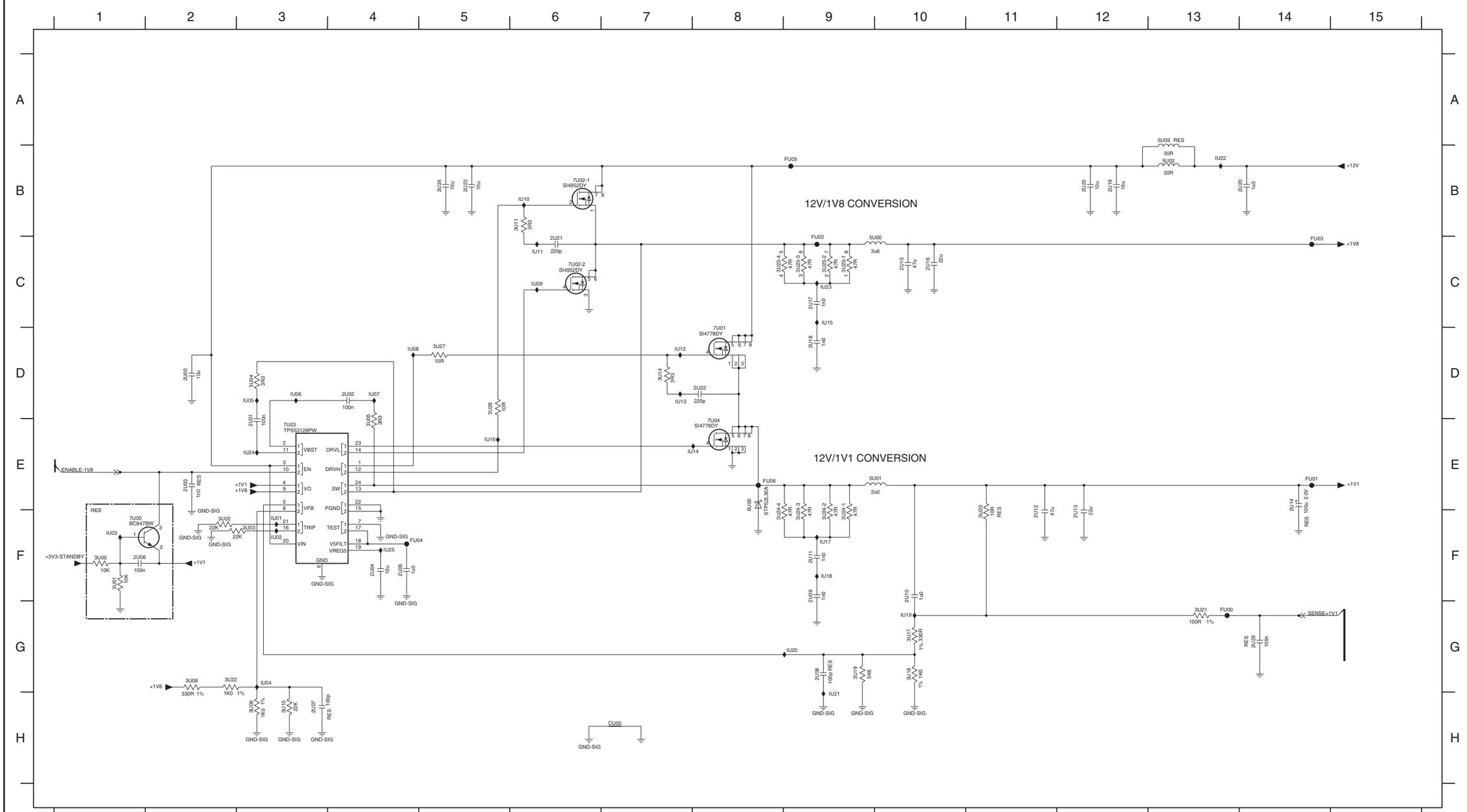
18770_520_100118.eps
100218

DC/DC

B03B DC/DC

B03B

2U00 D2 2U01 E3 2U02 D4 2U03 E2 2U04 F4 2U05 F4 2U06 F1 2U07 H3 2U08 G9 2U09 F9 2U10 F10 2U11 F9 2U12 F11 2U13 F12 2U14 E14 2U15 C10 2U16 C10 2U17 C9 2U18 D9 2U19 B12 2U20 B14 2U21 C6 2U22 D8 2U23 B5 2U24 B5 2U25 B12 2U29 G14 3U00 F1 3U01 F1 3U02 F2 3U03 F3 3U04 D3 3U05 E4 3U08 G2 3U09 H3 3U10 H3 3U11 B6 3U14 D7 3U17 G10 3U18 G10 3U19 G9 3U20 F11 3U21 G13 3U22 G2 3U23-1 C9 3U23-2 C9 3U23-3 C9 3U23-4 C8 3U24-1 F9 3U24-2 F9 3U24-3 F9 3U24-4 F8 3U27 D5 3U28 D5 5U00 C10 5U01 E10 5U02 B13 5U03 A13 6U00 E8 7U00 F1 7U01 D8 7U02-1 E3 7U02-2 C6 7U04 E8 CU00 H7 FU00 G13 FU01 E14 FU02 B9 FU03 C14 FU04 F4 FU05 B9 FU06 E8 IU01 F3 IU02 F3 IU03 F1 IU04 G3 IU05 D3 IU06 D3 IU07 D4 IU08 D4 IU09 C6 IU10 B6 IU11 C6 IU12 D7 IU13 C9 IU14 E8 IU15 F9 IU16 F9 IU17 F9 IU18 F9 IU19 G10 IU20 G9 IU21 H9 IU22 B13 IU23 C9 IU24 E3 IU25 F4



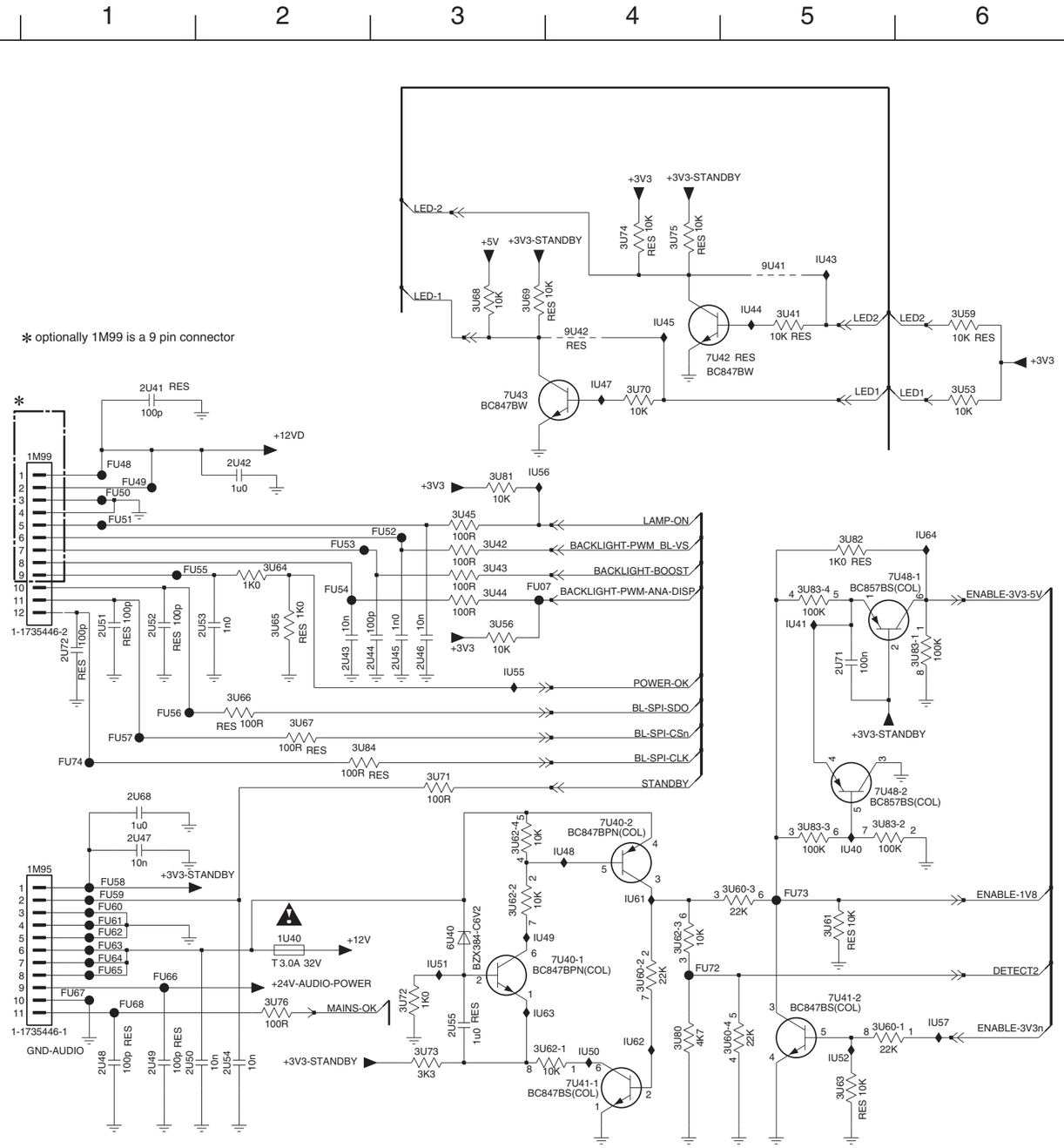
DC/DC	8204 000 8951

4 2009-10-22

18770_521_100118.eps
100118

DC/DC

B03C DC/DC



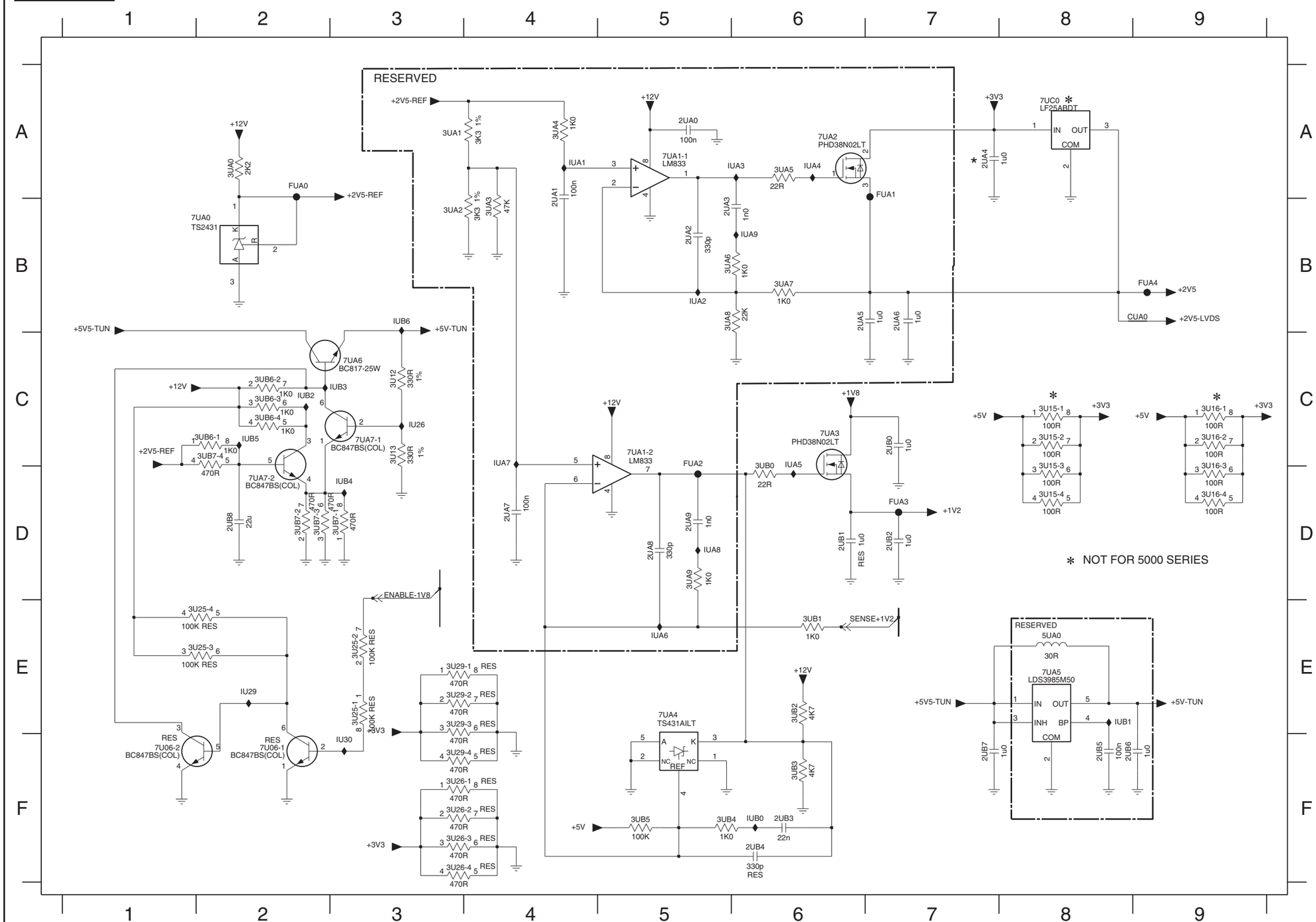
DC/DC | 8204 000 8951 | 4 2009-10-22

18770_522_100118.eps
100118

DC/DC

B03D DC/DC

B03D



2UA0 A5	3UB3 F6
2UA1 A4	3UB4 F5
2UA2 B5	3UB5 F5
2UA3 B5	3UB6-1 C2
2UA4 A7	3UB6-2 C2
2UA5 B6	3UB6-3 C2
2UA6 B7	3UB6-4 C2
2UA7 D4	3UB7-1 D3
2UA8 D5	3UB7-2 D2
2UA9 D5	3UB7-3 D2
2UB0 C7	3UB7-4 C2
2UB1 D6	5UA0 E8
2UB2 D7	7U06-1 F2
2UB3 F6	7U06-2 F1
2UB4 F6	7UA0 B2
2UB5 F8	7UA1-1 A5
2UB6 F8	7UA1-2 C5
2UB7 F7	7UA2 A6
2UB8 D2	7UA3 C6
3U12 C3	7UA4 E5
3U13 C3	7UA5 E8
3U15-1 C8	7UA6 C3
3U15-2 C8	7UA7-1 C3
3U15-3 D8	7UA7-2 D2
3U15-4 D8	7UC0 A8
3U16-1 C9	CUA0 B9
3U16-2 C9	FUA0 A2
3U16-3 D9	FUA1 A7
3U16-4 D9	FUA2 D5
3U25-1 E3	FUA3 D7
3U25-2 E3	FUA4 B9
3U25-3 E2	IU26 C3
3U25-4 E2	IU29 E2
3U26-1 F3	IU30 F3
3U26-2 F3	IUA1 A4
3U26-3 F3	IUA2 B5
3U26-4 F3	IUA3 A6
3U29-1 E3	IUA4 A6
3U29-2 E3	IUA5 C6
3U29-3 E3	IUA6 E5
3U29-4 F3	IUA7 C4
3UA0 A2	IUA8 D5
3UA1 A3	IUA9 B6
3UA2 B3	IUB0 F6
3UA3 B4	IUB1 E8
3UA4 A4	IUB2 C2
3UA5 A6	IUB3 C3
3UA6 B5	IUB4 D3
3UA7 B6	IUB5 C2
3UA8 B5	IUB6 B3
3UA9 D5	
3UB0 D6	
3UB1 E6	
3UB2 E6	

B03D

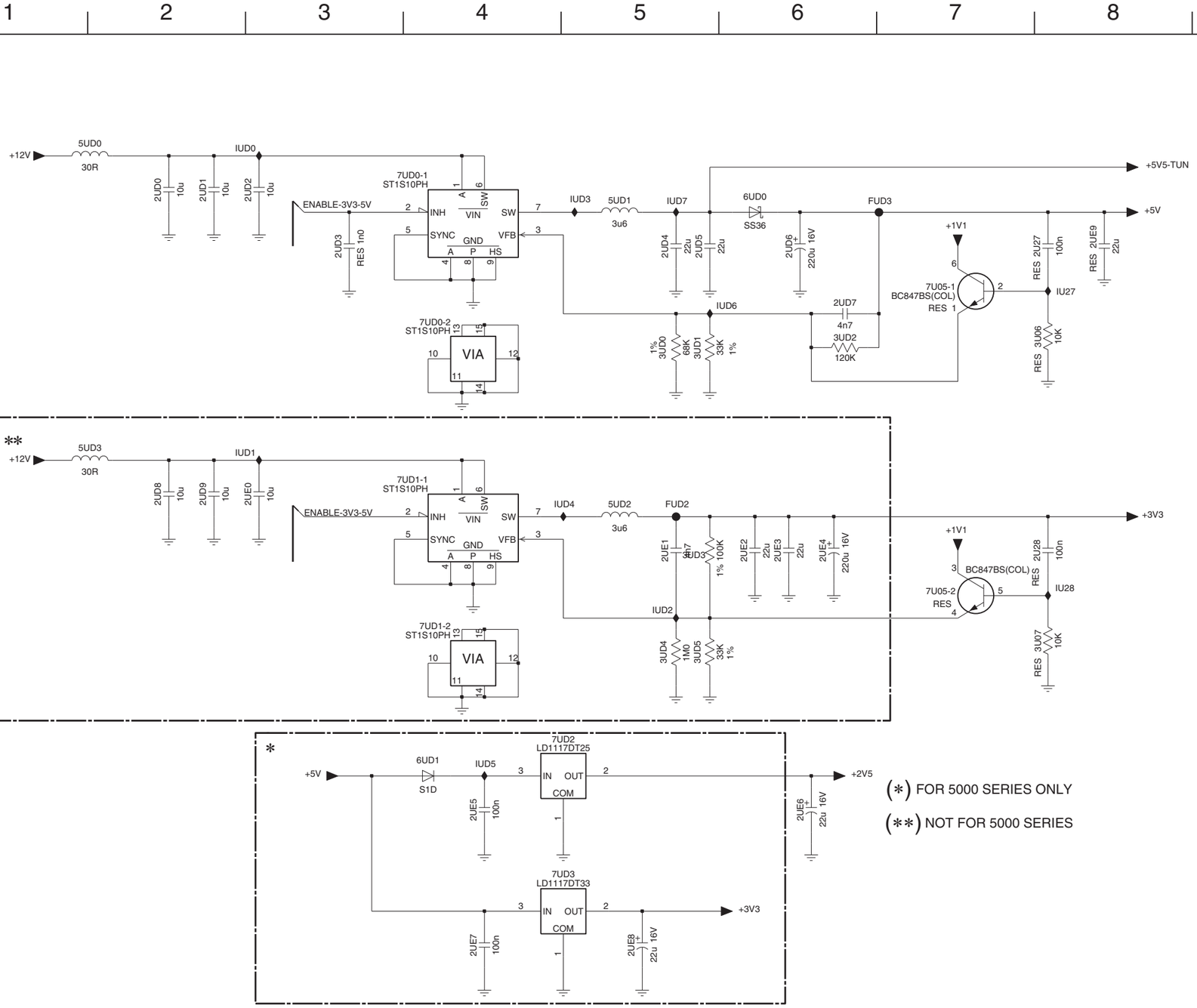
DC/DC	8204 000 8951	4 2009-10-22

18770_523_100118.eps
100118

DC/DC

B03E DC/DC

B03E



(*) FOR 5000 SERIES ONLY

(**) NOT FOR 5000 SERIES

2U27 B8
2U28 D8
2UD0 A2
2UD1 A2
2UD2 A3
2UD3 B3
2UD4 B5
2UD5 B5
2UD6 B6
2UD7 B6
2UD8 C2
2UD9 C2
2UE0 C3
2UE1 D5
2UE2 D6
2UE3 D6
2UE4 D6
2UE5 E4
2UE6 E6
2UE7 F4
2UE8 F5
2UE9 B8
3U06 B8
3U07 D8
3UD0 B5
3UD1 B5
3UD2 B6
3UD3 D5
3UD4 D5
3UD5 D5
5UD0 A2
5UD1 A5
5UD2 C5
5UD3 C2
6UD0 A6
6UD1 E4
7U05-1 B7
7U05-2 D7
7UD0-1 A4
7UD0-2 B4
7UD1-1 C4
7UD1-2 D4
7UD2 E5
7UD3 F5
FUD2 C5
FUD3 A7
IU27 B8
IU28 D8
IUD0 A2
IUD1 C2
IUD2 D5
IUD3 A5
IUD4 C5
IUD5 E4
IUD6 B6
IUD7 A5

DC/DC	8204 000 8951	4 2009-10-22

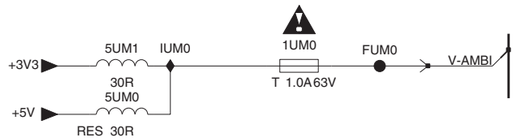
18770_524_100118.eps
100118

Temp Sensor + AmbiLight

B03F Temp Sensor + AmbiLight

B03F

1UM0 A4
5UM0 A3
5UM1 A3
FUM0 A5
IUM0 A4



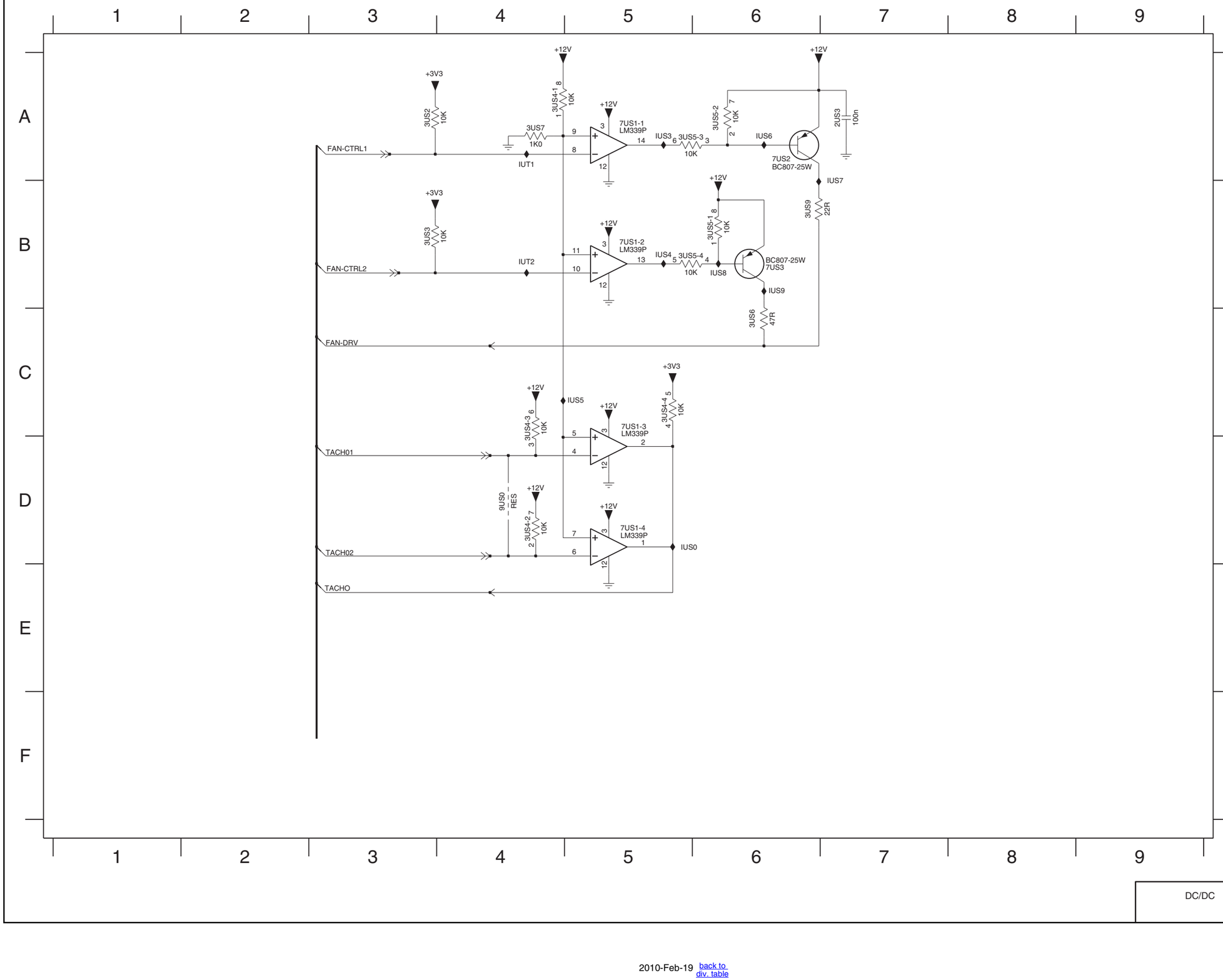
DC/DC | 8204 000 8951 | 4 2009-10-22

18770_525_100118.eps
100118

Fan Control

B03G Fan-Control

B03G



2US3 A7
3US2 A3
3US3 B3
3US4-1 A4
3US4-2 D4
3US4-3 C4
3US4-4 C5
3US5-1 B6
3US5-2 A6
3US5-3 A5
3US5-4 B5
3US6 C6
3US7 A4
3US9 B6
7US1-1 A5
7US1-2 B5
7US1-3 C5
7US1-4 D5
7US2 A6
7US3 B6
9US0 D4
IUS0 D5
IUS3 A5
IUS4 B5
IUS5 C5
IUS6 A6
IUS7 B7
IUS8 B6
IUS9 B6
IUT1 A4
IUT2 B4

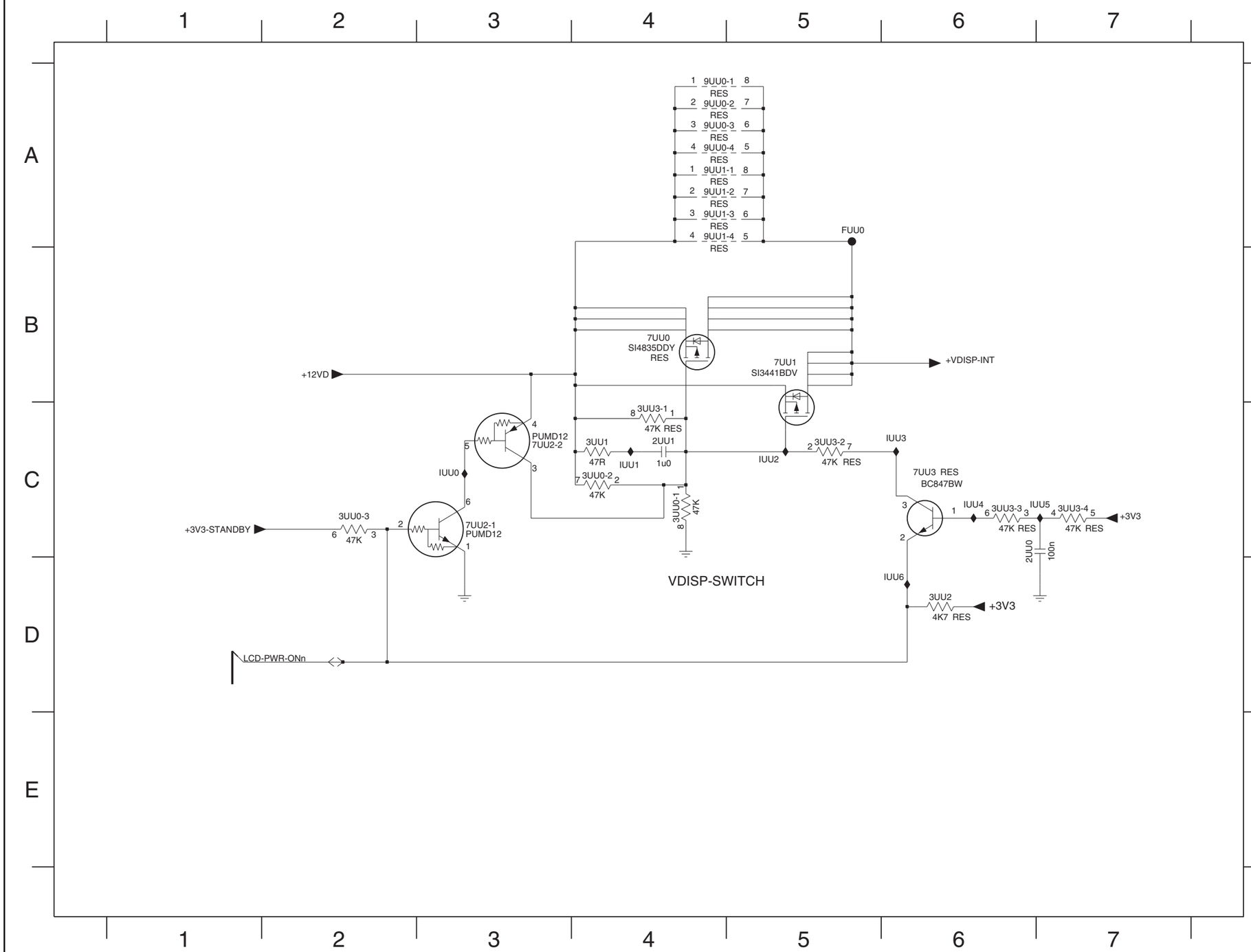
DC/DC	8204 000 8951	4 2009-10-22

18770_526_100118.eps
100118

Vdisp Switch

B03H VDisp-Switch

B03H



2UU0 C6
2UU1 C4
3UU0-1 C4
3UU0-2 C4
3UU0-3 C2
3UU1 C4
3UU2 D6
3UU3-1 C4
3UU3-2 C5
3UU3-3 C6
3UU3-4 C7
7UU0 B4
7UU1 B5
7UU2-1 C3
7UU2-2 C3
7UU3 C6
9UU0-1 A4
9UU0-2 A4
9UU0-3 A4
9UU0-4 A4
9UU1-1 A4
9UU1-2 A4
9UU1-3 A4
9UU1-4 A4
FUU0 A5
IUU0 C3
IUU1 C4
IUU2 C5
IUU3 C6
IUU4 C6
IUU5 C7
IUU6 D6

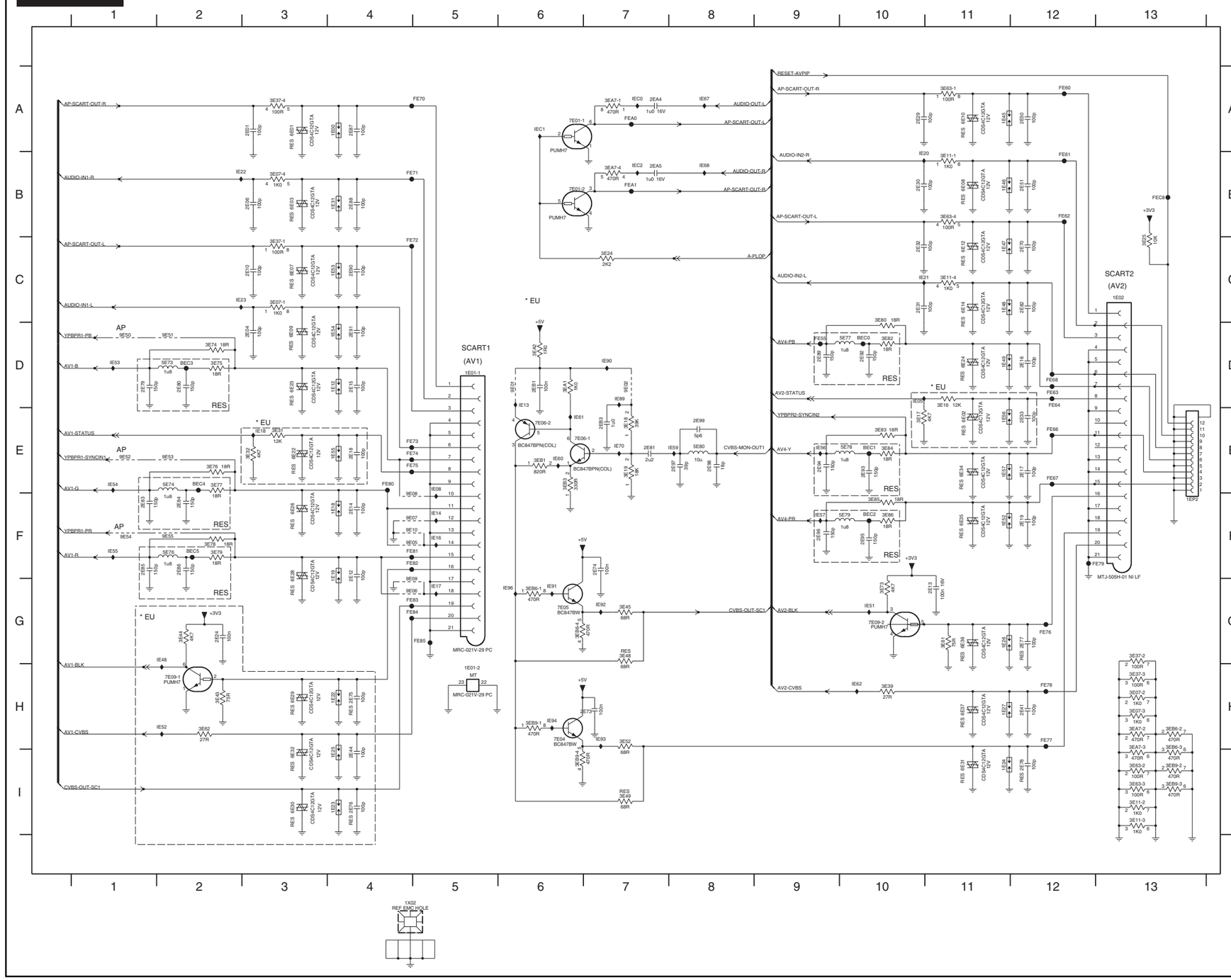
DC/DC / CLASS D	8204 000 8951	4 2009-10-22

18770_527_100118.eps
100118

10-14 B04 820400089524 Analog I/O

Analogue Externals A

B04A Analogue Externals A



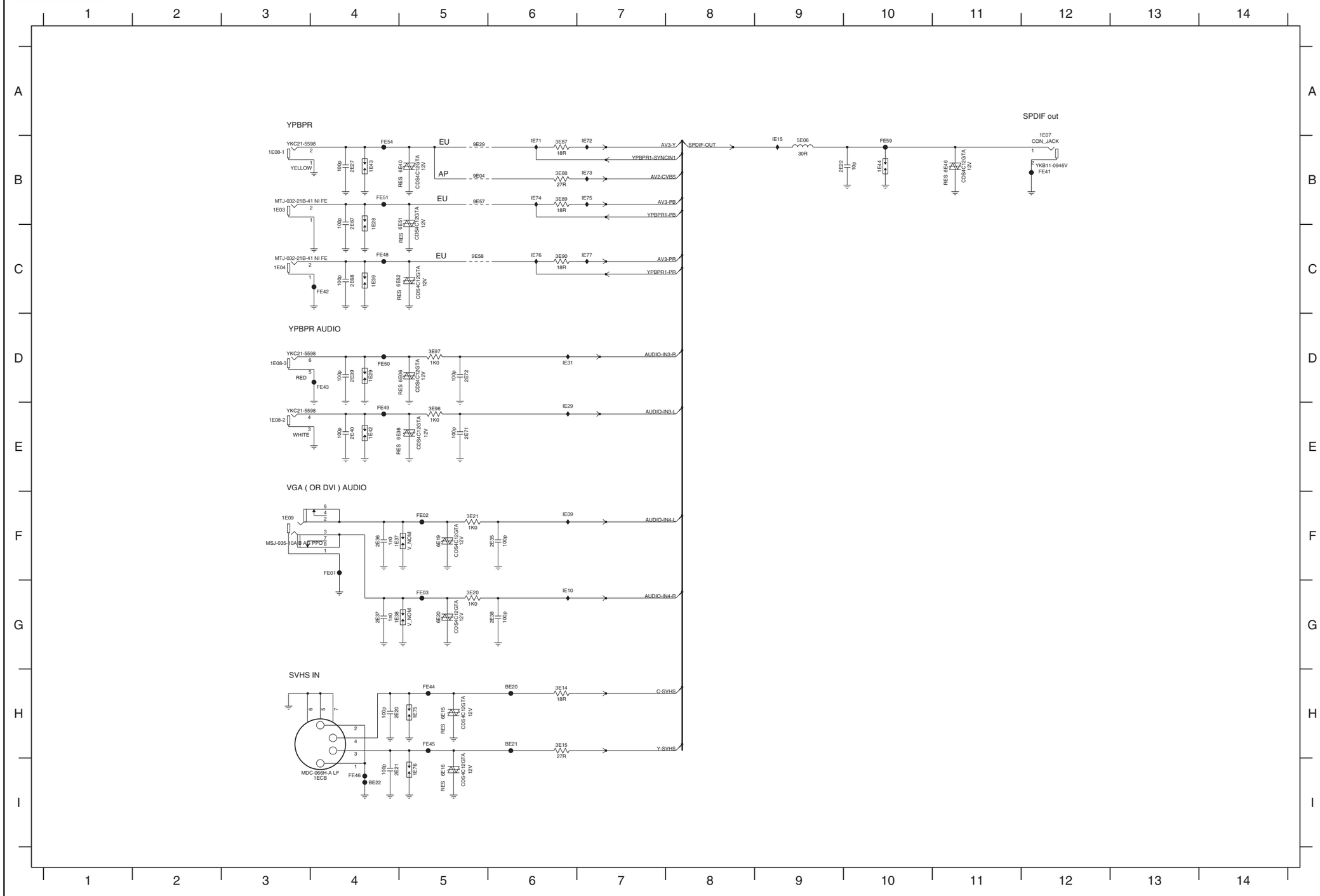
1E00 A4	3E78 F2	IE22 B2
1E01-1 D5	3E79 F2	IE23 C2
1E01-2 H5	3E80 C10	IE48 G2
1E02 C13	3E82 D10	IE51 G10
1E12 D4	3E83 E10	IE52 H2
1E18 F4	3E84 E10	IE53 D1
1E19 F4	3E85 F10	IE54 E1
1E22 H4	3E86 F10	IE55 F1
1E23 I4	3EA1 D6	IE56 E9
1E24 I11	3EA2 D6	IE57 F9
1E25 I4	3EA7-1 A7	IE59 E8
1E26 G11	3EA7-2 H13	IE60 E6
1E27 H11	3EA7-3 H13	IE61 E6
1E31 B4	3EA7-4 B7	IE62 H10
1E45 A11	3EB1 E6	IE67 A8
1E46 B11	3EB3 E6	IE68 B8
1E47 C11	3EB6-1 G6	IE70 E7
1E48 C11	3EB6-2 H13	IE89 D7
1E49 D11	3EB6-3 H13	IE90 D7
1E52 F11	3EB6-4 G6	IE91 G6
1E53 C4	3EB9-1 H6	IE92 G7
1E54 D4	3EB9-2 I13	IE93 H7
1E55 E4	3EB9-3 I13	IE94 H6
1E56 E11	3EB9-4 I6	IE96 G6
1E57 E11	5E73 D2	IEC0 A7
1EP2 F13	5E74 E2	IEC1 A6
2E01 A3	5E76 F2	IEC2 B7
2E04 D3	5E77 D10	
2E06 B3	5E78 E10	
2E10 C3	5E79 F10	
2E12 F4	5E80 E8	
2E13 G11	6E01 A3	
2E14 F4	6E02 E11	
2E15 D4	6E03 B3	
2E16 D12	6E07 C3	
2E17 E12	6E08 B11	
2E18 E4	6E09 D3	
2E19 F12	6E10 A11	
2E24 G2	6E12 C11	
2E29 A10	6E14 C11	
2E30 B10	6E22 E3	
2E31 C10	6E23 D3	
2E32 C10	6E24 D11	
2E33 E12	6E26 F3	
2E41 H12	6E28 F3	
2E44 I4	6E29 H3	
2E50 A12	6E30 I3	
2E51 B12	6E31 I11	
2E70 C12	6E32 I3	
2E73 H7	6E34 E11	
2E74 F7	6E35 F11	
2E75 H4	6E36 G11	
2E76 I4	6E37 H11	
2E77 G12	7E01-1 A6	
2E78 I12	7E01-2 B6	
2E79 D1	7E04 H6	
2E80 D2	7E05 G6	
2E81 E7	7E06-1 E7	
2E82 C12	7E06-2 E6	
2E83 F1	7E09-1 H2	
2E84 F2	7E09-2 G10	
2E85 F1	9E01 D6	
2E86 F2	9E02 D7	
2E87 A4	9E05 F4	
2E88 B4	9E06 G4	
2E89 D9	9E07 F4	
2E90 C4	9E08 F4	
2E91 D4	9E09 G4	
2E92 D10	9E10 F4	
2E93 E10	9E50 D1	
2E94 E9	9E51 D2	
2E95 F10	9E52 E1	
2E96 F9	9E53 E2	
2E97 E8	9E54 F1	
2E98 E8	9E55 F2	
2E99 E8	BEC0 D10	
2EA4 A7	BEC1 E10	
2EA5 B7	BEC2 F10	
2EB1 D6	BEC3 D2	
2EB3 E7	BEC4 E2	
3E07-1 C3	BEC5 F2	
3E07-2 H13	FE55 D9	
3E07-3 H13	FE60 A12	
3E07-4 B3	FE61 B12	
3E11-1 B11	FE62 B12	
3E11-2 I13	FE63 D12	
3E11-3 I13	FE64 D12	
3E11-4 C11	FE66 E12	
3E16 D11	FE67 E12	
3E17 E10	FE68 D12	
3E18 E7	FE70 A5	
3E19 E7	FE71 B4	
3E24 C7	FE72 C4	
3E25 C13	FE73 E4	
3E31 E3	FE74 E4	
3E32 E3	FE75 E4	
3E37-1 C3	FE76 G12	
3E37-2 G13	FE77 H12	
3E37-3 H13	FE78 H12	
3E37-4 A3	FE79 F13	
3E39 H10	FE80 E4	
3E43 H2	FE81 F4	
3E44 G2	FE82 F4	
3E45 G7	FE83 G4	
3E48 G7	FE84 G4	
3E49 I7	FE85 G5	
3E52 H7	FEA0 A7	
3E61 G11	FEA1 B7	
3E62 H2	FEC8 B13	
3E63-1 A11	IE05 D10	
3E63-2 I13	IE08 E5	
3E63-3 I13	IE13 D6	
3E63-4 B11	IE14 F5	
3E73 G10	IE16 F5	
3E74 D2	IE17 G5	
3E75 D2	IE18 E3	
3E76 E2	IE20 B10	
3E77 E2	IE21 C10	

CLASS D	8204 000 8952	4 2009-10-22

18770_528_100118.eps
100218

Analogue Externals B

B04B Analogue Externals B



1E03 B3
1E04 C3
1E07 A12
1E08-1 B3
1E08-2 E3
1E08-3 D3
1E09 F3
1E28 B4
1E29 D4
1E37 F4
1E38 G4
1E39 C4
1E42 E4
1E43 B4
1E44 B10
1E75 H5
1E76 I5
1ECB I4
2E20 H4
2E21 I4
2E22 B9
2E27 B4
2E35 F6
2E36 F4
2E37 G4
2E38 G6
2E39 D4
2E40 E4
2E67 B4
2E68 C4
2E71 E5
2E72 D5
3E14 H6
3E15 H6
3E20 G5
3E21 F5
3E87 B6
3E88 B6
3E89 B6
3E90 C6
3E96 E5
3E97 D5
5E06 B9
6E06 D5
6E15 H5
6E16 I5
6E19 F5
6E20 G5
6E38 E5
6E40 B5
6E46 B11
6E51 B4
6E52 C4
9E04 B5
9E29 B5
9E57 B5
9E58 C5
BE20 H6
BE21 H6
BE22 I4
FE01 F4
FE02 F5
FE03 G5
FE41 B12
FE42 C4
FE43 D4
FE44 H5
FE45 H5
FE46 I4
FE48 C4
FE49 E4
FE50 D4
FE51 B4
FE54 B4
FE59 B10
IE09 F6
IE10 G6
IE15 B9
IE29 E6
IE31 D6
IE71 B6
IE72 B7
IE73 B7
IE74 B6
IE75 B7
IE76 C6
IE77 C7

ANALOG I/O

8204 000 8952

4 2009-10-22

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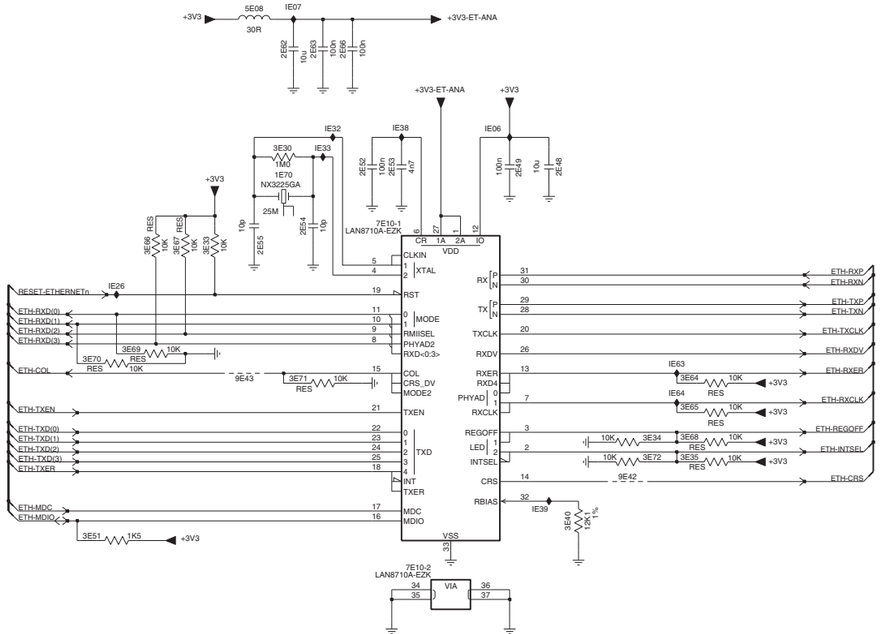
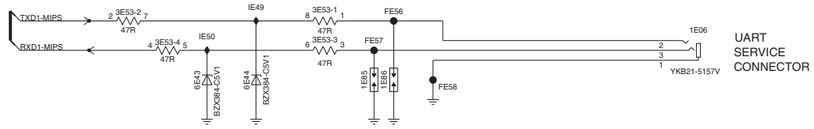
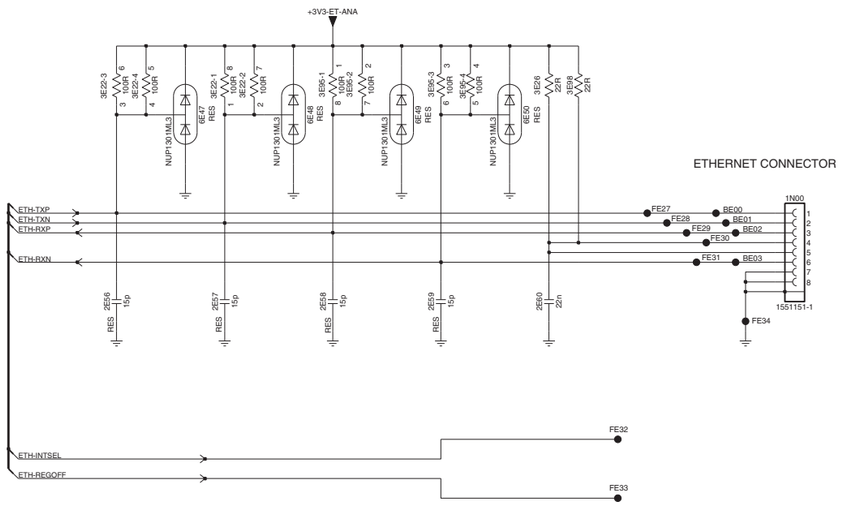
100118

Ethernet + Service

B04C Ethernet + Service







CONFIGURATION RESISTOR SETTINGS

Resistor	POP	EMPTY
3E64 (RES)	PHYADD(0) = 1	PHYADD(0) = 0
3E65 (RES)	PHYADD(1) = 1	PHYADD(1) = 0
3E66 (RES)	PHYADD(2) = 1	PHYADD(2) = 0
3E67 (RES)	RMII mode selected	MII mode selected
3E68 (RES)	Internal 1.2V reg. disabled	Internal 1.2V reg. enabled
3E69 (RES)	MODE(0) = 0	MODE(0) = 1
3E70 (RES)	MODE(1) = 0	MODE(1) = 1
3E71 (RES)	MODE(2) = 0	MODE(2) = 1
3E72	INTERRUPT FUNCTION DISABLED ON nINT/TXER/TXD4 SIGNAL	INTERRUPT FUNCTION ENABLED ON nINT/TXER/TXD4 SIGNAL

ANALOG I/O	8204 000 8952	4 2009-10-22

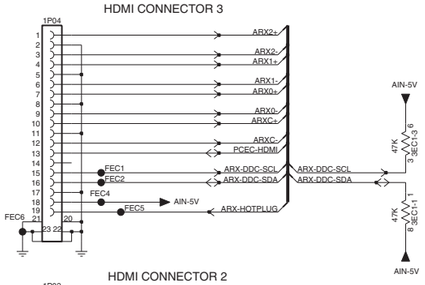
18770_530_100118.eps
100118

HDMI

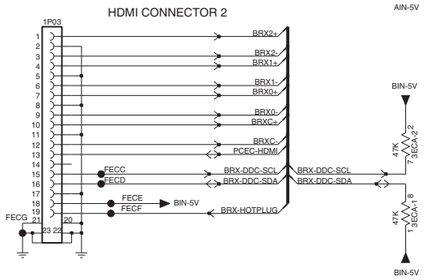
B04D HDMI

B04D

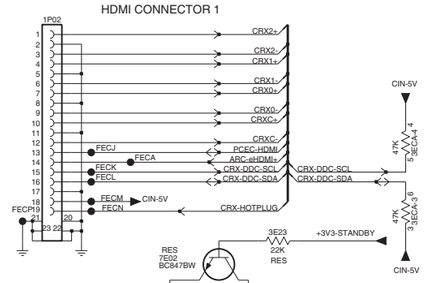
HDMI CONNECTOR 3

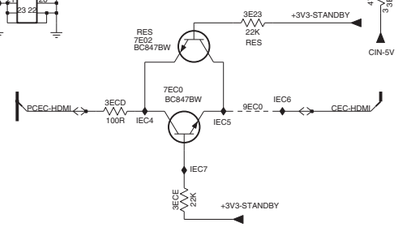


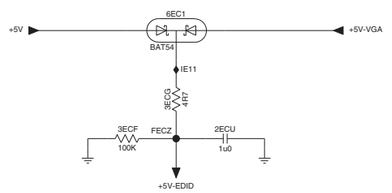
HDMI CONNECTOR 2



HDMI CONNECTOR 1

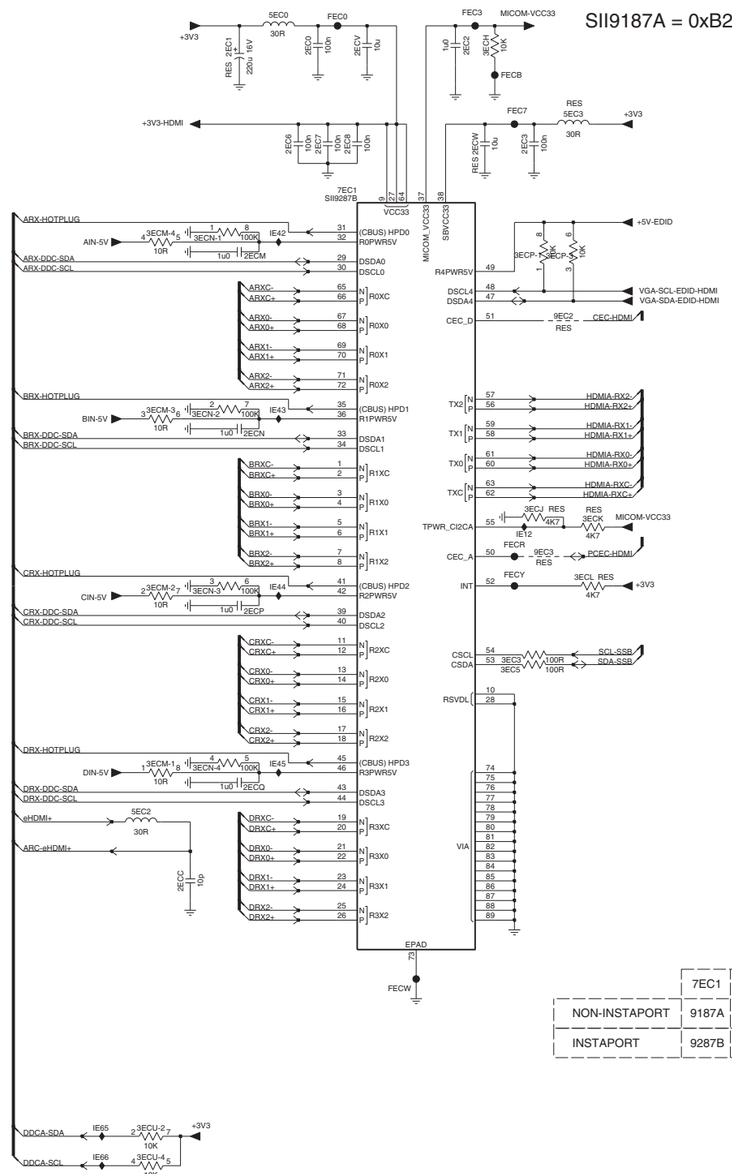






I2C Address

SII9187A = 0xB2



	7EC1	3ECN	3ECF
NON-INSTAPORT	9187A	4X 3K3	3K3
INSTAPORT	9287B	4X 100K	100K

1P02	E2
1P03	C2
1P04	A2
2EC0	A9
2EC1	A8
2EC2	A10
2EC3	B10
2EC6	B9
2EC7	B9
2EC8	B9
2ECC	G8
2ECM	B8
2ECN	D8
2ECP	E8
2ECQ	F8
2ECU	I3
2ECV	A9
2ECW	B10
3E23	F4
3EC1-1	B4
3EC1-3	B4
3EC3	E10
3EC5	E10
3ECA-1	D4
3ECA-2	D4
3ECA-3	F4
3ECA-4	F4
3ECD	G3
3ECE	H3
3ECF	I3
3ECG	I3
3ECH	A10
3ECJ	D10
3ECK	D11
3ECL	E11
3ECM-1	F8
3ECM-2	E8
3ECM-3	D8
3ECM-4	B8
3ECN-1	B8
3ECN-2	D8
3ECN-3	E8
3ECN-4	F8
3ECP-1	B10
3ECP-3	B10
3ECU-2	I8
3ECU-4	I8

5EC0	A8
5EC2	F7
5EC3	A11
6EC1	H3
7E02	G3
7EC0	G3
7EC1	B9
9EC0	G4
9EC2	C11
9EC3	E11
FEC0	A9
FEC1	B2
FEC2	B2
FEC3	A10
FEC4	B2
FEC5	B2
FEC6	B2
FEC7	A10
FECA	F3
FECB	A10
FECC	D2
FECD	D2
FECE	D2
FECF	D2
FECG	D2
FECJ	F2
FECK	F2
FECL	F2
FECM	F2
FECN	F2
FECP	F2
FECR	E10
FECW	H9
FECY	E10
FECZ	I3
IE11	I3
IE12	D10
IE42	B8
IE43	D8
IE44	E8
IE45	F8
IE65	I7
IE66	I7
IEC4	G3
IEC5	G3
IEC6	G4
IEC7	H3

HDMI	8204 000 8952	4	2009-10-22

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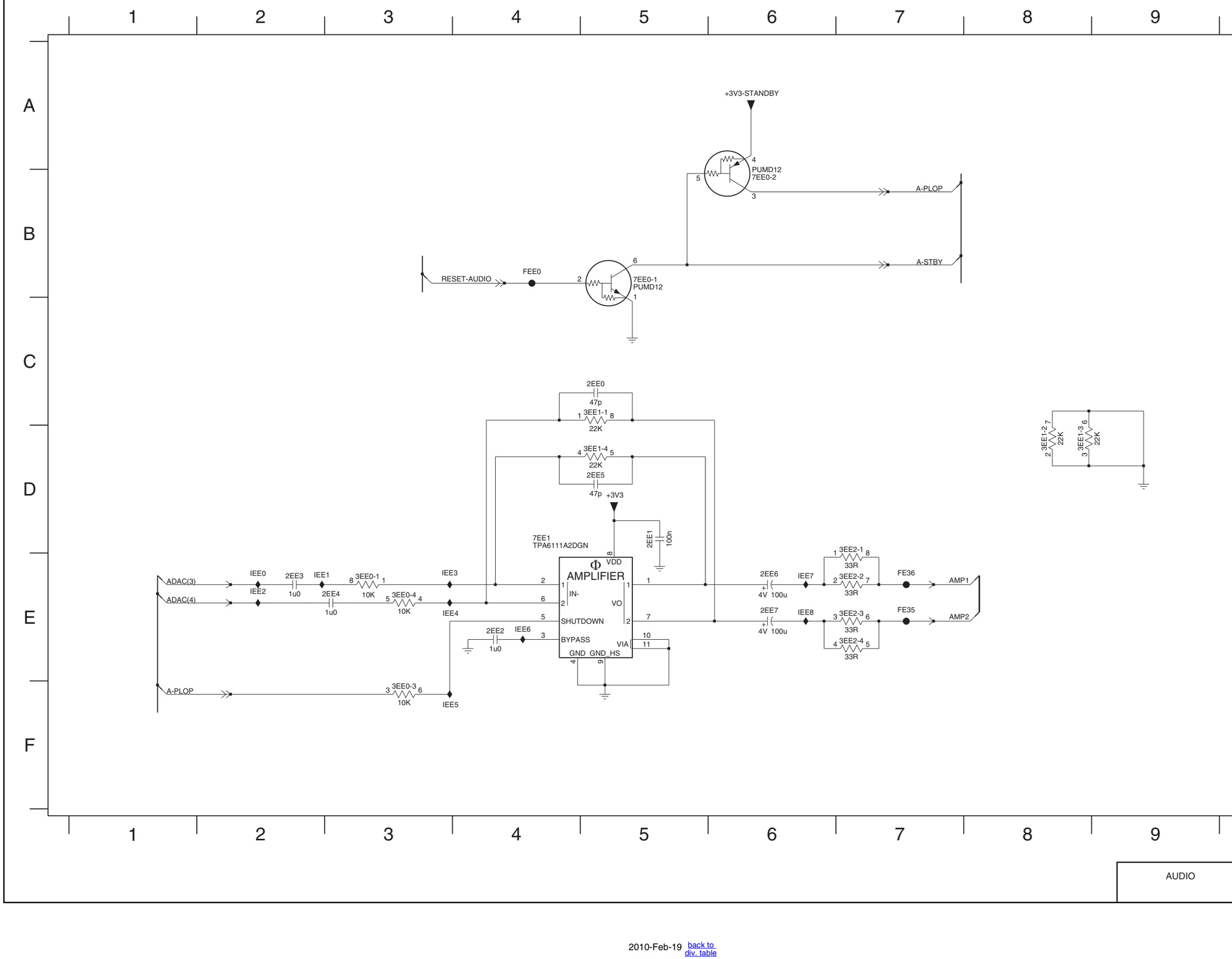
Headphone

B04E Headphone

B04E



2EE0 C5
2EE1 D5
2EE2 E4
2EE3 E2
2EE4 E3
2EE5 D5
2EE6 E6
2EE7 E6
3EE0-1 E3
3EE0-3 F3
3EE0-4 E3
3EE1-1 C5
3EE1-2 D8
3EE1-3 D8
3EE1-4 D5
3EE2-1 D7
3EE2-2 E7
3EE2-3 E7
3EE2-4 E7
7EE0-1 B5
7EE0-2 B6
7EE1 D4
FE35 E7
FE36 E7
FEE0 B4
IEE0 E2
IEE1 E2
IEE2 E2
IEE3 E3
IEE4 E3
IEE5 F3
IEE6 E4
IEE7 E6
IEE8 E6

AUDIO	8204 000 8952	4 2009-10-22

18770_532_100119.eps
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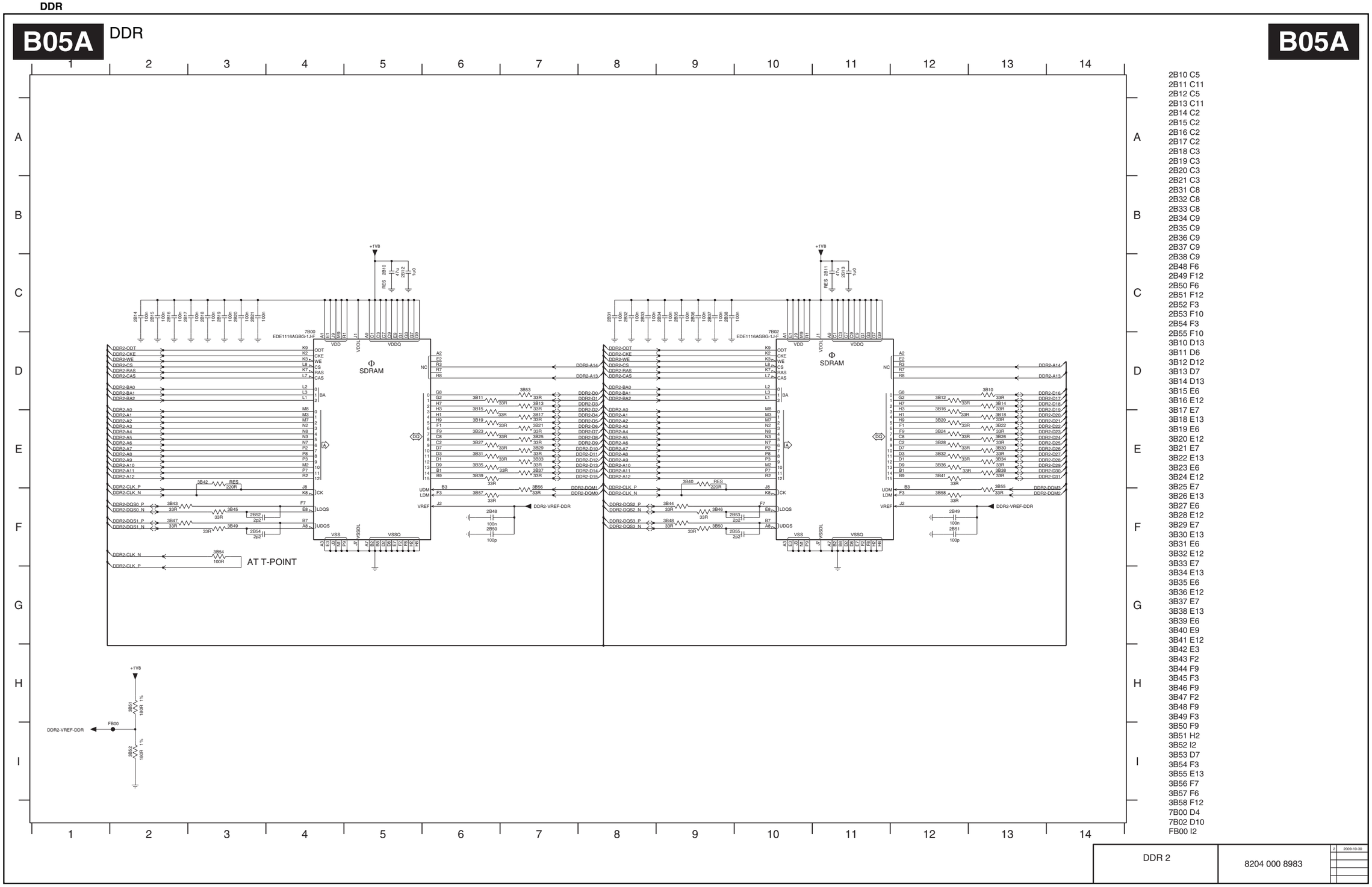
10-15 B05 820400089832 DDR

DDR

B05A DDR



2B10 C5
2B11 C11
2B12 C5
2B13 C11
2B14 C2
2B15 C2
2B16 C2
2B17 C2
2B18 C3
2B19 C3
2B20 C3
2B21 C3
2B31 C8
2B32 C8
2B33 C8
2B34 C9
2B35 C9
2B36 C9
2B37 C9
2B38 C9
2B48 F6
2B49 F12
2B50 F6
2B51 F12
2B52 F3
2B53 F10
2B54 F3
2B55 F10
3B10 D13
3B11 D6
3B12 D12
3B13 D7
3B14 D13
3B15 E6
3B16 E12
3B17 E7
3B18 E13
3B19 E6
3B20 E12
3B21 E7
3B22 E13
3B23 E6
3B24 E12
3B25 E7
3B26 E13
3B27 E6
3B28 E12
3B29 E7
3B30 E13
3B31 E6
3B32 E12
3B33 E7
3B34 E13
3B35 E6
3B36 E12
3B37 E7
3B38 E13
3B39 E6
3B40 E9
3B41 E12
3B42 E3
3B43 F2
3B44 F9
3B45 F3
3B46 F9
3B47 F2
3B48 F9
3B49 F3
3B50 F9
3B51 H2
3B52 I2
3B53 D7
3B54 F3
3B55 E13
3B56 F7
3B57 F6
3B58 F12
7B00 D4
7B02 D10
FB00 I2

DDR 2	8204 000 8983	2 2009-10-30

18770_533_100119.eps
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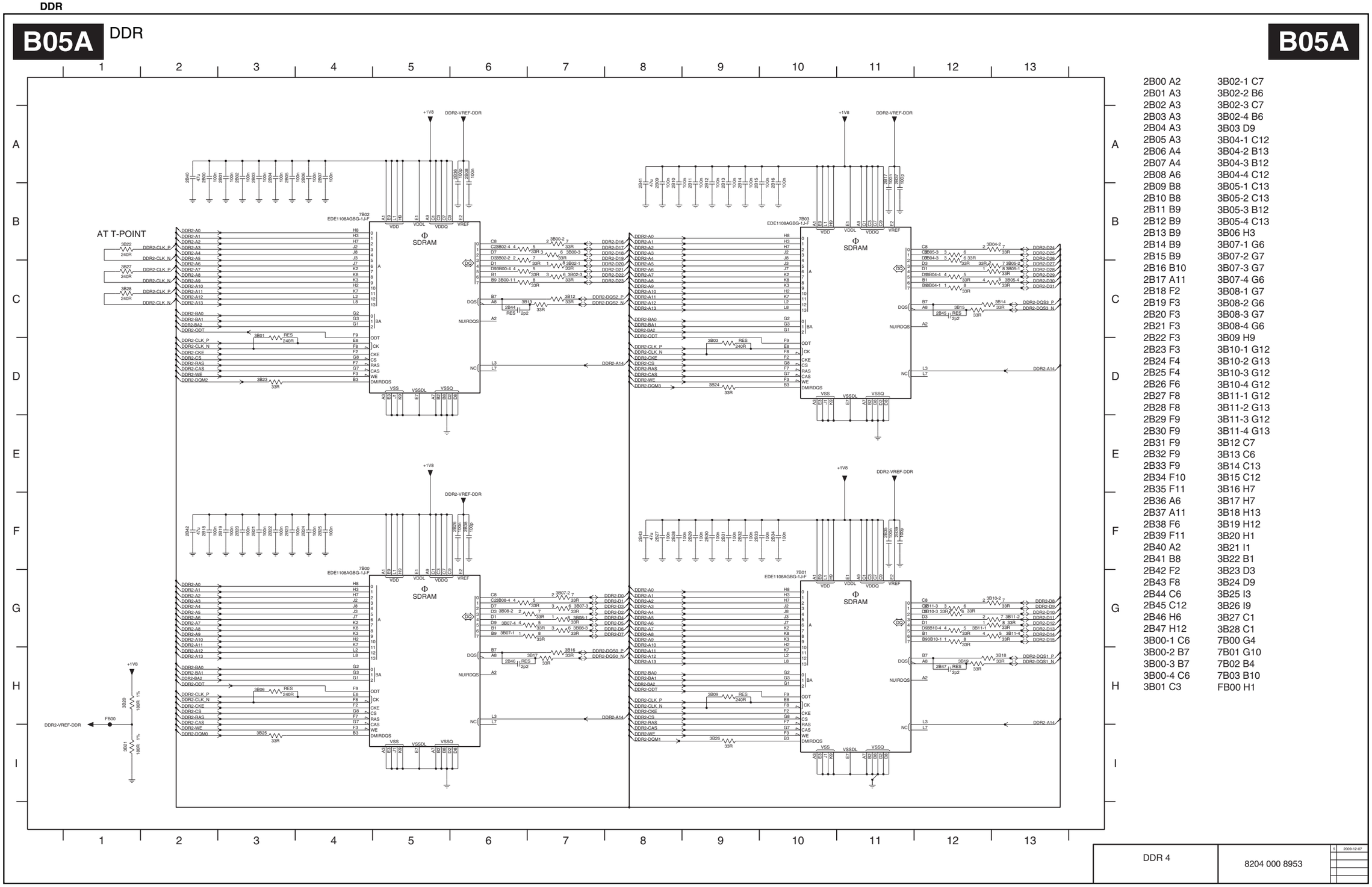
10-16 B05 820400089535 DDR

DDR

B05A DDR



2B00 A2	3B02-1 C7
2B01 A3	3B02-2 B6
2B02 A3	3B02-3 C7
2B03 A3	3B02-4 B6
2B04 A3	3B03 D9
2B05 A3	3B04-1 C12
2B06 A4	3B04-2 B13
2B07 A4	3B04-3 B12
2B08 A6	3B04-4 C12
2B09 B8	3B05-1 C13
2B10 B8	3B05-2 C13
2B11 B9	3B05-3 B12
2B12 B9	3B05-4 C13
2B13 B9	3B06 H3
2B14 B9	3B07-1 G6
2B15 B9	3B07-2 G7
2B16 B10	3B07-3 G7
2B17 A11	3B07-4 G6
2B18 F2	3B08-1 G7
2B19 F3	3B08-2 G6
2B20 F3	3B08-3 G7
2B21 F3	3B08-4 G6
2B22 F3	3B09 H9
2B23 F3	3B10-1 G12
2B24 F4	3B10-2 G13
2B25 F4	3B10-3 G12
2B26 F6	3B10-4 G12
2B27 F8	3B11-1 G12
2B28 F8	3B11-2 G13
2B29 F9	3B11-3 G12
2B30 F9	3B11-4 G13
2B31 F9	3B12 C7
2B32 F9	3B13 C6
2B33 F9	3B14 C13
2B34 F10	3B15 C12
2B35 F11	3B16 H7
2B36 A6	3B17 H7
2B37 A11	3B18 H13
2B38 F6	3B19 H12
2B39 F11	3B20 H1
2B40 A2	3B21 I1
2B41 B8	3B22 B1
2B42 F2	3B23 D3
2B43 F8	3B24 D9
2B44 C6	3B25 I3
2B45 C12	3B26 I9
2B46 H6	3B27 C1
2B47 H12	3B28 C1
3B00-1 C6	7B00 G4
3B00-2 B7	7B01 G10
3B00-3 B7	7B02 B4
3B00-4 C6	7B03 B10
3B01 C3	FB00 H1

DDR 4	8204 000 8953	5 2009-12-07

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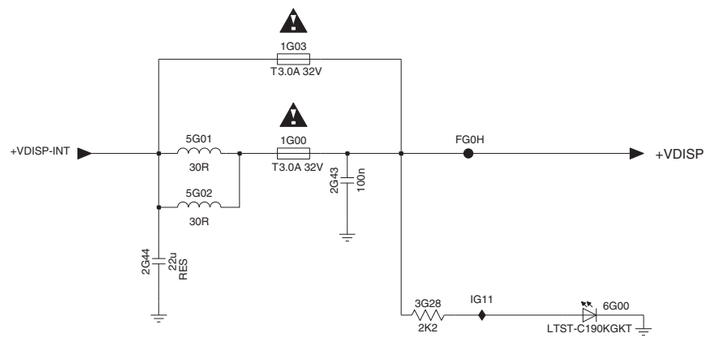
10-17 B06 820400089962 LVDS DVBS

Display Interfacing - VDisp

B06A Display Interfacing - VDisp

B06A



1G00 C4
1G03 B4
2G43 C4
2G44 C3
3G28 C5
5G01 C3
5G02 C3
6G00 C6
FG0H C5
IG11 C5

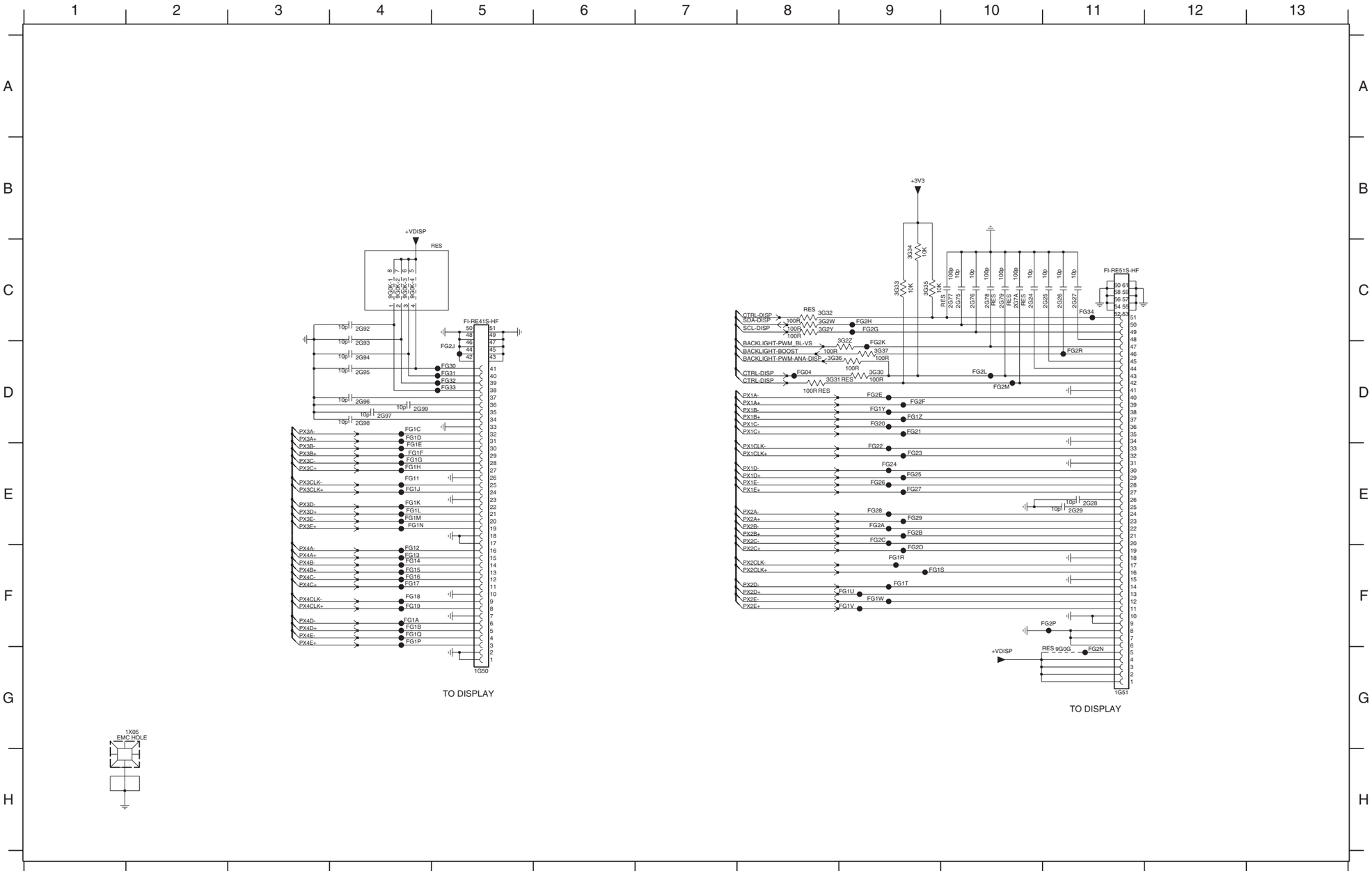
LVDS DVBS	8204 000 8996	2 2009-10-22

18770_535_100119.eps
100218

Video Out - LVDS

B06B Video Out - LVDS

B06B



1G50 G5	FG1C D4
1G51 G11	FG1D D4
1X05 G1	FG1E E4
2G24 C10	FG1F E4
2G25 C11	FG1G E4
2G26 C11	FG1H E4
2G27 C11	FG1J E4
2G28 E11	FG1K E4
2G29 E11	FG1L E4
2G75 C10	FG1M E4
2G76 C10	FG1N E4
2G77 C10	FG1P F4
2G78 C10	FG1Q F4
2G79 C10	FG1R F9
2G7A C10	FG1S F9
2G92 C4	FG1T F9
2G93 C4	FG1U F9
2G94 D4	FG1V F9
2G95 D4	FG1W F9
2G96 D4	FG1Y D9
2G97 D4	FG1Z D9
2G98 D4	FG20 D9
2G99 D4	FG21 D9
3G2W C8	FG22 E9
3G2Y C8	FG23 E9
3G2Z D8	FG24 E9
3G30 D9	FG25 E9
3G31 D8	FG26 E9
3G32 C8	FG27 E9
3G33 C9	FG28 E9
3G34 B9	FG29 E9
3G35 C9	FG2A E9
3G36 D8	FG2B E9
3G37 D9	FG2C E9
9G0G G11	FG2D F9
9G0K-1 C4	FG2E D9
9G0K-2 C4	FG2F D9
9G0K-3 C4	FG2G C9
9G0K-4 C4	FG2H C9
FG04 D8	FG2J D5
FG11 E4	FG2K D9
FG12 F4	FG2L D10
FG13 F4	FG2M D10
FG14 F4	FG2N G11
FG15 F4	FG2P F11
FG16 F4	FG2R D11
FG17 F4	FG30 D5
FG18 F4	FG31 D5
FG19 F4	FG32 D5
FG1A F4	FG33 D5
FG1B F4	FG34 C11

B06B

LVDS DVBS	8204 000 8996	2 2009-10-22

18770_536_100119.eps
100119

AmbiLight CPLD

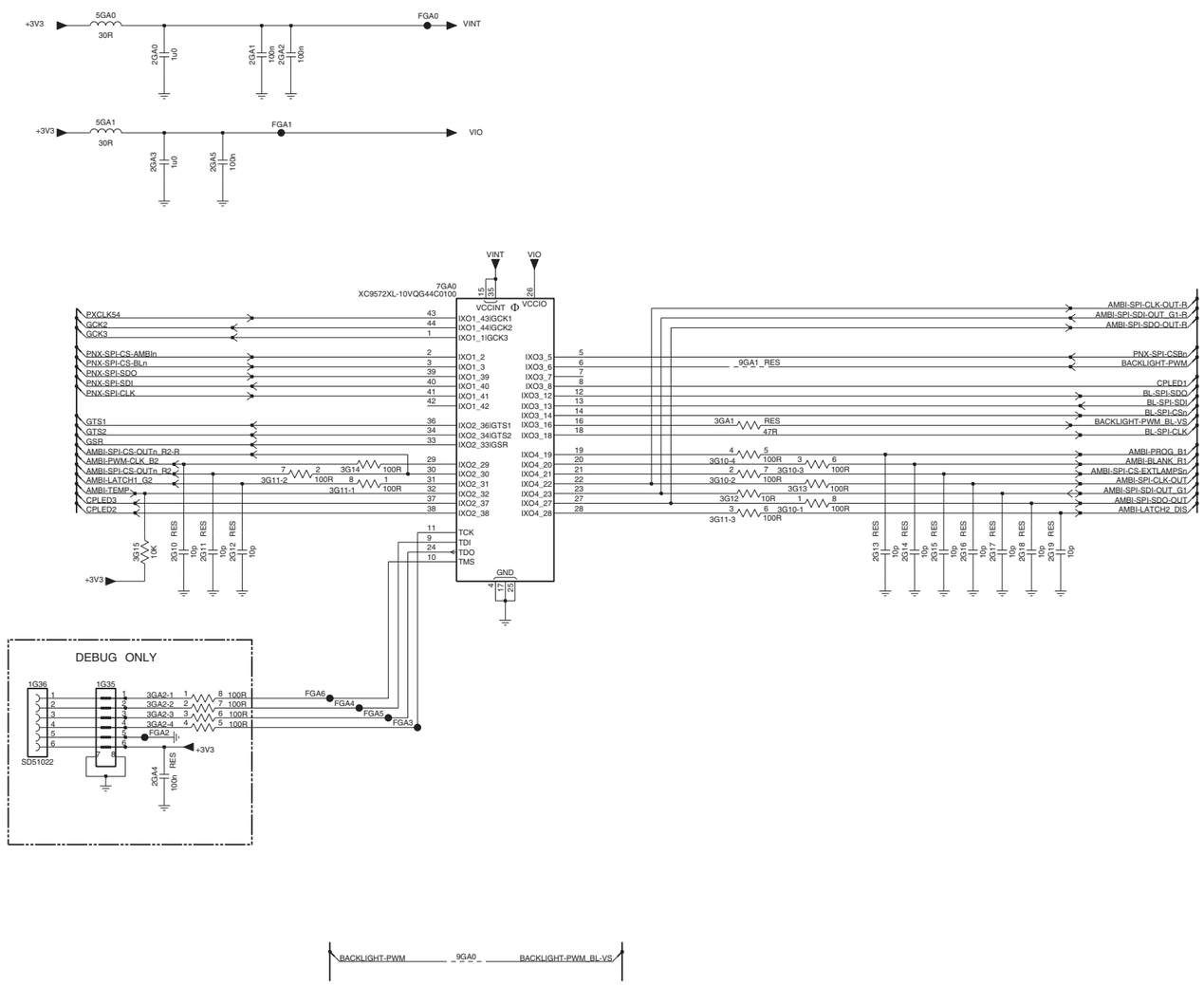
B06C AmbiLight CPLD

B06C

1G35 F2 1G36 F2 1G37 B14 | 2G10 E3 2G11 E3 2G12 E3 | 2G13 E8 2G14 E8 2G15 E8 | 2G16 E8 2G17 E9 2G18 E9 | 2G19 E9 2G0 A3 2G1 A3 | 2G2 A3 2G3 B3 2G4 F3 | 2G5 B3 3G10-1 D7 3G10-2 D7 | 3G10-3 D7 3G10-4 D7 3G11-1 D4 | 3G11-2 D3 3G11-3 D7 3G12 D7 | 3G13 D7 3G14 D4 3G15 E2 | 3GA1 D7 3GA2-1 F3 3GA2-2 F3 | 3GA2-3 F3 3GA2-4 F3 3GA5-1 B13 | 3GA5-2 B13 3GA5-3 B13 3GA5-4 B13 | 3GA6-1 E14 3GA6-2 E14 3GA6-3 E13 | 3GA6-4 E13 5GA0 A2 5GA1 A2 | 6GA0 F13 6GA1 F13 6GA2 F14 | 6GA3 F14 7GA0 C5 7GA1-1 D14 | 7GA1-2 D14 7GA2-1 E13 7GA2-2 E13 | 9GA0 H5 9GA1 C7 FGA0 A5 | FGA1 A3 FGA2 F3 FGA3 F4 | FGA4 F4 FGA5 F4 FGA6 F4 | IGA0 C12 IGA1 C12 IGA2 C12 | IGA3 C12

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

A B C D E F G H



LVDS DVBS	8204 000 8996	2 2009-10-22

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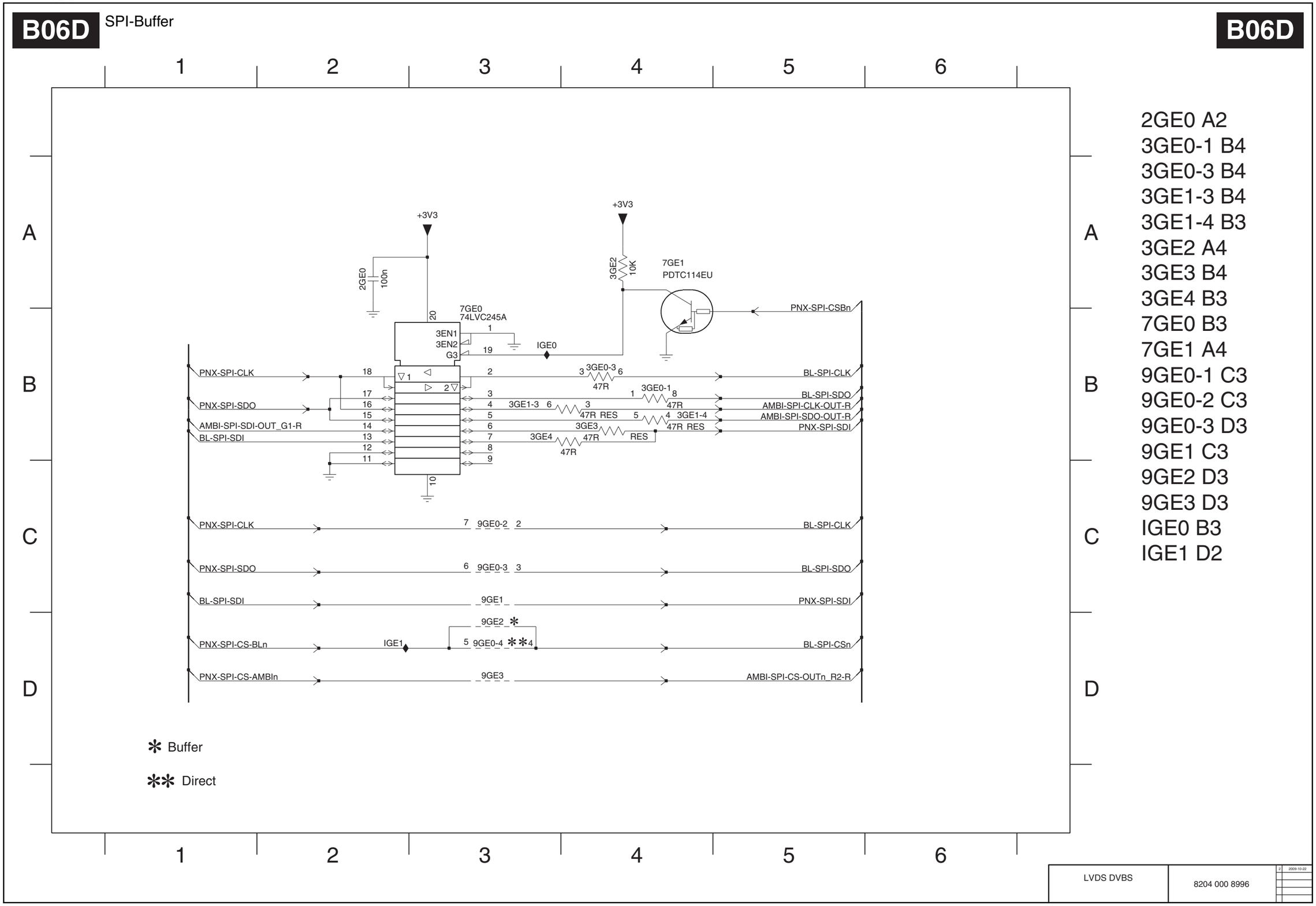
SPI-Buffer

B06D SPI-Buffer



2GE0 A2
3GE0-1 B4
3GE0-3 B4
3GE1-3 B4
3GE1-4 B3
3GE2 A4
3GE3 B4
3GE4 B3
7GE0 B3
7GE1 A4
9GE0-1 C3
9GE0-2 C3
9GE0-3 D3
9GE1 C3
9GE2 D3
9GE3 D3
IGE0 B3
IGE1 D2

LVDS DVBS	8204 000 8996	2 2009-10-22

18770_538_100119.eps
100119

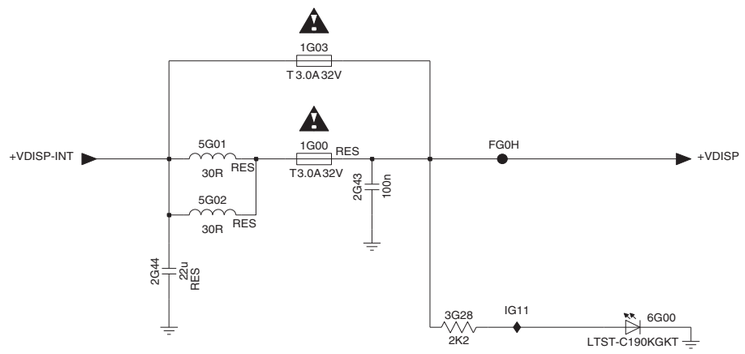
10-18 B06 820400089572 LVDS Non DVBS

Display Interfacing - VDisp

B06A Display Interfacing - VDisp

B06A

1G00 C4
1G03 B4
2G43 C4
2G44 C3
3G28 C5
5G01 C3
5G02 C3
6G00 C6
FG0H C5
IG11 C5



LVDS Non DVBS | 8204 000 8957 | 2 2009-10-22

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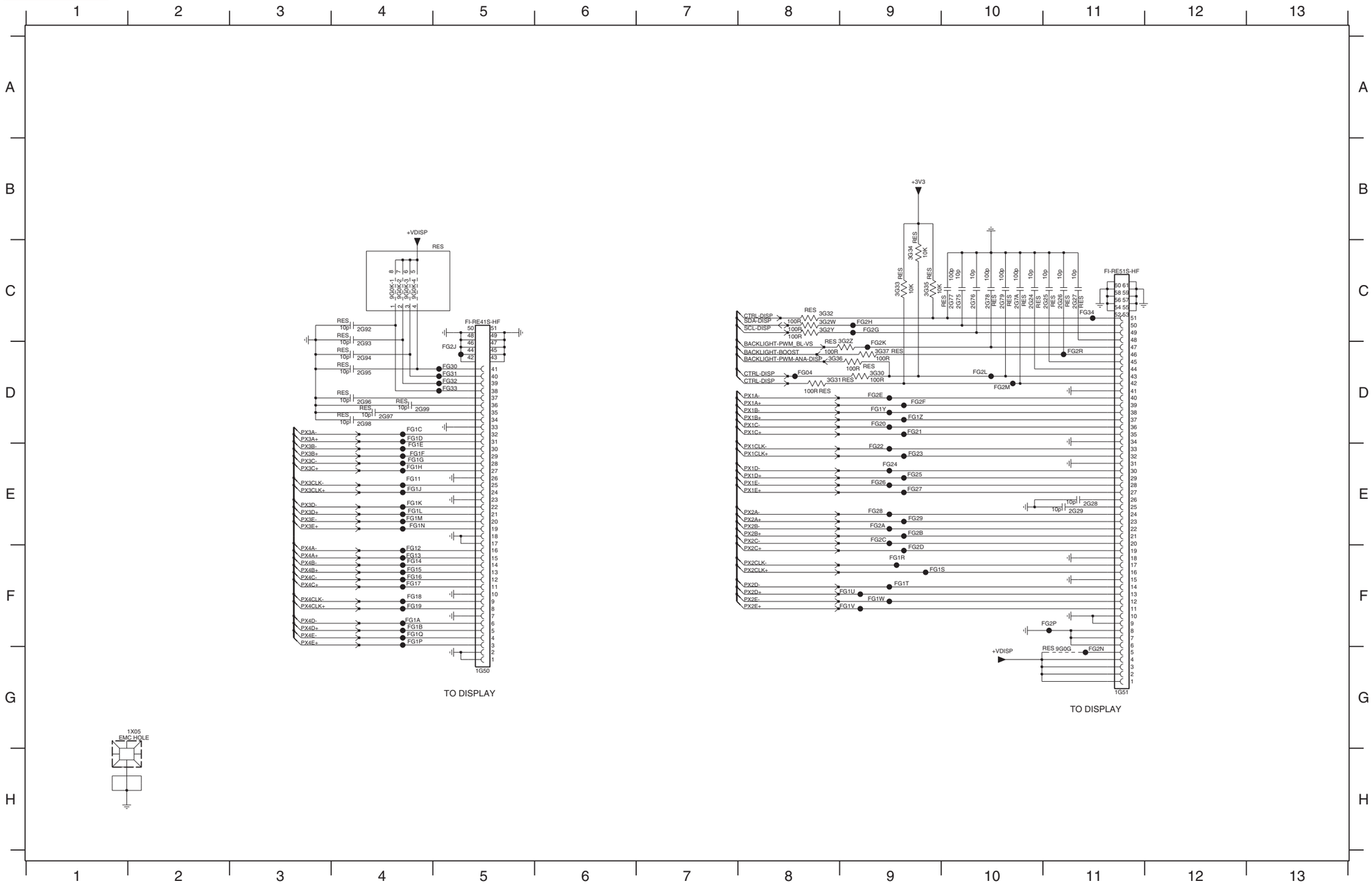
Video Out - LVDS

B06B Video Out - LVDS



1G50 G5	FG1C D4
1G51 G11	FG1D D4
1X05 G1	FG1E E4
2G24 C10	FG1F E4
2G25 C11	FG1G E4
2G26 C11	FG1H E4
2G27 C11	FG1J E4
2G28 E11	FG1K E4
2G29 E11	FG1L E4
2G75 C10	FG1M E4
2G76 C10	FG1N E4
2G77 C10	FG1P F4
2G78 C10	FG1Q F4
2G79 C10	FG1R F9
2G7A C10	FG1S F9
2G92 C4	FG1T F9
2G93 C4	FG1U F9
2G94 D4	FG1V F9
2G95 D4	FG1W F9
2G96 D4	FG1Y D9
2G97 D4	FG1Z D9
2G98 D4	FG20 D9
2G99 D4	FG21 D9
3G2W C8	FG22 E9
3G2Y C8	FG23 E9
3G2Z D8	FG24 E9
3G30 D9	FG25 E9
3G31 D8	FG26 E9
3G32 C8	FG27 E9
3G33 C9	FG28 E9
3G34 B9	FG29 E9
3G35 C9	FG2A E9
3G36 D8	FG2B E9
3G37 D9	FG2C E9
9G0G G11	FG2D F9
9G0K-1 C4	FG2E D9
9G0K-2 C4	FG2F D9
9G0K-3 C4	FG2G C9
9G0K-4 C4	FG2H C9
FG04 D8	FG2J D5
FG11 E4	FG2K D9
FG12 F4	FG2L D10
FG13 F4	FG2M D10
FG14 F4	FG2N G11
FG15 F4	FG2P F11
FG16 F4	FG2R D11
FG17 F4	FG30 D5
FG18 F4	FG31 D5
FG19 F4	FG32 D5
FG1A F4	FG33 D5
FG1B F4	FG34 C11

LVDS Non DVBS	8204 000 8957	2 2009-10-22

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AmbiLight CPLD

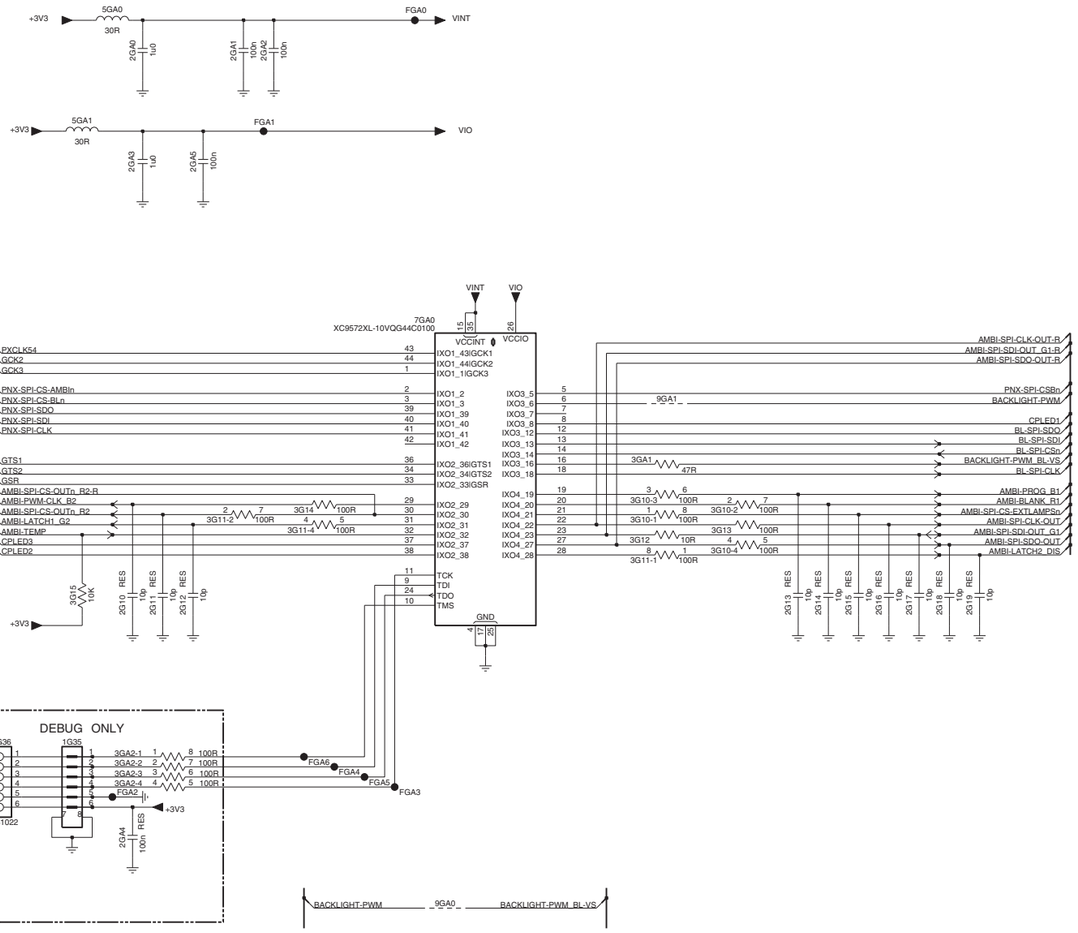
B06C AmbiLight CPLD

B06C

1G35 G2 1G36 G2 1G37 B13 | 2G10 F3 2G11 F3 2G12 F3 | 2G13 F7 2G14 F8 2G15 F8 | 2G16 F8 2G17 F8 2G18 F9 | 2G19 F9 2GA0 B3 2GA1 B4 | 2GA2 B4 2GA3 B3 2GA4 G3 | 2GA5 B3 3G10-1 E6 3G10-2 E7 | 3G10-3 E6 3G10-4 E7 3G11-1 E6 | 3G11-2 E3 3G11-4 E4 3G12 E6 | 3G13 E7 3G14 E4 3G15 E2 | 3GA1 E6 3GA2-1 G3 3GA2-2 G3 | 3GA2-3 G3 3GA2-4 G3 3GA5-1 B12 | 3GA5-2 B12 3GA5-3 B12 3GA5-4 B12 | 3GA6-1 F13 3GA6-2 F13 3GA6-3 F12 | 3GA6-4 F12 5GA0 A3 5GA1 B2 | 6GA0 F12 6GA1 F12 6GA2 F13 | 6GA3 F13 7GA0 D5 7GA1-1 D13 | 7GA1-2 D13 7GA2-1 E12 7GA2-2 E12 | 9GA0 H5 9GA1 D7 FGA0 A5 | FGA1 B4 FGA2 G3 FGA3 G5 | FGA4 G4 FGA5 G5 FGA6 G4 | IGA0 C11 IGA1 C11 IGA2 C11 | IGA3 C11

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

A B C D E F G H



LVDS Non DVBS	8204 000 8957	2 2009-10-22

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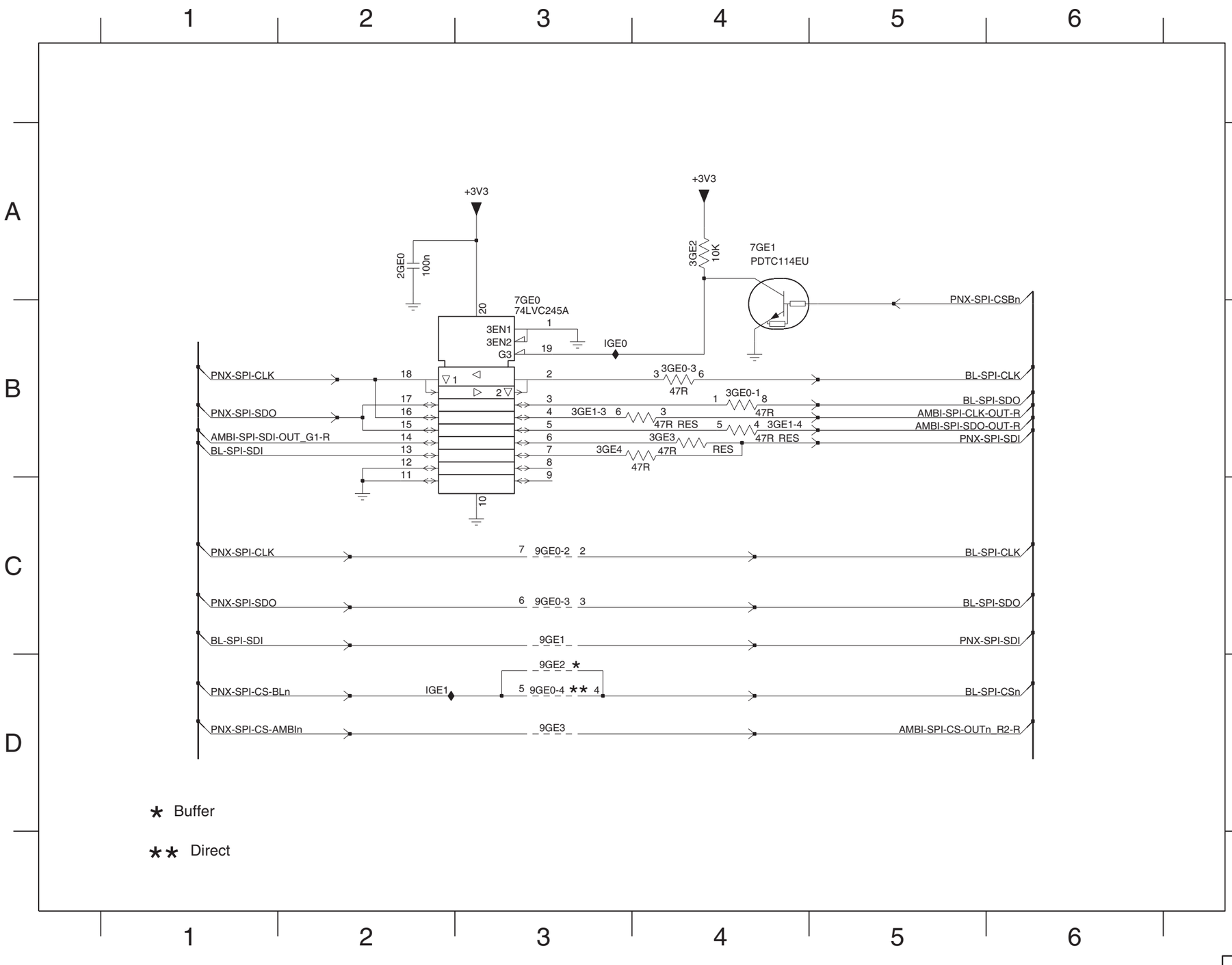
100125

SPI-Buffer

B06D SPI-Buffer

B06D



2GE0 A2
3GE0-1 B4
3GE0-3 B4
3GE1-3 B4
3GE1-4 B3
3GE2 A4
3GE3 B4
3GE4 B3
7GE0 B3
7GE1 A4
9GE0-1 C3
9GE0-2 C3
9GE0-3 D3
9GE1 C3
9GE2 D3
9GE3 D3
IGE0 B3
IGE1 D2

* Buffer

** Direct

LVDS Non DVBS	8204 000 8957	2 2009-10-22

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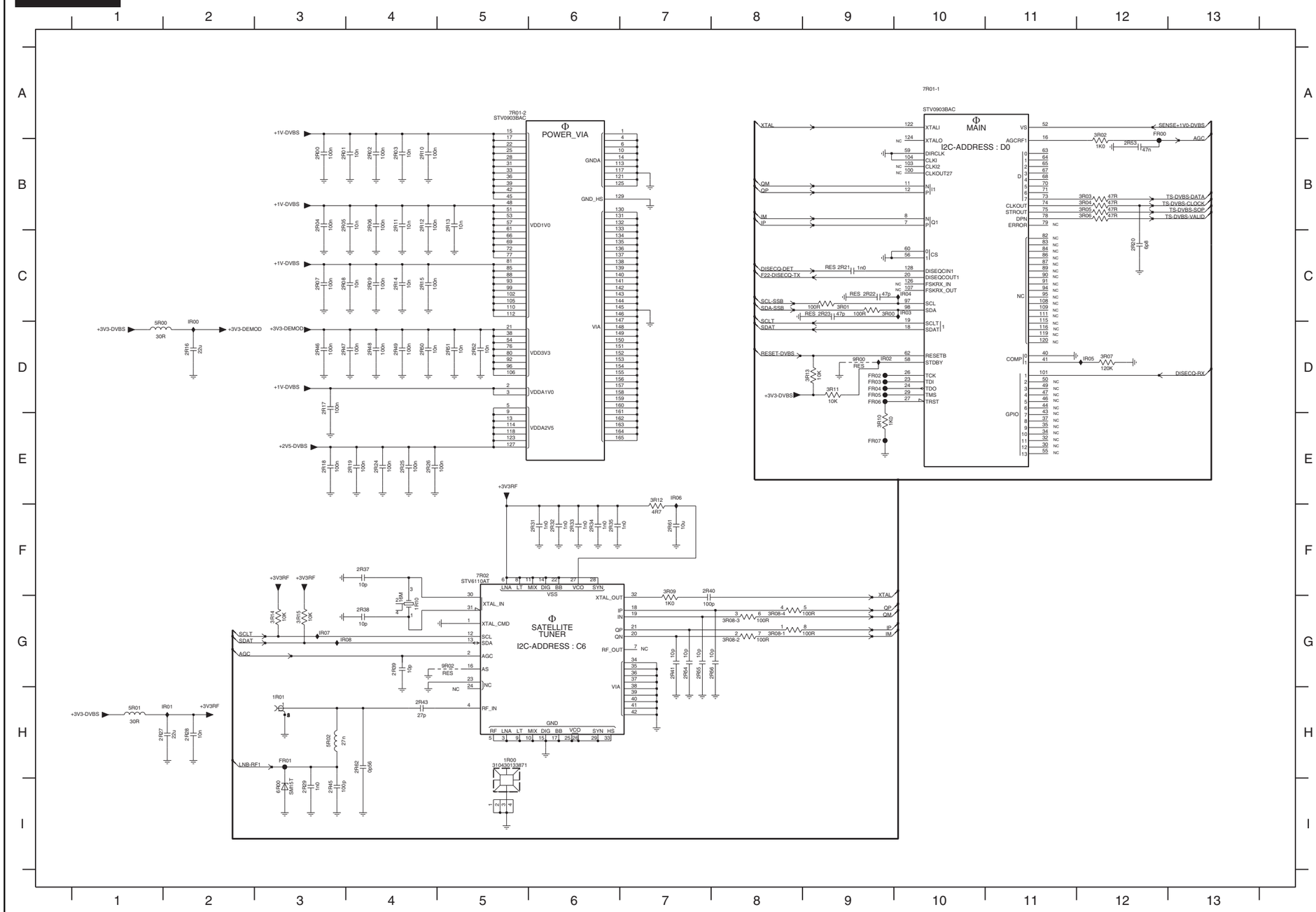
100125

10-19 B07 820400089602 DVBS FE

DVBS-FE

B07A DVBS-FE



1R00 H5	2R53 B12
1R01 H3	2R54 G7
1R10 G4	2R55 G7
2R00 B3	2R56 G8
2R01 B3	2R61 F7
2R02 B4	2R62 H4
2R03 B4	3R00 C9
2R04 B3	3R01 C9
2R05 B3	3R02 A12
2R06 B4	3R03 B12
2R07 C3	3R04 B12
2R08 C3	3R05 B12
2R09 C4	3R06 B12
2R10 B4	3R07 D12
2R11 B4	3R08-1 G8
2R12 B4	3R08-2 G8
2R13 B5	3R08-3 G8
2R14 C4	3R08-4 G8
2R15 C4	3R09 F7
2R16 D2	3R10 E9
2R17 D3	3R11 D9
2R18 E3	3R12 E7
2R19 E4	3R13 D9
2R20 C12	3R14 G3
2R21 C9	3R15 G3
2R22 C9	5R00 D1
2R23 C9	5R01 H1
2R24 E4	5R02 H3
2R25 E4	6R00 I3
2R26 E4	7R01-1 A10
2R27 H1	7R01-2 A5
2R28 H2	7R02 F5
2R29 I3	9R00 D9
2R31 F6	9R02 G5
2R32 F6	FR00 A12
2R33 F6	FR01 H3
2R34 F6	FR02 D9
2R35 F6	FR03 D9
2R37 F4	FR04 D9
2R38 G4	FR05 D9
2R39 G4	FR06 D9
2R40 F7	FR07 E9
2R41 G7	IR00 D2
2R43 H4	IR01 H2
2R45 I3	IR02 D9
2R46 D3	IR03 C10
2R47 D3	IR04 C10
2R48 D4	IR05 D12
2R49 D4	IR06 E7
2R50 D4	IR07 G3
2R51 D5	IR08 G4
2R52 D5	

DVBS-FE	8204 000 8960	2 2009-10-22

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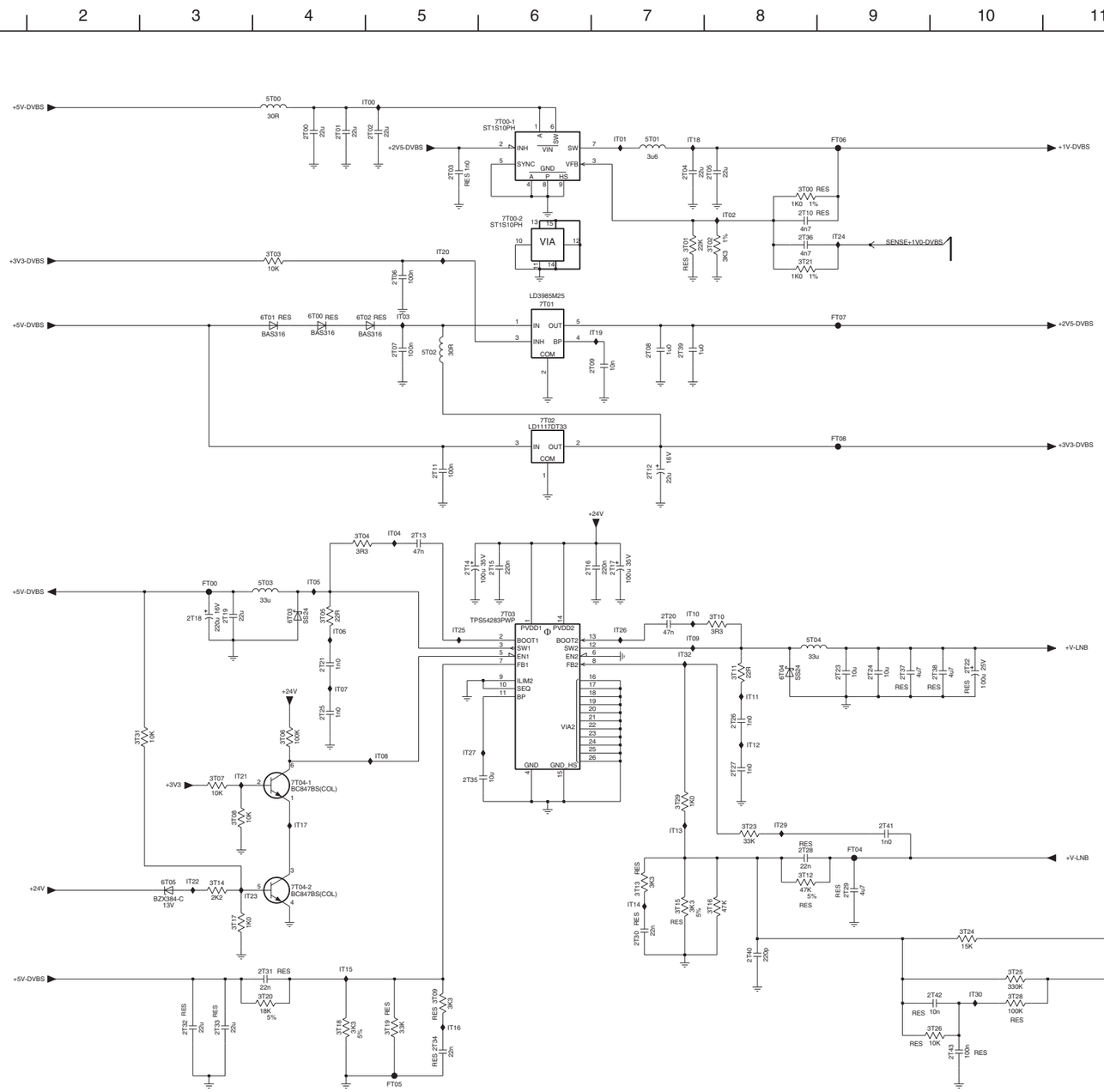
10-20 B08 820400089624 DVBS Supply

DVBS-Supply

B08A DVBS Supply



2T00	A4	3T20	I4
2T01	A4	3T21	B8
2T02	A5	3T23	G8
2T03	B5	3T24	H10
2T04	B7	3T25	I10
2T05	B8	3T26	I10
2T06	B5	3T28	I10
2T07	C5	3T29	G7
2T08	C7	3T31	G2
2T09	C6	5T00	A4
2T10	B8	5T01	A7
2T11	D5	5T02	C5
2T12	D7	5T03	E4
2T13	E5	5T04	F8
2T14	E5	6T00	C4
2T15	E6	6T01	C4
2T16	E6	6T02	C4
2T17	E7	6T03	E4
2T18	E3	6T04	F8
2T19	E3	6T05	H3
2T20	E7	7T00-1	A6
2T21	F4	7T00-2	B6
2T22	F10	7T01	C6
2T23	F9	7T02	D6
2T24	F9	7T03	E6
2T25	F4	7T04-1	G4
2T26	F8	7T04-2	H4
2T27	G8	FT00	E3
2T28	H8	FT04	H9
2T29	H9	FT05	I5
2T30	H7	FT06	A9
2T31	I4	FT07	C9
2T32	I3	FT08	D9
2T33	I3	IT00	A5
2T34	I5	IT01	A7
2T35	G5	IT02	B8
2T36	B8	IT03	C5
2T37	F9	IT04	E5
2T38	F10	IT05	E4
2T39	C7	IT06	F4
2T40	H8	IT07	F4
2T41	G9	IT08	G5
2T42	I10	IT09	F7
2T43	I10	IT10	E7
3T00	B8	IT11	F8
3T01	B7	IT12	G8
3T02	B8	IT13	G7
3T03	B4	IT14	H7
3T04	E4	IT15	I4
3T05	E4	IT16	I5
3T06	G4	IT17	G4
3T07	G3	IT18	A7
3T08	G3	IT19	C7
3T09	I5	IT20	B5
3T10	E8	IT21	G3
3T11	F8	IT22	H3
3T12	H8	IT23	H3
3T13	H7	IT24	B9
3T14	H3	IT25	F5
3T15	H7	IT26	F7
3T16	H8	IT27	G5
3T17	H3	IT29	G8
3T18	I4	IT30	I10
3T19	I5	IT32	F7

1X09 REF EMC HOLE

DVBS-SUPPLY	8204 000 8962	4 2009-10-22

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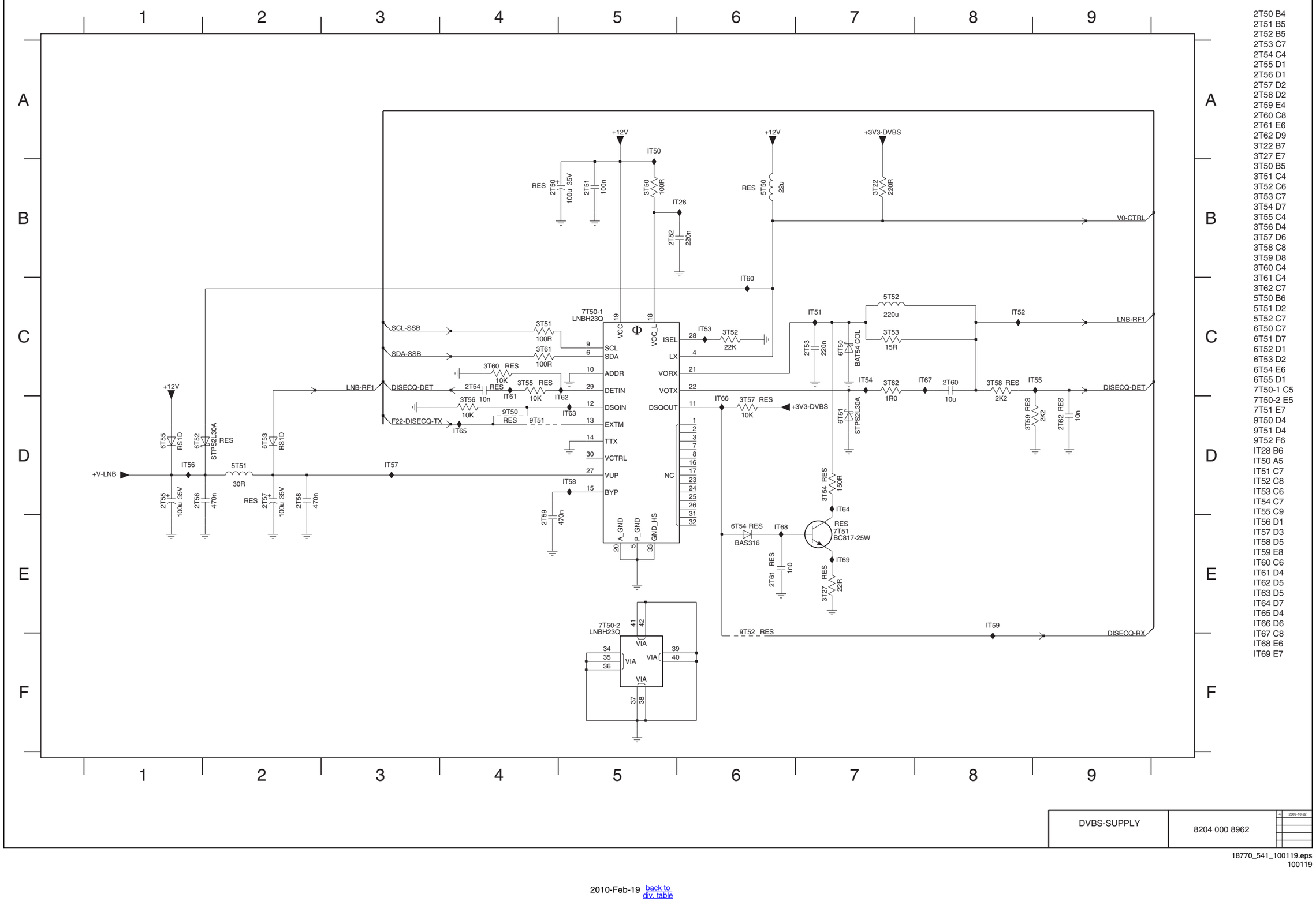
DVBS-Supply

B08B DVBS-Supply

B08B



2T50 B4
2T51 B5
2T52 B5
2T53 C7
2T54 C4
2T55 D1
2T56 D1
2T57 D2
2T58 D2
2T59 E4
2T60 C8
2T61 E6
2T62 D9
3T22 B7
3T27 E7
3T50 B5
3T51 C4
3T52 C6
3T53 C7
3T54 D7
3T55 C4
3T56 D4
3T57 D6
3T58 C8
3T59 D8
3T60 C4
3T61 C4
3T62 C7
5T50 B6
5T51 D2
5T52 C7
6T50 C7
6T51 D7
6T52 D1
6T53 D2
6T54 E6
6T55 D1
7T50-1 C5
7T50-2 E5
7T51 E7
9T50 D4
9T51 D4
9T52 F6
IT28 B6
IT50 A5
IT51 C7
IT52 C8
IT53 C6
IT54 C7
IT55 C9
IT56 D1
IT57 D3
IT58 D5
IT59 E8
IT60 C6
IT61 D4
IT62 D5
IT63 D5
IT64 D7
IT65 D4
IT66 D6
IT67 C8
IT68 E6
IT69 E7

DVBS-SUPPLY	8204 000 8962	4 2009-10-22

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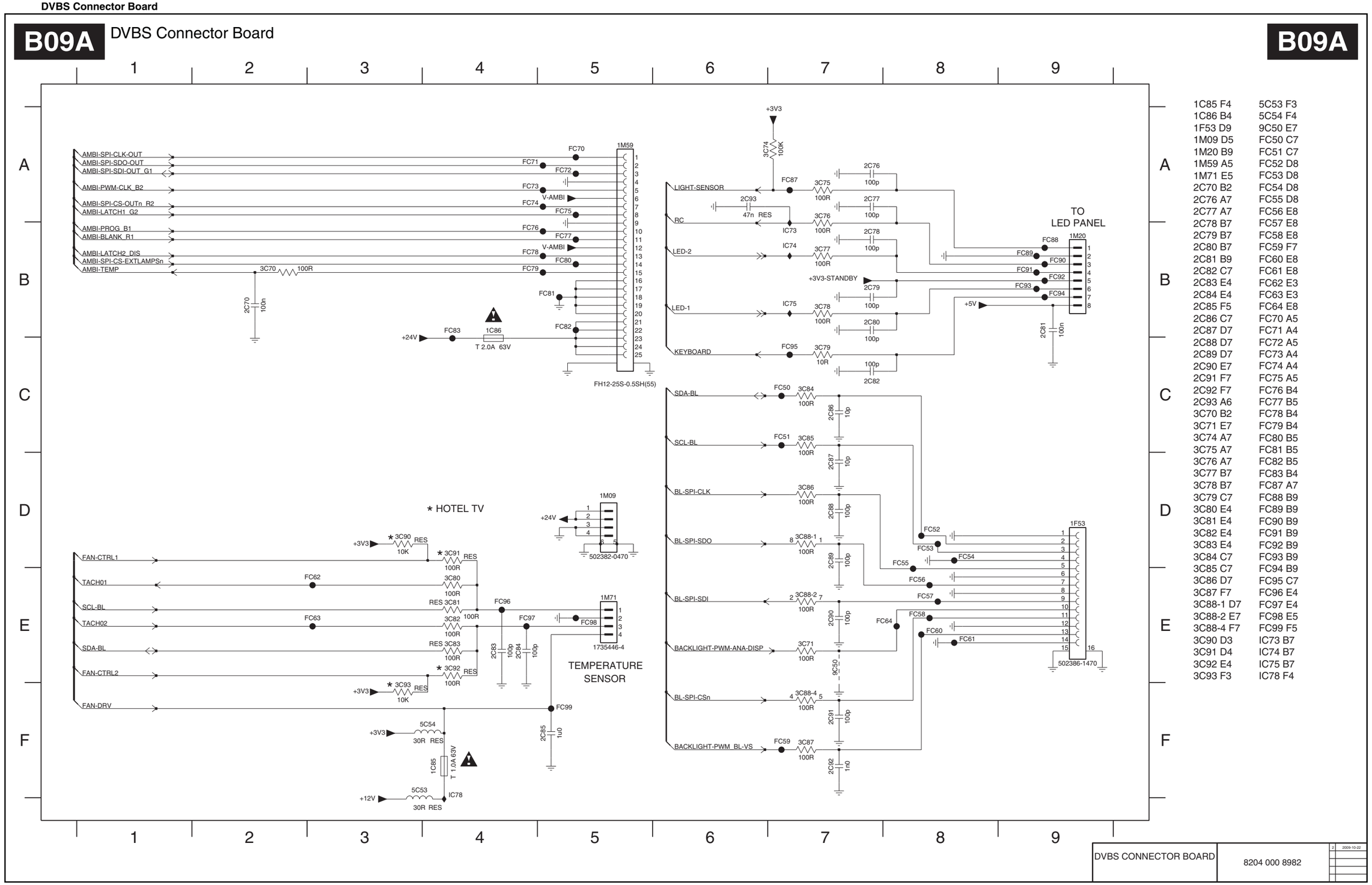
100119

10-21 B09 820400089822 DVBS Con.

DVBS Connector Board

B09A DVBS Connector Board



1C85 F4	5C53 F3
1C86 B4	5C54 F4
1F53 D9	9C50 E7
1M09 D5	FC50 C7
1M20 B9	FC51 C7
1M59 A5	FC52 D8
1M71 E5	FC53 D8
2C70 B2	FC54 D8
2C76 A7	FC55 D8
2C77 A7	FC56 E8
2C78 B7	FC57 E8
2C79 B7	FC58 E8
2C80 B7	FC59 F7
2C81 B9	FC60 E8
2C82 C7	FC61 E8
2C83 E4	FC62 E3
2C84 E4	FC63 E3
2C85 F5	FC64 E8
2C86 C7	FC70 A5
2C87 D7	FC71 A4
2C88 D7	FC72 A5
2C89 D7	FC73 A4
2C90 E7	FC74 A4
2C91 F7	FC75 A5
2C92 F7	FC76 B4
2C93 A6	FC77 B5
3C70 B2	FC78 B4
3C71 E7	FC79 B4
3C74 A7	FC80 B5
3C75 A7	FC81 B5
3C76 A7	FC82 B5
3C77 B7	FC83 B4
3C78 B7	FC87 A7
3C79 C7	FC88 B9
3C80 E4	FC89 B9
3C81 E4	FC90 B9
3C82 E4	FC91 B9
3C83 E4	FC92 B9
3C84 C7	FC93 B9
3C85 C7	FC94 B9
3C86 D7	FC95 C7
3C87 F7	FC96 E4
3C88-1 D7	FC97 E4
3C88-2 E7	FC98 E5
3C88-4 F7	FC99 F5
3C90 D3	IC73 B7
3C91 D4	IC74 B7
3C92 E4	IC75 B7
3C93 F3	IC78 F4

DVBS CONNECTOR BOARD | 8204 000 8982 | 2 2009-10-22

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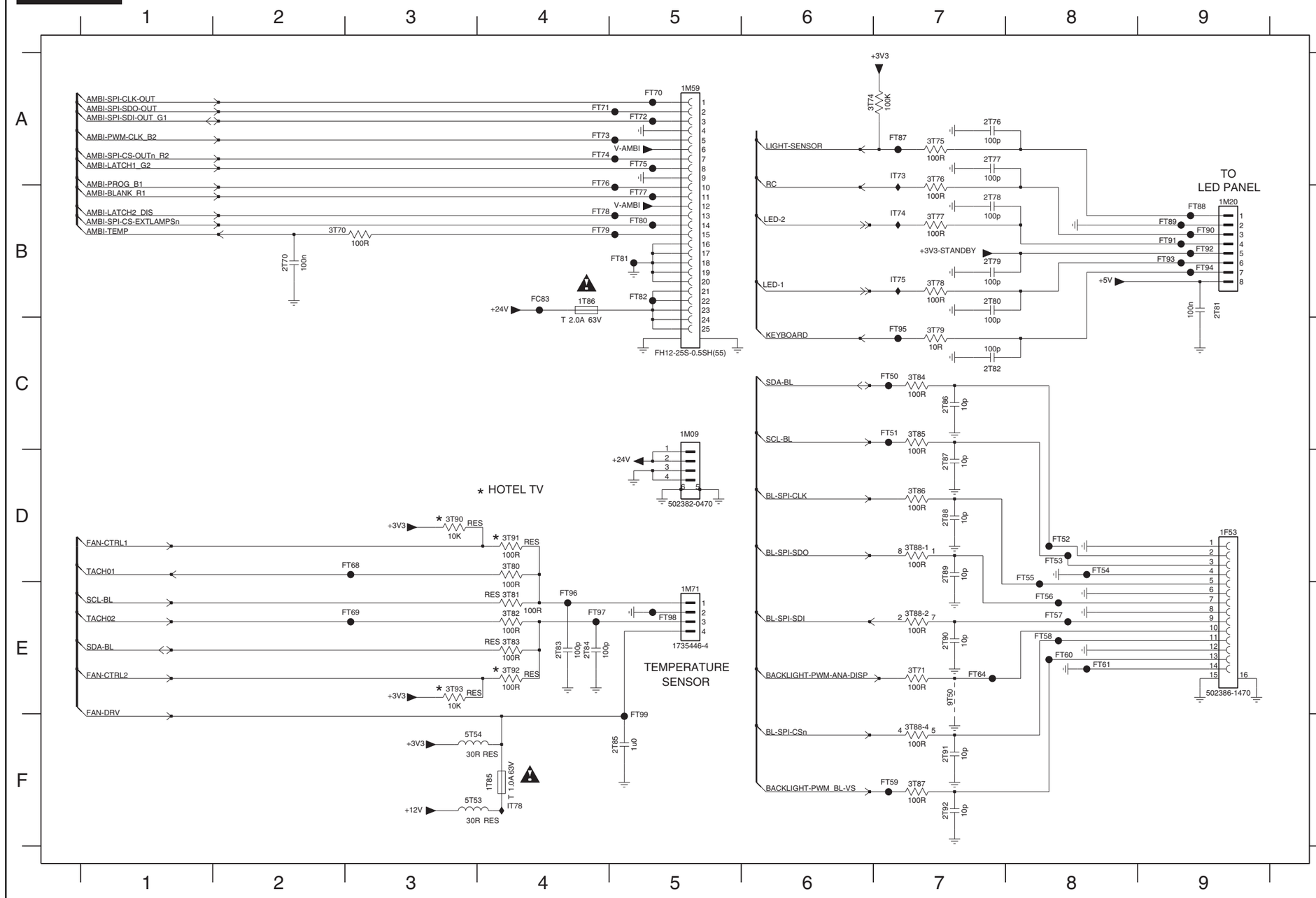
10-22 B09 820400089812 Non DVBS Con.

Non DVBS Connector Board

B09A Non DVBS Connector Board

B09A



1F53 D9	5T54 F3
1M09 C5	9T50 E7
1M20 B9	FC83 B4
1M59 A5	FT50 C7
1M71 E5	FT51 C7
1T85 F4	FT52 D8
1T86 B4	FT53 D8
2T70 B3	FT54 D8
2T76 A7	FT55 D8
2T77 A7	FT56 E8
2T78 B7	FT57 E8
2T79 B7	FT58 E8
2T80 B7	FT59 F7
2T81 B9	FT60 E8
2T82 C7	FT61 E8
2T83 E4	FT64 E7
2T84 E4	FT68 D3
2T85 F5	FT69 E3
2T86 C7	FT70 A5
2T87 D7	FT71 A4
2T88 D7	FT72 A5
2T89 D7	FT73 A4
2T90 E7	FT74 A4
2T91 F7	FT75 A5
2T92 F7	FT76 B4
3T70 B2	FT77 B5
3T71 E7	FT78 B4
3T74 A6	FT79 B4
3T75 A7	FT80 B5
3T76 A7	FT81 B5
3T77 B7	FT82 B5
3T78 B7	FT87 A7
3T79 C7	FT88 B9
3T80 D4	FT89 B9
3T81 E4	FT90 B9
3T82 E4	FT91 B9
3T83 E4	FT92 B9
3T84 C7	FT93 B9
3T85 C7	FT94 B9
3T86 D7	FT95 C7
3T87 F7	FT96 E4
3T88-1 D7	FT97 E4
3T88-2 E7	FT98 E5
3T88-4 F7	FT99 F5
3T90 D3	IT73 A7
3T91 D4	IT74 B7
3T92 E4	IT75 B7
3T93 E3	IT78 F4
5T53 F3	

Non DVBS CONNECTOR BOARD	8204 000 8981	2 2009-10-22

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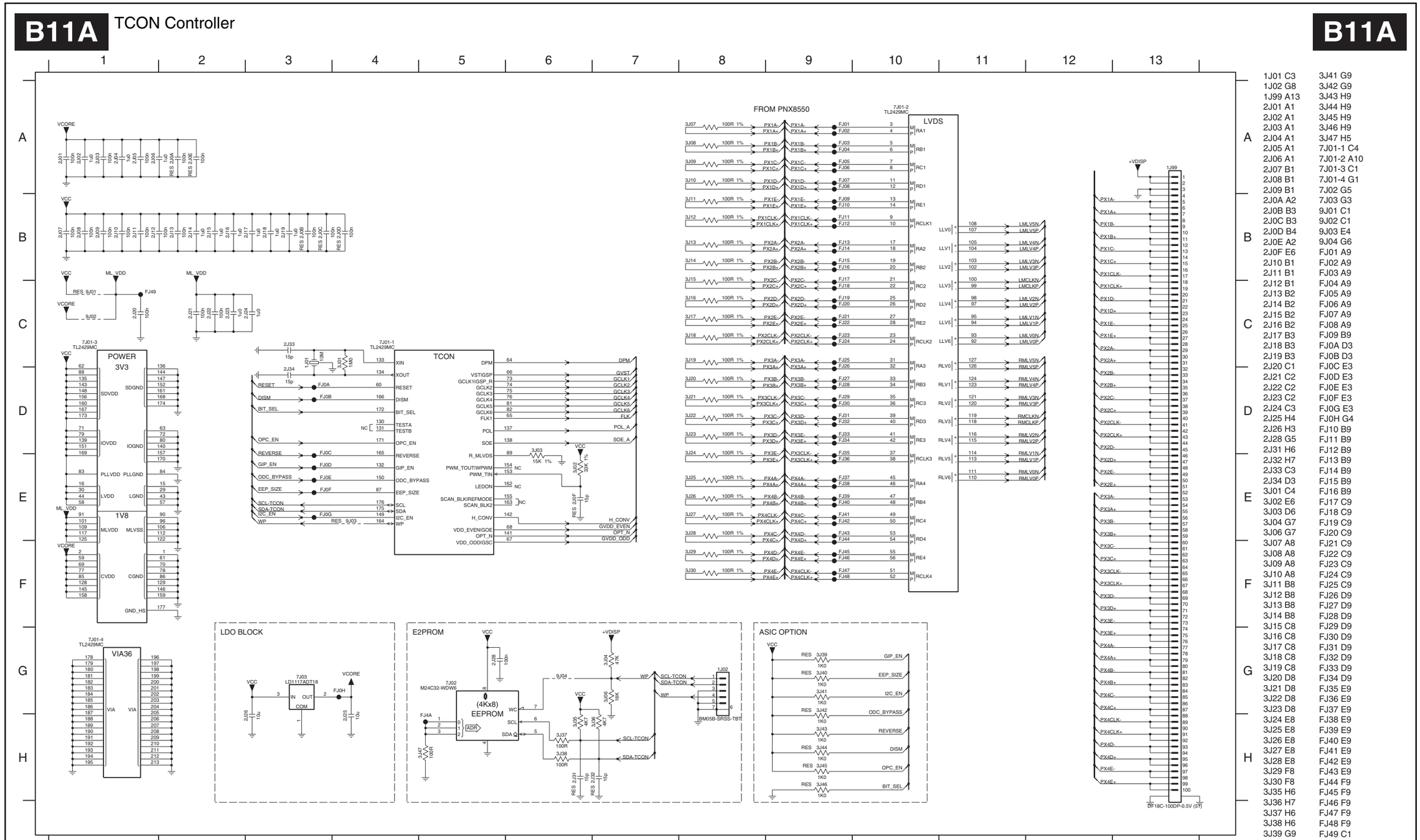
10-23 B11 820400090693 TCON LGD

TCON Controller

B11A TCON Controller



1J01	C3	3J41	G9
1J02	G8	3J42	G9
1J99	A13	3J43	H9
2J01	A1	3J44	H9
2J02	A1	3J45	H9
2J03	A1	3J46	H9
2J04	A1	3J47	H5
2J05	A1	7J01-1	C4
2J06	A1	7J01-2	A10
2J07	B1	7J01-3	C1
2J08	B1	7J01-4	G1
2J09	B1	7J02	G5
2J0A	A2	7J03	G3
2J0B	B3	9J01	C1
2J0C	B3	9J02	C1
2J0D	B4	9J03	E4
2J0E	A2	9J04	G6
2J0F	E6	FJ01	A9
2J10	B1	FJ02	A9
2J11	B1	FJ03	A9
2J12	B1	FJ04	A9
2J13	B2	FJ05	A9
2J14	B2	FJ06	A9
2J15	B2	FJ07	A9
2J16	B2	FJ08	A9
2J17	B3	FJ09	B9
2J18	B3	FJ0A	D3
2J19	B3	FJ0B	D3
2J20	C1	FJ0C	E3
2J21	C2	FJ0D	E3
2J22	C2	FJ0E	E3
2J23	C2	FJ0F	E3
2J24	C3	FJ0G	E3
2J25	H4	FJ0H	G4
2J26	H3	FJ10	B9
2J28	G5	FJ11	B9
2J31	H6	FJ12	B9
2J32	H7	FJ13	B9
2J33	C3	FJ14	B9
2J34	D3	FJ15	B9
3J01	C4	FJ16	B9
3J02	E6	FJ17	C9
3J03	D6	FJ18	C9
3J04	G7	FJ19	C9
3J06	G7	FJ20	C9
3J07	A8	FJ21	C9
3J08	A8	FJ22	C9
3J09	A8	FJ23	C9
3J10	A8	FJ24	C9
3J11	B8	FJ25	C9
3J12	B8	FJ26	D9
3J13	B8	FJ27	D9
3J14	B8	FJ28	D9
3J15	C8	FJ29	D9
3J16	C8	FJ30	D9
3J17	C8	FJ31	D9
3J18	C8	FJ32	D9
3J19	C8	FJ33	D9
3J20	D8	FJ34	D9
3J21	D8	FJ35	E9
3J22	D8	FJ36	E9
3J23	D8	FJ37	E9
3J24	E8	FJ38	E9
3J25	E8	FJ39	E9
3J26	E8	FJ40	E9
3J27	E8	FJ41	E9
3J28	E8	FJ42	E9
3J29	F8	FJ43	E9
3J30	F8	FJ44	F9
3J35	H6	FJ45	F9
3J36	H7	FJ46	F9
3J37	H6	FJ47	F9
3J38	H6	FJ48	F9
3J39	G9	FJ49	C1
3J40	G9	FJ4A	H5

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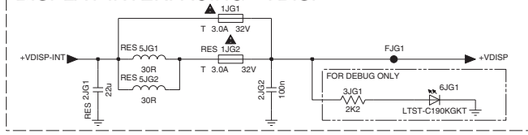
TCON DC/DC

B11B TCON DC/DC

B11B

DISPLAY INTERFACING - VDISP



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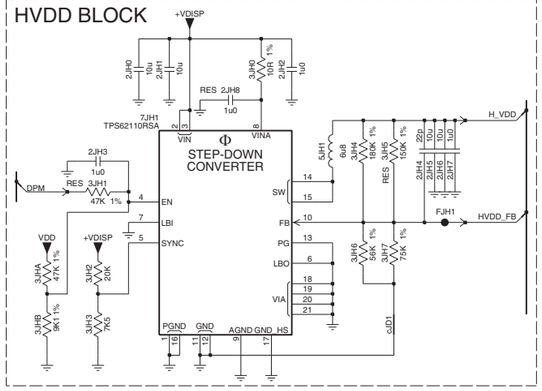

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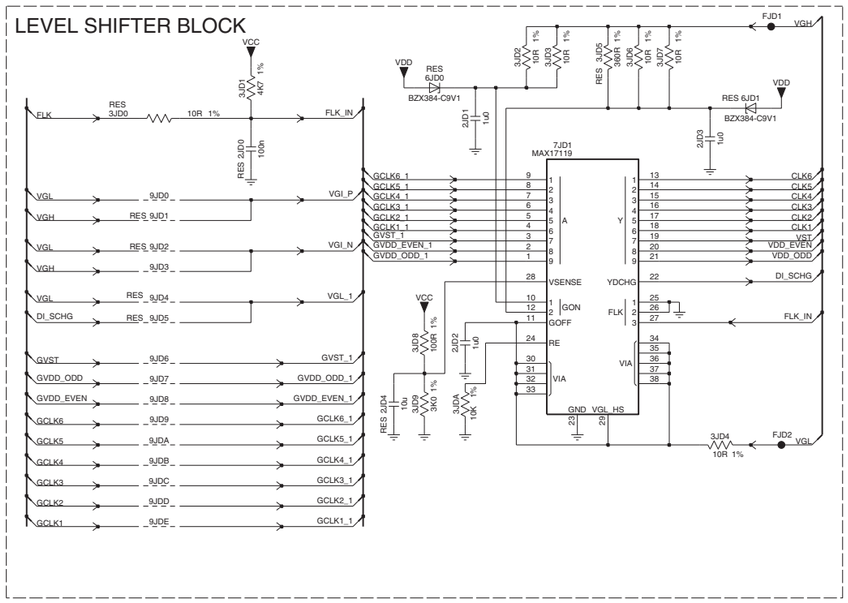
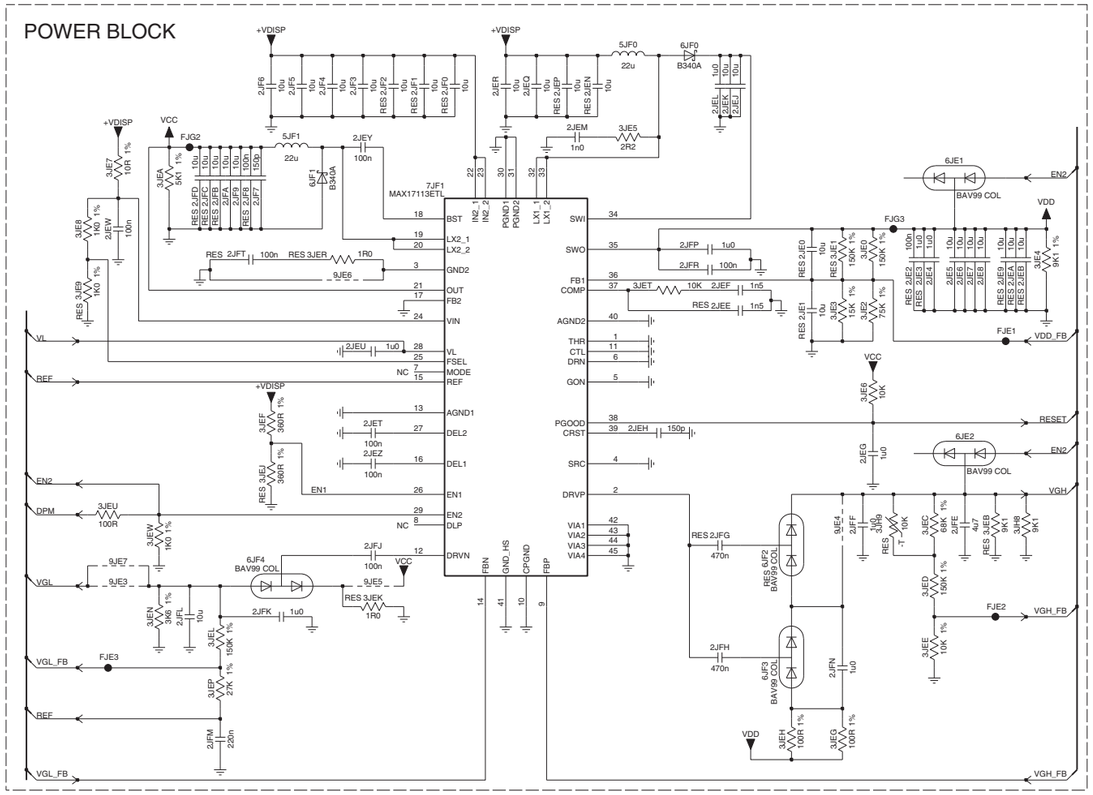


POWER BLOCK



ITEM NO	32 INCH	37 INCH	42 INCH
3JE0	143K	137K	150K
3JED	174K	196K	150K
3JEC	33K	68K	68K
3JEP	51K	18K	27K
3JEL	270K	140K	150K
3JH4	180K	390K	180K
3JH5	RES	330K	RES
3JH6	47K	56K	56K
3JH7	82K	75K	75K

1JG1 A2	3JE2 C13	2JF6 B9	5JH1 C3
1JG2 B2	3JE3 C13	2JF7 B9	6JD0 F4
2JD0 F2	3JE4 C14	2JF8 B8	6JD1 F6
2JD1 F4	3JE5 B11	2JF9 B8	6JE1 B13
2JD2 G4	3JE6 D13	2JFA B8	6JE2 D13
2JD3 F6	3JE7 B8	2JFB B8	6JF0 A12
2JD4 H3	3JE8 C7	2JFC B8	6JF1 B9
2JE0 C12	3JE9 C7	2JFD B8	6JF2 E12
2JE1 C12	3JEA B8	2JFE E13	6JF3 F12
2JE2 C13	3JEB E14	2JFF E13	6JF4 E9
2JE3 C13	3JEC E13	2JFG E12	6JG1 B4
2JE4 C13	3JED E13	2JFH F12	7JD1 F5
2JE5 C13	3JEE E13	2JFJ E9	7JF1 B10
2JE6 C13	3JEF D9	2JFK E9	7JH1 C2
2JE7 C14	3JEG F13	2JFL E8	9JD0 F2
2JE8 C14	3JEH F12	2JFM F8	9JD1 G2
2JE9 C14	3JEJ D9	2JFN F13	9JD2 G2
2JEA C14	3JEK E9	2JFP C12	9JD3 G2
2JEB C14	3JEL E8	2JFR C12	9JD4 G2
2JEE C12	3JEN E8	2JFT C8	9JD5 G2
2JEF C12	3JEP F8	2JG1 B1	9JD6 H2
2JEG D13	3JER C9	2JG2 B3	9JD7 H2
2JEH D11	3JET C11	2JH0 C2	9JD8 H2
2JEJ B12	3JEU E7	2JH1 C2	9JD9 H2
2JEK B12	3JEW E8	2JH2 C3	9JDA H2
2JEL B12	3JG1 B3	2JH3 C1	9JDB H2
2JEM B11	3JH0 C3	2JH4 C4	9JDC H2
2JEN B11	3JH1 D1	2JH5 C4	9JDD I2
2JEP B11	3JH2 D1	2JH6 C4	9JDE I2
2JEQ B10	3JH3 D1	2JH7 C4	9JE3 E8
2JER B10	3JH4 C3	2JH8 C2	9JE4 E13
2JET D9	3JH5 C3	3JD0 F2	9JE5 E9
2JEU C9	3JH6 D3	3JD1 F2	9JE6 C9
2JEW C7	3JH7 D3	3JD2 E4	9JE7 E8
2JEY B9	3JH8 E14	3JD3 E5	FJD1 E6
2JEZ D9	3JH9 E13	3JD4 H6	FJD2 H6
2JF0 B10	3JHA D1	3JD5 E5	FJE1 C14
2JF1 B10	3JHB D1	3JD6 E5	FJE2 E14
2JF2 B9	5JF0 A11	3JD7 E5	FJE3 F7
2JF3 B9	5JF1 B9	3JD8 G4	FJG1 B3
2JF4 B9	5JG1 A2	3JD9 H4	FJG2 B8
2JF5 B9	5JG2 B2	3JDA H4	FJG3 C13
2JF6 B9	5JH1 C3	3JE0 C13	FJH1 D4
2JF7 B9	6JD0 F4	3JE1 C13	cJD1 D3

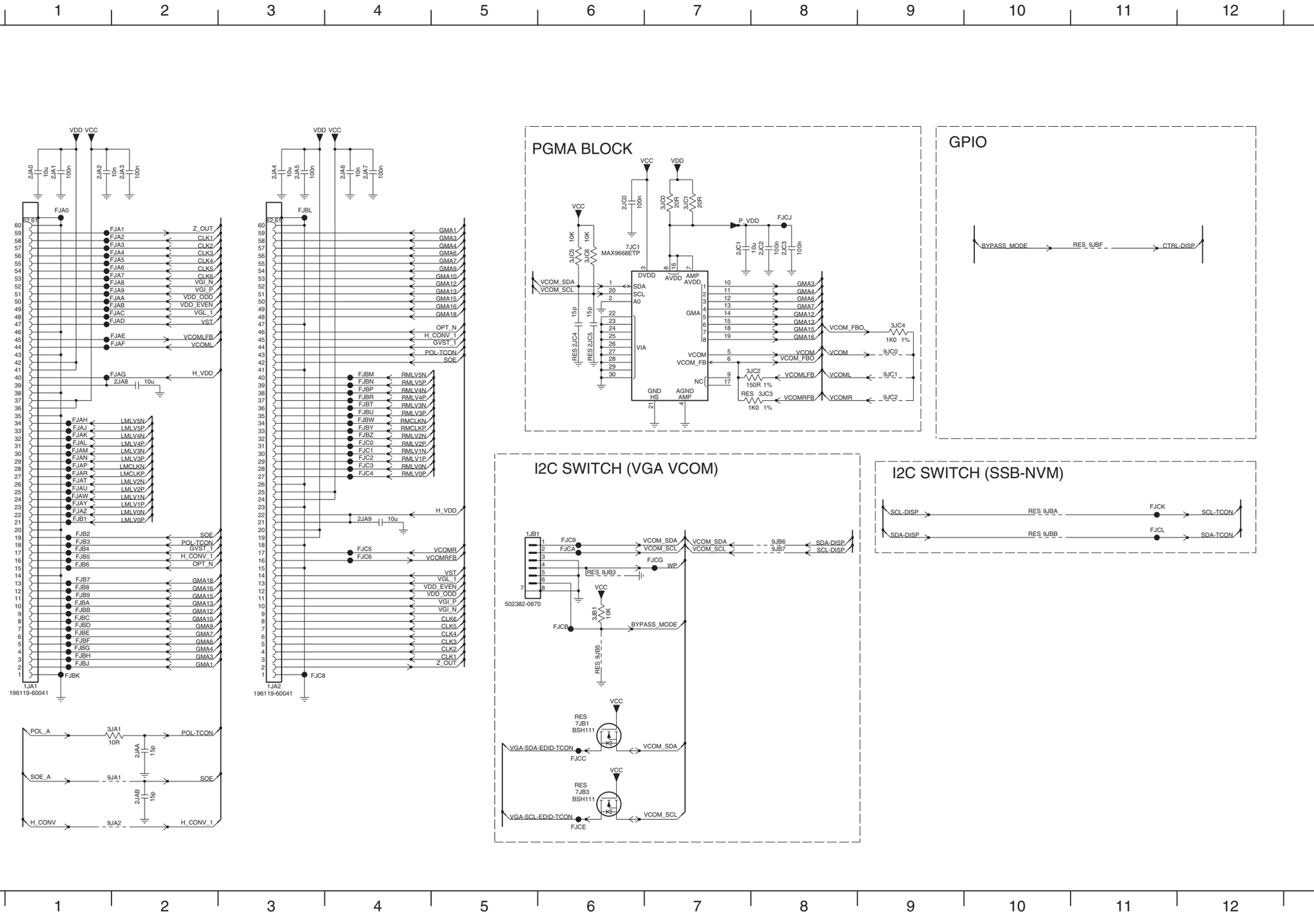
TCON LGD	8204 000 9069	3	2009-11-12
		2	2009-10-26

18770_548_100119.eps
100119

Mini LVDS

B11C Mini LVDS

B11C



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	1JA2 G3	FJAH D1
	1JB1 E5	FJAJ D1
	2JA0 B1	FJAK D1
A	2JA1 B1	FJAL D1
	2JA2 B1	FJAM D1
	2JA3 B2	FJAN E1
	2JA4 B3	FJAP E1
	2JA5 B3	FJAR E1
	2JA6 B4	FJAT E1
	2JA7 B4	FJAU E1
B	2JA8 D2	FJAW E1
	2JA9 E4	FJAY E1
	2JAA G2	FJAZ E1
	2JAB H2	FJB1 E1
	2JC0 B6	FJB2 E1
	2JC1 C7	FJB3 E1
	2JC2 C8	FJB4 E1
	2JC3 C8	FJB5 E1
C	2JC4 C6	FJB6 F1
	2JC5 C6	FJB7 F1
	3JA1 G2	FJB8 F1
	3JB1 F6	FJB9 F1
	3JC0 B7	FJBA F1
	3JC1 B7	FJBB F1
	3JC2 D8	FJBC F1
D	3JC3 D8	FJBD F1
	3JC4 C9	FJBE F1
	3JC5 C6	FJBF F1
	3JC6 C6	FJBG F1
	7JB1 G6	FJBH F1
	7JB3 H6	FJBJ F1
	7JC1 C6	FJBK G1
	9JA1 H2	FJBL B3
E	9JA2 H2	FJBM D4
	9JB3 F6	FJBN D4
	9JB5 F6	FJBP D4
	9JB6 E8	FJBR D4
	9JB7 E8	FJBT D4
	9JBA E10	FJBU D4
	9JBB E10	FJBW D4
F	9JBF C11	FJBY D4
	9JC0 D9	FJBZ D4
	9JC1 D9	FJC0 D4
	9JC2 D9	FJC1 D4
	FJA0 B1	FJC2 E4
	FJA1 B2	FJC3 E4
	FJA2 B2	FJC4 E4
G	FJA3 C2	FJC5 E4
	FJA4 C2	FJC6 E4
	FJA5 C2	FJC8 G3
	FJA6 C2	FJC9 E6
	FJA7 C2	FJCA E6
	FJA8 C2	FJCB F6
	FJA9 C2	FJCC G6
H	FJAA C2	FJCE H6
	FJAB C2	FJCG E7
	FJAC C2	FJCJ B8
	FJAD C2	FJCK E11
	FJAE C2	FJCL E11
	FJAF C2	

TCON LGD	8204 000 9069	3	2009-11-12
		2	2009-10-26

18770_549_100119.eps
100119

Connectors

B11D Connectors

B11D

Dummy testlands for common jig

FJZA FJZB FJZC FJZD FJZE FJZF FJZG FJZH FJZJ FJZK
FJZL FJZM FJZN FJZP FJZQ FJZR FJZT FJZU FJZV FJZW
FJZY FJZZ FJYA FJYB FJYC FJYD FJYE FJYF FJYG FJYH
FJYJ FJYK FJYL FJYM FJYN FJYP FJYQ FJYV FJYZ FJY1
FJY2 FJY3 FJY4 FJY5 FJY6 FJY9
FJYR FJYT FJYU FJYW FJY7 FJY8 FJZ1 FJZ2

FJ5A FJ5B FJ5C FJ5D FJ5F

LIGHT STRIP

1P12 — 502382-0470

FJ50 — +5V — 3J89 100R — LED-1

2J93 100n — 2J94 100p

LED PANEL

1M20 — 2041145-8

FJ88 FJ89 FJ90 FJ91 FJ92 FJ93 FJ94 FJ51

+3V3-STANDBY — +5V

2J79 100p — 2J81 100n

+3V3 — 3J74 100K

LIGHT-SENSOR — 3J75 100R — 2J76 100p

RC — 3J76 100R — RES 2J95 47n — 2J77 100p

LED-2 — 3J77 100R — 2J78 100p

LED-1 — 3J78 100R — 2J80 100p

KEYBOARD — 3J79 10R — 2J82 100p

TEMPERATURE SENSOR

1M71 — 2041145-4

FJ96 FJ98 FJ97 FJ99

2J84 100p — 2J83 100p

3J80 100R — TACH01

RES 3J81 100R — SCL-BL

3J82 100R — TACH02

RES 3J83 100R — SDA-BL

1J85 T 1.0A 63V — FAN-DRV

2J85 1u0

5J54 RES 30R — +3V3

5J53 RES 30R — +12V

SDA-BL — 3J84 100R — 2J86 10p

SCL-BL — 3J85 100R — 2J87 10p

BL-SPI-CLK — 3J86 100R — 2J88 100p

BL-SPI-SDO — 3J88-2 100R — 2J89 100p

BL-SPI-SDI — 3J88-4 100R — 2J90 100p

BL-SPI-CSn — 3J88-1 100R — 2J91 100p

BACKLIGHT-PWM_BL-VS — 3J87 100R — 2J92 1n0

2D DIMMING

1F53 — 502386-1470

FJ52 FJ53 FJ54 FJ55 FJ56 FJ57 FJ58 FJ60

OVAL SCREW HOLE — 1X03 REF EMC HOLE

ROUND SCREW HOLE 4mm — 1X05 EMC HOLE

ROUND SCREW HOLE 4.5mm — 1X08 EMC HOLE

1F53 D8	FJ89 B8	3J75 A6	FJYL A1
1J85 D2	FJ90 B8	3J76 A6	FJYM A1
1M20 B8	FJ91 B8	3J77 B6	FJYN B1
1M71 C1	FJ92 B8	3J78 B6	FJYP B1
1P12 B3	FJ93 B8	3J79 C6	FJYQ B1
1X03 E8	FJ94 B8	3J80 C2	FJYR A3
1X05 E8	FJ96 D1	3J81 C2	FJYT A3
1X08 E9	FJ97 D1	3J82 D2	FJYU A3
2J76 A7	FJ98 D1	3J83 D2	FJYV B1
2J77 B7	FJ99 D1	3J84 C6	FJYW A3
2J78 B7	FJY1 B1	3J85 D6	FJYZ B1
2J79 B8	FJY2 A2	3J86 D6	FJZ1 B3
2J80 C7	FJY3 A2	3J87 F6	FJZ2 B3
2J81 B8	FJY4 A2	3J88-1 E6	FJZA A1
2J82 C7	FJY5 A2	3J88-2 E6	FJZB A1
2J83 D1	FJY6 B2	3J88-4 E6	FJZC A1
2J84 D1	FJY7 B3	3J89 B4	FJZD A1
2J85 D1	FJY8 B3	5J53 E3	FJZE B1
2J86 D7	FJY9 B2	5J54 D3	FJZF B1
2J87 D7	FJYA A1	FJ50 B3	FJZG B1
2J88 D7	FJYB A1	FJ51 B8	FJZH B1
2J89 E7	FJYC B1	FJ52 D8	FJZJ B1
2J90 E7	FJYD B1	FJ53 D8	FJZK B1
2J91 F7	FJYE B1	FJ54 D8	FJZL A1
2J92 F7	FJYF B1	FJ55 D8	FJZM A1
2J93 C3	FJYG B1	FJ56 D8	FJZN A1
2J94 C4	FJYH B1	FJ57 D8	FJZP A1
2J95 B6	FJYJ A1	FJ58 D8	FJZQ B1
3J74 A6	FJYK A1	FJ5A B1	FJZR B1
		FJ5B B1	FJZT B1
		FJ5C B1	FJZU B1
		FJ5D B1	FJZV B1
		FJ5F C1	FJZW B1
		FJ60 E8	FJZY A1
		FJ88 B8	FJZZ A1

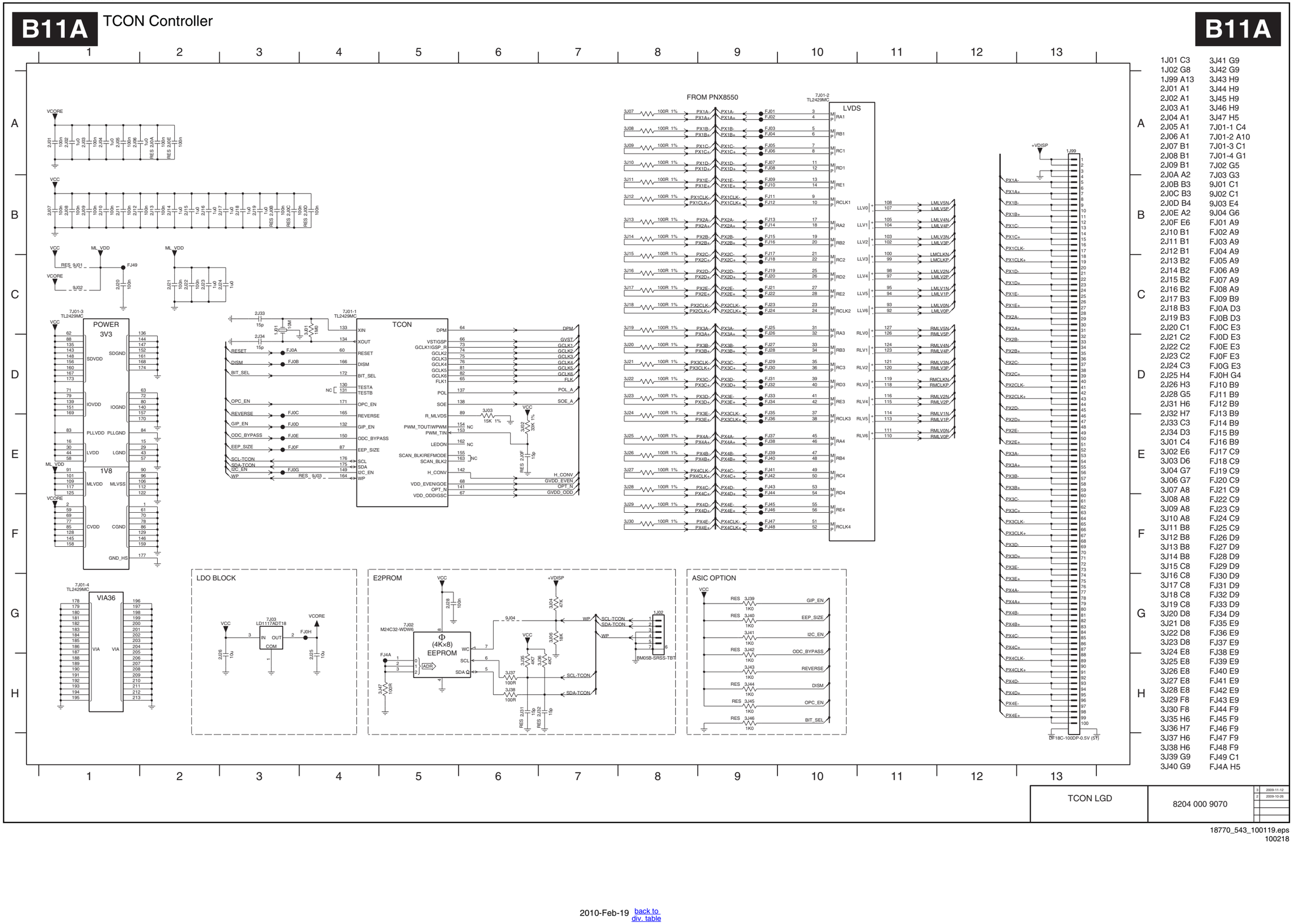
TCON LGD	8204 000 9069	3 2009-11-12 2 2009-10-26

18770_550_100119.eps
100119

10-24 B11 820400090704 TCON LGD

TCON Controller

B11A TCON Controller



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2J02	A1	3J45	H9
2J03	A1	3J46	H9
2J04	A1	3J47	H5
2J05	A1	7J01-1	C4
2J06	A1	7J01-2	A10
2J07	B1	7J01-3	C1
2J08	B1	7J01-4	G1
2J09	B1	7J02	G5
2J0A	A2	7J03	G3
2J0B	B3	9J01	C1
2J0C	B3	9J02	C1
2J0D	B4	9J03	E4
2J0E	A2	9J04	G6
2J0F	E6	FJ01	A9
2J10	B1	FJ02	A9
2J11	B1	FJ03	A9
2J12	B1	FJ04	A9
2J13	B2	FJ05	A9
2J14	B2	FJ06	A9
2J15	B2	FJ07	A9
2J16	B2	FJ08	A9
2J17	B3	FJ09	B9
2J18	B3	FJ0A	D3
2J19	B3	FJ0B	D3
2J20	C1	FJ0C	E3
2J21	C2	FJ0D	E3
2J22	C2	FJ0E	E3
2J23	C2	FJ0F	E3
2J24	C3	FJ0G	E3
2J25	H4	FJ0H	G4
2J26	H3	FJ10	B9
2J28	G5	FJ11	B9
2J31	H6	FJ12	B9
2J32	H7	FJ13	B9
2J33	C3	FJ14	B9
2J34	D3	FJ15	B9
3J01	C4	FJ16	B9
3J02	E6	FJ17	C9
3J03	D6	FJ18	C9
3J04	G7	FJ19	C9
3J06	G7	FJ20	C9
3J07	A8	FJ21	C9
3J08	A8	FJ22	C9
3J09	A8	FJ23	C9
3J10	A8	FJ24	C9
3J11	B8	FJ25	C9
3J12	B8	FJ26	D9
3J13	B8	FJ27	D9
3J14	B8	FJ28	D9
3J15	C8	FJ29	D9
3J16	C8	FJ30	D9
3J17	C8	FJ31	D9
3J18	C8	FJ32	D9
3J19	C8	FJ33	D9
3J20	D8	FJ34	D9
3J21	D8	FJ35	E9
3J22	D8	FJ36	E9
3J23	D8	FJ37	E9
3J24	E8	FJ38	E9
3J25	E8	FJ39	E9
3J26	E8	FJ40	E9
3J27	E8	FJ41	E9
3J28	E8	FJ42	E9
3J29	F8	FJ43	E9
3J30	F8	FJ44	F9
3J35	H6	FJ45	F9
3J36	H7	FJ46	F9
3J37	H6	FJ47	F9
3J38	H6	FJ48	F9
3J39	G9	FJ49	C1
3J40	G9	FJA4	H5

TCON LGD	8204 000 9070

3	2009-11-12
2	2009-10-26

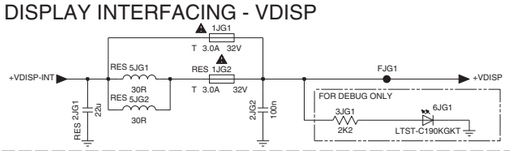
18770_543_100119.eps
100218

TCON DC/DC

B11B TCON DC/DC

B11B

DISPLAY INTERFACING - VDISP



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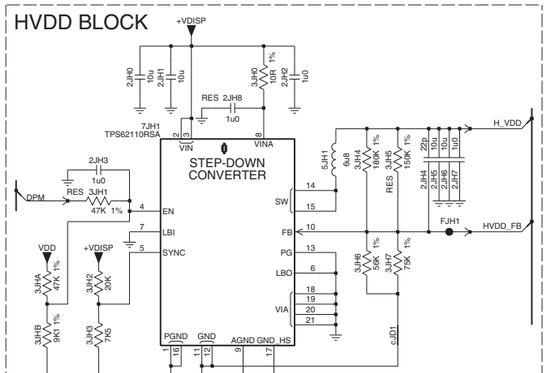

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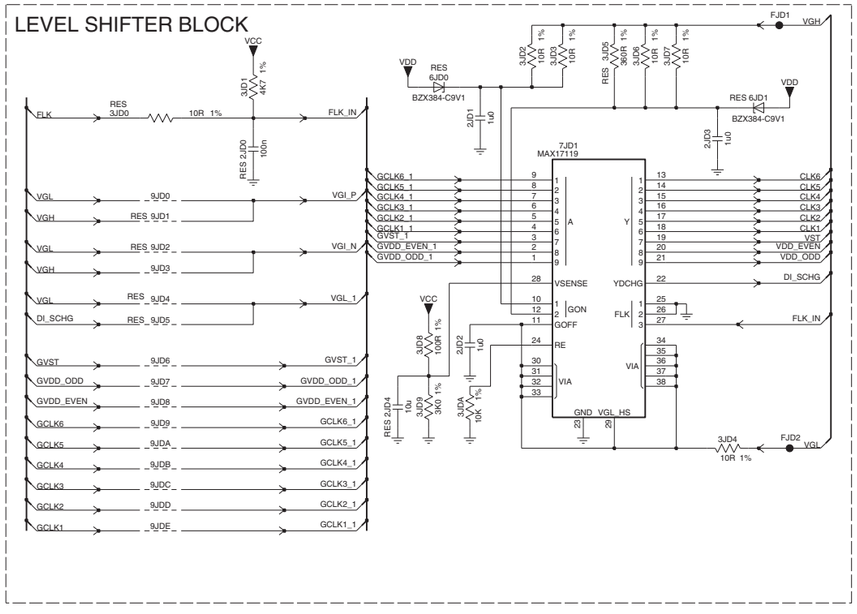

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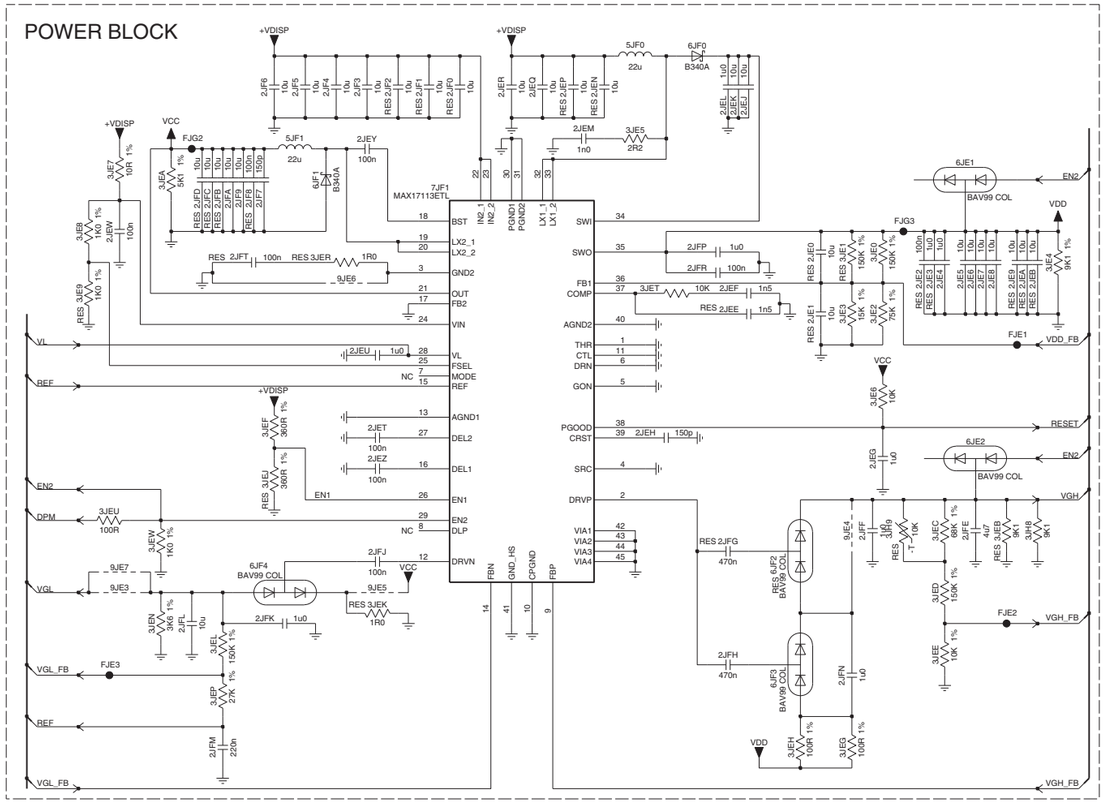

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3JED	174K	196K	150K
3JEC	33K	68K	68K
3JEP	51K	18K	27K
3JEL	270K	140K	150K
3JH4	180K	390K	180K
3JH5	RES	330K	RES
3JH6	47K	56K	56K
3JH7	82K	75K	75K

1JG1 A2
1JG2 B2
2JD0 F2
2JD1 F4
2JD2 G4
2JD3 F6
2JD4 H3
2JE0 C12
2JE1 C12
2JE2 C13
2JE3 C13
2JE4 C13
2JE5 C13
2JE6 C13
2JE7 C14
2JE8 C14
2JE9 C14
2JEA C14
2JEB C14
2JEE C12
2JEF C12
2JEG D13
2JEH D11
2JEJ B12
2JEK B12
2JEL B12
2JEM B11
2JEN B11
2JEP B11
2JEQ B10
2JER B10
2JET D9
2JEU C9
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2JEZ D9
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2JF1 B10
2JF2 B9
2JF3 B9
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2JF7 B9
2JF8 B8
2JF9 B8
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2JFB B8
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2JFF E13
2JFG E12
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2JFL E8
2JFM F8
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2JFR C12
2JFT C8
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2JG2 B3
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2JH1 C2
2JH2 C3
2JH3 C1
2JH4 C4
2JH5 C4
2JH6 C4
2JH7 C4
2JH8 C2
3JD0 F2
3JD1 F2
3JD2 E4
3JD3 E5
3JD4 H6
3JD5 E5
3JD6 E5
3JD7 E5
3JD8 G4
3JD9 H4
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3JEF D9
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3JEH F12
3JEJ D9
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3JEL E8
3JEN E8
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3JER C9
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3JG1 B3
3JH0 C3
3JH1 D1
3JH2 D1
3JH3 D1
3JH4 C3
3JH5 C3
3JH6 D3
3JH7 D3
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3JHA D1
3JHB D1
5JF0 A11
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9JD4 G2
9JD5 G2
9JD6 H2
9JD7 H2
9JD8 H2
9JD9 H2
9JDA H2
9JDB H2
9JDC H2
9JDD I2
9JDE I2
9JE3 E8
9JE4 E13
9JE5 E9
9JE6 C9
9JE7 E8
FJD1 E6
FJD2 H6
FJE1 C14
FJE2 E14
FJE3 F7
FJG1 B3
FJG2 B8
FJG3 C13
FJH1 D4
cJD1 D3

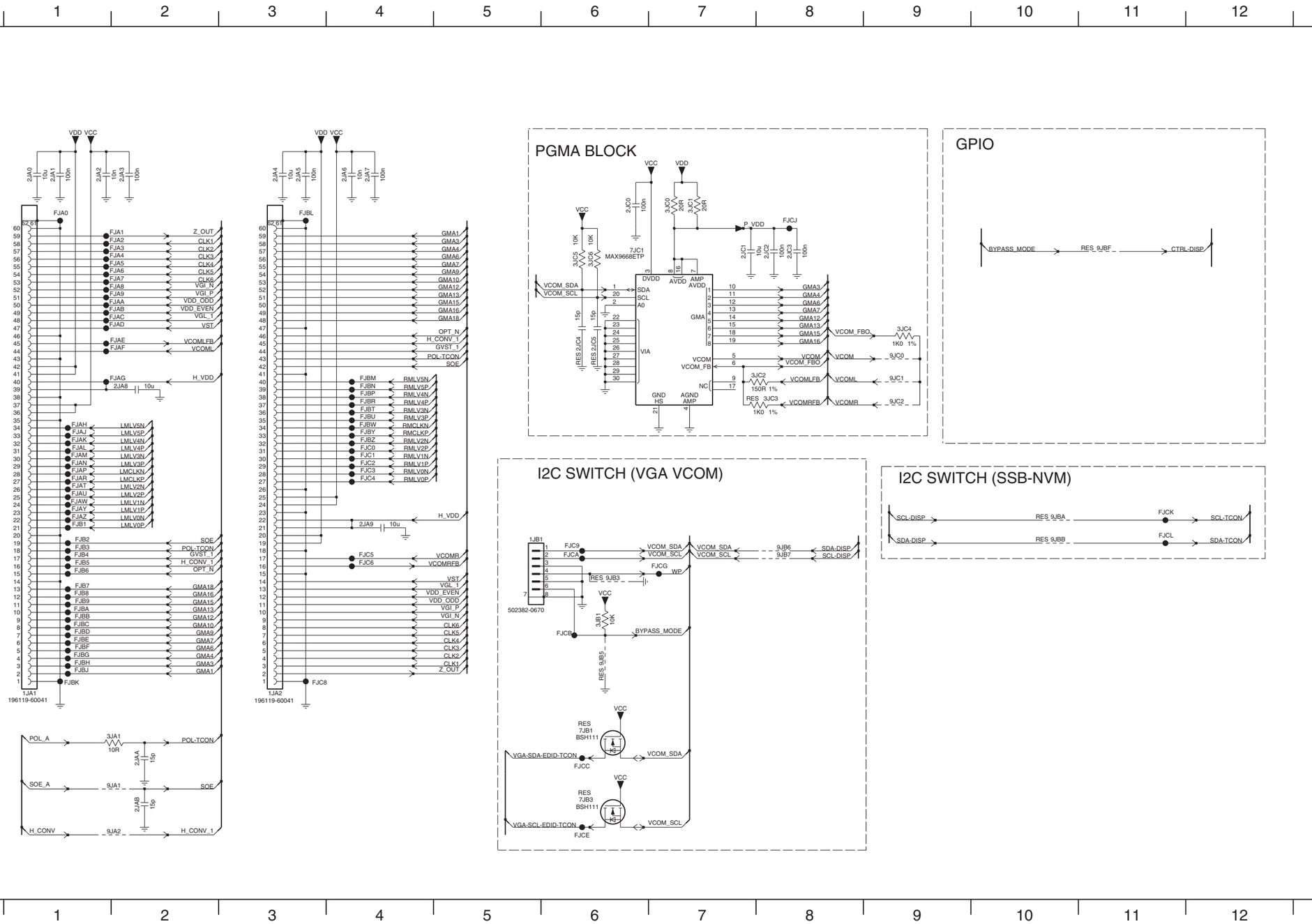
TCON LGD	8204 000 9070	4 2009-12-09 3 2009-11-12 2 2009-10-26

18770_544_100119.eps
100119

Mini LVDS

B11C Mini LVDS

B11C



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2JA1	B1	FJAL	D1
2JA2	B1	FJAM	D1
2JA3	B2	FJAN	E1
2JA4	B3	FJAP	E1
2JA5	B3	FJAR	E1
2JA6	B4	FJAT	E1
2JA7	B4	FJAU	E1
2JA8	D2	FJAW	E1
2JA9	E4	FJAY	E1
2JAA	G2	FJAZ	E1
2JAB	H2	FJB1	E1
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2JC2	C8	FJB4	E1
2JC3	C8	FJB5	E1
2JC4	C6	FJB6	F1
2JC5	C6	FJB7	F1
3JA1	G2	FJB8	F1
3JB1	F6	FJB9	F1
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3JC1	B7	FJBB	F1
3JC2	D8	FJBC	F1
3JC3	D8	FJBD	F1
3JC4	C9	FJBE	F1
3JC5	C6	FJBF	F1
3JC6	C6	FJBG	F1
7JB1	G6	FJBH	F1
7JB3	H6	FJBJ	F1
7JC1	C6	FJBK	G1
9JA1	H2	FJBL	B3
9JA2	H2	FJBM	D4
9JB3	F6	FJBN	D4
9JB5	F6	FJBP	D4
9JB6	E8	FJBR	D4
9JB7	E8	FJBT	D4
9JBA	E10	FJBU	D4
9JBB	E10	FJBW	D4
9JBF	C11	FJBY	D4
9JC0	D9	FJBZ	D4
9JC1	D9	FJC0	D4
9JC2	D9	FJC1	D4
FJA0	B1	FJC2	E4
FJA1	B2	FJC3	E4
FJA2	B2	FJC4	E4
FJA3	C2	FJC5	E4
FJA4	C2	FJC6	E4
FJA5	C2	FJC8	G3
FJA6	C2	FJC9	E6
FJA7	C2	FJCA	E6
FJA8	C2	FJCB	F6
FJA9	C2	FJCC	G6
FJAA	C2	FJCE	H6
FJAB	C2	FJCG	E7
FJAC	C2	FJCJ	B8
FJAD	C2	FJCK	E11
FJAE	C2	FJCL	E11
FJAF	C2		

TCON LGD	8204 000 9070	4 2009-12-09 3 2009-11-12 2 2009-10-26

18770_545_100119.eps
100119

Connectors

B11D Connectors

B11D

Dummy testlands for common jig

FJZA FJZB FJZC FJZD FJZE FJZF FJZG FJZH FJZJ FJZK
FJZL FJZM FJZN FJZP FJZQ FJZR FJZT FJZU FJZV FJZW
FJZY FJZZ FJYA FJYB FJYC FJYD FJYE FJYF FJYG FJYH
FJYJ FJYK FJYL FJYM FJYN FJYP FJYQ FJYV FJYZ FJY1
FJY2 FJY3 FJY4 FJY5 FJY6 FJY9
FJYR FJYT FJYU FJYW FJY7 FJY8 FJZ1 FJZ2

FJ5A FJ5B FJ5C FJ5D FJ5F

LIGHT STRIP

1P12 — 502382-0470
FJ50 — +5V
2J93 100n
3J89 100R — LED-1
2J94 100p

+3V3
3J74 100K

LIGHT-SENSOR — 3J75 100R — 2J76 100p
RC — 3J76 100R — RES 2J95 47n — 2J77 100p
LED-2 — 3J77 100R — 2J78 100p
LED-1 — 3J78 100R — 2J80 100p
KEYBOARD — 3J79 10R — 2J82 100p

LED PANEL

1M20 — 2041145-8
FJ88 FJ89 FJ90 FJ91 FJ92 FJ93 FJ94 FJ51
+3V3-STANDBY
+5V
2J79 100p
2J81 100n

TEMPERATURE SENSOR

1M71 — 2041145-4
FJ96 FJ98 FJ97 FJ99
2J84 100p
2J83 100p
3J80 100R — TACH01
RES 3J81 100R — SCL-BL
3J82 100R — TACH02
RES 3J83 100R — SDA-BL
1J85 T 1.0A 63V — FAN-DRV
2J85 1u0
5J54 RES 30R — +3V3
5J53 RES 30R — +12V

SDA-BL — 3J84 100R — 2J86 10p
SCL-BL — 3J85 100R — 2J87 10p
BL-SPI-CLK — 3J86 100R — 2J88 100p
BL-SPI-SDO — 3J88-2 100R — 2J89 100p
BL-SPI-SDI — 3J88-4 100R — 2J90 100p
BL-SPI-CSn — 3J88-1 100R — 2J91 100p
BACKLIGHT-PWM_BL-VS — 3J87 100R — 2J92 1n0

2D DIMMING

1F53 — 502386-1470
FJ52 FJ53 FJ54 FJ55 FJ56 FJ57 FJ58 FJ60

OVAL SCREW HOLE — 1X03 REF EMC HOLE
ROUND SCREW HOLE 4mm — 1X05 EMC HOLE
ROUND SCREW HOLE 4.5mm — 1X08 EMC HOLE

1F53 D8	FJ89 B8
1J85 D2	FJ90 B8
1M20 B8	FJ91 B8
1M71 C1	FJ92 B8
1P12 B3	FJ93 B8
1X03 E8	FJ94 B8
1X05 E8	FJ96 D1
1X08 E9	FJ97 D1
2J76 A7	FJ98 D1
2J77 B7	FJ99 D1
2J78 B7	FJY1 B1
2J79 B8	FJY2 A2
2J80 C7	FJY3 A2
2J81 B8	FJY4 A2
2J82 C7	FJY5 A2
2J83 D1	FJY6 B2
2J84 D1	FJY7 B3
2J85 D1	FJY8 B3
2J86 D7	FJY9 B2
2J87 D7	FJYA A1
2J88 D7	FJYB A1
2J89 E7	FJYC B1
2J90 E7	FJYD B1
2J91 F7	FJYE B1
2J92 F7	FJYF B1
2J93 C3	FJYG B1
2J94 C4	FJYH B1
2J95 B6	FJYJ A1
3J74 A6	FJYK A1
3J75 A6	FJYL A1
3J76 A6	FJYM A1
3J77 B6	FJYN B1
3J78 B6	FJYP B1
3J79 C6	FJYQ B1
3J80 C2	FJYR A3
3J81 C2	FJYT A3
3J82 D2	FJYU A3
3J83 D2	FJYV B1
3J84 C6	FJYW A3
3J85 D6	FJYZ B1
3J86 D6	FJZ1 B3
3J87 F6	FJZ2 B3
3J88-1 E6	FJZA A1
3J88-2 E6	FJZB A1
3J88-4 E6	FJZC A1
3J89 B4	FJZD A1
5J53 E3	FJZE B1
5J54 D3	FJZF B1
FJ50 B3	FJZG B1
FJ51 B8	FJZH B1
FJ52 D8	FJZJ B1
FJ53 D8	FJZK B1
FJ54 D8	FJZL A1
FJ55 D8	FJZM A1
FJ56 D8	FJZN A1
FJ57 D8	FJZP A1
FJ58 D8	FJZQ B1
FJ5A B1	FJZR B1
FJ5B B1	FJZT B1
FJ5C B1	FJZU B1
FJ5D B1	FJZV B1
FJ5F C1	FJZW B1
FJ60 E8	FJZY A1
FJ88 B8	FJZZ A1

TCON LGD	8204 000 9070	4 2009-12-09 3 2009-11-10 2 2009-10-26

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10-25 B13 820400090732 TCON AL CPLD

AmbiLight CPLD

B13A AmbiLight CPLD

B13A

AMBILIGHT CPLD
* FOR TV550 ONLY

SPI BUFFER
* FOR TV550 ONLY

AMBILIGHT CONNECTOR

DEBUG ONLY

ROUND SCREW HOLE 4mm

1X07 EMC HOLE

	1H35 F2	3HE1-2 C13
	1HA0 E11	3HE1-3 C13
	1M59 F11	3HE1-4 C12
	1M72 E11	3HE2 B11
A	1X07 F13	3HE3 C12
	2H10 E2	3HE4 C12
	2H11 E2	5HA0 A2
	2H12 E2	5HA1 B2
	2H13 E6	7HA0 C4
	2H14 E6	7HE0 B11
B	2H15 E7	7HE1 B12
	2H16 E7	9HA0 C6
	2H17 E7	9HA1 C5
	2H18 E7	9HE0-1 D10
	2H19 E7	9HE0-2 C10
	2H70 G10	9HE0-3 C10
C	2HA0 B2	9HE0-4 D10
	2HA1 B2	9HE1 D10
	2HA2 B3	9HE2 D10
	2HA3 B2	9HE3 D10
	2HA4 F2	FH70 F11
	2HA5 B2	FH71 F11
D	2HA6 G12	FH72 F11
	2HA7 G9	FH73 F11
	2HA8 G10	FH74 G11
	2HA9 H11	FH75 G11
	2HE0 B10	FH76 G11
	3H10-1 D5	FH77 G11
E	3H10-2 D5	FH78 G11
	3H10-3 D5	FH79 G11
	3H10-4 D5	FH80 G11
	3H11-1 D5	FH81 G11
	3H11-2 D5	FH82 H11
	3H11-3 D3	FHA0 A3
F	3H11-4 D3	FHA1 B3
	3H12 D6	FHA2 F2
	3H13 D6	FHA3 E4
	3H14 D2	FHA4 E4
	3H15 E2	FHA5 E4
	3H70 G10	FHA6 E4
G	3HA0 C3	IHA0 C6
	3HA1 D5	IHA1 D4
	3HA2-1 F2	IHA2 D4
	3HA2-2 F2	IHA3 C4
	3HA2-3 F2	IHA4 C4
	3HA2-4 F2	IHA5 D4
H	3HE0-1 C13	IHA6 D4
	3HE0-2 C11	IHA7 D4
	3HE0-3 C13	IHE0 B11
	3HE0-4 B11	IHE1 D10
	3HE1-1 C12	

TCON AL CPLD	8204 000 9073	2	2009-12-08
		1	2009-10-23

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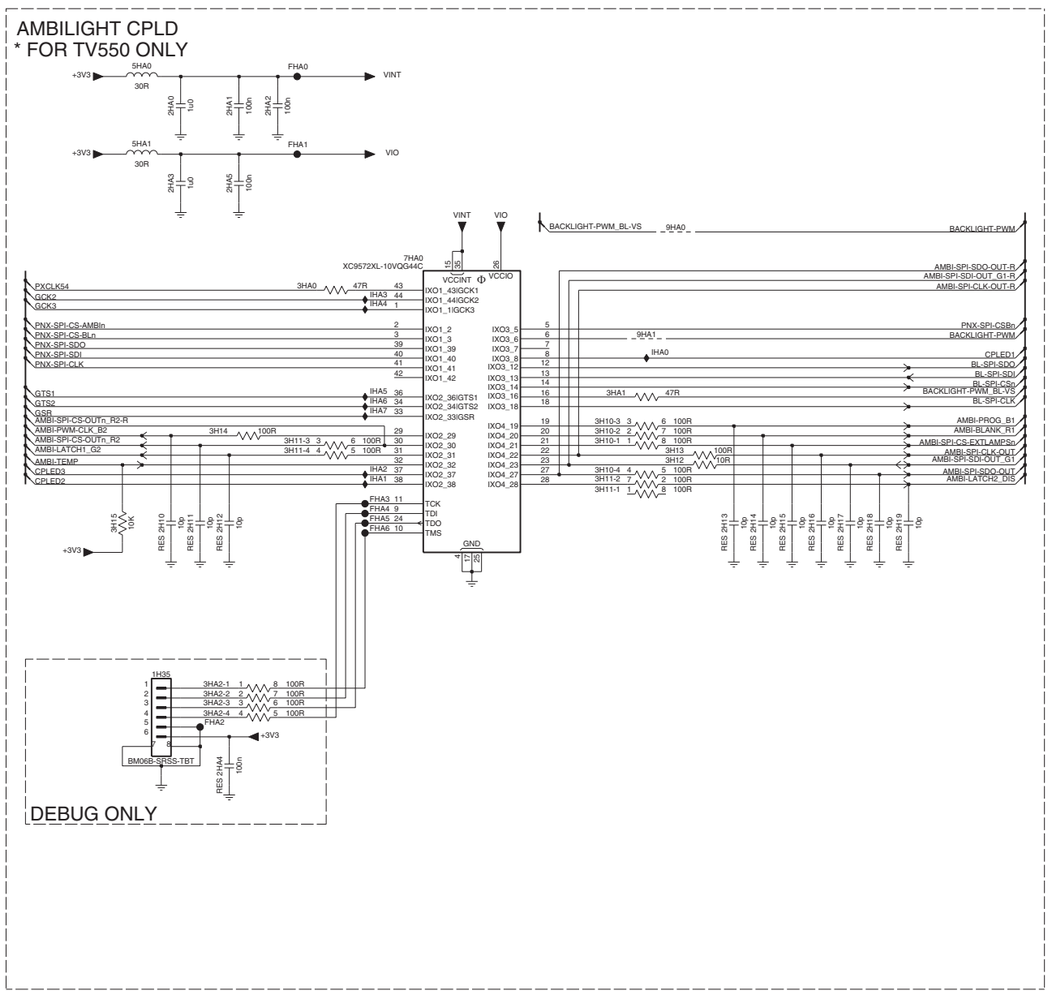
10-26 B13 820400090742 TCON AL CPLD

AmbiLight CPLD

B13A AmbiLight CPLD

B13A



A	1H35 F2	3HE1-2 C13
	1HA0 E11	3HE1-3 C13
	1M59 F11	3HE1-4 C12
	1M72 E11	3HE2 B11
	1X07 F13	3HE3 C12
	2H10 E2	3HE4 C12
	2H11 E2	5HA0 A2
	2H12 E2	5HA1 B2
	2H13 E6	7HA0 C4
	2H14 E6	7HE0 B11
B	2H15 E7	7HE1 B12
	2H16 E7	9HA0 C6
	2H17 E7	9HA1 C5
	2H18 E7	9HE0-1 D10
	2H19 E7	9HE0-2 C10
	2H70 G10	9HE0-3 C10
C	2HA0 B2	9HE0-4 D10
	2HA1 B2	9HE1 D10
	2HA2 B3	9HE2 D10
	2HA3 B2	9HE3 D10
	2HA4 F2	FH70 F11
D	2HA5 B2	FH71 F11
	2HA6 G12	FH72 F11
	2HA7 G9	FH73 F11
	2HA8 G10	FH74 G11
	2HA9 H11	FH75 G11
	2HE0 B10	FH76 G11
	3H10-1 D5	FH77 G11
E	3H10-2 D5	FH78 G11
	3H10-3 D5	FH79 G11
	3H10-4 D5	FH80 G11
	3H11-1 D5	FH81 G11
	3H11-2 D5	FH82 H11
	3H11-3 D3	FHA0 A3
F	3H11-4 D3	FHA1 B3
	3H12 D6	FHA2 F2
	3H13 D6	FHA3 E4
	3H14 D2	FHA4 E4
	3H15 E2	FHA5 E4
	3H70 G10	FHA6 E4
G	3HA0 C3	IHA0 C6
	3HA1 D5	IHA1 D4
	3HA2-1 F2	IHA2 D4
	3HA2-2 F2	IHA3 C4
	3HA2-3 F2	IHA4 C4
	3HA2-4 F2	IHA5 D4
H	3HE0-1 C13	IHA6 D4
	3HE0-2 C11	IHA7 D4
	3HE0-3 C13	IHE0 B11
	3HE0-4 B11	IHE1 D10
	3HE1-1 C12	

TCON AL CPLD	8204 000 9074	2	2009-12-09
		1	2009-10-23

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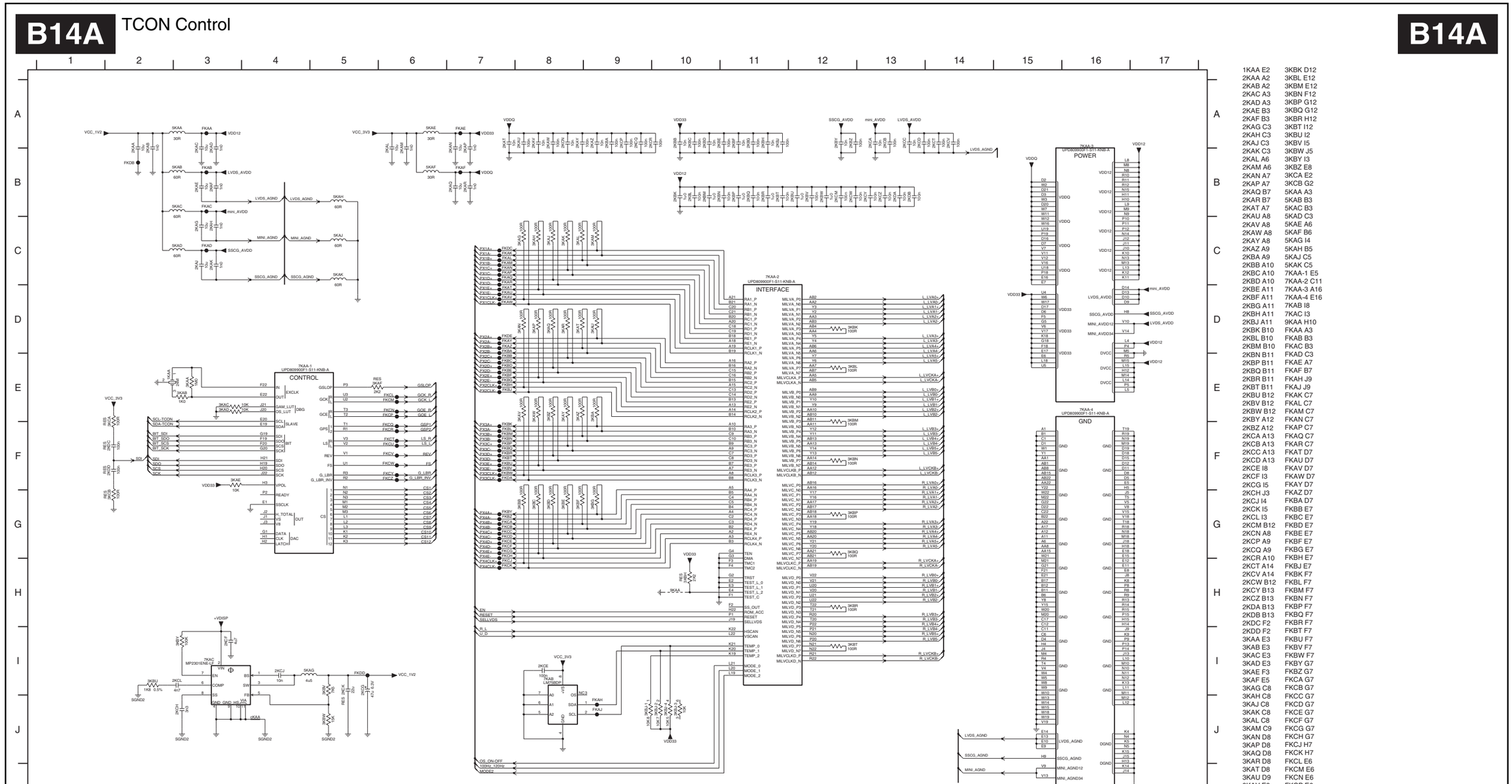
10-27 B14 820400090714 TCON SHARP

TCON Control

B14A TCON Control



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2KAA A2	3KBL E12
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2KAD A3	3KBP G12
2KAE B3	3KBQ G12
2KAF B3	3KBR H12
2KAG C3	3KBT I12
2KAH C3	3KBU I2
2KAJ C3	3KBV I5
2KAK C3	3KBW J5
2KAL A6	3KBY I3
2KAM A6	3KBZ E8
2KAN A7	3KCA E2
2KAP A7	3KCB G2
2KAQ B7	5KAA A3
2KAR B7	5KAB B3
2KAT A7	5KAC B3
2KAU A8	5KAD C3
2KAV A8	5KAE A6
2KAW A8	5KAF B6
2KAY A8	5KAG I4
2KAZ A9	5KAH B5
2KBA A9	5KAJ C5
2KBB A10	5KAK C5
2KBC A10	7KAA-1 E5
2KBD A10	7KAA-2 C11
2KBE A11	7KAA-3 A16
2KBF A11	7KAA-4 E16
2KBG A11	7KAB I8
2KBH A11	7KAC I3
2KBJ A11	9KAA H10
2KBK B10	FKAA A3
2KBL B10	FKAB B3
2KBM B10	FKAC B3
2KBN B11	FKAD C3
2KBP B11	FKAE A7
2KBQ B11	FKAF B7
2KBR B11	FKAH J9
2KBT B11	FKAJ J9
2KBU B12	FKAK C7
2KBV B12	FKAL C7
2KBW B12	FKAM C7
2KBY A12	FKAN C7
2KBZ A12	FKAP C7
2KCA A13	FKAQ C7
2KCB A13	FKAR C7
2KCC A13	FKAT D7
2KCD A13	FKAU D7
2KCE I8	FKAV D7
2KCF I3	FKAW D7
2KCG I5	FKAY D7
2KCH J3	FKAZ D7
2KCJ I4	FKBA D7
2KCK I5	FKBB E7
2KCL I3	FKBC E7
2KCM B12	FKBD E7
2KCN A8	FKBE E7
2KCP A9	FKBF E7
2KCQ A9	FKBG E7
2KCR A10	FKBH E7
2KCT A14	FKBJ E7
2KCV A14	FKBK F7
2KCW B12	FKBL F7
2KCY B13	FKBM F7
2KCZ B13	FKBN F7
2KDA B13	FKBP F7
2KDB B13	FKBQ F7
2KDC F2	FKBR F7
2KDD F2	FKBT F7
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3KAB E3	FKBV F7
3KAC E3	FKBW F7
3KAD E3	FKBY G7
3KAE F3	FKBZ G7
3KAF E5	FKCA G7
3KAG C8	FKCB G7
3KAH C8	FKCC G7
3KAJ C8	FKCD G7
3KAK C8	FKCE G7
3KAL C8	FKCF G7
3KAM C9	FKCG G7
3KAN D8	FKCH G7
3KAP D8	FKCJ H7
3KAQ D8	FKCK H7
3KAR D8	FKCL E6
3KAT D8	FKCM E6
3KAU D9	FKCN E6
3KAV E8	FKCP E6
3KAW E8	FKCQ F6
3KAY E8	FKCR F6
3KAZ E8	FKCT F6
3KBA E9	FKCU F6
3KBB G8	FKCV F6
3KBC G8	FKCW F6
3KBD G8	FKCY F6
3KBE G8	FKCZ F6
3KBF G8	FKDA F7
3KBG G9	FKDB B2
3KBH H10	FKDC C7
3KBJ-1 J9	FKDD I5
3KBJ-2 J10	FKDE D7
3KBJ-3 J10	cKAA J4
3KBJ-4 J10	

TCON SHARP	8204 000 9071	4 2009-12-11 3 2009-11-12 2 2009-10-26

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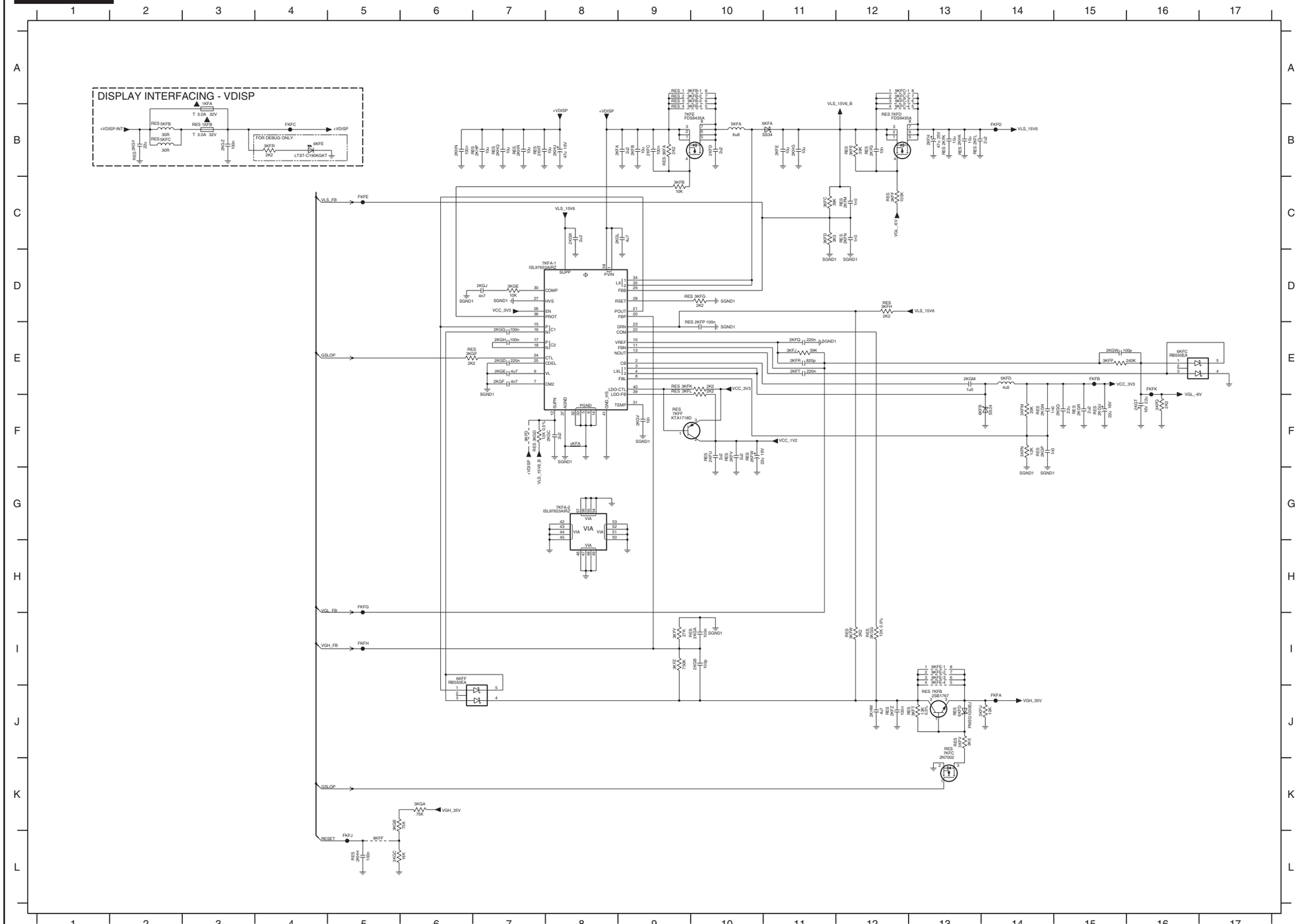
TCON DC/DC

B14B TCON DC/DC

B14B



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2KFG B12
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2KFN C12
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2KFQ E11
2KFR E11
2KFT E11
2KFU F10
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2KFZ J12
2KGA I10
2KGB I10
2KGC F8
2KGD E7
2KGE E7
2KGF E7
2KGG E7
2KGH E7
2KGJ D7
2KGK C8
2KGL C9
2KGM E13
2KGN F14
2KGP F14
2KGQ F15
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2KGT F16
2KGU F15
2KGV F9
2KGW E15
2KGY B2
2KGZ B3
2KHG B11
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2KHK B13
2KHN B6
2KHP B7
2KHQ B7
2KHR B7
2KHT B7
2KHU B8
2KHW J12
3KFA B9
3KFB C9
3KFC C11
3KFD C11
3KFE B12
3KFF C12
3KFG D10
3KFH D12
3KFJ E11
3KFK E9
3KFL E9
3KFM F14
3KFN F14
3KFP E15
3KFQ F16
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3KFU J14
3KFV J13
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3KFZ I9
3KGA K6
3KGB K5
3KGC L5
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5KFB B2
5KFC B2
5KFD E14
6KFA B11
6KFB F14
6KFC E16
6KFD J13
6KFE B4
6KFF I6
7KFA-1 D8
7KFA-2 G8
7KFB J13
7KFC J13
7KFD B12
7KFE B10
7KFF F9
9KFB-1 A10
9KFB-2 A10
9KFB-3 A10
9KFB-4 B10
9KFC-1 A12
9KFC-2 A12
9KFC-3 A12
9KFC-4 B12
9KFD F7
9KFE-1 I13
9KFE-2 I13
9KFE-3 I13
9KFE-4 I13
9KFF L5
FKFA J14
FKFB E15
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FKFE C5
FKFG H5
FKFH I5
FKFJ L5
FKFK E16
cKFA F8

TCON SHARP	8204 000 9071	4 2009-12-11 3 2009-11-12 2 2009-10-26

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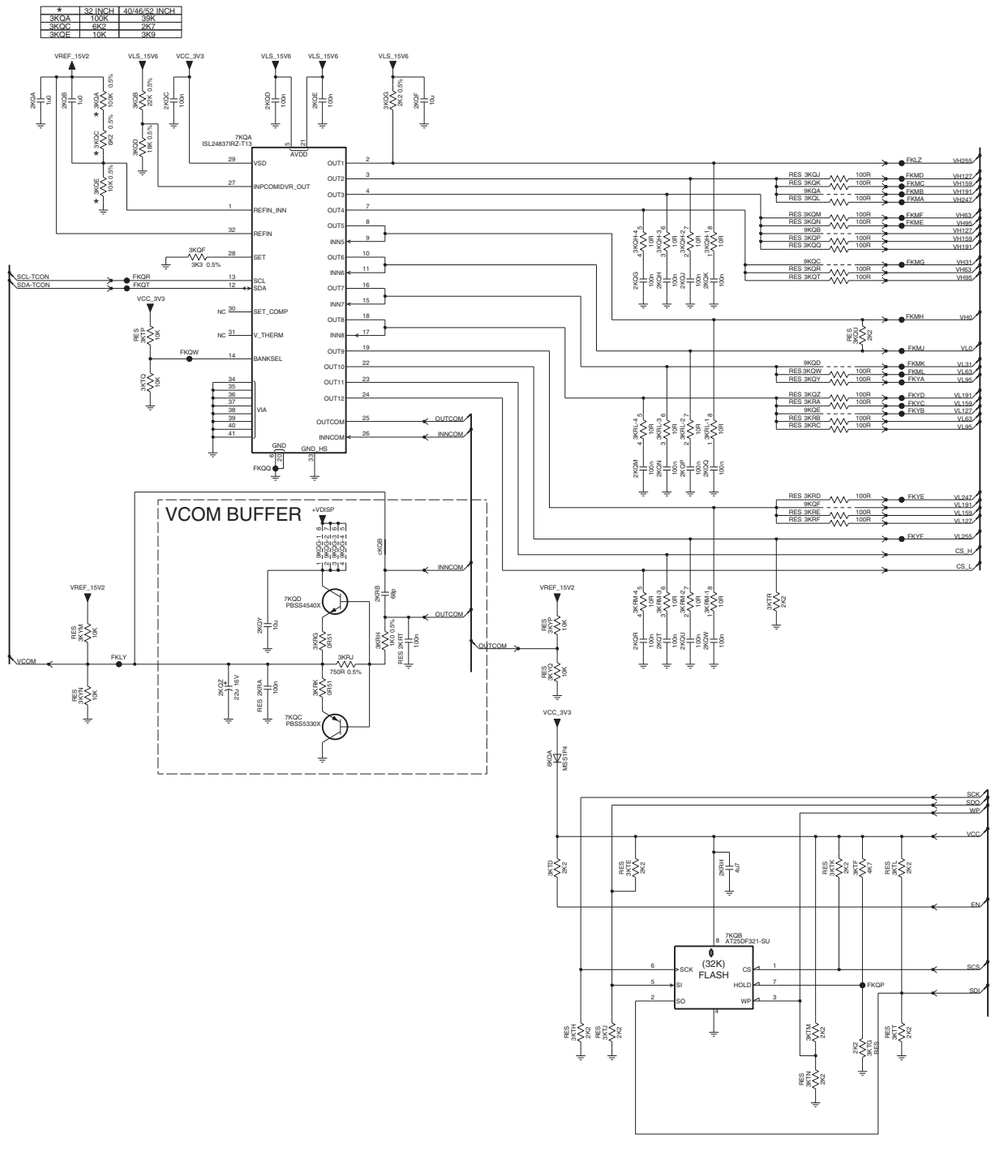
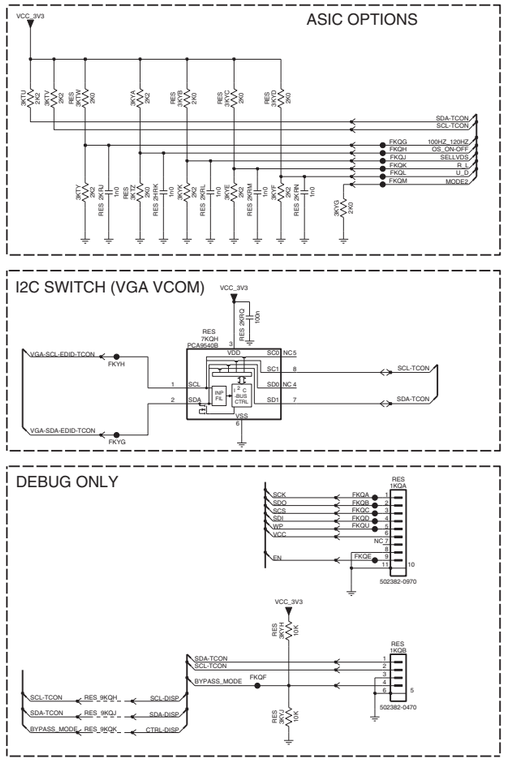
P Gamma & VCom & Flash

B14C P Gamma & VCom & Flash

B14C

*	32 INCH	40/46/52 INCH
3KQA	100K	99K
3KQC	6K2	2K7
3KQE	10K	3K9





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2KQC	B3	3KTU	B11
2KQD	B4	3KTV	B11
2KQE	B4	3KTW	B12
2KQF	B5	3KTY	C12
2KQG	D7	3KTZ	C12
2KQH	D7	3KYA	B12
2KQJ	D8	3KYB	B13
2KQK	D8	3KYC	B13
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2KQY	G4	3KYN	H2
2KQZ	G3	3KYP	G6
2KRA	G4	3KYQ	G6
2KRB	G5	6KQA	H6
2KRH	I8	7KQA	B4
2KRJ	C12	7KQB	J8
2KRL	C13	7KQC	H4
2KRM	C13	7KQD	G4
2KRN	C14	7KQH	D13
2KRQ	D13	9KQA	C9
2KRT	G5	9KQB	C9
3KQA	B2	9KQC	D9
3KQB	B3	9KQD	E9
3KQC	B2	9KQE	E9
3KQD	C3	9KQF	F9
3KQE	C2	9KQG-1	F4
3KQF	D3	9KQG-2	F4
3KQG	B5	9KQG-3	F4
3KQH-1	C8	9KQG-4	F4
3KQH-2	C8	9KQH	G12
3KQH-3	C7	9KQJ	G12
3KQH-4	C7	9KQK	H12
3KQJ	C9	FKLY	G2
3KQK	C9	FKLZ	C10
3KQL	C9	FKMA	C10
3KQM	C9	FKMB	C10
3KQN	C9	FKMC	C10
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3KQQ	C9	FKME	C10
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3KQU	D9	FKMH	D10
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3KRD	F9	FKQD	F14
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3KRH	G5	FKQH	B15
3KRJ	G4	FKQJ	B15
3KRK	G4	FKQK	B15
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3KRL-2	E8	FKQM	C15
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3KRL-4	E7	FKQQ	F4
3KRM-1	G8	FKQR	D3
3KRM-2	G8	FKQT	D3
3KRM-3	G7	FKQU	F14
3KRM-4	G7	FKQW	D3
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3KTE	I7	FKYB	E10
3KTF	I9	FKYC	E10
3KTG	K9	FKYD	E10
3KTH	K7	FKYE	F10
3KTJ	K7	FKYF	F10
3KTK	I9	FKYG	E12
3KTL	I10	FKYH	D12
3KTM	K9	cKQB	F5

TCON SHARP	8204 000 9071	4 2009-12-11 3 2009-11-12 2 2009-10-26

18770_561 _100121.eps
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MPD

B14D MPD

B14D

FOR 40 / 46 / 52 INCH

FOR 32 INCH

ITEM NO	40 INCH	46/52 INCH
2KUK	Y	Y
2KUM	Y	Y
2KUN	Y	Y
2KUQ	Y	Y
2KUT	Y	Y
2KUY	Y	Y
2KWC	Y	Y
3KUF	Y	Y
3KUG	Y	Y
3KUJ	Y	Y
3KUK	Y	Y
3KUU	Y	Y
3KVA	Y	Y
3KWK	Y	Y
7KUB	Y	Y
7KUC	Y	Y
7KUE	Y	Y

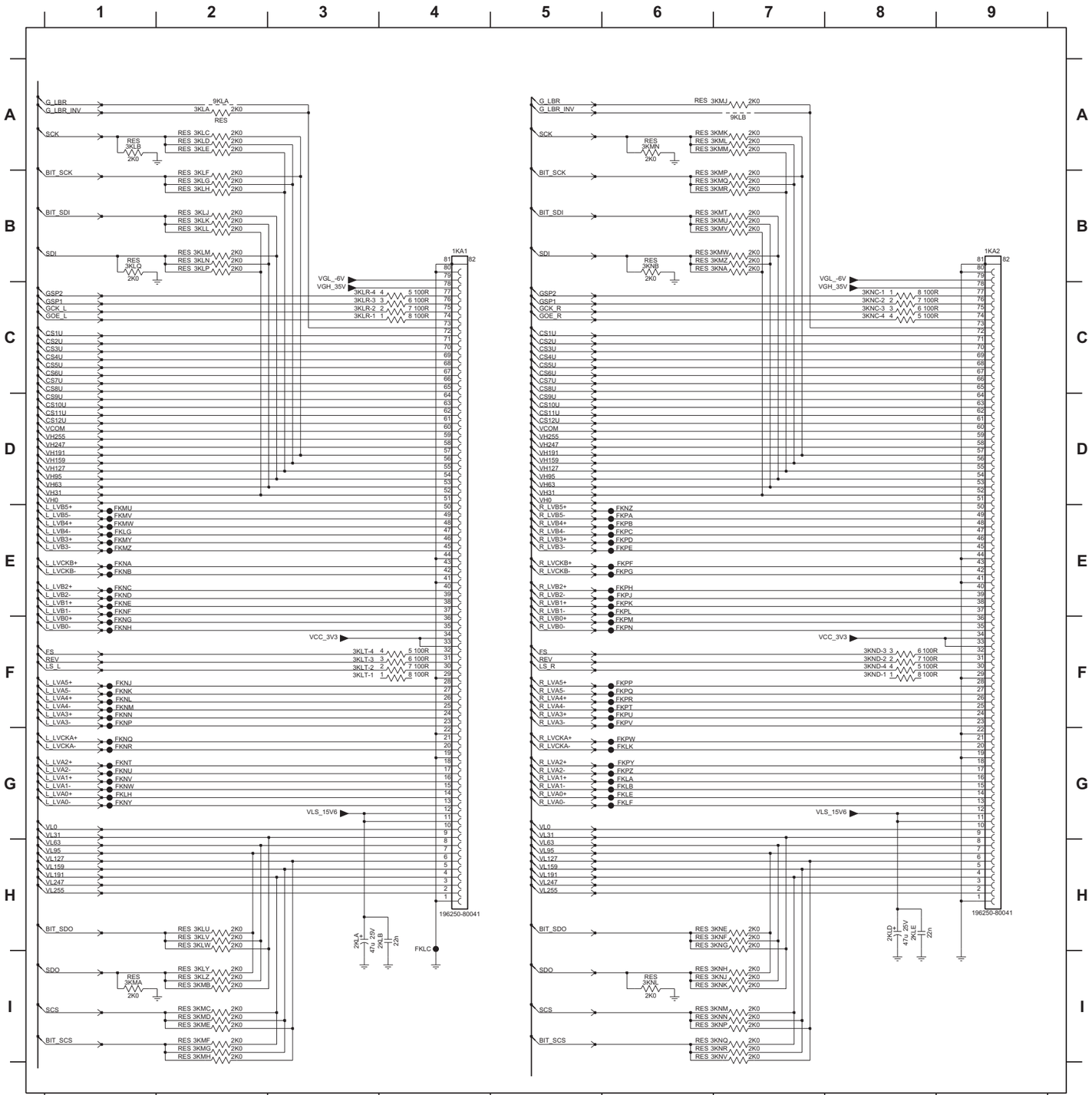
ITEM NO	40 INCH	46/52 INCH
2KUA	N	Y
2KUB	N	Y
2KUF	N	Y
2KUH	N	Y
2KUW	N	Y
2KUY	N	Y
2KWA	N	Y
3KUA	N	Y
3KUB	N	Y
3KUC	N	Y
3KUD	N	Y
7KUA	N	Y
7KUD	N	Y

TCON SHARP	8204 000 9071	4 2009-12-11 3 2009-11-12 2 2009-10-26

18770_562 _100121.eps
100121

Mini LVDS

B14E Mini LVDS



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2KLE	H8	3KNP	I7
3KLA	A2	3KNQ	I7
3KLB	A1	3KNR	I7
3KLC	A2	3KNV	I7
3KLD	A2	9KLA	A2
3KLE	A2	9KLB	A7
3KLF	B2	FKLA	G6
3KLG	B2	FKLB	G6
3KLH	B2	FKLC	I4
3KLJ	B2	FKLE	G6
3KLK	B2	FKLF	G6
3KLL	B2	FKLG	E1
3KLM	B2	FKLH	G1
3KLN	B2	FKLK	G6
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3KLQ	B1	FKMV	E1
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3KLT-2	F3	FKNC	E1
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3KLV	H2	FKNG	F1
3KLW	H2	FKNH	F1
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3KLZ	I2	FKNK	F1
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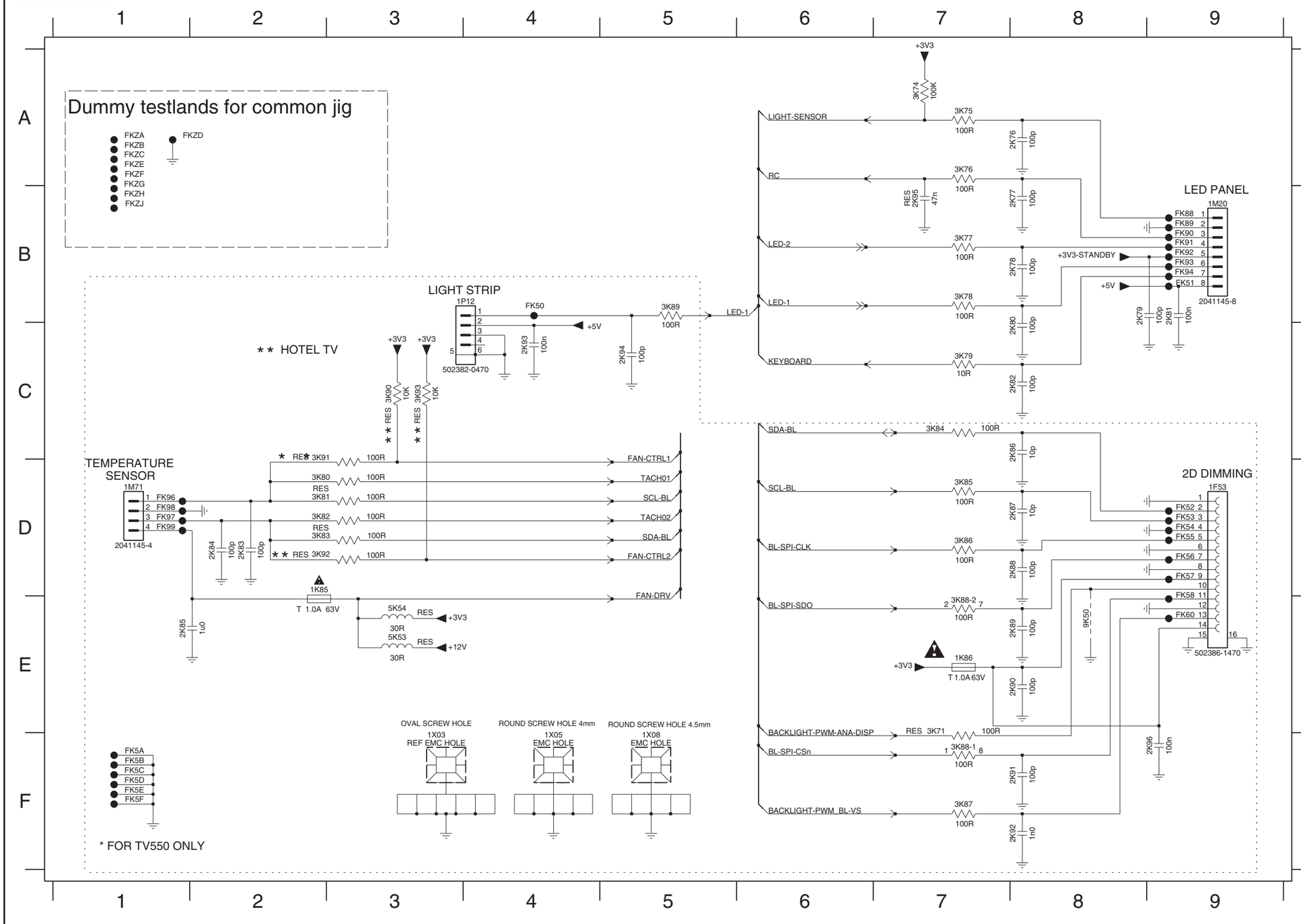
3KNF	H7	FKPV	F6
3KNG	H7	FKPW	G6
3KNH	I7	FKPY	G6
		FKPZ	G6

TCON SHARP	8204 000 9071	4 2009-12-11 3 2009-11-12 2 2009-10-26

18770_563 _100121.eps
100121

B14F Connectors

B14F



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1K86 E7	3K90 C3
1M20 B9	3K91 D2
1M71 D1	3K92 D2
1P12 B4	3K93 C3
1X03 F3	5K53 E3
1X05 F4	5K54 E3
1X08 F5	9K50 E8
2K76 A8	FK50 B4
2K77 B8	FK51 B9
2K78 B8	FK52 D9
2K79 B8	FK53 D9
2K80 C8	FK54 D9
2K81 B9	FK55 D9
2K82 C8	FK56 D9
2K83 D2	FK57 D9
2K84 D2	FK58 E9
2K85 E1	FK5A F1
2K86 C8	FK5B F1
2K87 D8	FK5C F1
2K88 D8	FK5D F1
2K89 E8	FK5E F1
2K90 E8	FK5F F1
2K91 F8	FK60 E9
2K92 F8	FK88 B9
2K93 C4	FK89 B9
2K94 C5	FK90 B9
2K95 B7	FK91 B9
2K96 F9	FK92 B9
3K71 F7	FK93 B9
3K74 A7	FK94 B9
3K75 A7	FK96 D1
3K76 A7	FK97 D1
3K77 B7	FK98 D1
3K78 B7	FK99 D1
3K79 C7	FKZA A1
3K80 D2	FKZB A1
3K81 D2	FKZC A1
3K82 D2	FKZD A2
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3K84 C7	FKZF A1
3K85 D7	FKZG B1
3K86 D7	FKZH B1
3K87 F7	FKZJ B1
3K88-1 F7	

TCON SHARP	8204 000 9071	4 2009-12-11 3 2009-11-12 2 2009-10-26

18770_564 _100121.eps
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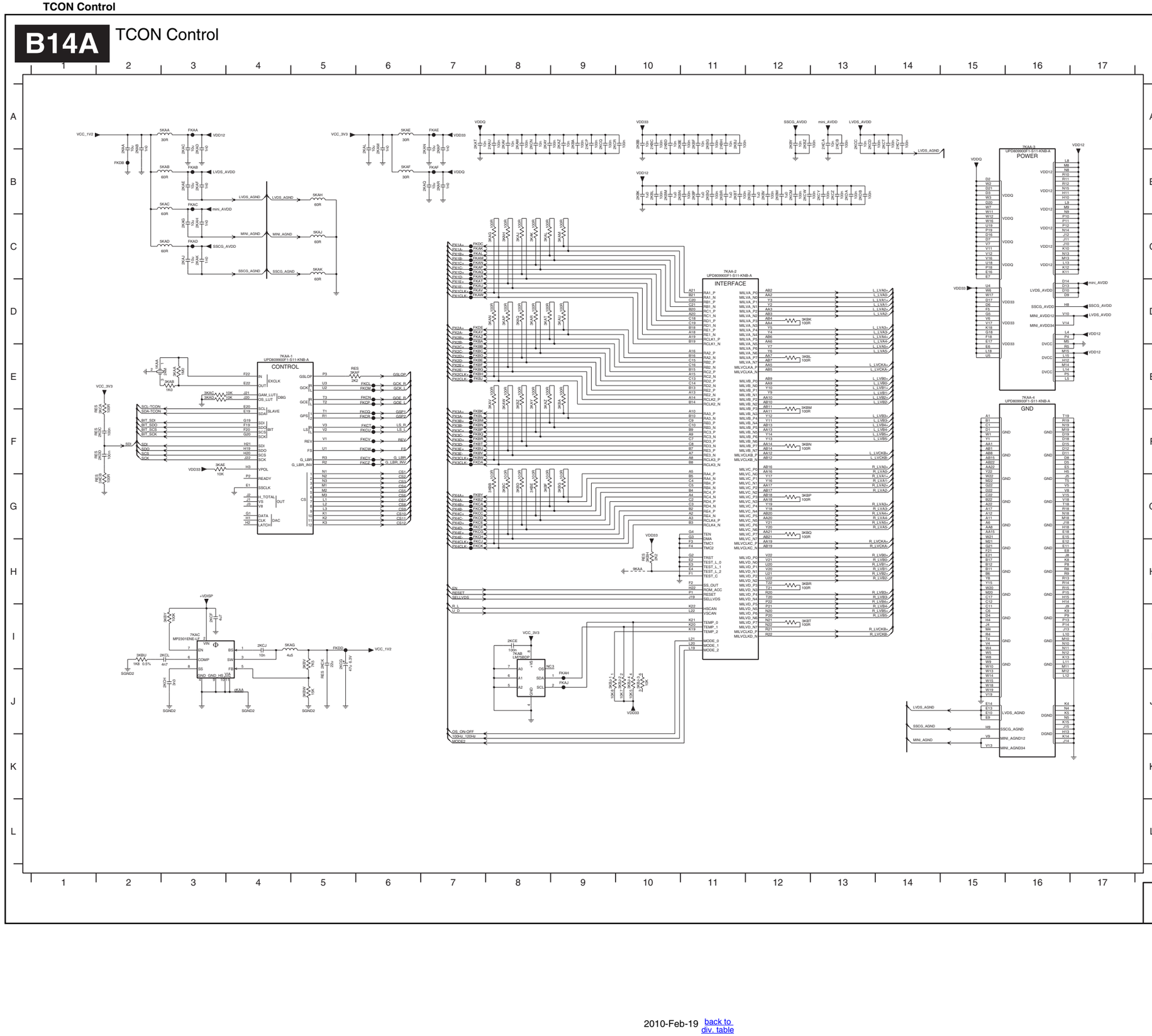
10-28 B14 820400090724 TCON SHARP

TCON Control

B14A TCON Control



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2KAK	C3	3KBW	J5
2KAL	A6	3KBY	I3
2KAM	A6	3KBZ	E8
2KAN	A7	3KCA	E2
2KAP	A7	3KCB	G2
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2KAR	B7	5KAB	B3
2KAT	A7	5KAC	B3
2KAU	A8	5KAD	C3
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2KAW	A8	5KAF	B6
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2KBA	A9	5KAJ	C5
2KBB	A10	5KAK	C5
2KBC	A10	7KAA-1	E5
2KBD	A10	7KAA-2	C11
2KBE	A11	7KAA-3	A16
2KBF	A11	7KAA-4	E16
2KBG	A11	7KAB	I8
2KBH	A11	7KAC	I3
2KBJ	A11	9KAA	H10
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2KBL	B10	FKAB	B3
2KBM	B10	FKAC	B3
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3KAZ	E8	FKCT	F6
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3KBH	H10	FKDC	C7
3KBJ-1	J9	FKDD	I5
3KBJ-2	J10	FKDE	D7
3KBJ-3	J10	CKAA	J4
3KBJ-4	J10		

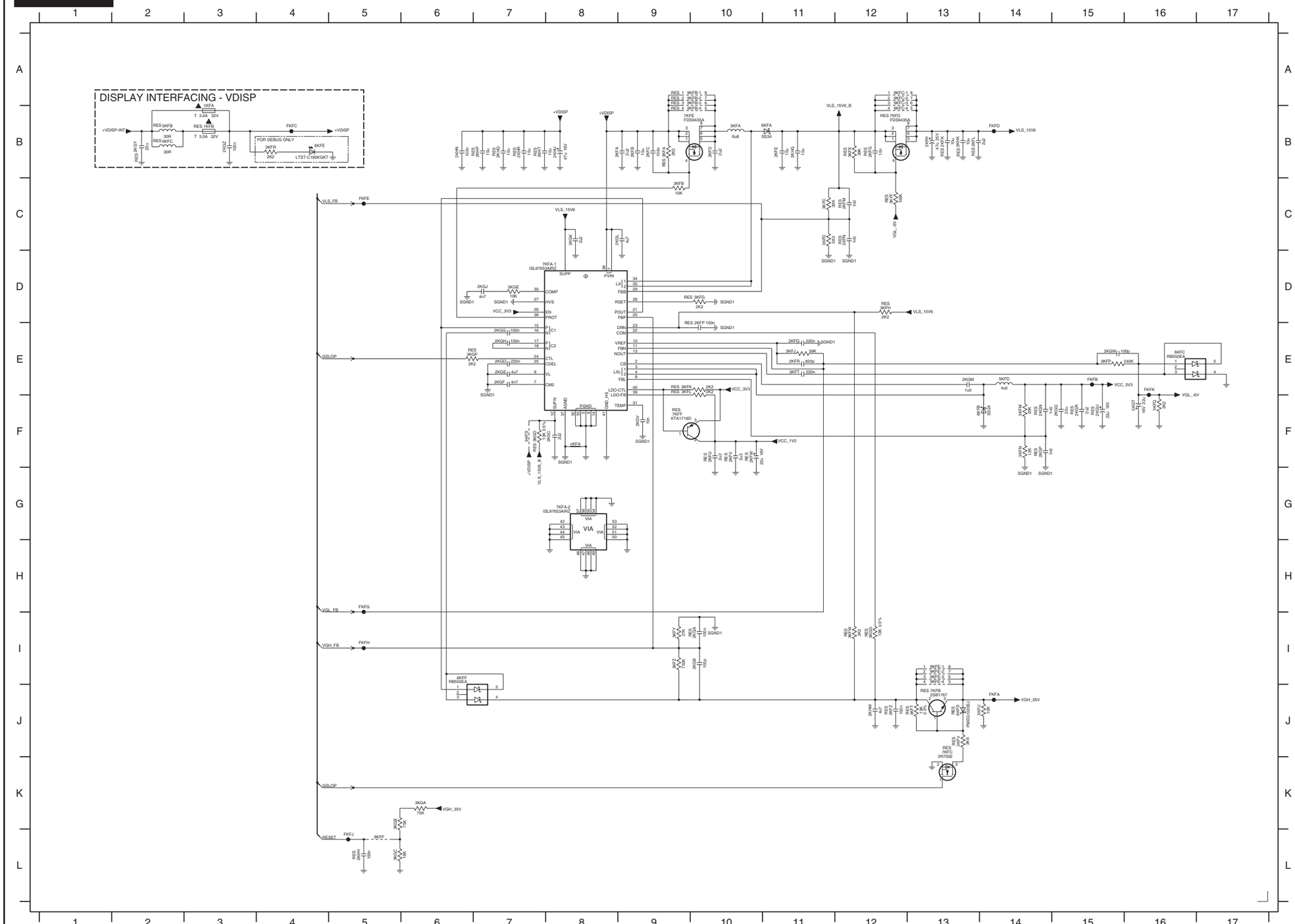
TCON SHARP	8204 000 9072	4 2009-12-09 3 2009-11-12 2 2009-10-26

18770_553_100121.eps
100218

TCON DC/DC

B14B TCON DC/DC

B14B



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2KFZ J12
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2KGE E7
2KGF E7
2KGG E7
2KGH E7
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FKFA J14
FKFB E15
FKFC B4
FKFD B14
FKFE C5
FKFG H5
FKFH I5
FKFJ L5
FKFK E16
cKFA F8

TCON SHARP	8204 000 9072	4 2009-12-09 3 2009-11-12 2 2009-10-26

18770_554 _100121.eps
100121

P Gamma & VCom & Flash

B14C P Gamma & VCom & Flash

B14C

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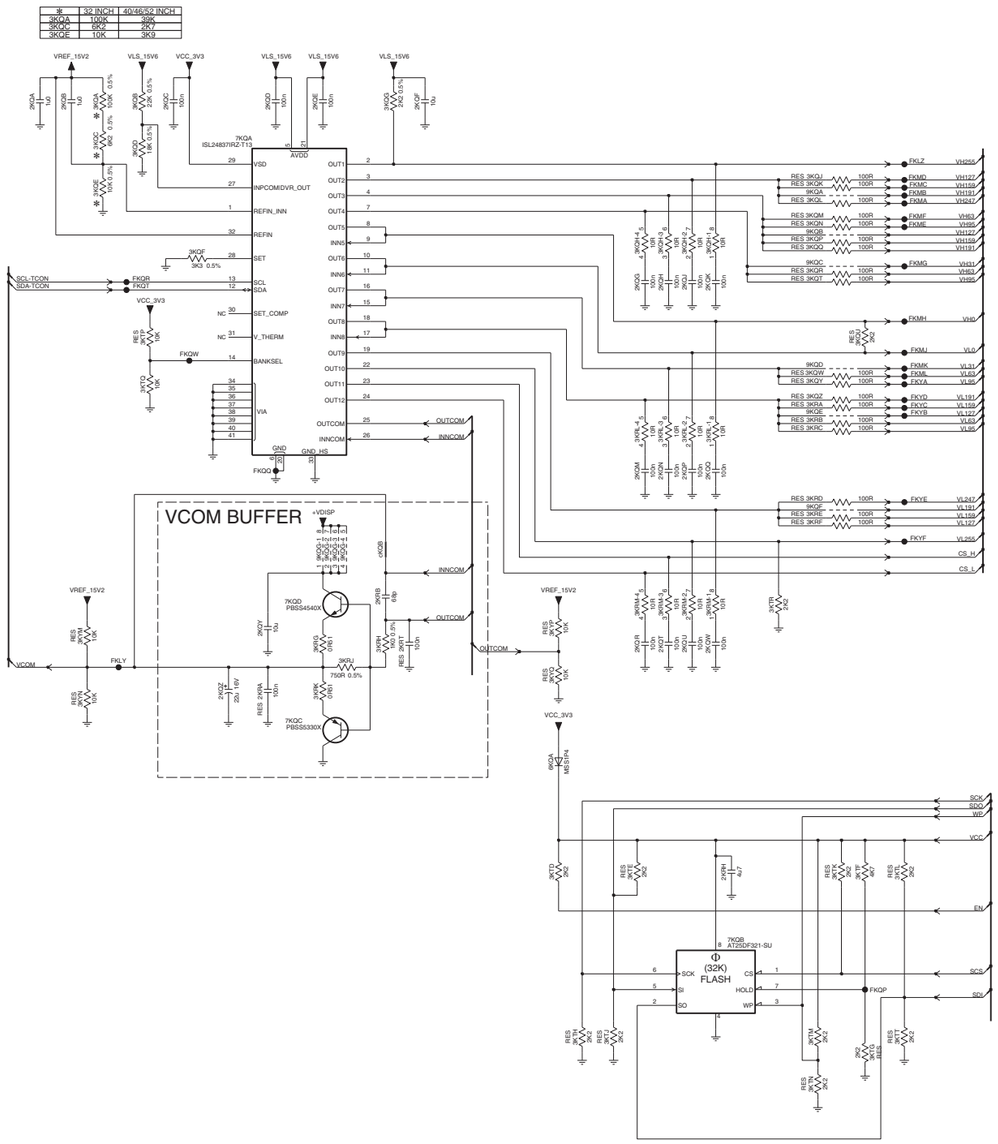
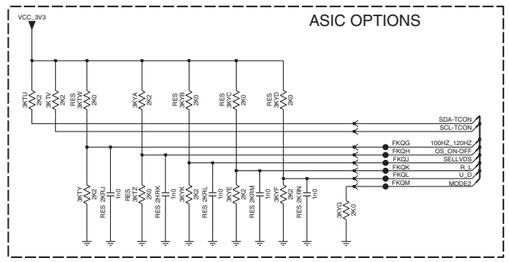
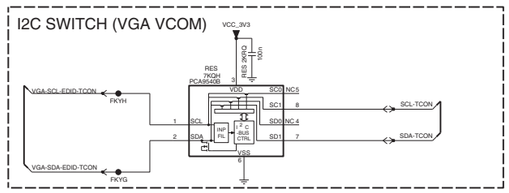
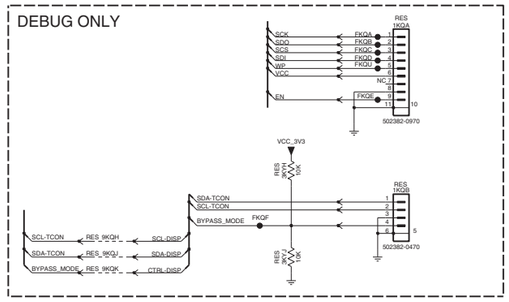
3KQA	100K	39K
3KQC	6K2	2K7
3KQE	10K	3K9









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2KQC	B3	3KTU	B11
2KQD	B4	3KTV	B11
2KQE	B4	3KTW	B12
2KQF	B5	3KTY	C12
2KQG	D7	3KTZ	C12
2KQH	D7	3KYA	B12
2KQJ	D8	3KYB	B13
2KQK	D8	3KYC	B13
2KQM	E7	3KYD	B14
2KQN	E7	3KYE	C13
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2KQR	G7	3KYH	G14
2KQT	G7	3KYJ	G14
2KQU	G8	3KYK	C13
2KQW	G8	3KYM	G2
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2KRB	G5	6KQA	H6
2KRH	I8	7KQA	B4
2KRJ	C12	7KQB	J8
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2KRM	C13	7KQD	G4
2KRN	C14	7KQH	D13
2KRQ	D13	9KQA	C9
2KRT	G5	9KQB	C9
3KQA	B2	9KQC	D9
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3KQC	B2	9KQE	E9
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3KQH-1	C8	9KQG-4	F4
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3KTM	K9	cKQB	F5

TCON SHARP	8204 000 9072

4	2009-12-09
3	2009-11-12
2	2009-10-26

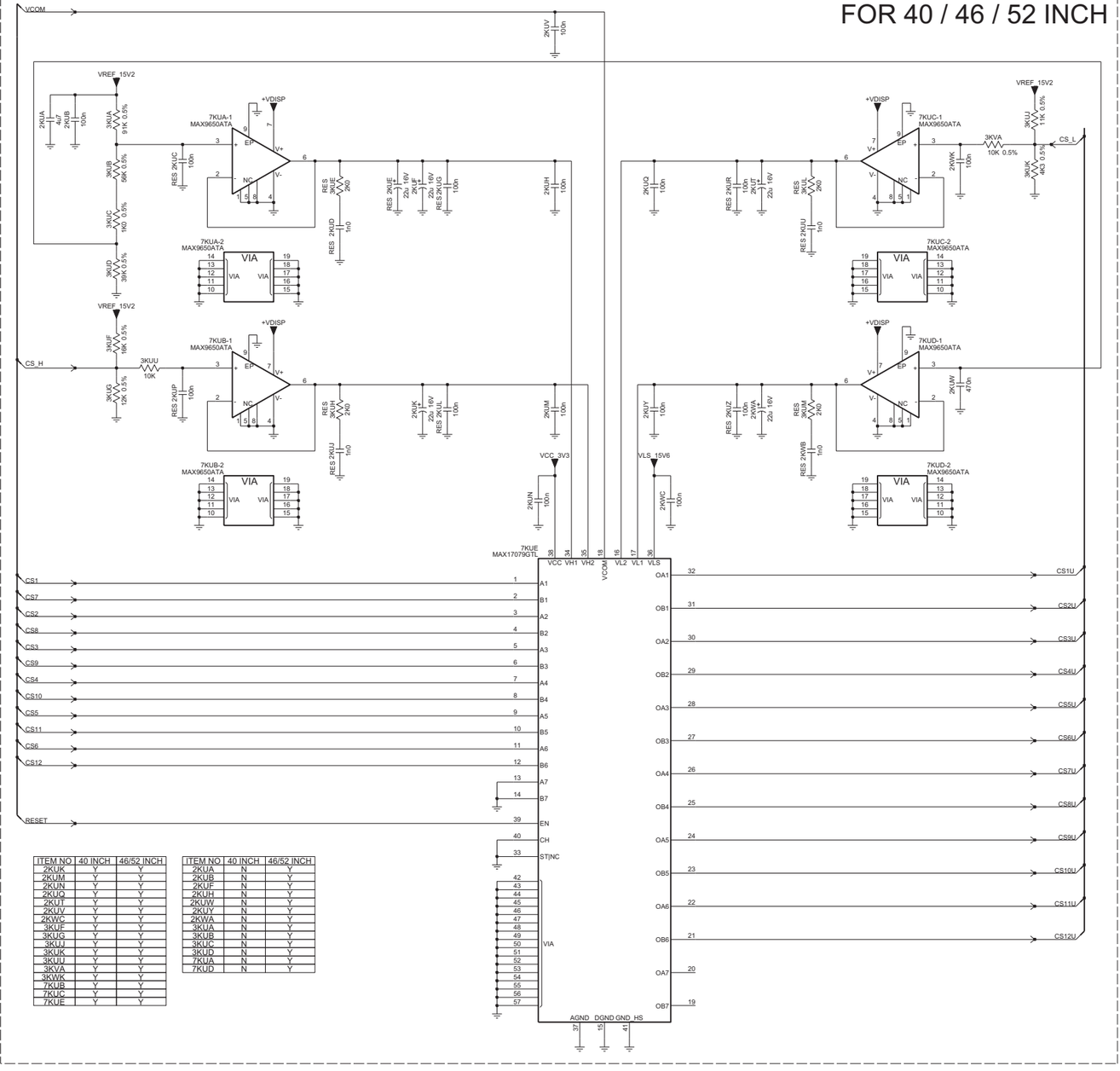
18770_555 _100121.eps
100121

MPD

B14D MPD

B14D

FOR 40 / 46 / 52 INCH



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2KUT	Y	Y
2KUV	Y	Y
2KWC	Y	Y
3KUF	Y	Y
3KUG	Y	Y
3KUJ	Y	Y
3KUK	Y	Y
3KUU	Y	Y
3KVA	Y	Y
3KWK	Y	Y
7KUB	Y	Y
7KUC	Y	Y
7KUE	Y	Y

ITEM NO	40 INCH	46/52 INCH
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2KUB	N	Y
2KUF	N	Y
2KUH	N	Y
2KUW	N	Y
2KUY	N	Y
2KWA	N	Y
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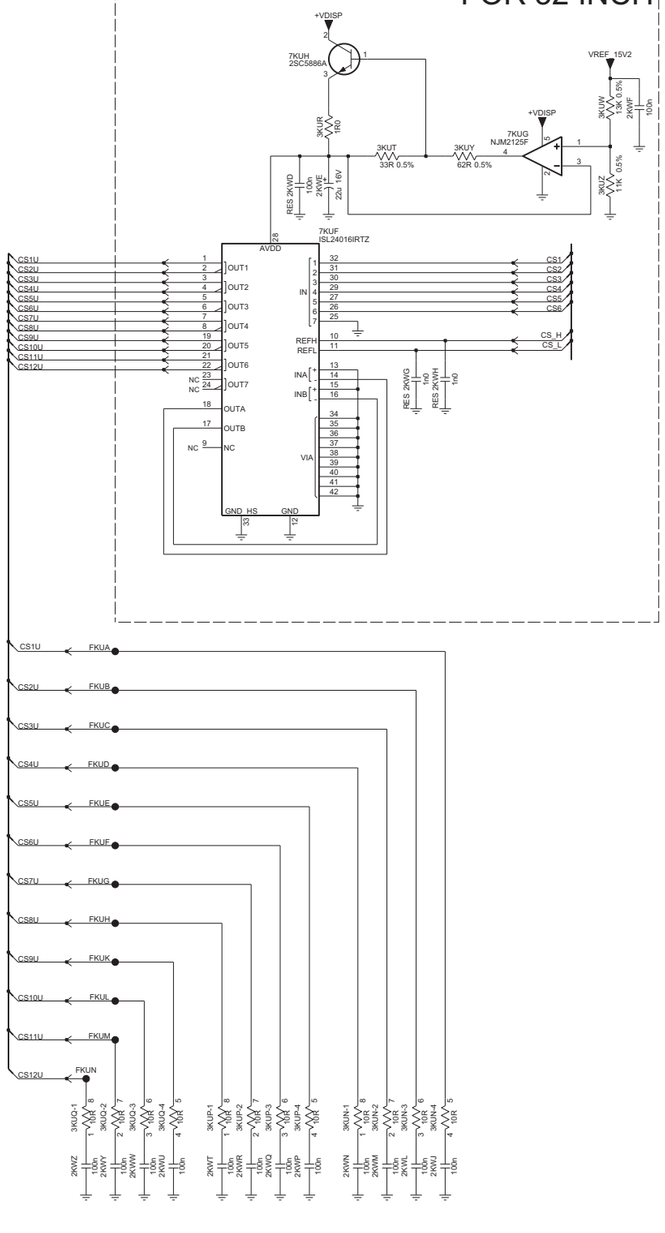
7KUD	N	Y

FOR 32 INCH



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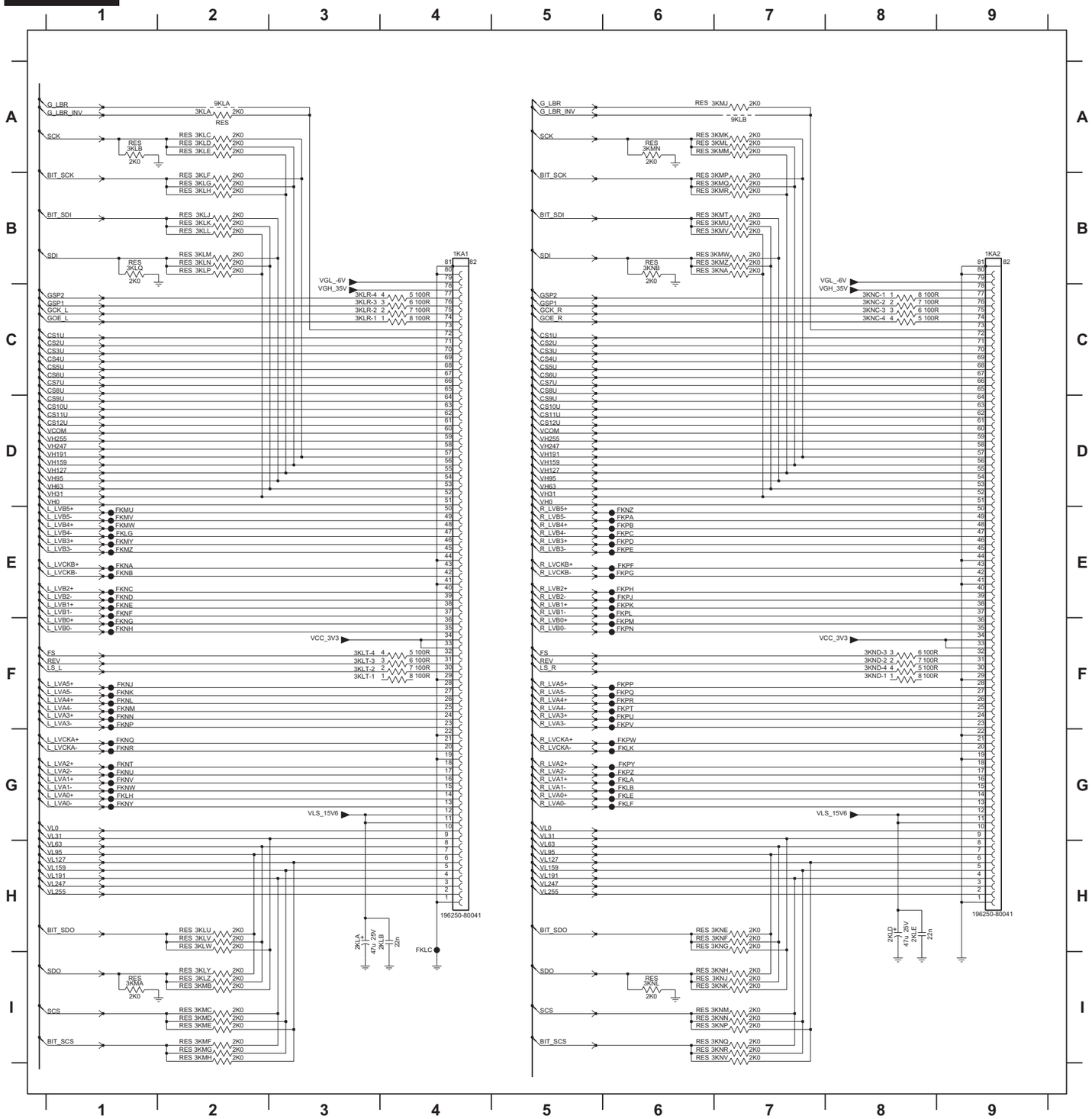
TCON SHARP	8204 000 9072	4 2009-12-09 3 2009-11-12 2 2009-10-26

18770_556_100121.eps
100121

Mini LVDS

B14E Mini LVDS

B14E

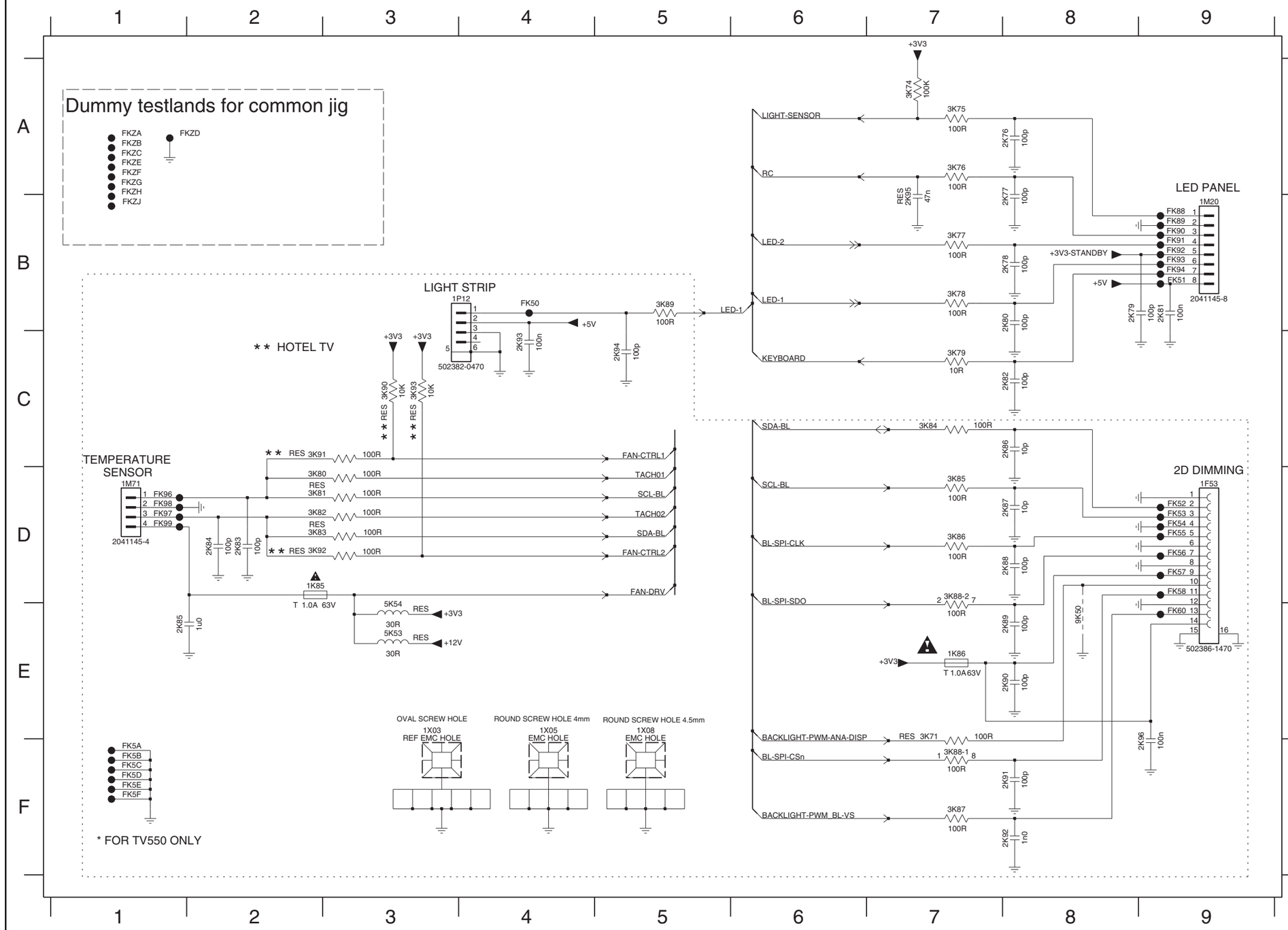


1KA1 B4	3KNJ I7
1KA2 B9	3KNK I7
2KLA H3	3KNL I6
2KLB H4	3KNM I7
2KLD H8	3KNN I7
2KLE H8	3KNP I7
3KLA A2	3KNQ I7
3KLB A1	3KNR I7
3KLC A2	3KNV I7
3KLD A2	9KLA A2
3KLE A2	9KLB A7
3KLF B2	FKLA G6
3KLG B2	FKLB G6
3KLH B2	FKLC I4
3KLJ B2	FKLE G6
3KLK B2	FKLF G6
3KLL B2	FKLG E1
3KLM B2	FKLH G1
3KLN B2	FKLK G6
3KLP B2	FKMU E1
3KLQ B1	FKMV E1
3KLR-1 C3	FKMW E1
3KLR-2 C3	FKMY E1
3KLR-3 C3	FKMZ E1
3KLR-4 C3	FKNA E1
3KLT-1 F3	FKNB E1
3KLT-2 F3	FKNC E1
3KLT-3 F3	FKND E1
3KLT-4 F3	FKNE E1
3KLU H2	FKNF E1
3KLV H2	FKNG F1
3KLW H2	FKNH F1
3KLY I2	FKNJ F1
3KLZ I2	FKNK F1
3KMA I1	FKNL F1
3KMB I2	FKNM F1
3KMC I2	FKNN F1
3KMD I2	FKNP F1
3KME I2	FKNQ G1
3KMF I2	FKNR G1
3KMG I2	FKNT G1
3KMH I2	FKNU G1
3KMJ A7	FKNV G1
3KMK A7	FKNW G1
3KML A7	FKNY G1
3KMM A7	FKNZ E6
3KMN A6	FKPA E6
3KMP B7	FKPB E6
3KMQ B7	FKPC E6
3KMR B7	FKPD E6
3KMT B7	FKPE E6
3KMU B7	FKPF E6
3KMV B7	FKPG E6
3KMW B7	FKPH E6
3KMZ B7	FKPJ E6
3KNA B7	FKPK E6
3KNB B6	FKPL E6
3KNC-1 C8	FKPM F6
3KNC-2 C8	FKPN F6
3KNC-3 C8	FKPP F6
3KNC-4 C8	FKPQ F6
3KND-1 F8	FKPR F6
3KND-2 F8	FKPT F6
3KND-3 F8	FKPU F6
3KND-4 F8	FKPV F6
3KNE H7	FKPW G6
3KNF H7	FKPY G6
3KNG H7	FKPZ G6
3KNH I7	

TCON SHARP	8204 000 9072	4 2009-12-09 3 2009-11-12 2 2009-10-26

18770_557_100121.eps
100121

B14F Connectors



B14F

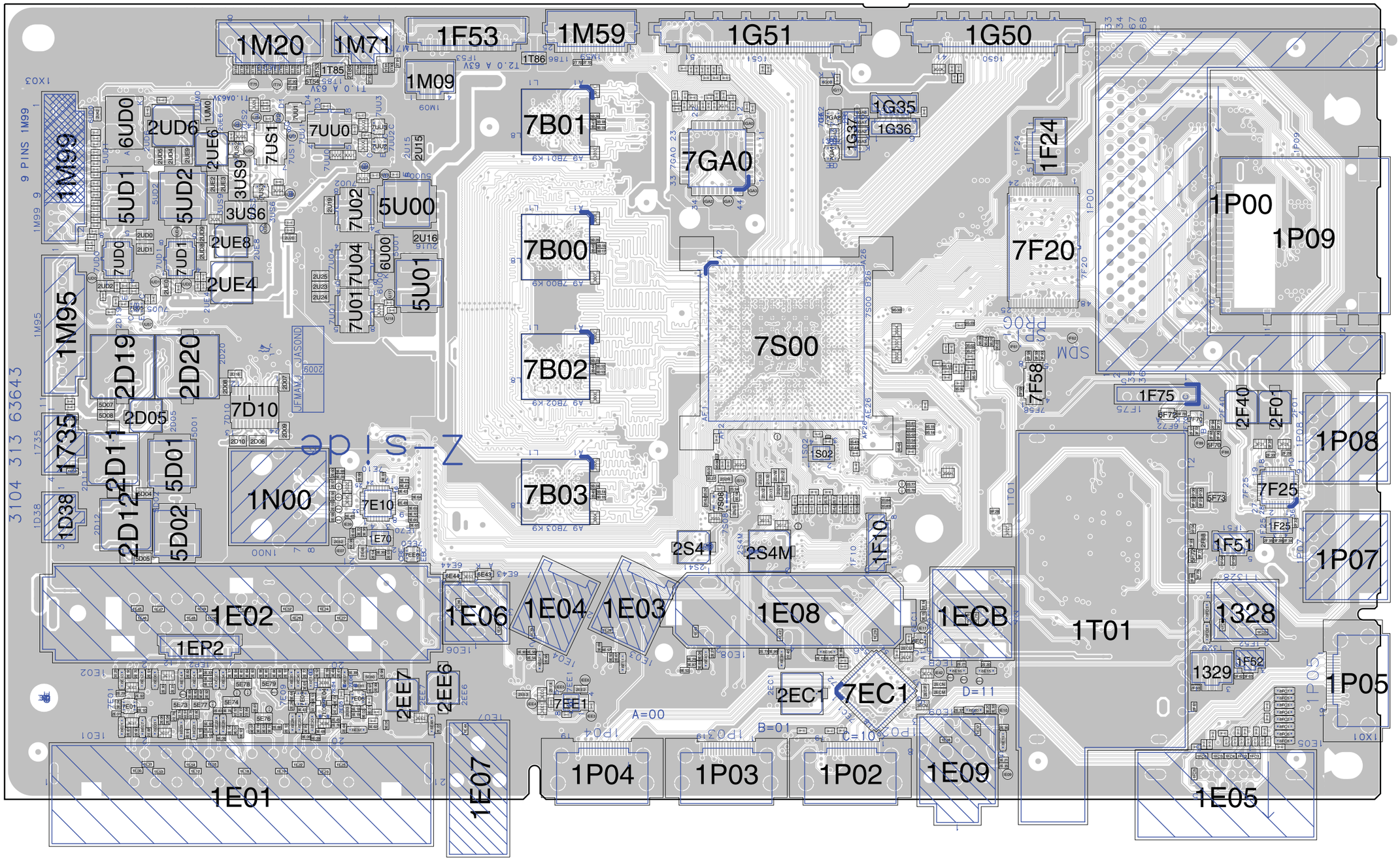
1F53 D9	3K88-2 D7
1K85 D2	3K89 B5
1K86 E7	3K90 C3
1M20 B9	3K91 C2
1M71 D1	3K92 D2
1P12 B4	3K93 C3
1X03 E3	5K53 E3
1X05 E4	5K54 E3
1X08 E5	9K50 E8
2K76 A8	FK50 B4
2K77 B8	FK51 B9
2K78 B8	FK52 D9
2K79 B8	FK53 D9
2K80 B8	FK54 D9
2K81 B9	FK55 D9
2K82 C8	FK56 D9
2K83 D2	FK57 D9
2K84 D2	FK58 D9
2K85 E1	FK5A F1
2K86 C8	FK5B F1
2K87 D8	FK5C F1
2K88 D8	FK5D F1
2K89 E8	FK5E F1
2K90 E8	FK5F F1
2K91 F8	FK60 E9
2K92 F8	FK88 B9
2K93 C4	FK89 B9
2K94 C5	FK90 B9
2K95 B7	FK91 B9
2K96 F9	FK92 B9
3K71 E7	FK93 B9
3K74 A7	FK94 B9
3K75 A7	FK96 D1
3K76 A7	FK97 D1
3K77 B7	FK98 D1
3K78 B7	FK99 D1
3K79 C7	FKZA A1
3K80 D2	FKZB A1
3K81 D2	FKZC A1
3K82 D2	FKZD A2
3K83 D2	FKZE A1
3K84 C7	FKZF A1
3K85 D7	FKZG A1
3K86 D7	FKZH A1
3K87 F7	FKZJ B1
3K88-1 F7	

TCON SHARP	8204 000 9072	4 2009-12-09 3 2009-11-12 2 2009-10-26

18770_558_100121.eps
100121

10-29 310431363643 SSB Layout

Overview top side



3104 313 6364.3

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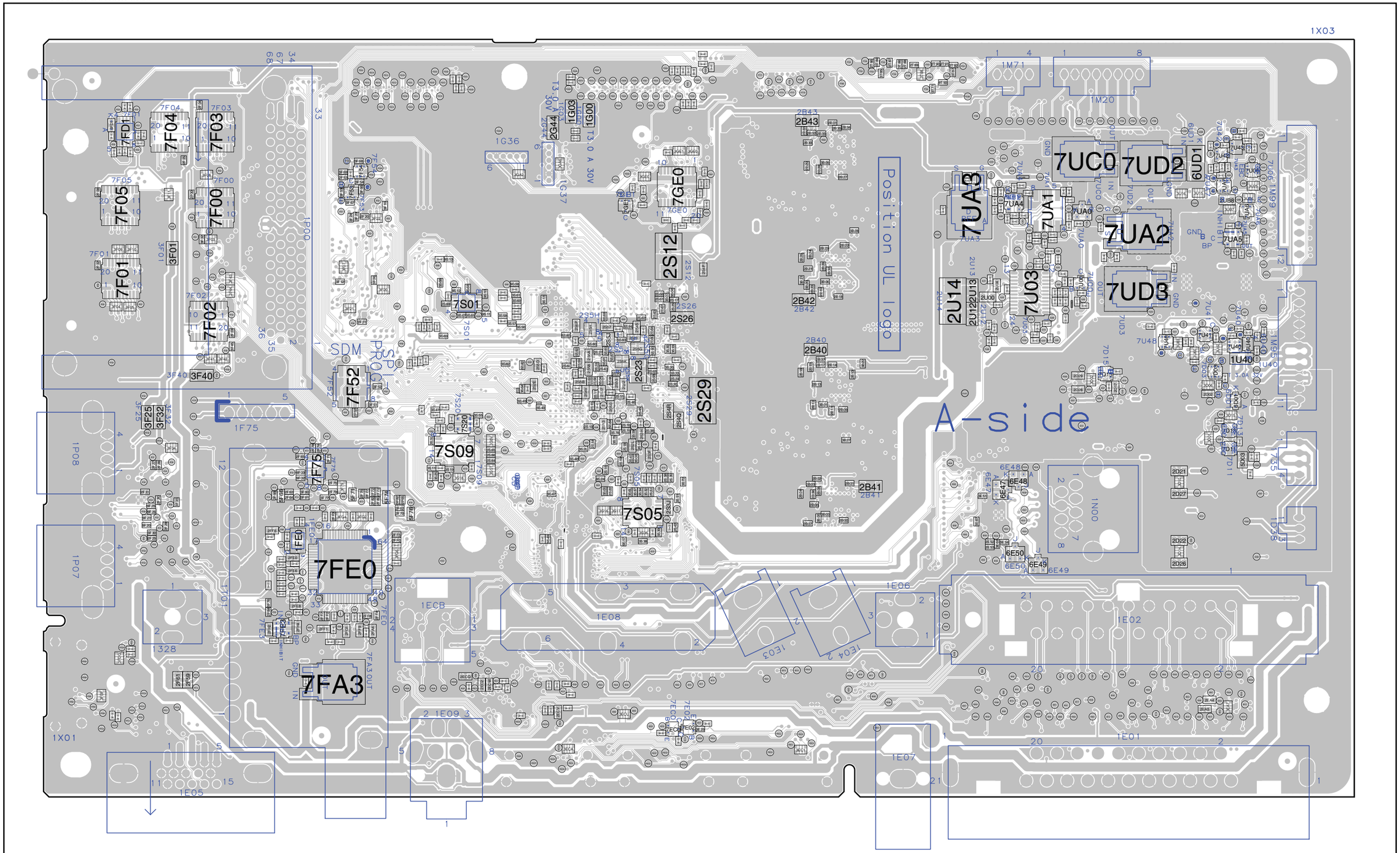
100219

Overview bottom side

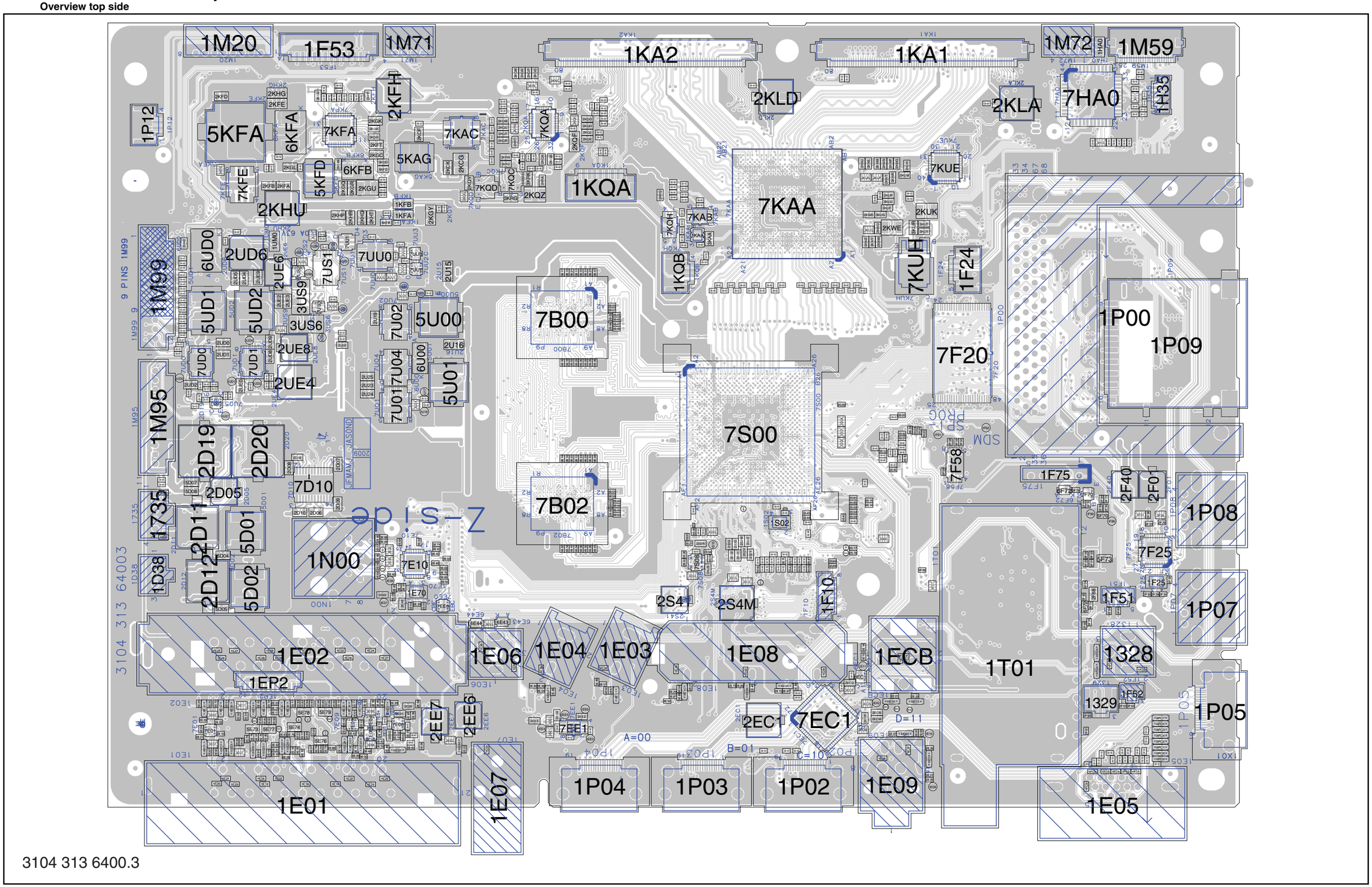


3104 313 6364.3

18770_581_100216.eps
100216

10-30 310431364003 SSB Layout

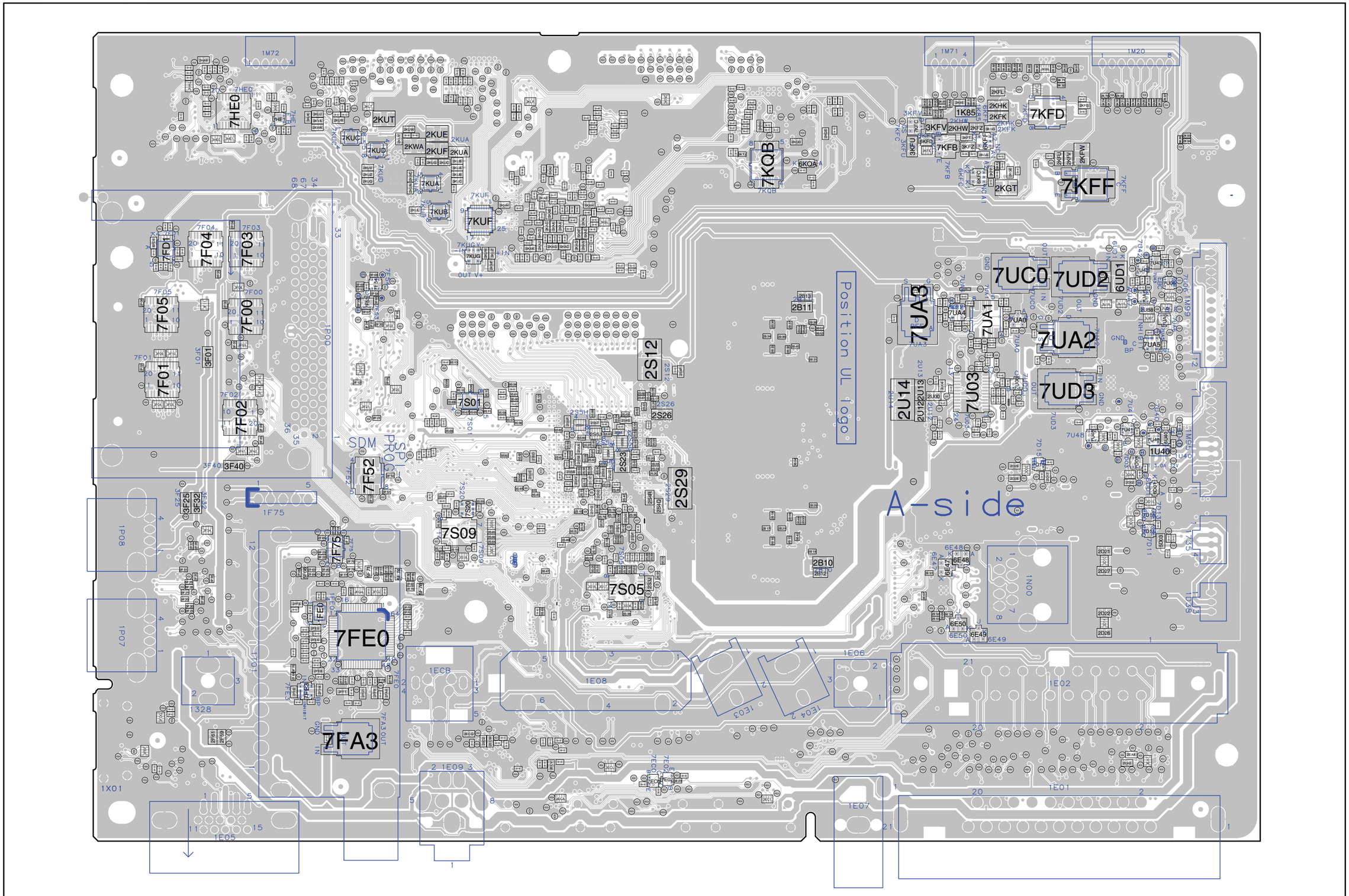
Overview top side



3104 313 6400.3

18770_582_100216.eps
100219

Overview bottom side

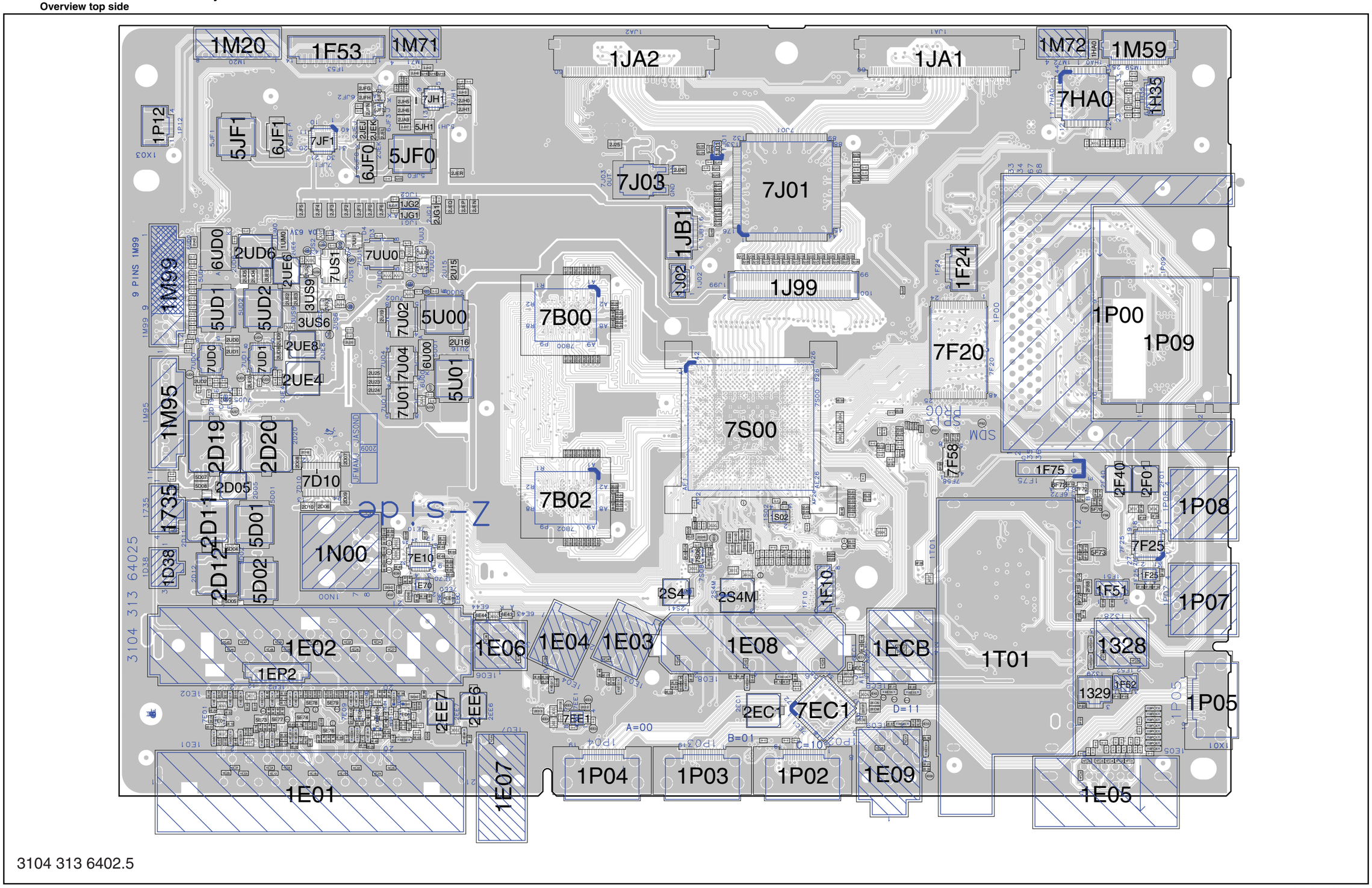


3104 313 6400.3

18770_583_100216.eps
100216

10-31 310431364025 SSB Layout

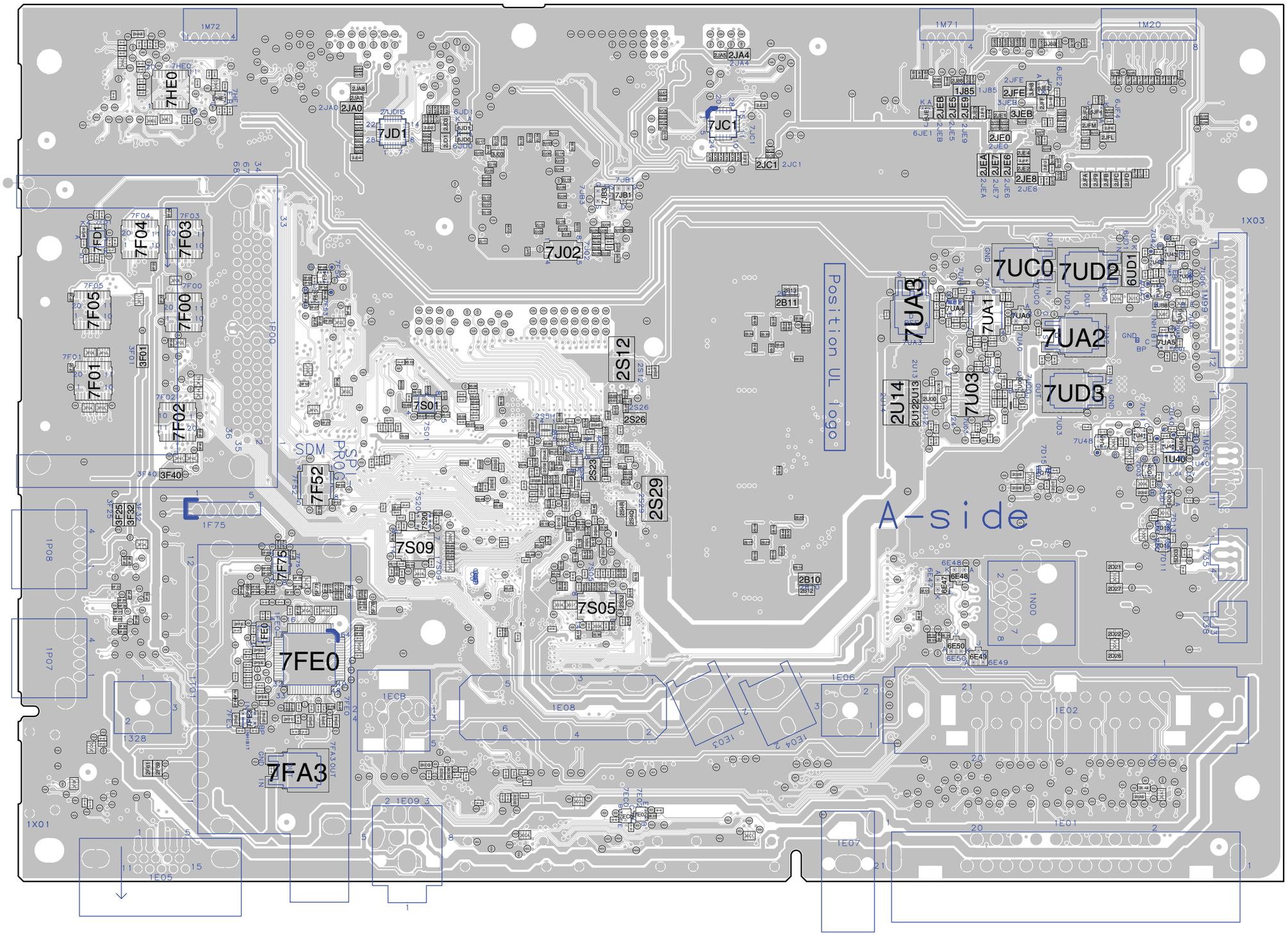
Overview top side



3104 313 6402.5

18770_584_100216.eps
100219

Overview bottom side

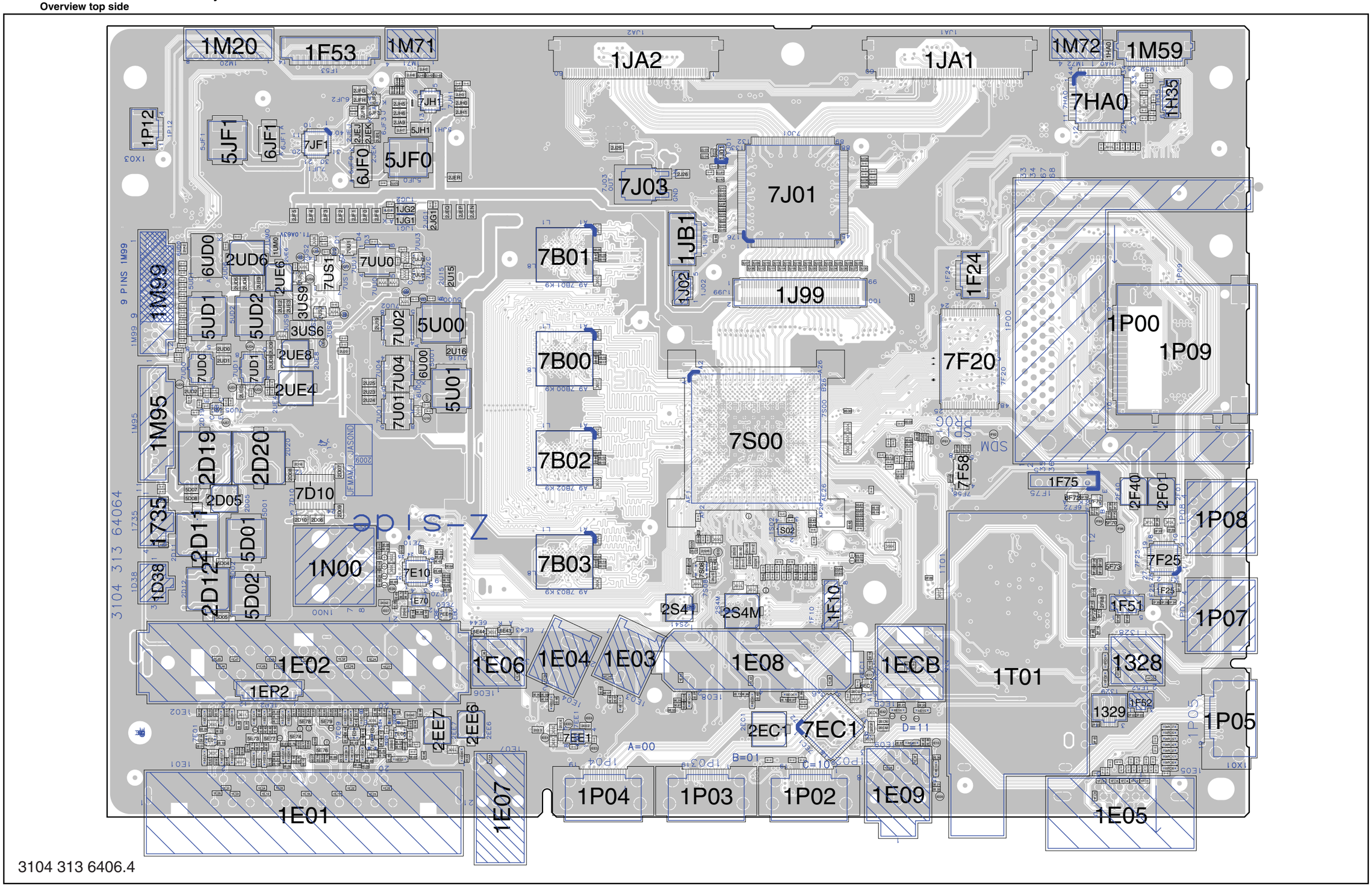


3104 313 6402.5

18770_585_100216.eps
100216

10-32 310431364064 SSB Layout

Overview top side



18770_586_100216.eps
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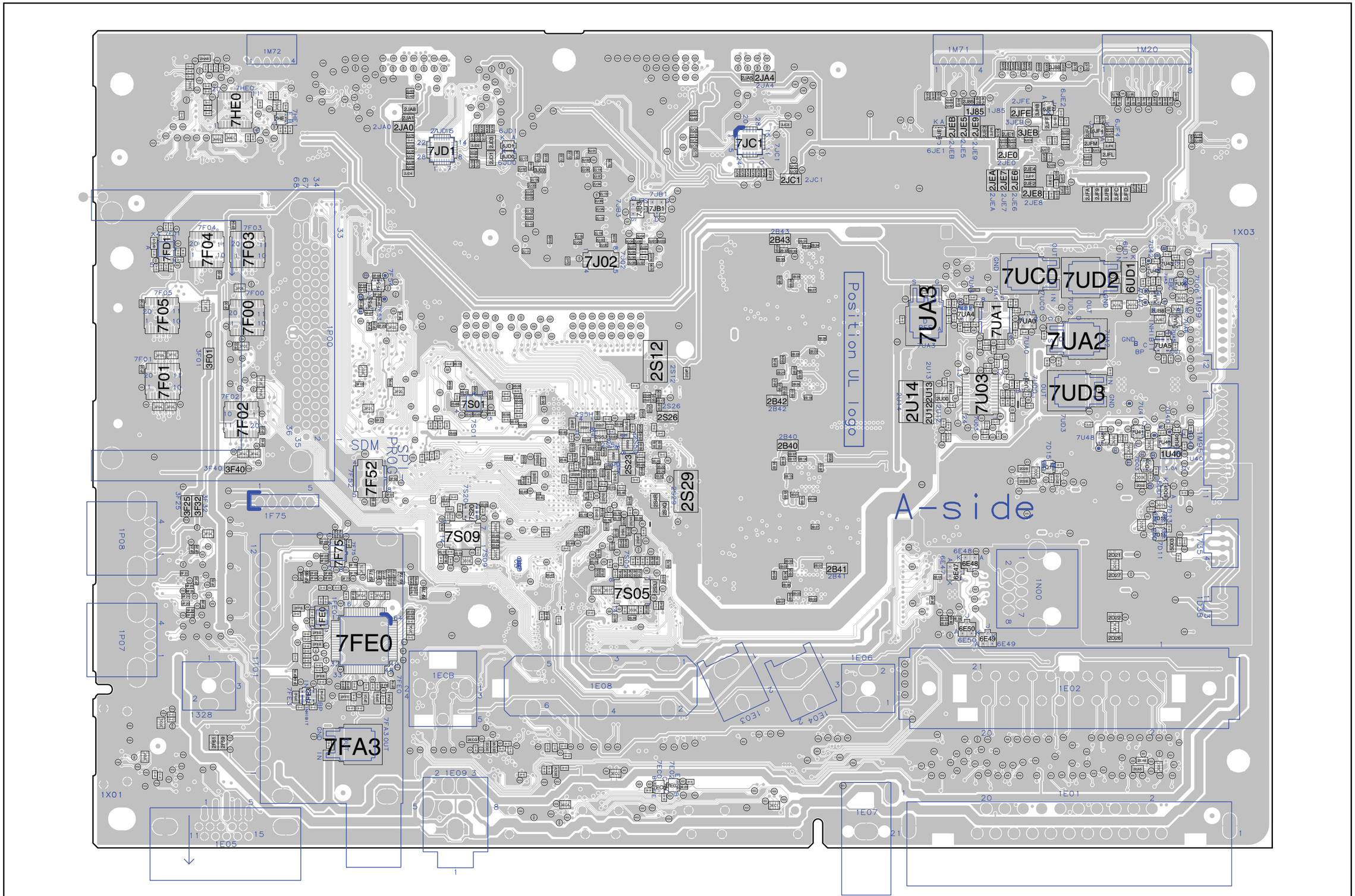
Overview bottom side



3104 313 6406.4

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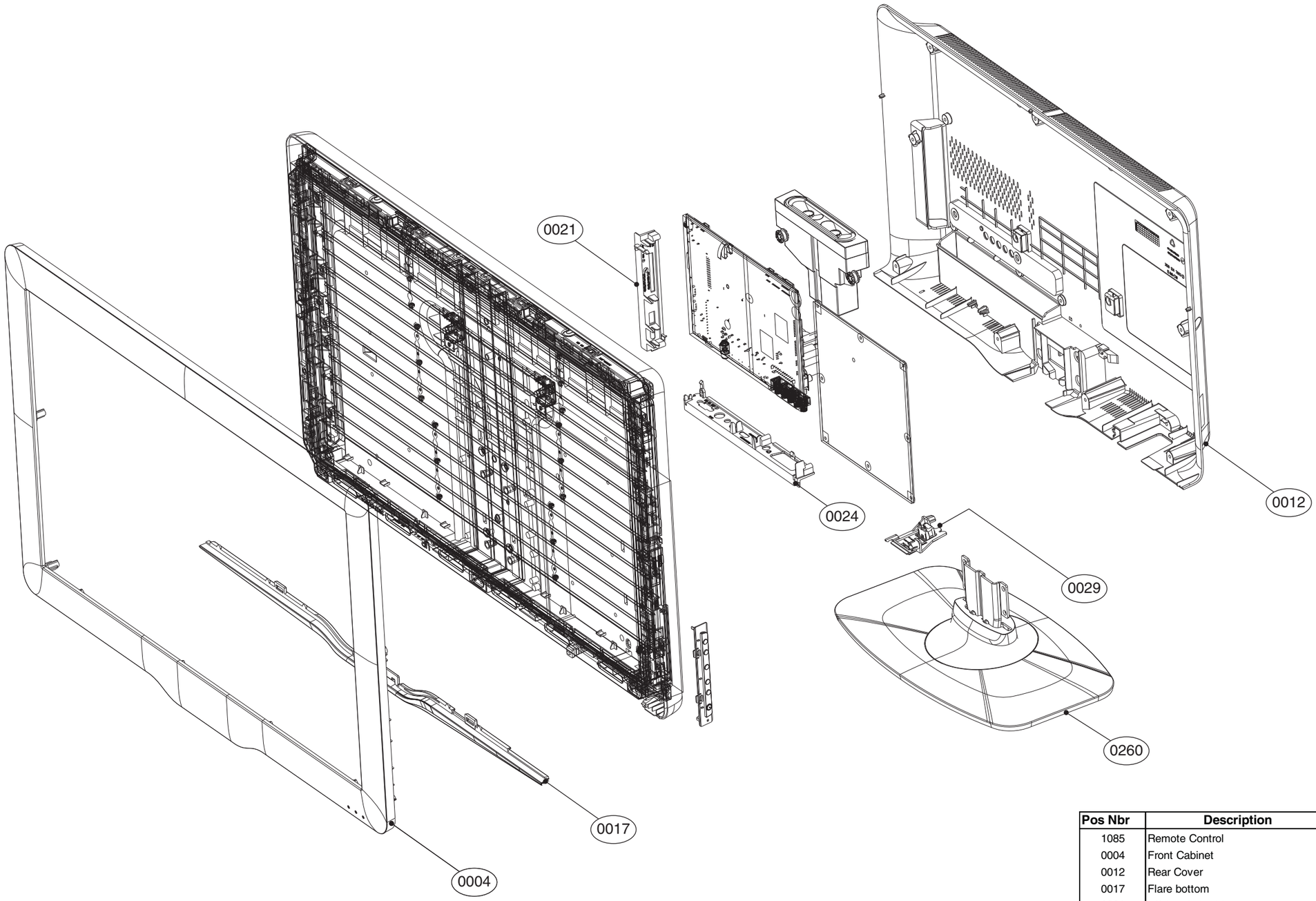
100216

11. Styling Sheets

11-1 Rembrandt 32"

REMBRANDT 32"



Pos Nbr	Description	Remarks
1085	Remote Control	Not displayed
0004	Front Cabinet	
0012	Rear Cover	
0017	Flare bottom	
0021	I/O bracket side	
0024	I/O bracket bottom	
0029	Switch bracket	
0260	Stand	

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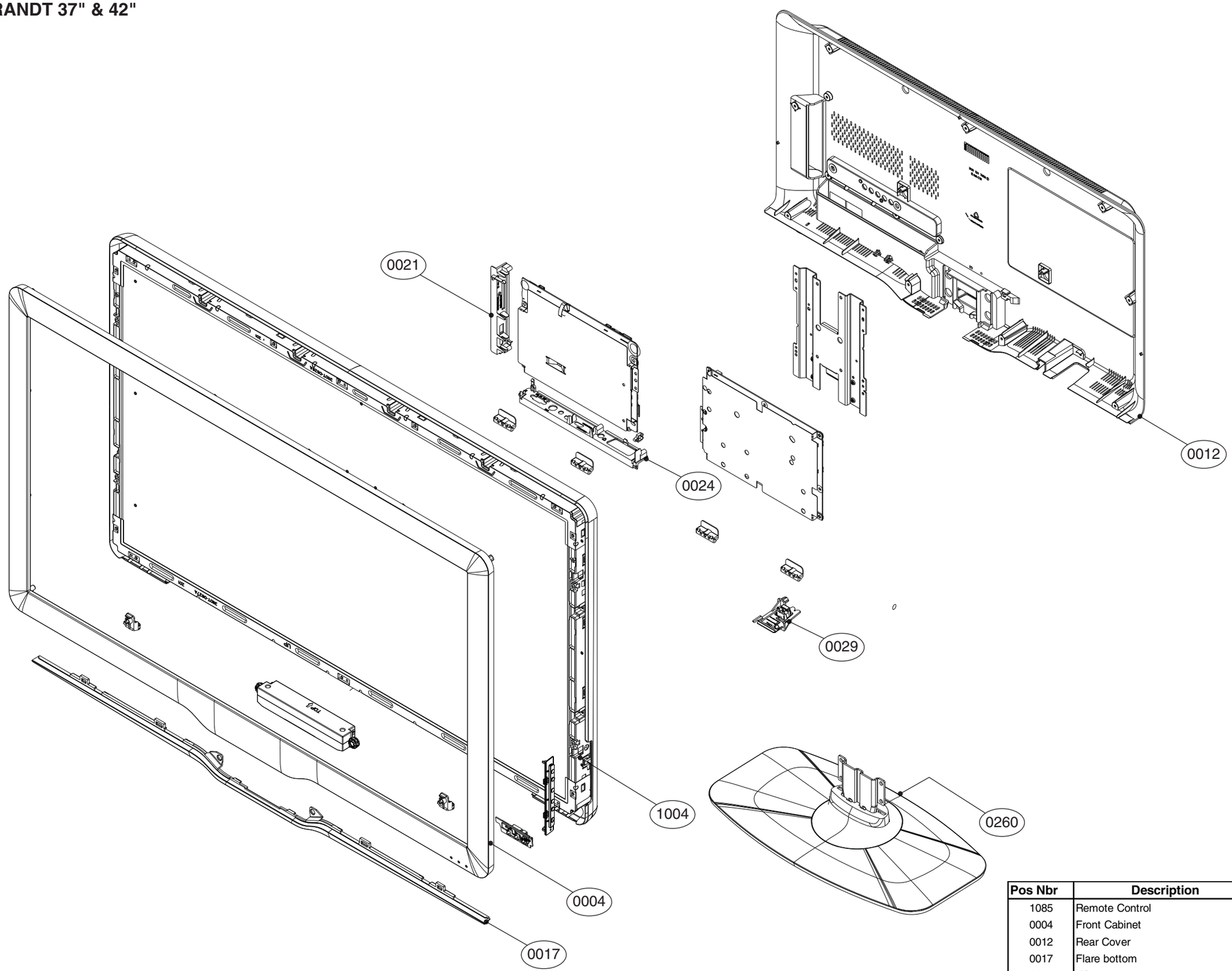
100217

11-2 Rembrandt 37" & 42"

REMBRANDT 37" & 42"

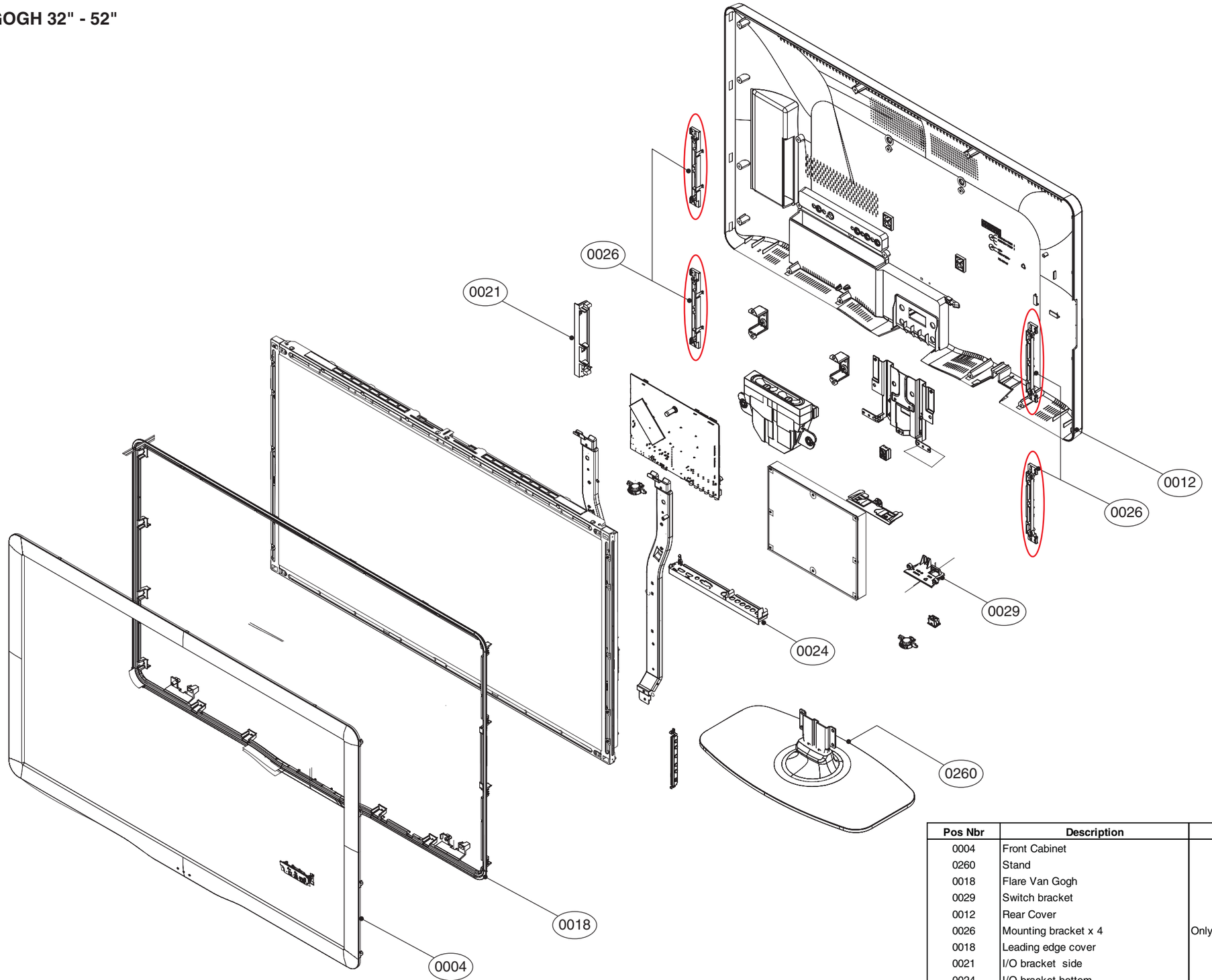


Pos Nbr	Description	Remarks
1085	Remote Control	Not displayed
0004	Front Cabinet	
0012	Rear Cover	
0017	Flare bottom	
0021	I/O bracket side	
0024	I/O bracket bottom	
0029	Switch bracket	
0260	Stand	

18770_801_100212.eps
100217

11-3 Van Gogh 32" - 52"

VAN GOGH 32" - 52"

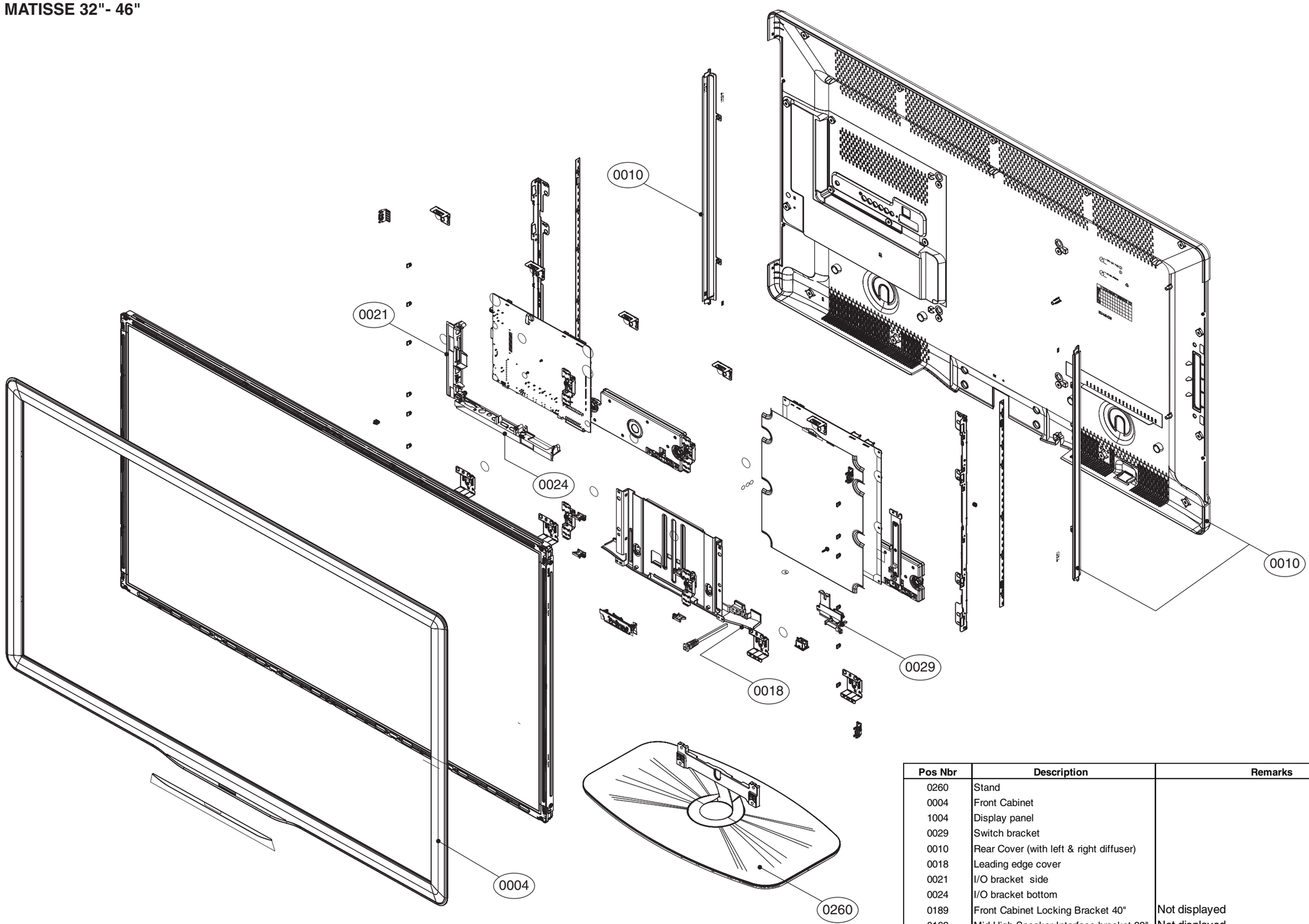


Pos Nbr	Description	Remarks
0004	Front Cabinet	
0260	Stand	
0018	Flare Van Gogh	
0029	Switch bracket	
0012	Rear Cover	
0026	Mounting bracket x 4	Only for screen size 40"
0018	Leading edge cover	
0021	I/O bracket side	
0024	I/O bracket bottom	
0154	Speaker bracket	Not displayed only for screen size 46" & 52"
1085	Remote Control	Not displayed

18770_802_100216.eps
100217

11-4 Matisse 32" - 46"

MATISSE 32"- 46"



Pos Nbr	Description	Remarks
0260	Stand	
0004	Front Cabinet	
1004	Display panel	
0029	Switch bracket	
0010	Rear Cover (with left & right diffuser)	
0018	Leading edge cover	
0021	I/O bracket side	
0024	I/O bracket bottom	
0189	Front Cabinet Locking Bracket 40"	Not displayed
0162	Mid High Speaker Interface bracket 32"	Not displayed
1085	Remote Control	Not displayed

18770_803_100216.eps
100219