

Service
Service
Service

Part 1
15MF227B/27
15MF237S/27
19MF337B/27
19MD357B/27
19PFL5402D/27
19PFL5422D/27
19PFL5622D/27

H_16644_000.eps
010607

Service Manual

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1. Technical Specifications and Connections and Chassis Overview

Index of this chapter:

- 1.1 Technical Specifications
- 1.2 Connections
- 1.3 Chassis Overview

Notes:

- Figures below can deviate slightly from the actual situation, due to the different set executions.
- Specifications are indicative (subject to change).

1.1 Technical Specifications

1.1.1 Technical Specifications

Display type	: LCD
Screen size	: 15"(38cm), 16:9 : 19"(48cm), 16:9
Resolution (HxV pixels)	: 1024(H) x 768(V)(15",19MF&19MD) : 1440(H) x 900(V)(19PFL)
Contrast ratio	: 500:1(15") : 850:1(19")
Light output (cd/m2)	: >200(15") : 300(19MF&19MD) : >230(19PFL)
Response time (ms)	: 8ms(Typ.) (15") : 5ms(Typ.) (19")
Viewing angle (HxV degrees)	: -70°~70°(H), -60°~65°(V)(Typ.) (15") : -85°~ 85°(H), -80°~ 80°(V)(Typ.) (19")
Tuning system	: PLL
TV Color systems	: NTSC M
Video playback	: NTSC M
Cable	: NTSC /ATSC(8VSB)
Tuner bands	: Free QAM(64/256) : FQD1236/F H-5 ATSC/CLEAR QAM
Supported video formats	: TAEH6-9P31FR3 : 640 x 480 @60p : 720 x 240 @60p : 720 x 480 @60i : 720 x 480 @60p : 1280 x 720 @60p : 1920 x 1080 @60i
Supported computer formats	: 640x350 @ 60Hz : 640x480 @ 60Hz : 800x600 @ 60Hz : 1024x768 @ 60Hz : 1360x768 @ 60Hz(19") : 1440x900 @ 60Hz(19")

1.1.2 Sound

Sound systems	: Stereo / Virtual Surround
Maximum power	: 2 x 3W(15",19MF&19MD) : 2 x 5W(19PFL)

1.1.3 Miscellaneous

Power Supply	
-AC/DC Power adapter	: +16V DC/2.812A(3.125A) (100~240V) (15") : 100~240V(19")
-Power consumption	: 35W (Typical)(15") : 50W(Typical) (19")
-Power cord length	: 1.8m
-Power cord type	: 3 lead with earth plug (US type)
-Power indicator	: LED(On: Green, Standby: Amber)
-Auto power saving	: EPA
-Stand-by (W)	: <1W
Horizontal scan	
-Horizontal	: 30 - 49KHz(15") : 30 - 56KHz(19")
-Vertical	: 56 - 62 Hz
Dimensions (WxHxD in mm)	: 327 x 254 x 12.0(15") : 427.2 x 277.4 x 17.0(19")

Ambient conditions:

- Temperature :0°C to 40°C
- Humidity :10 to 90%(non-condensing)

1.2 Connections

1.2.1 Signal Connector

1. Earphone (not use on 20")
2. Tuner (NTSC / ATSC / free QAM)
3. AV1 YPbPr (RCA connectors)
4. AV1 Audio L/R (RCA connectors for YPbPr)
5. AV2 CVBS & S-Video
6. AV2 Audio R/L input (RCA connectors for S-Video & CVBS)
7. SPDIF output (RCA connector)
8. PC Audio line in
9. D-Sub VGA in
10. HDMI
11. Rx/Tx for ISP factory alignment
12. DC mains in(15") , AC inlet(19")

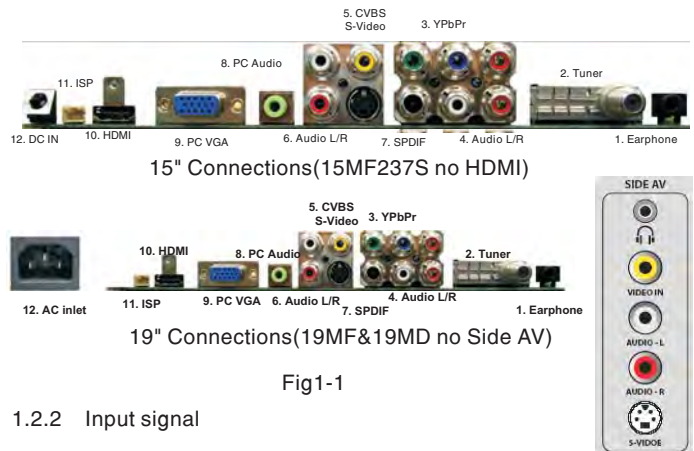


Fig1-1

1.2.2 Input signal

1.2.2.1 Signal type

D-sub 15 pins:

PC mode.

- Impedance: 75Ω.
- Level: 700mV
- Sync: TTL level, separate sync, + or - polarity.

PC-stereo line in (For PC)

- Audio: Impedance > 10 kΩ.
- Input Level: 500 mVrms

TV RF input system

- Aerial or cable, NTSC/ATSC (8VSB) /Free QAM (64/256)

TV RF input level

- 10mV (80dBuV) typical, 30dBuV ~ 100dBuV receiving capability, terminated with input impedance of 75Ω.

RCA A/V, CVBS and audio R+L input

- Support NTSC colour system, 480i/60Hz.
- CVBS: 75Ω impedance.
- DC coupled signals 1Vpp (Sync:300mV, video:700mV)
- Audio: Impedance > 10 kΩ.
- Input Level: 500 mVrms
- ESD-protected: 15 kV

S-video , (audio share with CVBS)

- Support NTSC colour system, 480i/60Hz.
- Y: 1000mVpp, C: 300mVpp, terminated with input impedance of 75Ω.

HEADPHONE

- Peripherals : Earphones with impedance between 8 - 600Ω
- Features :When headphone plug is connected, loudspeaker sound is muted.
- Volume control: with the loudspeaker volume.
- Connector type : 3.5 mm stereo Jack, with switch

- Specifications : - Output: $32\Omega > 10\text{ mW}$
- Sound is the same as from the loudspeakers.
- ESD-protected : 15 kV

YPbPr and Audio L + R input

- Support NTSC colour system SDTV and HDTV, including 480i/60Hz, 480p/60Hz, 720p/60Hz and 1080i/60Hz.
- Y: 1000mVpp, PbPr: 350mVpp, terminated with input impedance of 75Ω .
- Connector type: RCA connectors
- Audio: Impedance $> 10\text{ k}\Omega$.
Input Level: 500 mVrms

HDMI (High Definition Multimedia Interface)

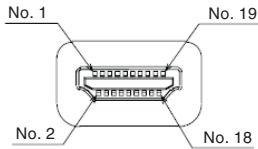
- support 480i /480p , 720p , 1080i format with HDCP
- Digital interface with 4 channels TMDS signal

SPDIF Output (Sony Philips Digital Interface Format)

- Level: - 0.5V~1.0V square wave

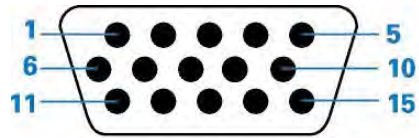
HDMI Pin assignment

Type A Connector



PIN No.	SIGNAL
1	TMDS Data2+
2	TMDS Data2 shield
3	TMDS Data2-
4	TMDS Data1+
5	TMDS Data1 shield
6	TMDS Data1-
7	TMDS Data0+
8	TMDS Data0 shield
9	TMDS Data0-
10	TMDS Clock+
11	TMDS Clock Shield
12	TMDS Clock-
13	CEC
14	Reserved (N.C. on device)
15	SCL
16	SDA
17	DDC/CEC Ground
18	+5V Power
19	Hot Plug Detect

D-sub Pin assignment



PIN No.	SIGNAL b(PC)
1	Red
2	Green
3	Blue
4	NC
5	GND
6	Red GND
7	Green GND
8	Blue GND
9	+5V (Supply from PC)
10	Sync GND
11	NC
12	SDA
13	H-sync
14	V-sync
15	SCL

1.3 Chassis Overview

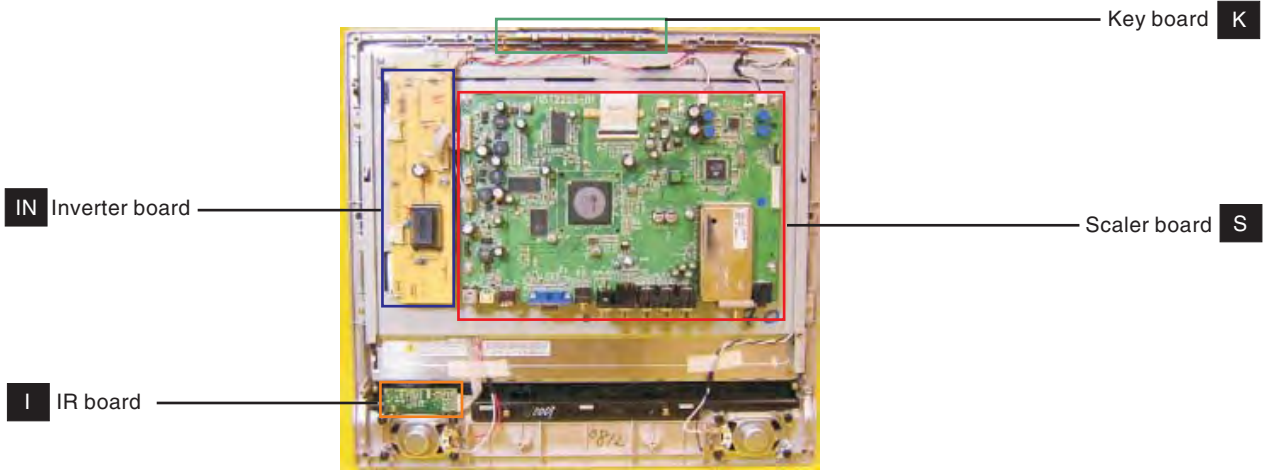


Fig. 1-2 CBA locations (15-inch model)

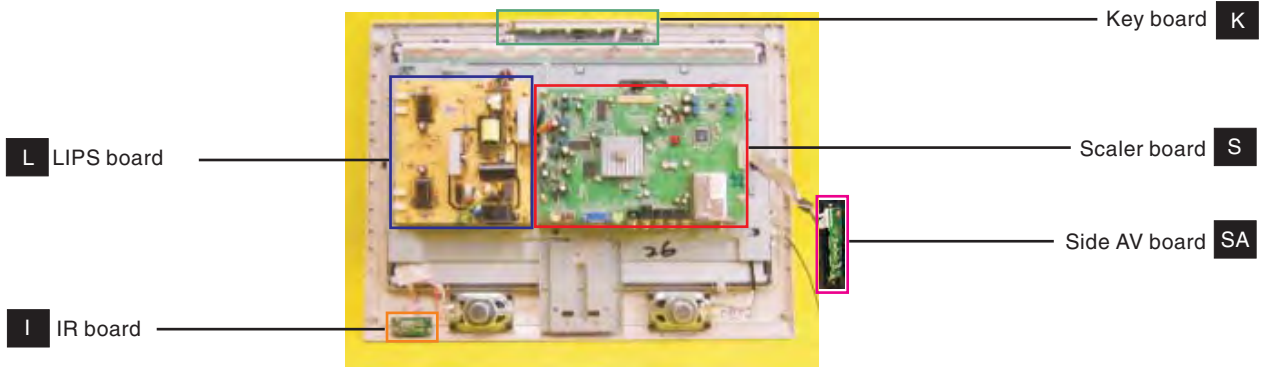


Fig. 1-3 CBA locations (19PFL5402D model)


2. Safety Instructions, Warnings, and Notes

Index of this chapter:

- 2.1 Safety Instructions
- 2.2 Warnings
- 2.3 Notes

2.1 Safety Instructions


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

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

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



- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the Mains/AC Power lead for external damage.
- Check the strain relief of the Mains/AC Power cord for proper function.
- Check the electrical DC resistance between the Mains/AC Power plug and the secondary side (only for sets that have a Mains/AC Power isolated power supply):
 1. Unplug the Mains/AC Power cord and connect a wire between the two pins of the Mains/AC Power plug.
 2. Set the Mains/AC Power switch to the "ON" position (keep the Mains/AC Power cord unplugged!).
 3. Measure the resistance value between the pins of the Mains/AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
 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.

2.2 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. Available ESD protection equipment:
 - Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
 - Wristband tester 4822 344 13999.
- 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.

2.3 Notes

2.3.1 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 (see chapter 5) 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.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the "double-D symbol", are trademarks of Dolby Laboratories.

2.3.2 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 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- 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 in the Spare Parts List. Therefore, always check this list when there is any doubt.

2.3.3 Lead-free Solder

Philips CE is producing lead-free sets (PBF) from 1.1.2005 onwards.

Identification: The bottom line of a type plate gives a 14-digit serial number. Digits 5 and 6 refer to the production year, digits 7 and 8 refer to production week (in example below it is 2006 week 17).



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130606

Figure 2-1 Serial number example

Regardless of the special lead-free logo (which is not always indicated), one must treat all sets from this date onwards according to the rules as described below.



Figure 2-2 Lead-free logo

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

- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. 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 stabilise 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 stabilised 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.
- Use only original spare-parts listed in the Service-Manuals. Not listed standard material (commodities) has to be purchased at external companies.
- For sets produced before 1.1.2005, containing leaded soldering tin and components, all needed spare parts will be available till the end of the service period. For the repair of such sets nothing changes.

In case of doubt whether the board is lead-free or not (or with mixed technologies), you can use the following method:

- Always use the highest temperature to solder, when using SAC305 (see also instructions below).
- De-solder thoroughly (clean solder joints to avoid mix of two alloys).

2.3.4 Alternative BOM identification

In September 2003, Philips CE introduced a change in the way the serial number (or production number, see Figure 2-1) is composed. From this date on, the **third digit** in the serial number (example: AG2B0335000001) indicates the number of

the alternative BOM (Bill of Materials used for producing the specific model of TV set). 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 O.E.M.s.

By looking at the third digit of the serial number, the service technician can see if there is more than one type of B.O.M. used in the production of the TV set he is working with. He can then consult the At Your Service Web site, where he can type in the Commercial Type Version Number of the TV set (e.g. 28PW9515/12), after which a screen will appear that gives information about the number of alternative B.O.M.s used. If the third digit of the serial number contains the number 1 (example: AG1B0335000001), then there is only one B.O.M. version of the TV set on the market. If the third digit is a 2 (example: AG2B0335000001), then there are two different B.O.M.s. Information about 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.

2.3.5 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!

2.3.6 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. Directions for Use

You can download this information from the following websites:

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

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

Philips Digital UI-TV/AV1/AV2/Side/HDMI				
OSD Layer 1	2	3	4	5
Picture	Smart Picture	Personal Rich Natural Soft Power Saver		
	Contrast	slider		
	Brightness	slider		
	Color	slider		
	Sharpness	slider		
	Color temperature	Normal Warm Cool		
	Tint	slider		
	Noise Reduction	slider		
	Dynamic Contrast	OFF Medium Maximum		
	Picture format	Automatic Super zoom 4:3 Movie expand 14:9 Movie expand 16:9 16:9 subtitle Wide screen		
Sound	Smart sound	Personal Speech Movies	EQUALIZER EQUALIZER EQUALIZER	
	Sound mode	Mono Stereo Virtual Surround		
	Alternate audio	Main SAP		
	Digital Audio Language	Use toggle method to navigate supported languages		
	AVL	Off On		
Features	Closed captions	Off On On during mute		
	Caption service	CC-1 CC-2 CC-3 CC-4 T-1 T-2 T-3 T-4		
	Digital caption service	CS-1 CS-2 CS-3 CS-4 CS-5 CS-6		

3. Directions for Use

	Digital caption options	Reset to default	Reset to default		
		Size	Default Small Standard Large		
		Style	Default Monospaced serif Serif Monospaced sans serif Sans serif Casual Cursive Small caps		
		Text	Color	Default Black White Red Green Blue Yellow Magenta Cyan	
			Opacity	Default Solid Transparent Translucent Flashing	
		Background	Color	Default Black White Red Green Blue Yellow Magenta Cyan	
			Opacity	Default Solid Transparent Translucent Flashing	
		Preferred channels			
		Sleeptimer	slider		
		Parental Control	Channel lock		
TV ratings lock					
Movie ratings lock					
Region ratings lock					
Clear Regions lock					
Change Pin					
Installation	Language	English Francais Espanol			
	Autoprogram	Antenna Cable	Start now (Analog first then Digital)		
	Source	TV AV1 AV2 HDMI Side DVD PC			
	Clock	Enter Time(Hrs,Mins) AM/PM			
	Weak channel Installation				
	Current Software Info	(Current software Version)			
	Reset AV settings	Start now			
	EXIT	EXIT			

Magnavox Digital UI-PC				
1	2	3	4	5
Picture	Contrast	slider		
	Brightness	slider		
	Color temp	Normal Warm Cool		
	Picture format	Full screen 4:3		
Sound	Smart sound	Personal Speech Movie	Equalizer Equalizer Equalizer	
	Virtual surround	On Off		
Installation	Language	English Francais Espanol		
	Source	TV AV1 AV2 HDMI DVD PC		
	Picture Adjustment	Auto adjust	Start	
		Manual adjust	Phase Clock Horizontal Vertical	
	Factory reset	No Yes		
EXIT	Exit			

3. Directions for Use

Magnavox Digital UI-DVD				
1	2	3	4	5
Picture	Smart picture	Personal Rich Natural Soft Power Saver		
	Contrast	slider		
	Brightness	slider		
	Color	slider		
	Sharpness	slider		
	Color temperature	Normal Warm Cool		
	Tint	slider		
	Noise Reduction	slider		
	Dynamic Contrast	OFF Medium Maximum		
	Picture format	Automatic Super zoom 4:3 Movie expand 14:9 Movie expand 16:9 16:9 subtitle Wide screen		
Sound	Smart sound	Personal Speech Movies	EQUALIZER EQUALIZER EQUALIZER	
	Virtual Surround	On Off		
Parental Control	Movie ratings lock			
	Change Pin			
Installation	Language	English Francais Espanol		
	Source	TV AV1 AV2 HDMI DVD PC		
	Reset AV settings	Start now		
EXIT	Exit			

4. Mechanical Instructions

- Index of this chapter:
- 4.1 Assy/Panel Removal
- 4.2 Set Re-assembly

4.1 Assy/Panel Removal

Notes: Please put your machine on soft material to avoid to scrape panel when you disassemble it.

Front view



Fig.1

Back view



Fig.2

Step 1. Remove the stand.

Remove the two screws as Fig.2.

Step 2. Remove the Back cover and Main shield assy as Fig.3~5.

- a. Remove the 6 screws on the bottom side as Fig.3.
- b. Remove the back cover as Fig.4.
- c. Remove the 5 screws as Fig.5 , then remove the Main shield assy.

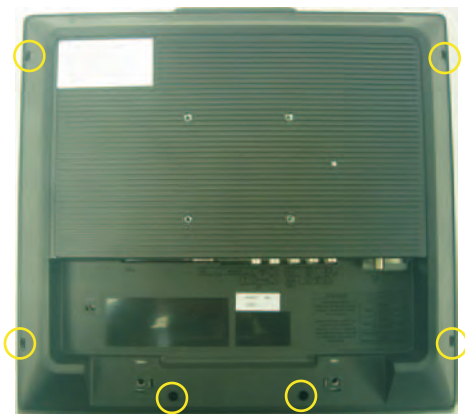


Fig.3

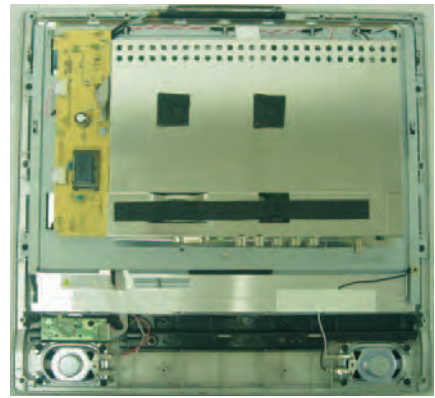


Fig.4

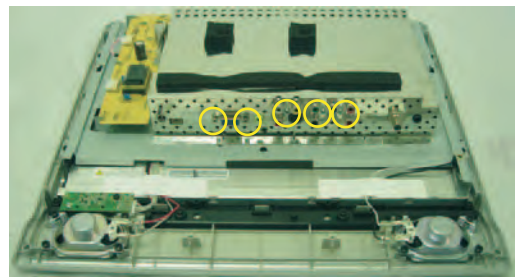


Fig.5

Step 3. Remove the Scaler, Inverter, IR, Key board.

Remove the 6 screws and disconnect the 10 cables as Fig.6.

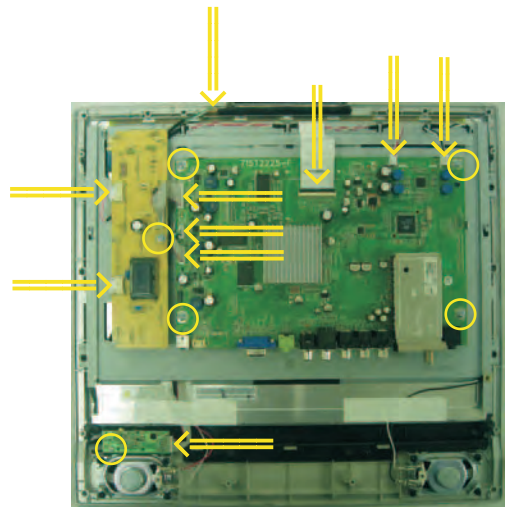


Fig.6

Step 4. Remove the speakers and the Bezel assy as Fig.7~Fig.8

- a. Remove the 8 screws as Fig.7.

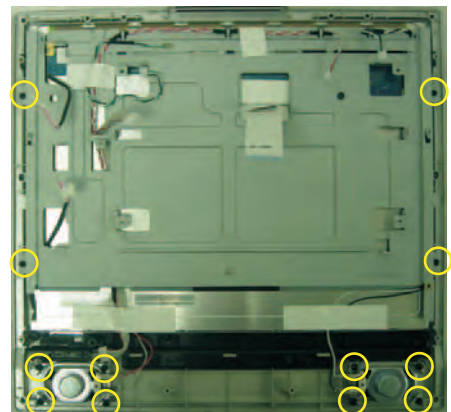


Fig.7

4. Mechanical Instructions

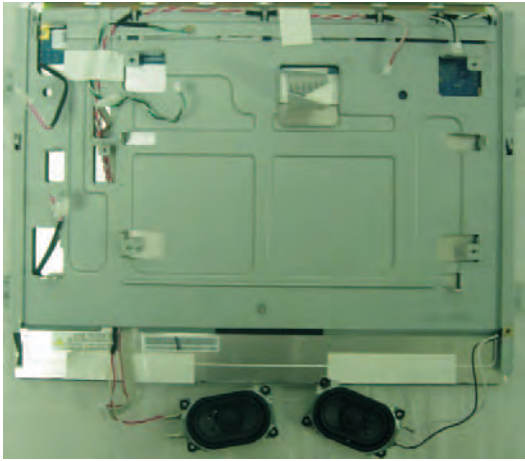


Fig.8

Step 5. Remove MAIN Frame ASSY as Fig.9.

Remove the 4 screws as Fig.9.

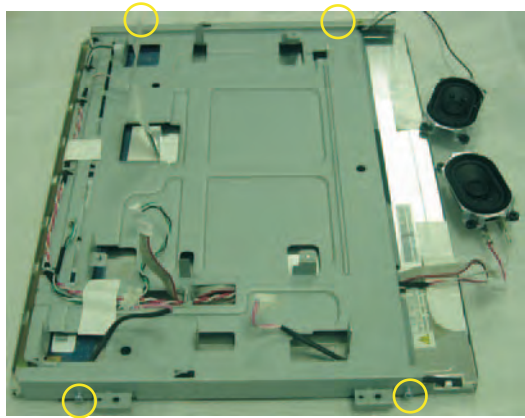


Fig.9

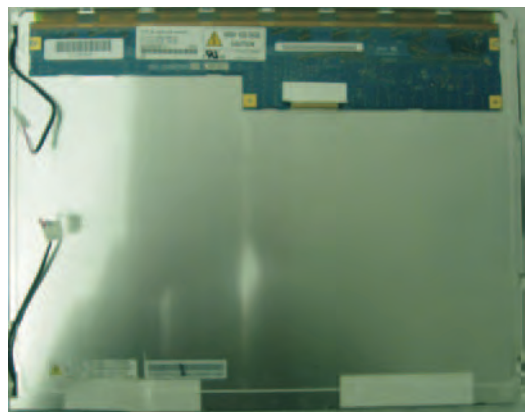


Fig. 10

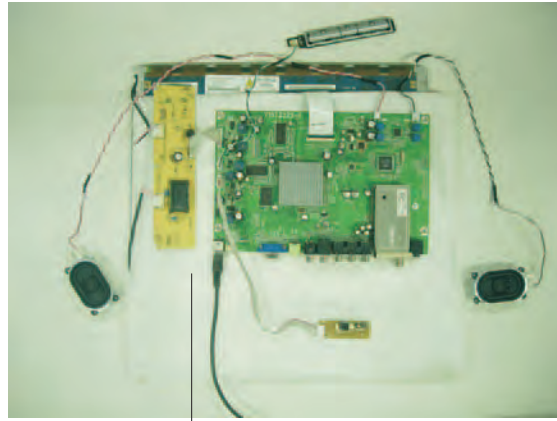


Fig.11

Insulation material

Service position

Notes: Please add insulation material between board and panel to avoid short circuit.

4.2 Set Re-assembly

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

Notes:

- a. While re-assembling, make sure that all cables are placed and connected in their original position.
- b. Pay special attention not to damage the EMC foams at the SSB shielding. Check that EMC foams are put correctly on their places.

In warranty, it is not allowed to disassembly the LCD panel, even the backlight unit defect.

Out of warranty, the replacment of backlight unit is a correct way when the defect is cused by backlight (CCFL,Lamp).

5. Service Modes, Error Codes and Fault Finding

index of this chapter:

- 5.1 CSM
- 5.2 Factory Mode
- 5.3 Repair Flow Chart

5.1 CSM

It can display CSM windows message when press 1-2 3-6 5-4 on the button (RC) remote control in normal operation mode. The following information is displayed on screen:

CSM Item	Contents	Remark
1: Set Type	15MF237D/27	Project name
2: Production code	BZ000651123456	14 digit production-code(serial number)
3: SW-naming main-processor	F3 ATSC V0.133.1 070130	SW version(F3:F3 family, ATSC: digital TV, V0.133.1: software version, 070130: software release date)
4: Code 1	FF FF FF FF FF	Error codes in NVM/EEPROM (5 last logged errors)
5: Code 2	FF FF FF FF FF	Error codes in NVM/EEPROM (5 first logged errors)
6: Key (HDCP)	Invalid	HDMI information whether HDCP-key is valid
7: Digital signal quality ATSC		Digital signal level
8: NVM-naming	PANEL_CLAA_15_XP3	Contents per Panel-type

About error code,Please refer to the table below.

Error code	Event
0x01	DDR error
0x02	IIC bus error
0x03	Tuner error
0x04	Demod error

5.2 Factory Mode

It can enter Factory Mode

1. Press "Menu" in normal operation mode to enter OSD.
2. Press "062596+Menu" on the button (RC) remote control in OSD.
3. Press "Menu" again. The screen will appear "FAC" in top right corner.

OSD behavior:

Before press number key change OSD item

Now remove previous function, press number key then press OK will change value

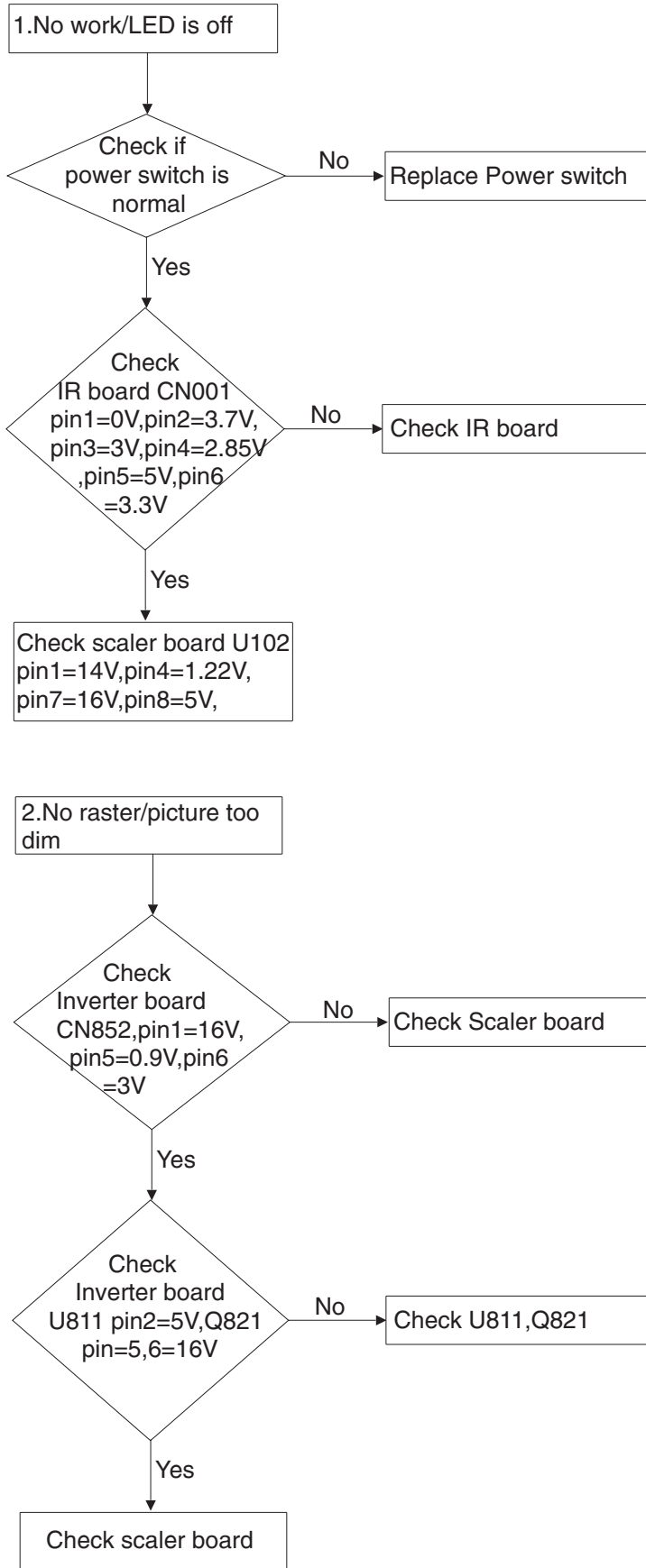
Item	Description	Range	method of operation
//Action Items			
0	Exit Factory		press OK.
1	AutoColor	PC: any pattern has black and white YPbPr:SMPTEbar(color bar), any timing.	press OK. when autocolour, the OSD disappear, when finished. OSD appear.
//Switch Items			
2	VIRGIN Mode		On/Off
3	AGING MODE	turn<On> and no signal input	On/Off
4	COLOR_ENHANCE		On/Off
(values different by VGA and YPbPr) AutoColor changes those items			
5	ADC_GAIN_R	0~255	Press Left and Right to change value
6	ADC_GAIN_G	0~255	
7	ADC_GAIN_B	0~255	
8	ADC_OFFSET_R	0~127	
9	ADC_OFFSET_G	0~127	
10	ADC_OFFSET_B	0~127	
//Color Temperature (values different by AV,VGA,DTV,HDMI,YPbPr)			
11	CLR_TEMP_R	Back-End Scaler R G B Gain	0~255 Press Left and Right to change value
12	CLR_TEMP_G		0~255
13	CLR_TEMP_B		0~255
//Smart Picture (values different by smart picture)			
14	SP_MODE_3DNR	Except YPbPr 720P above timing	0~5 Press Left and Right to change value
15	SP_MODE_PWM	(when Dynamic contrast Off)	0~255
(values different by AV,DTV,HDMI,YPbPr) Front-End, because each source has the same smart picture setting, for different between each source			
16	SP_GAIN_BRI_DTV	Brightness	0~255 Press Left and Right to change value
17	SP_GAIN_BRI_AV		0~255
18	SP_GAIN_BRI_YPBPR		0~255
19	SP_GAIN_BRI_HDMI		0~255
20	SP_GAIN_BRI_VGA		0~255
21	SP_GAIN_CNT_DTV	Contrast	0~255
22	SP_GAIN_CNT_AV		0~255
23	SP_GAIN_CNT_YPBPR		0~255
24	SP_GAIN_CNT_HDMI		0~255
25	SP_GAIN_CNT_VGA		0~255
26	SP_GAIN_TINT_DTV	Color	0~255
27	SP_GAIN_TINT_AV		0~255
28	SP_GAIN_TINT_YPBPR		0~255
29	SP_GAIN_TINT_HDMI		0~255
30	SP_GAIN_CLR_DTV	Color	0~255
31	SP_GAIN_CLR_AV		0~255

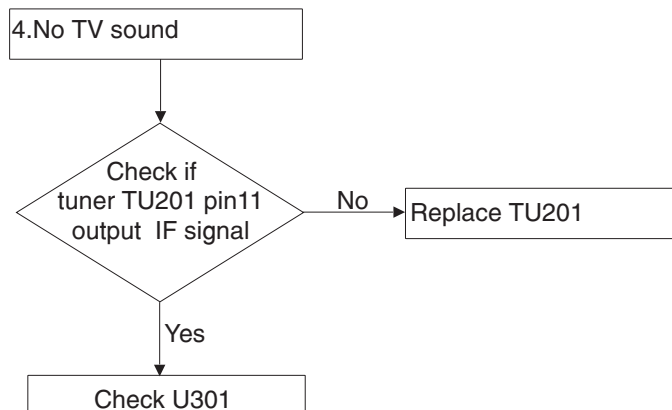
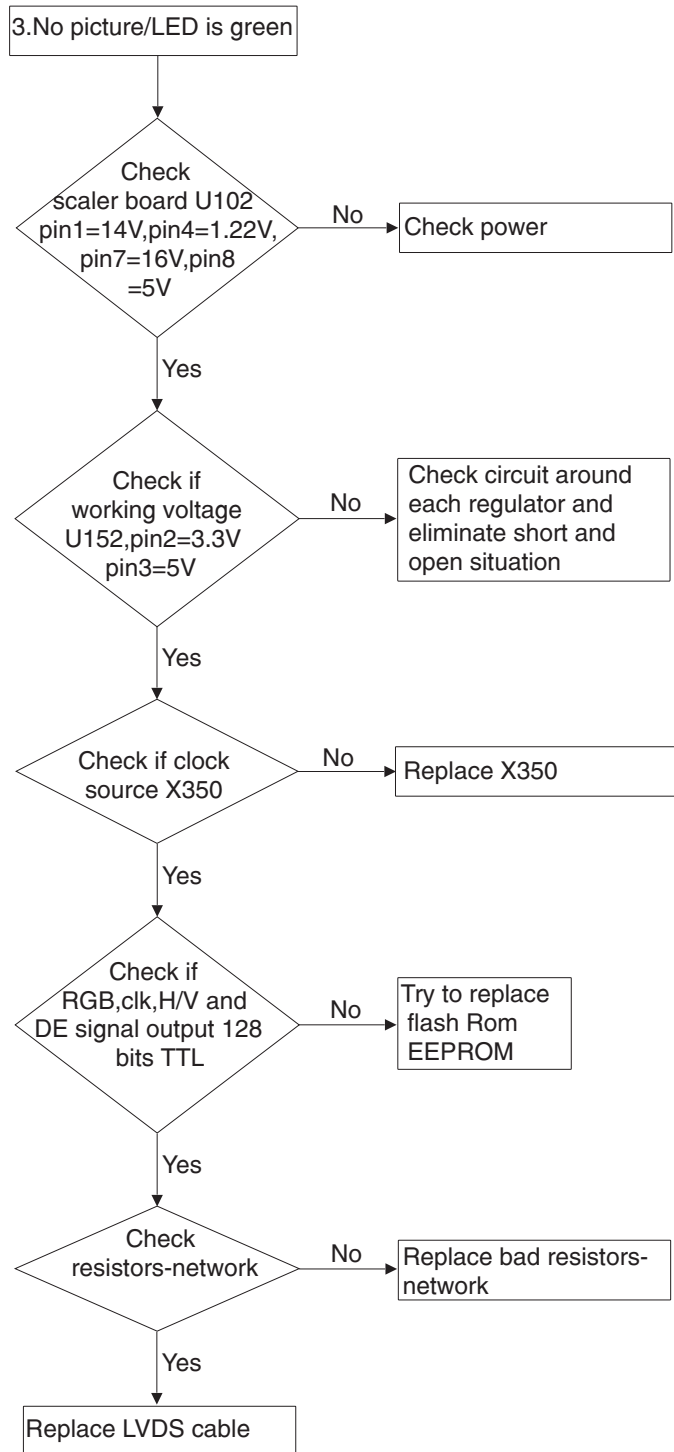
32	SP_GAIN_CLR_YPBPR		0~255	
33	SP_GAIN_CLR_HDMI		0~255	
	//PWM	(when Dynamic contrast On, avoid too dark)		when Dynamic contrast turn Medium , it reference range PWM_NORMAL and PWM_MEDIUM when Dynamic contrast turn Maximun , it reference range PWM_NORMAL and PWM_MAXIMUN
34	VIDEO_PWM_NORMAL		0~255	
35	VIDEO_PWM_MEDIUM		0~255	
36	VIDEO_PWM_MAXIMUN		0~255	
37	VGA_PWM_MIN	to limit PC brightness range	0~255	
38	VGA_PWM_MAX		0~255	
	//YPbPr H/V Position	(value different by each timing)		
39	YPBPR_POS_H			
40	YPBPR_POS_V	interlace no effect, only progressive can be adjusted		
	//Audio			
41	AUD_GAIN_TV	volume different between audio source , for each source volume to be the same	64--64	
42	AUD_GAIN_DTV		64--64	
43	AUD_GAIN_HDMI		64--64	
44	AUD_GAIN_SCART		64--64	
45	AUD_HEADPHONE_VOL		12--64	
46	AUD_BALANCE	amplifier left and right volume	-50~50	Press Left and Right to change value
	//Tuner & Panel Id			
47	TUNER ID	4 is Philips, 5 is Forward	4,5	
48	PANEL_ID	value the same to CLI command		

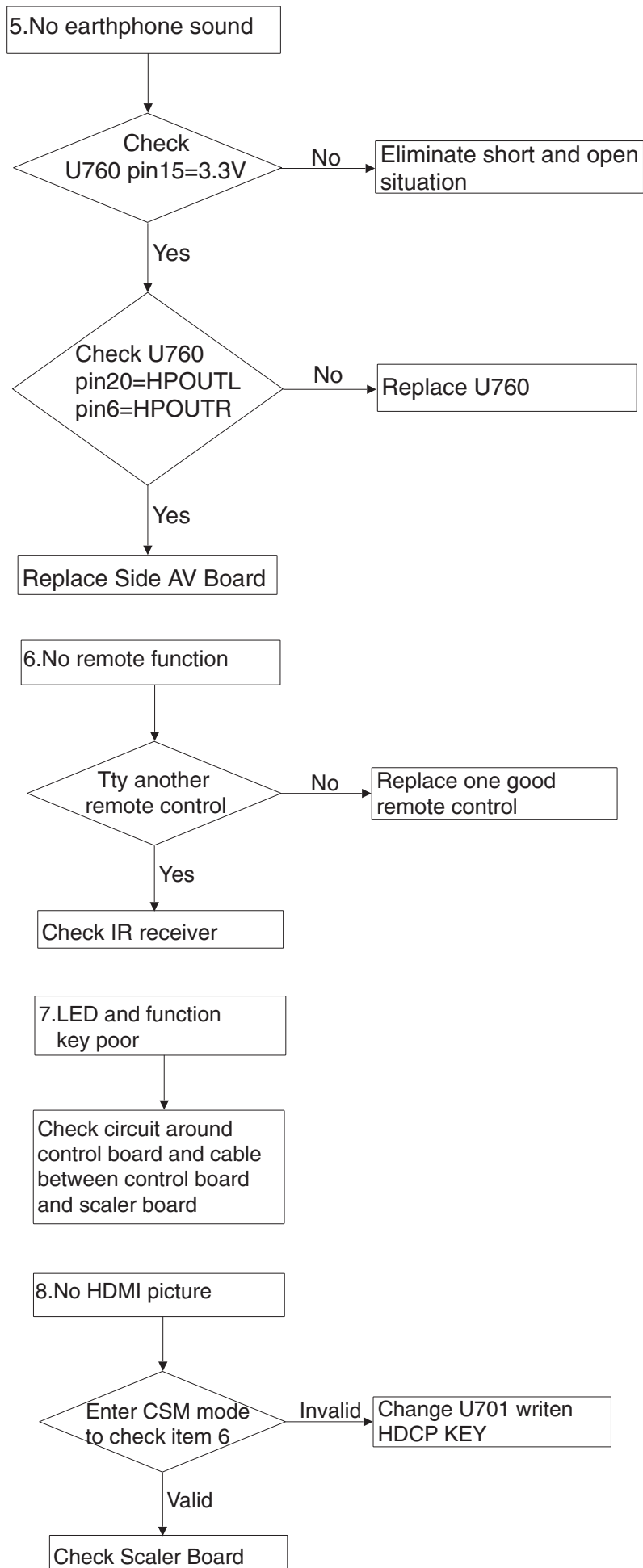
Smart picture control items: (values different by smart picture)

	User Menu OSD:(Back-End)	can be changed when factory mode
	Contrast	
	Brightness	
	Color	
	Sharpness	
	color temperature	
	Tint	
	Noise Reduction	
	Factory menu OSD	can be changed when factory mode
	SP_MODE_PWM (when Dynamic contrast Off)	
	SP_MODE_3DNR (range 0 to 5)	

5.3 Repair Flow Chart







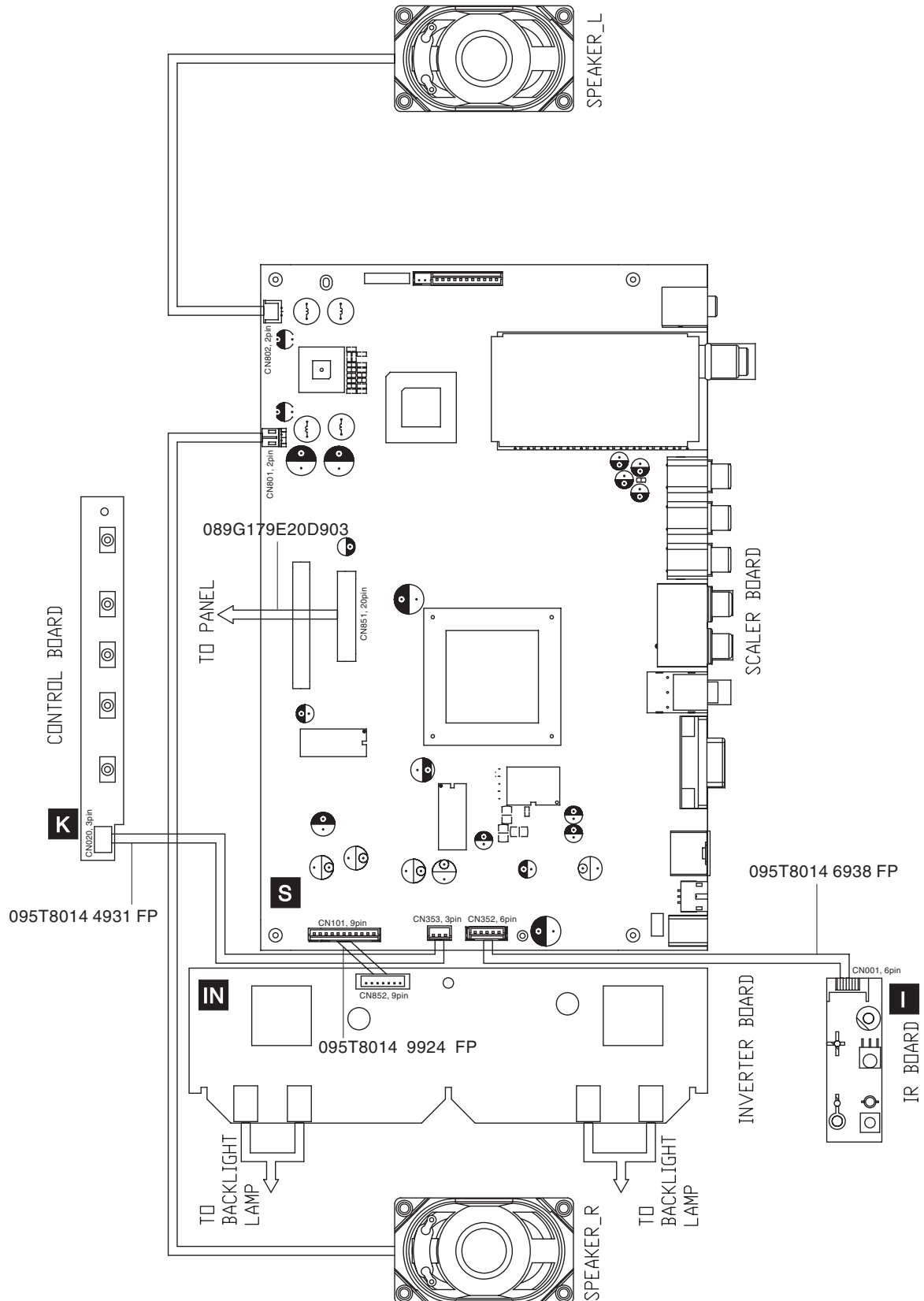
6. Block Diagram

Index of this chapter:

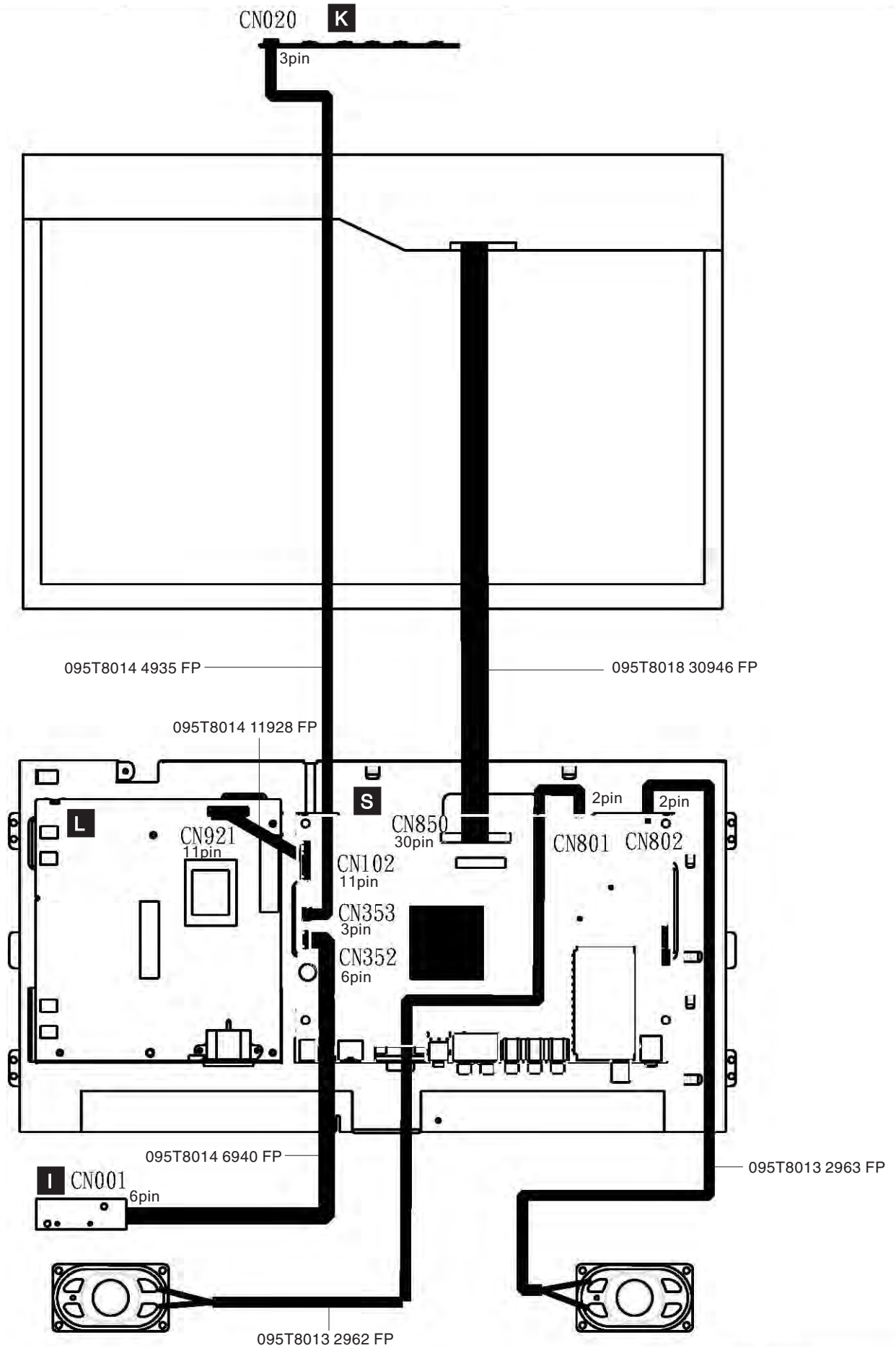
- 6.1 Wiring Diagram
- 6.2 Block Diagram

6.1 Wiring Diagram

F3 15" Wiring Diagram

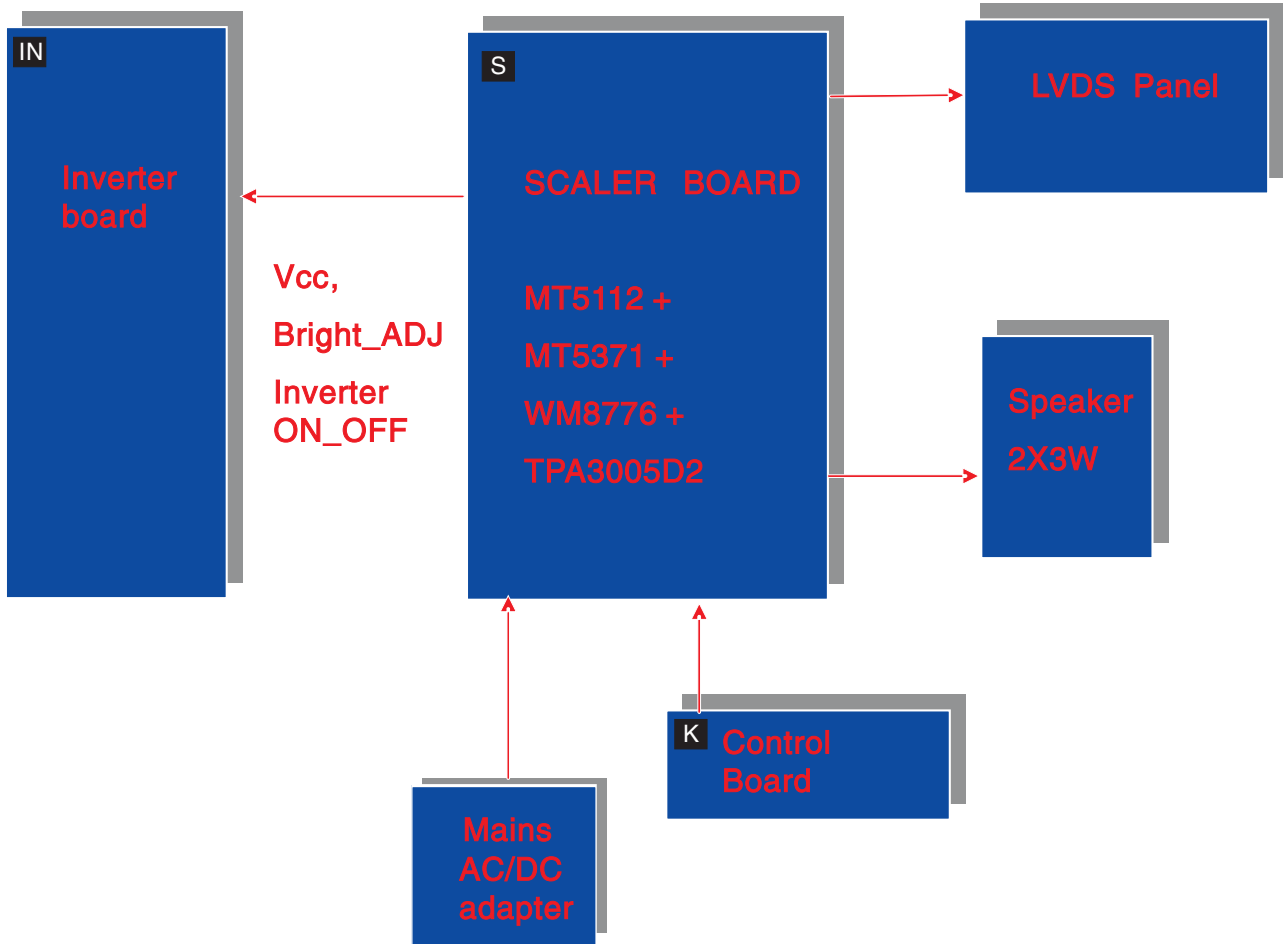


F3 19MF337B/37 Wiring Diagram

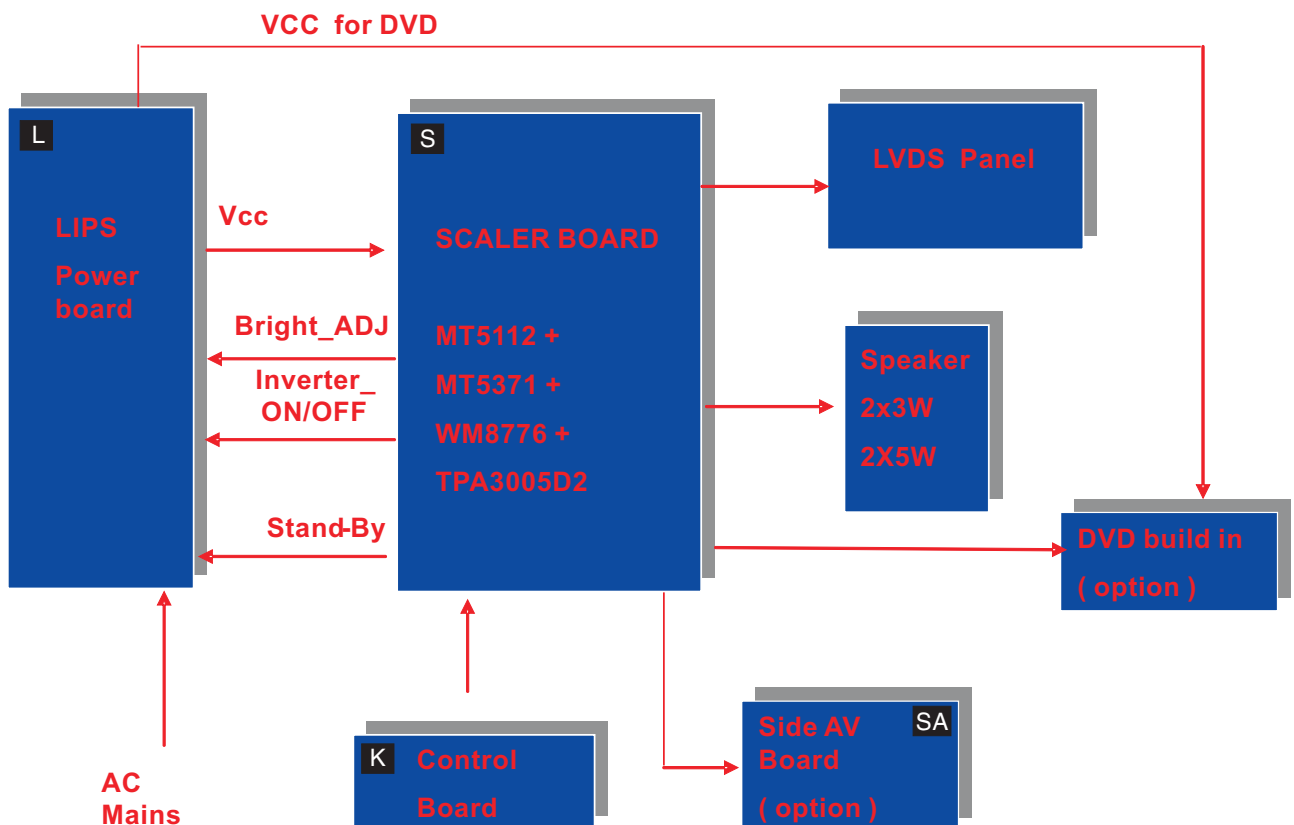


6.2 Block Diagram

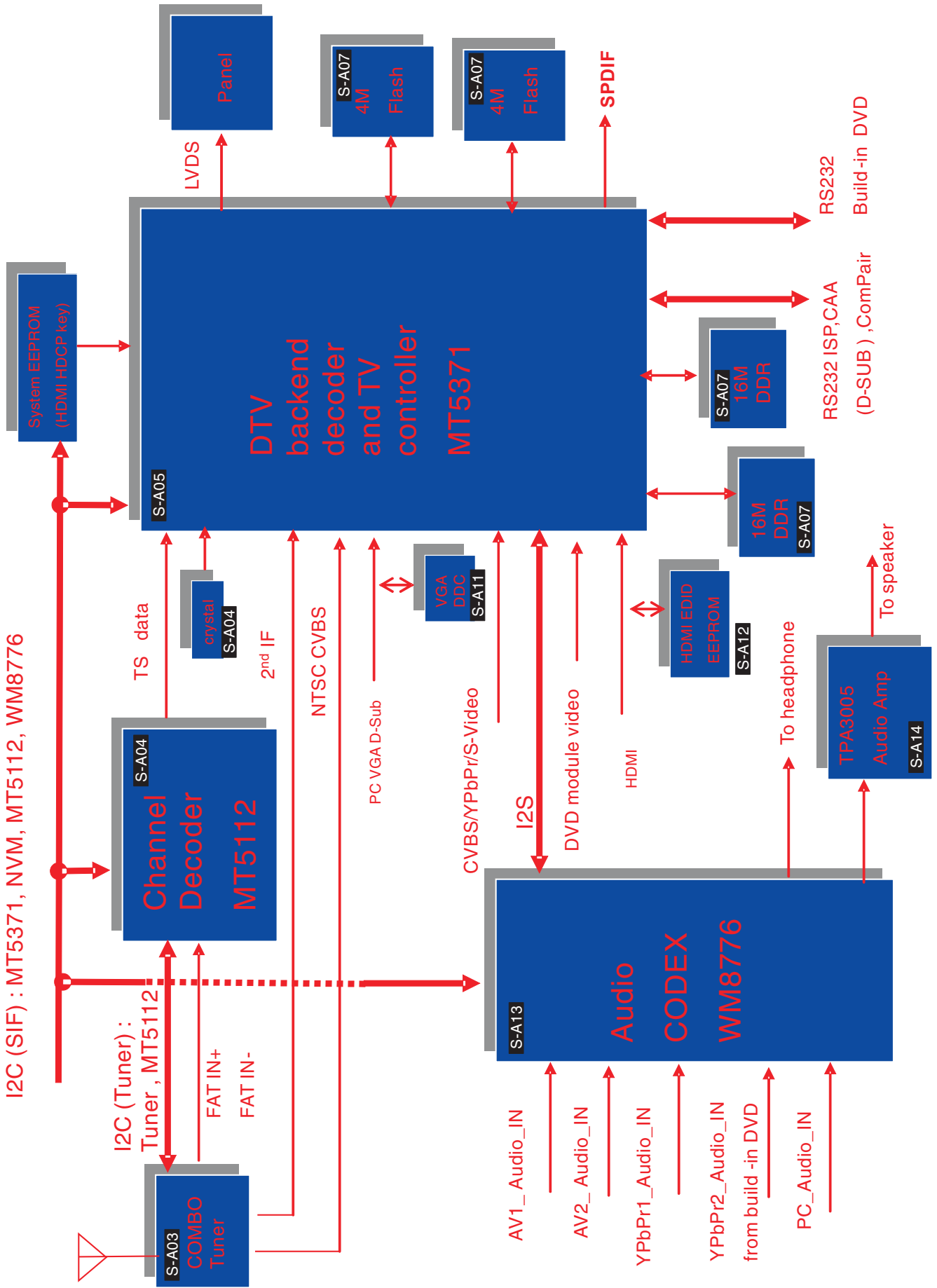
F3 15" architecture Block Diagram

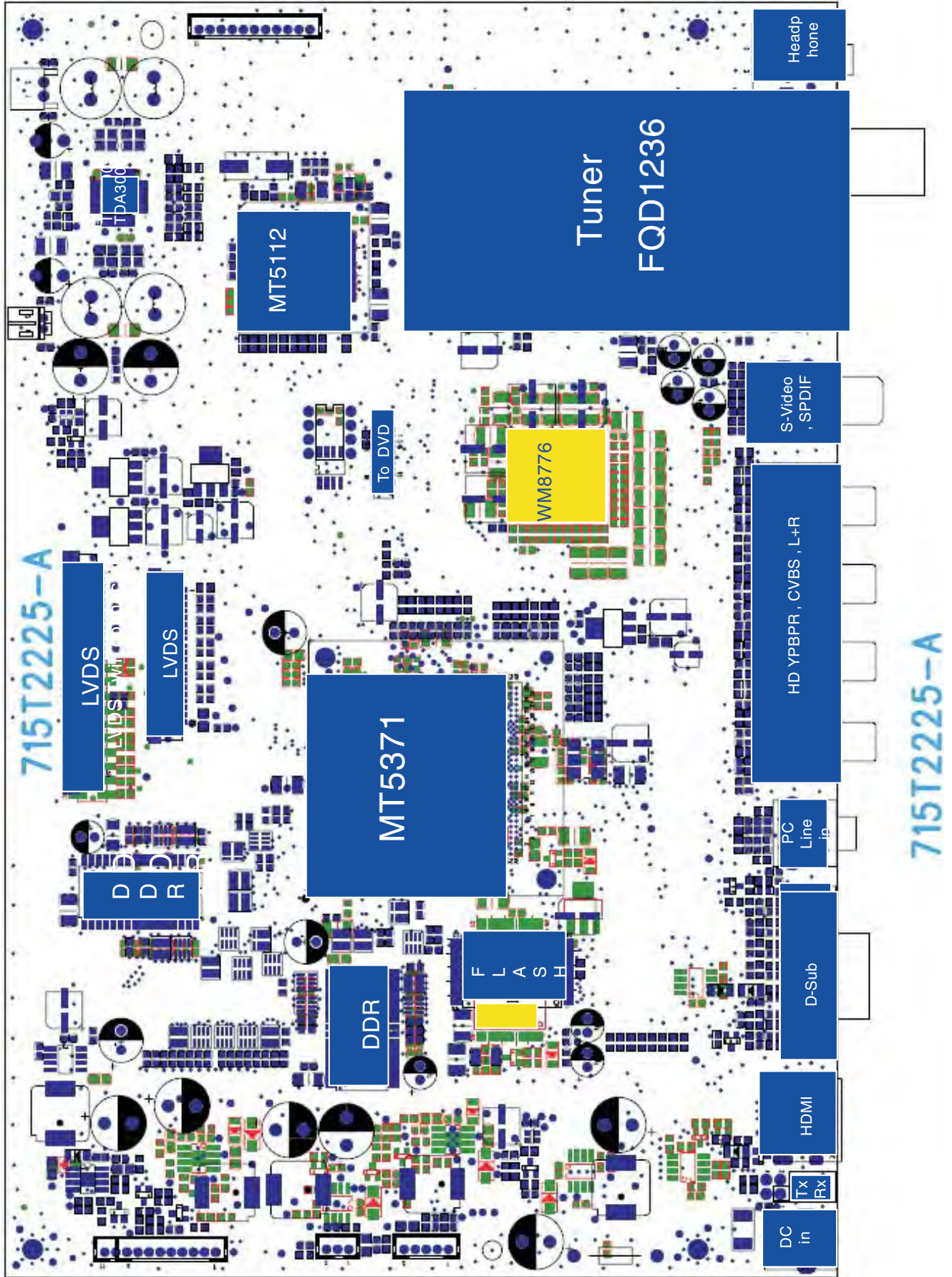


F3 19" Wide, 20" Wide architecture Block Diagram

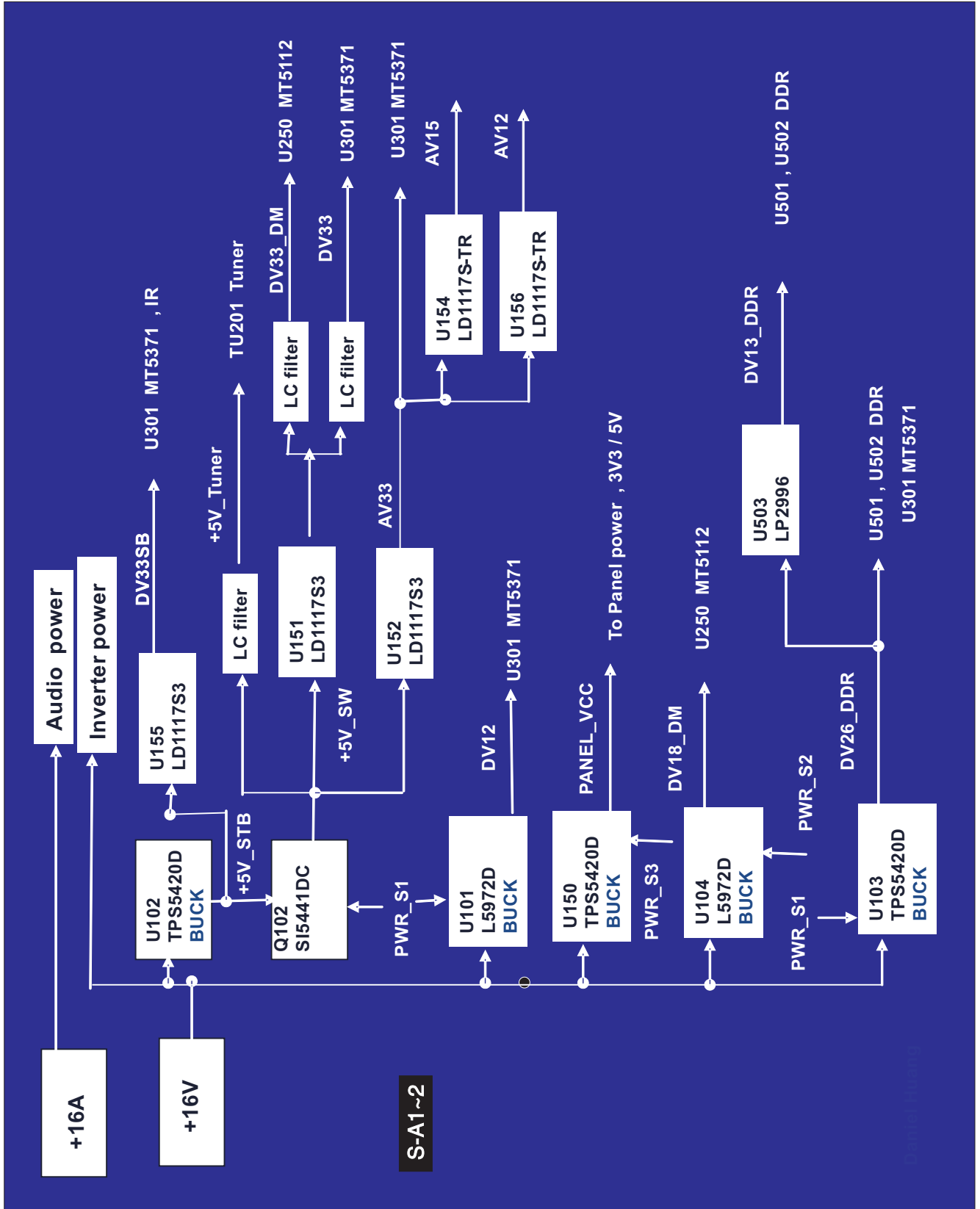


Function Block of main Board





Power management

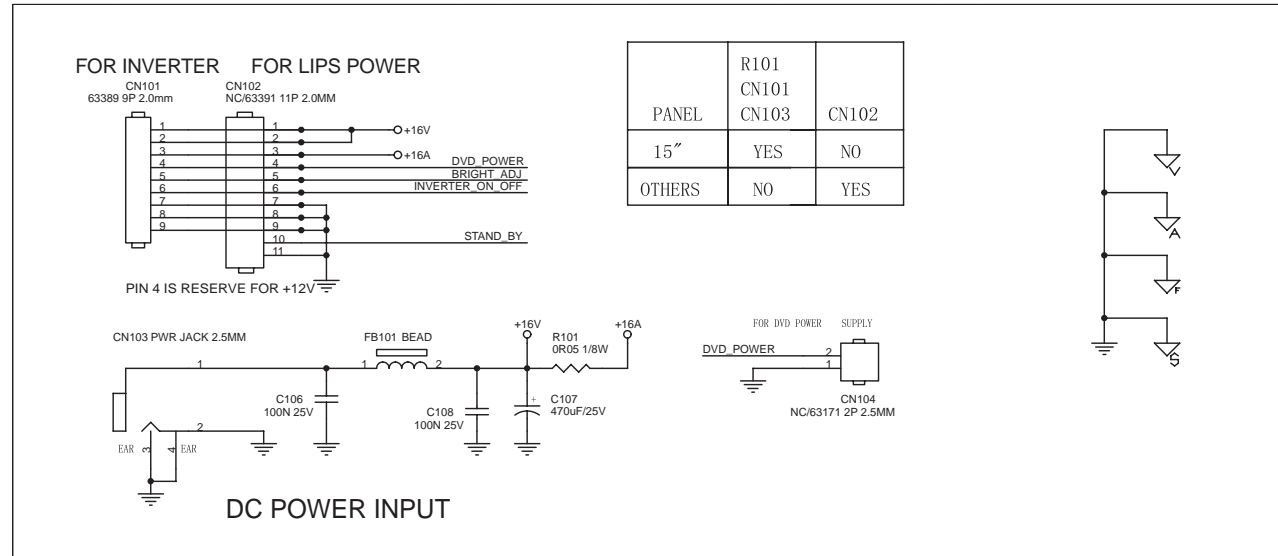


S-A1~2

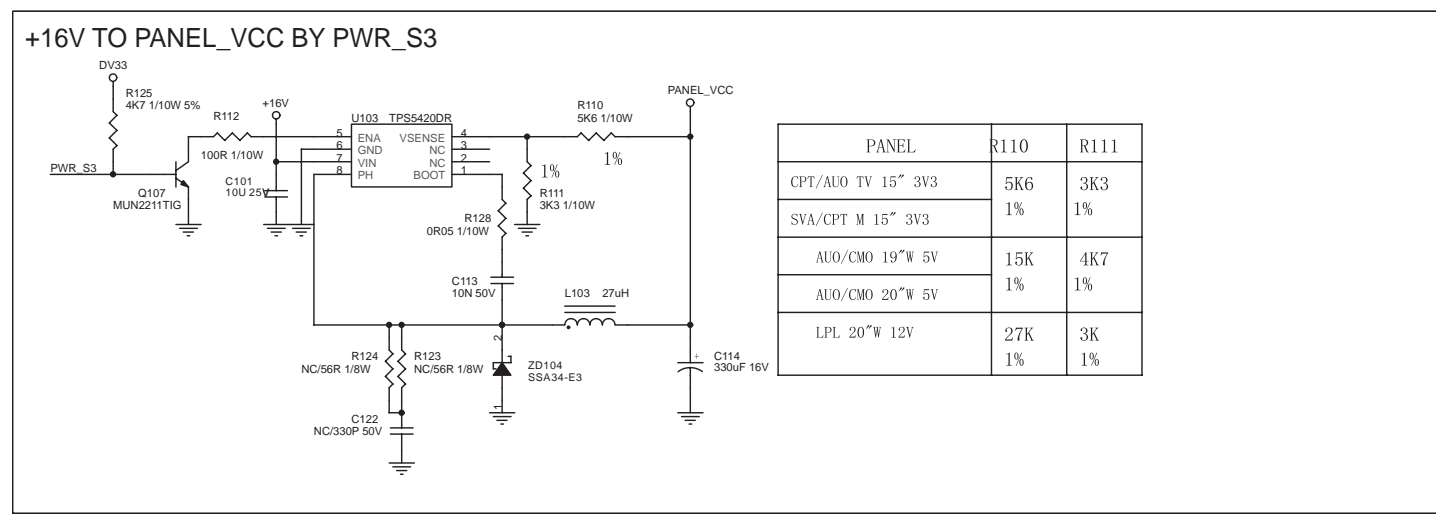
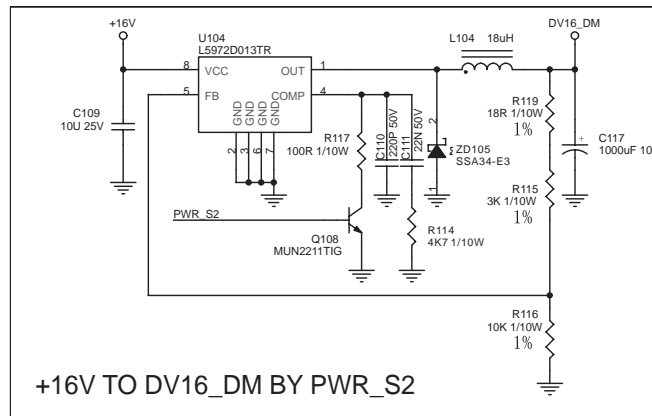
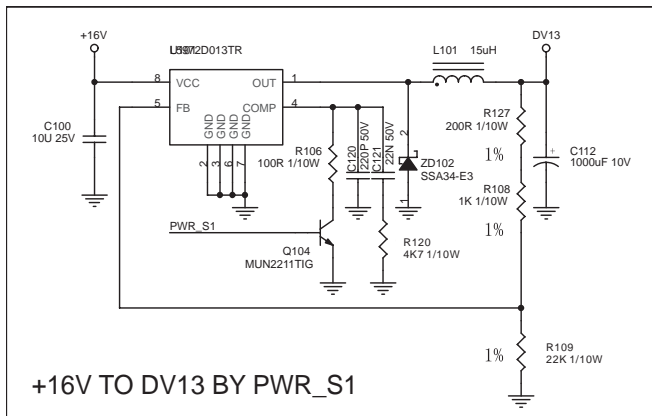
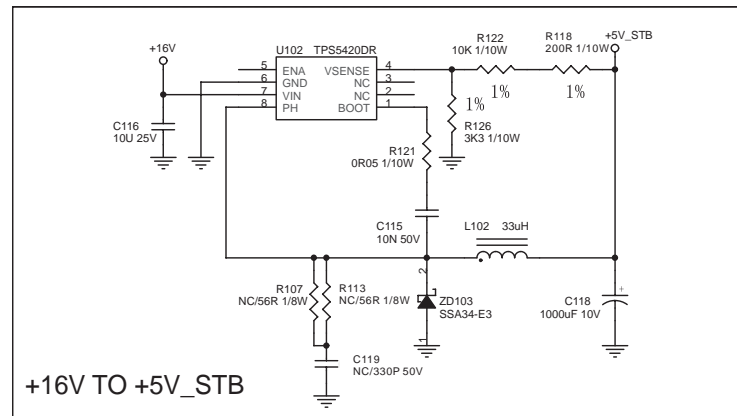
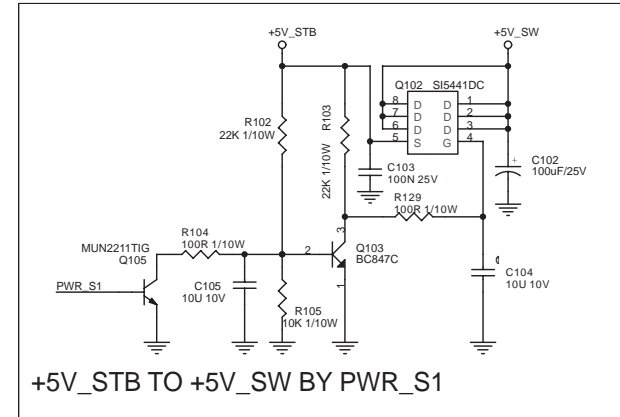
Scaler Board Schematic Diagram - Power

DS 15MF237S/15MF227B (MT5371 / MT5112 - 4 LAYERS)

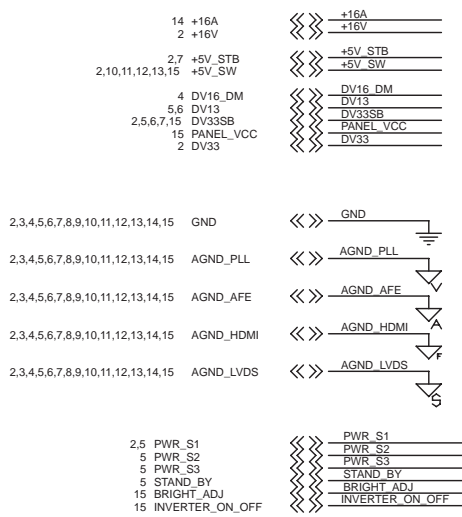
S-A01



	R101	
PANEL	CN101	CN102
15"	YES	NO
OTHERS	NO	YES



PANEL	R110	R111
CPT/AUO TV 15" 3V3	5K6	3K3
SVA/CPT M 15" 3V3	1%	1%
AUO/CMO 19"W 5V	15K	4K7
AUO/CMO 20"W 5V	1%	1%
LPL 20"W 12V	27K	3K
	1%	1%



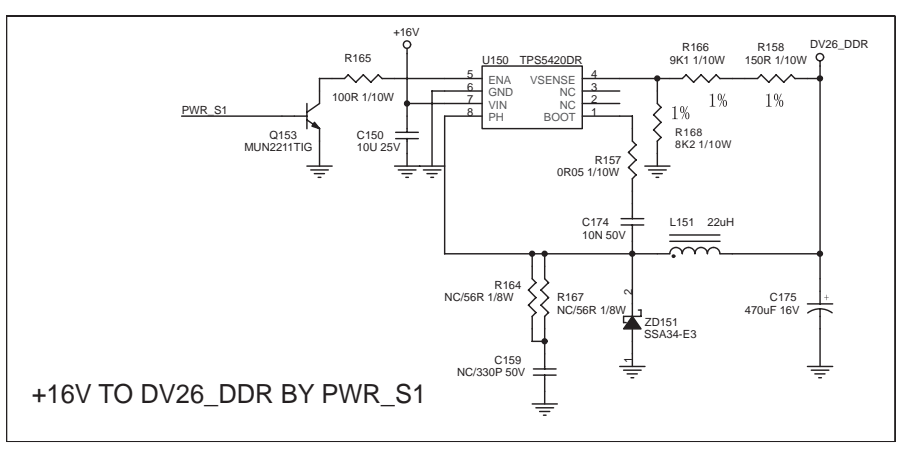
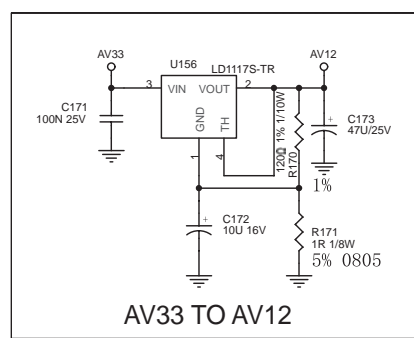
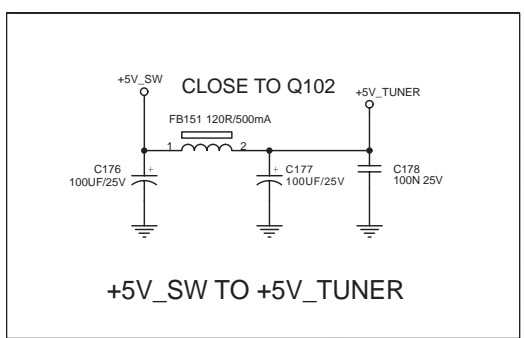
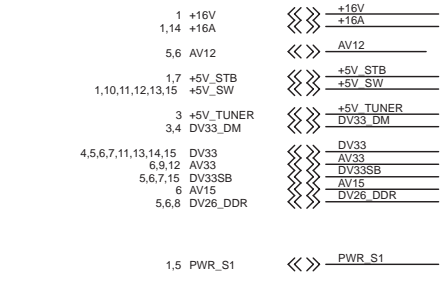
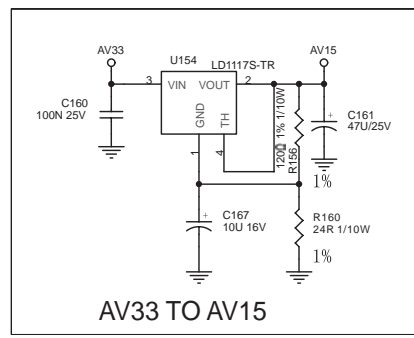
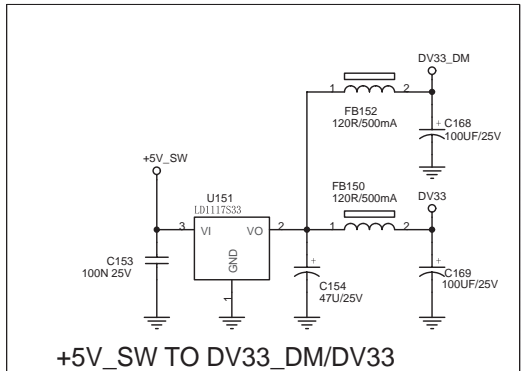
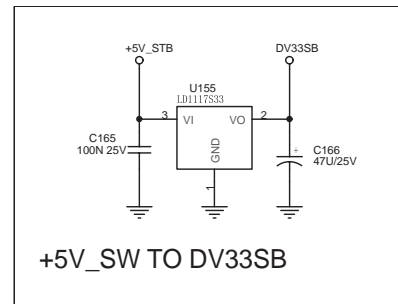
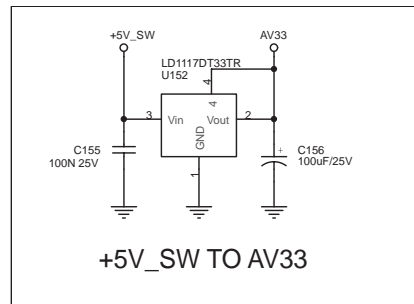
- CN101 A1
- CN102 A2
- CN103 C1
- CN104 B4
- C100 D4
- C101 F2
- C102 B9
- C103 B8
- C104 C9
- C105 C7
- C106 C2
- C107 C3
- C108 C3
- C109 D8
- C110 D9
- C111 D9
- C112 D6
- C113 G3
- C114 G4
- C115 D3
- C116 D1
- C117 D10
- C118 E3
- C119 E2
- C120 D6
- C121 D6
- C122 G2
- FB101 B2
- L101 D6
- L102 E3
- L103 G3
- L104 D9
- Q102 B8
- Q103 C8
- Q104 D5
- Q105 C7
- Q107 F1
- Q108 D9
- Q101 C3
- R102 B8
- R103 B8
- R104 C7
- R105 C8
- R106 D6
- R107 E2
- R108 D6
- R109 E6
- R110 F3
- R111 F3
- R112 F2
- R113 E2
- R114 D9
- R115 D9
- R116 E9
- R117 D9
- R118 D3
- R119 D9
- R120 D6
- R121 D3
- R122 D3
- R123 G2
- R124 G2
- R125 F1
- R126 D3
- R127 D6
- R128 F3
- R129 B8
- U101 D5
- U102 D2
- U103 F2
- U104 D8
- ZD102 D6
- ZD103 E3
- ZD104 G3
- ZD105 D9

The item of page is from "100" start

7. Circuit Diagrams and PWB Layouts

Scaler Board Schematic Diagram - Power

S-A02



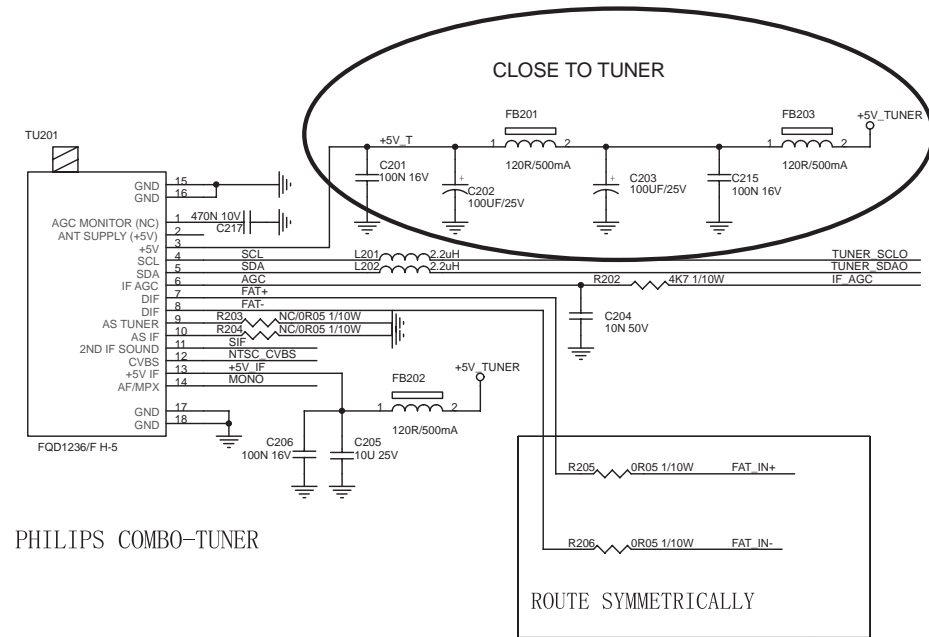
- C150 F3
- C153 C2
- C154 C3
- C155 B5
- C156 B5
- C159 G4
- C160 C5
- C161 C6
- C165 B7
- C166 B7
- C167 C5
- C168 C4
- C169 C4
- C171 D5
- C172 E5
- C173 D6
- C174 F4
- C175 G5
- C176 E2
- C177 E3
- C178 E3
- FB150 C3
- FB151 D3
- FB152 C3
- L151 F5
- Q153 F3
- R156 C5
- R157 F4
- R158 F5
- R160 C5
- R164 G4
- R165 F3
- R166 F5
- R167 G4
- R168 F5
- R170 D5
- R171 E5
- U150 F4
- U151 C3
- U152 A5
- U154 C5
- U155 A7
- U156 D5
- ZD151 G4

Scaler Board Schematic Diagram - Tuner

S-A03

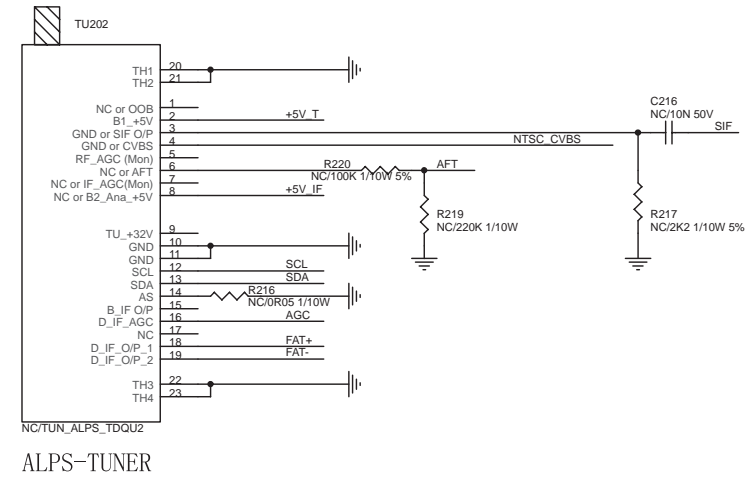
TU201 AND TU202 IS SAME LOCTION

TUNER	TU201	TU202	C216	R217	R219	R220	R207
FQD1236	Y	N	N	N	N	N	Y
ALPS	N	Y	Y	Y	Y	Y	N



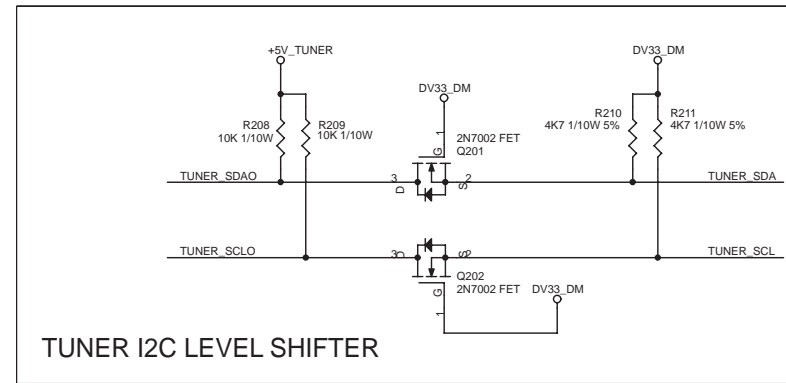
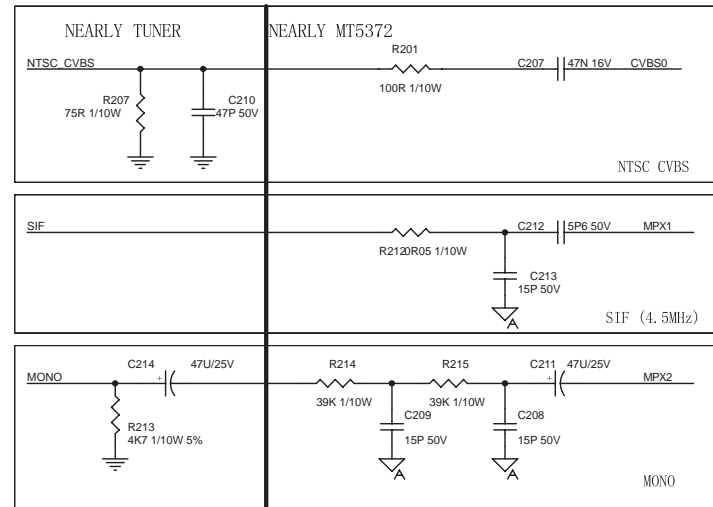
PHILIPS COMBO-TUNER

ROUTE SYMMETRICALLY

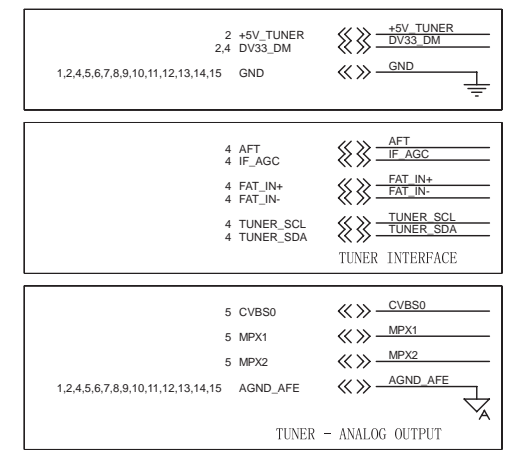


ALPS-TUNER

- C201 C3
- C202 C4
- C203 C4
- C204 C4
- C205 D3
- C206 D3
- C207 E4
- C208 G4
- C209 G3
- C210 F3
- C211 G4
- C212 F4
- C213 F4
- C214 G2
- C215 C5
- C216 C9
- C217 C3
- FB201 C4
- FB202 D3
- FB203 C5
- L201 C3
- L202 C3
- Q201 F7
- Q202 F7
- R201 E3
- R202 C4
- R203 C3
- R204 C3
- R205 D4
- R206 D4
- R207 F2
- R208 F6
- R209 F6
- R210 F8
- R211 F8
- R212 F3
- R213 G2
- R214 G3
- R215 G4
- R216 D7
- R217 C9
- R219 C8
- R220 C8
- TU201 C2
- TU202 C6

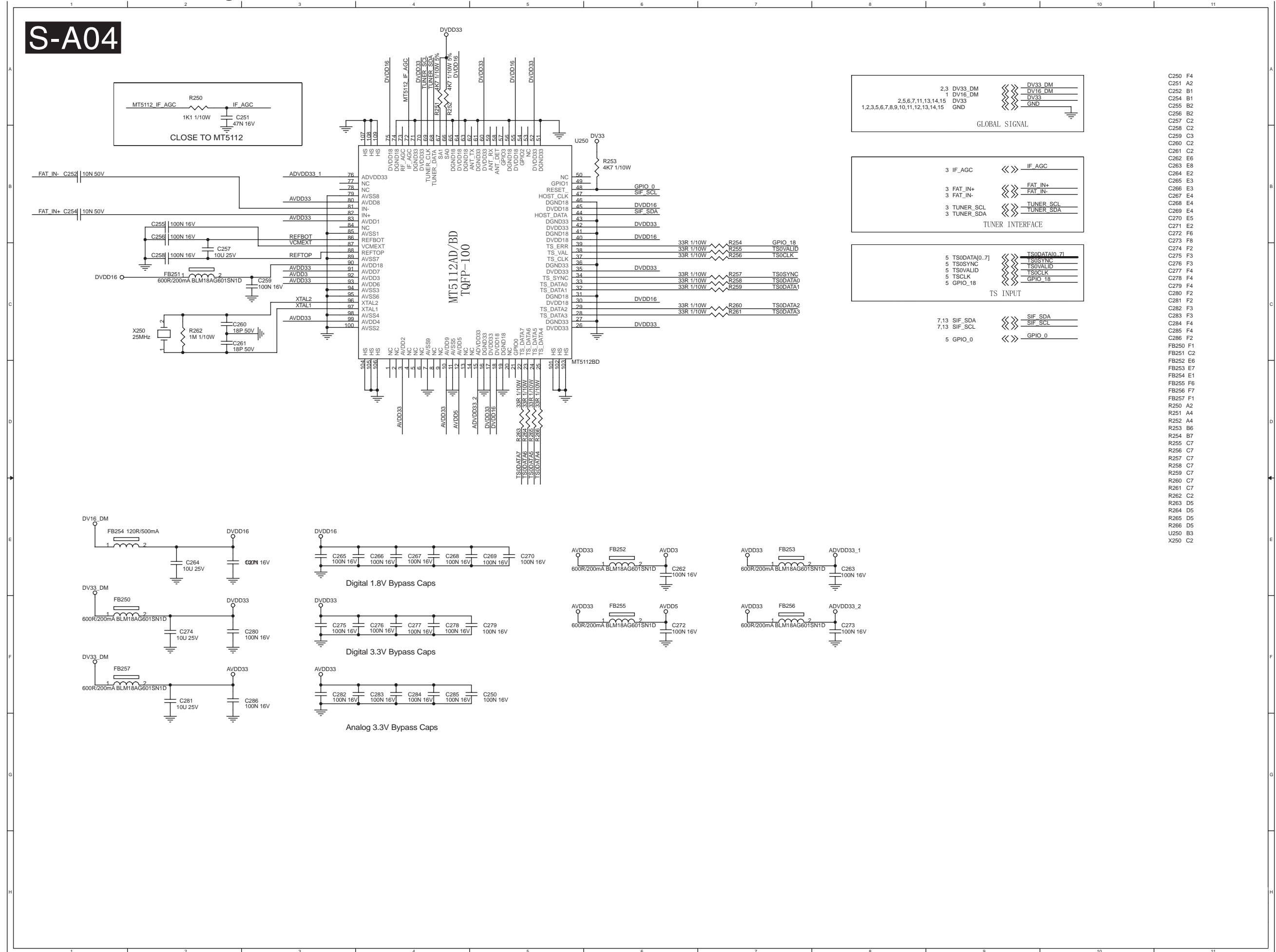


TUNER I2C LEVEL SHIFTER



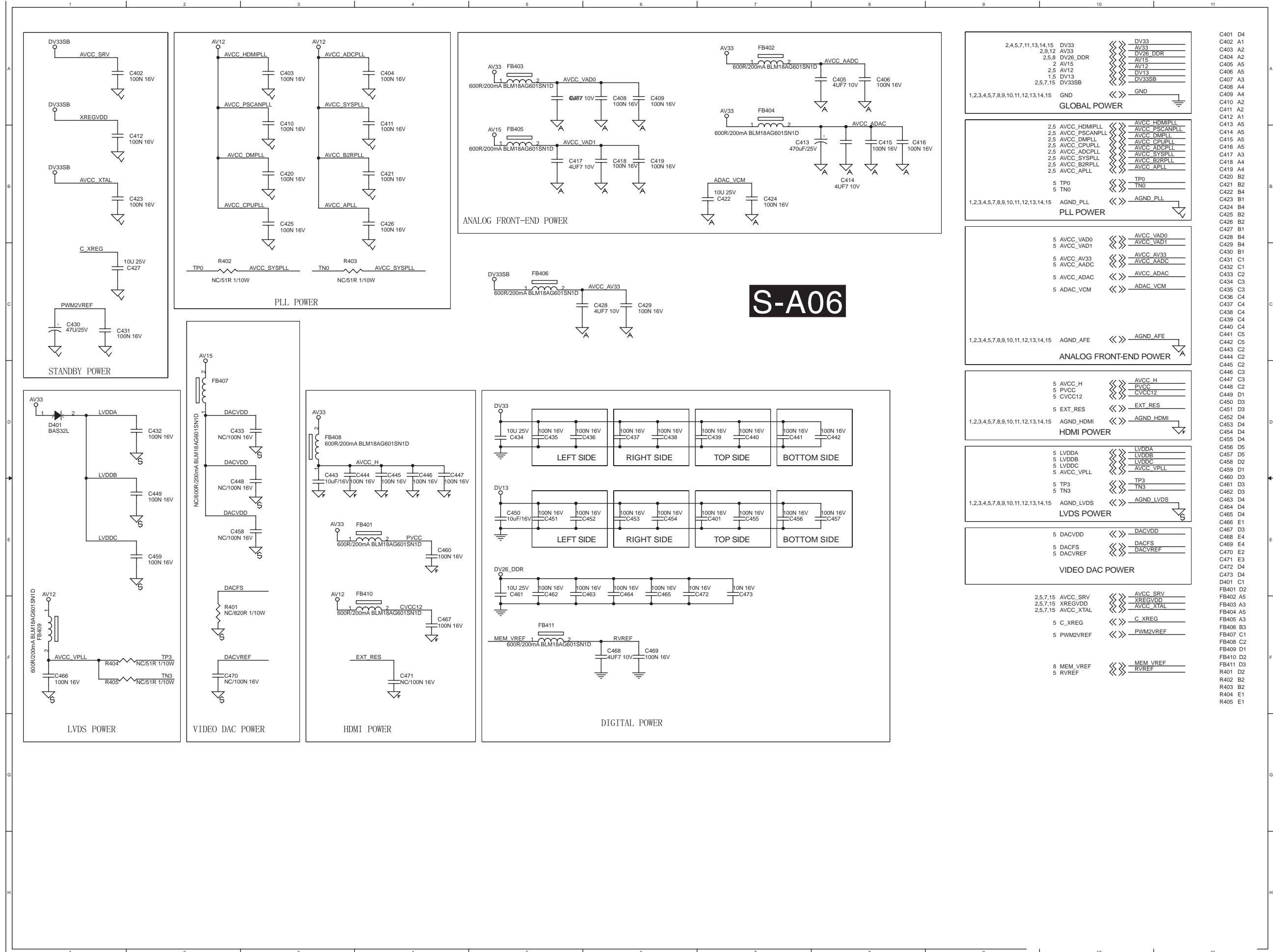
TUNER - ANALOG OUTPUT

Scaler Board Schematic Diagram - MT5112 ATSC

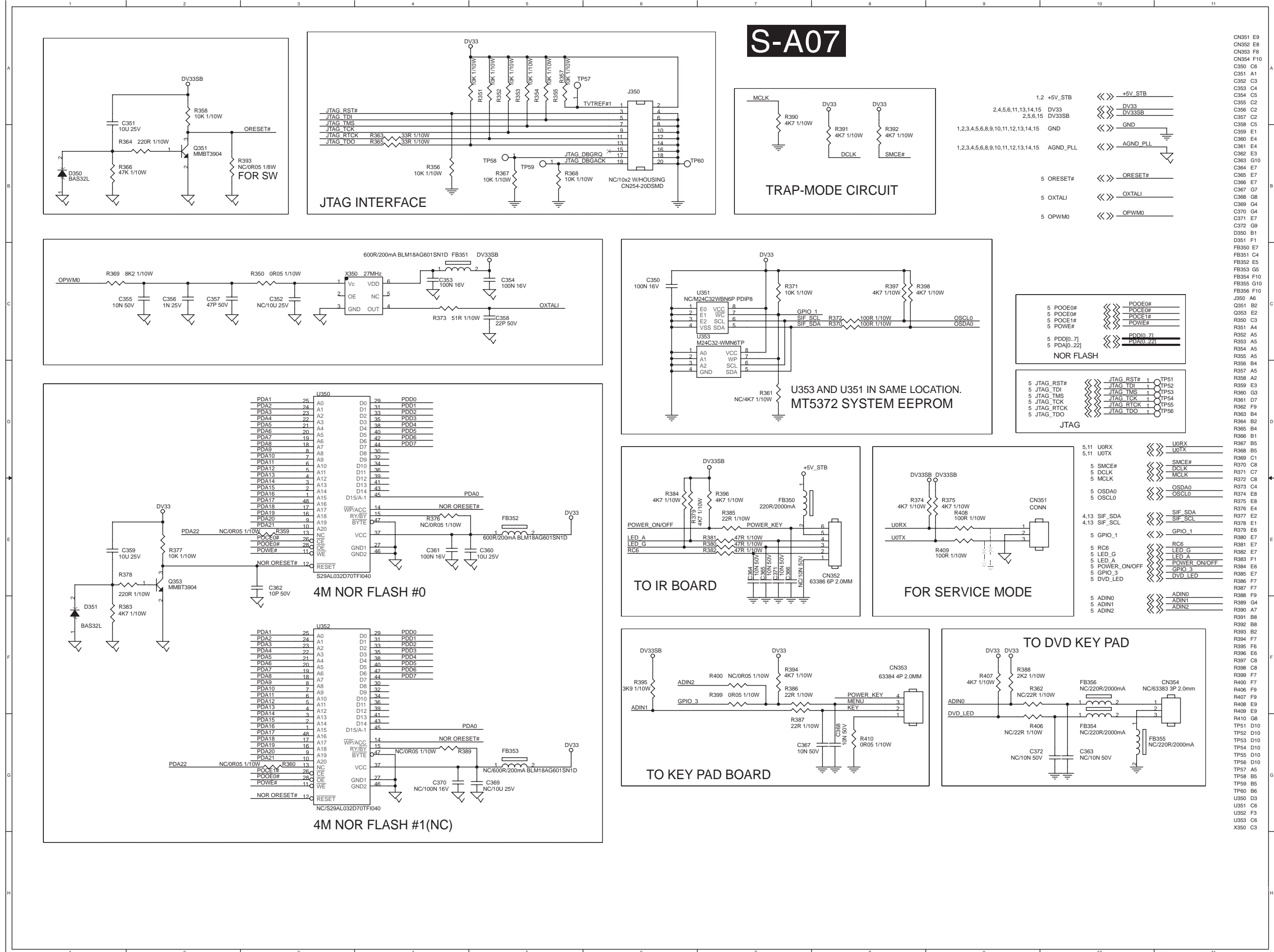


7. Circuit Diagrams and PWB Layouts

Scaler Board Schematic Diagram - MT5371 BYPASS CAP



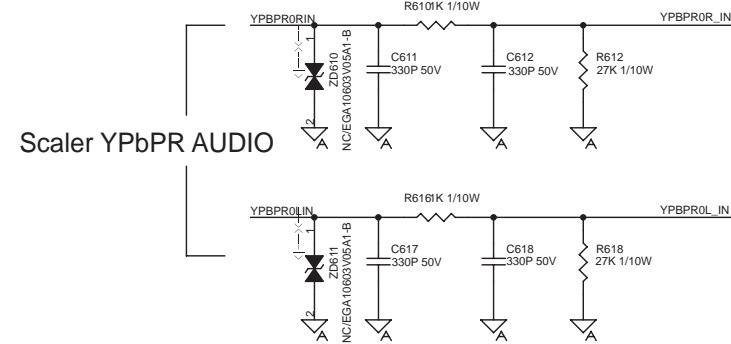
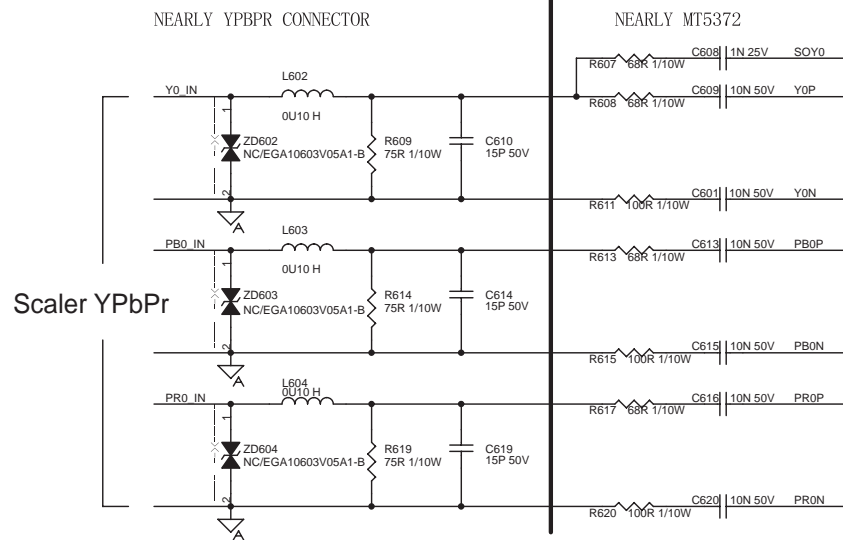
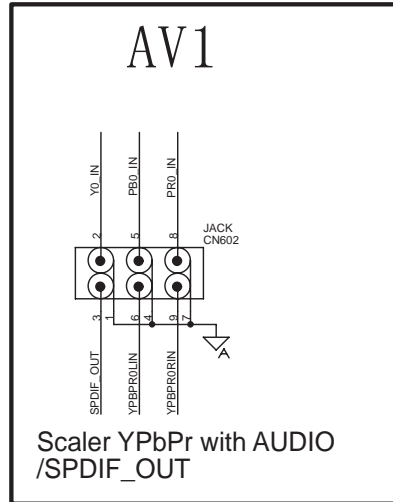
Scaler Board Schematic Diagram - Flash/MT5371 Peripheral



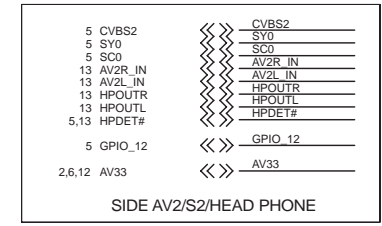
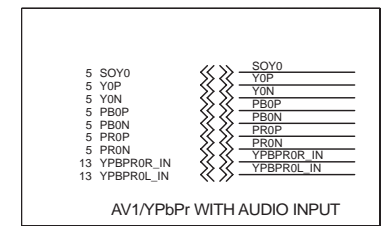
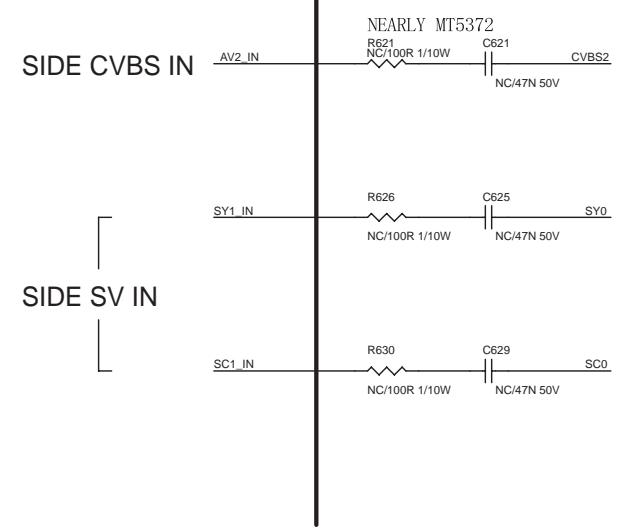
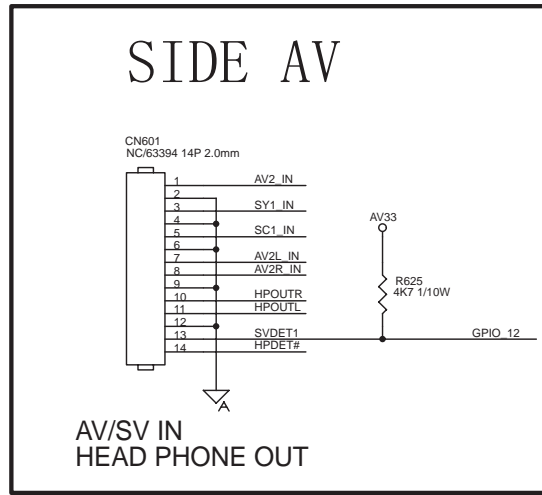
- CN351 E9
- CN352 E8
- CN353 F8
- CN354 F10
- C350 C6
- C351 A1
- C352 C3
- C353 C4
- C354 C5
- C355 C2
- C356 C2
- C357 C2
- C358 C5
- C359 E1
- C360 E4
- C361 E4
- C362 E3
- C363 G10
- C364 E7
- C365 E7
- C366 E7
- C367 G7
- C368 G8
- C369 G4
- C370 G4
- C371 E7
- C372 G9
- D350 B1
- D351 F1
- FB350 E7
- FB351 C4
- FB352 E5
- FB353 G5
- FB354 F10
- FB355 G10
- FB356 F10
- J350 A6
- Q351 B2
- Q353 E2
- R350 C3
- R351 A4
- R352 A5
- R353 A5
- R354 A5
- R355 A5
- R356 B4
- R357 A5
- R358 A2
- R359 E3
- R360 G3
- R361 D7
- R362 F9
- R363 B4
- R364 B2
- R365 B4
- R366 B1
- R367 B5
- R368 B5
- R369 C1
- R370 C8
- R371 C7
- R372 C8
- R373 C4
- R374 E8
- R375 E8
- R376 E4
- R377 E2
- R378 E1
- R379 E6
- R380 E7
- R381 E7
- R382 E7
- R383 F1
- R384 E6
- R385 E7
- R386 F7
- R387 F7
- R388 F9
- R389 G4
- R390 A7
- R391 B8
- R392 B8
- R393 B2
- R394 F7
- R395 F6
- R396 E6
- R397 C8
- R398 C8
- R399 F7
- R400 F7
- R406 F9
- R407 F9
- R408 E9
- R409 E8
- R410 G8
- TP51 D10
- TP52 D10
- TP53 D10
- TP54 D10
- TP55 D10
- TP56 D10
- TP57 A5
- TP58 B5
- TP59 B5
- TP60 B6
- U350 D3
- U351 C6
- U352 F3
- U353 C6
- X350 C3

Scaler Board Schematic Diagram - AV1/Side AV

S-A09

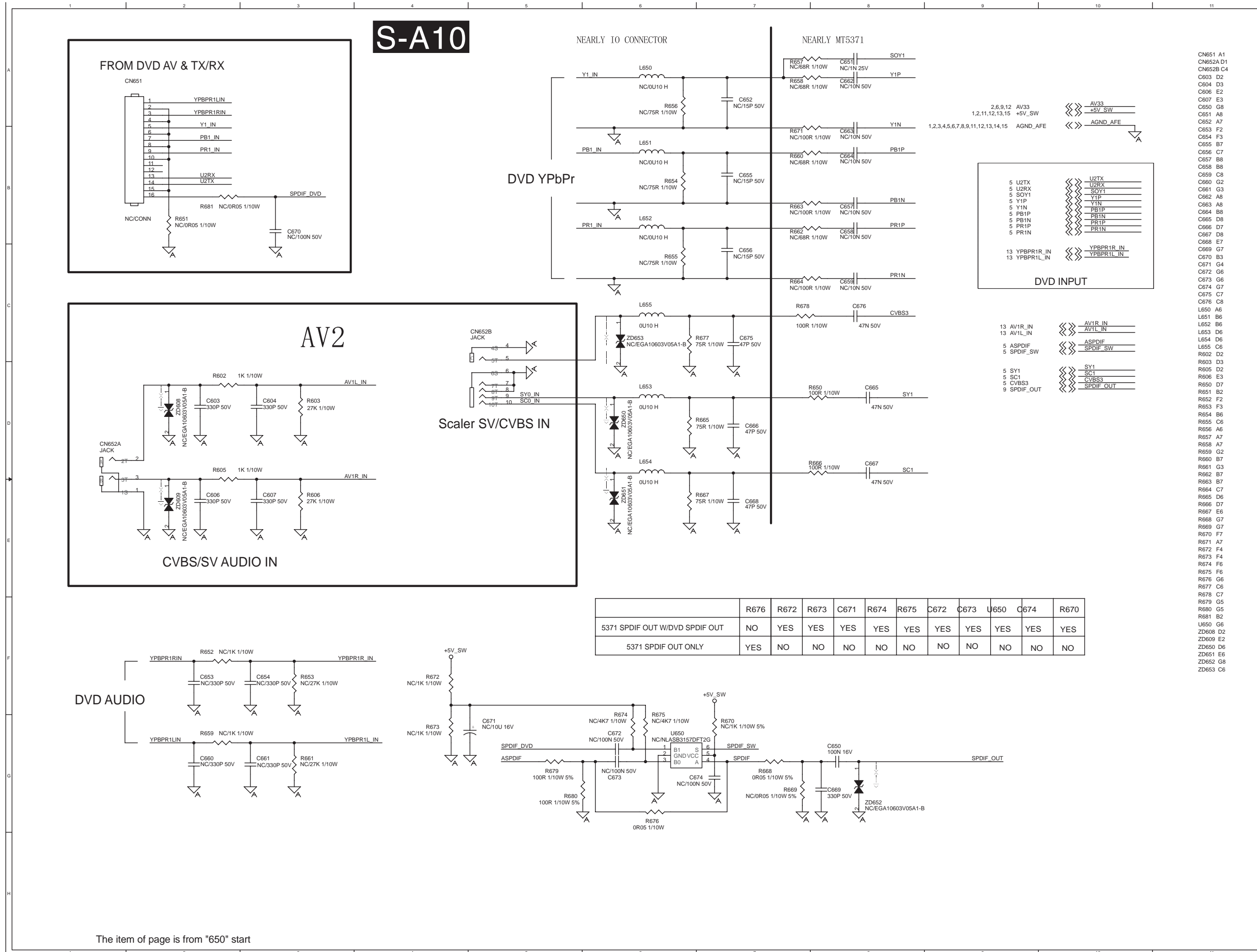


- CN601 E1
- CN602 B1
- C601 B6
- C608 B6
- C609 B6
- C610 B4
- C611 B8
- C612 B8
- C613 B6
- C614 C4
- C615 C6
- C616 C6
- C617 C8
- C618 C8
- C619 C4
- C620 C6
- C621 B5
- C625 E5
- C629 F5
- L602 B4
- L603 B4
- L604 C4
- R607 B5
- R608 B5
- R609 B4
- R610 B8
- R611 B5
- R612 B9
- R613 B5
- R614 C4
- R615 C5
- R616 C8
- R617 C5
- R618 C9
- R619 C4
- R620 C5
- R621 B5
- R625 E2
- R626 E5
- R630 F5
- ZD602 B3
- ZD603 B3
- ZD604 C3
- ZD610 B7
- ZD611 C7



7. Circuit Diagrams and PWB Layouts

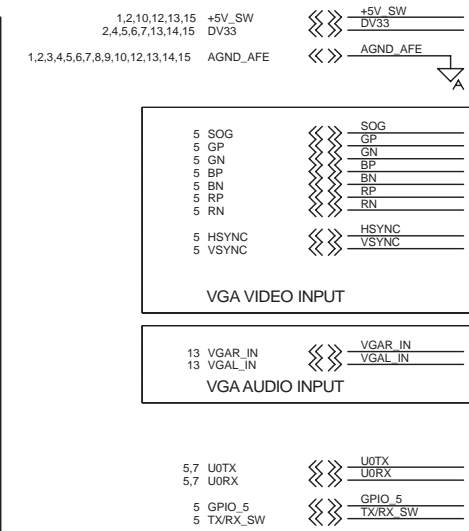
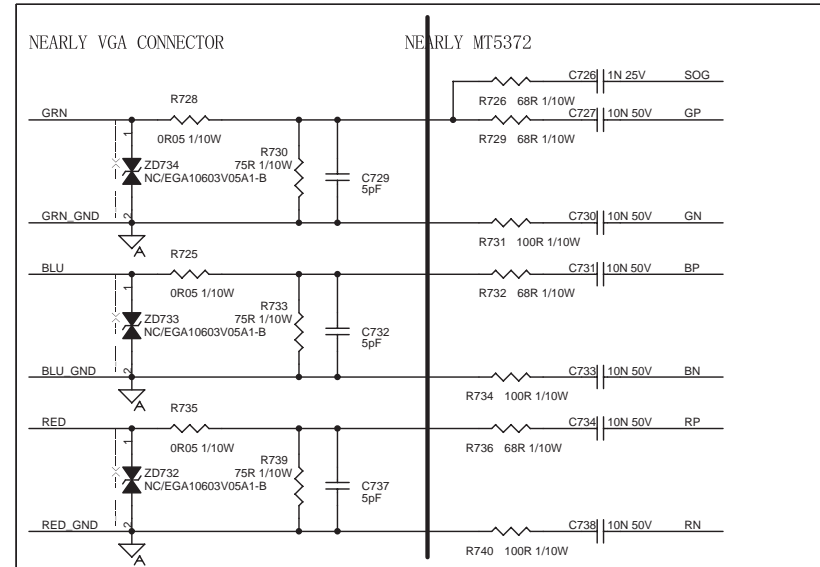
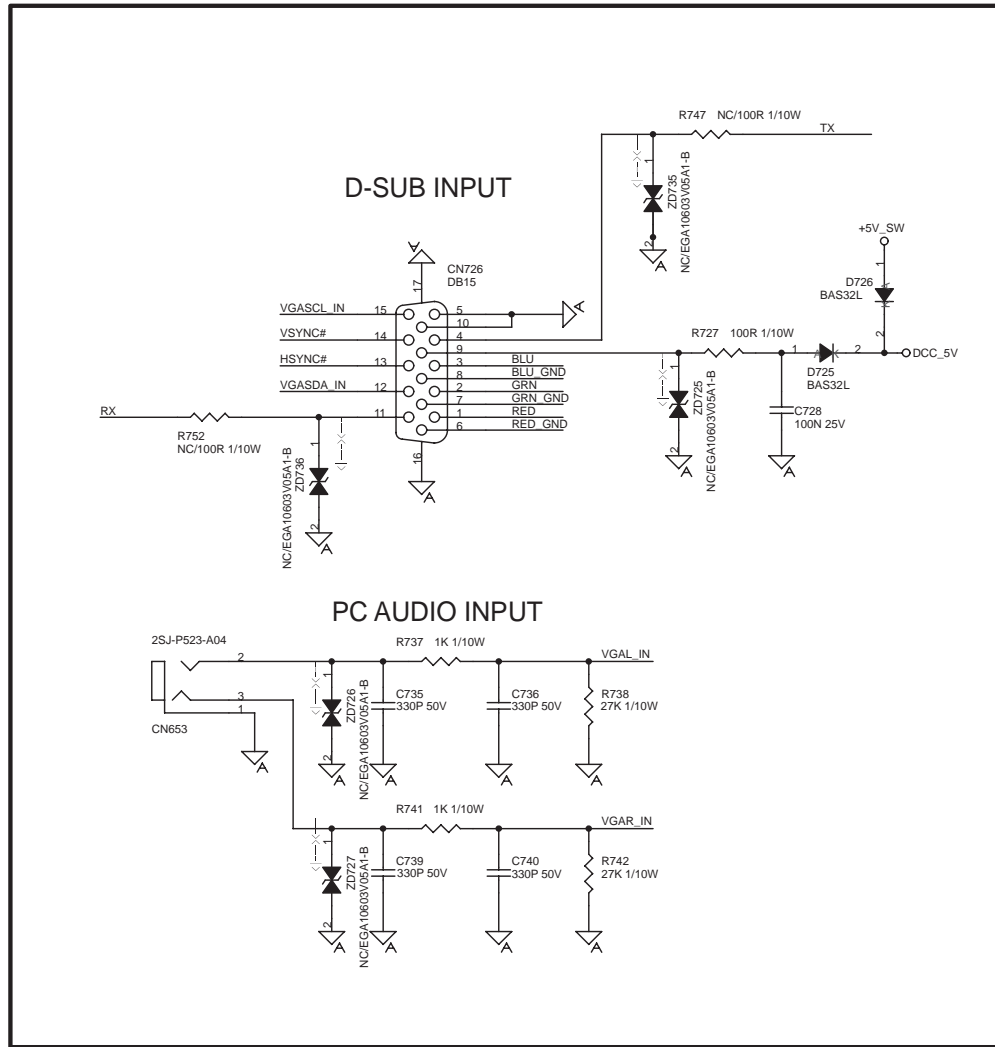
Scaler Board Schematic Diagram - DVD AV/AV2/SPDIF OUT



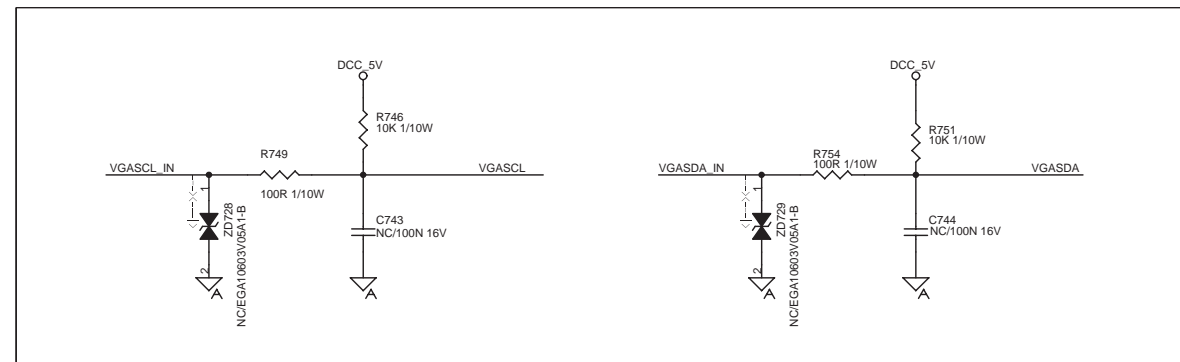
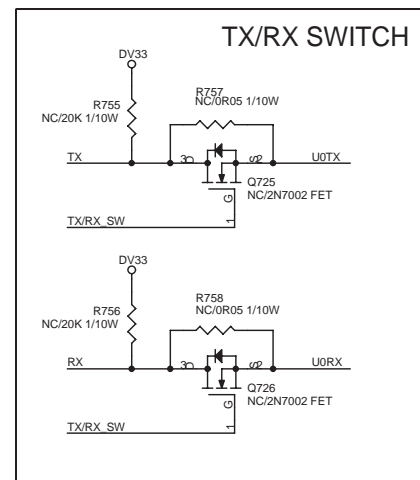
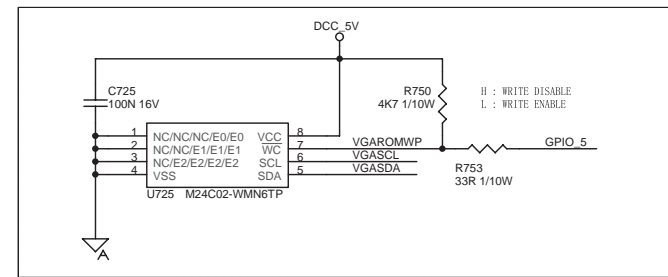
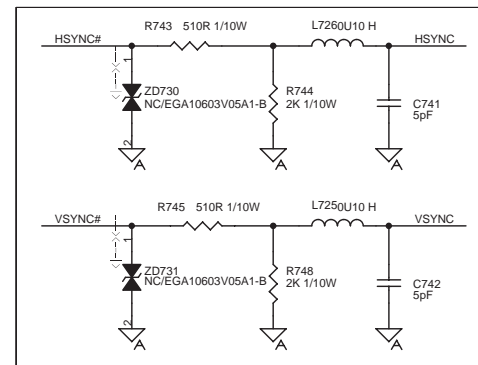
- CN651 A1
- CN652A D1
- CN652B C4
- C603 D2
- C604 D3
- C606 E2
- C607 E3
- C650 G8
- C651 A8
- C652 A7
- C653 F2
- C654 F3
- C655 B7
- C656 C7
- C657 B8
- C658 B8
- C659 C8
- C660 G2
- C661 G3
- C662 A8
- C663 A8
- C664 B8
- C665 D8
- C666 D7
- C667 D8
- C668 E7
- C669 G7
- C670 B3
- C671 G4
- C672 G6
- C673 G6
- C674 G7
- C675 C7
- C676 C8
- L650 A6
- L651 B6
- L652 B6
- L653 D6
- L654 D6
- L655 C6
- R602 D2
- R603 D3
- R605 D2
- R606 E3
- R650 D7
- R651 B2
- R652 F2
- R653 F3
- R654 B6
- R655 C6
- R656 A6
- R657 A7
- R658 A7
- R659 G2
- R660 B7
- R661 G3
- R662 B7
- R663 B7
- R664 C7
- R665 D6
- R666 D7
- R667 E6
- R668 G7
- R669 G7
- R670 F7
- R671 A7
- R672 F4
- R673 F4
- R674 F6
- R675 F6
- R676 G6
- R677 C6
- R678 C7
- R679 G5
- R680 G5
- R681 B2
- U650 G6
- ZD608 D2
- ZD609 E2
- ZD650 D6
- ZD651 E6
- ZD652 G8
- ZD653 C6

Scaler Board Schematic Diagram - VGA INPUT

S-A11



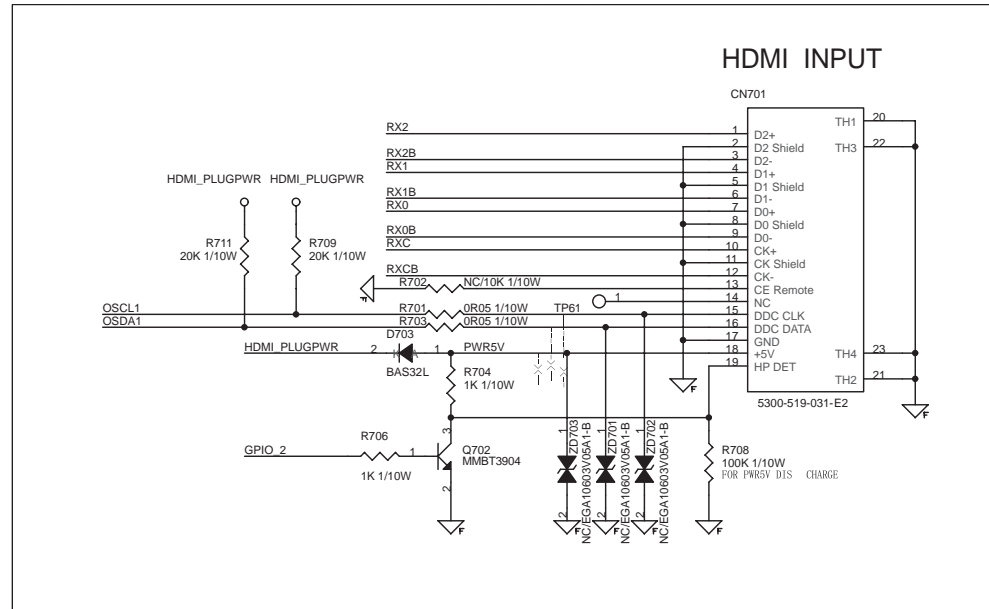
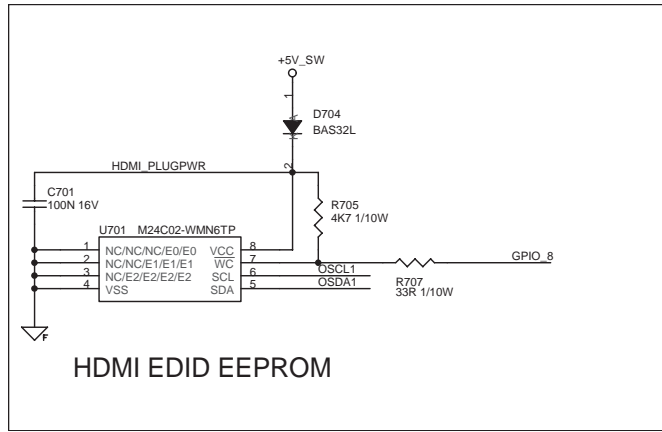
- CN653 D1
- CN726 B2
- C725 D8
- C726 B8
- C727 B8
- C728 B4
- C729 B7
- C730 B8
- C731 B8
- C732 C7
- C733 C8
- C734 C8
- C735 D2
- C736 D3
- C737 C7
- C738 D8
- C739 D2
- C740 D3
- C741 D7
- C742 E7
- C743 G7
- C744 G9
- D725 B4
- D726 B4
- L725 E6
- L726 D6
- Q725 F4
- Q726 G4
- R725 B6
- R726 B7
- R727 B4
- R728 B6
- R729 B7
- R730 B6
- R731 B7
- R732 B7
- R733 C6
- R734 C7
- R735 C6
- R736 C7
- R737 C2
- R738 D3
- R739 C6
- R740 D7
- R741 D2
- R742 D3
- R743 D6
- R744 D6
- R745 E6
- R746 F7
- R747 A4
- R748 E6
- R749 F6
- R750 D9
- R751 F9
- R752 B1
- R753 D9
- R754 F9
- R755 F3
- R756 F3
- R757 F4
- R758 F4
- U725 D8
- ZD725 B3
- ZD726 D2
- ZD727 D2
- ZD728 F6
- ZD729 F8
- ZD730 D6
- ZD731 E6
- ZD732 C6
- ZD733 C6
- ZD734 B6
- ZD735 B3
- ZD736 C2



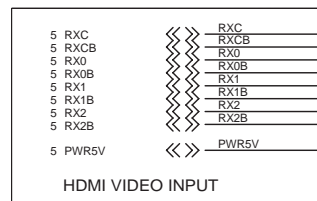
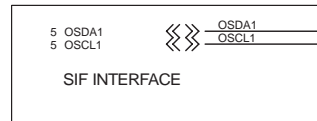
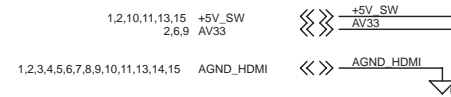
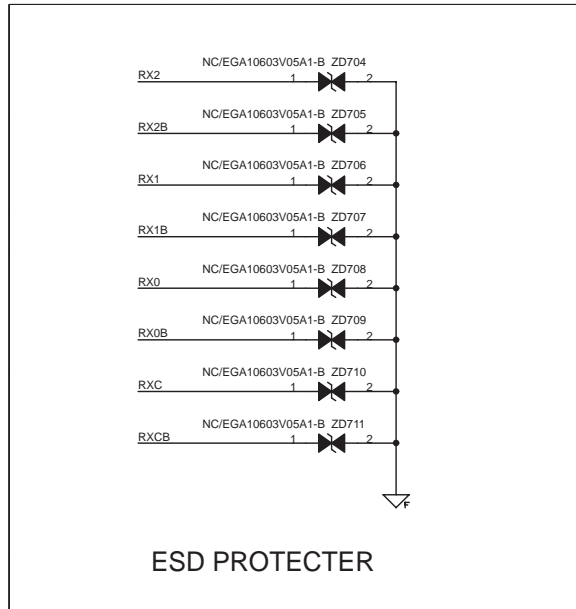
7. Circuit Diagrams and PWB Layouts

Scaler Board Schematic Diagram - HDMI INPUT

S-A12

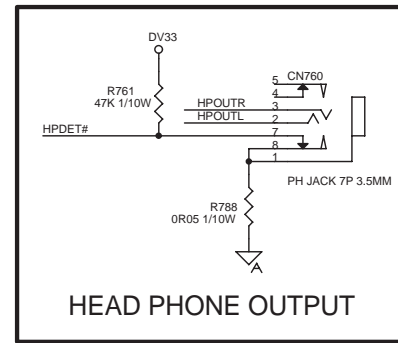
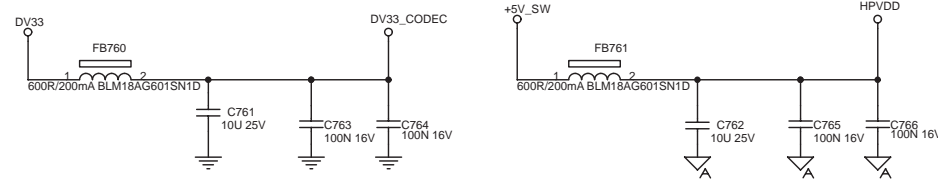


- CN701 A7
- C701 B1
- D703 B5
- D704 A2
- Q702 C6
- R701 B6
- R702 B6
- R703 B6
- R704 B6
- R705 B2
- R706 C5
- R707 B3
- R708 C7
- R709 B5
- R711 B5
- TP61 B6
- U701 B1
- ZD701 C6
- ZD702 C7
- ZD703 C6
- ZD704 D3
- ZD705 D3
- ZD706 D3
- ZD707 E3
- ZD708 E3
- ZD709 E3
- ZD710 E3
- ZD711 E3



Scaler Board Schematic Diagram - AUDIO CODER

S-A13



- CN760 A7
- C760 D6
- C761 B2
- C762 B4
- C763 B3
- C764 B3
- C765 B5
- C766 B5
- C767 C2
- C768 C2
- C769 C2
- C770 C2
- C771 C2
- C772 D2
- C773 D2
- C774 D2
- C775 D2
- C776 D2
- C777 D6
- C778 D6
- C779 D5
- C780 D6
- C781 D5
- C782 E5
- C783 E2
- C784 E5
- C787 E4
- C788 E4
- C789 F3
- C790 F4
- FB760 B2
- FB761 B4
- R760 C2
- R761 A7
- R762 C2
- R763 C2
- R764 C2
- R765 C3
- R766 C3
- R767 C2
- R768 D2
- R769 D2
- R770 D2
- R771 D2
- R772 D2
- R773 D2
- R774 D2
- R775 D2
- R776 D2
- R777 E2
- R778 E2
- R779 E2
- R780 E5
- R781 E2
- R782 E5
- R783 E4
- R784 E4
- R785 E3
- R786 F3
- R787 F4
- R788 B7
- TP63 D5
- TP64 D5
- TP65 E4
- TP66 E4
- U760 D3

- YPBPR1R_IN C767 NC/10U 25V R762 NC/10K 1/10W
- YPBPR1L_IN C768 NC/10U 25V R763 NC/10K 1/10W
- AV2R_IN C769 NC/10U 25V R764 NC/10K 1/10W
- AV2L_IN C770 NC/10U 25V R760 NC/10K 1/10W
- YPBPR0R_IN C771 10U 25V R767 10K 1/10W
- YPBPR0L_IN C772 10U 25V R768 10K 1/10W
- AV1R_IN C773 10U 25V R769 10K 1/10W
- AV1L_IN C774 10U 25V R770 10K 1/10W
- VGAR_IN C775 10U 25V R771 10K 1/10W
- VGAL_IN C776 10U 25V R772 10K 1/10W

- 1,2,10,11,12,15 +5V_SW
- 2,4,5,6,7,11,14,15 DV33
- 1,2,3,4,5,6,7,8,9,10,11,12,14,15 GND
- 1,2,3,4,5,6,7,8,9,10,11,12,14,15 AGND_AFE
- 14 AO1AUXR
- 14 AO1AUXL
- 4,7 SIF_SDA
- 4,7 SIF_SCL

- AO1BCK R773 33R 1/10W
- AO1MCLK R774 33R 1/10W
- AO1SDATA4 R775 33R 1/10W
- AO1LRCK R776 33R 1/10W
- AO1BCK R777 33R 1/10W
- AO1MCLK R778 33R 1/10W
- AO1SDATA4 R779 33R 1/10W
- AO1LRCK R780 33R 1/10W

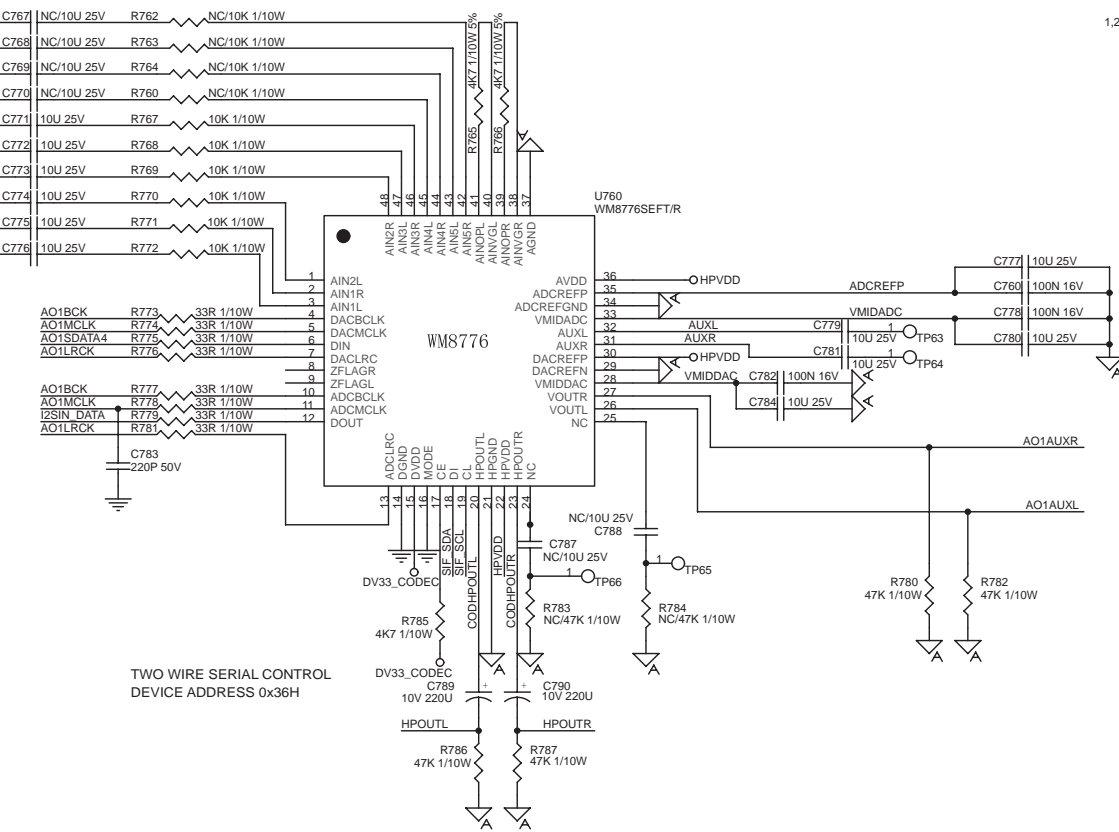
- 10 AV1R_IN
- 10 AV1L_IN
- 9 AV2R_IN
- 9 AV2L_IN

- 9 YPBPR0R_IN
- 9 YPBPR0L_IN
- 10 YPBPR1R_IN
- 10 YPBPR1L_IN

- 11 VGAR_IN
- 11 VGAL_IN

- 9 HPOLTR
- 9 HPOUTL
- 5,9 HPDET#

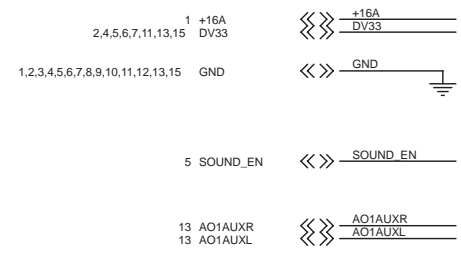
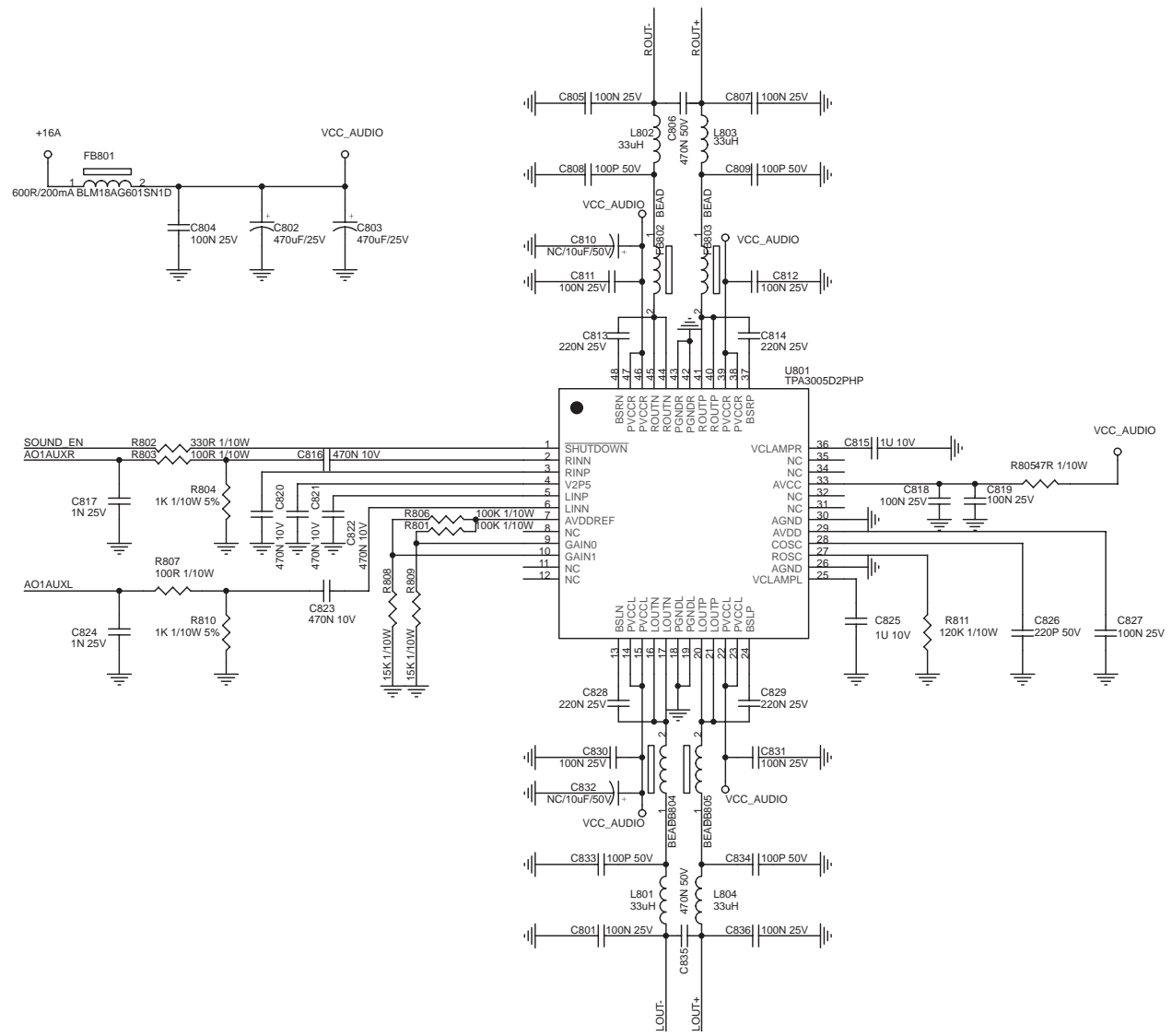
- 5 I2SIN_DATA
- 5 AO1SDATA4
- 5 AO1MCLK
- 5 AO1BCK
- 5 AO1LRCK



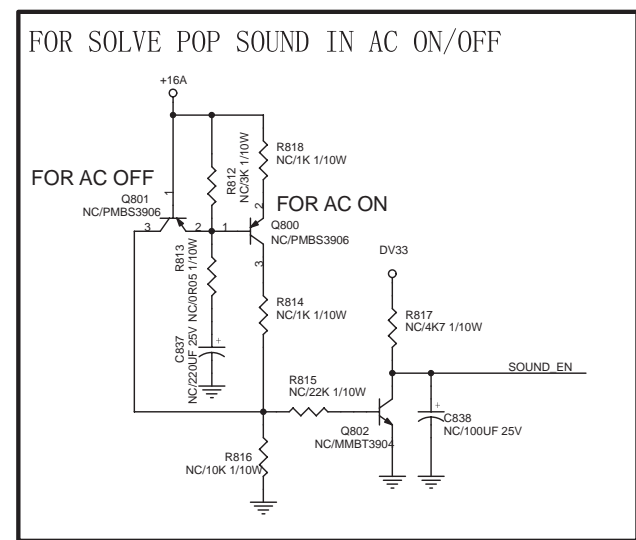
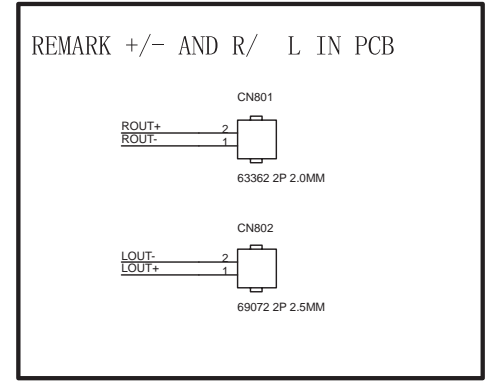
TWO WIRE SERIAL CONTROL
DEVICE ADDRESS 0x36H

Scaler Board Schematic Diagram - AUDIO AMP

S-A14

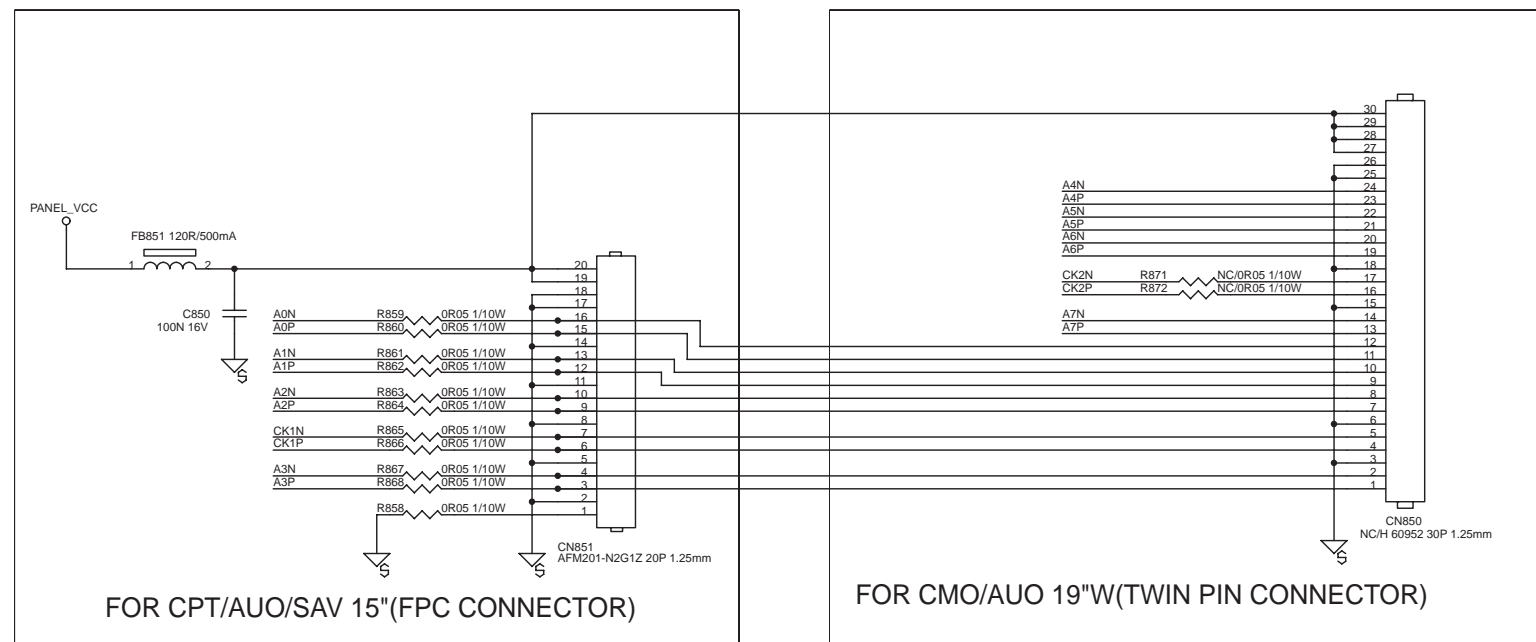


- CN801 C8
- CN802 D8
- C801 E4
- C802 B2
- C803 B2
- C804 B2
- C805 A4
- C806 A4
- C807 A4
- C808 B4
- C809 B4
- C810 B4
- C811 B4
- C812 B4
- C813 B4
- C814 B4
- C815 C5
- C816 C2
- C817 C1
- C818 C5
- C819 C5
- C820 C2
- C821 C2
- C822 C2
- C823 D2
- C824 D1
- C825 D5
- C826 D6
- C827 D6
- C828 D4
- C829 D4
- C830 D4
- C831 D4
- C832 D4
- C833 E4
- C834 E4
- C835 E4
- C836 E4
- C837 F8
- C838 F9
- FB801 B1
- FB802 B4
- FB803 B4
- FB804 D4
- FB805 D4
- L801 E4
- L802 B4
- L803 B4
- L804 E4
- Q800 E8
- Q801 E7
- Q802 F8
- R801 C3
- R802 C2
- R803 C2
- R804 C2
- R805 C6
- R806 C3
- R807 D2
- R808 D3
- R809 D3
- R810 D2
- R811 D5
- R812 E8
- R813 E8
- R814 E8
- R815 F8
- R816 F8
- R817 F8
- R818 E8
- U801 C3

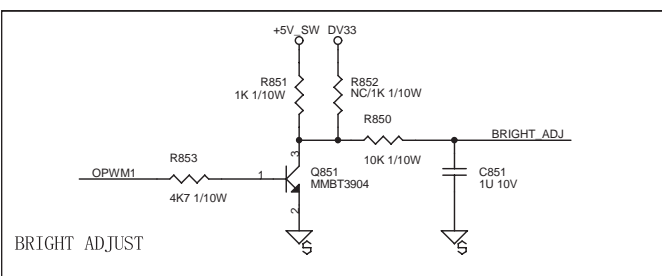


Scaler Board Schematic Diagram - LVDS OUTPUT

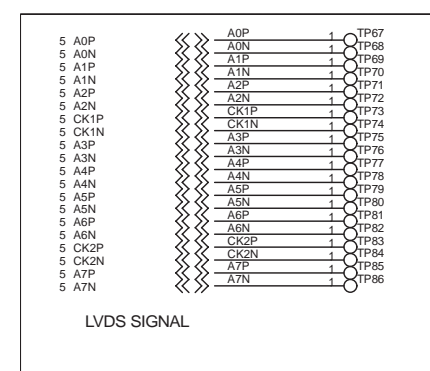
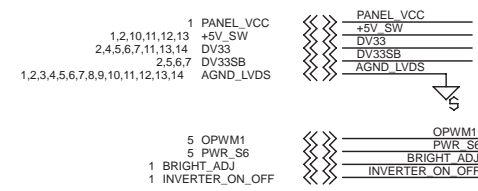
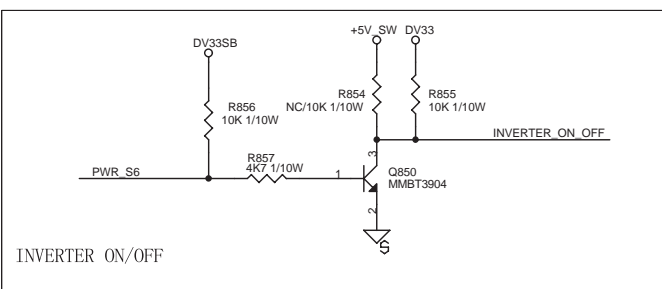
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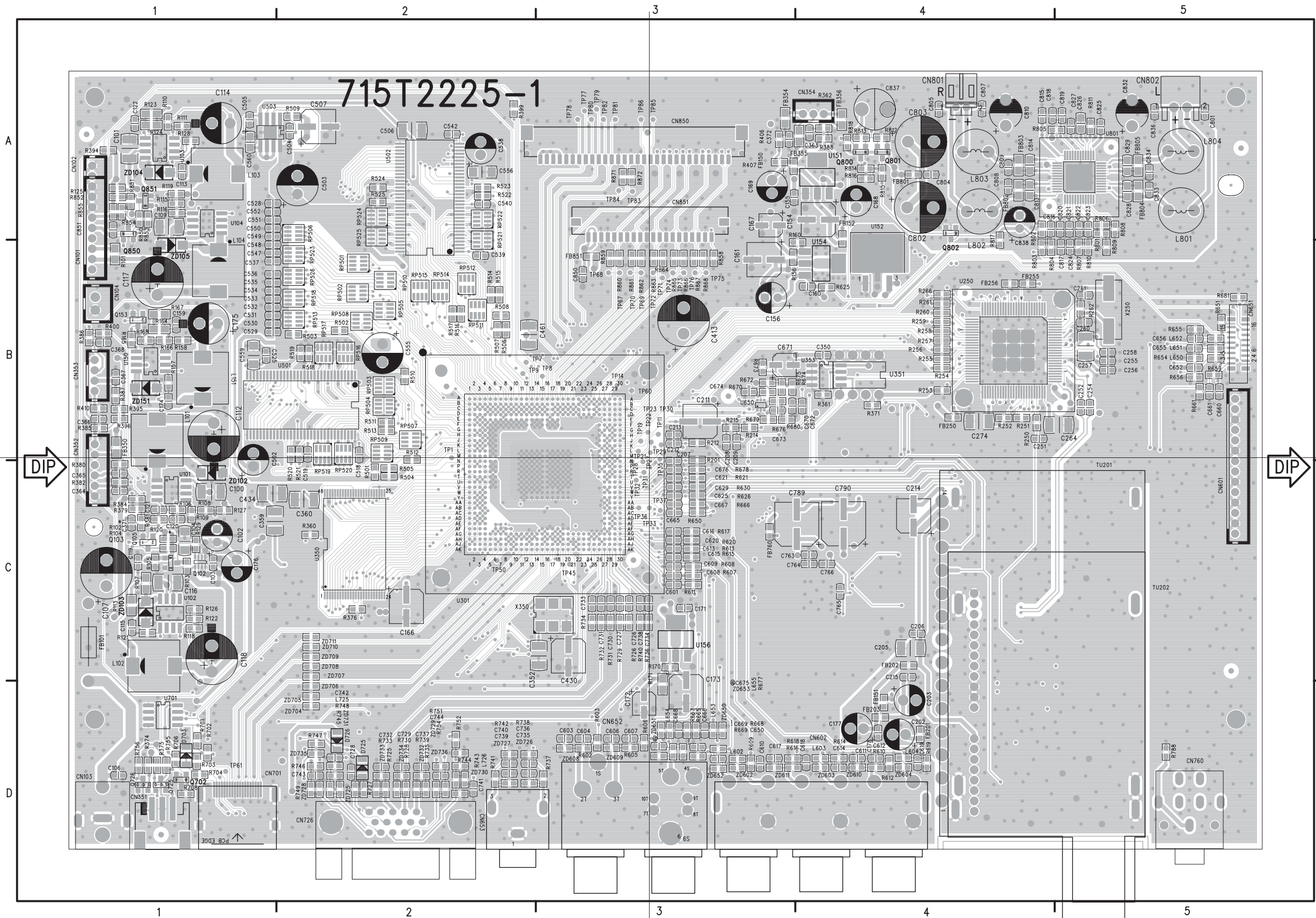
- CN850 A7
- CN851 B4
- C850 B2
- C851 D3
- FB851 B2
- Q850 F3
- Q851 D3
- R850 D3
- R851 D3
- R852 D3
- R853 D2
- R854 E3
- R855 E3
- R856 F2
- R857 F3
- R858 C3
- R859 B3
- R860 B3
- R861 B3
- R862 B3
- R863 C3
- R864 C3
- R865 C3
- R866 C3
- R867 C3
- R868 C3
- R871 B6
- R872 B6
- TP67 F8
- TP68 F8
- TP69 F8
- TP70 F8
- TP71 F8
- TP72 F8
- TP73 F8
- TP74 F8
- TP75 F8
- TP76 F8
- TP77 F8
- TP78 F8
- TP79 G8
- TP80 G8
- TP81 G8
- TP82 G8
- TP83 G8
- TP84 G8
- TP85 G8
- TP86 G8



PANEL	CN851	CN850	R871	R872	R851	R852	R854	R855
CPT/AUO TV 15" 3V3	YES		NO		YES	NO	NO	YES
SVA/CPT M 15" 3V3	YES		NO		YES	NO	NO	YES
AUO/CMO 19"W 5V	NO		YES		YES	NO	NO	YES
AUO/CMO 20"W 5V	NO		YES		YES	NO	NO	YES
LPL 20"W 12V	NO		YES		NO	YES	NO	YES

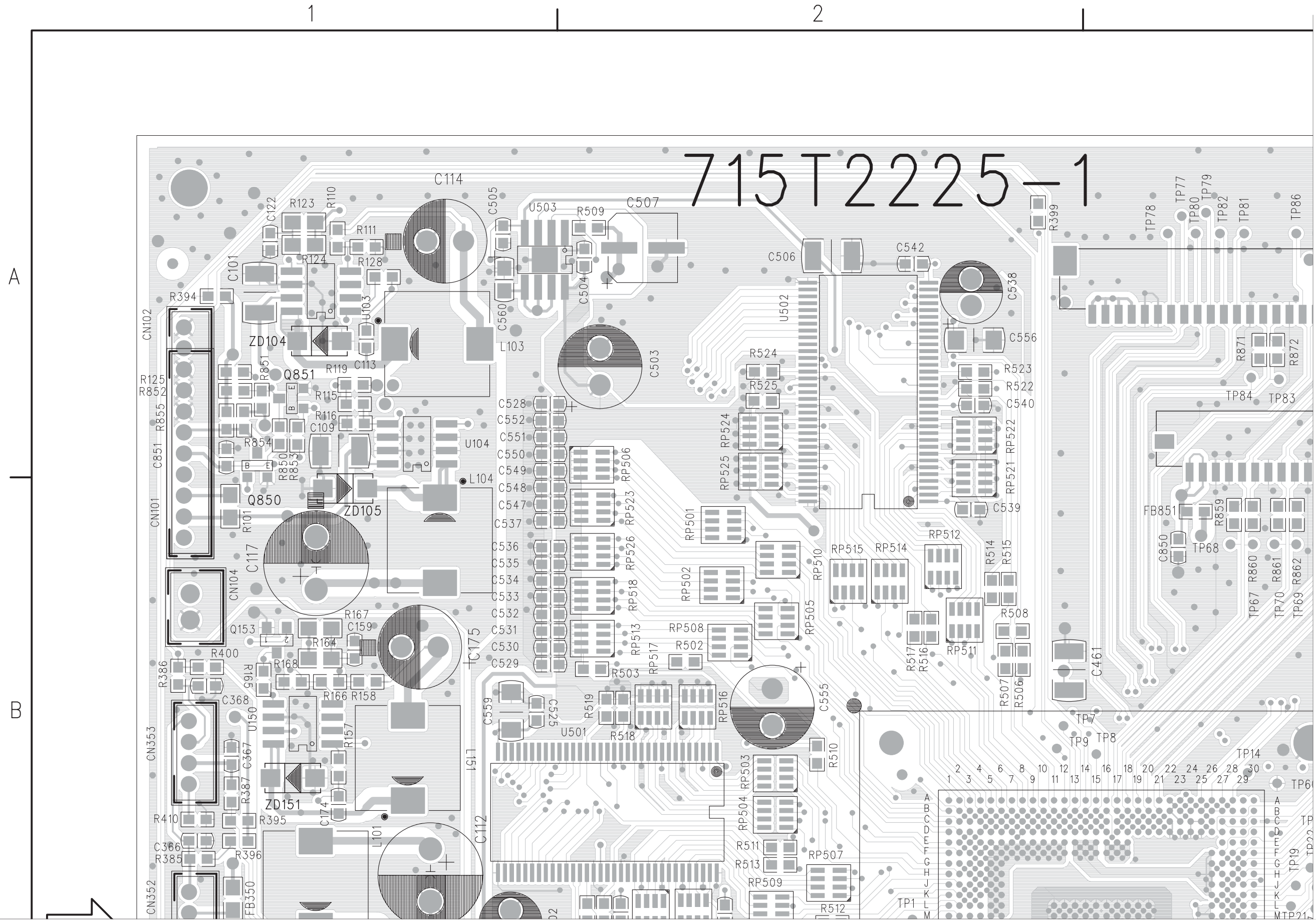


Scaler Board Layout(Top Side)



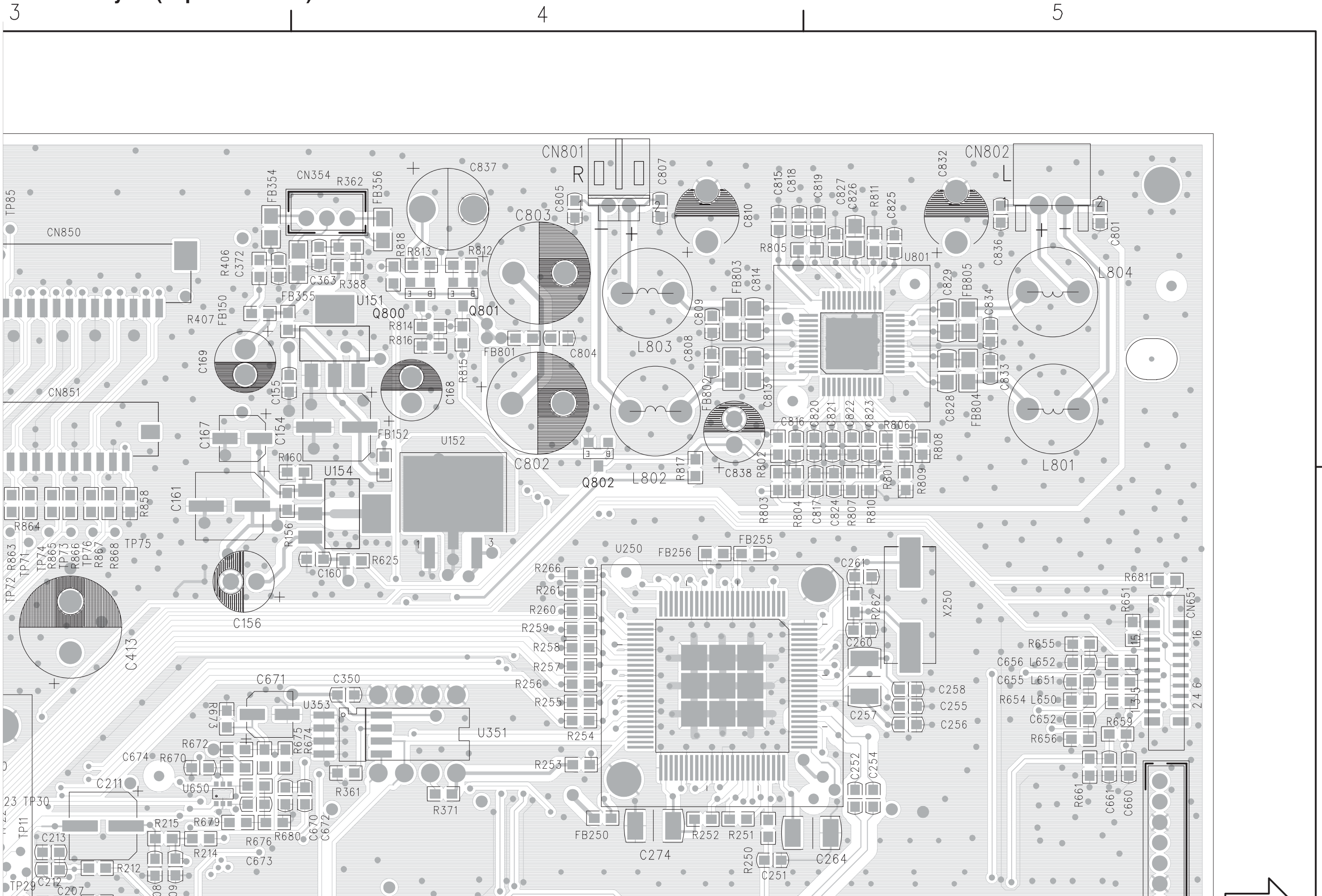
- C100 C1 C505 A1 C736 D2 FB250 B4 R167 B1 R611 C3 R806 A5 TP68 B3
- C101 C1 C506 A2 C737 D2 FB255 B4 R168 B1 R612 D4 R807 B5 TP69 B3
- C102 C1 C507 A2 C738 C3 FB256 B4 R170 C3 R613 C3 R808 A5 TP70 B3
- C103 C1 C518 B2 C739 D2 FB350 B1 R171 C3 R614 D4 R809 B5 TP71 B3
- C104 C1 C519 B2 C740 D2 FB354 A3 R201 B3 R615 C3 R810 B5 TP72 B3
- C106 D1 C525 B1 C741 D2 FB355 A4 R212 B3 R616 D3 R811 A5 TP73 B3
- C107 C1 C528 A2 C742 D2 FB356 A4 R214 B3 R617 C3 R812 A4 TP74 B3
- C109 A1 C529 B2 C743 D2 FB760 C3 R215 B3 R618 D4 R814 A4 TP75 B3
- C112 B1 C530 B2 C744 D2 FB801 A4 R250 B4 R619 D4 R814 A4 TP76 B3
- C113 A1 C531 B2 C763 C4 FB802 A4 R251 B4 R620 C3 R815 A4 TP77 A3
- C114 A1 C532 B2 C764 C4 FB803 A4 R252 B4 R621 C3 R816 A4 TP78 A3
- C115 C1 C533 B2 C765 C4 FB804 A5 R253 B4 R625 B4 R817 B4 TP79 A3
- C116 C1 C534 B2 C766 C4 FB805 A5 R254 B4 R626 C3 R818 A4 TP80 A3
- C117 B1 C535 B2 C769 C4 FB851 B3 R255 B4 R630 C3 R850 A1 TP81 A3
- C118 C1 C536 B2 C790 C4 L101 B1 R256 B4 R650 C3 R851 A1 TP82 A3
- C119 C1 C537 B2 C801 A5 L102 C1 R257 B4 R651 B5 R852 A1 TP83 A3
- C120 C1 C538 A2 C802 A4 L103 A1 R258 B4 R654 B5 R853 A1 TP84 A3
- C121 C1 C539 B2 C803 A4 L104 B1 R259 B4 R655 B5 R854 A1 TP85 A3
- C122 A1 C540 A2 C804 A4 L151 B1 R260 B4 R656 B5 R855 A1 TP86 A3
- C154 A4 C542 A2 C805 A4 L602 D3 R261 B4 R659 B5 R858 B3 TU201 D5
- C155 A3 C547 B2 C807 A4 L603 D4 R262 B5 R661 B5 R859 B3 TU202 D5
- C156 B3 C548 B2 C808 A4 L604 D4 R266 B4 R665 D3 R860 B3 U101 C1
- C159 B1 C549 A2 C809 A4 L650 B5 R360 C2 R666 C3 R861 B3 U102 C1
- C160 B4 C550 A2 C810 A4 L651 B5 R361 B4 R667 D3 R862 B3 U103 A1
- C161 B3 C551 A2 C813 A4 L652 B5 R362 A4 R668 D3 R863 B3 U104 A1
- C166 C2 C552 A2 C814 A4 L653 D3 R371 B4 R669 D3 R864 B3 U150 B1
- C167 A3 C555 B2 C815 A4 L654 D3 R374 D1 R670 B3 R865 B3 U151 A4
- C168 A4 C556 A2 C816 A4 L655 D3 R375 D1 R672 B3 R866 B3 U152 B4
- C169 A3 C559 B1 C817 B5 L725 D2 R376 C2 R673 B3 R867 B3 U154 B4
- C171 C3 C601 A1 C818 A4 L726 D2 R379 C1 R674 B3 R868 B3 U156 C3
- C172 D3 C601 C3 C819 A5 L801 A5 R380 C1 R675 B3 R871 A3 U250 B4
- C173 D3 C603 D3 C820 A5 L802 A4 R381 C1 R676 B3 R872 A3 U301 C3
- C174 B1 C604 D3 C821 A5 L803 A4 R382 C1 R677 D3 RP501 B2 U350 C2
- C175 B1 C606 D3 C822 A5 L804 A5 R384 C1 R678 C3 RP502 B2 U351 B4
- C176 C1 C607 C3 C823 A5 Q102 C1 R385 B1 R679 B3 RP503 B2 U353 B4
- C177 D4 C608 C3 C824 B5 Q103 C1 R386 B1 R680 B3 RP504 B2 U501 B2
- C178 D4 C609 C3 C825 A5 Q105 C1 R387 B1 R681 B5 RP505 B2 U502 A2
- C202 D4 C610 D3 C826 A5 Q153 B1 R388 A4 R701 D1 RP506 B2 U503 A1
- C203 D4 C611 D4 C827 A5 Q702 D1 R394 A1 R702 D1 RP507 B2 U650 B3
- C205 C4 C613 D4 C828 A5 Q725 D1 R395 B1 R703 D1 RP508 B2 U701 D1
- C206 C4 C615 C3 C829 A5 Q726 D1 R396 B1 R704 D1 RP509 B2 U801 A5
- C207 C3 C614 D4 C832 A5 Q800 A4 R399 A2 R706 D1 RP510 B2 X250 B5
- C208 B3 C615 C3 C833 A5 Q801 A4 R400 B1 R708 D1 RP511 B2 X350 C3
- C209 B3 C616 C3 C834 A5 Q802 A4 R402 A3 R725 D2 RP512 B2 ZD102 C1
- C211 B3 C617 D3 C836 A5 Q850 A1 R407 A3 R726 C3 RP513 B2 ZD103 C1
- C212 B3 C618 D4 C837 A4 Q851 A1 R410 B1 R727 D2 RP514 B2 ZD104 A1
- C213 B3 C619 D4 C838 A4 R101 B1 R501 C2 R728 D2 RP515 B2 ZD105 B1
- C214 C4 C620 C3 C850 B3 R102 C1 R502 B2 R729 C3 RP516 B2 ZD151 B1
- C215 C4 C621 C3 C851 A1 R103 C1 R503 B2 R730 D2 RP517 B2 ZD602 D3
- C251 B4 C625 C3 CN101 A1 R104 C1 R504 C2 R731 C3 RP518 B2 ZD603 D4
- C252 B5 C629 C3 CN102 A1 R105 C1 R505 C2 R732 C3 RP519 B2 ZD604 D4
- C254 B5 C650 D3 CN103 D1 R106 C1 R506 B2 R733 D2 RP520 B2 ZD608 D3
- C255 B5 C652 B5 CN104 B1 R107 C1 R507 B2 R734 C3 RP521 B2 ZD609 D3
- C256 B5 C655 B5 CN351 D1 R108 C1 R508 B2 R735 D2 RP522 A2 ZD610 D4
- C257 B5 C656 B5 CN352 C1 R109 C1 R509 A2 R736 C3 RP523 B2 ZD611 D3
- C258 B5 C660 B5 CN353 B1 R110 A1 R510 B2 R737 D3 RP524 A2 ZD650 D3
- C260 B5 C661 B5 CN354 A4 R111 A1 R511 B2 R738 D2 RP525 B2 ZD651 D3
- C261 B5 C665 C3 CN601 C5 R113 C1 R512 B2 R739 D2 RP526 B2 ZD652 D3
- C264 B5 C666 D3 CN602 D4 R115 A1 R513 B2 R740 C3 TP11 B3 ZD653 D3
- C274 B4 C667 C3 CN651 B5 R116 A1 R514 B2 R741 D2 TP14 B3 ZD704 D2
- C350 B4 C668 D3 CN652 D3 R118 C1 R515 B2 R742 D2 TP19 B3 ZD705 D2
- C352 C3 C669 D3 CN653 D2 R119 A1 R516 B2 R743 D2 TP21 B3 ZD706 D2
- C359 C1 C670 B3 CN701 D1 R120 C1 R517 B2 R744 D2 TP22 B3 ZD707 C2
- C360 C2 C671 B3 CN726 D2 R121 C1 R518 B2 R745 D2 TP23 B3 ZD708 C2
- C363 A4 C672 B4 CN760 D5 R122 C1 R519 B2 R746 D2 TP27 C3 ZD709 C2
- C364 C1 C673 B3 CN801 A4 R123 A1 R520 B2 R747 D2 TP28 C3 ZD710 C2
- C365 C1 C674 B3 CN802 A5 R124 A1 R521 B2 R748 D2 TP29 B3 ZD711 C2
- C366 B1 C675 D3 CN850 A3 R125 A1 R522 A2 R749 D2 TP30 B3 ZD725 D2
- C367 B1 C676 C3 CN851 A3 R126 C1 R523 A2 R751 D2 TP31 C3 ZD726 D2
- C368 B1 C726 C3 D703 D1 R127 C1 R524 A2 R752 D2 TP32 C3 ZD727 D2
- C371 C1 C727 C3 D725 D2 R128 A1 R525 A2 R754 D2 TP33 C3 ZD728 D2
- C372 A3 C728 D2 D726 D2 R129 C1 R602 D3 R755 D1 TP35 B3 ZD729 D2
- C413 B3 C729 D2 FB101 D1 R156 B3 R603 D3 R756 D1 TP36 C3 ZD730 D2
- C430 C3 C730 C3 FB150 A3 R157 B1 R605 D3 R788 D5 TP37 C3 ZD731 D2
- C434 C2 C731 C3 FB151 D4 R158 B1 R606 D3 R801 A5 TP45 C3 ZD732 D2
- C461 B2 C732 D2 FB152 B4 R160 B3 R607 C3 R802 A4 TP50 C2 ZD733 D2
- C502 B1 C733 C3 FB201 D4 R164 B1 R608 C3 R803 B4 TP60 B3 ZD734 D2
- C503 A2 C734 C3 FB202 C4 R165 B1 R609 D3 R804 B4 TP61 D1 ZD735 D2
- C504 A2 C735 D2 FB203 D4 R166 B1 R610 D4 R805 A5 TP67 B3 ZD736 D2

Scaler Board Layout(Top Side Part 1)

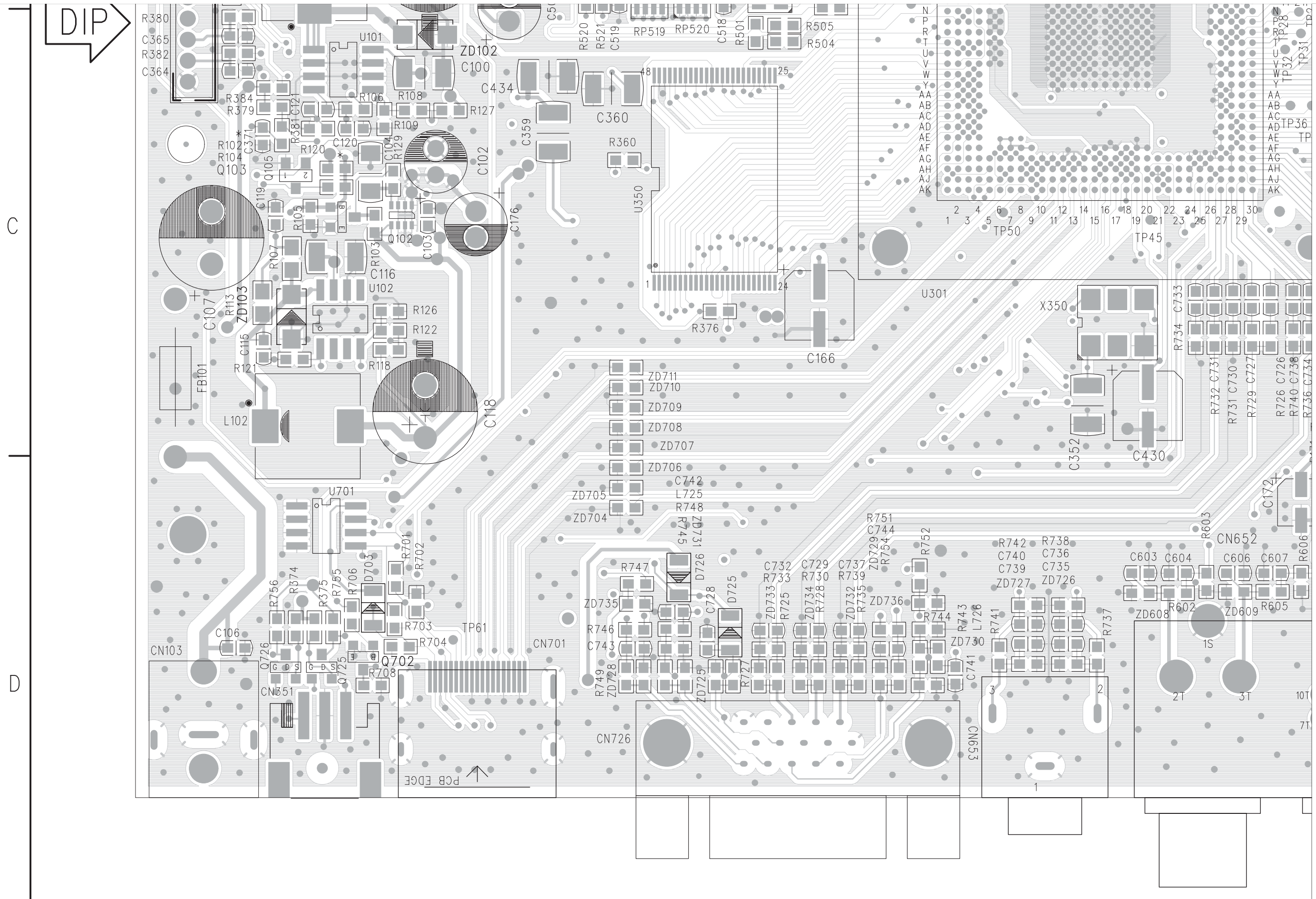


7. Circuit Diagrams and PWB Layouts

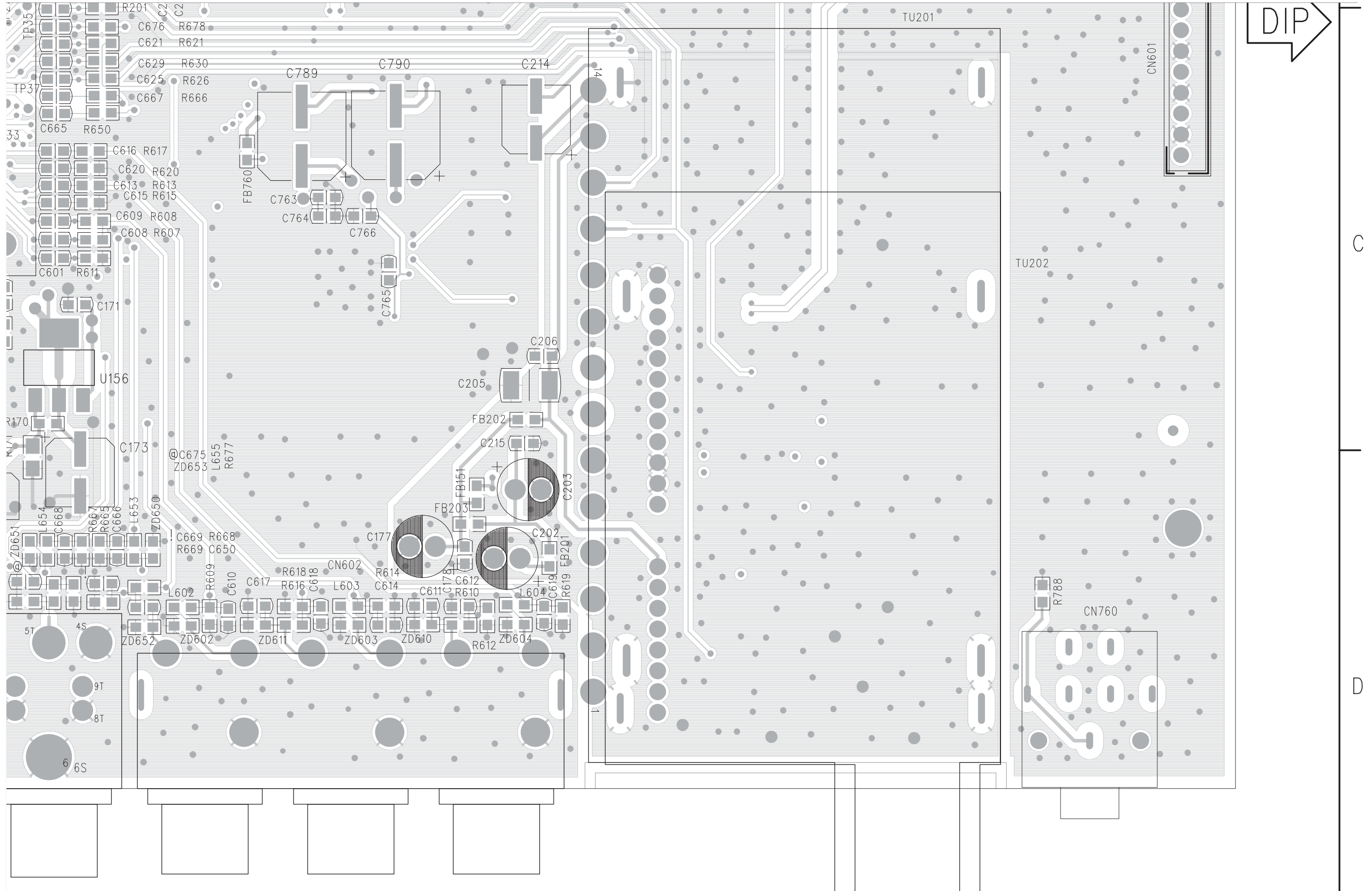
Scaler Board Layout(Top Side Part 2)



Scaler Board Layout(Top Side Part 3)



Scaler Board Layout(Top Side Part 4)



3

4

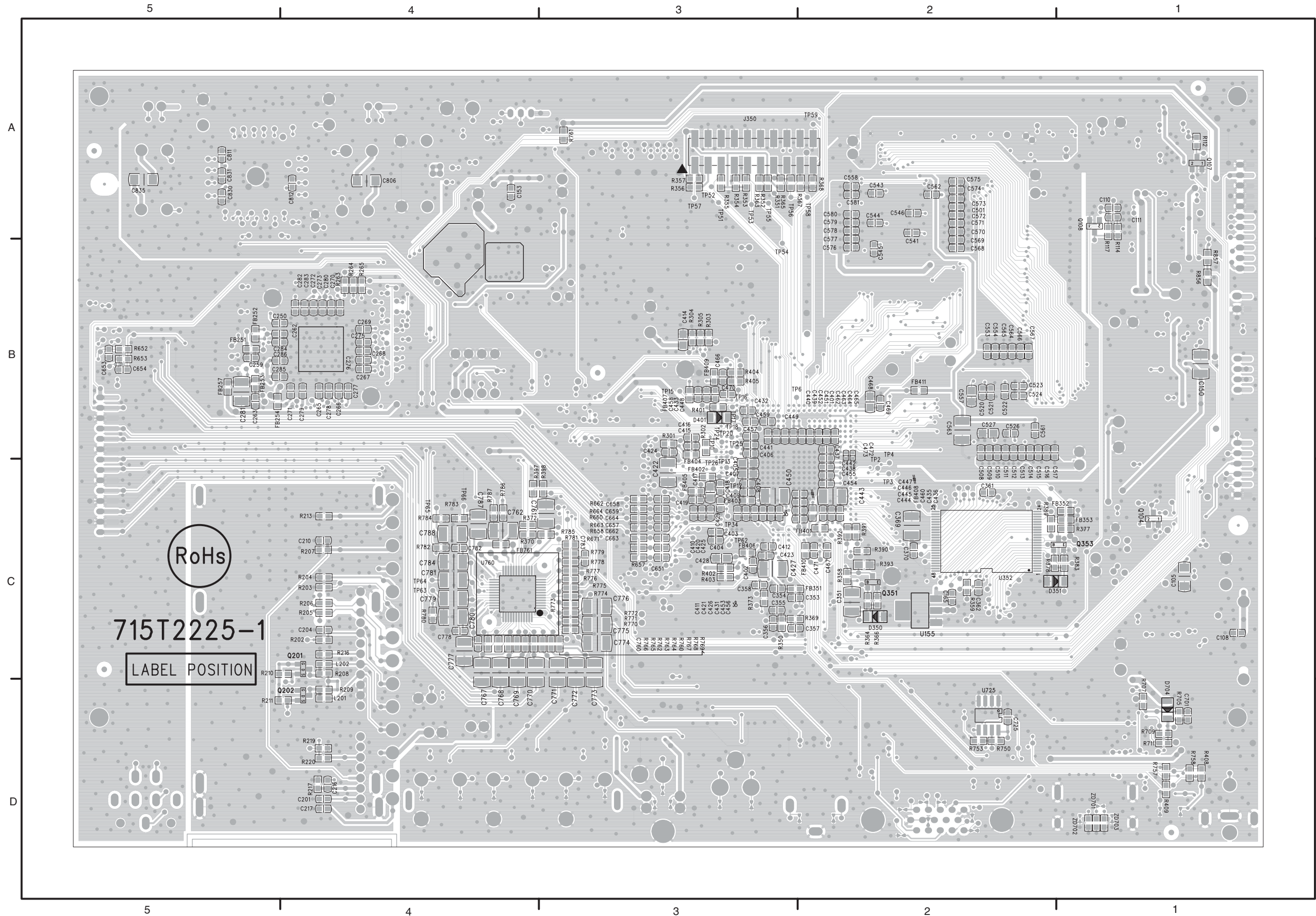
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C

D

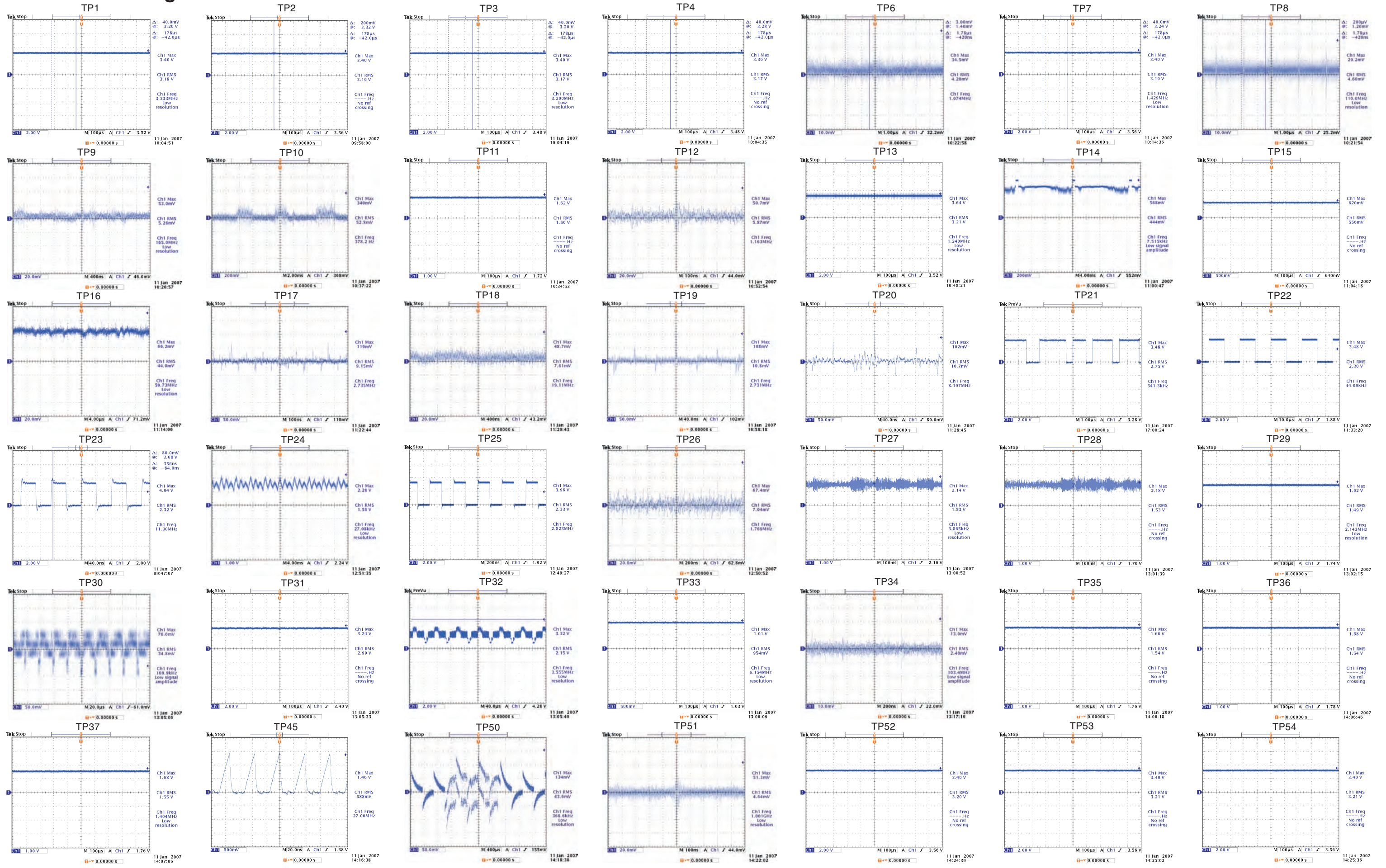
DIP

Scaler Board Layout(Bottom Side)

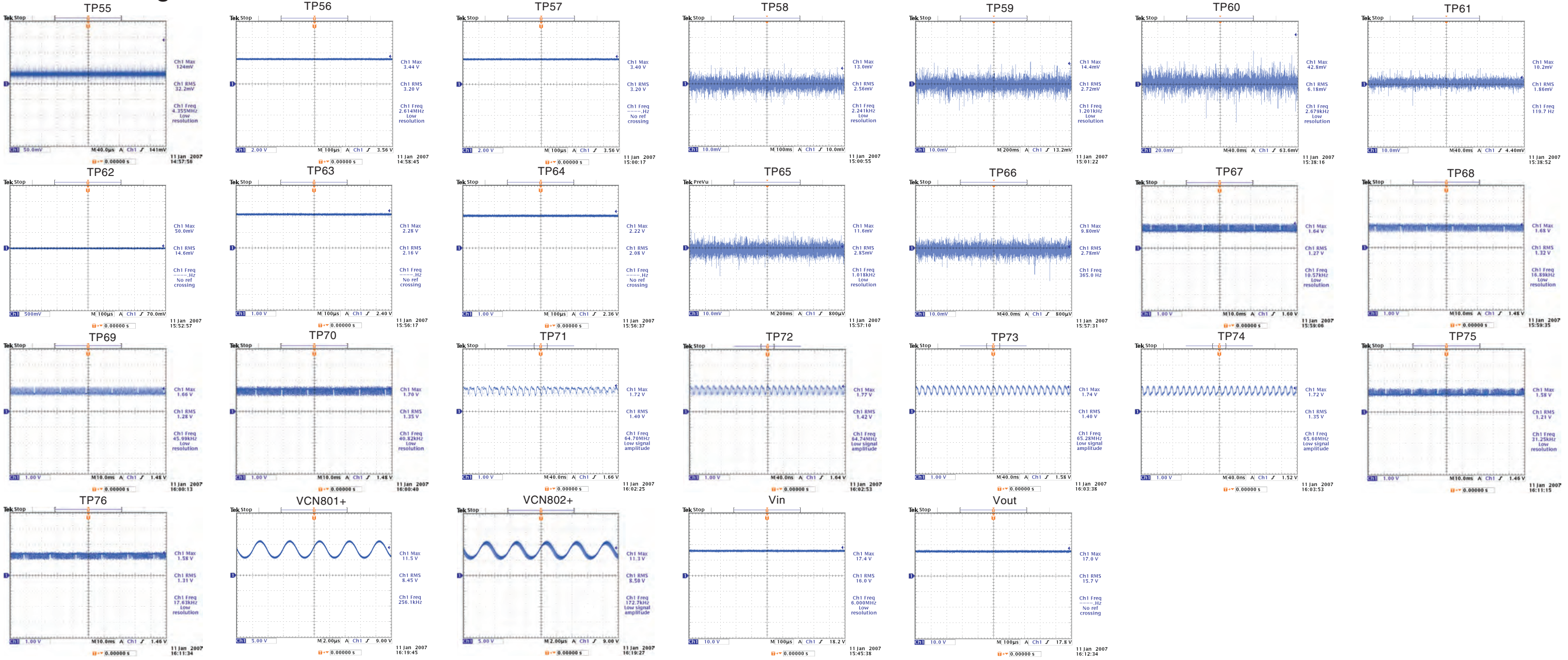


C105	C1	C420	C3	C524	B2	C788	C4	R305	B3	R771	C3	ZD702	D1
C108	C1	C421	C3	C526	B2	C806	A4	R350	C3	R772	C3	ZD703	D1
C110	A1	C422	C3	C527	B2	C811	A5	R351	A3	R773	C3		
C111	A1	C423	C3	C541	A2	C812	A4	R352	A3	R774	C3		
C150	B1	C424	B3	C543	A2	C830	A5	R353	A3	R775	C3		
C153	A4	C425	C3	C544	A2	C831	A5	R354	A3	R776	C3		
C165	C2	C426	C3	C545	B2	C835	A5	R355	A3	R777	C3		
C201	D4	C427	C3	C546	A2	D350	C2	R356	A3	R778	C3		
C204	C4	C428	C3	C553	B2	D351	C2	R357	A3	R779	C3		
C210	C4	C429	C3	C554	B2	D401	B3	R358	C2	R780	C4		
C216	D4	C431	C3	C557	B2	D704	D1	R359	C2	R781	C3		
C217	D4	C432	B3	C558	A2	FB251	B5	R363	A3	R782	C4		
C250	B5	C433	B3	C561	B2	FB252	B5	R364	C2	R783	C4		
C259	B5	C435	C2	C562	A2	FB253	B5	R365	A3	R784	C4		
C262	B5	C436	C2	C563	B2	FB254	B5	R366	C2	R785	C3		
C263	B5	C437	B2	C564	B2	FB257	B5	R367	A2	R786	C4		
C265	B4	C438	C2	C565	B2	FB351	C2	R368	A2	R787	C4		
C266	B4	C439	B3	C566	B2	FB352	C1	R369	C2	R788	B1		
C267	B4	C440	B3	C567	B2	FB353	C1	R370	C4	R789	B1		
C268	B4	C441	B3	C568	B2	FB401	C2	R372	C4	TP10	B3		
C269	B4	C442	B2	C569	B2	FB402	C3	R373	C3	TP12	C3		
C270	B4	C443	C2	C570	A2	FB403	C3	R377	C1	TP13	C3		
C271	B4	C444	C3	C571	A2	FB404	B3	R378	C2	TP15	B3		
C272	B4	C445	C3	C572	A2	FB405	C3	R383	C1	TP16	B3		
C273	B4	C446	C3	C573	A2	FB406	C3	R389	C2	TP17	B3		
C275	B4	C447	C3	C574	A2	FB407	B3	R390	C2	TP18	B3		
C276	B4	C448	B3	C575	A2	FB408	C2	R391	C2	TP20	B3		
C277	B4	C449	B3	C576	B2	FB409	B3	R392	C2	TP24	B3		
C278	B4	C450	C3	C577	B2	FB410	C2	R393	C2	TP25	B3		
C279	B4	C451	B3	C578	A2	FB411	B2	R397	C4	TP26	C3		
C280	B4	C452	B3	C579	A2	FB761	C4	R398	C3	TP34	C3		
C281	B5	C453	C3	C580	A2	J350	A3	R401	B3	TP38	D3		
C282	B4	C454	C2	C581	A2	L201	D4	R402	C3	TP51	A3		
C283	B4	C455	C2	C581	C3	L202	C4	R403	C3	TP52	A3		
C284	B5	C456	C3	C583	B5	Q104	C1	R404	B3	TP53	A3		
C285	B5	C457	B3	C584	B5	Q107	A1	R405	B3	TP54	B3		
C286	B5	C458	B3	C587	C3	Q108	A1	R409	D1	TP55	A3		
C351	C2	C459	B3	C588	C3	Q201	C4	R409	D1	TP56	A3		
C353	C2	C460	C2	C589	C3	Q202	D4	R662	B5	TP57	A3		
C354	C3	C462	B2	C592	C3	Q351	C2	R663	B5	TP58	A2		
C355	C3	C463	B2	C593	C3	Q352	C2	R667	B5	TP59	A2		
C356	C3	C464	B2	C594	C3	R112	A1	R668	C3	TP62	C3		
C357	C3	C465	B2	C701	D1	R114	A1	R669	C3	TP63	C4		
C358	C3	C466	B3	C725	D2	R117	A1	R662	C3	TP64	C4		
C361	C2	C467	C2	C760	C4	R202	C4	R663	C3	TP65	C4		
C362	C2	C468	B2	C761	C3	R203	C4	R664	C3	TP66	C4		
C363	C2	C469	B2	C762	C4	R204	C4	R671	C3	U155	C2		
C370	C2	C470	B3	C767	D4	R205	C4	R705	D1	U352	C2		
C401	B2	C471	C2	C768	D4	R206	C4	R707	D1	U725	D2		
C402	C3	C472	B2	C769	D4	R207	C4	R709	D1	U760	C4		
C403	C3	C473	B2	C770	D4	R208	C4	R711	D1	ZD10	D3		
C404	C3	C501	A2	C771	D3	R209	D4	R750	D2	ZD11	D3		
C405	C3	C508	B2	C772	D3	R210	C5	R753	D2	ZD12	D4		
C406	B3	C509	B2	C773	D3	R211	D5	R757	D1	ZD13	D3		
C407	C3	C510	B2	C774	C3	R213	C4	R758	D1	ZD14	D4		
C408	C3	C511	B2	C775	C3	R216	C4	R760	C4	ZD15	D3		
C409	C3	C512	B2	C776	C3	R217	D4	R761	A3	ZD16	D3		
C410	C3	C513	B2	C777	C4	R219	D4	R762	C4	ZD17	D2		
C411	C3	C514	B2	C778	C4	R220	D4	R763	C4	ZD18	D2		
C412	C3	C515	B2	C779	C4	R263	B4	R764	C4	ZD19	D2		
C414	B3	C516	B2	C780	C4	R264	B4	R765	C4	ZD20	D2		
C415	B3	C517	B2	C781	C4	R265	B4	R766	C4	ZD21	D2		
C416	B3	C520	B2	C782	C4	R301	B3	R767	C3	ZD22	D2		
C417	C3	C521	B2	C783	C3	R302	B3	R768	C3	ZD23	D2		
C418	C3	C522	B2	C784	C4	R303	B3	R769	C3	ZD24	D2		
C419	C3	C523	B2	C787	C4	R304	B3	R770	C3	ZD701	D1		

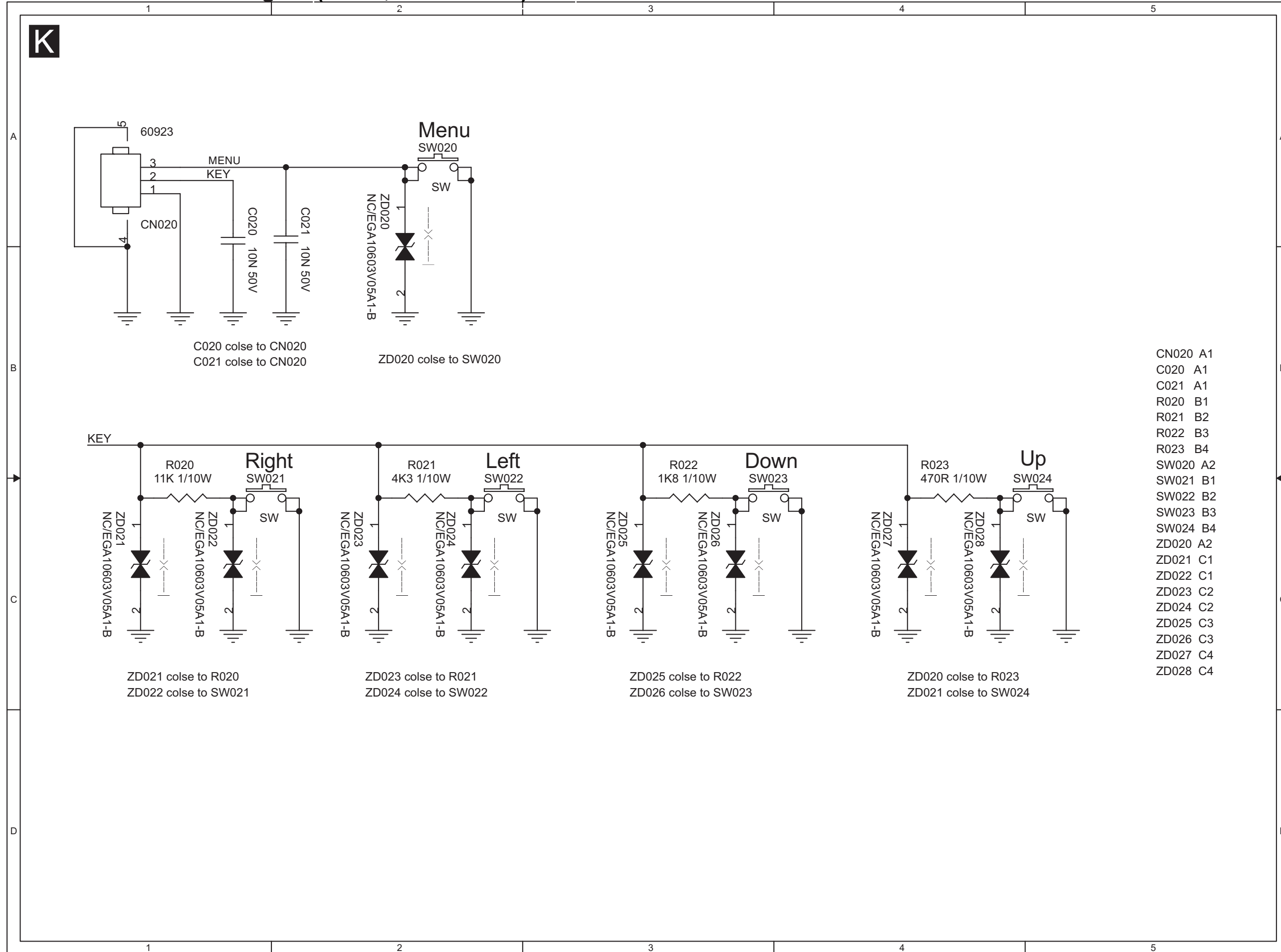
Waveform Diagram



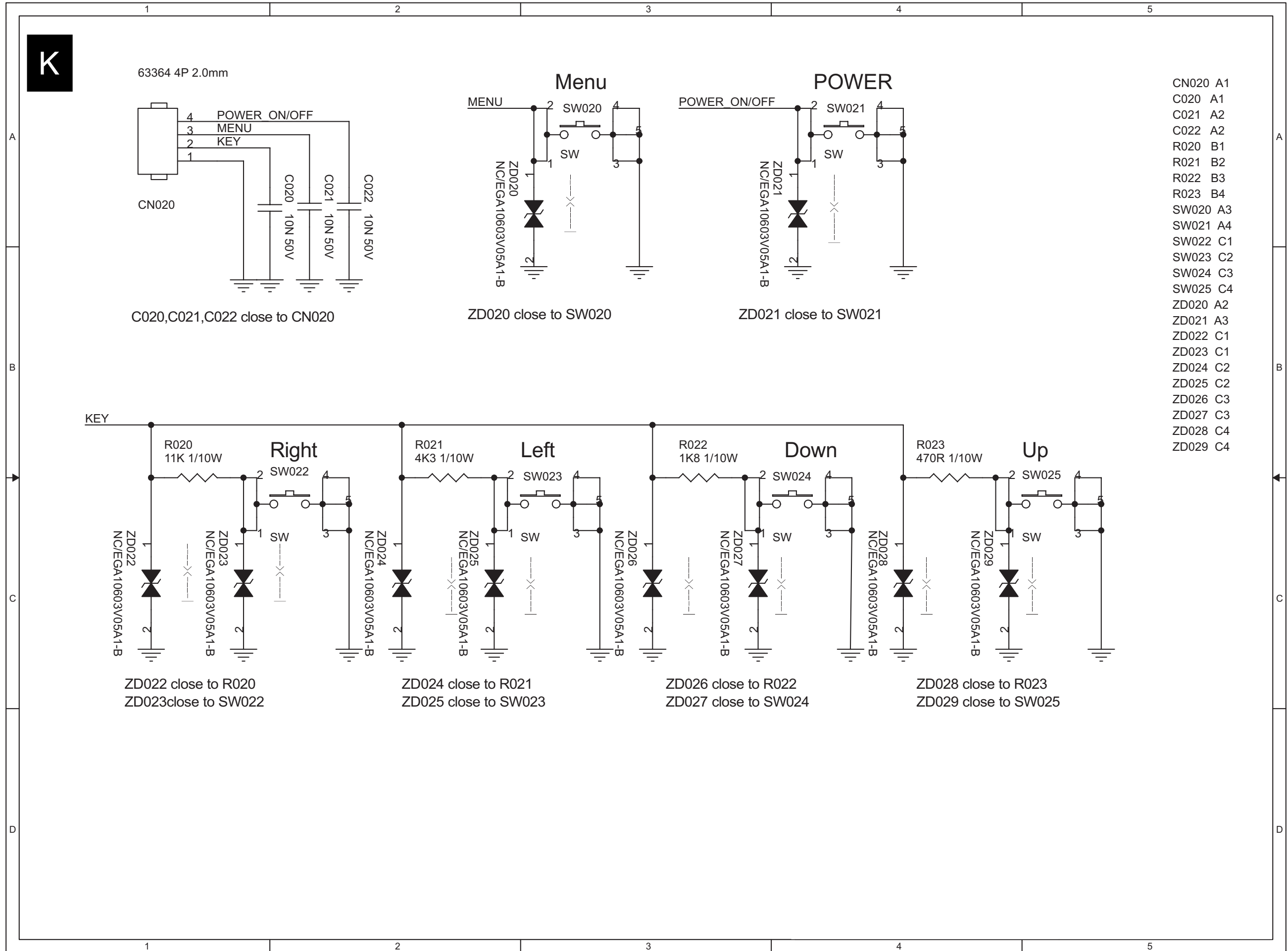
Waveform Diagram



KEY Board Schematic Diagram (for 15", 19MF&19MD)

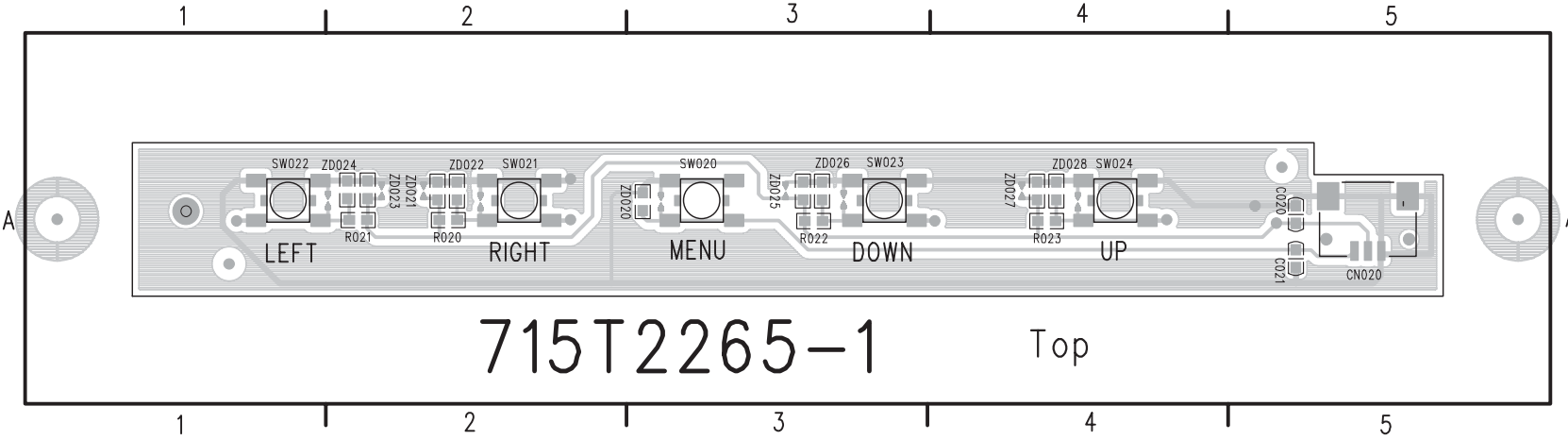


KEY Board Schematic Diagram(for 19PFL)



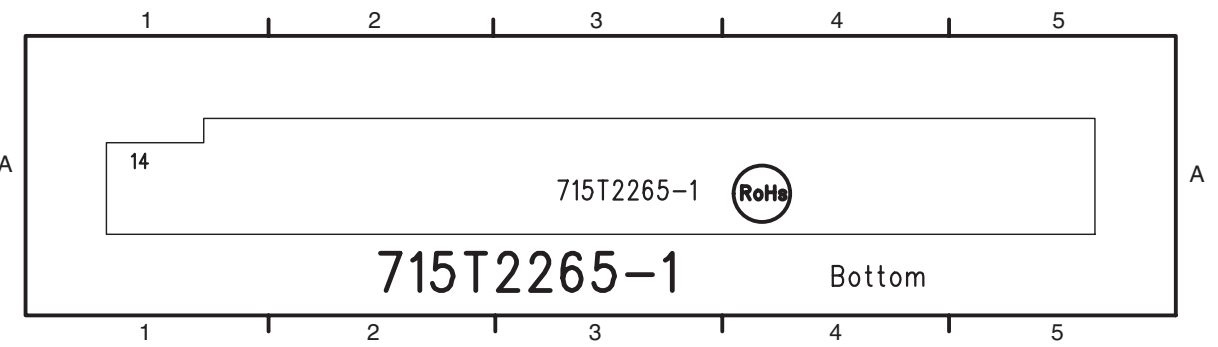
7. Circuit Diagrams and PWB Layouts

KEY Board Layout(Top Side)(for 15",19MF&19MD)

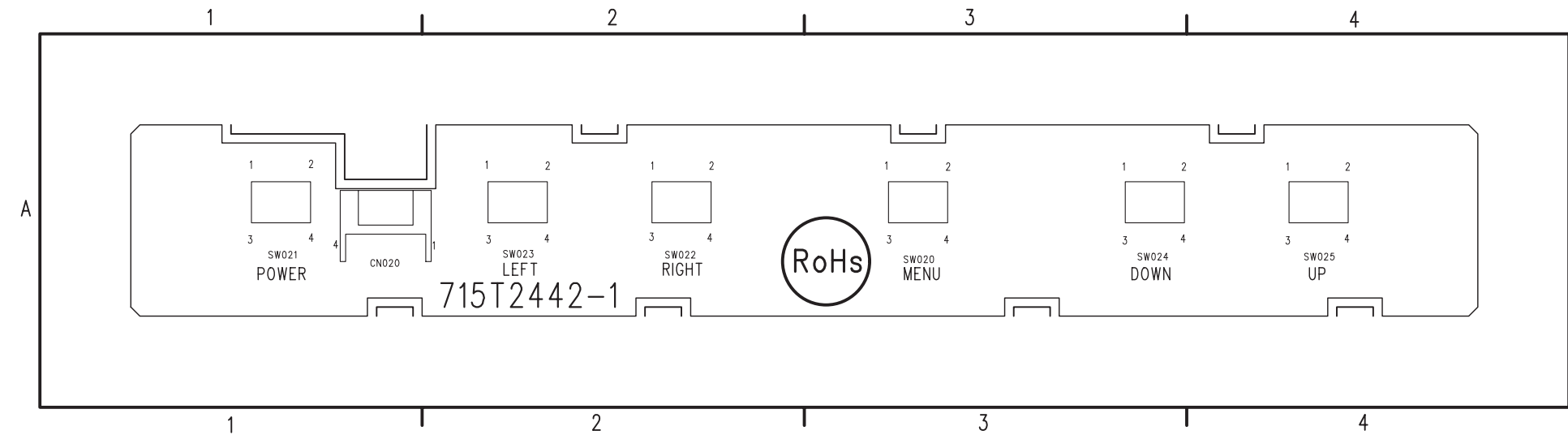


KEY Board Layout(Bottom Side)(for 15",19MF&19MD)

- C020 A5
- C021 A5
- CN020 A5
- R020 A2
- R021 A2
- R022 A3
- R023 A4
- SW020 A3
- SW021 A2
- SW022 A1
- SW023 A3
- SW024 A4
- ZD020 A3
- ZD021 A2
- ZD022 A2
- ZD023 A2
- ZD024 A2
- ZD025 A3
- ZD026 A3
- ZD027 A4
- ZD028 A4

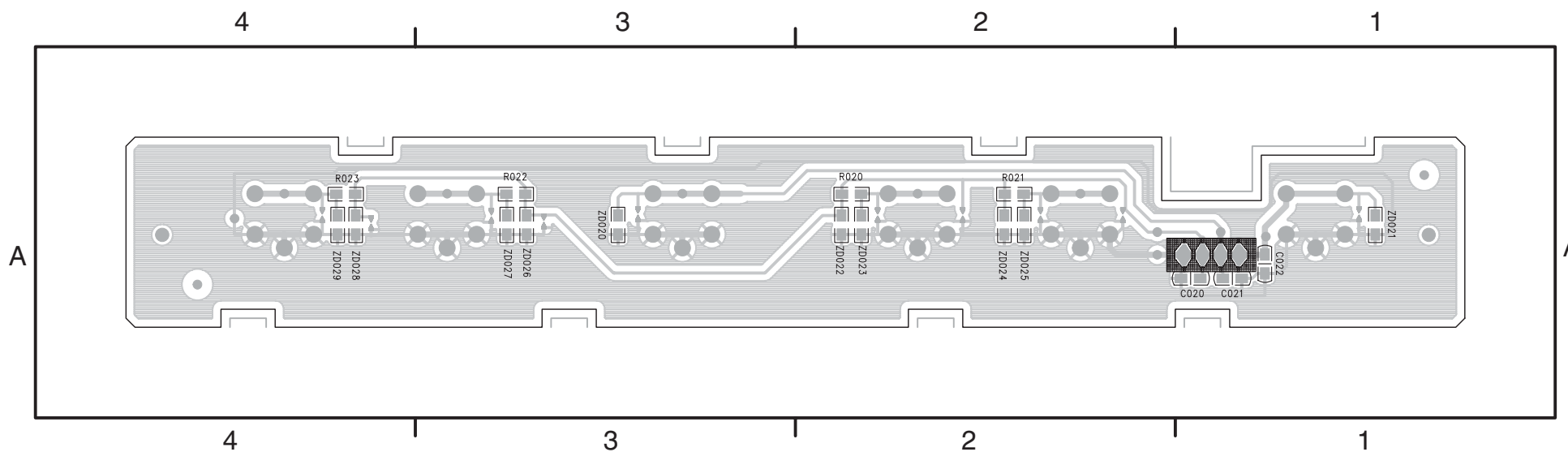


KEY Board Layout(Top Side)(for 19PFL)



- CN020 A1
- SW020 A3
- SW021 A1
- SW022 A2
- SW023 A2
- SW024 A3
- SW025 A4

KEY Board Layout(Bottom Side)(for 19PFL)

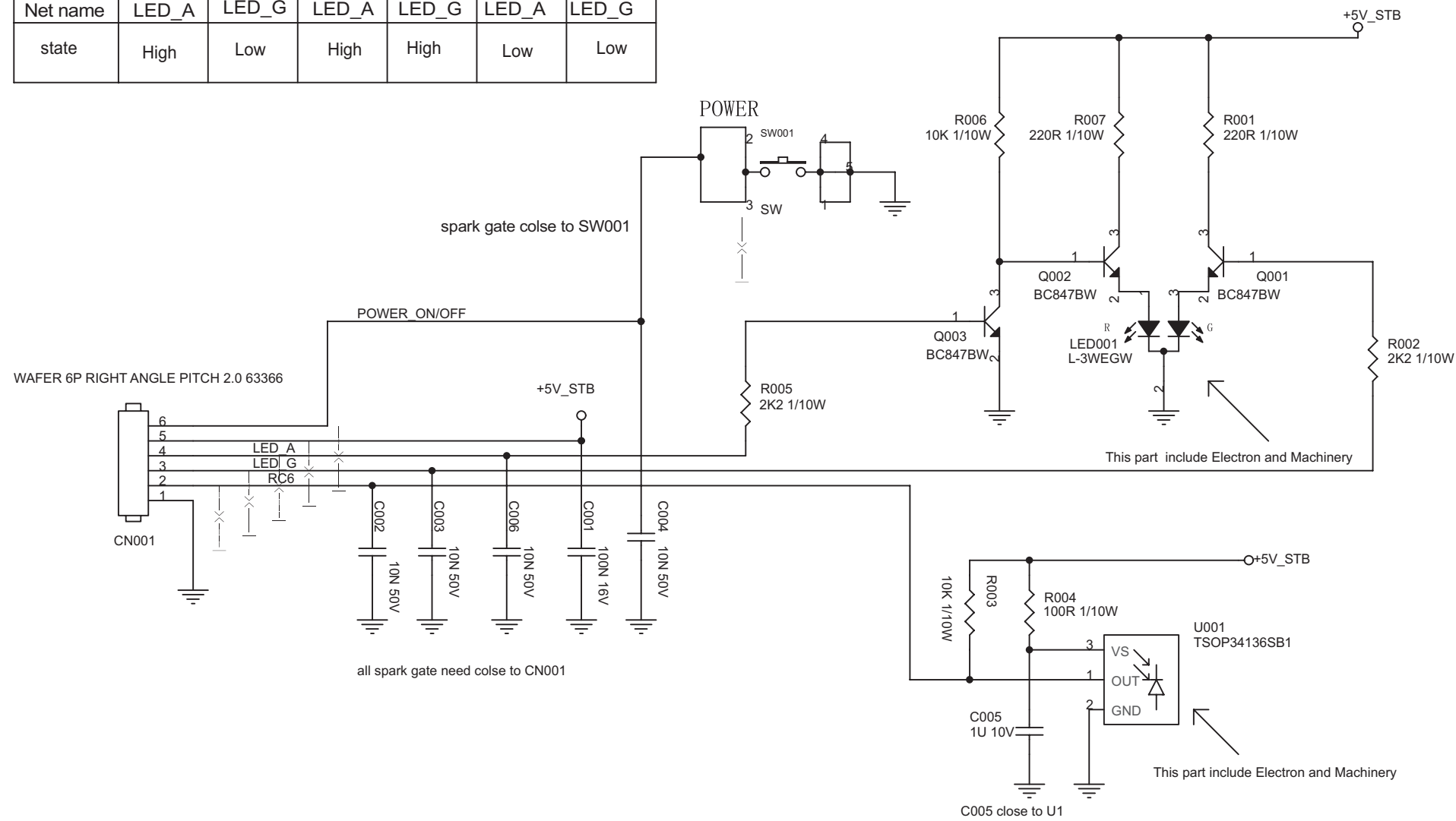


- C020 A1
- C021 A1
- C022 A1
- R020 A2
- R021 A2
- R022 A3
- R023 A4
- ZD020 A3
- ZD021 A1
- ZD022 A2
- ZD023 A2
- ZD024 A2
- ZD025 A2
- ZD026 A3
- ZD027 A3
- ZD028 A4
- ZD029 A4

IR Board Schematic Diagram (for 15",19MF&19MD)

LED STATUS

FUNCTION	Standby (Blank)		Power on (Green)		Pc power saveing (Red)	
Net name	LED_A	LED_G	LED_A	LED_G	LED_A	LED_G
state	High	Low	High	High	Low	Low



- CN001 C1
- C001 C3
- C002 C2
- C003 C2
- C004 C3
- C005 D4
- C006 C2
- LED001 B5
- Q001 B5
- Q002 B5
- Q003 B4
- R001 B5
- R002 B6
- R003 C4
- R004 C4
- R005 C3
- R006 B4
- R007 B5
- SW001 B3
- U001 C5

This part include Electron and Machinery

This part include Electron and Machinery

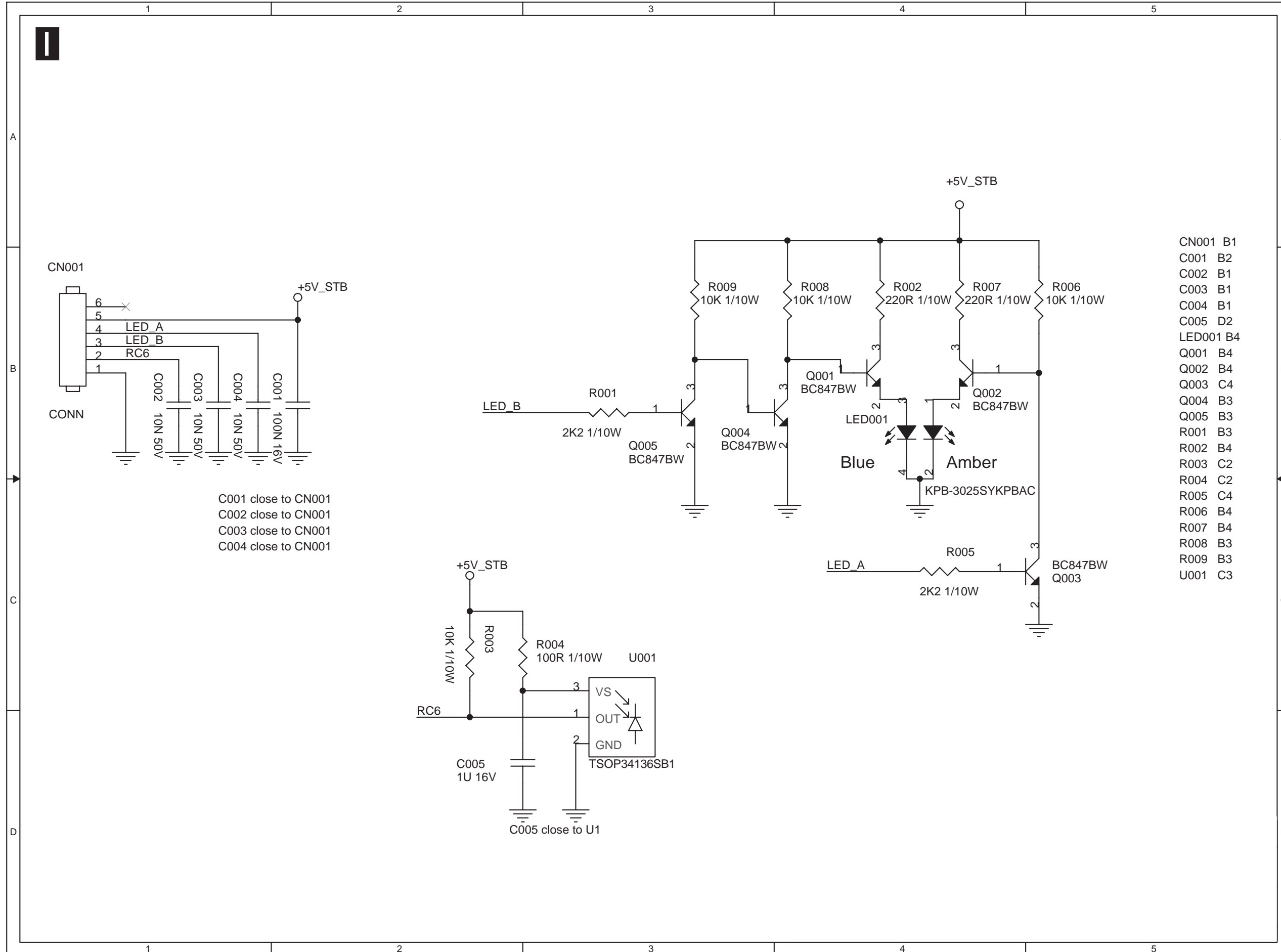
C005 close to U1

all spark gate need colse to CN001

spark gate colse to SW001

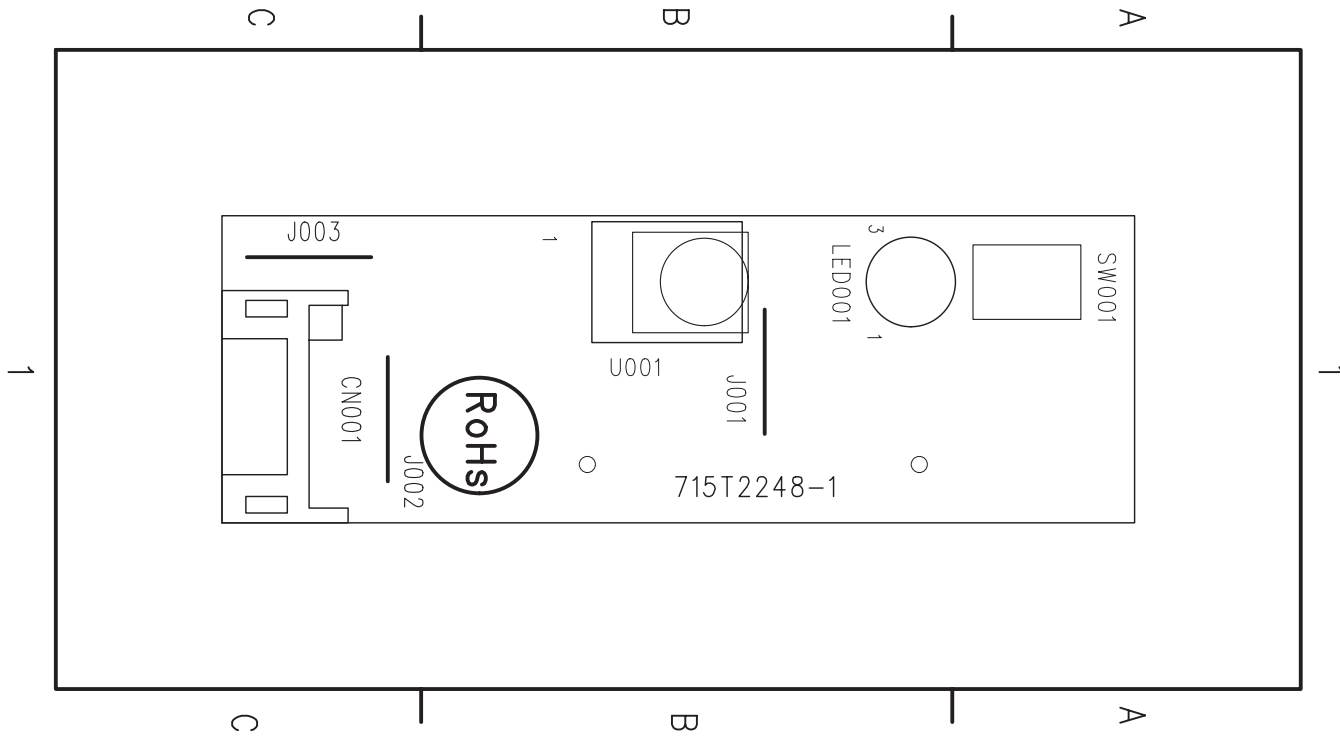
WAFER 6P RIGHT ANGLE PITCH 2.0 63366

IR Board Schematic Diagram(for 19PFL)



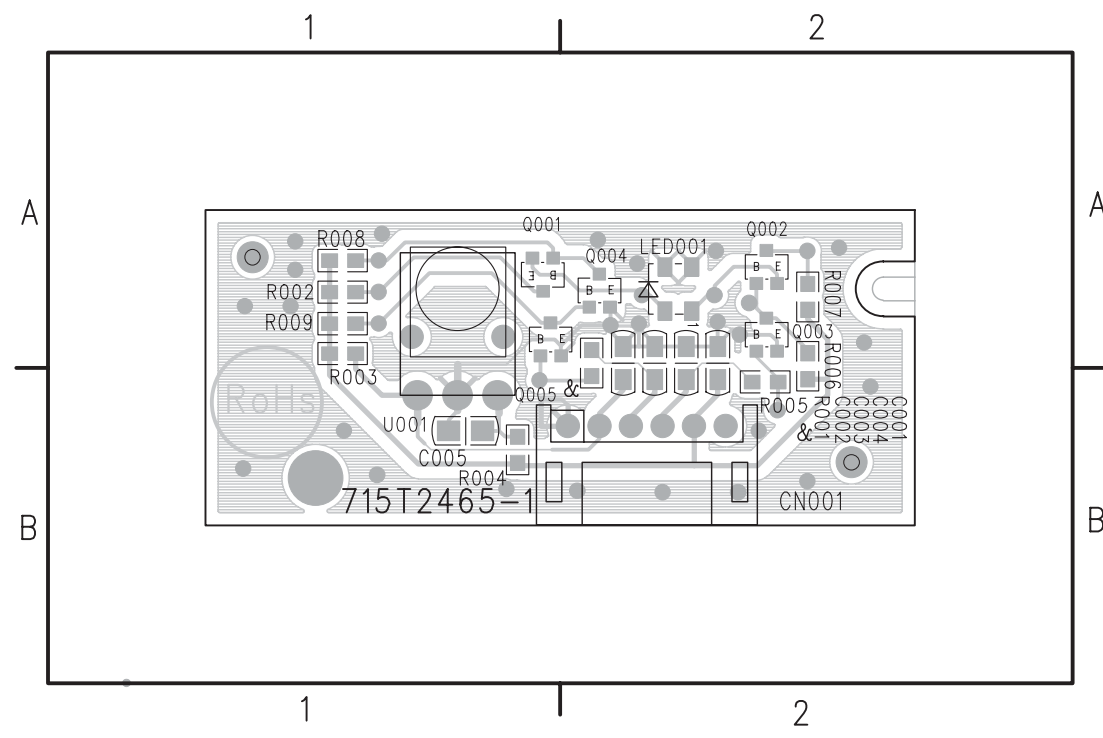
7.Circuit Diagrams and PWB Layouts

IR Board Layout(Top Side)(for 15",19MF&19MD)



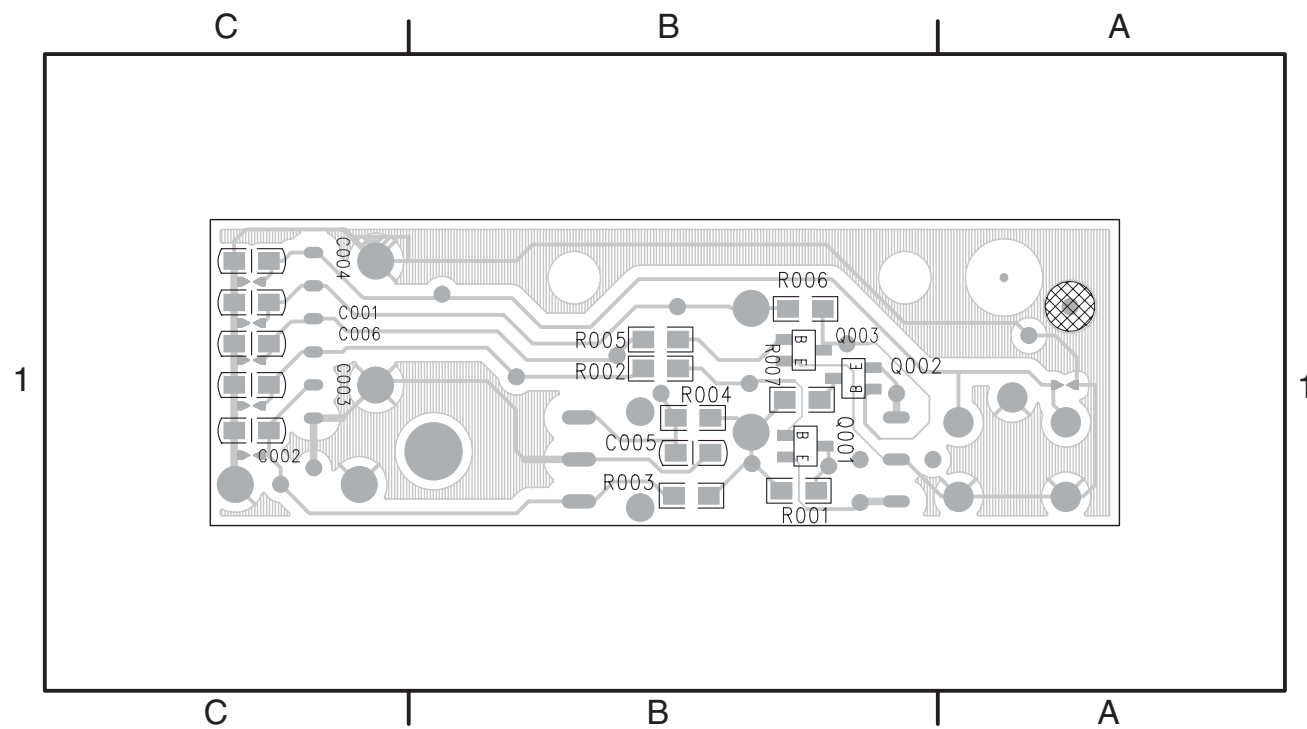
IR Board Layout(Top Side)(for 19PFL)

- CN001 C1
- J001 B1
- J002 C1
- J003 C1
- LED001 A1
- SW001 A1
- U001 B1



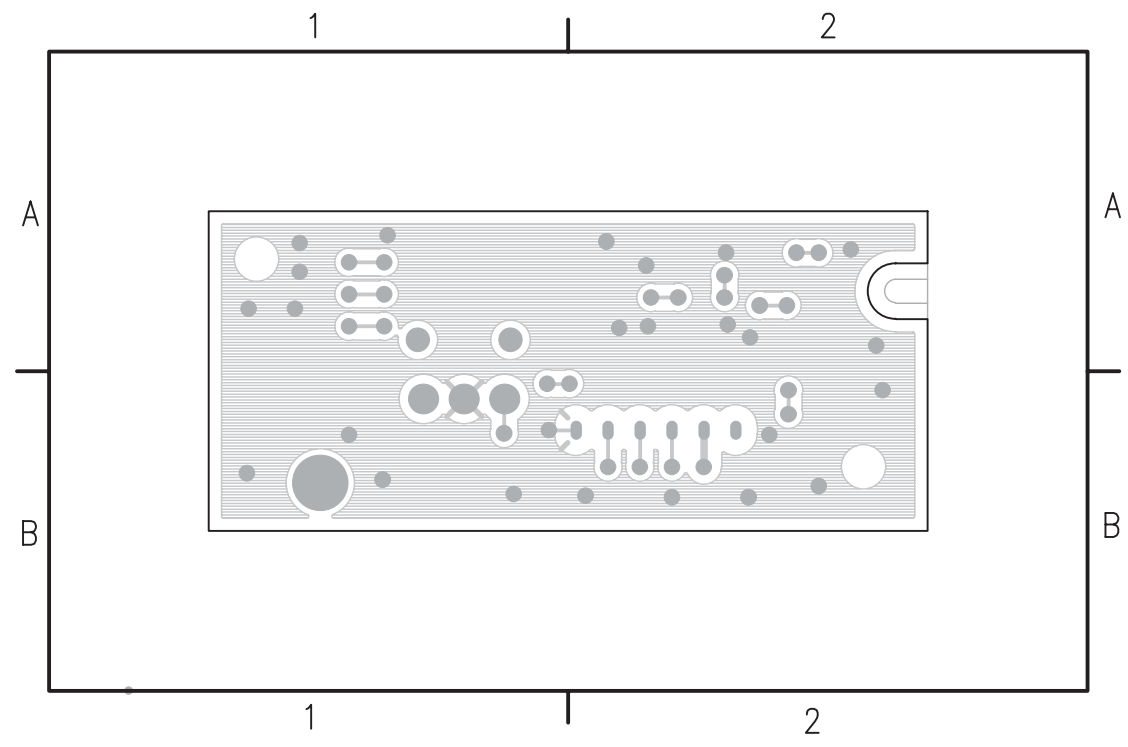
- C001 A2
- C002 A2
- C003 A2
- C004 A2
- C005 B1
- CN001 B2
- LED001 A2
- Q001 A1
- Q002 A2
- Q003 A2
- Q004 A2
- Q005 A1
- R001 A2
- R002 A1
- R003 A1
- R004 B1
- R005 B2
- R006 A2
- R007 A2
- R008 A1
- R009 A1
- U001 A1

IR Board Layout(Bottom Side)(for 15",19MF&19MD)

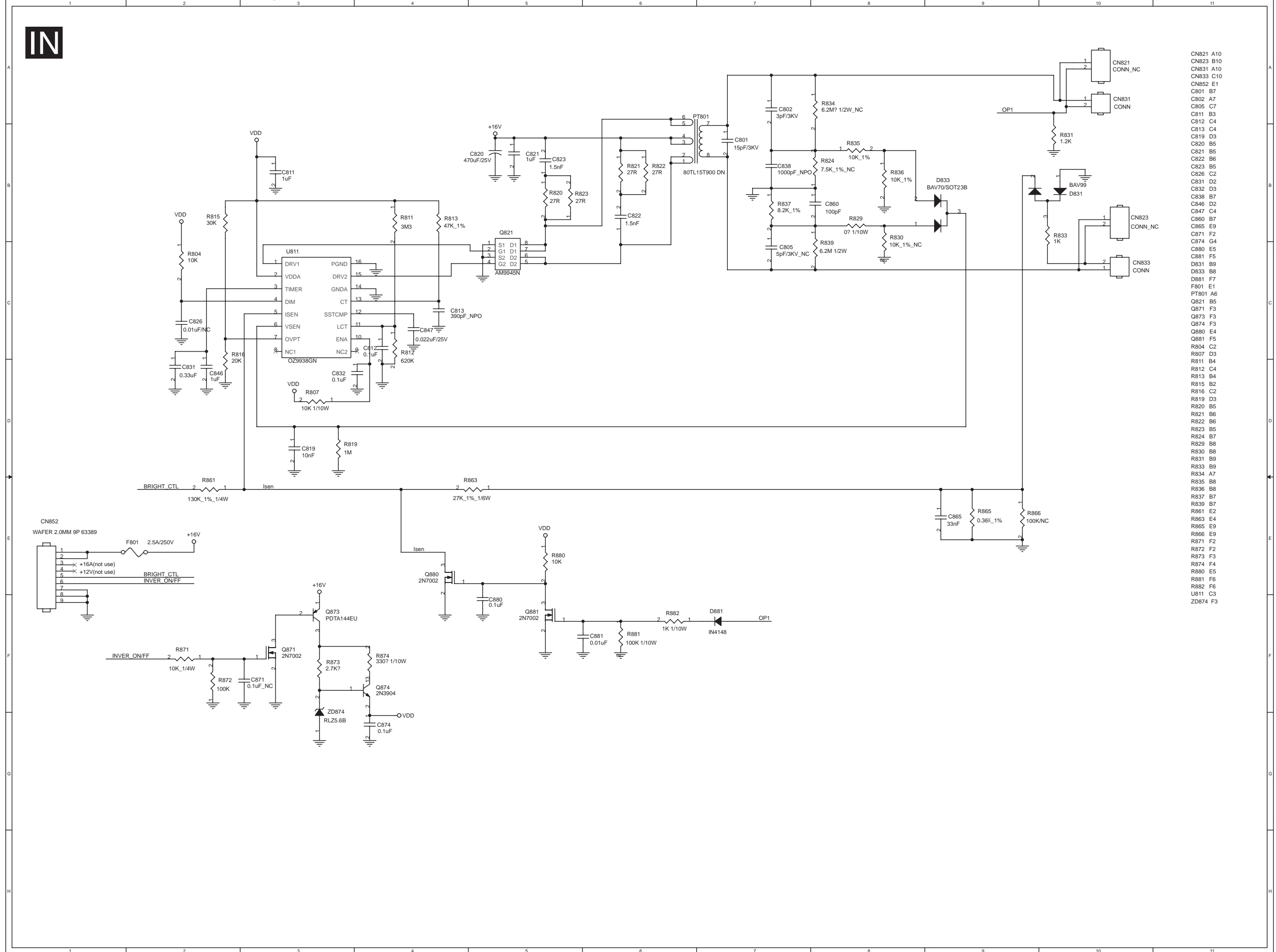


IR Board Layout(Bottom Side)(for 19PFL)

- C001 C1
- C002 C1
- C003 C1
- C004 C1
- C005 B1
- C006 C1
- Q001 B1
- Q002 B1
- Q003 B1
- R001 B1
- R002 B1
- R003 B1
- R004 B1
- R005 B1
- R006 B1
- R007 B1

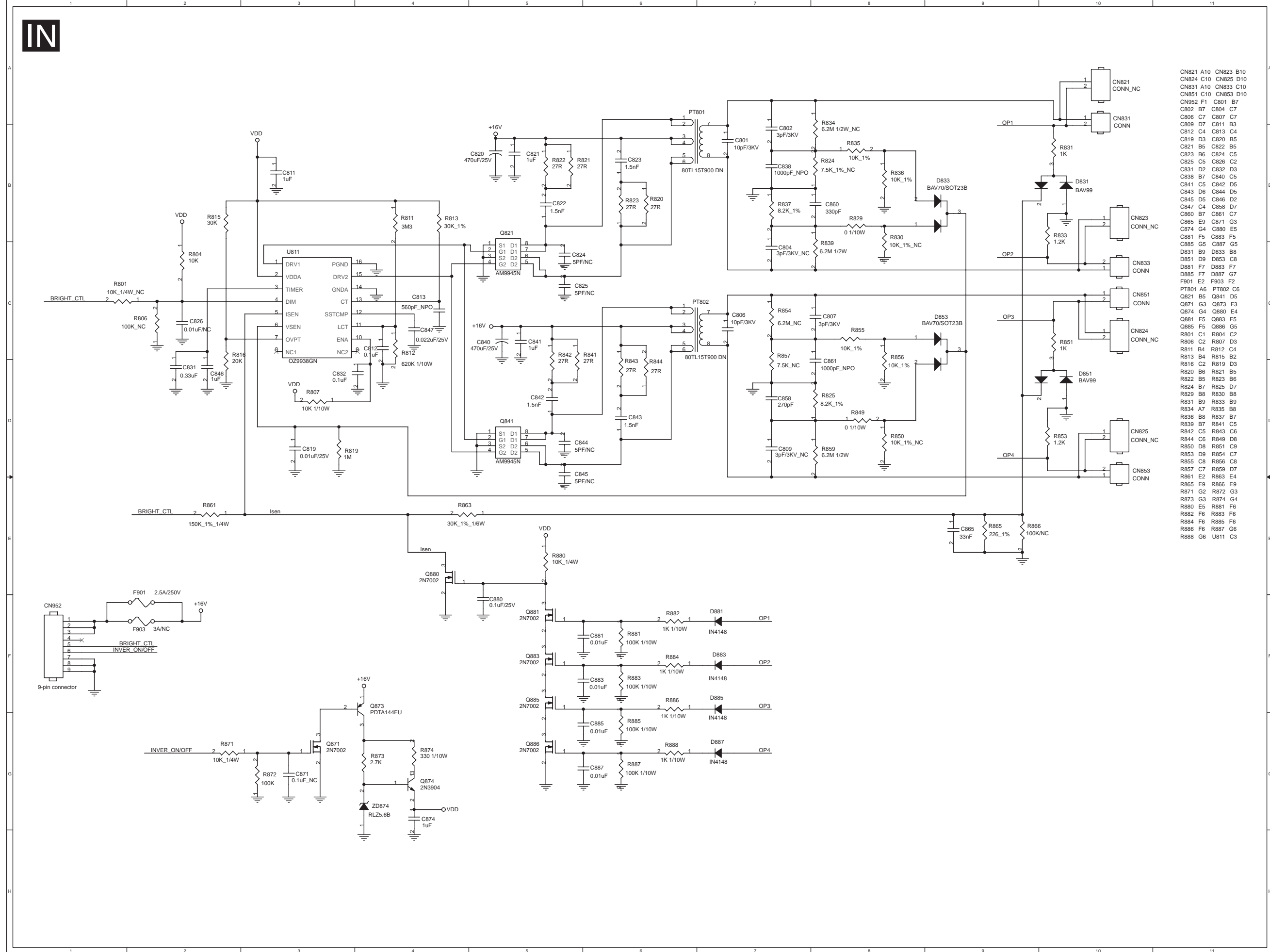


Inverter Board Schematic Diagram(for 15MF237S)



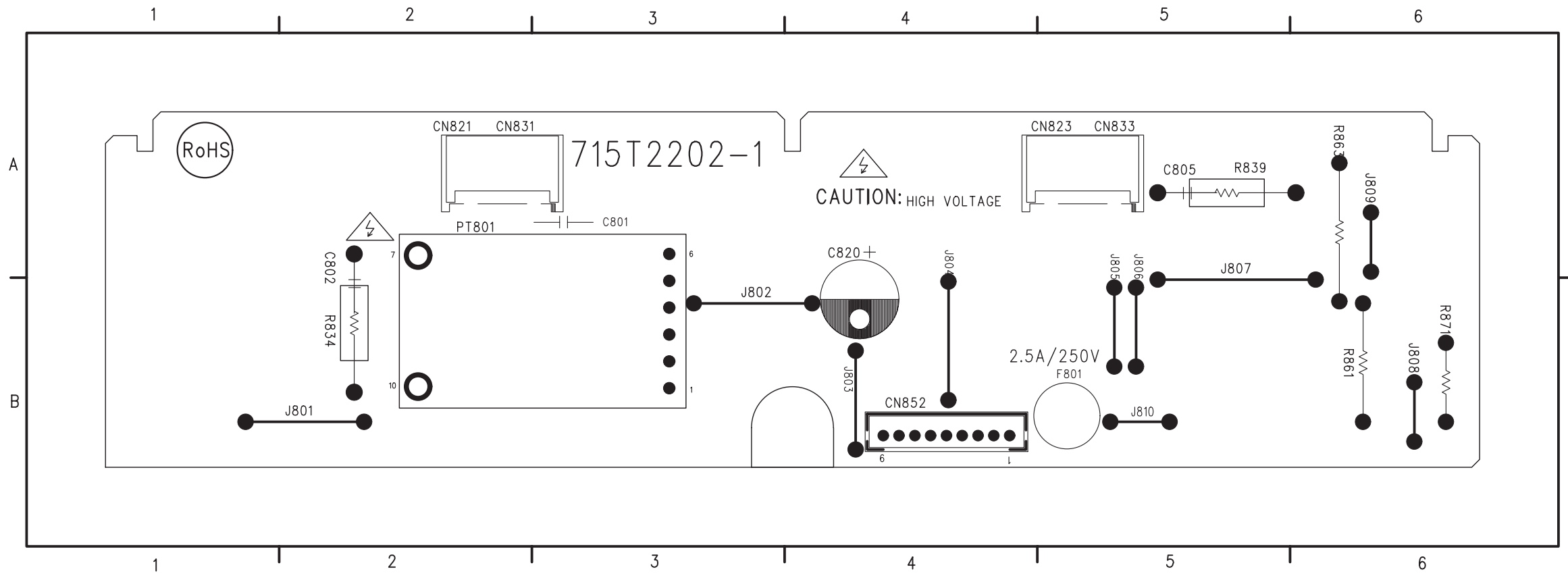
- CN821 A10
- CN823 B10
- CN831 A10
- CN833 C10
- CN852 E1
- C801 B7
- C802 A7
- C805 C7
- C811 B3
- C812 C4
- C813 C4
- C819 D3
- C820 B5
- C821 B5
- C822 B6
- C823 B5
- C826 C2
- C831 D2
- C832 D3
- C836 B7
- C846 D2
- C847 C4
- C860 B7
- C865 E9
- C871 F2
- C874 G4
- C880 E5
- C881 F5
- D831 B9
- D833 B8
- D881 F7
- F801 E1
- PT801 A6
- Q821 B5
- Q871 F3
- Q873 F3
- Q874 F3
- Q880 E4
- Q881 F5
- R804 C2
- R807 D3
- R811 B4
- R812 C4
- R813 B4
- R815 B2
- R816 C2
- R819 D3
- R820 B5
- R821 B6
- R822 B6
- R823 B5
- R824 B7
- R829 B8
- R830 B8
- R831 B9
- R833 B9
- R834 A7
- R835 B8
- R836 B8
- R837 B7
- R839 B7
- R861 E2
- R863 E4
- R865 E9
- R866 E9
- R871 F2
- R872 F2
- R873 F3
- R874 F4
- R880 E5
- R881 F6
- R882 F6
- U811 C3
- ZD874 F3

Inverter Board Schematic Diagram(for 15MF227B)



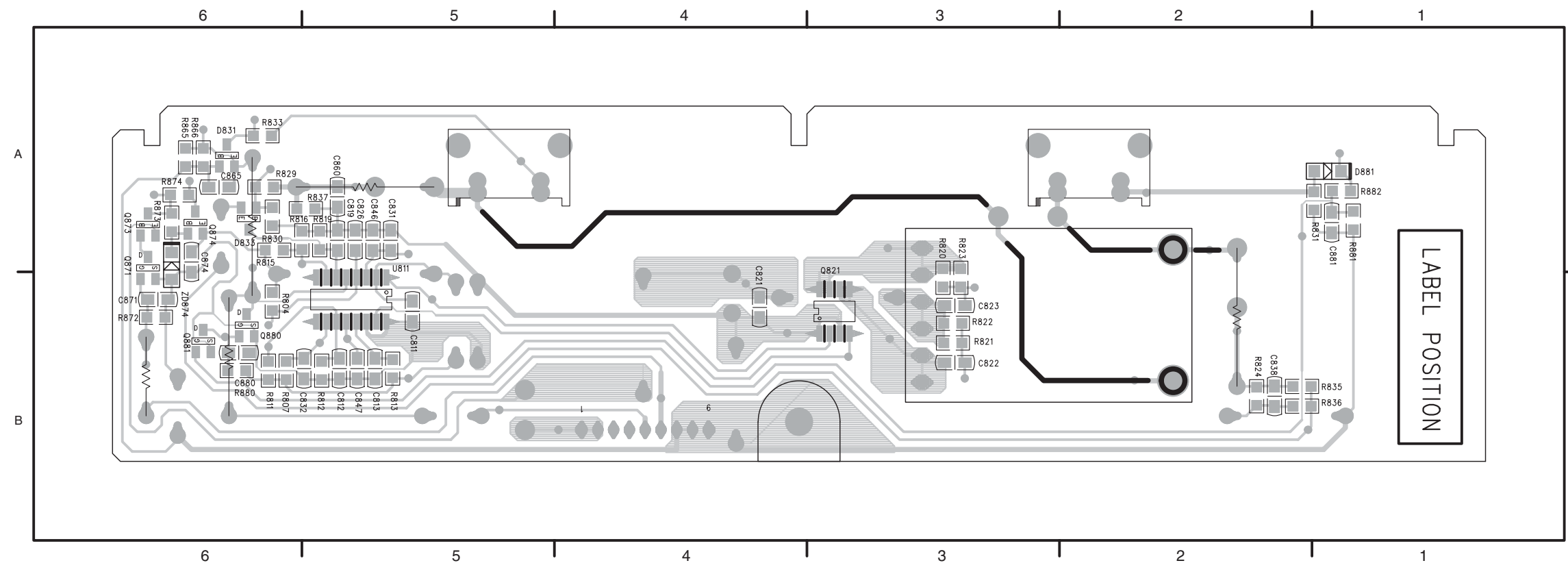
7. Circuit Diagrams and PWB Layouts

Inverter Board Layout(Top Side for 15MF237S)



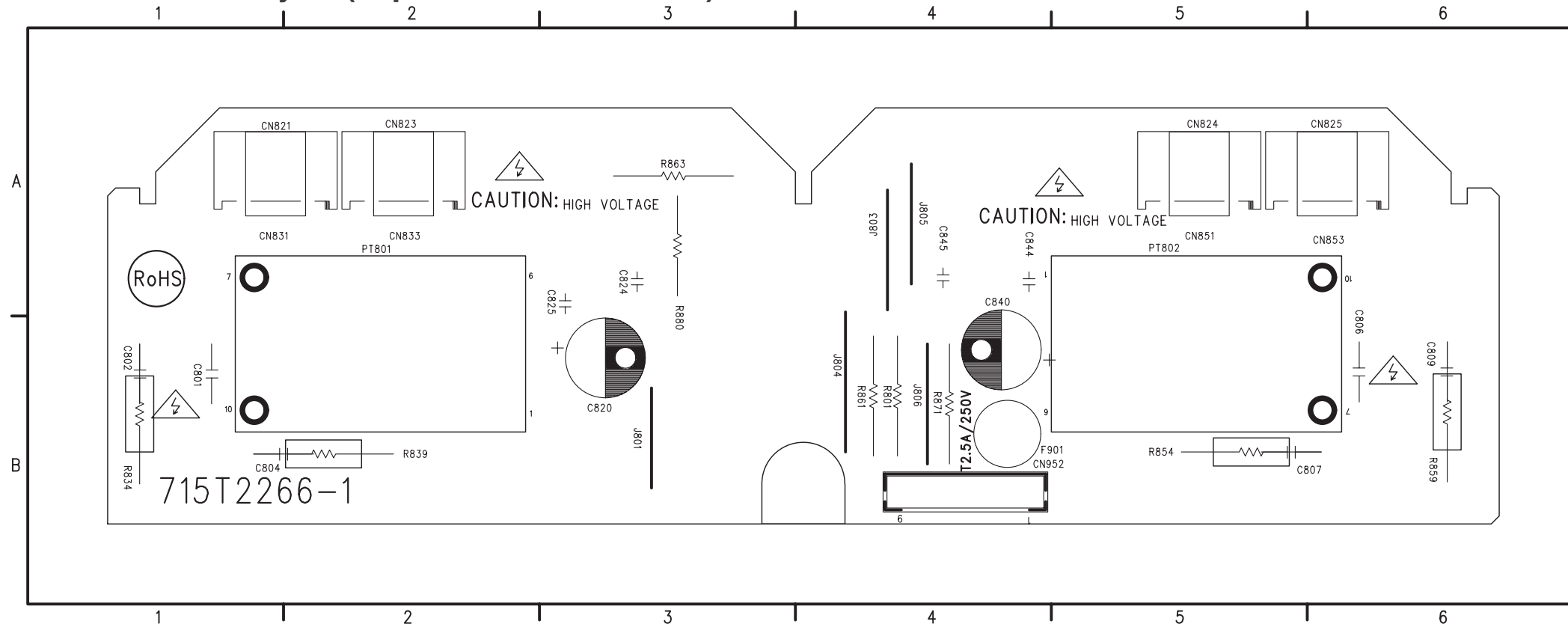
- C801 A3
- C802 A2
- C805 A5
- C820 B4
- CN821 A2
- CN823 A5
- CN831 A2
- CN833 A5
- CN852 B4
- F801 B5
- J801 B2
- J802 B3
- J803 B4
- J804 B4
- J805 B5
- J806 B5
- J807 A6
- J808 B6
- J809 A6
- J810 B5
- PT801 B3
- R834 A2
- R839 A5
- R861 B6
- R863 A6
- R871 B6

Inverter Board Layout(Bottom Side for 15MF237S)



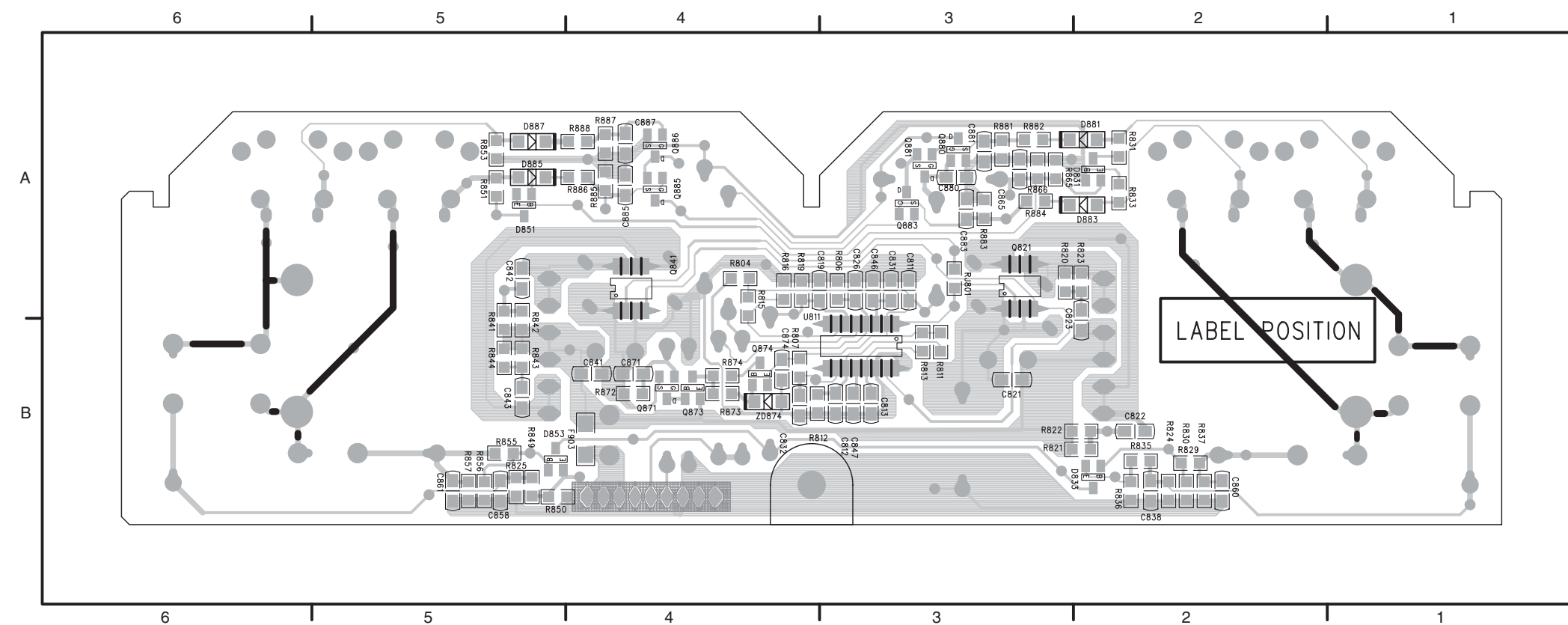
- C811 B5
- C812 B5
- C813 B5
- C819 A5
- C821 B4
- C822 B3
- C823 B3
- C826 A5
- C831 A5
- C832 B5
- C838 B2
- C846 A5
- C847 B5
- C860 A5
- C865 A6
- C871 B6
- C874 A6
- C880 B6
- C881 A1
- D831 A6
- D833 A6
- D881 A1
- Q821 B3
- Q871 A6
- Q873 A6
- Q874 A6
- Q880 B6
- Q881 B6
- R804 B6
- R807 B6
- R811 B6
- R812 B5
- R813 B5
- R815 A6
- R816 A5
- R819 A5
- R820 A3
- R821 B3
- R822 B3
- R823 A3
- R824 B2
- R829 A6
- R830 A6
- R831 A1
- R833 A6
- R835 B2
- R836 B2
- R837 A5
- R865 A6
- R866 A6
- R872 B6
- R873 A6
- R874 A6
- R880 B6
- R881 A1
- U811 B5
- ZD874 A6

Inverter Board Layout(Top Side for 15MF227B)



- C801 B1 CN853 A6
- C802 B1 CN952 B4
- C804 B1 F901 B4
- C806 B6 J801 B3
- C807 B5 J803 A4
- C809 B6 J804 B4
- C820 B3 J805 A4
- C824 A3 J806 B4
- C825 A3 PT801 B2
- C840 B4 PT802 B5
- C844 A4 R801 B4
- C845 A4 R834 B1
- CN821 A1 R839 B2
- CN823 A2 R854 B6
- CN824 A5 R859 B6
- CN825 A6 R861 B4
- CN831 A1 R863 A3
- CN833 A2 R871 B4
- CN851 A5 R880 A3

Inverter Board Layout(Bottom Side for 15MF227B)

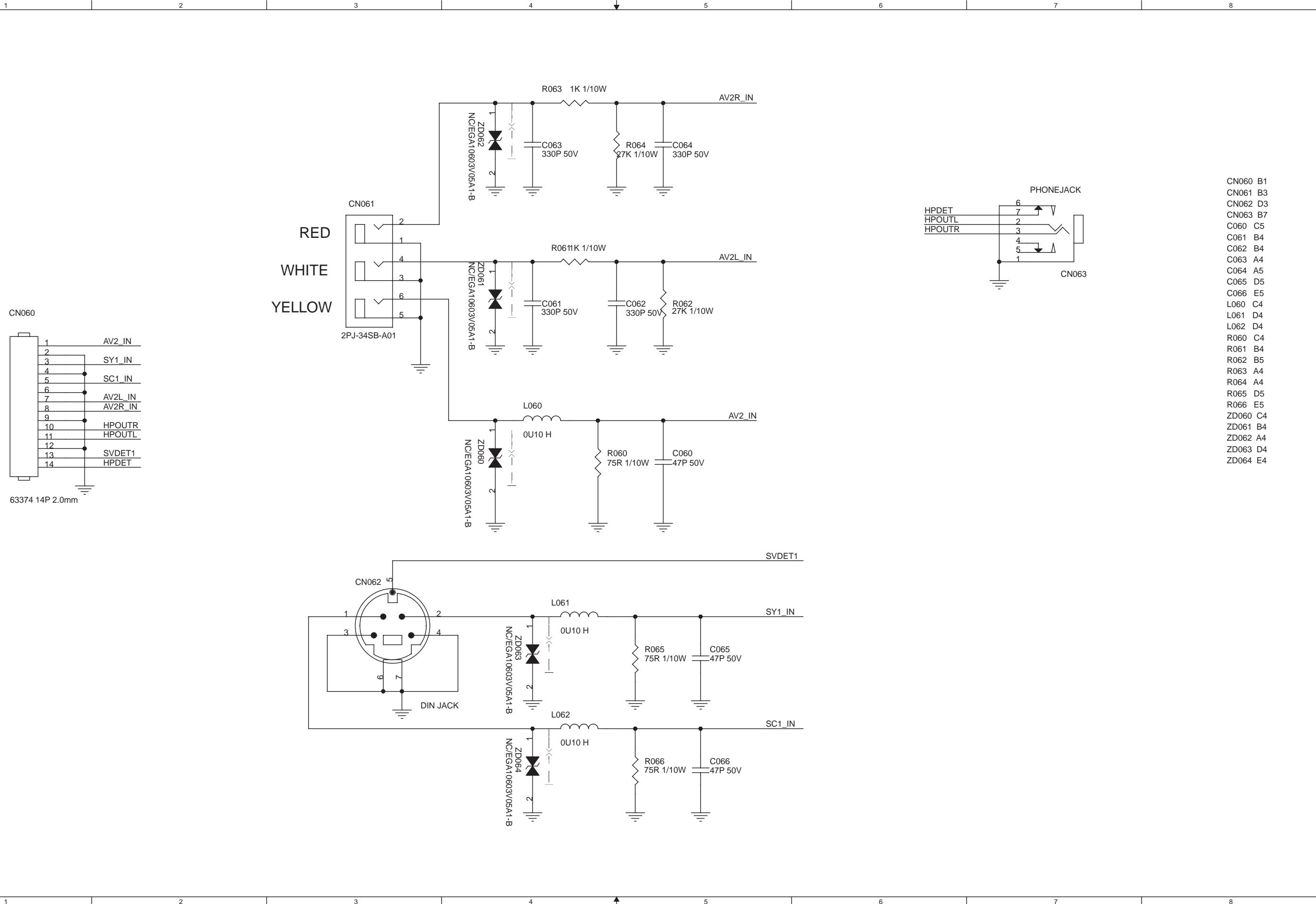


- C811 A3 D883 A2 R833 A2
- C812 B3 D885 A5 R835 B2
- C813 B3 D887 A5 R836 B2
- C819 A3 F903 B4 R837 B2
- C821 B3 Q821 A3 R841 B5
- C822 B2 Q841 A4 R842 B5
- C823 B2 Q871 B4 R843 B5
- C826 A3 Q873 B4 R844 B5
- C831 A3 Q874 B4 R849 B5
- C832 B4 Q880 A3 R850 B4
- C838 B2 Q881 A3 R851 A5
- C841 B4 Q883 A3 R853 A5
- C842 A5 Q885 A4 R855 B5
- C843 B5 Q886 A4 R856 B5
- C846 A3 R804 A4 R857 B5
- C847 B3 R806 A3 R865 A3
- C858 B5 R807 B4 R866 A3
- C860 B2 R811 B3 R872 B4
- C861 B5 R812 B3 R873 B4
- C865 A3 R813 B3 R874 B4
- C871 B4 R815 A4 R881 A3
- C874 B4 R816 A4 R882 A3
- C880 A3 R819 A4 R883 A3
- C881 A3 R820 A3 R884 A3
- C883 A3 R821 B2 R885 A4
- C885 A4 R822 B2 R886 A4
- C887 A4 R823 A2 R887 A4
- D831 A2 R824 B2 R888 A4
- D833 B2 R825 B5 RJ801 A3
- D851 A5 R829 B2 U811 B3
- D853 B4 R830 B2 ZD874 B4
- D881 A2 R831 A2

7. Circuit Diagrams and PWB Layouts

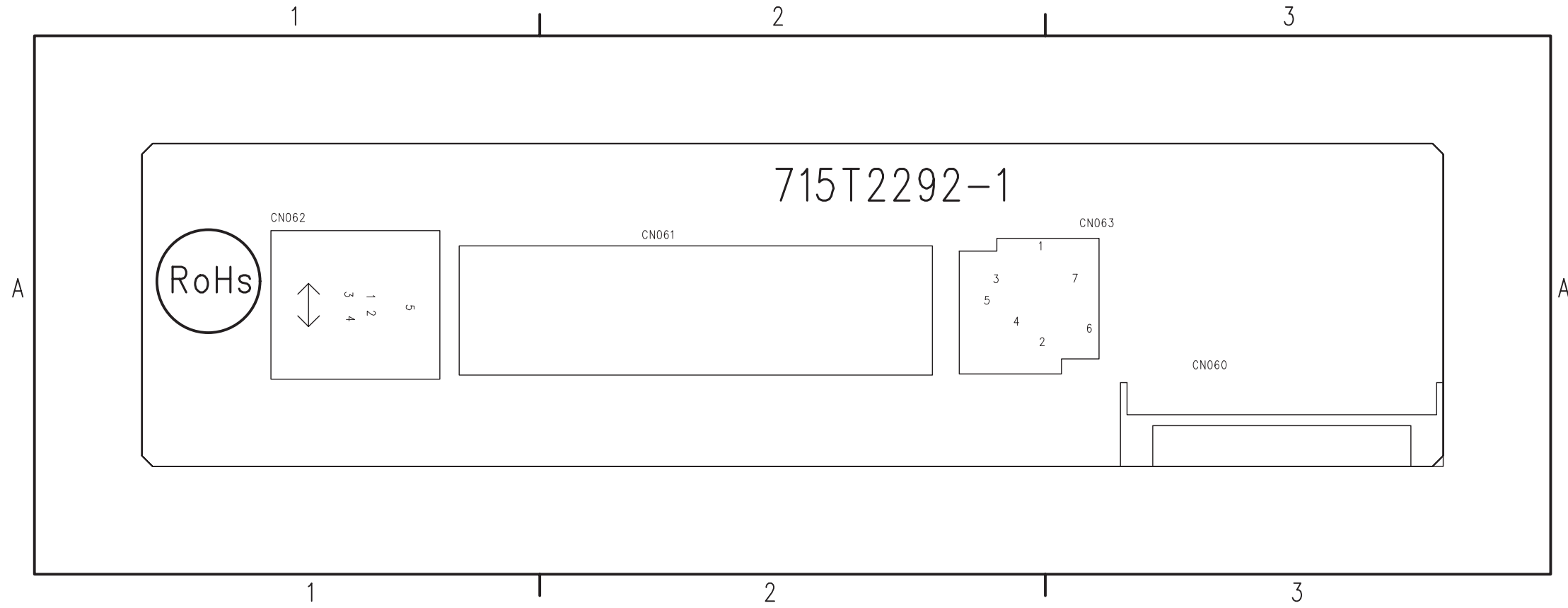
Side AV Board Schematic Diagram(for 19PFL)

SA



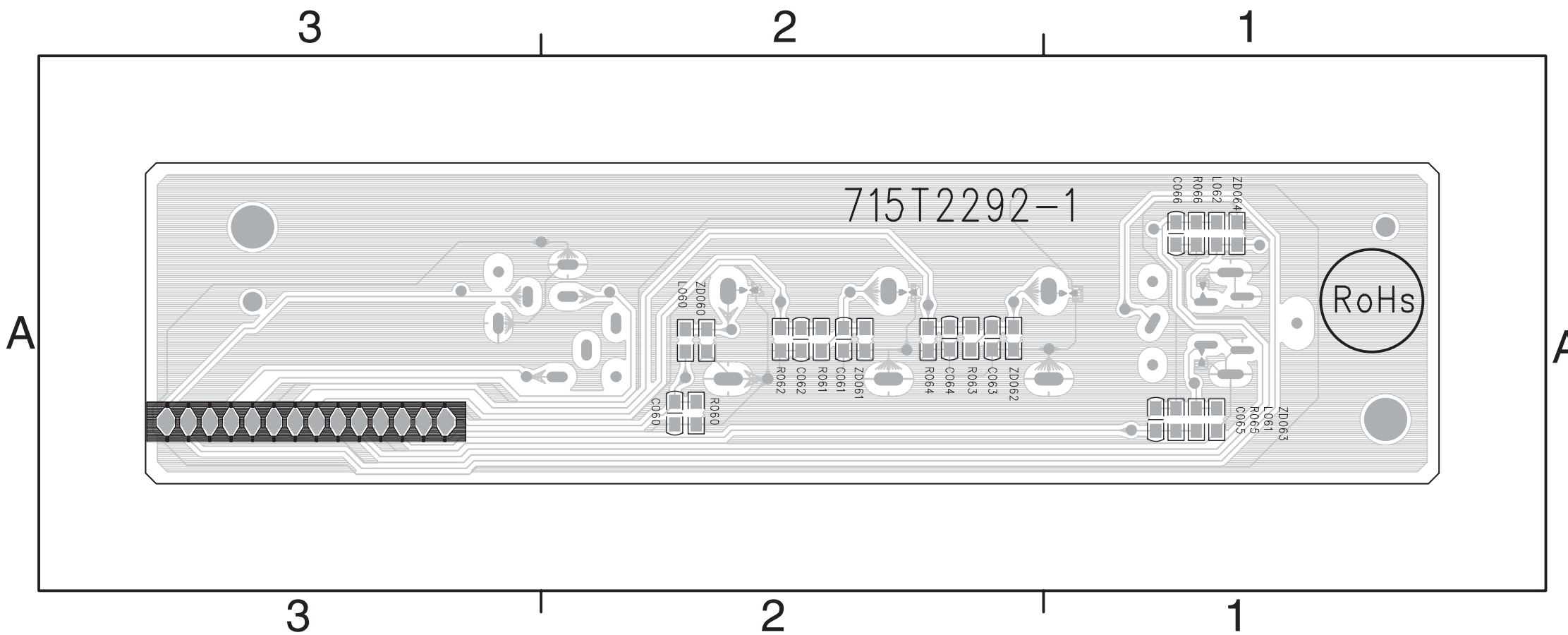
- CN060 B1
- CN061 B3
- CN062 D3
- CN063 B7
- C060 C5
- C061 B4
- C062 B4
- C063 A4
- C064 A5
- C065 D5
- C066 E5
- L060 C4
- L061 D4
- L062 D4
- R060 C4
- R061 B4
- R062 B5
- R063 A4
- R064 A4
- R065 D5
- R066 E5
- ZD060 C4
- ZD061 B4
- ZD062 A4
- ZD063 D4
- ZD064 E4

Side AV Board Layout(Top Side for 19PFL)



- CN060 A3
- CN061 A2
- CN062 A1
- CN063 A2

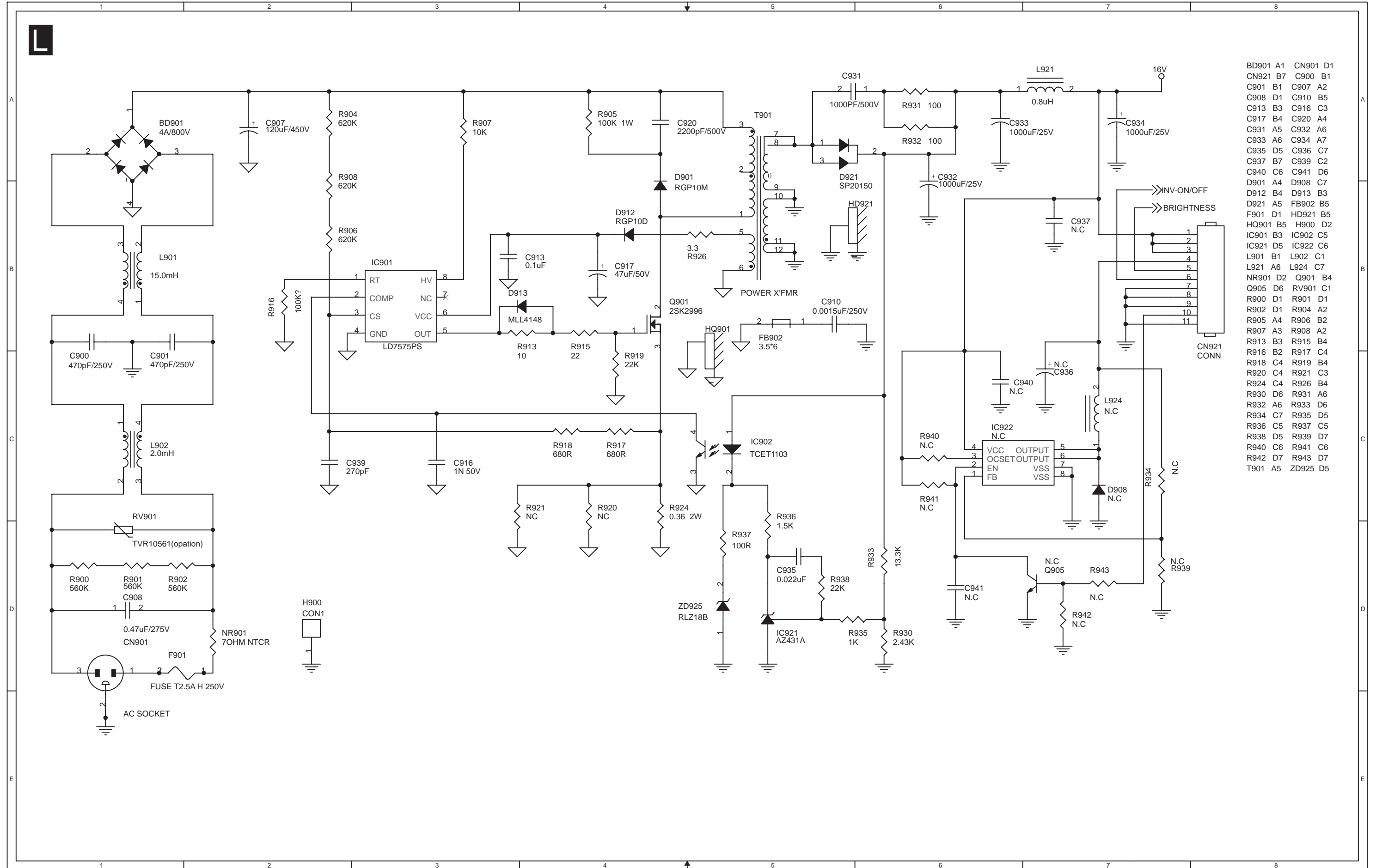
Side AV Board Layout(Bottom Side for 19PFL)



- C060 A2 R061 A2
- C061 A2 R062 A2
- C062 A2 R063 A2
- C063 A2 R064 A2
- C064 A2 R065 A1
- C065 A1 R066 A1
- C066 A1 ZD060 A2
- L060 A2 ZD061 A2
- L061 A1 ZD062 A2
- L062 A1 ZD063 A1
- R060 A2 ZD064 A1

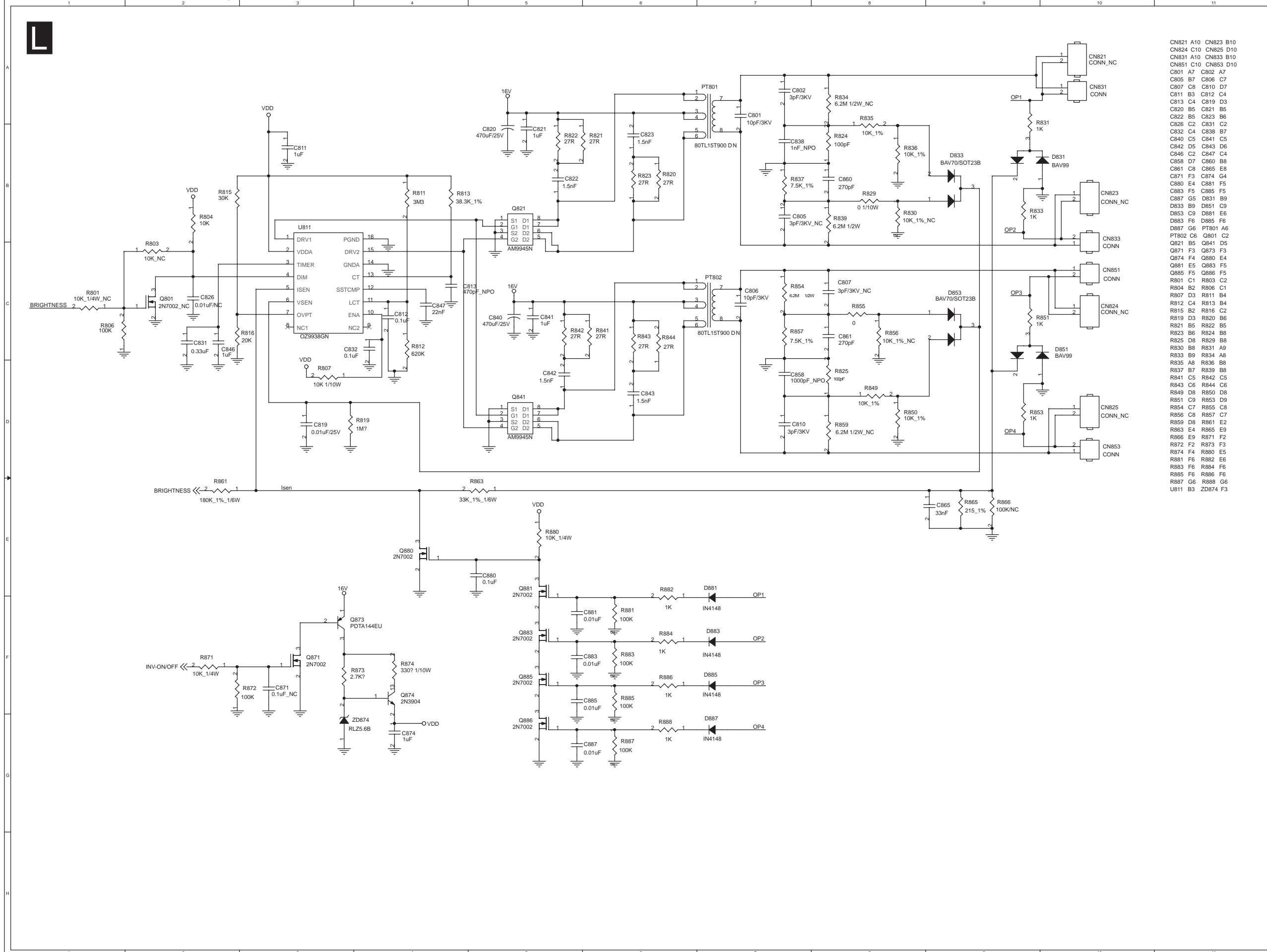
7. Circuit Diagrams and PWB Layouts

LIPS Board Schematic Diagram(for 19" Wide)



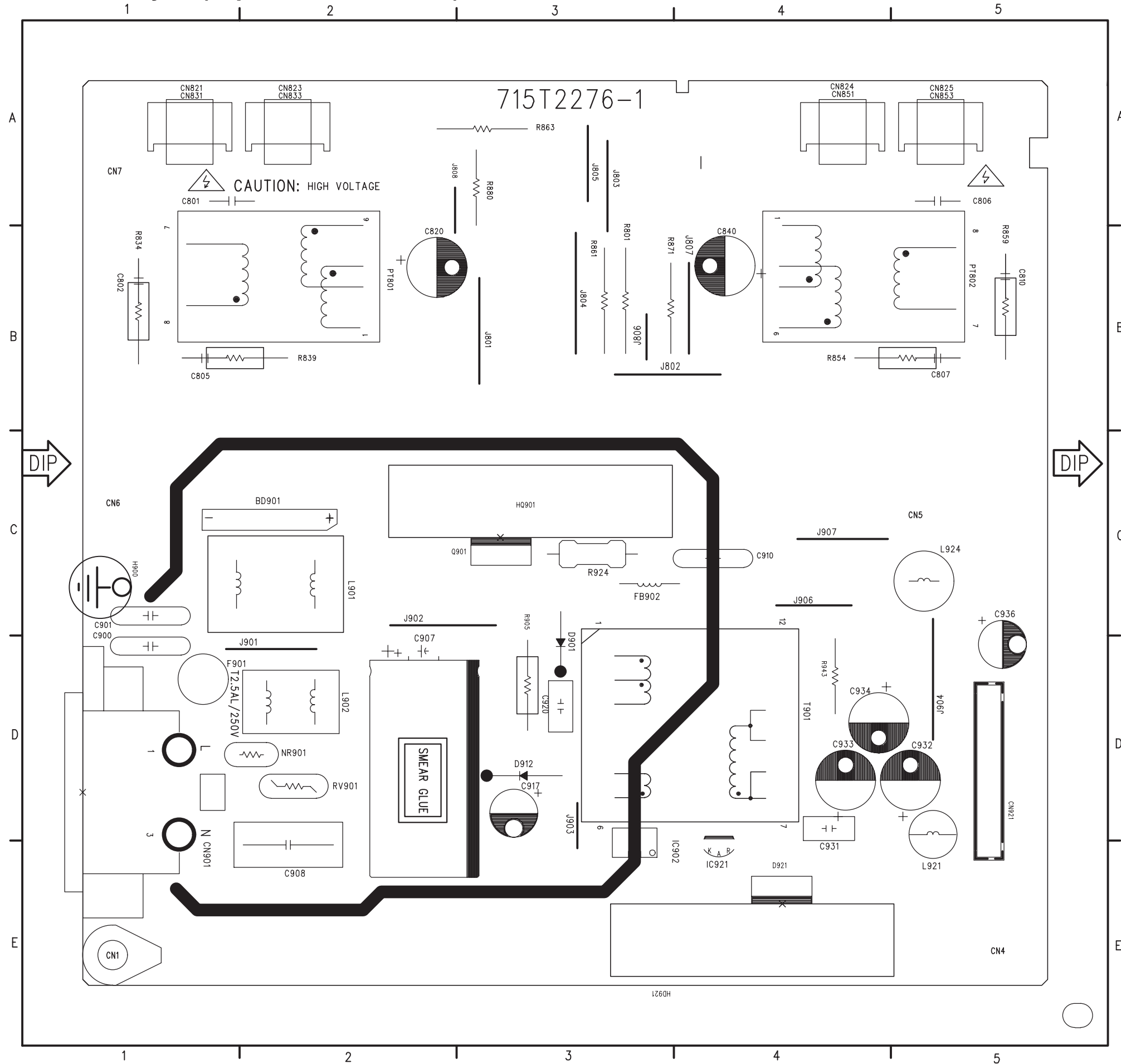
- BD901 A1 CN901 D1
- C901 B1 C907 A2
- C908 D1 C910 B5
- C913 B3 C916 C3
- C917 B4 C920 A4
- C931 A5 C932 A6
- C933 A6 C934 A7
- C935 D5 C936 C7
- C937 B7 C939 C2
- C940 C6 C941 D6
- D901 A4 D908 C7
- D912 B4 D913 B3
- D921 A5 FB902 B5
- F901 D1 HD921 B5
- HQ901 B5 H900 D2
- IC901 B3 IC902 C5
- IC921 D5 IC922 C6
- L901 B1 L902 C1
- L921 A6 L924 C7
- NR901 D2 Q901 B4
- Q905 D6 RV901 C1
- R900 D1 R901 D1
- R902 D1 R904 A2
- R905 A4 R906 B2
- R907 A3 R908 A2
- R913 B3 R915 B4
- R916 B2 R917 C4
- R918 C4 R919 B4
- R920 C4 R921 C3
- R924 C4 R926 B4
- R930 D6 R931 A6
- R932 A6 R933 D6
- R934 C7 R935 D5
- R936 C5 R937 C5
- R938 D5 R939 D7
- R940 C6 R941 C6
- R942 D7 R943 D7
- T901 A5 ZD925 D5

LIPS Board Schematic Diagram(for 19" Wide)



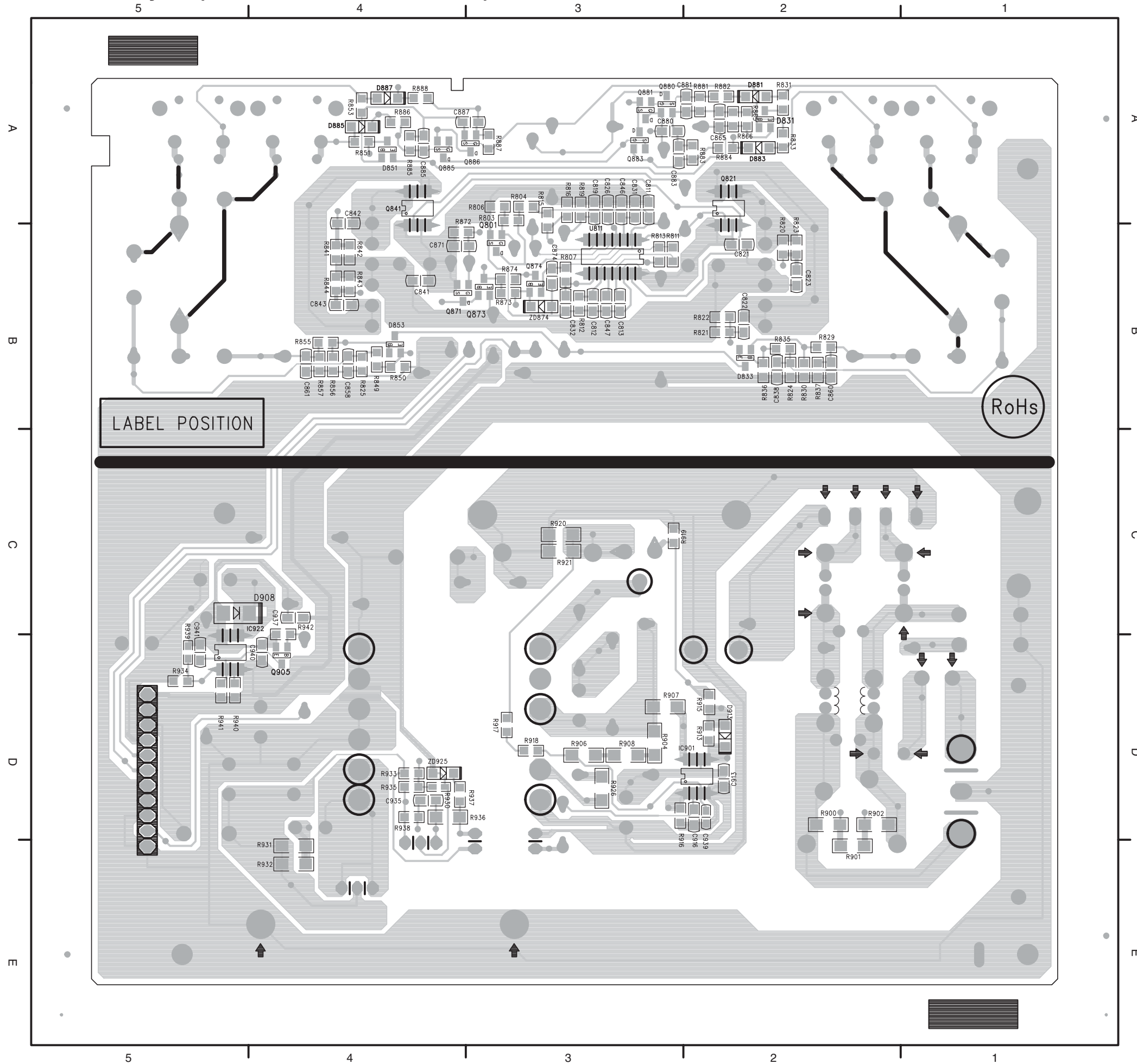
7. Circuit Diagrams and PWB Layouts

LIPS Board Layout(Top Side for 19" Wide)



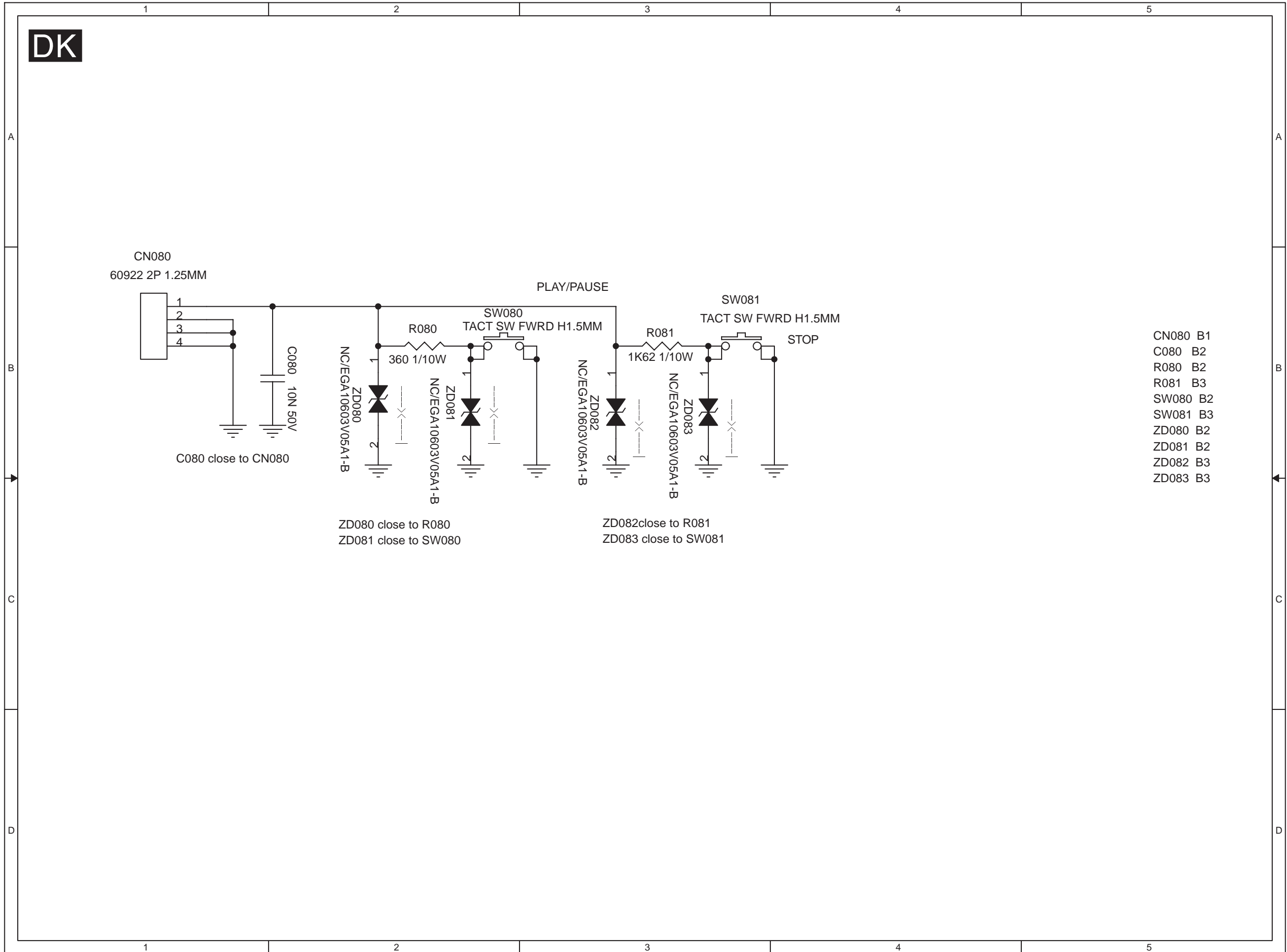
- BD901 C2 HQ901 C3 T901 D4
- C801 A1 IC902 E3
- C802 B1 IC921 E4
- C805 B1 J801 B3
- C806 A5 J802 B3
- C807 B5 J803 B3
- C810 B5 J804 B3
- C820 B2 J805 A3
- C840 B4 J806 B3
- C900 D1 J807 B4
- C901 C1 J808 B2
- C907 D2 J901 D1
- C908 E2 J902 C2
- C910 C4 J903 E3
- C917 D3 J904 D5
- C920 D3 J906 C4
- C931 D4 J907 C4
- C932 D5 L901 C2
- C933 D4 L902 D2
- C934 D4 L921 D5
- C936 D5 L924 C5
- CN821 A1 NR901 D2
- CN823 A2 PT801 B2
- CN824 A4 PT802 B4
- CN825 A5 Q901 C3
- CN831 A1 R801 B3
- CN833 A2 R834 B1
- CN851 A4 R839 B2
- CN853 A5 R854 B5
- CN901 D1 R859 B5
- CN921 D5 R861 B3
- D901 D3 R863 A2
- D912 D3 R871 B3
- D921 E4 R880 A3
- F901 D1 R905 D3
- FB902 C4 R924 C3
- H900 C1 R943 D4
- HD921 E4 RV901 D2

LIPS Board Layout(Bottom Side for 19" Wide)



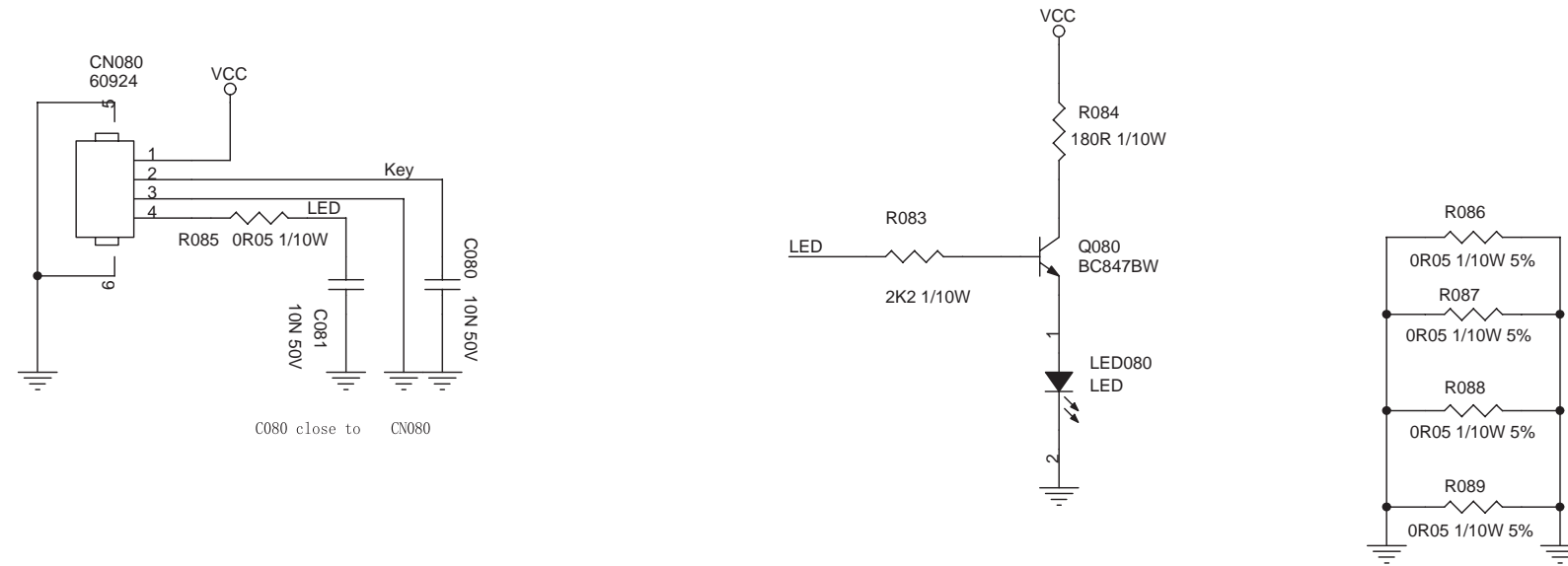
- C811 A3 Q801 B3 R865 A2
- C812 B3 Q821 A2 R866 A2
- C813 B3 Q841 A4 R872 B4
- C819 A3 Q871 B4 R873 B3
- C821 B2 Q873 B3 R874 B3
- C822 B2 Q874 B3 R881 A2
- C823 B2 Q880 A3 R882 A2
- C826 A3 Q881 A3 R883 A2
- C831 A3 Q883 A3 R884 A2
- C832 B3 Q885 A4 R885 A4
- C838 B2 Q886 A3 R886 A4
- C841 B4 Q905 D4 R887 A3
- C842 A4 R803 A3 R888 A4
- C843 B4 R804 A3 R900 D2
- C846 A3 R806 A3 R901 E2
- C847 B3 R807 B3 R902 D2
- C858 B4 R811 B3 R904 D3
- C860 B2 R812 B3 R906 D3
- C861 B4 R813 B3 R907 D3
- C865 A2 R815 A3 R908 D3
- C871 B4 R816 A3 R913 D2
- C874 B3 R819 A3 R915 D2
- C880 A3 R820 B2 R916 D3
- C881 A2 R821 B2 R917 D3
- C883 A3 R822 B2 R918 D3
- C885 A4 R823 B2 R919 C3
- C887 A3 R824 B2 R920 C3
- C913 D2 R825 B4 R921 C3
- C916 D2 R829 B2 R926 D3
- C935 D4 R830 B2 R930 D4
- C937 C4 R831 A2 R931 E4
- C939 D2 R833 A2 R932 E4
- C940 D4 R835 B2 R933 D4
- C941 D5 R836 B2 R934 D5
- D831 A2 R837 B2 R935 D4
- D833 B2 R841 B4 R936 D4
- D851 A4 R842 B4 R937 D4
- D853 B4 R843 B4 R938 D4
- D881 A2 R844 B4 R939 D5
- D883 A2 R849 B4 R940 D5
- D885 A4 R850 B4 R941 D5
- D887 A4 R851 A4 R942 C4
- D908 C5 R853 A4 U811 B3
- D913 D2 R855 B4 ZD874 B3
- IC901 D2 R856 B4 ZD925 D4
- IC922 D5 R857 B4

DVD KeyCtrl Board Schematic Diagram(for 19MD)

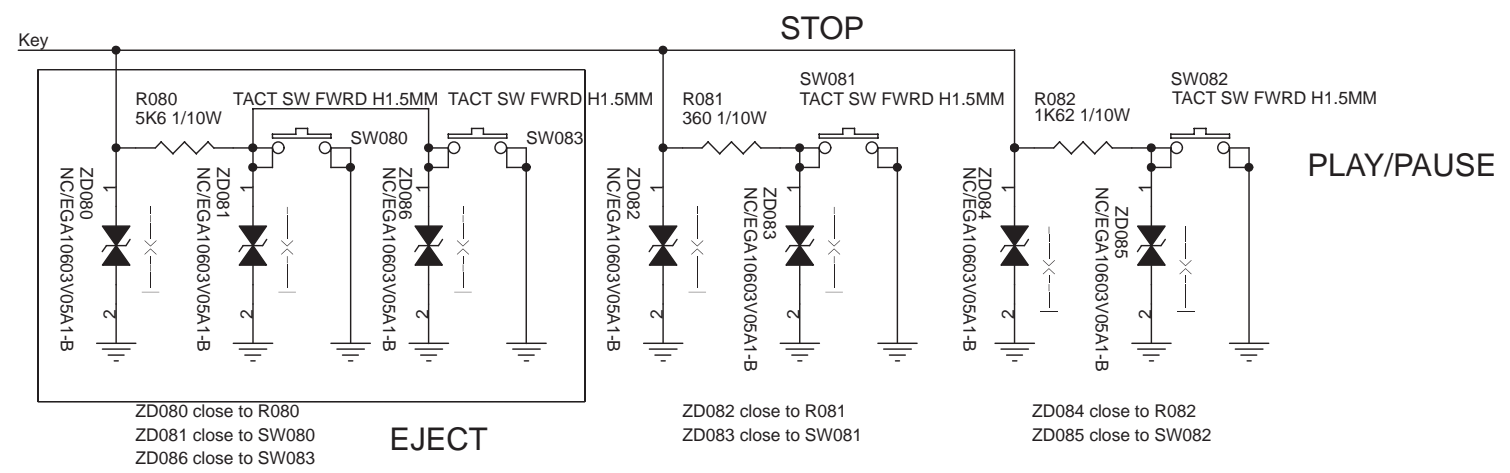


DVD KeyCtrl Board Schematic Diagram(for 19PFL5622)

DK

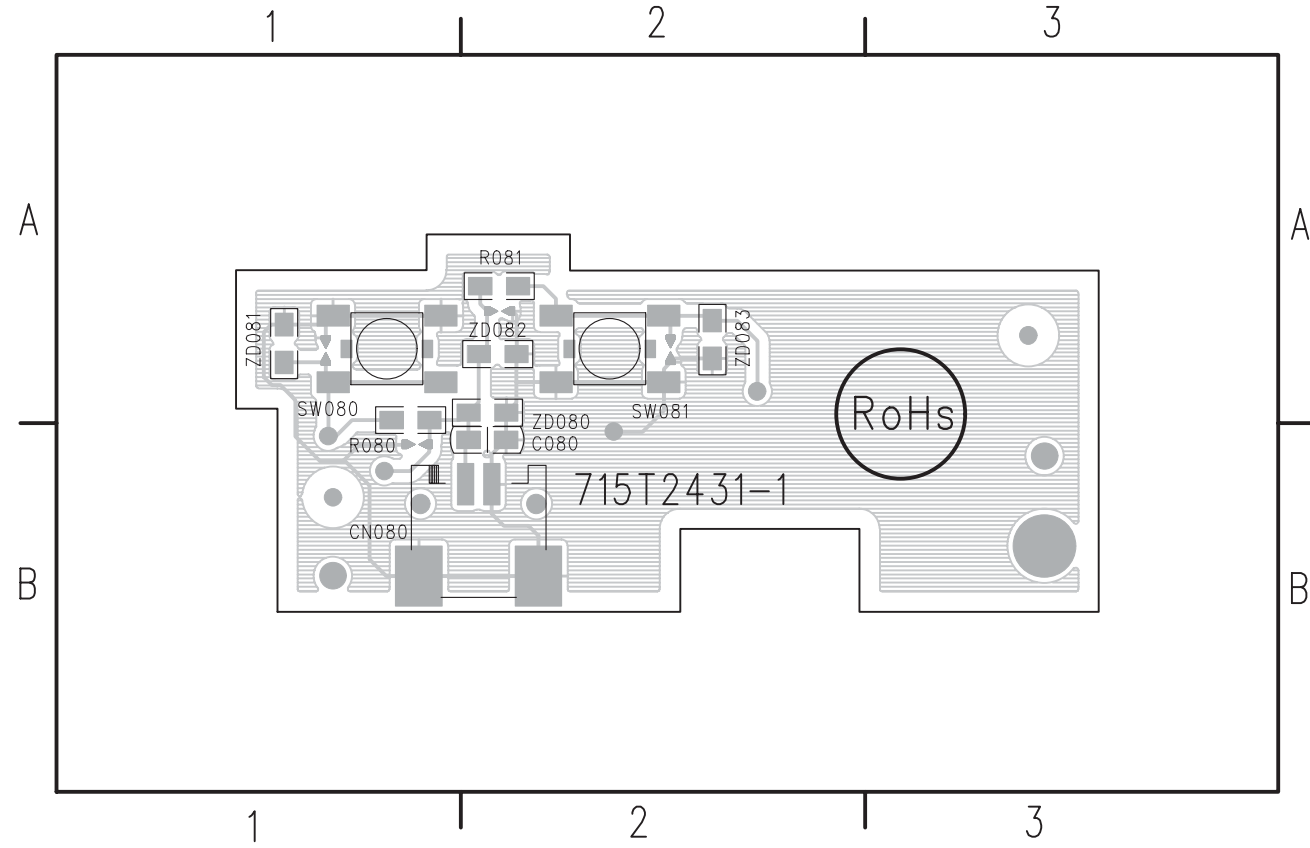


- CN080 B2
- C080 B3
- C081 B3
- LED080 B5
- Q080 B5
- R080 C3
- R081 C4
- R082 C5
- R083 B5
- R084 B5
- R085 B3
- R086 B6
- R087 B6
- R088 B6
- R089 C6
- SW080 C3
- SW081 C4
- SW082 C5
- SW083 C3
- ZD080 D2
- ZD081 D3
- ZD082 D4
- ZD083 D4
- ZD084 D5
- ZD085 D5
- ZD086 D3



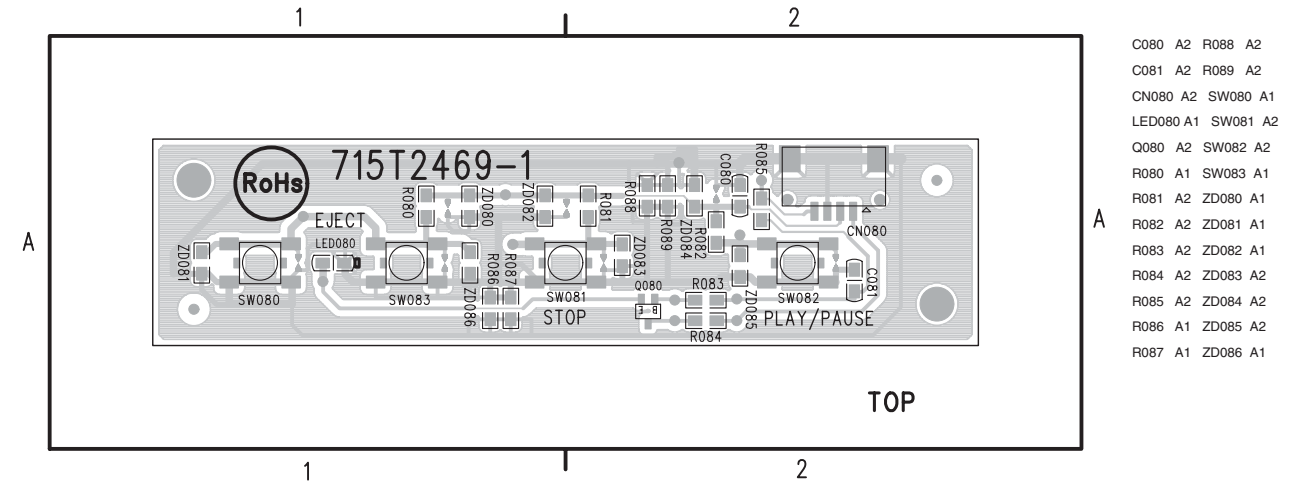
7. Circuit Diagrams and PWB Layouts

DVD KeyCtrl Board Layout(Top Side for 19MD)



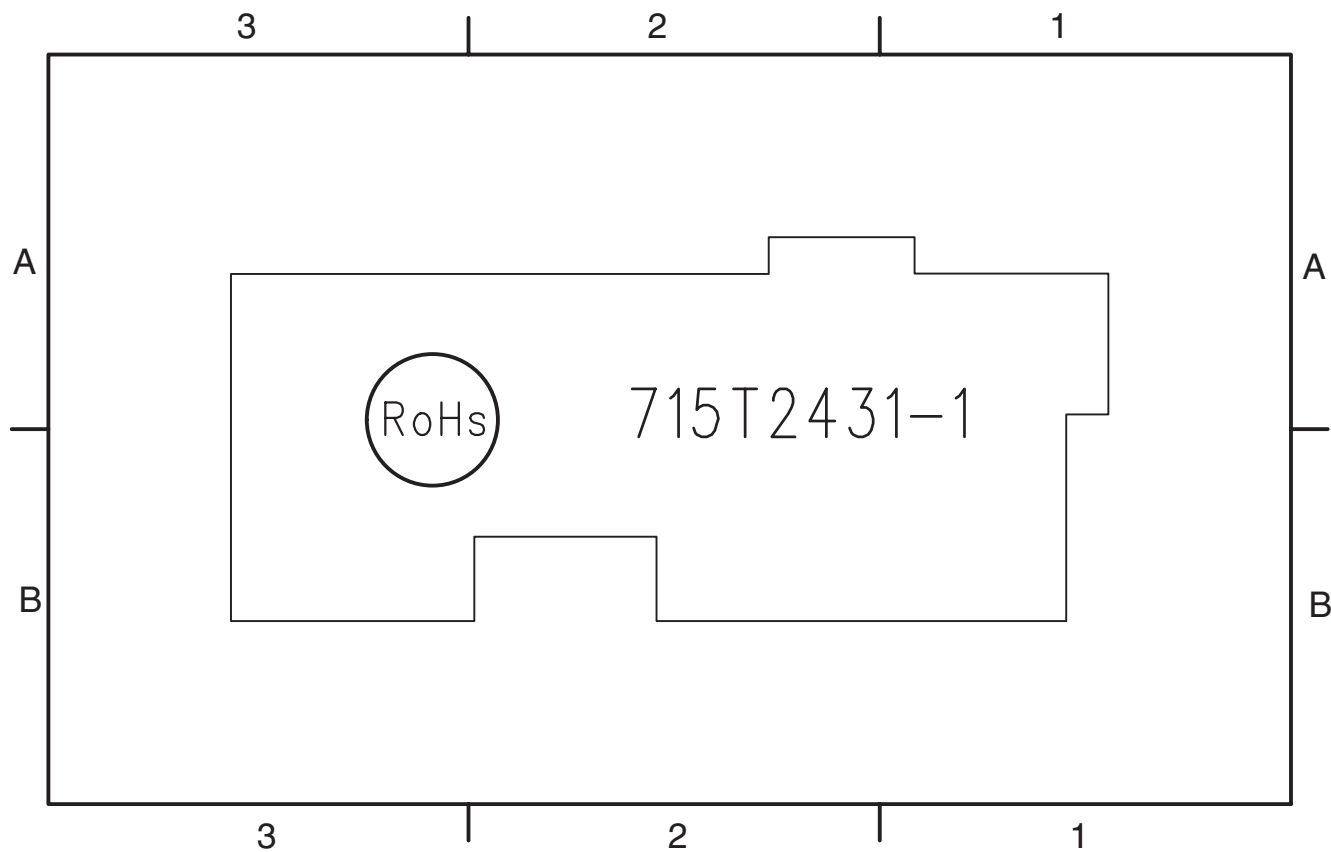
- C080 B2
- CN080 B2
- R080 A1
- R081 A2
- SW080 A1
- SW081 A2
- ZD080 A2
- ZD081 A1
- ZD082 A2
- ZD083 A2

DVD KeyCtrl Board Layout(Top Side for 19PFL5622)

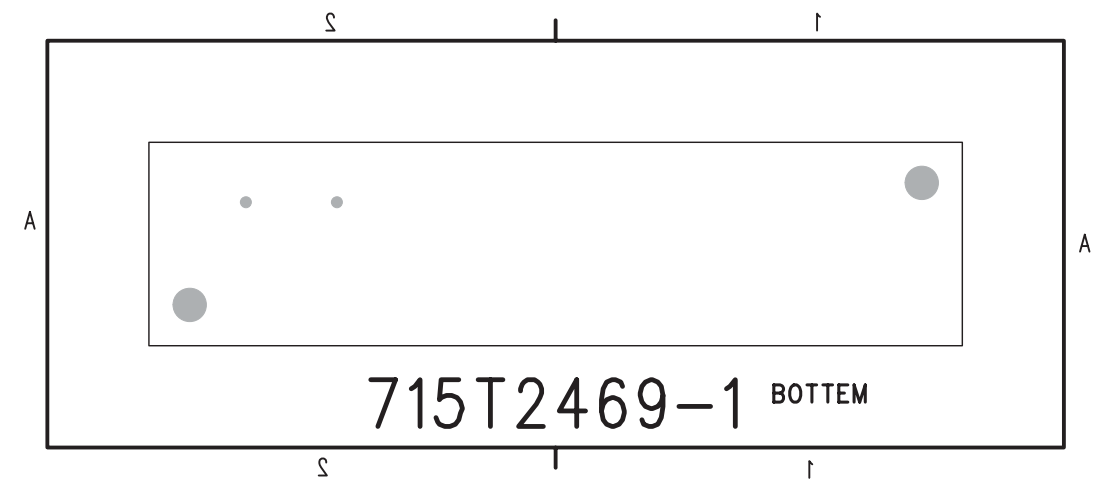


- C080 A2 R088 A2
- C081 A2 R089 A2
- CN080 A2 SW080 A1
- LED080 A1 SW081 A2
- Q080 A2 SW082 A2
- R080 A1 SW083 A1
- R081 A2 ZD080 A1
- R082 A2 ZD081 A1
- R083 A2 ZD082 A1
- R084 A2 ZD083 A2
- R085 A2 ZD084 A2
- R086 A1 ZD085 A2
- R087 A1 ZD086 A1

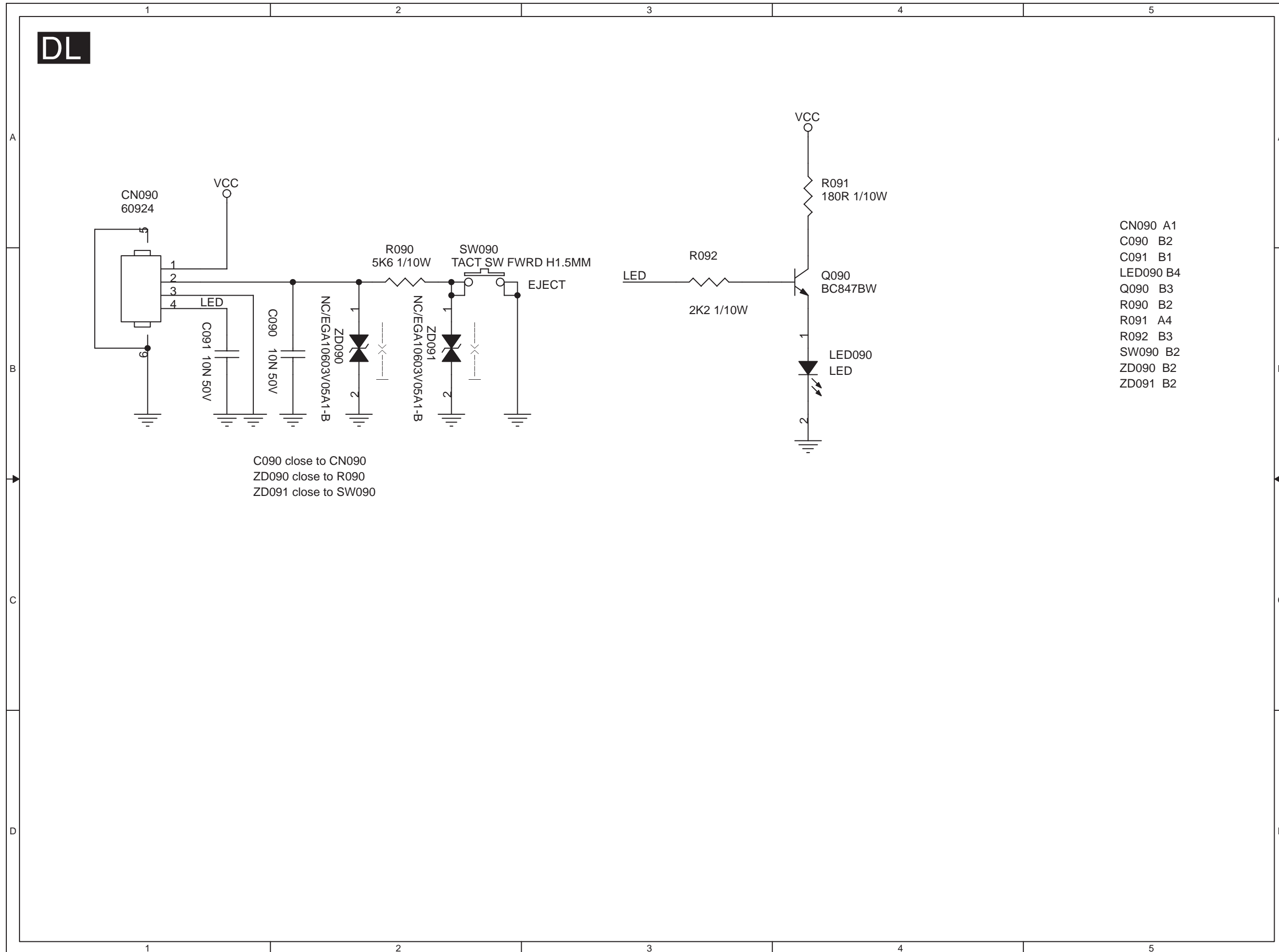
DVD KeyCtrl Board Layout(Bottom Side for 19MD)



DVD KeyCtrl Board Layout(Bottom Side for 19PFL5622)

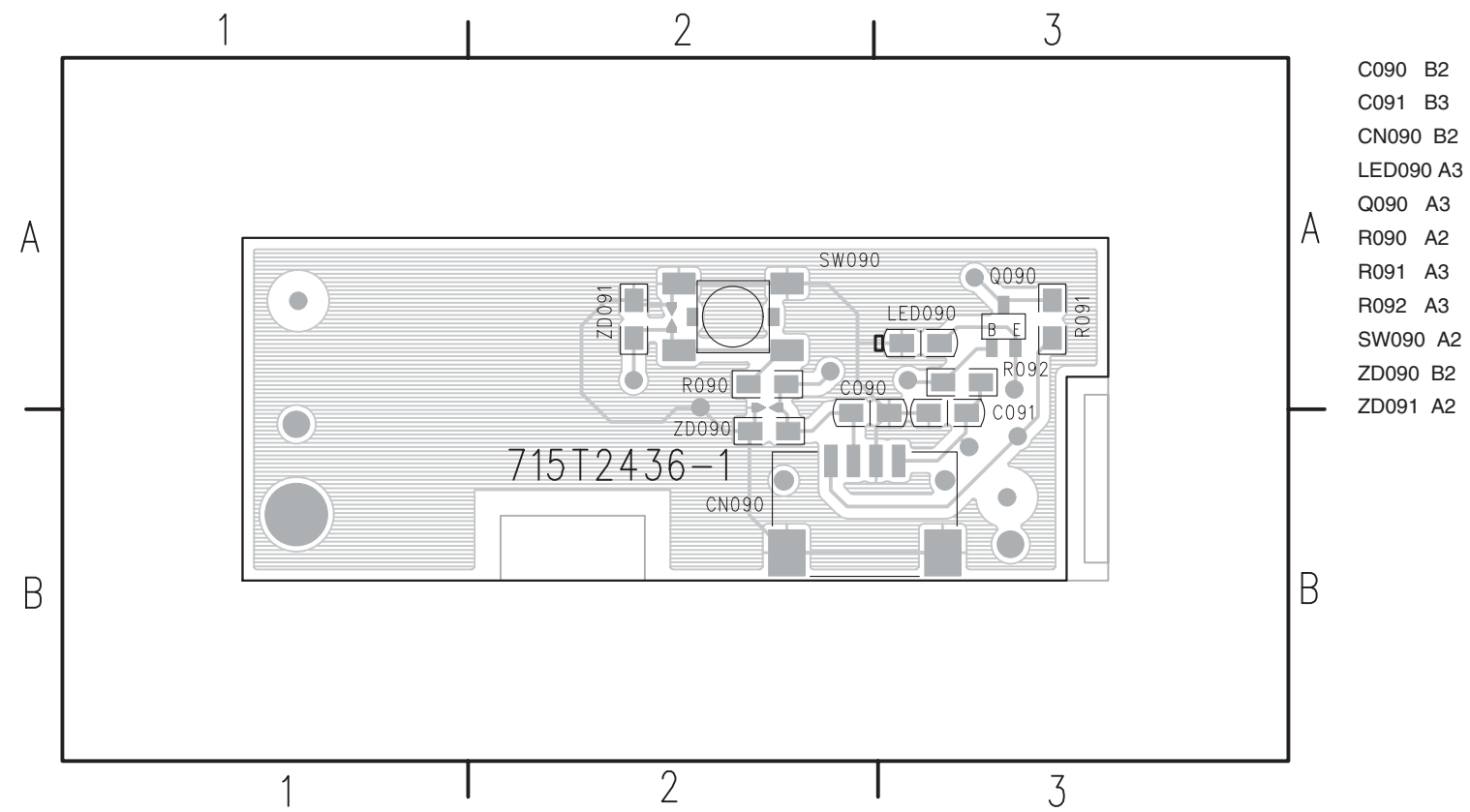


DVD LED Board Schematic Diagram(for 19MD)

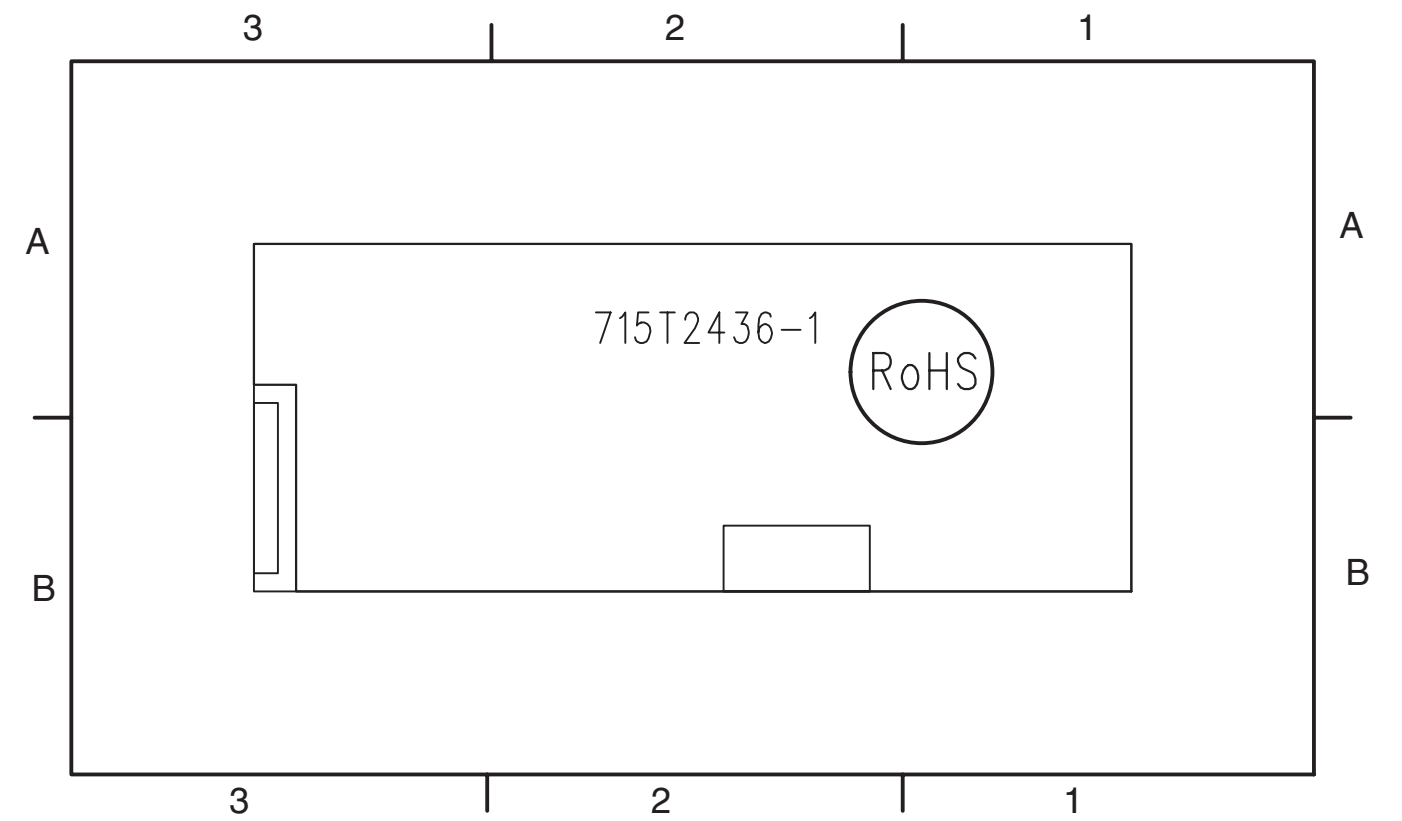


7. Circuit Diagrams and PWB Layouts

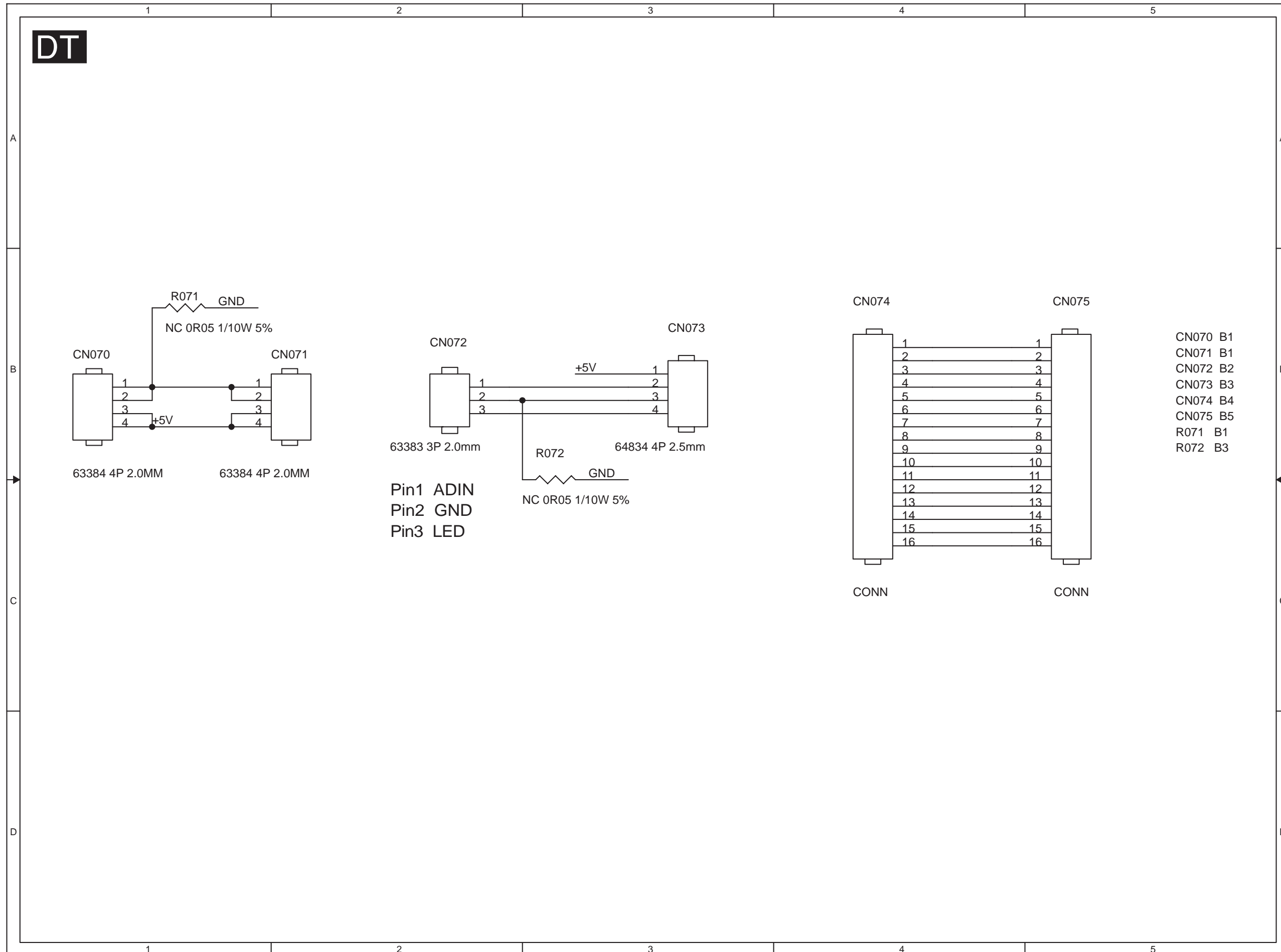
DVD LED Board Layout(Top Side for 19MD)



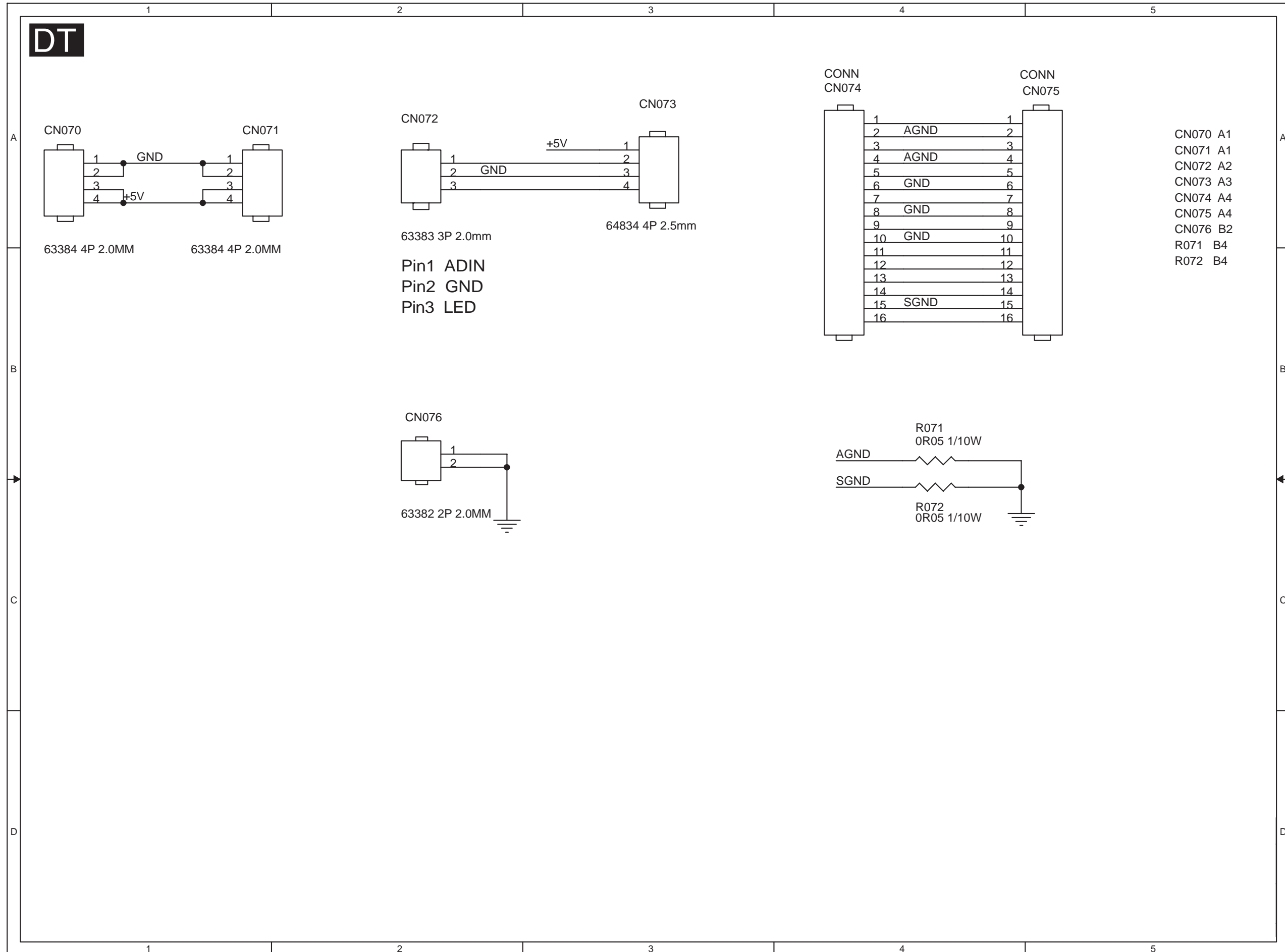
DVD LED Board Layout(Bottom Side for 19MD)



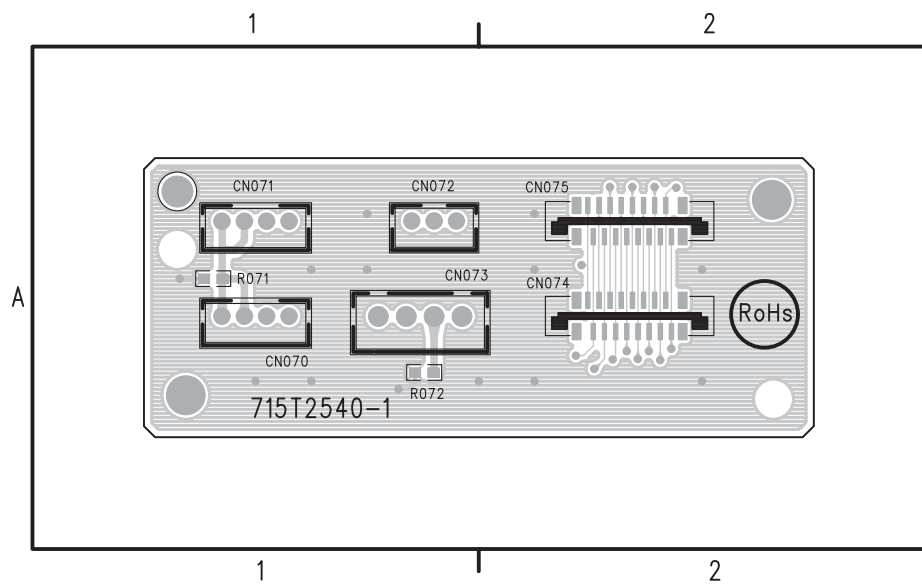
DVD Transfer Board Schematic Diagram(for 19PFL5622)



DVD Transfer Board Schematic Diagram(for 19MD)

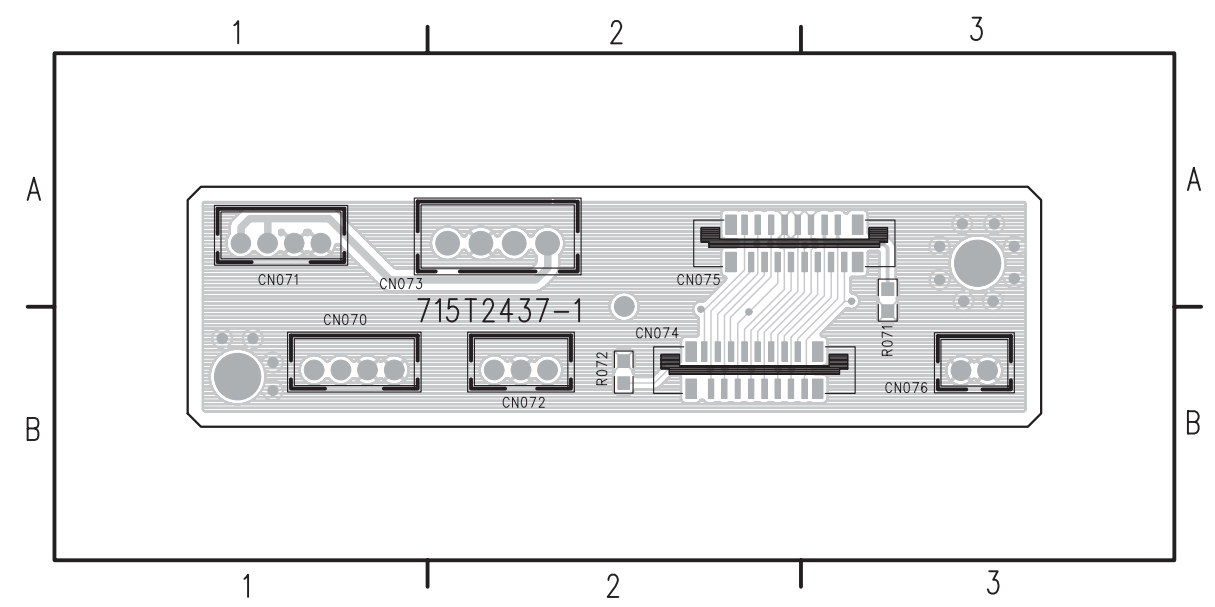


DVD Transfer Board Layout(Top Side for 19PFL)



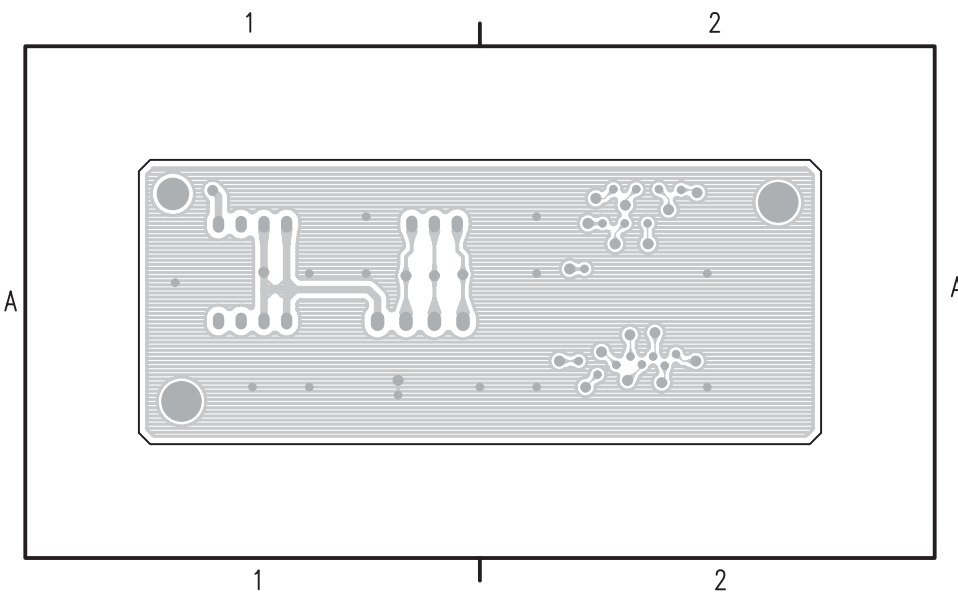
- CN070 A1
- CN071 A1
- CN072 A1
- CN073 A1
- CN074 A2
- CN075 A2
- R071 A1
- R072 A1

DVD Transfer Board Layout(Top Side for 19MD)

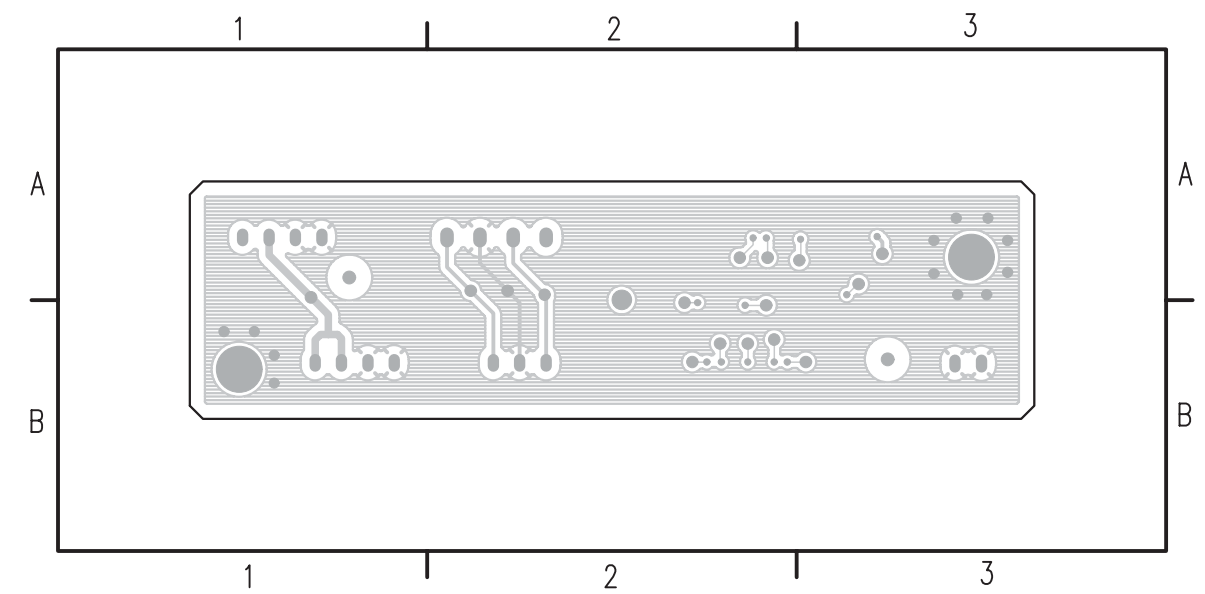


- CN070 B1
- CN071 A1
- CN072 B2
- CN073 A2
- CN074 B2
- CN075 A2
- CN076 B3
- R071 A3
- R072 B2

DVD Transfer Board Layout(Bottom Side for 19PFL)



DVD Transfer Board Layout(Bottom Side for 19MD)



8. Alignments

Index of this chapter:

8.1 Electrical Instructions

8.2 ISP Instructions

8.3 Serial Number Definition

8.4 WriteMTK_CSM_No_HDCP and WriteMTKHDCPKey Instructions

Notes: You could adjust the LCD/TV following this chapter when the LCD/TV has the below defect.

1. Change panel. 2. Change or repair main board. 3. LCD/TV color is not right. 4. The settings are disabled.

8.1 Electrical Instructions

8.1.1 TV mode display adjustment

8.1.1.1 White balance adjustment (B)

General set-up :

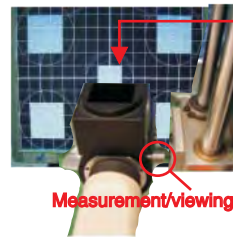
Equipment Requirements: Color analyzer or other equal equipment.

Input requirements:

Input Signal Type : CVBS-NTSC signal.
Frequency = 187.25 MHz (CH. 9).

Input Signal Strength : 10mV (80 dBuV) terminal voltage.

Input Injection Point : TV Tuner input



Clear image



Measurement/viewing selector

Initial Set-up : Set Smart picture as "Personal" (Brightness=50, Color=50, Contrast=50) and check Factory "SP_MODE_PWM " for Personal/Rich=165,
Apply "100% Full White/100IRE " pattern by TV pattern generator.

Alignment : Adjust the factory "CLR_TEMP_R / CLR_TEMP_G / CLR_TEMP_B"
To met NORMAL, COOL and WARM color temperature requiremet.
[Enter factory key 062596 by remoted number key]

Output Detection Points : Screen center.

1. Check (X, Y) co-ordinates as belows:

	Normal/(8500°K)	Cool/(13000°K)	Warm/(6500°K)
x (center)	0.291 ± 0.005	0.273 ± 0.005	0.314 ± 0.005
y (center)	0.302 ± 0.005	0.280 ± 0.005	0.324 ± 0.005
Y (center)	160 ± 20 nits		

Table 8.1: Reading with Minolta CA-110.(CA-210)

If you have not CA-110, the following R,G and B values are for your reference.

	Normal/(8500°K)	Cool/(13000°K)	Warm/(6500°K)
R	117	144	118
G	112	130	116
B	108	123	144

2. Check the gray pattern should be distinguished and color bar is correct

Check Luminance Note:

Use Minolta CA-110 for colour coordinates and luminance check.

Luminance typical 200 Nits , in the center of the screen when 'Smart picture' at 'PERSONAL', and Brightness and Contrast control set at 100%.

8.1.2 PC Mode Adjustment

8.1.2.1 White balance adjustment (B)

General set-up :

Equipment Requirements: PC signal / Color analyzer.

Input requirements:

Input Signal Type : PC R/G/B analog TTL separate Sync signal.
Timing = 1024x768/60Hz.

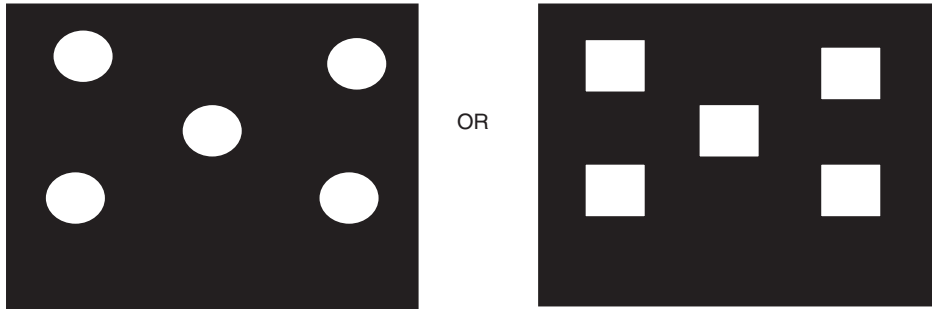
Input Signal Strength : 700mV.

Input Injection Point : D-Sub

Initial setting : Check factory " VGA_PWM_MIN " =60 and
 " VGA_PWM_MAX " = 200, then run Factory
 " AUTO_COLOR" with 5 white block pattern. (see pattern-A)
 Adjustment : Adjust Factory " CLR_TEMP_R / CLR_TEMP_G /
 CLR_TEMP_B " to met specification of Normal/Warm/Cool

Reading in Minolta CA-110.

	Normal/ (8500°K)	Cool/(11500°K)	Warm/(6500°K)
x (center)	0.291 ± 0.005	0.273 ± 0.005	0.314 ± 0.005
y (center)	0.302 ± 0.005	0.280 ± 0.005	0.324 ± 0.005
Y (center)	150 ± 20 nits		



Pattern-A

8.1.3 AV-1 (YpbPr) mode display adjustment

8.1.3.1 White balance adjustment (B)

General set-up:

Equipment : Quantum Data Pattern Generator 801GD or 802G.
 Apply 1080i, SMPTE color pattern.



(Or FLUKE 54200, apply 576i (PAL system) , Color bar with black and white pattern.)



8. Alignments

Alignment method:

Initial Set-up : Set Smart picture as "Personal", Brightness=50, Color=50, Contrast=50
Then run factory " AUTO-COLOR "process.

Alignments : Color temperature Normal/Warm/Cool DAC dada same as TV mode.
Check chromaticity (X, Y) co-ordinates specification:

	Normal/ (8500°K)	Cool/(11500°K)	Warm/(6500°K)
x (center)	0.291 ± 0.005	0.273 ± 0.005	0.314 ± 0.005
y (center)	0.302 ± 0.005	0.280 ± 0.005	0.324 ± 0.005

If out of specification then fine-tune factory " ADC_GAIN_R / ADC_GAIN_R /
ADC_GAIN_R "

8.1.4 AV-2 (CVBS/S-V) mode display adjustment

8.1.4.1 White balance adjustment (B)

General set-up : Use FLUKE 54200, CVBS and S-V with full white pattern in 100 IRE
output level.

Alignment method:

Initial Set-up : Set Smart picture as "Personal", Brightness=50, Color=50, Contrast=50

Alignments : Color temperature Normal/Warm/Cool DAC dada same as TV mode.
Check chromaticity (X, Y) co-ordinates specification:

	Normal/ (8500°K)	Cool/(11500°K)	Warm/(6500°K)
x (center)	0.291 ± 0.005	0.273 ± 0.005	0.314 ± 0.005
y (center)	0.302 ± 0.005	0.280 ± 0.005	0.324 ± 0.005

If out of specification then fine-tune factory "CLR_TEMP_R / CLR_TEMP_R /
CLR_TEMP_R "

8.1.5 HDMI mode adjustment and HDCP key

8.1.5.1 White balance adjustment (B)

General set-up : Quantum 802BT or equivalent equipments

Alignment method:

Initial Set-up : Set Smart picture as "Personal", Brightness=50, Color=50, Contrast=50

Alignments : Color temperature Normal/Warm/Cool DAC dada same as TV mode.
Check chromaticity (X, Y) co-ordinates specification:

	Normal/ (8500°K)	Cool/(11500°K)	Warm/(6500°K)
x (center)	0.291 ± 0.005	0.273 ± 0.005	0.314 ± 0.005
y (center)	0.302 ± 0.005	0.280 ± 0.005	0.324 ± 0.005

If out of specification then fine-tune factory " CLR_TEMP_R / CLR_TEMP_R /
CLR_TEMP_R "

8.1.5.2 HDCP Key Test (B)

8.1.5.2.1 Use pattern generator

Equipment: Quantum 802BT or equivalent equipments.

Pattern : Standard HDCP Pattern (It's color bar)

Timing .

720 X 480P /60Hz
1280X 720P /60Hz
1920X1080i /60Hz

Result: The PASS information should be shown on the screen.

8.2 Service Tools

8.2.1 ComPair

Introduction

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

1. ComPair helps you 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. You do not have to know anything about I²C or UART commands yourself, because ComPair takes care of this.
3. ComPair speeds up the repair time since it can automatically communicate with the chassis (when the uP is working) and all repair information is directly available.
4. ComPair features TV software upgrade possibilities.

Specifications

ComPair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The (new) 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).

How to Connect

This is described in the ComPair chassis fault finding database.

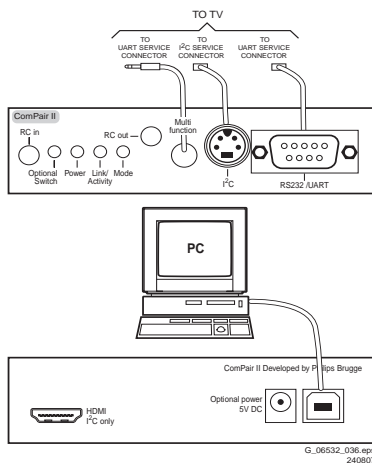


Figure 8-1 ComPair II interface connection

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.
- ComPair32 CD (update): 3122 785 60160.
- ComPair I²C interface cable: 3122 785 90004 (to be used with chassis L01, A02, A10, EMx, TPM1.xA, etc ...).
- ComPair I²C interface extension cable: 3139 131 03791 (to be used with chassis L01, A02, A10, L04, LC4, LC7.1, LC7.2).
- ComPair UART interface cable: 3122 785 90630 (to be used with chassis LC4, EJ3, BJ2, BL2, BP2, ...).
- ComPair RS232 cable: 3104 311 12742 (to be used with chassis Q52x).
- ComPair I²C interface cable (3.5 mm Jack-to-SVHS plug): 9965 100 07325 (to be used with chassis LC7.5).
Note: For I²C it is **compulsory** to use this particular cable.
- ComPair UART interface cable (3.5 mm Jack-to-Jack): 3138 188 75051 (to be used with chassis LC7.5).

Note: For UART it is also allowed to use a standard "Jack-to-Jack" cable.

Note: If you encounter any problems, contact your local support desk.

8.2.2 LVDS Tool

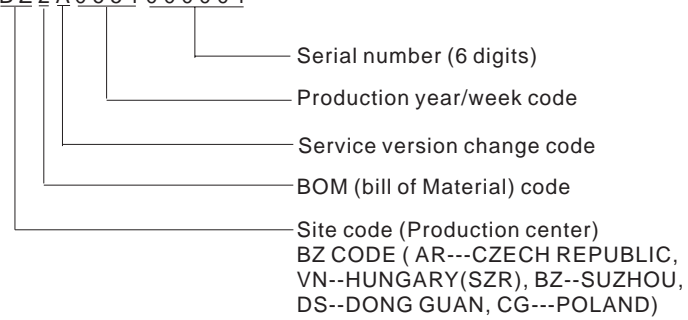
Support of the LVDS Tool has been discontinued.

8.3 Serial Number Definition

BOM Code:

PANEL SUPPLIER	CODE
AU	1
CPT	2
LPL(LG)	3
QDI	4
CMO	5
HSD	6
SVA	7

BZ2A0651000001



TV audio demodulator

- Support BTSC/EIA-J/A2/NICAM/PAL FM/SCAM world wild format
- Standard auto detection
- Stereo demodulation , SAP demodulation
- Noise reduction
- Mode selection (Main / SAP / Stereo)
- Pink noise and white noise generator
- Equalizer
- Sub-woofer / Bass enhancement
- Noise auto mute
- 3D surround processing include virtual surround
- Audio and video lip synchronization
- Support Reverberation

Audio DAC

- On chip 4 audio DAC support R/L channel and subwoofer output

DRAM Controller

- Support 64Mb to 1Gb DDR DRAM devices
- Configurable 16/32/64 bit data bus interface
- Support DDR1-333,DDR1-400,DDR2-400,DDR2-533,DDR2-667
- JEDEC specification compliant SDRAM

Audio DSP

- Support Dolby Digital AC-3 decoding (ATSC)
- MPEG-1 layer I/II decoding (DVB)
- MPEG-2 AAC decoding (Japan)
- DV audio decoding
- MP3 decoding
- Dolby Prologic II
- Audio output: 7.1ch+2ch (down mix)
- Pink noise and white noise generator
- Equalizer
- Bass management
- 3D surround processing include virtual surround
- Audio and video lip synchronization
- Support reverberation
- Auto volume control
- One SPDIF out
- 5 bit (10-channel) I2S out I/F up to 24 bit resolution per channel

Peripherals

- Three UARTs with Tx and Rx FIFO, one of them have hardware flow control
- Three serial interfaces, one is master for genrel purpose,second is master for HDMI key, third is slave for HDMI EDID data
- Three PWMs
- IR blaster and receiver
- IEEE 1394 link controller
- Support IDE bus or Memory card I/F ; IDE support ATA/ATAPI7 UDMA mode 5, 100MB/s;Memory card I/F support MS/MS-Pro,SD,CF,MMC,SM,and xD
- Real-time clock and watchdog controller
- Smart Card Reader
- PCMCIA/POD/CI interface
- Support three NOR flash or one NOR and one NAND flash
- Support CableCARD host control bus
- Support 128 bit e-Fuse

IC Outline

- MT5371/2 588 pin BGA package
- 3.3V / 1.2V and 2.5V for DDR1, 1.8V for DDR2

9.1.2.2 MT5112

The MT5112BD is a highly integrated single-chip for digital terrestrial HDTV and digital cable TV demodulation. The chip is designed specifically for the digital terrestrial HDTV and CATV receivers, And is fully compliant with ATSC A/53 ,SCTE DVS-031, and ITU J.83 Annex B standards.

Compliant with ATSC digital television standard
Supports SCTE DVS-031 and ITU J.83 Annex B digital CATV standard
Accepts direct IF (44MHz or 43.75MHz) and low IF (5.38MHz)
Differential IF input with programmable input signal level : 0.5Vpp to 2Vpp
NTSC interference rejection capability
Compensate echo up to -35 to +60us range for terrestrial HDTV reception
Pass all Brazil fading channel ensembles
Meet all ATSC A74 requirement
On-chip programmable gain amplifier
25MHz crystal for clock generation
Excellent adjacent and co-channel rejection capability, only single SAW is required
Full-digital timing recovery, no VCXO is required
Full-digital frequency offset recovery with wide acquisition range +/- 1MHz for ATSC and +/- 250kHz for CATV reception
Dual digital AGC controls for IF and RF respectively
MPEG-2 transport stream output in parallel or serial format
On-chip error rate estimators for TS packets, TCM decoder, and equalizer
EIA/CEA-909 antenna interface, both mode A and mode B are supported
Controlled by I2C interface
Supports sleep mode to save power consumption
Core power supply: 1.8V, peripheral power supply : 3.3V
100-TQFP with lead free package

9.2 Abbreviations List

CSM	Customer Service Mode
ATSC	Advanced Television Systems Committee, the digital TV standard in the USA
DVD	Digital Versatile Disc
EEPROM	Electrically Erasable and Programmable Read Only Memory
3DNR	Temporal (3D) Noise Reduction
AGC	Automatic Gain Control: algorithm that controls the video input of the feature box
FM	Field Memory or Frequency Modulation
AM	Amplitude Modulation
AP	Asia Pacific
ASF	Auto Screen Fit: algorithm that adapts aspect ratio to remove horizontal black bars without discarding video information
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
AVIP	Audio Video Input Processor
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz
ComPair	Computer aided rePair
CP	Connected Planet / Copy Protection
CSS	Content Scrambling System; An encryption method for MPEG-2 video on DVDs. The algorithm and keys required to decode the disc are stored on the DVD-player
CVBS	Composite Video Blanking and Synchronization
DFU	Directions For Use: owner's manual
DNR	Digital Noise Reduction: noise reduction feature of the set
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
DVI(-d)	Digital Visual Interface (d= digital only)
EAS	Emergency Alert Signalling; A cable TV standard (SCTE18) to signal emergency information to digital terminal devices
E-DDC	Enhanced Display Data Channel (VESA standard for communication channel and display). Using E-DDC, the video source can read the EDID information from the display.
EDID	Extended Display Identification Data (VESA standard)
EMI	Electro Magnetic Interference
EMM	Entitlement Management Message
EPLD	Erasable Programmable Logic Device
EU	Europe
FBL	Fast BLanking: DC signal accompanying RGB signals
FDS	Full Dual Screen (same as FDW)
FDW	Full Dual Window (same as FDS)
FLASH	FLASH memory
FTV	Flat TeleVision
H	H_sync to the module
HD	High Definition
HDD	Hard Disk Drive

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
OSD	On Screen Display
PLL	Phase Locked Loop. Used for e.g.
LVDS	Low Voltage Differential Signalling
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= 3.582056MHz)
PCB	Printed Circuit Board (same as PWB)
PCM	Pulse Code Modulation
PWB	Printed Wiring Board (same as "PCB")
PWM	Pulse Width Modulation
QAM	Quadrature Amplitude Modulation; modulation method
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
SAM	Service Alignment Mode
SCART	Syndicat des Constructeurs d'Appareils Radiorecepteurs et Televisieurs
SCL	Serial Clock I2C
SCL-F	CLock Signal on Fast I2C bus
SD	Standard Definition
SDA	Serial Data I2C
SDA-F	DAta Signal on Fast I2C bus
SDI	Serial Digital Interface, see 'ITU-656'
SDRAM	Synchronous DRAM
SECAM	SEquence Couleur Avec Memoire. 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
SOG	Sync On Green
SOPS	Self Oscillating Power Supply
I2C	Integrated IC bus
I2D	Integrated IC Data bus
I2S	Integrated IC Sound bus
IB	In Band channel
IF	Intermediate Frequency
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.
IR	Infra Red
IRQ	Interrupt Request
LATAM	Latin America
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LPL	LG.Philips LCD (supplier)
MUTE	MUTE Line

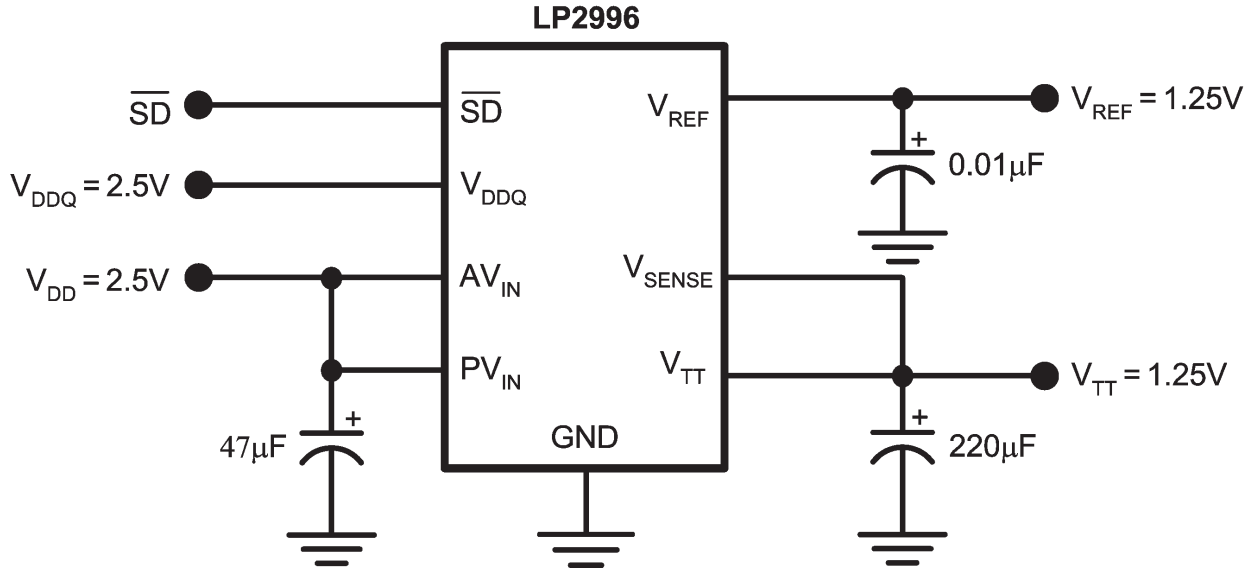
TFT	Thin Film Transistor
SRAM	Static RAM
STBY	STandBY
SOG	Sync On Green
SVGA	800x600 (4:3)
SVHS	Super Video Home System
SW	Software
SWAN	Spatial temporal Weighted Averaging Noise reduction
SXGA	1280x1024
TMDS	Transmission Minimized Differential Signalling
UXGA	1600x1200 (4:3)
V	V-sync to the module
VCR	Video Cassette Recorder
VESA	Video Electronics Standards Association
VGA	640x480 (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	1280x768 (15:9)
XGA	1024x768 (4:3)
Y	Luminance signal
YPbPr	Component video. Luminance and scaled color difference signals (B-Y and R-Y)

9.3 IC Data Sheets

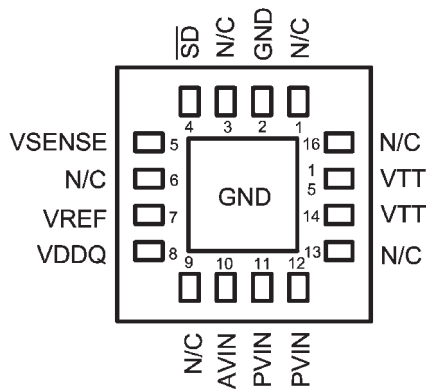
This section shows the internal block diagrams and pin configurations of ICs that are drawn as "black boxes" in the electrical diagrams (with the exception of "memory" and "logic" ICs).

9.3.1 IC Data Sheets-LP2996(U503)

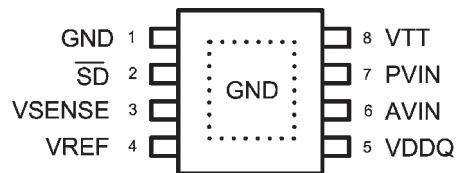
Typical Application Circuit



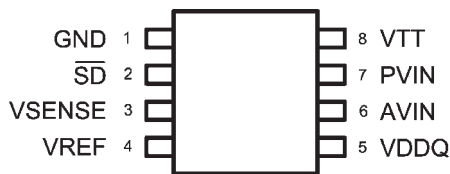
Pin Configuration



LLP-16 Layout



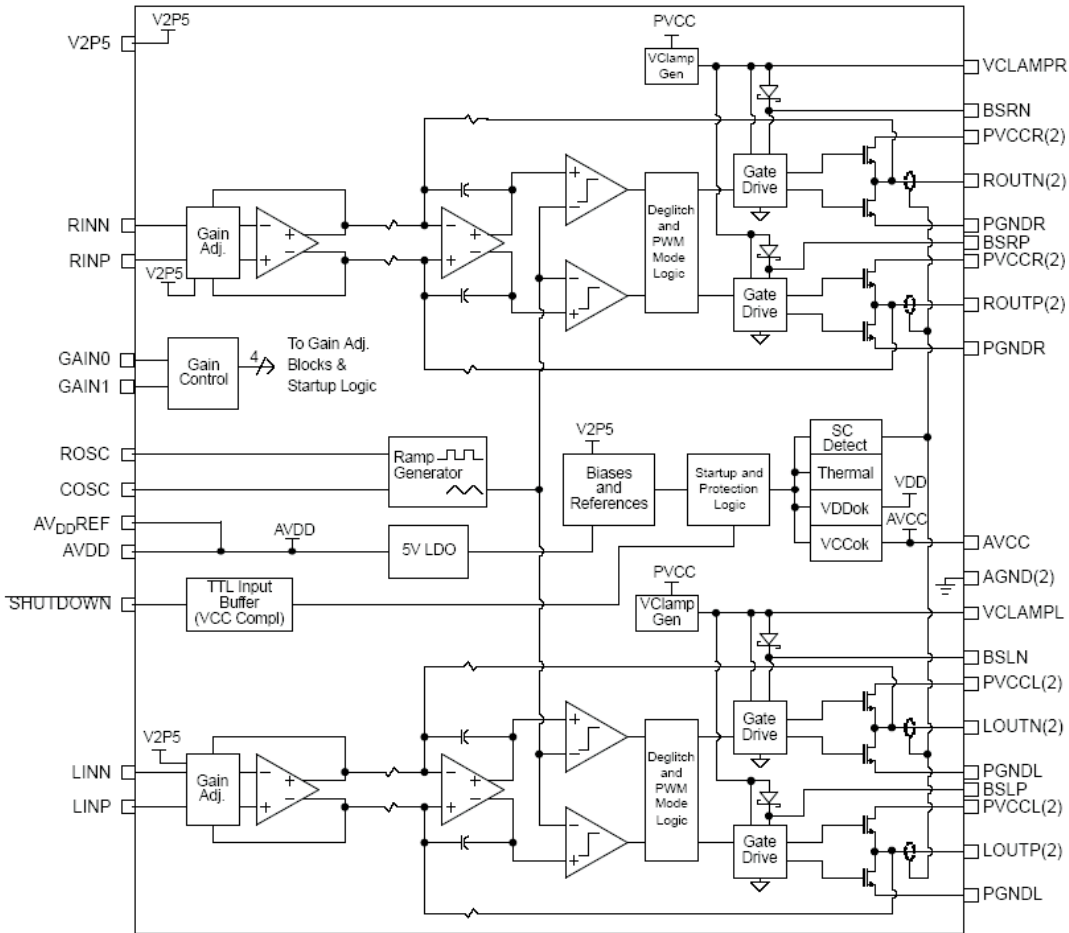
PSOP-8 Layout



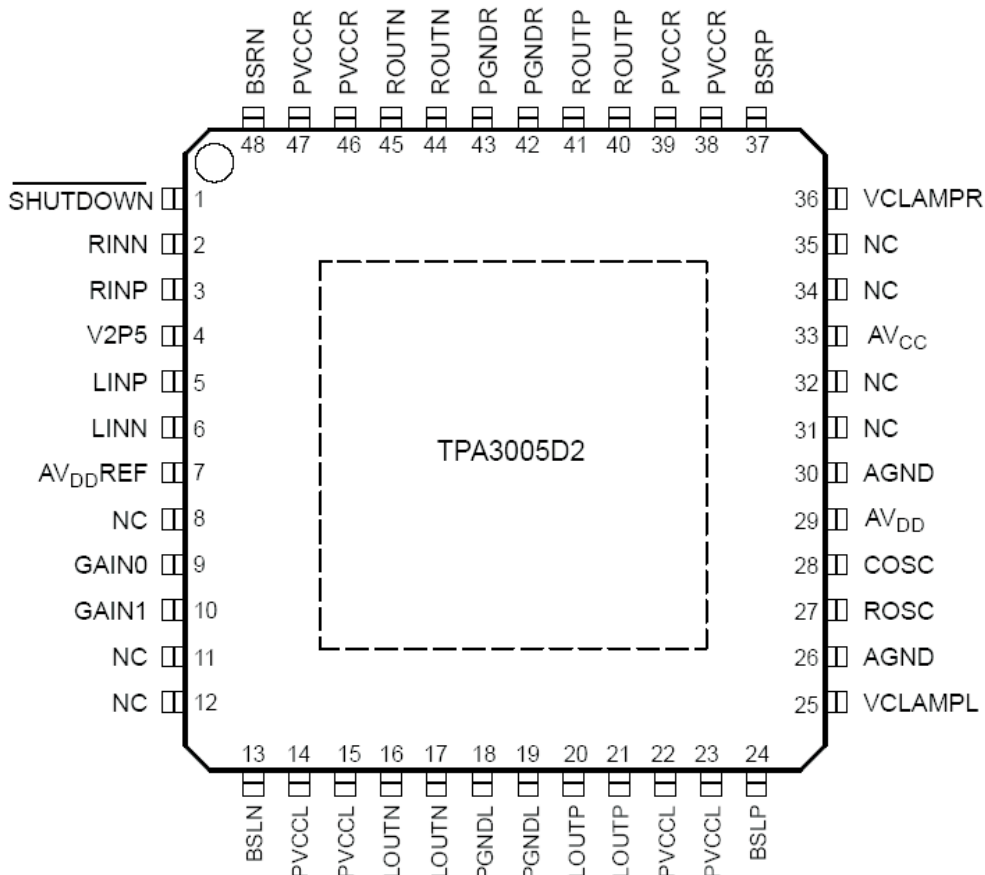
SO-8 Layout

9.3.2 IC Data Sheets-TPA3005D2(U801)

FUNCTIONAL BLOCK DIAGRAM

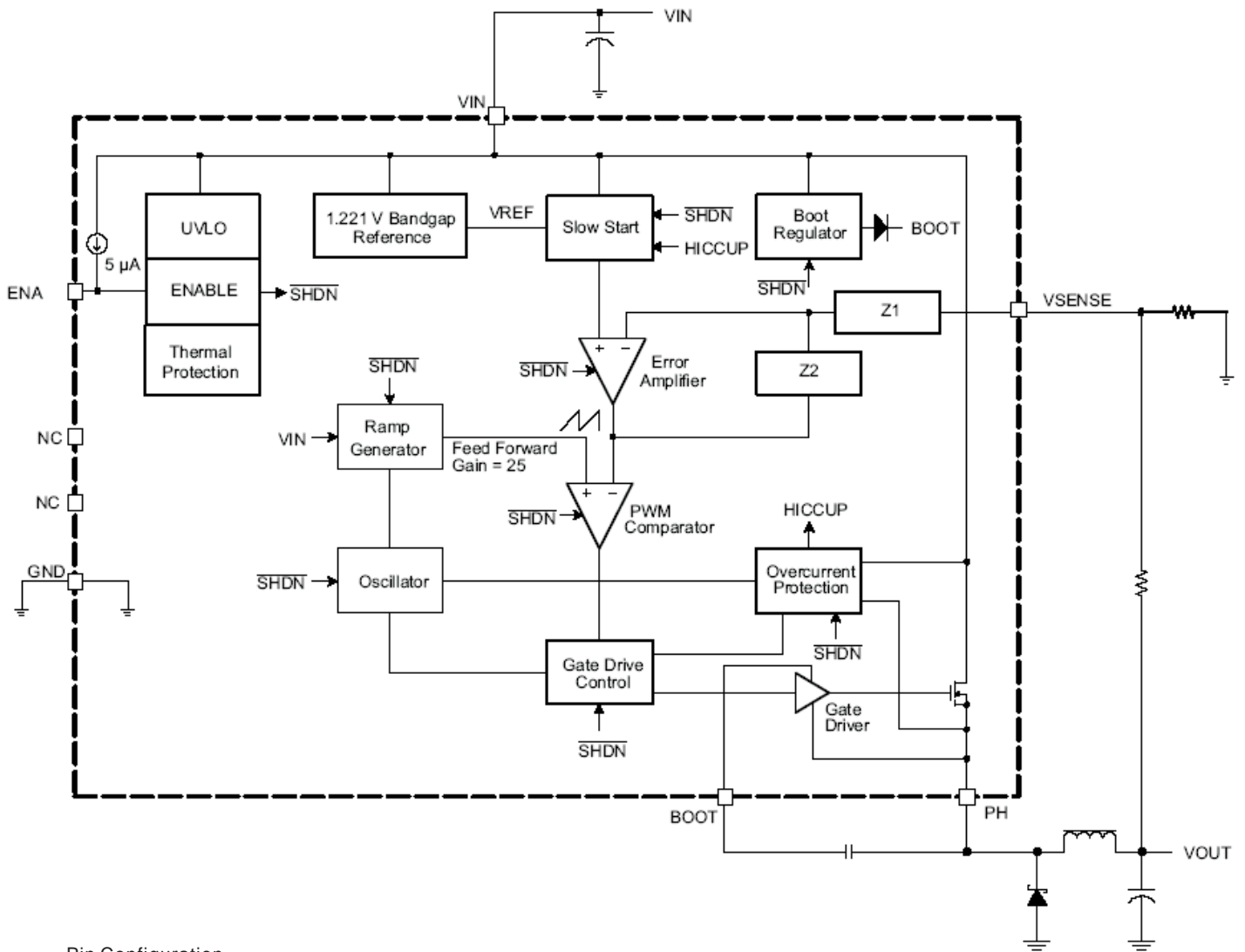


Pin Configuration

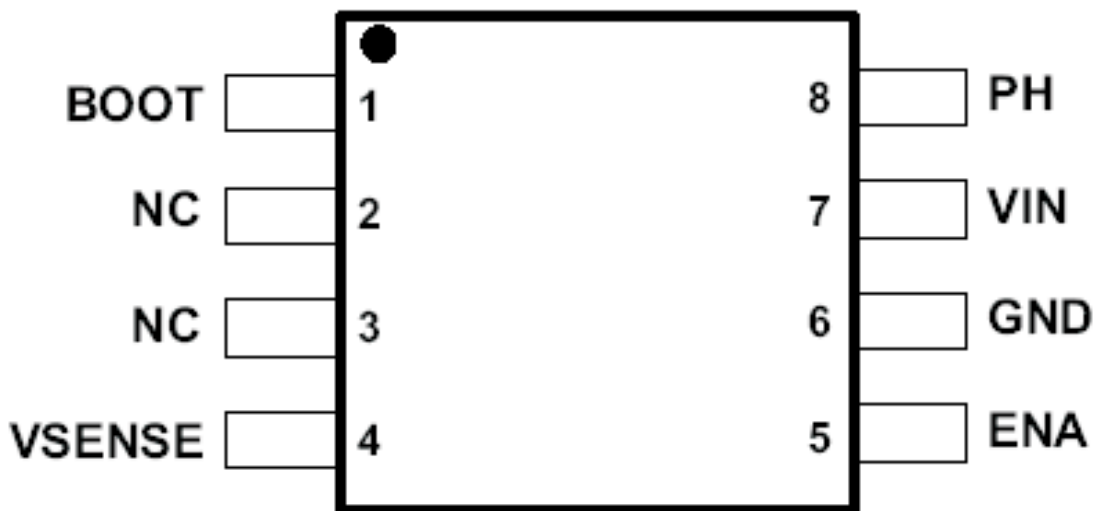


9.3.3 IC Data Sheets-TPS5420(U102)

Function Diagram

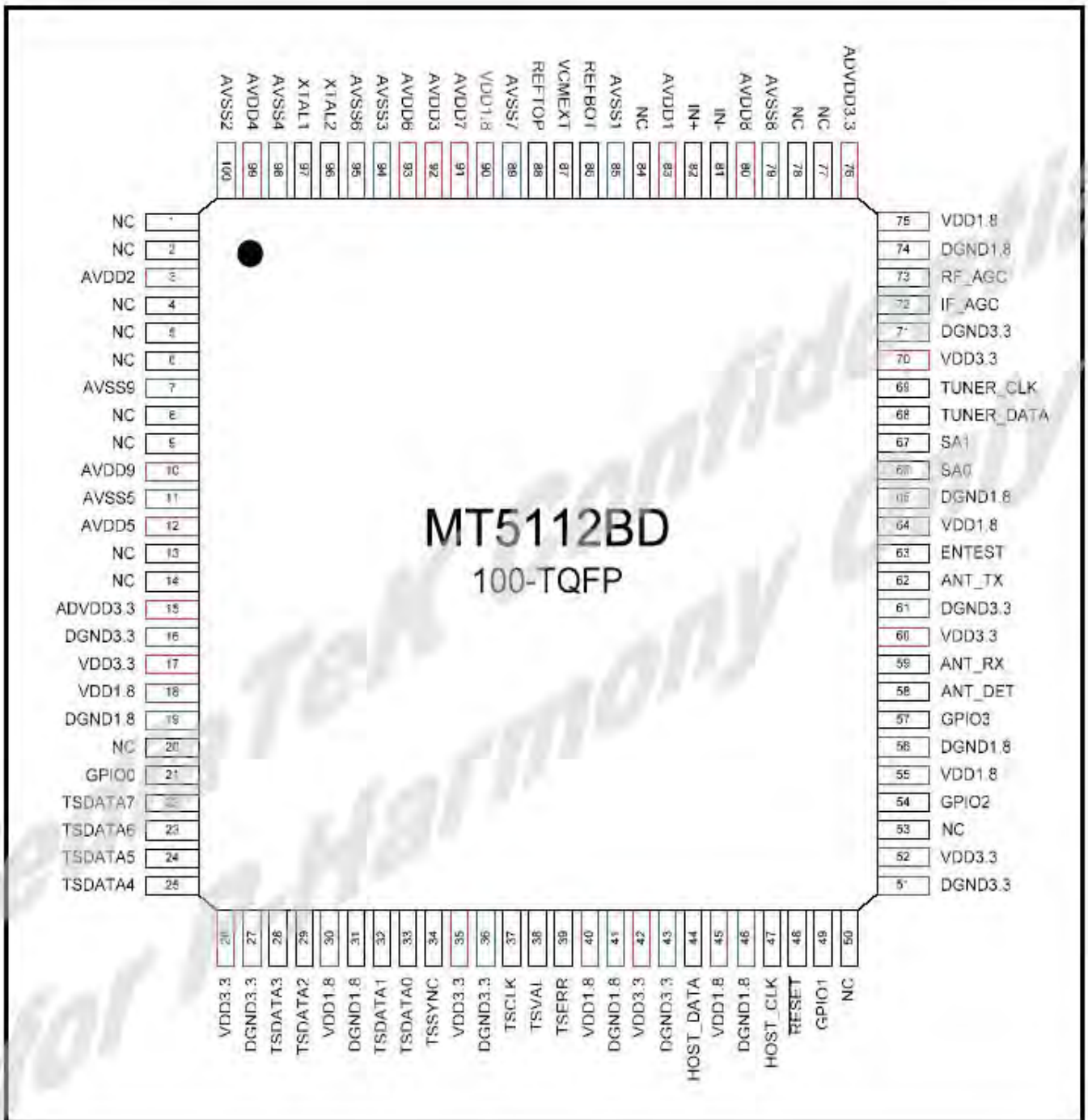


Pin Configuration



9.3.4 IC Data Sheets-MT5112BD(U250)

Pin Configuration













9.3.5 IC Data Sheets-MT5371AJ(U301)

PIN ASSIGNMENT (MT5372, MT5371)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	RA13	RA1	RA5	RA9	RA12	RDQ29	RDQS3_	RDQ25	RDQ21	RDQS2_	RCLK1	RDQ20	GPIO_3	GPIO7	GPIO_11
B	RA8	RA11	RA10	RA3	RA7	RDQ26	RDQS3	RDQ27	RDQ18	RDQS2	RCLK1_	GPIO_0	GPIO_4	GPIO_8	GPIO_12
C	RA4	RA6	RBA1	RRAS_	RCAS_	RDQ24	RDQM3	RDQ28	RDQ16	RDQM2	RDQ17	GPIO_1	GPIO_5	GPIO_9	JTRST_
D	RA0	RA2	RWE_	RBA0	RCS_	RDQ31	RDQ30	RVREF	RDQ23	RDQ22	RDQ19	GPIO_2	GPIO_6	GPIO_10	JTDI
E	RCKE	RODT	RDQ4	RDQ3	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO
F	RDQ1	RDQ6	RDQM0	RVREF	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO	VCC2IO
G	RDQS0	RDQS0_	RDQ7	RDQ0	VCC2IO	VCC2IO									
H	RDQ2	RDQ5	RDQ12	RDQ11	VCC2IO	VCC2IO									
J	RDQ9	RDQ14	RDQS1_	RDQS1	VCC2IO	VCC2IO									
K	RDQM1	RDQ15	RDQ8	RDQ10	VCC2IO	VCC2IO									
L	RCLK0	RCLK0_	RDQ13	REXTUP	VCC2IO	VCC2IO									
M	REXTDN	PDCD1_	PDCE1_	PDCE2_	VCC2IO	VCC2IO									
N	PDVS1	PDOE_	PDIORD_	PDIOWR_	VCC3IO	VCC3IO									
P	PDWE_	PDIREQ_	PDCTRLVP	PDVS2	VCC3IO	VCC3IO									
R	PDRESET	PDWAIT_	PDINPACK	PDREG_	VCC3IO	VCC3IO									
T	PDIOIS16_	PDCD2_	PDENPOD	POCE2_	VCCCK	VCCCK									
U	POCE1_	POOE_	POCE0_	PDA1	VCCCK	VCCCK									
V	PDD0	PDD1	PDD2	PDD3	VCCCK	VCCCK									
W	PDD4	PDD5	PDD6	PDD7											
Y	PDA0	PDA17	PDA16	PDA15											
AA	PDA14	PDA13	PDA12	PDA11											
AB	PDA10	PDA9	PDA20	PDA21											
AC	POWE_	PDA22	PDA19	PDA18											
AD	PDA8	PDA7	PDA6	PDA5											
AE	PDA4	PDA3	PDA2	IDD8											
AF	IIRDY	IDD9	IDD10	IDD11		VCC3IO	VCC3IO	VCC3IO	VCC3IO						VCCCK
AG	IDD12	IDD13	IDD14	IDD15	MDATA0	SDIOD2	OPWM1	OSDA1	OWRP2	PGND	AVSS_HC	AVSS_H0	AVSS_H1	AVSS_H2	OPCTRL4
AH	IDIOR_	IDIOW_	IDA2	SDIOCMD	DCLK	SDIOD3	OPWM0	OSDA0	OSCL2	PVCC	AVCC_HC	AVCC_H0	AVCC_H1	AVCC_H2	OPCTRL5
AJ	IDA1	IINTRQ	IDA0	SDIOD0	MCLK	OIRO	PWR5V	OSCL0	OSDA2	CVCC12	RXCB	RX0B	RX1B	RX2B	OPCTRL6
AK	IRESET_	ICS0_	ICS1_	SDIOCLK	SMCE_	MDATA1	SDIOD1	OPWM2	OSCL1	EXT_RES	RXC	RX0	RX1	RX2	OPCTRL7

	11	12	13	14	15
L					
M					
N					
P					
R					
T					
U					
V					
W					
Y					

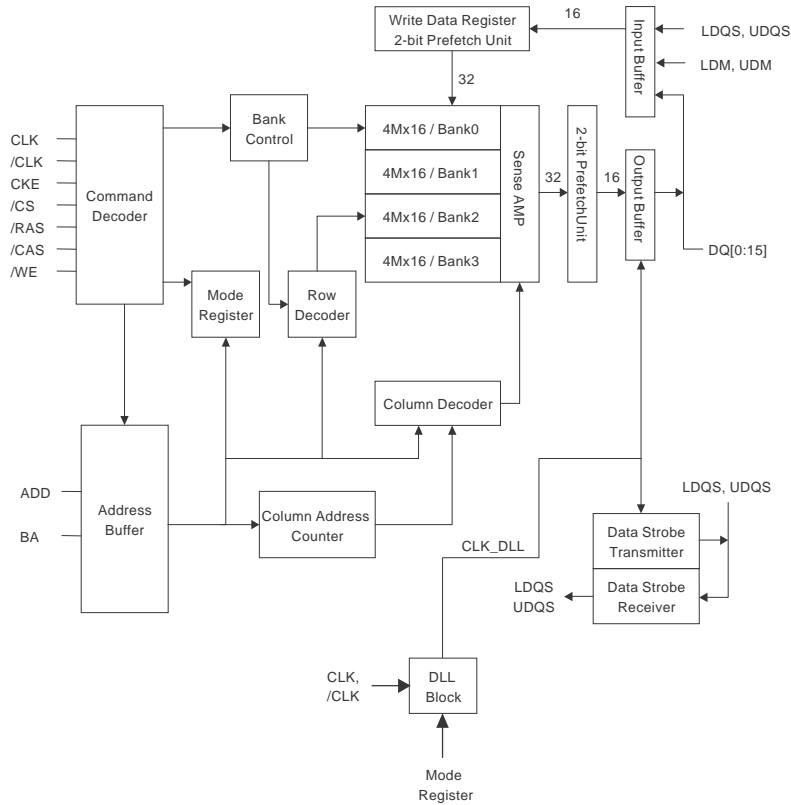
	DDR SIGNAL (120)		VCCCK CORE POWER 1.2V		xxxx Analog Power
	NOR Flash / POD (54)		VCC2IO DDR POWER 2.5V / 1.8V		xxxx Analog Ground
	ATA/CF/MS/SD/XD/SDIO (29)		VCC3IO IO POWER 3.3V		
	GPIO		Digital GND		

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
JTDO	A0P	A1P	A2P	CK1P	A3P	LVDD0	TP3	DACVREF	R	G	B	SVM	ELREQ	ECLK	A		
JRTCK	A0N	A1N	A2N	CK1N	A3N	LVDD0	TN3	AVCC_VPIFS		BACVDD0	DAI_VDD0	DACVDD0A	EDATA0	EDATA1	B		
JTMS	A4P	A5P	A6P	CK2P	A7P	LVSS0	LVDD0A	DACVSS0	DACVSS0A	U2CTS	U2RX	ELPS	EDATA2	EDATA3	C		
JTCK	A4N	A5N	A6N	CK2N	A7N	LVSS0	LVSS0A	AVSS_VPIFS	DACVSS0	U2RTS	U2TX	ECNTL0	EDATA4	EDATA5	D		
VCC3IO	VCC3IO	VCC3IO										ELINKON	ECNTL1	EDATA6	EDATA7	E	
VCC3IO	VCC3IO	VCC3IO										VCCK	T0DATA2	T0DATA3	T0DATA4	T0DATA0	F
												VCCK	T0DATA6	T0DATA7	T0SYNC	T0DATA1	G
												VCCK	AOSDATA1	T0VALID	T0CLK	T0DATA5	H
												VCCK	AOSDATA1	AOBCK	AOMCLK	AOLRCK	J
												VCCK	AOSDATA1	AO2BCK	AO2MCLK	AOSDATA1	K
												VCC3IO	AO2SDATA1	ALIN	ASPDIF	AOSDATA1	L
												VCC3IO	GPIO_14	GPIO_15	GPIO_16	AO2LRCK	M
												VCC3IO	GPIO_13	AVSS0_ADAC	AVSS0_ADAC	AVCC0_ADAC	N
												VCC3IO	GPIO_20	ADAC_VCI	AR2	AL2	P
												AVCC_DV	GPIO_19	AVCC0_ADAC	AR1	AL1	R
													GPIO_18	AVSS_AADC	MPX2	MPX1	T
													GPIO_17	AVCC_AADC	TN2	TP2	U
													AVSS_VFE0	AVCC_VFE0	CVBS1	CVBS0	V
													AVSS_VAD0	AVCC_VAD0	CVBS3	CVBS2	W
													AVSS_VAD1	AVCC_VAD1	SC0	SY0	Y
													AVSS_VFE1	AVCC_VFE1	SC1	SY1	AA
													AVSS_AV33	AVCC_AV33	SC2	SY2	AB
													TN1	TP1	PR1N	PR1P	AC
													AVSS_B2RPPLL	AVSS_APLL	PB1N	PB1P	AD
													AVSS_SYSPPLL	SOY1	Y1N	Y1P	AE
													AVSS_ADCPLL	AVCC_APLL	PR0N	PR0P	AF
VCCK	VCCK	XREGVSS	VCCK	VCCK				AVSS_HDMIPLL	PSCANPLL	AVSS_DMPLL	AVSS_CPUPLL	AVCC_B2RPPLL	PB0N	PB0P	AG		
OPCTRL0	U0RX	U0TX	ADIN2	ADIN4	VID7	VID3	VIVCLK	AVCC_HDMIPLL	AVCC_CPUPLL	FB_IN	AVCC_ADCPLL	AVCC_SYSPPLL	Y0N	Y0P	AH		
OPCTRL1	ORESET	XREGVDD	PWM2VRE	ADIN3	AVSS_SR	MD4	MD0	PSCANPLL	TND	VSYNC	BN	GN	SOG	SOY0	AJ		
OPCTRL2	OIRI	C_XREG	ADIN1	XTALI	AVSS_XT	MD5	MD1	AVCC_DMPLL	TP0	HSYNC	BP	GP	RN	RP	AK		
OPCTRL3	OPWRSB	AVCC_SR	ADIN0	XTALO	AVCC_XT	MD6	MD2										
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	AL		

16	17	18	19	20											
					L										
					M										
					N										
					P										
					R										
					T										
					U										
					V										
					W										
					Y										

9.3.6 IC Data Sheets-HY5DU561622ETP-5(U501)

Function Diagram



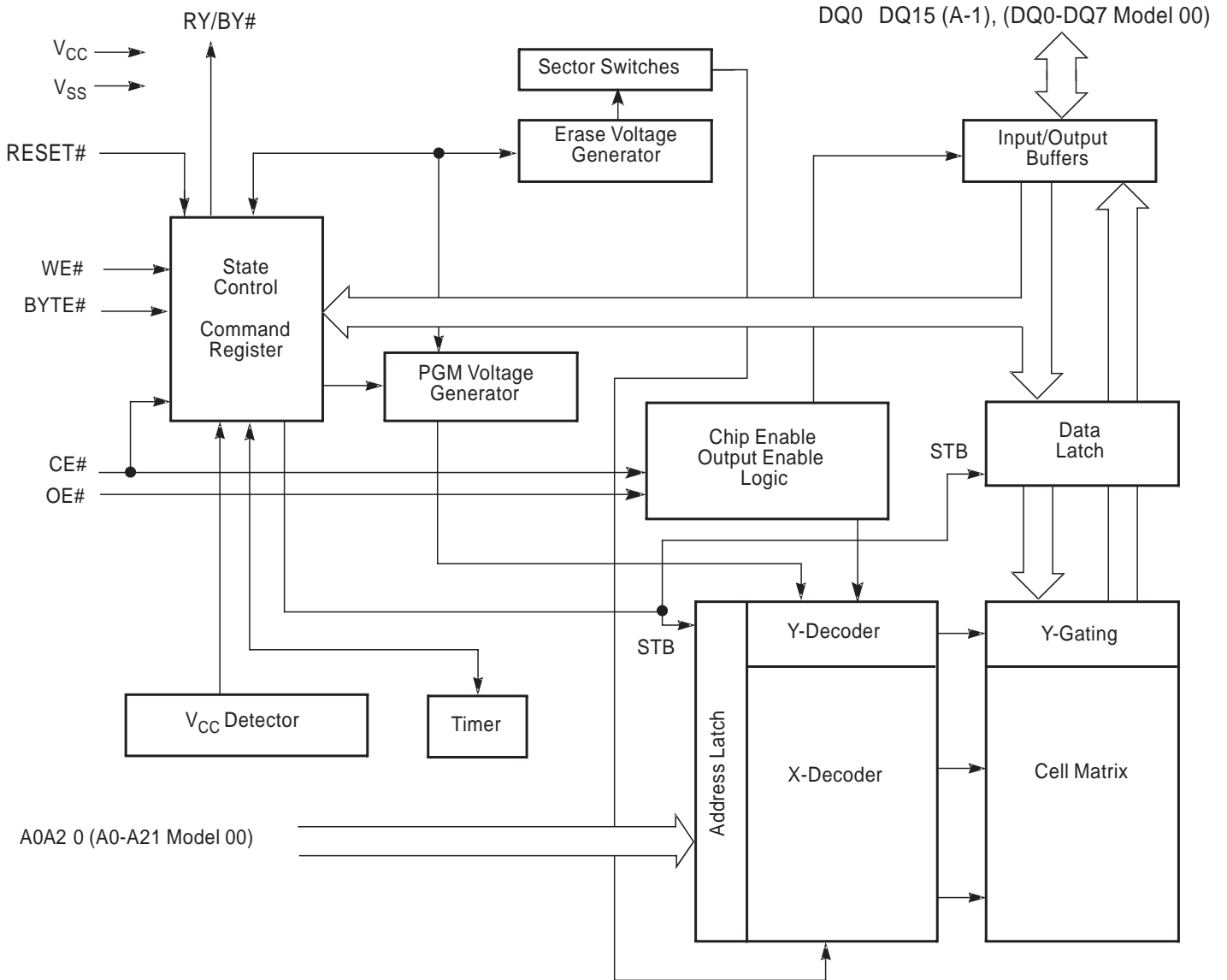
Pin Configuration

x8		x16		x16		x8	
VDD	VDD	1	66	VSS	VSS		
DQ0	DQ0	2	65	DQ15	DQ7		
VDDQ	VDDQ	3	64	VSSQ	VSSQ		
NC	DQ1	4	63	DQ14	NC		
DQ1	DQ2	5	62	DQ13	DQ6		
VSSQ	VSSQ	6	61	VDDQ	VDDQ		
NC	DQ3	7	60	DQ12	NC		
DQ2	DQ4	8	59	DQ11	DQ5		
VDDQ	VDDQ	9	58	VSSQ	VSSQ		
NC	DQ5	10	57	DQ10	NC		
DQ3	DQ6	11	56	DQ9	DQ4		
VSSQ	VSSQ	12	55	VDDQ	VDDQ		
NC	DQ7	13	54	DQ8	NC		
NC	NC	14	53	NC	NC		
VDDQ	VDDQ	15	52	VSSQ	VSSQ		
NC	LDQS	16	51	UDQS	DQS		
NC	NC	17	50	NC	NC		
VDD	VDD	18	49	VREF	VREF		
NC	NC	19	48	VSS	VSS		
NC	LDM	20	47	UDM	DM		
/WE	/WE	21	46	/CK	/CK		
/CAS	/CAS	22	45	CK	CK		
/RAS	/RAS	23	44	CKE	CKE		
/CS	/CS	24	43	NC	NC		
NC	NC	25	42	A12	A12		
BA0	BA0	26	41	A11	A11		
BA1	BA1	27	40	A9	A9		
A10/AP	A10/AP	28	39	A8	A8		
A0	A0	29	38	A7	A7		
A1	A1	30	37	A6	A6		
A2	A2	31	36	A5	A5		
A3	A3	32	35	A4	A4		
VDD	VDD	33	34	VSS	VSS		

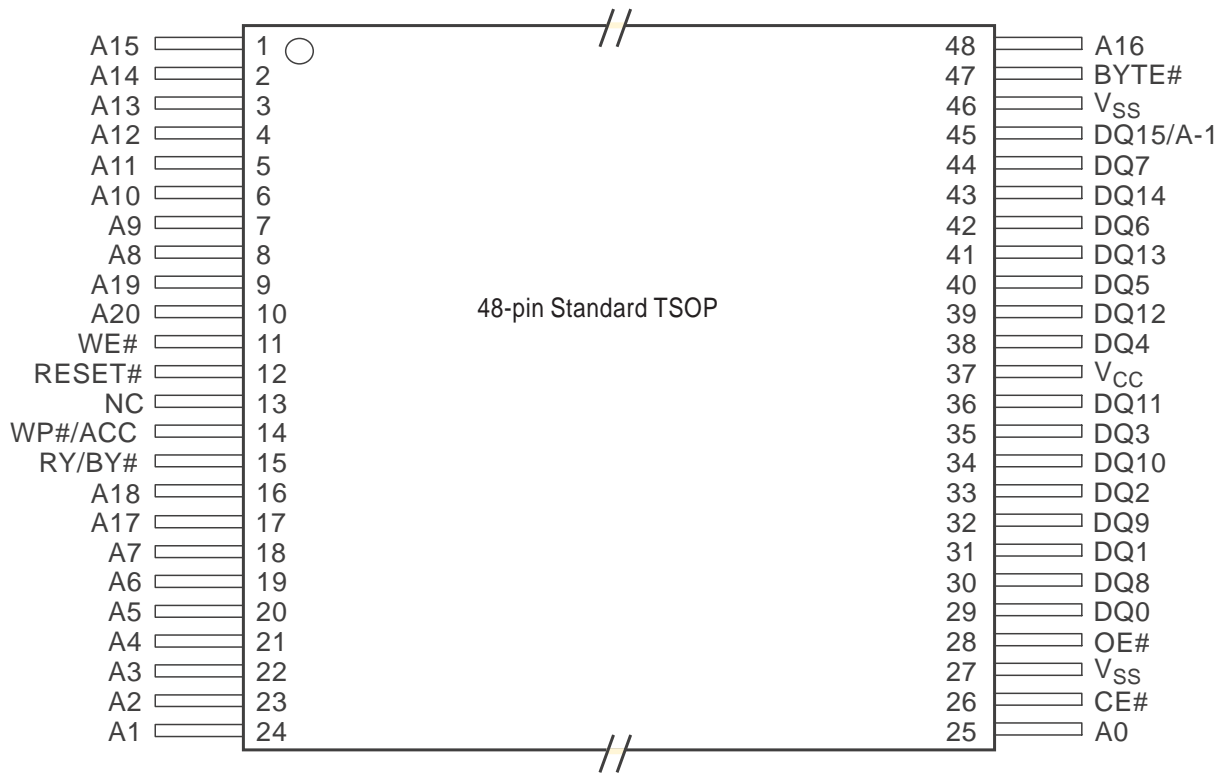
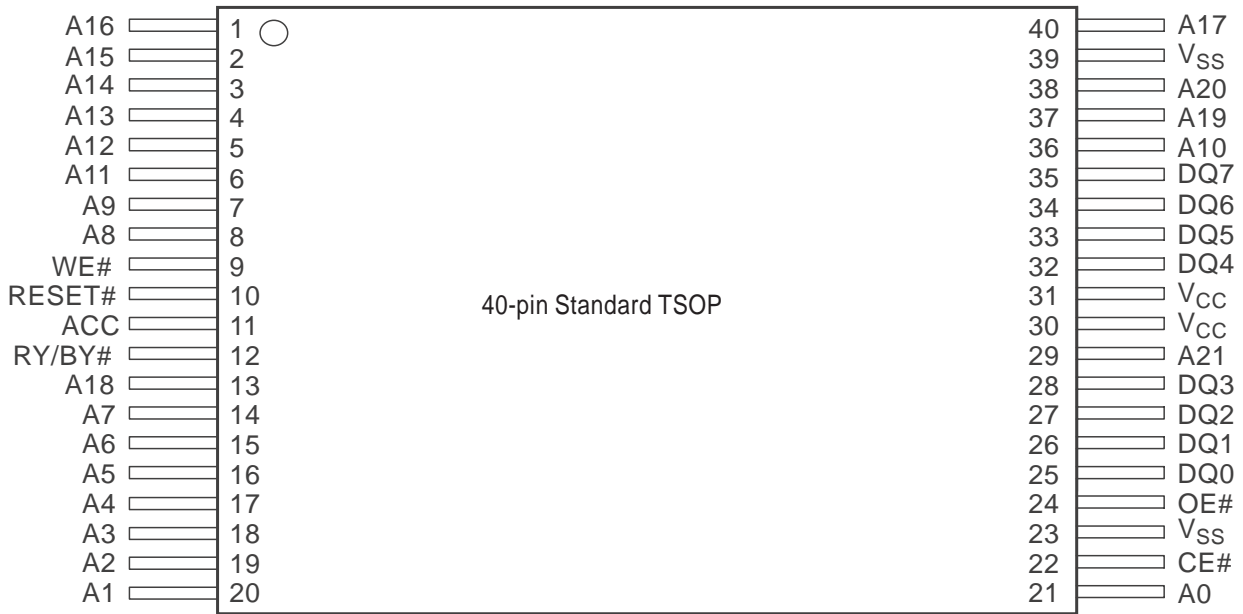
400mil X 875mil
66pin TSOP -II
0.65mm pin pitch
(Lead free)

9.3.7 IC Data Sheets-S29AL032D(U350)

Function Diagram



Pin Configuration



10.Recommended/Spare Parts List

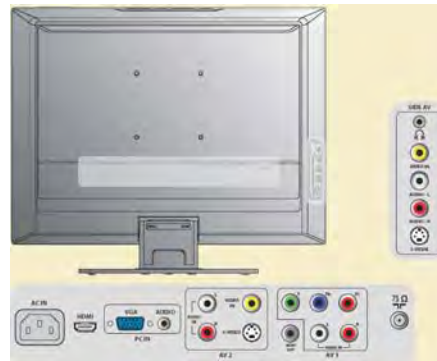
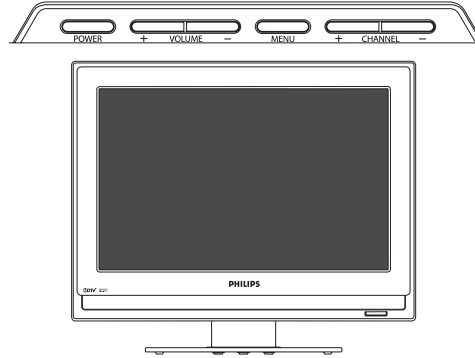
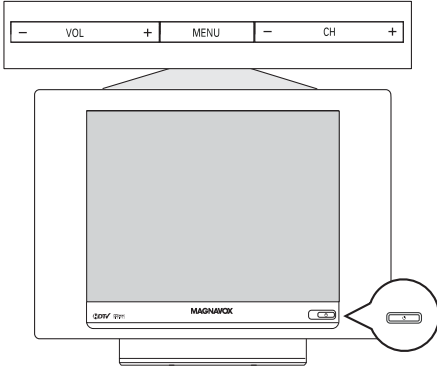
Index of this chapter

10.1 Styling Sheet

10.2 Recommended Parts List

10.3 Spare Parts List

10.1 Styling Sheet



15MF237S



15MF227B



19MF337B



10. Spare Parts List

Sets Listed per Model Number (CTN)

15MF227B/27 (SBOM 1 & 2)

1050	9965 000 44803	CLAA150XP07FQ
1050	9965 100 05123	T150XG01 V.2
1053	9965 000 44812	Scaler Board assy [S]
1053	9965 100 05124	Scaler Board assy [S]
1054	9965 000 44805	Keyb. & Control assy [K]
1055	9965 000 44814	IR & LED assy [I]
1180	9965 100 09945	Main frame/wire assy
1184	9965 000 43653	Adapter assy (50W)
1184	9965 000 43776	Adapter assy 16V 45W
8850	9965 000 44799	Cable 20p 140mm
8850	9965 100 05115	Cable 20p 115mm
8851	9965 000 44947	Cable 9p-9p 60mm
8903	9965 000 44813	DC-AC Inverter
A9001	9965 100 05118	Cable 4p-3p 190mm

A9002	9965 000 44797	Loudspeaker 8Ω 3W
A9003	9965 000 44798	Loudspeaker 8Ω 3W

15MF237S/27 (SBOM 1 & 2)

8352	9965 000 44970	Cable 6p-6p 250mm
8801	9965 000 44971	Cable 2p-2p 420mm
8802	9965 000 44972	Cable 2p-2p 520mm
SZ002	9965 000 43776	Adapter assy 16V 45W
SZ003	9965 000 44799	Cable 20p 140mm
SZ004	9965 100 05118	Cable 4p-3p 190mm
SZ005	9965 000 44947	Cable 9p-9p 60mm
SZ014	9965 000 44952	Main frame/wire assy
SZ017	9965 000 44961	Scaler board assy [S]
SZ017	9965 100 09610	Scaler board assy [S]
SZ018	9965 000 44962	DC-AC inverter
SZ018	9965 100 09614	DC-AC inverter
SZ019	9965 000 43802	IR & LED assy [I]
SZ020	9965 000 44963	Keyb. & Control assy [K]
SZ021	9965 000 43653	Adapter assy (50W)

1186	9965 000 44946	Loudspeaker 8Ω 3W
1186	9965 100 09604	Loudspeaker 8Ω 3W

19MD357B/37 (SBOM 1 & 2)

1050	9965 000 39713	LCD 19" A1-L02 CMO
1050	9965 100 05238	LC190WX1-TLA1
1053	9965 000 45287	Scaler Board assy [S]
1053	9965 100 05843	Scaler Board assy [S]
1054	9965 000 44814	IR & LED assy [I]
1055	9965 000 44805	Keyb. & Control assy [K]
1056	9965 000 45288	Power supply assy [P]
1057	9965 000 45289	DVD Transfer assy [DT]
1058	9965 000 45291	DVD function assy [DF]
1059	9965 000 45290	DVD LED assy [DL]
1060	9965 000 45280	Main frame/wire assy
1060	9965 200 31787	Main frame/wire assy
8352	9965 000 45051	Cable 6p-6p 420mm
8801	9965 000 45054	Cable 2p 345mm
8802	9965 000 45055	Cable 2p 610mm
8803	9965 000 45307	Cable 16p 470mm
8804	9965 000 45304	Cable 2p 150mm
8805	9965 000 45305	Cable 3p-3p 500mm
8806	9965 000 45306	Cable 4p-2p 380mm
8851	9965 000 45053	Cable 11p-11p 190mm
8852	9965 000 45052	Cable 4p-3p 190mm
8807	9965 000 45282	Cable FFC 16p 280mm
8808	9965 000 45283	Cable 4p/4p 330mm
8809	9965 000 45284	Cable 4p-4 2p 160mm
8810	9965 100 02766	Cable 110mm
8811	9965 100 05863	DVD 9KDR0620AP1S
8812	9965 000 45043	Cable LVDS 30p/90/30p
8812	9965 100 03635	Cable 30p LVDS

1186	9965 000 45042	Loudspeaker 8Ω 3W
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19MF337B/27 (SBOM 1 & 2)

1050	9965 000 39713	LCD 19" A1-L02 CMO
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1050	9965 100 05238	LC190WX1-TLA1
1053	9965 000 45044	Scaler Board assy [S]
1053	9965 100 05243	Scaler Board assy [S]
1054	9965 000 44814	IR & LED assy [I]
1055	9965 000 44805	Keyb. & Control assy [K]
1056	9965 100 02798	Power Board assy [P]
1057	9965 000 45041	Main frame/wire assy
1057	9965 100 05236	Main frame/wire assy
8352	9965 000 45051	Cable 6p-6p 420mm
8801	9965 000 45054	Cable 2p 345mm
8802	9965 000 45055	Cable 2p 610mm
8805	9965 000 45043	Cable LVDS 30p/90/30p
8805	9965 100 03635	Cable 30p LVDS
8851	9965 000 45053	Cable 11p-11p 190mm
8852	9965 000 45052	Cable 4p-3p 190mm

1186	9965 000 45042	Loudspeaker 8Ω 3W
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19PFL5402D/27

1050	9965 000 39713	LCD 19" A1-L02 CMO
1053	9965 100 02769	Scaler Board assy [S]
1054	9965 100 02791	IR & LED assy [I]
1055	9965 100 02792	Keyb. & Control assy [K]
1056	9965 100 02798	Power Board assy [P]
1057	9965 100 02797	Side AV assy [SA]
1058	9965 100 02763	Main frame/wire assy
8804	9965 100 02766	Cable 110mm
8805	9965 000 45043	Cable LVDS 30p/90/30p
8806	9965 100 03636	Cable 14p/170/14p

1186	9965 100 02765	Loudspeaker 8Ω 3W
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19PFL5422D/27

1050	9965 000 39713	LCD 19" A1-L02 CMO
1053	9965 100 02769	Scaler Board assy [S]
1054	9965 100 02791	IR & LED assy [I]
1055	9965 100 02792	Keyb. & Control assy [K]
1056	9965 100 02798	Power Board assy [P]
1057	9965 100 02797	Side AV assy [SA]
1058	9965 100 02763	Main frame/wire assy
8804	9965 100 02766	Cable 110mm
8805	9965 100 03635	Cable 30p LVDS
8806	9965 100 03636	Cable 14p/170/14p

1186	9965 100 02765	Loudspeaker 8Ω 3W
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19PFL5622D/37

1050	9965 000 39713	LCD 19" A1-L02 CMO
1053	9965 100 04251	Scaler Board assy [S]
1054	9965 100 02791	IR & LED assy [I]
1055	9965 100 04254	Keyb. & Control assy [K]
1056	9965 000 45288	Power supply assy [P]
1057	9965 100 02797	Side AV assy [SA]
1058	9965 100 04252	DVD Transfer assy [DT]
1059	9965 100 04253	DVD function assy [DF]
1060	9965 100 02763	Main frame/wire assy
8803	9965 100 04238	Cable 16p FF 520mm
8804	9965 100 04241	Cable 2p/353
8805	9965 100 03635	Cable 30p LVDS
8806	9965 100 03636	Cable 14p/170/14p
8807	9965 100 04239	Cable FF 16p/150
8808	9965 100 04245	Cable 4p 150mm
8809	9965 100 04244	Cable 4p 130mm
8810	9965 100 04243	cabl 2p 350mm
8811	9965 100 04223	DVD 9KDR0852APO5
8812	9965 100 04242	Cable 3p 525mm

1186	9965 100 02765	Loudspeaker 8Ω 3W
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DVD Function Panel [DF]

Various

SW080	9965 000 42279	Switch SFKQGMA2125
SW081	9965 000 42279	Switch SFKQGMA2125
SW082	9965 000 42279	Switch SFKQGMA2125
SW083	9965 000 42279	Switch SFKQGMA2125
ZD080	9965 100 03711	Tact switch
ZD081	9965 100 03711	Tact switch
ZD082	9965 100 03711	Tact switch
ZD083	9965 100 03711	Tact switch

C080	9965 000 42228	100nF 16V X7R 0603
C080	9965 000 42260	10nF 50V X7R 0603
C081	9965 000 42228	100nF 16V X7R 0603
CN080	9965 100 04224	Connector 4p m

R080	9965 000 43490	5.6kΩ 5% 0.1W
R080	9965 000 44795	360Ω 5% 0.1W
R081	9965 000 44794	1.62 1% 0.1W
R081	9965 000 44795	360Ω 5% 0.1W
R082	9965 000 44794	1.62 1% 0.1W
R083	9965 000 42219	2.2kΩ 5% 1/10W
R084	9965 000 45330	180Ω 5% 0.1W
R085	9965 000 42212	0Ω 5% 1/10W
R086	9965 000 42212	0Ω 5% 1/10W
R087	9965 000 42212	0Ω 5% 1/10W
R088	9965 000 42212	0Ω 5% 1/10W
R089	9965 000 42212	0Ω 5% 1/10W

LED080	9965 100 04237	LED green
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Q080	9965 000 43944	BC847BW 100mA/45V
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DVD LED Panel [DL]

Various

SW090	9965 000 42278	Switch Tact SKQGAB
SW090	9965 000 42279	Switch SFKQGMA2125
ZD090	9965 100 03711	Tact switch
ZD091	9965 100 03711	Tact switch

C090	9965 000 42260	10nF 50V X7R 0603
C091	9965 000 42260	10nF 50V X7R 0603
CN090	9965 100 04224	Connector 4p m

R090	9965 000 43490	5.6kΩ 5% 0.1W
R091	9965 000 45330	180Ω 5% 0.1W
R092	9965 000 42219	2.2kΩ 5% 1/10W

Q090	9965 000 43944	BC847BW 100mA/45V
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DVD transfer Panel [DT]

CN074	9965 000 45310	Connector FF 0.5mm
CN075	9965 000 45310	Connector FF 0.5mm

R071	9965 000 42212	0Ω 5% 1/10W
R072	9965 000 42212	0Ω 5% 1/10W

IR & LED Panel [I]**Various**

SW001	9965 000 35740	Tact Switch TSPB-2-NP
SW001	9965 000 44878	SFKHHPM25CO-PL
SW001	9965 100 02796	Tact switch
SW001	9965 100 02877	Switch
SW001	9965 100 02878	Switch GY

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C001	9965 000 42228	100nF 16V X7R 0603
C002	9965 000 42673	10nF 50V Y5V 20% 0603
C003	9965 000 42673	10nF 50V Y5V 20% 0603
C004	9965 000 42673	10nF 50V Y5V 20% 0603
C005	9965 000 42400	1µF 10V Y5V 20% 0603
C005	9965 000 43985	1µF 20% 16V
C006	9965 000 42673	10nF 50V Y5V 20% 0603

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R001	9965 000 42218	220Ω 5% 1/10W
R001	9965 000 42219	2.2kΩ 5% 1/10W
R002	9965 000 42218	220Ω 5% 1/10W
R002	9965 000 42219	2.2kΩ 5% 1/10W
R003	9965 000 42214	10kΩ 5% 1/10W
R004	9965 000 42213	100Ω 5% 1/10W
R005	9965 000 42219	2.2kΩ 5% 1/10W
R006	9965 000 42214	10kΩ 5% 1/10W
R007	9965 000 42218	220Ω 5% 1/10W
R008	9965 000 42214	10kΩ 5% 1/10W
R009	9965 000 42214	10kΩ 5% 1/10W

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LED001	9965 000 45268	KPB-3025SYKPBAC
LED001	9965 100 02879	VS L-3WEGW
LED001	9965 100 05112	VS L-3WEGW



Q001	9965 000 43944	BC847BW 100mA/45V
Q001	9965 100 02880	BC847BW 100mA/45V
Q002	9965 000 43944	BC847BW 100mA/45V
Q003	9965 000 43944	BC847BW 100mA/45V
Q004	9965 000 43944	BC847BW 100mA/45V
Q005	9965 000 43944	BC847BW 100mA/45V
U001	9965 000 42727	TSOP34136SB1

Inverter Board [IN]**Various**

F801	9965 000 44847	MET2.50
F801	9965 100 05093	Fuse 2.50A 250V
F901	9965 000 44847	MET2.50
F901	9965 100 05093	Fuse 2.50A 250V
PT801	9965 000 44849	Inverter TK.2043M.10
PT801	9965 100 02739	Inverter LI-SHIn
PT802	9965 000 44849	Inverter TK.2043M.10
PT802	9965 100 02739	Inverter LI-SHIn
ZD874	9965 000 36079	RLZ 5.6B L LDS
ZD874	9965 000 40620	RLZ5.6B
ZD874	9965 100 04051	RLZ5.6B
ZD874	9965 100 04052	RLZ 5.6B L LDS

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C801	9965 000 44846	10PF 5% SL 3KV TDK
C801	9965 000 44973	15PF 3KV
C802	9965 000 44845	3PF,J,3KV,Z5P
C806	9965 000 44846	10PF 5% SL 3KV TDK
C809	9965 000 44845	3PF,J,3KV,Z5P
C811	9965 000 36073	1µF 25V 0805
C812	9965 000 36040	0.1µF 10% 25V
C813	9965 000 36996	390pF 50V
C813	9965 000 43889	560pF 50V 0805
C813	9965 000 43890	560pF 50V 0805
C819	9965 000 36039	0.01F 25V 0805
C820	9965 000 44843	470F 25V
C820	9965 000 44844	470F 25V
C821	9965 000 36073	1µF 25V 0805
C822	9965 000 44871	1500pF 50V 0805
C823	9965 000 44871	1500pF 50V 0805
C831	9965 000 36074	0.33µF 10% 25V 0805
C832	9965 000 36040	0.1µF 10% 25V

C838	9965 000 36991	1000pF 50V
C840	9965 000 44843	470F 25V
C840	9965 000 44844	470F 25V
C841	9965 000 36073	1µF 25V 0805
C842	9965 000 44871	1500pF 50V 0805
C843	9965 000 44871	1500pF 50V 0805
C846	9965 000 36073	1µF 25V 0805
C847	9965 000 36043	0.022F 25V 0805
C858	9965 000 36991	1000pF 50V
C860	9965 000 44873	330pF 50V
C860	9965 100 04039	100pF 50Vp 0805
C861	9965 000 44873	330pF 50V
C865	9965 000 36995	0.033F 50V
C874	9965 000 36040	0.1µF 10% 25V
C874	9965 000 36073	1µF 25V 0805
C880	9965 000 36040	0.1µF 10% 25V
C881	9965 000 36039	0.01F 25V 0805
C883	9965 000 36039	0.01F 25V 0805
C885	9965 000 36039	0.01F 25V 0805
C887	9965 000 36039	0.01F 25V 0805
CN831	9965 000 45325	Connector 2p
CN831	9965 100 02804	Connector 2p
CN831	9965 100 02805	Connector 2p
CN831	9965 100 10043	Connector 2p
CN833	9965 000 45325	Connector 2p
CN833	9965 100 02804	Connector 2p
CN833	9965 100 02805	Connector 2p
CN833	9965 100 10043	Connector 2p
CN841	9965 100 09616	Connector 2p
CN843	9965 100 09616	Connector 2p
CN851	9965 000 45325	Connector 2p
CN851	9965 100 02804	Connector 2p
CN851	9965 100 02805	Connector 2p
CN852	9965 100 09615	Connector 2p
CN853	9965 000 45325	Connector 2p
CN853	9965 100 02804	Connector 2p
CN853	9965 100 02805	Connector 2p

-WW-

R804	9965 000 43381	10kΩ 1/10W
R807	9965 000 43381	10kΩ 1/10W
R811	9965 000 44860	3.3MΩ 0805
R812	9965 000 44861	620kΩ 5% 1/8W
R813	9965 000 44858	30kΩ 1% 1/8W
R813	9965 000 44978	47kΩ 1% 1/8W
R815	9965 000 44859	30kΩ 5% 1/8W
R816	9965 000 44854	20kΩ 1/10W
R819	9965 000 43382	1MΩ 1/10W
R820	9965 000 44856	27Ω 5% 1/8W
R821	9965 000 44856	27Ω 5% 1/8W
R822	9965 000 44856	27Ω 5% 1/8W
R823	9965 000 44856	27Ω 5% 1/8W
R824	9965 100 04039	100pF 50Vp 0805
R825	9965 100 04039	100pF 50Vp 0805
R829	9965 000 42284	0Ω 1/10W
R831	9965 000 43380	1kΩ 1/10W
R831	9965 100 05095	820Ω 5% 1/8W
R832	9965 100 05095	820Ω 5% 1/8W
R833	9965 000 43380	1kΩ 1/10W
R833	9965 100 05095	820Ω 5% 1/8W
R835	9965 000 44853	10kΩ 1% 1/8W
R836	9965 000 44853	10kΩ 1% 1/8W
R837	9965 000 44642	8.2kΩ 1% 1/10W
R838	9965 100 05095	820Ω 5% 1/8W
R839	9965 000 36083	6.2MΩ 5% 1/2W
R839	9965 000 44867	6.2MΩ 5% 1/2W
R841	9965 000 44856	27Ω 5% 1/8W
R842	9965 000 44856	27Ω 5% 1/8W
R843	9965 000 44856	27Ω 5% 1/8W
R844	9965 000 44856	27Ω 5% 1/8W
R849	9965 000 44853	10kΩ 1% 1/8W
R850	9965 000 44853	10kΩ 1% 1/8W
R851	9965 000 43380	1kΩ 1/10W
R853	9965 000 43380	1kΩ 1/10W
R854	9965 000 36083	6.2MΩ 5% 1/2W
R854	9965 000 44867	6.2MΩ 5% 1/2W
R855	9965 000 42284	0Ω 1/10W
R857	9965 000 44642	8.2kΩ 1% 1/10W
R861	9965 000 44863	150KΩ 1% 1/4W
R861	9965 000 44865	150KΩ 1% 0.6W
R861	9965 000 44869	150KΩ 1% 1/4W
R861	9965 000 44985	130KΩ 1% 0.6W
R861	9965 100 05096	130KΩ 1% 1/4W
R863	9965 000 44864	30KΩ 1% 1/6W
R863	9965 000 44866	30kΩ 1% 0.6W
R863	9965 000 44870	30KΩ 1% 1/6W
R863	9965 000 44983	27KΩ 1% 1/6W
R863	9965 000 44986	27kΩ 1% 0.6W
R865	9965 000 44855	226Ω 1% 1/8W
R865	9965 000 44977	360Ω 1% 1/8W
R871	9965 000 36988	10kΩ 5% 1/4W
R871	9965 000 43415	10kΩ 5% 1/6W

R871	9965 000 44862	10KΩ 5% 1/4W
R871	9965 000 44984	10kΩ 5% 1/16W
R871	9965 100 05105	10KΩ 5% 1/4W
R872	9965 000 39749	100kΩ 0805
R873	9965 000 44857	2.7kΩ 5% 1/8W
R874	9965 000 43393	330Ω 5% 1/8W
R880	9965 000 36988	10kΩ 5% 1/4W
R880	9965 000 43381	10kΩ 1/10W
R880	9965 000 44862	10KΩ 5% 1/4W
R880	9965 100 05105	10KΩ 5% 1/4W
R881	9965 000 39749	100kΩ 0805
R882	9965 000 43380	1kΩ 1/10W
R883	9965 000 39749	100kΩ 0805
R884	9965 000 43380	1kΩ 1/10W
R885	9965 000 39749	100kΩ 0805
R886	9965 000 43380	1kΩ 1/10W
R887	9965 000 39749	100kΩ 0805
R888	9965 000 43380	1kΩ 1/10W
RJ801	9965 000 42284	0Ω 1/10W

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D831	9965 000 35994	BAV99
D831	9965 100 02756	D-BAV99W-7-F
D831	9965 100 02757	BAV99PT
D833	9965 000 35995	BAV70
D833	9965 100 02715	BAV70PT
D851	9965 000 35994	BAV99
D851	9965 100 02756	D-BAV99W-7-F
D851	9965 100 02757	BAV99PT
D853	9965 000 35995	BAV70
D853	9965 100 02715	BAV70PT
D881	9965 000 36035	LL4148WP
D881	9965 000 43891	MLL4148 SMD
D881	9965 100 03321	LL4148-GSO8
D881	9965 100 05242	LL4148WP
D883	9965 000 36035	LL4148WP
D883	9965 000 43891	MLL4148 SMD
D883	9965 100 03321	LL4148-GSO8
D885	9965 000 36035	LL4148WP
D885	9965 000 43891	MLL4148 SMD
D885	9965 100 03321	LL4148-GSO8
D887	9965 000 36035	LL4148WP
D887	9965 000 43891	MLL4148 SMD
D887	9965 100 03321	LL4148-GSO8



Q821	9965 000 36100	AM9945N
Q821	9965 100 02742	AO4828L SOIC-8
Q841	9965 000 36100	AM9945N
Q841	9965 100 02742	AO4828L SOIC-8
Q871	9965 000 36033	RK7002
Q871	9965 000 42650	2N7002
Q871	9965 000 42651	2N7002
Q871	9965 000 44975	RK7002
Q873	9965 000 36962	PDTA144WK SOT346
Q873	9965 000 44851	DTA144WKA
Q873	9965 100 04032	DTA144WKA
Q874	9965 000 35966	PMBS3904
Q874	9965 000 36961	KEC 2N3904S-RTK/PS
Q874	9965 000 44974	PMBS3904
Q874	9965 100 02429	PMBS3904
Q880	9965 000 36033	RK7002
Q880	9965 000 42650	2N7002
Q880	9965 000 42651	2N7002
Q880	9965 000 44975	RK7002
Q881	9965 000 36033	RK7002
Q881	9965 000 42650	2N7002
Q881	9965 000 42651	2N7002
Q881	9965 000 44975	RK7002
Q883	9965 000 36033	RK7002
Q883	9965 000 42650	2N7002
Q883	9965 000 42651	2N7002
Q885	9965 000 36033	RK7002
Q885	9965 000 42650	2N7002
Q886	9965 000 42651	2N7002
Q886	9965 000 36033	RK7002
Q886	9965 000 42650	2N7002
Q886	9965 000 42651	2N7002
U811	9965 000 36059	OZ9938

Keyboard & Control Board [K]**Various**

SW020	9965 000 35740	Tact Switch TSPB-2-NP
SW020	9965 000 42278	Switch Tact SKQGAB
SW020	9965 000 42279	Switch SFKQGA2125
SW020	9965 000 44878	SFKHHPM25CO-PL
SW020	9965 100 02794	Tact switch

SW020	9965 100 02796	Tact switch
SW020	9965 100 03599	Tact switch
SW021	9965 000 35740	Tact Switch TSPB-2-NP
SW021	9965 000 42278	Switch Tact SKQGAB
SW021	9965 000 42279	Switch SFKQGMA2125
SW021	9965 000 44878	SFKHHPM25C0-PL
SW021	9965 100 02794	Tact switch
SW021	9965 100 02796	Tact switch
SW021	9965 100 03598	Tact switch
SW021	9965 100 03599	Tact switch
SW022	9965 000 35740	Tact Switch TSPB-2-NP
SW022	9965 000 42278	Switch Tact SKQGAB
SW022	9965 000 42279	Switch SFKQGMA2125
SW022	9965 000 44878	SFKHHPM25C0-PL
SW022	9965 100 02794	Tact switch
SW022	9965 100 02796	Tact switch
SW022	9965 100 03598	Tact switch
SW022	9965 100 03599	Tact switch
SW023	9965 000 35740	Tact Switch TSPB-2-NP
SW023	9965 000 42278	Switch Tact SKQGAB
SW023	9965 000 42279	Switch SFKQGMA2125
SW023	9965 000 44878	SFKHHPM25C0-PL
SW023	9965 100 02794	Tact switch
SW023	9965 100 02796	Tact switch
SW023	9965 100 03598	Tact switch
SW023	9965 100 03599	Tact switch
SW024	9965 000 35740	Tact Switch TSPB-2-NP
SW024	9965 000 42278	Switch Tact SKQGAB
SW024	9965 000 42279	Switch SFKQGMA2125
SW024	9965 000 44878	SFKHHPM25C0-PL
SW024	9965 100 02794	Tact switch
SW024	9965 100 02796	Tact switch
SW024	9965 100 03598	Tact switch
SW025	9965 000 35740	Tact Switch TSPB-2-NP
SW025	9965 000 44878	SFKHHPM25C0-PL
SW025	9965 100 02794	Tact switch
SW025	9965 100 02796	Tact switch
ZD020	9965 100 03711	Tact switch
ZD021	9965 100 03711	Tact switch
ZD028	9965 100 03711	Tact switch

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C020	9965 000 42260	10nF 50V X7R 0603
C020	9965 000 43488	100nF 25V 0603
C021	9965 000 42228	100nF 16V X7R 0603
C021	9965 000 42260	10nF 50V X7R 0603
C021	9965 000 43488	100nF 25V 0603
C022	9965 000 42260	10nF 50V X7R 0603

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R020	9965 000 44043	11kΩ 5% 1/10W
R020	9965 100 02793	11kΩ 1% 0.1W
R020	9965 100 04229	11kΩ 1% 0.1W
R021	9965 000 44045	4.3kΩ 5% 1/10W
R022	9965 000 44044	1.8kΩ 5% 1/10W
R023	9965 000 42224	470Ω 5% 1/10W

LIPPS Board [L]

Various

F901	9965 100 02726	Fuse 2.5A 250V
FB902	9965 100 02720	Bead GBQM4.777.630
ZD925	9965 100 04053	RLZ18B LLDS

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C900	9965 000 43824	470pF 10% 250VAC
C900	9965 100 02733	470pF 10% 250V AC
C901	9965 000 43824	470pF 10% 250VAC
C901	9965 100 02733	470pF 10% 250V AC
C907	9965 000 36086	100µF 450V
C908	9965 000 37794	Film Capacitor
C908	9965 000 43821	0.47µF 275VAC
C910	9965 100 07233	1000pF 250VAC
C913	9965 000 36041	0.1µF 50V X7R
C916	9965 000 44615	1nF 10% 50V 0805
C917	9965 000 45159	47µF 50V
C918	9965 100 09628	270p 10% 50V 0805
C920	9965 100 09619	1000pF 1kV
C920	9965 100 09632	1000pF 10% 1kV
C931	9965 100 09631	270pF 10% 500V
C932	9965 100 02800	1000µF 25V
C933	9965 100 02800	1000µF 25V
C934	9965 000 43916	470µF 20% 25V
C935	9965 100 09629	0.022F 50V
C937	9965 000 36041	0.1µF 50V X7R

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R900	9965 100 06511	680Ω 5% 0.25W
R901	9965 100 06511	680Ω 5% 0.25W
R902	9965 100 06511	680Ω 5% 0.25W
R904	9965 100 04386	1MΩ 5% 1/4W
R905	9965 000 45151	100kΩ 5% 1W
R906	9965 100 04386	1MΩ 5% 1/4W
R907	9965 000 40048	10kΩ 1/8W
R913	9965 000 43973	10Ω 1/10W
R915	9965 000 43973	10Ω 1/10W
R916	9965 000 39749	100kΩ 0805
R917	9965 000 43397	470Ω 8 1/10W
R919	9965 000 43390	22kΩ 5% 1/8W
R924	9965 100 09151	0.43kΩ 5% 2W
R926	9965 000 45143	3.3Ω 1206
R930	9965 100 02743	2.43kΩ 1% 1/10W
R931	9965 000 45142	100Ω 1206
R932	9965 000 45142	100Ω 1206
R933	9965 100 04365	13kΩ 1% 1/8W
R936	9965 000 45144	1.5kΩ 5% 1/4W
R937	9965 000 43867	150Ω 5% 1/8W
R938	9965 000 43390	22kΩ 5% 1/8W
R939	9965 000 43876	4.7kΩ 5% 1/8W
RJ901	9965 000 39751	0Ω 1/8W
RV901	9965 100 09617	TVR10511KSY 510V

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L901	9965 100 02444	Line Filter 15mH
L901	9965 100 02737	LF-001788-1
L902	9965 000 45127	Line Filter LISHIN
L902	9965 100 05240	Choke Coil
L921	9965 100 09622	Choke Coil 0.7H
L921	9965 100 09623	Choke Coil 0.7H
LED1	9965 100 09620	LED FGYG3004
LED1	9965 100 09621	LED
T901	9965 100 09624	XFMR PT-006892-1
T901	9965 100 09625	XFMR SRW28LEC

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D901	9965 100 02721	RGP10M DO-204AL
D913	9965 000 39779	IN4148W
D913	9965 100 09630	MLL4148
D921	9965 100 02741	STPS20150CT
D921	9965 100 04054	SP20150R 20A/150V



IC901	9965 100 05241	LD7575PS
IC902	9965 000 40056	TCET1103G
IC921	9965 100 02780	AZ431AZ-AE1
Q901	9965 100 04225	2SK2996
BD901	9965 000 36386	U4KB80R
BD901	9965 000 37336	GBU408
NR901	9965 100 09618	4A/5% 20%

Power Supply Assy [P]

Various

F901	9965 000 45122	Fuse 2.5A 250V
FB902	9965 100 02720	Bead GBQM4.777.630
PT801	9965 000 44849	Inverter TK.2043M.10
PT801	9965 100 02739	Inverter LI-SHIN
PT802	9965 000 44849	Inverter TK.2043M.10
PT802	9965 100 02739	Inverter LI-SHIN
ZD874	9965 100 04051	RLZ5.6B
ZD874	9965 100 04052	RLZ 5.6B LLDS
ZD925	9965 100 04053	RLZ18B LLDS
ZD925	9965 100 06306	RLZ18B

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C801	9965 100 03714	10pF 5% 3kV
C802	9965 100 03713	3pF 3kV
C806	9965 100 03714	10pF 5% 3kV
C810	9965 100 03713	3pF 3kV
C811	9965 000 36073	1µF 25V 0805
C812	9965 000 36041	0.1µF 50V X7R
C813	9965 000 45148	390pF +/-10% 50V
C813	9965 100 02754	470µF 25V
C813	9965 100 04233	390pF +/-10% 50V
C819	9965 000 36039	0.01F 25V 0805
C819	9965 000 43405	10nF -10% 50V
C820	9965 000 44843	470F 25V
C820	9965 000 44844	470F 25V
C821	9965 000 36073	1µF 25V 0805

C822	9965 000 44871	1500pF 50V 0805
C822	9965 000 45146	1.5nF 10% 50V 0805
C823	9965 000 44871	1500pF 50V 0805
C823	9965 000 45146	1.5nF 10% 50V 0805
C831	9965 000 36074	0.33µF 10% 25V 0805
C832	9965 000 36041	0.1µF 50V X7R
C838	9965 000 36991	1000pF 50V
C840	9965 000 44843	470F 25V
C840	9965 000 44844	470F 25V
C841	9965 000 36073	1µF 25V 0805
C842	9965 000 44871	1500pF 50V 0805
C842	9965 000 45146	1.5nF 10% 50V 0805
C843	9965 000 44871	1500pF 50V 0805
C843	9965 000 45146	1.5nF 10% 50V 0805
C846	9965 000 36073	1µF 25V 0805
C847	9965 100 02755	0.022µF 25V 0805
C847	9965 100 04232	22nF -10% 50V
C858	9965 000 36991	1000pF 50V
C860	9965 000 44872	270pF 50V
C861	9965 000 39769	220pF 50V
C861	9965 000 44872	270pF 50V
C865	9965 000 36995	0.033F 50V
C874	9965 000 36073	1µF 25V 0805
C880	9965 000 36041	0.1µF 50V X7R
C881	9965 000 36039	0.01F 25V 0805
C881	9965 000 43405	10nF -10% 50V
C883	9965 000 36039	0.01F 25V 0805
C883	9965 000 43405	10nF -10% 50V
C885	9965 000 36039	0.01F 25V 0805
C885	9965 000 43405	10nF -10% 50V
C887	9965 000 36039	0.01F 25V 0805
C887	9965 000 43405	10nF -10% 50V
C900	9965 000 43824	470pF 10% 250VAC
C900	9965 100 02733	470pF 10% 250V AC
C901	9965 000 43824	470pF 10% 250VAC
C901	9965 100 02733	470pF 10% 250V AC
C907	9965 000 45117	120µF 450V
C907	9965 100 02801	120F 450V
C907	9965 100 02802	120µF 450V
C908	9965 000 37794	Film Capacitor
C908	9965 000 43821	0.47µF 275VAC
C910	9965 000 43353	Safety Y-CAP 1.5nF
C910	9965 000 44612	1500pF 250V
C913	9965 000 36041	0.1µF 50V X7R
C916	9965 000 44615	1nF 10% 50V 0805
C917	9965 000 45159	47µF 50V
C920	9965 000 43907	2200pF 500V
C920	9965 000 43908	2200pF 500V
C920	9965 000 45320	2200pF 10% 500V
C920	9965 100 04235	2200pF 10% 500V
C931	9965 000 45157	1000pF 10% 500V
C932	9965 100 02800	1000µF 25V
C933	9965 100 02800	1000µF 25V
C934	9965 100 02800	1000µF 25V
C935	9965 000 39770	0.022µF 50V 0805
C936	9965 000 44824	1000µF 10V
C936	9965 000 45321	1000µF 10V
C936	9965 100 02724	1000F 10V
C937	9965 000 36041	0.1µF 50V X7R
C939	9965 100 02753	270pF 50V
C939	9965 100 04231	270pF 10% 50V 0603
C940	9965 000 44615	1nF 10% 50V 0805
C942	9965 100 05859	0.01F 50V 0805
C944	9965 000 36041	0.1µF 50V X7R
CN831	9965 100 02804	Connector 2p
CN831	9965 100 02805	Connector 2p
CN833	9965 100 02804	Connector 2p
CN833	9965 100 02805	Connector 2p
CN851	9965 100 02804	Connector 2p
CN851	9965 100 02805	Connector 2p
CN853	9965 100 02804	Connector 2p
CN853	9965 100 02805	Connector 2p

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R804	9965 000 43381	10kΩ 1/10W
R806	9965 000 39749	100kΩ 0805
R807	9965 000 44297	10kΩ 5% 1/8W
R811	9965 000 44860	3.3MΩ 0805
R812	9965 000 44861	620kΩ 5% 1/8W
R813	9965 000 44978	47kΩ 1% 1/8W
R813	9965 000 45323	38.8kΩ 0.1W
R815	9965 000 44859	30kΩ 5% 1/8W
R816	9965 000 44854	20kΩ 1/10W
R819	9965 000 43382	1MΩ 1/10W
R820	9965 000 44856	27Ω 5% 1/8W
R821	9965 000 44856	27Ω 5% 1/8W
R822	9965 000 44856	27Ω 5% 1/8W
R823	9965 000 44856	27Ω 5% 1/8W
R824	9965 100 04039	100pF 50Vp 0805
R825	9965 100 04039	100pF 50Vp 0805
R829	9965 000 42284	0Ω 1/10W
R831	9965 000 43380	1kΩ 1/10W

R833	9965 000 43380	1k Ω 1/10W	D833	9965 000 35995	BAV70	1302	9965 100 05865	EEPROM assy
R835	9965 000 44853	10k Ω 1% 1/8W	D833	9965 100 02715	BAV70PT	1302	9965 100 10100	EEPROM assy
R836	9965 000 44853	10k Ω 1% 1/8W	D851	9965 000 35994	BAV99	1302	9965 100 10101	EEPROM assy
R837	9965 000 45139	7.5k Ω 1% 1/8W	D851	9965 100 02756	D-BAV99W-7-F	FB101	9965 000 36053	Ferr. Bead
R839	9965 000 36083	6.2M Ω 5% 1/2W	D851	9965 100 02757	BAV99PT	FB101	9965 000 43918	75 Ω W6 RH 3.5X10X
R839	9965 000 44867	6.2M Ω 5% 1/2W	D853	9965 000 35995	BAV70	FB101	9965 000 43919	80 Ω BF30TA 3.5X9X
R841	9965 000 44856	27 Ω 5% 1/8W	D853	9965 100 02715	BAV70PT	FB101	9965 100 03567	BF30TA-2
R842	9965 000 44856	27 Ω 5% 1/8W	D881	9965 000 36035	LL4148WP	FB101	9965 100 03568	Ferrite Core 35 Ω W5
R843	9965 000 44856	27 Ω 5% 1/8W	D881	9965 000 43891	MLL4148 SMD	FB150	9965 100 02775	Bead 120 Ω /500mA
R844	9965 000 44856	27 Ω 5% 1/8W	D881	9965 100 03321	LL4148-GSO8	FB150	9965 100 03317	Bead 120 Ω /500mA
R849	9965 000 44853	10k Ω 1% 1/8W	D883	9965 000 36035	LL4148WP	FB151	9965 100 02775	Bead 120 Ω /500mA
R850	9965 000 44853	10k Ω 1% 1/8W	D883	9965 000 43891	MLL4148 SMD	FB151	9965 100 03317	Bead 120 Ω /500mA
R851	9965 000 43380	1k Ω 1/10W	D883	9965 100 03321	LL4148-GSO8	FB152	9965 100 02775	Bead 120 Ω /500mA
R853	9965 000 43380	1k Ω 1/10W	D885	9965 000 36035	LL4148WP	FB152	9965 100 03317	Bead 120 Ω /500mA
R854	9965 000 36083	6.2M Ω 5% 1/2W	D885	9965 000 43891	MLL4148 SMD	FB201	9965 100 02775	Bead 120 Ω /500mA
R854	9965 000 44867	6.2M Ω 5% 1/2W	D885	9965 100 03321	LL4148-GSO8	FB201	9965 100 03317	Bead 120 Ω /500mA
R855	9965 000 42284	0 Ω 1/10W	D887	9965 000 36035	LL4148WP	FB202	9965 100 02775	Bead 120 Ω /500mA
R857	9965 000 45139	7.5k Ω 1% 1/8W	D887	9965 000 43891	MLL4148 SMD	FB202	9965 100 03317	Bead 120 Ω /500mA
R861	9965 100 02718	180k Ω 1% 1/6W	D887	9965 100 03321	LL4148-GSO8	FB203	9965 100 03317	Bead 120 Ω /500mA
R861	9965 100 04227	180k Ω 1% 0.6W	D901	9965 000 45155	RGP10M DO-204AL	FB250	9965 000 43995	Bead 600 Ω /200mA
R863	9965 000 45324	33k Ω 1% 0.6W	D908	9965 000 45319	SM240A DO-214AC	FB250	9965 000 43997	Bead 600 Ω /500mA
R863	9965 100 02719	33k Ω 1% 1/6W	D912	9965 000 40067	RGP10-DO-204AL	FB251	9965 000 43995	Bead 600 Ω /200mA
R865	9965 000 45137	215 Ω 1% 1/10W	D912	9965 000 43436	RGP10D	FB251	9965 000 43997	Bead 600 Ω /500mA
R871	9965 000 36988	10k Ω 5% 1/4W	D912	9965 000 45156	RGP10D	FB252	9965 000 43995	Bead 600 Ω /200mA
R871	9965 000 43415	10k Ω 5% 1/4W	D913	9965 000 43891	MLL4148 SMD	FB252	9965 000 43997	Bead 600 Ω /500mA
R871	9965 100 02717	10k Ω 5% 1/4W	D913	9965 100 03321	LL4148-GSO8	FB253	9965 000 43995	Bead 600 Ω /200mA
R871	9965 100 04228	10k Ω 5% 1/6W	D913	9965 100 03327	BAS32L	FB253	9965 000 43997	Bead 600 Ω /500mA
R872	9965 000 39749	100k Ω 0805	D921	9965 000 45135	STPS20150CT	FB254	9965 100 02775	Bead 120 Ω /500mA
R873	9965 000 44857	2.7k Ω 5% 1/8W	D921	9965 100 04054	SP20150R 20A/150V	FB254	9965 100 03317	Bead 120 Ω /500mA
R874	9965 000 43393	330 Ω 5% 1/8W				FB255	9965 000 43995	Bead 600 Ω /200mA
R880	9965 000 36988	10k Ω 5% 1/4W				FB255	9965 000 43997	Bead 600 Ω /500mA
R880	9965 000 43415	10k Ω 5% 1/6W				FB256	9965 000 43995	Bead 600 Ω /200mA
R880	9965 100 02717	10k Ω 5% 1/4W				FB256	9965 000 43997	Bead 600 Ω /500mA
R880	9965 100 04228	10k Ω 5% 1/6W				FB257	9965 000 43995	Bead 600 Ω /200mA
R881	9965 000 39749	100k Ω 0805	IC901	9965 000 39747	LD7575PS SOP-8	FB257	9965 000 43997	Bead 600 Ω /500mA
R882	9965 000 43380	1k Ω 1/10W	IC902	9965 000 40055	PC123 Y82FZ0F	FB350	9965 000 42268	220 Ω at 100MHz 0805
R883	9965 000 39749	100k Ω 0805	IC902	9965 000 40056	TCET1103G	FB351	9965 000 43995	Bead 600 Ω /200mA
R884	9965 000 43380	1k Ω 1/10W	IC921	9965 000 43819	TL431CZ-AP	FB351	9965 000 43997	Bead 600 Ω /500mA
R885	9965 000 39749	100k Ω 0805	IC921	9965 100 02780	AZ431AZ-AE1	FB352	9965 000 43995	Bead 600 Ω /200mA
R885	9965 000 43380	1k Ω 1/10W	IC922	9965 000 45316	AP1520SA	FB352	9965 000 43997	Bead 600 Ω /500mA
R886	9965 000 43380	1k Ω 1/10W	Q821	9965 100 02742	AO4828L SOIC-8	FB352	9965 000 43995	Bead 600 Ω /200mA
R887	9965 000 39749	100k Ω 0805	Q821	9965 100 04033	AM9945N	FB354	9965 000 42268	220 Ω at 100MHz 0805
R888	9965 000 43380	1k Ω 1/10W	Q841	9965 100 02742	AO4828L SOIC-8	FB355	9965 000 42268	220 Ω at 100MHz 0805
R900	9965 000 45140	560k Ω 5% 1/4W	Q841	9965 100 04033	AM9945N	FB356	9965 000 42268	220 Ω at 100MHz 0805
R901	9965 000 45140	560k Ω 5% 1/4W	Q871	9965 000 36033	RK7002	FB401	9965 000 43995	Bead 600 Ω /200mA
R902	9965 000 45140	560k Ω 5% 1/4W	Q871	9965 000 42650	2N7002	FB401	9965 000 43997	Bead 600 Ω /500mA
R904	9965 000 45141	3.3k Ω 5% 1/4W	Q871	9965 000 42651	2N7002	FB402	9965 000 43995	Bead 600 Ω /200mA
R905	9965 000 45151	100k Ω 5% 1W	Q873	9965 000 36962	PDTA144WK SOT346	FB402	9965 000 43997	Bead 600 Ω /500mA
R906	9965 000 45141	620k Ω 5% 1/4W	Q873	9965 100 04032	DTA144WKA	FB403	9965 000 43995	Bead 600 Ω /200mA
R907	9965 000 40048	10k Ω 1/8W	Q874	9965 000 35966	PMBS3904	FB403	9965 000 43997	Bead 600 Ω /500mA
R908	9965 000 45141	620k Ω 5% 1/4W	Q874	9965 000 36961	KEC 2N3904S-RTK/PS	FB404	9965 000 43995	Bead 600 Ω /200mA
R913	9965 000 43973	10 Ω 1/10W	Q880	9965 000 36033	RK7002	FB404	9965 000 43997	Bead 600 Ω /500mA
R915	9965 000 43388	22 Ω 1/10W	Q880	9965 000 42650	2N7002	FB405	9965 000 43995	Bead 600 Ω /200mA
R916	9965 000 39749	100k Ω 0805	Q880	9965 000 42651	2N7002	FB405	9965 000 43997	Bead 600 Ω /500mA
R917	9965 000 45138	680 Ω 5% 1/8W	Q881	9965 000 36033	RK7002	FB406	9965 000 43995	Bead 600 Ω /200mA
R918	9965 000 45138	680 Ω 5% 1/8W	Q881	9965 000 42650	2N7002	FB406	9965 000 43997	Bead 600 Ω /500mA
R919	9965 000 43390	22k Ω 5% 1/8W	Q881	9965 000 42651	2N7002	FB408	9965 000 43995	Bead 600 Ω /200mA
R924	9965 100 02799	0.36 5% 2W	Q883	9965 000 36033	RK7002	FB408	9965 000 43997	Bead 600 Ω /500mA
R926	9965 000 45143	3.3k 1206	Q883	9965 000 42650	2N7002	FB409	9965 000 43995	Bead 600 Ω /200mA
R930	9965 100 02743	2.43k Ω 1% 1/10W	Q883	9965 000 42651	2N7002	FB409	9965 000 43997	Bead 600 Ω /500mA
R931	9965 000 45142	100 Ω 1206	Q885	9965 000 36033	RK7002	FB410	9965 000 43995	Bead 600 Ω /200mA
R932	9965 000 45142	100 Ω 1206	Q885	9965 000 42650	2N7002	FB410	9965 000 43997	Bead 600 Ω /500mA
R933	9965 000 45136	13.3k Ω 1% 1/8W	Q885	9965 000 42651	2N7002	FB411	9965 000 43995	Bead 600 Ω /200mA
R934	9965 100 05900	330 Ω 1% 1/10W	Q886	9965 000 36033	RK7002	FB411	9965 000 43997	Bead 600 Ω /500mA
R935	9965 000 43380	1k Ω 1/10W	Q886	9965 000 42650	2N7002	FB650	9965 000 43995	Bead 600 Ω /200mA
R936	9965 000 45144	1.5k Ω 5% 1/4W	Q886	9965 000 42651	2N7002	FB760	9965 000 43995	Bead 600 Ω /200mA
R937	9965 000 43379	100 Ω 5% 1/8W	Q901	9965 100 02740	STP10NK70ZFP	FB760	9965 000 43997	Bead 600 Ω /500mA
R938	9965 000 43390	22k Ω 5% 1/8W	Q901	9965 100 04225	2SK2996	FB761	9965 000 43995	Bead 600 Ω /200mA
R939	9965 100 05899	10k Ω 1% 1/10W	Q905	9965 000 35966	PMBS3904	FB761	9965 000 43997	Bead 600 Ω /500mA
R942	9965 000 42735	47k Ω 5% 1/8W	BD901	9965 000 37336	GBU408	FB801	9965 000 43995	Bead 600 Ω /200mA
R943	9965 100 04226	22k Ω 5% 0.25W	BD901	9965 100 02803	GBU408	FB801	9965 000 43997	Bead 600 Ω /500mA
R944	9965 100 04434	3.3k Ω 1% 0.1W	BD901	9965 100 03637	U4KB80R	FB802	9965 100 02776	Bead 120 Ω 3A
R945	9965 100 05898	100 Ω 5% 1/10W	NR901	9965 100 02806	SCK13074MGY001 4A/ 7 Ω 20%	FB803	9965 100 02776	Bead 120 Ω 3A
RV901	9965 100 02807	TVR10561KFW 560V	U811	9965 100 04031	OZ9938	FB804	9965 100 02776	Bead 120 Ω 3A
						FB805	9965 100 02776	Bead 120 Ω 3A
						FB851	9965 100 02775	Bead 120 Ω /500mA
						TU201	9965 000 44034	Tuner FQD1236/F
L901	9965 100 02737	LF-001788-1				TU202	9965 100 02821	TDQU4-507A
L901	9965 100 02738	Line Filter				X250	9965 000 44013	Xtal 25MHz 20p HC49/S
L902	9965 000 45125	Choke coil				X250	9965 000 44014	Xtal 25MHz 20p HC49/S
L902	9965 000 45127	Line Filter LISHIN				X250	9965 100 03276	Xtal 25MHz 20p HC49/S
L921	9965 000 40058	0.8H	0291	9965 100 10042		X250	9965 100 03534	Xtal 25MHz 20p HC49/S
L921	9965 100 02442	Choke coil	1257	9965 100 02787	Tuner + Eeprom	X350	9965 000 44601	Xls/Osc. 27Mhz
L924	9965 000 42610	Choke Coil	1257	9965 100 02789	Tuner + Eeprom	X350	9965 000 44602	Crystal 27Mhz
L924	9965 000 43841	Choke 35 μ H 10% 82M Ω	1257	9965 100 04258	Tuner + Eeprom	X350	9965 100 03224	Crystal 27Mhz
T901	9965 000 45131	PPH6003FL	1257	9965 100 04259	Tuner + Eeprom	X350	9965 100 03536	Crystal 27Mhz
T901	9965 100 04236	PT-007849	1258	9965 100 02786	Power supply	X350	9965 100 05116	Crystal / Osc 27Mhz
			1258	9965 100 04248	CPU assy	X350	9965 100 05117	Crystal / Osc 27Mhz
			1301	9965 000 45110	EEPROM assy	ZD102	9965 000 37806	SMD
D831	9965 000 35994	BAV99	1301	9965 100 05244	EEPROM assy	ZD103	9965 000 37806	SMD
D831	9965 100 02756	D-BAV99W-7-F	1301	9965 100 05866				

R250	9965 000 44050	1.1k Ω 5% 1/10W	R518	9965 000 43336	75 Ω 5% 1/10W	R750	9965 000 42225	4.7k Ω 5% 1/10W
R251	9965 000 42225	4.7k Ω 5% 1/10W	R519	9965 000 43336	75 Ω 5% 1/10W	R751	9965 000 42214	10k Ω 5% 1/10W
R252	9965 000 42225	4.7k Ω 5% 1/10W	R520	9965 000 43336	75 Ω 5% 1/10W	R753	9965 000 42222	33 Ω 5% 1/10W
R253	9965 000 42225	4.7k Ω 5% 1/10W	R521	9965 000 43336	75 Ω 5% 1/10W	R754	9965 000 42213	100 Ω 5% 1/10W
R254	9965 000 42222	33 Ω 5% 1/10W	R522	9965 000 43336	75 Ω 5% 1/10W	R760	9965 000 42214	10k Ω 5% 1/10W
R255	9965 000 42222	33 Ω 5% 1/10W	R523	9965 000 43336	75 Ω 5% 1/10W	R761	9965 000 42277	47k Ω 5% 1/10W
R256	9965 000 42222	33 Ω 5% 1/10W	R524	9965 000 43336	75 Ω 5% 1/10W	R762	9965 000 43972	8.2k Ω 5% 1/10W
R257	9965 000 42222	33 Ω 5% 1/10W	R525	9965 000 43336	75 Ω 5% 1/10W	R763	9965 000 43972	8.2k Ω 5% 1/10W
R258	9965 000 42222	33 Ω 5% 1/10W	R602	9965 000 40053	1K Ω 1/10W 5%	R764	9965 000 42214	10k Ω 5% 1/10W
R259	9965 000 42222	33 Ω 5% 1/10W	R603	9965 000 42221	27k Ω 5% 1/10W	R765	9965 000 42225	4.7k Ω 5% 1/10W
R260	9965 000 42222	33 Ω 5% 1/10W	R605	9965 000 40053	1K Ω 1/10W 5%	R766	9965 000 42225	4.7k Ω 5% 1/10W
R261	9965 000 42222	33 Ω 5% 1/10W	R606	9965 000 42221	27k Ω 5% 1/10W	R767	9965 000 42214	10k Ω 5% 1/10W
R262	9965 000 42225	1M Ω 5% 1/10W	R607	9965 000 42226	68 Ω 5% 1/10W	R768	9965 000 42214	10k Ω 5% 1/10W
R263	9965 000 42222	33 Ω 5% 1/10W	R608	9965 000 42226	68 Ω 5% 1/10W	R769	9965 000 42214	10k Ω 5% 1/10W
R264	9965 000 42222	33 Ω 5% 1/10W	R609	9965 000 43336	75 Ω 5% 1/10W	R770	9965 000 42214	10k Ω 5% 1/10W
R265	9965 000 42222	33 Ω 5% 1/10W	R610	9965 000 40053	1K Ω 1/10W 5%	R771	9965 000 42214	10k Ω 5% 1/10W
R266	9965 000 42222	33 Ω 5% 1/10W	R611	9965 000 42213	100 Ω 5% 1/10W	R772	9965 000 42214	10k Ω 5% 1/10W
R301	9965 000 42212	0 Ω 5% 1/10W	R612	9965 000 42221	27k Ω 5% 1/10W	R773	9965 000 42222	33 Ω 5% 1/10W
R302	9965 000 42212	0 Ω 5% 1/10W	R613	9965 000 42226	68 Ω 5% 1/10W	R774	9965 000 42222	33 Ω 5% 1/10W
R303	9965 000 43336	75 Ω 5% 1/10W	R614	9965 000 43336	75 Ω 5% 1/10W	R775	9965 000 42222	33 Ω 5% 1/10W
R304	9965 000 43336	75 Ω 5% 1/10W	R615	9965 000 42213	100 Ω 5% 1/10W	R776	9965 000 42222	33 Ω 5% 1/10W
R305	9965 000 43336	75 Ω 5% 1/10W	R616	9965 000 40053	1K Ω 1/10W 5%	R777	9965 000 42222	33 Ω 5% 1/10W
R350	9965 000 42212	0 Ω 5% 1/10W	R617	9965 000 42226	68 Ω 5% 1/10W	R778	9965 000 42222	33 Ω 5% 1/10W
R351	9965 000 42214	10k Ω 5% 1/10W	R618	9965 000 42221	27k Ω 5% 1/10W	R779	9965 000 42222	33 Ω 5% 1/10W
R352	9965 000 42214	10k Ω 5% 1/10W	R619	9965 000 43336	75 Ω 5% 1/10W	R780	9965 000 42277	47k Ω 5% 1/10W
R353	9965 000 42214	10k Ω 5% 1/10W	R620	9965 000 42213	100 Ω 5% 1/10W	R781	9965 000 42222	33 Ω 5% 1/10W
R354	9965 000 42214	10k Ω 5% 1/10W	R621	9965 000 42213	100 Ω 5% 1/10W	R782	9965 000 42277	47k Ω 5% 1/10W
R355	9965 000 42214	10k Ω 5% 1/10W	R625	9965 000 42225	4.7k Ω 5% 1/10W	R785	9965 000 42225	4.7k Ω 5% 1/10W
R356	9965 000 42214	10k Ω 5% 1/10W	R626	9965 000 42213	100 Ω 5% 1/10W	R786	9965 000 42277	47k Ω 5% 1/10W
R357	9965 000 42214	10k Ω 5% 1/10W	R630	9965 000 42213	100 Ω 5% 1/10W	R787	9965 000 42277	47k Ω 5% 1/10W
R358	9965 000 42214	10k Ω 5% 1/10W	R650	9965 000 42213	100 Ω 5% 1/10W	R788	9965 000 42212	0 Ω 5% 1/10W
R362	9965 000 42213	100 Ω 5% 1/10W	R651	9965 000 42212	0 Ω 5% 1/10W	R801	9965 000 42215	100k Ω 5% 1/10W
R363	9965 000 42222	33 Ω 5% 1/10W	R652	9965 000 40053	1K Ω 1/10W 5%	R801	9965 000 42397	15k Ω 5% 1/10W
R364	9965 000 42218	220 Ω 5% 1/10W	R652	9965 000 42212	0 Ω 5% 1/10W	R802	9965 000 42662	330 Ω 5% 1/10W
R365	9965 000 42222	33 Ω 5% 1/10W	R654	9965 000 43336	75 Ω 5% 1/10W	R803	9965 000 40053	1K Ω 1/10W 5%
R366	9965 000 42277	47k Ω 5% 1/10W	R655	9965 000 43336	75 Ω 5% 1/10W	R803	9965 000 43970	7.5k Ω 5% 1/10W
R367	9965 000 42214	10k Ω 5% 1/10W	R656	9965 000 43336	75 Ω 5% 1/10W	R804	9965 000 42395	10k Ω 5% 1/10W
R368	9965 000 42214	10k Ω 5% 1/10W	R657	9965 000 42226	68 Ω 5% 1/10W	R804	9965 000 43490	5.6k Ω 5% 0.1W
R369	9965 000 43972	8.2k Ω 5% 1/10W	R658	9965 000 42226	68 Ω 5% 1/10W	R805	9965 000 42664	47 Ω 5% 1/10W
R370	9965 000 42213	100 Ω 5% 1/10W	R659	9965 000 40053	1K Ω 1/10W 5%	R806	9965 000 42215	100k Ω 5% 1/10W
R371	9965 000 42214	10k Ω 5% 1/10W	R659	9965 000 42212	0 Ω 5% 1/10W	R807	9965 000 40053	1K Ω 1/10W 5%
R372	9965 000 42213	100 Ω 5% 1/10W	R660	9965 000 42226	68 Ω 5% 1/10W	R807	9965 000 43970	7.5k Ω 5% 1/10W
R373	9965 000 42666	51 Ω 5% 1/10W	R662	9965 000 42226	68 Ω 5% 1/10W	R808	9965 000 42397	15k Ω 5% 1/10W
R374	9965 000 42225	4.7k Ω 5% 1/10W	R663	9965 000 42213	100 Ω 5% 1/10W	R809	9965 000 42215	100k Ω 5% 1/10W
R375	9965 000 42225	4.7k Ω 5% 1/10W	R664	9965 000 42213	100 Ω 5% 1/10W	R809	9965 000 42397	15k Ω 5% 1/10W
R377	9965 000 42214	10k Ω 5% 1/10W	R665	9965 000 43336	75 Ω 5% 1/10W	R810	9965 000 42395	10k Ω 5% 1/10W
R378	9965 000 42218	220 Ω 5% 1/10W	R666	9965 000 42213	100 Ω 5% 1/10W	R810	9965 000 43490	5.6k Ω 5% 0.1W
R380	9965 000 42664	47 Ω 5% 1/10W	R667	9965 000 43336	75 Ω 5% 1/10W	R811	9965 000 42658	120k Ω -5% 0.1W
R381	9965 000 42664	47 Ω 5% 1/10W	R668	9965 000 42212	0 Ω 5% 1/10W	R850	9965 000 42214	10k Ω 5% 1/10W
R382	9965 000 42664	47 Ω 5% 1/10W	R670	9965 000 40053	1K Ω 1/10W 5%	R851	9965 000 40053	1K Ω 1/10W 5%
R383	9965 000 42225	4.7k Ω 5% 1/10W	R671	9965 000 42213	100 Ω 5% 1/10W	R853	9965 000 42225	4.7k Ω 5% 1/10W
R385	9965 000 42213	100 Ω 5% 1/10W	R672	9965 000 40053	1K Ω 1/10W 5%	R855	9965 000 42214	10k Ω 5% 1/10W
R386	9965 000 42213	100 Ω 5% 1/10W	R673	9965 000 40053	1K Ω 1/10W 5%	R856	9965 000 42214	10k Ω 5% 1/10W
R387	9965 000 42213	100 Ω 5% 1/10W	R674	9965 000 02779	4.7k Ω 1% 0.1W	R857	9965 000 42225	4.7k Ω 5% 1/10W
R388	9965 000 42219	2.2k Ω 5% 1/10W	R675	9965 100 02779	4.7k Ω 1% 0.1W	R858	9965 000 42212	0 Ω 5% 1/10W
R390	9965 000 42225	4.7k Ω 5% 1/10W	R676	9965 000 42212	0 Ω 5% 1/10W	R859	9965 000 42212	0 Ω 5% 1/10W
R391	9965 000 42225	4.7k Ω 5% 1/10W	R677	9965 000 43336	75 Ω 5% 1/10W	R860	9965 000 42212	0 Ω 5% 1/10W
R392	9965 000 42225	4.7k Ω 5% 1/10W	R678	9965 000 42213	100 Ω 5% 1/10W	R861	9965 000 42212	0 Ω 5% 1/10W
R394	9965 000 42225	4.7k Ω 5% 1/10W	R679	9965 000 42213	100 Ω 5% 1/10W	R862	9965 000 42212	0 Ω 5% 1/10W
R395	9965 000 43961	3.9k Ω 5% 1/10W	R680	9965 000 42213	100 Ω 5% 1/10W	R863	9965 000 42212	0 Ω 5% 1/10W
R396	9965 000 42225	4.7k Ω 5% 1/10W	R681	9965 000 42212	0 Ω 5% 1/10W	R864	9965 000 42212	0 Ω 5% 1/10W
R397	9965 000 42225	4.7k Ω 5% 1/10W	R701	9965 000 42213	100 Ω 5% 1/10W	R865	9965 000 42212	0 Ω 5% 1/10W
R398	9965 000 42225	4.7k Ω 5% 1/10W	R703	9965 000 42213	100 Ω 5% 1/10W	R866	9965 000 42212	0 Ω 5% 1/10W
R399	9965 000 42212	0 Ω 5% 1/10W	R704	9965 000 40053	1K Ω 1/10W 5%	R867	9965 000 42212	0 Ω 5% 1/10W
R406	9965 000 42217	22 Ω 5% 1/10W	R705	9965 000 42225	4.7k Ω 5% 1/10W	R868	9965 000 42212	0 Ω 5% 1/10W
R407	9965 000 42225	4.7k Ω 5% 1/10W	R706	9965 000 40053	1K Ω 1/10W 5%	R871	9965 000 42212	0 Ω 5% 1/10W
R408	9965 000 42213	100 Ω 5% 1/10W	R707	9965 000 42222	33 Ω 5% 1/10W	R872	9965 000 42212	0 Ω 5% 1/10W
R409	9965 000 42213	100 Ω 5% 1/10W	R708	9965 000 42215	100k Ω 5% 1/10W	RP501	9965 000 43951	22 Ω 5%
R410	9965 000 42212	0 Ω 5% 1/10W	R709	9965 100 02785	20k Ω 5% 0.1W	RP502	9965 000 43951	22 Ω 5%
R411	9965 000 40053	1K Ω 1/10W 5%	R711	9965 100 02785	20k Ω 5% 0.1W	RP503	9965 000 43952	47 Ω 5% 1/16W
R411	9965 000 42225	4.7k Ω 5% 1/10W	R725	9965 000 42212	0 Ω 5% 1/10W	RP504	9965 000 43952	47 Ω 5% 1/16W
R412	9965 000 40053	1K Ω 1/10W 5%	R726	9965 000 42226	68 Ω 5% 1/10W	RP505	9965 000 43951	22 Ω 5%
R412	9965 000 42225	4.7k Ω 5% 1/10W	R727	9965 000 42213	100 Ω 5% 1/10W	RP506	9965 000 43953	75 Ω 5% 1/16W
R413	9965 000 42224	470 Ω 5% 1/10W	R728	9965 000 42212	0 Ω 5% 1/10W	RP507	9965 000 43952	47 Ω 5% 1/16W
R413	9965 100 02784	470 Ω 1% 0.1W	R729	9965 000 42226	68 Ω 5% 1/10W	RP508	9965 000 43951	22 Ω 5%
R413	9965 100 04230	470 Ω 1% 0.1W	R730	9965 000 43336	75 Ω 5% 1/10W	RP509	9965 000 43952	47 Ω 5% 1/16W
R414	9965 000 42220	22k Ω 5% 1/10W	R731	9965 000 42213	100 Ω 5% 1/10W	RP510	9965 000 43951	22 Ω 5%
R414	9965 100 02777	22k Ω 1% 0.1W	R732	9965 000 42226	68 Ω 5% 1/10W	RP511	9965 000 43952	47 Ω 5% 1/16W
R501	9965 000 42213	100 Ω						

			Q105 9965 000 42211 PDTC114EK SC-59
			Q107 9965 000 37397 MUN2211J
			Q107 9965 000 42211 PDTC114EK SC-59
			Q108 9965 000 37397 MUN2211J
			Q108 9965 000 42211 PDTC114EK SC-59
			Q153 9965 000 37397 MUN2211J
			Q153 9965 000 42211 PDTC114EK SC-59
			Q201 9965 000 36033 RK7002
			Q201 9965 000 42651 2N7002
			Q201 9965 100 03293 RK7002
			Q202 9965 000 36033 RK7002
			Q202 9965 000 42651 2N7002
			Q202 9965 100 03293 RK7002
			Q351 9965 000 40045 MMBT3904
			Q351 9965 100 03497 MMBT3904
			Q353 9965 000 40045 MMBT3904
			Q353 9965 100 03497 MMBT3904
			Q702 9965 000 40045 MMBT3904
			Q702 9965 100 03497 MMBT3904
			Q850 9965 000 40045 MMBT3904
			Q850 9965 100 03497 MMBT3904
			Q851 9965 000 40045 MMBT3904
			Q851 9965 100 03497 MMBT3904
			U101 9965 000 42625 L5972D013TR
			U101 9965 100 03709 L5972D013TR
			U102 9965 000 44828 L5972D013TR
			U102 9965 100 03710 TPS5420DRG4
			U103 9965 000 44828 TPS5420DRG4
			U103 9965 100 03710 TPS5420DRG4
			U104 9965 000 42625 L5972D013TR
			U104 9965 100 03709 L5972D013TR
			U150 9965 000 44828 TPS5420DRG4
			U150 9965 100 03710 TPS5420DRG4
			U151 9965 000 42209 AME1117CCGTZ
			U151 9965 000 42624 LD1117S33 SOT-223
			U151 9965 000 42747 LD1117S33 SOT-223
			U152 9965 000 43930 LD1117DT33TR
			U154 9965 000 43935 AP1117ELA-ADJ
			U154 9965 100 02854 LD1117S-TR
			U155 9965 000 42209 AME1117CCGTZ
			U155 9965 000 42624 LD1117S33 SOT-223
			U155 9965 000 42747 LD1117S33 SOT-223
			U156 9965 000 43935 AP1117ELA-ADJ
			U156 9965 100 02854 LD1117S-TR
			U250 9965 000 43932 MT5112BD
			U301 9965 000 43933 MT5371AJ
			U350 9965 000 44029 S29AL032D70TFI040
			U350 9965 000 44030 MX29LV320CTTC-90G
			U350 9965 000 45109 CPU assy
			U350 9965 100 05119 CPU assy
			U350 9965 100 05246 CPU assy
			U350 9965 100 05861 CPU assy
			U350 9965 100 09613 CPU assy
			U350 9965 100 10040 CPU assy
			U350 9965 100 10098 CPU assy
			U353 9965 000 44035 AT24C32AN-10SU-2.7
			U353 9965 000 44284 M24C32-WMN6TP
			U353 9965 000 44842 EEPROM assy
			U353 9965 100 05122 EEPROM assy
			U353 9965 100 05335 EEPROM assy
			U353 9965 100 09611 EEPROM assy
			U353 9965 100 09612 EEPROM assy
			U353 9965 100 09947 EEPROM assy
			U353 9965 100 10038 EEPROM assy
			U353 9965 100 10039 EEPROM assy
			U501 9965 000 43940 HY5DU561622ETP-5
			U501 9965 100 03307 HY5DU561622ETP-5
			U502 9965 000 43940 HY5DU561622ETP-5
			U502 9965 100 03307 HY5DU561622ETP-5
			U503 9965 000 43934 LP2996MRX
			U650 9965 000 43938 TS5A3157DCKRE4
			U650 9965 100 02863 NLABS3157DFT2G
			U701 9965 000 35965 M24C02-WMN6TP
			U701 9965 000 42647 AT24C02BN-10SU-1.8
			U701 9965 000 43941 M24C02-WMN6TP
			U701 9965 100 08599 AT24C02BN
			U725 9965 000 35965 M24C02-WMN6TP
			U725 9965 000 42647 AT24C02BN-10SU-1.8
			U725 9965 000 43941 M24C02-WMN6TP
			U725 9965 100 08599 AT24C02BN
			U760 9965 000 43936 WM8776SEFT/R
			U801 9965 000 44273 TPA3005D2PHP

C065	9965 000 42690	47pF 50V NPO 5% 0603
C066	9965 000 42690	47pF 50V NPO 5% 0603

-W-		
R061	9965 000 40053	1K Ω 1/10W 5%
R062	9965 000 42221	27k Ω 5% 1/10W
R063	9965 000 43955	1k Ω 1% 1/10W
R064	9965 000 42221	27k Ω 5% 1/10W

-W-		
L060	9965 000 43818	0.10 μ H 10%
L060	9965 100 02875	Ind. 0.1H 10%
L061	9965 000 43818	0.10 μ H 10%
L061	9965 100 02875	Ind. 0.1H 10%
L062	9965 000 43818	0.10 μ H 10%
L062	9965 100 02875	Ind. 0.1H 10%



Q102	9965 000 37398	SI5441DC
Q103	9965 000 42648	BC847C
Q103	9965 000 42649	BC847C
Q103	9965 100 03458	BC847C
Q104	9965 000 37397	MUN2211J
Q104	9965 000 42211	PDTC114EK SC-59
Q105	9965 000 37397	MUN2211J

Side AV Panel [SA]

- -		
C060	9965 000 42690	47pF 50V NPO 5% 0603
C061	9965 000 42231	330pF 50V NPO 0603
C062	9965 000 42231	330pF 50V NPO 0603
C063	9965 000 42231	330pF 50V NPO 0603
C064	9965 000 42231	330pF 50V NPO 0603

11. Revision List

Manual xxxx xxx xxxx.0

- First release.

Manual xxxx xxx xxxx.4

- 19MF337B/27 added.
- 19MD357B/27 added.
- 19PFL5402D/27 added.
- 19PFL5422D/27 added.
- 19PFL5622D/37 added.

Manual xxxx xxx xxxx.5

- **Chapter 10:** Spare parts list added.