

Service Manual

ViewSonic VX1962wm/wmp-3

Model No. VSXXXXX

19" Color TFT LCD Display

(VX1962wm/wmp-3_SM Rev. 1a Apr. 2009)

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Product disposal at end of product life

The lamp in this product contains mercury. Please dispose of in accordance with local, state or federal laws.

Revision History

Revision	SM Editing Date	Description of Changes	Customer Model	TPV Model	Editor
1a	04/02/2009	Initial Release	VX1962wm-3	T9RMNBMKYWVSDN	Eric
			VX1962wmp-3	T9RMNBMKYWV6DN	

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1. Precautions and Safety Notices

1. Precautions and Safety Notices

1.1 Safety Precautions

This monitor is manufactured and tested on a ground principle that a user's safety comes first. However, improper use or installation may cause damage to the monitor as well as the user. Carefully go over the following WARNINGS before installing and keep this guide handy.

WARNINGS

- This monitor should be operated only at the correct power sources indicated on the label on the rear end of the monitor. If you're unsure of the power supply in your residence, consult you local dealer or power company.
- Use only the special power adapter that comes with this monitor for power input.
- Do not try to repair the monitor your self as it contains no user-serviceable parts. This monitor should only be repaired by a qualified technician.
- Do not remove the monitor cabinet. There is high-voltage parts inside that may cause electric shock to human bodies, even when the power cord is unplugged.
- Stop using the monitor if the cabinet is damaged. Have it checked by a service technician.
- Put your monitor only in a clean, dry environment. If it gets wet, unplug the power cable immediately and consult your service technician.
- Always unplug the monitor before cleaning it .Clean the cabinet with a clean, dry cloth. Apply non-ammonia based cleaner onto the cloth, not directly onto the glass screen.
- Keep the monitor away from magnetic objects, motors, TV sets, and transformer.
- Do not place heavy objects on the monitor or power cord.

1.2 Product Safety Notice

Many electrical and mechanical parts in this chassis have special safety visual inspections and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltages, wattage, etc. Before replacing any of these components read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

1.3 Service Notes

1. When replacing parts or circuit boards, clamp the lead wires around terminals before soldering.
2. When replacing a high wattage resistor (more than 1W of metal oxide film resistor) in circuit board, keep the resistor about 5mm away from circuit board.
3. Keep wires away from high voltage, high temperature components and sharp edges.
4. Keep wires in their original position so as to reduce interference.
5. Usage of this product please refer to also user's manual.

1.4 Handing and Placing Methods

Correct Methods:	Incorrect Methods:
Only touch the metal frame of the LCD panel or the front cover of the monitor. Do not touch the surface of the polarizer.	Surface of the LCD panel is pressed by fingers and that may cause "Mura."
	
Take out the monitor	Taking out the monitor by grasping the LCD panel. That may cause "Mura."
	
Place the monitor on a clean and soft foam pad.	Placing the monitor on foreign objects. That could scratch the surface of the panel or cause "Mura."
	

Place the monitor on the lap, the panel surface must be upwards.



The panel is placed facedown on the lap. That may cause "Mura."



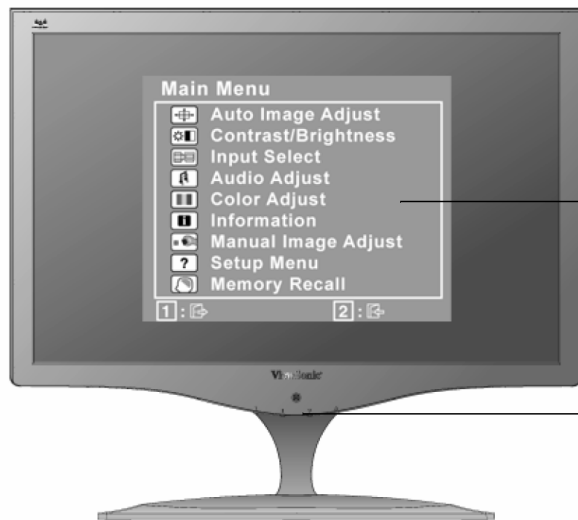
2. Specification

LCD	Type	19" (full 19" wide viewable diagonal area), TFT (Thin Film Transistor), Active Matrix WSXGA+ LCD, 0.243 mm pixel pitch
	Color Filter	RGB vertical stripe
	Glass Surface	Anti-Glare
Input Signal	Video Sync	RGB analog (0.7/1.0 Vp-p, 75 ohms)/ TMDs Digital (100ohms) Composite Sync, Separate Sync, Sync on Green f_h :24-82 kHz, f_v :50-75 Hz
Compatibility	PC	Up to 1680 x 1050 Non-interlaced
	Macintosh ¹	Power Macintosh up to 1680 x 1050
Resolution	Recommended and supported	1680 x 1050 @ 60 Hz 1440 x 900 @ 60, 75 Hz 1280 x 1024 @ 60, 75 Hz 1024 x 768 @ 60, 70, 72, 75 Hz 800 x 600 @ 56, 60, 72, 75 Hz 640 x 480 @ 60, 75 Hz 720 x 400 @ 70 Hz
Power	Voltage	100-240 VAC, 50-60 Hz (auto switch)
Display area	Full Scan	408.24 mm (H) x 255.15 mm (V) 16.07" (H) x 10.04" (V)
Operating conditions	Temperature	+32° F to +104° F (0° C to +40° C)
	Humidity	10% to 90% (non-condensing)
	Altitude	To 10,000 feet
Storage conditions	Temperature	-4° F to +140° F (-20° C to +60° C)
	Humidity	10% to 90% (non-condensing)
	Altitude	To 40,000 feet
Dimensions	Physical	447.04 mm (W) x 398.98 mm (H) x 174.95 mm (D) 17.6 (W) x 15.71" (H) x 6.89" (D)
Weight	Physical	11.96 lb (4.97 kg)
Regulations		BSMI, CCC, PSB, C-Tick, KCC, CE, Gost-R/Hygienic, Ukraine, Ergo, SASO, UL/cUL, FCC-B, ICES-B, TUV-S/UL-AR S Mark, NOM, ENERGY STAR®
Power saving modes	On	<48W (blue LED)
	Off	<1W
Preset Timing Mode (pre-adjusted to VESA® 1680 x 1050 @ 60 Hz)		
Warning: Do not set the graphics card in your computer to exceed these refresh rates; doing so may result in permanent damage to the LCD display.		

¹ Macintosh computers older than G3 require a ViewSonic® Macintosh adapter. To order an adapter, contact ViewSonic.

3. Front Panel Function Control Description

Use the buttons on the front control panel to display and adjust the OSD controls which display on the screen.



Main Menu
with OSD controls

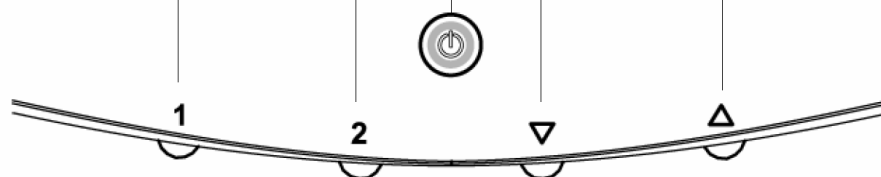
Front Control Panel
shown below in detail

Displays the control screen for the highlighted control.
Also toggles between three controls on some screens.
Also a shortcut to Auto Image Adjust.

Displays the Main Menu or exits the control screen and saves adjustments.

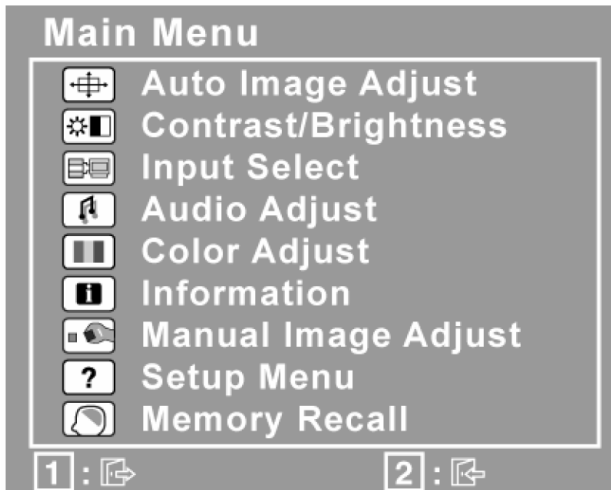
Power light
Blue = ON
Orange = Power Saving
Standby Power On/Off

Scrolls through menu options and adjusts the displayed control.
Also a shortcut to display the Contrast adjustment control screen.



Do the following to adjust the display setting:

1. To display the Main Menu, press button [1].



NOTE: All OSD menus and adjustment screens disappear automatically after about 15 seconds. This is adjustable through the OSD timeout setting in the setup menu.

2. To select a control to adjust, press ▲ or ▼ to scroll up or down in the Main Menu.

3. After the desired control is selected, press button [2]. A control screen like the one shown below appears.



The line at the bottom of the screen shows the current functions of buttons 1 and 2:
Exit or select the Brightness control.

4. To adjust the control, press the up ▲ or down ▼ buttons.

5. To save the adjustments and exit the menu, press button [1] twice.

The following tips may help you optimize your display:

- Adjust the computer's graphics card so that it outputs a 1680 x 1050 @ 60Hz video signal to the LCD display.

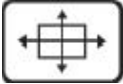
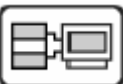
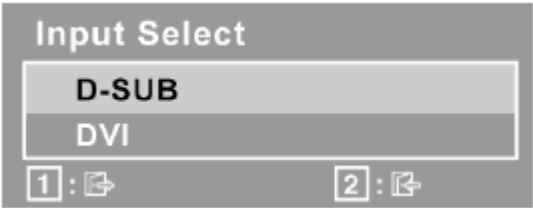
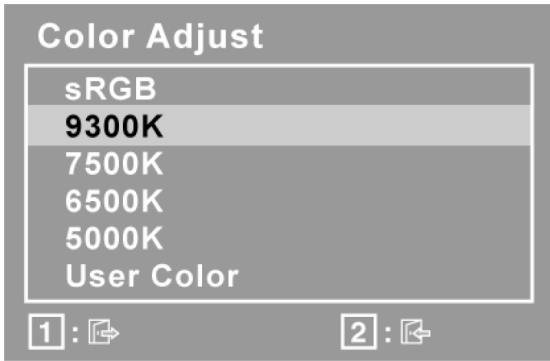
(Look for instructions on “changing the refresh rate” in the graphics card's user guide.)

- If necessary, make small adjustments using H. POSITION and V. POSITION until the screen image is completely visible. (The black border around the edge of the screen should barely touch the illuminated “active area” of the LCD display.)

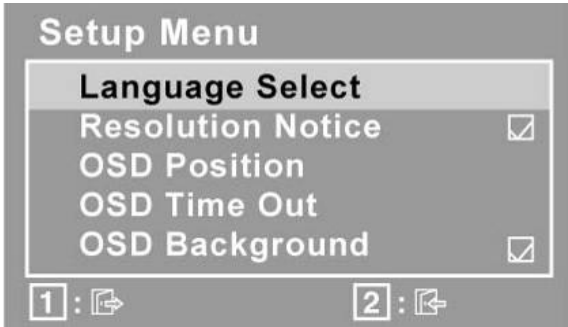
Main Menu Controls

Adjust the menu items shown below by using the up ▲ and down ▼ buttons.

Control Explanation

Control	Explanation
	Auto Image Adjust automatically sizes, centers, and fine tunes the video signal to eliminate waviness and distortion. Press the [2] button to obtain a sharper image. NOTE: Auto Image Adjust works with most common video cards. If this function does not work on your LCD display, then lower the video refresh rate to 60 Hz and set the resolution to its pre-set value.
	Contrast adjusts the difference between the image background (black level) and the foreground (white level).
	Brightness adjusts background black level of the screen image.
	Input Select toggles between inputs if you have more than one computer connected to the LCD Display. 
	Audio Adjust Volume increases the volume, decreases the volume, and mutes the audio. Mute temporarily silences audio output.
	Color Adjust provides several color adjustment modes, including preset color temperatures and a User Color mode which allows independent adjustment of red (R), green (G), and blue (B). The factory setting for this product is 6500K (6500 Kelvin).  sRGB-This is quickly becoming the industry standard for color management, with support being included in many of the latest applications. Enabling this setting allows the LCD display to more accurately display colors the way they were originally intended. Enabling the intended.

	Enabling the sRGB setting will cause Contrast and Brightness adjustments to be disabled. 9300K-Adds blue to the screen image for cooler white (used in most office settings with fluorescent lighting). 7500K-Adds blue to the screen image for cooler white(used in most office settings with fluorescent lighting). 6500K-Adds red to the screen image for warmer white and richer red. 5000K-Adds red to the screen image for warmer white and richer red. User Color Individual adjustments for red (R), green (G), and blue (B). 1. To select color (R, G or B) press button [2]. 2. To adjust selected color, press ▲ and ▼. Important: If you select RECALL from the Main Menu when the product is set to a Preset Timing Mode, colors return to the 6500K factory preset.														
	Information displays the timing mode (video signal input) coming from the graphics card in the computer, the LCD model number, the serial number, and the ViewSonic® website URL. See your graphics card's user guide for instructions on changing the resolution and refresh rate (vertical frequency). NOTE: VESA 1680 x 1050 @ 60Hz (recommended) means that the resolution is 1680 x 1050 and the refresh rate is 60 Hertz. Information <table border="1"> <tr> <td>Resolution:</td> <td>XXXX x XXXX</td> </tr> <tr> <td>H.Frequency:</td> <td>XXXX KHz</td> </tr> <tr> <td>V.Frequency:</td> <td>XXXX Hz</td> </tr> <tr> <td>Pixel Clock:</td> <td>XXXX MHz</td> </tr> <tr> <td>Model Number:</td> <td>XXXXXXX</td> </tr> <tr> <td>Serial Number:</td> <td>XXXXXXXXXX</td> </tr> <tr> <td colspan="2">www.ViewSonic.com</td> </tr> </table> 1 : 	Resolution:	XXXX x XXXX	H.Frequency:	XXXX KHz	V.Frequency:	XXXX Hz	Pixel Clock:	XXXX MHz	Model Number:	XXXXXXX	Serial Number:	XXXXXXXXXX	www.ViewSonic.com	
Resolution:	XXXX x XXXX														
H.Frequency:	XXXX KHz														
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www.ViewSonic.com															
	Manual Image Adjust display the Manual Image Adjust menu Manual Image Adjust <table border="1"> <tr> <td colspan="2">H/V Position</td> </tr> <tr> <td>Horizontal Size</td> <td></td> </tr> <tr> <td>Fine Tune</td> <td></td> </tr> <tr> <td>Sharpness</td> <td></td> </tr> <tr> <td>Dynamic Contrast</td> <td>☒</td> </tr> <tr> <td>Aspect Ratio</td> <td></td> </tr> <tr> <td>Response Time</td> <td></td> </tr> </table> 1 :  2 :  H./V. Position (Horizontal/Vertical Position) moves the screen image left or right and up or down.	H/V Position		Horizontal Size		Fine Tune		Sharpness		Dynamic Contrast	☒	Aspect Ratio		Response Time	
H/V Position															
Horizontal Size															
Fine Tune															
Sharpness															
Dynamic Contrast	☒														
Aspect Ratio															
Response Time															

	H. Size (Horizontal Size) adjusts the width of the screen image. Fine Tune sharpens the focus by aligning text and/or graphics with pixel boundaries. NOTE: Try Auto Image Adjust first. Sharpness adjusts the clarity and focus of the screen image. Dynamic Contrast allows the user to turn the contrast ratio enhancement on or off. Aspect ratio Selects the image size for 4:3, fill aspect ratio & full screen. Response Time adjusts the response time of liquid-crystal display for image quality enhancement.
	Setup Menu displays the menu shown below:  Language Select allows the user to choose the language used in the menus and control screens. Resolution Notice advises the optimal resolution to use. OSD Position allows the user to move the OSD menus and control screens. OSD Timeout sets the length of time the OSD screen is displayed. For example, with a “15 second” setting, if a control is not pushed within 15 seconds, the display screen disappears. OSD Background allows the user to turn the OSD background On or Off.
	Memory Recall returns the adjustments back to factory settings if the display is operating in a factory Preset Timing Mode listed in the Specifications of this manual. Exception: This control does not affect changes made with the User Color control, Language Select or Power Lock setting.

4. Circuit Description

4.1 Main Board

NT68670HTFG (U2): integrate ADC, OSD, SCALER, MCU, LVDS, convert analog RGB into digital and room and shrink scaling output to LCD panel.

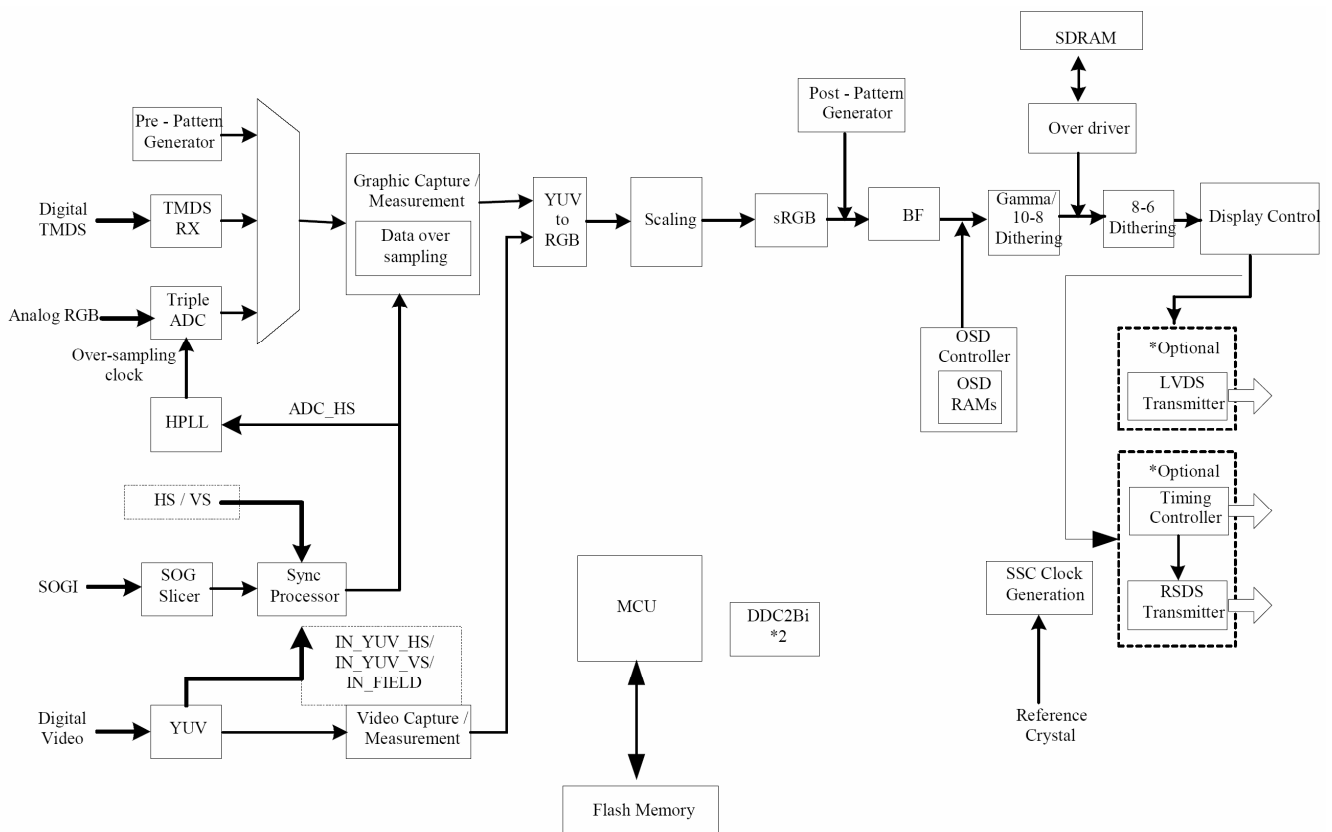
The NT68670 is a highly integrated flat panel display controller that interfaces analog, digital, and video inputs. It combines a triple ADC, a DVI compliant TMDS receiver, a digital YUV receiver, a high quality zoom and shrink engine, a multi-color on screen display (OSD) controller, an advanced color engine, an liquid crystal display accelerator over – driving that embedded 1Mx16 SDRAM and many other functions in a single chip. It provides the user with a simple, flexible and cost-effective solution for various flat panel display products.

The NT68670 operates at frequencies up to 170MHz, suitable for LCD monitor up to UXGA resolution.

The NT68670 also has a built-in noise reduction function to provide more stable video quality, spread spectrum to provide low EMI solution, sRGB for video color space convert and post pattern for manufacture test.

The display provided multi-interface with timing controller or without timing controller. With timing controller provided single/double pixel clock RSDS interface; without timing controller provide single/double pixel clock LVDS interface. In addition, NT68670 includes an integrated 8-Bit Microcontroller (MCU). It contains an 8-bit 8031 micro-controller, 1,280-bytes internal data memory, four 7-bit resolution A/D Converter, 10-channel 8-bit resolution PWM DAC, two 16-bit timer/counters, and a UART. Except those, it has two-channel hardware DDC solution, and VESA 2Bi/2B+ master/slave I2C bus interface.

Block Diagram



PIN Function:

No.	Pin	Type	Operate Voltage	Definition
1	RSTB	I	0 ~ 3.47V	Active-Low Reset Input; with Schmitt Trigger Input
2	DVDD	Power	3.15V ~ 3.47V	Micro-controller +3.3V Power Supply Input
3	DGND	Power	0V	Micro-controller Power Ground
4	RX2+	I	0.15 ~ 1.2V	TMDS input channel 2+
5	RX2-	I	0.15 ~ 1.2V	TMDS input channel 2-
6	AVCC	Power	3.15V ~ 3.47V	TMDS Analog VCC must be set to 3.3V.
7	RX1+	I	0.15 ~ 1.2V	TMDS input channel 1+
8	RX1-	I	0.15 ~ 1.2V	TMDS input channel 1-
9	AGND	Power	0V	TMDS Analog GND.
10	RX0+	I	0.15 ~ 1.2V	TMDS input channel 0+
11	RX0-	I	0.15 ~ 1.2V	TMDS input channel 0-
12	AGND	Power	0V	TMDS Analog GND.
13	RXC+	I	0.15 ~ 1.2V	TMDS input clock pair
14	RXC-	I	0.15 ~ 1.2V	TMDS input clock pair
15	AVCC	Power	3.15V ~ 3.47V	TMDS Analog VCC must be set to 3.3V.
16	REXT	I		External termination resistor. A 1% 470 Ω resistor must be connected from this pin to AVCC. Notes: if this resistor not 1% , the compatibility is worse than 1% resistor .
17	PVCC	Power	3.15V ~ 3.47V	TMDS PLL Analog VCC must be set to 3.3V.
18	PGND	Power	0V	TMDS PLL Analog GND.
19	BIN1+	I		B channel positive analog video input
20	BIN1-	I		B channel negative analog video input
21	SOGI1	I		VGA Port Sync On Green Input with Schmitt trigger
22	GIN1+	I		G channel positive analog video input
23	GIN1-	I		G channel negative analog video input
24	RIN1+	I		R channel positive analog video input
25	RIN1-	I		R channel negative analog video input
26	ADC_VAA	Power	3.15V ~ 3.47V	ADC Analog power supply
27	ADC_GNDA	Power	0V	ADC Analog ground
28	PC2	I/O	0 ~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
29	PD6	I/O	0 ~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
30	PB3	I/O	0 ~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
	ADC3	I	0 ~ 3.47V	A/D Converter Input-3; Hi-Z input
	INTE1	I	0 ~ 3.47V	External Interrupt input 1; Schmitt Trigger Input
31	P31	I/O	0 ~ 3.47V	GPIO Port-31 of Micro-Processor F8031

	TXD	O	0 ~ 3.47V	UART TX Data Output of Micro-Processor F8031
32	P30	I/O	0 ~ 3.47V	GPIO Port-30 of Micro-Processor F8031
	RXD	I	0 ~ 3.47V	UART RX Data Input of Micro-Processor F8031
33	PB2	I/O	0 ~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
	ADC2	I	0 ~ 3.47V	A/D Converter Input-2; Hi-Z input
	INTE0	I	0 ~ 3.47V	External Interrupt input 0, Schmitt Trigger Input
34	PB7*	I/O	0 ~ 5.25V	I/O Pin; Open-Drain with Schmitt Trigger Input
	ADDC_SDA*	I/O	0 ~ 5.25V	5V Open-Drain Serial Data I/O Pin for the VGA DDC Port and the slave/master I ² C-Bus Port
35	PB6*	I/O	0 ~ 5.25V	5V I/O Pin; Open-Drain with Schmitt Trigger Input
	ADDC_SCL*	I/O	0 ~ 5.25V	5V Open-Drain Serial Clock I/O Pin for the VGA DDC Port and the slave/master I ² C-Bus Port
36	PA3	I/O	0 ~ 3.47V	I/O Pin; Schmitt Trigger Input
	PWM5	O	0 ~ 3.47V	PWM-Type D/A Converter; 3.3V Push-Pull Structure
37	PA4*	I/O	0 ~ 5.25V	I/O Pin; Open-Drain Structure with Schmitt Trigger Input
	PWM6*	O	0 ~ 5.25V	PWM-Type D/A Converter; 5V Open-Drain Structure
38	PA5*	I/O	0 ~ 5.25V	I/O Pin; Open-Drain Structure with Schmitt Trigger Input
	PWM7*	O	0 ~ 5.25V	PWM-Type D/A Converter; 5V Open-Drain Structure
39	PA6*	I/O	0 ~ 5.25V	I/O Pin; Open-Drain Structure with Schmitt Trigger Input
	PWM8*	O	0 ~ 5.25V	PWM-Type D/A Converter; 5V Open-Drain Structure
40	PA7*	I/O	0 ~ 5.25V	I/O Pin; Open-Drain Structure with Schmitt Trigger Input
	PWM9*	O	0 ~ 5.25V	PWM-Type D/A Converter; 5V Open-Drain Structure
41	HSYNCI	I	0 ~ 5.25V	VGA Port Channel Horizontal Sync Input with Schmitt trigger
42	VSNCI	O	0 ~ 5.25V	VGA Port Channel Vertical Sync Input with Schmitt trigger
43	PLL_GND	Power	0V	Core Logic Ground pin for PLL.
44	NC	I		
45	PLL_VDD	Power	1.6V ~ 2.0V	Core logic power supply (1.8V) pin for PLL. External capacitor (0.1uF) connected is recommended.
46	PB5*	I/O	0 ~ 5.25V	5V I/O Pin; Open-Drain with Schmitt Trigger Input
	DDDC_SDA*/	I/O	0 ~ 5.25V	5V Open-Drain Serial Data I/O Pin for the DVI DDC Port and the slave/master I ² C-Bus Port
47	PB4*	I/O	0 ~ 5.25V	5V I/O Pin; Open-Drain with Schmitt Trigger Input
	DDDC_SCL*/	I/O	0 ~ 5.25V	5V Open-Drain Serial Clock I/O Pin for the DVI DDC Port and the slave/master I ² C-Bus Port
48	PD5	I/O	0 ~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
49	P35	I/O	0 ~ 3.47V	GPIO Port-35 of Micro-Processor F8031
	T1	I	0 ~ 3.47V	Counter/Timer T1 Input of Micro-Processor F8031
50	P34	I/O	0 ~ 3.47V	GPIO Port-34 of Micro-Processor F8031
	T0	I	0 ~ 3.47V	Counter/Timer T0 Input of Micro-Processor F8031
51	DVDD	Power	3.15V ~ 3.47V	Display Digital Power Supply
52	CVDD	Power	1.6V ~ 2.0V	Core logic power supply (1.8V) pin. External capacitor (0.1uF) connected is recommended.
53	DVDD	Power	3.15V ~ 3.47V	Display Digital Power Supply

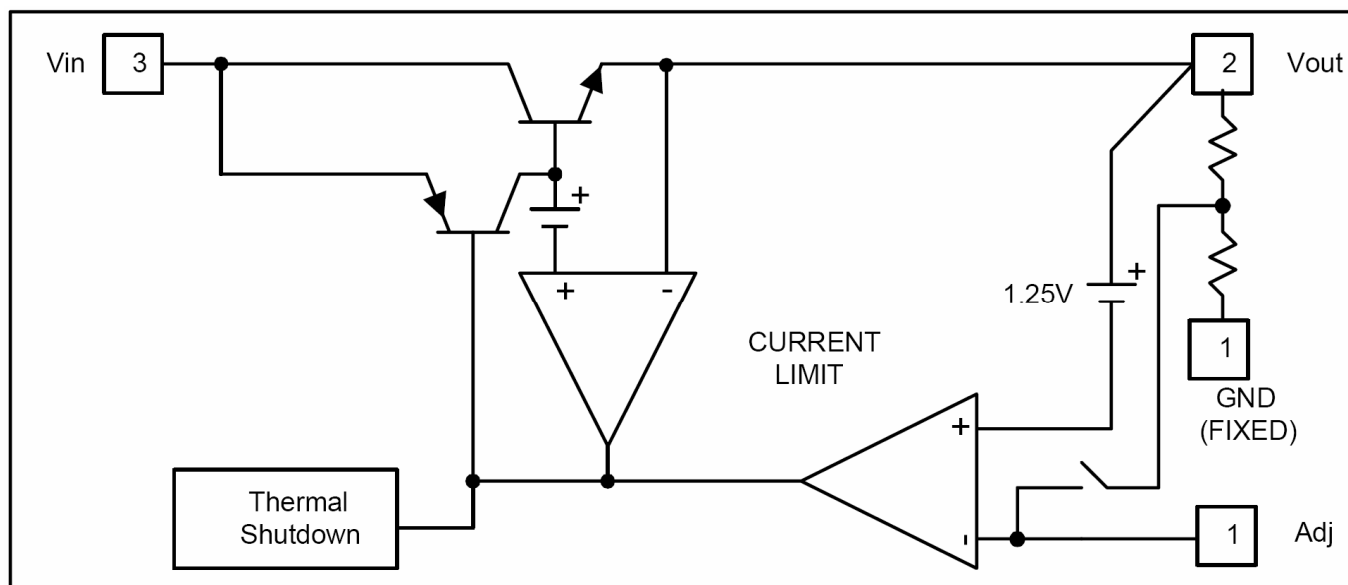
54	RSBA1P/ V0	RSDSO	0 ~ 3.47V	Port A Blue data RSDS differential data 1 (Positive)/ Video data input
55	RSBA1M/ V1	RSDSO	0 ~ 3.47V	Port A Blue data RSDS differential data 1 (Negative)/ Video data input
56	RSBA2P/ V2	RSDSO	0 ~ 3.47V	Port A Blue data RSDS differential data 2 (Positive) / Video data input
57	RSBA2M/ V3	RSDSO	0 ~ 3.47V	Port A Blue data RSDS differential data 2 (Negative)/ Video data input
58	RSBA3P/ V4	RSDSO	0 ~ 3.47V	Port A Blue data RSDS differential data 3 (Positive) / Video data input
59	RSBA3M/ V5	RSDSO	0 ~ 3.47V	Port A Blue data RSDS differential data 3 (Negative)/ Video data input
60	RSCLKAP/ V6	RSDSO	0 ~ 3.47V	Port A Pixel clock RSDS differential positive/ Video data input
61	RSCLKAM/ V7	RSDSO	0 ~ 3.47V	Port A Pixel clock RSDS differential Negative /Video data input
62	RSGA1P/ YUV_CLK	RSDSO	0 ~ 3.47V	Port A Green data RSDS differential data 1 (Positive) /Video Port Clock
63	RSGA1M	RSDSO	0 ~ 3.47V	Port A Green data RSDS differential data 1 (Negative)
64	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
65	PA0	I/O	0 ~ 3.47V	I/O Pin; Schmitt Trigger Input
	PWM2	O	0 ~ 3.47V	PWM-Type D/A Converter; 3.3V Push-Pull Structure
66	PA2	I/O	0 ~ 3.47V	I/O Pin; Schmitt Trigger Input
	PWM4	O	0 ~ 3.47V	PWM-Type D/A Converter; 3.3V Push-Pull Structure
67	PA1	I/O	0 ~ 3.47V	I/O Pin; Schmitt Trigger Input
	PWM3	O	0 ~ 3.47V	PWM-Type D/A Converter; 3.3V Push-Pull Structure
68	RSGA2P/T7P	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port A Green data RSDS differential data 2 (Positive)/ Positive LVDS differential data output of channel 7
69	RSGA2M/T7M	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port A Green data RSDS differential data 2 (Negative)/ Negative LVDS differential data output of channel 7
70	RSGA3P/TCLK2P	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port A Green data RSDS differential data 3 (Positive)/ Positive LVDS differential clock 2 output
71	RSGA3M/TCLK2M	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port A Green data RSDS differential data 3 (Negative)/ Negative LVDS differential clock 2 output
72	RSRA1P/T6P/ RSBB0P	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port A Red data RSDS differential data 1 (Positive)/ Positive LVDS differential data output of channel 6
73	RSRA1M/T6M/ RSBB0M	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port A Red data RSDS differential data 1 (Negative)/ Negative LVDS differential data output of channel 6
74	RSRA2P/T5P RSGB0P	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port A Red data RSDS differential data 2 (Positive)/ Positive LVDS differential data output of channel 5
75	RSRA2M/T5M RSGB0M	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port A Red data RSDS differential data 2 (Negative)/ Negative LVDS differential data output of channel 5

76	RSRA3P/T4P RSRB0P	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port A Red data RSDS differential data 3 (Positive)/ Positive LVDS differential data output of channel 4
77	RSRA3M/T4M RSRB0M	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port A Red data RSDS differential data 3 (Negative)/ Negative LVDS differential data output of channel 4
78	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
79	RSBB1P/T3P	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port B Blue data RSDS differential data 1 (Positive)/ Positive LVDS differential data output of channel 3
80	RSBB1M/T3M	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port B Blue data RSDS differential data 1 (Negative)/ Negative LVDS differential data output of channel 3
81	RSBB2P/TCLK1P	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port B Blue data RSDS differential data 2 (Positive)/ Positive LVDS differential clock 1 output
82	RSBB2M/TCLK1M	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port B Blue data RSDS differential data 2 (Negative)/ Negative LVDS differential clock 1 output
83	RSBB3P/T2P	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port B Blue data RSDS differential data 3 (Positive)/ Positive LVDS differential data output of channel 2
84	RSBB3M/T2M	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port B Blue data RSDS differential data 3 (Negative)/ Negative LVDS differential data output of channel 2
85	RSCLKBP/T1P	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port A Pixel clock RSDS differential positive/ Positive LVDS differential data output of channel 1
86	RSCLKBM/T1M	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port A Pixel clock RSDS differential Negative/ Negative LVDS differential data output of channel 1
87	RSGB1P/T0P	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port B Green data RSDS differential data 1 (Positive)/ Positive LVDS differential data output of channel 0
88	RSGB1M/T0M	RSDSO/ LVDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port B Green data RSDS differential data 1 (Negative)/ Negative LVDS differential data output of channel 0
89	SP	O	0 ~ 3.47V	Start pulse for panel source driver
90	DVDD	Power	3.15V ~ 3.47V	Display Digital Power Supply
91	RSGB2P	RSDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port B Green data RSDS differential data 2 (Positive)
92	RSGB2M	RSDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port B Green data RSDS differential data 2 (Negative)
93	RSGB3P	RSDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port B Green data RSDS differential data 3 (Positive)
94	RSGB3M	RSDSO	$1.2 \pm 0.10V$ ~ $1.2 \pm 0.22V$	Port B Green data RSDS differential data 3 (Negative)

95	RSRB1P	RSDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Port B Red data RSDS differential data 1 (Positive)
96	RSRB1M	RSDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Port B Red data RSDS differential data 1 (Negative)
97	RSRB2P	RSDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Port B Red data RSDS differential data 2 (Positive)
98	RSRB2M	RSDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Port B Red data RSDS differential data 2 (Negative)
99	RSRB3P	RSDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Port B Red data RSDS differential data 3 (Positive)
100	RSRB3M	RSDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Port B Red data RSDS differential data 3 (Negative)
101	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
102	PC6	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
103	PC7	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
104	PD0	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
105	PD1	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
106	PD2	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
107	PD3	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
108	PD4	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
109	DGND	Power	0V	Digital Ground
110	GPO1	O	0~ 3.47V	General purpose output for panel driver
111	GPO2/AD0	I/O	0~ 3.47V	General purpose output
112	GPO3/AD1	I/O	0~ 3.47V	General purpose output
113	INT_VSO/GPO4	O	0~ 3.47V	Internal Vertical Sync output, this signal is by-pass the Sync-processor/ General purpose output
114	INT_HSO/GPO5	O	0~ 3.47V	Internal Horizontal Sync output, this signal is by-pass the Sync-processor / General purpose output
115	CVDD	Power	1.6V ~ 2.0V	Core logic power supply (1.8V) pin. External capacitor (0.1uF) connected is recommended.
116	GPO6	O	0~ 3.47V	General purpose output
117	PWMA*/GPO7*	O	0~ 3.47V	PWMA/ General purpose output
118	PWMB*/GPO8*	O	0~ 5.25V	PWMB/ General purpose output
119	CVDD	Power	1.6V ~ 2.0V	Core logic power supply (1.8V) pin. External capacitor (0.1uF) connected is recommended.
120	PC0*	I/O	0~ 5.25V	I/O Pin; 5V Open-Drain Structure with Schmitt Trigger Input
121	PC1*	I/O	0~ 5.25V	I/O Pin; 5V Open-Drain Structure with Schmitt Trigger Input
122	PC3	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
	PWM0	O	0~ 3.47V	PWM-Type D/A Converter; Push-Pull Structure
123	PC4	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
	PWM1	O	0~ 3.47V	PWM-Type D/A Converter; Push-Pull Structure
124	PC5	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
125	PB1/ADC1	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input A/D Converter Input-1; Hi-Z input
126	PB0/ADC0	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input A/D Converter Input-0; Hi-Z input
127	OSCI	I		12MHz External Crystal OSC Output
128	OSCO	O		12MHz External Crystal OSC Input

U5 AP1117D33L: DC power convert, convert to 3.3v.

AP1117 is a low dropout positive adjustable or fixed-mode regulator with 1A output current capability. The product is specifically designed to provide well-regulated supply for low voltage IC applications such as high-speed bus termination and low current 3.3V logic supply. AP1117 is also well suited for other applications such as VGA cards. AP1117 is guaranteed to have lower than 1.4V dropout at full load current making it ideal to provide well-regulated outputs of 1.25 to 5.0 with 6.4V to 18V input supply.



Pin Descriptions

Name	I/O	Pin #	Function
Adj (GND)	I	1	A resistor divider from this pin to the Vout pin and ground sets the output voltage. (Ground only for Fixed-Mode)
Vout	O	2	The output of the regulator. A minimum of 10uF capacitor ($0.15\Omega \leq \text{ESR} \leq 20\Omega$) must be connected from this pin to ground to insure stability.
Vin	I	3	The input pin of regulator. Typically a large storage capacitor ($0.15\Omega \leq \text{ESR} \leq 20\Omega$) is connected from this pin to ground to insure that the input voltage does not sag below the minimum dropout voltage during the load transient response. This pin must always be 1.3V higher than Vout in order for the device to regulate properly.

5. Adjustment Procedure

Setting the Timing Mode

Setting the timing mode is important for maximizing the quality of the screen image and minimizing eye strain. The **timing mode** consists of the **resolution** (example 1680 x 1050) and **refresh rate** (or vertical frequency; example 60 Hz). After setting the timing mode, use the OSD (On-screen Display) controls to adjust the screen image.

For the best picture quality set your LCD display timing mode to:

VESA 1680 x 1050 @ 60Hz.

To set the Timing Mode:

1. **Set the resolution:** Right-click on the Windows desktop > Properties > Settings > set the resolution.
2. **Set the refresh rate:** See your graphic card's user guide for instructions.

WARNING: Do not set the graphics card in your computer to exceed the maximum refresh rate of 75Hz; doing so may result in permanent damage to your LCD display.

OSD and Power Lock Settings

- **OSD Lock:** Press and hold [1] and the up arrow ▲ for 10 seconds. If any buttons are pressed the message *OSD Locked* will display for 3 seconds.
- **OSD Unlock:** Press and hold [1] and the up arrow ▲ again for 10 seconds.
- **Power Button Lock:** Press and hold [1] and the down arrow ▼ for 10 seconds. If the power button is pressed the message *Power Button Locked* will display for 3 seconds. With or without this setting, after a power failure, your LCD display's power will automatically turn ON when power is restored.
- **Power Button Unlock:** Press and hold [1] and the down arrow ▼ again for 10 seconds.

5.1 White balance, Luminance adjustment

Approximately 2 Hours should be allowed for warm up before proceeding White-Balance adjustment.

Before started adjust white balance, please setting the Chroma-C7120 **MEM. Channel 0 to 9300⁰K colors, MEM. Channel 1 to 7500⁰K colors, MEM. Channel 2 to 6500⁰K MEM. Channel 3 to 5000⁰K MEM. Channel 4 to SRGB**

(our 9300 parameter is $x=283\pm12$, $y=297\pm12$, $Y > 180 \text{ cd/m}^2$;

7500 parameter is $x=299\pm12$, $y=315\pm12$, $Y > 210 \text{ cd/m}^2$,

6500 parameter is $x=313\pm12$, $y=329\pm12$, $Y > 250 \text{ cd/m}^2$,

5000 parameter is $x=347 \pm 12$, $y=349 \pm 12$, $Y > 240 \text{ cd/m}^2$

SRGB parameter is $x=313\pm12$, $y=329\pm12$, $Y=90\pm15 \text{ cd/m}^2$)

How to setting MEMchannel you can reference to Minolta-CA210 user guide or simple use “**SC**” key and “**NEXT**” key to modify x, y, Y value and use “**ID**” key to modify the TEXT description Following is the procedure to do white-balance adjust

Enter into Burn/in mode:

AC ON the monitor **with no signal**, and press “power” button to DC OFF the monitor, then press “1” and “power” button at the same time to enter **Burn/in mode**;

Enter into the factory mode:

AC ON the monitor **with signal connected**, and press “power” button to DC OFF the monitor, then press “1” and “power” button at the same time to enter **factory mode**;

Gain adjustment:

Move cursor to “Factory” and press “2” key.

Move cursor to “Auto Level” and press “2” key to adjust Gain and Offset automatically;

(notice: this monitor do auto level must in T144(1280X1024@60Hz) P48(32 Grays))

a. Adjust SRGB (9300⁰K) color-temperature

1. Switch the Chroma-C7120 to **RGB-mode** (with press “MODE” button)
2. Switch the MEM.channel to Channel 0 (with up or down arrow on Chroma-C7120)
3. The LCD-indicator on Minolta-CA210 will show $x = 283 \pm 12$, $y = 297 \pm 12$, $Y > 180 \text{ cd/m}^2$

b. Adjust Color1 (7500⁰K) color-temperature

4. Switch the Chroma-C7120 to **RGB-mode** (with press “MODE” button)
5. Switch the MEM.channel to Channel 1 (with up or down arrow on Chroma-C7120)
6. The LCD-indicator on Minolta-CA210 will show $x = 299 \pm 12$, $y = 315 \pm 12$, $Y > 200 \text{ cd/m}^2$

c. Adjust Color2 (6500⁰K) color-temperature

7. Switch the Chroma-C7120 to **RGB-mode** (with press “MODE” button)
8. Switch the MEM.channel to Channel 2 (with up or down arrow on Chroma-C7120)
9. The LCD-indicator on Minolta-CA210 will show $x = 313 \pm 12$, $y = 329 \pm 12$, $Y > 240 \text{ cd/m}^2$

d. Adjust SRGB (5000⁰K) color-temperature

1. Switch the Chroma-C71200 to **RGB-mode** (with press “MODE” button)
2. Switch the MEM.channel to Channel 3 (with up or down arrow on Chroma-C7120)
3. The LCD-indicator on Minolta-CA210 will show $x = 347 \pm 12$, $y = 360 \pm 12$, $Y > 220 \text{ cd/m}^2$

e. Adjust SRGB (SRGB) color-temperature

1. Switch the Chroma-C7120 to **RGB-mode** (with press “MODE” button)
2. Switch the MEM.channel to Channel 4 (with up or down arrow on Chroma-C7120)
3. The LCD-indicator on Minolta-CA210 will show $x = 313 \pm 12$, $y = 329 \pm 12$, $Y = 80 \pm 15 \text{ cd/m}^2$

10. press “1” key to save adjust value and exit .

Turn the POWER-button off to on to quit from factory mode, and reset the monitor.

Max Brightness measurement: $> 250 \text{ cd/m}^2$

Test conditions:

- a. Switch to the full white pattern, in user mode main menu:
 1. Set <Color Settings> Red, Green, and Blue to the max.
 2. Set <Brightness> Brightness, Contrast to the max.

5.2 Firmware Upgrade Procedure

5.2.1 Equipment needed:

- Monitor(NT Series)
- Fixture for Firmware Upgrade
- Power Adapter *1 for Fixture
- VGA Cable *1
- PC (Personal Computer)
- LPT Cable *1
- Firmware Upgrade Program
- One additional monitor for checking the program execution



ISP tool



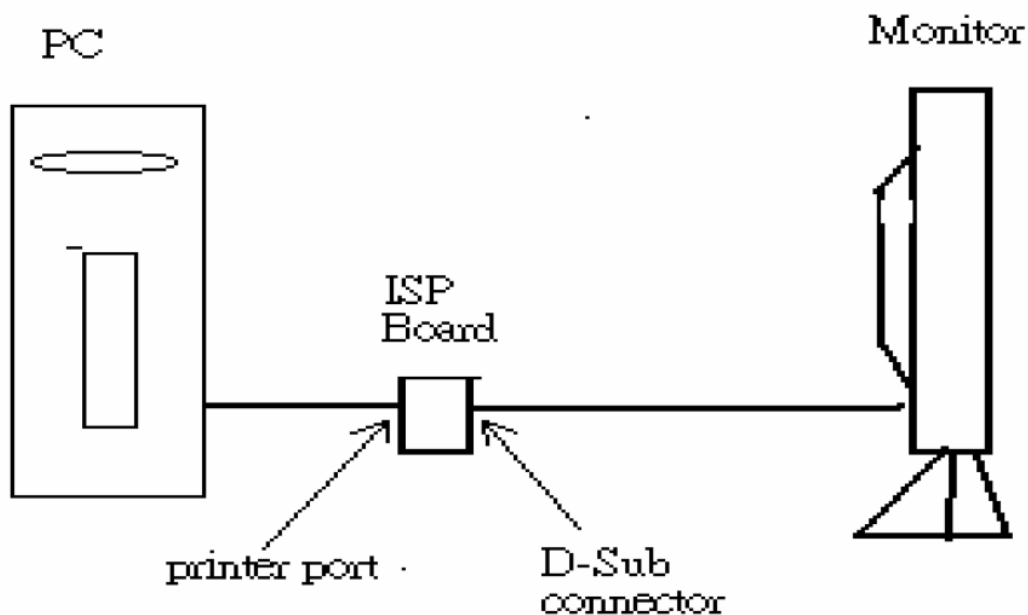
LPT Cable



VGA Cable

Hardware Connect status

- a Connect ISP_Tool with PC by LPT Cable.
- b Connect Power Cord to Monitor.
- c Connect V1962wm/wmp-3 to the ISP_Tool by VGA cable.

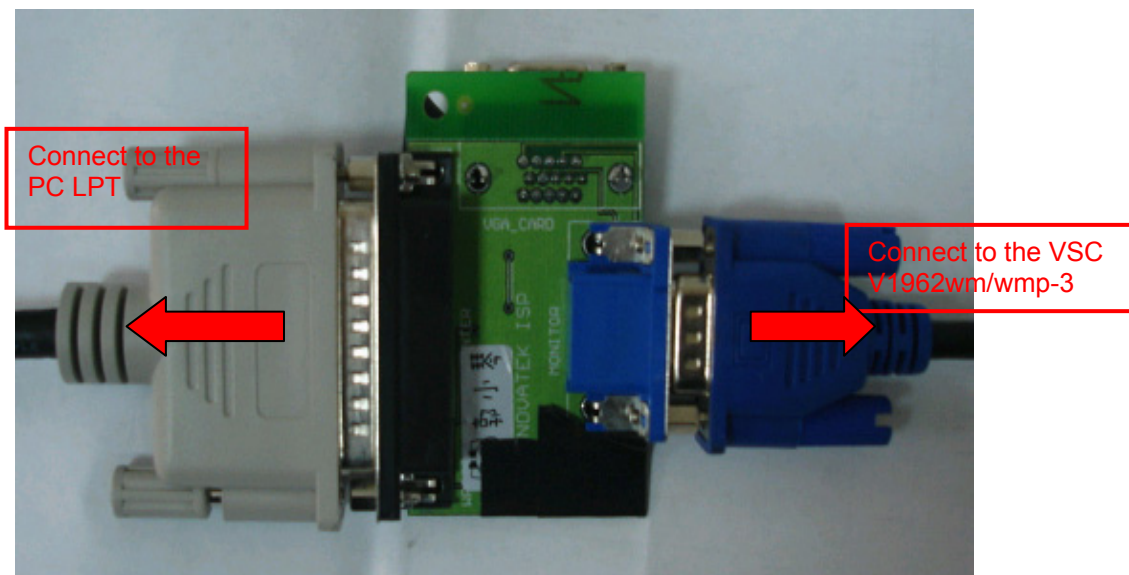


5.2.2 Update the NT'S firmware

ISP tool: "Writer.exe"

This tool update firmware for NOVATEK (U2)

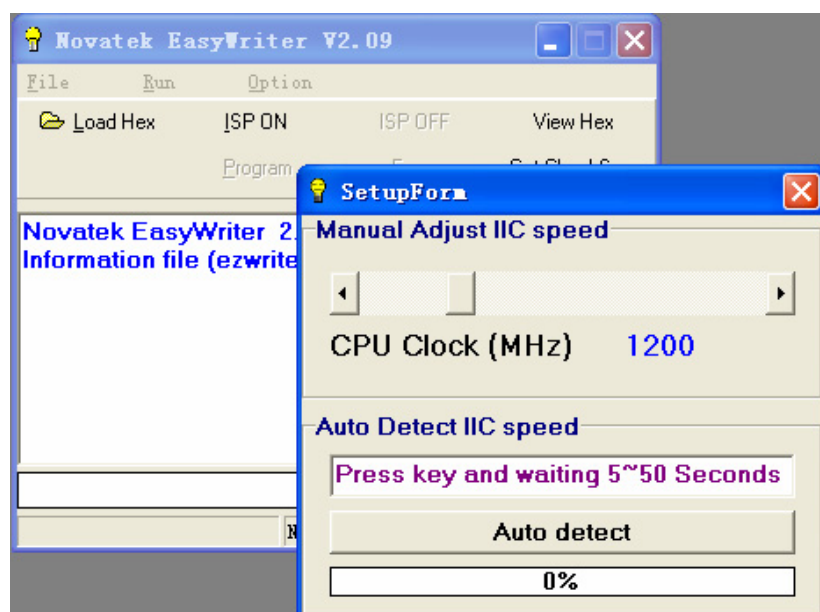
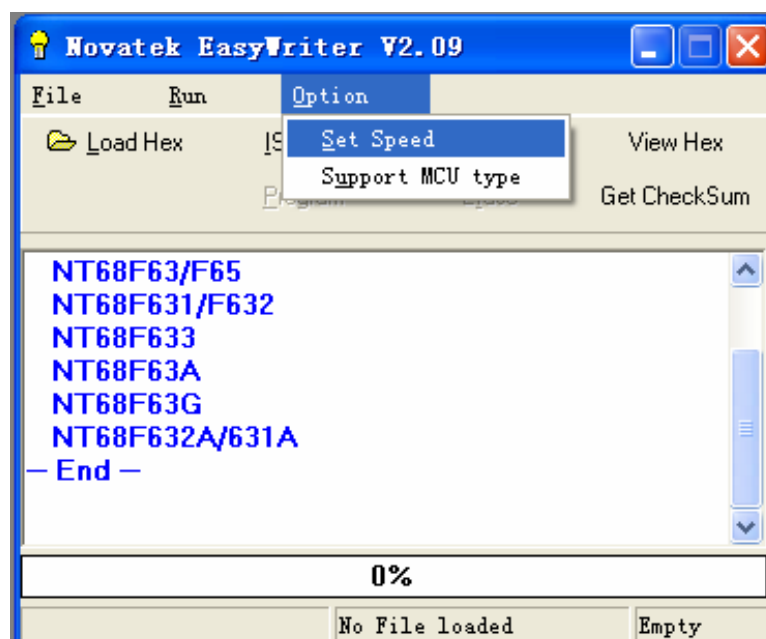
You should jump the pin to "For Flash" at ISP Board



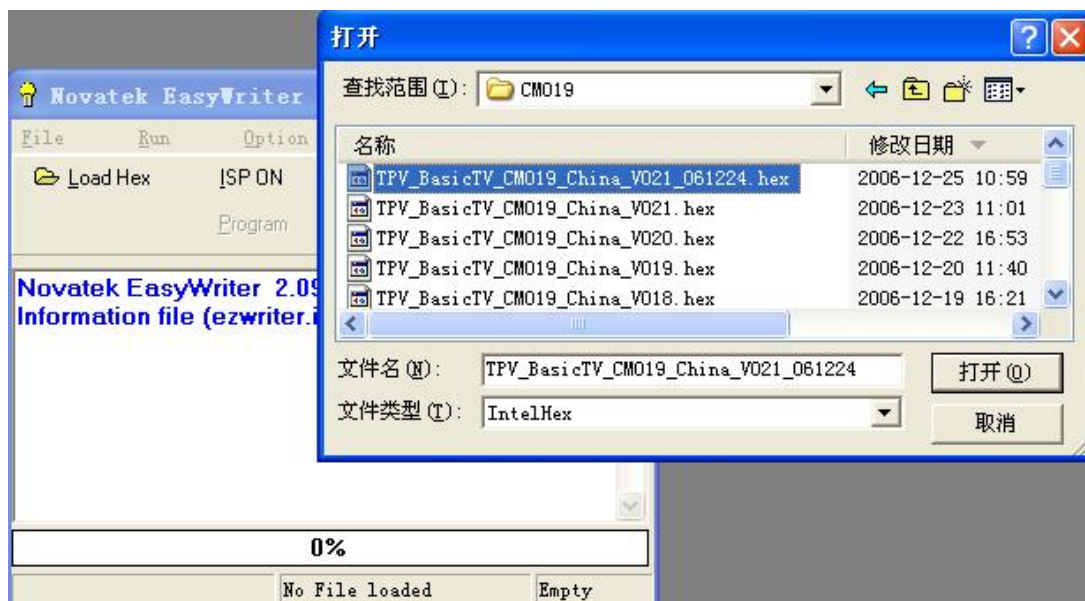
Double click "Writer.exe"



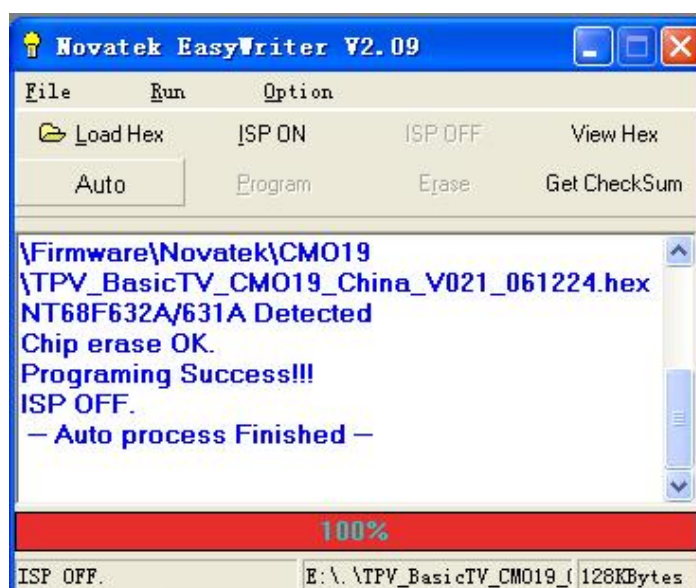
This tool can auto detect the right MCU programme speed, the process as follow:



When auto detect is finished,click “Load Hex”,then chose the firmware that you want to update



Click “Auto”,then the update will begin.Wait for a moment until the bar is 100%,the program windows will show “Programing Success”.This means the update is successful.



5.3 DDC Key in Procedure

Note:

1. Every time after replacing the main board, you have to do the DDC key in.
2. If you find the DDC does not conform to the LCD monitor, you have to do the DDC key in.

5.3.1 Equipment Needed

- V1962wm/wmp-3
- PC (Personal computer)
- LPT cable
- 12V DC
- Firmware upgrade program
- DDC Card
- VGA Cable

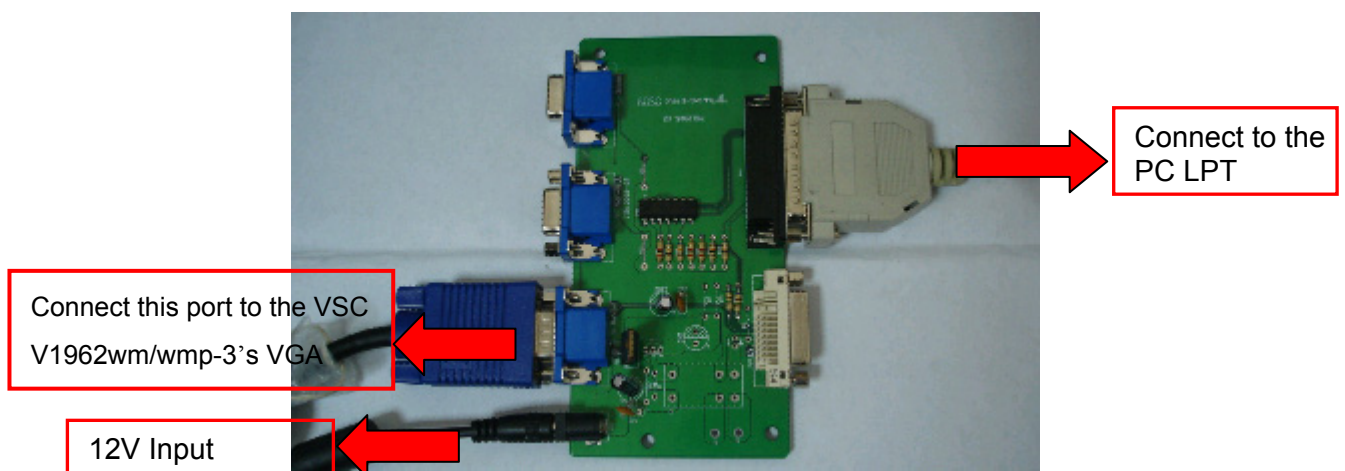
5.3.2 Install software

You must install the  **PORT95NT.EXE** at the first.

PORT95NT.EXE
PackageForTheWeb Stub
InstallShield Software Corpora...

Note: After installation, you must restart the PC to take the setup to effect.

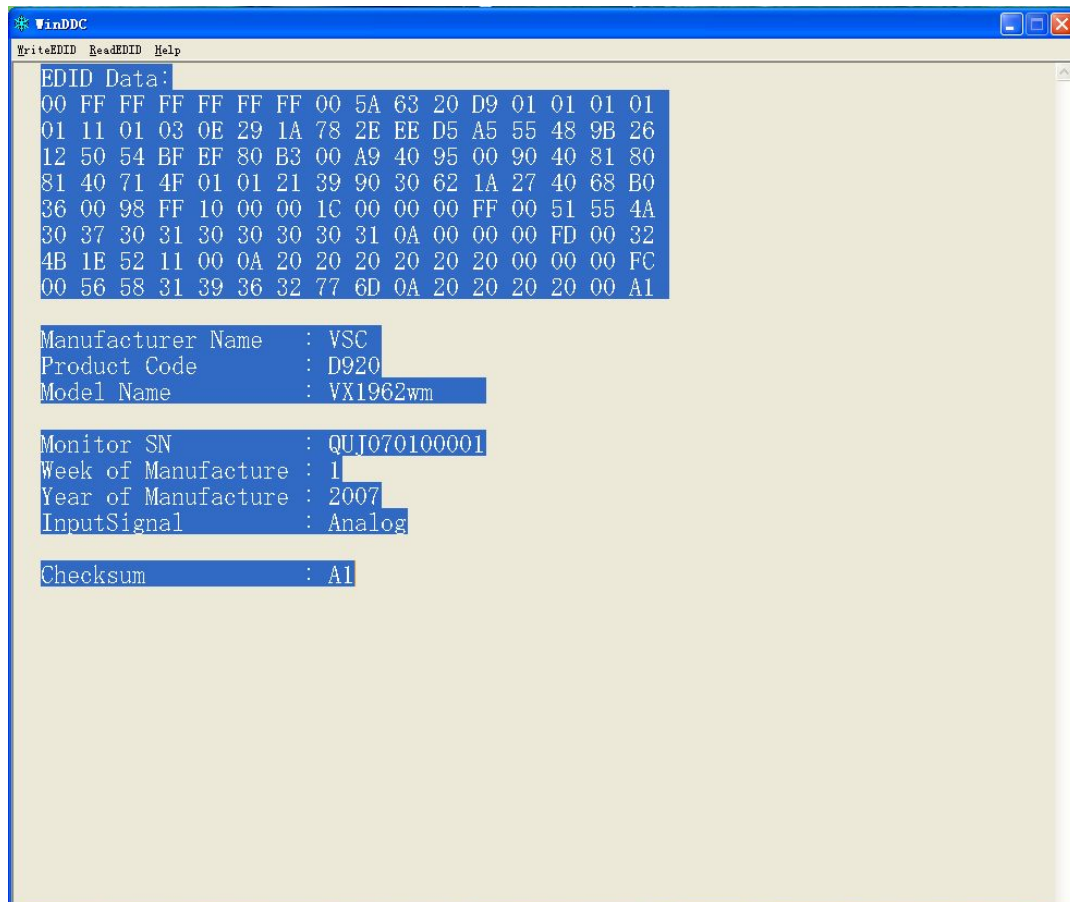
5.3.3 Connect the DDC card as follow:



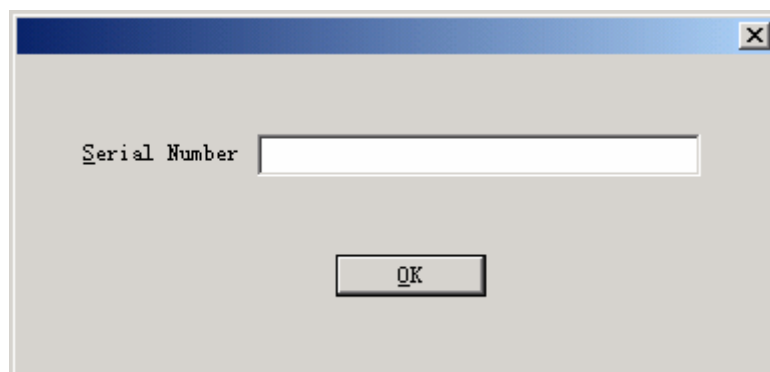
For analog



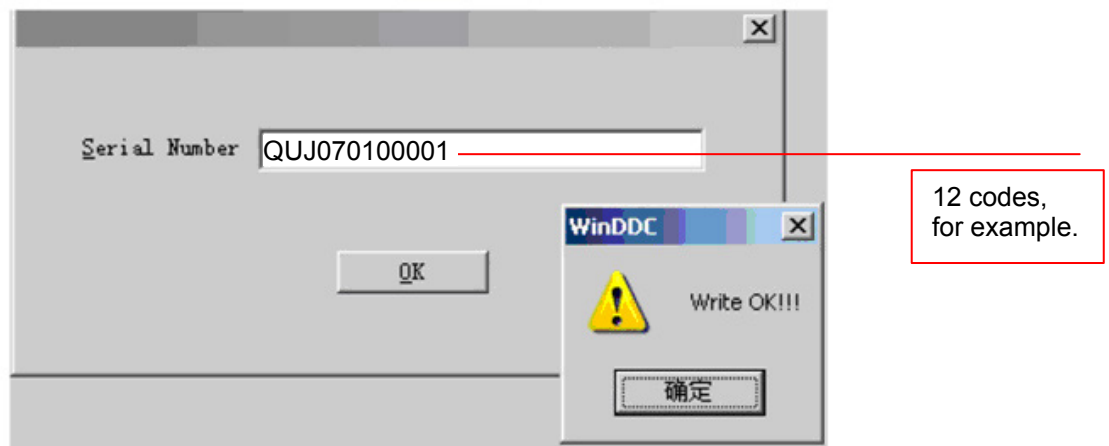
a. Double-click **WinDDC.exe** , appear as follow Figs:



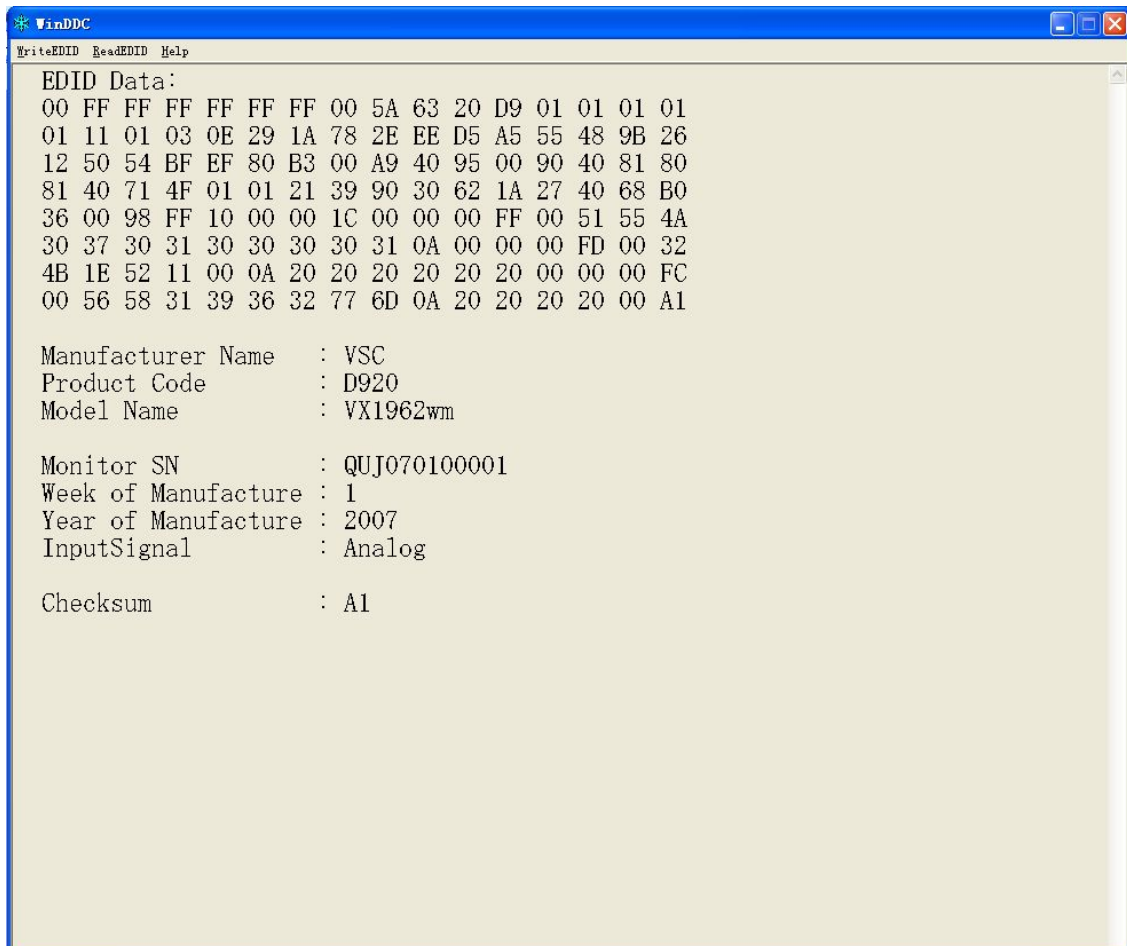
b. Click **WriteEDID**.



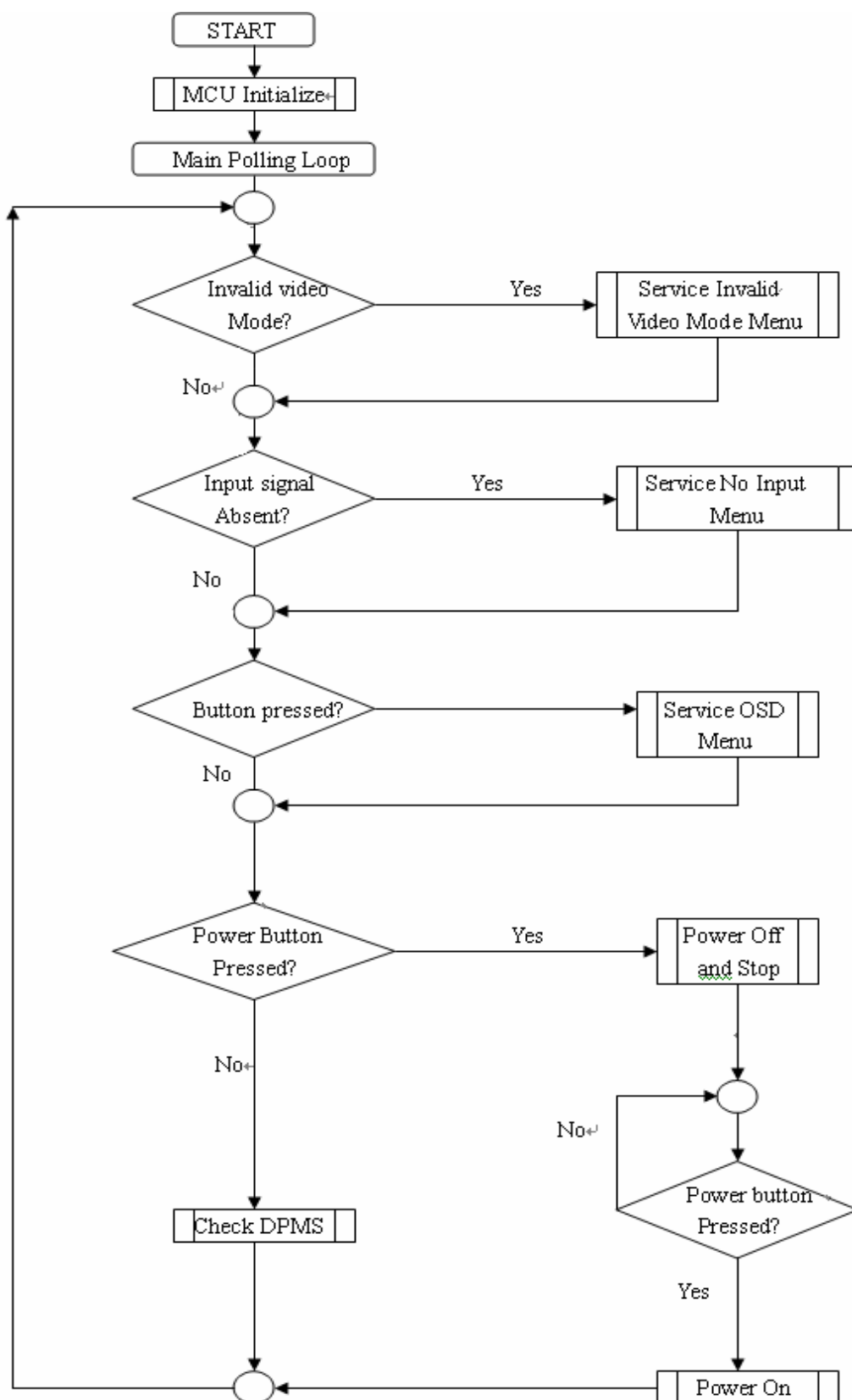
c. Key in the Serial Number printed on the barcode label, then click “OK”



d. Unit appears the following Fig, writer completed.

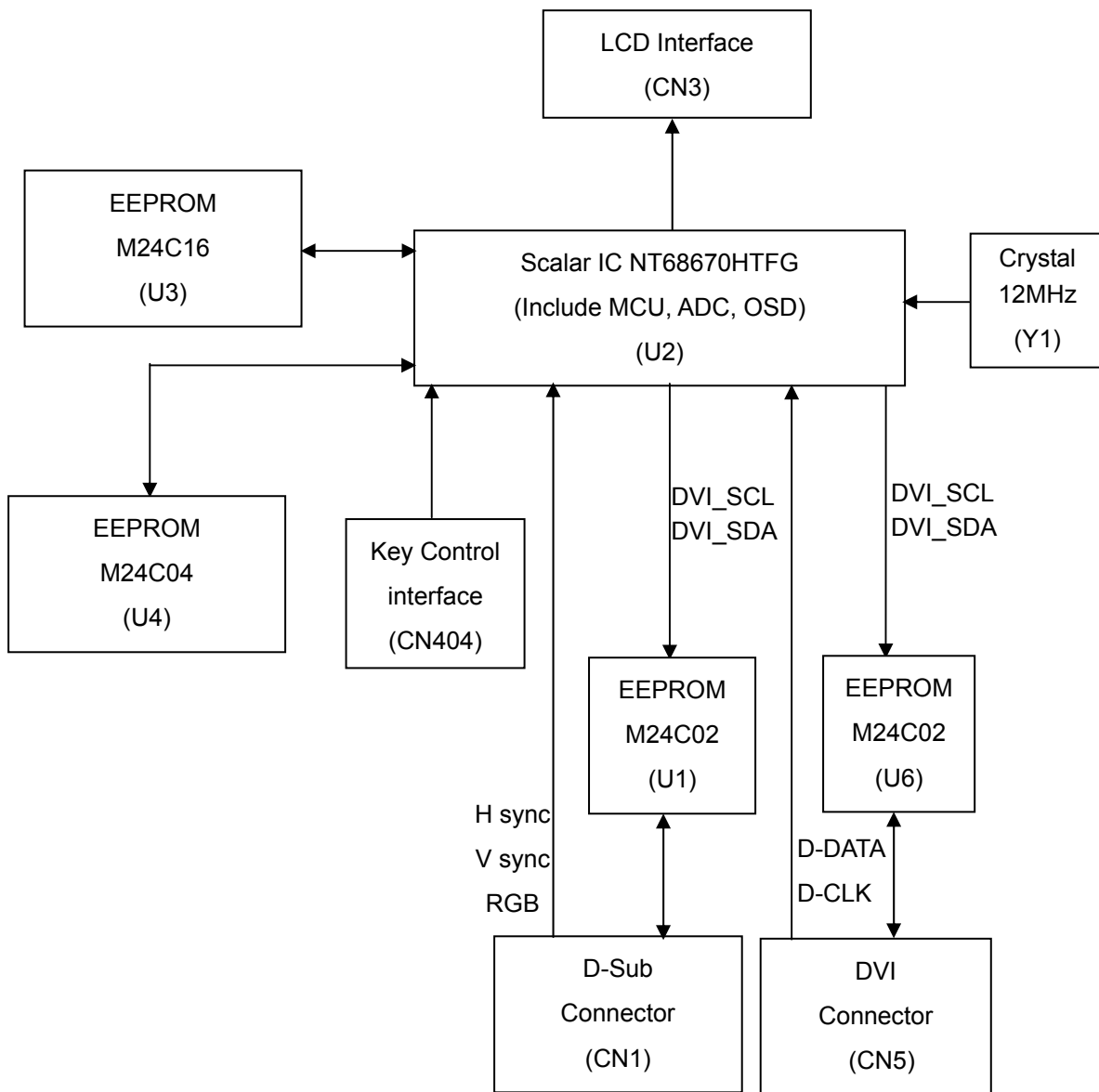


6. Troubleshooting Flow Chart

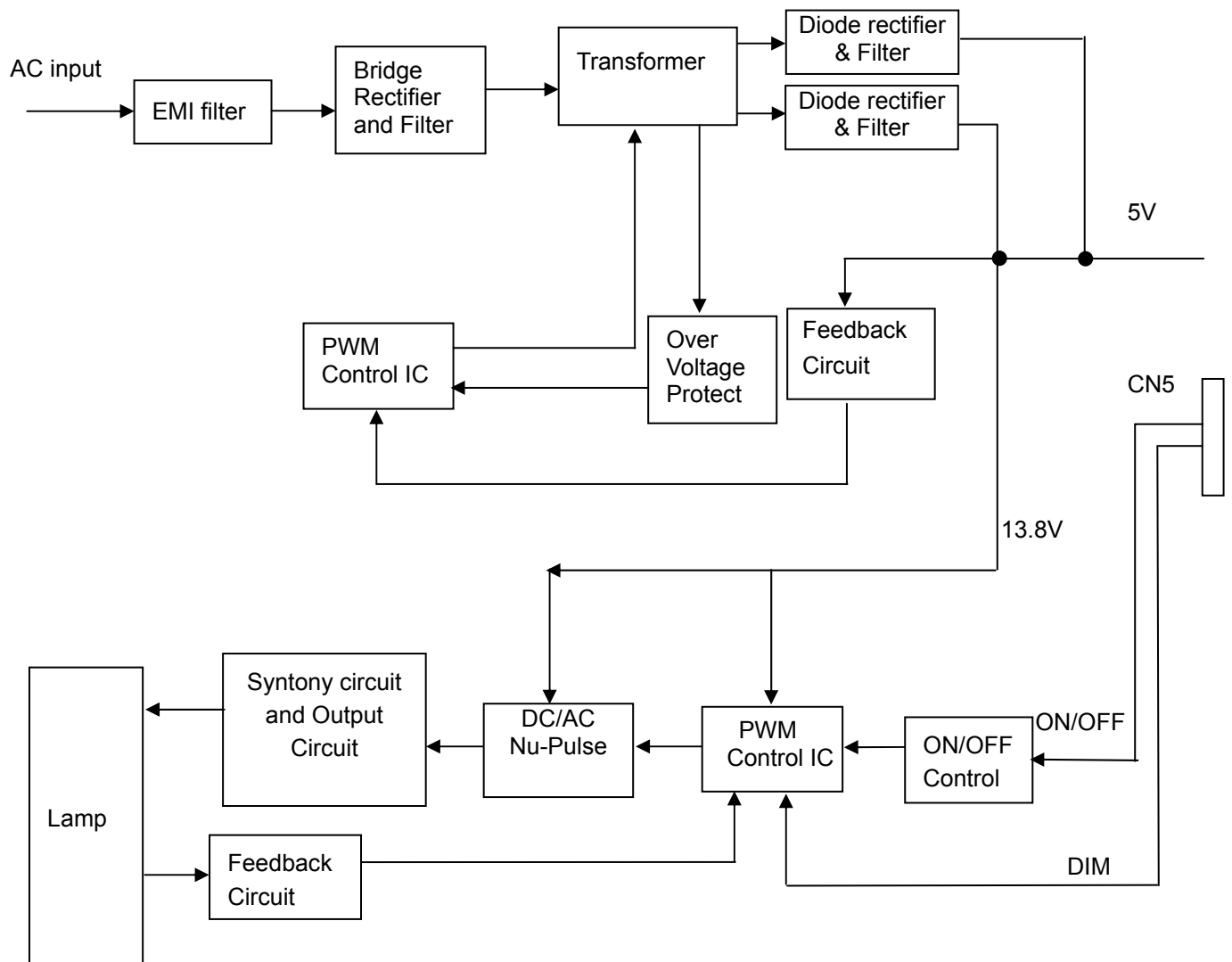


7. Block Diagram

7.1 Main Board



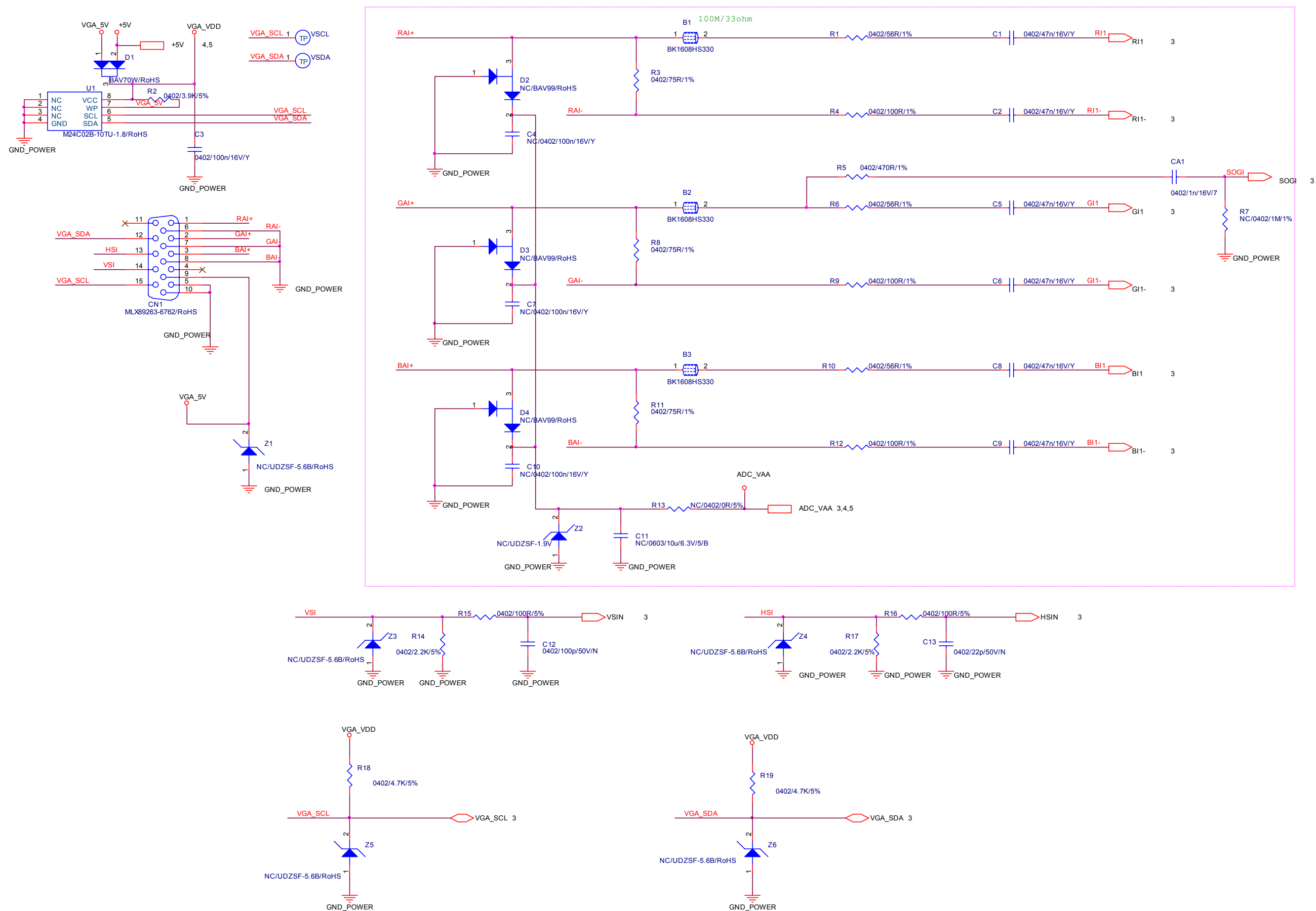
7.2 Power Board



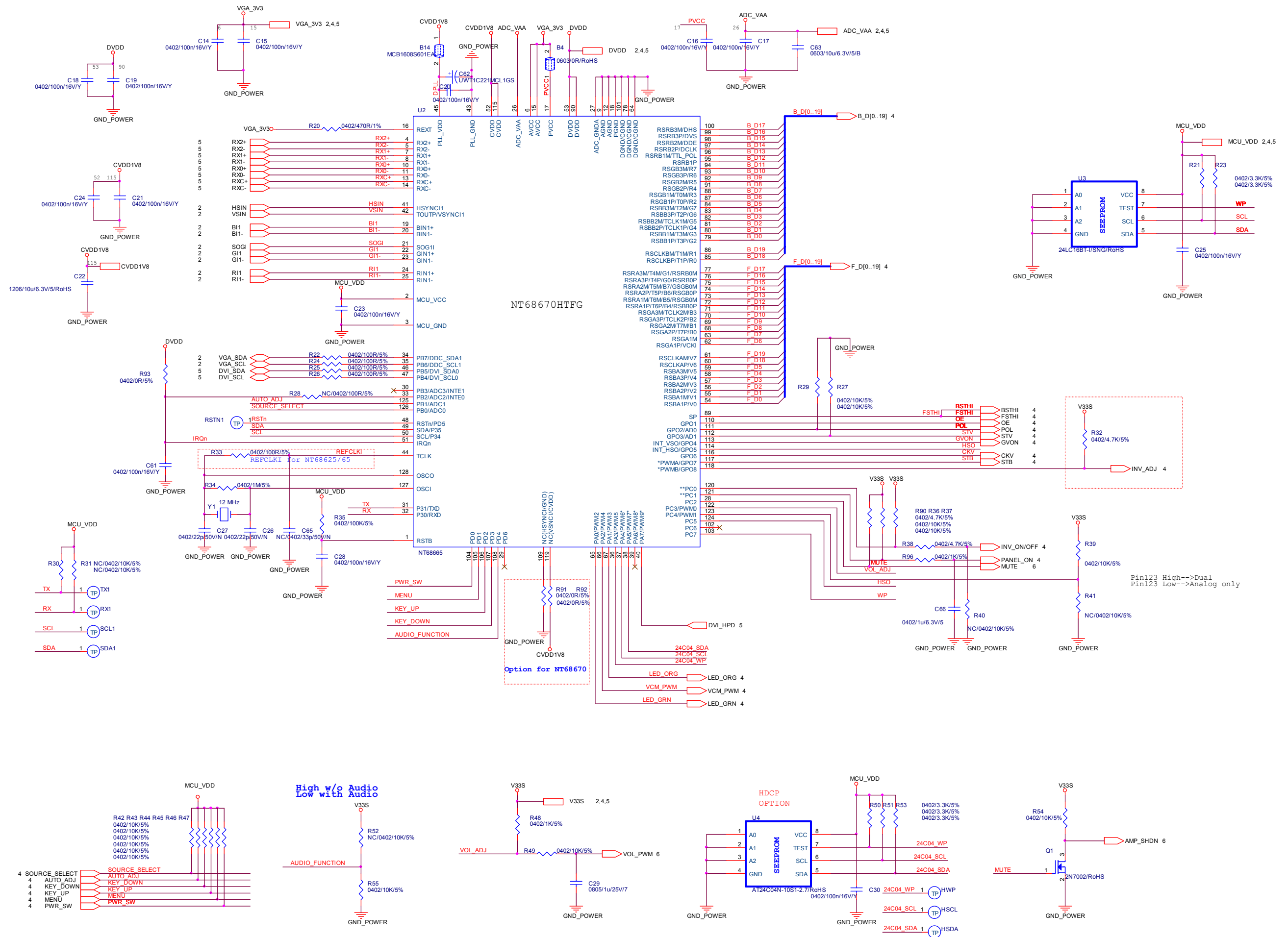
8. Schematic Diagrams

8.1 Main Board

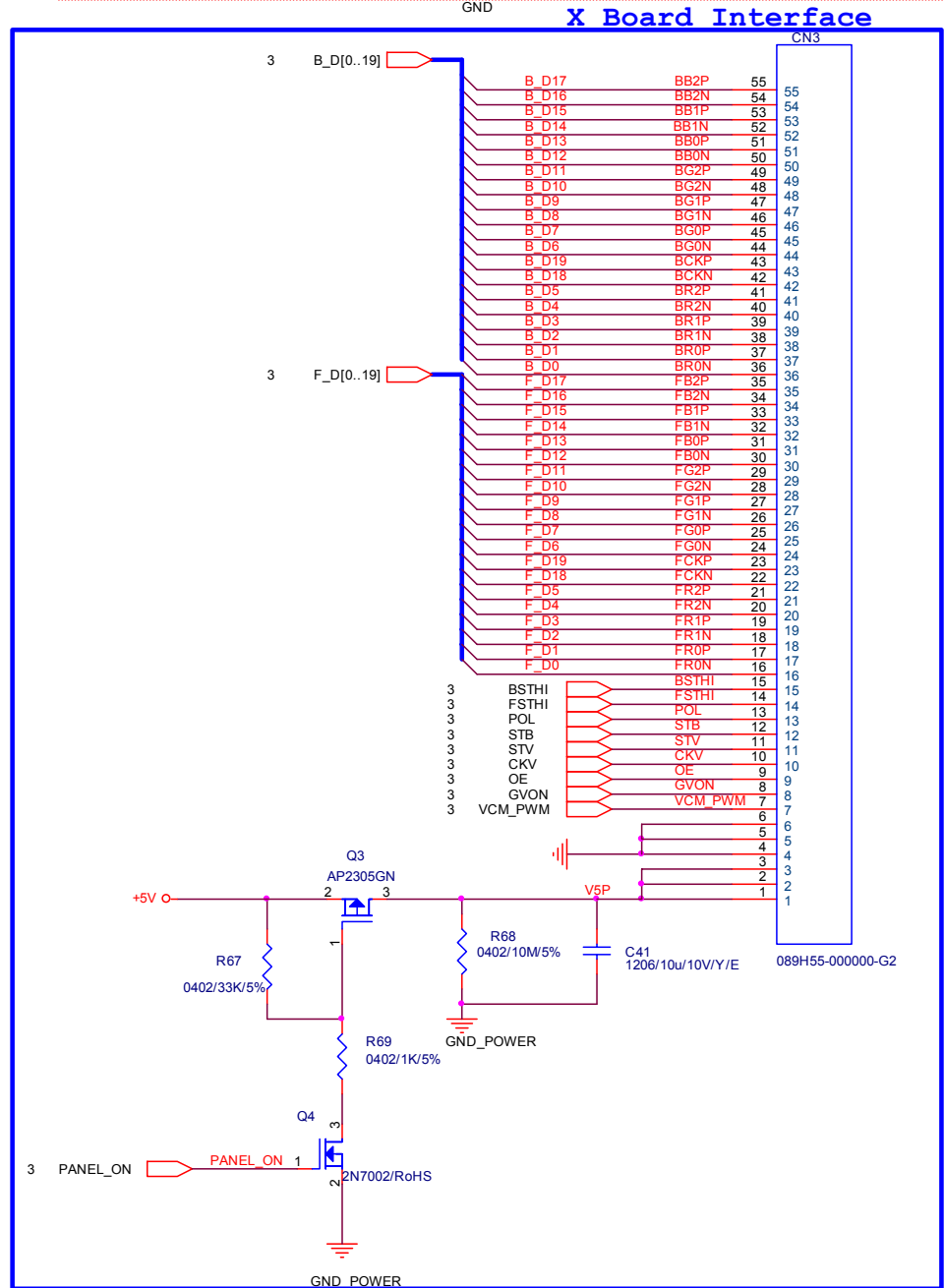
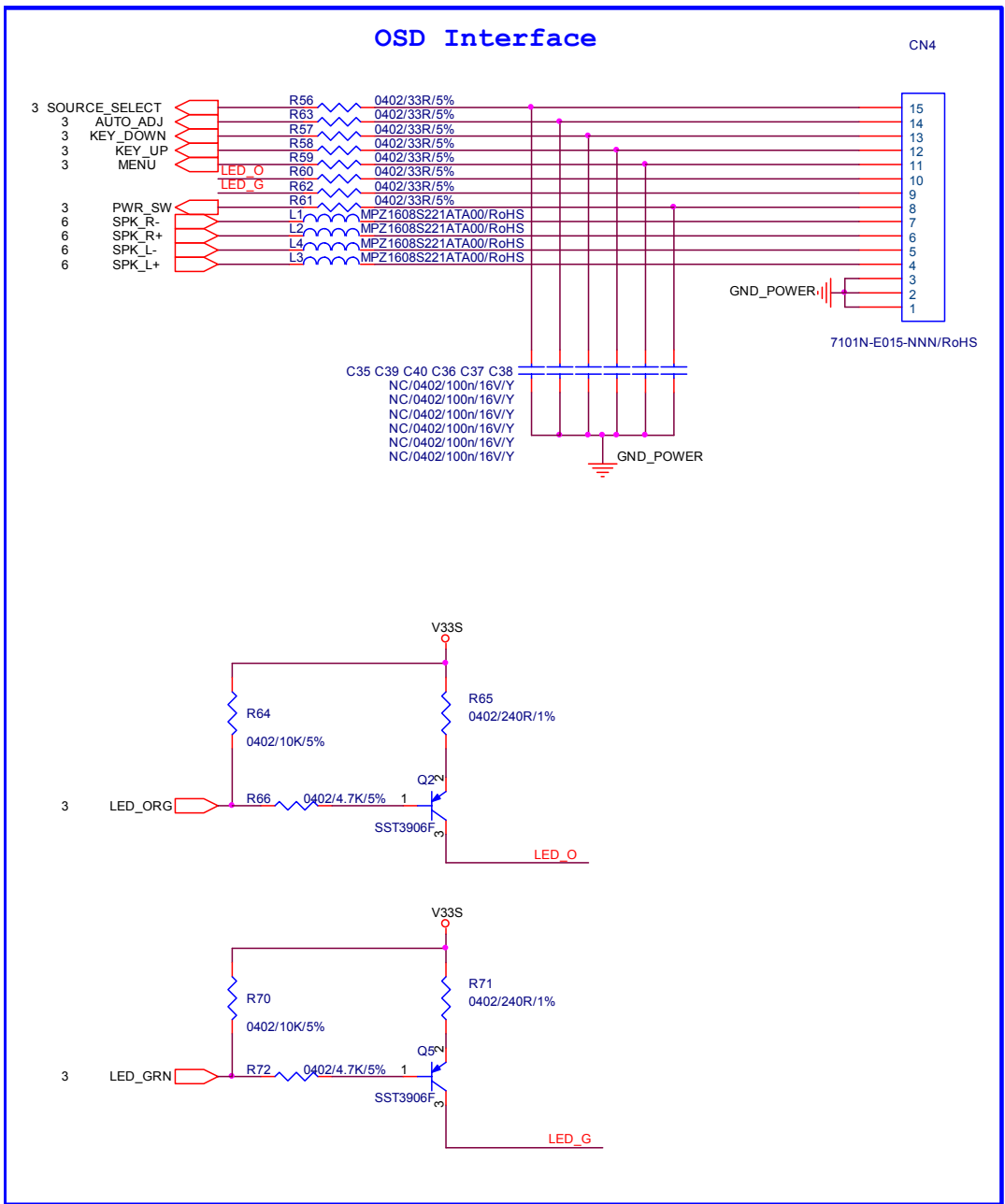
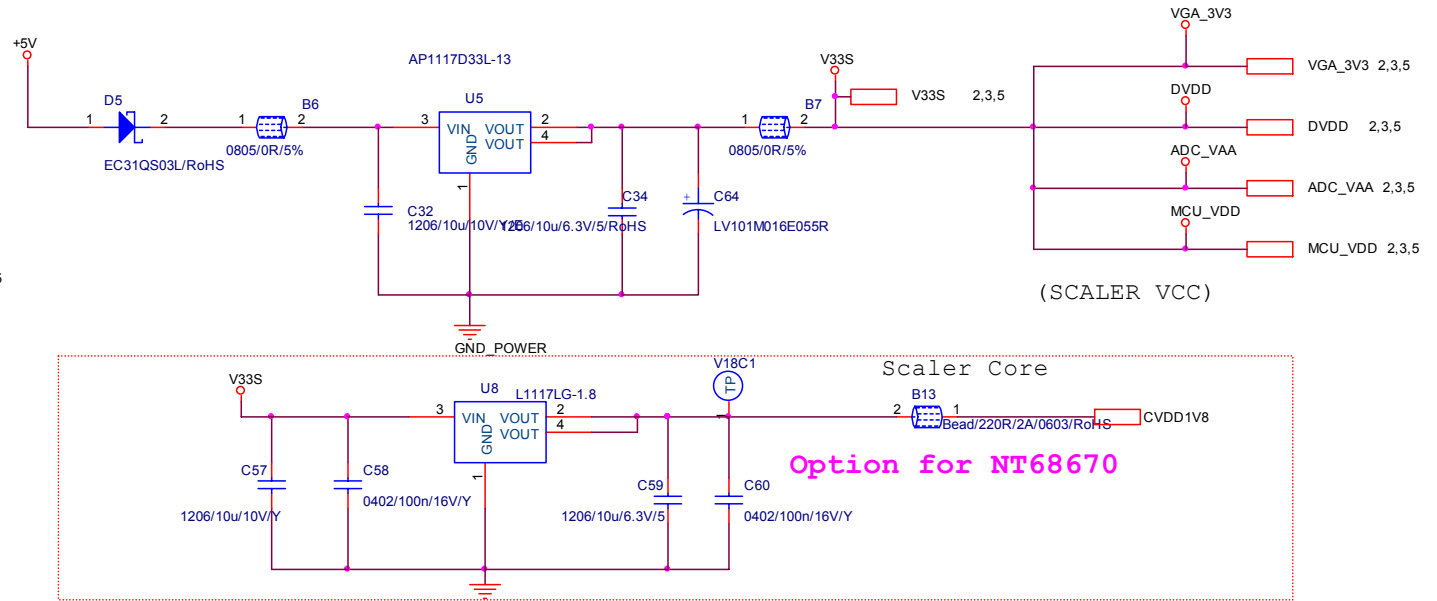
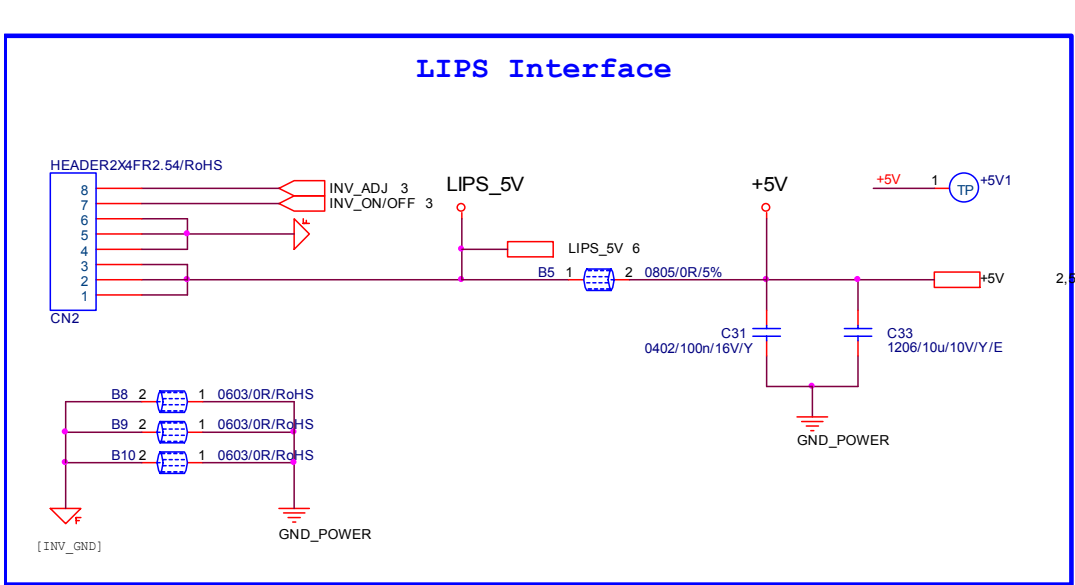
VGA



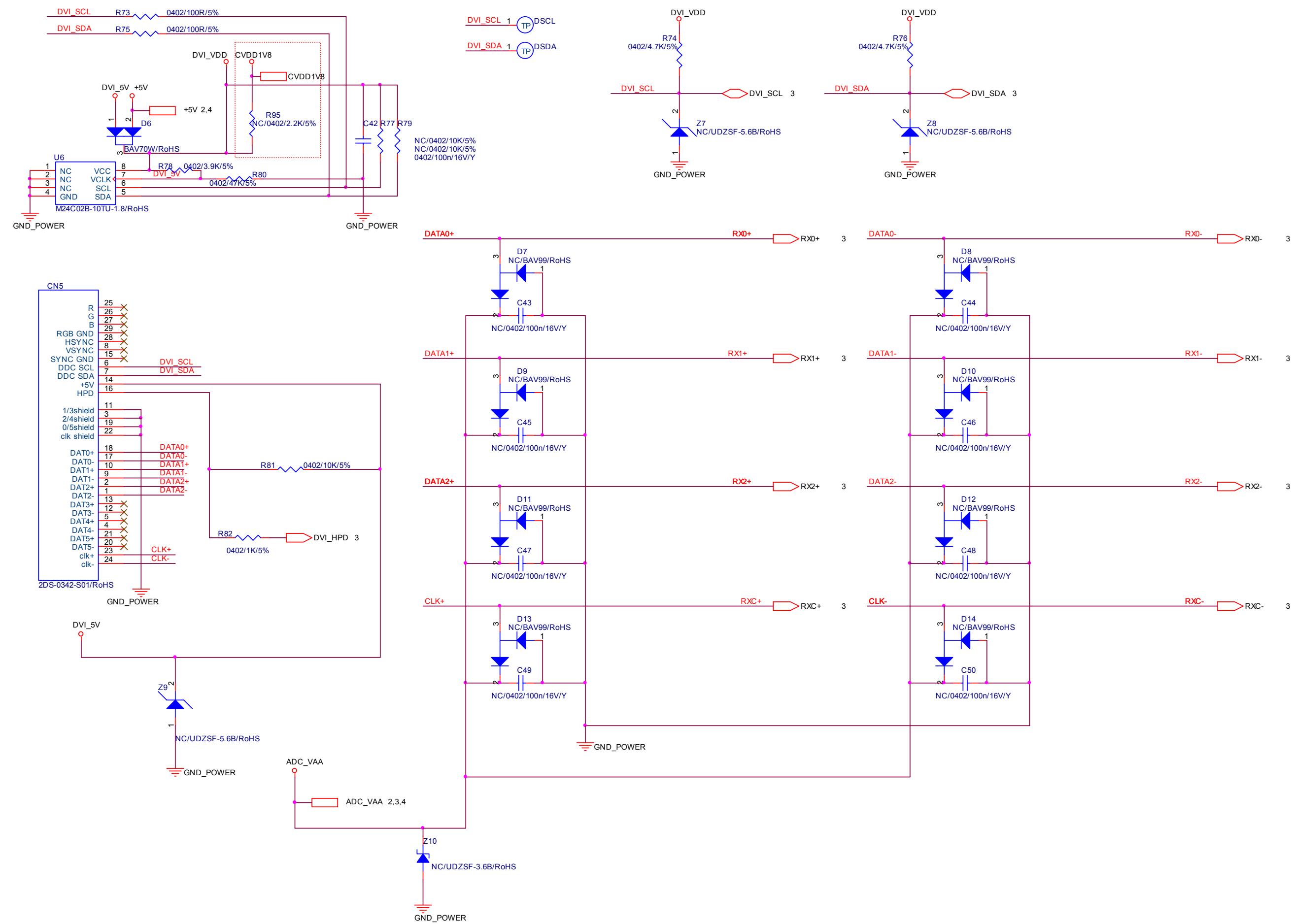
Scaler



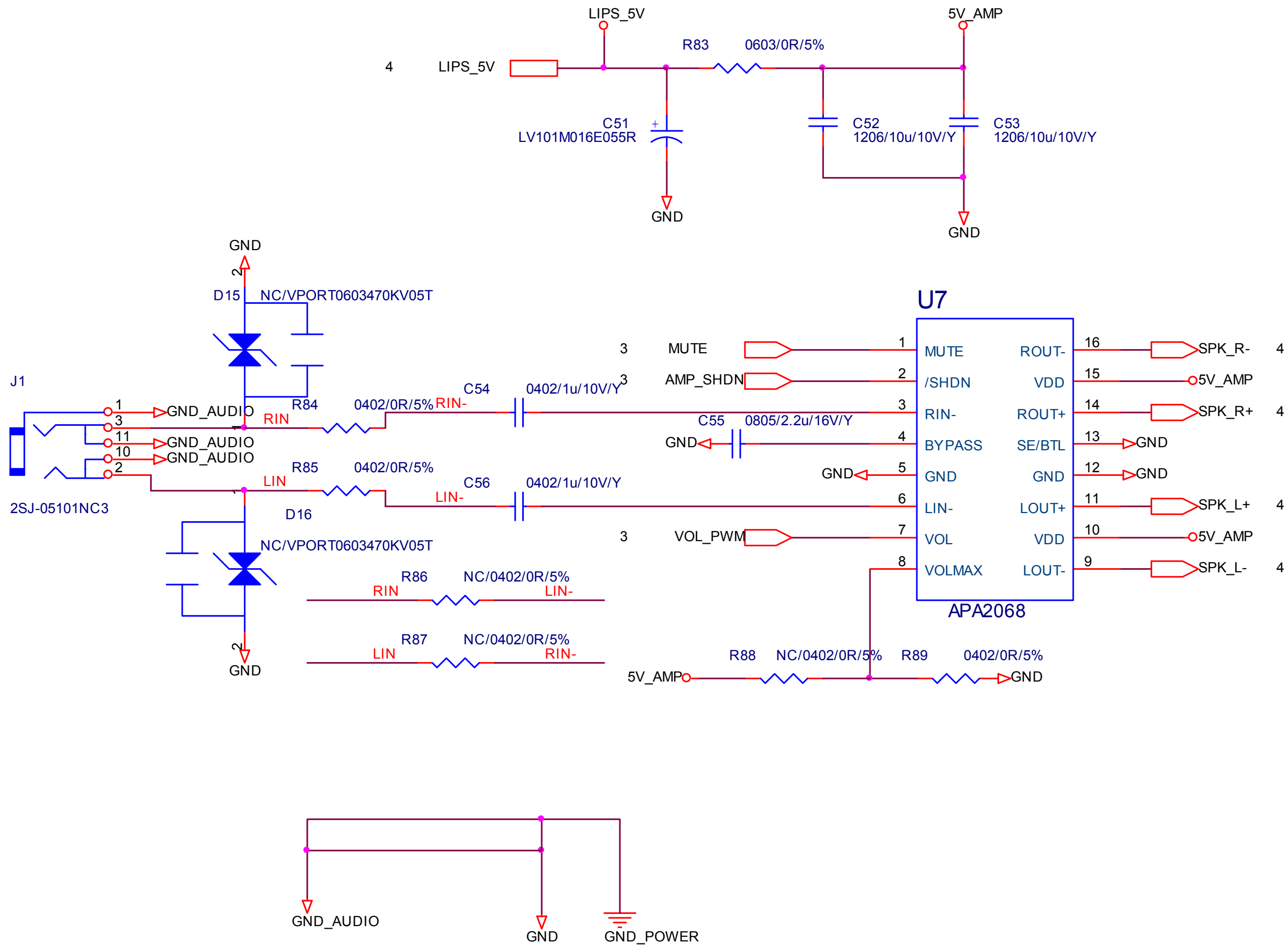
Interface



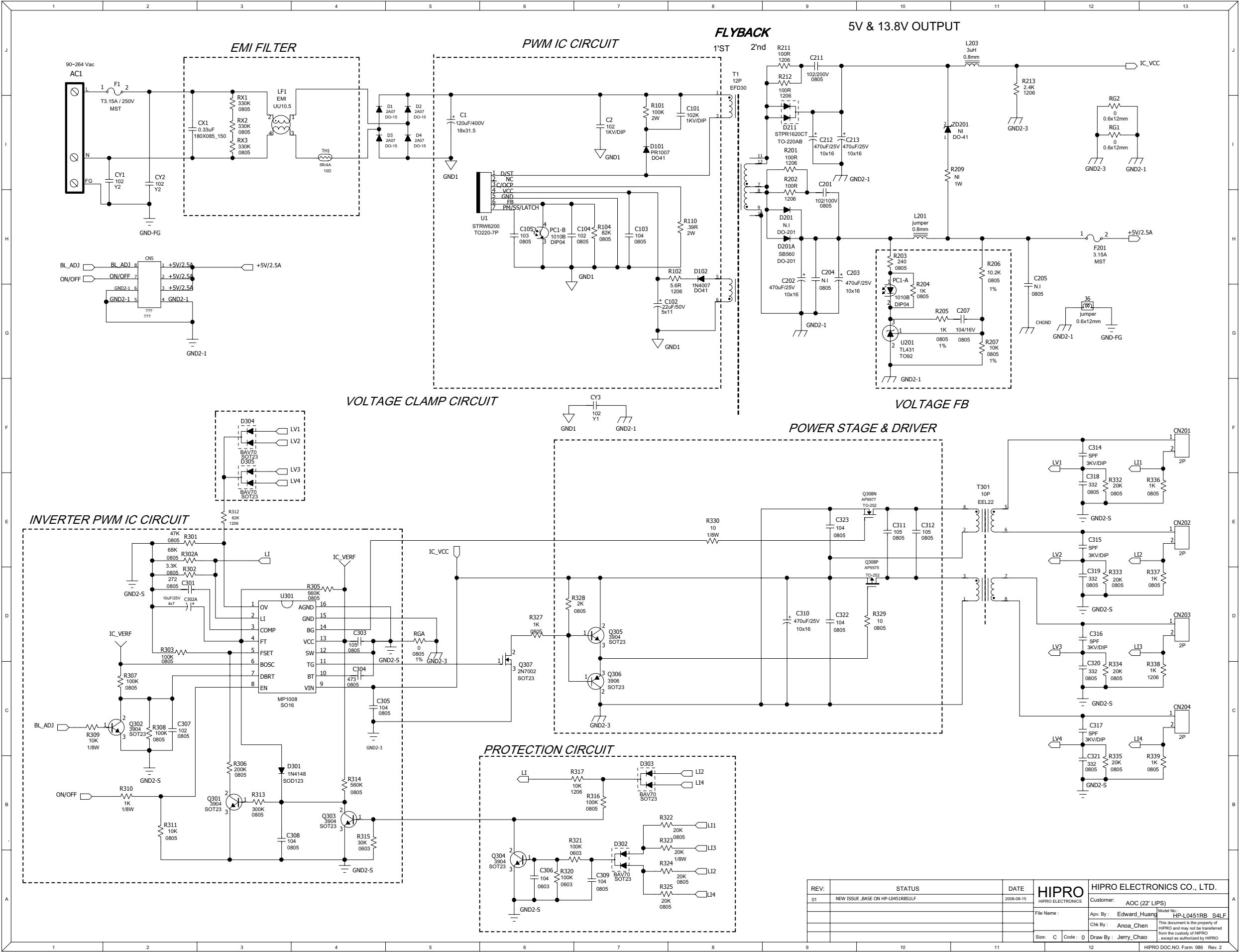
DVI



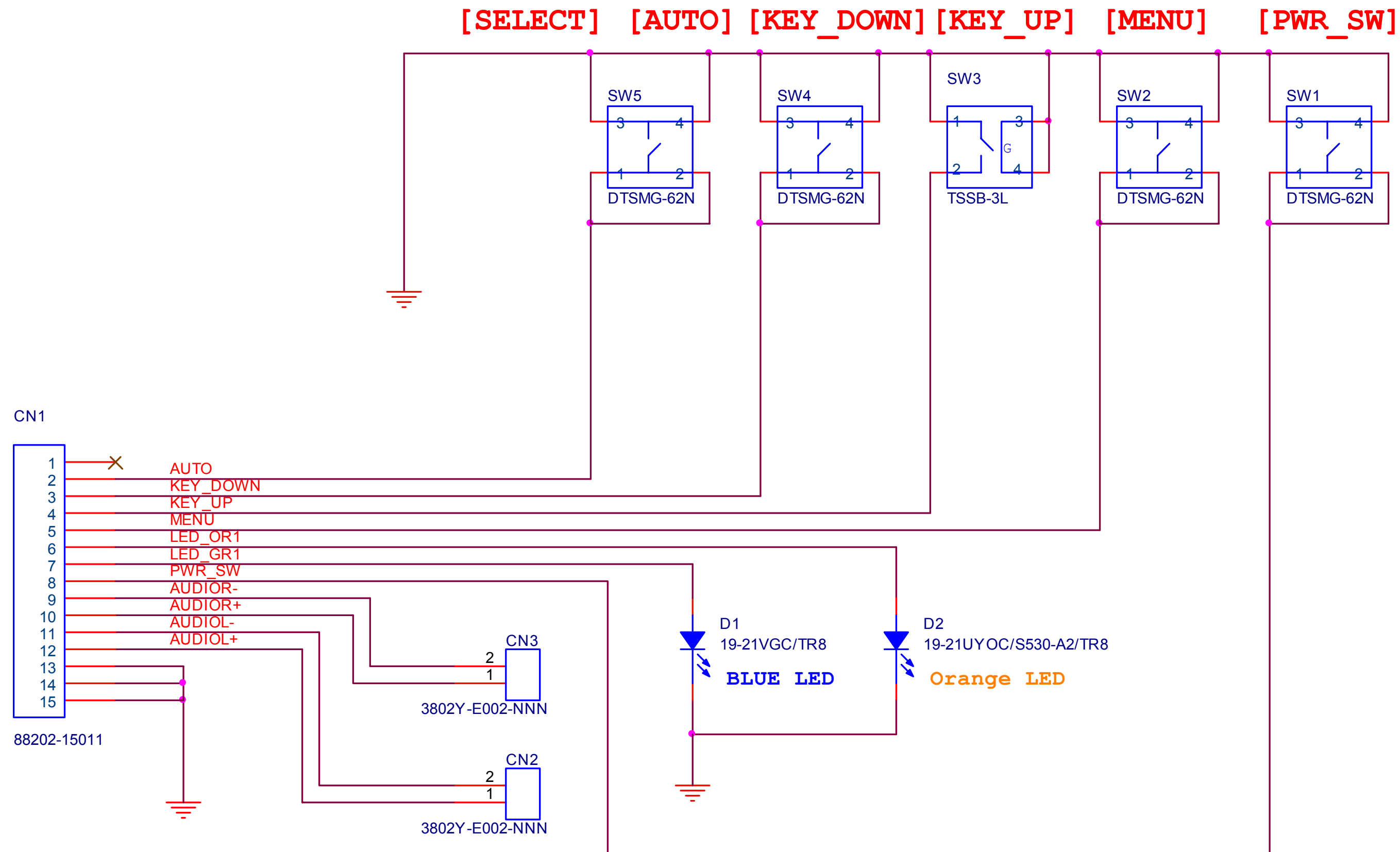
AUDIO



8.2 Power Board

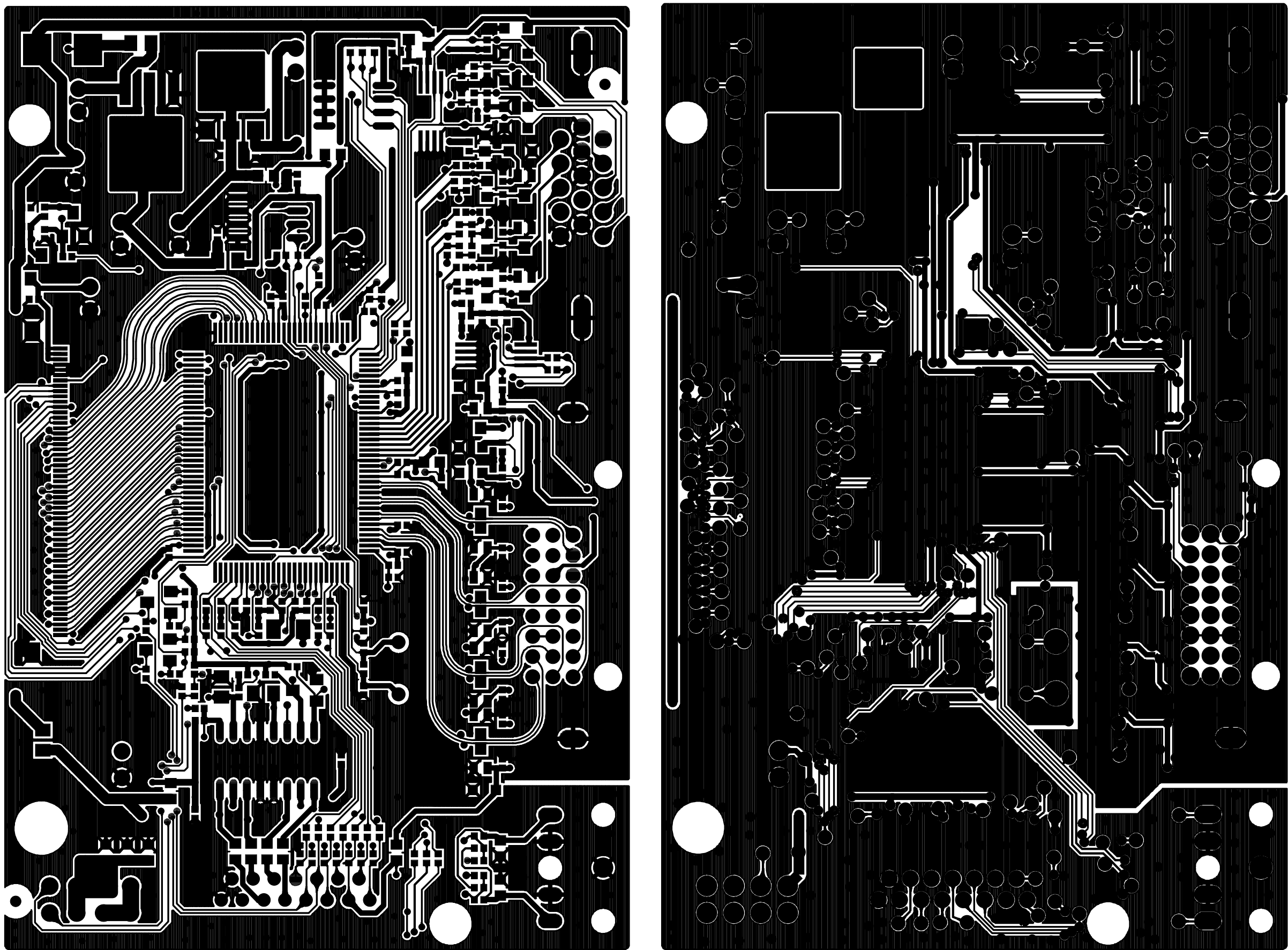


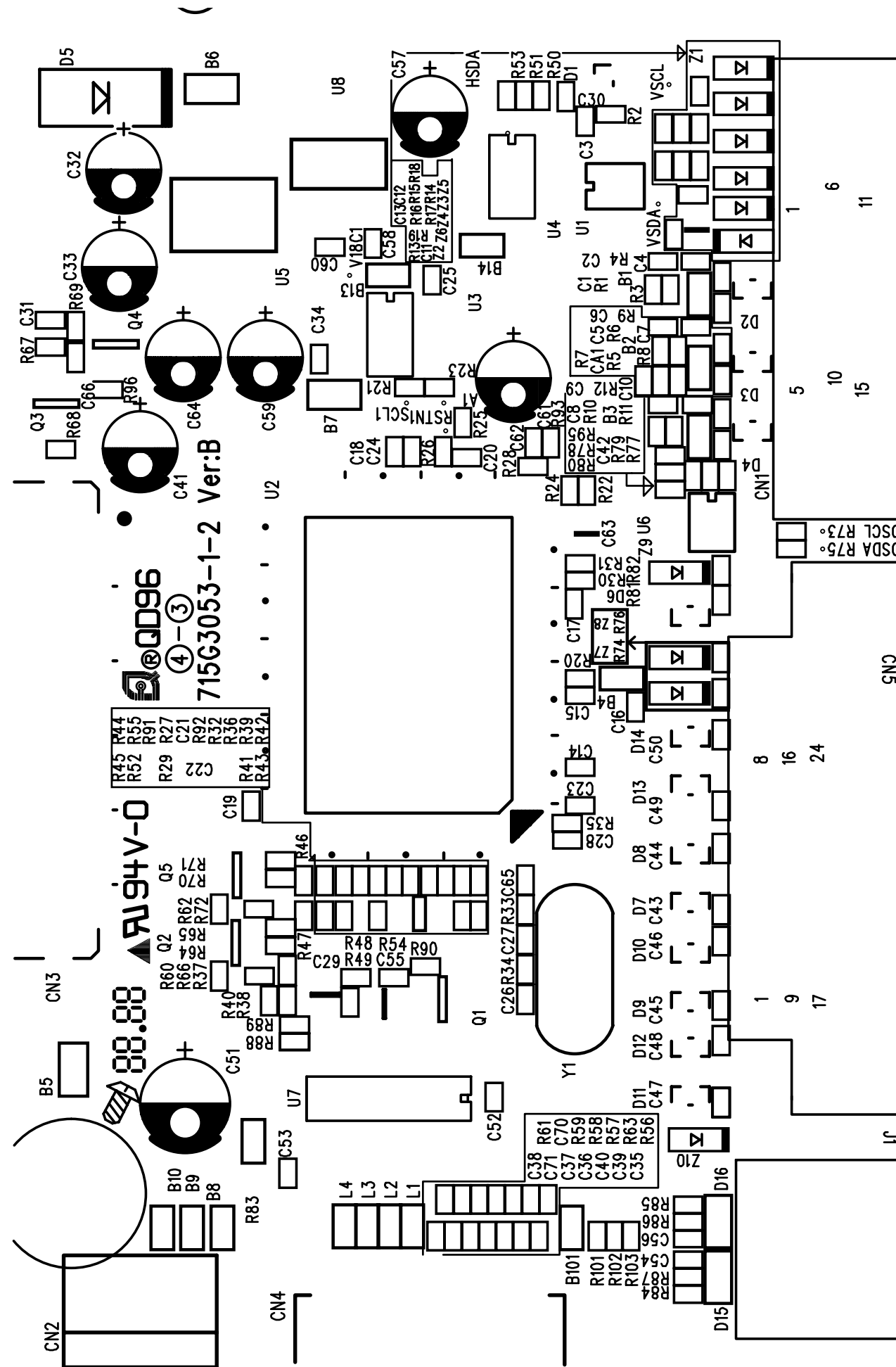
8.3 Key Board



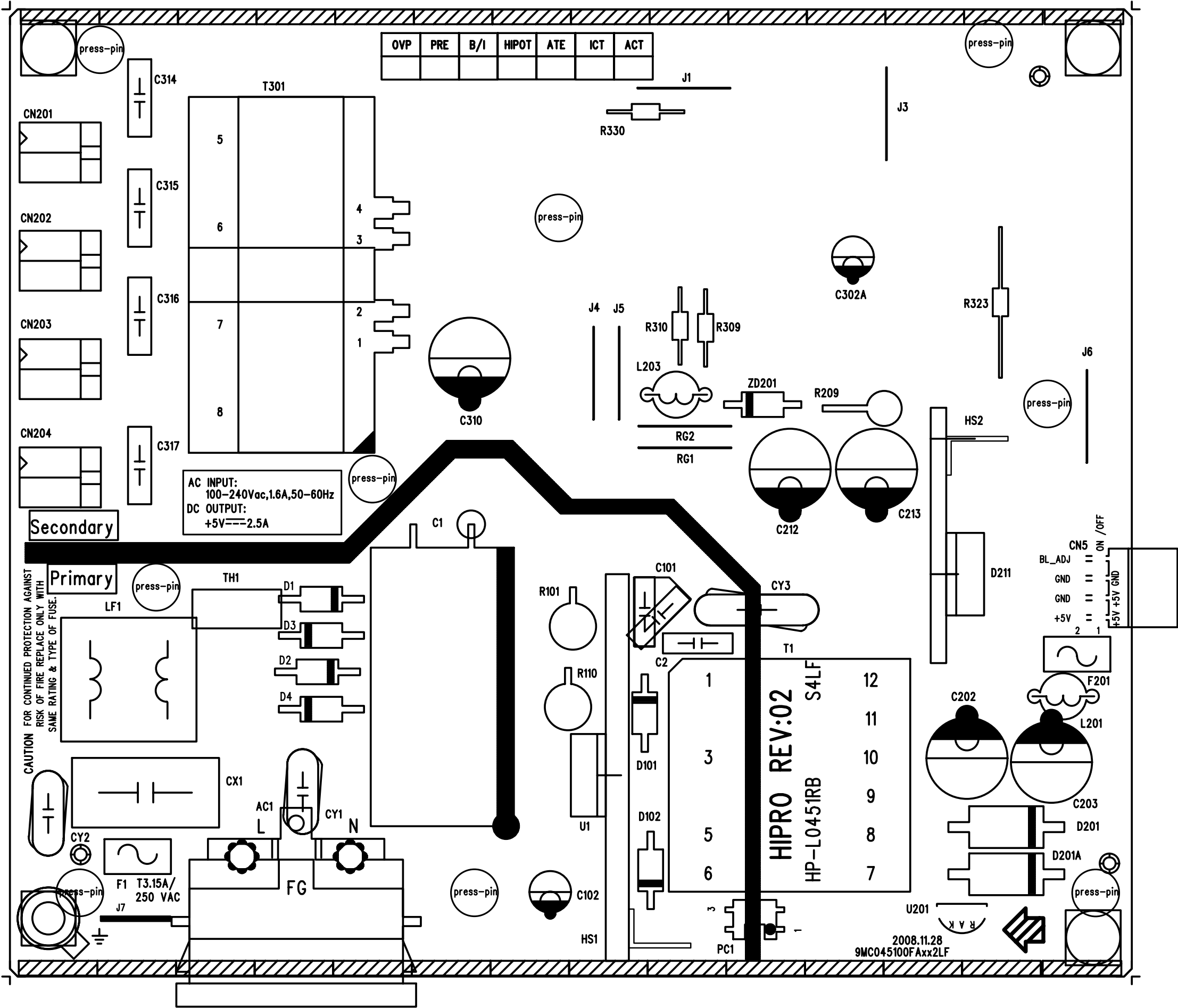
9. PCB Layout Diagrams

9.1 Main Board

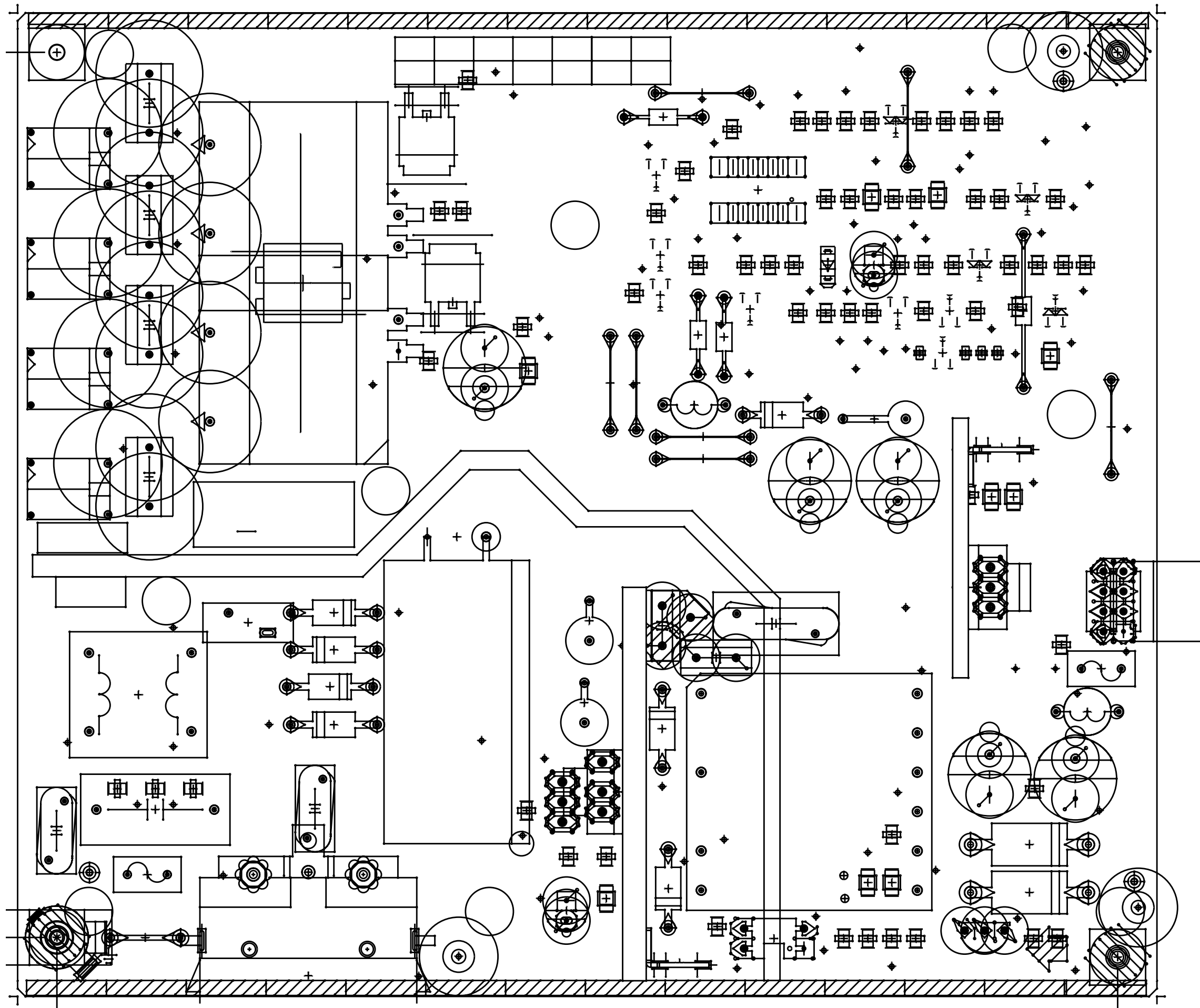




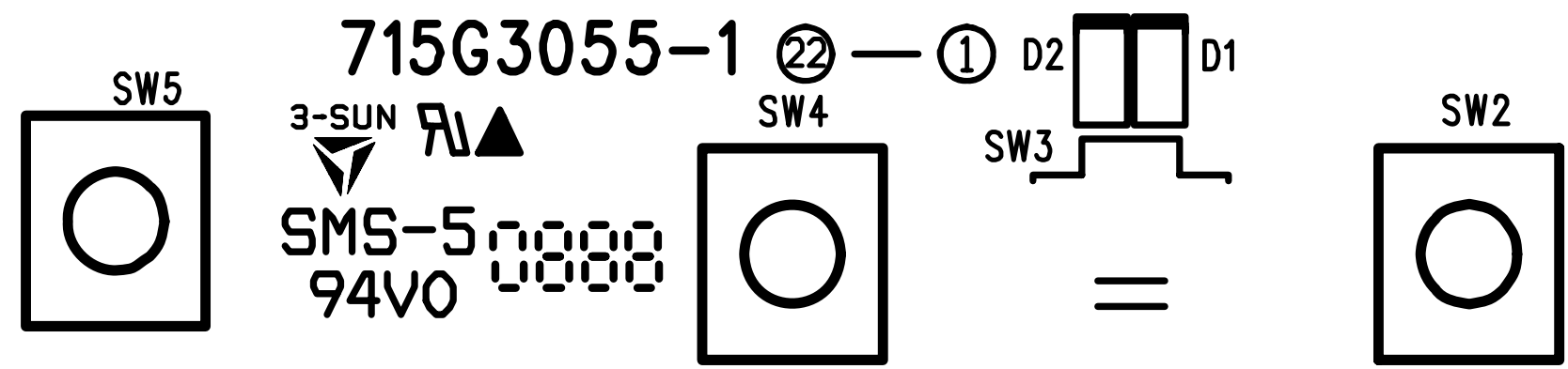
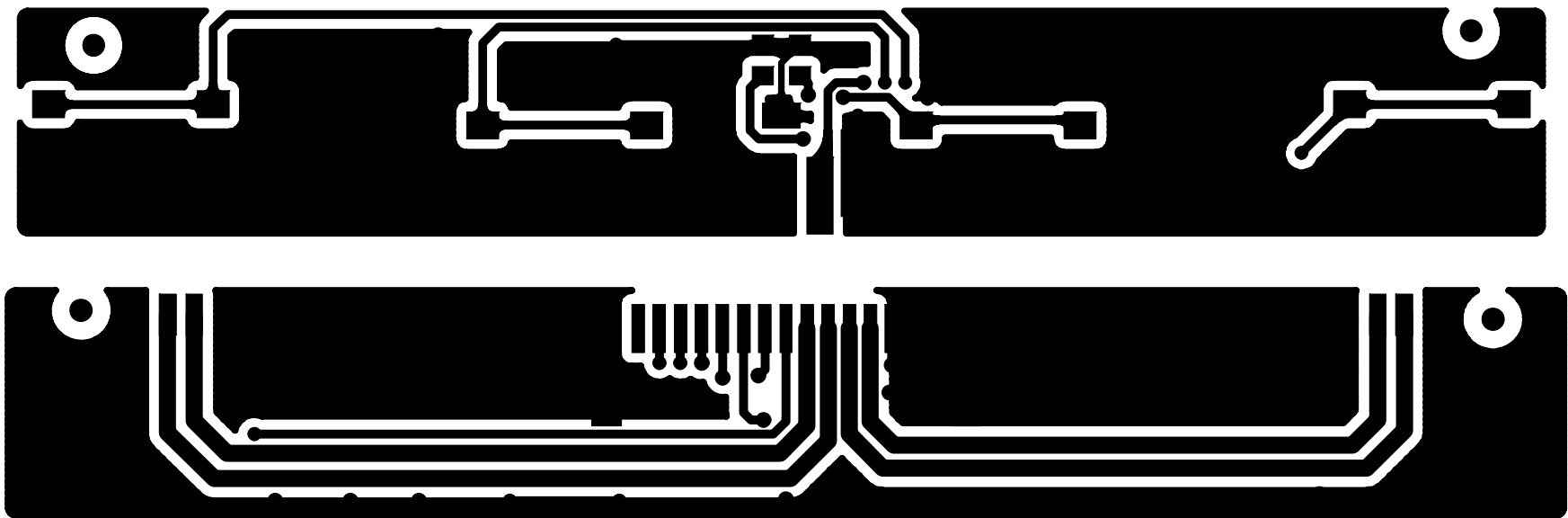
9.2 Power Board





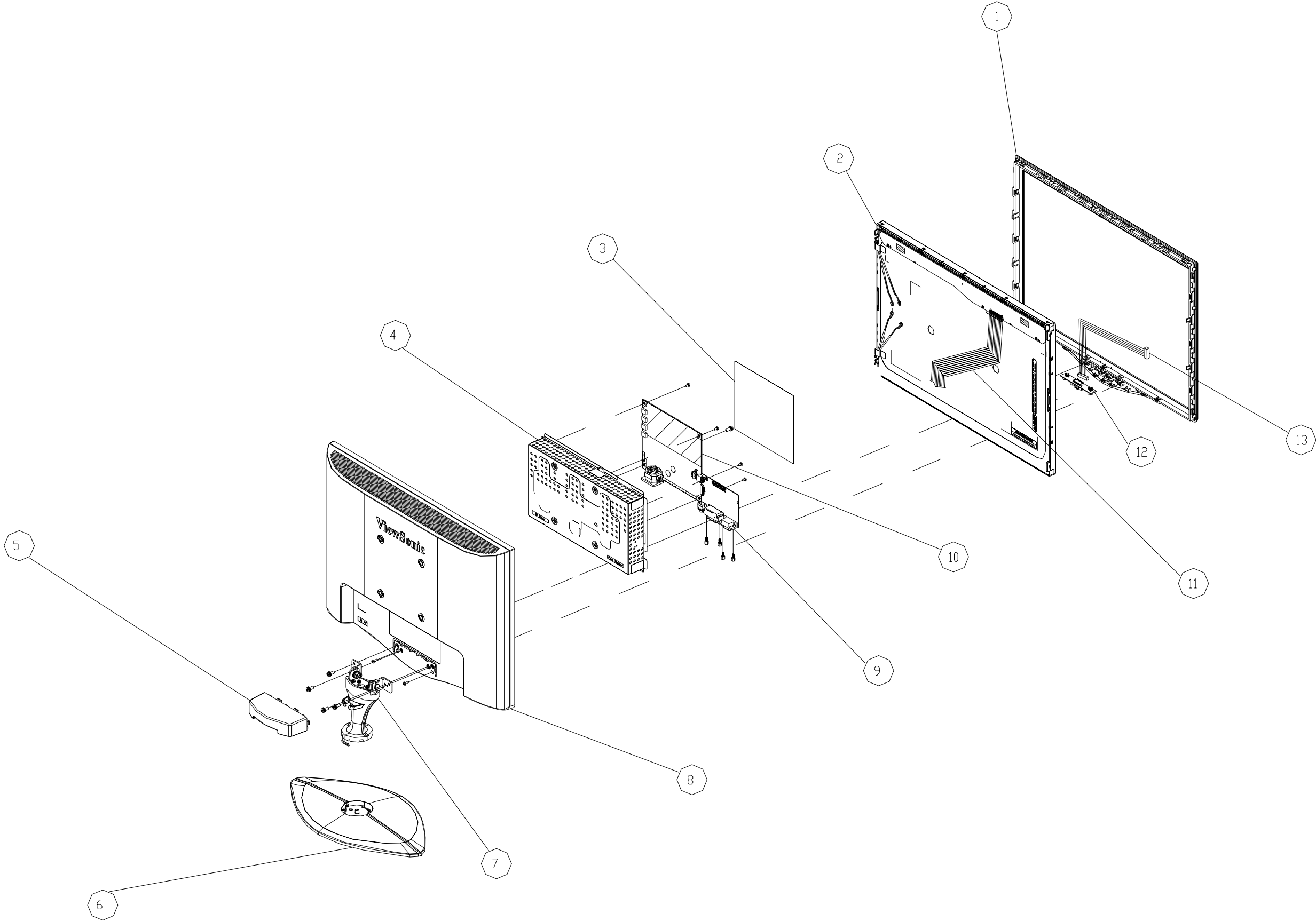


9.3 Key Board



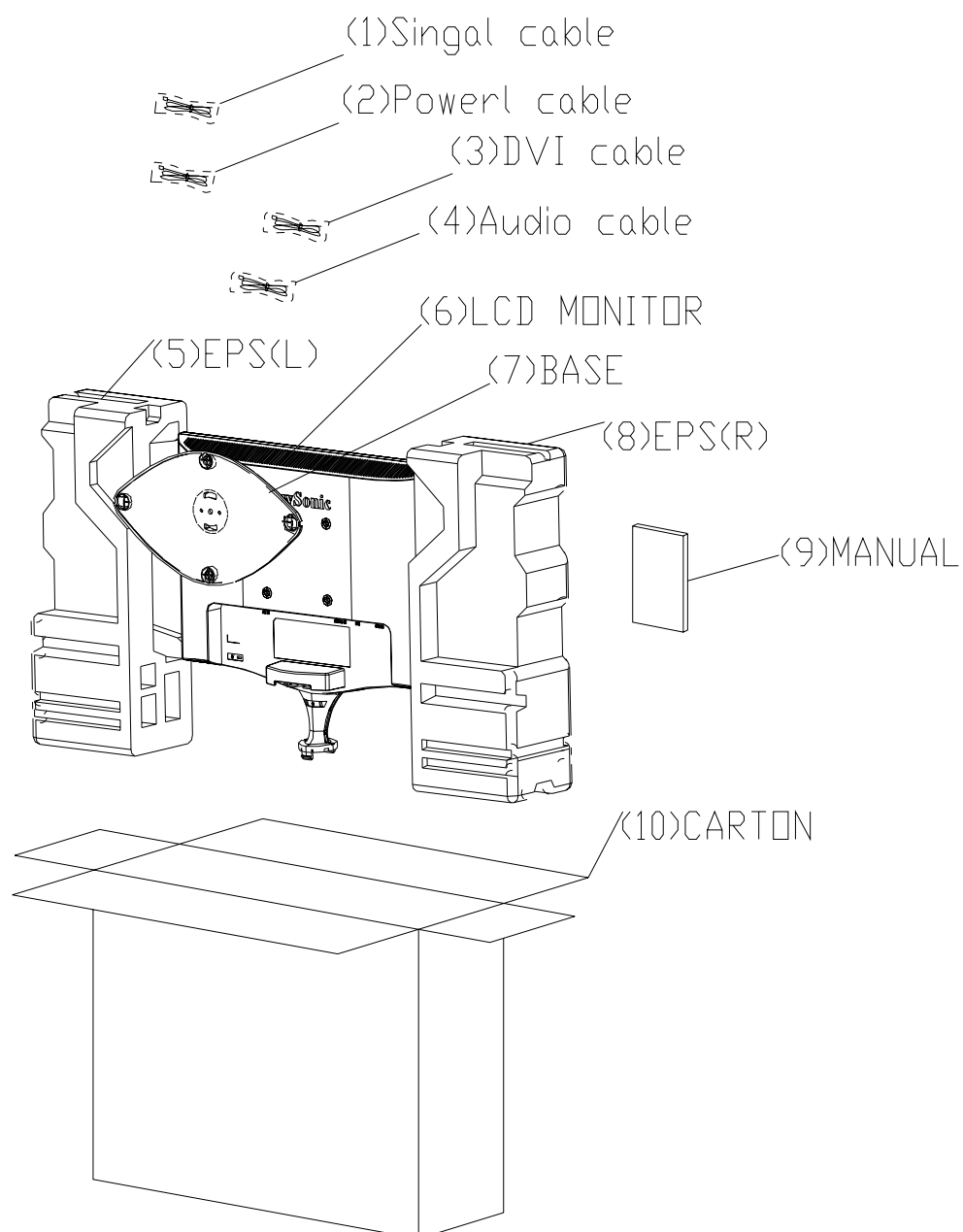
10. Exploded Diagram and Exploded Parts List

10.1 EPL



Item	Description	Part Number	Q'ty
1	BEZEL	---	1
1	DECORATION	---	1
1	LENS	---	1
1	LOGO	---	1
1	FRONT LOGO	---	1
2	PANEL	---	1
3	MYLAR 73-d0157632	---	1
4	COVER-AD	---	1
5	HINGE COVER	---	1
6	BASE	---	1
6	SEAT_L	---	1
6	SEAT_R	---	1
6	SEAT-PLATE	---	1
6	RUBBER FOOT 40A1769201	---	4
6	BASE SCREW	Q01G6077 1	4
6	SCREW (T3X6)	0Q1G 130 6120	4
6	SCREW (Q3X8)	0Q1G 130 8120	4
7	STAND	---	1
7	STAND_L	---	1
7	DECORATION_STAND_R	---	1
7	WIRE_MOUNT	---	1
7	HINGE TOP	---	1
7	HINGE DOWN	---	1
7	SCREW(M4X8)	0M1G1740 8120	4
7	SCREW(M4X12)	0M1G1740 12120	1
8	REAR COVER	---	1
8	SUPPORT PLATE	---	1
8	KEYPAD	---	1
8	RUBBER CAP 40-D000227	---	4
8	SCREW (Q3X8)	0Q1G1830 8120	4
8	SCREW (Q3X8)	0Q1G 330 8120	2
9	MAIN BOARD- CBPCRNBSQ2	756GQ8CB VV080	1
9	SCREW (Q3X4)	0M1G 330 4120	1
10	POWER BOARD	---	1
10	SCREW (Q3X4)	0M1G 330 4120	3
10	SCREW(M4X8)	0M1G1740 8120	1
11	FFC Cable 55P 125MM	---	1
12	KEY BOARD	---	1
13	FFC CABLE 15P 192MM	---	1

10.2 PPL



Item	Description	Q'ty
1	Signal cable	1
2	Power cable	1
3	DVI cable	1
4	Audio Cable	1
5	EPS(L)	1
6	LCD monitor	1
7	BASE	1
8	EPS (R)	1
9	Manual	1
10	Carton	1

11. Recommended Spare Parts List

T9RMNBMKYWVSDN

Location	Part Number	Description	Remark
	019G6014 1	TIE FOR STRAP	
	023G3178709 3A	LOGO	
	023G3178709 4A	VSC17-LCD FRONT LOGO	
	040G 581 26704	SHIPPING LABEL	
	041G 68508 A	CONTROL CARD	
	044G6002834 1A	PAPER BOARD	
	044G9003194	CORNER PAPER	
	050G 600 1 W	WHITE STRAP	
	050G 600 2	HANDLE1	
	050G 600 3	HANDLE2	
	052G 1185	MIDDLE TAPE	
	052G 1185 24	VSC TAPE	
	052G 1210500	ALUMINUM FOIL TAPE	
	052G 2191 A	PAPER TAPE	
	052G6020 17	PROTECT FILM	
	052T 1211549	ALUMINUM FOIL TAPE	
	070GHDCP500HDC	HDCP CODE	
	080G L19 7HIB	POWER BOARD	
E08904	089G 17356C553	AUDIO CABLE 1800MM	
E08904	089G 17356G553	AUDIO CABLE 1800MM	2nd source
E08904	089G 17356H553	AUDIO CABLE 1800MM	2nd source
E08902	089G 728CAA DB	D-SUB CABLE	
E08902	089G 728HAA DB	D-SUB CABLE	2nd source
E08903	089G1748CAA AC	SIGNAL CABLE DVI COMLINK	
E08903	089G1748HAA AC	DVI CABLE	2nd source
	089G176J 15N10	FFC CABLE 15P 192MM	
	089G176J 55N03	FFC CABLE 55P 125MM/32-D019363	
E08901	089G402A18N CX	POWER CORD	2nd source
E08901	089G402A18N IS	POWER CORD/32-D022438	
E08901	089G402A18N YH	POWER CORD(32-D022438)	2nd source
	095G8014 2N00	WIRE HARNESS 2P-2P 20MM/32-D016783	
	0M1G 330 4120	SCREW 42A9930008	
	0M1G1740 8120	SCREW FOR STD/MF 42-D020715/42-D000649	
	0Q1G 330 8120	SCREW 3X8MM 42A9930017/ 42-D002093	
	705GQ934050	19"VSC REAR- STAND-BASE ASS'Y	
	078G 513N00 D	SPK 4OHM 3W 26*25.3*33.4(L)	
	078G 513N01 D	SPK 4OHM 3W 26*25.3*33.4(R)	

	0M1G1740 8120	SCREW FOR STD/MF 42-D020715/42-D000649	
	0M1G1740 12120	SCREW 42-D021241	
	0Q1G 130 6120	SCREW (T3X6)	
	0Q1G 130 8120	SCREW 42A9930011	
	0Q1G1830 8120	SCREW(3X8) 42A9230001	
	N15G0042 1	SEAT-PLATE	
	N34G0203AFQ 1B0101	STAND	
	N34G0207AFQ 1B0101	BASE	
	N34G0213AFQ 1B0101	REAR COVER	
	N37G0021 1	HINGE TOP	
	N37G0021 2	HINGE DOWN	
	Q01G6077 1	SCREW	
E750	750GLM90KZ132C000Q	PANEL A190Z1 CMO/SJ0Z12AD01	
	756GQ8CB VV080	MAIN BOARD-CBPCRNBSQ2	
SMTCR-U2	100GVNM9001N11	MCU ASS'Y-056G 562153CMO	
	040G 45762412B	CBPC LABEL	
CN4	033G801915T H	CONNECTOR	
CN2	033G8022 8 H	CONNECTOR	
C32	067G305V100 3	105℃ 10UF +-20% 16V	
C41	067G305V100 3	105℃ 10UF +-20% 16V	
C59	067G305V100 3	105℃ 10UF +-20% 16V	
C62	067G305V101 3	105℃ 100UF M 16V	
C64	067G305V101 3	105℃ 100UF M 16V	
C51	067G305V221 3	220UF/16V	
J1	088G 30214K	PHONE JACK 5PIN	
CN1	088G 35315F XH	D-SUB 15PIN VERTICAL CONN WITH SCREW	
CN5	088G 35424F DL	DVI 24PIN CONN F WITH SCREW	
Y1	093G 22 51	CRYSTAL 12MHZ HC-49US ARG6-120	
CN3	033G801955Y H HC	0.5 PITCH 55P SMT	
U2	056G 562153CMO	IC NT68670HTFG QFP-128 NOVATEK	
U5	056G 563 52	IC AP1117D33L-13 TO252-3L DIODES	
U8	056G 56327A	IC AP1117E18LA SOT223-3L ANACHIP	
U7	056G 616 45	IC APA2068KAI-TRL 2.6W*2 SOP-16-P	
U4	056G1133 32	IC M24C04-WMN6TP SO8	
U3	056G1133 56	M24C16-WMN6TP	
U1	056G1133913	IC M24C02-WDW6P TSSOP8	
U6	056G1133913	IC M24C02-WDW6P TSSOP8	
Q2	057G 417517	TRA LMBT3906LT1G -200MA/-40V SOT-23 LRC	
Q5	057G 417517	TRA LMBT3906LT1G -200MA/-40V SOT-23 LRC	
Q1	057G 759 2	RK7002FD5T116 SOT-23 BY ROHM	

Q4	057G 759 2	RK7002FD5T116 SOT-23 BY ROHM	
Q3	057G 763 1A	AP2305N	
R84	061G0402000	RST CHIP MAX 0R05 1/16W	
R85	061G0402000	RST CHIP MAX 0R05 1/16W	
R89	061G0402000	RST CHIP MAX 0R05 1/16W	
R91	061G0402000	RST CHIP MAX 0R05 1/16W	
R92	061G0402000	RST CHIP MAX 0R05 1/16W	
R93	061G0402000	RST CHIP MAX 0R05 1/16W	
R9	061G0402100 0F	RST CHIPR 100 OHM +-1% 1/16W	
R4	061G0402100 0F	RST CHIPR 100 OHM +-1% 1/16W	
R12	061G0402100 0F	RST CHIPR 100 OHM +-1% 1/16W	
R75	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R73	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R33	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R26	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R25	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R24	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R22	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R16	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R15	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R37	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R38	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R48	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R69	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R82	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R96	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R90	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R81	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R70	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R64	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R55	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R54	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R49	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R47	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R46	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R27	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R29	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R36	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R39	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R42	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	

R43	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R44	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R45	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R35	061G0402104	RST CHIPR 100 KOHM +-5% 1/16W	
R34	061G0402105	RST CHIPR 1MOHM +-5% 1/16W	
R68	061G0402106	RST CHIP 10M 1/16W 5%	
R71	061G0402221	RST CHIPR 220 OHM +-5% 1/16W	
R65	061G0402221	RST CHIPR 220 OHM +-5% 1/16W	
R14	061G0402222	RST CHIPR 2.2 KOHM +-5% 1/16W	
R17	061G0402222	RST CHIPR 2.2 KOHM +-5% 1/16W	
R56	061G0402330	RST CHIPR 33 OHM +-5% 1/16W	
R57	061G0402330	RST CHIPR 33 OHM +-5% 1/16W	
R58	061G0402330	RST CHIPR 33 OHM +-5% 1/16W	
R59	061G0402330	RST CHIPR 33 OHM +-5% 1/16W	
R60	061G0402330	RST CHIPR 33 OHM +-5% 1/16W	
R61	061G0402330	RST CHIPR 33 OHM +-5% 1/16W	
R62	061G0402330	RST CHIPR 33 OHM +-5% 1/16W	
R63	061G0402330	RST CHIPR 33 OHM +-5% 1/16W	
R21	061G0402332	RST CHIPR 3.3KOHM +-5% 1/16W	
R23	061G0402332	RST CHIPR 3.3KOHM +-5% 1/16W	
R50	061G0402332	RST CHIPR 3.3KOHM +-5% 1/16W	
R51	061G0402332	RST CHIPR 3.3KOHM +-5% 1/16W	
R53	061G0402332	RST CHIPR 3.3KOHM +-5% 1/16W	
R67	061G0402333	RST CHIPR 33 KOHM +-5% 1/16W	
R78	061G0402392	RST CHIP 3.9K 1/16W 5%	
R2	061G0402392	RST CHIP 3.9K 1/16W 5%	
R20	061G0402470 0F	RST CHIPR 0402 470 OHM +-1% 1/16W	
R5	061G0402470 0F	RST CHIPR 0402 470 OHM +-1% 1/16W	
R18	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R19	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R32	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R66	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R72	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R74	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R76	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R80	061G0402473	RST CHIPR 47 KOHM +-5% 1/16W	
R1	061G0402560 9F	RST CHIPR 56 OHM +-1% 1/16W	
R10	061G0402560 9F	RST CHIPR 56 OHM +-1% 1/16W	
R6	061G0402560 9F	RST CHIPR 56 OHM +-1% 1/16W	
R8	061G0402750 9F	RST CHIP 75 OHM 1/16W 1%	

R3	061G0402750 9F	RST CHIP 75 OHM 1/16W 1%	
R11	061G0402750 9F	RST CHIP 75 OHM 1/16W 1%	
B10	061G0603000	RST CHIP MAX 0R05 1/10W	
B4	061G0603000	RST CHIP MAX 0R05 1/10W	
B8	061G0603000	RST CHIP MAX 0R05 1/10W	
B9	061G0603000	RST CHIP MAX 0R05 1/10W	
R83	061G0603000	RST CHIP MAX 0R05 1/10W	
B5	061G0805000	RST CHIP MAX 0R05 1/8W	
B6	061G0805000	RST CHIP MAX 0R05 1/8W	
B7	061G0805000	RST CHIP MAX 0R05 1/8W	
C12	065G0402101 31	CHIP 100PF 50V NPO	
CA1	065G0402102 12	CAP CHIP 0402 1NF K 16V X7R	
C20	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C19	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C18	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C17	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C16	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C15	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C14	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C61	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C60	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C58	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C42	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C31	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C30	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C3	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C28	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C25	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C24	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C23	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C21	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C34	065G040210412K	CAP CHIP 0402 100N 16V X7R +/-10%	
C52	065G040210412K	CAP CHIP 0402 100N 16V X7R +/-10%	
C53	065G040210412K	CAP CHIP 0402 100N 16V X7R +/-10%	
C66	065G0402105 05	MLCC 0402 1MF 6.3V X5R	
C56	065G0402105 A7	CAP CHIP 0402 1UF Z 10V Y5V	
C54	065G0402105 A7	CAP CHIP 0402 1UF Z 10V Y5V	
C27	065G0402220 31	CHIP 22PF 50V NPO	
C26	065G0402220 31	CHIP 22PF 50V NPO	
C13	065G0402220 31	CHIP 22PF 50V NPO	

C6	065G0402473 17	CAP CHIP 0402 47NF K 16V Y5V	
C5	065G0402473 17	CAP CHIP 0402 47NF K 16V Y5V	
C2	065G0402473 17	CAP CHIP 0402 47NF K 16V Y5V	
C1	065G0402473 17	CAP CHIP 0402 47NF K 16V Y5V	
C8	065G0402473 17	CAP CHIP 0402 47NF K 16V Y5V	
C9	065G0402473 17	CAP CHIP 0402 47NF K 16V Y5V	
C63	065G0603106 05	CAP CHIP 0603 10UF K 6.3V X5R	
C29	065G0805105 22	CAP CHIP 0805 1UF K 25V X7R	
C55	065G0805225 17	CHIP 2.2UF 16V Y5V	
C22	065G1206106 05	CHIP 10UF/6.3V X5R	
B13	071G 59S221 M	CHIP BEAD 0603 220OHM+-25% 2A	
L1	071G 59S221 M	CHIP BEAD 0603 220OHM+-25% 2A	
L2	071G 59S221 M	CHIP BEAD 0603 220OHM+-25% 2A	
L3	071G 59S221 M	CHIP BEAD 0603 220OHM+-25% 2A	
L4	071G 59S221 M	CHIP BEAD 0603 220OHM+-25% 2A	
B1	071G 59S330 Y	CHIP BEAD 0603 33OHM+-25% 1.2A	
B2	071G 59S330 Y	CHIP BEAD 0603 33OHM+-25% 1.2A	
B3	071G 59S330 Y	CHIP BEAD 0603 33OHM+-25% 1.2A	
B14	071G 59U601 TS	CHIP BEAD 0603 600OHM+-25% 0.2A	
D6	093G 64S503CMO	BAV70W,SOT-323(SC-70),PAN JIT CMO	
D1	093G 64S503CMO	BAV70W,SOT-323(SC-70),PAN JIT CMO	
D5	093G3004 3	SM340A	
	715G3053 1 2	MAIN BOARD PCB	
	Q85G 583603	GASKET_ALUMINIUM FOIL	
	Q85G 583605	GASKET_ALUMINIUM FOIL	
	KEPC9QQ2	KEY BOARD	
CN1	033G8019 2CMO	CONN.25-D000187	
CN3	033G8032 2C	CONNECTOR	
CN2	033G8032 2C	CONNECTOR	
SW4	077G 606 9 DT CMO	TACT SWITCH DTSMG-62N	
SW5	077G 606 9 DT CMO	TACT SWITCH DTSMG-62N	
SW2	077G 606 9 DT CMO	TACT SWITCH DTSMG-62N	
SW1	077G 606 9 DT CMO	TACT SWITCH DTSMG-62N	
SW3	077G 606 10 DT CMO	TACT SWITCH 5PIN	
D2	081G 63O 1 GP	LED GPTS0603OC3-PB	
D1	081G0603 B GP	LED GPTS06033BC1 GP	
	715G3055 1	KEY BOARD PCB	
	N33G0081 1 1P	LENS	
	N33G0082 KD 1L	KEYPAD	
	N34G0201AFQ 1B0101	BEZEL L19WA-7VSC6	

	N34G0202 KD 1B	DECORATION	
	N34G0204 KD 1B0119	STAND_L	
	N34G0205 KD 1B0119	DECORATION_STAND_R	
	N34G0206AFQ 1B0119	WIRE_MOUNT	
	N34G0208 KD 1B0119	SEAT_L	
	N34G0209 KD 1B0119	SEAT_R	
	N40G0001968 2A	S/N LABEL 7741513161	
	N40G000296810A	LABEL HI-POT-PASS 77-D005237	
	N40G000296843A	POP LABEL	
	N45G 52001	PE SHEET	
	N45G 88606013	PE BAG FOR BASE	
	N45G 88607005	PE BAG	
	N52G 1VSC005	MYLAR 73-D0157632	
	N52G6032 17001	MYLAR	
M085	N85G0015 8	COVER-AD	
	Q07G 1 5V30 X	WOODEN PALLET	
	Q34G0604AFQ 1B0100	HINGE COVER	
	Q40G 19N709 4A	RATING LABEL	
	Q40G0001624 4A	PALLET LABEL	
	Q40G000270928A	WARNING LABEL	
	Q44G6002CP1A06	PAPER CAP	
	Q44G9169101	EPS	
	Q44G9169201	EPS	
	Q44G9169709 1A	19W LCD VSC CARTON	
	Q45G 77 5	PE PACKING	
	Q50G 4 10	TIE	
	Q41G780070962A	RETURN PREVENTION FLYER	
	Q41G780070963A	VX1962 QSG USA	
	Q41G780070964A	SERVICE INSERT	
	Q41G780070965A	BASE ASSEMBLY PRODUCE CARD	
	Q41G780070966A	SRS INSTALLATION GUIDE	
	Q45G2007M0101A	PE BAG	
	Q70G9002709 3A	VX1962 CD USA	
	040G 58162435A	P/N LABEL FOR MANUAL PE BAG	
	N40G000196855A	CARTON LABEL	
	N40G000196867A	S/N LABEL FOR VIEWSONIC	
E750	750GLM190KZ132C0VS	PANEL A190Z1-003 SJ0Z12AD01 NB CMO	2nd source

12. Different Parts List

Diversity of T9RMNBMKYWV6DN compared with T9RMNBMKYWVSDN		
Location	Part Number	Description
	705GQ934049	19"VSC REAR- STAND-BASE ASS'Y
	N34G0203AFQ 1B0102	STAND
	N34G0207AFQ 1B0102	BASE
	N34G0213AFQ 1B0102	REAR COVER
	N33G0082BDN 1L	KEYPAD
	N34G0201AFQ 1B0102	BEZEL L19WA-7VSC6
	N34G0202BDN 1B	DECORATION
	N34G0204BDN 1B0119	STAND_L
	N34G0205BDN 1B0119	DECORATION_STAND_R
	N34G0208BDN 1B0119	SEAT_L
	N34G0209BDN 1B0119	SEAT_R
	Q40G 19N709 5A	RATING LABEL
	Q44G9169709 2A	19W LCD VSC CARTON
	Q41G780070958A	VISTA INSATALL CARD
	Q70G9002709 2A	VX1962 CD USA

*** Reader's Response***

Dear Readers:

Thank you in advance for your feedback on our Service Manual, which allows continuous improvement of our products. We would appreciate your completion of the Assessment Matrix below, for return to ViewSonic Corporation.

Assessment

A. What do you think about the content of this Service Manual?

<i>Unit</i>	<i>Excellent</i>	<i>Good</i>	<i>Fair</i>	<i>Bad</i>
1. Precautions and Safety Notices				
2. Specification				
3. Front Panel Function Control Description				
4. Circuit Description				
5. Adjustment Procedure				
6. Troubleshooting Flow Chart				
7. Block Diagrams				
8. Schematic Diagrams				
9. PCB Layout Diagrams				
10. Exploded Diagram and Exploded Parts List				
11. Recommended Spare Parts List				

B. Are you satisfied with this Service Manual?

<i>Item</i>	<i>Excellent</i>	<i>Good</i>	<i>Fair</i>	<i>Bad</i>
1. Service Manual Content				
2. Service Manual Layout				
3. The form and listing				

C. Do you have any other opinions or suggestions regarding this service manual?

Reader's basic data:

Name:		Title:	
Company:			
Add:			
Tel:		Fax:	
E-mail:			

After completing this form, please return it to ViewSonic Quality Assurance in the USA at facsimile 1-909-839-7943. You may also e-mail any suggestions to the Director, Quality Systems & Processes (marc.maupin@viewsonic.com)