

# **Service Manual**

**ViewSonic VG2227wm**

**Model No. VS12512**

**21.5" Color TFT LCD Display**

(VG2227wm\_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	TPV Model	Editor
1a	04/30/2009	Initial Release	T19MNDDKY8VSPC	Eric

## TABLE OF CONTENTS

<b>1. Precautions and Safety Notices .....</b>	<b>4</b>
<b>2. Specification .....</b>	<b>7</b>
<b>3. Front Panel Function Control Description .....</b>	<b>8</b>
<b>4. Circuit Description.....</b>	<b>13</b>
<b>5. Adjusting Procedure.....</b>	<b>26</b>
<b>6. Trouble Shooting Flow Chart.....</b>	<b>34</b>
<b>7. Block Diagrams .....</b>	<b>35</b>
<b>8. Schematic Diagrams .....</b>	<b>37</b>
<b>9. PCB Layout Diagrams .....</b>	<b>46</b>
<b>10. Exploded Diagram and Spare Parts List .....</b>	<b>51</b>
<b>11. Recommended Spare Parts List .....</b>	<b>67</b>

# **1. Precautions and Safety Notices**

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## **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.




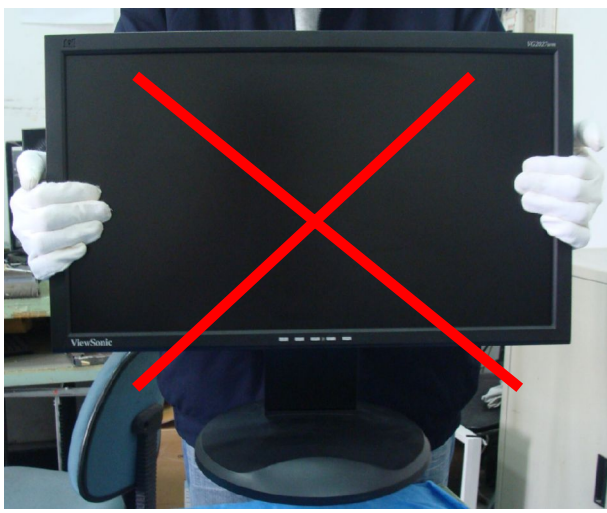


## **1.2 Product Safety Notice**

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 Handling and Placing Methods

Correct Methods:	Incorrect Methods:
<p>Only touch the metal frame of the LCD panel or the front cover of the monitor. Do not touch the surface of the polarizer.</p>	<p>Surface of the LCD panel is pressed by fingers and that may cause "Mura."</p>
	
	
<p>Take out the monitor</p>	<p>Taking out the monitor by grasping the LCD panel. That may cause "Mura."</p>
	

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

<b>LCD</b>	Type	22" (full 21.5" wide viewable diagonal area), TFT (Thin Film Transistor), Active Matrix WUXGA LCD, 0.248 mm pixel pitch
	Color Filter	RGB vertical stripe
	Glass Surface	Anti-Glare
<b>Input Signal</b>	Video Sync	RGB analog (0.7/1.0 Vp-p, 75 ohms)/ TMDS Digital (100ohms) Separate Sync $f_h$ :24-82 kHz, $f_v$ :50-75 Hz
<b>Compatibility</b>	PC Macintosh <sup>1</sup>	Up to 1920 x 1080 Non-interlaced Power Macintosh up to 1920 x 1080
<b>Resolution</b>	Recommended and supported	1920 x 1080 @ 60 Hz 1680 x 1050 @ 60 Hz 1600 x 1200 @ 60 Hz 1440 x 900 @ 60 Hz 1400 x 1050 @ 60 Hz 1360 x 768 @ 60 Hz 1280 x 1024 @ 60 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
<b>Power</b>	Voltage	100-240 VAC, 110/220 Hz (auto switch)
<b>Display area</b>	Full Scan	476.64 mm (H) x 268.11 mm (V) 18.77" (H) x 10.56" (V)
<b>Operating conditions</b>	Temperature	+32° F to +104° F (0° C to +40° C)
	Humidity	20% to 90% (non-condensing)
	Altitude	To 10,000 feet
<b>Storage conditions</b>	Temperature	-4° F to +140° F (-20° C to +60° C)
	Humidity	5% to 90% (non-condensing)
	Altitude	To 40,000 feet
<b>Dimensions</b>	Physical	511.64 mm (W) x 412.02 mm (H) x 230 mm (D) 20.14" (W) x 16.22" (H) x 9.06" (D)
<b>Weight</b>	Physical	10.65 lb (4.83 kg)
<b>Regulations</b>		BSMI, CCC, PSB, C-Tick, KCC, CE, GS, Ergo, Gost-R/Hygienic, Ukraine, TCO'03, SASO, UL/cUL, NOM, FCC-B, ICES-B, TUV-S/UL-AR S Mark, ENERGY STAR®
<b>Power saving modes</b>	On	48W (Typical) (blue LED)
	Off	<1W

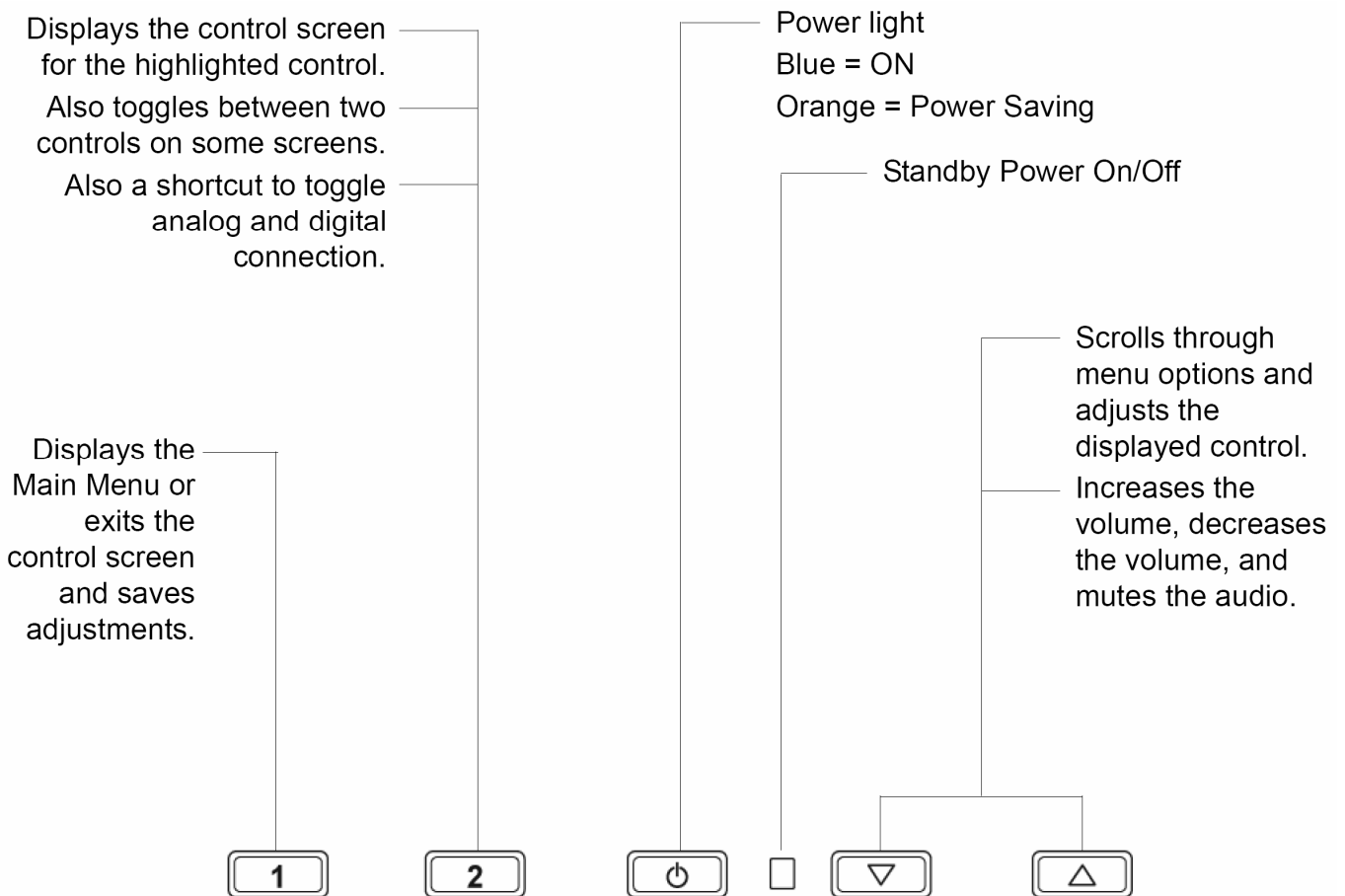
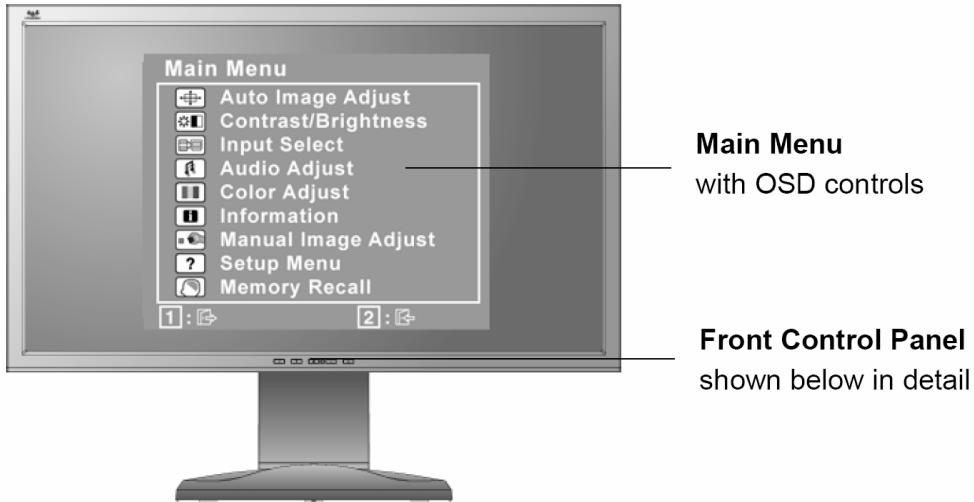
**Preset Timing Mode** (pre-adjusted to VESA® 1920 x 1080 @ 60 Hz)

**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.

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

### 3. Front Panel Function Control Description

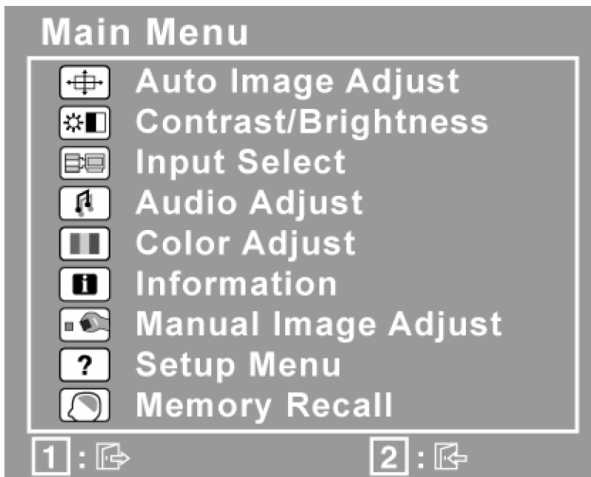
Use the buttons on the front control panel to display and adjust the OSD controls which display on the screen. The OSD controls are explained at the top of the next page and are defined in "Main Menu Controls".





**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.


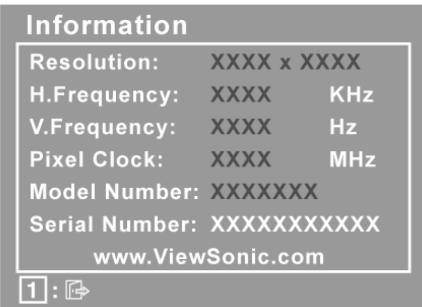

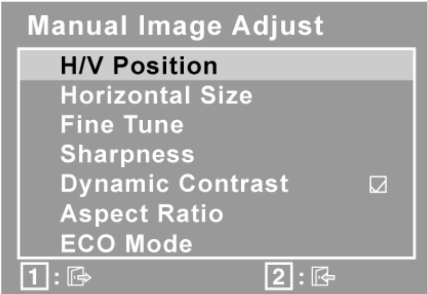

**The following tips may help you optimize your display:**

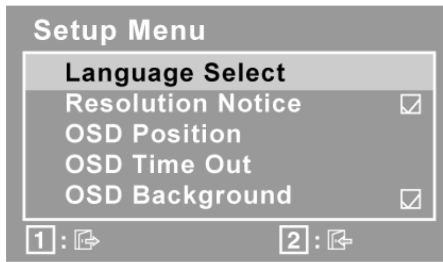
- Adjust the computer's graphics card so that it outputs a 1920 x 1080 @ 60Hz video signal to the LCD display. (Look for instructions on "changing the refresh rate" in the graphics card's user guide.)
- If necessary, make small adjustments using H. POSITION and V. POSITION until the screen image is completely 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
	<p><b>Auto Image Adjust</b> automatically sizes, centers, and fine tunes the video signal to eliminate waviness and distortion. Press the [2] button to obtain a sharper image.</p> <p><b>NOTE:</b> 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.</p>
	<p><b>Contrast</b> adjusts the difference between the image background (black level) and the foreground (white level).</p>
	<p><b>Brightness</b> adjusts background black level of the screen image.</p>
	<p><b>Input Select</b> toggles between inputs if you have more than one computer connected to the LCD Display.</p>
	<p><b>Audio Adjust</b></p> <p><b>Volume</b> increases the volume, decreases the volume, and mutes the audio.</p> <p><b>Mute</b> temporarily silences audio output.</p>
	<p><b>Color Adjust</b> 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).</p> <div data-bbox="300 1146 751 1442" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;"><b>Color Adjust</b></p> <ul style="list-style-type: none"> <li>sRGB</li> <li><b>9300K</b></li> <li>7500K</li> <li>6500K</li> <li>5000K</li> <li>User Color</li> </ul> <p style="display: flex; justify-content: space-between;"> <span>[1] : ↩</span> <span>[2] : ↩</span> </p> </div> <p><b>sRGB</b>-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 sRGB setting will cause the Contrast and Brightness adjustments to be disabled.</p> <p><b>9300K</b>-Adds blue to the screen image for cooler white (used in most office settings with fluorescent lighting).</p> <p><b>7500K</b>-Adds blue to the screen image for cooler white (used in most office settings with fluorescent lighting).</p> <p><b>6500K</b>-Adds red to the screen image for warmer white and richer red.</p> <p><b>5000K</b>-Adds red to the screen image for warmer white and richer red.</p> <p><b>User Color</b> Individual adjustments for red (R), green (G), and blue (B).</p> <ol style="list-style-type: none"> <li>1. To select color (R, G or B) press button [2].</li> <li>2. To adjust selected color, press ▲ and ▼.</li> </ol>

	<p><b>Important:</b> 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.</p>
	<p><b>Information</b> 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).</p> <p><b>NOTE:</b> VESA 1920 x 1080 @ 60Hz (recommended) means that the resolution is 1920 x 1080 and the refresh rate is 60 Hertz.</p> 
	<p><b>Manual Image Adjust</b> displays the Manual Image Adjust menu.</p>  <p><b>H./V. Position (Horizontal/Vertical Position)</b> moves the screen image left or right and up or down.</p> <p><b>H. Size (Horizontal Size)</b> adjusts the width of the screen image.</p> <p><b>Fine Tune</b> sharpens the focus by aligning text and/or graphics with pixel boundaries.</p> <p><b>NOTE:</b> Try Auto Image Adjust first.</p> <p><b>Sharpness</b> adjusts the clarity and focus of the screen image.</p> <p><b>Dynamic Contrast</b> allows the user to turn the contrast ratio enhancement on or off.</p> <p><b>Aspect ratio</b> Selects the image size for 4:3 and full screen.</p> <p><b>ECO Mode</b> provides the lower power consumption by reducing the brightness.</p> <p><b>Standard:</b> The default brightness setting.</p> <p><b>Optimize:</b> Decreases the brightness by 25 %.</p> <p><b>Conserve:</b> Decreases the brightness by 50 %.</p>
	<p><b>Setup Menu</b> displays the menu shown below:</p>



**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

### Scalar--- NT68667UFG/C(U401)

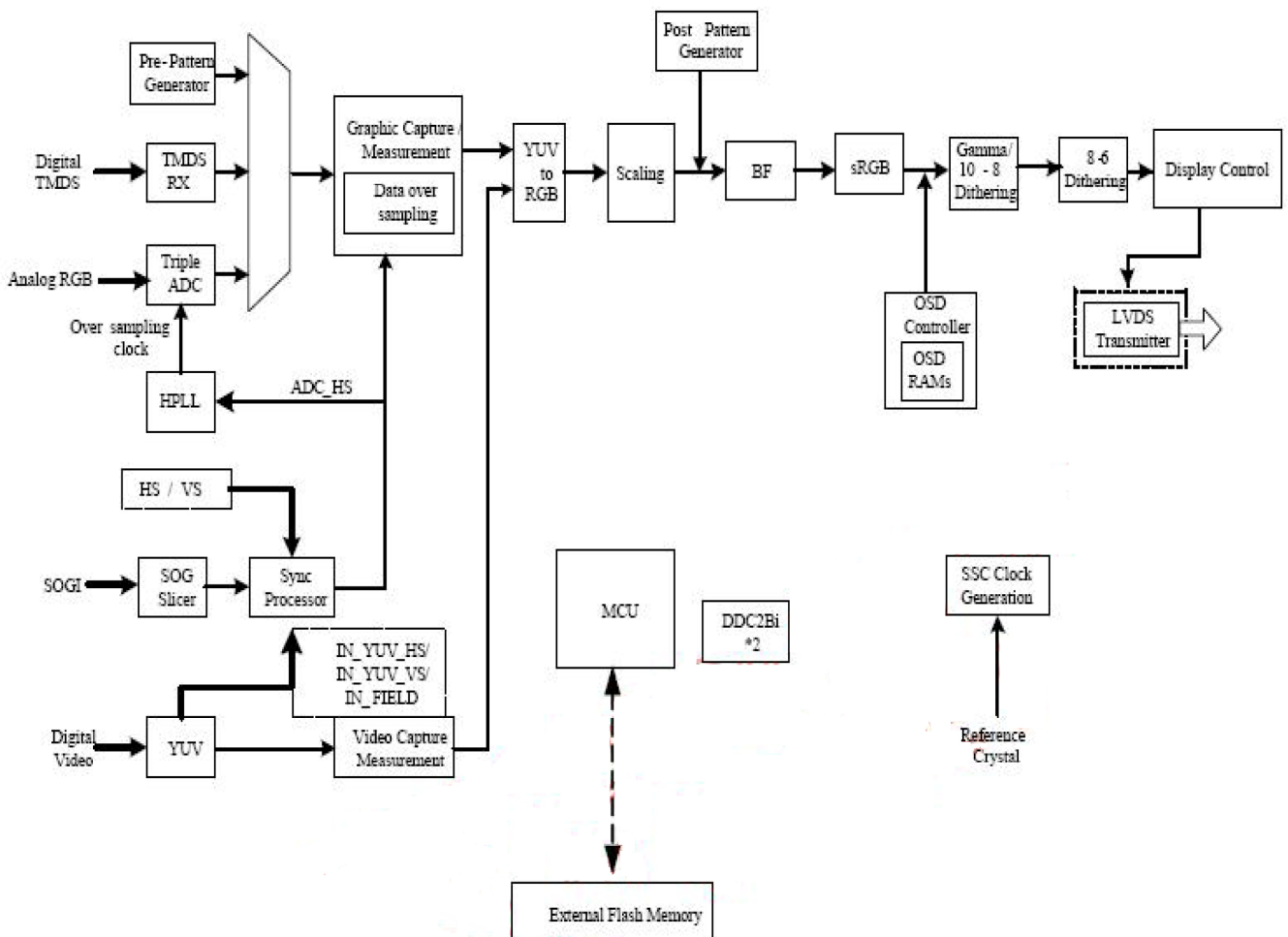
The NT68667 is a highly integrated flat panel display controller that interfaces analog, digital, and video inputs. It combines a triple ADC, a DVI compliant TMDS receiver, a digital YUV receiver, a high quality zoom and shrink engine , a multi-color on screen display (OSD) controller , an advanced color engine , 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 NT68667 operates at frequencies up to **188MHz/190Mhz**, suitable for LCD monitor up to **1680x1050/1920x1080** resolution. The NT68667 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 single/double pixel clock LVDS interface.

In addition, NT68667 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 Assignment

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 $\Omega$ 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 <sup>2</sup> 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 <sup>2</sup> 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	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
45	PLL_VDD	Power	1.6V ~ 2.0V	Internal HPLL power supply (1.8V) output . External capacitor (0.1uF and 100uF) 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 <sup>2</sup> 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 <sup>2</sup> 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	V0	I	0 ~ 3.47V	Video data input
55	V1	I	0 ~ 3.47V	Video data input
56	V2	I	0 ~ 3.47V	Video data input
57	V3	I	0 ~ 3.47V	Video data input
58	V4	I	0 ~ 3.47V	Video data input
59	V5	I	0 ~ 3.47V	Video data input
60	V6	I	0 ~ 3.47V	Video data input
61	V7	I	0 ~ 3.47V	/Video data input
62	YUV_CLK	I	0 ~ 3.47V	Video Port Clock
63	NC			
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	T7P	LVDSO	1.2 ± 0.10V	Positive LVDS differential data output of channel 7
			~ 1.2 ± 0.22V	
69	T7M	LVDSO	1.2 ± 0.10V	Negative LVDS differential data output of channel 7
			~ 1.2 ± 0.22V	
70	TCLK2P	LVDSO	1.2 ± 0.10V	Positive LVDS differential clock 2 output
			~ 1.2 ± 0.22V	
71	TCLK2M	LVDSO	1.2 ± 0.10V	Negative LVDS differential clock 2 output
			~ 1.2 ± 0.22V	
72	T6P	LVDSO	1.2 ± 0.10V	Positive LVDS differential data output of channel 6
			~ 1.2 ± 0.22V	
73	T6M	LVDSO	1.2 ± 0.10V	Negative LVDS differential data output of channel 6
			~ 1.2 ± 0.22V	
74	T5P	LVDSO	1.2 ± 0.10V	Positive LVDS differential data output of channel 5
			~ 1.2 ± 0.22V	
75	T5M	LVDSO	1.2 ± 0.10V	Negative LVDS differential data output of channel 5
			~ 1.2 ± 0.22V	
76	T4P	LVDSO	1.2 ± 0.10V	Positive LVDS differential data output of channel 4
			~ 1.2 ± 0.22V	
77	T4M	LVDSO	1.2 ± 0.10V	Negative LVDS differential data output of channel 4
			~ 1.2 ± 0.22V	
78	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground

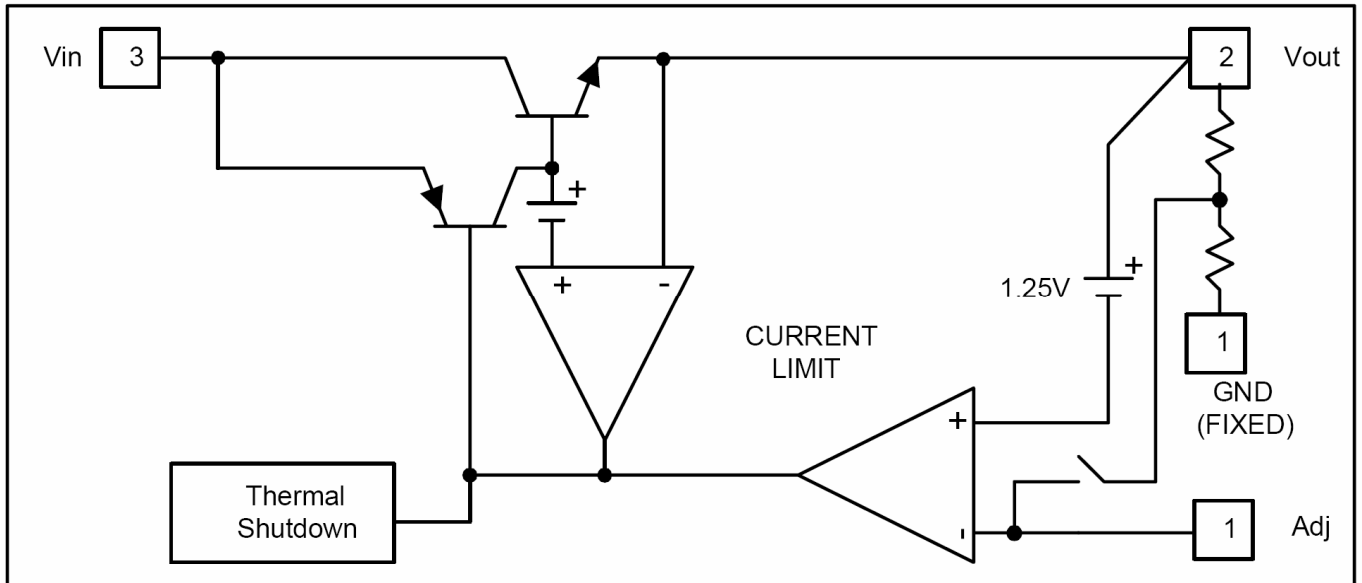


79	T3P	LVDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Positive LVDS differential data output of channel 3
80	T3M	LVDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Negative LVDS differential data output of channel 3
81	TCLK1P	LVDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Positive LVDS differential clock 1 output
82	CLK1M	LVDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Negative LVDS differential clock 1 output
83	T2P	LVDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Positive LVDS differential data output of channel 2
84	T2M	LVDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Negative LVDS differential data output of channel 2
85	T1P	LVDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Positive LVDS differential data output of channel 1
86	T1M	LVDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Negative LVDS differential data output of channel 1
87	T0P	LVDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Positive LVDS differential data output of channel 0
88	T0M	LVDSO	1.2 ± 0.10V ~ 1.2 ± 0.22V	Negative LVDS differential data output of channel 0
89	NC			
90	DVDD	Power	3.15V ~ 3.47V	Display Digital Power Supply
91	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
92	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
93	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
94	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
95	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
96	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
97	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
98	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
99	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
100	DGND/CGND	Power	0V	Digital Ground/ Core Logic Ground
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	SPI_CE	O	0~ 3.47V	External flash SPI chip enable
105	SPI_SO	I	0~ 3.47V	External flash SPI chip serial data output
106	SPI_SI	O	0~ 3.47V	External flash SPI data serial data input

107	SPI_CLK	O	0~ 3.47V	External flash SPI clock
108	PD4	I/O	0~ 3.47V	I/O Pin; Push-Pull Structure with Schmitt Trigger Input
109	DGND	Power	0V	Digital Ground
110	NC			
111	AD0	I/O	0~ 3.47V	
112	AD1	I/O	0~ 3.47V	
113	INT_VSO	O	0~ 3.47V	Internal Vertical Sync output, this signal is by-pass the Sync-processor
114	INT_HSO	O	0~ 3.47V	Internal Horizontal Sync output, this signal is by-pass the Sync-processor
115	CVDD	Power	1.6V ~ 2.0V	Core logic power supply (1.8V) pin. External capacitor (0.1uF) connected is recommended.
116	NC			
117	PWMA*	O	0~ 3.47V	PWMA/ General purpose output
118	PWMB*	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		12~15MHz External Crystal OSC Output
128	OSCO	O		12~15MHz External Crystal OSC Input

### DC to DC--- AP1117D33L (U703) and AP1117E18LA (U704)

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.



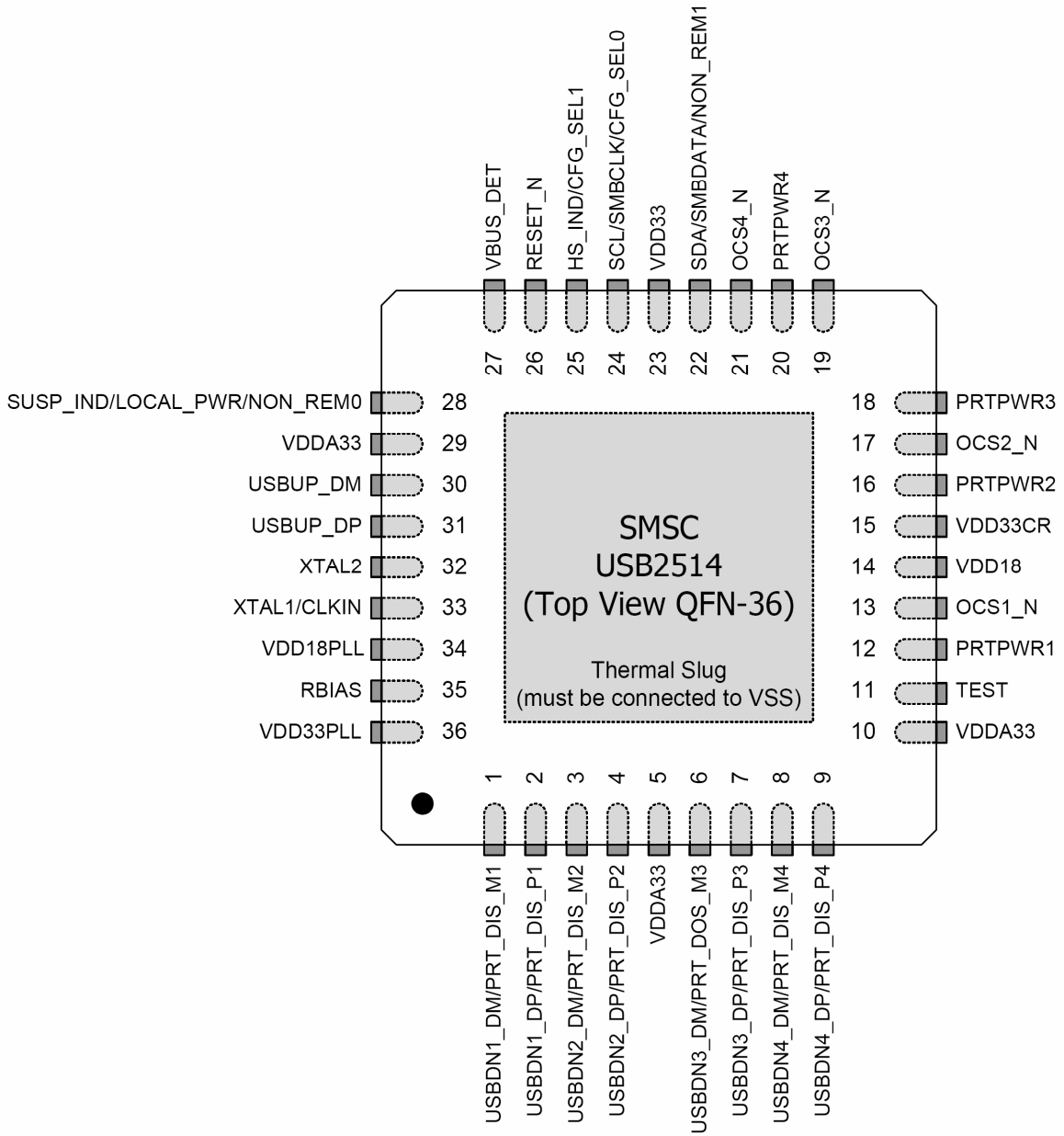
### Pin Descriptions

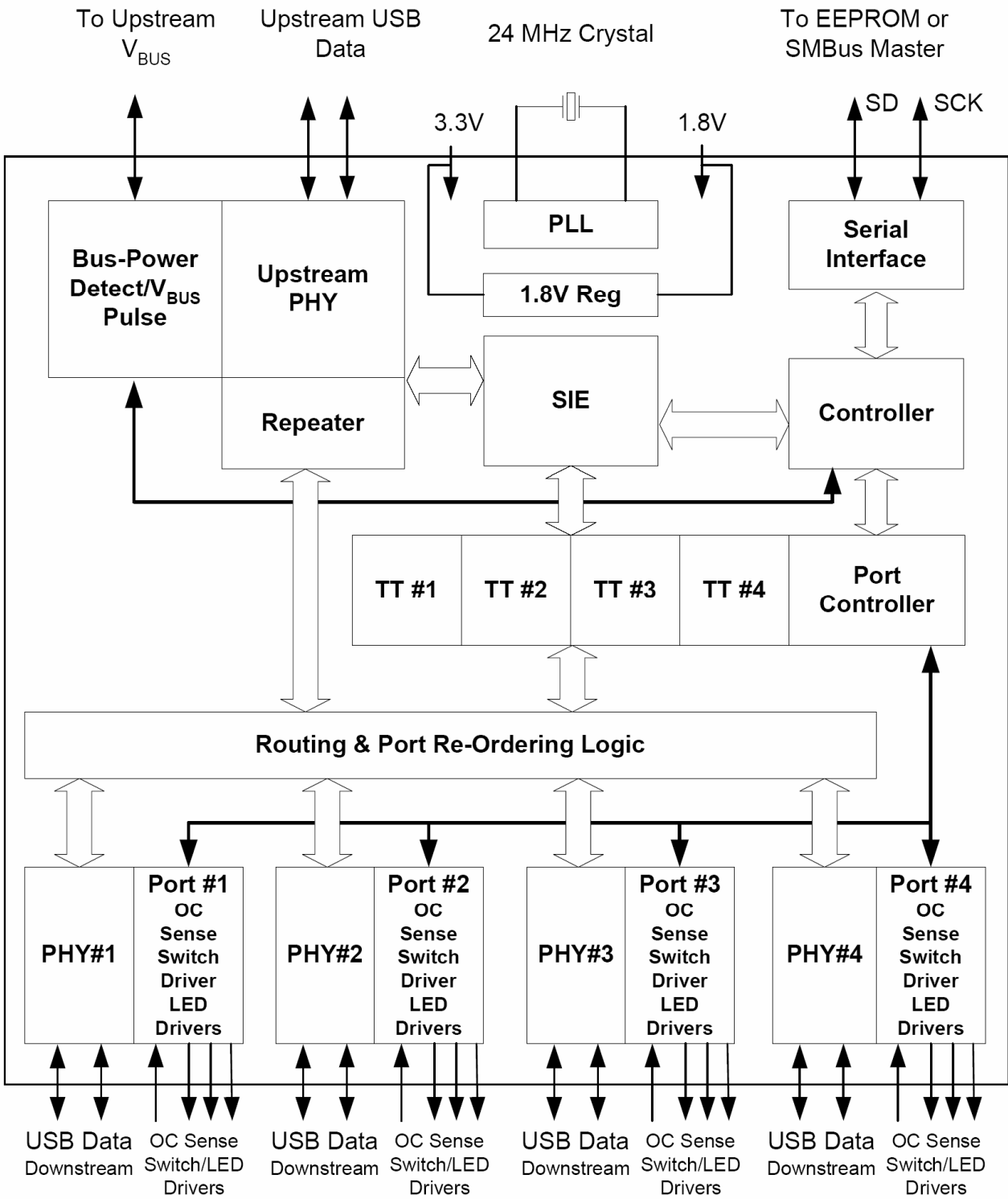
Name	I/O	Pin #	Function
Adj (GND)	I	1	A resistor divider from this pin to the Vout pin and ground sets the output voltage. (Ground only for Fixed-Mode)
Vout	O	2	The output of the regulator. A minimum of 10uF capacitor ( $0.15\Omega \leq ESR \leq 20\Omega$ ) must be connected from this pin to ground to insure stability.
Vin	I	3	The input pin of regulator. Typically a large storage capacitor ( $0.15\Omega \leq ESR \leq 20\Omega$ ) 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.

### USB--- USB2514-AEZG QFN-36 (U701)

The SMSC 4-Port Hub is low power, OEM configurable, MTT (multi transaction translator) hub controller IC with 4 downstream ports for embedded USB solutions. The 4-port hub is fully compliant with the USB 2.0 Specification and will attach to an upstream port as a Full-Speed Hub or as a Full-/High-Speed Hub. The 4-Port Hub supports Low-Speed, Full-Speed, and High-Speed (if operating as a High-Speed Hub) downstream devices on all of the enabled downstream ports.

# Pin Configuration





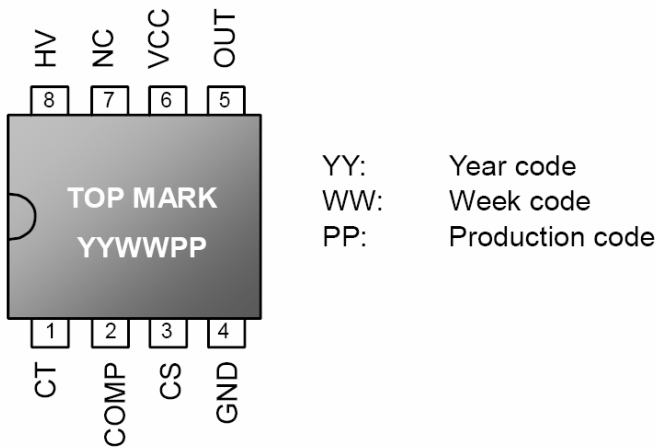
## 4.2 Power Board

### IC901 LD7576

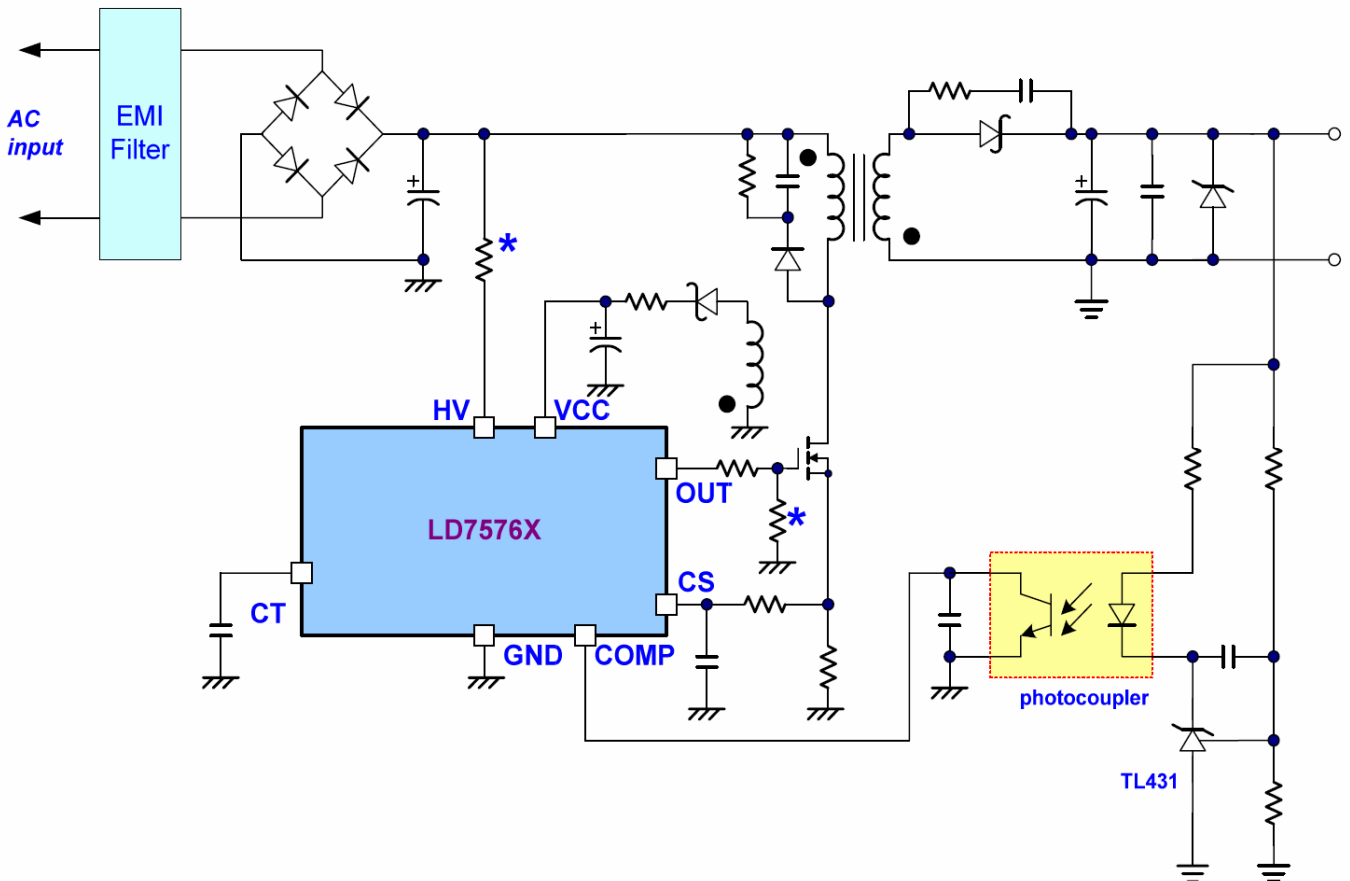
The LD7576X series bring high performance, combines with highly integrated functions, protections and EMI-improve solution. It's an ideal solution for those cost-sensitive system, reducing component count and overall system cost.

The LD7576X series features near-lossless high voltage startup circuit, green-mode power-saving operation, leading-edge blanking of the current sensing and internal slope compensation. They also consist with more protections of OLP (Over Load Protection), OVP (Over Voltage Protection) and OTP (Over Temperature Protection) to prevent the circuit damage under abnormal conditions.

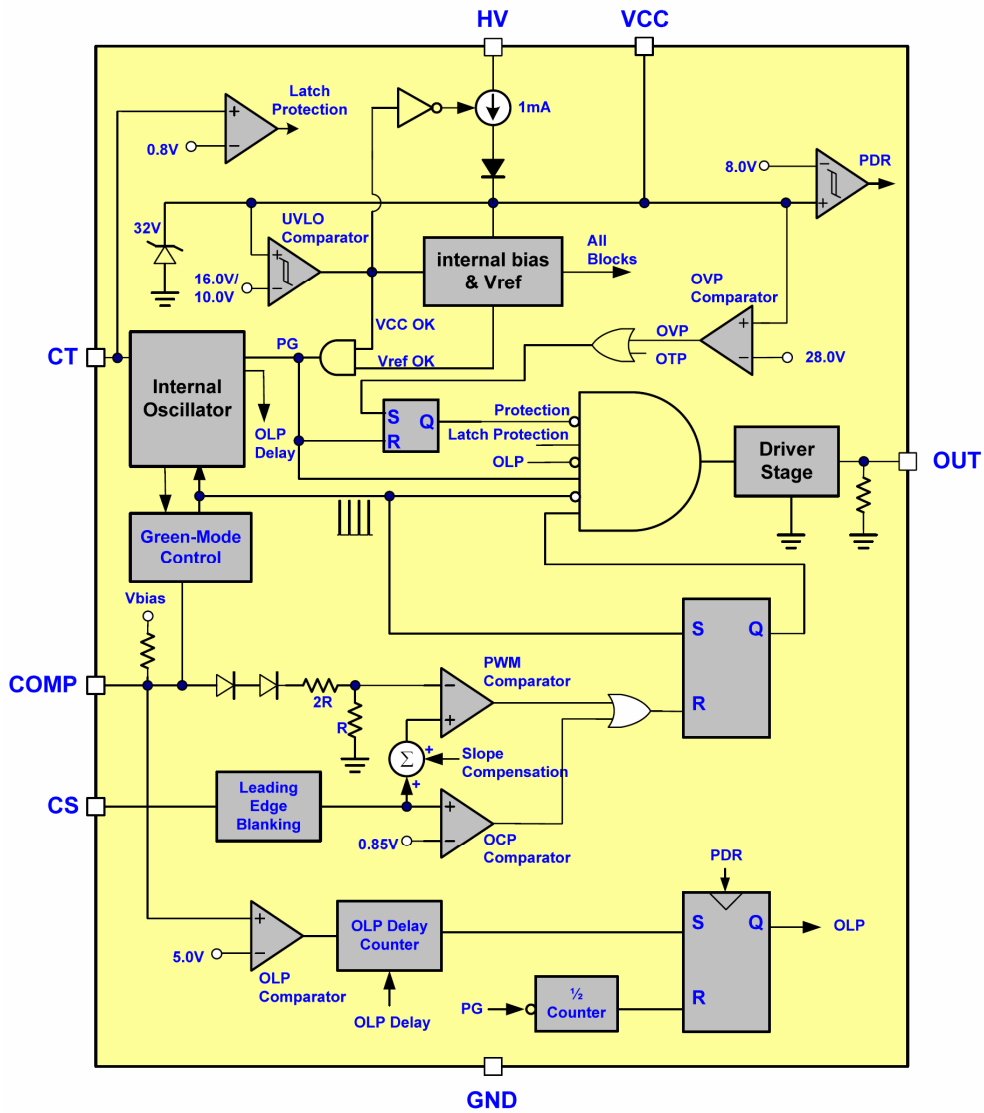
The LD7576X series are available in DIP-8 and SOP-8 package.



### Typical Application



**Block Diagram**



Pin	Name	Function
1	CT	This pin is to program the frequency of the low frequency timer. By connecting a capacitor to ground to set the OLP delay time. And this pin can be used for latch mode protection. By pulling this pin lower than 0.8 V, the controller will be entered latch mode until the AC power-on recycling.
2	COMP	Voltage feedback pin (same as the COMP pin in UC384X), By connecting a photo-coupler to close the control loop and achieve the regulation. A high quality ceramic capacitor (X7R) is required for general applications (102pF at least).
3	CS	Current sense pin, connect to sense the MOSFET current
4	GND	Ground
5	OUT	Gate drive output to drive the external MOSFET
6	VCC	Supply voltage pin
7	NC	Unconnected Pin
8	HV	Connect this pin to positive terminal of bulk capacitor to provide the startup current for the controller. When Vcc voltage trips the UVLO(on), this HV loop will be off to save the power loss on the startup circuit.

## IC801 TA9687GN

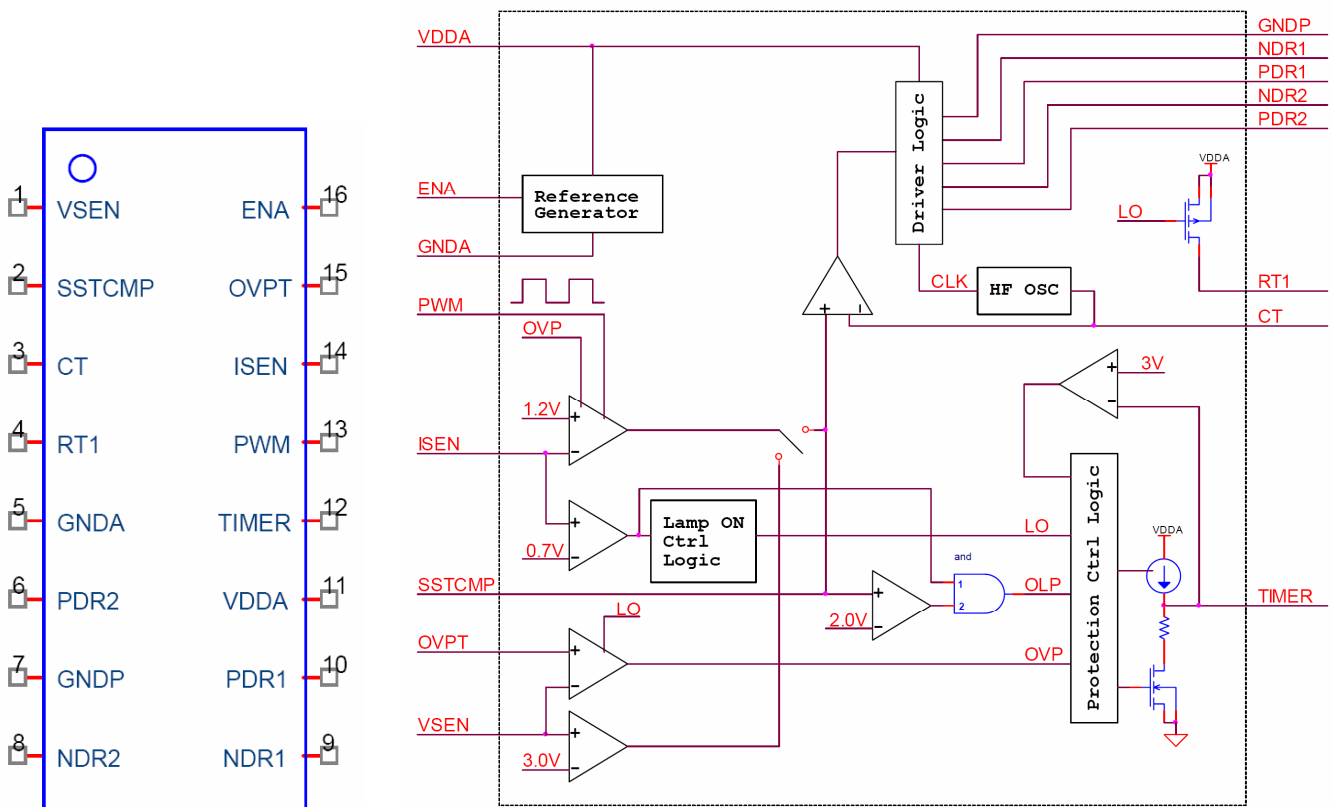
TA 9687 is a high performance, cost-effective CCFL (Cold Cathode Fluorescent Lamp) controller designed for driving large-size Liquid Crystal Display (LCD) applications requiring 2 to 6 CCFLs.

The controller converts unregulated DC voltages into a nearly sinusoidal lamp voltage and current waveforms.

The TA 9687 supports full-bridge power conversion topologies while maintaining high-efficiency operation. The controller provides a soft-start operation, current and voltage regulation, overvoltage and over-current protection, high drive capability.

The control logic provides a regulated ignition voltage and appropriate protection features for over-voltage or over-current conditions.

The TA 9687 offers a high level of integration, while maintaining flexibility and high-efficiency operation that reduces external component heating, resulting in higher reliability and longer CCFL life. The proprietary design technique provides a simple, low-cost system solution.



Pin Diagram

Functional Block Diagram



**Pin Description**

<b>Pin No.</b>	<b>I/O1</b>	<b>Names</b>	<b>Description</b>
1	I	VSEN	Voltage Sense Feedback
2	I/O	SSTCMP	Capacitor for Soft-Start and Loop Compensation
3	I/O	CT	Timing Resistor and Capacitor for Operation and Striking Frequency
4	I/O	RT1	Timing Resistor for Striking Frequency
5	---	GND A	Signal Ground
6	O	PDR2	High Side Driver Output 2
7	---	GND P	Power Ground
8	O	NDR2	Low Side Driver Output 2
9	O	NDR1	Low Side Driver Output 1
10	O	PDR1	High Side Driver Output 1
11	---	VDDA	Input Power Pin
12	I/O	TIMER	Timing Capacitor for Delay Timer
13	I	PWM	External PWM Dimming Input
14	I	ISEN	Current Sense Feedback
15	I	OVPT	Over-Voltage Protection Threshold Voltage
16	I	ENA	IC Enable/Disable

## 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 1920 x 1080) 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 1920 x 1080 @ 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 9300K colors, MEM.**

**Channel 1 to 7500K colors, MEM. Channel 2 to 6500K MEM. Channel 3 to 5000K MEM. Channel 4 to sRGB**

(our 9300K parameter is  $x=283\pm 12$ ,  $y=297\pm 12$ ; 7500K parameter is  $x=299\pm 12$ ,  $y=315\pm 12$ ; 6500 parameter is  $x=313\pm 12$ ,  $y=329\pm 12$ ; and 5000 parameter is  $x=347\pm 12$ ,  $y=349\pm 12$ ; sRGB parameter is  $x=313\pm 12$ ,  $y=329\pm 12$ )

How to setting MEM.channel 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 9300K 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  $x = 283 \pm 12$ ,  $y = 297 \pm 12$

#### b. Adjust 7500K 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  $x = 299 \pm 12$ ,  $y = 315 \pm 12$

#### c. Adjust 6500K 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  $x = 313 \pm 12$ ,  $y = 329 \pm 12$

#### d. Adjust 5000K 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  $x = 347 \pm 12$ ,  $y = 360 \pm 12$

#### e. Adjust 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  $x = 313 \pm 12$ ,  $y = 329 \pm 12$

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:

- VG2227wm
- PC (Personal computer)
- LPT cable
- Firmware upgrade program



### ISP Board

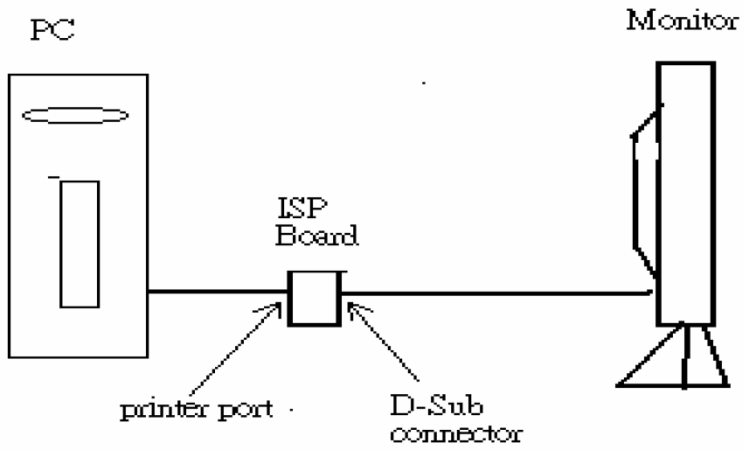


LPT Cable



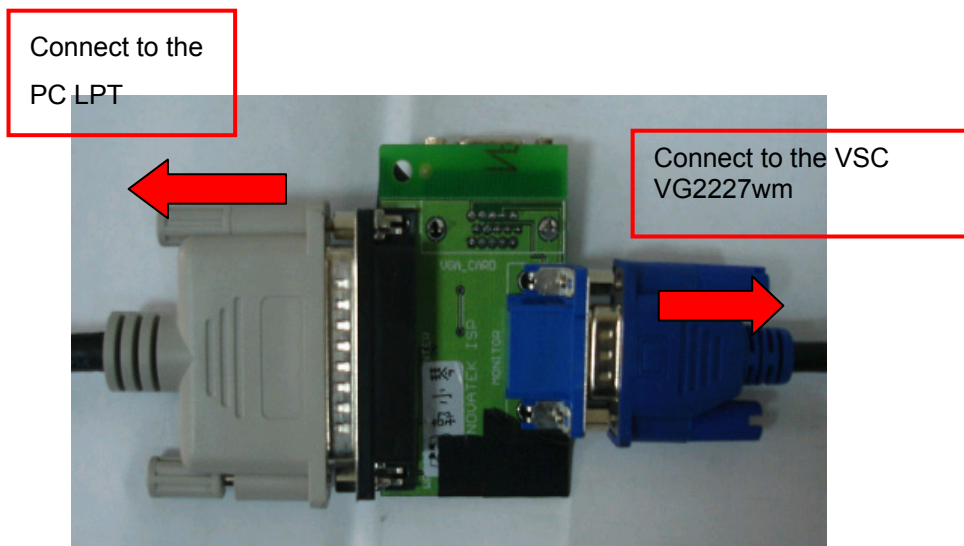
VGA Cable

## Hardware Connect status



### 5.2.2 Update the NOVATEK'S firmware

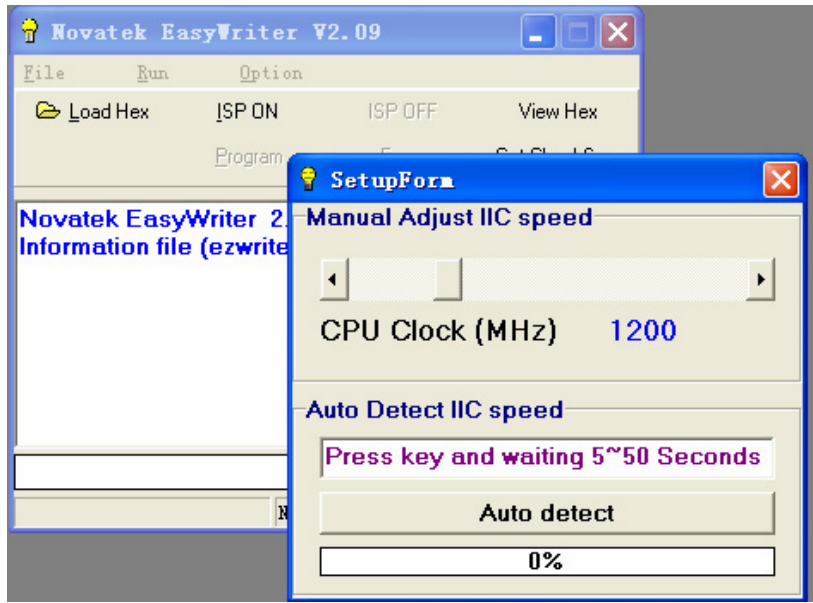
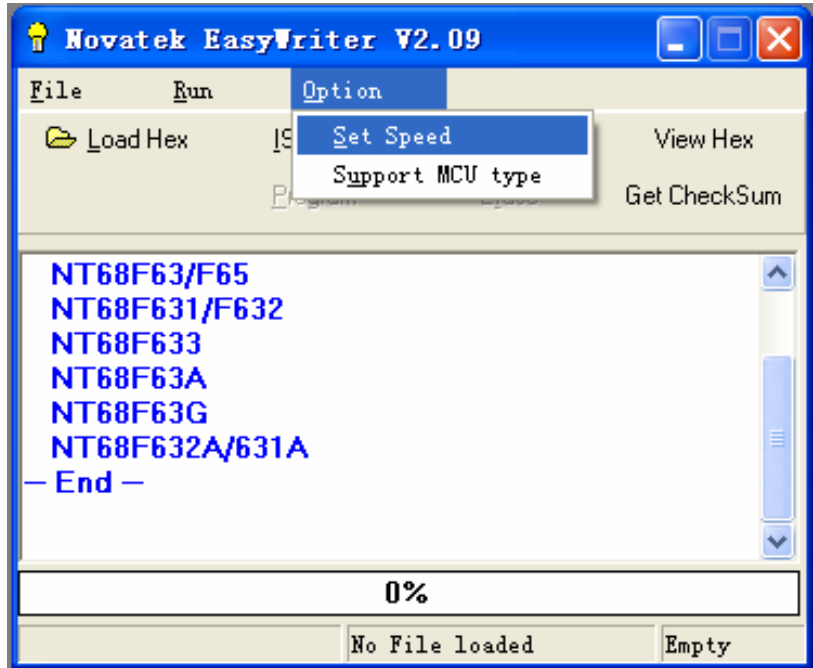
You should jump the pin to "For Flash" at ISP Board



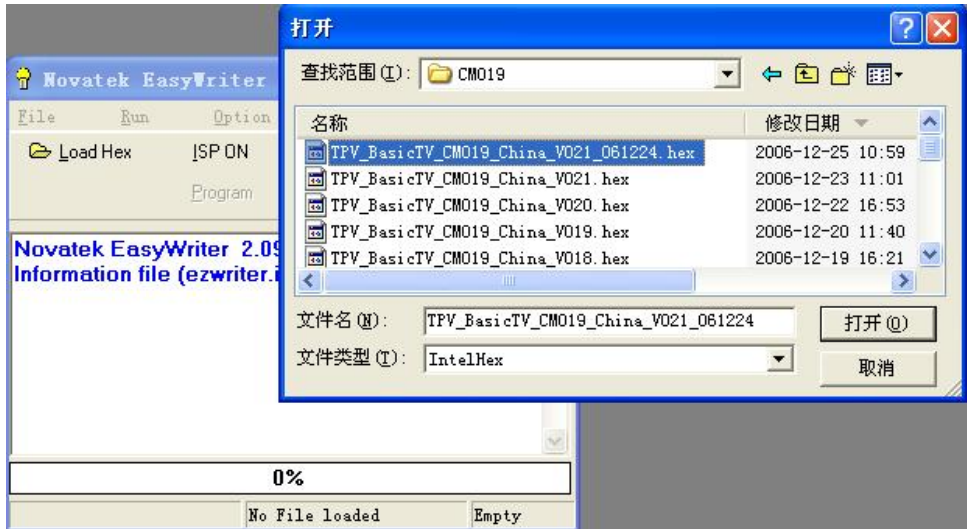
Double click "Writer.exe"



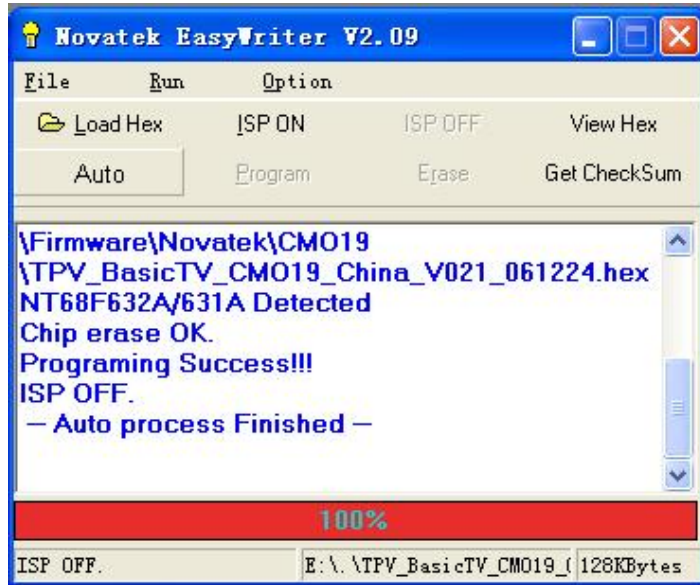
This tool can auto detect the right SCALAR programe speed,the process as follow:



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 “Programming 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 TV, you have to do the DDC key in.


#### 5.3.1 Equipment Needed

- VG2227wm
- PC (Personal computer)
- LPT cable
- 12V DC
- Firmware upgrade program
- DDC Card

#### 5.3.2 Install software

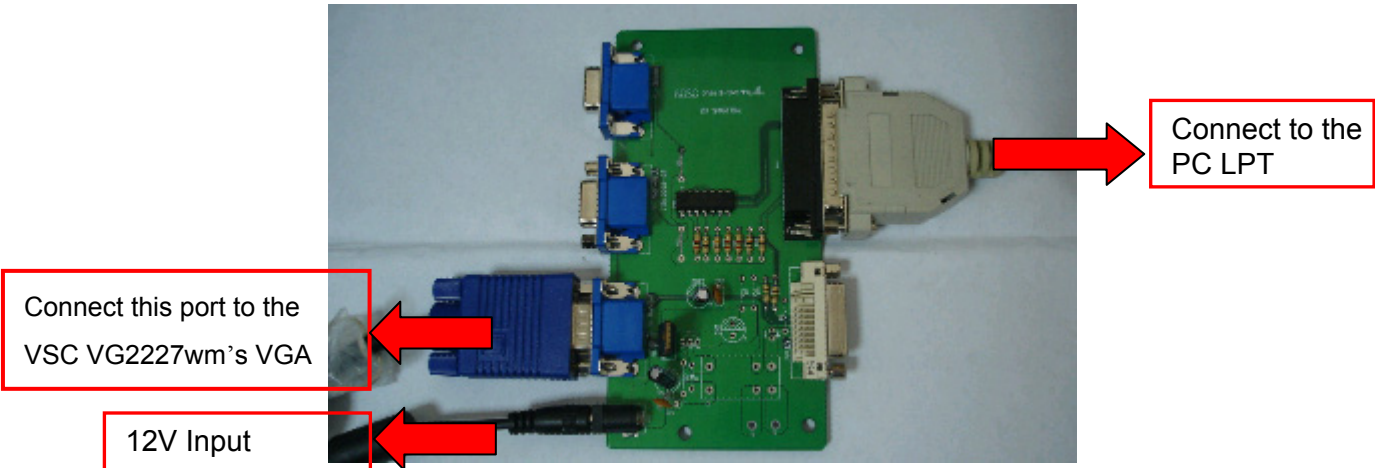


PORT95NT.EXE  
PackageForTheWeb Stub  
InstallShield Software Corpora...

You must install the  at the first.

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

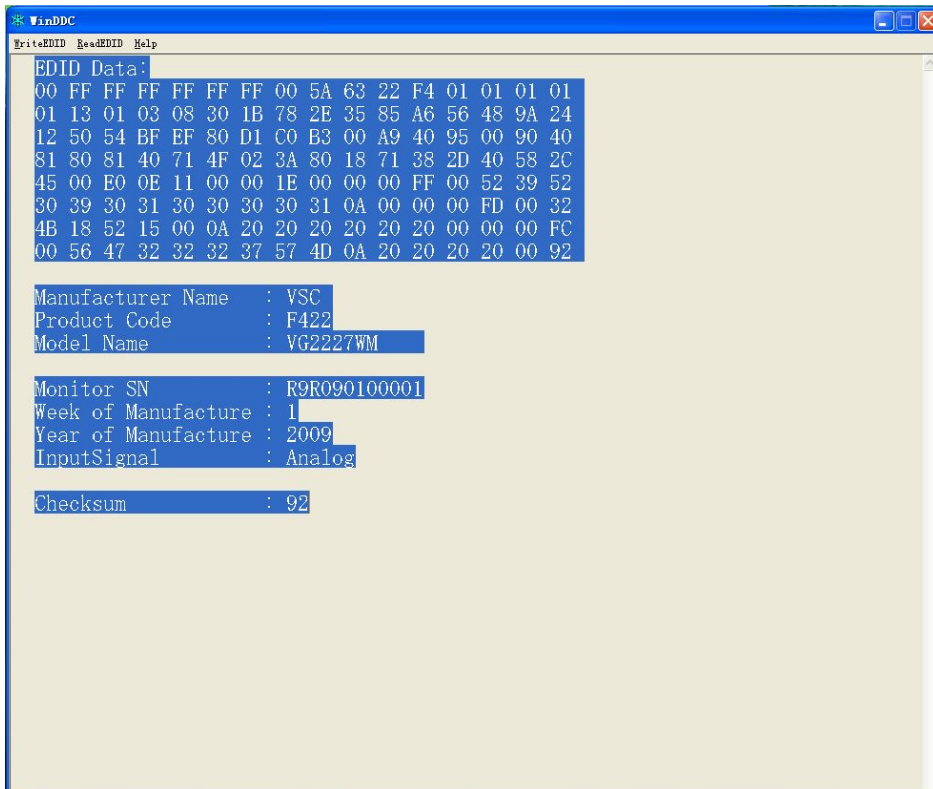
**5.3.3 Connect the DDC board as follow:**



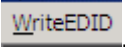
**For analog**

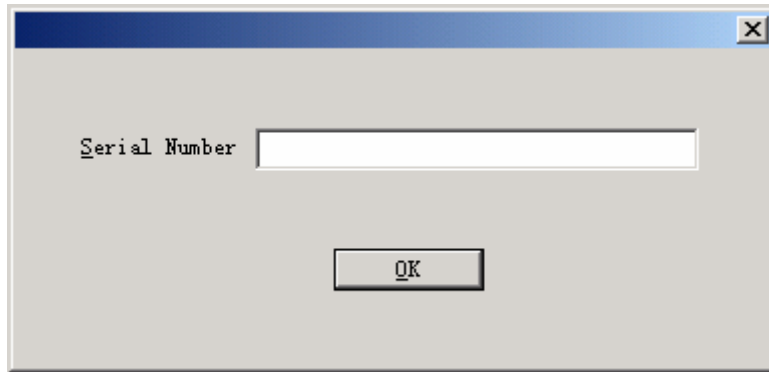


a. Double-click `WinDDC.exe` , appear as follow Figs :

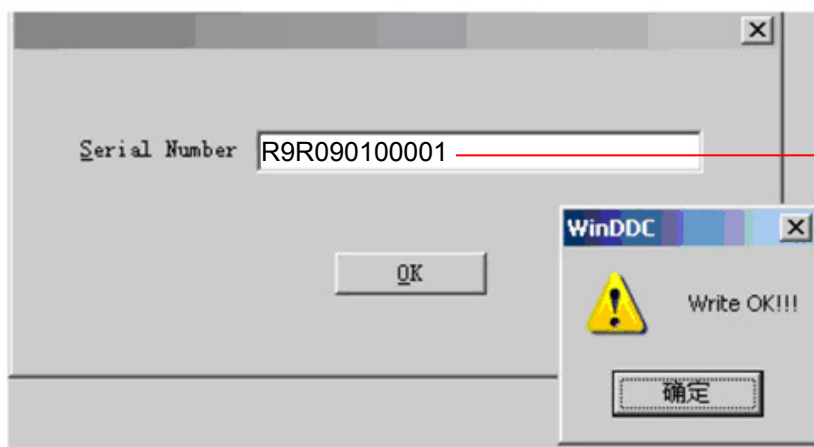




b. Click 

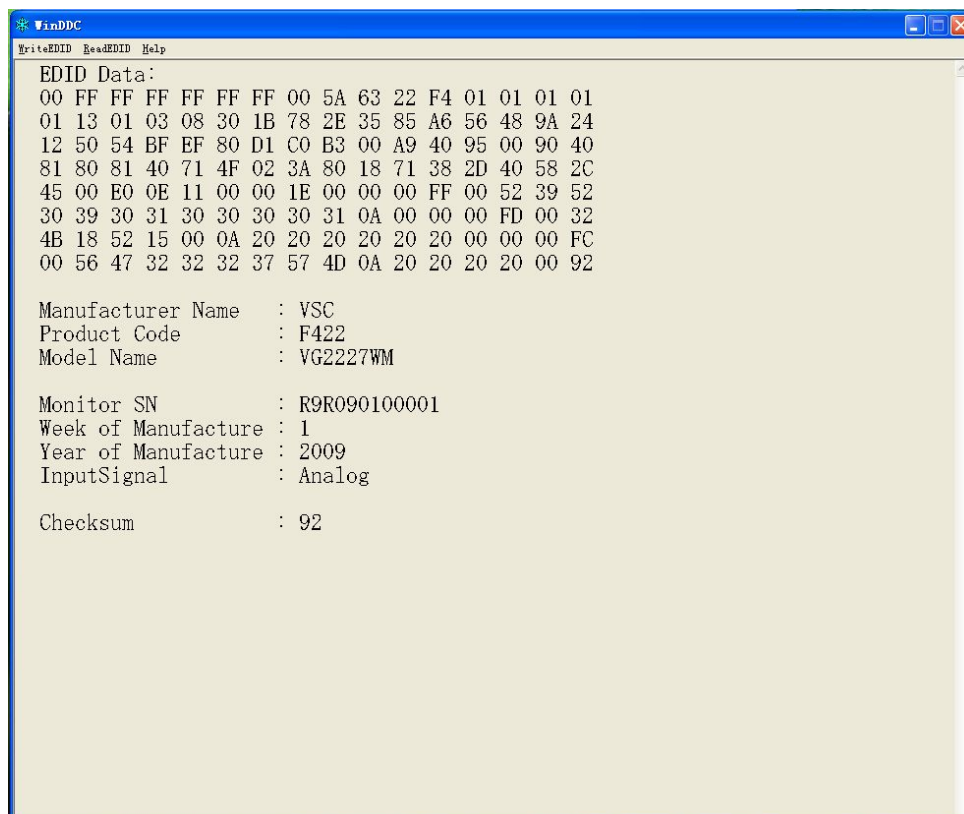


c. Key in the Serial Number printed on the barcode label, then click "OK"

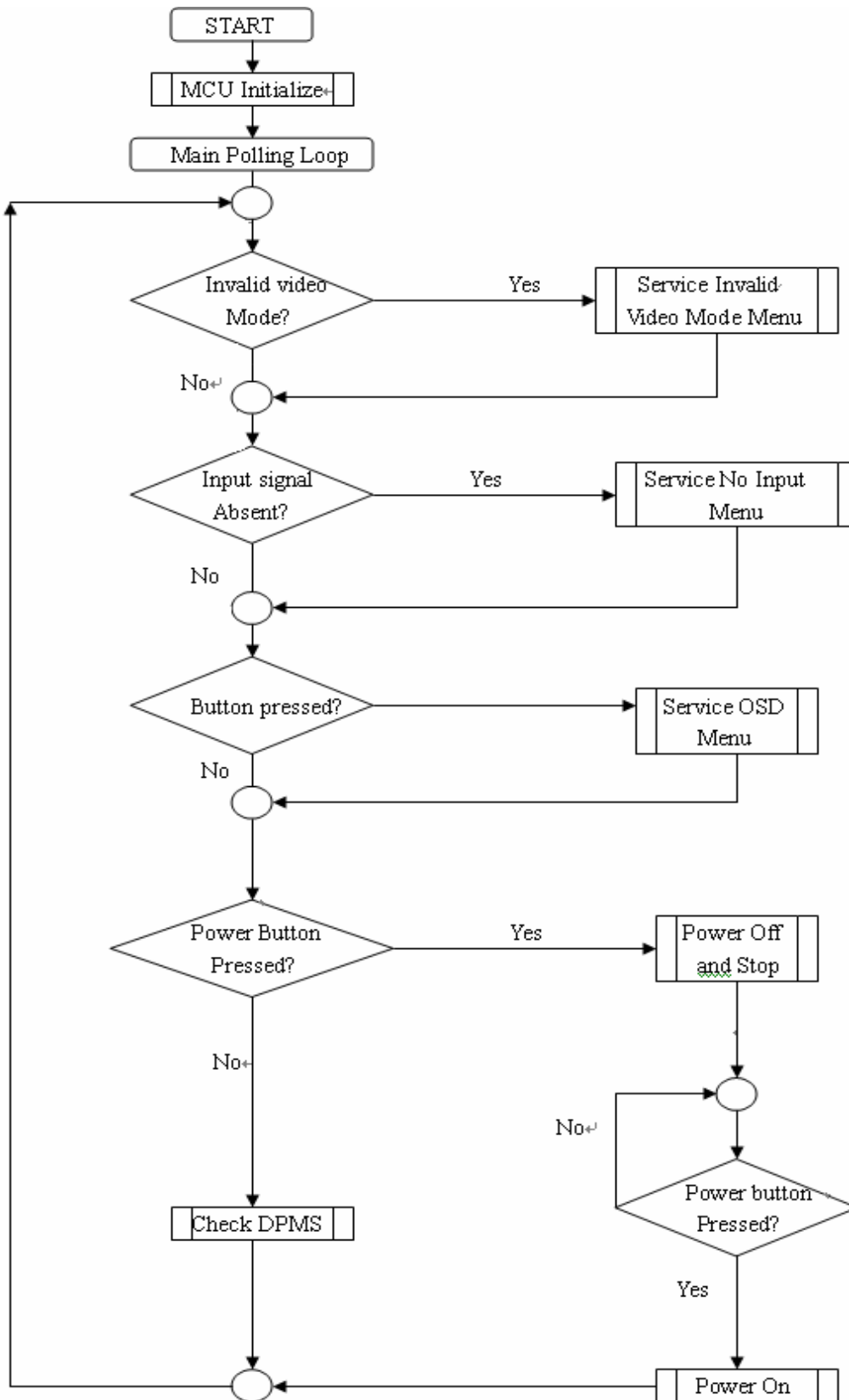


12 codes,  
for example.

d. Unit appears the following Fig, writer completed.

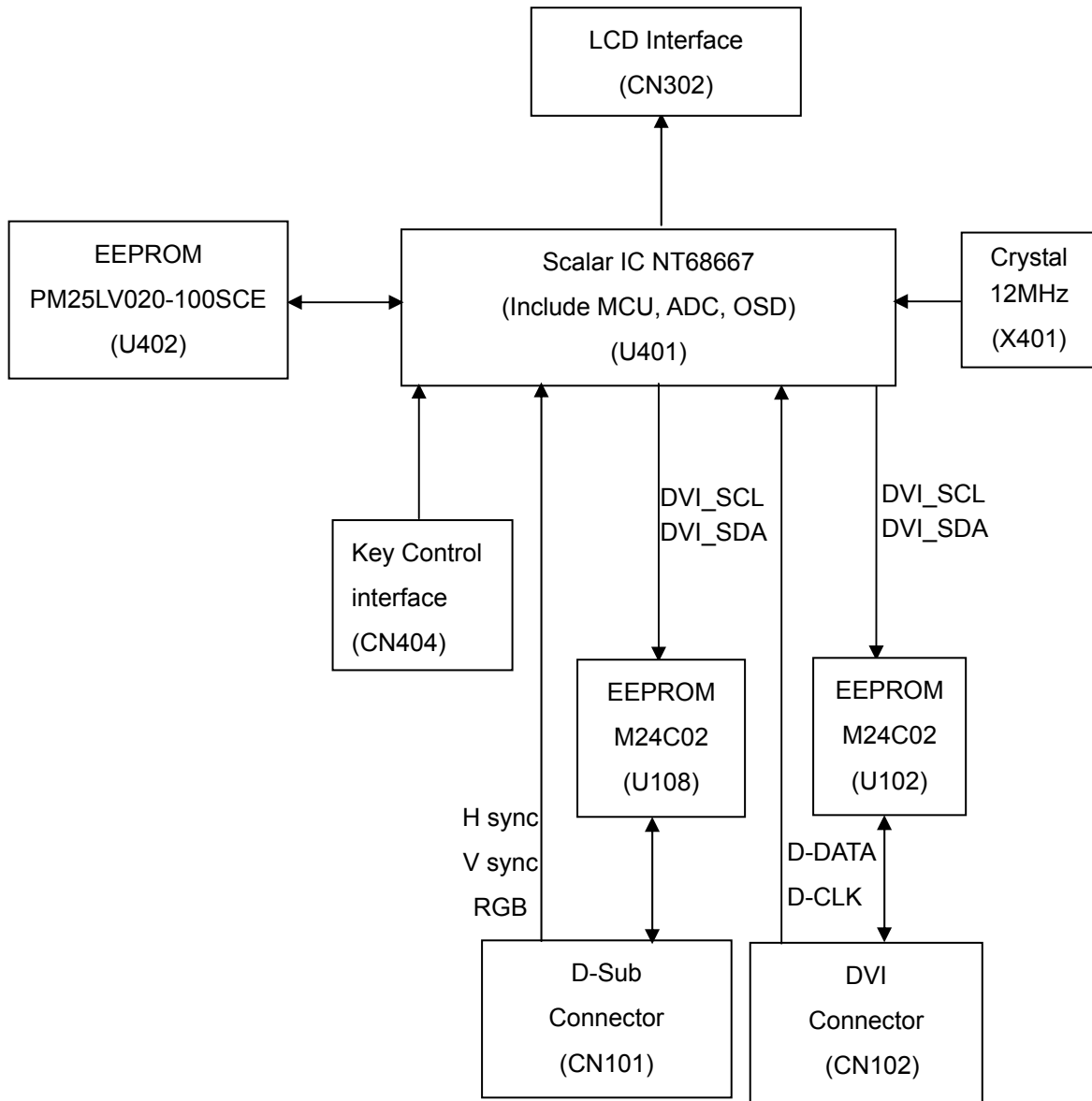


## 6. Troubleshooting Flow Chart

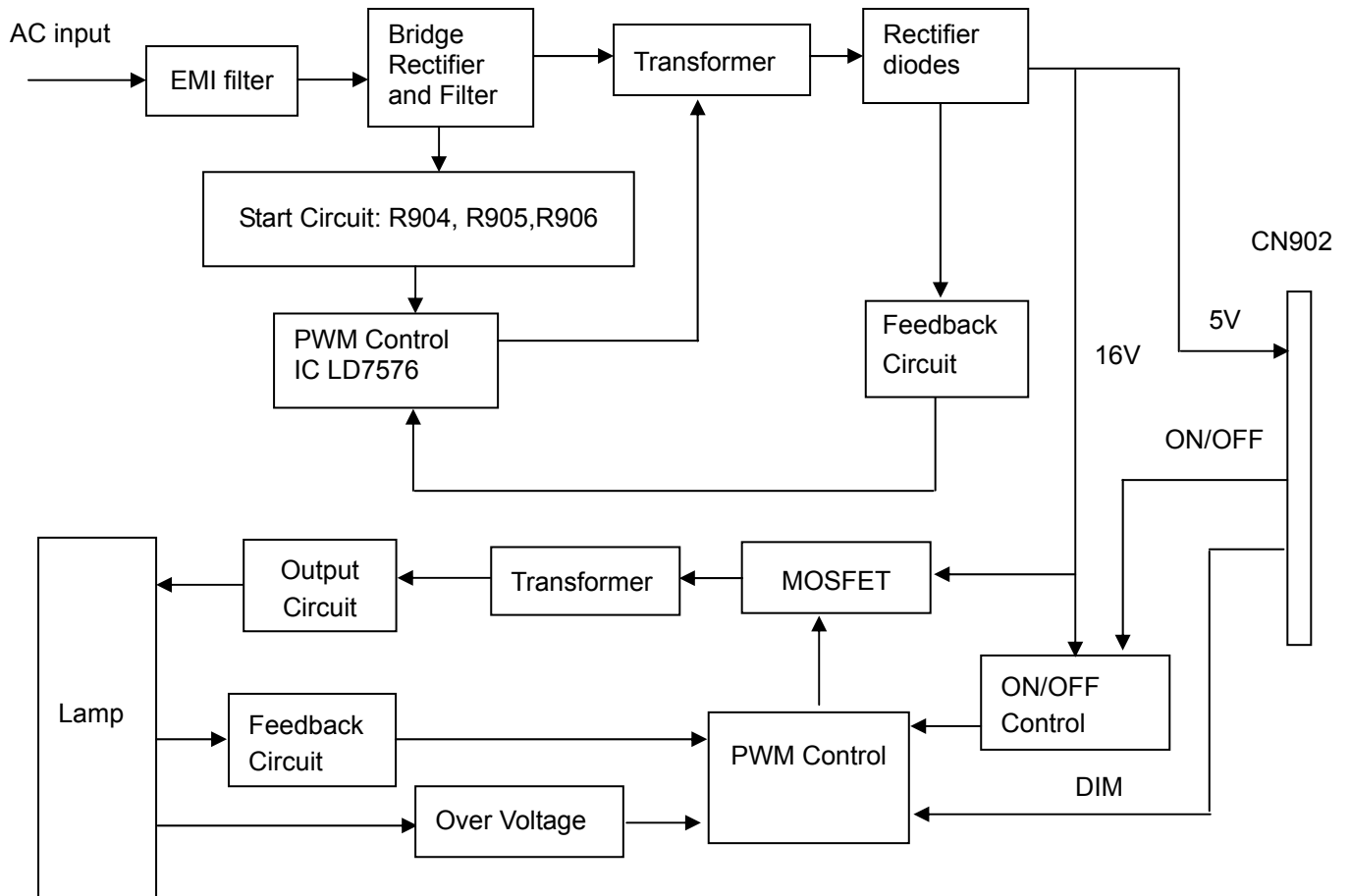


## 7. Block Diagrams

### 7.1 Main Board

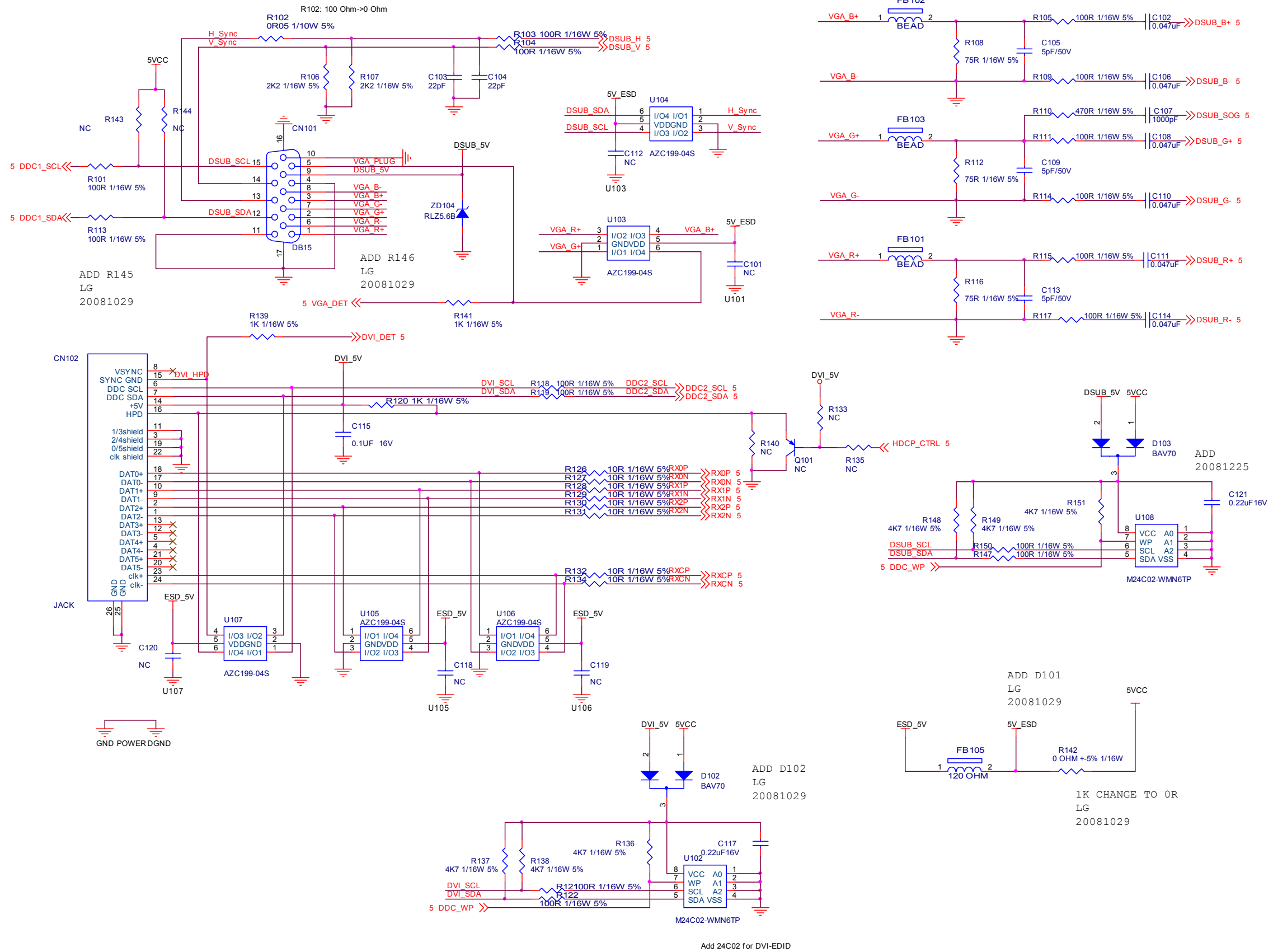


## 7.2 Power Board

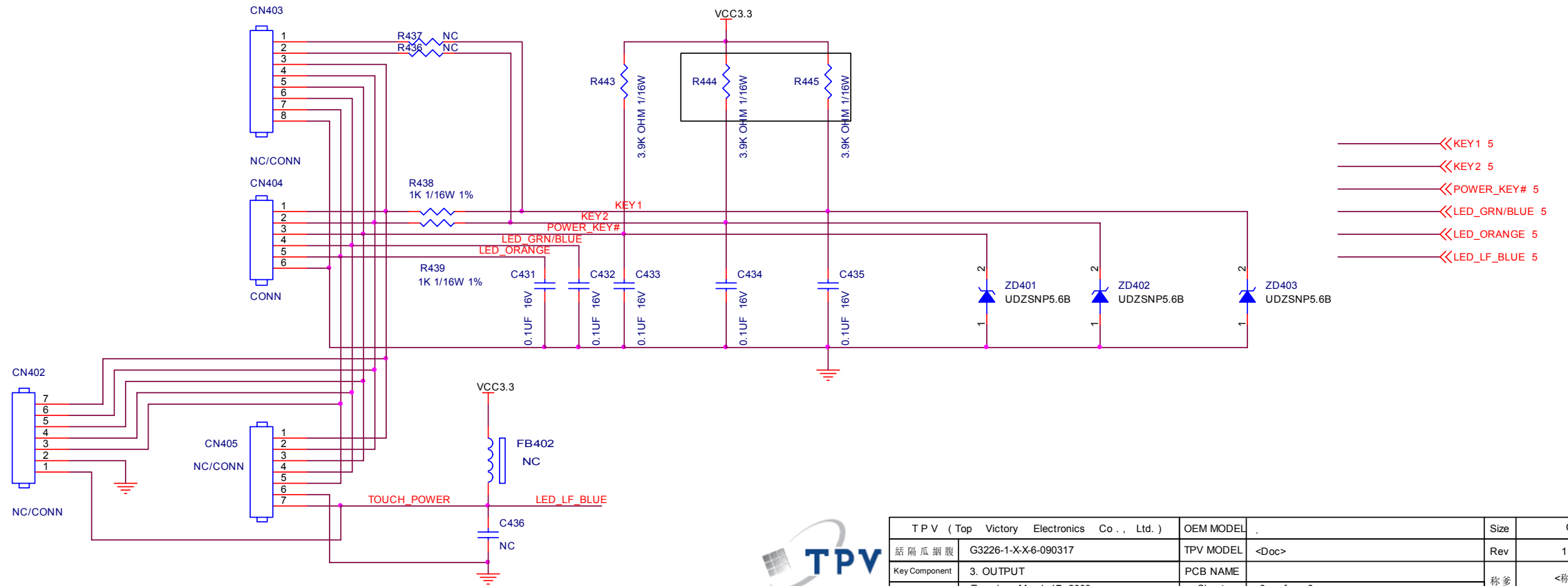
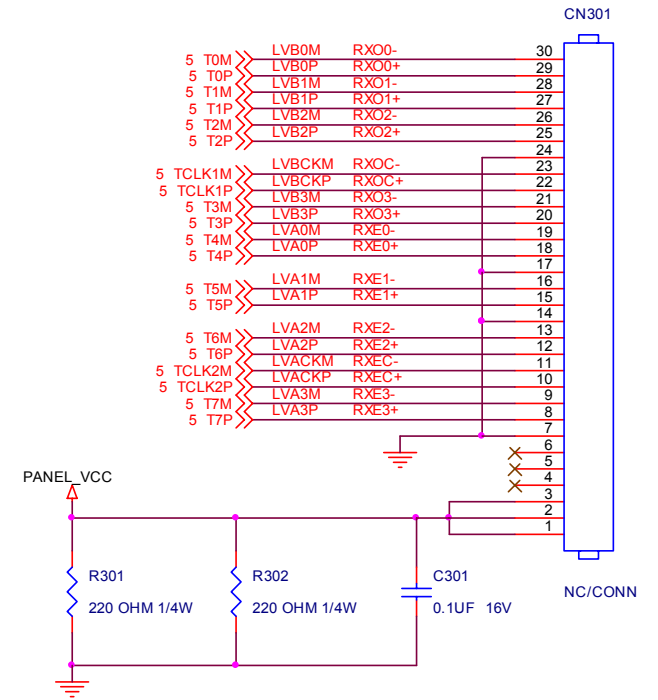
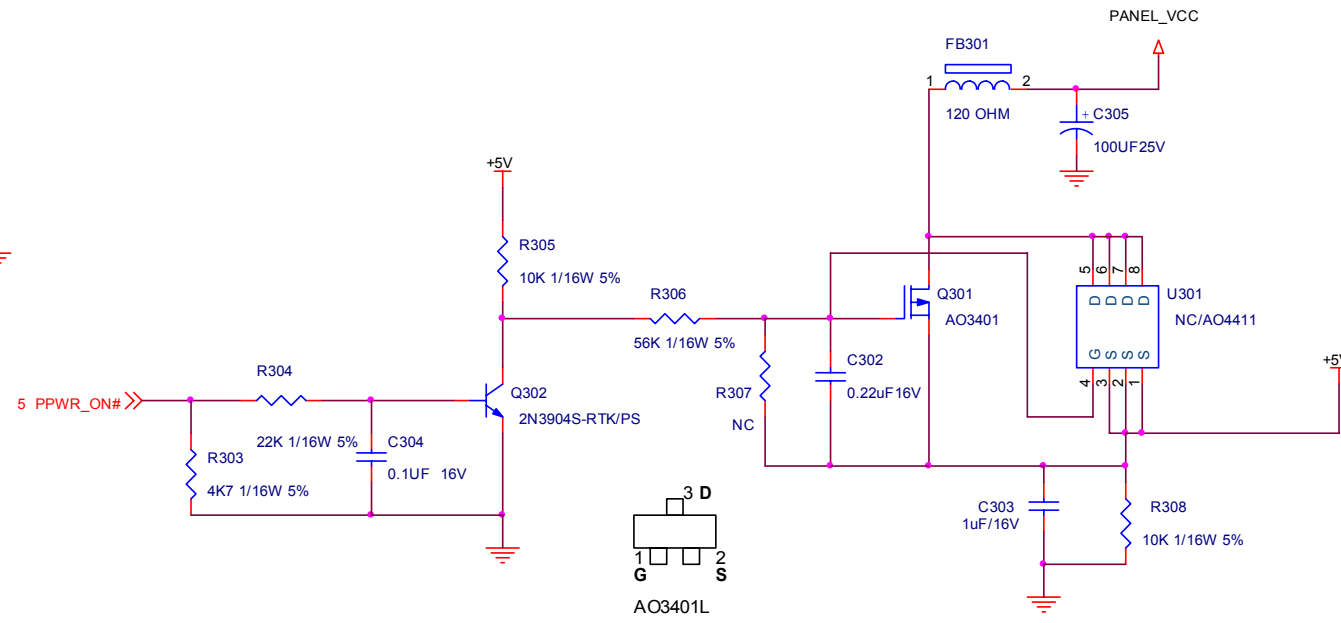
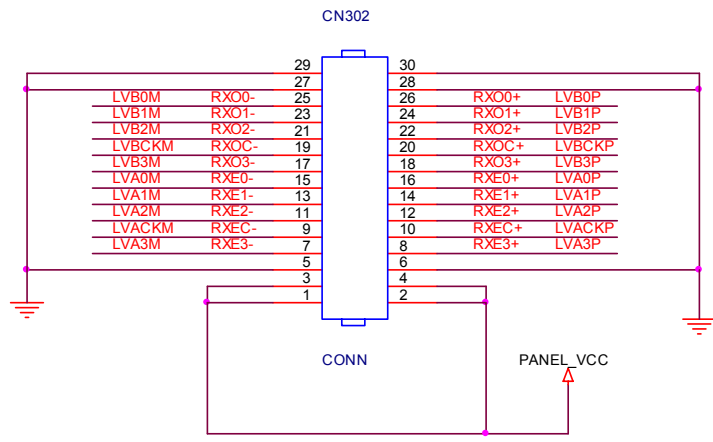


# 8. Schematic Diagrams

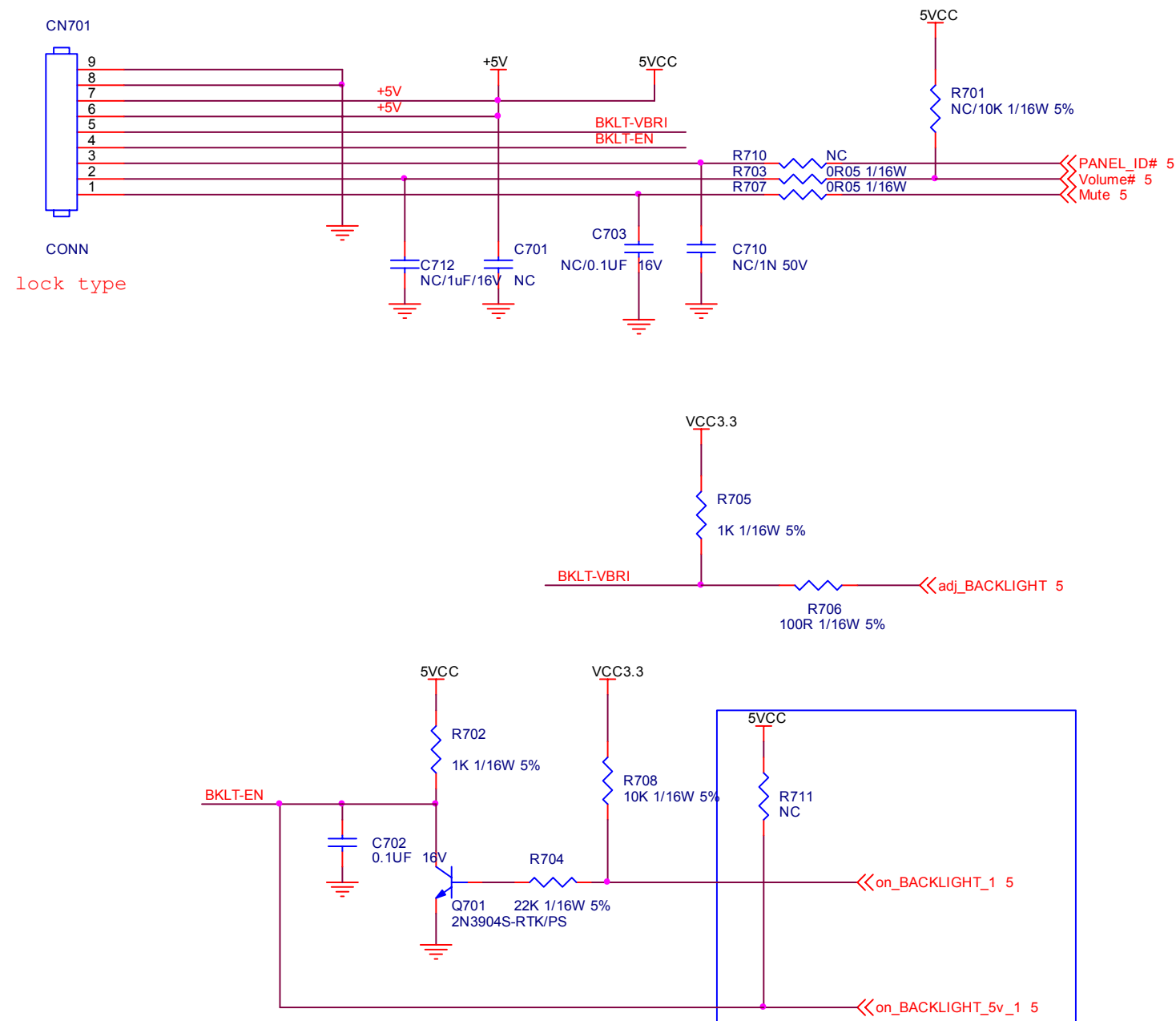
## 8.1 Main Board



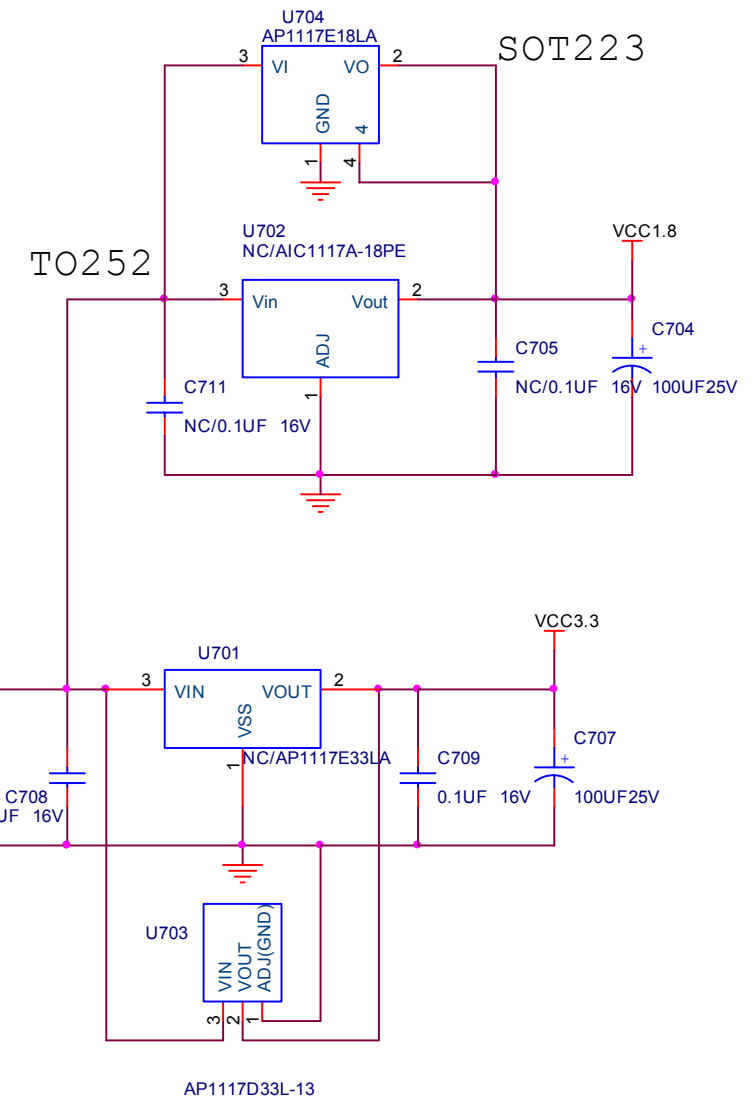
TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	Size	Custom
結構圖	G3226-1-X-X6-090317	Rev	1
Key Component	2. INPUT	PCB NAME	<Doc>
Date	Tuesday, March 17, 2009	Sheet	2 of 6



TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	.	Size	Custom
結構圖網版	G3226-1-X-X-6-090317	TPV MODEL	<Doc>	Rev
Key Component	3. OUTPUT	PCB NAME		1
Date	Tuesday, March 17, 2009	Sheet	3 of 6	称爹 <称爹>



lock type



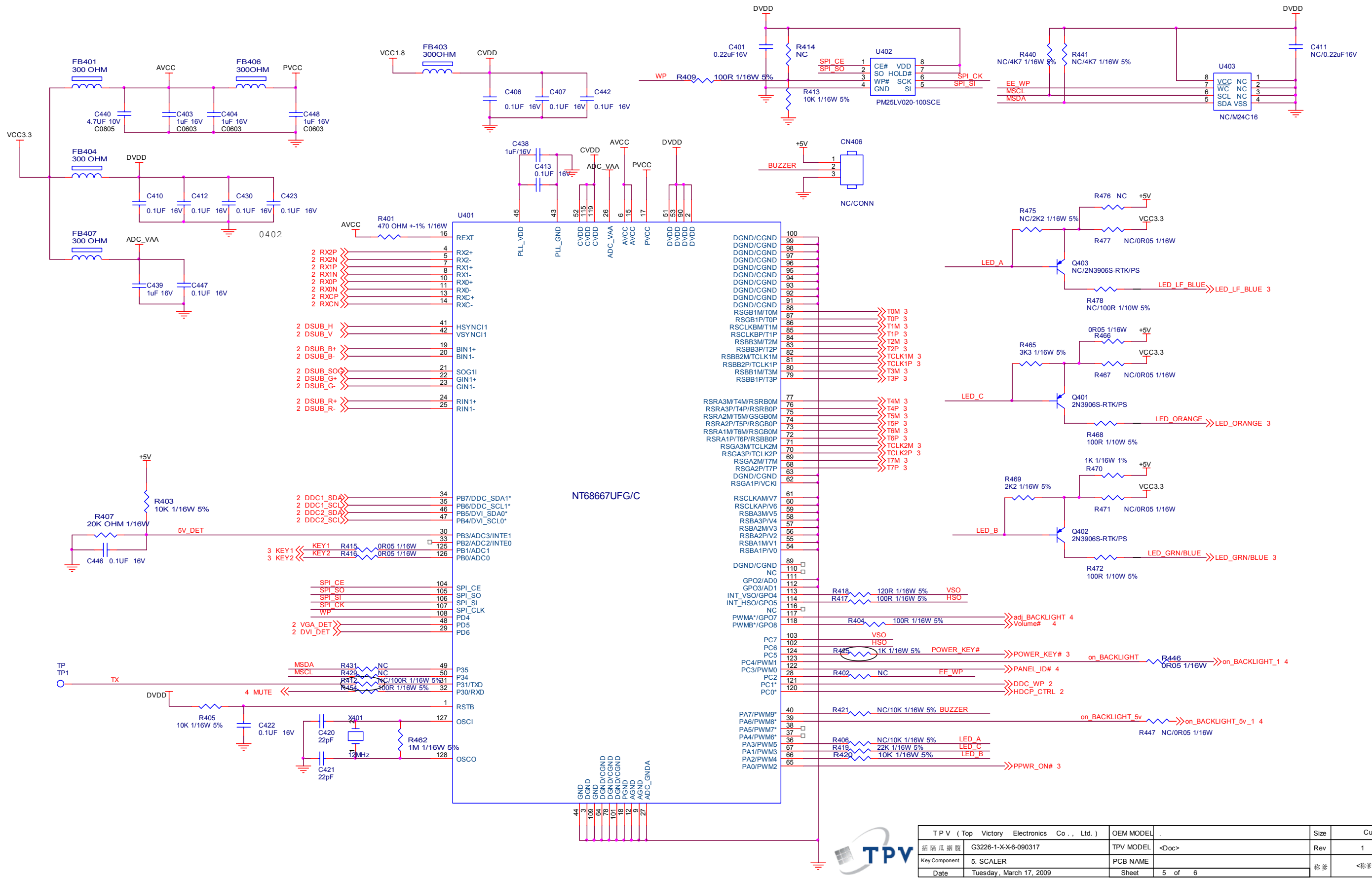
20081210:  
 use Pin 123 control BL\_ON [on\_BACKLIGHT\_1]:  
 R446: 0 Ohm; R708: 10K; R704: 22K; R702: 1K; Q701: 2N3904; C702: 0.1uF  
 R447, R711: NC

use Pin 39 control BL\_ON [on\_BACKLIGHT\_5V\_1]:  
 R447: 0 Ohm; R711: 10K  
 R446, R708, R704, R702, Q701, C702: NC

ADD R711  
 LG  
 20081029



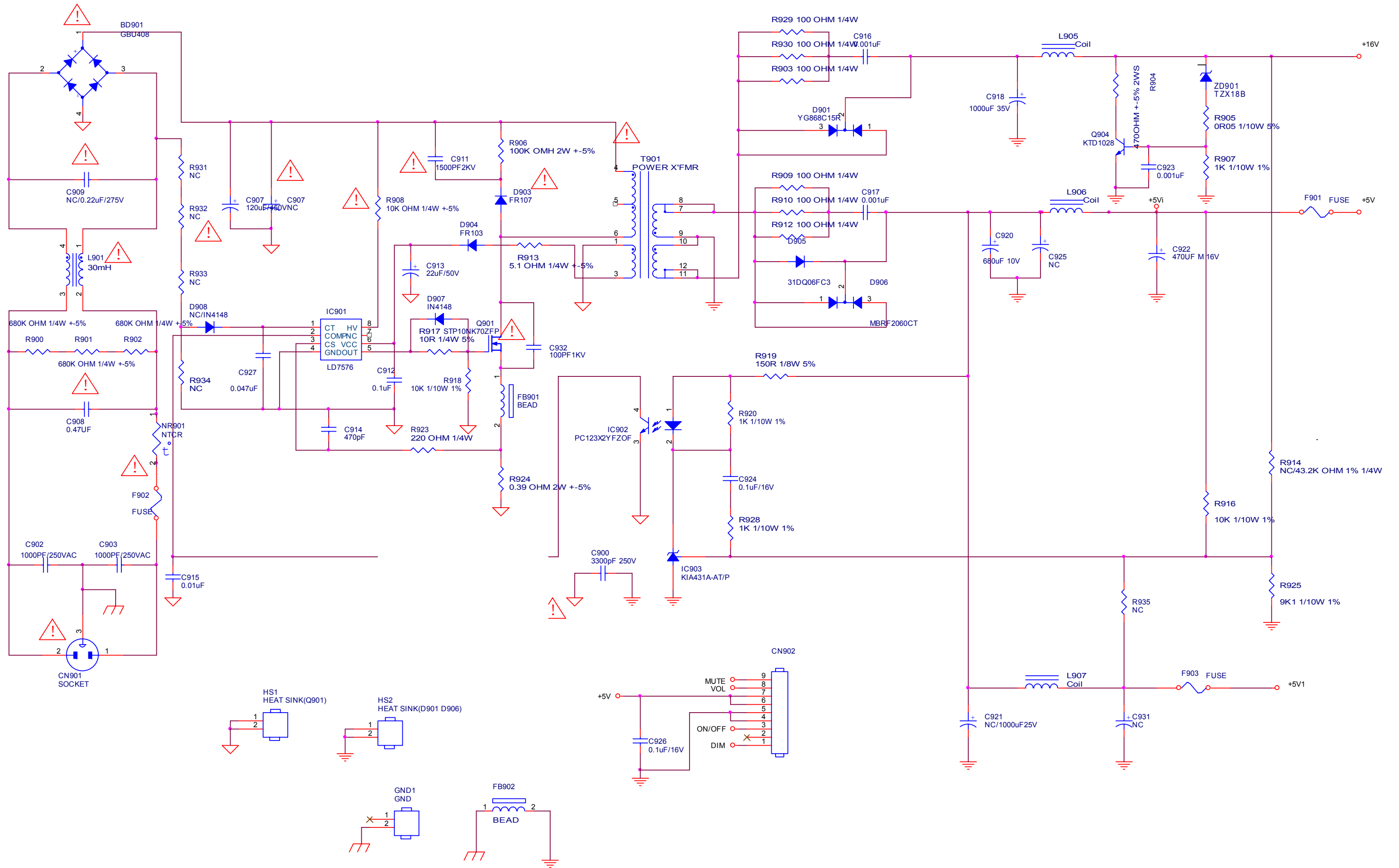
TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	Size	B
紙隔瓜網腹 G3226-1-X-X-6-090317	TPV MODEL <Doc>	Rev	1
Key Component 4. POWER	PCB NAME	称爹	<称爹>
Date Tuesday, March 17, 2009	Sheet 4 of 6		

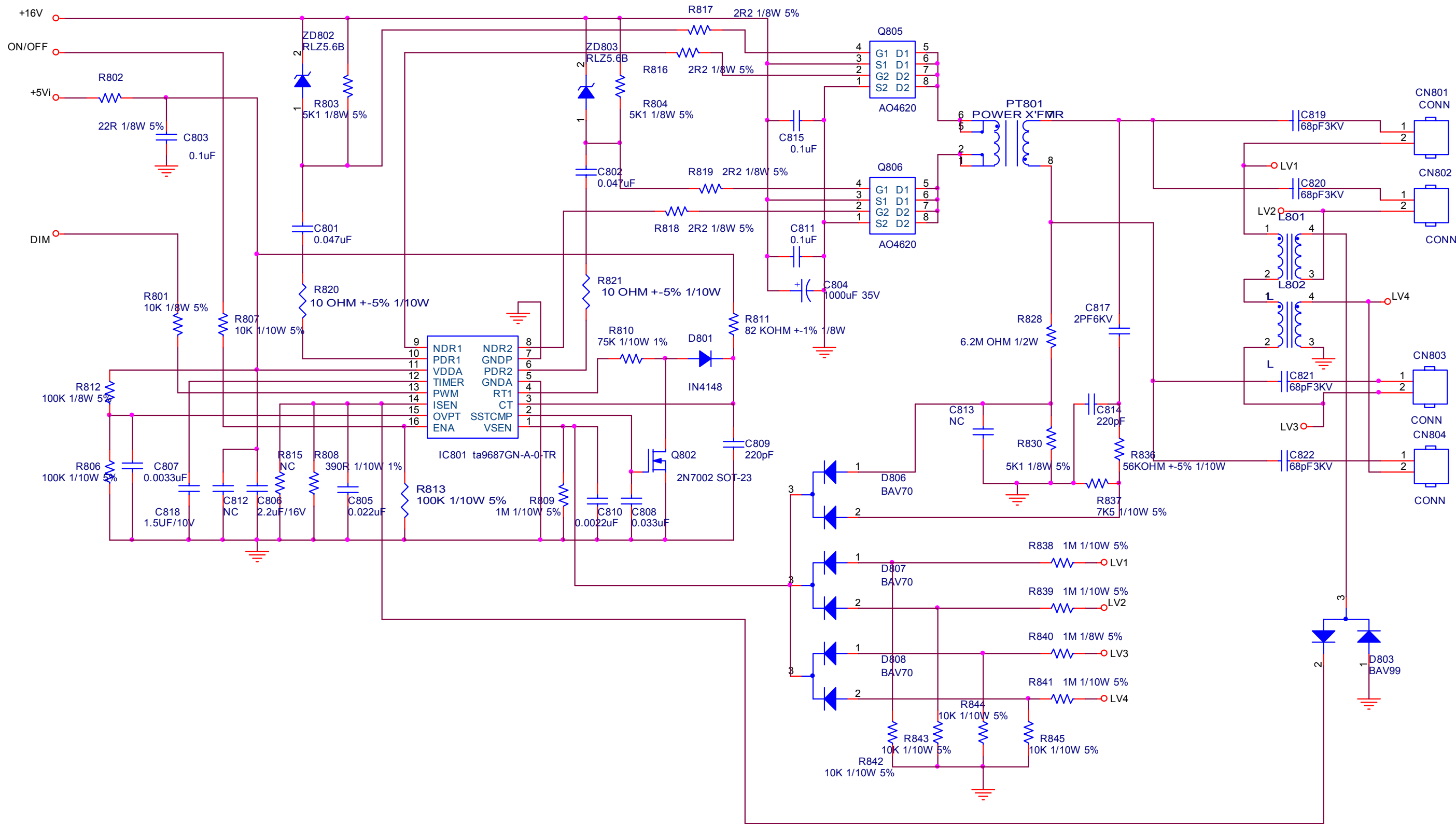


TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	.	Size	Custom
話爾瓜網廠	G3226-1-X-X-6-090317	TPV MODEL	<Doc>	Rev
Key Component	5. SCALER	PCB NAME		1
Date	Tuesday, March 17, 2009	Sheet	5 of 6	称爹
				<称爹>

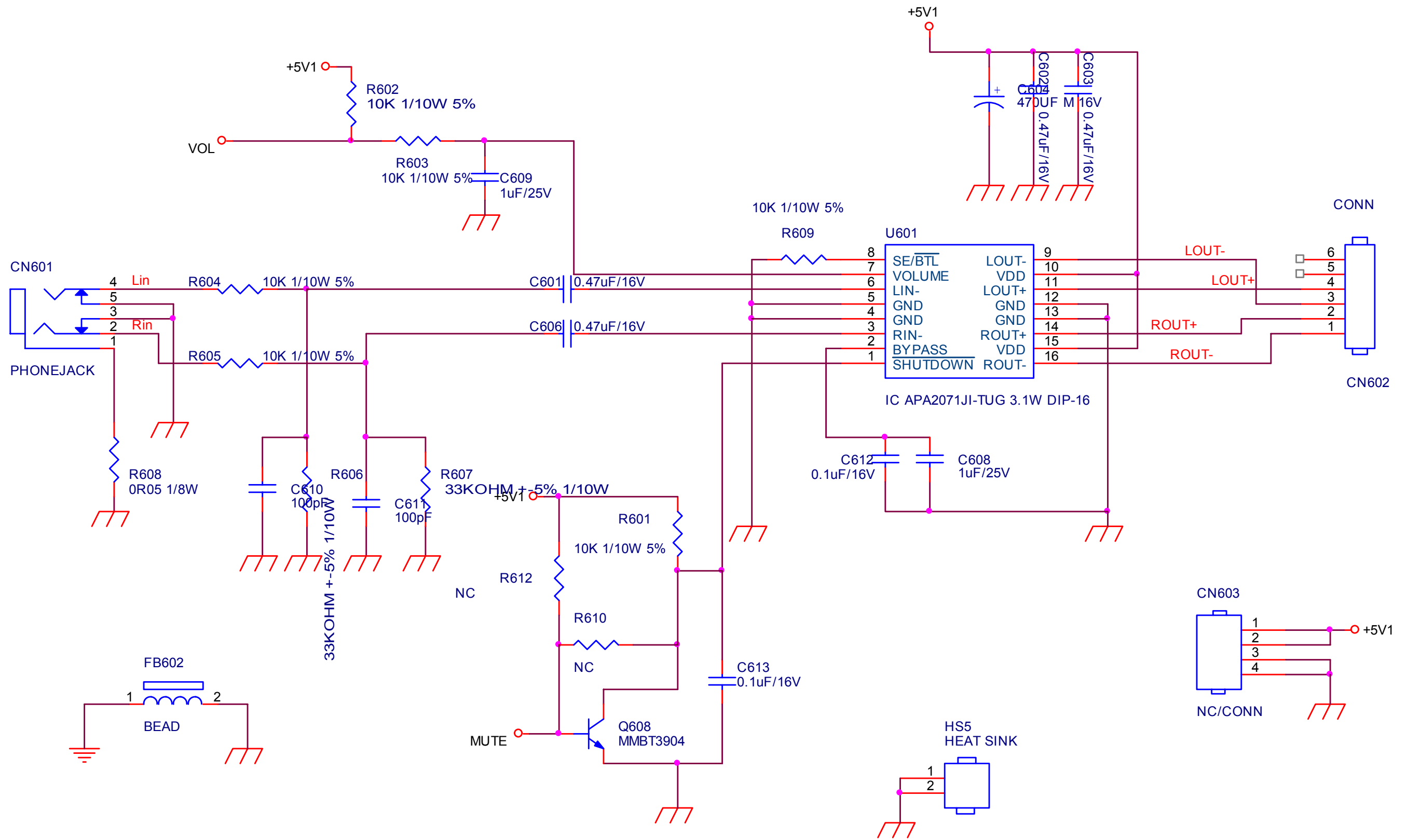


## 8.2 Power Board



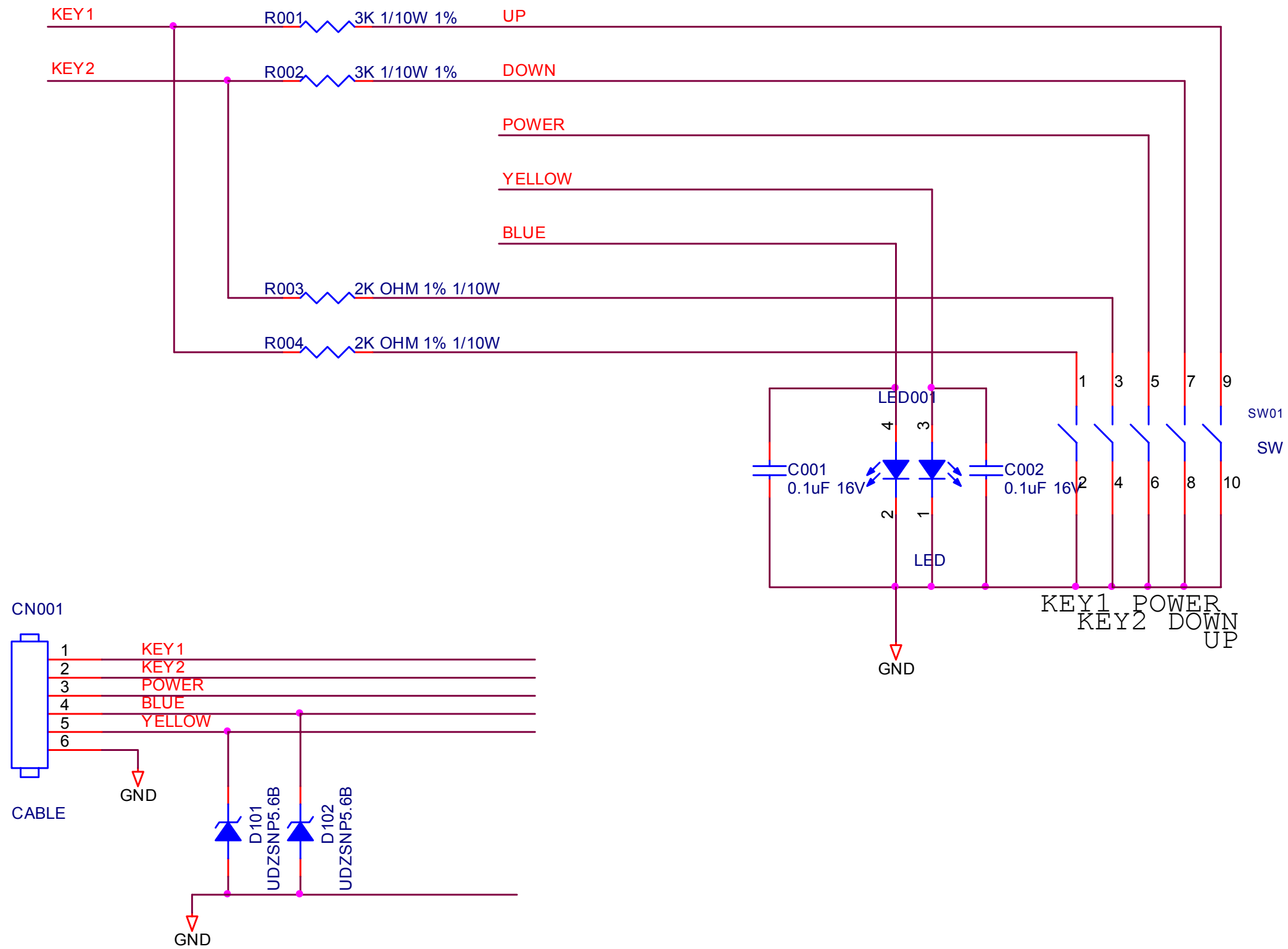


TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL		Size	A3
紙隔瓜網腹	G2892-1-8-X-1-090323	TPV MODEL	Rev	A
Key Component	03.INVERTER	PCB NAME	称爹	ODM MODEL
Date	Monday, March 23, 2009	Sheet	of	



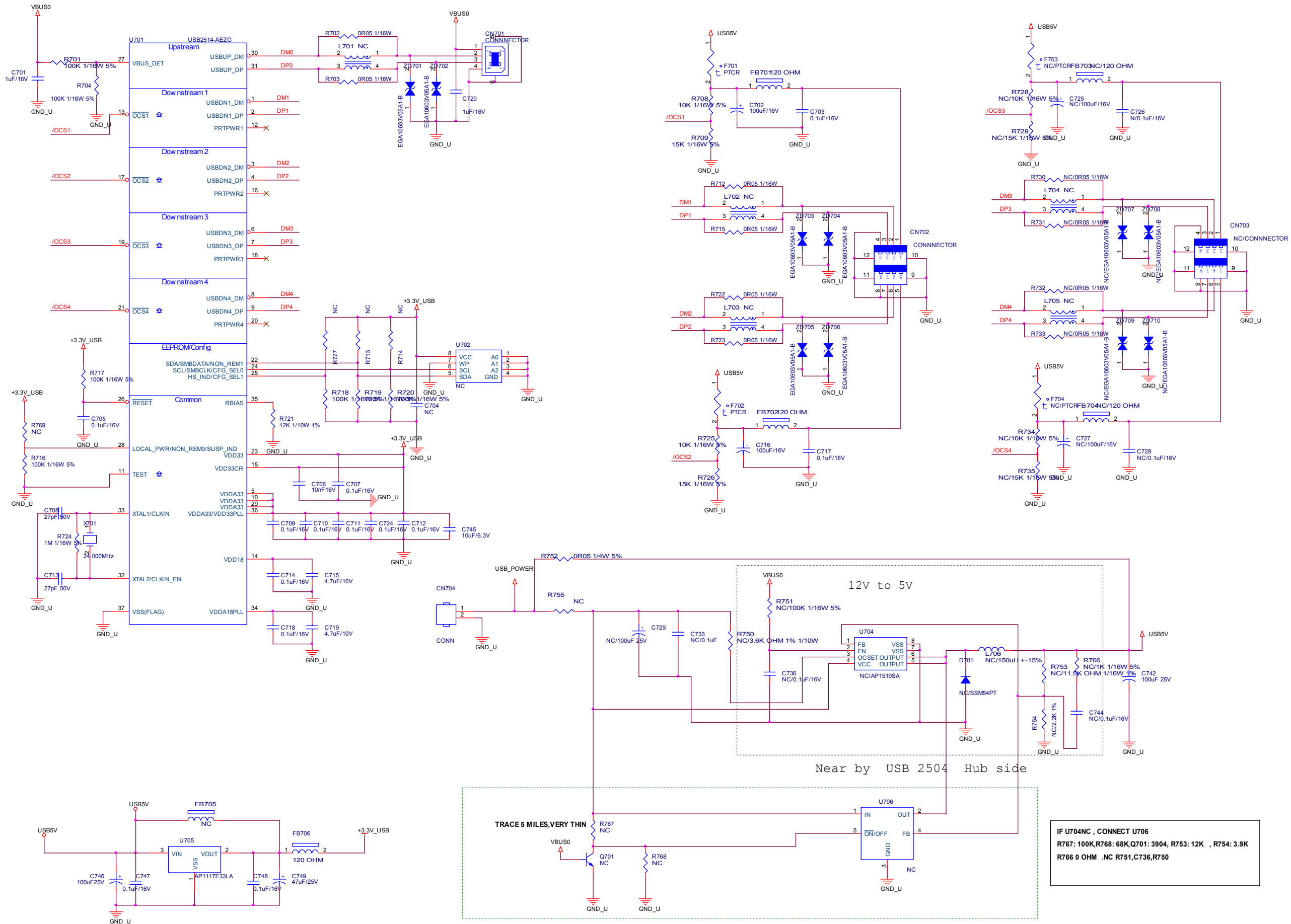
TPV ( Top Victory Electronics Co . , Ltd. )		OEM MODEL	Size	A
結構圖	G2892-1-8-X-1-090323	TPV MODEL	Rev	1
Key Component	AUDIO	PCB NAME	称爹	ODM MODEL
Date	Wednesday , March 25, 2009	Sheet	1 of 4	

### 8.3 Key Board



TPV ( Top Victory Electronics Co . , Ltd. )	OEM MODEL		Size	A
結隔瓜網腹	G3265-E-X-X-1-080927	TPV MODEL	Rev	C
Key Component	1. Key board	PCB NAME	715G3265-E	称爹 <称爹>
Date	Saturday , September 27, 2008	Sheet	2 of 2	

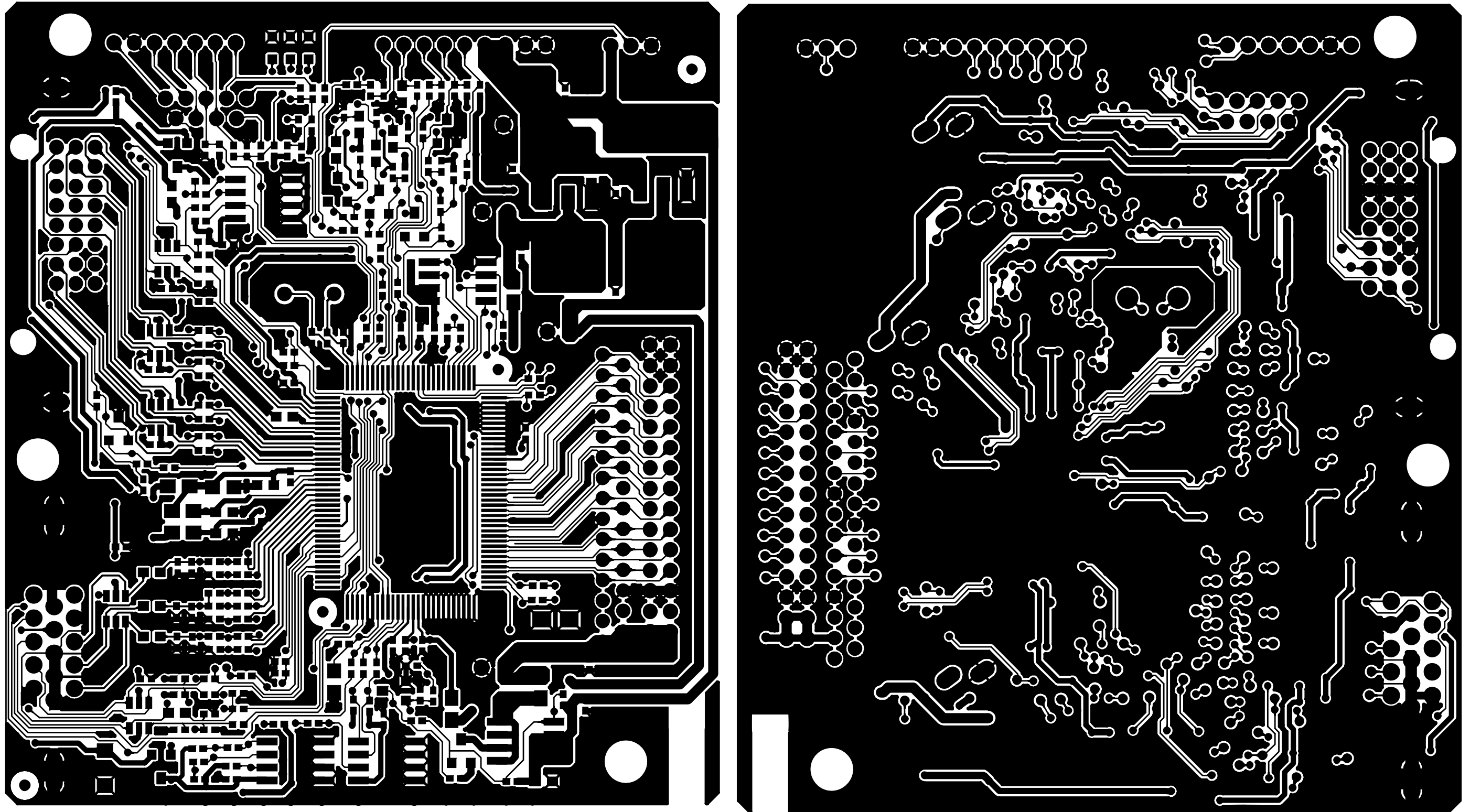
### 8.3 USB Board

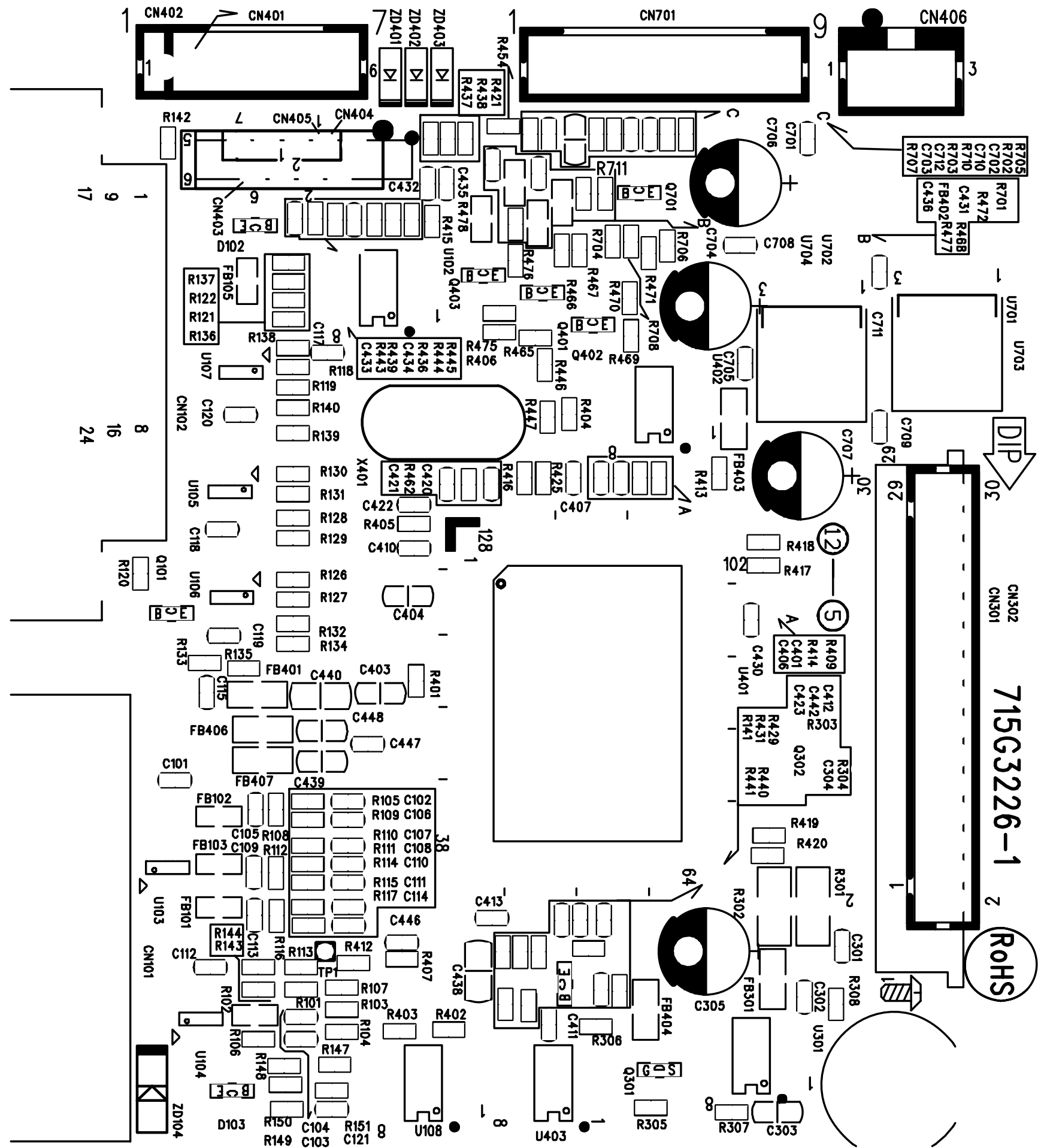


TPV (Top Victory Electronics Co., Ltd.)	OEM MODEL	Size	C
紙爾瓜爾	TPV MODEL	Rev	B
Key Component	PCB NAME	称	备注
Date	Sheet	2 of 2	

## 9. PCB Layout Diagrams

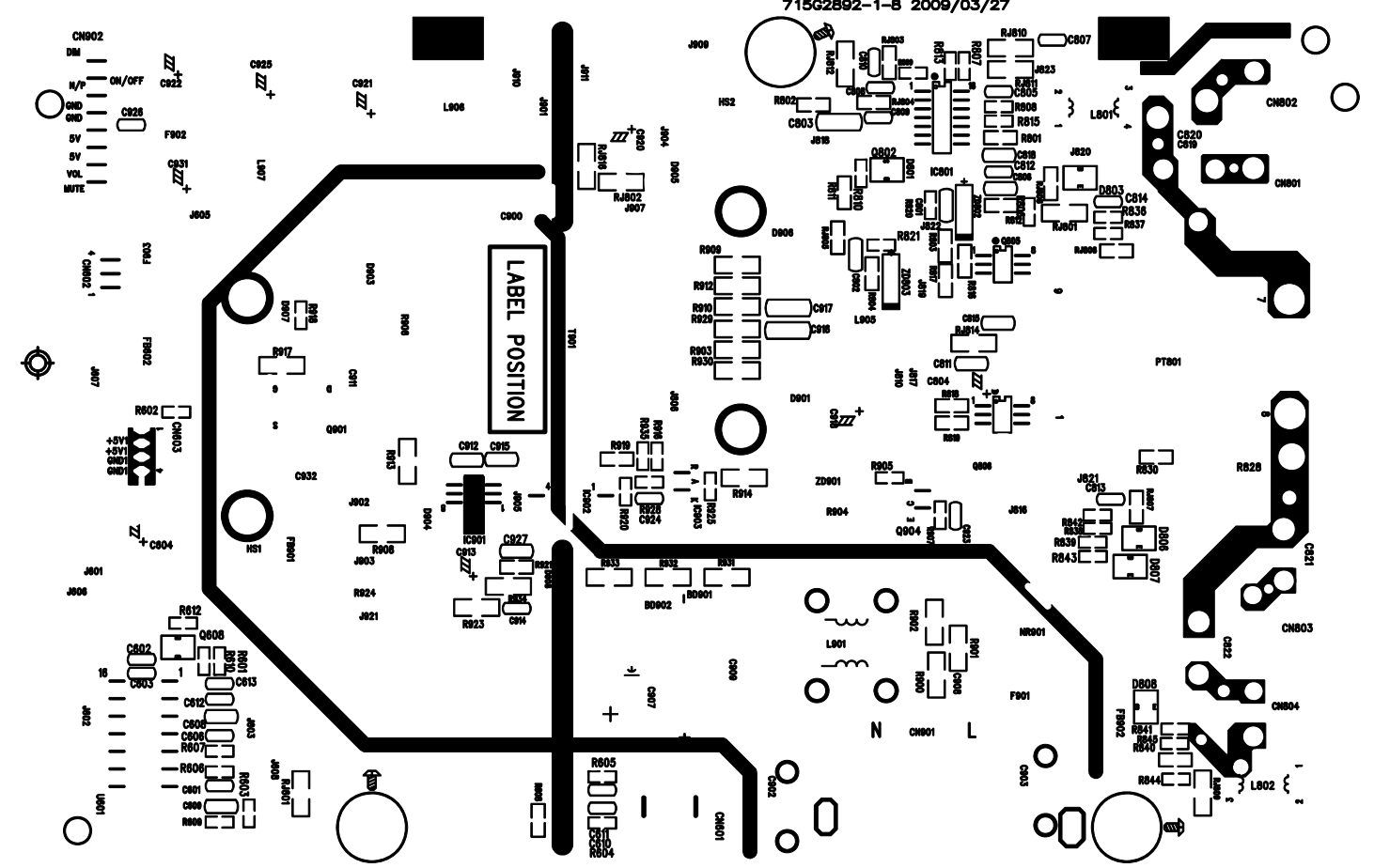
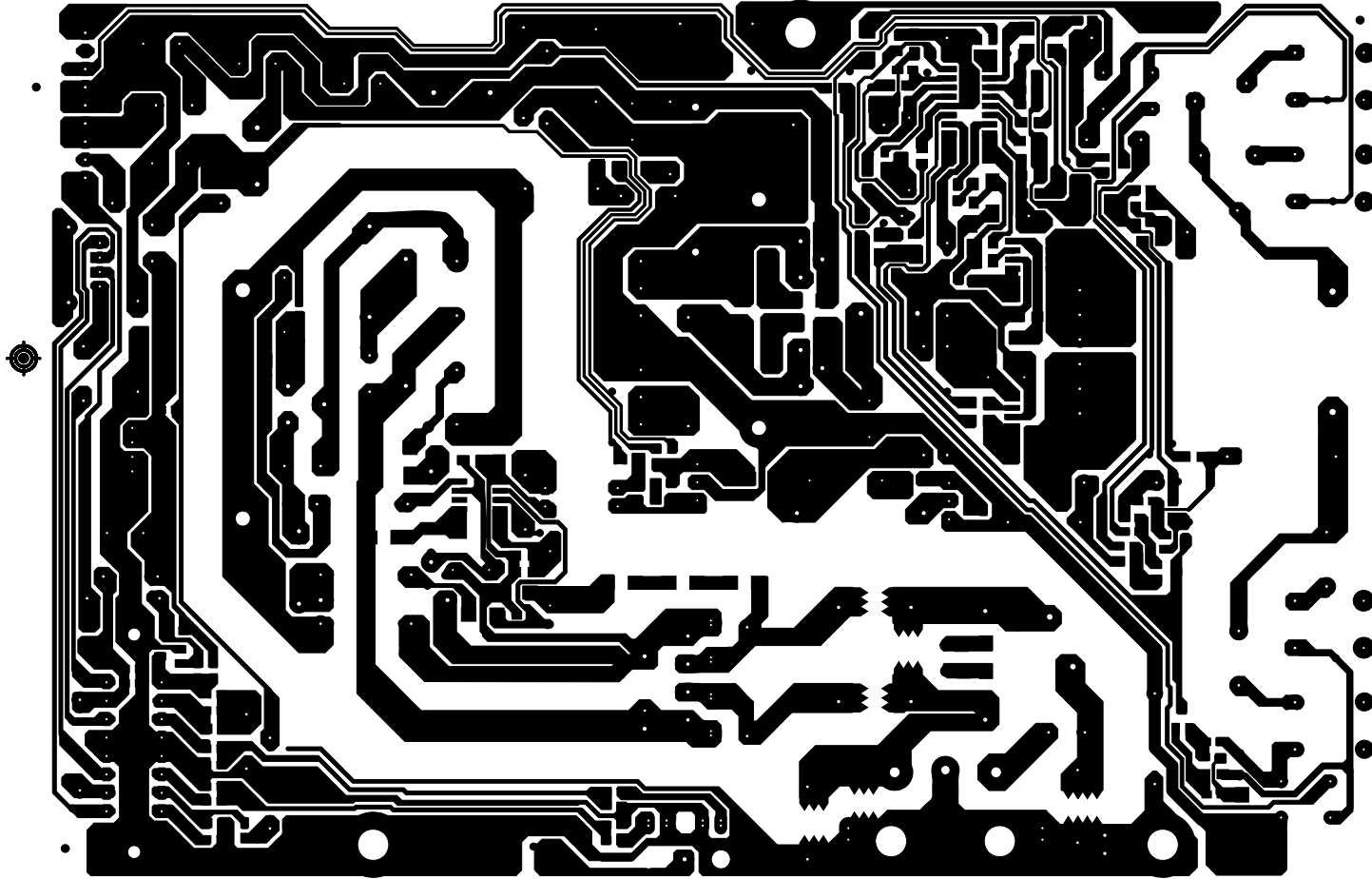
### 9.1 Main Board



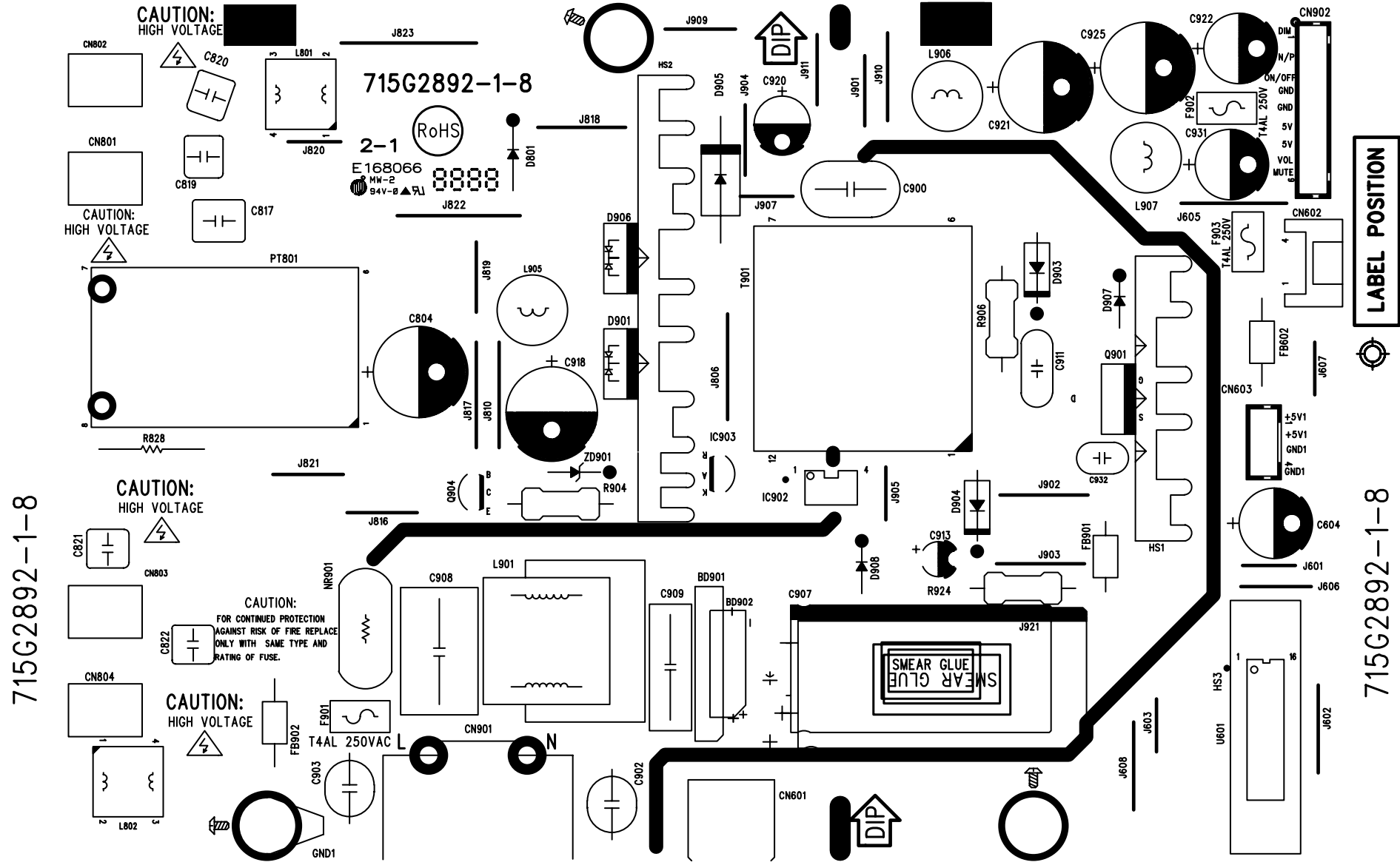


# 9.2 Power Board

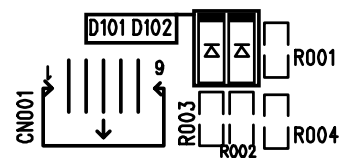
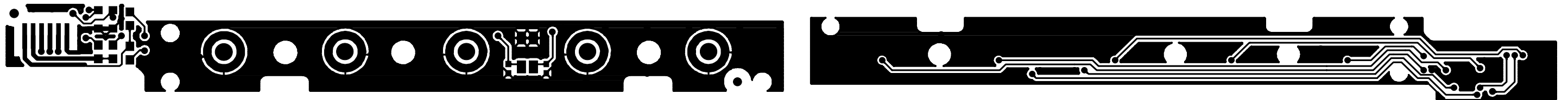
715G2892-1-8 2009/04/03







9.3 Key Board



SW01

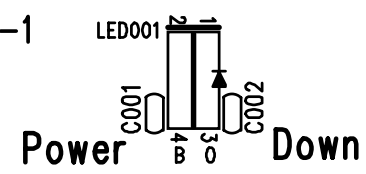
1

②-①

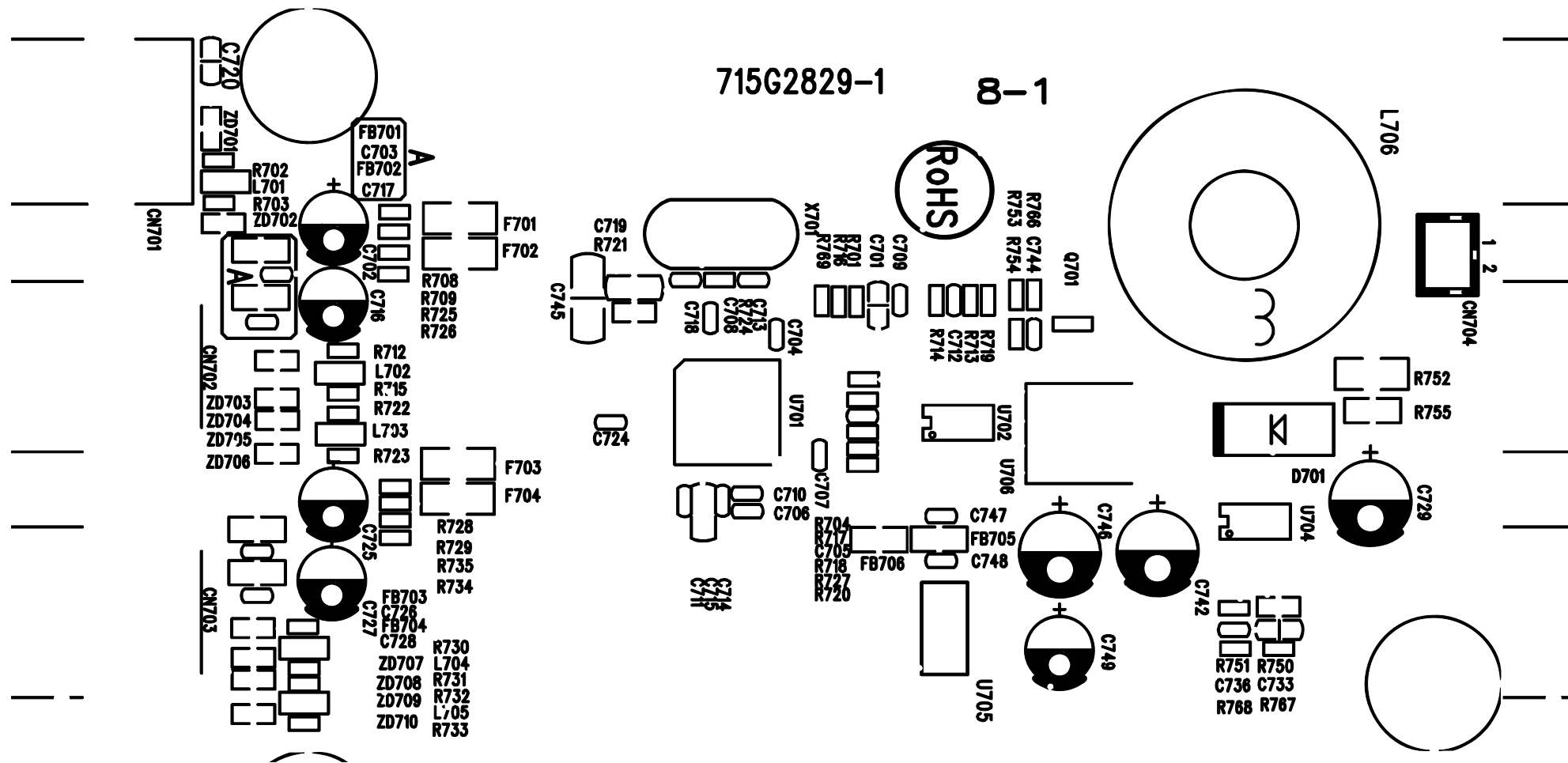
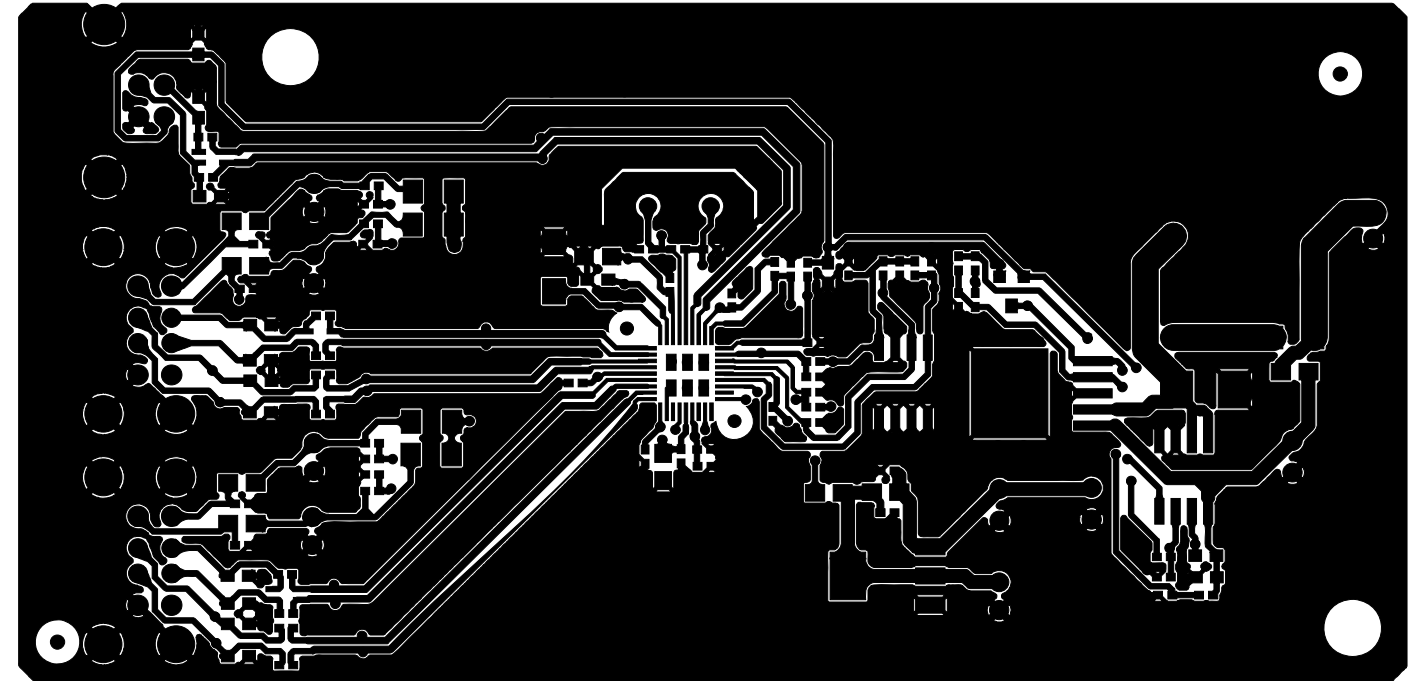
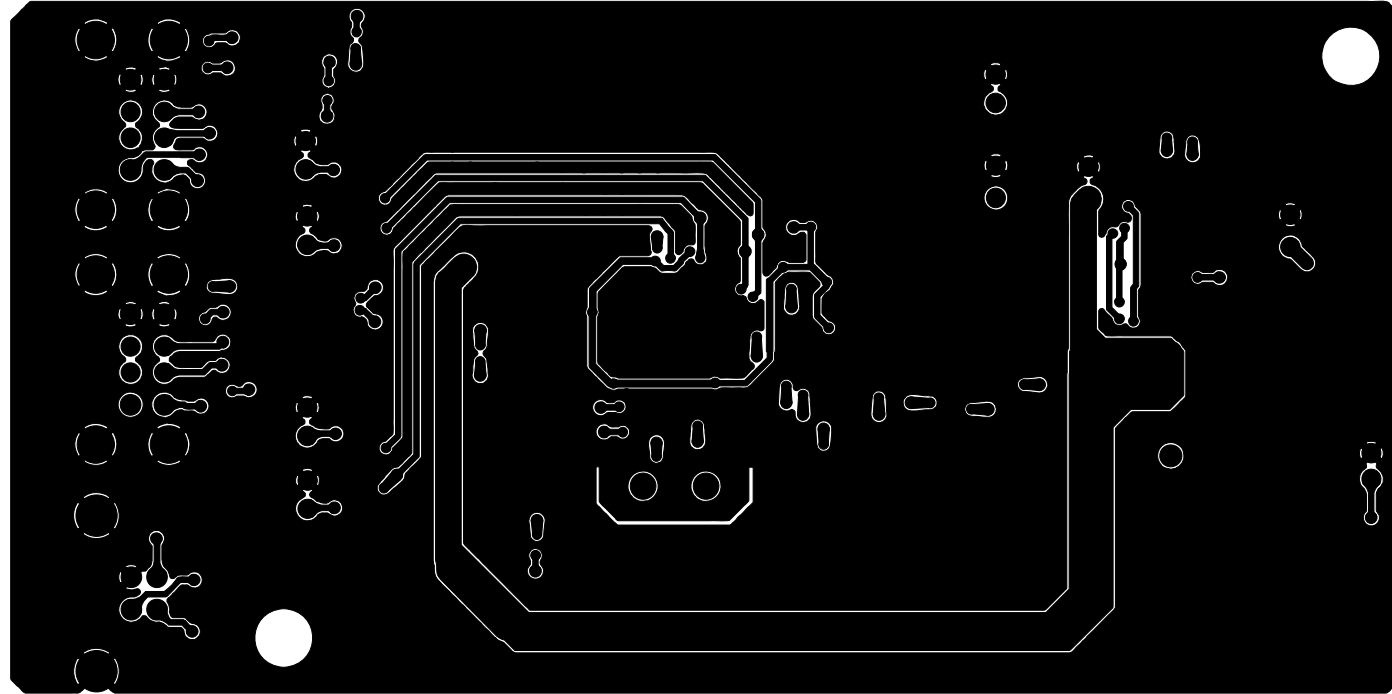
715G3265-1



2

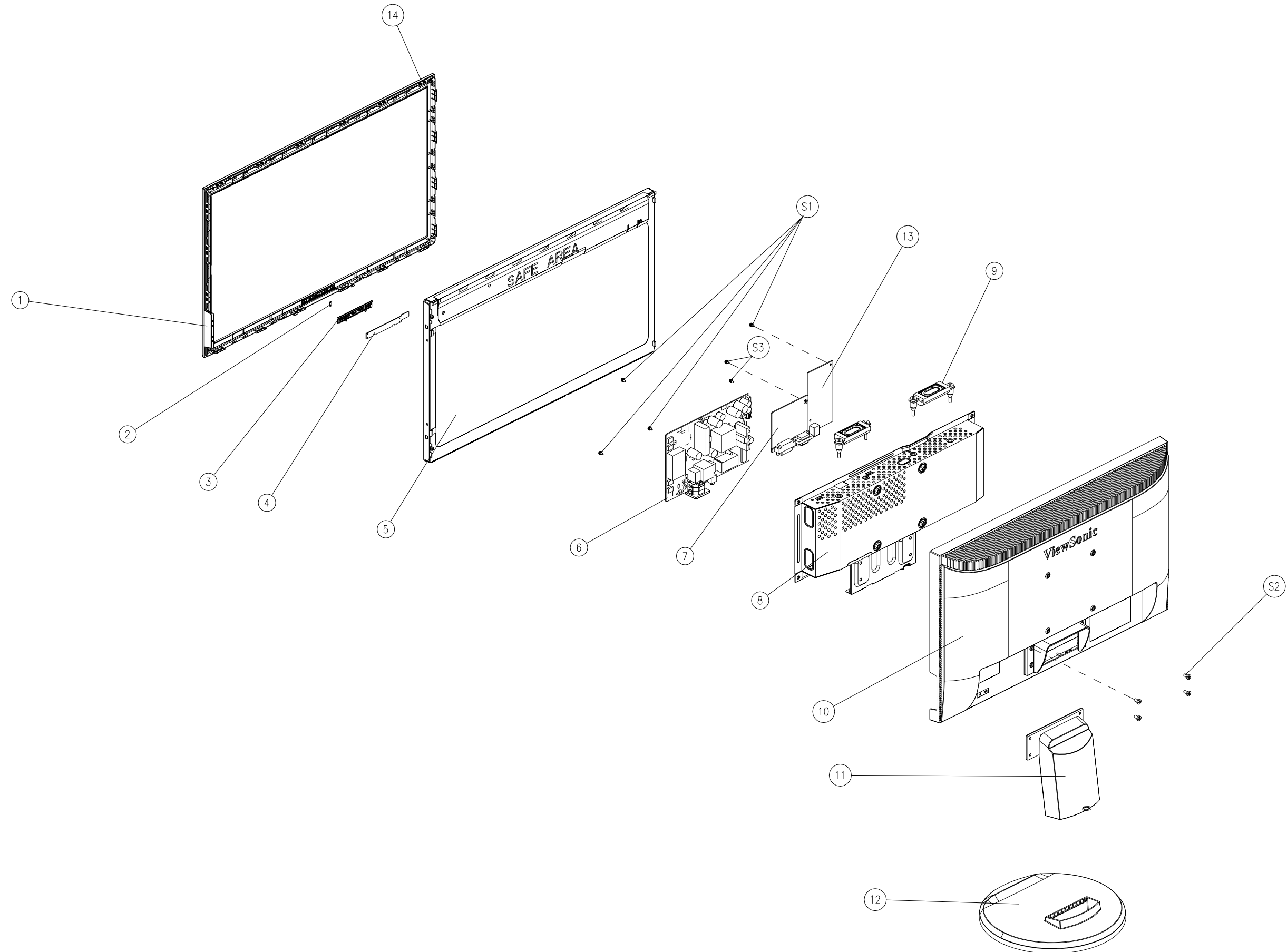


9.3 USB Board



## 10. Exploded Diagram and Spare Parts List

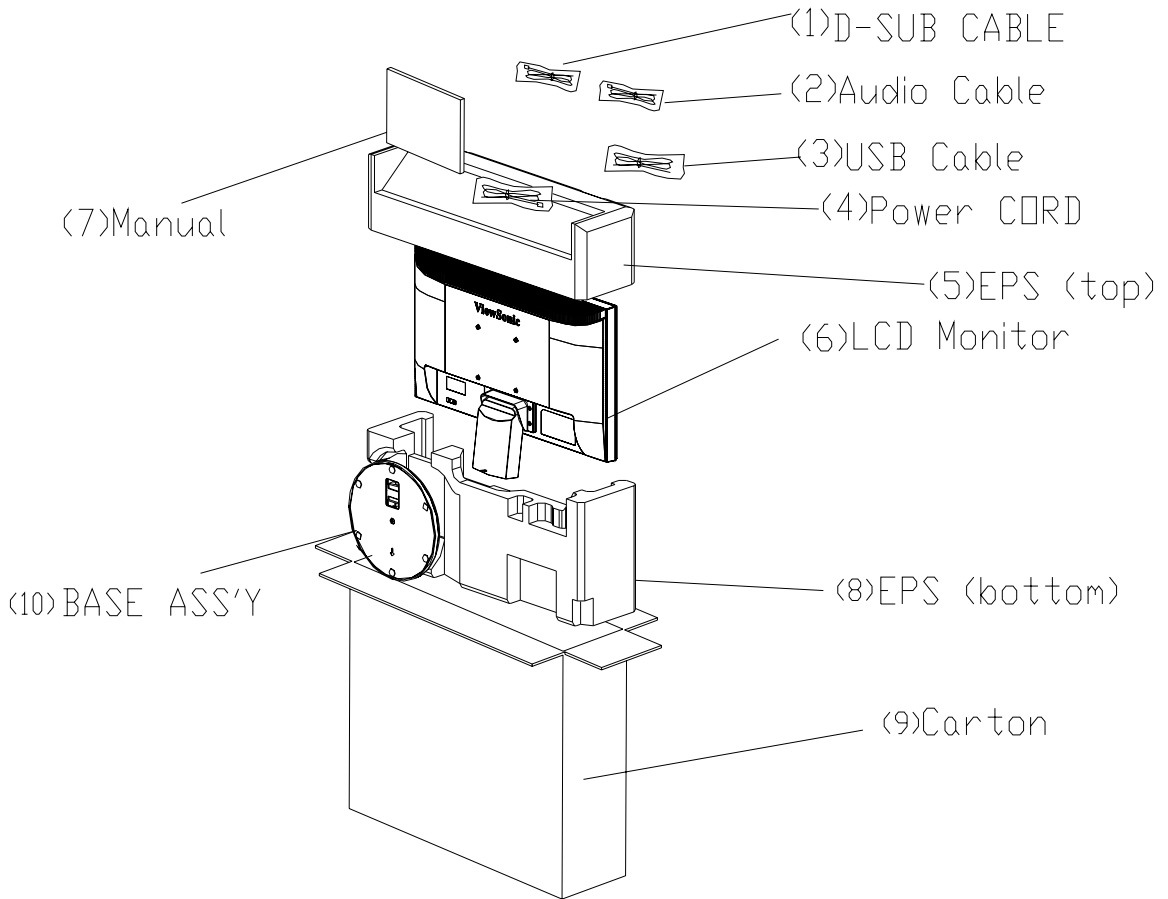
### 10.1 EPL



## Exploded Parts List

Item	Description	Part Number	Q'ty
1	BEZEL	NA	1
2	LENS	NA	1
3	KEY PAD	NA	1
4	KEY BOARD	NA	1
5	PANEL	NA	1
6	POWER BOARD	NA	1
7	MAIN BOARD-CBPCRNDVSQ1	NA	1
8	MAIN_FRAME	NA	1
9	SPK 4 OHM 3 W 57.5X23 180 180mm NEO	NA	1
10	REAR COVER	NA	1
11	HINGE ASS'Y	NA	1
12	BASE ASS'Y	NA	1
13	USB BOARD	NA	1
14	LOGO	NA	1
S1	SCREW	0G1G1030 6120	4
S2	SCREW	0M1G2940 8225 CR3	4
S3	SCREW	0M1G1730 6120	2

**PPL**



Item	Description	Part Number	Q'ty
1	D-SUB CABLE	NA	1
2	AUDIO CABLE	NA	1
3	USB CABLE	NA	1
4	POWER CORD	NA	1
5	EPS(TOP)	NA	1
6	LCD MONITOR	NA	1
7	MANUAL	NA	1
8	EPS(BOTTOM)	NA	1
9	CARTON	NA	1
10	BASE ASS'Y	NA	1

## 10.2 Spare Parts List

### TI9MNDDKY8VSPC

Location	Part Number	Description	Remark
	019G6014 1	TIE FOR STRAP	
	023G3178709 3A	LOGO	
	040G 581 26704	SHIPPING LABEL	
	050G 600 1 W	WHITE STRAP	
	050G 600 2	HANDLE1	
	050G 600 3	HANDLE2	
	052G 1185 24	VSC TAPE	
	052G 1209 A	200MINIUM TAPE	
	052G 1211503	ALUMINUM FOIL TAPE	
	052G 2191 A	PAPER TAPE	
	052G 2191 A	PAPER TAPE	
	070GHDCP500HDC	HDCP CODE	
E07801	078G 31120A G	SPK 4 OHM 3 W 57.5X23 180 180mm NEO	
E08905	089G 175 8 X	USB CABLE 1.8M	
E08902	089G 728CAA DB	D-SUB CABLE	
E08902	089G 728HAA DB	D-SUB CABLE	2nd source
E08903	089G1748CAA AC	SIGNAL CABLE DVI COMLINK	2nd source
E08903	089G1748HAA AC	DVI CABLE	
	089G402A18N CX	POWER CORD	
E09501	095G8018 3DH64	LVDS CABLE 30P-30P 180MM	2nd source
E09501	095G8018 3XH64	LVDS CABLE 30P-30P 180MM	
	0G1G1030 6120	SCREW	
	0M1G1730 6120	SCREW,42-D020523	
	0M1G2940 8225 CR3	SCREW	
E750	750GLM216H1112N0VS	PANEL M216H1-L01 C1 NB CMO	
	756GQ9CB VV078	MAIN BOARD-CBPCRNDVSQ1	
SMTCR-U402	100GVNMC002N11	MCU ASS'Y-056G1133 90 1	
	A15G0776201101	MAIN_FRAME	
	A33G0528 AS 1L0100	KEY PAD	
	A33G0529 1 1L0100	LENS	
	A34G1294 KRB1B0130	BEZEL L216W-8vsc2£©	
	A34G1295 KR 3B0130	REAR COVER 21.6"	
	040G 45762412B	CBPC LABEL	
CN701	033G3802 9B Y W	WAFER	
CN404	033G8019 6C	CONN.6P 1.0 DIP	
CN302	033G8027 30	WAFER 30P 2.0MM DIP DUAL ROW	

CN101	088G 35315F XH	D-SUB 15PIN VERTICAL CONN WITH SCREW	
CN102	088G 35424F XH	DVI 24PIN CONN F ATTACHED SCREW	
X401	093G 2251B J	NXS12.000AC30F-BT-2	
C707	067G 2151014PB	EC 100uF M 25V 6.3*11mm	
C704	067G 2151014PB	EC 100uF M 25V 6.3*11mm	
C305	067G 2151014PB	EC 100uF M 25V 6.3*11mm	
U401	056G 562583	IC NT68667UFG/C QFP-128L	
U703	056G 563 52	IC AP1117D33L-13 TO252-3L DIODES	
U704	056G 56327A	IC AP1117E18LA SOT223-3L ANACHIP	
U107	056G 662502	IC ESD AZC199-04S SOT23-6L	
U106	056G 662502	IC ESD AZC199-04S SOT23-6L	
U105	056G 662502	IC ESD AZC199-04S SOT23-6L	
U104	056G 662502	IC ESD AZC199-04S SOT23-6L	
U103	056G 662502	IC ESD AZC199-04S SOT23-6L	
U102	056G1133 34	M24C02-WMN6TP	
U402	056G1133 90 1	IC PM25LV020-100SCE 2MB SOIC-8 PMC	
Q301	057G 763 1	A03401 SOT23 BY AOS(A1)	
R415	061G0402000	RST CHIP MAX 0R05 1/16W	
R416	061G0402000	RST CHIP MAX 0R05 1/16W	
R466	061G0402000	RST CHIP MAX 0R05 1/16W	
R446	061G0402000	RST CHIP MAX 0R05 1/16W	
R142	061G0402000 Y	RST CHIP MAX 0R05 1/16W YAGEO	
R134	061G0402100	RST CHIPR 10 OHM +-5% 1/16W	
R132	061G0402100	RST CHIPR 10 OHM +-5% 1/16W	
R131	061G0402100	RST CHIPR 10 OHM +-5% 1/16W	
R130	061G0402100	RST CHIPR 10 OHM +-5% 1/16W	
R129	061G0402100	RST CHIPR 10 OHM +-5% 1/16W	
R128	061G0402100	RST CHIPR 10 OHM +-5% 1/16W	
R126	061G0402100	RST CHIPR 10 OHM +-5% 1/16W	
R127	061G0402100	RST CHIPR 10 OHM +-5% 1/16W	
R439	061G0402100 1F	RST CHIPR 1KOHM +-1% 1/16W	
R438	061G0402100 1F	RST CHIPR 1KOHM +-1% 1/16W	
R101	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R105	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R109	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R111	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R113	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R114	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R115	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R454	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	

R122	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R121	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R104	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R103	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R706	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R417	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R409	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R404	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R119	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R118	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R117	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R705	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R702	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R141	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R139	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R120	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R305	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R308	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R403	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R405	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R413	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R708	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R462	061G0402105	RST CHIPR 1MOHM +-5% 1/16W	
R418	061G0402121	RST CHIP 120R 1/16W 5%	
R407	061G0402203	RST CHIP 20K 1/16W 5%	
R106	061G0402222	RST CHIPR 2.2 KOHM +-5% 1/16W	
R107	061G0402222	RST CHIPR 2.2 KOHM +-5% 1/16W	
R419	061G0402223	RST CHIPR 22 KOHM +-5% 1/16W	
R704	061G0402223	RST CHIPR 22 KOHM +-5% 1/16W	
R304	061G0402223	RST CHIPR 22 KOHM +-5% 1/16W	
R465	061G0402332	RST CHIPR 3.3KOHM +-5% 1/16W	
R445	061G0402392	RST CHIP 3.9K 1/16W 5%	
R444	061G0402392	RST CHIP 3.9K 1/16W 5%	
R401	061G0402470 0F	RST CHIPR 0402 470 OHM +-1% 1/16W	
R110	061G0402471	RST CHIPR 470 OHM +-5% 1/16W	
R303	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R138	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R137	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R136	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R306	061G0402563	RST CHIP 56K 1/16W 5%	



R108	061G0402750	RST CHIPR 75 OHM +-5% 1/16W	
R112	061G0402750	RST CHIPR 75 OHM +-5% 1/16W	
R116	061G0402750	RST CHIPR 75 OHM +-5% 1/16W	
R102	061G0603000	RST CHIP MAX 0R05 1/10W	
R468	061G0603101	RST CHIPR 100 OHM +-5% 1/10W	
R301	061G1206221	RST CHIPR 220 OHM +-5% 1/4W	
R302	061G1206221	RST CHIPR 220 OHM +-5% 1/4W	
C107	065G0402102 32	1000PF +-10% 50V X7R	
C115	065G040210412T	CHIP 0.1UF 16V X7R	
C301	065G040210412T	CHIP 0.1UF 16V X7R	
C304	065G040210412T	CHIP 0.1UF 16V X7R	
C406	065G040210412T	CHIP 0.1UF 16V X7R	
C407	065G040210412T	CHIP 0.1UF 16V X7R	
C709	065G040210412T	CHIP 0.1UF 16V X7R	
C708	065G040210412T	CHIP 0.1UF 16V X7R	
C702	065G040210412T	CHIP 0.1UF 16V X7R	
C447	065G040210412T	CHIP 0.1UF 16V X7R	
C446	065G040210412T	CHIP 0.1UF 16V X7R	
C442	065G040210412T	CHIP 0.1UF 16V X7R	
C435	065G040210412T	CHIP 0.1UF 16V X7R	
C434	065G040210412T	CHIP 0.1UF 16V X7R	
C431	065G040210412T	CHIP 0.1UF 16V X7R	
C430	065G040210412T	CHIP 0.1UF 16V X7R	
C423	065G040210412T	CHIP 0.1UF 16V X7R	
C422	065G040210412T	CHIP 0.1UF 16V X7R	
C413	065G040210412T	CHIP 0.1UF 16V X7R	
C412	065G040210412T	CHIP 0.1UF 16V X7R	
C410	065G040210412T	CHIP 0.1UF 16V X7R	
C103	065G0402220 31	CHIP 22PF 50V NPO	
C104	065G0402220 31	CHIP 22PF 50V NPO	
C420	065G0402220 31	CHIP 22PF 50V NPO	
C421	065G0402220 31	CHIP 22PF 50V NPO	
C117	065G0402224 17	CAP CER 0.22UF -20%-80%	
C302	065G0402224 17	CAP CER 0.22UF -20%-80%	
C401	065G0402224 17	CAP CER 0.22UF -20%-80%	
C102	065G0402473 12	CHIP 0.047uF 16V X7R	
C106	065G0402473 12	CHIP 0.047uF 16V X7R	
C108	065G0402473 12	CHIP 0.047uF 16V X7R	
C110	065G0402473 12	CHIP 0.047uF 16V X7R	
C111	065G0402473 12	CHIP 0.047uF 16V X7R	

C114	065G0402473 12	CHIP 0.047uF 16V X7R	
C105	065G0402509 31	CHIP 5pF 50V NPO	
C109	065G0402509 31	CHIP 5pF 50V NPO	
C113	065G0402509 31	CHIP 5pF 50V NPO	
C303	065G0603105 12	CHIP 1UF 16VX7R 0603	
C403	065G060310517T	MLCC 0603 CAP 1UF Z 16V Y5V	
C404	065G060310517T	MLCC 0603 CAP 1UF Z 16V Y5V	
C439	065G060310517T	MLCC 0603 CAP 1UF Z 16V Y5V	
C448	065G060310517T	MLCC 0603 CAP 1UF Z 16V Y5V	
C438	065G0805105 12	1UF +-10% 16V X7R	
C440	065G0805475A7Z	CAP CHIP 4.7UF 10V Y5V -20%~+80%	
FB407	071G 56G301 EA	BEAD 300 欧	
FB404	071G 56G301 EA	BEAD 300 欧	
FB401	071G 56G301 EA	BEAD 300 欧	
FB301	071G 56K121	CHIP BEAD	
FB406	071G 56V301 B	CHIP BEAD FCM2012VF-301T07 bullwill	
FB403	071G 56V301 B	CHIP BEAD FCM2012VF-301T07 bullwill	
FB105	071G 59B121	TB160808B	
FB103	071G 59K190 B	19 OHM BEAD	
FB102	071G 59K190 B	19 OHM BEAD	
FB101	071G 59K190 B	19 OHM BEAD	
ZD104	093G 39GA01 T	RLZ5.6B	
	715G3226 1	MAIN BOARD PCB	
R470	061G0402000	RST CHIP MAX 0R05 1/16W	
C432	065G040210412T	CHIP 0.1UF 16V X7R	
C433	065G040210412T	CHIP 0.1UF 16V X7R	
R443	061G0402392	RST CHIP 3.9K 1/16W 5%	
R420	061G0402223	RST CHIPR 22 KOHM +-5% 1/16W	
R425	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R469	061G0402432	RST CHIP 4K3 1/16W 5%	
R472	061G0603471	RST CHIPR 470 OHM +-5% 1/10W	
R703	061G0402000	RST CHIP MAX 0R05 1/16W	
R707	061G0402000	RST CHIP MAX 0R05 1/16W	
ZD401	093G 39S 34 T	UDZSNP5.6B ROHM	
ZD402	093G 39S 34 T	UDZSNP5.6B ROHM	
ZD403	093G 39S 34 T	UDZSNP5.6B ROHM	
D102	093G 64 42 PP	BAV70 SOT-23	
D103	093G 64 42 PP	BAV70 SOT-23	
R148	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R149	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	

R151	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R150	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R147	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
C121	065G0402224 17	CAP CER 0.22UF -20%-80%	
U108	056G1133 34	M24C02-WMN6TP	
Q401	057G 417517	Tra LMBT3906LT1G -200mA/-40V SOT-23 LRC	
Q402	057G 417517	Tra LMBT3906LT1G -200mA/-40V SOT-23 LRC	
Q302	057G 417518	TRA LMBT3904LT1G 200mA/40V SOT-23 LRC	
Q701	057G 417518	TRA LMBT3904LT1G 200mA/40V SOT-23 LRC	
	J45G 88609702	EPE BAG FOR MONITOR	
	KEPC8AA9	KEY BOARD	
SW01	077G 500 5F XL	DOME SWITCH 5PCS	
CN001	089G 76J 6 3	FFC CABLE 6P 220mm P1.0	
	709G3265 QM001	CONSUMPTIVE ASS'Y	
R003	061G0603200 1F	RST CHIPR 2 KOHM +-1% 1/10W	
R004	061G0603200 1F	RST CHIPR 2 KOHM +-1% 1/10W	
R001	061G0603300 1F	RST CHIPR 3 KOHM +-1% 1/10W	
R002	061G0603300 1F	RST CHIPR 3 KOHM +-1% 1/10W	
LED001	081G 14 12 KT	CHIP LED	
	715G3265 1	KEY BOARD PCB	
D101	093G 39P599 T	MM3Z5V6B	
D102	093G 39P599 T	MM3Z5V6B	
C001	065G0402104 12	CAP CHIP 0402 0.1UF 16V X7R	
C002	065G0402104 12	CAP CHIP 0402 0.1UF 16V X7R	
	709G3265 QS001	CONSUMPTIVE ASS'Y	
	Q05G6054 1	SHEET	
	Q09G6012 1	PIN	
	PWPC9A41EQWY	POWER BOARD	
	040G 45762412B	CBPC LABEL	
GND1	009G6005 1	GROUND TERMINAL	
CN602	033G3802 4 BH F	CONNECTOR	
CN804	033G8021 2E F	WAFER	
CN803	033G8021 2E F	WAFER	
CN802	033G8021 2E F	WAFER	
CN801	033G8021 2E F	WAFER	
IC902	056G 139 3A	IC PC123Y22FZ0F	
U601	056G 616 51	IC APA2071JI-TUG 3.1W DIP-16	
NR901	061G 58100 WD	RST NTCR 10 OHM +-20% 5A THINKING	
C908	063G107K474 6S	CAP X2 0.47UF K 275VAC	
C819	065G 3J6806ET	CAP CER 68PF J 3KV SL	

C820	065G 3J6806ET	CAP CER 68PF J 3KV SL	
C821	065G 3J6806ET	CAP CER 68PF J 3KV SL	
C822	065G 3J6806ET	CAP CER 68PF J 3KV SL	
C817	065G 6J2096ET	2PF 5% SL 6KV	
C903	065G305M1022BP	Y2 1000PF M 250VAC Y5P	
C902	065G305M1022BP	Y2 1000PF M 250VAC Y5P	
C900	065G306M3322BP	3300PF 20%	
C907	067G 40Z12115L	EC 120uF 450V M 20*40mm	
C918	067G215D1026LV	LOW ESR EC 1000uF M 35V 12.5*20mm	
C804	067G215D1026LV	LOW ESR EC 1000uF M 35V 12.5*20mm	
C922	067G215S4713LV	LOW ESR EC 470uF 16V M 10*12.5mm	
C604	067G215S4713LV	LOW ESR EC 470uF 16V M 10*12.5mm	
L802	073G 174 35DNA	FILTER 200mH±25%	
L801	073G 174 35DNA	FILTER 200mH±25%	
L906	073G 253 91 H	CHOKE COIL	
L905	073G 253 91 H	CHOKE COIL	
L907	073G 253191 H	IND CHOKE 1.1uH DADON	
L901	073L 174 40 NG	LINE FILTER 30mH	
T901	080GL22T 3 N1	X'FMR 490uH YUVA-1093	
PT801	080GL24T 23 DN	X'FMR 68uH TK.2005Y.101 VOC	
CN901	087G 501 32 DL	AC SOCKET DIP 3PIN+2PIN GROUND	
CN601	088G 30214K DC	PHONE JACK 5PIN +开口向下弹片	
BD901	093G 50460900	BRIDGE 4A/800V GBU408 LITEON	
CN902	095G 825 9D527	HARNESS 9P(SCN)-2P(PH)+9P(PLUG) 220/200	
	705GQ851001	OIL FOR DISAPPEAR ASS'Y	
	705GQ857044	Q901 ASS'Y	
Q901	057G 667 21	STP10NK70ZFP	
HS1	090G6064 1	HEAT SINK	
	0M1G 930 8120	SCREW	
	705GQ993004	D901/D906 ASS'Y	
HS2	090G6081 1	HEATSHINK FOR U301	
D906	093G 60269	MBRF2060CT ITO-220AB	
D901	093G 60284	DIODE YG868C15R 30A/150V TO-220F	
	0M1G 930 8120	SCREW	
	709G2892 QM001	CONSUMPTIVE ASS'Y	
	055G 2	ALCOHOL	
	055G 23524	WELDING FLUX WITHOUT PB	
	Q55G 100625	TIN STICK_LOW ARGENTUM	
IC901	056G 379128	IC LD7576 GS SOP-8	
IC801	056G 608 12	IC ta9687GN-A-0-TR SOP-16	

Q806	057G 763 91	ET AO4620 7.2A/30V -5.3A/-30V SOIC-8	
Q805	057G 763 91	ET AO4620 7.2A/30V -5.3A/-30V SOIC-8	
Q802	057G 763904	TRA FET 2N7002 SOT-23 PHILIPS	
R905	061G0603000	RST CHIP MAX 0R05 1/10W	
R920	061G0603100 1F	RST CHIPR 1 KOHM +-1% 1/10W	
R907	061G0603100 1F	RST CHIPR 1 KOHM +-1% 1/10W	
R928	061G0603100 1F	RST CHIPR 1 KOHM +-1% 1/10W	
R918	061G0603100 2F	RST CHIPR 10K OHM +-1% 1/10W	
R916	061G0603100 2F	RST CHIPR 10K OHM +-1% 1/10W	
R807	061G0603103	RST CHIPR 10 KOHM +-5% 1/10W	
R842	061G0603103	RST CHIPR 10 KOHM +-5% 1/10W	
R843	061G0603103	RST CHIPR 10 KOHM +-5% 1/10W	
R844	061G0603103	RST CHIPR 10 KOHM +-5% 1/10W	
R845	061G0603103	RST CHIPR 10 KOHM +-5% 1/10W	
R806	061G0603104	RST CHIPR 100 KOHM +-5% 1/10W	
R813	061G0603104	RST CHIPR 100 KOHM +-5% 1/10W	
R809	061G0603105	RST CHIPR 1M OHM +-5% 1/10W	
R838	061G0603105	RST CHIPR 1M OHM +-5% 1/10W	
R839	061G0603105	RST CHIPR 1M OHM +-5% 1/10W	
R841	061G0603105	RST CHIPR 1M OHM +-5% 1/10W	
R808	061G0603390 0F	RST CHIPR 390 OHM +-1% 1/10W	
R836	061G0603563 Y	RST CHIPR 56KOHM +-5% 1/10W YAGEO	
R810	061G0603750 2F	RST CHIPR 75KOHM +-1% 1/10W	
R837	061G0603752	RST CHIPR 7.5 KOHM +-5% 1/10W	
R925	061G0603910 1F	RST CHIPR 9.1 KOHM +-1% 1/10W	
RJ808	061G0805000	RST CHIP MAX 0R05 1/8W	
RJ807	061G0805000	RST CHIP MAX 0R05 1/8W	
RJ806	061G0805000	RST CHIP MAX 0R05 1/8W	
RJ805	061G0805000	RST CHIP MAX 0R05 1/8W	
RJ804	061G0805000	RST CHIP MAX 0R05 1/8W	
RJ803	061G0805000	RST CHIP MAX 0R05 1/8W	
R801	061G0805103	RST CHIPR 10K OHM +-5% 1/8W	
R812	061G0805104	RST CHIPR 100K OHM +-5% 1/8W	
R840	061G0805105	RST CHIPR 1M OHM +-5% 1/8W	
R919	061G0805151	RST CHIPR 150 OHM +-5% 1/8W	
R802	061G0805220	RST CHIPR 22 OHM +-5% 1/8W	
R816	061G0805229	RST CHIP 2R2 1/8W 5%	
R817	061G0805229	RST CHIP 2R2 1/8W 5%	
R818	061G0805229	RST CHIP 2R2 1/8W 5%	
R819	061G0805229	RST CHIP 2R2 1/8W 5%	

R803	061G0805512	RST CHIPR 5.1 KOHM +-5% 1/8W	
R804	061G0805512	RST CHIPR 5.1 KOHM +-5% 1/8W	
R830	061G0805512	RST CHIPR 5.1 KOHM +-5% 1/8W	
R811	061G0805820 2F	RST CHIPR 82KOHM +-1% 1/8W	
RJ814	061G1206000	RST CHIP MAX 0R05 1/4W	
RJ812	061G1206000	RST CHIP MAX 0R05 1/4W	
RJ811	061G1206000	RST CHIP MAX 0R05 1/4W	
RJ810	061G1206000	RST CHIP MAX 0R05 1/4W	
RJ809	061G1206000	RST CHIP MAX 0R05 1/4W	
RJ801	061G1206000	RST CHIP MAX 0R05 1/4W	
R917	061G1206100	RST CHIPR 10 OHM +-5% 1/4W	
R903	061G1206101	RST CHIPR 100 OHM +-5% 1/4W	
R909	061G1206101	RST CHIPR 100 OHM +-5% 1/4W	
R910	061G1206101	RST CHIPR 100 OHM +-5% 1/4W	
R912	061G1206101	RST CHIPR 100 OHM +-5% 1/4W	
R929	061G1206101	RST CHIPR 100 OHM +-5% 1/4W	
R930	061G1206101	RST CHIPR 100 OHM +-5% 1/4W	
R908	061G1206103	RST CHIPR 10K OHM +-5% 1/4W	
R923	061G1206221	RST CHIPR 220 OHM +-5% 1/4W	
R913	061G1206519	RST CHIPR 5.1 OHM +-5% 1/4W	
R902	061G1206684	RST CHIPR 680K OHM +-5% 1/4W	
R901	061G1206684	RST CHIPR 680K OHM +-5% 1/4W	
R900	061G1206684	RST CHIPR 680K OHM +-5% 1/4W	
C923	065G0603102 32	1000PF +-10% 50V X7R	
C924	065G0603104 12	CER2 0603 X7R 16V 100N P	
C926	065G0603104 12	CER2 0603 X7R 16V 100N P	
C809	065G0603221 31	CER1 0603 NP0 50V 220P P	
C814	065G0603221 31	CER1 0603 NP0 50V 220P P	
C810	065G0603222 32	CHIP 2200PF 50V X7R	
C805	065G0603223 32	CHIP 0.022UF 50V X7R 0603	
C807	065G0603332 32	CHIP 0.0033UF 50V X7R 0603	
C808	065G0603333 32	CHIP 0.033UF 50V X7R 0603	
C914	065G0603471 32	CHIP 470PF 50V X7R	
C915	065G0805103 32	CAP CHIP 0805 10NF K 50V X7R	
C811	065G0805104 32	CAP CHIP 0805 0.1uF K 50V X7R	
C815	065G0805104 32	CAP CHIP 0805 0.1uF K 50V X7R	
C912	065G0805104 32	CAP CHIP 0805 0.1uF K 50V X7R	
C818	065G0805155 A2	1.5 UF 10V	
C806	065G0805225 12	CAP CHIP 0805 2.2UF K 16V X7R	
C801	065G0805473 32	CHIP 0.047UF 50V X7R	

C802	065G0805473 32	CHIP 0.047UF 50V X7R	
C917	065G1206102 72	CAP CHIP 1206 1000PF K 500V X7R	
C916	065G1206102 72	CAP CHIP 1206 1000PF K 500V X7R	
C803	065G1206104 32	CHIP 0.1UF 25V X7R 1206	
D803	093G 64 33	DIO SIG SM BAV99 (PHSE)R	
D808	093G 64 42 PP	BAV70 SOT-23	
D807	093G 64 42 PP	BAV70 SOT-23	
D806	093G 64 42 PP	BAV70 SOT-23	
ZD803	093G 39S 24 T	RLZ 5.6B LLDS	
ZD802	093G 39S 24 T	RLZ 5.6B LLDS	
CN901	006G 31500	EYELET	
R906	061G152M10452T	RST MOFR 100KOHM +-5% 2WS	
R924	061G152M39852T	RST MOFR 0.39 OHM +-5% 2WS	
R904	061G152M75052T SY	RST MOFR 75OHM +-5% 2WS FUTABA	
R828	061G212Y62552T SY	RST MGFR 6.2MOHM +-5% 1/2W FUTABA	
C911	065G 2K152 2T6921	CAP CER 1500pF K 2KV Y5P	
C913	067G215Y2207KT	CAP 105°C 22UF M 50V KINGNICH	
FB902	071G 55 9 T	FERRITE BEAD	
FB901	071G 55 29	FERRITE BEAD	
F901	084G 56 4 B	FUSE 4A 250V	
F902	084G 56 4 B	FUSE 4A 250V	
ZD901	093G 3952152T	TZX18B	
D903	093G 6026T52T	RECTIFIER DIODE FR107	
D904	093G 6038T52T	FR103	
D907	093G 64 1152T	1N4148	
D801	093G 64 1152T	1N4148	
	715G2892 1 8	POWER BOARD PCB	
Q904	057G 761 16	TRA KTD1028 KEC	
IC903	056G 158 12	KIA431A-AT/P TO-92	
C920	067G 2046812KT	CS CAP 680uF 10V 8*11 mm	
F903	084G 56 4 B	FUSE 4A 250V	
FB602	071G 55 9 T	FERRITE BEAD	
	709G2892 QA001	CONSUMPTIVE ASS'Y	
PT801	006G 31502	1.5MM RIVET	
R820	061G0603100 Y	RST CHIPR 10 OHM +-5% 1/10W YAGEO	
R821	061G0603100 Y	RST CHIPR 10 OHM +-5% 1/10W YAGEO	
RJ802	061G1206000	RST CHIP MAX 0R05 1/4W	
RJ816	061G1206000 7	RST CHIP MAX 0R05 1/4W	
R601	061G0603103	RST CHIPR 10 KOHM +-5% 1/10W	
R602	061G0603103	RST CHIPR 10 KOHM +-5% 1/10W	

R603	061G0603103	RST CHIPR 10 KOHM +-5% 1/10W	
R604	061G0603103	RST CHIPR 10 KOHM +-5% 1/10W	
R605	061G0603103	RST CHIPR 10 KOHM +-5% 1/10W	
R609	061G0603103	RST CHIPR 10 KOHM +-5% 1/10W	
R607	061G0603333 Y	RST CHIPR 33KOHM +-5% 1/10W YAGEO	
R608	061G0805000	RST CHIP MAX 0R05 1/8W	
C601	065G0603474 12	MLCC 0603 0.47UF K 16V X7R	
C602	065G0603474 12	MLCC 0603 0.47UF K 16V X7R	
C603	065G0603474 12	MLCC 0603 0.47UF K 16V X7R	
C606	065G0603474 12	MLCC 0603 0.47UF K 16V X7R	
C608	065G080510522K T	CAP CHIP 0805 1UF K 25V X7R	
C609	065G080510522K T	CAP CHIP 0805 1UF K 25V X7R	
C612	065G0603104 12	CER2 0603 X7R 16V 100N P	
C613	065G0603104 12	CER2 0603 X7R 16V 100N P	
Q608	057G 417 4	PMBS3904/PHILIPS-SMT(04)	
R606	061G0603333 Y	RST CHIPR 33KOHM +-5% 1/10W YAGEO	
C610	065G0603101 31	CER1 0603 NP0 50V 100P PM5 R	
C611	065G0603101 31	CER1 0603 NP0 50V 100P PM5 R	
	709G2892 QS001	CONSUMPTIVE ASS'Y	
	052G 2191 A	PAPER TAPE	
	Q05G6054 1	SHEET	
	Q09G6012 1	PIN	
C927	065G0805473 32	CHIP 0.047UF 50V X7R	
HS3	Q90G0180 1	HEAT SINK	
D905	093G3006 1 1	31DQ06FC3 NIHON INTER	
C932	065G 1K101 2T6921	CAP CER 100pF 1KV K Y5P	
	Q07G 1 5V32 X	WOODEN PALLET	
	Q15G0233 1	LOCK BKT	
	Q37G0142012	VSC 22" Hinge ass'y	
	Q37G0143011	VSC Base ass'y	
	Q40G 58170931A	HT POT LABEL	
	Q40G0001624 4A	PALLET LABEL	
	Q40G000270927A	EPA LABEL	
	Q44G6002107107	PAPER BOARD	
	Q44G6002CP1A06	paper cap	
	Q44G9003208	CORNER PAPER	
	Q44GB007101	EPS	
	Q44GB007201	EPS	
	Q44GB007709 1A	21.5 LCD CARTON	
	Q45G 77 5	PE PACKING	



	Q50G 4 10	TIE	
	Q52G6020140	protect film	
	USB8QQ2	USB BOARD	
CN704	033G3802 2B Y	CONNECTOR	
	040G 45762412B	CBPC LABEL	
C746	067G 3151014KV	EC 105°C CAP 100uF M 25V	
C749	067G215V470 4N	KY25VB47-M-CC3.0 5*11MM	
C716	067G305V101 3	105°C 100UF M 16V	
C702	067G305V101 3	105°C 100UF M 16V	
CN702	088G 350 1 TN	USB CONN	
CN701	088G 351 2B TN	USB CONN	
X701	093G 2245B HE	XTL XAT024000FI1H-3OX AT-49 24.000MHZ	
U705	056G 585 4A	IC AP1117E33L-13	
U701	056G 659 9	IC USB2514-AEZG QFN-36	
F702	061G 56A075 LT	SMD PTC 0.75A 1206L075.WR 1206	
F701	061G 56A075 LT	SMD PTC 0.75A 1206L075.WR 1206	
R723	061G0402000	RST CHIP MAX 0R05 1/16W	
R722	061G0402000	RST CHIP MAX 0R05 1/16W	
R715	061G0402000	RST CHIP MAX 0R05 1/16W	
R712	061G0402000	RST CHIP MAX 0R05 1/16W	
R703	061G0402000	RST CHIP MAX 0R05 1/16W	
R702	061G0402000	RST CHIP MAX 0R05 1/16W	
R708	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R725	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R701	061G0402104	RST CHIPR 100 KOHM +-5% 1/16W	
R704	061G0402104	RST CHIPR 100 KOHM +-5% 1/16W	
R716	061G0402104	RST CHIPR 100 KOHM +-5% 1/16W	
R717	061G0402104	RST CHIPR 100 KOHM +-5% 1/16W	
R718	061G0402104	RST CHIPR 100 KOHM +-5% 1/16W	
R719	061G0402104	RST CHIPR 100 KOHM +-5% 1/16W	
R720	061G0402104	RST CHIPR 100 KOHM +-5% 1/16W	
R724	061G0402105	RST CHIPR 1MOHM +-5% 1/16W	
R709	061G0402153	RST CHIP 15K 1/16W 5%	
R726	061G0402153	RST CHIP 15K 1/16W 5%	
R721	061G0603120 2F	RST CHIPR 12 KOHM +-1% 1/10W	
R750	061G0603360 1F	RST CHIPR 3.6K OHM +-1% 1/10W	
C706	065G0402103 12	CAP CHIP 0402 10N 16V X7R	
C705	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C707	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C709	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	

C710	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C711	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C712	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C714	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C717	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C718	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C724	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C747	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C748	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C703	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C713	065G0402270 31	0402 27PF J 50V NPO	
C708	065G0402270 31	0402 27PF J 50V NPO	
C720	065G0603105 12	CHIP 1UF 16VX7R 0603	
C701	065G0603105 12	CHIP 1UF 16VX7R 0603	
C719	065G0805475 A5	0805 4.7UF +-10% 10V X5R	
C715	065G0805475 A5	0805 4.7UF +-10% 10V X5R	
C745	065G1206106 05	CHIP 10UF/6.3V X5R	
FB706	071G 56K121	CHIP BEAD	
FB702	071G 56K121	CHIP BEAD	
FB701	071G 56K121	CHIP BEAD	
ZD706	093G 64 49 SU	DIODE ESD EGA 10603V05A1-B INPAQ	
ZD705	093G 64 49 SU	DIODE ESD EGA 10603V05A1-B INPAQ	
ZD702	093G 64 49 SU	DIODE ESD EGA 10603V05A1-B INPAQ	
ZD701	093G 64 49 SU	DIODE ESD EGA 10603V05A1-B INPAQ	
ZD703	093G 64 49 SU	DIODE ESD EGA 10603V05A1-B INPAQ	
ZD704	093G 64 49 SU	DIODE ESD EGA 10603V05A1-B INPAQ	
	715G2829 1	USB BOARD PCB	
R752	061G1206000	RST CHIP MAX 0R05 1/4W	
E08904	089G 17356C554	AUDIO CABLE	2nd source
E08904	089G 17356X554	AUDIO CABLE	
	Q41G2401709 3A	VA2413wm service insert	
	Q41G2401709 7A	VG2427wm QSG FOR LI	
	Q41G780070983A	VG2027 2227 BASE PRODUCE CARD	
	Q45G 76 28 RN R	PE BAG MANUAL	
	Q70G2201709 7A	CD MANUAL VG2227	
	040G 58162435A	P/N LABEL FOR MANUAL PE BAG	
	Q40G 22N709 6A	RATING LABEL	
	Q40G 581709 1B	CARTON LABEL	
	Q40G0001709 2A	SN LANEL	

## 11. Recommended Spare Parts List

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NA

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

**B.** Are you satisfied with this Service Manual?

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

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

### Reader's basic data:

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<b>Company:</b>			
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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)