Service Manual

ViewSonic VA916-6

Model No. VS11962

19” Color TFT LCD Display

(VA916-6_SM Rev. 1a Apr. 2009)

ViewSonic 381 Brea Canyon Road, Walnut, California 91789 USA - (800) 888-8583

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	04/24/2009	Initial Release	T99HMRDKMWVSNC	Eric

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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.

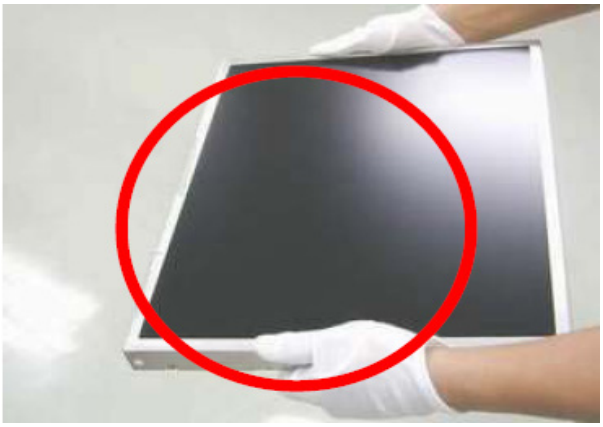
1.2 Product Safety Notice

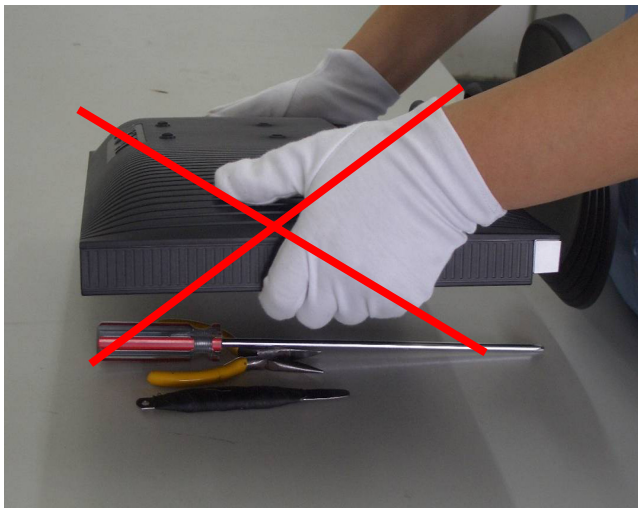
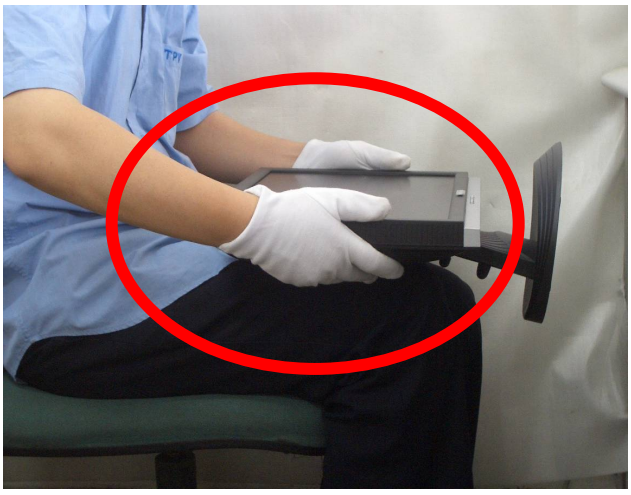
Many electrical and mechanical parts in this chassis have special safety visual inspections and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltages, wattage, etc. Before replacing any of these components read the parts list in this 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.”
	

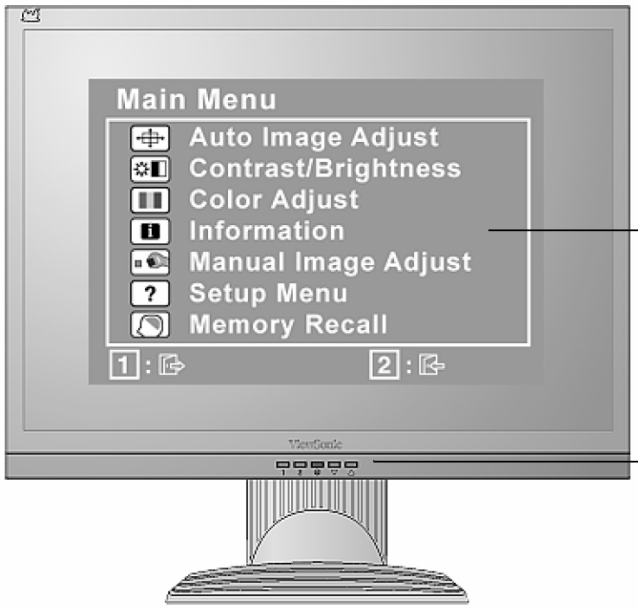
2. Specification

LCD	Type	19” (full 19" viewable diagonal area), TFT (Thin Film Transistor), SXGA, 0.294 mm pixel pitch
	Color Filter	RGB vertical stripe
	Glass Surface	Anti-Glare
Input Signal	Video	RGB analog (0.7/1.0 Vp-p, 75 ohms)
	Sync	Separate Sync, f_h:30-82 kHz, f_v:50-75 Hz
Compatibility	PC	Up to 1280 x 1024 Non-interlaced
	Macintosh[1]	Power Macintosh up to 1280 x 1024
Resolution	Recommended and supported	1280 x 1024 @ 60, 75 Hz 1024 x 768 @ 60, 70, 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	376.32 mm (H) x 301.056 mm (V) 14.81" (H) x 11.87" (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	412.2 mm (W) x 434.9 mm (H) x 194.4 mm (D) 16.2" (W) x 17.1" (H) x 7.7" (D)
Weight	Physical	8.4 lb (3.8 kg)
Regulations		BSMI, VCCI, CCC, PSB, C-Tick, CE, GS, Ergo, Gost-R/Hygienic, Ukraine, TCO'03, SASO, UL/cUL, NOM, FCC-B, ICES-B, TUV-S/IRAM/UL-AR S Mark, ENERGY STAR®
Power saving modes	On	32W (Typical) (blue LED)
	Off	<1W
Preset Timing Mode (pre-adjusted to VESA® 1280 x 1024 @ 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.

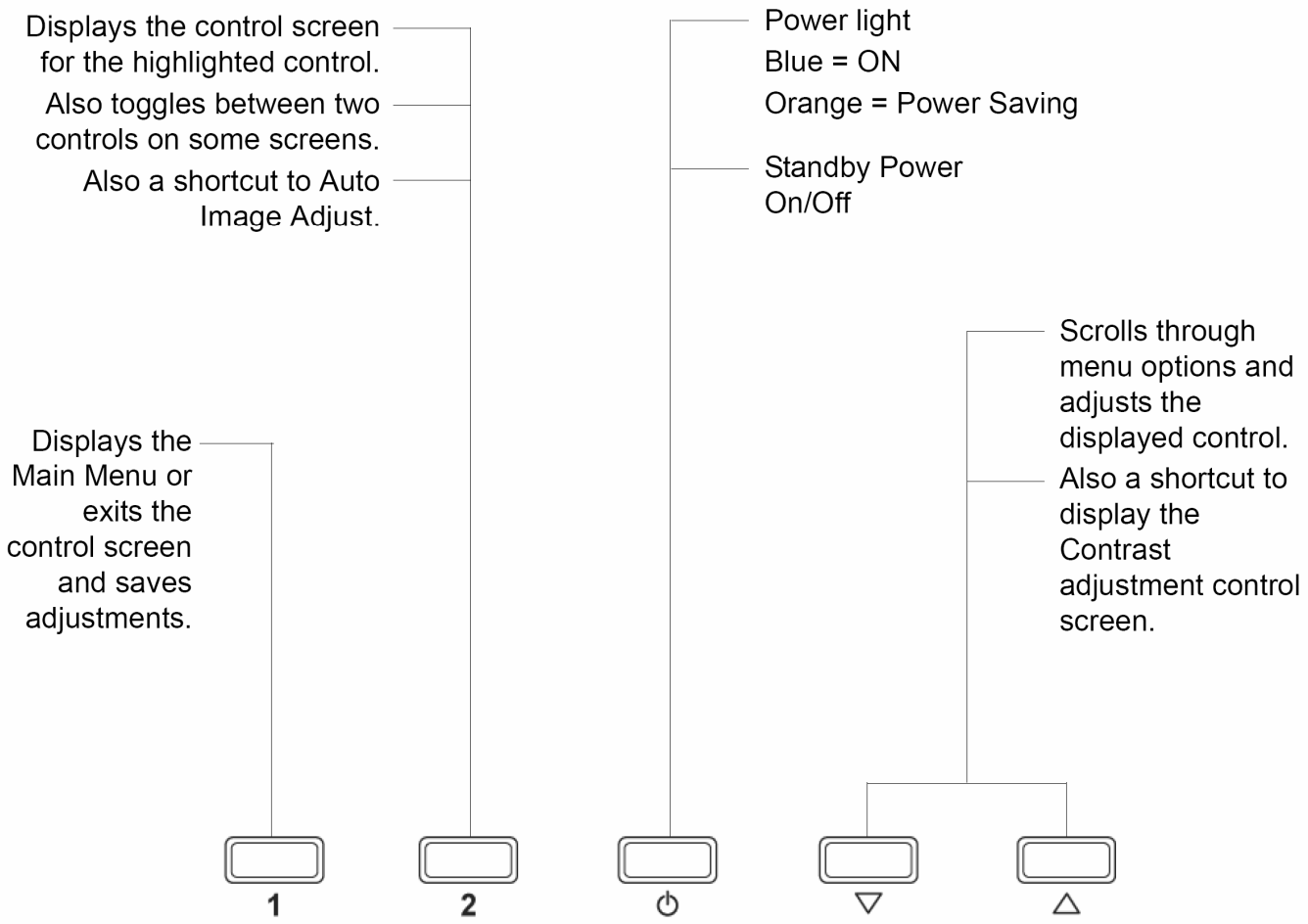
3. Front Panel Function Control Description

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



Main Menu
with OSD controls

Front Control Panel
shown below in detail



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.

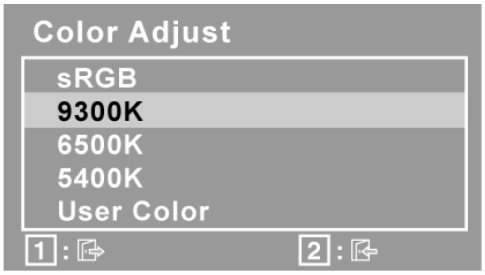
The following tips may help you optimize your display:

• Adjust the computer's graphics card so that it outputs a 1280 x 1024 @ 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.)

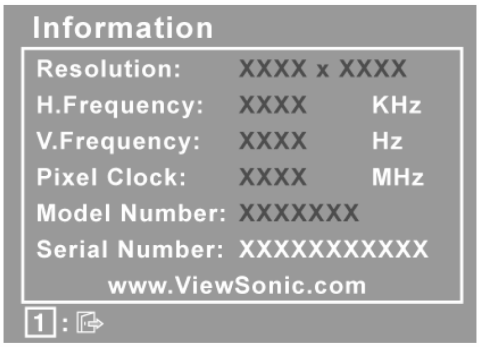
Main Menu Controls

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

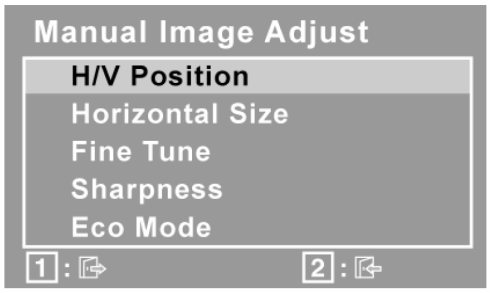
Control	Explanation
	Auto Image Adjust automatically sizes, centers, and fine tunes the video signal to eliminate waviness and distortion. Press the [2] button to obtain a sharper image. **NOTE:** Auto Image Adjust works with most common video cards. If this function does not work on your LCD display, 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.
	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 sRGB setting will cause the 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). **6500K-**Adds red to the screen image for warmer white and richer red. **5400K-**Adds green to the screen image for a darker color. **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 1280 x 1024 @ 60Hz (recommended) means that the resolution is 1280 x 1024 and the refresh rate is 60 Hertz.



Manual Image Adjust displays the Manual Image Adjust menu.



H./V. Position (Horizontal/Vertical Position) moves the screen image left or right and up or down.

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.

ECO Mode provides the lower power consumption by reducing the brightness.

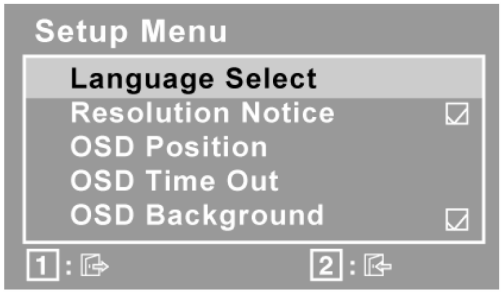
Standard: The default brightness setting

Optimize: Decreases the brightness by 25 %

Conserve: Decreases the brightness by 50 %

NOTE: When the ECO Mode is set to "Optimize" or "Conserve", the Brightness, Contrast, and Dynamic Contrast cannot be adjusted.

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

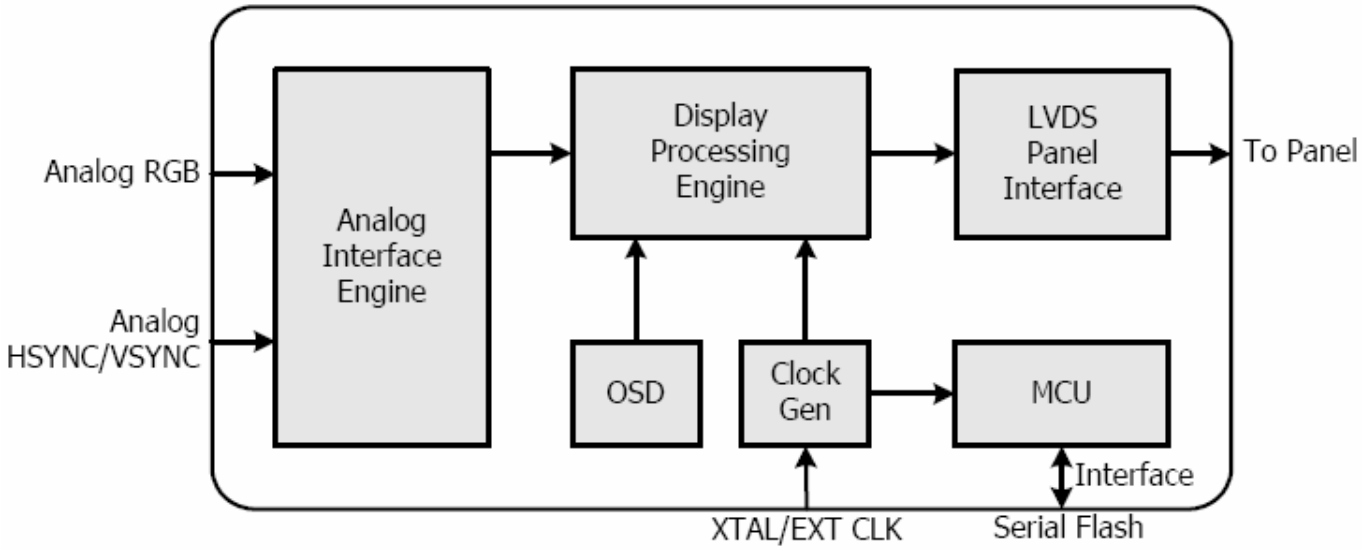
4.1 Main Board

Scalar---TSUM1PFR (U401)

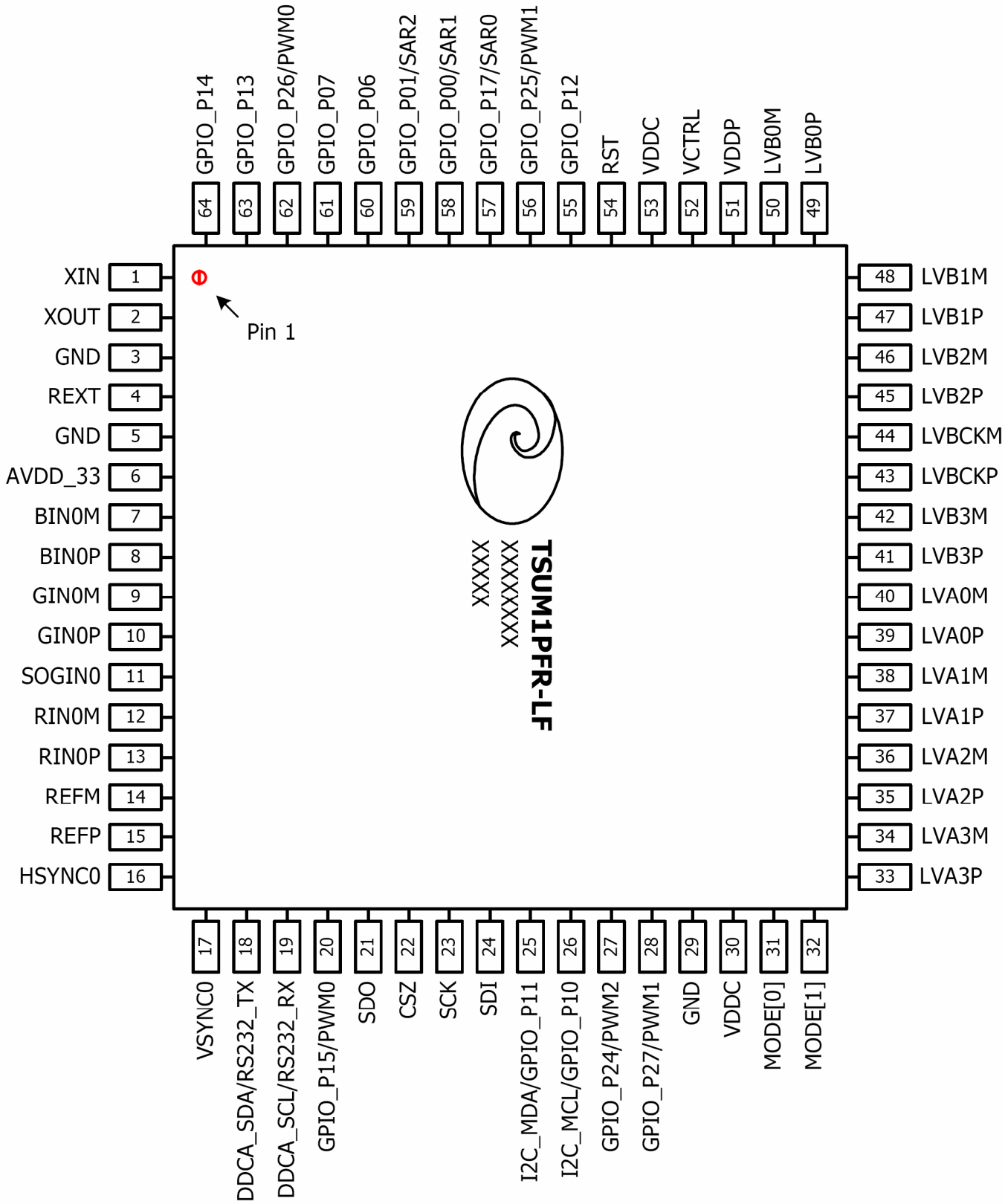
The TSUM1PFR is total solution graphics processing IC for LCD monitors with panel resolutions up to XGA+/SXGA+. It is configured with a high-speed integrated triple-ADC/PLL, a high quality display processing engine, an integrated micro-controller and output display interface that can support LVDS panel interface format. To further reduce system costs, the TSUM1PFR also integrates intelligent power management control capability for green-mode requirements and spread-spectrum support for EMI management.

The TSUM1PFR also incorporates a new Dynamic Frame Rate (DFR) generator1 for the digital output video to the display panel that preserves the advantages of a fixed output clock rate, while eliminating the output end of frame short-line.

Block Diagram



Pin Diagram


1 XIN
2 XOUT
3 GND
4 REXT
5 GND
6 AVDD_33
7 BIN0M
8 BIN0P
9 GIN0M
10 GIN0P
11 SOGIN0
12 RIN0M
13 RIN0P
14 REFM
15 REFP
16 HSYNC0
17 VSYNC0
18 DDCA_SDA/RS232_TX
19 DDCA_SCL/RS232_RX
20 GPIO_P15/PWM0
21 SDO
22 CSZ
23 SCK
24 SDI
25 I2C_MDA/GPIO_P11
26 I2C_MCL/GPIO_P10
27 GPIO_P24/PWM2
28 GPIO_P27/PWM1
29 GND
30 VDDC
31 MODE[0]
32 MODE[1]
33 LVA3P
34 LVA3M
35 LVA2P
36 LVA2M
37 LVA1P
38 LVA1M
39 LVA0P
40 LVA0M
41 LVB3P
42 LVB3M
43 LVBCKP
44 LVBCKM
45 LVB2P
46 LVB2M
47 LVB1P
48 LVB1M
49 LVB0P
50 LVB0M
51 VDDP
52 VCTRL
53 VDDC
54 RST
55 GPIO_P12
56 GPIO_P25/PWM1
57 GPIO_P17/SAR0
58 GPIO_P00/SAR1
59 GPIO_P01/SAR2
60 GPIO_P06
61 GPIO_P07
62 GPIO_P26/PWM0
63 GPIO_P13
64 GPIO_P14
Pin 1
XXXX
XXXXXXX
TSUM1PFR-LF

Pin Description

Analog Interface

Pin Name	Pin Type	Function	Pin
HSYNC0	Schmitt Trigger Input w/ 5V-tolerant	Analog HSYNC Input	16
VSYNC0	Schmitt Trigger w/ 5V-tolerant Input	Analog VSYNC Input	17
REFP		Internal ADC Top De-Coupling Pin	15
REFM		Internal ADC Bottom De-Coupling Pin	14
RIN0P	Analog Input	Analog Red Input	13
RIN0M	Analog Input	Reference Ground for Analog Red Input	12
SOGIN0	Analog Input	Sync-On-Green Input	11
GIN0P	Analog Input	Analog Green Input	10
GIN0M	Analog Input	Reference Ground for Analog Green Input	9
BIN0P	Analog Input	Analog Blue Input	8
BIN0M	Analog Input	Reference Ground for Analog Blue Input	7
REXT		External Resistor 390 ohm to AVDD_33	4

Serial Flash Interface

Pin Name	Pin Type	Function	Pin
SDO	Input w/ 5V-tolerant	SPI Flash Serial Data Output	21
CSZ	Output	SPI Flash Chip Select	22
SCK	Output	SPI Flash Serial Clock	23
SDI	Output	SPI Flash Serial Data Input	24

LVDS Interface

Pin Name	Pin Type	Function	Pin
LVA0M	Output	LVDS A-Link Channel 0 Negative Data Output	40
LVA0P	Output	LVDS A-Link Channel 0 Positive Data Output	39
LVA1M	Output	LVDS A-Link Channel 1 Negative Data Output	38
LVA1P	Output	LVDS A-Link Channel 1 Positive Data Output	37
LVA2M	Output	LVDS A-Link Channel 2 Negative Data Output	36
LVA2P	Output	LVDS A-Link Channel 2 Positive Data Output	35
LVA3M	Output	LVDS A-Link Channel 3 Negative Data Output	34
LVA3P	Output	LVDS A-Link Channel 3 Positive Data Output	33
LVB0M	Output	LVDS B-Link Channel 0 Negative Data Output	50
LVB0P	Output	LVDS B-Link Channel 0 Positive Data Output	49
LVB1M	Output	LVDS B-Link Channel 1 Negative Data Output	48
LVB1P	Output	LVDS B-Link Channel 1 Positive Data Output	47

LVB2M	Output	LVDS B-Link Channel 2 Negative Data Output	46
LVB2P	Output	LVDS B-Link Channel 2 Positive Data Output	45
LVB3M	Output	LVDS B-Link Channel 3 Negative Data Output	42
LVB3P	Output	LVDS B-Link Channel 3 Positive Data Output	41
LVBCKM	Output	LVDS B-Link Negative Clock Output	44
LVBCKP	Output	LVDS B-Link Positive Clock Output	43

GPIO Interface

Pin Name	Pin Type	Function	Pin
GPIO_P15 / PWM0	I/O w/ 5V-tolerant	General Purpose Input/Output / Pulse Width Modulation Output; 4mA driving strength	20
GPIO_P24 / PWM2	I/O w/ 5V-tolerant	Pulse Width Modulation Output / General Purpose Input/Output; 4mA driving strength	27
GPIO_P27 / PWM1	I/O w/ 5V-tolerant	General Purpose Input/Output / Pulse Width Modulation Output; 4mA driving strength	28
GPIO_P12	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	55
GPIO_P25 / PWM1	I/O w/ 5V-tolerant	Pulse Width Modulation Output / General Purpose Input/Output; 4mA driving strength	56
GPIO_P17 / SAR0	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength / SAR ADC Input	57
GPIO_P00 / SAR1	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength / SAR ADC Input	58
GPIO_P01 / SAR2	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength / SAR ADC Input	59
GPIO_P06	I/O w/ 5V-tolerant	General Purpose Input/Output; 6/12mA programmable driving strength	60
GPIO_P07	I/O w/ 5V-tolerant	General Purpose Input/Output; 6/12mA programmable driving strength	61
GPIO_P26 / PWM0	I/O w/ 5V-tolerant	Pulse Width Modulation Output / General Purpose Input/Output; 4mA driving strength	62
GPIO_P13	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	63
GPIO_P14	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	64

Misc. Interface

Pin Name	Pin Type	Function		Pin
VCTRL	Output	Regulator Control		52
RST	Input w/ 5V-tolerant	Chip Reset; High Reset		54
DDCA_SDA / RS232_TX	I/O w/ 5V-tolerant	DDC Data for Analog Interface / UART Transmitter / General Purpose Input/Output; 4mA driving strength		18
DDCA_SCL/ RS232_RX	I/O w/ 5V-tolerant	DDC Clock for Analog Interface / UART Receiver/ General Purpose Input/Output; 4mA driving strength		19
I2C_MDA/ GPIO_P11	I/O w/ 5V-tolerant	I2C Master Data / General Purpose Input/Output; 4mA driving strength		25
I2C_MCL/ GPIO_P10	I/O w/ 5V-tolerant	I2C Master Clock / General Purpose Input/Output; 4mA driving strength		26
MODE[1:0]	Input	Chip Configuration Input		32,31
		MODE[1:0]	Chip Operation	
		00	Normal Operation	
XIN	Crystal Oscillator Input	Xin		1
XOUT	Crystal Oscillator Output	Xout		2

Power Pins

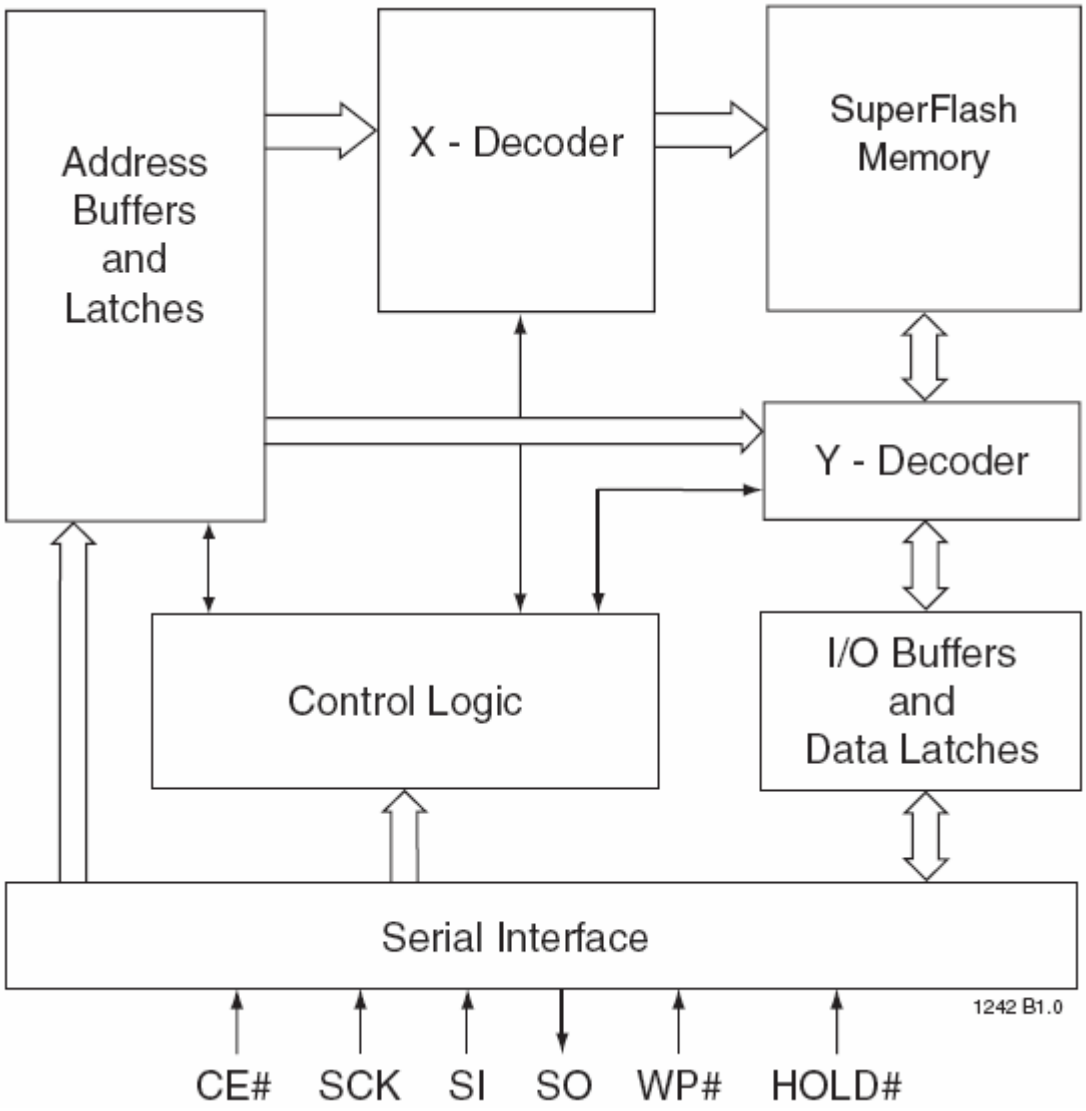
Pin Name	Pin Type	Function	Pin
AVDD_33	3.3V Power	Analog Power	6
VDDP	3.3V Power	Digital Output Power	51
VDDC	1.8V Power	Digital Core Power	30, 53
GND	Ground	Ground	3, 5, 29

Flash Memory --- SST25LF020A (U403)

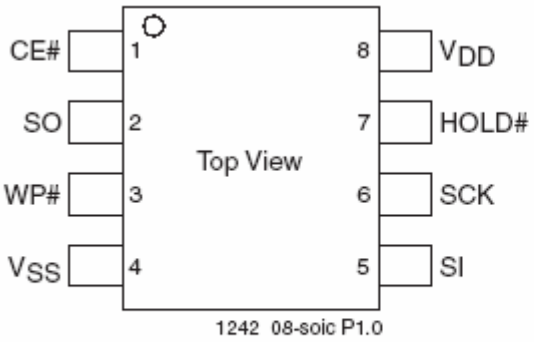
The SST25LF020A is accessed through the SPI (Serial Peripheral Interface) bus compatible protocol. The SPI bus consist of four control lines; Chip Enable (CE#) is used to select the device, and data is accessed through the Serial Data Input (SI), Serial Data Output (SO), and Serial Clock (SCK).

The SST25LF020A supports both Mode 0 (0,0) and Mode 3 (1,1) of SPI bus operations. The difference between the two modes, as shown in Figure 2, is the state of the SCK signal when the bus master is in Stand-by mode and no data is being transferred. The SCK signal is low for Mode 0 and SCK signal is high for Mode 3. For both modes, the Serial Data In (SI) is sampled at the rising edge of the SCK clock signal and the Serial Data Output (SO) is driven after the falling edge of the SCK clock signal.

Block Diagram



Pin Description



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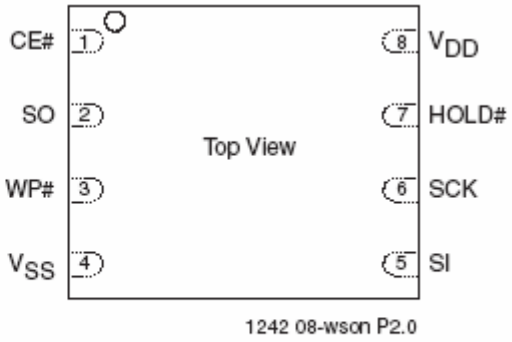
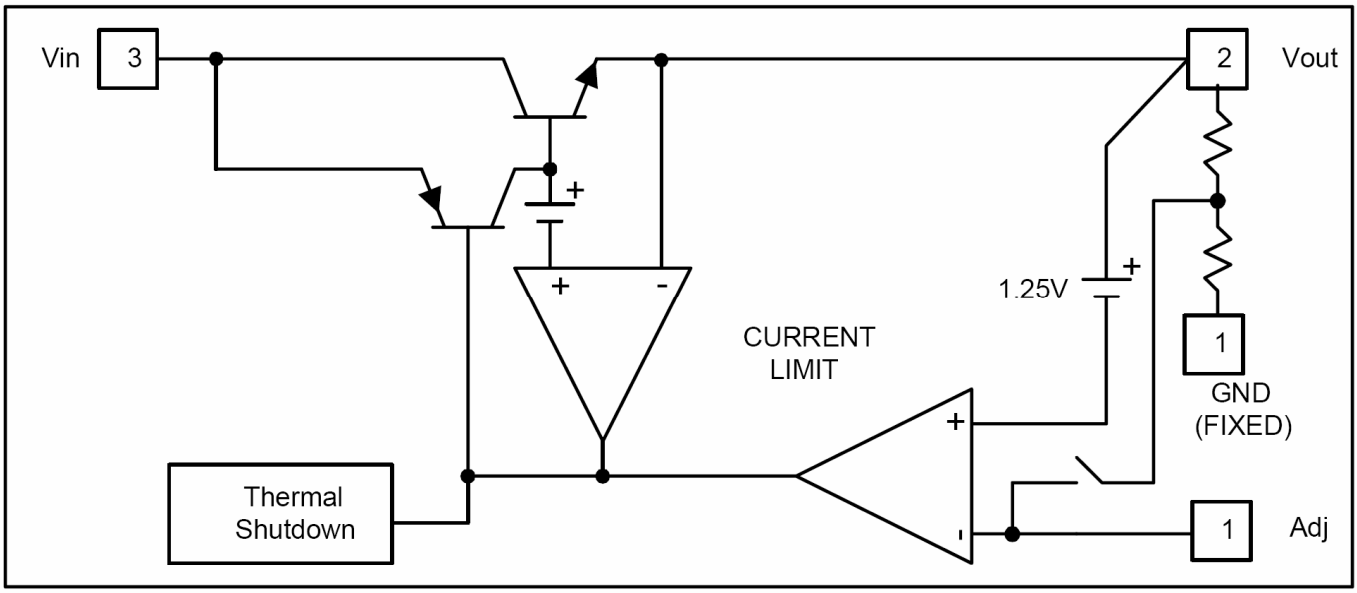


8-CONTACT WSON

Symbol	Pin Name	Functions
SCK	Serial Clock	To provide the timing of the serial interface. Commands, addresses, or input data are latched on the rising edge of the clock input, while output data is shifted out on the falling edge of the clock input.
SI	Serial Data Input	To transfer commands, addresses, or data serially into the device. Inputs are latched on the rising edge of the serial clock.
SO	Serial Data Output	To transfer data serially out of the device. Data is shifted out on the falling edge of the serial clock.
CE#	Chip Enable	The device is enabled by a high to low transition on CE#. CE# must remain low for the duration of any command sequence.
WP#	Write Protect	The Write Protect (WP#) pin is used to enable/disable BPL bit in the status register.
HOLD#	Hold	To temporarily stop serial communication with SPI flash memory without resetting the device.
VDD	Power Supply	To provide power supply (3.0-3.6V).
VSS	Ground	

DC to DC --- AP1117E33L (U701)

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

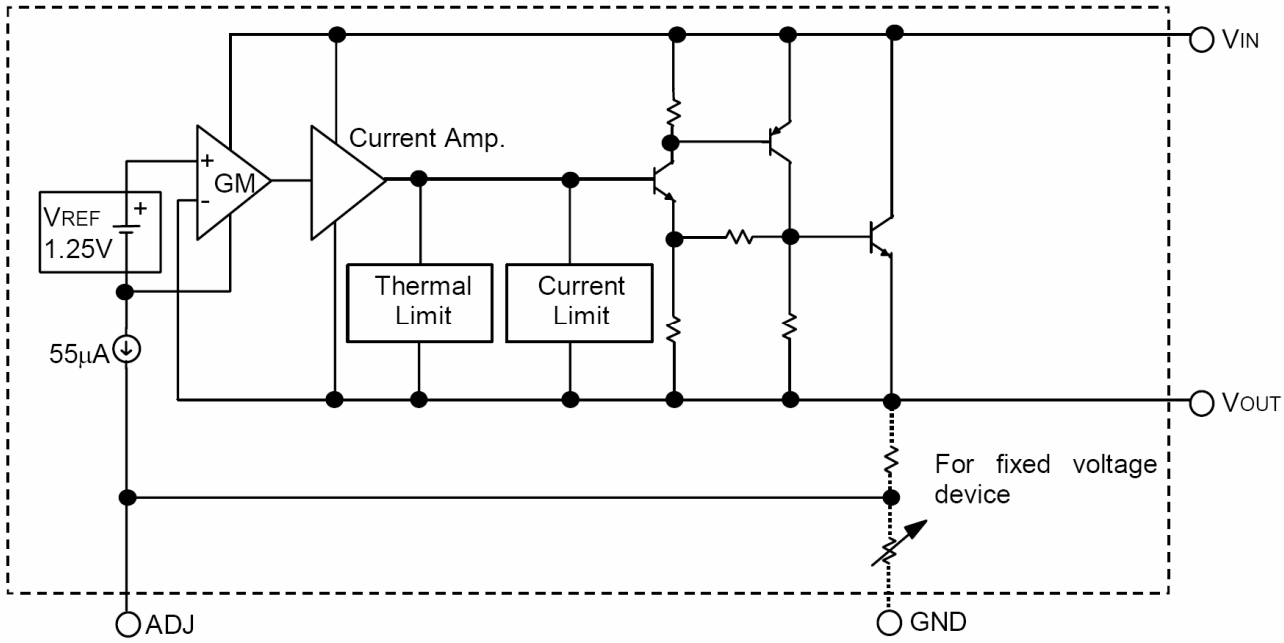
Name	I/O	Pin #	Function
Adj (GND)	I	1	A resistor divider from this pin to the Vout pin and ground sets the output voltage. (Ground only for Fixed-Mode)
Vout	O	2	The output of the regulator. A minimum of 10uF capacitor (0.15Ω ≤ESR ≤20Ω) must be connected from this pin to ground to insure stability.
Vin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

DC to DC --- AIC1117A (U702)

The AIC1117A is a low dropout, three terminals regulator designed to provide output current up to 1A. The device is available in an adjustable version and fixed output voltage of 1.8V, 2.5V, 2.85V, 3.3V and 5V. Dropout voltage of maximum of 1.5V is guaranteed at 1A output current. The quality of low dropout voltage and fast transient response make this device ideal for low voltage microprocessor applications.

The AIC1117A requires output capacitance of a minimum of 10μF for stability. Built-in output current limiting and thermal limiting provide maximal protection to the AIC1117A against fault conditions.

Block Diagram



ADJ PIN	Providing VREF=1.25V (typ.) for adjustable VOUT. VREF=VOUT-VADJand IADJ=55μA (typ.) (GND PIN- Power ground.)
VOUT PIN	Adjustable output voltage.
VIN PIN	Power Input.

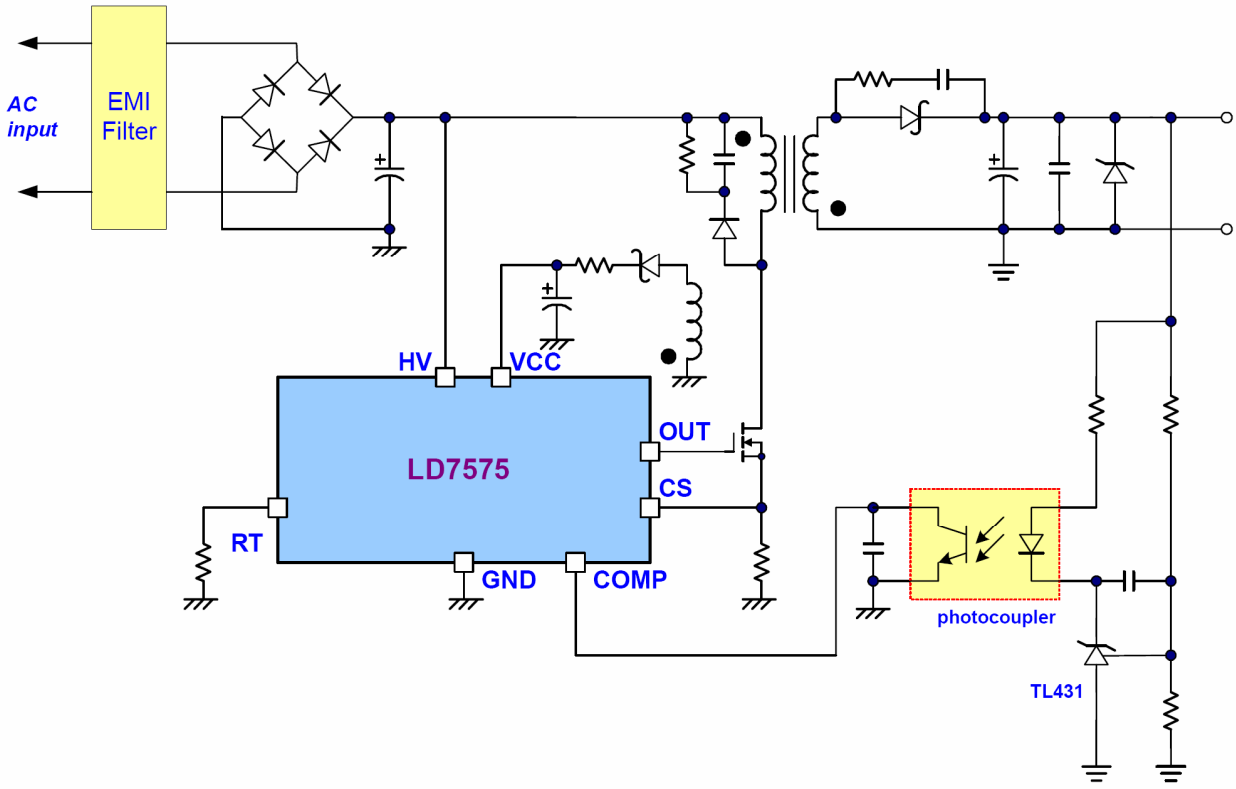
4.2 Power Board

LD7575 (IC901)

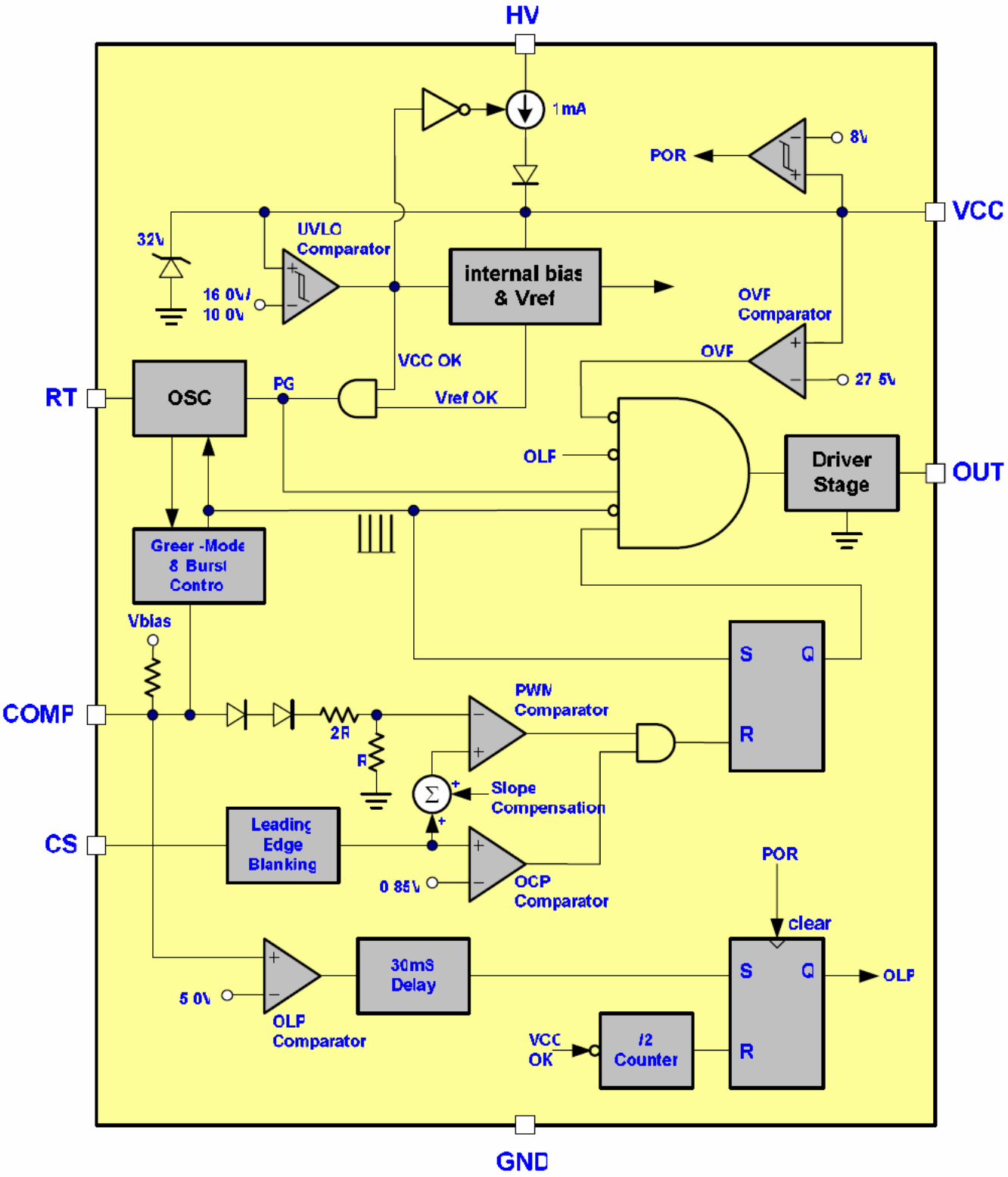
The LD7575 is a current-mode PWM controller with excellent power-saving operation. It features a highvoltage current source to directly supply the startup current from bulk capacitor and further to provide a lossless startup circuit. The integrated functions such as the leading-edge blanking of the current sensing, internal slope compensation, and the small package provide the users a high efficiency, minimum external component counts, and low cost solution for AC/DC power applications.

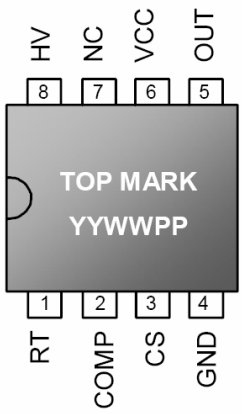
Furthermore, the embedded over voltage protection, over load protection and the special green-mode control provide the solution for users to design a high performance power circuit easily. The LD7575 is offered in SOP-8 package.

Typical Application



Block Diagram





YY: Year code
WW: Week code
PP: Production code

Pin	Name	Function
1	RT	This pin is to program the switching frequency. By connecting a resistor to ground to set the switching frequency.
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.
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.

TL494IDR (IC801)

The TL494 incorporates all the functions required in the construction of a pulse-width-modulation (PWM) control circuit on a single chip. Designed primarily for power-supply control, this device offers the flexibility to tailor the power-supply control circuitry to a specific application.

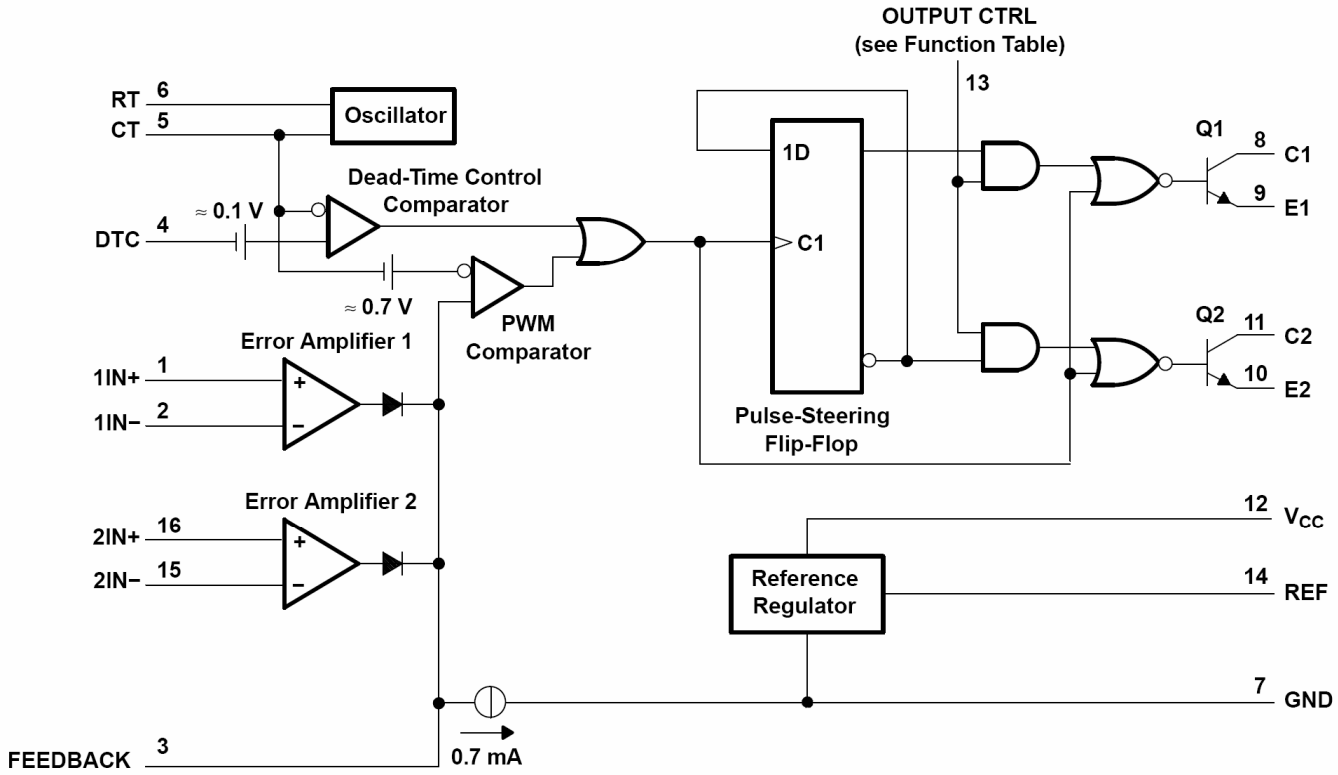
The TL494 contains two error amplifiers, an on-chip adjustable oscillator, a dead-time control (DTC) comparator, a pulse-steering control flip-flop, a 5-V, 5%-precision regulator, and output-control circuits.

The error amplifiers exhibit a common-mode voltage range from –0.3 V to VCC – 2 V. The dead-time control comparator has a fixed offset that provides approximately 5% dead time. The on-chip oscillator can be bypassed by terminating RT to the reference output and providing a sawtooth input to CT, or it can drive the common circuits in synchronous multiple-rail power supplies.

The uncommitted output transistors provide either common-emitter or emitter-follower output capability. The TL494 provides for push-pull or single-ended output operation, which can be selected through the output-control function. The architecture of this device prohibits the possibility of either output being pulsed twice during push-pull operation.

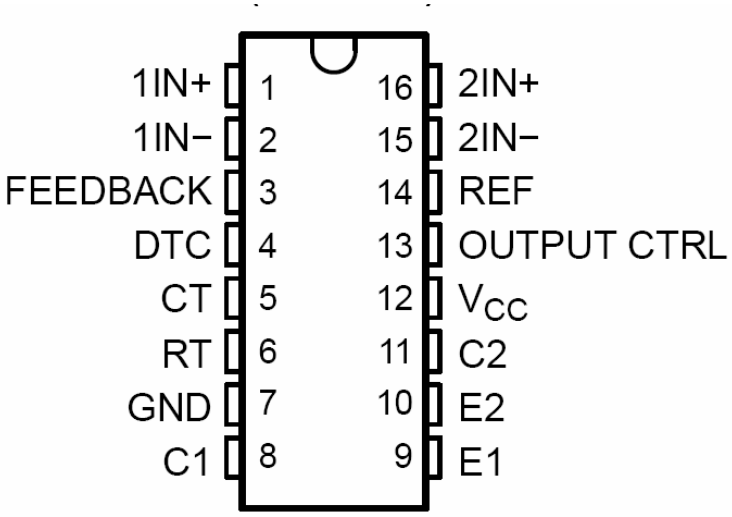
The TL494C is characterized for operation from 0°C to 70°C. The TL494I is characterized for operation from –40°C to 85°C.

Functional Block Diagram



Function Table

Input To Output Ctrl	Output Function
VI = GND	Single-ended or parallel output
VI = Vref	Normal push-pull operation



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 1280 x 1024) 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 1280 x 1024 @ 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 5 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 5 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.

Dynamic Contrast

• **DCR On/Off:** Press ▲ for 3 seconds to turn DCR On or Off.

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 to9300K** colors, **MEM. Channel 2 to 6500K MEM. Channel 3 to 5400K MEM. Channel 4 to sRGB** (our 9300K parameter is x=283±12, y=297±12 ; 6500K parameter is x =313±12, y=329±12; 5400K parameter is x = 335 ±12, y =350±12; sRGB parameter is x=313±12, y=329±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 **Color 1** (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 ±12, y = 297±12

b. Adjust **Color 2** (6500K) color-temperature

1. Switch the Chroma-C7120 to **RGB-mode** (with press “MODE” button)
2. Switch the MEM.channel to Channel 2 (with up or down arrow on Chroma-C7120)
3. The LCD-indicator on Minolta-CA210 will show x = 313 ±12, y = 329 ±12

d. Adjust **Color 3** (5400K) 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 = 335 ±12, y =350±12

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 ±12, y = 329 ±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 cd/m^2

Test conditions:

a. Switch to the full white pattern, in user mode main menu:

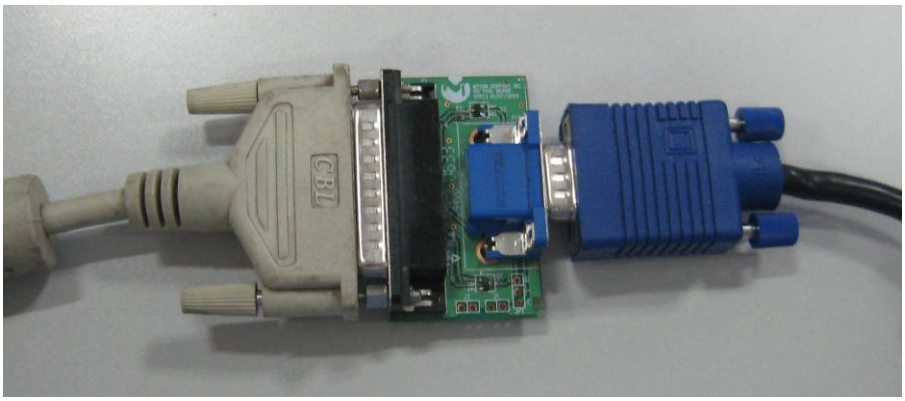
1. Set <Color Settings> Red, Green, and Blue to the max.
2. Set <Brightness> Brightness, Contrast to the max.

5.2 Firmware Upgrade Procedure

5.2.1 Equipment needed:

- VA916-6
- PC (Personal computer)
- LPT cable
- Firmware upgrade program

ISP Board



LPT Cable

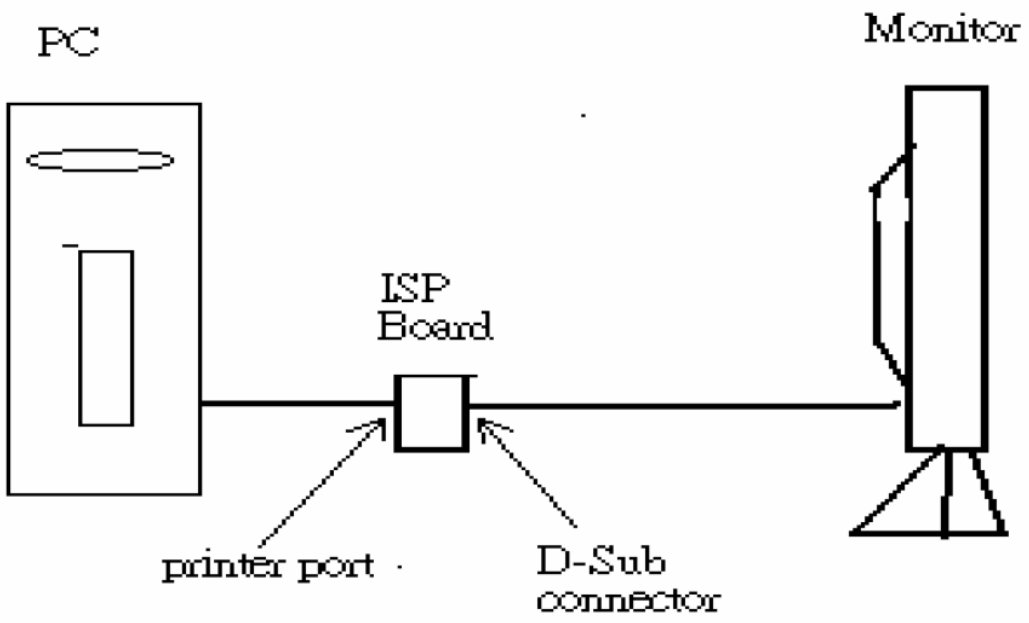
VGA Cable

Hardware Connect status

a Connect ISP_Tool with PC by LPT Cable.

b Connect Power Cord to Monitor.

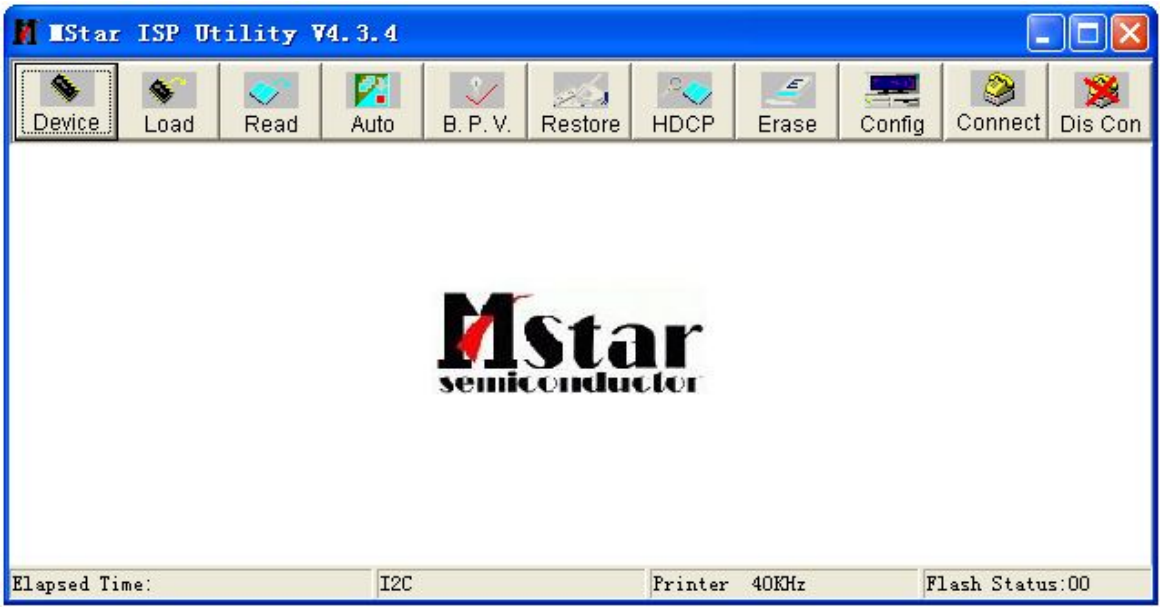
c Connect monitor to the ISP_Tool by VGA cable.



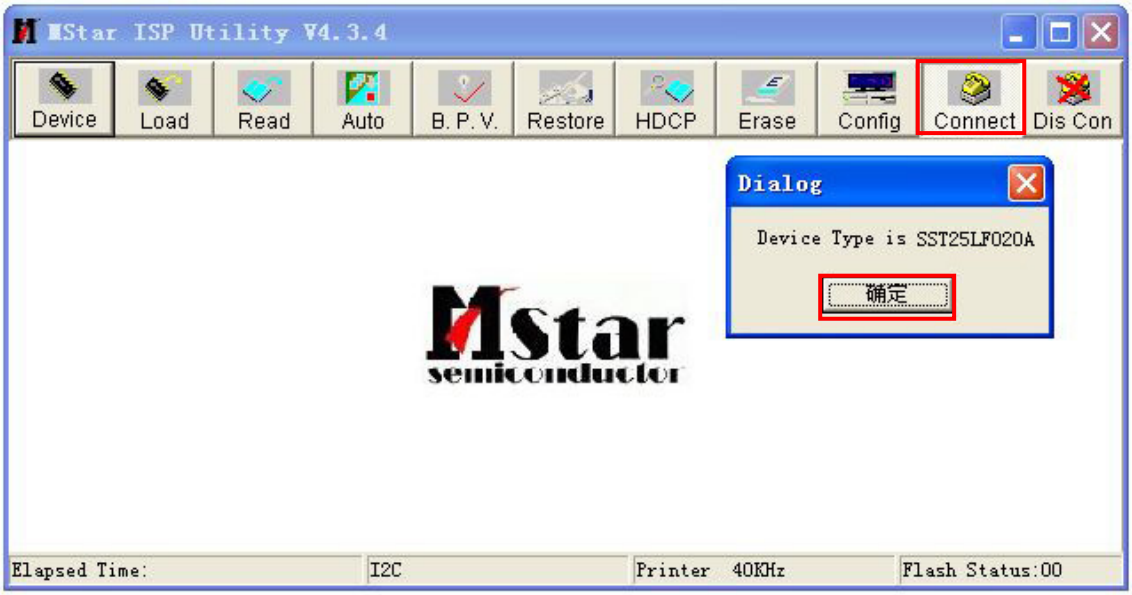
5.2.2 The process of ISP write is as follows

a. Double-click 

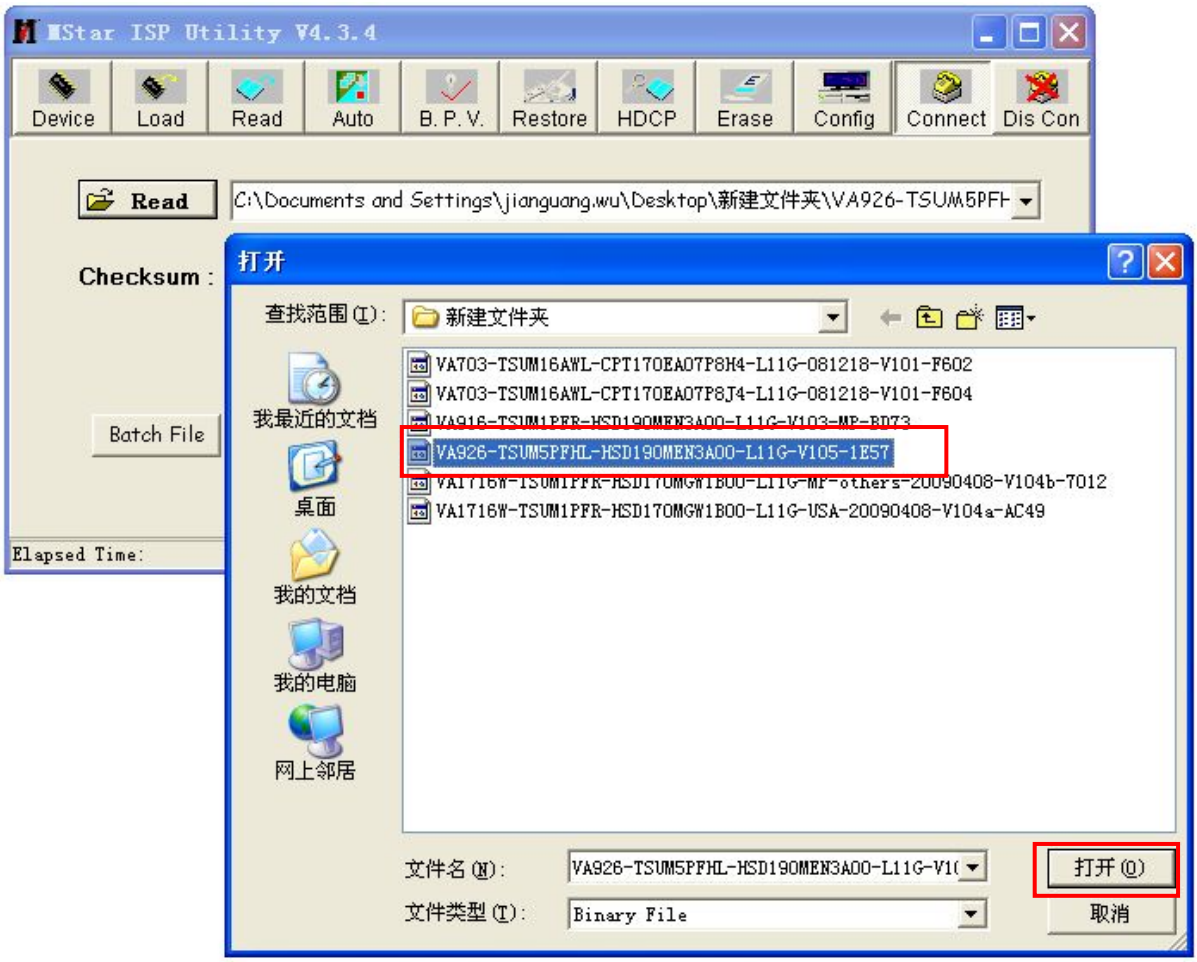
,running the program as follows:



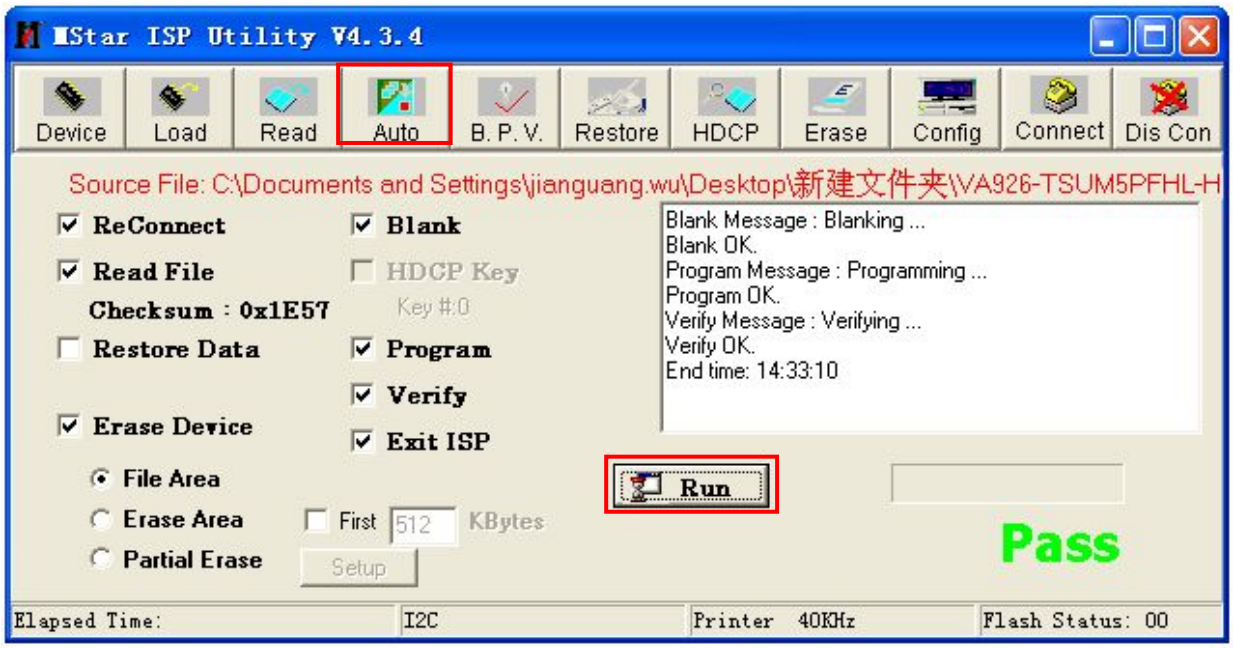
b. Press the “Connect” button to connect ISP Mode, if connects success, it will show as the follow picture:



c. Click the “Read” item, and then load the correct firmware, it will show as follow picture:



d. Click “Auto” item, and then click” Run”, it will auto run. If it burn in success, it will show as the follow picture:



5.3 DDC Key in Procedure

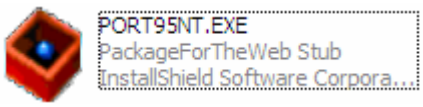
Note:

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

- VA916-6
- PC (Personal computer)
- LPT cable
- 12V DC
- Firmware upgrade program
- DDC Card

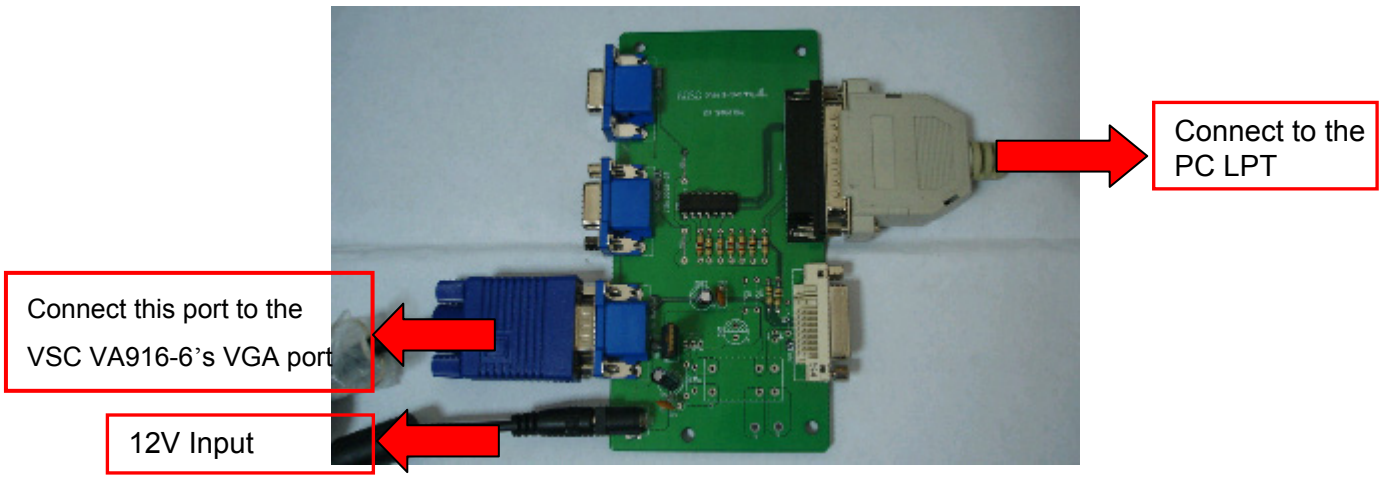
5.3.2 Install software

You must install the 

at the first.

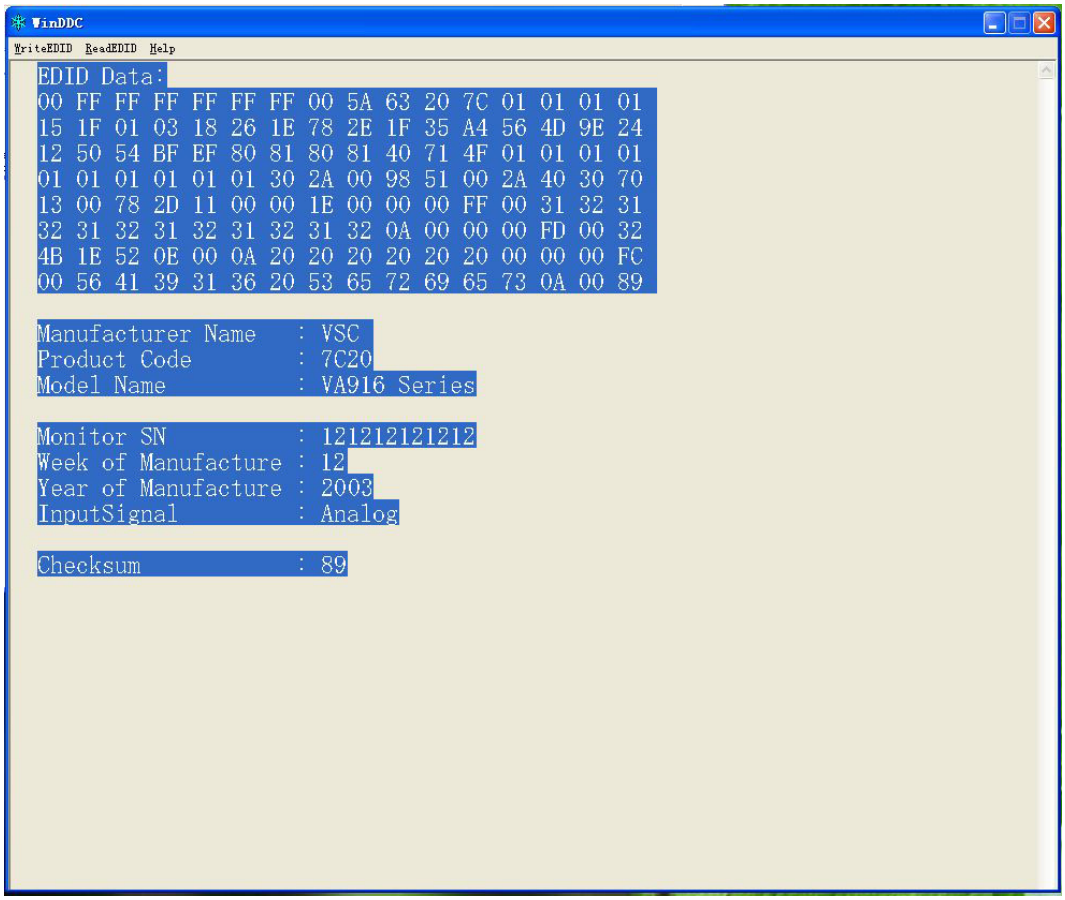
Note: After installation, you must restart the PC to take the setup to effect.

5.3.3 Connect the DDC board as follow:

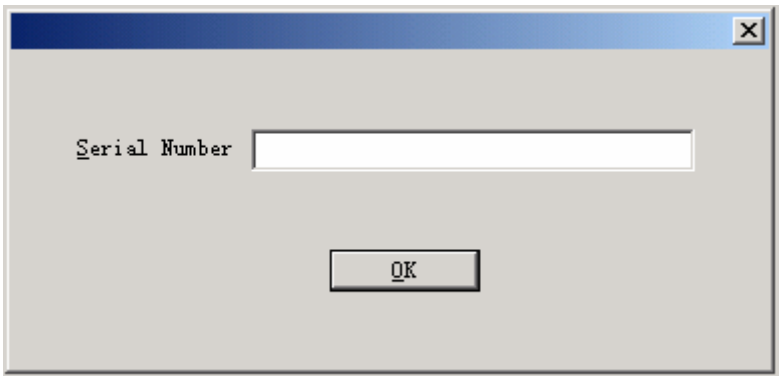


For analog

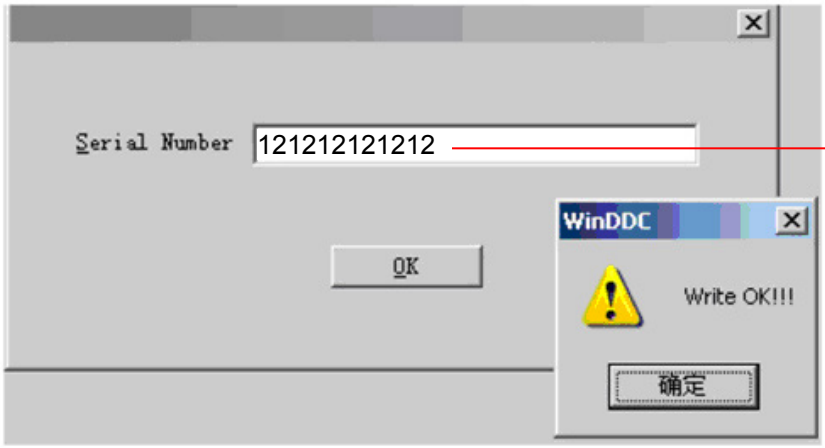
a. Double-click WinDDC.exe，appear as follow Figs：



b. Click WriteEDID.

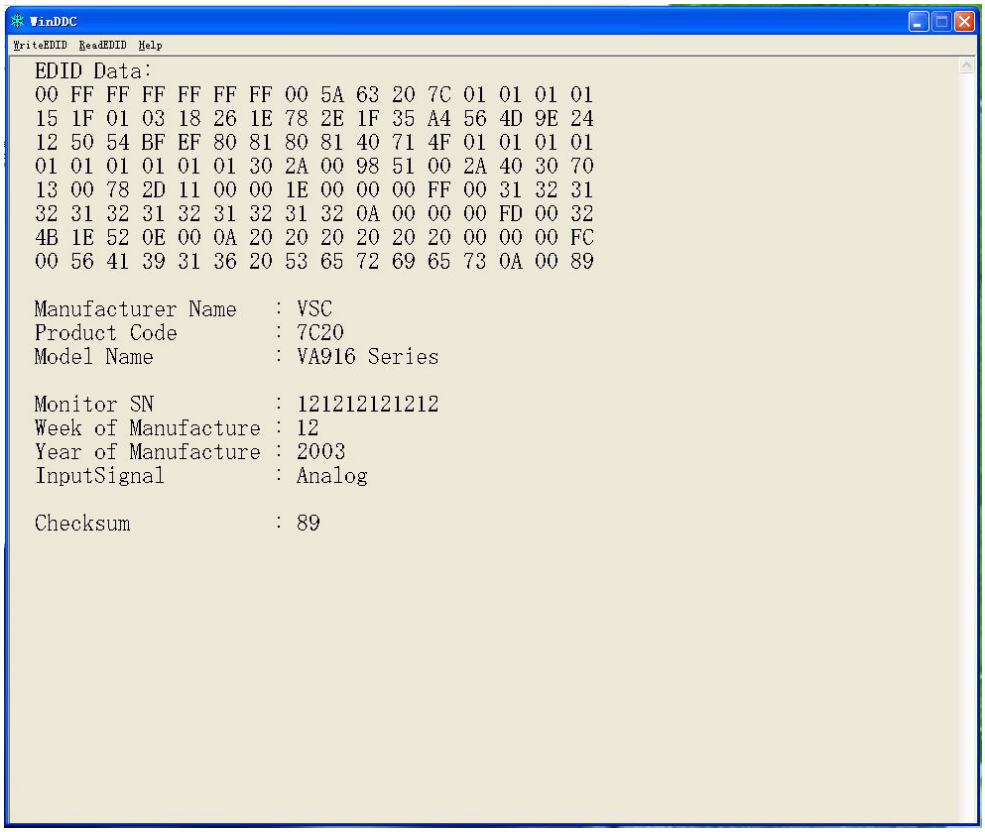


c. Key in the Serial Number printed on the barcode label, then click “OK”

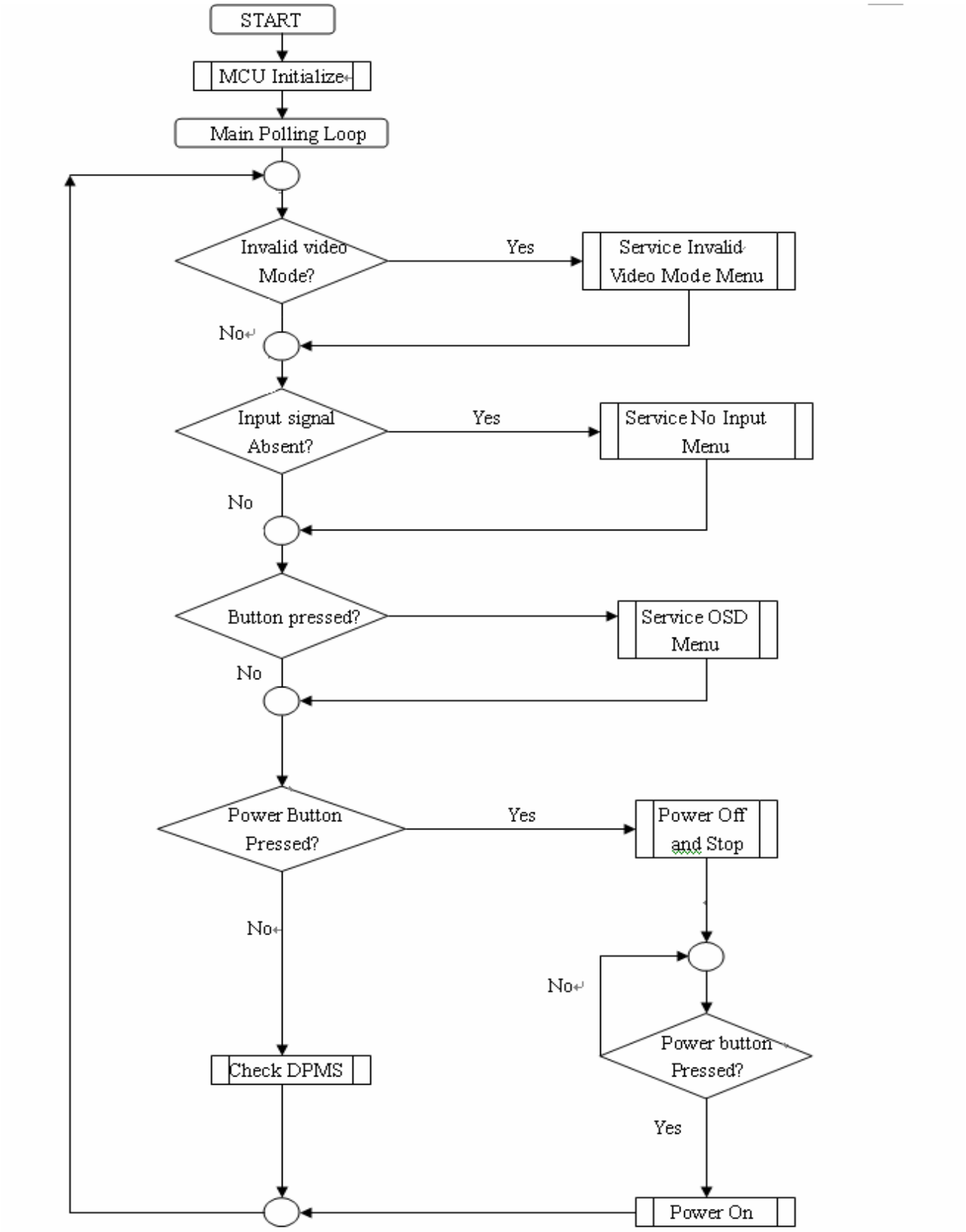


12 codes,
for example.

d. Unit appears the following Fig, writer completed.

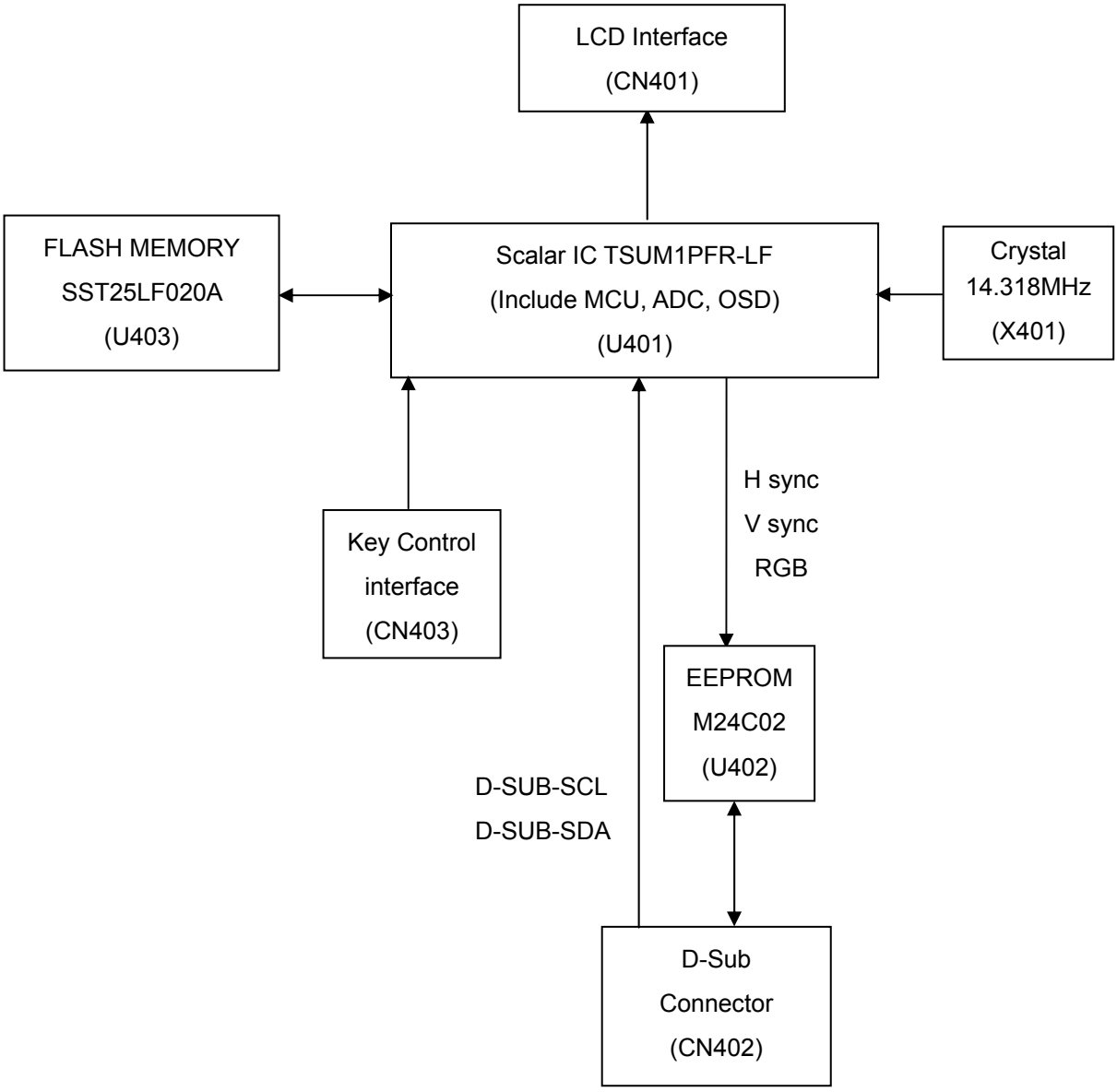


6. Troubleshooting Flow Chart

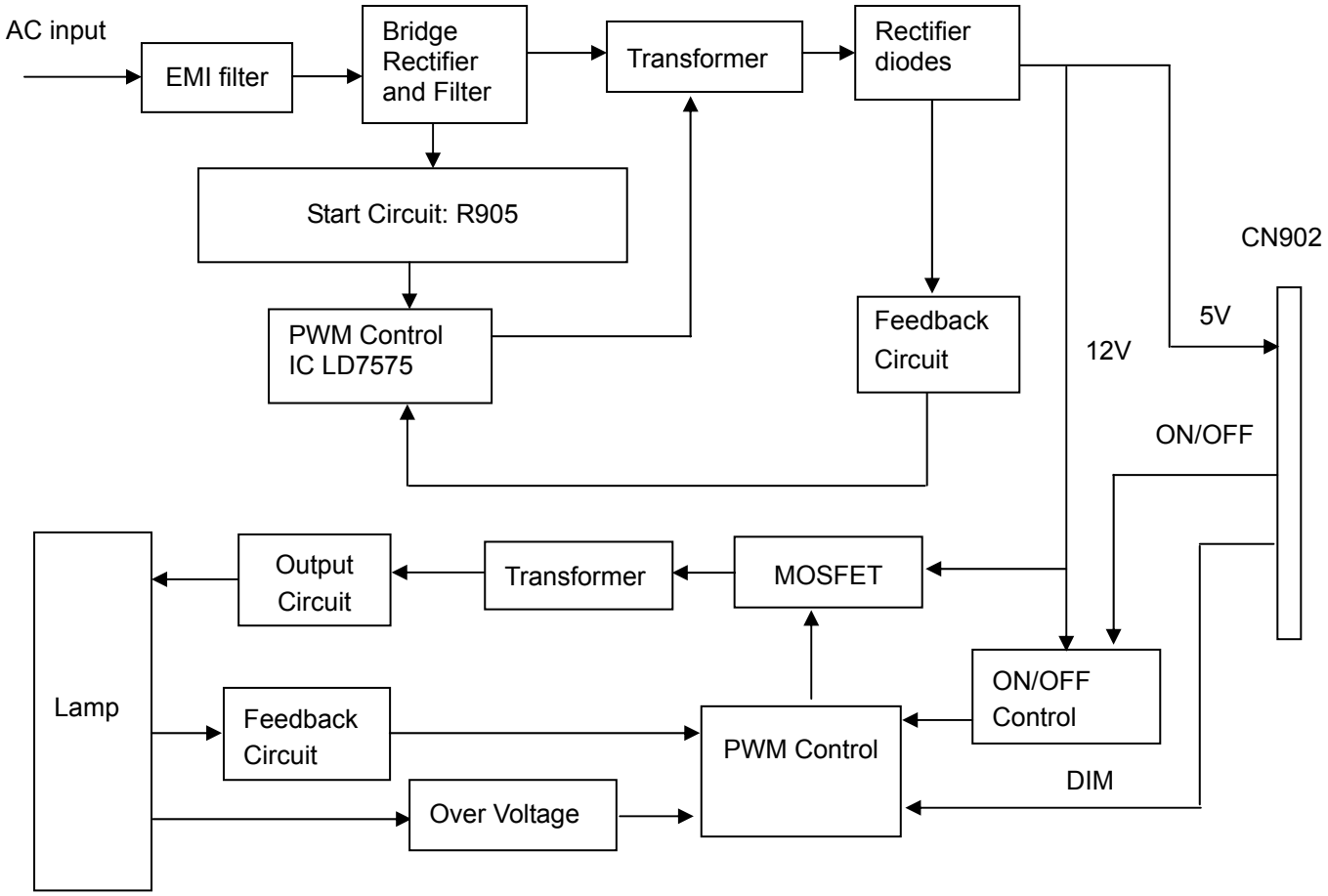


7. Block Diagram

7.1 Main Board

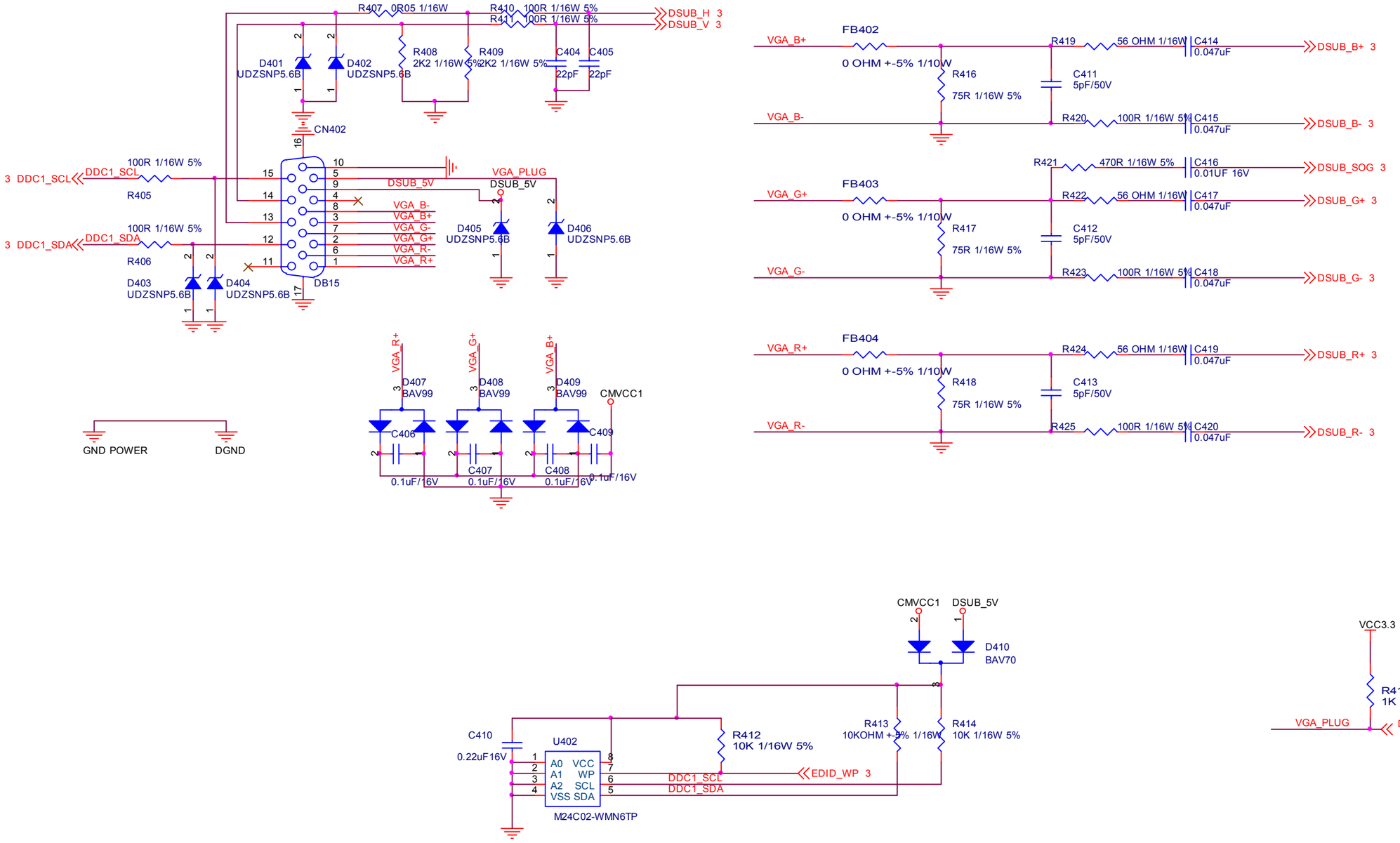


7.2 Power Board

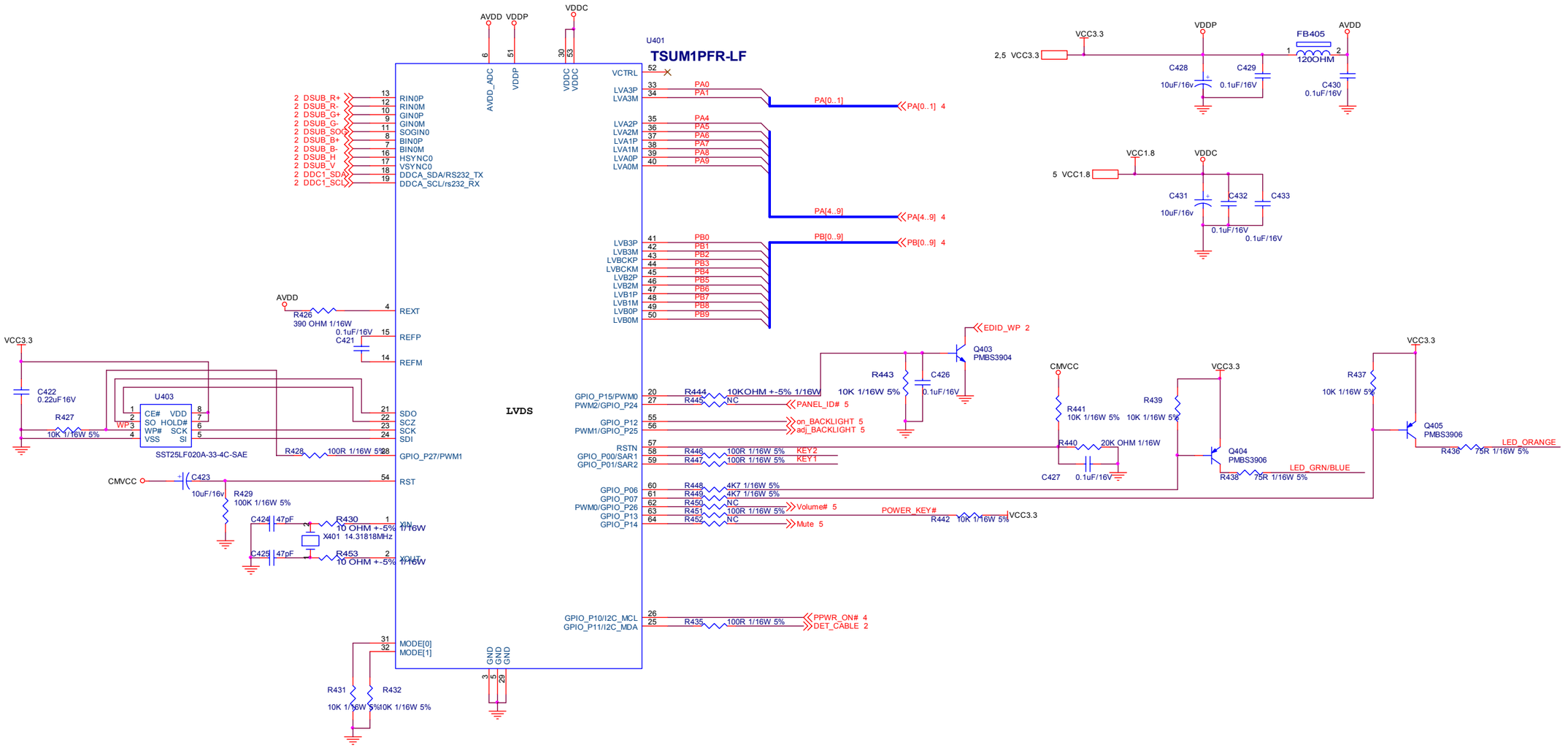


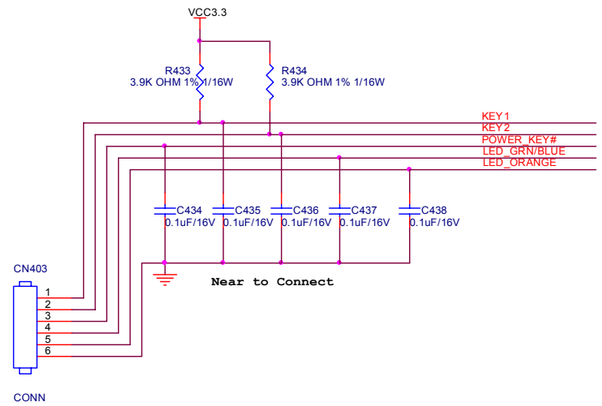
8. Schematic Diagrams

8.1 Main Board

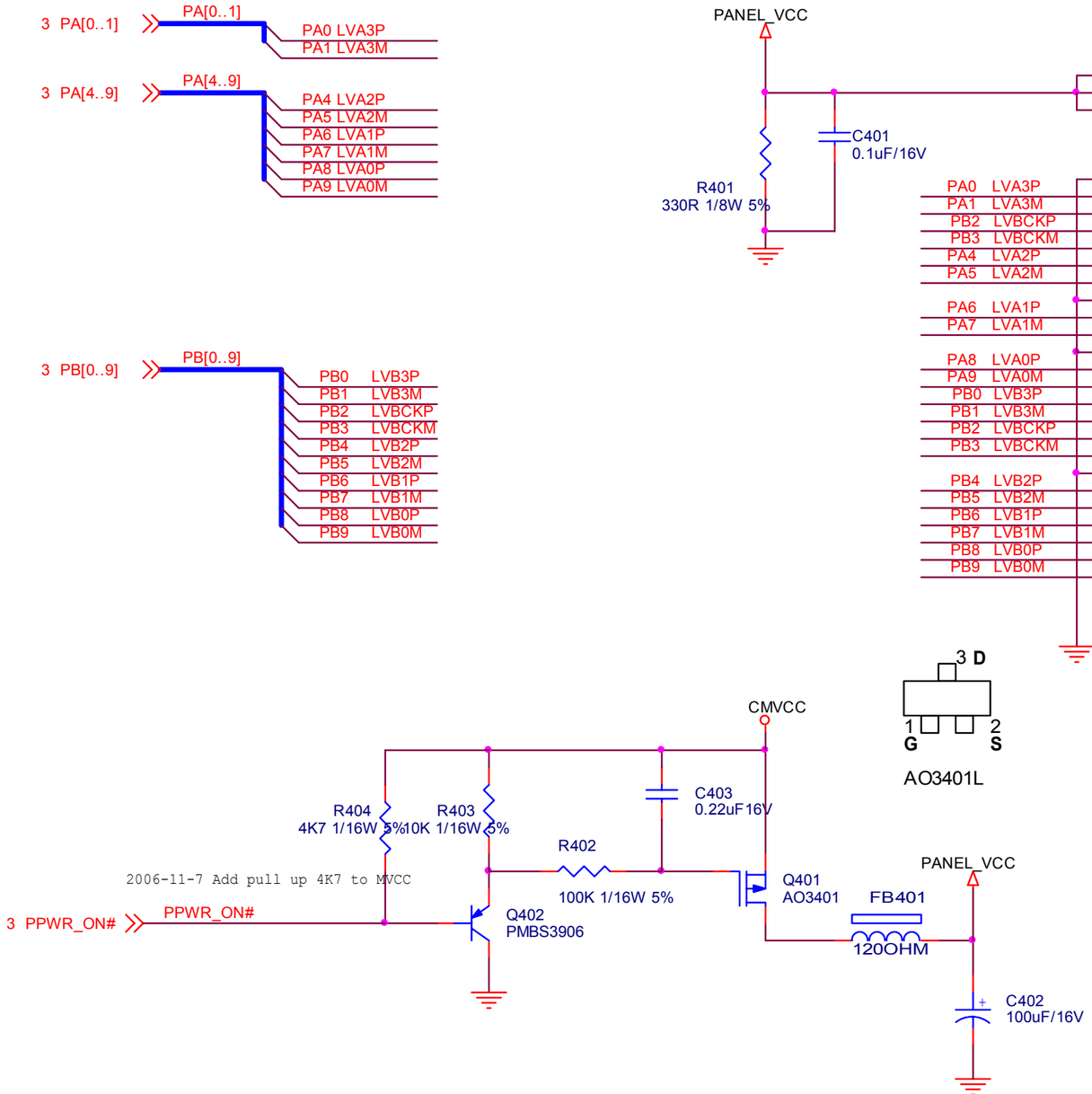


T P V （Top Victory Electronics Co . , Ltd. ）		OEM MODEL	VSC VA916	Size	B
結 隔 瓜 網 腹	G2805-1-X-X-2-090409	TPV MODEL		Rev	1
Key Component	2.INPUT	PCB NAME	715G2805-1	称 爹	
Date	Thursday,Nov-01-2007	Sheet	2 of 5		

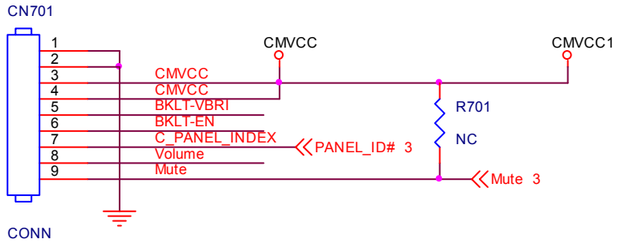


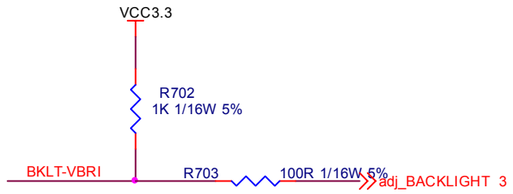


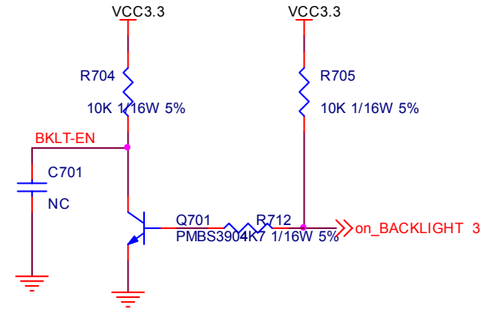
T P V （Top Victory Electronics Co . , Ltd. ）		OEM MODEL	VSC VA916	Size	B
話 隔 瓜 銅 腹	G2805-1-X-X-2-090409	TPV MODEL		Rev	1
Key Component	3.SCALER	PCB NAME	715G2805-1	称 爹	
Date	Thursday,Nov-01-2007	Sheet	3 of 5		

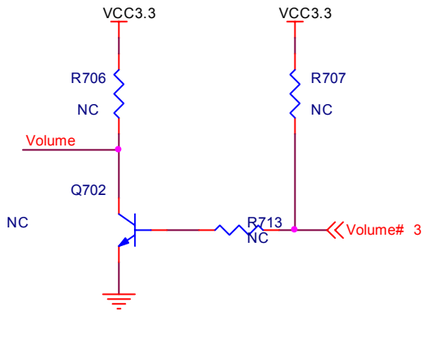


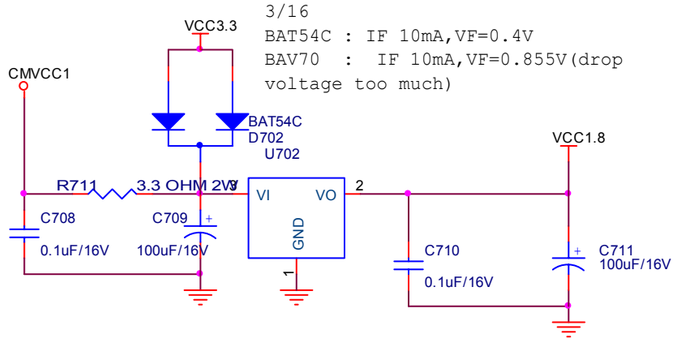
T P V （Top Victory Electronics Co . , Ltd. ）		OEM MODEL	VSC VA916	Size	B
結 隔 瓜 綑 腹	G2805-1-X-X-2-090409	TPV MODEL		Rev	1
Key Component	4.OUPUT	PCB NAME	715G2805-1	称 爹	
Date	Thursday,Nov-01-2007	Sheet	4 of 5		

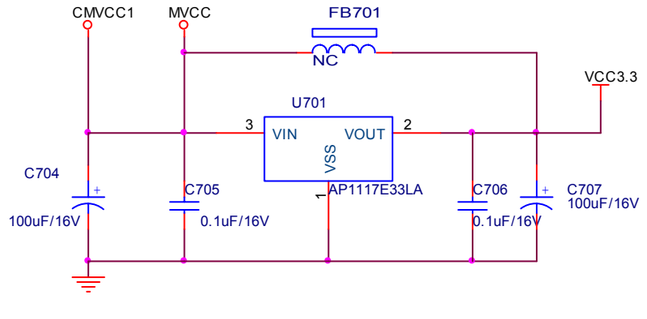


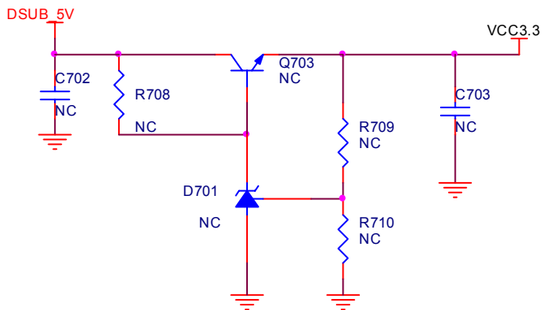






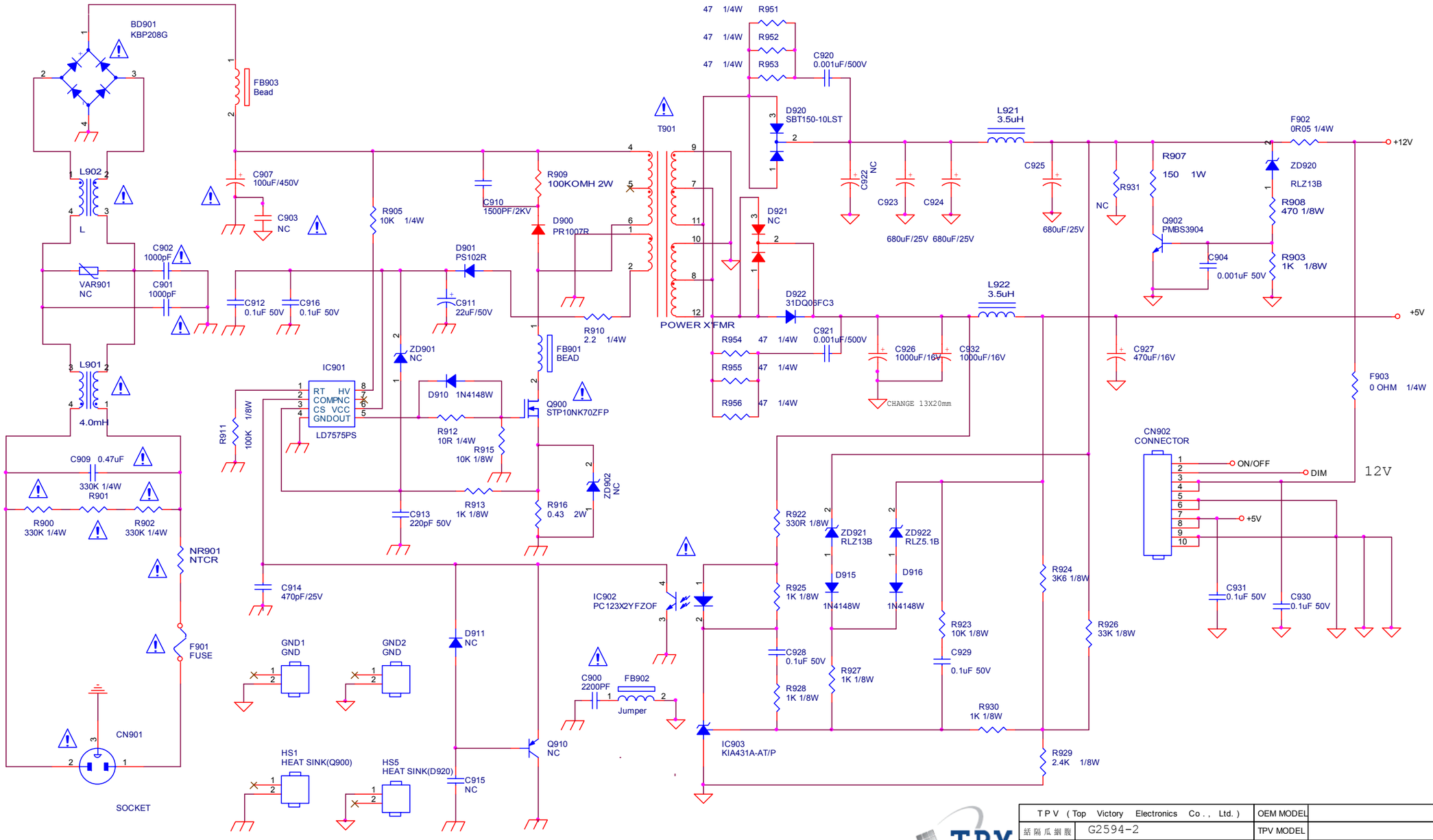




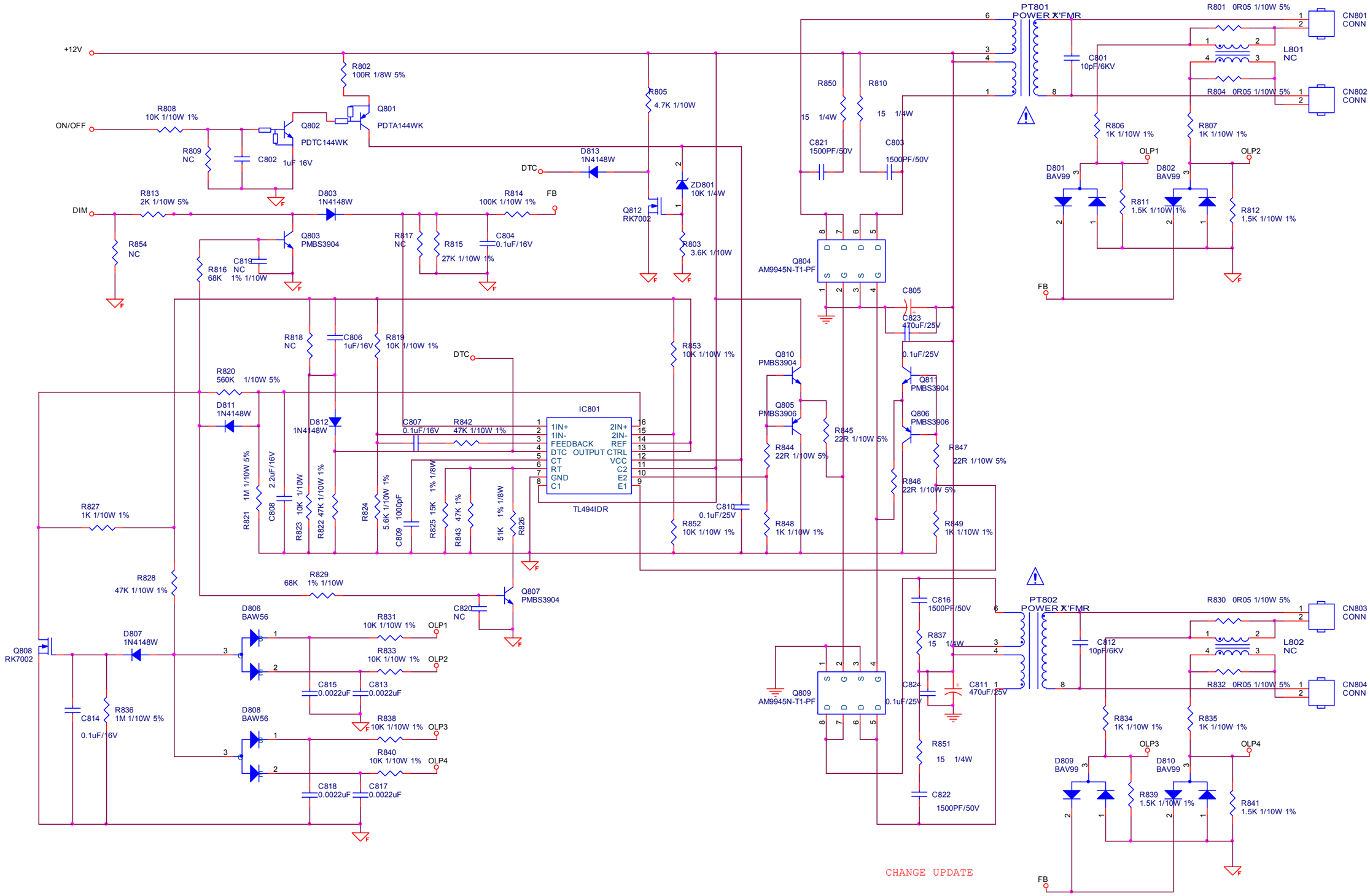


T P V （Top Victory Electronics Co., Ltd.）		OEM MODEL	VSC VA916	Size	B
結 隔 瓜 網 腹	G2805-1-X-X-2-090409	TPV MODEL		Rev	1
Key Component	5.POWER	PCB NAME	715G2805-1	称 爹	
Date	Thursday,Nov-01-2007	Sheet	5 of 5		

8.2 Power Board

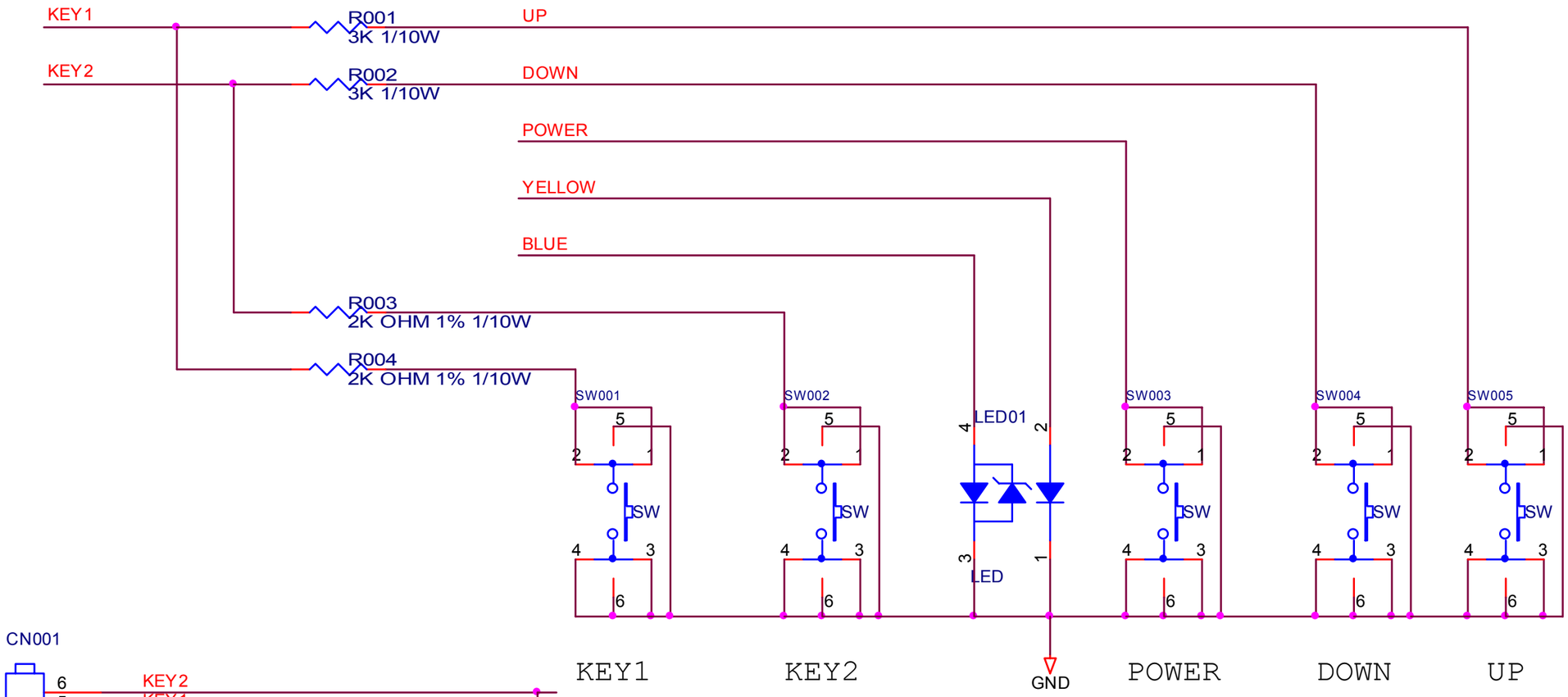


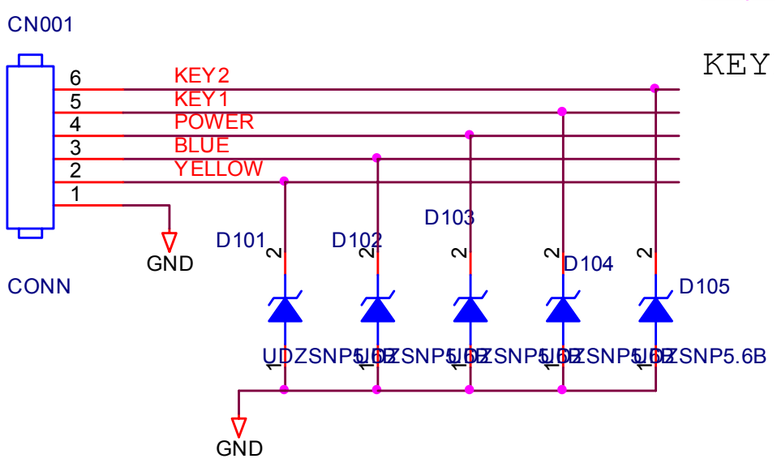
TPV (Top Victory Electronics Co., Ltd.)		OEM MODEL		Size	Custom
益陽瓜貓服	G2594-2	TPV MODEL		Rev	1.1
Key Component	01.POWER	PCB NAME		称爹	<称爹>
Date	Thursday, March 20, 2008	Sheet	2 of 3		



TPV (Top Victory Electronics Co., Ltd.)		OEM MODEL		Size	A3
結隔瓜網腹	G2594-2	TPV MODEL		Rev	1.1
Key Component	02.INVERTER	PCB NAME		称爹	<称爹>
Date	Thursday, March 20, 2008	Sheet	3 of 3		

8.3 Key Board

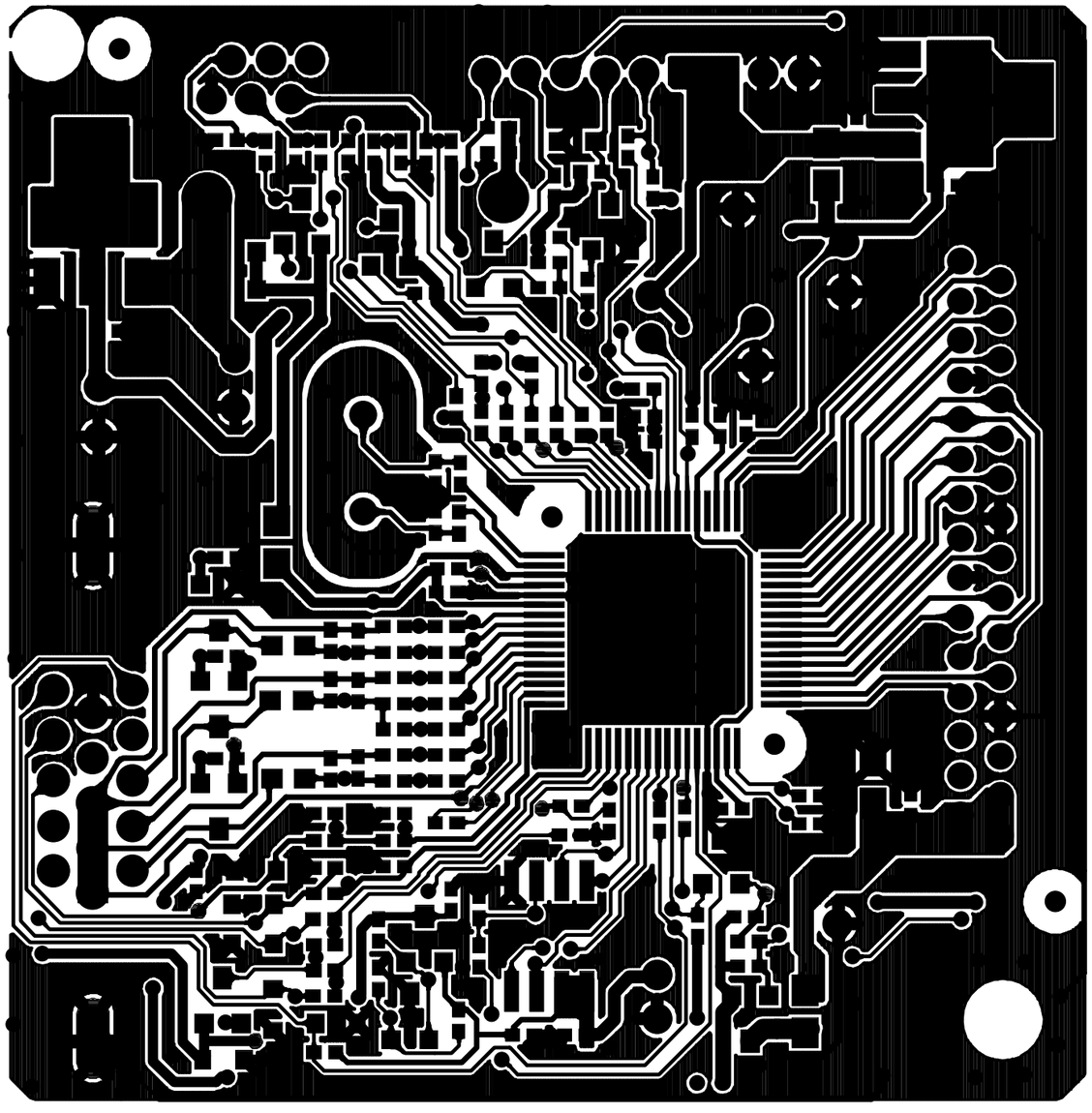


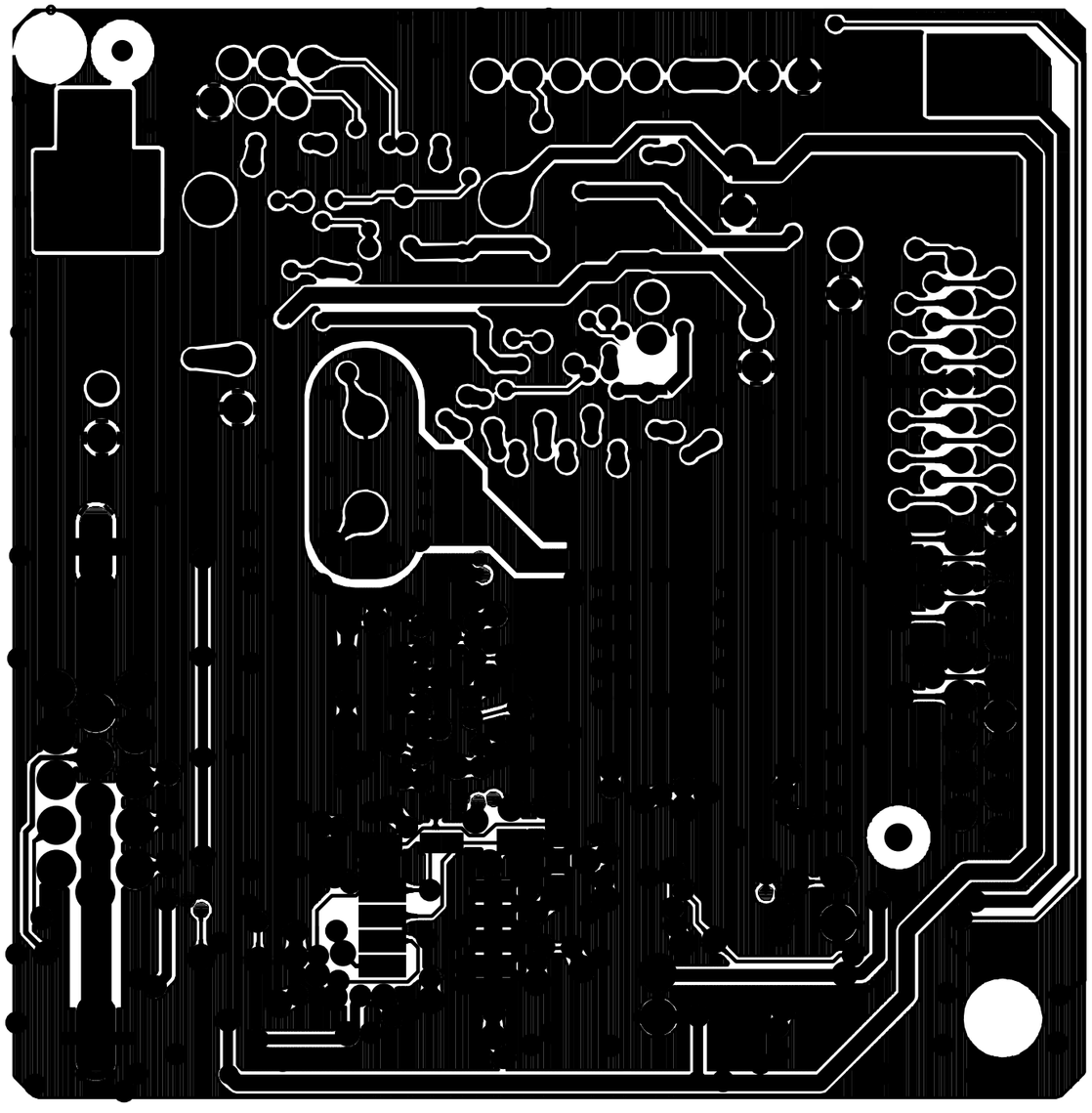


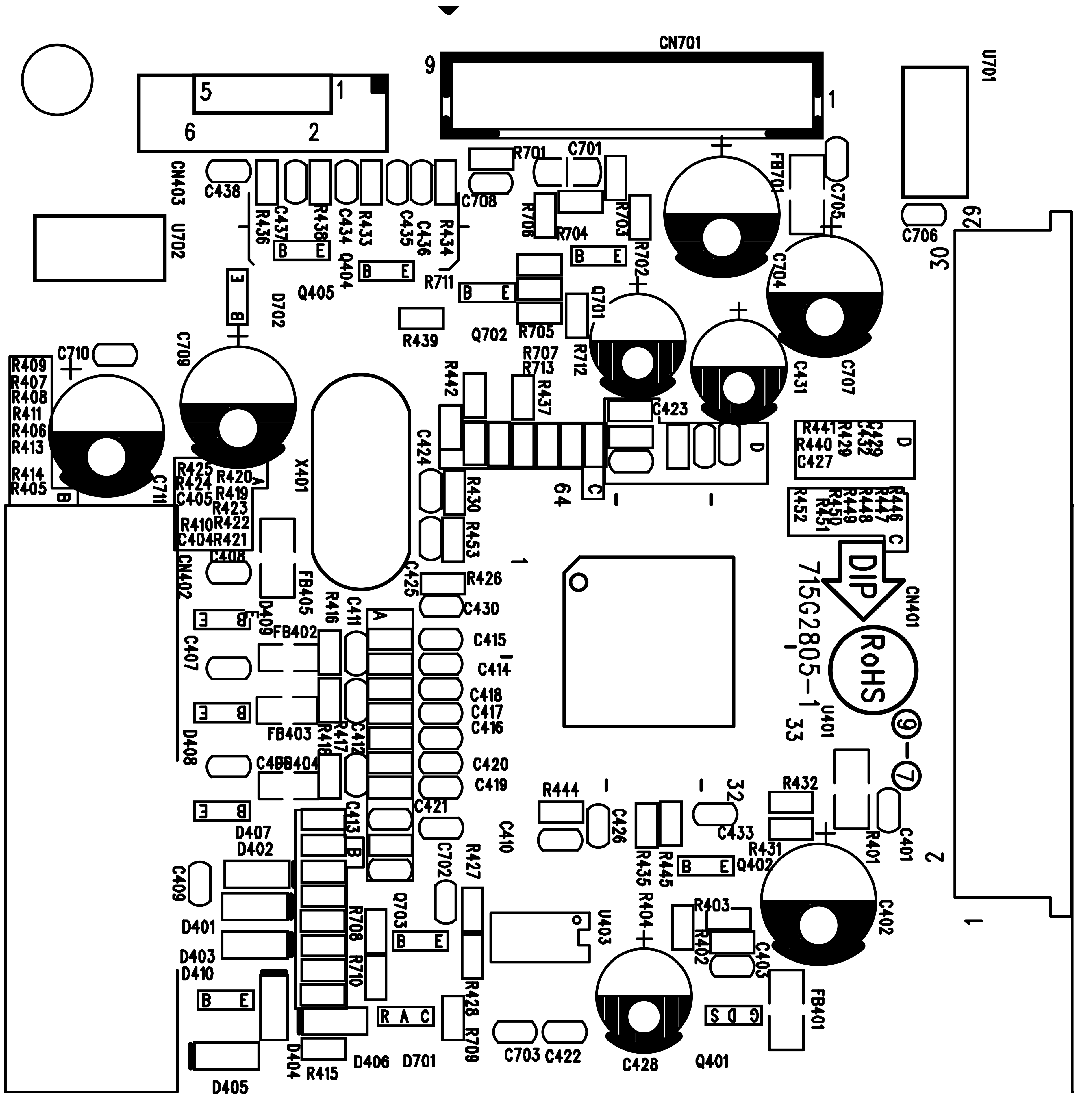
T P V （Top Victory Electronics Co . , Ltd. ）		OEM MODEL	VSC VA916/VA926	Size	A
結 隔 瓜 綢 腹	G2807-1-X-X-1-071105	TPV MODEL		Rev	1
Key Component	2. Key board	PCB NAME	715G2807-1	称 爹	
Date	Saturday,2007-11-03	Sheet	2 of 2		

9. PCB Layout Diagrams

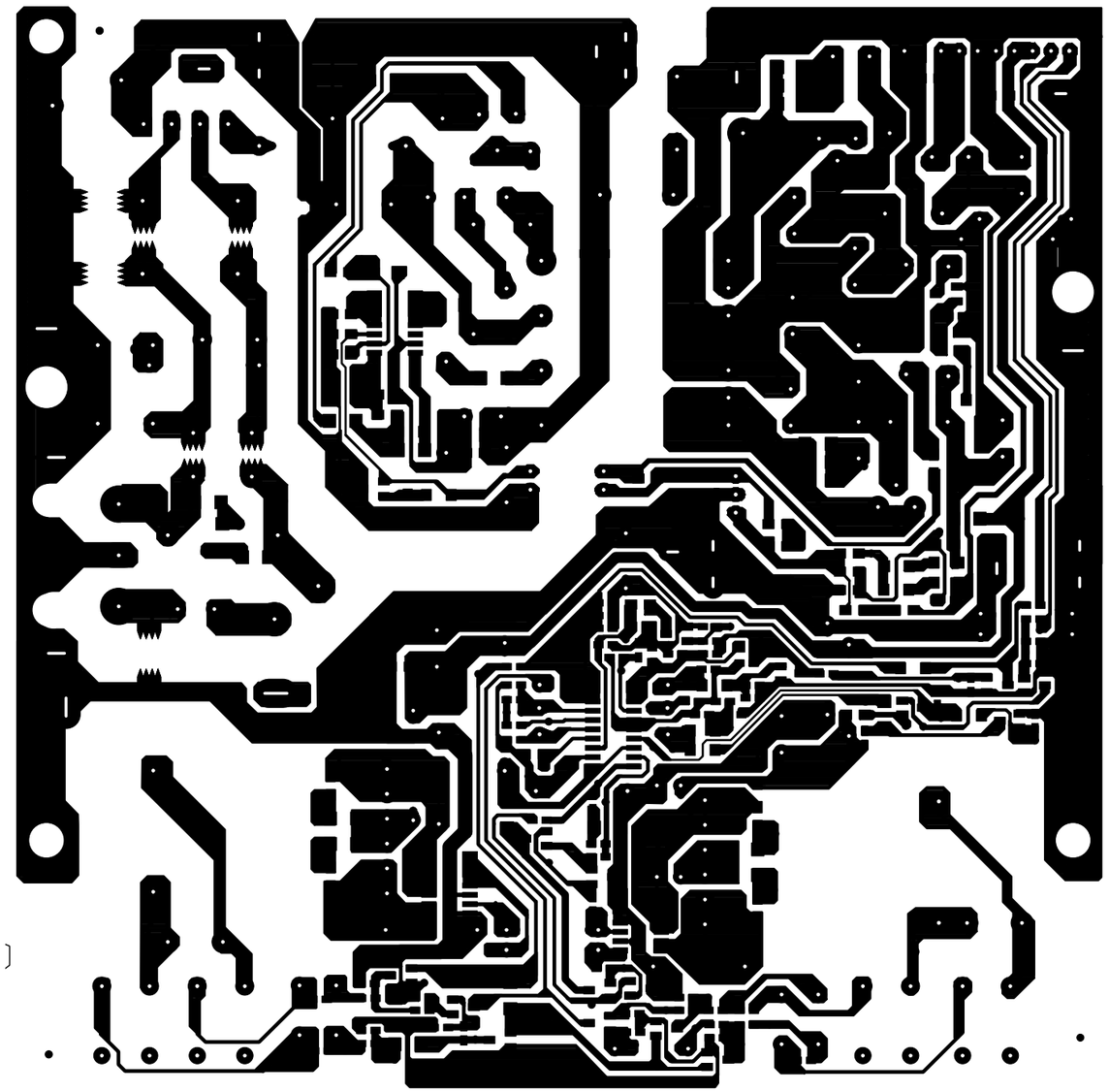
9.1 Main Board

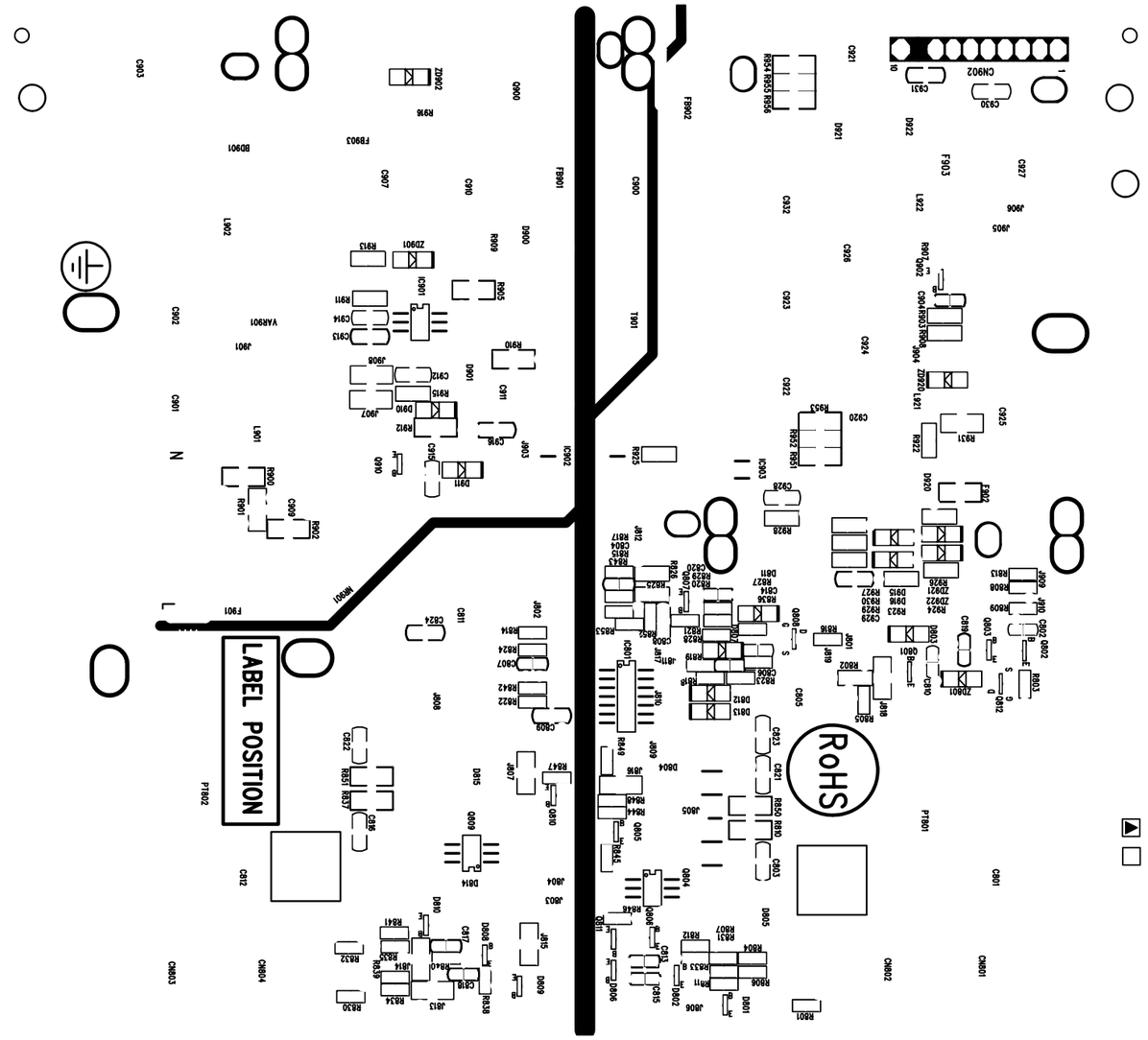


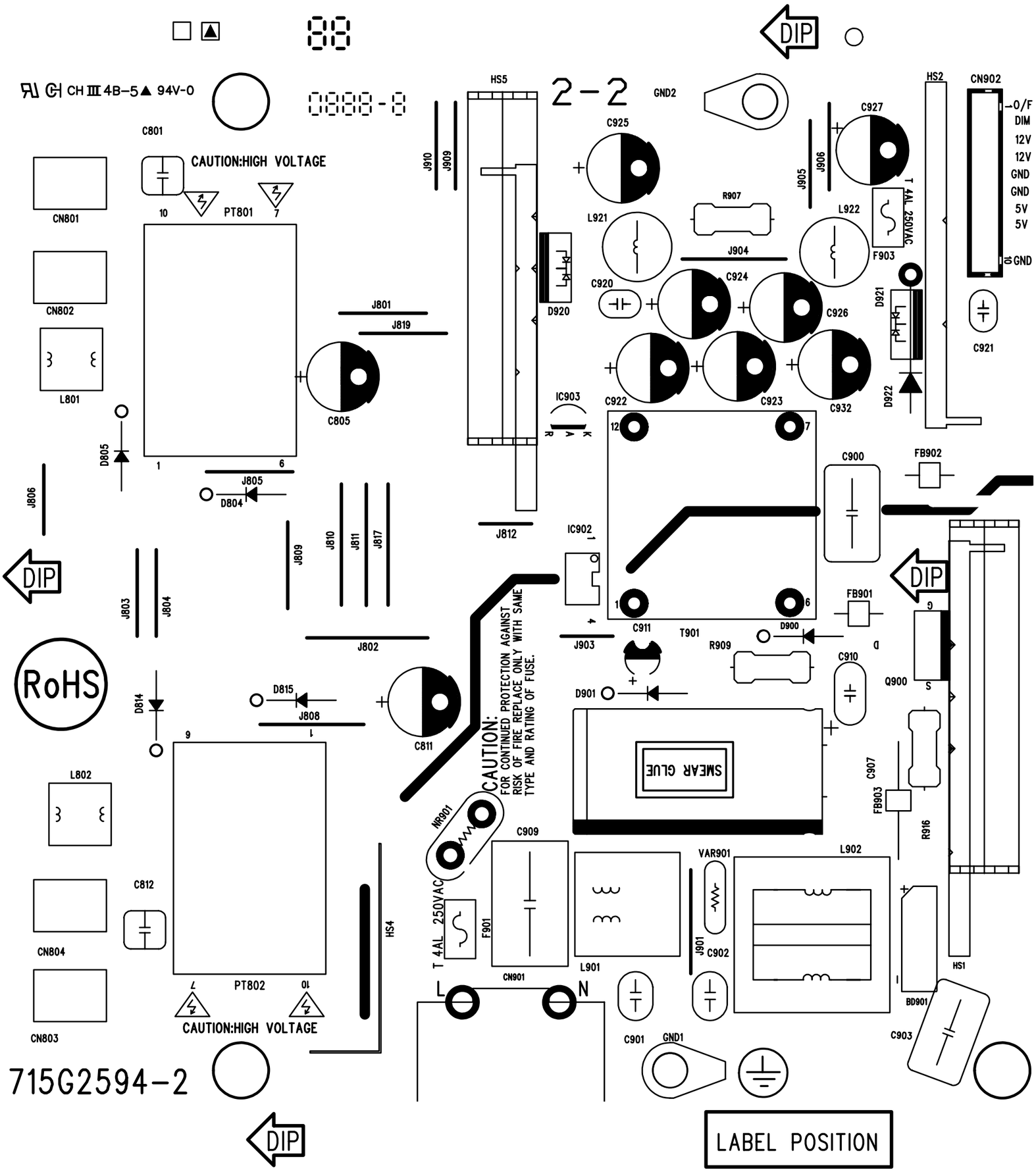



CN701
CN403
U702
U701
C438
R436
C437
R438
C434
R433
C435
C436
R434
Q404
Q405
D702
R701
C701
C708
R706
R704
R703
R702
FB701
C705
C706
C704
R711
Q702
R705
R439
Q701
R707
R713
R712
C431
C707
C709
C710
R409
R407
R408
R411
R406
R413
R414
R405
C711
R425
R424
R420
C405
R419
R423
R410
R422
C404
R421
C408
CN402
X401
R442
R437
C423
C424
R430
R453
R426
C425
C430
C415
C414
C418
C417
C416
C420
C419
C421
R441
R440
R429
C427
R452
R446
R447
R448
R449
R450
R451
DIP
715G2805-1
RoHS
CN401
U401
FB405
FB402
FB403
FB404
R416
C411
C412
R417
R418
C407
C406
D409
D408
D407
D402
C409
D401
D403
D410
D405
D404
R415
D406
D701
C413
R708
R710
Q703
C702
R427
R428
R709
C410
U403
R444
C426
R435
R445
R404
Q402
C433
R432
R431
R401
C401
C402
R403
R402
C403
FB401
Q401
C428
C703
C422

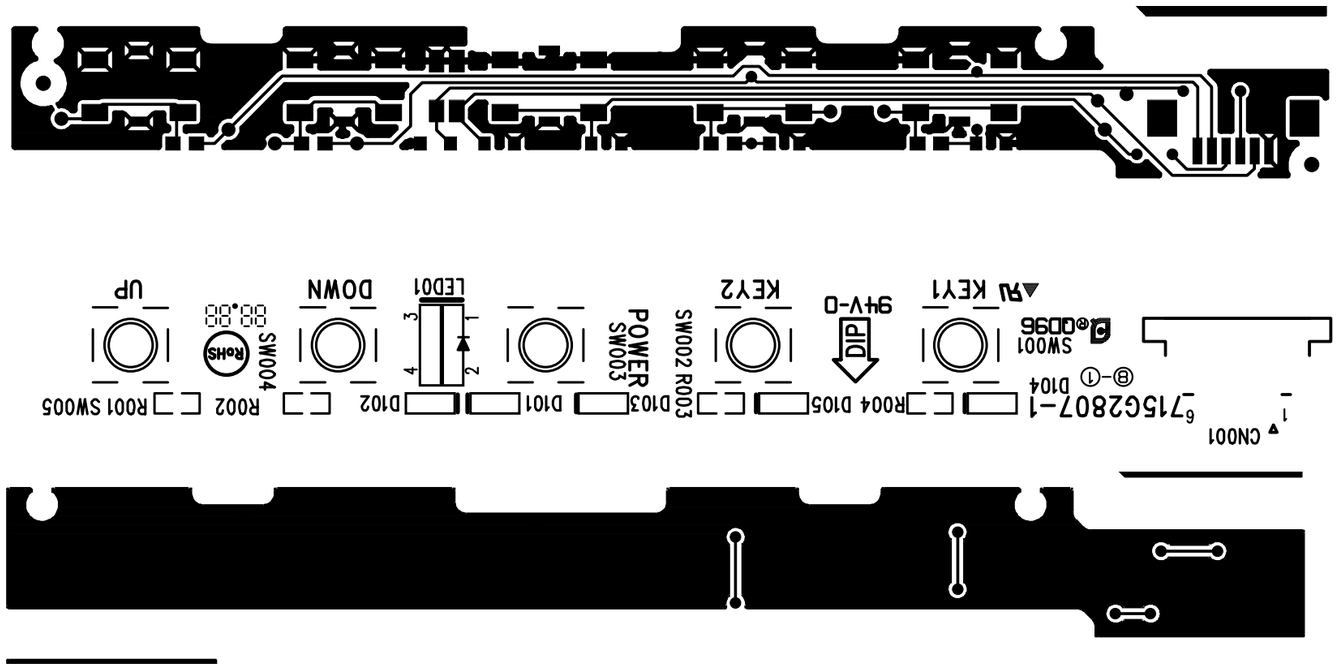
9.2 Power Board





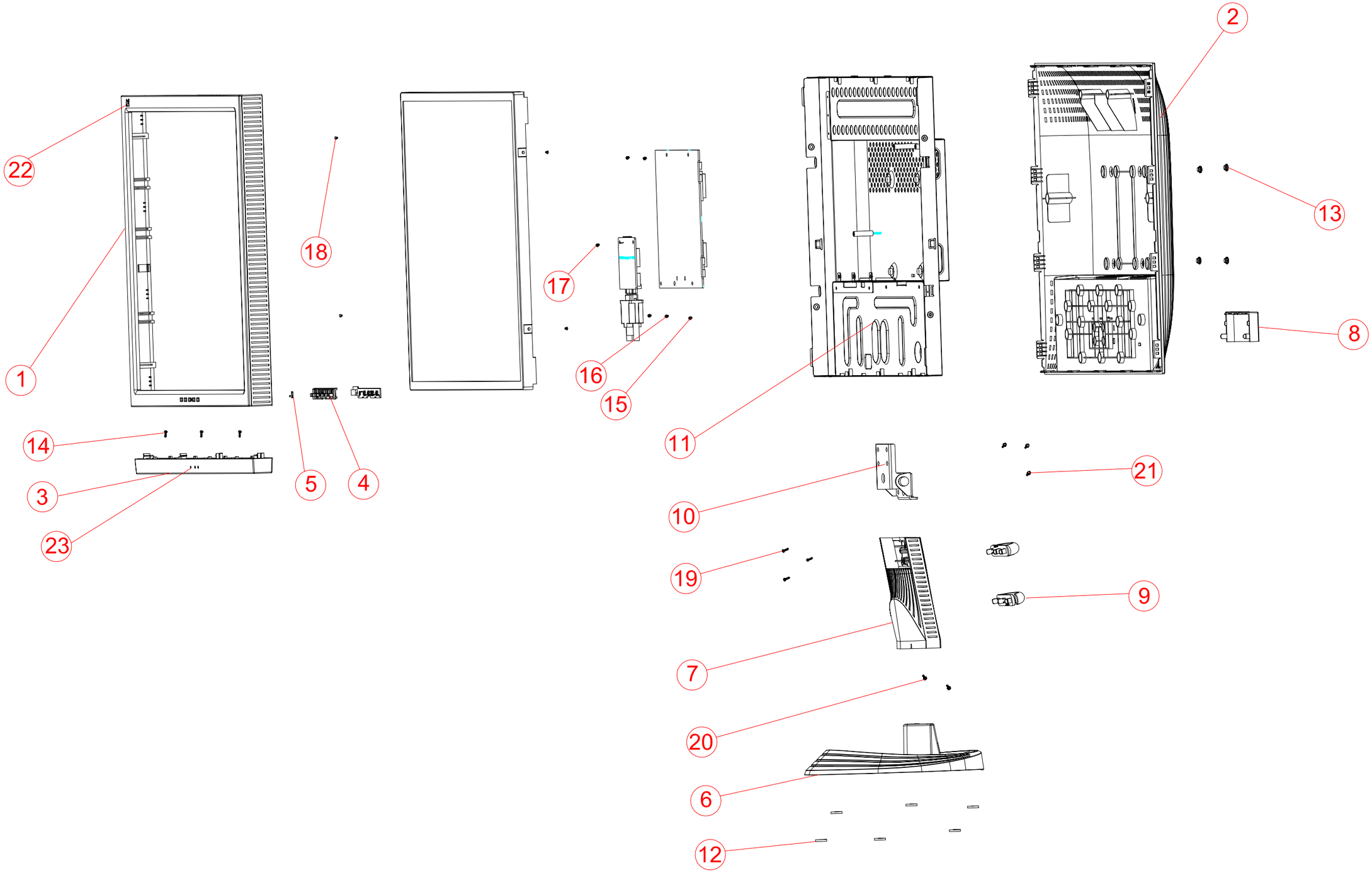

CH III 4B-5▲ 94V-0
CAUTION:HIGH VOLTAGE
CAUTION:HIGH VOLTAGE
CAUTION:
FOR CONTINUED PROTECTION AGAINST
RISK OF FIRE REPLACE ONLY WITH SAME
TYPE AND RATING OF FUSE.
SMEAR GLUE
T 4AL 250VAC
T 4AL 250VAC
RoHS
DIP
GND2
O/F
DIM
12V
12V
GND
GND
5V
5V
GND
715G2594-2
LABEL POSITION

9.3 Key Board


CN001
715G2807-1
D104
SW001
KEY1
DIP
94V-0
KEY2
SW002
R003
POWER
SW003
D103
D101
D102
LED01
DOWN
SW004
R002
R001
SW005
UP

10. Exploded Diagram and Spare Parts List

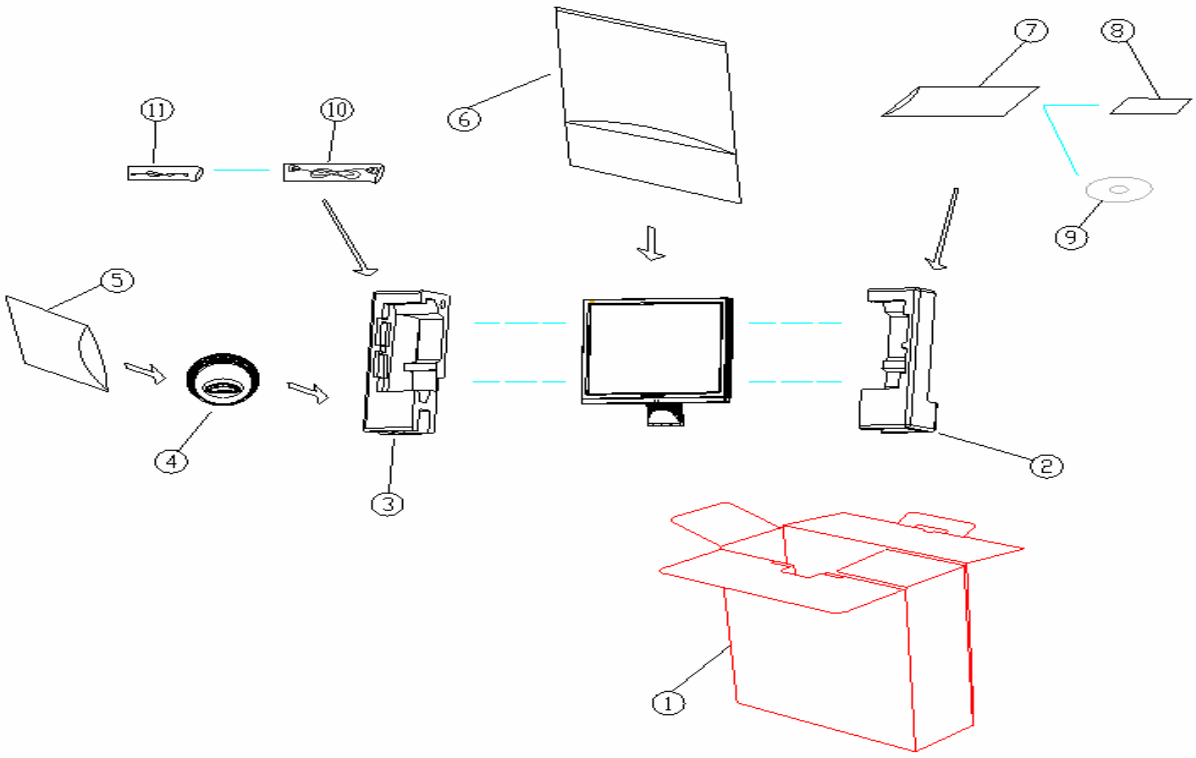
10.1 EPL



Exploded Parts List

Item	Description	Part No.	Qt"Y
1	BEZEL	NA	1
2	REAR COVER	NA	1
3	BEZEL-CHIN	NA	1
4	KEY BUTTON	NA	1
5	LENS	NA	1
6	BASE	NA	1
7	STAND	NA	1
8	HG-COVER	NA	1
9	CABLE-CLIP	NA	1
10	HINGE	NA	1
11	MAINFRAME	NA	1
12	RUBBER FOOT	NA	6
13	RUBBER VESA	NA	4
14	SCREW (BEZEL & BEZEL CHIN)	0Q1G 330 8120	3
15	SCREW (POWER BOARD & MAIN FRAME)	0M1G1730 6120	3
16	SCREW (POWER BOARD & MAIN FRAME)	0M1G1730 6120	1
17	SCREW (SCALAR BOARD & MAIN FRAME)	0M1G1730 6120	1
18	SCREW (FRAME & PANEL)	0M1G 330 5120	4
19	SCREW (HINGE & STAND)	0Q1G1040 8120	3
20	SCREW (STAND & HINGE)	0M1G 940 8120	2
21	SCREW (HINGE & MAIN FRAME)	0M1G1740 10 47 CR3	4
22	LOGO	NA	1
23	FRONT LOGO	NA	1

PPL



Item	Description	Qt"y
1	19 LCD CARTON	1 PCS
2	EPS	1 PCS
3	EPS	1 PCS
4	BASE	1 PCS
5	PE BAG FOR BASE	1 PCS
6	PE BAG FOR MONITOR	1 PCS
7	PE BAG MANUAL	1 PCS
8	QSG	1 PCS
9	CD MANUAL	1 PCS
10	D-SUB CABLE	1 PCS
11	POWER CORD	1 PCS

10.2 Spare Parts List

T99HMRDYMWVSNC

Location	Part Number	Description	Remark
	019G6014 1	TIE FOR STRAP	
	023G3178709 3A	LOGO	
	023G3178709 4A	VSC17-LCD FRONT LOGO	
	040G 581 26704	SHIPPING LABEL	
	040G 58160811A	GREEN DOT LABEL	
	041G 68508 A	CONTROL CARD	
	050G 600 1 W	WHITE STRAP	
	050G 600 2	HANDLE1	
	050G 600 3	HANDLE2	
	052G 1185	MIDDLE TAPE	
	052G 1185	MIDDLE TAPE	
	052G 1185 24	VSC TAPE	
	052G 1186	SMALL TAPE	
	052G 2191 A	PAPER TAPE	
	052G6019 1	INSULATING TAPE	
	052G6020 5	PROTECT FILM	
E08902	089G 728CAA DB	D-SUB CABLE	2nd source
E08902	089G 728GAA DB	D-SUB CABLE	2nd source
E08902	089G 728HAA DB	D-SUB CABLE	
E08905	089G176J 6500	FFC CABLE	
	089G179J30H 9	FFC CABLE 30P 210MM P1.0	
E08901	089G414A18N IS	POWER CORD 32E1818021	2nd source
E08901	089G414A18N YH	POWER CORD(32E1818021)	
	0M1G 330 5120	SCREW	
	0M1G 940 8120	SCREW	
	0M1G1730 6120	SCREW,42-D020523	
	0M1G1730 6120	SCREW,42-D020523	
	0M1G1740 10 47 CR3	SCREW	
	0Q1G 330 8120	SCREW 3X8MM 42A9930017/ 42-D002093	
	705GQ834403	STAND-BASE ASS'Y	
	0M1G1740 8120	SCREW FOR STD/MF 42-D020715/42-D000649	
	0Q1G1040 8120	SCREW	
	A33G0246 KR 1L	CABLE-CLIP_VA1720W	
	A34G0367 KR 1B	BASE	
	A34G0368 KR 1B	STAND	
	J37G0070 2	HINGE L19-7VSC3(VA916&VA926)	

E750	750GLH90N3A12N	PANEL HSD190MEN3-A00 NJ HSD	2nd source
E750	750GLH90N3A12N000V	PANEL HSD190MEN3 A00 HSD	
	756GQ8CB VV050	MAIN BOARD-CBPCRMRVSQ1	
SMTCR-U403	100GVMH9002N31	MCU ASS'Y-056G1133 81	
	A33G0218 KR 1L	HG-COVER_VA1720W	
	040G 45762412B	CBPC LABEL	
CN701	033G3802 9	WAFER 9P RIGHT ANELE PITCH	
CN403	033G8019 6C	CONN.6P 1.0 DIP	
CN401	033G801930F BH JF	WAFER 30PIN FFC CONNECTOR	
R711	061G152M339 64	CHIPR 3.3 OHM +-5% 2W	
C402	067G215D1013KV	EC CAP 100UF 16V 6.3*11MM	
C709	067G215D1013KV	EC CAP 100UF 16V 6.3*11MM	
C707	067G215D1013KV	EC CAP 100UF 16V 6.3*11MM	
C704	067G215D1013KV	EC CAP 100UF 16V 6.3*11MM	
C711	067G215D1013KV	EC CAP 100UF 16V 6.3*11MM	
C431	067G305V100 3P	10UF +-20% 16V 105℃	
C423	067G305V100 3P	10UF +-20% 16V 105℃	
C428	067G305V100 3P	10UF +-20% 16V 105℃	
CN402	088G 35315F HD	D-SUB CONN F ATTACHED SCREW	
X401	093G 2253B J1	XTL NXS14.31818AE32F-KAB5 20PPM 49/U-S	
U401	056G 562557	IC TSUM1PFR-LF	
U702	056G 563 27	IC AIC1117A-18PYTR-R SOT223	
U701	056G 585 4A	IC AP1117E33L-13	
U402	056G1133 34	M24C02-WMN6TP	
U403	056G1133 81	SST25LF020A-33-4C-SAE	
Q403	057G 417 4	PMBS3904/PHILIPS-SMT(04)	
Q701	057G 417 4	PMBS3904/PHILIPS-SMT(04)	
Q402	057G 417 6	PMBS3906/PHILIPS-SMT(06)	
Q404	057G 417 6	PMBS3906/PHILIPS-SMT(06)	
Q405	057G 417 6	PMBS3906/PHILIPS-SMT(06)	
Q401	057G 763 1	A03401 SOT23 BY AOS(A1)	
R407	061G0402000	RST CHIP MAX 0R05 1/16W	
R430	061G0402100	RST CHIPR 10 OHM +-5% 1/16W	
R453	061G0402100	RST CHIPR 10 OHM +-5% 1/16W	
R405	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R406	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R410	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R411	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R420	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R423	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	

R425	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R428	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R435	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R446	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R447	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R451	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R703	061G0402101	RST CHIPR 100 OHM +-5% 1/16W	
R415	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R702	061G0402102	RST CHIPR 1 KOHM +-5% 1/16W	
R439	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R441	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R442	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R443	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R444	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R704	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R705	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R437	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R432	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R431	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R427	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R414	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R413	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R412	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R403	061G0402103	RST CHIPR 10 KOHM +-5% 1/16W	
R402	061G0402104	RST CHIPR 100 KOHM +-5% 1/16W	
R429	061G0402104	RST CHIPR 100 KOHM +-5% 1/16W	
R440	061G0402203	RST CHIP 20K 1/16W 5%	
R408	061G0402222	RST CHIPR 2.2 KOHM +-5% 1/16W	
R409	061G0402222	RST CHIPR 2.2 KOHM +-5% 1/16W	
R426	061G0402390 0F	RST CHIP 390R 1/16W 1%	
R433	061G0402390 1F	RST CHIPR 3.9KOHM +-1% 1/16W	
R434	061G0402390 1F	RST CHIPR 3.9KOHM +-1% 1/16W	
R421	061G0402471	RST CHIPR 470 OHM +-5% 1/16W	
R404	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R448	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R449	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R712	061G0402472	RST CHIPR 4.7 KOHM +-5% 1/16W	
R419	061G0402560	RST CHIP 56R 1/16W 5%	
R422	061G0402560	RST CHIP 56R 1/16W 5%	
R424	061G0402560	RST CHIP 56R 1/16W 5%	

R416	061G0402750	RST CHIPR 75 OHM +-5% 1/16W	
R417	061G0402750	RST CHIPR 75 OHM +-5% 1/16W	
R418	061G0402750	RST CHIPR 75 OHM +-5% 1/16W	
R436	061G0402750	RST CHIPR 75 OHM +-5% 1/16W	
R438	061G0402750	RST CHIPR 75 OHM +-5% 1/16W	
FB402	061G0603000	RST CHIP MAX 0R05 1/10W	
FB403	061G0603000	RST CHIP MAX 0R05 1/10W	
FB404	061G0603000	RST CHIP MAX 0R05 1/10W	
R401	061G0805331	RST CHIPR 330 OHM +-5% 1/8W	
C416	065G040210312K E	CAP CHIP 0402 0.01UF 16V X7R	
C401	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C406	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C407	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C408	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C409	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C421	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C426	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C427	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C429	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C430	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C432	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C433	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C434	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C435	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C436	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C437	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C438	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C705	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C706	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C708	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C710	065G0402104 15	MLCC 0402 0.1UF K 16V X5R	
C405	065G0402220 31	CHIP 22PF 50V NPO	
C404	065G0402220 31	CHIP 22PF 50V NPO	
C403	065G0402224 17	CAP CER 0.22UF -20%-80%	
C410	065G0402224 17	CAP CER 0.22UF -20%-80%	
C422	065G0402224 17	CAP CER 0.22UF -20%-80%	
C425	065G0402470 31	MLCC 0402 CAP 47PF J 50V NPO	
C424	065G0402470 31	MLCC 0402 CAP 47PF J 50V NPO	
C418	065G0402473 12	CHIP 0.047UF 16V X7R	
C419	065G0402473 12	CHIP 0.047UF 16V X7R	

C420	065G0402473 12	CHIP 0.047UF 16V X7R	
C414	065G0402473 12	CHIP 0.047UF 16V X7R	
C417	065G0402473 12	CHIP 0.047UF 16V X7R	
C415	065G0402473 12	CHIP 0.047UF 16V X7R	
C413	065G0402509 31	CHIP 5PF 50V NPO	
C412	065G0402509 31	CHIP 5PF 50V NPO	
C411	065G0402509 31	CHIP 5PF 50V NPO	
FB405	071G 56K121 M GP	120 OHM 6A	
FB401	071G 56K121 M GP	120 OHM 6A	
D702	093G 60505	DIO SIG SM BAT54C(PHSE)R	
D410	093G 64 42 P	BAV70 SOT23 BY PAN JIT	
D408	093G 6433S	DIODE BAV99 SEMTECH	
D407	093G 6433S	DIODE BAV99 SEMTECH	
D409	093G 6433S	DIODE BAV99 SEMTECH	
	715G2805 1	MAIN BOARD PCB	
D401	093G 39S501 T	LUDZS5.6BT1G BY LRC	
D402	093G 39S501 T	LUDZS5.6BT1G BY LRC	
D403	093G 39S501 T	LUDZS5.6BT1G BY LRC	
D404	093G 39S501 T	LUDZS5.6BT1G BY LRC	
D405	093G 39S501 T	LUDZS5.6BT1G BY LRC	
D406	093G 39S501 T	LUDZS5.6BT1G BY LRC	
	J12G 808 1	RUBBER VESA	
	J12G8B01 1	RUBBER FOOT	
	J15G8B12 1A	MAINFRAME L19-7VSC3(VA916)	
	J33G8B10 KR 2L	KEY BUTTON L19-7VSC3	
	J33G8B11 1 1C	LENS L19-VSC3	
	J34G8B16 KRA1B0130	BEZEL L19-7VSC3	
	J34G8B17 KR 1B	REARCOVER L19-7VSC3	
	J34G8B18 KD 1B	BEZEL-CHIN	
	KEPC8QJ1	KEY BOARD	
	709G2807 QM001	CONSUMPTIVE ASS'Y	
CN001	033G8019 6K H U	6P 1.0MM PITCH SMT TYPE FPC CONN	
R004	061G0603200 1F	RST CHIPR 2 KOHM +-1% 1/10W	
R003	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	
SW004	077G 604 1 AL	CHIP TACT SWITCH H=1.5 160G SKQGABE010	
SW005	077G 604 1 AL	CHIP TACT SWITCH H=1.5 160G SKQGABE010	
SW001	077G 604 1 AL	CHIP TACT SWITCH H=1.5 160G SKQGABE010	
SW002	077G 604 1 AL	CHIP TACT SWITCH H=1.5 160G SKQGABE010	

SW003	077G 604 1 AL	CHIP TACT SWITCH H=1.5 160G SKQGABE010	
LED01	081G 14 12 GP	LED	
D101	093G 39S 34 T	UDZSNP5.6B ROHM	
D102	093G 39S 34 T	UDZSNP5.6B ROHM	
	715G2807 1	KEPC PCB	
	709G2807 QS001	CONSUMPTIVE ASS'Y	
	Q05G6054 1	SHEET	
	Q09G6012 1	PIN	
	P40GD000813 9A	FAMILY SHEET	
	PWPC8942HQCY	POWER BOARD	
	040G 45762412B	CBPC LABEL	
GND2	009G6005 1	GROUND TERMINAL	
GND1	009G6005 1	GROUND TERMINAL	
CN804	033G8021 2E AC	WAFER	
CN803	033G8021 2E AC	WAFER	
CN802	033G8021 2E AC	WAFER	
CN801	033G8021 2E AC	WAFER	
IC902	056G 139 3A	IC PC123Y22FZ0F	
NR901	061G 58100 WD	RST NTCR 10 OHM +-20% 5A THINKING	
R907	061G 208151 64	RST MOFR 150 OHM +-5% 1W	
R909	061G152M104 64	100KOHM 5% 2W	
C909	063G107K474 US	0.47UF +-10%	
C812	065G 6J1006ET	10PF 5% SL 6KV	
C801	065G 6J1006ET	10PF 5% SL 6KV	
C902	065G305M1022E2	1000P 400VAC/250VAC	
C901	065G305M1022E2	1000P 400VAC/250VAC	
C903	065G306M1022BP	1000PF Y1.CAP	
C900	065G306M2222BP	2200PF +-20% 250VAC	
C907	067G 40Z10115K	CAP 105℃ 100UF M 450V	
C805	067G215D4714KV	E.C 105℃ CAP 470UF M 25V ED SERIES	
C811	067G215D4714KV	E.C 105℃ CAP 470UF M 25V ED SERIES	
C925	067G215D4714KV	E.C 105℃ CAP 470UF M 25V ED SERIES	
C922	067G215D6814KV	CAP 105℃ 680UF M 25V	
C923	067G215D6814KV	CAP 105℃ 680UF M 25V	
C926	067G215S1023KV	EC CAP 105℃ 1000UF M 16V	
C927	067G215S4713KV	EC 105℃ CAP 470UF M 16V	
L902	073G 174 65 H	LINE FILTER	
L901	073G 174 76 H	FILTER	
L921	073G 253 91 H	CHOKE COIL	
L922	073G 253 91 H	CHOKE COIL	

T901	080GL17T 33 N2	XFMR POWER 550UH YUVA	
PT802	080GL17T 40 DN	X'FMR TK.2001U.101	
PT801	080GL17T 40 DN	X'FMR TK.2001U.101	
CN901	087G 501 32 S	AC SOCKET	
BD901	093G 50460 28	BRIDGE DIODE KBP208G LITEON	
D922	093G3006 1 1	31DQ06FC3 NIHON INTER	
CN902	095G 82510W514	WIRE HARNESS	
	096G 29 10	H.S. TUBE	
	705GQ851002	OIL FOR DISAPPEAR ASS'Y	
	705GQ9KP 57001	Q900 ASS"Y	
Q900	057G 667 21	STP10NK70ZFP	
HS1	090G6264 1	HEAT SINK	
	0M1G1730 8120	SCREW	
	705GQ9KP 93001	D920 ASS"Y	
HS5	090G6241 1 GP	HEAT SINK	
D920	093G 60276	DIODE SBT150-10LST SANYO	
	0M1G1730 8120	SCREW	
	709G2594 QM001	CONSUMPTIVE ASS'Y	
	055G 2	ALCOHOL	
	055G 23524	WELDING FLUX WITHOUT PB	
	Q51G 6 4509	GLUE_RTV	
	Q55G 100625	TIN STICK_LOW ARGENTUM	
IC801	056G 379 22	IC TL494IDR SOIC-16	
IC901	056G 379 61	LD7575PS SOP-8	
Q803	057G 417 4	PMBS3904/PHILIPS-SMT(04)	
Q807	057G 417 4	PMBS3904/PHILIPS-SMT(04)	
Q810	057G 417 4	PMBS3904/PHILIPS-SMT(04)	
Q811	057G 417 4	PMBS3904/PHILIPS-SMT(04)	
Q902	057G 417 4	PMBS3904/PHILIPS-SMT(04)	
Q806	057G 417 6	PMBS3906/PHILIPS-SMT(06)	
Q805	057G 417 6	PMBS3906/PHILIPS-SMT(06)	
Q804	057G 600 55	P5506 HVG SO-8	
Q809	057G 600 55	P5506 HVG SO-8	
Q808	057G 759 2	RK7002FD5T116 SOT-23 BY ROHM	
Q812	057G 759 2	RK7002FD5T116 SOT-23 BY ROHM	
R801	061G0603000	RST CHIP MAX 0R05 1/10W	
R804	061G0603000	RST CHIP MAX 0R05 1/10W	
R830	061G0603000	RST CHIP MAX 0R05 1/10W	
R832	061G0603000	RST CHIP MAX 0R05 1/10W	
R849	061G0603100 1F	RST CHIPR 1 KOHM +-1% 1/10W	

R848	061G0603100 1F	RST CHIPR 1 KOHM +-1% 1/10W	
R835	061G0603100 1F	RST CHIPR 1 KOHM +-1% 1/10W	
R834	061G0603100 1F	RST CHIPR 1 KOHM +-1% 1/10W	
R827	061G0603100 1F	RST CHIPR 1 KOHM +-1% 1/10W	
R807	061G0603100 1F	RST CHIPR 1 KOHM +-1% 1/10W	
R806	061G0603100 1F	RST CHIPR 1 KOHM +-1% 1/10W	
R808	061G0603100 2F	RST CHIPR 10K OHM +-1% 1/10W	
R819	061G0603100 2F	RST CHIPR 10K OHM +-1% 1/10W	
R824	061G0603100 2F	RST CHIPR 10K OHM +-1% 1/10W	
R831	061G0603100 2F	RST CHIPR 10K OHM +-1% 1/10W	
R833	061G0603100 2F	RST CHIPR 10K OHM +-1% 1/10W	
R838	061G0603100 2F	RST CHIPR 10K OHM +-1% 1/10W	
R840	061G0603100 2F	RST CHIPR 10K OHM +-1% 1/10W	
R852	061G0603100 2F	RST CHIPR 10K OHM +-1% 1/10W	
R853	061G0603100 2F	RST CHIPR 10K OHM +-1% 1/10W	
R813	061G0603101	RST CHIPR 100 OHM +-5% 1/10W	
R823	061G0603103	RST CHIPR 10 KOHM +-5% 1/10W	
R836	061G0603105	RST CHIPR 1M OHM +-5% 1/10W	
R821	061G0603105	RST CHIPR 1M OHM +-5% 1/10W	
R811	061G0603150 1F	RST CHIPR 1.5 KOHM +-1% 1/10W	
R812	061G0603150 1F	RST CHIPR 1.5 KOHM +-1% 1/10W	
R839	061G0603150 1F	RST CHIPR 1.5 KOHM +-1% 1/10W	
R841	061G0603150 1F	RST CHIPR 1.5 KOHM +-1% 1/10W	
R847	061G0603220	RST CHIPR 22 OHM +-5% 1/10W	
R846	061G0603220	RST CHIPR 22 OHM +-5% 1/10W	
R845	061G0603220	RST CHIPR 22 OHM +-5% 1/10W	
R844	061G0603220	RST CHIPR 22 OHM +-5% 1/10W	
R815	061G0603270 2F	RST CHIPR 27 KOHM +-1% 1/10W	
R803	061G0603362	RST CHIPR 3.6 KOHM +-5% 1/10W	
R828	061G0603470 2F	RST CHIPR 47 KOHM +-1% 1/10W	
R842	061G0603470 2F	RST CHIPR 47 KOHM +-1% 1/10W	
R805	061G0603472	RST CHIPR 4.7K OHM +-5% 1/10W	
R822	061G0603473	RST CHIPR 47 KOHM +-5% 1/10W	
R820	061G0603564	RST CHIPR 560 KOHM +-5% 1/10W	
R816	061G0603680 2F	RST CHIPR 68K OHM +-1% 1/10W	
R829	061G0603680 2F	RST CHIPR 68K OHM +-1% 1/10W	
R814	061G0603750 2F	RST CHIPR 75KOHM +-1% 1/10W	
R913	061G0805100 1F	RST CHIPR 1K OHM +-1% 1/8W	
R925	061G0805100 1F	RST CHIPR 1K OHM +-1% 1/8W	
R927	061G0805100 1F	RST CHIPR 1K OHM +-1% 1/8W	

R928	061G0805100 1F	RST CHIPR 1K OHM +-1% 1/8W	
R930	061G0805100 1F	RST CHIPR 1K OHM +-1% 1/8W	
R915	061G0805100 2F	RST CHIPR 10KOHM +-1% 1/8W	
R923	061G0805100 2F	RST CHIPR 10KOHM +-1% 1/8W	
R911	061G0805100 3F	RST CHIPR 100KOHM +-1% 1/8W	
R802	061G0805101	1ST CHIPR 100 OHM +-5% 1/8W	
R903	061G0805102	RST CHIPR 1K OHM +-5% 1/8W	
R826	061G0805180 3F	RST CHIPR 180 KOHM +-1% 1/8W	
R929	061G0805240 1F	RST CHIPR 2.4K OHM +-1% 1/8W	
R926	061G0805330 2F	RST CHIPR 33K OHM +-1% 1/8W	
R922	061G0805331	RST CHIPR 330 OHM +-5% 1/8W	
R924	061G0805360 1F	RST CHIPR 3.6K OHM +-1% 1/8W	
R908	061G0805471	RST CHIPR 470 OHM +-5% 1/8W	
R825	061G0805510 2F	RST CHIPR 51K OHM +-1% 1/8W	
J807	061G1206000	RST CHIP MAX 0R05 1/4W	
J813	061G1206000	RST CHIP MAX 0R05 1/4W	
J814	061G1206000	RST CHIP MAX 0R05 1/4W	
J815	061G1206000	RST CHIP MAX 0R05 1/4W	
J816	061G1206000	RST CHIP MAX 0R05 1/4W	
J818	061G1206000	RST CHIP MAX 0R05 1/4W	
J907	061G1206000	RST CHIP MAX 0R05 1/4W	
J908	061G1206000	RST CHIP MAX 0R05 1/4W	
F902	061G1206000 4	RST CHIP MAX 0R05 1/4W	
R912	061G1206100	RST CHIPR 10 OHM +-5% 1/4W	
R905	061G1206103	RST CHIPR 10K OHM +-5% 1/4W	
R931	061G1206103	RST CHIPR 10K OHM +-5% 1/4W	
ZD801	061G1206103	RST CHIPR 10K OHM +-5% 1/4W	
R810	061G1206150	RST CHIPR 15 OHM +-5% 1/4W	
R837	061G1206150	RST CHIPR 15 OHM +-5% 1/4W	
R850	061G1206150	RST CHIPR 15 OHM +-5% 1/4W	
R851	061G1206150	RST CHIPR 15 OHM +-5% 1/4W	
R910	061G1206229	RST CHIPR 2.2 OHM +-5% 1/4W	
R900	061G1206334	RST CHIPR 330KOHM +-5% 1/4W	
R901	061G1206334	RST CHIPR 330KOHM +-5% 1/4W	
R902	061G1206334	RST CHIPR 330KOHM +-5% 1/4W	
R951	061G1206470	RST CHIPR 47 OHM +-5% 1/4W	
R952	061G1206470	RST CHIPR 47 OHM +-5% 1/4W	
R953	061G1206470	RST CHIPR 47 OHM +-5% 1/4W	
R954	061G1206470	RST CHIPR 47 OHM +-5% 1/4W	
R955	061G1206470	RST CHIPR 47 OHM +-5% 1/4W	

R956	061G1206470	RST CHIPR 47 OHM +-5% 1/4W	
C904	065G0603102 32	1000PF +-10% 50V X7R	
C804	065G0603104 12	CER2 0603 X7R 16V 100N P	
C807	065G0603104 12	CER2 0603 X7R 16V 100N P	
C810	065G0603104 12	CER2 0603 X7R 16V 100N P	
C814	065G0603104 12	CER2 0603 X7R 16V 100N P	
C806	065G060310512K T	CAP CHIP 0603 1UF K 16V X7R	
C802	065G060310512K T	CAP CHIP 0603 1UF K 16V X7R	
C818	065G0603222 22	CHIP 2200PF 25V X7R	
C817	065G0603222 22	CHIP 2200PF 25V X7R	
C815	065G0603222 22	CHIP 2200PF 25V X7R	
C813	065G0603222 22	CHIP 2200PF 25V X7R	
C824	065G0805104 22	0.1UF +-10% 25V X7R 080	
C823	065G0805104 22	0.1UF +-10% 25V X7R 080	
C931	065G0805104 32	CAP CHIP 0805 0.1UF K 50V X7R	
C930	065G0805104 32	CAP CHIP 0805 0.1UF K 50V X7R	
C929	065G0805104 32	CAP CHIP 0805 0.1UF K 50V X7R	
C928	065G0805104 32	CAP CHIP 0805 0.1UF K 50V X7R	
C916	065G0805104 32	CAP CHIP 0805 0.1UF K 50V X7R	
C912	065G0805104 32	CAP CHIP 0805 0.1UF K 50V X7R	
C803	065G0805152 32	CHIP 1500PF 50V X7R 0805	
C816	065G0805152 32	CHIP 1500PF 50V X7R 0805	
C821	065G0805152 32	CHIP 1500PF 50V X7R 0805	
C822	065G0805152 32	CHIP 1500PF 50V X7R 0805	
C913	065G0805221 31	CAP CHIP 0805 220PF J 50V NPO	
C809	065G080522131G	CAP CHIP 0805 220PF G 50V NPO	
C808	065G0805225 12	CAP CHIP 0805 2.2UF K 16V X7R	
C914	065G0805471 21	CAP CHIP 0805 470PF J 25V NPO	
D808	093G 64 38 P	BAW56	
D806	093G 64 38 P	BAW56	
D802	093G 6433P	BAV99	
D801	093G 6433P	BAV99	
D809	093G 6433P	BAV99	
D810	093G 6433P	BAV99	
ZD922	093G 39S 25 T	RLZ5.1B LLDS	
ZD921	093G 39S 40 T	RLZ 13B LLDS	
ZD920	093G 39S 40 T	RLZ 13B LLDS	
D803	093G 64S511SEM	1N4148W	
D807	093G 64S511SEM	1N4148W	
D811	093G 64S511SEM	1N4148W	

D812	093G 64S511SEM	1N4148W	
D813	093G 64S511SEM	1N4148W	
D910	093G 64S511SEM	1N4148W	
D915	093G 64S511SEM	1N4148W	
D916	093G 64S511SEM	1N4148W	
NR901	006G 31 4	1.7MM RIVET	
CN901	006G 31500	EYELET	
T901	006G 31502	1.5MM RIVET	
IC903	056G 158 10 T	IC AS431AZTR-E1 TO-92	
C910	065G 2K152 1T6921	1.5NF/2KV Y5P +-10%	
C920	065G517K102 5T	1000PF 10% Y5P 500V	
C921	065G517K102 5T	1000PF 10% Y5P 500V	
C911	067G 2152207NT	KY50VB22M-TP5 5*11	
FB901	071G 55 29	FERRITE BEAD	
FB903	071G 55 29	FERRITE BEAD	
F903	084G 56 4W	FUSE 4.0A 250V	
F901	084G 56 4W	FUSE 4.0A 250V	
D901	093G 6038T52T	FR103	
D900	093G1100 1152T	DIODE PR1007R 1A/1000V DO-41	
FB902	095G 90 23	JUMPER WIRE	
J801	095G 90 23	JUMPER WIRE	
J802	095G 90 23	JUMPER WIRE	
J803	095G 90 23	JUMPER WIRE	
J804	095G 90 23	JUMPER WIRE	
J805	095G 90 23	JUMPER WIRE	
J910	095G 90 23	JUMPER WIRE	
J909	095G 90 23	JUMPER WIRE	
J906	095G 90 23	JUMPER WIRE	
J905	095G 90 23	JUMPER WIRE	
J904	095G 90 23	JUMPER WIRE	
J903	095G 90 23	JUMPER WIRE	
J901	095G 90 23	JUMPER WIRE	
J819	095G 90 23	JUMPER WIRE	
J817	095G 90 23	JUMPER WIRE	
J812	095G 90 23	JUMPER WIRE	
J811	095G 90 23	JUMPER WIRE	
J810	095G 90 23	JUMPER WIRE	
J809	095G 90 23	JUMPER WIRE	
J808	095G 90 23	JUMPER WIRE	
J806	095G 90 23	JUMPER WIRE	

	715G2594 2	POWER BOARD PCB	
	709G2594 QA001	CONSUMPTIVE ASS'Y	
	709G2594 QS001	CONSUMPTIVE ASS'Y	
	Q05G6054 1	SHEET	
	Q09G6012 1	PIN	
	052G 2191 A	PAPER TAPE	
Q802	057G 760 5A	DTC 144WN3/S SOT-23	
Q801	057G 760 4A	DTA144WN3/S SOT-23	
HS4	Q85G0053 1 S	SHIELD	
R916	061G152M43852T	RST MOF 0R43 5% 2W	
	Q07G 1 5V86	WOODEN PALLET	
	Q40G 58170930A	LABEL	
	Q40G 58170931A	HT POT LABEL	
	Q40G0001624 4A	PALLET LABEL	
	Q40G000270926A	MANUFACTURE ADDRESS STICKER	
	Q40G000270927A	EPA LABEL	
	Q40G000270944A	CEL LABEL FOR VS11962	
	Q41G2401709 4A	WARRANTY CARD	
	Q44G6000 215A	EMPTY CARTON	
	Q44G6002115101	PAPER BOARD	
	Q44G6002CP126A	PAPER CAP	
	Q44G9003214	CONNER PAPER	
	Q44G9157101	EPS	
	Q44G9157201	EPS	
	Q44G9157709 2A	19 LCD CARTON	
	Q45G 77 5	PE PACKING	
	Q45G 88606 R	PE BAG FOR BASE	
	Q45G 88626 1 R	PE BAG FOR MONITOR	
	Q45G2007C0103A	PE BAG FOR CARTON	
	Q50G 4 10	TIE	
	Q41G5000709 4A	ROHS CARD	
	Q41G780070950A	QSG & BASE PROCSDURE CARD	
	Q45G 76 28 RN R	PE BAG MANUAL	
	Q70G9000709 2A	CD MANUAL 916	
	040G 58162435A	P/N LABEL FOR MANUAL PE BAG	
	040G 58170912A	S/N LABEL	
	Q40G 19N709 6A	RATING LABEL	
	Q40G 581709 1B	CARTON LABEL	
	Q40G0001709 2A	SN LANEL	

11. Recommended Spare Parts List

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?

Unit	*Excellent*	*Good*	*Fair*	*Bad*
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?

Item	*Excellent*	*Good*	*Fair*	*Bad*
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 dada:

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)