Service Manual

ViewSonic VG1921wm-2

Model No. VS11354

19” Color TFT LCD Display

(VG1921wm-2_SM Rev. 1a Sep. 2006)

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

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Revision History

Revision	SM Editing Date	ECR Number	Description of Changes	Editor
1a	9/05/2006		Initial Release	Jamie Chang

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1. SAFETY PRECAUTIONS

This monitor is manufactured and tested on a ground principle that a user's safety comes first. However, improper used or installation may cause damage to the monitor as well as to the user.

WARNINGS:

- This monitor should be operated only at the correct power sources indicated on the label on the rear of the monitor. If you're unsure of the power supply in you residence, consult your 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 by yourself, as it contains no user-serviceable parts. Only the qualified technician can repair it.
- Do not remove the monitor cabinet. There are high-voltage parts inside that may cause electric shock to human bodies.
- Stop using the monitor if the cabinet is damaged. Have it checked by a service technician.
- Put your monitor only in a lean, cool, dry environment. If it gets wet, unplug the power cable immediately and consult your closed dealer.
- 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.
- Do not place heavy objects on the monitor or power cord.

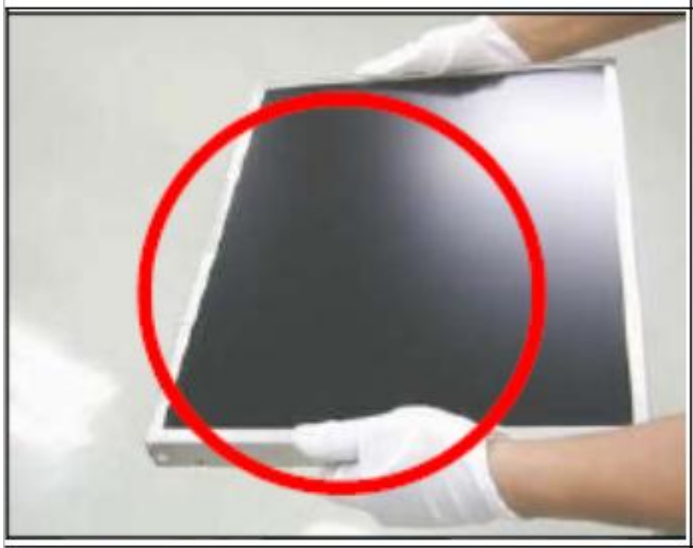
2. PRODUCT SAFETY NOTICE

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 voltage, 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.

3. SERVICE NOTES

- When replacing parts or circuit boards, clamp the lead wires around terminals before soldering.
- Keep wires away from high voltage, high temperature components and sharp edges.
- Keep wires in their original position so as to reduce interference.
- Adjustment of this product please refers to the user' manual.

4. Handling and Placing Methods

Correct Metbods:	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 with cushions	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"
	
	The panel is placed facedown on the lap. That may cause "Mura".
	

2. Specification

1. INTPRODUCTION

FEATURES		VG1921wm
TFTLCD PANEL	Size	19 ”
	Luminance (Typ)	300 cd/㎡
	Contrast Ratio (Typ)	700:1
	Colors (6 bits + 2 bits FRC)	16.2 M
	Response Time (Typ)	5 ms
	Viewing Angle (H/V)	160 ° / 160 °
	Recommend resolution	1440x900@60Hz
Input Signal	Analog (75ohms, 0.7/1.0 Vp-p)	Yes
	Digital	No
Sync Compatibility	Separate Sync	Yes
	Composite Sync	Yes
	Sync on Green	Yes
Compatibility	PC	Yes
	Power Mac	Yes
	TV Box (NextVision 6)	Yes
Power Voltage	AC 100-240V, 50/60Hz	Yes
Power Consumption	On Mode(Max / Typ)	42 W
	Off Mode (Max)	≦1 W
Audio		Yes
Ergonomics	Tilt (20 ° - -5 °)	Yes
	Swivel	No
	Pivot	No
	Height Adjust	No
OSD Control	[1] [2] [⏻][▼] [▲]	Yes
Dimension	Physical (W x H x D)	460 x 434 x 230 mm
	Package (W x H x D)	560 x 525 x 282 mm
Weight	Physical (Net Weight)	5.4 kg
	Package (Gross Weight)	6.9 kg
Operating Condition	Temperature (℉/℃)	32℉-104℉ / 0℃-40℃
	Humidity (%)	10 % - 90 %
Storage Condition	Temperature (℉/℃)	-4℉-140℉ / -20℃-60℃
	Humidity (%)	10% - 90 %
Regulation	UL, CUL, FCC-B (ICES), CB, CE, TCO'03, ICES-003B, ISO13406-2, TUV/GS, TUV ERGO(covers ISO13406-2 & MPRII), TUV-S, NOM, GOST-R, HYGIENIC (20 copies), ENERGY, Energy Star, CCC, BSMI, PSB, C-TICK, KTL/MIC, SASO, WEEE, RoHS	

2 GENERAL specification

Test Resolution & Frequency	1440x900 @ 60Hz
Test Image Size	Full Size
Contrast and Brightness Controls	Factory Default: Contrast = 70%, Brightness = 100%

3 VIDEO INTERFACE

Analog Input Connector	DB-15 (Analog), refer the appendix A
Video Cable Strain Relief	Equal to twice the weight of the monitor for five minutes
Video Cable Connector DB-15 Pin out	Compliant DDC 1/2B
Video Signals	Video RGB (Analog) – Separate,

Video Impedance	75 Ohms (Analog)
Maximum PC Video Signal	950 mV with no damage to monitor
Maximum Mac Video Signal	1250 mV with no damage to monitor
DDC 1/2B	Compliant with Revision 1.3
Sync Compatibility	Separate Sync
Video Compatibility	Shall be compatible with all PC type computers, Macintosh computers, and after market video cards
Resolution Compatibility	640 x 350, 640 x 480, 720 x 400 (640 x 400*), 800 x 600, 832 x 624, 1024 x 768, 1152 x 864, 1280 x 960, 1280 x 1024,1440x900
Exclusions	Not compatible with interlaced video

4 POWER SUPPLY

Internal Power Supply	Part Number:RLPR-025
Input Voltage Range	90 to 264 VAC
Input Frequency Range	47 to 63 Hertz
Short Circuit Protection	OUTPUT CAN BE SHORTED WITHOUT DAMAGE
Over Current Protection	4 A TYPICAL AT 14.2 VDC
Leakage Current	3.5MA (MAX) AT 254VAC / 60HZ
Efficiency	80% TYPICAL AT 115VAC FULL LOAD
Fuse	INTERNAL AND NOT USER REPLACEABLE
Power Dissipation	32 WATTS (TYP)
Max Input AC Current	0.8 ARMS @ 90VAC, 0.4 ARMS @265VAC
Inrush Current (Cold Start)	40 A @ 120VAC, 60 A (MAX) @ 220VAC
Power Supply Cold Start	SHALL START AND FUNCTION PROPERLY WHEN UNDER FULL LOAD, WITH ALL COMBINATIONS OF INPUT VOLTAGE, INPUT FREQUENCY, AND OPERATING TEMPERATURE
Power Supply Transient Immunity	SHALL BE ABLE TO WITHSTAND AN ANSI/IEEE C62.41-1980 2000V 200 AMPERE RING WAVE TRANSIENT TEST WITH NO DAMAGE
Power Supply Line Surge Immunity	Shall be able to withstand 1.5 times nominal line voltage for one cycle with no damage
Power Supply Missing Cycle Immunity	Shall be able to function properly, without reset or visible screen artifacts, when ½ cycle of AC power is randomly missing at nominal input
Power Supply Acoustics	The power supply shall not produce audible noise that would be detectable by the user. Audible shall be defined to be in compliance with ISO 7779 (DIN EN27779:1991) Noise measurements of machines acoustics. Power Switch noise shall not be considered
US Type Power Cable	Separate 3-prong NEMA 5-15P type plug. Length = 1.8m. Connects to display. Color = Black
European Type Power Cable	Schuko CEE7-7 type plug. Length = 1.8m, Connects to display. Color = Black

CCC Type Power Cable	Separate 3-prong type plug. Length = 1.8m. Connects to display. Color = Black
PSE Type Power Cable	Separate 2-prong NEMA 1-15P type plug. Length = 1.8m. Connects to display. Color = Black
Power Saving Operation(Method)	VESA DPMS Signaling
Power Consumption	On Mode <42 W (max) Off Mode< 1W
Recovery Time	On Mode = N/A, Active Off < 3 sec

5 ELECTRICAL REQUIREMENT

Horizontal / Vertical Frequency

Horizontal Frequency	30 – 82 kHz
Vertical Refresh Rate	50 – 75* Hz.
Maximum Pixel Clock	135 MHz
Sync Polarity	Independent of sync polarity.

Timing Table

Item	Timing	Analog			Digital - TMDS	Remark
		Separated	Composite	SOG		
1	640 x 350 @ 70 Hz, 31.5 KHz	✓	✓	✓	✓	DMT
2	640 x 400 @ 60 Hz, 31.5 KHz	✓	✓	✓	✓	
3	640 x 400 @ 70 Hz, 31.5 KHz	✓	✓	✓	✓	
4	640 x 480 @ 50 Hz, 24.7 KHz				✓	
5	640 x 480 @ 60 Hz, 31.5 KHz	✓	✓	✓	✓	DMT
6	640 x 480 @ 67 Hz, 35 KHz	✓	✓	✓	✓	For MAC
7	640 x 480 @ 72 Hz, 37.9 KHz	✓	✓	✓	✓	DMT
8	640 x 480 @ 75 Hz, 37.5 KHz	✓	✓	✓	✓	DMT
9	720 x 400 @ 70 Hz, 31.5 KHz	✓	✓	✓	✓	
10	720 x 480 @ 60 Hz, 31.5 KHz	✓	✓	✓	✓	DTV
11	720 x 576 @ 50 Hz, 31.3 KHz				✓	DTV
12	800 x 600 @ 56 Hz, 35.1 KHz	✓	✓	✓	✓	DMT
13	800 x 600 @ 60 Hz, 37.9 KHz	✓	✓	✓	✓	DMT
14	800 x 600 @ 72 Hz, 48.1 KHz	✓	✓	✓	✓	DMT
15	800 x 600 @ 75 Hz, 46.9 KHz	✓	✓	✓	✓	DMT
16	832 x 624 @ 75 Hz, 49.7 KHz	✓	✓	✓	✓	MAC
17	1024 x 768 @ 50 Hz, 39.6 KHz				✓	
18	1024 x 768 @ 60 Hz, 48.4 KHz	✓	✓	✓	✓	DMT
19	1024 x 768 @ 70 Hz, 56.5 KHz	✓	✓	✓	✓	DMT
20	1024 x 768 @ 72 Hz, 58.1 KHz	✓	✓	✓	✓	
21	1024 x 768 @ 75 Hz, 60 KHz	✓	✓	✓	✓	DMT
22	1024 x 768 @ 75 Hz, 60.2 KHz	✓	✓	✓	✓	For MAC
23	1152 x 864 @ 75 Hz, 67.5 KHz	✓	✓	✓	✓	DMT
24	1152 x 870 @ 75 Hz, 68.7 KHz	✓	✓	✓	✓	For MAC
25	1152 x 900 @ 67 Hz, 62.5 KHz	✓	✓	✓	✓	For SUN
26	1280 x 720 @ 50 Hz, 37.5 KHz	✓	✓	✓	✓	DTV
27	1280 x 720 @ 60 Hz, 45 KHz	✓	✓	✓	✓	DTV
28	1280 x 768 @ 50 Hz, 39.6 KHz				✓	

29	1280 x 768 @	60 Hz,	47.8 KHz	✓	✓	✓	✓	DMT;
30	1280 x 768 @	75 Hz,	60.3 KHz	✓	✓	✓	✓	DMT;
31	1280 x 960 @	50 Hz,	49.4 KHz				✓	
32	1280 x 960 @	60 Hz,	59.7 KHz	✓	✓	✓	✓	DMT
33	1280 x 960 @	75 Hz,	75.2 KHz	✓	✓	✓	✓	
34	1280 x 1024 @	50 Hz,	52.7 KHz				✓	
35	1280 x 1024 @	60 Hz,	64 KHz	✓	✓	✓	✓	DMT
36	1280 x 1024 @	75 Hz,	80 KHz	✓	✓	✓	✓	DMT
37	1440 x 900 @	60 Hz	59.9 KHz	✓	✓	✓	✓	DMT

Primary Presets
1440x900 @ 60Hz

User Presets
Number of User Presets (recognized timings) Available: 10 presets total in FIFO configuration

Changing Modes
- Maximum Mode Change Blank Time for image stability: 3 seconds (Max), excluding “Auto Image Adjust” time.
- Under DOS mode (640 x 350, 720 x 400 & 640 x 400), it should recall factory setting when execute “Auto Image Adjust”.

The monitor needs to do “Auto Image Adjust” the first time when a new mode is detected. (See section “0-Touch™ Function Actions”)

6 FRONT PANEL CONTROLS AND INDICATORS
Front Panel Hardware Controls

Power Switch (Front Head)	Power Control, soft Power Switch.
Power LED (Front Head)	Green – ON Orange – Active Off Dark = Soft Power Switch OFF
Front Panel Controls (Head) [⏻] [1] [2] [▲] [▼]	[🔇X] Mute [⏻] Power [1] Button 1 [2] Button 2 [▲] Up arrow button [▼] Down arrow button Note: Power Button, Button 1 and Button 2 must be one-shot logic operation. (i.e. there should be no cycling)
Reaction Time	OSD must fully appear within 0.5s after pushing Button 1

Short Cuts Function from the button(s)

[1]	Main Menu
[2]	Input toggle (Analog or Digital; refer to Appendix D)
[▼]	Brightness adjust
[▲]	Contrast adjust
[▼]+ [▲]	recall both of Contrast and Brightness to default
[1] + [2]	toggle 720x400 and 640x400 mode when input 720x400 or 640x400 mode
[1] + [▼] + [▲]	White Balance. (Not shown on user’s guide)
[1] + [▼]	Power Lock
[1] + [▲]	OSD Lock
[1] + [▼] + [2]	Disable Theft Defence function
[▲]+ [⏻] + Main Power On	All reset
No signal + [⏻] + [2] + Main Power on	Burning mode

Signal + [2] + [⏻] + Main Power On	Factory Mode
Remark : All the short cuts function are only available while OSD off	

Main Menu Controls

The Main Menu OSD includes most of control functions.
Please refer to APPENDIX C (Main Menu OSD Table) for the detail.

Function descriptions

OSD Lock short cuts function for the buttons

The OSD lock will be activated by pressing the front panel control buttons "(1), & (▲)" for 10 seconds. If the user then tries to access the OSD by pressing any of the buttons "1", "▼", "▲", "2" a message will appear on the screen for 3 seconds showing "OSD Locked". The OSD lock will be deactivated by pressing the front panel control buttons "(1), & (▲)" again for 10 seconds.
Note1: When the OSD is locked will lock all functions, including “Volume” and “Mute”
Note 2: Status bar indicating OSD Lock or Unlock is in progress and when complete it will indicate “OSD Locked”
Note 3: OSD Lock should not lock Power Button and Power Lock function

Power Lock short cuts function for the buttons

The power button lock will be activated by pressing the front panel control buttons "(1), & (▼)" for 10 seconds. Locking the power button means that the user won't be able to turn off the LCD while the power button is locked. If the user presses the power button while it is locked, a message will appear on the screen for 3 seconds showing "Power Button Locked". It also means that with the power button locked, the LCD would automatically turn back "On" when power is restored after a power failure. If the power button is not in the locked mode, then power should return to it's previous state when power is restored after a power failure. The power button lock will be deactivated by pressing the front panel control buttons "(1), & (▼)" again for 10 seconds.

Note 1: Status bar indicating Power Button lock or unlock is in progress and when complete it will indicate “Power Button Locked”
Note 2: Power should only be lockable in the “On State”

Memory Recall Actions

Memory Recall action on the analog and digital mode as below
1. Recall white balance to factory setting
2. Set the factory defaults as shown in Section 4-8
3. Clean all the mode setting buffer
4. Execute Auto Image Adjust

Note: Memory Recall should have no effect for Language, Power Lock, User Color Settings or Input Priority

Resolution Notice Actions

1. Resolution Notice OSD should show on screen after changing to non-native mode for 30 sec
2. For auto input select function, it shall meet the requirement in Appendix D.
3. The OSD should disappear after 10 sec or by pushing button [1] or [2]

Resolution Notice function should be disabled when push button [2] under Resolution Notice OSD

0-Touch™ Function Actions

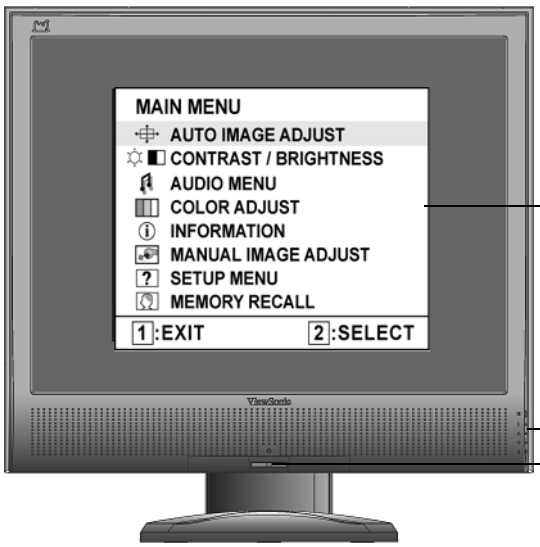
1. Execute Auto Image Adjust when new mode detected, and save the settings to buffer for further use
2. It should be reset by Memory Recall function(Should not reset by power off, power unplug and others)

OSD Auto Save

The OSD shall save new settings when it is turned off by the user or when it times out. There shall not be a separate save

Adjusting the Screen Image

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" on page 10.



Main Menu
with OSD controls

Front Control Panel
shown below in detail

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

Audio Mute button turns the sound off

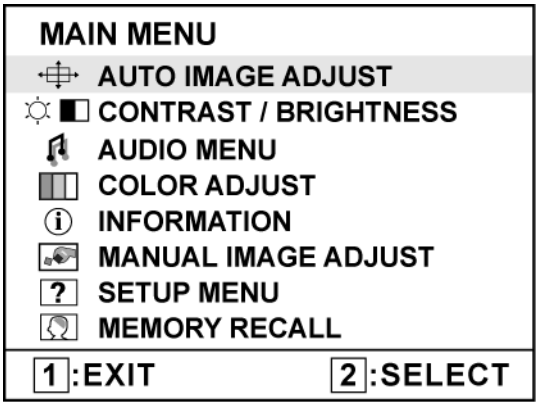
1 — Displays the Main Menu or exits the control screen and saves adjustments.

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

2 — Displays the control screen for the highlighted control.
Also toggles between two controls on some screens.

Do the following to adjust the display setting:

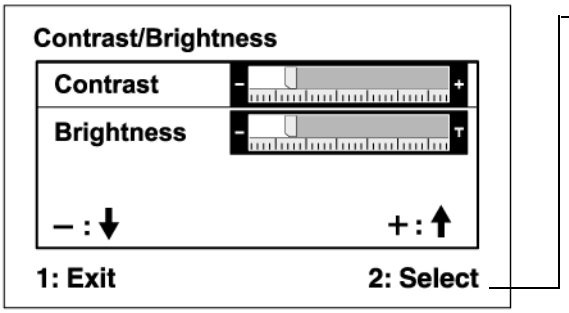
1. To display the Main Menu, press button [1].



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 command line at the bottom of the control screen tells what to do next from this screen. You can toggle between control screens, adjust the selected option, or exit the screen.

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

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

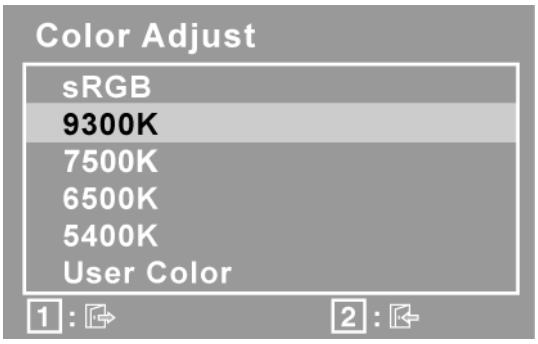
The following tips may help you optimize your display:

- Adjust the computer's graphics card so that it outputs a 1440 x 900 @ 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
	Auto Image Adjust sizes and centers the screen image automatically.
	Contrast adjusts the difference between the image background (black level) and the foreground (white level).
	Brightness adjusts background black level of the screen image.
	Audio Adjust **Volume** increases the volume, decreases the volume, and mutes the audio. **Mute** temporarily silences audio output.
	Color Adjust provides several color adjustment modes, including preset color temperatures and a User Color mode which allows independent adjustment of red (R), green (G), and blue (B). The factory setting for this product is 6500K (6500 Kelvin).



sRGB-This is quickly becoming the industry standard for color management, with support being included in many of the latest applications. Enabling this setting allows the LCD display to more accurately display colors the way they were originally intended. Enabling the 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).

7500K-Adds blue to the screen image for cooler white (used in most office settings with fluorescent lighting).

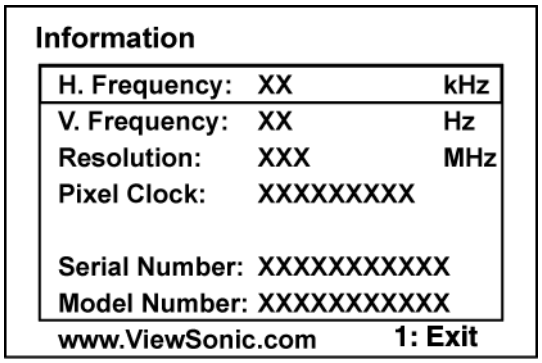
6500K-Adds red to the screen image for warmer white and richer red.

5400K-Adds green to the screen image for a darker color.

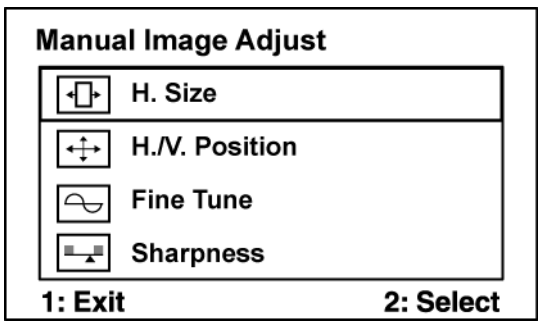
User Color Individual adjustments for red (R), green (G), and blue (B).
1. To select color (R, G or B) press button [2].
2. To adjust selected color, press▲and▼.

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 1440 x 900 @ 60Hz (recommended) means that the resolution is 1440 x 900 and the refresh rate is 60 Hertz.

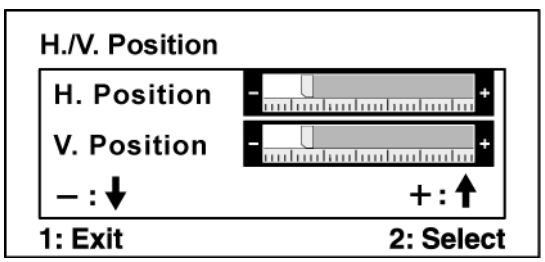


Manual Image Adjust



H. Size (Horizontal Size) adjusts the width of the screen image.

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



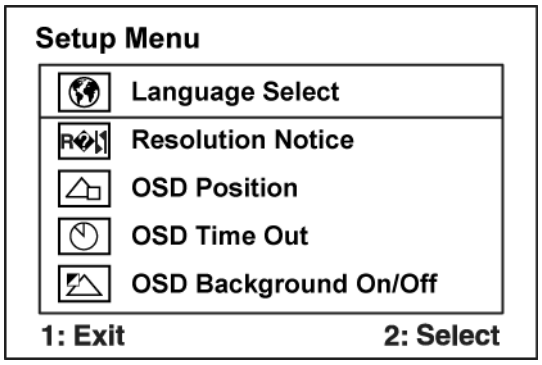
Control	Explanation

Fine Tune sharpens the focus by aligning text and/or graphics with pixel boundaries.

NOTE: Try Auto Image Adjust first.

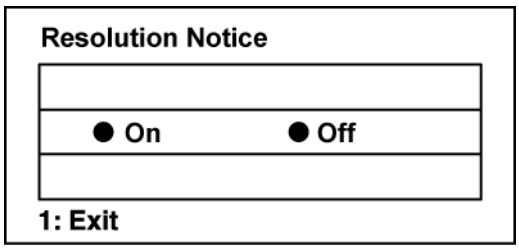
Sharpness adjusts the clarity and focus of the screen image.

Setup Menu displays the menu shown below:

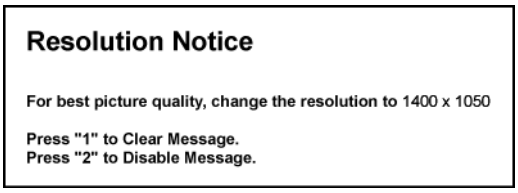


Language Select allows the user to choose the language used in the menus and control screens.

Resolution Notice allows the user to enable or disable this notice.



If you enable the Resolution Notice shown above and your computer is set at a resolution other than 1440 x 900, the following screen appears.



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 “30 second” setting, if a control is not pushed within 30 seconds, the display screen disappears.

4. Circuit Description

4.1 Switching Mode Power Supply

4.1.1 AC Current Input Circuit

P801 is a connector for connecting AC Power. F801 is a fuse to protect all the circuit. AC input voltage is from 90v to 264V. R801 and R802 joined between two inputting main circuit to prevent man from shock. L801 is used to clear up low frequency wave. C801 and C802 are used to discharge the waves that L801 produced. High frequency waves are damped by C801 and C802. D801 is a rectifier which composed of 4 build-in diodes, it inverts AC to DC.

4.1.2 High Voltage to Low Voltage Control Circuit

C804 is used to smooth the wave from rectifier. IC802 is a highly integrated PWM controller. When rectified DC high voltage is applied to the HV pin during start-up, the MOSFET Q804 is initially off, and the Vcc pin capacitor is charged. When the Vcc pin voltage reaches approximately 10V, the control circuitry is activated and the soft-start begins. The soft-start circuit gradually increases the duty cycle of the MOSFET from zero to the maximum value over approximately 4ms. If no external feedback/supply current is fed into the FB pin by the end of the soft-start, the current Setpoint will be above the fault level, FAULT flag is raised, if the FAULT duration exceeds 80ms, the output controller disable

Resistor R808, R809, R810, R811 are for line over voltage shutdown(OVP)

When PWM is turned off, the main current flow will be consumed through R804 and D802, This will prevent MOSFET Q804 from being damaged under large current impulse and voltage spike.

D803 and C807 to provide internal Auxiliary voltage to Vcc pin during normal operation. Otherwise, error amplifier and feedback current input the FB pin for duty cycle control.

4.1.3 DC_5V and DC_14V Output Circuit

For DC 5V, D805 is used to rectify the inducted current. R828 and C814 are used to store energy when current is reversed. The parts including C818, C822, C820,L803 are used to smooth the current waves.

For DC 14V, D803 is used to rectify the inducted current. R827 and C813 are used to store energy when current is reversed. The parts including C815, C817 and L802 are used to smooth the current waves.

4.1.4 Feedback and OVP Protect Circuit

Pin R of IC803 is supplied 2.5-v stable voltage. It connects to 5V and 14V output through R822, R823 and R824. R822, R823 and R824 are output sampling resistor. When the sampling voltage more than 2.5V or less than 2.5V, current of FB IC802 will change, this can change the voltage from T801.

OVP Protect Circuit: When output is overvoltage, the auxiliary winding voltage will be increased, when it reaches about 14V. Q803 is triggered . It makes the IC802 Pin 1 exceed 5V, then the IC802 output will be disabled.

Q801, R816, R817 and ZD803 make up of dummy loading circuit. For start-up sequence, during 5V output take place high loading first, this dummy loading circuit operated to insure 14V not be increased.

4. 2 Inverter Circuit

1R503, ZD501, R502, Q501 components convert +14V voltage into +5.0V voltage, and the voltage supply to IC501. The extra PWM pulse signal (BRIGHTNESS signal)input to control IC through R512, R514, C510, The LCT pin is set to a DC voltage of 0.7V by using a resistor divider(R507, R516), change the duty of PWM pulse, will regulate the lamp current. The ON/OFF voltage connect to pin10 of IC501 through D501, R501, A voltage of

2V to pin10 of IC501 enables the IC and activates the striking timer. The SSTCMP pin of IC501 performs the soft function, the C511 set the time of SST. The operation frequency determined by external capacitor C512, C521 and resistor R508 connected at CT pin of IC501. C515 connect the TIMER pin of IC501, the capacitor to set striking time and shunt down delay time. DRV!, DRV2 output for power MOSFET U501, U502.

2.OZ9938 provides two drive signals forU501, U502, and they work in push pull topology driving, two transformers are connected in parallel with each transformer driving two lamps in series.Turningeach N-Channel MOSFET "on/off" complementarily, produces an alternating current through thetransformer primary and secondary. The "on" duration of the switches determines the amount of energy delivered to the CCFLs. R504, C504, R505, C505, R532, C529, R530, C522 are snubber networks, they suppress Voltage transient spike in drain of power MOSFET.

3. R506, R510, C509, C513, C514, R525, R531, C528, C525, and C527 are connected betweenhigh voltage output connector and ground, the divided AC voltage is inverted DC voltage through D502, D503, D508, and D509.The sense voltage feedback to VSEN (pin 6 of IC501) for an over voltage/over current condition during normal operation. R528, R533 are current sense resistor, current sense signal feed back to Isense (pin 5 of IC501) for lamp "ON" detection.

4.3 I/F Board Circuit

4.2.1 Power Input

+5V is from the power board and supply for U101(LD1117AL-3.3V)、U105(TSUM56AL-1) and panel. +3.3V output is generated from +5V through C101 and C103 filtering, and U101 outputs. +3.3V is used for U105 (MCU & Scaler: TSUM16AL). +1.8V output is generated from +3.3V through U102 outputs. +1.8V is only used for U105.

4.2.2 MCU & Scaler(TSUM16AL)

The frequency of XTAL1 is 14.318MHz. U105 # 48 is defined as panel-enable. When the I/O port is high, Q101 and Q103 are conducted. And then after C108 and C109 filtering, obtain the voltage of VLCD, which will be connected to CN104. U105 # 85 is defined as CCFL-enable. When the I/O port is low, Q106 is pulled up and the backlights are on; When the I/O port is high, Q106 is conducted and the backlights are off. U105 # 35 is defined as DET-VGA, connected with CN103 #5. U105 # 84 is a pin of hardware reset. U105 # 54-# 55,# 58-# 65, # 67-# 74, # 77-# 78 output LVDS digital data of 8 bit to panel control circuit through CN104. U105 # 86 generates a PWM waveform by regulating the duty to control the brightness of the backlights.

U103 is EEPROM used for saving EDID data, which is connected by SCL and SDA pins with # 31 and # 30 of TSUM56AL-1.

U106 is a flash memory, U106 # 2, # 1, # 6, # 5 are the communications with U105 # 37-# 40. U108 is EEPROM used for saving user's OSD setting. U108 is connected by SCL and SDA pin with # 44 and # 43 of TSUM16AL.

4.2.3 VGA Input

Signal R, G, B input through CN103 #1, #2, #3, and C112, C113 and C114 filtering the high frequency noise. Signal HSYNC and VSYNC input through CN103 #13 and #14, and C125, R137, C126, R136 filtering. Then the analog signal enters U105, and then U104 deals with it internally. In addition, TVS101, TVS102, TVS103, TVS104 (the four are BAV99), ZD101, ZD105, ZD106, ZD107, ZD108(they are constant voltage diode of 5V6) are ESD protector. Signal DDC-SCL inputs via CN103 #15, and then passes through ZD101 for ESD protection, goes into EDID EEPROM IC U103. Signal DDC-SDA inputs via CN103 #12, and then passes through ZD107 for ESD protection, goes into EDID EEPROM IC U103. CN103 #5 is defined as cable detect pin, this detector realizes via R124 and U105 # 35,The PC-5V of U103 is supplied by PC via CN103 #9 with D103 for ESD protection, or supplied by Monitor self via D103.U103 is an EEPROM IC, which is a kind of memory and used for saving EDID data.

4.2.4 Button Control

Button "Key-Power" is defined as power on/off, which is connected to U105 # 90 through CN105 # 6.

Button "Key-2" is defined as two functions of selecting and adjustment, which is connected to U105 #94 through CN105 # 5.

Button "Key-Up" is defined as plus, which is connected to U105 # 95 through CN105 # 8.

Button "Key-Down" is defined as minus, which is connected to U105 # 99 through CN105 # 7.

Button "Key-1" is defined as two functions of menu and exit, which is connected to U105 # 89 through CN105 # 4.

LED indicator on the front bezel is defined as follows:

a. When press button "Key-Power", U105 # 91 is pulled down and U105 # 92 is pulled high, so Q102 is conducted and the LED indicator is green.

b. When in power-saving mode, U105 # 91 is pulled high and U105 # 92 is pulled down, so Q105 is conducted and the LED indicator is orange.

4.4 FACTORY PRESET TIMING TABLE

TIMING	F_H(KHz) F_V(Hz)	Sync Polarity	Total (Dot/Line)	Active (Dot/Line)	Sync Width (Dot/Line)	Back Porch (Dot/Line)	Pixel Freq.(MHz)
640*350@70Hz	31.469	+	800	640	96	48	25.175
	70.086	–	449	350	2	60	
IBM 640*400@70Hz	31.469	–	800	640	96	48	25.175
	70.086	+	449	400	2	35	
IBM 720*400@70Hz	31.469	–	900	720	108	54	28.322
	70.087	+	449	400	2	35	
640*480@50Hz	24.700	–	800	640	96	48	19.760
	50.000	–	494	480	2	8	
VESA 640*480@60Hz	31.469	–	800	640	96	40	25.175
	59.940	–	525	480	2	25	
640*480@67Hz	35.000	–	864	640	64	96	30.240
	66.667	–	525	480	3	39	
VESA 640*480@72Hz	37.861	–	832	640	40	120	31.500
	72.809	–	520	480	3	20	
VESA 640*480@75Hz	37.500	–	840	640	64	120	31.500
	75.000	–	500	480	3	16	
VESA 640*480@85Hz	43.269	–	832	640	56	80	36.000
	85.008	–	509	480	3	25	
VESA 800*600@56Hz	35.156	+	1024	800	72	128	36.000
	56.250	+	625	600	2	22	
VESA 800*600@60Hz	37.879	+	1056	800	128	88	40.000
	60.317	+	628	600	4	23	
VESA 800*600@72Hz	48.077	+	1040	800	120	64	50.000
	72.188	+	666	600	6	23	
VESA 800*600@75Hz	46.875	+	1056	800	80	160	49.500
	75.000	+	625	600	3	21	
VESA 800*600@85Hz	53.674	+	1048	800	64	152	56.250
	85.061	+	631	600	3	27	
MAC 832*624@75Hz	49.725	–	1152	832	64	224	57.283
	74.550	–	667	632	3	39	
VESA 1024*768@60Hz	48.363	–	1344	1024	136	160	65.000
	60.004	–	806	768	6	29	
VESA 1024*768@70Hz	56.476	–	1328	1024	136	144	75.000
	70.069	–	806	768	6	29	
VESA 1024*768@75Hz	60.023	+	1312	1024	96	176	78.750
	75.029	+	800	768	3	28	
VESA 1024*768@85Hz	68.677	+	1376	1024	96	208	94.500
	84.997	+	808	768	3	36	
1024*768@72Hz	57.700	–	1360	1024	136	144	78.472

2V to pin10 of IC501 enables the IC and activates the striking timer. The SSTCMP pin of IC501 performs the soft function, the C511 set the time of SST. The operation frequency determined by external capacitor C512, C521 and resistor R508 connected at CT pin of IC501. C515 connect the TIMER pin of IC501, the capacitor to set striking time and shunt down delay time. DRV!, DRV2 output for power MOSFET U501, U502.

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Button "Key-Up" is defined as plus, which is connected to U105 # 95 through CN105 # 8.

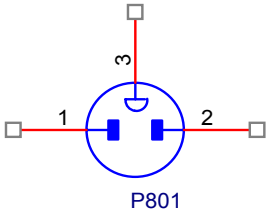
Button "Key-Down" is defined as minus, which is connected to U105 # 99 through CN105 # 7.

Button "Key-1" is defined as two functions of menu and exit, which is connected to U105 # 89 through CN105 # 4.

LED indicator on the front bezel is defined as follows:

a. When press button "Key-Power", U105 # 91 is pulled down and U105 # 92 is pulled high, so Q102 is conducted and the LED indicator is green.

4.6 AC Outlet Pin Assignment



Pin	Symbol	Description
1	L	Live
2	N	Neutral
3	E	GND

4.7 Inner Connector Pin Assignment

4.7.1 CN501, CN502, CN503, CN504 (Connect to Panel Backlight, SM02B-BHSS-1-TB or equivalent)

Pin	Symbol	Description
1	H.V.	High voltage for lamp
2	L.V.	Low voltage for lamp

4.7.2 CN101 (Power BD to Interface BD)

Pin No.	Symbol	Description
1	VCC5V	+5.1V INPUT
2	VCC5V	+5.1V INPUT
3	GND	GND
4	ON/OFF	CCFL on/off control
5	BRIGHTNESS	Panel luminance control (CCFL brightness)
6	GND	Ground
7	VOL	Volume control input
8	MUTE	Mute control input

4.7.3 CN105 (Interface BD to Keypad)

Pin No.	Symbol	Description
1	LED_ GREEN	Orange LED lighting control
2	LED_ ORANGE	Green LED lighting control
3	GND	Ground
4	KEY_POWER	DC power on/off control,
5	KEY_UP&▲	OSD “▲” control to adjust value to increase,
6	KEY_DOWN&2	Select control and auto adjustment control,
7	GND	OSD “▼” control to adjust value to decrease
8	KEY_1	OSD menu and exit

4.7.4 CN104 (Connect I/F BD to panel, FI-X30S-H or Equivalent)

Pin No.	Symbol	Function
1	RXO0-	minus signal of odd channel 0(LVDS)
2	RXO0+	plus signal of odd channel 0(LVDS)
3	RXO1-	minus signal of odd channel 1(LVDS)
4	RXO1+	plus signal of odd channel 1(LVDS)
5	RXO2-	minus signal of odd channel 2(LVDS)
6	RXO2+	plus signal of odd channel 2(LVDS)
7	GND	Ground
8	RXOC-	minus signal of odd clock channel (LVDS)
9	RXOC+	plus signal of odd clock channel (LVDS)
10	RXO3-	minus signal of odd channel 3(LVDS)
11	RXO3+	plus signal of odd channel 3(LVDS)
12	RXE0-	minus signal of even channel 0(LVDS)
13	RXE0+	plus signal of even channel 0(LVDS)
14	GND	Ground
15	RXE1-	minus signal of even channel 1(LVDS)
16	RXE1+	plus signal of even channel 1(LVDS)
17	GND	Ground
18	RXE2-	minus signal of even channel 2(LVDS)
19	RXE2+	plus signal of even channel 2(LVDS)
20	RXEC-	minus signal of even clock channel (LVDS)
21	RXEC+	plus signal of even clock channel (LVDS)
22	RXE3-	minus signal of even channel 3(LVDS)
23	RXE3+	plus signal of even channel 3(LVDS)
24	GND	Ground
25	GND	Ground
26	GND	Ground or Open
27	GND	Ground
28	VCC	Power supply (5.0 V)
29	VCC	Power supply (5.0 V)
30	VCC	Power supply (5.0 V)

4.7.5 CN103 (D-SUB Connector)

Pin	Symbol	Pin	Symbol	Pin	Symbol
1	Red video input	6	Red GND	11	GND
2	Green video input	7	Green GND	12	Serial data (SDA)
3	Blue video input	8	Blue GND	13	H / H+V SYNC
4	GND	9	+5V(from PC)	14	VSYNC
5	Cable Detect	10	GND	15	Data clock line (SCL)

Pin No.	Symbol	Function
1	RXO0-	minus signal of odd channel 0(LVDS)
2	RXO0+	plus signal of odd channel 0(LVDS)
3	RXO1-	minus signal of odd channel 1(LVDS)
4	RXO1+	plus signal of odd channel 1(LVDS)
5	RXO2-	minus signal of odd channel 2(LVDS)
6	RXO2+	plus signal of odd channel 2(LVDS)
7	GND	Ground
8	RXOC-	minus signal of odd clock channel (LVDS)
9	RXOC+	plus signal of odd clock channel (LVDS)
10	RXO3-	minus signal of odd channel 3(LVDS)
11	RXO3+	plus signal of odd channel 3(LVDS)
12	RXE0-	minus signal of even channel 0(LVDS)
13	RXE0+	plus signal of even channel 0(LVDS)
14	GND	Ground
15	RXE1-	minus signal of even channel 1(LVDS)
16	RXE1+	plus signal of even channel 1(LVDS)
17	GND	Ground
18	RXE2-	minus signal of even channel 2(LVDS)
19	RXE2+	plus signal of even channel 2(LVDS)
20	RXEC-	minus signal of even clock channel (LVDS)
21	RXEC+	plus signal of even clock channel (LVDS)
22	RXE3-	minus signal of even channel 3(LVDS)
23	RXE3+	plus signal of even channel 3(LVDS)
24	GND	Ground
25	GND	Ground
26	GND	Ground or Open
27	GND	Ground
28	VCC	Power supply (5.0 V)
29	VCC	Power supply (5.0 V)
30	VCC	Power supply (5.0 V)

4.7.5 **CN103 (D-SUB Connector)**

Pin	Symbol	Pin	Symbol	Pin	Symbol
1	Red video input	6	Red GND	11	GND
2	Green video input	7	Green GND	12	Serial data (SDA)
3	Blue video input	8	Blue GND	13	H / H+V SYNC
4	GND	9	+5V(from PC)	14	VSYNC
5	Cable Detect	10	GND	15	Data clock line (SCL)

4.8 Key Parts Pin Assignment

4.8.1 IC802 (TOP245Y or TOP246Y, Power Control IC)

Pin	Symbol	I/O	Description
1	C	I	Control
2	L	I	Line Sense
3	X	I	External Current Limit
4	S	O	Source of MOSFET(GND)
5	F	I	Frequency
6	D	I	Drain of MOSFET

4.8.2 IC501 (OZ9938GN, CCFL inverter controller IC)

Pin No.	Symbol	I/O	Description
1	DRV1	O	Drive output
2	VDDA	I	Supply voltage input
3	TIMER	I	Timing capacitor to set striking time and shut down delay time
4	DIM	I	Analog dimming or Internal LPWM dimming or external PWM pulse input for dimming function
5	ISEN	I	Current sense feedback
6	VSEN	I	Voltage sense feedback
7	OVPT	I	Over-voltage/over-current protection threshold setting pin
8	NC		
9	NC		
10	ENC	I	ON/OFF control of IC
11	LCT	I	Timing capacitor to set internal PWM dimming frequency and also a pin for analog dimming selection
12	SSTCMP	I	Capacitor for soft start time and loop compensation
13	CT	I	Timing resistor and capacitor for operation and striking frequency
14	GNDA		Ground for analog signals
15	DRV2	O	Drive output
16	PGND		Ground for power paths

4.8.3 U105(TSUM56AL-1)

Pin	Symbol	I/O	Description
1	NC		Not connected
2	GND		Ground
3	NC		Not connected
4	NC		Not connected
5	GND		Ground
6	NC		Not connected
7	NC		Not connected
8	AVDD_DC	I	ADC Power
9	NC		Not connected
10	NC		Not connected
11	GND		Ground
12	NC		Not connected

13	NC		Not connected
14	AVDD_DC	I	ADC Power
15	REXT		External resistor 390 ohm to AVDD_ADC
16	AVDD_PLL	I	PLL Power
17	BIN0M	I	Reference ground for analog blue input
18	BIN0P	I	Analog blue input
19	GIN0M	I	Reference ground for analog green input
20	GIN0P	I	Analog green input
21	SOGIN0	I	Sync-on-green input
22	RIN0M	I	Reference ground for analog red input
23	RIN0P	I	Analog red input
24	AVDD_ADC	I	ADC Power
25	REFM		Internal ADC bottom de-coupling pin
26	REFP		Internal ADC top de-coupling pin
27	HSYNC0	I	Analog HSYNC input
28	VSYNC0	I	Analog VSYNC input
29	GND		Ground
30	DDCA_SDA/RS232_TX	I/O	DDC Data for Analog Interface; 4mA driving strength/UART Transmitter/GPIO
31	DDCA_SCL/RS232_RX	I/O	DDC Clock for Analog Interface/UART Receiver/GPIO
32	VDDP	I	Digital Output Power
33	GND		Ground
34	VDDC	I	Digital Core Power
35	GPIO_P15/PWM0	I/O	General Purpose Input/Output; 4mA driving strength/Pulse Width Modulation Output; 4mA driving strength
36	NC		Not Connected
37	SDO	I	SPI Flash Serial Data Output
38	SCZ	O	SPI Flash Chip Select
39	SCK	O	SPI Flash Serial Clock
40	SDI	O	SPI Flash Serial Data Input
41	NC		Not Connected
42	NC		Not Connected
43	GPIO_P11/I2C_MDA	I/O	General Purpose Input/Output; 4mA driving strength/I2C Master Data
44	GPIO_P10/I2C_MCL	I/O	General Purpose Input/Output; 4mA driving strength/I2C Master Clock
45	NC		Not Connected
46	NC		Not connected
47	NC		Not connected
48	GPIO_P27/PWM1	I/O	General Purpose Input/Output; 4mA driving strength/Pulse Width Modulation Output; 4mA driving strength
49	VDDP	I	Digital Output Power
50	GND		Ground
51	VDDC	I	Digital Core Power
52	MODE[0]	I	Chip Configuration Input

53	MODE[1]	I	Chip Configuration Input
54	LVA3P	O	A-Link Positive LVDS Differential Data Output
55	LVA3M	O	A-Link Negative LVDS Differential Data Output
56	VDDP	I	Digital Output Power
57	GND		Ground
58	LVACKP	O	A-Link Positive LVDS Differential Clock Output
59	LVACKM	O	A-Link Negative LVDS Differential Clock Output
60	LVA2P	O	A-Link Positive LVDS Differential Data Output
61	LVA2M	O	A-Link Negative LVDS Differential Data Output
62	LVA1P	O	A-Link Positive LVDS Differential Data Output
63	LVA1M	O	A-Link Negative LVDS Differential Data Output
64	LVA0P	O	A-Link Positive LVDS Differential Data Output
65	LVA0M	O	A-Link Negative LVDS Differential Data Output
66	VDDC	I	Digital Core Power
67	LVB3P	O	B-Link Positive LVDS Differential Data Output
68	LVB3M	O	B-Link Negative LVDS Differential Data Output
69	LVBCKP	O	B-Link Positive LVDS Differential Clock Output
70	LVBCKM	O	B-Link Negative LVDS Differential Clock Output
71	LVB2P	O	B-Link Positive LVDS Differential Data Output
72	LVB2M	O	B-Link Negative LVDS Differential Data Output
73	LVB1P	O	B-Link Positive LVDS Differential Data Output
74	LVB1M	O	B-Link Negative LVDS Differential Data Output
75	VDDP	I	Digital Output Power
76	GND		Ground
77	LVB0P	O	B-Link Positive LVDS Differential Data Output
78	LVB0M	O	B-Link Negative LVDS Differential Data Output
79	GND		Ground
80	BYPASS		For External Bypass Capacitor
81	NC		Not connected
82	VDDC	I	Digital Core Power
83	GND		Ground
84	RST	I	Chip Reset; High Reset
85	GPIO_P12	I/O	General Purpose Input/Output; 4mA driving strength
86	PWM1/GPIO_P25	I/O	Pulse Width Modulation Output; 4mA driving strength/General Purpose Input/Output; 4mA driving strength
87	RSTN	I	Chip Reset; Low Reset
88	GPIO_P00/SAR1	I/O	General Purpose Input/Output; 4mA driving strength/SAR ADC Input
89	GPIO_P01/SAR2	I/O	General Purpose Input/Output; 4mA driving strength/SAR ADC Input

90	GPIO_P02/SAR3	I/O	General Purpose Input/Output; 4mA driving strength/SAR ADC Input
91	GPIO_P06	I/O	General Purpose Input/Output; 6/12mA programmable driving strength
92	GPIO_P07	I/O	General Purpose Input/Output; 6/12mA programmable driving strength
93	PWM0/GPIO_P26	I/O	Pulse Width Modulation Output; 4mA driving strength/General Purpose Input/Output; 4mA driving strength
94	GPIO_P13	I/O	General Purpose Input/Output; 4mA driving strength
95	GPIO_P14	I/O	General Purpose Input/Output; 4mA driving strength
96	XIN	I	Crystal Oscillator Input
97	XOUT	O	Crystal Oscillator Output
98	AVDD_MPLL	I	MPLL Power
99	GPIO_P16/PWM2	I/O	General Purpose Input/Output; 4mA driving strength/ Pulse Width Modulation Output; 4mA driving strength
100	NC		Not connected

5. Adjustment Procedure

1. Key Function Description

CONTROL KEY	KEYS FUNCTION
[AUTO] [2]	By pressing [AUTO] key, “Auto Image Adjust” is performed
[MENU] [1]	By pressing [MENU] key, Main menu display
[▼] [▲]	A. When “MENU OSD” display, press these keys to change the contents of an adjustment item, or change an adjustment value B. When “MENU OSD” is un-display, press these keys to change brightness and contrast
[POWER]	Power on or power off the monitor

2. Hot Key Operation

Hot Key Function	
Item	Function Detail
[▲] + [▼]	Recall Contrast or Brightness while in the Contrast or Brightness adjustment;
	Recall both Contrast and Brightness when the OSD is not open
[1] +[2]	Toggle 720x400 and 640x400 mode when input 720x400 or 640x400 mode
[1] + [▼] + [▲] (keep pushing 5 sec)	White Balance (Not shown on user’s guide)
[1] + [▼]	Power Lock
[1] + [▲]	OSD Lock
[▼] + [▲]+ [⏻]	Enter Factory Mode
Remark: All the function above are only available while OSD off	

3. OSD Control

3.1 OSD table

Layer 1	Layer 2	Layer 3
Auto Image Adjust		
Contrast/Brightness	Contrast (+ / -) *3,4	
	Brightness (+ / -) *3,4	
Audio (for VA703m only)	Volume	Volume (+ / -)
	Mute	On/Off
Color Adjust	sRGB	
	9300K	
	6500K	
	5400K	
	User Color	Red (+ / -)
		Green (+ / -)
		Blue (+ / -)
Information		
Manual Image Adjust	H/V Position	H Position (+ / -)
		V Position (+ / -)
	H Size	+ / -
	Fine Tune	+ / -

	Sharpness	+ / -
Setup Menu	Language Select	English
		French
		German
		Italian
		Spanish
		Finnish
		Japanese
		Simplified Chinese
		Traditional Chinese
	Resolution Notice	On/Off
	OSD Position	H Position (+ / -) *3
		V Position (+ / -) *3
	OSD Time Out	
	OSD Background	On/Off
Memory Recall		

3.2 OSD lock Menu function

OSD Lock Menu Function Check		
Item	**Method**	**Phenomenon**
Activate OSD lock	[1] + [▲] 10S	Press any of buttons"1", "▼", "▲", "2" will appear "OSD Locked" 3s
Deactivate OSD lock:	[1] + [▲] 10S(again)	
NOTICE: When the OSD is locked will lock all functions. Status bar indicating OSD Lock or Unlock is in progress and when complete it will indicate “OSD Locked” OSD Lock should not lock Power Button and Power Lock function		

3.3 Power lock Menu function

Power Lock Menu Function Check		
Item	**Method**	**Phenomenon**
Activate Power Lock	[1] + [▼] 10S	Can not turn off the LCD; Press the power button will appear "Power Button Locked" OSD 3s; LCD would automatically turn back "On" when power is restored after a power failure
Deactivate Power Lock	[1] + [▼] 10S(again)	
NOTICE: Status bar indicating Power Button lock or unlock is in progress and when complete it will indicate “Power Button Locked” Power should only be lockable in the “On State”		

3.4 Resolution notice function

Resolution Notice Menu		
Item	**Method**	**Phenomenon**
Activate Resolution Notice Menu	Resolution Notice OSD should show on screen after changing to non-native mode for 30 sec, And it should disappear after 10s or by pushing button [1] or [2]	------

Deactivate Resolution Notice Menu	Push button [2] under Resolution Notice OSD, select Disable	-------

3.5 Factory Mode Introduction

When input the signal, press “power key” to turn off the monitor. Press” **[▼] +[▲] +[⏻]** “at the same time so as to enter factory mode. After power on, press ‘’Menu[1]’’ key, you can see the Factory menu.

INL-V0 : Currently using panel model name
V4 060804 : Currently using firmware version information.
Auto Color : Automatically calibrate chip ADC parameter by using chip internal DAC
Color Temperature : The R, G, B of 9300K and 6500K and 5400K and User Mode Colors are all generated from scaling back end.

4. Burn-in pattern

If it is a new monitor, and in factory mode, if no VGA signal input, Burn-in pattern will self generate automatically. Burn in patterns are: full Red, Green, Blue, White and Black. You can not escape from Burn-in pattern until plug in VGA Cable, and then press the power key. Turn the monitor off and then turn it on.

5. Auto Color (Automatically calibrate chip ADC parameter by using chip internal DAC)

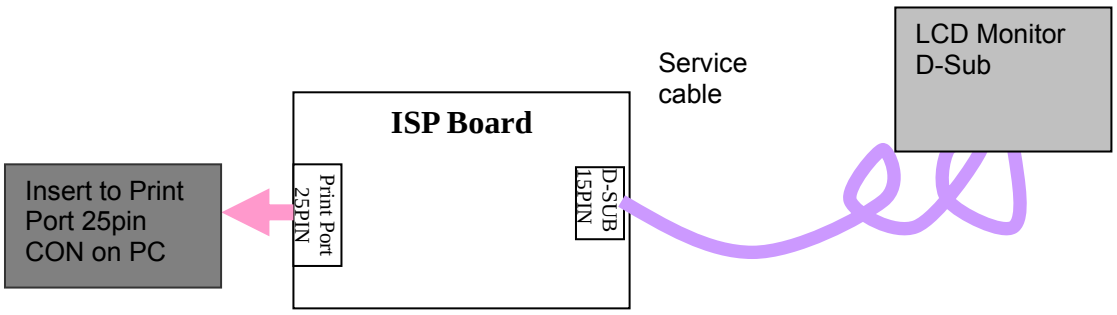
If it is a new-built set and it is first time to do the “auto color”, please confirm the following steps:
-Connect the VGA cable with the standard video pattern generator and display 16-gray pattern on the monitor.
- Press “Power” to power off the monitor.
- Press” **[▼] +[▲] +[⏻]** “simultaneously to enter factory mode.
- Press ‘’Menu[1]’’, then press ‘’Auto[2]’’ to execute Auto color item.
- After the “Auto Color” process finished, please press “Power” to restart monitor.

6. EDID (Rewrite EDID data to EEPROM)

If we need to rewrite the EEPROM data, please confirm the following steps.
1. Plug in VGA Cable; we can rewrite the EDID data to EEPROM by using “EDID Rewrite” program.
2. If the “EDID Rewrite” process finished, please pull out VGA cable and press ‘’2’’+’’▲’’ at the same time.
3. Pull out AC power cable or press power key to restart.

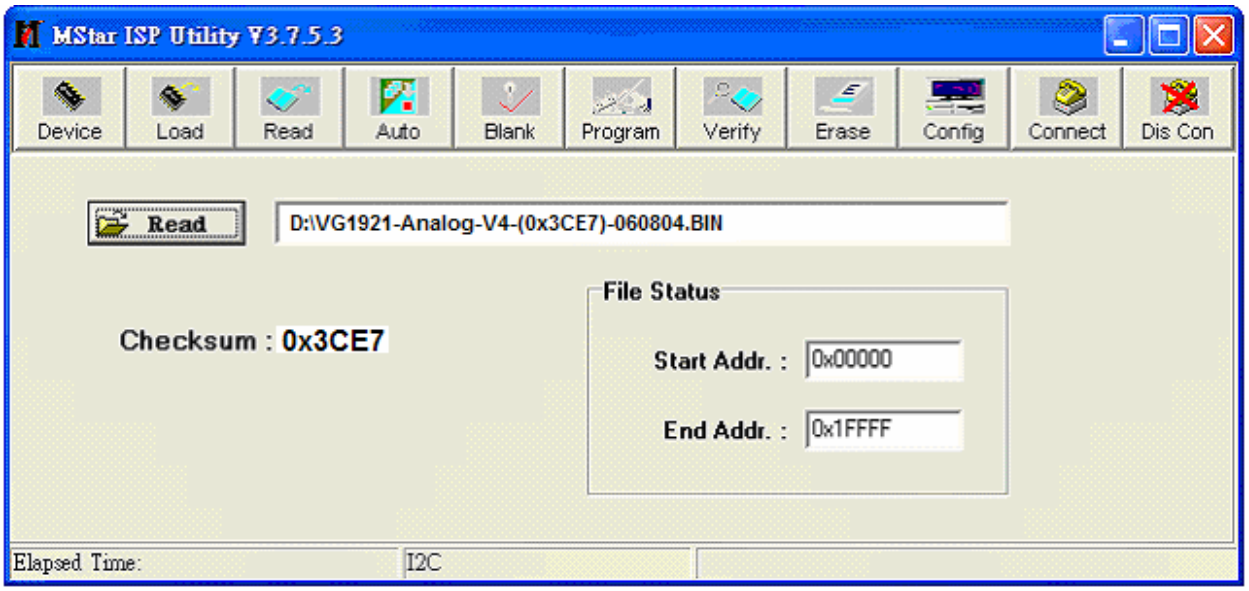
7. Upload firmware to MCU via VGA Cable

7.1 Connect ISP board between monitor and PC as below configure

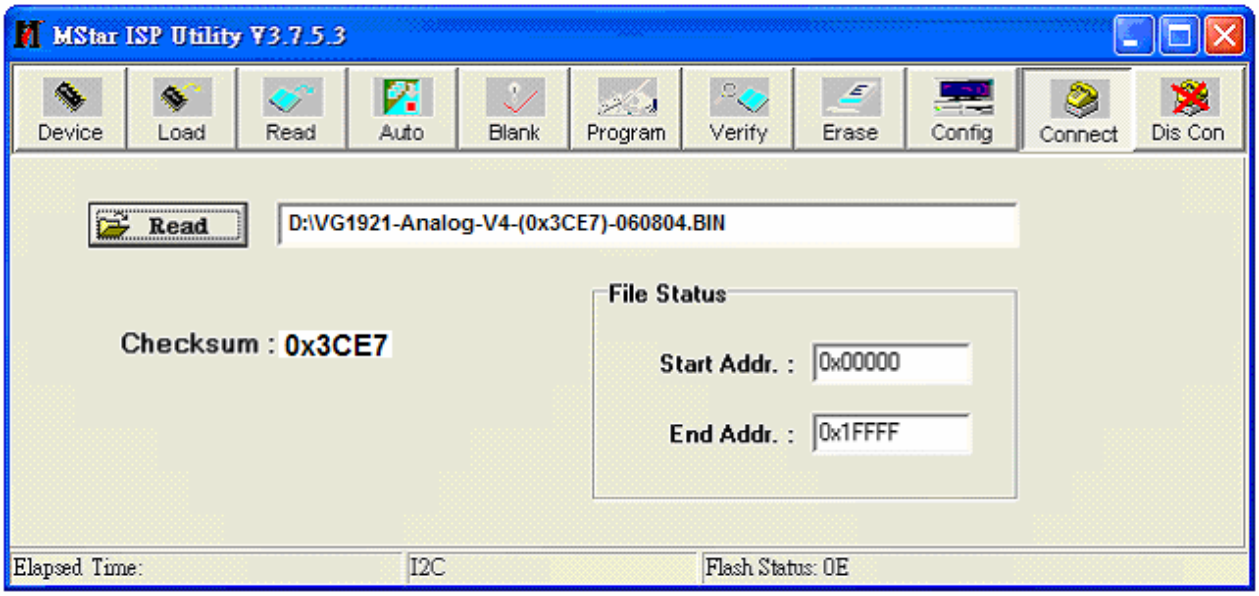


7.2 Using mStar ISP Tool Update FW:

(1). Seletct “Read”, Choose the corresponding firmware, load to MCU.

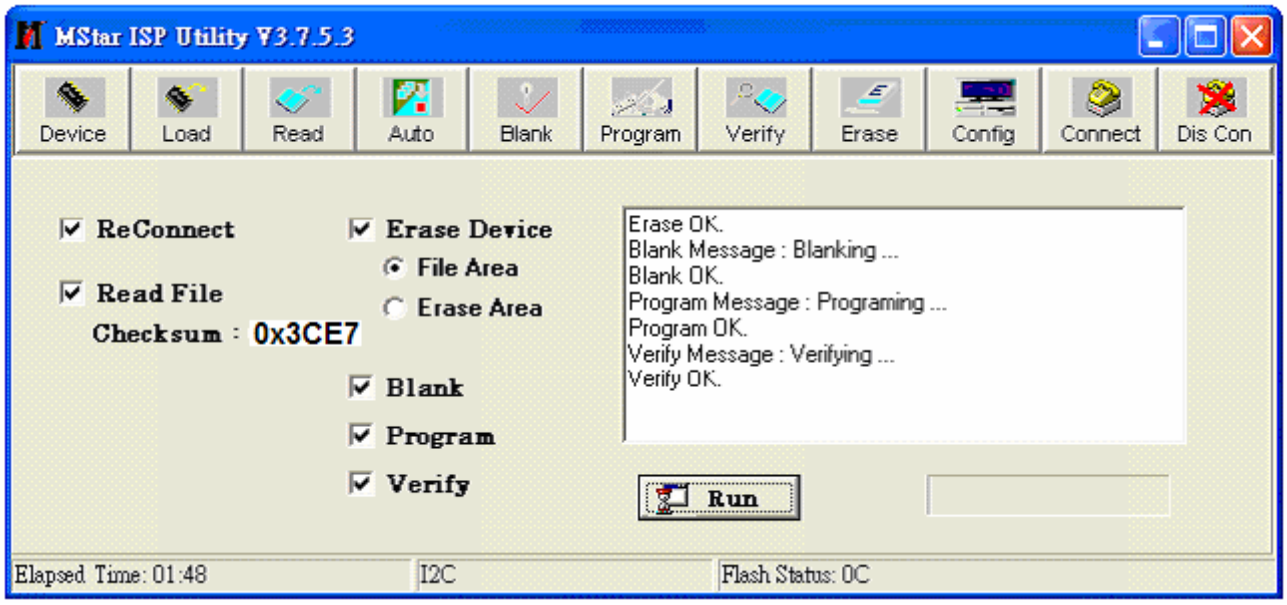


(2). Select “Connect”, auto connect for ISP.



(3). Select “Run”, start ISP.

(4). When the picture show "Verify OK", ISP finished.



8 After repair, to ensure the quality you should do the following test and adjustment

Item	Content	Equipment
Test OSD function	1.Signal is set as 1280x1024@60Hz 2. LCM button are from left to right, checking whether each single function key and compound function key can be worked.	Chroma Signal Generator
Contrast Check	1. Set input mode to 1280x1024@60Hz 2. Set Pattern to 32 gray shades 3. Set contrast to the max. The brightest 6~8 shades brightness cannot be distinguished.	Chroma Signal Generator

<table>
<tr><td>Color Temperature</td><td>1. Do “Auto color” at 640 x 480@60Hz, 5-Mosic pattern
2. Measure color temperature, check it complies with the following temperature:
5400K x=0.335 +/- 0.02, y=0.350 +/- 0.02
6500K x=0.313 +/- 0.02, y=0.329 +/- 0.02
9300K x=0.283 +/- 0.02, y=0.298 +/- 0.02</td><td>Chroma Signal Generator and color analyzer</td></tr>
<tr><td>Modes switching check</td><td>1. Use Chroma Pattern Generator to make sequence.
VESA (640x480 800x600 1024x768 1280x1024), MAC 832x624
DOS (640x350 720x400), the detail supported modes and power saving signal.
2. Confirm the above timing modes must be full screen and the picture must be normal.
3. LED is Orange at power saving mode.</td><td>Chroma Signal Generator</td></tr>
<tr><td>Y measurement at default setting</td><td>1. Set brightness to default value 100 and contrast to default value 70 at 6500K
2. At full white patter, Measure Y, which should be ≥ 250cd/m²</td><td>Chroma Signal Generator and Color Analyzer</td></tr>
<tr><td>Panel Flicker check</td><td>1. Mode: 1280x1024@60Hz
2. Set Brightness& contrast to default value
3. Do “Auto Image Adjust”
4. Shut down PC to check whether there’s glitter on the center of the picture.</td><td>Equipment::
Chroma Signal Generator & PC</td></tr>
<tr><td>Power saving</td><td>1. Mode: 1440x900@60Hz
2. Pattern: full white
3. Brightness: Max.
4. Contrast: Default
5. Check power consumption at each modes
<table>
<tr><th>State</th><th>Power Consumption</th><th>LED color</th></tr>
<tr><td>Normal</td><td>≤ 42W</td><td>Green</td></tr>
<tr><td>Stand By</td><td>< 2W</td><td>Orange</td></tr>
<tr><td>Power Key Off</td><td>＜1W</td><td>No</td></tr>
</table></td><td>Chroma signal generator and Power meter
AC input: 230V/50Hz</td></tr>
</table>

Packing For Shipping And Disassembly Procedure

Packing For Shipping

1. Packing Procedure

1.1 Paste protection film to protect the monitor. (Figure 1)

1.2 Put the monitor in the PE bag and seal the bag with tape. (Figure 2)

Figure 1

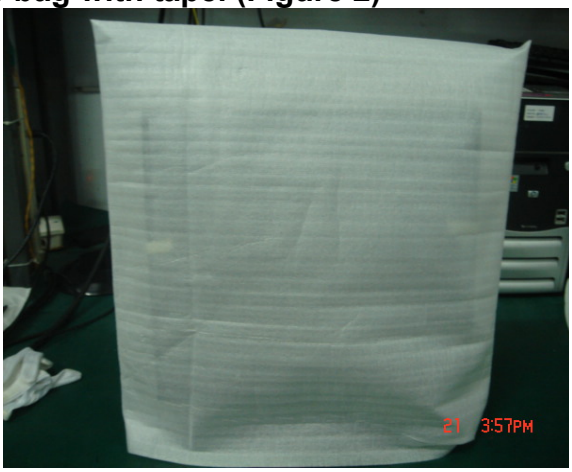


Figure 2

1.3 Put the cushions on the monitor.

1.4 Place the monitor into the carton and then put all the accessories into the carton. At last, close the carton and seal it with tape. (Figure 3)

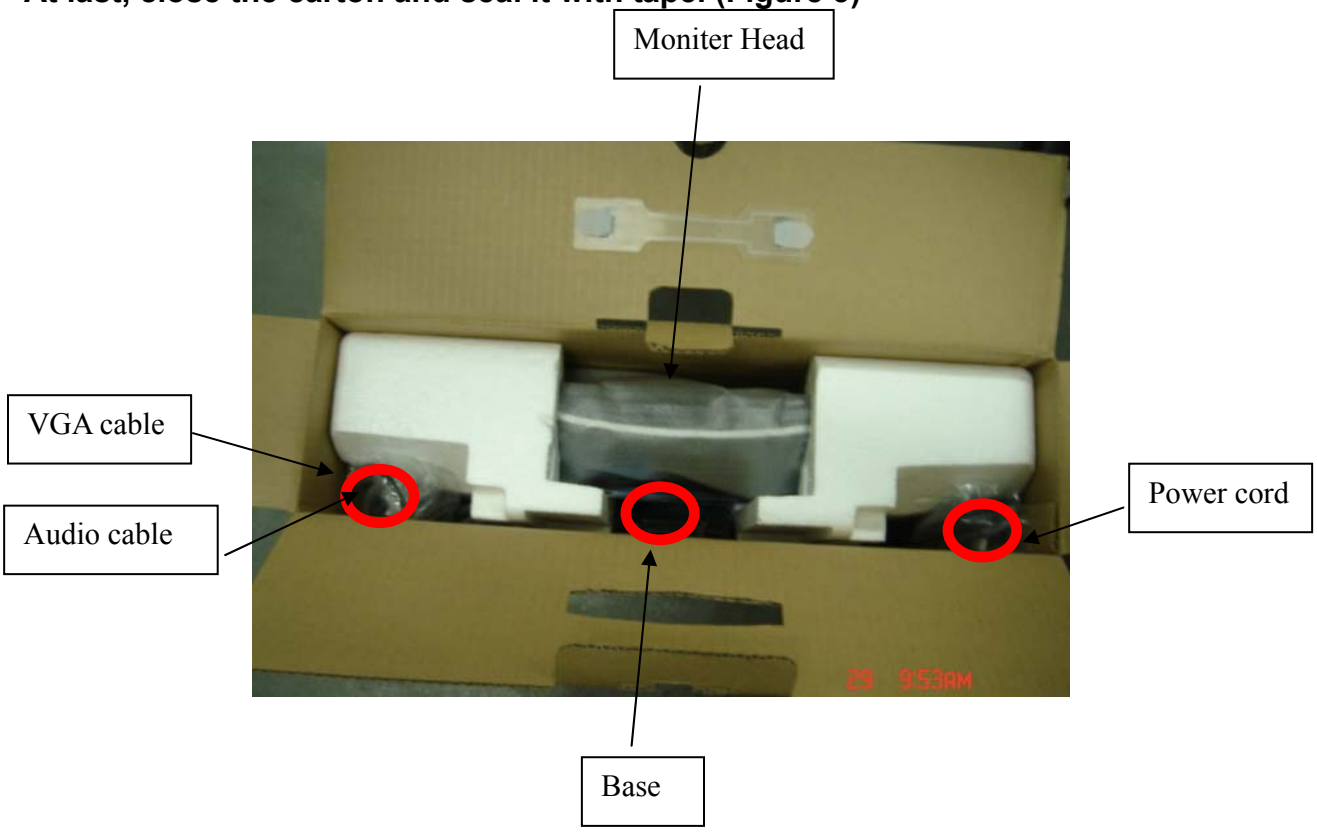


Figure 3

Disassembly Procedure

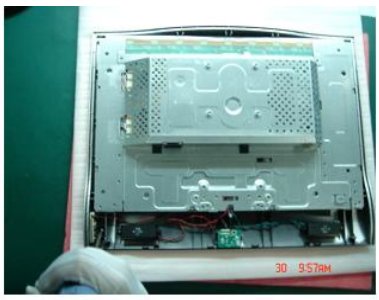
Base

Hinge Cover

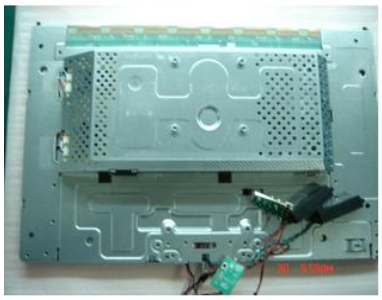
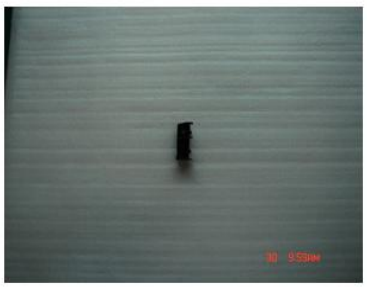
Stand

Back Cover







Holder

Bezel

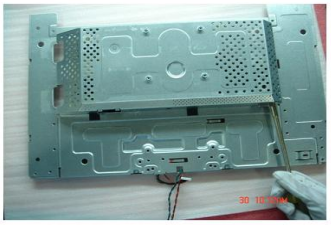
LED Board

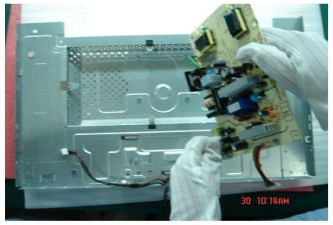
Function Key -
OSD Key Cable

Function Key

OSD Board

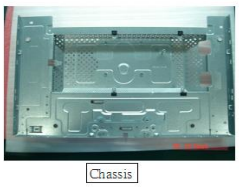
Panel





Power Board

I/F Board



Chassis

Speaker

LVDS Cable

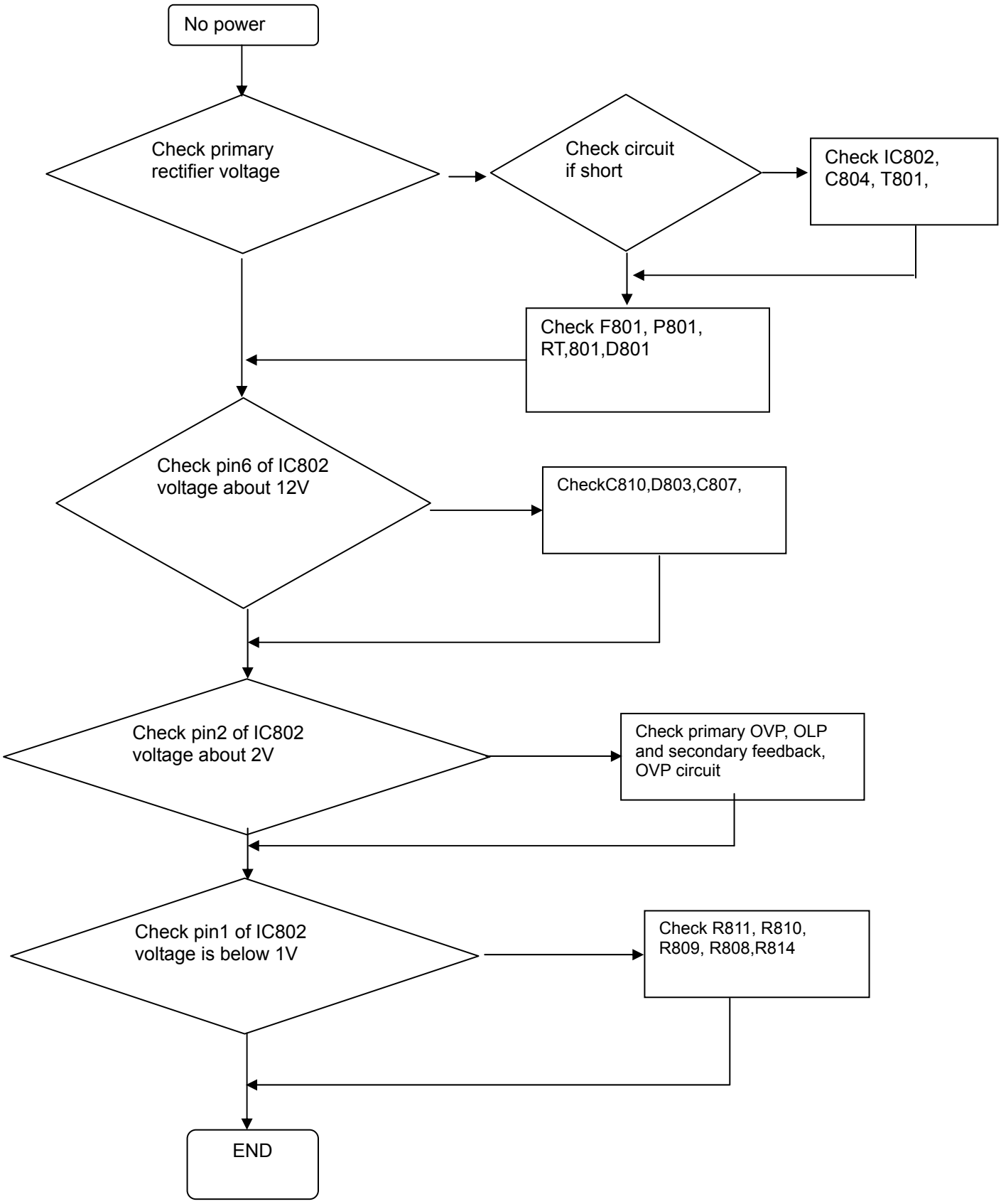
P-Led Cable

6. Troubleshooting Flow Chart

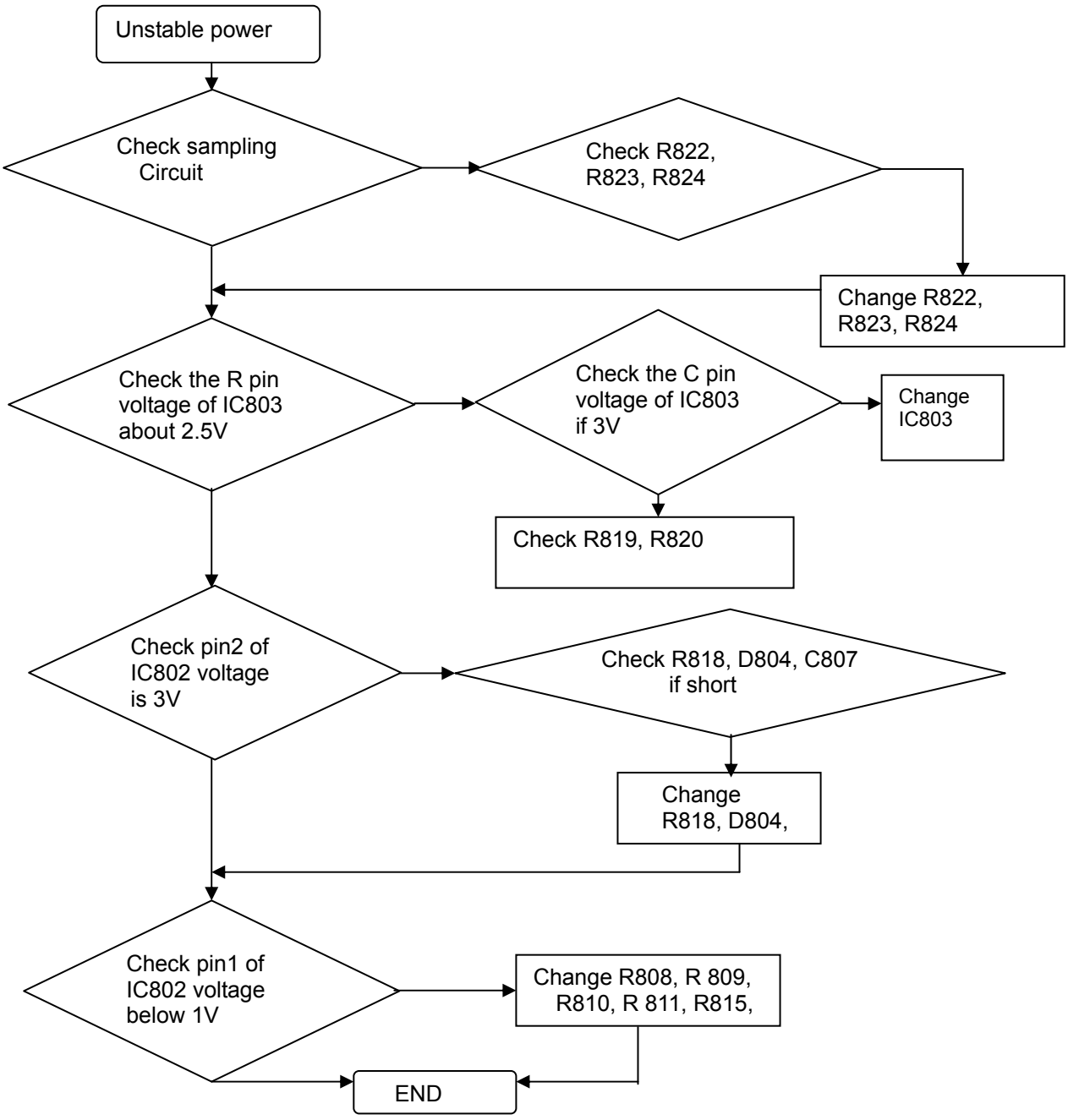
1. Common Acknowledge

- If you change the interface board, be sure that the U103, U105, U106 and U108 these three components also changed to the new I/F board because there was program inside. If not, please re-write EDID and upload firmware into U106 via VGA Cable.
- If you adjust clock and phase, please do it at the condition of Windows shut down pattern.
- If you confirm the R.G.B. color is normal or not, please do it under 16-grey scalar pattern.
- This LCM is analog interface. So if the entire screen is an abnormal color that means the problem happen in the analog circuit part, if only some scale appears abnormal color that stand the problem happen in the digital circuit part.
- If you check the H/V position, please use the crosshatch pattern.
- This LCM support more than 30 timing modes, if the input timing mode is out of specification, the picture may appears abnormally.
- If brightness uneven, repairs Inverter circuit or change a new panel.
- If you find the vertical line or horizontal line lost on the screen, please change panel.
- If you find the speaker don't working, please don't plug in audio cable, unless change new speaker.

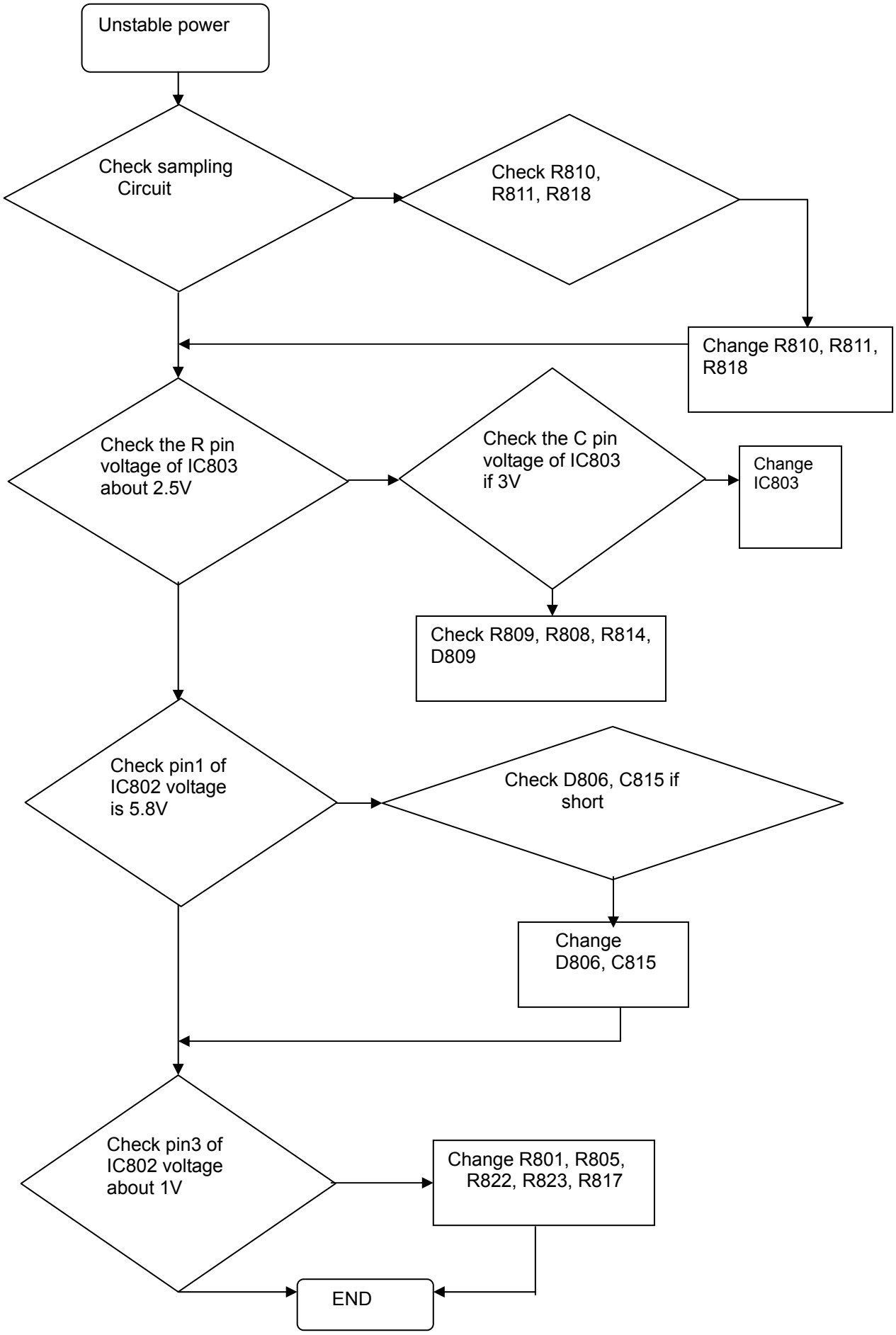
2. No Power & Power LED Off



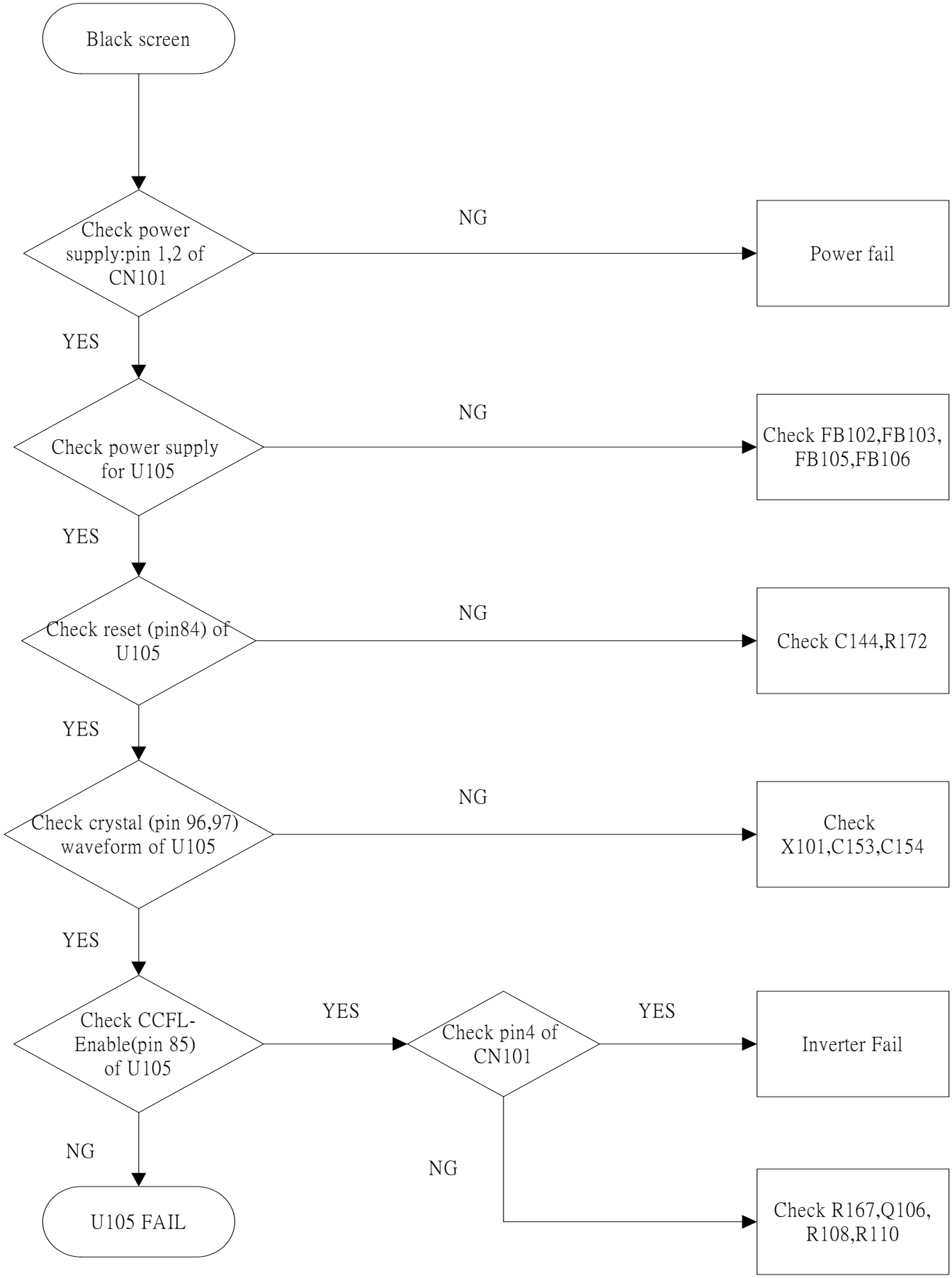
3. DC output voltage is unstable



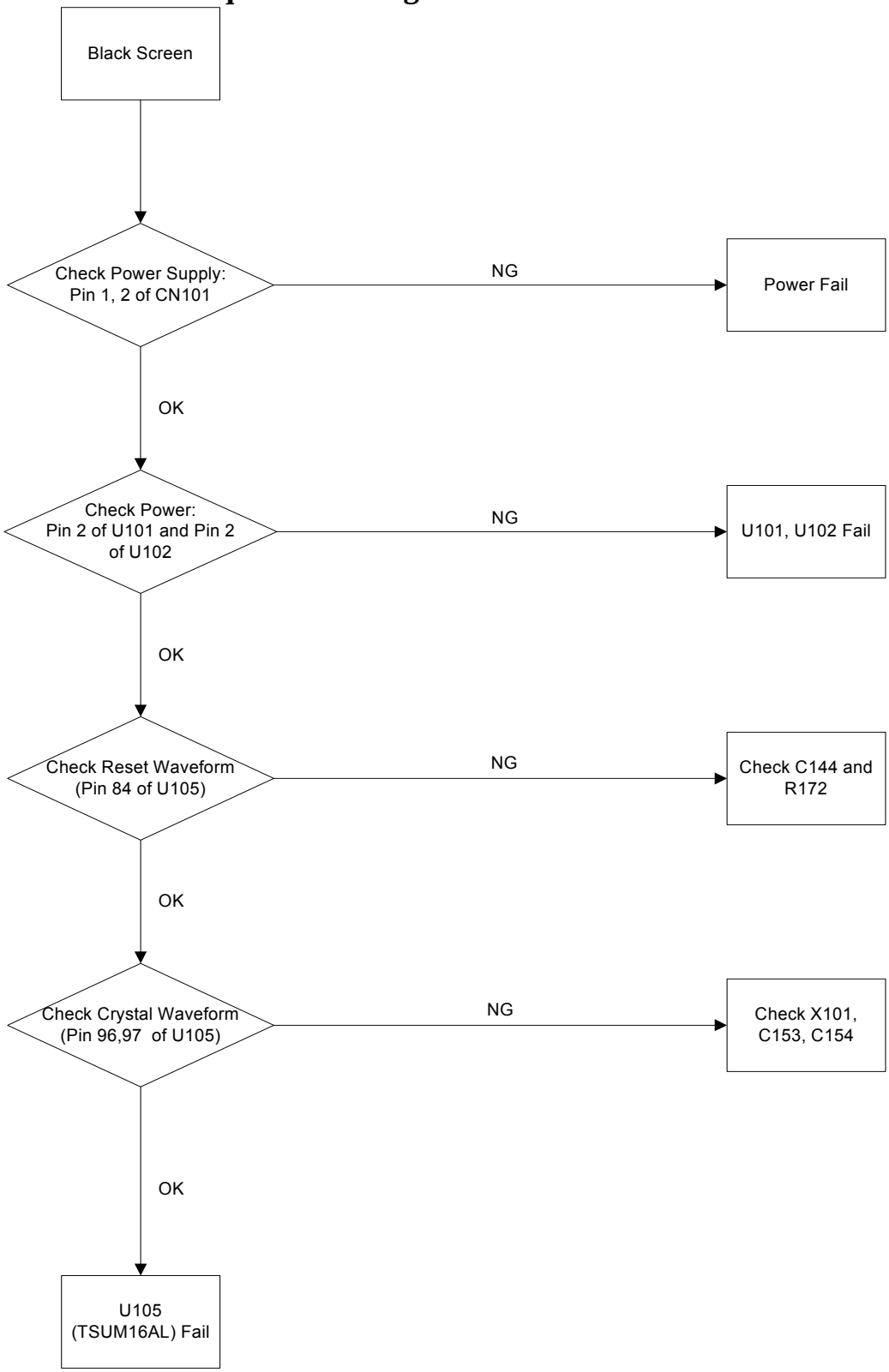
4. Output power is unstable



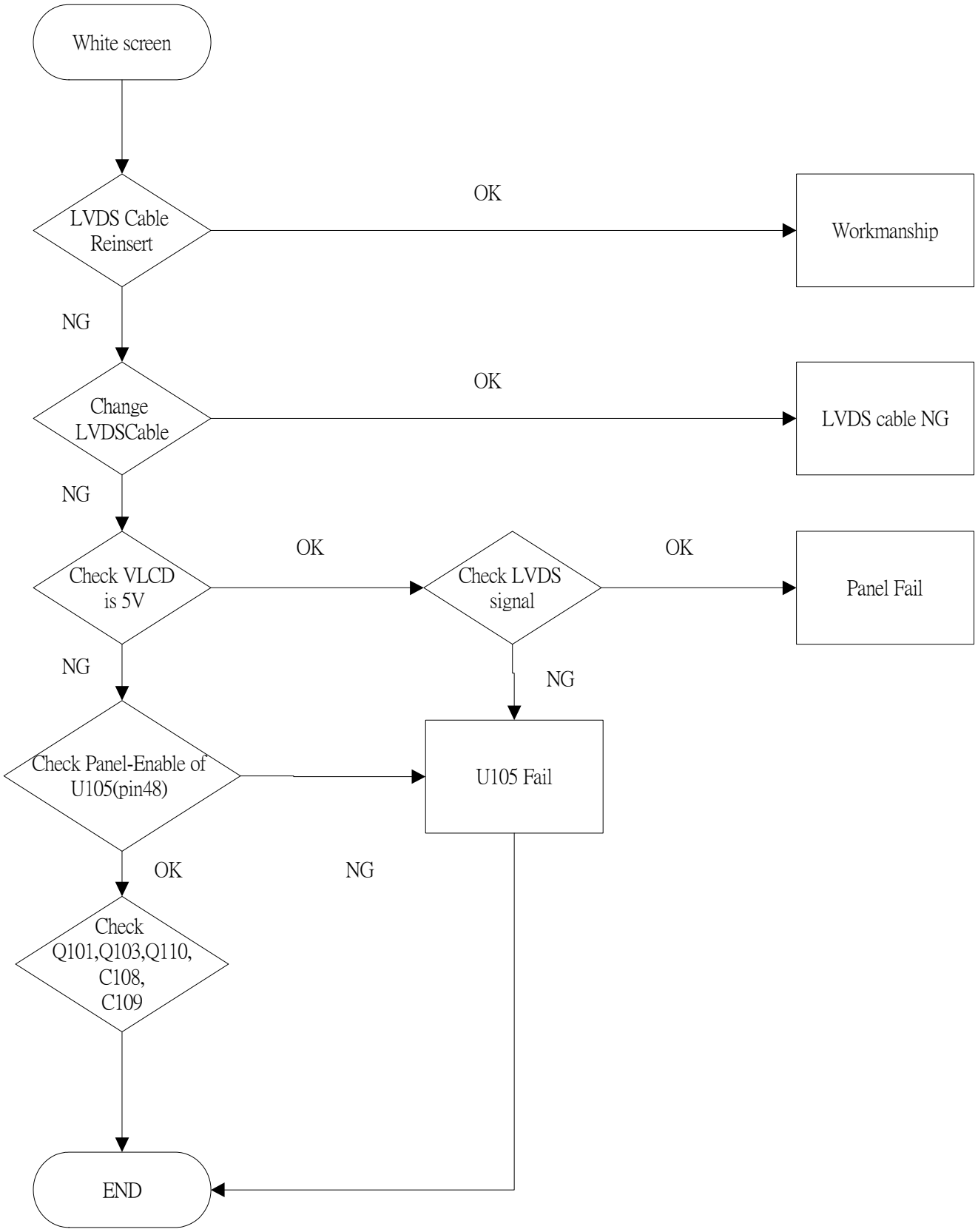
5. Backlight can't be turned on



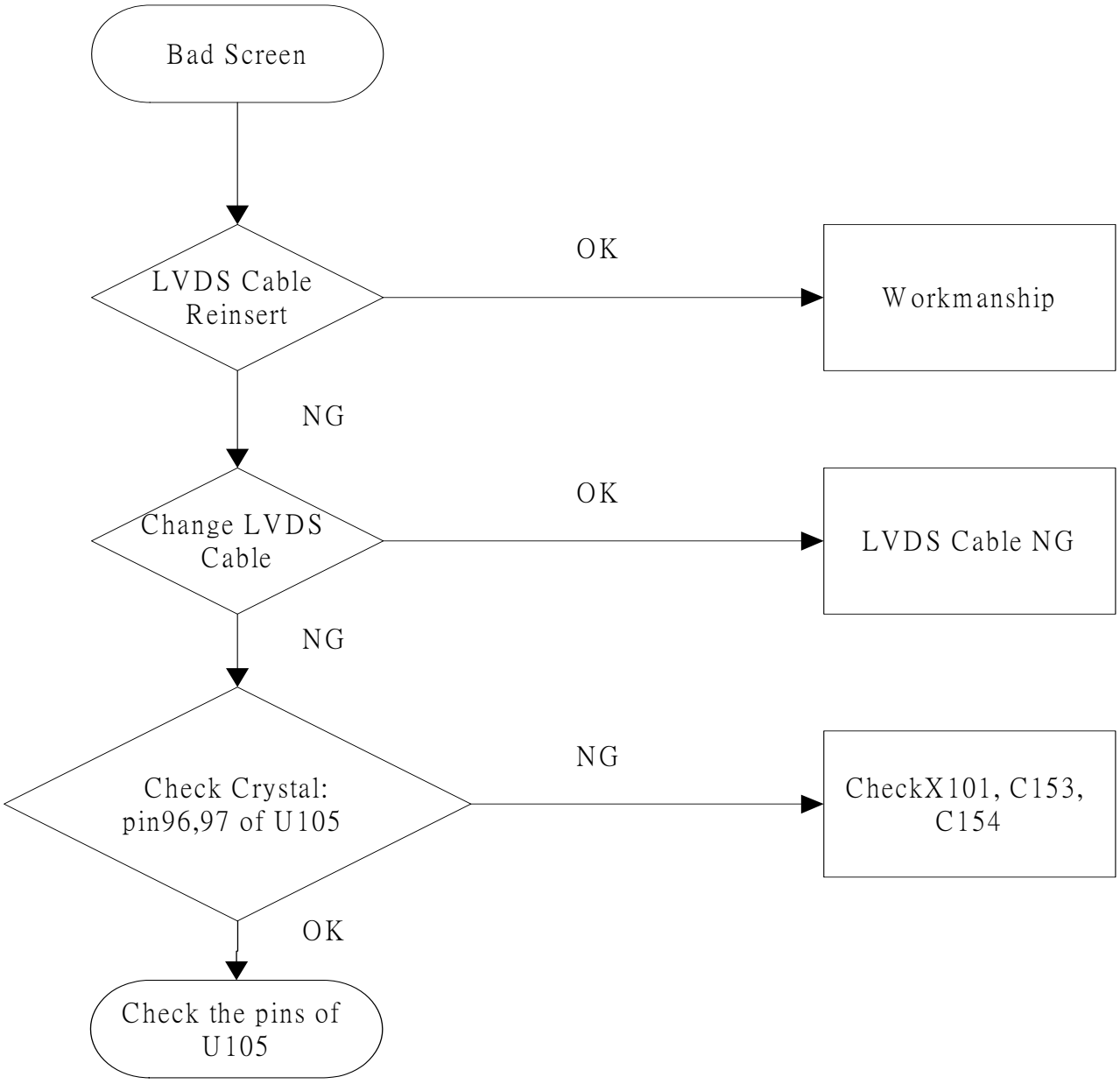
6. Black Screeqn and backlight turn on



7. White Screen



8. Bad Screen


Bad Screen
LVDS Cable Reinsert
OK
Workmanship
NG
Change LVDS Cable
OK
LVDS Cable NG
NG
Check Crystal: pin96,97 of U105
NG
CheckX101, C153, C154
OK
Check the pins of U105

7. Recommended Spare Parts List

RECOMMENDED SPARE PARTS LIST (VG1921WM-2)

ViewSonic Model Number: VS11354

Rev: 1a

Serial No. Prefix: QAB

Item	Description		ECR/ECN	ViewSonic P/N	Ref. P/N	Location	Universal number#
1	**Accessories:**	Power Cord (China).RVV 3Gx0.		A-00005255	453070800170R		
2		Kit Accessory		A-00008015	703000003100R		
3	**PC Board Assembly:**	Interface Board		B-00008022	790691301650R		
4		Sub Board		B-00008023	790691401600R		
5		Key Board		B-00008024	790691501000R		
6		Led Board		B-00008025	790682201000R		
7	**Cabinets:**	Back Cover		C-00008034	714050007200R		
8		Front Panel (Bezel)		C-00008035	714030007200R		
9		Base Assembly		C-00008036	714020007200R		
10		Hinge Cover		C-00008037	501020209500R		
11		Hinge Cover (B)		C-00008037	501020209500R		
12	**Cables:**	Audio Cable		CB-00008002	453030300120R		
13		D-Sub Cable (Black)		CB-00008009	453010100150R		
14		Wire (HRN Assy) #28,RoHS		CB-00008010	430300400110R		
15		Wire (HRN Assy),270mm#28,RoHS		CB-00008011	430300800710R		
16		Flat Cable FFC 30P 160mm,RoHS		CB-00008013	430303000600R		
17	**Electronic**	Speaker W/Case 1.5W 16Ω 350mm		E-00008012	618100101500R		
18	**Components:**	LCD PANEL 19" MT190AW01-V0,AM19000040		E-00008016	631102090600R		
19	**Packing Material:**	Generic Foam Set		P-00001347	30833		
20		Generic Carton		P-00002515	20653		
21		PE Bag (Plastic)W220xL280xT0.05mm		P-00006741	506120002510R		
22		Craft Foam Right		P-00008029	506040009610R		
23		Craft Foam Left		P-00008030	506040009600R		
24		Craft Box		P-00008031	506020011800R		
25		PE BagL540xW500xT0.05mm		P-00008032	506120302400R		

Remark 1: Above listed items are examples, supplier can expand the rows to add more necessary items.

Remark 2: All revised RSPLs with newly added items or any change made should be highlighted and correlated with the ECN/ECR approved by ViewSonic Corporation. This is to eliminate repeated cross checks of each item between this version and prior versions.

BOM LIST (VG1921WM-2)

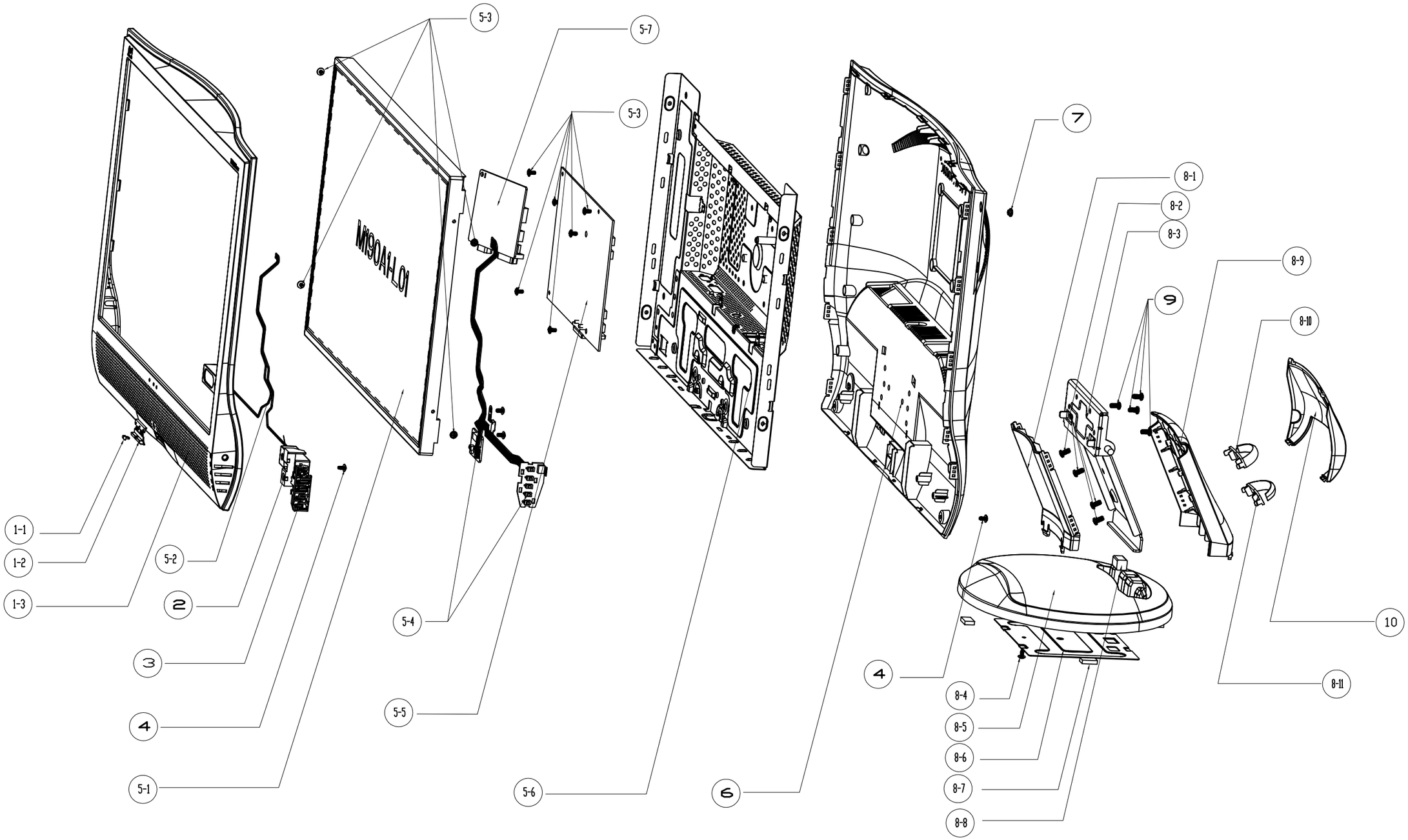
ViewSonic Model Number: VS11354

Serial No. Prefix:QAB

Rev.: 1a

Item	ViewSonic P/N	Ref. P/N	Description	Location	Universal number#	Q'ty
1	P-00008029	506040009610R	CUSHION,EPS-R, LE1941			100
2	P-00008030	506040009600R	CUSHION,EPS-L, LE1941			100
3	P-00006741	506120002510R	BAG,PLASTIC,W220xL280xT0.05mm,CYCLE PRIN			100
4	P-00008032	506120302400R	BAG,EPE+PE,L540xW500xT0.05mm,PRINTED, LE			100
5	N/A	506039006200R	CORNER PAPER,1100x50x50xT3mm, LE1513 ROH			5.556
6	N/A	506037005800R	CARDBOARD,COVER,L1310xW1160xH120mm,LE194			2.778
7	N/A	506431000300R	FILM,PE 500mmx900M ROHS			0.25
8	P-00008031	506020011800R	CARTON,VIEWSONIC, LE1941			100
9	N/A	506440002300R	LABEL,BLANK,76.2x76.2mm,LE1709(UPC)			100
10	N/A	506440002400R	LABEL,BLANK,50x25mm,LE1709(S/N)			100
11	N/A	506250010000R	LBL,AGENCY,VG1921, LE1941			100
12	N/A	506390000500R	LABEL,QC-PASS, LE1709			100
13	N/A	506390000600R	LABEL,HI-POT PASS, LE1709			100
14	N/A	506390500100R	LABEL,ENERGY STAR, LE1709			100
15	N/A	506150007100R	PALLET,L1290xW1140xH120mm,LE1941			1.389
16	N/A	506039003600R	CORNER PAPER,1980x50x50xT5mm, LP1701			5.556
17	N/A	506431003100R	FILM,PROTECTION,UNPRINTED,430x280x0.1mm,			100
18	A-00005255	453070800170R	PWRCORD 10A/250V BLK 6FT CHINA.RVV 3Gx0.			100
19	CB-00008009	453010100150R	CABLE,D-SUB 15P MALE 6FT BLACK,SZ4120955			100
20	CB-00008002	453030300120R	CABLE,AUDIO 1P 6FT BLACK/GREEN CP03B06P0			100
21	N/A	506092001400R	CARD,WARRANTY, LE1709			100
22	N/A	506030200200R	CARD,AFTER SERVICE, LE1709,L130xW80			100
23	A-00008015	703000003100R	KIT,ACCESSORY,INL-V0, LE1941			100
24	N/A	714077961100R	ASSY,FINAL(B,V0/G1&2&3),W/SPK,LE1941-660			100
25	N/A	714077961100R	ASSY,FINAL(B,V0/G1&2&3),W/SPK,LE1941-660			
26	N/A	501030204400R	BUTTON,FUNCTION KEY, LE1941			100
27	N/A	501060200500R	HOLDER,KEY PAD, LE1941			100
28	N/A	509116608100R	SCREW,P,CROSS,M4*8,Zn,ROHS			400
29	N/A	509112306100R	SCREW,P,CROSS,T.T-3*6,ZnROHS			500
30	N/A	503040000310R	RUBBER,COVER(B), LE1534			400
31	C-00008037	501020209500R	COVER,HINGE(B), LE1941			100
32	E-00008012	618100101500R	SPEAKER 1.5W 16Ω 350mm,R/B,W/CASE,X3516			100
33	C-00008034	714050007200R	ASSY,BACK COVER, LE1941			100
34	C-00008035	714030007200R	ASSY,BEZEL(B+S), LE1941			100
35	C-00008036	714020007200R	ASSY,BASE(B), LE1941			100
36	N/A	714087961100R	ASSY,PANEL(V0/G1&2&3),W/SPK,LE1941-660			100
37	C-00008034	714050007200R	ASSY,BACK COVER, LE1941			
38	N/A	506430300003R	FILM,PET,L115xW30xT0.05mm, LE1741			100
39	N/A	501020209410R	COVER,BACK(B),W/O DVI, LE1945			100
40	C-00008035	714030007200R	ASSY,BEZEL(B+S), LE1941			
41	N/A	501010207500R	BEZEL(B+S), LE1941			100
42	N/A	501030204300R	BUTTON,POWER KEY, LE1941			100
43	N/A	501120104400R	LENS, LE1941			100
44	N/A	506102000400R	LOGO PLATE,VIEWSONIC, LE1709(THREE BIRDS			100
45	N/A	506102000300R	LOGO PLATE,VIEWSONIC, LE1709			100
46	C-00008036	714020007200R	ASSY,BASE(B), LE1941			
47	N/A	501260203300R	STAND,FRONT(B), LE1941			100
48	N/A	501260203400R	STAND,REAR(B), LE1941			100
49	N/A	501040200200R	CLIP,CABLE,UP, LE1941			100
50	N/A	501040200300R	CLIP,CABLE,DOWN, LE1941			100
51	N/A	502060003100R	HINGE, LE1941			100
52	N/A	509112608100R	SCREW,P,CROSS,T.T-4*8,Zn ROHS			400
53	N/A	501240204600R	BASE(B), LE1941			100
54	N/A	502170301900R	PLATE,BASE, LE1941			100
55	N/A	503060004300R	GASKET,EMI,W13xH10xL17.5mm,LE1737			100
56	N/A	503020002710R	RUBBER,FOOT,L14.8*W9.6*T3.5mm,(PATTERN)R			400
57	N/A	509112306100R	SCREW,P,CROSS,T.T-3*6,ZnROHS			100
58	N/A	714087961100R	ASSY,PANEL(V0/G1&2&3),W/SPK,LE1941-660			
59	N/A	502090304110R	CHASSIS,W/O DVI, LE1945			100
60	HW-00005269	509146305300R	SCREW,PW,CROSS,W/WAS,M3*5,NI			600
61	HW-00005270	509000000700R	BOLT,#4-40x11.8,Ni FOR D-SUB/DVI CONN.RO			200
62	N/A	505040503400R	INSULATOR,PP,10x15x10X0.3mm,GLUE(3M), LE			400
63	B-00008022	790691301650R	PCBA,I/F BOARD, LE1941-660			100
64	B-00008023	790691401600R	PCBA,P/I BOARD, LE1941-642			100
65	B-00008024	790691501000R	PCBA,KEYPAD BOARD, LE1941			100
66	B-00008025	790682201000R	PCBA,LED BOARD, LE1941			100
67	E-00008016	631102090600R	LCD PANEL 19" MT190AW01-V0,AM19000040			100
68	CB-00008010	430300400110R	HRN ASS'Y 4P 240mm UL1571#28,RoHS			100
69	CB-00008011	430300800710R	HRN ASS'Y 4Px2 to 8P,270mm UL1571#28,RoH			100
70	CB-00008013	430303000600R	HRN LVDS FFC 30P 160mm,RoHS			100
71	N/A	506380001200R	TAPE,MYLAR,66000x20xT0.05			0.121
72	N/A	509146304100R	SCREW,P,CROSS W/WAS,M3*4,Zn ROHS			400

8. Exploded Diagram and Exploded Parts List



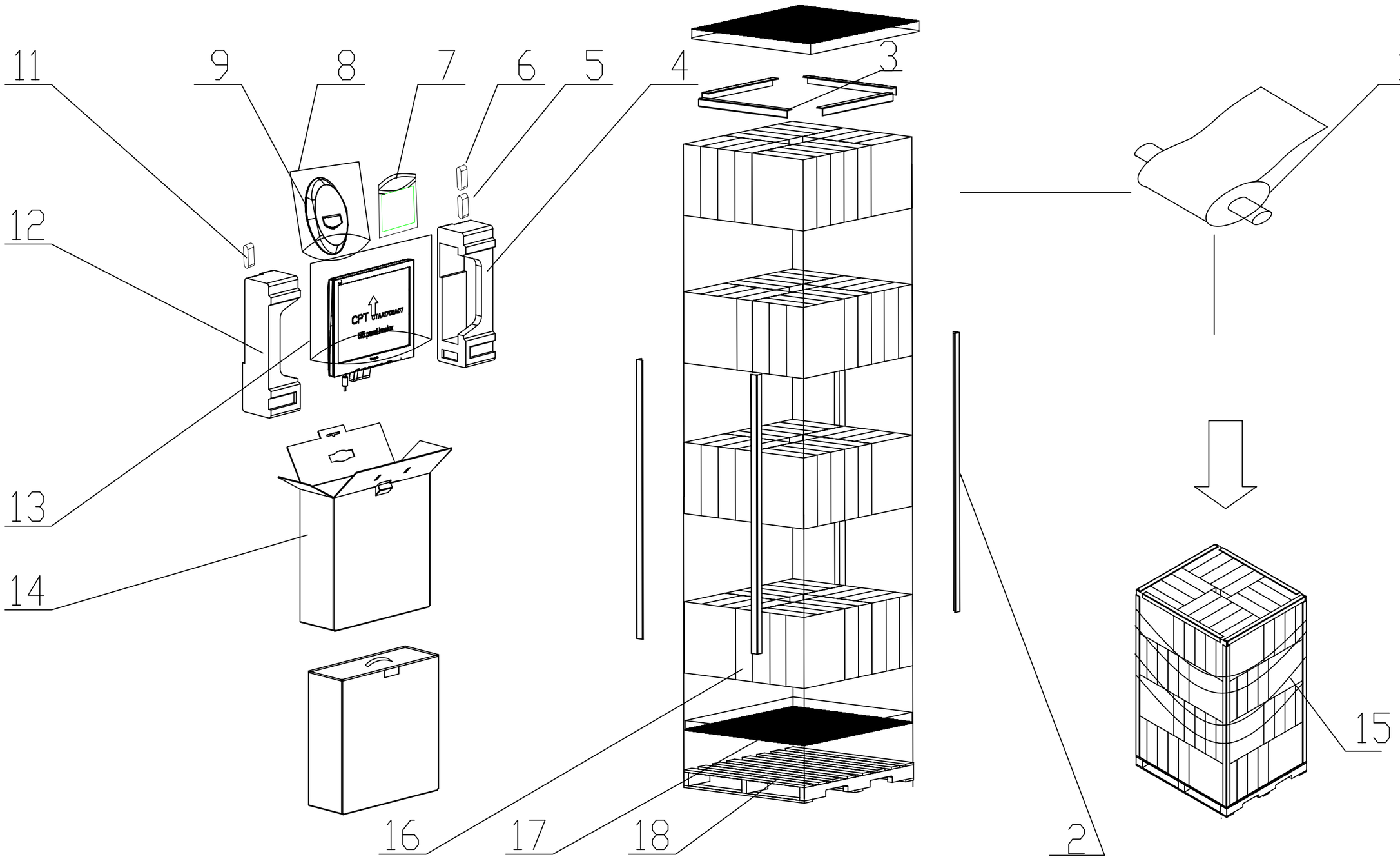
EXPLODED PARTS LIST (VG1921wm-2)

ViewSonic Model Number: VS11354

Rev: 1a

Serial No. Prefix: QAB

Item	ViewSonic P/N	Ref. P/N	Description	Q'ty
1	C-00008035	714030007200R	BEZEL SUB-ASS'Y	1
1-1	N/A	501010207500R	BEZEL , FRONT, LE1941 (BLACK & SILVER 877C)	1
1-2	N/A	501030204300R	POWER BUTTON	1
1-3	N/A	501120104400R	LENS, LE1941	1
2	N/A	501060200500R	KEYPAD HOLDER	1
3	N/A	501030204400R	BUTTON,FUNCTION KEY, LE1941	1
4	N/A	509112306500R	SCREW, P, CROSS, T-3*6, BLACK, ROHS	5
5	N/A	714087961100R	ASSY,PANEL(V0/G1&2&3),W/SPK,LE1941-660	1
5-1	E-00008016	631102090600R	LCD PANEL 19" MT190AW01-V0-G1,AM19000040	1
5-2	E-00008012	618100101500R	SPEAKER 1.5W 16Ω 350mm,R/B,W/CASE,X3516	1
5-3	N/A	509146306200R	SCREW, P, CROSS, W/WAS,M3*6,Zn, ROHS	10
5-4	N/A	501030204300R	BUTTON,POWER KEY, LE1941	1
5-5	B-00008023	790691401600R	PCBA,P/I BOARD, LE1941-642	1
5-6	N/A	502090304110R	CHASSIS , LE1941	1
5-7	B-00008022	790691301650R	PCBA,I/F BOARD, LE1941-660	1
6	N/A	501020209410R	BACKCOVER, LE1941	1
7	N/A	503040000310R	VESA RUBBER, LE1941 (BLACK)	4
8	C-00008036	714020007200R	BASE SUB-ASS'Y	1
8-1	N/A	501260203300R	STAND FRONT	1
8-2	N/A	509112608100R	SCREW, P,CROSS, T,T-4*8, BLACK, ROHS	4
8-3	N/A	502060003100R	HINGE, LE1941	1
8-4	N/A	509112306100R	SCREW, P, CROSS W/WAS, T-3*6,Zn, ROHS	1
8-5	N/A	501240204600R	BASE ,LE1941	1
8-6	N/A	502170301900R	PLATE, BASE, LE1941	1
8-7	N/A	503020002710R	RUBBER, FOOT, L14.8*W9.6*T3.5mm	1
8-8	N/A	503060004300R	CASKET,EMI,W13*H10*L17.5mm, LE1737	1
8-9	N/A	501260203400R	STAND REAR	1
8-10	N/A	501040200200R	CABLE CUP-UP	1
8-11	N/A	501040200300R	CABLE CUP-DOWN	1
9	N/A	501240204600R	SCREW, P, CROSS, M4*8, ROHS	4
10	C-00008037	501020209500R	HINGE COVER, LE1941	1


11
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15

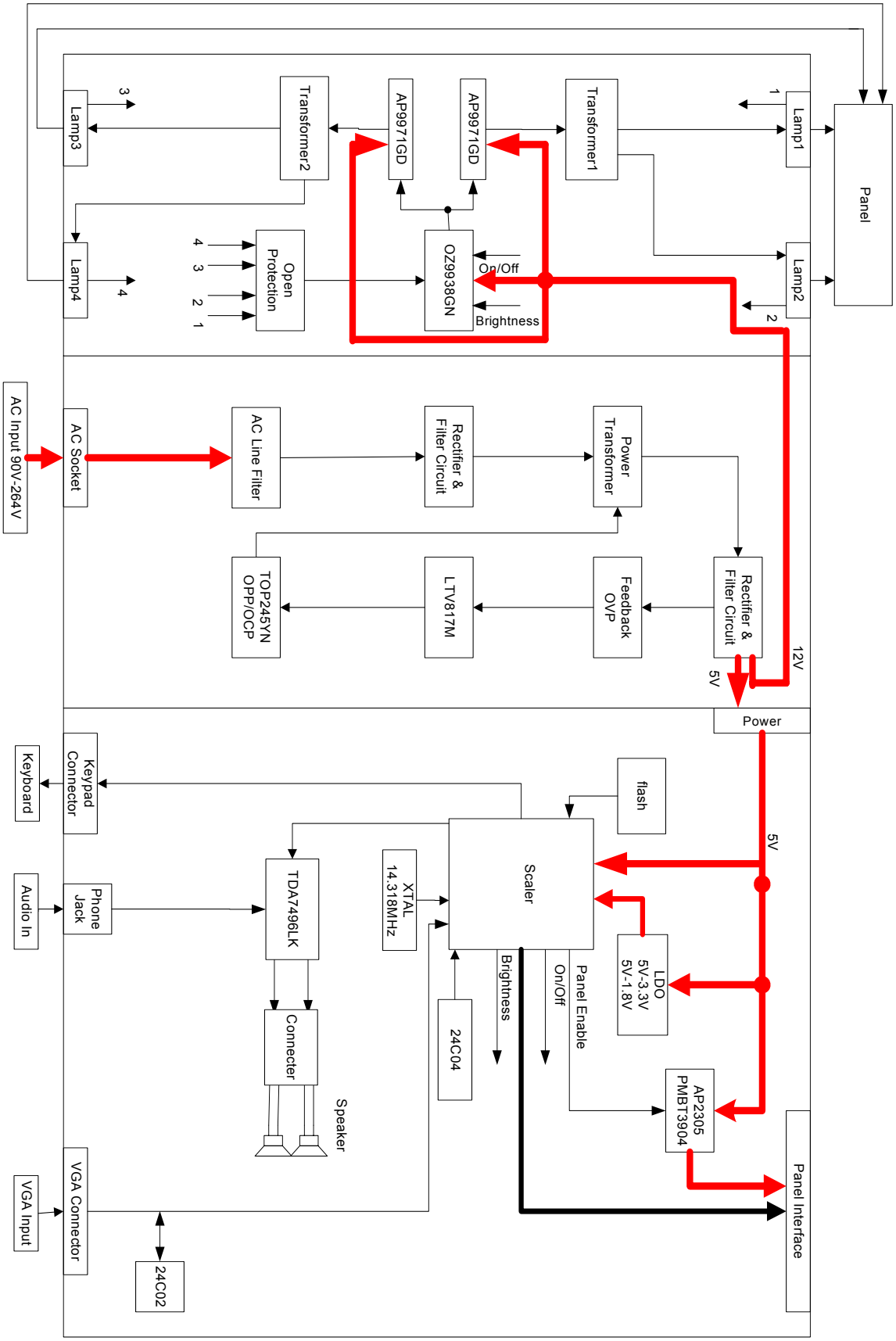
PACKING PART LIST (VG1921wm-2)

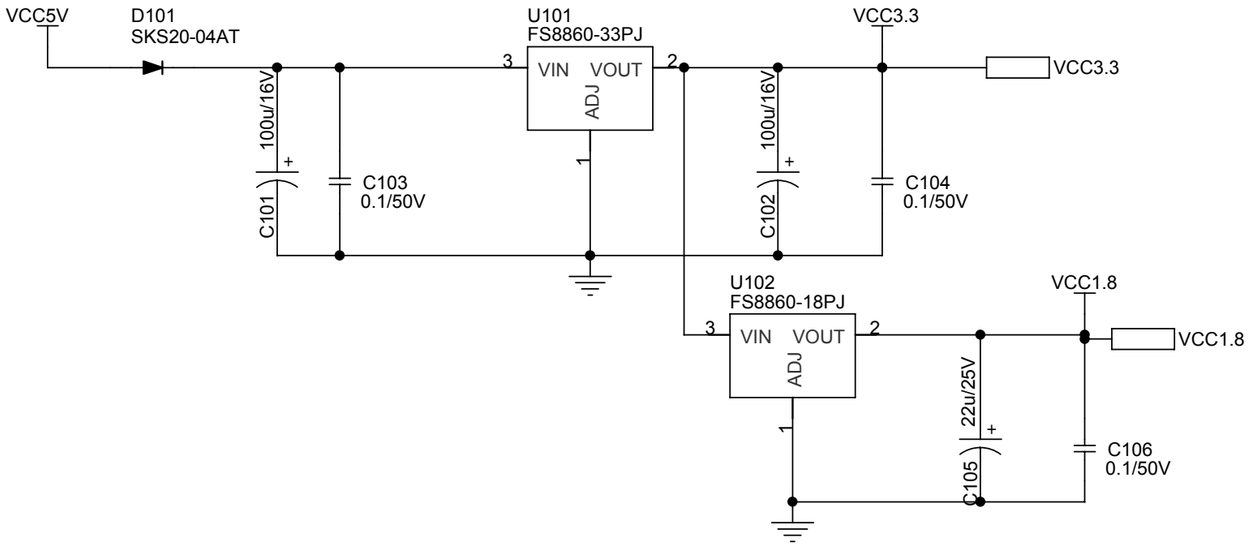
ViewSonic Model Number: VS11354

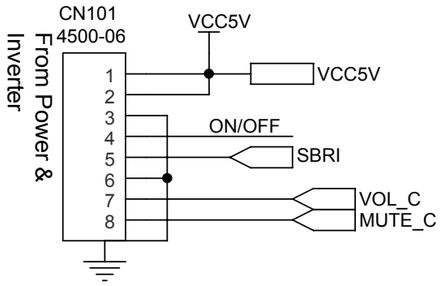
Rev: 1a

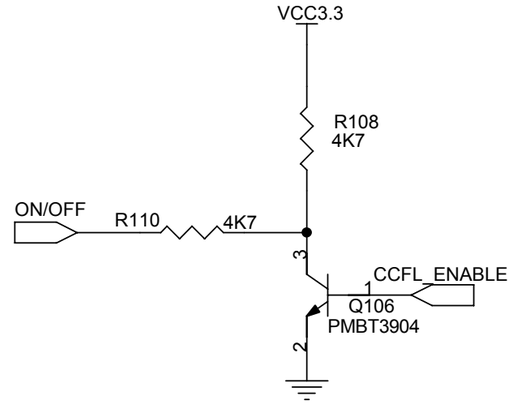
Item	ViewSonic P/N	Ref. P/N	Location	Q'ty
1	N/A	506431000300R	FILM.PE500mm*900m ,ROHS	0.0025
2	N/A	506039003600R	CORNER PAPER,1980*50*50mm*T5mm	4/72
3	N/A	506039006200R	CORNER PAPER,1100*50*50mm*T5mm	4/72
4	P-00008029	506040009610R	CUSHION,EPS-R,LE1941	1
5	CB-00008002	453030300120R	CABLE,AUDIO 1P 6FT BLACK/GREEN CP03B06P0	1
6	CB-00008009	453010100150R	CABLE,D-SUB 15P MALE 6FT BLACK,SZ4120955	1
7	A-00008015	703000003100R	KIT,ACCESSORY,INL-V0, LE1941	1
8	N/A	506120006200R	BAG,PLASTIC,W(545+165)xL1100xT0.05mm,LE1	1
9	C-00008036	714020007200R	ASSY,BASE(B), LE1941	1
11	A-00006679	453070800250R	PWRCORD 10A/125V BLK 6FT UL/CSA,SVT 18*	1
12	P-00008030	506040009600R	CUSHION,EPS-L,LE1941	1
13	P-00008032	506120302400R	BAG,EPE+PE, L540*W500*T0.05mm,PRINTED, LE1939	1
14	P-00008031	506020011800R	CARTON, LE1941	1
15	N/A	506380002100R	TAPE,WRAPPING, TYPE(VIEWSONIC)50*75m	0.0083
16	N/A	506440002600R	LABEL,BLANK,210x65mm,LE1709(PALLET)	1
17	N/A	506037005800R	CARDBOARD, COVER, L1310*W1160*H120*T5mm	2/72
18	N/A	506150007100R	PALLET,1290*1140*120mm	1/72

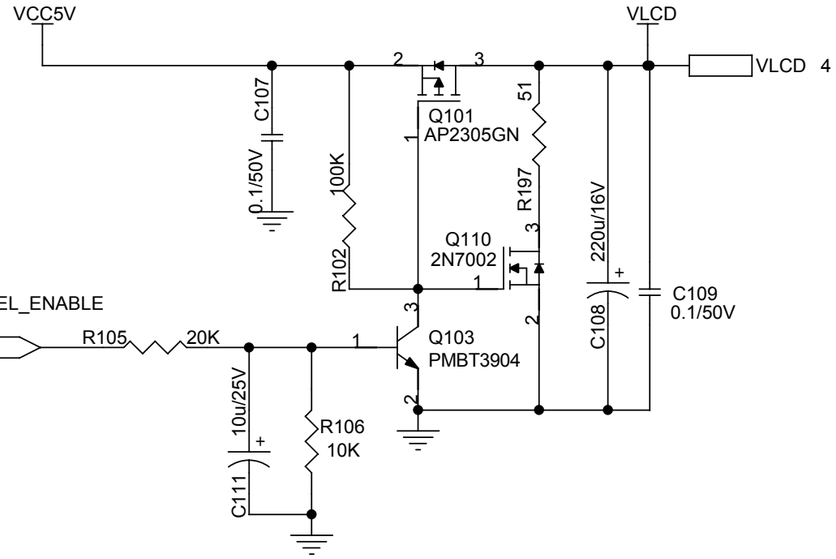
9. Block Diagram

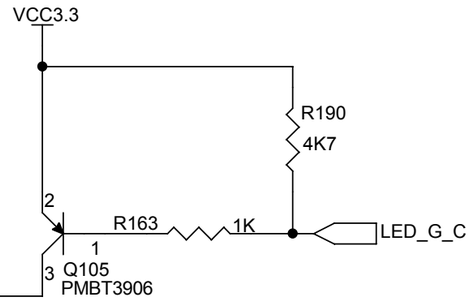


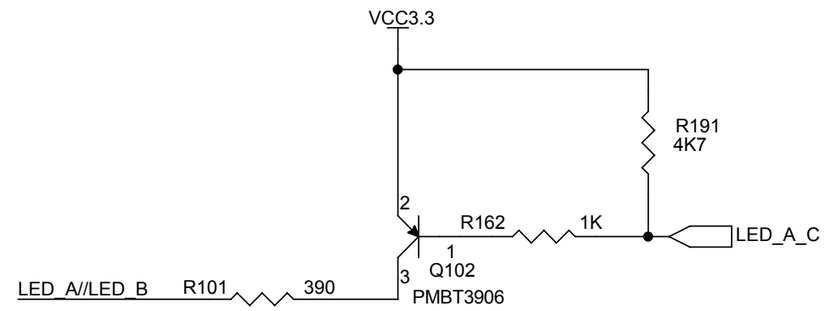


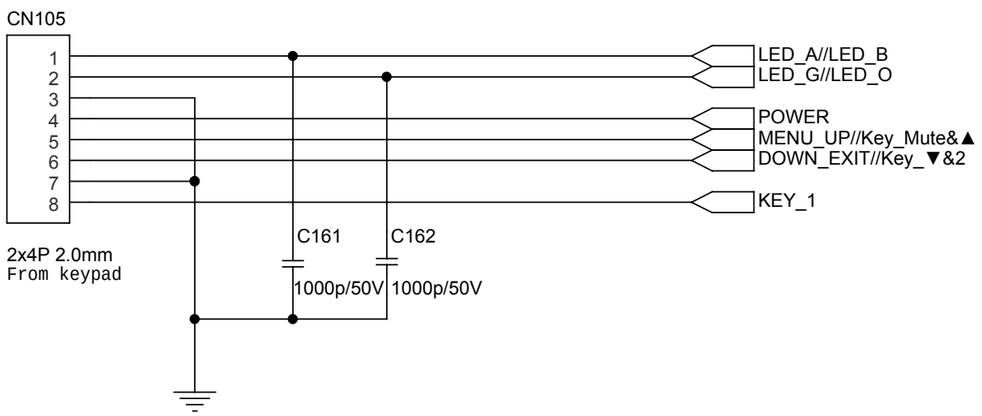




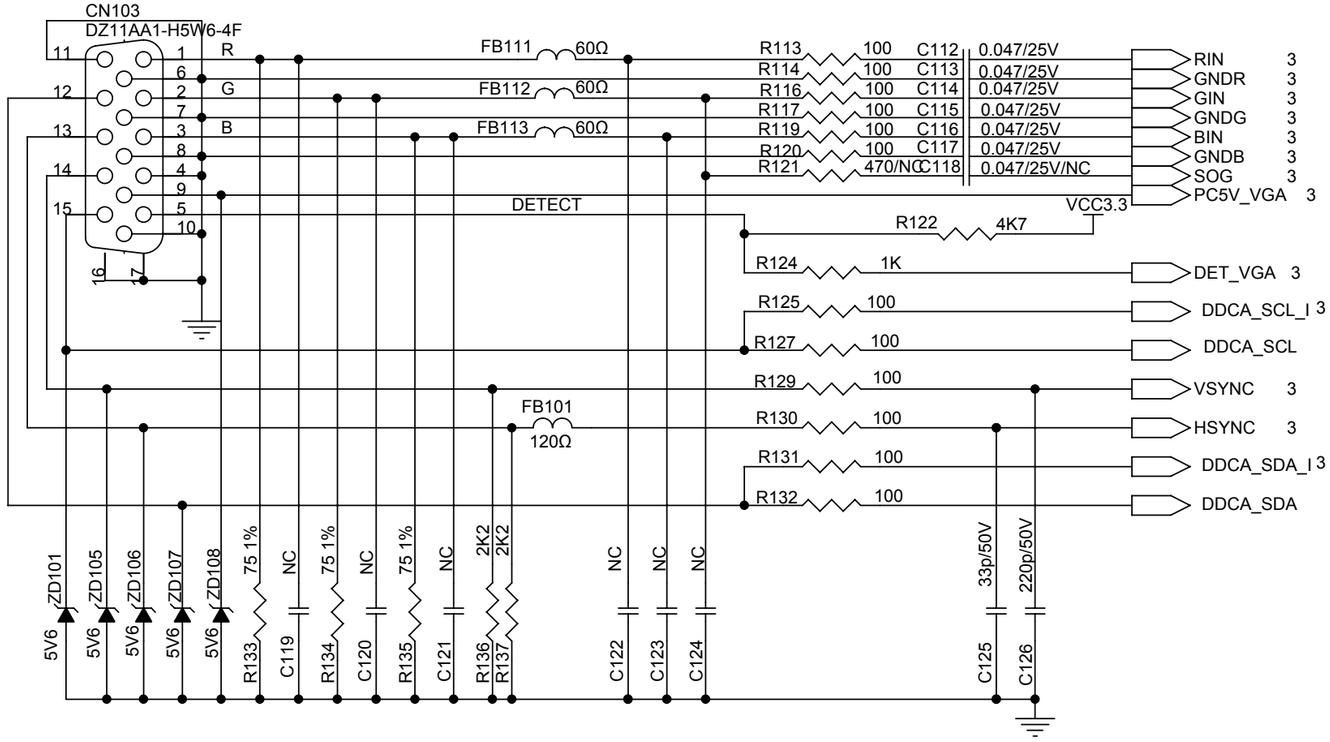


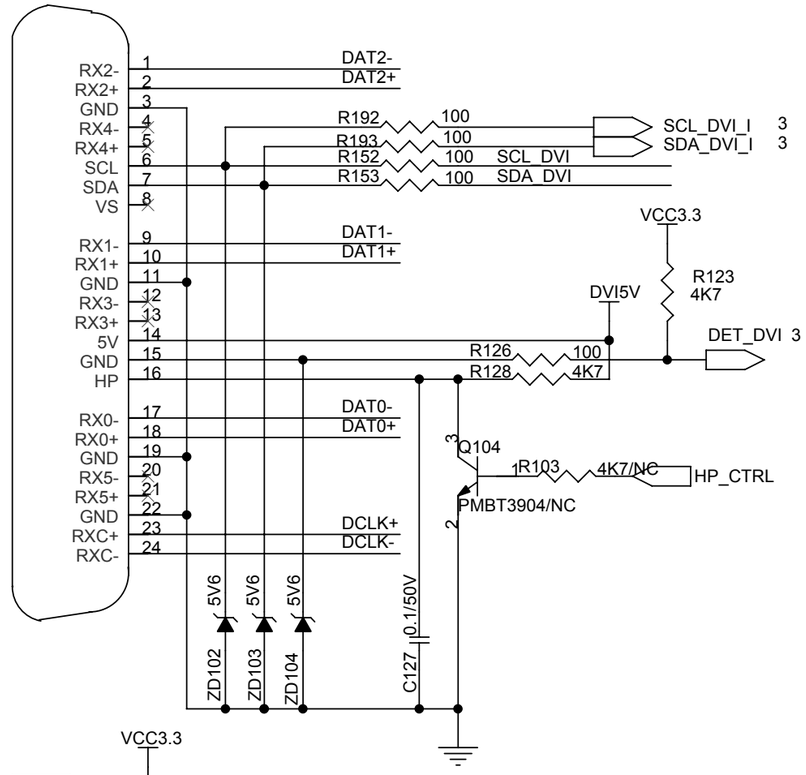


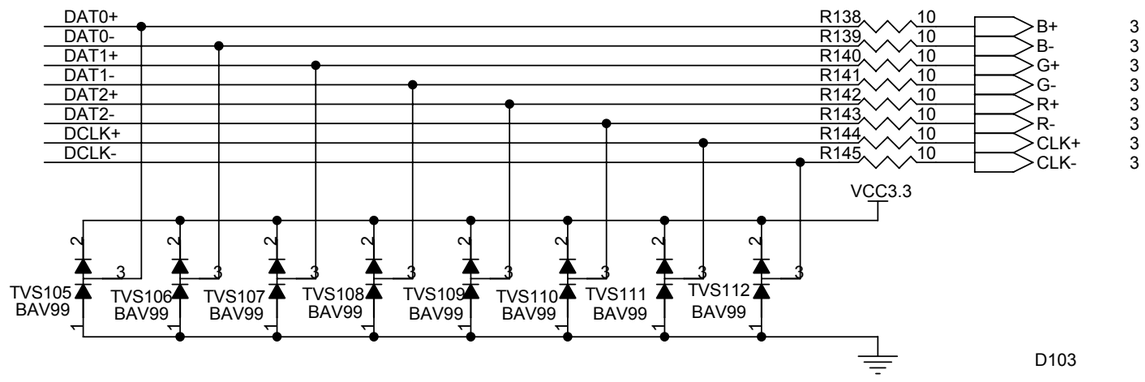


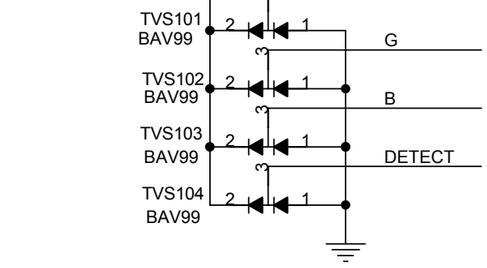


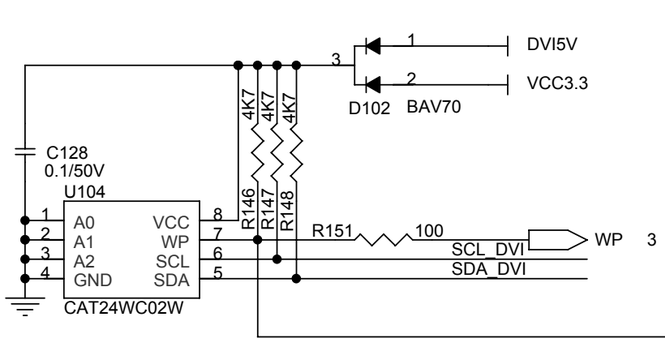
ViewSonic Corporation		
Model		
Title	Dc to Dc	
Date		Rev:

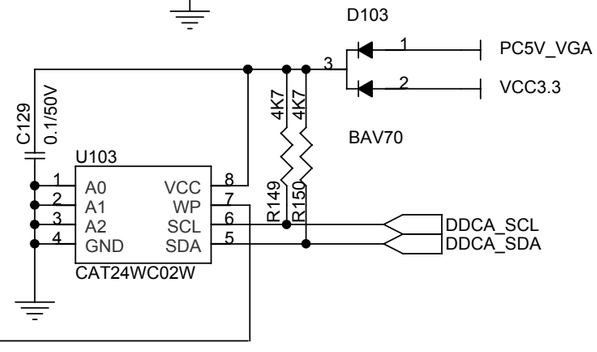












ViewSonic Corporation		
Model		
Title	Input	
Date		Rev:

TSUM56AL-1

VDVI VMPLL VPLL AVDD VDDP VDDC

AVDD_DVI AVDD_DVI AVDD_MPLL AVDD_PLL AVDD_ADC VDDP VDDP VDDP VDDP VDDC VDDC VDDC VDDC

BIN0N BIN0P GIN0N GIN0P SOGIN0 RIN0N RIN0P HSYNC0 VSYNC0 DDCA_SDA/RS232_TX DDCA_SCL/rs232_RX GPIO_P15/PWM0

GNDB BIN GNDG GIN SOG GNDR RIN HSYNC VSYNC DDCA_SDA_I DDCA_SCL_I DET_VGA

RX2P RX2N RX1P RX1N RX0P RX0N RXCKP RXCKN GPIO_P14 GPIO_P16/PWM2 DDCD_SDA DDCD_SCL

R+ R- G+ G- B+ B- CLK+ CLK- WP DET_DVI SDA_DVI_I SCL_DVI_I

SDO SCZ SCK SDI REXT VCTRL RST

U106 SST25VF010A: VCC HOLD# WP# GND / SO CS# SCK SI

C141 0.1/50V

R169 390 1%

VCC3.3 VCC5V C144 10u/25V R172 10K

GND MODE[0] MODE[1] BYPASS XIN XOUT NC NC NC REFM REFP

R173 4K7 R174 4K7 C152 0.1/50V C153 22p/50V C154 22p/50V

X101 14.31818MHz C140 1u/16V

GPIO_P07 GPIO_P06 GPIO_P02/SAR3 GPIO_P01/SAR2 GPIO_P00/SAR1 RSTN

R157 1K R158 1K R159 1K R160 1K R161 1K

HP_CTRL Key_1 POWER MENU_UP//Key_mute&▲ DOWN_EXIT//Key_▼&2

GPIO_P22 GPIO_P23 GPIO_P10/I2C_MCL GPIO_P11/I2C_MDA

LED_G_C LED_A_C I2C_MCL I2C_MDA

GPIO_P13 PWM0/GPIO_P26 PWM1/GPIO_P25 GPIO_P12 GPIO_P27/PWM1 PWM2/GPIO_P24

R164 1K R165 1K R166 1K R167 4.7K R168 100 R181 100

MUTE_C VOL_C SBRI CCFL_ENABLE PANEL_ENABLE HDCP_WP

LVB0M LVB0P LVB1M LVB1P LVB2M LVB2P LVBCKM LVBCKP LVB3M LVB3P LVA0M LVA0P LVA1M LVA1P LVA2M LVA2P LVACKM LVACKP LVA3M LVA3P

CN104 FFC-CON

VLCD R170 0 R171 0

RP101 4K7x4 RP102 4K7x4 RP103 4K7x4 4K7 R180

VCC3.3 AVDD FB104 60Ω C138 22u/25V C139 0.1/50V

VCC3.3 VMPLL VPLL FB105 60Ω C142 22u/25V C143 0.1/50V C151 0.1/50V

VCC1.8 VDDC FB103 60Ω C133 22u/25V C134 0.1/50V C135 0.1/50V C136 0.1/50V C137 0.1/50V

VCC3.3 VDDP VDVI FB106 60Ω C145 22u/25V C147 0.1/50V C148 0.1/50V C149 0.1/50V C150 0.1/50V C131 0.1/50V C132 0.1/50V

C157 1000P/50V C158 1000P/50V C159 1000P/50V C160 1000P/50V

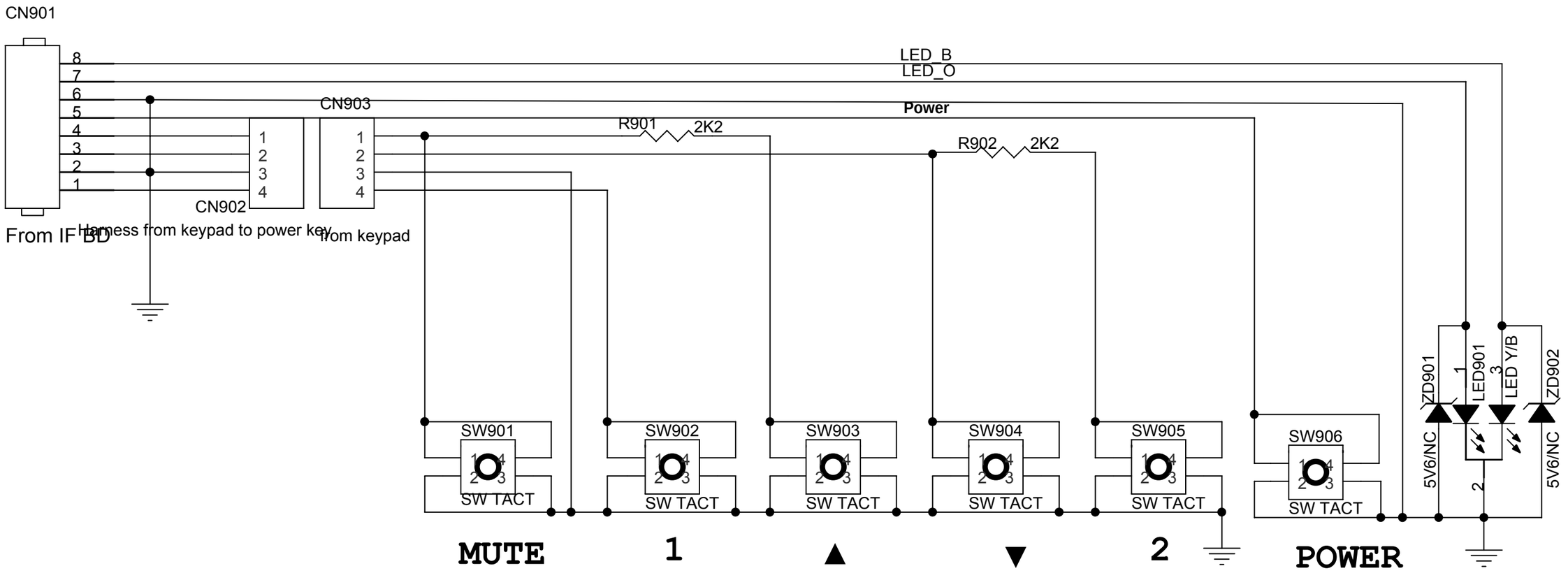
VCC3.3 C156 0.1/50V

U108 AT24C04N: VCC WP SCL SDA / A0 A1 A2 GND

U109 AT24C04N/NC: VCC WP SCL SDA / A0 A1 A2 GND

I2C_MCL I2C_MDA R178 100 R179 100 HDCP_WP

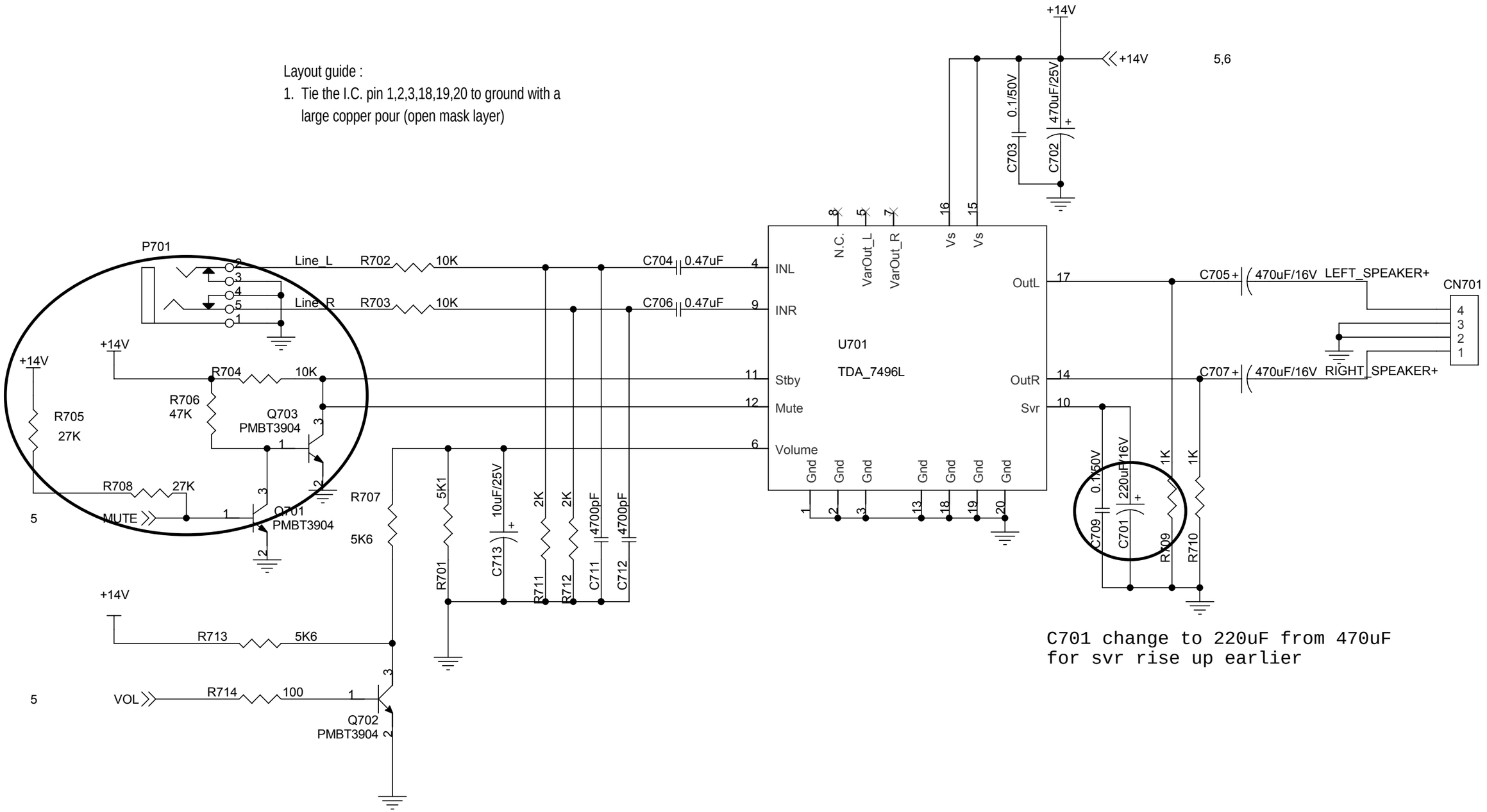
ViewSonic Corporation		
Model		
Title	Scaler	
Date		Rev:



ViewSonic Corporation		
Model		
Title	Keypad & Power key	
Date		Rev:

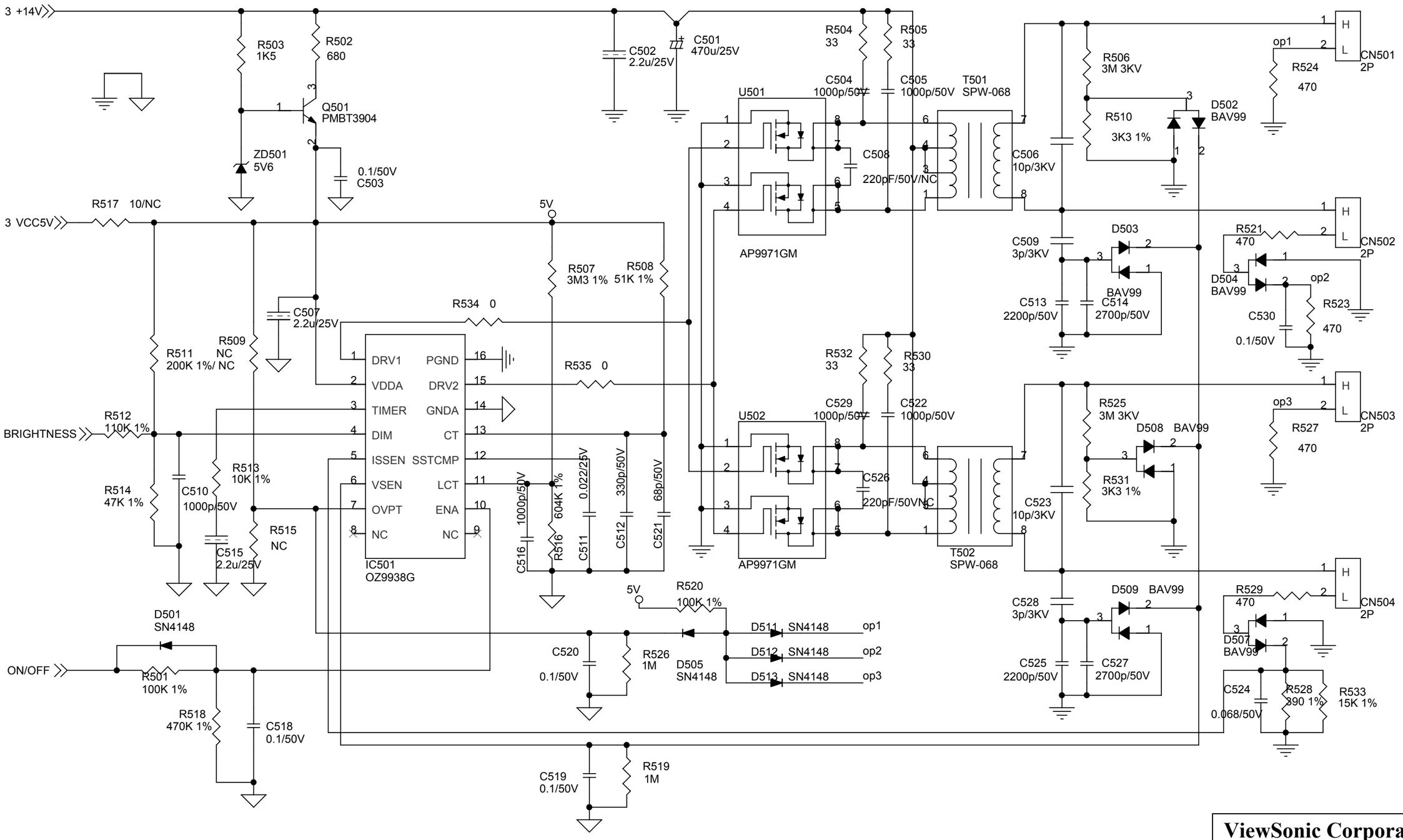
Layout guide :

1. Tie the I.C. pin 1,2,3,18,19,20 to ground with a large copper pour (open mask layer)

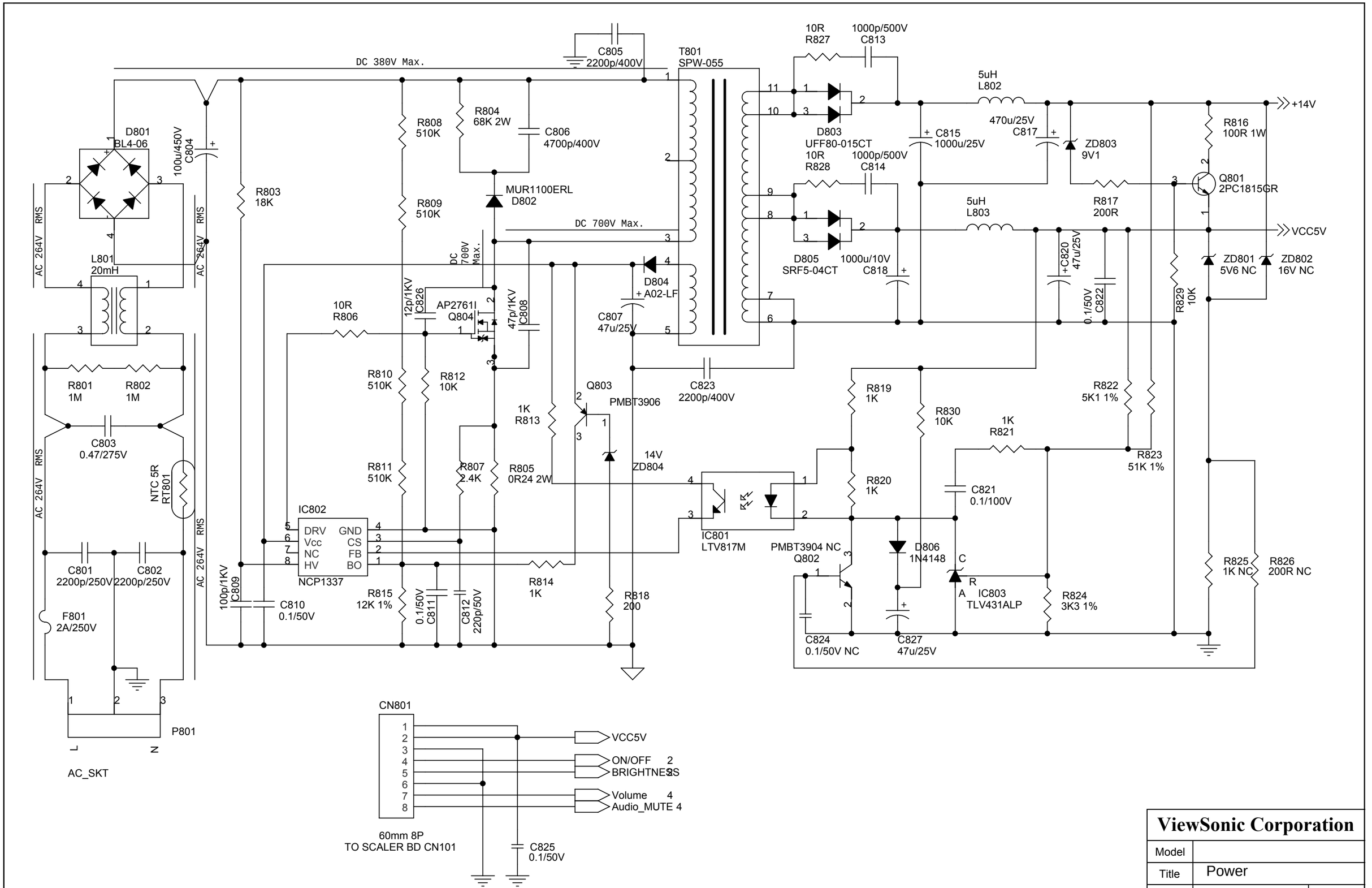


C701 change to 220uF from 470uF
for svr rise up earlier

ViewSonic Corporation		
Model		
Title	Audio	
Date		Rev:

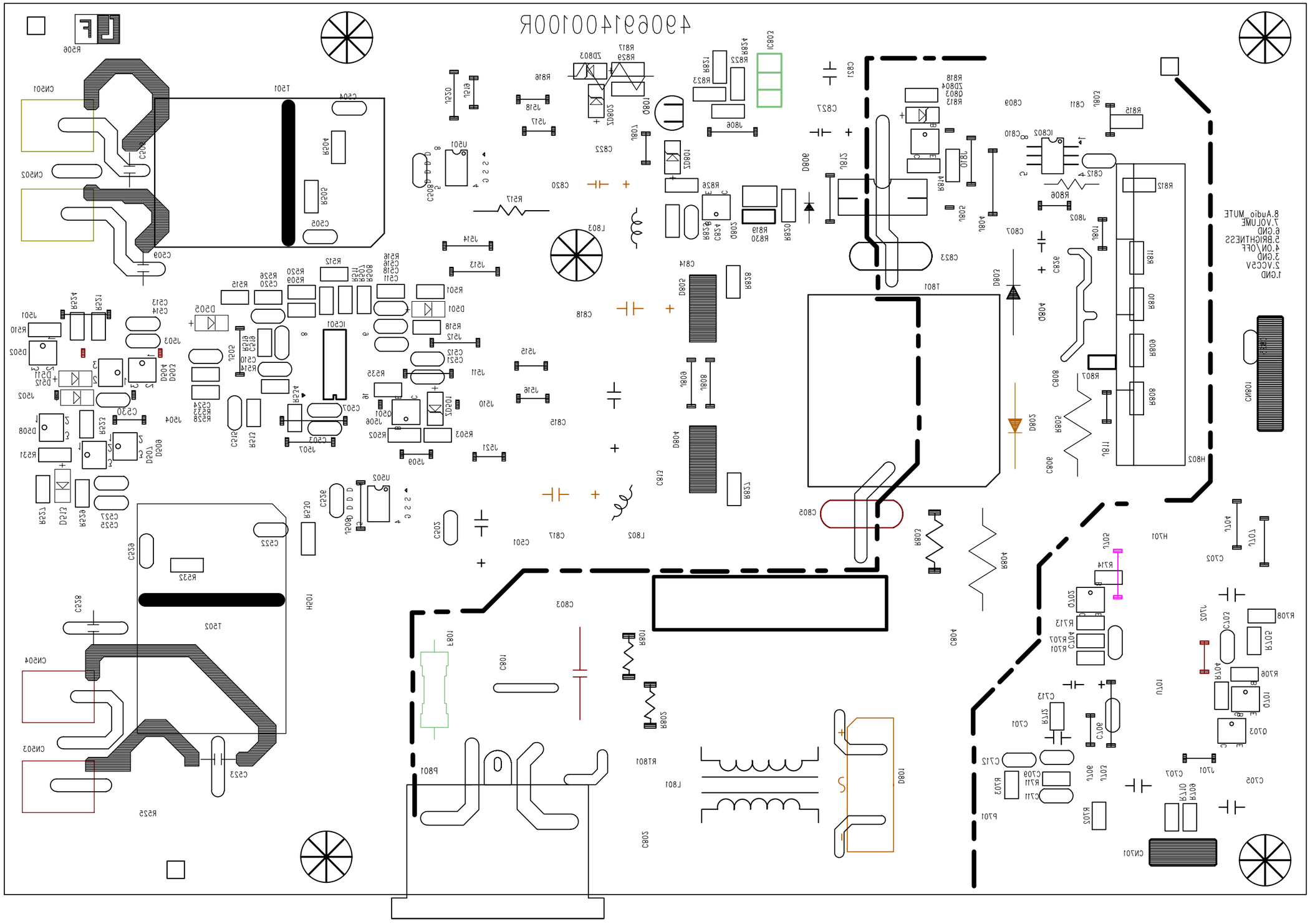


ViewSonic Corporation		
Model		
Title	Inverter	
Date		Rev:



ViewSonic Corporation		
Model		
Title	Power	
Date		Rev:

11. PCB Layout Diagrams



490691300100R

* 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. Recommended Spare Parts List				
8. Exploded Diagram and Exploded Parts List				
9. Block Diagrams				
10. Schematic Diagrams				
11.PCB Layout Diagrams				

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)