Service Manual

ViewSonic VA503b-2

VA503m-2

Model No. VS11357

15” Color TFT LCD Display

(VA503b-2_VA503m-2_SM Rev. 1a Aug. 2006)

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

Copyright

Copyright © 2006 by ViewSonic Corporation. All rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise, without the prior written permission of ViewSonic Corporation.

Disclaimer

ViewSonic makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranty of merchantability or fitness for any particular purpose. Further, ViewSonic reserves the right to revise this publication and to make changes from time to time in the contents hereof without obligation of ViewSonic to notify any person of such revision or changes.

Trademarks

Optiquest is a registered trademark of ViewSonic Corporation.
ViewSonic is a registered trademark of ViewSonic Corporation.
All other trademarks used within this document are the property of their respective owners.

Revision History

Revision	SM Editing Date	ECR Number	Description of Changes	Editor
1a	8/21/2006		Initial Release	Jamie. Chang

TABLE OF CONTENTS

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 Methods:	Incorrect Methods:
Only touch the metal of the LCD panel or the front cover of he 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". 

Correct Methods:	Incorrect Methods:
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". 

1. INTPRODUCTION

FEATURES		VA503b-2 / VA503m-2
TFTLCD PANEL	Size	15 “
	Luminance (Typ)	250 cd/㎡
	Contrast Ratio (Typ)	600:1
	Colors (6 bits + 2 bits FRC)	16.2 M
	Response Time (Typ)	8 ms
	Viewing Angle (H/V)	150 ° / 130 °
	Recommend resolution	1024 x 768 @60Hz
Input Signal	Analog (75ohms, 0.7/1.0 Vp-p)	Yes
	Digital	No
Sync Compatibility	Separate Sync	Yes
	Composite Sync	No
	Sync on Green	No
Compatibility	PC	Yes
	Power Mac	Yes
	TV Box (NextVision 6)	Yes
Power Voltage	AC 100-240V, 50/60Hz	Yes
Power Consumption	On Mode(Max)	≦ 23 W
	Off Mode (Max)	≦ 1 W
Audio		Yes(For VA503m Only)
Ergonomics	Tilt (20 ° - -4 °)	Yes
	Swivel	No
	Pivot	No
	Height Adjust	No
OSD Control	[1] [▼] [▲] [2] [⏻]	Yes
Dimension	Physical (W x H x D)	378 x 400 x 210 mm
	Package (W x H x D)	440 x 485 x 147 mm
Weight	Physical (Net Weight)	4.0 kg
	Package (Gross Weight)	5.1 kg
Operating Condition	Temperature (℉/℃)	32℉-104℉ / 0℃-40℃
	Humidity (%)	20 % - 90 %
Storage Condition	Temperature (℉/℃)	-4℉-140℉ / -20℃-60℃
	Humidity (%)	5 % - 90 %
Regulation	UL/cUL, FCC DOC, CB, CE, NOM, MIC, IRAM/S, GS(Nemko), ERGO, ISO13406-2 PAR Part 2, TCO’03, GOST, SASO, BSMI, CCC, (PSB),C-TICK, EPA(Ver.4.0), Energy Star	

2 GENERAL specification

Test Resolution & Frequency	1024 x 768 @ 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
Exclusions	Not compatible with interlaced video

4 POWER SUPPLY

Internal Power Supply	Part Number: **ILPI-019**
Input Voltage Range	**90** TO **264** VAC
Input Frequency Range	**47.5** TO **63** HERTZ
Short Circuit Protection	Output can be shorted without damage
Over Current Protection	**5** A typical at **14** VDC
Leakage Current	**3.5** mA (Max) at 254VAC / 60Hz
Efficiency	**80** % typical at 115VAC Full Load
Fuse	Internal and not user replaceable
Power Dissipation	**23** Watts (max)
Max Input AC Current	**1.2** Arms @ 100VAC, **0.6** Arms @240VAC
Inrush Current (Cold Start)	**40**A @ **120** VAC, **60** A(max) @ **220** VAC
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 6000V 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 define 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	Length = 1.8m. Connects to AC/DC Power Color = Black
Power Saving Operation(Method)	VESA DPMS Signaling
Power Consumption	ON Mode < 23 W (max) POWER SAVING < 2W ,OFF < 1W
Recovery Time	On Mode = N/A, Active Off < 3 sec

5 ELECTRICAL REQUIREMENT

Horizontal / Vertical Frequency

Horizontal Frequency	30 – 62 kHz
Vertical Refresh Rate	50 – 85* Hz. * When the resolution is set to 1024 x 768 , the vertical refresh rate may be up to 75 Hz; for other resolutions, the vertical refresh rate may be up to 85Hz.
Maximum Pixel Clock	80 MHz
Sync Polarity	Independent of sync polarity.

Timing Table

Item	Timing	Analog
1	640 x 350 @ 70Hz, 31.5kHz	**Yes**
2	640 x 400 @ 70Hz	**Yes**
3	640 x 480 @ 50Hz	**Yes**
4	640 x 480 @ 60Hz, 31.5kHz	**Yes**
5	640 x 480 @ 67Hz, 35.0kHz	**Yes**
6	640 x 480 @ 72Hz, 37.9kHz	**Yes**
7	640 x 480 @ 75Hz, 37.5kHz	**Yes**
8	640 x 480 @ 85Hz, 43.27kHz	**Yes***3
9	720 x 400 @ 70Hz, 31.5kHz	**Yes**
10	800 x 600 @ 56Hz, 35.1kHz	**Yes**
11	800 x 600 @ 60Hz, 37.9kHz	**Yes**
12	800 x 600 @ 72Hz, 48.1kHz	**Yes**
13	800 x 600 @ 75Hz, 46.9kHz	**Yes**
14	800 x 600 @ 85Hz, 53.7kHz	**Yes***3
15	832 x 624 @ 75Hz, 49.7kHz	**Yes**
16	1024 x 768 @ 60Hz, 48.4kHz	**Yes**
17	1024 x 768 @ 70Hz, 56.5kHz	**Yes**
18	1024 x 768 @ 72Hz, 58.1kHz	**Yes**
19	1024 x 768 @ 75Hz, 60.0kHz	**Yes**

*1. Tolerance ≧ ± 2kHz.

*2. Any timing not in the list, it should display as normal or show on “OUT OF RANGE” OSD message without blanking.

*3. The image quality of 85Hz mode might be worse than 75Hz.

Primary Presets

1024 x 768 @ 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”)

Main Menu Controls

Auto Image Adjust
Contrast/Brightness[*1]
Audio Adjust (For VA503m only)
Volume[*3], Mute[*3]
Color Adjust
sRGB, 9300K, 6500K(default), 5400, User Color [R, G, B]
Information
H Frequency, V Frequency, Pixel Clock, Resolution, Serial Number, Model Number, "www.ViewSonic.com"
Manual Image Adjust
H. Size, H/V Position, Fine Tune, Sharpness[*2]
Setup Menu
Language [English, French, German, Italian, Spanish, Finnish, Simplified Chinese Traditional Chinese, Japanese], Resolution Notice, OSD Position[*1], OSD Timeout[*4], OSD Background
Memory Recall
[*1] These functions can be recalled to default by [▼]+ [▲]
[*2] These functions are not available under Native Resolution Mode
[*3] These functions setting can be recalled to default by [▼]+[▲] under audio mode
[*4] The function execute are 5,15,30,60sec
[Remark] Please refer to the detail in the Appendix C

Factory Defaults

Item	Defaults	Item	Defaults
Contrast	70%	Volume	**50%** **(For VA503m only)**
Brightness	100%	Balance	N/A
Color Temperature	6500K	Treble	N/A
Sharpness	0%	Bass	N/A
OSD H. Position	50%	720x400/640x400	720x400
OSD V. Position	50%	640x480@60Hz 720x480@60Hz	640x480@60Hz
OSD Time Out	15 Sec	In SOG and Composite, 720x480@60Hz 640x480@60Hz	N/A
OSD Background	Enabled	In SOG and Composite, 1152x864@75Hz 1152x870@75Hz	N/A
Resolution Notice	Enabled	In SOG and Composite, 1280x768@60/75/85Hz 1024x768@60/75/85Hz	N/A

AUDIO INTERFACE (SPEAKER SPECIFICATION) --- (For VA503m only)

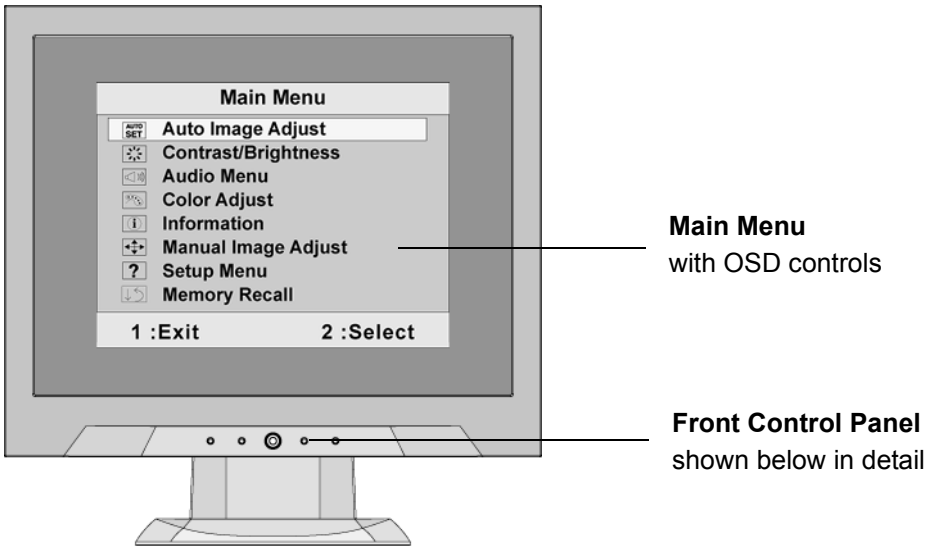
Line input connection	3.5 mm stereo jack
Line input signal	1.0Vrms
Line input impedance	>10 kOhm
Maximum power output (Electric)	1 W @ < 8% distortion
Signal to Noise Ratio	50 dB
Frequency response	500 Hz – 20 Khz
Distortion	< 8 % THD (@1kHz)
Vibration	There should be no audible vibration with volume at 100%. (Input signal within 1.0 Vrms)
Screen image	There should be no affect on the screen image stability under any conditions
Connector PC99 requirement Audio in	Lime Green pantone # 577C
Cable type / length	3.5mm stereo cable / 1.8m length
Audio DPMS	Note: There is no guarantee <1 W power consumption in Active Off mode, when the Audio Cable is connected

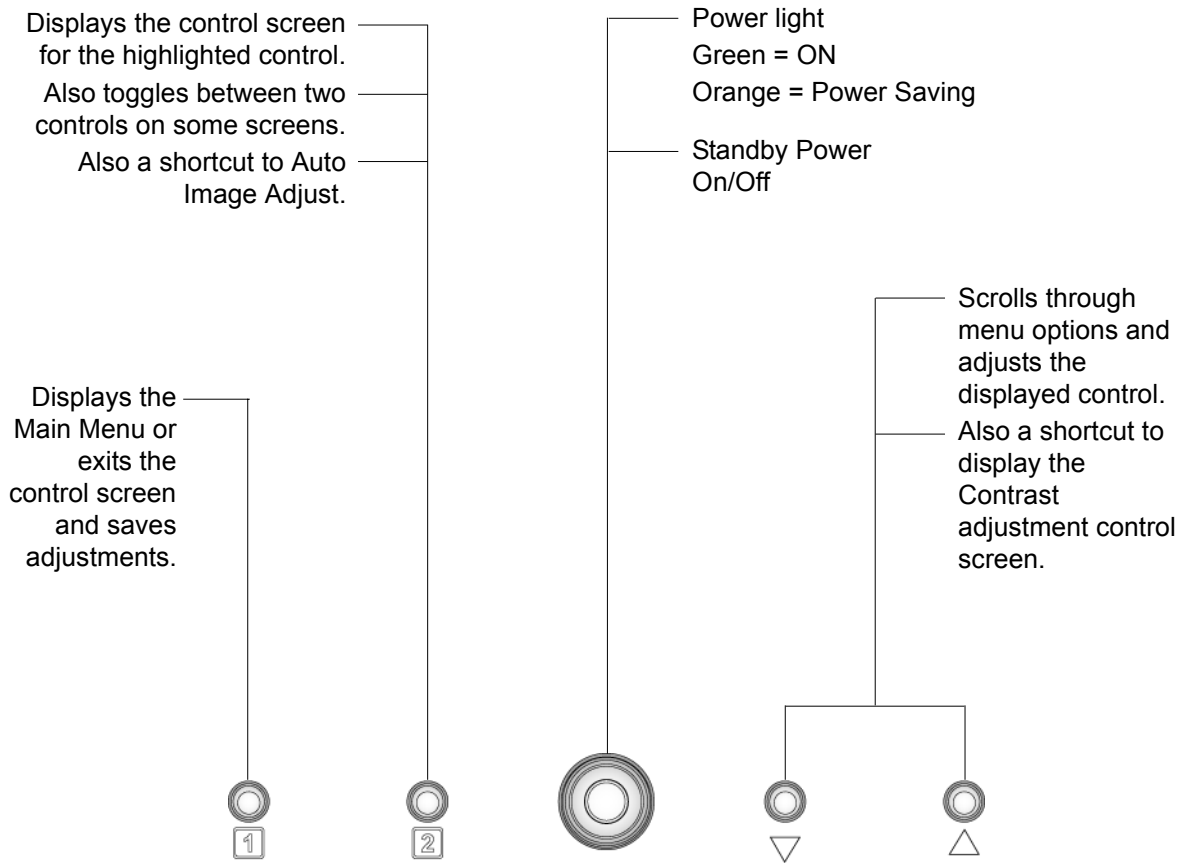
TFT LCD PANEL

1st Panel Source	INN MT150XN03 V0
Type	TN, LVDS
Active Size	304.1 mm (H) x 228.1mm (V)
Pixel Arrangement	RGB Vertical Stripe
Pixel Pitch	0.297 mm
Glass Treatment	Anti Glare (Hard coating 3H)
# of Backlights	2 CCFL edge-light
Backlight Life	30,000 Hours (Min) (@8mA)
Luminance –Condition: CT = 6500 K Contrast = Max, Brightness = Max	250 cd/m2 (Typ after 30 minute warm up) 200 cd/m2 (Min after 30 minute warm up)
Brightness Uniformity	80% (typ) / 75 % (min)
Contrast Ratio	700 :1 (Typ), 500 :1 (Min)
Color Depth Vertical)	16.2 million colors (6+2 bit panel)
Viewing Angle (Horizontal)	150 deg (Typ)@ CR>10
Viewing Angle (Vertical)	130 deg (Typ) @ CR>10
Response Time 10%-90% @ Ta=25°C	8 ms (Tr= 2 ms, Tf = 6 ms) (Typ) 16 ms (Tr= 4 ms, Tf = 12 ms) (max)
Panel Defects	Please see Panel Quality Specifications.

Adjusting the Screen Image

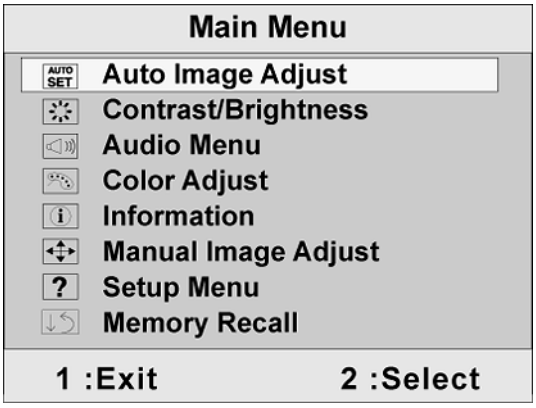
Use the buttons on the front control panel to display and adjust the OSD controls which display on the screen. The OSD controls are explained at the top of the next page and are defined in "Main Menu Controls" on page 10.





Do the following to adjust the display setting:

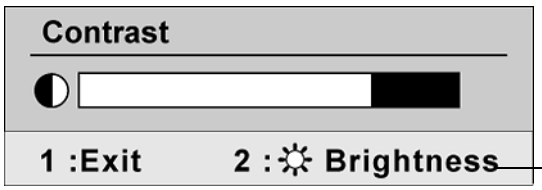
1. To display the Main Menu, press button [1].



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 1024 x 768 @ 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 automatically sizes, centers, and fine tunes the video signal to eliminate waviness and distortion. Press the [2] button to obtain a sharper image.

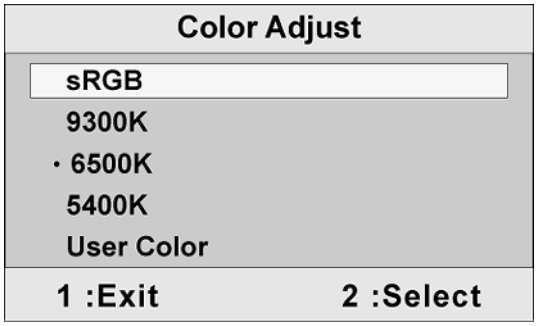
NOTE: Auto Image Adjust works with most common video cards. If this function does not work on your LCD display, then lower the video refresh rate to 60 Hz and set the resolution to its pre-set value.

Contrast adjusts the difference between the image background (black level) and the foreground (white level).

Brightness adjusts background black level of the screen image.

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.

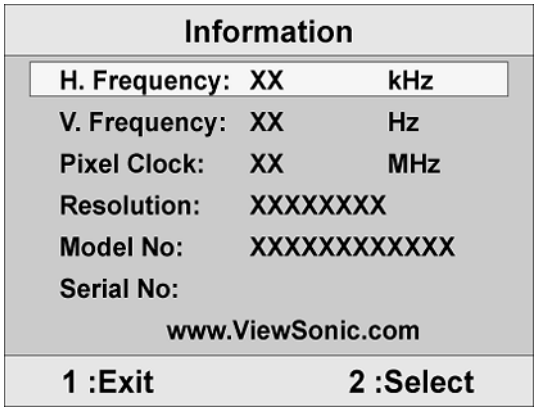
9300K-Adds blue to the screen image for cooler white (used in most office settings with fluorescent lighting).

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

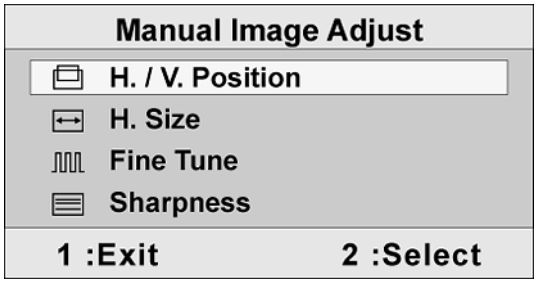
5400K-Adds green to the screen image for a darker color.

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 1024 x 768 @ 60Hz (recommended) means that the resolution is 1024 x 768 and the refresh rate is 60 Hertz.

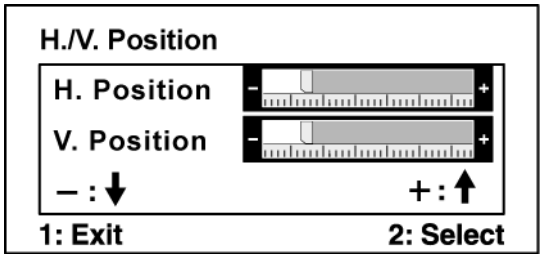


Manual Image Adjust displays the Manual Image Adjust menu.



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

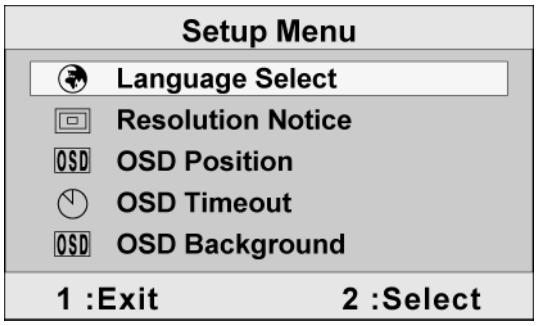
H./V. Position (Horizontal/Vertical Position) moves the screen image left or right and up or down.



Fine Tune sharpens the focus by aligning text and/or graphics with pixel boundaries.
NOTE: Try Auto Image Adjust first.

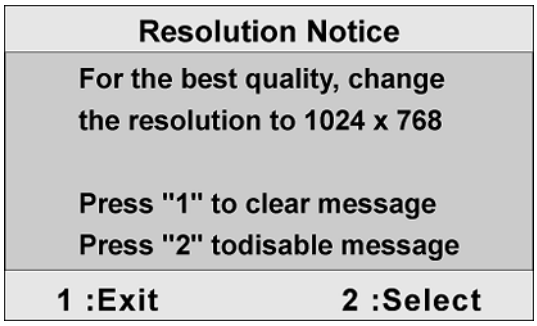
Sharpness adjusts the clarity and focus of the screen image.

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 displays the Resolution Notice menu shown below.



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.

2. Electronic Circuit Theory

2.1 Switching Mode Power Supply

2.1.1 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. R820 and R821 joined between two inputting main circuit to prevent man from shock. L801 is used to clear up low frequency wave. C801 and C806 are used to discharge the waves that L801 produced. High frequency waves are damped by C801 and C806. D801 is a rectifier which composed of 4 build-in diodes, it inverts AC to DC.

2.1.2 High Voltage to Low Voltage Control Circuit

C805 is used to smooth the wave from rectifier. IC802 is a highly integrated PWM controller, which build-in a power MOSFET. When rectified DC high voltage is applied to the DRAIN pin during start-up, the MOSFET is off initially, and the CONTROL pin capacitor is charged through a switched high voltage current source connected internally between the DRAIN and CONTROL pins. When the CONTROL pin voltage Vc reaches approximately 5.8V, 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 10ms. If no external feedback/supply current is fed into the CONTROL pin by the end of the soft-start, the high voltage current source is turned off and the CONTROL pin will start discharging in response to the supply current drawn by the control circuitry.

Resistor R803, R807, R824 and R825 are for line over voltage shut-down (OVP) and line under-voltage detection (UVP).Resistors R801, R805, R822, and R823 are for external current limit adjustment, and used to reduce the current limit externally to a value close to the operating peak current of primary about 1.35A. The mean is power will protected when the primary current over about 1.35A.

When PWM is turned off, the main current flow will be consumed through D804 and ZD802, This will prevent MOSFET which built-in IC802 from being damaged under large current impulse and voltage spike.

D806 and C815 provide internal Auxiliary current to CONTROL pin during normal operation. In addition, error amplifier and feedback current to the CONTROL pin are for duty cycle control.

2.1.3 DC_5V and DC_14V Output Circuit

For DC 5V, D805 is used to rectify the inducted current. R806 and C811 are used to store energy when current is reversed. The parts including C812, C814, C822, C821, B801 and L803 are used to smooth the current waves.

For DC 14V, D803 is used to rectify the inducted current. R802 and C802 are used to store energy when current is reversed. The parts including C808, C810 and L802 are used to smooth the current waves.

2.1.4 Feedback and OVP Protect Circuit

Pin R of IC803 is supplied 2.5V stable voltage. It is connected to 5V and 14V output through R811, R810 and R818. R811, R810 and R818 are output sampling resistor. When the sampling voltage more than 2.5V or less than 2.5V, feedback current of IC802 will change, this can change the voltage from transformer T801.

Q802, R827, R828 and ZD801 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.

2. 2 Inverter Circuit

2.2.1 Low voltage to high voltage circuit

14VDC provides the power for IC501; the control signals Brightness and ON/OFF come from I/F board. ON/OFF signal connect to pin10 of IC501 and makes IC501 enable. Brightness signal connect to pin4 of IC501 and regulates the panel brightness, R526, R529, C505 make up a network of delaying time circuit and R523, R524 make up a divided voltage network, C504 is used to dump noise. The operation frequency is determined by the external Resistor R522 and capacitor C529 connected to pin13 of IC501. BURST MODE regulated dimming frequency is determined by the external resistor R527 and capacitor C506 connected to pin11 of IC501. C508 is used for soft start and compensation, C507, C505 are used for dump noise.

The output drives, include DRV1, DRV2 (pins1,15 respectively) output square pulses to drive MOSFET U501, U502, and each of U501, U502 , is consist of a N channel MOSFET. U501,OR U502 work as Push-Pull- topology, it is high efficient, PWM switching.

During start up, VSEN (pin6) senses the voltage at the transformer secondary. When VSEN reaches 3.0V, the output voltage is regulated. If no current is sensed approximately 2seconds IC501 shut off.

The current flowing through CCFL is sensed and regulated through sense resistor R509, R534. The feedback voltage connected to Pin5 (ISEN), then compared with a reference voltage (1.5V) via a current amplifier, resulting in PWM drive outputs to PUSH-PULL switches.

2.2.2 Protection circuit

Over Voltage Protection and over-current protection are monitored by the voltage on VSEN(Pin 6) During normal operation , if a CCFL is damaged or removed ,the voltage at VSEN (Pin6) increases .Once the voltage at VSEN exceeds 2.0V (OVPT Setting) the driver output duty cycle is regulated and the shutdown delay timer is activated.OVPT set the overall protection threshold voltage that is lower than 3V (VSEN threshold). Once the voltage at TIMER pin reached about 3v ,the IC will shut down and latch .R501, R503,C525,C527 are connected in high voltage output connector, the divided AC voltage is inverted DC voltage through D503, D504,D507,D508 ,R530 and C516are used to rectify wave & dump noise. Then the voltage signal reaches Pin6 VSEN of IC501, when the voltage changes, build-in PWM of IC501 will adjust output voltage.

Open Lamp Protection: In normal operation, R509 are sensed a high level DC voltage,If a CCFL is removed or damaged during normal ,the voltage at SSTCMP(Pin12) rises rapidly .when the voltage at SSTCMP reaches a threshold of approximately 2.5V,a current source charges the capacitor(C511)connected to TIMER(Pin3).Once the voltage level at the TIMER pin reaches a threshold of approximately 3v,The drive outputs shut down and latch.

2.3 I/F Board Circuit

2.3.1 Power Input

+3.3V is from the power board and supply for U101(LD1117AL-1.8V)、U102(AT24C02N) 、U103(TSUM16AL) 、U104(SST25VF010A) 、U105(AT24C04N) 、panel and LED. +1.8V output is generated from +3.3V through C104 and C105 filtering, and U101 outputs. +1.8V is only used for U105.

2.3.2 MCU & Scaler(TSUM16AL)

The frequency of XTAL1 is 14.318MHz. U103 # 48 is defined as panel-enable. When the I/O port is low, Q106 and Q105 are conducted. And then after C116 and C117 filtering, obtain the voltage of VLCD, which will be connected to CN104. U103 # 85 is defined as CCFL-enable. When the I/O port is low, Q102 is pulled up and the backlights are on; When the I/O port is high, Q106 is conducted and the backlights are off. U103 # 35 is defined as DET-VGA, connected with CN103 # 5. U103 # 84 is a pin of hardwire reset. U103 # 54-# 55,# 58-# 65 output LVDS digital data of 8 bit to panel control circuit through CN104. U103 # 86 generates a PWM waveform by regulating the duty to control the brightness of the backlights.

U102 is EEPROM used for saving EDID data, which is connected by SCL and SDA pins with # 31 and # 30 of TSUM16AL.

U104 is a flash memory, U104 # 2, # 1, # 6, # 5 are the communications with U103 # 37-# 40.

U105 is EEPROM used for saving user's OSD setting. U105 is connected by SCL and SDA pin with # 44 and # 43 of TSUM16AL.

2.3.3 VGA Input

Signal R, G, B input through CN103 # 1, # 2, # 3, and C116, C117 and C118 filtering the high frequency noise. Signal HSYNC and VSYNC input through CN103 #13 and #14, and C126, R131, C125, R130 filtering. Then the analog signal enters U103, and then U103 deals with it internally. In addition, D101, D102, D103, D104 (the four are BAV99), ZD101, ZD102, ZD103, ZD104, ZD105 (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 U102. Signal DDC-SDA inputs via CN103 #12, and then passes through ZD105 for ESD protection, goes into EDID EEPROM IC U102. CN103 # 5 is defined as cable detect pin, this detector realizes via R126 and U103 # 35,The PC-5V of U102 is supplied by PC via CN103 # 9 with ZD102 for ESD protection, or supplied by Monitor self via D105.U105 is an EEPROM IC, which is a kind of memory and used for saving EDID data.

2.3.4 Button Control

Button "Key-Power" is defined as power on/off, which is connected to U103 # 90 through CN101 # 6.

Button "Key-2" is defined as two functions of selecting and adjustment, which is connected to U103 # 94 through CN101 # 5.

Button "Key-Up" is defined as plus, which is connected to U103 # 95 through CN101 # 8.

Button "Key-Down" is defined as minus, which is connected to U103 # 99 through CN101 # 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", U103 # 91 is pulled low and U103 # 92 is pulled high, so Q103 is conducted and the LED indicator is green.
b. When in power-saving mode, U103 # 91 is pulled high and U103 # 92 is pulled low, so Q104 is conducted and the LED indicator is orange.

3. 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)
640x350@70Hz	31.469	+	800	640	96	48	25.175
	70.086	–	449	350	2	60	
IBM 640x400@70Hz	31.469	–	800	640	96	48	25.175
	70.086	–	449	400	2	35	
IBM 720x400@70Hz	31.469	–	900	720	108	54	28.322
	70.087	+	449	400	2	35	
640x480@50Hz	24.700	–	800	640	96	48	19.760
	50.000	–	494	480	2	8	
VESA 640x480@60Hz	31.469	–	800	640	96	40	25.175
	59.940	–	525	480	2	25	
640x480@67Hz	35.000	(	864	640	64	96	30.240
	66.667	(	525	480	3	39	
VESA 640x480@72Hz	37.861	(	832	640	40	120	31.500
	72.809	(	520	480	3	20	
VESA 640x480@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 800x600@56Hz	35.156	+	1024	800	72	128	36.000
	56.250	+	625	600	2	22	
VESA 800x600@60Hz	37.879	+	1056	800	128	88	40.000
	60.317	+	628	600	4	23	
VESA 800x600@72Hz	48.077	+	1040	800	120	64	50.000
	72.188	+	666	600	6	23	
VESA 800x600@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 832x624@75Hz	49.726	–	1152	832	64	224	57.283
	74.550	–	667	632	3	39	
VESA 1024x768@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	
1024*768@72Hz	57.700	–	1360	1024	136	144	78.472
	72.125	–	800	768	6	26	

4. Power On/Off Sequence

4.1 Hardware Power ON

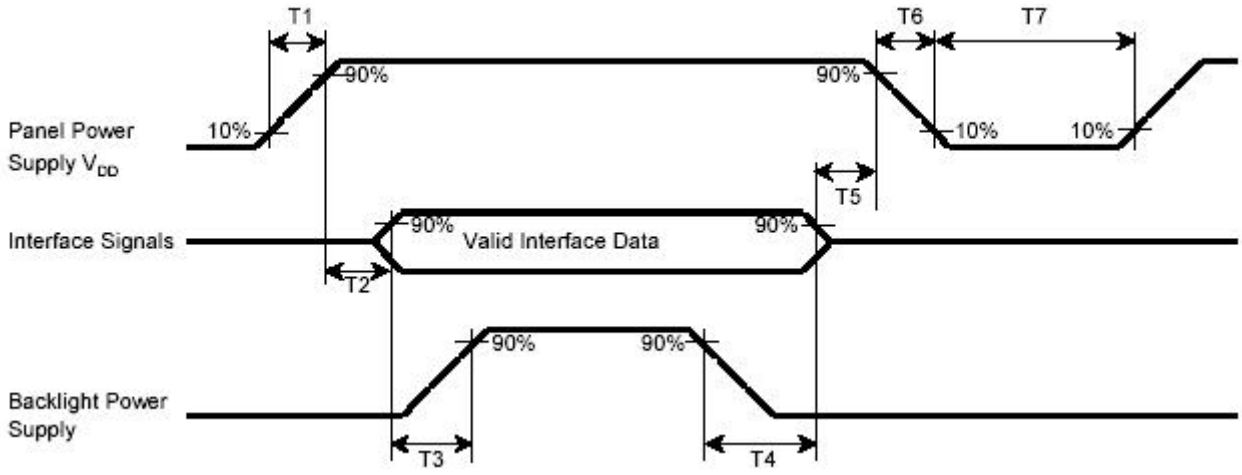
When power cord is plugged into AC socket, SMPS starts work and provides U103 with VCC3.3V. When VCC3.3V inputs, U103 resets circuit active, sets U103 all registers to preset modes, and then monitor goes into stand-by mode. That means hardware power on has been completed.

4.2 Software Power ON/OFF

When press power key, U103 # 90 recieves low pulse,and then U103 will do the power on/off.

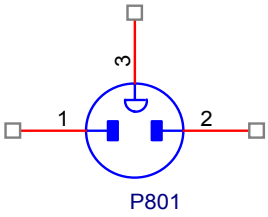
- If Power ON, U105 # 91(LED_Green) will send out Low potential, and then LED green on.
- If Power OFF, U105 # 91(LED_Green) will send out High potential, and then LED Off.

The Panel_Vcc, Backlight_En, CLK/DATA output to panel will follow the following sequency.



T1 (ms)	T2 (ms)	T3 (ms)	T4 (ms)	T5 (ms)	T6 (ms)	T7 (ms)
0.5~10	**0~50**	**> 200**	**> 200**	**0~50**	**< 100**	**> 500**

5. AC Outlet Pin Assignment



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

6. Inner Connector Pin Assignment

6.1 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

6.2 CN101 (Power BD to Interface BD)

Pin No.	Symbol	Description
1	VCC3.3	+3.4V INPUT
2	VCC3.3	+3.4V 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 (For VA503m only)
8	MUTE	Mute control input (For VA503m only)

6.3 CN106 (Interface BD to Keypad)

Pin No.	Symbol	Description
1	LED_ORANGE	Orange LED lighting control

2	LED_GREEN	Green LED lighting control
3	GND	Ground
4	KEY_MENU/EXIT	OSD page selection and exit
5	KEY_SELECT/AUTO	Select control and auto adjustment control
6	KEY_POWER	DC power on/off control
7	KEY_DOWN	OSD "▼" control to adjust value to decrease
8	KEY_UP	OSD "▲" control to adjust value to increase

6.4 CN103 (Connect I/F BD to panel, FI-X30S-H or Equivalent)

Pin No.	Symbol	Function
1	GND	Ground
2	GND	Ground
3	RXE3+	plus signal of even channel 3(LVDS)
4	RXE3-	minus signal of even channel 3(LVDS)
5	GND	Ground
6	RXEC+	plus signal of even clock channel (LVDS)
7	RXEC-	minus signal of even clock channel (LVDS)
8	GND	Ground
9	RXE2+	plus signal of even channel 2(LVDS)
10	RXE2-	minus signal of even channel 2(LVDS)
11	GND	Ground
12	RXE1+	plus signal of even channel 1(LVDS)
13	RXE1-	plus signal of even channel 1(LVDS)
14	GND	Ground
15	RXE0+	minus signal of even channel 0(LVDS)
16	RXE0-	plus signal of even channel 0(LVDS)
17	GND	Ground
18	GND	Ground
19	VCC	Power supply (5.0 V)
20	VCC	Power supply (5.0 V)

6.5 CN102 (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)

7. Key Parts Pin Assignment

7.1 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

7.2 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

7.3 U103(TSUM16AL)

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	GPIO_P22	I/O	General Purpose Input/Output; 4mA driving strength
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	NC		Not Connected
68	NC		Not Connected
69	NC		Not Connected
70	NC		Not Connected
71	NC		Not Connected
72	NC		Not Connected
73	NC		Not Connected
74	NC		Not Connected
75	VDDP	I	Digital Output Power
76	GND		Ground
77	NC		Not Connected
78	NC		Not Connected
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 (+ / -)	
	Brightness (+ / -)	
Audio (for VA503m 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 (+ / -)
		V Position (+ / -)
	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-V7 : Currently using panel model name
V3 060620 : 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.

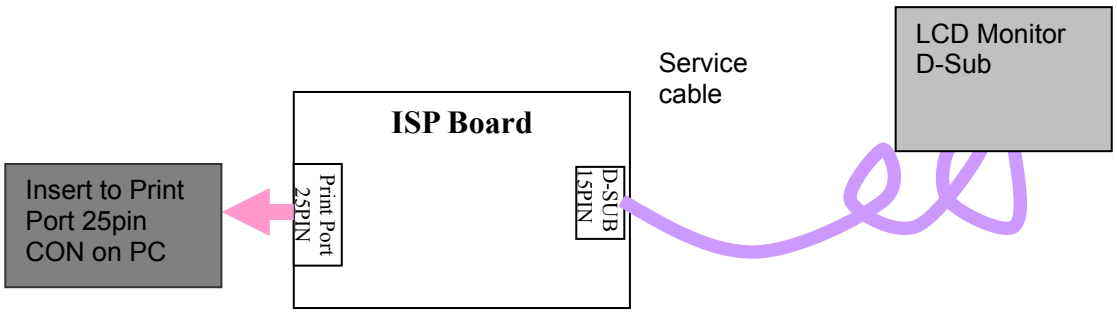
6. EDID (Rewrite EDID data to EEPROM)

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.

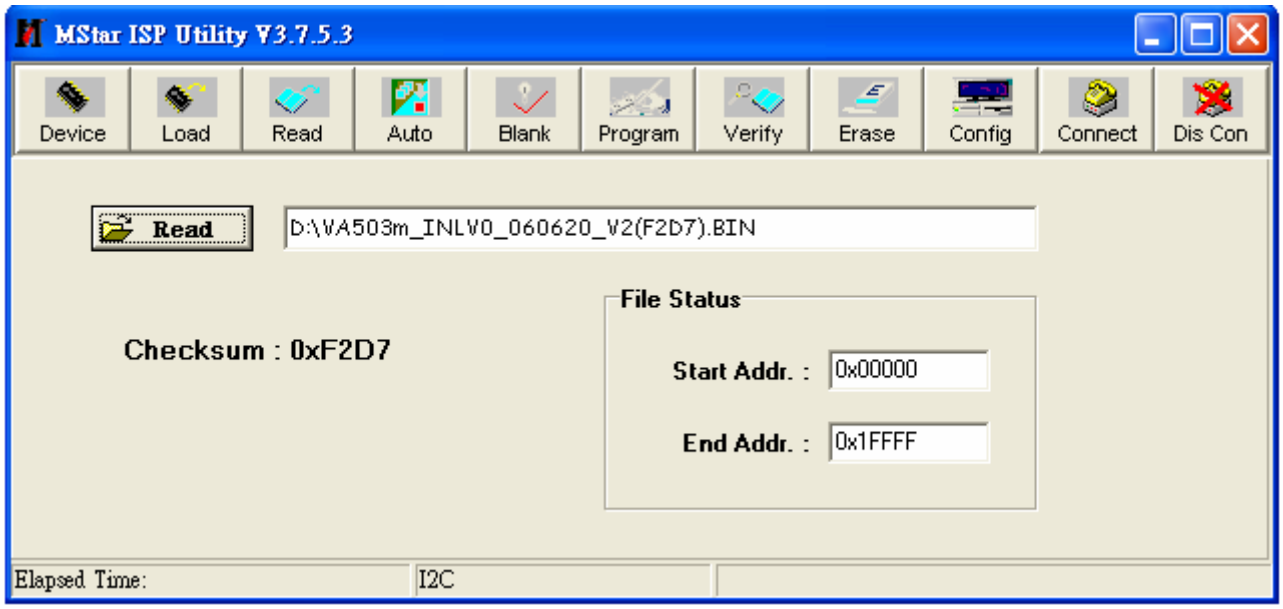
7. Upload firmware to MCU via VGA Cable

7.1 Connect ISP board between monitor and PC as below configure

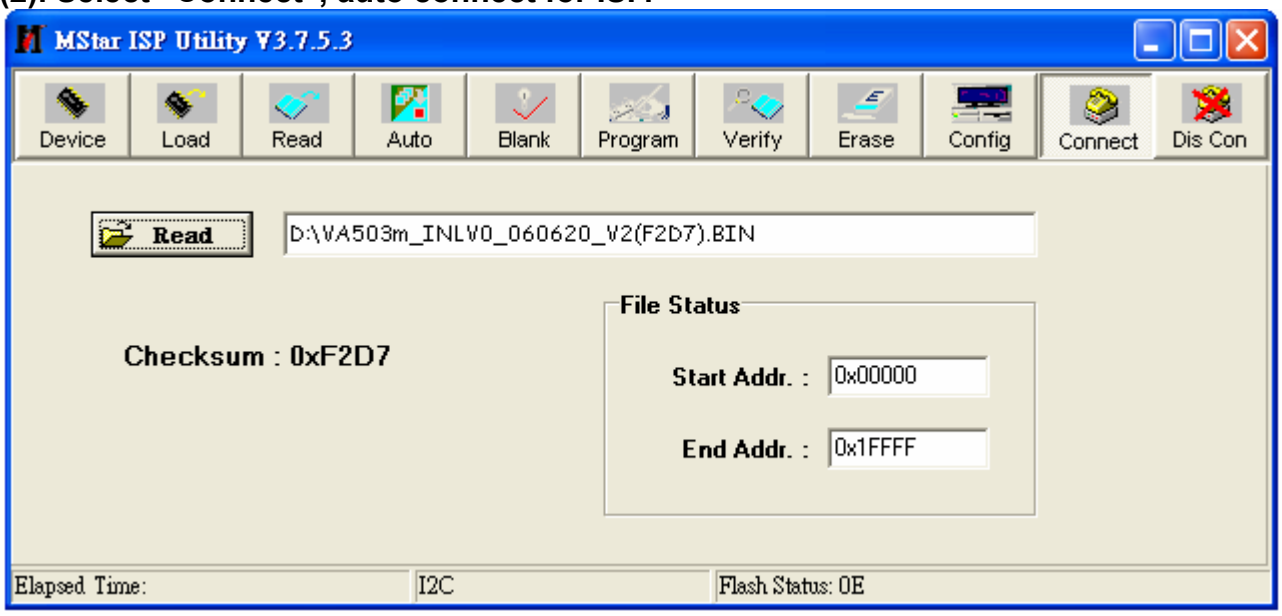


7.2 Using mStar ISP Tool Update FW:

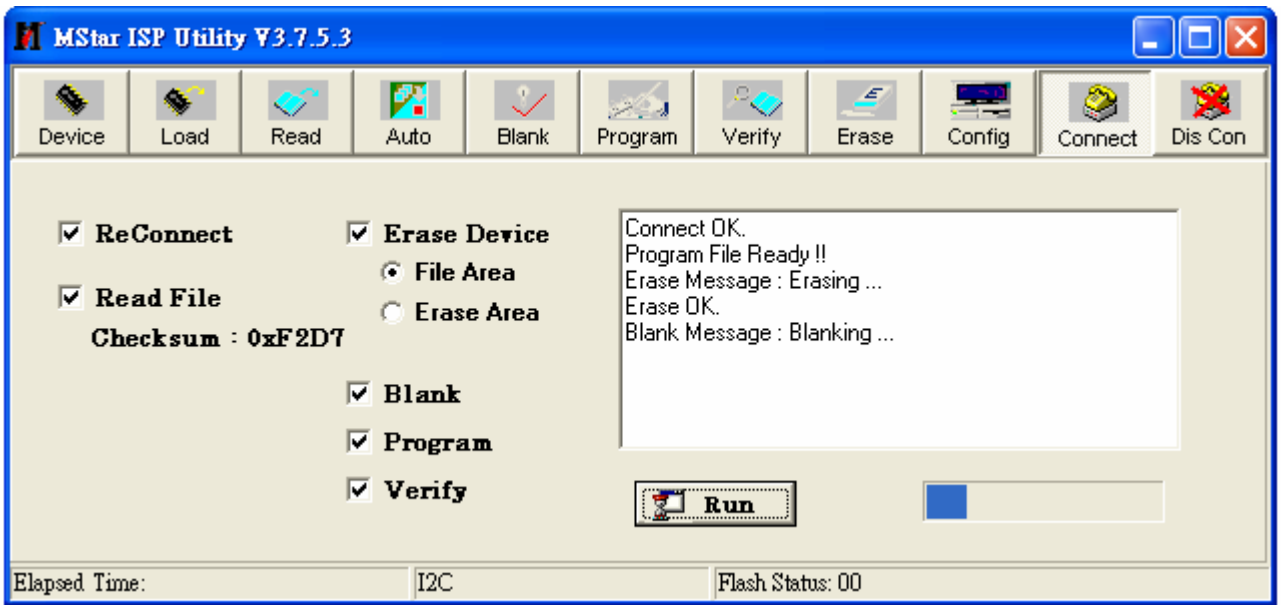
(1). Seletct “Read”, Choose the corresponding firmware, load to MCU.



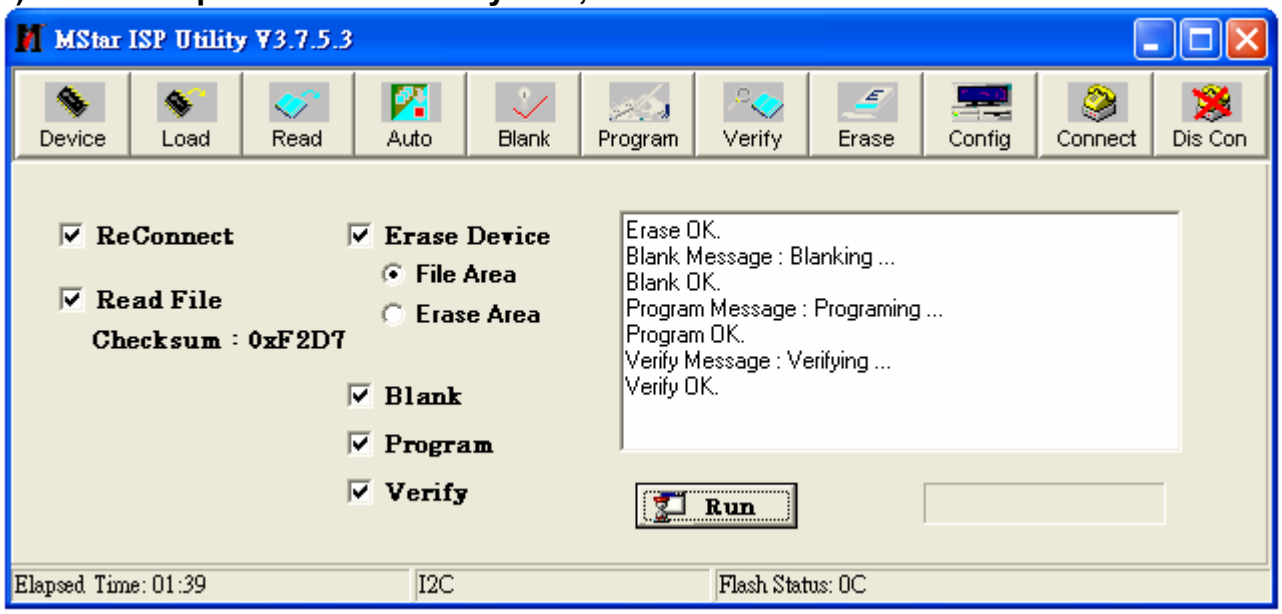
(2). Select “Connect”, auto connect for ISP.



(3). Select “Run”, start ISP.



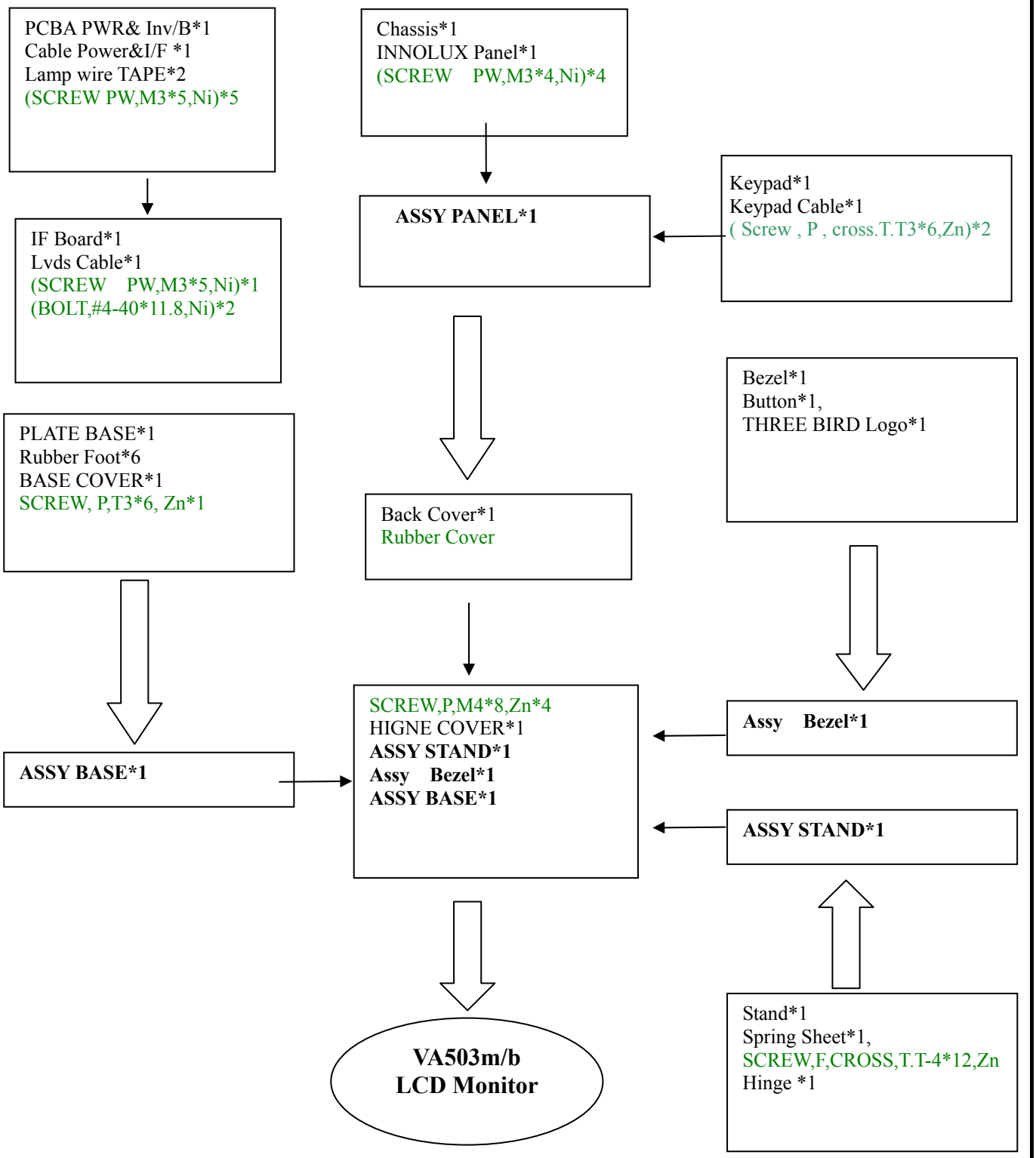
(4). When the picture show “Verify OK”, ISP finished.



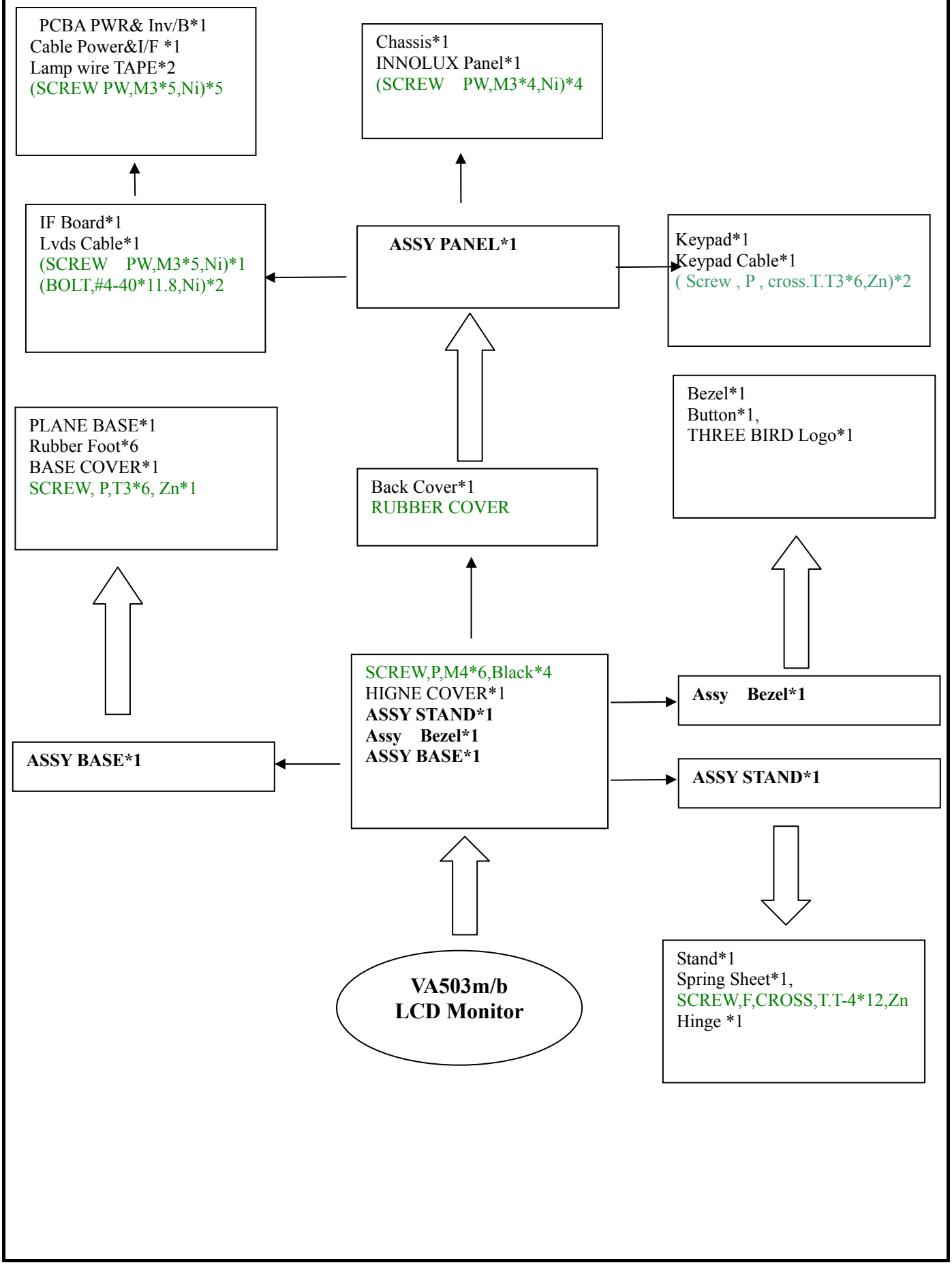
8 After repair, to ensure the quality you should do the following test and adjustment

<table>
<tr><th>Item</th><th>Content</th><th>Equipment</th></tr>
<tr><td>Test OSD function</td><td>1.Signal is set as 1024 x 768 @60Hz
2. LCM button are from left to right, checking whether each single function key and compound function key can be worked.</td><td>Chroma
Signal Generator</td></tr>
<tr><td>Contrast Check</td><td>1. Set input mode to 1024 x 768 @60Hz
2. Set Pattern to 32 gray shades
3. Set contrast to the max. The brightest 6~8 shades brightness cannot be distinguished.</td><td>Chroma
Signal Generator</td></tr>
<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), 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: 1024 x 768 @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: 1024 x 768 @75Hz
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>≤ 23W</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>

VA503m/b Assembly Block



VA503m/b DisAssembly Block



5. Packing for Shipping and Disassembly Procedure

5.1 Packing for Shipping

5.1.1 Packing Procedure

- Paste protection film to protect the monitor. (Figure 1)
- Put the monitor in the PE bag and seal the bag with tape. (Figure 2)

Figure 1

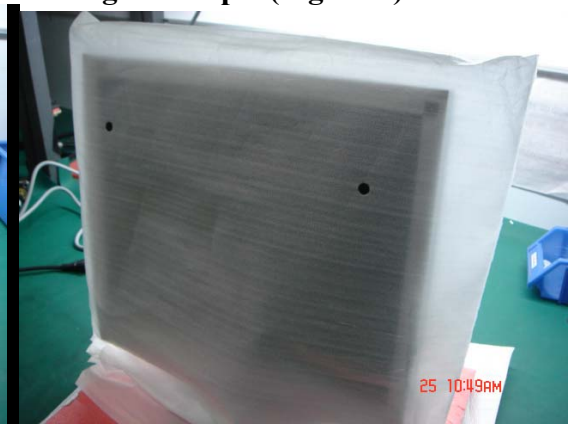


Figure 2

- Disassemble the base by pushing the button.(Figure 3)
- Put the cushions on the monitor. (Figure 4)
- Place the base into the hole of cushions. (Figure 5)
- Place the monitor into the carton and then put all the accessories into the carton. At last, close the carton. (Figure 6).

Figure 3

Figure 4

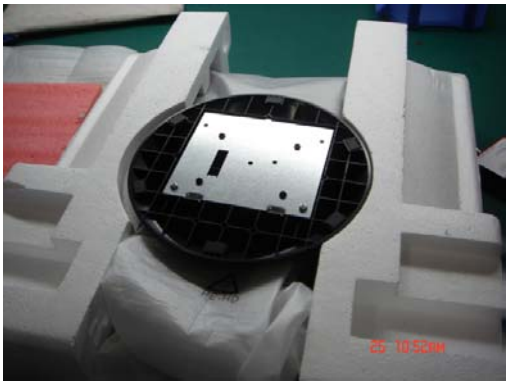
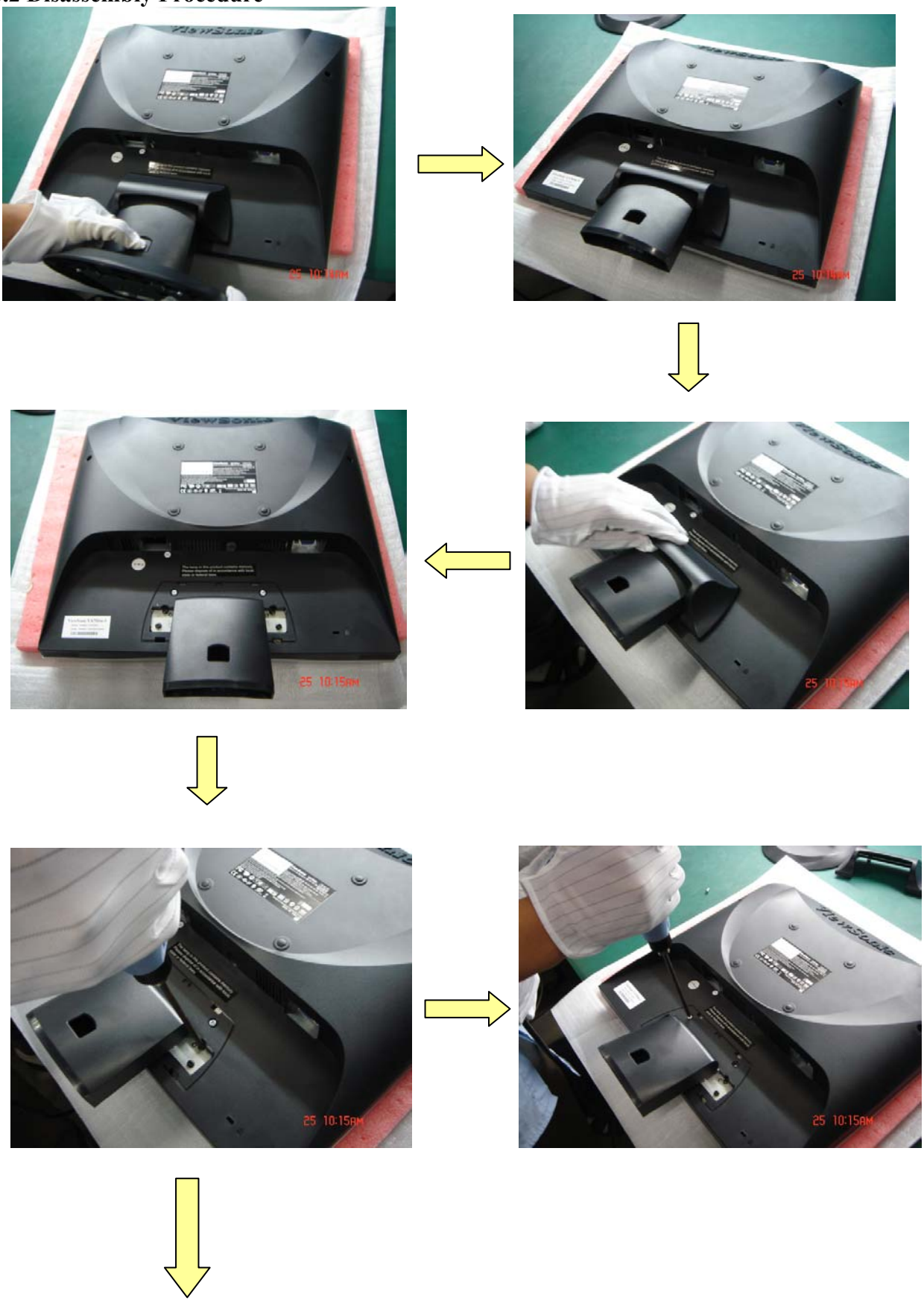


Figure 5

Figure 6

5.2 Disassembly Procedure

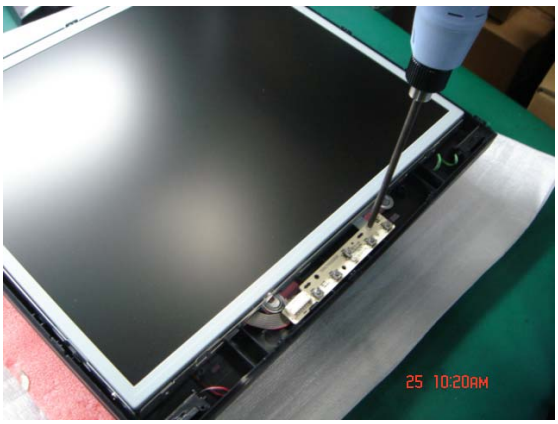



ViewSonic
25 10:16AM


25 10:17AM


25 10:18AM


25 10:19AM


25 10:20AM

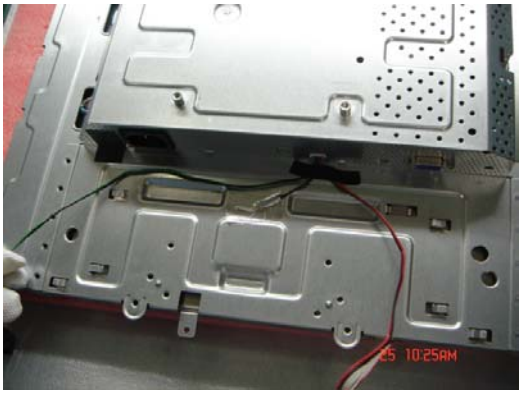
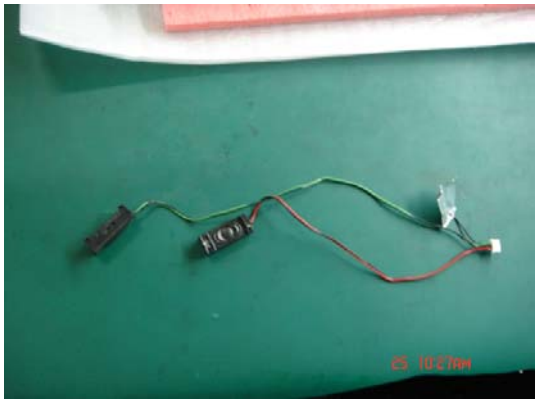

25 10:20AM

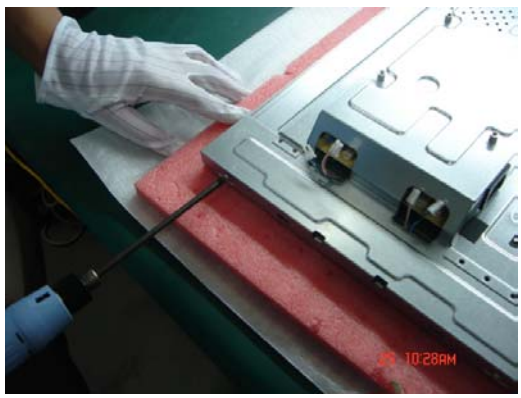

25 10:27AM

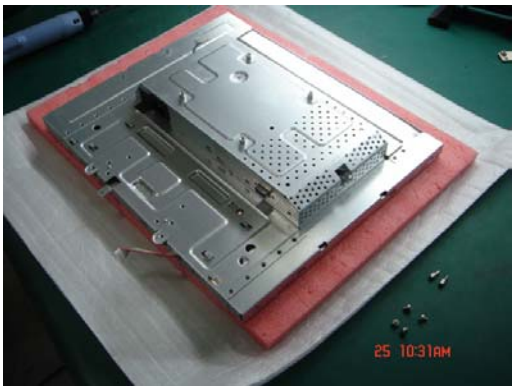

25 10:21AM

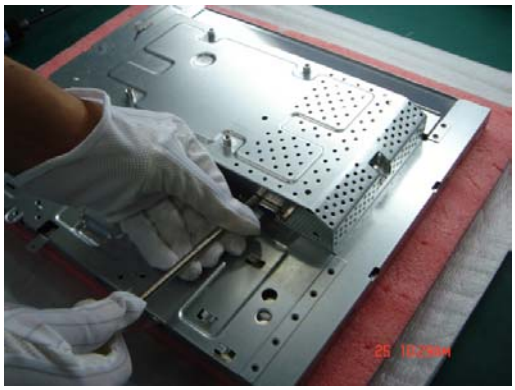


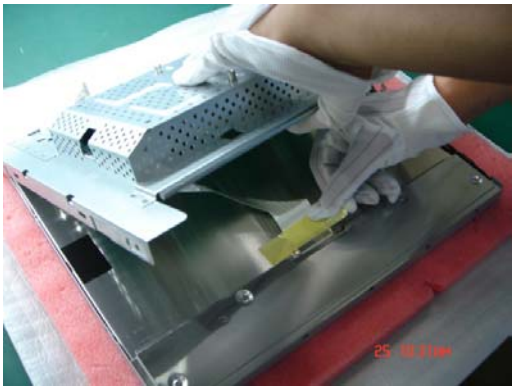


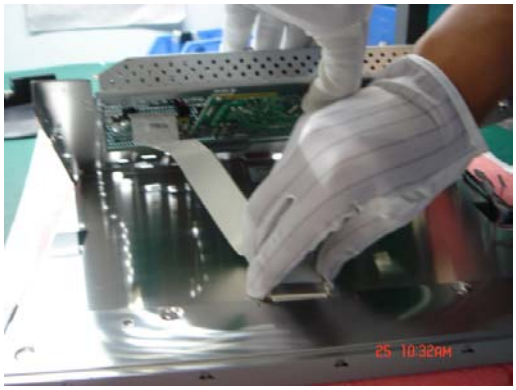



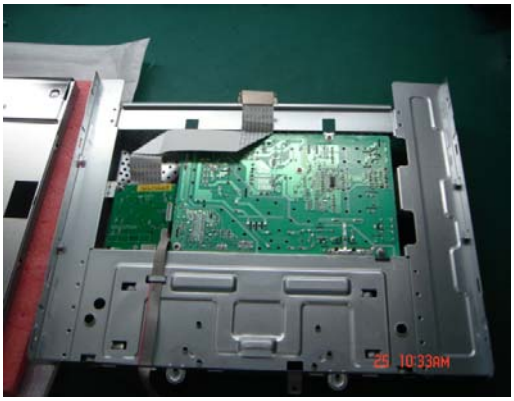



25 10:31AM



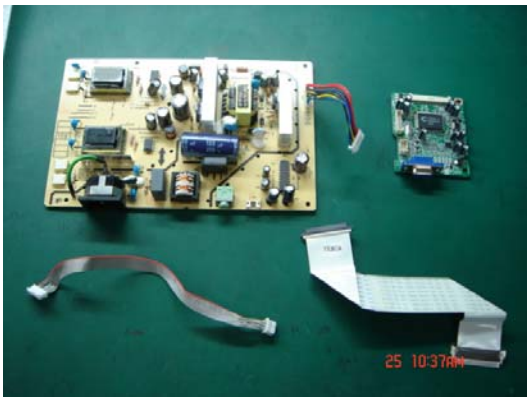



25 10:32AM


25 10:33AM


25 10:33AM


25 10:33AM

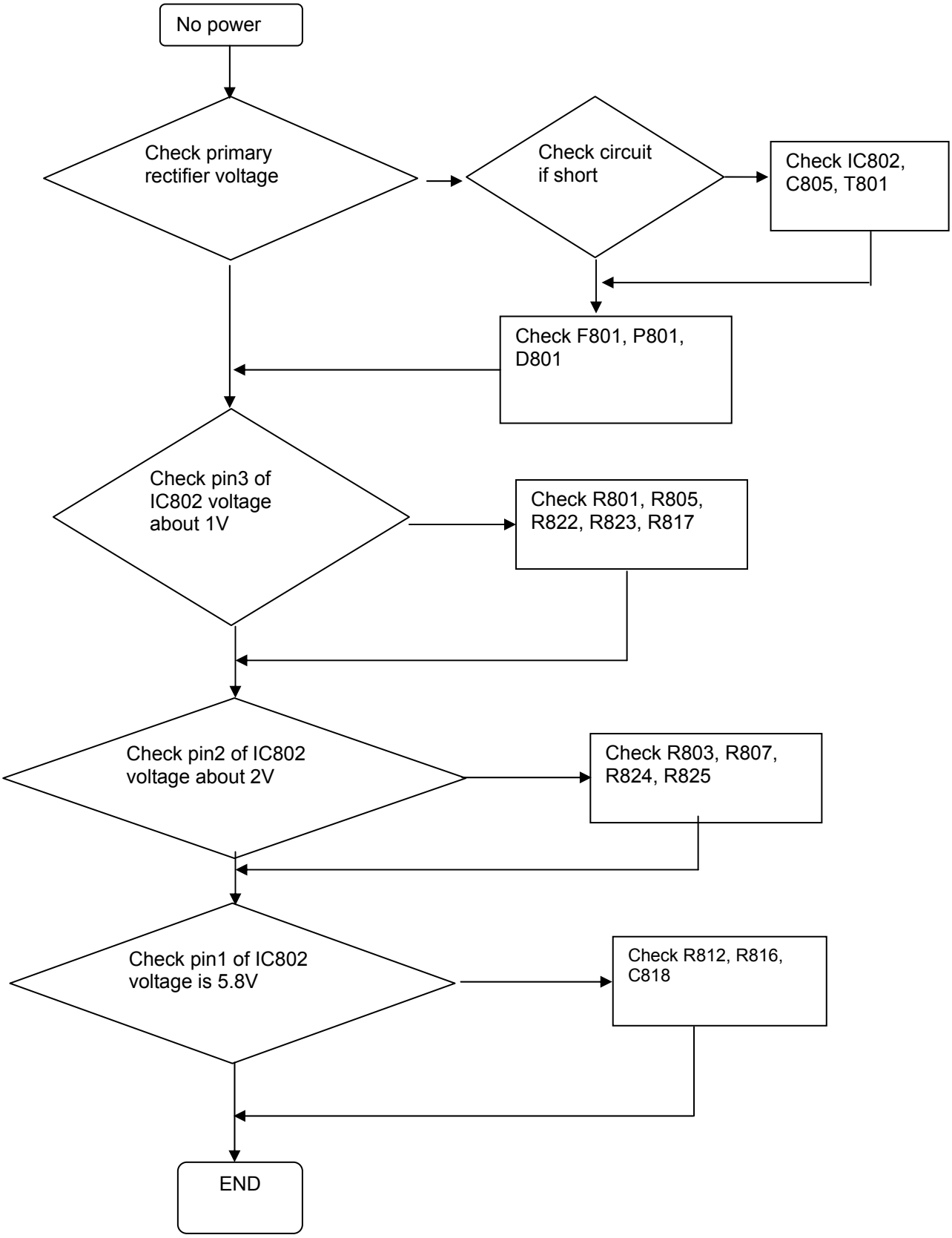


6. Troubleshooting Flow Chart

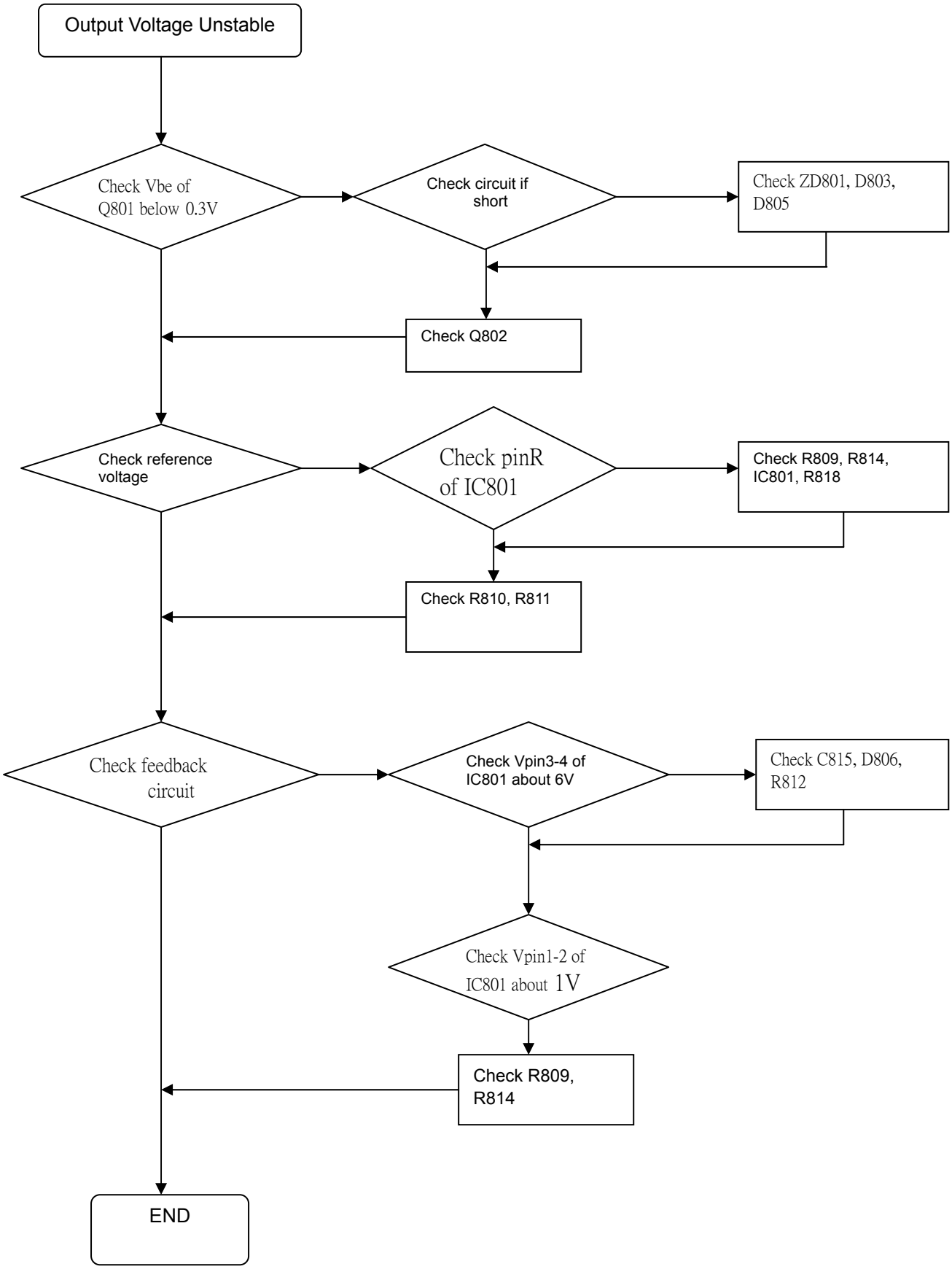
1. Common Acknowledge

- If you change the interface board, be sure that the U102, U103, U104 and U105 these four components also changed to the new I/F board because there was program inside. If not, please re-write EDID and upload firmware into U104 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. (For VA503m only)

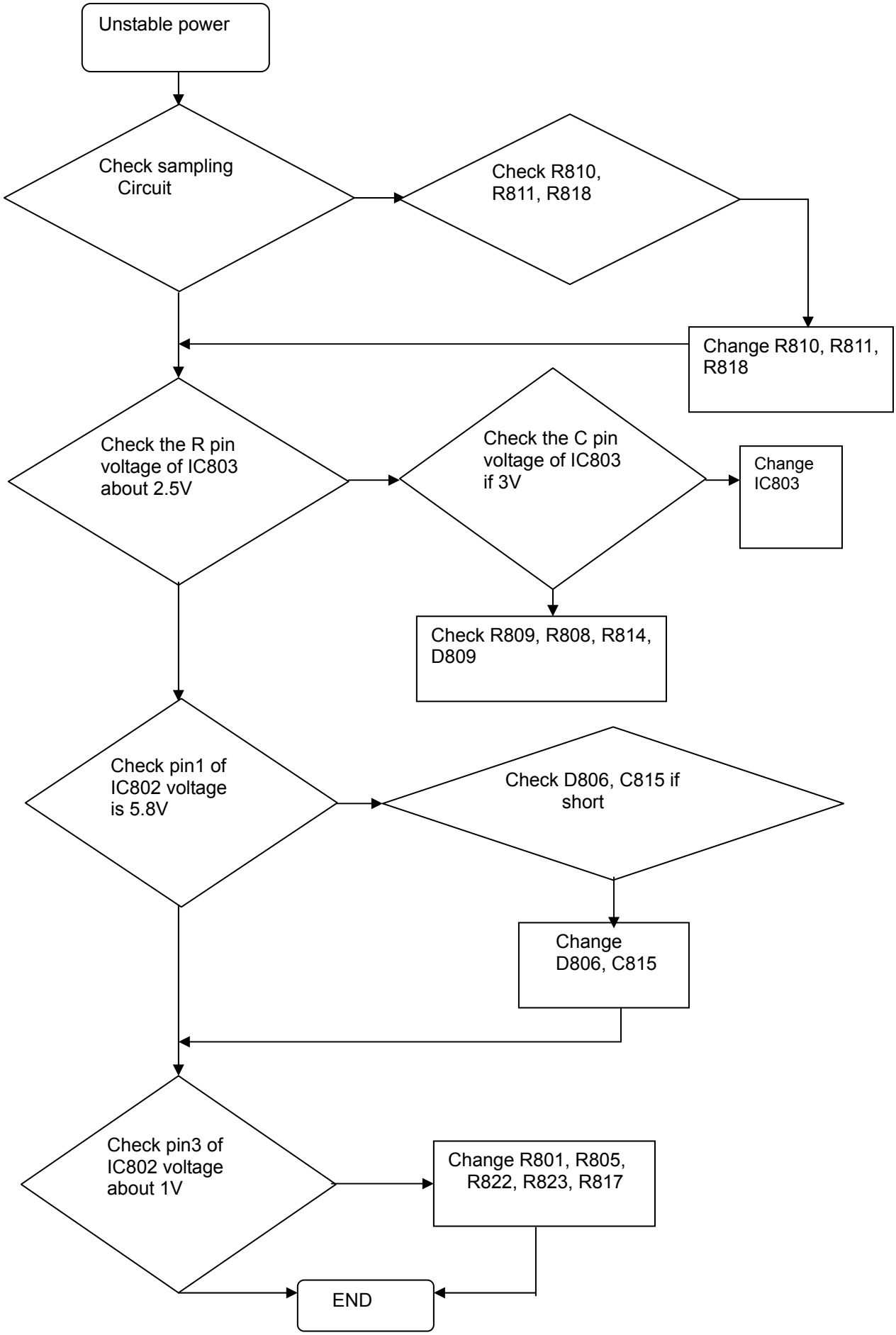
2. No Power & Power LED Off



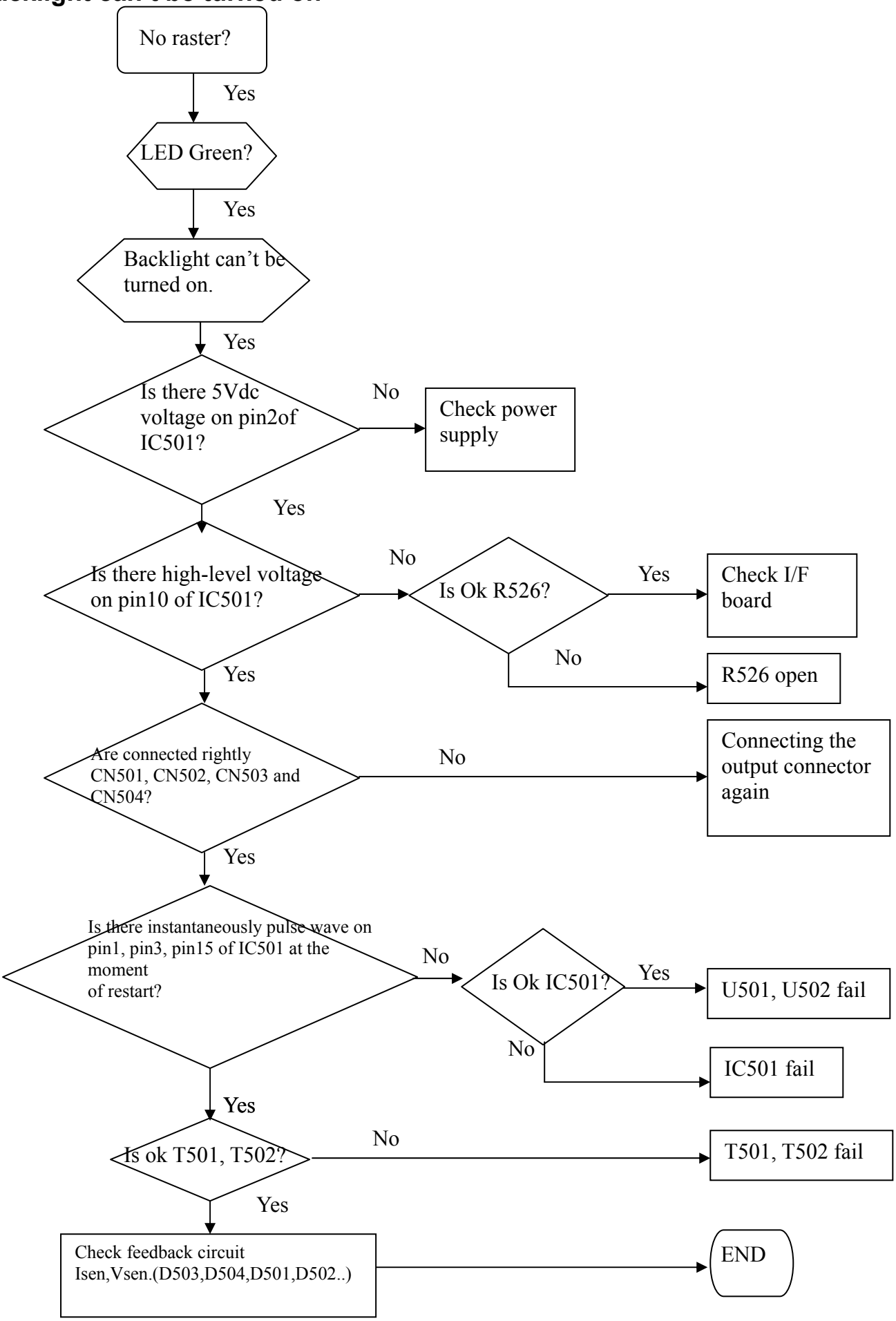
3. DC output voltage is unstable



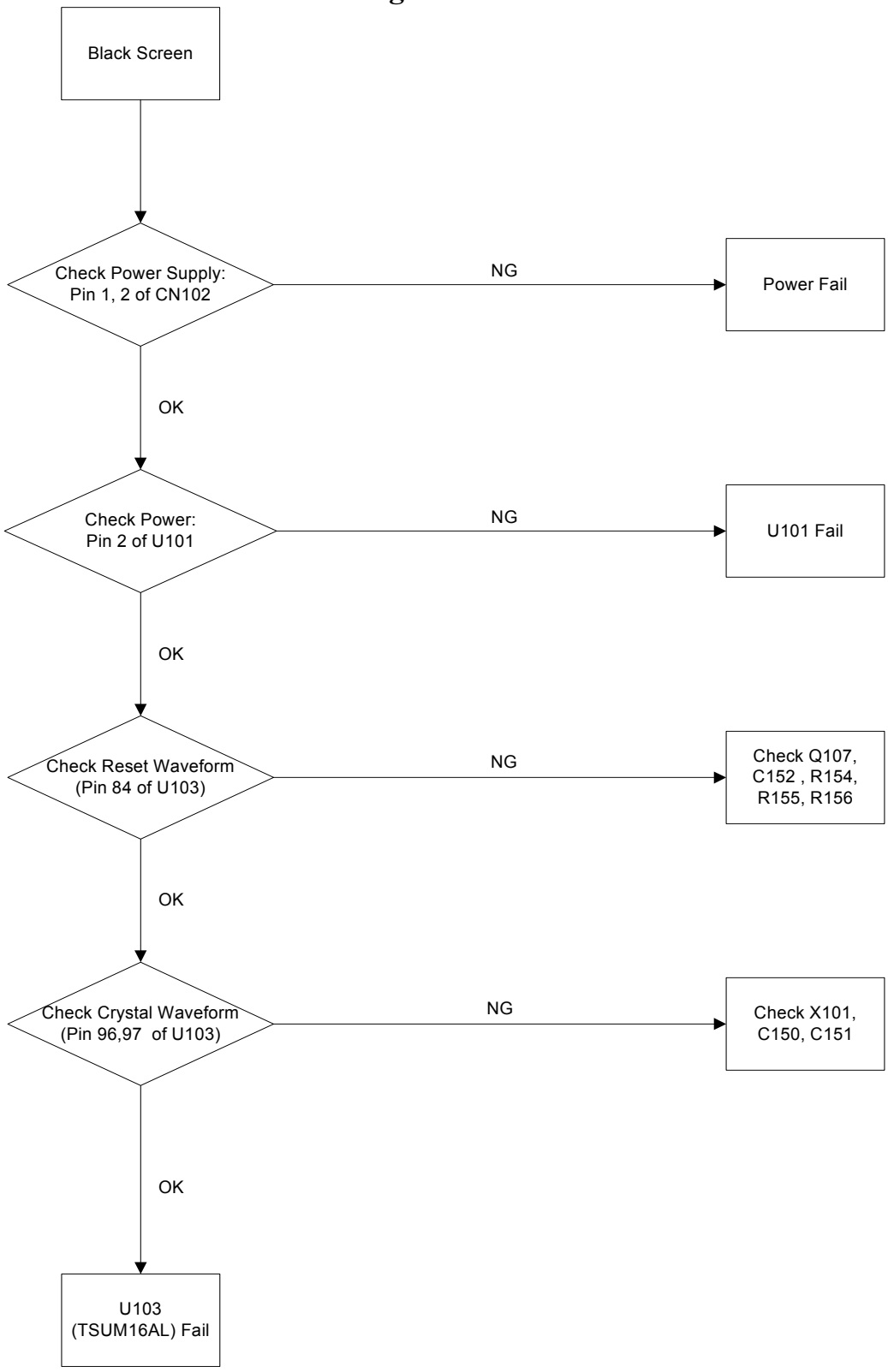
4. Output power is unstable



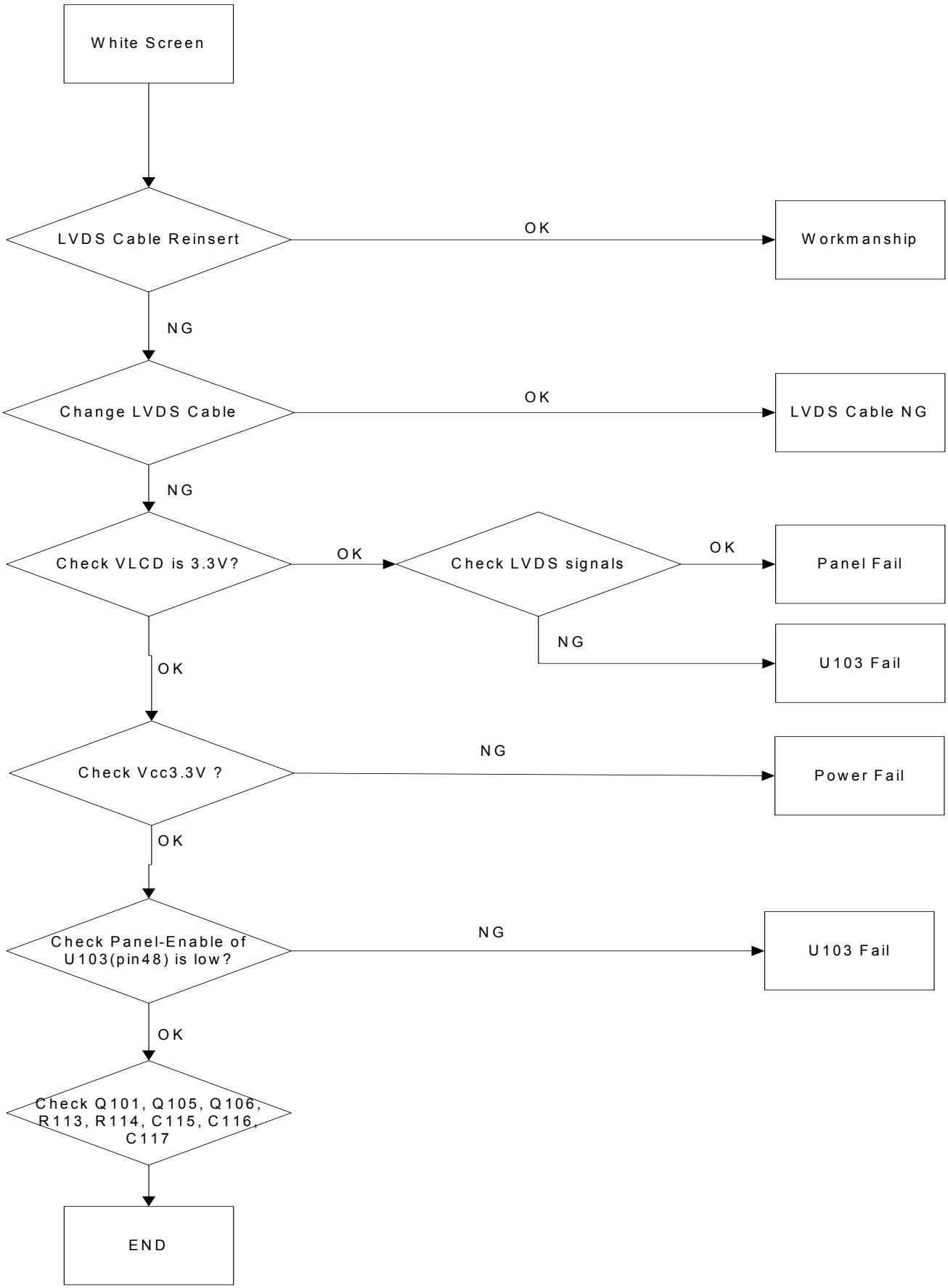
5. Backlight can’t be turned on



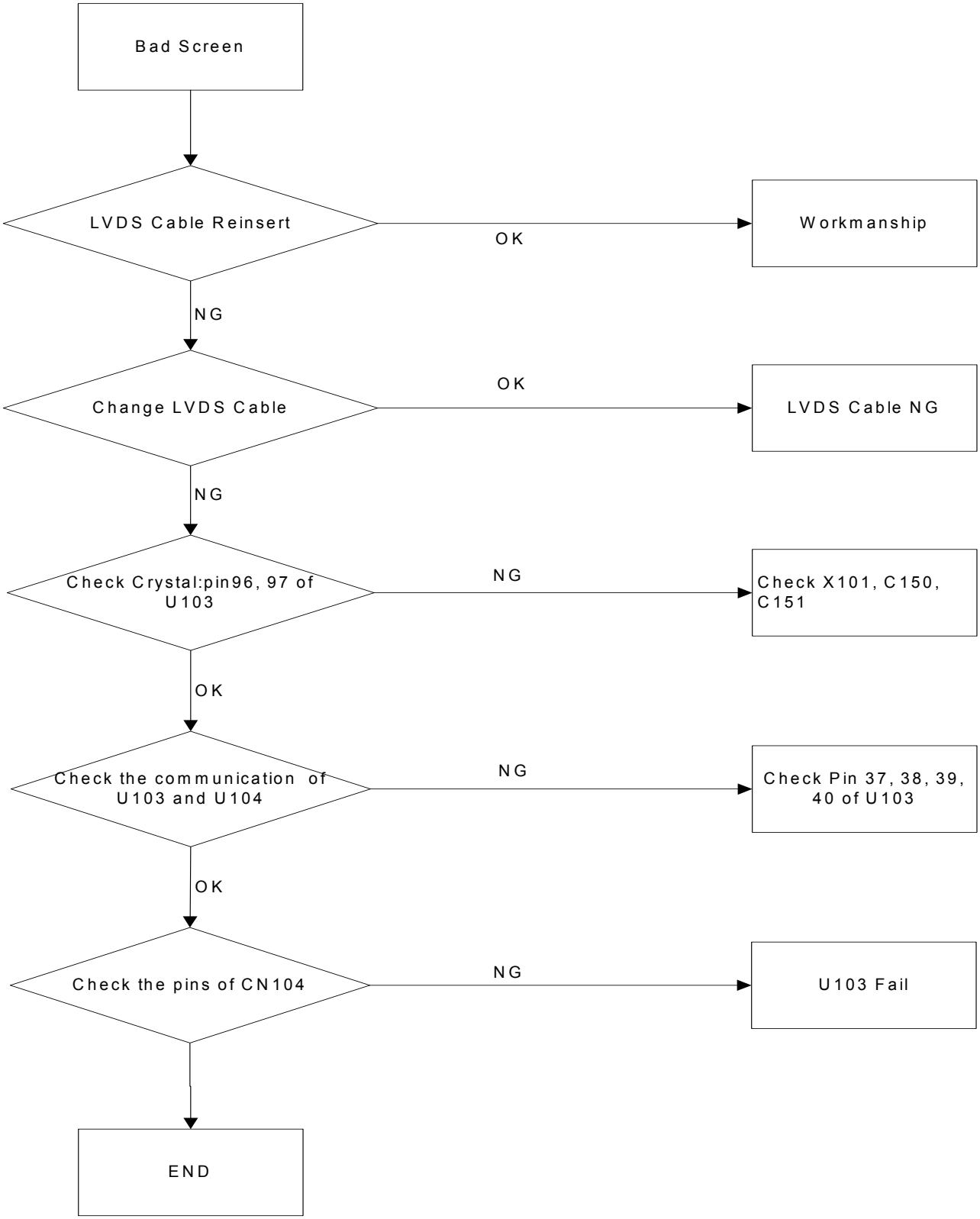
6. Black Screen and Backlight Turn on



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 U103
NG
Check X101, C150, C151
OK
Check the communication of U103 and U104
NG
Check Pin 37, 38, 39, 40 of U103
OK
Check the pins of CN104
NG
U103 Fail
END

7. Recommended Spare Parts List

RECOMMENDED SPARE PARTS LIST (VA503b-2)

ViewSonic Model Number: VS11357

Serial No. Prefix: QAE **Rev: 1a**

Item	Description		ECR/ECN	ViewSonic P/N	Ref. P/N	Location	Universal number#	Q'ty
1	**Accessories:**	PWRCORD 10A/250V BLACK 6FT SAA,H05W-F/3G (Australia)		A-00003671	453070800420R			50
2		PWRCORD 5A/250V BLK 6FT UK3Gx.75mm(SP60/ (Singapore)		A-00003675	453070800230R			50
3		PWRCORD 10A/250V BLK 6FT CHINA.RVV 3Gx0.		A-00005255	453070800170R			50
4		PWR CORD 10A/125V BLK 6FT UL/CSA,SVT 18x		A-00006679	453070800250R			100
5		PWRCORD 7A/125V BLK 6FT CNS,VCTF 3Gx0.75 (Taiwan)		A-00006733	453070800480R			50
6		PWRCORD 16A/250V BLK 6FT KTL,H05VV-F 3Gx (Korea)		A-00006734	453070800500R			50
7		KIT,ACCESSORY,VA503B-INL(V0), LE1534		A-00006743	703000002210R			100
8	**PC Board Assembly:**	INTERFACE BOARD (V0),W/O SPK,LE1534-6E0		B-00006748	790631300610R			100
9		SUB BOARD,P/I BOARD(V0),W/O SPK,LE1534-6E0		B-00006749	790631400610R			100
10		KEY BOARD, LE1534		B-00006750	790631500000R			100
11	**Cabinets:**	COVER,BACK,GRAY,W/O SPK, LE1534		C-00006735	501020208200R			100
12		COVER,HINGE,GRAY, LE1534		C-00006736	501020208300R			100
13		ASSY,BASE,GRAY, LE1534		C-00006745	714020005900R			100
14		ASSY,BEZEL,GRAY,W/O SPK, LE1534		C-00006746	714030005900R			100
15		ASSY,BACK COVER,GRAY, LE1534		C-00006747	714050005900R			100
16	**Cables:**	CABLE,D-SUB 15P MALE 6FT BLACK/BLUE,SZ40		CB-00005254	453010100100R			100
17		HRN ASS'Y 8P 120mm UL2651#28,RoHS		CB-00006731	430300800640R			100
18		HRN LVDS FFC 20P 208mm,RoHS		CB-00006732	430302000230R			100
19	**Electronic Components:**	LCD PANEL 15" MT150XN03-V0,AM15000050		E-00006742	631102050390R			0
20	**Packing Material:**	BAG,PLASTIC,L690xW(455+145)xT0.05mm, LE1		P-00005273	506120004500R			100
21		CRAFT BOX (VA503B), LE1534		P-00006737	506020010810R			100
22		GENERIC BOX		P-00002513	20656			
23		GENERIC FOAM SET		P-00001345	31468			
24		CUSHION,EPS-L, LE1534		P-00006738	506040009000R			100
25		CUSHION,EPS-R, LE1534		P-00006739	506040009010R			100
26		BAG,PLASTIC,W420xL520xT0.04mm(PRINTED)		P-00006740	506120002400R			100
27		BAG,PLASTIC,W220xL280xT0.05mm,CYCLE PRIN		P-00006741	506120002510R			100
28	**Plastics:**	ASSY,STAND,GRAY, LE1534		PL-00006744	714010005900R			100

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.

RECOMMENDED SPARE PARTS LIST (VA503m-2)

ViewSonic Model Number: VS11357

Serial No. Prefix: QAD **Rev: 1a**

Item	Description		ECR/ECN	ViewSonic P/N	Ref. P/N	Location	Universal number#	Q'ty
1	**Accessories:**	PWRCORD 10A/250V BLACK 6FT SAA,H05W-F/3G (Australia)		A-00003671	453070800420R			50
2		PWR CORD 16A/250V BLK 6FT VDE,H05VV-F 3G (Europe)		A-00003674	453070800210R			50
3		PWRCORD 5A/250V BLK 6FT UK3Gx.75mm(SP60/ (Singapore)		A-00003675	453070800230R			50
4		PWRCORD 10A/250V BLK 6FT CHINA.RVV 3Gx0.		A-00005255	453070800170R			50
5		PWR CORD 10A/125V BLK 6FT UL/CSA,SVT 18x		A-00006679	453070800250R			100
6		PWRCORD 7A/125V BLK 6FT CNS,VCTF 3Gx0.75		A-00006733	453070800480R			50
7		PWRCORD 16A/250V BLK 6FT KTL,H05VV-F 3Gx (Korea)		A-00006734	453070800500R			50
8		KIT,ACCESSORY,VA503M-INL(V0), LE1534		A-00008005	703000002200R			100
9	**PC Board Assembly:**	PCBA,KEYPAD BOARD, LE1534		B-00006750	790631500000R			100
10		PCBA,I/F BOARD(V0),W/SPK,LE1534-6E0		B-00008004	790631300600R			100
11		PCBA,P/I BOARD(V0),W/SPK, LE1534-6E0		B-00008005	790631400600R			100
12	**Cabinets:**	BACK COVER,BLACK, LE1534		C-00008013	714050005910R			50
13		BASE ASSEMBLY, BLACK, LE1534		C-00008014	714020005910R			100
14		FRONT PANEL, SILVER,W/SPK, LE1534		C-00008015	714030005910R			100
15		COVER,HINGE,BLACK, LE1534		C-00008016	501020208310R			100
16	**Cables:**	CABLE,D-SUB 15P MALE 6FT BLACK/BLUE,SZ40		CB-00005254	453010100100R			100
17		HRN ASS'Y 8P 120mm UL2651#28,RoHS		CB-00006731	430300800640R			100
18		HRN LVDS FFC 20P 208mm,RoHS		CB-00006732	430302000230R			100
19		CABLE,AUDIO 1P 6FT BLACK/GREEN CP03B06P0		CB-00008002	453030300120R			100
22	**Electronic Components:**	LCD PANEL 15" MT150XN03-V0,AM15000050		E-00006742	631102050390R			0
23	**Packing Material:**	BAG,PLASTIC,L690xW(455+145)xT0.05mm, LE1		P-00005273	506120004500R			100
24		CUSHION,EPS-L, LE1534		P-00006738	506040009000R			100
25		CUSHION,EPS-R, LE1534		P-00006739	506040009010R			100
26		BAG,PLASTIC,W220xL280xT0.05mm,CYCLE PRIN		P-00006741	506120002510R			100
27		BAG,PE+EPE,L490xW450xT0.33mm, LE1506		P-00008008	506120300410R			100
28		CARTON,VIEWSONIC(VA503M), LE1534		P-00008009	506020010800R			100
29	**Plastics:**	ASSY,STAND,BLACK, LE1534		PL-00008003	714010005910R			100

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 (VA503b-2)

ViewSonic Model Number: VS11357

Rev: 1a

Serial No. Prefix: QAE

Item	ViewSonic P/N	Ref. P/N	Description	Location	Universal number#	Q'ty
1	CB-00006731	430300800640R	HRN ASS'Y 8P 120mm UL2651#28,RoHS			100
2	CB-00006732	430302000230R	HRN LVDS FFC 20P 208mm,RoHS			100
3	CB-00005254	453010100100R	CABLE,D-SUB 15P MALE 6FT BLACK/BLUE,SZ40			100
4	A-00005255	453070800170R	PWRCORD 10A/250V BLK 6FT CHINA.RVV 3Gx0.			100
5	A-00006679	453070800250R	PWR CORD 10A/125V BLK 6FT UL/CSA,SVT 18x			100
6	A-00006733	453070800480R	PWRCORD 7A/125V BLK 6FT CNS,VCTF 3Gx0.75			100
7	N/A	501010206300R	BEZEL,GRAY,W/O SPK, LE1534			100
8	N/A	501010206500R	BEZEL,GRAY,W/O SPK, LE1734			100
9	C-00006735	501020208200R	COVER,BACK,GRAY,W/O SPK, LE1534			100
10	C-00006736	501020208300R	COVER,HINGE,GRAY, LE1534			100
11	N/A	501030100700R	BUTTON,FUNCTION KEY, LE1534			100
12	N/A	501240203700R	BASE,GRAY, LE1534			100
13	N/A	501260202800R	STAND,GRAY, LE1534			100
14	N/A	502060002400R	HINGE, LE1534			100
15	N/A	502090303500R	CHASSIS,W/O SPK, LE1534			100
16	N/A	502110400300R	SPRING SHEET, LE1534			100
17	N/A	502170301500R	PLATE,BASE, LE1534			100
18	N/A	503020002700R	RUBBER,FOOT,L14.8*W9.6*T3.5mm,ROHS LE171			600
19	N/A	503040000300R	RUBBER,COVER(GRAY), LE1534			400
20	N/A	505040503100R	INSULATOR,PP,22x20x12X0.3mm,GLUE(3M), LE			200
21	N/A	505040503500R	INSULATOR,PC,71x169x0.6mm, LE1534			100
22	P-00006737	506020010810R	CARTON,VIEWSONIC(VA503B), LE1534			100
23	N/A	506030200200R	CARD,AFTER SERVICE, LE1709,L130xW80			100
24	N/A	506038001420R	CARDBOARD,L1120xW830xT7mm, LE1534			1.25
25	N/A	506039000900R	CORNER PAPER,1900x50x50mm,LE1701			5
26	N/A	506039002500R	CORNER PAPER,760x50x50mm,LE1504			5
27	P-00006738	506040009000R	CUSHION,EPS-L, LE1534			100
28	P-00006739	506040009010R	CUSHION,EPS-R, LE1534			100
29	N/A	506091000500R	LABEL,WARRANTY, LE1709			100
30	N/A	506092001400R	CARD,WARRANTY, LE1709			100
31	N/A	506102000400R	LOGO PLATE,VIEWSONIC, LE1709(THREE BIRDS			100
32	P-00006740	506120002400R	BAG,PLASTIC,W420xL520xT0.04mm(PRINTED)			100
33	P-00006741	506120002510R	BAG,PLASTIC,W220xL280xT0.05mm,CYCLE PRIN			100
34	P-00005273	506120004500R	BAG,PLASTIC,L690xW(455+145)xT0.05mm, LE1			100
35	N/A	506150006700R	PALLET,L1128xW836xH120mm,LE1534			1.25
36	N/A	506250009400R	LBL,AGENCY,VA503B, LE1534			100
37	N/A	506260001600R	LABEL,WARNING, LE1X34			100
38	N/A	506380001200R	TAPE,MYLAR,66000x20xT0.05			0.12
39	N/A	506380001700R	TAPE,ACE,30000x20mm(PC=40x20mm),ROHS LP1			200
40	N/A	506380001800R	TAPE,WRAPPING TYPE,48mmx50M ROHS LE1915			4.8
41	N/A	506390000500R	LABEL,QC-PASS, LE1709			100
42	N/A	506390000600R	LABEL,HI-POT PASS, LE1709			100
43	N/A	506390500100R	LABEL,ENERGY STAR, LE1709			100
44	N/A	506430300002R	FILM,PET,L155xW35xT0.05mm, LE1734			100
45	N/A	506431000300R	FILM,PE 500mmx900M ROHS			0.05
46	N/A	506431002900R	FILM,PROTECTION,UNPRINTED,330x260x0.1mm,			100
47	N/A	506440002300R	LABEL,BLANK,76.2x76.2mm,LE1709(UPC)			100
48	N/A	506440002400R	LABEL,BLANK,50x25mm,LE1709(S/N)			100
49	N/A	506440002600R	LABEL,BLANK,210x65mm,LE1709(PALLET)			100
50	N/A	506440003000R	LABEL,BLANK,35x8mm, LE1709 ROHS			200
51	N/A	506449000100R	LABEL,Φ8mm,BLACK, LE1709			20
52	HW-00005270	509000000700R	BOLT,#4-40x11.8,Ni FOR D-SUB/DVI CONN.RO			200
53	N/A	509112306100R	SCREW,P,CROSS,T.T-3*6,Zn			200
54	N/A	509116608100R	SCREW,P,CROSS,M4*8,Zn,ROHS			400
55	HW-00005269	509146305300R	SCREW,PW,CROSS,W/WAS,M3*5,NI			1,000.00
56	N/A	509212612100R	SCREW,F,CROSS,T.T-4*12,Zn			300
57	N/A	511150101810R	FOIL,AL.,DOUBLE COND.,60x45xT0.07mm, LE1			200
58	E-00006742	631102050390R	LCD PANEL 15" MT150XN03-V0,AM15000050			100
59	N/A	631102050400R	LCD PANEL 15" MT150XN03-V0,AM15000050			0
60	N/A	631102050410R	LCD PANEL 15" MT150XN03-V0,AM15000050			0
61	A-00006743	7030000002210R	KIT,ACCESSORY,VA503B-INL(V0), LE1534			100
62	PL-00006744	7140100005900R	ASSY,STAND,GRAY, LE1534			100
63	C-00006745	7140200005900R	ASSY,BASE,GRAY, LE1534			0
64	C-00006746	7140300005900R	ASSY,BEZEL,GRAY,W/O SPK, LE1534			100
65	C-00006746	7140300005900R	ASSY,BEZEL,GRAY,W/O SPK, LE1534			0
66	C-00006747	7140500005900R	ASSY,BACK COVER,GRAY, LE1534			100
67	N/A	7140768600000R	ASSY,FINAL(G,V0/G1&2&3),W/O SPK,LE1534-6			100
68	N/A	7140868600000R	ASSY,PANEL(V0/G1&2&3),W/O SPK,LE1534-6E0			100
69	B-00006748	7906313006100R	PCBA,I/F BOARD(V0),W/O SPK,LE1534-6E0			100
70	B-00006750	7906315000000R	PCBA,KEYPAD BOARD, LE1534			100

BOM LIST (VA503M-2)

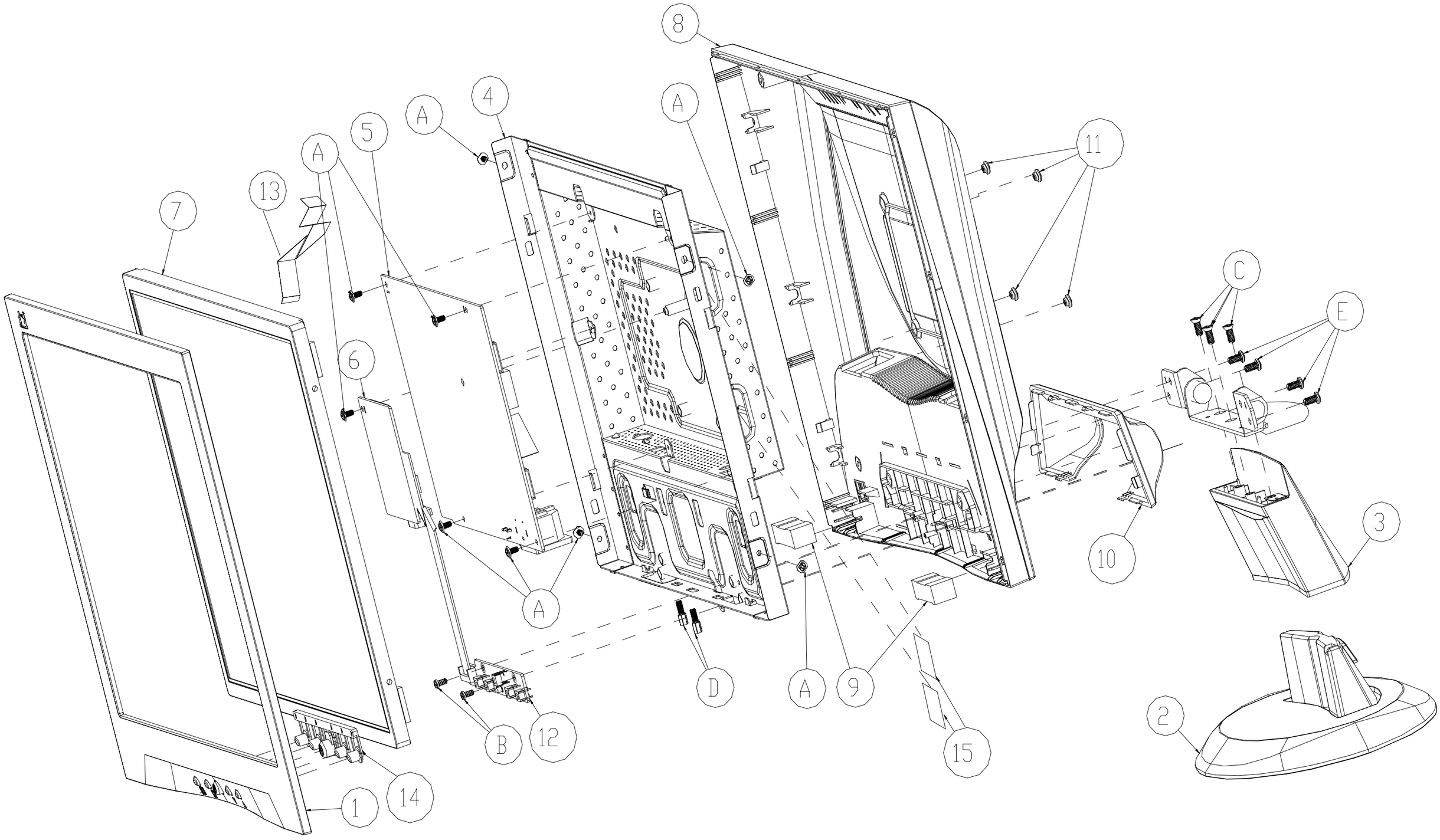
ViewSonic Model Number: VS11357

Rev: 1a

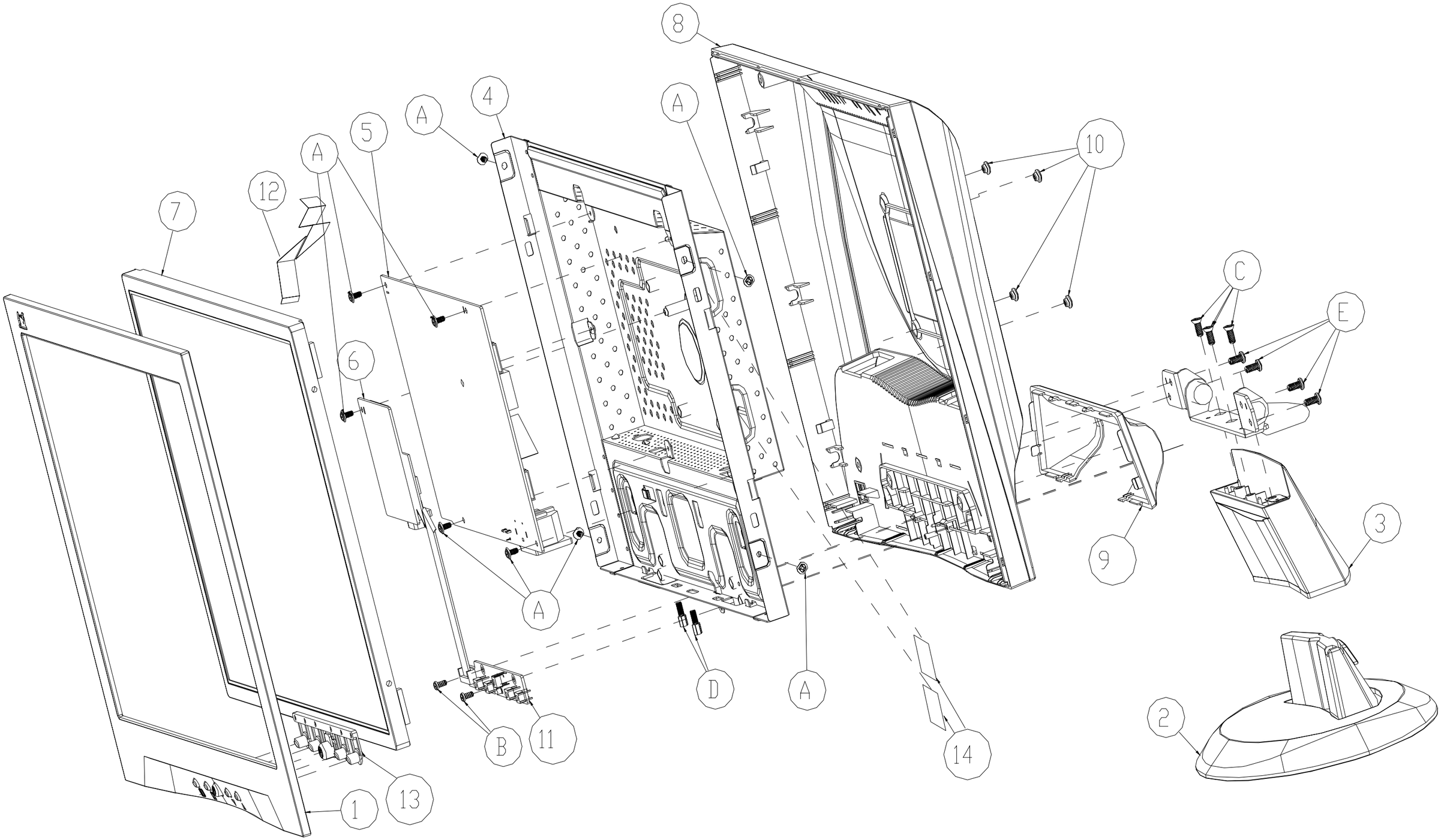
Serial No. Prefix: QAD

Item	ViewSonic P/N	Ref. P/N	Description	Location	Universal number#	Q'ty
1	B-00006750	790631500000R	PCBA,KEYPAD BOARD, LE1534			100
2	B-00008005	790631400600R	PCBA,P/I BOARD(V0),W/SPK, LE1534-6E0			100
3	B-00008004	790631300600R	PCBA,I/F BOARD(V0),W/SPK,LE1534-6E0			100
4	N/A	714086860100R	ASSY,PANEL(V0/G1&2&3),W/SPK,LE1534-6E0			100
5	N/A	714076860100R	ASSY,FINAL(S,V0/G1&2&3),W/SPK,LE1534-6E0			100
6	C-00008013	714050005910R	ASSY,BACK COVER,BLACK, LE1534			100
7	C-00008015	714030005910R	ASSY,BEZEL,SILVER,W/SPK, LE1534			100
8	C-00008014	714020005910R	ASSY,BASE,BLACK, LE1534			100
9	PL-00008003	714010005910R	ASSY,STAND,BLACK, LE1534			100
10	A-00008005	703000002200R	KIT,ACCESSORY,VA503M-INL(V0), LE1534			100
11	N/A	631102050410R	LCD PANEL 15" MT150XN03-V0-G3,AM15000050			0
12	N/A	631102050400R	LCD PANEL 15" MT150XN03-V0-G2,AM15000050			0
13	E-00006742	631102050390R	LCD PANEL 15" MT150XN03-V0-G1,AM15000050			100
14	N/A	618100100020R	SPEAKER 1W 16Ω 260mm,R/B/G,W/CASE,PB25K			100
15	N/A	511150101810R	FOIL,AL.,DOUBLE COND.,60x45xT0.07mm, LE1			200
16	N/A	509212612100R	SCREW,F,CROSS,T.T-4*12,Zn			300
17	HW-00005269	509146305300R	SCREW,PW,CROSS,W/WAS,M3*5,NI			1,000.00
18	N/A	509116608100R	SCREW,P,CROSS,M4*8,Zn,ROHS			400
19	N/A	509112306100R	SCREW,P,CROSS,T.T-3*6,Zn			200
20	HW-00005270	509000000700R	BOLT,#4-40x11.8,Ni FOR D-SUB/DVI CONN.RO			200
21	N/A	506449000100R	LABEL,Φ8mm,BLACK, LE1709			20
22	N/A	506440003000R	LABEL,BLANK,35x8mm, LE1709 ROHS			200
23	N/A	506440002600R	LABEL,BLANK,210x65mm,LE1709(PALLET)			100
24	N/A	506440002400R	LABEL,BLANK,50x25mm,LE1709(S/N)			100
25	N/A	506430300002R	FILM,PET,L155xW35xT0.05mm, LE1734			100
26	N/A	506390500100R	LABEL,ENERGY STAR, LE1709			100
27	N/A	506390000600R	LABEL,HI-POT PASS, LE1709			100
28	N/A	506390000500R	LABEL,QC-PASS, LE1709			100
29	N/A	506380001800R	TAPE,WRAPPING TYPE,48mmx50M ROHS LE1915			4.8
30	N/A	506380001700R	TAPE,ACE,30000x20mm(PC=40x20mm),ROHS LP1			200
31	N/A	506380001200R	TAPE,MYLAR,66000x20xT0.05			0.12
32	N/A	506260001600R	LABEL,WARNING, LE1X34			100
33	N/A	506250009410R	LBL,AGENCY,VA503M, LE1534			100
34	N/A	506150006700R	PALLET,L1128xW836xH120mm,LE1534			1.25
35	P-00008008	506120300410R	BAG,PE+EPE,L490xW450xT0.33mm, LE1506			100
36	P-00005273	506120004500R	BAG,PLASTIC,L690xW(455+145)xT0.05mm, LE1			100
37	P-00006741	506120002510R	BAG,PLASTIC,W220xL280xT0.05mm,CYCLE PRIN			100
38	N/A	506102000400R	LOGO PLATE,VIEWSONIC, LE1709(THREE BIRDS			100
39	N/A	506092001400R	CARD,WARRANTY, LE1709			100
40	N/A	506091000500R	LABEL,WARRANTY, LE1709			100
41	P-00006739	506040009010R	CUSHION,EPS-R, LE1534			100
42	P-00006738	506040009000R	CUSHION,EPS-L, LE1534			100
43	N/A	506039002500R	CORNER PAPER,760x50x50mm,LE1504			5
44	N/A	506039000900R	CORNER PAPER,1900x50x50mm,LE1701			5
45	N/A	506038001420R	CARDBOARD,L1120xW830xT7mm, LE1534			1.25
46	N/A	506030200200R	CARD,AFTER SERVICE, LE1709,L130xW80			100
47	P-00008009	506020010800R	CARTON,VIEWSONIC(VA503M), LE1534			100
48	N/A	505040503500R	INSULATOR,PC,71x169x0.6mm, LE1534			100
49	N/A	505040503100R	INSULATOR,PP,22x20x12X0.3mm,GLUE(3M), LE			200
50	N/A	503040000310R	RUBBER,COVER(B), LE1534			400
51	N/A	503020002700R	RUBBER,FOOT,L14.8*W9.6*T3.5mm,ROHS LE171			600
52	N/A	502170301500R	PLATE,BASE, LE1534			100
53	N/A	502110400300R	SPRING SHEET, LE1534			100
54	N/A	502090303510R	CHASSIS,W/SPK, LE1534			100
55	N/A	502060002400R	HINGE, LE1534			100
56	N/A	501260202810R	STAND,BLACK, LE1534			100
57	N/A	501240203710R	BASE,BLACK, LE1534			100
58	N/A	501030100700R	BUTTON,FUNCTION KEY, LE1534			100
59	C-00008016	501020208310R	COVER,HINGE,BLACK, LE1534			100
60	N/A	501020208210R	COVER,BACK,BLACK,W/SPK, LE1534			100
61	N/A	501010206510R	BEZEL,SILVER,W/SPK, LE1734			100
62	N/A	5010102063l0R	BEZEL,SILVER,W/SPK, LE1534			100
63	A-00006733	453070800480R	PWRCORD 7A/125V BLK 6FT CNS,VCTF 3Gx0.75			100
64	A-00006679	453070800250R	PWR CORD 10A/125V BLK 6FT UL/CSA,SVT 18x			100
65	A-00003674	453070800210R	PWR CORD 16A/250V BLK 6FT VDE,H05VV-F 3G			100
66	A-00005255	453070800170R	PWRCORD 10A/250V BLK 6FT CHINA.RVV 3Gx0.			100
67	CB-00008002	453030300120R	CABLE,AUDIO 1P 6FT BLACK/GREEN CP03B06P0			100
68	CB-00005254	453010100100R	CABLE,D-SUB 15P MALE 6FT BLACK/BLUE,SZ40			100
69	CB-00006732	430302000230R	HRN LVDS FFC 20P 208mm,RoHS			100
70	CB-00006731	430300800640R	HRN ASS'Y 8P 120mm UL2651#28,RoHS			100

8. Exploded Diagrams and Exploded Parts List (VA503m)



Exploded Diagrams and Exploded Parts List (VA503b)



EXPLODED PARTS LIST (VA503m-2)

ViewSonic Model Number: VS11357

Rev: 1a

Serial No. Prefix: QAD

Item	ViewSonic P/N	Ref. P/N	Description	Q'ty
1	C-00008015	714030005910R	ASSY,BEZEL FRONT, LE1534	1
2	C-00008014	714020005910R	ASSY,BASE, LE1534	1
3	PL-00008003	714010005910R	ASSY,STAND, LE1534	1
4	N/A	502090303510R	CHASSIS,W/ SPEAKER,LE1534 ROHS	1
5	B-00008005	790631400600R	PCBA MAIN BOARD LE1534 ROHS	1
6	B-00008004	790631300600R	INTERFACE BOARD LE1534 ROHS	1
7	N/A	631102050400R	LCD PANEL 15" MT150XN03V0 INL	1
8	N/A	501020208210R	COVER,BACK,REAR ,LE1534	1
9	N/A	618100100020R	SPEAKER R/L ,LE1534	2
10	C-00008016	501020208310R	COVER,HINGE LE1534	1
11	N/A	503040000310R	VESA RUBBER COVER(B)	4
12	B-00006750	790631500000R	FUNCTION KEY BOARD	1
13	CB-00006732	430302000230R	HRN LVDS FFC ,ROHS	1
14	N/A	501030100700R	FUNCTION KEY	1
15	N/A	506380001700R	TAPE,ACE (20*40)	2
A	N/A	509916305300R	SCREW,PW,M3*5,Zn-BKT	10
B	N/A	509112306100R	SCREW,P,T3*6mm,Zn-BLACK	4
C	HW-00005266	509212610300R	SCREW,F,CROSS,T4*10,Ni	6
D	HW-00005270	509000000700R	BOLT,#4-40x11.8,Ni	2
E	N/A	509116608100R	Screw,P Cross,M4*8mm,Zn	6

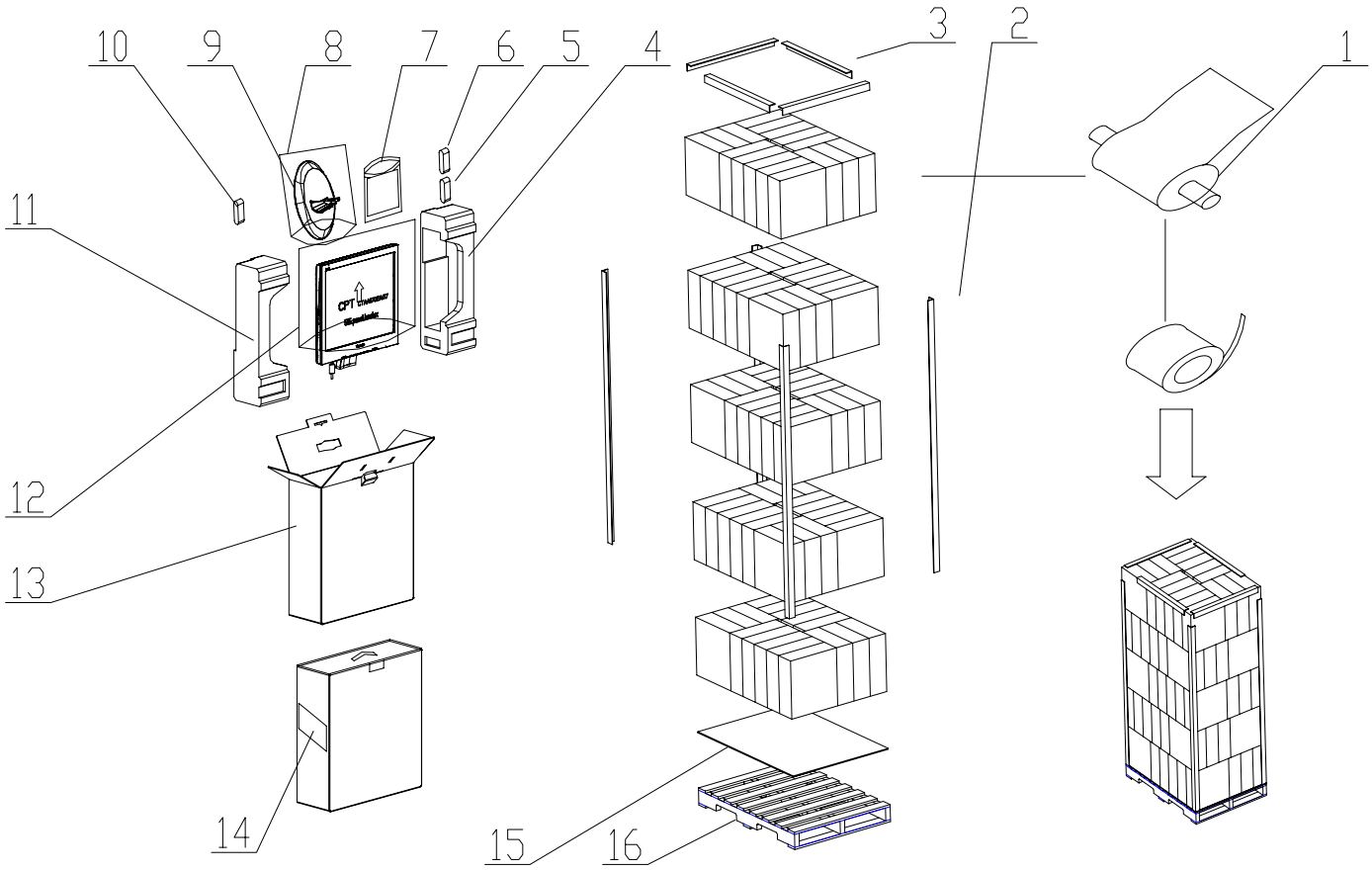
EXPLODED PARTS LIST (VA503b-2)

ViewSonic Model Number: VS11357

Rev: 1a

Serial No. Prefix: QAE

Item	ViewSonic P/N	Ref. P/N	Description	Q'ty
1	C-00006746	714030005900R	ASSY,BEZEL FRONT, LE1534	1
2	C-00006745	714020005900R	ASSY,BASE, LE1534	1
3	PL-00006744	714010005900R	ASSY,STAND, LE1534	1
4	N/A	502090303500R	CHASSIS,W/O Speaker,LE1534 ROHS	1
5	B-00006749	790631400610R	PCBA MAIN BOARD LE1534 ROHS	1
6	B-00006748	790631300610R	INTERFACE BOARD LE1534 ROHS	1
7	N/A	631102050400R	LCD PANEL 15" MT150XN03V0 INL	1
8	C-00006735	501020208200R	COVER,BACK,REAR ,LE1534	1
9	C-00008016	501020208310R	COVER,HINGE LE1534	1
10	N/A	503040000300R	VESA RUBBER COVER	4
11	B-00006750	790631500000R	FUNCTION KEY BOARD	1
12	CB-00006732	430302000230R	HRN LVDS FFC ,ROHS	1
13	N/A	501030100700R	FUNCTION KEY	1
14	N/A	506380001700R	TAPE,ACE (20*40)	2
A	N/A	509916305300R	SCREW,PW,M3*5,Zn-BKT	10
B	N/A	509112306100R	SCREW,P,T3*6mm,Zn-BLACK	4
C	HW-00005266	509212610300R	SCREW,F,CROSS,T4*10,Ni	6
D	HW-00005270	509000000700R	BOLT,#4-40x11.8,Ni	2
E	N/A	509116608100R	Screw,P Cross,M4*8mm,Zn	6

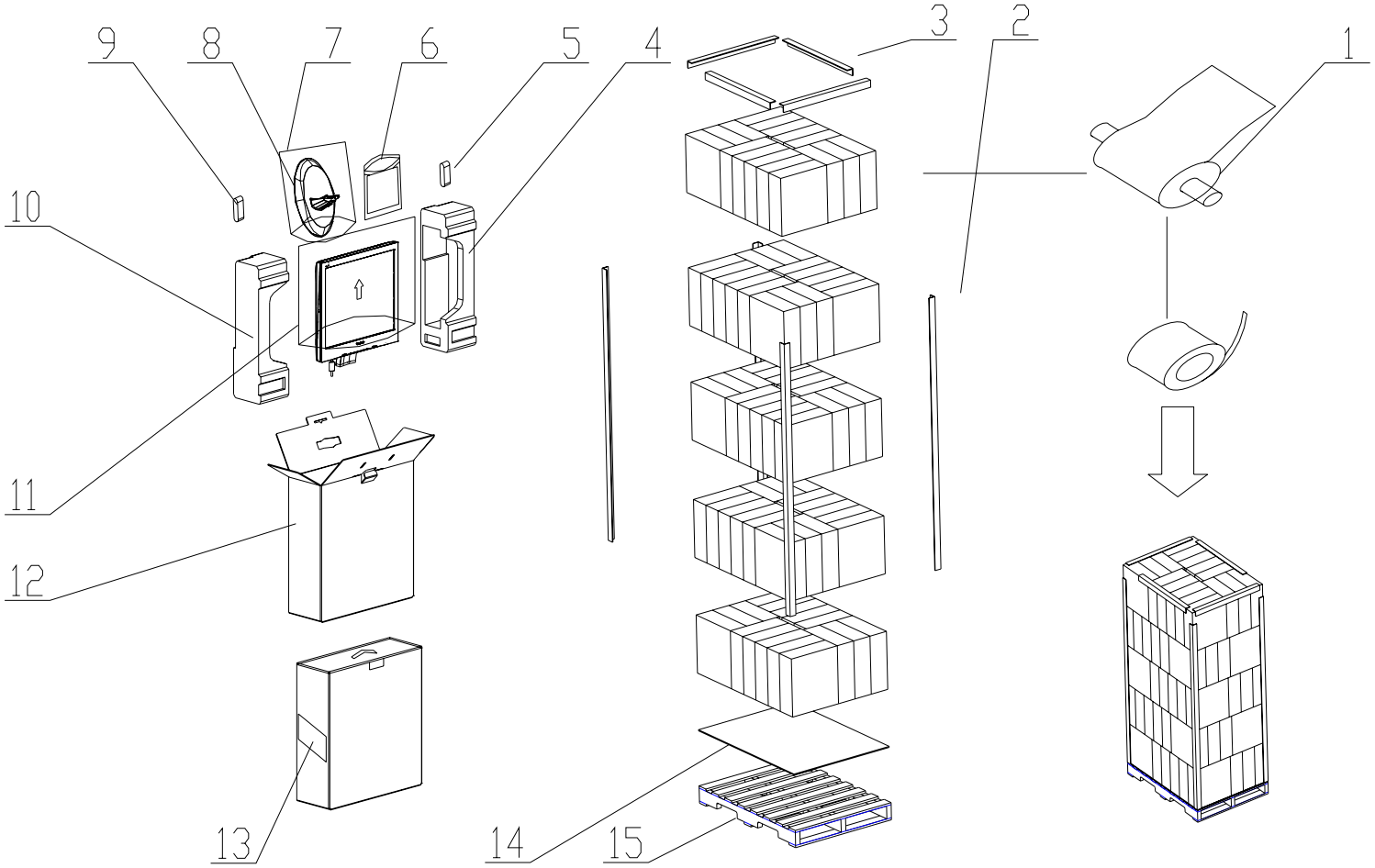


PACKING PART LIST (VA503m-2)

ViewSonic Model Number: VS11357

Rev: 1a

Item	ViewSonic P/N	Ref. P/N	Location	Q'ty
1	N/A	506431000300R	FILM,PE 500mmx900M ROHS	1/64
2	N/A	506039000900R	CORNER PAPER,1900x50x50mm ROHS	4/80
3	N/A	506039002500R	CORNER PAPER,760x50x50mm ROHS	4/80
4	P-00006739	506040009010R	CUSHION,EPS-R, LE1534	1
5	CB-00008002	453030300120R	CABLE,AUDIO 1P 6FT BLACK/GREEN CP03B06P0	1
6	CB-00005254	453010100100R	CABLE,D-SUB 15P MALE 6FT BLACK/BLUE,SZ40	1
7	A-00008005	703000002200R	KIT,SERVICE PACK,VA503M-INL(V0),LE1534	1
8	P-00006741	506120002510R	BAG,PLASTIC,W220xL280xT0.05mm,CYCLE PRIN	1
9	C-00008014	714020005910R	ASSY,BASE,BLACK, LE1534	1
10	A-00006733	453070800480R	PWR CORD,7A/125V,BLK 6FT CNS,VCTF 3Gx0.75	1
11	P-00006738	506040009000R	CUSHION,EPS-L, LE1534	1
12	P-00008008	506120300410R	BAG,PE+EPE,L490xW450xT0.33mm, LE1506	1
13	P-00008009	506020010800R	CARTON,VIEWSONIC(VA503M), LE1534	1
14	N/A	506440002300R	CARTON LABEL,LE1709	1
15	N/A	506038001420R	CARDBOARD,L1120xW830xT7mm, LE1534	1
16	N/A	506150006700R	PALLET,L1128xW836xH120mm,LE1534	1



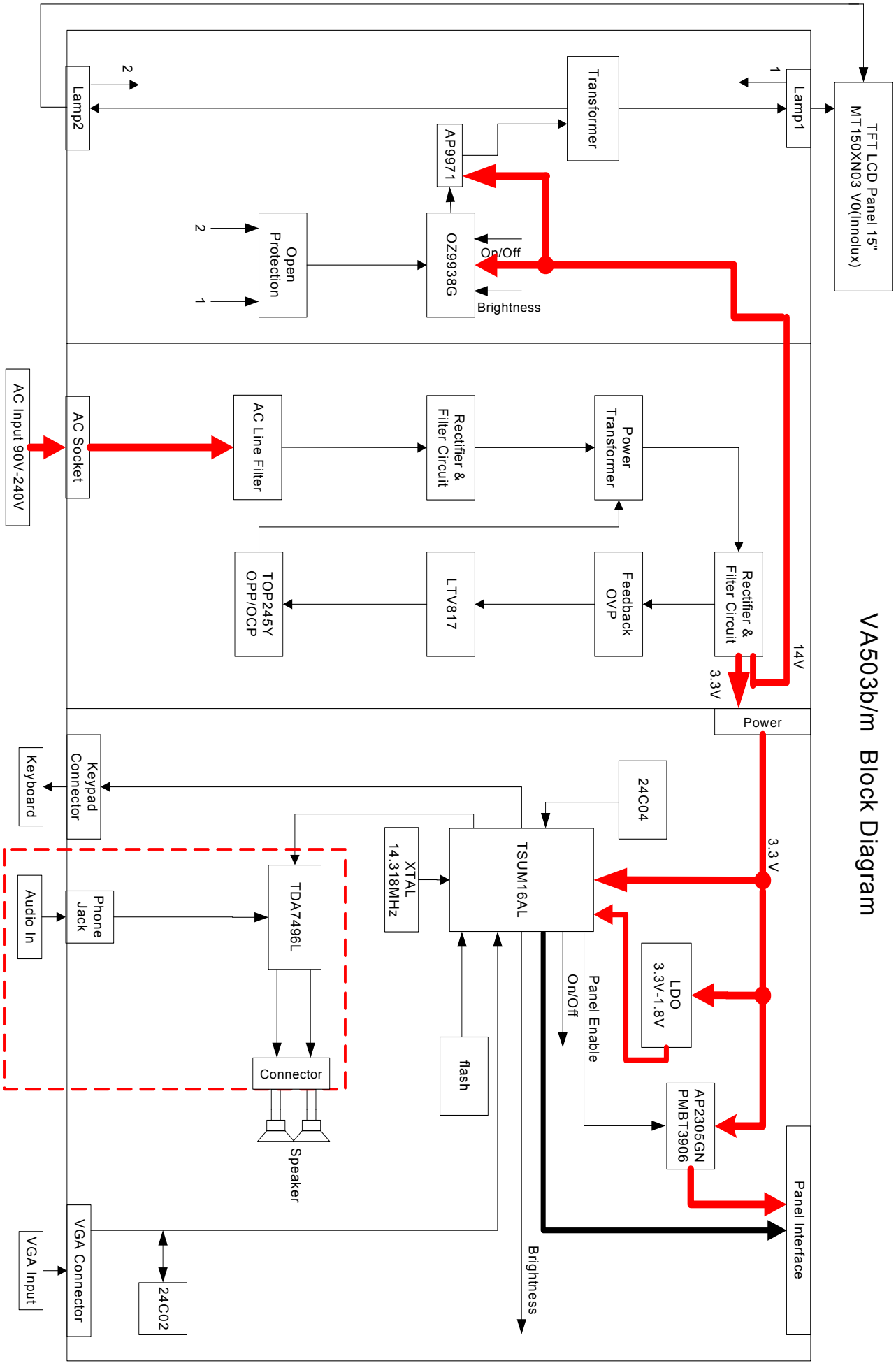
PACKING PART LIST (VA503b-2)

ViewSonic Model Number: VS11357

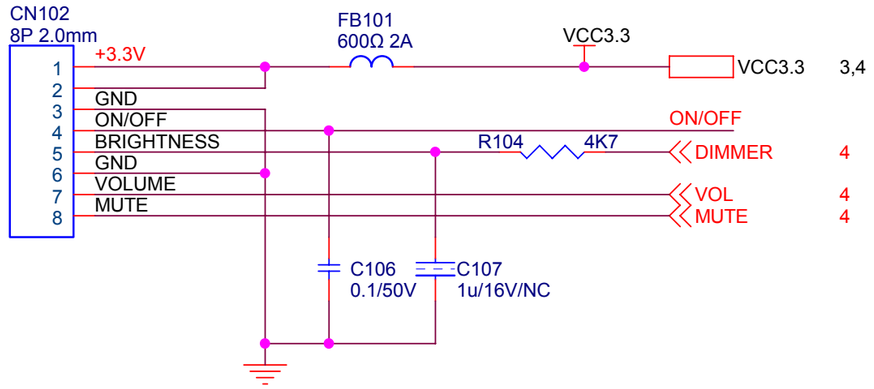
Rev: 1a

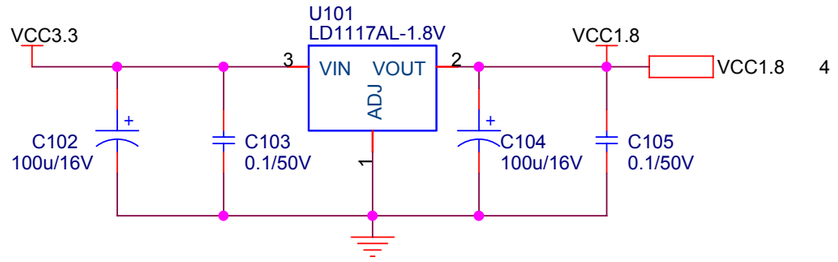
Item	ViewSonic P/N	Ref. P/N	Location	Q'ty
1	N/A	506431000300R	FILM,PE 500mmx900M ROHS	1/64
2	N/A	506039000900R	CORNER PAPER,1900x50x50mm ROHS	4/80
3	N/A	506039002500R	CORNER PAPER,760x50x50mm ROHS	4/80
4	P-00006739	506040009010R	CUSHION,EPS-R, LE1534	1
5	CB-00005254	453010100100R	CABLE,D-SUB 15P MALE 6FT BLACK/BLUE,SZ40	1
6	A-00006743	703000002210R	KIT,SERVICE PACK,VA503B-INL(V0),LE1534	1
7	P-00006741	506120002510R	BAG,PLASTIC,W220xL280xT0.05mm,CYCLE PRIN	1
8	C-00006745	714020005900R	ASSY,BASE,GRAY, LE1534	1
9	A-00006733	453070800480R	PWR CORD,7A/125V,BLK 6FT CNS,VCTF 3Gx0.75	1
10	P-00006738	506040009000R	CUSHION,EPS-L, LE1534	1
11	P-00008008	506120300410R	BAG,PE+EPE,L490xW450xT0.33mm, LE1506	1
12	P-00006737	506020010810R	CARTON,VIEWSONIC(VA503B), LE1534	1
13	N/A	506440002300R	CARTON LABEL,LE1709	1
14	N/A	506038001420R	CARDBOARD,L1120xW830xT7mm, LE1534	1
15	N/A	506150006700R	PALLET,L1128xW836xH120mm,LE1534	1

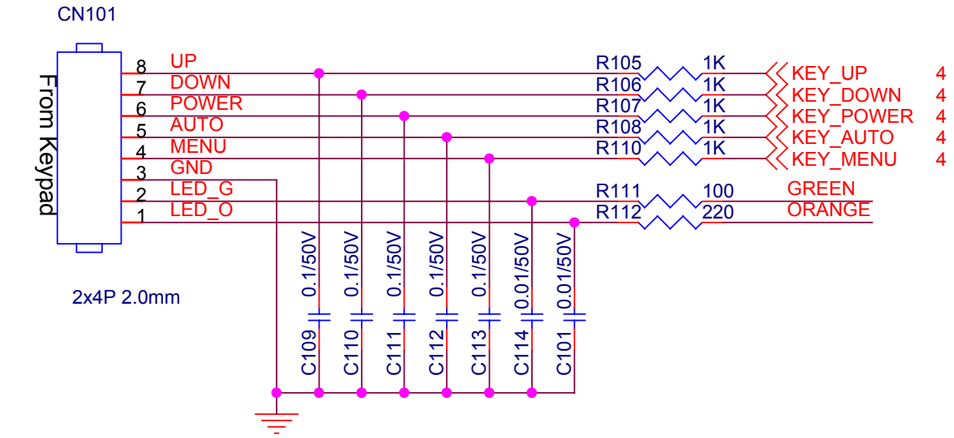
9. Block Diagram

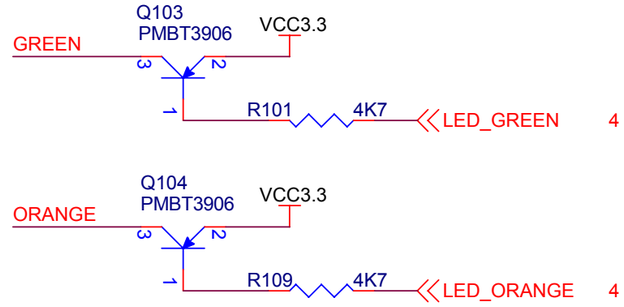


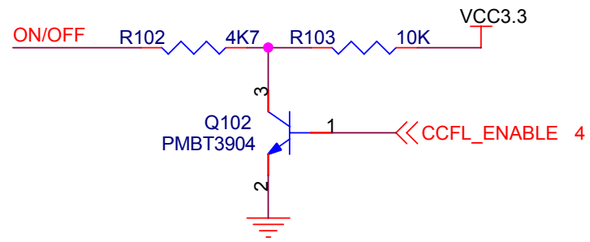
10. Schematic Diagrams

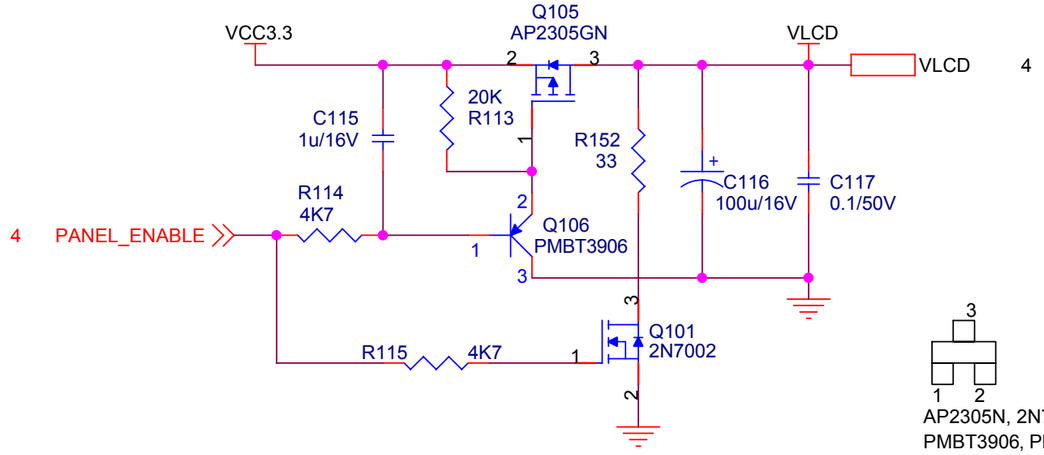






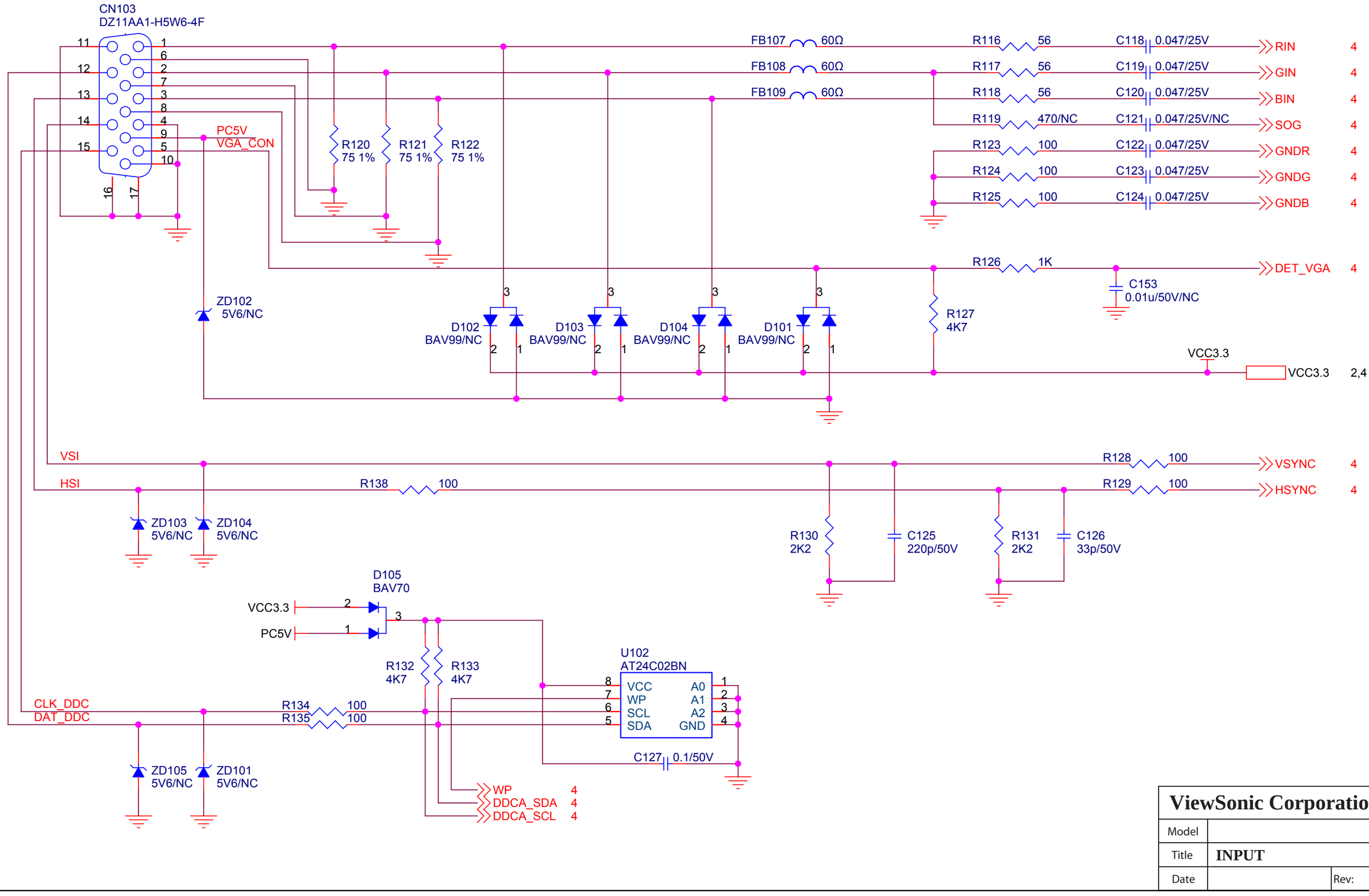






AP2305N, 2N7002,
PMBT3906, PMBT3904
pins define

ViewSonic Corporation		
Model		
Title	DC to DC	
Date		Rev:

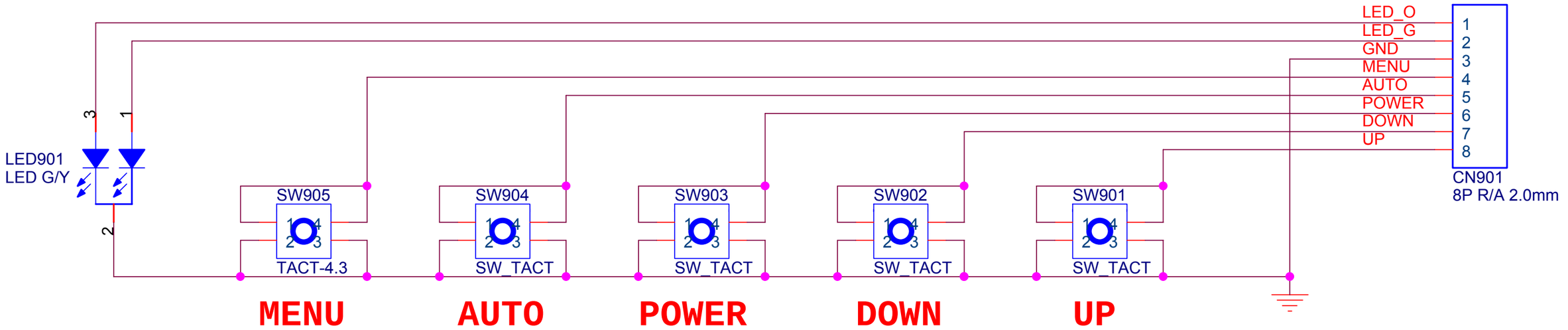


ViewSonic Corporation		
Model		
Title	INPUT	
Date		Rev:

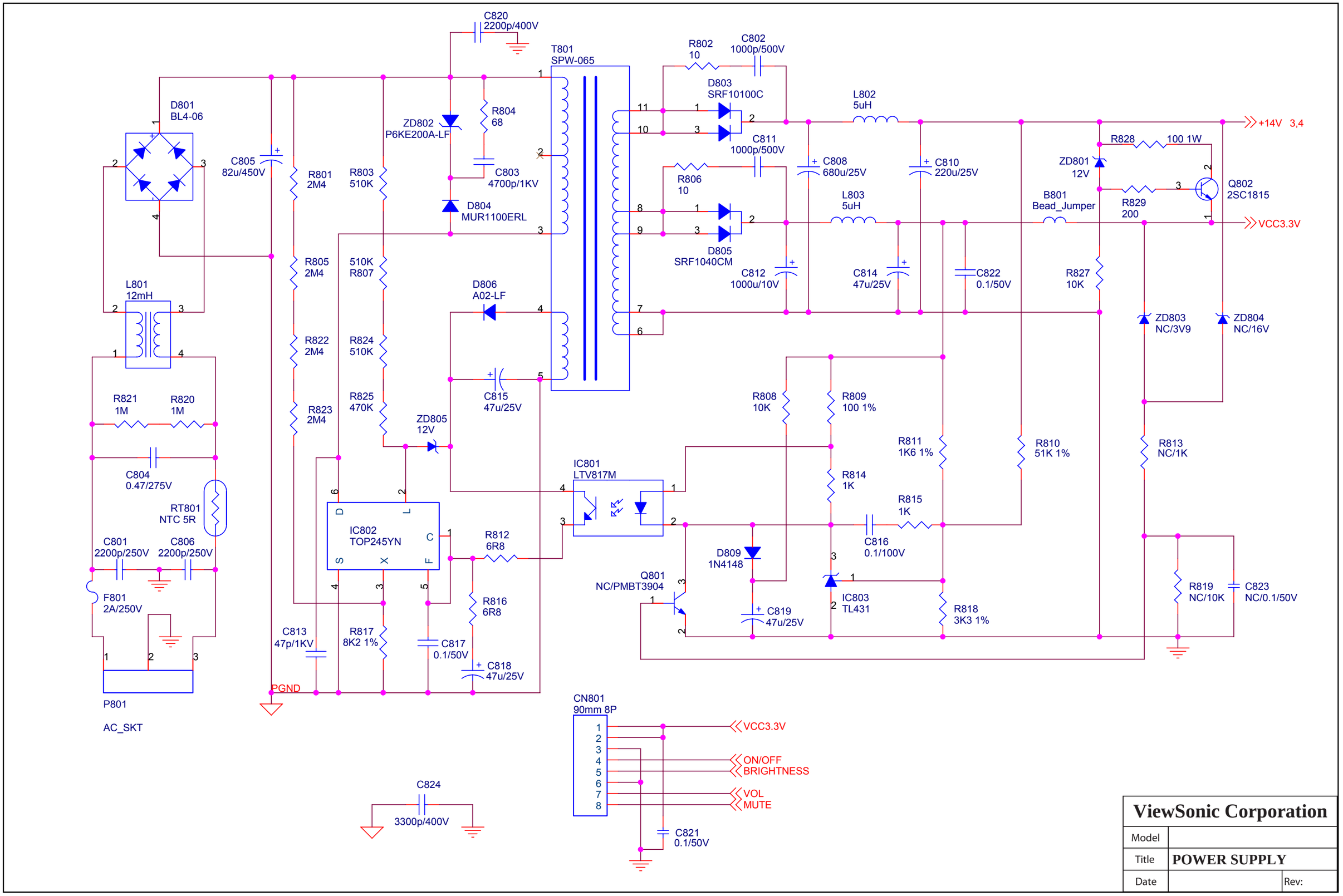
TSUM16AL

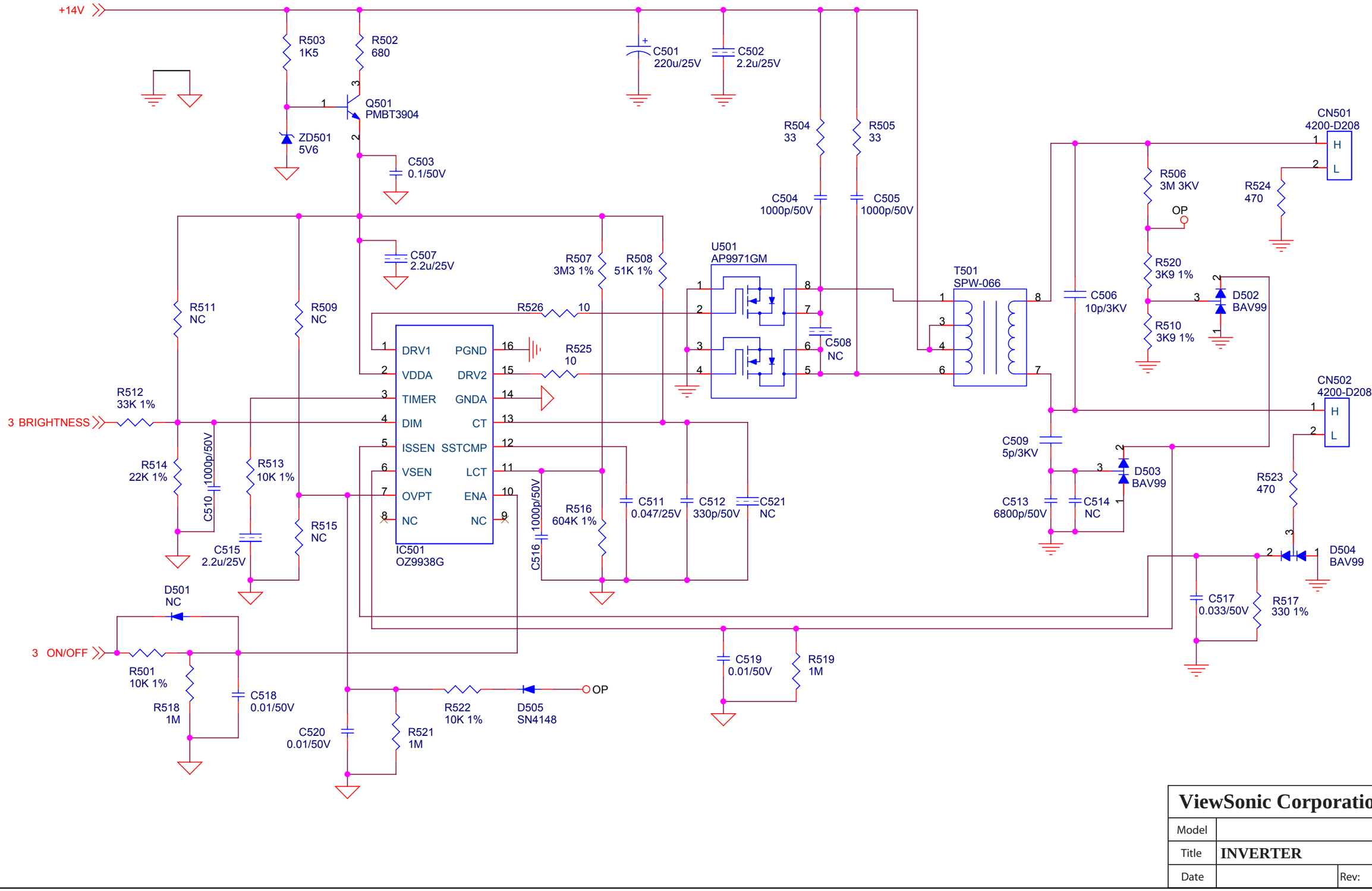
ViewSonic Corporation

Model	
Title	SCALER
Date	Rev:



ViewSonic Corporation		
Model		
Title	KEYPAD	
Date		Rev:

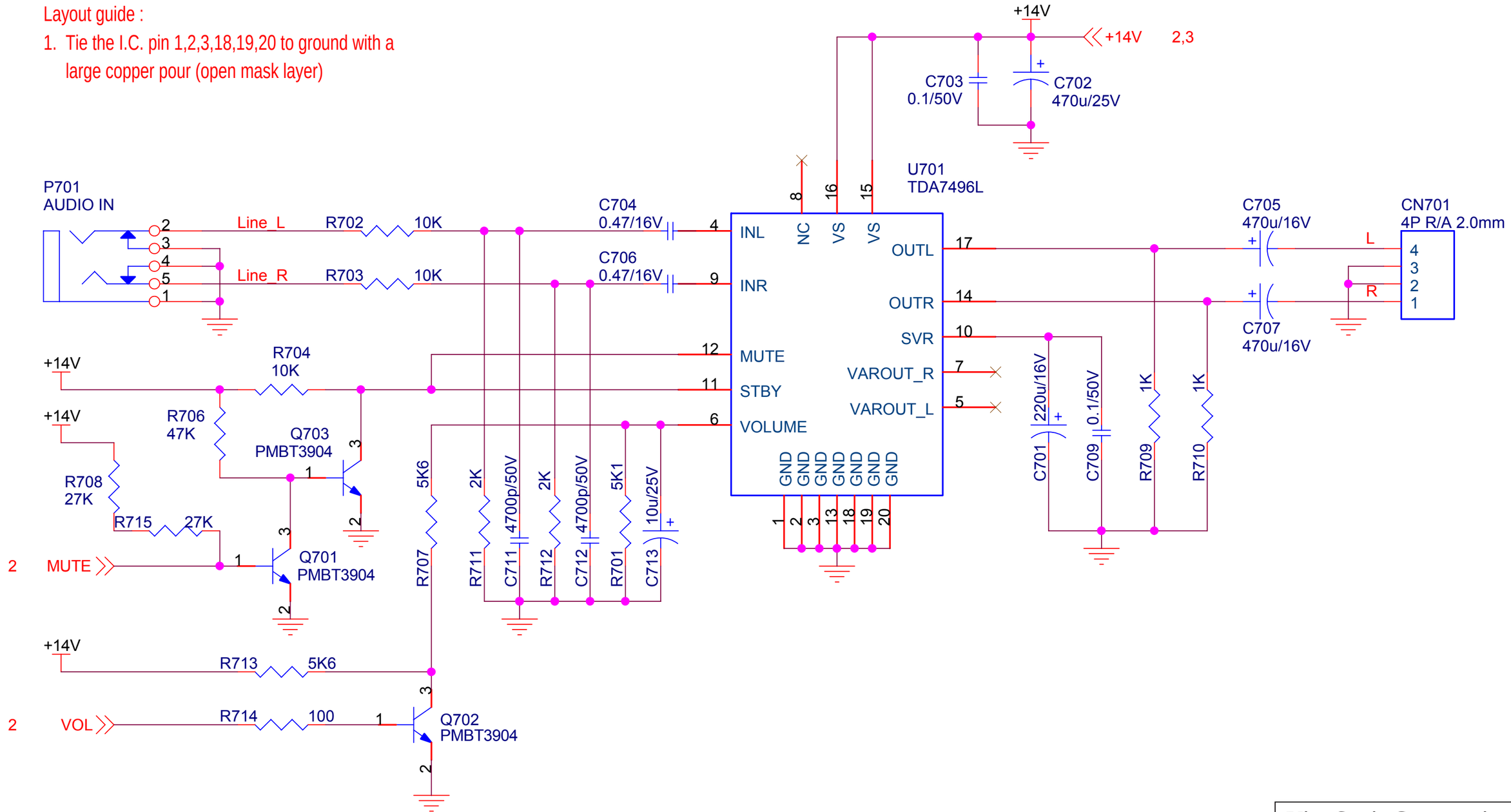

C820
2200p/400V
T801
SPW-065
R802
10
C802
1000p/500V
D803
SRF10100C
L802
5uH
D801
BL4-06
ZD802
P6KE200A-LF
R804
68
C805
82u/450V
R801
2M4
R803
510K
C803
4700p/1KV
D804
MUR1100ERL
C811
1000p/500V
R806
10
C808
680u/25V
C810
220u/25V
+14V 3,4
R828
100 1W
ZD801
12V
Q802
2SC1815
B801
Bead_Jumper
R829
200
VCC3.3V
L803
5uH
D805
SRF1040CM
C812
1000u/10V
C814
47u/25V
C822
0.1/50V
R827
10K
L801
12mH
R805
2M4
510K
R807
D806
A02-LF
R822
2M4
R824
510K
C815
47u/25V
ZD803
NC/3V9
ZD804
NC/16V
R821
1M
R820
1M
R825
470K
R823
2M4
ZD805
12V
R808
10K
R809
100 1%
R811
1K6 1%
R810
51K 1%
R813
NC/1K
C804
0.47/275V
RT801
NTC 5R
IC801
LTV817M
R814
1K
R815
1K
C801
2200p/250V
C806
2200p/250V
IC802
TOP245YN
R812
6R8
D809
1N4148
C816
0.1/100V
Q801
NC/PMBT3904
IC803
TL431
R819
NC/10K
C823
NC/0.1/50V
F801
2A/250V
R816
6R8
C819
47u/25V
R818
3K3 1%
C813
47p/1KV
R817
8K2 1%
C817
0.1/50V
C818
47u/25V
PGND
P801
AC_SKT
CN801
90mm 8P
VCC3.3V
ON/OFF
BRIGHTNESS
VOL
MUTE
C821
0.1/50V
C824
3300p/400V
ViewSonic Corporation
Model
Title
POWER SUPPLY
Date
Rev:



ViewSonic Corporation		
Model		
Title	INVERTER	
Date		Rev:

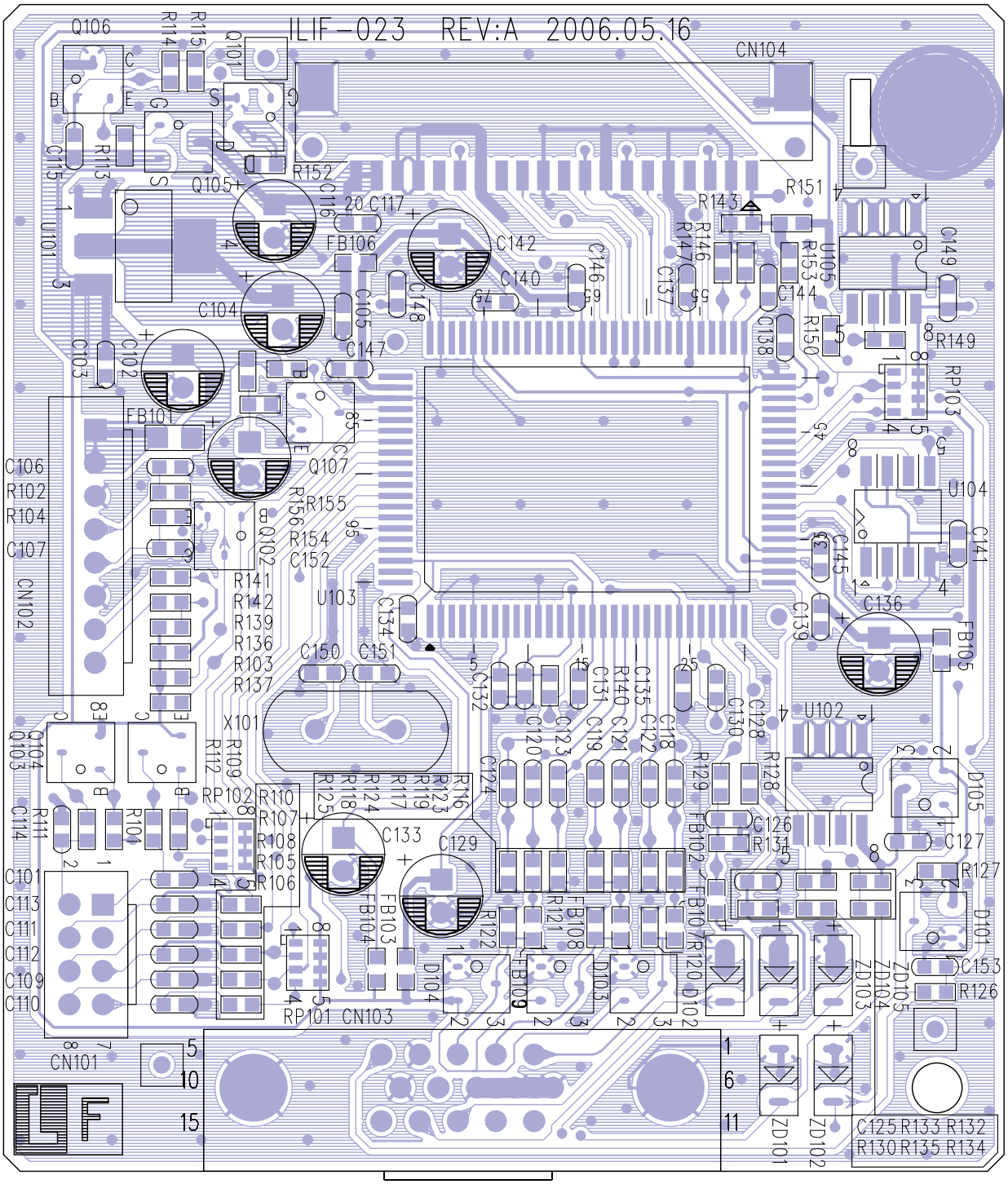
Layout guide :

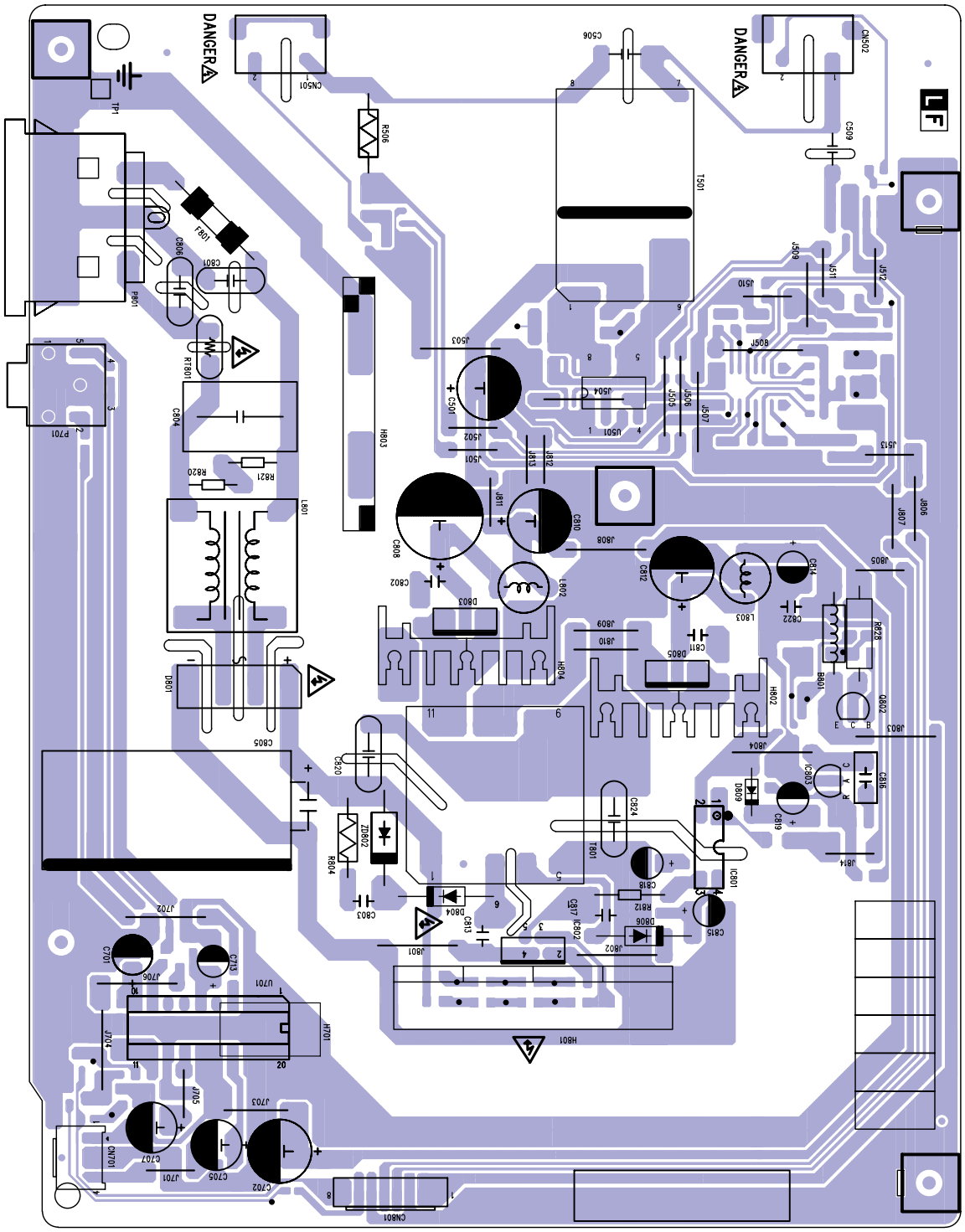
1. Tie the I.C. pin 1,2,3,18,19,20 to ground with a large copper pour (open mask layer)

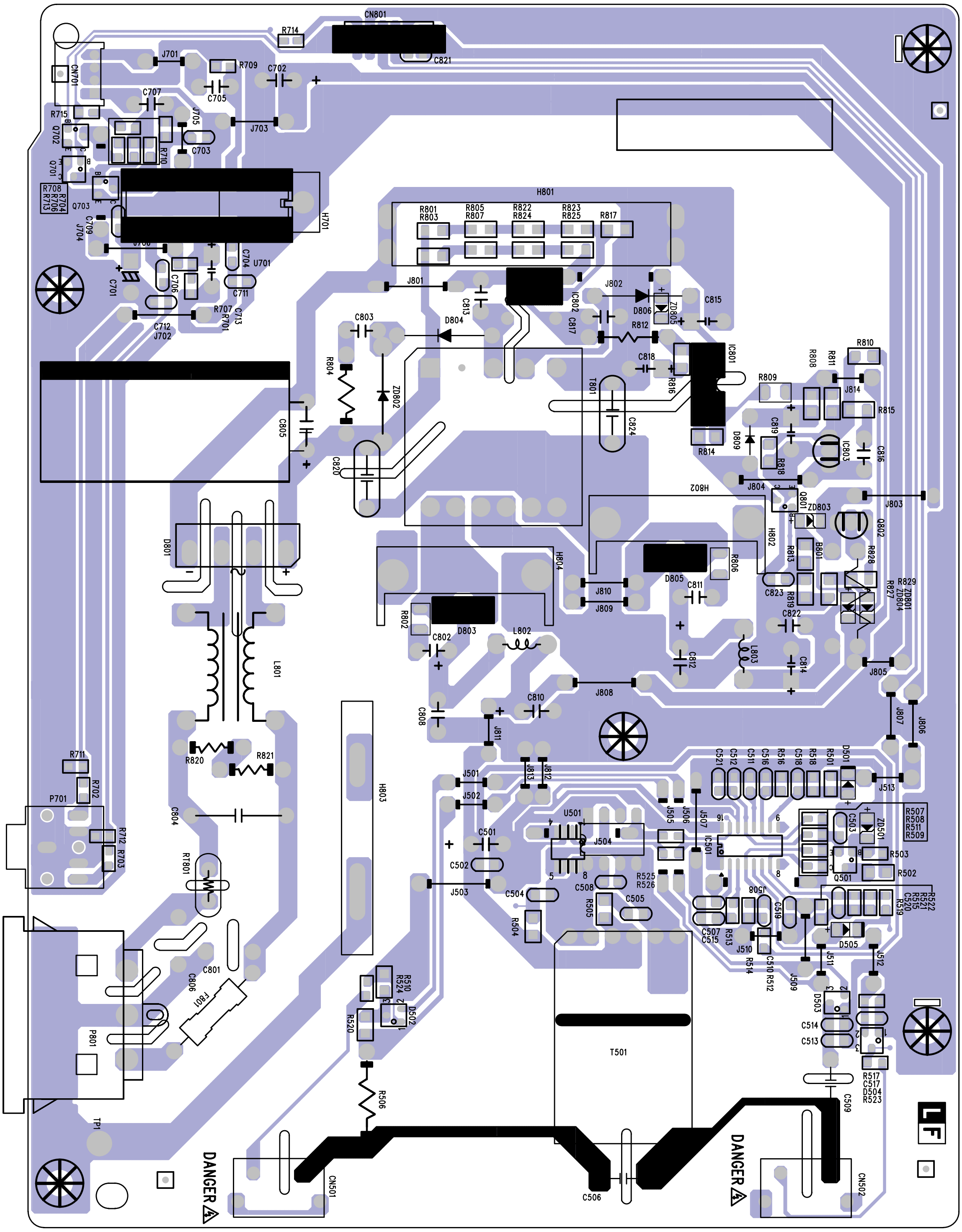


ViewSonic Corporation		
Model		
Title	TDA7496L	
Date		Rev:

11. PCB Layout Diagrams




DANGER
DANGER
LF


CN801
CN701
CN501
CN502
H801
H802
H803
H804
T801
T501
L801
L802
L803
IC801
IC802
IC803
U501
U701
D801
D803
D804
D805
F801
P701
P801
RT801
TP1
DANGER
DANGER
LF

* 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)