

Service Manual

ViewSonic VA703b-3

VA703m-3

Model No. VS11359

17" Color TFT LCD Display

(VA703b-3_VA703m-3_SM Rev. 1C Dec. 2006)

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Revision History

Revision	SM Editing Date	ECR Number	Description of Changes	Editor
1a	8/23/2006		Initial Release	Jamie Chang
1b	10/23/2006	VS-E060300	Add 2nd panel CPT CLAA170EA07Q (8ms)	Jamie Chang
1c	12/21/2006	VS-E060414	Phase in INL MT170EN01 V9 (5ms) panel as backup (updated RSPL / BOM)	Jamie Chang

TABLE OF CONTENTS

1. Precautions and Safety Notices	1
2. Specification	4
3. Front Panel Function Control Description	10
4. Circuit Description	15
5. Adjustment Procedure	24
6. Troubleshooting Flow Chart	37
7. Recommended Spare Parts List	45
8. Exploded Diagram and Exploded Parts List	49
9. Block Diagram	54
10. Schematic Diagrams	55
11. PCB Layout Diagrams	62

1. Precautions and Safety Notices

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:
<p data-bbox="108 280 783 387">Only touch the metal of the LCD panel or the front cover of the monitor. Do not touch the surface of the polarizer.</p> 	<p data-bbox="805 297 1485 369">Surface of the LCD panel is pressed by fingers and that may cause "Mura".</p> 
<p data-bbox="108 1081 576 1115">Take out the monitor with cushions.</p> 	<p data-bbox="805 1064 1485 1135">Taking out the monitor by grasping the LCD panel. That may cause "Mura".</p> 

Correct Methods:

Place the monitor on a clean and soft foam pad.



Incorrect Methods:

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

PRODUCT DEFINITION AND SPECIFICATION

Product Name	VA703b-3 / VA703m-3
Model Number	VS11359
Region	M model for America E model for Europe G model for China P model for Asia A model for Australia S model for Singapore K model for Korea U model for UK
OSD Languages	English, French, German, Italian, Spanish, Finnish, Japanese, Traditional Chinese, Simplified Chinese
TFT LCD Panel and Model #	INN, Model # :MT170EN01 V7
TFT LCD Panel and Model #	CPT Model # :CLAA170EA07Q
TFT LCD Panel and Model #	INN, Model # :MT170EN01 V9
Scalar	MST TSUM16AL
Input Signal	Analog
Sync Compatibility	Separate
Audio	1 W @ < 8 % distortion (for VA703m-3 only)
Adapter	No
Power Cable	Refer to Appendix D
Analog Cable (1.8 m, color : black), with PC 2001 and Hot Plug Detect &DDC	Yes
Audio Cable (1.8m, Color: black) with PC 2001	Yes (for VA703m-3 only)
ViewSonic CD Wizard	Arabic, English, Finnish, Spanish, German, Italian, Swedish, Polish, Korean, Portuguese, Russian, French, Simplified Chinese, Traditional Chinese, Hungary, Czech, Turkish
ViewSonic Quick Start Guide	
Screen Protector Mylar	Yes
Hi Pot label	Yes
QA pass label	Yes
Hg Warning label	Yes
Warranty Sticker	For G model only
Warranty Card	For G model only
Carton Sticker	For G model only
PE bag of Carton	For G model only

1 GENERAL specification

Test Resolution & Frequency	1280 x 1024 @ 60Hz
Test Image Size	Full Size
Contrast and Brightness Controls	Factory Default: Contrast = 70%, Brightness = 100%

2 VIDEO INTERFACE

Analog Input Connector	DB-15 (Analog), refer the appendix A
Default Input Connector	Defaults to the first detected input
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	1. 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
Sync Signals	LVDS
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 1024
Exclusions	Not compatible with interlaced video

3 POWER SUPPLY

Internal Power Supply	Part Number: ILPI-020
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	35 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 < 35 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 – 82 KHZ
Vertical Refresh Rate	50 – 85 HZ.
Maximum Pixel Clock	135 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
20	1024 x 768 @ 85Hz	Yes*3
21	1152 x 864 @ 75Hz	Yes
22	1152 x 870 @ 75Hz	Yes
23	1280 x 960 @ 60Hz	Yes
24	1280 x 960 @ 75Hz	Yes
25	1280 x 1024 @ 60Hz	Yes
26	1280 x 1024 @ 75Hz	Yes

*1. Tolerance $\geq \pm 2$ kHz.

*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.

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] [⏻] [▲] [▼]	[1] BUTTON 1 [2] Button 2 [⏻] Power [▲] 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]	Auto Image Adjust
[⏻]	Power Control, soft Power Switch
[▼] or [▲]	To immediately activate Contrast menu. It should be change to Brightness OSD by push button [2]
[▼]+ [▲]	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
[▼] + [▲] + [⏻]	Enter Factory Mode
Remark : All the short cuts function are only available while OSD off	

Main Menu Controls

<p>Auto Image Adjust</p> <p>Contrast/Brightness*¹</p> <p>Audio Adjust (for VA703m-3 only)</p> <p>Volume*³, Mute*³</p> <p>Color Adjust</p> <p>SRGB, 9300K, 6500K(default), 5400, User Color [R, G, B]</p> <p>Information [H Frequency, V Frequency, Pixel Clock, Resolution, Model Number, Serial Number, "www.ViewSonic.com"]</p> <p>Manual Image Adjust [H. Size, H./V. Position, Fine Tune, Sharpness*²</p> <p>Setup Menu</p> <p>Language [English, French, German, Italian, Spanish, Finnish, Simplified Chinese Traditional Chinese, Japanese],</p> <p>Resolution Notice, OSD Position*¹, OSD Timeout, OSD Background</p> <p>Memory Recall</p> <p>*¹ These functions can be recalled to default by [▼]+ [▲]</p> <p>*² These functions are not available under Native Resolution Mode</p> <p>*³ These functions setting can be recalled to default by [▼]+[▲] under audio mode</p> <p>[Remark] Please refer to the detail in the Appendix C</p>

Factory Defaults

Item	Defaults	Item	Defaults
Contrast	70%	Volume	50% (for VA703m 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 VA703m 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 MT170EN01 V7
Type	TN, LVDS
Active Size	337.92 mm (H) x 270.336mm (V)
Pixel Arrangement	RGB Vertical Stripe
Pixel Pitch	0.264 mm
Glass Treatment	Anti Glare (Hard coating 3H)
# of Backlights	4 CCFL edge-light
Backlight Life	50,000 Hours (Min)
Luminance –Condition: CT = 6500 K Contrast = Max, Brightness = Max	280 cd/m2 (Typ after 30 minute warm up) 250 cd/m2 (Min after 30 minute warm up)
Brightness Uniformity	80%(typ) / 75 % (min)
Contrast Ratio	600 :1 (Typ), 500 :1 (Min)
Color Depth Vertical)	16.2 million colors (6+2 bit panel)
Viewing Angle (Horizontal)	150 deg (Typ)@ CR>10 / 170 deg (Typ)@ CR>5
Viewing Angle (Vertical)	135 deg (Typ) @ CR>10 / 155 deg (Typ)@ CR>5
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.

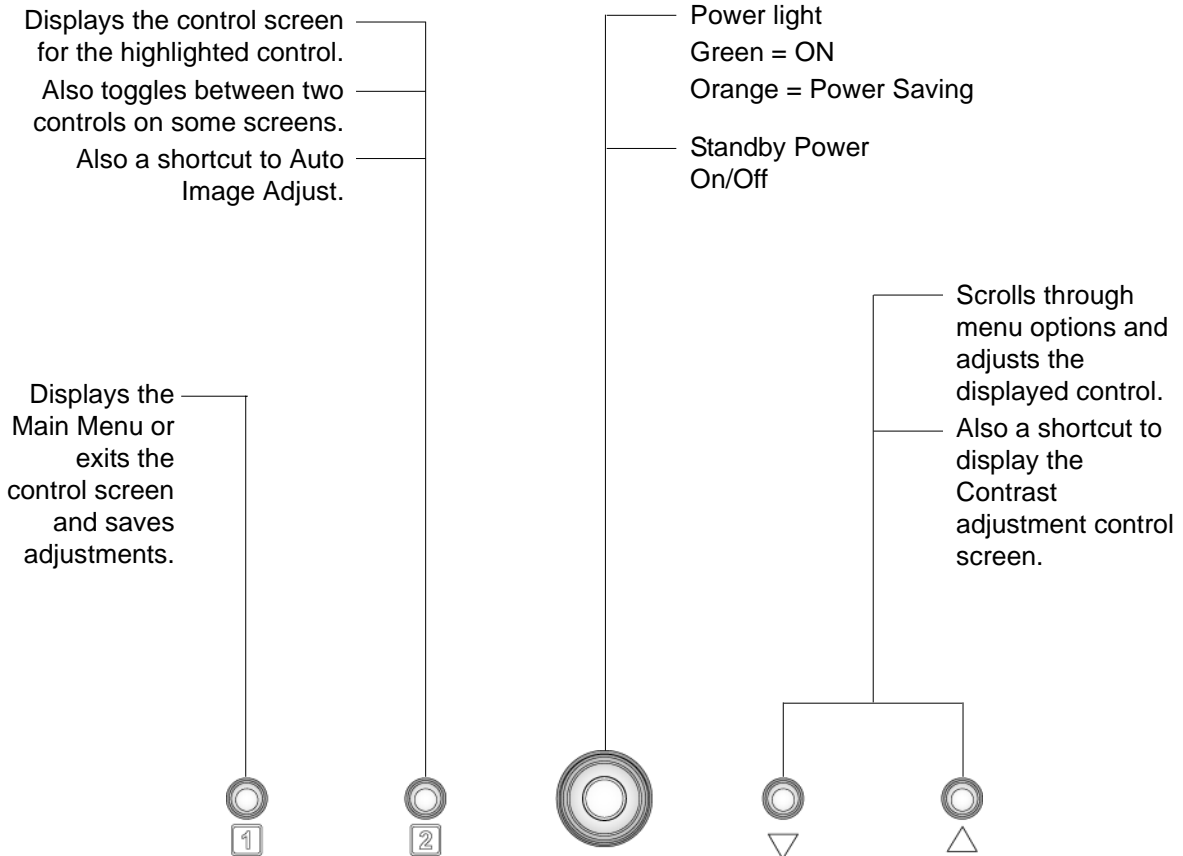
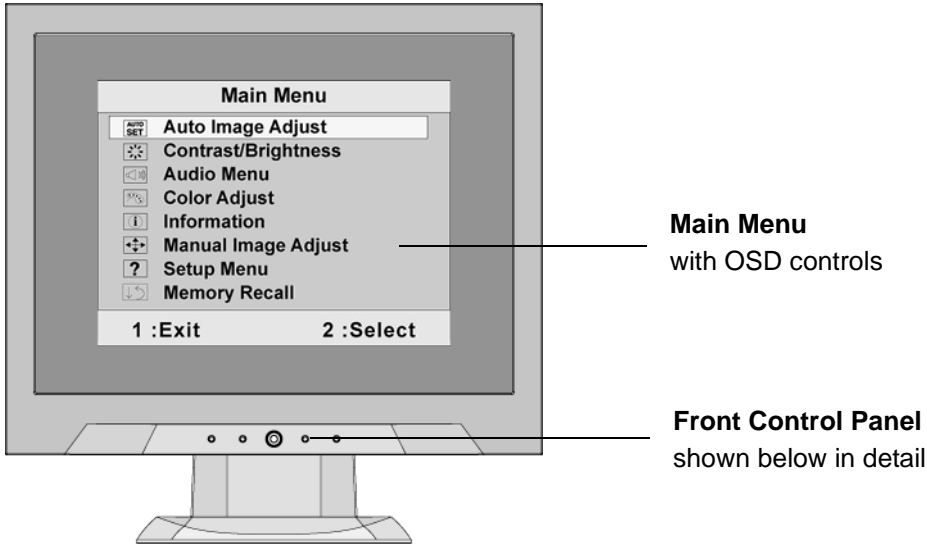
2nd Panel Source	CPT CLAA170EA07Q
Type	TN, LVDS
Active Size	337.92 mm (H) x 270.336mm (V)
Pixel Arrangement	RGB Vertical Stripe
Pixel Pitch	0.264 mm
Glass Treatment	Anti Glare (Hard coating 3H)
# of Backlights	4 CCFL edge-light
Backlight Life	40,000 Hours (Min) @7mA
Luminance –Condition: CT = 6500 K Contrast = Max, Brightness = Max	290 cd/m2 (Typ after 30 minute warm up) 250 cd/m2 (Min after 30 minute warm up)
Brightness Uniformity	72%(typ) / 70 % (min)
Contrast Ratio	500 :1 (Typ), 400 :1 (Min)
Color Depth Vertical)	16.2 million colors (6+2 bit panel)
Viewing Angle (Horizontal)	140 deg (Typ)@ CR>10 / 170 deg (Typ)@ CR>5
Viewing Angle (Vertical)	130 deg (Typ) @ CR>10 / 170 deg (Typ)@ CR>5
Response Time 10%-90% @ Ta=25°C	8 ms (Tr= 3 ms, Tf = 5 ms) (Typ) 16 ms (Tr= 6 ms, Tf = 10 ms) (max)
Panel Defects	Please see Panel Quality Specifications.

3rd Panel Source	INN MT170EN01 V9
Type	TN, LVDS
Active Size	337.92 mm (H) x 270mm (V)
Pixel Arrangement	RGB Vertical Stripe
Pixel Pitch	0.264 mm
Glass Treatment	Anti Glare (Hard coating 3H)
# of Backlights	4 CCFL edge-light
Backlight Life	50,000 Hours (Min)
Luminance –Condition: CT = 6500 K Contrast = Max, Brightness = Max	300 cd/m2 (Typ after 30 minute warm up) 250 cd/m2 (Min after 30 minute warm up)
Brightness Uniformity	80%(typ) / 75 % (min)
Contrast Ratio	800 :1 (Typ), 600 :1 (Min)
Color Depth Vertical)	16.7 million colors (6+2 bit panel)
Viewing Angle (Horizontal)	160 deg (Typ)@ CR>10 / 170 deg (Typ)@ CR>5
Viewing Angle (Vertical)	160 deg (Typ) @ CR>10 / 170 deg (Typ)@ CR>5
Response Time 10%-90% @ Ta=25°C	5 ms (Typ) / 10 ms (max)
Panel Defects	Please see Panel Quality Specifications.

3. Front Panel Function Control Description

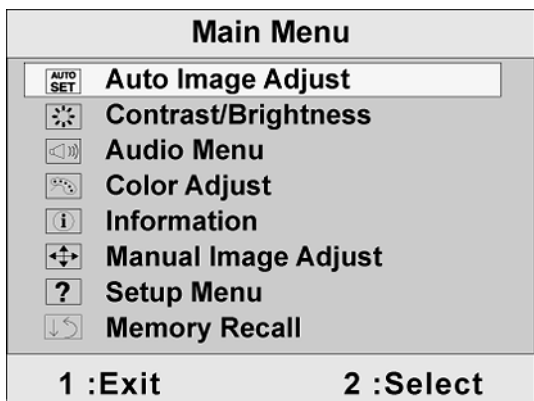
Adjusting the Screen Image

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.



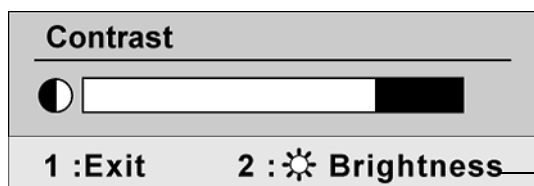
Do the following to adjust the display setting:

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*.

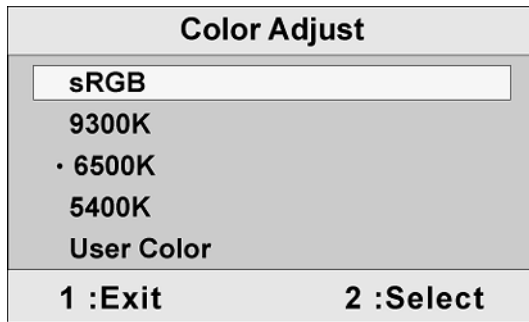
The following tips may help you optimize your display:

- Adjust the computer's graphics card so that it outputs a 1280 x 1024 @ 60Hz video signal to the LCD display. (Look for instructions on “changing the refresh rate” in the graphics card's user guide.)
- If necessary, make small adjustments using H. POSITION and V. POSITION until the screen image is completely visible. (The black border around the edge of the screen should barely touch the illuminated “active area” of the LCD display.)

Main Menu Controls

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

Control	Explanation
	<p>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.</p> <p>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.</p>
	<p>Contrast adjusts the difference between the image background (black level) and the foreground (white level).</p>
	<p>Brightness adjusts background black level of the screen image.</p>
	<p>Audio Adjust</p> <p>Volume increases the volume, decreases the volume, and mutes the audio.</p> <p>Mute temporarily silences audio output.</p>
	<p>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).</p>



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

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

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

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

User Color Individual adjustments for red (R), green (G), and blue (B).

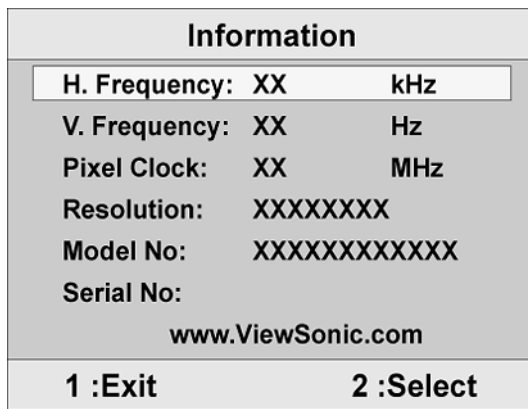
1. To select color (R, G or B) press button [2].
2. To adjust selected color, press▲and▼.

Important: If you select RECALL from the Main Menu when the product is set to a Preset Timing Mode, colors return to the 6500K factory preset.

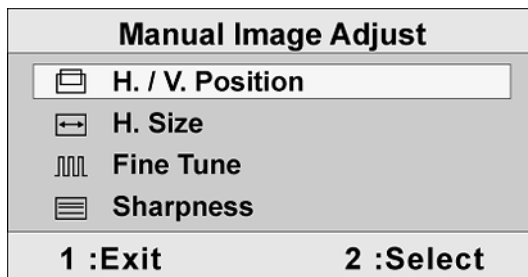


Information displays the timing mode (video signal input) coming from the graphics card in the computer, the LCD model number, the serial number, and the ViewSonic® website URL. See your graphics card’s user guide for instructions on changing the resolution and refresh rate (vertical frequency).

NOTE: VESA 1280 x 1024 @ 60Hz (recommended) means that the resolution is 1280 x 1024 and the refresh rate is 60 Hertz.

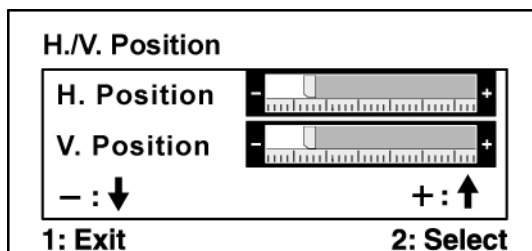


Manual Image Adjust displays the Manual Image Adjust menu.



H. 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.



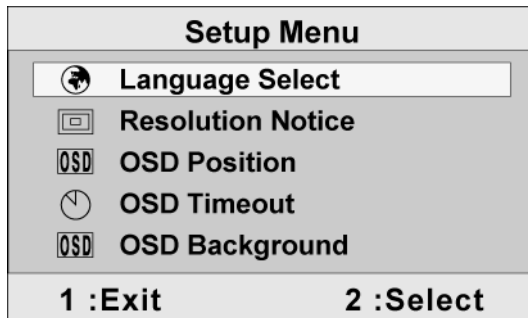
Fine Tune sharpens the focus by aligning text and/or graphics with pixel boundaries.

NOTE: Try Auto Image Adjust first.

Sharpness adjusts the clarity and focus of the screen image.

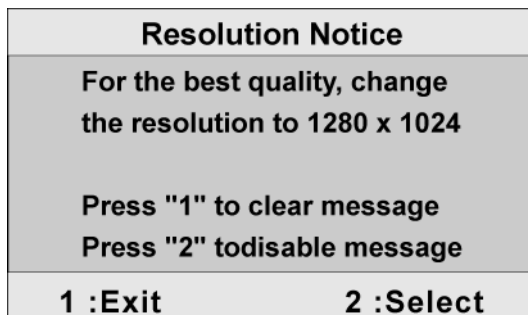


Setup Menu displays the menu shown below:



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.

4. Circuit Description

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 V_c 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

+5V is from the power board and supply for U101(LD1117AL-3.3V)、 U102(LD1117AL-1.8V)、 U105(TSUM16AL) and panel. +3.3V output is generated from +5V through C102 and C104 filtering, and U101 outputs. +3.3V is used for U105 (MCU & Scaler: TSUM16AL). +1.8V output is generated from +3.3V through C166, C105 and C106 filtering, and U102 outputs. +1.8V is only used for U105.

2.3.2 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 hardwire 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 TSUM16AL.

U104 is a flash memory, U104 # 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.

2.3.3 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.

2.3.4 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.

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)
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
	72.125	-	800	768	6	26	
VESA 1152*864@75Hz	67.500	+	1600	1152	128	256	108.000
	75.000	+	900	864	3	32	
MAC	68.681	-	1456	1152	128	144	100.000

1152*870@75Hz	75.062	-	915	870	3	39	
VESA 1280*960@60Hz	60.000	+	1800	1280	112	312	108.000
	60.000	+	1000	960	3	36	
1280*960@75Hz	75.000	+	1800	1280	112	312	130.000
	75.000	+	1000	960	3	36	
VESA 1280*1024@60Hz	63.981	+	1688	1280	112	248	108.000
	60.020	+	1066	1024	3	38	
VESA 1280*1024@75Hz	79.976	+	1688	1280	144	248	135.000
	75.025	+	1066	1024	3	38	

4. Power On/Off Sequence

4.1 Hardware Power ON

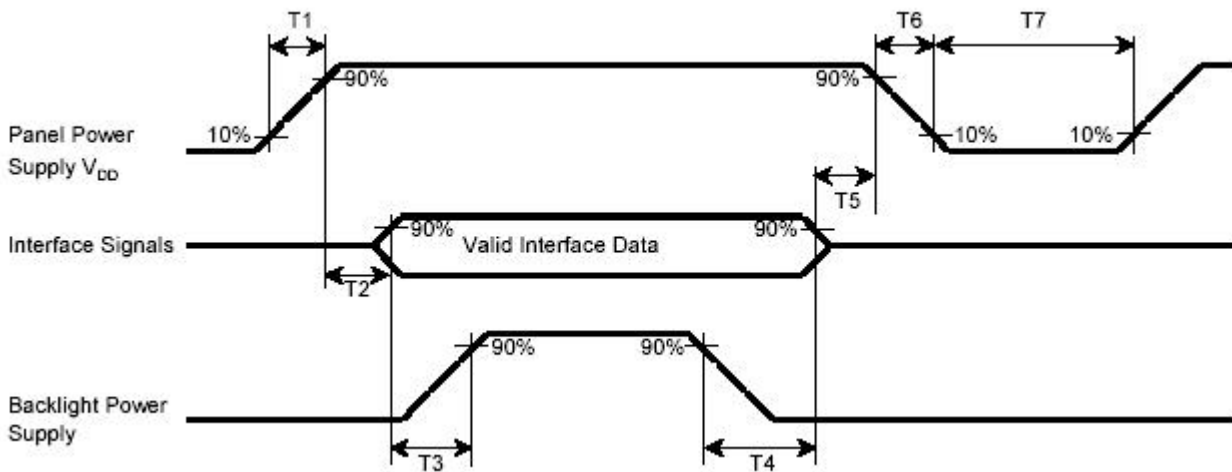
When power cord is plugged into AC socket, SMPS starts work and provides U105 with VCC5V. When VCC5V inputs, U105 resets circuit active, sets U105 all registers to preset modes, and then monitor goes into stand-by mode. That means hardware power on has been completed.

4.2 Software Power ON/OFF

When press power key, U105 # 90 receives low pulse, and then U105 will do the power on/off.

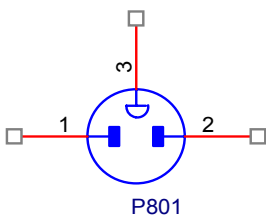
- If Power ON, U105 # 91(LED_Green) will send out Low potential, and then LED green on.
- If Power OFF, U105 # 91(LED_Green) will send out High potential, and then LED Off.

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



T1 (ms)	T2 (ms)	T3 (ms)	T4 (ms)	T5 (ms)	T6 (ms)	T7 (ms)
0.1~10	0~10	>200	>100	0~50	0.1~15	>1000

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	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 (For VA703m only)
8	MUTE	Mute control input (For VA703m 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	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)

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	GND		Ground for analog signals
15	DRV2	O	Drive output
16	PGND		Ground for power paths

7.3 U105(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	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
[▼] + [▲] + [U]	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 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
	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	-----
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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.

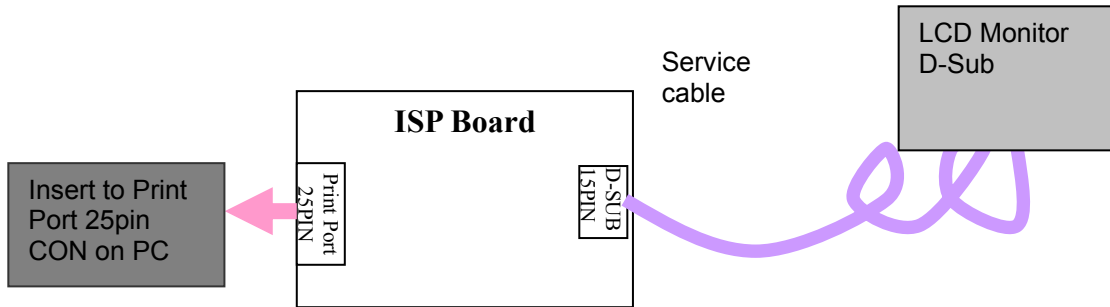
EDID (Rewrite EDID data to EEPROM)

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.

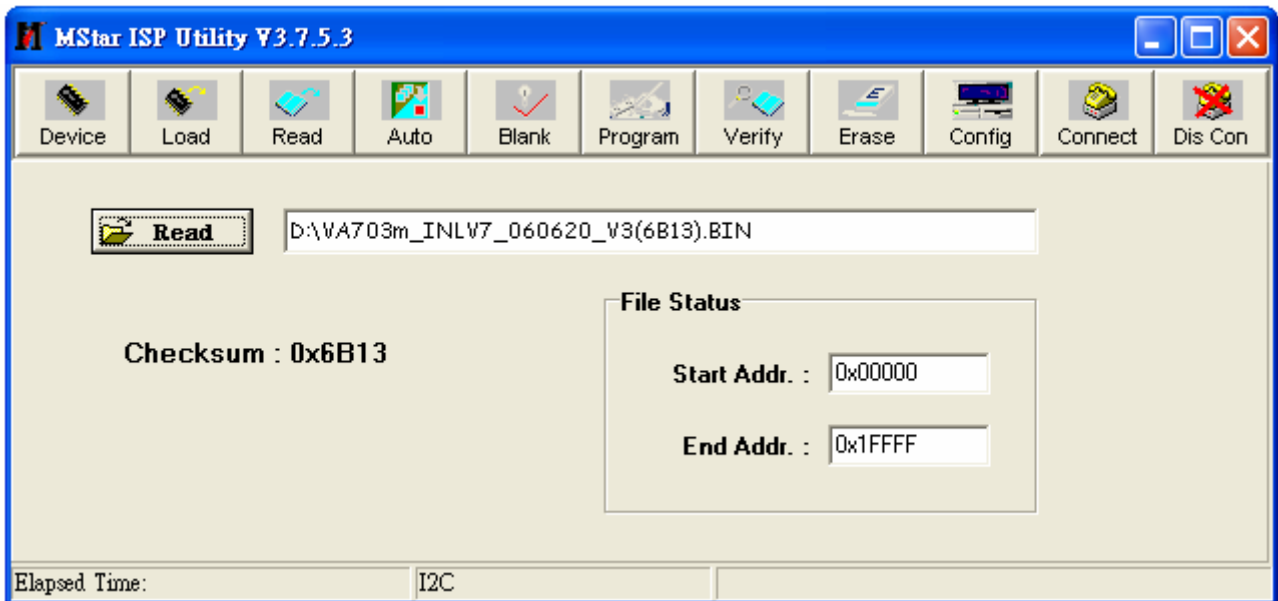
Upload firmware to MCU via VGA Cable

1. Connect ISP board between monitor and PC as below configure

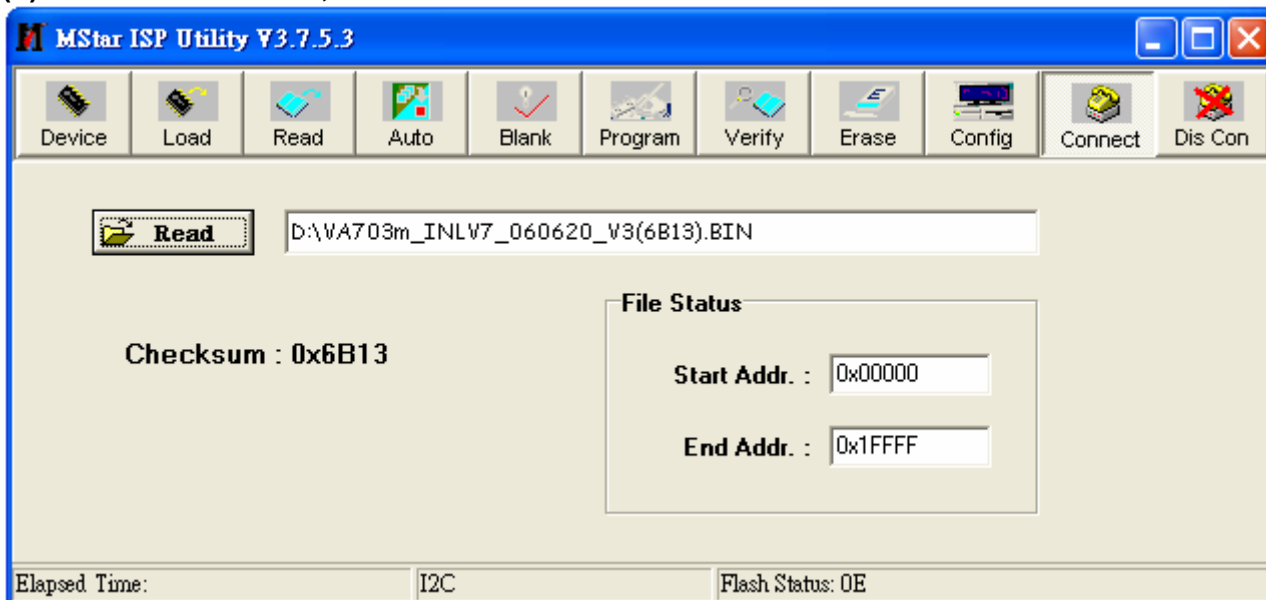


2. Using mStar ISP Tool Update FW:

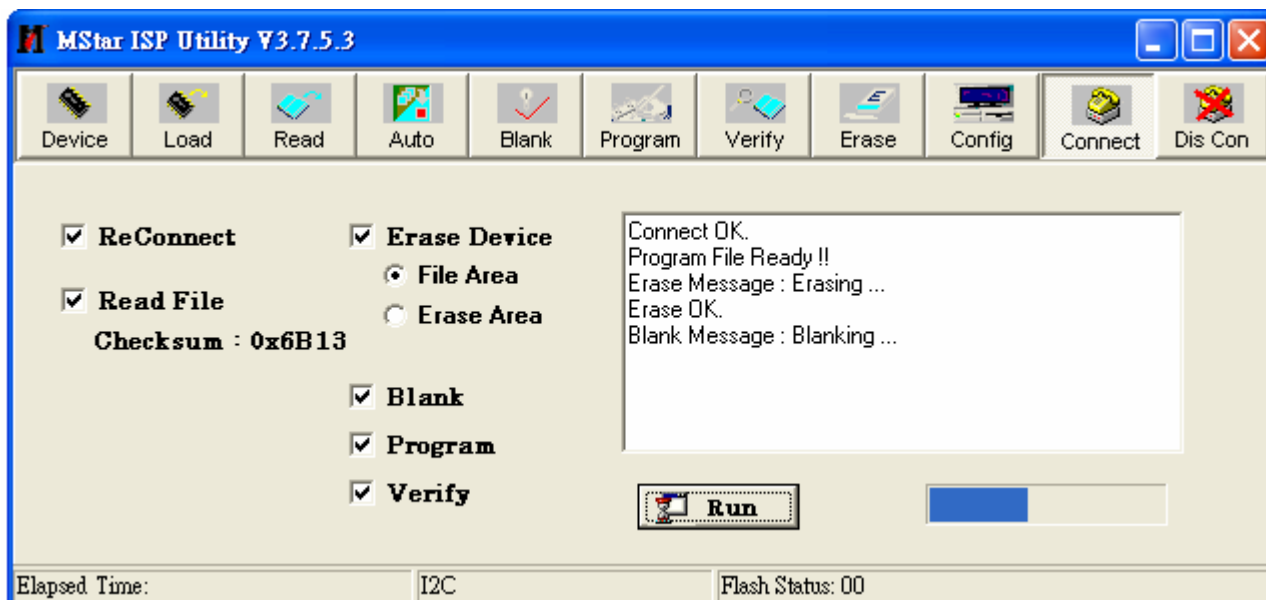
(1). Select “Read”, Choose the corresponding firmware, load to MCU.



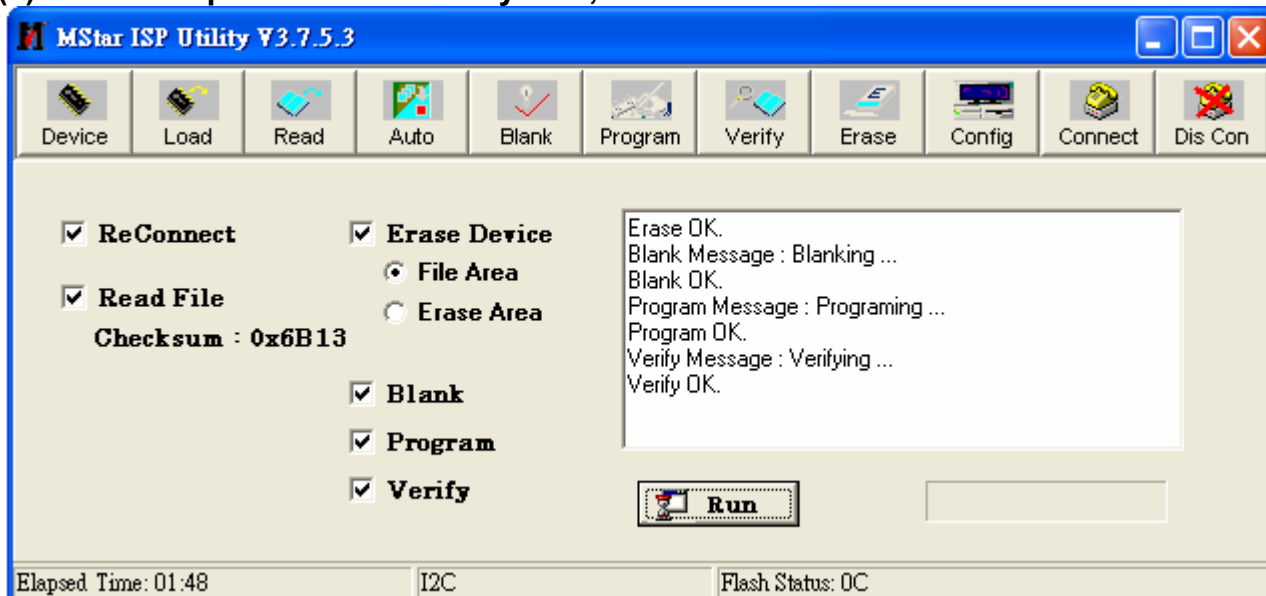
(2). Select “Connect”, auto connect for ISP.



(3). Select “Run”, start ISP.



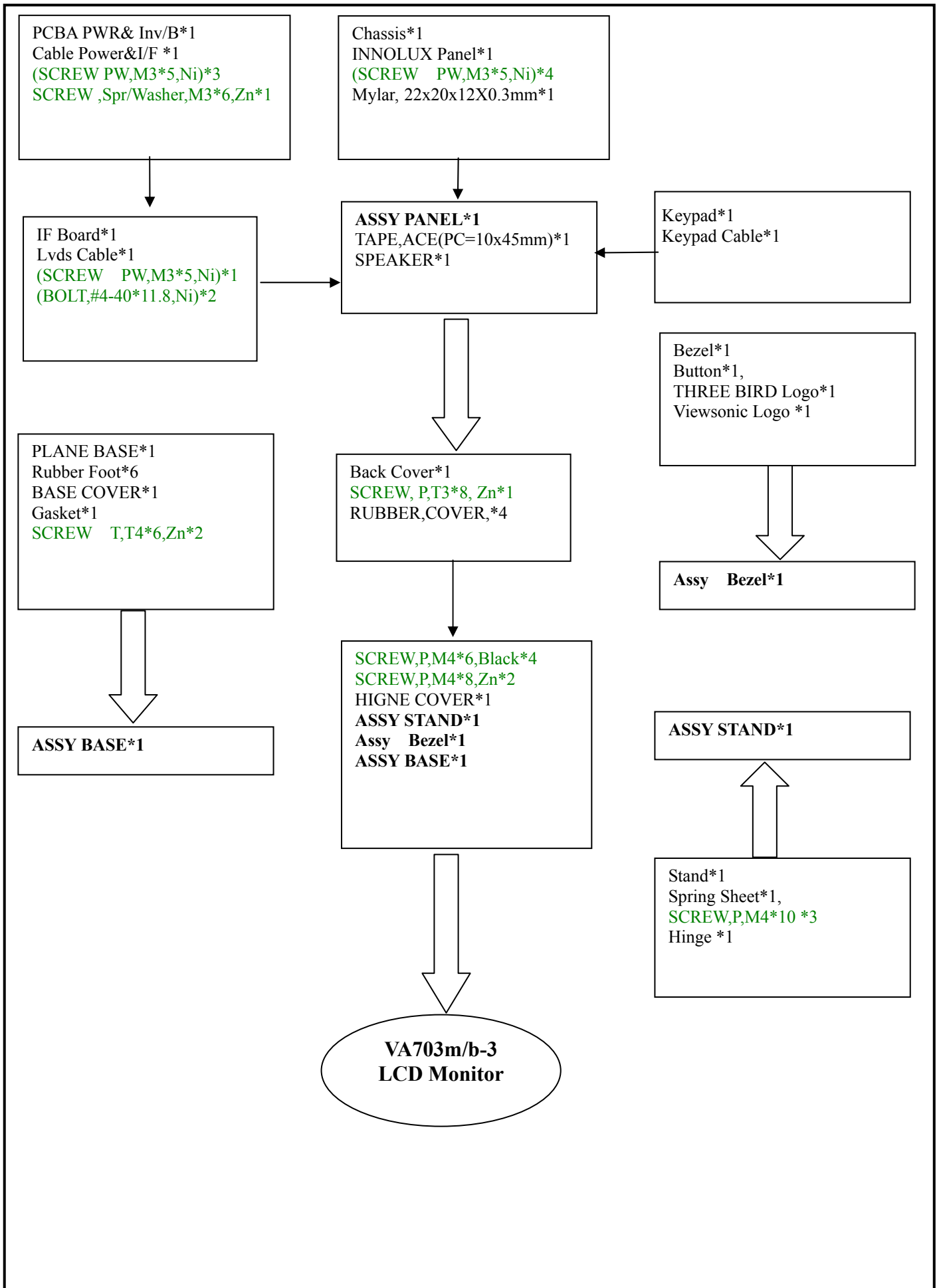
(4). When the picture show “Verify OK”, ISP finished.



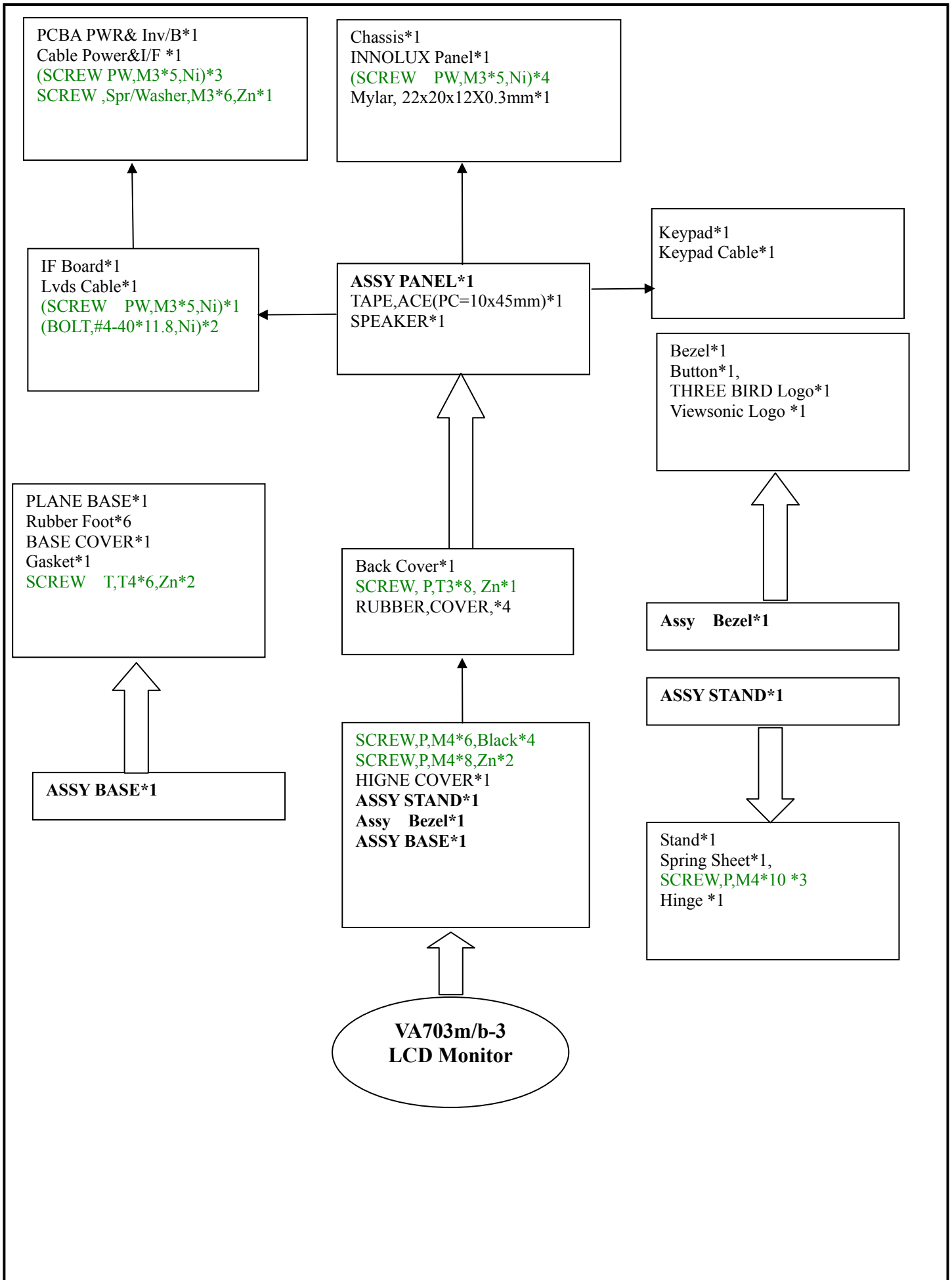
After repair, to ensure the quality you should do the following test and adjustment

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												
Color Temperature	1. Do "Auto color" at 640 x 480@60Hz, 5-Mosaic 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	Chroma Signal Generator and color analyzer												
Modes switching check	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.	Chroma Signal Generator												
Y measurement at default setting	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 $\geq 250\text{cd/m}^2$	Chroma Signal Generator and Color Analyzer												
Panel Flicker check	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.	Equipment:: Chroma Signal Generator & PC												
Power saving	1. Mode: 1280x1024@75Hz 2. Pattern: full white 3. Brightness: Max. 4. Contrast: Default 5. Check power consumption at each modes <table border="1" data-bbox="395 1451 1193 1592"> <thead> <tr> <th>State</th> <th>Power Consumption</th> <th>LED color</th> </tr> </thead> <tbody> <tr> <td>Normal</td> <td>$\leq 35\text{W}$</td> <td>Green</td> </tr> <tr> <td>Stand By</td> <td>$< 2\text{W}$</td> <td>Orange</td> </tr> <tr> <td>Power Key Off</td> <td>$< 1\text{W}$</td> <td>No</td> </tr> </tbody> </table>	State	Power Consumption	LED color	Normal	$\leq 35\text{W}$	Green	Stand By	$< 2\text{W}$	Orange	Power Key Off	$< 1\text{W}$	No	Chroma signal generator and Power meter AC input: 230V/50Hz
State	Power Consumption	LED color												
Normal	$\leq 35\text{W}$	Green												
Stand By	$< 2\text{W}$	Orange												
Power Key Off	$< 1\text{W}$	No												

Disassembly Block



Assembly 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

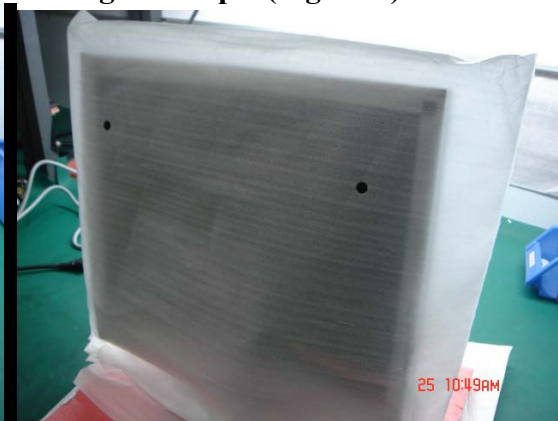


Figure 2

- 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

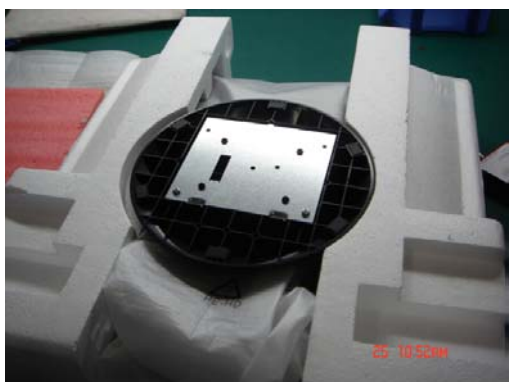
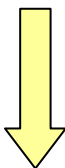
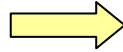
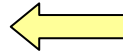
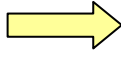


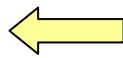
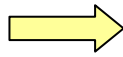
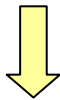
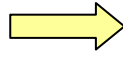
Figure 5

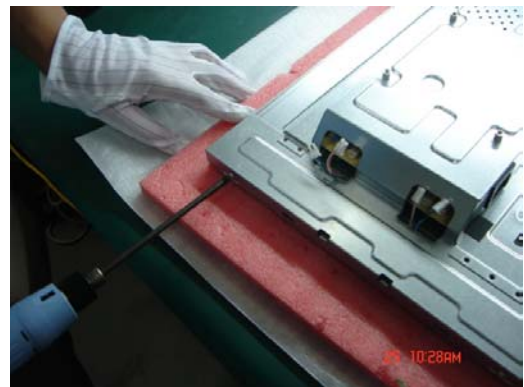
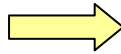
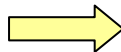
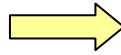


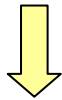
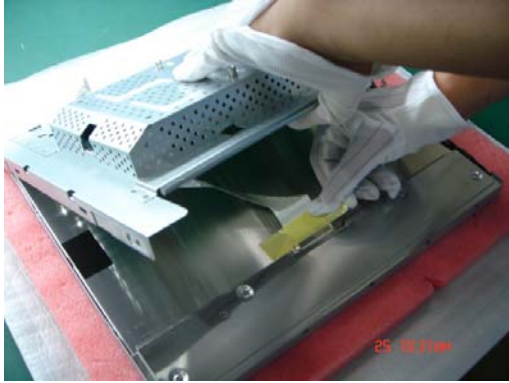
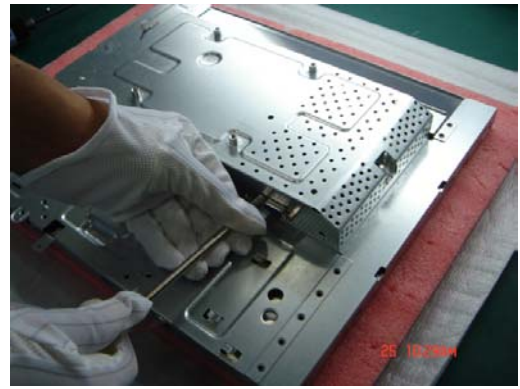
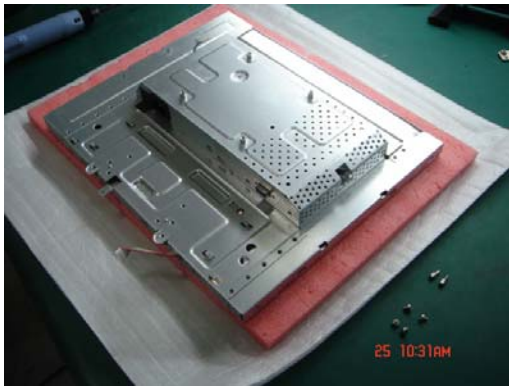
Figure 6

5.2 Disassembly Procedure







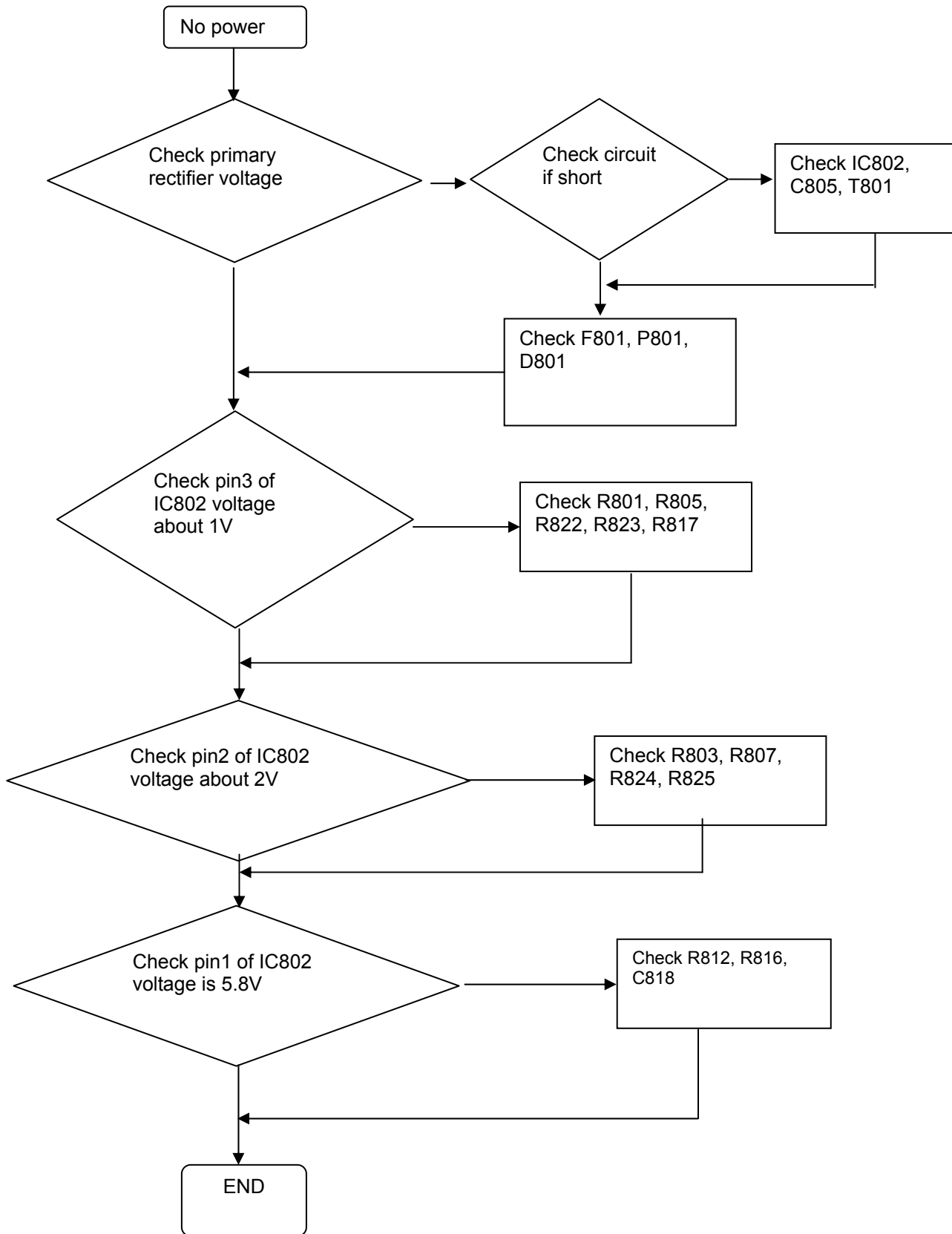


6. Troubleshooting Flow Chart

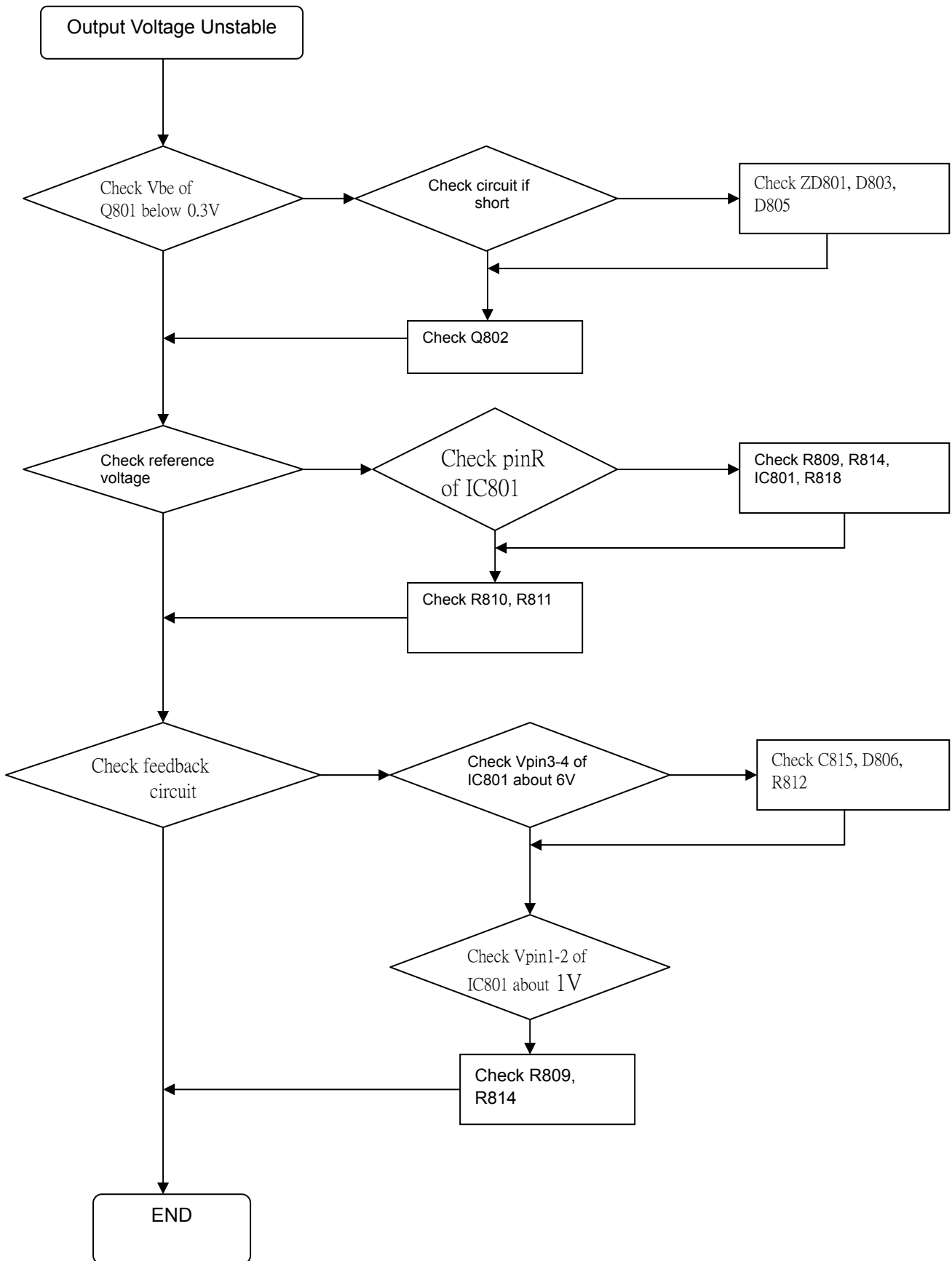
1. Common Acknowledge

- 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.
(For VA703m only)

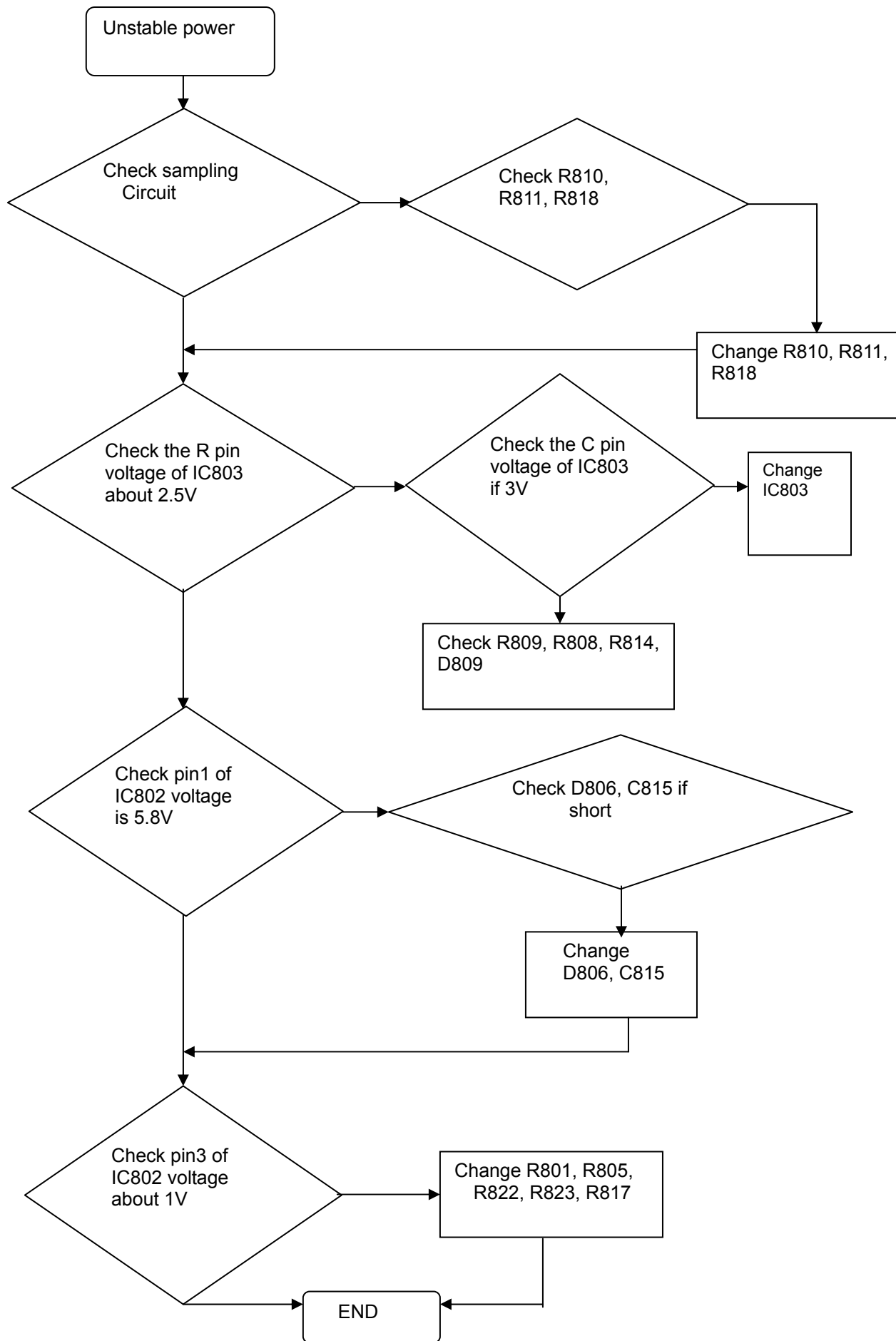
2. No Power & Power LED Off



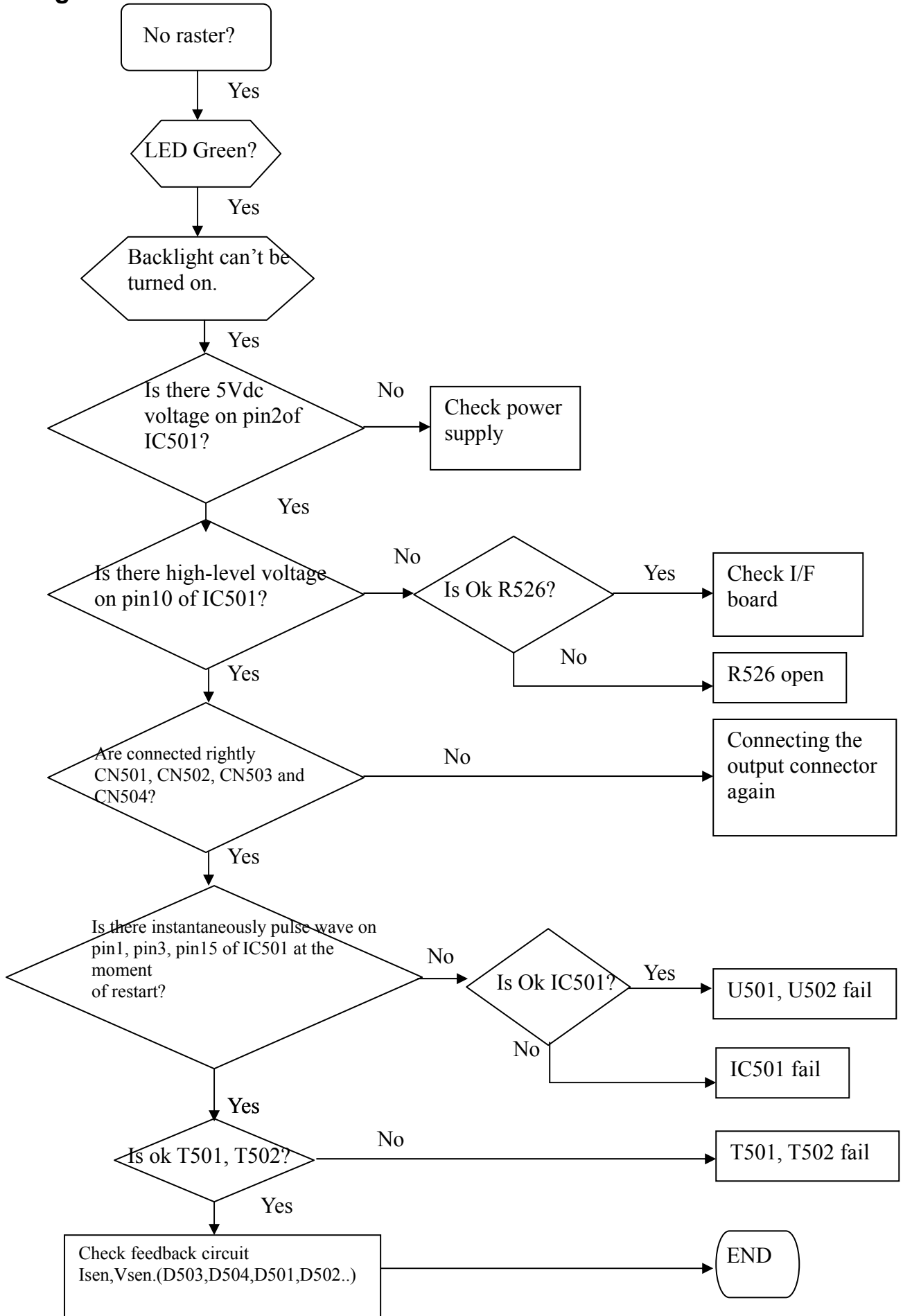
3. DC output voltage is unstable



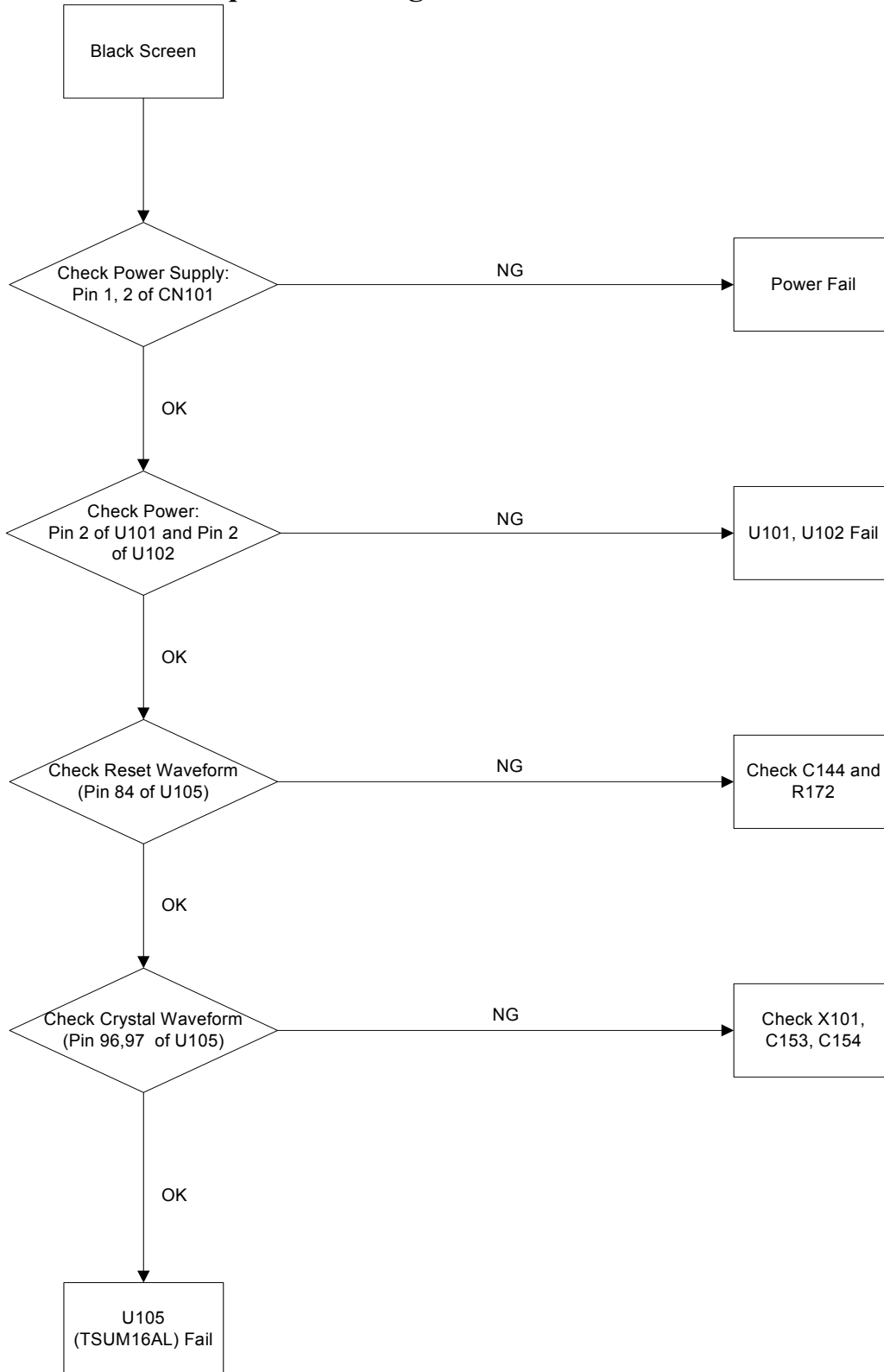
4. Output power is unstable



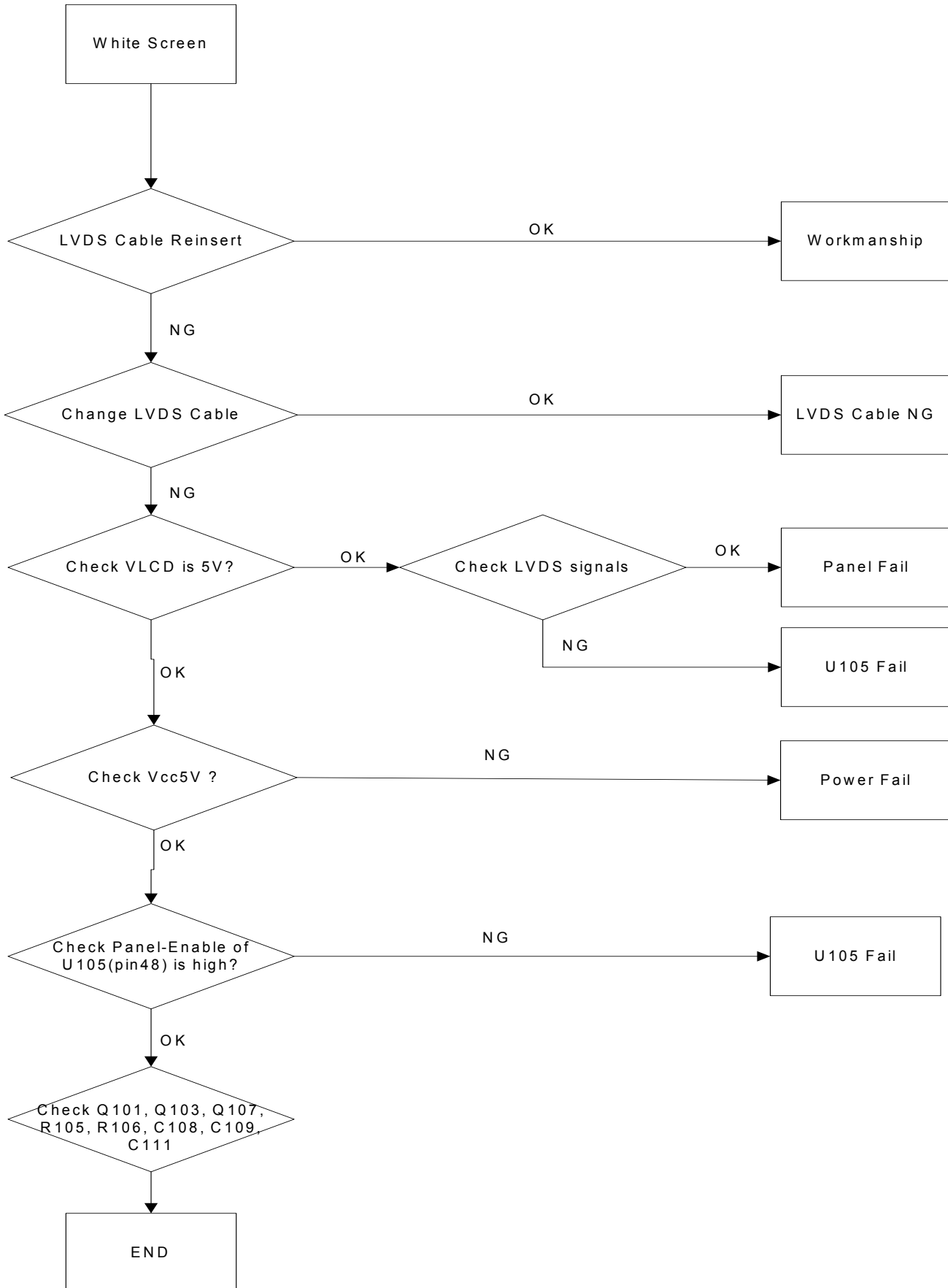
5. Backlight can't be turned on



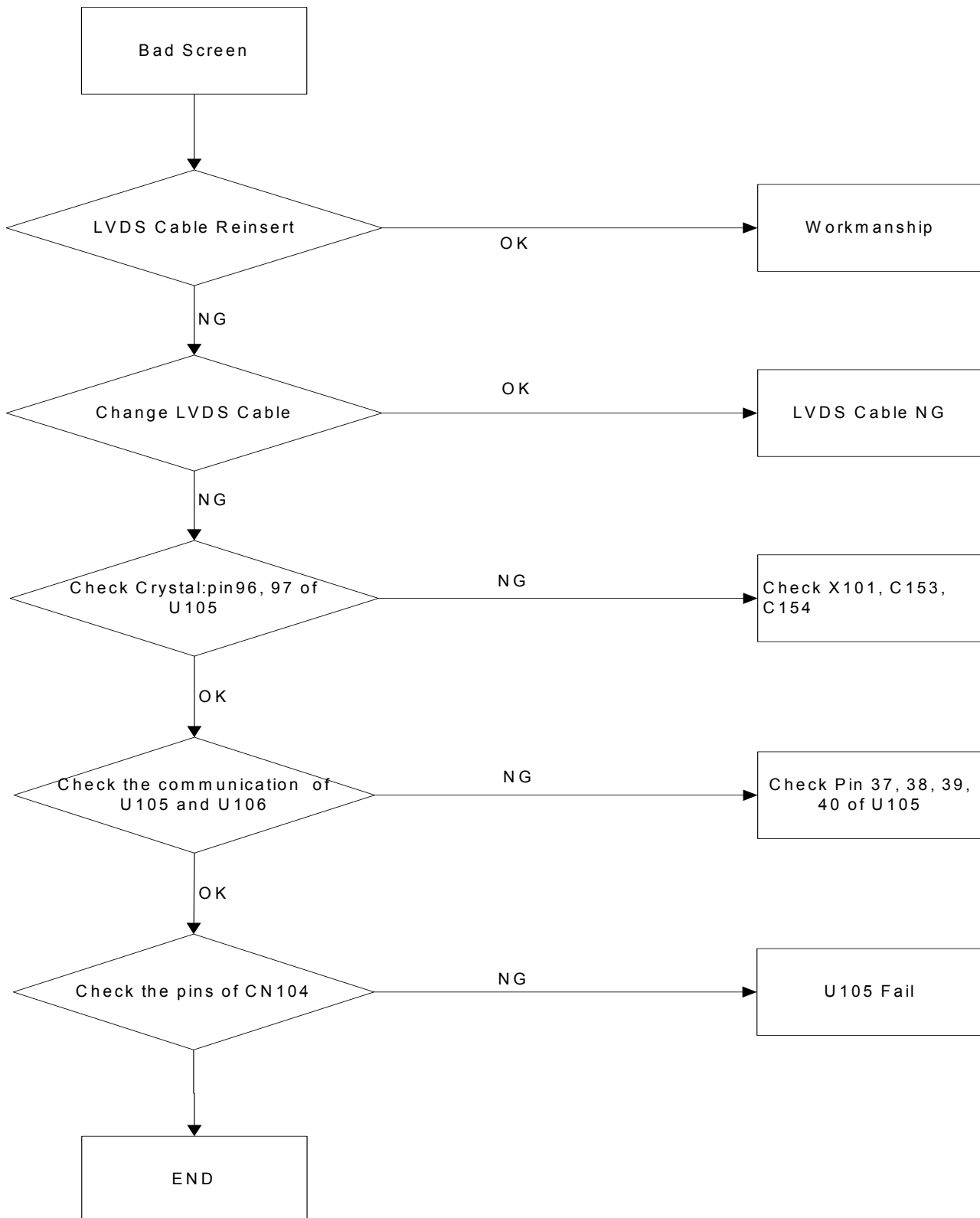
6. Black Screen and backlight turn on



7. White Screen



8. Bad Screen



7. Recommended Spare Parts List

RECOMMENDED SPARE PARTS LIST (VA703b-3)

ViewSonic Model Number: VS11359

Rev: 1c

Serial No. Prefix **QAG**

Item	Description	ECR/ECN	ViewSonic P/N	Ref. P/N	Location	Universal number#
1	Accessories:					
2	[Adapter, Remote Control]					
3	Power Cord 10A/250V Australia		A-00003671	453070800420R		
4	Power Cord UK3Gx.75mm Singapore		A-00003675	453070800230R		
5	Power Cord 10A/250V(china)		A-00005255	453070800170R		
6	Power Cord 10A/125V		A-00006679	453070800250R		
7	Kit, Accessory		A-00006730	703000002310R		
8	Kit, Accessory CPT, LE1734	Added on 10/04/06	A-00008046	703000002330R		
9	Power Cord 7A/125V		A-00006733	453070800480R		
10	Power Cord 16A/250V Korea		A-00006734	453070800500R		
11	PC Board Assembly: [All PCBA]					
12	Interface Board without speaker		B-00006728	790681300610R		
13	Sub Board with out speaker		B-00006729	790681400610R		
14	Key Board		B-00006750	790631500000R		
15	Cabinets: [Front Panel, Back Cover, Base]					
16	Back cover W/O Speaker		C-00006715	501020208600R		
17	Cover Hinge		C-00006716	501020208700R		
18	Base Assembly		C-00006722	714020006100R		
19	Front Panel (Bezel), W/O SPK,		C-00006723	714030006100R		
20	Gray Back Cover W/O SPK		C-00006724	714050006100R		
21	Cables: [All Cables]					
22	Cable, D-SUB 15P		CB-00005254	453010100100R		
23	Wire 8P 195mm		CB-00006725	430300800650R		
24	Wire 30P 234mm		CB-00006726	430303000570R		
25	Electronic Components:					
26	[CRT-EEPROM, Fly Back Transformer, Microprocessor] [LCD TV-Panel]					
27	LCD PANEL 17" MT170EN01-V7-G1,AM17000057		E-00008006	631102071910R		
28	LCD PANEL 17" MT170EN01-V7-G2,AM17000057		E-00008007	631102071920R		
29	LCD PANEL 17" MT170EN01-V7-G3,AM17000057		E-00008008	631102071930R		
30	LCD PANEL 17" CLAA170EA07Q (CPT)	Added on 10/04/06	E-00008086	631102070680R		
31	LCD 17" MT170EN01-V9,AM17000059	Added on 12/15/06	E-00008263	631102072110R		
32	Packing Material: [Box, Foam]					
33	PE Bag L590xW480xT0.6mm(PRINTED)		P-00005272	506120300400R		
34	Craft Box		P-00006717	506020011410R		
35	Foam (Left)		P-00006718	506040008800R		
36	Foam (Right)		P-00006719	506040008810R		
37	Generic Box		P-00002515	20653		
38	Generic Foam Set		P-00001347	30833		
39	PE BagL280xW300xT0.05mm,		P-00006720	506120003420R		
40	Plastics: [All]					
41	Pedestal		PL-00006721	714010006100R		

RECOMMENDED SPARE PARTS LIST (VA703m-3)

ViewSonic Model Number: VS11359

Rev: 1c

Serial No. Prefix: **QAF**

Item	Description	ECR/ECN	ViewSonic P/N	Ref. P/N	Location	Universal number#	
1	Accessories: [Adapter, Remote Control]		A-00003671	453070800420R			
2			A-00003674	453070800210R			
3			A-00003675	453070800230R			
4			A-00005255	453070800170R			
5			A-00006733	453070800480R			
6			A-00006734	453070800500R			
7			A-00008007	703000002300R			
8			Added on 10/04/06	A-00008047	703000002320R		
9	PC Board Assembly: [All PCBA]		B-00006750	790631500000R			
10			B-00008006	790681300600R			
11			B-00008007	790681400600R			
12	Cabinets: [Front Panel, Back Cover, Base]		C-00008018	501020208610R			
13			C-00008019	501020208710R			
14			C-00008020	714020006110R			
15			C-00008021	714030006110R			
16			C-00008022	714050006110R			
17	Cables: [All Cables]		CB-00005254	453010100100R			
18			CB-00006725	430300800650R			
19			CB-00006726	430303000570R			
20			CB-00008002	453030300120R			
21	Electronic Components: [CRT-EEPROM, Fly Back Transformer, Microprocessor] [LCD TV-Panel]		E-00008006	631102071910R			
22			E-00008007	631102071920R			
23			E-00008008	631102071930R			
24			Added on 10/04/06	E-00008086	631102070680R		
25			Added on 12/15/06	E-00008263	631102072110R		
26				E-00008010	618100100010R		
27		Packing Material: [Box, Foam]		P-00005272	506120300400R		
28			P-00006718	506040008800R			
29			P-00006719	506040008810R			
30			P-00006720	506120003420R			
31			P-00008011	506020011400R			
32			P-00001347	30833			
33			P-00002515	20653			
34	Plastics:		PL-00008005	714010006110R			

BOM LIST (VA703b-3)

ViewSonic Model Number: VS11359

Rev: 1c

Serial No. Prefix: QAG

Item	ViewSonic P/N	Ref. P/N	Description	Location	Universal number#	Q'ty
1	N/A	506380001800R	TAPE,WRAPPING TYPE,48mmx50M ROHS LE1915	For World Wide		1.200
2	N/A	506380002100R	TAPE,WRAPPING TYPE(VIEWSONIC),50mmx75M,L	For World Wide		0.513
3	N/A	506431000300R	FILM,PE 500mmx900M ROHS	For World Wide		0.050
4	P-00006718	506040008800R	CUSHION,EPS-L, LE1734	For World Wide		100.000
5	P-00006719	506040008810R	CUSHION,EPS-R, LE1734	For World Wide		100.000
6	N/A	506150006000R	PALLET,L1180xW1035xH120mm,LE1734	For World Wide		1.389
7	N/A	506039000900R	CORNER PAPER,1900x50x50mm,LE1701	For World Wide		5.555
8	N/A	506039002500R	CORNER PAPER,760x50x50mm,LE1504	For World Wide		5.555
9	N/A	506038003400R	CARDBOARD,L1170xW1020xT7.0mm, LE1734	For World Wide		1.389
10	P-00005272	506120300400R	BAG,PE+EPE,L590xW480xT0.6mm(PRINTED)LE19	For World Wide		100.000
11	P-00006720	506120003420R	BAG,PLASTIC,L280xW300xT0.05mm,LE1734	For World Wide		100.000
12	P-00005273	506120004500R	BAG,PLASTIC,L690xW(455+145)xT0.05mm, LE1	For VSCN		100.000
13	A-00005255	453070800170R	PWRCORD 10A/250V BLK 6FT CHINA.RVV 3Gx0.	For VSCN		100.000
14	A-00006733	453070800480R	PWRCORD 7A/125V BLK 6FT CNS,VCTF 3Gx0.75	For TWN		100.000
15	A-00003671	453070800420R	PWRCORD 10A/250V BLACK 6FT SAA,H05W-F/3G	For Australia		100.000
16	A-00006734	453070800500R	PWRCORD 16A/250V BLK 6FT KTL,H05VV-F 3Gx	For Korea		100.000
17	A-00003675	453070800230R	PWRCORD 5A/250V BLK 6FT UK3Gx.75mm	For Singapore & UK		100.000
18	A-00006679	453070800250R	PWR CORD 10A/125V BLK 6FT UL/CSA,SVT 18x	For VSA		100.000
19	A-00003674	453070800210R	PWR CORD 16A/250V BLK 6FT VDE,H05VV-F 3G	For VSE		100.000
20	CB-00005254	453010100100R	CABLE,D-SUB 15P MALE 6FT BLACK/BLUE,SZ4C	For World Wide		100.000
21	N/A	506250009300R	LBL,AGENCY,VA703B, LE1734	For World Wide		100.000
22	N/A	506260001600R	LABEL,WARNING, LE1X34	For World Wide		100.000
23	N/A	506440002300R	LABEL,BLANK,76.2x76.2mm,LE1709(UPC)	For World Wide		100.000
24	N/A	506440002400R	LABEL,BLANK,50x25mm,LE1709(S/N)	For World Wide		100.000
25	N/A	506390000500R	LABEL,QC-PASS, LE1709	For VSCN		100.000
26	N/A	506390000600R	LABEL,HI-POT PASS, LE1709	For World Wide		100.000
27	N/A	506440002600R	LABEL,BLANK,210x65mm,LE1709(PALLET	For World Wide		100.000
28	N/A	506390500100R	LABEL,ENERGY STAR, LE1709	For World Wide		2.780
29	N/A	506440003000R	LABEL,BLANK,35x10mm, LE1709 ROHS	For World Wide		100.000
30	N/A	506091000500R	LABEL,WARRANTY, LE1709	For VSCN		200.000
31	N/A	506449000100R	LABEL,Ø8mm,BLACK, LE1709	For VSCN		100.000
32	N/A	506390210110R	LABEL,CARTON(8ms),PRC, LE1709	For World Wide		20.000
33	P-00006717	506020011410R	CARTON,VIEWSONIC(VA703B), LE1734	For World Wide		100.000
34	N/A	505040203600R	INSULATOR,PET,355x292x0.1mm, LE1709	For World Wide		101.000
35	N/A	506092001400R	CARD,WARRANTY, LE1709	For VSCN		100.000
36	N/A	506030200200R	CARD,AFTER SERVICE, LE1709,L130xW80	For VSCN		50.000
37	A-00006730	703000002310R	KIT,ACCESSORY,VA703B-INL, LE1734	For World Wide		100.000
38	N/A	714076900000R	ASSY,FINAL(G),W/O SPK,LE1734-0U0	For World Wide		100.000
39	N/A	509116606510R	SCREW,P,CROSS,M4*6,BLACK,NL ROHS (NYLOK)	For World Wide		100.000
40	N/A	509112308100R	SCREW,P,CROSS,T.T-3*8,Zn ROHS REV:A	For World Wide		100.000
41	C-00006716	501020208700R	COVER,HINGE,GRAY, LE1734	For World Wide		400.000
42	N/A	509116608100R	SCREW,P,CROSS,M4*8,Zn,ROHS	For World Wide		100.000
43	N/A	503040000300R	RUBBER,COVER(GRAY), LE1534	For World Wide		100.000
44	C-00006724	714050006100R	ASSY,BACK COVER,GRAY,W/O SPK, LE1734	For World Wide		400.000
45	C-00006715	501020208600R	COVER,BACK,GRAY,W/O SPK, LE1734	For World Wide		100.000
46	N/A	506430300002R	FILM,PE,L155xW35xT0.05mm, LE1734	For World Wide		100.000
47	C-00006723	714030006100R	ASSY,BEZEL,GRAY,W/O SPK, LE1734	For World Wide		200.000
48	N/A	501010206500R	BEZEL,GRAY,W/O SPK, LE1734	For World Wide		100.000
49	N/A	501030100800R	BUTTON,FUNCTION KEY, LE1734	For World Wide		100.000
50	N/A	506102000400R	LOGO PLATE,VIEWSONIC, LE1709(THREE BIRDS	For World Wide		100.000
51	N/A	506102000300R	LOGO PLATE,VIEWSONIC, LE1709	For World Wide		100.000
52	PL-00006721	714010006100R	ASSY,STAND, GRAY, LE1734	For World Wide		100.000
53	N/A	501260202900R	STAND,GRAY, LE1734	For World Wide		100.000
54	N/A	502110400400R	SPRING SHEET, LE1734	For World Wide		100.000
55	HW-00008001	502060002600R	HINGE, LE1734	For World Wide		100.000
56	N/A	509116610110R	SCREW,P,CROSS,M4*10,Zn,NL ROHS (NYLOK)	For World Wide		100.000
57	C-00006722	714020006100R	ASSY,BASE,GRAY, LE1734	For World Wide		100.000
58	N/A	501240203800R	BASE,GRAY, LE1734	For World Wide		100.000
59	N/A	503020002700R	RUBBER,FOOT,L14.8*W9.6*T3.5mm,ROHS LE171	For World Wide		100.000
60	N/A	502170301600R	PLATE,BASE, LE1734	For World Wide		300.000
61	N/A	503060003310R	GASKET,EMI,W10xH10xL16mm,LE1734	For World Wide		100.000
62	N/A	509112606100R	SCREW,P,CROSS,T.T-4*6,Zn	For World Wide		100.000
63	N/A	714086900000R	ASSY,PANEL,W/O SPK,LE1734-0U0	For World Wide		600.000
64	E-00008263	631102072110R	LCP 17" MT170EN01-V9,AM17000059	For World Wide		100.000
65	B-00006728	790681300610R	PCBA,I/F BOARD,W/O SPK, LE1734-6U0	For World Wide		100.000
66	B-00006729	790681400610R	PCBA,P/I BOARD,W/O SPK,LE1734-6U0	For World Wide		900.000
67	B-00006750	790631500000R	PCBA,KEYPAD BOARD, LE1534	For World Wide		200.000
68	CB-00006726	430303000570R	HRN LVDS FFC 30P 221mm,RoHS	For World Wide		100.000
69	HW-00005269	509146305300R	SCREW,PW,CROSS,W/WAS,M3*5,N1	For World Wide		100.000
70	HW-00005270	509000000700R	BOLT,#4-40x11.8,Ni FOR D-SUB/DVI CONN.RO	For World Wide		100.000
71	N/A	502090303600R	CHASSIS,W/O SPK, LE1734	For World Wide		100.000
72	N/A	509146306102R	SCREW,P,CROSS W/W-SPR,M3*6,Zn,ROHS	For World Wide		100.000
73	N/A	505040503100R	INSULATOR,PP,22x20x12X0.3mm,GLUE(3M), LE	For World Wide		100.000
74	CB-00006725	430300800650R	HRN ASS'Y 8P 195mm UL2651#28,RoHS FW08E7	For World Wide		100.000
75	N/A	506380001200R	TAPE,MYLAR,66000x20xT0.05	For World Wide		100.000
76	CB-00006725	430300800650R	HRN ASS'Y 8P 195mm UL2651#28,RoHS FW08E7	For World Wide		100.000
77	N/A	506380001200R	TAPE,MYLAR,66000x20xT0.05	For World Wide		0.121

BOM LIST (VA703m-3)

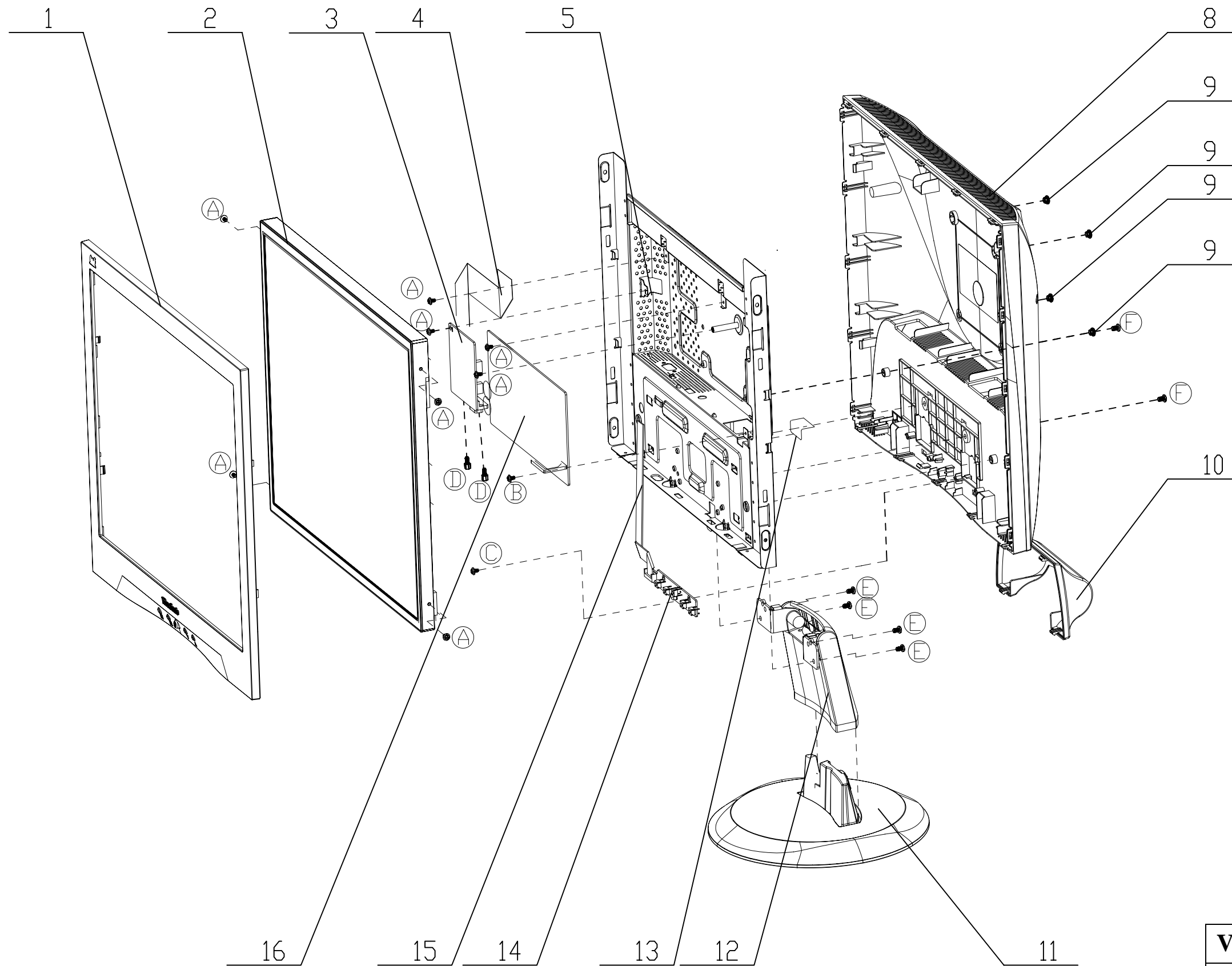
ViewSonic Model Number: VS11359

Rev: 1c

Serial No. Prefix: QAF

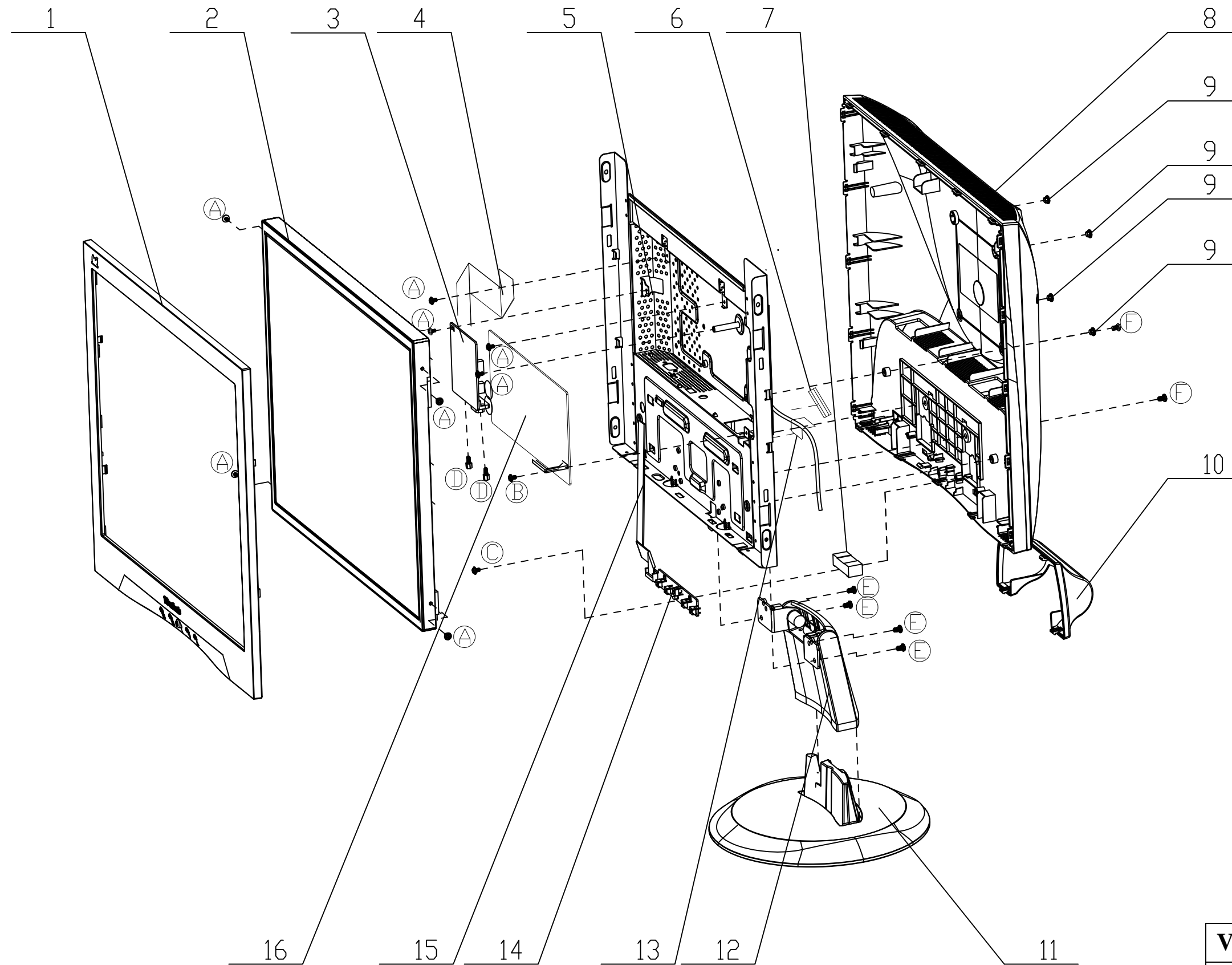
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1	N/A	506380001800R	TAPE,WRAPPING TYPE,48mmx50M ROHS LE1915	For World Wide		1.200
2	N/A	506380002100R	TAPE,WRAPPING TYPE(VIEWSONIC),50mmx75M,LE1	For World Wide		0.513
3	N/A	506431000300R	FILM,PE 500mmx900M ROHS	For World Wide		0.050
4	P-00006718	506040008800R	CUSHION,EPS-L, LE1734	For World Wide		100.000
5	P-00006719	506040008810R	CUSHION,EPS-R, LE1734	For World Wide		100.000
6	N/A	506150006000R	PALLET,L1180xW1035xH120mm,LE1734	For World Wide		1.389
7	N/A	506039000900R	CORNER PAPER,1900x50x50mm,LE1701	For World Wide		5.555
8	N/A	506039002500R	CORNER PAPER,760x50x50mm,LE1504	For World Wide		5.555
9	N/A	506038003400R	CARDBOARD,L1170xW1020xT7.0mm, LE1734	For World Wide		1.389
10	P-00005272	506120300400R	BAG,PE+EPE,L590xW480xT0.6mm(PRINTED)LE19	For World Wide		100.000
11	P-00006720	506120003420R	BAG,PLASTIC,L280xW300xT0.05mm,LE1734	For World Wide		100.000
12	P-00005273	506120004500R	BAG,PLASTIC,L690xW(455+145)xT0.05mm, LE1	For VSCN		100.000
13	A-00005255	453070800170R	PWRCORD 10A/250V BLK 6FT CHINA,RVV 3Gx0.	For VSCN		100.000
14	A-00006733	453070800480R	PWRCORD 7A/125V BLK 6FT CNS,VCTF 3Gx0.75	For TWN		100.000
15	A-00003671	453070800420R	PWRCORD 10A/250V BLACK 6FT SAA,H05W-F/3G	For Australia		100.000
16	A-00006734	453070800500R	PWRCORD 16A/250V BLK 6FT KTL,H05VV-F 3Gx	For Korea		100.000
17	A-00003675	453070800230R	PWRCORD 5A/250V BLK 6FT UK3Gx.75mm	For Singapore & UK		100.000
18	A-00006679	453070800250R	PWR CORD 10A/125V BLK 6FT UL/CSA,SVT 18x	For VSA		100.000
19	A-00003674	453070800210R	PWR CORD 16A/250V BLK 6FT VDE,H05VV-F 3G	For VSE		100.000
20	CB-00005254	453010100100R	CABLE,D-SUB 15P MALE 6FT BLACK/BLUE,SZ40	For World Wide		100.000
21	CB-00008002	453030300120R	CABLE,AUDIO 1P 6FT BLACK/GREEN CP03B06P0	For World Wide		100.000
22	N/A	506250009310R	LBL,AGENCY,VA703M, LE1734	For World Wide		100.000
23	N/A	506260001600R	LABEL,WARNING, LE1X34	For World Wide		100.000
24	N/A	506440002300R	LABEL,BLANK,76.2x76.2mm,LE1709(UPC)	For World Wide		100.000
25	N/A	506440002400R	LABEL,BLANK,50x25mm,LE1709(S/N)	For World Wide		100.000
26	N/A	506390000500R	LABEL,QC-PASS, LE1709	For VSCN		100.000
27	N/A	506390000600R	LABEL,HI-POT PASS, LE1709	For World Wide		100.000
28	N/A	506440002600R	LABEL,BLANK,210x65mm,LE1709(PALLET)	For World Wide		2.780
29	N/A	506390500100R	LABEL,ENERGY STAR, LE1709	For World Wide		100.000
30	N/A	506440003000R	LABEL,BLANK,35x10mm, LE1709 ROHS	For World Wide		200.000
31	N/A	506091000500R	LABEL,WARRANTY, LE1709	For VSCN		100.000
32	N/A	506449000100R	LABEL,ø8mm,BLACK, LE1709	For VSCN		20.000
33	N/A	506390210110R	LABEL,CARTON(8ms),PRC, LE1709	For World Wide		100.000
34	P-00008011	506020011400R	CARTON,VIEWSONIC(VA703M), LE1734	For World Wide		101.000
35	N/A	505040203600R	INSULATOR,PET,355x292x0.1mm, LE1709	For World Wide		100.000
36	N/A	511150101500R	FOIL,AL.,DOUBLE COND.,45x35x0.04mm, LE17	For World Wide		50.000
37	N/A	506092001400R	CARD,WARRANTY, LE1709	For VSCN		100.000
38	N/A	506030200200R	CARD,AFTER SERVICE, LE1709,L130xW80	For VSCN		100.000
39	A-00008007	703000002300R	KIT,ACCESSORY,VA703M-INL, LE1734	For World Wide		100.000
40	N/A	714076900100R	ASSY,FINAL(S),W/SPK,LE1734-0U0	For World Wide		100.000
41	N/A	509116606510R	SCREW,P,CROSS,M4*6,BLACK,NL ROHS (NYLOK)	For World Wide		400.000
42	N/A	509112308100R	SCREW,P,CROSS,T.T-3*8,Zn ROHS REV:A	For World Wide		100.000
43	C-00008019	501020208710R	COVER,HINGE,BLACK, LE1734	For World Wide		100.000
44	N/A	503040000310R	RUBBER,COVER(B), LE1534	For World Wide		400.000
45	E-00008010	618100100010R	SPEAKER 1W 16Ω 285mm,R/B/G,W/CASE,PB25K	For World Wide		100.000
46	N/A	506381000700R	TAPE,ACE,45mmx30M(PC=10x45mm),LE1709 ROH	For World Wide		100.000
47	N/A	509116608100R	SCREW,P,CROSS,M4*8,Zn,ROHS	For World Wide		200.000
48	C-00008022	714050006110R	ASSY,BACK COVER,BLACK,W/SPK, LE1734	For World Wide		100.000
49	C-00008018	501020208610R	COVER,BACK,BLACK,W/SPK, LE1734	For World Wide		100.000
50	N/A	506430300002R	FILM,PET,L155xW35xT0.05mm, LE1734	For World Wide		100.000
51	C-00008021	714030006110R	ASSY,BEZEL,SILVER,W/SPK, LE1734	For World Wide		100.000
52	N/A	501010206510R	BEZEL,SILVER,W/SPK, LE1734	For World Wide		100.000
53	N/A	501030100800R	BUTTON,FUNCTION KEY, LE1734	For World Wide		100.000
54	N/A	506102000400R	LOGO PLATE,VIEWSONIC, LE1709(THREE BIRDS	For World Wide		100.000
55	N/A	506102000300R	LOGO PLATE,VIEWSONIC, LE1709	For World Wide		100.000
56	PL-00008005	714010006110R	ASSY,STAND,BLACK, LE1734	For World Wide		100.000
57	N/A	501260202910R	STAND,BLACK, LE1734	For World Wide		100.000
58	N/A	502110400400R	SPRING SHEET, LE1734	For World Wide		100.000
59	HW-00008001	502060002600R	HINGE, LE1734	For World Wide		100.000
60	N/A	509116610110R	SCREW,P,CROSS,M4*10,Zn,NL ROHS (NYLOK)	For World Wide		300.000
61	C-00008020	714020006110R	ASSY,BASE,BLACK, LE1734	For World Wide		100.000
62	N/A	501240203810R	BASE,BLACK, LE1734	For World Wide		100.000
63	N/A	503020002700R	RUBBER,FOOT,L14.8*W9.6*T3.5mm,ROHS LE171	For World Wide		600.000
64	N/A	502170301600R	PLATE,BASE, LE1734	For World Wide		100.000
65	N/A	503060003310R	GASKET,EMI,W10xH10xL16mm,LE1734	For World Wide		100.000
66	N/A	509112606100R	SCREW,P,CROSS,T.T-4*6,Zn	For World Wide		200.000
67	N/A	714086900100R	ASSY,PANEL,W/SPK,LE1734-0U0	For World Wide		100.000
68	HW-00005269	509146305300R	SCREW,PW,CROSS,W/WAS,M3*5,Ni	For World Wide		900.000
69	HW-00005270	509000000700R	BOLT,#4-40x11.8,Ni FOR D-SUB/DVI CONN,RO	For World Wide		200.000
70	N/A	502090303610R	CHASSIS,W/SPK, LE1734	For World Wide		100.000
71	B-00008006	790681300600R	PCBA,I/F BOARD,W/SPK, LE1734-6U0	For World Wide		100.000
72	B-00008007	790681400600R	PCBA,P/I BOARD,W/SPK, LE1734-6U0	For World Wide		100.000
73	B-00006750	790631500000R	PCBA,KEYPAD BOARD, LE1534	For World Wide		100.000
74	CB-00006726	430303000570R	HRN LVDS FFC 30P 221mm,RoHS	For World Wide		100.000
75	E-00008263	631102072110R	LCP 17" MT170EN01-V9,AMI7000059	For World Wide		100.000
76	N/A	509146306102R	SCREW,P,CROSS W/W-SPR,M3*6,Zn,ROHS	For World Wide		100.000
77	N/A	505040503100R	INSULATOR,PP,22x20x12X0.3mm,GLUE(3M), LE	For World Wide		100.000
78	CB-00006725	430300800650R	HRN ASSY 8P 195mm UL2651#28,RoHS FW08E7	For World Wide		100.000

8. Exploded Diagram and Exploded Parts List (VA703b-3)



ViewSonic Corporation	
Model	VA703b-3
Title	Exploded diagram
Date	Rev:

Exploded Diagram and Exploded Parts List (VA703m-3)



ViewSonic Corporation	
Model	VA703m-3
Title	Exploded diagram
Date	Rev:

EXPLODED PARTS LIST (VA703B-3)

ViewSonic Model Number: VS11359

Rev: 1a

Serial No. Prefix: QAG

Item	ViewSonic P/N	Ref. P/N	Description	Q'ty
1	C-00006723	714030006100R	ASSY,BEZEL,SILVER,W/O SPK, LE1734	1
2	E-00008006	631102071910R	LCD PANEL 17" MT170EN01-V7,AM17000057	1
3	B-00006728	790681300610R	PCBA,I/F BOARD,W/O SPK, LE1734-6U0	1
4	CB-00006726	430303000570R	HRN LVDS FFC 30P 221mm,RoHS	1
5	N/A	502090303600R	CHASSIS,W/O SPK, LE1734	1
8	C-00006724	714050006100R	ASSY,BACK COVER,GRAY,W/O SPK, LE1734	1
9	N/A	503040000300R	RUBBER,COVER(GRAY), LE1534	4
10	C-00006716	501020208700R	COVER,HINGE,GRAY, LE1734	1
11	C-00006722	714020006100R	ASSY,BASE,GRAY, LE1734	1
12	PL-00006721	714010006100R	ASSY,STAND,GRAY, LE1734	1
13	N/A	505040503100R	INSULATOR,PP,22x20x12X0.3mm,GLUE(3M)	1
14	B-00006750	790631500000R	PCBA,KEYPAD BOARD, LE1534	1
15	CB-00006725	430300800650R	HRN ASS'Y 8P 195mm UL2651#28,RoHS FW08E7	1
16	N/A	790681400600R	PCBA,P/I BOARD,W/SPK, LE1734-6U0	1
A	HW-00005269	509146305300R	SCREW,PW,CROSS,W/WAS,M3*5,NI	8
B	N/A	509146306102R	SCREW,P,CROSS W/W-SPR,M3*6,Zn	1
C	N/A	509112308100R	SCREW,P,CROSS,T.T-3*8,Zn	1
D	HW-00005270	509000000700R	BOLT,#4-40x11.8,Ni ROHS	2
E	N/A	509116606510R	SCREW,P,CROSS,M4*6,BLACK,NL	4
F	N/A	509116608100R	SCREW,P,CROSS,M4*8,Zn	2

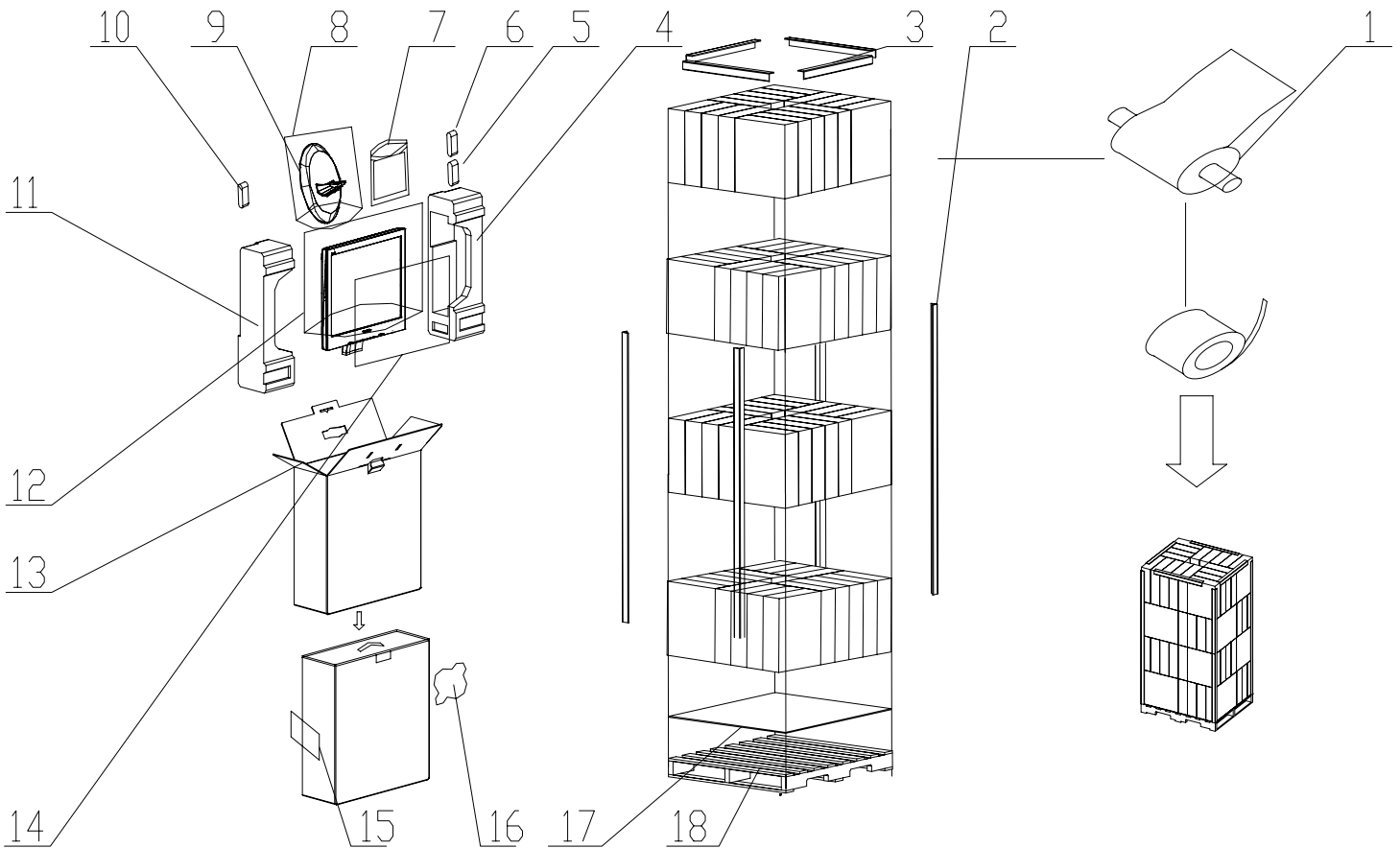
EXPLODED PARTS LIST (VA703M-3)

ViewSonic Model Number: VS11359

Rev: 1a

Serial No. Prefix: QAF

Item	ViewSonic P/N	Ref. P/N	Description	Q'ty
1	C-00008021	714030006110R	ASSY,BEZEL,SILVER,W/SPK, LE1734	1
2	E-00008006	631102071910R	LCD PANEL 17" MT170EN01-V7,AM17000057	1
3	B-00008006	790681300600R	PCBA,I/F BOARD,W/SPK, LE1734-6U0	1
4	CB-00006726	430303000570R	HRN LVDS FFC 30P 221mm,RoHS	1
5	N/A	502090303610R	CHASSIS,W/SPK, LE1734	1
6	N/A	506381000700R	TAPE,ACE,45mmx30M(PC=10x45mm)	1
7	E-00008010	618100100010R	SPEAKER 1W 16Ω 285mm,R/B/G,W/CASE,PB25K	1
8	C-00008022	714050006110R	ASSY,BACK COVER,BLACK,W/SPK, LE1734	1
9	N/A	503040000310R	RUBBER,COVER(B), LE1534	4
10	C-00008019	501020208710R	COVER,HINGE,BLACK, LE1734	1
11	C-00008020	714020006110R	ASSY,BASE,BLACK, LE1734	1
12	PL-00008005	714010006110R	ASSY,STAND,BLACK, LE1734	1
13	N/A	505040503100R	INSULATOR,PP,22x20x12X0.3mm,GLUE(3M)	1
14	B-00006750	790631500000R	PCBA,KEYPAD BOARD, LE1534	1
15	CB-00006725	430300800650R	HRN ASS'Y 8P 195mm UL2651#28,RoHS FW08E7	1
16	B-00008007	790681400600R	PCBA,P/I BOARD,W/SPK, LE1734-6U0	1
A	HW-00005269	509146305300R	SCREW,PW,CROSS,W/WAS,M3*5,NI	8
B	N/A	509146306102R	SCREW,P,CROSS W/W-SPR,M3*6,Zn	1
C	N/A	509112308100R	SCREW,P,CROSS,T.T-3*8,Zn	1
D	HW-00005270	509000000700R	BOLT,#4-40x11.8,Ni ROHS	2
E	N/A	509116606510R	SCREW,P,CROSS,M4*6,BLACK,NL	4
F	N/A	509116608100R	SCREW,P,CROSS,M4*8,Zn	2

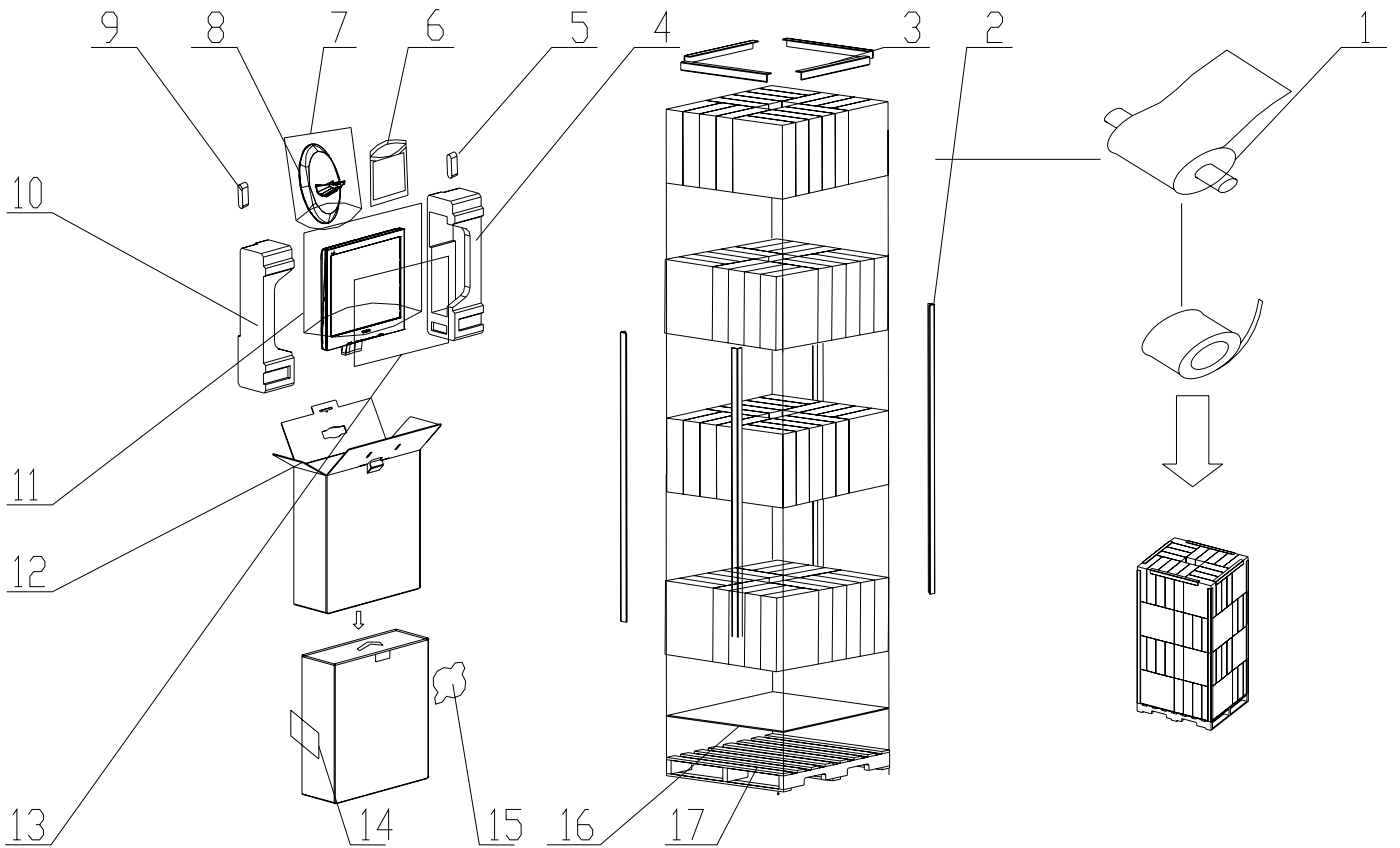


PACKING PART LIST (VA703m-3)

ViewSonic Model Number: VS11359

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	4/72
3	N/A	506039002500R	CORNER PAPER,760x50x50mm ROHS	4/72
4	P-00006719	506040008810R	CUSHION,EPS-R, LE1734	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-00008007	703000002300R	KIT,ACCESSORY,VA703M-INL(V7), LE1734	1
8	P-00006720	506120003420R	BAG,PLASTIC,W300XL280XT0.05mm,LE1734	1
9	C-00008020	714020006110R	ASSY BASE,BLACK,LE1734	1
10	A-00006733	453070800480R	PWR CORD,7A/125V,BLK 6FT CNS,VCTF 3Gx0.75	1
11	P-00006718	506040008800R	CUSHION,EPS-L, LE1734	1
12	P-00005272	506120300400R	BAG PE+EPE,L590*W480*T0.6mm(PRINTED),LE1922	1
13	N/A	506020014100R	CARTON,VA703M, LE1734	1
14	N/A	505040203600R	INSULATOR,PET,355x292x0.1mm, LE1709	1
15	N/A	506440002300R	CARTON LABEL,LE1709	1
16	N/A	506390210100R	LABEL,CARTON(8ms),PRC, LE1709	1
17	N/A	506038003400R	CARDBOARD L1170*W1020*T7.0mm,LE1734	1
18	N/A	506150006000R	PALLET L1180*W1035*H120mm,LE1734	1



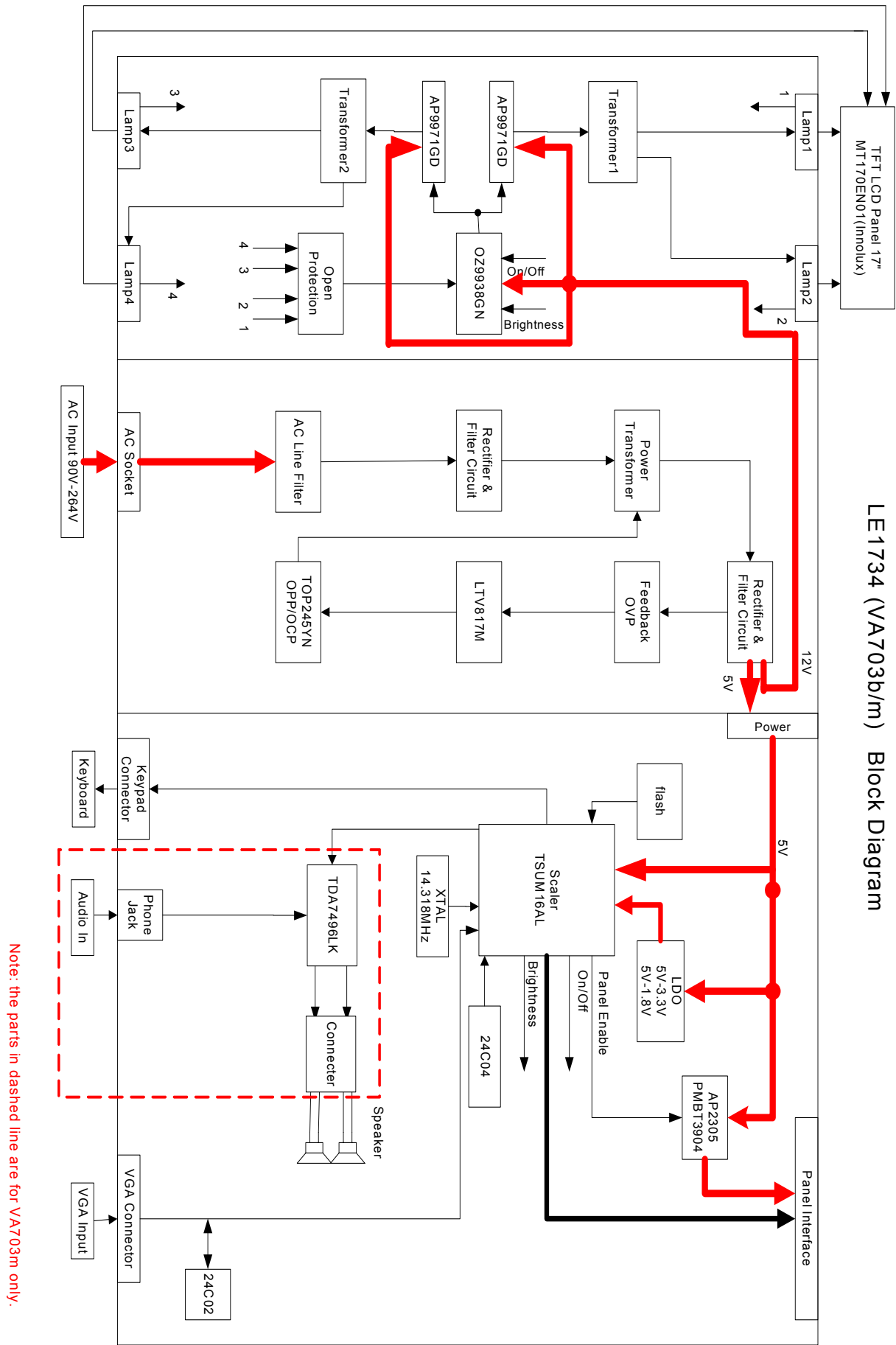
PACKING PART LIST (VA703b-3)

ViewSonic Model Number: VS11359

Rev: 1a

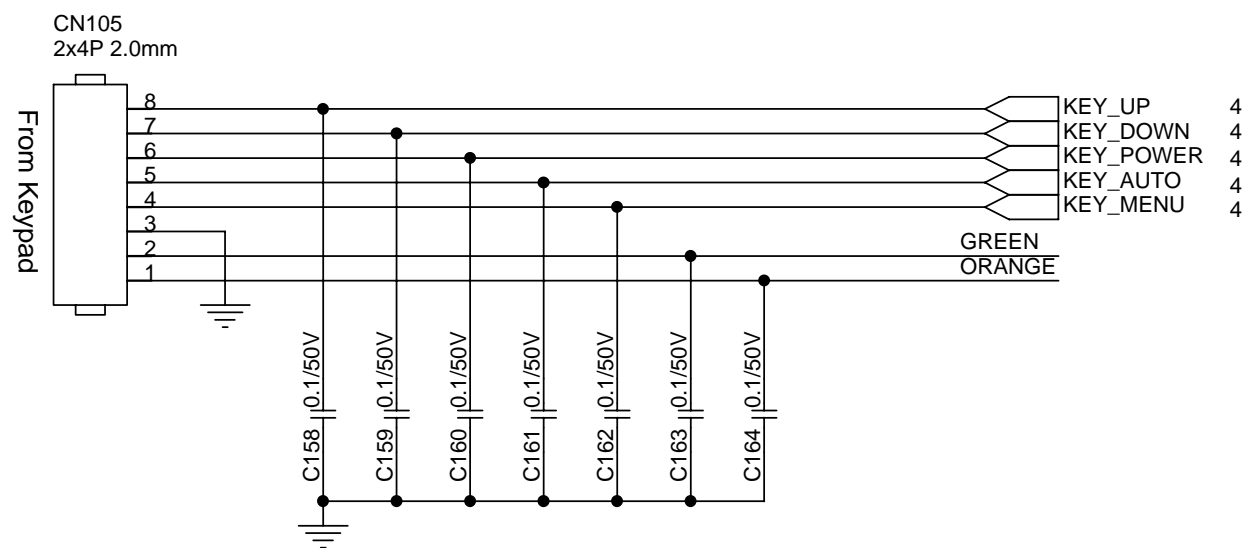
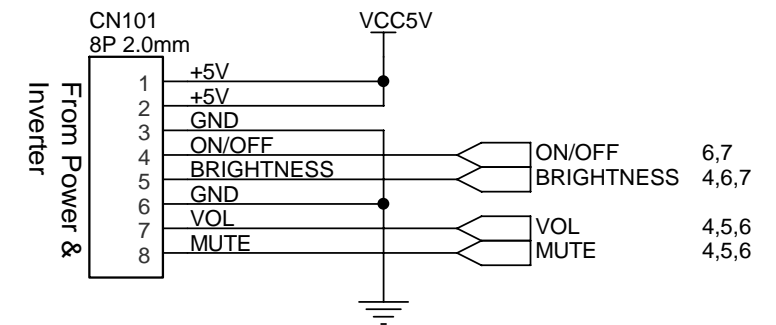
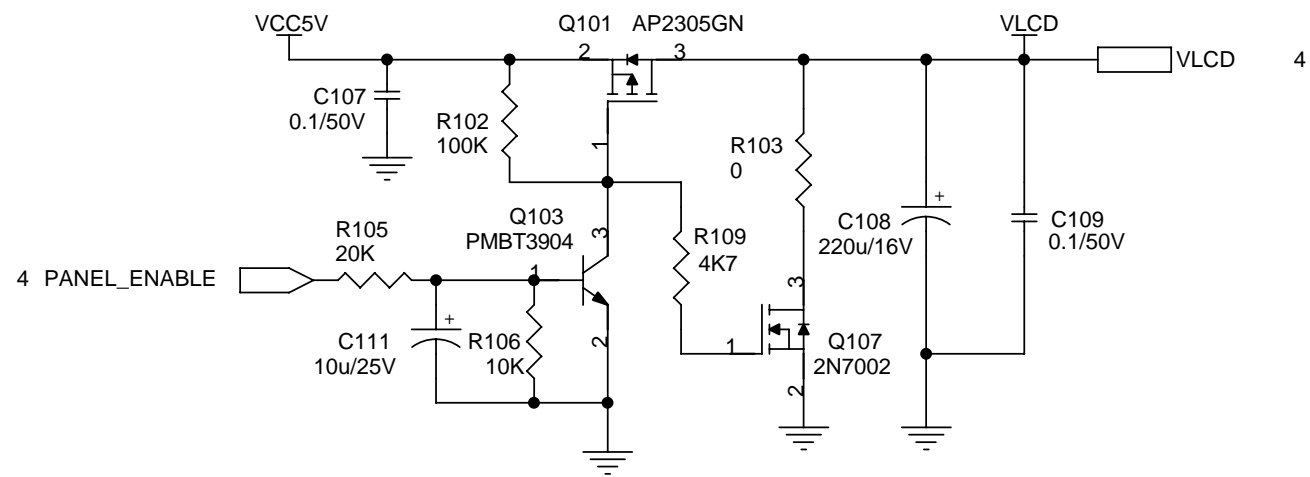
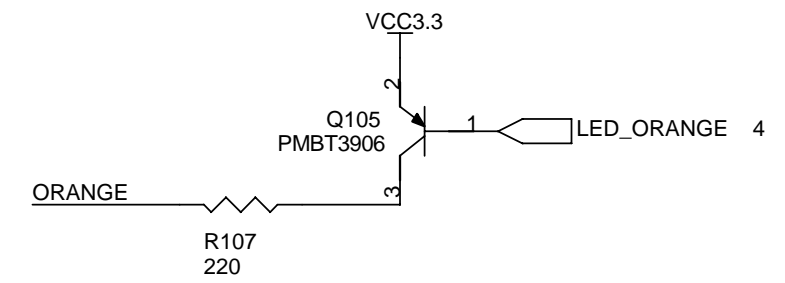
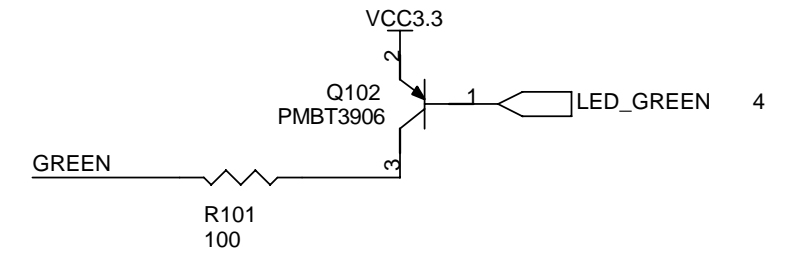
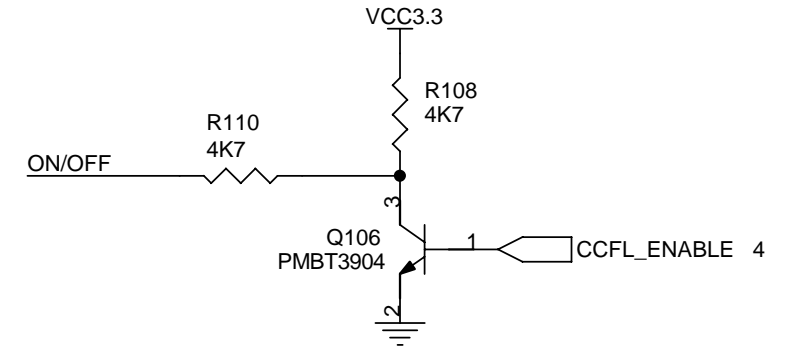
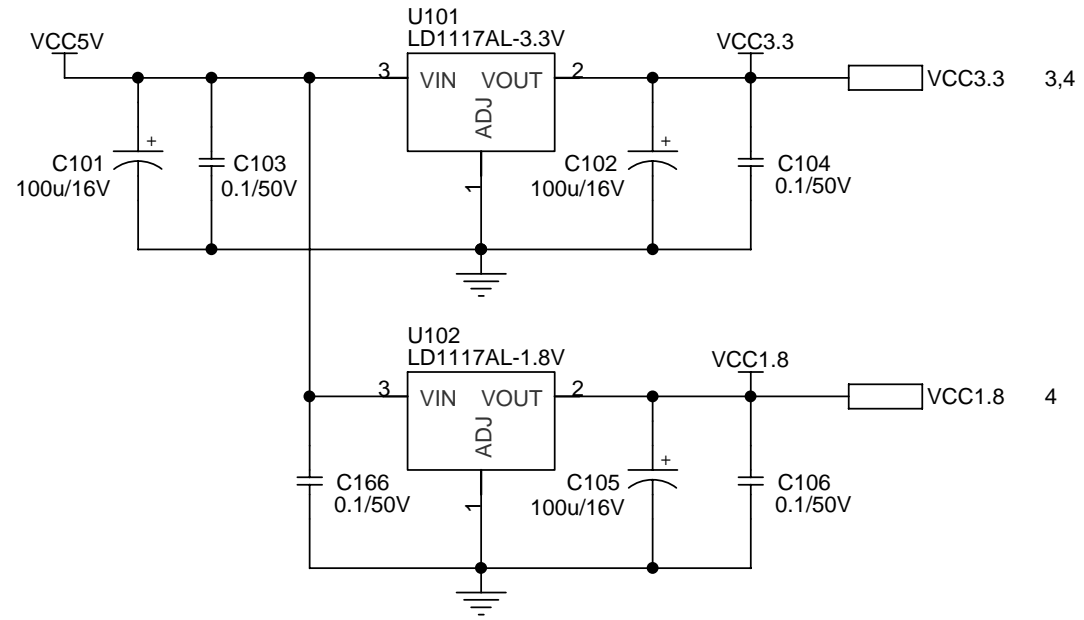
Item	ViewSonic P/N	Ref. P/N	Location	Q'ty
1	N/A	506431000300R	FILM,PE 500mmx900M ROHS	1/64
2	N/A	506039000900R	CORNER PAPER,1900x50x50mm ROHS	4/72
3	N/A	506039002500R	CORNER PAPER,760x50x50mm ROHS	4/72
4	P-00006719	506040008810R	CUSHION,EPS-R, LE1734	1
5	CB-00005254	453010100100R	CABLE,D-SUB 15P MALE 6FT BLACK/BLUE,SZ40	1
6	A-00006730	703000002310R	KIT,ACCESSORY,VA703B-INL(V7), LE1734	1
7	P-00006720	506120003420R	BAG,PLASTIC,W300XL280XT0.05mm,LE1734	1
8	C-00006722	714020006100R	ASSY BASE,GRAY,LE1734	1
9	A-00006733	453070800480R	PWR CORD,7A/125V,BLK 6FT CNS,VCTF 3Gx0.75	1
10	P-00006718	506040008800R	CUSHION,EPS-L, LE1734	1
11	P-00005272	506120300400R	BAG PE+EPE,L590*W480*T0.6mm(PRINTED),LE1922	1
12	P-00006717	506020011410R	CARTON,VA703B, LE1734	1
13	N/A	505040203600R	INSULATOR,PET,355x292x0.1mm, LE1709	1
14	N/A	506440002300R	CARTON LABEL,LE1709	1
15	N/A	506390210100R	LABEL,CARTON(8ms),PRC, LE1709	1
16	N/A	506038003400R	CARDBOARD L1170*W1020*T7.0mm,LE1734	1
17	N/A	506150006000R	PALLET L1180*W1035*H120mm,LE1734	1

9. Block Diagram

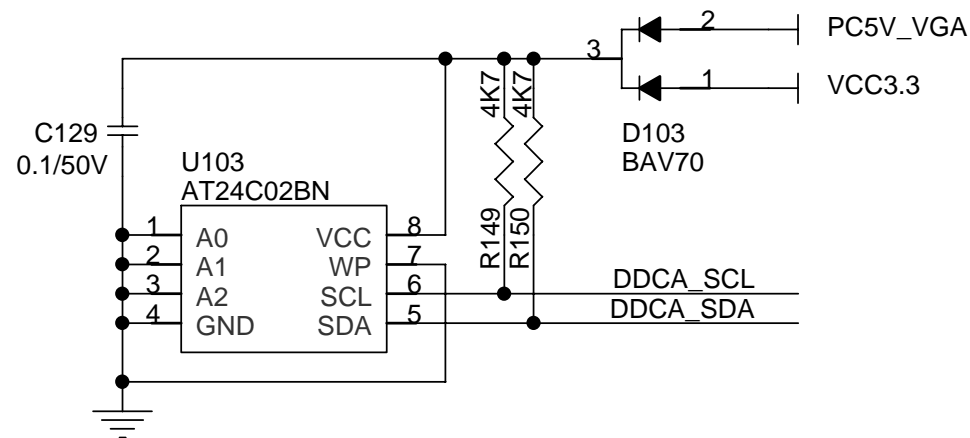
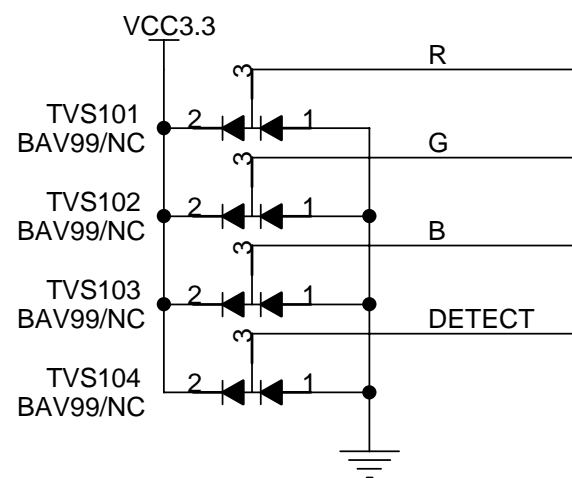
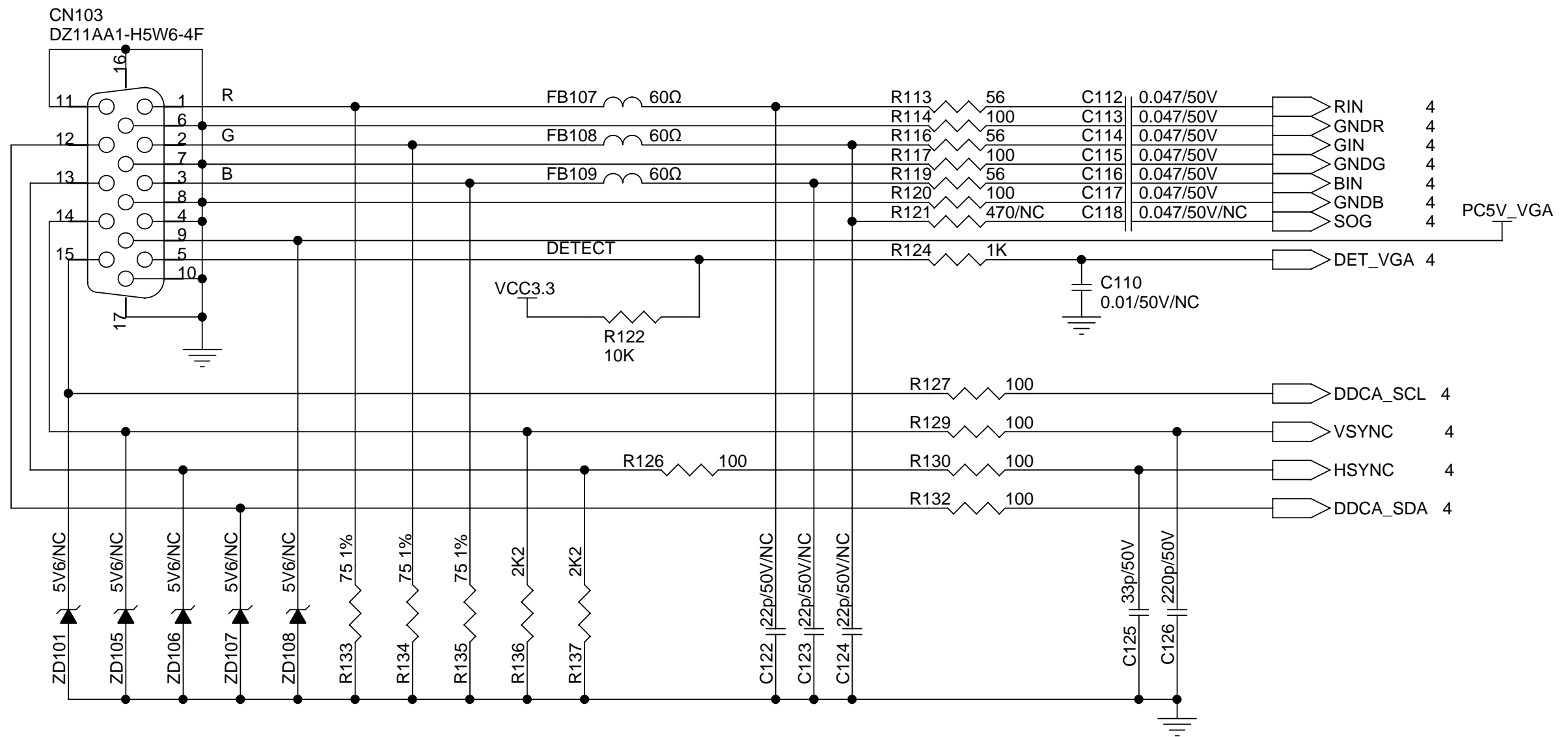


LE1734 (VA703b/m) Block Diagram

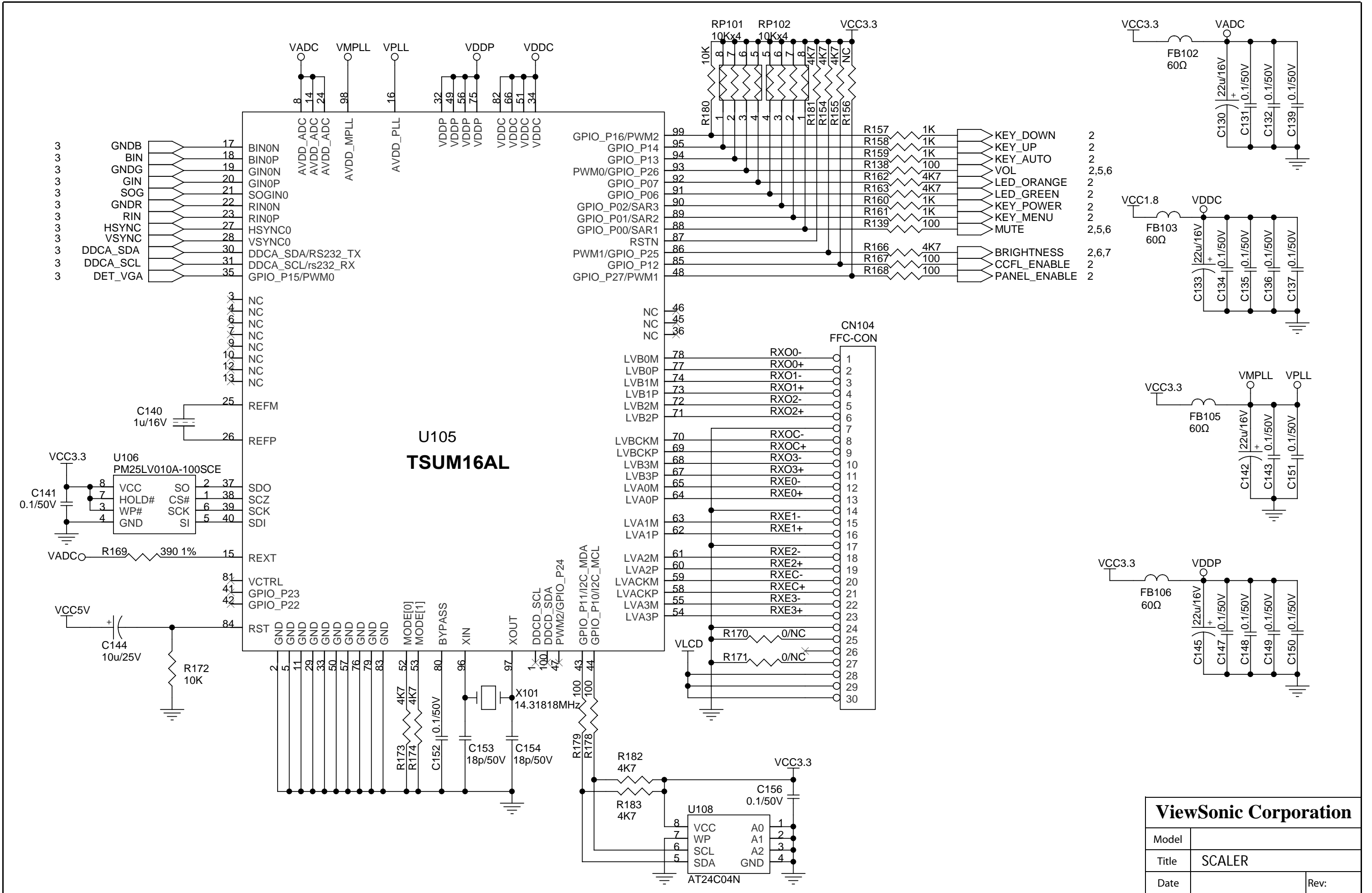
10. Schematic Diagrams



ViewSonic Corporation	
Model	
Title	DC to DC
Date	Rev:



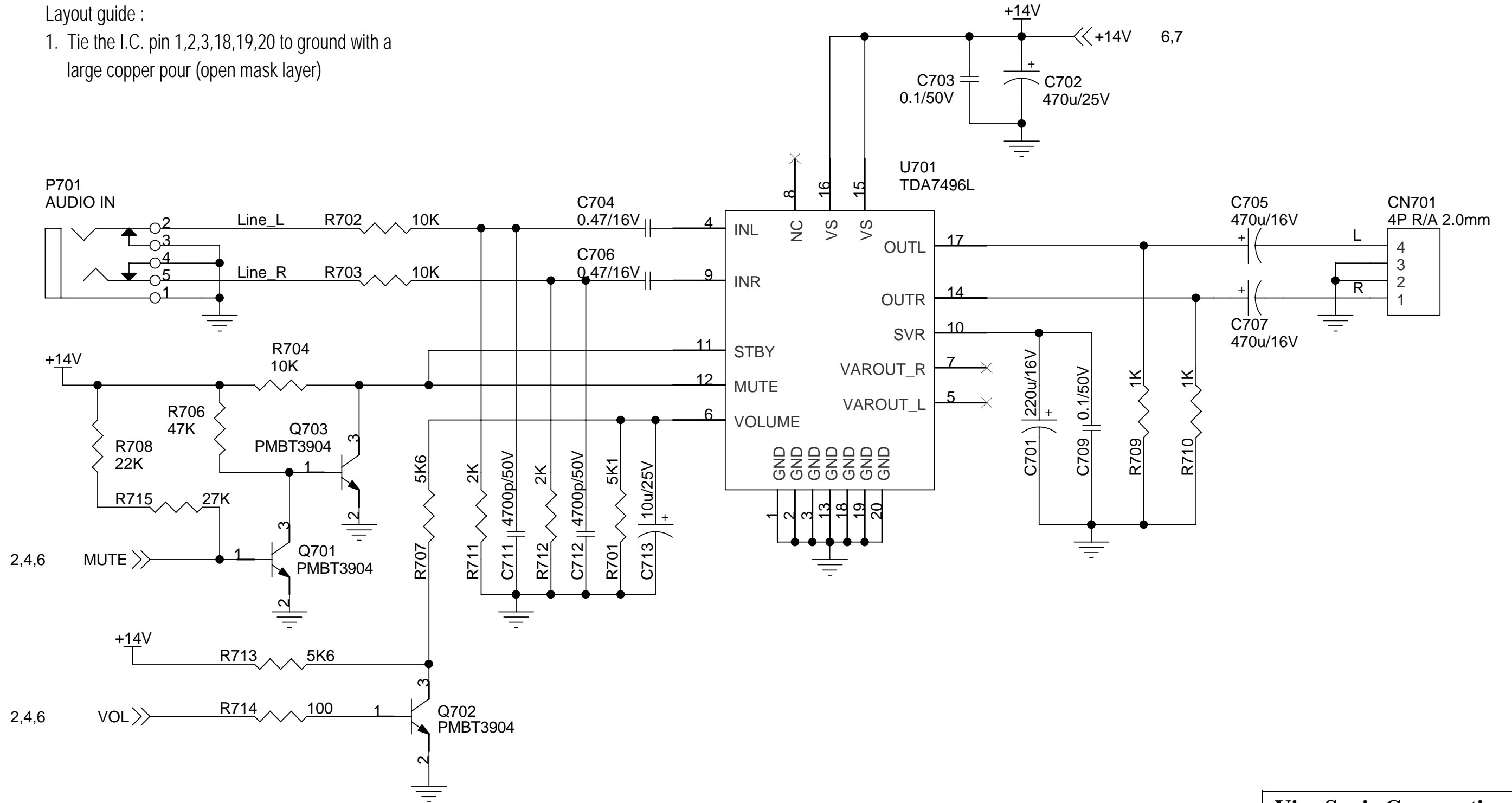
ViewSonic Corporation	
Model	
Title	INPUT
Date	Rev:



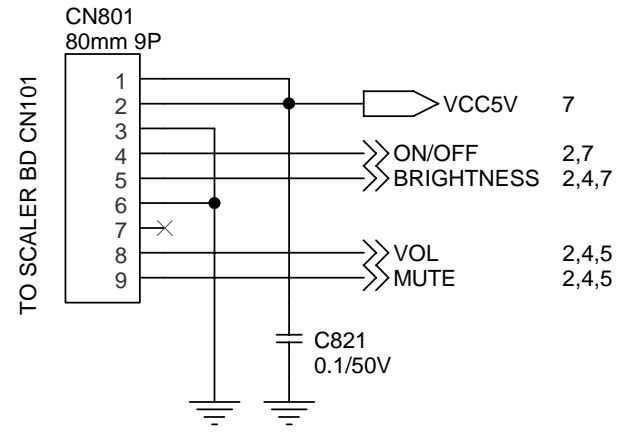
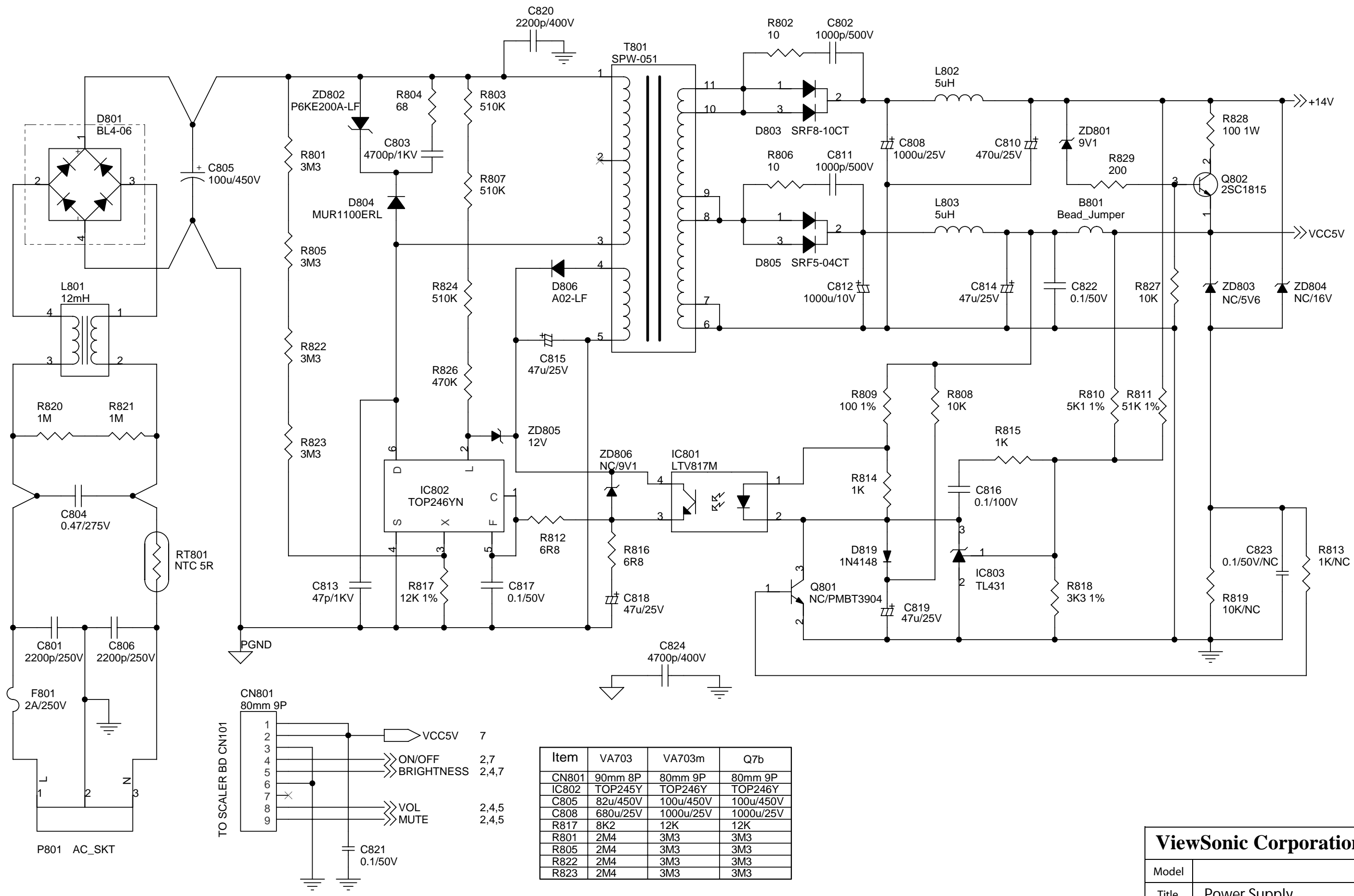
ViewSonic Corporation	
Model	
Title	SCALER
Date	Rev:

Layout guide :

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

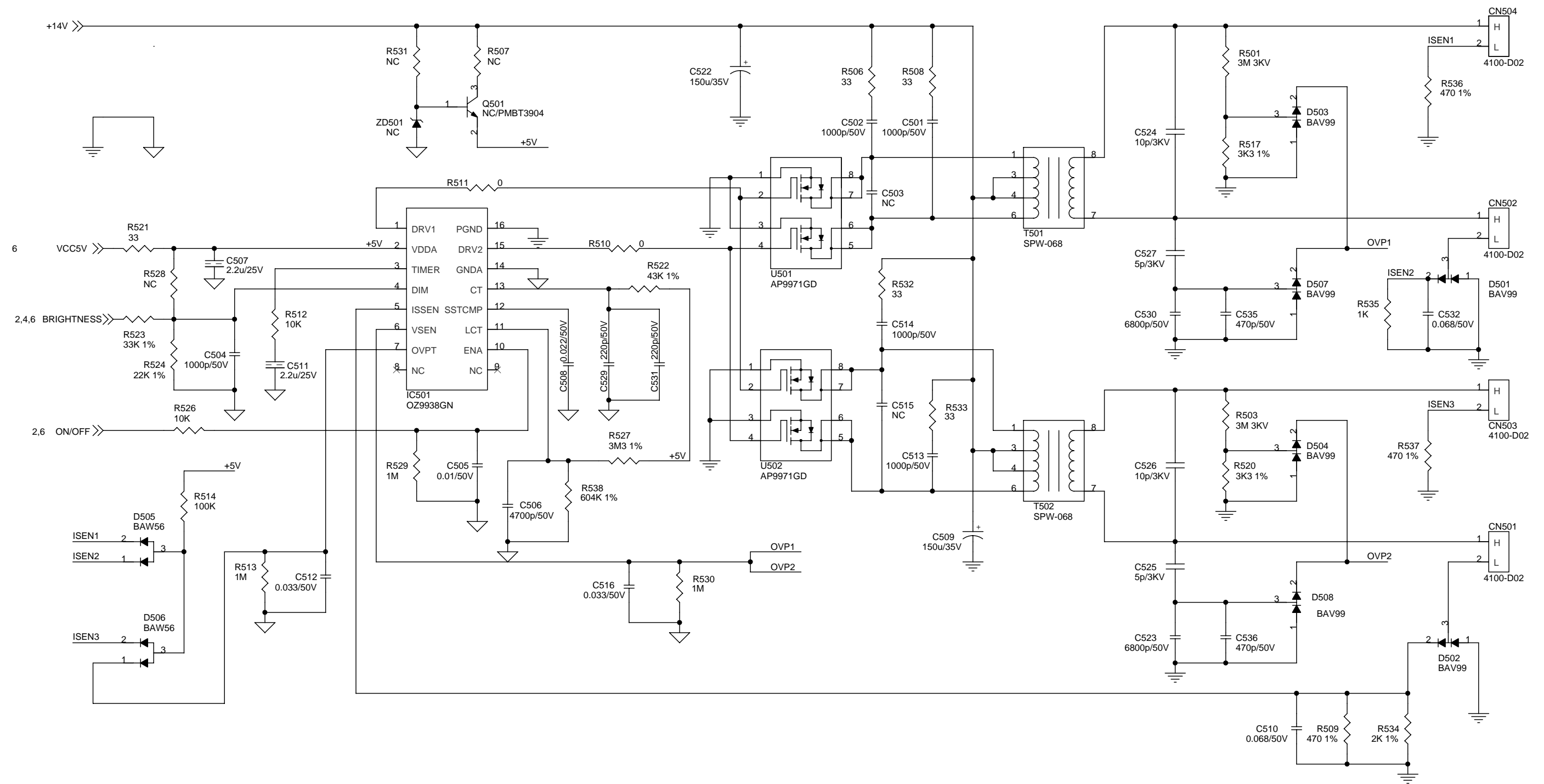


ViewSonic Corporation	
Model	
Title	TDA7496L
Date	Rev:

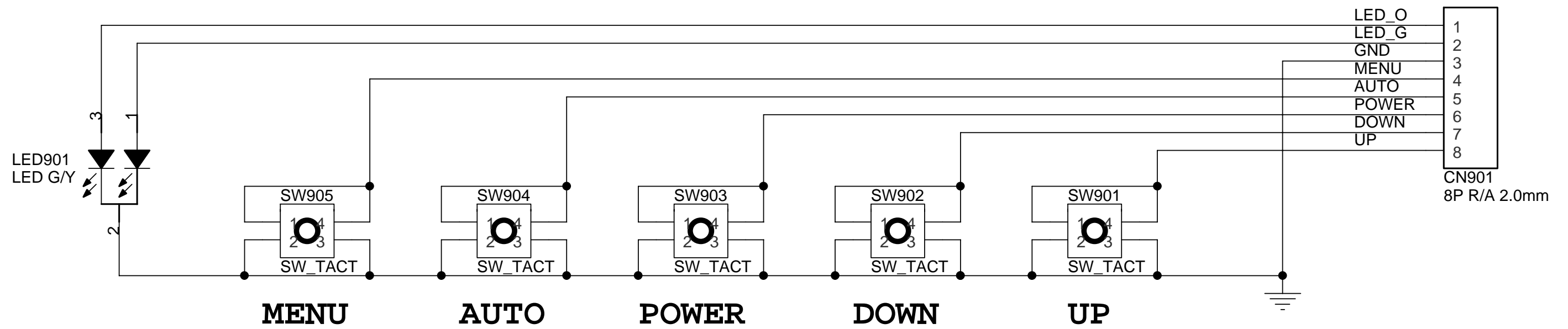


Item	VA703	VA703m	Q7b
CN801	90mm 8P	80mm 9P	80mm 9P
IC802	TOP245Y	TOP246Y	TOP246Y
C805	82u/450V	100u/450V	100u/450V
C808	680u/25V	1000u/25V	1000u/25V
R817	8K2	12K	12K
R801	2M4	3M3	3M3
R805	2M4	3M3	3M3
R822	2M4	3M3	3M3
R823	2M4	3M3	3M3

ViewSonic Corporation	
Model	
Title	Power Supply
Date	Rev:



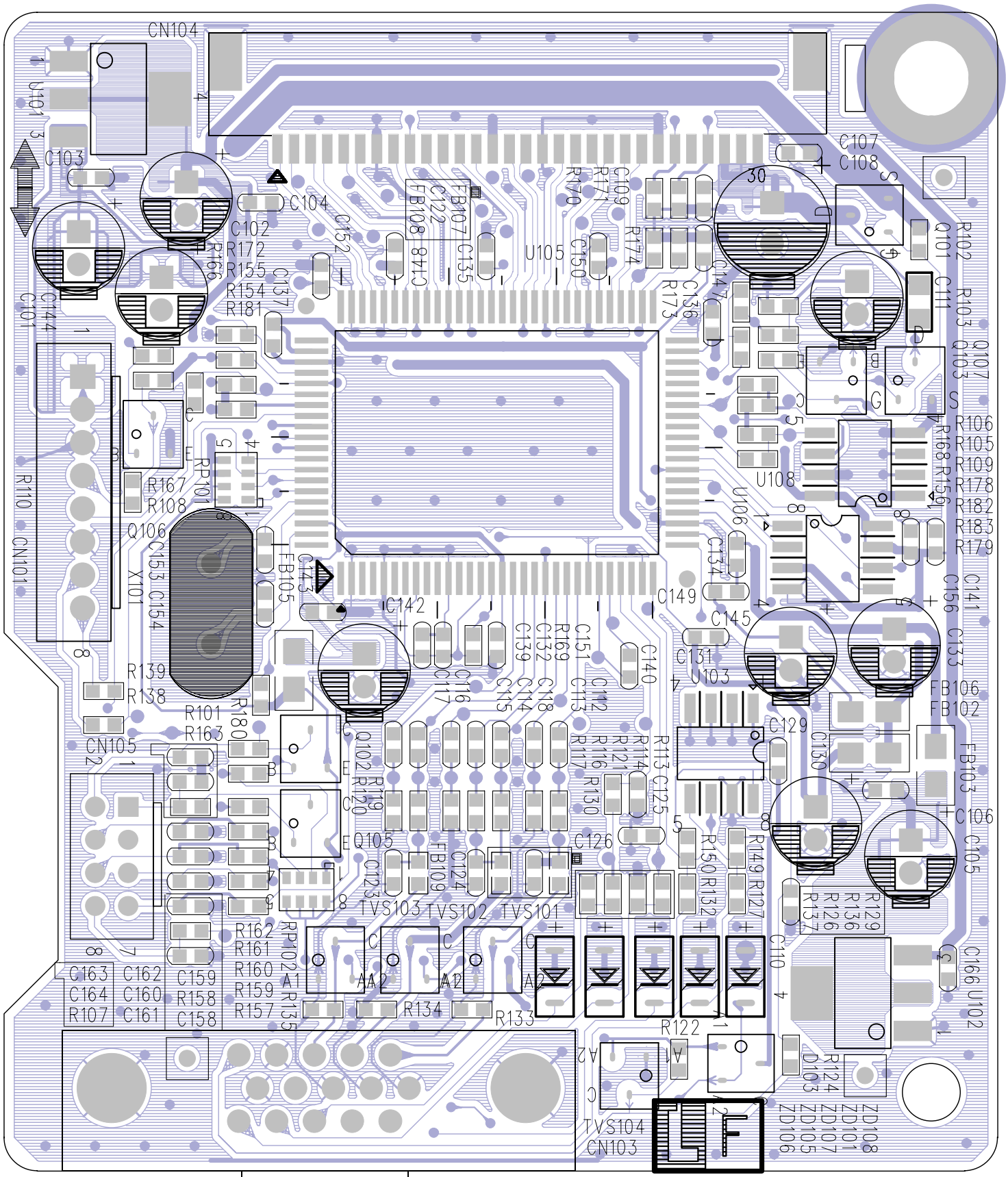
ViewSonic Corporation	
Model	
Title	Inverter
Date	Rev:

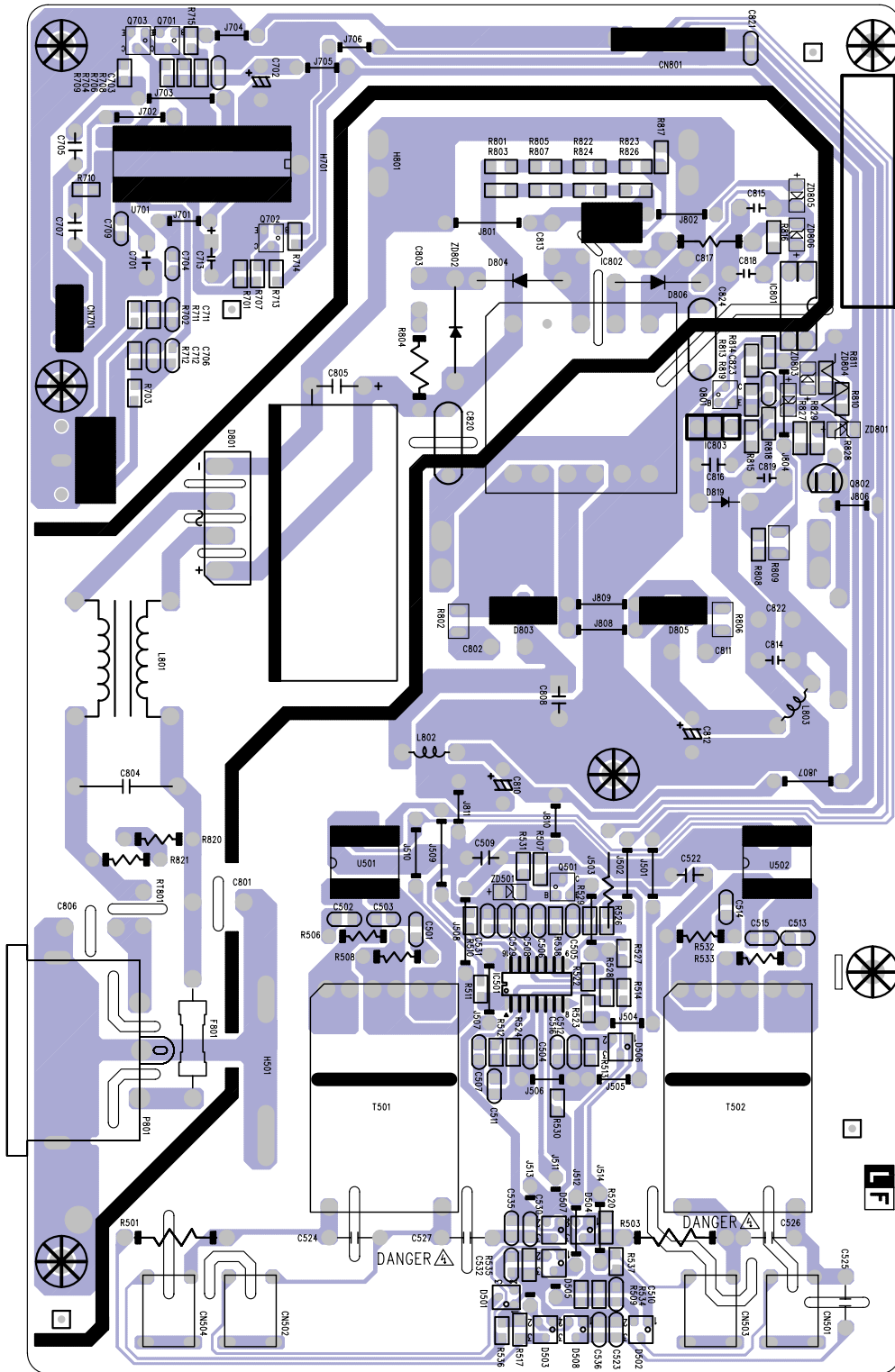


ViewSonic Corporation	
Model	
Title	Keypad
Date	Rev:

11. PCB Layout Diagrams

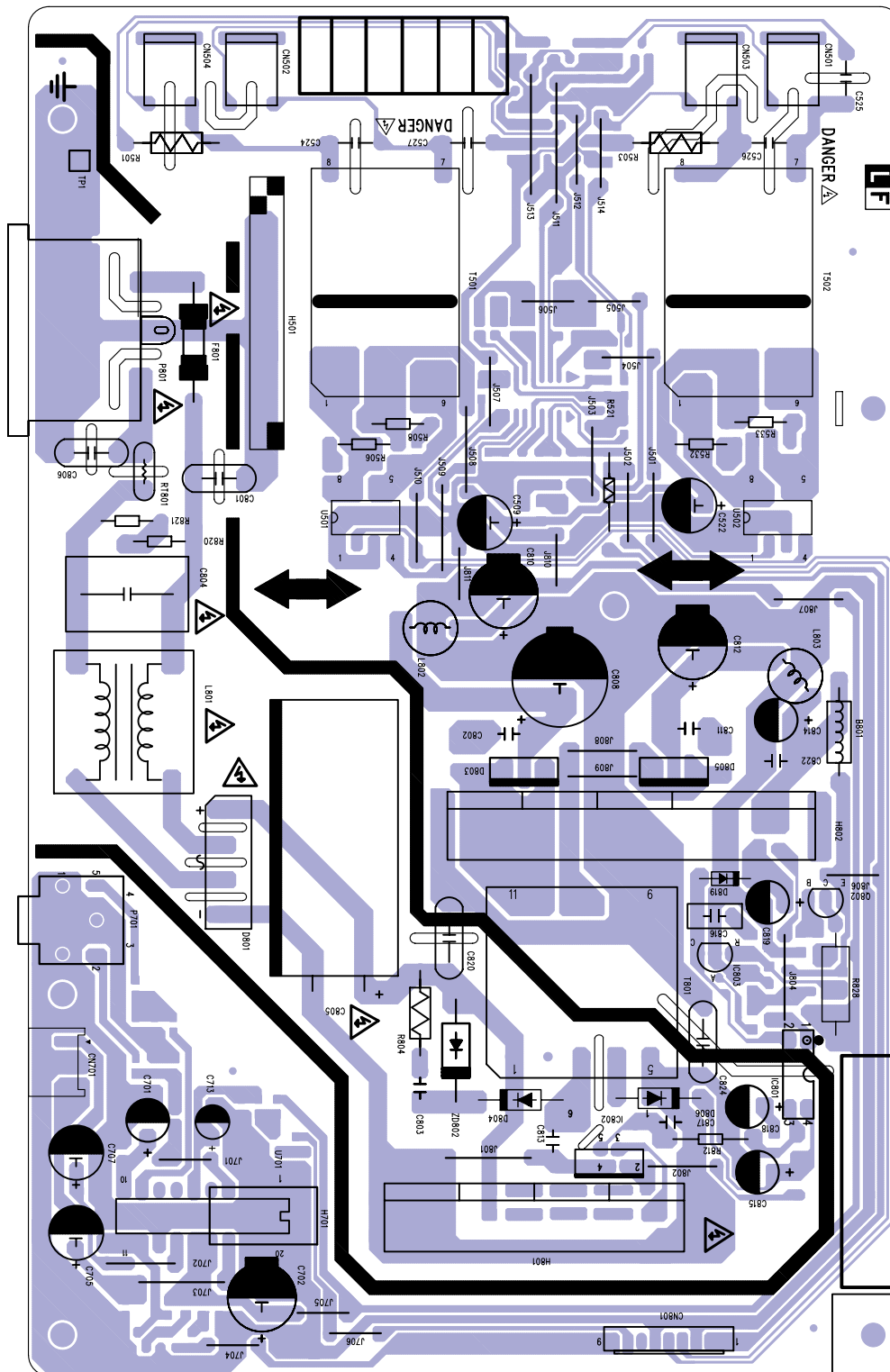
490681300100R





R001R004R800R4

49068140100R



* *Reader's Response* *

Dear Readers:

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

Assessment

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

<i>Unit</i>	<i>Excellent</i>	<i>Good</i>	<i>Fair</i>	<i>Bad</i>
1. Precautions and Safety Notices				
2. Specification				
3. Front Panel Function Control Description				
4. Circuit Description				
5. Adjustment Procedure				
6. Troubleshooting Flow Chart				
7. 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?

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

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

Reader's basic data:

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

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