# Service Manual

# ViewSonic VA912-4
# VA912b-4

## Model No. VS10867

## 19” Color TFT LCD Display

(VA912-4_VA912b-4_SM Rev. 1c Jun. 2006)

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

# Revision History

| Revision | SM Editing Date | ECR Number | Description of Changes | Editor |
|---|---|---|---|---|
| 1a | 11/09/05 | | Initial Release | G. Han |
| 1b | 12/01/05 | | Add assembling, handling notice, packing, firmware documents | Jamie Chang |
| 1c | 06/06/06 | VS-E060116 | Add panel source( Updated RSPL /BOM / EPL / PPL ) | J. Chang |
| | | | | |
| | | | | |
| | | | | |

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# 1. Precautions and Safety Notices

### 1. Appropriate Operation

(1) Turn off the product before cleaning.
(2) Use only a dry soft cloth when cleaning the LCD panel surface.
(3) Use a soft cloth soaked with mild detergent to clean the display housing.
(4) Use only a high quality, safety approved AC/DC power cord.
(5) Disconnect the power plug from the AC outlet if the product will not be used for a long period of time.
(6) If smoke, abnormal noise, or strange odor is present, immediately switch the LCD display off.
(7) Do not touch the LCD panel surface with sharp or hard objects.
(8) Do not place heavy objects on the LCD display, video cable, or power cord.
(9) Do not use abrasive cleaners, waxes or solvents for your cleaning.
(10) Do not operate the product under the following conditions:
- Extremely hot, cold or humid environment.
- Areas containing excessive dust and dirt.
- Near any appliance generating a strong magnetic field.
- In direct sunlight.

### 2. Caution

No modification of any circuit should be attempted. Service work should only be performed after you are thoroughly familiar with all of the following safety checks and servicing guidelines.

### 3. Safety Check

Care should be taken while servicing this LCD display. Because of the high voltage used in the inverter circuit, the voltage is exposed in such areas as the associated transformer circuits.

### 4. LCD Module Handling Precautions

#### 4.1 Handling Precautions

(1) Since front polarizer is easily damaged, pay attention not to scratch it.
(2) Be sure to turn off power supply when connecting or disconnecting input connector.
(3) Wipe off water drops immediately. Long contact with water may cause discoloration or spots.
(4) When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.
(5) Since the panel is made of glass, it may break or crack if dropped or bumped on hard surface.
(6) Since CMOS LSI is used in this module, take care of static electricity and ensure human earth when handling.
(7) Do not open or modify the Module Assembly.
(8) Do not press the reflector sheet at the back of the module in any direction.
(9) In the event that a Module must be put back into the packing container slot after it was taken out of the container, do not press the center of the CCFL Reflector edge. Instead, press at the far ends of the CFL Reflector edge softly. Otherwise the TFT Module may be damaged.
(10) At the insertion or removal of the Signal Interface Connector, be sure not to rotate or tilt the Interface Connector of the TFT Module.

(11) After installation of the TFT Module into an enclosure (LCD monitor housing, for example), do not twist or bend the TFT Module even momentarily. When designing the enclosure, it should be taken into consideration that no bending/twisting forces may be applied to the TFT Module from outside. Otherwise the TFT Module may be damaged.

(12) The cold cathode fluorescent lamp in the LCD contains a small amount of mercury. Please follow local ordinances or regulations for disposal.

(13) The LCD module contains a small amount of materials having no flammability grade. The LCD module should be supplied with power that complies with the requirements of Limited Power Source (IEC60950 or UL1950), or an exemption should be applied for.

(14) The LCD module is designed so that the CCFL in it is supplied by a Limited Current Circuit (IEC60950 or UL1950). Do not connect the CCFL to a Hazardous Voltage Circuit.

# VA912-4 series handling Notice

| Correct Method | Incorrect method |
| --- | --- |
|  |  |

| Correct Method | Incorrect method |
| --- | --- |
|  |  |

| Correct Method | Incorrect method |
| --- | --- |
|  |  |

| Correct Method | Incorrect method |
| --- | --- |
|  |  |

| Correct Method | Incorrect method |
| --- | --- |
|  |  |

## 2. Specification

### PRODUCT DEFINITION AND SPECIFICATION

| Region | VSA (M) | VSAP (A)/(S)/(K) | VSE (E)/(U) | VSCN (G) |
|---|---|---|---|---|
| Product Name | **VA912/b-4 / VA912-4U** | | | |
| Model Number | VS10867 | | | |
| OSD Languages | English, French, German, Italian, Spanish, Finnish, Japanese, Traditional Chinese, Simplified Chinese | | | |
| TFT LCD Panel and Model # | Vendor : HSD, Model # : 190ME13 A02 / A03<br>Vendor : HSD, Model # : 190ME13 A12 / A16 | | | |
| Scalar | Model # : RTD 2523b | | | |
| Input Signal | Analog / Digital | | | |
| Sync Compatibility | Separate | | | |
| Audio | 1W x 2 | | | |
| Power Cable | a. Refer to Appendix D<br>b. U model: (2 power cables are required)<br>1. Schuko CEE7-7 Type Plug<br>2. Separate 3-prong BS 1363 Type Plug | | | |
| 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** | | | |
| DVI Cable(1.8m, color: black) with PC 2001 | **Yes** | **Yes** | **No** | **Yes** |
| 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** | **YES** | **YES** | **YES** |
| Warranty Sticker | NO | NO | NO | **YES** |
| Warranty Card | NO | NO | NO | **YES** |
| Carton Sticker | NO | NO | NO | **YES** |
| PE bag of Carton | NO | NO | NO | **YES** |

## GENERAL SPECIFICATION

| | |
|---|---|
| Test Resolution & Frequency | 1280x1024 @ 60Hz |
| Test Image Size | Full Size |
| Contrast and Brightness Controls | Factory Default:<br>Contrast = 70%, Brightness = 100% |

## VIDEO INTERFACE

| | |
|---|---|
| Analog Input Connector | DB-15 (Analog), refer the appendix A |
| Digital Input Connector | DVI-I (digital) |
| 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 2B |
| Video Signals | 1. Video RGB (Analog)<br>2. DVI (Digital)<br>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 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 870, 1280 x 720, 1280 x 960, 1280 x 1024<br><br>* The image vertical size might not be full screen.<br>But the image vertical position should be at the center. |
| Exclusions | Not compatible with interlaced video |

**POWER SUPPLY**

| | |
|---|---|
| Power Supply (Adapter) | FSP043-2PI01 |
| Input Voltage Range | 90 TO 264 VAC |
| Input Frequency Range | 47 TO 63 HERTZ |
| Short Circuit Protection | Output can be shorted without damage |
| Over Current Protection | 5.13 A typical at 18.1 VDC |
| Leakage Current | 0.25mA (Max) at 264VAC / 50Hz |
| EFFICIENCY | 80 % typical at 115VAC Full Load |
| Fuse | Internal and not user replaceable |
| Power Dissipation | 36 Watts (max) |
| Max Input AC Current | 1.8Arms @ 90VAC, |
| INRUSH CURRENT (COLD START) | 100 A @ 240VAC , 50Hz |
| 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 EN61000-4-4 ±2KV transient test with no damage |
| Power Supply Line Surge Immunity | Shall be able to withstand ±2KV (L-L) and ±2.3KV (L-PE) 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 defined to be in compliance with ISO 7779 (DIN EN27779:1991) Noise measurements of machines acoustics. Power Switch noise shall not be considered |
| US Type Power Cable | Separate 3-prong NEMA 5-15P type plug.<br>Length = 1.8m. Connects to display.<br>Color = Black |
| European Type Power Cable | Schuko CEE7-7 type plug.<br>Length = 1.8m, Connects to display.<br>Color = Black |
| CCC Type Power Cable | Separate 3-prong type plug.<br>Length = 1.8m. Connects to display.<br>Color = Black |
| PSE Type Power Cable | Separate 2-prong NEMA 1-15P type plug.<br>Length = 1.8m. Connects to display.<br>Color = Black |
| Power Saving Operation(Method) | VESA DPMS Signaling |
| Power Consumption | ON Mode < 36 W (max)<br>ACTIVE OFF < 1 W |
| Recovery Time | ON MODE = N/A, ACTIVE OFF < 5 SEC |

## 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 | Digital |
|---|---|---|---|
| 1 | 640 x 350 @ 70Hz, 31.5kHz | Yes | Yes |
| 2 | 640 x 400 @ 60Hz, 31.5kHz | Yes | Yes |
| 3 | 640 x 400 @ 70Hz, 31.5kHz | Yes | Yes |
| 4 | 640 x 480 @ 60Hz, 31.5kHz | Yes | Yes |
| 5 | 640 x 480 @ 67Hz, 35.0kHz | Yes | Yes |
| 6 | 640 x 480 @ 72Hz, 37.9kHz | Yes | Yes |
| 7 | 640 x 480 @ 75Hz, 37.5kHz | Yes | Yes |
| 8 | 640 x 480 @ 85Hz, 43.27kHz | Yes | Yes |
| 9 | 720 x 400 @ 70Hz, 31.5kHz | Yes | Yes |
| 10 | 800 x 600 @ 56Hz, 35.1kHz | Yes | Yes |
| 11 | 800 x 600 @ 60Hz, 37.9kHz | Yes | Yes |
| 12 | 800 x 600 @ 75Hz, 46.9kHz | Yes | Yes |
| 13 | 800 x 600 @ 72Hz, 48.1kHz | Yes | Yes |
| 14 | 800 x 600 @ 85Hz, 53.7kHz | Yes | Yes |
| 15 | 832 x 624 @ 75Hz, 49.7kHz | Yes | Yes |
| 16 | 1024 x 768 @ 60Hz, 48.4kHz | Yes | Yes |
| 17 | 1024 x 768 @ 70Hz, 56.5kHz | Yes | Yes |
| 18 | 1024 x 768 @ 72Hz, 58.1kHz | Yes | Yes |
| 19 | 1024 x 768 @ 75Hz, 60.0kHz | Yes | Yes |
| 20 | 1024 x 768 @ 85Hz, 68.67kHz | Yes | Yes |
| 21 | 1152 x 870 @ 75Hz, 68.7kHz | Yes | Yes |
| 22 | 1280 x 1024 @ 60Hz, 63.4kHz | Yes | Yes |
| 23 | 1280 x 1024 @ 75Hz, 79.97kHz | Yes | Yes |
| 24 | 1280x 720 @ 60Hz, 45kHz (HDTV) | Yes | Yes |

### Primary Presets

1280x1024 @ 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 Adjust" time
- Under DOS mode (640 x 350, 720 x 400 & 640 x 400), there is no "Auto Adjust" feature.
- The monitor needs to do "Auto Adjust" the first time a new mode is detected but except the DOS mode 640 x 350, 720 x 400 & 640 x 400.(see section "0-Touch™ Function Actions")
- While running Change Mode, Auto Adjust or Memory Recall, the image shall blank

## FRONT PANEL CONTROLS AND INDICATORS

### Front Panel Hardware Controls

| | |
|---|---|
| Power Switch (Front Head) | Power Control, soft Power Switch. |
| Power LED (Front Head) | Green – ON<br>Orange – Active Off<br>Dark = Soft Power Switch OFF |
| Front Panel Controls (Head)<br>[◀X] [ 1 ] [? ] [? ] [ 2 ] [⏻] | [⏻] Power<br>[ 1 ] Button 1<br>[ 2 ] Button 2<br>[? ] Up arrow button<br>[? ] Down arrow button<br>[◀ X] MUTE<br><br>Note: Power Button, Button 1 and Button 2 and Mute Button 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 |

### Panel Source Identify

(1) ID label - The panel code “T” for HSD panel should be shown on the lower right side of ID label. (See Figure 2)

(2) UPC label - The panel code “T” for HSD panel should be shown on the lower right side of UPC label. (See Figure 3)

**Panel Characteristics:**

**1st Panel Source**

| | | |
|---|---|---|
| Model number | HSD 190ME13-A02 / A03 | |
| Type | TN type with LVDS interface | |
| Active Size | 376.32 (H) x 301.056 (V) | |
| Pixel Arrangement | RGB Vertical Stripe | |
| Pixel Pitch | 0.294 mm | |
| GLASS TREATMENT | Anti Glare (Hard coating 3H) | |
| # OF BACKLIGHTS | 4 CCFL direct light | |
| BACKLIGHT LIFE | 40,000 Hours (min) | |
| Luminance (Center) –<br>Condition:<br>CT = 6500K, Contrast = Max,<br>Brightness = Max | 250 cd/m2 (Typ after 30 minute warm up)<br>200 cd/m2 (Min after 30 minute warm up) | |
| Brightness Uniformity (9 Points) | U = 80% (typ), 75% (Min).<br>U = Min Luminance in 5 points / Max Luminance in 5 points | |
| Contrast Ratio | 600 (typ), 450 (min) | |
| Color Depth | 16 million colors (6 bit + 2 bit FRC) | |
| Viewing Angle (Horizontal) | @ CR>10<br>Typical: 140<br>Minimum: 120 | @ CR>5<br>Typical: 160<br>Minimum: 140 |
| VIEWING ANGLE (VERTICAL) | @ CR>10<br>Typical: 130<br>Minimum: 110 | @ CR>5<br>Typical: 150<br>Minimum: 130 |
| Response Time<br>10%-90% @ Ta=25℃ | 8ms (Tr= 2 ms, Tf = 6 ms) (typ)<br>20 ms (Tr= 7 ms, Tf = 13 ms) (max) | |
| Panel Defects | Please see Panel Quality Specifications. | |

## 2nd Panel Source

| | | |
|---|---|---|
| Model number | HSD 190ME13-A12 / A16 | |
| Type | TN type with LVDS interface | |
| Active Size | 376.32 (H) x 301.056 (V) | |
| Pixel Arrangement | RGB Vertical Stripe | |
| Pixel Pitch | 0.294 mm | |
| GLASS TREATMENT | Anti Glare (Hard coating 3H) | |
| # OF BACKLIGHTS | 4 CCFL direct light | |
| BACKLIGHT LIFE | 50,000 Hours (min) | |
| Luminance (Center) –<br>Condition:<br>CT = 6500K, Contrast = Max,<br>Brightness = Max | 300 cd/m2 (Typ after 30 minute warm up)<br>240 cd/m2 (Min after 30 minute warm up) | |
| Brightness Uniformity (9 Points) | U = 70% (Min).<br>U = Min Luminance in 5 points / Max Luminance in 5 points | |
| Contrast Ratio | 700 (typ), 450 (min) | |
| Color Depth | 16 million colors (6 bit + 2 bit FRC) | |
| Viewing Angle (Horizontal) | @ CR>10<br>Typical: 150<br>Minimum: 130 | @ CR>5<br>Typical: 160<br>Minimum: TBC |
| VIEWING ANGLE (VERTICAL) | @ CR>10<br>Typical: 135<br>Minimum: 115 | @ CR>5<br>Typical: 155<br>Minimum: TBC |
| Response Time<br>10%-90% @ Ta=25℃ | 8ms (Tr= 2 ms, Tf = 6 ms) (typ)<br>12 ms (Tr= 4 ms, Tf = 8 ms) (max) | |
| Panel Defects | Please see Panel Quality Specifications. | |

## MECHANICAL

### Dimension (Desktop)

| | |
|---|---|
| Width | 437 mm (17.2 inch) |
| Height | 419 mm (16.5 inch) |
| Depth | 216 mm (8.5 inch) |
| Monitor Weight | 4.7 Kg/ 10.4 lbs |

*Refer to Figure 1

### Ergonomics

| | |
|---|---|
| Tilt Up | ≧ 20 º to 18° |
| Tilt Down | ≦ -5 º to -3° |

### Vibration Test

- Vibration Frequency : 2 – 200 Hz
- Acceleration : 1.14 G RMS
- Sweep Time : 1 oct. / min
- Test Time : 60 min per axis, total 3 axis / 6 main face
- Vibration Test Data shall be submitted for approval to ViewSonic before Mass Production

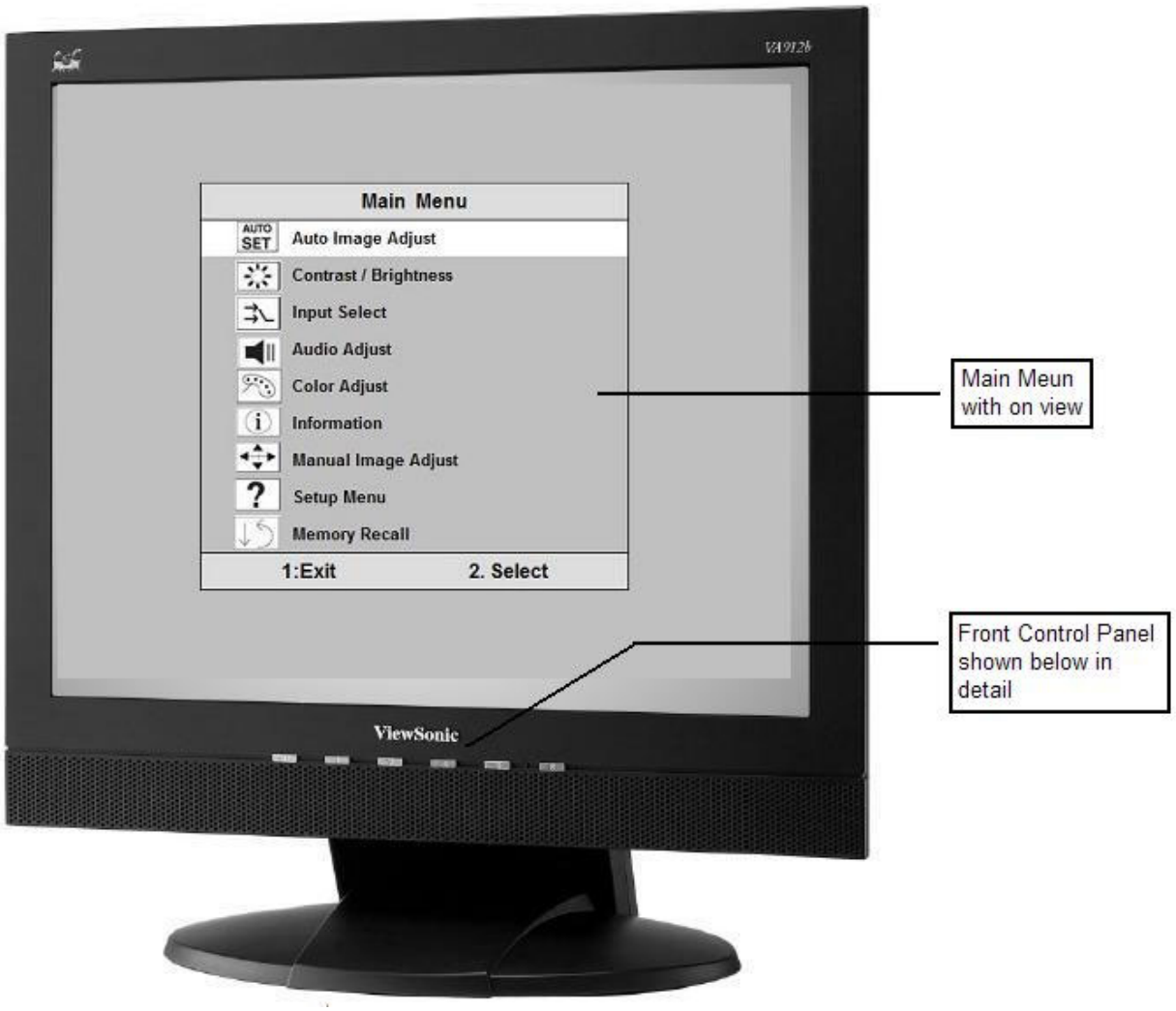
### Drop Test (100G)

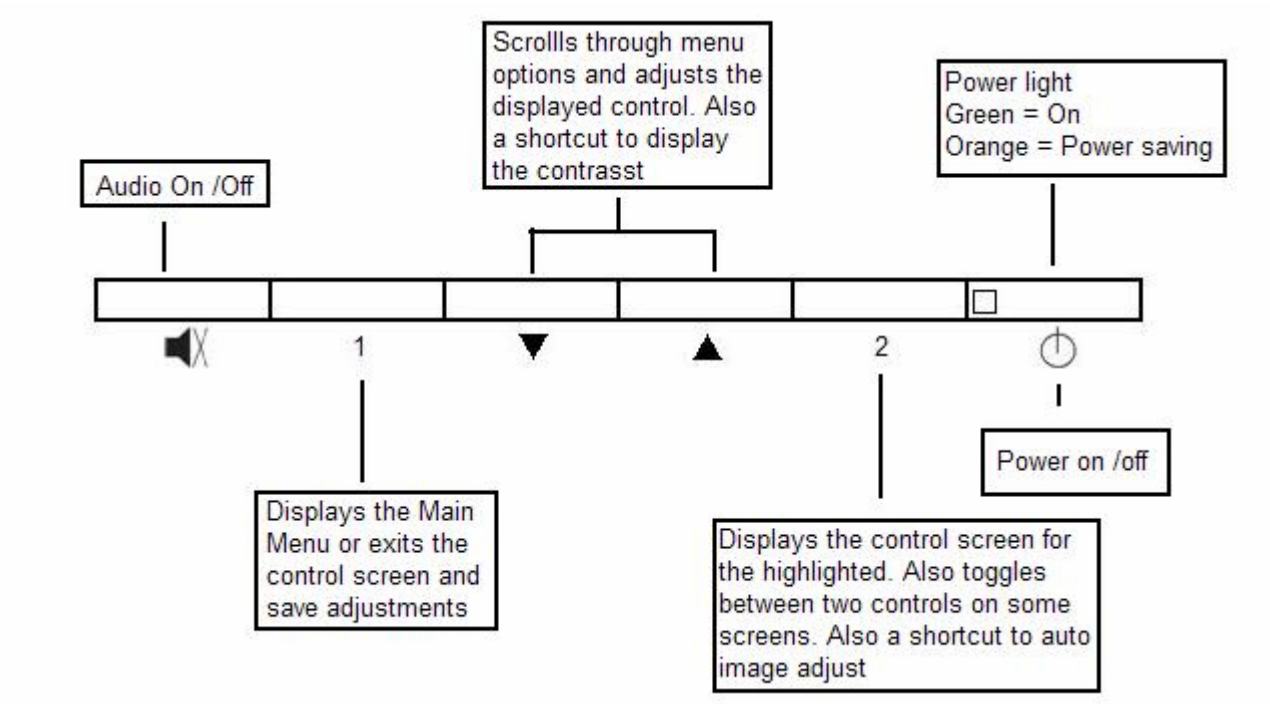
- Weak Corner : 76.2 cm
- Six Faces : 76.2 cm
- 3 Edges Radiating From Weak Corner : 76.2 cm
- Drop Test Data shall be submitted for approval to ViewSonic before Mass Production

## ENVIRONMENTAL

- Operating Temperature : 5°C to +35°C
- Storage Temperature : -20°C to +55°C
- Operating Relative Humidity : 20% to 80% RH Non-Condensing
- Storage Relative Humidity : 20% to 85% RH Non-Condensing
- Operating Altitude : 0 to +3,000 meters
- Storage Altitude : 0 to +12,000 meters

## 3. Front Panel Function Control Description



# ViewSonic VA921-4/VA921b-4/VA912-4U

## Main Menu Controls

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

A. **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.**

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

C. **Brightness adjusts** the lamps current to control the screen brightness.

D. **Input adjusts** the Analogue or the Digital input source

E. **Audio Adjust** the volume increase or decrease and mute function

F. **Color Adjust** provides several color options: preset color temperatures and Custom User Color which allows you to adjust red (R), green (G), and blue (B). The factory setting for this product is 6500K (6500° Kelvin).

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

5400K — Adds red to the screen image for warmer white and richer red.

Custom User Color — Individual adjustments for red, green, and blue.

1 To select color (R, G or B) press button [2].

2 To adjust selected color, press ▲ or ▼ .

3 When you are finished making all color adjustments, press button [1] twice.

G. **Information** displays the timing mode (video signal input) coming from the graphics card in your computer. See your graphic card's user guide for instructions on changing the resolution and refresh rate (vertical frequency). VESA 1280 x 1024 @ 60 Hz (recommended) means that the resolution is 1280 x 1024 and the refresh rate is 60 Hertz.

H. **Manual Image Adjust** controls are explained below:

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

**NOTE: Vertical size is automatic with your LCD display.**

**H./V. Position adjusts** horizontal and vertical position of the screen image. You can toggle between Horizontal and Vertical by pressing button [2]. Horizontal moves the screen image to the left or to the right. Vertical moves the screen image up and down.

**Fine Tune** sharpens focus by aligning the illuminated text and/or graphic characters.

**Sharpness adjusts** the clarity and focus of the screen image.

**Setup Menu** controls are explained below:

**Language allows** you to choose the language used in the menus and control screens.

**Resolution Notice** displays the recommended resolution for this LCD display.

Enable allows the Resolution Notice to appear on-screen.

Disable will not allow the Resolution Notice to appear on-screen.

**OSD Timeout** sets the length of time an on-screen display screen is displayed. For example, with a"15 second" setting, if a control is not pushed within 15 seconds, the display OSD disappears.

I. **OSD Position** allows you to move the on-screen display menus and control screens.

J. **Memory Recall** returns adjustments to the original factory settings if the display is operating in a factory Preset Timing Mode listed in this user guide.

# 4. Circuit Description

## 1. Outline

1.1 Power On/Off, up arrow- button, down arrow button, (1) MENU button, (2) Enter button, Mute button on the front panel.

1.2 D-sub 15pin connector, DVI-D connector, audio line-in receptacle, and AC-IN are located on the back side of the cabinet.

1.3 OSD menu includes the following function;

**Auto Image Adjust (only active under analog input)**

**Contrast/Brightness**

**Input Select**

**Audio Adjust**

**Color Adjust**

**Information**

**Manual Image Adjust**

**Setup Menu**

**Memory Recall**

1.4 Contrast and Brightness can be directly controlled with UP / DOWN key.

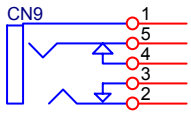
1.5 Audio volume can be controlled with up key and down key when Audio Adjust menu is active.

1.6 Pushing Mute key can disable audio output.

## 2. CONNECTORS

2.1 AC inlet : CEE22 typed connector

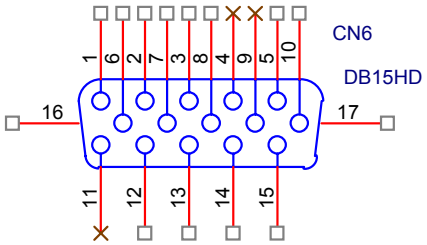
2.2 Audio : Line-in,




Line-in receptacle

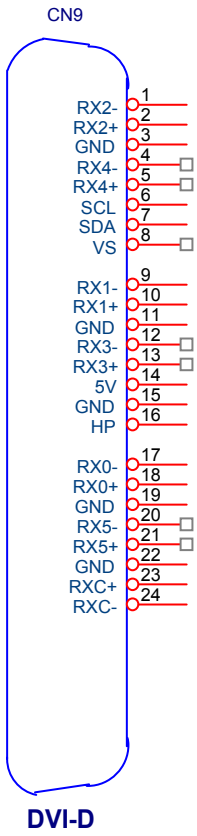
(Line-in receptacle is green)

2.3 Video signal connector for analog input: 15P Mini D-Sub




| PIN | MNEMONI | SIGNAL |
|---|---|---|
| 1 | RV | Red Video |
| 2 | GV | Green Video |
| 3 | BV | Blue Video |
| 4 | NC | None |
| 5 | GND | Ground (DDC return) |
| 6 | RG | Red GND |
| 7 | GG | Green GND |
| 8 | BG | Blue GND |
| 9 | +5V | +5V (for DDC) |
| 10 | SG | Sync GND |
| 11 | NC | None |
| 12 | SDA | DDC Data |
| 13 | HS | Horizontal Sync |
| 14 | VS | Vertical Sync |
| 15 | SCL | DDC Clock |

2.4 Video signal connector for digital input: 24pin DVI-D connector




| Pin No. | Signal Name | Description |
|---|---|---|
| 1 | RX2- | TMDS negative differential input, channel 2 |
| 2 | RX2+ | TMDS positive differential input, channel 2 |
| 3 | GND | Logic Ground |
| 4 | RX4- | Reserved. No connection |
| 5 | RX4+ | Reserved. No connection |
| 6 | SCL | DDC2B Clock |
| 7 | SDA | DDC2B Data |
| 8 | VS | Reserved. No connection |
| 9 | RX1- | TMDS negative differential input, channel 1 |
| 10 | RX1+ | TMDS positive differential input, channel 1 |
| 11 | GND | Logic Ground |
| 12 | RX3- | Reserved. No connection |
| 13 | RX3+ | Reserved. No connection |
| 14 | +5V | Power |
| 15 | GND | Logic Ground |
| 16 | HP | SENSE Pin, Pull High |
| 17 | RX0- | TMDS negative differential input, channel 0 |
| 18 | RX0+ | TMDS positive differential input, channel 0 |
| 19 | GND | Logic Ground |
| 20 | RX5- | Reserved. No connection |
| 21 | RX5+ | Reserved. No connection |
| 22 | GND | Logic Ground |
| 23 | RXC+ | TMDS positive differential input, reference clock |
| 24 | RXC- | TMDS negative differential input, reference clock |

## 3. ELECTRICAL SPECIFICATIONS

### 3.1 Standard conditions

| | |
|---|---|
| Display Area | **376.32 x 301.056 mm** |
| Video Signal | **0.7Vpp** |
| Contrast | **Default** |
| Brightness | **Default** |
| Ambient | **20 +/- 5 ˚C** |
| Input | **AC** |
| Warming up | **> 30 min** |
| Display | **1280 x 1024** |

### 3.2 POWER

3.2.1 Power supply

| | |
|---|---|
| Input voltage | 100~240Vac |
| Power frequency | 50~60Hz |
| Input current | <1.8Arms@90Vac |
| | |
| Inrush current | 100A(Max) at 90Vac(cold start) |
| Power consumption | 36W(typical);40Watts(Max) |
| | |

3.2.2 Power Management

| State | Power | Indicator |
|---|---|---|
| On | 36Watts | Blue |
| Standby | < 1Watts | Amber |
| Off | <1Watts | Off |

### 3.3 Acceptable timing

If the timing is within following specification, this LCD display can automatically function with a certain position.

Horizontal: Sync frequency: 30~82 kHz

Vertical: Sync frequency: 50~85*Hz

### 3.4 Signal level and input impedance

3.4.1 Video Signal level: 0.7Vp-p Video signal.

3.4.2 Sync Signal level

H/V Separate: TTL level

3.4.3 Input impedance

Analog video input: 75 ohm

Digital video input: 100 ohm

Sync input: > 1 k ohm

Audio input: 10K ohm

**4. SIGNAL CABLE:** Signal cable with Mini D-Sub 15P connectors at both ends. Length: 1.8 meter.

**5. EDID data**

5.1. Analog EDID: Analog EDID is stored in U8.

Time: 15:03:33

Date: Fri Aug 05, 2005

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VIEWSONIC CORPORATION

EDID Version # 1, Revision # 3

DDCTest For: ViewSonic VA912-4SERIES

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EDID Block 0, Bytes 0-127

128 BYTES OF EDID CODE:

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 00 | FF | FF | FF | FF | FF | FF | 00 | 5A | 63 |
| 10 | 1C | 72 | 00 | 00 | 00 | 00 | 01 | 0F | 01 | 03 |
| 20 | 08 | 26 | 1E | 78 | 2E | FD | 56 | A5 | 53 | 4A |
| 30 | 9D | 24 | 14 | 4F | 54 | BF | EF | 80 | 81 | 80 |
| 40 | 81 | 40 | 71 | 4F | 61 | 59 | 45 | 59 | 31 | 59 |
| 50 | 01 | 01 | 01 | 01 | 30 | 2A | 00 | 98 | 51 | 00 |
| 60 | 2A | 40 | 30 | 70 | 13 | 00 | 78 | 2D | 11 | 00 |
| 70 | 00 | 1E | 00 | 00 | 00 | FF | 00 | 50 | 57 | 38 |
| 80 | 30 | 35 | 30 | 31 | 30 | 30 | 30 | 30 | 31 | 0A |
| 90 | 00 | 00 | 00 | FD | 00 | 32 | 55 | 1E | 52 | 0E |
| 100 | 00 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 00 |
| 110 | 00 | FC | 00 | 56 | 41 | 39 | 31 | 32 | 2D | 34 |
| 120 | 53 | 45 | 52 | 49 | 45 | 53 | 00 | 18 | | |

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(08-09) ID Manufacturer Name _____ = VSC

(11-10) Product ID Code _____ = 721C

(12-15) Last 5 Digits of Serial Number _____ = Not Used

(16) Week of Manufacture _____ = 01

(17) Year of Manufacture _____ = 2005

(10-17) Complete Serial Number _____ = See Descriptor Block

(18) EDID Version Number _____ = 1

(19) EDID Revision Number _____ = 3

(20) VIDEO INPUT DEFINITION:

Analog Signal

0.700, 0.300 (1.000 Vp-p)

Separate Syncs

(21) Maximum Horizontal Image Size _____ = 380 mm

(22) Maximum Vertical Image Size _____ = 300 mm

(23) Display Gamma _____ = 2.20

(24) Power Management and Supported Feature(s):

Active Off/Very Low Power, Standard Default Color Space,

Preferred Timing Mode
Display Type = R/G/B Color

(25-34) CHROMA INFO:
Red X - 0.647 Green X - 0.292 Blue X - 0.142 White X - 0.310
Red Y - 0.327 Green Y - 0.614 Blue Y - 0.079 White Y - 0.330

(35) ESTABLISHED TIMING I:
720 X 400 @ 70Hz (IBM,VGA)
640 X 480 @ 60Hz (IBM,VGA)
640 X 480 @ 67Hz (Apple,Mac II)
640 X 480 @ 72Hz (VESA)
640 X 480 @ 75Hz (VESA)
800 X 600 @ 56Hz (VESA)
800 X 600 @ 60Hz (VESA)

(36) ESTABLISHED TIMING II:
800 X 600 @ 72Hz (VESA)
800 X 600 @ 75Hz (VESA)
832 X 624 @ 75Hz (Apple,Mac II)
1024 X 768 @ 60Hz (VESA)
1024 X 768 @ 70Hz (VESA)
1024 X 768 @ 75Hz (VESA)
1280 X 1024 @ 75Hz (VESA)

(37) Manufacturer's Reserved Timing:
1152 X 870 @ 75Hz (Apple,Mac II)

(38-53) Standard Timing Identification:
1280 X 1024 @60Hz
1280 X 960 @60Hz
1152 X 864 @75Hz
1024 X 768 @85Hz
800 X 600 @85Hz
640 X 480 @85Hz
Not Used
Not Used

---

(54-71) Detailed Timing / Descriptor Block 1:
1280x1024 Pixel Clock: 108.00 MHz

---

Horizontal Image Size: 376 mm Vertical Image Size: 301 mm
Refreshed Mode: Non-Interlaced Normal Display - No Stereo

Horizontal:

| | |
|---|---|
| Active Time: 1280 pixels | Blanking Time: 408 pixels |
| Sync Offset: 48 pixels | Sync Pulse Width: 112 pixels |
| Border: 0 pixels | Frequency: 63.98 KHz |

Vertical:

| | |
|---|---|
| Active Time: 1024 lines | Blanking Time: 42 lines |
| Sync Offset: 1 lines | Sync Pulse Width: 3 lines |

Border: 0 lines Frequency: 60.02 Hz

Digital Separate, Horizontal Polarity (+) Vertical Polarity (+)

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(72-89) Detailed Timing / Descriptor Block 2:

Monitor Serial Number:
PW8050100001

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(90-107) Detailed Timing / Descriptor Block 3:

Monitor Range Limits:
Min Vertical Freq - 50 Hz
Max Vertical Freq - 85 Hz
Min Horiz. Freq - 30 KHz
Max Horiz. Freq - 82 KHz
Pixel Clock - 140 MHz
Secondary GTF - Not Supported

---

(108-125) Detailed Timing / Descriptor Block 4:

Monitor Name:
VA912-4SERIES

(126) No Extension EDID Block(s)
(127) CheckSum OK

5.2. Digital EDID: Digital EDID is stored in U5.

Time: 15:02:23

Date: Fri Aug 05, 2005

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VIEWSONIC CORPORATION
EDID Version # 1, Revision # 3
DDCTest For: ViewSonic VA912-4SERIES

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EDID Block 0, Bytes 0-127
128 BYTES OF EDID CODE:

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 00 | FF | FF | FF | FF | FF | FF | 00 | 5A | 63 |
| 10 | 1C | 72 | 00 | 00 | 00 | 00 | 01 | 0F | 01 | 03 |
| 20 | 80 | 26 | 1E | 78 | 2E | FD | 56 | A5 | 53 | 4A |
| 30 | 9D | 24 | 14 | 4F | 54 | BF | EF | 80 | 81 | 80 |
| 40 | 81 | 40 | 71 | 4F | 61 | 59 | 45 | 59 | 31 | 59 |
| 50 | 31 | 0A | 01 | 01 | 30 | 2A | 00 | 98 | 51 | 00 |
| 60 | 2A | 40 | 30 | 70 | 13 | 00 | 78 | 2D | 11 | 00 |
| 70 | 00 | 1E | 00 | 00 | 00 | FF | 00 | 50 | 57 | 38 |
| 80 | 30 | 35 | 30 | 31 | 30 | 30 | 30 | 30 | 31 | 0A |
| 90 | 00 | 00 | 00 | FD | 00 | 32 | 55 | 1E | 52 | 0E |
| 100 | 00 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 00 |
| 110 | 00 | FC | 00 | 56 | 41 | 39 | 31 | 32 | 2D | 34 |
| 120 | 53 | 45 | 52 | 49 | 45 | 53 | 00 | 67 | | |

(08-09) ID Manufacturer Name _____ = VSC
(11-10) Product ID Code _____ = 721C
(12-15) Last 5 Digits of Serial Number _____ = Not Used
(16) Week of Manufacture _____ = 01
(17) Year of Manufacture _____ = 2005
(10-17) Complete Serial Number _____ = See Descriptor Block
(18) EDID Version Number _____ = 1
(19) EDID Revision Number _____ = 3
(20) VIDEO INPUT DEFINITION:
Digital Signal
Non - VESA DFP 1.x Compatible

(21) Maximum Horizontal Image Size _____ = 380 mm
(22) Maximum Vertical Image Size _____ = 300 mm
(23) Display Gamma _____ = 2.20
(24) Power Management and Supported Feature(s):
Active Off/Very Low Power, Standard Default Color Space,
Preferred Timing Mode
Display Type = R/G/B Color
(25-34) CHROMA INFO:
Red X - 0.647 Green X - 0.292 Blue X - 0.142 White X - 0.310
Red Y - 0.327 Green Y - 0.614 Blue Y - 0.079 White Y - 0.330
(35) ESTABLISHED TIMING I:
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640 X 480 @ 60Hz (IBM,VGA)
640 X 480 @ 67Hz (Apple,Mac II)
640 X 480 @ 72Hz (VESA)
640 X 480 @ 75Hz (VESA)
800 X 600 @ 56Hz (VESA)
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(36) ESTABLISHED TIMING II:

800 X 600 @ 72Hz (VESA)
800 X 600 @ 75Hz (VESA)
832 X 624 @ 75Hz (Apple,Mac II)
1024 X 768 @ 60Hz (VESA)
1024 X 768 @ 70Hz (VESA)
1024 X 768 @ 75Hz (VESA)
1280 X 1024 @ 75Hz (VESA)

(37) Manufacturer's Reserved Timing:
1152 X 870 @ 75Hz (Apple,Mac II)

(38-53) Standard Timing Identification:
1280 X 1024 @60Hz
1280 X 960 @60Hz
1152 X 864 @75Hz
1024 X 768 @85Hz
800 X 600 @85Hz
640 X 480 @85Hz
640 X 400 @70Hz
Not Used

---

(54-71) Detailed Timing / Descriptor Block 1:
1280x1024 Pixel Clock: 108.00 MHz

---

Horizontal Image Size: 376 mm Vertical Image Size: 301 mm
Refreshed Mode: Non-Interlaced Normal Display - No Stereo

Horizontal:
Active Time: 1280 pixels Blanking Time: 408 pixels
Sync Offset: 48 pixels Sync Pulse Width: 112 pixels
Border: 0 pixels Frequency: 63.98 KHz

Vertical:
Active Time: 1024 lines Blanking Time: 42 lines
Sync Offset: 1 lines Sync Pulse Width: 3 lines
Border: 0 lines Frequency: 60.02 Hz

Digital Separate, Horizontal Polarity (+) Vertical Polarity (+)

---

(72-89) Detailed Timing / Descriptor Block 2:

Monitor Serial Number:
PW8050100001

---

(90-107) Detailed Timing / Descriptor Block 3:

Monitor Range Limits:
Min Vertical Freq - 50 Hz
Max Vertical Freq - 85 Hz
Min Horiz. Freq - 30 KHz
Max Horiz. Freq - 82 KHz
Pixel Clock - 140 MHz
Secondary GTF - Not Supported

---

(108-125) Detailed Timing / Descriptor Block 4:

Monitor Name:
VA912-4SERIES

(126) No Extension EDID Block(s)
(127) CheckSum OK

## 6. THEORY OF OPERATION

This section describes the function of the LCD monitor per functional block.
This monitor includes MB board, power/inverter board and button board.

### 6.1 MB BOARD

The MB board is a two-layer, single-landed. 5V and 12V DC power from the power adapter enters the board through connector CN1. Other connectors on the board are for audio and button board .The VGA cable is a signal cable that contains video signal, sync signal and DDC signal from PC VGA adapter. This system board consists of 4 functional areas: flat panel controller, flash ROM, power regulator and Audio amplifier

**6.1.1** Flat panel controller… RTD2523 (U6)

The heart of the system board is the scalar chip of RTD2523. The RTD2523 is a high performance, dual input graphics processing IC for LCD monitors with resolutions up to SXGA. It provides all key IC functions required for LCD panel. On-chip functions include an 8-bit triple ADC, PLL, DVI receiver, high scaling engine, OSD controller and dual LVDS transmitter.

a) Clock Generation:
Crystal Input Clock (XIN and XOUT): This is the input pair to an internal crystal oscillator and corresponding logic. A 24.576 MHz crystal is recommended.

b) Hardware Reset (Pin 56):
Hardware Reset signal is provided to MCU (I1). It is active high.

c) Analog to Digital Converter:
The RTD2523 chip has three ADC's (analog-to-digital converters), one for each color (red, green and blue) .The analog RGB and synchronous signals are connected to RTD2523 as described below:

| Pin Name | Pin Number |
|---|---|
| Red + | 37 |
| Red - | 38 |
| Green + | 34 |

| | |
|---|---|
| Green - | 35 |
| Blue + | 30 |
| Blue - | 31 |
| H sync | 42 |
| V sync | 43 |

d) Embedded OSD: Embedded 11.25K SRAM dynamically stores OSD command and fonts.

e) On chip TMDS receiver: The RTD2523 integrated TMDS receiver, which operates up to 165MHz and can directly connect to all DVI compliant TMDS transmitters. The TMDS signals are connected to RTD2523 as described bellow:

| Pin Name | Pin NO. |
|---|---|
| TX0+ | 20 |
| TX0- | 21 |
| TX1+ | 18 |
| TX1- | 17 |
| TX2+ | 15 |
| TX2- | 14 |
| TXC+ | 23 |
| TXC- | 24 |

f) PWM controlling function (Pin 112, Pin 113): The RTD2523 has two dedicated PWM outputs of PWM0 and PWM1 to control audio volume and back light brightness.

g) Serial interface ports (pin 70 and pin 71): This serial interface ports communicate with MCU and support up to 400Kbit per second transmit rate.

h) Panel interface (Pin 85~94, Pin 73~82,) : The RTD2523 driver interface is highly programmable. It supports dual /Single LVDS interface output.

**6.1.2** Power Regulator AIC1117 (U1, U3): The AIC1117 is a low dropout positive adjustable regulator with minimum of 800mA output current capability.

So it is well suited for 3.3 V and 2.5 V Regulator.

U3 as a 2.5V regulator, Desired output voltage are determined by the equation

Volt=1.25 x (1 + R17/R15)= 2.5

U1 as a 3.3V regulator, Desired output voltage are determined by the equation

Volt=1.255 x (1+ R6/R3)= 3.3

**6.2 Audio Amplifier UTC TDA7496L(U9)**

The TDA7496L is a stereo 2W+2W class AB power amplifier; Features of the TDA7496L include linear volume control, Stand-by and mute functions.

**6.3 Power/Inverter Board**

This is a specific power/inverter for VA912 monitor 45W 5V + 12V power and backlight which converters 12Vdc to drive four cold cathode fluorescence tubes. Electrical specification described as below.

**6.3.1** Inverter Electrical specification described as below.

| | | |
|---|---|---|
| INPUT | Rated Input Voltage | 12Vdc |
| | Input Voltage Range | 11.4~12.6Vdc |
| | Input Current | <1.96A |
| | Off state Input Power | <0.1W |

| | | |
|---|---|---|
| | On / off control Voltage | 2~5.25 for on, 0~0.13 for off |
| OUTPUT | Rated Output Strike-on Voltage | 1500~2000Vrms |
| | Rated Output Voltage | 710Vrms at 6mA |
| | Rated Output Frequency | 40~50KHz |
| | Rated Output Current | 6~7mA |

**6.3.2** Power Electrical specification described as below.

| | | |
|---|---|---|
| INPUT | Rated Input Voltage | 90~264Vac, 47~63Hz |
| | Operation Input Voltage | 100~240Vac, 50~60Hz |
| | Input Current | <1.8A@90Vac |
| | Inrush Current | <100A @ 90Vac(Cold start) |
| | Efficiency | 80 % TYPICAL AT 115VAC FULL LOAD |
| OUTPUT | Output Voltage Regulation | +/-5% |
| | Output Ripple and Noise | 120 mVp-p |
| | Rated Output Current | <4.16A |
| | Turn-on Delay | <3 seconds |

# 5. Adjustment Procedure

**1. Function test**

(1) Test equipment
Color video signal and pattern generator (or PC with SXGV resolution)

(2) Test condition
Before function testing and alignment, the unit must warm up for at least 30 minutes under the following conditions:

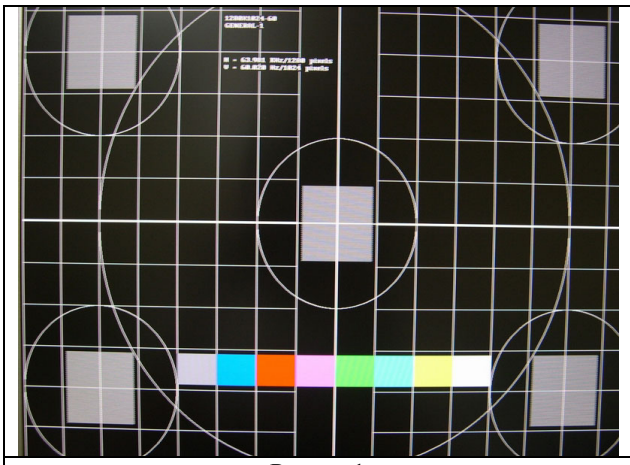
1. Room temperature
2. With full-white screen , RGB , black pattern
3. with cycled display modes.

**2. Test display modes**

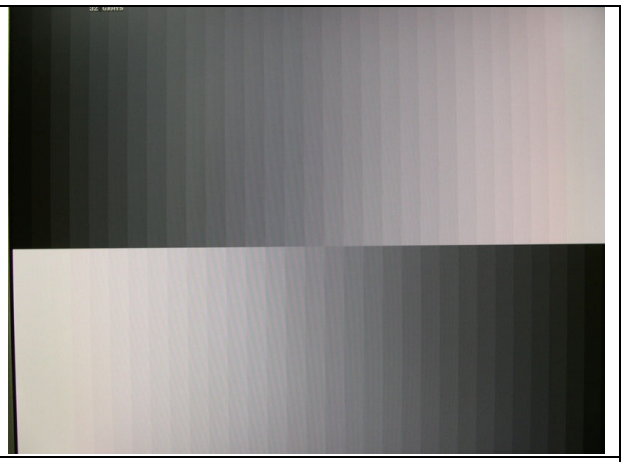
| Item | Timing | Analog | Digital |
|---|---|---|---|
| 1 | 640 x 350 @ 70Hz, 31.5kHz | Yes | Yes |
| 2 | 640 x 400 @ 60Hz, 31.5kHz | Yes | Yes |
| 3 | 640 x 400 @ 70Hz, 31.5kHz | Yes | Yes |
| 4 | 640 x 480 @ 60Hz, 31.5kHz | Yes | Yes |
| 5 | 640 x 480 @ 67Hz, 35.0kHz | Yes | Yes |
| 6 | 640 x 480 @ 72Hz, 37.9kHz | Yes | Yes |
| 7 | 640 x 480 @ 75Hz, 37.5kHz | Yes | Yes |
| 8 | 640 x 480 @ 85Hz, 43.27kHz | Yes | Yes |
| 9 | 720 x 400 @ 70Hz, 31.5kHz | Yes | Yes |
| 10 | 800 x 600 @ 56Hz, 35.1kHz | Yes | Yes |
| 11 | 800 x 600 @ 60Hz, 37.9kHz | Yes | Yes |
| 12 | 800 x 600 @ 75Hz, 46.9kHz | Yes | Yes |
| 13 | 800 x 600 @ 72Hz, 48.1kHz | Yes | Yes |
| 14 | 800 x 600 @ 85Hz, 53.7kHz | Yes | Yes |
| 15 | 832 x 624 @ 75Hz, 49.7kHz | Yes | Yes |
| 16 | 1024 x 768 @ 60Hz, 48.4kHz | Yes | Yes |
| 17 | 1024 x 768 @ 70Hz, 56.5kHz | Yes | Yes |
| 18 | 1024 x 768 @ 72Hz, 58.1kHz | Yes | Yes |
| 19 | 1024 x 768 @ 75Hz, 60.0kHz | Yes | Yes |
| 20 | 1024 x 768 @ 85Hz, 68.67kHz | Yes | Yes |
| 21 | 1152 x 870 @ 75Hz, 68.7kHz | Yes | Yes |
| 22 | 1280 x 1024 @ 60Hz, 63.4kHz | Yes | Yes |
| 23 | 1280 x 1024 @ 75Hz, 79.97kHz | Yes | Yes |
| 24 | 1280x 720 @ 60Hz, 45kHz (HDTV) | Yes | Yes |

### 3. Test pattern

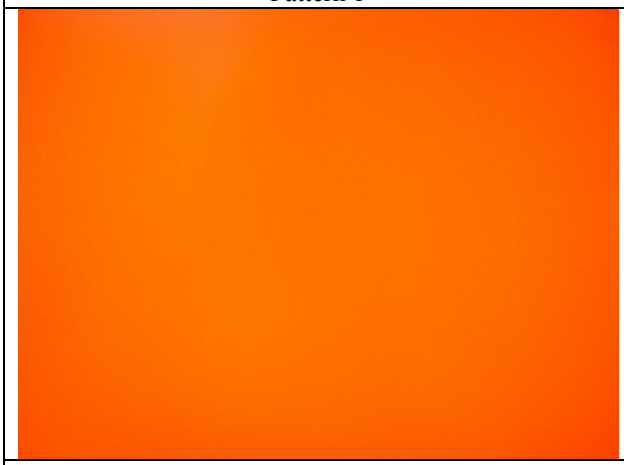
| Item | Test condition | Pattern | Specification | Remark |
|---|---|---|---|---|
| 1 | Frequency & performance | Cross-hatch pattern | No noise is allowed, all colors must be clear | Pattern 1 |
| 2 | Monitor saturation | 16-gray scale pattern | 3 to 4 levels must be saturated when brightness and contrast are set to 100% | Pattern 2 |
| 3 | RGB color performance | RGB color | Check the color temperature of RGB signal color | Pattern 3, 4, 5 |
| 4 | Sub-pixel defect | RGB color | Check the sub-pixel defect | Pattern 3, 4 , 5 |
| 5 | Full white | Full white | Check the brightness and contrast ratio, and check for bright pixel defects | Pattern 6 |
| 6 | Full black | Full black | | Pattern 7 |
| 7. | 5-cycle pattern | 5-cycle pattern | Check the BU | Pattern 8 |
| 8. | 1-dot pattern | 1-dot pattern | Check the flicker | Pattern 9 |



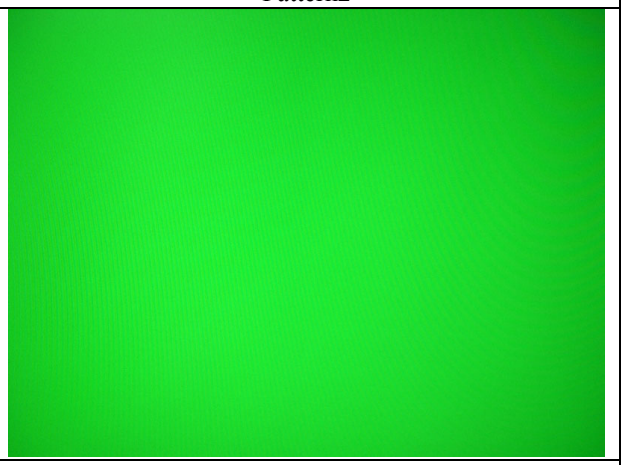
Pattern 1



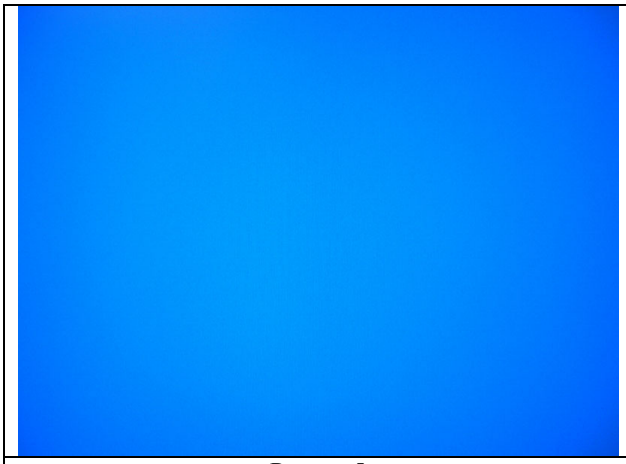
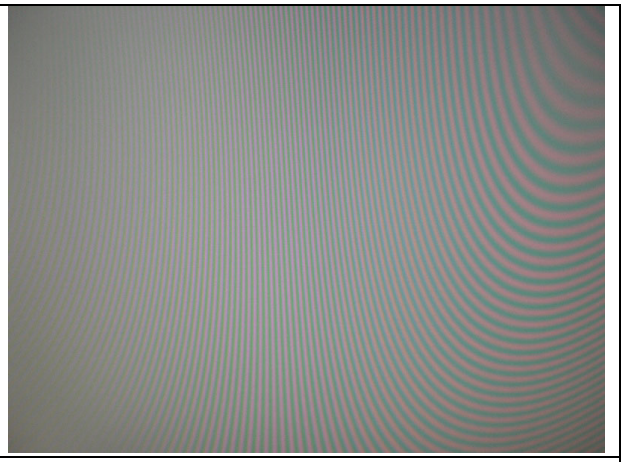
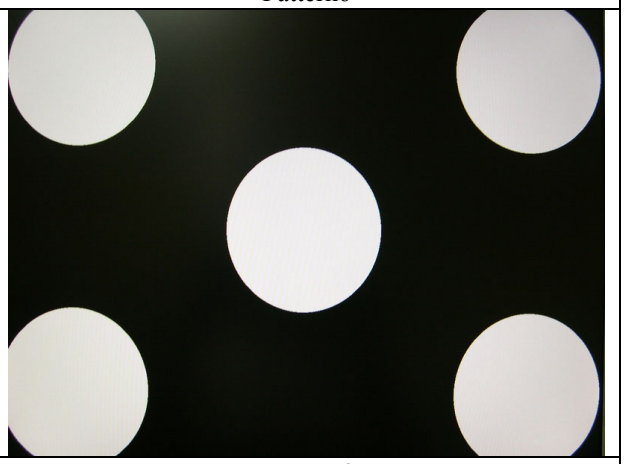
Pattern2



Pattern 3



Pattern4

| | |
|---|---|
|  |  |
| Pattern 5 | Pattern6 |
|  |  |
| Pattern 7 | Pattern 8 |
|  | |
| Pattern 9 | |

# OSD Function Menu

## A. When in Analog Input Mode

### 1. Main Menu

Press the [1] (Menu) button to enter the Main Menu:
Press the [▲] button to highlight the previous item or the [▼] button to highlight the next item.
Press the [1] (Menu) button to exit the Main Menu.

**(1) Auto Image Adjust Page:**

Press the [2] button to execute the auto image adjust function.
Press the [1] button to exit the page.

**(2) Contrast/Brightness Page:**

Press the [2] button to enter the contrast adjustment page.
Press the [1] button to exit the page.

**1) Contrast Item**

Press the [▲] button to increase the contrast.
Press the [▼] button to decrease the contrast.
Press the [2] button to enter the brightness adjustment page.
Press the [1] button to exit the page.

**2) Brightness Item**

Press the [▲] button to increase the brightness.
Press the [▼] button to decrease the brightness.
Press the [2] button to enter the contrast adjustment page.
Press the [1] button to exit the page.

**(3) Input Select Page:**

Press the [2] button to switch to digital input mode.

**(4) Audio Adjust Page:**

Press the [▲] button to increase the volume.
Press the [▼] button to decrease the volume.
Press the [2] button to enable or disable mute function .
Press the [1] button to exit the page.

**(5) Color Adjust Page:**

Press the [2] button to enter the color adjustment page.
Press the [1] button to exit the page.
Press the [▲] button to highlight the previous item or the [▼] button to highlight the next item.

**1) sRGB Item**
**2) 9300K Item**
**3) 6500K Item**
**4) 5400K Item**
**5) 5000K Item**

Press the [2] button to select the currently highlighted item.
Press the [1] button to exit the currently highlighted item.

**6) User Color Item**

Press the [2] button to enter the user color page.

Press the [1] button to exit the page.
**Red, Green, Blue Options:**
Press the [2] button to cycle among the colors.
Press the [1] button to exit the page.
Press the [▲] button to increase the selected color level.
Press the [▼] button to decrease the selected color level.

**(6) Information Page:**
Press the [2] button to enter the information page.
Press the [1] button to exit the information page.

**(7) Manual Image Adjust Page:**
Press the [2] button to enter the manual image adjustment page.
Press the [1] button to exit the page.
Press the [▲] button to highlight the previous item or the [▼] button to highlight the next item.

**1) H./V. Position Item**
Press the [2] button to enter the horizontal/vertical postion adjustment page.
Press the [1] button to exit the page.

**a) Horizontal Position:**
Press the [2] button to enter the vertical position adjustment page.
Press the [1] button to exit the page.
Press the [▲] button to shift the image to the right.
Press the [▼] button to shift the image to the left.

**b) Vertical Position:**
Press the [2] button to return to the horizontal position adjustment page.
Press the [1] button to exit the page.
Press the [▲] button to shift the image upward.
Press the [▼] button to shift the image downward.

**2) Horizontal Size Item**
Press the [2] button to enter the horizontal size adjustment page.
Press the [1] button to exit the page.
Press the [▲] button to make the image wider.
Press the [▼] button to make the image narrower.

**3) Fine tune Item**
Press the [2] button to enter the fine tuning page.
Press the [1] button to exit the page.
Press "[▲]" Button to adjust character position in one direction.
Press "[▼]"Button to adjust character position in the other direction.

**4) Sharpness Item**
Press the [2] button to enter the sharpness adjustment page.
Press the [1] button to exit the page.
Press "[▲]" Button to increase image sharpness.
Press "[▼]" Button to decrease image sharpness.

**(8) Setup Menu Page:**

Press the [2] button to enter the setup menu page.
Press the [1] button to exit the page.
Press the [▲] button to highlight the previous item or the [▼] button to highlight the next item.

**1) Language Select Item**

Press the [2] button to enter the language selection page.
Press the [1] button to exit the page.
Press the [▲] button to highlight the previous item or the [▼] button to highlight the next item.

**English, French… Option**

Press the [2] button to select the language.
Press the [1] button to exit the page.

**2) Resolution Notice Item**

Press the [2] button to enter the resolution notice page.
Press the [1] button to exit the page.

**Enable, Disable Option**

Press the [2] button to select the highlighted option.
Press the [1] button to exit the page.
Press the [▲] button to highlight the previous option or the [▼] button to highlight the next option.

**3) OSD Position Item**

Press the [2] button to enter the OSD position adjustment page.
Press the [1] button to exit the page.

**a) Horizontal Position Option**

Press the [2] button to enter the vertical position adjustment page.
Press the [1] button to exit the page.
Press the [▲] button to shift the menu to the right.
Press the [▼] button to shift the menu to the left.

**b) Vertical Position Option:**

Press the [2] button to enter the horizontal position adjustment page.
Press the [1] button to exit the page.
Press the [▲] button to shift the menu upward.
Press the [▼] button to shift the menu downward.

**4) OSD Time Out Item**

Press the [2] button to enter the OSD time out adjustment page.
Press the [1] button to exit the page.
Press the [▲] button to increase the OSD time out.
Press the [▼] button to decrease the OSD time out.

**5) OSD Background Item**

Press the [2] button to enter the OSD background selection page.
Press the [1] button to exit the page.

**Enable, Disable Option**

Press the [▲] button to highlight the previous option or the [▼] button to highlight the next option.
Press the [2] button to select the highlighted option.

Press the [1] button to exit the page.

**(9) Memory Recall Page**

Press the [2] button to execute the memory recall function.
Press the [1] button to exit the page.

**2. Other Menu:**

This "shortcut" menu is directly accessible without bringing up the OSD.

**(1) Contrast Dialog**

Press the [▲] or [▼] button to enter the Contrast Dialog.
Press the [1] button to exit the Contrast Dialog.
Press the [2] button to enter the Brightness Dialog.
Press the [▲] button to increase the contrast.
Press the [▼] button to decrease the contrast.

**(2) Brightness Dialog**

Press the [▲] or [▼] button to enter the Brightness Dialog.
Press the [1] button to exit the Brightness Dialog.
Press the [2] button to enter the Contrast Dialog.
Press the [▲] button to increase the brightness.
Press the [▼] button to decrease the brightness.

**(3) Analog/Digital Dialog**

Press the [2] button to toggle between analog and digital modes.

## B. When in Digital Input Mode

**1. Main Menu**

Press the [1] (Menu) button to enter the Main Menu:
Press the [▲] button to highlight the previous item or the [▼] button to highlight the next item.
Press the [1] (Menu) button to exit the Main Menu.

**(1) Auto Image Adjust Page:**

Press the [2] button to execute the auto image adjust function.
Press the [1] button to exit the page.

**(2) Contrast/Brightness Page:**

Press the [2] button to enter the contrast adjustment page.
Press the [1] button to exit the page.

**1) Contrast Item**

Press the [▲] button to increase the contrast.
Press the [▼] button to decrease the contrast.
Press the [2] button to enter the brightness adjustment page.
Press the [1] button to exit the page.

**2) Brightness Item**

Press the [▲] button to increase the brightness.
Press the [▼] button to decrease the brightness.
Press the [2] button to enter the contrast adjustment page.
Press the [1] button to exit the page.

**(3) Input Select Page:**

Press the [2] button to switch to analog input mode.

**(4) Audio Adjust Page:**

Press the [▲] button to increase the volume.
Press the [▼] button to decrease the volume.
Press the [2] button to enable or disable mute function .
Press the [1] button to exit the page.

**(4) Color Adjust Page:**

Press the [2] button to enter the color adjustment page.
Press the [1] button to exit the page.
Press the [▲] button to highlight the previous item or the [▼] button to highlight the next item.

1) **sRGB Item**
2) **9300K Item**
3) **6500K Item**
4) **5400K Item**
5) **5000K Item**

Press the [2] button to select the currently highlighted item.
Press the [1] button to exit the currently highlighted item.

6) **User Color Item**

Press the [2] button to enter the user color page.
Press the [1] button to exit the page.
**Red, Green, Blue Options:**
Press the [2] button to cycle among the colors.
Press the [1] button to exit the page.
Press the [▲] button to increase the selected color level.
Press the [▼] button to decrease the selected color level.

**(5) Information Page:**

Press the [2] button to enter the information page.
Press the [1] button to exit the information page.

**(6) Manual Image Adjust Page:**

Press the [2] button to enter the manual image adjustment page.
Press the [1] button to exit the page.
Press the [▲] button to highlight the previous item or the [▼] button to highlight the next item.

1) **Sharpness Item**

Press the [2] button to enter the sharpness adjustment page.
Press the [1] button to exit the page.
Press "[▲]" Button to increase image sharpness.
Press "[▼]" Button to decrease image sharpness.

**(7) Setup Menu Page:**

Press the [2] button to enter the setup menu page.
Press the [1] button to exit the page.

Press the [▲] button to highlight the previous item or the [▼] button to highlight the next item.

1) **Language Select Item**
   Press the [2] button to enter the language selection page.
   Press the [1] button to exit the page.
   Press the [▲] button to highlight the previous item or the [▼] button to highlight the next item.
   **English, French… Option**
   Press the [2] button to select the language.
   Press the [1] button to exit the page.

2) **Resolution Notice Item**
   Press the [2] button to enter the resolution notice page.
   Press the [1] button to exit the page.
   **Enable, Disable Option**
   Press the [2] button to select the highlighted option.
   Press the [1] button to exit the page.
   Press the [▲] button to highlight the previous option or the [▼] button to highlight the next option.

3) **OSD Position Item**
   Press the [2] button to enter the OSD position adjustment page.
   Press the [1] button to exit the page.
   a) **Horizontal Position Option**
      Press the [2] button to enter the vertical position adjustment page.
      Press the [1] button to exit the page.
      Press the [▲] button to shift the menu to the right.
      Press the [▼] button to shift the menu to the left.

   b) **Vertical Position Option:**
      Press the [2] button to enter the horizontal position adjustment page.
      Press the [1] button to exit the page.
      Press the [▲] button to shift the menu upward.
      Press the [▼] button to shift the menu downward.

4) **OSD Time Out Item**
   Press the [2] button to enter the OSD time out adjustment page.
   Press the [1] button to exit the page.
   Press the [▲] button to increase the OSD time out.
   Press the [▼] button to decrease the OSD time out.

5) **OSD Background Item**
   Press the [2] button to enter the OSD background selection page.
   Press the [1] button to exit the page.
   **Enable, Disable Option**
   Press the [▲] button to highlight the previous option or the [▼] button to highlight the next option.
   Press the [2] button to select the highlighted option.
   Press the [1] button to exit the page.

**(8) Memory Recall Page**

Press the [2] button to execute the memory recall function.
Press the [1] button to exit the page.

**2. Other Menu:**

This "shortcut" menu is directly accessible without bringing up the OSD.

**(1) Contrast Dialog**

Press the [▲] or [▼] button to enter the Contrast Dialog.
Press the [1] button to exit the Contrast Dialog.
Press the [2] button to enter the Brightness Dialog.
Press the [▲] button to increase the contrast.
Press the [▼] button to decrease the contrast.

**(2) Brightness Dialog**

Press the [▲] or [▼] button to enter the Brightness Dialog.
Press the [1] button to exit the Brightness Dialog.
Press the [2] button to enter the Contrast Dialog.
Press the [▲] button to increase the brightness.
Press the [▼] button to decrease the brightness.

**(3) Analog/Digital Dialog**

Press the [2] button to toggle between analog and digital modes.

## C. Other Information

**When the "No Signal" or "Out of Range" messages appear:**

If no input signal is detected, the "No Signal" message will appear in the center of the screen.
If the V-Sync signal rate is greater than than 85Hz or its resolution is greater than SXGA, the "Out of Range" message will appear in the center of the screen.

**Activating Factory Mode and Burn Mode:**

While the device is in standby, press the [2] button, then press the power button to enter Factory Mode. While Factory Mode is active, an additional menu page titled "Factory Menu" will be accessible. Press the [2] button to enter the Factory Menu page, then press the [2] button to enter Burn Mode.

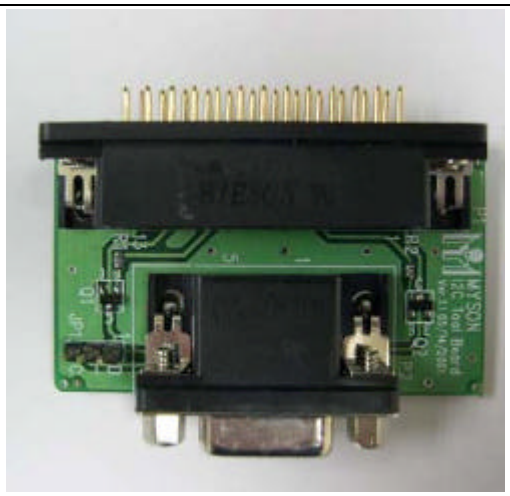
## When Installing a New Main Board

1. Enter Factory Mode.
2. Use a PC or chrom to send a 32-tone gray scale signal to the monitor.
3. Select "Auto Color"

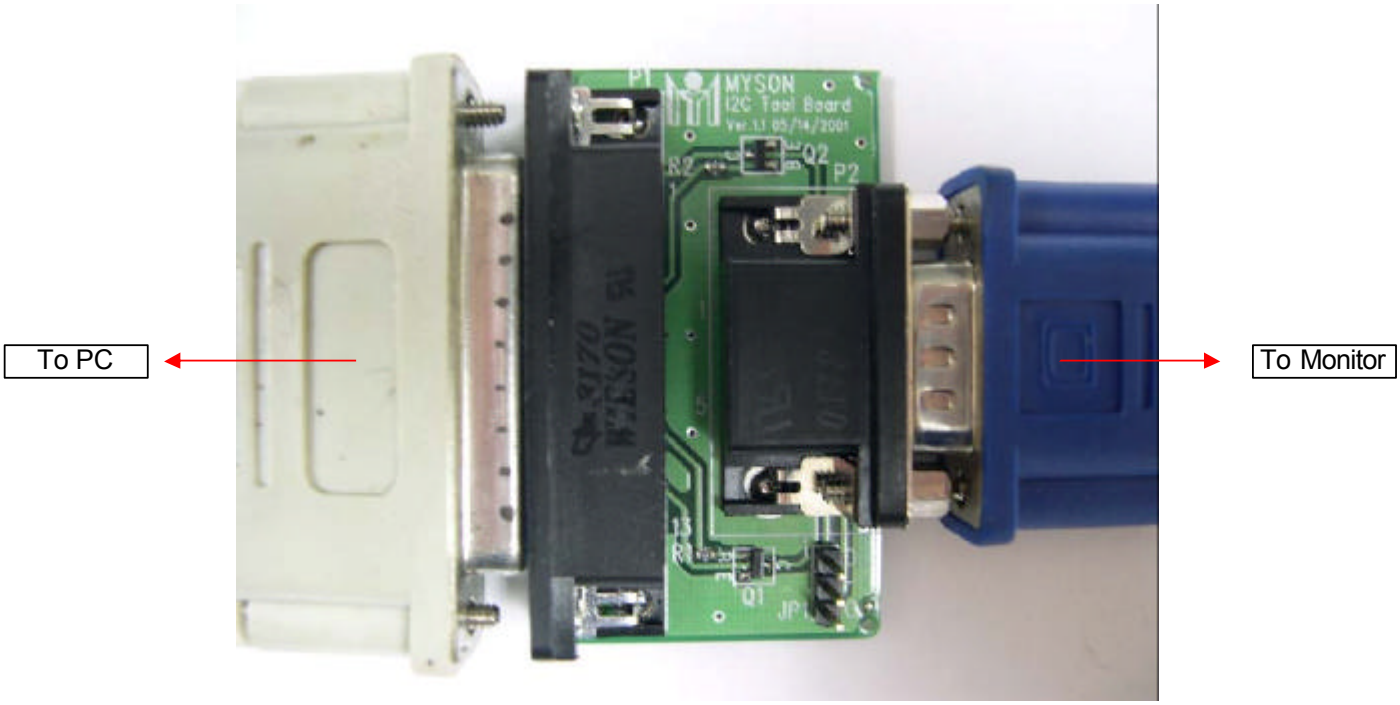
# Firmware update procedure :

When you received a received monitor , please check whether the firmware version.  If not , please following procedure to upgrade to the latest version .

1. Equipment needed :
   - VA912-4/VA912b-4/VA912-4U
   - PC ( Personal computer )
   - LPT cable
   - Fixture (LM5ISP)
   - Firmware upgrade program
   -



2. Connection :




## Appendix A : How to install the software for ISP :

0. To setup ISP environment :

Hardware:
PC or notebook, parallel(printer) cable, ISP tooling.
Software:
If OS was Win2000 or WinXP , please install “PORT95NT.exe”

In order to ensure can execute ISP program, please set BIOS in PC or Notebook as Fig 0.0

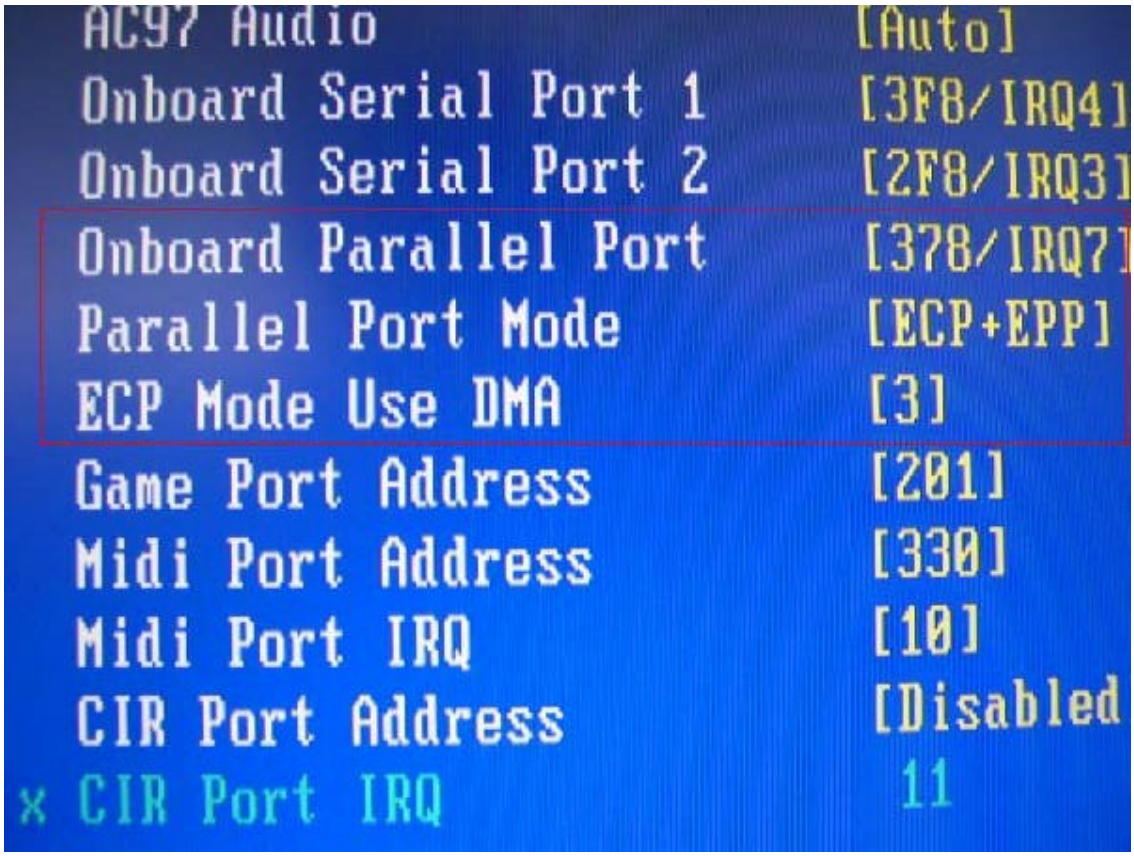



**Fig 0.0**

0.1 Double-click the “ PORT95NT.exe” in Windows & install the program. , see Fig 0.1

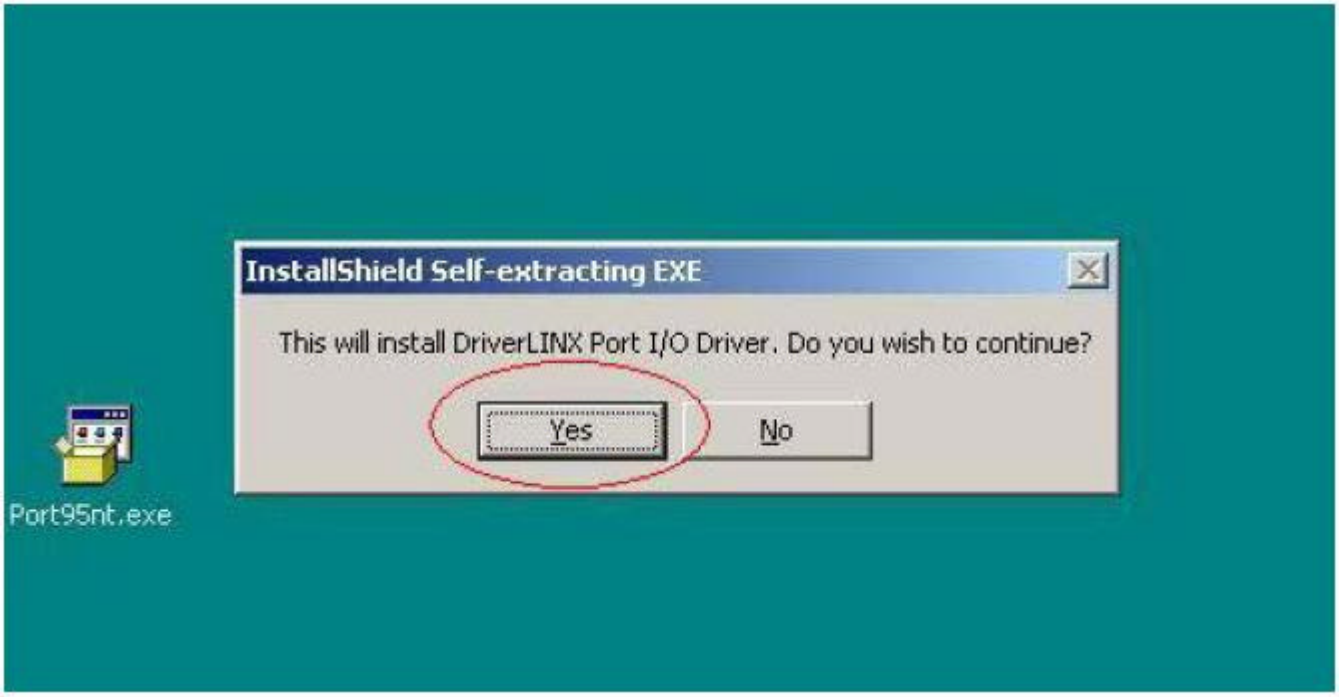



**Fig 0.1**

0.2 Keep on press “ Next “ 4 times to go through the installation processes, see Fig. 0.2

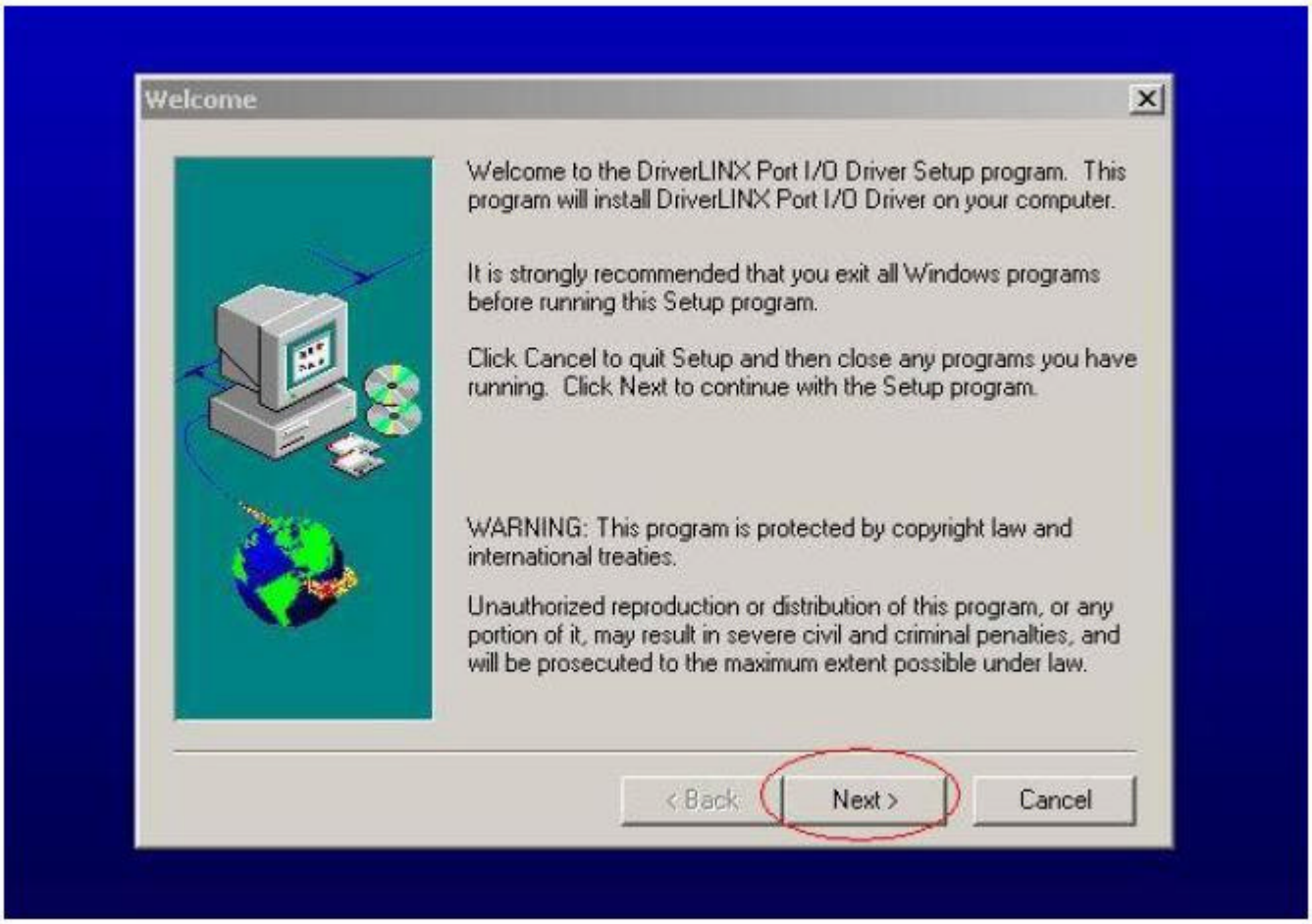



**Fig. 0.2**

0.3 Choose “ Typical “ t hen press “ Next “ , see Fig. 0.3

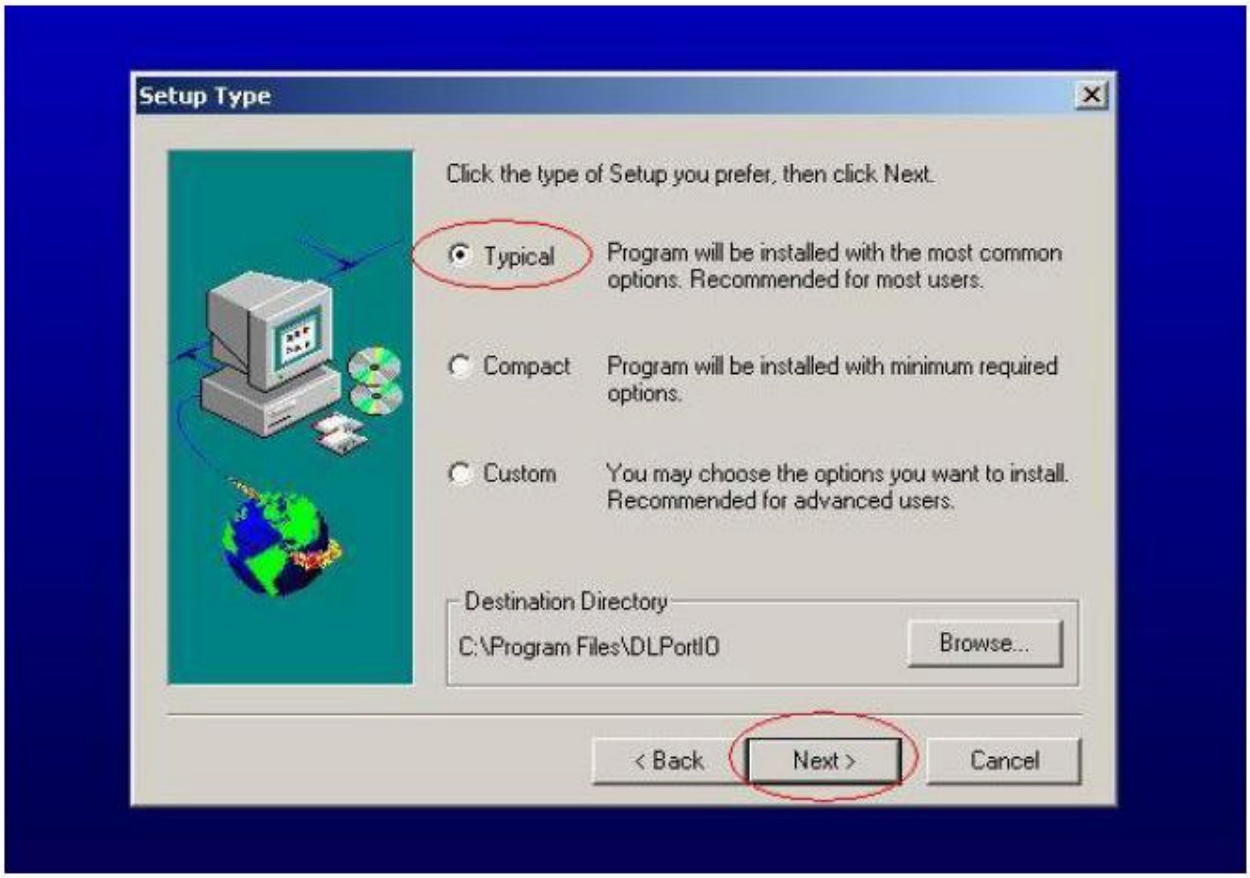



**Fig. 0.3**

0.4 Keep on press “ Next “ 4 times to go through the installation processes, see Fig. 0.4

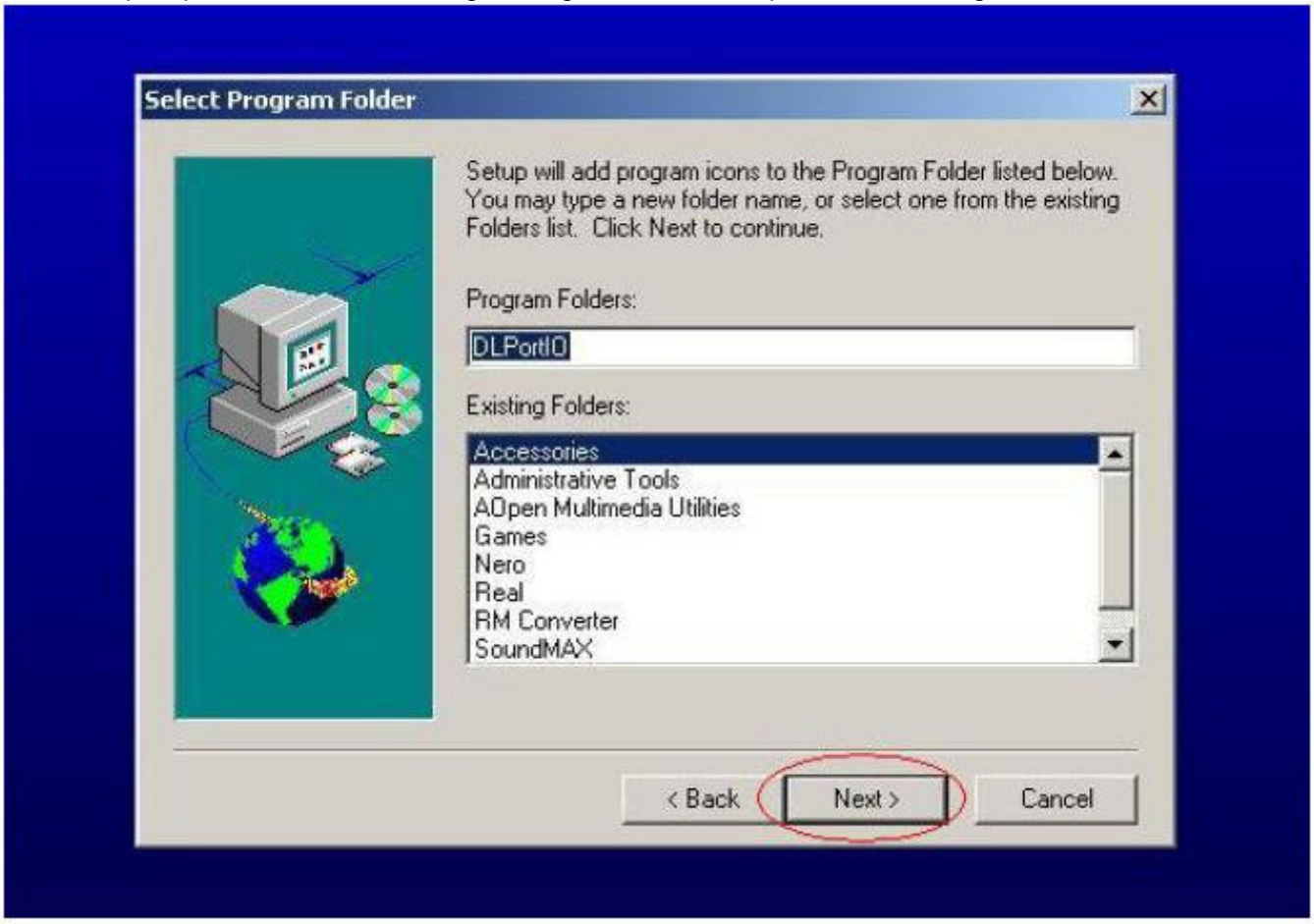



**Fig. 0.4**

0.5 Install completed , restart the PC or notebook. See Fig 0.5

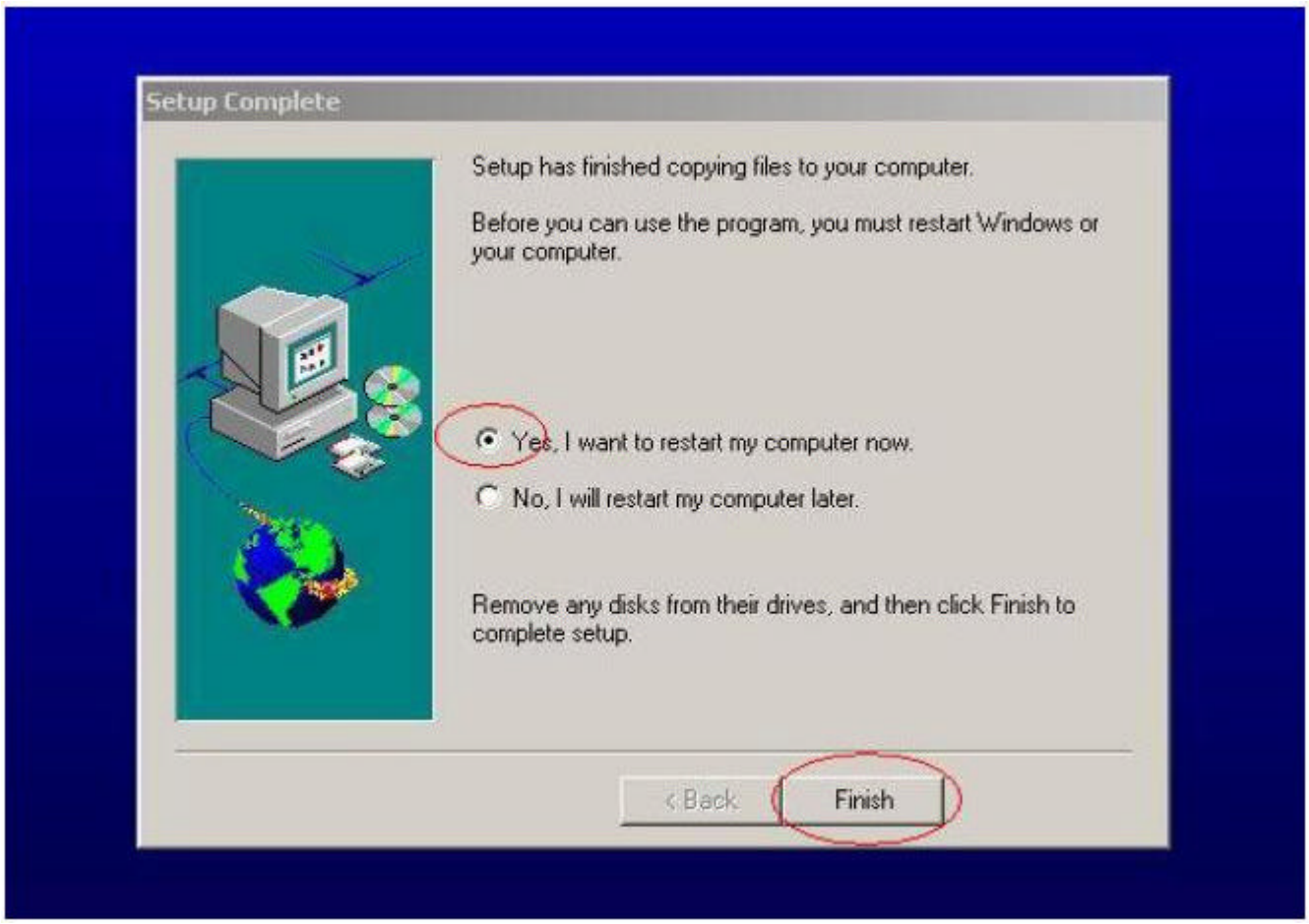



**Fig. 0.5**

1. Install ISP

1.1 User could download ISP driver and PORT95NT install from Myson Century website (www.myson.com.tw )

1.2 After extracting the ZIP file , the total files list as Fig 1.0 , and double click the file of setup.exe to install.

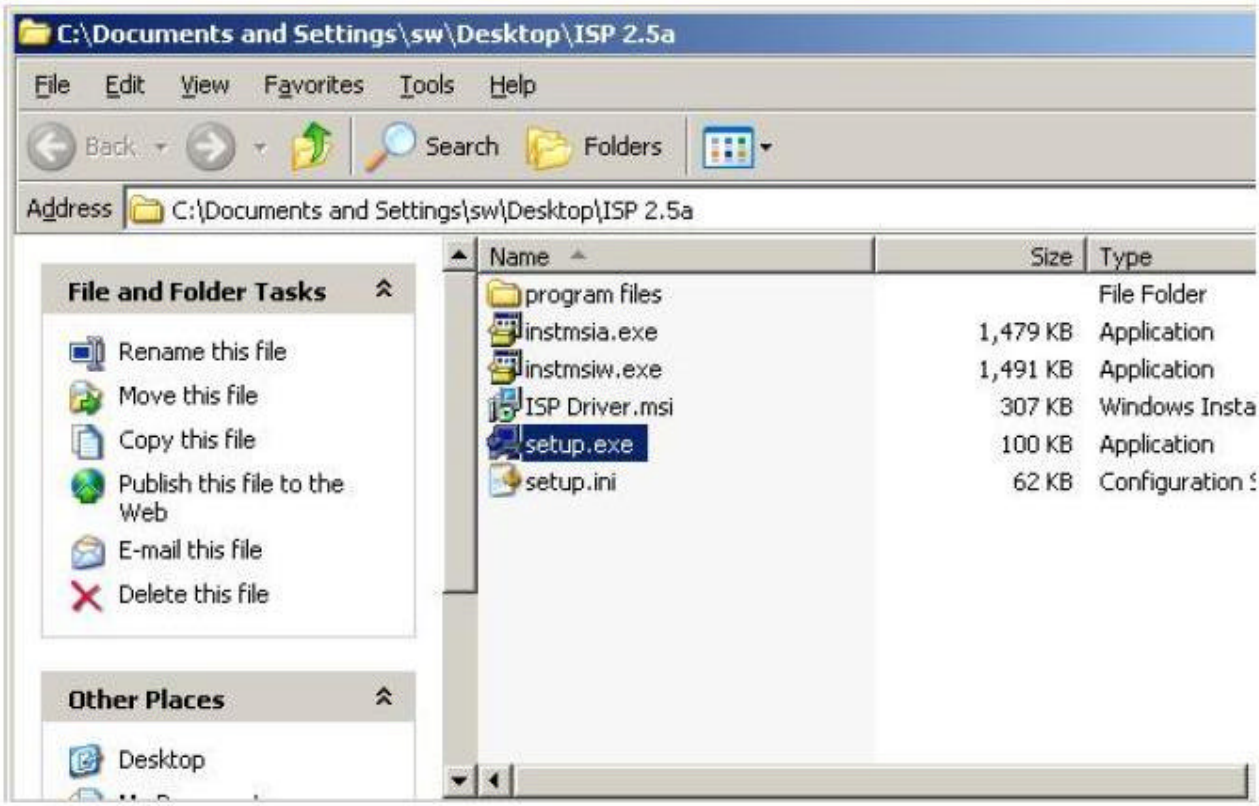



**Fig 1.0**

1.3 Press " Next " button to continue., see Fig 1.1


**Fig 1.1**

1.4 Keep default setting or press “ Change “ button for selecting the path that you want , and then press “ Next “ button to continue , see Fig 1.2


**Fig 1.2**

1.5 Press “ Install “ button to continue , see Fig 1.3

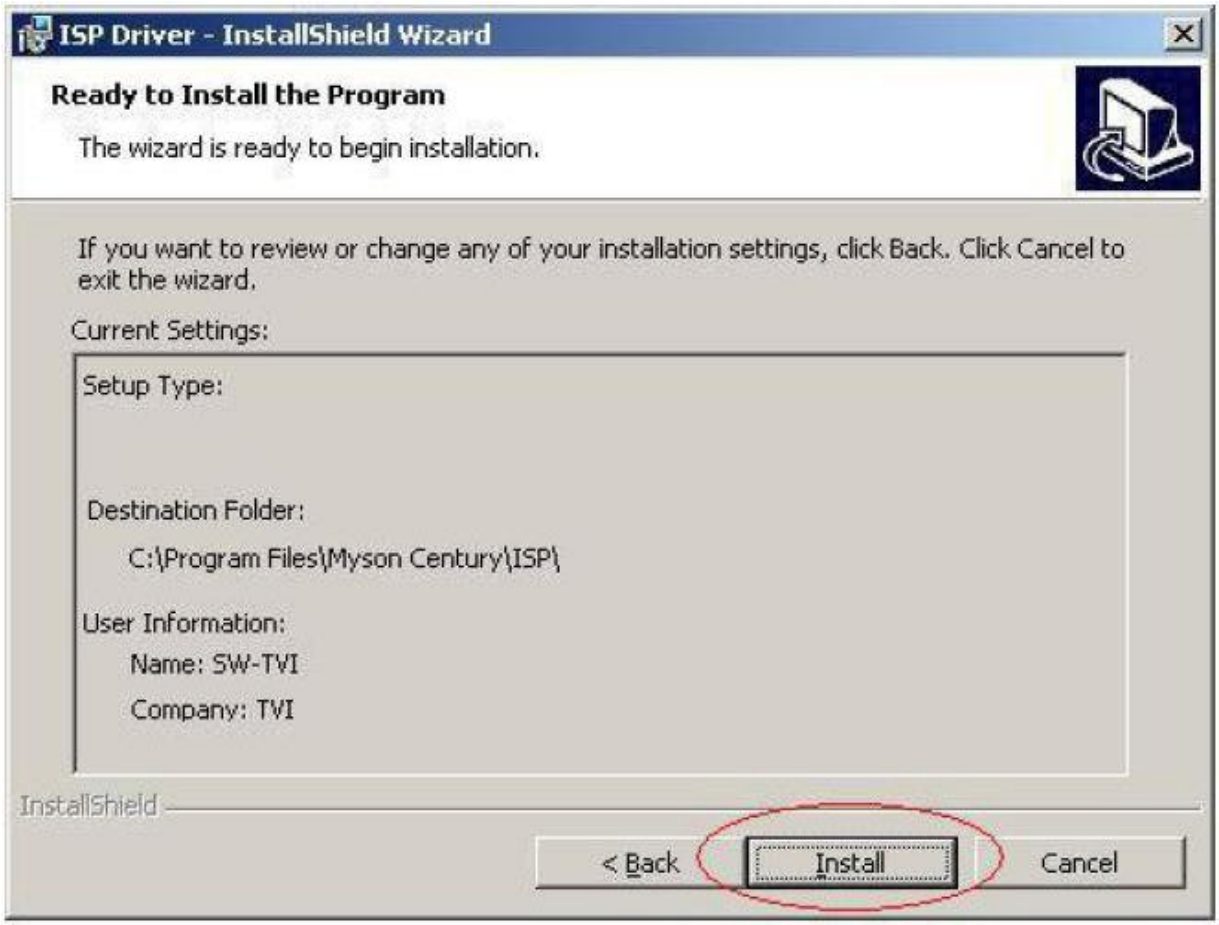



**Fig. 1.3**

1.6 Installation has finished , press “ Finish “ button , see Fig 1.4

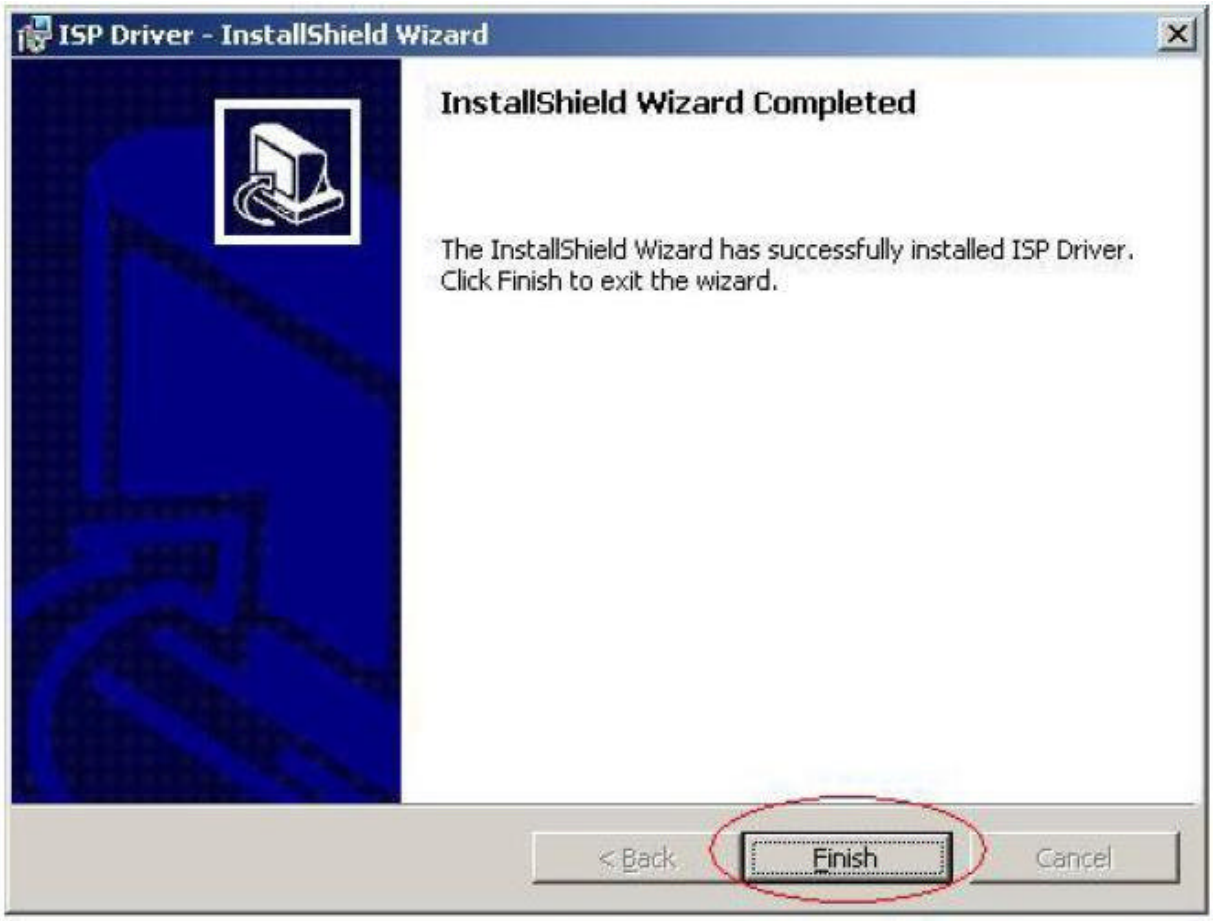



**Fig. 1.4**

## Appendix B : How to use software to upgrade the BIOS :

2.1 After installation , we could find the shortcut in the setting path or the program bar ( default setting ) , see Fig 2.1

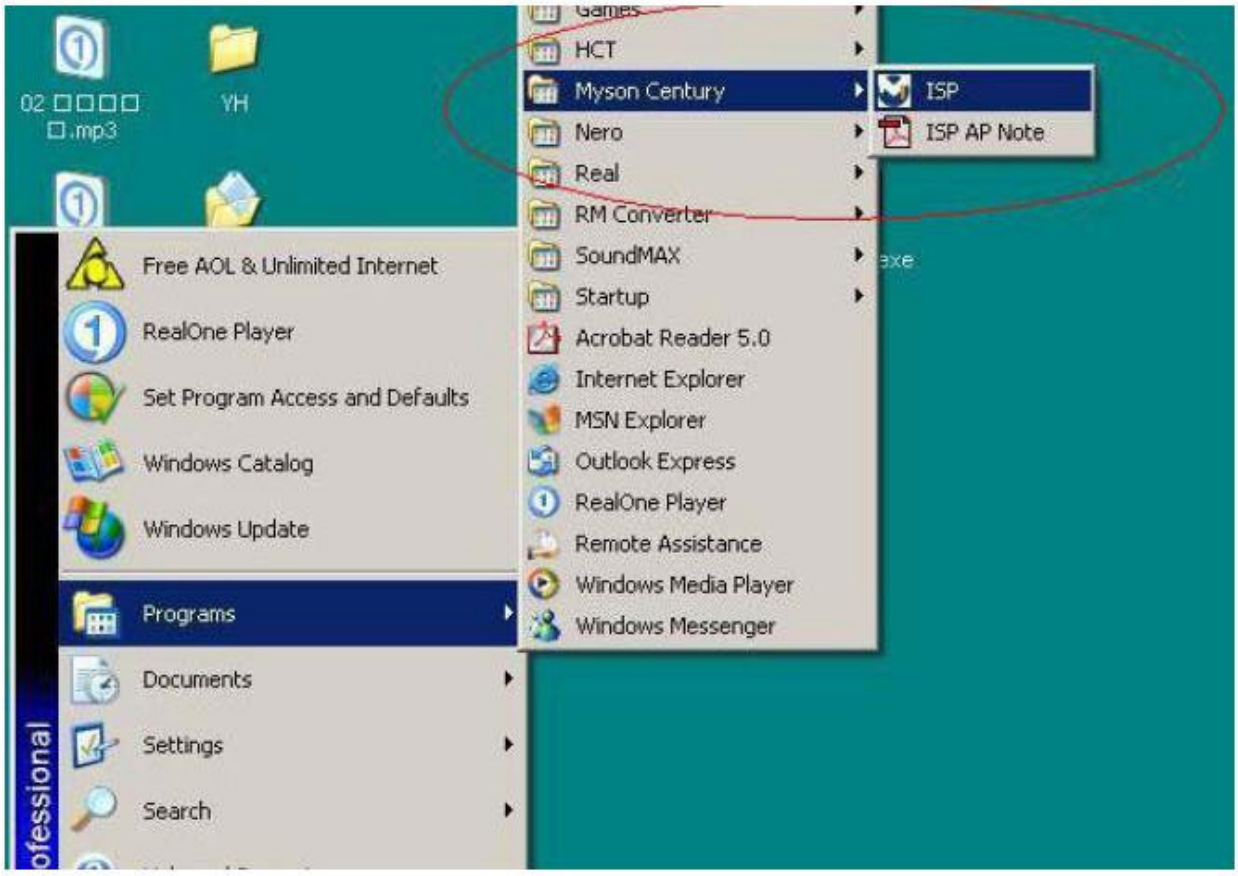



**Fig. 2.1**

2.2 Security file is a key to use ISP function , press “ OK “ button , see Fig 2.2


**Fig. 2.2**

2.3 The warning is used to remind user of that different CPU rate may cause ISP function fail. (it’s limited by IIC protocol ) , press “ OK “ button , see Fig 2.3


**Fig. 2.3**

2.4 Press “ Create Se curity File “ button to key in Security code . Adjusting bar to decrease speed of IIC bus , See Fig. 2.4 .

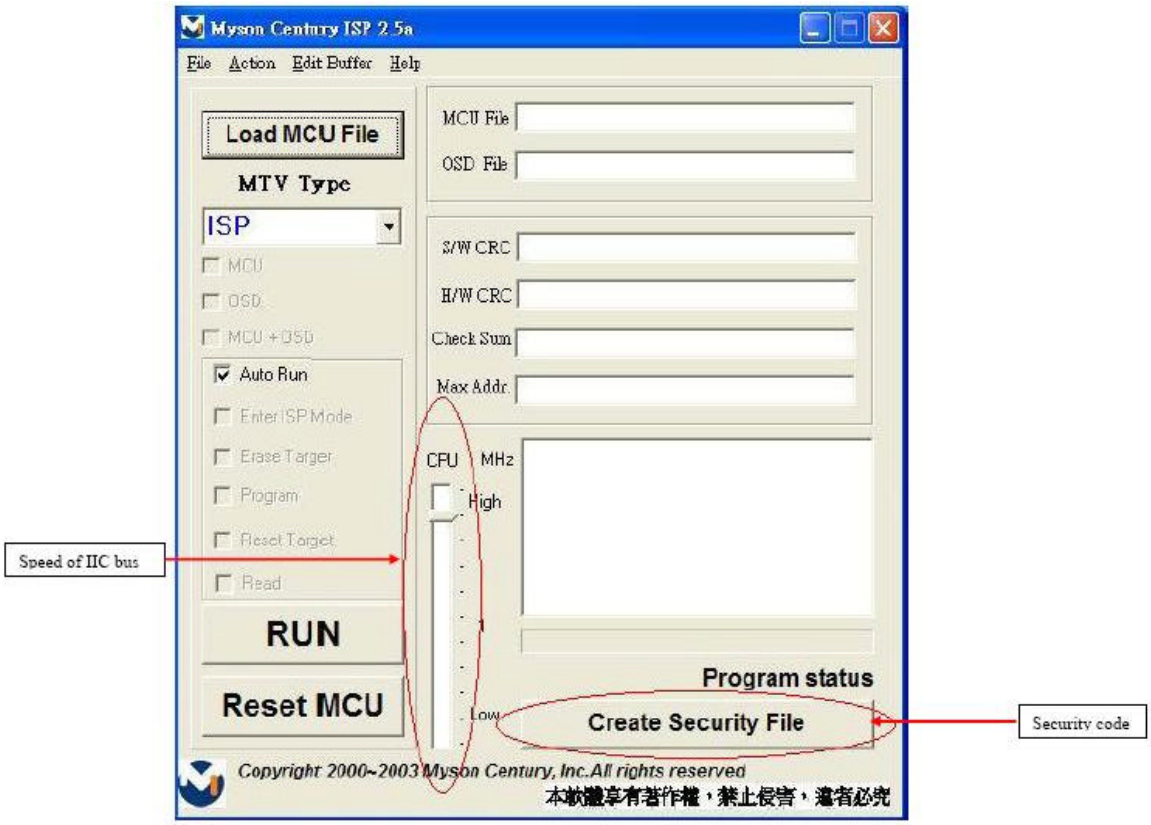



**Fig. 2.4**

2.5 Fig 2.5 shows the setting for security code of software ISP . it needs 2 command No. and key in command sequentially for 7C , 4C , 77. The command No. and command must be set by user while coding. About the detailed of setting , please refer to section 6 boot code of ISP .

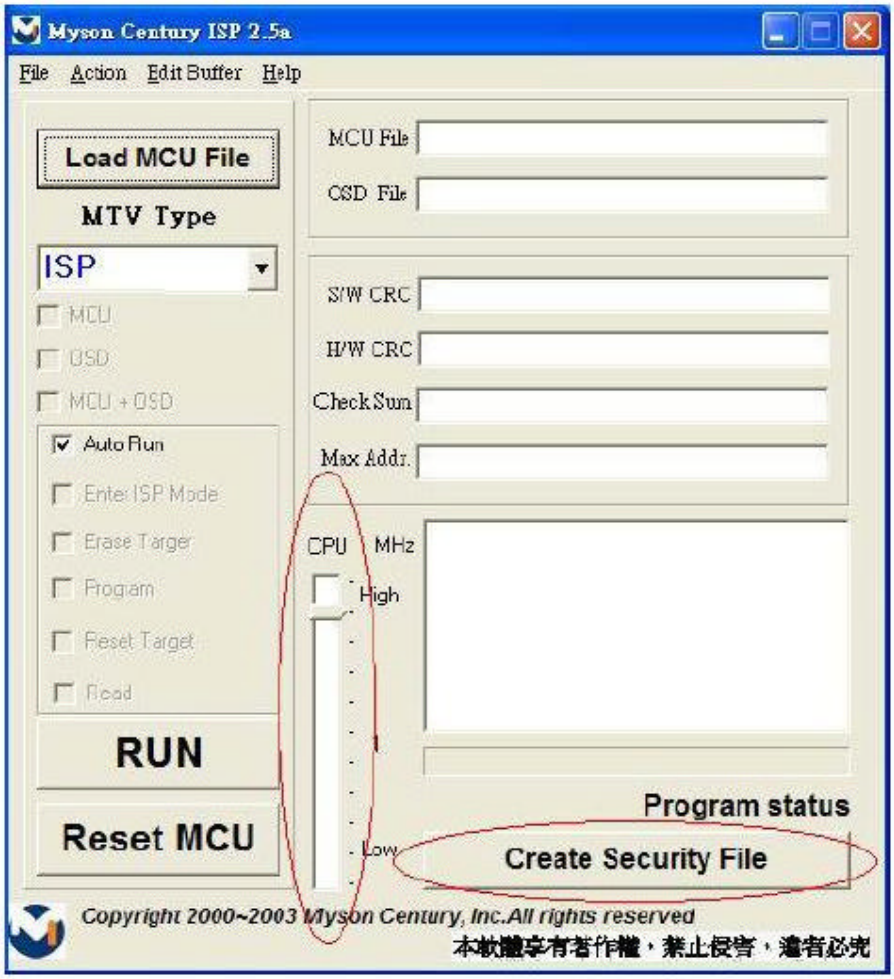



**Fig. 2.5**

## Appendix C : Use ISP to program MCU

3.1 Select MTV type first , load the binary or intel hex file that you want to program into the MCU , and select " AUTO" item , then press " RUN " button , see fig3.1

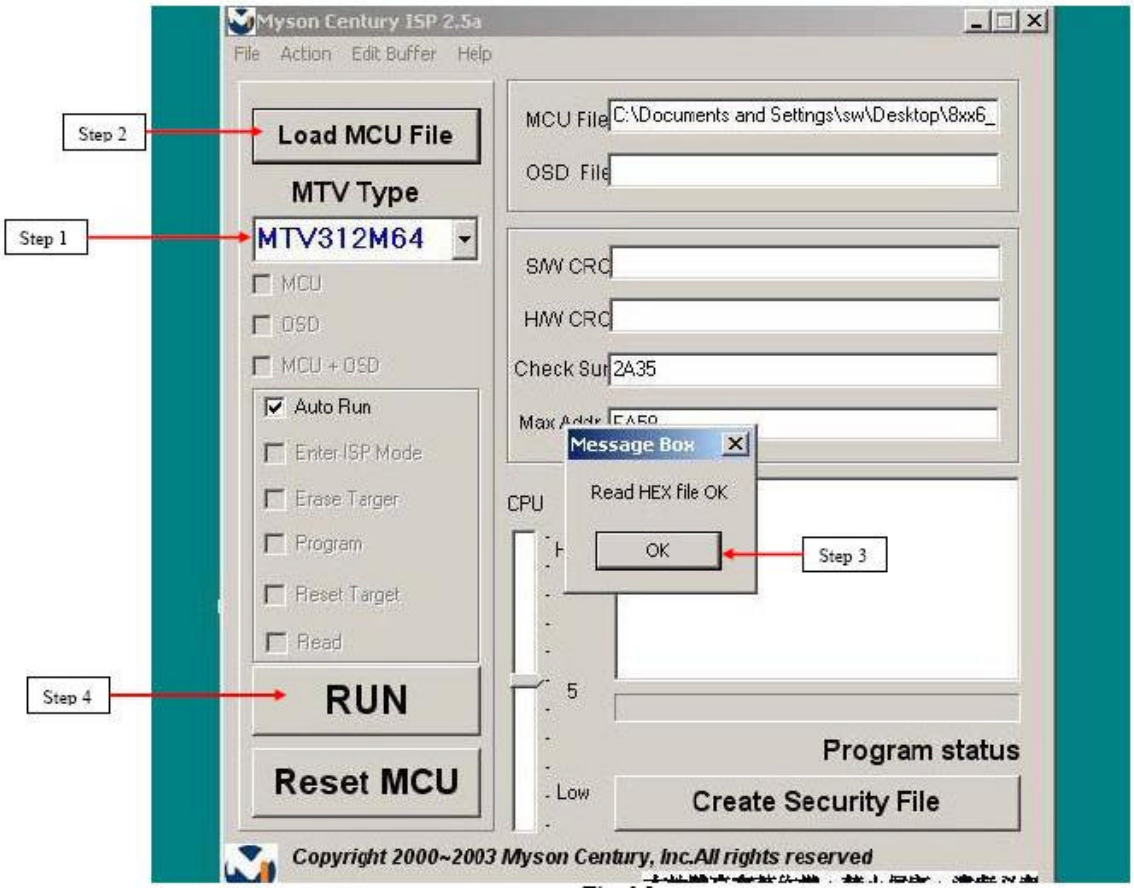



Fig. 3.1

3.2 If user change the MTV type , it must load file again , or the buffer of load file will be cleared .

3.3 CRC ( cyclic redundancy check ) : the host can check CRC register's result instead of reading every byte in flash .

The message of **Check MCU CRC OK** means that the host verify OK for the progress of program , see Fig.3.2

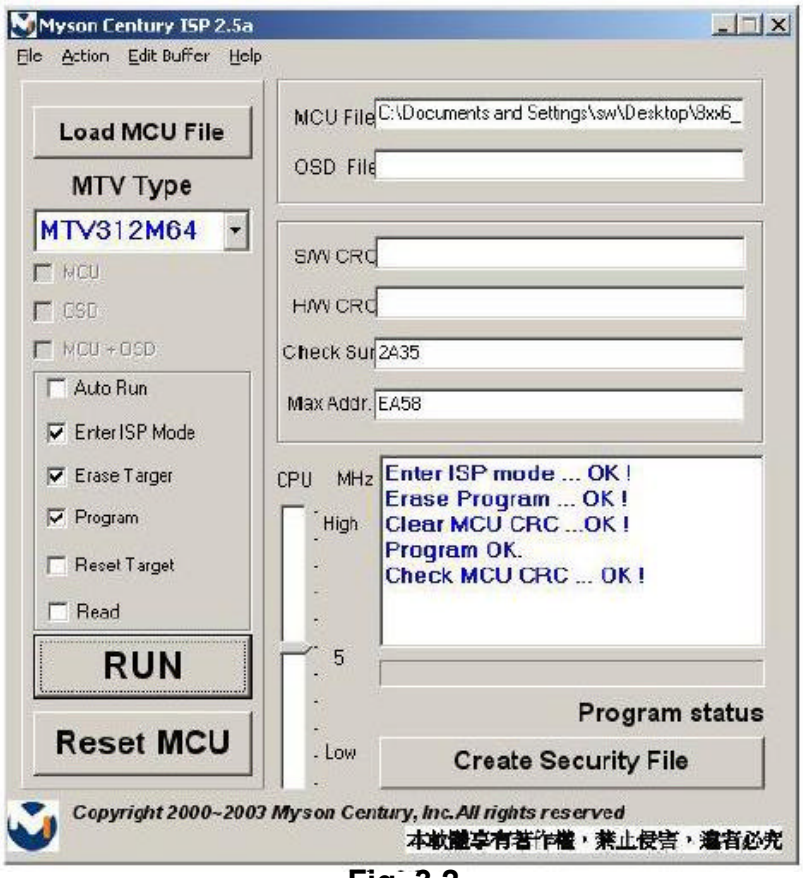
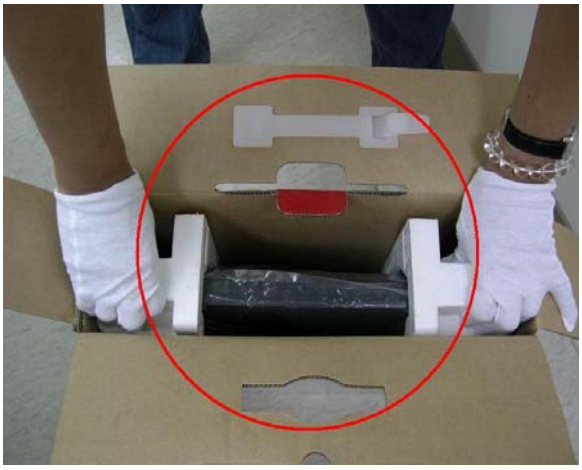
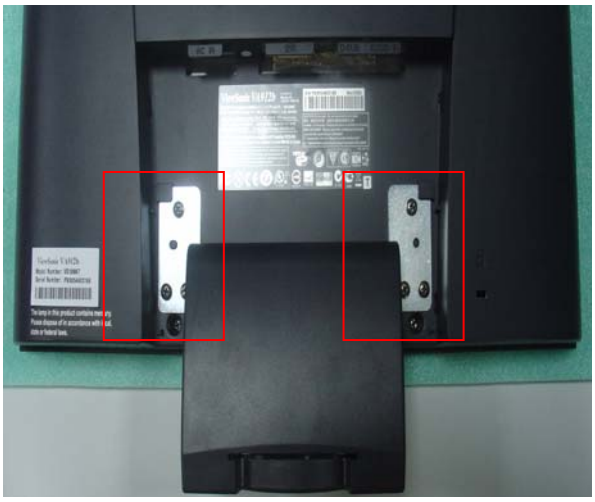



**Fig. 3.2**

# VA912-4 series de-assembling procedure

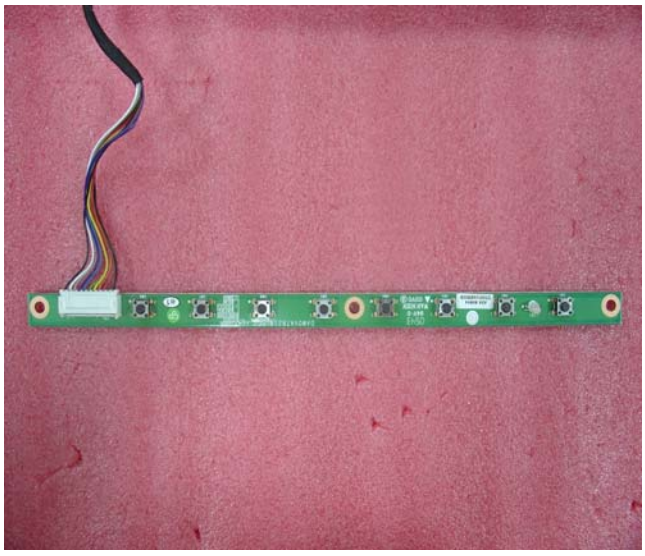
| 1. Move the monitor our from carton | 2. Put the monitor on desk & face down |
|---|---|
|  |  |

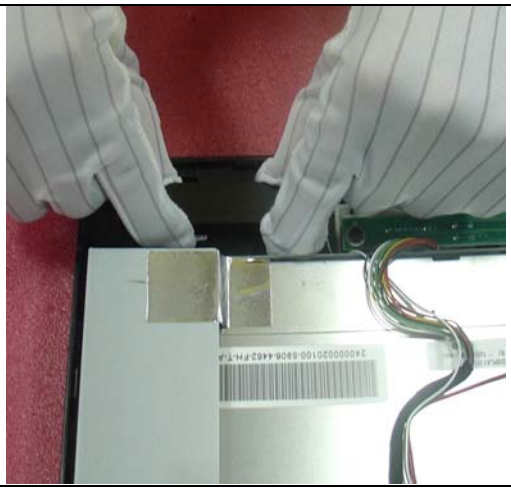
| 3. Remove the I/O cover | 4. Loose the screws & remove the stand |
|---|---|
|  |  |

| 5. Separate the hook by tool (coin or screw-driver) | 6. Remove the bezel & cover & AL-Foil |
|---|---|
|  |  |

| 7. Pull out the CCFL cables | 8. Loose the shielding screw |
|---|---|
|  |  |

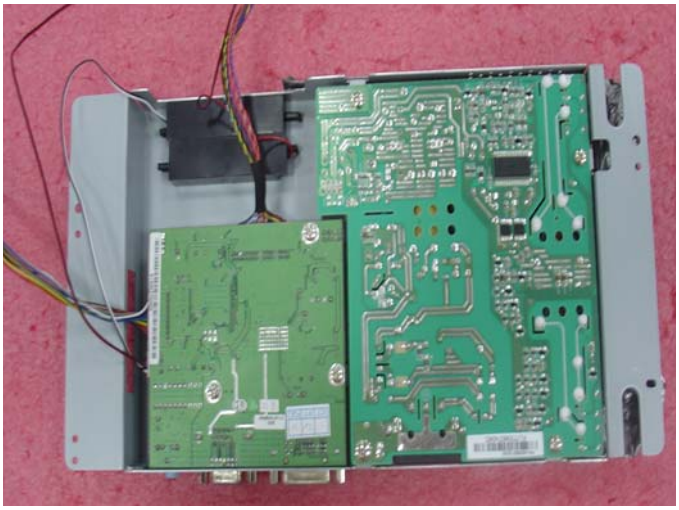
| 9. Tear off the yellow tape | 10. Tear off the black tape |
|---|---|
|  |  |

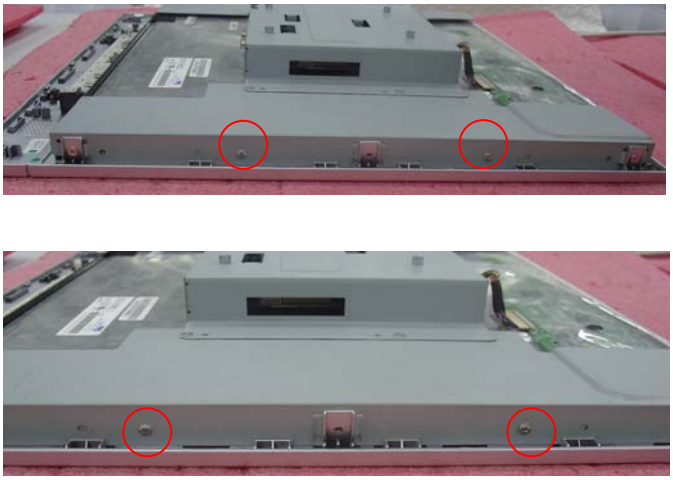
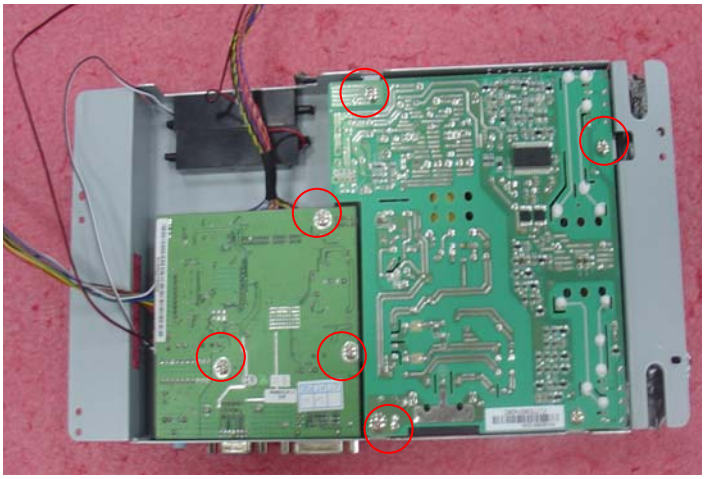
| 11. Loose the Button/B screw | 12. Move the Button board |
|---|---|
|  |  |
| 13. Remove the speaker | 14. Remove the shielding |

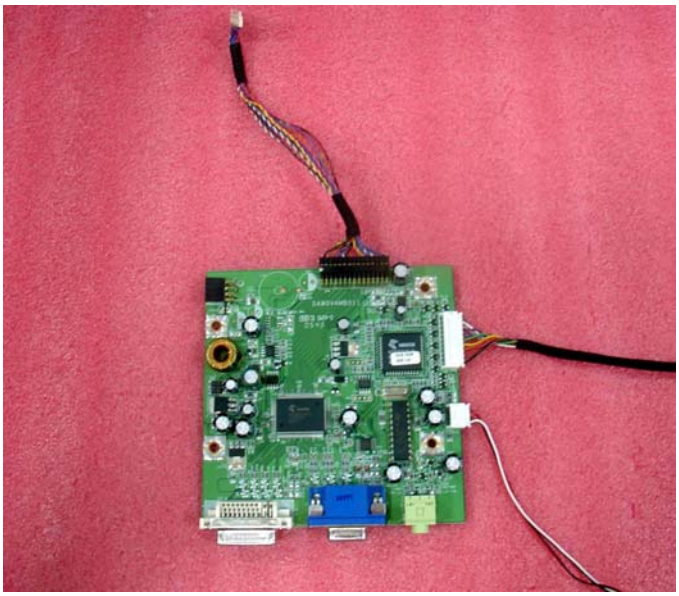


| 15. Remove the AL-foil | 16.Remove the AL-Foil & black tape |
|---|---|

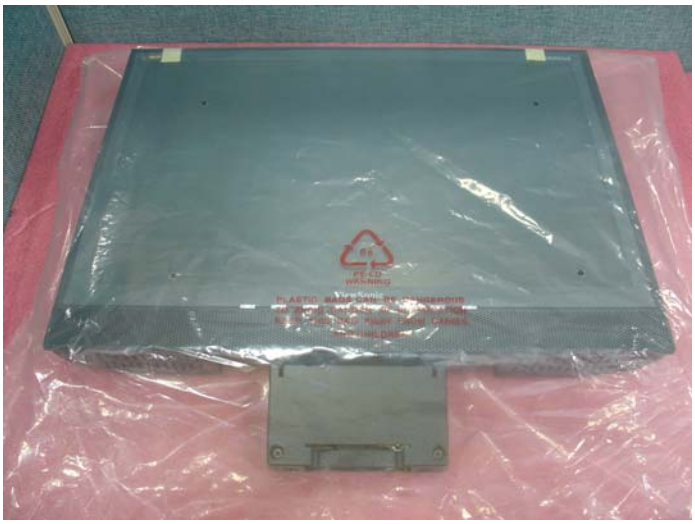
| 17. Loose the shield | 18. Loose the bezel screw |
|---|---|

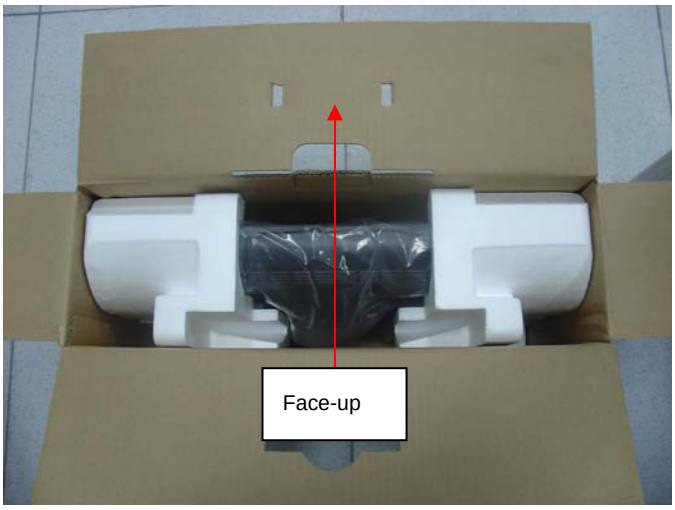


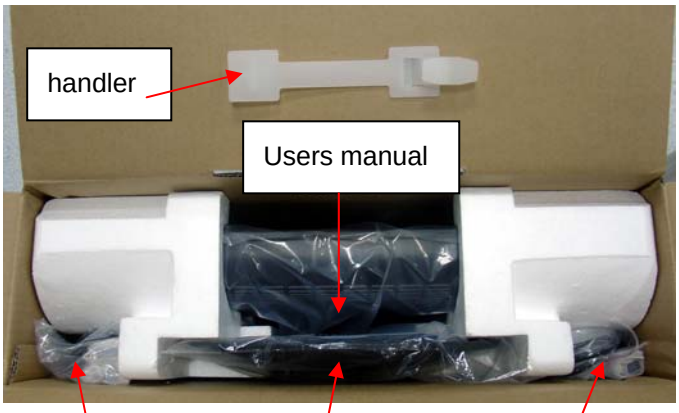
| 19. Loose the BKT screw L/R | 20. Remove the PCBA & mylar |
| --- | --- |
|  |  |

| 21. Take out PCBA & remove the cables | |
| --- | --- |
|  | |

# VA912-4 series packing method

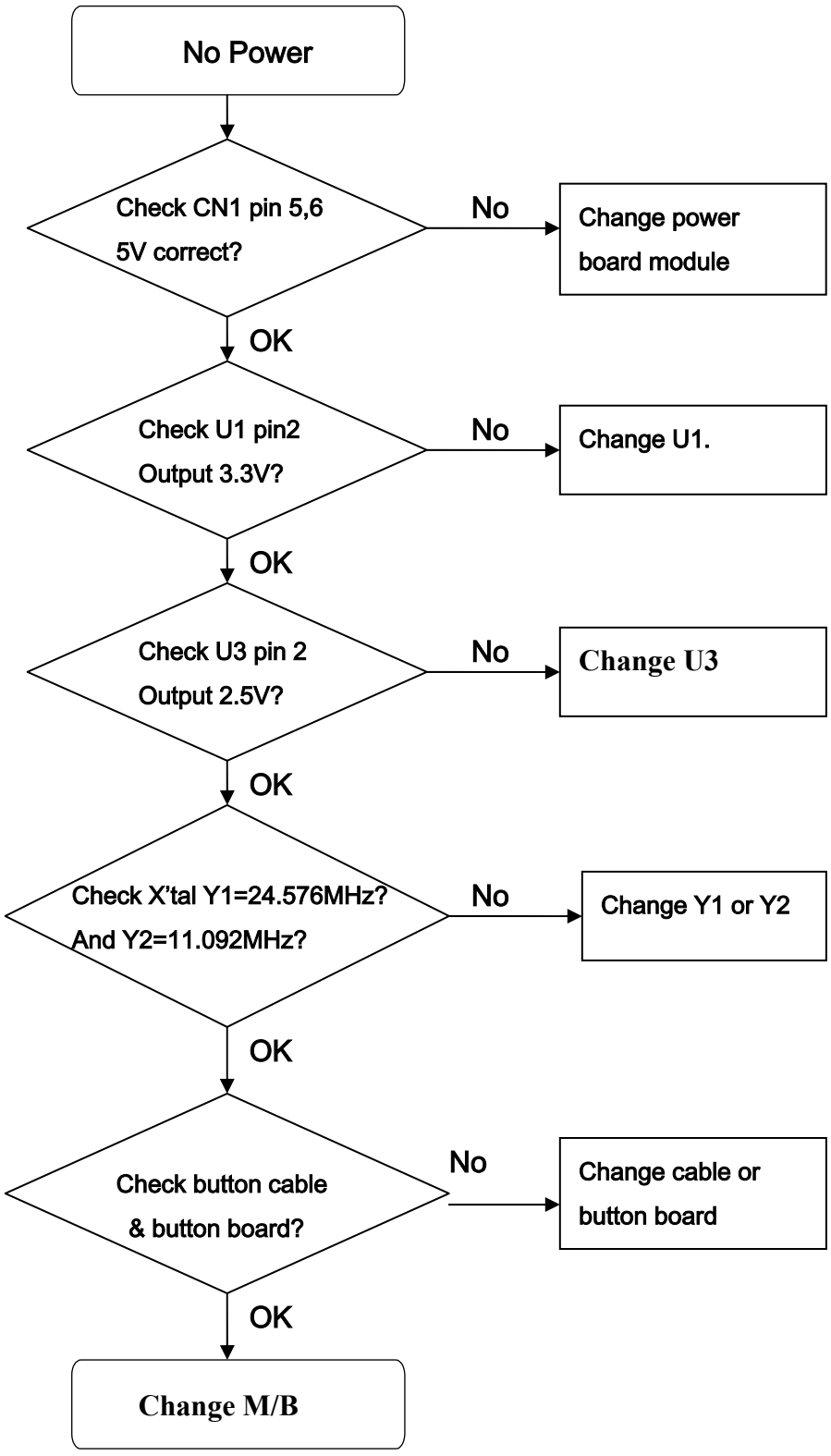
| 1. Sticker on LCD protection film | 2. Put the monitor into the PE or EPE bags |
|---|---|
|  |  |

| 3. Put on the end-cap left / right | 4. Put the monitor into carton |
|---|---|
|  |  |

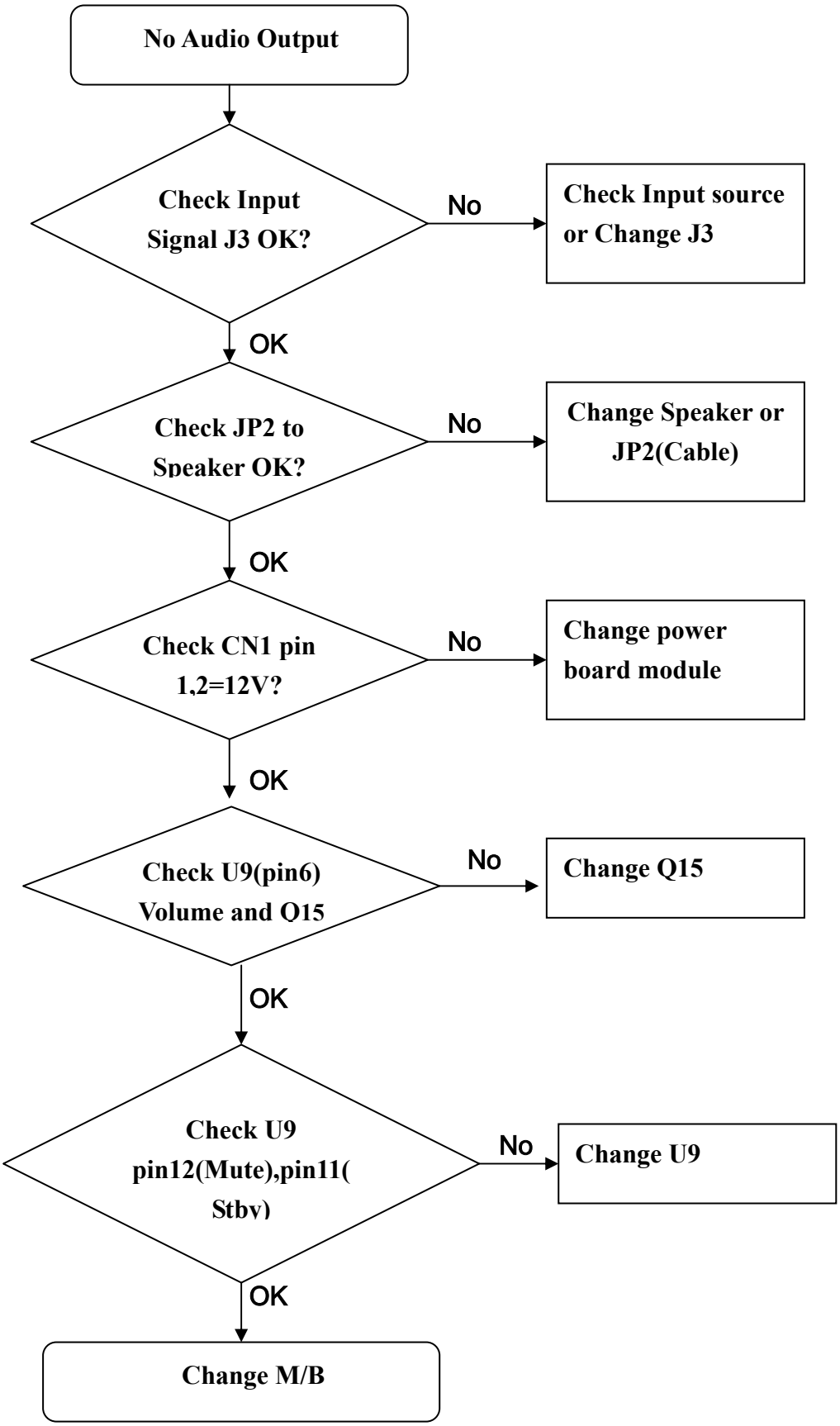
| 5. Put all accessories into carton | 6. Seal the monitor |
|---|---|
|  |  |

# 6. Troubleshooting

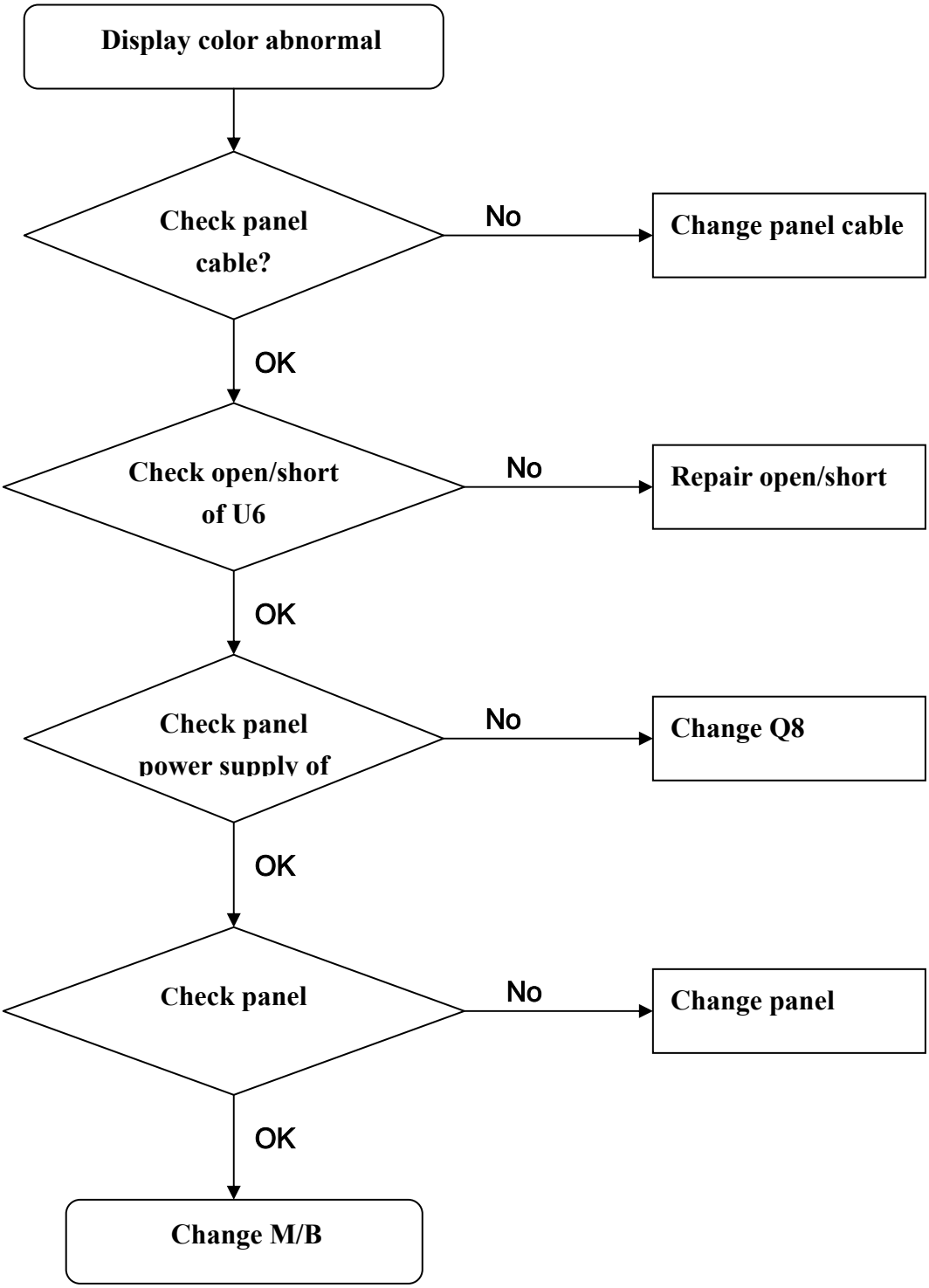
No power



No Audio


No Audio Output
Check Input Signal J3 OK?
No
Check Input source or Change J3
OK
Check JP2 to Speaker OK?
No
Change Speaker or JP2(Cable)
OK
Check CN1 pin 1,2=12V?
No
Change power board module
OK
Check U9(pin6) Volume and Q15
No
Change Q15
OK
Check U9 pin12(Mute),pin11( Stby)
No
Change U9
OK
Change M/B

Display color abnormal:



# 7. Recommended Spare Parts List

## RECOMMENDED SPARE PARTS LIST (VA912-4)

**ViewSonic Model Number:VS10867**
**Serial No. Prefix: PW7** **Rev: 1b**

| Item | Description | | ECR/ECN | ViewSonic P/N | Ref. P/N | Location | Universal number# | Q'ty |
|---|---|---|---|---|---|---|---|---|
| 1 | Accessories: | Power cable | | A-00003642 | DM33T181004 | Power cable | | 1 |
| 2 | | POWER CORD 3P 1.8M(USA)V04VS350012180 GP | Added on 05/31/06 | A-PC-0106-0224 | DM333181G97 | power cord | | 1 |
| 3 | PC Board Assembly: | POWER BOARD ADP/INV,FSP043--2PI01 90~264V | | B-00003993 | AS05B312D00 | power board | | 1 |
| 4 | | Main Board | | B-00004169 | 21L9TAMB090 | Main board | | 1 |
| 5 | | Button board | | B-00004170 | 23L9VABB003 | Button board | | 1 |
| 6 | | Main Board L9VA--H M/B (RTD2523B,HSD) GP | Added on 05/31/06 | B-00005990 | 1SL9VAMB011 | main board | | 1 |
| 7 | | Control Board (Button Board Assy L9VA) | Added on 05/31/06 | B-00005991 | 1SL9VABB008 | button board | | 1 |
| 8 | Cabinets: | W0VA BASE SUB ASSY (S/B) | | C-00004147 | 38W0VABS010 | Base | | 1 |
| 9 | | Front bezel assy | | C-00004171 | 24L9VALB012 | front bezel ass'y | | 1 |
| 10 | | BACK COVER (L9VA--U LCD COVER ASSY (S/B) | | C-00004172 | 25L9VALC010 | back cover assembly | | 1 |
| 11 | | Front Bezel Assy (L9VA--U LCD (S/B) | Added on 05/31/06 | C-00005992 | 34L9VALB012 | front bezel assembly | | 1 |
| 12 | | HINGE COVER L9VA B(EBL9VA02,R3A) | Added on 05/31/06 | C-00005993 | EBL9VA02028 | hinge cover | | 1 |
| 13 | Cables: | Cable MB-LCD | | CB-00002525 | DD0L9VLC015 | Cable MB-LCD | | 1 |
| 14 | | CABLE MB--VGA (15/15P,1.8M)L7VD | | CB-00002602 | DDL7VDPC005 | VGA cable | | 1 |
| 15 | | CABLE ASSY L0T MB--DVI(24P,REV2A) | Added on 05/31/06 | CB-00003440 | DD0L0TTH108 | DVI cable | | 1 |
| 16 | | Audio cable | | CB-00004149 | DD0L0TPC007 | Audio cable | | 1 |
| 17 | | LCD cable--CABLE LVDS(30P,140MM,LINKTEC,AU)L9VA | Added on 05/31/06 | CB-00004152 | DD0L9VLC023 | MB | | 1 |
| 18 | | MB--CABLE MB--BUTTON(10P/10P,280MM)L9VA | | CB-00004173 | DDL9VABU001 | cable Button | | 1 |
| 19 | | CABLE AUDIO(ST,1.8M)BLACK W9ZA | Added on 05/31/06 | CB-00005211 | DDW9ZAPA009 | audio cable | | 1 |
| 20 | Documentation: | User manual + CD wizard | | DC-00004174 | HFL9VA02013 | User manual | | 1 |
| 21 | | CD+QSG L9VA(HGL9VA01,REV3A | Added on 05/31/06 | DC-00005994 | HGL9VA01018 | user guide | | 1 |
| 22 | Electronic | LCD(TFT)HSD 190ME13-A02(8MS) A GP | | E-00004175 | AA90ME13006 | LCD panel (2nd source) | | 1 |
| 23 | Components: | LCD(TFT)19" HSD190ME13-A03 GP | | E-00004176 | AA90ME13014 | LCD panel | | 1 |
| 24 | | SPEAK ASSY L9VA FG--TE200 1.5W*2 | | E-00004177 | DN0TE200F00 | speaker assembly | | 1 |
| 25 | | LCD 19"HSD190ME13--A12 FOR VSC CON | Added on 05/31/06 | E-00005995 | AA90ME130B2 | LCD panel | | 1 |
| 26 | | LCD 19"HSD190ME13--A16 FOR VSC CON | Added on 05/31/06 | E-00005996 | AA90ME130C1 | LCD panel | | 1 |
| 27 | Hardware: | Screw F4.0*14-I(BNI) | | HW-00004157 | MF40140IJ29 | Screw | | 7 |
| 28 | | SCREW M3.0*6,B(NI) | | M-SCW-0824-0814 | MM30060BBJ3 | Sscrews | | 6 |
| 29 | | SCREW M3.0*4.0--I(NI) | | M-SCW-0824-6802 | MM30040IBJ9 | screws | | 8 |
| 30 | Miscellaneous: | 8MS STICKER L7VC(HCL7V028,REV3A) | Added on 05/31/06 | M-00002264 | HCL7V028010 | STICKER | | 1 |
| 31 | | IO NUT LI1(MBLI1004,REV3A) | Added on 05/31/06 | M-MS-0808-8986 | MBLI1004018 | I/O nuts | | 4 |
| 32 | | LCD FILM L9V(JXL9V001,REV3A) | | M-MS-0808-9682 | JXL9V001010 | LCD film | | 1 |
| 33 | | RUBBER PLUG VESA L9V(GAL9V002,REV3A) | Added on 05/31/06 | M-MS-0808-9815 | GAL9V002014 | rubber plug | | 4 |
| 34 | Packing Material: | GENERIC BOX (S) L9VA(HFL9VA02,REV3A) | | P-00004178 | HFL9VA02013 | carton | | 1 |
| 35 | | CRAFT FOAM SET | | P-00001347 | 30833 | | | |
| 36 | | CRAFT BOX | | P-00002515 | 20653 | | | |
| 37 | | END CAP--L L9VA(HBL9VA01,REV3A) | | P-00004179 | HBL9VA01013 | cushion | | 1 |
| 38 | | END CAP--R L9VA(HBL9VA02,REV3A) | | P-00004180 | HBL9VA02010 | cushion | | 1 |
| 39 | | EPE BAG L7VX(HAL7V002,REV3A) | | M-MS-0808-9158 | HAL7V002019 | EPE bag | | 1 |
| 40 | Plastics: | W0VA STAND ASSY (S/B) | | PL-00004163 | 26W0VASA016 | stand | | 1 |

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## RECOMMENDED SPARE PARTS LIST (VA912b-4)

**ViewSonic Model Number:VS10867**
**Serial No. Prefix: PW8** **Rev: 1b**

| Item | Description | | | ECR/ECN | ViewSonic P/N | Ref. P/N | Location | Universal number# | Q'ty |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Accessories: | power cord | POWER CORD 3P 1.8M(USA)V04VS350012180 GP | | A-PC-0106-0224 | DM333181G97 | | | 1 |
| 2 | PC Board | power board | ADP/INV,FSP043-2PI01 90~264V GP | | B-00003993 | AS05B312D00 | | | 1 |
| 3 | Assembly: | main board | L9VA-H M/B SPARE PART(RTD2523B,HSD) GP | | B-00005990 | 1SL9VAMB011 | | | 1 |
| 4 | | button board | L9VA BUTTON/B ASSY GP | | B-00005991 | 1SL9VABB008 | | | 1 |
| 5 | Cabinets: | Base | W0VA BASE SUB ASSY (MID) GP | | C-00004165 | 38W0VABS001 | | | 1 |
| 6 | | hinge cover | HINGE COVER L9VA B(EBL9VA02,R3A) GP | | C-00005749 | EBL9VA02010 | | | 1 |
| 7 | | front bezel assembly | L9VA-U LCD BEZEL SUB ASSY (MID) GP | | C-00005997 | 34L9VALB004 | | | 1 |
| 8 | | back cover assembly | L9VA-U LCD COVER ASSY (MID) GP | | C-00005998 | 25L9VALC001 | | | 1 |
| 9 | Cables: | VGA cable | CABLE MB-VGA (15/15P,1.8M)L7VD GP | | CB-00002602 | DDL7VDPC005 | | | 1 |
| 10 | | DVI cable | CABLE ASSY L0T MB-DVI(24P,REV2A) GP | | CB-00003440 | DD0L0TTH108 | | | 1 |
| 11 | | MB-LCD cable | CABLE LVDS(30P,140MM,LINKTEC,AU)L9VA GP | | CB-00004152 | DD0L9VLC023 | | | 1 |
| 12 | | cable Button-MB | CABLE MB-BUTTON(10P/10P,280MM)L9VA GP | | CB-00004173 | DDL9VABU001 | | | 1 |
| 13 | | audio cable | CABLE AUDIO(ST,1.8M)BLACK W9ZA GP | | CB-00005211 | DDW9ZAPA009 | | | 1 |
| 14 | Documentation: | user guide | CD+QSG L9VA(HGL9VA01,REV3A) GP | | DC-00005994 | HGL9VA01018 | | | 1 |
| 15 | Electronic | speaker assembly | SPEAK ASSY L9VA FG-TE200 1.5W*2 GP | | E-00004177 | DN0TE200F00 | | | 1 |
| 16 | Components: | LCD panel | LCD 19"HSD190ME13-A12 FOR VSC CON GP | | E-00005995 | AA90ME130B2 | | | 1 |
| 17 | | LCD panel | LCD 19"HSD190ME13-A16 FOR VSC CON GP | | E-00005996 | AA90ME130C1 | | | 1 |
| 18 | Miscellaneous: | STICKER | 8MS STICKER L7VC(HCL7V028,REV3A)GP | | M-00002264 | HCL7V028010 | | | 1 |
| 19 | | I/O nuts | IO NUT LI1(MBLI1004,REV3A)GP | | M-MS-0808-8986 | MBLI1004018 | | | 4 |
| 20 | | LCD film | LCD FILM L9V(JXL9V001,REV3A) GP | | M-MS-0808-9682 | JXL9V001010 | | | 1 |
| 21 | | rubber plug | RUBBER PLUG VESA L9V(GAL9V002,REV3A)GP | | M-MS-0808-9815 | GAL9V002014 | | | 4 |
| 22 | Hardware: | Sscrews | SCREW M3.0*6,B(NI) GP | | M-SCW-0824-0814 | MM30060BBJ3 | | | 6 |
| 23 | | screws | SCREW M3.0*4.0-I(NI) GP | | M-SCW-0824-6802 | MM30040IBJ9 | | | 8 |
| 24 | Packing Material: | cushion | END CAP-L L9VA(HBL9VA01,REV3A) GP | | P-00004179 | HBL9VA01013 | | | 1 |
| 25 | | cushion | END CAP-R L9VA(HBL9VA02,REV3A) GP | | P-00004180 | HBL9VA02010 | | | 1 |
| 26 | | | CRAFT BOX | | P-00002515 | 20653 | | | |
| 27 | | EPE bag | EPE BAG L7VX(HAL7V002,REV3A) GP | | M-MS-0808-9158 | HAL7V002019 | | | 1 |
| 28 | | | CRAFT FOAM SET | | P-00001347 | 30833 | | | |
| 29 | | carton | GENERIC BOX(MID) L9VA(HFL9VA02,REV3A) GP | | P-00004183 | HFL9VA01017 | | | 1 |
| 30 | Plastics: | stand | W0VA STAND ASSY (MID) GP | | PL-00004168 | 26W0VASA008 | | | 1 |

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# BOM LIST (VA912-4)(HSD)

**ViewSonic Model Number: VS10867**
**Rev: 1b**
**Serial No. Prefix: PW7**

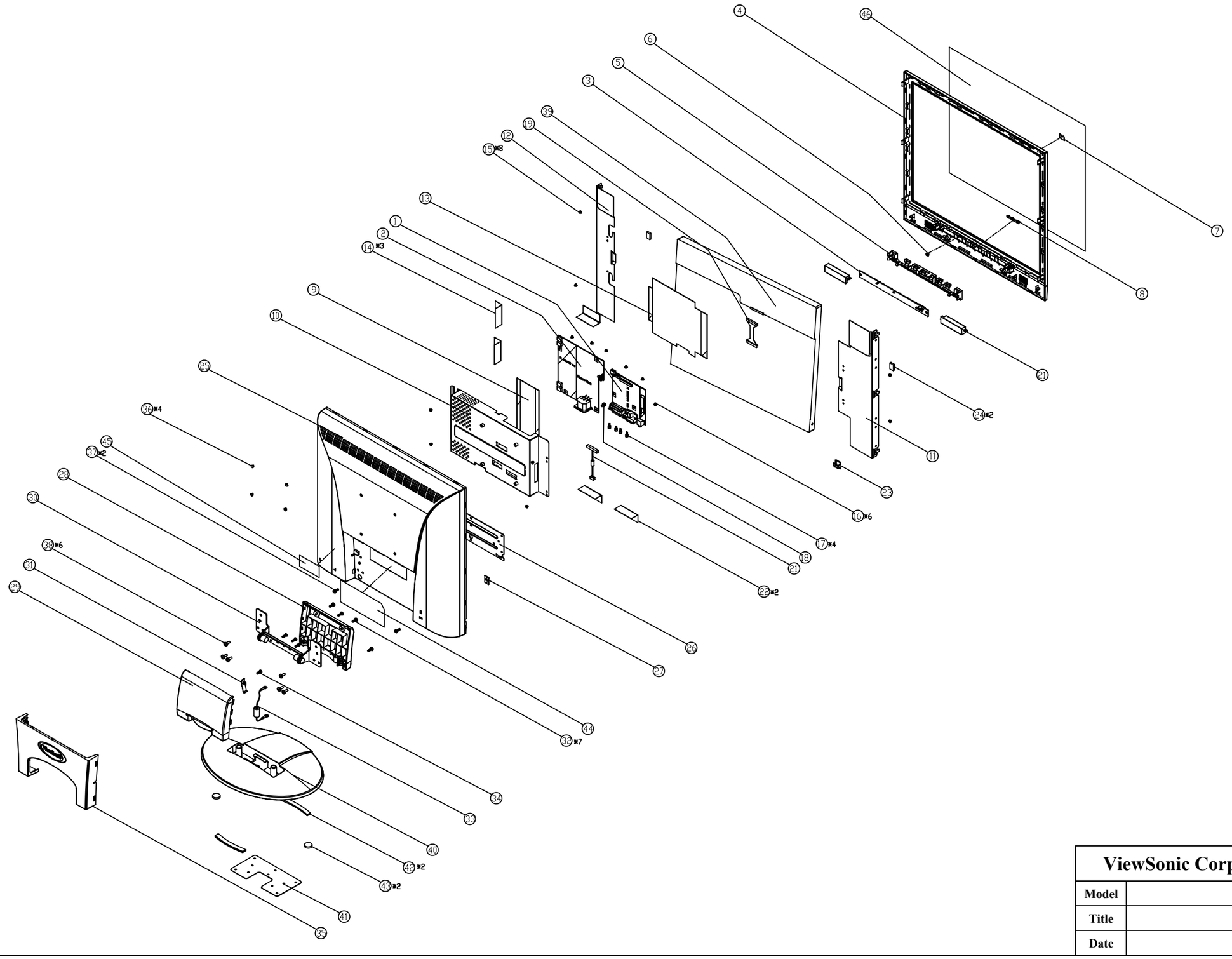
| Item | ViewSonic P/N | Ref. P/N | Description | Location | Universal number# | Q'ty |
|---|---|---|---|---|---|---|
| 1 | N/A | 1L9VAHXVS88 | L9VA-H LCD MONITOR(VA912-4)(S/B,USA)GP | | | |
| 2 | N/A | 21L9ZCMB035 | L9ZC M/B ASSY(FOR L9VA-H)RTD2523B GP | | | 1 |
| 3 | N/A | 31L9ZCSS014 | L9ZC M/B S/S ASSY(FOR L9ZC-6U)2523B GP | | | 1 |
| 4 | N/A | DFHD08FR005 | CONN DIP HEADER 8P2R FR(P2.54,H5.0) GP | CN1 | | 1 |
| 5 | N/A | DFDS15FR041 | CONN D-SUB 15P 3R FR(P1.15,H12.55) GP | CN2 | | 1 |
| 6 | N/A | DFDS15FR076 | CONN D-SUB 15P 3R FR(P1.15,H12.55) GP | CN2 | | 1 |
| 7 | N/A | DFDI30FR022 | CONN DVI-I DIP30P 3R FR(P1.905 H10.04)GP | CN4 | | 1 |
| 8 | N/A | DFDI30FR103 | CONN DVI-I DIP30P 3R FR(P1.905,H10.04)GP | CN4 | | 1 |
| 9 | N/A | DFHD30MR267 | CONN DIP HEADER 30P 2R MR(P2.0,H4.0) GP | CN5 | | 1 |
| 10 | N/A | DFHD10MR324 | CONN DIP HEADER 10P 1R MR(P2.0,H4.1) GP | CN6 | | 1 |
| 11 | N/A | CC722L2MD07 | CAP EC 220U 10V(+ -20%,105C,6.3*7)LXN GP | C4 | | 1 |
| 12 | N/A | CC71004MD68 | CAP EC 100U 25V(+-20%,105C,6*11,2K) GP | C9,C45 | | 2 |
| 13 | N/A | CC62204MD23 | CAP EC 22U 25V(+-20%,105C,5*11,2KHR)GP | C32 | | 1 |
| 14 | N/A | CC610L3MD01 | CAP EC DIP 10U 16V(+-20%,105C,4*7)LXNGP | C36,C48,EC2,EC3 | | 4 |
| 15 | N/A | CC73303MD51 | CAP EC 330U 16V(+-20%,105C,8*11,LESR)GP | C67,C69,C73,C75,EC1 | | 5 |
| 16 | N/A | DFHD04MR132 | CONN DIP HEADER 4P 1R MR(P2.0,H4.1) GP | JP2 | | 1 |
| 17 | N/A | DFPJ05FR153 | CONN DIP PHONE JACK 5P FR(H10)248C GP | J1 | | 1 |
| 18 | N/A | BG624000008 | XTAL DIP 24.0MHZ(+-50PPM,49/S) GP | Y2 | | 1 |
| 19 | N/A | AL007496D02 | IC(20P) TDA7496L(DIP) GP | U7 | | 1 |
| 20 | N/A | AL007496D29 | IC(20P) UTC TDA7496LK(DIP) GP | U7 | | 1 |
| 21 | B-00004170 | 23L9VABB003 | L9VA BUTTON/B ASSY GP | | | 1 |
| 22 | N/A | DAL9VATB115 | PCB(BUTTON)L9VA TB(1L,204*16,REVA) GP | | | 1 |
| 23 | N/A | BEYG0014DA0 | LED(DIP) YELLOW/GREEN(L-3WYGW-F01) GP | LED1 | | 1 |
| 24 | N/A | DFHD10MR324 | CONN DIP HEADER 10P 1R MR(P2.0,H4.1) GP | CN1 | | 1 |
| 25 | PL-BT-0706-0127 | DHP0002B108 | SWITCH PUSH BUTTON(PT-002-B1,50MA,12V)GP | SW1,SW2,SW3,SW4,SW5,SW6 | | 6 |
| 26 | B-00003993 | AS05B312D00 | ADP/INV,FSP043-2PI01 90~264V GP | | | 1 |
| 27 | N/A | 24L9VALB021 | L9VA LCD BEZEL ASSY(S/B,NO PANEL HOOK)GP | | | 1 |
| 28 | C-00005992 | 34L9VALB012 | L9VA-U LCD BEZEL SUB ASSY (S/B) GP | | | 1 |
| 29 | N/A | 36L9VAPS001 | L9VA PCB SHIELDING ASSY GP | | | 1 |
| 30 | N/A | FAL9VA01012 | LCD BKT-L L9VA(FAL9VA01,REV3A) GP | | | 1 |
| 31 | N/A | FAL9VA02019 | LCD BKT-R L9VA(FAL9VA02,REV3A) GP | | | 1 |
| 32 | N/A | FCL7B001018 | POWER BOARD MYLAR L7B(FCL7B001,REV3A)GP | | | 1 |
| 33 | N/A | FCM7T004014 | AL FOIL M7T(FCM7T004,REV3A) GP | | | 3 |
| 34 | M-SCW-0824-6802 | MM30040IBJ9 | SCREW M3.0*4.0-I(NI) GP | | | 8 |
| 35 | M-SCW-0824-0814 | MM30060BBJ3 | SCREW M3.0*6,B(NI) GP | | | 6 |
| 36 | M-MS-0808-8986 | MBLI1004018 | IO NUT LI1(MBLI1004,REV3A)GP | | | 4 |
| 37 | N/A | MS35080B456 | SCREW F3.5*8-B(NI)(WASHER)GP | | | 1 |
| 38 | CB-00004152 | DD0L9VLC023 | CABLE LVDS(30P,140MM,LINKTEC,AU)L9VA GP | | | 1 |
| 39 | CB-00004173 | DDL9VABU001 | CABLE MB-BUTTON(10P/10P,280MM)L9VA GP | | | 1 |
| 40 | E-00004177 | DN0TE200F00 | SPEAK ASSY L9VA FG-TE200 1.5W*2 GP | | | 1 |
| 41 | N/A | FCL5M005011 | AL FOIL(PANEL) L5M(FCL5M005,REV 3A)GP | | | 1 |
| 42 | M-MS-0808-9247 | EBL70023013 | WIRE MOUNTS L70L-E(EBL70023,REV3A) GP | | | 1 |
| 43 | N/A | GAL70003011 | RUBBER-HOLDER L70L-E(GAL70003,REV3A)GP | | | 2 |
| 44 | M-SCW-0824-6761 | MM30030IBJ4 | SCREW M3*3-I-NI GP | | | 4 |
| 45 | N/A | FCL9ZA02015 | AL FOIL L9ZA-A1(FCL9ZA02,REV3A)GP | | | 1 |
| 46 | M-SCW-0824-0726 | MF30080BBJ5 | SCREW F3.0*8L,B,NI GP | | | 2 |
| 47 | C-00004172 | 25L9VALC010 | L9VA-U LCD COVER ASSY (S/B) GP | | | 1 |
| 48 | N/A | EAL9VA02027 | LCD COVER L9VA B(EAL9VA02,R3A) GP | | | 1 |
| 49 | N/A | FBL9VA01013 | HINGE-PLATE L9VA(FBL9VA01,REV3A) GP | | | 1 |
| 50 | M-MS-0808-9411 | FBL70008014 | LOCK METAL L70B(FBL70008,REV3A) GP | | | 1 |
| 51 | PL-00004163 | 26W0VASA016 | W0VA STAND ASSY (S/B) GP | | | 1 |
| 52 | N/A | EAW0VA03029 | STAND FRONT W0VA(EAW0VA03,R3A)BK GP | | | 1 |
| 53 | N/A | EAW0VA05021 | STAND-BACK W0VA(EAW0VA05,R3A)BK GP | | | 1 |
| 54 | N/A | FAW0VA04017 | HINGE ASSY W0VA(FAW0VA04,REV3A)GP | | | 1 |
| 55 | N/A | FBW0VA02015 | CONTACT-PLATE W0VA(FBW0VA02,REV3A)GP | | | 1 |
| 56 | HW-00004157 | MF40140IJ29 | SCREW F4.0*14-I(BNI) GP | | | 7 |
| 57 | N/A | DDL9TATH107 | CABLE STAND-HINGE(1P,150MM)L7TA GP | | | 1 |
| 58 | M-SCW-0824-6895 | MF40080IBJ1 | SCREW F4.0*8-I(NI)GP | | | 1 |
| 59 | N/A | 27L9VACS019 | L9VA-U CHASSIS ASSY (S/B) GP | | | 1 |
| 60 | C-00005993 | EBL9VA02028 | HINGE COVER L9VA B(EBL9VA02,R3A) GP | | | 1 |
| 61 | M-MS-0808-9815 | GAL9V002014 | RUBBER PLUG VESA L9V(GAL9V002,REV3A)GP | | | 4 |
| 62 | M-SCW-0824-6797 | MF40080BJ29 | SCREW F4.0*8-B(BNI) GP | | | 2 |
| 63 | N/A | MM40100BL61 | SCREW M4*10.0-B(BNI,NYLOK) GP | | | 6 |
| 64 | N/A | 2AL9VAPTU11 | L9VA-H PANEL KIT ASSY(HSD) GP | | | 1 |
| 65 | E-00005995 | AA90ME130B2 | LCD 19"HSD190ME13-A12 FOR VSC CON GP | | | 1 |
| 66 | E-00005996 | AA90ME130C1 | LCD 19"HSD190ME13-A16 FOR VSC CON GP | | | 1 |
| 67 | N/A | AZL9VABU002 | L9VA-H SW BIOS IMAGE(HSD)RTD2523B N/A | | | 1 |
| 68 | N/A | FBL9VA02010 | PANEL HOOK L9VA(FBL9VA02,REV3A)GP | | | 2 |
| 69 | N/A | 28L9VAPK016 | L9VA-U PACKING ASSY (S/B) GP | | | 1 |
| 70 | C-00004147 | 38W0VABS010 | W0VA BASE SUB ASSY (S/B) GP | | | 1 |
| 71 | M-MS-0808-9158 | HAL7V002019 | EPE BAG L7VX(HAL7V002,REV3A) GP | | | 1 |
| 72 | P-00004179 | HBL9VA01013 | END CAP-L L9VA(HBL9VA01,REV3A) GP | | | 1 |
| 73 | P-00004180 | HBL9VA02010 | END CAP-R L9VA(HBL9VA02,REV3A) GP | | | 1 |
| 74 | M-LB-0813-0747 | HCL7V004013 | CORE LABEL(HCL7V004,REV3A)GP | | | 1 |
| 75 | N/A | HCL9VA03017 | ID LABEL(S) L9VA(HCL9VA03,REV3A) GP | | | 1 |
| 76 | M-LB-0813-0745 | HCL7V002011 | SERIAL LEBAL L7V(HCL7V002,REV3A) GP | | | 1 |
| 77 | P-00004178 | HFL9VA02013 | CARTON(S) L9VA(HFL9VA02,REV3A) GP | | | 1 |
| 78 | N/A | HGL9VA01018 | CD+QSG L9VA(HGL9VA01,REV3A) GP | | | 1 |
| 79 | PL-00005198 | JXLM5003011 | HANDLE LM5S(JXLM5003,REV 3B) GP | | | 1 |
| 80 | M-MS-0808-9682 | JXL9V001010 | LCD FILM L9V(JXL9V001,REV3A) GP | | | 1 |
| 81 | M-LB-0813-1043 | HCL70021011 | HI-POT LABEL L70L(HCL70021,REV3A)GP | | | 1 |
| 82 | N/A | HFL9T002018 | SPACE PLATE L9T(HFL9T002,REV3A)GP | | | 0.027 |
| 83 | M-00002264 | HCL7V028010 | 8MS STICKER L7VC(HCL7V028,REV3A)GP | | | 1 |
| 84 | CB-00002602 | DDL7VDPC005 | CABLE MB-VGA (15/15P,1.8M)L7VD GP | | | 1 |
| 85 | CB-00005211 | DDW9ZAPA009 | CABLE AUDIO(ST,1.8M)BLACK W9ZA GP | | | 1 |
| 86 | N/A | HCL9VA02011 | CARTON LABEL(4) L9VA(HCL9VA02,R3A) GP | | | 1 |
| 87 | N/A | HDL7VC01019 | SERVICR PAPER L7VC(HDL7VC01,REV3A) GP | | | 1 |
| 88 | DC-00003536 | HCL9V009011 | HG LABEL L9VD(HCL9V009,REV3A)GP | | | 1 |
| 89 | A-PC-0106-0224 | DM333181G97 | POWER CORD 3P 1.8M(USA)V04VS350012180 GP | | | 1 |
| 90 | CB-00003440 | DD0L0TTH108 | CABLE ASSY L0T MB-DVI(24P,REV2A) GP | | | 1 |

# BOM LIST (VA912b-4)(HSD)

**ViewSonic Model Number: VS1(**
**Rev: 1b**
**Serial No. Prefi PW8**

| Item | ViewSonic P/N | Ref. P/N | Description | Location | Universal number# | Q'ty |
|---|---|---|---|---|---|---|
| 1 | N/A | 1L9VAHXVS02 | L9VA-H LCD MONITOR(VA912B-4)(USA) GP | | | |
| 2 | N/A | 21L9ZCMB035 | L9ZC M/B ASSY(FOR L9VA-H)RTD2523B GP | | | 1 |
| 3 | N/A | 31L9ZCSS014 | L9ZC M/B S/S ASSY(FOR L9ZC-6U)2523B GP | | | 1 |
| 4 | N/A | DFHD08FR005 | CONN DIP HEADER 8P2R FR(P2.54,H5.0) GP | CN1 | | 1 |
| 5 | N/A | DFDS15FR041 | CONN D-SUB 15P 3R FR(P1.15,H12.55) GP | CN2 | | 1 |
| 6 | N/A | DFDS15FR076 | CONN D-SUB 15P 3R FR(P1.15,H12.55) GP | CN2 | | 1 |
| 7 | N/A | DFDI30FR022 | CONN DVI-I DIP30P 3R FR(P1.905 H10.04)GP | CN4 | | 1 |
| 8 | N/A | DFDI30FR103 | CONN DVI-I DIP30P 3R FR(P1.905,H10.04)GP | CN4 | | 1 |
| 9 | N/A | DFHD30MR267 | CONN DIP HEADER 30P 2R MR(P2.0,H4.0) GP | CN5 | | 1 |
| 10 | N/A | DFHD10MR324 | CONN DIP HEADER 10P 1R MR(P2.0,H4.1) GP | CN6 | | 1 |
| 11 | N/A | CC722L2MD07 | CAP EC 220U 10V(+ -20%,105C,6.3*7)LXN GP | C4 | | 1 |
| 12 | N/A | CC71004MD68 | CAP EC 100U 25V(+-20%,105C,6*11,2K) GP | C9,C45 | | 2 |
| 13 | N/A | CC62204MD23 | CAP EC 22U 25V(+-20%,105C,5*11,2KHR)GP | C32 | | 1 |
| 14 | N/A | CC610L3MD01 | CAP EC DIP 10U 16V(+-20%,105C,4*7)LXNGP | C36,C48,EC2,EC3 | | 4 |
| 15 | N/A | CC73303MD51 | CAP EC 330U 16V(+-20%,105C,8*11,LESR)GP | C67,C69,C73,C75,EC1 | | 5 |
| 16 | N/A | DFHD04MR132 | CONN DIP HEADER 4P 1R MR(P2.0,H4.1) GP | JP2 | | 1 |
| 17 | N/A | DFPJ05FR153 | CONN DIP PHONE JACK 5P FR(H10)248C GP | J1 | | 1 |
| 18 | N/A | BG624000008 | XTAL DIP 24.0MHZ(+-50PPM,49/S) GP | Y2 | | 1 |
| 19 | N/A | AL007496D02 | IC(20P) TDA7496L(DIP) GP | U7 | | 1 |
| 20 | N/A | AL007496D29 | IC(20P) UTC TDA7496LK(DIP) GP | U7 | | 1 |
| 21 | B-00004170 | 23L9VABB003 | L9VA BUTTON/B ASSY GP | | | 1 |
| 22 | N/A | DAL9VATB115 | PCB(BUTTON)L9VA TB(1L,204*16,REVA) GP | | | 1 |
| 23 | N/A | BEYG0014DA0 | LED(DIP) YELLOW/GREEN(L-3WYGW-F01) GP | LED1 | | 1 |
| 24 | N/A | DFHD10MR324 | CONN DIP HEADER 10P 1R MR(P2.0,H4.1) GP | CN1 | | 1 |
| 25 | PL-BT-0706-0127 | DHP0002B108 | SWITCH PUSH BUTTON(PT-002-B1,50MA,12V)GP | SW1,SW2,SW3,SW4,SW5,SW6 | | 6 |
| 26 | B-00003993 | AS05B312D00 | ADP/INV,FSP043-2PI01 90~264V GP | | | 1 |
| 27 | N/A | 24L9VALB039 | L9VA LCD BEZEL ASSY(NO PANEL HOOK) GP | | | 1 |
| 28 | C-00005997 | 34L9VALB004 | L9VA LCD BEZEL SUB ASSY GP | | | 1 |
| 29 | N/A | 36L9VAPS001 | L9VA PCB SHIELDING ASSY GP | | | 1 |
| 30 | N/A | FAL9VA01012 | LCD BKT-L L9VA(FAL9VA01,REV3A) GP | | | 1 |
| 31 | N/A | FAL9VA02019 | LCD BKT-R L9VA(FAL9VA02,REV3A) GP | | | 1 |
| 32 | N/A | FCL7B001018 | POWER BOARD MYLAR L7B(FCL7B001,REV3A)GP | | | 1 |
| 33 | N/A | FCM7T004014 | AL FOIL M7T(FCM7T004,REV3A) GP | | | 3 |
| 34 | M-SCW-0824-6802 | MM30040IBJ9 | SCREW M3.0*4.0-I(NI) GP | | | 8 |
| 35 | M-SCW-0824-0814 | MM30060BBJ3 | SCREW M3.0*6,B(NI) GP | | | 6 |
| 36 | M-MS-0808-8986 | MBLI1004018 | IO NUT LI1(MBLI1004,REV3A)GP | | | 4 |
| 37 | N/A | MS35080B456 | SCREW F3.5*8-B(NI)(WASHER)GP | | | 1 |
| 38 | CB-00004152 | DD0L9VLC023 | CABLE LVDS(30P,140MM,LINKTEC,AU)L9VA GP | | | 1 |
| 39 | CB-00004173 | DDL9VABU001 | CABLE MB-BUTTON(10P/10P,280MM)L9VA GP | | | 1 |
| 40 | E-00004177 | DN0TE200F00 | SPEAK ASSY L9VA FG-TE200 1.5W*2 GP | | | 1 |
| 41 | N/A | FCL5M005011 | AL FOIL(PANEL) L5M(FCL5M005,REV 3A)GP | | | 1 |
| 42 | M-MS-0808-9247 | EBL70023013 | WIRE MOUNTS L70L-E(EBL70023,REV3A) GP | | | 1 |
| 43 | N/A | GAL70003011 | RUBBER-HOLDER L70L-E(GAL70003,REV3A)GP | | | 2 |
| 44 | M-SCW-0824-6761 | MM30030IBJ4 | SCREW M3*3-I-NI GP | | | 4 |
| 45 | N/A | FCL9ZA02015 | AL FOIL L9ZA-A1(FCL9ZA02,REV3A)GP | | | 1 |
| 46 | M-SCW-0824-0726 | MF30080BBJ5 | SCREW F3.0*8L,B,NI GP | | | 2 |
| 47 | C-00005998 | 25L9VALC001 | L9VA LCD COVER ASSY GP | | | 1 |
| 48 | N/A | EAL9VA02019 | LCD COVER L9VA(EAL9VA02,REV3A) GP | | | 1 |
| 49 | N/A | FBL9VA01013 | HINGE-PLATE L9VA(FBL9VA01,REV3A) GP | | | 1 |
| 50 | M-MS-0808-9411 | FBL70008014 | LOCK METAL L70B(FBL70008,REV3A) GP | | | 1 |
| 51 | PL-00004168 | 26W0VASA008 | W0VA STAND ASSY GP | | | 1 |
| 52 | N/A | EAW0VA03011 | STAND-FRONT W0VA(EAW0VA03,REV3A)GP | | | 1 |
| 53 | N/A | EAW0VA05013 | STAND-BACK W0VA(EAW0VA05,REV3A)GP | | | 1 |
| 54 | N/A | FAW0VA04017 | HINGE ASSY W0VA(FAW0VA04,REV3A)GP | | | 1 |
| 55 | N/A | FBW0VA02015 | CONTACT-PLATE W0VA(FBW0VA02,REV3A)GP | | | 1 |
| 56 | HW-00004157 | MF40140IJ29 | SCREW F4.0*14-I(BNI) GP | | | 7 |
| 57 | N/A | DDL9TATH107 | CABLE STAND-HINGE(1P,150MM)L7TA GP | | | 1 |
| 58 | M-SCW-0824-6895 | MF40080IBJ1 | SCREW F4.0*8-I(NI)GP | | | 1 |
| 59 | N/A | 27L9VACS001 | L9VA CHASSIS ASSY GP | | | 1 |
| 60 | C-00005749 | EBL9VA02010 | HINGE COVER L9VA(EBL9VA02,REV3A) GP | | | 1 |
| 61 | N/A | GAW0VA02014 | RUBBER PLUG VESA (GAW0VA02,R3A)GRAY GP | | | 4 |
| 62 | M-SCW-0824-6797 | MF40080BJ29 | SCREW F4.0*8-B(BNI) GP | | | 2 |
| 63 | N/A | MM40100BL61 | SCREW M4*10.0-B(BNI,NYLOK) GP | | | 6 |
| 64 | N/A | 2AL9VAPTU11 | L9VA-H PANEL KIT ASSY(HSD) GP | | | 1 |
| 65 | E-00005995 | AA90ME130B2 | LCD 19"HSD190ME13-A12 FOR VSC CON GP | | | 1 |
| 66 | E-00005996 | AA90ME130C1 | LCD 19"HSD190ME13-A16 FOR VSC CON GP | | | 1 |
| 67 | N/A | AZL9VABU002 | L9VA-H SW BIOS IMAGE(HSD)RTD2523B N/A | | | 1 |
| 68 | N/A | FBL9VA02010 | PANEL HOOK L9VA(FBL9VA02,REV3A)GP | | | 2 |
| 69 | N/A | 28L9VAPK008 | L9VA PACKING ASSY GP | | | 1 |
| 70 | C-00004165 | 38W0VABS001 | W0VA BASE SUB ASSY GP | | | 1 |
| 71 | CB-00002602 | DDL7VDPC005 | CABLE MB-VGA (15/15P,1.8M)L7VD GP | | | 1 |
| 72 | P-00004159 | HAL0T002019 | PE BAG L0T(HAL0T002,REV3A)GP | | | 1 |
| 73 | CB-00005211 | DDW9ZAPA009 | CABLE AUDIO(ST,1.8M)BLACK W9ZA GP | | | 1 |
| 74 | P-00004179 | HBL9VA01013 | END CAP-L L9VA(HBL9VA01,REV3A) GP | | | 1 |
| 75 | P-00004180 | HBL9VA02010 | END CAP-R L9VA(HBL9VA02,REV3A) GP | | | 1 |
| 76 | M-LB-0813-0747 | HCL7V004013 | CORE LABEL(HCL7V004,REV3A)GP | | | 1 |
| 77 | N/A | HCL9VA01014 | ID LABEL L9VA(HCL9VA01,REV3A) GP | | | 1 |
| 78 | M-LB-0813-0745 | HCL7V002011 | SERIAL LEBAL L7V(HCL7V002,REV3A) GP | | | 1 |
| 79 | P-00004183 | HFL9VA01017 | CARTON L9VA(HFL9VA01,REV3A) GP | | | 1 |
| 80 | DC-00005994 | HGL9VA01018 | CD+QSG L9VA(HGL9VA01,REV3A) GP | | | 1 |
| 81 | PL-00005198 | JXLM5003011 | HANDLE LM5S(JXLM5003,REV 3B) GP | | | 1 |
| 82 | M-MS-0808-9682 | JXL9V001010 | LCD FILM L9V(JXL9V001,REV3A) GP | | | 1 |
| 83 | M-LB-0813-1043 | HCL70021011 | HI-POT LABEL L70L(HCL70021,REV3A)GP | | | 1 |
| 84 | N/A | HFL9T002018 | SPACE PLATE L9T(HFL9T002,REV3A)GP | | | 0.027 |
| 85 | M-00002264 | HCL7V028010 | 8MS STICKER L7VC(HCL7V028,REV3A)GP | | | 1 |
| 86 | N/A | HCL9VA02011 | CARTON LABEL(4) L9VA(HCL9VA02,R3A) GP | | | 1 |
| 87 | N/A | HDL7VC01019 | SERVICR PAPER L7VC(HDL7VC01,REV3A) GP | | | 1 |
| 88 | DC-00003536 | HCL9V009011 | HG LABEL L9VD(HCL9V009,REV3A)GP | | | 1 |
| 89 | A-PC-0106-0224 | DM333181G97 | POWER CORD 3P 1.8M(USA)V04VS350012180 GP | | | 1 |
| 90 | CB-00003440 | DD0L0TTH108 | CABLE ASSY L0T MB-DVI(24P,REV2A) GP | | | 1 |

## 8. Exploded Diagram and Exploded Parts List




| ViewSonic Corporation | | |
|---|---|---|
| Model | | |
| Title | | |
| Date | | Rev: |

# EXPLODED PARTS LIST (VA912-4)

**ViewSonic Model Number: VS10867**

**Rev: 1b**

**Serial No. Prefix: PW7**

| Item | ViewSonic P/N | Ref. P/N | Description | Q'ty |
|---|---|---|---|---|
| 1 | B-00004169 | 21L9TAMB090 | L9ZC M/B ASSY(RTD2523b-LF) GP | 1 |
| 2 | B-00003993 | AS05B312D00 | ADP/INV,FSP043-2PI01 90~264V GP | 1 |
| 3 | B-00004170 | 23L9VABB003 | L9VA BUTTON/B ASSY GP | 1 |
| 4 | N/A | EAL9VA01021 | LCD BEZEL L9VA S(EAL9VA01,R3A) GP | 1 |
| 5 | N/A | EBL9VA01013 | FUNCTION BUTTON L9VA GP | 1 |
| 6 | N/A | EBW0VA02015 | LENS W0VA GP | 1 |
| 7 | M-MS-0808-9244 | FEL7V004015 | BIRD LOGO-10MM L7VC | 1 |
| 8 | M-MS-0808-9243 | FEL7V003019 | LOGO FRONT-VSC-38MM L7VC | 1 |
| 9 | N/A | FCL7TA01018 | SHIELDING MYLAR L7TAGP | 1 |
| 10 | N/A | FAL7TA08011 | SHIELDING L9VA DUAL GP | 1 |
| 11 | N/A | FAL9VA01012 | LCD BKT-L L9VA GP | 1 |
| 12 | N/A | FAL9VA02019 | LCD BKT-R L9VA GP | 1 |
| 13 | N/A | FCL7B001018 | POWER BOARD MYLAR L7B GP | 1 |
| 14 | N/A | FCM7T004014 | AL FOIL M7T GP | 3 |
| 15 | M-SCW-0824-6802 | MM30040IBJ9 | SCREW M3.0*4.0-I(NI) GP | 8 |
| 16 | M-SCW-0824-0814 | MM30060BBJ3 | SCREW M3.0*6,B(NI) GP | 6 |
| 17 | M-MS-0808-8986 | MBLI1004018 | IO NUT LI1 GP | 4 |
| 18 | N/A | MS35080B456 | SCREW F3.5*8-B(NI)(WASHER) | 1 |
| 19 | CB-00002525 | DD0L9VLC015 | CABLE MB-LCD(30P,140MM)L9V-5 GP | 1 |
| 20 | CB-00004173 | DDL9VABU001 | CABLE MB-BUTTON(10P/10P,280MM)L9VA GP | 1 |
| 21 | E-00004177 | DN0TE200F00 | SPEAK ASSY L9VA FG-TE200 1.5W*2 GP | 1 |
| 22 | N/A | FCL5M005011 | AL FOIL(PANEL) L5M | 2 |
| 23 | M-MS-0808-9247 | EBL70023013 | WIRE MOUNTS L70L-E GP | 1 |
| 24 | N/A | GAL7TA01016 | RUBBER FOOT L7TA | 2 |
| 25 | N/A | EAL9VA02027 | LCD COVER L9VA B(EAL9VA02,R3A) GP | 1 |
| 26 | N/A | FBL9VA01013 | HINGE-PLATE L9VA GP | 1 |
| 27 | M-MS-0808-9411 | FBL70008014 | LOCK METAL L70B GP | 1 |
| 28 | N/A | EAW0VA03029 | STAND FRONT W0VA(EAW0VA03,R3A)BK GP | 1 |
| 29 | N/A | EAW0VA05021 | STAND-BACK W0VA(EAW0VA05,R3A)BK GP | 1 |
| 30 | N/A | FAW0VA04017 | HINGE ASSY W0VA GP | 1 |
| 31 | N/A | FBW0VA02015 | CONTACT-PLATE W0VA GP | 1 |
| 32 | HW-00004157 | MF40140IJ29 | SCREW F4.0*14-I(BNI) GP | 7 |
| 33 | N/A | DDL9TATH107 | CABLE STAND-HINGE(1P,150MM) GP | 1 |
| 34 | M-SCW-0824-6895 | MF40080IBJ1 | SCREW F4.0*8-I(NI) GP | 1 |
| 35 | C-00005993 | EBL9VA02028 | HINGE COVER L9VA B(EBL9VA02,R3A) GP | 1 |
| 36 | M-MS-0808-9815 | GAL9V002014 | RUBBER PLUG VESA L9V(GAL9V002,REV3A) | 4 |
| 37 | M-SCW-0824-6797 | MF40080BJ29 | SCREW F4.0*8-B(BNI)GP | 2 |
| 38 | N/A | MM40100BL61 | SCREW M4*10.0-B(BNI,NYLOK) GP | 6 |
| 39 | N/A | EAW0VA04025 | BASE W0VA(EAW0VA04,REV3A)BK GP | 1 |
| 40 | E-00005995 | AA90ME130B2 | LCD(TFT)HSD 190ME13-A16(8MS) A GP | 1 |
| 41 | N/A | FBW0VA03011 | BASE-PLATE W0VA GP | 1 |
| 42 | N/A | GAW0VA03011 | RUBBER FOOT-C W0VA GP | 2 |
| 43 | N/A | GAW0VA01018 | RUBBER FOOT W0VA GP | 2 |
| 44 | N/A | HCL9VA01014 | ID LABEL L9VA GP | 1 |
| 45 | M-LB-0813-0745 | HCL7V002011 | SERIAL LABAL L7V GP | 1 |
| 46 | M-MS-0808-9682 | JXL9V001010 | LCD FILM L9V GP | 1 |

# EXPLODED PARTS LIST (VA912b-4)

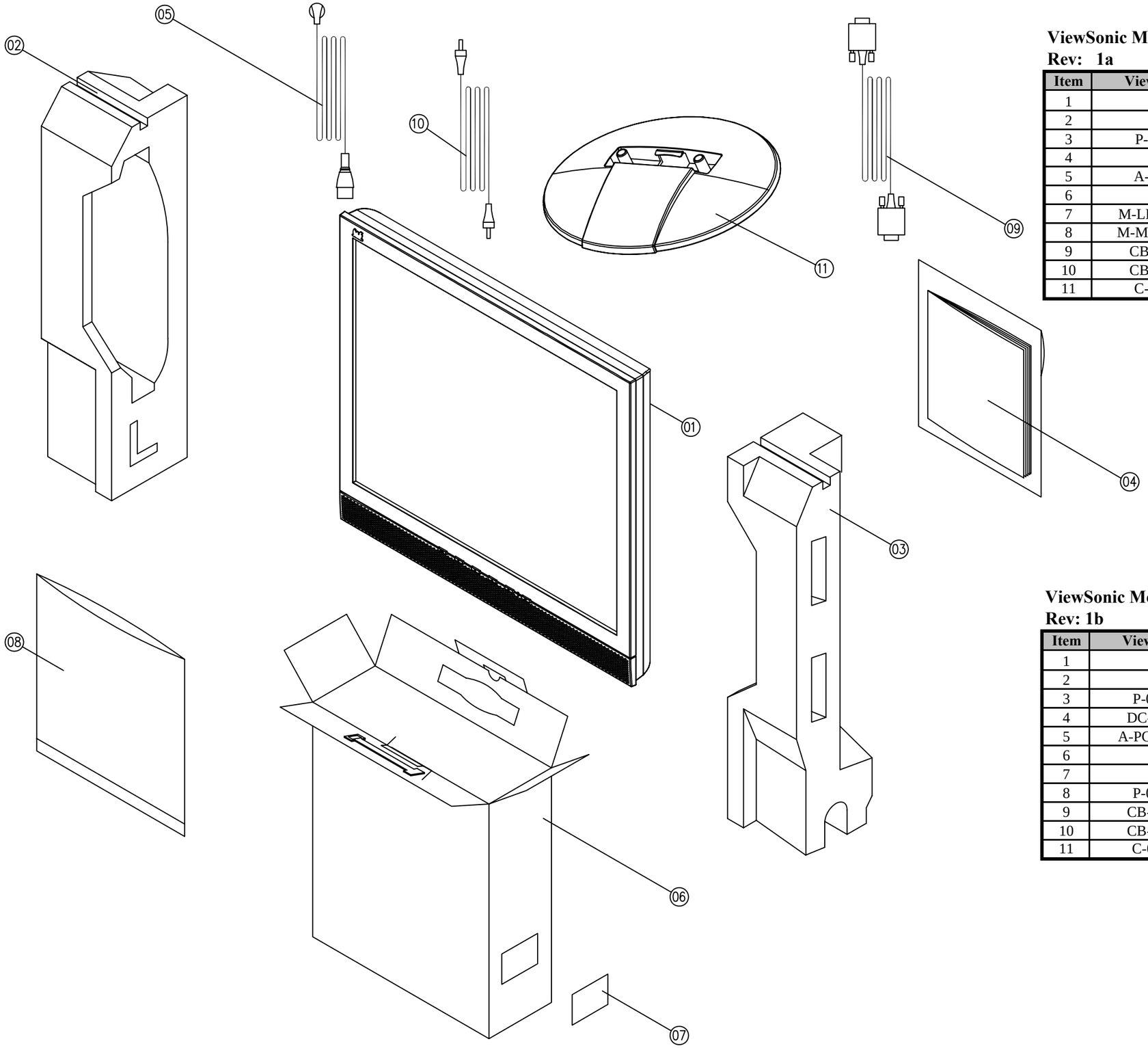
**ViewSonic Model Number: VS10867**

**Rev: 1b**

**Serial No. Prefix: PW8**

| Item | ViewSonic P/N | Ref. P/N | Description | Q'ty |
|---|---|---|---|---|
| 1 | N/A | 21L9ZCMB038 | L9ZC M/B ASSY(RTD2523B-LF) GP | 1 |
| 2 | B-00003993 | AS05B312D00 | ADP/INV,FSP043-2PI01 90~264V GP | 1 |
| 3 | B-00004170 | 23L9VABB003 | L9VA BUTTON/B ASSY GP | 1 |
| 4 | N/A | EAL9VA01012 | LCD BEZEL L9VA GP | 1 |
| 5 | N/A | EBL9VA01013 | FUNCTION BUTTON L9VA GP | 1 |
| 6 | N/A | EBW0VA02015 | LENS W0VA GP | 1 |
| 7 | M-MS-0808-9244 | FEL7V004015 | BIRD LOGO-10MM L7VC | 1 |
| 8 | M-MS-0808-9243 | FEL7V003019 | LOGO FRONT-VSC-38MM L7VC | 1 |
| 9 | N/A | FCL7TA01018 | SHIELDING MYLAR L7TAGP | 1 |
| 10 | N/A | FAL7TA08011 | SHIELDING L9VA DUAL GP | 1 |
| 11 | N/A | FAL9VA01012 | LCD BKT-L L9VA GP | 1 |
| 12 | N/A | FAL9VA02019 | LCD BKT-R L9VA GP | 1 |
| 13 | N/A | FCL7B001018 | POWER BOARD MYLAR L7B GP | 1 |
| 14 | N/A | FCM7T004014 | AL FOIL M7T GP | 3 |
| 15 | M-SCW-0824-6802 | MM30040IBJ9 | SCREW M3.0*4.0-I(NI) GP | 8 |
| 16 | M-SCW-0824-0814 | MM30060BBJ3 | SCREW M3.0*6,B(NI) GP | 6 |
| 17 | M-MS-0808-8986 | MBLI1004018 | IO NUT LI1 GP | 4 |
| 18 | N/A | MS35080B456 | SCREW F3.5*8-B(NI)(WASHER) | 1 |
| 19 | CB-00002525 | DD0L9VLC015 | CABLE MB-LCD(30P,140MM)L9V-5 GP | 1 |
| 20 | CB-00004173 | DDL9VABU001 | CABLE MB-BUTTON(10P/10P,280MM)L9VA GP | 1 |
| 21 | E-00004177 | DN0TE200F00 | SPEAK ASSY L9VA FG-TE200 1.5W*2 GP | 1 |
| 22 | N/A | FCL5M005011 | AL FOIL(PANEL) L5M | 2 |
| 23 | M-MS-0808-9247 | EBL70023013 | WIRE MOUNTS L70L-E GP | 1 |
| 24 | N/A | GAL7TA01016 | RUBBER FOOT L7TA | 2 |
| 25 | N/A | EAL9VA02019 | LCD COVER L9VA GP | 1 |
| 26 | N/A | FBL9VA01013 | HINGE-PLATE L9VA GP | 1 |
| 27 | M-MS-0808-9411 | FBL70008014 | LOCK METAL L70B GP | 1 |
| 28 | N/A | EAW0VA03011 | STAND-FRONT W0VA GP | 1 |
| 29 | N/A | EAW0VA05013 | STAND-BACK W0VA GP | 1 |
| 30 | N/A | FAW0VA04017 | HINGE ASSY W0VA GP | 1 |
| 31 | N/A | FBW0VA02015 | CONTACT-PLATE W0VA GP | 1 |
| 32 | HW-00004157 | MF40140IJ29 | SCREW F4.0*14-I(BNI) GP | 7 |
| 33 | N/A | DDL9TATH107 | CABLE STAND-HINGE(1P,150MM) GP | 1 |
| 34 | M-SCW-0824-6895 | MF40080IBJ1 | SCREW F4.0*8-I(NI) GP | 1 |
| 35 | C-00005749 | EBL9VA02010 | HINGE COVER L9VA GP | 1 |
| 36 | N/A | GAW0VA02014 | RUBBER PLUG VESA W0VA GRAY GP | 4 |
| 37 | M-SCW-0824-6797 | MF40080BJ29 | SCREW F4.0*8-B(BNI)GP | 2 |
| 38 | N/A | MM40100BL61 | SCREW M4*10.0-B(BNI,NYLOK) GP | 6 |
| 39 | N/A | EAW0VA04017 | BASE W0VA GP | 1 |
| 40 | E-00005996 | AA90ME130C1 | LCD(TFT)HSD 190ME13-A16(8MS) A GP | 1 |
| 41 | N/A | FBW0VA03011 | BASE-PLATE W0VA GP | 1 |
| 42 | N/A | GAW0VA03011 | RUBBER FOOT-C W0VA GP | 2 |
| 43 | N/A | GAW0VA01018 | RUBBER FOOT W0VA GP | 2 |
| 44 | N/A | HCL9VA01014 | ID LABEL L9VA GP | 1 |
| 45 | M-LB-0813-0745 | HCL7V002011 | SERIAL LABAL L7V GP | 1 |
| 46 | M-MS-0808-9682 | JXL9V001010 | LCD FILM L9V GP | 1 |

# Packing for Shipping




## PACKING PART LIST ( VA912-4 )

**ViewSonic Model Number: VS10867**

**Rev: 1a**

| Item | ViewSonic P/N | Ref. P/N | Location | Q'ty |
|---|---|---|---|---|
| 1 | N/A | 1L9VAHXVS88 | VA912 monitor | 1 |
| 2 | N/A | HBL9VA010013 | END CAP (L) | 1 |
| 3 | P-00004180 | HBL9VA02010 | END CAP (R) | 1 |
| 4 | N/A | HGL9V01018 | USER'S MANUAL & CD | 1 |
| 5 | A-00003642 | DM33T181004 | POWER CORD 3P 1.8M | 1 |
| 6 | N/A | HCL9VA02013 | CARTON | 1 |
| 7 | M-LB-0813-1042 | HCL7V019011 | CARTON LABEL | 1 |
| 8 | M-MS-0808-9158 | HAL7V002019 | EPE BAG | 1 |
| 9 | CB-00002602 | DDL7VDPC005 | VGA CABLE | 1 |
| 10 | CB-00004149 | DD0L0TPC007 | AUDIO CABLE | 1 |
| 11 | C-00004147 | 38W0VABS010 | Base assy | 1 |

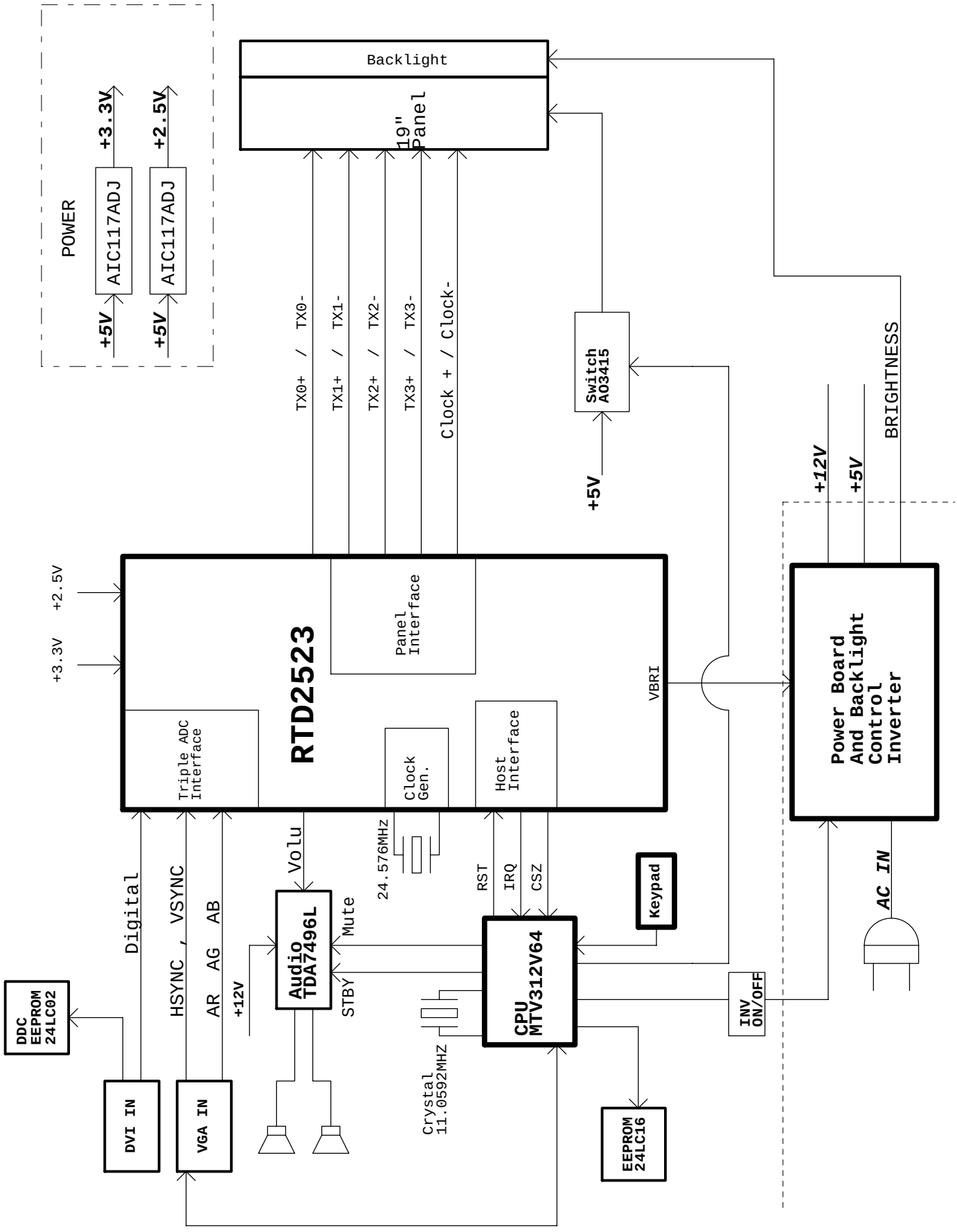
## PACKING PART LIST ( VA912b-4 )

**ViewSonic Model Number: VS10867**

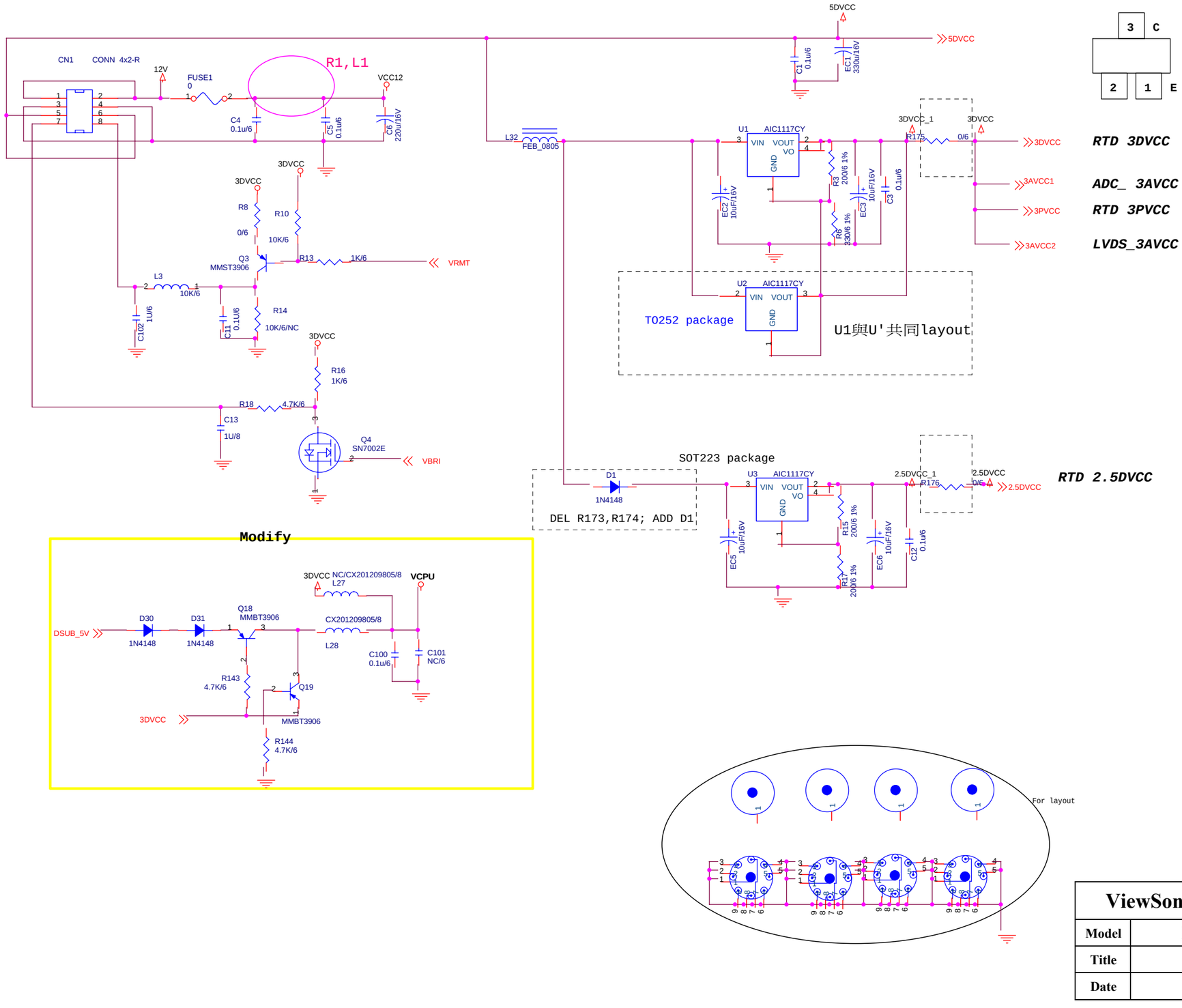
**Rev: 1b**

| Item | ViewSonic P/N | Ref. P/N | Location | Q'ty |
|---|---|---|---|---|
| 1 | N/A | 1L9VAHXVS02 | VA912 monitor | 1 |
| 2 | N/A | HBL9VA010013 | END CAP (L) | 1 |
| 3 | P-00004180 | HBL9VA02010 | END CAP (R) | 1 |
| 4 | DC-00005994 | HGL9VA01018 | USER'S MANUAL & CD | 1 |
| 5 | A-PC-0106-0224 | DM333181G97 | POWER CORD 3P 1.8M | 1 |
| 6 | N/A | HCL9VA01017 | CARTON | 1 |
| 7 | N/A | HCL7V0`19011 | CARTON LABEL | 1 |
| 8 | P-00004159 | HAL0T002019 | PE BAG | 1 |
| 9 | CB-00002602 | DDL7VDPC005 | VGA CABLE | 1 |
| 10 | CB-00004149 | DD0L0TPC007 | AUDIO CABLE | 1 |
| 11 | C-00004165 | 38W0VABS001 | Base assy | 1 |

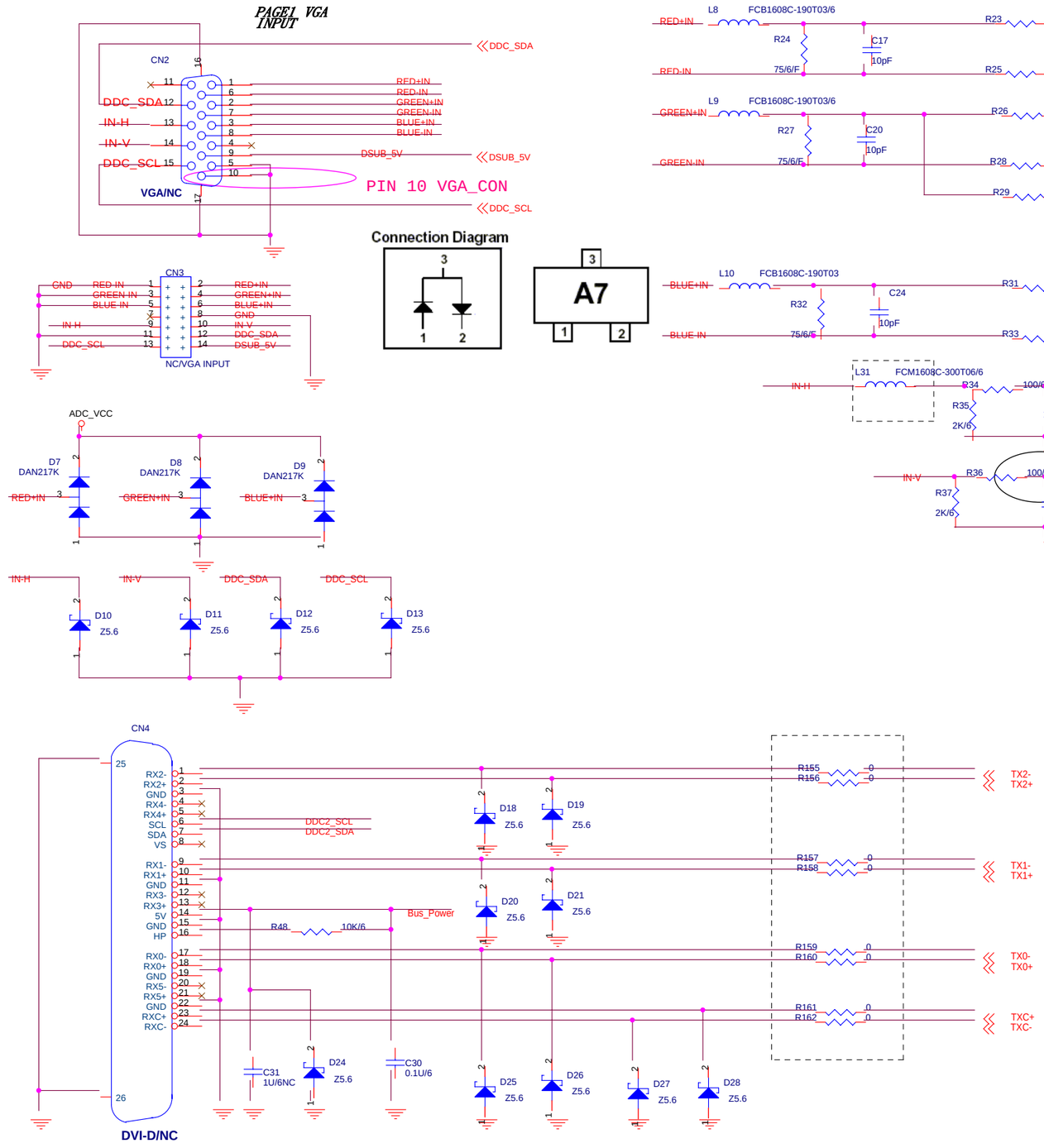
# 9. Block Diagram



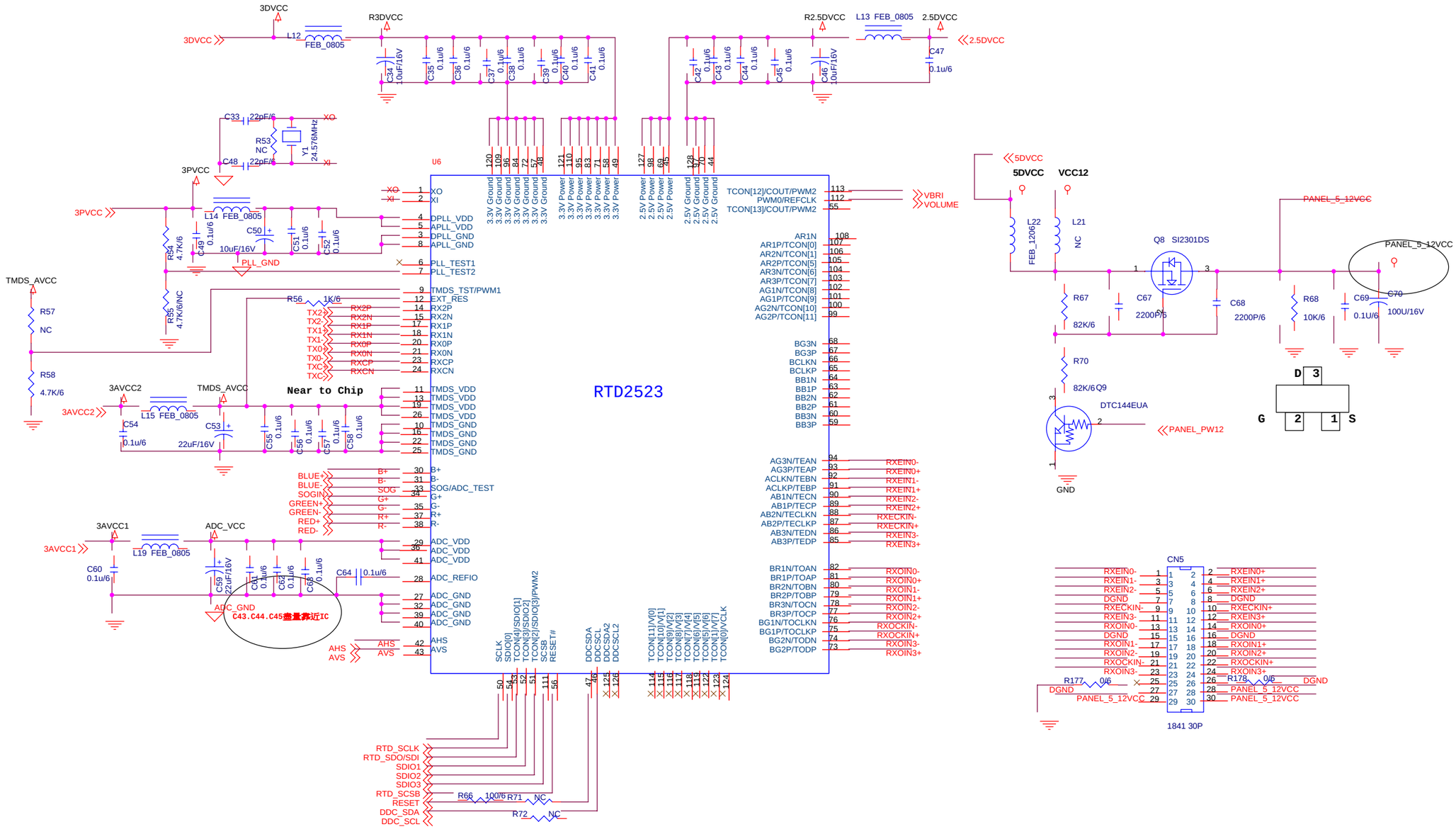
## 10. Schematic Diagrams



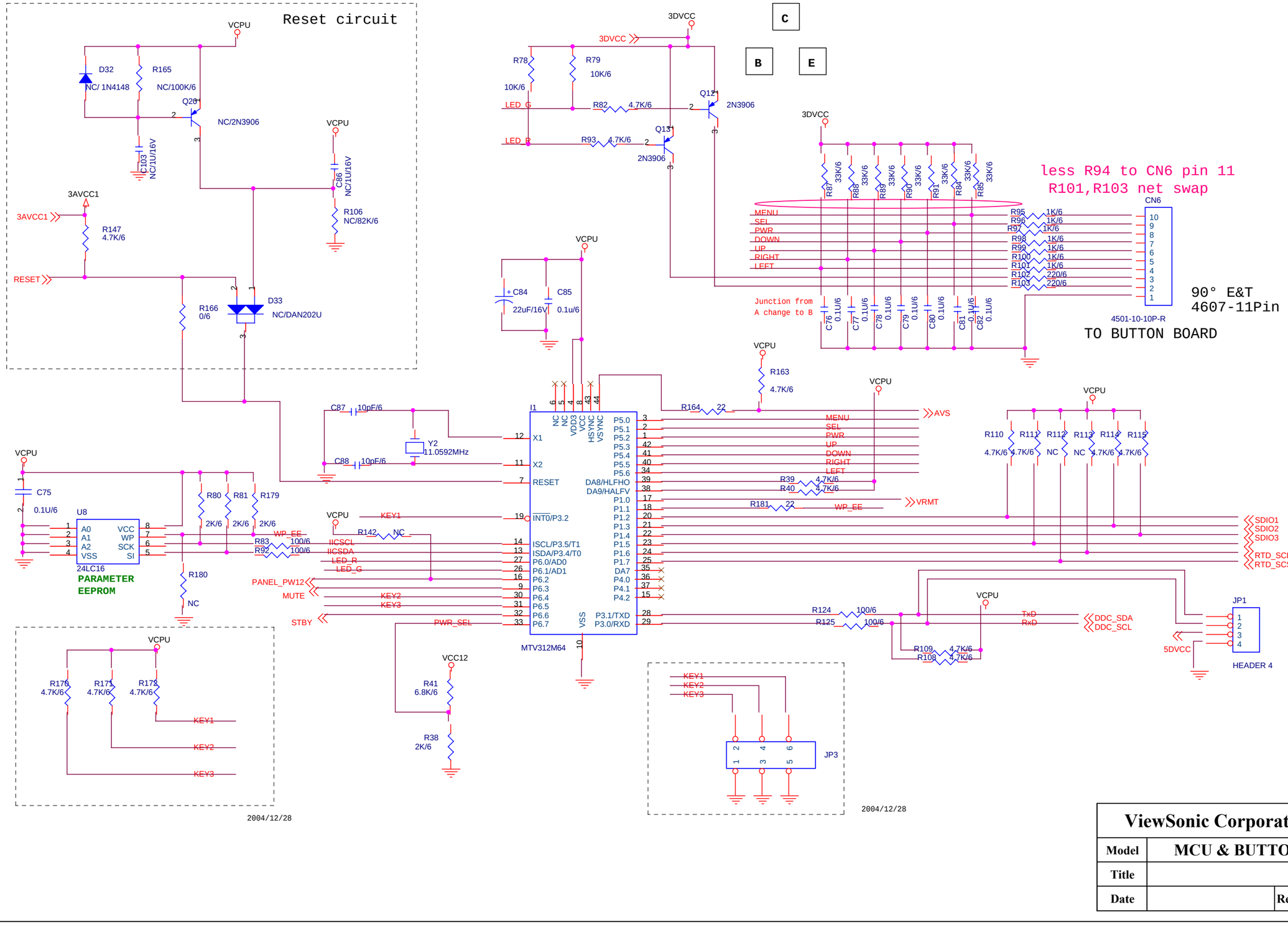

| ViewSonic Corporation | | |
|---|---|---|
| Model | POWER | |
| Title | | |
| Date | | Rev: |




| ViewSonic Corporation | | |
|---|---|---|
| Model | VGA AND DVI INPUT | |
| Title | | |
| Date | | Rev: |

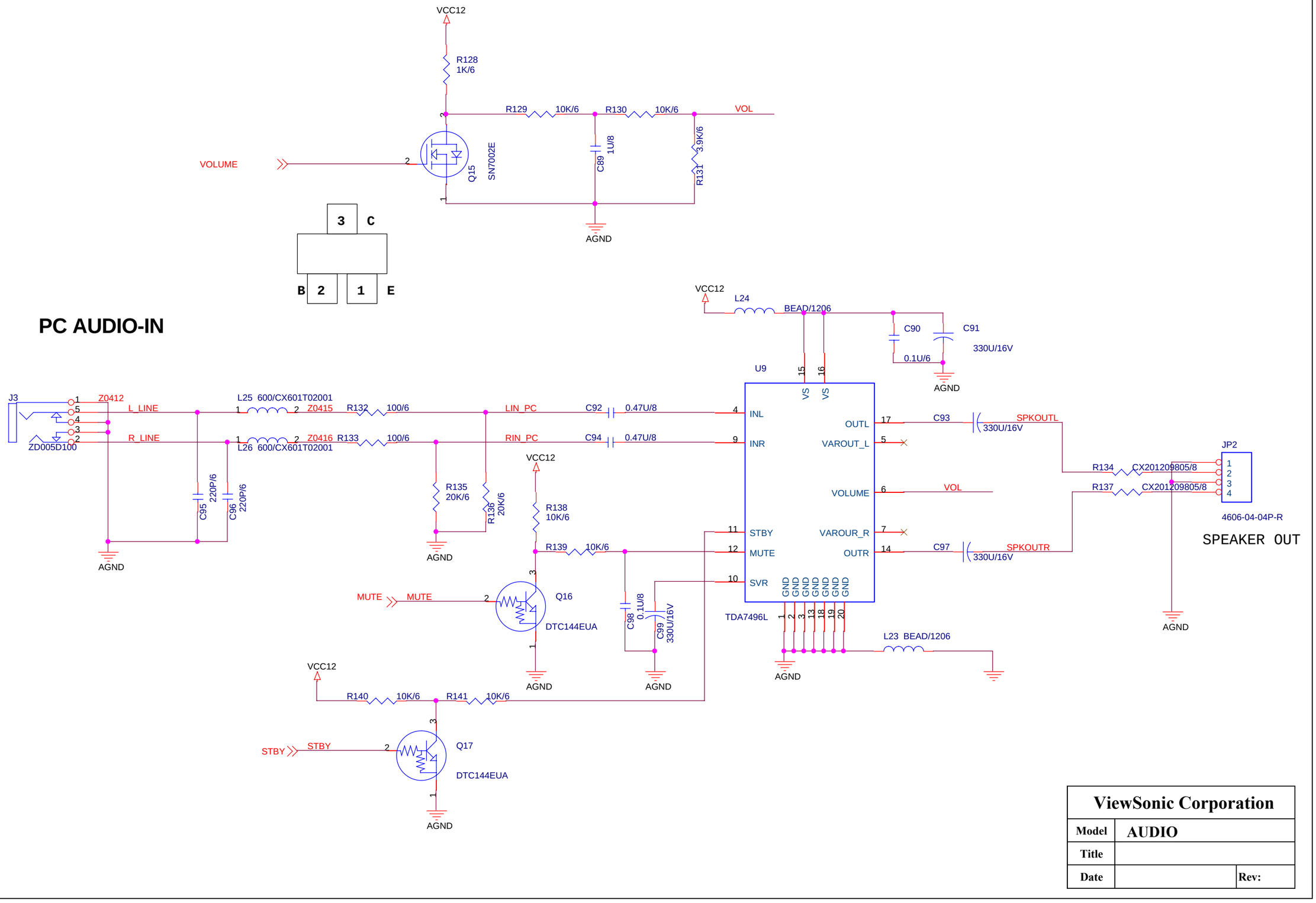



| ViewSonic Corporation | | |
|---|---|---|
| Model | RTD2523 | |
| Title | | |
| Date | | Rev: |




| ViewSonic Corporation | | |
|---|---|---|
| Model | MCU & BUTTON | |
| Title | | |
| Date | | Rev: |

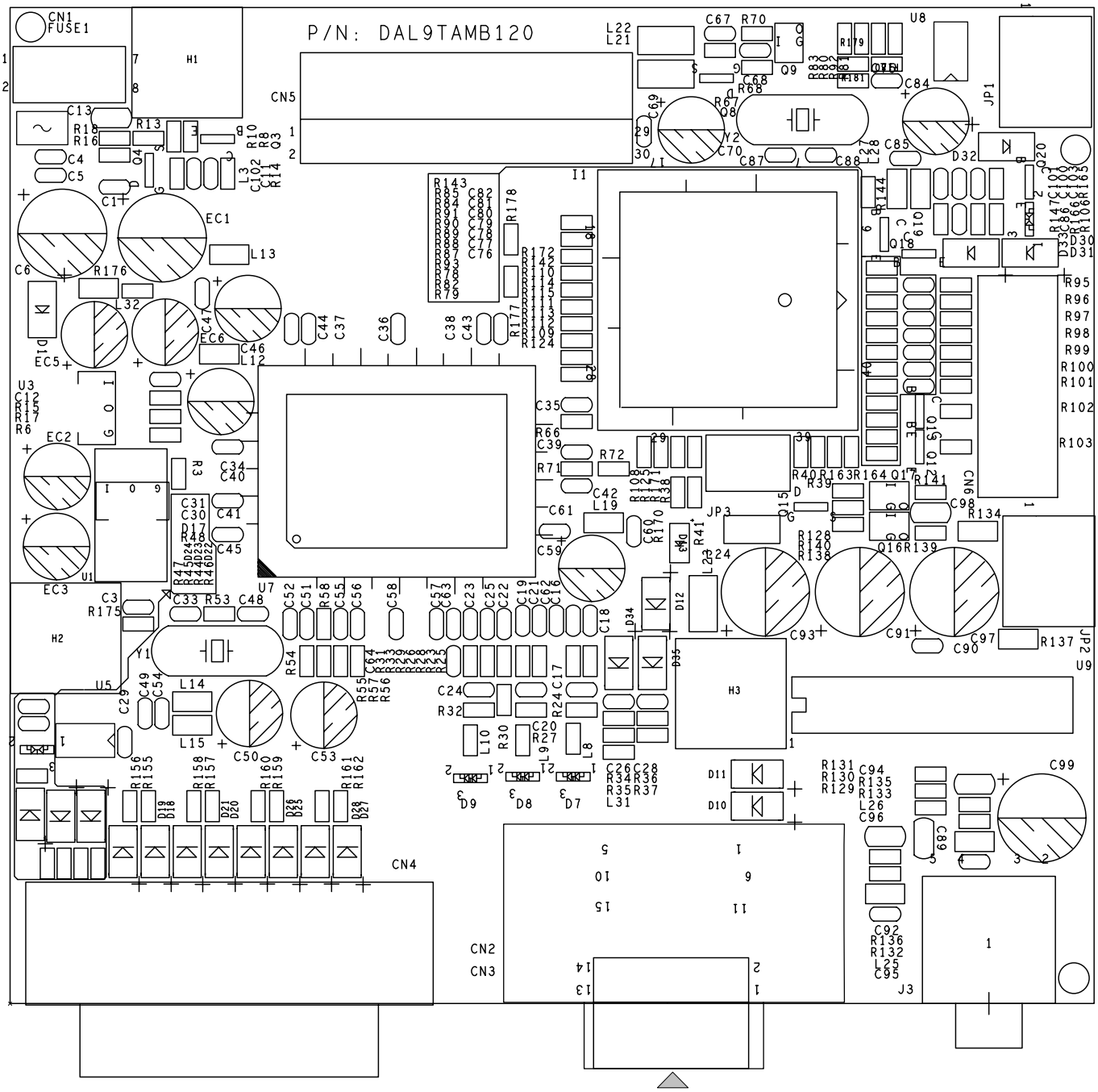
# PC AUDIO-IN

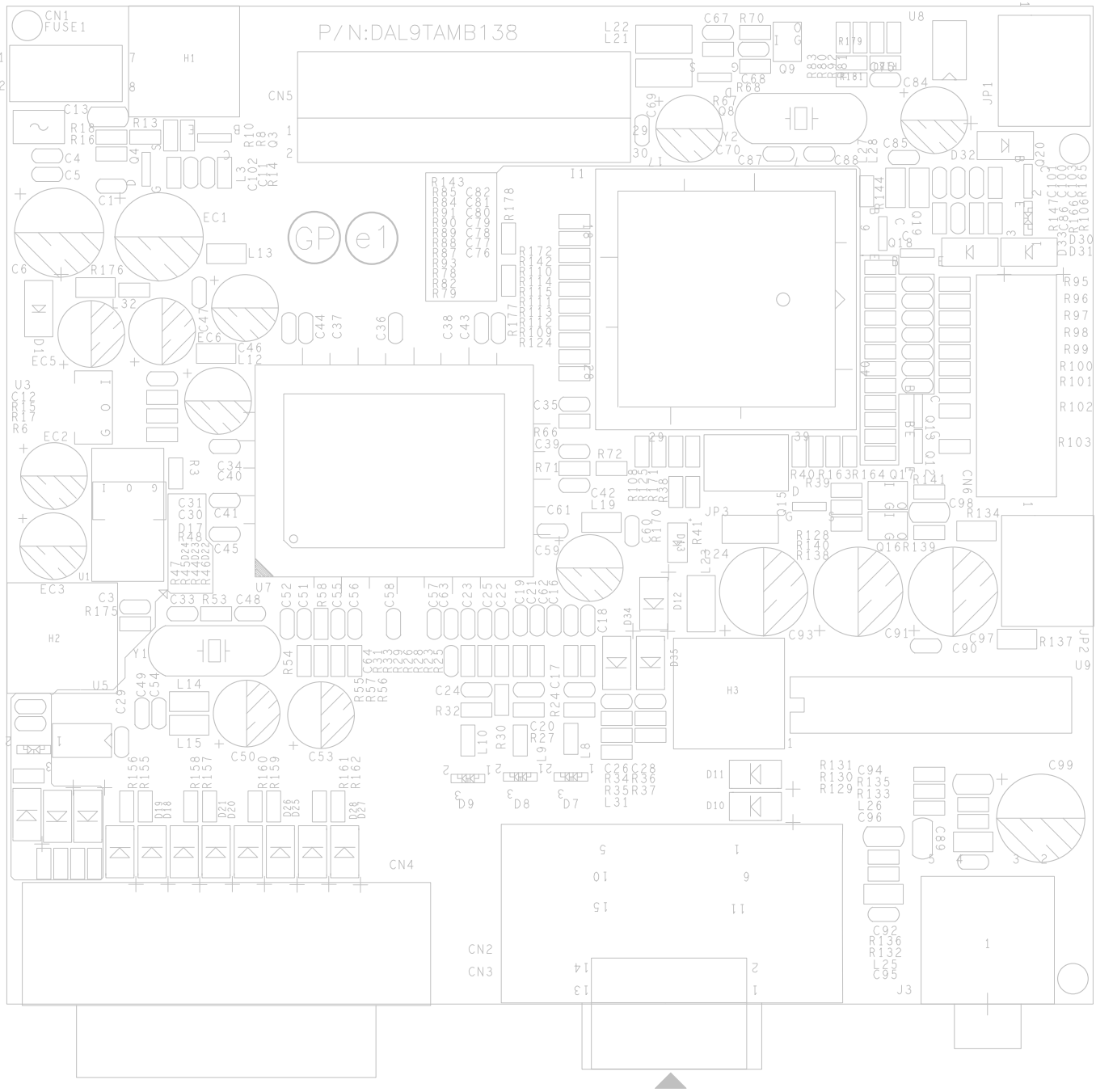



| ViewSonic Corporation | | |
|---|---|---|
| Model | AUDIO | |
| Title | | |
| Date | | Rev: |

# 11. PCB Layout Diagrams

## MB TOP

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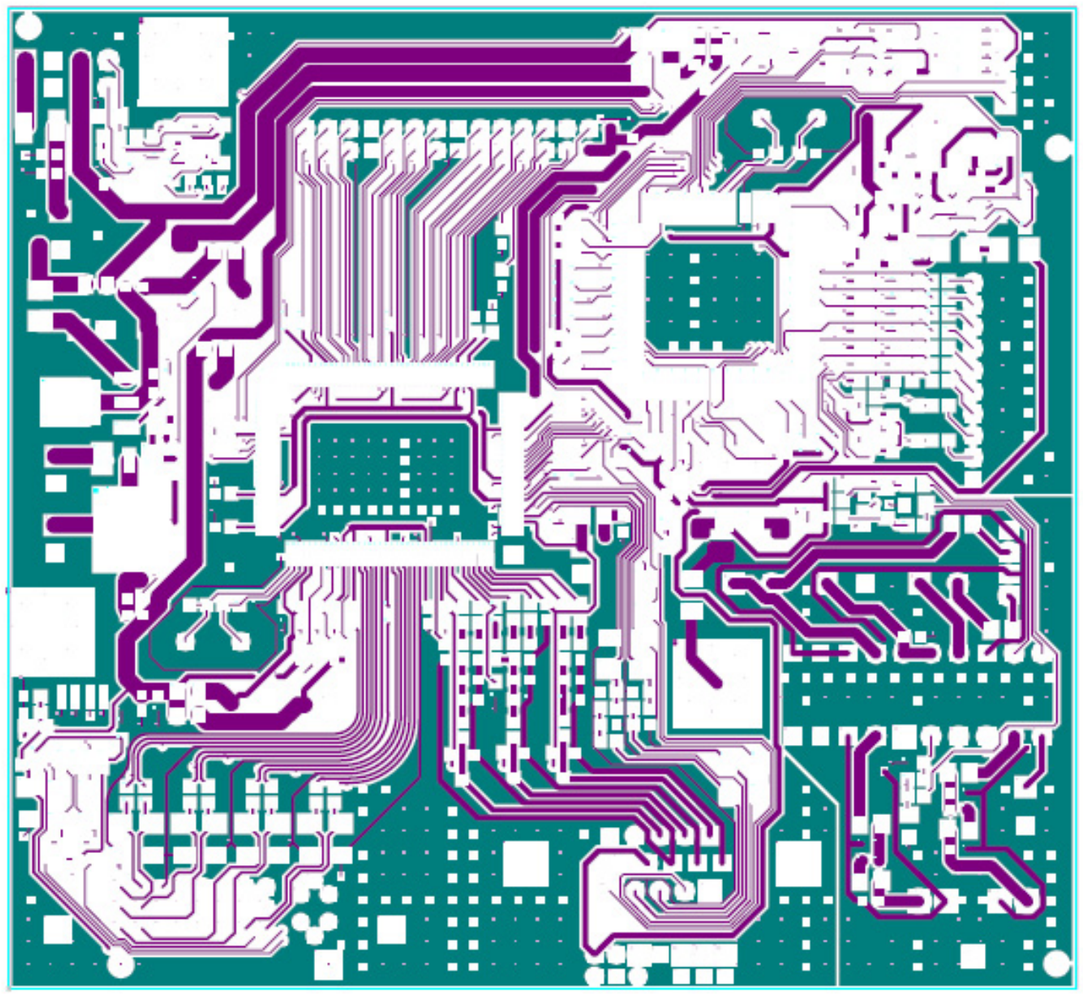

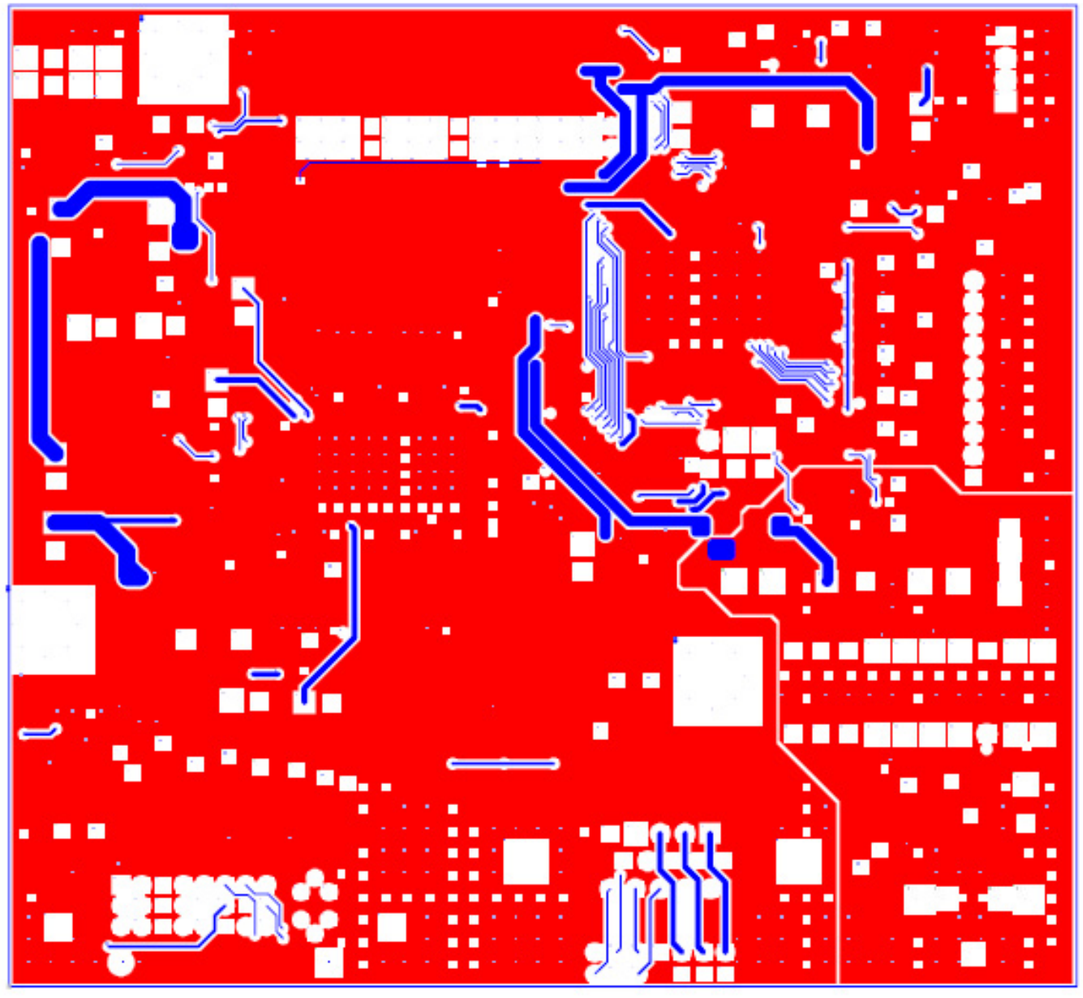

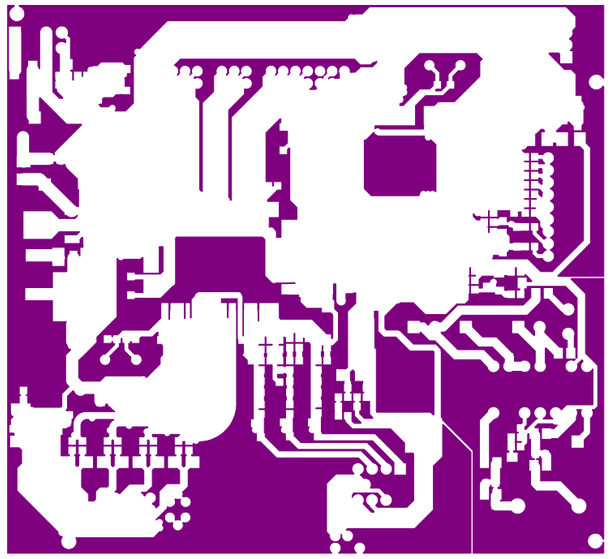



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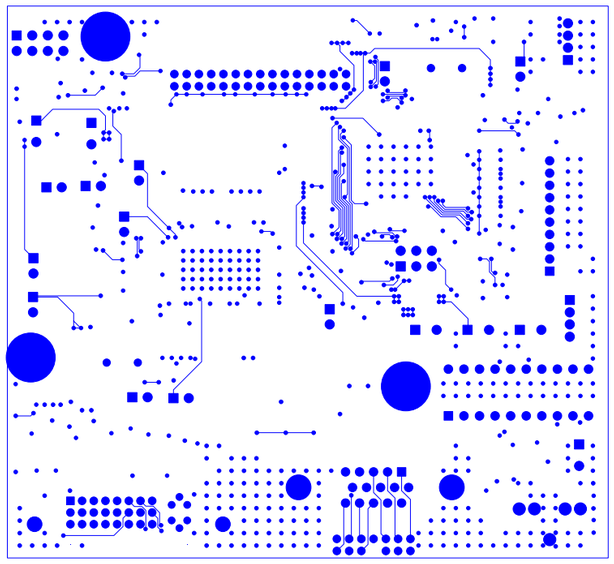

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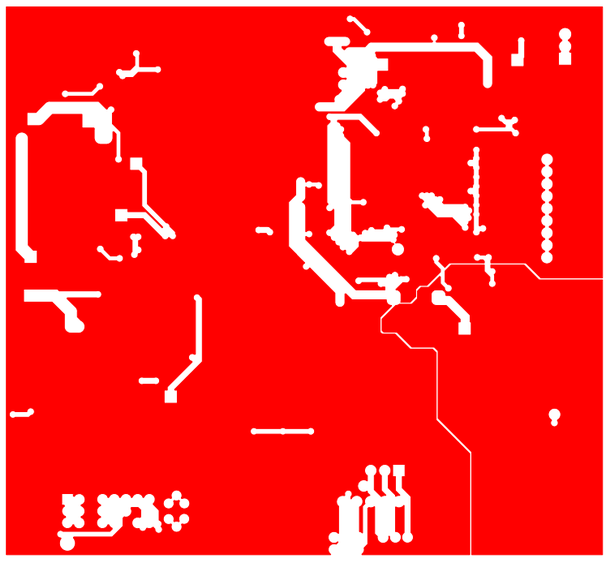

# * Reader's Response*

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)**