Service Manual

ViewSonic VE910/b

Model No. VS10715

19” Color TFT LCD Display

(VE910_SM Rev. 1a Jun. 2005)

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Revision History

Revision	SM Editing Date	ECR Number	Description of Changes	Editor
1a	06/09/05		Initial Release	A. Lu

TABLE OF CONTENTS

1.	Precautions and Safety Notices	1
2.	Specification	5
3.	Front Panel Function Control Description	7
4.	Circuit Description	13
5.	Adjustment Procedure	17
6.	Troubleshooting Flow Chart	34
7.	Recommended Spare Parts List	37
8.	Exploded Diagram and Exploded Parts List	42
9.	Block Diagram	49
10.	Schematic Diagrams	50
11.	PCB Layout Diagrams	58

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.

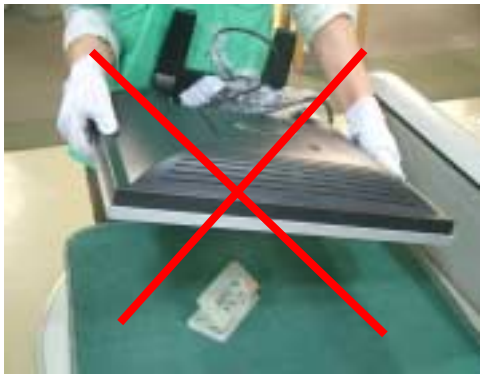
(12) The cold cathode fluorescent lamp in the LCD contains a small amount of mercury. Please follow local ordinances or regulations for disposal.

(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.

5.1. Handling and Placing Methods

Correct Methods:	Incorrect Methods:
Only touch the metal frame of the LCD panel or the front cover of the monitor. Do not touch the surface of the polarizer.	Surface of the LCD panel is pressed by fingers and that may cause "Mura"
	
	
Take out the monitor with cushions	Taking out the monitor by grasping the LCD panel. That may cause "Mura"
	

Place the monitor on a clean and soft foam pad.	Placing the monitor on foreign objects. That could scratch the surface of the panel or cause "Mura"
	
	The panel is placed facedown on the lap. That may cause "Mura"
	

2. Specification

1. General Requirements

General Specifications

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

2. Signal Interface

Video Interface

Analog Input Connector	DB-15 (Analog)
Default Input Connector	Defaults to the first detected input
Video Cable Connector DB-15 Pin out	Compliant DDC 1/2B.
Video Signals	1. Video RGB (Analog) Separate Sync
Video Impedance	75 Ohms (Analog), 100 Ohms (Digital)
Exclusions	Not compatible with interlaced video.

3. Power

Power Supply

Input Voltage Range	90 to 264 VAC
Power Dissipation	40 Watts (Typ.)

4. Electrical Requirements

Horizontal / Vertical Frequency

Horizontal Frequency	30 – 82 KHz
Vertical Refresh Rate	50 – 85 Hz * For resolution 1280 x 1024, the vertical Refresh rate up to 75 Hz; for there rest Resolutions, the vertical refresh rate up To 85Hz
Maximum Pixel Clock	135 MHz
Sync Polarity	Independent of sync polarity.

Timing Table

Item	Timing	Analog
1	640 x 350 @ 70Hz, 31.5kHz	Yes
2	640 x 400 @ 60Hz, 31.5kHz	Yes
3	640 x 400 @ 70Hz, 31.5kHz	Yes
4	640 x 480 @ 50Hz, 24.7kHz	Yes
5	640 x 480 @ 60Hz, 31.5kHz	Yes
6	640 x 480 @ 67Hz, 35.0kHz	Yes
7	640 x 480 @ 72Hz, 37.9kHz	Yes
8	640 x 480 @ 75Hz, 37.5kHz	Yes
9	640 x 480 @ 85Hz, 43.27kHz	Yes
10	720 x 400 @ 70Hz, 31.5kHz	Yes
11	800 x 600 @ 56Hz, 35.1kHz	Yes
12	800 x 600 @ 60Hz, 37.9kHz	Yes
13	800 x 600 @ 75Hz, 46.9kHz	Yes
14	800 x 600 @ 72Hz, 48.1kHz	Yes
15	800 x 600 @ 85Hz, 53.7kHz	Yes
16	832 x 624 @ 75Hz, 49.7kHz	Yes
17	1024 x 768 @ 60Hz, 48.4kHz	Yes
18	1024 x 768 @ 70Hz, 56.5kHz	Yes
19	1024 x 768 @ 72Hz, 58.1kHz	No
20	1024 x 768 @ 75Hz, 60.0kHz	Yes
21	1024 x 768 @ 85Hz, 68.67kHz	Yes

22	1152 x 864 @ 75Hz, 67.5kHz	No
23	1152 x 870 @ 75Hz, 68.7kHz	Yes
24	1280 x 1024 @ 60Hz, 63.4kHz	Yes
25	1280 x 1024 @ 75Hz, 79.97kHz	Yes
26	1280x 720 @ 60Hz, 45kHz (HDTV)	Yes

Changing Modes

Maximum Mode Change Blank Time for image stability. Note: 1) Excluding "Auto Adjust" time 2) Under DOS mode (640 x 350, 720 x 400 & 640 x 400), there is no "Auto Adjust" feature. 3) The monitor needs to do "Auto Adjust" the first time a new mode is detected.	Under 5 seconds (Maximum) 1 seconds (Typ.) for recognized timings 1-2 seconds (Typ.) for unrecognized timing

5. LCD Panel

Panel Characteristics

Panel Type	M190EN04V5
Type	"TFT ACTIVE MATRIX
Active Size	376.32 (H) x 301.056 (V)
Pixel Arrangement	RGB Vertical Stripe
Pixel Pitch	0.294 mm
# of Backlights	4 CCFL edge-light (2 top / 2 bottom)
Backlight Life	50,000 Hours (minimum)
Panel Performance	
Luminance – Condition: CT = 6500K, Contrast = Max, Brightness = Max	270 cd/m2 (typ. after 30-minute warm-up) 215 cd/m2 (minimum after 30-minute warm-up)
Brightness Uniformity	ΔL_5=Max 1.3 ΔL_5= Maximum Luminance/ Minimum Luminance
Contrast Ratio	550:1 (typ.), 350:1 (minimum)
Color Depth	16.2M colors (RGB 6-bit data+FRC data)
Viewing Angle (Horizontal)	140 degrees @ CR>10
Viewing Angle (Vertical)	135 degrees @ CR>10
Response Time 10%-90% @ Ta=25°C	8 ms (Tr= 5.6 ms, Tf = 2.4 ms) (typ.) 12 ms (Tr= 8.4 ms, Tf =3.6 ms) (maximum)

6. Mechanical

Dimensions

Width	414 mm
Height	407 mm
Depth	219 mm
Monitor Weight	5.4kg / 11.88 lbs

Ergonomics

Tilt Up	20 DEGREES MINIMUM
Tilt Down	-5 degrees

Package Specifications

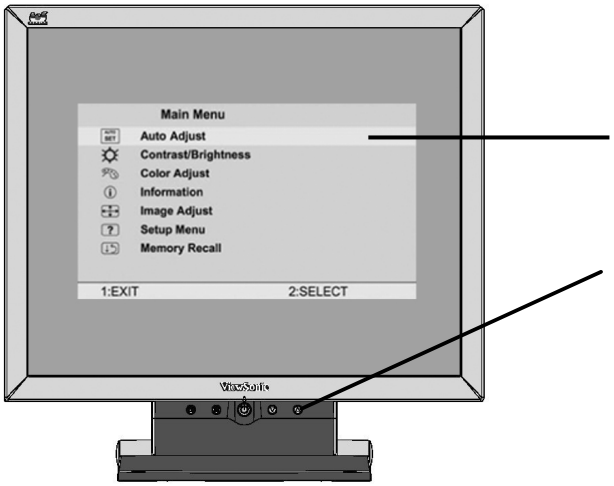
Width	490 mm
Height	570 mm
Depth	145 mm
Gross Weight	6.8kg (14.96lb)

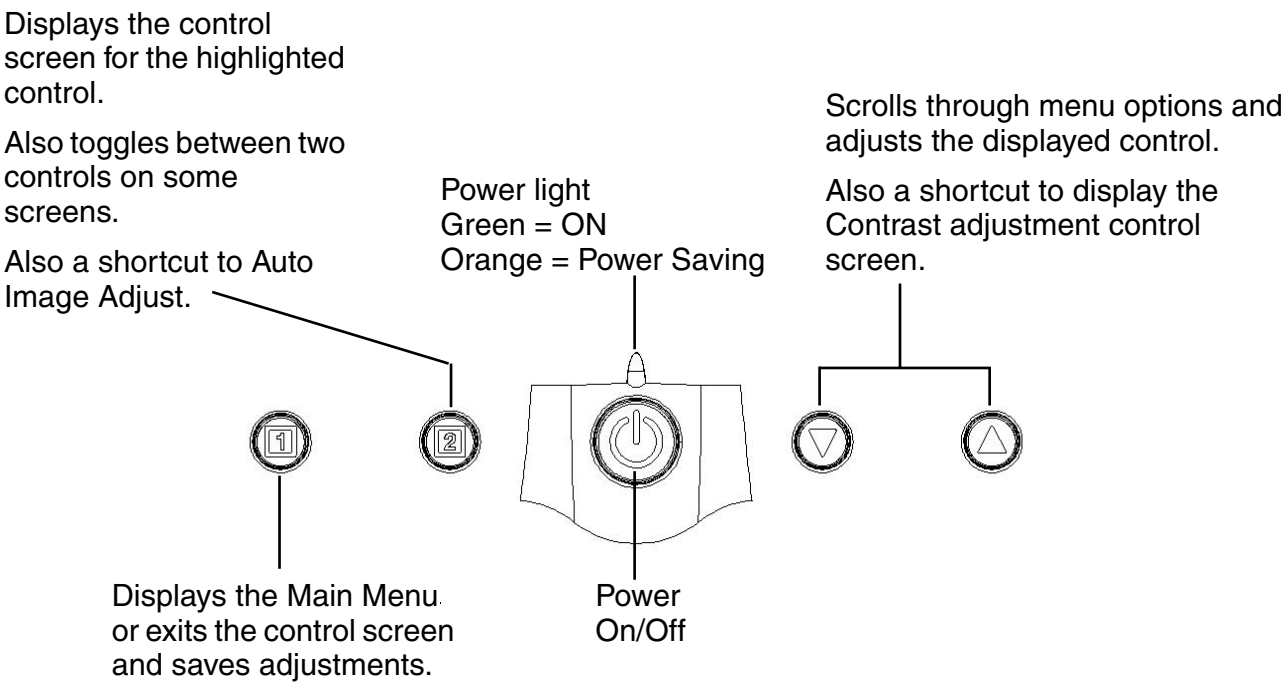
7. Environmental

Environmental Conditions

Operating Temperature	0°C to +40°C
Storage Temperature	-20°C to +60°C
Operating Relative Humidity	10% to 90% RH Non-Condensing
Storage Relative Humidity	5% to 90% RH Non-Condensing
Operating Altitude	0 to +3,000 meters
Storage Altitude	0 to +12,000 meters

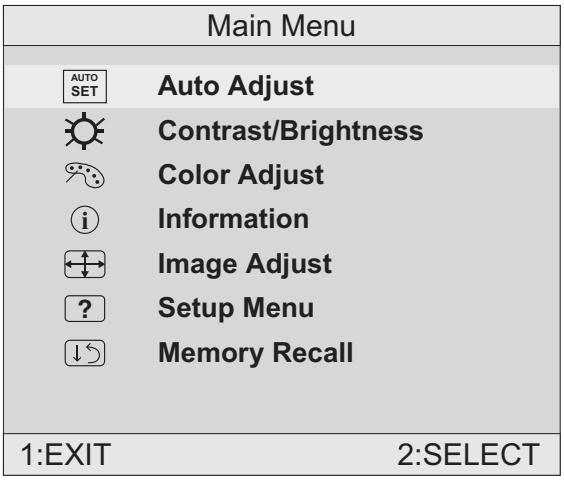
3. Front Panel Function Control Description





Do the following to adjust the screen image:

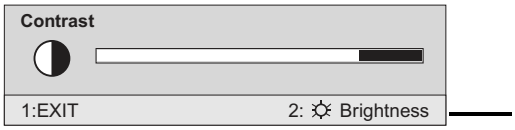
1 To display the Main Menu, press button [1].



NOTE: All OnView menus and adjustment screens disappear automatically after about 15 seconds. This time period is adjustable through the Setup menu and the OSD timeout control described on page 11.

2 To highlight a control you want to adjust, press ▲ or ▼ to scroll up or down the Main Menu.

3 To select the highlighted control, press button [2]. A control screen appears like the example shown below.



The line at the bottom of the screen tells you what you can do next: Exit or Select the control that is highlighted.

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

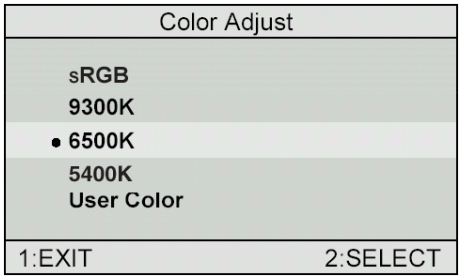
5 To save the adjustments and exit the menu, press button [1] *twice*.

The following tips may help you optimize your display:

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

Main Menu Controls

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

Control	Explanation
AUTO SET	**Auto 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 Adjust works with most common video cards. If this function does not work on your LCD dislay, then lower the video refresh rate to 60 Hz and set the resolution to its pre-set value.
	**Contrast** adjusts the difference between the image background (black level) and the foreground (white level).
	**Brightness** adjusts background black level of the screen image.
	**Color Adjust** provides several color options: preset color temperatures and User which allows you to adjust red (R), green (G), and blue (B). The factory setting for this product is 6500K (6500 Kelvin).  **sRGB —** sRGB is quickly becoming the industry standard for color management, with support being included in many of the latest applications. Enabling this setting allows the LCD display to more accurately display colors the way they were originally intended. Enabling the sRGB setting will cause the Contrast and Brightness adjustments to be disabled. **9300K —** Adds blue to the screen image for cooler white (used in most office settings with fluorescent lighting). **6500K —** Adds red to the screen image for warmer white and richer red. Default setting. **5400K** — Adds green to the screen image for a darker color.

User — 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*.

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.

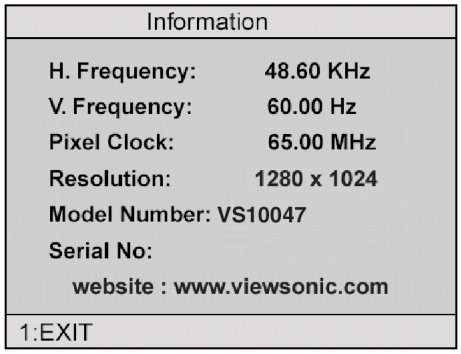
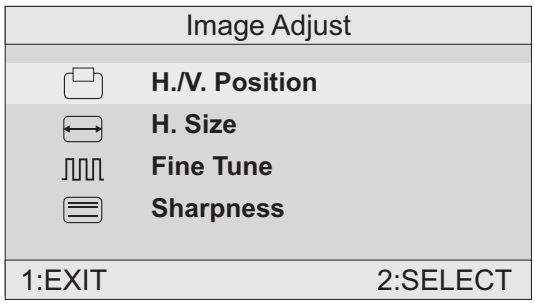


Image Adjust



The Image Adjust controls are explained below:

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.

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

NOTE: Vertical size is automatic with your LCD dislay.

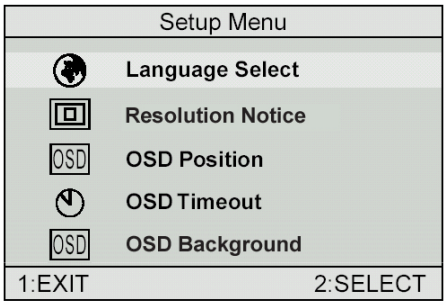
Control Explanation

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

NOTE: Try the **Auto Adjust** (see page 9) before using the **Fine Tune** control.

Sharpness adjusts the clarity and focus of the screen image.

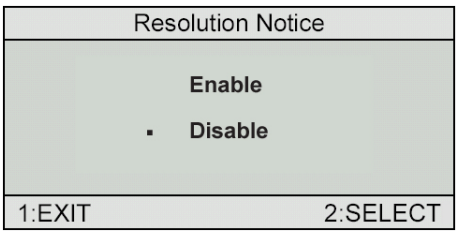
Setup Menu displays the menu shown below.



The Setup Menu controls are explained below.

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

Resolution Notice advises the optimal resolution to use.



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

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 screen disappears.

Control	Explanation
OSD	**OSD Background** allows you to turn the On-Screen display background on or off. This means that while making adjustments from the OSD control screens you can also view open software applications, or the Windows desktop.
↓↺	**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.

Short Cut Key

Function Key : 5 Keys → 1 2 ⏻ ▼ ▲

[1]	**Main Menu**
[2]	**Auto Image Adjust**
[▼] or [▲]	**to immediately activate Contrast menu. It should be change to Brightness OSD by push button [2].**
[▼] + [▲]	**recall Contrast or Brightness while in the Contrast or Brightness adjustment, or recall both of Contrast and Brightness when the OSD is not open.**
[1] + [2]	**toggle 720x400 and 640x400 mode when input 720x400 or 640x400 mode.**
[1] + [▼] + [▲] **(Keep pushing 5 sec)**	**White Balance.**
[1] + [▼]	**Power Lock**
[1] + [▲]	**OSD Lock**

4. Circuit Description

A. DC-DC Converter

This brick convert is the 110-220AC input voltage to 12V AND 5V output for invert use and panel use and system controller use .
It consists of a PWM IC (FP5001, I804), flywheel diode (MS22,D812), buck choke (L812) and capacitor C817.
5V Out put at 5,6 pin
VCC 12V In put at L801,L812 pin

B. Scaling controller

The ADC is to convert RGB analog signal to digital signal that scaling chip can acknowledge.
The HSYNC input receives a logic signal and provides the frequency reference for pixel clock generation.
The scaling IC is to converts the input signal ranging from VGA to SXGA into SXGA resolution that panel can acknowledge.
The scaling IC is to converts the input signal ranging from VGA to SXGA into SXGA resolution that panel can acknowledge.

GENERAL DESCRIPTION

The TSU16AS is total solution graphics processing IC for LCD monitors with panel resolutions up to SXGA. It is configured with a high-speed integrated triple-ADC/PLL, a high quality display processing engine, and an integrated output display interface that can support LVDS panel interface format. To further reduce system costs, the TSU16AS also integrates intelligent power management control capability for green-mode requirements and spread-spectrum support for EMI management.
The TSU16AS incorporates the world’ s first coherent oversampled RGB graphics ADC in a monitor controller system1. The oversampling ADC samples the input RGB signals at a frequency that is much higher than the signal source pixel rate. This can preserve details in the video signal that ordinarily would be lost due to input signal jitter or bandwidth limitations in non-oversampled systems.
The TSU16AS also incorporates a new Dynamic Frame Rate (DFR) generator2 for the digital output video to the display panel that preserves the advantages of a fixed output clock rate, while eliminating the output end of frame short-line.
1,2 Patent Pending
PIN DESCRIPTION
CPU Interface
Pin Name Pin Type Function Pin
HWRESET Schmitt Trigger Input w/
5V-tolerant
Hardware reset; active high 5
INT Output CPU interrupt; 4mA driving strength 27
AD3 I/O w/ 5V-tolerant DDR direct bus AD3; 4mA driving strength 4
AD2 I/O w/ 5V-tolerant DDR direct bus AD2; 4mA driving strength 1
AD1 I/O w/ 5V-tolerant DDR direct bus AD1; 4mA driving strength 2
AD0 I/O w/ 5V-tolerant DDR direct bus AD0; 4mA driving strength 3
ALE I w/ 5V-tolerant DDR direct bus ALE; active high 24
WRZ I w/ 5V-tolerant DDR direct bus WRZ; active low 25
RDZ I w/ 5V-tolerant DDR direct bus RDZ; active low 26
Analog Interface
Pin Name Pin Type Function Pin
HSYNC Schmitt Trigger Input w/
5V-tolerant
Analog HSYNC input 8
VSYNC Schmitt Trigger Input w/
5V-tolerant
Analog VSYNC input 9
REFP Internal ADC top de-coupling pin 22
REFM Internal ADC bottom de-coupling pin 23
RINP Analog Input Analog red input 19

RINM Analog Input Reference ground for analog red input 18
SOGIN Analog Input Sync-on-green input 17
GINP Analog Input Analog green input 16
GINM Analog Input Reference ground for analog green input 15
BINP Analog Input Analog blue input 14
BINM Analog Input Reference ground for analog blue input 13
REXT External resistor 390 ohm to AVDD_ADC 11
LVDS Interface
Pin Name Pin Type Function Pin
LVA0M Output A-Link Negative LVDS Differential Data Output 42
LVA0P Output A-Link Positive LVDS Differential Data Output 41
LVA1M Output A-Link Negative LVDS Differential Data Output 40
TSU16AS
SXGA LCD Controller with Analog Interface and Dual LVDS Transmitter
Preliminary Data Sheet Version 0.2
Version 0.2 - 5 - 10/1/2004

Pin Name Pin Type Function Pin
LVA1P Output A-Link Positive LVDS Differential Data Output 39
LVA2M Output A-Link Negative LVDS Differential Data Output 38
LVA2P Output A-Link Positive LVDS Differential Data Output 37
LVA3M Output A-Link Negative LVDS Differential Data Output 34
LVA3P Output A-Link Positive LVDS Differential Data Output 33
LVACKM Output A-Link Negative LVDS Differential Clock Output 36
LVACKP Output A-Link Positive LVDS Differential Clock Output 35
LVB0M Output B-Link Negative LVDS Differential Data Output 52
LVB0P Output B-Link Positive LVDS Differential Data Output 51
LVB1M Output B-Link Negative LVDS Differential Data Output 50
LVB1P Output B-Link Positive LVDS Differential Data Output 49
LVB2M Output B-Link Negative LVDS Differential Data Output 48
LVB2P Output B-Link Positive LVDS Differential Data Output 47
LVB3M Output B-Link Negative LVDS Differential Data Output 44
LVB3P Output B-Link Positive LVDS Differential Data Output 43
LVBCKM Output B-Link Negative LVDS Differential Clock Output 46
LVBCKP Output B-Link Positive LVDS Differential Clock Output 45
GPO Interface
Pin Name Pin Type Function Pin
PWM1 Output PWM1; 4mA driving strength 29
PWM0 Output PWM0; 4mA driving strength 28
Misc. Interface
Pin Name Pin Type Function Pin
XIN Crystal Oscillator Input Xin 6
XOUT Crystal Oscillator Output Xout 7
VCTRL Output Regulator Control 54
Power Pins
Pin Name Pin Type Function Pin
AVDD_ADC 3.3V Power ADC Power 12, 20
VDDP 3.3V Power Digital Output Power 30, 53
DDC 1.8V Power Digital Core Power 32, 55
GND Ground Ground 10, 21, 31, 56

ELECTRICAL SPECIFICATIONS

Analog Interface Characteristics

Parameter	Min	Typ	Max	Unit
Resolution		8		Bits
DC ACCURACY				
Differential Nonlinearity		±0.5	+1.50/-1.0	LSB
Integral Nonlinearity		±1		LSB
No Missing Codes Guaranteed				
ANALOG INPUT				

Input Voltage Range
Minimum 0.5 V p-p
Maximum 1.0 V p-p
Input Bias Current 1 uA
Input Full-Scale Matching 1.5 %FS
Brightness Level Adjustment 62 %FS
SWITCHING PERFORMANCE
Maximum Conversion Rate 220 MSPS
Minimum Conversion Rate 12 MSPS
HSYNC Input Frequency 15 200 kHz
PLL Clock Rate 12 220 MHz
PLL Jitter 500 ps p-p
Sampling Phase Tempco TBD ps/□C
DIGITAL INPUTS
Input Voltage, High (VIH) 2.5 V
Input Voltage, Low (VIL) 0.8 V
Input Current, High (IIH) -1.0 uA
Input Current, Low (IIL) 1.0 uA
Input Capacitance 5 pF
DIGITAL OUTPUTS
Output Voltage, High (VOH) VDDP-0.1 V
Output Voltage, Low (VOL) 0.1 V
DYNAMIC PERFORMANCE
Analog Bandwidth, Full Power 250 MHz
Channel to Channel Matching 0.5% Full-Scale
Specifications are subjected to change without notice.

TSU16AS
SXGA LCD Controller with Analog Interface and Dual LVDS Transmitter
Preliminary Data Sheet Version 0.2
Version 0.2 - 7 - 10/1/2004

Absolute Maximum Ratings
Parameter Symbol Min Typ Max Units
3.3V Supply Voltages VVDD_33 -0.3 3.6 V
1.8V Supply Voltages VVDD_18 -0.3 1.98 V
Input Voltage (5V tolerant inputs) VIN5Vtol -0.3 5.0 V
Input Voltage (non 5V tolerant inputs) VIN -0.3 VVDD_33 V
Ambient Operating Temperature TA 0 70 °C
Storage Temperature TSTG -40 150 °C
Junction Temperature TJ 150 °C
Thermal Resistance (Junction to Air) Natural
Conversion
θJA TBD °C /W
Thermal Resistance (Junction to Case) Natural
Conversion
θJC TBD °C /W
Note: Stress above those listed under Absolute Maximum Rating may cause permanent damage to those indicated in the stress rating only; functional operation of the device at these or any other conditions outside of those indicated in the operation sections of this specification is not implied. Exposure to absolute maximum ratings foextended periods may affect device reliability.
ORDERING GUIDE
Model Temperature
Range
Package
Description
Package
Option
TSU16AS 0°C to +70°C SDIP

MTV512M64

The MTV512M micro-controller is an 8051 CPU core embedded device especially tailored for flat panel display applications. It includes an 8051 CPU core,768-byte SRAM, 4 channels of 6-bit ADC, 3 external counters/timers, 6 channels of PWMDAC, VESA DDC interface, and a 64K-byte internal program Flash-ROM memory.

FEATURES

• 8051 core, CPU operating frequency up to 24MHz
• 3.3V power supply
• 768-byte RAM; 64K-byte program Flash memory
• Maximum 6 channels of PWM DAC
• Compliant with VESA DDC1/2B/2Bi/2B+/CI
standard
• Watchdog timer with programmable interval
• Support external counters/timers, T0, T1, and ET2
• Single/double frequency clock output
• Two clock output ports
• Two external interrupts, INT1 is shared with Slave
IIC interrupt source
• Maximum 4 channels of 6-bit ADC
• Flash-ROM code protection selection
• Hardware ISP (In System Programming), no Boot
Code required
• Embedded Dual Ports DDCRAM (128-byte x 2
• Green products like Pb-Free Packages or All Green Packages available

PIN CONFIGURATION & DESCRIPTION

A “CMOS output pin” means it can sink and drive at least 4mA current. It is not recommended to use such pin as input function.
An “open drain pin” means it can sink at least 4mA current. It can be used as input or output function and needs an external pull up resistor.
An “8051 standard pin” is a pseudo open drain pin. It can sink at least 4mA current when output is at low level, and drives at least 4mA current for 160nS when output transits from low to high, then keeps driving at 120 uA to maintain the pin at high level. It can be used as input or output function. It needs an external pull up resistor when driving heavy load device.
There is an internal pull-up resistance on each CMOS PAD and an internal pull-down resistance on each input

Low Power Reset (LVR) & Watchdog Timer

When the voltage level of power supply is below 2.4V (+/-0.4V) for a specific period of time, the LVR generates a chip reset signal. After the power supply is above 2.4V (+/-0.4V)

INVERTER

In order to drive the CCFLs embedded in the panel module, there is a half bridge inverter to convert by the controller.
The input 12V up to hundreds of AC voltage output.
The inverter is formed by symmetric in order to drive the separate lamp modules.
The input stage consists of a PWM controller, half bridge inverter, and switching MOSFET to convert DC input into AC output.
The output stage consists of a tuning capacitor, coupling capacitor, transformer, push-pull MOSFET pair to boost AC output up to hundreds of voltage.
And one resister is serial to lamp for output voltage feedback.
There are two signal to control the inverter which come from system.
Logic “high” level which send to I901 is turn on the inverter.
BRI signal control brightness by DC level which was integral from PWM signal.

5. Adjustment Procedure

1. Function Test

1.1. Product
- 19" LCD Monitor

1.2. Test Equipment
- Color Video Signal & Pattern (or PC with SXGA resolution and a sound card)

1.3. Test Condition
Before function test and alignment, each LCD Monitor should be run-in and warmed up for at least 30 minutes with the following conditions:
(a) In room temperature,
(b) With full-white screen, RGB, and Black
(c) With cycled display modes,
640*480 (H=43.27kHz, V=85Hz)
800*600 (H=53.7kHz, V=85Hz)
1024*768 (H=68.67kHz, V=85Hz)
1280*1024 (H=79.97kHz, V=75Hz)

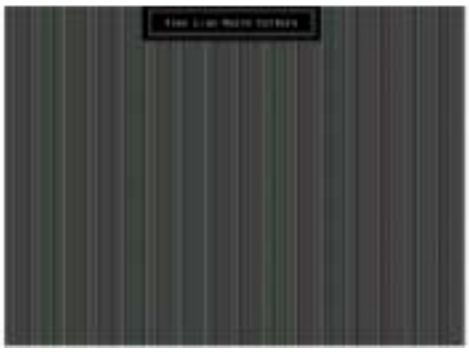
1.4. Test Display Modes & Pattern

1.4.1 Compatible Modes

Item	Timing
1	640 x 350 @ 70Hz, 31.5kHz
2	640 x 400 @ 60Hz, 31.5kHz
3	640 x 400 @ 70Hz, 31.5kHz
4	640 x 480 @ 50Hz, 24.7kHz
5	640 x 480 @ 60Hz, 31.5kHz
6	640 x 480 @ 67Hz, 35.0kHz
7	640 x 480 @ 72Hz, 37.9kHz
8	640 x 480 @ 75Hz, 37.5kHz
9	640 x 480 @ 85Hz, 43.27kHz
10	720 x 400 @ 70Hz, 31.5kHz
11	800 x 600 @ 56Hz, 35.1kHz
12	800 x 600 @ 60Hz, 37.9kHz
13	800 x 600 @ 75Hz, 46.9kHz
14	800 x 600 @ 72Hz, 48.1kHz
15	800 x 600 @ 85Hz, 53.7kHz
16	832 x 624 @ 75Hz, 49.7kHz
17	1024 x 768 @ 60Hz, 48.4kHz
18	1024 x 768 @ 70Hz, 56.5kHz
19	1024 x 768 @ 75Hz, 60.0kHz
20	1024 x 768 @ 85Hz, 68.67kHz
21	1152 x 864 @ 75Hz, 67.5kHz
22	1152 x 870 @ 75Hz, 68.7kHz
23	1280 x 1024 @ 60Hz, 63.4kHz
24	1280 x 1024 @ 75Hz, 79.97kHz
25	1280x 720 @ 60Hz, 45kHz (HDTV)

1.4.2 Function Test Display Pattern

Item	Test Content	Pattern	Specification	Remark
1	Frequency & Tracking	Fine Line Moire	Eliminate visual wavy noise.	Figure 1
2	Contrast/Brightness	16 Gray Scale	16 gray levels should be distinguishable.	Figure 2
3	Boundary	Horizontal & Vertical Thickness	Horizontal and Vertical position of video should be adjustable to be within the screen frame.	Figure 3
4	RGB Color Performance	RGB Color Intensities	Contrast of each R, G, B, color should be normal.	Figure 4, 5, 6
5	Screen Uniformity & Flicker	Full White	Should be compliant with the spec.	Figure 7
6	Dead Pixel/Line	White Screen & Dark Screen	The numbers of dead pixels should be compliant with the spec.	Figure 7, 8
7	White Balance	White & Black Pattern	The screen must have the pure white and black pattern, no other color.	Figure 9



Fine Line Morie Pattern (Figure1)

Gray Scale Pattern (Figure2)

Horizontal & Vertical Thickness Pattern (Figure 3)

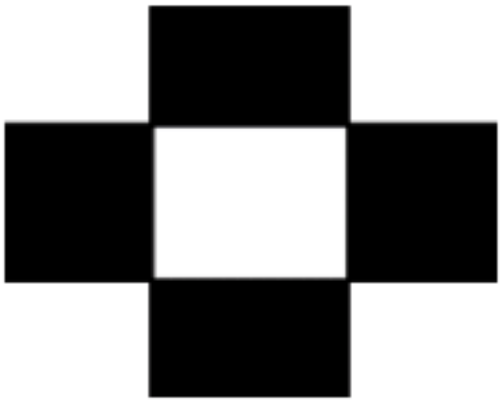
R. Color Pattern (Figure 4)

G. Color Pattern (Figure5)

B. Color Pattern (Figure 6)

Full White Patter (Figure 7)

Dark Screen Pattern (Figure 8)



Black-White Pattern (Figure 9)

1.5. Function Test and Alignment Procedure

1.5.1 All Modes Reset

You should do "All Mode Reset" (Refer to Chapter III-3. Hot Keys for Function Controls) first. This action will allow you to erase all end-user's settings and restore the factory defaults.

1.5.2 Auto Image Adjust

Please select and enter *"**Auto Image Adjust**"* function on Main Menu to see if it is workable. The *"**Auto Image Adjust**"* function is aimed to offer a better screen quality by built-in ASIC. For optimum screen quality, the user has to adjust each function manually.

1.5.3 Firmware

Test Pattern: Burn In Mode (Refer to Chapter III-3. Hot Keys for Function Controls)
- Make sure the F/W is the latest version.

1.5.4 DDC

Test Pattern: EDID program
- Make sure it can pass test program.

1.5.5 Fine Tune and Sharpness

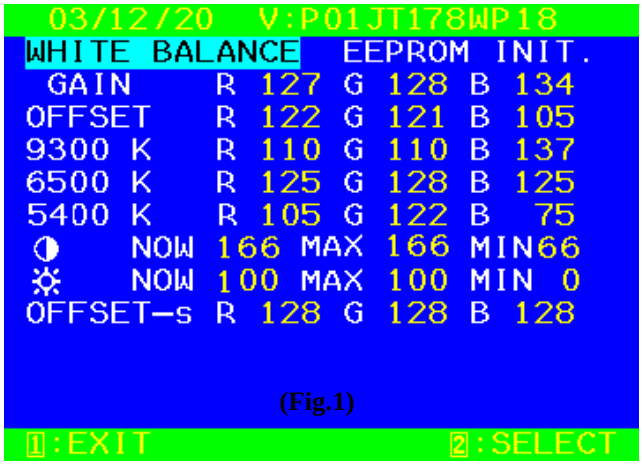
Test Signal: 1280*1024@60Hz
Test Pattern: Line Moire Pattern
- Check and see if the image has noise and focus performs well. Eliminate visual line bar.
- If not, readjust by the following steps:
(a) Select and enter "**Fine Tune**" function on "**Manual Image Adjust**" to adjust the image to eliminate visual wavy noise.
(b) Then, select and enter "**Sharpness**" function to adjust the clarity and focus of the screen image.

1.5.6 Boundary

Test Signal: 1280*1024@60Hz
Test Pattern: Horizontal & Vertical Line Thickness Pattern
- Check and see if the image boundary is within the screen frame.
- If not, readjust by the following steps:
(a) Select and enter "**Manual Image Adjust**" function on OSD Main Menu.
(b) Then, select and enter "**Horizontal Size**" or "**Horizontal/Vertical Position**" function to adjust the video boundary to be full scanned and within screen frame.

1.5.7 White Balance

A. TIMING: 1280x1024 64KHz/60Hz.
B. PATTERN: 5 Blocks.
C. LCD MONITOR set to 1280x1024 80K/75Hz BURN IN and warm up over 30 minutes.
D. CA110 color analizer at the center of screen and along a perpendicular to the screen at 20cm from the display.
E. Power turn off, Press "▲" and " 2 " and turn on power at the same time after power LED is on, release "▲" and " 2 " key, Then press " 1 " key go to factory mode. (Fig.1)



(Fig.1)

F. Adjust Color Temperature:

(1) EEPROM INIT (5 BLOCKS):
Press "▼" key move cursor to EEPROM INIT, Press " 2 " key then monitor will INIT ADC value.

(2) Press "▲" key move cursor to "White Balance", Press " 2 " key do white balance adjustment.

(3) Press "▼" key move cursor to "Color Temperature Adjust", Press " 2 " key, Then OSD will display Fig.2

(Fig.2)

(4) 9300K verify: move cursor to 9300K Press " 2 " key.
Press "▼", "▲" key adjust R.G.B value
x=0.283 ± 0.02
y=0.298 ± 0.02
Press " 1 " key return to Fig.2

(5) 6500K verify: Repeat (4) press "▼", "▲" move cursor to 6500K press " 2 " key
x=0.313 ± 0.02
y=0.329 ± 0.02

(6) 5400K verify: Repeat (4) press "▼", "▲" move cursor to 5400K press " 2 " key
x=0.332 ± 0.02
y=0.348 ± 0.02

(7) Press " 1 " key go back to Fig.2, Then press " 1 " key return to Fig.1, Power key OFF/ON quit factory mode.

G. Color Temperature & Luminance Verify:
BRIGHTNESS MAX, CONTRAST MAX
9300K: x=0.283 ± 0.02 y=0.298 ± 0.02
6500K: x=0.313 ± 0.02 y=0.329 ± 0.02
5400K: x=0.332 ± 0.02 y=0.348 ± 0.02

1.5.8 R, G, B, Colors Contrast

Test Signal: 1280*1024@60Hz
Test Pattern: R, G, B, Color Intensities Pattern and 16 Gray Scale Pattern
- Check and see if each color is normal and distinguishable.
- If not, please return the unit to repair area.

1.5.9 Screen Uniformity and Flicker

Test Signal: 1280*1024@60Hz
Test Pattern: Full White Pattern
- Check and see if it is in normal condition.

1.5.10 Dead Pixel and Line

Test Signal: 1280*1024@60Hz
Test Pattern: Dark and White Screen Pattern
- Check and see if there are dead pixels on LCD panel with shadow gauge and filter film.
- The total numbers and distance of dead pixels should be compliant with the spec.

1.5.11 Mura

Test Pattern: White, RGB, Black, & Grey
Test Tool: 8% ND Filter
- Check if the Mura can pass 8% ND Filter.

1.5.13 Check for Secondary Display Modes

Test Signal:
Analog: 640*350@70Hz; 640*480@60HZ
720*400@70Hz; 800*600@60HZ/70HZ/75HZ
832*624@75Hz, 1024*768@60HZ/70HZ/75HZ
1280*1024@60/75Hz
- Normally when the primary mode 1280*1024@60Hz is well adjusted and compliant with the specification, the secondary display modes will be great possible to be compliant with the spec. But we still have to check with the general test pattern to make sure every secondary is compliant with the specification.

1.5.14 All Modes Reset

After final QC step, we have to erase all saved changes again and restore the factory defaults. You should do “All Mode Reset” again.

1.5.15 Power Off Monitor

Turn off the monitor by pressing “Power” button.

2. Firmware Upgrade Procedure

When you receive the returned monitor, please check whether the firmware version is the latest. If not, please do the following procedures to upgrade it to the latest version.

2.1. Equipment Needed

- VE910 Monitor
- Fixture for Firmware Upgrade
- VGA Cable
- PC (Personal Computer)
- LPT Cable
- Firmware Upgrade Program
- One additional monitor for checking the program execution

PC

VE910

LPT Cable

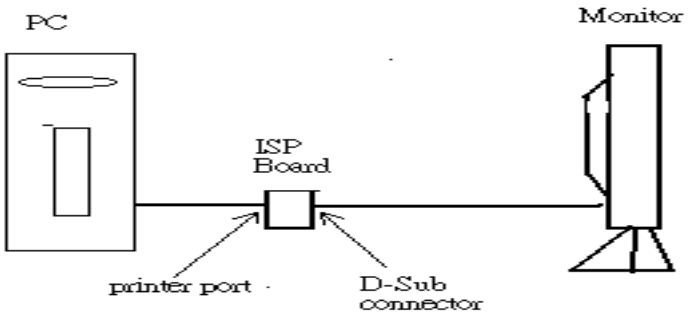
VGA Cable

2.2. Setup Procedure

2.2.1 Connect P2 of Fixture with printer port of PC by LPT Cable.
2.2.2 Connect P1 of Fixture with Q190mb Monitor by VGA Cable.
2.2.4 Connect Power Cord to Q190mb Monitor.
2.2.5 Connect PC to the additional monitor.

2.3. ISP Download program procedure

2.3.1 Hardware Connect status:

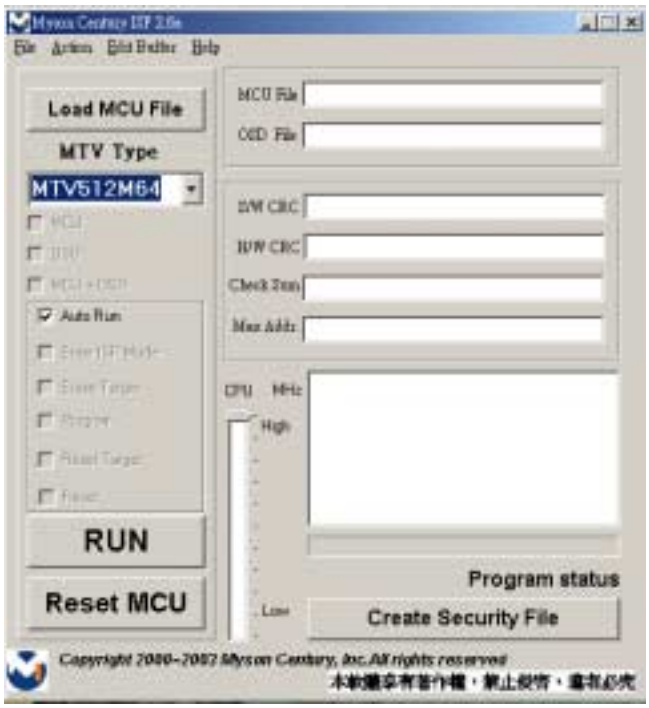


2.3.2 Down load isp program

Step 1: Execute ISP.exe

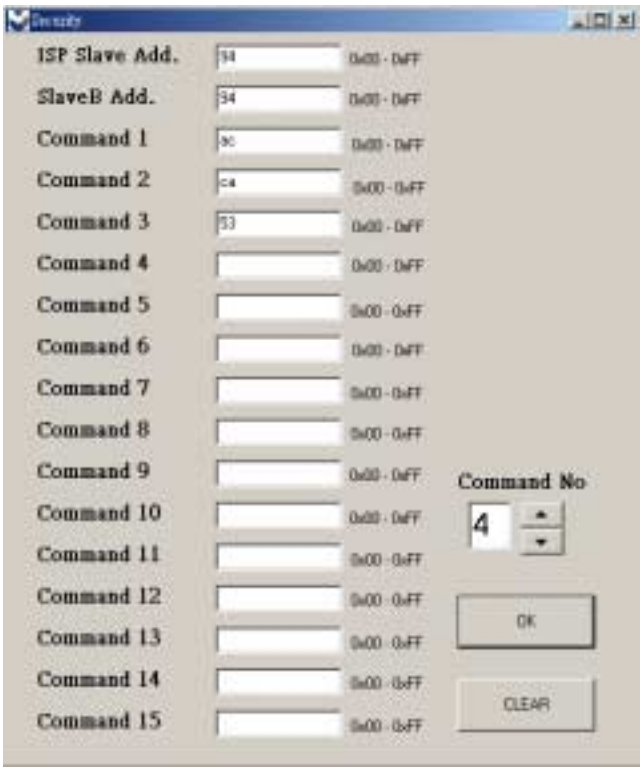
Step 2: Select MCU type

Pressing the Comb box to select the type of the MCU , It need to be selected the MTV512MV64 for this project. Then press the Creat Security File Button to enter step 3.



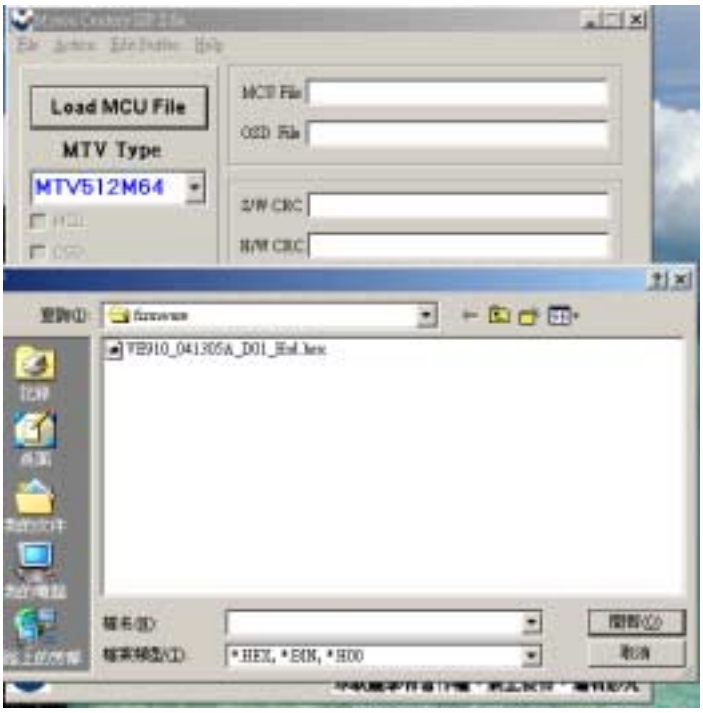
Step 3: Creat Security File

Enter the three string into the blank like fig 2. Then press OK Button.



Step 4: Load file

Press the Load MCU File button to select the file will be download. (*.hex)



Step 5: Run

Pressing the Run Button to start download program. Press OK button to Enter ISP mode.

Step 6: Download program finish

Pressing the OK Button to finish the download program procedure.

Trouble shooting:

If you find the status like the follow picture. Please check the following item.

a. The connecting status between PC and ISP board.

b. The connecting status between ISP status and Monitor.

Turn off the power of monitor (AC plug off) and disconnect the D-Sub connector . To connect the D-Sub connector and then turn on the power of monitor.(AC plug on)

If the test result shows "passed," it means the connection is well. If not (failed), it means the connection has problems. Then you need to check the setup procedure or reboot the PC, or simply use another PC to do the firmware upgrade.

3. DDC Key In Procedure

Note:

1. Every time after replacing the main board, you have to do the DDC key in.
2. If you find the DDC does not conform to the monitor, you have to do the DDC key in.

3.1. Equipment Needed

- VE910 Monitor
- DDC Card
- PC
- RS232 cable
- Barcode Reader
- VGA Cable

VE910

DDC Card

PC

RS-232 Cable

VGA Cable

Barcode Reader

3.2. Setup Procedure

3.2.1 Connect VGA Card and DDC Card with RS-232 cable.

3.2.2 Barcode Reader connect with keyboard and PC keyboard port.

3.2.3 Connect RS-232 Cable and VE910 with VGA Cable.
(when key in DVI DDC information, use VGA transform to DVI port)

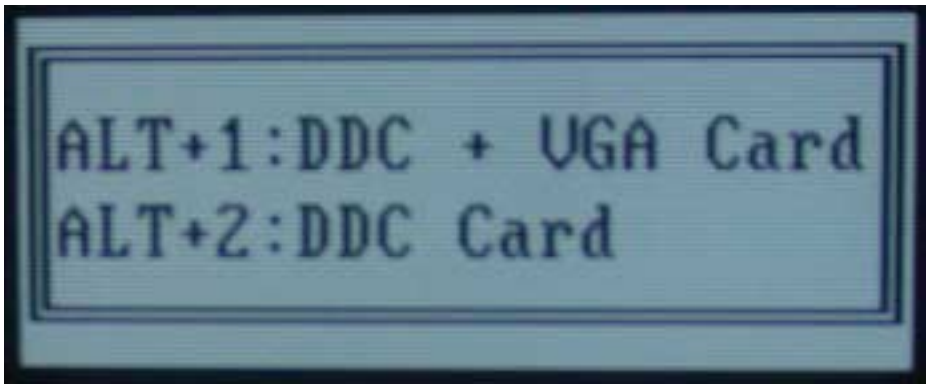
3.2.4 Connect Power Cord to VE910 Monitor.

3.3. DDC Key In Procedure

3.3.1 Run DDC.exe

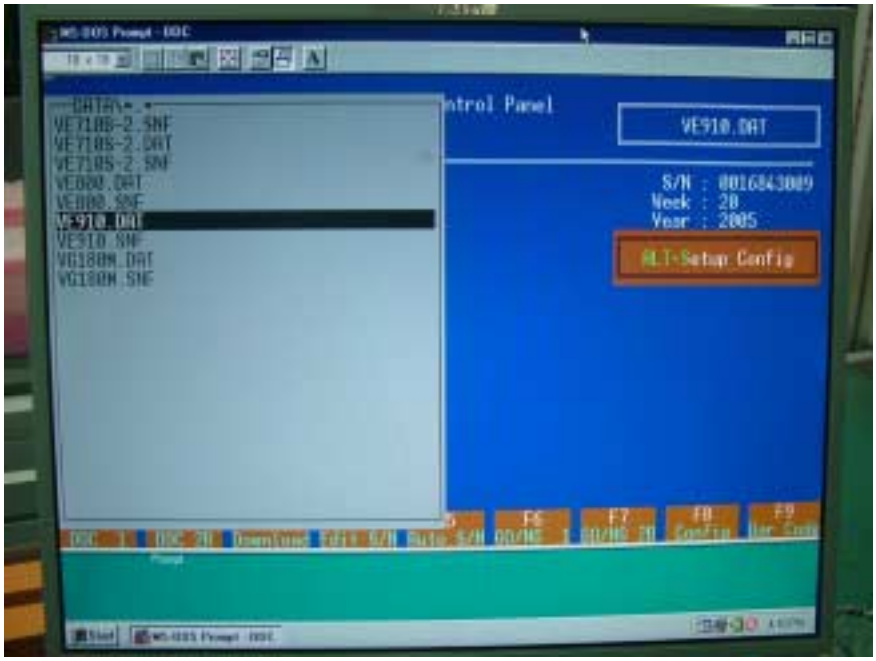
3.3.2 Choose model number and conform the Time then Press “ENTER” key.

3.3.3 When appear the PIC " choose DDC Card", Press ALT+2 Enter DDC 2B test interface.

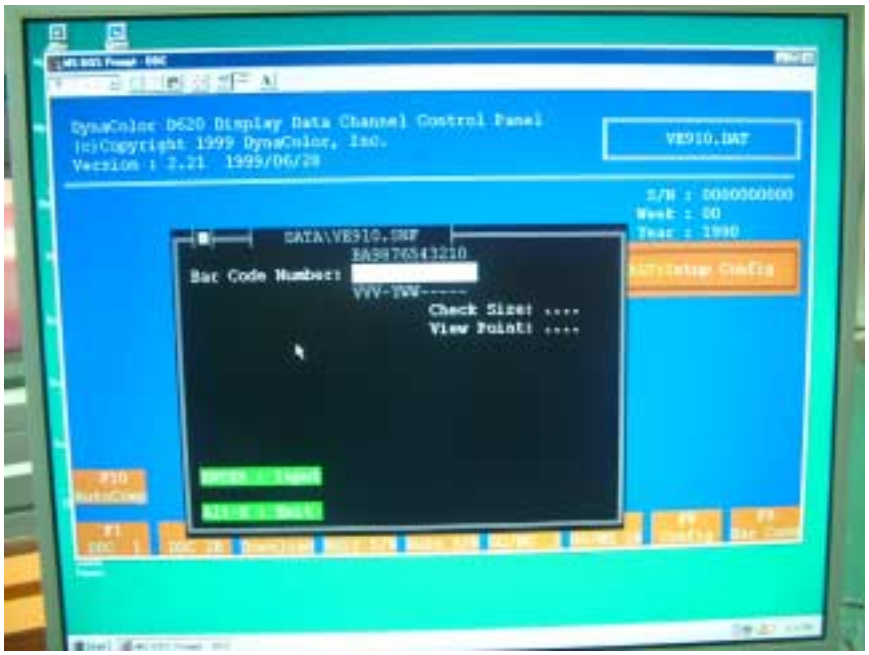


Choose DDC Card

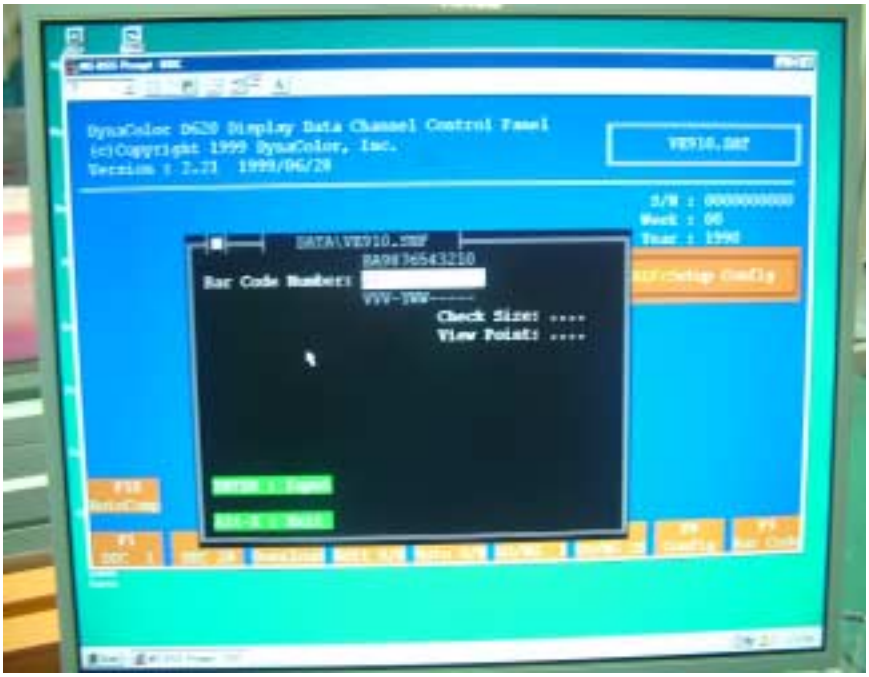
3.3.4 Press F8 to choose corresponding model.DAT (VE910.DAT press "ENTER" key)



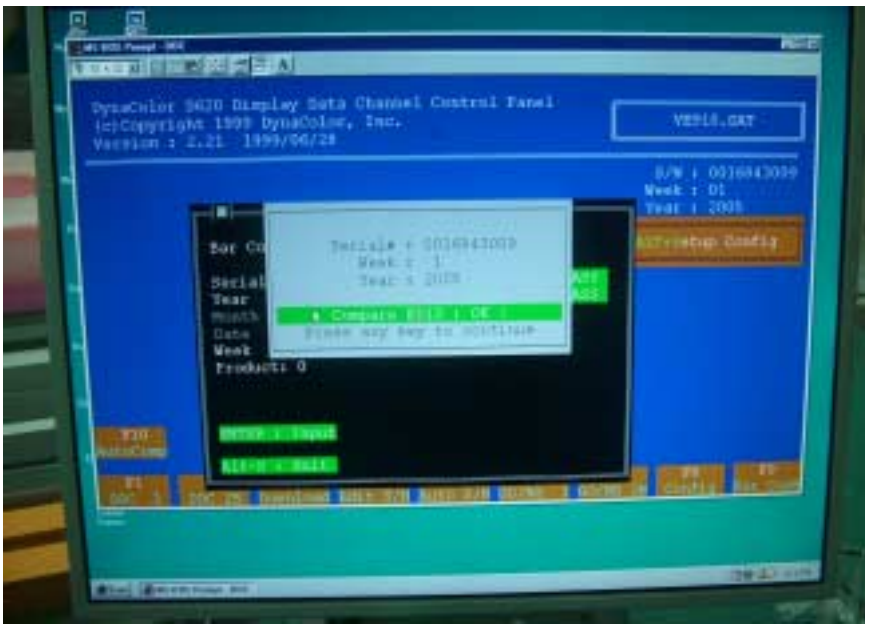
3.3.5 Press F9 enter the download interface



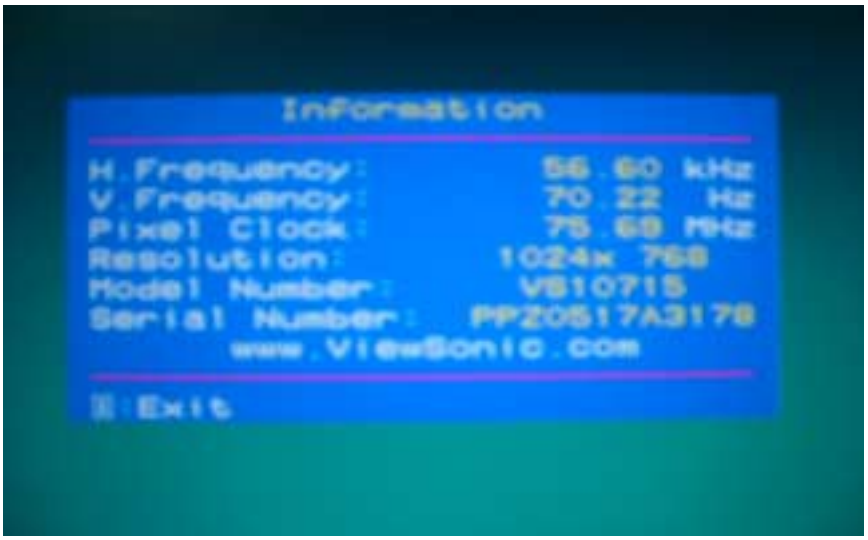
3.3.6 Key in the serial number or use the barcode reader to scan the barcode of the monitor, and press “ENTER” key.



3.3.7 The successful picture is as follows. ”Compare EDID ：OK! Press any key to continue”.

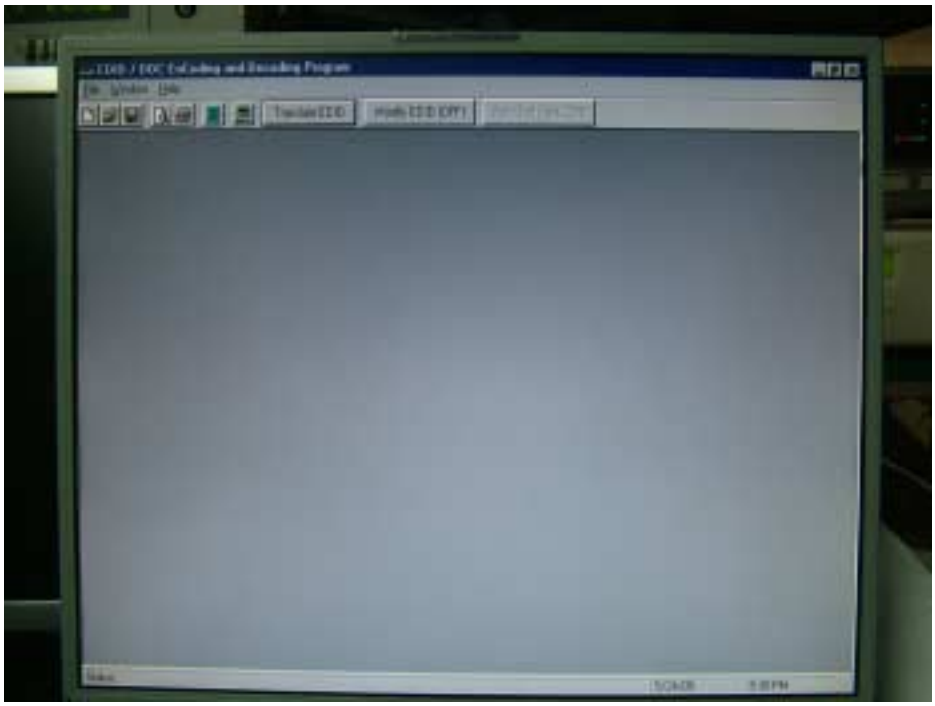


3.3.8 Let VE910 active then see the information in OSD, it shows ”Serial NO : PPZ0517A3178”

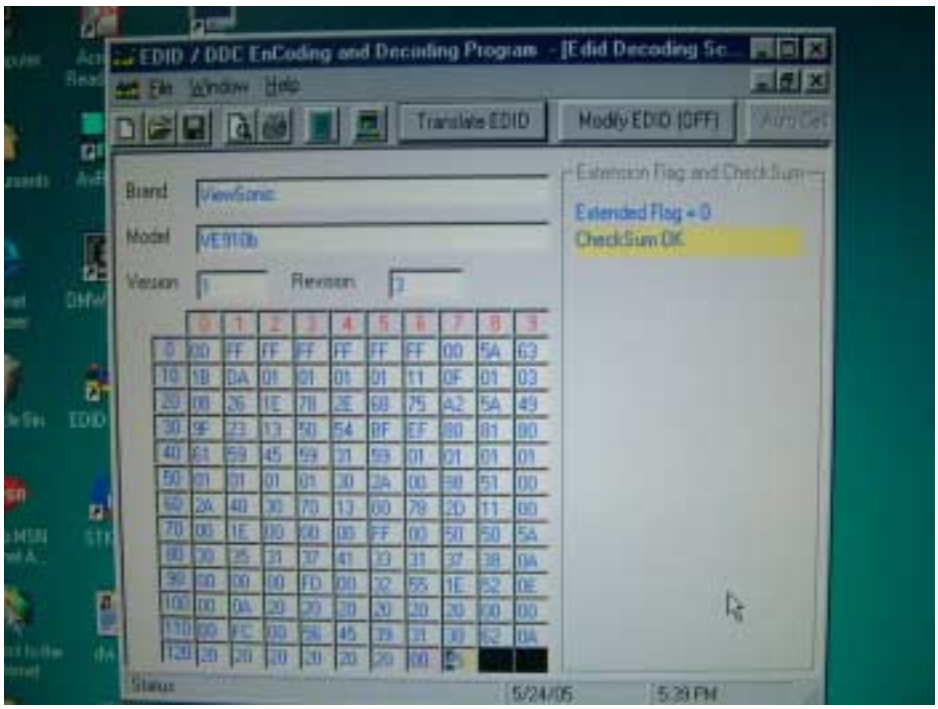


3.4. Check Method

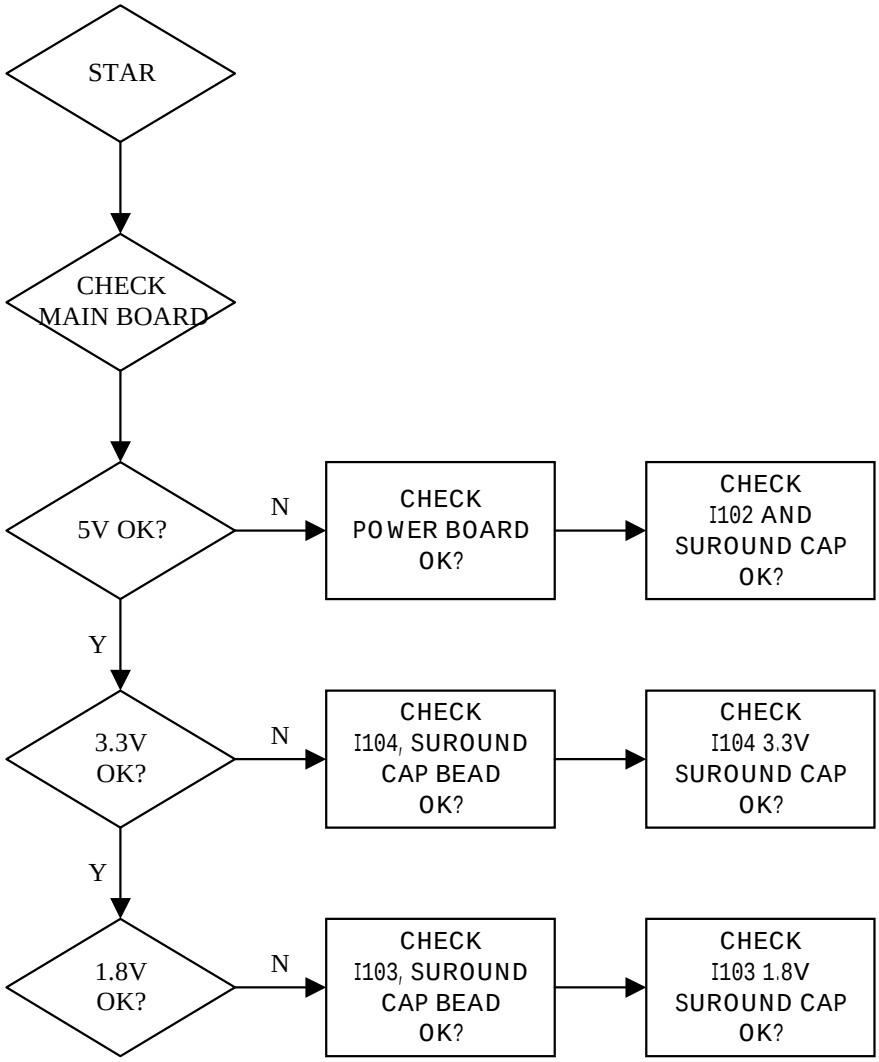
Use ViewSonic EDID Editor



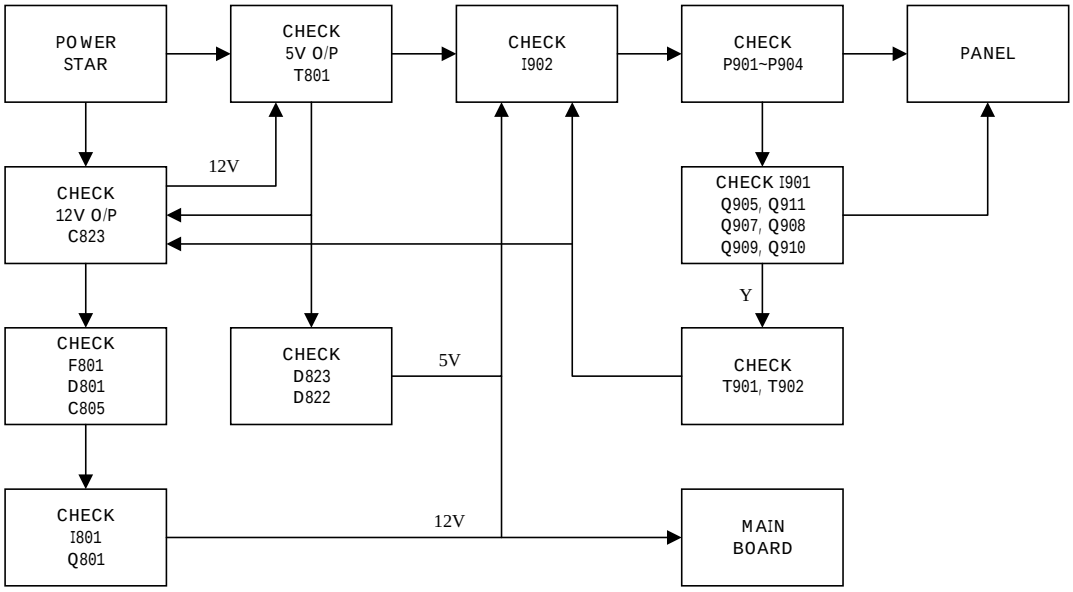
Connect the VE910 to PC with VGA Cable. Excute the EDID Editor, then Press Ctrl+F5. If the DDC is correct, you can see the information as follow:



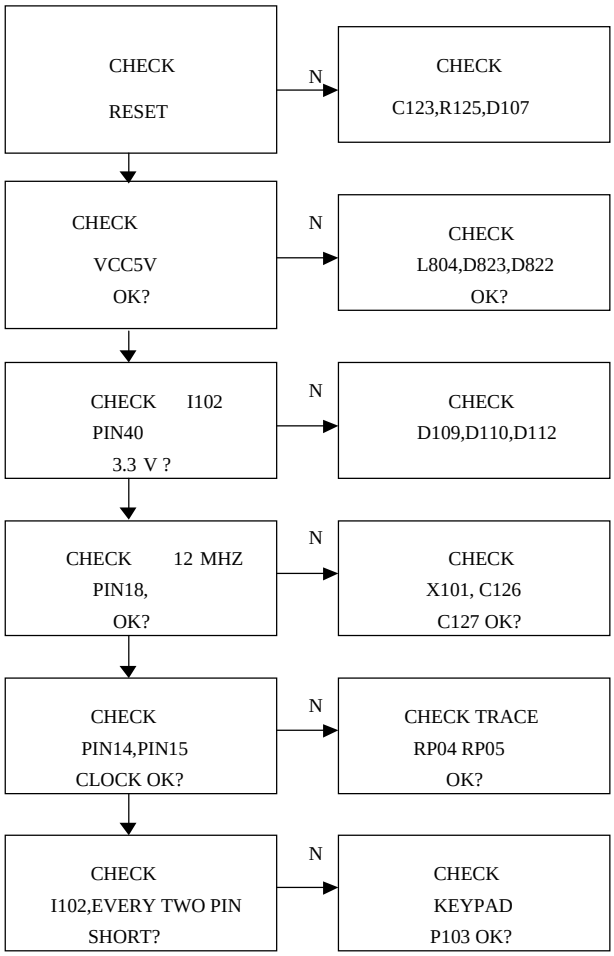
6. Troubleshooting Flow Chart



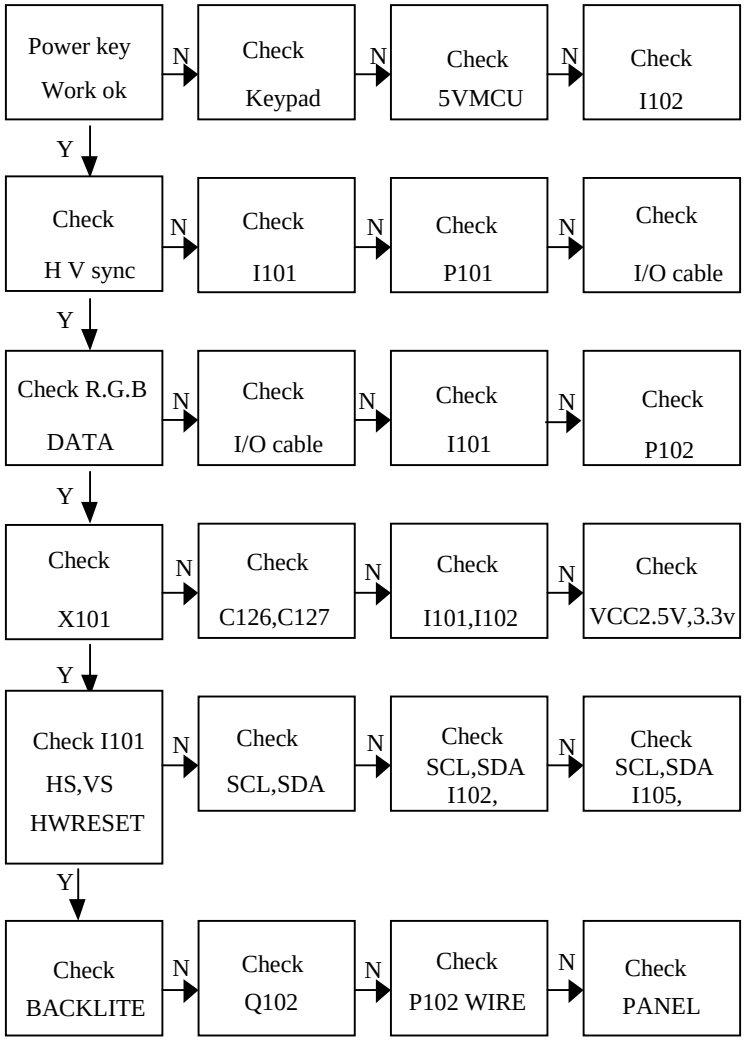
6.1. NO POWER



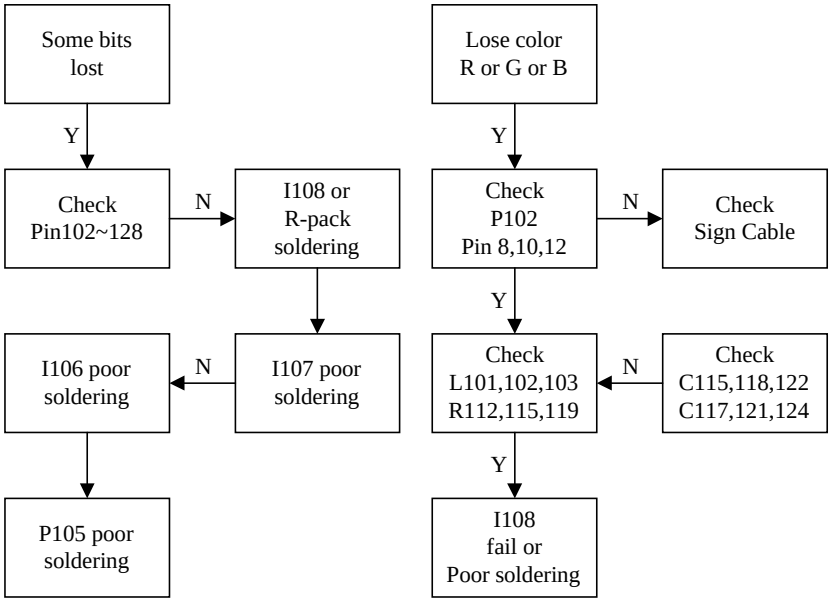
6.2. MCU NO FUNCTION



6.3. NO DISPLAY



6.4. LOSE COLOR



7. Recommended Spare Parts List

RECOMMENDED SPARE PARTS LIST (VE910-1 for "AUO V5 Panel")

ViewSonic Model Number: VS10715-1W

Rev: 1a

Serial No. Prefix: PPY

Item	Description		ViewSonic P/N	Ref.P/N	Location	Universal number#	Q'ty
1	**Accessories:**	POWER CORD USA WALL 1.83M BLACK	A-PC-0106-0121	2427130046	P951		1
2	**PC Board Assembly:**	PCB ASS'Y	B-00003003	2701135600			
3		PCB-CON	B-00003004	2702235600			
4		PCB POWER	B-00003005	2702335600			
5		PCB ASS'Y BLOCK	N/A (Bare Board)	6201-7998908101			
6		PCB ASS'Y BLOCK (CON)	N/A (Bare Board)	6202-7998908101			
7	**Cabinets:**	BEZEL ASS'Y VE910 ABS 94HB PS-7604B	C-00003007	2603307745			
8		CABI BACK ASSY	C-00003008	2603407576			
9	**Cables:**	I/O CABLE D15/C13 20276(4.5) 1.83M BLACK	CB-00003009	2427501191P	P961		1
10	**Documentation:**	CD-OWNER GUIDE VE910 WIZARD VS10715 AUO	DC-00003011	2438501177	6P80		1
11		GUARANT CARD VIEWSONIC VE910 QSG	DC-00003010	2002310446	6P84		1
12	**Electronic Components:**	LCD PANEL M190EN04 V.5 SXGA AUO	E-00003012	2212007400	V901		1
13	**Packing Material:**	CARTON BOX VE910 VS10715 TCO03	P-00003013	2011133001	6P01		1
14		POLYFOAM VE910-EPS (L)	P-00003014	2012179800	6P20		1
15		POLYFOAM VE910 -EPS (R)	P-00003015	2012179900	6P21		1
16	**Plastics:**	STAND VE910 ABS 94HB BLACK 4001	C-00003006	2028259301	5B01		1

RECOMMENDED SPARE PARTS LIST (VE910b-1 for "AUO V5 Panel")

ViewSonic Model Number: VS10715-1W

Rev: 1a

Serial No. Prefix: PPZ

Item	Description		ViewSonic P/N	Ref.P/N	Location	Universal number#	Q'ty
1	**Accessories:**	POWER CORD USA WALL 1.83M BLACK	A-PC-0106-0121	2427130046	P951		1
2	**PC Board Assembly:**	PCB ASS'Y	B-00003003	2701135600			
3		PCB-CON	B-00003004	2702235600			
4		PCB POWER	B-00003005	2702335600			
5		PCB ASS'Y BLOCK	N/A (Bare Board)	6201-7998908101			
6		PCB ASS'Y BLOCK (CON)	N/A (Bare Board)	6202-7998908101			
7	**Cabinets:**	BEZEL ASS'Y VE910-B ABS 94HB MIDNIGHT GRAY	C-00003017	2603307752			
8		CABI BACK ASSY VE910-B ABS 94HB MIDNIGHT GRAY	C-00003018	2603407577			
9	**Cables**	I/O CABLE D15/C13 20276(4.5) 1.83M BLACK	CB-00003009	2427501191P	P961		1
10	**Documentation:**	CD-OWNER GUIDE VE910B WIZARD VS10715 AUO	DC-00003020	2438501183	6P80		1
11		GUARANT CARD VIEWSONIC VE910B QSG	DC-00003019	2002310453	6P84		1
12	**Electronic Components:**	LCD PANEL M190EN04 V.5 SXGA AUO	E-00003012	2212007400	V901		1
13	**Packing Material:**	CARTON BOX VE910B VS10715 TCO99	P-00003021	2011133002	6P01		1
14		POLYFOAM VE910-EPS (L)	P-00003014	2012179800	6P20		1
15		POLYFOAM VE910 -EPS (R)	P-00003015	2012179900	6P21		1
16	**Plastics:**	STAND VE910-B ABS 94HB MIDNIGHT GRAY	C-00003016	2028259302	5B01		1

BOM LIST (VE910/b-1)

ViewSonic Model Number: VS10715-1W

Rev: 1a

Item	ViewSonic P/N	Ref. P/N	Description		Location	Universal number#	Q'ty
1	C-00003022	2024268701	FRONT BEZEL	VE910 ABS 94HB PS-7604B	1F01		1
2	PL-00003024	2053754700	LED INDIC.-PWR	VE910 PMMA 94HB COLOR CLEAR	1F02		1
3	PL-00003025	2044267101	FUNCTION KEY	ABS 94HB ELECTROPLATE AL	1F03		1
4	M-MS-0808-9214	2051352100	NAME PLATE	VIEWSONIC E015-006 3-BIRD LOGO	1F04		1
5	#N/A	2051352800	NAME PLATE	38.00MM*5.90MM	1F05		1
6	HW-00003026	2071974300	METAL FITTG	VE910 SECC T=0.8 FOR PANEL	1F10		1
7	M-SCW-0824-6715	2080002200	SCREW,SPE	L355 M3x6 DH NICKEL-PLATED	1F11		4
8	M-SCW-0824-0811	2080003700	SCREW,SPE	1SZZTER001A M3*6L MSWR17/FZMY1	1F12 1F13 1F16		9
9	HW-00003027	2071673800	SHIELD PLATE	VE910 SPTE T=0.3	1F14		1
10	M-SCW-0824-6719	2082630062	SCREW	M3X6 P=0.5	1F15		2
11	#N/A	2072460100	INSULATOR	48*54*0.5T	1F17		1
12	#N/A	2072460200	INSULATOR	PC SHEET T=0.5 FR700 94V0	1F18		1
13	#N/A	2061455100	BUSHING	RUBBER CR BLACK 94HB	1F19		1
14	#N/A	2061455300	BUSHING	10*15*7.5MM TAPE=T4000	1F20		1
15	HW-00003028	2071874300	BRACKET,FIX	SECC T=0.8 VE910 ACINLET	1F21		1
16	C-00003029	2022263501	CABI BACK	VE910 ABS 94HB BLACK 4001	2C01		1
17	M-MS-0808-9215	2051352200	NAME PLATE	VIEWSONIC E015-017	2C02		1
18	HW-00003031	2071872900	BRACKET,FIX	JT198QP SECC 0.8T WALL MOUNT	2C10		1
19	HW-00003032	2106657000	HINGE	VE910 -5'~+20'~90'	2C20		1
20	M-SCW-0824-0851	2082340072	SCREW,CSK+	SCREW CSK+ M4*7	2C21		4
21	M-SCW-0824-0123	2084740102	SCREW,BND T+	M4X10(BND T+)	2C22		1
22	M-SCW-0824-6944	2084740124	SCREW,BND T+	M4X12(BND T+) (BLK)	2C23		2
23	M-SCW-0824-6746	2087340126	SCREW,B SPW+	4X12(+)SWRM-3 ZMC2-C	2C25		4
24	M-BK-0805-0070	2071869400	BRACKET,FIX	METAL PLATE 1.0MM KENSINGTON	2C30		1
25	M-SCW-0824-0285	2084730082	SCREW,BND T+	M3X8(BND T+)	2C40 5B12 9S01 9S02 9S03		10
26	M-MS-0808-9408	2061453400	BUSHING	VE710 PLUG RUBBER	2C50		4
27	PL-00003006	2028259301	STAND	VE910 ABS 94HB BLACK 4001	5B01		1
28	HW-00003033	2071974400	METAL FITTG	VE910 SECC T=1.5 FOR STAND	5B10		1
29	PL-PD-0714-0113	2039819301	FOOT PAD	RUBBER O20*2TMM SQUARE GRAIN	5B11		5
30	PL-00003034	2027260401	DUST COVER	ABS 94HB ELECTROPLATE AL	5B20		2
31	M-LB-0813-0769	2055613293	LABEL	VIEWSONIC OPEN STAND LABEL-LCD	5B30		1
32	P-00003013	2011133001	CARTON BOX	VE910 VS10715 TCO03	6P01		1
33	#N/A	2055632079	LABEL	VE910 VS10715 (M0 AUO	6P02		1
34	#N/A	2055636029	LABEL	VE910 VS10715 SMALL LABEL	6P05		1
35	DC-00001586	2055613435	LABEL	VIEWSONIC INSET PAGE-1280*1024	6P06		1
36	M-LB-0813-0856	2055613379	LABEL	ViewSonic CONTAINER LABEL	6P11		1/48
37	M-LB-0813-0530	2055617101	LABEL	10*20 HI-POT TESTED 0K	6P13		1
38	M-LB-0813-0959	2055613392	LABEL	VSC HIGH VOLTAGE WARNING LABEL	6P14		1
39	P-00003014	2012179800	POLYFOAM	VE910-EPS (L)	6P20		1
40	P-00003015	2012179900	POLYFOAM	VE910 -EPS (R)	6P21		1
41	#N/A	2055134030	LABEL	VE910 VS10715 AUO TCO03	6P50		1
42	M-LB-0813-0002	2056603050	SERIAL LABEL	VIEWSONIC LCD SERIAL LABEL	6P51 6P54 6P55		3
43	M-LB-0813-0528	2055103400	LABEL	JK0936F WEN	6P52		1
44	M-MS-0808-1317	2013053000	POLYETHY BAG	90CMX75CMX0.02t PE-LD	6P60		1
45	DC-00003011	2438501177	CD-OWNER GUIDE	VE910 WIZARD VS10715 AUO	6P80		1
46	DC-00003010	2002310446	GUARANT CARD	VIEWSONIC VE910 QSG	6P84		1
47	M-MS-0808-1316	2013222536	POLYETHY BAG	250mmx350mmxt0.3 ADD>PE-LD<	6P85		1
48	#N/A	2072253903	HEAT SINK	JT178DP SPTE T=1MM	9H01		1
49	#N/A	2072261500	HEAT SINK	JT178DP 40L*35W*20H AL T=3	9H02		1
50	#N/A	2072261401	HEAT SINK	JT178QP AL6063S-75 30*20*15	9H03		1
51	#N/A	2072261900	HEAT SINK	JT198QP SPTE 0.8t 18x11X43	9H04		1
52	#N/A	2105251400	SPRING PLATE	SPTE T=0.4MM (GROUND PLATE)	9H11 9H12 9H13		3
53	E-C-0404-1841	2281447391	CAP,CER	CC 0.047u/ 50V Y5V P=5.0 Z T	C101 C102 C103 C104 C105 C106 C110		7
54	E-C-0404-2980	2272133091	CAP,CER	TC 33p/50V CH P=5.0 J T	C107		1
55	E-C-0404-1119	2272122191	CAP,CER	TC 220p/50V CH P=5.0 J T	C108		1
56	E-C-0404-1815	2281410491	CAP,CER	CC 0.1u/ 50V Y5V P=5.0 Z T	C109 C111 C113 C114 C116 C118 C119 C121 C125 C128		10
57	#N/A	2333347691	CAP,ELE 105'C	EC 47u/ 16V 5*11 P=5.0 T	C112 C115 C117 C124		4
58	E-C-0404-2271	2333310791	CAP,ELE 105'C	EC 100u/ 16V 6.3*11 P=5.0 T	C120 C141 C144		3
59	E-C-0404-1834	2333647591	CAP,ELE 105'C	EC 4.7u/ 50V 5*11 P=5.0 T	C123		1
60	E-C-0404-3932	2272127091	CAP,CER	TC 27p/50V CH P=5.0 J T	C126 C127 C912		3
61	E-C-0404-1424	2333610591	CAP,ELE 105'C	EC 1u/ 50V 5*11 P=5.0 T	C136		1
62	E-C-0404-3092	2272110091	CAP,CER	TC 10p/50V CH P=5.0 J T	C146 C147		2
63	E-C-0404-1838	2333610691	CAP,ELE 105'C	EC 10u/ 50V 5*11 P=5.0 T	C189 C809 C810		3
64	#N/A	2300947401	CAP,MTL MINI	X2 0.47u/275V P=15.0 K C	C801		1
65	E-C-0404-1855	2287247212	CAP,CER	Y2 4700p/250V Y5V P=10.0 M K	C802 C803 C831		3
66	#N/A	2357510708	EC HI-RIPPLE 105C 400V	EC 100u/400V 18*32 P=7.5 S	C805		1
67	E-C-0404-2262	2285110291	CAP,CER	CC 1000P/1KV Y5P P=5.0 K T	C806		1

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68	E-C-0404-4833	2281110491	CAP,CER	CC 0.1u/50V K T	C807 C832 C845 C907 C910 C917 C921 C923 C925 C928		10
69	#N/A	2281118191	CAP,CER	CC 180p/50V K T	C808		1
70	#N/A	2281168291	CAP CER	CC 6800pF/50V K T	C812		1
71	E-C-0404-1834	2333647591	CAP,ELE 105'C	EC 4.7u/ 50V 5*11 P=5.0 T	C815		1
72	#N/A	2284110291	CAP,CER	CC 1000P/1KV X7R P=5.0 K T	C820		1
73	#N/A	2284122291	CAP CER 125'C	CC 2200pF/1KV P=5.0 K T	C821		1
74	#N/A	2330005801	CAP,MINI ELE	EC 1500u/ 16V 10*20 P=5.0 C	C822		1
75	#N/A	2330006491	CAP ELE SPECIAL	EC 470u/ 16V 10*13 P=5.0 T	C823 C825 C906 C922		4
76	#N/A	2335210813	CAP,ELE LOW ESR 105'C	EC 1000u/ 10V 10*13 P=5.0 T	C824		1
77	#N/A	2302047291	CAP,MTL	CF93M 4700.000PF 50V J 1T	C826		1
78	#N/A	2302047391	CAP,MTL	CF93M 0.047UF 50V J 1T	C901		1
79	#N/A	2275822001	CAP CER	TC 22pF/3KV CH J P=7.5 C	C902 C916		2
80	E-C-0404-3473	2281410291	CAP,CER	CK45F 1000.000PF 50V Z T	C903 C904 C926 C927		4
81	#N/A	2275450901	CAP,CER	TC 5P/3KV SL P=7.5 J C	C905 C918		2
82	#N/A	2302039291	CAP,MTL	MEF 3900pF/50V P=5.0 J T	C908 C909 C919 C920		4
83	#N/A	2302068391	CAP,MTL	MEF 0.068u/50V P=5.0 J T	C911 C924		2
84	E-C-0404-3470	2272133191	CAP,CER	TC 330p/50V CH P=5.0 J T	C913		1
85	#N/A	2302010391	CAP,MTL	MEF 0.01uF/50V P=5.0 J T	C914		1
86	#N/A	2333433691	CAP,ELE 105'C	EC 33u/ 25V 5*11 P=5.0 T	C915		1
87	E-D-0403-0531	2363600195	DIODE,SWITCH	1N4148 DO-35 T	D101 D102 D103 D104 D105 D106 D107 D108 D809 D813 D902 D905 D906 D907 D908 D910 D911 D912 D913 D914 D915 D917 D918 D919		24
88	#N/A	2363219095	DIODE,RECT	1N4002 IR	D109 RA D110 RA		2
89	#N/A	2363218695	DIODE,RECT	1N4002 PHILIPS	D109 RB D110 RB		2
90	#N/A	2363200895	DIODE,RECT	1N4002 100V/1A DO-41 WTE	D109 RC D110 RC		2
91	#N/A	2363214695	DIODE,RECT	1N4002F FAGOR	D109 RD D110 RD		2
92	E-D-0403-1297	2363220895	DIODE,RECT	11EQ04 IR(NI)	D112 RA		1
93	E-D-0403-1500	2363222195	DIODE,RECT	SB140 PEC	D112 RB D909 D916		3
94	#N/A	2363703891	LED	LED 3f GRN/YEL	D701		1
95	#N/A	2368501800	RECT,BRIDGE	2KBP06M 2A/600V PEC	D801		1
96	#N/A	2363231995	DIODE,RECT	UF4007 PEC	D806 RA		1
97	#N/A	2363223195	DIODE,RECT	UF4007 GS	D806 RB		1
98	#N/A	2363230795	DIODE,RECT	1H5G WILLAS	D807 RA		1
99	#N/A	2363601395	DIODE,SWITCH	1U4G 1A/400V PEC	D807 RB		1
100	#N/A	2363515395	DIODE,ZENER	HZ27-2 26.2V-27.6V 0.5W HITACH	D808		1
101	E-D-0403-1532	2363505995	DIODE,ZENER	HZ12A-2 11.9-12.4V 0.5W HITACH	D810		1
102	#N/A	2363302800	DIODE,SCHOTTKY	SRF10120C ITO-220 MOSPEC	D821		1
103	#N/A	2363300212	DIODE,SCHOTTKY	31DQ06FC 60V/1.6A H=21.4 IR	D822 D823		2
104	M-WR-0828-0450	2428106075	JUMPER	0.6f ✻*7.5mm	D901 J102 J103 J104 J105 J107 J112 J113 J114 J115 J117 J118 J119 J120 J121 J122 J135 J127 J801 J803 J804 J901 J902 J905 J910 R853 R915 R933		28
105	E-FS-0410-0009	2213125207	FUSE	21502.5(2.5A) LITTEL	F801 RA		1
106	E-FS-0410-0102	2213125211	FUSE	FUSE 2.5A/250V SG501302.5 PICO	F801 RB		1
107	#N/A	2365424900	IC,DIGITAL	TSU16AS SDIP-56 Mstar	I101		1
108	#N/A	2365500016	MICRO-CONTROL IC	MTV512GM DIP-40 MYSON	I102		1
109	#N/A	2365335086	LINEAR IC	AIC1117A-18CY SOT-223 AIC	I103 RA		1
110	#N/A	2365335076	LINEAR IC	CM1117DCM223 SOT-223 CHAMPION	I103 RB		1
111	#N/A	2365813696	IC,LINEAR(SMD)	AP1117E18A SOT-223 ANACHIP	I103 RC		1
112	#N/A	2365335010	LINEAR IC	AP1084T33L TO-220 Anachip	I104 RA		1
113	#N/A	2365335020	LINEAR IC	AP1117T33L TO-220 Anachip	I104 RB		1
114	#N/A	2365335060	LINEAR IC	AIC1084-33CT TO-220 AIC	I104 RC		1
115	E-IC-0401-2269	2365915896	IC,DIGITAL SMD	24LC16B/SN MICROCHIP SO08	I105 RA		1
116	#N/A	2365100996	IC,MEMORY	AT24C16AN-10SI-2.7 SOIC8 ATMEL	I105 RB		1
117	#N/A	2365335056	LINEAR IC	LD7552-IS SOP-8 LEADTREND	I801		1
118	E-PC-0411-0083	2362401800	PHOTO COUPLR	TLP621(D4-GR-LF2) TOSHIBA	I802 RA		1
119	E-PC-0411-0082	2362401600	PHOTO COUPLR	TLP721F(D4-GR) TOSHIBA	I802 RB		1
120	#N/A	2365328191	IC,LINEAR	AP431VA TO-92 ATC	I803 RA		1
121	E-IC-0401-1270	2365319391	IC,LINEAR	TL431CLP TI	I803 RB		1
122	E-IC-0401-2152	2365321991	IC,LINEAR	KA431AZTA TO-92 FAIRCHILD	I803 RC		1
123	#N/A	2365327691	IC,LINEAR	CM431BCN CHAMPION	I803 RD		1

Item	ViewSonic P/N	Ref. P/N	Description		Location	Universal number#	Q'ty
124	#N/A	2365335046	LINEAR IC	OZ9932G SOIC-8 O2-MICRO	I901		1
125	M-WR-0828-0478	2428106100	JUMPER	0.6f *10.0mm	J101 J110 J111 J116 J126 J802 J903 J904 J906 J907 L801 R916 R935		13
126	M-WR-0828-0460	2428106125	JUMPER	0.6f *12.5mm	J106 J109 L901		3
127	M-MS-0808-0856	2428106200	JUMPER	0.6f 20.00MM	J108		1
128	M-WR-0828-0455	2428106050	JUMPER	0.6f *5.0mm	J123 J908 J909 L808		4
129	M-WR-0828-0451	2428106150	JUMPER	0.6f *15.0mm	J124		1
130	#N/A	2434325603	SHIELDING TAPE	W25*L60*T0.06 (AL)	K901		1
131	E-L-0407-0013	2379101495	FERRITE CORE	3.5X9X0.8	L102 L103 L104 L105		4
132	E-L-0407-0976	2379101491	FERRITE CORE	3.5X9X0.8	L802 L806		2
133	#N/A	2371150903	COIL,CHOKE	5uH 7.8*10 2UEW 0.65mm/12.5Ts	L803 L804		2
134	#N/A	2371145301	COIL,CHOKE	45mH ET-20 2UEW 0.26mm/55+55Ts	L805		1
135	#N/A	2404371012	CONNECTOR	JST PH 13P TOP P=2.0 OR EQUAL	P101		1
136	#N/A	2404321230	CONNECTOR	CF10301DOTO CVILUX	P102		1
137	#N/A	2404371007	CONNECTOR	JST PH 8P TOP P=2.0 OR EQUAL	P103		1
138	#N/A	2427408202	WIRE HARNESS	8P H/B 1061#26 L=200mm P=2.0	P701		1
139	#N/A	2404380302	CONNECTOR	87210-0236 P=3.5mm ACE	P901 P902 P903 P904		4
140	A-PC-0106-0121	2427130046	POWER CORD	USA WALL 1.83M BLACK	P951		1
141	CB-00003009	2427501191P	I/O CABLE	D15/C13 20276(4.5) 1.83M BLACK	P961		1
142	#N/A	2420306301	FFC CABLE	FFC 30P*0.5mm*L60mm	P980		1
143	M-MS-0808-0854	2097400301	EYELET	BSS3-1/2H T=0.25 SN 3μm	PG85 PG86 PG87		3
144	E-Q-0402-0718	2361316191	XISTOR,NPN R	2PC945P PHILIPS	Q101 RA Q806 RA Q901 RA		3
145	E-Q-0402-0555	2361313691	XISTOR,NPN R	KSC945C-G FAIRCHILD	Q101 RB Q806 RB Q901 RB		3
146	E-Q-0402-0428	2361302591	XISTOR,NPN R	2SC945(P) TO-92 NEC	Q101 RC Q806 RC Q901 RC		3
147	#N/A	2360501396	FET,P-CH SMD	AP2305N SOT-23 APEC	Q102 RA		1
148	#N/A	2360501296	FET,P-CH SMD	AO3411 SOT-23 ALPHA	Q102 RB		1
149	#N/A	2360100696	XISTOR,PNP R SMD	PMBS3906 SOT-23 PHILIPS	Q103 RA Q104 RA		2
150	E-Q-0402-1607	2360100796	XISTOR,PNP R SMD	MMBT3906 SOT-23 DIODES	Q103 RB Q104 RB		2
151	E-Q-0402-1607	2360100596	XISTOR,PNP R SMD	MMBT3906 SOT-23 FAIRCHILD	Q103 RC Q104 RC		2
152	E-Q-0402-1375	2360100396	XISTOR,PNP R SMD	MMBT3906-7 SOT-23 VISHAY	Q103 RD Q104 RD		2
153	#N/A	2360100896	XISTOR,PNP R SMD	MMBT3906LT1 SOT-23 ON	Q103 RE Q104 RE		2
154	#N/A	2361610900	FET,N-CH	AP04N70BF-H 700V TO-220FM APEC	Q801 RA		1
155	#N/A	2361611200	FET,N-CH	AP04N70BF-A TO-220FM APEC	Q801 RB		1
156	#N/A	2361410691	XISTOR,NPN A	MPS3904 PHILIPS	Q803		1
157	#N/A	2361210391	XISTOR,PNP A	MPS3906 PHILIPS	Q804		1
158	E-Q-0402-0720	2361111491	XISTOR,PNP R	2PA733P PHILIPS	Q805 RA		1
159	E-Q-0402-0962	2361110791	XISTOR,PNP R	KSA733C-G TA FAIRCHILD	Q805 RB		1
160	E-Q-0402-1106	2361100491	XISTOR,PNP R	2SA733(P) NEC	Q805 RC		1
161	#N/A	2360609596	FET,N-CH(SMD)	AP9977GM SO-8 APEC	Q905 Q911		2
162	#N/A	2361609891	FET,N-CH	2N7000TA TO-92 FAIRCHILD	Q907 Q908 Q909 Q910		4
163	E-R-0405-2776	2239207505	RES,PRE 1/4 S	RN 1/4WS 75.00 F T52 MINI	R101 R102 R103		3
164	E-R-0405-3216	2233447095	RES,CBN 1/4 S	RD 1/4WS 47.00 J T52 MINI	R104 R105 R106 R107 R108 R109 R809		7
165	E-R-0405-2367	2233422295	RES,CBN 1/4 S	RD 1/4WS 2.2Kohm J T52	R110 R112 R125 R837 R855		5
166	E-R-0405-1757	2233410195	RES,CBN 1/4 S	RD 1/4WS 100 ohm J T52	R111 R113 R114 R115 R118		5
167	E-R-0405-3430	2233439195	RES,CBN 1/4 S	RD 1/4WS 390.00 J T52 MINI	R116		1
168	E-R-0405-3214	2233410395	RES,CBN 1/4 S	RD 1/4WS 10Kohm J T52	R117 R127 R128 R132 R133 R135 R136 R162 R163 R908		10
169	E-R-0405-3211	2233447295	RES,CBN 1/4 S	RD 1/4WS 4.70K J T52 MINI	R122 R123 R161		3
170	E-R-0405-0645	2233420195	RES,CBN 1/4 S	RD 1/4WS 200.00 J T52 MINI	R124		1
171	E-R-0405-3213	2233410595	RES,CBN 1/4 S	RD 1/4WS 1.00M J T52 MINI	R126 R918 R924 R934		4
172	E-R-0405-3215	2233447195	RES,CBN 1/4 S	RD 1/4WS 470.00 J T52 MINI	R134 R137		2
173	E-R-0405-0078	2233456195	RES,CBN 1/4 S	RD 1/4WS 560 ohm J T52	R138		1
174	E-R-0405-6428	2235410903	RES,MTL 1	RS 1W 1 ohm J P=15.0	R139		1
175	E-TH-0416-0042	2229201212	THERMISTOR,PTH	SCK-103 10+-20% 3A THINKING	R802		1
176	#N/A	2233491495	RES,CBN 1/4 S	RD 1/4W 910Kohm J T52	R803 R812		2
177	#N/A	2239251135	RES,PRE 1/4 S	RN 1/4WS 511Kohm F T52	R804 R806 R843		3
178	#N/A	2239261935	RES,PRE 1/4 S	RN 1/4WS 619Kohm F T	R805 R839 R844		3
179	#N/A	2233439095	RES,CBN 1/4 S	RD 1/4WS 39.00 J T52 MINI	R807		1

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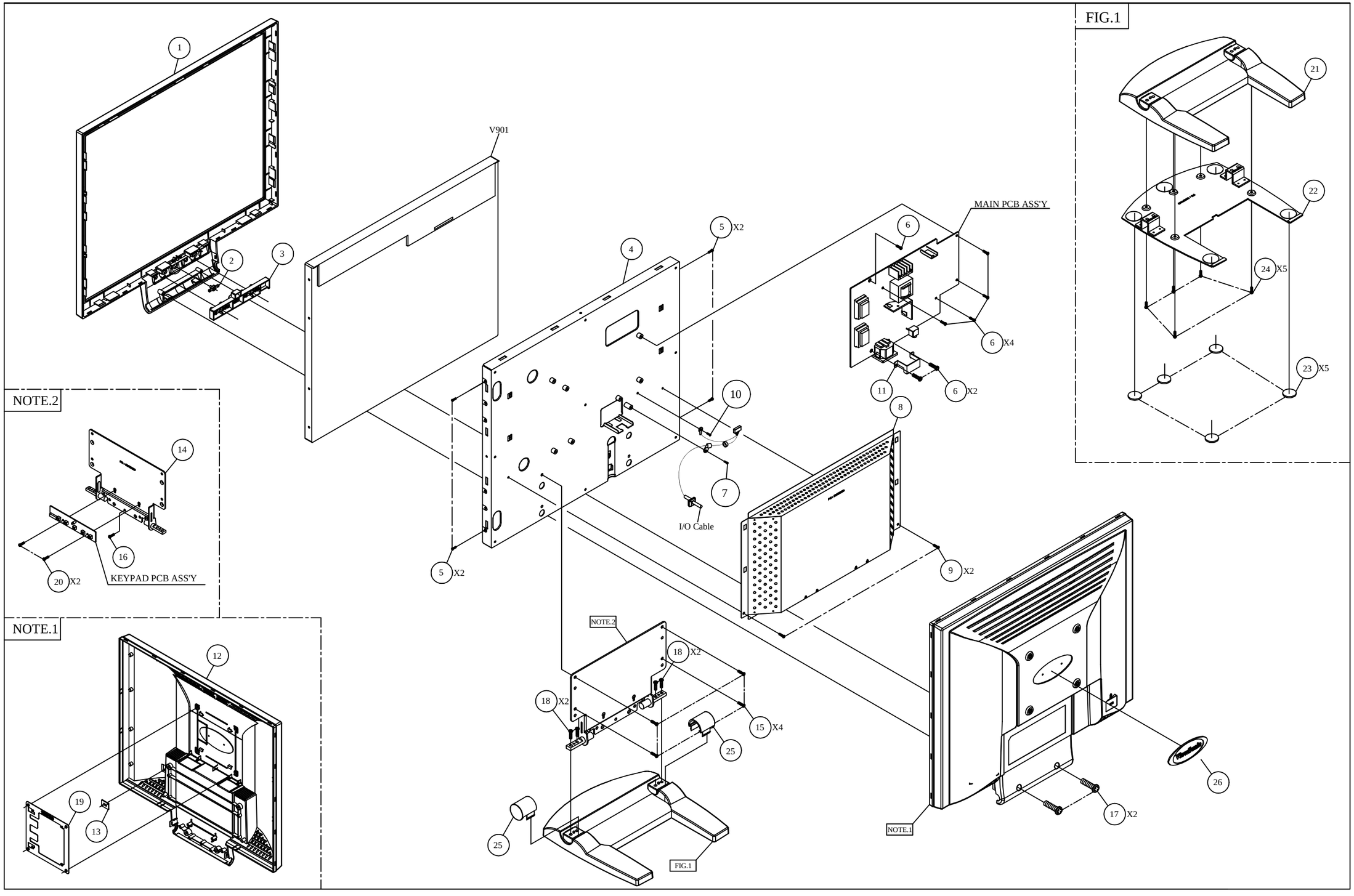
180	#N/A	2239211035	RES,PRE 1/4 S	RN 1/4WS 110.00K F T52 MINI	R808 R923		2
181	#N/A	2235560816	RES,MTL 2	RS 2WS 0.6 ohm J P=7.0	R811		1
182	E-R-0405-2306	2233433295	RES,CBN 1/4 S	RD 1/4WS 3.3Kohm J T52	R815		1
183	#N/A	2235447913	RES,MTL 1	RS 1WS 4.7ohm J P=12.5	R820		1
184	#N/A	2233610095	RES,CBN 1/2WS	RD 1/2WS 10 ohm J T52	R821		1
185	E-R-0405-3235	2233410295	RES,CBN 1/4 S	RD 1/4WS 1Kohm J T52	R823 R840 R845 R847		4
186	E-R-0405-2818	2239224325	RES,PRE 1/4 S	RN 1/4WS 24.3Kohm F T	R824		1
187	#N/A	2239218215	RES,PRE 1/4 S	RN 1/4WS 1.82Kohm F T	R825		1
188	E-R-0405-0063	2233456295	RES,CBN 1/4 S	RD 1/4WS 5.60K J T52 MINI	R826		1
189	#N/A	2239215815	RES,PRE 1/4 S	RN 1/4WS 1.58K F T52 MINI	R828		1
190	E-R-0405-3034	2239210015	RES,PRE 1/4 S	RN 1/4WS 1Kohm F T52	R830		1
191	#N/A	2239291025	RES,PRE 1/4 S	RN 1/4WS 91.0Kohm F T	R831 R926		2
192	E-R-0405-1171	2233482195	RES,CBN 1/4 S	RD 1/4WS 820.00 J T52 MINI	R832 R846 R854		3
193	E-R-0405-3221	2233410495	RES,CBN 1/4 S	RD 1/4WS 100Kohm J T52	R833 R834 R835 R836		4
194	E-R-0405-4713	2233418295	RES,CBN 1/4 S	RD 1/4WS 1.80K J T52 MINI	R841		1
195	E-R-0405-5980	2239210025	RES,PRE 1/4 S	RN 1/4WS 10Kohm F T	R851		1
196	#N/A	2242315595	HIGH VOLTAGE RESISTOR	RD 1/2W 1.50M J	R905 R925		2
197	#N/A	2232410095	RES,CBN 1/4	RD 1/4W 10 ohm J T	R906 R907 R911 R912		4
198	E-R-0405-4534	2239220015	RES,PRE 1/4 S	RN 1/4WS 2.00K F T52 MINI	R909 R927		2
199	E-R-0405-3526	2233427195	RES,CBN 1/4 S	RD 1/4WS 270.00 J T52 MINI	R913 R917		2
200	#N/A	2239245305	RES,PRE 1/4 S	RN 1/4WS 453 ohm F T	R914		1
201	#N/A	2239278705	RES,PRE 1/4 S	RN 1/4WS 787 ohm F T	R919 R920 R936 R937		4
202	E-R-0405-6218	2233451295	RES,CBN 1/4 S	RD 1/4WS 5.10K J T52 MINI	R921 R930		2
203	#N/A	2233451595	RES,CBN 1/4 S	RD 1/4WS 5.1Mohm J T	R922		1
204	#N/A	2239251125	RES,PRE 1/4 S	RN 1/4WS 51.1Kohm F T	R929		1
205	#N/A	2239245305	RES,PRE 1/4 S	RN 1/4WS 453 ohm F T	R932		1
206	#N/A	2259210308	RES,CHIP NETWORKS	8P4R 1/16W 10Kohm J P=0.8	RP01 RP02 RP03		3
207	E-R-0405-6608	2259210108	RES,CHIP NETWORKS	8P4R 1/16W 100 ohm J P=0.8	RP04 RP05		2
208	#N/A	2259227208	RES,CHIP NETWORKS	8P4R 1/16W 2.7Kohm J P=0.8	RP06		1
209	E-R-0405-6007	2259247208	RES,CHIP NETWORKS	8P4R 1/16W 4.7Kohm J P=0.8	RP07		1
210	#N/A	2403702513	SWITCH,TACT	TSTA-2 4.3mm 160g HUA JIE	S701 S702 S703 S704 S705		5
211	#N/A	2407413100	SOCKET (AC INLET)	0711-2-P10-9 INALWAYS	S801 RA		1
212	#N/A	2407413300	SOCKET (AC INLET)	SC-8R-F15A9 SUPERCOM	S801 RB		1
213	#N/A	2407200991	HOLDER,FUSE	CQ-05T (5mm DIA FUSE) CONQUER	S802 RA S803 RA		2
214	M-MS-0808-1313	2407200791	HOLDER,FUSE	FC-05C	S802 RB S803 RB		2
215	#N/A	2374228012	XFORMER,POWR	PT-003701-1 LAI TAI	T801 RA		1
216	#N/A	2374228016	XFORMER,POWR		T801 RB		1
217	#N/A	2374301000	XFORMER INVERTER	EEL-19 22/2000Ts 0.1x20/0.06mm	T901 T902		2
218	#N/A	2202130700	PC BOARD	JT178QP4D M/B FR1 228*145	U101		1
219	#N/A	2202131400	PC BOARD	VE910 K/B FR1 120*23.5	U701		1
220	E-00003012	2212007400	LCD PANEL	M190EN04 V.5 SXGA AUO	V901		1
221	E-X-0415-0119	2369103601	XTAL,OSC	12.000MHZ/49US 0.1mW/30pF	X101		1
222	#N/A	2363516895	DIODE,ZENER	HZ6B-2 HITACHI	Z101 Z102 Z103 Z104 Z105		5

8. Exploded Diagram and Exploded Parts List



EXPLODED PARTS LIST (VE910/b-1)

ViewSonic Model Number: VS10715-1W

Rev: 1a

Item	ViewSonic P/N	Ref. P/N	Description		Q'ty
1	C-00003022	2024268701	FRONT BEZEL	VE910 ABS 94HB PS-7604B	1
	C-00003023	2024268702	FRONT BEZEL	VE910-B ABS 94HB MIDNIGHT GRAY	1
2	PL-00003024	2053754700	LED INDIC.-PWR	VE910 PMMA 94HB COLOR CLEAR	1
3	PL-00003025	2044267101	FUNCTION KEY	ABS 94HB ELECTROPLATE AL	1
4	HW-00003026	2071974300	METAL FITTG	VE910 SECC T=0.8 FOR PANEL	1
5	M-SCW-0824-6715	2080002200	SCREW,SPE	L355 M3x6 DH NICKEL-PLATED	4
6	M-SCW-0824-0811	2080003700	SCREW,SPE	1SZZTER001A M3*6L MSWR17/FZMY1	7
7	M-SCW-0824-0811	2080003700	SCREW,SPE	1SZZTER001A M3*6L MSWR17/FZMY1	1
8	HW-00003027	2071673800	SHIELD PLATE	VE910 SPTE T=0.3	1
9	M-SCW-0824-6719	2082630062	SCREW	M3X6 P=0.5	2
10	M-SCW-0824-0811	2080003700	SCREW,SPE	1SZZTER001A M3*6L MSWR17/FZMY1	1
11	HW-00003028	2071874300	BRACKET,FIX	SECC T=0.8 VE910 ACINLET	1
12	C-00003029	2022263501	CABI BACK	VE910 ABS 94HB BLACK 4001	1
	C-00003030	2022263502	CABI BACK	VE910-B ABS 94HB MIDNIGHT GRAY	1
13	HW-00003031	2071872900	BRACKET,FIX	JT198QP SECC 0.8T WALL MOUNT	1
14	HW-00003032	2106657000	HINGE	VE910 -5'~+20'~90'	1
15	M-SCW-0824-0851	2082340072	SCREW,CSK+	SCREW CSK+ M4*7	4
16	M-SCW-0824-0123	2084740102	SCREW,BND T+	M4X10(BND T+)	1
17	M-SCW-0824-6944	2084740124	SCREW,BND T+	M4X12(BND T+) (BLK)	2
18	M-SCW-0824-6746	2087340126	SCREW,B SPW+	4X12(+)SWRM-3 ZMC2-C	4
19	M-BK-0805-0070	2071869400	BRACKET,FIX	METAL PLATE 1.0MM KENSINGTON	1
20	M-SCW-0824-0285	2084730082	SCREW,BND T+	M3X8(BND T+)	2
21	PL-00003006	2028259301	STAND	VE910 ABS 94HB BLACK 4001	1
	PL-00003016	2028259302	STAND	VE910-B ABS 94HB MIDNIGHT GRAY	1
22	HW-00003033	2071974400	METAL FITTG	VE910 SECC T=1.5 FOR STAND	1
23	PL-PD-0714-0113	2039819301	FOOT PAD	RUBBER O20*2TMM SQUARE GRAIN	5
24	M-SCW-0824-0285	2084730082	SCREW,BND T+	M3X8(BND T+)	5
25	PL-00003034	2027260401	DUST COVER	ABS 94HB ELECTROPLATE AL	2
26	M-MS-0808-9215	2051352200	NAME PLATE	VIEWSONIC E015-017	1
	M-MS-0808-9396	2051352202	NAME PLATE	VIEWSONIC E015-027	1

Packing For Shipping And Disassembly Procedure

Packing For Shipping

1. Packing Procedure

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

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

Figure 1

Figure 2

1.3 Put the cushions on the monitor. (Figure 3)

1.4 Place the monitor into the carton and then put all the accessories into the carton. At last, close the carton and seal it with tape. (Figure 4)

Figure 3

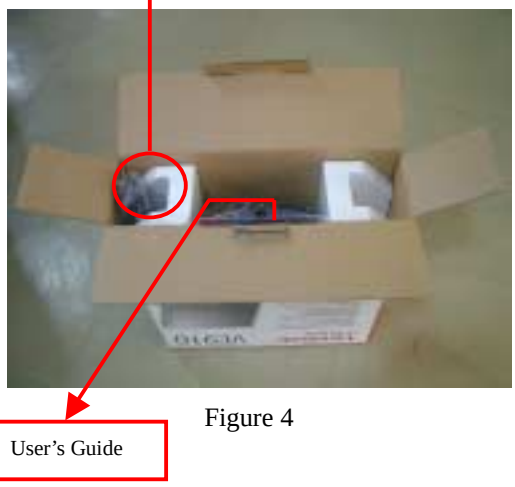
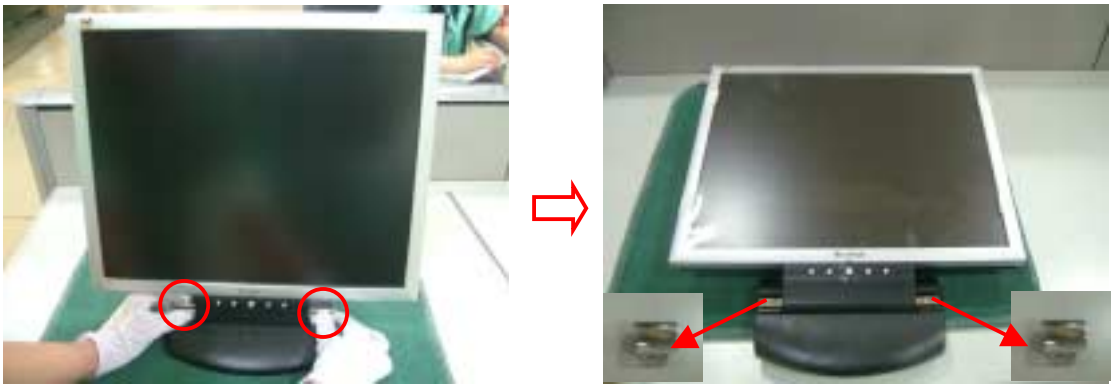


Figure 4

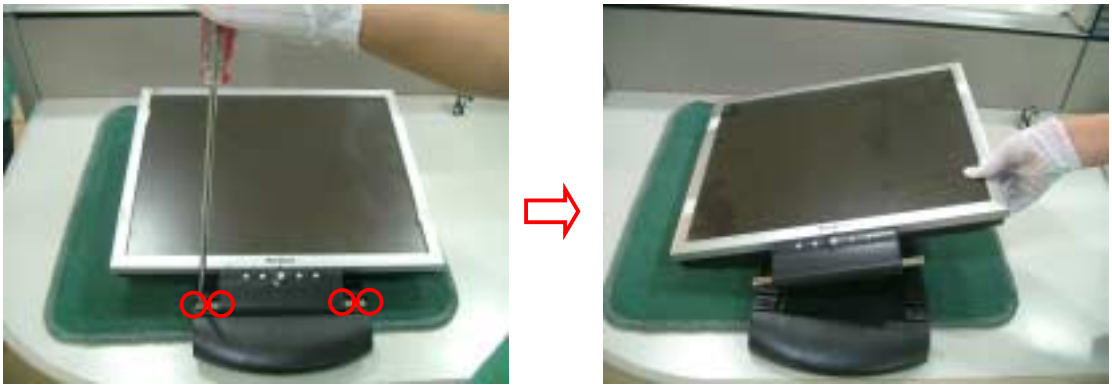
Disassembly Procedure

1. Disassembly of Stand unit from Monitor

1.1 Remove two Hinge Cover.



1.2 Unscrew four screws that secure Stand Unit.

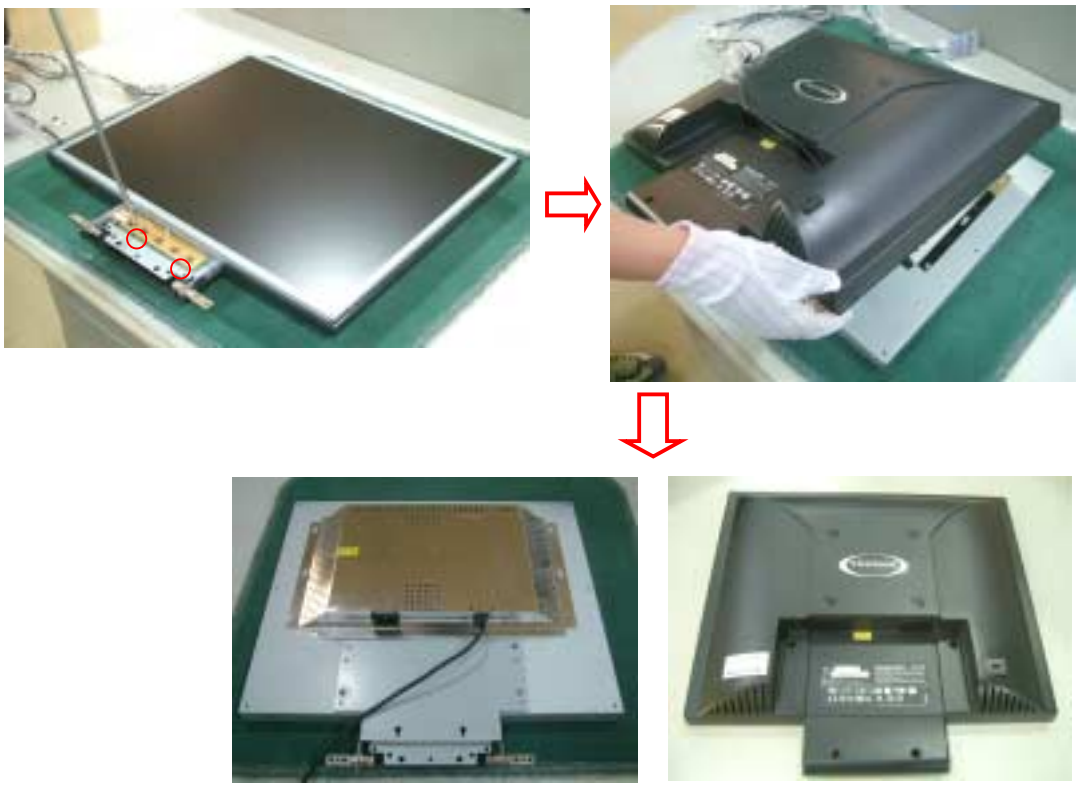


1.3 Detach Stand Unit from the monitor.

2. Disassembly of Front Cover and Rear Cover

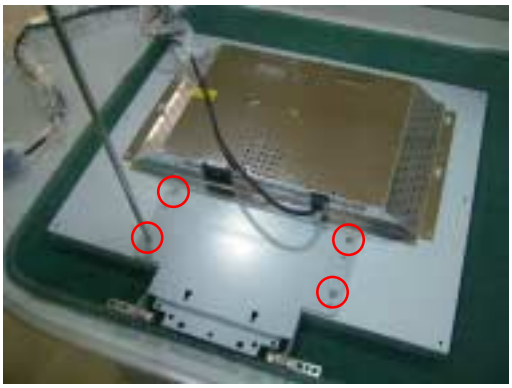
2.1 Unscrew two screws that secure Rear Cover to remove Front Cover.

2.2 Unscrew 2 screws to remove Rear Cover.



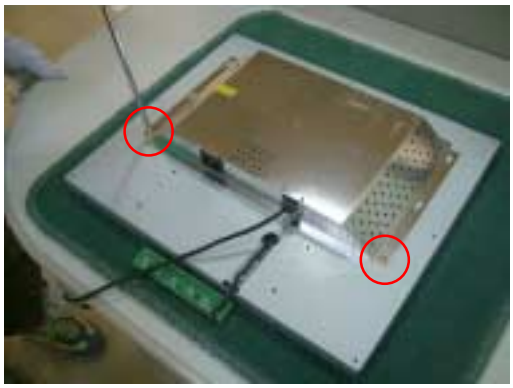
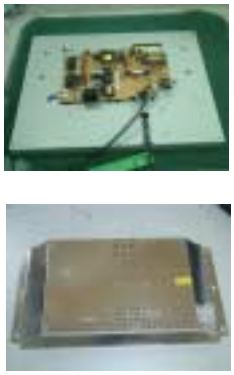
3. Disassembly of Hinge, Main Board, Keypad Board and Panel Unit

3.1 Unscrew 4 screws to remove Hinge.




Hinge

3.2. Unscrew 2 screws to remove Shielding Plate.

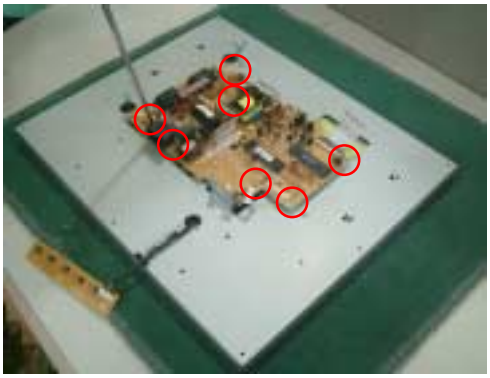



Shielding Plate

3.3. Unscrew 2 screws and disconnect the connector to remove VGA Cable.

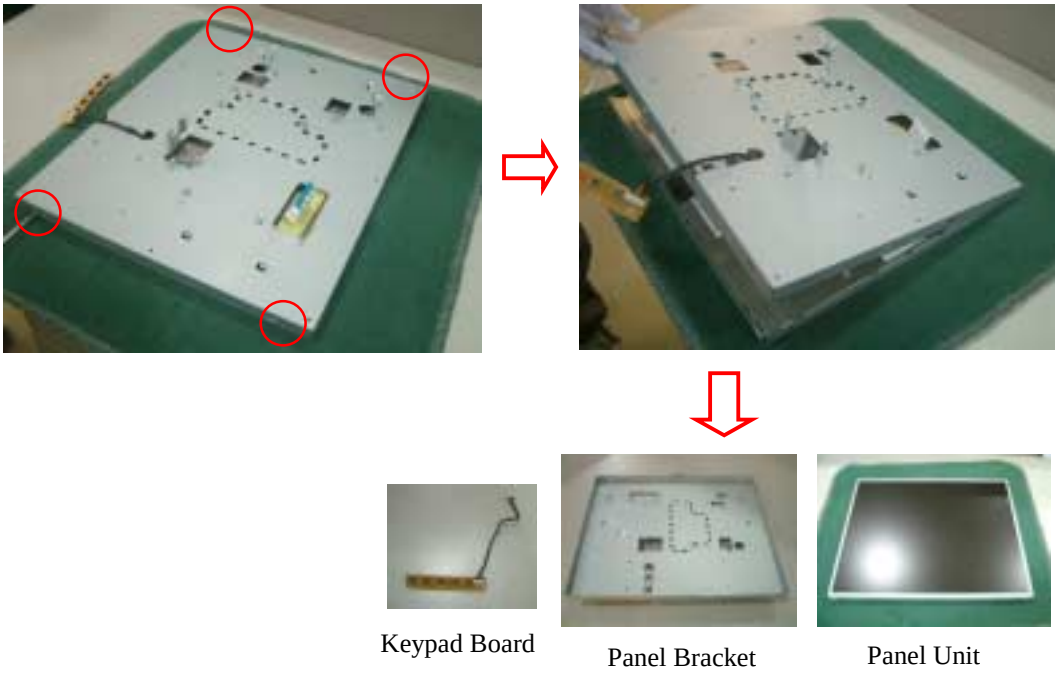

VGA Cable

3.4. Unscrew 7 screws and disconnect the wires to remove Main Board.




Main Board

3.5. Lay Panel Unit facedown and unscrew 4 screws on its right and left sides to remove Panel Unit and Keypad Board.

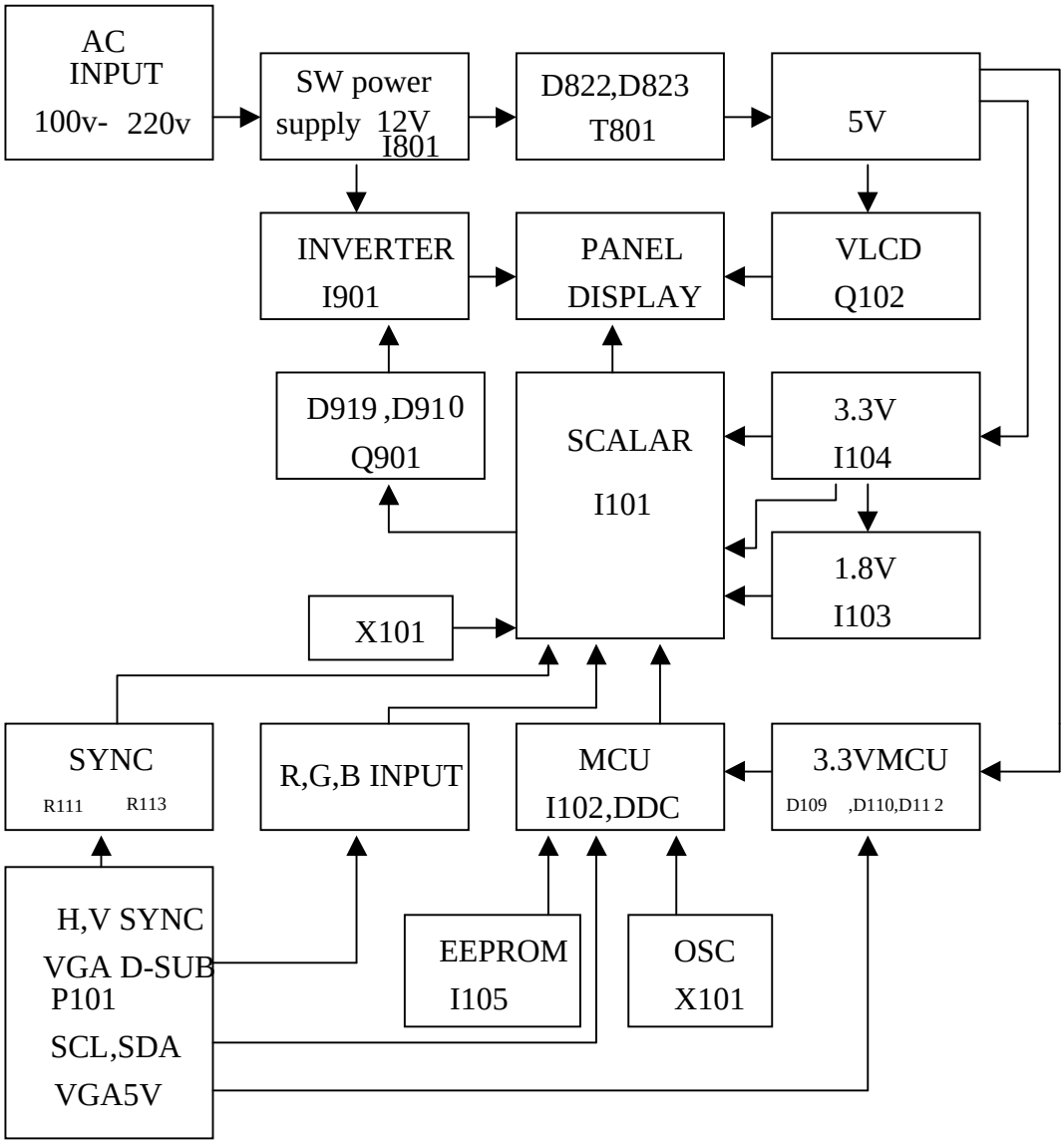


Keypad Board

Panel Bracket

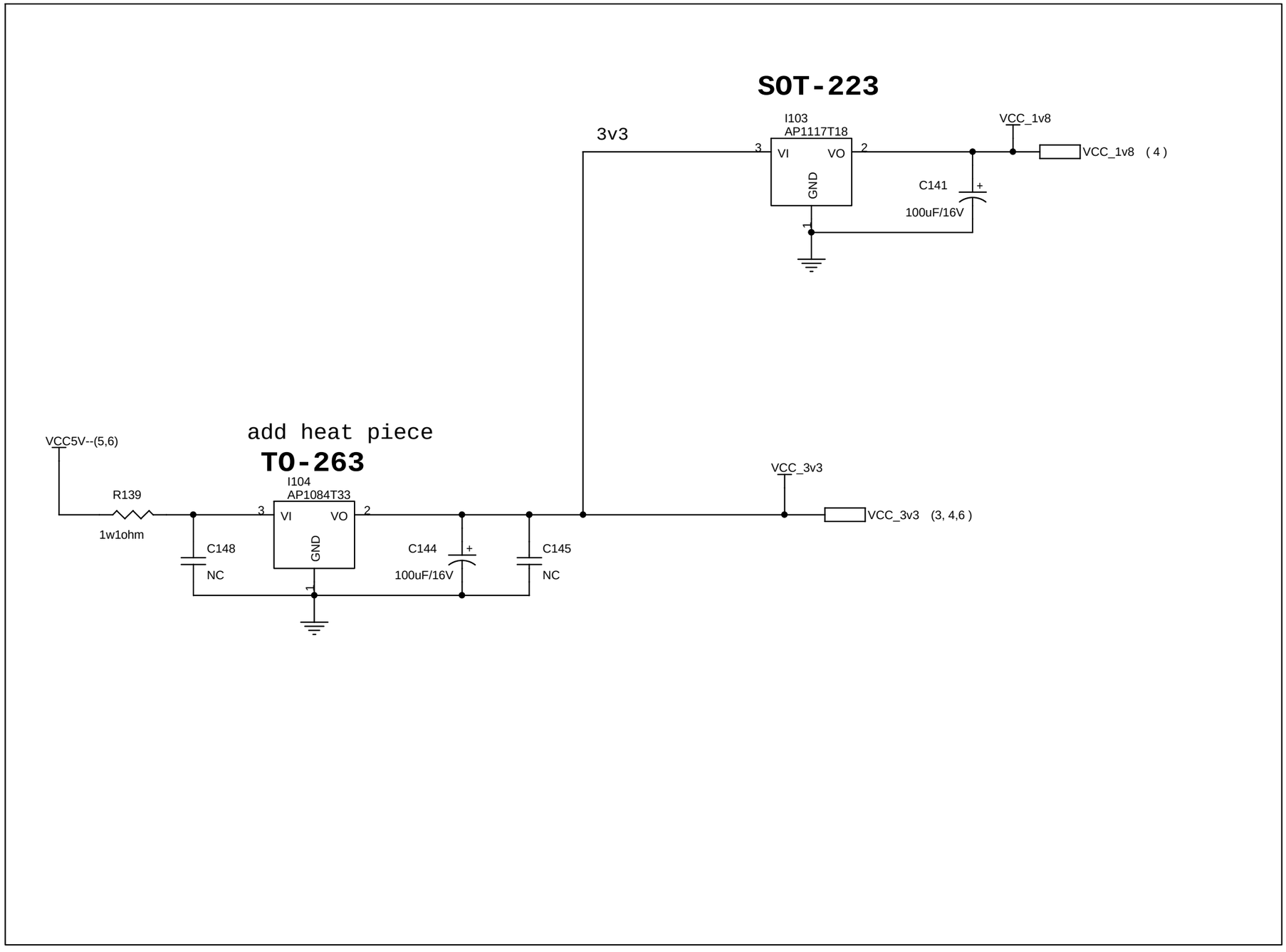
Panel Unit

9. Block Diagram

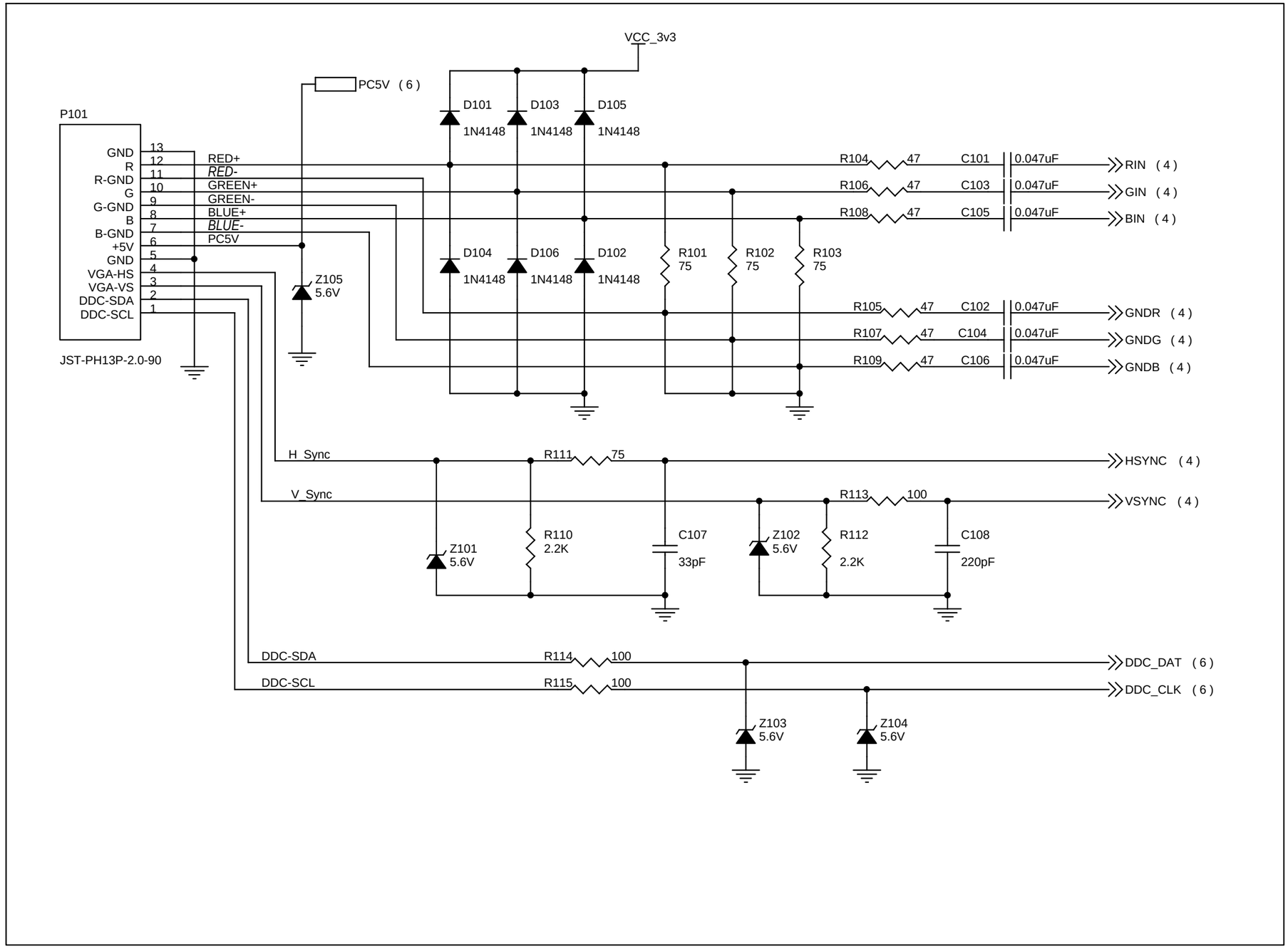


10. Schematic Diagrams (VE910)

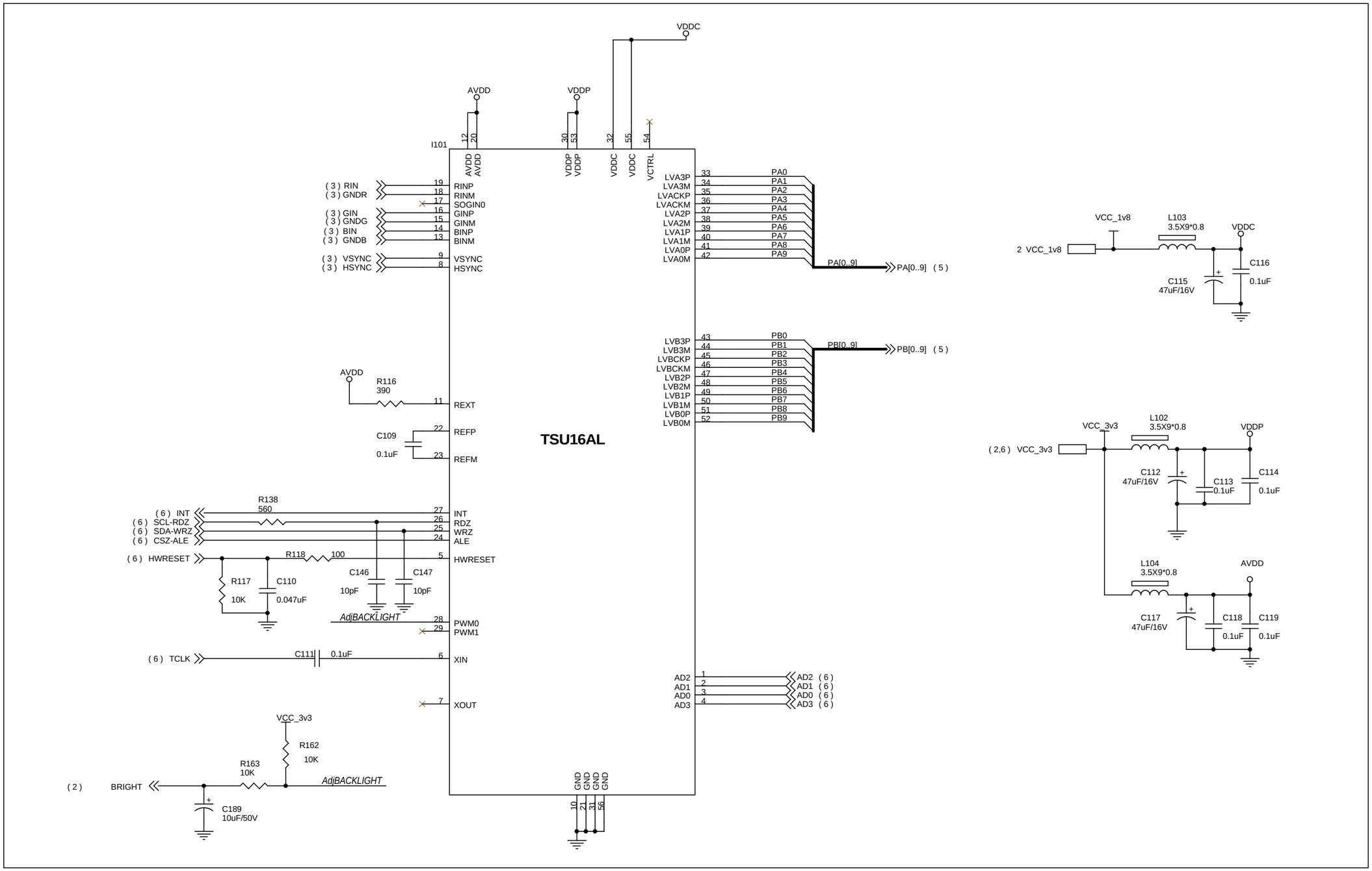
10.1. DC - DC



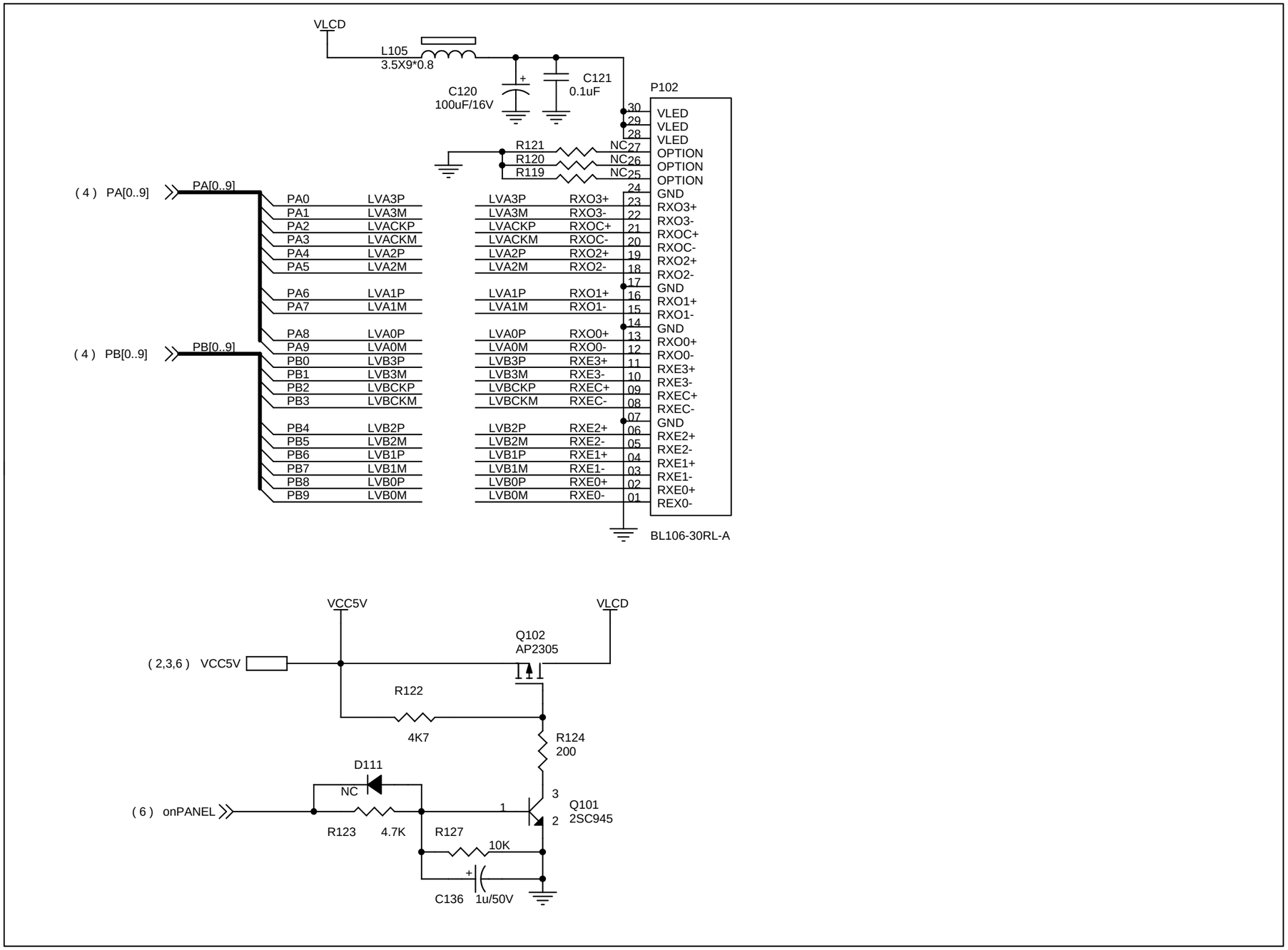
10.2. VGA INPUT



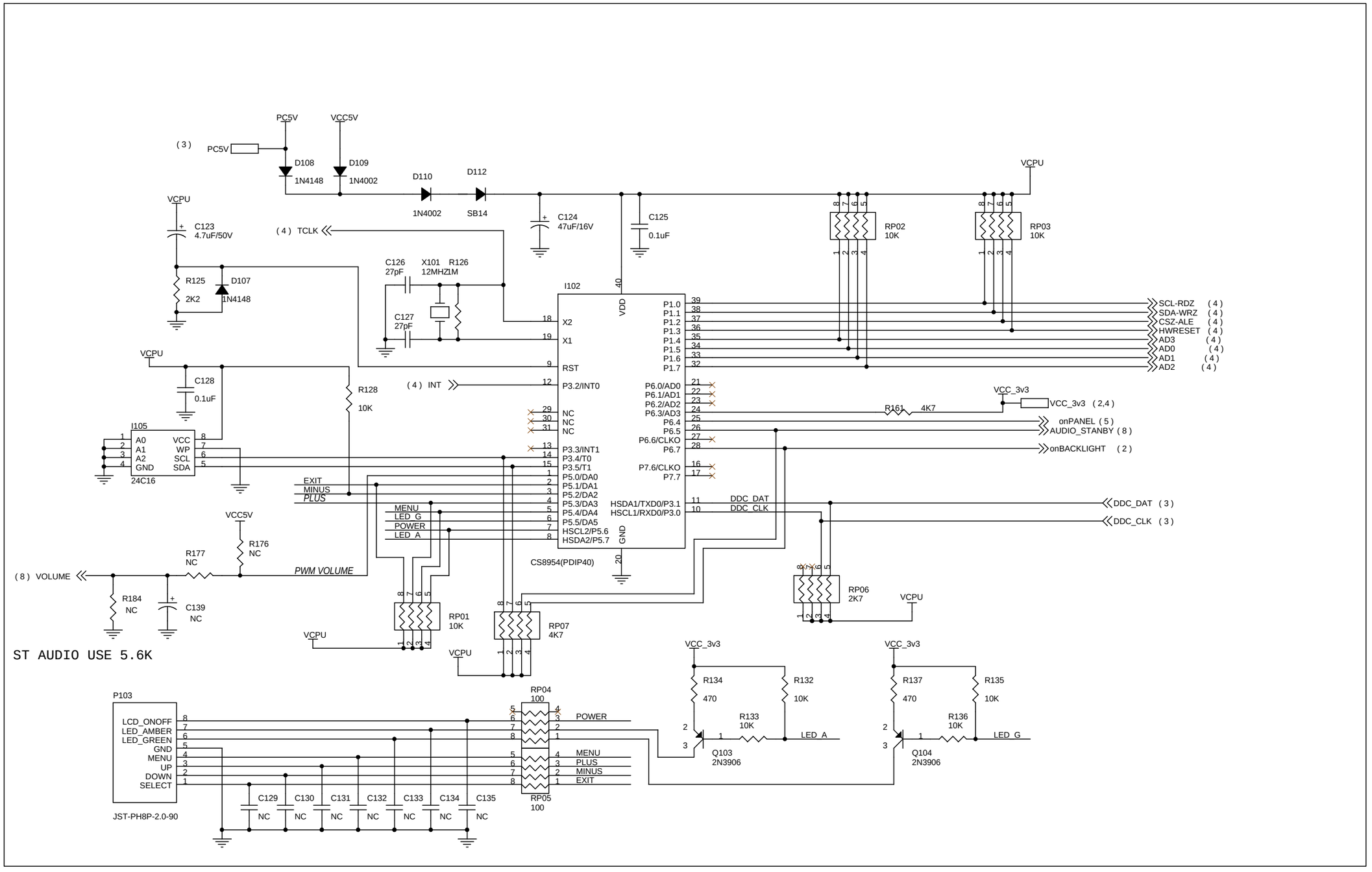
10.3. SCALER


TSU16AL
I101
VDDC
AVDD
VDDP
12
20
30
53
32
55
54
AVDD
AVDD
VDDP
VDDP
VDDC
VDDC
VCTRL
(3) RIN
(3) GNDR
(3) GIN
(3) GNDG
(3) BIN
(3) GNDB
(3) VSYNC
(3) HSYNC
19
18
17
16
15
14
13
9
8
RINP
RINM
SOGIN0
GINP
GINM
BINP
BINM
VSYNC
HSYNC
LVA3P
LVA3M
LVACKP
LVACKM
LVA2P
LVA2M
LVA1P
LVA1M
LVA0P
LVA0M
33
34
35
36
37
38
39
40
41
42
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PA8
PA9
PA[0..9]
PA[0..9] (5)
LVB3P
LVB3M
LVBCKP
LVBCKM
LVB2P
LVB2M
LVB1P
LVB1M
LVB0P
LVB0M
43
44
45
46
47
48
49
50
51
52
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PB8
PB9
PB[0..9]
PB[0..9] (5)
AVDD
R116
390
11
REXT
C109
0.1uF
22
REFP
23
REFM
R138
560
(6) INT
(6) SCL-RDZ
(6) SDA-WRZ
(6) CSZ-ALE
27
26
25
24
INT
RDZ
WRZ
ALE
(6) HWRESET
R118
100
5
HWRESET
R117
10K
C110
0.047uF
C146
10pF
C147
10pF
AdjBACKLIGHT
28
29
PWM0
PWM1
(6) TCLK
C111
0.1uF
6
XIN
7
XOUT
AD2
AD1
AD0
AD3
1
2
3
4
AD2 (6)
AD1 (6)
AD0 (6)
AD3 (6)
VCC_3v3
R162
10K
R163
10K
(2)
BRIGHT
AdjBACKLIGHT
C189
10uF/50V
GND
GND
GND
GND
10
21
31
56
VCC_1v8
L103
3.5X9*0.8
VDDC
2 VCC_1v8
C116
0.1uF
C115
47uF/16V
VCC_3v3
L102
3.5X9*0.8
VDDP
(2,6) VCC_3v3
C112
47uF/16V
C113
0.1uF
C114
0.1uF
L104
3.5X9*0.8
AVDD
C117
47uF/16V
C118
0.1uF
C119
0.1uF

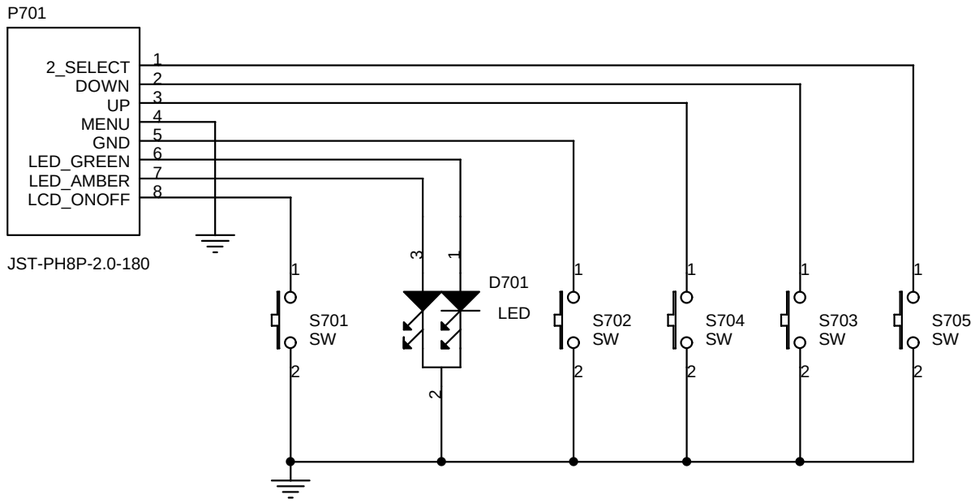
10.4. PANEL INTERFACE



10.5. MCU


PC5V
VCC5V
(3) PC5V
D108
1N4148
D109
1N4002
D110
1N4002
D112
SB14
VCPU
C123
4.7uF/50V
(4) TCLK
C124
47uF/16V
C125
0.1uF
RP02
10K
RP03
10K
R125
2K2
D107
1N4148
C126
27pF
X101
12MHZ
R126
1M
C127
27pF
I102
VDD
40
18 X2
19 X1
9 RST
12 P3.2/INT0
29 NC
30 NC
31 NC
13 P3.3/INT1
14 P3.4/T0
15 P3.5/T1
1 P5.0/DA0
2 P5.1/DA1
3 P5.2/DA2
4 P5.3/DA3
5 P5.4/DA4
6 P5.5/DA5
7 HSCL2/P5.6
8 HSDA2/P5.7
GND 20
CS8954(PDIP40)
P1.0 39
P1.1 38
P1.2 37
P1.3 36
P1.4 35
P1.5 34
P1.6 33
P1.7 32
P6.0/AD0 21
P6.1/AD1 22
P6.2/AD2 23
P6.3/AD3 24
P6.4 25
P6.5 26
P6.6/CLKO 27
P6.7 28
P7.6/CLKO 16
P7.7 17
HSDA1/TXD0/P3.1 11
HSCL1/RXD0/P3.0 10
SCL-RDZ (4)
SDA-WRZ (4)
CSZ-ALE (4)
HWRESET (4)
AD3 (4)
AD0 (4)
AD1 (4)
AD2 (4)
VCPU
C128
0.1uF
R128
10K
(4) INT
I105
A0
A1
A2
GND
VCC
WP
SCL
SDA
24C16
VCC_3v3
R161
4K7
VCC_3v3 (2,4)
onPANEL (5)
AUDIO_STANBY (8)
onBACKLIGHT (2)
EXIT
MINUS
PLUS
MENU
LED_G
POWER
LED_A
DDC_DAT
DDC_CLK
DDC_DAT (3)
DDC_CLK (3)
VCC5V
R176
NC
R177
NC
(8) VOLUME
PWM VOLUME
R184
NC
C139
NC
RP01
10K
RP07
4K7
RP06
2K7
VCPU
ST AUDIO USE 5.6K
P103
LCD_ONOFF
LED_AMBER
LED_GREEN
GND
MENU
UP
DOWN
SELECT
JST-PH8P-2.0-90
RP04
100
RP05
100
POWER
MENU
PLUS
MINUS
EXIT
C129
C130
C131
C132
C133
C134
C135
NC
R134
470
R132
10K
R133
10K
Q103
2N3906
LED_A
R137
470
R135
10K
R136
10K
Q104
2N3906
LED_G

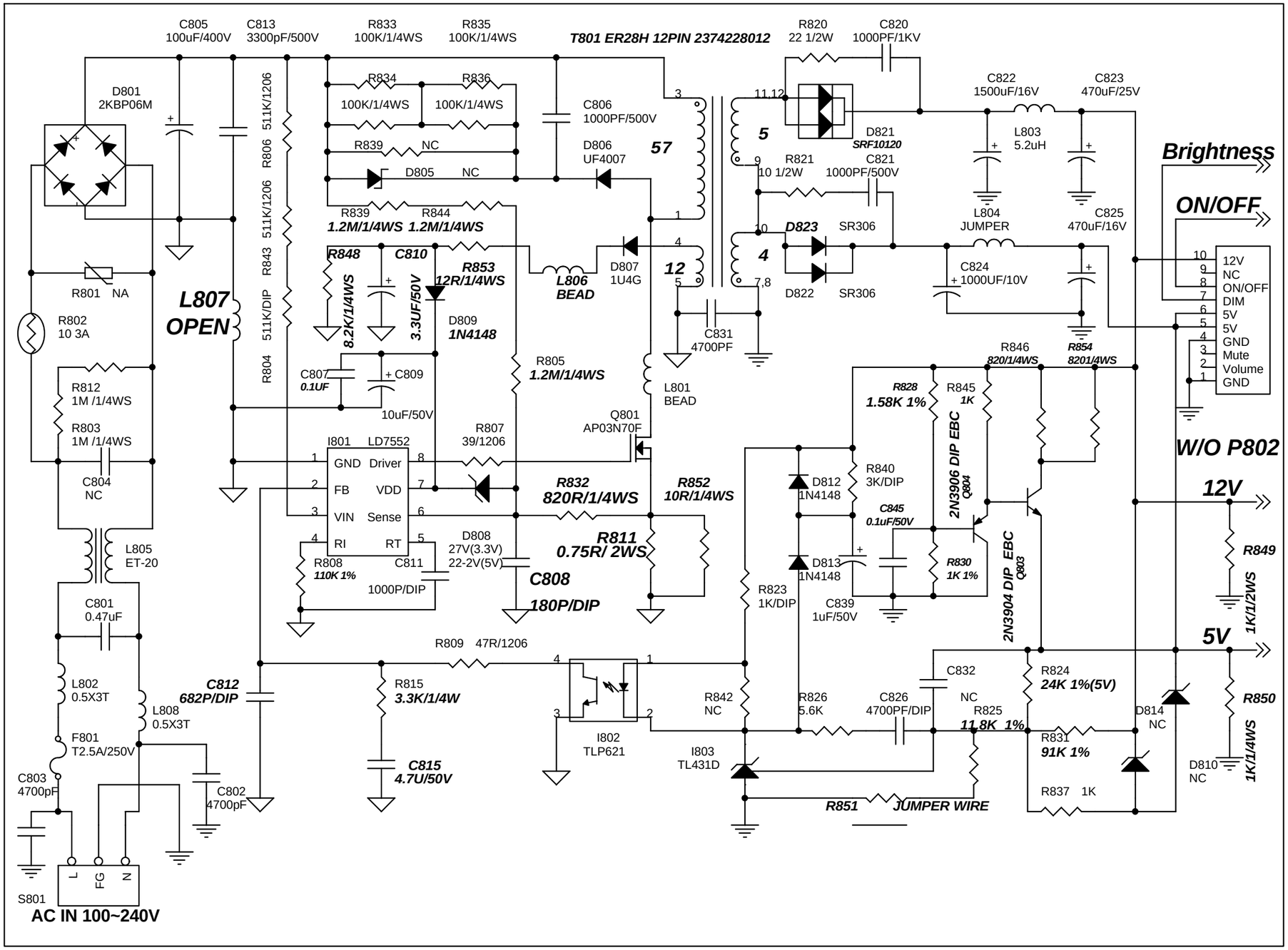
10.6. KEY PAD



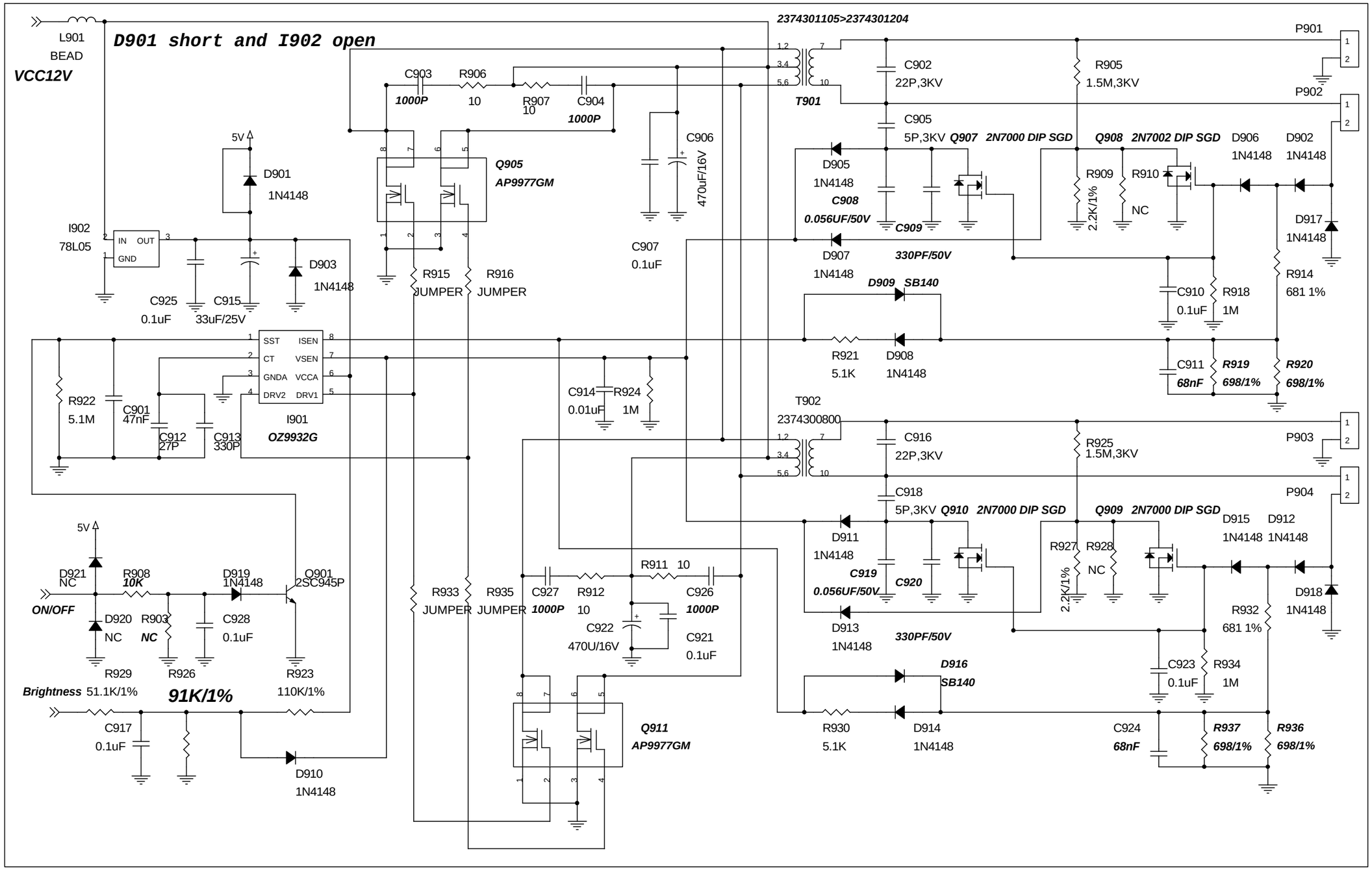
Key_pad

P/N : 2202131400

10.7. A/D POWER

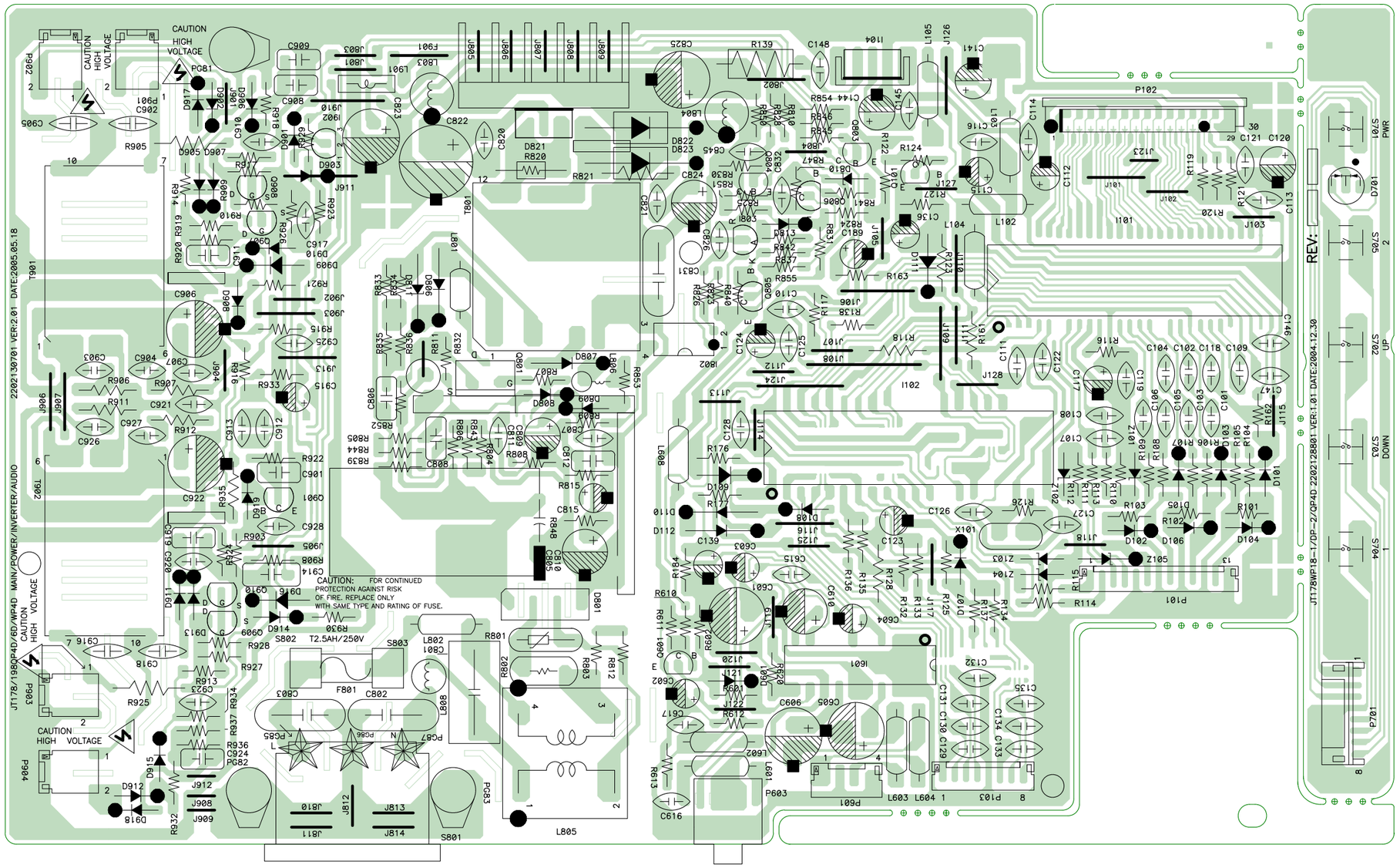

C805 100uF/400V
C813 3300pF/500V
R833 100K/1/4WS
R835 100K/1/4WS
T801 ER28H 12PIN 2374228012
R820 22 1/2W
C820 1000PF/1KV
D801 2KBP06M
R834 100K/1/4WS
R836 100K/1/4WS
C806 1000PF/500V
D806 UF4007
57
R839 NC
D805 NC
R839 1.2M/1/4WS
R844 1.2M/1/4WS
R848
C810
R853 12R/1/4WS
L806 BEAD
D807 1U4G
12
C831 4700PF
D821 SRF10120
R821 10 1/2W
C821 1000PF/500V
D823 SR306
D822 SR306
C822 1500uF/16V
C823 470uF/25V
L803 5.2uH
L804 JUMPER
C825 470uF/16V
C824 1000UF/10V
Brightness
ON/OFF
12V
NC
ON/OFF
DIM
5V
5V
GND
Mute
Volume
GND
R801 NA
R802 10 3A
L807 OPEN
R812 1M /1/4WS
R803 1M /1/4WS
C804 NC
R804 511K/DIP
R843 511K/1206
R806 511K/1206
8.2K/1/4WS
3.3UF/50V
D809 1N4148
C807 0.1UF
C809 10uF/50V
R805 1.2M/1/4WS
L801 BEAD
Q801 AP03N70F
I801 LD7552
GND Driver
FB VDD
VIN Sense
RI RT
R807 39/1206
R832 820R/1/4WS
R852 10R/1/4WS
R811 0.75R/ 2WS
R808 110K 1%
C811 1000P/DIP
D808 27V(3.3V) 22-2V(5V)
C808 180P/DIP
L805 ET-20
C801 0.47uF
L802 0.5X3T
L808 0.5X3T
F801 T2.5A/250V
C803 4700pF
C802 4700pF
S801
L FG N
AC IN 100~240V
R809 47R/1206
C812 682P/DIP
R815 3.3K/1/4W
C815 4.7U/50V
I802 TLP621
I803 TL431D
R842 NC
R826 5.6K
C826 4700PF/DIP
C832 NC
R825 11.8K 1%
R824 24K 1%(5V)
R831 91K 1%
R837 1K
R851 JUMPER WIRE
R846 820/1/4WS
R854 8201/4WS
R828 1.58K 1%
R845 1K
2N3906 DIP EBC Q804
R840 3K/DIP
C845 0.1uF/50V
R830 1K 1%
2N3904 DIP EBC Q803
D812 1N4148
D813 1N4148
R823 1K/DIP
C839 1uF/50V
D814 NC
D810 NC
W/O P802
12V
R849
1K/1/2WS
5V
R850
1K/1/4WS

10.8. INVERTER

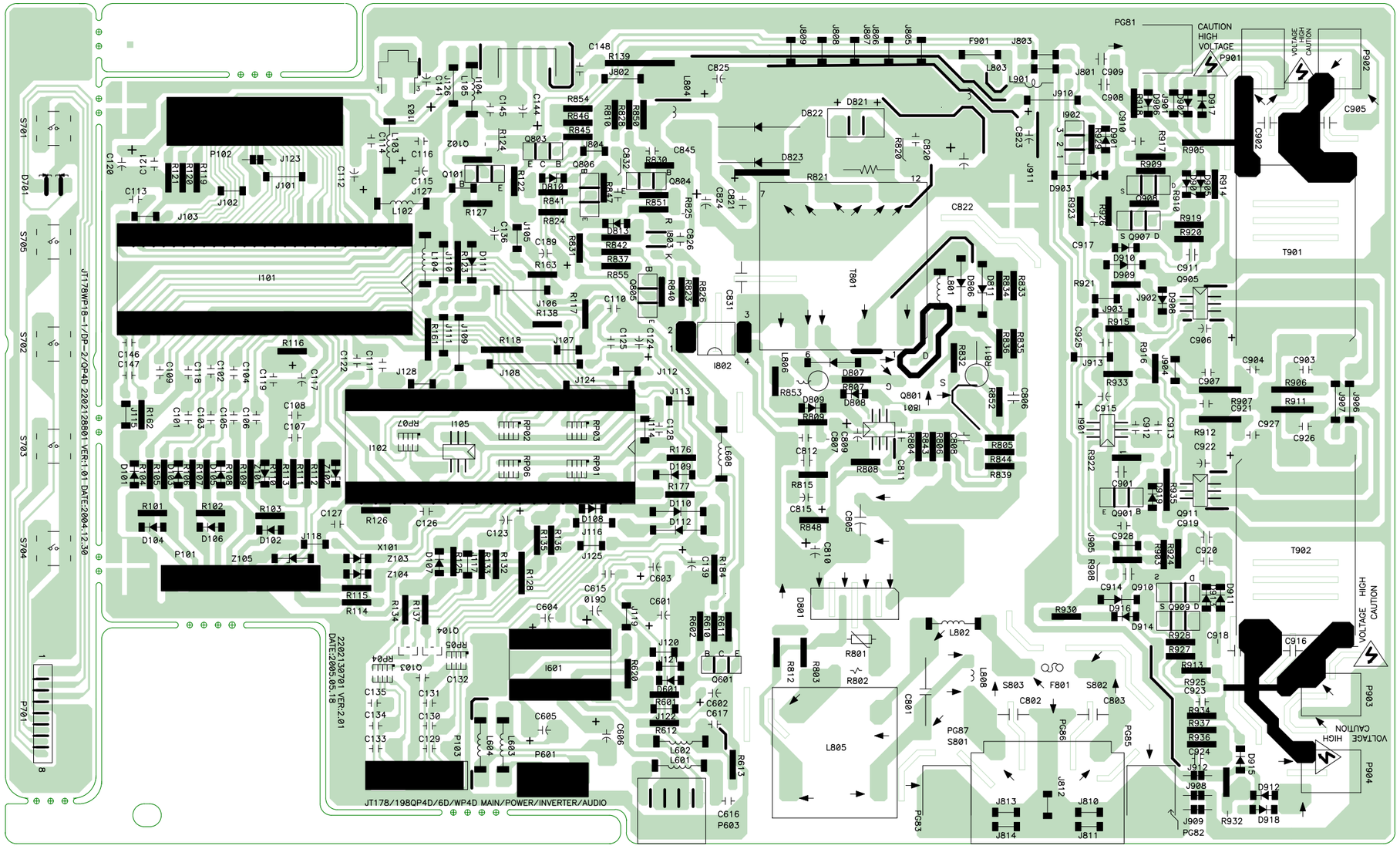


11. PCB Layout Diagrams

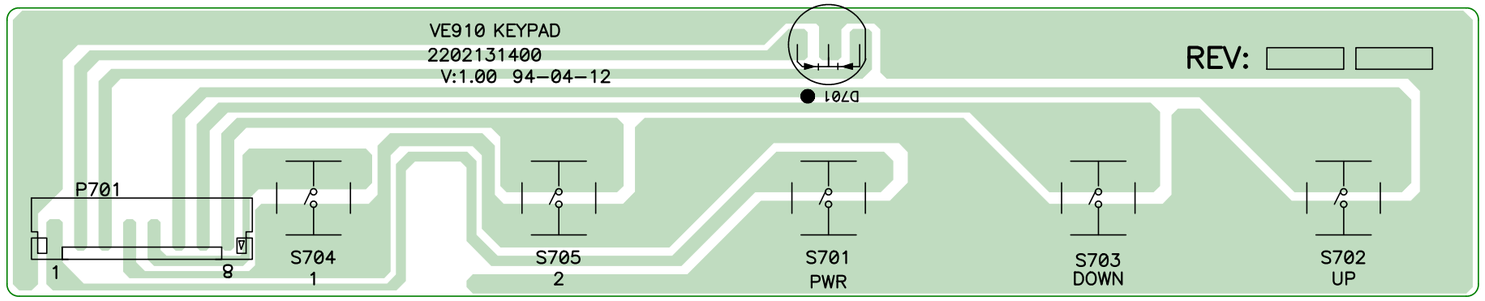
11.1. MAIN PCB TOP VIEW



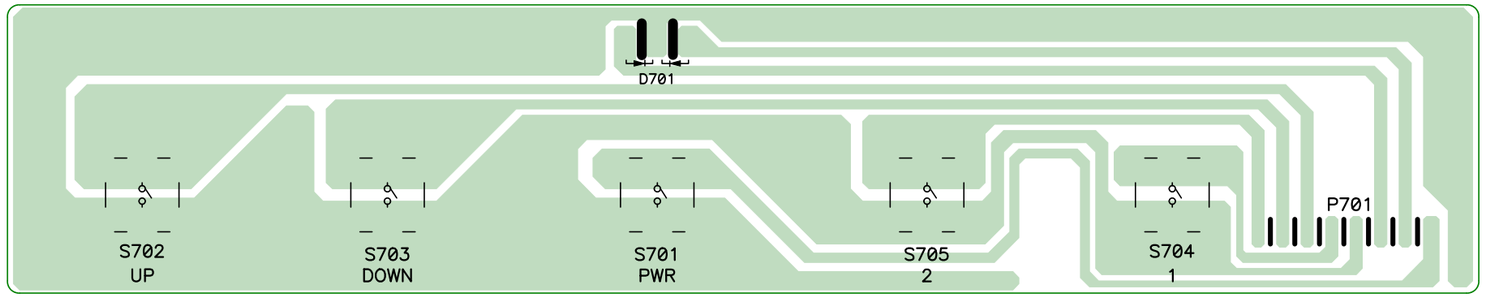
11.2. MAIN PCB BOTTOM VIEW



11.3. KEYPAD PCB TOP VIEW



11.4. KEYPAD PCB BOTTOM VIEW



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 Diagram				
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?

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Company:			
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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)