# Service Manual

# 17” LCD MONITOR
# DELL E173FPc

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## Revision List

| Revision | Date | Revision History | TPV model |
|---|---|---|---|
| A00 | Jun.-06-05 | Initial release | T782KGLHK8DMN |
| A01 | Aug-26-2005 | Change the panel type (from LPL to Hydis panel) | T780KKLHK8DMN |
| A02 | Aug-30-2005 | Change the panel type (from Hydis to CPT panel) | T780KCLHK8DMN |
| A03 | Nov-22-2005 | Add **"Important Safety Notice"** | |
| A04 | Mar.-31-2006 | Add" **Definition Of Pixel Defects**" | |
| A05 | April-25-2006 | Add" **Max Brightness measurement**" on Page 46 | |
| A06 | Mar.-30-2007 | Add Mechanical Instruction in item 6 | |
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# Important Safety Notice

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.
CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING
REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINGS

**Important Safety Notice**

Proper service and repair is important to the safe, reliable operation of all Dell Company** Equipment. The service procedures recommended by Dell and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.
It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Dell could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Dell has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Dell must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

* * Hereafter throughout this manual, Dell Company will be referred to as Dell.
WARNING
Use of substitute replacement parts, which do not have the same, specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Dell. Dell assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.

FOR PRODUCTS CONTAINING LASER:

DANGER - Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
CAUTION - The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

Take care during handling the LCD module with backlight unit

- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the Panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment person’s body is grounded through wristband.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- Avoid contact with water as it may a short circuit within the module.

If the surface of panel becomes dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

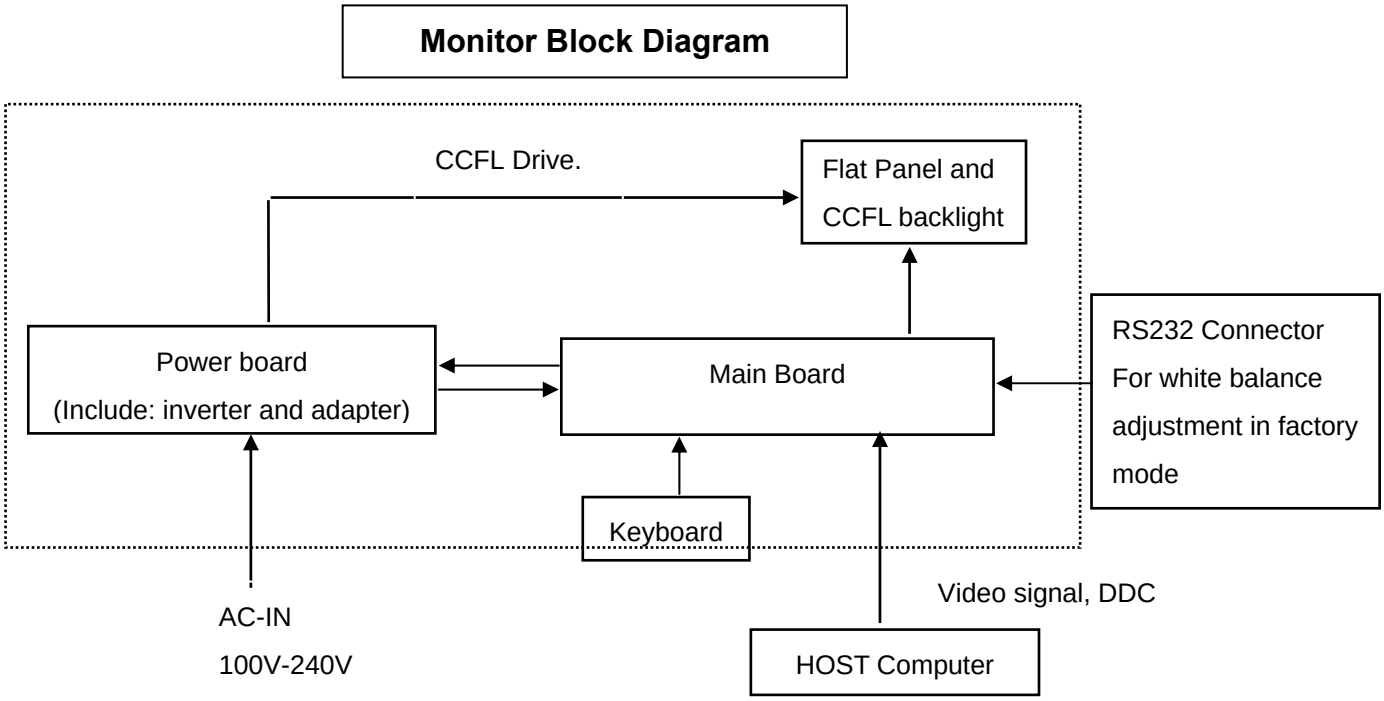
# 1. Monitor Specifications

| | | |
|---|---|---|
| LCD Panel | Driving system | TFT Color LCD |
| | Panel type | LPL：LM170E01 TLB4 |
| | | Hydis：HT17E13-100 |
| | | CPT: CLAA170EA 07 |
| | Size | 43.27cm (17.0") |
| | Pixel pitch | 0.264mm(H) x 0.264mm(V) |
| | Viewable angle | LPL Panel：140˚ (H) 140˚ (V) |
| | | Hydis panel：150˚ (H) 140˚ (V) |
| | | CPT panel：140˚ (H) 130˚ (V) |
| | Response time (typ.) | LPL Panel：8 ms |
| | | Hydis & CPT panel：12 ms |
| Input | Video | Analog Only |
| | Sync. Type | H/V TTL Separate and Composite Sync. |
| | H-Frequency | 30kHz – 80kHz |
| | V-Frequency | 56 - 75Hz |
| Display Colors | | 16.2 M |
| Dot Clock | | 135MHz (max.) |
| Max. Resolution | | 1280 x 1024 |
| Plug & Play | | VESA DDC2B |
| Power Consumption | On Mode | <35W |
| | Power Saving | <2W |
| Maximum Screen Size | | Horizontal: 358.5mm<br>Vertical: 296.5mm |
| Power Source | | 90~264VAC, 47~63Hz |
| Environmental Considerations | Operating | Temp.: 5°C to 40°C |
| | | Humidity: 10% to 80% |
| | Storage/shipping | Temp.: -20°C to +60°C |
| | | Humidity: 5% to 90% |
| Weight (N. W.) | Packaged | 5.8Kgs Unit |
| | Unpackaged | 4.6Kgs Unit |

## 2. LCD Monitor Description

The LCD MONITOR will contain a main board, an inverter/power board, keypad board, which house the flat panel control logic, brightness control logic and DDC.

The power board will provide AC to DC Inverter voltage to drive the backlight of panel and the main board chips each voltage.



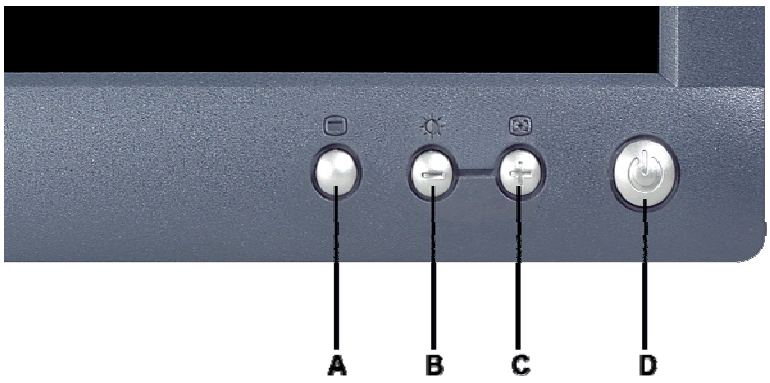
# 3. Operation instructions

## 3.1 General Instructions

Press the power button to turn the monitor on or off. The other control buttons are located at front panel of the monitor. By changing these settings, the picture can be adjusted to your personal preferences.

- The power cord should be connected.
- Connect the video cable from the monitor to the video card.
- Press the power button to turn on the monitor, the power indicator will light up.

## 3.2 Control Buttons



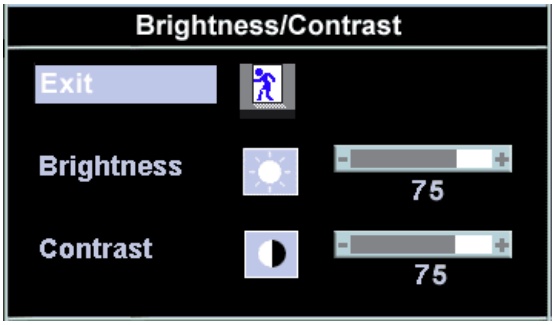

**A** Menu button **B** Brightness / Contrast Hotkey and - button

**C** Auto Adjust and + button **D** Power On/Off button with LED Indicator

| | | |
|---|---|---|
| **A** | **MENU** | The 'MENU' button is used to open the on-screen display (OSD), select function icons, exit from menus and sub-menus, and to exit the OSD. See |
| **B** | **Brightness/Contrast Hot Key** | Use this button for direct access to the 'Brightness' and 'Contrast' control menu. |
| **B C** | **- And + buttons** | Use these buttons to adjust (decrease/increase ranges) items in the OSD. |
| **C** | **Auto Adjust** | Use this button to activate automatic setup and adjustment. The following dialog will appear on screen as the monitor self-adjusts to the current input:<br>Auto Adjust In Progress<br>Auto Adjustment button allows the monitor to self-adjust to the incoming video signal. After using 'Auto Adjustment', you can further tune your monitor by using the 'Pixel Clock' and 'Phase' controls in the OSD. |
| **D** | **Power Button & Indicator** | The green LED indicates the monitor is on and fully functional. An amber LED indicates DPMS power save mode.<br>The Power button turns the monitor on and off. |

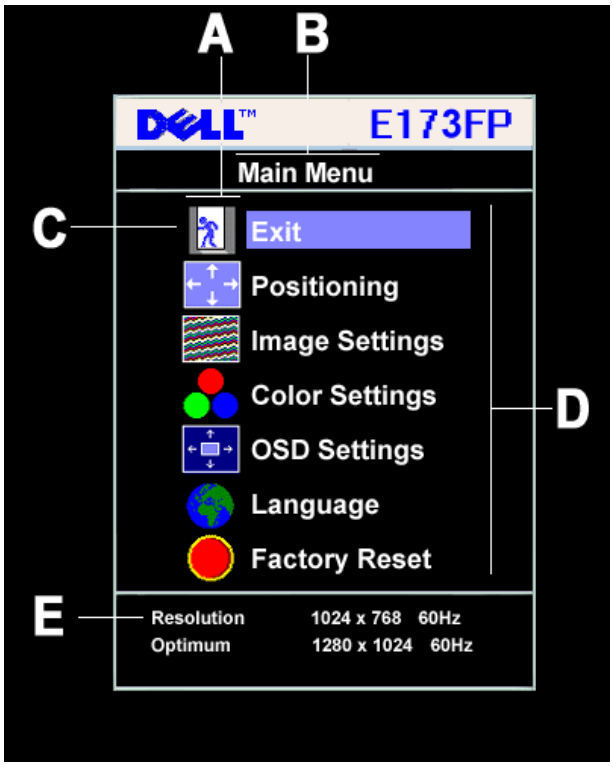
## 3.3 On Screen Menu/Display (OSD)

### Direct-Access Functions

| Function | Adjustment Method |
|---|---|
| **Auto adjustment** | Use this button to activate automatic setup and adjustment. The following dialog will appear on screen as the monitor self-adjusts to the current input:<br>Auto Adjust In Progress<br>Auto Adjustment button allows the monitor to self-adjust to the incoming video signal. After using 'Auto Adjustment', you can further tune your monitor by using the 'Pixel Clock' and 'Phase' controls in the OSD. |
| **Brightness / Contrast**<br>  | With the menu off, push button to display the 'Brightness' and 'Contrast' adjustment menu.<br>The 'Brightness' function adjusts the luminance of the flat panel. Adjust 'Brightness' first, and then adjust 'Contrast' only if further adjustment is necessary.<br>"+" Increase 'brightness';" - "decrease 'brightness'<br>The 'Contrast' function adjusts the degree of difference between darkness and lightness on the display screen.<br>"+" Increase the 'contrast'; "-" decrease the 'contrast' |

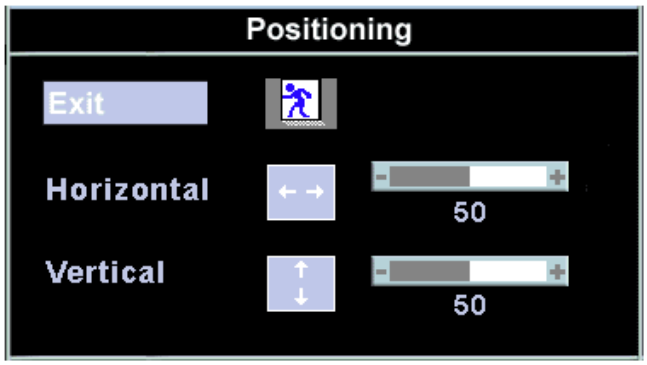
## 3.4 Adjusting the Picture

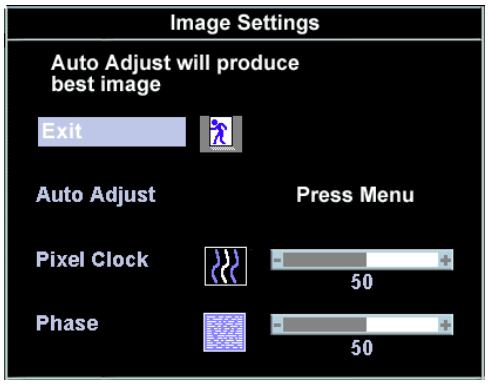
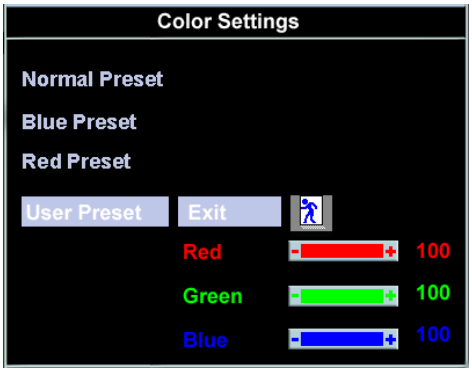
1. With the menu off, push the 'MENU' button to open the OSD system and display the main features menu.




| | | | | | |
|---|---|---|---|---|---|
| **A** | Function icons | **B** | Main Menu | **C** | Menu icon |
| **D** | Sub-Menu name | **E** | Resolution | | |

2. Push the - and + buttons to move between the function icons. As you move from one icon to another, the function name is highlighted to reflect the function or group of functions (sub-menus) represented by that icon. See the table below for a complete list of all the functions available for the monitor.
3. Push the 'MENU' button once to activate the highlighted function; Push -/+ to select the desired parameter, push menu to enter the slide bar. then use the - and + buttons, according to the indicators on the menu, to make your changes.
4. Push the 'Menu' button once to return to the main menu to select another function or push the 'Menu' button two or three times to exit from the OSD.

| Icon | Menu Name and Sub-menus | Description |
|---|---|---|
| | **EXIT** | This is used to exit out of the 'Main menu'. |
| | **Positioning:**<br>**Horizontal**<br>**Vertical** | 'Positioning' moves the viewing area around on the monitor screen.<br>When making changes to either the 'Horizontal' or 'Vertical' settings, no changes will occur to the size of the viewing area; the image will simply be shifted in response to your selection/change.<br>Minimum is '0' (-). Maximum is '100' (+).<br>  |
| | **Image settings:**<br>**Auto Adjust**<br>**Pixel Clock** | Even though your computer system can recognize your new flat panel monitor on startup, the 'Auto Adjustment' function will optimize the display settings for use with your particular setup.<br>*NOTE: In most cases, 'Auto Adjust' will produce the best image for your configuration; this function can be directly access via Auto Adjustment* *hotkey.*<br>The 'Phase' and 'Pixel Clock' adjustments allow you to more closely adjust your monitor to your preference. These settings are accessed through the main OSD menu, by selecting 'Image Settings'.<br>Use the - and + buttons to adjust away interference. Minimum: 0 ~ Maximum: 100 |

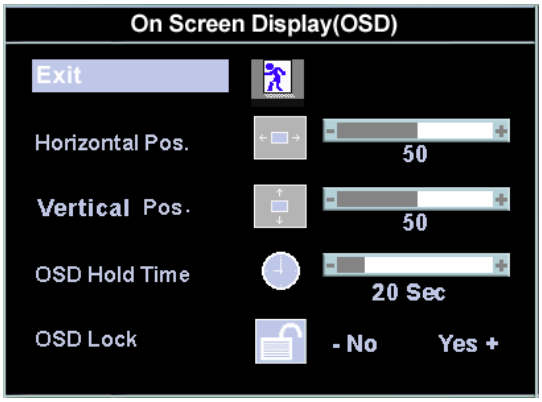
| | | |
|---|---|---|
| | **Phase** | If satisfactory results are not obtained using the 'Phase' adjustment, use the 'Pixel Clock' adjustment and then use 'Phase' again.<br>  <br>*NOTE: This function may change the width of the display image. Use the 'Horizontal' function of the 'Position' menu to center the display image on the screen.* |
| | **Color Settings:** | 'Color Settings' adjusts the color temperature and saturation.<br>  |
| | **Normal Preset** | 'Normal Preset' is selected to obtain the default (factory) color settings. |
| | **Blue Preset** | 'Blue Preset' is selected to obtain a bluish tint. This color setting is typically used for text based applications (Spreadsheets, Programming, Text Editors etc.). |
| | **Red Preset** | 'Red Preset' is selected to obtain a redder tint. This color setting is typically used for color intensive applications (Photograph Image Editing, Multimedia, Movies etc.). |
| | **User Preset** | 'User Preset': Use the plus and minus buttons to increase or decrease each of the three colors (R, G, B) independently, in single digit increments, from '0' to '100'.<br>*NOTE: 'Color temperature' is a measure of the 'warmth' of the image colors (red/green/blue). The two available presets ('Blue' and 'Red') favor blue and red accordingly. Select each one to see how each range suits your eye; or utilize the 'User Preset' option to customize the color settings to your exact choice.* |
| | **OSD Settings:** | Each time the OSD opens, it displays in the same location on the screen. 'OSD Settings' (horizontal/vertical) provides control over this location. |
| | **Horizontal Position** | **-** and + buttons move OSD to the left and right. |

**Vertical Position** - and + buttons move OSD down and up.

**OSD Hold Time:** The OSD stays active for as long as it is in use.
'OSD Hold Time': Sets the length of time the OSD will remain active after the last time you pressed a button.
Use the **-** and + buttons to adjust the slider in 5 second increments, from 5 to 60 seconds.

*NOTE: Default 'OSD hold time' is 20 seconds.*

**OSD Lock** 'OSD Lock': Controls user access to adjustments. When 'Yes' (+) is selected, no user adjustments are allowed. All buttons are locked except the menu button.
All buttons can be locked or unlocked when the 'Menu' button is pushed and held for over 15 seconds.




*NOTE: When the OSD is locked, pressing the 'Menu' button will take the user directly to the 'OSD settings' menu, with 'OSD Lock' pre-selected on entry. Select* 'No' (*-) to unlock and allow user access to all applicable settings.*

**Language:** Language sets the OSD to display in one of five languages (English, Español, Français, Deutsch, Japanese).

*NOTE: The language chosen affects only the language of the OSD. It has no effect on any software running on the computer.*

**Factory Reset:** 'Factory Reset' returns the settings to the factory-preset values for the selected group of functions.
'Exit' is used to exit out of 'Factory Reset' menu.

| | | |
|---|---|---|
| | | For 'All settings', all user adjustable settings are reset at one time except 'Language settings'. |

Reset Functions

**Factory Preset Restoration**

| | |
|---|---|
| | 'Exit' leaves this submenu without resetting any values.<br>'All Settings' returns your monitor settings to those that were set at the time of manufacture. This includes 'Color', 'Position', 'Clock frequency', 'Phase', 'Brightness', 'Contrast' and 'OSD hold time'. |

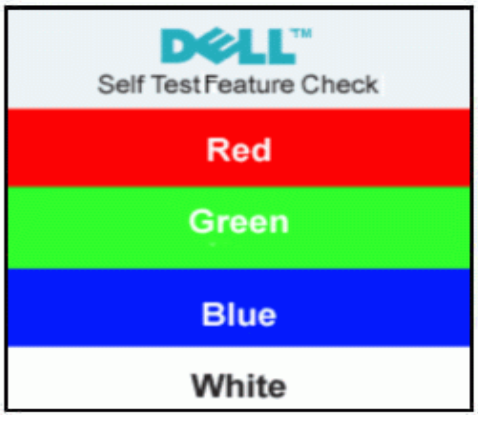
*NOTE: There is no "Undo" when you use the 'Reset function'. To return to the previous function settings, you must adjust the functions again. 'Reset' will set the clock and phase back to factory settings, activating auto adjust may be required and this will optimize the image for your system.*

OSD Warning Messages

A warning message may appear on the screen indicating that the monitor is out of sync.

This means that the monitor cannot synchronize with the signal that it is receiving from the computer. Either the signal is too high or too low for the monitor to use. See Specifications for the Horizontal and Vertical frequency ranges addressable by this monitor. Recommended mode is 1280 X 1024 @ 60Hz.

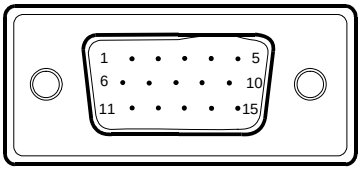
*NOTE: The floating 'Dell - self-test Feature Check' dialog will appear on-screen if the monitor cannot sense a video signal.*




Occasionally, no warning message appears, but the screen is blank. This could also indicate that the monitor is not synchronizing with the computer. See Troubleshooting for more information.

# 4. Input/Output Specification

## 4.1 Input Signal Connector

| PIN NO. | DESCRIPTION | PI N NO. | DESCRIPTION |
|---|---|---|---|
| 1. | Red Video | 9. | +5V (From PC) |
| 2. | Green Video | 10. | Detect Pin |
| 3. | Blue Video | 11. | RXD |
| 4. | TXD | 12. | DDC-Serial Data |
| 5. | DDC-Return | 13. | H-Sync |
| 6. | R-Ground | 14. | V-Sync |
| 7. | G-Ground | 15. | DDC-Serial Clock |
| 8. | B-Ground | | |
| VGA Connector layout | | | |
|  | | | |

## 4.2 Factory Preset Display Modes

| VESA MODES | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | Horizontal | | Vertical | | |
| Mode | Resolution | Total | Nominal Frequency +/- 0.5kHz | Sync Polarity | Nominal Freq. +/- 1 Hz | Sync Polarity | Nominal Pixel Clock (MHz) |
| VGA | 640x480@60Hz | 800 x 525 | 31.469 | N | 59.940 | N | 25.175 |
| | 640x480@75Hz | 840 x 500 | 37.500 | N | 75.00 | N | 31.500 |
| | 800x600@60Hz | 1056 x 628 | 37.879 | P | 60.317 | P | 40.000 |
| | 800x600@75Hz | 1056x625 | 46.875 | P | 75.000 | P | 49.500 |
| XGA | 1024x768@60Hz | 1344x806 | 48.363 | N | 60.004 | N | 65.000 |
| | 1024x768@75Hz | 1312x800 | 60.023 | P | 75.029 | P | 78.750 |
| SXGA | 1152x864@75Hz | 1600x900 | 67.500 | P | 75.000 | P | 108.00 |
| | 1280x1024@60Hz | 1688x1066 | 64.000 | P | 60.000 | P | 108.00 |
| | 1280x1024@75Hz | 1688x1066 | 79.976 | P | 75.025 | P | 135.00 |

| IBM MODES | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mode | Resolution | Total | Nominal Frequency +/- 0.5kHz | Sync Polarity | Nominal Freq. +/- 1 Hz | Sync Polarity | Nominal Pixel Clock (MHz) |
| DOS | 720x400@70Hz | 900 x 449 | 31.469 | N | 70.087 | P | 28.322 |

## 4.3 Power Supply Requirements

| | |
|---|---|
| A/C Line voltage range | : 100 V ~ 240 V± 10 % |
| A/C Line frequency range | : 50 ± 3Hz, 60 ± 3Hz |
| Input Voltage transients | : 280 volts AC for 10 sec @40℃ |
| Current | : 0.6A max. at 100V, 0.35A max. at 240 V |
| Peak surge current | : < 60A peak at 240 VAC and cold starting<br>: < 30A peak at 120VAC and cold starting |
| Leakage current | : < 3.5mA |
| Power line surge | : No advance effects (no loss of information or defect)<br>with a maximum of 1 half-wave missing per second |
| Power Consumption | : Power-On, <35W; Power-saving, < 2W |

## 4.4 Panel Specification

### 4.4.1 Display Characteristics

**For LPL panel**

| | |
|---|---|
| Active screen size | 17.0 inch (43.27cm) diagonal |
| Outline Dimension | 358.5(H) x 296.5(V) x 17.0(D) mm(Typ.) |
| Pixel Pitch | 0.264 mm x 0.264 mm |
| Pixel Format | 1280 horiz. by 1024 vert. Pixels. RGB stripe arrangement |
| Display Colors | 16.2M colors |
| Luminance, white | 300 cd/m$^2$(Typ. Center 1 point) |
| Power Consumption | TBD Watts(Typ.) |
| Weight | 2250g (Typ.) |
| Display operating mode | Transmissive mode, normally white |
| Surface treatments | Hard coating (3H), Anti-glare treatment of the front polarizer |

**For Hydis panel**

| Parameter | Specification | Unit | Remarks |
|---|---|---|---|
| Active area | 337.92 (H) × 270.336(V) | mm | |
| Number of pixels | 1280(H) × 1024(V) | pixels | |
| Pixel pitch | 0.264(H) × 0.264(V) | mm | |
| Pixel arrangement | RGB Vertical stripe | | |
| Display colors | 16,194,227 | colors | |
| Display mode | Normally White | | |
| Dimensional outline | 358.5(H) × 296.5(V) × 17.0(D) typ. | mm | |
| Weight | 1900 max. | gram | |
| Back-light | Top/Bottom edge side 4-CCFL type | | Note 1 |

## Display Characteristics

### For CPT panel

| ITEM | SPECIFICATION |
|---|---|
| Display Area(mm) | 337.920(H)x270.336(V) (17.0-inch diagonal) |
| Number of Pixels | 1280(H)x1024(V) |
| Pixel Pitch(mm) | 0.264(H)x0.264(V) |
| Color Pixel Arrangement | RGB vertical stripe |
| Display Mode | normally white, TN |
| Number of Colors | 16.2M(6 Bit+FRC) |
| Brightness(cd/m^2) | 300 cd/m$^2$(Typ.)(Center point, Lamp current=7.0 mA) |
| Viewing Angle | 140/130(Typ.) |
| Surface Treatment | Anti-glare |
| Electrical Interface | LVDS , 2Ch |
| Total Module Power(W) | 20.0 (Typ.) |
| Optimum Viewing Angle | 6 o'clock |
| Module Size(mm) | 358.5(W)x296.5(H)x17.5(D) |
| Module Weight(g) | 2000(typ) |
| Backlight Unit | CCFL, 4 tables, edge-light(top*2/bottom*2) |

### 4.4.2 Optical Characteristics

#### For LPL panel

The optical characteristics are measured under stable conditions as follows:

Measuring surrounding:

Ta=25° C ,Vcc=5.0V,Fv=60Hz,IBL=6.5mArms

| Parameter | Symbol | Values | | | Units | Notes |
|---|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | | |
| Contrast ratio | CR | 500 | 700 | - | | 1 |
| Surface luminance, white | $L_{WH}$ | 250 | 300 | - | $cd/m^2$ | 2 |
| Luminance uniformity | $\triangle L_9$ | 75 | - | - | % | 3 |
| Response time | Tr | | 8 | 18 | ms | 4 |
| Rise time | $Tr_R$ | - | 2 | 6 | | |
| Decay time | $Tr_D$ | - | 6 | 12 | | |
| CIE color coordinates | | | | | | |
| Red | XR | 0.611 | 0.641 | 0.671 | | |
| | YR | 0.312 | 0.342 | 0.372 | | |
| Green | XG | 0.262 | 0.292 | 0.322 | | |
| | YG | 0.581 | 0.611 | 0.641 | | |
| Blue | XB | 0.117 | 0.147 | 0.177 | | |
| | YB | 0.038 | 0.068 | 0.098 | | |
| White | XW | 0.283 | 0.313 | 0.343 | | |
| | YW | 0.299 | 0.329 | 0.359 | | |
| Viewing angle (by CR ≥ 10) | | | | | | |
| X axis, right($\phi$=0°) | $\theta$r | 60 | 70 | - | degree | 5 |
| X axis, left ($\phi$=180°) | $\theta$l | 60 | 70 | - | | |
| Y axis, up ($\phi$=90°) | $\theta$u | 60 | 75 | - | | |
| Y axis, down ($\phi$=270°) | $\theta$d | 50 | 65 | - | | |
| Viewing angle (by CR ≥ 5) | | | | | | |
| X axis, right($\phi$=0°) | $\theta$r | 70 | 80 | - | degree | |
| X axis, left ($\phi$=180°) | $\theta$l | 70 | 80 | - | | |
| Y axis, up ($\phi$=90°) | $\theta$u | 75 | 85 | - | | |
| Y axis, down ($\phi$=270°) | $\theta$d | 65 | 75 | - | | |
| Relative brightness | | | | | | 6 |
| Luminance uniformity (TCO99) | | - | - | 1.7 | | Figure 10 |

**For Hydis panel**

[VDD=5.0V, Frame rate=60Hz, Clock=54MHz, $I_{BL}$ = 6.5mA, Ta = 25±2℃]

| Parameter | | Symbol | Condition | Min | Typ | Max | Unit | Remark |
|---|---|---|---|---|---|---|---|---|
| Viewing Angle | Horizontal | $\Theta_3$ | CR > 10 | - | 75 | - | Deg | Note 1 |
| | | $\Theta_9$ | | - | 75 | - | Deg | |
| | Vertical | $\Theta_{12}$ | | - | 65 | - | Deg | |
| | | $\Theta_6$ | | - | 65 | - | Deg | |
| | Horizontal | $\Theta_3$ | CR > 5 | | | - | Deg | |
| | | $\Theta_9$ | | | | - | Deg | |
| | Vertical | $\Theta_{12}$ | | | | - | Deg | |
| | | $\Theta_6$ | | | | - | Deg | |
| Luminance contrast ratio | | CR | $\Theta$ = 0° (Center) Normal Viewing Angle | 350 | 500 | - | | Note 2 |
| Luminance of white | | $Y_W$ | | 250 | 300 | - | $cd/m^2$ | Note 3 |
| White luminance uniformity | | Δ Y | | 75 | 80 | | % | Note 4 |
| Reproduction of color | White | Wx | | 0.270 | 0.300 | 0.330 | | Note 5 |
| | | Wy | | 0.305 | 0.335 | 0.365 | | |
| | Red | Rx | | 0.607 | 0.637 | 0.667 | | |
| | | Ry | | 0.317 | 0.347 | 0.377 | | |
| | Green | Gx | | 0.246 | 0.276 | 0.306 | | |
| | | Gy | | 0.584 | 0.614 | 0.644 | | |
| | Blue | Bx | | 0.113 | 0.143 | 0.173 | | |
| | | By | | 0.060 | 0.090 | 0.120 | | |
| Response time | | Tr | | | 12 | 16 | msec | Note 6 |
| | | Td | | | | | | |
| Cross talk | | CT | | - | - | 2.0 | % | Note 7 |

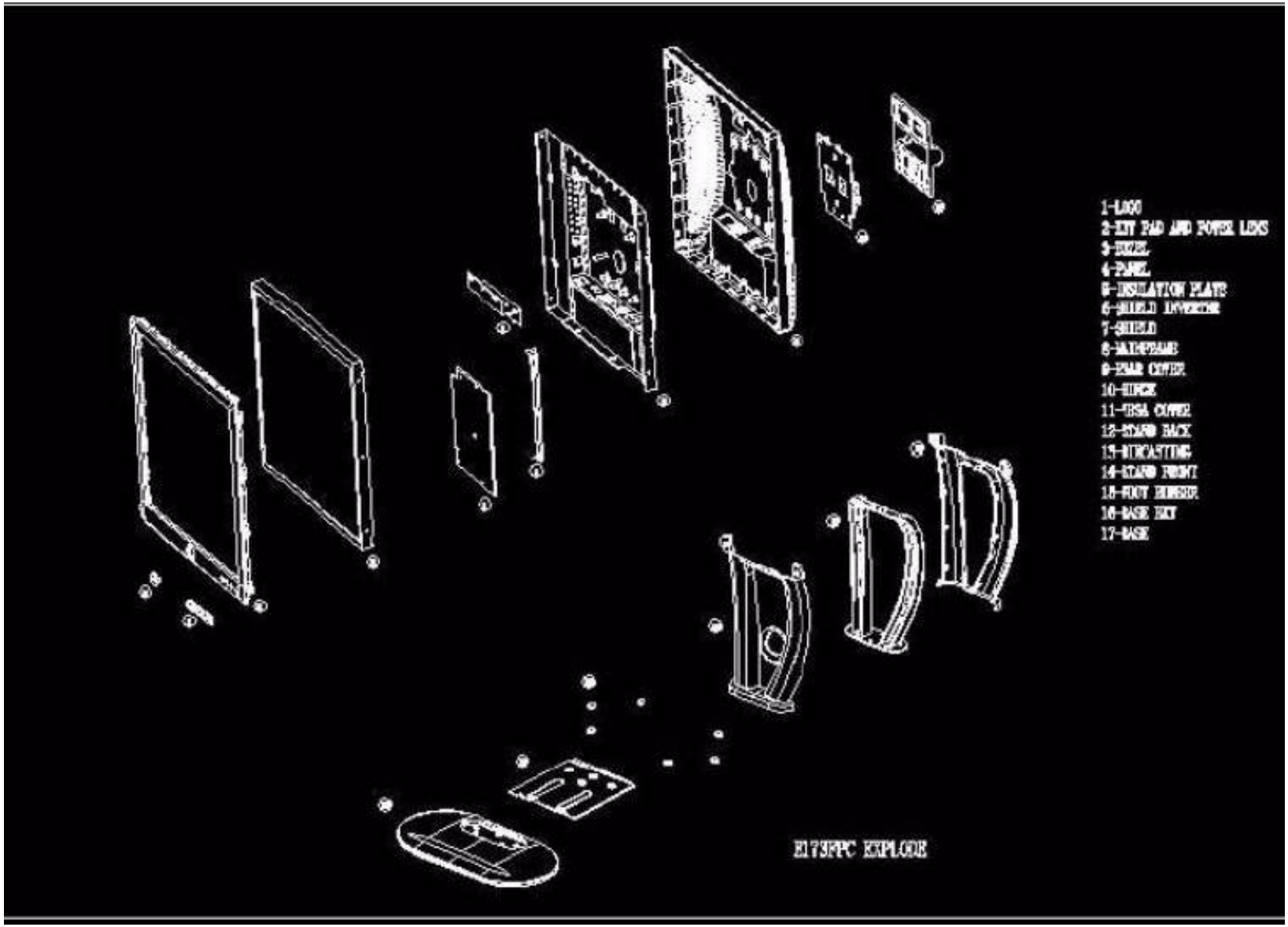
**For CPT panel**

Ta=25℃，VCC=5.0V

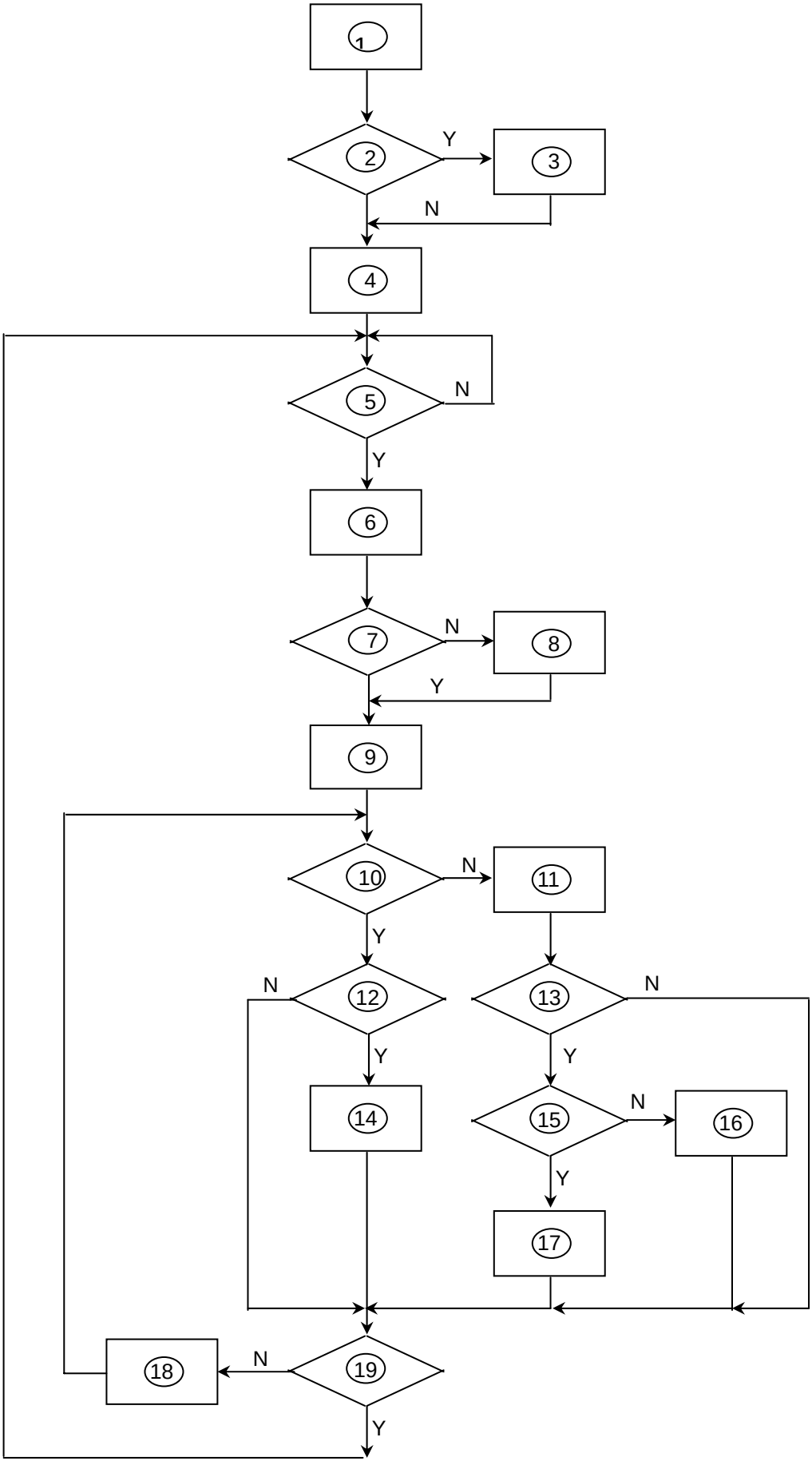
| ITEM | | SYMBOL | CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| Contrast Ratio | | CR | θ= ψ = 0° | 450 | 500 | -- | -- |
| Luminance | Center | L | θ= ψ = 0° | 250 | 300 | -- | $cd/m^2$ |
| | Uniformity | ΔL | θ= ψ = 0° | 75% | -- | -- | |
| Response Time | | Tr | θ= ψ = 0° | -- | 5 | 10 | ms |
| | | Tf | θ= ψ = 0° | -- | 7 | 14 | ms |
| Viewing Angle | Horizontal | ψ | CR≧5 | 80/80 | 85/85 | -- | ° |
| | Vertical | θ | | 80/80 | 85/85 | -- | ° |
| | Horizontal | ψ | CR≧10 | 60/60 | 70/70 | -- | ° |
| | Vertical | θ | | 60/55 | 67/63 | -- | ° |
| Color Coordinates | White | Wx<br>Wy | θ= ψ = 0° | 0.283<br>0.299 | 0.313<br>0.329 | 0.343<br>0.359 | -- |
| | Red | Rx<br>Ry | | 0.614<br>0.308 | 0.644<br>0.338 | 0.674<br>0.368 | |
| | Green | Gx<br>Gy | | 0.237<br>0.592 | 0.267<br>0.622 | 0.297<br>0.652 | |
| | Blue | Bx<br>By | | 0.110<br>0.054 | 0.140<br>0.084 | 0.170<br>0.114 | |
| Image sticking | | Tis | 2 hour | | | 2 | sec |
| Crosstalk | | CT | | | | 1% | |
| Flicker | | f | | -- | -- | -20 | db |
| Gamut | | CS | | 69% | 72% | | |
| Gamma | | y | GL(32-223) | 2.0 | 2.3 | 2.6 | |

# 5. Block Diagram

## 5.1 Exploded View



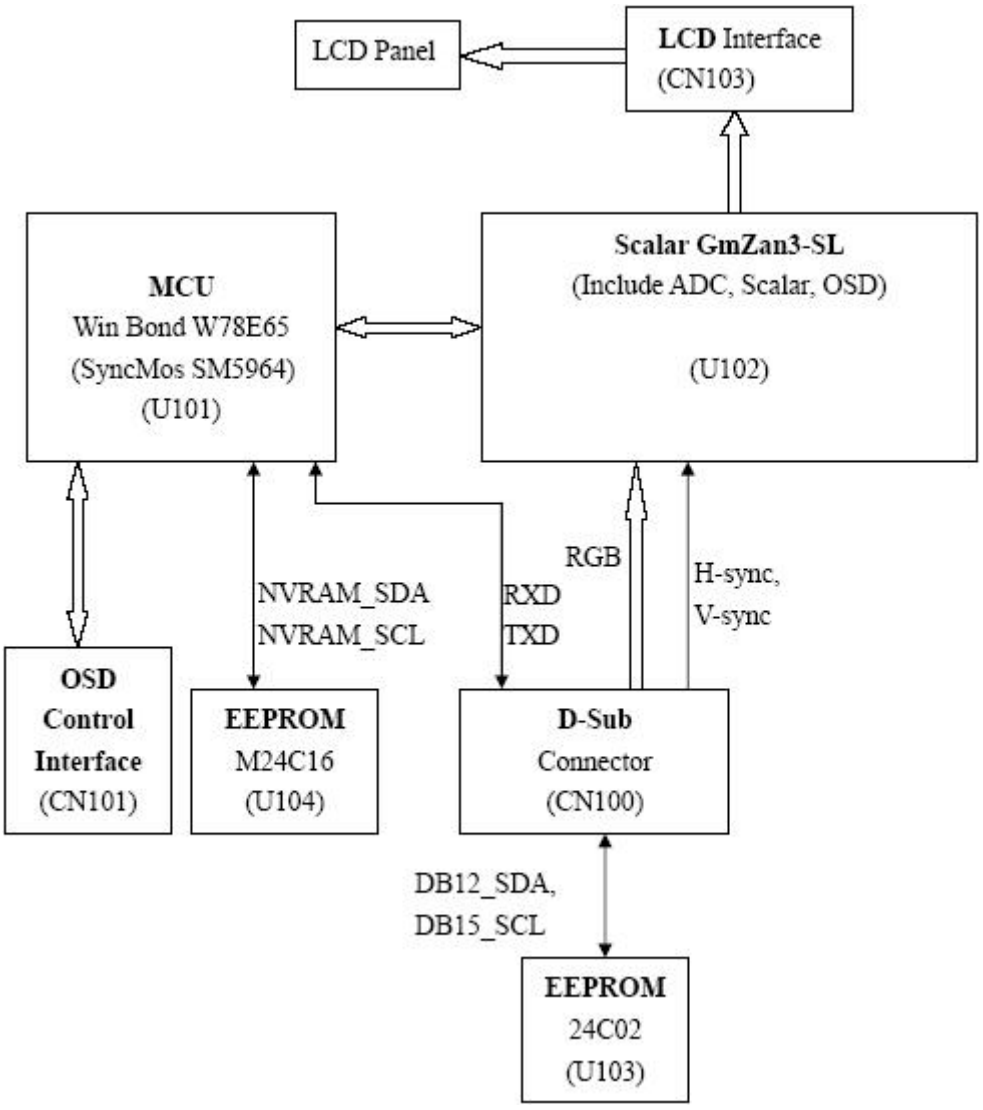
## 5.2 Software Flow Chart



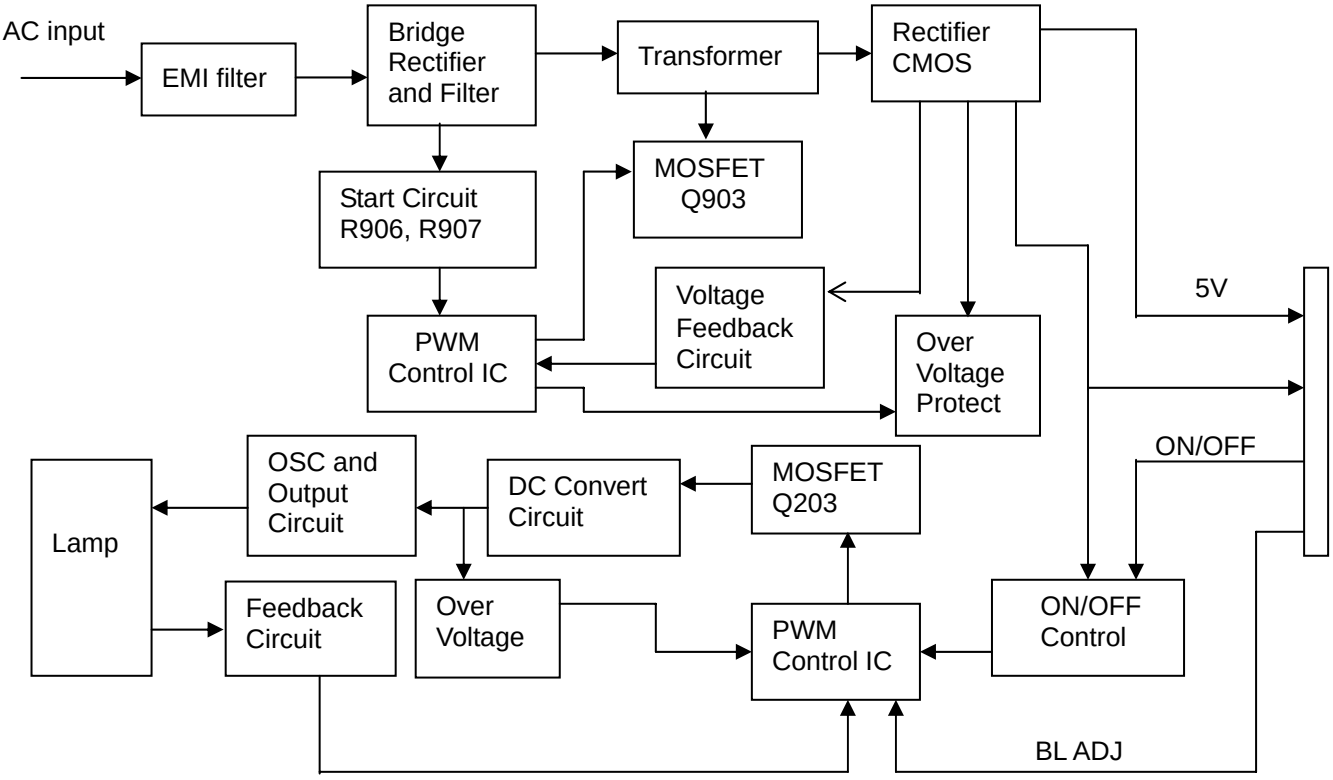
1) MCU Initializes.
2) Is the EEprom blank?
3) Program the EEprom by default values.
4) Get the PWM value of brightness from EEprom.
5) Is the power key pressed?
6) Clear all global flags.
7) Are the AUTO and SELECT keys pressed?
8) Enter factory mode.
9) Save the power key status into EEprom. Turn on the LED and set it to green color. Scalar initializes.
10) In standby mode?
11) Update the lifetime of back light.
12) Check the analog port, are there any signals coming?
13) Does the scalar send out an interrupt request?
14) Wake up the scalar.
15) Are there any signals coming from analog port?
16) Display "No connection Check Signal Cable" message. And go into standby mode after the message disappears.
17) Program the scalar to be able to show the coming mode.
18) Process the OSD display.
19) Read the keyboard. Is the power key pressed?

## 5.3 Electrical Block Diagram

### 5.3.1 Main Board



### 5.3.2 Inverter/Power Board

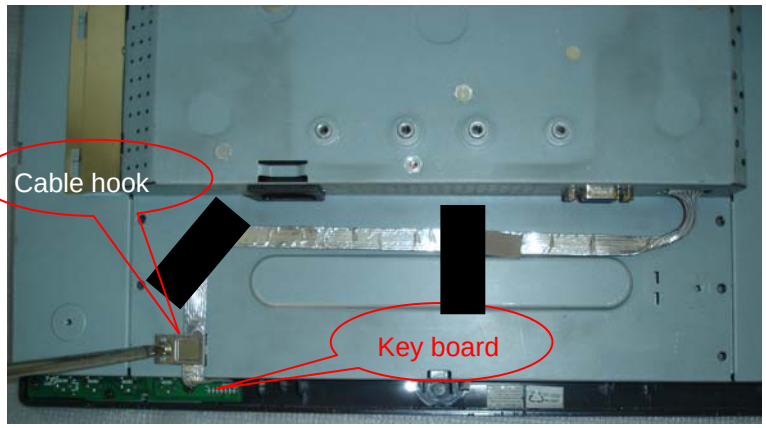


# 6. Mechanical Instruction

**Tools: 2 Power screwdrivers (φ=5mm,L=60mm); 1 small cross screwdriver; turnbuckle driver;**

**Setting: Power screwdriver torque A=11 kgF. Cm; torque B=6 kgF. Cm**

| Fig | Remark |
|---|---|
| | **Remove stand：** Remove the 4 screws and remove the stand ass'y by torque A |
| | **Remove the rear cover**<br>Pry the monitor up then find out the hooks' position, use the tool (like the picture or other card) to insert into the gap of bezel and rear cover. |
| | Turn over the monitor as the Fig and take off the rear cover |



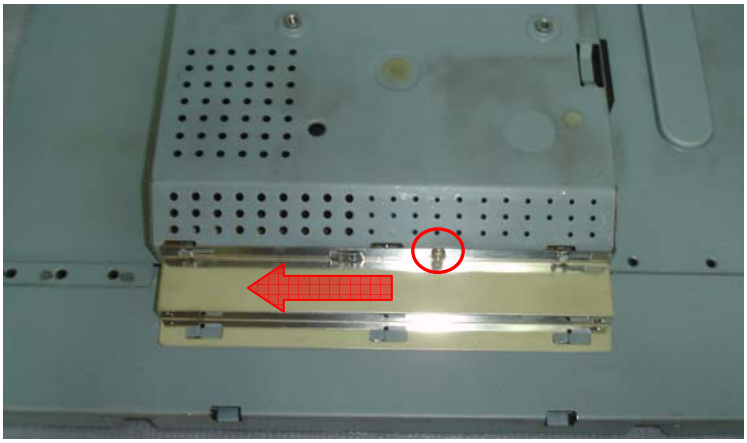
**Remove bezel**:

Disconnect the Key board connector and remove the bezel

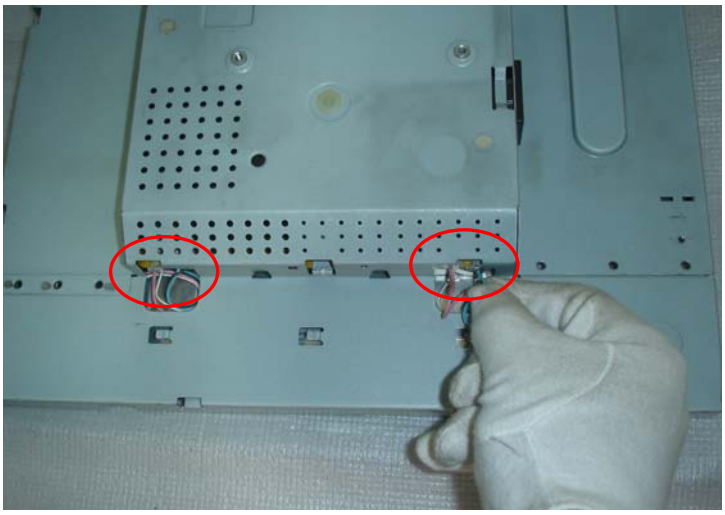
Note: When installing monitor fixes the cable use Black Adhesive Tape and screw the cable hook.

**Remove the small shield:**

Remove the screws by Torque B

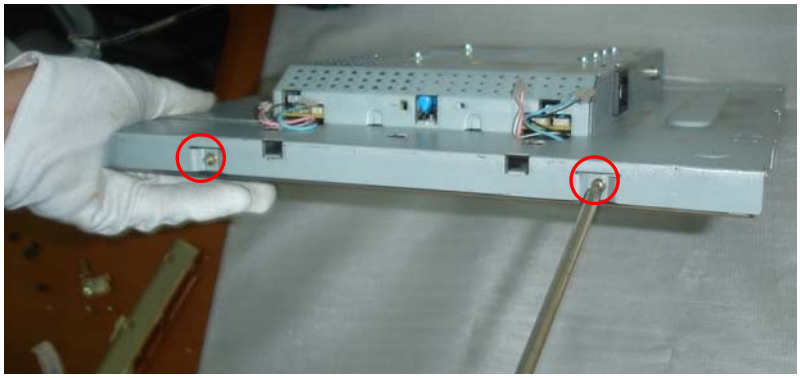


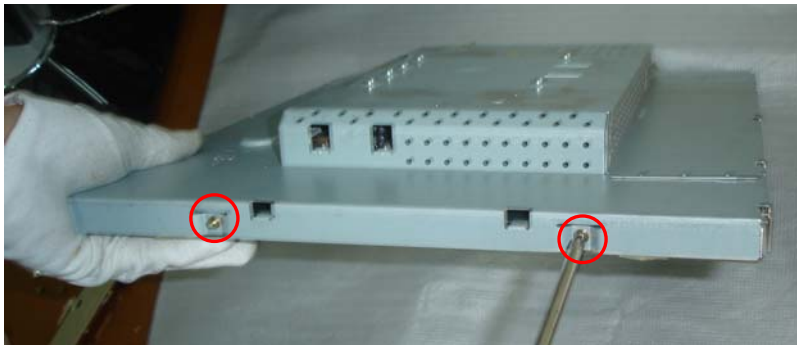
Remove the screw and push the small shield as the arrowhead direction by Torque B or by manual



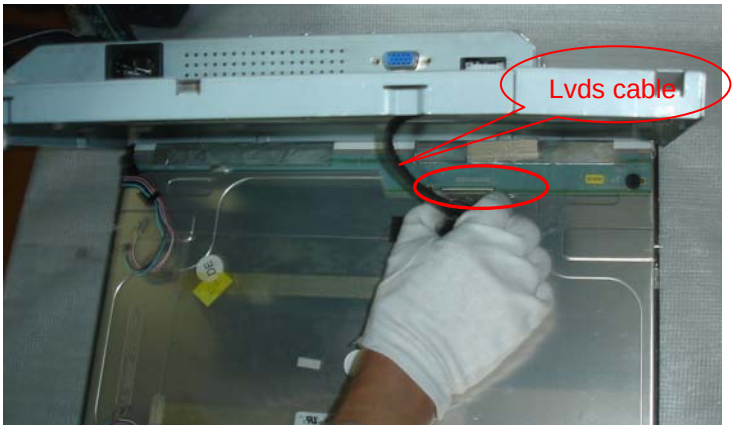
**Remove the main frame:**

Disconnect the back light connectors

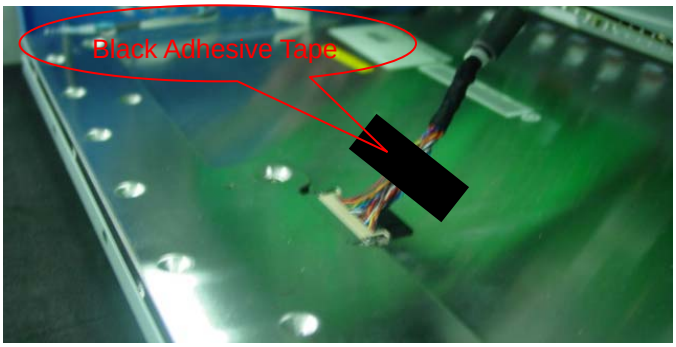




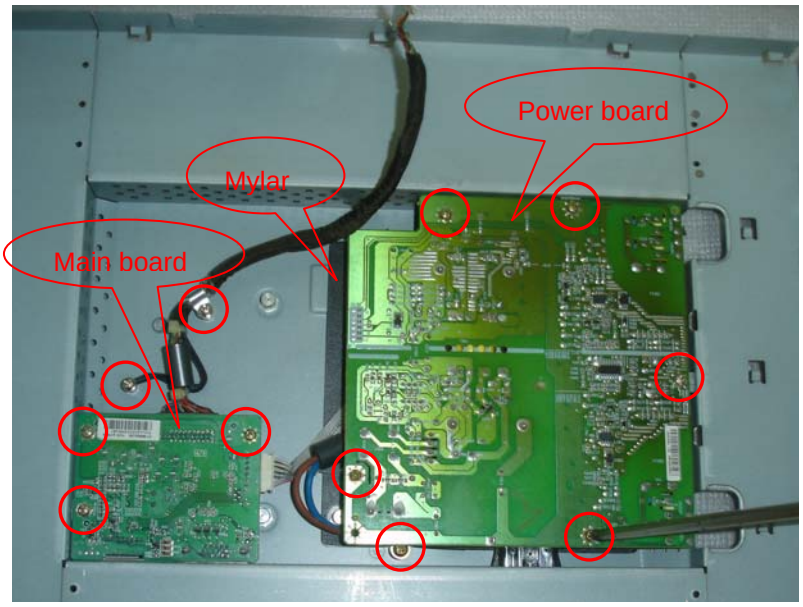
Remove the four screws and remove the main frame by manual or torque = 3kgF.Cm




Remove the main frame and at the same time disconnect the LVDS connector



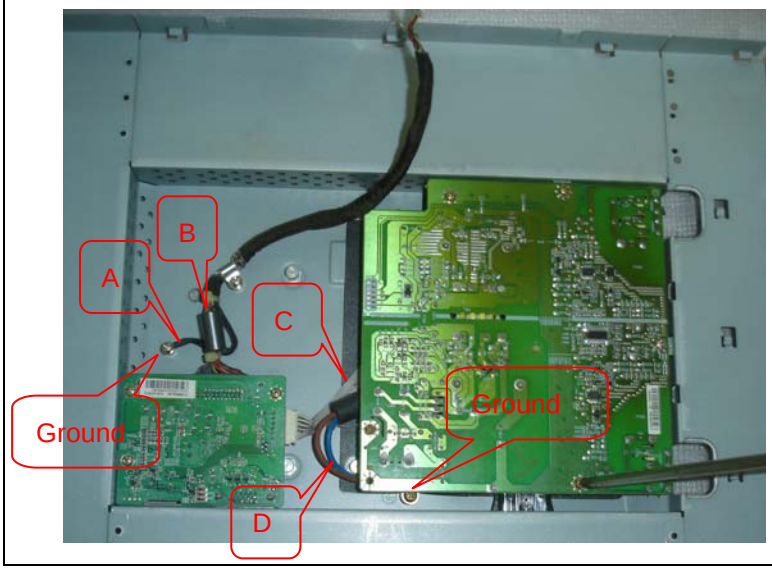

When installing monitor. Fix the LVDS by Black Adhesive Tape. 10mm should be kept between the tape and the connect end.




**Remove the Power board and main board:**

Remove the eight screws by Torque B

And take off the Power board and main board.




Installing the LVDS cable:

Connect the LVDS cable with MB, and then fix the cable by screwing the cable hook, and the ground end to the mainframe. Make sure the ground line is below signal lines.

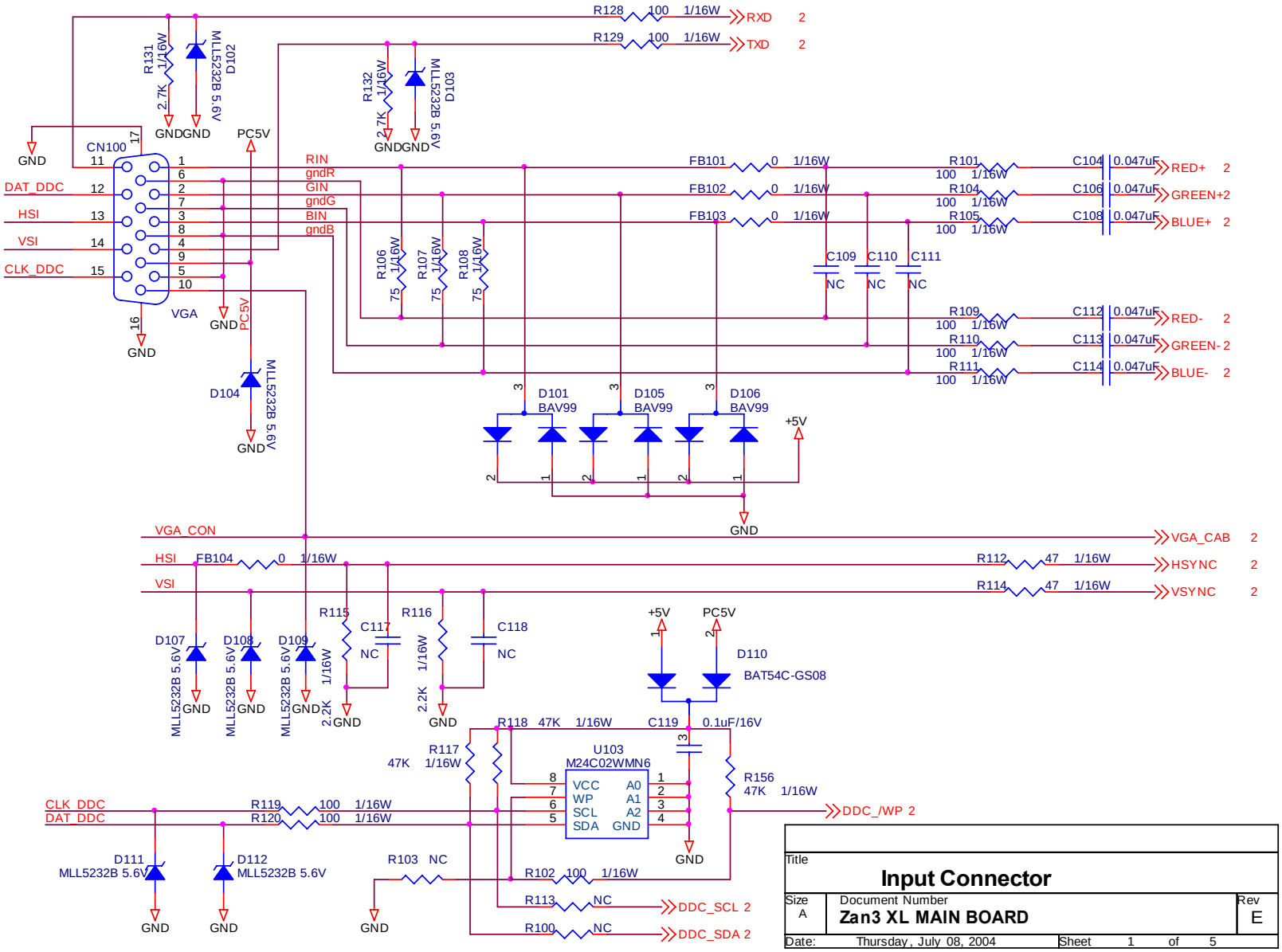
Line C is power supply for the MB.

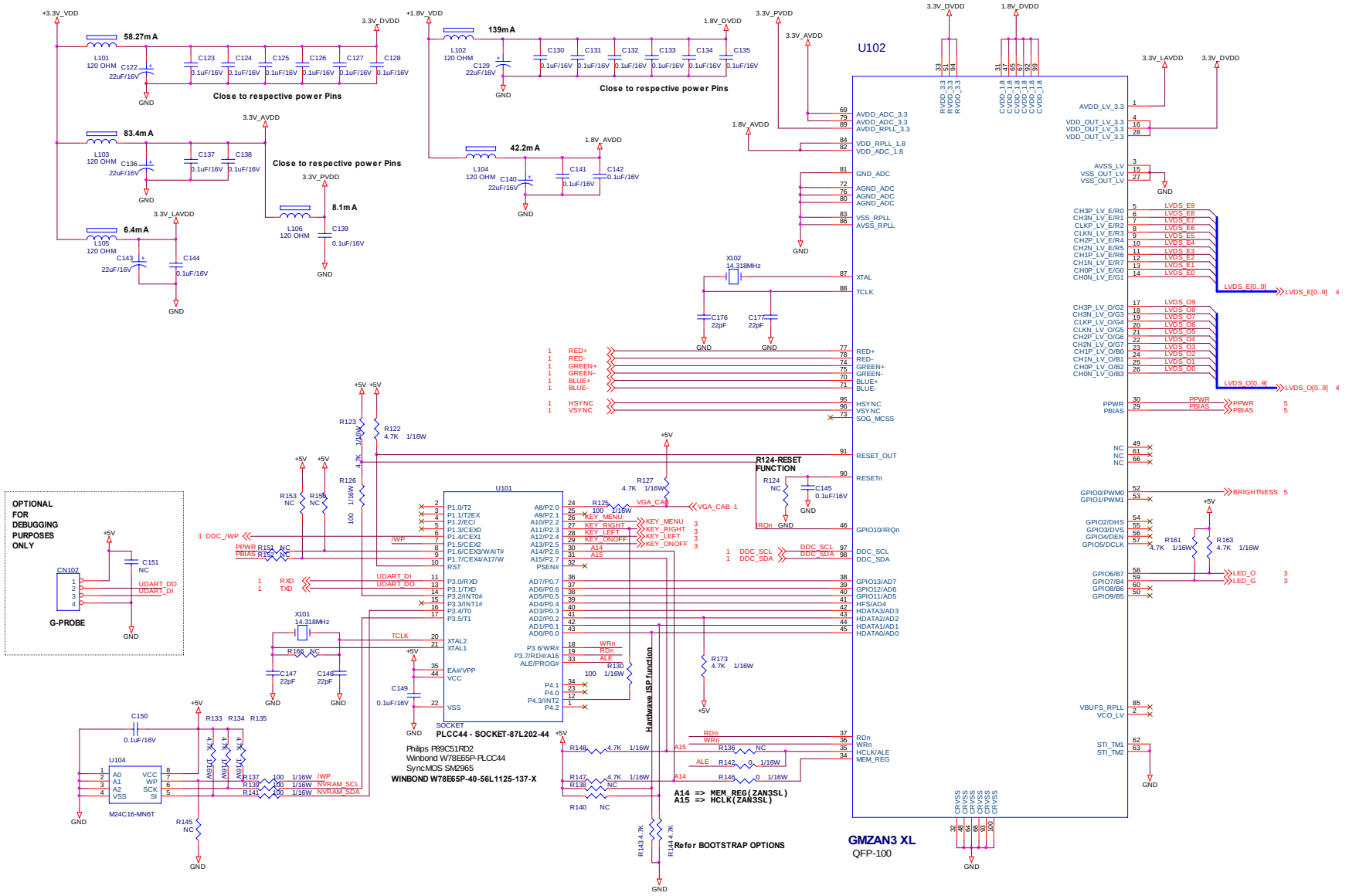
Connect the PB and MB directly; the cable must not touch the pillar of screw.

| | |
|---|---|
| | **The end**<br><br>The angle between CCFL line and vertical direction should be 30-40 degree. |

# 7. Schematic Diagram

## 7.1 Main Board

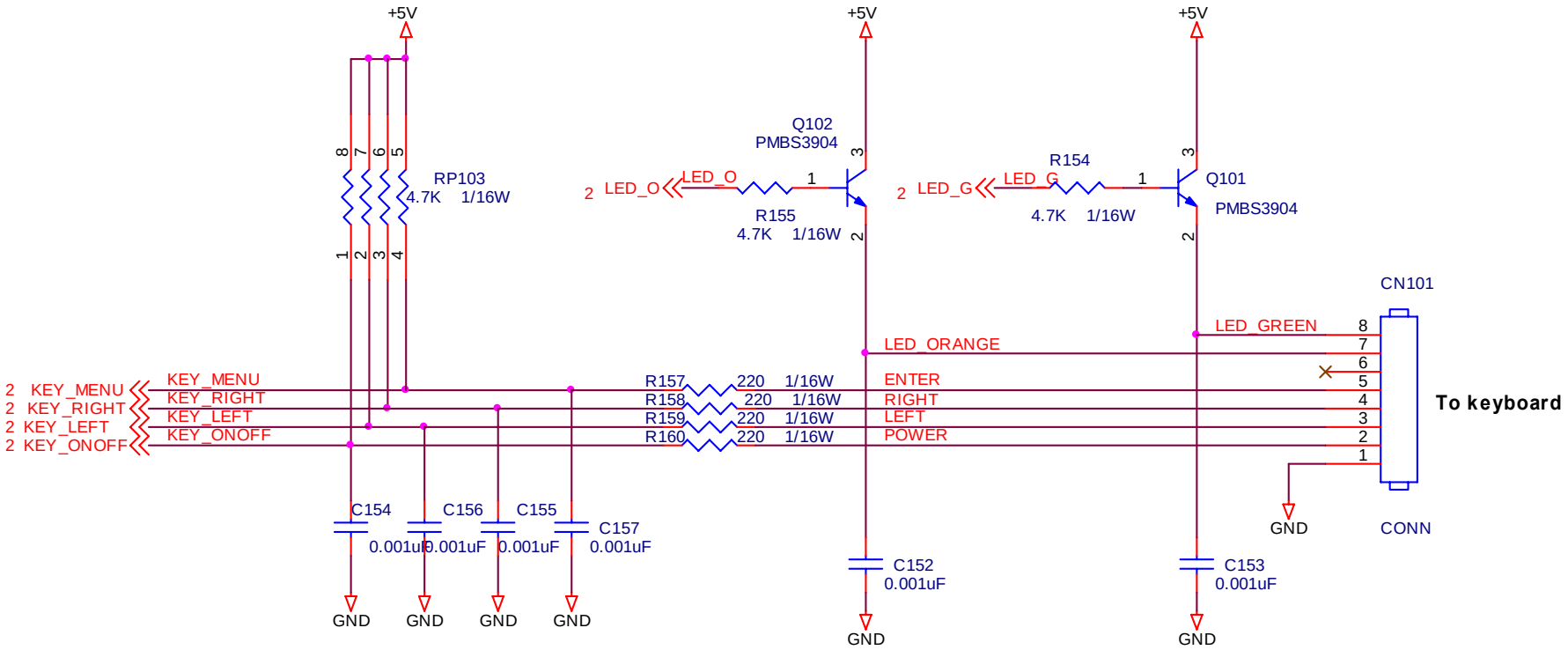




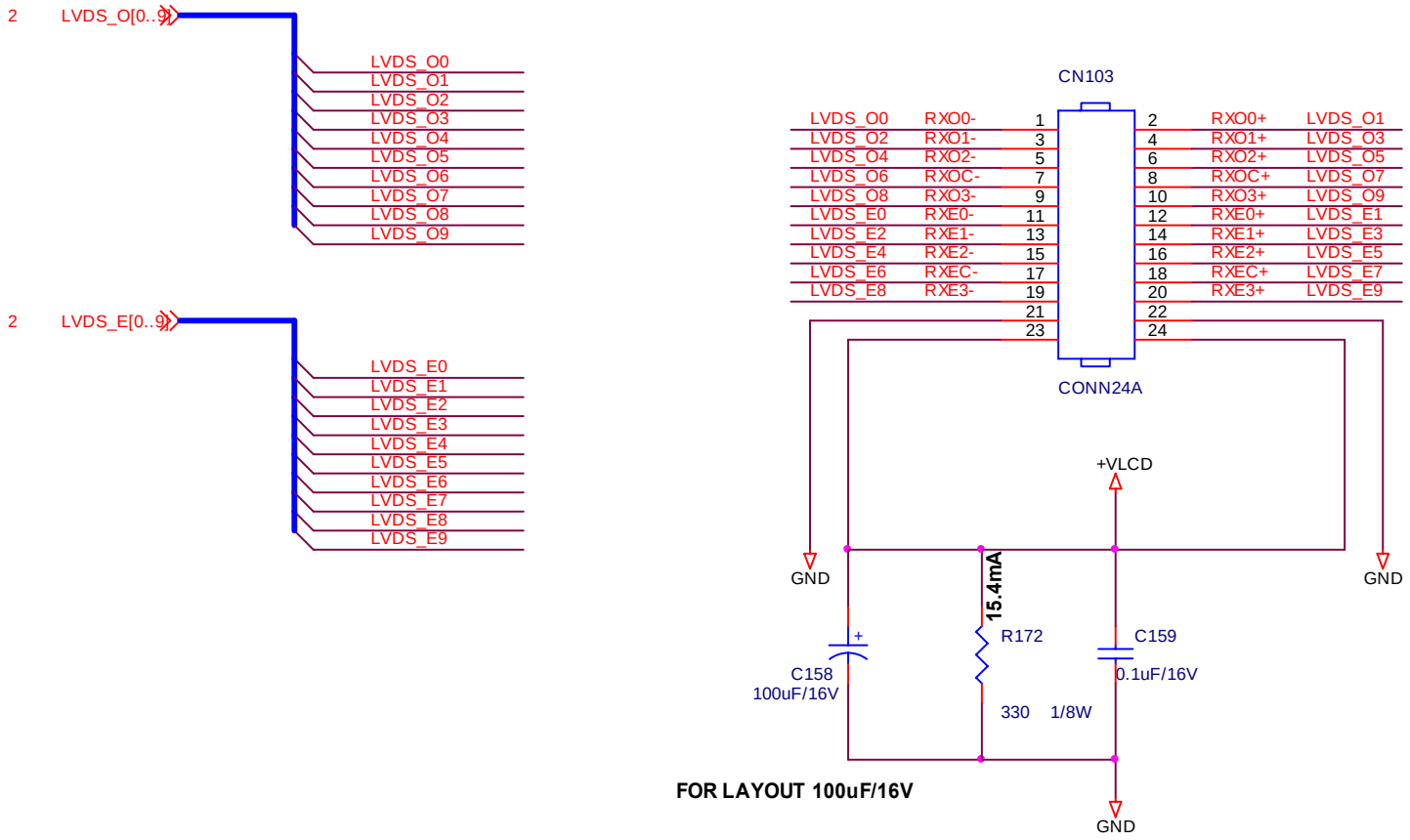

***Boot-Strap Configuration:***

| | HDATA1 | HDATA0 | Components | Description |
|---|---|---|---|---|
| DEFAULT | LOW | LOW | IN- R143, R144<br>OPEN- R138, R140 | 8 bit I/F |
| | HIGH | HIGH | IN - R138, R140<br>OPEN- R143, R144 | 6-wire Genesis I/F |

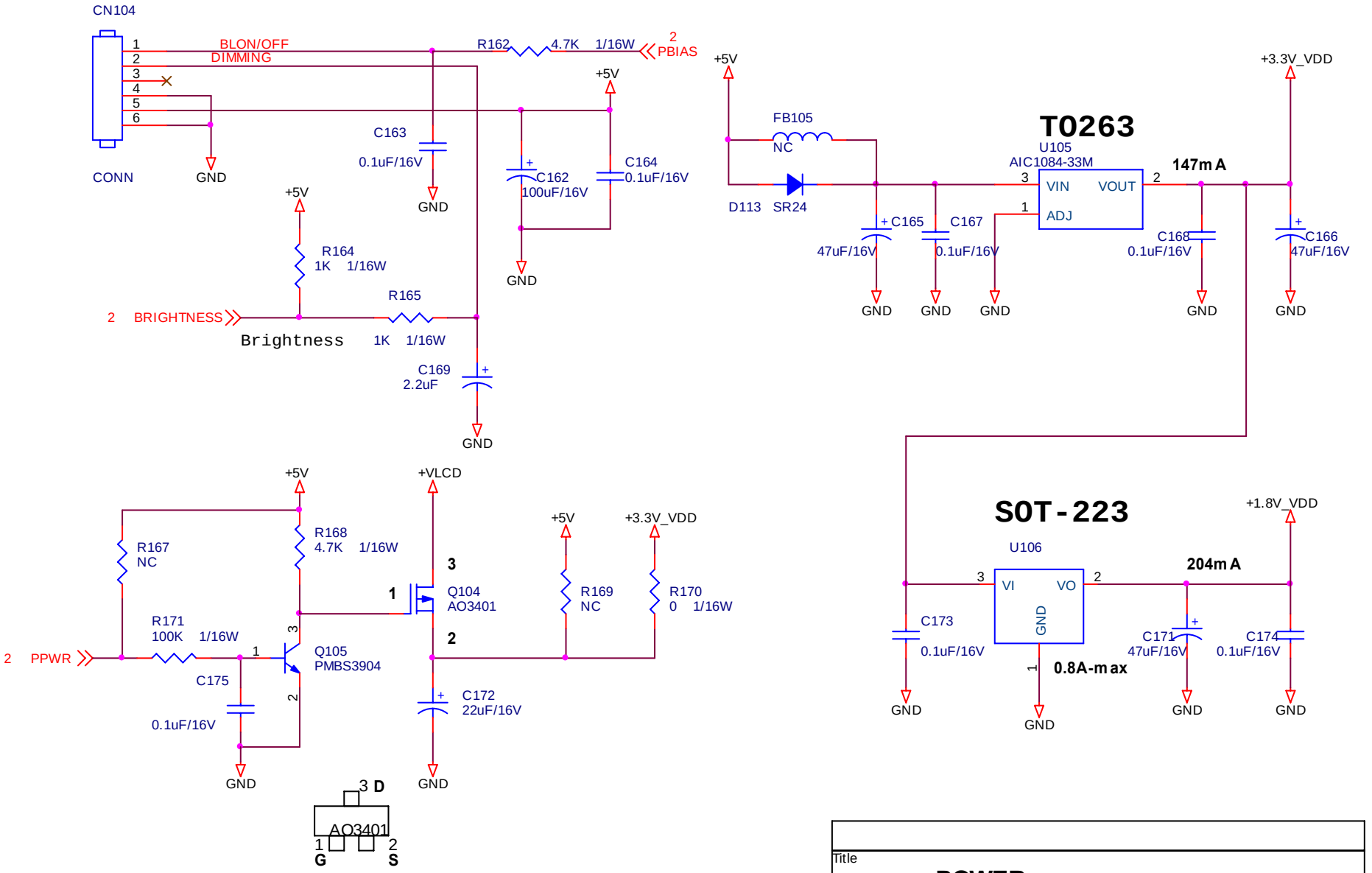
| | | | |
|---|---|---|---|
| Title | ZAN3 XL & MCU | | |
| Size: C | Document Number: Zan3 XL MAIN BOARD | | Rev: E |
| Date: Thursday, July 08, 2004 | Sheet 2 of 5 | | |




| | | |
|---|---|---|
| Title | **KEYS CONNECTION** | |
| Size A | Document Number **Zan3 XL MAIN BOARD** | Rev E |
| Date: Thursday, July 08, 2004 | Sheet 3 of 5 | |

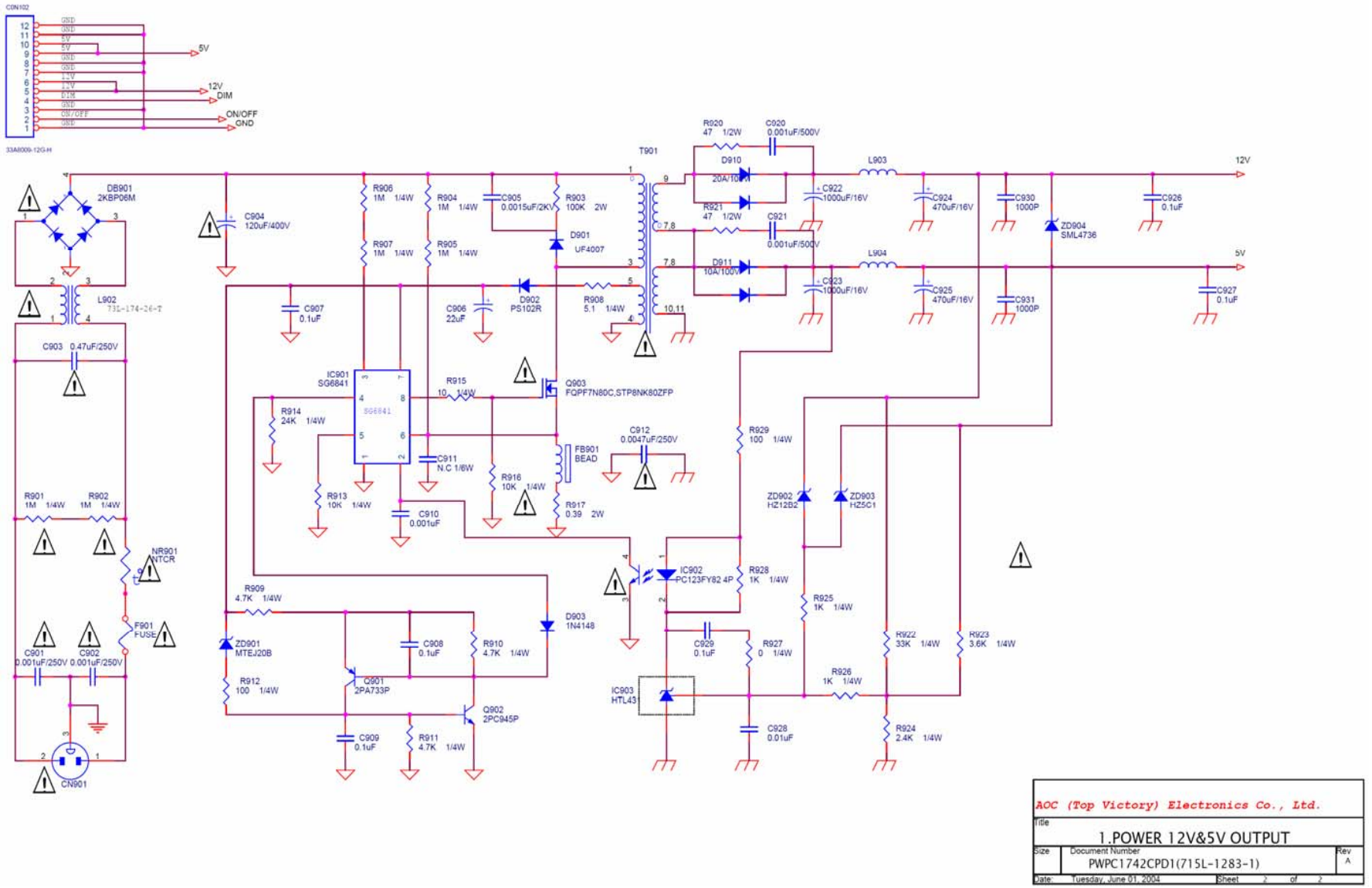


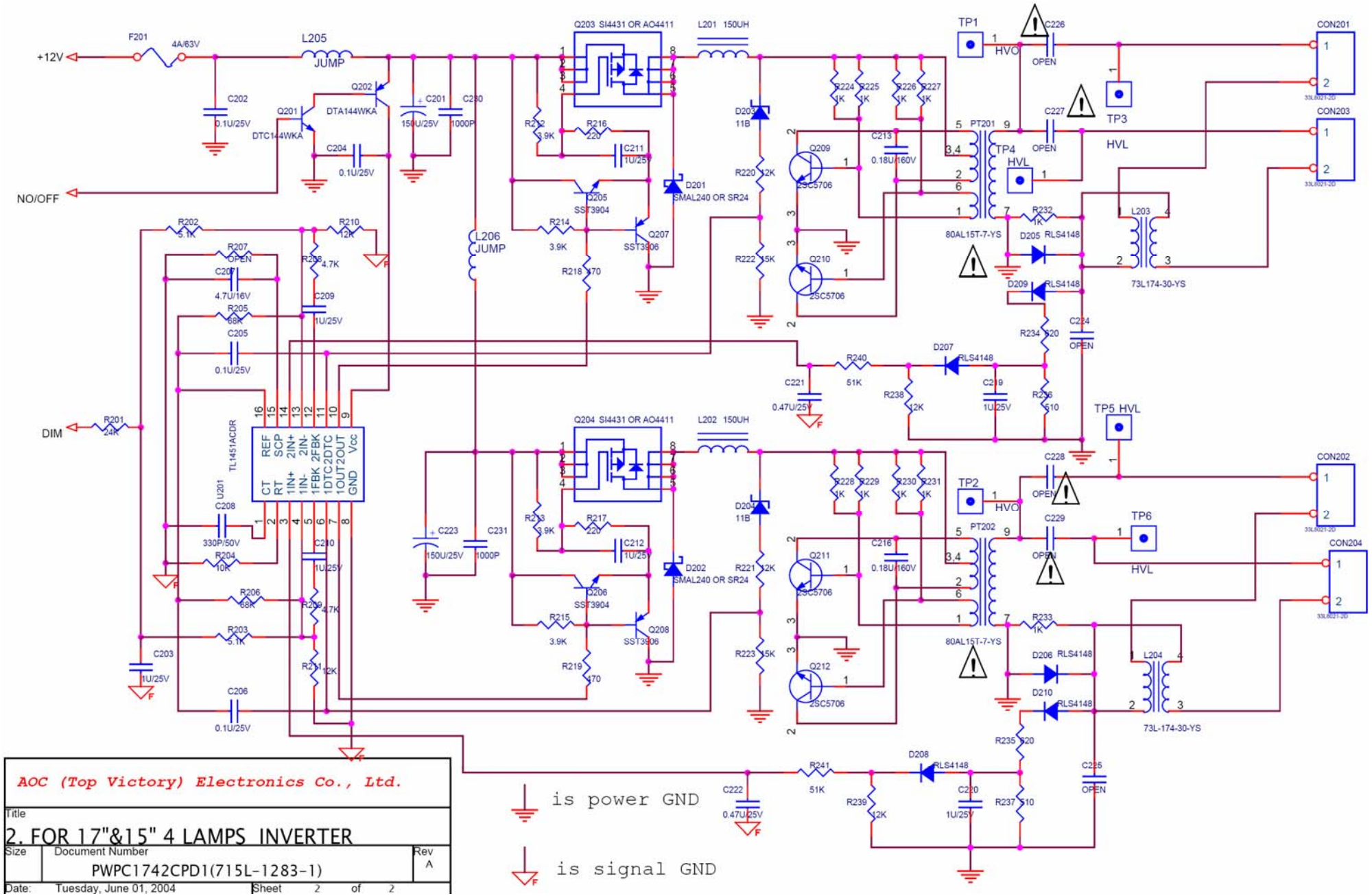

| | | |
|---|---|---|
| Title | **PANEL INTERFACE** | |
| Size A | Document Number **Zan3 XL MAIN BOARD** | Rev E |
| Date: Thursday, July 08, 2004 | Sheet 4 of 5 | |




| | | |
|---|---|---|
| Title | **POWER** | |
| Size: A | Document Number: **Zan3 XL MAIN BOARD** | Rev: E |
| Date: Thursday, July 08, 2004 | Sheet 5 of 5 | |

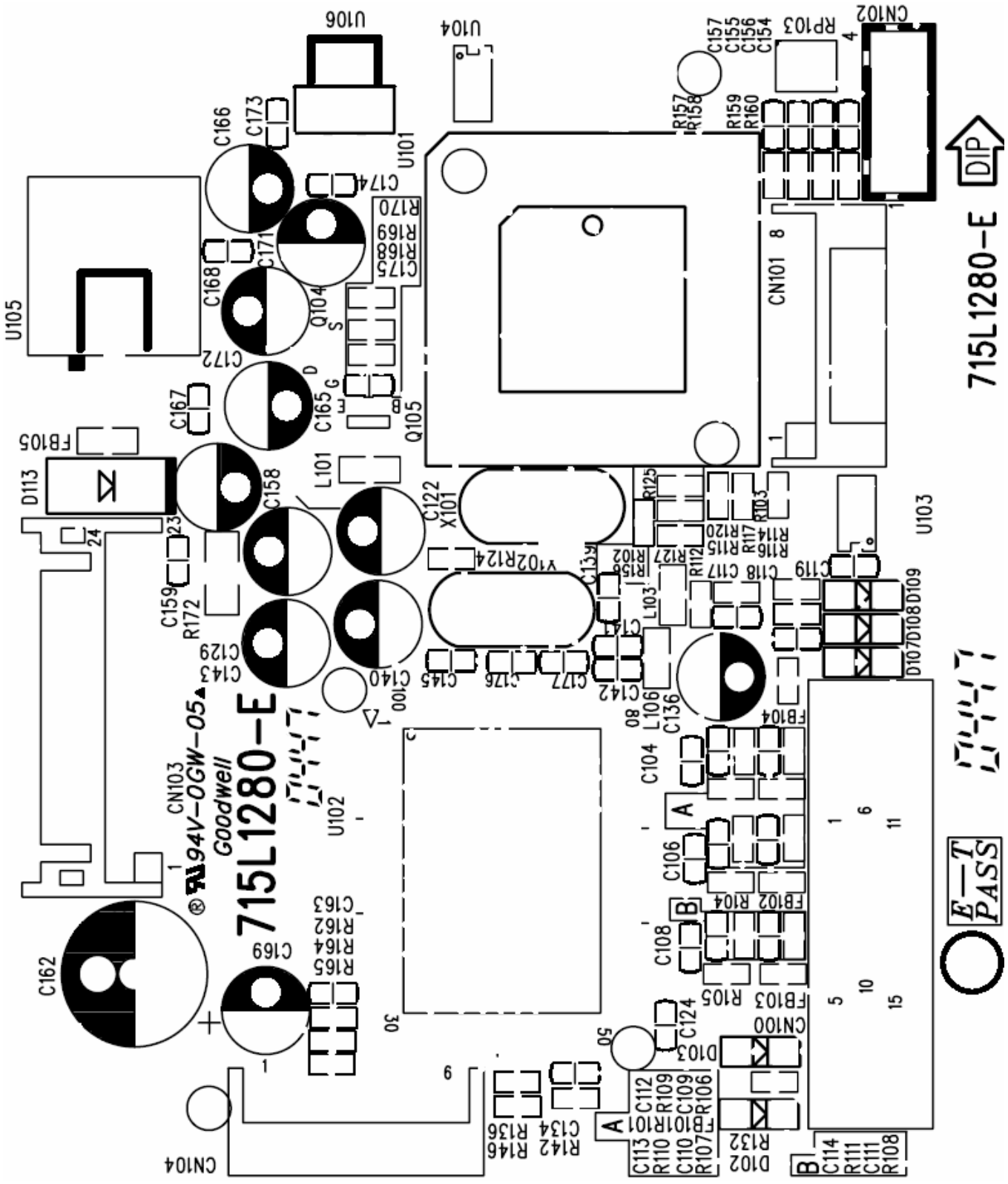
## 7.2 PWPC Board

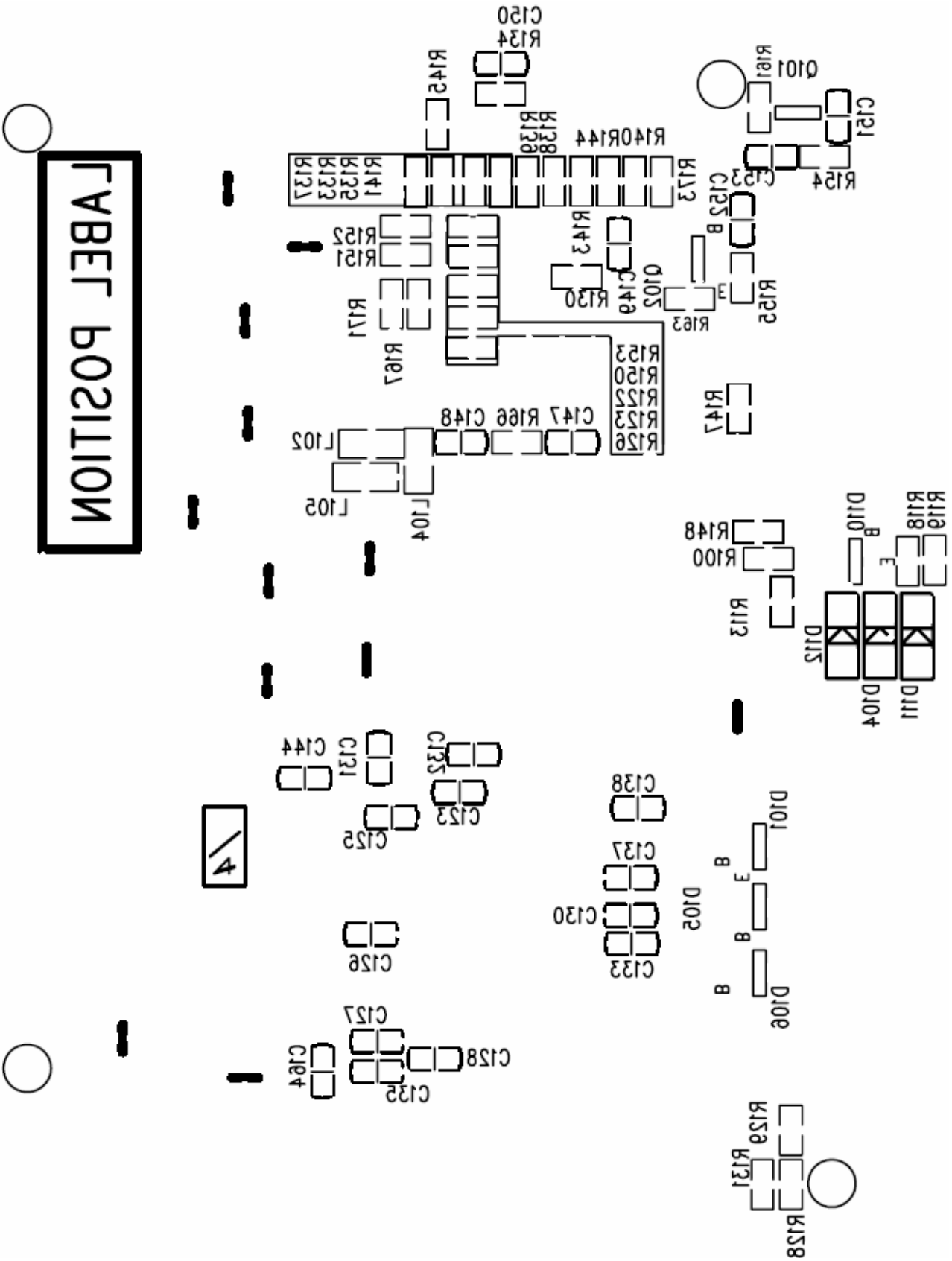


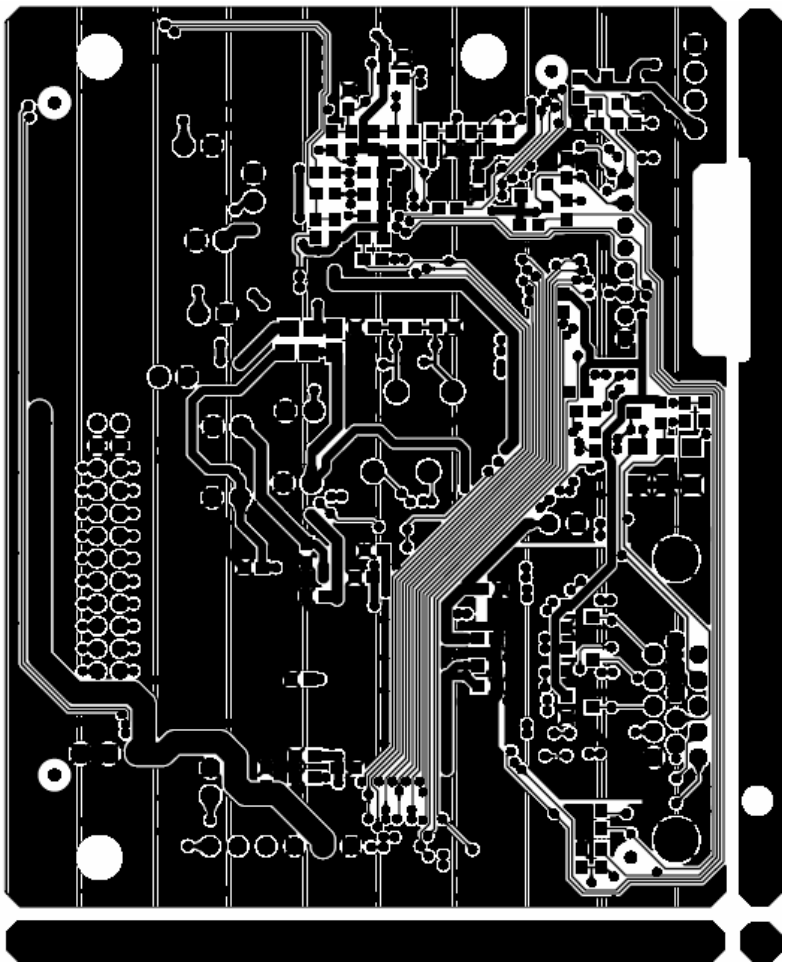

+12V
F201
4A/63V
L205
JUMP
NO/OFF
DIM
R201
24K
C202
0.1U/25V
Q201
DTC144WKA
Q202
DTA144WKA
C204
0.1U/25V
C201
150U/25V
C230
1000P
L206
JUMP
R202
5.1K
R207
OPEN
C207
4.7U/16V
R205
68K
C205
0.1U/25V
R210
12K
R208
4.7K
C209
1U/25V
U201
TL1451ACDR
REF
SCP
2IN+
2IN-
2FBK
2DTC
2OUT
Vcc
CT
RT
1IN+
1IN-
1FBK
1DTC
1OUT
GND
C208
330P/50V
R204
10K
C210
1U/25V
R206
68K
R209
4.7K
R203
5.1K
R211
12K
C203
1U/25V
C206
0.1U/25V
Q203 SI4431 OR AO4411
L201 150UH
R212
3.9K
R216
220
C211
1U/25V
Q205
SST3904
R214
3.9K
Q207
SST3906
R218
470
D201
SMAL240 OR SR24
D203
11B
R220
12K
R222
15K
Q209
2SC5706
Q210
2SC5706
C213
0.18U/160V
R224
1K
R225
1K
R226
1K
R227
1K
PT201
80AL15T-7-YS
C226
OPEN
C227
OPEN
TP1
HVO
TP3
HVL
TP4
HVL
R232
1K
D205
RLS4148
D209
RLS4148
L203
73L174-30-YS
CON201
CON203
R234
20
C224
OPEN
D207
RLS4148
R240
51K
R238
12K
C219
1U/25V
R236
510
C221
0.47U/25V
TP5 HVL
Q204 SI4431 OR AO4411
L202 150UH
C223
150U/25V
C231
1000P
R213
3.9K
R217
220
C212
1U/25V
Q206
SST3904
R215
3.9K
Q208
SST3906
R219
470
D202
SMAL240 OR SR24
D204
11B
R221
12K
R223
15K
Q211
2SC5706
Q212
2SC5706
C216
0.18U/160V
R228
1K
R229
1K
R230
1K
R231
1K
PT202
80AL15T-7-YS
C228
OPEN
C229
OPEN
TP2
HVO
TP6
HVL
R233
1K
D206
RLS4148
D210
RLS4148
L204
73L-174-30-YS
CON202
CON204
R235
20
C225
OPEN
D208
RLS4148
R241
51K
R239
12K
C220
1U/25V
R237
510
C222
0.47U/25V
is power GND
is signal GND
AOC (Top Victory) Electronics Co., Ltd.
Title
2. FOR 17"&15" 4 LAMPS INVERTER
Size
Document Number
PWPC1742CPD1(715L-1283-1)
Rev
A
Date: Tuesday, June 01, 2004
Sheet 2 of 2

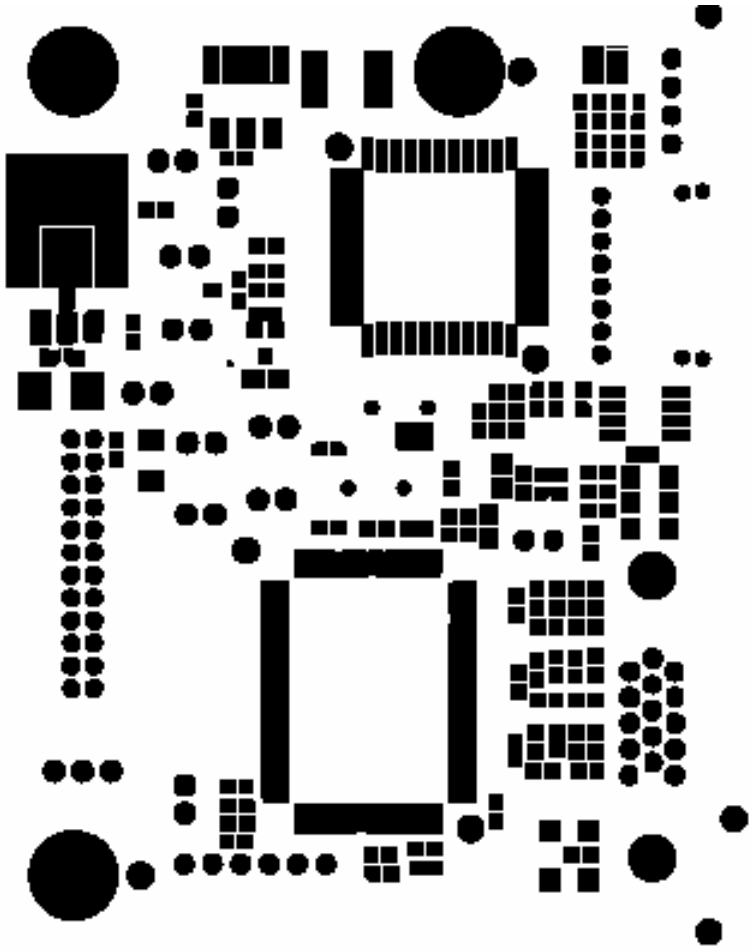
# 8. PCB Layout

## 8.1 Main Board

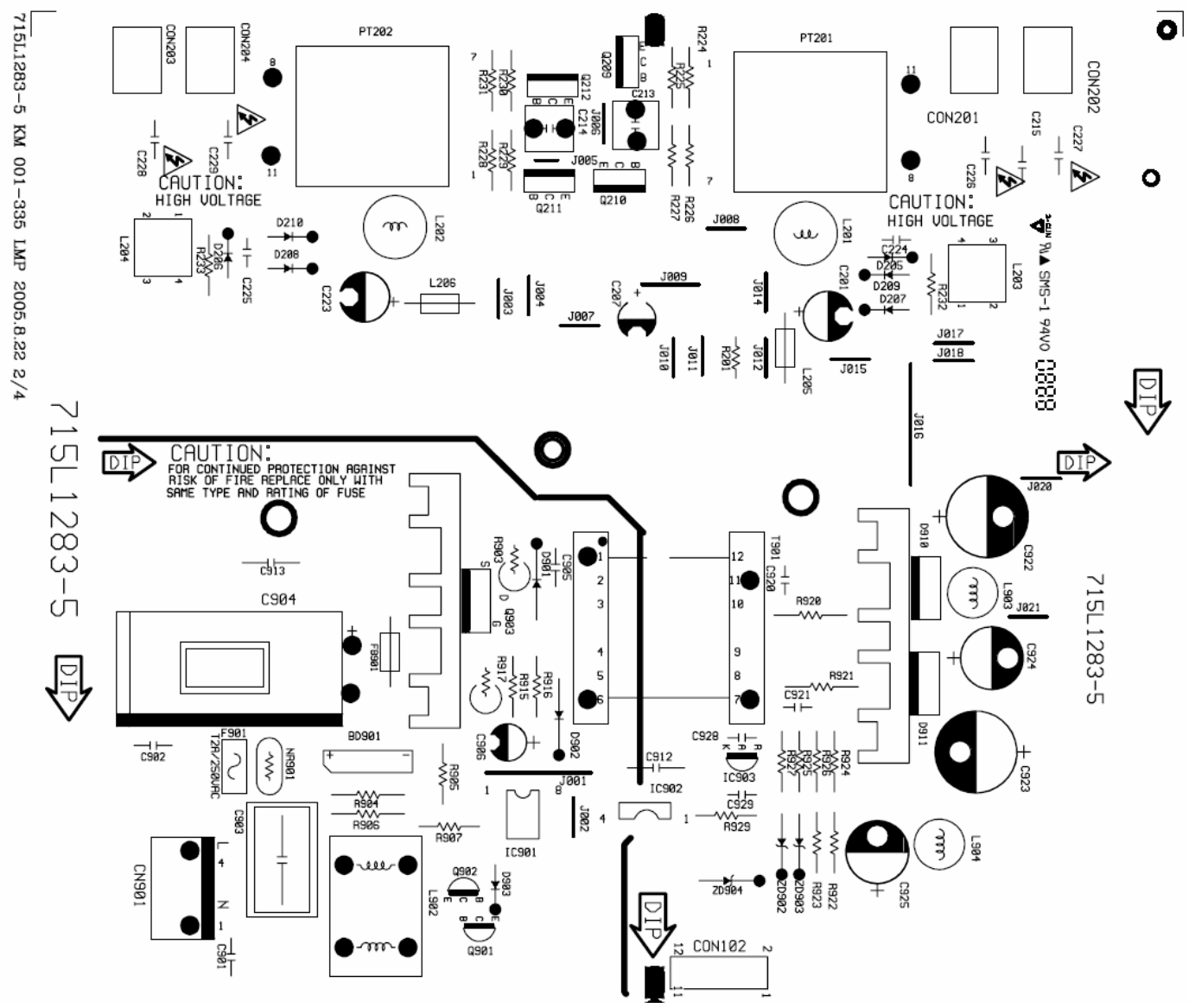


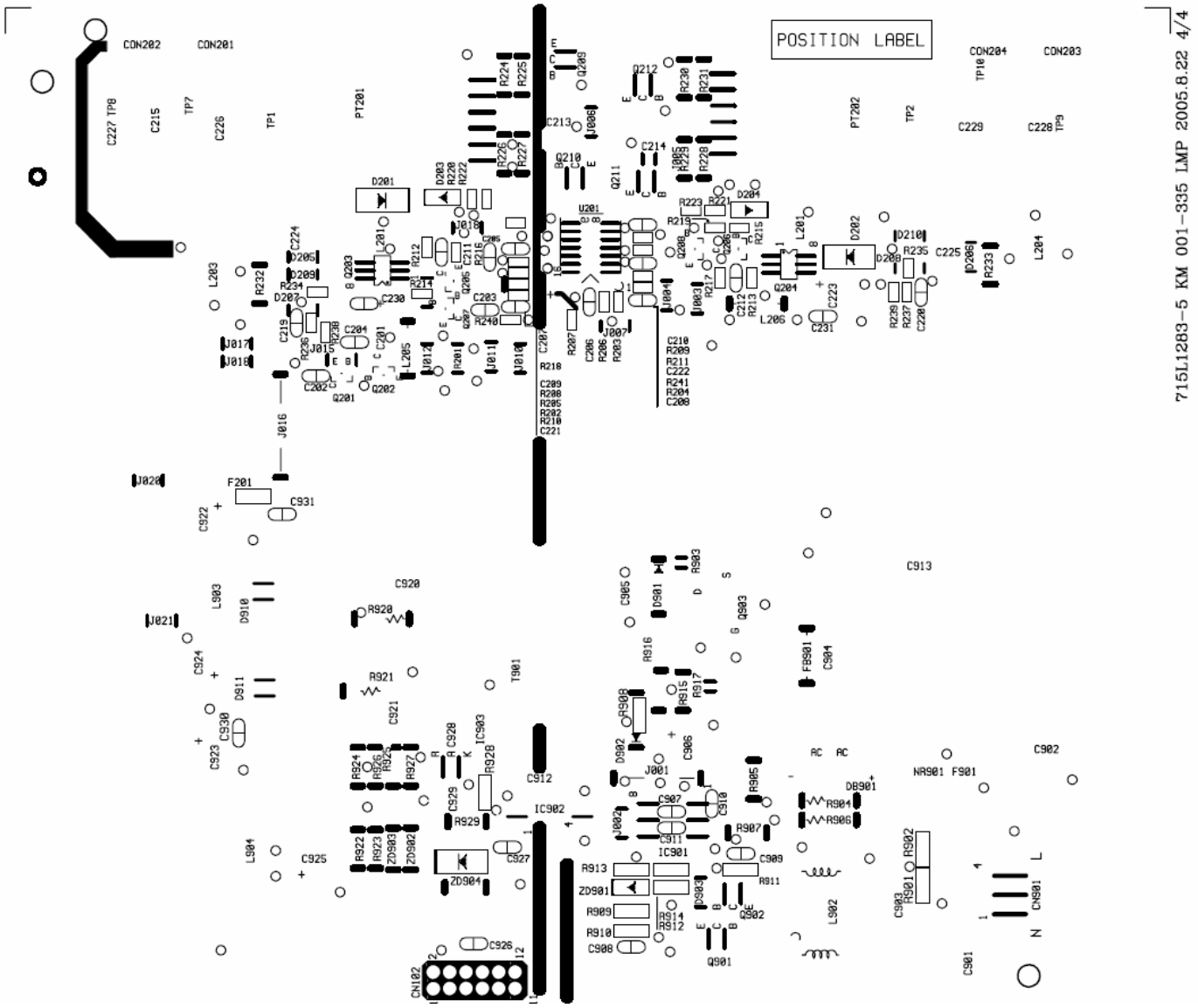

LABEL POSITION
4

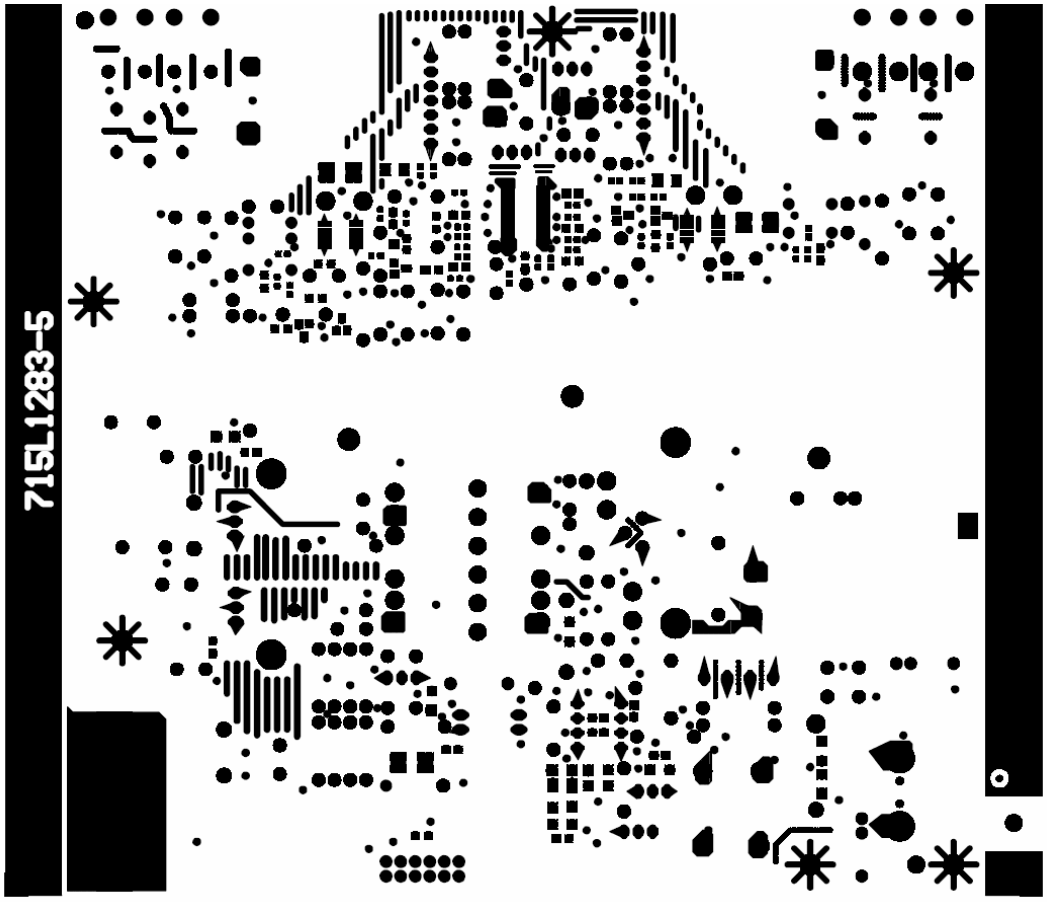


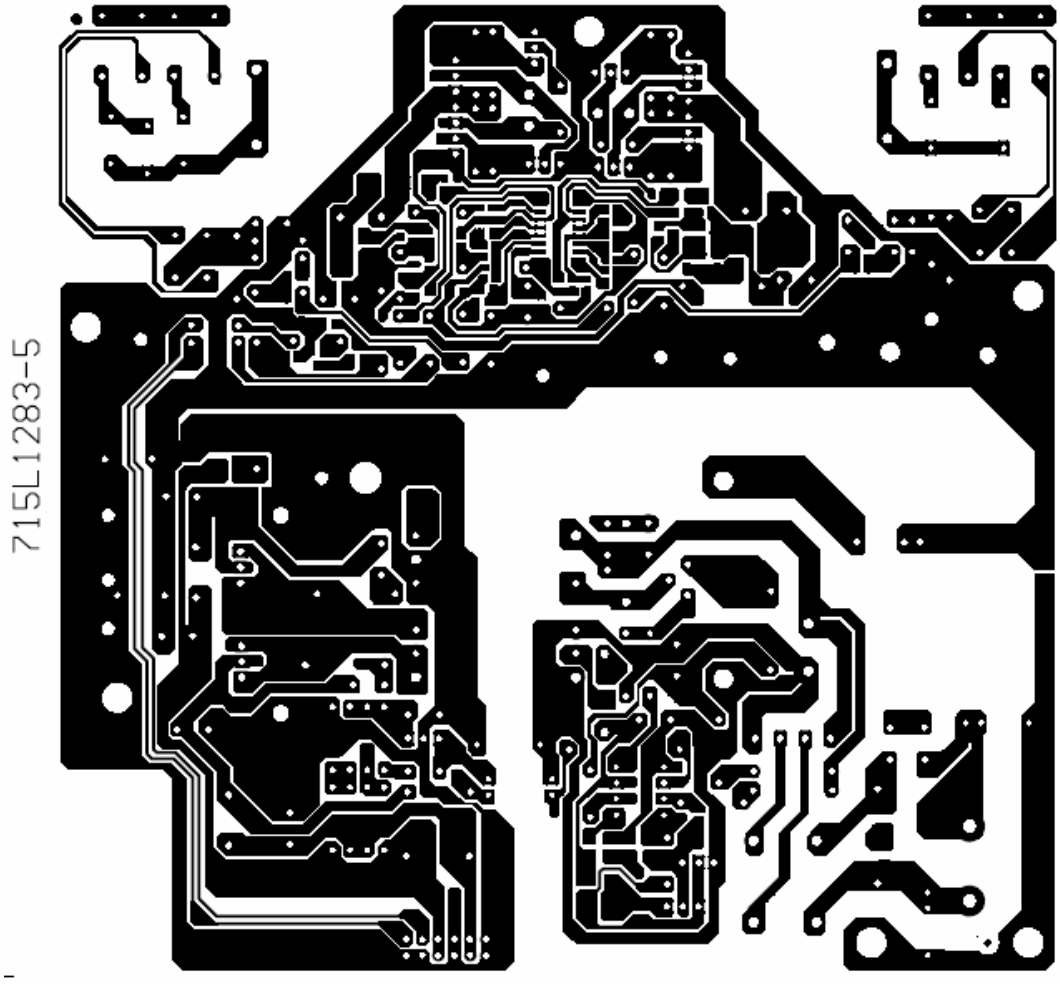


## 8.2 PWPC Board

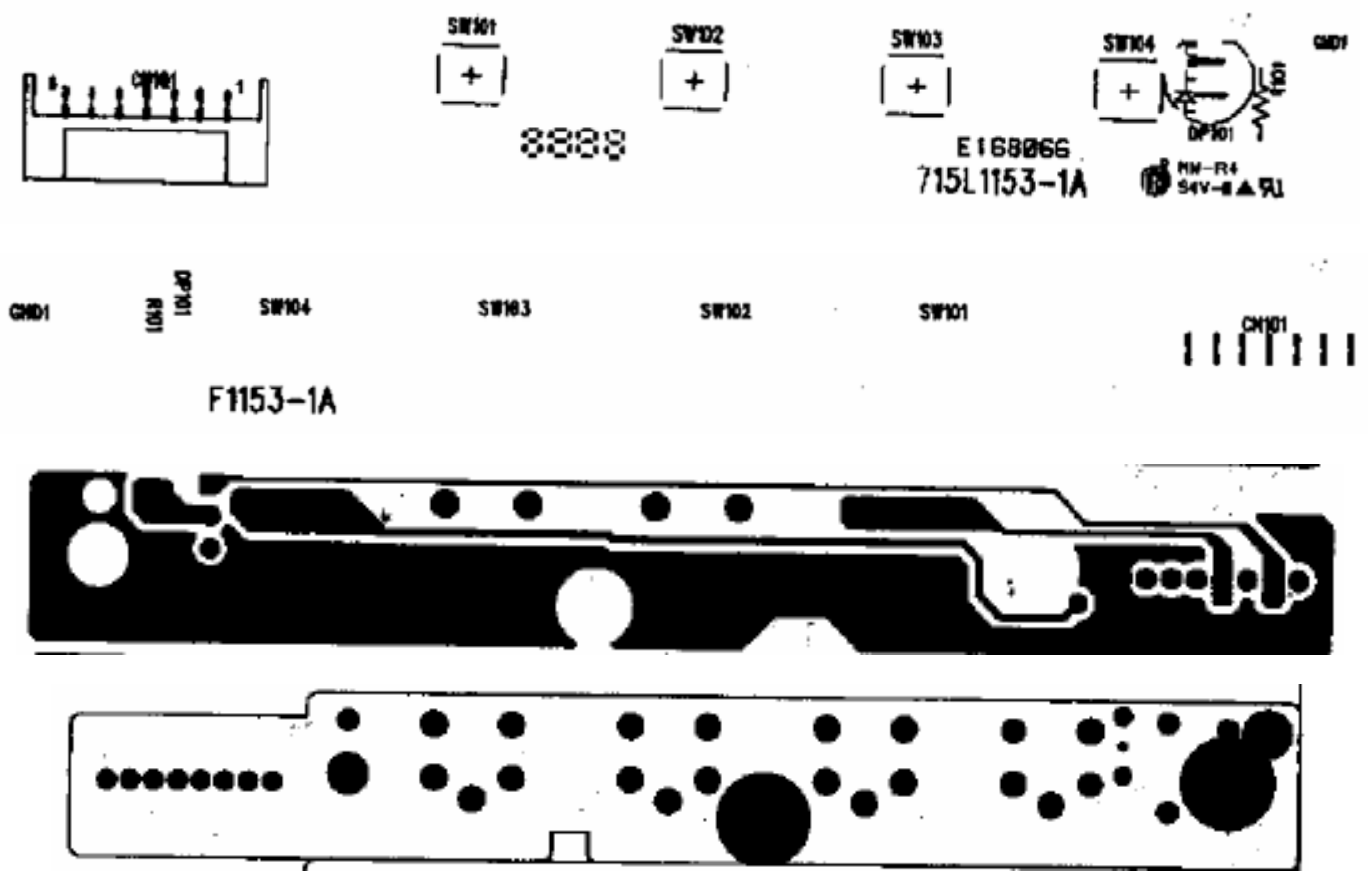



POSITION LABEL
715L1283-5 KM 001-335 LMP 2005.8.22 4/4


715L1283-5


715L1283-5

### 8.3 KEPC Board




## 9. Maintainability

### 9.1 Equipments and Tools Requirement

1.Voltage meter

2.Oscilloscope

3.Pattern Generator

4.LCD Color Analyzer

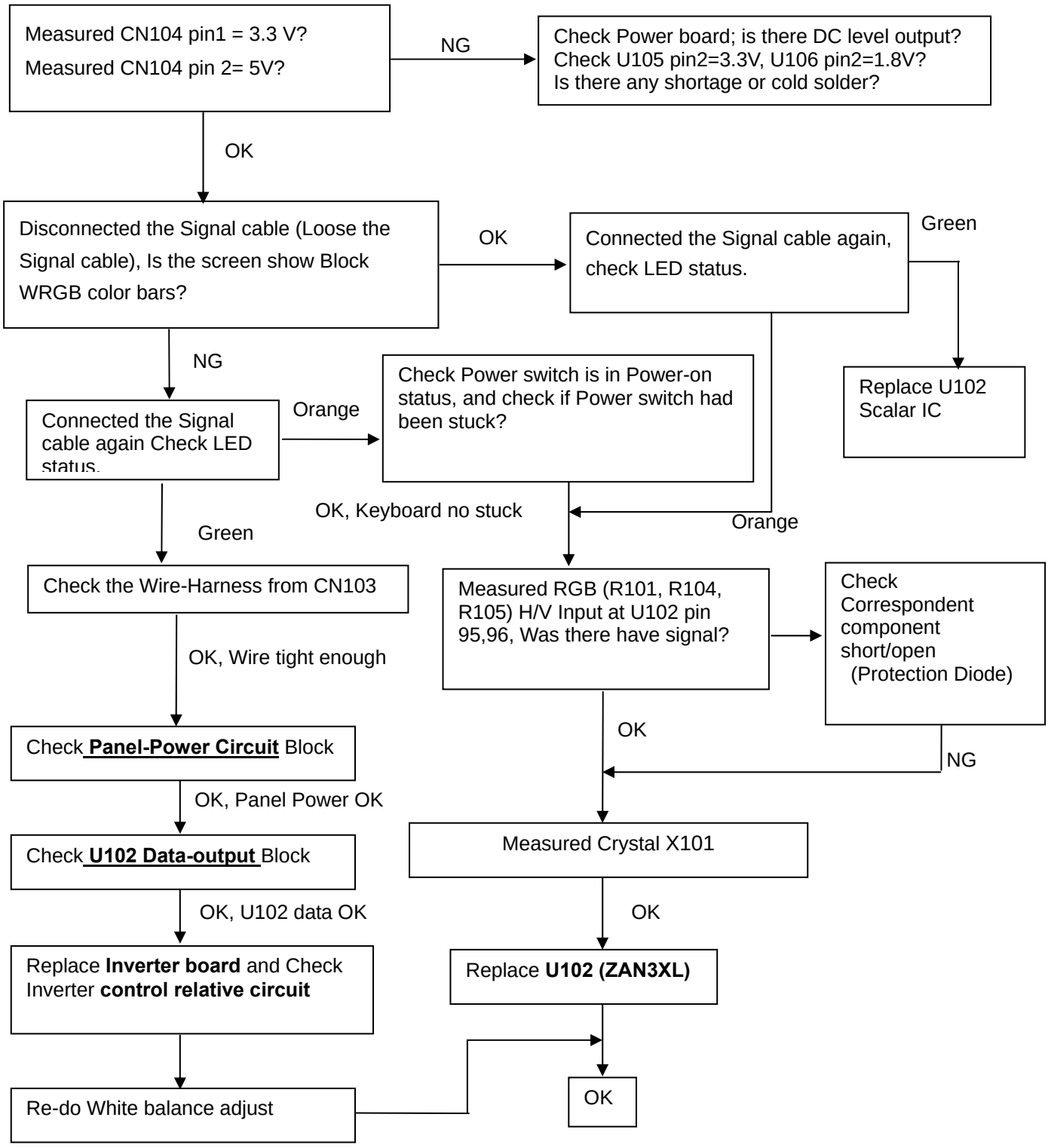
5.Service Manual

6.User Manual

## 9.2 Trouble shooting

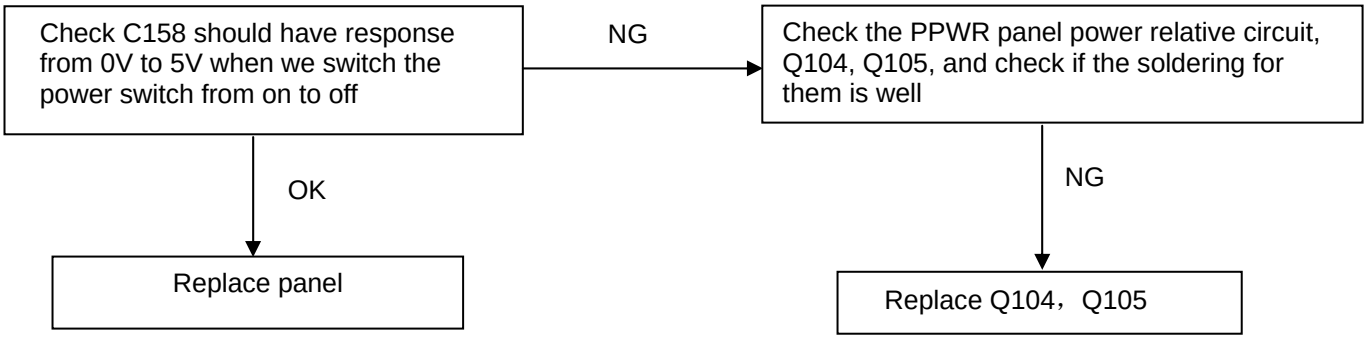
### 9.2.1 Main Board

**No Screen**

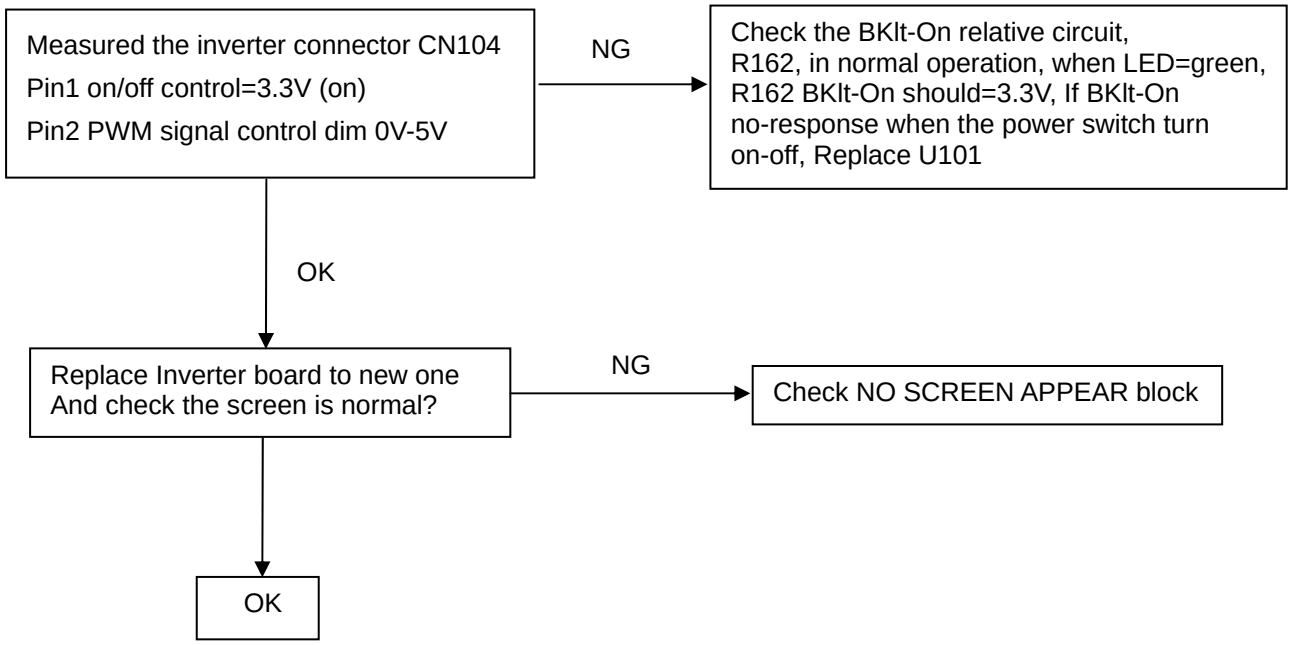



**Note:** 1. If replace "**Main-Board**", Please re-do "DDC-content" programmed & "White-Balance".
2. If replace "**Power Board**" only, Please re-do " White-Balance"

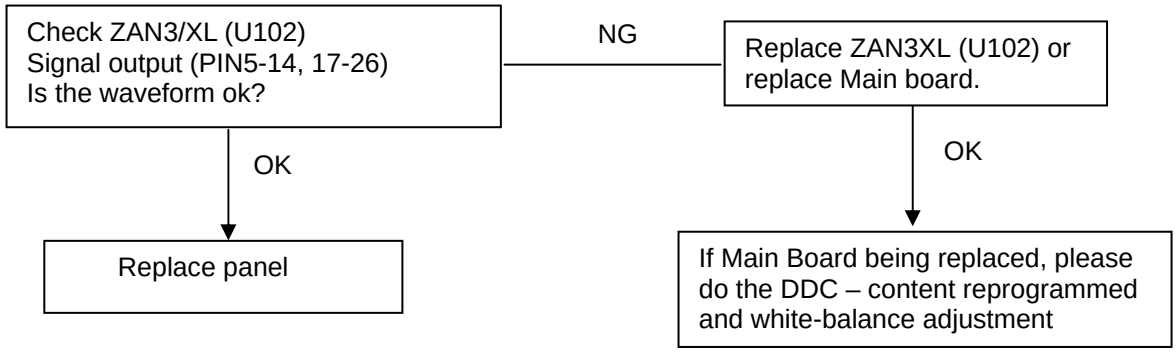
**Panel Power Circuit**




**Inverter Control Relative Circuit**

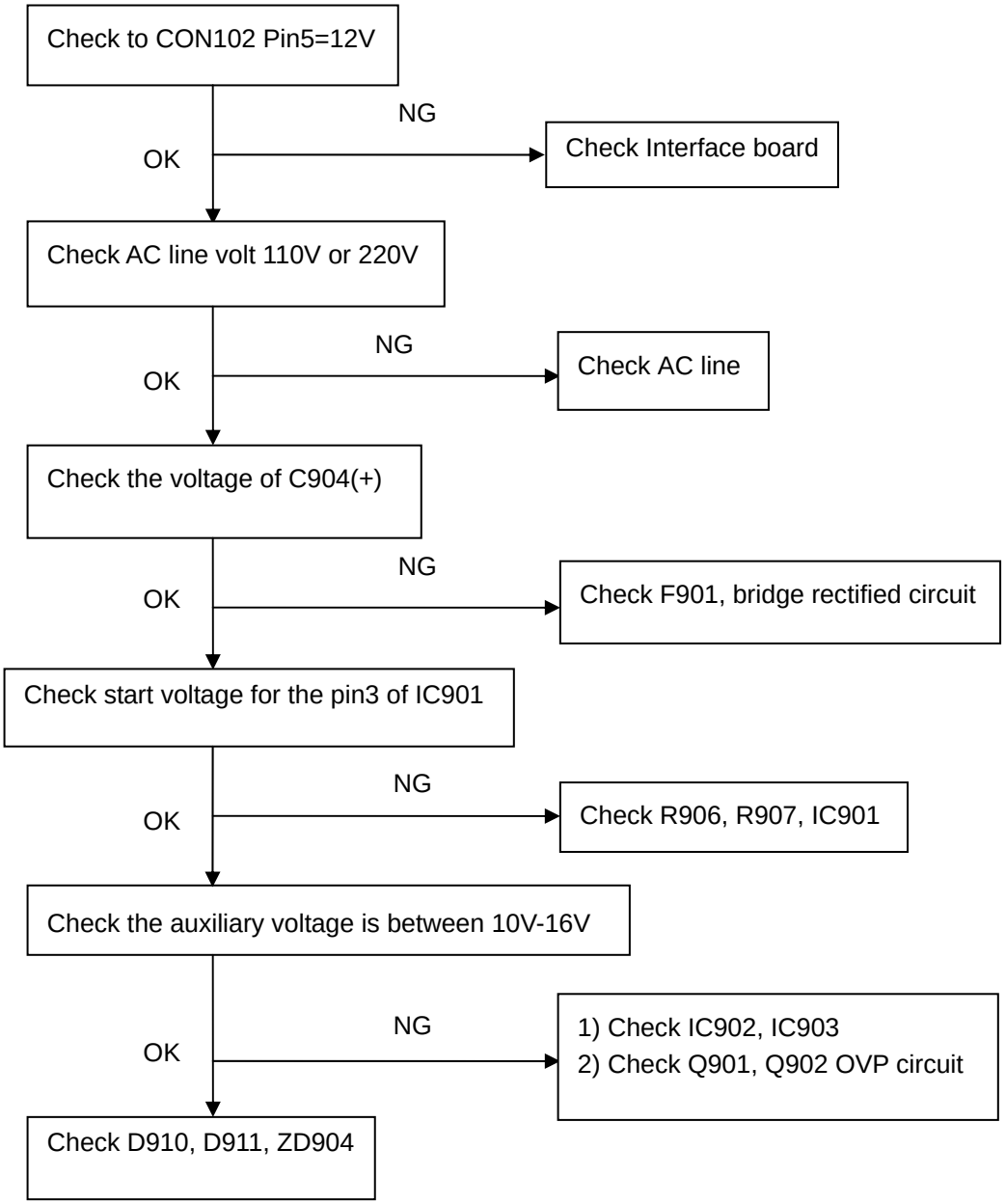



**U102-data Output**

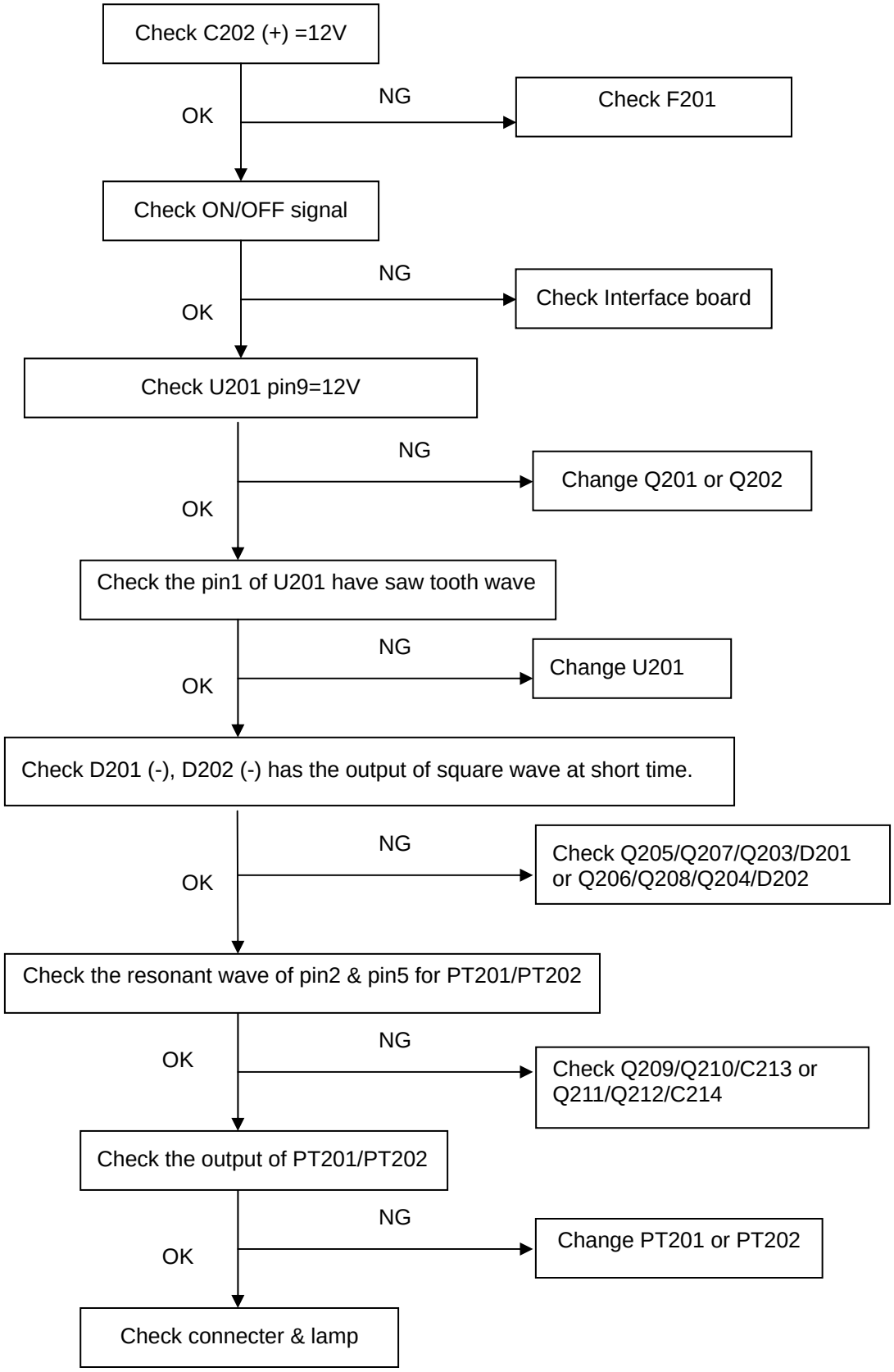


### 9.2.2 Inverter/Power Board

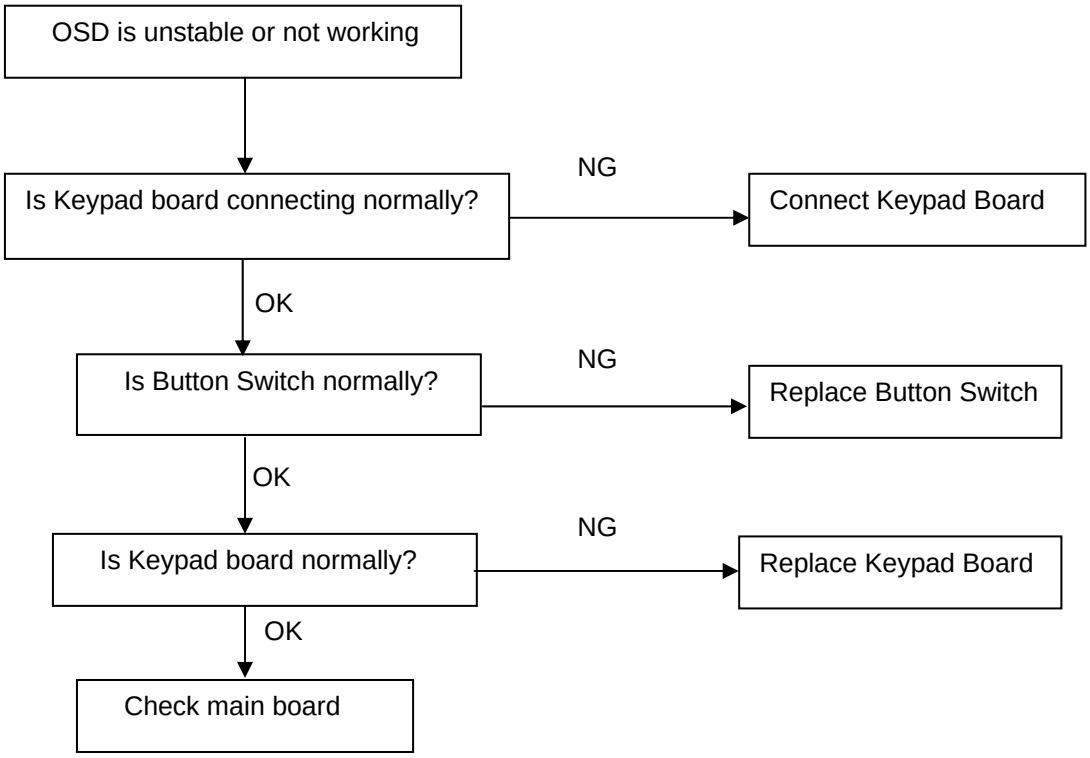
**No Power**



**No Backlight**



### 9.2.3 Key Board



# 10. White balance, Luminance adjustment

**Approximately 2 Hours should be allowed for warm up before proceeding White-Balance adjustment.**

Before started adjust white balance, please setting the Chroma-7120 **MEM. Channel 3 to 6500$^0$K** colors, **MEM. Channel 4 to 9300$^0$K** colors, **MEM. Channel 9 to 5700$^0$K** (our 9300 parameter is x = 283 ±28, y = 297 ±28, Y = 175 ±20 cd/m$^2$, 6500 parameter is x = 313 ±28, y = 329 ±28, Y = 180 ±20 cd/m$^2$, and 5700 parameter is x = 328 ±28, y = 344 ±28, Y = 180 ±20 cd/m$^2$)

How to setting MEM.channel you can reference to chroma 7120 user guide or simple use " **SC"** key and " **NEXT"** key to modify xyY value and use **"ID"** key to modify the TEXT description Following is the procedure to do white-balance adjust

Press MENU and AUTO-ADJUST button during press Power button will activate the factory mode,

***Gain adjustment:***

Move cursor to "-Factory Setting-" and press MENU key to enter this sub-menu;

Move cursor to " Factory" and press MENU key;

Move cursor to " Auto Level" and press MENU key to adjust Gain and Offset automatically;

a. Adjust sRGB (6500$^0$K) color-temperature

1. Switch the chroma-7120 to **RGB-mode** (with press "MODE" button)
2. Switch the MEM.channel to Channel 3 (with up or down arrow on chroma 7120)
3. The LCD-indicator on chroma 7120 will show x = 313 ±28, y = 329 ±28, Y = 180 ±20 cd/m$^2$
4. Adjust the RED on OSD window until chroma 7120 indicator reached the value R=100
5. Adjust the GREEN on OSD, until chroma 7120 indicator reached G=100
6. Adjust the BLUE on OSD, until chroma 7120 indicator reached B=100
7. Repeat above procedure (item 5,6,7) until chroma 7120 RGB value meet the tolerance =100±2

b. Adjust **Color1** (9300$^0$K) color-temperature

8. Switch the chroma-7120 to **RGB-mode** (with press "MODE" button)
9. Switch the MEM.channel to Channel 4 (with up or down arrow on chroma 7120)
10. The LCD-indicator on chroma 7120 will show x = 283 ±28, y = 297 ±28, Y = 175 ±20 cd/m$^2$
11. Adjust the RED on OSD window until chroma 7120 indicator reached the value R=100
12. Adjust the GREEN on OSD, until chroma 7120 indicator reached G=100
13. Adjust the BLUE on OSD, until chroma 7120 indicator reached B=100
14. Repeat above procedure (item 5,6,7) until chroma 7120 RGB value meet the tolerance =100±2

c. Adjust **Color2** (5700$^0$K) color-temperature

15. Switch the chroma-7120 to **RGB-mode** (with press "MODE" button)
16. Switch the MEM.channel to Channel 9 (with up or down arrow on chroma 7120)
17. The LCD-indicator on chroma 7120 will show x = 328 ±28, y = 344 ±28, Y = 180 ±20cd/m$^2$
18. Adjust the RED on OSD window until chroma 7120 indicator reached the value R=100
19. Adjust the GREEN on OSD, until chroma 7120 indicator reached G=100
20. Adjust the BLUE on OSD, until chroma 7120 indicator reached B=100
21. Repeat above procedure (item 5,6,7) until chroma 7120 RGB value meet the tolerance 100±2
22. Move cursor to " Exit/Save" sub-menu and press MENU key to save adjust value and exit.

**Turn the POWER-button off to on to quit from factory mode.**

## Max Brightness measurement:

a. Switch to the full white pattern, in user mode main menu:
   1. Set <Color Settings> Red, Green, and Blue to the max.
   2. Set <Brightness> Brightness, Contrast to the max.

b. The Minimum brightness is 200cd/m$^2$ ±20

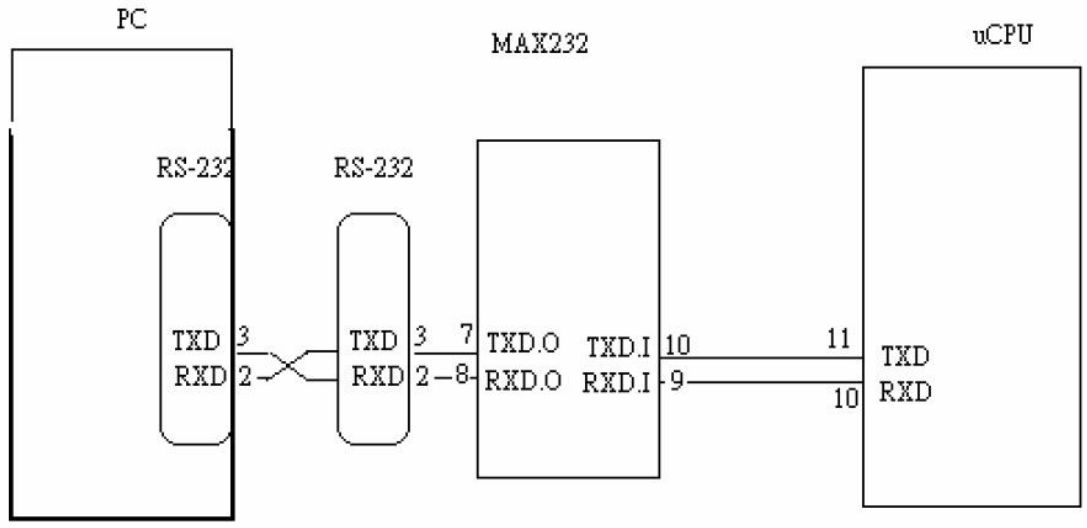
# 11. EDID Content

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0: | 00 | FF | FF | FF | FF | FF | FF | 00 | 10 | AC | 0B | A0 | 33 | 32 | 31 | 30 |
| 16: | 0A | 0E | 01 | 03 | 68 | 22 | 1B | 78 | EE | CA | F6 | A3 | 57 | 47 | 9E | 23 |
| 32: | 11 | 4F | 54 | A5 | 4B | 00 | 71 | 4F | 81 | 80 | 01 | 01 | 01 | 01 | 01 | 01 |
| 48: | 01 | 01 | 01 | 01 | 01 | 01 | 30 | 2A | 00 | 98 | 51 | 00 | 2A | 40 | 30 | 70 |
| 64: | 13 | 00 | 52 | 0E | 11 | 00 | 00 | 1E | 00 | 00 | 00 | FF | 00 | 36 | 34 | 31 |
| 80: | 38 | 30 | 33 | 39 | 43 | 30 | 31 | 32 | 33 | 0A | 00 | 00 | 00 | FC | 00 | 44 |
| 96: | 45 | 4C | 4C | 20 | 45 | 31 | 37 | 33 | 46 | 50 | 0A | 20 | 00 | 00 | 00 | FD |
| 112: | 00 | 38 | 4B | 1F | 50 | 0E | 00 | 0A | 20 | 20 | 20 | 20 | 20 | 20 | 00 | 6B |

# 12. ISP (In System Program) User Manual

## 12.1 Connect ISP Writer preparation action

Connect RXD and TXD of PC to RXD (P3.0) and TXD (P3.1) of CPU through RS-232.



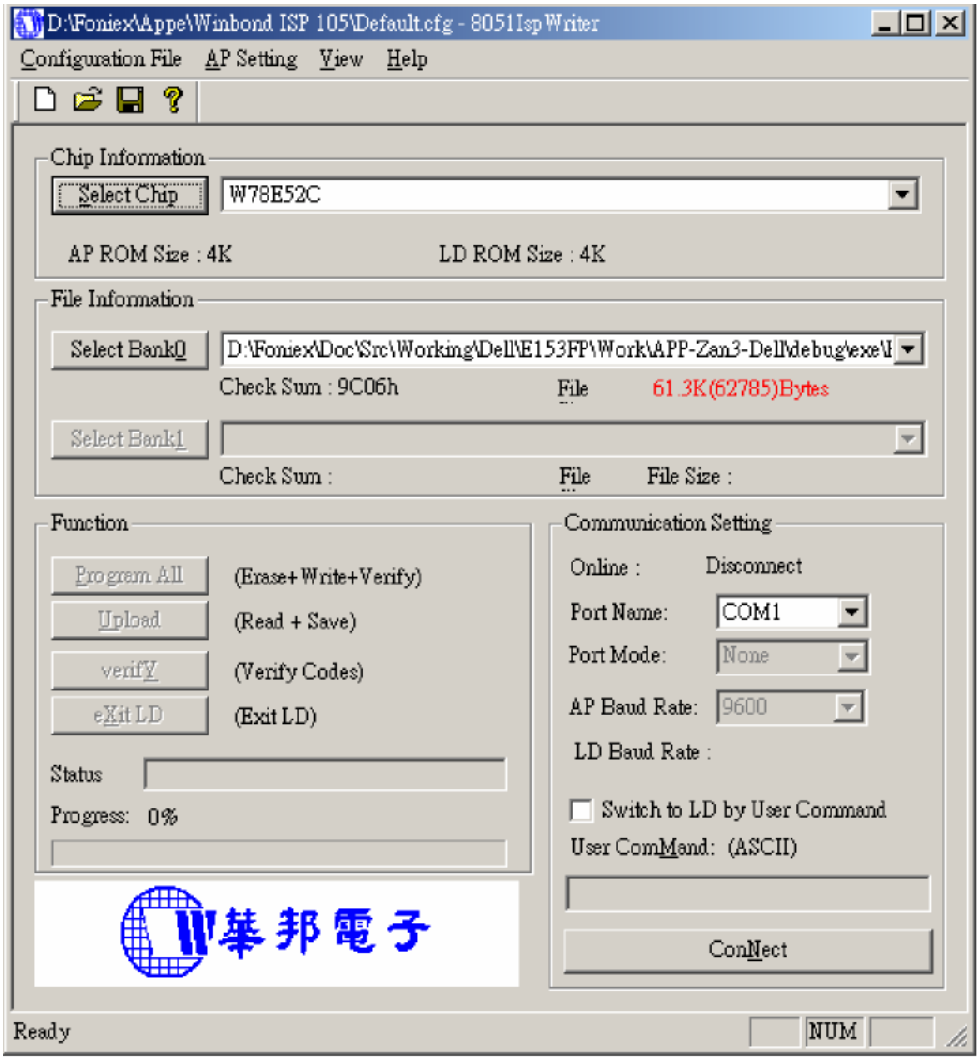

There are two ways to entering Reboot Mode. The settings for Reboot Mode is as follow

- Both P2.6 P2.7 are LOW and RESET pin is HIGHT.
- P4.3 is LOW and RESET pin is HIGHT.

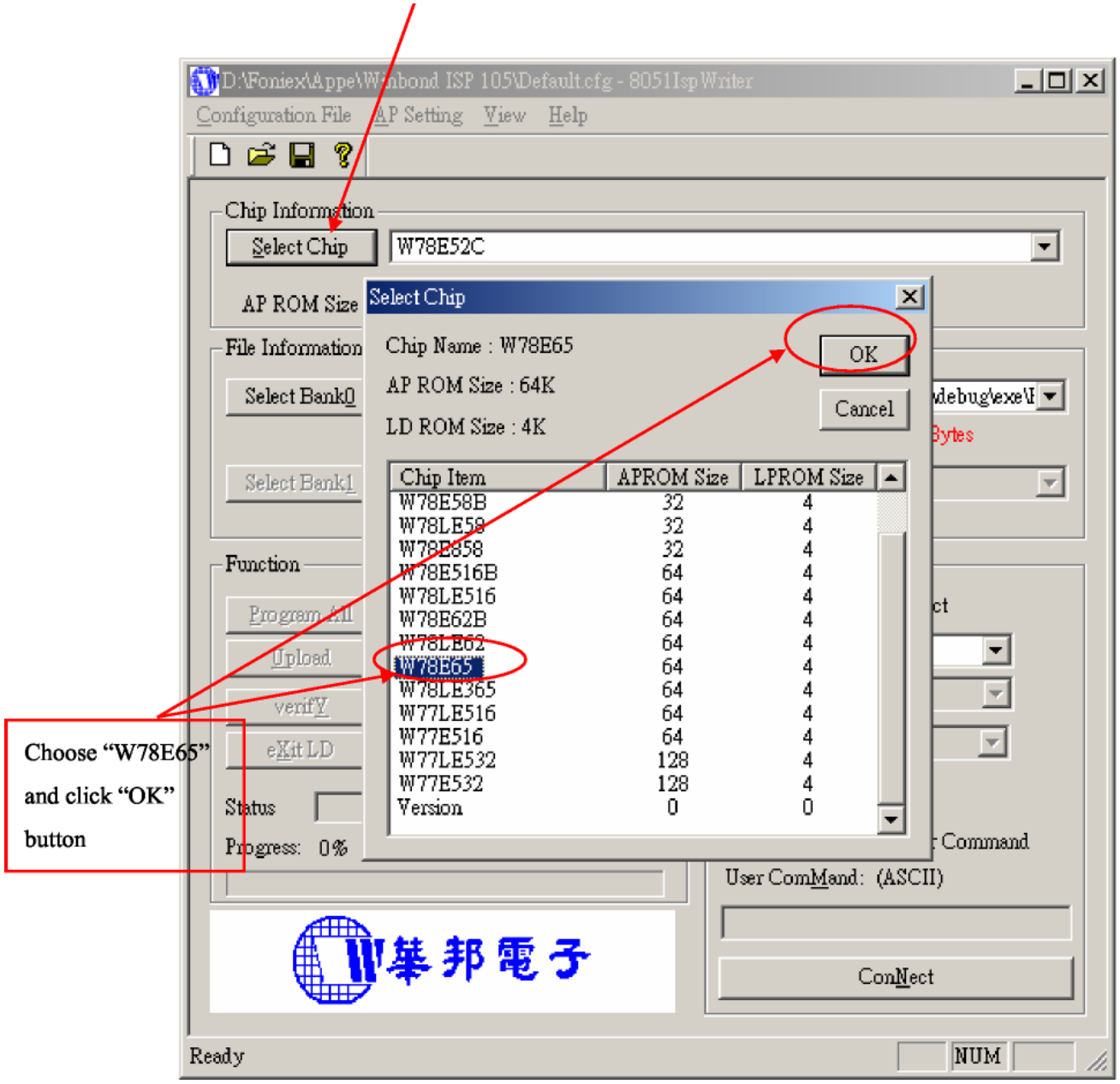
## 12.2 To Use ISP WRITER (Note: Take E153FP ISP for example)

Press the "–" key at front bezel and plug the AC power cord in, then the MCU enter ISP mode;

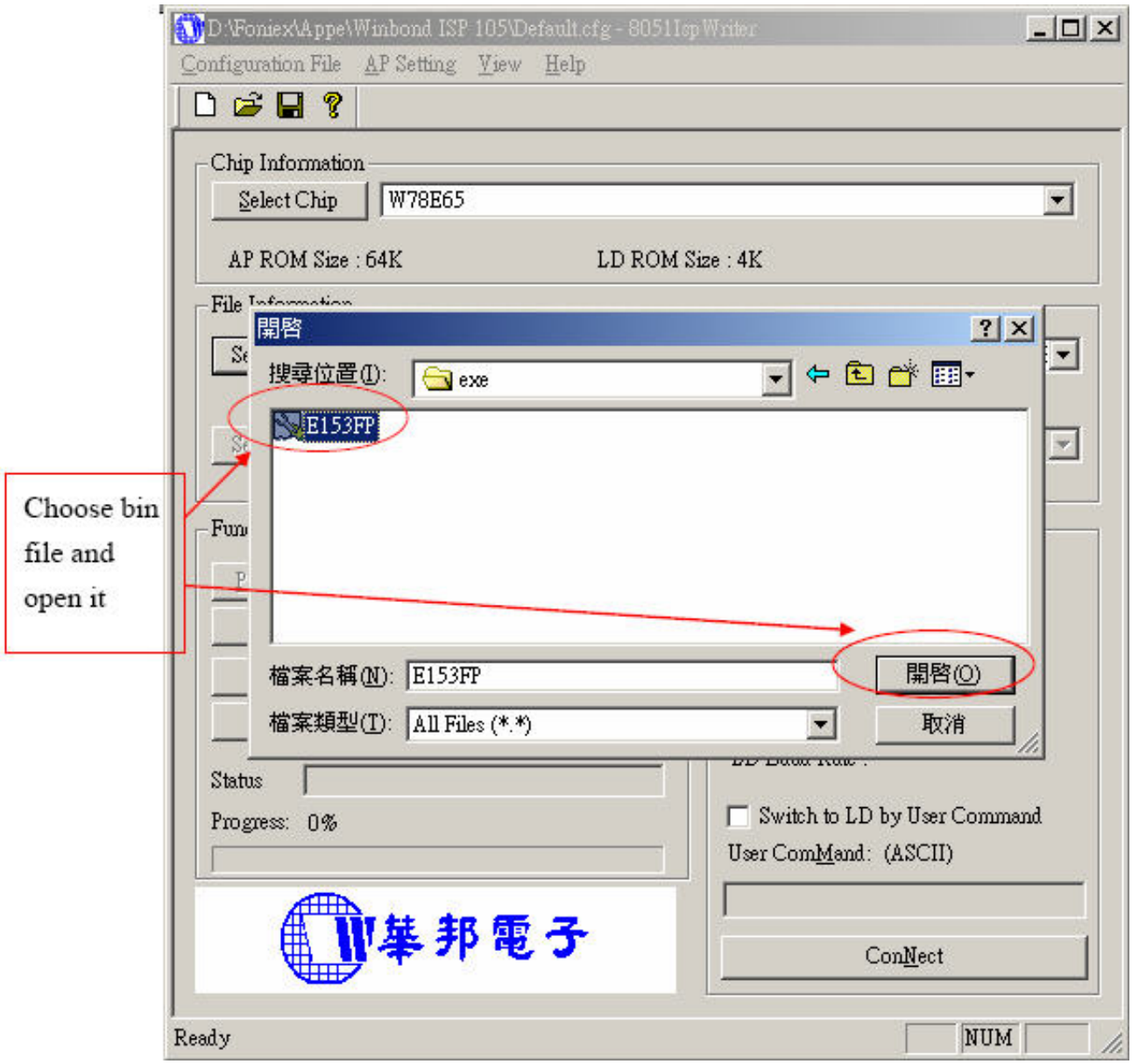
a. You will enter the window as follow after executing the ispwriter.exe file.



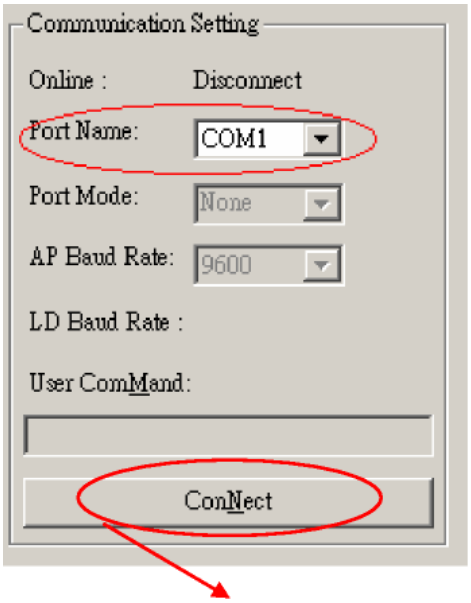
b. Click the “Select Chip” button, and choose the type you are going to program.



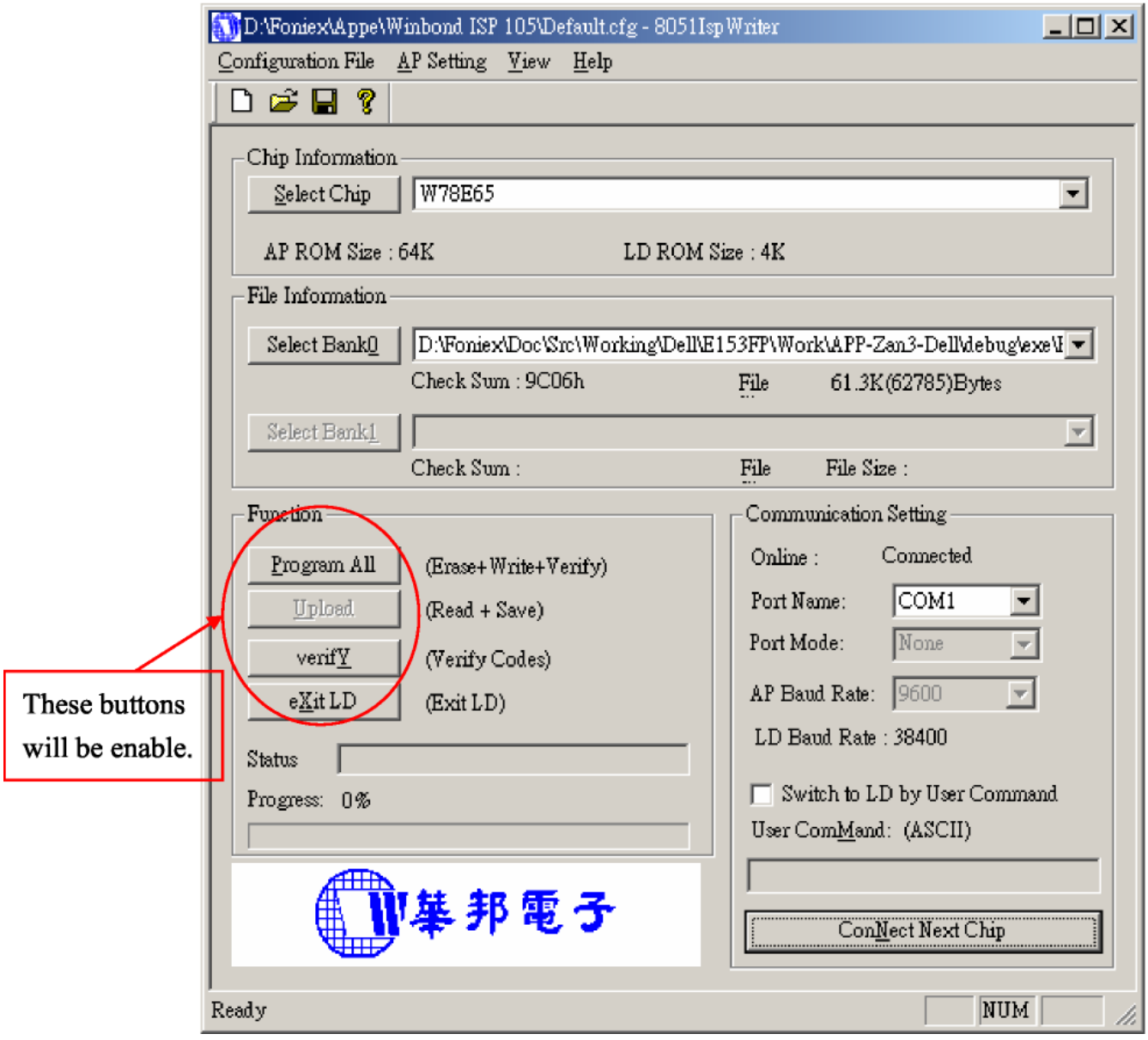
c. Click the “Select Bank0” button and selecting a file which a binary Format required.



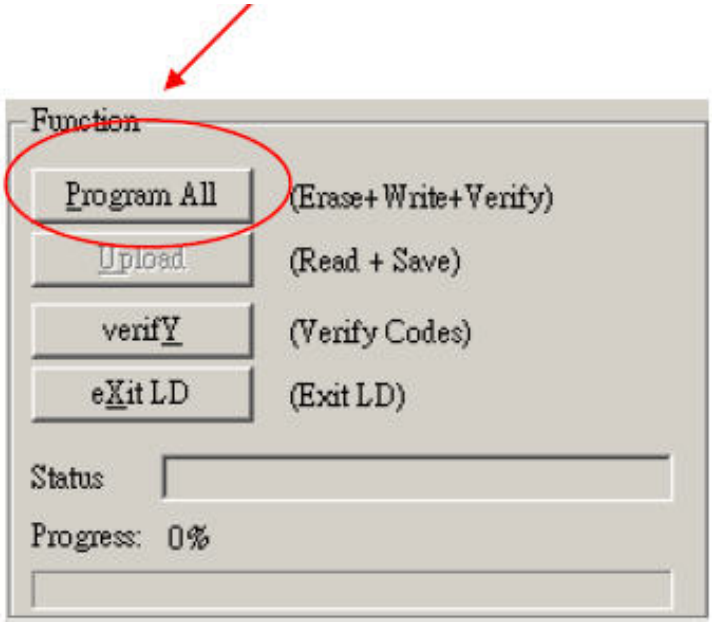
d. Select the communication Setting: Port Name




e. Click the “ConNect” button.

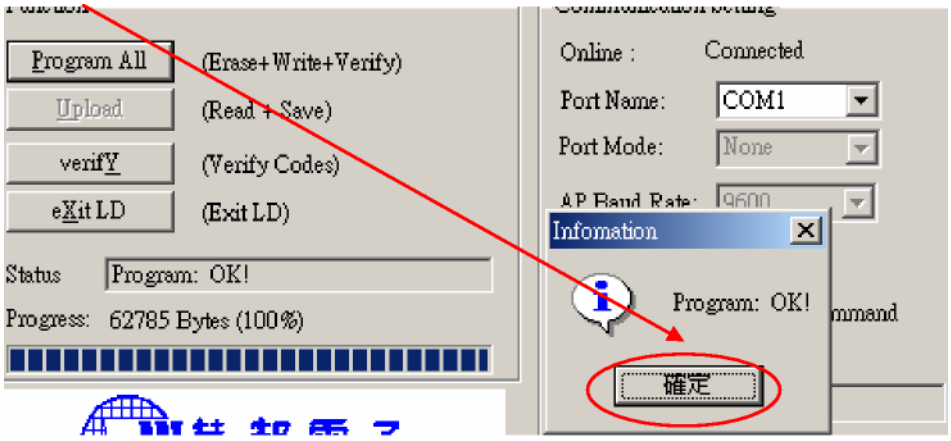


f. Click “Program all” to start programming.

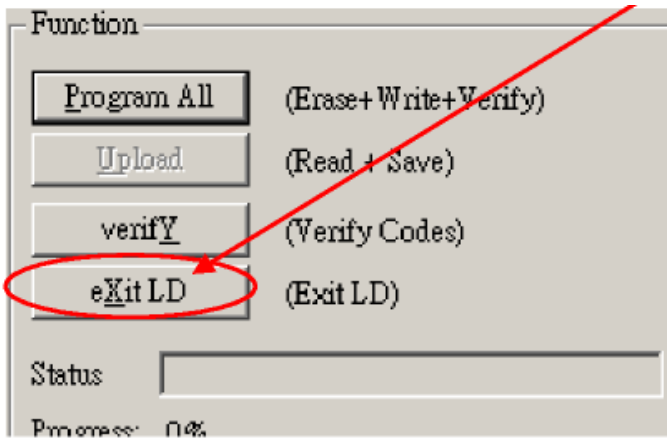



## 12.3. Executing ISP

a. “Program All” button that will execute erase and program and verify. Then you can get the window as follow, and click “OK” to complete ISP process.




b. Complete the ISP process, click“exit LD”button to reset monitor.



# 13. Check List

## 13.1 After replacing LCD Main board and panel, Check if white-balance is within the Specs, then re-writing DDC is necessary.

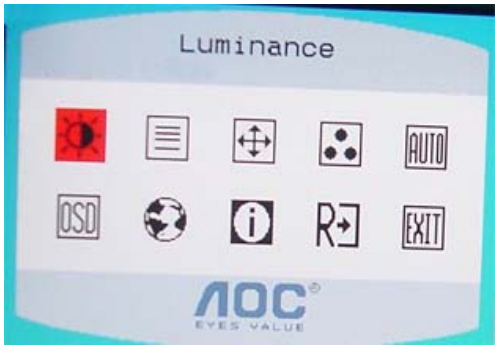
The white-balance value for each common color temperature:

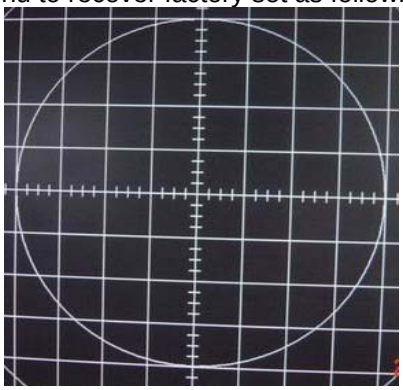
9300 parameter is x=283±28, y=297±28, Y = 180 ±10 cd/$m^2$,
6500 parameter is x =313±28, y=329±28, Y = 180 ±10 cd/$m^2$,
5700 parameter is x = 328 ±28, y = 344 ±28, Y = 180 ±10 cd/$m^2$)

The color temperature value above must be up to the situation of x<y. The value of Y should be confirmed according to different customers. 15 ”LCD is commonly 180±20cd/$cm^2$（Center）and 17” LCD is required to be larger than 200cd/$cm^2$ (Center). The exact brightness values are confirmed by the checking-regulations of different customers and different models.

## 13.2 Steps of white-balance adjustment for LCD:(Take 17” AOC LCD LM724 for example)

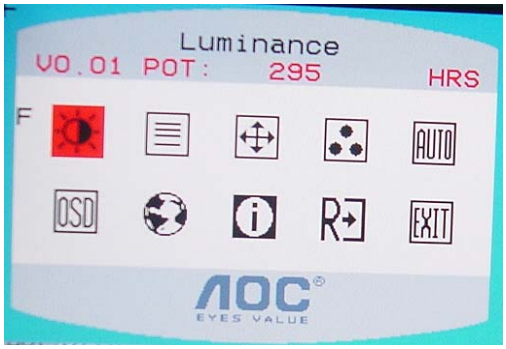
1. Required instruments: Chroma7120、Chroma2325（BGA265A）。
2. First connect the instruments together and turn on the LCD power, then warm up for 30 minutes under full white screen mode. First press the “Reset” key in the menu to recover factory set as following.



Set Chroma2325 at round-windows mode and make the detecting-head of Chroma7120 aim at the cross in the middle, the distance between the detecting-head and the cross is 20cm.

3. Set Chroma2325（BGA265A）to be T144（1280*1024/60HZ）and P105 of full white screen. Test if the white-balance value is within the specs. Please follow the steps below to adjust if it is beyond the specs.
4. Cut the power. Then press MENU key and re-plug power cable at the same time to enter into the factory mode. See the following pictures.



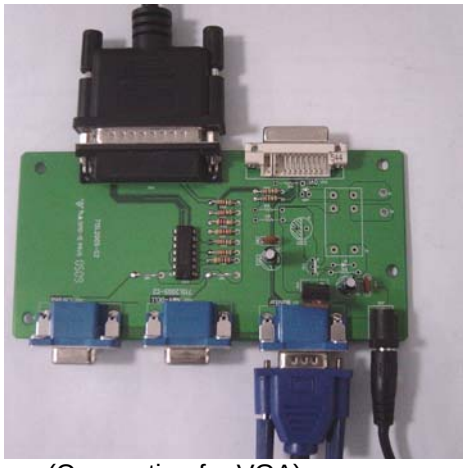

Select ”F” ,then Select AUTO LEVEL item.

5. Test white-balance again after Auto Level. Adjustment with hand is necessary if it is beyond the specs.
6. Select 7x00 item to adjust cool color-temperature and select 6x00 to adjust warm color- temperature. It can reach to the best effect through adjusting R/G/B value if it inclines to green or blue.
7. Select Exit to the upper menu after completing the adjustment. Then press POWER OFF to exit and save it.

## 13.3 Steps for writing DDC:

1. Employ PC, and connect the DDC-writing instrument and the instrument that is ready for writing into DDC to

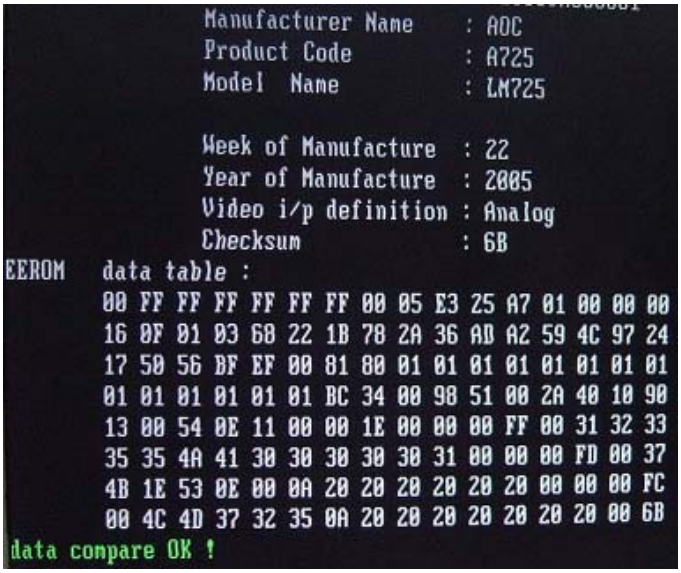
the power of 12V. Connect the signal cable of the latter to D-USB or DVI of DDC-writing instrument (The data-writing of monitor needs transfer-interface) and link the DDC-writing instrument with PC through printer interface. (See the schematic picture below)



(Connection for VGA)

(Connection for DVI)

2. Seek the document with the expanded name of **.BAT** in DDC file of this model. It appears the indication of "Input Serial No.：" after dual-click the document to be ready for DDC-writing.
3. Input the serial number of the product (For instance: AOC LM725 is 13 bits), and then press ENTER to start writing
4. Check the indication of DDC-writing program at the end. When you see the picture as the schematic picture above, the "Data compare OK!" Means being written well and that's the end. Please check if the Manufacturer Name, Vendor Assigned Code, Monitor Name, Serial Number, Week of Manufacture, Year of Manufacture are right. It will appear "Data compare error! " To indicate failure if the DDC-writing doesn't perform well. Please check the power resource and the connection of the signal cable, then return to step 3 by pressing ENTER and re-do it.
5. You can exit the program by pressing Ctrl plus C, and then cut the signal cable and the power.
6. The following picture is taking AOC LM725 EDID for example.




Notes:

1. Make sure the system time of PC is in accordance with the real time before writing.
2. The schematic picture is just as an example for description; the exact content of the DDC is dependent on the serial number of the BARCORD of this model.
3. Data DDC-writing needs a transfer interface.
   Instruction：DDC-writing needs 4 files:
   1. Barcode.txt (Supply Barcode length and flow number)
   2. *.EXE (DDC-writing program)
   3. WR.bat (Group order file for cycling utilization of *EXE, and dual-click this file when perform DDC-writing)
4. W.dat (The content with 128 bits of DDC)

# 14. BOM List

## Different Parts List

| Part NO. | Description | Unit | Quantity | Remark |
|---|---|---|---|---|
| CBPC780KGLDD | CONVERSION BOARD | 1 | PCS | For LPL panel |
| CBPC780KKLDD | CONVERSION BOARD ROHS | 1 | PCS | For Hyundai panel |
| CBPC780KCLDD | CONVERSION BOARD | 1 | PCS | For CPT panel |
| PWPC1742HDD1 | POWER BOARD | 1 | PCS | For Hyundai panel |
| PWPC1742LGD1 | POWER BOARD | 1 | PCS | For LPL panel |
| PWPC1742CPD1 | POWER BOARD | 1 | PCS | For CPT panel |
| 12G6084 1 | PORON | 1 | PCS | For CPT panel |
| 15G8054 1 | MAIN FRAME | 1 | PCS | For Hyundai panel |
| 15G8054 2 | MAIN FRAME | 1 | PCS | For LPL&CPT panel |
| 40G 190700 1 | ID LABEL | 1 | PCS | For Hyundai panel |
| 40G 190700 2B | ID LABEL | 1 | PCS | For LPL&CPT panel |
| 44G3748624 1A | CARTON | 1 | PCS | For Hyundai panel |
| 44G3748700 1A | CARTON | 1 | PCS | For LPL&CPT panel |
| 52G6025 11838 | MYLAR | 1 | PCS | For CPT panel |
| 52G6025 11940 | INSULATE SHEET | 1 | PCS | For Hyundai panel |
| 89G1738GAA 16 | SIGNAL CABLE | 1 | PCS | For LPL panel |
| 89G1738LAA 16 | SIGNAL CABLE | 1 | PCS | For Hyundai panel |
| 89G402A18NISD | POWER CORD | 1 | PCS | For Hyundai panel |
| 89G402A18NYHD | POWER CORD | 1 | PCS | For LPL panel |
| M1G 330 4128 | SCREW M3X4 | 4 | PCS | For CPT panel |
| M1G1430 5128 | SCREW (FOR SHIELD) | 4 | PCS | For LPL panel |
| M1G1430 6128 | SCREW M3X6 | 8 | PCS | For LPL&CPT panel |
| M1G1430 6128 | SCREW M3X6 | 12 | PCS | For Hyundai panel |
| 750GLG70E1T 4 | LPL 17" TLB4 PANEL | 1 | PCS | For LPL panel |
| 750GLK70 1351Z D | HYDIS 17" 115(116) ZBD PA | 1 | PCS | For Hyundai panel |
| 750LLC70A071ZB | CPT 17" 110 ZB PANEL | 1 | PCS | For CPT panel |

## For T782KGLHK8DMN model

| Location | Part NO | Description | Quantity | Unit |
|---|---|---|---|---|
| | CBPC780KGLDD | CONVERSION BOARD | 1 | PCS |
| | KEPC780KED1 | KEY BOARD | 1 | PCS |
| | PWPC1742LGD1 | POWER BOARD | 1 | PCS |
| E095 | S95G801830580 | LVDS ASS'Y | 1 | PCS |
| | 11G6036 1 | SPACER SUPPORT SCC-24 | 1 | PCS |
| | 15G8054 2 | MAIN FRAME | 1 | PCS |
| | 23G3178700 1A | LOGO | 1 | PCS |
| | 33G4669 GV C | POWER BUTTON | 1 | PCS |
| | 33G4670 GV T | KEY PAD | 1 | PCS |
| | 34G1367AY2 T | BEZEL | 1 | PCS |
| | 34G1368 Y2 T | REAR COVER | 1 | PCS |
| | 40G 190700 2B | ID LABEL | 1 | PCS |
| | 40G 459700 1B6444 | DELL S/N LABEL | 1 | PCS |
| | 40G 58162435A | LABEL | 1 | PCS |
| | 40G 581700 3A6813 | CARTON LABEL | 1 | PCS |
| | 41G7800700 2A | QSG | 1 | PCS |
| | 44G3231 9 A | EVA | 1 | PCS |
| | 44G3748 1 | EPS | 1 | PCS |

| | | | | |
|---|---|---|---|---|
| | 44G3748 2 | EPS | 1 | PCS |
| | 44G3748700 1A | CARTON | 1 | PCS |
| | 45G 88607DE6 | PE BAG FOR MONITOR | 1 | PCS |
| | 52G 1185 4 | type for dell | 10 | CM |
| | 52G 1186 | SMALL TAPE | 8 | CM |
| | 52G6020 2DE4 | FILM PROTECT | 1 | PCS |
| | 52G6022 1500 | SMALL TAPE | 12 | CM |
| | 70G1700700 1C | CD MANUAL | 1 | PCS |
| | 85G 672 1 | SHIELD | 1 | PCS |
| | 85G 673 1 | SHIELD-INVERTER | 1 | PCS |
| E089B | 89G1738GAA 16 | SIGNAL CABLE | 1 | PCS |
| | 89G402A18NYHD | POWER CORD | 1 | PCS |
| | D1G 330 4128 | SCREW M3X4 | 1 | PCS |
| | M1G1430 5128 | SCREW (FOR SHIELD) | 4 | PCS |
| | M1G1430 6128 | SCREW M3X6 | 3 | PCS |
| | M1G1430 6128 | SCREW M3X6 | 5 | PCS |
| | M1G1740 6128 | SCREW | 1 | PCS |
| | M1G2940 10225 | SCREW | 4 | PCS |
| | Q1G 330 8 47 | SCREW 3X8mm | 3 | PCS |
| | 705L 780 87 DL | CN901 ASS'Y | 1 | PCS |
| | 705L780KB34 79 | BACK COVER ASS'Y | 1 | PCS |
| | 750GLG70E1T 4 | LPL 17" TLB4 PANEL | 1 | PCS |
| | AIC780KGLDD | MAIN BOARD | 1 | PCS |
| CN101 | 33G3802 8H | WAFER 8P RIGHT ANGLE PI | 1 | PCS |
| CN104 | 33G8013 6 H | 6P PLUG R/A | 1 | PCS |
| CN103 | 33G8027 24 H | CONN W TO B12P*2 P*2.0 | 1 | PCS |
| | 40G 45762412B | CBPC LABEL | 1 | PCS |
| C122 | 67G309V220 3 | 22UF +-20% 16V | 1 | PCS |
| C129 | 67G309V220 3 | 22UF +-20% 16V | 1 | PCS |
| C136 | 67G309V220 3 | 22UF +-20% 16V | 1 | PCS |
| C140 | 67G309V220 3 | 22UF +-20% 16V | 1 | PCS |
| C143 | 67G309V220 3 | 22UF +-20% 16V | 1 | PCS |
| C172 | 67G309V220 3 | 22UF +-20% 16V | 1 | PCS |
| C165 | 67G309V470 3 | 47UF 16V 85C | 1 | PCS |
| C166 | 67G309V470 3 | 47UF 16V 85C | 1 | PCS |
| C171 | 67G309V470 3 | 47UF 16V 85C | 1 | PCS |
| CN100 | 88G 35315F HJ | SOC SUBD H 15P F | 1 | PCS |
| X101 | 93G 22 53 H | 14.31818MHZ/30PF/49US | 1 | PCS |
| X102 | 93G 22 53 H | 14.31818MHZ/30PF/49US | 1 | PCS |
| C154 | 65G0603102 31 | CHIP 1000PF 50V NPO | 1 | PCS |
| C156 | 65G0603102 31 | CHIP 1000PF 50V NPO | 1 | PCS |
| | 40G 457624 1B | LABEL-CPU | 1 | PCS |
| U106 | 56G 56327A | ANACHIP | 1 | PCS |
| U105 | 56G 585 4A | AP1117E33LA | 1 | PCS |
| U103 | 56G1133 34 | M24C02-WMN6TP | 1 | PCS |
| U104 | 56G1133 56 | M24C16-WMN6TP | 1 | PCS |

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|---|---|---|---|---|
| U102 | 56L 562 58 | GMZAN3/SL (AC) | 1 | PCS |
| U101 | 56L1125137LD3 | W78E65P-40 BY WINBOND | 1 | PCS |
| Q101 | 57G 417 4 | PMBS3904/PHILIPS-SMT(04 | 1 | PCS |
| Q102 | 57G 417 4 | PMBS3904/PHILIPS-SMT(04 | 1 | PCS |
| Q105 | 57G 417 4 | PMBS3904/PHILIPS-SMT(04 | 1 | PCS |
| Q104 | 57G 763 1A | AP2305N | 1 | PCS |
| RP103 | 61L 125472 8 | CHIP AR 8P4R 4.7K OHM+- | 1 | PCS |
| FB104 | 61L0603000 | RST SM 0603 JUMP MAX 0R | 1 | PCS |
| R142 | 61L0603000 | RST SM 0603 JUMP MAX 0R | 1 | PCS |
| R146 | 61L0603000 | RST SM 0603 JUMP MAX 0R | 1 | PCS |
| R169 | 61L0603000 | RST SM 0603 JUMP MAX 0R | 1 | PCS |
| R102 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R109 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R110 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R111 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R119 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R120 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R125 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R126 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R128 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R129 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R130 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R137 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R139 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R141 | 61L0603101 | RST SM 0603 RC0603 100R | 1 | PCS |
| R164 | 61L0603102 | RST SM 0603 RC0603 1K P | 1 | PCS |
| R165 | 61L0603102 | RST SM 0603 RC0603 1K P | 1 | PCS |
| R171 | 61L0603104 | RST SM 0603 RC0603 100K | 1 | PCS |
| FB101 | 61L0603220 | RST SM 0603 RC0603 22R | 1 | PCS |
| FB102 | 61L0603220 | RST SM 0603 RC0603 22R | 1 | PCS |
| FB103 | 61L0603220 | RST SM 0603 RC0603 22R | 1 | PCS |
| R157 | 61L0603221 | RST SM 0603 RC0603 220R | 1 | PCS |
| R158 | 61L0603221 | RST SM 0603 RC0603 220R | 1 | PCS |
| R159 | 61L0603221 | RST SM 0603 RC0603 220R | 1 | PCS |
| R160 | 61L0603221 | RST SM 0603 RC0603 220R | 1 | PCS |
| R115 | 61L0603222 | RST SM 0603 RC0603 2K2 | 1 | PCS |
| R116 | 61L0603222 | RST SM 0603 RC0603 2K2 | 1 | PCS |
| R131 | 61L0603272 | RST SM 0603 RC22H 2K7 P | 1 | PCS |
| R132 | 61L0603272 | RST SM 0603 RC22H 2K7 P | 1 | PCS |
| R112 | 61L0603470 | RST SM 0603 RC0603 47R | 1 | PCS |
| R114 | 61L0603470 | RST SM 0603 RC0603 47R | 1 | PCS |
| R117 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R118 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R122 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R123 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R127 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |

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|---|---|---|---|---|
| R133 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R134 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R135 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R143 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R144 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R147 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R148 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R154 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R155 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R161 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R162 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R163 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R168 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R173 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R156 | 61L0603473 | RST SM 0603 RC0603 47K | 1 | PCS |
| R106 | 61L0603750 9F | 75OHM 1% 1/10W | 1 | PCS |
| R107 | 61L0603750 9F | 75OHM 1% 1/10W | 1 | PCS |
| R108 | 61L0603750 9F | 75OHM 1% 1/10W | 1 | PCS |
| R172 | 61L1206331 | CHIP 330OHM 5% 1/4W | 1 | PCS |
| C152 | 65G0603102 32 | 1000PF +-10% 50V X7R | 1 | PCS |
| C153 | 65G0603102 32 | 1000PF +-10% 50V X7R | 1 | PCS |
| C155 | 65G0603102 32 | 1000PF +-10% 50V X7R | 1 | PCS |
| C157 | 65G0603102 32 | 1000PF +-10% 50V X7R | 1 | PCS |
| C119 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C123 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C124 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C125 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C126 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C127 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C128 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C130 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C131 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C132 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C133 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C134 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C135 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C137 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C138 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C139 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C141 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C142 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C144 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C145 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C149 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C150 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C159 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |

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|---|---|---|---|---|
| C163 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C164 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C167 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C168 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C173 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C174 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C175 | 65G0603104 12 | CER2 0603 X7R 16V 100N | 1 | PCS |
| C147 | 65G0603220 31 | CER1 0603 NP0 50V 22P P | 1 | PCS |
| C148 | 65G0603220 31 | CER1 0603 NP0 50V 22P P | 1 | PCS |
| C176 | 65G0603220 31 | CER1 0603 NP0 50V 22P P | 1 | PCS |
| C177 | 65G0603220 31 | CER1 0603 NP0 50V 22P P | 1 | PCS |
| C104 | 65G0603473 32 | CHIP 0.047UF 50V X7R | 1 | PCS |
| C106 | 65G0603473 32 | CHIP 0.047UF 50V X7R | 1 | PCS |
| C108 | 65G0603473 32 | CHIP 0.047UF 50V X7R | 1 | PCS |
| C112 | 65G0603473 32 | CHIP 0.047UF 50V X7R | 1 | PCS |
| C113 | 65G0603473 32 | CHIP 0.047UF 50V X7R | 1 | PCS |
| C114 | 65G0603473 32 | CHIP 0.047UF 50V X7R | 1 | PCS |
| FB105 | 71G 56K121 M | CHIP BEAD | 1 | PCS |
| L101 | 71G 56K121 M | CHIP BEAD | 1 | PCS |
| L102 | 71G 56K121 M | CHIP BEAD | 1 | PCS |
| L103 | 71G 56K121 M | CHIP BEAD | 1 | PCS |
| L104 | 71G 56K121 M | CHIP BEAD | 1 | PCS |
| L105 | 71G 56K121 M | CHIP BEAD | 1 | PCS |
| L106 | 71G 56K121 M | CHIP BEAD | 1 | PCS |
| R101 | 71L 59Q101 | CHIP BEAD 100 OHM | 1 | PCS |
| R104 | 71L 59Q101 | CHIP BEAD 100 OHM | 1 | PCS |
| R105 | 71L 59Q101 | CHIP BEAD 100 OHM | 1 | PCS |
| D102 | 93G 39147SEM | ZMM5V6ST | 1 | PCS |
| D103 | 93G 39147SEM | ZMM5V6ST | 1 | PCS |
| D104 | 93G 39147SEM | ZMM5V6ST | 1 | PCS |
| D107 | 93G 39147SEM | ZMM5V6ST | 1 | PCS |
| D108 | 93G 39147SEM | ZMM5V6ST | 1 | PCS |
| D109 | 93G 39147SEM | ZMM5V6ST | 1 | PCS |
| D111 | 93G 39147SEM | ZMM5V6ST | 1 | PCS |
| D112 | 93G 39147SEM | ZMM5V6ST | 1 | PCS |
| D110 | 93G 64 42 P | BAV70 SOT-23 | 1 | PCS |
| D101 | 93G 6433P | BAV99 | 1 | PCS |
| D105 | 93G 6433P | BAV99 | 1 | PCS |
| D106 | 93G 6433P | BAV99 | 1 | PCS |
| | 715L1280 E | PCB | 1 | PCS |
| R101 | 61G 60210152T | 100OHM +- 5% 1/6W | 1 | PCS |
| SW101 | 77L 600 4 HJ | TACT SWITCH TSPE-1 | 1 | PCS |
| SW102 | 77L 600 4 HJ | TACT SWITCH TSPE-1 | 1 | PCS |
| SW103 | 77L 600 4 HJ | TACT SWITCH TSPE-1 | 1 | PCS |
| SW104 | 77L 600 4 HJ | TACT SWITCH TSPE-1 | 1 | PCS |
| DP101 | 81G 12 1A GP | LED | 1 | PCS |

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|---|---|---|---|---|
| CN101 | 95G8014 8 10 | WIRE HARNESS | 1 | PCS |
| | 715L1153 1A | PCB | 1 | PCS |
| CON201 | 33G8021 2D AC | CONN.2P R/A 87210-0236 | 1 | PCS |
| CON202 | 33G8021 2D AC | CONN.2P R/A 87210-0236 | 1 | PCS |
| CON203 | 33G8021 2D AC | CONN.2P R/A 87210-0236 | 1 | PCS |
| CON204 | 33G8021 2D AC | CONN.2P R/A 87210-0236 | 1 | PCS |
| CN901 | 33G8029 4A | PLUG | 1 | PCS |
| | 40G 45762420A | ID LABEL | 1.03 | PCS |
| IC902 | 56G 139 3B | PC123 Y82FZ0F | 1 | PCS |
| Q209 | 57G 761 6 | 2SC5706-P-E | 1 | PCS |
| Q210 | 57G 761 6 | 2SC5706-P-E | 1 | PCS |
| Q211 | 57G 761 6 | 2SC5706-P-E | 1 | PCS |
| Q212 | 57G 761 6 | 2SC5706-P-E | 1 | PCS |
| NR901 | 61G 58120 WT | NTCR 12OHM 20% 2A SCK-1 | 1 | PCS |
| C213 | 63G210J1842A2 | PMS 0.18UF 250V | 1 | PCS |
| C214 | 63G210J1842A2 | PMS 0.18UF 250V | 1 | PCS |
| C226 | 65G 3J2206ET | 22PF 5% SL 3KV TDK | 1 | PCS |
| C227 | 65G 3J2206ET | 22PF 5% SL 3KV TDK | 1 | PCS |
| C228 | 65G 3J2206ET | 22PF 5% SL 3KV TDK | 1 | PCS |
| C229 | 65G 3J2206ET | 22PF 5% SL 3KV TDK | 1 | PCS |
| C901 | 65G305M1022EM | Y2 1000PF +-20% 250VAC | 1 | PCS |
| C902 | 65G305M1022EM | Y2 1000PF +-20% 250VAC | 1 | PCS |
| C913 | 65G306M3322F2 | 3300PF +-20% 400VAC Y1 | 1 | PCS |
| C912 | 65G306M4722BP | 4700PF +-20% 400VAC | 1 | PCS |
| C922 | 67G215L102 3R | LOW E.S.R 1000UF +/-20% | 1 | PCS |
| C923 | 67G215L102 3R | LOW E.S.R 1000UF +/-20% | 1 | PCS |
| C904 | 67G215S10115H | 100UF 450V 18*36 105 BY | 1 | PCS |
| | 71G 55 2 | FERRITE BEAD 6.5*5*1.7 | 1 | PCS |
| L903 | 73G 253 91 LS | CHOKE BY LI SHIN | 1 | PCS |
| L904 | 73G 253 91 LS | CHOKE BY LI SHIN | 1 | PCS |
| L201 | 73G 253139 HA | CHOKE COIL | 1 | PCS |
| L202 | 73G 253139 HA | CHOKE COIL | 1 | PCS |
| PT201 | 80LL15T 7YSG | X'FMR | 1 | PCS |
| PT202 | 80LL15T 7YSG | X'FMR | 1 | PCS |
| T901 | 80LL17T 2 TG | X'FMR | 1 | PCS |
| CON102 | 95G8014 6 19 | WIRE HARNESS | 1 | PCS |
| | 705L 560 61 06 | R903 ASS'Y | 1 | PCS |
| | 705L 780 57 DL | Q903 ASS'Y | 1 | PCS |
| | 705L 780 61 07 | R917 ASS'Y | 1 | PCS |
| | 705L 780 93 DL | D910/D911 ASS'Y | 1 | PCS |
| | 705L1742 HL | BD901/C903/IC901 ASS'Y | 1 | PCS |
| C911 | 65G0805471 21 | CHIP 470PF 25V NPO | 1 | PCS |
| | PW1742LGD1AI | POWER BOARD | 1 | PCS |
| U201 | 56G 608 1 | TL1451ACD | 1 | PCS |
| Q205 | 57G 417 4 | PMBS3904/PHILIPS-SMT(04 | 1 | PCS |
| Q206 | 57G 417 4 | PMBS3904/PHILIPS-SMT(04 | 1 | PCS |

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| Q207 | 57G 417 6 | PMBS3906/PHILIPS-SMT(06 | 1 | PCS |
| Q208 | 57G 417 6 | PMBS3906/PHILIPS-SMT(06 | 1 | PCS |
| Q202 | 57G 760 4B | PDTA144WK SOT346 | 1 | PCS |
| Q201 | 57G 760 5B | PDTC144WK SOT346 | 1 | PCS |
| Q203 | 57G 763 3 | AO4411 SO-8 | 1 | PCS |
| Q204 | 57G 763 3 | AO4411 SO-8 | 1 | PCS |
| R204 | 61L0603103 | RST SM 0603 RC0603 10K | 1 | PCS |
| R210 | 61L0603123 | CHIP 12K OHM 1/10W | 1 | PCS |
| R211 | 61L0603123 | CHIP 12K OHM 1/10W | 1 | PCS |
| R220 | 61L0603123 | CHIP 12K OHM 1/10W | 1 | PCS |
| R221 | 61L0603123 | CHIP 12K OHM 1/10W | 1 | PCS |
| R238 | 61L0603123 | CHIP 12K OHM 1/10W | 1 | PCS |
| R239 | 61L0603123 | CHIP 12K OHM 1/10W | 1 | PCS |
| R222 | 61L0603153 | CHIPR 15KOHM+-5% 1/10W | 1 | PCS |
| R223 | 61L0603153 | CHIPR 15KOHM+-5% 1/10W | 1 | PCS |
| R216 | 61L0603221 | RST SM 0603 RC0603 220R | 1 | PCS |
| R217 | 61L0603221 | RST SM 0603 RC0603 220R | 1 | PCS |
| R212 | 61L0603392 | CHIP 3.9K OHM 1/10W | 1 | PCS |
| R213 | 61L0603392 | CHIP 3.9K OHM 1/10W | 1 | PCS |
| R214 | 61L0603392 | CHIP 3.9K OHM 1/10W | 1 | PCS |
| R215 | 61L0603392 | CHIP 3.9K OHM 1/10W | 1 | PCS |
| R218 | 61L0603471 | CHIPR 470 OHM+-5% 1/10W | 1 | PCS |
| R219 | 61L0603471 | CHIPR 470 OHM+-5% 1/10W | 1 | PCS |
| R208 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R209 | 61L0603472 | RST SM 0603 RC0603 4K7 | 1 | PCS |
| R236 | 61L0603511 | CHIPR 510 OHM+-5% 1/10W | 1 | PCS |
| R237 | 61L0603511 | CHIPR 510 OHM+-5% 1/10W | 1 | PCS |
| R202 | 61L0603512 | CHIP 5.1K OHM 1/10W | 1 | PCS |
| R203 | 61L0603512 | CHIP 5.1K OHM 1/10W | 1 | PCS |
| R240 | 61L0603513 | CHIP 51K OHM 1/10W | 1 | PCS |
| R241 | 61L0603513 | CHIP 51K OHM 1/10W | 1 | PCS |
| R234 | 61L0603621 | CHIPR 620 OHM+-5% 1/10W | 1 | PCS |
| R235 | 61L0603621 | CHIPR 620 OHM+-5% 1/10W | 1 | PCS |
| R205 | 61L0603683 | CHIP 68K OHM 1/10W | 1 | PCS |
| R206 | 61L0603683 | CHIP 68K OHM 1/10W | 1 | PCS |
| F201 | 61L1206000 | RST SM 1206 JUMP MAX 0R | 1 | PCS |
| R912 | 61L1206101 | CHIP 100 OHM 5% 1/4W | 1 | PCS |
| R928 | 61L1206102 | CHIP 1K OHM 5% 1/4W | 1 | PCS |
| R913 | 61L1206103 | CHIP 10KOHM 5% 1/4W | 1 | PCS |
| R901 | 61L1206105 | CHIP 1MOHM 5% 1/4W | 1 | PCS |
| R902 | 61L1206105 | CHIP 1MOHM 5% 1/4W | 1 | PCS |
| R914 | 61L1206240 2F | CHIP 24KOHM1% 1/4W | 1 | PCS |
| R909 | 61L1206472 | CHIP 4.7KOHM 5% 1/4W | 1 | PCS |
| R910 | 61L1206472 | CHIP 4.7KOHM 5% 1/4W | 1 | PCS |
| R911 | 61L1206472 | CHIP 4.7KOHM 5% 1/4W | 1 | PCS |
| R908 | 61L1206519 | CHIPR 5.1OHM +-5% 1/4W | 1 | PCS |

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|---|---|---|---|---|
| C230 | 65G0805102 32 | CHIP 1000P 50VX7R 0805 | 1 | PCS |
| C231 | 65G0805102 32 | CHIP 1000P 50VX7R 0805 | 1 | PCS |
| C910 | 65G0805102 32 | CHIP 1000P 50VX7R 0805 | 1 | PCS |
| C930 | 65G0805102 32 | CHIP 1000P 50VX7R 0805 | 1 | PCS |
| C931 | 65G0805102 32 | CHIP 1000P 50VX7R 0805 | 1 | PCS |
| C202 | 65G0805104 22 | 0.1UF +-10% 25V X7R 080 | 1 | PCS |
| C204 | 65G0805104 22 | 0.1UF +-10% 25V X7R 080 | 1 | PCS |
| C205 | 65G0805104 22 | 0.1UF +-10% 25V X7R 080 | 1 | PCS |
| C206 | 65G0805104 22 | 0.1UF +-10% 25V X7R 080 | 1 | PCS |
| C907 | 65G0805104 32 | CHIP 0.1U 50V X7R | 1 | PCS |
| C908 | 65G0805104 32 | CHIP 0.1U 50V X7R | 1 | PCS |
| C909 | 65G0805104 32 | CHIP 0.1U 50V X7R | 1 | PCS |
| C926 | 65G0805104 32 | CHIP 0.1U 50V X7R | 1 | PCS |
| C927 | 65G0805104 32 | CHIP 0.1U 50V X7R | 1 | PCS |
| C203 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 | 1 | PCS |
| C209 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 | 1 | PCS |
| C210 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 | 1 | PCS |
| C211 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 | 1 | PCS |
| C212 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 | 1 | PCS |
| C219 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 | 1 | PCS |
| C220 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 | 1 | PCS |
| C208 | 65G0805331 31 | CHIP 330pF 50V NPO | 1 | PCS |
| C221 | 65G0805474 22 | CHIP 0.47UF 25V X7R 080 | 1 | PCS |
| C222 | 65G0805474 22 | CHIP 0.47UF 25V X7R 080 | 1 | PCS |
| D203 | 93G 39S 3 T | BZT52-C11 | 1 | PCS |
| D204 | 93G 39S 3 T | BZT52-C11 | 1 | PCS |
| ZD904 | 93G 39S 19 T | PTZ7.5B | 1 | PCS |
| ZD901 | 93G 39S 23 T | GLZ22B | 1 | PCS |
| D202 | 93G2004 2A | SM240A DO-214AC | 1 | PCS |
| D201 | 93G3004 2 | SR34 PAN JIT | 1 | PCS |
| C924 | 67G215B4713HT | 470UF 16V LTR471M1CF11V | 1 | PCS |
| C925 | 67G215B4713HT | 470UF 16V LTR471M1CF11V | 1 | PCS |
| | 715L1283 5 | PCB | 1 | PCS |
| CN901 | 6G 31500 | EYELET | 2 | PCS |
| C213 | 6G 31502 | 1.5MM RIVET | 2 | PCS |
| C214 | 6G 31502 | 1.5MM RIVET | 2 | PCS |
| C904 | 6G 31502 | 1.5MM RIVET | 2 | PCS |
| L902 | 6G 31502 | 1.5MM RIVET | 4 | PCS |
| PT201 | 6G 31502 | 1.5MM RIVET | 2 | PCS |
| PT202 | 6G 31502 | 1.5MM RIVET | 2 | PCS |
| T901 | 6G 31502 | 1.5MM RIVET | 4 | PCS |
| J002 | 61G 60222152T | CFR 220OHM +-5% 1/6W | 1 | PCS |
| R915 | 61G 17210052T | 100HM 5% 1/4W | 1 | PCS |
| R929 | 61G 17210152T | 100 OHM 5% 1/4W | 1 | PCS |
| R224 | 61G 17210252T | 1K OHM 5% 1/4W | 1 | PCS |
| R225 | 61G 17210252T | 1K OHM 5% 1/4W | 1 | PCS |

| | | | | |
|---|---|---|---|---|
| R226 | 61G 17210252T | 1K OHM 5% 1/4W | 1 | PCS |
| R227 | 61G 17210252T | 1K OHM 5% 1/4W | 1 | PCS |
| R228 | 61G 17210252T | 1K OHM 5% 1/4W | 1 | PCS |
| R229 | 61G 17210252T | 1K OHM 5% 1/4W | 1 | PCS |
| R230 | 61G 17210252T | 1K OHM 5% 1/4W | 1 | PCS |
| R231 | 61G 17210252T | 1K OHM 5% 1/4W | 1 | PCS |
| R232 | 61G 17210252T | 1K OHM 5% 1/4W | 1 | PCS |
| R233 | 61G 17210252T | 1K OHM 5% 1/4W | 1 | PCS |
| R925 | 61G 17210252T | 1K OHM 5% 1/4W | 1 | PCS |
| R926 | 61G 17210252T | 1K OHM 5% 1/4W | 1 | PCS |
| R916 | 61G 17210352T | CFR 10KOHM +-5% 1/4W | 1 | PCS |
| R924 | 61G 20024252T | 2.4KOHM 1% 1/4W | 1 | PCS |
| R922 | 61G 20033352T | 33KOHM 1% 1/4W | 1 | PCS |
| R923 | 61G 20036252T | 3.6KOHM 1% 1/4W | 1 | PCS |
| R201 | 61G 60224352T | 24K OHM 5% 1/6W | 1 | PCS |
| R920 | 61G175L47052T | 47OHM +-5% 1/2W | 1 | PCS |
| R921 | 61G175L47052T | 47OHM +-5% 1/2W | 1 | PCS |
| R904 | 61L214Y10552T | 1M,1/4W | 1 | PCS |
| R905 | 61L214Y10552T | 1M,1/4W | 1 | PCS |
| R906 | 61L214Y10552T | 1M,1/4W | 1 | PCS |
| R907 | 61L214Y10552T | 1M,1/4W | 1 | PCS |
| FB901 | 71G 55 29 | FERRITE BEAD | 1 | PCS |
| ZD902 | 93G 39 5452T | HZ12B2-E | 1 | PCS |
| ZD903 | 93G 39 7752T | HZ5C1-E | 1 | PCS |
| D901 | 93G 6026T52T | RECTIFIER DIODE FR107 | 1 | PCS |
| D902 | 93G 6038T52T | FR103 | 1 | PCS |
| D205 | 93G 64 1152T | 1N4148 | 1 | PCS |
| D206 | 93G 64 1152T | 1N4148 | 1 | PCS |
| D207 | 93G 64 1152T | 1N4148 | 1 | PCS |
| D208 | 93G 64 1152T | 1N4148 | 1 | PCS |
| D209 | 93G 64 1152T | 1N4148 | 1 | PCS |
| D210 | 93G 64 1152T | 1N4148 | 1 | PCS |
| D903 | 93G 64 1152T | 1N4148 | 1 | PCS |
| IC903 | 56G 158 4 T A | H431BA | 1 | PCS |
| Q902 | 57G 419 PP T | 2PC945P | 1 | PCS |
| Q901 | 57G 420 PP T | 2PA733P | 1 | PCS |
| C929 | 64G700J1040AT | 0.1UF 50V PEN | 1 | PCS |
| C905 | 65G 2K152 1T6921 | 1.5NF/2KV Y5P +-10% | 1 | PCS |
| C920 | 65G517K102 5T | 1000PF 10% Y5P 500V | 1 | PCS |
| C921 | 65G517K102 5T | 1000PF 10% Y5P 500V | 1 | PCS |
| C207 | 67G 305330 7T | 33UF 105 | 1 | PCS |
| C201 | 67G215C1514HT | LOW ESR 150UF 25V 8*7MM | 1 | PCS |
| C223 | 67G215C1514HT | LOW ESR 150UF 25V 8*7MM | 1 | PCS |
| F901 | 84G 56 1 | FUSE 2A 250V WICKMANN | 1 | PCS |
| R903 | 61G152M10458F | 100K OHM 5% 2W | 1 | PCS |
| | 96G 29 6 | SHRINK TUBE UL/CSA | 20 | MM |

| | | | | |
|---|---|---|---|---|
| Q903 | 57G 667 22 | FQPF8N80C | 1 | PCS |
| | 90G6064 1 | HEAT SINK | 1 | PCS |
| | M1G1730 8128 | SCREW M3x8 | 1 | PCS |
| R917 | 61G 2J39858F | 0.390OHM 5% 2W | 1 | PCS |
| | 96G 29 6 | SHRINK TUBE UL/CSA | 1 | PCS |
| | 90G6064 1 | HEAT SINK | 1 | PCS |
| D911 | 93G 60217 | FMB-29L | 1 | PCS |
| D910 | 93G 60239 | FME-210B T0-220 | 1 | PCS |
| | M1G1730 8128 | SCREW M3x8 | 2 | PCS |
| IC901 | 56G 379 32 | SG6841DZ DIP-8 | 1 | PCS |
| BD901 | 93G 50460502 | KBP206G | 1 | PCS |
| | 33F 206 24 | DF11-24DS-2C | 1 | PCS |
| | 33F206T 24 | DF11-2428SCF | 23 | PCS |
| | 33F303SM24K30 | PK2407P30/TD00-30LH | 1 | PCS |
| | 33F303TTD1 | TD00-T | 23 | PCS |
| | 71F 100511 | FERRITE CORE | 1 | PCS |
| | 87G 501 14 RF | AC SOCKET | 1 | PCS |
| | 95G 900 42 | WIRE HARNESS | 1 | PCS |
| | 95G8021 2508 | WIRE HARNESS | 1 | PCS |
| | 96G 29 6 | SHRINK TUBE UL/CSA | 3 | PCS |
| | 15G8053 1 B | BRACKET BASE | 1 | PCS |
| | 20G 015 1 | RISER DIECASTING | 1 | PCS |
| | 34G1369 Y2 T | VESA COVER | 1 | PCS |
| | 34G1370 Y2 B | STAND FRONT | 1 | PCS |
| | 34G1371 Y2 B | STAND BACK | 1 | PCS |
| | 34G1372 Y2 2B | BASE | 1 | PCS |
| M037 | 37G 483 2 | HINGE | 1 | PCS |
| | M1G 130 8225 | SCREW | 3 | PCS |
| | M1G 140 8 47 | SRCEW | 4 | PCS |
| | Q1G 130 6 47 | SCREW | 1 | PCS |
| | Q1G 330 8 47 | SCREW 3X8mm | 4 | PCS |
| | Q1G 330 8 47 | SCREW 3X8mm | 2 | PCS |
| | 4F0612052 00 | METAL WASHER | 4 | PCS |
| | 4F061210M 00 | METAL WASHERS12.0*6.03* | 2 | PCS |
| | 4F061210T 00 | METAL WASHERS12.0*8.00* | 2 | PCS |
| | 4F061210T 01 | METAL WASHERS12.0*4.72* | 4 | PCS |
| | 15F 483210 | BRACKETS | 1 | PCS |
| | 15F 483230 | BRACKETS | 1 | PCS |
| | 28F0618070 | SHAFTS | 2 | PCS |
| | 4L0612052 00 | METAL WASHERS | 4 | PCS |
| | 4L061210M 00 | METAL WASHERS12.0*6.03* | 2 | PCS |
| | 4L061210T 00 | METAL WASHERS12.0*8.00* | 2 | PCS |
| | 4L061210T 01 | METAL WASHERS12.0*4.72* | 4 | PCS |
| | 15G 483210 | BRACKETS | 1 | PCS |
| | 15G 483230 | BRACKETS | 1 | PCS |
| | 28L0618070 | SHAFTS | 2 | PCS |

# 15. Definition Of Pixel Defects

## 15.1 LM170E01

### 15.1.1 Dot Defect

#### 15.1.1.1 Bright Dot

Dots (sub-pixels), which appeared brightly in the screen when the LCM displayed with dark pattern.

**- R,G or B 1 dot ---------- 0 Max**
**- Adjacent 2 dots ---------- 0 Max**
**- Total amount of Bright dots ---------- 0 Max**
**- Minimum distance of Bright dots ---------- NA**

#### 15.1.1.2 Dark Dot

Dots (sub-pixels), which appeared darkly in the screen when the LCM displayed with bright pattern.

**- 1 dot ---------- 4 Max**
**- Adjacent 2 dots ---------- 2 Max**
**- Total amount of Dark dot ---------- 4 Max**
**- Minimum distance of Dark dots ---------- 15mm**

**15.1.1.3 Total amount of Dot Defects ---------- 5 Max (Combination)**

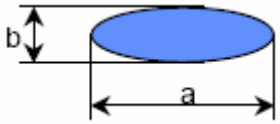
Note) a. Every dot herein means Sub-Pixel(Each Red, Green, or Blue Color)
b. Bright dot
- Red or Blue dots smaller than half size of sub-pixel are not counted as a defect dots.
- Green dots smaller than 1 / 3 size of sub-pixel are not counted as a defect dots.

c. Dark dots smaller than half size of sub-pixel are not counted as a defect dots.

### 15.1.2 Polarizer Defects

| Items | | Criteria |
|---|---|---|
| Scratches | Linear | **0.01<=W<=0.1, 0.3<=L<=10, N<=4** |
| Dent | Circular | **0.15<=D<=0.5, N<=3** |

Where, W: Width
L: Length
D: Average diameter =(a+b)/2

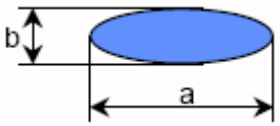



a. Extraneous substances which can be wiped out, like Finger Print, Particles, are not considered as a defect.
b. Defects which is on the Black Matrix(outside of Active Area) are not considered as a defect.

### 15.1.3 Foreign Material

| Items | Criteria |
|---|---|
| Linear | **0.05<=W<=0.1, 0.3<=L<=4.0, N<=4** |
| Circular | **0.15<=D<=0.5, N<=4** |

Where, W: Width
L: Length
D: Average diameter =(a+b)/2




### 15.1.4 Line Defect

All kinds of line defects such as vertical, horizontal or cross are not allowed.

### 15.1.5 Bezel Appearance

Scratches, minor bents, stains, particles on the Bezel frame are not considered as a defect.

### 15.1.6. Others

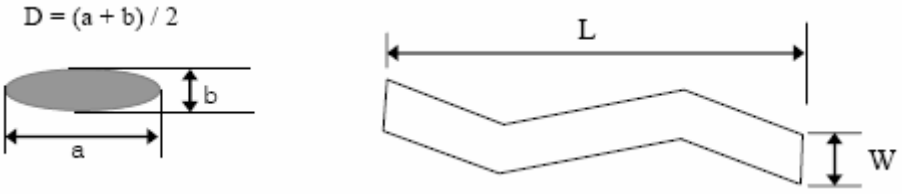
Issues which is not defined in this criteria shall be discussed with both parties, Customer and Supplier, for better solution.

## 15.2 HT17E13-100

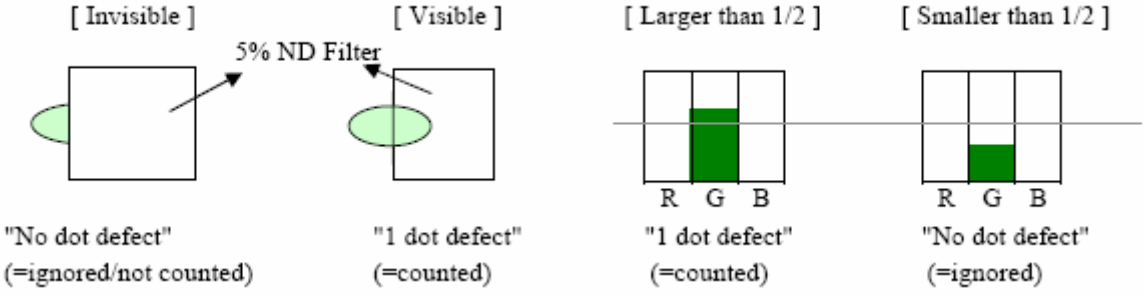
| ITEMS | DETAILS | | INSPECTION CRITERIA |
|---|---|---|---|
| Pixel Defects | Bright Dot Defect | | N ≤ 0 |
| | Dark Dot Defect | | N ≤ 3 |
| | Bright + Dark Dot Defect | | N ≤ 3 |
| | Defect Distance | Bright & Bright | - |
| | | Dark & Dark | L ≥5㎜ |
| | 2 Adjacent Bright Dots Defect | | N ≤0 |
| | 2 Adjacent Dark Dots Defect | | N ≤ 1 |
| | 3 Adjacent Bright Dots Defect | | N = 0 |
| | 3 Adjacent Dark Dots Defect | | N = 0 |
| Line Defects | Bright Line, Dark Line | | N = 0 |
| Others | Black/Bright Spot (Hair, Lint, Etc.) | Circular Type | D ≤0.2 Ignore<br>0.2< D ≤0.5 , N ≤2 |
| | | Linear Type : | W ≤0.03 Ignore<br>0.03< W ≤0.1, L ≤2, N ≤2 |
| | Polarizer Dent/Bubble | | D ≤0.2 Ignore<br>0.2< D ≤0.5 , N ≤2 |
| | Polarizer Scratch | | W ≤0.03 Ignore<br>0.03< W ≤0.1, L ≤2.0, N ≤2 |
| | Glass Broken, Stain | | Could not be seen by human eye |
| | BM Defect | | Should be ϕ≤ 35㎛ |
| | Circular White Mura, Lumination Mura, Black/White Mura, etc. | | Should not be perceived<br>If needed, refer to Limit Sample. |
| Flicker | | | No flicker at the center of display area |
| Crosstalk | | | Should not be perceived |

Note 1) For pixel defect, dot means a sub-pixel.

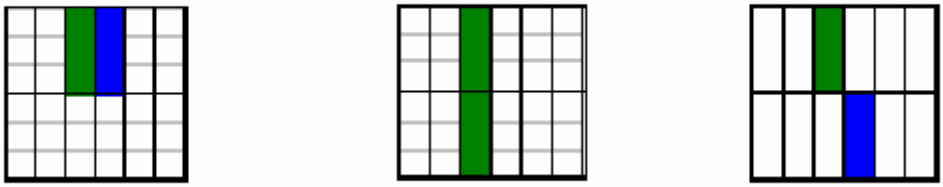
Note 2) D = Diameter, L = Length, W = Width, N = Number




Note 3) Dot which is invisible through 5% ND filter or smaller than 1/2 of sub-pixel size will not counted as "1 dot" defect.



[ 2 adjacent dots defect ]

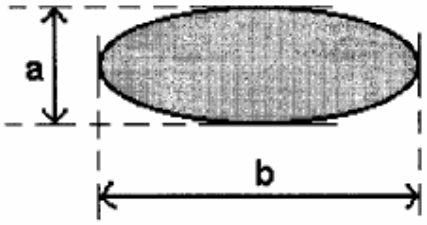


Type 1 Type 2 Type 3

## 15.3 CLAA170EA 07

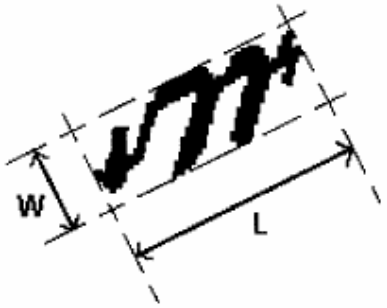
| DEFECT TYPE | | | LIMIT | | Note |
|---|---|---|---|---|---|
| VISUAL DEFECT | SCRATCH | | 0.01mm≦W≦0.05mm L≦10mm | N≦ 4 | - |
| | INTERNAL | SPOT | 0.15mm≦ φ ≦0.5mm | N≦ 4 | Note1 |
| | | FIBER | W≦1.0mm, L≦ 3 mm | N≦ 4 | Note1 |
| | | POLARIZER BUBBLE | 0.15mm≦ φ ≦0.5mm | N≦ 4 | Note1 |
| | | TOTAL | N≦ 8 | | - |
| ELECTRICAL DEFECT | BRIGHT DOT | | N≦0(FLASH DOT N≦0) | | Note2 |
| | DARK DOT | | N≦ 4 | | - |
| | TOTAL DOT | | N≦ 5 | | Note2 |
| | TWO ADJACENT DOT | | ≦2 PAIRS | | Note3 |
| | THREE OR MORE ADJACENT DOT | | NOT ALLOWED | | - |
| | DISTANCE BETWEEN DEFECT DOT | | | | |
| | | | Two dark dots | ≧10mm | Note4 |
| | LINE DEFECT | | NOT ALLOWED | | - |

**[Note1]** W : Width[mm], L : Length[mm], N : Number, φ : Average Diameter



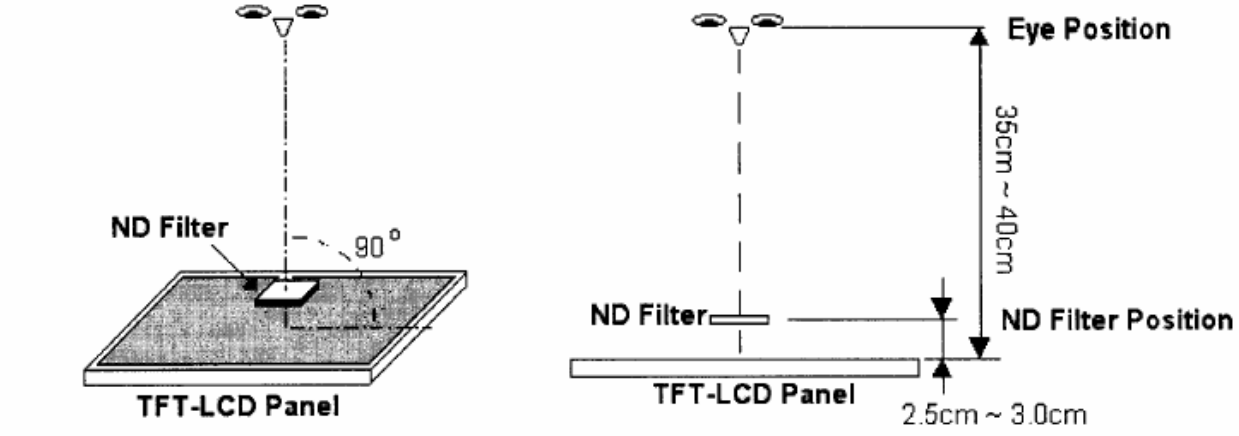

$\phi = (a + b)/2$

1. (White, black) Spot
2. Polarizer Bubble

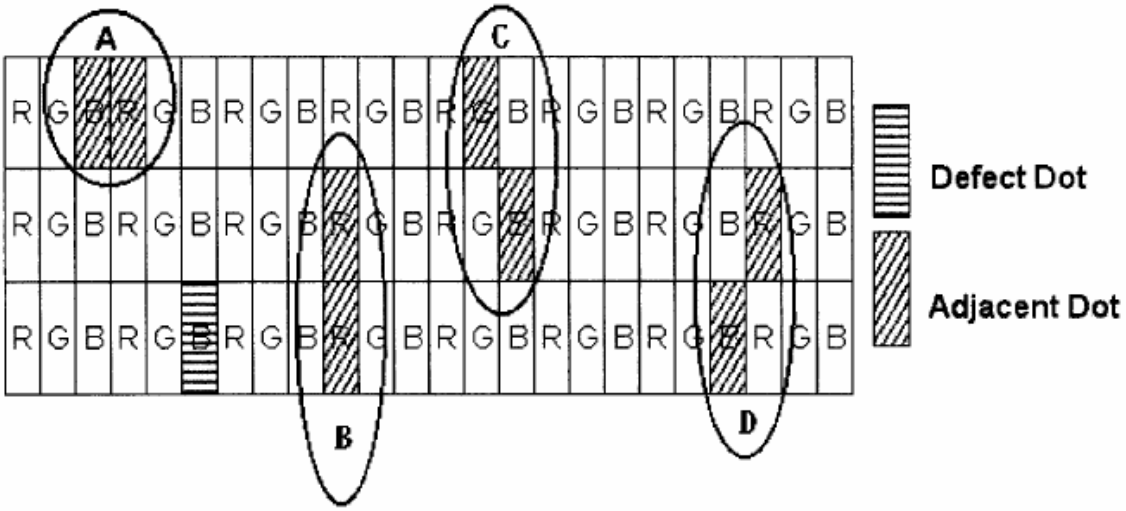



1. Fiber

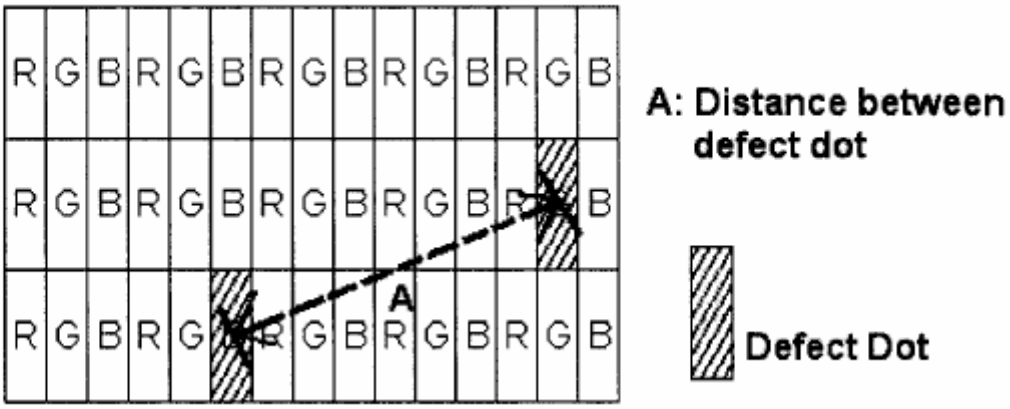
**[Note2]** Bright dot is defined through 5% transmission ND Filter as following.




**[Note3]** Judge defect dot and adjacent dot as following. Allow below (as A, B, C and D status) adjacent defect dots, including bright and dart adjacent dot. And they will be counted 2 defect dots in total quantity.




**[Note4]** Definition of distance between defect dot as following.




**[Note5]** Other

(1) The defects that are not defined above and considered to be problem shall be reviewed and discussed by both parties.

(2) Defects on the Black Matrix, out of Display area, are not considered as a defect or counted.