SAMSUNG

LCD-Monitor

Chassis LPE19DS

Model 932BF

SERVICE Manual

TFT-LCD Monitor

Fashion Feature

-Integrated UI applied
-Lustrous
-Ball Hinge
-Response Time Accelerator
-Dynamic Contrast
-Connectivity : Analog (15p Dsub),
Dual (24p DVI-D)
-Power Consumption : 38W
-DPMS : under 1 W (230Vac)

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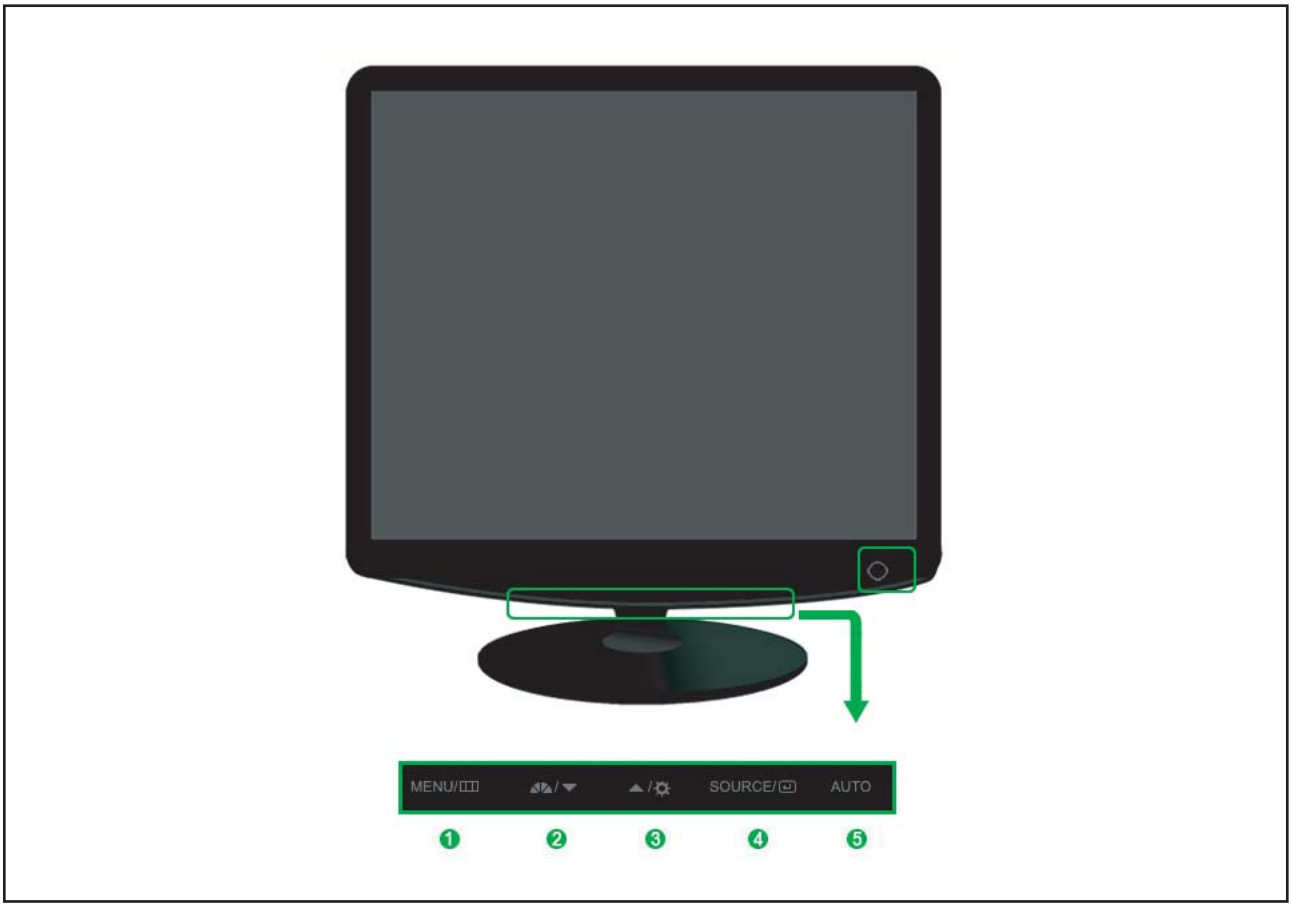
10 Operating Instructions and Installation

10-1 Front



1. Menu button

Opens the OSD menu. Also use to exit the OSD menu or return to the previous menu.

2. MagicBright button

MagicBright is a new feature providing optimum viewing environment depending on the contents of the image you are watching. Currently six different modes are available: Custom, Text, Internet, Game, Sport and Movie. Each mode has its own pre-configured brightness value. You can easily select one of six settings by simply pressing MagicBright control buttons.

1) Custom

Although the values are carefully chosen by our engineers, the pre-configured values may not be comfortable to your eyes depending on your taste. If this is the case, adjust the brightness and contrast by using the OSD menu.

2) Text

For documentations or works involving heavy text.

3) Internet

For working with a mixture of images such as text and graphics.

4) Game

For watching motion pictures such as a game.

5) Sport

For watching motion pictures such as a sport.

6) Movie

For watching motion pictures such as a DVD or Video CD.

7) Dynamic Contrast

Dynamic Contrast is to automatically detect distribution of inputted visual signal and adjust to create optimum contrast.

3. Brightness button

When OSD is not on the screen, push the button to adjust brightness.

2,3. Adjust buttons
Adjust items in the menu.

4. Enter button / SOURCE button
Activates a highlighted menu item. /
Push the 'SOURCE', then selects the video signal while the OSD is off. (When the source button is pressed to change the input mode, a message appears in the center of the screen displaying the current mode -- analog or digital input signal.)
Note : If you select the digital mode, you must connect your monitor to the graphic card's port using the DVI cable.

5. AUTO button
Use this button for auto adjustment.
(Available in Analog mode only)

6. Power button
Use this button for turn the monitor on and off.
Power indicator
This light glows green during normal operation, and blinks green once as the monitor saves your adjustments.

10-2 Rear

(The configuration at the back of the monitor may vary from product to product.)

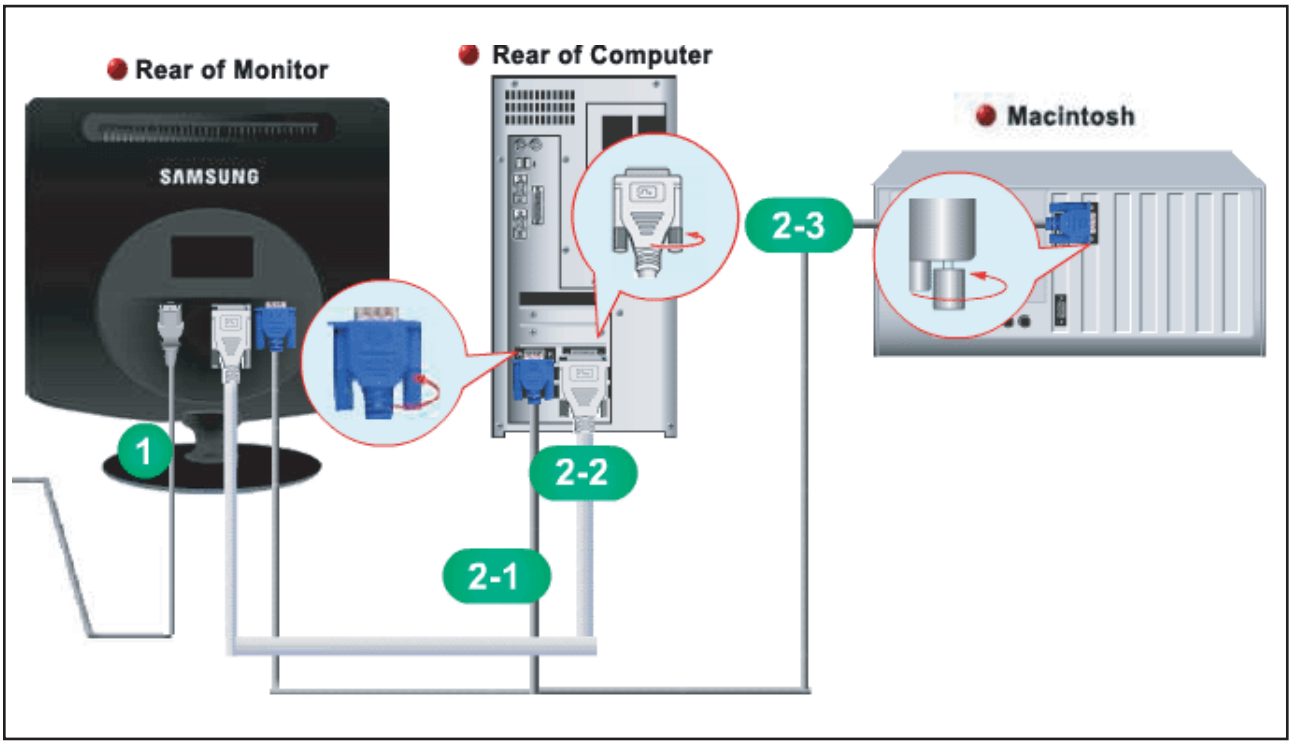
1. Power port
Connect the power cord for your monitor to the power port on the back of the monitor.

2. DVI IN port
Connect the DVI cable to the DVI port on the back of your monitor.

3. RGB IN port
Connect the signal cable to the 15-pin, D-sub port on the back of your monitor.

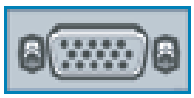
4. Kensington Lock
The Kensington lock is a device used to physically fix the system when using it in a public place.

10-3 Connecting the monitor



1. Connect the power cord for your monitor to the power port on the back of the monitor.
   Plug the power cord for the monitor into a nearby outlet.

2-1. Using the D-sub (Analog) connector on the video card.
   Connect the signal cable to the 15-pin, D-sub connector on the back of your monitor.



2-2. Using the DVI (Digital) connector on the video card.
   Connect the DVI cable to the DVI port on the back of your monitor.

2-3. Connected to a Macintosh.
   Connect the monitor to the Macintosh computer using the D-SUB connection cable.

3. Turn on your computer and monitor. If your monitor displays an image, installation is complete.

Memo

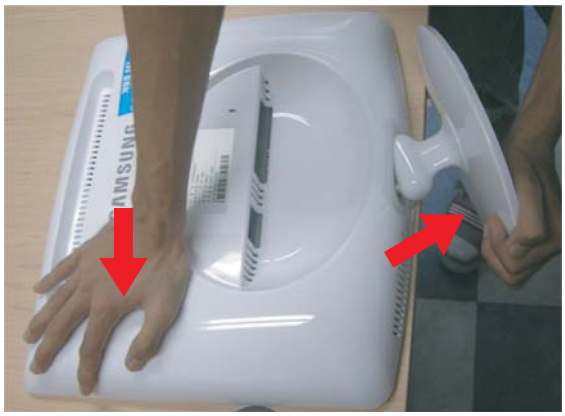
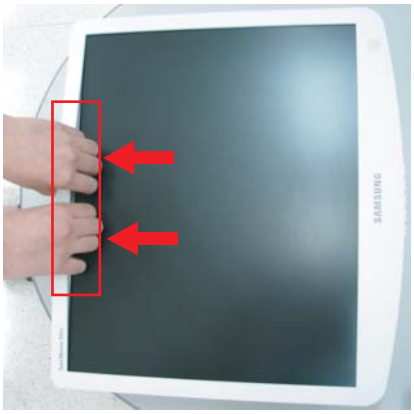
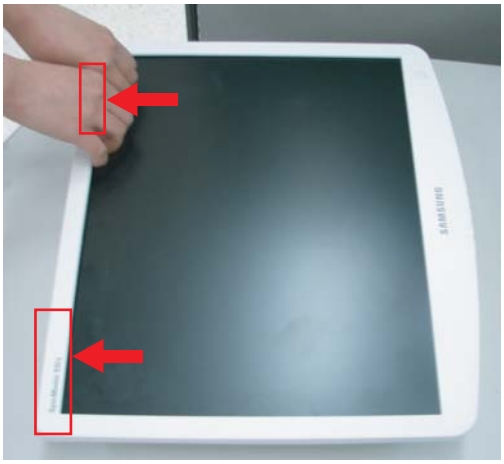
11 Disassembly and Reassembly

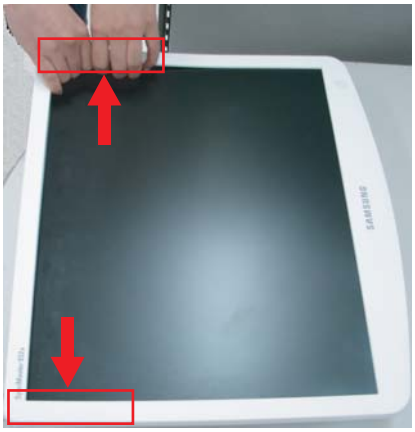
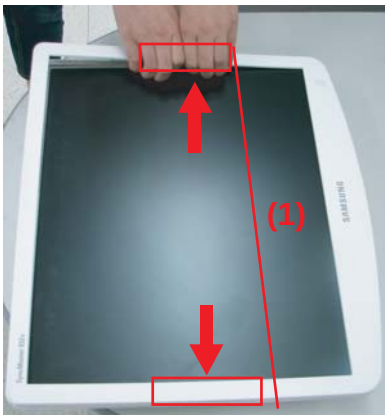
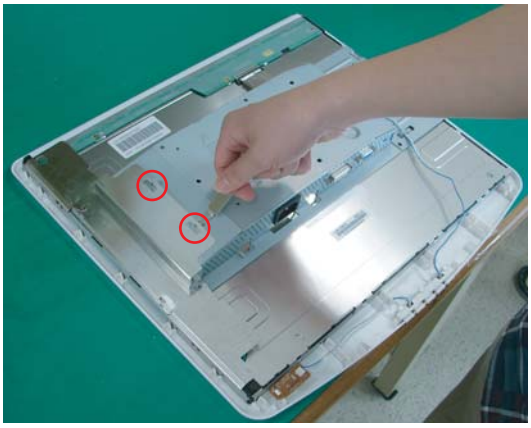
This section of the service manual describes the disassembly and reassembly procedures for the LS17PEA/LS19PEB TFT-LCD monitors.

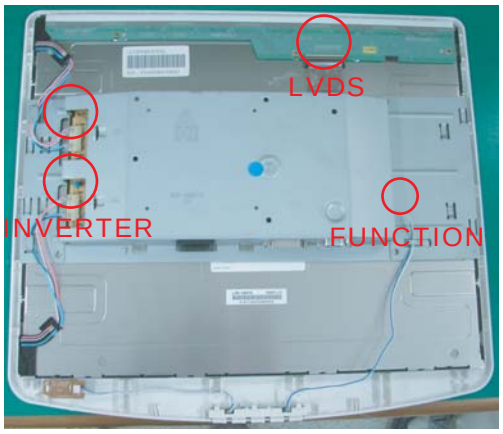
⚠**WARNING: This monitor contains electrostatically sensitive devices. Use caution when handling these components.**

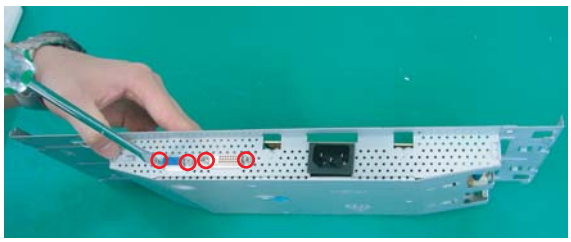
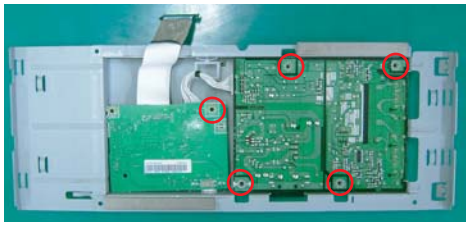
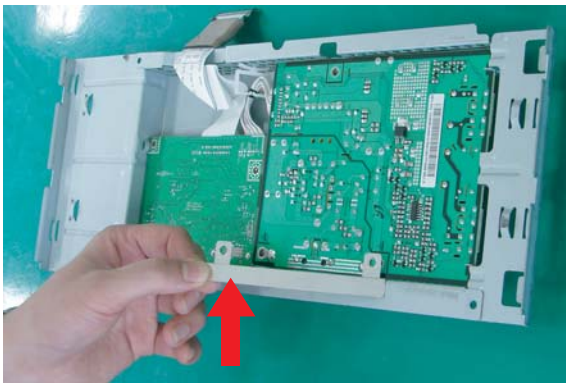
11-1 Disassembly

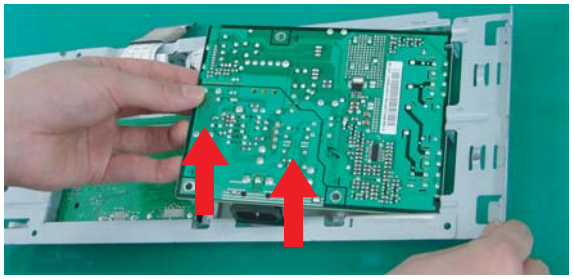
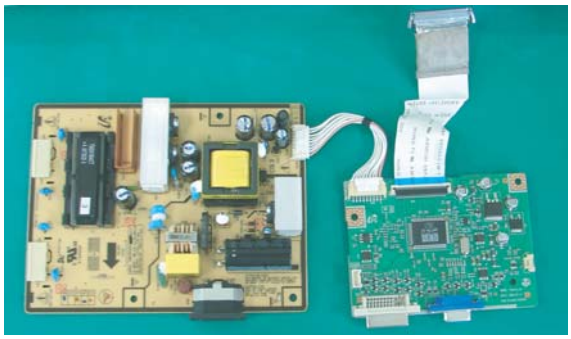
⚠**Cautions: 1. Disassemble stand on a flat desk.**
2. Disconnect the monitor from the power source before disassembly.

Description	Picture Description
1. Place a soft cloth on the desk and place the monitor on the cloth upside down. Remove the stand in the direction of the arrow.	
2. Turn the monitor so the front section is facing upwards. Remove the marked parts from the front cover, as shown in the figure below.	
3. Remove the marked part from the top edge of the front cover, as shown in the figure below.	

Description	Picture Description
4. Remove the marked parts from both sides of the front cover, as shown in the figure below.	
5. Remove the marked part from the front cover, as shown in the figure below. Caution: Do not lift the front cover over position (1), which may cause damage to it.	
6. Turn the monitor so the back of it is facing upwards. Lift up and remove the back cover.	
7. Use the jig to remove the shield lamp. (Be careful Shield.)	

Description	Picture Description
8. Disconnect cables. (LVDS, INVERTER and FUNCTION cable)	
9. Lift up the LCD panel.	
10. LCD Panel	

Description	Picture Description
11.Remove screws. (17"=2 screws, 19"=4 screws)	
12. Remove 5 screws.	
13. Lift up the Bracket Support.	

Description	Picture Description
14. Lift up the Main PCB and IB Board.	
15. Main PCB and IB Board	

11-2 Reassembly

Reassembly procedures are in the reverse order of disassembly procedures.

11-3 Stand

11-3-1 Installing the Stand

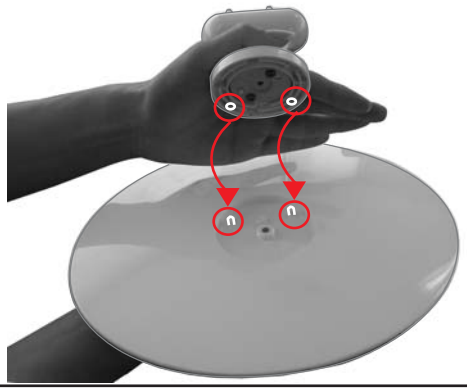
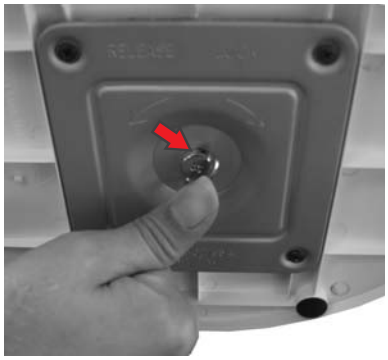
A: Monitor

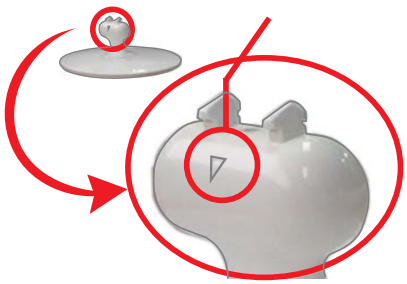
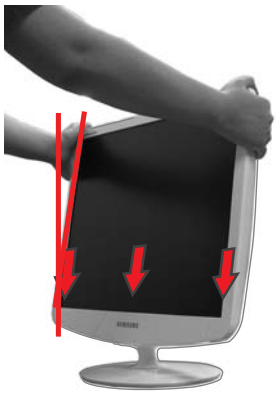
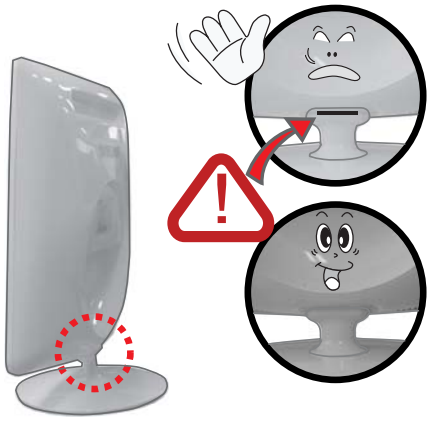
B: Connecting pin

C: Stand

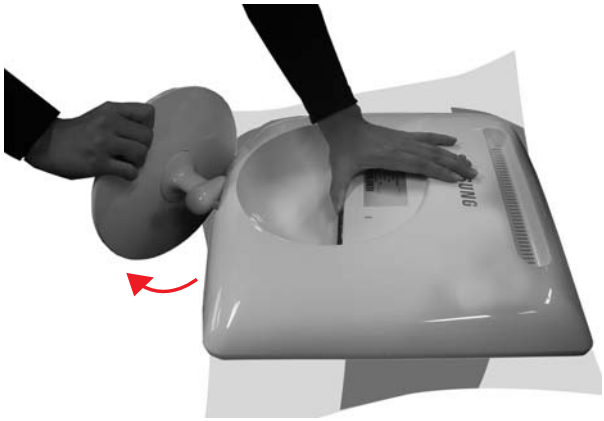
⚠ Caution

When lifting up or moving the monitor, do not lift the monitor upside down while holding only the stand, as this may cause the monitor to fall, leading to damage or personal injury.

Description	Picture Description
1. Insert the connecting pin into the stand.	
2. Stand the screw handles up and tighten the screws firmly by turning them.	
3. Place the screw handles back down.	

Description	Picture Description
4. Turn the stand so ▽mark on the connecting pin is facing the front.	
4. Check the connecting part between the monitor and the stand.	
4. Tilt the monitor upwards at an angle of 5 ° to 10° so that the base is closer to you than the top. Then hold the monitor on the stand by its top parts and push them downwards. (You can assemble it more easily by pushing it down while wriggling it a little to the left and right.)	
5. When the monitor is assembled correctly, the straight groove line at the back of the connecting pin will not be visible when the monitor is erected at 90°.	

11-3-2 Removing the Stand

Description	Picture Description
1. Place a soft cloth or cushion on the table and place the monitor with the front facing downwards.	
2. Hold the monitor and lean the stand upwards.	
3. Hold the monitor, and then twist the stand strongly to the left and pull it out.	
4. Stand the screw handles up and unfasten the screws by turning them.	

Description	Picture Description
5. Remove the connecting pin from the stand.	

Memo

3 Alignments and Adjustments

This section of the service manual explains how to use the DDC MANAGER JIG.
This function is needed for AD board change and program memory (IC201) change.

3-1 Required Equipment

The following equipment is necessary for adjusting the monitor:

- Computer with Windows 95, Windows 98, Windows 2000, Windows XP or Windows NT.
- MTI-2055, 2058, or 2059 DDC MANAGER JIG

3-2 Automatic Color Adjustment

To input video, use 16 gray or any pattern using black and white.

1. Select english for OSD language.
2. Press the " ↵ (Enter/Source)" key for 5 seconds.

3-3 DDC EDID Data Input

1. Input DDC EDID data when replacing AD PCB.
2. Receive/Download the proper DDC file for the model from HQ quality control department.
   Install the below jig (Figure 1) and enter the data.

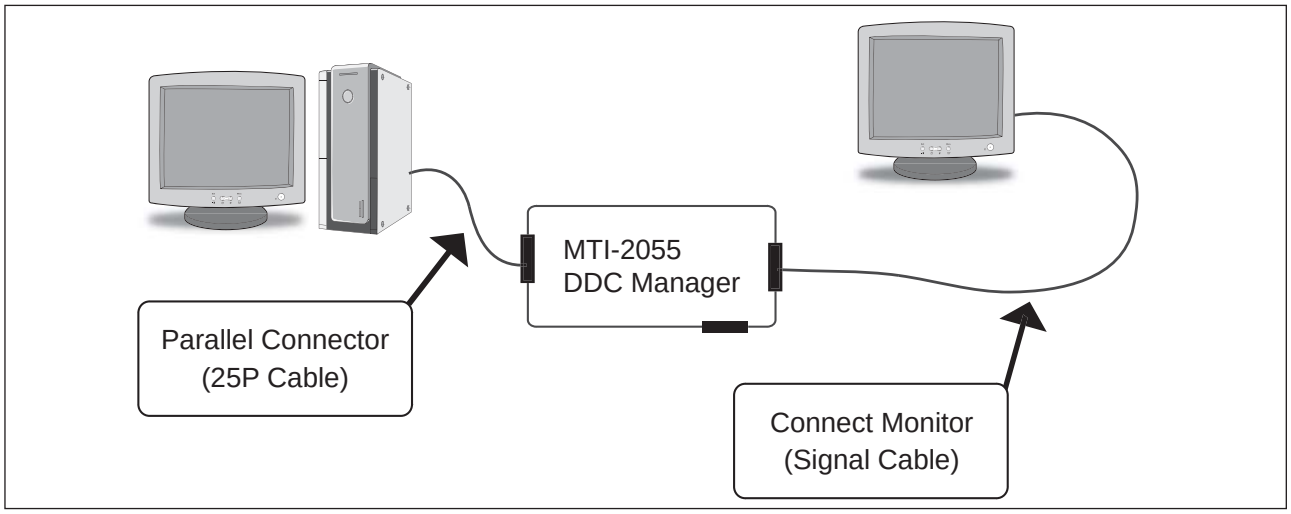


Figure 1.

3-4 OSD Adjustment When Replacing Panel

1. Adjust brightness and contrast to 0. Then, press the ↵ (Enter/Source) key for 5 second.
   Service function OSD will appear on screen.
2. Press the + key to place the cursor on the panel. Press the menu key for 5 seconds.

3-5 OSD Adjustment When Replacing Lamp Only

1. Adjust brightness and contrast to 0. Then, press the exit key for 5 seconds.
   Service function OSD will appear on the screen.
2. Press the + key. Select upper lamp and press the menu key for 5 seconds.
   Then, select lower lamp and press the menu key for 5 seconds.

***-Note :** Please be sure to read the following instructions for details on service function.*

3-6 Service Function Spec.

3-6-1 How to Display Service Function OSD

1. The value for brightness and contrast should be changed to zero.
2. Within 5 seconds, press the ↵ (Enter/Source) key.
3. Service function OSD will be displayed.

-If you want to disable the service function OSD, you will have to power off.

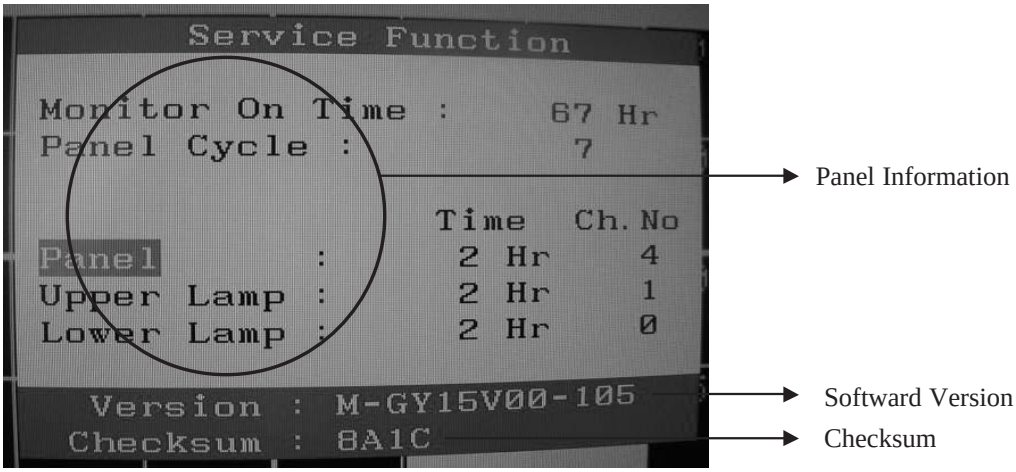


Figure 2. The example of service function OSD

The service function OSD is based on a grid of 29 columns x 12 rows.
The service function OSD consists of panel information, software version and MICOM checksum.

3-6-2 How to Control Service Function OSD

1. With the panel selected on OSD, whenever you press the right key, the base color will change to blue from "Panel" to "Upper Lamp", "Lower Lamp".

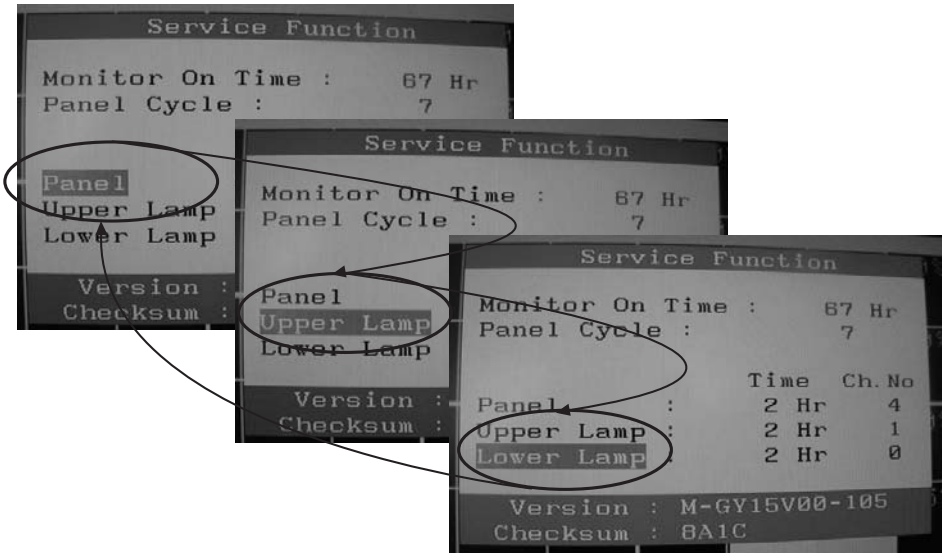


Figure 3.

3-6-3 How to Control Service Function OSD

-After change the panel or lamp, you must reset service function OSD.

-The case of panel change

After changeing the panel, press the menu key within 5 seconds,.
Then, panel Ch. No increases one step and the panel time information is reset to zero.
Simultaneously, other information is reset to zero (Upper/Lower lamp, Panel cycle).

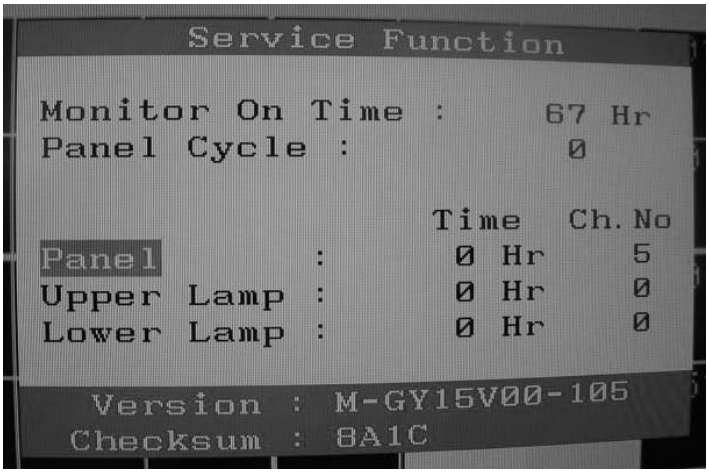


Figure 4.

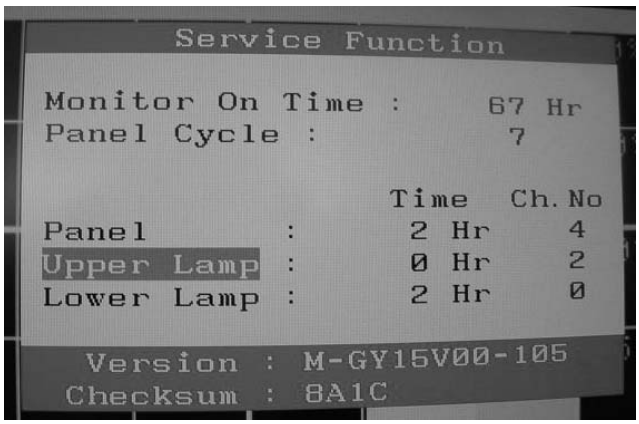
3-6-4 How to Control Service Function OSD

-In the case of Upper Lamp or Lower Lamp change

After changeing the Upper Lamp or Lower Lamp,

1. Select the Upper Lamp or Lower Lamp
2. Press the Menu key within an 5 seconds.

Then, Ch. No and time will be reset to zero (selected item only).



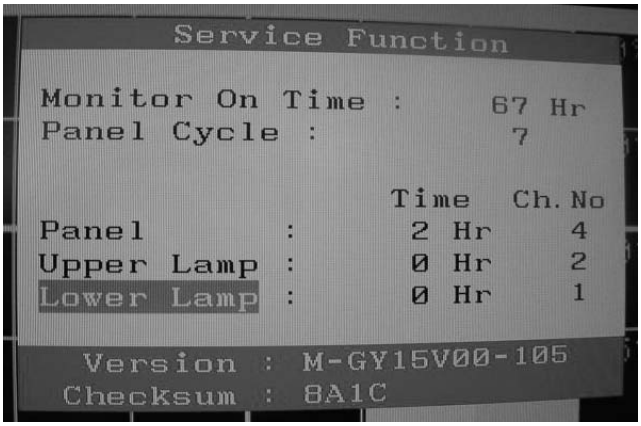
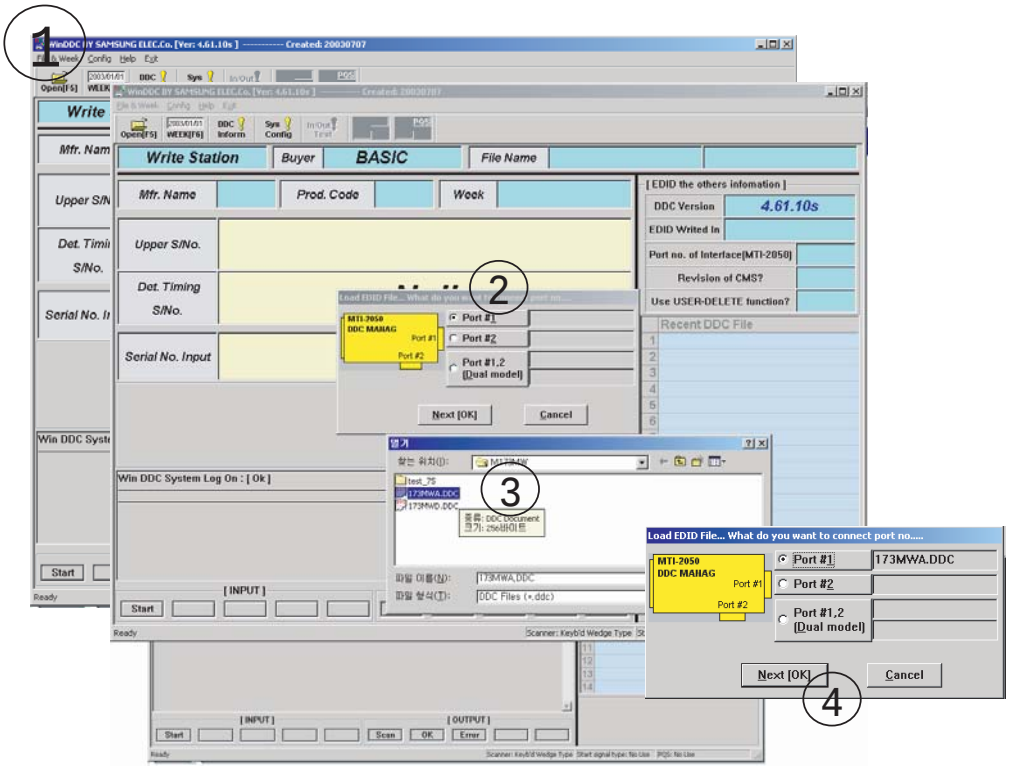
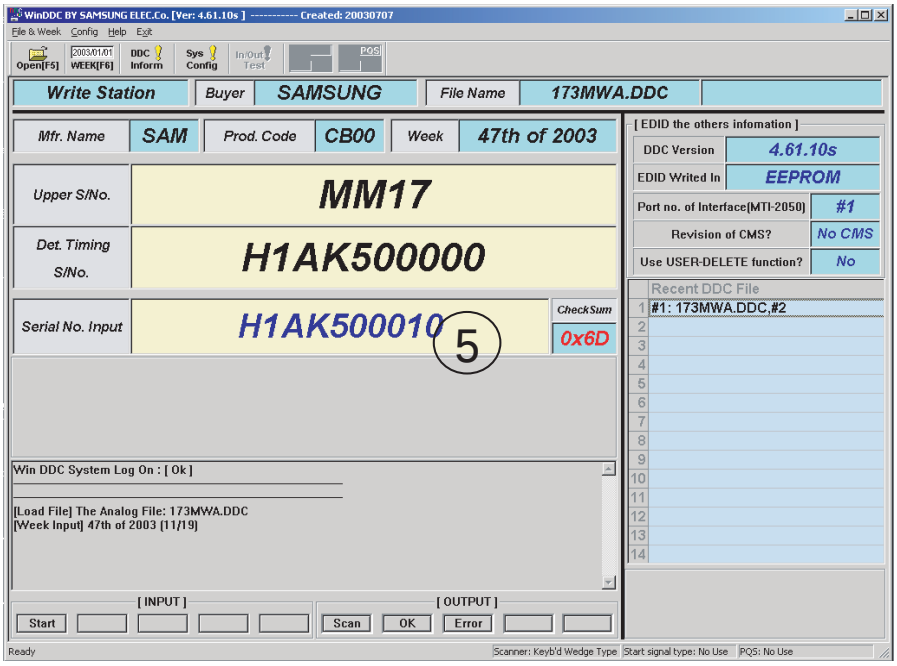


Figure 5, 6.

3-7 How to execute DDC



1. Open file.
2. Select Port #1.
3. Select DDC file.
4. Click, "Next" Button

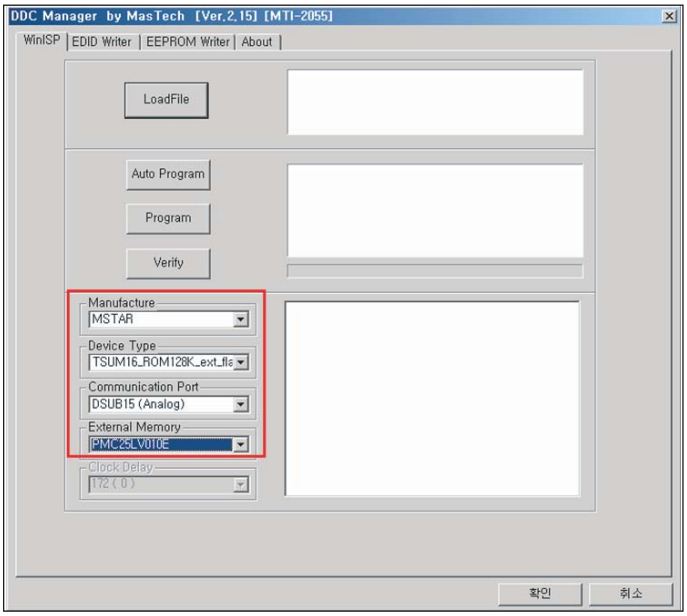


5. Type in the monitor serial number and press Enter.

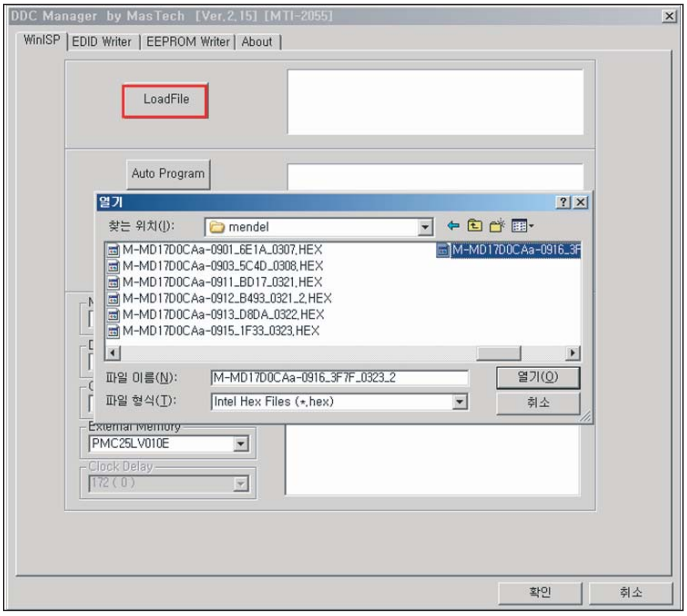
*Repeat this step 2 to 5 times in digital inputs after the analog input.

3-8 How to execute MCU Code

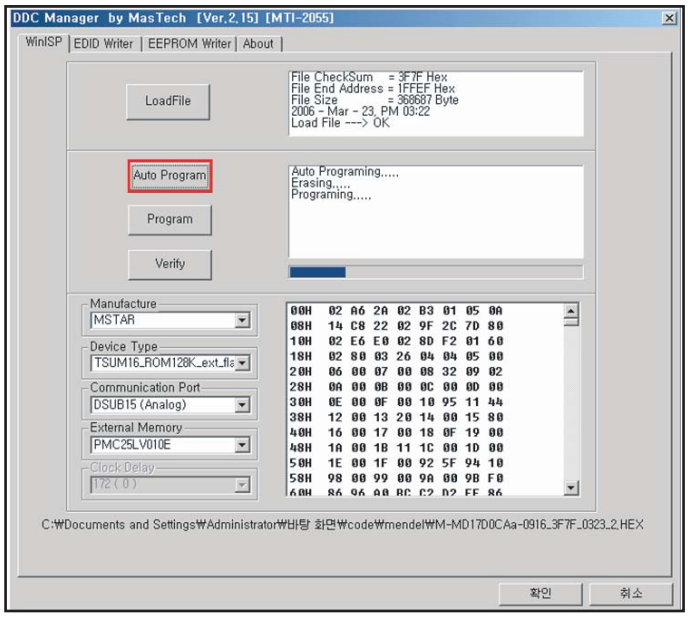
3-8-1 Program Setting - Config Setting



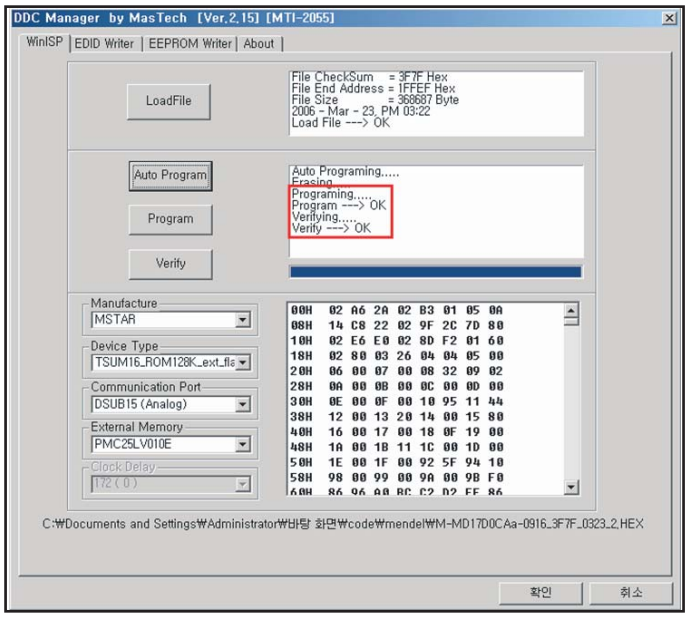
1. Set the options.
   -. Manufacture : MSTAR
   -. Device Type :
   TSUM16_ROM128K_ext_flash
   -. Communication Port : DSUB15 (Analog)
   -. External Memory : PMC25LV010E



2. Click 'LoadFile' button, and select the MCU code.



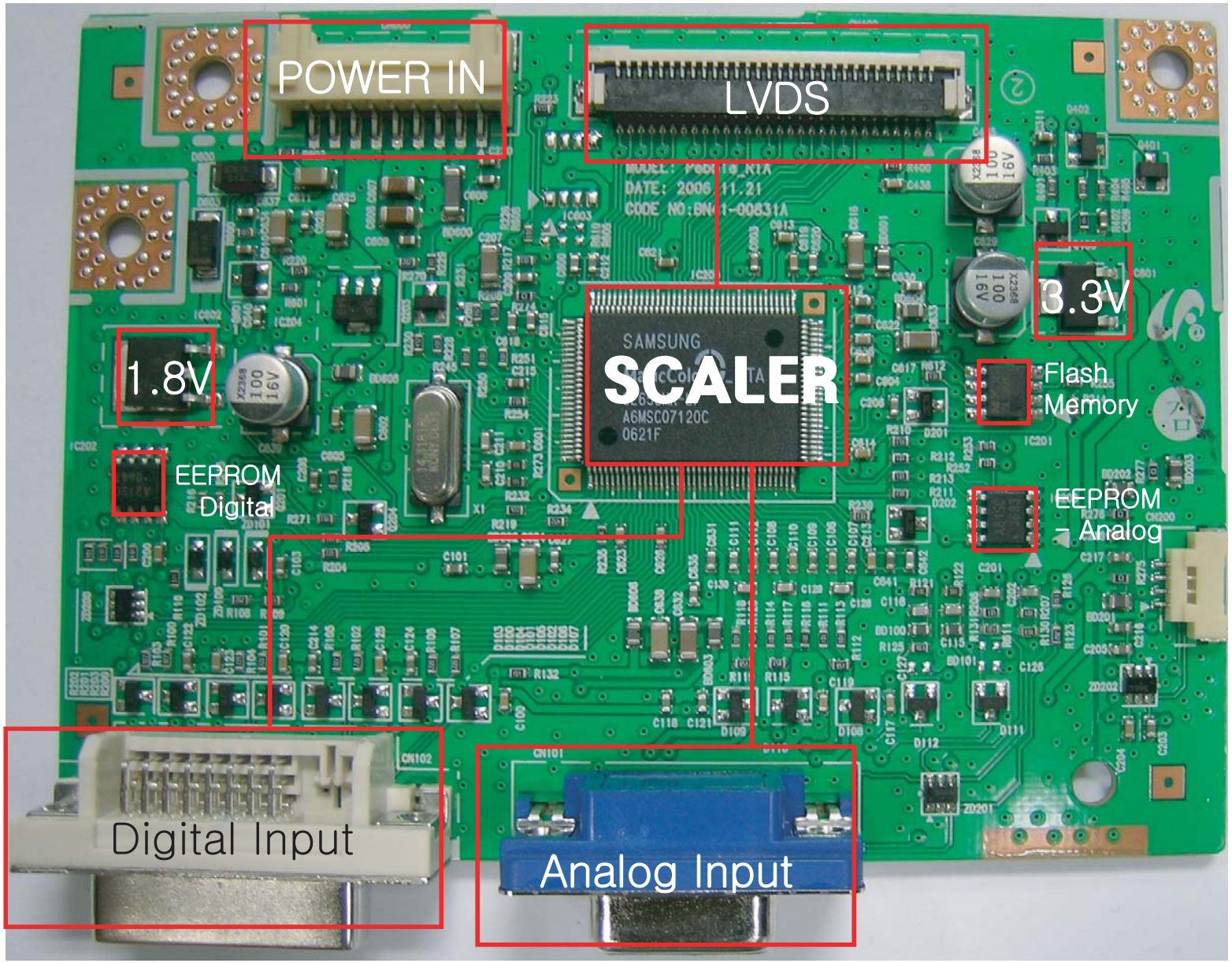
3. Click 'Auto Program' button.



4. If Program and Verify is OK, turn off the hard power and than turn on again.

12 PCB Diagram

12-1 Main PCB Layout



Memo

14 Reference Infomation

14-1 Technical Terms

-TFT-LCD
(Thin film Transistor Liquid Crystal Display)
ADC(Analog to Digital Converter)
This is a circuit that converts from analog signal to digital signals.

-PLL(Phase Locked Loop)
During progressing ADC, Device makes clock synchronizing HSYNC with Video clock

-Inverter
Device that supply Power to LCD panel lamp. this device gernerate about 1,500~2,000V.

AC Adapter
Device that converts AC(90V~240V) to DC(+12V or 14V)

SMPS(Switching Mode Power Supply)
Switching Mode Power supply. This design technology is used to step up/down the input power by switching on/off

-FRC(Frame Rate Controller)
Technology that change image frame quantity displayed on screen for one second.
Actually TFT-LCD panel require 60 pcs of frame for one second.
so,this technology is needed to convert input image to 60 pcs regardless input frame quantity.

-Image Scaler
Technology that convert various input resolution to other resolution.(ex. 640* 480 to 1024*768)

-Auto Configuration(Auto adjustment)
This is an algorithm to adjust monitor to optimum condition by pushing one key.

-OSD(On Screen Display)
On screen display. customer can control the screen easily with this.

-Image Lock
This means "Fineness adjustment " in LCD Monitor, the features are "Fine" and "Coarse"

-FINE
"Fine" adjustment is used to adjust visibility by control phase difference.

-COARSE
This is a adjustment by tuning with Video colck and PLL clock.

-DVI (Digital Visual Interface)
This provides a high speed digital connection for visual data types that is display technology independent. this interface is primarily forcused at providing a connection between a computer and its display device.

-L.V.D.S.(Low Voltage Differential Signaling)
a kind of transmission method for Digital.It can be used from Main PBA to Panel.

-DVI (Digital Visual Interface)
This provides a high speed digital connection for visual data types that is display technology independent. this interface is primarily forcused at providing a connection between a computer and its display device.

-T.M.D.S
(Transition minimized Differential Signaling)
A kind of transmission method for Digital.
It can be used from Video card to Main PBA.

-DDC(Display data channel)
It is a communication method between Host Computer and related equipment.
It can make it Plug and Play between PC and Monitor.

-EDID

Extended Display Identification Data PC can recognize the monitor information as Product data, Product name,Display mode,Serial number and Signal source,etc through DDC Line communicating with PC and Monitor.

-Dot Pitch

The image on a monitor is composed of red, green and blue dots. The closer the dots, the higher the resolution. The distance between two dots of the same color is called the 'Dot Pitch'. Unit: mm

-Vertical Frequency

The screen must be redrawn several times per second in order to create and display an image for the user. The frequency of this repetition per second is called Vertical Frequency or Refresh Rate. Unit: Hz
Example: If the same light repeats itself 60 times per second, this is regarded as 60 Hz.

-Horizontal Frequency

The time to scan one line connecting the right edge to the left edge of the screen horizontally is called Horizontal Cycle. The inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz

-Interlace and Non-Interlace Methods

Showing the horizontal lines of the screen from the top to the bottom in order is called the Non-Interlace method while showing odd lines and then even lines in turn is called the Interlace method. The Non-Interlace method is used for the majority of monitors to ensure a clear image. The Interlace method is the same as that used in TVs.

-**Plug & Play**

This is a function that provides the best quality screen for the user by allowing the computer and the monitor to exchange information automatically. This monitor follows the international standard VESA DDC for the Plug & Play function.

-Resolution

The number of horizontal and vertical dots used to compose the screen image is called 'resolution'. This number shows the accuracy of the display. High resolution is good for performing multiple tasks as more image information can be shown on the screen.

Example: If the resolution is 1280 x 1024 , this means the screen is composed of 1280 horizontal dots (horizontal resolution) and 1024 vertical lines (vertical resolution).

-RTA(Response Time Accelerator)

A function that accelerates the response speed of the panel so as to provide a sharper and more natural video display.

-Dynamic Contrast

Dynamic Contrast is to automatically detect distribution of inputted visual signal and adjust to create optimum contrast.

14-2 Pin Assignments

Sync Type / Pin No.	15-Pin D-Sub Signal Cable Connector		
	Separate	Composite	Sync-on-green
1	Red	Red	Red
2	Green	Green	Green + H/V Sync.
3	Blue	Blue	Blue
4	GND	GND	GND
5	DDC Return (GND)	DDC Return (GND)	DDC Return (GND)
6	GND-R	GND-R	GND-R
7	GND-G	GND-G	GND-G
8	GND-B	GND-B	GND-B
9	DDC Power Input (+5V)	DDC Power Input (+5V)	DDC Power Input (+5V)
10	Self Raster	Self Raster	Self Raster
11	GND	GND	GND
12	Bi-Dr Data (SDA)	Bi-Dr Data (SDA)	Bi-Dr Data (SDA)
13	H-Sync.	H/V-Sync.	Not Used
14	V-Sync.	Not Used	Not Used
15	DDC Clock (SCL)	DDC Clock (SCL)	DDC Clock (SCL)

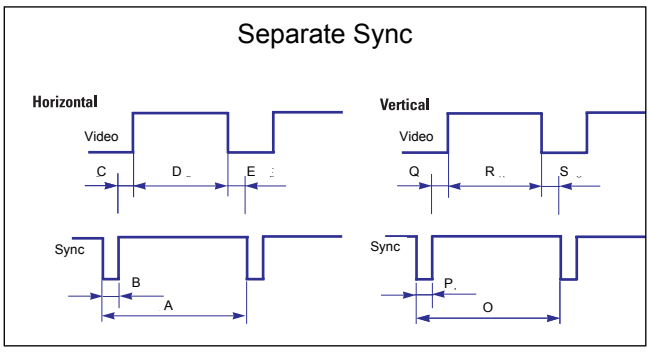
Sync Type / Pin No.	24P DVI-D		
1	Rx2-	13	No Connection
2	Rx2+	14	+5V_M
3	GND	15	Self Raster
4	No Connection	16	+5V_M
5	No Connection	17	Rx0-
6	DDC Clock (SCL)	18	Rx0+
7	DDC Data (SDA)	19	NC
8	NC	20	No Connection
9	Rx1-	21	No Connection
10	Rx1+	22	NC
11	NC	23	RxC+
12	No Connection	24	RxC-

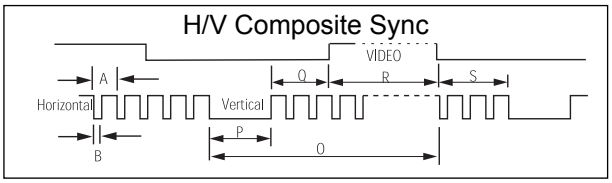
14-3 Timing Chart

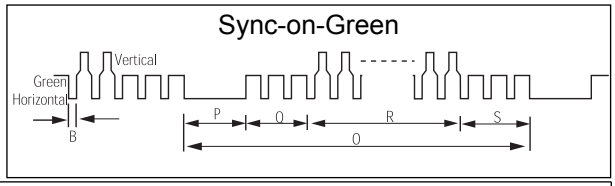
This section of the service manual describes the timing that the computer industry recognizes as standard for computer-generated video signals.

Table 14-1 Timing Chart

Mode / Timing	IBM		VESA						
	VGA2/ 70 Hz 720 x 400	VGA3/ 60 Hz 640 x 480	640/75 Hz 640x480	800/60 Hz 800x600	800/75 Hz 800x600	1024/60 Hz 1024x768	1024/75 Hz 1024x768	1280/60 Hz 1280x1024	1280/75 Hz 1280x1024
fH (kHz)	31.469	31.469	37.500	37.879	46.875	48.363	60.023	63.981	79.975
A µsec	31.777	31.778	26.667	26.400	21.333	20.677	16.660	11.852	12.504
B µsec	3.813	3.813	2.032	3.200	1.616	2.092	1.219	1.037	1.067
C µsec	1.589	1.589	3.810	2.200	3.232	2.462	2.235	2.296	1.837
D µsec	26.058	26.058	20.317	20.000	16.162	15.754	13.003	9.259	9.481
E µsec	0.318	0.318	0.508	0.000	0.323	0.369	0.203	0.000	0.119
fV (Hz)	70.087	59.940	75.000	60.317	75.000	60.004	75.029	60.020	75.025
O msec	14.268	16.683	13.333	16.579	13.333	16.666	13.328	16.005	13.329
P msec	0.064	0.064	0.080	0.106	0.064	0.124	0.050	0.047	0.038
Q msec	0.858	0.794	0.427	0.607	0.448	0.600	0.466	0.594	0.475
R msec	13.155	15.761	12.800	15.840	12.800	15.880	12.795	15.630	12.804
S msec	0.191	0.064	0.027	0.0261	0.021	0.062	0.017	0.016	0.013
Clock Freq. (MHz)	28.322	26.175	31.500	40.000	49.500	75.000	78.750	108.000	135.000
Polarity H.Sync	Negative	Negative	Negative	Positive	Positive	Negative	Positive	Positive	Positive
V.Sync	Positive	Negative	Negative	Positive	Positive	Negative	Positive	Positive	Positive
Remark	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate







A : Line time total B : Horizontal sync width O : Frame time total P : Vertical sync width

C : Back porch D : Active time Q : Back porch R : Active time

E : Front porch S : Front porch

14-4 Preset Timing Modes

-If the signal transferred from the computer is the same as the following Preset Timing Modes, the screen will be adjusted automatically. However, if the signal differs, the screen may go blank while the power LED is on. Refer to the video card manual and adjust the screen as follows.

Table 1. Preset Timing

Display Mode	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
MAC, 640 x 480	35.000	66.667	30.240	-/-
MAC, 832 x 624	49.726	74.551	57.284	-/-
MAC,1152 x870	68.681	75.062	100.000	-/-
IBM, 640 x 350	31.469	70.086	25.175	+/-
IBM, 640 x 480	31.469	59.940	25.175	-/-
IBM, 720 x 400	31.469	70.087	28.322	-/+
VESA, 640 x 480	37.500	75.000	31.500	-/-
VESA, 640 x 480	37.861	72.809	31.500	-/-
VESA, 800 x 600	35.156	56.250	36.000	+,-/+,-
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 800 x 600	46.875	75.000	49.500	+/+
VESA, 800 x 600	48.077	72.188	50.000	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1024 x 768	56.476	70.069	75.000	-/-
VESA, 1024 x 768	60.023	75.029	78.750	+/+
VESA, 1152 x 864	67.500	75.000	108.00	+/+
VESA 1280 x 960	60.000	60.000	108.00	+/+
VESA, 1280 x 1024	63.981	60.020	108.00	+/+
VESA, 1280 x 1024	79.976	75.025	135.00	+/+

Horizontal Frequency
The time to scan one line connecting the right edge to the left edge of the screen horizontally is called Horizontal Cycle and the inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz

Vertical Frequency
Like a fluorescent lamp, the screen has to repeat the same image many times per second to display an image to the user. The frequency of this repetition is called Vertical Frequency or Refresh Rate. Unit: Hz

14-5 Panel Description

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
SEC	LT140X1-002	BN07-00004A	SA	BN68-00239H	-
SEC	LT150XS-L01	BN07-00009A	SB		-
SEC	LT150XS-L01-B	BN07-00022A	SC		-
SEC	LTM150XS-L02	BN07-00005A	SD		-
SEC	LT181E2-132	BN07-00001A	SE		-
SEC	LT150XS-T01	BN07-00010A	SF		-
SEC	LTM181E3-132	BN07-00019A	SG		-
SEC	LT170E2-131	BN07-10001D	SH		-
SEC	LT181E2-131	BN07-10001E	SJ		-
SEC	LTM170E4-L01	BN07-00018A	SK		-
SEC	LTM240W1-L01	BN07-00015A	SL		-
SEC	LTM213U3-L01	BN07-00016A	SM		-
SEC	LTM150XH-L01	BN07-00026A	SN		-
SEC	LTM150XH-L03	BN07-00027A	SP		-
SEC	LTM150XS-L01	BN07-00032A	SQ		DELL(ZPD)
SEC	LTM181E4-L01	BN07-00034A	SR		PVA
SEC	LTM170EH-L01	BN07-00036A	SS		TN
SEC	LTM170E5-L01	BN07-00037A	SU		PVA
SEC	LTM150XH-L11	BN07-00041A	SV		-
SEC	LTM213U4-L01	BN07-00039A	SW		PVA
SEC	LTM150XH-L01(ZPD)	BN07-00045A	SX		ZPD
SEC	LTM150XH-L04	BN07-00046A	SY		New panel with high brightness
SEC	LTM170W1-L01	BN07-00047A	SZ		Panel for TV
SEC	LTM150XH-L06	BN07-00053A	EA		Panel for TV/ High luminance for 450cd _ SONY&EOS Team
Panel for TV					
SEC	LTM153W1-L01	BN07-00054A	EB		Use NIKE MODEL
SEC	LTM170EH-L05	BN07-00055A	EC		Panel EOS proj. for high brightness of 17" EH-L05
SEC	LTM170E5-L03	BN07-00056A	ED		Dell 1702FP pro. E4. EH mechanicalCompatible
SEC	LTM190E1-L01	BN07-00057A	EE		DELL 1900 FP
SEC	LTM181E5-L01	BN07-00061A	EF		18" narrow bezel GH18PS
SEC	LTM150XP-L01	BN07-00065A	EG		AMLCD PVA PANEL
SEC	LTM240W1-L02	BN07-00062A	EH		Panel for 15" Wide TV
SEC	LTM170EU-L01	BN07-00071A	EJ		Slim design, TN
SEC	LTM170E5-L04	BN07-00072A	EK		E5-L04 6 bits FRC... for IBM
SEC	LTA220W1-L01	BN07-00074A	EL		Panel for 22" TV
SEC	LTM170E6-L02	BN07-00075A	EM		AMLCD Narrow & slim design 17" PVA mode
SEC	LTM170W1-L01	BN07-00082A	EN		LTM170W1-L01 ZPD panel
SEC	LTM170EH-L01	BN07-00080A	EP		LTM170EH-L01 ZPD panel
SEC	LTM170E5-L01	BN07-00081A	EQ		LTM170E5-L01 ZPD panel
SEC	LTM170EH-L05	BN07-00083A	ER		LTM170EH-L05 ZPD panel
SEC	LTM170E5-L03	BN07-00084A	ES		LTM170E5-L03 ZPD panel
SEC	LTM170EU-L01	BN07-00085A	ET		LTM170EU-L01 ZPD panel
SEC	LTM170E5-L04	BN07-00086A	EU		LTM170E5-L04 ZPD panel
SEC	LTM170E6-L02	BN07-00087A	EV		LTM170E6-L02 ZPD panel
SEC	LTM150XH-L06	BN07-00091A	EW		Color coordinates change for LCD TV
SEC	LTM153W1-L01	BN07-00092A	EX		AMLCD WIDE 15",9/10
SEC	LTM170W1-L01	BN07-00100A	EY		Color Coordinates change code management
SEC	LTM170EH-L05	BN07-00097A	EZ		LTM170E5-L05 Color Coordinates Change Panel Code
SEC	LTA400W1-L01	BN07-00109A	S1		PANEL of AMLCD 40" TV
SEC	LTM153W1-L01	BN07-00110A	S2		Color coordinates change 0.280/0.290, 10000k & ZPD Panel
SEC	LTM150XH-L06	BN07-00111A	S3		Color coordinates change 0.280/0.290, 10000k & ZPD Panel
SEC	LTM170W1-L01	BN07-00112A	S4		Color coordinates change 0.280/0.290, 10000k & ZPD Panel
SEC	LTM170EH-L05	BN07-00113A	S5		Color coordinates change 0.280/0.290, 10000k & ZPD Panel
SEC	LTM220W1-L01	BN07-00114A	S6		ZPD Panel for AMLCD 22" TV
SEC	LTM150XH-L06	BN07-00117A	S7		ZPD Panel code

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
SEC	LTM153W1-L01	BN07-00118A	S8		ZPD Panel code
SEC	LTM170WP-L01	BN07-00119A	S9		PVA Panel for NIKE
SEC	LTM213U4-L01	BN07-00039A	E1		21.3" NARROW
SEC	LTA260W1-L01	BN07-00121A	E2		VENUS
SEC	LTA220W1-L01	BN07-00074B	E3		Panel B-level panel code for 22" TV Panel
SEC	LTA320W1-L01	BN07-00108A	E4		Panel for AMLCD 32" TV
SEC	LTM213U4-L01	BN07-00124A	E5		NARROW BEZEL 21 " PANEL
SEC	LTM170E6-L04	BN07-00129A	E6		HIGHLAND 17" LOW PANEL (Panel only for TCO03)
SEC	LTM190E1-L01	BN07-00088A	E7		LTM190E1-L01 ZPD panel
SEC	M150X4-L06	BN07-00137A	E8		15" Narrow & Slim panel
SEC	LTA170V1	BN07-00139A	E9		17" Panel for Muse 4:3 VGA TV
SEC	LTM190E1-L02	BN07-00128A	E10		New Panel from AMLCDl, Specification : 6bit Driver IC
SEC	LTM170EX-L01	BN07-00143A	E11		Development new Panel from AMLCD
SEC	LTM170E8-L01	BN07-00144A	E12		Development new Panel from AMLCD
SEC	LTM170E6-L04	BN07-00129B	E13		ZPD panel for AMLCD (Panel only for TCO03)
SEC	LTA320W1-L02	BN07-00108B	E14		Creat B-level Panel code for AMLCD 32" TV
SEC	LTM190E1-L03	BN07-00151A	E15		Development new 19" Panel form AMLCD (Panel only for
TCO03)					
SEC	LTM240W1-L03	BN07-00134A	E16		AMLCD 24" panel development
SEC	LTM190E1-L02	BN07-00128B	E17		New Panel from AMLCD, Specification : 6bit Driver IC(ZPD)
SEC	LTM190E4-L01	BN07-00145A	E18		AMLCD 24" new panel development
SEC	LTM170E8-L01	BN07-00158A	E19		ZPD code derivation
SEC	LTM170EX-L01	BN07-00159A	E20		ZPD code derivation
SEC	LTM190E1-L03	BN07-00151B	E21		Creat new panel code for AMLCD 19" (Panel only for TCO03)
SEC	LTA460H1-L01	BN07-00157A	E22		creat panel code for AMLCD 46" TV
SEC	LTM170EU-L11	BN07-00160A	E23		creat new panel code for AMLCD 17" (Panel only for TCO03)
SEC	LTM240W1-L03	BN07-00134B	E24		24" panel ZPD code derivation
SEC	LTM190E4-L01	BN07-00145B	E25		AMLCD 19" ZPD Panel code derivation
SEC	LTM240W1-L03	BN07-00134B	E26		24" panel ZPD code derivation
SEC	LTM150XO-L01	BN07-00164A	E27		AMLCD 15" XO-L01 new panel development
SEC	LTM150XO-L01	BN07-00164B	E28		AMLCD 15" XO-L01 ZPD code derivation
SEC	LTM170EU-L11	BN07-00160B	E29		AMLCD 17" NEW panel code derivation
SEC	LTA320W2-L01	BN07-00172A	SPZ		AMLCD 32" NEW panel
SEC	LTM213U4-L01	BN07-00124B	SPZ		21.3" Narrow PANEL ZPD Panel derivation
SEC	LTM170EU-L11	BN07-00189A	STH		AMLCD EU-L11 Pb free panel code derivtion
SEC	LTM170EU-L11	BN07-00189B	STZ		AMLCD EU-L11 Pb free panel ZPD code derivation
SEC	LTM240W1-L04	BN07-00188A	SPH		24" A-DCC NEW panel
SEC	LTM240W1-L04	BN07-00188B	SPZ		24" A-DCC panel ZPD code derivation
SEC	LTM190EX-L01	BN07-00191A	STH		AMLCD 19" TN NEW Panel
SEC	LTM190EX-L02	BN07-00191B	STZ		AMLCD 19" TN NEW Panel ZPD
SEC	LTA230W1-L02	BN07-00184A	SPZ		AMLCD 23" 16:9 NEW Panel
SEC	LTA260W2-L01	BN07-00185A	SPZ		AMLCD 26" 16:9 NEW Panel
SEC	LTA400W2-L01	BN07-00186A	SPZ		AMLCD 40" 16:9 NEW Panel
SEC	LTM240M1-L01	BN07-00195A	SPH		24" high brightness panel
SEC	LTM150XO-L01	BN07-00197A	STH		AMLCD 15" XO-L01 Pb free panel code
SEC	LTM150XO-L01	BN07-00197B	STZ		AMLCD 15" XO-L01 Pb free panel ZPD code
SEC	LTM170EU-L21	BN07-00202A	STZ		AMLCD EU-L21 ZPD NEW code derivation
SEC	LTA460W2-L03	BN07-00187A	SPZ		BEETOVEN 46"ZPD NEW Panel
SEC	LTM240M1-L01	BN07-00195B	SPZ		24" high brightness panel ZPD code derivation
SEC	M170EX-L21	BN07-00206A	STZ		AMLCD LTM170EX-L21 ZPD NEW code derivation
SEC	LTA460H3-L01	BN07-00200A	SPZ		AMLCD 46" LED BLU panel
SEC	LTM170EU-L15	BN07-00214A	STZ		High brightness For AMLCD EU-L15 TV ZPD NEW code deri-
vation					
SEC	LTM170E8-L21	BN07-00218A	SPZ		AMLCD LTM170E8-L21 PVA ZPD NEW code derivation
SEC	LTM190EX-L21	BN07-00222A	STZ		DISPLAY LCD

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
SEC	LTM201U1-L01	BN07-00190B	SPZ		AMLCD 20.1" Normal panel ZPD code derivation
SEC	LTM190E4-L21	BN07-00223A	SPZ		HAYDN 17" PZD code PANELderivation
SEC	LTA570H1-L01	BN07-00196A	SPZ		AMLCD 57" NEW Panel
SEC	LTM150XO-L21	BN07-00229A	STZ		AMLCD 15" XO-L21 8ms panel code
SEC	LTA260W2-L11	BN07-00239A	SPZ		AMLCD 26" 16:9 7Line NEW Panel
SEC	LTA400WS-LH1	BN07-00245A	SPZ		AMLCD 40" 16:9 SPVA 90% NEW Panel
SEC	LTM213U6-L01	BN07-00231A	SPZ		AMLCD 21.3" PVA NEW Panel Code
SEC	LTM213U6-L01	BN07-00231B	SPH		AMLCD 21.3" PVA Panel HPD Code
SEC	LTA320WS-LH2	BN07-00244A	SPZ		AMLCD 32" 16:9 SPVA 90% NEW Panel
SEC	LTA400WS-LH1	BN07-00245A	SPZ		AMLCD 40" 16:9 SPVA 90% NEW Panel
SEC	LTM190M2-L01	BN07-00227A	STZ		AMLCD 19" TN Wide NEW Panel Code
SEC	LTM201UX-L01	BN07-00249A	STZ		AMLCD 20.1" TN NEW Panel Code
SEC	LTM240M1-L02-A05	BN07-00250A	SPZ		24" High brightness Slim panel ZPD code derivation
SEC	LTA320W3-L02	BN07-00219A	SPZ		AMLCD 32" NEW FFL Panel
SEC	LTA320W2-L11	BN07-00259A	SPZ		IP Board for AMLCD 32" 16:9 NEW Panel
SEC	LTA460WS-L02	BN07-00252A	SPZ		AMLCD 46" 16:9 SPVA 72% NEW Panel
SEC	LTA400WT-L01	BN07-00264A	SPZ		-
SEC	LTM240M2-L02	BN07-00267A	SPZ		All LCD Monitor 24" wide SPVA ZPD NEW code derivation
SEC	LTM210M2-L02	BN07-00230A	SPZ		-
SEC	LTA320WT-L11	BN07-00257A	SPZ		-
SEC	LTM190EX-L21-G	BN07-00274A	STZ		AMLCD 19" TN Glare NEW Panel Code
SEC	LTA320WT-L14	BN07-00247A	SPZ		-
SEC	LTM190M2-L01-D016	BN07-00280A	STZ		AMLCD 19" TN Wide change Gamma Panel Code
SEC	LTM190EX-L31	BN07-00279A	STZ		AMLCD 19" TN NEW Panel Code
SEC	LTM190M2-L02	BN07-00287A	STZ		AMLCD 19" TN Wide High brightness NEW Panel Code
SEC	LTA400WS-L01	BN07-00246A	SPZ		Display-LCD (Div) 07AH
SEC	LTA460WS-L01	BN07-00311A	SPZ		-
SEC	LTM190E4-L31	BN07-00316A	SPZ		-
SEC	LTM170EX-L31	BN07-00278A	STZ		AMLCD LTM170EX-L31 ZPD
SEC	LTA460HS-LH1	BN07-00291A	SPZ		AMLCD 46" 16:9 FHD / 60Hz / 8bit / SPVA 92%
SEC	LTA320WT-LF1	BN07-00323A	SPZ		-
SEC	LTA460WT-L02	BN07-00284A	SPZ		AMLCD 46" 16:9 HD / 60Hz / 8bit / SPVA 72% /
SEC	LTA400WH-LH1	BN07-00271A	SPZ		AMLCD 40" 16:9 SPVA 92% 10bit 120Hz
SEC	LTM240M1-L02-D015	BN07-00331A	SPZ		-
SEC	LTM300M1-P01	BN07-00326A	SPZ		
SEC	LTM201UX-L01	BN07-00249B	STH		
SEC	LTM201M2-L01	BN07-00262A	STZ		All LCD Monitor 20.1" wide PVA ZPD NEW code derivation
SEC	LTM220M1-L01	BN07-00346A	STZ		
SEC	LTM240M2-L03 V01	BN07-00377A	SPZ		
SEC	LTM170EU-L31	BN07-00375A	STZ		
SEC	LTM270M1-L01	BN07-00373A	SPZ		
SEC	LTM170EX-L31-D	BN07-00379A	STZ		
SEC	LTM190EX-L31-D	BN07-00380A	STZ		
CPT	CLAA150XG09	BN07-00141A	PA		CPT 15" Monitor new panel development
CPT	CLAA170EA02	BN07-00148A	PB		17" CPT NEW development panel
CPT	CLAA170EA02	BN07-00148B	PC		17" CPT ZPD panel code derivation
CPT	CLAA150XG09	BN07-00141B	PTZ		CPT 15" panel ZPD code derivation (GOYA-PJT)
CPT	CLAA150XP01	BN07-00173A	PTH		CPT 15" PSWG code derivation
CPT	CLAA150XP01	BN07-00173B	PTZ		CPT 15" PSWG panel ZPD code derivation
CPT	CLAA170EA07	BN07-00174A	PTH		CPT 17" PSWG code derivation
CPT	CLAA170EA07	BN07-00174B	PTZ		CPT 17" PSWG type New Panel code
CPT	CLAA170EA07Q	BN07-00220A	PTZ		CPT 17" PSWG R/T 8msec code derivation
CPT	CLAA170EA07Q	BN07-00220B	PTH		CPT 17" PSWG R/T 8msec HPD code derivation
CPT	CLAA150XP01F	BN07-00236A	PTZ		CPT 15" PSWG panel ZPD & Lead free code derivation

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
CPT	CLAA201WA03Q	BN07-00269A	PTZ		CPT 20.1" wide TN ZPD New code derivation
CPT	CLAA320WA01	BN07-00276A	PMZ		CPT 32" 16:9 MVA 8bit 60Hz / Panel brown
CPT	CLAA170ES01	BN07-00261A	PTZ		CPT 17" Slim TN ZPD Type New code derivation
CPT	CLAA070VA02	BN07-00265A	PTZ		CPT Panel code derivation for Digital Album
CPT	CLAA201WA03S	BN07-00269B	PTH		
TOSHIBA	LTM15C419(A)	BN07-00002A	TA		-
TOSHIBA	LTM15C423(B)	BN07-00006A	TB		-
TOSHIBA	LTM18C161	BN07-00008A	TC		-
TOSHIBA	LTM15C443	BN07-00031A	TD		-
TOSHIBA	LTM15C458	BN07-00043A	TE		-
TOSHIBA	LTM15C458S	BN07-00077A	TF		TSB 15" high brightness Panel
TOSHIBA	LTM15C458	BN07-00078A	TG		Toshiba ZPD panel
IBM	LTM15C458S	BN07-00099A	TH		TSB LTM15C458S (ZPD)
HANNSTAR	HSD150MX41A(A)	BN07-00020A	NA		TTL type
HANNSTAR	HSD150MX12	BN07-00030A	NB		TTL type
HANNSTAR	HSD170ME13	BN07-00180A	NTH		Hannstar 17" TN new panel development
HANNSTAR	HSD170ME13	BN07-00180B	NTZ		Hannstar 17" TN new panel development ZPD code derivation
HANNSTAR	HSD190ME12	BN07-00210A	NTZ		Hannstar 19" TN new panel development
HANNSTAR	HSD150MX17-A	BN07-00226A	NTZ		Hannstar 15" slim panel ZPD code derivation
HANNSTAR	HSD190ME12-A10	BN07-00256A	NTZ		Hannstar 19" TN PSWG 8ms new panel development
HANNSTAR	HSD190ME13-D11	BN07-00270A	NTZ		Hannstar 19" TN Slim 5ms new panel development
HANNSTAR	HSD190ME13-A13	BN07-00317A	NTZ		
HANNSTAR	HSD190MGW1	BN07-00338A	NTZ		
HANNSTAR	HSD190MEN2-A	BN07-00341A	NTZ		
TORISAN	TM150XG-22L03(A)	BN07-00021A	RA		-
TORISAN	TM150XG-26L06	BN07-00042A	RB		-
TORISAN	TM181SX-76N01	BN07-00048A	RC		-
TORISAN	TM150XG-26L06	BN07-00059A	RD		15" XGA TN MODE(ZPD)
TORISAN	TM290WX-71N31	BN07-00063A	RE		RS24NS (TORISAN 29" NEW PANEL)
TORISAN	TM396WX-71N31	BN07-00064A	RF		RS24NS (TORISAN 40" NEW PANEL)
TORISAN	TM150XG-26L09	BN07-00073A	RG		Panel for 15" TV
TORISAN	TM150XG-26L10	BN07-00089A	RH		L10(change except D/IC) ZPD
TORISAN	TM150XG-26L10	BN07-00090A	RJ		L10 NORMAL
TORISAN	TM190SX-70N01	BN07-00098A	RK		Torisan 19" Panel
TORISAN	TM181SX-76N01	BN07-00106A	RL		ZPD Panel code
TORISAN	TM190SX-70N01	BN07-00107A	RM		ZPD Panel code
TORISAN	TM290WX-71N31	BN07-00115A	RN		Color Coordinates change panel for TORISAN 29" TV
TORISAN	TM396WX-71N31	BN07-00116A	RP,Q		Color Coordinates change panel for TORISAN 40" TV
TORISAN	TM22OWX-71N31	BN07-00125A	RR		Development TORISAN 22" TV PANEL (ZPD)
TORISAN	TM22OWX-71N31	BN07-00127A	RS		Development TORISAN 22" TV PANEL (HPD)
TORISAN	TM396WX-71N32A	BN07-00150A	RT		120V inverter Exclusive panel
TORISAN	TM190SX-70N02	BN07-00154A	RMH		Torisan 6bit panel code Derivation
TORISAN	TM190SX-70N02	BN07-00154B	RMZ		Torisan 6bit panel code Derivation
TORISAN	TM150XG-A01	BN07-00162A	RTH		Torisan 15" Narrow & Slim panel development
TORISAN	TM150XG-A01	BN07-00162B	RTZ		Torisan 15" N&S panel ZPD code derivation
SHARP	LQ181E1DG11(A)	BN07-10001C	PA		-
SHARP	LQ150X1LW71	BN07-00067A	PB		SHARP 15" PVA PANEL
SHARP	LQ370T3LZ41	BN07-00216A	FAZ		Rome2
HITACHI	TX38D12VC0CAA(A)	BN07-00003A	HA		-

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
HITACHI	TX43DVCOCAB	BN07-00060A	HB		17" SXGA PVA MODE
HITACHI	TX43D15VC0CAB	BN07-00101A	HC		ZPD Panel
HITACHI	TX51D11VC0CAB	BN07-00122A	HD		20.1" NARROW
HITACHI	TX54D11VC0CAB	BN07-00123A	HE		21.3" NARROW
HITACHI	TX80D12VC0CAB	BN07-00169A	HIZ		Development new panel for Hitachi 32" TV (ZPD)
HITACHI	TX54D11VC0CAB	BN07-00123B	HIZ		Hitachi 21.3"ZPD panel
IBM	ITSX94S	BN07-00017A	IA		-
UNIPAC	UM170E0	BN07-00028A	UA		Loaded by cisdba
HYUNDAI	HT15X13	BN07-00035A	DA		-
HYUNDAI	HT17E11-200	BN07-00049A	DB		TN MODE
HYUNDAI	HT17E11-300	BN07-00093A	DC		HT17E11-300 ZPD panel
HYUNDAI	HT17E11-400	BN07-00094A	DD		HT17E11-400 normal panel
HYUNDAI	HT17E11-400	BN07-00095A	DE		HT17E11-400 ZPD panel code
HYUNDAI	HT17E12	BN07-00096A	DF		HT17E12 (Narow & slim Design)
HYUNDAI	HT17E12	BN07-00105A	DG		ZPD Panel code
HYUNDAI	HT15X15-D00	BN07-00146A	DH		Development for Ares 15" Hydis TV
HYUNDAI	HT15X15-D01	BN07-00146B	DJ		Derivation panel HPD for Ares 15" Hydis TV
HYUNDAI	HT17E13-100	BN07-00167A	DTH		PINEHURST-2(IBM) PJT 17" HYDIS PANEL Derivation
HYUNDAI	HT17E13-100	BN07-00167B	DTZ		PINEHURST-2(IBM) Hydis 17" ZPD code Derivation
HYUNDAI	HT170EX1-100	BN07-00240A	DTZ		17" EX compatible Hydis Slim panel development
HYUNDAI	HT201V01-100	BN07-00263A	DTZ		Hydis 20.1" 4:3 VGA Mode TN NEW Panel
HYUNDAI	HT170EX1-101	BN07-00266A	DTZ		17" EX compatible Hydis Slim panel multi channel IC NEW Derivation
ACER	L170E3	BN07-00044A	AA		TN(ADT)
ACER	M170EN05	BN07-00076A	AB		AU 17" Panel (Narrow & slim design)
ACER	M170EN05	BN07-00102A	AC		ZPD Panel code
ACER	M190EN02	BN07-00170A	AMH		AU Monitor 19" new panel development (P19-1S)
ACER	M190EN02	BN07-00170B	AMZ		AU 19" ZPD code derivation (ZPD)
ACER	M170EN06	BN07-00171A	ATH		AU Monitor 17" New panel development
ACER	T260XW01	BN07-00163A	AMZ		AU 26" new panel development (NF26EO)
ACER	A201SN01	BN07-00177A	ATZ		AU TV panel 20.1" TN SVGA new panel development
ACER	M170EN06	BN07-00171B	ATZ		AU Monitor 17" ZPD code Derivation
ACER	T315XW01	BN07-00194A	AMZ		New AU 32"
ACER	M170EG01	BN07-00192A	ATH		AU TN PSWG type New Panel code
ACER	M170EG01	BN07-00192B	ATZ		AU TN PSWG type New Panel ZPD Derivation code
ACER	M190EN04	BN07-00203A	ATH		AU Monitor 19" ZPD New code Derivation
ACER	T260XW02	BN07-00208A	AMZ		AUO 26"
ACER	M170EG01 V8	BN07-00221A	ATZ		AU TN PSWG type New Panel (8msec) ZPD Derivation code
ACER	T260XW02	BN07-00233A	AMZ		AUO 26" New Panel (Cosmetic spec down grade)
ACER	T315XW01	BN07-00234A	AMZ		AUO 32" New Grade (Cosmetic spec down grade)]
ACER	M190EN03	BN07-00224A	AMZ		AU Monitor 19" MVA New code Derivation
ACER	T315XW01	BN07-00237A	AMZ		New LCD TV VE project : delete DBEF sheet * Panel, model division ve
ACER	T315XW01	BN07-00238A	AMZ		New LCD TV VE project : delete DBEF sheet + 'A-' grade * Panel
ACER	M201UN02 V3	BN07-00168A	AMZ		-
ACER	M201UN02 V3	BN07-00168B	AMH		-
ACER	M190EN04 V7	BN07-00248A	ATZ		AU Monitor 19" TN Glare ZPD New code Derivation
ACER	A070VW01	BN07-00235A	ATZ		New Panel code Derivation for Digital Album
ACER	T315XW01	BN07-00253A	AMZ		LCD TV VE item model * Panel, Model division add version: T315XW01

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
ACER	T260XW02	BN07-00254A	AMZ		AUO 26" VE item apply model
ACER	M170EU01	BN07-00260A	ATZ		AUO 17" Slim TN ZPD Type New code Derivation
ACER	T370XW01	BN07-00255A	AMZ		for ROME 37" model development
ACER	T315XW02(V3),	BN07-00324A	AMZ		-
ACER	A201SN02 V5	BN07-00314A	ATZ		
ACER	M201UN03	BN07-00332A	AMZ		
ACER	M190PW01 V0	BN07-00350A	ATZ		
CHIMEI	M170E3-LO1	BN07-00050A	CA		TN PANEL
CHIMEI	M150X3-L01	BN07-00051A	CB		COMPATIBLE
CHIMEI	M170E4-L01	BN07-00052A	CC		MVA PANEL
CHIMEI	M150X2-L01	BN07-00066A	CD		CHIME 15"I PVA PANEL
CHIMEI	M150X3-L01	BN07-00079A	CE		Chimei ZPD panel
CHIMEI	M170E3-L01	BN07-00103A	CF		ZPD Panel code
CHIMEI	M170E4-L01	BN07-00104A	CG		ZPD Panel code
CHIMEI	V296W1-L01	BN07-00120A	CH		MVA
CHIMEI	M170E6-L02	BN07-00126A	CJ		HIGHLAND 17" LOW PANEL
CHIMEI	M190E2-L01	BN07-00131A	CK		GH19AS,BS CHIMEI PANEL
CHIMEI	M150X4-L06	BN07-00137A	CL		15" Narrow & Slim panel
CHIMEI	M170E6-L01	BN07-00133A	CM		2003-03-11 vendor change
CHIMEI	M170E6-L01	BN07-00133B	CN		ZPD derivation panel
CHIMEI	V201V1-T01	BN07-00135A	CP		CHIMEI 20.1" panel development
CHIMEI	M170E6-L02	BN07-00126B	CQ		HIGHLAND 17" LOW PANEL ZPD derivation panel
CHIMEI	M170E6-L05	BN07-00152A	CR		CMO 17" new panel development code
CHIMEI	M170E6-L05	BN07-00152B	CS		CMO 17" ZPD panel code derivation
CHIMEI	M150X4-L06	BN07-00137B	CT		Chimei 15" Narrow & Slim panel ZPD derivation
CHIMEI	M170E5-L05	BN07-00165A	CTH		CMO 17" new panel development code (GOYA2-PJT)
CHIMEI	M170E5-L05	BN07-00165B	CTZ		CMO 17" ZPD panel(GOYA2-PJT)
CHIMEI	V230W1-L02	BN07-00209A	CMZ		CMO 23" new development
CHIMEI	V320B1-L01	BN07-00207A	CMZ		CMO 32" new development
CHIMEI	V270W1-L01	BN07-00136A	CMZ		CHI MEI 27" panel development
CHIMEI	M190E5-L0A	BN07-00213A	CTZ		-
CHIMEI	M190E3-L0A	BN07-00212A	CMZ		CMO M190E3-L0A MVA Type New code derivation
CHIMEI	M170E7-L01	BN07-00232A	CTZ		CMO 17" Slim TN ZPD Type New code derivation
CHIMEI	M190A1-L01	BN07-00228A	CTZ		CMO 19" Wide TN ZPD Type New code derivation
CHIMEI	V201V1-T03	BN07-00275A	CTZ		CMO 20.1" (V201V1-T01) VE model
CHIMEI	M201P1-L01	BN07-00268A	CTZ		CMO 20.1" TN ZPD derivation
CHIMEI	M220Z1-L01	BN07-00321A	CTZ		
CHIMEI	M190E5-L0G	BN07-00337A	CTZ		
CHIMEI	M190A1-L02	BN07-00330A	CTZ		
CHIMEI	M220Z1-L02	BN07-00354A	CTZ		
NEC	SVA150XG04TB	BN07-00225A	BTZ		SVA NEC 15" panel ZPD code
NEC	SVA170SX01TB	BN07-00272A	BTZ		SVA NEC 17" panel ZPD code Brown

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2 Product Specifications

2-1 Fashion Feature

- Minimalism Design Something New
- Boltless Model (Clean Cut & Soft Surface)
- New Ball Hinge
- Fast Response Time
- Dynamic Contrast

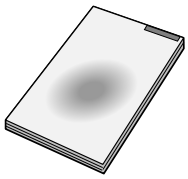
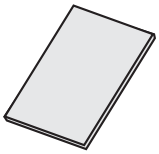
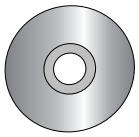
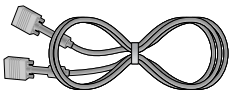
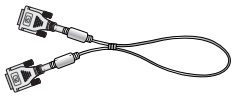
2-2 Specifications

Item	Description
LCD Panel	TFT-LCD panel, RGB vertical stripe, normally white transmissive, 19-Inch viewable, 0.294 (H) x 0.294 (V) mm pixel pitch
Scanning Frequency	Horizontal : 30 kHz ~ 81 kHz (Automatic) Vertical : 56 Hz ~ 75 Hz
Display Colors	16.7 Million colors
Maximum Resolution	Horizontal : 1280 Pixels Vertical : 1024 Pixels
Input Signal	Analog / Digital
Input Sync Signal	Seperate H/V sync, Composite H/V, Sync-on-Green Level : TTL level
Maximum Pixel Clock rate	135 MHz
Active Display Horizontal/Vertical	376.32 (H) x 301.06 (V) mm
AC power voltage & Frequency	AC 90 ~ 264 VAC, 60/50 Hz
Power Consumption	38W (Max)
Dimensions Set (W x D x H) Weight (Set / Package)	14.8 x 7.0 x 15.0 inch (376.0 x 177.0 x 380.0 mm) 3.2kg / 4.3kg
Environmental Considerations	Operating Temperature : 50˚F ~ 104˚F (10℃ ~ 40℃) Operating Humidity : 10% ~ 80% Storage temperature : -4˚F ~ 113˚F (-20℃ ~ 45℃) Storage Humidity : 5% ~ 95%
- Designs and specifications are subject to change without prior notice.	

2-3 Spec Comparison

Model	LPE19BS	LPE19DS
Design		
Frequency **Horizontal** **Vertical**	 30 ~ 81 kHz 60 ~ 75 Hz	 30 ~ 81 kHz 60 ~ 75 Hz
Display Color	16,7M colors	16,7M colors
PC Resolution **Maximum mode**	1280 x 1024 / 60 Hz 1280 x 1024 / 75 Hz	1280 x 1024 / 60 Hz 1280 x 1024 / 75 Hz
Input Signal	Analog, Digital	Analog, Digital
Sync Signal	Seperate, Composite, Sync-on-Green	Seperate, Composite, Sync-on-Green
Power Consumption	38W	38W
Normal Power Saving	< 1W	< 1W
Response Time	5ms	2ms(G to G)
Contrast Ratio	700:1	1000:1 / 2000:1(Dynamic Contrast)
Magic Color	Support (Deleted Magic Zone)	Support (Deleted Magic Zone)

2-4 Option Specification

Item	Item Name	CODE.NO	Remark
	Quick Setup Guide	BH68-00376L	
	Warranty Card (Not available in all locations)	BH68-00633A	
	User's Guide, Monitor Driver, Natural Color software, MagicTune™ software	BN59-00585F	
	D-Sub(15 Pin) Cable	BN39-00244B	
	Power Cord	3903-000042	
	DVI Cable	BN39-00246F	Sold separatelys

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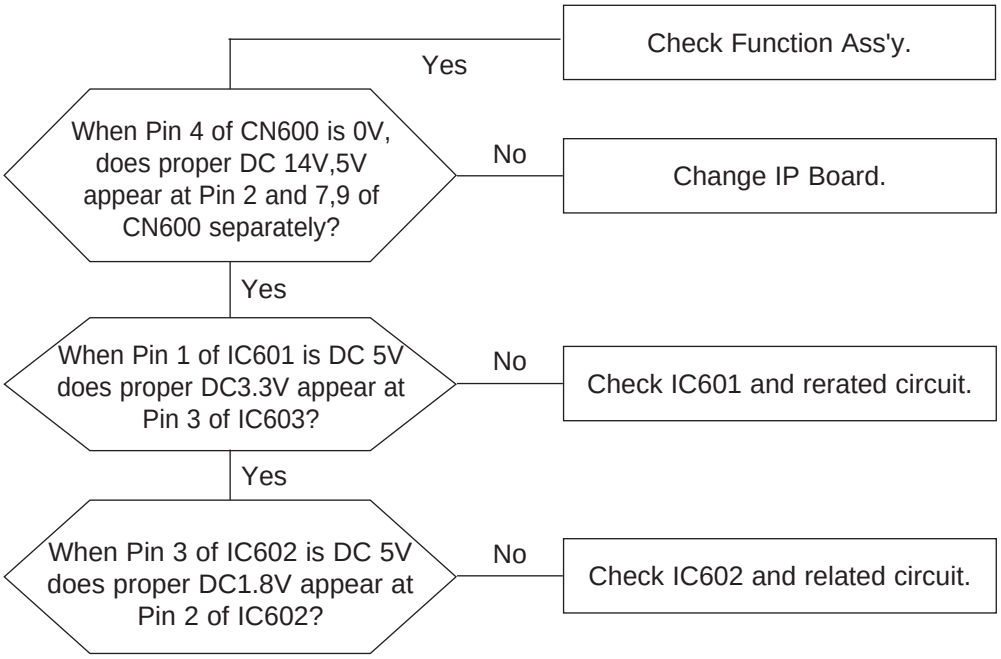
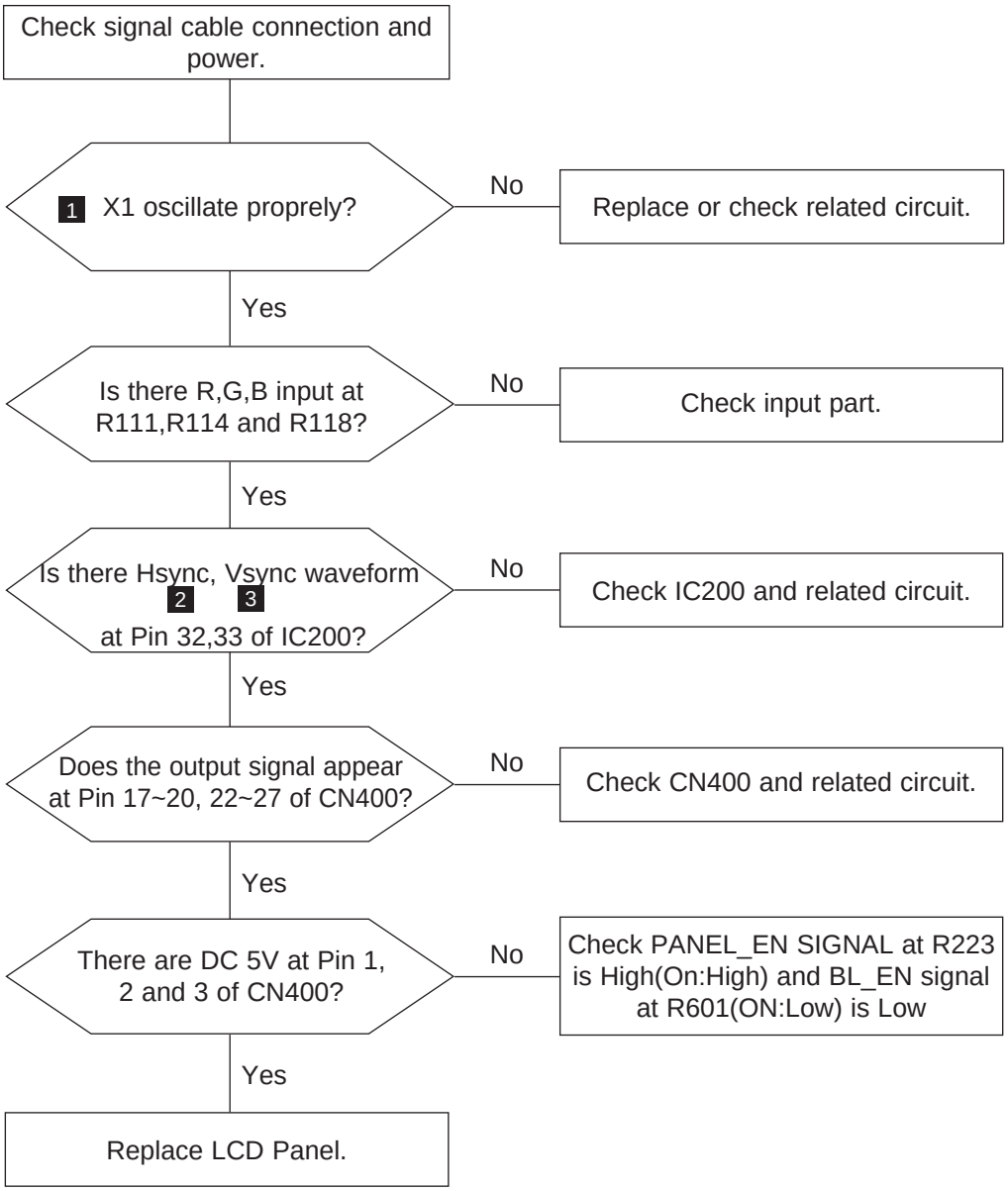
4 Troubleshooting

Notes:
1. Before troubleshooting, setup the PC 's display as below.
   - Resolution: 1280 x 1024
   - H-frequency: 64 kHz
   - V-frequency: 60 Hz
2. If no picture appears, make sure the power cord is correctly connected.
3. Check the following circuits.
   - No raster appears: Function PBA, Main PBA, I/P PBA
   - 5V develop but no screen: Main PBA
   - 5V does not develop: I/P PBA
4. If you select Brightness adjust menu and push the "↵(Enter/Source)" button for 5 seconds, the monitor automatically returns to factory reset.

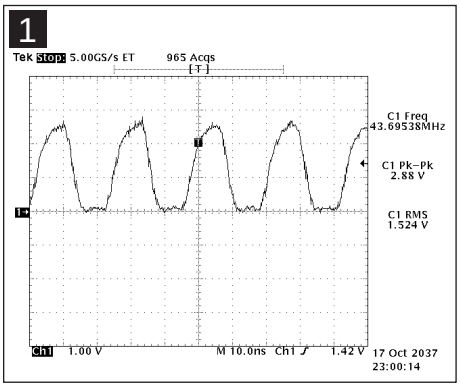
4-1 No Power



4-2 No Video (ANALOG)



WAVEFORMS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965 Acqs
C1 Freq
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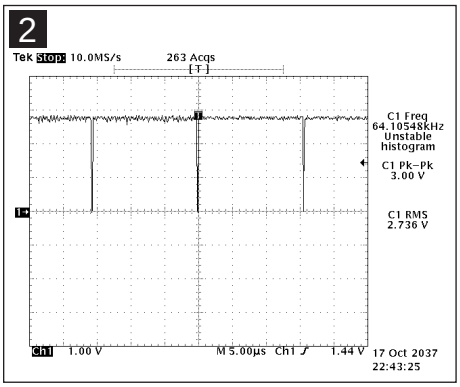
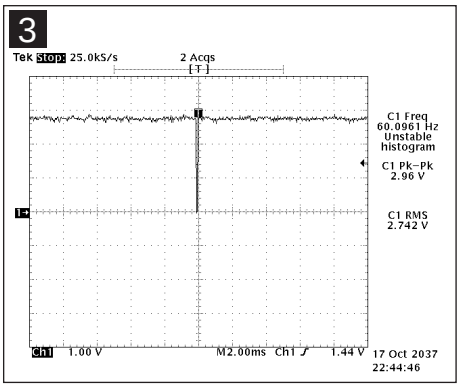
C1 Pk-Pk
2.88 V
C1 RMS
1.524 V
Ch1 1.00 V
M 10.0ns Ch1 1.42 V
17 Oct 2037
23:00:14


2
Tek Stop: 10.0MS/s
263 Acqs
C1 Freq
64.10548kHz
Unstable
histogram
C1 Pk-Pk
3.00 V
C1 RMS
2.736 V
Ch1 1.00 V
M 5.00µs Ch1 1.44 V
17 Oct 2037
22:43:25


3
Tek Stop: 25.0kS/s
2 Acqs
C1 Freq
60.0961 Hz
Unstable
histogram
C1 Pk-Pk
2.96 V
C1 RMS
2.742 V
Ch1 1.00 V
M2.00ms Ch1 1.44 V
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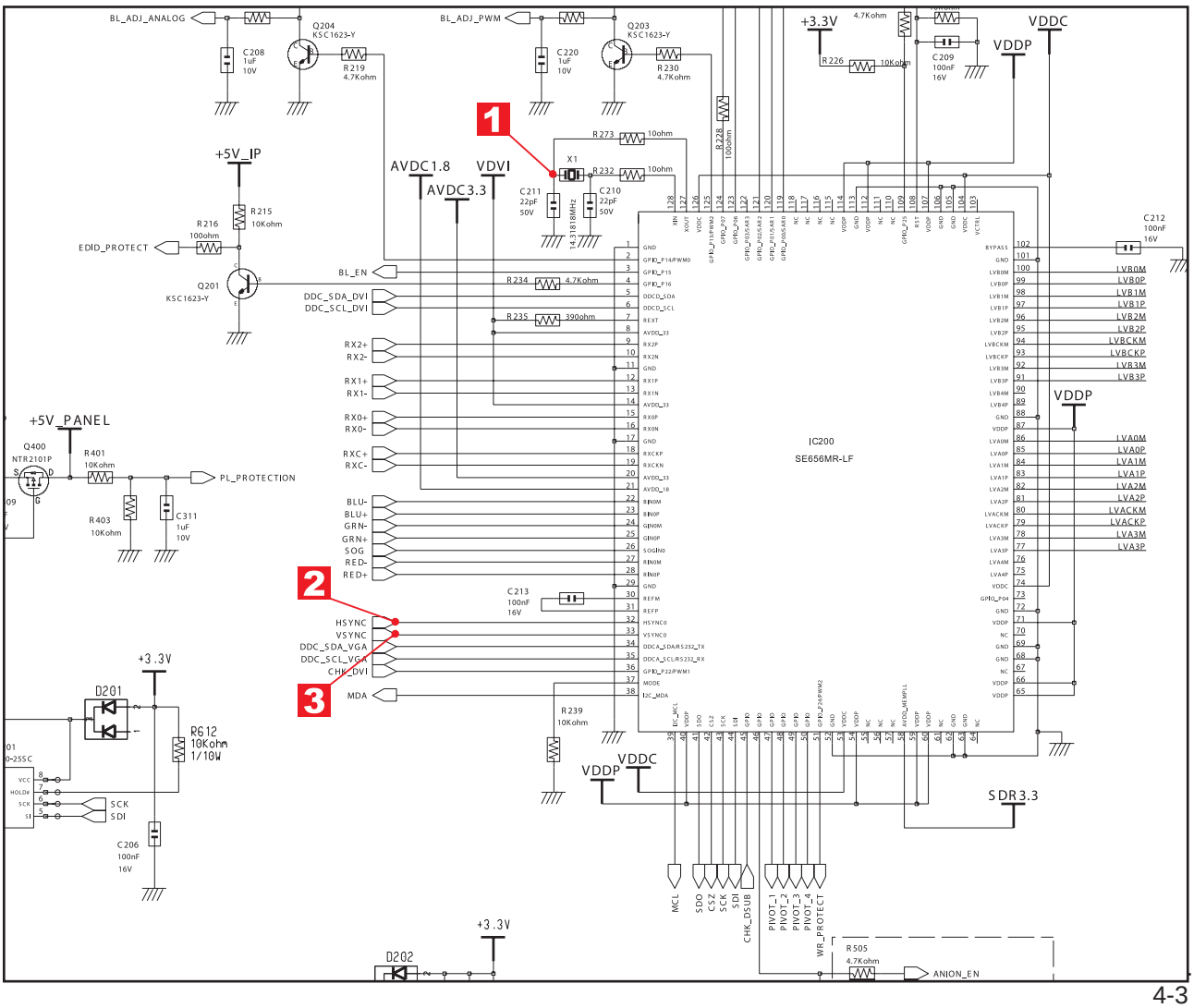
22:44:46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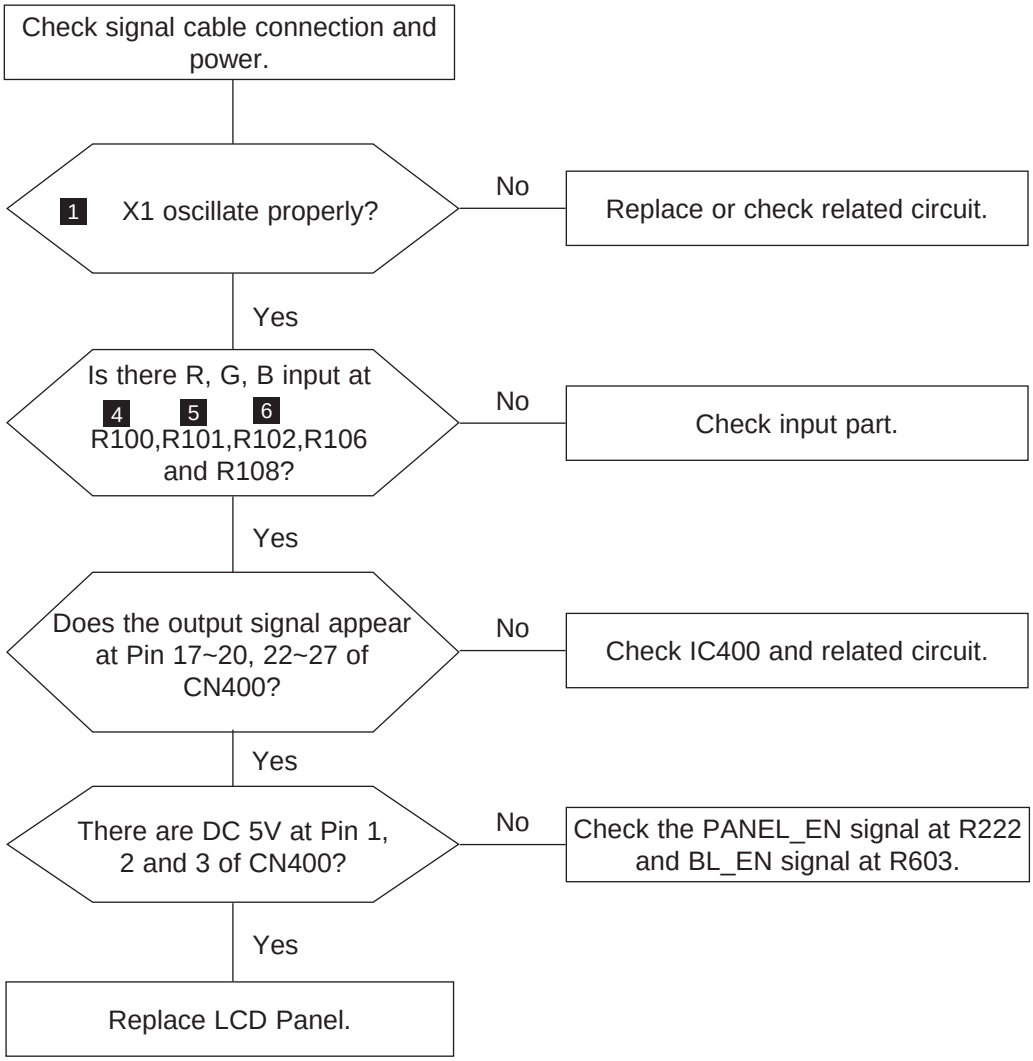
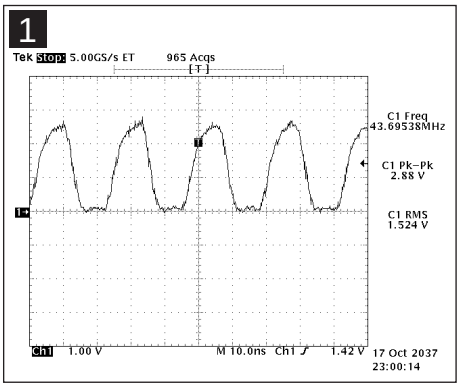
BL_ADJ_PWM
+5V_IP
+5V_PANEL
+3.3V
VDDC
VDDP
AVDC1.8
AVDC3.3
VDVI
EDID_PROTECT
BL_EN
DDC_SDA_DVI
DDC_SCL_DVI
PL_PROTECTION
IC200
SE656MR-LF
SDR3.3
SCK
SDI
MCL
SDO
CSZ
CHK_DSUB
PIVOT_1
PIVOT_2
PIVOT_3
PIVOT_4
WR_PROTECT
ANION_EN

4-3 No Video (DIGITAL)



WAVEFORMS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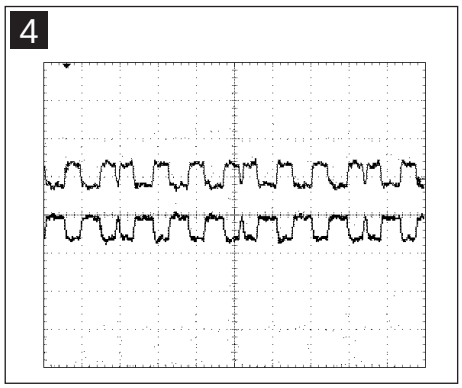
Tek Stop: 5.00GS/s ET 965 Acqs
C1 Freq
43.69538MHz
C1 Pk-Pk
2.88 V
C1 RMS
1.524 V
Ch1 1.00 V
M 10.0ns Ch1 1.42 V
17 Oct 2037
23:00:14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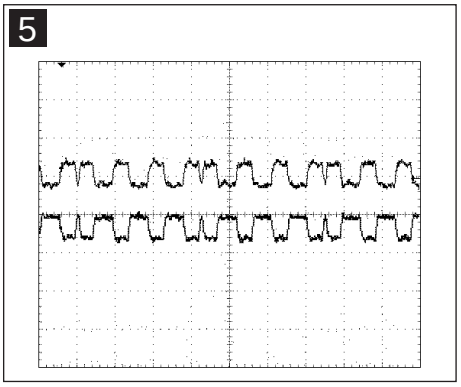
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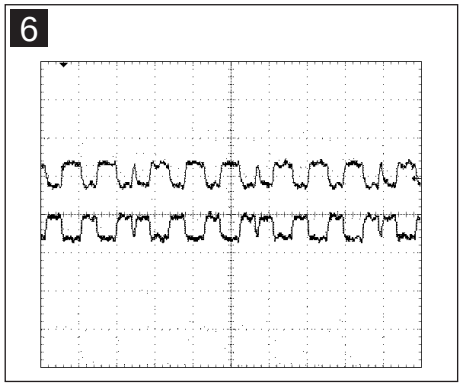
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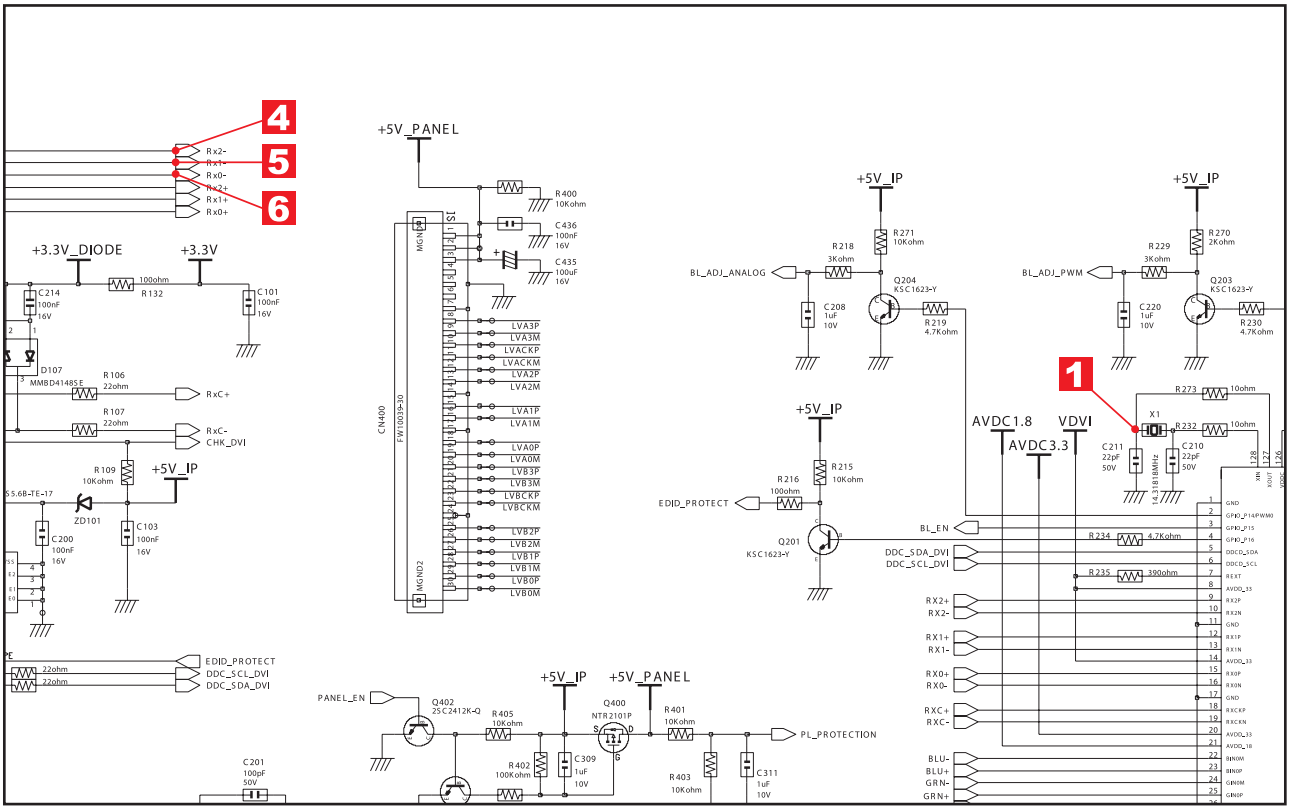
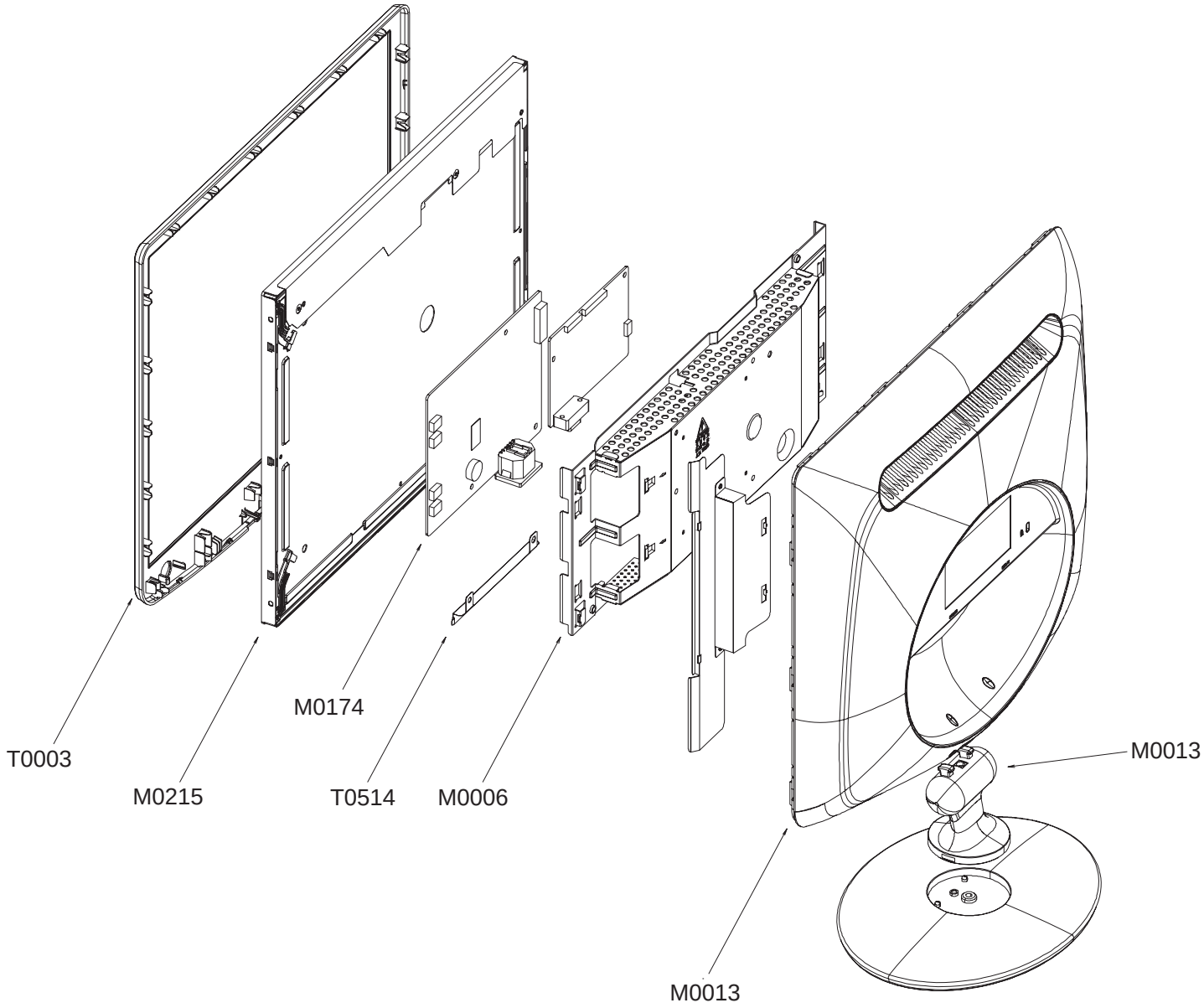

4
5
6
1
Rx2-
Rx1-
Rx0-
Rx2+
Rx1+
Rx0+
+3.3V_DIODE
+3.3V
RxC+
RxC-
CHK_DVI
+5V_IP
EDID_PROTECT
DDC_SCL_DVI
DDC_SDA_DVI
+5V_PANEL
PANEL_EN
PL_PROTECTION
BL_ADJ_ANALOG
BL_ADJ_PWM
BL_EN
AVDC1.8
AVDC3.3
VDVI
RX2+
RX2-
RX1+
RX1-
RX0+
RX0-
RXC+
RXC-
BLU-
BLU+
GRN-
GRN+

Memo

5 Exploded View and Parts List

-You can search for updated part codes through ITSELF web site.
URL : http://itself. sec. samsung.co.kr

5-1 LS19PEDSFU/EDC Exploded View



5-2 Parts List

Location	Code.No	Item & Specification	Q'ty	SA/SNA	Remark
T0003	BN96-04706M	ASSY COVER P-FRONT;LS19PE (932BF)_RTA,HS	1	S.A	
M0215	BN07-00474A	LCD-PANEL;M190EG02 V4,Haydn,6bit Hi-FRC,	1	S.A	
M0174	BN44-00124J	IP BOARD;IP-35155A(PV),Pebble,3.0 ~5.0mA	1	S.A	
T0514	BN61-02784A	BRACKET-SUPPORT;PEBBLE,SPTE,0.3	1	S.N.A	
M0006	BN96-04145A	ASSY SHIELD P-COVER;PEBBLE19,SECC,T0.8	1	S.N.A	
M0013	BN96-06492A	ASSY COVER P-REAR;LS19PE(AUO),,ABS HB,,B	1	S.A	
M0013	BN96-04150D	ASSY STAND P-BAR;-,PEBBLE17,-,ABS HB,BK2	1	S.A	

6 Electrical Parts List

6-1 LS19PEDSFU/EDC Parts List

Level	Loc. No.	Code.No	Description & Specification	EA	SA/SNA	Remarks
		LS19PEDSFU/EDC	932BF,SAB4/S19P1-LPE,19,LCD-MO,NETHERLAN			
0.1	M0001	BN90-01188N	ASSY COVER FRONT;LS19PE(932BF),HSD,BLACK	1	S.N.A	
..2	T0003	BN96-04706M	ASSY COVER P-FRONT;LS19PE (932BF)_RTA,HS	1	S.A	
...3	M0081	6003-000282	SCREW-TAPTITE;BH,+,-,B,M3,L8,ZPC(BLK),SW	2	S.A	
...3		BN61-03222A	GUIDE-PANEL;LS17PEW,SECC,T 0.5	1	S.N.A	
...3	CCM1	BN63-02183D	COVER-SHEET;Rhcm,PE Vinyl,T0.05,680mm,20	0.45	S.N.A	
...3	M0112	BN63-03222C	COVER-FRONT;LS19PE(932BF),ABS,RTA,HB,HIG	1	S.N.A	
...3	T0022	BN64-00534B	KNOB CONTROL;PEBBLE,ABS,HB,BK26	1	S.N.A	
...3	T0023	BN64-00597B	KNOB POWER;PEBBLE,black highglossy	1	S.N.A	
...3	M0130	BN67-00193A	LENS LED;PEBBLE,ABS HB,CLR	1	S.N.A	
...3	M0145	BN96-04363A	ASSY BOARD P-FUCNTION;Pebble,SJ06-01-023	1	S.A	
....4	M0014	BN94-01300M	ASSY PCB MAIN-SEDA,FUCHION PCB;PABBLE*	1	S.N.A	
.....5	M2893	BN39-00774A	LEAD CONNECTOR;Pebble,UL1061#28,UL/CSA,3	1	S.A	
.....5	M2893	BN39-00788A	LEAD CONNECTOR;Pebble,UL1061#28,4PIN,300	1	S.A	
.....5	T0238	BN97-01597B	ASSY AUTO;PEBBLE*	1	S.N.A	
......6	T0313	3404-000299	SWITCH-TACT;12V,50mA,120gf,6x6x4.3mm,SPS	5	S.A	
......6	T0174	BN97-01589M	ASSY SMD;PABBLE	1	S.N.A	
.......7	R110	2007-000122	R-CHIP;1.2Kohm,5%,1/10W,TP,1608	1	S.A	
.......7	R110	2007-000122	R-CHIP;1.2Kohm,5%,1/10W,TP,1608	1	S.A	
.......7	R110	2007-000123	R-CHIP;1.5Kohm,5%,1/10W,TP,1608	1	S.A	
.......7	R110	2007-000123	R-CHIP;1.5Kohm,5%,1/10W,TP,1608	1	S.A	
.......7	R110	2007-001157	R-CHIP;750ohm,5%,1/10W,TP,1608	4	S.A	
.......7	R110	2007-001157	R-CHIP;750ohm,5%,1/10W,TP,1608	1	S.A	
.......7	R110	2007-001157	R-CHIP;750ohm,5%,1/10W,TP,1608	1	S.A	
.......7	R110	2007-001157	R-CHIP;750ohm,5%,1/10W,TP,1608	1	S.A	
.......7	C120	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	3	S.A	
.......7	C120	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A	
.......7	C120	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A	
.......7	PCB	BN41-00793B	PCB SUB-FUNCTION;Pebble,FR-1,1,1.1,1.6,8	1	S.N.A	
....4		BN94-01310C	ASSY PCB MISC-SEDA,POWER,BN96-;PABBLE	1	S.N.A	
.....5	L0405	0601-001896	LED;SMD,BLUE,1.6x0.8x0.4mm,470,1.6x0.8x0	1	S.A	
.....5	L0405	0601-001896	LED;SMD,BLUE,1.6x0.8x0.4mm,470,1.6x0.8x0	1	S.A	
.....5	L0405	0601-001896	LED;SMD,BLUE,1.6x0.8x0.4mm,470,1.6x0.8x0	1	S.A	
.....5	L0405	0601-001896	LED;SMD,BLUE,1.6x0.8x0.4mm,470,1.6x0.8x0	1	S.A	
.....5	T0313	3404-001207	SWITCH-TACT;12V,50mA,160gf,6.2X6.2,SPST	1	S.A	
.....5	SUBPCB	BN41-00791A	PCB SUB-POWER;Pebble,FR-1,1,1.0,1.6,36*1	1	S.N.A	
0.1	M0002	BN90-01423A	ASSY COVER REAR;LS19PEBSBE,BLACK_AUO	1	S.N.A	
..2	M0013	BN96-06492A	ASSY COVER P-REAR;LS19PE(AUO),,ABS HB,,B	1	S.A	
...3	M0081	6003-001003	SCREW-TAPTITE;BH,+,B,M4,L12,ZPC(BLK),SWR	4	S.N.A	
...3	T0060	BN61-02830A	SPRING ETC;PEBBLE,SK5,1.0,LS19PEB,HRC 45	1	S.N.A	
...3	CCM1	BN63-02183D	COVER-SHEET;Rhcm,PE Vinyl,T0.05,680mm,20	0.45	S.N.A	
...3	M0014	BN63-02880B	COVER-STAND BAR;PEBBLE,ABS HB,T2.6,BK26,	1	S.N.A	
...3		BN63-02883B	COVER-HINGE;PEBBLE,ABS HB,T2.6,BK26,HF-0	1	S.N.A	
...3	M0006	BN63-04083A	COVER-REAR;PEBBLE 19",ABS,2.6,HB,BK26	1	S.N.A	
...3	T0102	BN73-00132B	RUBBER-CAP;PEBBLE,ELASTOMER,BK07,HB	1	S.N.A	
0.1	M0112	BN91-01212A	ASSY SHIELD;LS19PEBSW/EDC	1	S.N.A	
..2		BN63-02887A	SHIELD-LAMP;PEBBLE,SPTE,0.3,19INCH	1	S.N.A	
0.1		BN91-01803G	ASSY LCD-ATZ;LS19PEB*	1	S.N.A	
..2	M0215	BN07-00474A	LCD-PANEL;M190EG02 V4,Haydn,6bit Hi-FRC,	1	S.A	
0.1	M0017	BN91-01914K	ASSY CHASSIS-ATZ,W/W;LS19PEDSFU*	1	S.A	

Level	Loc. No.	Code.No	Description & Specification	EA	SA/SNA	Remarks
..2	M0081	6003-001439	SCREW-TAPTITE;BH,+,-,S,M4,L8,ZPC(WHT),SW	1	S.N.A	
..2	T0562	6046-001013	STAND OFF;M3,L5,Ni PLT,SUM24L,#4-40	4	S.N.A	
..2	M0174	BN44-00124J	IP BOARD;IP-35155A(PV),Pebble,3.0 ~5.0mA	1	S.A	
..2	T0514	BN61-02784A	BRACKET-SUPPORT;PEBBLE,SPTE,0.3	1	S.N.A	
..2	M0014	BN94-01576S	ASSY PCB MAIN-ATZ,W/W;LS19PEDSFU*	1	S.N.A	
...3	T0245	0202-001492	SOLDER-WIRE FLUX;HSE-02 LFM48 SR-34 S,-,	0.003	S.N.A	
...3	CN102	3701-001173	CONNECTOR-DVI;24P,3R,FEMALE,ANGLE,AUF	1	S.A	
...3	CN101	3701-001219	CONNECTOR-DSUB;15P,3R,FEMALE,ANGLE,AUF	1	S.A	
...3	T0174	BN97-01911Q	ASSY SMD;LS19PEDSFU*	1	S.N.A	
....4	SUB05	0202-001477	SOLDER-CREAM;LST309-M,-,D20~45##,96.5Sn/	0.169	S.N.A	
....4	D100	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D101	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D102	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D103	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D104	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D105	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D106	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D107	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D108	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D109	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D110	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D600	0402-001614	DIODE-RECTIFIER;S1G,400V,1A,DO-214AC,TP	1	S.A	
....4	D603	0402-001614	DIODE-RECTIFIER;S1G,400V,1A,DO-214AC,TP	1	S.A	
....4	D111	0403-000258	DIODE-ZENER;BZX84C5V6,5.2-6V,225mW,SOT-2	1	S.A	
....4	D112	0403-000258	DIODE-ZENER;BZX84C5V6,5.2-6V,225mW,SOT-2	1	S.A	
....4	ZD100	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A	
....4	ZD101	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A	
....4	ZD102	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A	
....4	D0254	0404-001020	DIODE-SCHOTTKY;BAT54C,30V,200mA,SOT-23,T	1	S.A	
....4	D0254	0404-001020	DIODE-SCHOTTKY;BAT54C,30V,200mA,SOT-23,T	1	S.A	
....4	ZD200	0406-001061	DIODE-TVS;MMQA5V6T3,5.32/5.6/5.88V,24W,S	1	S.A	
....4	ZD201	0406-001061	DIODE-TVS;MMQA5V6T3,5.32/5.6/5.88V,24W,S	1	S.A	
....4	ZD202	0406-001061	DIODE-TVS;MMQA5V6T3,5.32/5.6/5.88V,24W,S	1	S.A	
....4	Q201	0501-000445	TR-SMALL SIGNAL;KTC3875S-Y,NPN,150mW,SOT	1	S.A	
....4	Q203	0501-000445	TR-SMALL SIGNAL;KTC3875S-Y,NPN,150mW,SOT	1	S.A	
....4	Q204	0501-000445	TR-SMALL SIGNAL;KTC3875S-Y,NPN,150mW,SOT	1	S.A	
....4	Q601	0501-000445	TR-SMALL SIGNAL;KTC3875S-Y,NPN,150mW,SOT	1	S.A	
....4	Q401	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	S.A	
....4	Q402	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	S.A	
....4	Q409	0505-001957	FET-SILICON;NTR2101P,P,-8V,-3.7A,0.052oh	1	S.A	
....4	IC112	1103-000129	IC-EEPROM;24C02,2Kbit,256x8Bit,SOP,8P,5x	1	S.A	
....4	IC112	1103-001023	IC-EEPROM;24C08,8Kbit,1Kx8Bit,SOP,8P,5x4	1	S.A	
....4	IC204	1203-001824	IC-VOL. DETECTOR;7042,SOT-89,3P,-,PLASTI	1	S.A	
....4	T0087	1203-003695	IC-POSI.FIXED REG.;NCP1117ST33T3G,SOT-22	1	S.A	
....4	T0087	1203-003696	IC-POSI.FIXED REG.;NCP1117DT18T5G,DPAK,3	1	S.A	
....4	IC109	1205-002905	IC-LCD CONTROLLER;SE656MR-LF,PQFP,128P,2	1	S.A	
....4	R110	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	

Level	Loc. No.	Code.No	Description & Specification	EA	SA/SNA	Remarks
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000080	R-CHIP;2Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000080	R-CHIP;2Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000080	R-CHIP;2Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000082	R-CHIP;3.3Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000082	R-CHIP;3.3Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000083	R-CHIP;3Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000083	R-CHIP;3Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	1	S.A	

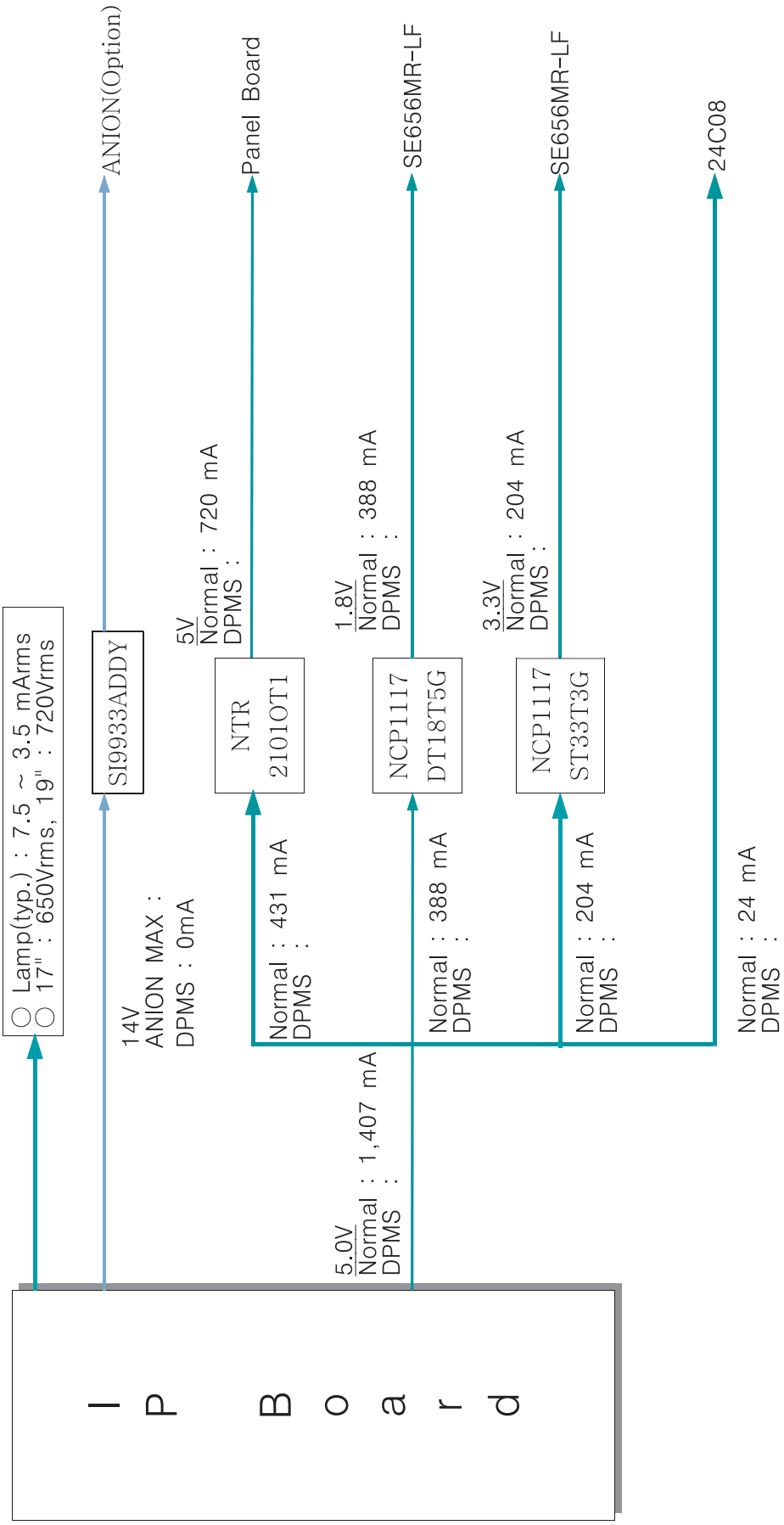
Level	Loc. No.	Code.No	Description & Specification	EA	SA/SNA	Remarks
....4	R110	2007-000113	R-CHIP;33ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000821	R-CHIP;390ohm,1%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000821	R-CHIP;390ohm,1%,1/10W,TP,1608	1	S.A	
....4	R110	2007-001002	R-CHIP;510ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-001002	R-CHIP;510ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-001044	R-CHIP;56ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-001044	R-CHIP;56ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A	
....4	R110	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A	
....4	R110	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A	
....4	C120	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A	
....4	C120	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A	
....4	C120	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	S.A	
....4	C120	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	S.A	
....4	C120	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	S.A	
....4	C120	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,TP,1608	1	S.A	
....4	C120	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,TP,1608	1	S.A	
....4	C120	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,TP,1608	1	S.A	
....4	C120	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,TP,1608	1	S.A	
....4	C120	2203-000384	C-CER,CHIP;0.015nF,5%,50V,C0G,1608	1	S.A	
....4	C120	2203-000626	C-CER,CHIP;0.022nF,5%,50V,C0G,1608	1	S.A	
....4	C120	2203-000626	C-CER,CHIP;0.022nF,5%,50V,C0G,1608	1	S.A	
....4	C120	2203-000626	C-CER,CHIP;0.022nF,5%,50V,C0G,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	

Level	Loc. No.	Code.No	Description & Specification	EA	SA/SNA	Remarks
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
....4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
....4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
....4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
....4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
....4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
....4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-006336	C-CER,CHIP;10000nF,10%,25V,X5R,3216	1	S.A	
....4	C435	2402-001042	C-AL,SMD;100uF,20%,16V,GP,TP,6.6x6.6x5.4	1	S.A	
....4	C629	2402-001042	C-AL,SMD;100uF,20%,16V,GP,TP,6.6x6.6x5.4	1	S.A	
....4	C639	2402-001042	C-AL,SMD;100uF,20%,16V,GP,TP,6.6x6.6x5.4	1	S.A	
....4	X1	2801-003667	CRYSTAL-SMD;14.31818MHz,30ppm,28-AAN,16p	1	S.A	
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A	
....4	T0568	3301-001407	BEAD-SMD;30ohm,1608,300mA,TP,,,0.4ohm	1	S.N.A	
....4	T0568	3301-001407	BEAD-SMD;30ohm,1608,300mA,TP,,,0.4ohm	1	S.N.A	
....4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A	
....4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A	
....4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A	
....4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A	
....4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A	
....4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A	
....4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A	
....4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A	
....4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A	
....4	CN400	3708-001150	CONNECTOR-FPC/FFC/PIC;30P,1mm,SMD-A,SN,Y	1	S.A	
....4	CN330	3711-005503	HEADER-BOARD TO CABLE;BOX,9P,1R,2mm,SMD-	1	S.A	
....4	CN330	3711-005509	HEADER-BOARD TO CABLE;BOX,4P,1R,1.25mm,S	1	S.A	
....4	T0077	BN41-00831A	PCB MAIN;LS19PEB,Silver through,2,MP1.0,	1	S.N.A	
....4	M0018	BN97-01939A	ASSY MICOM;Pebble,LPE19PS,MX25L1005,2007	1	S.N.A	
.....5	IC115	1107-001614	IC-FLASH MEMORY;MX25L1005,1Mbit,1Mx1Bit,	1	S.N.A	
..2	M0006	BN96-04145A	ASSY SHIELD P-COVER;PEBBLE19,SECC,T0.8	1	S.N.A	
...3		BN61-02429D	STUD-PEM;PNB,M2.8,D7,L20,ZPC(SIL),SUM24L	1	S.N.A	

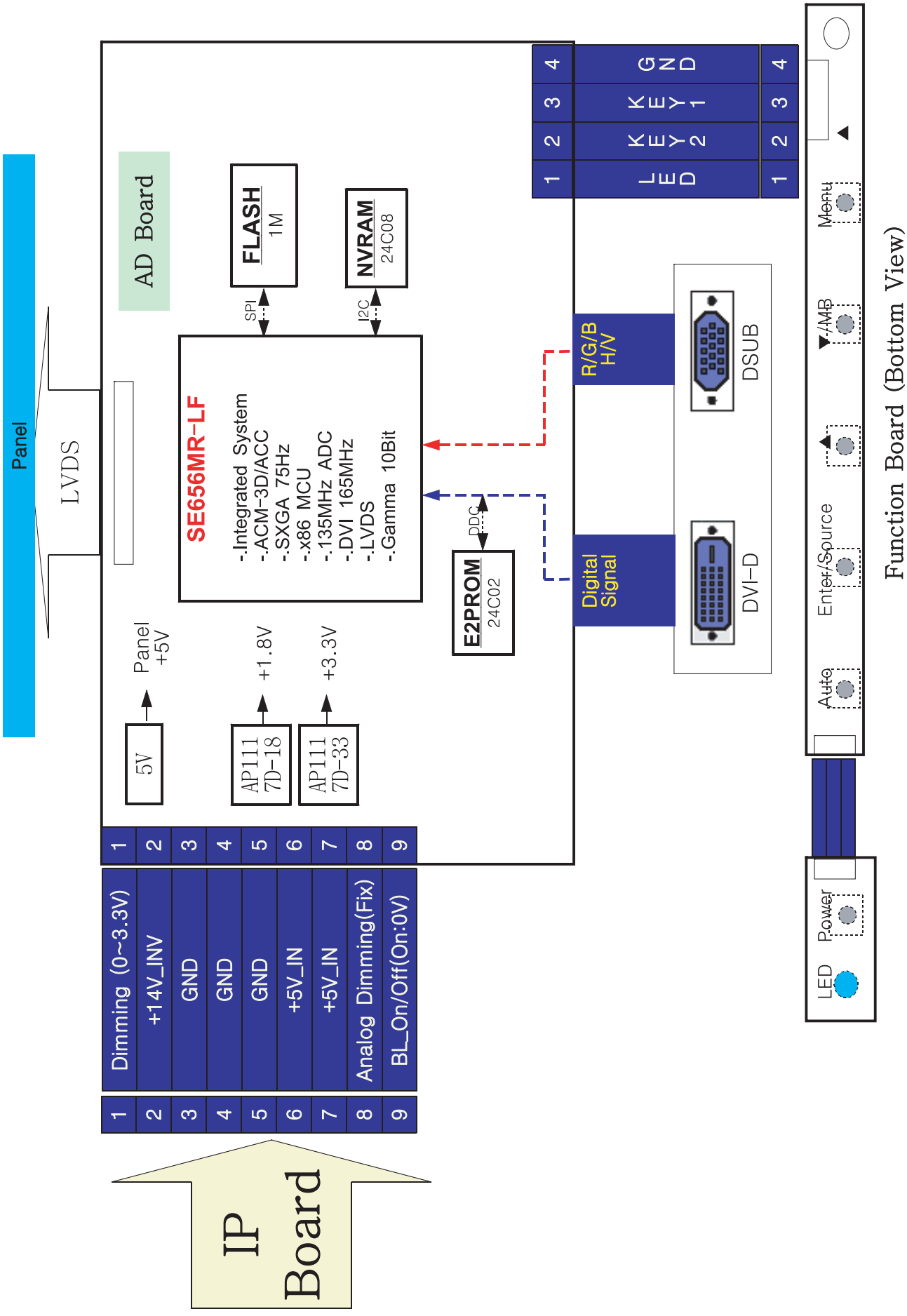
Level	Loc. No.	Code.No	Description & Specification	EA	SA/SNA	Remarks
...3	M0107	BN63-02886A	SHIELD-COVER;PEBBLE,SECC,0.8,19INCH	1	S.N.A	
...3	M0114	BP61-01088A	HOLDER-WIRE;SVP-42L6,NYLON	1	S.N.A	
...3	M0131	AA63-01240A	GASKET;FIRENZE,Conductive Fabric,3mm,12m	2	S.N.A	
..2	M0524	BP39-00028A	CONNECT WIRE;BI17,19BS,UL1007#26,9P,80mm	1	S.A	
..2	M0251	BN96-02854R	ASSY CABLE P;Pebble,FLAT CABLE,-,120mm,3	1	S.A	
..2	M0081	6003-000115	SCREW-TAPTITE;BH,+,B,M3,L6,ZPC(BLK),SWRC	1	S.A	
..2	M0081	6003-000115	SCREW-TAPTITE;BH,+,B,M3,L6,ZPC(BLK),SWRC	3	S.A	
0.1	M0113	BN92-02029B	ASSY P/MATERIAL;LS19PEB*,SAA4,PEBBLE	1	S.N.A	
..2	T0524	6902-000241	BAG PE;NITRON/HDPE,T0.5/T0.012,W600,L600	1	S.N.A	
..2	T0376	6902-000379	BAG AIR;LDPE,T0.2,W1000,L1800,TRP,-,--	0.001	S.N.A	
..2	T0003	6902-000604	BAG WRAPPING;LDPE,T0.02,W500,L10000,TRP,	0.85	S.N.A	
..2	M0081	6902-000609	BAG ROLL;LDPE,T0.05,W2400,L1000,TRP,-,-	0.018	S.N.A	
0.1	M0019	BN92-02330S	ASSY LABEL;LS19PEDSFV/EDC	1	S.N.A	
0.1	M0045	BN92-02346K	ASSY ACCESSORY;LS19PEDSFV/EDC	1	S.N.A	
..2	M0114	BN39-00244B	CBF SIGNAL;MO15PS,15P/15P,20276-N,1830mm	1	S.A	
..2	M0125	BN39-00246F	CBF SIGNAL-DVI(D);1703FP,24P/24P,20276-D	1	S.A	
..2		BN68-01115C	MANUAL FLYER-QSG;COMM,SyncMaster,korean,	1	S.N.A	
..2	M0013	BN96-04150D	ASSY STAND P-BAR;-,PEBBLE17,-,ABS HB,BK2	1	S.A	
...3	M0081	6003-000282	SCREW-TAPTITE;BH,+,-,B,M3,L8,ZPC(BLK),SW	2	S.A	
...3	T0524	6902-000023	BAG PE;LDPE,T0.08,L120,W150,TRP,,,PE MAR	1	S.N.A	
...3		BN61-02783D	STAND-BAR;PEBBLE,ABS HB,SL-414WH,BK26,SF	1	S.N.A	
...3		BN61-02786A	BRACKET-PLATE;PEBBLE,SECC,1.0	1	S.N.A	
..2	M0027	BN96-04154B	ASSY STAND P-BASE;-,PEBBLE19,-,ABS HB,BK	1	S.A	
...3	M0081	6003-000282	SCREW-TAPTITE;BH,+,-,B,M3,L8,ZPC(BLK),SW	4	S.A	
...3	T0524	6902-000389	BAG PE;HDPE/NITRON/HDPE,T0.015/T0.5/T0.0	1	S.N.A	
...3	CIS4	BN61-01717A	HOLDER-STAND;BIZET,NI PLT,CH,+,M4,L11(5)	1	S.A	
...3		BN61-02785A	BRACKET-STAND BODY;PEBBLE,SECC,0.8	1	S.N.A	
...3	CCM1	BN63-02183C	COVER-SHEET;Rhcm,PE Vinyl,T0.05,200mm,20	0.3	S.N.A	
...3	T0004	BN63-02882B	COVER-STAND BASE;PEBBLE,ABS,2.6,HB,BK26	1	S.N.A	
...3	T0132	BN73-00077A	RUBBER FOOT;MATISSE,BUMPON,##13.5,T2.0,6	4	S.N.A	
...3		BN68-01115A	MANUAL FLYER-QSG;COMM,SyncMaster,korean,	1	S.N.A	
..2	M0045	BN96-04627T	ASSY ACCESSORY;LS19PEDSFV/EDC,-,-,-,-,-	1	S.A	
...3	T0268	3903-000042	CBF-POWER CORD;DT,EU,FP3/YES,IEC320 C13/	1	S.A	
...3	T0524	6902-000110	BAG PE;LDPE,T0.05,W250,L400,TRP,28,2	1	S.N.A	
...3	ACCESSORY	BH68-70448A	CARD-01;TFT LCD,SRC,RUSSIA,S/W,120,W210*	1	S.N.A	
...3	ACCESSORY	BN63-02368A	CLOTH;LS07BTT,SUEDE,0.6,160,120	1	S.N.A	
...3	ACCESSORY	BN68-00907A	MANUAL FLYER-01,CARD;COMM,SAMSUNG,18 LAN	1	S.N.A	
...3	M0215	BN96-04304F	ASSY MANUAL P-IB+QSG;932BF,-,RTA,W/W,Mul	1	S.N.A	
....4	QSG	BH68-00376L	MANUAL FLYER-06,QSG;LCDQUICK SETUP GUIDE	1	S.N.A	
....4	IB	BN59-00585F	S/W DRIVER-03,IB;932BF,W/W,SyncMaster	1	S.N.A	
...3	ACCESSORY	BN68-01237A	MANUAL FLYER-QSG;COMM,W/W(L12),Mojo 100g	1	S.N.A	
...3	ACCESSORY	BH68-00633B	MANUAL FLYER-00,WARRANTY CARD;comm,Samsu	1	S.N.A	
0.1	M0003	BN92-02360E	ASSY BOX;LS19PEDSFV/EDC	1	S.N.A	
..2	BOX	BN69-01741A	BOX-03,SET;LS19PED,CB,SY-01,AB,YEL,A-1,1	1.02	S.N.A	
..2	T0081	BN96-02895A	ASSY MISC P-HANDLE PACKING;ALL MODEL,BN6	1	S.N.A	
...3	M0102	BN66-00008A	LEVER-BOTTOM;ALL MODEL,LDPE,WHITE	1	S.N.A	
...3	M0103	BN66-00007A	LEVER-TOP;ALL MODEL,LDPE,WHITE	1	S.N.A	

7 Block Diagram

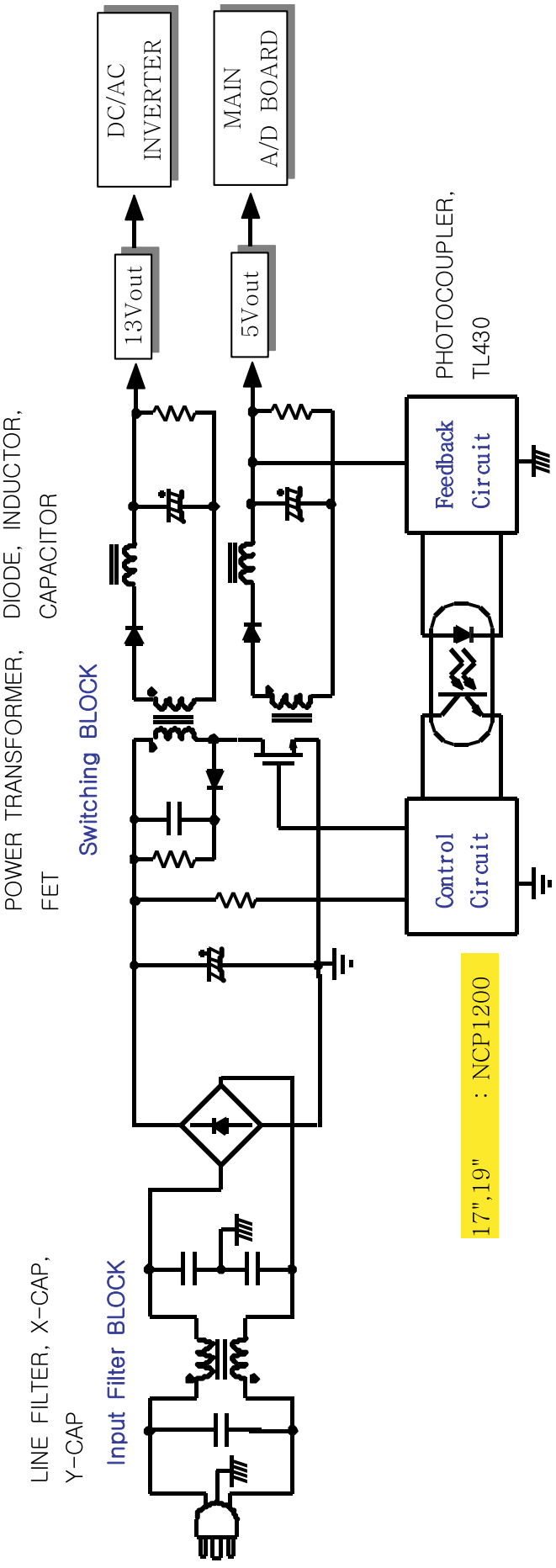
7-1 Power Tree



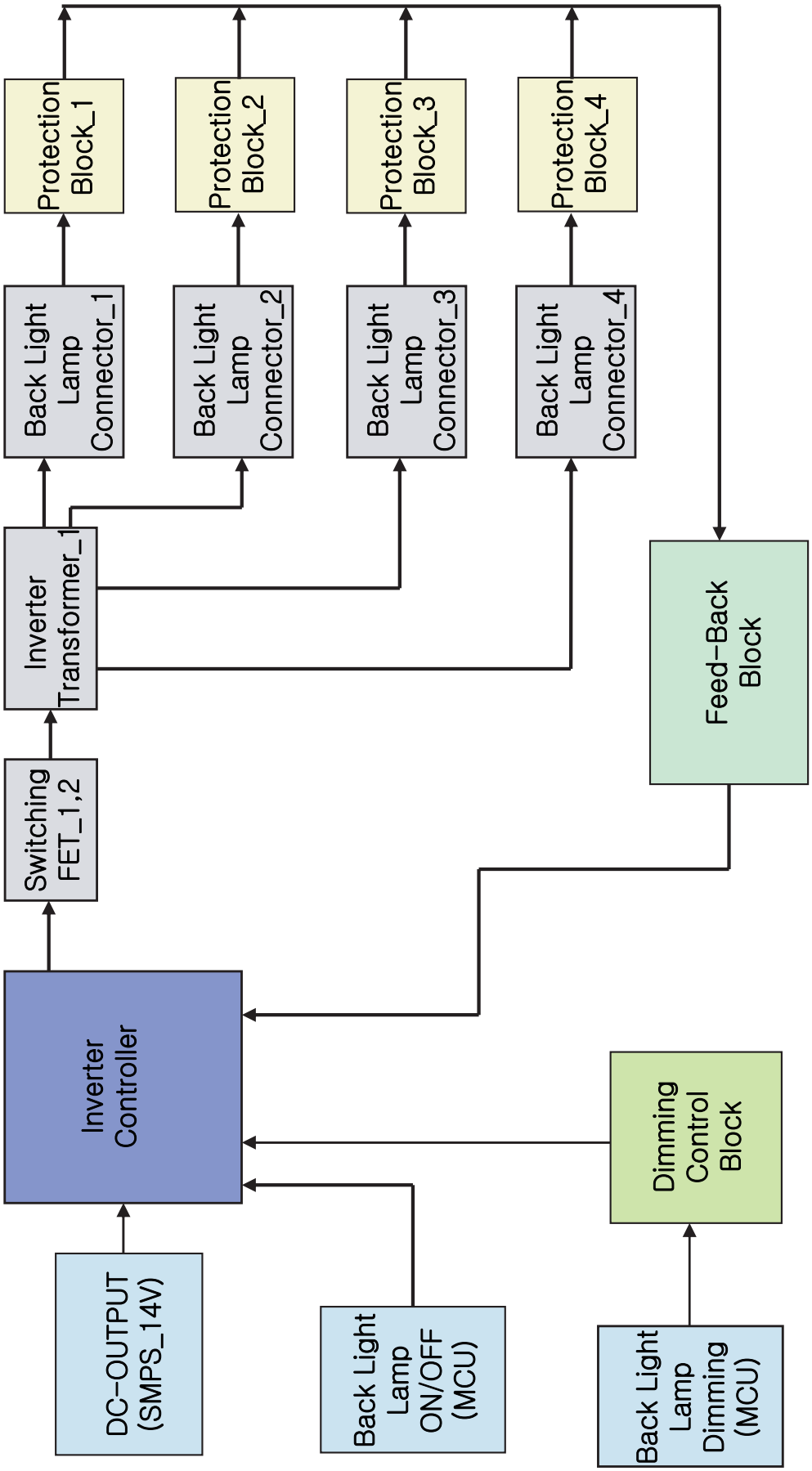
7-2 Main Board Part



7-3 IP Board Part (SMPS Part)



7-4 IP Board Part (Inverter Part)



1 Precautions

Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock.

1-1 Safety Precautions

1-1-1 Warnings

1. For continued safety, do not attempt to modify the circuit board.
2. Disconnect the AC power and DC power jack before servicing.

1-1-2 Servicing the LCD Monitor

1. When servicing the LCD Monitor, Disconnect the AC line cord from the AC outlet.
2. It is essential that service technicians have an accurate voltage meter available at all times. Check the calibration of this meter periodically.

1-1-3 Fire and Shock Hazard

Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.
2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check (Figure 1-1):

   WARNING : Do not use an isolation transformer during this test.

   Use a leakage current tester or a metering system that complies with American National Standards Institute (*ANSI C101.1, Leakage Current for Appliances*), and Underwriters Laboratories (*UL Publication UL1410, 59.7*).

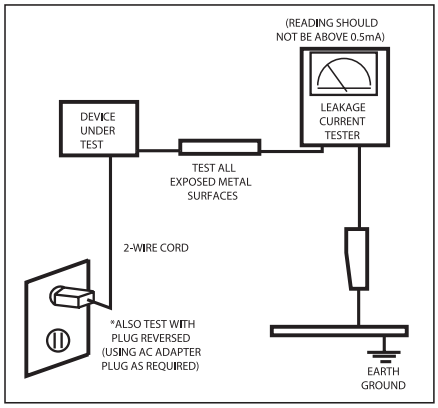


Figure 1-1. Leakage Current Test Circuit

4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

1-1-4 Product Safety Notices

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by ⚠ on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

1-2 Servicing Precautions

WARNING: An electrolytic capacitor installed with the wrong polarity might explode.

Caution: Before servicing units covered by this service manual, read and follow the Safety Precautions section of this manual.

Note: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.

1-2-1 General Servicing Precautions

1. Always unplug the unit's AC power cord from the AC power source and disconnect the DC Power Jack before attempting to:
   (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect a test component in parallel with an electrolytic capacitor.
2. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
3. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
4. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
5. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
6. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3 Electrostatically Sensitive Devices (ESD) Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESD). Examples of typical ESD are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.
4. Use only a grounded-tip soldering iron to solder or desolder ESDs.
5. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution: Be sure no power is applied to the chassis or circuit and observe all other safety precautions.
8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.

2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the highvoltage cable or the antenna falling over may cause fire or electric shock.

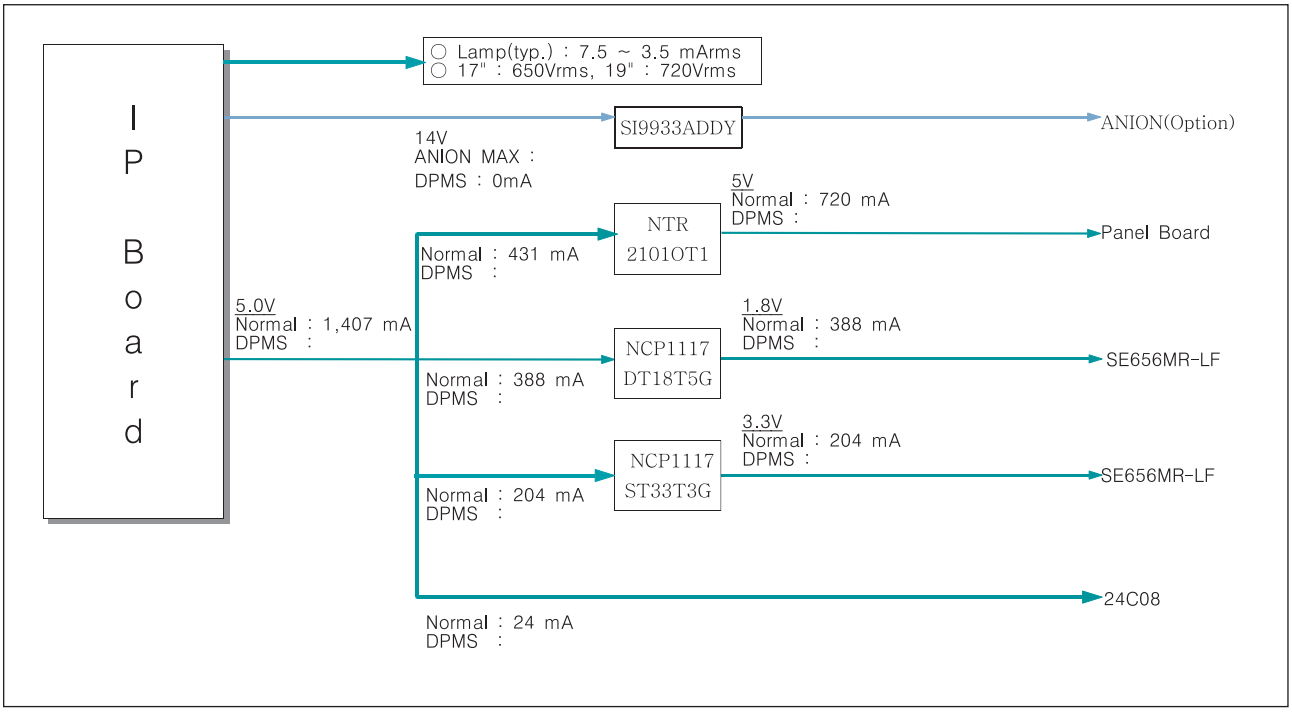
7. When installing the product, leave enough space (10cm) between the product and the wall for ventilation purposes.
   A rise in temperature within the product may cause fire.

Memo

13 Circuit Descriptions

13-1 Overall Block Structure

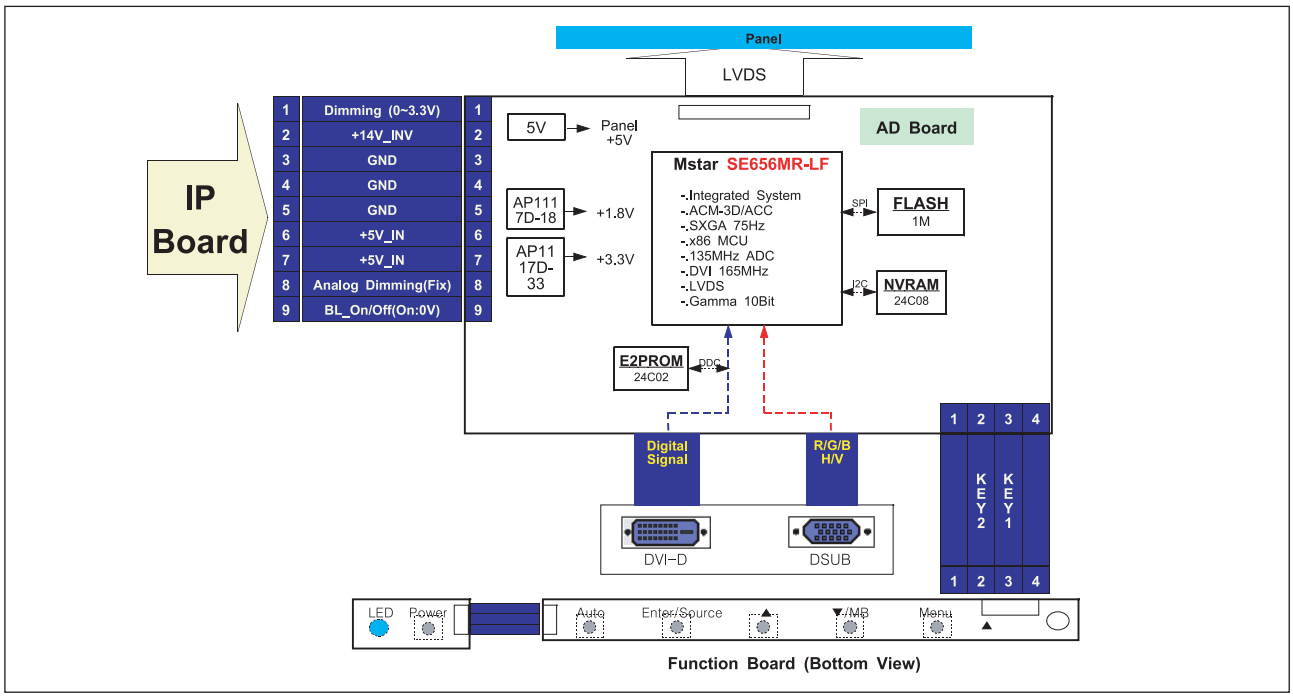
13-1-1 Power Tree



1. When the AD board is in DPMS state:
   1.1 The IP has been designed so that it operates with a power consumption of less than 0.6W of.
   1.2 The Scaler consumes power up to 37mA
   1.3 The power to the panel is switched off

2. When the AD board is operating normally:
   2.1 The maximum power consumption of the panel lamps is described below (It may vary depending on the panel manufacturer)
   19" : 4*(7.5mA*720mVrms)=4*5.4=21.6W
   2.2 The power consumption of the Panel Control board is as follows: 5V*720mA=3.6W
   2.3 The power consumption of the Scaler is as follows: 3.3V*245mA + 1.8V*300mA = 1.35W

13-1-2 Main Board Parts



1. Inverter: A conversion device that converts DC rated voltage/current to high ones necessary for the panel lamp.

2. DC/DC(Regulator): General term for DC to DC converting devices.
   The IP board receives 5V and outputs 1.8 or 3.3V that is supplied to the scaler(SE656MR-LF).

3. Power MosFET: The IP board receives 5V and outputs a lower voltage in DPMS mode and supplies the whole 5V for the panel operating board in normal conditions. In that case, the switching of Power MosFET is controlled by Micom.

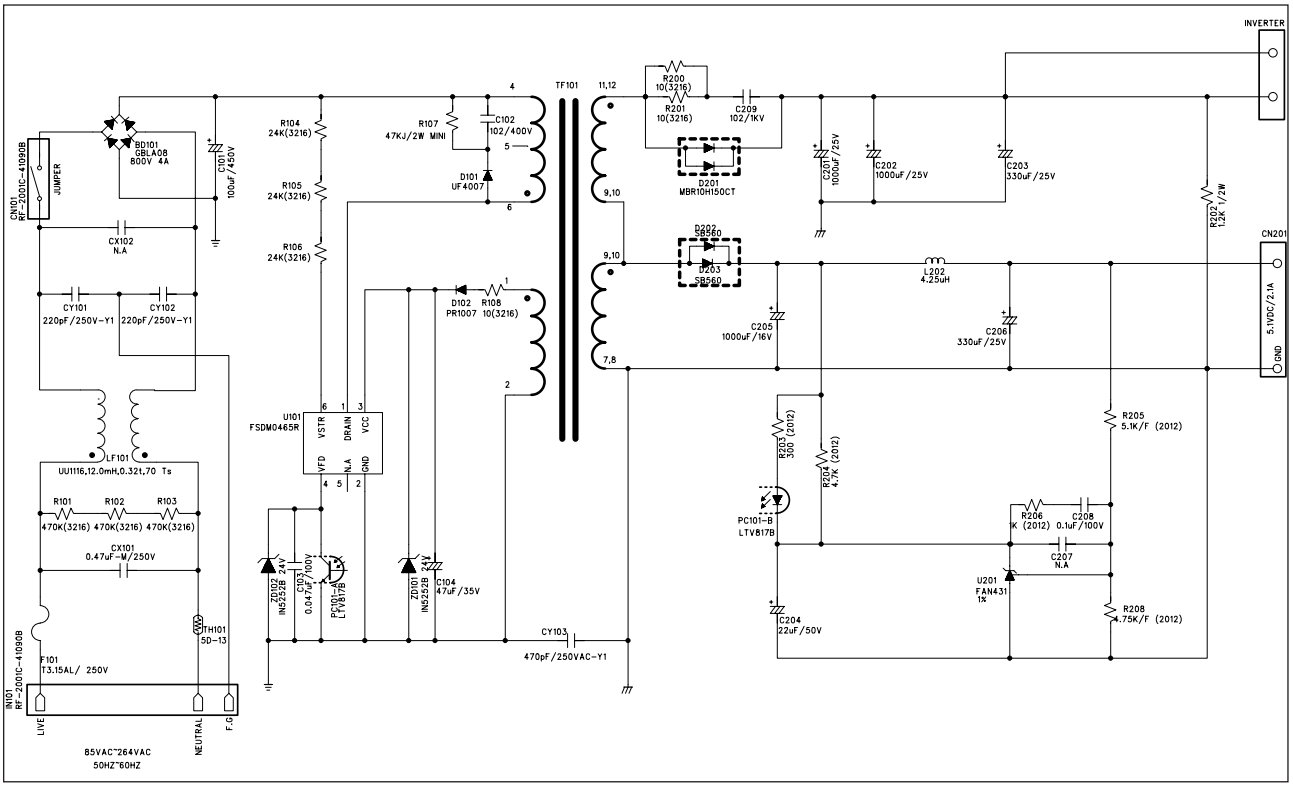
4. Scaler: Receives the digital TMDS and analog R,G,B signals and convert them to proper resolutions using up- or down- scaling that are transferred to the panel in the LDVS formats.

5. Crystal(Oscillator): Use one 14.318MHz oscillator externally to supply power to both MCU and Scaler at the same time.

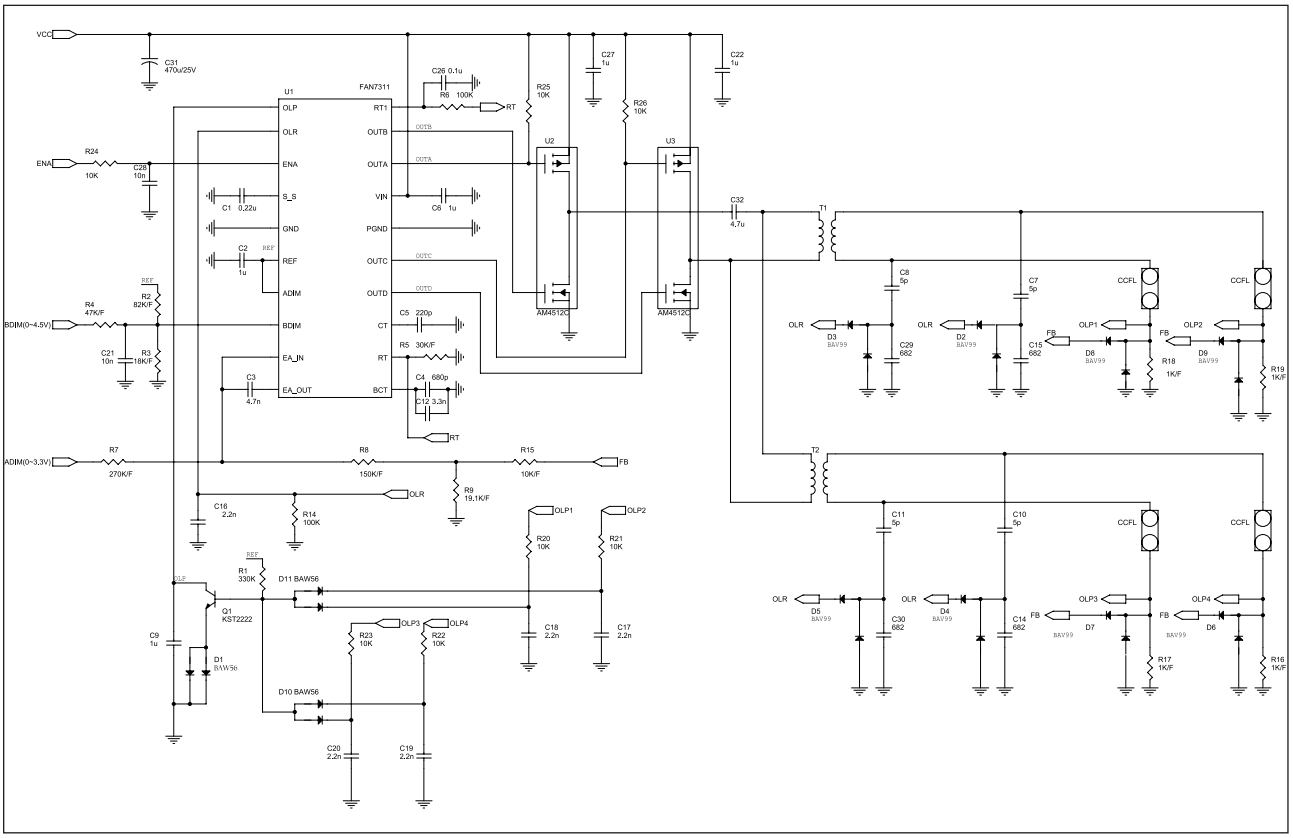
6. SCALER & EEPROM: I2C is a two-way serial bus of two lines that supports communications across the integrated circuits as well as between FLASH and EEPROM.
   In particular, FLASH and Scaler(SE656MR-LF) use the SDR direct bus for mutual communications, which is an effective, speedy system because it allows 4 additional address/data lines compared to the old serial systems.

7. Function Key: A certain keystroke generates a certain electrical potential, which is transferred into ADC input port of the Scaler and then converted to a digital value by the A/D converter of the chip. The digital value (data) is a clue to which key is entered. In practical, the voltage levels are set as below.

13-1-3 IP BOARD BLOCK(POWER) Parts



13-1-4 IP BOARD BLOCK(INVERTER) Parts



13-1-5 IP BOARD (inverter) PROTECTION Parts

BIZET INVERTER CONTROLER FAN7310 have 2-way of the PROTECTION MODE.

1. OVP[Over Voltage Protection] : If the Voltage of the series capacitors C10 & C15 is over the 2.0V, the Inverter latched-off.[See the Picture1]

2. OLP[Over Load Protection] : If the inverter output harness is opened(No-output current), the base of the Q1 turns on and chage the C9 ovter 2V and then, the Inverter latched-off[See the Picture2]

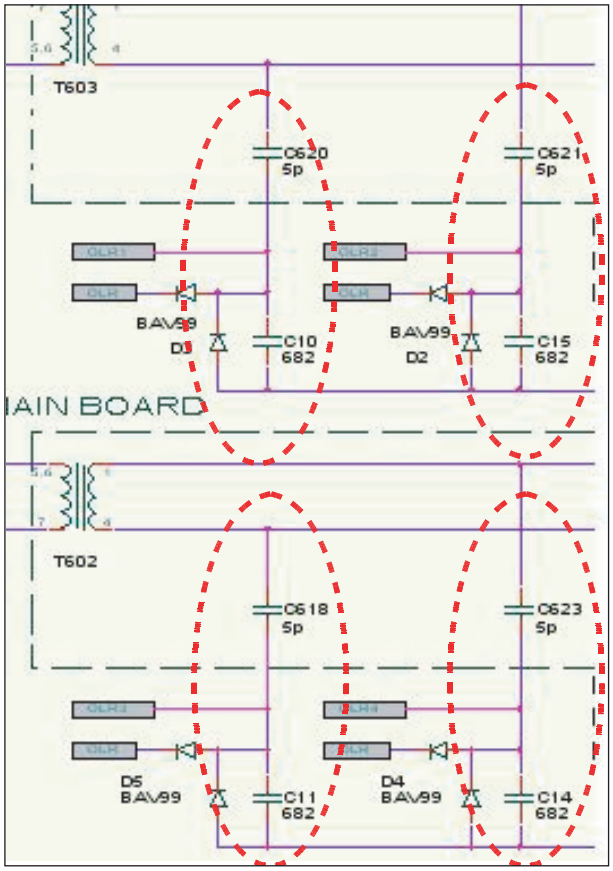


Figure 1.

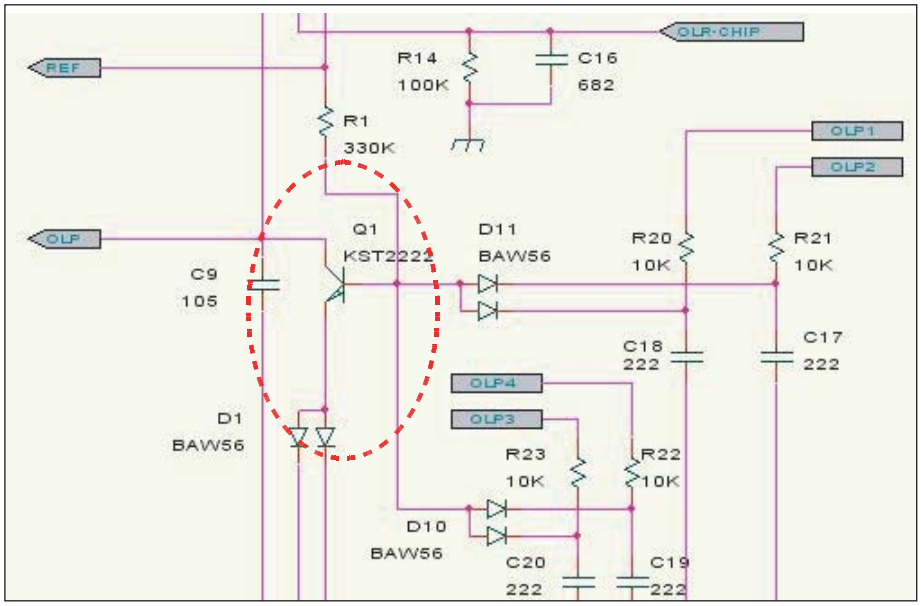
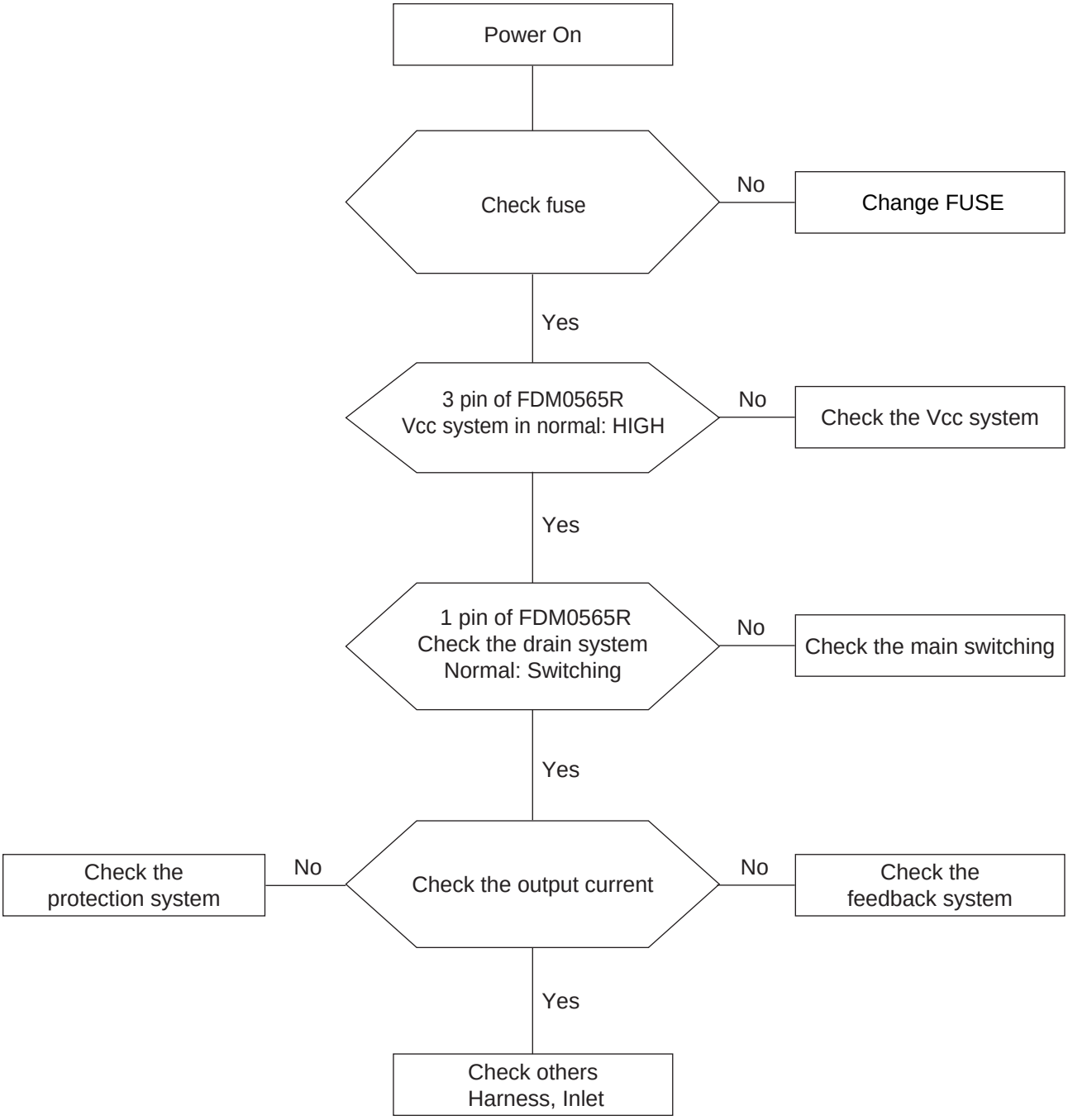


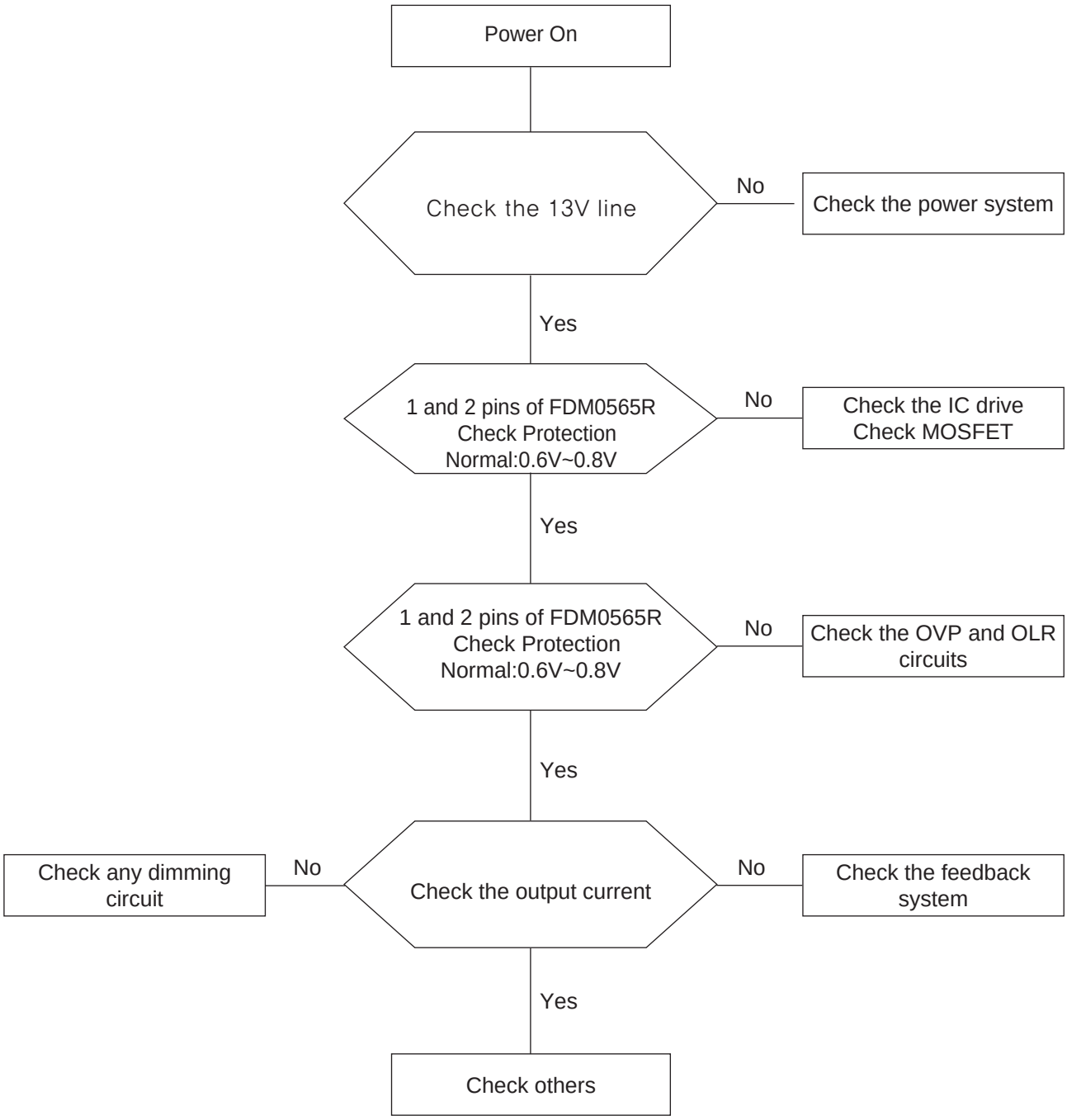
Figure 2.

13-2 Trouble Shooting

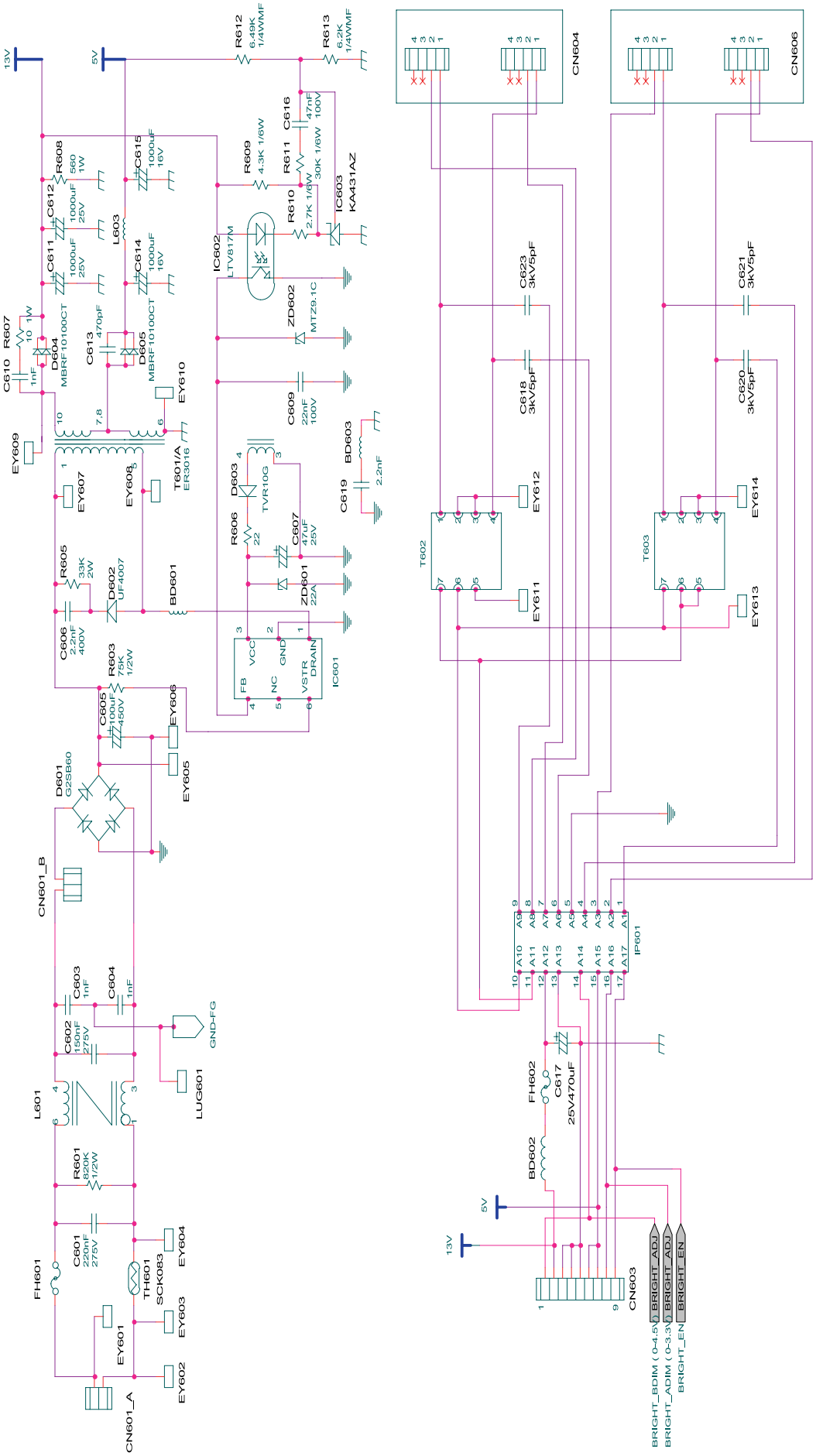
13-2-1 IP BOARD(Power)



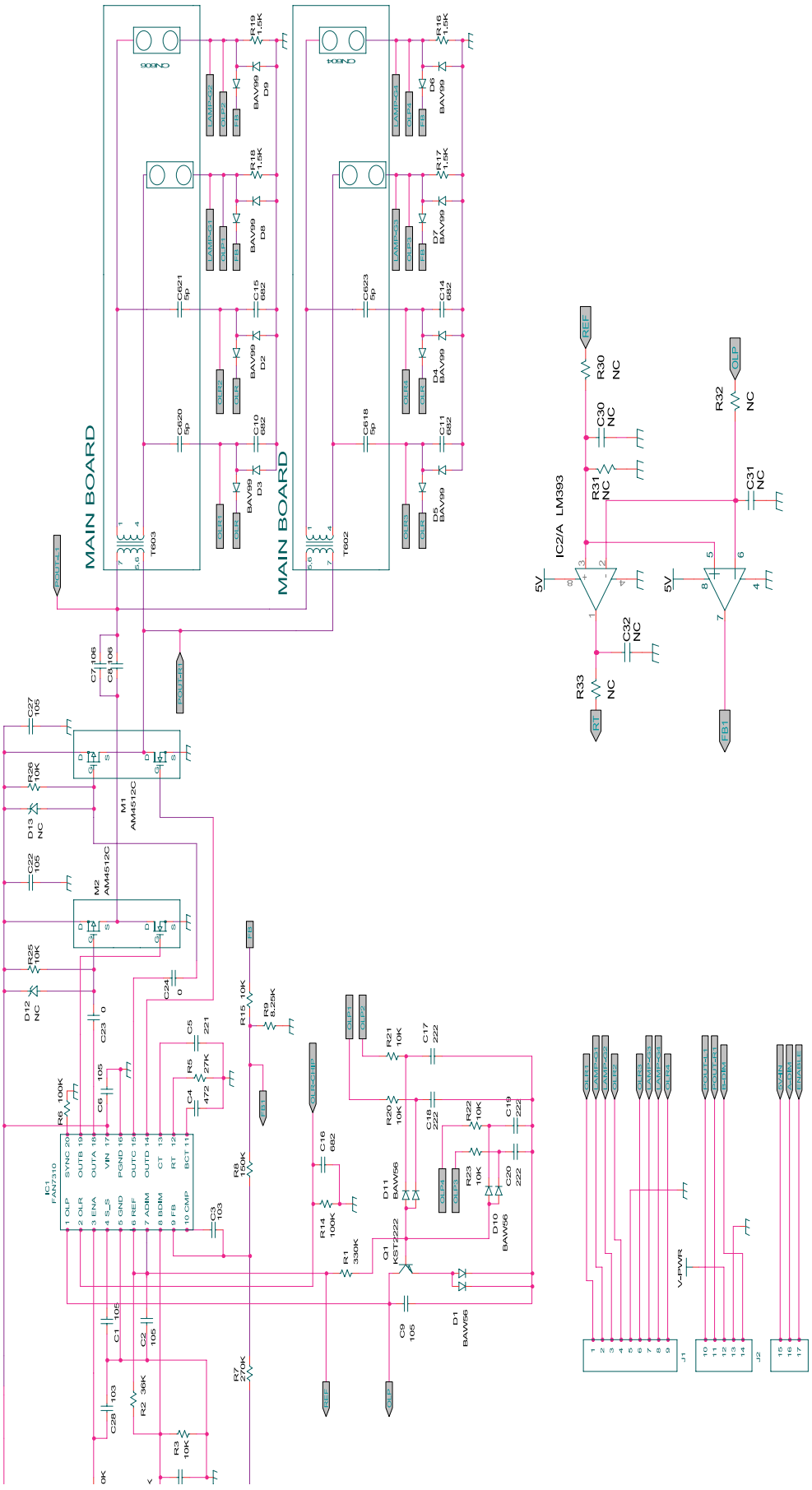
13-2-1 IP BOARD(Inverter)



13-3 IP BOARD(Power) Schematic Diagrams

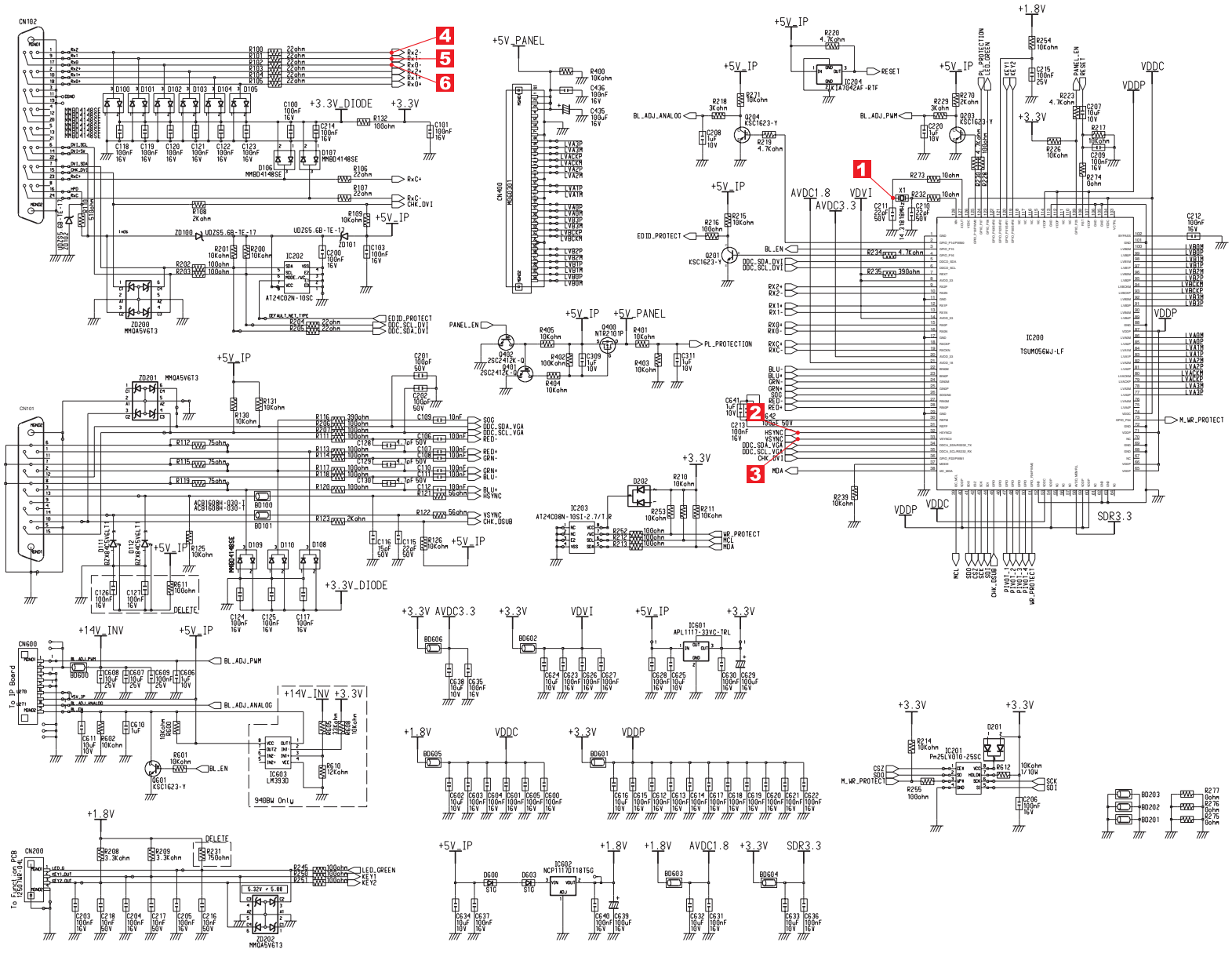


13-4 IP BOARD(Inverter) Schematic Diagrams



9 Schematic Diagrams

- This Document can not be used without Samsung's authorization.



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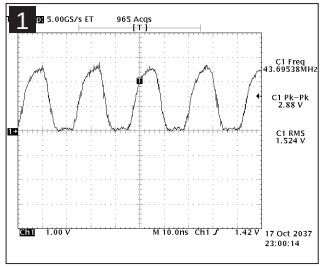
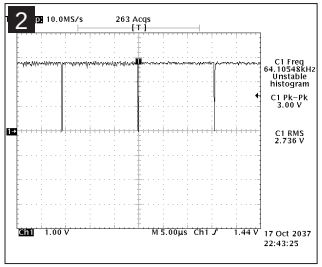
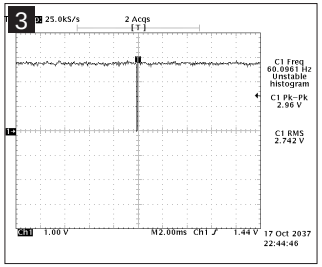

5.00GS/s ET
965 Acqs
C1 Freq
43.69538MHz
C1 Pk-Pk
2.88 V
C1 RMS
1.524 V
Ch1 1.00 V
M 10.0ns Ch1 1.42 V
17 Oct 2037
23:00:14

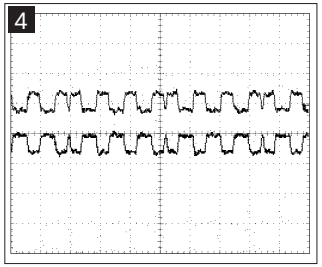
2


10.0MS/s
263 Acqs
C1 Freq
64.10548kHz
Unstable
histogram
C1 Pk-Pk
3.00 V
C1 RMS
2.736 V
Ch1 1.00 V
M 5.00µs Ch1 1.44 V
17 Oct 2037
22:43:25

3


25.0kS/s
2 Acqs
C1 Freq
60.0961 Hz
Unstable
histogram
C1 Pk-Pk
2.96 V
C1 RMS
2.742 V
Ch1 1.00 V
M 2.00ms Ch1 1.44 V
17 Oct 2037
22:44:46

4



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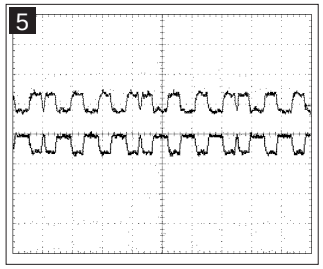

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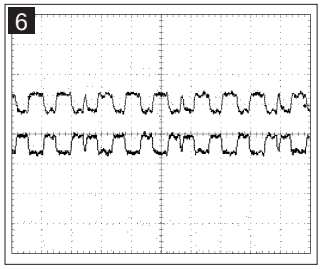
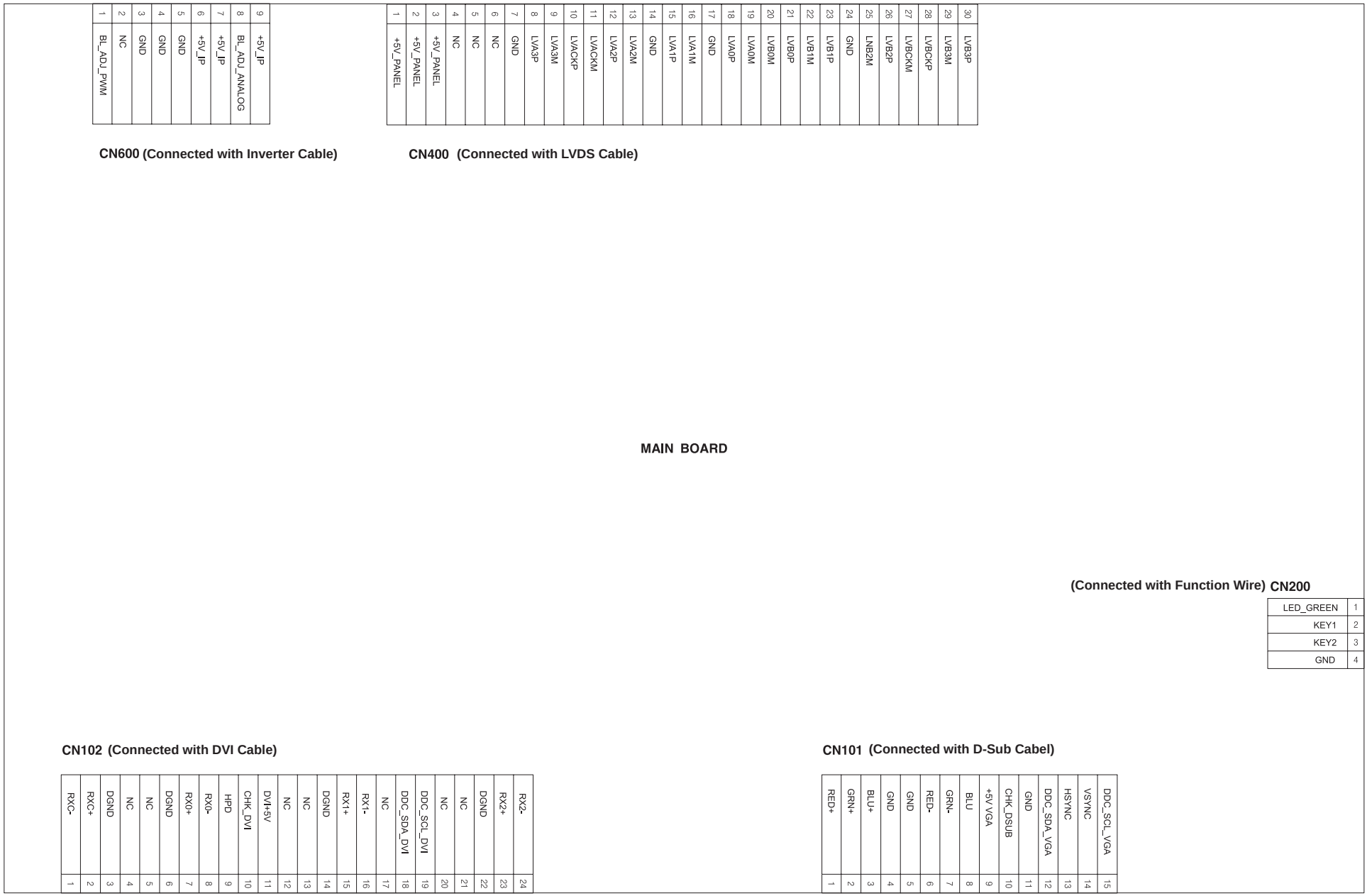


8 Wiring Diagram



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