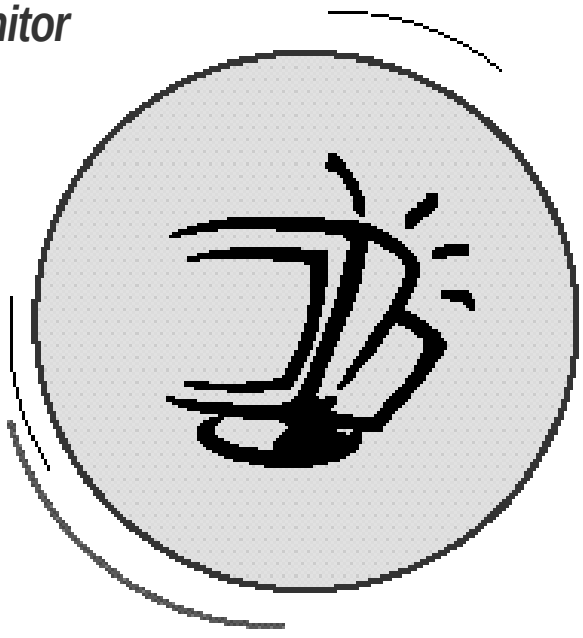
Hansol

Service Manual

19 Inch (Viewable size 19.0″)

TFT LCD Analogue Color Monitor

H950VI (B19BF)



Contents

H950VI(B19BF)Service Manual

First editior September 2003

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 ,Signal cable and Stereo cable before servicing.

1-1-2 Servicing the LCD Monitor

1. When servicing the LCD Monitor Disconnect the AC power 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. To be sure that no shock hazard exists, check for leakage current in the following manner.
   Warning : Do not use an isolation transformer during this test.

   a. Plug the AC line cord directly into a 120 Volt AC outlet.

   b. Unisg two clip leads, connect 1.5㏀ , 10 watt resistor paralleled by a 0.15㎌ capacitor in series with an exposed metal cabinet part and a known earth ground, such as an electrical conduit or electrical ground connected to an earth ground.

c. Use a SSVM or VOM with 1000 ohms per-volt or higher sensitivity to measure the AC voltage drop across the resistor (see Figure 1-1).

d. Connect the resistor to an exposed metal part having a return path to the chassis(metal cabinet, screw heads, knobs, shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.

e. Any reading of 5.25 Volt RMS (this corresponds to 3.5 milliampere AC) or more is excessive and indicates a potential shock hazard. Correct the shock hazard before returning the monitor to the user.

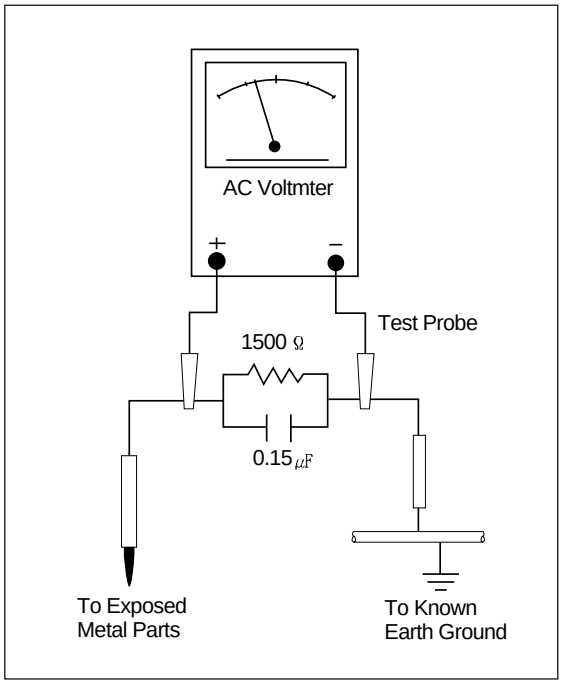


Figure 1-1.
Leakage Current Test Circut

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 replacement that does not have the same safety characteristics as the recommended replacement part may 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 instruments covered by this service manual and its supplements, read and follow the Safety Precautions section of this manual.

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

1-2-1. General Servicing Precautions

1. Servicing precautions are printed on the cabinet, and should be followed closely.

2. Always unplug the unit's AC power cord from the AC power source before attempting to :
   (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors,
   (c) connect a test component in paralled with an electrolytic capacitor.

3. 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.

4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the portion around the serviced part has not been damaged.

5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples; metal panels, input terminals and earphone jacks)

6. Insulation Checking Procedure : Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter(500V) 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.

7. 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 devices 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 ground-tip soldering iron to solder 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 relacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foid 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 font from a carpeted floor can generate enough static electricity to damage an ESD.

2. Product Specifications

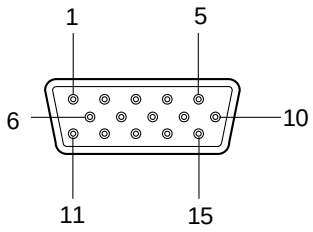
2-1 Specifications

LCD PANEL	Model	H950VI (B19BF)
	Type	Amorphous Active Matrix Super TFT LCD (LTM 190E1 - L01)
	Screen Size	376.32(H) X 301.056(V) mm (19 inch diagonal)
	Maximum Resolution	1280 X 1024 @ 75Hz
	Pixel Range	0.294mm X 0.294mm
	Display Colors	8 bit data =16.7 million colours
	Contrast Rate	500 : 1
	Viewing Angle	85°/85°/85°/85°(up /down /left / right)
	Response Speed	25ms
	Brightness	250 cd/m2
Synchornization	Horizontal Frequency	80KHz(Max)
	Vertical Frequency	76HZ(Max)
Video Input	Video Signal	Analog RGB(0 - 850 mV max) 75 ohm
	Synchronous Signal Mode	LVDS (8bit) 3 sync signal, Clock
Power Consumption	Maximum	45W
	Soft Power Off	Under 1W
Control Keys	Front part	SOURCE,MENU/MUTE,AUTO/SELECT,POWER, BRIGHTNESS/-,CONTRAST/+,VOL/MUTE
Input Power		100 / 240V(50~60Hz)
Wall Mount		VESA Standard
Safety & EMI	Safety Standard	UL,CE,CB,TUV
	EMI	FCC,RRL
	Low Radiation	MPR-II
Dimension	Size and Weight	452 X 216X 416 / 6.7Kg

2-2 Pin Assignment

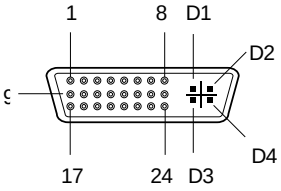
The 15-pin D-sub connector(male) of the Analog signal cable

Pin No.	Assignment	Pin No.	Assignment
1	Red Video	9	5V Input
2	Green Video	10	ST_DET
3	Blue Video	11	Ground
4	FrameGround	12	SDA
5	N.C	13	H.Sync
6	Red Video Ground	14	V.Sync
7	Green Video Ground	15	SCL
8	Blue Video Ground		



The 24 pin DVI-D cable Pin Connection

Pin	Signal	Pin	Signal	Pin	Signal
1	T.M.D.S Data2-	9	T.M.D.S Data1-	17	T.M.D.S Data0-
2	T.M.D.S Data2+	10	T.M.D.S Data1+	18	T.M.D.S Data0+
3	T.M.D.S Data2/4 shield	11	T.M.D.S Data1/3 shield	19	T.M.D.S Data0/5 shield
4	T.M.D.S Data4-	12	T.M.D.S Data3-	20	T.M.D.S Data5-
5	T.M.D.S Data4+	13	T.M.D.S Data3+	21	T.M.D.S Data5+
6	DDC Clock	14	+5V Power	22	T.M.D.S Clock Shield
7	DDC data	15	Ground(for +5V)	23	T.M.D.S Clock+
8	Analog Vertical sync	16	Hot Plug Detect	24	T.M.D.S Clock-



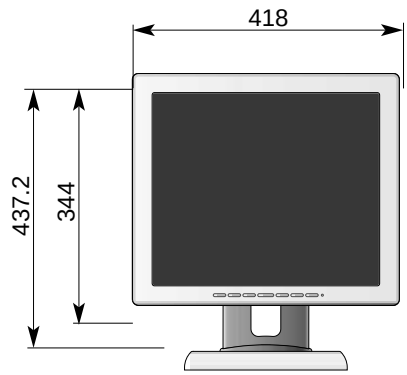
2-3 Timing chart

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

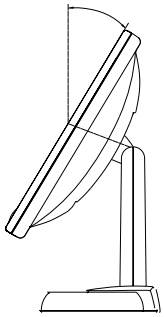
No.	Display Mode	Hor. Freq (kHz)	Ver. Freq (Hz)	Dot Clock (MHz)
1	VGA (720 X 400)	31.469	70.087	28.322
2	VGA (640 X 480)	31.469	59.940	25.175
3	VGA (640 X 480)	37.500	75.000	31.500
4	SVGA (800 X 600)	37.900	60.320	40.000
5	SVGA (800 X 600)	46.875	75.000	49.500
6	XGA (1024 X 768)	48.363	60.004	65.000
7	XGA (1024 X 768)	60.023	75.029	78.750
8	SXGA (1280 X 1024)	63.981	60.020	108.000
9	SXGA (1280 X 1024)	79.976	75.025	135.000
10	MAC (640 X 480)	35.000	66.667	30.240
11	MAC (832 X 624)	49.726	74.551	57.284
12	MAC (1152 X 870)	68.681	75.062	100.000

2-4 Dimensions

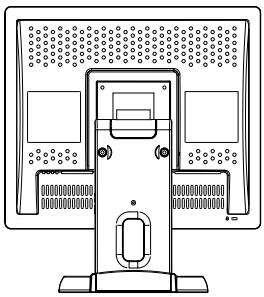
■FRONT VIEW



■SIDE VIEW



■REAR VIEW



3. Disassembly and Reassembly

The section of the service manual describes the disassembly and reassembly procedure for H950VI.

※ WARNING : This has to be disassembled and reassembled carefully because TFT-LCD Panel is weak for impact. This monitor contains electrostatically sensitive devices. Use caution when handling these components.

3-1 Disassembly

Cautions : 1. Disconnected the monitor from the power source before disassembly.
2. Follow these directions carefully; never use metal instruments to pry apart the cabinet.

3-1-1 Separation between display part and stand part

1. Disconnected the Monitor from the power Cord before disassembly
2. Disconnected the monitor from Signal Source Cable.
3. Remove the 4 screws on the Stand.
4. Try it off the back Stand of the monitor.

3-1-2 The Display part Disassembly

The Rear housing Removal

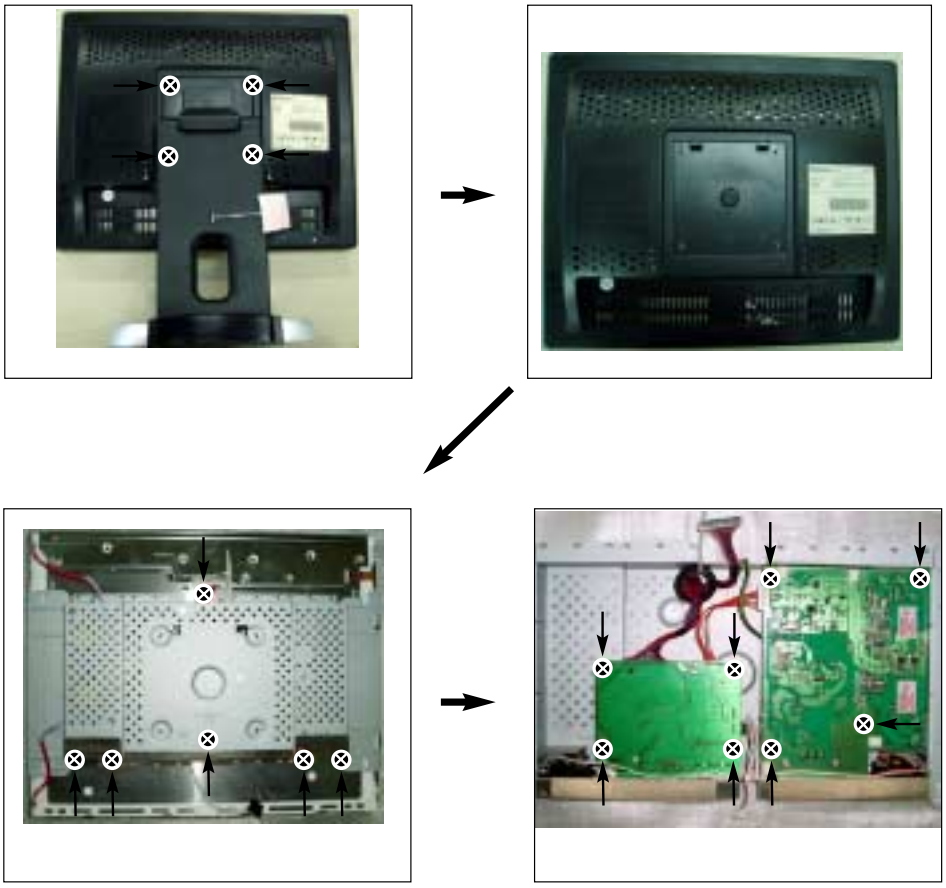
1. After detached the Front Bezzel from Rear Cover, Remove the Rear Cover.
2. Disconnect Inverter wire.
3. Disconnect OSD Key cable
4. Remove Front Bezzel .
5. Unscrew the 4point screws beside of the panel and Disconnect LVDS Cable.
6. Seperate the panel.
7. Unscrew the 4point screws on the Main PCB. and 4 screws of I/O Shield.
8. Disconnect the KEY cable and Speaker cable from Main PCB.
9. Disconnect the COMBO cable.
10. Seperate the Main PCB Assembly.
11. Unscrew the 4 point screws on the Combo PCB and a Ground wire screw.
12. Seperate the COMBO Board.

3-1-3 Stand Disassembly

1. Remove 4 screws from the Stand Rear.
2. Remove Stand Head from the Stand assembly.
3. Remove 6 screws from the Stand Bottom.
4. Remove Stand Bottom from the Stand assembly.
5. Remove 2 screws from the Stand Bottom.
6. Remove Stand Base from the Stand assembly.

Disassembly and Reassembly

※ Fiqure



3-2 Reassembly

3-2-1 Display part Reassembly

Reassembly procedures are in the reverse order of Disassembly Procedures.
Confirm that insulation plate puts into on the left of the TFT-LCD panel and main chassis.

3-2-2 Stand(Power Stand & Normal Stand) part Reassembly

Reassembly procedures are in the reverse order of Disassembly Procedures.

3-2-3 Display part and Stand part Reassembly

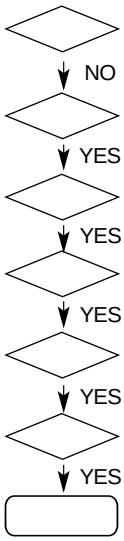
Reassembly reversely the Display part and Stand part disassembly method.

4. Troubleshooting

4-1 Micom(WT61P4L44)

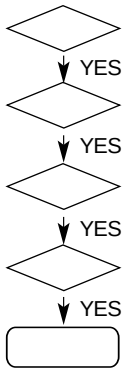
We can check the micom operation correctly by press the soft power switch.
When the chip does not operate in the normality, power indicating the LED is always extinguished.
In the normality, if the screen appear 'No Signal' or 'No Cable', the LED is green amber.
When the screen is displayed, the LED is green light.

4-2 When the LED operate in the abnormality

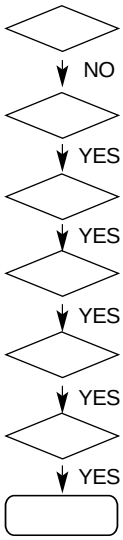
Diagram	Check point	Order	Check & Replace Item
		Press the soft power switch! The Screen is normal, only the key is abnormal.	Key PCB
	U2	Does appear DC 5V at pin 7 of U2	Combo B/D & D21,22,23
	U2	Does appear Clock pulse(12MHz) at pin 9,10 of U2	Y1
	U2	Does appear active low input at pin 25 of U2	U2
	U2	Does appear DC 5V at pin 5 of U2	U2
		Update the latest F/W of H950 and check the LED. Does it update in normality ,and operate the LED?	Replace Main PCB !
	It's fine !		

4-3 When H950 is not displayed in abnormality.

4-3-1 When screen is just white !

Diagram	Check point	Order	Check & Replace Item
	LVDS CABLE	Check connection of LVDS CABLE. Does appear white screen ?	LVDS CABLE
	U6 U7	Does appear DC 3.3V at pin 4 of U6 ? Does appear DC 2.5V at pin 4 of U7 ?	U6,U7 & Related circuit
	U4	Dose proper Clock pulse(14.3MHz) at 122,123pin of U4	U4
	J1	Dose appear active signal pin 10,11,22,23 of J1	U4
	Replace Panel !		

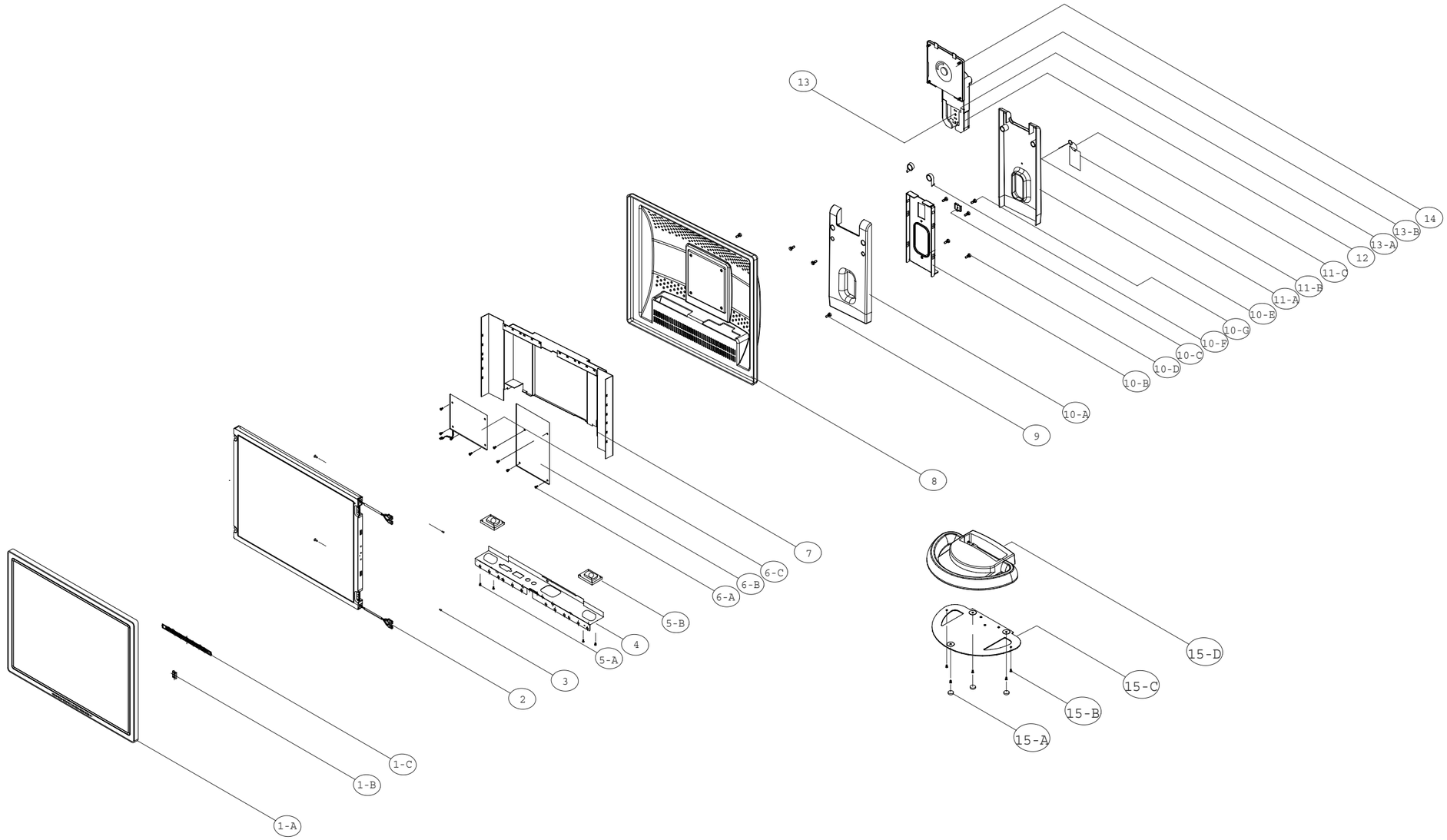
4-3-2 When screen is just black !

Diagram	Check point	Order	Check & Replace Item
	LVDS Cable	Check LVDS Cable is it ok?	LVDS Cable
	INVERTER Lamp Cable	Check inverter lamp cable Is it OK?	INVERTER Lamp cable
	J2	Does proper DC +5V appear at pin 2,3 of J2	COMBO & Wire
	U2	Dose proper DC 5V appear at pin14,15 of U2	U2
	U5	Dose proper DC 5V appear at pin2 of U5	U5
	LVDS Cable	Check the connection of LVDS Cable	LVDS Cable
	Replace Main PCB!		

4-3-3 The monitor has the following dimensions:

	with packaging	w/o packaging
Width in mm	525	416
Height in mm	580	452
Depth in mm	300	216
Weight in kg	9.5	6.7

5. Exploded View & Parts List

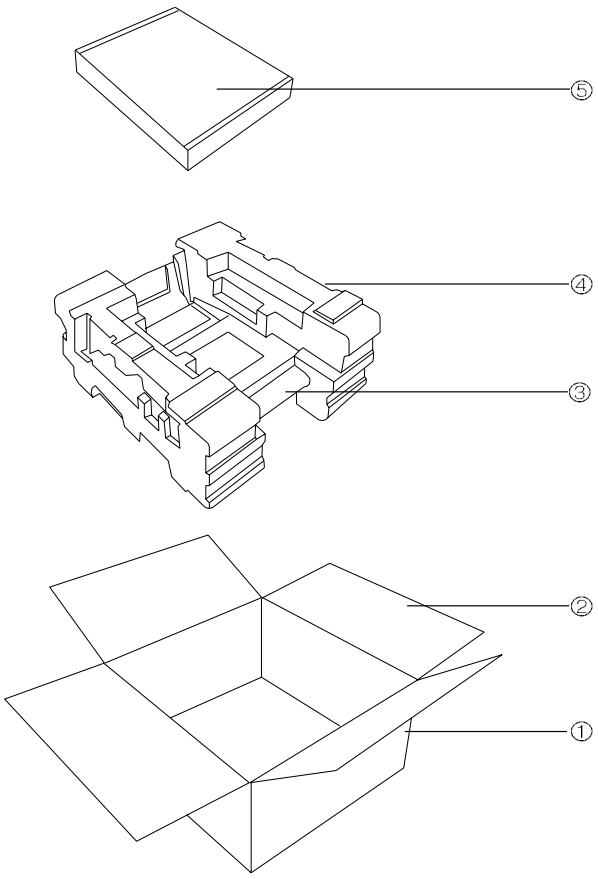


No.	PART NAME	CODE NO.	DESCrIPTION	Q'TY
1	BEZEL FRONT ASS'Y	6522190003AD	-	1
1-A	BEZEL FRONT	6222190013AD	H950VI,OWN,HB,0150,C81253,B2050, MAXDATA,KC_C7425_B2050	1
1-B	LENS,POWER	6222090011AD	H950,PMMA,CLEAR	1
1-C	KNOB CONTROL	6222090023AD	H950,OWN,SILVER(B2050),ABS-HB,SD-0150,C7425	1
2	TFT LCD PANEL 19.0	5419L00114AD	LTM190E1-L01,UXGA	1
3	MACHINE,SCREW	68660001AAAD	BH,M3×6	4
4	IO,SHIELD	6322090006AD	H950,SPTE,0.5t	1
5-A	T/T,SCREW	67613004AAAD	BHB,+,3×8,.,.	4
5-B	SPEAKER	56410003AAAD	NB-04301-115,1½x1¼Inch,8 ohm,350Hz,1.0W	2
6-A	T/T,SCREW	67622001AAAD	BHC,M4x8,	1
6-A	T/T,SCREW	67613007AAAD	BH,B-TYPE,+,M3X6	3
6-A	MACHINE,SCREW	68650004AAAD	BH,M3×6,W/WASHER,Ø7	4
6-B	ASS'Y, COMBO B'd	3322330004VD	19,SMPS-12V/5V,48W,INVERTER-6.5mArms,IPT/BENTEK	1
6-C	ASS'Y, PCB MAIN,DIP	3922240501PD	B19AF(H950),PCB KEY,DIP(단품),H950	1
7	SHIELD,COVER,ASS'Y	6522190001AD	H950VI,SECC,1.0t,EMI_SPRING_4EA	1
8	REAR,HOUSING	6222090003AD	H950,ABS-HB,SD-0150,K2440	1
9	T/T,SCREW	67613012AAAD	BHB,+,M4x 10,BLACK	2
10	STAND,NECK,ASS'Y	0922190001AD	-	1
10-A	STAND,FRONT	6222190002AD	H950VI,HB,SD0150,C81253	1
10-B	BODY,FRAME,LIFT	6322090001AD	H950,SECC,2.0t	1
10-C	STOPPER	6322090004AD	H950,SECC,2.0t	1
10-D	T/T,SCREW	67613012AAAD	BHB,+,M4x 10,BLACK	6
10-E	STAND,BACK	6222190003AD	H950VI,HB,SD0150,C81253	1
10-F	SPRING,SLIDE	75210005AAAD	11X0.35t,Ø24	2
10-G	T/T,SCREW	67610003AAAD	BHC,M4X6	3
11-A	SPRING,PIN	758122090001	L40mm,Ø1.0	1
11-B	WARNING,LABEL	922199150022	Rev.01,WARNING ART PAPER,42x82	1
11-C	CABLE,CLAMP	74170001AAAD	H950	1
12	SLIDE,GUIDE,L/R	6222090012AD	H950,ACETAL,BLACK.LEFT	1
13	SLIDE,FRAME	6322090003AD	H950,SECC,2.0t	1
13-A	SLIDE,COVER,FRONT	6222190004AD	H950VI,HB,SD0150,C81253	1
13-B	SLIDE,COVER,REAR	6222190005AD	H950VI,HB,SD0150,C81253	1
14	HINGE,ASS'Y (MOLD & PRESS)	6522090009AD	H950,PIVOT	1

Exploded View & Parts List

No.	PART NAME	CODE NO.	DESCrIPTION	Q'TY
	MACHINE,SCREW	68610004AAAD	BH,M4x 10,VESA,MOUNT,WHITE	4
	MACHINE,SCREW	68650005AAAD	BH,M4 ×8, W/WASHER(Ø9)	2
	HINGE,COVER,FRONT	6222090018AD	H950,ABS-HB,SD-0150,C81253	1
	HINGE,COVER,REAR	6222090019AD	H950,ABS-HB,SD-0150,C81253	1
	T/T SCREW	67613004AAAD	BHB,+,3×8,.,.	3
15	STAND,BASE,ASS'Y	0922190002AD	-	1
15-A	RUBBER,FOOT	6222990001AD	NR,15.2Ø,1.3t,GRAY(423C)	3
15-B	T/T SCREW	67213001AAAD	FHB,+,3×8	5
15-C	BOTTOM,PLATE	6322090002AD	H950,SECC,2.0t	1
15-D	STAND,BASE	6222190001AD	H950VI,HB,SD0150,C81253	1

6. Packing & Unpacking



No	Description	Specification	Quantity	Remarks
1	Tape-Masking	OPP W75 CLR	1.2 Mt	-
2	Carton Box	B19AF	1EA	CB DW-3
3	Set-Monitor	B19AF	1Set	EPS 60M C=0.018
4	Cushion-L/R	B19AF	1Set	19" TFT Monitor
5	Gift Box	B19AF	1EA	Cable Etc.

7. Electrical Parts List

7-1. Main Control Board

LOCATION No.	PART NO.	TYPE	DESCRIPTION
U5	1223863SRAF	IC,FET	SI3863DV,MOS FET,Vds=-30V,Rds(on)=75mOhm,Id=-3.6A
U7	15711117IAAF	IC,LINEAR	LM1117MPX-2.5,2.5V,800mA SOT-223, REGULATOR
U6	15311117IAAF	IC,LINEAR	Rev.01,LM1117MPX-3.3/AME1117CCGT, SOT-223, REGULATOR
U4	15719131EAAF	IC, IMAGE SCALER	MST9131
U3	16624C16DAAF	IC,MEMORY	AT24C16N-10SC-2.5/CAT24WC16J,16K,I2C,SOIC-8PIN
U1	16624C21DAAF	IC,MEMORY	AT24C21A-10SC-2.5,SOIC-8PIN
R1,R3,R5,R13	21700007ASTD	RES,CHIP,CT	0 OHM, 5%, 1/16W, 1608
R2,R4,R6,R10,R11,R12,R14,R17,R19, R20,R21,R22,R23,R24,R25,R50,R51, R52,R53,R54,R55,R56,R68,R69,R37, R36,R92,R95	21701017ASTD	RES,CHIP,CT	100 OHM, 5%, 1/16W, 1608
R61,R62	21702047AATD	RES,CHIP,CT	200 OHM,5%,1/16W,1608
R15	21702227ASTD	RES,CHIP,CT	2.2K OHM, 5%, 1/16W, 1608
R39,R38	21703307ASTD	RES,CHIP,CT	33 OHM, 5%, 1/16W, 1608
R73	217039172STD	RES, CHIP, CT	390 OHM, 1%, 1/16W, 1608
R78	21703347AATD	RES,CHIP,CT	330K,5%,1/16W,1608
R41,R43,R59,R60,R66,R67,R74,R93,R94	21704727ASTD	RES,CHIP,CT	4.7K OHM, 5%, 1/16W, 1608
R75,R48,R49	21704737ASTD	RES,CHIP,CT	47K OHM, 5%, 1/16W, 1608
R7,R8,R9	21707507ATTD	RES, CHIP, CT	75Ω, 5%, 1/16W, 1608
C43	265001028APJ	CAP CERAMIC	1000pF, 50V, 10%, X7R, SMD, 1608
C82	265001038APJ	CAP,CERAMIC	0.01uF, 50V, 10%, X7R, SMD, 1608
C11	26508900209D	CAP,CERAMIC	20pF,50V,5%,CG,SMD,1608
C22,C23,C33,C34	26500220899J	CAP,CERAMIC	22pF, 50V, 5%, CG, SMD, 1608
C16	26508R0224MD	CAP, CERAMIC	0.22uF, 50V, +80%/-20%, Y5V, SMD, 1608
C12	26508902219D	CAP, CERAMIC	220pF, 50V, 5%, COG, SMD, 1608
C13,C17,C19,C21,C28,C30,C35,C36, C37,C38,C39,C40,C41,C44,C45,C46, C47,C48,C49,C50,C51,C52,C53,C54, C56,C59,C61,C63,C66,C68,C70,C73, C74,C75,C79	26508R0015MD	CAP, CERAMIC	0.1uF, 50V, +80%/-20%, Y5V, SMD, 1608
C1,C2,C3,C8,C9,C10	26508R0473MD	CAP, CERAMIC	0.047uF, 50V, +80%/-20%, Y5V, SMD, 1608
C76,C80	26508R0474MD	CAP, CERAMIC	0.47uF, 50V, +80%/-20%, Y5V, SMD, 1608
C57,C64,C71,C72	276601073CHD	CAP, CAN-ELECT, G.P	100uF, 16V, 20%, CASE:6.3X6, -40 ~ +85℃,SMD
C14,C15,C55,C60,C62,C67,C69	276602263CHD	CAP, CAN-ELECT,G.P	22uF, 16V, 20%, CASE:5X5, 5m, -40 ~ +85℃,SMD
C77,C78,C81,C83	276602273CTD	CAP,CAN-ELECT,GP	220uF,16V,20%,CASE:8*10,-40~+85'C,SMD
C18,C42,C58,C65	276604763CHD	CAP, CAN-ELECT,G.P	47uF, 16V, 20%, CASE:6.3X5, -40 ~ +85℃,SMD
Y1	3120012000MD	CRYSTAL	Rev.01, 12.000MHz,15PF,±30PPM,TS-1 TYPE,SMD
Y2	3120014318MD	CRYSTAL	Rev.01, 14.318MHz,33PF, ±30PPM,TS-1 TYPE,SMD
FB1,FB2,FB3,FB4,FB5,FB6,FB7,FB8, FB9,FB10,FB11	3222180004CD	EMI FILTER	BEAD,300 OHM,3A,SMD,2012
D3,D4,D5,D13,D14,D15,D16,D17, D18,D19,D20	3521000394TD	DIODE, SW	BAV99/MMBD1203, 200mA, 70V-100V, SOT-23, TAPING
D1,D2,D6,D7,D8,D9,D10,D11, D12,ZD1,ZD2	3531003594TD	DIODE, ZEN	BZX84C5V6,5.6V,SOT23

LOCATION No.	PART NO.	TYPE	DESCRIPTION
J1	4621150009ID	CONNECTOR, SMT WAFER	Rev.01, 12507WR-30A00, 30P MALE, 1.25mm, LVDS WAFER
R81,R82,R83,R84,R85,R86,R87,R88	21702207ASTD	RES,CHIP,CT	22 OHM, 5%, 1/16W, 1608
R44	21701027ASTD	RES,CHIP,CT	1K OHM, 5%, 1/16W, 1608
C20	276604753CTD	CAP,CAN-ELECT,G.P	4.7uF,16V,20%,CASE:4X5,-40 ~ +85℃,SMD
D21,D22,D23	3514AT5492TD	DIODE,SCHOTTKY	BAT54C, 30V, 200mA, 230W, SOT-23, TAPING, LOW DROP, DIODE
R71	21703317ASTD	RES,CHIP,CT	330 OHM, 5%, 1/16W, 1608
Q2	303900031ACB	TR, NPN	Rev.01, MMBT3904 LTI,3P,SOT-23
U2	4631050004FD 3922220016AD	CONNECTER,IC SOCKET PCB MAIN	DC-44PLCC-S,1.27mm PITCH, F/M,S/T,BROWN 112*90*1.6T,2LAYER,FR-4,4ARRAY,H750DVI/H950VI
R18,R34,R35,R47,R65,R76,R77, R79,R80,R45,R46,R70,R42,R89,R90	21701037ASTD	RES,CHIP,CT	10K OHM, 5%, 1/16W, 1608
	15717496AAAF	IC,LINEAR	TDA7496L,14V,25mA,2W+2W,8Ω, Audio Amp+DC Volume,16p,DIP
	144161P4GAHF	IC, μ- PROCESSOR	WT61P4-L44,5V,44PIN,PLCC,64K F-MEMORY, 1024byte SRAM,16 PWM
	4610110002WD	CONNECTOR	4PIN,2.0mm,MALE,RIGHT ANGLE,SMAW200-4
	4610110006KD	CONNECTOR	4PIN,2.0mm,MALE,RIGHT ANGLE,SMAW200-4,BLACK
	4611010013BD	CONNECTOR, D-SUB	DJ-15FAP,15P FEMALE RIGHT ANGLE, PBT UL94V-0,BLUE,HEXAGON NUT
	4641010005KD	CONNECTOR, STEREO JACK	DJ-36SP, 5P RIGHT ANGLE PCB LOCKING, PBT UL94V-0, BULK
	4625010002ID	CONNECTOR	DVI,1015-29P-FSIW,Ø1.93,Female

7-2. Combo Board

LOCATION NO.	TYPE	DESCRIPTION	Q'ty
B1,B2,B4	3580	BEAD	3
CN1	BCP- 03A-E18	INLET	
CN2	SMAW 200-08	CONNECTOR	1
CN3,CN4,CN5,CN6	35002WR-02	CONNECTOR	4
CY10,11	DG472M Y1 250VAC	X-CAP	2
CY13	DG222M Y1 250VAC	Y-CAP	1
C10,11	220n 275V	Y-CAP	2
F1	T2AL 250V	FUSE	1
TH1	10D9	THERMISTER	1
IC30	KA431AZ	SHUNT REGULATOR	1
PC1	PC-17K1-CB	PHOTO COUPLER	1
BD1,BD2,BD3,BD4	2A07	DIODE	4
D48,D49	6.2V	ZENER-DI	2
D33	24V	ZENER-DI	1
D21	20V	ZENER-DI	1
D16	UF4004	ULTRA FAST DI	1
D30	10CTQ150	SCHOTTY DI	1
D34	SB560(FORMING)	SCHOTTY DI	1
D14	UF4007	ULTRA FAST DI	1
D15	1N4148	DIODE	1
IC1	ICE2AS01	CONTROL IC	1
U1	OZ960S	INVERTER IC	1
Q10	SPA04N60C3	FET	1
U13, U14	IRF7389	FET	2
LF1	20mH	LINE FILTER	1
T1	EFD 3030	TRANSFORMER	1
L51,L52	EFD 18/20	TRANSFORMER	2
L1,L2	10uH	PEAKING COIL	2
D40,41,42,43,44,45,46,47	KDS226	DIODE	8
Q31	C3198Y	TR	1
Q40	KRA104S	TR	1
Q41	KRC104S	TR	1
C14	472 1KV	C-CERAMIC	1
C33	221 1KV	C-CERAMIC	1
C17	103 50V	C-MILER	1
C36	104 63V	C-FILM	1
C12	68uF 400V (85°...)	C-ELEC	1
C15	47uF 50V (85°...)	C-ELEC	1
C16	0.68uF 50V (85°...)	C-ELEC	1
C31	470uF 25V (105°...)	C-ELEC	1
C32,C56	470uF 25V (85°...)	C-ELEC	2
C34	1000uF 10V (85°...)	C-ELEC	1
C35	470uF 10V (105°...)	C-ELEC	1
C41,C43,C44	105Z(16V)	MLCC	3

LOCATION NO.	TYPE	DESCRIPTION	Q'ty
C42	474Z (25V)	MLCC	1
C45,C47	103K (50V)	MLCC	2
C46	152K (50V)	MLCC	1
C49,C54	473K (50V)	MLCC	2
C50	221J (50V)	MLCC	1
C51	822K (50V)	MLCC	1
C52,C91	104Z (50V)	MLCC	2
C69,C59	225--3216	MLCC	2
C61,C65,C75,C76	15P	C-CERAMIC	4
C62,C66,C74,C77	333K (50V)	MLCC	4
C64	225--2012	MLCC	1
C60	106Z (16V) 3216	MLCC	1
R2	1M 1/4W	RESISTER	1
R12	150K 1/4W	RESISTER	1
R13	62K 1/4W	RESISTER	1
R14	100K 1W	RESISTER	1
R15,R17	6.2 1/8W	RESISTER	2
R16	200 1/8W	RESISTER	1
R18	2.2K 1/8W	RESISTER	1
R19	10 1/8W	RESISTER	1
R20	0.47/1W	RESISTER	1
R32	100 1/4W	RESISTER	1
R33	180 1/8W	RESISTER	1
R34	3.3K 1/8W	RESISTER	1
R35	6.8KF 1/8W	RESISTER	1
R36	2KF 1/8W	RESISTER	1
R37	1.8KF 1/8W	RESISTER	1
R38	33KF 1/8W	RESISTER	1
R41	22(SMD)	RESISTER	1
R42	10K(SMD)	RESISTER	1
R45	30K(SMD)	RESISTER	1
R46	1M(SMD)	RESISTER	1
R47	27K(SMD)	RESISTER	1
R49	62K(SMD)	RESISTER	1
R50,R53	20K(SMD)	RESISTER	2
R52,R54,R56,R62	430(SMD)	RESISTER	4
R58,R59,R60,R61	0(SMD)	RESISTER	4
R63	12K(SMD)	RESISTER	1
R91	43K(SMD)	RESISTER	2
R64	16K(SMD)	RESISTER	1
J1,J2,J3,J4,J5,J35,J36,J37,J38,J39	0(SMD)	RESISTER	10
C72,C68,C63,C78,J32	5mm	JUMPER	5
J16,J17,J20,J28,J29,J40	7.5mm	JUMPER	6
J12,J19,J22,J24,J34	10mm	JUMPER	5

LOCATION NO.	TYPE	DESCRIPTION	Q'ty
B3,J6	12.5mm	JUMPER	2
J23,J25,J26,J30,J31	15mm	JUMPER	5
HEAT SINK 1	1 PIN	HEAT SINK	1
HEAT SINK 2	1 PIN	HEAT SINK	1
SCREW	둥근머리 3*6	SCREW	2
	SE9590 RTV	Silicon	2
PCB		PCB	1

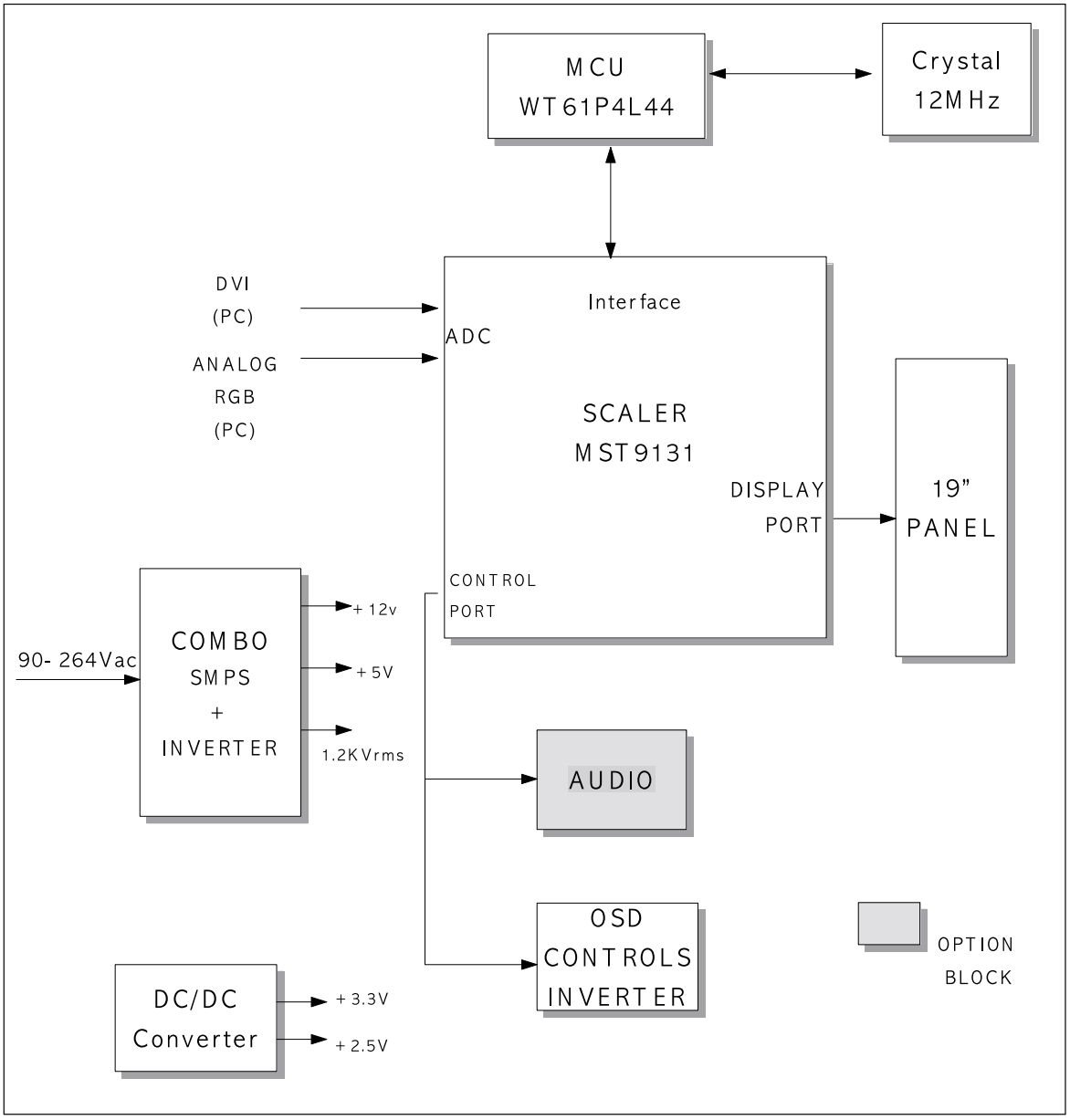
7-3. OSD Control Board

LOCATION No.	PART NO.	TYPE	DESCRIPTION
R2,R5	211010374ATD	RES,CARBON,AT	10K OHM,5%,1/6W
R1,R4	211033274ATD	RES,CARBON,AT	3.3KOHM,5%,1/6W
R3,R6	211033374ATD	RES,CARBON,AT	33KOHM,5%,1/6W
DZ10,DZ11,DZ12	3531001592TD	DIODE,ZEN	Rev.01,MTZJ5.6B/UZ-5.6BSB/1N5232B,5.6V, 5mA,500mW,T-72,AT
	0522091002AA	PCB,KEY	110.4*24.6*1.6T,1LAYER,FR-1,6ARRAY, H550/H750D
SW1,SW2,SW3,SW4,SW5,SW6,SW7	58210006RAAD	SWITCH,TACT	DHT-1105TABF,2P,RESETS/W,DC12V, 50mA,5mm,TAPING,H5.30
LED	3541000311TD	DIODE,LED	Rev.01,SM3411/HB3b-243,85mW,30mA, GREEN,TAPING

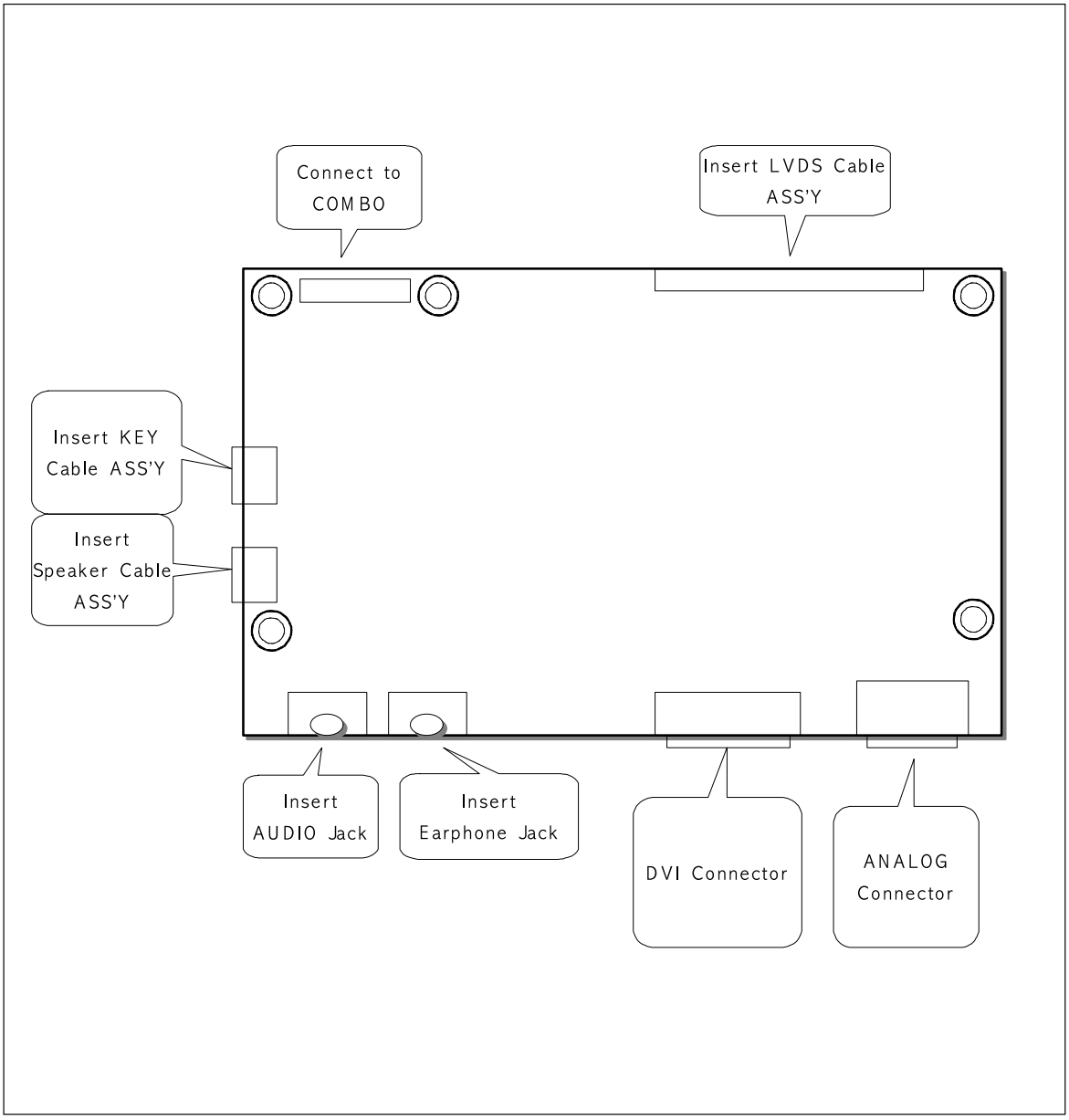
7-4. Panel

PART NO.	TYPE	DESCRIPTION	Q'ty
5419L00114AD	TFT LCD PANEL 19.0", H950,AMLCD	LM190E1-L01,1280*1024,LVDS,PVA,404.2(H)*330.0(V)*2	1

8. Block Diagram



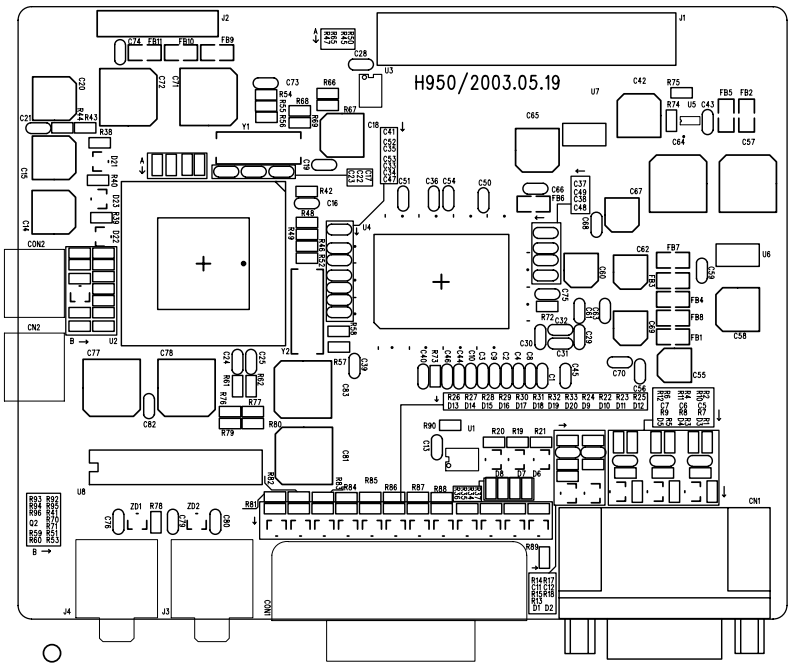
9. Wiring diagram



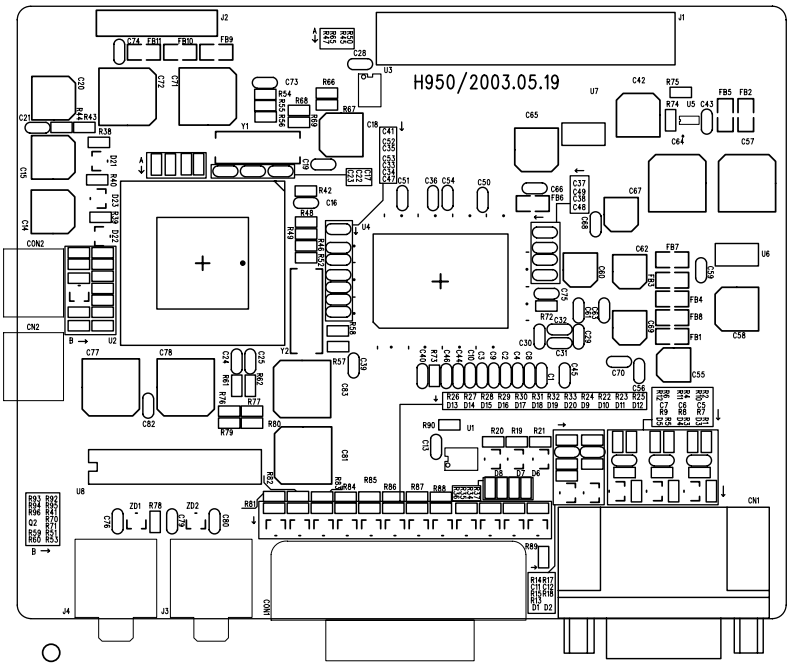
10. PCB Layout

10-1. Main PCB

10-1-1 TOP View

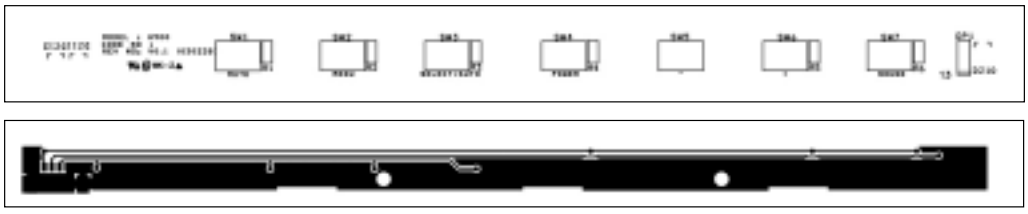


10-1-2 Bottom View



10-2. Key Control Board

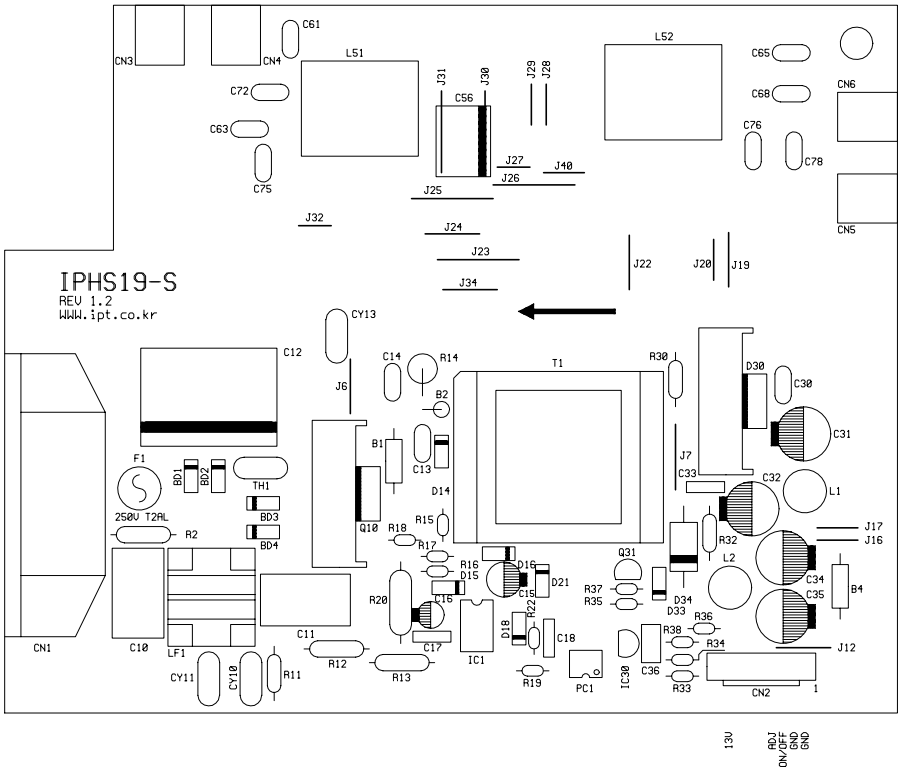
10-2-1 TOP View



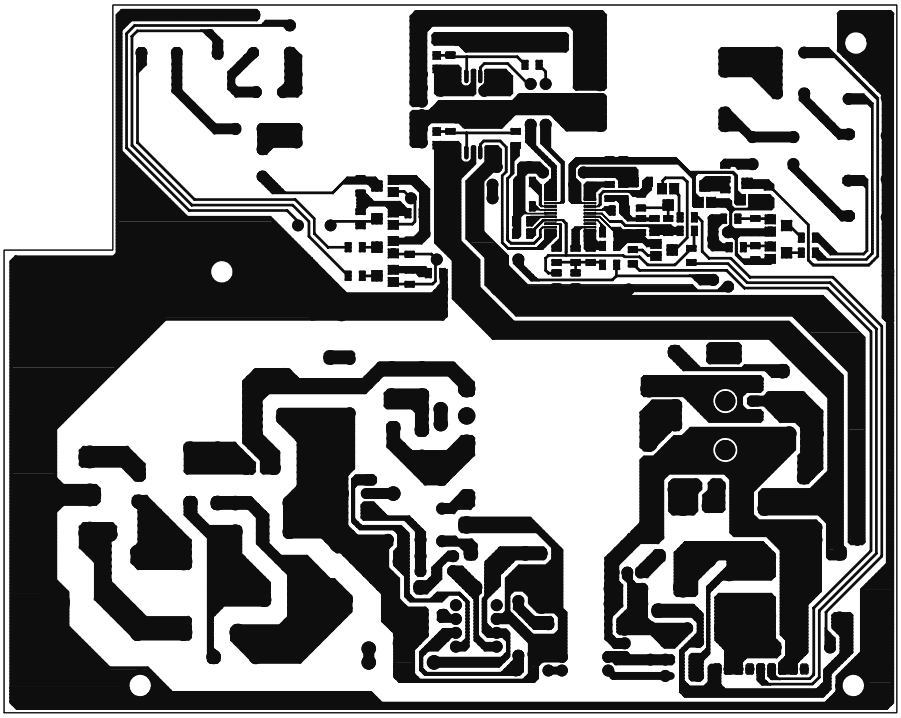
10-2-2 Bottom View

10-3. COMBO board PCB

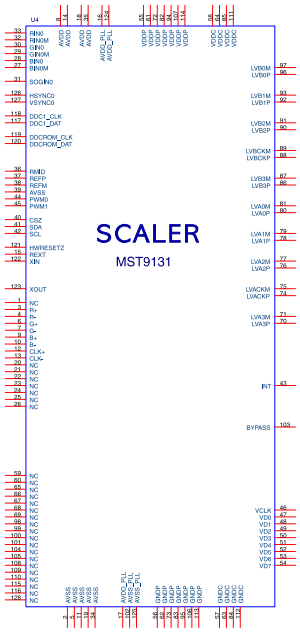
10-3-1 TOP View



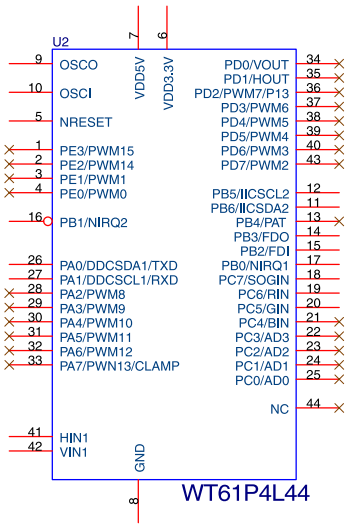
10-3-2 BOTTOM View



10-3. Semiconductor Lead Identification,



10-3. Semiconductor Lead Identification,

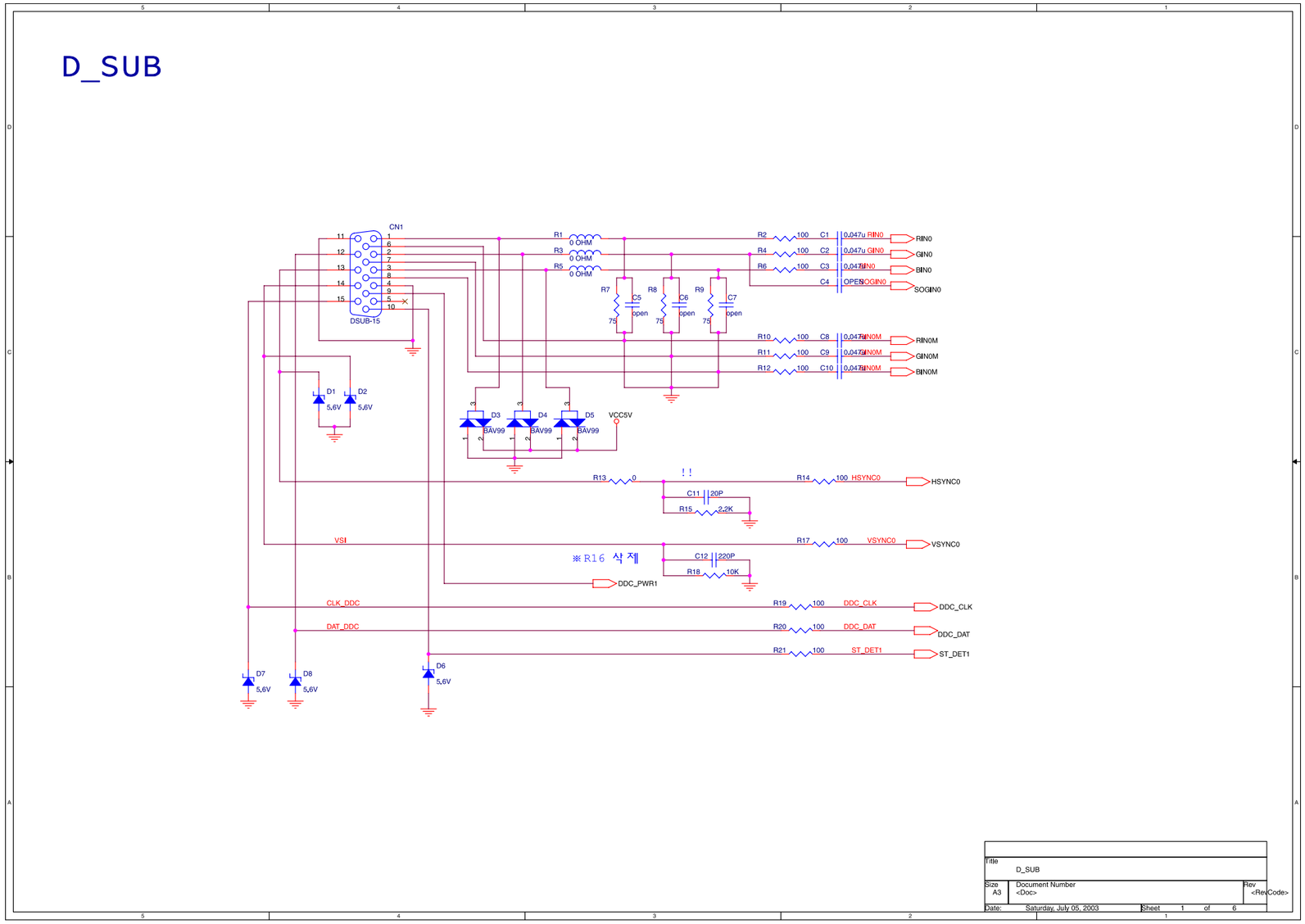


Schematic Diagrams

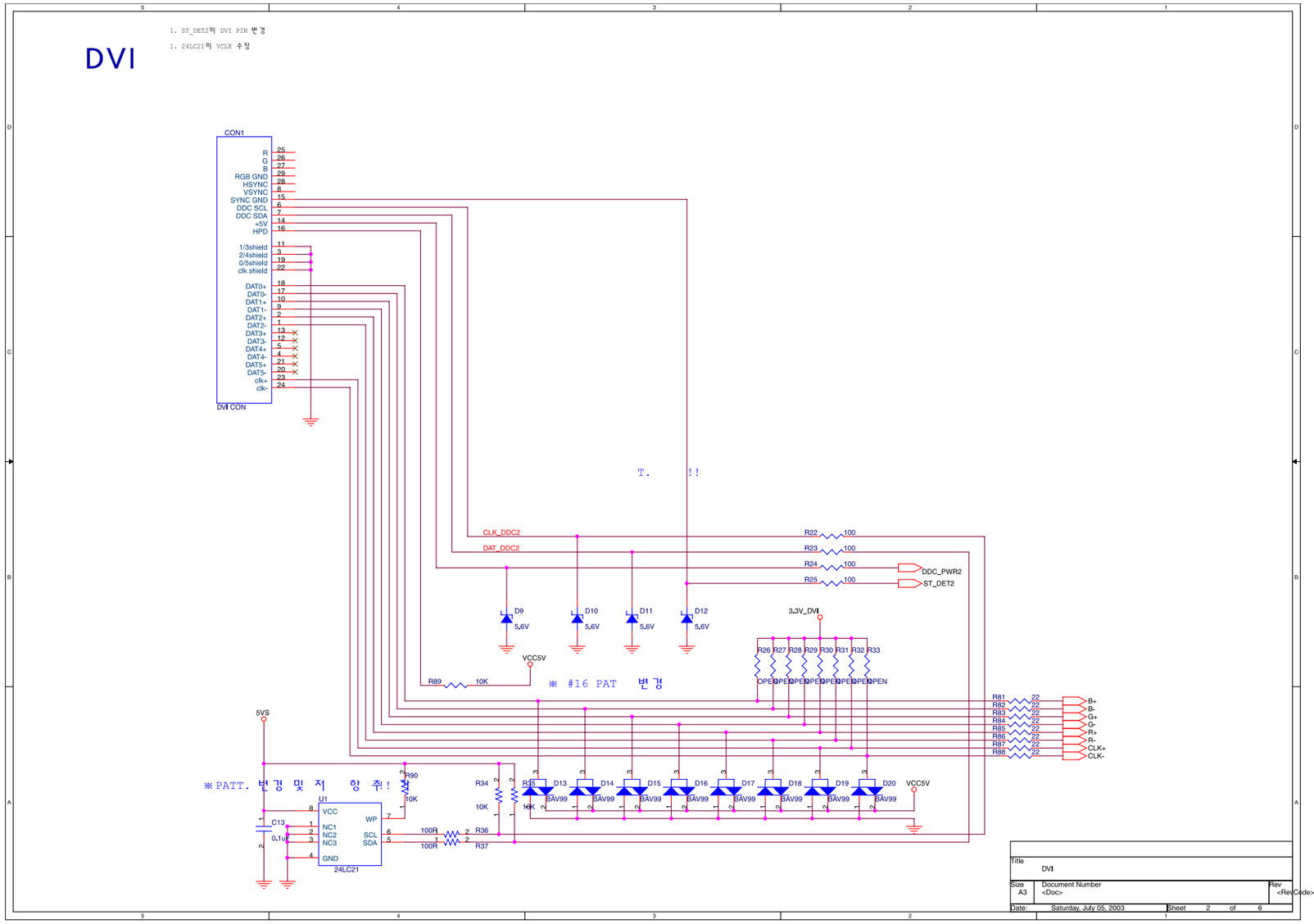
11. Schematic Diagrams

11-1. Main Control Board

11-1-1. VGA_INPUT LINE

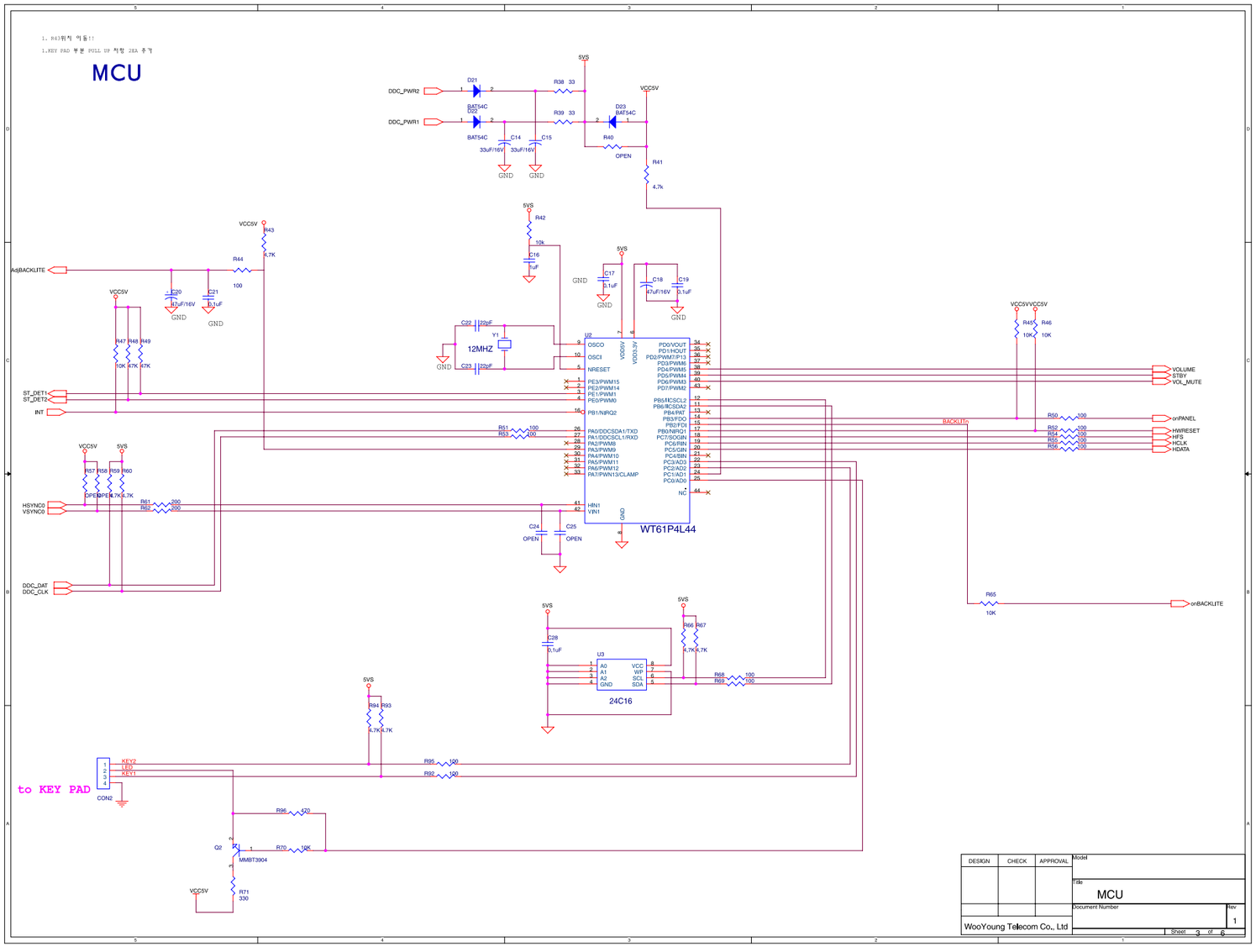


11-1-2. DVI INPUT LINE

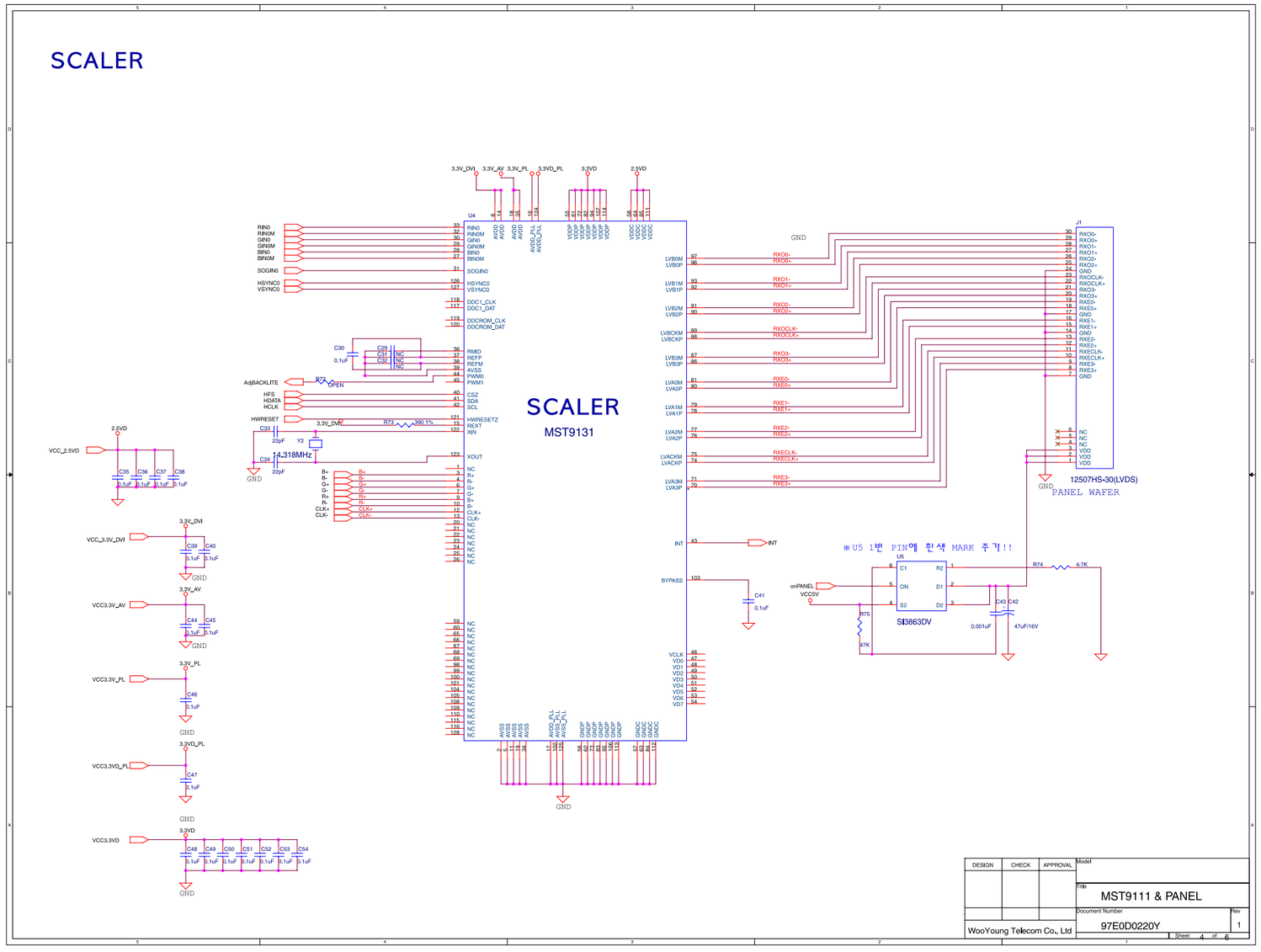


Schematic Diagrams

11-1-3. MCU

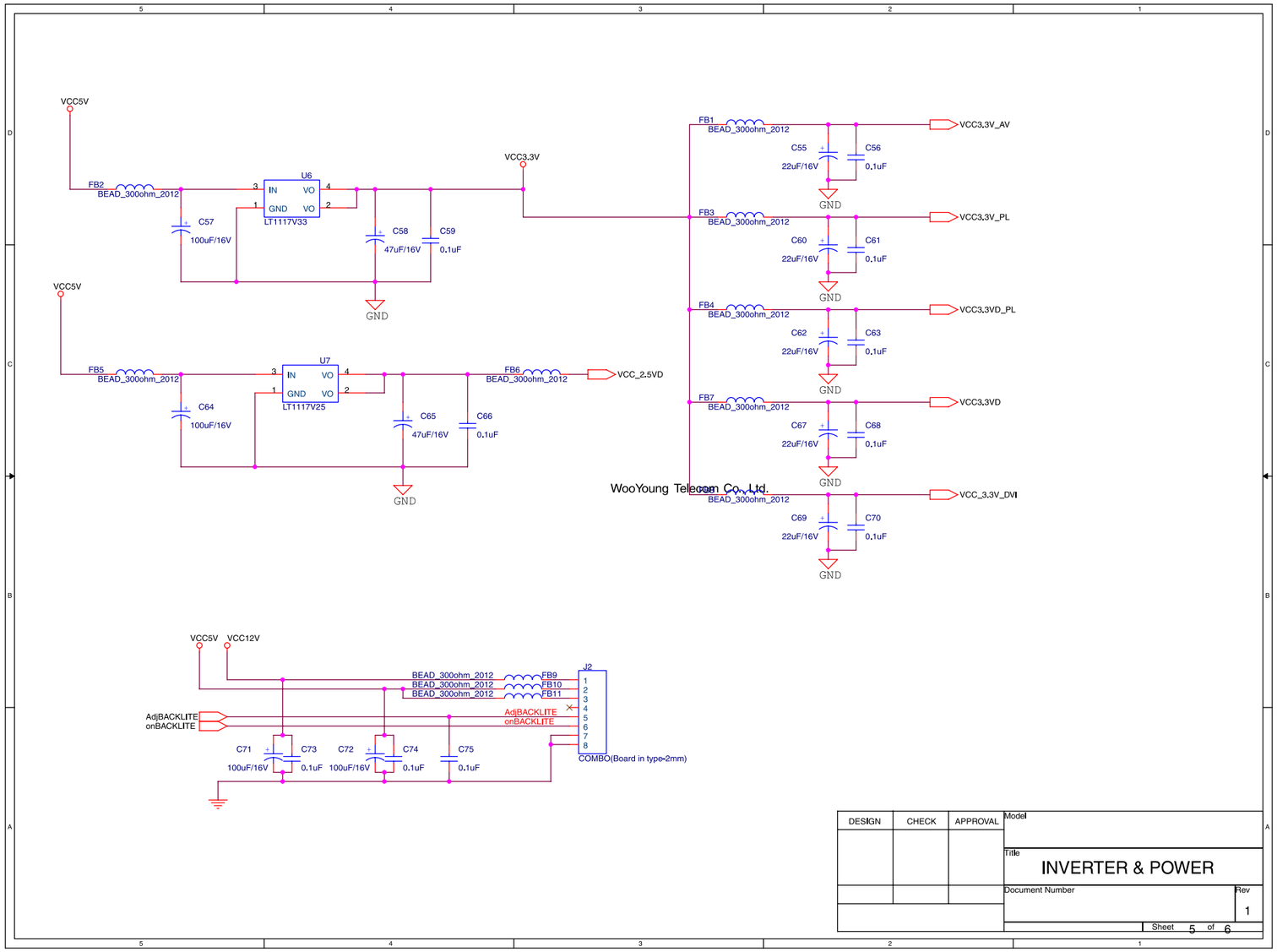


11-1-4. SCALER

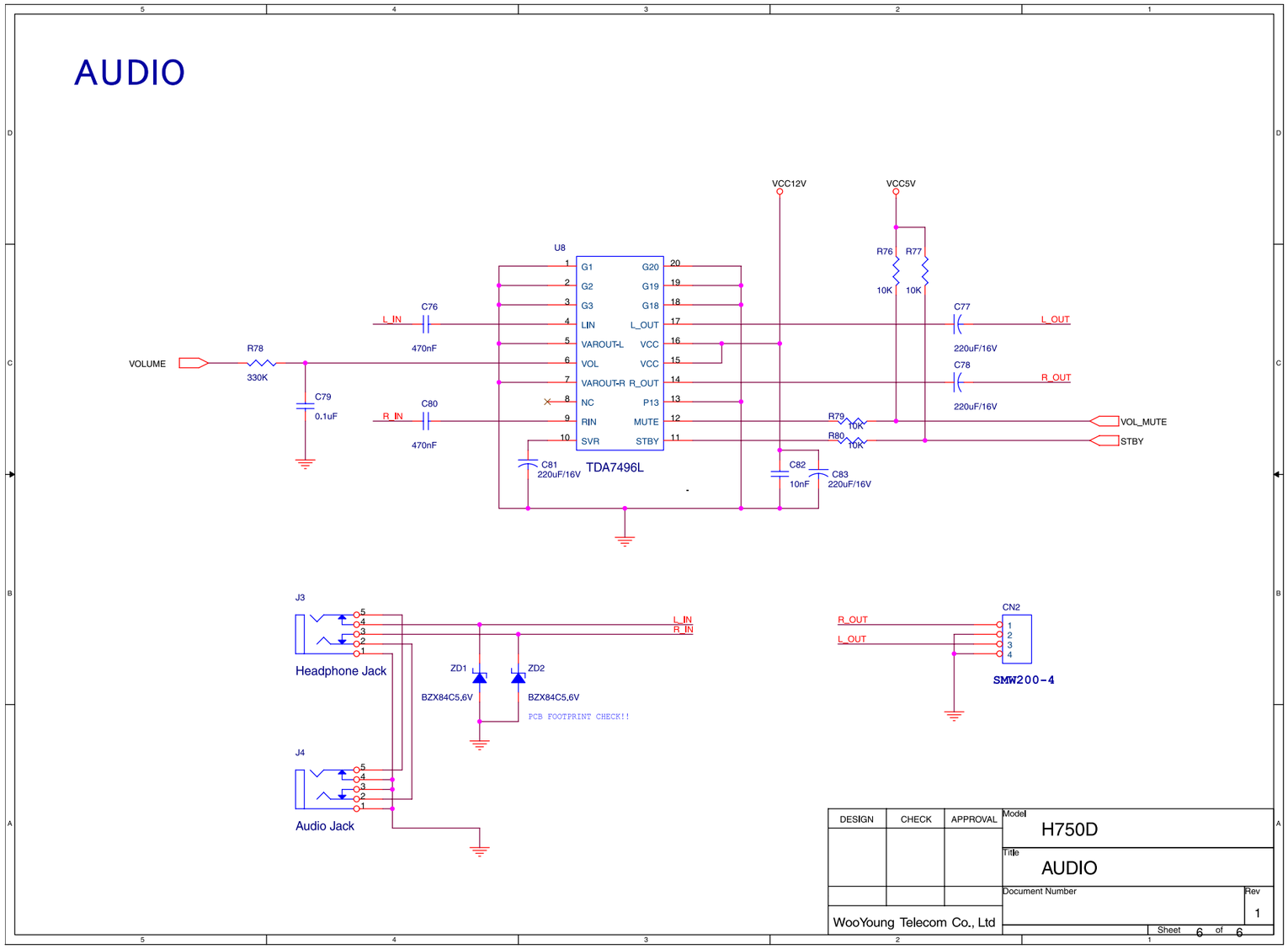

SCALER
SCALER
MST9131
U4
J1
U5
3.3V_DVI
3.3V_AV
3.3V_PL
3.3VD_PL
3.3VD
2.5VD
GND
RIN0
RIN0M
GIN0
GIN0M
BIN0
BIN0M
SOGIN0
HSYNC0
VSYNC0
DDC1_CLK
DDC1_DAT
DDCROM_CLK
DDCROM_DAT
RMID
REFP
REFM
AVSS
PWM0
PWM1
CSZ
SDA
SCL
HWRESET
REXT
XIN
XOUT
NC
B+
B-
G+
G-
R+
R-
CLK+
CLK-
AdjBACKLITE
R72
OPEN
HFS
HDATA
HCLK
3.3V_DVI
R73
390 1%
14.318MHz
22pF
Y2
VCC_2.5VD
VCC3.3V_DVI
VCC3.3V_AV
VCC3.3V_PL
VCC3.3VD_PL
VCC3.3VD
0.1uF
LVB0M
LVB0P
LVB1M
LVB1P
LVB2M
LVB2P
LVBCKM
LVBCKP
LVB3M
LVB3P
LVA0M
LVA0P
LVA1M
LVA1P
LVA2M
LVA2P
LVACKM
LVACKP
LVA3M
LVA3P
RXO0-
RXO0+
RXO1-
RXO1+
RXO2-
RXO2+
RXOCLK-
RXOCLK+
RXO3-
RXO3+
RXE0-
RXE0+
RXE1-
RXE1+
RXE2-
RXE2+
RXECLK-
RXECLK+
RXE3-
RXE3+
12507HS-30(LVDS)
PANEL WAFER
INT
BYPASS
VCLK
VD0
VD1
VD2
VD3
VD4
VD5
VD6
VD7
4.7K
47K
0.001uF
47uF/16V
SI3863DV
onPANEL
VCC5V
※U5 1번 PIN에 흰색 MARK 주기!!
DESIGN
CHECK
APPROVAL
Model
Title
MST9111 & PANEL
Document Number
97E0D0220Y
Rev
1
WooYoung Telecom Co., Ltd
Sheet 4 of 6

Schematic Diagrams

11-1-5. POWER



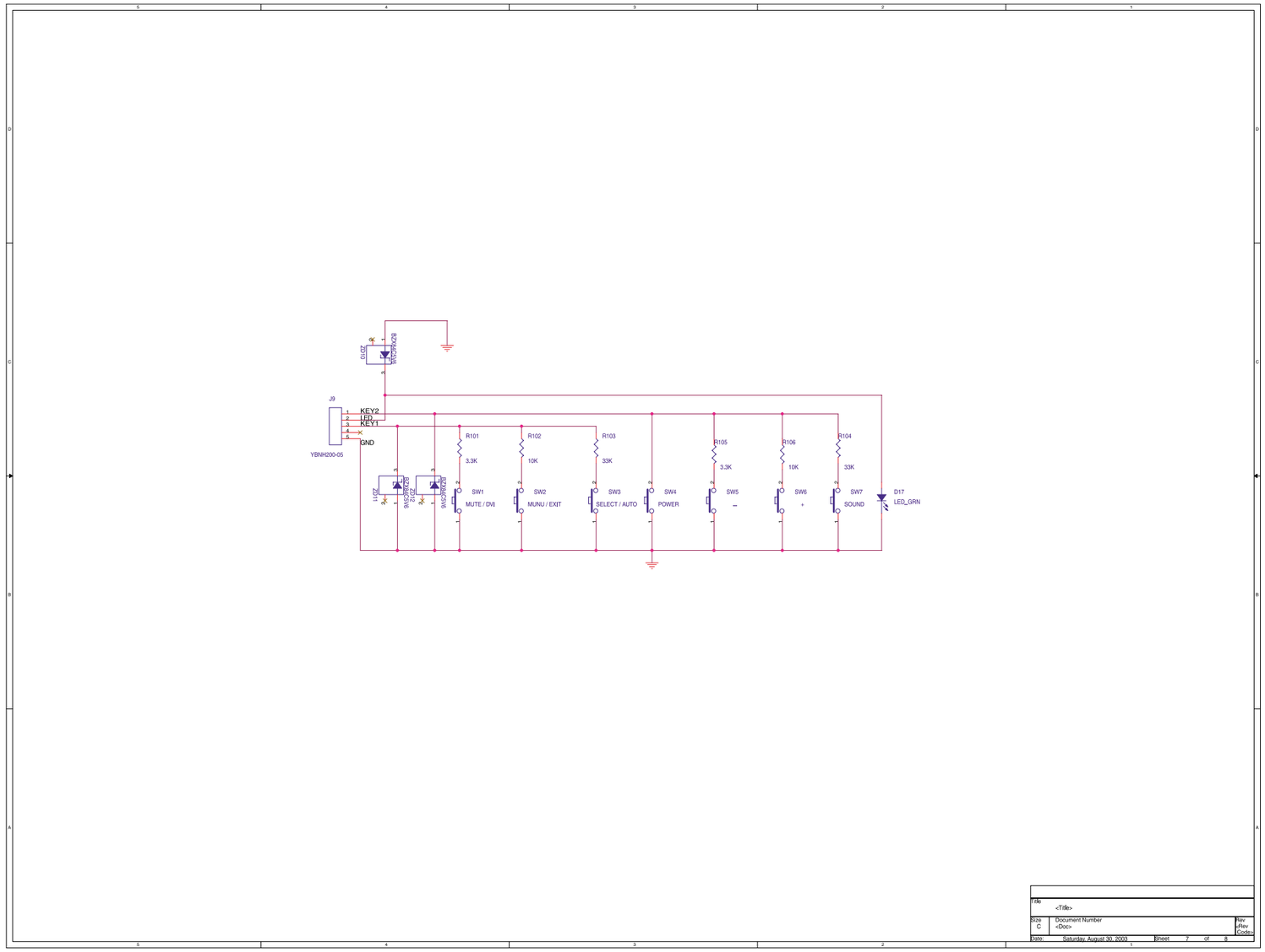
11-1-6. AUDIO


AUDIO
U8
TDA7496L
G1
G2
G3
LIN
VAROUT-L
VOL
VAROUT-R
NC
RIN
SVR
G20
G19
G18
L_OUT
VCC
VCC
R_OUT
P13
MUTE
STBY
VCC12V
VCC5V
R76
R77
10K
10K
C76
470nF
L_IN
C77
220uF/16V
L_OUT
R78
330K
VOLUME
C79
0.1uF
C78
220uF/16V
R_OUT
C80
470nF
R_IN
R79
10K
R80
10K
VOL_MUTE
STBY
C81
220uF/16V
C82
10nF
C83
220uF/16V
J3
Headphone Jack
L_IN
R_IN
ZD1
BZX84C5,6V
ZD2
BZX84C5,6V
PCB FOOTPRINT CHECK!!
J4
Audio Jack
CN2
R_OUT
L_OUT
SMW200-4
DESIGN
CHECK
APPROVAL
Model
H750D
Title
AUDIO
Document Number
Rev
1
WooYoung Telecom Co., Ltd
Sheet 6 of 6

Schematic Diagrams

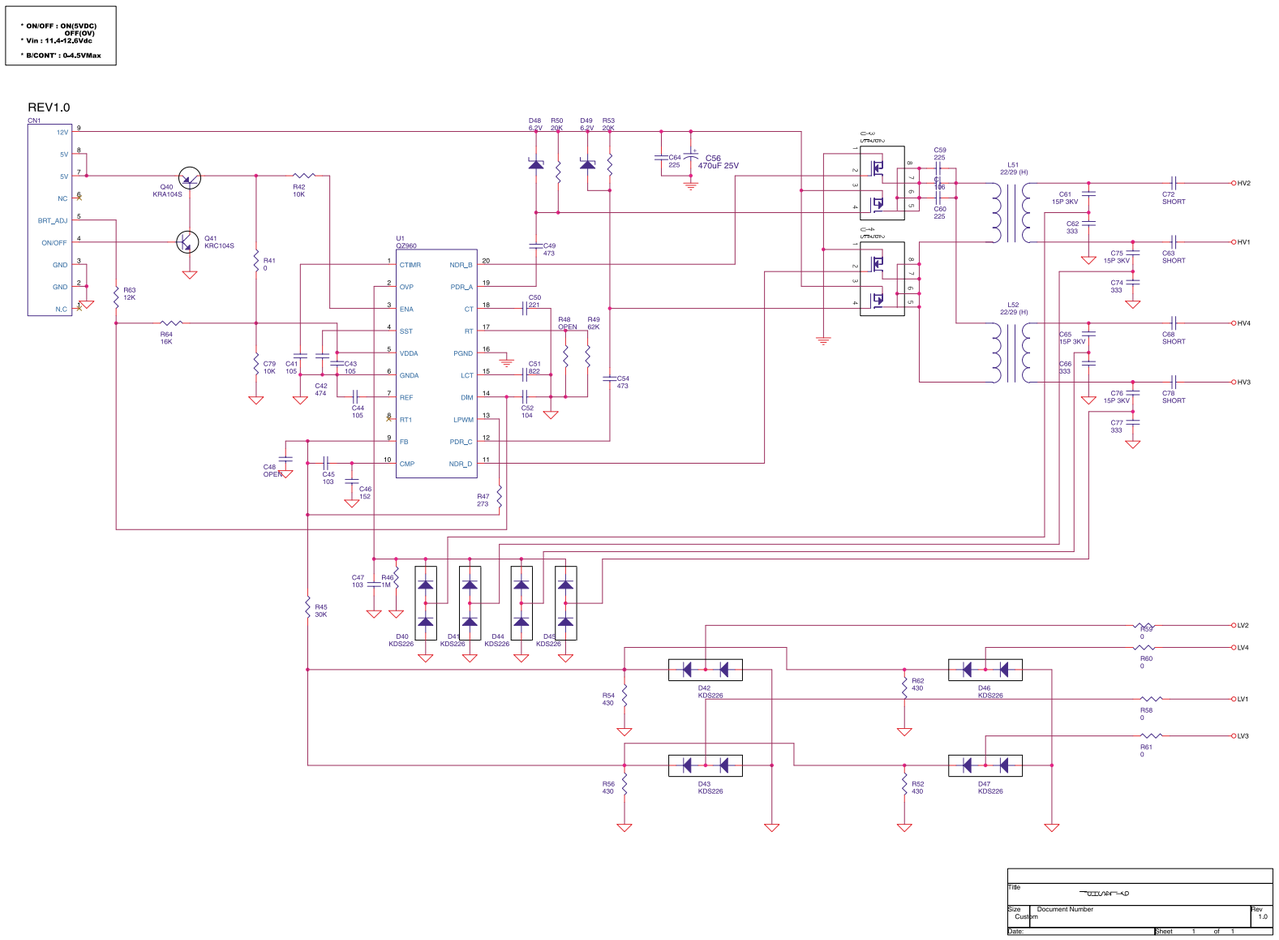
11-2 OSD Control Board

11-2 OSD Control Board

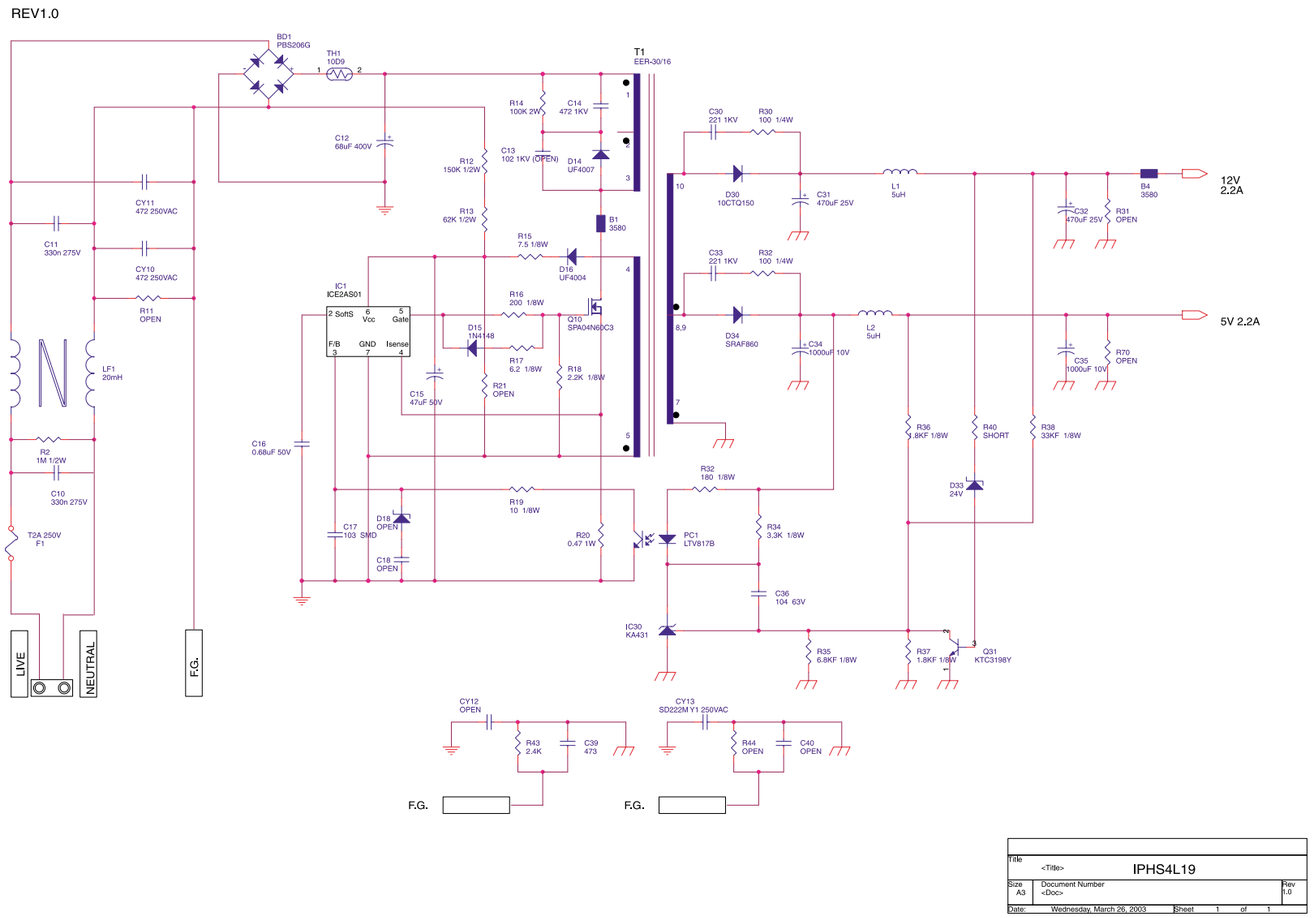


11-3 Combo Board

11-3-1 Combo Inverter



11-3-2 Combo Power



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Size A3	Document Number <Doc>	Rev 1.0
Date: Wednesday, March 26, 2003	Sheet 1 of 1	