

Service
Service



Service Manual

Horizontal Frequency
30-80 kHz

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SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING

Revision List

[illegible]

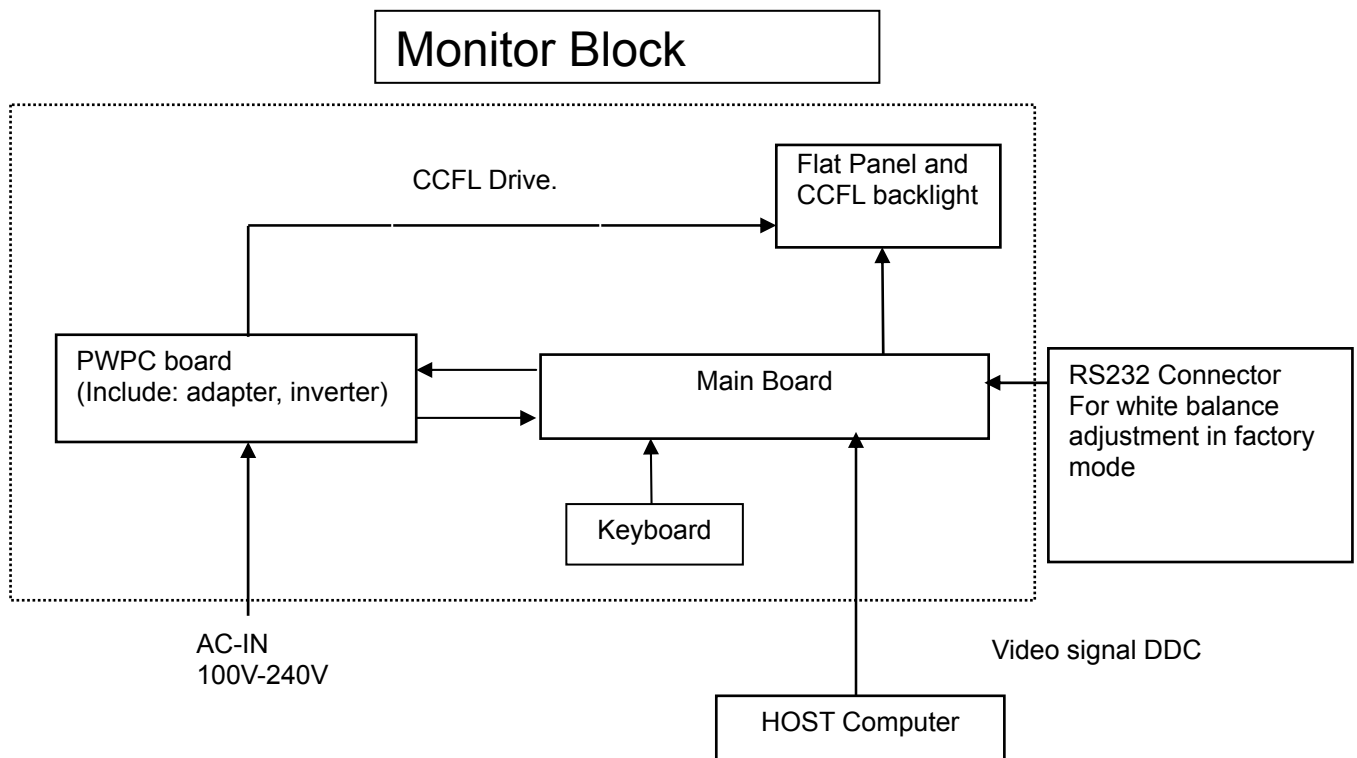
1. Monitor Specifications

LCD Panel	Driving system	TFT Color LCD
	Size	43.2cm(17.0")
	Pixel pitch	0.264mm(H)x 0.264mm(V)
	Video	R,G,B Analog Interface
Input	Separate Sync.	H/V TTL
	H-Frequency	30kHz – 80kHz
	V-Frequency	55Hz-75Hz
Display Colors		16.2M Colors
Dot Clock		135MHz(typ)
Max. Resolution		1280 x 1024@75Hz
Plug & Play		VESA DDC2B™
Power Consumption	ON Mode	≤47W
	OFF Mode	≤2W
Input Connector		D-Sub 15pin
Input Video Signal		Analog:0.7Vp-p(standard),
		75 OHM, Positive
Maximum Screen Size		Horizontal : 337.92mm
		Vertical : 270.34mm
Power Source		100~240VAC,47~63Hz
Environmental		Operating Temp: 5° to 35°C
Considerations		Storage Temp.: -20° to 60°C
		Operating Humidity: 10% to 85%
Weight (N. W.)		4.1kg
Dimensions		375.4 (W) x 381.6 (H) x 160 (D)mm
Regulatory Compliance		cULus,CE,FCC

2. LCD Monitor Description

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

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



3. Operating Instructions

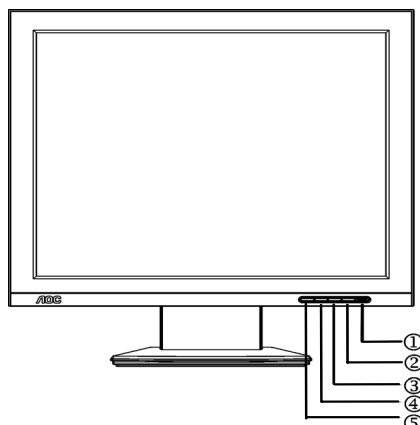
3.1 General Instructions

Press the power button to turn the monitor on or off. The other control buttons are located at front panel of the monitor.

By changing these settings, the picture can be adjusted to your personal preferences.

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

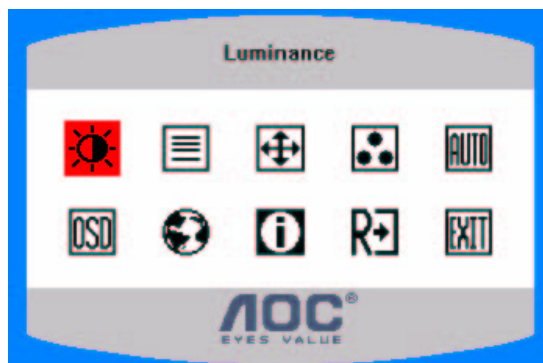
3.2 Control Buttons



1	Power Button/ Power Indicator
2.	MENU / ENTER
3.	Contrast
4.	Brightness
5.	Auto Config / Exit

3.3 Adjusting the Picture

1. Press the MENU-button to activate the OSD window.
2. Press < or > to navigate through the functions. Once the desired function is highlighted, press the MENU-button to activate it. If the function selected has a sub-menu, press < or > again to navigate through the sub-menu functions. Once the desired function is highlighted, press MENU-button to activate it.
3. Press < or > to change the settings of the selected function.
4. To exit and save, select the exit function. If you want to adjust any other function, repeat steps 2-3.



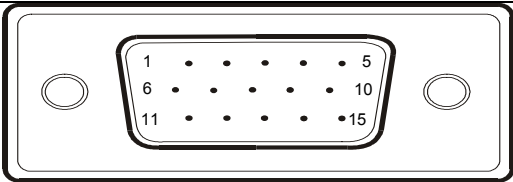
Main Menu Item	Main Menu Icon	Sub Menu Item	Sub Menu Icon	Description
Luminance		Contrast		Contrast from Digital-register.
		Brightness		Backlight Adjustment
Image Setup		Focus		Adjust Picture Phase to reduce Horizontal-Line noise
		Clock		Adjust picture Clock to reduce Vertical-Line noise.
Image Position		H. Position		Adjust the horizontal position of the picture.
		V. Position		Adjust the vertical position of the picture.
Color Temp.		Warm	N/A	Recall Warm from EEPROM.
		Cool	N/A	Recall Cool from EEPROM.
		sRGB	N/A	Recall sRGB from EEPROM.
		User / Red	R	Red Gain from Digital-register.
		User / Green	G	Green Gain Digital-register.
		User / Blue	B	Blue Gain from Digital-register.
Auto Config		Yes	N/A	Auto Adjust the H/V Position, Focus and Clock of picture.
		No	N/A	Do not execute Auto Config, return to main menu.
OSD Setup		H. Position		Adjust the horizontal position of the OSD.
		V. Position		Adjust the vertical position of the OSD.
		OSD Timeout		Adjust the OSD timeout.
Language		Language	N/A	Set OSD language
Information		Information	N/A	Show the resolution, H/V frequency and input port of current input timing.
Reset		Yes	N/A	Clear each old status of Auto-configuration
		No	N/A	Do not execute reset, return to main menu.
Exit		N/A	N/A	Exit OSD

4. Input/Output Specification

4.1 Input Signal Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1.	Red	9.	+5V
2.	Green	10.	Detect Cable
3.	Blue	11.	RXD
4.	TXD	12.	DDC-Serial Data
5.	Ground	13.	H-Sync
6.	R-Ground	14.	V-Sync
7.	G-Ground	15.	DDC-Serial Clock
8.	B-Ground		

VGA connector layout



4.2 Factory Preset Display Modes

STANDARD	RESOLUTION	HORIZONTAL FREQUENCY (kHz)	VERTICAL FREQUENCY (Hz)
Dos-mode	640 × 350	31.47kHz	70Hz
Dos-mode	720 × 400	31.47kHz	70Hz
VGA	640 × 480	31.47kHz	60Hz
	640 × 480	35.00kHz	66.6Hz
	640 × 480	37.50kHz	75Hz
	640 × 480	37.86kHz	72Hz
SVGA	800 × 600	37.879kHz	60Hz
	800 × 600	46.875kHz	75Hz
	800 × 600	35.16kHz	56Hz
	800 × 600	48.01kHz	72Hz
	832 × 624	49.725kHz	75Hz
XGA	1024 × 768	48.363kHz	60Hz
	1024 × 768	56.476kHz	70Hz
	1024 × 768	60.02kHz	75Hz
SXGA	1280 × 1024	64.00kHz	60Hz
	1280 × 1024	80.00kHz	75Hz

5 Panel Specification

5.1 Display Characteristics

Items	Specification	Unit
Pixel Pitch	0.264(H) x 0.264(W)	mm
Active Display Area	337.92(H) x 270.336(V)	mm
Surface Treatment	Haze 25%, Hard-coating (3H)	
Display Colors	16.7M	colors
Number of Pixels	1280 x 1024	pixel
Pixel Arrangement	RGB vertical stripe	
Display Mode	Normally White	
Power Consumption	20.4 Watt (Typ.)	
Luminance of White	300(Typ.)	cd/• •

5.2 Optical Characteristics

Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Contrast Ratio (Center of screen)		C/R	Normal • $L_R=0$ • $t_D=0$ Viewing Angle	600	1,000	-	msec
Response Time	Rising	Tr		-	1.3	4	
	Falling	Tf		-	3.7	6	
Luminance of White (Center of screen)		Y_L		250	300	-	cd/m2
Color Chromaticity (CIE 1931)	Red	Rx		0.620	0.650	0.680	
		Ry		0.300	0.330	0.360	
	Green	Gx		0.270	0.300	0.330	
		Gy		0.570	0.600	0.630	
	Blue	Bx		0.120	0.150	0.180	
		By		0.050	0.080	0.110	
	White	Wx		0.283	0.313	0.343	
		Wy		0.299	0.329	0.359	
Color Chromaticity (CIE 1976)	Red	Ru'		-	0.459	-	
		Rv'		-	0.525	-	
	Green	Gu'		-	0.125	-	
		Gv'		-	0.563	-	
	Blue	Bu'		-	0.164	-	
		Bv'		-	0.197	-	
	White	Wu'		-	0.198	-	
		Wv'		-	0.468	-	
C.G.L*	White	• $x'y'$	-	0.018	0.02		
Color Gamut		-		-	72	-	%
Color Temperature		-		-	6,500	-	K
Viewing Angle	Hor.	• θ	CR• 40(5)	70(80)	80(89)	-	Degrees
		• θ		70(80)	80(89)	-	
	Ver.	• θ		70(80)	80(89)	-	
		• θ		70(80)	80(89)	-	
Brightness Uniformity (9 Points)		B_{uni}		-	-	25	%

5.3 Parameter guide line for CCFL Inverter

1.TFT LCD Module:

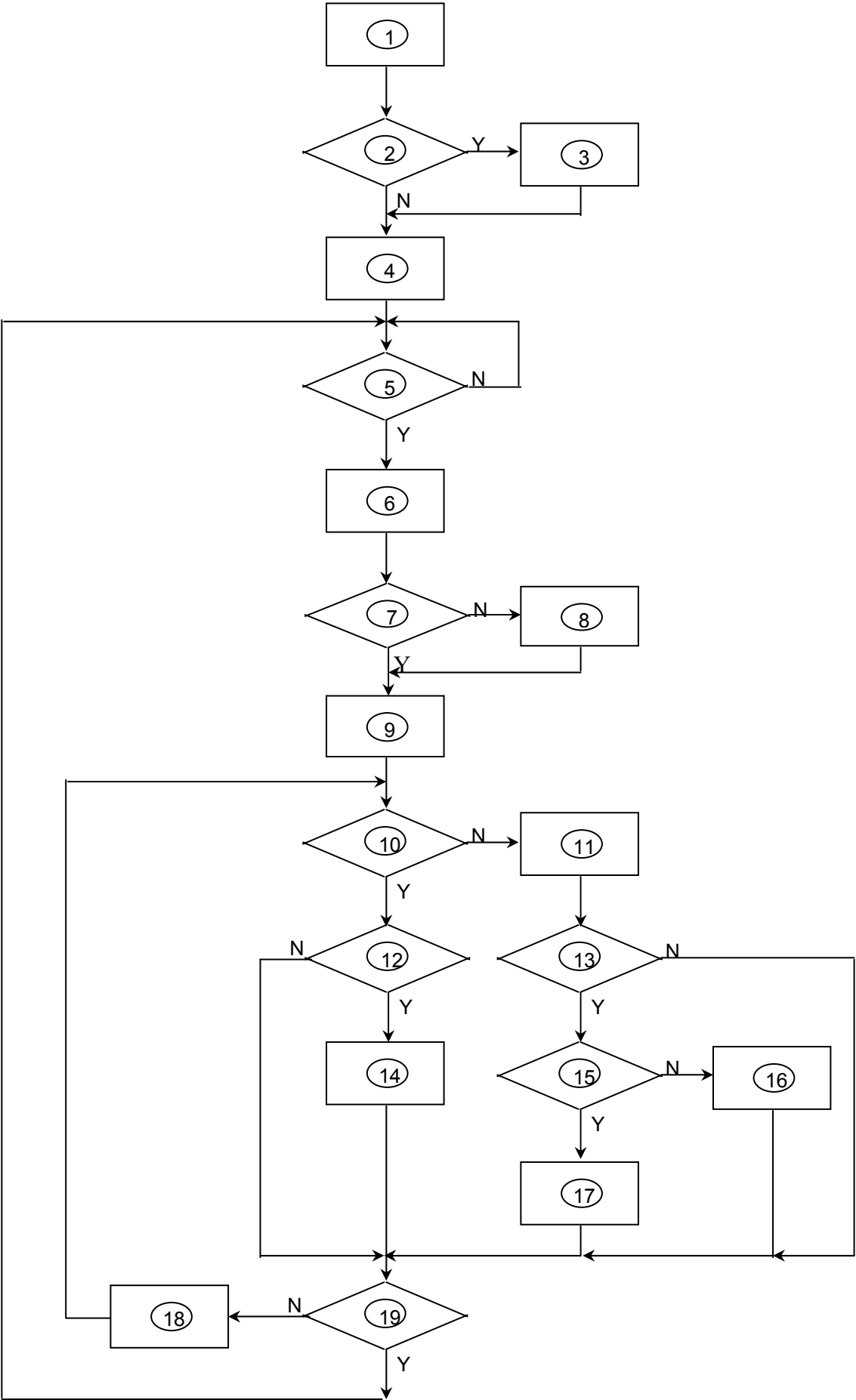
Item		Symbol	Min.	Typ.	Max.	Unit
Voltage of Power Supply		V_{DD}	4.5	5.0	5.5	V
LVDS Input Characteristics	Differential Input Voltage for LVDS Receiver Threshold	High	-	-	+100	mV
		Low	-100	-	-	mV
	LVDS skew	t_{SKEW}	-380		380	ps
	Differential input voltage	$ V_{ID} $	200		600	mV
	Input voltage range (single-ended)	V_{IN}	0		2.4	V
	Common mode voltage	V_{CM}	0+ $ V_{ID} /2$	1.2	2.4- $ V_{ID} /2$	V
	Input current	I_{IN}			• 40	• •
Current of Power Supply	(a) Black	I_{DD}	-	600	-	mA
	(b) White		-	500	-	mA
	(c) Dot		-	700	850	mA
Vsync Frequency		f_V	49	60	76	Hz
Hsync Frequency		f_H	56.7	64	72.802	kHz
Main Frequency		f_{DCLK}	40	54	69.28	MHz
Rush Current		I_{RUSH}	-	-	3.0	A

2.Back Light Unit:

Item		Symbol	Min.	Typ.	Max.	Unit
Lamp Current		I_L	3.0	6.5	7.0	mArms
Lamp Voltage		V_L	-	650	-	Vrms
Lamp Frequency		f_L	40	-	60	kHz
Operating Life Time		Hr	50,000	-	-	Hour
Inverter waveform	Asymmetry rate	Wasy	-	-	10	%
	Distortion rate	Wdis	1.2726	1.414	1.5554	
Startup Voltage		V_s	-	-	0• ± 1,650	Vrms
					25• ± 1,450	

6. Block Diagram

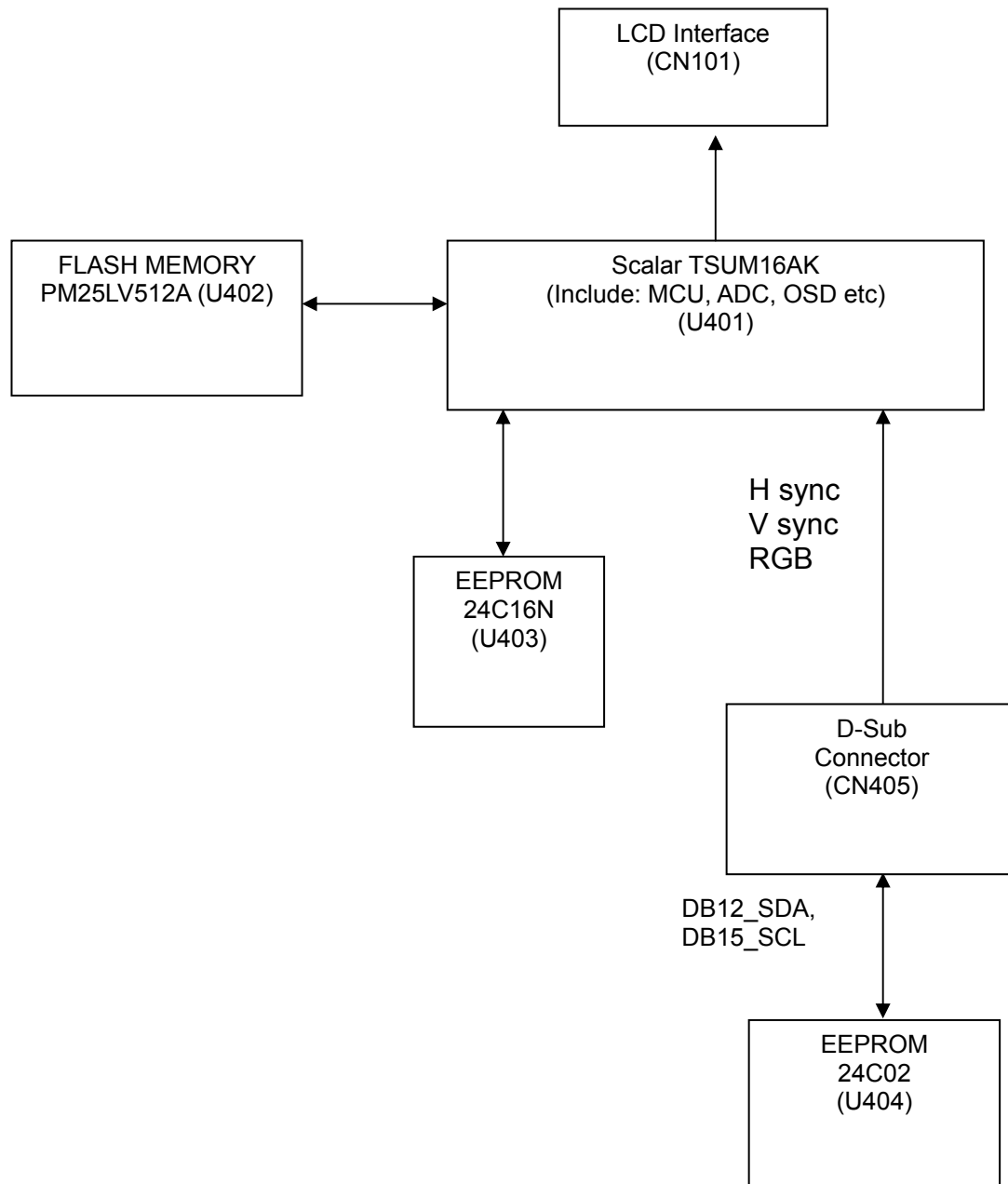
6.1 Software Flow Chat

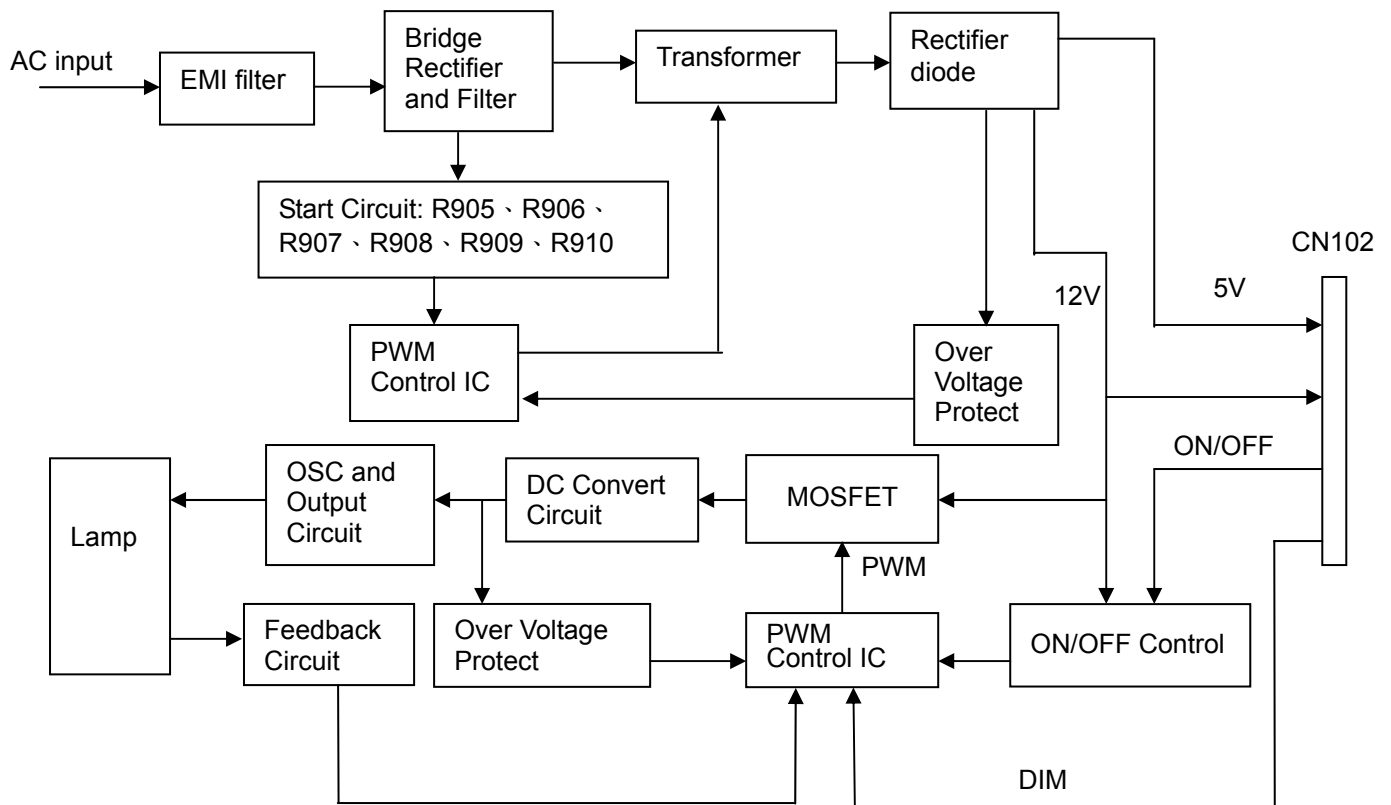


- 1) MCU initialize.
- 2) Is the EPROM blank?
- 3) Program the EPROM by default values.
- 4) Get the PWM value of brightness from EPROM.
- 5) Is the power key pressed?
- 6) Clear all global flags.
- 7) Are the AUTO and SELECT keys pressed?
- 8) Enter factory mode.
- 9) Save the power key status into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

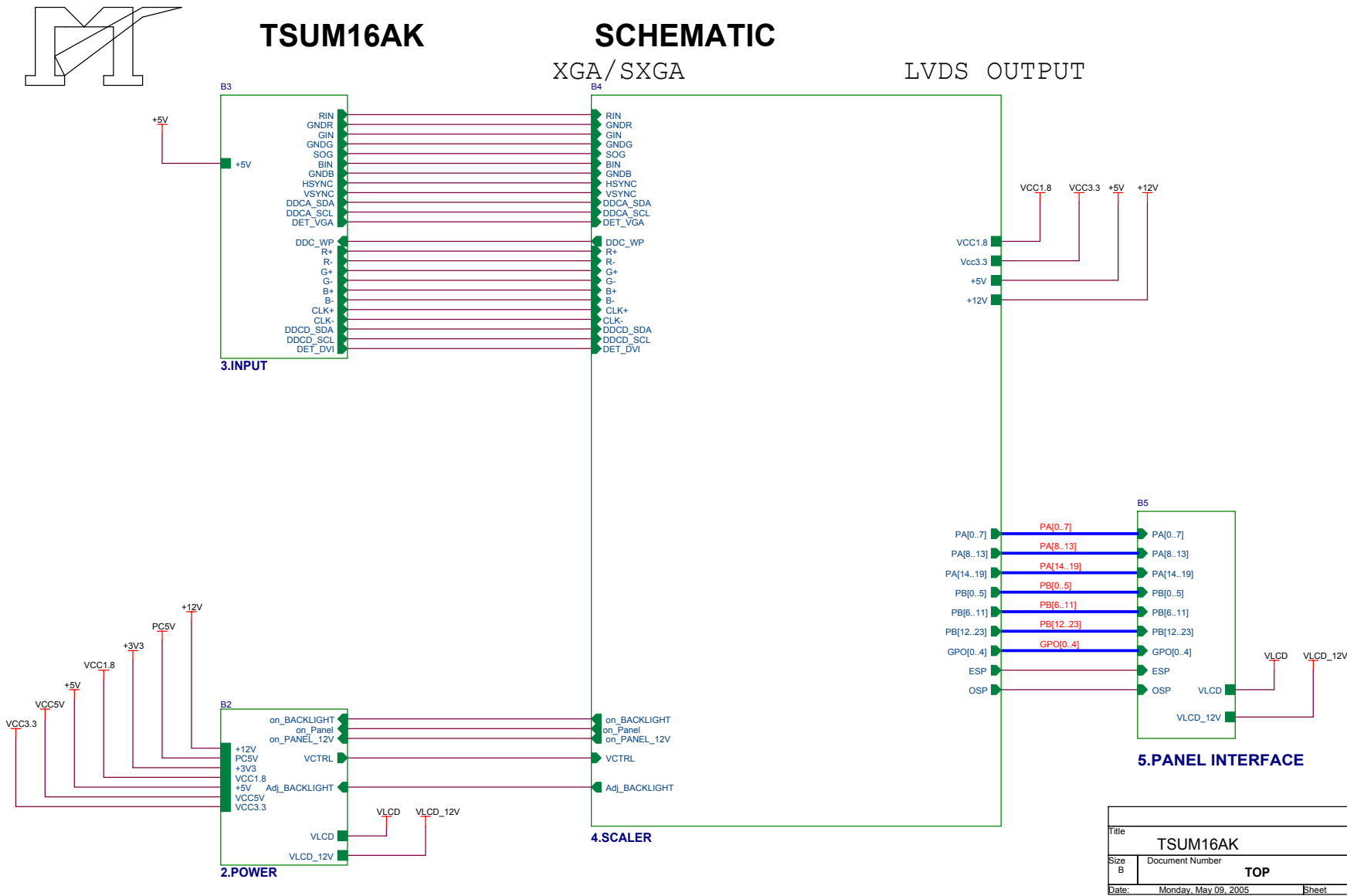
6.2 Electric Block Diagram

6.2.1 Main Board

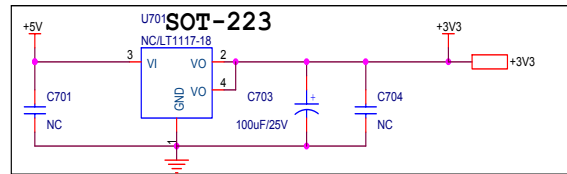


6.2.2 Inverter / Power Board

7. Schematic
7.1 Main Board

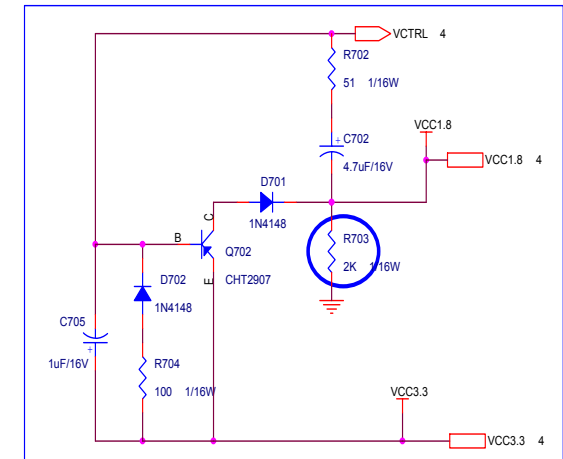
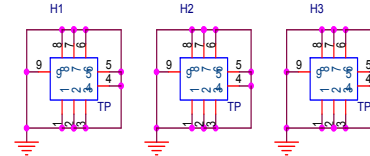


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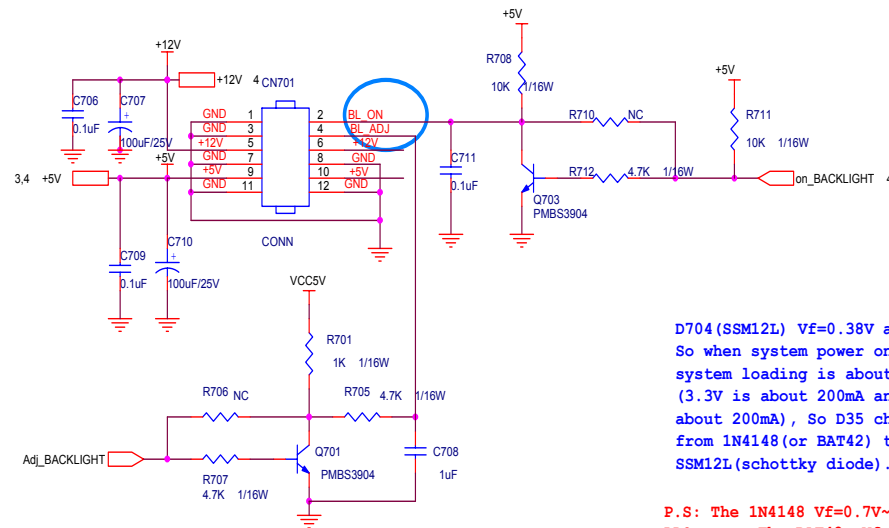


BL ADJ(DC)	R31	C51	R32	R29	R33	Q4
0V ~ 3.3V	4.7K	10F	0	X	X	X
0V ~ 5V	4.7K	10F	X	1K	4.7K	100F390.0

BL ADJ	R31	C32
PWR	4.7	N.C
DC	4.7K	10F

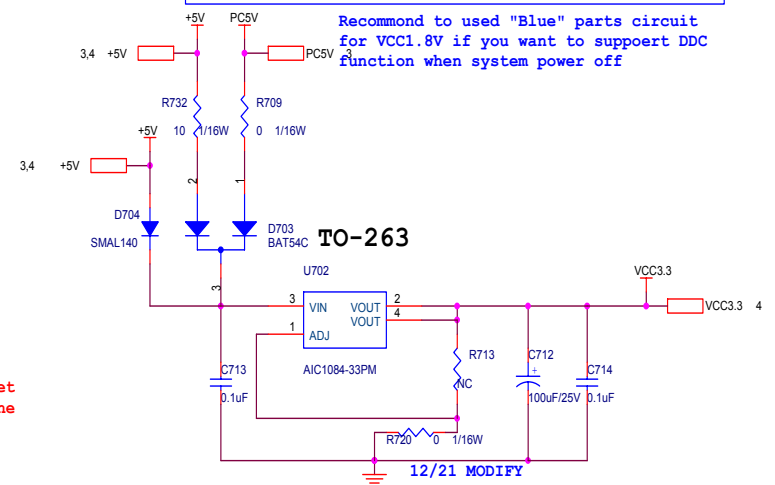


Recommend to used "Blue" parts circuit for VCC1.8V if you want to support DDC function when system power off

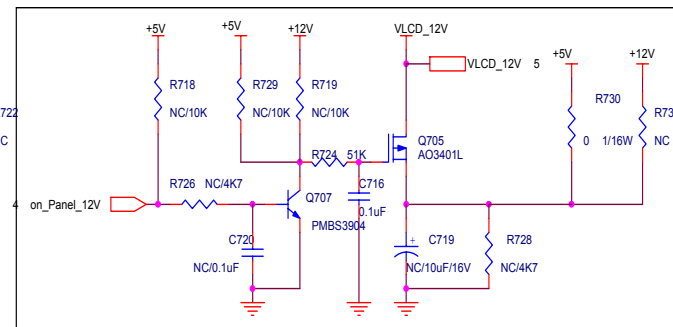
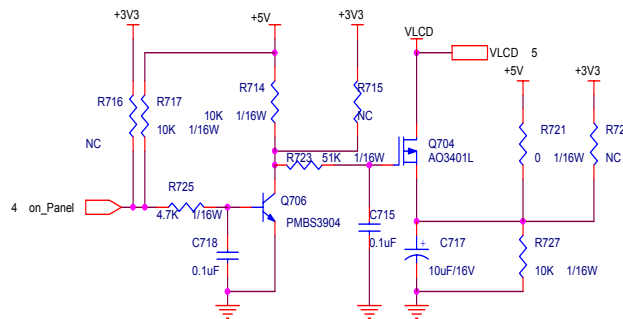


D704(SSM12L) Vf=0.38V and If=1A. So when system power on, the system loading is about 400mA (3.3V is about 200mA and 1.8V is about 200mA), So D35 changed from 1N4148(or BAT42) to SSM12L(schottky diode).

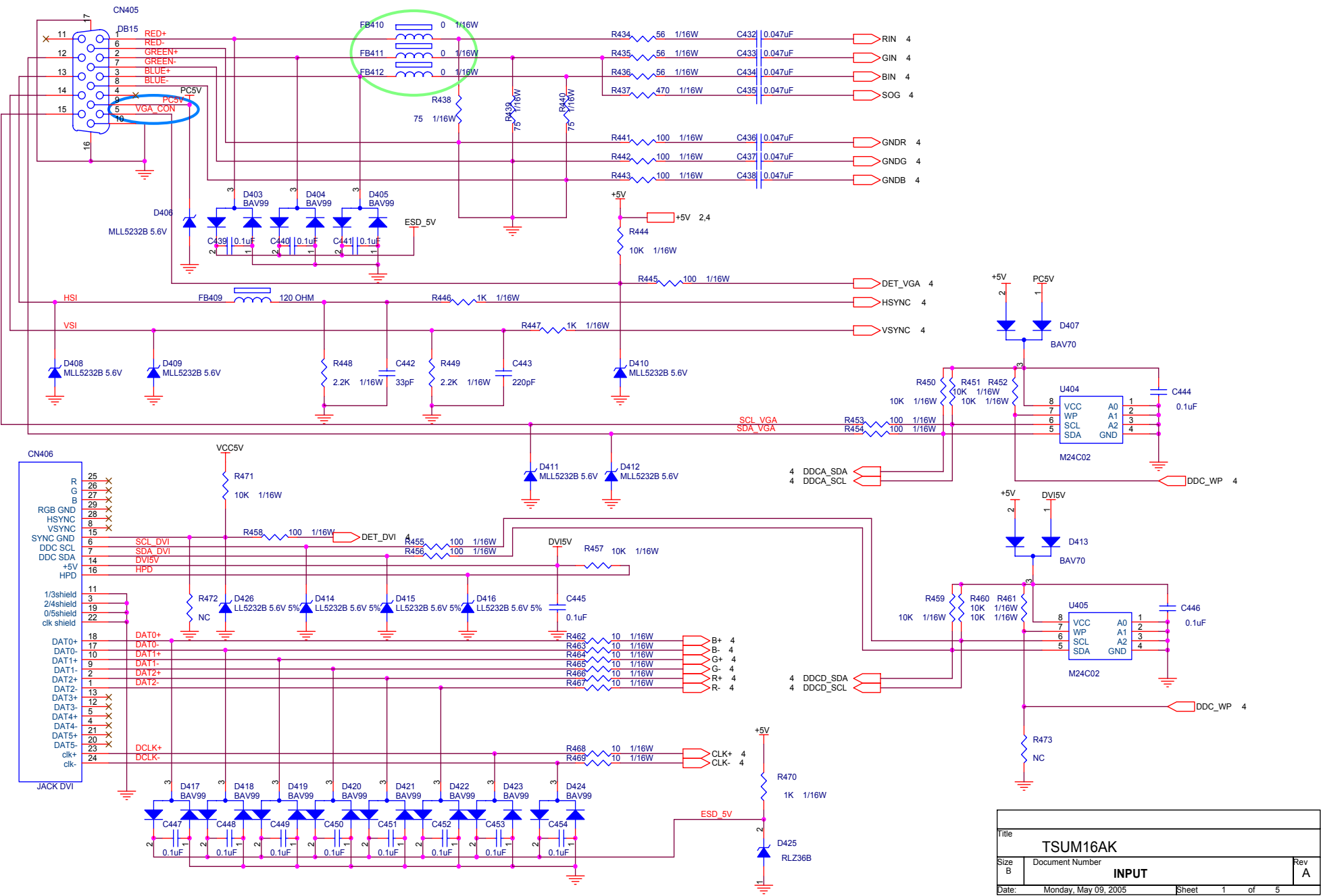
P.S: The 1N4148 Vf=0.7V~1V can't meet LDO spec. The BAT42, Vf is OK but the If=200mA(forward current) can not meet current spec.



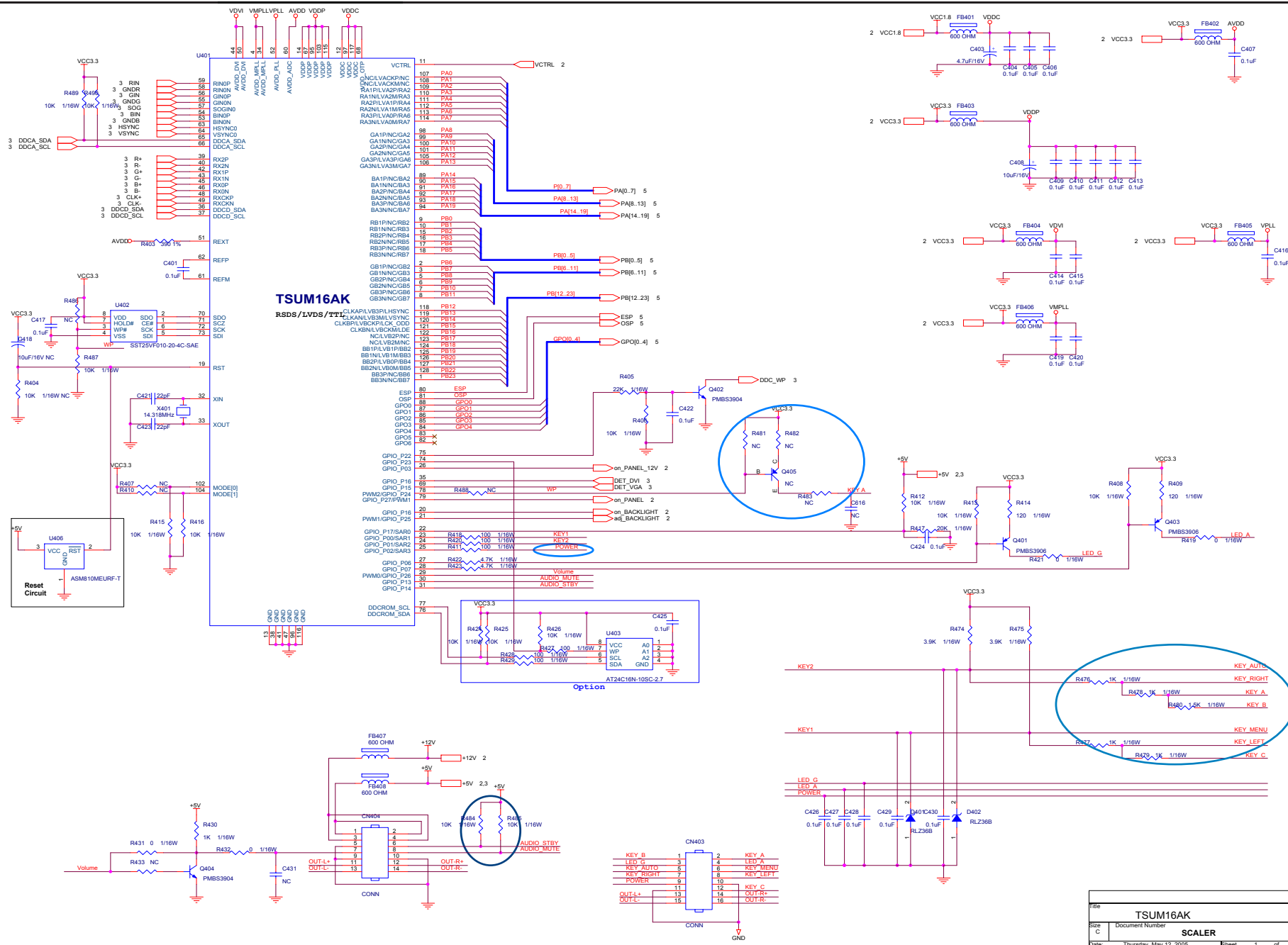
For RS232 and Panel VCC=12V

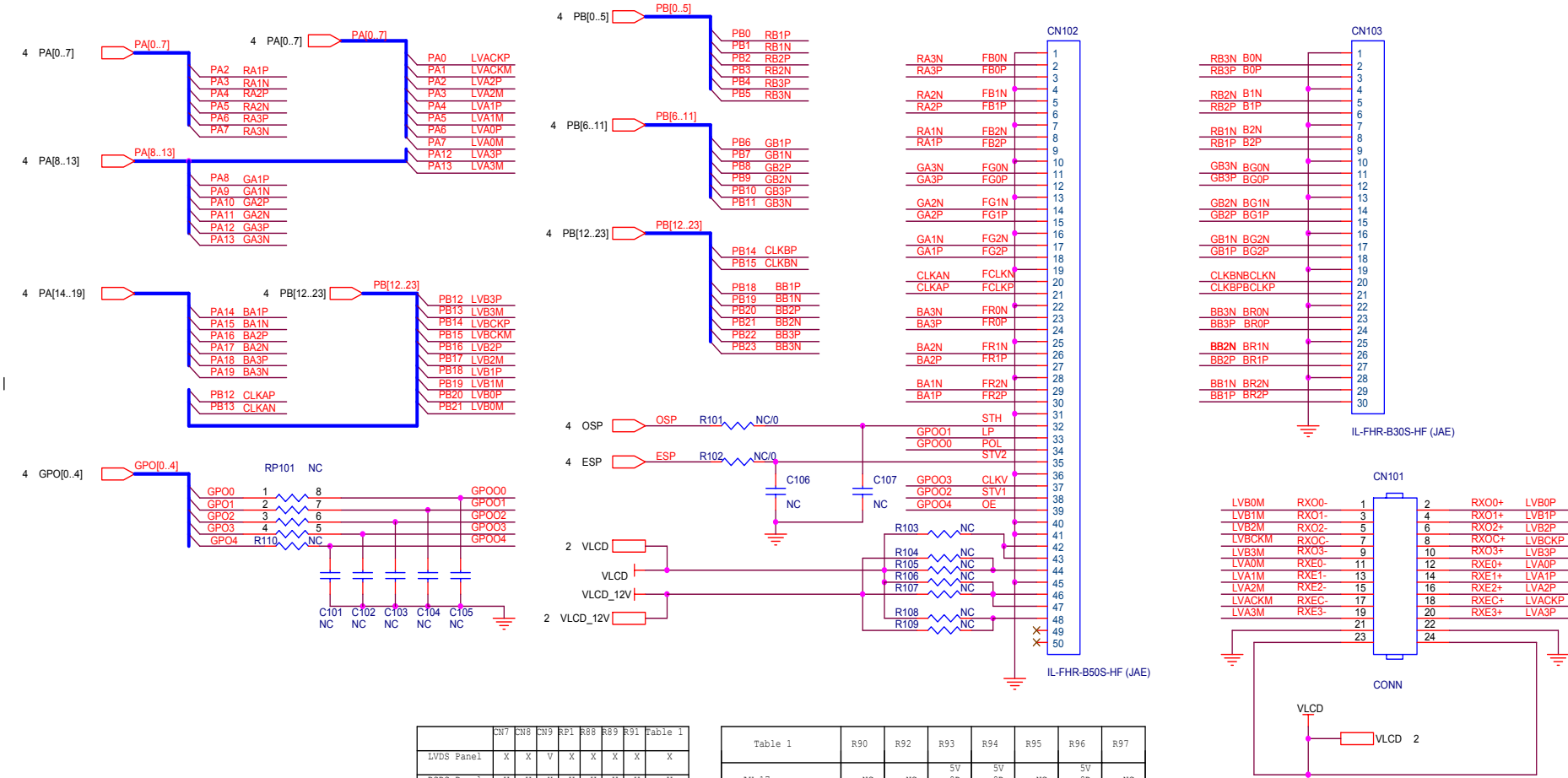


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Rev			A		

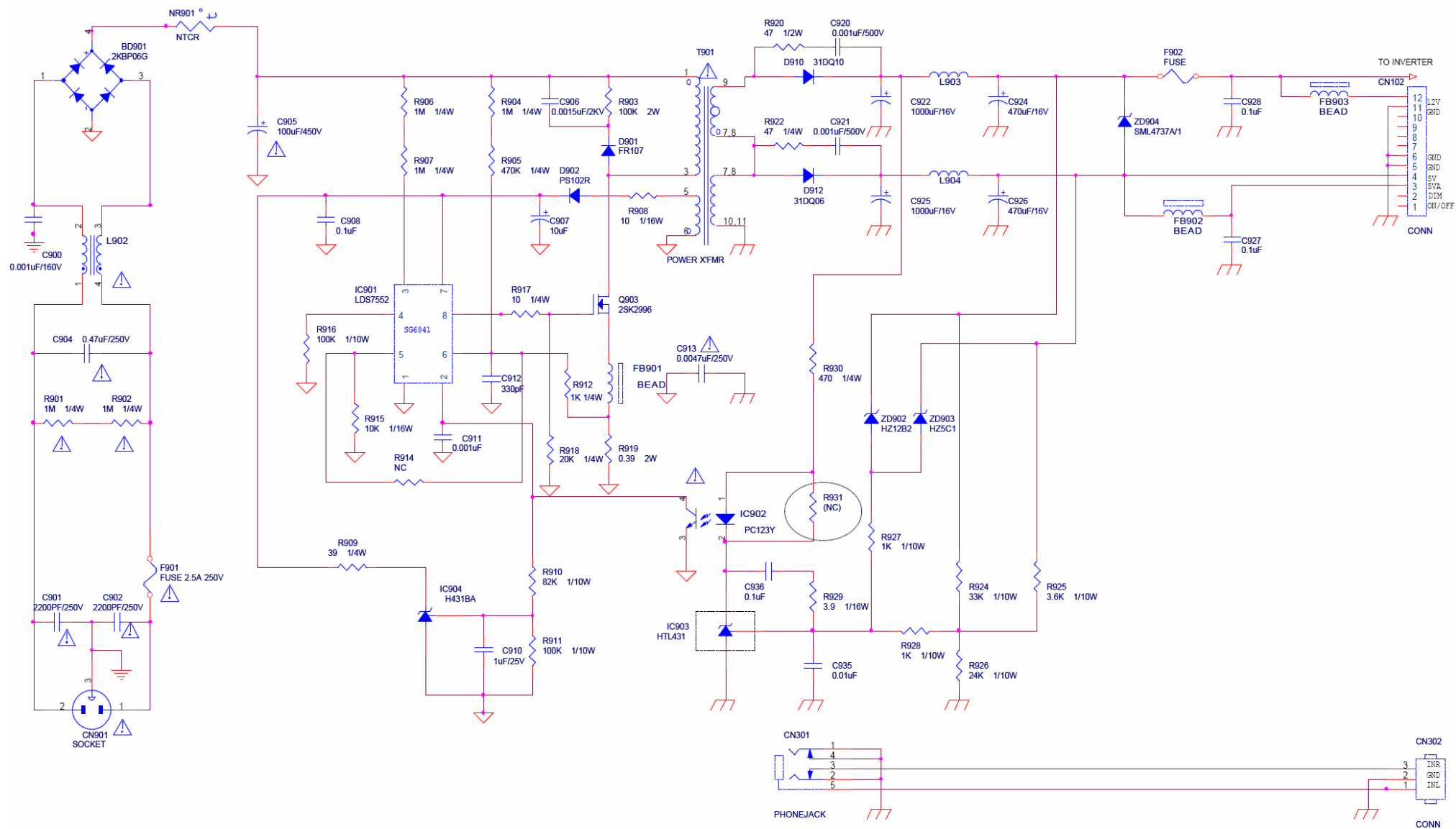




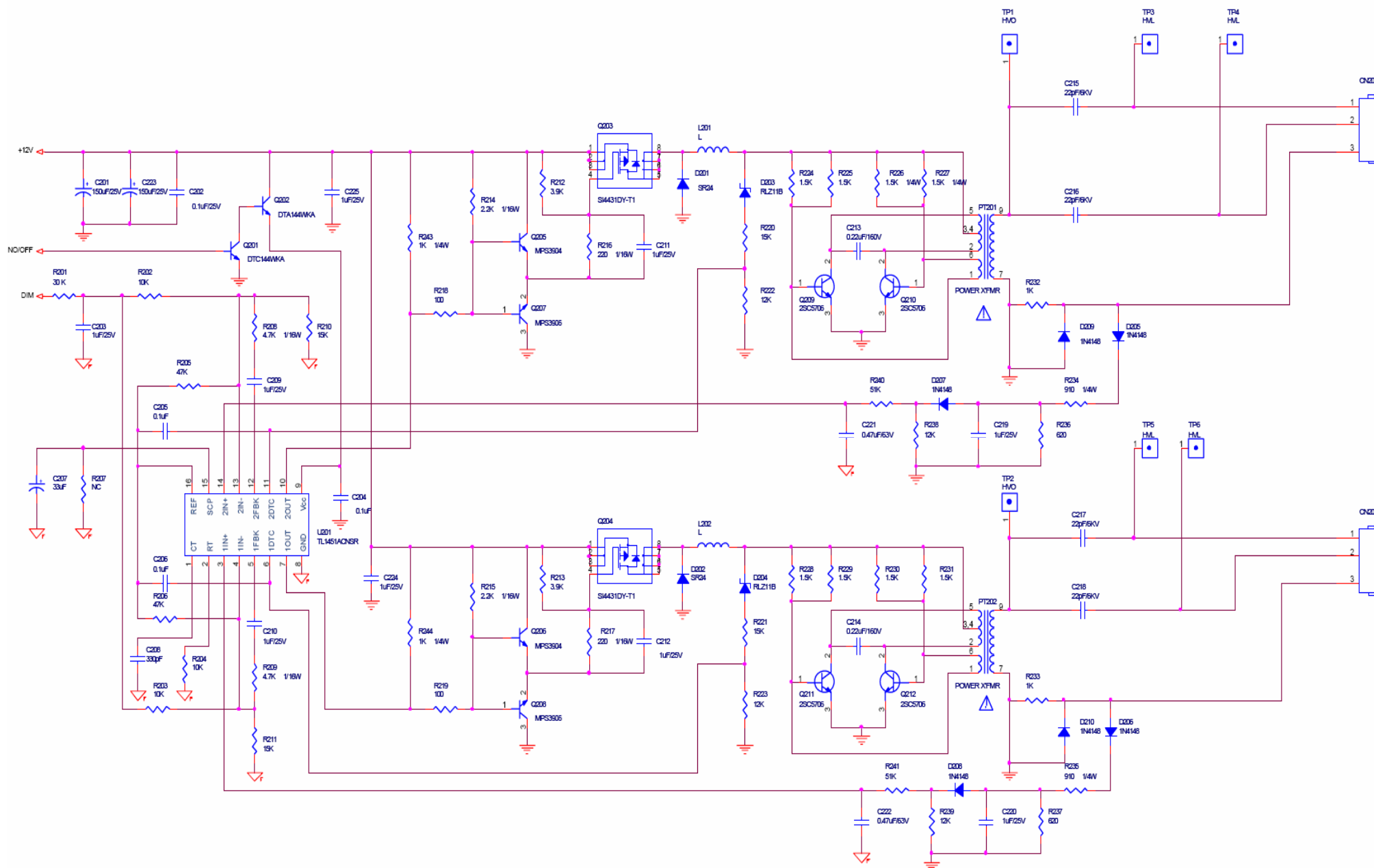
	CN7	CN8	CN9	RP1	R88	R89	R91	Table 1
LVDS Panel	X	X	V	X	X	X	X	X
RSDS Panel	V	V	X	V	V	V	V	V

Table 1	R90	R92	R93	R94	R95	R96	R97
AU 17	NC	NC	5V 0R	5V 0R	NC	5V 0R	NC
QDI 17	3.3V 0R	12V 0R	NC	NC	12V 0R	NC	12V 0R
CPT 17	3.3V 0R	NC	3.3V 0R	NC	NC	NC	NC
INNOLUX 15	0R	NC	0R	NC	NC	NC	NC
HannStar 15	3.3V 0R	NC	3.3V 0R	12V 0R	NC	NC	NC
CPT 15	0R	NC	0R	NC	NC	NC	NC
LG 15	3.3V 0R	NC	3.3V 0R	NC	NC	NC	NC
Innolux 17"	NC	NC	3.3V 0R	3.3V 0R	NC	3.3V 0R	NC

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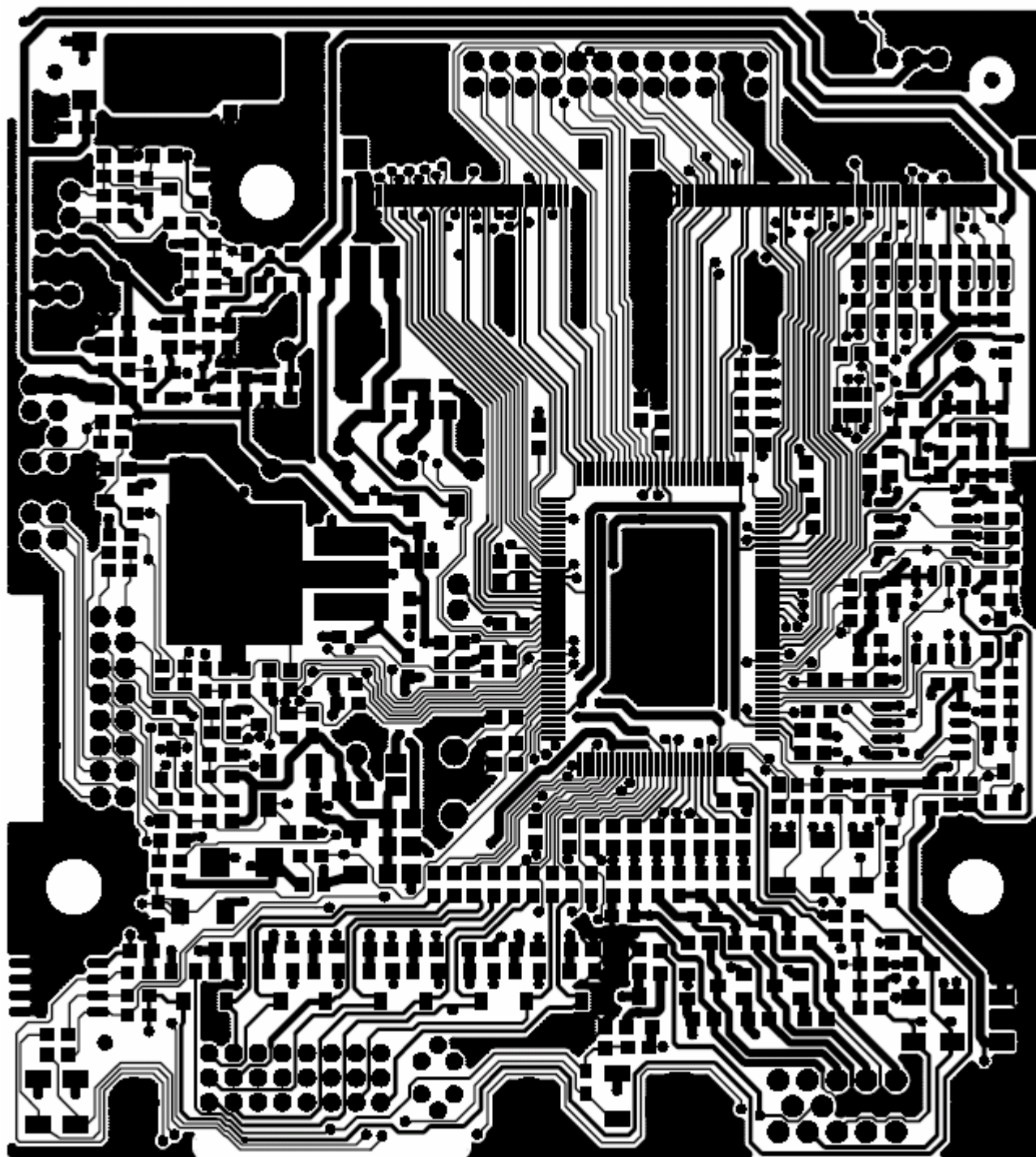


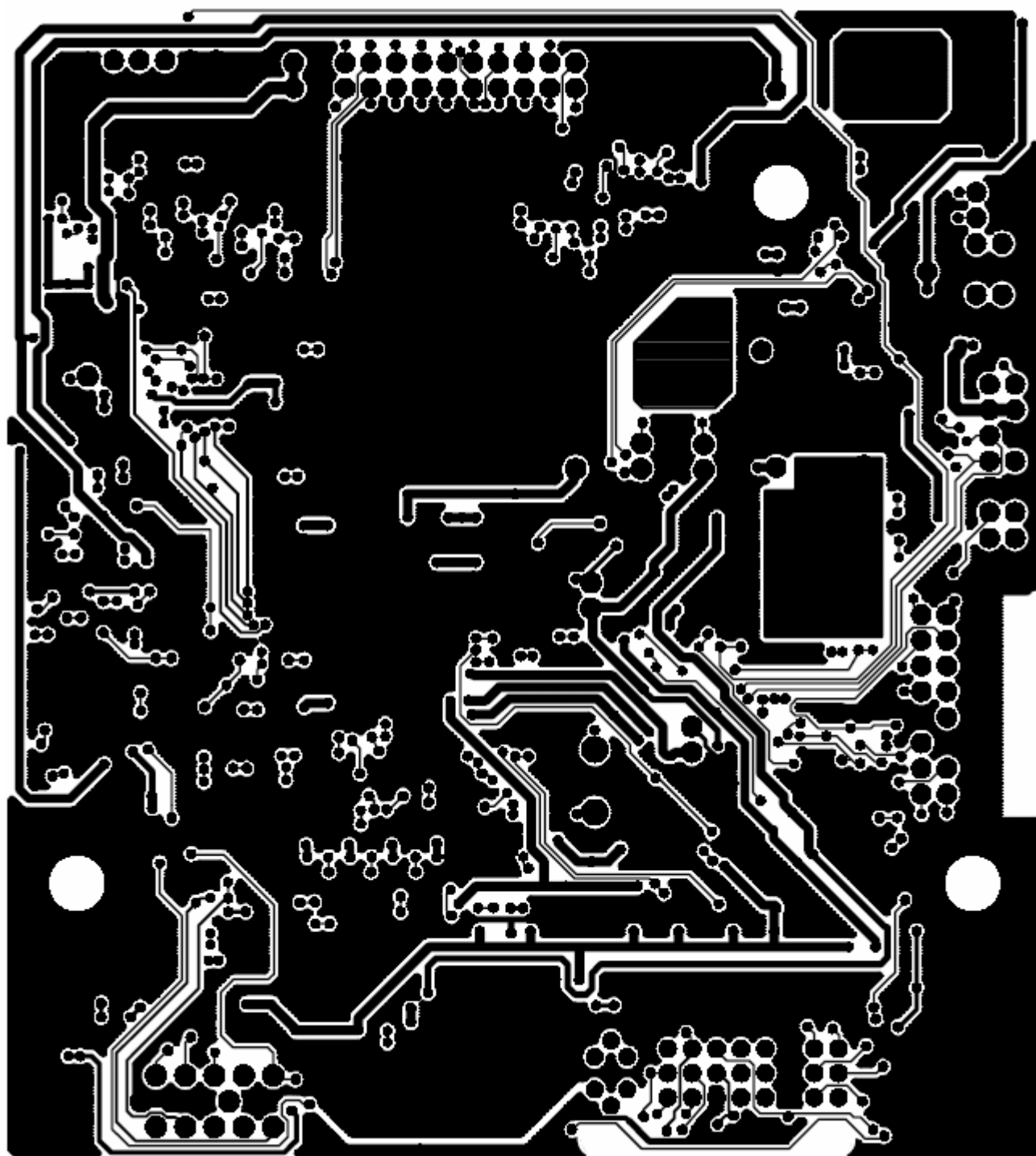
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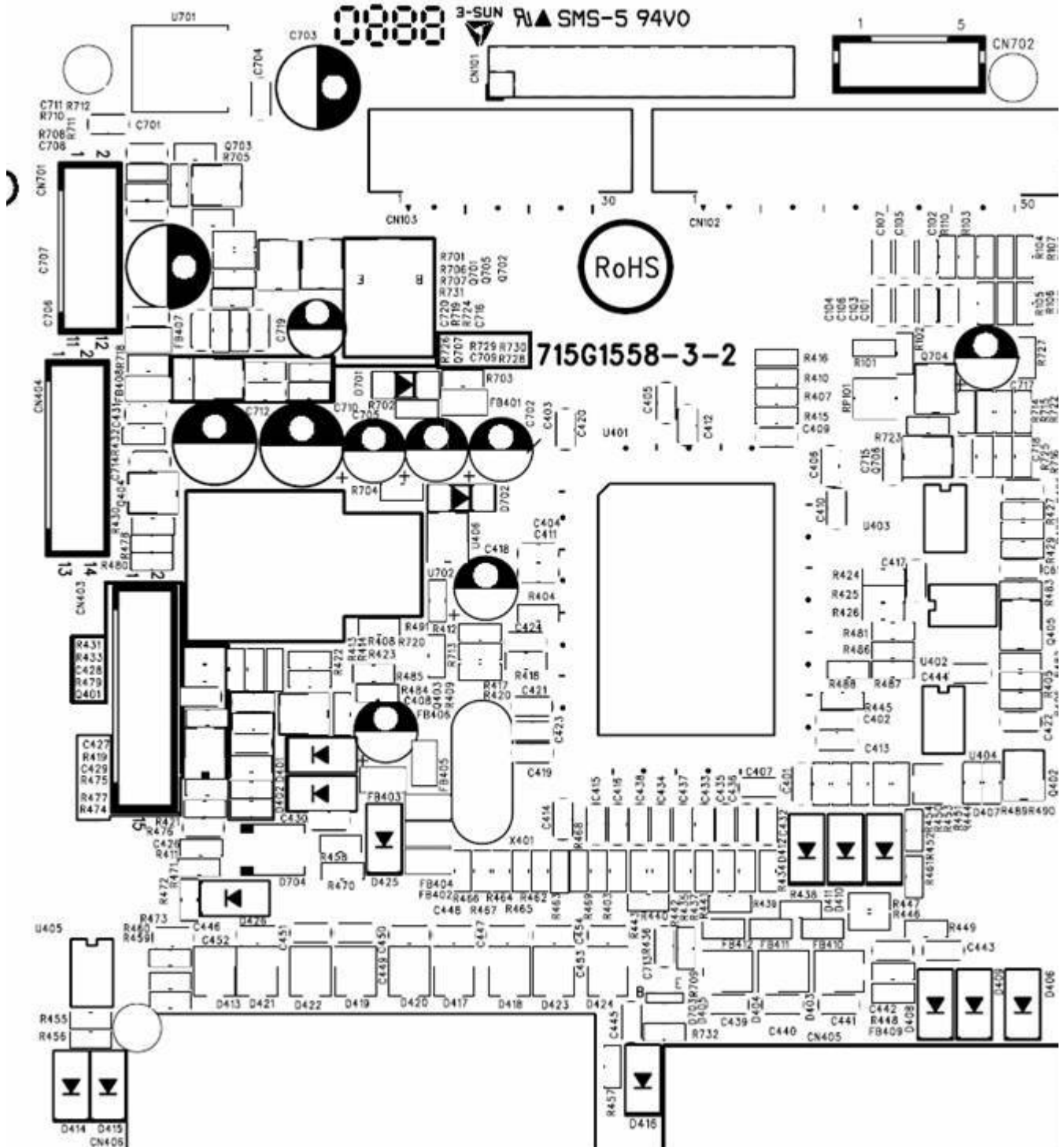


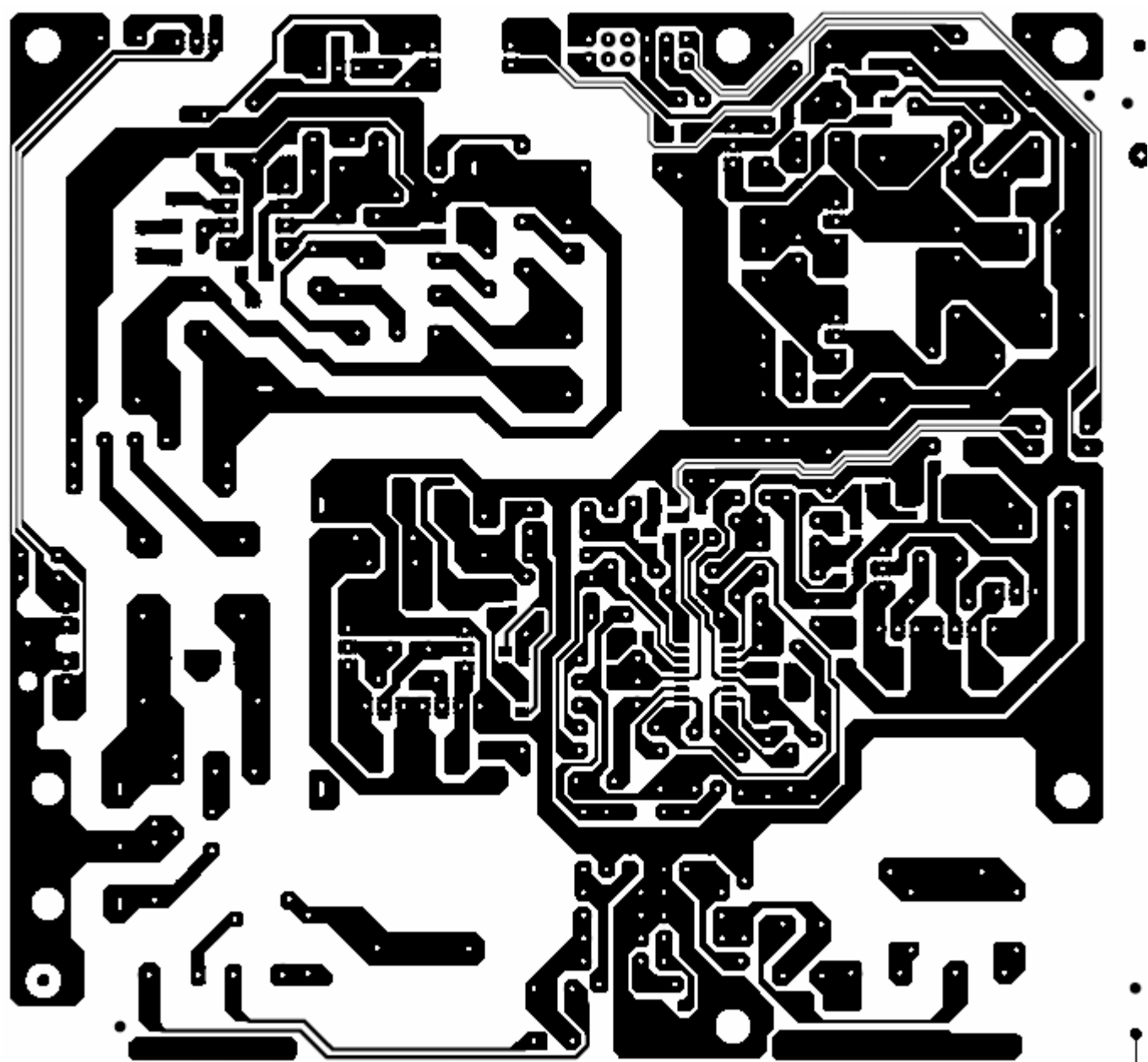
8. PCB Layout

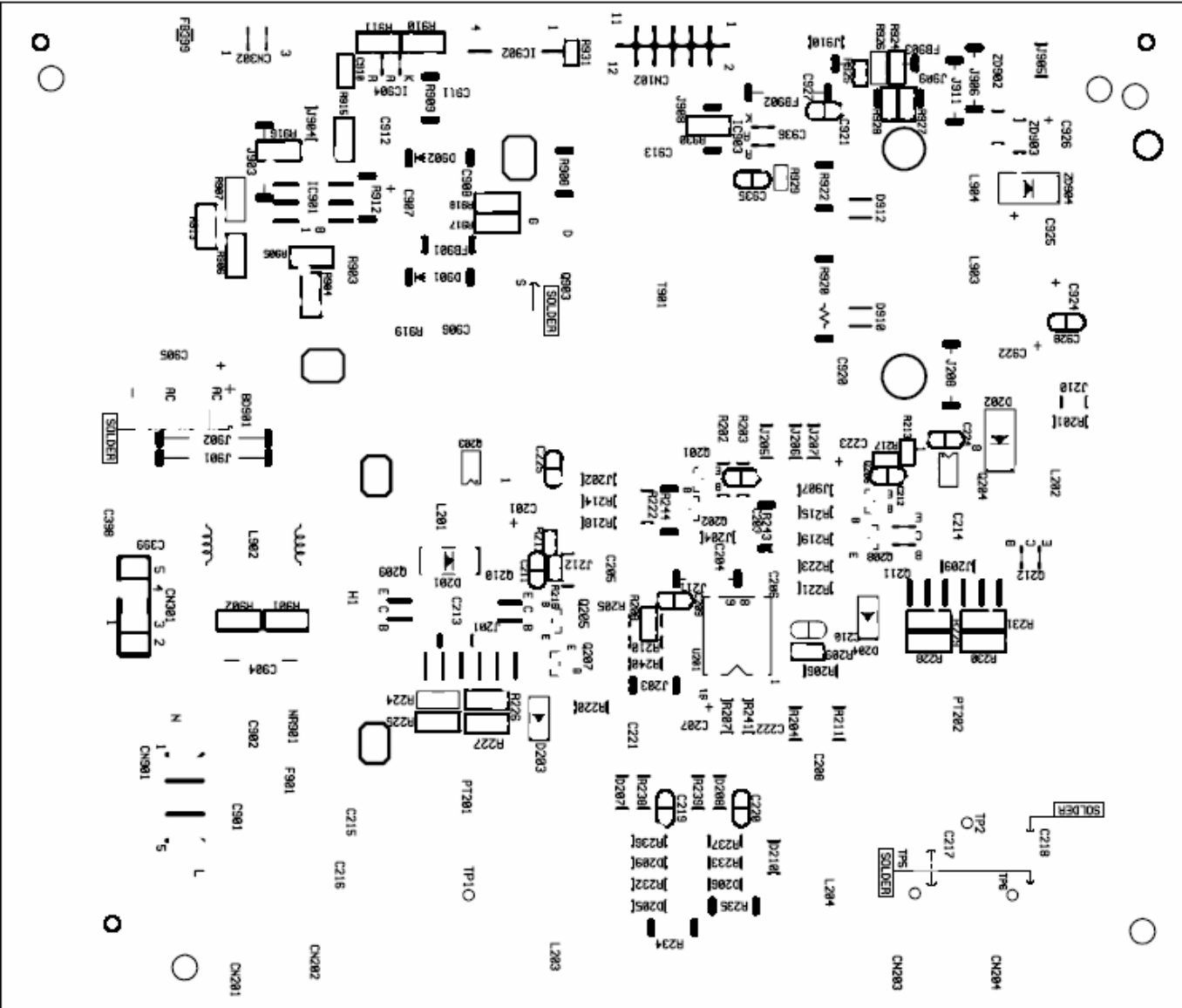
8.1 Main Board

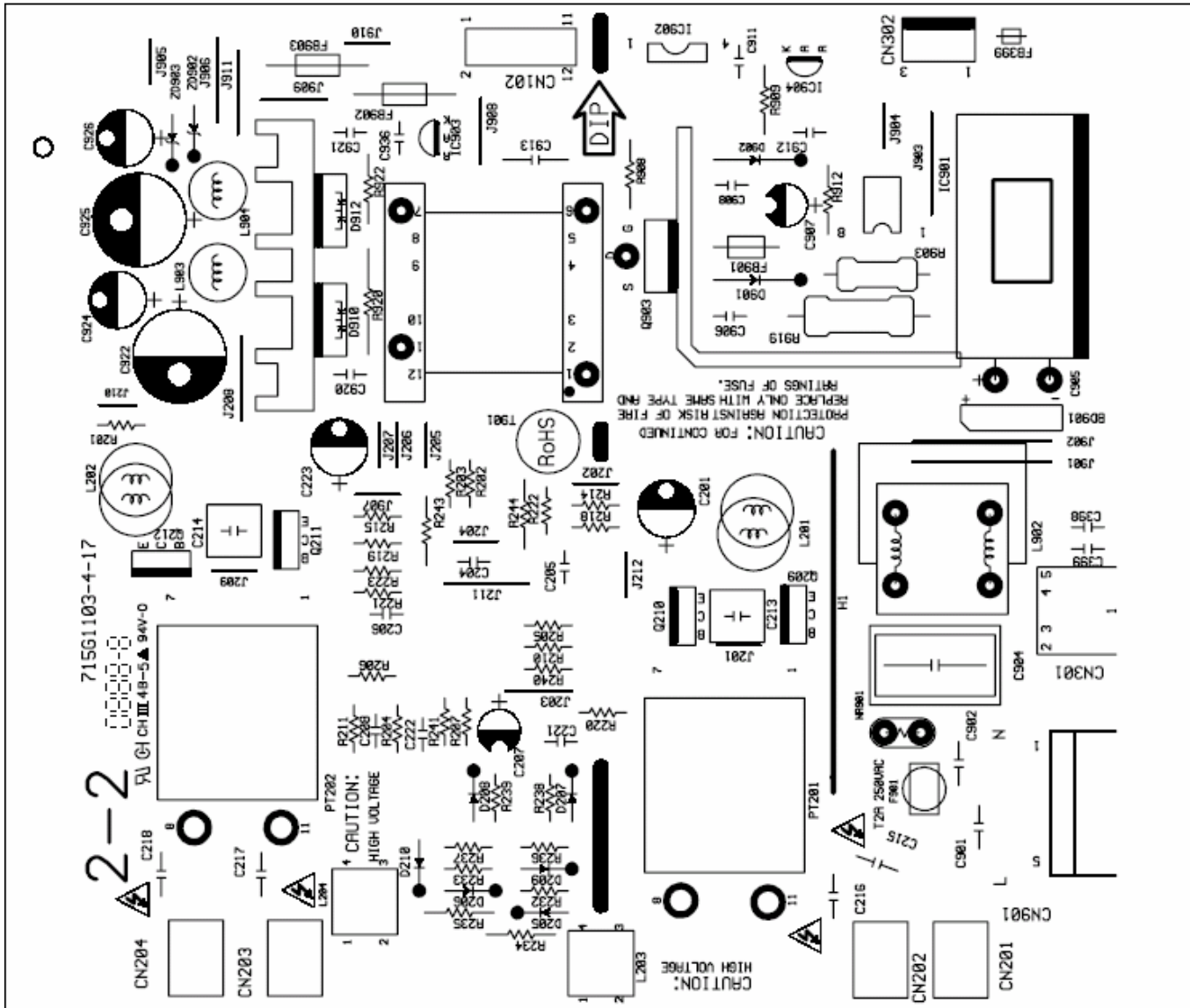






8.2 Power Board

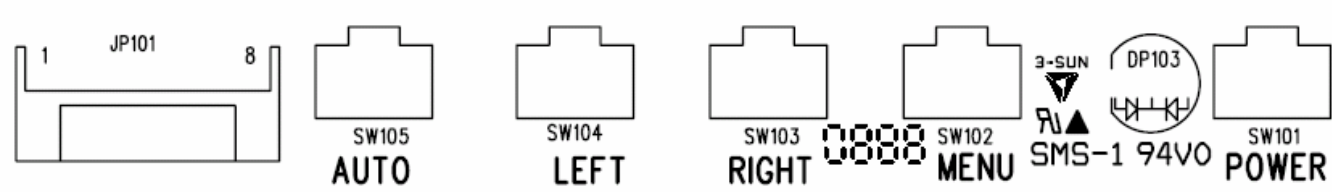




8.3 Key Board



SW101 DP103 SW102 SW103 SW104 SW105 JP101



9. Maintainability

9.1 Equipments and Tools Requirement

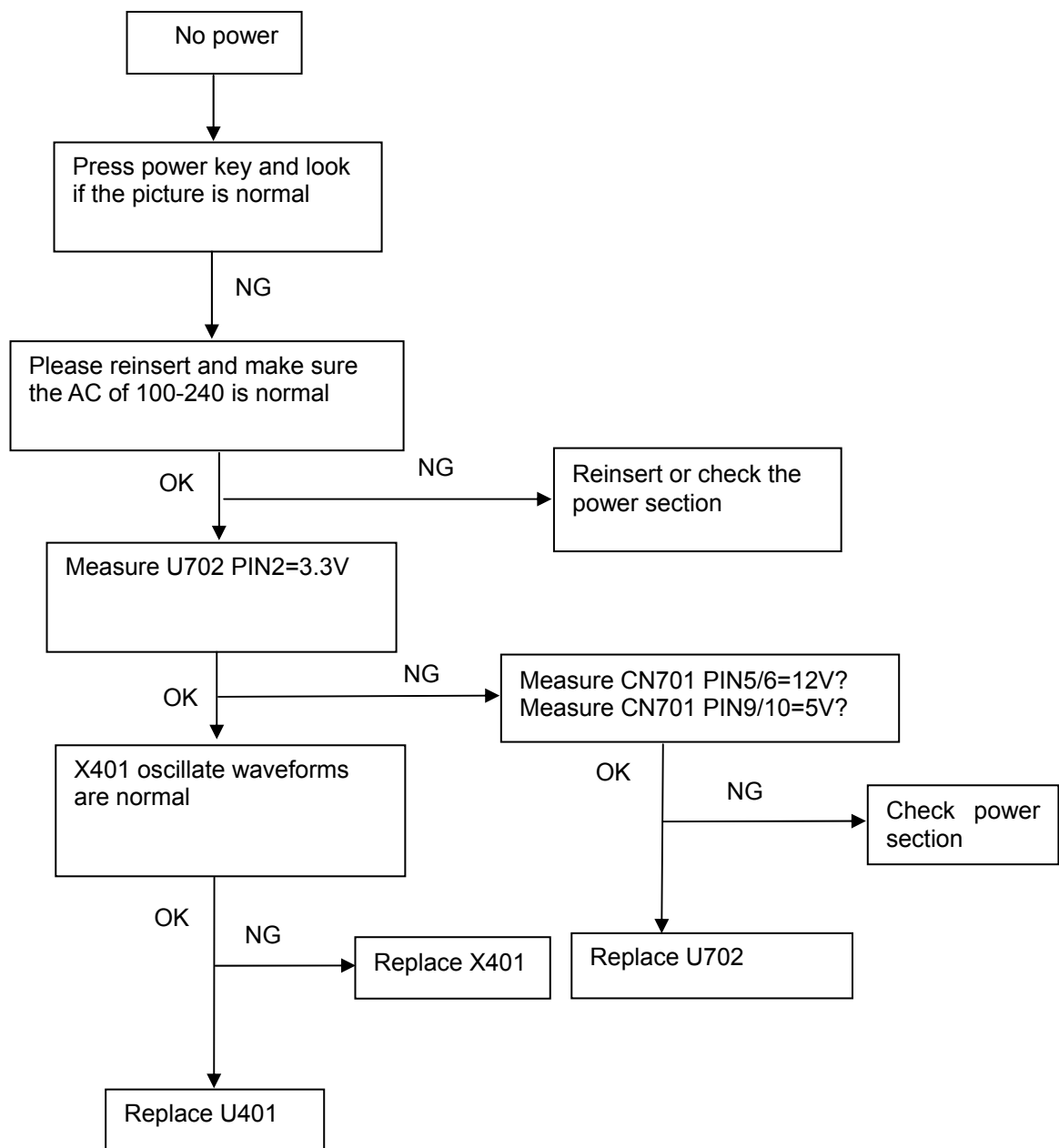
1. Voltmeter.
2. Oscilloscope.
3. Pattern Generator.
4. DDC Tool with an IBM Compatible Computer.
5. Alignment Tool.
6. LCD Color Analyzer.
7. Service Manual.
8. User Manual.

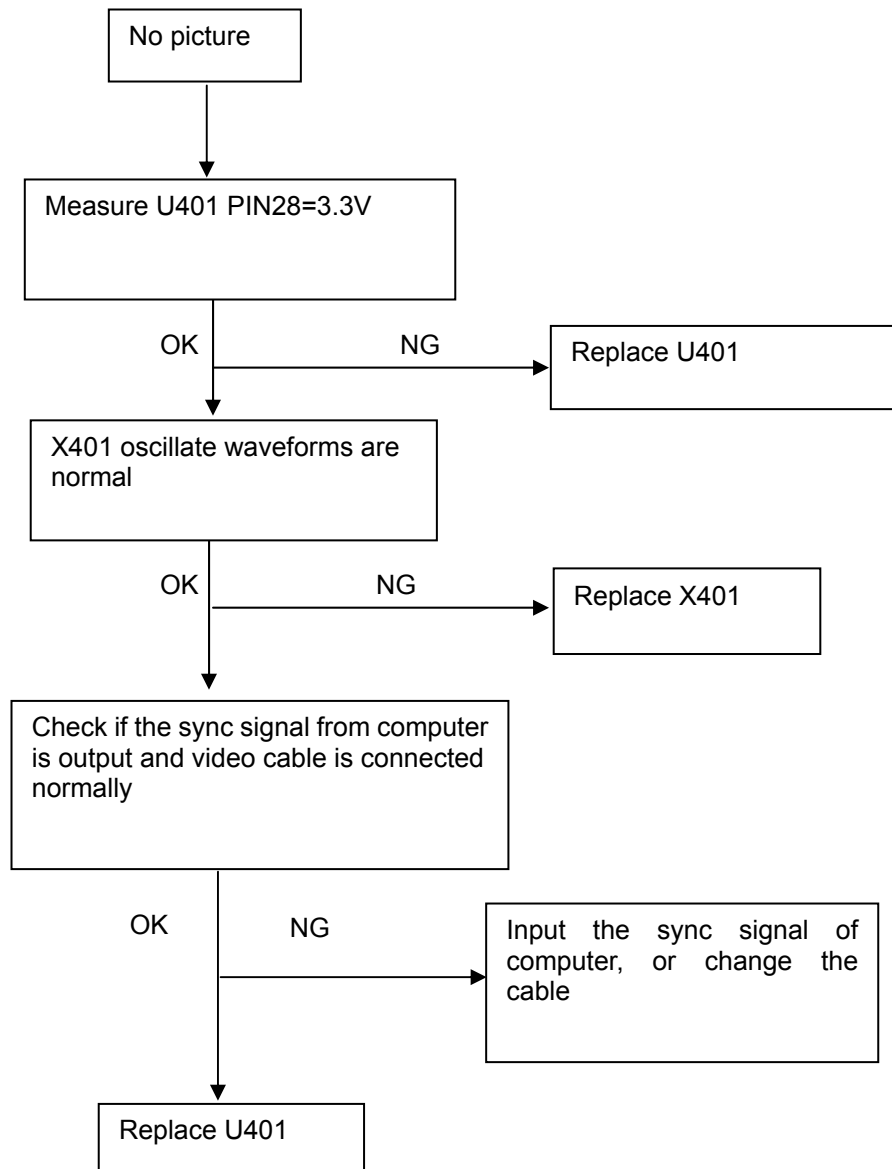
9.2 Trouble Shooting

9.2.1 Main Board

1. NO SCREEN APPEAR

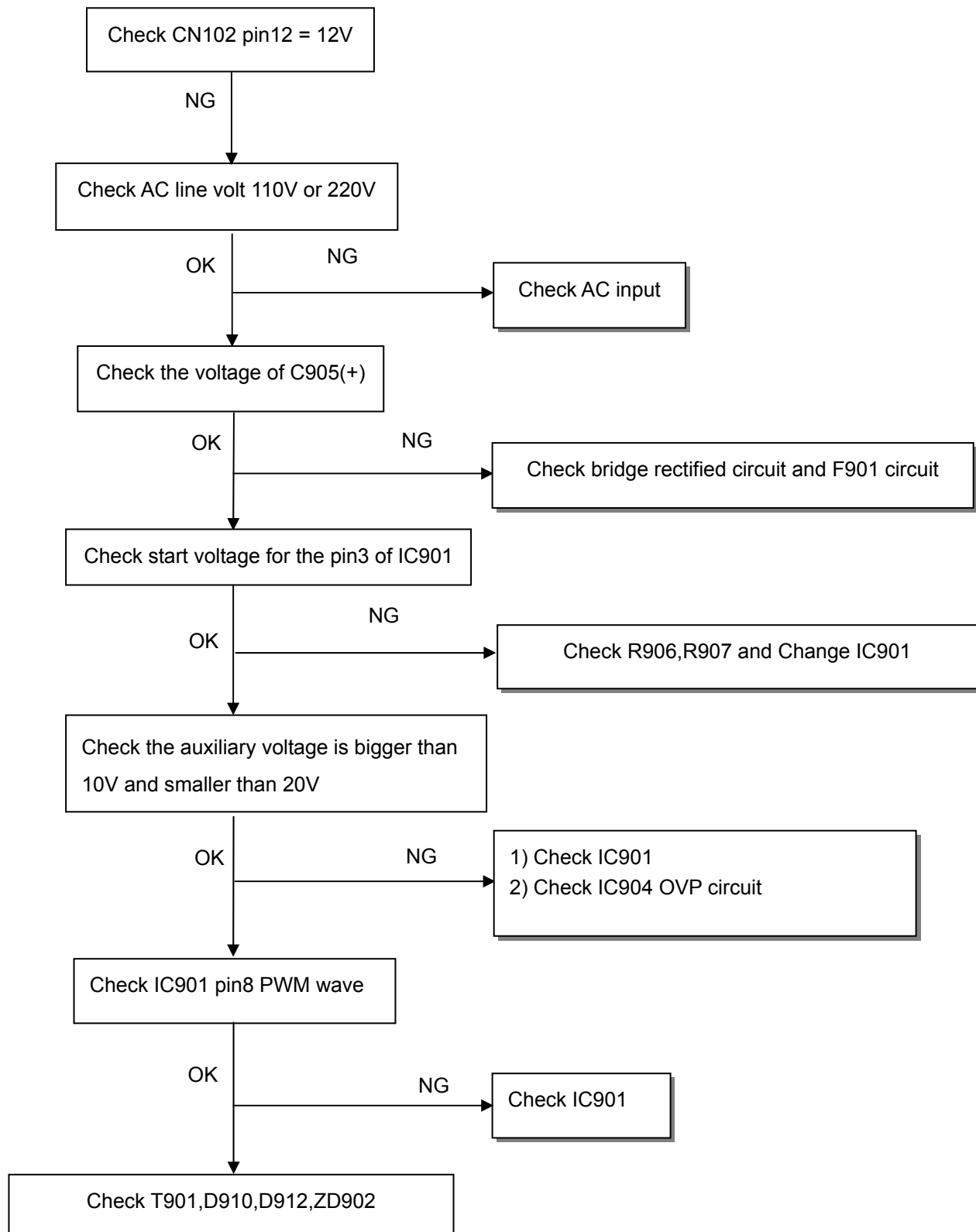
No power

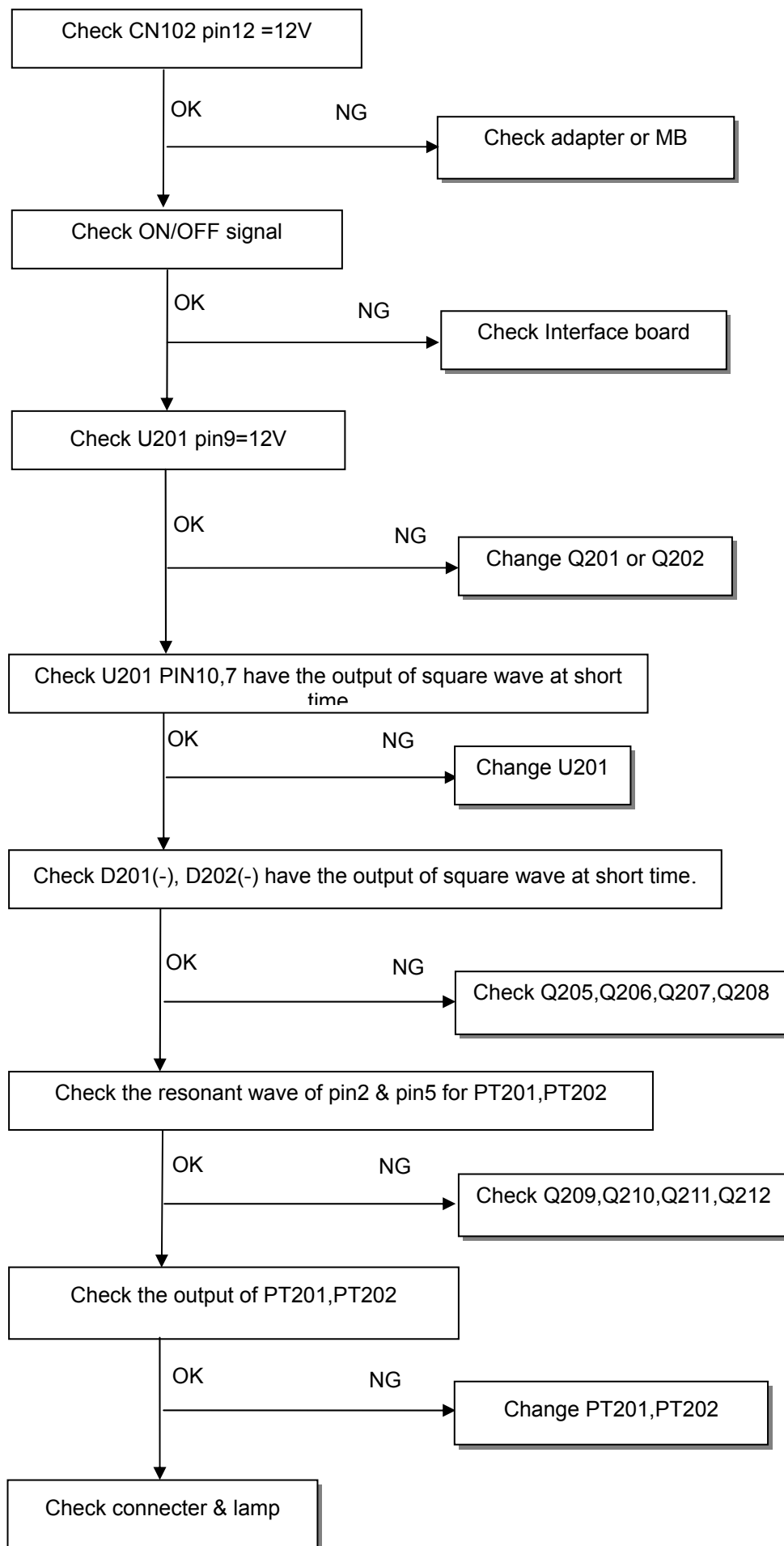


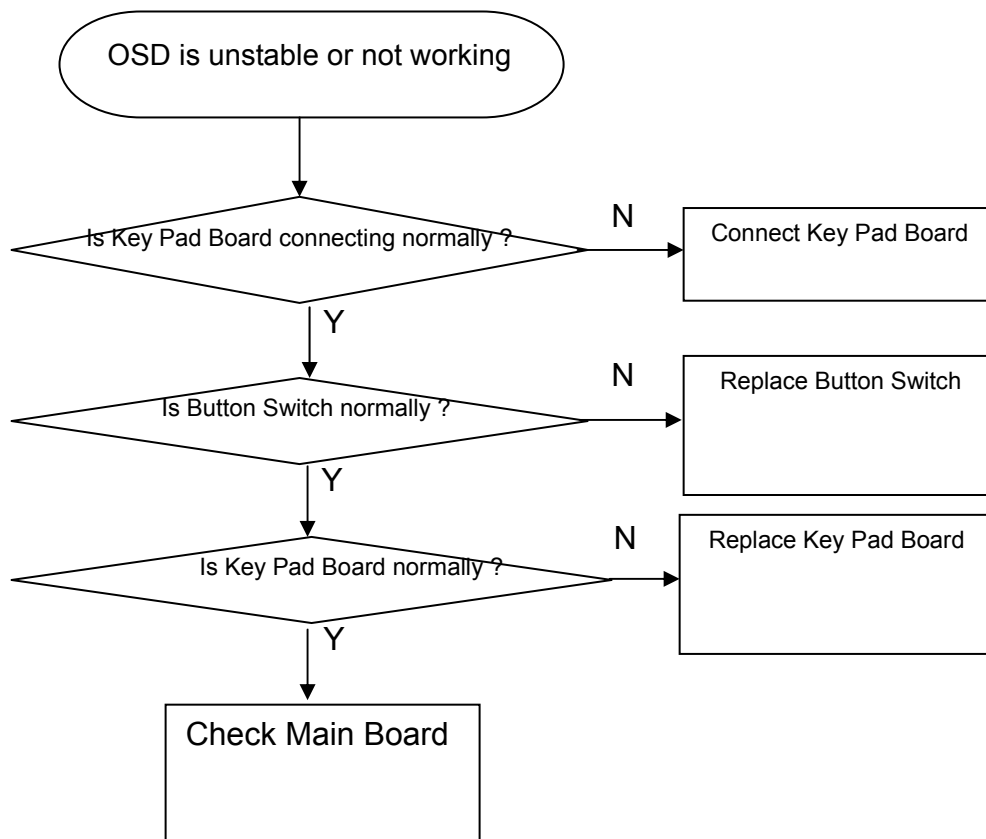
No picture (LED orange)

9.2.2 Power Board

1. No Power



2. W/LED No Backlight

9.2.3 Key Board

10. White- Balance, Luminance Adjustment

Approximately 30 minutes should be allowed for warm up before proceeding White-Balance adjustment.

1. How to do the Chroma-7120 MEM. Channel setting

- A. Reference to chroma 7120 user guide
- B. Use “**SC**” key and “**NEXT**” key to modify x, y, Y value and use “**ID**” key to modify the TEXT description Following is the procedure to do white-balance adjust

2. Setting the color temp. you want

- A. MEM.CHANNEL 3 (7800 color):
7800 color temp. parameter is $x = 296 \pm 20$, $y = 311 \pm 20$, $Y = 180 \text{ cd/m}^2$.
- B. MEM.CHANNEL 4 (6500 color):
6500 color temp. parameter is $x = 313 \pm 20$, $y = 329 \pm 20$, $Y = 180 \text{ cd/m}^2$

3. Into factory mode of 172V

Turn on power, press the MENU button, pull out the power cord, and then plug the power cord. Then the factory OSD will be at the left top of the panel.

4. Bias adjustment:

Set the **Contrast**  to 50; Adjust the **Brightness**  to 90.

5. Gain adjustment:

Move cursor to “-F-” and press MENU key

A. Adjust C2 (7800) color-temperature

1. Switch the Chroma-7120 to **RGB-Mode** (with press “MODE” button)
2. Switch the MEM. Channel to Channel 3 (with up or down arrow on chroma 7120)
3. The LCD-indicator on chroma 7120 will show $x = 296 \pm 20$, $y = 311 \pm 20$, $Y = 180 \text{ cd/m}^2$
4. Adjust the RED of color1 on factory window until chroma 7120 indicator reached the value $R=100$
5. Adjust the GREEN of color1 on factory window until chroma 7120 indicator reached the value $G=100$
6. Adjust the BLUE of color1 on factory window until chroma 7120 indicator reached the value $B=100$
7. Repeat above procedure (item 4,5,6) until chroma 7120 RGB value meet the tolerance $=100 \pm 5$

B. Adjust C1 (6500) color-temperature

1. Switch the chroma-7120 to **RGB-Mode** (with press “MODE” button)
2. Switch the MEM.channel to Channel 4 (with up or down arrow on chroma 7120)
3. The LCD-indicator on chroma 7120 will show $x = 313 \pm 20$, $y = 329 \pm 20$, $Y = 180 \text{ cd/m}^2$
4. Adjust the RED of color3 on factory window until chroma 7120 indicator reached the value $R=100$
5. Adjust the GREEN of color3 on factory window until chroma 7120 indicator reached the value $G=100$
6. Adjust the BLUE of color3 on factory window until chroma 7120 indicator reached the value $B=100$
7. Repeat above procedure (item 4,5,6) until chroma 7120 RGB value meet the tolerance $=100 \pm 5$

C. Turn the Power-button off to quit from factory mode.

11. Monitor Exploded View

L704-B1/B2-1

15	STAND-B	34G6173	30		
14	STAND-F	34G6172	29		
13	HINGE	37G6025-1	28		
12	LOGO COVER	34G6177	27		
11	BACK COVER	34G6171	26		
10	SHIELD	85G6108-1	25		
9	MAIN FRAME	15G6165-*	24		
8	MYLAR	52G6025-11-737	23		
7	POWER BOARD		22		
6	SCALAR BOARD		21		
5	PANEL		20		
4	LENS	33G6245	19	HINGE COVER	33G6246
3	KEY PAD	33G6242	18	FOOT PORON	12G394-6
2	BEZEL	34G6170	17	BASE	34G6175
1	BEZEL-PLATE	33G6243	16	BASE COVER	34G6174

NO.	PART NAME	PART NUMBER	NO.	PART NAME	PART NUMBER
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TOP VICTORY ELECTRONICS

TEL:86-591-5285555
FAX:86-591-5285447

DRAWN BY: Gb.Lin

CHECKED BY:

APPROVED BY:

FINISH:

MATERIAL:

PART NAME:

COLOR:

WALL THICKNESS:

PART NO.

UNIT:

12. BOM List**T78SM5NCARSPNNE**

Location	Part No.	Description
	CBPC7SM5AOH	MAIN BOARD
	KEPC780KAOCJP	KEY BOARD
	PWPC1742CPE1	POWER BOARD
	15G6165SAM 3A	MAIN FRAME
	26G 800504 3H	BARCODE
	40G 58162435A	MANUAL LABEL
	44G3749 1	EPS(L)
	44G3749 2	EPS(R)
	50G 600 2	HANDLE1
	50G 600 3	HANDLE2
	52G 1185	MIDDLE TAPE
	52G 1186	SMALL TAPE
	52G6025 11737	INSULATE SHEET
	85G6108 1	SHIELD
	89G 715HAA D2	SIGNAL CABLE
	89G404A15N YH	POWER CORD
	95G8018 30E15	LVDS CABLE 30P-24P 150
	D1G1730 8120	SCREW
	M1G 330 4120	SCREW
	M1G1740 6120	SCREW
	M1G1740 8120	SCREW
	Q1G 330 8120	SCREW 3X8mm
	705GH7K0F34029	ASS'Y
	750GLS70U315CN	PANEL LTM170EU-L31 8TM
	H33G6246 KG L	HINGE COVER
	H34G6171 KG 1L	BACK COVER
	H34G6177 KGA1L	LOGO COVER
	H40G 17N61514C	172V ID label
	H41G170061512B	172V MANUAL
	H44G3749615 7C	CARTON
	H45G 87 1 2H R	PE BAG FOR MONITOR
	Q45G 76 28 H A	PE BAG FOR MANUAL
	Q52G6020 68	AOC PROTECT FILM
CN701	33G8027 12	WAFER 2*6P 2.0MM R/A
CN403	33G8027 16	WAFER 16PIN 2.0mm DIP
CN101	33G8043 24 H	WAFER
	40G 45762412B	CBPC LABEL
C710	67G215V101 4N	ELCAP 100UF +-20% 25V 1
C712	67G215V101 4N	ELCAP 100UF +-20% 25V 1
C408	67G305V100 3P	ELCAP 10UF +-20% 16V 10
C717	67G305V100 3P	ELCAP 10UF +-20% 16V 10
C403	67G305V479 3P	ELCAP 4.7UF +-20% 16V 1
C702	67G305V479 3P	ELCAP 4.7UF +-20% 16V 1
CN405	88G 35315F HD	D-SUB CONN F ATTACHED
X401	93G 22 53 H	14.31818MHZ/30PF/49US
U401	56G 562100	TSUM16AK
U702	56G 563 7	AIC1084-33PM
U406	56G 643 20	RESET 4.38V G690H438T73
U404	56G1133 34	M24C02-WMN6TP
U403	56G1133 56	M24C16-WMN6TP
U402	56G1133716	PM25LV512A-100SCE
Q702	57G 417 17 T	PZT2907A
Q401	57G 417517	LMBT3906LT1G SOT-23 BY

Q403	57G 417517	LMBT3906LT1G SOT-23 BY
Q402	57G 417518	LMBT3904LT1G SOT-23 BY
Q701	57G 417518	LMBT3904LT1G SOT-23 BY
Q703	57G 417518	LMBT3904LT1G SOT-23 BY
Q706	57G 417518	LMBT3904LT1G SOT-23 BY
Q704	57G 763 1	AO3401L SOT23 BY AOS(A1
FB410	61G0603000	RST CHIPR 0 OHM +-5% 1/
FB411	61G0603000	RST CHIPR 0 OHM +-5% 1/
FB412	61G0603000	RST CHIPR 0 OHM +-5% 1/
R419	61G0603000	RST CHIPR 0 OHM +-5% 1/
R421	61G0603000	RST CHIPR 0 OHM +-5% 1/
R720	61G0603000	RST CHIPR 0 OHM +-5% 1/
R721	61G0603000	RST CHIPR 0 OHM +-5% 1/
R411	61G0603101	RST CHIPR 100 OHM +-5%
R418	61G0603101	RST CHIPR 100 OHM +-5%
R420	61G0603101	RST CHIPR 100 OHM +-5%
R427	61G0603101	RST CHIPR 100 OHM +-5%
R428	61G0603101	RST CHIPR 100 OHM +-5%
R429	61G0603101	RST CHIPR 100 OHM +-5%
R441	61G0603101	RST CHIPR 100 OHM +-5%
R442	61G0603101	RST CHIPR 100 OHM +-5%
R443	61G0603101	RST CHIPR 100 OHM +-5%
R445	61G0603101	RST CHIPR 100 OHM +-5%
R453	61G0603101	RST CHIPR 100 OHM +-5%
R454	61G0603101	RST CHIPR 100 OHM +-5%
R488	61G0603101	RST CHIPR 100 OHM +-5%
R704	61G0603101	RST CHIPR 100 OHM +-5%
R446	61G0603102	RST CHIPR 1KOHM +-5% 1/
R447	61G0603102	RST CHIPR 1KOHM +-5% 1/
R476	61G0603102	RST CHIPR 1KOHM +-5% 1/
R477	61G0603102	RST CHIPR 1KOHM +-5% 1/
R701	61G0603102	RST CHIPR 1KOHM +-5% 1/
R406	61G0603103	RST CHIPR 10KOHM +-5% 1
R408	61G0603103	RST CHIPR 10KOHM +-5% 1
R412	61G0603103	RST CHIPR 10KOHM +-5% 1
R413	61G0603103	RST CHIPR 10KOHM +-5% 1
R415	61G0603103	RST CHIPR 10KOHM +-5% 1
R416	61G0603103	RST CHIPR 10KOHM +-5% 1
R424	61G0603103	RST CHIPR 10KOHM +-5% 1
R425	61G0603103	RST CHIPR 10KOHM +-5% 1
R426	61G0603103	RST CHIPR 10KOHM +-5% 1
R444	61G0603103	RST CHIPR 10KOHM +-5% 1
R452	61G0603103	RST CHIPR 10KOHM +-5% 1
R487	61G0603103	RST CHIPR 10KOHM +-5% 1
R708	61G0603103	RST CHIPR 10KOHM +-5% 1
R711	61G0603103	RST CHIPR 10KOHM +-5% 1
R714	61G0603103	RST CHIPR 10KOHM +-5% 1
R717	61G0603103	RST CHIPR 10KOHM +-5% 1
R727	61G0603103	RST CHIPR 10KOHM +-5% 1
R409	61G0603121	RST CHIPR 120 OHM +-5%
R414	61G0603121	RST CHIPR 120 OHM +-5%
R703	61G0603202	RST CHIPR 2KOHM +-5% 1/
R417	61G0603203	RST CHIPR 20KOHM +-5% 1
R448	61G0603222	RST CHIPR 2.2KOHM +-5%
R449	61G0603222	RST CHIPR 2.2KOHM +-5%
R403	61G0603390 0F	RST CHIPR 390 OHM +-1%

R474	61G0603392	RST CHIPR 3.9KOHM +-5%
R475	61G0603392	RST CHIPR 3.9KOHM +-5%
R437	61G0603471	RST CHIPR 470 OHM +-5%
R405	61G0603472	RST CHIPR 4.7KOHM +-5%
R422	61G0603472	RST CHIPR 4.7KOHM +-5%
R423	61G0603472	RST CHIPR 4.7KOHM +-5%
R450	61G0603472	RST CHIPR 4.7KOHM +-5%
R451	61G0603472	RST CHIPR 4.7KOHM +-5%
R705	61G0603472	RST CHIPR 4.7KOHM +-5%
R707	61G0603472	RST CHIPR 4.7KOHM +-5%
R712	61G0603472	RST CHIPR 4.7KOHM +-5%
R725	61G0603472	RST CHIPR 4.7KOHM +-5%
R702	61G0603510	RST CHIPR 51 OHM +-5% 1
R723	61G0603513	RST CHIPR 51KOHM +-5% 1
R434	61G0603560	RST CHIPR 56 OHM +-5% 1
R435	61G0603560	RST CHIPR 56 OHM +-5% 1
R436	61G0603560	RST CHIPR 56 OHM +-5% 1
R438	61G0603750	RST CHIPR 75 OHM +-5% 1
R439	61G0603750	RST CHIPR 75 OHM +-5% 1
R440	61G0603750	RST CHIPR 75 OHM +-5% 1
C401	65G0603104 32	CHIP 0.1UF 50V X7R
C404	65G0603104 32	CHIP 0.1UF 50V X7R
C405	65G0603104 32	CHIP 0.1UF 50V X7R
C406	65G0603104 32	CHIP 0.1UF 50V X7R
C407	65G0603104 32	CHIP 0.1UF 50V X7R
C409	65G0603104 32	CHIP 0.1UF 50V X7R
C410	65G0603104 32	CHIP 0.1UF 50V X7R
C411	65G0603104 32	CHIP 0.1UF 50V X7R
C412	65G0603104 32	CHIP 0.1UF 50V X7R
C413	65G0603104 32	CHIP 0.1UF 50V X7R
C414	65G0603104 32	CHIP 0.1UF 50V X7R
C415	65G0603104 32	CHIP 0.1UF 50V X7R
C416	65G0603104 32	CHIP 0.1UF 50V X7R
C417	65G0603104 32	CHIP 0.1UF 50V X7R
C419	65G0603104 32	CHIP 0.1UF 50V X7R
C420	65G0603104 32	CHIP 0.1UF 50V X7R
C422	65G0603104 32	CHIP 0.1UF 50V X7R
C424	65G0603104 32	CHIP 0.1UF 50V X7R
C426	65G0603104 32	CHIP 0.1UF 50V X7R
C427	65G0603104 32	CHIP 0.1UF 50V X7R
C428	65G0603104 32	CHIP 0.1UF 50V X7R
C429	65G0603104 32	CHIP 0.1UF 50V X7R
C430	65G0603104 32	CHIP 0.1UF 50V X7R
C439	65G0603104 32	CHIP 0.1UF 50V X7R
C440	65G0603104 32	CHIP 0.1UF 50V X7R
C441	65G0603104 32	CHIP 0.1UF 50V X7R
C444	65G0603104 32	CHIP 0.1UF 50V X7R
C709	65G0603104 32	CHIP 0.1UF 50V X7R
C711	65G0603104 32	CHIP 0.1UF 50V X7R
C713	65G0603104 32	CHIP 0.1UF 50V X7R
C714	65G0603104 32	CHIP 0.1UF 50V X7R
C715	65G0603104 32	CHIP 0.1UF 50V X7R
C718	65G0603104 32	CHIP 0.1UF 50V X7R
C708	65G0603105 22	CAP 0603 1UF +-10% 25V
C421	65G0603220 31	CAP 0603 22PF 50V NPO
C423	65G0603220 31	CAP 0603 22PF 50V NPO

C443	65G0603221 32	CHIP 220PF 50V X7R
C425	65G0603224 22	CAP 0603 0.22UF +-10% 2
C442	65G0603330 31	CAP 0603 33PF +-5% 50V
C432	65G0603473 32	CAP 0603 0.047UFK 50V X
C433	65G0603473 32	CAP 0603 0.047UFK 50V X
C434	65G0603473 32	CAP 0603 0.047UFK 50V X
C435	65G0603473 32	CAP 0603 0.047UFK 50V X
C436	65G0603473 32	CAP 0603 0.047UFK 50V X
C437	65G0603473 32	CAP 0603 0.047UFK 50V X
C438	65G0603473 32	CAP 0603 0.047UFK 50V X
FB401	71G 56Z601	CHIP BEAD 600 OHM 0805
FB402	71G 56Z601	CHIP BEAD 600 OHM 0805
FB403	71G 56Z601	CHIP BEAD 600 OHM 0805
FB404	71G 56Z601	CHIP BEAD 600 OHM 0805
FB405	71G 56Z601	CHIP BEAD 600 OHM 0805
FB406	71G 56Z601	CHIP BEAD 600 OHM 0805
FB409	71G 59B121	TB160808B
D406	93G 39147SEM	ZMM5V6ST
D408	93G 39147SEM	ZMM5V6ST
D409	93G 39147SEM	ZMM5V6ST
D410	93G 39147SEM	ZMM5V6ST
D411	93G 39147SEM	ZMM5V6ST
D412	93G 39147SEM	ZMM5V6ST
D407	93G 64 42 P	BAV70 SOT-23
D702	93G 6432P	LL4148
D403	93G 6433P	BAV99
D404	93G 6433P	BAV99
D405	93G 6433P	BAV99
D401	93G 39S 45 T	RLZ36B BY ROHM
D402	93G 39S 45 T	RLZ36B BY ROHM
D701	93G 64S700PAN	DIODE LLSD103A
D704	93G1004 3	SS14
	715G1558 3 2	MAIN BOARD PCB
SW101	77G 602 1 CJ	TACT SWITCH TSVB-2
SW102	77G 602 1 CJ	TACT SWITCH TSVB-2
SW103	77G 602 1 CJ	TACT SWITCH TSVB-2
SW104	77G 602 1 CJ	TACT SWITCH TSVB-2
SW105	77G 602 1 CJ	TACT SWITCH TSVB-2
DP103	81G 12 1F GP	LED
JP101	95G8014 16E01	WIRE HARNESS
	715G1412 3	KEY BOARD PCB
L203	S73G17430VA	TRANSFORMER
L204	S73G17430VA	TRANSFORMER
L902	S73L17426VG	COMMON CHOKE
PT201	S80LL15T7VG	TRANSFORMER
PT202	S80LL15T7VG	TRANSFORMER
CN201	33G8021 2E U	WAFER
CN202	33G8021 2E U	WAFER
CN203	33G8021 2E U	WAFER
CN204	33G8021 2E U	WAFER
	40G 45762412B	CBPC LABEL
	51G 6 4500	RTV
IC902	56G 139 3A	PC123Y22FZOF
R919	61G 2J398 59	RST WWR 0.39 OHM +-5% 2
NR901	61G 58080 WT	RST NTCR 8 OHM
R903	61G152M10464L	RST MOFR 100KOHM +-5% 2

C904	63G107K474 US	0.47UF +-10%
C213	63G210J2242AC	CAPACITANCE
C214	63G210J2242AC	CAPACITANCE
C936	64G701J1040AT	CAP SMPE 0.1UF J 63VDC
C215	65G 3J2206ET	22PF 5% SL 3KV TDK
C216	65G 3J2206ET	22PF 5% SL 3KV TDK
C217	65G 3J2206ET	22PF 5% SL 3KV TDK
C218	65G 3J2206ET	22PF 5% SL 3KV TDK
C901	65G305M2222BP	2200PF +-20%
C902	65G305M2222BP	2200PF +-20%
C913	65G306M4722BP	4700PF +-20% 400VAC
C922	67G215V102 3R	ELCAP 1000UF +-20% 16V
C925	67G215V102 3R	ELCAP 1000UF +-20% 16V
C201	67G215V471 3N	ELCAP 470UF +-20% 16V 1
C223	67G215V471 3N	ELCAP 470UF +-20% 16V 1
C924	67G215V471 3N	ELCAP 470UF +-20% 16V 1
C926	67G215V471 3N	ELCAP 470UF +-20% 16V 1
C905	67G215Y10115K	ELCAP 100UF +-20% 450V
L903	73G 253 91 H	CHOKE COIL
L904	73G 253 91 H	CHOKE COIL
L201	73G 253139 HA	CHOKE COIL
L202	73G 253139 HA	CHOKE COIL
T901	80LL17T 2 TG	SRW28EC-X12HO18-D
BD901	93G 50460 28	KBP208G
CN102	95G8021 12529	HARNESS
H1	J85G8113 1	SHIELD
IC901	56G 379 53	LD7552BN
Q209	57G 761501	BTC5706I3
Q210	57G 761501	BTC5706I3
Q211	57G 761501	BTC5706I3
Q212	57G 761501	BTC5706I3
	705G 780 57 15	D910/D912 ASS'Y
	705L 780 57 02	CN901 ASS'Y
	705L 780 5702A	Q903 ASS'Y
U201	56G 622 1	BA9741F-SMT
Q205	57G 417 4	PMBS3904/PHILIPS-SMT(04
Q206	57G 417 4	PMBS3904/PHILIPS-SMT(04
Q207	57G 417 6	PMBS3906/PHILIPS-SMT(06
Q208	57G 417 6	PMBS3906/PHILIPS-SMT(06
Q201	57G 760 5	DTC144WKA BY ROHM SMT
Q202	57G 760 4B	PDTA144WK SOT346
Q203	57G 763 3	AO4411L SO-8
Q204	57G 763 3	AO4411L SO-8
R216	61G0603221	RST CHIPR 220 OHM +-5%
R217	61G0603221	RST CHIPR 220 OHM +-5%
R925	61G0603362	RST CHIPR 3.6KOHM +-5%
R212	61G0603392	RST CHIPR 3.9KOHM +-5%
R213	61G0603392	RST CHIPR 3.9KOHM +-5%
R929	61G0603392	RST CHIPR 3.9KOHM +-5%
R927	61G0805102	RST CHIPR 1KOHM +-5% 1/
R928	61G0805102	RST CHIPR 1KOHM +-5% 1/
R926	61G0805242	RST CHIPR 2.4KOHM +-5%
R924	61G0805333	RST CHIPR 33KOHM +-5% 1
R208	61G0805472	RST CHIPR 4.7KOHM +-5%
R209	61G0805472	RST CHIPR 4.7KOHM +-5%
R917	61G1206100	RST CHIPR 10 OHM +-5% 1

R911	61G1206100 3F	RST CHIPR 100KOHM +-1%
R918	61G1206103	RST CHIPR 10KOHM +-5% 1
R916	61G1206104	RST CHIPR 100KOHM +-5%
R901	61G1206105	RST CHIPR 1MOHM +-5% 1/
R902	61G1206105	RST CHIPR 1MOHM +-5% 1/
R224	61G1206152	RST CHIPR 1.5KOHM +-5%
R225	61G1206152	RST CHIPR 1.5KOHM +-5%
R226	61G1206152	RST CHIPR 1.5KOHM +-5%
R227	61G1206152	RST CHIPR 1.5KOHM +-5%
R228	61G1206152	RST CHIPR 1.5KOHM +-5%
R229	61G1206152	RST CHIPR 1.5KOHM +-5%
R230	61G1206152	RST CHIPR 1.5KOHM +-5%
R231	61G1206152	RST CHIPR 1.5KOHM +-5%
R930	61G1206471	RST CHIPR 470 OHM +-5%
R906	61G1206514	RST CHIPR 510KOHM +-5%
R907	61G1206514	RST CHIPR 510KOHM +-5%
R913	61G1206514	RST CHIPR 510KOHM +-5%
R904	61G1206754	RST CHIPR 750KOHM +-5%
R905	61G1206754	RST CHIPR 750KOHM +-5%
R910	61G1206820 2F	RST CHIPR 82KOHM +-1% 1
C927	65G0805104 32	CAP 0805 0.1U +-10% 50V
C910	65G0805105 22	CAP 0805 1UF +-10% 25V
C203	65G0805105 27	CHIP 1UF Y5V 0805
C209	65G0805105 27	CHIP 1UF Y5V 0805
C210	65G0805105 27	CHIP 1UF Y5V 0805
C211	65G0805105 27	CHIP 1UF Y5V 0805
C212	65G0805105 27	CHIP 1UF Y5V 0805
C219	65G0805105 27	CHIP 1UF Y5V 0805
C220	65G0805105 27	CHIP 1UF Y5V 0805
D203	93G 39S 3 T	BZT52-C11
D204	93G 39S 3 T	BZT52-C11
ZD904	93G 39S 19 T	PTZ7.5B
D201	93G2004 2A	SM240A DO-214AC
D202	93G2004 2A	SM240A DO-214AC
C905	6G 31502	1.5MM RIVET
L902	6G 31502	1.5MM RIVET
NR901	6G 31502	1.5MM RIVET
PT201	6G 31502	1.5MM RIVET
PT202	6G 31502	1.5MM RIVET
Q903	6G 31502	1.5MM RIVET
T901	6G 31502	1.5MM RIVET
F901	84G 56 1	FUSE 2A 250V WICKMANN
	715G1103 4 17	POWER BOARD PCB
FB903	95G 90 23	TINCOATEDCOPPER
J201	95G 90 23	TINCOATEDCOPPER
J202	95G 90 23	TINCOATEDCOPPER
J203	95G 90 23	TINCOATEDCOPPER
J204	95G 90 23	TINCOATEDCOPPER
J205	95G 90 23	TINCOATEDCOPPER
J206	95G 90 23	TINCOATEDCOPPER
J207	95G 90 23	TINCOATEDCOPPER
J208	95G 90 23	TINCOATEDCOPPER
J209	95G 90 23	TINCOATEDCOPPER
J210	95G 90 23	TINCOATEDCOPPER
J211	95G 90 23	TINCOATEDCOPPER
J212	95G 90 23	TINCOATEDCOPPER

J901	95G 90 23	TINCOATEDCOPPER
J902	95G 90 23	TINCOATEDCOPPER
J903	95G 90 23	TINCOATEDCOPPER
J904	95G 90 23	TINCOATEDCOPPER
J905	95G 90 23	TINCOATEDCOPPER
J906	95G 90 23	TINCOATEDCOPPER
J907	95G 90 23	TINCOATEDCOPPER
J908	95G 90 23	TINCOATEDCOPPER
J909	95G 90 23	TINCOATEDCOPPER
J910	95G 90 23	TINCOATEDCOPPER
J911	95G 90 23	TINCOATEDCOPPER
R920	61G 20747052T	RST MOFR 47 OHM +-5% 1/
R922	61G 20747052T	RST MOFR 47 OHM +-5% 1/
R204	61G 60110352T	RST CFR 10KOHM +-2% 1/6
R218	61G172S10152T	RST CFR 100 0HM +-5% 1/
R219	61G172S10152T	RST CFR 100 0HM +-5% 1/
R232	61G172S10252T	RST CFR 1KOHM +-5% 1/4W
R233	61G172S10252T	RST CFR 1KOHM +-5% 1/4W
R243	61G172S10252T	RST CFR 1KOHM +-5% 1/4W
R244	61G172S10252T	RST CFR 1KOHM +-5% 1/4W
R912	61G172S10252T	RST CFR 1KOHM +-5% 1/4W
R202	61G172S10352T	RST CFR 10KOHM +-5% 1/4
R203	61G172S10352T	RST CFR 10KOHM +-5% 1/4
R222	61G172S12352T	RST CFR 12KOHM +-5% 1/4
R223	61G172S12352T	RST CFR 12KOHM +-5% 1/4
R238	61G172S12352T	RST CFR 12KOHM +-5% 1/4
R239	61G172S12352T	RST CFR 12KOHM +-5% 1/4
R210	61G172S15352T	RST CFR 15KOHM +-5% 1/4
R211	61G172S15352T	RST CFR 15KOHM +-5% 1/4
R220	61G172S15352T	RST CFR 15KOHM +-5% 1/4
R221	61G172S15352T	RST CFR 15KOHM +-5% 1/4
R214	61G172S22252T	RST CFR 2.2KOHM +-5% 1/
R215	61G172S22252T	RST CFR 2.2KOHM +-5% 1/
R909	61G172S24152T	RST CFR 240 0HM +-5% 1/
R201	61G172S30352T	RST CFR 30KOHM +-5% 1/4
R205	61G172S47352T	RST CFR 47KOHM +-5% 1/4
R206	61G172S47352T	RST CFR 47KOHM +-5% 1/4
R240	61G172S51352T	RST CFR 51KOHM +-5% 1/4
R241	61G172S51352T	RST CFR 51KOHM +-5% 1/4
R236	61G172S68152T	RST CFR 680 OHM +-5% 1/
R237	61G172S68152T	RST CFR 680 OHM +-5% 1/
R908	61G172S68952T	RST CFR 6.8 0HM +-5% 1/
R234	61G172S91152T	RST CFR 910 OHM +-5% 1/
R235	61G172S91152T	RST CFR 910 OHM +-5% 1/
FB902	71G 55 19 T	FERRITE BEAD D9X3. 5X0.
FB901	71G 55 29	FERRITE BEAD
ZD903	93G 3957652T	GDZJ5.1B
ZD902	93G 3958352T	GDZJ13B
D901	93G 6026T52T	RECTIFIER DIODE FR107
D902	93G 6038P52T	PS102R
D205	93G 64 1152T	1N4148 DO-35
D206	93G 64 1152T	1N4148 DO-35
D207	93G 64 1152T	1N4148 DO-35
D208	93G 64 1152T	1N4148 DO-35
D209	93G 64 1152T	1N4148 DO-35
D210	93G 64 1152T	1N4148 DO-35

IC903	56G 158 10 T	AZ431AZ-AE1 TO-92
IC904	56G 158 10 T	AZ431AZ-AE1 TO-92
C911	64G701J1020AT	CAP SMPE 1KPF J 63VDC R
C204	64G701J1040AT	CAP SMPE 0.1UF J 63VDC
C205	64G701J1040AT	CAP SMPE 0.1UF J 63VDC
C206	64G701J1040AT	CAP SMPE 0.1UF J 63VDC
C221	64G701J4740AT	CAP SMPE 0.47UF J 63VDC
C222	64G701J4740AT	CAP SMPE 0.47UF J 63VDC
C906	65G 2K152 1T69	21 1.5NF/2KV Y5P+-10%
C208	65G 44233113T	330PJNPO 50V
C912	65G 444331 5T	330P/50V DIP
C908	65G 450104 7T	0.1UF +80-20% 50V Y5V
C920	65G517K102 5T69	21 1000PF +-10% 500V Y5P
C921	65G517K102 5T69	21 1000PF +-10% 500V Y5P
C907	67G 2152207NT	ELCAP 22UF +-20% 50V 10
C207	67G 305479 7T	ELCAP 4.7UF +-20% 50V 1
	90G6064 1	HEAT SINK
D912	93G 60217	FMB29L 10A 100V SANKEN
D910	93G 60218	SB10100FCT
	M1G1730 8120	SCREW
CN901	87G 501 12 CJ	AC SOCKET
	95G 900587	HARNESS
	96G 29 6	SHRINK TUBE UL/CSA
Q903	57G 724 4A	STP9NK60ZFP
	M1G1730 8120	SCREW
	Q90G0139 1	HEAT SINK
	12G 394 6	FOOT PORON
	33G6242 AI L	KEY PAD
	33G6245 1	LENS
	37G6025 1	HINGE
	Q1G 130 8120	SCREW
	Q1G 340 10120	SCREW
	Q1G1040 8120	SCREW
	H33G6243 KGA1L 18	BEZEL PLATE
	H34G6170 KGA1L	BEZEL
	H34G6172 KG L	STAND-F
	H34G6173 KG L	STAND-B
	H34G6174 KG L 20	BASE COVER
	H34G6175 KG L	BASE
	H45G 87 4 H A	PE BAG FOR BASE