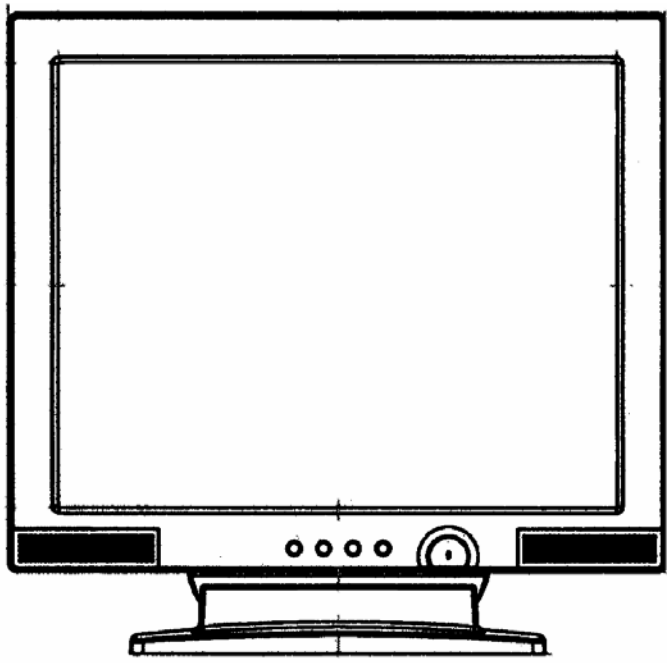
Service Manual



Model: Belinea 101536

Art. No. 111514

MAXDATA Systeme GmbH

Elbestr. 12-16

45768 Marl / Germany

Belinea 101536(111514) Service Manual

TABLE OF CONTENTS

1. PRECAUTION AND NOTICES

1.1. SAFETY PRECAUTIONS

This monitor is manufactured and tested on a ground principle that a user's safety comes first. However, improper use or installation may cause damage to the monitor as well as to the user. Carefully go over the following WARNINGS before installing and keep this guide handy.

WARNINGS:

- This monitor should be operated only at the correct power sources indicated on the label on the rear end of the monitor. If you're unsure of the power supply in your residence, consult your local dealer or power company.
- Use only the special power adapter that comes with this monitor for power input.
- Do not try to repair the monitor your self as it contains no user-serviceable parts. This monitor should only be repaired by a qualified technician.
- Do not remove the monitor cabinet. There is high-voltage parts inside that may cause electric shock to human bodies, even when the power cord is unplugged.
- Stop using the monitor if the cabinet is damaged. Have it checked by a service technacian.
- Put your monitor only in a clean, dry environment. If it gets wet, unplug the power cable immediately and consult your service technician.
- Always unplug the monitor before cleaning it. Clean the cabinet with a clean, dry cloth. Apply non-ammonia based cleaner onto the cloth, not directly onto the glass screen.
- Keep the monitor away from magnetic objects, motors, TV sets, and transformer.
- Do not place heavy objects on the monitor or power cord.

1.2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety visual inspections and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltages, wattage, etc. Before replacing any of these components read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

1.3. SERVICE NOTES

1. When replacing parts or circuit boards, clamp the lead wires around terminals before soldering.
2. When replacing a high wattage resistor (more than 1W of metal oxide film resistor) in circuit board, keep the resistor about 5mm away from circuit board.
3. Keep wires away from high voltage, high temperature components and sharp edges.
4. Keep wires in their original position so as to reduce interference.
5. Usage of this product please refer to also user's manual.

2. SERVICE TOOL & EQUIPMENT REQUIRED

1. SIGNAL GEN.
2. MULTIMETER
3. OSCILLOSCOPE
4. SCREW DRIVER
5. IRON
6. ABSORBER
7. SOLDER
8. DUMMY LOAD (5ohm/200W)

3. SPECIFICATIONS

3.1. PRODUCT SPECIFICATIONS

LCD Panel	15.0" TFT
Power Management	Energy Star compliant VESA DPMS compatible < 2W
Displayable Resolution	XGA 1024× 768 (max.)
Pixel Dimension	0.297× 0.297mm
LCD Display Color	16.2M Color Max.
Viewing Angle	CR≧10 Horizontal: -70°~+70° Vertical: -65°~+60°
Tilt	+20°~-1°
Contrast Ratio	300 : 1 (min.) 400 : 1 (typ.)
Brightness	200 cd/m^2 (min.) 250 cd/m^2 (typ.)
Response Time	Tr: 7 ms Tf: 9ms (typ.)
Active Display Area	304.1mm× 228.1mm
Temperature	Operating: 0°C ~ +35°C Storage: -20°C ~ +60°C
Power	Input Voltage: 100~240 Vac Consumption: 35 Watts (Max.)
Audio	1Watt(L) + 1Watt(R)

3.2. SUPPORTING TIMING CHART

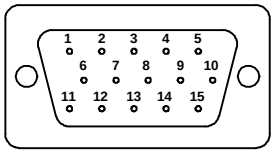
ITEM	1	2	3	4	5
TIMING	720×400@70Hz	640×480@60Hz	640×480@67Hz	640×480@75Hz	800×600@56Hz
Pixel Rate	28.322MHz	25.175MHz	30.240MHz	31.500MHz	36.000MHz
H TOTAL	31.778us	31.778us	28.571us	26.667us	28.444us
H DISPLAY	25.422us	25.422us	21.164us	20.317us	22.222us
H B-Porch	1.907us	1.907us	3.175us	3.810us	3.556us
H Width	3.813us	3.813us	2.116us	2.032us	2.000us
H Border	0.318us	0.318us	0.000us	0.000us	0.000us
V TOTAL	14.268ms	16.683ms	15.000ms	13.334ms	17.778ms
V DISPLAY	12.711ms	15.253ms	13.714ms	12.800ms	17.066ms
V B-Porch	1.112ms	1.049ms	1.114ms	0.427ms	0.626ms
Vs Width	0.064ms	0.064ms	0.086ms	0.080ms	0.057ms
V Border	0.222ms	0.254ms	0.000ms	0.000ms	0.000ms
H/V Sync	-/+	-/-	-/-	-/-	+/+
Interlace	No.	No.	No.	No.	No.

ITEM	6	7	8	9	10
TIMING	800×600@60Hz	800×600@72Hz	800×600@75Hz	832×624@74.5Hz	1024×768@60Hz
Pixel Rate	40.000MHz	50.000MHz	48.500MHz	57.280MHz	65.000MHz
H TOTAL	26.400us	20.800us	21.333us	20.112us	20.677us
H DISPLAY	20.000us	16.000us	16.162us	14.525us	15.754us
H B-Porch	2.200us	1.280us	3.232us	3.771us	2.462us
H Width	3.200us	2.400us	1.616us	1.118us	2.092us
H Border	0.000us	0.000us	0.000us	0.000us	0.000us
V TOTAL	16.579ms	13.853ms	13.333ms	13.417ms	16.666ms
V DISPLAY	15.840ms	12.480ms	12.800ms	12.552ms	15.880ms
V B-Porch	0.607ms	0.478ms	0.448ms	0.784ms	0.600ms
Vs Width	0.106ms	0.125ms	0.064ms	0.060ms	0.124ms
V Border	0.000ms	0.000ms	0.000ms	0.00ms	0.000ms
H/V Sync	+/+	+/+	+/+	-/-	-/-
Interlace	No.	No.	No.	No.	No.

ITEM	11	12	13	14	15
TIMING	1024×768@70Hz	1024×768@75Hz			
Pixel Rate	75.000MHz	78.750MHz			
H TOTAL	17.707us	16.660us			
H DISPLAY	13.653us	13.003us			
H B-Porch	1.920us	2.235us			
H Width	1.813us	1.219us			
H Border	0.000us	0.000us			
V TOTAL	14.272ms	13.328ms			
V DISPLAY	13.599ms	12.795ms			
V B-Porch	0.513ms	0.466ms			
Vs Width	0.106ms	0.050ms			
V Border	0.000ms	0.000ms			
H/V Sync	-/-	+/+			
Interlace	No.	No.			

3.3. D-SUB CONNECTOR

D-SUB 15 PIN CONNECTOR

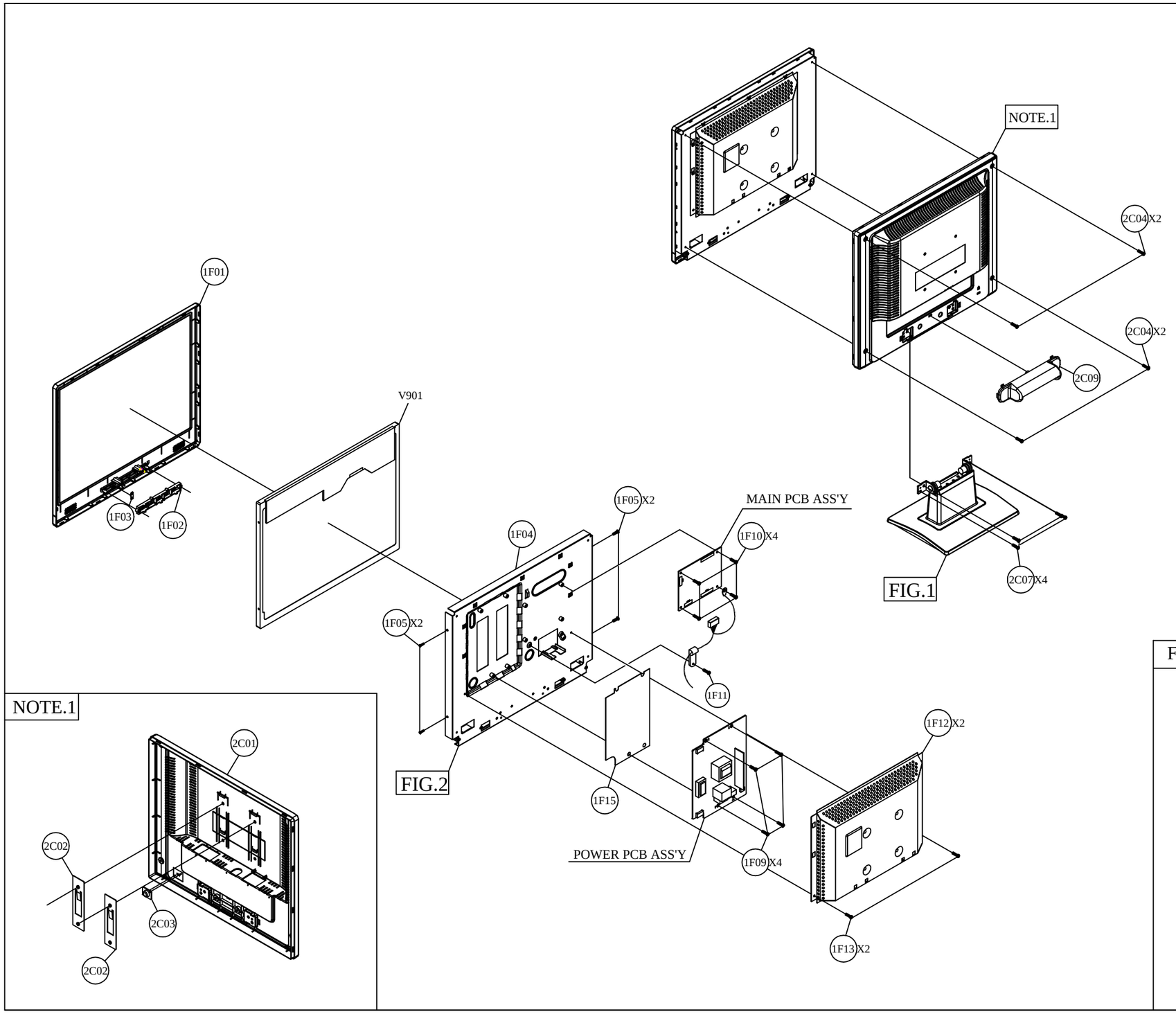


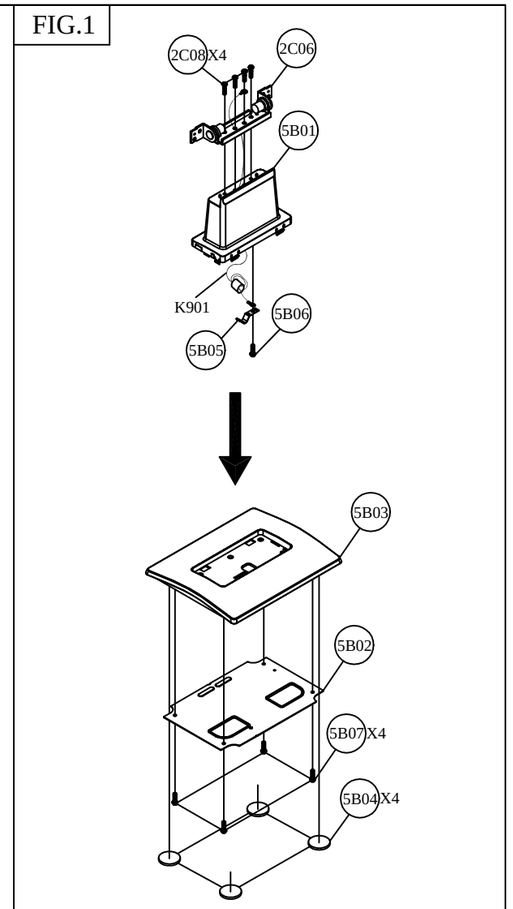
1.Red Video	**6.Red GND**	**11.NC**
2.Green Video	**7.Green GND**	**12.SDA**
3.Blue Video	**8.Blue GND**	**13.H-sync**
4.GND	**9. +5V for DDC**	**14.V-sync**
5.Self Test	**10.GND**	**15.SCL**

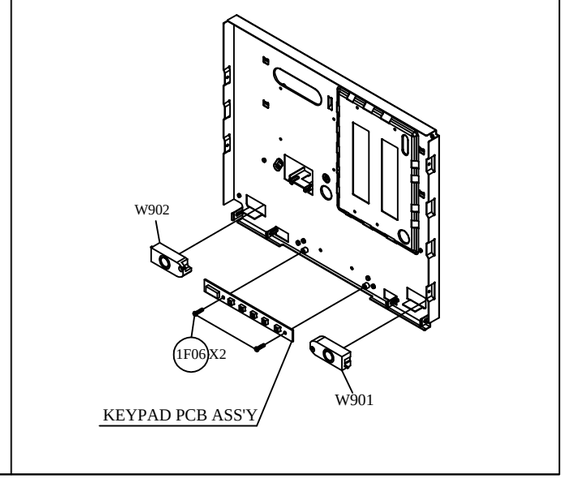
SIGNAL LEVEL

CONNECTOR	SIGNAL	DESCRIPTION
R	RED	0.7vp-p(VIDEO)
G	GREEN	0.7vp-p(VIDEO)
B	BLUE	0.7vp-p(VIDEO)
H	H/SYNC	TTL positive or negative
V	V/SYNC	TTL positive or negative
SDA	DDC1/2B	TTL
SCL	DDC1/2B	TTL

4.1 Exploded View



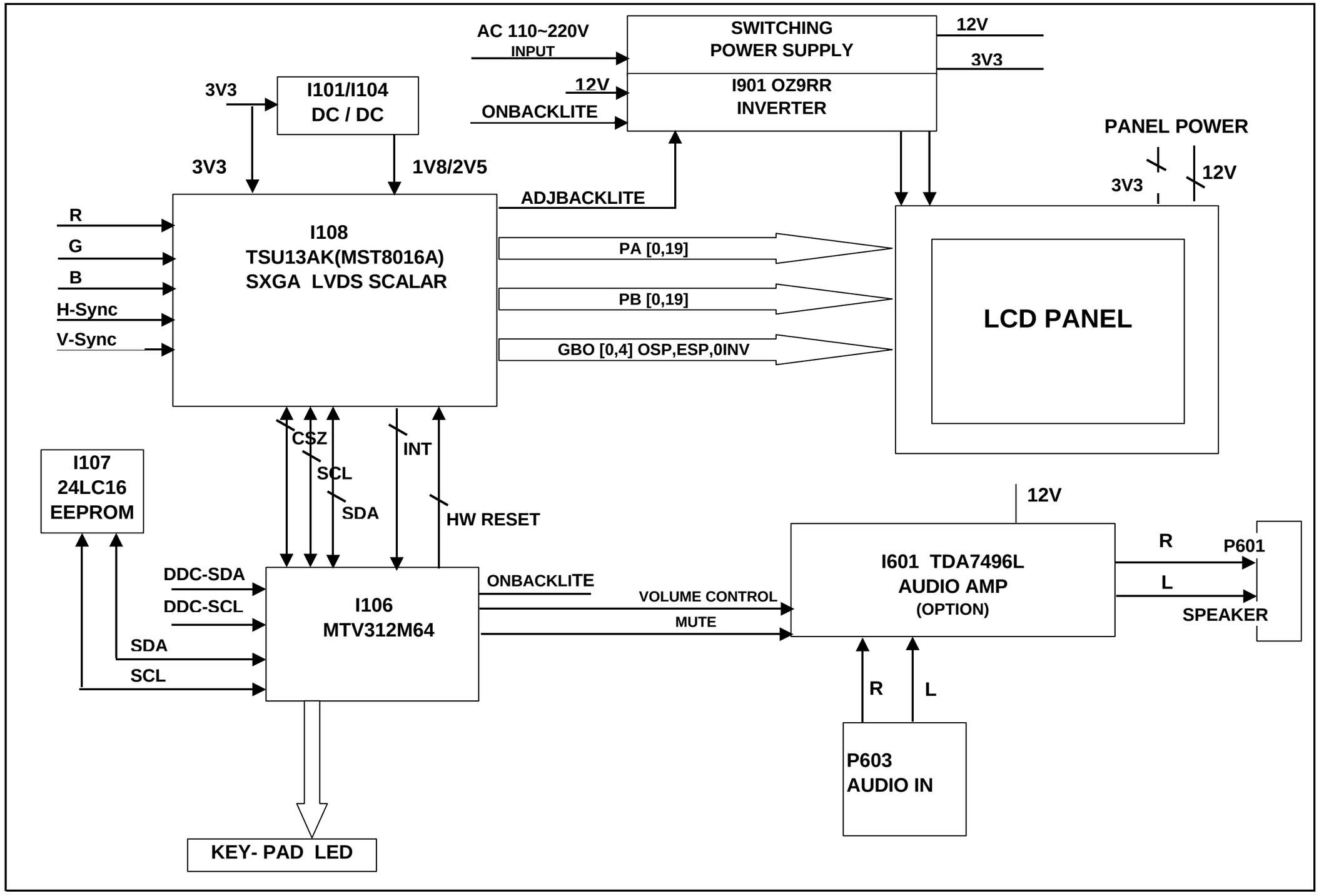




4.2. EXPLODED VIEW PARTS LIST

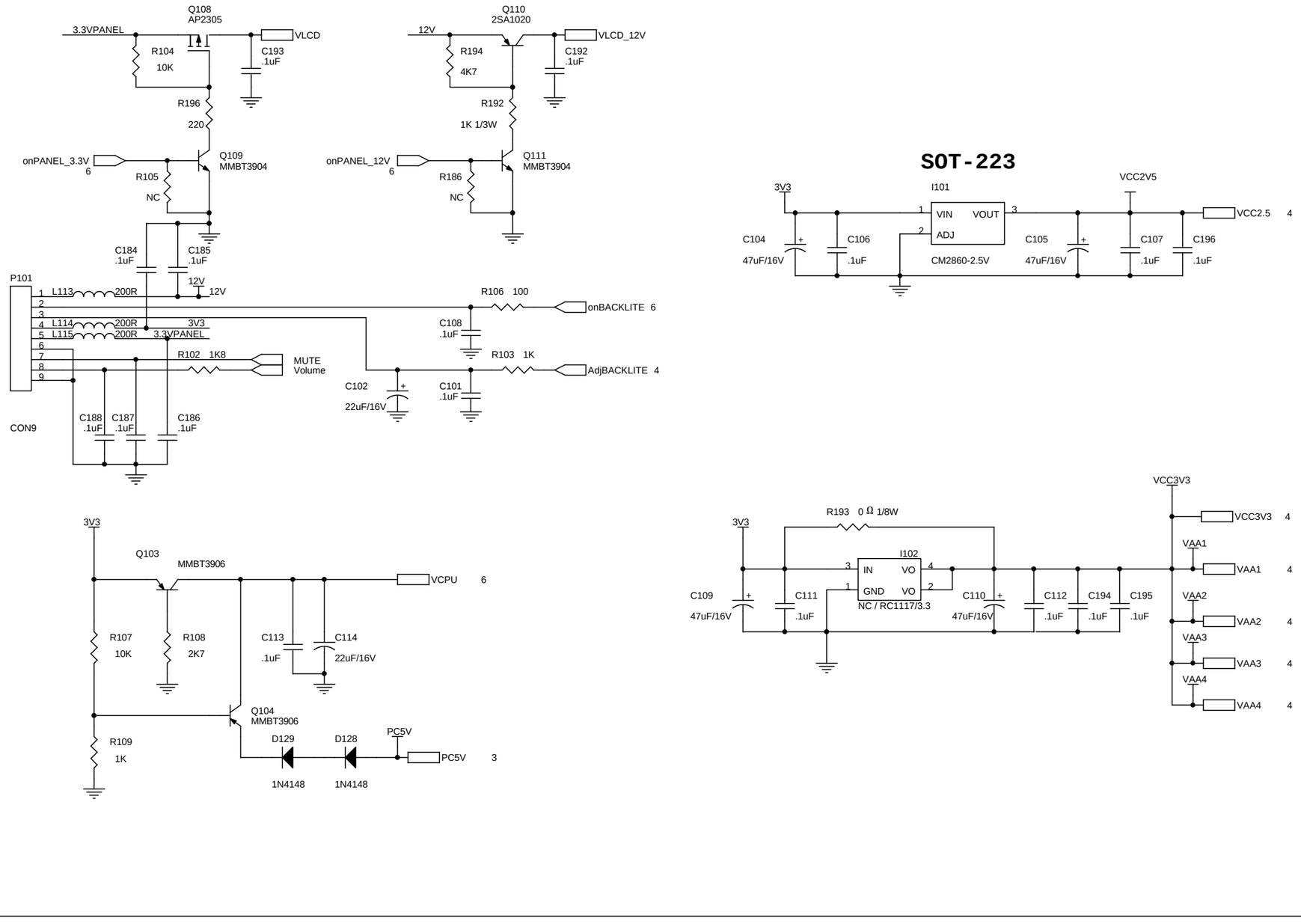
Ref. No.	Source	Part No.	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1F01		2024268502	FRONT BEZEL	BELINEA ABS94HB 7035 701922	1	
1F02		2053754001	LED INDIC.-PWR	JT198DP PMMA POWER	1	
1F03		2044266803	FUNCTION KEY	JT198DP ABS94HB PS-7604B	1	
1F04		2071973300	METAL FITTG	JT166DP SECC 0.8t CPTXP02	1	
1F05		2080002200	SCREW,SPE	L355 M3x6 DH NICKEL-PLATED	4	
1F06		2082630062	SCREW	M3X6 P=0.5	2	
1F09		2080003700	SCREW,SPE	1SZZTER001A M3*6LMSWR17/FZMY1	4	
1F10		2080003700	SCREW,SPE	1SZZTER001A M3*6LMSWR17/FZMY1	4	
1F11		2080040062	SCREW,SPE	M4*8 PMS-3/W	1	
1F12		2071672400	SHIELD PLATE	JT166DP SPTE T=0.3mm	1	
1F13		2082630062	SCREW	M3X6 P=0.5	2	
1F15		2072459900	INSULATOR	PC FR700 94V0 156*103*0.5+	1	
2C01		2022263202	CABI BACK	BELINEA ABS94HB 7035 701922	1	
2C02		2071873100	BRACKET,FIX	JT166DP SECC 0.8t WALL MOUNT	2	
2C03		2071869400	BRACKET,FIX	METAL PLATE 1.0MM KENSINGTON	1	
2C04		2082630062	SCREW	M3X6 P=0.5	4	
2C06		2106657100	HINGE	JT166DP -1~20' 20KG/CM	1	
2C07		2087340086	SCREW,B SPW+	M4X8 B SPW+ φ3.96 NYLON	4	
2C08		2084740122	SCREW,BND T+	M4X12(BND T+)	4	
2C09		2027260202	DUST COVER	JT166DP ABS94HB 7035 701922	1	
5B01		2028258902	STAND	UP ABS94HB RAL 7035 701922	1	
5B02		2071974800	METAL FITTG	JT166DP SECC 0.8T STAND TCO	1	
5B03		2028259002	STAND	DOWN ABS94HB RAL7035 701922	1	
5B04		2039819901	FOOT PAD	RUBBERφ16*2.0+ SQUARE GRAIN	4	
5B05		2105252300	SPRING PLATE	JT166DP18 P-CU T=0.2mm	1	
5B06		2083730082	SCREW,BND T+	BND T+ M3*8 ZN	1	
5B07		2083730082	SCREW,BND T+	BND T+ M3*8 ZN	4	

5. BLOCK DIAGRAM

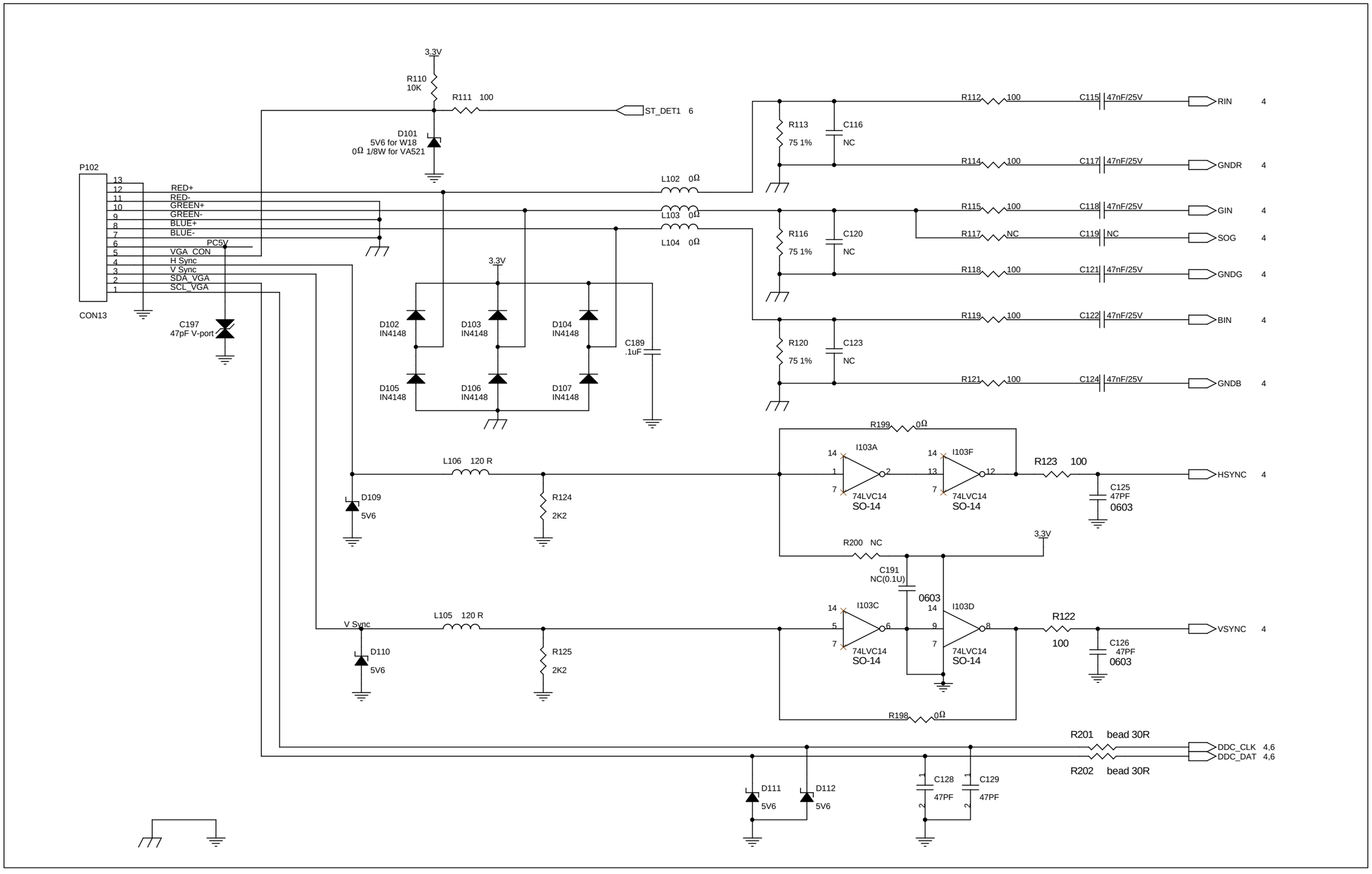


6. SCHEMATIC DIAGRAM

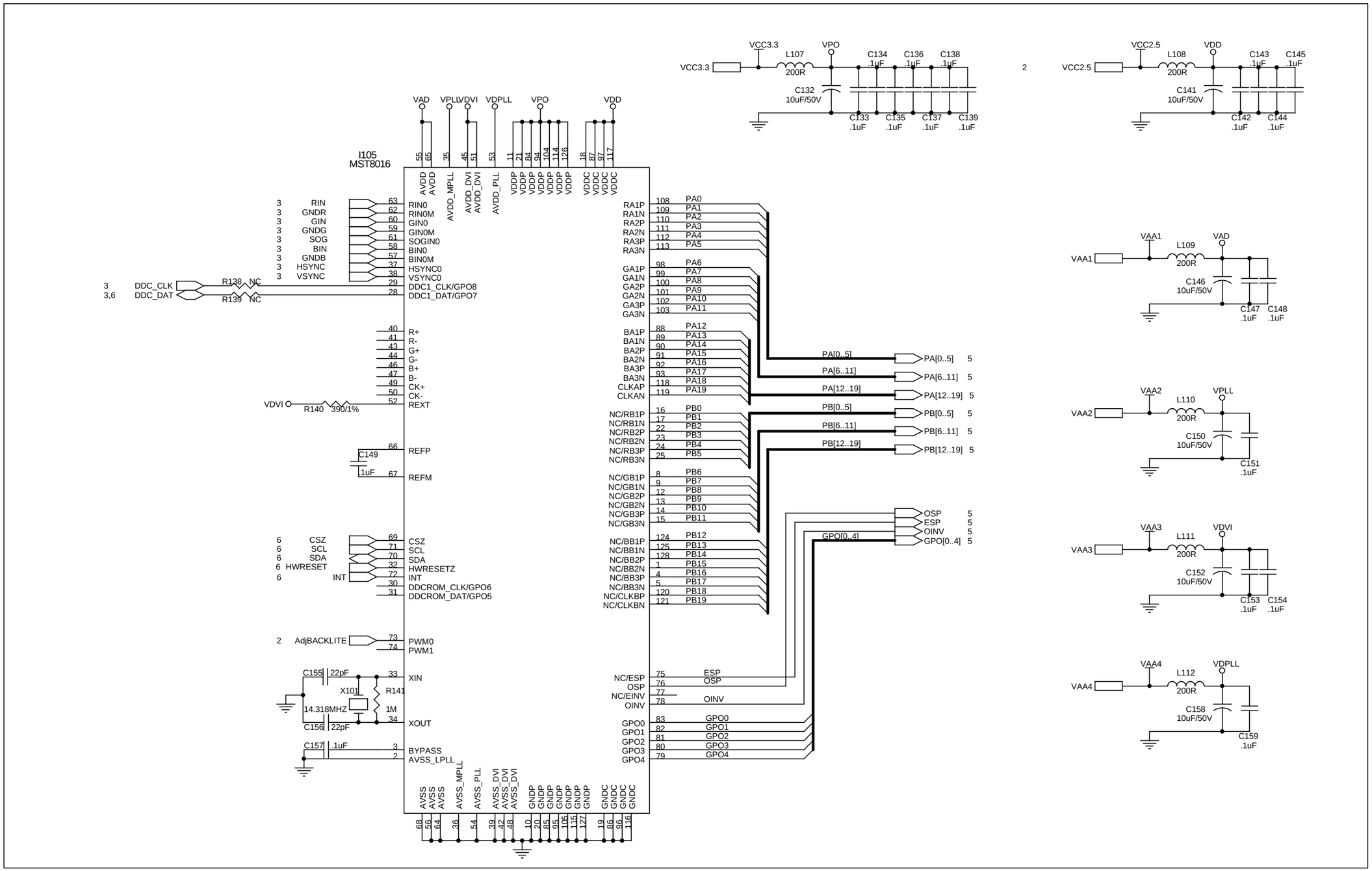
6.1. Power



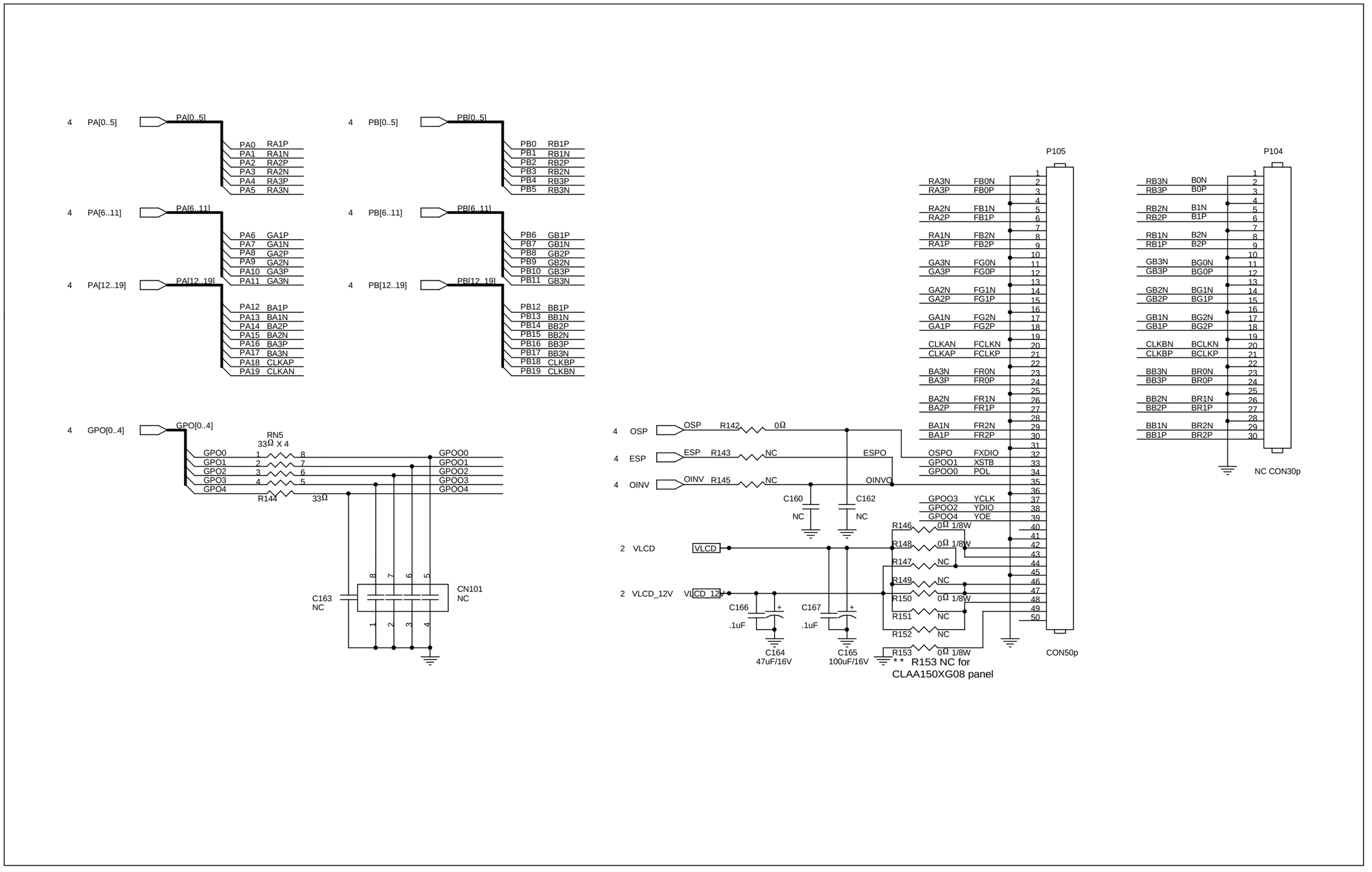
6.2. Input


3.3V
R110 10K
R111 100
ST_DET1 6
D101 5V6 for W18 0Ω 1/8W for VA521
P102
13
12 RED+
11 RED-
10 GREEN+
9 GREEN-
8 BLUE+
7 BLUE-
6 PC5V
5 VGA_CON
4 H Sync
3 V Sync
2 SDA_VGA
1 SCL_VGA
CON13
C197 47pF V-port
L102 0Ω
L103 0Ω
L104 0Ω
D102 IN4148
D103 IN4148
D104 IN4148
D105 IN4148
D106 IN4148
D107 IN4148
C189 .1uF
R112 100
C115 47nF/25V
RIN 4
R113 75 1%
C116 NC
R114 100
C117 47nF/25V
GNDR 4
R115 100
C118 47nF/25V
GIN 4
R116 75 1%
C120 NC
R117 NC
C119 NC
SOG 4
R118 100
C121 47nF/25V
GNDG 4
R119 100
C122 47nF/25V
BIN 4
R120 75 1%
C123 NC
R121 100
C124 47nF/25V
GNDB 4
R199 0Ω
L106 120 R
D109 5V6
R124 2K2
I103A 74LVC14 SO-14
I103F 74LVC14 SO-14
R123 100
C125 47PF 0603
HSYNC 4
R200 NC
3.3V
C191 NC(0.1U) 0603
V Sync
L105 120 R
D110 5V6
R125 2K2
I103C 74LVC14 SO-14
I103D 74LVC14 SO-14
R122 100
C126 47PF 0603
VSYNC 4
R198 0Ω
R201 bead 30R
R202 bead 30R
DDC_CLK 4,6
DDC_DAT 4,6
D111 5V6
D112 5V6
C128 47PF
C129 47PF

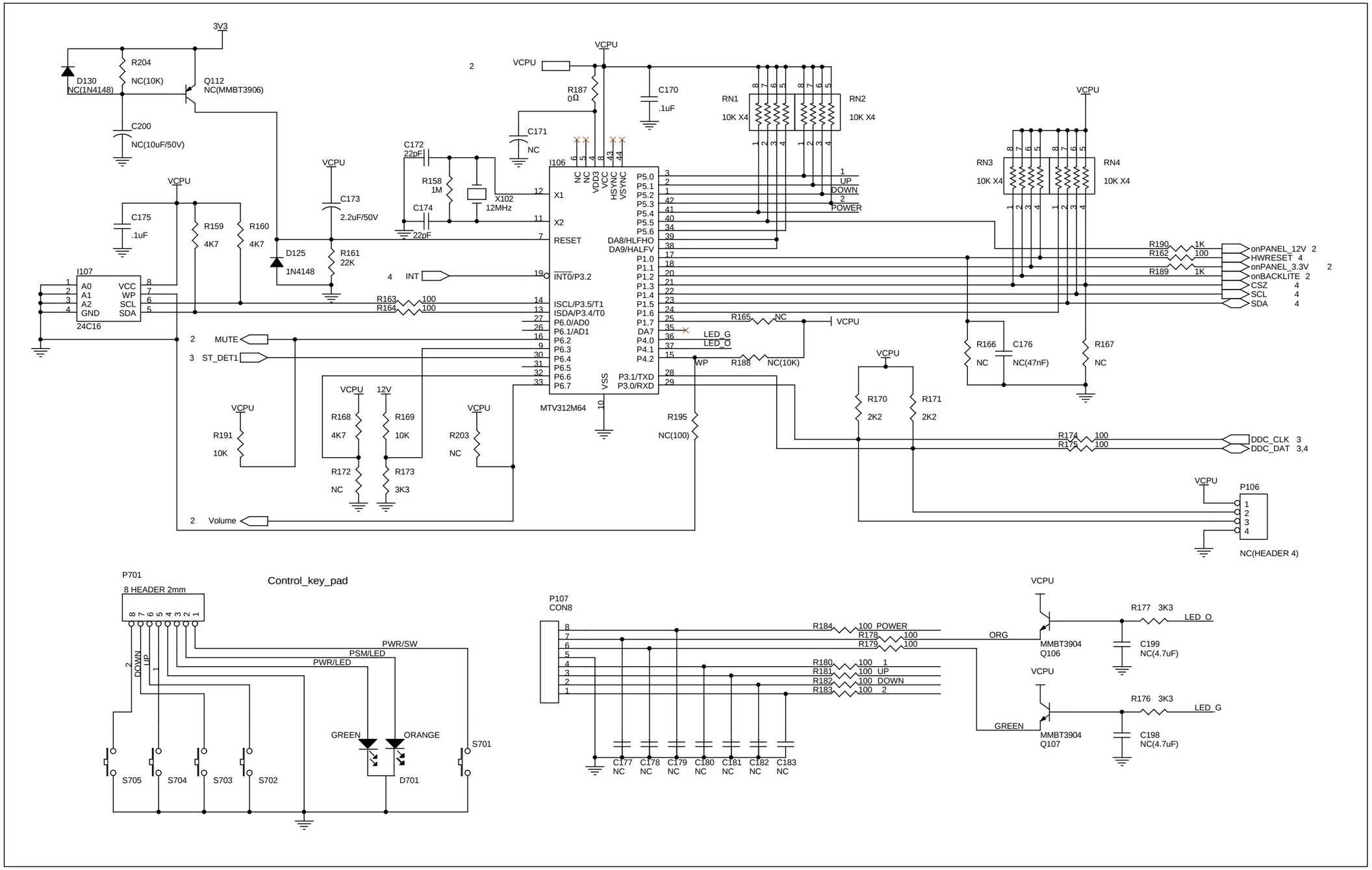
6.3. Scaler


I105
MST8016
VAD VPLL VDVI VDPLL VPO VDD
AVDD AVDD AVDD_MPLL AVDD_DVI AVDD_DVI AVDD_PLL VDDP VDDP VDDP VDDP VDDP VDDP VDDP VDDC VDDC VDDC VDDC
RIN0 RIN0M GIN0 GIN0M SOGIN0 BIN0 BIN0M HSYNC0 VSYNC0 DDC1_CLK/GPO8 DDC1_DAT/GPO7
R+ R- G+ G- B+ B- CK+ CK- REXT
REFP REFM
CSZ SCL SDA HWRESETZ INT DDCROM_CLK/GPO6 DDCROM_DAT/GPO5
PWM0 PWM1
XIN XOUT
BYPASS AVSS_LPLL
AVSS AVSS AVSS AVSS_MPLL AVSS_PLL AVSS_DVI AVSS_DVI AVSS_DVI GNDP GNDP GNDP GNDP GNDP GNDP GNDP GNDC GNDC GNDC GNDC
RA1P RA1N RA2P RA2N RA3P RA3N GA1P GA1N GA2P GA2N GA3P GA3N BA1P BA1N BA2P BA2N BA3P BA3N CLKAP CLKAN
NC/RB1P NC/RB1N NC/RB2P NC/RB2N NC/RB3P NC/RB3N NC/GB1P NC/GB1N NC/GB2P NC/GB2N NC/GB3P NC/GB3N
NC/BB1P NC/BB1N NC/BB2P NC/BB2N NC/BB3P NC/BB3N NC/CLKBP NC/CLKBN
NC/ESP OSP NC/EINV OINV
GPO0 GPO1 GPO2 GPO3 GPO4
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7 PA8 PA9 PA10 PA11 PA12 PA13 PA14 PA15 PA16 PA17 PA18 PA19
PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7 PB8 PB9 PB10 PB11 PB12 PB13 PB14 PB15 PB16 PB17 PB18 PB19
ESP OSP OINV GPO0 GPO1 GPO2 GPO3 GPO4
PA[0..5] PA[6..11] PA[12..19] PB[0..5] PB[6..11] PB[12..19] GPO[0..4]
RIN GNDR GIN GNDG SOG BIN GNDB HSYNC VSYNC
DDC_CLK DDC_DAT
R138 NC R139 NC
VDVI R140 390/1%
C149 1uF
CSZ SCL SDA HWRESETZ INT
AdjBACKLITE
C155 22pF X101 14.318MHZ C156 22pF R141 1M
C157 .1uF
VCC3.3 L107 200R VPO C132 10uF/50V C133 .1uF C134 .1uF C135 .1uF C136 .1uF C137 .1uF C138 .1uF C139 .1uF
VCC2.5 L108 200R VDD C141 10uF/50V C142 .1uF C143 .1uF C144 .1uF C145 .1uF
VAA1 L109 200R VAD C146 10uF/50V C147 .1uF C148 .1uF
VAA2 L110 200R VPLL C150 10uF/50V C151 .1uF
VAA3 L111 200R VDVI C152 10uF/50V C153 .1uF C154 .1uF
VAA4 L112 200R VDPLL C158 10uF/50V C159 .1uF

6.4. Panel Interface

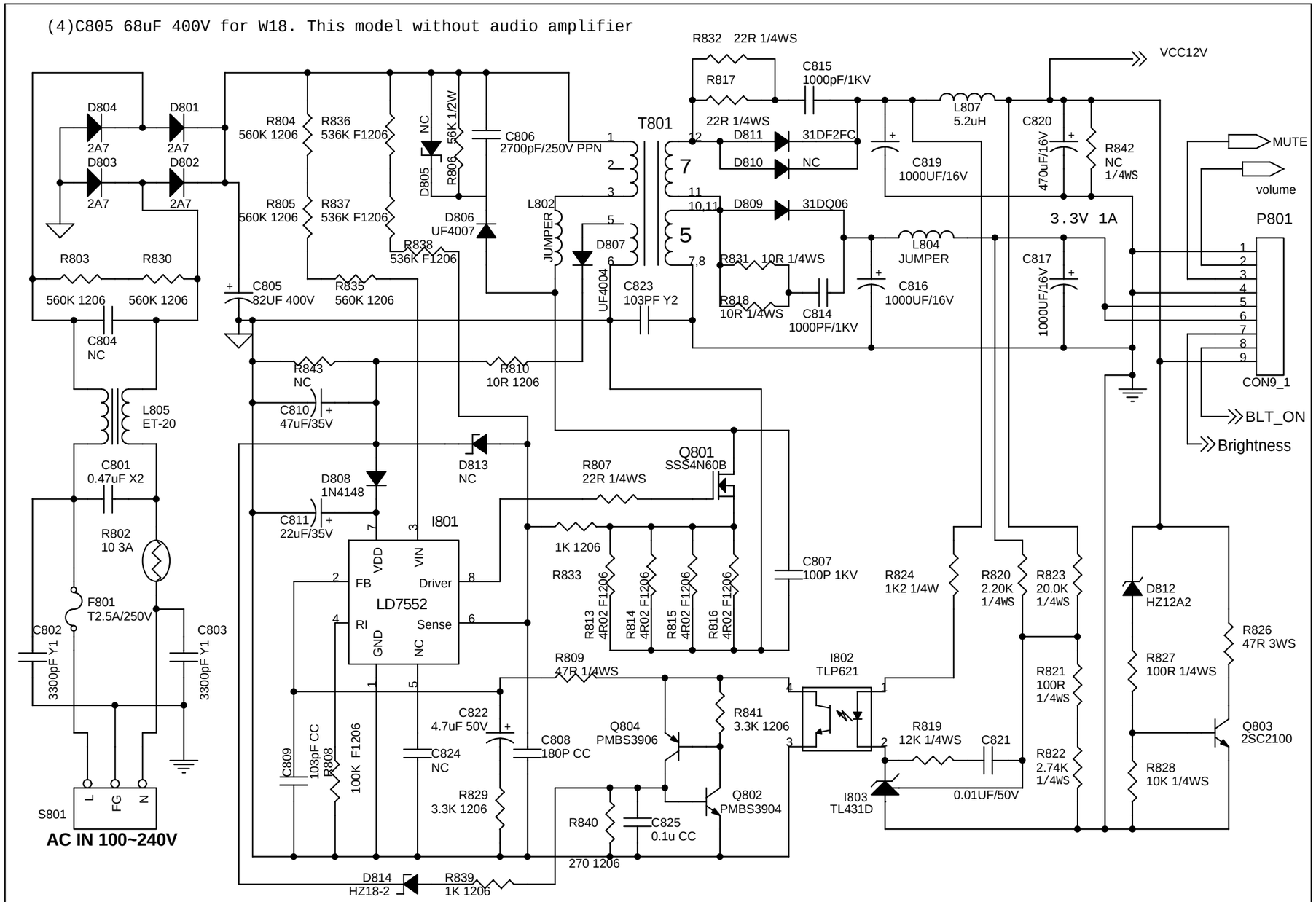


6.5. MCU


3V3
D130
NC(1N4148)
R204
NC(10K)
Q112
NC(MMBT3906)
C200
NC(10uF/50V)
VCPU
C175
.1uF
R159
4K7
R160
4K7
D125
1N4148
C173
2.2uF/50V
R161
22K
I107
A0
A1
A2
GND
VCC
WP
SCL
SDA
24C16
MUTE
ST_DET1
R163
100
R164
100
INT
C172
22pF
R158
1M
X102
12MHz
C174
22pF
R187
0Ω
C170
.1uF
C171
NC
I106
X1
X2
RESET
INT0/P3.2
ISCL/P3.5/T1
ISDA/P3.4/T0
P6.0/AD0
P6.1/AD1
P6.2
P6.3
P6.4
P6.5
P6.6
P6.7
P5.0
P5.1
P5.2
P5.3
P5.4
P5.5
P5.6
DA8/HLFHO
DA9/HALFV
P1.0
P1.1
P1.2
P1.3
P1.4
P1.5
P1.6
P1.7
DA7
P4.0
P4.1
P4.2
P3.1/TXD
P3.0/RXD
VSS
MTV312M64
RN1
10K X4
RN2
10K X4
RN3
10K X4
RN4
10K X4
UP
DOWN
POWER
R165
NC
LED_G
LED_O
WP
R188
NC(10K)
R166
NC
C176
NC(47nF)
R167
NC
R190
1K
R162
100
R189
1K
onPANEL_12V 2
HWRESET 4
onPANEL_3.3V 2
onBACKLITE 2
CSZ 4
SCL 4
SDA 4
R191
10K
R168
4K7
R169
10K
R172
NC
R173
3K3
R203
NC
R195
NC(100)
R170
2K2
R171
2K2
R174
100
R175
100
DDC_CLK 3
DDC_DAT 3,4
P106
NC(HEADER 4)
Volume

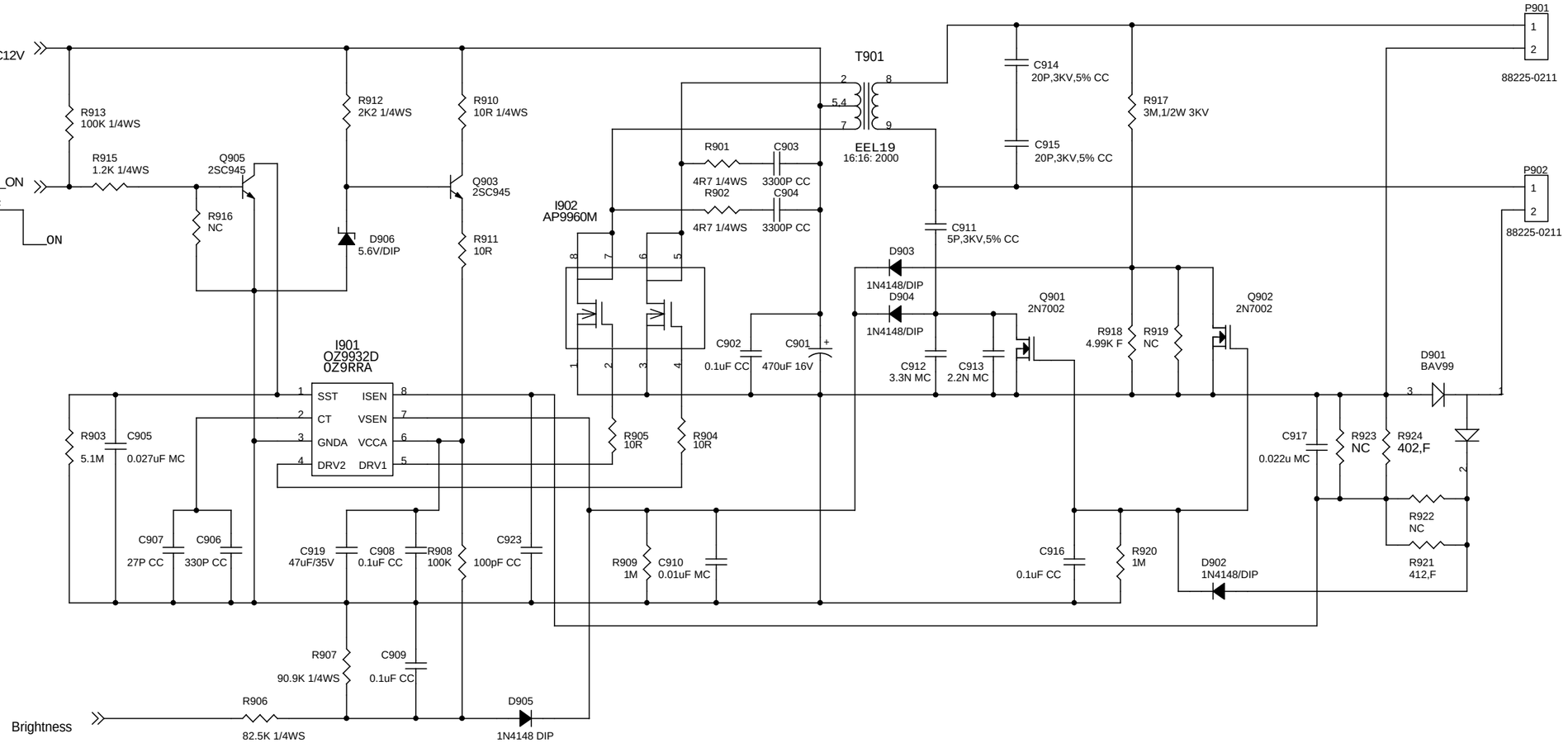
P701
8 HEADER 2mm
Control_key_pad
PWR/SW
PSM/LED
PWR/LED
DOWN
UP
GREEN
ORANGE
S705
S704
S703
S702
S701
D701
P107
CON8
R184
100 POWER
R178
100
R179
100
R180
100 1
R181
100 UP
R182
100 DOWN
R183
100 2
C177 NC
C178 NC
C179 NC
C180 NC
C181 NC
C182 NC
C183 NC
ORG
GREEN
MMBT3904
Q106
MMBT3904
Q107
R177 3K3
LED_O
C199
NC(4.7uF)
R176 3K3
LED_G
C198
NC(4.7uF)

6.6. A-D Power



(1) SMD resistor - power rating is 1/6W,if not indicated
(2) SMD capacitpr - temperature is 85'C & voltage is 50V,if not indicated.
(3) D810 NC for model without audio, 31DF2 for model with audio.

6.7. Inverter



(1) SMD resistor - power rating is 1/8W,if not indicated

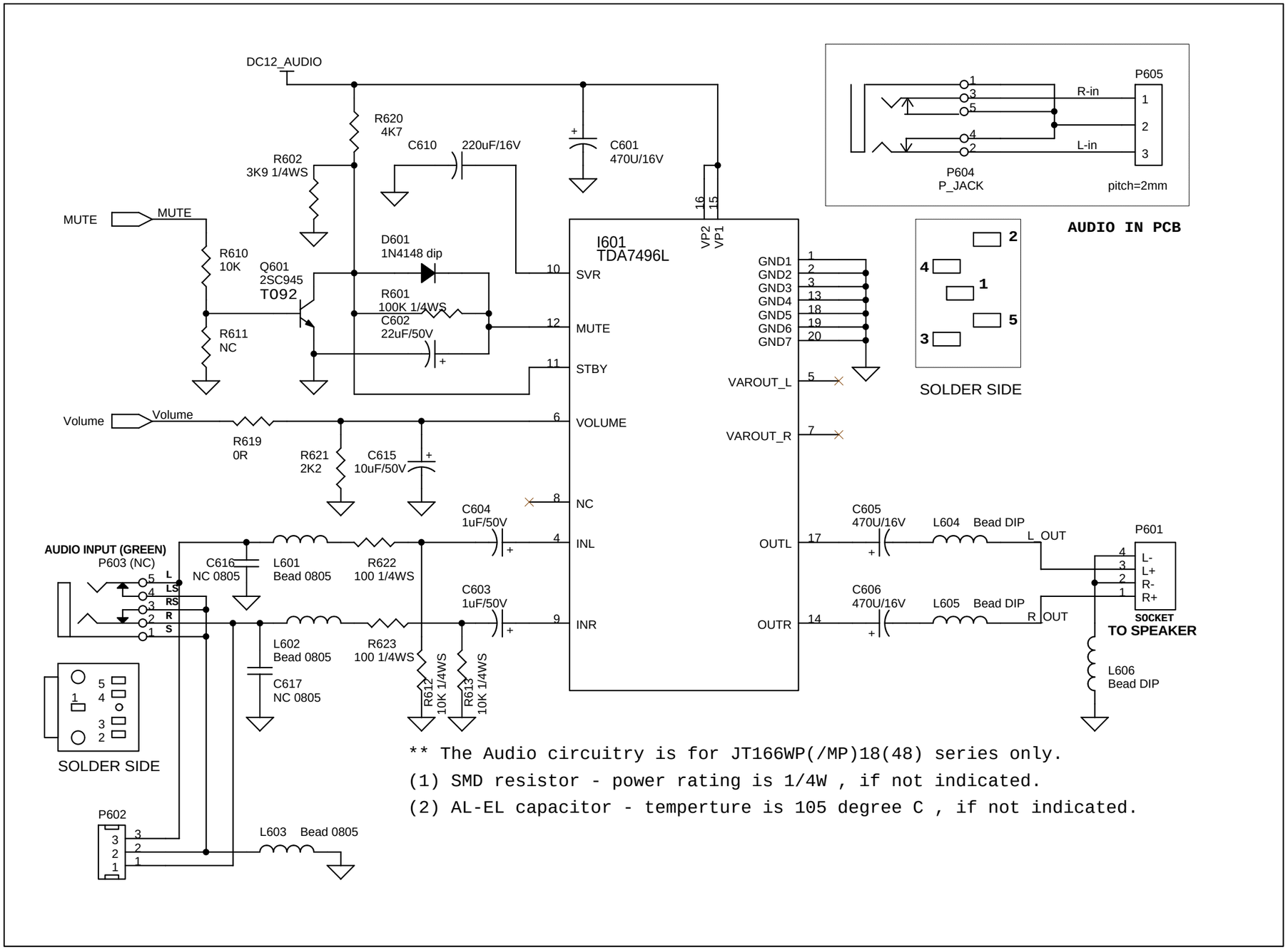
(2) SMD capacitpr - temperature is 85'C & voltage is 50V,if not indicated.

(3)R913 100K, R915 1.2K,R916 NC for CPT XP02 which Pannel power did't had load on 12V.

(4)R915 100ohm, R916 10K for CPT XG08

(5)R924 357ohm for DP18(2)

6.8. Audio



** The Audio circuitry is for JT166WP(/MP)18(48) series only.
(1) SMD resistor - power rating is 1/4W , if not indicated.
(2) AL-EL capacitor - temperture is 105 degree C , if not indicated.

7. WORKING THEOREM

A. DC-DC CONVERTER

The power supply with a high-integrated green-mode PWM controller provides several features to enhance the performance of power flyback converters.

I801 is a PWM controller and provides many protection functions.

I802 is a photo couple to transfer the feedback signal from the second side which I803 detected both of the output DC voltage on 3.3V and 12V.

D813 detected the working voltage on I801 and Q805 would pull down the voltage on I801 pin5 to shut down I801 if feedback loop was failed.

R826 would be a dynamic load which was active while backlight was turned off and system still working on, this kept 12V output voltage under 13V to protect the panel. After system went to power saving mode, the R826 would no loaded. This was detected by I804 and Q803 active the R826 to load or not.

B. Scaling controller

The ADC is to convert RGB analog signal to digital signal that scaling chip can acknowledge.

The HSYNC input receives a logic signal and provides the frequency reference for pixel clock generation.

The scaling IC is to converts the input signal ranging from VGA to XGA into XGA resolution that panel can acknowledge.

GENERAL DESCRIPTION

The MST8016A is a high performance, and fully integrated graphics processing IC solution for LCD monitors with resolutions up to XGA. It is configured with an integrated triple-ADC/PLL, a high quality scaling engine, an on-screen display controller, a built-in output clock generator, a panel timing controller (TCON), and RSDS display interface. To further reduce system costs, the MST8016A also integrates intelligent power management control capability for green-mode requirements and spread-spectrum support for EMI management.

PIN DESCRIPTION

CPU Interface

Pin Name Pin Type Function Pin

HWRESET Schmitt Trigger Input
w/ 5V-tolerant Hardware reset; active high 32
CS Input w/ 5V-tolerant 3 Wire Serial Bus Chip Select; active high 69
SDA I/O w/ 5V-tolerant 3 Wire Serial Bus Data; 4mA driving strength 70
SCL Input w/ 5V-tolerant 3 Wire Serial Bus Clock 71
INT Output CPU interrupt; 4mA driving strength 72

Analog Interface

Pin Name Pin Type Function Pin

HSYNC0 Schmitt Trigger Input
w/ 5V-tolerant Analog HSYNC input 37
VSYNC0 Schmitt Trigger Input
w/ 5V-tolerant Analog VSYNC input 38
REFP Internal ADC top de-coupling pin 66
REFM Internal ADC bottom de-coupling pin 67
RIN0 Analog Input Analog red input 63
RIN0M Analog Input Reference ground for analog red input 62
SOGIN0 Analog Input Sync-on-green input 61
GIN0 Analog Input Analog green input 60
GIN0M Analog Input Reference ground for analog green input 59
BIN0 Analog Input Analog blue input 58
BIN0M Analog Input Reference ground for analog blue input 57
REXT External resistor 390 ohm to AVDD 52

RSDS Interface

Pin Name Pin Type Function Pin

CLKAP Output A-Link Positive RSDS Differential Clock Output from "Odd" Channel 118
CLKAN Output A-Link Negative RSDS Differential Clock Output from "Odd" Channel 119
CLKBP Output B-Link Positive RSDS Differential Clock Output from "Even" Channel 120
CLKBN Output B-Link Negative RSDS Differential Clock Output from "Even" Channel 121
BA[3:1]P Output A-Link Positive RSDS Differential Data Output from "Odd" Channel 92, 90, 88

BA[3:1]N Output A-Link Negative RSDS Differential Data Output from "Odd" Channel 93, 91, 89
GA[3:1]P Output A-Link Positive RSDS Differential Data Output from "Odd" Channel 102, 100, 98
GA[3:1]N Output A-Link Negative RSDS Differential Data Output from "Odd" Channel103, 101,99
RA[3:1]P Output A-Link Positive RSDS Differential Data Output from "Odd" Channel 112, 110, 108
RA[3:1]N Output A-Link Negative RSDS Differential Data Output from "Odd" Channel 113, 111, 109
BB[3:1]P Output B-Link Positive RSDS Differential Data Output from "Even" Channel 4, 128, 124
BB[3:1]N Output B-Link Negative RSDS Differential Data Output from "Even" Channel 5, 1, 125
GB[3:1]P Output B-Link Positive RSDS Differential Data Output from "Even" Channel 14, 12, 8
GB[3:1]N Output B-Link Negative RSDS Differential Data Output from "Even" Channel 15, 13, 9
RB[3:1]P Output B-Link Positive RSDS Differential Data Output from "Even" Channel 24, 22, 16
RB[3:1]N Output B-Link Negative RSDS Differential Data Output from "Even" Channel 25, 23, 17
GPO[8:5] Output TCON GPO[8:5]; 4mA driving strength 29, 28, 30,31
GPO[4:0] Output w/ Pull-down TCON GPO[4:0]; 4~12mA driving strength programmable 79-83
OINV Output w/ Pull-down Resistor TCON "Odd" Channel Inversion; 4~12mA driving strength programmable 78
EINV Output w/ Pull-down Resistor TCON "Even" Channel Inversion; 4~12mA driving strength programmable 77
OSP Output w/ Pull-down Resistor TCON "Odd" Channel Start Pulse; 4~12mA driving strength programmable 76
ESP Output w/ Pull-down Resistor TCON "Even" Channel Start Pulse; 4~12mA driving strength programmable 75

GPIO Interface
Pin Name Pin Type Function Pin
GOUT1/PWM1 Output GOUT1/PWM1; 4mA driving strength 74
GOUT0/PWM0 Output GOUT0/PWM0; 4mA driving strength 73
Misc. Interface
Pin Name Pin Type Function Pin
BYPASS For External Bypass Capacitor 3
XIN Crystal Oscillator Input Xin 33
XOUT Crystal Oscillator Output Xout 34
Power Pins
Pin Name Pin Type Function Pin
AVDD 3.3V Power ADC Power 45, 51, 55, 65
AVSS Ground ADC Ground 39, 42, 48, 56,
64, 68
AVDD_PLL 3.3V Power PLL Power 53
AVSS_PLL Ground PLL Ground 54
AVDD_MPLL 3.3V Power MPLL Power 35
AVSS_MPLL Ground MPLL Ground 2, 36
VDDP 3.3V Power Digital Output Power 11, 21, 84, 94,
104, 114, 126
GNDP Ground Digital Output Ground 10, 20, 85, 95,
105, 115, 127
VDDC 2.5V Power Digital Core Power 18, 87, 97, 117
GNDC Ground Digital Core Ground 19, 86, 96, 116
No Connects
Pin Name Pin Type Function Pin
NC No Connect. Leave These Pins Floating.
6, 7, 26, 27, 40,
41, 43, 44, 46,
47, 49, 50, 106,
107, 122, 123
Resolution 8 Bits
DC ACCURACY
Differential Nonlinearity ± 0.5 +1.50/-1.0 LSB
Integral Nonlinearity ± 1 LSB
No Missing Codes Guaranteed
ANALOG INPUT
Input Voltage Range
Minimum 0.5 V p-p
Maximum 1.0 V p-p
Input Bias Current 1 uA
Input Full-Scale Matching 1.5 %FS
Brightness Level Adjustment 62 %FS

SWITCHING PERFORMANCE
Maximum Conversion Rate 165 MSPS
Minimum Conversion Rate 20 MSPS
HSYNC Input Frequency 15 200 kHz
PLL Clock Rate 20 162.5 MHz
PLL Jitter 500 ps p-p
Sampling Phase Tempco TBD ps/°C
DIGITAL INPUTS
Input Voltage, High (VIH) 2.5 V
Input Voltage, Low (VIL) 0.8 V
Input Current, High (IIH) -1.0 uA
Input Current, Low (IIL) 1.0 uA
Input Capacitance 5 pF
DIGITAL OUTPUTS
Output Voltage, High (VOH) VDDP-0.1 V
Output Voltage, Low (VOL) 0.1 V
DYNAMIC PERFORMANCE
Analog Bandwidth, Full Power 250 MHz
Channel to Channel Matching 0.5% Full-Scale
3.3V Supply Voltages VVDD_33 -0.3 3.6 V
2.5V Supply Voltages VVDD_25 -0.3 2.75 V
Input Voltage (5V tolerant inputs) VIN5Vtol -0.3 5.0 V
Input Voltage (non 5V tolerant inputs) VIN -0.3 VVDD_33 V

C. MTV312M64

The MTV312M micro-controller is an 8051 CPU core embedded device especially tailored for CRT/LCD Monitor applications. It includes an 8051 CPU core, 1024-byte SRAM, 14 built-in PWM DACs, VESA DDC interface, 4-channel A/D converter, and a 64K-byte internal program Flash-ROM.
A "CMOS output pin" means it can sink and drive at least 4mA current. It is not recommended to use such pin as input function.
A "open drain pin" means it can sink at least 4mA current but only drive 10~20uA to VDD. It can be used as input or output function and needs an external pull up resistor.
A "8051 standard pin" is a pseudo open drain pin. It can sink at least 4mA current when output is at low level, and drives at least 4mA current for 160nS when output transits from low to high, then keeps driving at 100uA to maintain the pin at high level. It can be used as input or output function. It needs an external pull up resistor when driving heavy load device.

POWER CONFIGURATION
The MTV312M can work on 5V or 3.3V power supply system.
In 5V power system, the VDD pin is connected to 5V power and the VDD3 needs an external capacitor, all output pins can swing from 0~5V, input pins can accept 0~5V input range.
And ADC conversion range is 5V. However, X1 and X2 pins must be kept below 3.3V.
In 3.3V power system, the VDD and VDD3 are connected to 3.3V power, all output pins swing from 0~3.3V, HSYNC, VSYNC and open drain pin can accept 0~5V input range, other pins must be kept below 3.3V. And the ADC conversion range is 3.3V.

D. INVERTER

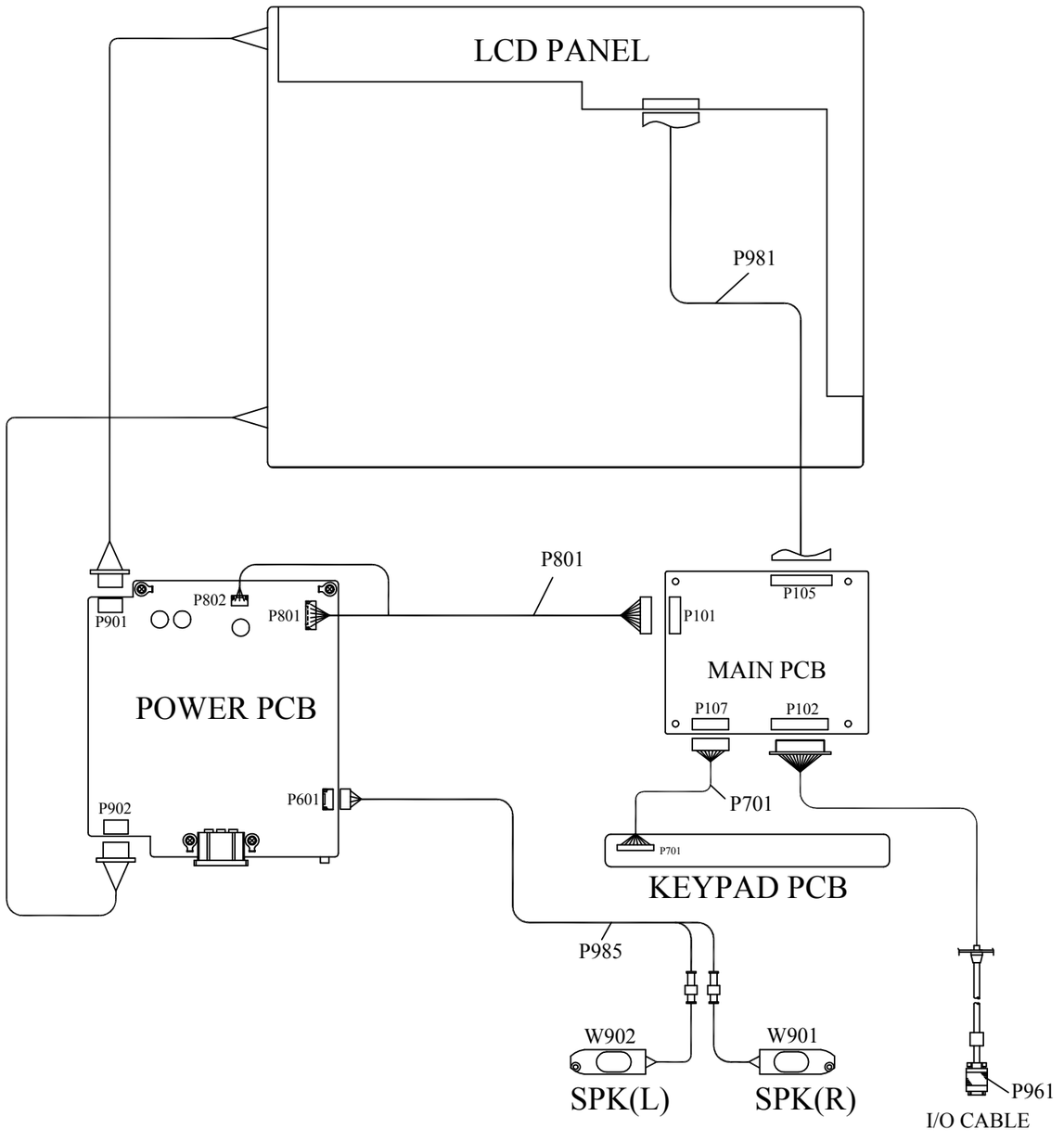
In order to drive the CCFLs embedded in the panel module, there is a push-pull inverter to convert by the controller. from input 12V up to hundreds of AC voltage output peak to peak.
The inverter is formed by symmetric in order to drive the separate lamp modules.
The input stage consists of a PWM controller,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

E. AUDIO

(This function is operated on the models which with audio function)
The TDA7496L is a stereo 2W+2W class AB power amplifier assembled in the @ Powerdip

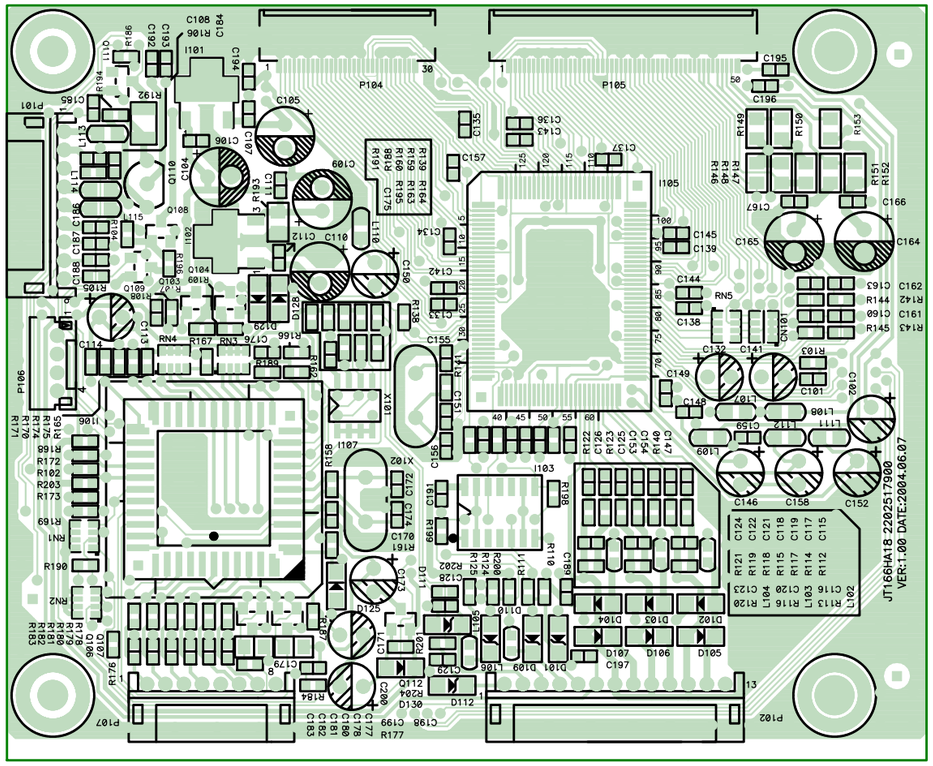
14+3+3 package, specially designed for high
quality sound, TV and Monitor applications.
And the real application on this model is 1W+1W.
Features of the TDA7496L include linear volume
control, Stand-by and mute functions
Ipeak Output Peak Current (internally limited) 0.7 0.9 A
Vin Input Signal 2.8 Vrms
GV Closed Loop Gain Vol Ctrl > 4.5V 28.5 30 31.5 dB
GvLine Monitor Out Gain Vol Ctrl > 4.5V; Zload > 30KΩ -1.5 0 1.5 dB
AMin VOL Attenuation at Minimum Volume Vol Ctrl < 0.5V 80 dB
BW 0.6 MHz
ABSOLUTE MAXIMUM RATINGS
Symbol Parameter Value Unit
VS DC Supply Voltage 26 V
VIN Maximum Input Voltage 8 Vpp
Ptot Total Power Dissipation (Tcase = 60° C) 6 W
Tamb Ambient Operating Temperature 0 to 70 ° C
Tstg, Tj Storage and Junction Temperature -40 to 150 ° C
V6 Volume CTRL DC voltage 7 V
0 4 8 12 Area(cm2)

8. WIRING DIAGRAM

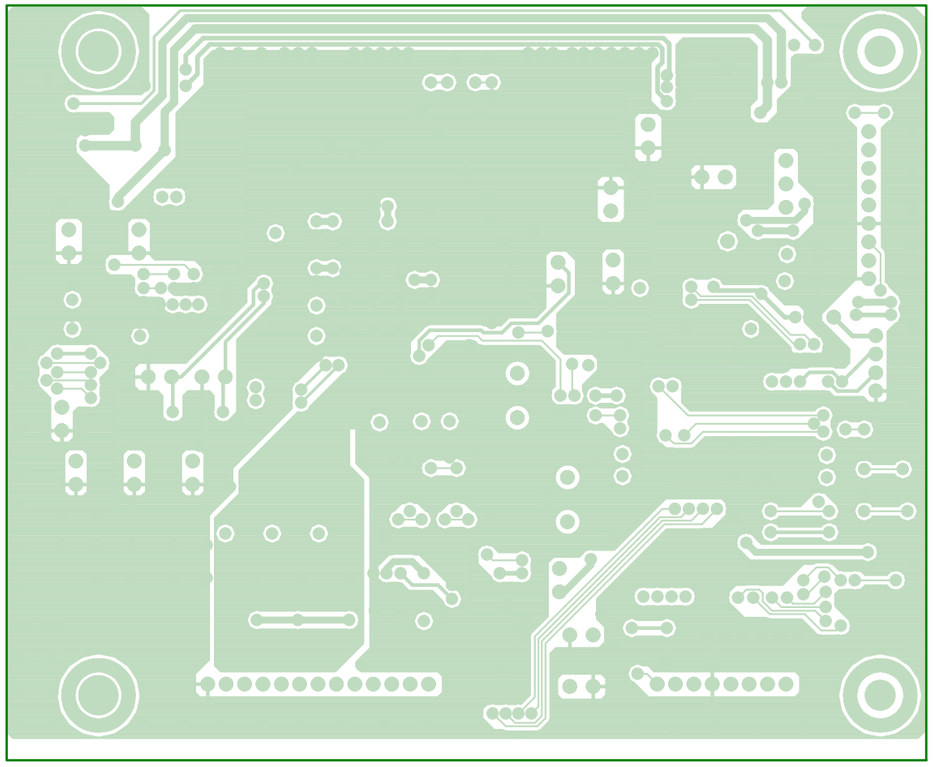


9. PCB LAYOUT

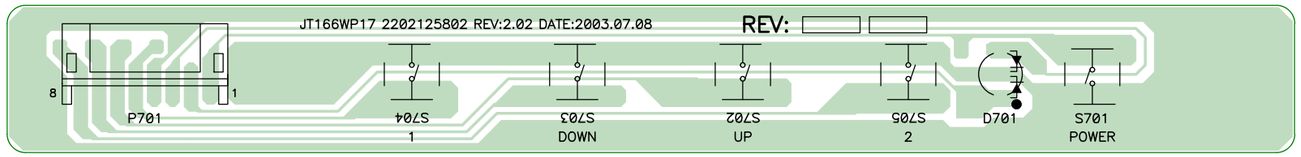
9.1. MAIN PCB TOP VIEW



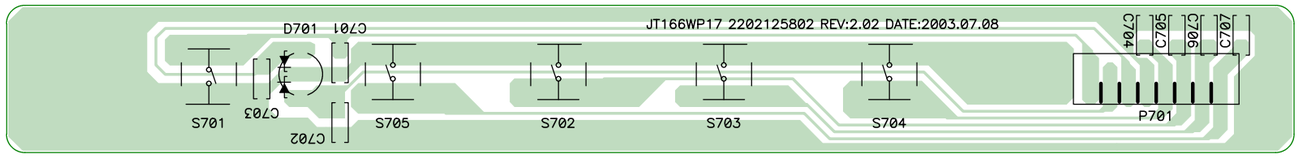
9.2. MAIN PCB BOTTOM VIEW



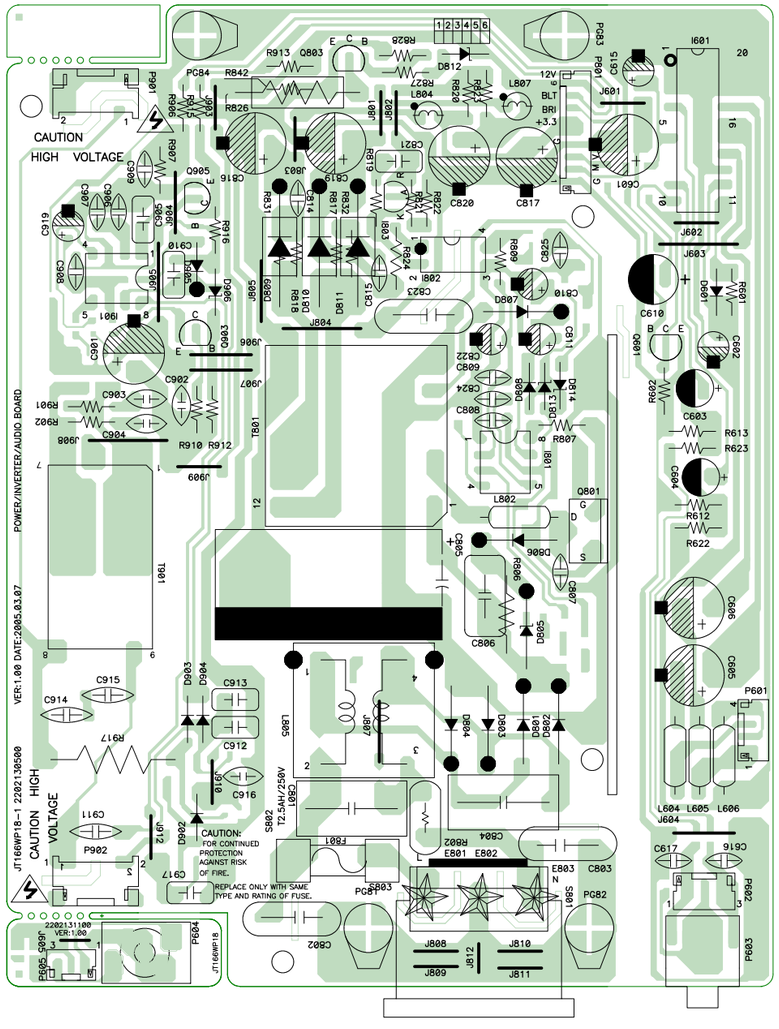
9.3. CON PCB TOP VIEW



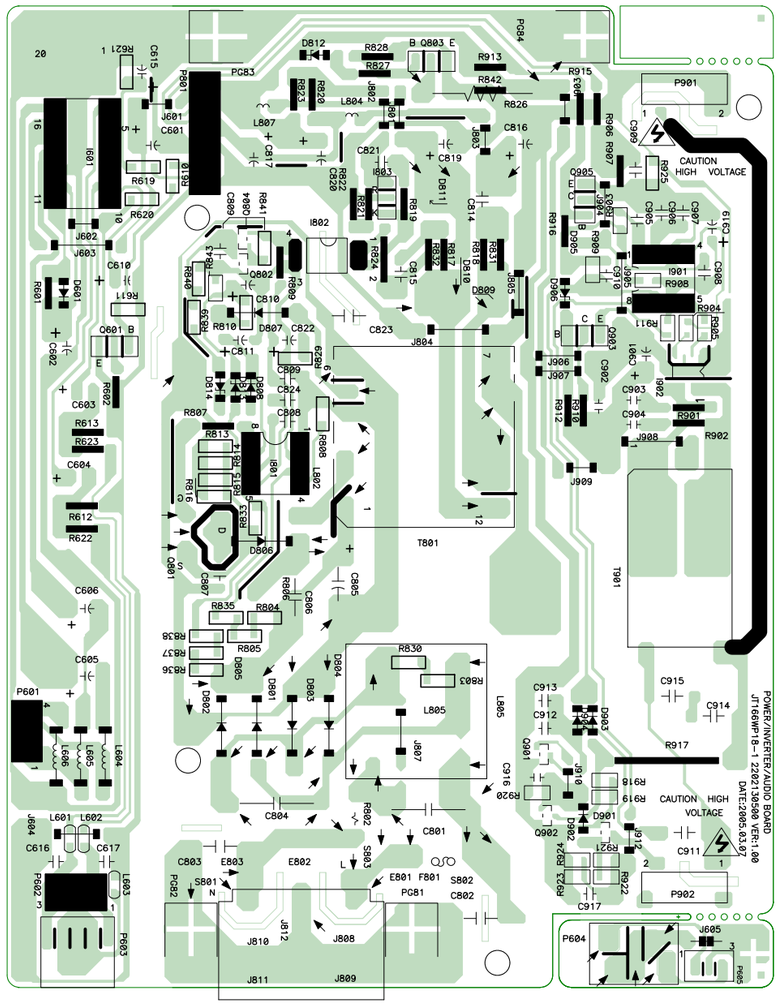
9.4. CON PCB BOTTOM VIEW



9.5. POWER PCB TOP VIEW

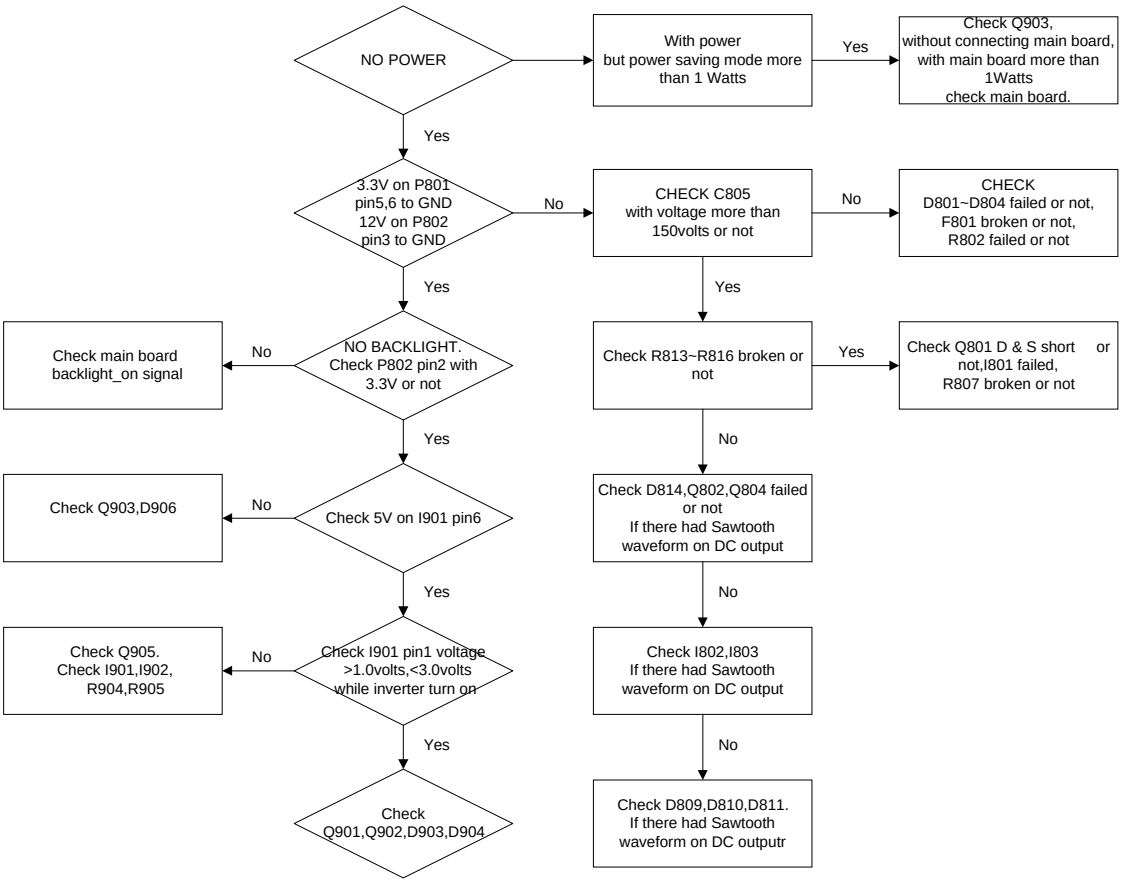


9.6. POWER PCB BOTTOM VIEW

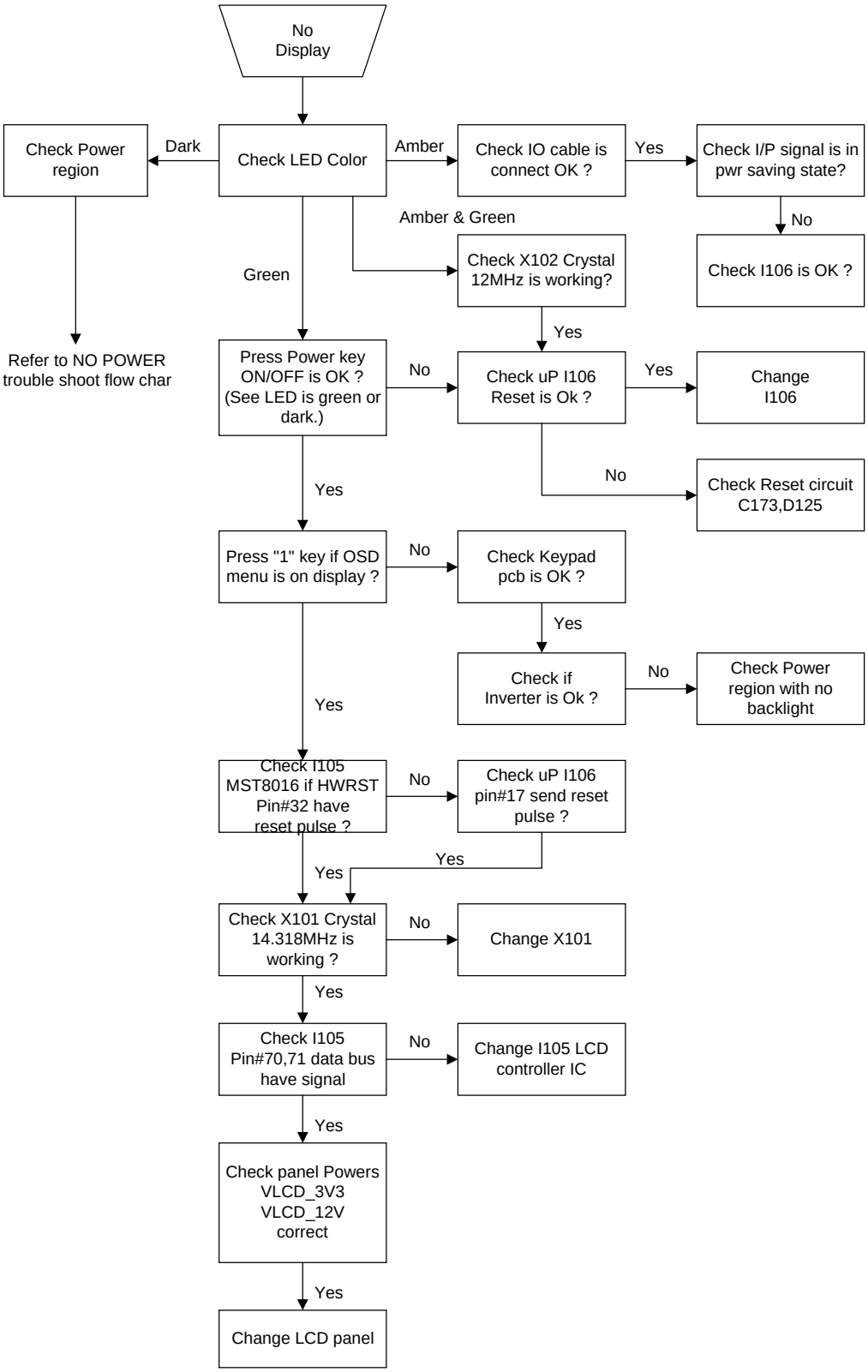


10. TROUBLE SHOOTING FLOW CHART

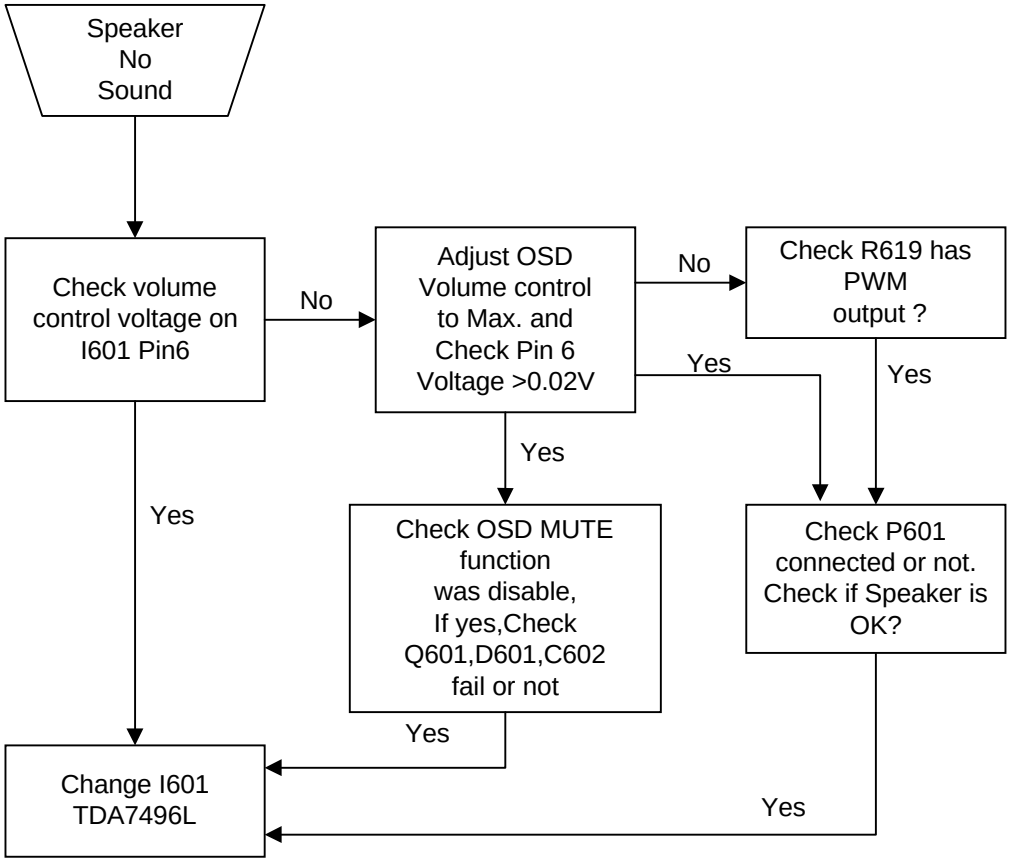
10.1. NO POWER or BACKLIGHT



10.2. NO DISPLAY



10.3. NO SOUND


Speaker
No
Sound
Check volume
control voltage on
I601 Pin6
No
Adjust OSD
Volume control
to Max. and
Check Pin 6
Voltage >0.02V
No
Check R619 has
PWM
output ?
Yes
Yes
Yes
Yes
Check OSD MUTE
function
was disable,
If yes,Check
Q601,D601,C602
fail or not
Check P601
connected or not.
Check if Speaker is
OK?
Yes
Change I601
TDA7496L
Yes

11. ADJUSTMENT

11.1. ADJUSTMENT CONDITIONS AND PRECAUTIONS

1. Approximately 30 minutes should be allowed for warm up before proceeding.
2. Adjustments should be undertaken only on those necessary elements since most of them have been carefully preset at the factory.
3. ESD protection is needed before adjustment.

11.2. MAIN ADJUSTMENTS

NO.	FUNCTION	DESIGNATION
1.	V-com Voltage	on the back of the Panel
2.	Eeprom Initial	Function Key
3.	White Balance	Function Key

11.3. ALIGNMENT PROCEDURES

Adjustment Conditions and Precautions:

(A). Power supply voltage:
AC 110/120V± 10% 60 Hz± 5%, AC 220/240V± 10% 50 Hz ± 5%.

(B). Warm up time:
The display must be power ON for at least 30 minutes at full white pattern before starting alignments.
This is especially critical in color temperature and white balance adjustments.

(C). Signals: reference the front detail specifications and timing table.
Video : reference the front detail specifications.

1. Adjustment of V-com Voltage:

A. Timing : 1024x768@60Hz. 48KHz
B. Pattern : The picture of " Shut down windows" or Full screen pixel ON/OFF pattern.
C. Adjust V-com to let the center of the screen no flash.

2. Eeprom Initial:

A. Timing : 1024x768@60Hz.
B. Pattern : Cross hatch.
C. Switch off the power and press the "▲" and " 2 " key simultaneously, then switch on the power. At this time we can enter into the factory mode when press the " 1 "key.
D. Select the "EEPROM INIT" item and press " 2 " key to reset the Eeprom.

3. White Balance Adjustment :

A. Timing : 1024x768@60Hz.
B. Pattern : 16Gray Level. or 5-MOSAIC (Pattern 42)
C. Set CA110 color analizer at the center of screen and along a perpendicular to the screen at 20cm from the display.
D. Move "▼" key to select the " WHITE BALANCE" item in the factory mode and press " 2 " key, then the white balance will be auto dadjusted.
E. Color temperature verification: (Set Brightness and Contrast to Maximum)

6500K verify : press "▼" ,"▲" key to move cursor to 6500K at factory mode and press " 2 " key, and then check the color temperature is

x=0.312 ± 0.03

y=0.318 ± 0.03

Y ≧ 200 cd/m^2

12. ELECTRICAL PARTS LIST

When you place a parts order, be sure to indicate the following data on the order:

- Location No.
- Parts No.
- Description

MAIN P.C.BOARD

LOC NO.	SOURCE	PART NO.	DESCRIPTION	SPECIFICATION			REMARK
C101		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C102		2336322613	CAP,MINI ELE 105'C	EC	22u/ 16V	4*7	P=2.5
C104		2336347613	CAP,MINI ELE 105'C	EC	47u/ 16V	5*7	P=2.5
C105		2336347613	CAP,MINI ELE 105'C	EC	47u/ 16V	5*7	P=2.5
C106		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C107		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C108		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C109		2336347613	CAP,MINI ELE 105'C	EC	47u/ 16V	5*7	P=2.5
C110		2336347613	CAP,MINI ELE 105'C	EC	47u/ 16V	5*7	P=2.5
C111		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C112		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C113		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C114		2336322613	CAP,MINI ELE 105'C	EC	22u/ 16V	4*7	P=2.5
C115	RA	2346147396	CAP,CHIP 125'C	CS	0603/X7R/50V	0.047u	K
C115	RB	2346247396	CAP,CHIP 125'C	CS	0603/X7R/25V	0.047u	K
C117	RA	2346147396	CAP,CHIP 125'C	CS	0603/X7R/50V	0.047u	K
C117	RB	2346247396	CAP,CHIP 125'C	CS	0603/X7R/25V	0.047u	K
C118	RA	2346147396	CAP,CHIP 125'C	CS	0603/X7R/50V	0.047u	K
C118	RB	2346247396	CAP,CHIP 125'C	CS	0603/X7R/25V	0.047u	K
C121	RA	2346147396	CAP,CHIP 125'C	CS	0603/X7R/50V	0.047u	K
C121	RB	2346247396	CAP,CHIP 125'C	CS	0603/X7R/25V	0.047u	K
C122	RA	2346147396	CAP,CHIP 125'C	CS	0603/X7R/50V	0.047u	K
C122	RB	2346247396	CAP,CHIP 125'C	CS	0603/X7R/25V	0.047u	K
C124	RA	2346147396	CAP,CHIP 125'C	CS	0603/X7R/50V	0.047u	K
C124	RB	2346247396	CAP,CHIP 125'C	CS	0603/X7R/25V	0.047u	K
C125		2341147096	CAP,CHIP 125'C	CS	0603/COG/50V	47p	J
C126		2341147096	CAP,CHIP 125'C	CS	0603/COG/50V	47p	J
C128		2341147096	CAP,CHIP 125'C	CS	0603/COG/50V	47p	J
C128		2349901096	CAP,CHIP SPEC	AC0603470A 47P ± 10%			INPAQ
C129		2341147096	CAP,CHIP 125'C	CS	0603/COG/50V	47p	J
C129		2349901096	CAP,CHIP SPEC	AC0603470A 47P ± 10%			INPAQ
C132		2336610613	CAP,MINI ELE 105'C	EC	10u/ 50V	5*7	P=2.5
C133		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C134		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C135		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C136		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C137		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C138		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C139		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C141		2336610613	CAP,MINI ELE 105'C	EC	10u/ 50V	5*7	P=2.5
C142		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C143		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C144		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C145		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C146		2336610613	CAP,MINI ELE 105'C	EC	10u/ 50V	5*7	P=2.5
C147		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C148		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C149		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C150		2336610613	CAP,MINI ELE 105'C	EC	10u/ 50V	5*7	P=2.5
C151		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C152		2336610613	CAP,MINI ELE 105'C	EC	10u/ 50V	5*7	P=2.5
C153		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C154		2346410496	CAP,CHIP 85'C	CS	0603/Y5V/50V	0.1u	Z
C155		2341122096	CAP,CHIP 125'C	CS	0603/COG/50V	22p	J
C156		2341122096	CAP,CHIP 125'C	CS	0603/COG/50V	22p	J

LOC NO.	SOURCE	PART NO.	DESCRIPTION	SPECIFICATION	REMARK
C157		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C158		2336610613	CAP,MINI ELE 105'C	EC 10u/ 50V 5*7 P=2.5	
C159		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C164		2336347613	CAP,MINI ELE 105'C	EC 47u/ 16V 5*7 P=2.5	
C165		2336310713	CAP,MINI ELE 105'C	EC 100u/ 16V 6.3*7 P=2.5	
C166		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C167		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C170		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C172		2341122096	CAP,CHIP 125'C	CS 0603/COG/50V 22p J	
C173		2336622513	CAP,MINI ELE 105'C	EC 2.2u/ 50V 4*7 P=2.5	
C174		2341122096	CAP,CHIP 125'C	CS 0603/COG/50V 22p J	
C175		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C184		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C185		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C186		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C187		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C188		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C189		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C192		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C193		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C194		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C195		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C196		2346410496	CAP,CHIP 85'C	CS 0603/Y5V/50V 0.1u Z	
C197		2349901096	CAP,CHIP SPEC	AC0603470A 47P ± 10% INPAQ	
D101		2364503996	DIODE,ZENER SMD	BZV55-C5V6 PHILIPS	
D102	RA	2364200896	DIODE,RECT(SMD)	BAS32L SOD80C PHILIPS	
D102	RB	2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5φ TEMIC GS08	
D103	RA	2364200896	DIODE,RECT(SMD)	BAS32L SOD80C PHILIPS	
D103	RB	2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5φ TEMIC GS08	
D104	RA	2364200896	DIODE,RECT(SMD)	BAS32L SOD80C PHILIPS	
D104	RB	2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5φ TEMIC GS08	
D105	RA	2364200896	DIODE,RECT(SMD)	BAS32L SOD80C PHILIPS	
D105	RB	2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5φ TEMIC GS08	
D106	RA	2364200896	DIODE,RECT(SMD)	BAS32L SOD80C PHILIPS	
D106	RB	2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5φ TEMIC GS08	
D107	RA	2364200896	DIODE,RECT(SMD)	BAS32L SOD80C PHILIPS	
D107	RB	2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5φ TEMIC GS08	
D109		2364503996	DIODE,ZENER SMD	BZV55-C5V6 PHILIPS	
D110		2364503996	DIODE,ZENER SMD	BZV55-C5V6 PHILIPS	
D111		2364503996	DIODE,ZENER SMD	BZV55-C5V6 PHILIPS	
D112		2364503996	DIODE,ZENER SMD	BZV55-C5V6 PHILIPS	
D125	RA	2364200896	DIODE,RECT(SMD)	BAS32L SOD80C PHILIPS	
D125	RB	2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5φ TEMIC GS08	
D128	RA	2364200896	DIODE,RECT(SMD)	BAS32L SOD80C PHILIPS	
D128	RB	2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5φ TEMIC GS08	
D129	RA	2364200896	DIODE,RECT(SMD)	BAS32L SOD80C PHILIPS	
D129	RB	2364600196	DIODE,SWITCH SMD	LL4148 3.5X1.5φ TEMIC GS08	
E801		2097400301	EYELET	BSS3-1/2H T=0.25 SN 3 μm	
E802		2097400301	EYELET	BSS3-1/2H T=0.25 SN 3 μm	
E803		2097400301	EYELET	BSS3-1/2H T=0.25 SN 3 μm	
I101		2365815096	IC,LINEAR(SMD)	AME8805MEGT SOT-223 AME	
I105		2365932396	IC,DIGITAL SMD	TSU15AK PQFP-128 Mstar	
I106	RA	2365929996	IC,DIGITAL SMD	MTV312M64-AJ PLCC44 MYSON	
I106	RB	2365101796	IC,MEMORY	STK6006 PLCC44 Syntek	
I107	RA	2365915896	IC,DIGITAL SMD	24LC16B/SN MICROCHIP SO08	
I107	RB	2365100996	IC,MEMORY	AT24C16AN-10SI-2.7 SOIC8 ATMEL	
L102		2253200096	RES,CHIP 1/10W	RC 0603 1/10W 0 ohm J	
L103		2253200096	RES,CHIP 1/10W	RC 0603 1/10W 0 ohm J	
L104		2253200096	RES,CHIP 1/10W	RC 0603 1/10W 0 ohm J	
L105		2379312196	BEAD,HI-IMPEDANCE	Z= 120ohm(100MHZ~) 0603 200mA	
L106		2379312196	BEAD,HI-IMPEDANCE	Z= 120ohm(100MHZ~) 0603 200mA	
L107		2379820196	BEAD,HI-IMPEDANCE	Z= 200ohm(100MHZ~) 0805 200mA	
L108		2379820196	BEAD,HI-IMPEDANCE	Z= 200ohm(100MHZ~) 0805 200mA	
L109		2379820196	BEAD,HI-IMPEDANCE	Z= 200ohm(100MHZ~) 0805 200mA	
L110		2379820196	BEAD,HI-IMPEDANCE	Z= 200ohm(100MHZ~) 0805 200mA	

LOC NO.	SOURCE	PART NO.	DESCRIPTION	SPECIFICATION	REMARK
L111		2379820196	BEAD,HI-IMPEDANCE	Z= 200ohm(100MHZ~) 0805 200mA	
L112		2379820196	BEAD,HI-IMPEDANCE	Z= 200ohm(100MHZ~) 0805 200mA	
L113		2379520196	BEAT,HI-CURRENT	Z= 200ohm 0805 I=2.0A	
L114		2379520196	BEAT,HI-CURRENT	Z= 200ohm 0805 I=2.0A	
L115		2379520196	BEAT,HI-CURRENT	Z= 200ohm 0805 I=2.0A	
P101		2404371008	CONNECTOR	JST PH 9P TOP P=2.0 OR EQUAL	
P102		2404301112	CONNECTOR	JST PH 13P SIDE P=2.0 OR EQUAL	
P105		2407630250	SOCKET,SMD	6240-50-OR5P 0.5*50P KYOCERA	
P107		2404301107	CONNECTOR	JST PH 8P SIDE P=2.0 OR EQUAL	
Q103	RA	2360100696	XISTOR,PNP R SMD	PMBS3906 SOT-23 PHILIPS	
Q103	RB	2360100796	XISTOR,PNP R SMD	MMBT3906 SOT-23 DIODES	
Q104	RA	2360100696	XISTOR,PNP R SMD	PMBS3906 SOT-23 PHILIPS	
Q104	RB	2360100796	XISTOR,PNP R SMD	MMBT3906 SOT-23 DIODES	
Q106	RA	2360301296	XISTOR,NPN R SMD	MMBT3904 SOT-23 DIODES	
Q106	RB	2360300896	XISTOR,NPN R SMD	MMBT3904 SOT-23 FAIRCHILD	
Q107	RA	2360301296	XISTOR,NPN R SMD	MMBT3904 SOT-23 DIODES	
Q107	RB	2360300896	XISTOR,NPN R SMD	MMBT3904 SOT-23 FAIRCHILD	
Q108	RA	2360501396	FET,P-CH SMD	AP2305N SOT-23 APEC	
Q108	RB	2360501296	FET,P-CH SMD	AO3411 SOT-23 ALPHA	
Q109	RA	2360301296	XISTOR,NPN R SMD	MMBT3904 SOT-23 DIODES	
Q109	RB	2360300896	XISTOR,NPN R SMD	MMBT3904 SOT-23 FAIRCHILD	
Q110		2361111191	XISTOR,PNP R	2SA1020(Y) TO-92 TOSHIBA	
Q111	RA	2360301296	XISTOR,NPN R SMD	MMBT3904 SOT-23 DIODES	
Q111	RB	2360300896	XISTOR,NPN R SMD	MMBT3904 SOT-23 FAIRCHILD	
R102		2253218296	RES,CHIP 1/10W	RC 0603 1/10W 1.8Kohm J	
R103		2253210296	RES,CHIP 1/10W	RC 0603 1/10W 1Kohm J	
R104		2253210396	RES,CHIP 1/10W	RC 0603 1/10W 10Kohm J	
R106		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R107		2253210396	RES,CHIP 1/10W	RC 0603 1/10W 10Kohm J	
R108		2253227296	RES,CHIP 1/10W	RC 0603 1/10W 2.7Kohm J	
R109		2253210296	RES,CHIP 1/10W	RC 0603 1/10W 1Kohm J	
R110		2253210396	RES,CHIP 1/10W	RC 0603 1/10W 10Kohm J	
R111		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R112		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R113		2251275096	RES,CHIP 1/10	RC 0603 1/10W 75 ohm F	
R114		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R115		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R116		2251275096	RES,CHIP 1/10	RC 0603 1/10W 75 ohm F	
R118		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R119		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R120		2251275096	RES,CHIP 1/10	RC 0603 1/10W 75 ohm F	
R121		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R122		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R123		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R124		2253222296	RES,CHIP 1/10W	RC 0603 1/10W 2.2Kohm J	
R125		2253222296	RES,CHIP 1/10W	RC 0603 1/10W 2.2Kohm J	
R140		2251239006	RES,CHIP 1/10	RC 0603 1/10W 390 ohm F	
R141		2253210596	RES,CHIP 1/10W	RC 0603 1/10W 1Mohm J	
R142		2253200096	RES,CHIP 1/10W	RC 0603 1/10W 0 ohm J	
R144		2253233096	RES,CHIP 1/10W	RC 0603 1/10W 33 ohm J	
R146		2253300096	RES,CHIP 1/8	RC 0805 1/8 W 0ohm J	
R148		2253300096	RES,CHIP 1/8	RC 0805 1/8 W 0ohm J	
R150		2253300096	RES,CHIP 1/8	RC 0805 1/8 W 0ohm J	
R153		2253300096	RES,CHIP 1/8	RC 0805 1/8 W 0ohm J	
R158		2253210596	RES,CHIP 1/10W	RC 0603 1/10W 1Mohm J	
R159		2253247296	RES,CHIP 1/10W	RC 0603 1/10W 4.7Kohm J	
R160		2253247296	RES,CHIP 1/10W	RC 0603 1/10W 4.7Kohm J	
R161		2253222396	RES,CHIP 1/10W	RC 0603 1/10W 22Kohm J	
R162		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R163		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R164		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R168		2253247296	RES,CHIP 1/10W	RC 0603 1/10W 4.7Kohm J	
R169		2253210396	RES,CHIP 1/10W	RC 0603 1/10W 10Kohm J	
R170		2253222296	RES,CHIP 1/10W	RC 0603 1/10W 2.2Kohm J	
R171		2253222296	RES,CHIP 1/10W	RC 0603 1/10W 2.2Kohm J	

LOC NO.	SOURCE	PART NO.	DESCRIPTION	SPECIFICATION	REMARK
R173		2253233296	RES,CHIP 1/10W	RC 0603 1/10W 3.3Kohm J	
R174		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R175		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R176		2253233296	RES,CHIP 1/10W	RC 0603 1/10W 3.3Kohm J	
R177		2253233296	RES,CHIP 1/10W	RC 0603 1/10W 3.3Kohm J	
R178		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R179		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R180		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R181		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R182		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R183		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R184		2253210196	RES,CHIP 1/10W	RC 0603 1/10W 100 ohm J	
R187		2253200096	RES,CHIP 1/10W	RC 0603 1/10W 0 ohm J	
R189		2253210296	RES,CHIP 1/10W	RC 0603 1/10W 1Kohm J	
R190		2253210296	RES,CHIP 1/10W	RC 0603 1/10W 1Kohm J	
R191		2253210396	RES,CHIP 1/10W	RC 0603 1/10W 10Kohm J	
R192		2253427296	RES,CHIP 1/4	RC 1206 1/4 W 2.7Kohm J	
R193		2253300096	RES,CHIP 1/8	RC 0805 1/8 W 0ohm J	
R194		2253247296	RES,CHIP 1/10W	RC 0603 1/10W 4.7Kohm J	
R196		2253222196	RES,CHIP 1/10W	RC 0603 1/10W 220 ohm J	
R198		2253200096	RES,CHIP 1/10W	RC 0603 1/10W 0 ohm J	
R199		2253200096	RES,CHIP 1/10W	RC 0603 1/10W 0 ohm J	
R201		2379330006	BEAD,HI-IMPEDANCE	Z= 30ohm(200MHz~) 0603 300mA	
R202		2379330006	BEAD,HI-IMPEDANCE	Z= 30ohm(200MHz~) 0603 300mA	
RN1		2259210308	RES,CHIP NETWORKS	8P4R 1/16W 10Kohm J P=0.8	
RN2		2259210308	RES,CHIP NETWORKS	8P4R 1/16W 10Kohm J P=0.8	
RN3		2259210308	RES,CHIP NETWORKS	8P4R 1/16W 10Kohm J P=0.8	
RN4		2259210308	RES,CHIP NETWORKS	8P4R 1/16W 10Kohm J P=0.8	
RN5		2259233008	RES,CHIP NETWORKS	8P4R 1/16W 33ohm J P=0.8	
U101		2202517900	PCB MULTILAYER	JT166HA18 M/B FR4*2 100*82	
X101		2369102901	XTAL,OSC	14.31818MHZ/49US	
X102		2369103601	XTAL,OSC	12.000MHZ/49US	

CON P.C.BOARD

D701		2363703800	LED	LED 3φ GRN/YEL
P701		2427408181	WIRE HARNESS	8P H/B 1061#26 L=180mm P=2.0
S701		2403702513	SWITCH,TACT	TSTA-2 4.3mm 160g HUA JIE
S702		2403702513	SWITCH,TACT	TSTA-2 4.3mm 160g HUA JIE
S703		2403702513	SWITCH,TACT	TSTA-2 4.3mm 160g HUA JIE
S704		2403702513	SWITCH,TACT	TSTA-2 4.3mm 160g HUA JIE
S705		2403702513	SWITCH,TACT	TSTA-2 4.3mm 160g HUA JIE
U701		2202125802	PC BOARD	JT166WP17 K/B CEM1 140*16 2.02

POWER P.C.BOARD

C601		2333347791	CAP,ELE 105'C	EC 470u/ 16V 10*12.5	P=5.0
C602		2333610691	CAP,ELE 105'C	EC 10u/ 50V 5*11	P=5.0
C603		2333610501	CAP,ELE 105'C	EC 1u/ 50V 5*11	P=2.0
C604		2333610501	CAP,ELE 105'C	EC 1u/ 50V 5*11	P=2.0
C605		2333347701	CAP,ELE 105'C	EC 470u/ 16V 10*12.5	P=5.0
C606		2333347701	CAP,ELE 105'C	EC 470u/ 16V 10*12.5	P=5.0
C610		2333322701	CAP,ELE 105'C	EC 220u/ 16V 8*11	P=3.5
C615		2333610691	CAP,ELE 105'C	EC 10u/ 50V 5*11	P=5.0
C616		2281410291	CAP,CER	CK45F 1000.000PF 50V	T
C617		2281410291	CAP,CER	CK45F 1000.000PF 50V	T
C801		2300947401	CAP,MTL MINI	X2 0.47u/275V	P=15.0
C802		2287133212	CAP,CER	Y1 CAP 3300P/250V	K
C803		2287133212	CAP,CER	Y1 CAP 3300P/250V	K
C805		2334382608	CAP,ELE 105'C	EC 82u/400V 18*32	P=7.5
C806		2297427212	CAP,PPP	PPN 2700P/250V	P=10.0
C807		2284110191	CAP CER	CK45B 100.000PF 125'C	K
C808		2283118191	CAP,CER	CC 180p/500V	P=5.0
C809		2281410391	CAP,CER	CC 0.01u/50V	P=5.0
C810		2333547691	CAP,ELE 105'C	EC 47u/ 35V 6.3*11	P=5.0

LOC NO.	SOURCE	PART NO.	DESCRIPTION	SPECIFICATION	REMARK
C811		2333522691	CAP ELE 105'C	EC 22u/ 35V 5*11	P=5.0
C814		2284110291	CAP,CER	CC 1000P/1KV X7R	P=5.0
C815		2284110291	CAP,CER	CC 1000P/1KV X7R P=5.0	K
C816		2335310841	CAP,ELE L ESR 105'C	EC 1000u/ 16V 10*16	P=5.0
C817		2335310841	CAP,ELE L ESR 105'C	EC 1000u/ 16V 10*16	P=5.0
C819		2335310841	CAP,ELE L ESR 105'C	EC 1000u/ 16V 10*16	P=5.0
C820		2333347701	CAP,ELE 105'C	EC 470u/ 16V 10*12.5	P=5.0
C821		2290410391	CAP,MYL	MEF COA MEF 0.01u/50V	P=5.0
C822		2333647591	CAP,ELE 105'C	EC 4.7u/ 50V 5*11	P=5.0
C823		2287210312	CAP,CER	CK45F 0.010UF 250VA M KC	
C825		2281410491	CAP,CER	CC 0.1u/ 50V Y5V	P=5.0
C901		2333347701	CAP,ELE 105'C	EC 470u/ 16V 10*12.5	P=5.0
C902		2281410491	CAP,CER	CC 0.1u/ 50V Y5V	P=5.0
C903		2281433291	CAP,CER	CK45F 3300.000PF 50V	T
C904		2281433291	CAP,CER	CK45F 3300.000PF 50V	T
C905		2290427391	CAP,MYL	MEF COA MEF 0.027u/50V	P=5.0
C906		2272133191	CAP,CER	TC 330p/50V CH	P=5.0
C907		2272127091	CAP,CER	TC 27p/50V CH	P=5.0
C908		2281410491	CAP,CER	CC 0.1u/ 50V Y5V	P=5.0
C909		2281410491	CAP,CER	CC 0.1u/ 50V Y5V	P=5.0
C910		2290410391	CAP,MYL	MEF COA MEF 0.01u/50V	P=5.0
C911		2275450901	CAP,CER	TC 5P/3KV SL	P=7.5
C912		2290433291	CAP,MYL	MEF COA MEF 3300p/50V	P=5.0
C913		2290422291	CAP,MYL	MEF COA MEF 2200p/50V	P=5.0
C914		2275420001	CAP CER	TC 20P/3KV SL	P=7.5
C915		2275420001	CAP CER	TC 20P/3KV SL	P=7.5
C916		2281410491	CAP,CER	CC 0.1u/ 50V Y5V	P=5.0
C917		2290422391	CAP,MYL	CQ93M 0.022UF 50V	J
C919		2336347691P	CAP,MINI ELE 105'C	EC 47u/ 16V 5*7	P=5.0
D601		2363600195	DIODE,SWITCH	1N4148 DO-35	
D801	RA	2363221195	DIODE,RECT	PG208	
D801	RB	2363227295	DIODE,RECT	2A07 DO-15 1000V/2A	
D801	RC	2363233795	DIODE,RECT	PS2010 2A/1000V DO-15	
D802	RA	2363221195	DIODE,RECT	PG208	
D802	RB	2363227295	DIODE,RECT	2A07 DO-15 1000V/2A	
D802	RC	2363233795	DIODE,RECT	PS2010 2A/1000V DO-15	
D803	RA	2363221195	DIODE,RECT	PG208	
D803	RB	2363227295	DIODE,RECT	2A07 DO-15 1000V/2A	
D803	RC	2363233795	DIODE,RECT	PS2010 2A/1000V DO-15	
D804	RA	2363221195	DIODE,RECT	PG208	
D804	RB	2363227295	DIODE,RECT	2A07 DO-15 1000V/2A	
D804	RC	2363233795	DIODE,RECT	PS2010 2A/1000V DO-15	
D806	RA	2363231995	DIODE,RECT	UF4007 PEC	
D806	RB	2363223195	DIODE,RECT	UF4007 GS	
D807	RA	2363220395	DIODE,RECT	UF4004G T/B PEC	
D807	RB	2363226995	DIODE,RECT	UF4004 CHENMKO	
D808		2363600195	DIODE,SWITCH	1N4148	
D809	RA	2363300282	DIODE,SCHOTTKY	31DQ06FC3 60V/1.6A H=9.8 IR	
D809	RB	2363231212	DIODE,RECT	SB360(F9) 3A/60V DO-201AD PEC	
D809	RC	2363234012	DIODE,RECT	SR306 DO-201AD MOSPEC	
D810	RA	2363231612	DIODE,RECT	31DF2 IR(NI)	
D810	RB	2363225012	DIODE,RECT	ER302(F9) DO-201AD PEC	
D811	RA	2363231612	DIODE,RECT	31DF2 IR(NI)	
D811	RB	2363225012	DIODE,RECT	ER302(F9) DO-201AD PEC	
D812		2363505995	DIODE,ZENER	HZ12A-2 11.9-12.4V 0.5W HITACH	
D814	RA	2363517695	DIODE,ZENER	HZ18-2 17.5-18.3V 0.5W HITACHI	
D814	RB	2363518385	DIODE,ZENER	BZX79B18 17.6~18.4V PHILIPS	
D814	RC	2363517995	DIODE,ZENER	TZX18B 17.5-18.3V TELEFUNKEN	
D901	RA	2364600996	DIODE,SWITCH SMD	BAV99 SOT-23 DIODES	
D901	RB	2364601096	DIODE,SWITCH SMD	BAV99 SOT-23 PHILIPS	
D902		2363600195	DIODE,SWITCH	1N4148	
D903		2363600195	DIODE,SWITCH	1N4148	
D904		2363600195	DIODE,SWITCH	1N4148	
D905		2363600195	DIODE,SWITCH	1N4148	
D906		2363516895	DIODE,ZENER	HZ6B-2 HITACHI	

LOC NO.	SOURCE	PART NO.	DESCRIPTION	SPECIFICATION	REMARK
F801	RA	2213125207	FUSE	FUSE 2.5A/250V 21502.5 LITTEL	
F801	RB	2213125211	FUSE	FUSE 2.5A/250V SG501302.5 PICO	
I601		2365329700	IC,LINEAR	TDA7496L DIP-20P SGS	
I801		2365330900	IC,LINEAR	LD7552IN DIP-8 LEADTREND	
I802	RA	2362401800	PHOTO COUPLR	TLP621(D4-GR-LF2) TOSHIBA	
I802	RB	2362401600	PHOTO COUPLR	TLP721F(D4-GR) TOSHIBA	
I803	RA	2365328191	IC,LINEAR	AP431VA TO-92 ATC	
I803	RB	2365321991	IC,LINEAR	KA431AZTA TO-92 FAIRCHILD	
I803	RC	2365327691	IC,LINEAR	CM431BCN CHAMPION	
I803	RD	2365319391	IC,LINEAR	TL431CLP TI	
I901		2365331000	IC,LINEAR	OZ9930D PDIP-8 O2-MICRO	
I902	RA	2360608596	FET,N-CH(SMD)	AP9960M SO-8 APEC	
I902	RB	2360609296	FET,N-CH(SMD)	FDS9945 SO-8 FAIRCHILD	
L601		2379822106	BEAD,HI-IMPEDANCE	Z= 220ohm(200MHZ~) 0805 200mA	
L602		2379822106	BEAD,HI-IMPEDANCE	Z= 220ohm(200MHZ~) 0805 200mA	
L603		2379822106	BEAD,HI-IMPEDANCE	Z= 220ohm(200MHZ~) 0805 200mA	
L604		2379101495	FERRITE CORE	3.5X9X0.8	
L605		2379101495	FERRITE CORE	3.5X9X0.8	
L606		2379101495	FERRITE CORE	3.5X9X0.8	
L805		2371145301	COIL,CHOKE	45mH ET-20 2UEW 0.26mm/55+55Ts	
L807		2371150901	COIL,CHOKE	5uH 0.5mm*19Ts R3*15 I=2.0A	
P601		2404371003	CONNECTOR	JST PH 4P TOP P=2.0 OR EQUAL	
P603		2405106000	EARPHONE JACK	2SJ-P520-A04 (577C) SINGATRON	
P801		2427409001	WIRE HARNESS	9/9P H/B 1007#26 L=80mm P=2.0	
P901		2404380202	CONNECTOR	WBT CONN. P=8.0mm 2P	
P902		2404380202	CONNECTOR	WBT CONN. P=8.0mm 2P	
Q601	RA	2361316191	XISTOR,NPN R	2PC945P PHILIPS	
Q601	RB	2361302591	XISTOR,NPN R	2SC945(P) TO-92 NEC	
Q601	RC	2361313691	XISTOR,NPN R	KSC945C-G FAIRCHILD	
Q801	RA	2361610600	FET,N-CH	PHX4NQ60E TO-220AB PHILIPS	
Q801	RB	2361610700	FET,N-CH	SSS4N60B TO-220F FAIRCHILD	
Q801	RC	2361611700	FET,N-CH	FQPF5N60C TO-220F FAIRCHILD	
Q801	RD	2361611600	FET,N-CH	AP03N70F-A TO-220FM APEC	
Q802	RA	2360301696	XISTOR,NPN R SMD	PMBS3904 SOT-23 PHILIPS	
Q802	RB	2360301296	XISTOR,NPN R SMD	MMBT3904 SOT-23 DIODES	
Q802	RC	2360301896	XISTOR,NPN R SMD	MMBT3904LT1 SOT-23 LRC	
Q802	RD	2360300596	XISTOR,NPN R SMD	MMBT3904-7 SOT-23 VISHAY	
Q802	RE	2360300296	XISTOR,NPN R SMD	HMBT3904 SOT-23 HI-SIN	
Q803	RA	2361315391	XISTOR,NPN R	2SC2001(L) NEC	
Q803	RB	2361412691	XISTOR,NPN A	KSD1616A-G TO-92 FAIRCHILD	
Q804	RA	2360100696	XISTOR,PNP R SMD	PMBS3906 SOT-23 PHILIPS	
Q804	RB	2360100796	XISTOR,PNP R SMD	MMBT3906 SOT-23 DIODES	
Q804	RC	2360100396	XISTOR,PNP R SMD	MMBT3906-7 SOT-23 VISHAY	
Q901	RA	2360608496	FET,N-CH(SMD)	2N7002K SOT-23 VISHAY	
Q901	RB	2360609096	FET,N-CH(SMD)	2N7002K SOT-23 PHILIPS	
Q901	RC	2360609196	FET,N-CH(SMD)	2N7002L SOT-23 ON	
Q902	RA	2360608496	FET,N-CH(SMD)	2N7002K SOT-23 VISHAY	
Q902	RB	2360609096	FET,N-CH(SMD)	2N7002K SOT-23 PHILIPS	
Q902	RC	2360609196	FET,N-CH(SMD)	2N7002L SOT-23 ON	
Q903	RA	2361316191	XISTOR,NPN R	2PC945P PHILIPS	
Q903	RB	2361302591	XISTOR,NPN R	2SC945(P) TO-92 NEC	
Q903	RC	2361313691	XISTOR,NPN R	KSC945C-G FAIRCHILD	
Q905	RA	2361316191	XISTOR,NPN R	2PC945P PHILIPS	
Q905	RB	2361302591	XISTOR,NPN R	2SC945(P) TO-92 NEC	
Q905	RC	2361313691	XISTOR,NPN R	KSC945C-G FAIRCHILD	
R601		2233410495	RES,CBN 1/4 S	RD 1/4WS 100Kohm J T52	
R602		2233439295	RES,CBN 1/4 S	RD 1/4WS 3.90K J T52 MINI	
R610		2253410396	RES,CHIP 1/4	RC 1206 1/4 W 10Kohm J	
R612		2233410395	RES,CBN 1/4 S	RD 1/4WS 10Kohm J T52	
R613		2233410395	RES,CBN 1/4 S	RD 1/4WS 10Kohm J T52	
R619		2251400096	RES,CHIP 1/4	RC 1/4W 0.00 F	
R620		2253447296	RES,CHIP 1/4	RC 1206 1/4 W 4.7Kohm J	
R621		2253422296	RES,CHIP 1/4	RC 1206 1/4 W 2.2Kohm J	
R622		2233410195	RES,CBN 1/4 S	RD 1/4WS 100 ohm J T52	
R623		2233410195	RES,CBN 1/4 S	RD 1/4WS 100 ohm J T52	

LOC NO.	SOURCE	PART NO.	DESCRIPTION	SPECIFICATION	REMARK
R802		2229201212	THERMISTOR,PTH	SCK-103 10+-20% 3A THINKING	
R803		2253456496	RES,CHIP 1/4	RC 1206 1/4 W 560Kohm J	
R804		2253456496	RES,CHIP 1/4	RC 1206 1/4 W 560Kohm J	
R805		2253456496	RES,CHIP 1/4	RC 1206 1/4 W 560Kohm J	
R806		2232656395	RES,CBN 1/2	RD 1/2W 56Kohm J	
R807		2233422095	RES,CBN 1/4 S	RD 1/4WS 22.00 J T52 MINI	
R808		2251410036	RES,CHIP 1/4	RC 1206 1/4 W 100Kohm F	
R809		2233447095	RES,CBN 1/4 S	RD 1/4WS 22.00 J T52 MINI	
R810		2253410096	RES,CHIP 1/4	RC 1206 1/4 W 10ohm J	
R813		2251440286	RES,CHIP 1/4	RC 1206 1/4 W 4.02 ohm F	
R814		2251440286	RES,CHIP 1/4	RC 1206 1/4 W 4.02 ohm F	
R815		2251440286	RES,CHIP 1/4	RC 1206 1/4 W 4.02 ohm F	
R816		2251440286	RES,CHIP 1/4	RC 1206 1/4 W 4.02 ohm F	
R817		2233422095	RES,CBN 1/4 S	RD 1/4WS 22.00 J T52 MINI	
R818		2233410095	RES,CBN 1/4 S	RD 1/4WS 10 ohm J T52	
R819		2233412395	RES,CBN 1/4 S	RD 1/4WS 12Kohm J T52	
R820		2239222015	RES,PRE 1/4 S	RN 1/4WS 2.20K F T52 MINI	
R821		2239210005	RES,PRE 1/4 S	RN 1/4WS 100.00 F	
R822		2239227415	RES,PRE 1/4 S	RN 1/4WS 2.74K F T52 MINI	
R823		2239220025	RES,PRE 1/4 S	RN 1/4WS 20.00K F T52 MINI	
R824		2232412295	RES,CBN 1/4	RD 1/4W 1.2Kohm P=10.0 J	
R826		2235647013	RES,MTL 3	RS 3WS 47ohm P=20.0 J	
R827		2233410195	RES,CBN 1/4 S	RD 1/4WS 100 ohm J T52	
R828		2233410395	RES,CBN 1/4 S	RD 1/4WS 10Kohm J T52	
R829		2253433296	RES,CHIP 1/4	RC 1206 1/4 W 3.3Kohm J	
R830		2253456496	RES,CHIP 1/4	RC 1206 1/4 W 560Kohm J	
R831		2233410095	RES,CBN 1/4 S	RD 1/4WS 10 ohm J T52	
R832		2233422095	RES,CBN 1/4 S	RD 1/4WS 22.00 J T52 MINI	
R833		2253410296	RES,CHIP 1/4	RC 1206 1/4 W 1Kohm J	
R835		2253456496	RES,CHIP 1/4	RC 1206 1/4 W 560Kohm J	
R836		2251453636	RES,CHIP 1/4	RC 1206 1/4 W 536Kohm F	
R837		2251453636	RES,CHIP 1/4	RC 1206 1/4 W 536Kohm F	
R838		2251453636	RES,CHIP 1/4	RC 1206 1/4 W 536Kohm F	
R839		2253410296	RES,CHIP 1/4	RC 1206 1/4 W 1Kohm J	
R840		2253427196	RES,CHIP 1/4	RC 1206 1/4 W 270 ohm J	
R841		2253433296	RES,CHIP 1/4	RC 1206 1/4 W 3.3Kohm J	
R901		2233447995	RES,CBN 1/4 S	RD 1/4WS 4.70 J	
R902		2233447995	RES,CBN 1/4 S	RD 1/4WS 4.70 J	
R903		2253351596	RES,CHIP 1/8	RC 0805 1/8W 5.1Mohm J	
R904		2253310096	RES,CHIP 1/8	RC 0805 1/8 W 10ohm J	
R905		2253310096	RES,CHIP 1/8	RC 0805 1/8 W 10ohm J	
R906		2239282525	RES,PRE 1/4 S	RN 1/4WS 82.5Kohm F	
R907		2239290925	RES,PRE 1/4 S	RN 1/4WS 90.9Kohm F	
R908		2251310036	RES,CHIP 1/8	RC 0805 1/8 W 100Kohm F	
R909		2253310596	RES,CHIP 1/8	RC 0805 1/8 W 1Mohm J	
R910		2233410095	RES,CBN 1/4 S	RD 1/4WS 10 ohm J T52	
R911		2253310096	RES,CHIP 1/8	RC 0805 1/8 W 10ohm J	
R912		2233422295	RES,CBN 1/4 S	RD 1/4WS 2.2Kohm J T52	
R913		2233410495	RES,CBN 1/4 S	RD 1/4WS 100Kohm J T52	
R915		2233412295	RES,CBN 1/4 S	RD 1/4WS 1.20K J T52 MINI	
R917		2242330595	H/V RESISTOR	RD 1/2W 3.00M J	
R918		2251349916	RES,CHIP 1/8	RC 0805 1/8W 4.99Kohm F	
R920		2253310596	RES,CHIP 1/8	RC 0805 1/8 W 1Mohm J	
R921		2251341206	RES,CHIP 1/8	RC 0805 1/8W 412 ohm F	
R924		2251335706	RES,CHIP 1/8	RC 0805 1/8 W 357 ohm F	
S801	RA	2407413100	SOCKET (AC INLET)	0711-2-P10-9 INALWAYS	
S801	RB	2407413300	SOCKET (AC INLET)	SC-8R-F15A9 SUPERCOM	
S802		2407200991	HOLDER,FUSE	CQ-05T (5mm DIA FUSE)	
S803		2407200991	HOLDER,FUSE	CQ-05T (5mm DIA FUSE)	
T801		2374228004	XFORMER,POWR	JT166W18 ER-28	
T901		2374300700	XFORMER INVERTER	EEL-19 16/2080Ts 0.4/0.045mm	
U801		2202130500	PC BOARD	JT166WP18-1 P/B FR1 160*125	

OTHERS

LOC NO.	SOURCE	PART NO.	DESCRIPTION	SPECIFICATION	REMARK
K901		2427307102	LUG W/WIRE	φ4.3*2 1007#18+CORE BLK 100	
P951		2427130055	POWER CORD	GERMAN WALL 1.83M GE96750	
P961		2427501173	I/O CABLE	D15/C13 20276(3+6) 1.83M 96750	
P962		2427700015	CABLE	EAR 3.5(577C) 1.83M GE96750	
P981		2420309501	FFC CABLE	FFC 50P*0.5*L90mm	
P985		2427404320	WIRE HARNESS	4/2+2P 1007#24 260/320 P=2/2.5	
V901		2212006000	LCD PANEL	CLAA150XP02 CPT	
W901		2391301081	SPEAKER ASS'Y	1W 8ohm 52*19.5*14 (R)	
W902		2391301082	SPEAKER ASS'Y	1W 8ohm 52*19.5*14 (L)	