LG

COLOR MONITOR
SERVICE MANUAL

CHASSIS NO. : CL-43
FACTORY MODEL: L1811SG
MODEL: FLATRON L1811S (L1811SG-VL)

CAUTION
BEFORE SERVICING THE UNIT,
READ THE **SAFETY PRECAUTIONS** IN THIS MANUAL.

CONTENTS

SPECIFICATIONS

1. LCD CHARACTERISTICS

Type	: TFT SXGA LCD
Size	: 18 inch
Pixel Pitch	: 0.2805 (H) x 0.2805 (V)
Color Depth	: 8-bit, 16.777,216 colors
Electrical Interface	: LVDS
Surface Treatment	: Anti-Glare, Hard Coating(3H)
Operating Mode	: Normally Black
Backlight Unit	: 6-CCFL (Cold Cathode Fluorescent Lamp)

2. OPTICAL CHARACTERISTICS

2-1. Viewing Angle by Contrast Ratio ≥ 10

Left : -60° min., -80°(Typ) Right : +60° min., +80°(Typ)

Top :+60° min., +80°(Typ) Bottom : -60°min., -80°(Typ)

2-2. Luminance : 200(min), 250(Typ)

2-3. Contrast Ratio : 200(min), 350(Typ)

3. SIGNAL (Refer to the Timing Chart)

3-1. Sync Signal

• Type : Separate Sync,
SOG (Sync On Green)
Composite Sync

3-2. Video Input Signal

1) Type	: R, G, B Analog
2) Voltage Level	: 0~0.7 V
a) Color 0, 0	: 0 Vp-p
b) Color 7, 0	: 0.35 Vp-p
c) Color 15, 0	: 0.7 Vp-p
3) Input Impedance	: 75 Ω

3-3. Operating Frequency

Horizontal	: 30 ~ 83kHz
Vertical	: 56 ~ 75Hz

4. Max. Resolution

Analog : 1280 x 1024 / 75Hz

5. POWER SUPPLY

5-1. Power : AC 100~240V, 50/60Hz , 1.0A

5-2. Power Consumption

MODE	H/V SYNC	VIDEO	POWER CONSUMPTION	LED COLOR
POWER ON (NORMAL)	ON/ON	ACTIVE	less than 53 W	GREEN
STAND-BY	OFF/ON	OFF	less than 3 W	AMBER
SUSPEND	ON/OFF	OFF	less than 3 W	AMBER
DPMS OFF	OFF/OFF	OFF	less than 3 W	AMBER
POWER S/W OFF	-	-	less than 1 W (@120V AC)	OFF

6. ENVIRONMENT

6-1. Operating Temperature: 10°C~35°C (50°F~95°F) (Ambient)

6-2. Relative Humidity : 10%~80% (Non-condensing)

6-3. MTBF : 50,000 Hours(Min)

Lamp life : 40,000 Hours(Min)

7. DIMENSIONS (with TILT/SWIVEL)

Width	: 370 mm (14.57")
Depth	: 222.5 mm (8.76")
Height	: 421 mm (16.57")

8. WEIGHT (with TILT/SWIVEL)

Net. Weight	: 6.0 kg (13.23 lbs)
Gross Weight	: 7.6 kg (16.76 lbs)

PRECAUTION

WARNING FOR THE SAFETY-RELATED COMPONENT.

- There are some special components used in LCD monitor that are important for safety. ***These parts are marked ⚠on the schematic diagram and the replacement parts list.*** It is essential that these critical parts should be replaced with the manufacturer's specified parts to prevent electric shock, fire or other hazard.
- Do not modify original design without obtaining written permission from manufacturer or you will void the original parts and labor guarantee.

TAKE CARE DURING HANDLING THE LCD MODULE WITH BACKLIGHT UNIT.

- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment person's body are grounded through wrist band.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- The module not be exposed to the direct sunlight.
- Avoid contact with water as it may a short circuit within the module.
- If the surface of panel become dirty, please wipe it off with a softmaterial. (Cleaning with a dirty or rough cloth may damage the panel.)

⚠ CAUTION

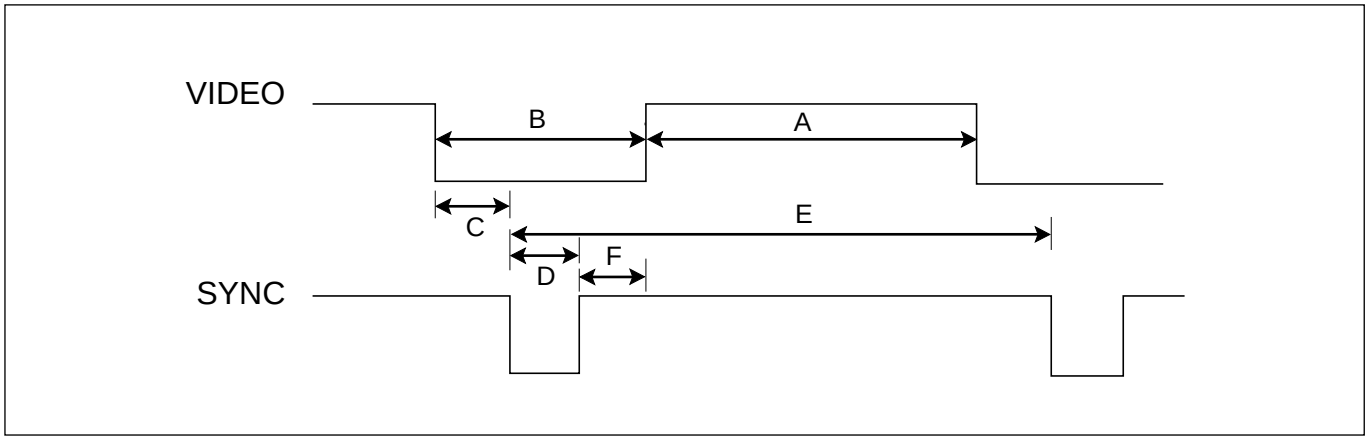
Please use only a plastic screwdriver to protect yourself from shock hazard during service operation.

⚠ WARNING

BE CAREFUL ELECTRIC SHOCK !

- If you want to replace with the new backlight (CCFL) or inverter circuit, must disconnect the AC adapter because high voltage appears at inverter circuit about 650Vrms.
- Handle with care wires or connectors of the inverter circuit. If the wires are pressed cause short and may burn or take fire.

TIMING CHART



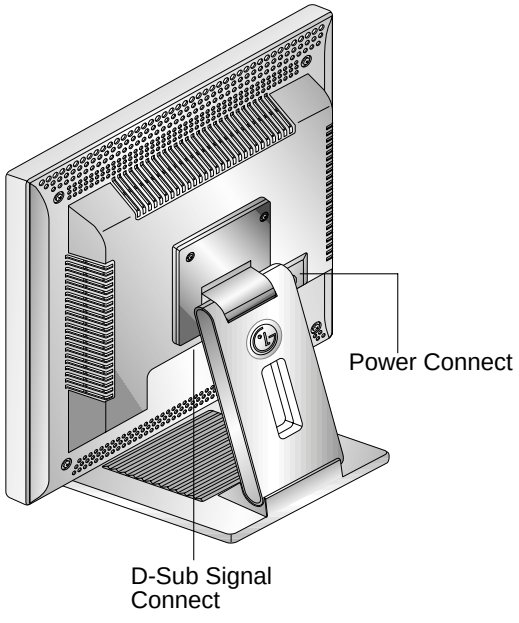
<< Dot Clock **(MHz),** Horizontal Frequency **(kHz)**, Vertical Frequency **(Hz)**, Horizontal etc... **(µs)**, Vertical etc... **(ms) >>**

Mode	H/V Sort	Sync Polarity	Dot Clock	Frequency	Total Period (E)	Video Active Time (A)	Front Porch (C)	Sync Duration (D)	Back Porch (F)	Resolution
1	H	+	25.175	31.469	800	640	16	96	48	**640x350 70Hz**
	V	–		70.8Hz	449	350	37	2	60	
2	H	–	28.321	31.468	900	720	18	108	54	**720x400 70Hz**
	V	+		70.09	449	400	12	2	35	
3	H	–	25.175	31.469	840	640	16	96	48	**640x480 60Hz**
	V	–		59.94	525	480	10	2	33	
4	H	–	31.5	37.5	840	640	16	64	120	**640x480 75Hz**
	V	–		75	500	480	1	3	16	
5	H	+	40.0	37.879	1056	800	40	128	88	**800x600 60Hz**
	V	+		60.317	628	600	1	4	23	
6	H	+	49.5	46.875	1056	800	16	80	160	**800x600 75Hz**
	V	+		75.0	625	600	1	3	21	
7	H	+/–	57.283	49.725	1152	832	32	64	224	**832x624 75Hz**
	V	+/–		74.55	667	624	1	3	39	
8	H	–	65.0	48.363	1344	1024	24	136	160	**1024x768 60Hz**
	V	–		60.0	806	768	3	6	29	
9	H	–	78.75	60.123	1312	1024	16	96	176	**1024x768 75Hz**
	V	–		75.029	800	768	1	3	28	
10	H	+/–	100.0	68.681	1456	1152	32	128	144	**1152x870 75Hz**
	V	+/–		75.062	915	870	3	3	39	
11	H	+/–	92.978	61.805	1504	1152	18	134	200	**1152x900 65Hz**
	V	+/–		65.96	937	900	2	4	31	
12	H	+	108.0	63.981	1688	1280	48	112	248	**1280x1024 60Hz**
	V	+		60.02	1066	1024	1	3	38	
13	H	+	135.0	79.976	1688	1280	16	144	248	**1280x1024 75Hz**
	V	+		75.035	1066	1024	1	3	38	

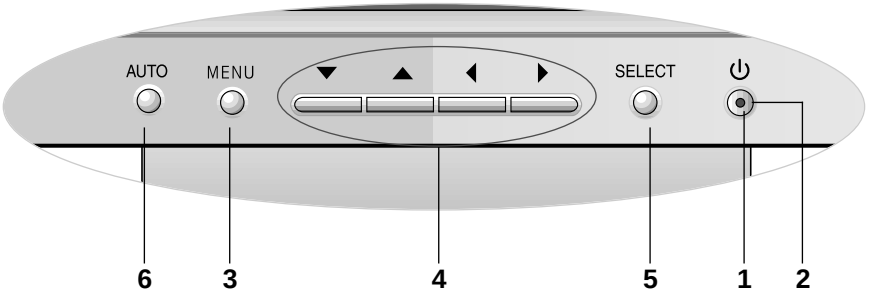
OPERATING INSTRUCTIONS

FRONT VIEW

REAR VIEW



Front Control Panel



1. Power ON/OFF Button
Use this button to turn the monitor on or off.

2. Power Indicator
This indicator lights up green when the monitor operates normally. If the display is in DPM(Energy Saving)mode, this indicator color change to amber.

3. MENU Button
Use these buttons to enter or exit the On Screen Display.

4. ▼▲◀▶ Button
Use these buttons to choose or adjust items in the On Screen Display.

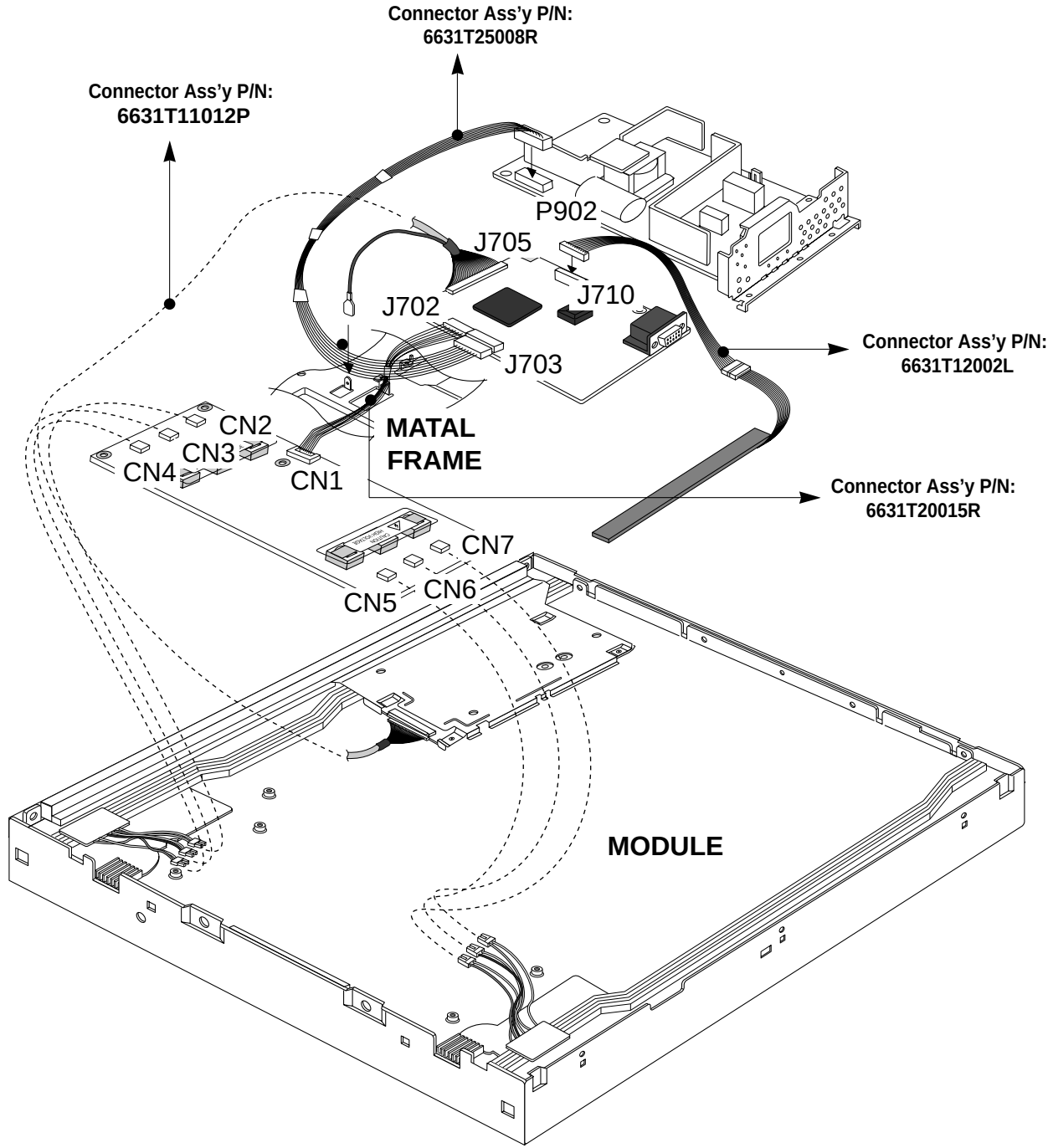
5. SELECT Button
Use this button to enter a selection in the On Screen Display.
Use this button to scanning auto adjust.

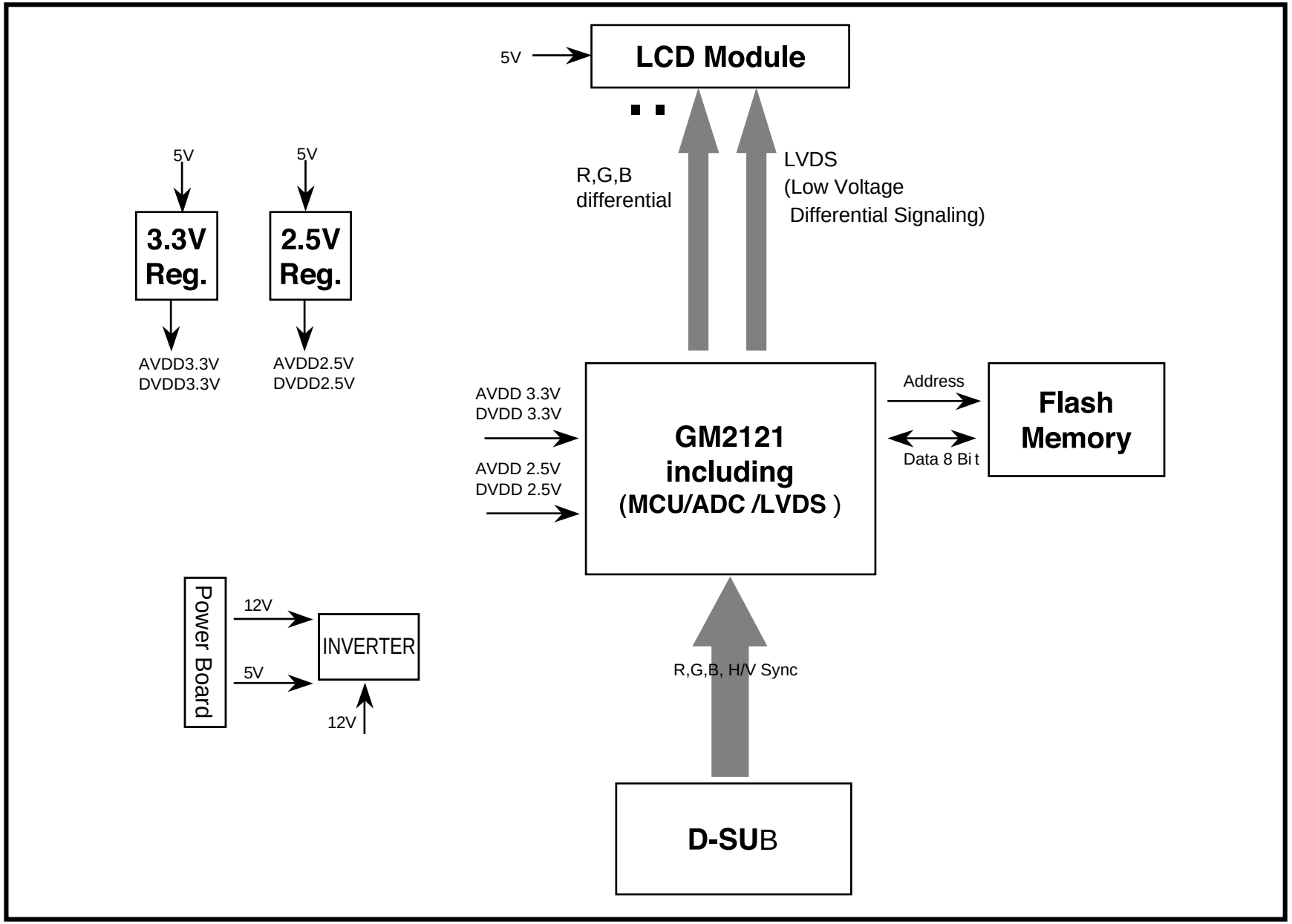
6. AUTO Button
Use this button to enter a selection in the on screen display.

*** AUTO adjustment function**

PROCESSING
AUTO CONFIGURATION

TO the **AUTO** button before using OSD menu. This button is for the automatic adjustment of the screen position, clock and phase.
Note: Some signal from some graphics boards may not function properly. **If the results are unsatisfactory**, adjust your monitor's Position, Clock and Phase manually.


Connector Ass'y P/N:
6631T25008R
Connector Ass'y P/N:
6631T11012P
P902
J705
J710
J702
J703
Connector Ass'y P/N:
6631T12002L
CN2
CN3
CN4
CN1
MATAL
FRAME
Connector Ass'y P/N:
6631T20015R
CN7
CN6
CN5
MODULE


5V
LCD Module
R,G,B
differential
LVDS
(Low Voltage
Differential Signaling)
5V
5V
3.3V
Reg.
2.5V
Reg.
AVDD3.3V
DVDD3.3V
AVDD2.5V
DVDD2.5V
AVDD 3.3V
DVDD 3.3V
AVDD 2.5V
DVDD 2.5V
GM2121
including
(MCU/ADC /LVDS)
Address
Data 8 Bit
Flash
Memory
Power Board
12V
5V
INVERTER
12V
R,G,B, H/V Sync
D-SUB

DESCRIPTION OF BLOCK DIAGRAM

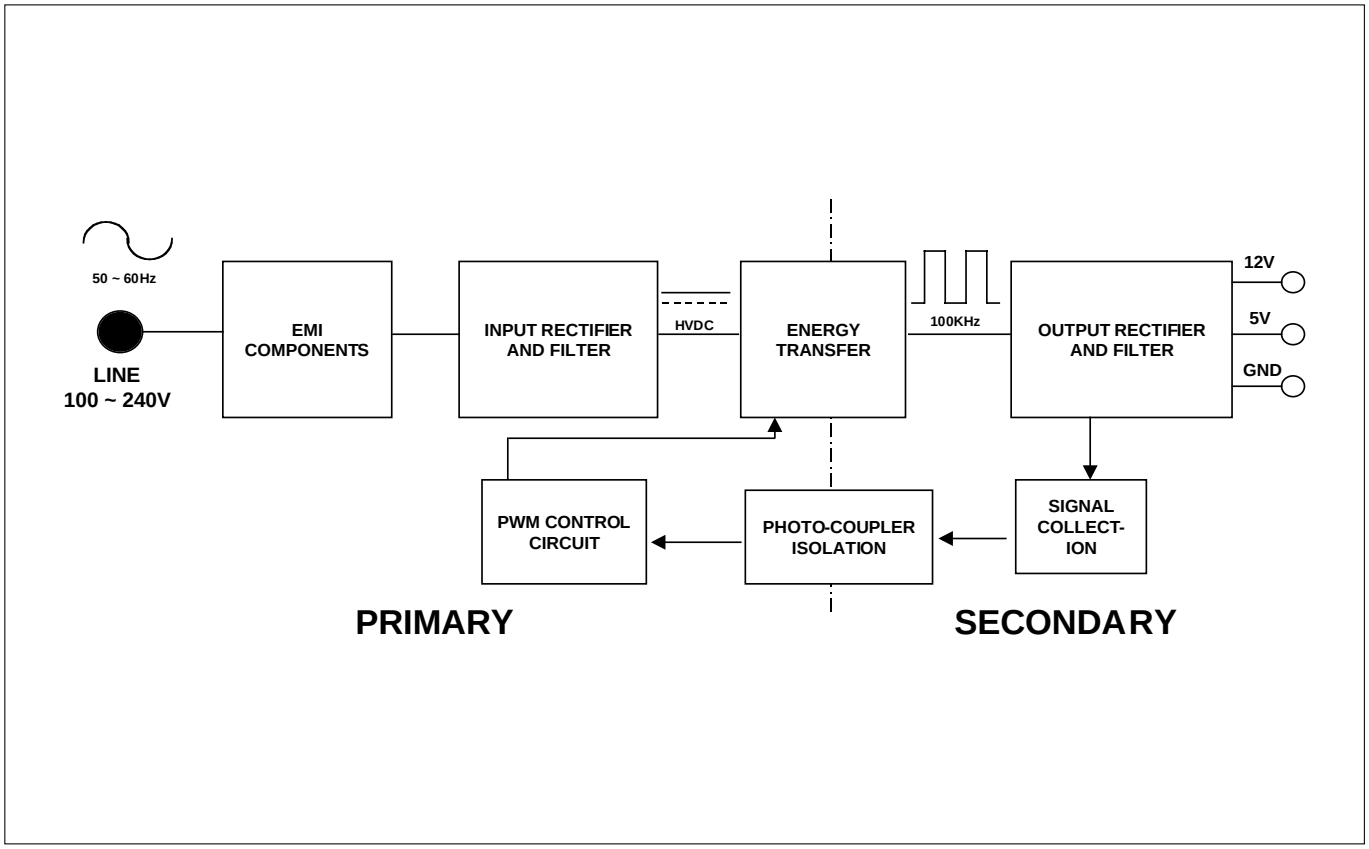
1. Video Controller Part & Display Data Transmitter Part.

This part amplifies the level of video signal for the digital conversion and converts from the analog video signal to the digital video signal using a pixel clock.
The pixel clock for each mode is generated by the PLL.
The range of the pixel clock is from 25MHz to 135MHz.
This part consists of the Scaler, Flash-ROM IC which stores program data, Reset IC.
The Scaler gets the video signal converted analog to digital, interpolates input to 1280 x 1024 resolution signal and outputs 8-bit R, G, B signal to transmitter.
Especially pre-amp / ADC / Video controller/ Transmitter are merged to one chip ‘Gm2121’ by Genesis.
This part transmit digital signal from the Scaler to the receiver of module.

2. Power Part

This part consists of the one 3.3V and one 2.5 regulators to convert power which is provided 5V in LIPS Board.
5V is provided for LCD Panel.
Also, 5V is converted 3.3V and 2.5V by regulator. Converted power is provided for IC in the main board.

Power Board Block Diagram



Operation description_Power

1. EMI components.

This part contains of EMI components to comply with global marketing EMI standards like FCC, VCCI CISPR, the circuit included a line-filter, across line capacitor and of course the primary protection fuse.

2. Input rectifier and filter.

This part function is for transfer the input AC voltage to a DC voltage through a bridge rectifier and a bulk capacitor.

3. Energy Transfer.

This part function is transfer the primary energy to secondary through a power transformer.

4. Output rectifier and filter.

This part function is to make a pulse width modulation control and to provide the driver signal to power switch, to adjust the duty cycle during different AC input and output loading condition to achive the dc output stablize, and also the over power protection is also monitor by this part.

5. Photo-Coupler isolation.

This part function is to feed back the dc output changing status through a photo transistor to primary controller to achieve the stabilized dc output voltage.

6. Signal collection.

This part function is to collect the any change from the dc output and feed back to the primary through photo transistor

ADJUSTMENT

All adjustment are thoroughly checked and corrected when the monitor leaves the factory, but sometimes several minor adjustment may be required.
Adjustment should be following procedure and after warming up for a minimum of 10 minutes.

• Alignment appliances and tools.
- IBM compatible PC
- Programmable Signal Generator.
  (eg. VG-819 made by Astrodesign Co.)
- E(E)PROM with each mode data saved.

1. Adjustment Start
1) Display any pattern at any Mode.
2) Run alignment program for L1811SG on the IBM compatible PC.
3) Select EEPROM → Init → Initialize command and Enter.
4) This will make all data to default state.
5) Select COLOR→ PRESET START command and Enter.

2. Adjustment for White Balance
1) Display Black pattern at SXGA/60Hz.
2) Select COLOR → BIAS CALIBRATION command and Enter.
3) No attempt to manually adjust, BIAS data is automatically adjusted and saved to the EEPROM.
4) Display Full White pattern at SXGA/60Hz.
5) Select GAIN CALIBRATION command and Enter.
6) 6500K and 9300K are automatically adjusted and saved to the EEPROM.
7) Select COLOR → PRESET END command and Enter.

3. Adjustment for EDID
1) Use this procedure only when there is some probelm on EDID data.
2) Connect the D-sub cable.
3) Select EDID → Write EDID[A0] command and Enter.

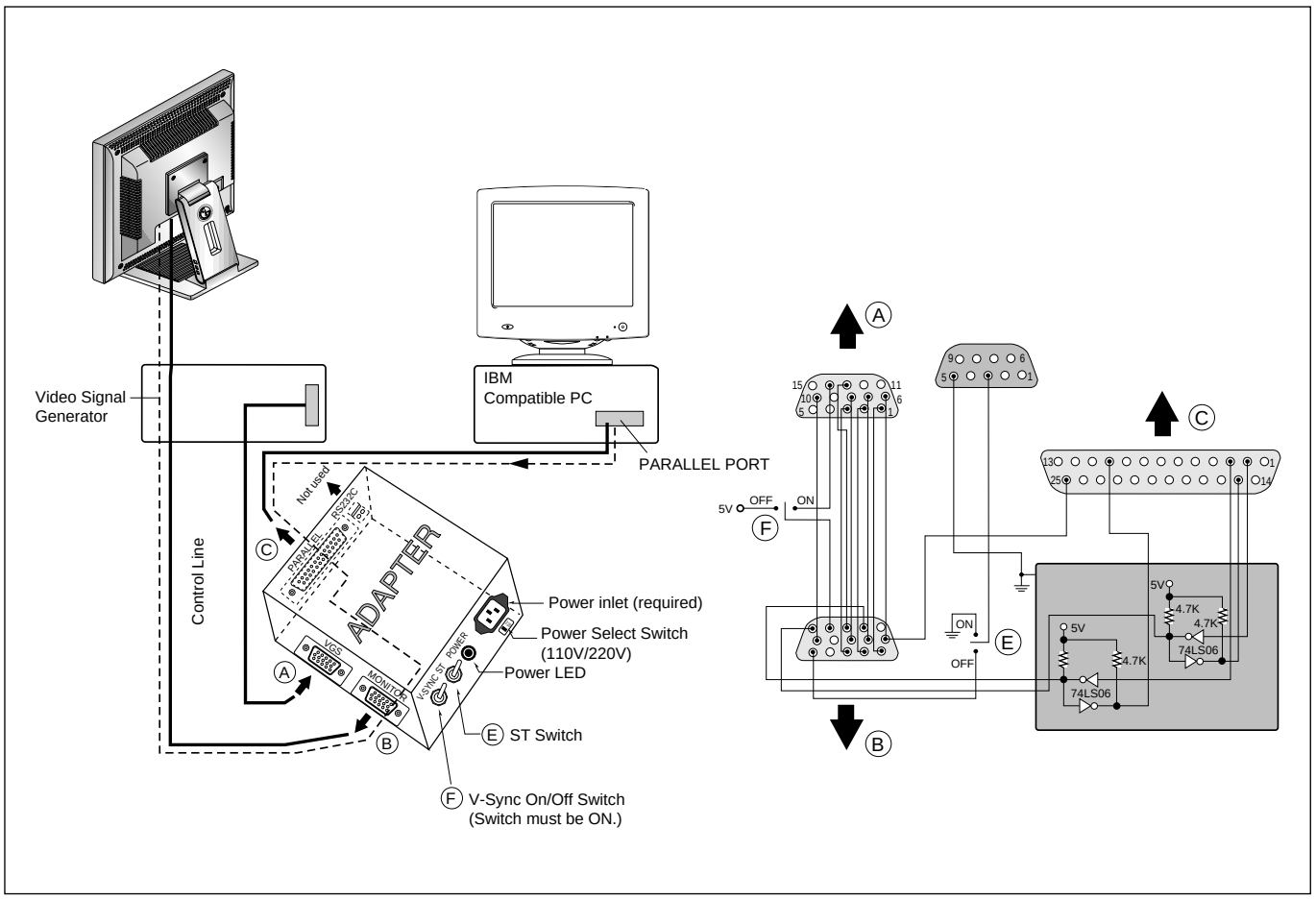
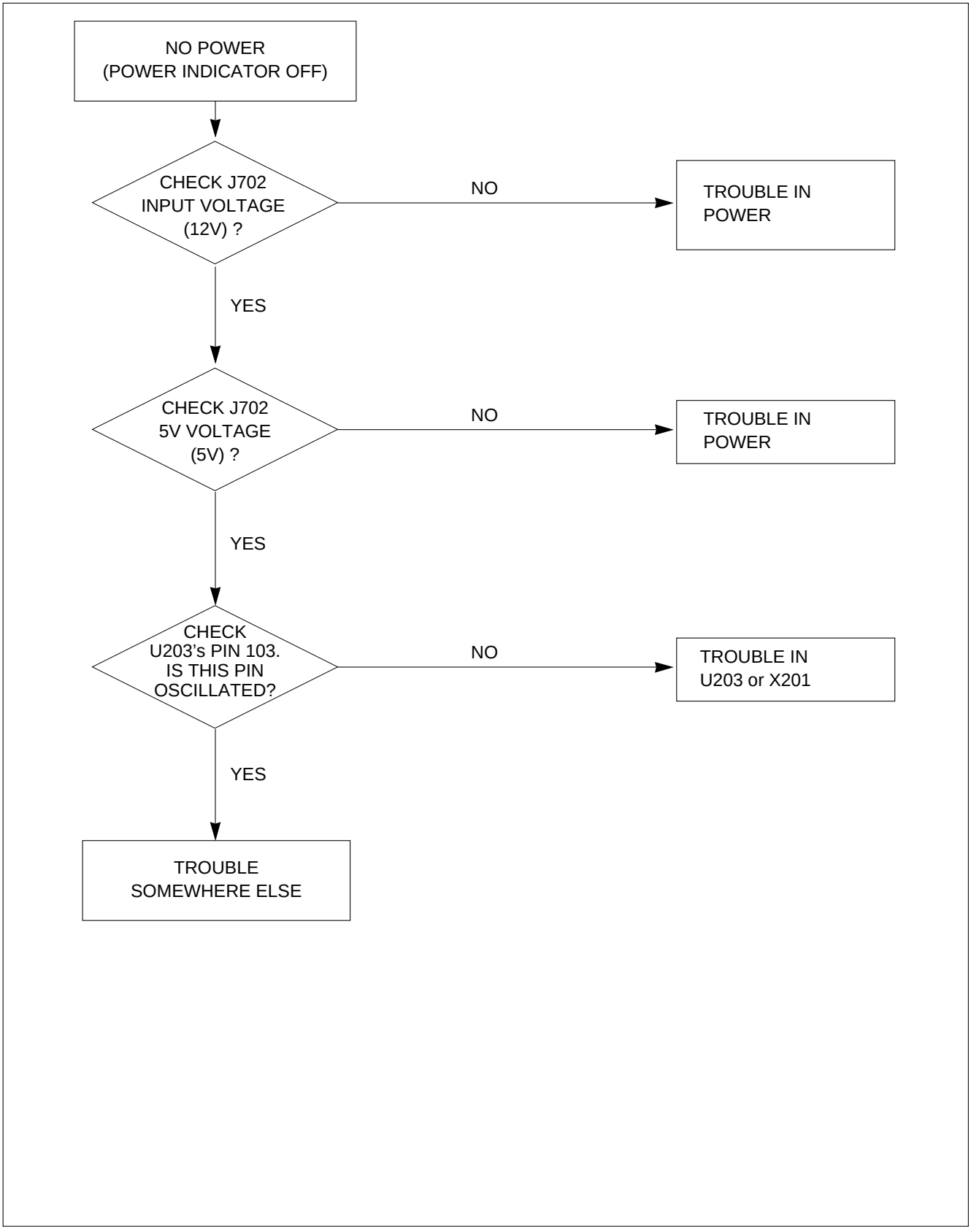


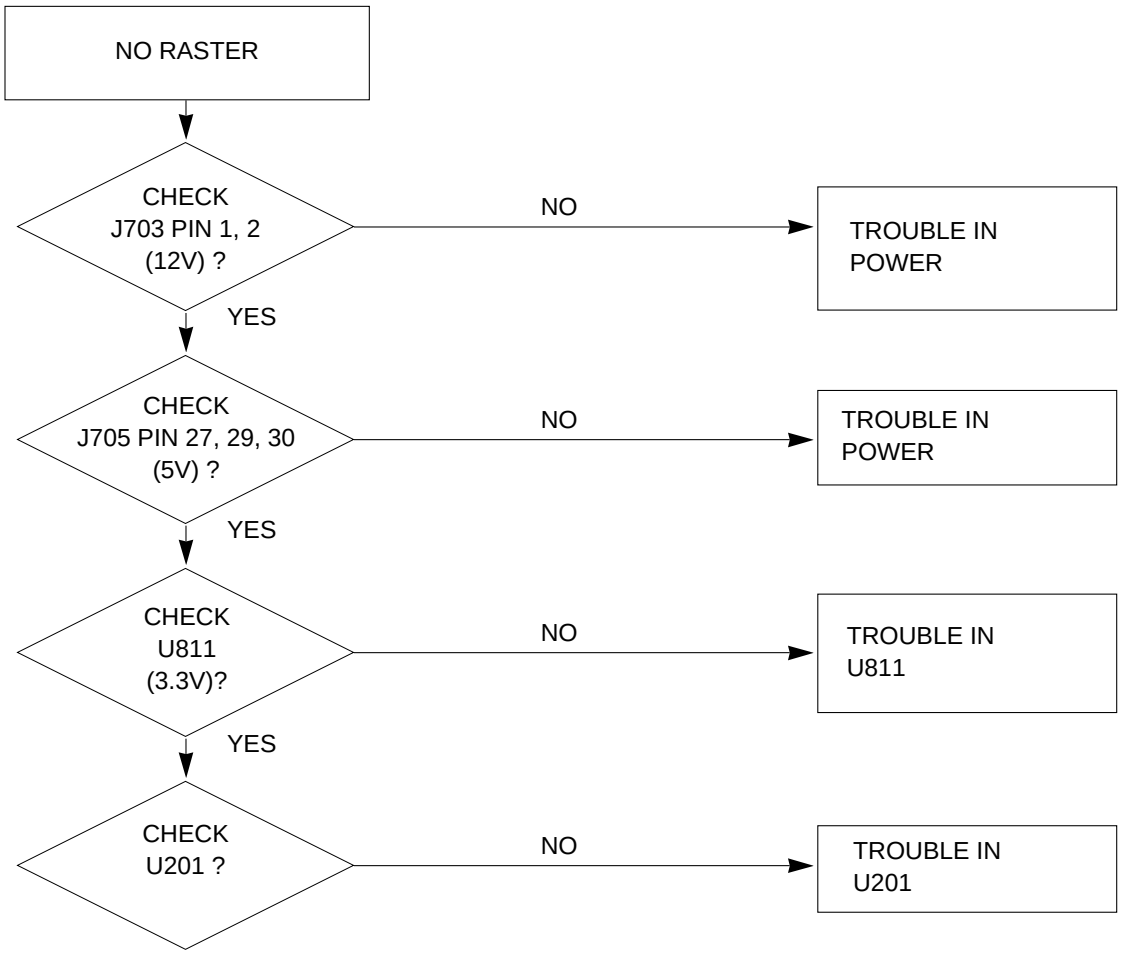
Figure 1. Cable Connection

TROUBLESHOOTING GUIDE

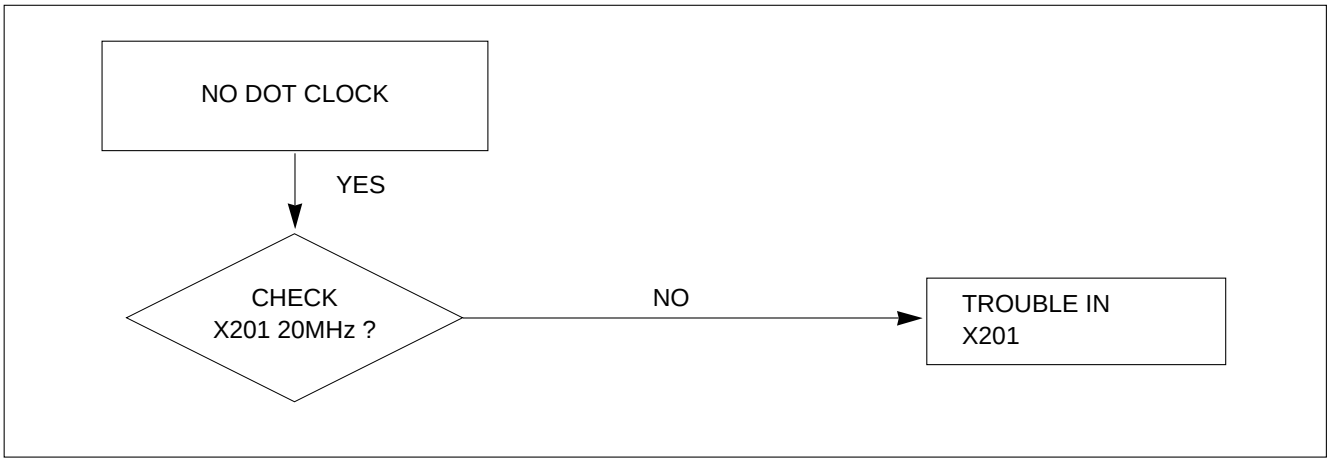
1. NO POWER



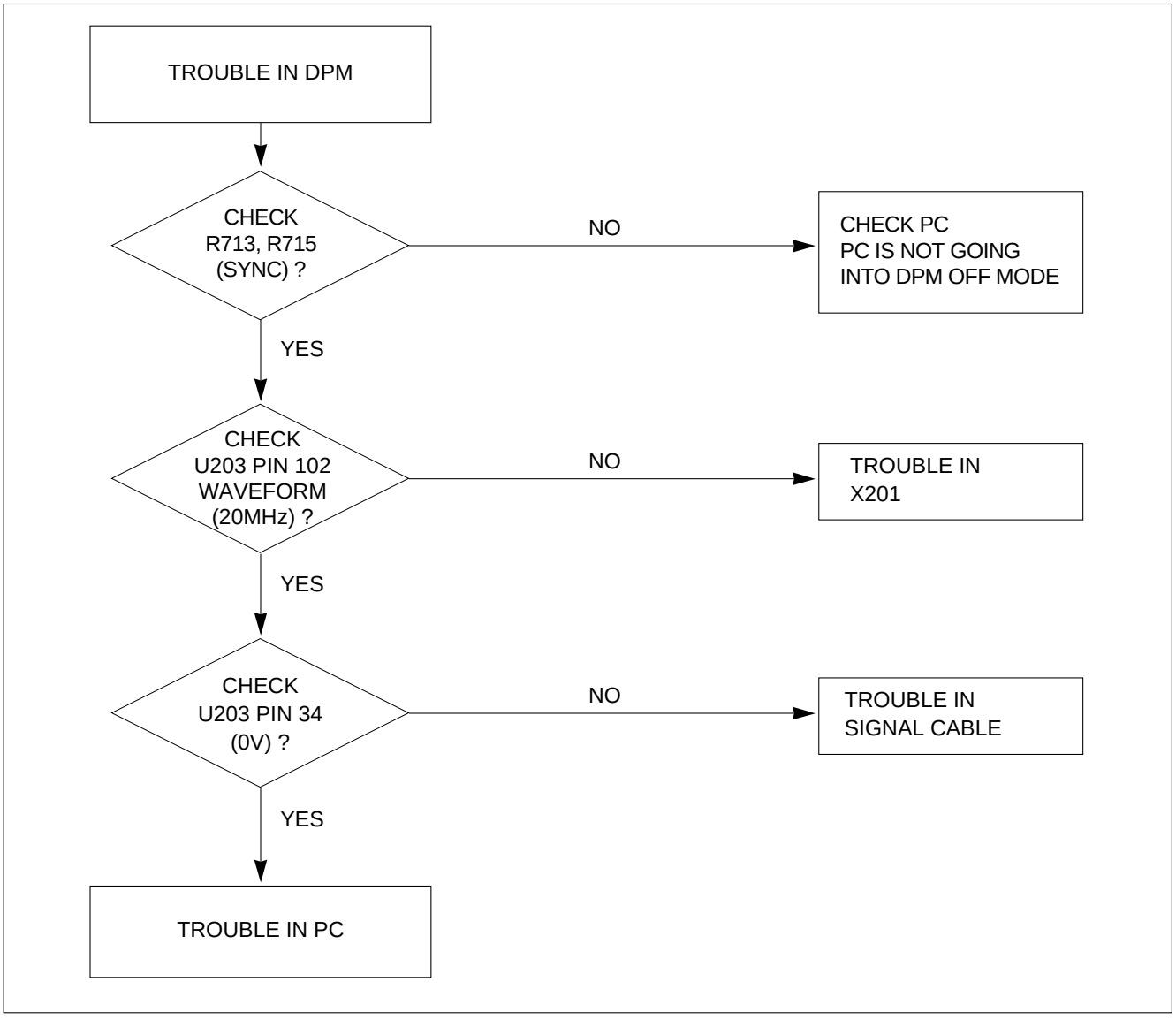
2. NO RASTER

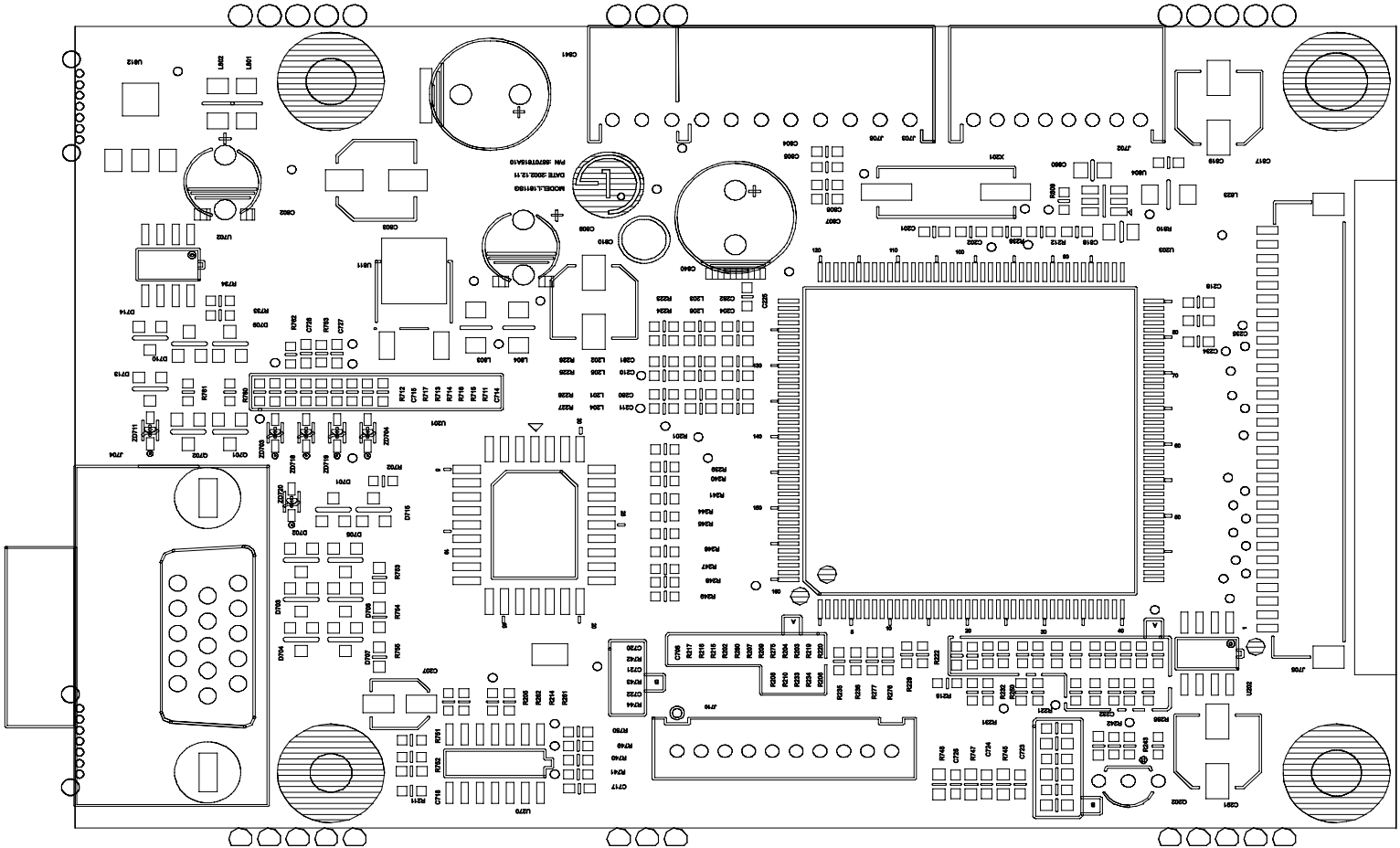

NO RASTER
CHECK
J703 PIN 1, 2
(12V) ?
NO
TROUBLE IN
POWER
YES
CHECK
J705 PIN 27, 29, 30
(5V) ?
NO
TROUBLE IN
POWER
YES
CHECK
U811
(3.3V)?
NO
TROUBLE IN
U811
YES
CHECK
U201 ?
NO
TROUBLE IN
U201

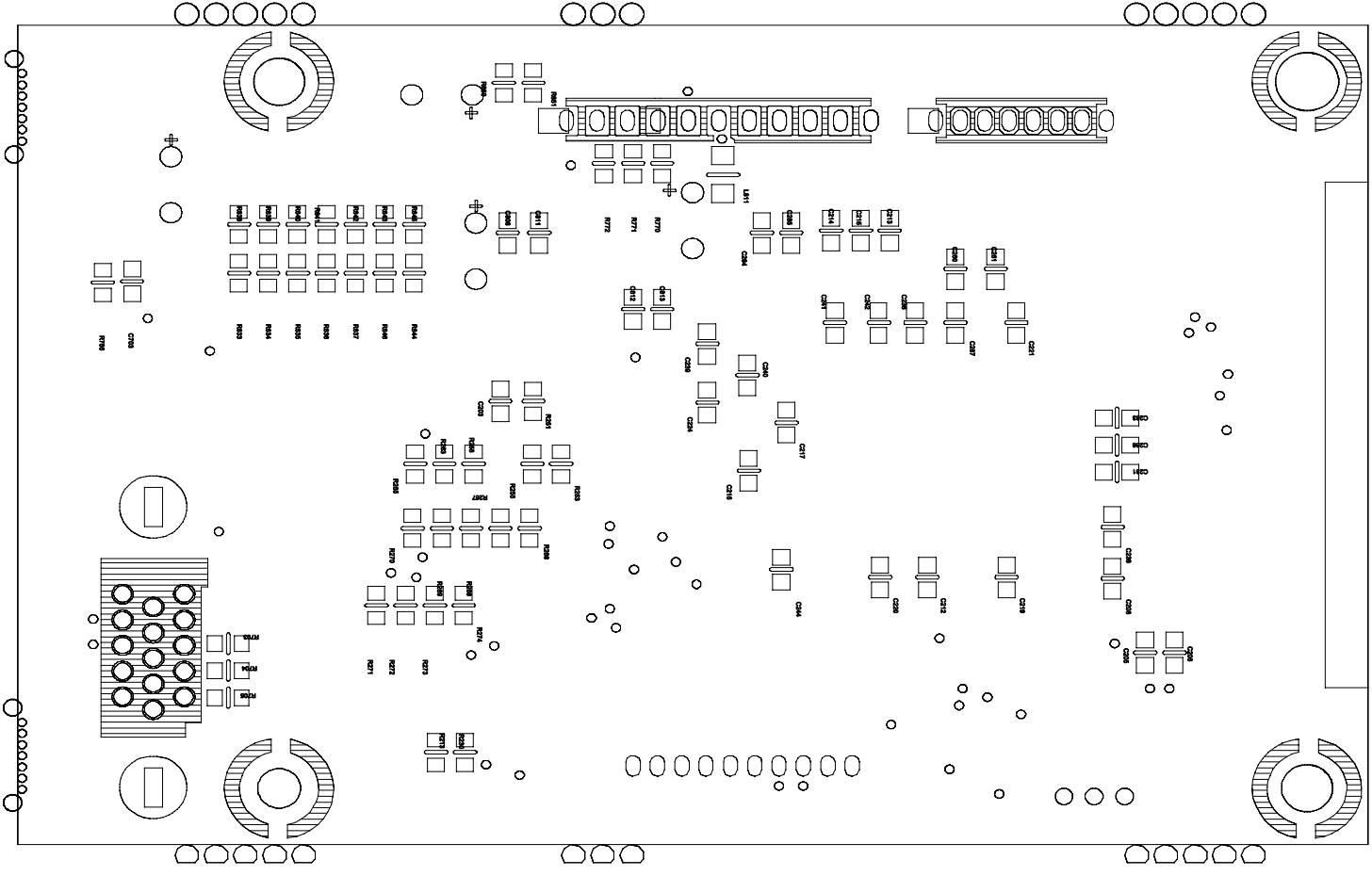
3. NO CLOCK (CLOCK GENERATOR)



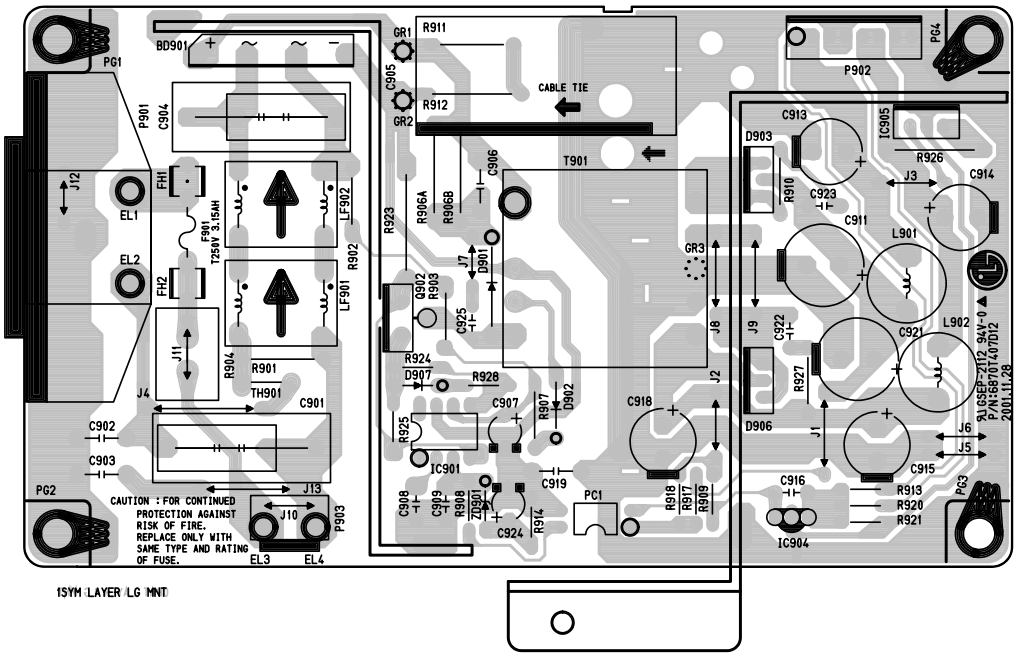
4. TROUBLE IN DPM



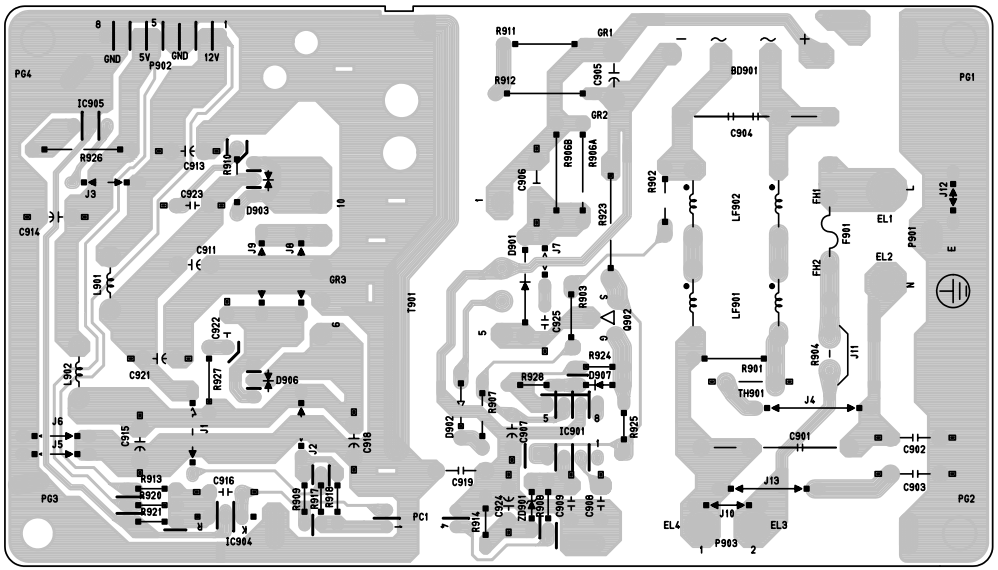




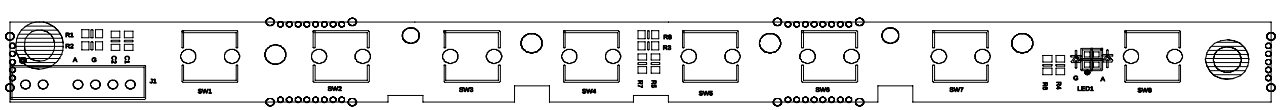
3. POWER BOARD (Component Side)



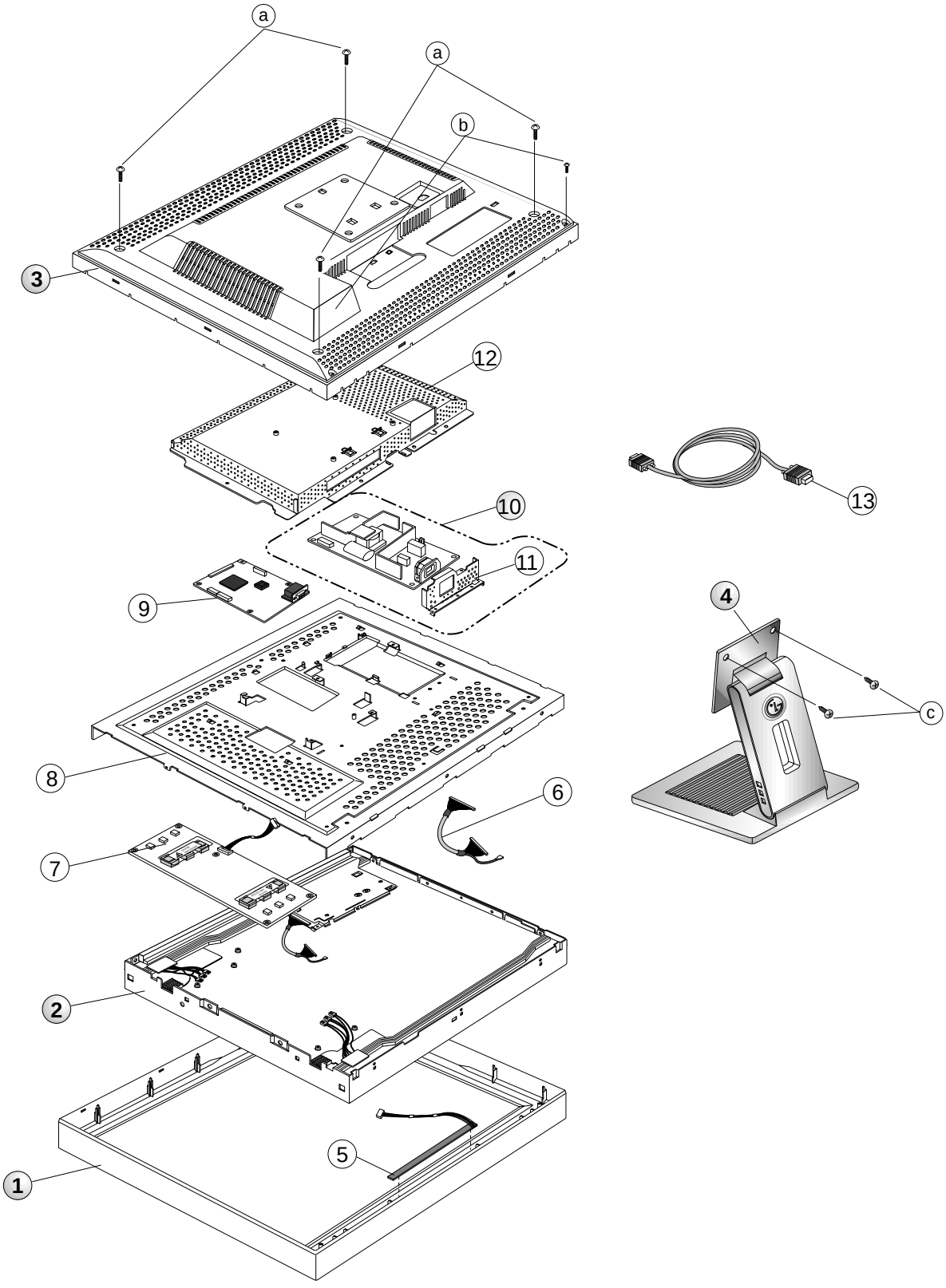
4. POWER BOARD (Solder Side)



5. CONTROL BOARD



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description
1	3091TKL044M	CABINET ASSEMBLY, LB801G BRAND , L1811SG(ANALOG ONLY)
2	6304FLP034A	LCD(LIQUID CRYSTAL DISPLAY), LM181E06-A4M1 LG PHILPS TFT COLOR SXGA 18.1"
3	3809TKL025L	BACK COVER ASSEMBLY, LB801G , L1811SG (ANALOG ONLY)
4	3043TKK091E	TILT SWIVEL ASSEMBLY, LM805L -HIPS NO USB
5	6871TST321A	PWB(PCB) ASSEMBLY, SUB, LB800K CONTROL TOTAL BRAND CL-42
6	6631T11012P	CONNECTOR ASSEMBLY, 30P H-H 100MM UL20276 PANEL LINK LB886F
7	6633TZA008C	INVERTER ASSEMBLY, ALPS KUBNKM045A 6-LAMPS,18" DELL
8	4951TKS078S	METAL ASSEMBLY, FRAME MAIN, L1811SG(ANALOG ONLY)
9	6871TMT390A	PWB(PCB) ASSEMBLY, MAIN, L1811SG ALRDG BRAND CL-43 TOTAL
10	6871TPT233A	PWB(PCB) ASSEMBLY, POWER, L1811SG POWER TOTAL BRAND
11	4814TKK187A	SHIELD, REAR LB886F
12	4950TKK429A	METAL, REAR LB800H
13	6850TD9001A	CABLE, D-SUB, UL 2990-9C(7.5) DT 1870MM GRAY(85964) BRAND DM
a	1SZZTER001H	SCREW, DRAWING, D3.0 L10.0 MSWR/BK .
b	332-113S	SCREW, DRAWING, D3.0 L12.0 MSWR/BK .
c	332-105G	SCREW, DRAWING, PVS+4*10(MSWR/BK)

REPLACEMENT PARTS LIST

CAUTION: BEFORE REPLACING ANY OF THESE COMPONENTS,
READ CAREFULLY THE **SAFETY PRECAUTIONS** IN THIS MANUAL.
* NOTE : **S** SAFETY Mark ⚠
AL ALTERNATIVE PARTS

DATE: 2002. 12. 16.

*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		MAIN BOARD		
		CAPACITORS		
		C201	0CC180CK41A	18PF 1608 50V 5% R/TP NP0
		C202	0CC180CK41A	18PF 1608 50V 5% R/TP NP0
		C203	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C204	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C205	0CH6101K416	100PF 50V J NP0 2012 R/TP
		C206	0CH6101K416	100PF 50V J NP0 2012 R/TP
		C207	0CH8106F611	10UF 16V M 85STD(CYL) R/TP
		C208	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C210	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C211	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C212	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C213	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C214	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C215	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C216	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C217	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C218	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C219	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C220	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C221	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C224	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C225	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C231	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C232	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C234	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C235	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C236	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C238	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C239	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C240	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C241	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C242	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C244	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C260	0CH6221K416	220PF 50V J NP0 2012 R/TP
		C261	0CK103DN56A	10000PF 2012 100V 10% R/TP
		C280	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C281	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C282	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C283	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C284	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C285	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C286	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C287	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C291	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C703	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C706	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C714	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C715	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C717	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C718	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C720	0CC471CK41A	470PF 1608 50V 5% R/TP NP0
		C721	0CC471CK41A	470PF 1608 50V 5% R/TP NP0

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C722	0CC471CK41A	470PF 1608 50V 5% R/TP NP0
		C723	0CC471CK41A	470PF 1608 50V 5% R/TP NP0
		C724	0CC471CK41A	470PF 1608 50V 5% R/TP NP0
		C725	0CC471CK41A	470PF 1608 50V 5% R/TP NP0
		C726	0CC221CK41A	220PF 1608 50V 5% R/TP NP0
		C727	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C802	0CE107EF638	100UF KMG 16V M FM5 TP 5
		C803	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C804	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C805	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C806	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C807	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C808	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C809	0CE476EF638	47UF KMG 16V M FM5 TP 5
		C810	0CH8476F611	47UF 16V 20% 85STD (CYL) R/
		C811	0CH6102K406	1000PF 50V J SL 2012 R/TP
		C812	0CH6102K406	1000PF 50V J SL 2012 R/TP
		C813	0CH3104K566	0.1UF 50V 10% X7R 2012 R/TP
		C817	0CE107WF6DC	100UF MVK 16V 20% R/TP(SMD)
		C818	0CC102CK41A	1000PF 1608 50V 5% R/TP NP0
		C819	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(
		C840	0CE477EH618	470UF KMG 25V M FL TP 5
		C841	0CE477EH618	470UF KMG 25V M FL TP 5
		C860	0CK105DK94A	1UF 2012 50V 80%,-20% R/TP
		DIODEs		
		D701	0DS226009AA	KDS226 TP KEC SOT-23 80V 3
		D702	0DS226009AA	KDS226 TP KEC SOT-23 80V 3
		D703	0DS226009AA	KDS226 TP KEC SOT-23 80V 3
		D704	0DS226009AA	KDS226 TP KEC SOT-23 80V 3
		D705	0DS226009AA	KDS226 TP KEC SOT-23 80V 3
		D706	0DS226009AA	KDS226 TP KEC SOT-23 80V 3
		D707	0DS226009AA	KDS226 TP KEC SOT-23 80V 3
		D709	0DS301109AA	MMBD301LT1 TP MOTOROLA SOT2
		D710	0DS301109AA	MMBD301LT1 TP MOTOROLA SOT2
		D713	0DS226009AA	KDS226 TP KEC SOT-23 80V 3
		D714	0DS226009AA	KDS226 TP KEC SOT-23 80V 3
		D715	0DS226009AA	KDS226 TP KEC SOT-23 80V 3
		ZD703	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323
		ZD704	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323
		ZD711	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323
		ZD718	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323
		ZD719	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323
		ZD720	0DZ560009DA	UDZ S 5.6B TP ROHM-K SOD323
		ICs		
		U201	0IZZTSZ243A	ATMEL/STM 32PIN ST OTP L181
		U202	0IMMRSS040C	S524A60X51(SCT0) SAMSUNG EL
		U203	0IPRPGN004A	GM2121 GENESIS 160P,PQFP TR
		U270	0ISTLFA058A	74F14SCX FAIRCHILD 14P,SOIC
		U702	0ISS524202B	S524A40X21(SCT0) SAMSUNG EL
		U804	0TFVI80036A	SI3861DV VISHAY R/TP TSOP-6

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		U811	0IRH033200A	BA033FP-E2 MOLD-3 TP REGULA
		U812	0IPMGON007A	NCP1117ST25T3 ON SEMI SOT22
		COILs & CORES		
		L204	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		L205	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		L206	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		L801	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L802	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L803	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L804	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L811	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		L823	6210TCE001G	HH-1M3216-501 CERATEC 3216M
		TRANSISTOR		
		Q202	0IKE704200H	KIA7042AP TO-92 TP 4.2 VOL
		Q701	0TR390409AE	FAIRCHILD KST3904(LGEMTF) T
		Q702	0TR390409AE	FAIRCHILD KST3904(LGEMTF) T
		RESISTORs		
		R201	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R203	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R204	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R205	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R207	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R208	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R209	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R210	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R212	0RJ0222D677	22 OHM 1/10 W 5% 1608 R/TP
		R214	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R215	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R216	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R217	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R218	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R219	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R222	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R223	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R224	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R225	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R226	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R227	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R228	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R229	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R231	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/T
		R232	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/T
		R233	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/T
		R234	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/T
		R238	0RJ0222D677	22 OHM 1/10 W 5% 1608 R/TP
		R242	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R243	0RJ3302D677	33K OHM 1/10 W 5% 1608 R/TP
		R244	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R246	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R248	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R250	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R253	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R255	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R258	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R261	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/T
		R262	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R265	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R268	0RH1002D622	10K OHM 1 / 10 W 2012 5.00%
		R275	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R276	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R277	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R286	0RJ0272D677	27 OHM 1/10 W 5% 1608 R/TP
		R702	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R711	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R712	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R713	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R715	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R716	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R733	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R734	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R740	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/TP
		R741	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/TP
		R742	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R743	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R744	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R745	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R747	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R748	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R749	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/T
		R750	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/T
		R751	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		R753	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R754	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R755	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R760	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R761	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R762	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R763	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R766	0RH1003D622	100K 1/10W 5 D.R/TP
		R770	0RH0000D622	0 1/10W P-TYPE TAPPING
		R809	0RJ2202D677	22K OHM 1/10 W 5% 1608 R/TP
		R810	0RH5600D622	560 1/10W 5 D.R/TP
		R833	0RH0472D622	47 1/10W 5 D.R/TP
		R834	0RH0472D622	47 1/10W 5 D.R/TP
		R835	0RH0472D622	47 1/10W 5 D.R/TP
		R836	0RH0472D622	47 1/10W 5 D.R/TP
		R837	0RH0472D622	47 1/10W 5 D.R/TP
		R838	0RH0472D622	47 1/10W 5 D.R/TP
		R839	0RH0472D622	47 1/10W 5 D.R/TP
		R840	0RH0472D622	47 1/10W 5 D.R/TP
		R841	0RH0472D622	47 1/10W 5 D.R/TP
		R842	0RH0472D622	47 1/10W 5 D.R/TP
		R843	0RH0472D622	47 1/10W 5 D.R/TP
		R844	0RH0472D622	47 1/10W 5 D.R/TP
		R845	0RH0472D622	47 1/10W 5 D.R/TP
		R846	0RH0472D622	47 1/10W 5 D.R/TP
		R850	0RH0000D622	0 1/10W P-TYPE TAPPING
		R851	0RH0000D622	0 1/10W P-TYPE TAPPING
		OTHERs		
		X201	6202TST003F	HC-49/SM5H KONY 20.0MHZ +/-
		POWER BOARD		
		BD901	0DD360000DA	D3SBA60 BK SHINDENGEN 600V
⚠		C901	0CBZTBU002B	BULK PCX2 335 474K
⚠		C904	0CBZTBU002A	BULK PCX2 335 224K
		C905	0CZZTAB002C	KMF 18*40 SYE / SWE 400V 12

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C906	0CK10302945	0.01UF 2KV Z F TR
		C907	0CE476EK638	47UF KMG 50V M FM5 TP 5
		C908	0CQ2721N419	2700PF 100V J PE NI TP
		C909	0CK1020K515	1000PF 50V K B TR
		C911	0CE228EF630	2200UF KMG 16V M FM5 BULK
		C913	0CE108BF630	1000UF KME 16V M FM5 BULK
		C914	0CE228ED630	2200UF KMG,RD 10V 20% BULK
		C915	0CE228ED630	2200UF KMG,RD 10V 20% BULK
		C916	181-288L	MKT 100V 823JTR PHS26823
		C918	0CE228ED630	2200UF KMG,RD 10V 20% BULK
		C921	0CE228EF630	2200UF KMG 16V M FM5 BULK
		C922	0CKZTTA002E	EKR3A102K09FK5 SAMWHA 1KV 1
		C923	0CKZTTA002E	EKR3A102K09FK5 SAMWHA 1KV 1
		C924	0CE336BH638	33UF KME 25V M FM5 TP5
		D901	0DD400709CB	UF4007 TP G.I DO204AL 1000
		D902	0DR400409AB	UF4004 TP G.I DO204AL 400V
		D903	0DRIR00011B	16CTQ100 I.R ST TO220 100V
		D906	0DRIR00021A	30CTQ060 I.R ST TO220 60V 3
		D907	0DS113309AA	1SS133 TP ROHM KOREA DO34 9
⚠		F901	0FZZTTH001D	TIME LAG HBC 3.15A/250V,215
		FH1	430-858C	AFC-520 BAE EUN TA
		FH2	430-858C	AFC-520 BAE EUN TA
		IC901	0IPMGIH001A	ICE2AS01 INFINEON 8P,DIP ST
		IC904	0ISS431000A	KA431AZ (LM431AZ)
		IC905	0ISS780500F	KA7805
		L901	150-A85F	LX31 GET BAR CHOKE,3.3UH,LB
		L902	150-A85F	LX31 GET BAR CHOKE,3.3UH,LB
⚠		LF901	6200TZZ001A	- GO BK L/FILTER,9MH,LB886F
⚠		LF902	6200TZZ001A	- GO BK L/FILTER,9MH,LB886F
⚠		P901	6620TKB002A	BAE EUN AC UNIVERSAL 3PIN B
⚠		PC1	0ILI817000E	LTV-817M-V(B) 4P BK PHOTO
		Q902	0TFFN10004A	INFINEON SPP11N60C2 ST TO22
		R901	0RD6803A609	680K OHM 1/2 W (7.0) 5% TA5
		R902	0RD3902A609	39K OHM 1/2 W (7.0) 5% TA52
		R903	0RD3902A609	39K OHM 1/2 W (7.0) 5% TA52
		R906A	0RX5102J609	51KOHM 1 W 5% TA52
		R906B	0RX5102J609	51KOHM 1 W 5% TA52
		R907	0RD0102Q609	10 1/4W(3 5% TA52
		R908	0RD0222Q609	22 1/4W(3 5% TA52
		R909	0RD1001Q609	1K 1/4W(3 5% TA52
		R910	0RD0431A609	4.3 OHM 1/2 W (7.0) 5% TA52
		R911	0RD1004A609	1.0M OHM 1/2 W (7.0) 5% TA5
		R912	0RD1004A609	1.0M OHM 1/2 W (7.0) 5% TA5
		R913	0RN1102F409	11K 1/6W 1% TA52
		R914	0RD1002Q609	10K 1/4W(3 5% TA52
		R917	0RD1201Q609	1.20K 1/4W(3 5% TA52
		R918	0RD1000Q609	100 1/4W(3 5% TA52
		R920	0RN4702F409	47K 1/6W 1% TA52
		R921	0RN2701F409	2.7K OHM 1/6 W 1.00% TA52
		R923	0RB0330K607	0.33 OHM 2 W 5% TA62
		R924	0RD0752Q609	75 1/4W(3 5% TA52
		R925	0RD1002Q609	10K 1/4W(3 5% TA52
		R926	0RN0471H609	4.7 OHM 1/2 W 5% TA52
		R927	0RD0102A609	10 OHM 1/2 W (7.0) 5% TA52
		R928	0RD0202Q609	20 1/4W(3 5% TA52
⚠		T901	6170TMZ125B	EER3016 340UH V-10PIN LB886
		TH902	6322TA080AA	TP8D13 DAEWOO +/- 15% 110/
		ZD901	0DZ470009BC	GDZ4.7B TP GRANDE DO34 0.5W
CONTROL BOARD				
		SW1	140-058E	SKHV10910B LGEC NON 12V 20A
		SW2	140-058E	SKHV10910B LGEC NON 12V 20A

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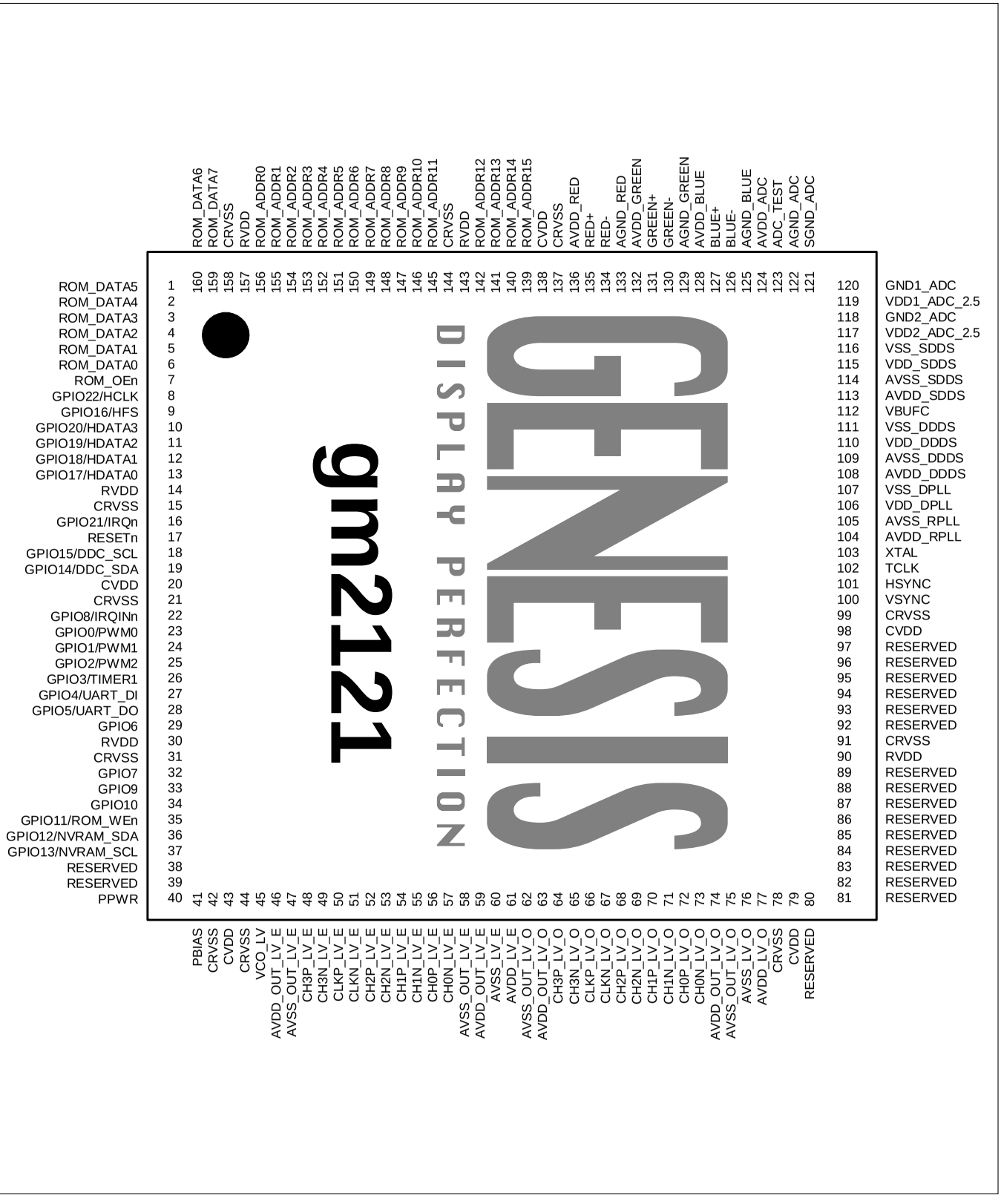
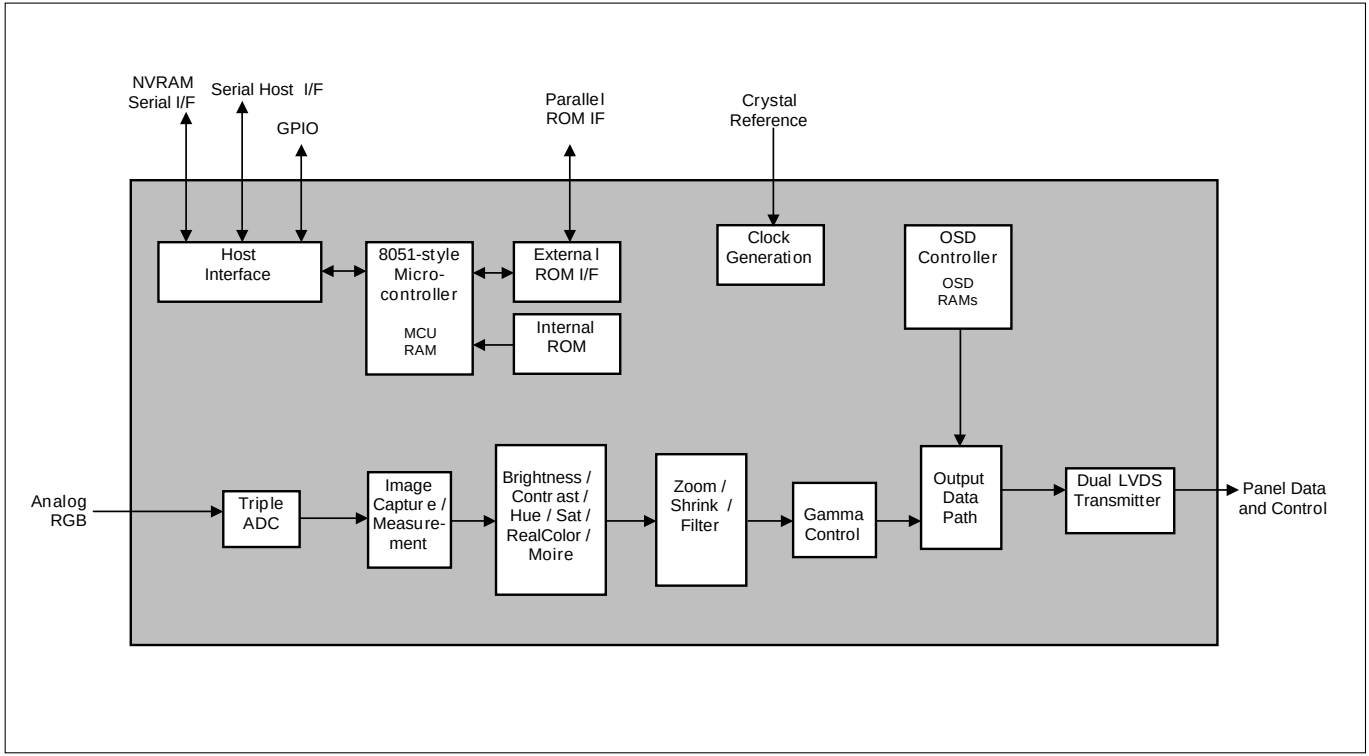
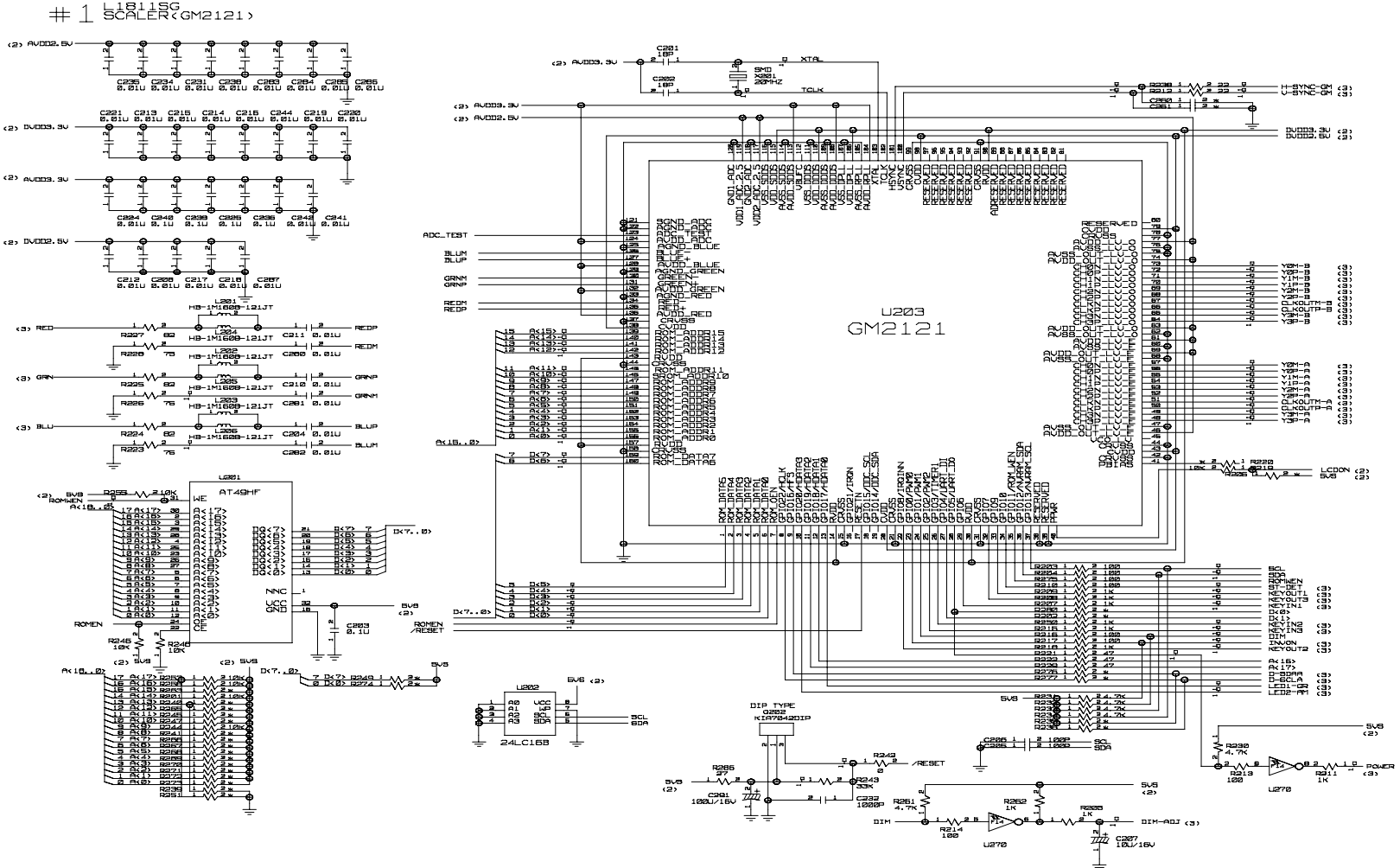
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		SW3	140-058E	SKHV10910B LGEC NON 12V 20A
		SW4	140-058E	SKHV10910B LGEC NON 12V 20A
		SW5	140-058E	SKHV10910B LGEC NON 12V 20A
		SW6	140-058E	SKHV10910B LGEC NON 12V 20A
		SW7	140-058E	SKHV10910B LGEC NON 12V 20A
		SW8	140-058E	SKHV10910B LGEC NON 12V 20A
		LED1	0DLLT0208AA	LITEON LTST-C155KGJSKT R/TP



PIN CONFIGURATION



PIN BLOCK DIAGRAM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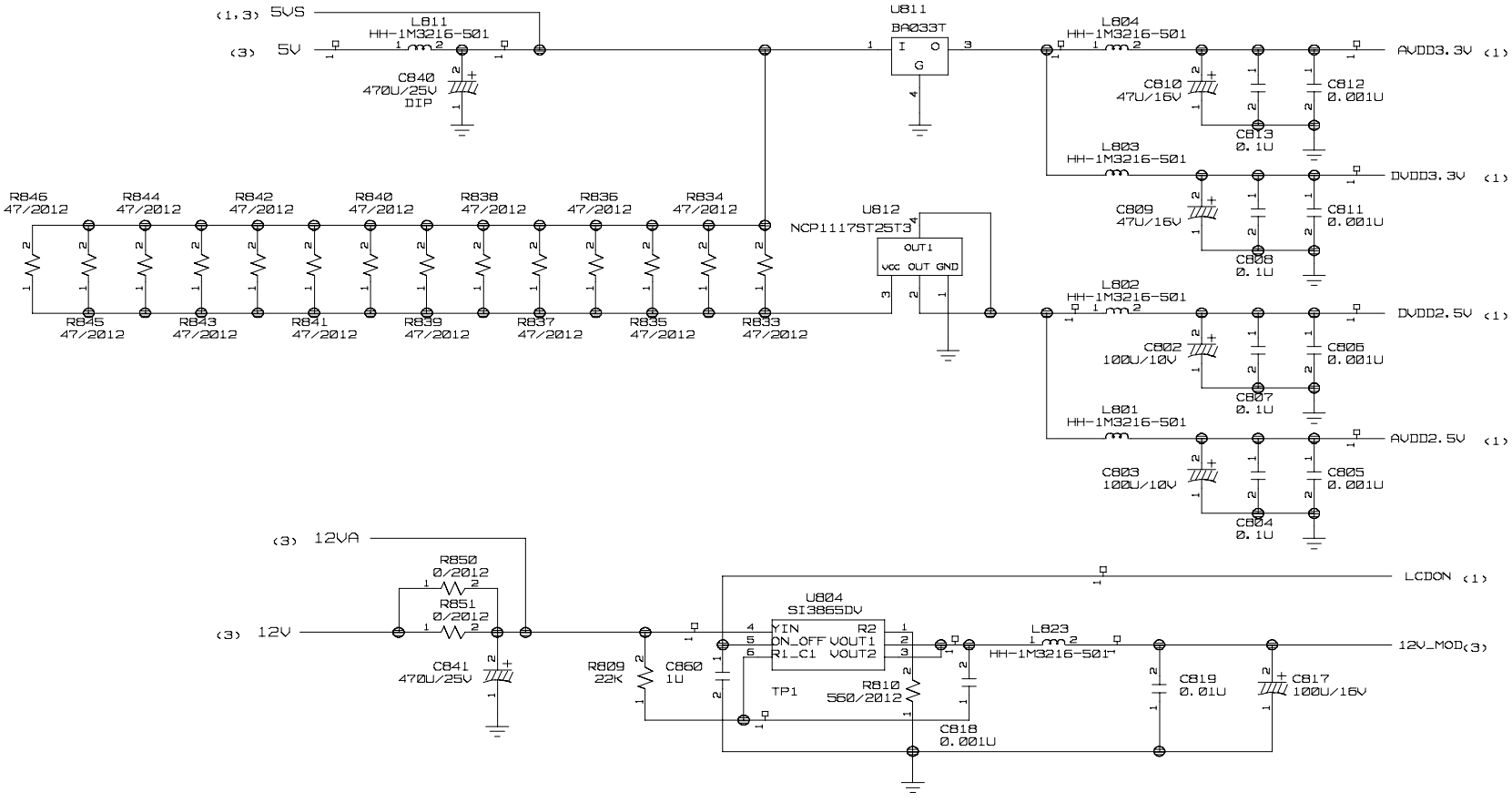
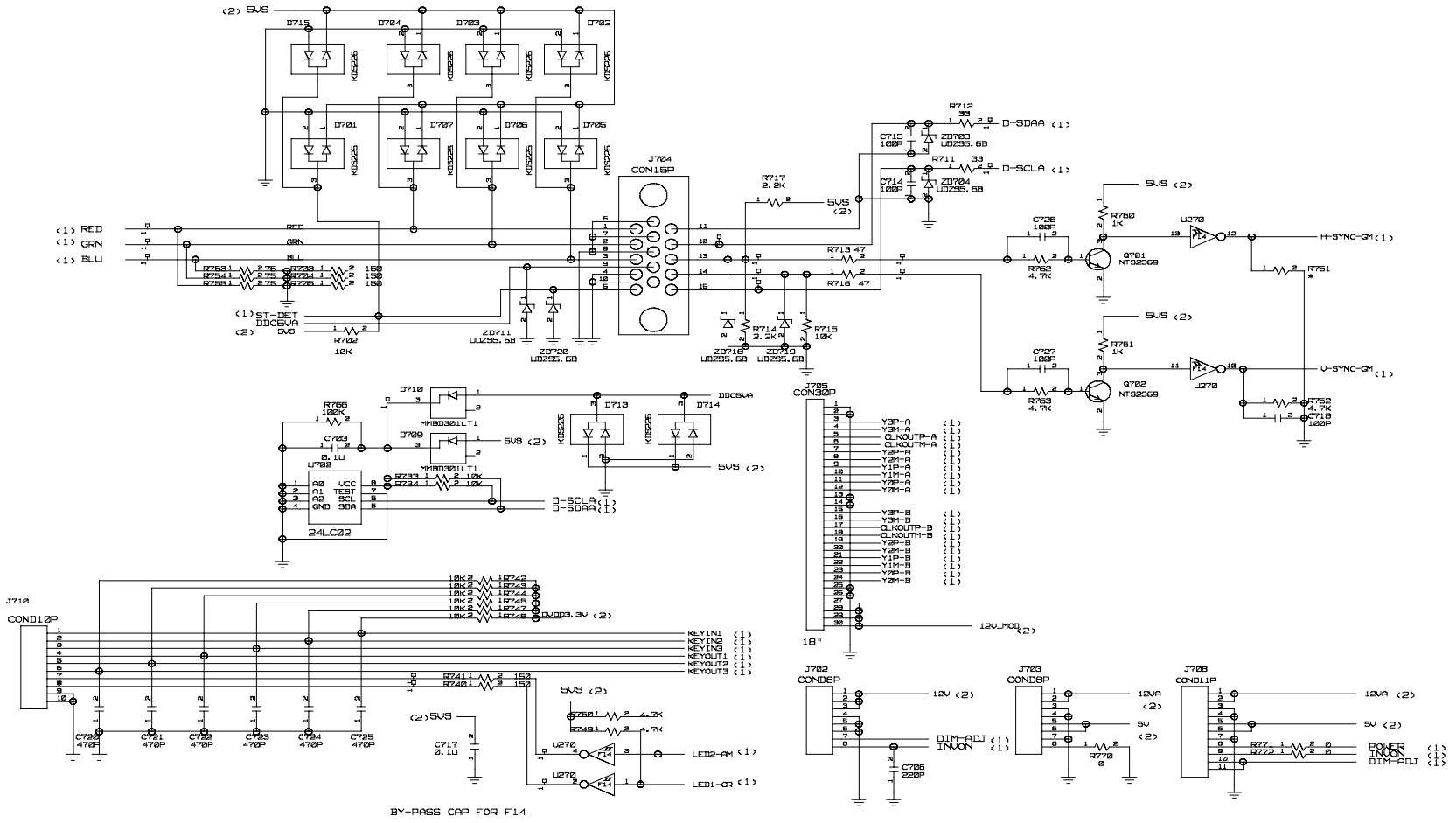
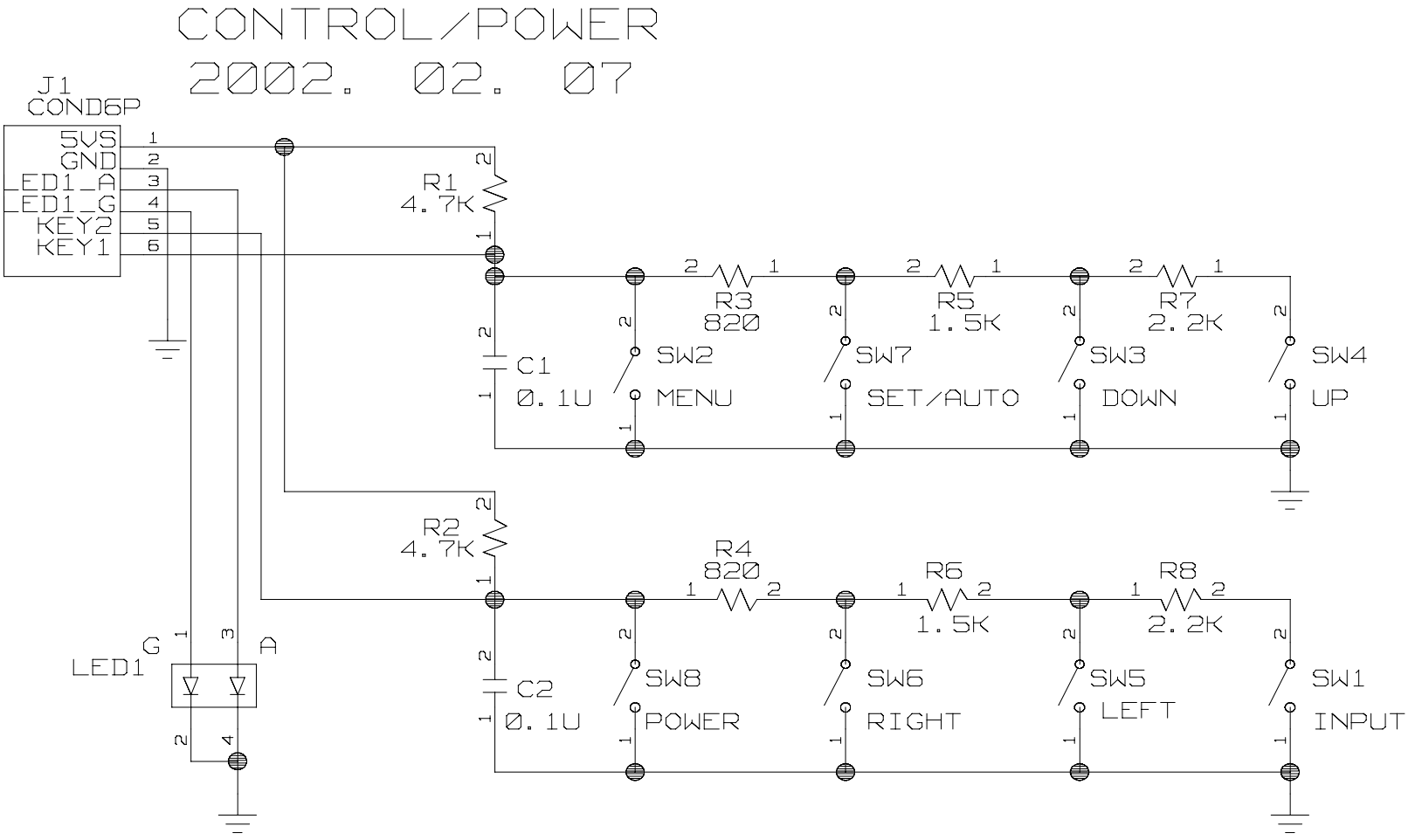
SCALER(GM2121)
U203
GM2121
AT49HF
24LC16B
U270
U202
U201

#2 L1811SG(POWER)



#3 L1811SG CONNECTOR




CONTROL/POWER
2002. 02. 07
J1
COND6P
5VS
GND
LED1_A
LED1_G
KEY2
KEY1
R1
4.7K
R2
4.7K
R3
820
R4
820
R5
1.5K
R6
1.5K
R7
2.2K
R8
2.2K
C1
0.1U
C2
0.1U
SW2
MENU
SW7
SET/AUTO
SW3
DOWN
SW4
UP
SW8
POWER
SW6
RIGHT
SW5
LEFT
SW1
INPUT
LED1
G
A

LB886F Internal Power Circuit

2001.11.21