Website:http://biz.LGservice.com
E-mail:http://www.LGEservice.com/techsup.html

COLOR MONITOR
SERVICE MANUAL

CHASSIS NO. : CL-32
FACTORY MODEL: L1510SFK

MODEL: FLATRON L1510SF (LB500K-VL)

***( ) ID LABEL MODEL No.**

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

CONTENTS

SPECIFICATIONS

1. LCD CHARACTERISTICS

Type : TFT XGA LCD Module
Size : 352.0(H) x 263.5(V) x 14.0(T)
Pixel Pitch : 0.297mm x 0.297mm
Color Depth : 6bits(with FRC)/ 16M colors
Active Video Area : 15.0inch
(304.128 x 228.096)
Surface Treatment : Anti-Glare, Hard Coating (3H)
Backlight Unit : Top/Bottom edge side 2CCFL
Electrical Interface : LVDS interface

2. OPTICAL CHARACTERISTICS

2-1. Viewing Angle by Contrast Ratio ≥ 10
Left : 55° min. Right : 55° min.
Top : 40° min. Bottom : 40° min.

2-2. Luminance
: 160(min.), 200(typ.) at Center point

2-3. Contrast Ratio :250(min.), 350(typ.)

3. SIGNAL (Refer to the Timing Chart)

3-1. Sync Signal
1) Type : Separate Sync. (Horizontal & Vertical)
2) Input Voltage Level : Low=0~0.8V, High=2.1~5.5V
3) Sync Polarity : Positive or Negative

3-2. Video Input Signal
1) Type : R, G, B Analog
2) Voltage Level : 0~0.714 V
a) Color 0, 0 : 0 Vp-p
b) Color 7, 0 : 0.467 Vp-p
c) Color 15, 0 : 0.714 Vp-p
3) Input Impedance : 75 Ω

3-3. Operating Frequency
Horizontal : 30 ~ 63kHz
Vertical : 56 ~ 75Hz

4. POWER SUPPLY

4-1. Power
100~240V, 50/60Hz 0.6A

4-2. Power Consumption

MODE	H/V SYNC	VIDEO	POWER CONSUMPTION	LED COLOR
POWER ON (MAX)	ON/ON	ACTIVE	less than 30 W	GREEN
POWER ON (NORMAL)	ON/ON	ACTIVE	less than 28 W	GREEN
STAND-BY	OFF/ON	OFF	less than 3 W	AMBER
SUSPEND	ON/OFF	OFF	less than 3 W	AMBER
DPMS OFF	-	-	less than 3 W	AMBER

5. ENVIRONMENT

5-1. Operating Temperature: 10°C~35°C (50°F~95°F)
(Ambient)
5-2. Relative Humidity : 10%~80%
(Non-condensing)
5-3. MTBF : 50,000 Hours (Min.)
Lamp Life : 40,000 Hours (Min.)

6. DIMENSIONS (with TILT/SWIVEL)

Width : 356mm (14.01")
Depth : 151.7mm (5.97")
Height : 359.8mm (14.16")

7. WEIGHT (with TILT/SWIVEL)

Net. Weight : 4.4kg (9.70 lbs)
Gross Weight : 5.9kg (13.01 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

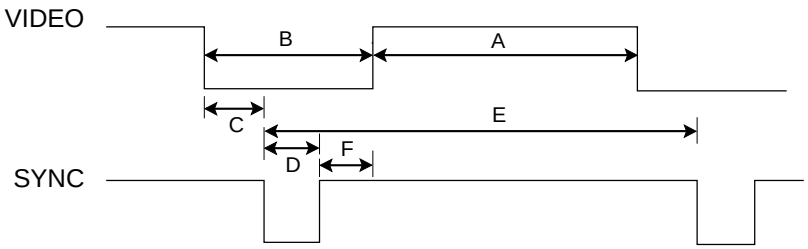
Please use only a plastic screwdriver to protect yourself from shock hazard during service operation.

⚠ 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.

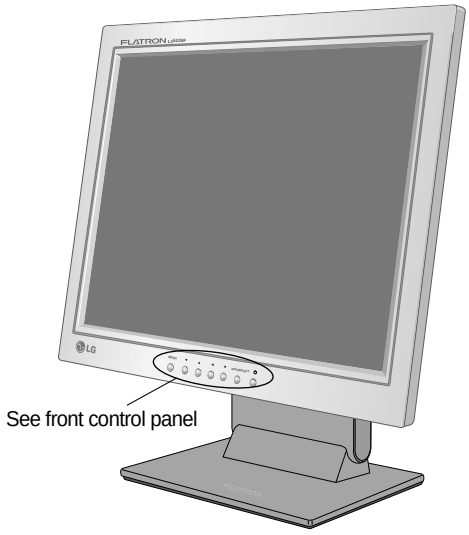
TIMING CHART



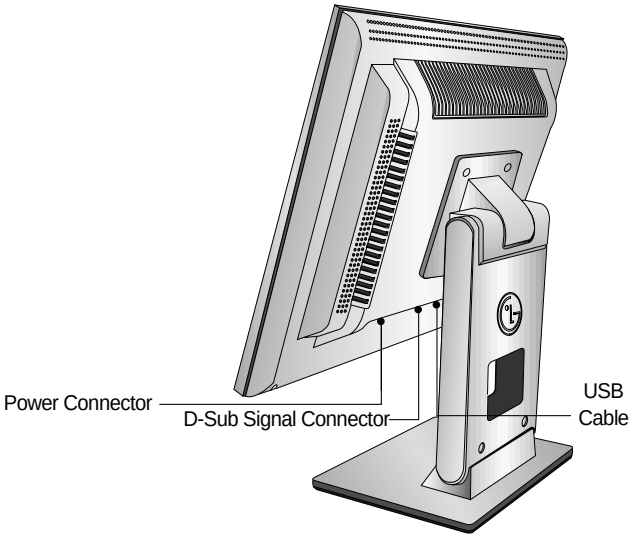
MODE	H / V	Sync Polarity	Dot Clock	Frequency	Total Period (E)	Video Active Time (A)	Blanking Time (B)	Sync Duration (D)	Back Porch (F)	Front Porch (C)	Resolution
1	H (Pixels)	+	25.175	31.468 KHz	800	640	160	96	48	16	640 x 350
	V (Lines)	–		70.0 Hz	449	350	99	2	60	37	
2	H (Pixels)	–	28.322	31.468 KHz	900	720	180	108	55	17	720 x 400 (TEXT)
	V (Lines)	+		70.0 Hz	449	400	49	2	34	13	
3	H (Pixels)	–	25.175	31.469 KHz	800	640	160	96	48	16	640 x 480
	V (Lines)	–		60.0 Hz	525	480	45	2	33	10	
4	H (Pixels)	–	30.24	35.00 KHz	864	640	224	64	96	64	640 x 480
	V (Lines)	–		66.67 Hz	525	480	45	3	39	3	
5	H (Pixels)	–	31.5	37.861 KHz	832	640	192	40	128	24	640 x 480
	V (Lines)	–		72.8 Hz	520	480	40	3	28	9	
6	H (Pixels)	–	31.5	37.50 KHz	840	640	200	64	120	16	640 x 480
	V (Lines)	–		75.0 Hz	500	480	20	3	16	1	
7	H (Pixels)	+	36.0	35.156KHz	1024	800	224	72	128	24	800 x 600
	V (Lines)	+		56.25 Hz	625	600	25	2	22	1	
8	H (Pixels)	+	40.0	37.879 KHz	1056	800	256	128	88	40	800 x 600
	V (Lines)	+		60.3 Hz	628	600	28	4	23	1	
9	H (Pixels)	+	50.0	48.077 KHz	1040	800	240	120	64	56	800 x 600
	V (Lines)	+		72.188 Hz	666	600	66	6	23	37	
10	H (Pixels)	+	49.5	46.875 KHz	1056	800	256	80	160	16	800 x 600
	V (Lines)	+		75.0 Hz	625	600	25	3	21	1	
11	H (Pixels)	–	57.2832	49.725 KHz	1152	832	320	64	224	32	832 x 624 (MAC)
	V (Lines)	–		74.55 Hz	667	624	43	3	39	1	
12	H (Pixels)	–	65	48.363 KHz	1344	1024	320	136	160	24	1024 x 768
	V (Lines)	–		60.0 Hz	806	768	38	6	29	3	
13	H (Pixels)	–	75	56.476 KHz	1328	1024	304	136	144	24	1024 x 768
	V (Lines)	–		70.0 Hz	806	768	38	6	29	3	
14	H (Pixels)	+	78.75	60.023 KHz	1312	1024	288	96	176	16	1024 x 768
	V (Lines)	+		75.0 Hz	800	768	32	3	28	1	

OPERATING INSTRUCTIONS

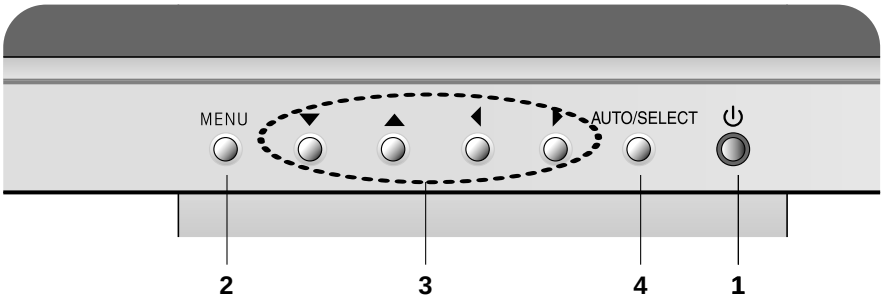
FRONT VIEW



REAR VIEW



Front Control Panel



1. Power Button

Use this button to turn the display on or off.

<Power (DPMS) Indicator>

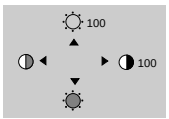
This Indicator lights up green when the display operates normally. If the display is in DPM (Energy Saving) mode, this indicator color changes to amber.

2. Menu Button

Use this button to enter or exit the On Screen Display.

3. ▲▼/◀ ▶ Button

Use these buttons to choose or adjust items in the On Screen Display.



Bring up Contrast and Brightness adjustment.

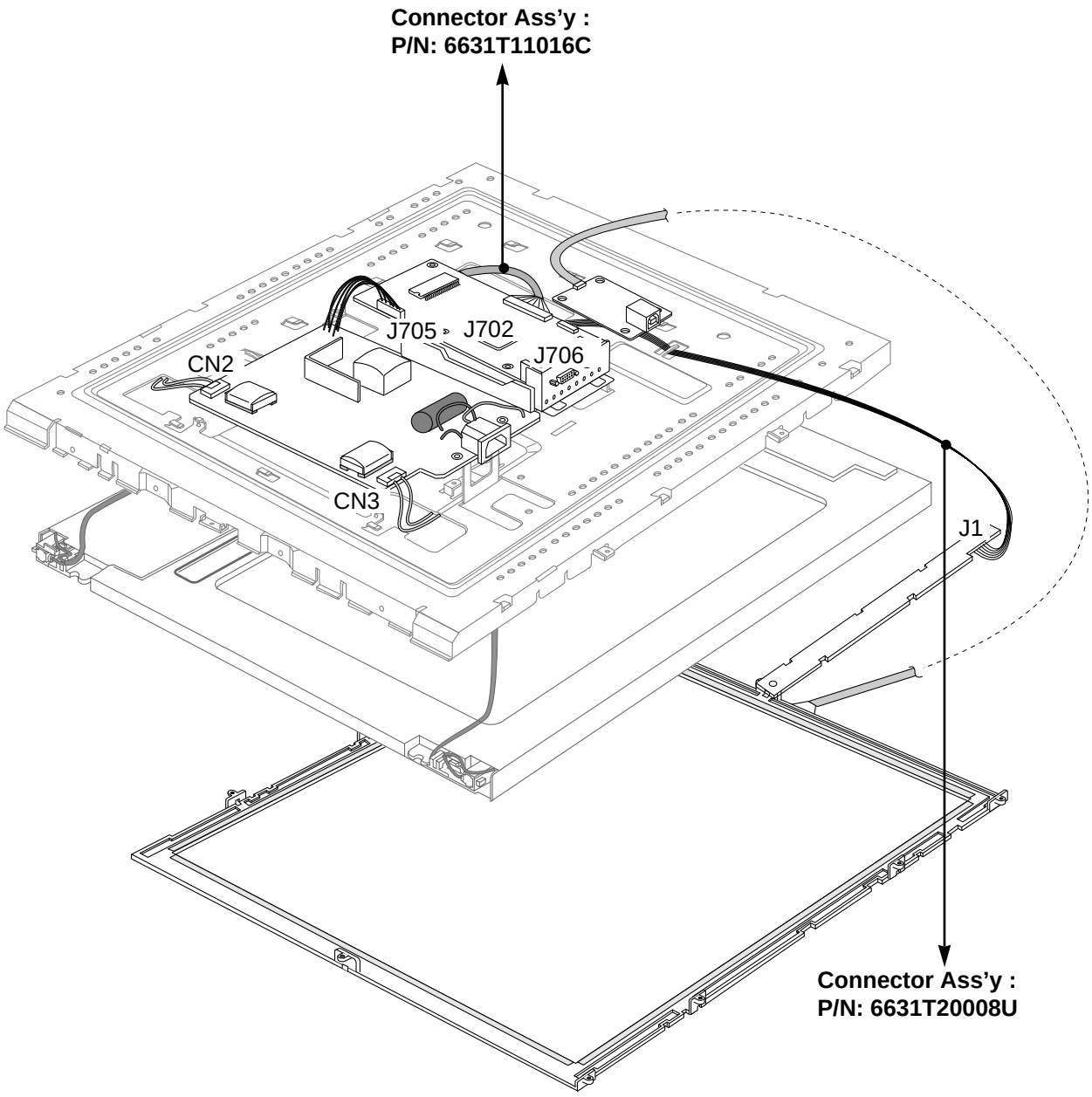
4. AUTO/SELECT Button

Use this button to enter a selection in the On Screen Display.

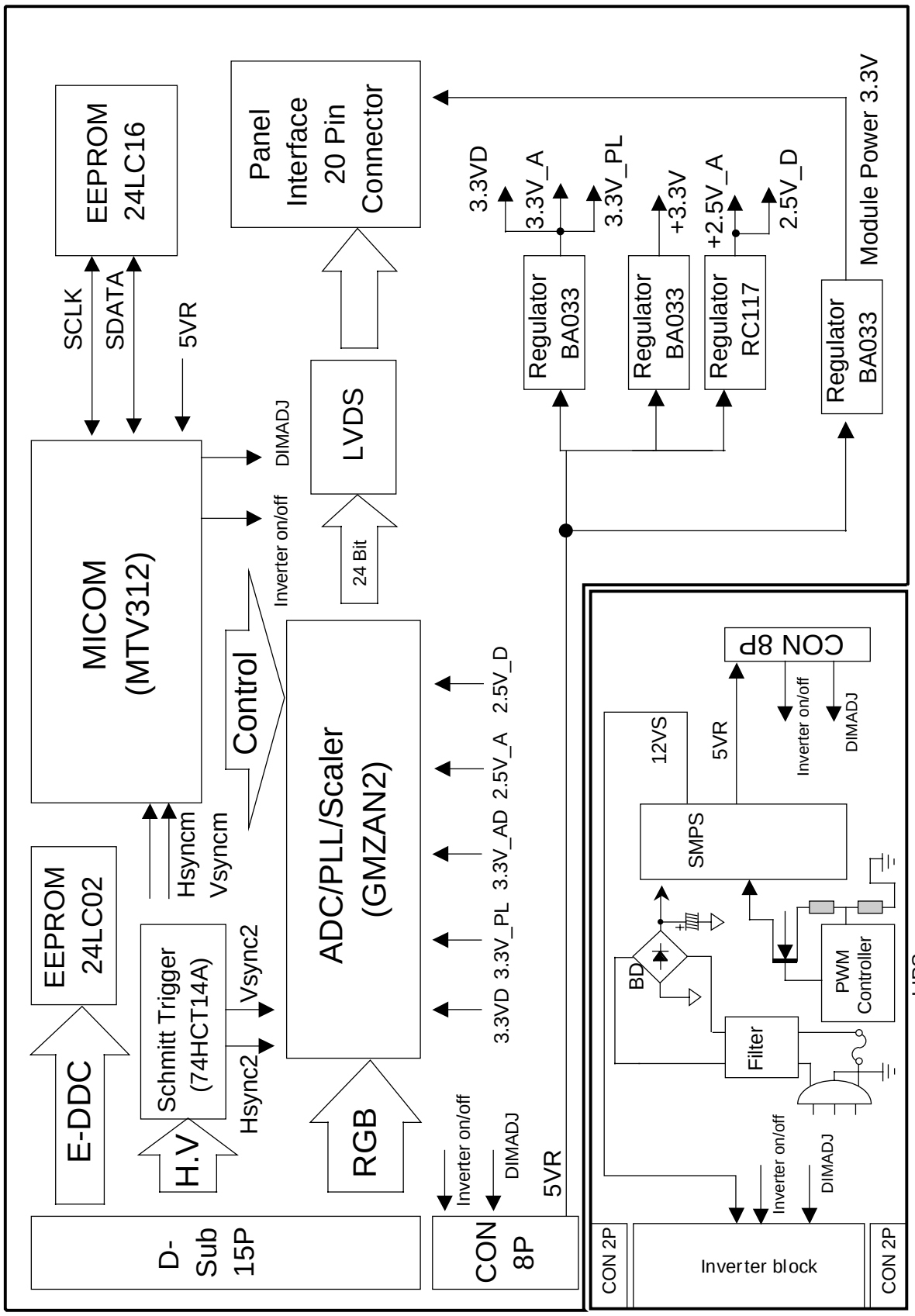
When adjusting your display settings, always press the **AUTO/SELECT** button before entering the On Screen Display(OSD). This will automatically adjust your display image to the ideal settings for the current screen resolution size (display mode).

The best display mode is **1024x768**.

WIRING DIAGRAM



BLOCK DIAGRAM



DESCRIPTION OF BLOCK DIAGRAM

1. Scaler One chip IC(GMZAN-2, U201)

GMZAN-2 (U201) is one chip IC which it supports four internal function blocks of Video Amp, PLL, A/D converter and Video processor.

Video signal (0.7Vp.p) clamped through C207, 208, 209 with matching IC's proper cut off voltage.

This signal is processed as a proper 8 bit digital signal by U201's amplifying, phase locking, A/D converting, and scaling operations.

U201 outputs 24bit RGB data and control signals(Clock, Horizontal and Vertical sync, and Data Enable) as LVDS IC's input signals.

2. System Controller (Microprocessor) Circuit

1) Microprocessor (U501) distinguishes polarity and frequency by calculating horizontal and vertical sync input from signal source.
2) Microprocessor (U501) carries out power control by sending power-down trigger signal to each IC.
3) Microprocessor (U501) communicates with EEPROM (U502), and GMZAN-2 (U201) through IIC(2 lines) or 4 bit bus line. It makes all devices operated properly.
4) Microprocessor (U501) let User adjust screen by OSD function.

3. LVDS(Low Voltage Differential Signal, U411)

LVDS transmitter (U411) delivers digital signal to the receiver inside LCD module by method of abstraction. The abstracted signals are pairs of RIN0+-, RIN1+-, RIN2+-, RIN3+-, and RCLKIN+- of which voltage swing is 0.5V each.

When SHUTON pin's input is High, transmitter goes to power down mode.

4. DC/DC block

This block is composed of regulators which supplies 2.5V and 3.3V.

Each regulator's source power is 5VR from LIPS(LCD Inverter and Power Supply) block.

U806 supplies 2.5VD and 2.5VA and U802 supplies 3.3VD, 3.3V_AD, and 3.3V_PL powers to GMZAN-2's internal PLL, ADC, Pre-amp, and scaler by dropping down 5VR.

U805 supplies MODPWR-3.3V for LCD module's operation by dropping down 5VR.

5. LIPS Block (LCD Inverter and Power Supply)

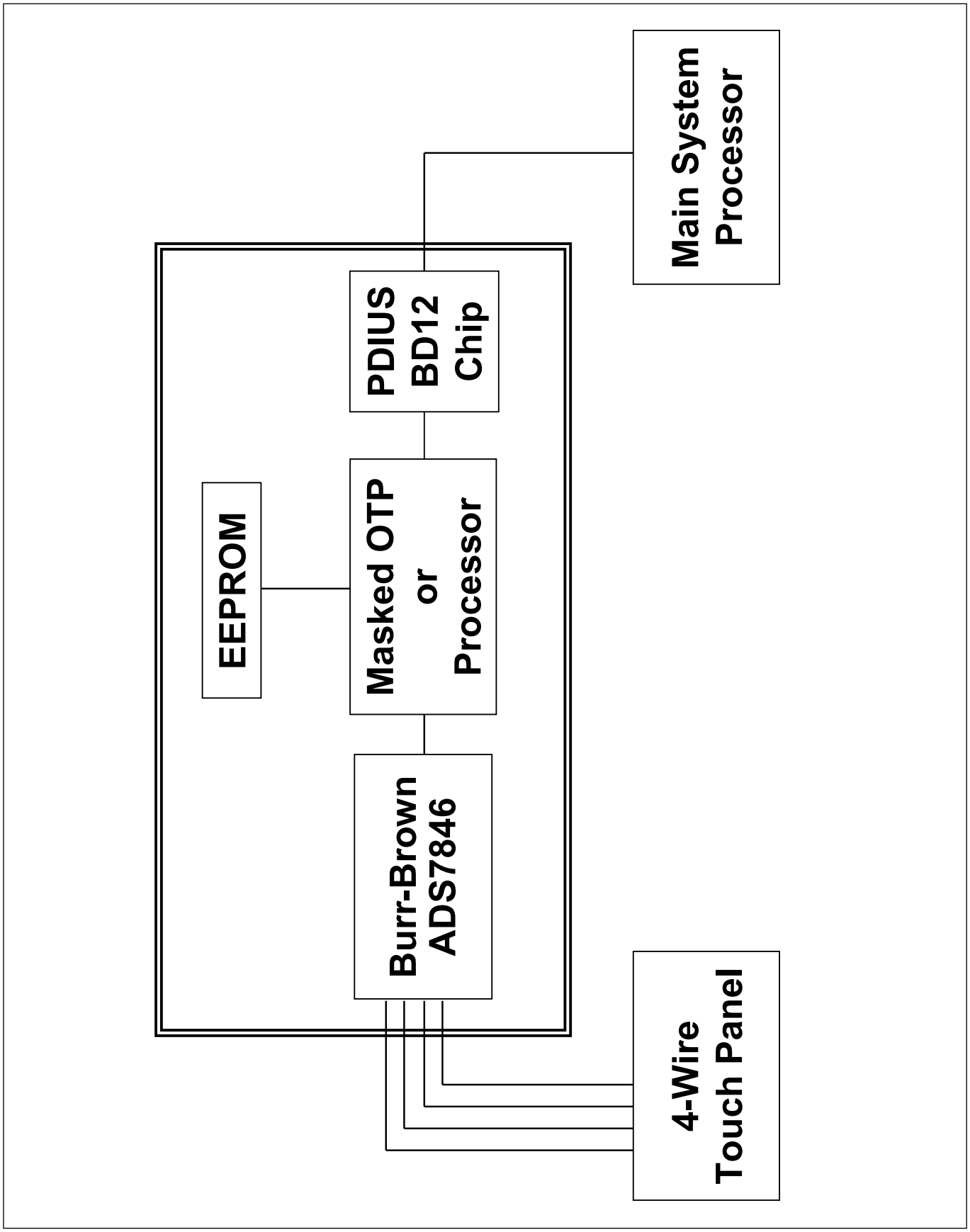
This block supplies DC voltages of 5VS to interface board and 12V to inverter by converting AC input voltage of 100~240Vac.

Converting method is SMPS(Switching Mode Power Supply).

Inverter on/off signal from microprocessor makes inverter turned on or off .

DIMADJ signal from microprocessor does inverter's current adjustment for Brightness control.

USB Touchscreen Controller Block Diagram



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.
- Alignment Adapter and Software.

1. Adjustment for Factory Preset Mode

1) Run alignment program for L1510SFK on the IBM compatible PC.
2) Select EEPROM All Init. command and Enter.
3) Display cross hatch pattern at Mode 1.
4) Select EDID WRITE command and Enter.

2. Adjustment for White Balance

1) Display color 0,0 pattern at Mode 13.
2) Set External Bright to MAX position and Contrast to MAX Position.
3) Select PRESET START → BIAS CAL command and Enter.
4) No attempt to manually adjust, BIAS data is automatically adjusted and saved to the EEPROM.
5) Display color 15,0 pattern at Mode 13.
6) Select DRIVE CAL command and Enter.
7) Color 1 (9300K) and Color 2 (6500K) are automatically adjusted and saved to the EEPROM.
8) Select PRESET EXIT command and Enter.

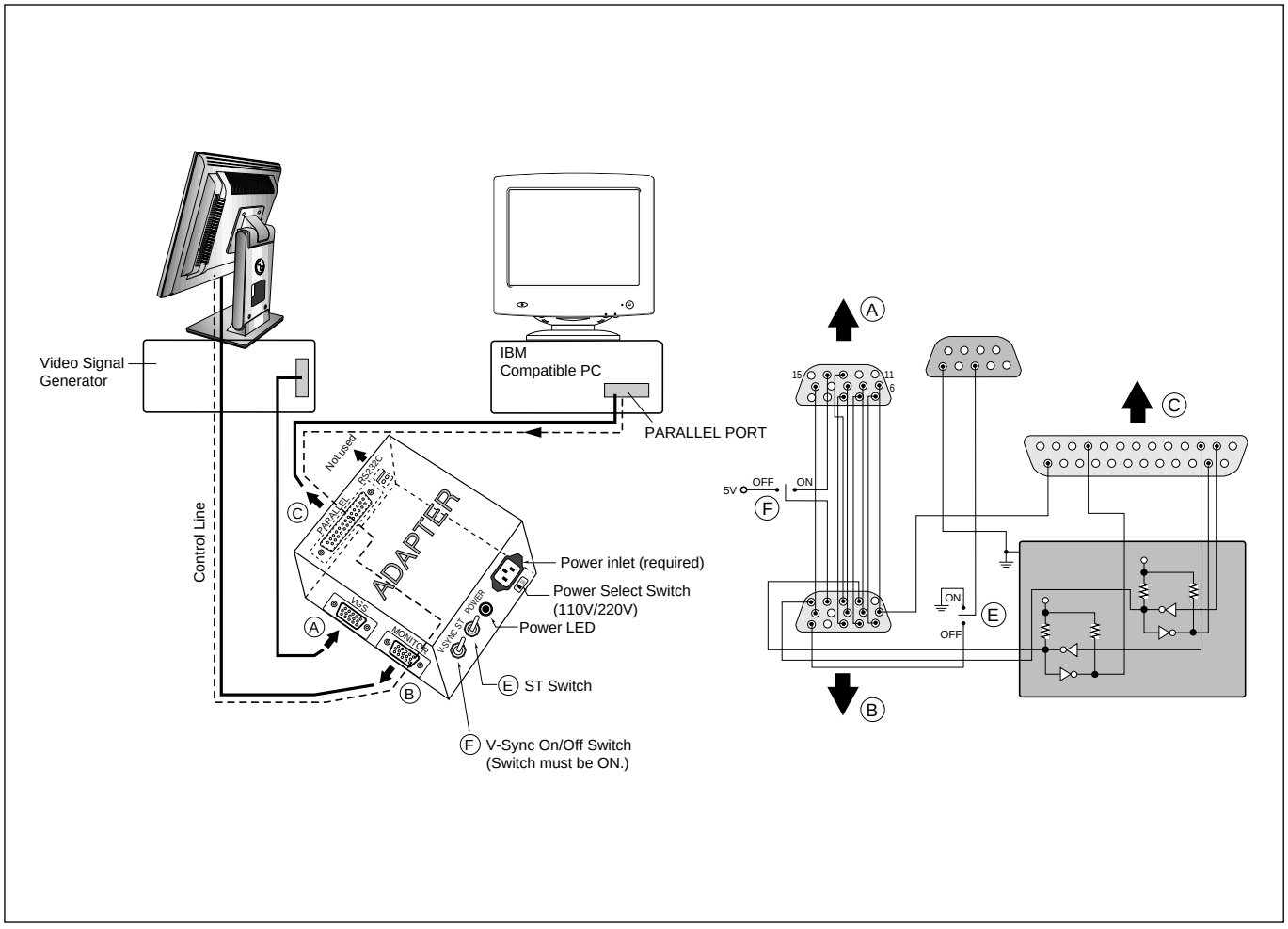
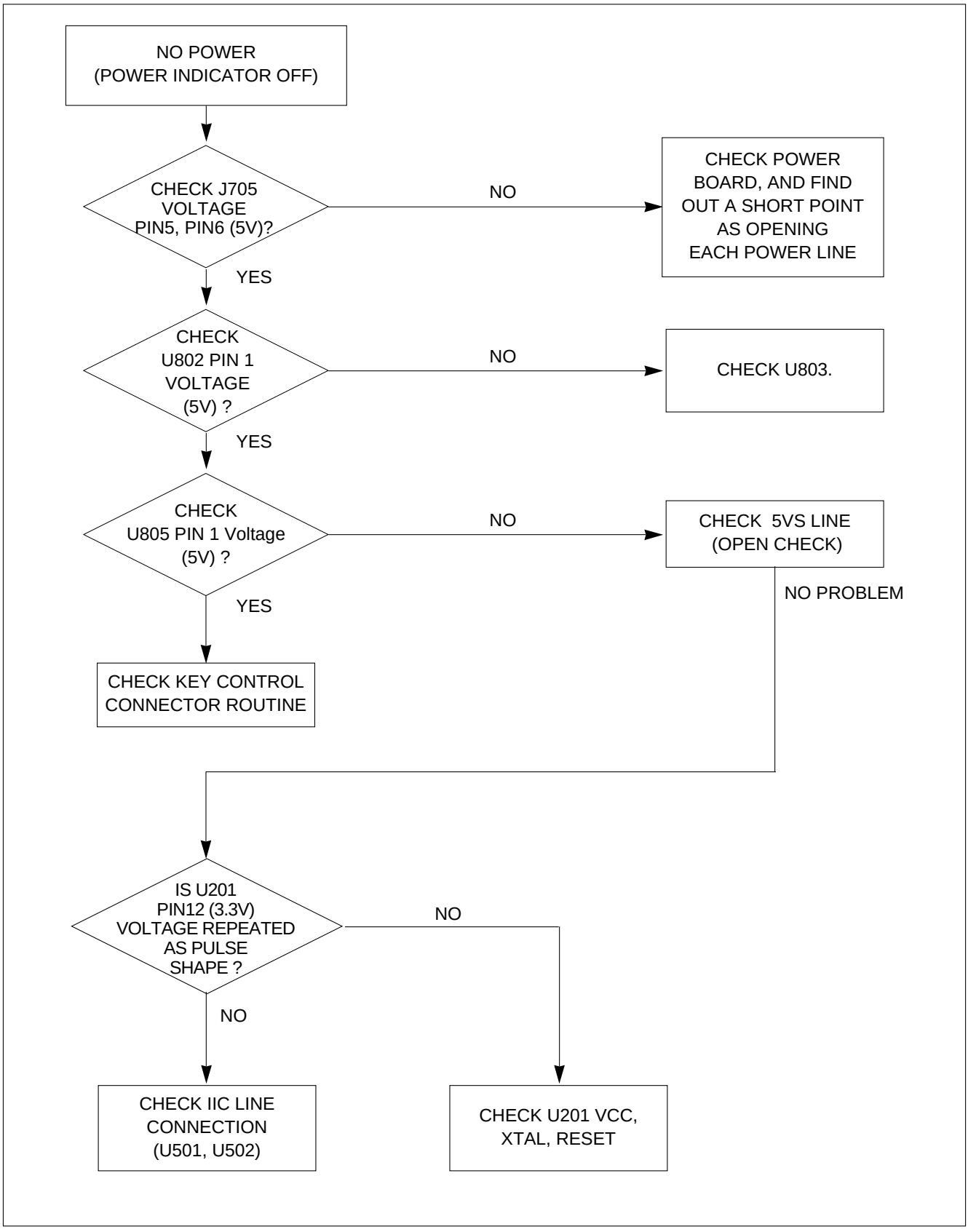


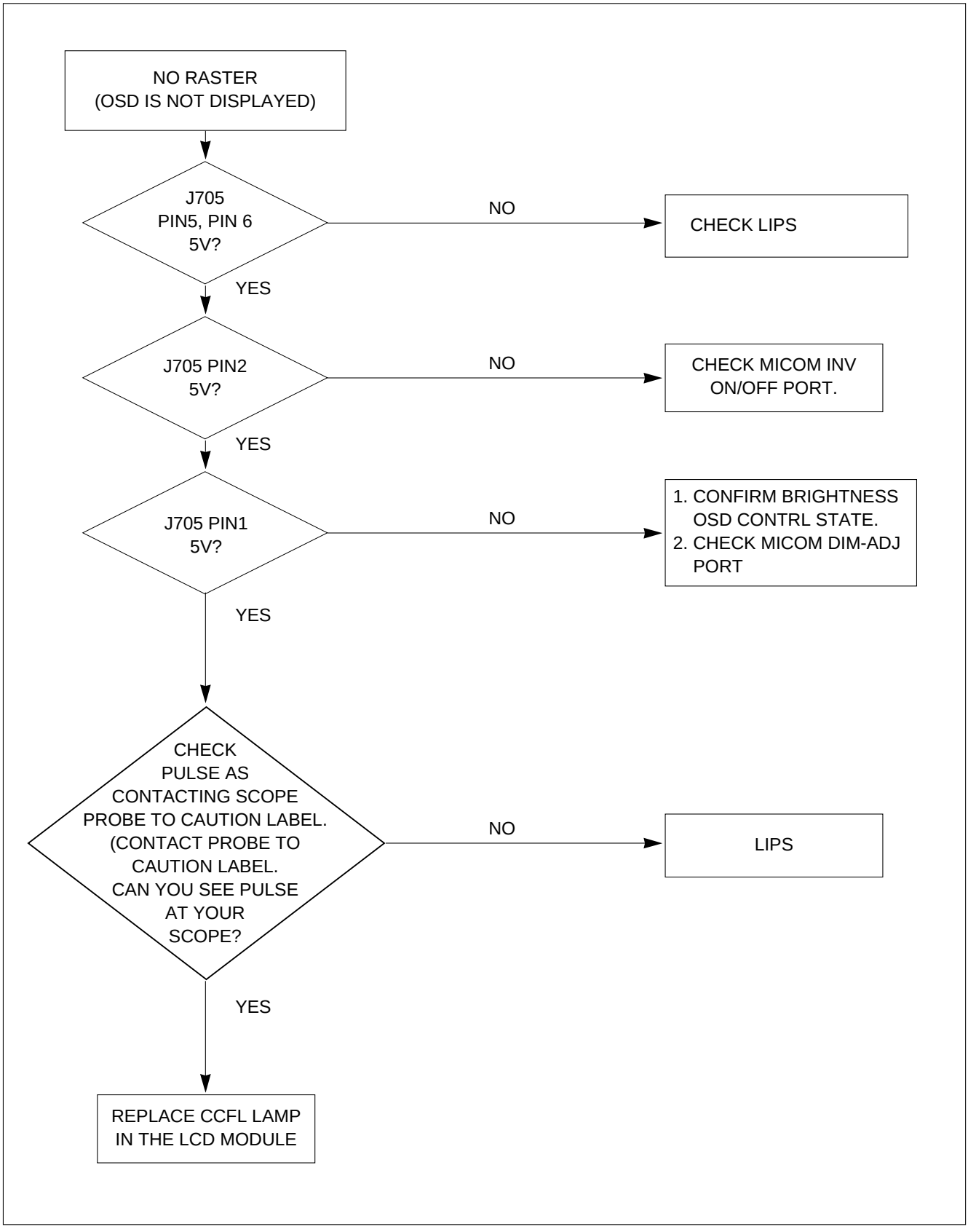
Figure 1. Cable Connection

TROUBLESHOOTING GUIDE

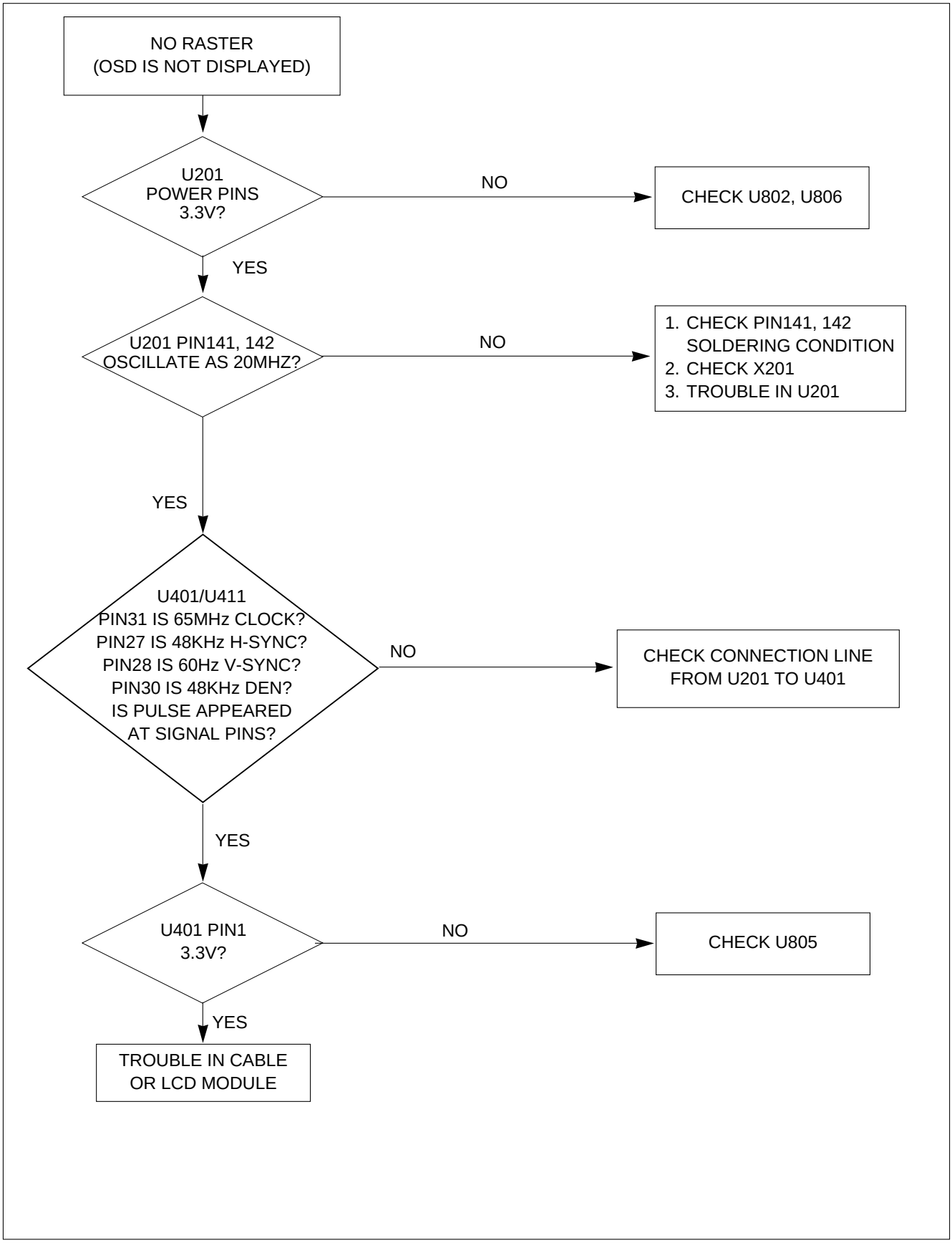
1. NO POWER



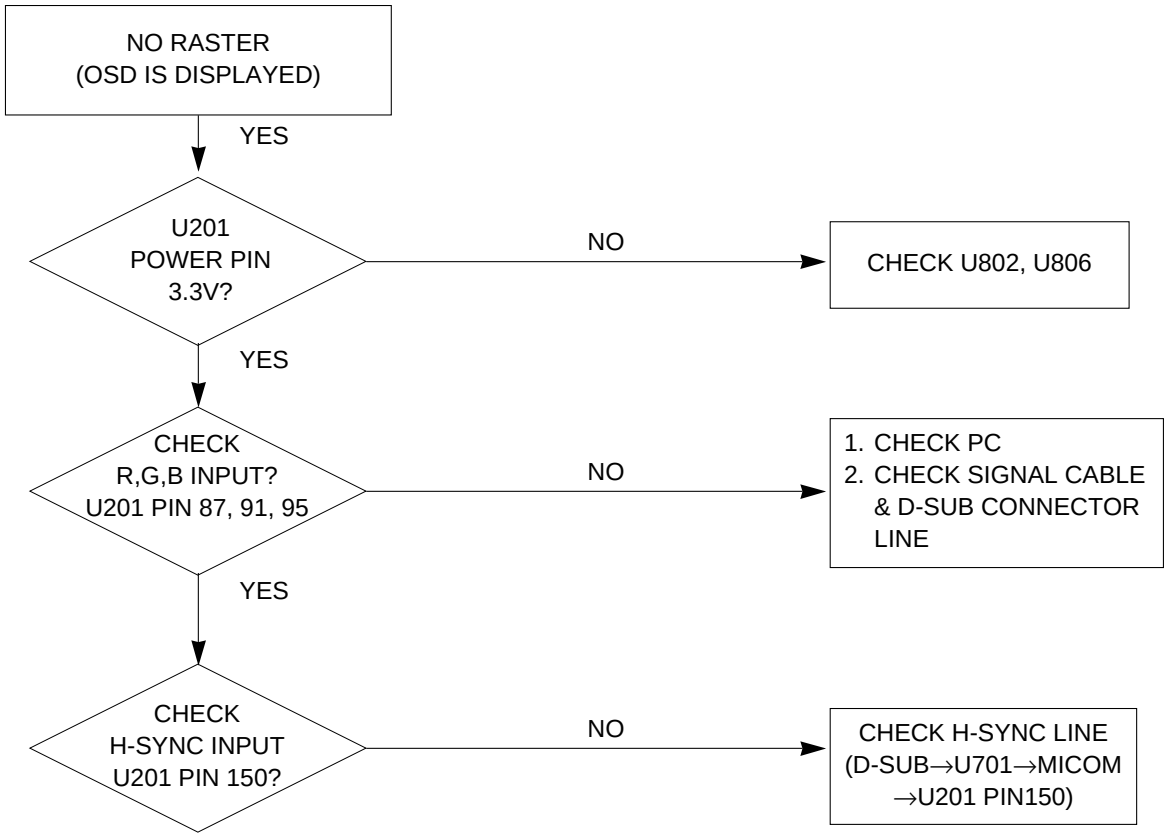
2. NO RASTER (OSD IS NOT DISPLAYED) – LIPS



3. NO RASTER (OSD IS NOT DISPLAYED) – gmZAN2

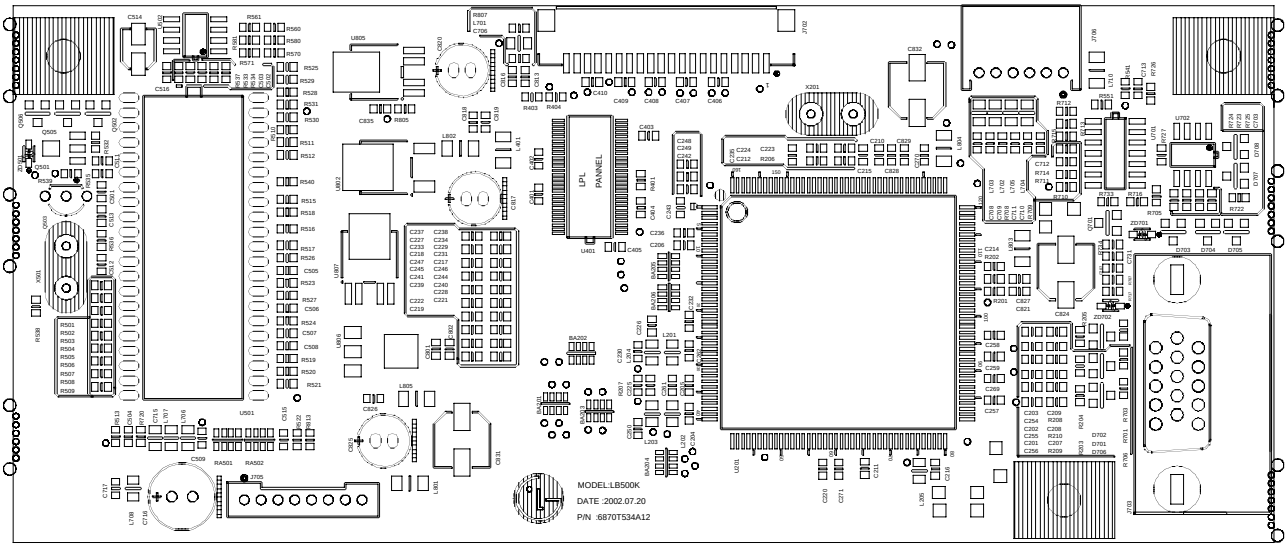


4. NO RASTER (OSD IS DISPLAYED) – gmZAN2

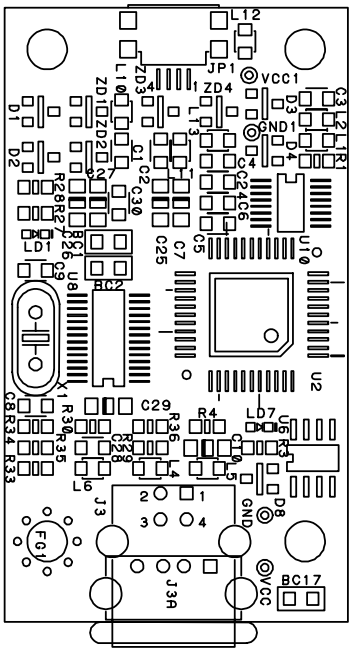


PRINTED CIRCUIT BOARD

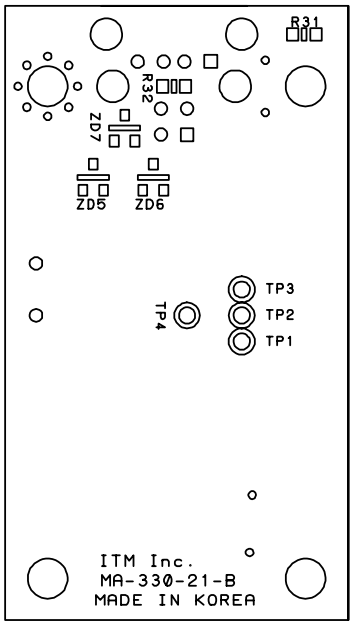
1. MAIN BOARD (Component Side)



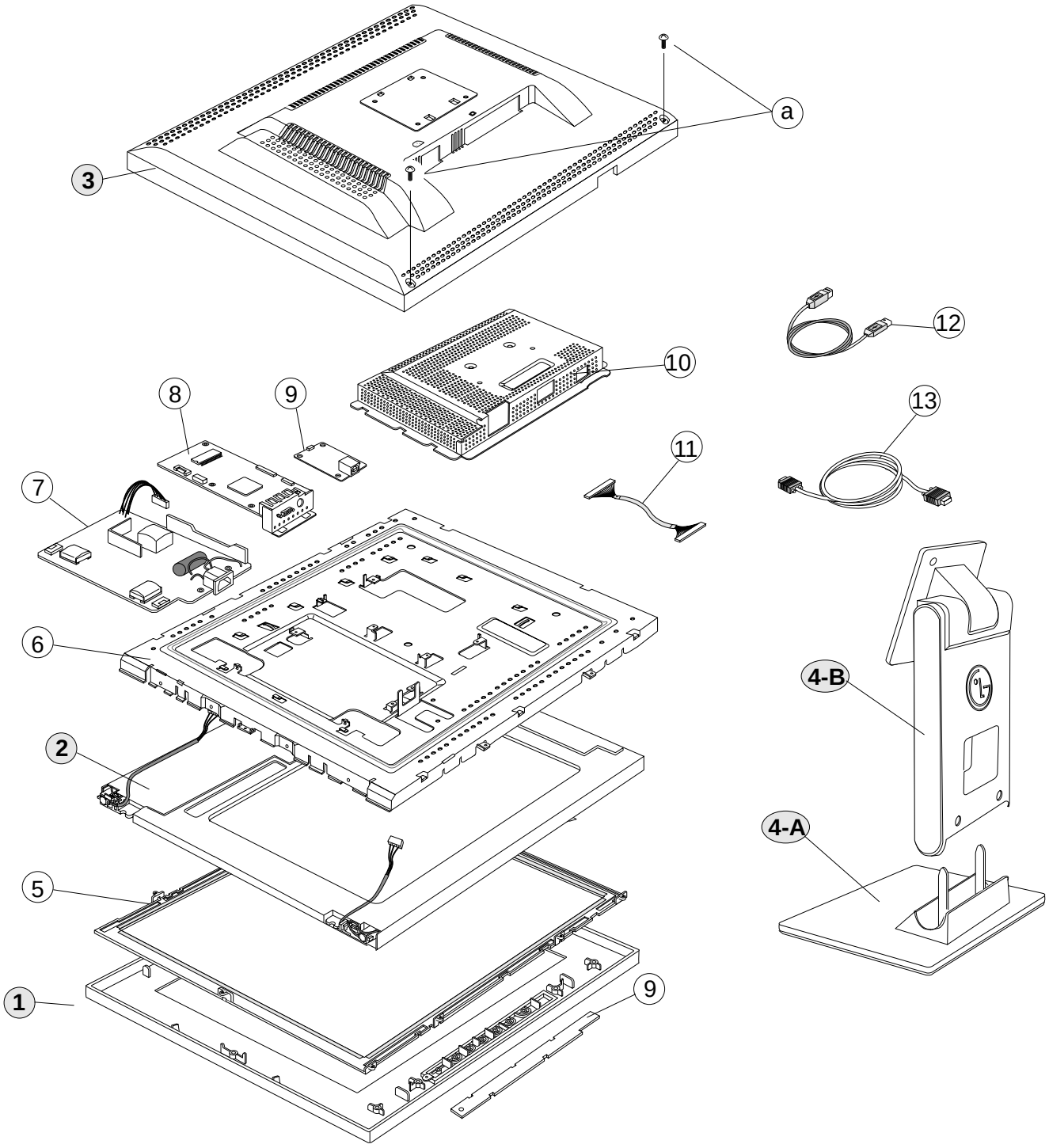
2.TOUCHSCREENCONTROL BOARD (Component Side)



3.TOUCHSCREEN CONTROL BOARD (Solder Side)



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description
1	3091TKL055R	CABINET ASSEMBLY, L1510SFK BRAND 3090TKL038 (T/SCREEN)
2	6304FLP025A	LCD(LIQUID CRYSTAL DISPLAY) LM150X06-A3M1 LG PHILPS TFT COLOR
3	3809TKL026W	BACK COVER ASSEMBLY, L1510SFK 3808TKL029
4-A	3043TKK097A	TILT SWIVEL ASSEMBLY, LB500J . (BASE)
4-B	3043TKK092A	TILT SWIVEL ASSEMBLY, LB500J
5	3911TKK419A	PACKAGE ASSEMBLY, L1510SFK BRACKET ASSY(TOUCH SCREEN)
6	4951TKS091G	METAL ASSEMBLY, FRAME MAIN,L1510SFK
7	6634B00051A	ADAPTER, AC-DC, PWI1502LG 5V/12A 1A/1A LIPS FOR K-CHASSIS (POWER NET)
	or 6634B00053A	ADATER, AC-DC, ADP-30EP 5V/12A 1A/1A LIPS FOR K-CHASSIS (DELTA)
8	3313TL5054A	MAIN TOTAL ASSEMBLY LB500K LPL BRAND CL-32
9	6871TST371A	PWB(PCB) ASSEMBLY, SUB, L1510SFK(TOUCH SCREEN) CONTROL TOTAL BRAND
10	4951TKS086D	METAL ASSEMBLY, FRAME REAR(L1510SFK)
11	6631T11016C	CONNECTOR ASSEMBLY, 20P H-H 100MM UL20276 I/FACE CABLE LB500K
12	6866TDU002D	CABLE, D-SUB, UL20276SB10P+2C AWG#30 DT 1870MM GRAY(85964) BRAND DM
13	6850TD9004A	CABLE, D-SUB, UL 2990-9C(5.5) DT 1870MM GRAY(85964) LB500K DM
	or 6850TD9001A	CABLE, D-SUB, UL 2990-9C(7.5) DT 1870MM GRAY(85964) BRAND DM
a	332-105H	SCREW, DRAWING, D4.0 L12.0 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	0CC100CK41A	10PF 1608 50V 5% R/TP NP0
		C202	0CC100CK41A	10PF 1608 50V 5% R/TP NP0
		C203	0CC100CK41A	10PF 1608 50V 5% R/TP NP0
		C204	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C205	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C206	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C207	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C208	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C209	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C210	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C211	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C212	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C214	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C215	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C216	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C217	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C218	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C219	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C221	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C222	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C223	0CC180CK41A	18PF 1608 50V 5% R/TP NP0
		C224	0CC180CK41A	18PF 1608 50V 5% R/TP NP0
		C226	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C227	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C228	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C229	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C230	0CC080CK11A	8PF 1608 50V 0.5 PF R/TP NP0
		C231	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C233	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C234	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C237	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C238	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C239	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C240	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C241	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C242	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C243	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C244	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C245	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C246	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C247	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C248	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C249	0CC220CK41A	22PF 1608 50V 5% R/TP NP0
		C254	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C255	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C256	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C257	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C258	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C259	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C261	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C262	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C269	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y

DATE: 2002. 12. 16.

*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		C270	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C271	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C401	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C402	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C403	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C404	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C405	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C501	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C502	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C503	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C504	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C505	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C506	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C507	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C508	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C509	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C512	0CC180CK41A	18PF 1608 50V 5% R/TP NP0
		C513	0CC180CK41A	18PF 1608 50V 5% R/TP NP0
		C514	0CH8106F611	10UF 16V M 85STD(CYL) R/TP
		C515	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C516	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C703	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C706	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C707	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C712	0CC101CK41A	100PF 1608 50V 5% R/TP NP0
		C713	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C715	0CH3105F946	1UF 16V Z F 2012 R/TP
		C731	0CC680CK41A	68PF 1608 50V 5% R/TP NP0
		C801	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C802	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C813	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C816	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C817	0CE107CF610	100UF SHL,SD 16V 20% BULK FL
		C818	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C819	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C820	0CE107CF610	100UF SHL,SD 16V 20% BULK FL
		C821	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C824	0CH8107F611	100UF 16V M 85STD(CYL) R/TP
		C825	0CE107CF610	100UF SHL,SD 16V 20% BULK FL
		C826	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C827	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C828	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		C829	0CK103CK51A	0.01UF 1608 50V 10% R/TP B(Y
		C831	0CH8107F611	100UF 16V M 85STD(CYL) R/TP
		C832	0CH8107F611	100UF 16V M 85STD(CYL) R/TP
		C835	0CK104CK56A	0.1UF 1608 50V 10% R/TP X7R
		DIODEs		
		D701	0DSDI00038A	BAV99 DIODES R/TP SOT23 100V
		D702	0DSDI00038A	BAV99 DIODES R/TP SOT23 100V
		D703	0DSDI00038A	BAV99 DIODES R/TP SOT23 100V
		D704	0DSDI00038A	BAV99 DIODES R/TP SOT23 100V
		D705	0DSDI00038A	BAV99 DIODES R/TP SOT23 100V

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		D706	0DSDI00038A	BAV99 DIODES R/TP SOT23 100V
		D707	0DSDI00018A	BAT54 DIODES R/TP SOT23 30V
		D708	0DSDI00018A	BAT54 DIODES R/TP SOT23 30V
		ZD701	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD702	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
	ICs			
		U201	0IPRPGA002A	GMZAN2-160P GENESIS MICROCHI
		U401	0ITH638300B	THC63LVDM83R THINE 56P,TSSOP
		U501	0IZZTSZ199A	MYSON 42PIN BK OTP LB500K
		U502	0ISG240860B	M24C08W6 SGS-THOMSON 8SOP R/
		U701	0IMO741420B	MC74HCT14ADR2 14P,SOIC TP LE
		U702	0ICS240213A	CAT24WC02J-TE13 8P SOP TP 2K
		U802	0IPMGKE011A	KIA78D33F KEC DPAK R/TP 3.3V
		U805	0IRH033000A	BA033SFP P/MOLD-5 TP REGULAT
		U806	0IPMGON007A	NCP1117ST25T3 ON SEMI SOT223
	COILs & COREs			
		L201	6210TCE001P	HB-1S2012-121JT CERATECH 201
		L202	6210TCE001P	HB-1S2012-121JT CERATECH 201
		L203	6210TCE001P	HB-1S2012-121JT CERATECH 201
		L204	6210TCE001P	HB-1S2012-121JT CERATECH 201
		L205	6210TCE001P	HB-1S2012-121JT CERATECH 201
		L401	6210TCE001G	HH-1M3216-501 CERATEC 3216MM
		L701	6210TCE001S	HU-1M2012-121 CERATECH 2012M
		L702	6210TCE001P	HB-1S2012-121JT CERATECH 201
		L703	6210TCE001P	HB-1S2012-121JT CERATECH 201
		L704	6210TCE001P	HB-1S2012-121JT CERATECH 201
		L705	6210TCE001P	HB-1S2012-121JT CERATECH 201
		L706	6210TCE001P	HB-1S2012-121JT CERATECH 201
		L707	6210TCE001P	HB-1S2012-121JT CERATECH 201
		L710	6210TCE001G	HH-1M3216-501 CERATEC 3216MM
		L801	6210TCE001G	HH-1M3216-501 CERATEC 3216MM
		L802	6210TCE001G	HH-1M3216-501 CERATEC 3216MM
		L803	6210TCE001G	HH-1M3216-501 CERATEC 3216MM
		L804	6210TCE001G	HH-1M3216-501 CERATEC 3216MM
		L805	6210TCE001G	HH-1M3216-501 CERATEC 3216MM
	TRANSISTOR			
		Q502	0TRDI80002A	MMBT3904 DIODES R/TP SOT23 6
		Q503	0IKE704200H	KIA7042AP TO-92 TP 4.2 VOLT
		Q701	0TRDI80002A	MMBT3904 DIODES R/TP SOT23 6
	RESISTORs			
		R201	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R202	0RJ4701D677	4.7K 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	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R206	0RJ2701D677	2.7K OHM 1/10 W 5% 1608 R/TP
		R207	0RJ0472D677	47 OHM 1/10 W 5% 1608 R/TP
		R208	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R209	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R210	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R401	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R403	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R404	0RJ5601D477	5.6K OHM 1/10 W 1% 1608 R/TP
		R501	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP

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*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R502	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R503	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R504	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R505	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R506	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R507	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R508	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R509	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R510	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R511	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R512	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R513	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R515	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R516	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R517	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R518	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R519	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R520	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R521	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R522	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/TP
		R523	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R524	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R525	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R526	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R527	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R528	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R529	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R530	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R531	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R532	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R533	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R534	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R535	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R536	0RJ1004D677	1000000 OHM 1/10 W 5% 1608 R
		R537	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R540	0RJ1002D677	10K OHM 1/10 W 5% 1608 R/TP
		R541	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R551	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R561	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R571	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R581	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R701	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R703	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R705	0RJ4700D677	470 OHM 1/10 W 5% 1608 R/TP
		R706	0RJ0752D677	75 OHM 1/10 W 5% 1608 R/TP
		R707	0RJ0272D677	27 OHM 1/10 W 5% 1608 R/TP
		R708	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/TP
		R709	0RJ1500D677	150 OHM 1/10 W 5% 1608 R/TP
		R711	0RJ0000D677	0 OHM 1/10 W 5% 1608 R/TP
		R712	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R713	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R714	0RJ1000D677	100 OHM 1/10 W 5% 1608 R/TP
		R715	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R716	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R717	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R722	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R723	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R724	0RJ0332D677	33 OHM 1/10 W 5% 1608 R/TP
		R725	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R726	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R727	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R733	0RJ1501D677	1.5K OHM 1/10 W 5% 1608 R/TP

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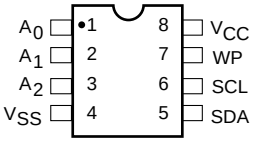
*S	*AL	LOC. NO.	PART NO.	DESCRIPTION / SPECIFICATION
		R734	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R805	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		R807	0RJ1003D677	100K OHM 1/10 W 5% 1608 R/TP
		R813	0RJ1001D677	1K OHM 1/10 W 5% 1608 R/TP
		RA501	0RHZTCZ001A	100 OHM 1/16 W 5% 3215 R/TP
		RA502	0RHZTCZ001A	100 OHM 1/16 W 5% 3215 R/TP
		OTHERs		
		X201	6212AA2004B	HC-49U TXC 20.0MHZ +/- 30 PP
		X501	6212AA2004A	HC-49U TXC 12.0MHZ +/- 30 PP
		CONTROL BOARD		
		LED1	0DLLT0148AA	LITEON LTST-C195KGJSKT R/TP
		R1	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R2	0RJ4701D677	4.7K OHM 1/10 W 5% 1608 R/TP
		R3	0RJ1501D677	1.5K OHM 1/10 W 5% 1608 R/TP
		R4	0RJ1501D677	1.5K OHM 1/10 W 5% 1608 R/TP
		R5	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R6	0RJ3301D677	3.3K OHM 1/10 W 5% 1608 R/TP
		R7	0RJ9101D677	9.1K OHM 1/10 W 5% 1608 R/TP
		SW1	140-058E	SKHV10910B LGEC NON 12V 20A
		SW2	140-058E	SKHV10910B LGEC NON 12V 20A
		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
		ZD1	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32
		ZD2	0DZ560009GB	BZT52C5V6S DIODES R/TP SOD32

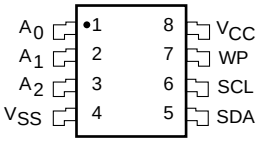
PIN CONFIGURATION

CAT24WC02J-TE13 8P

DIP Package(p)



SOIX Package(J)



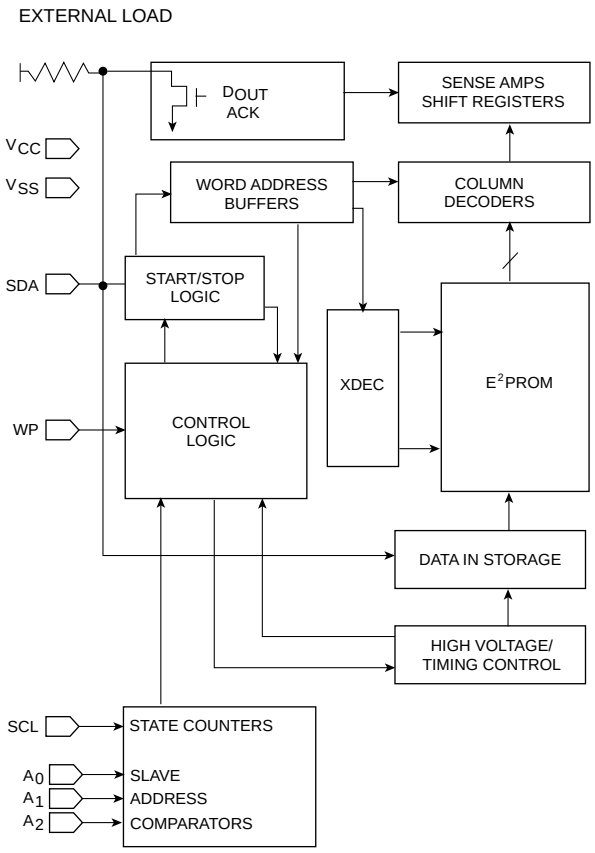
TSSOP Package(U)

PIN CONFIGURATION

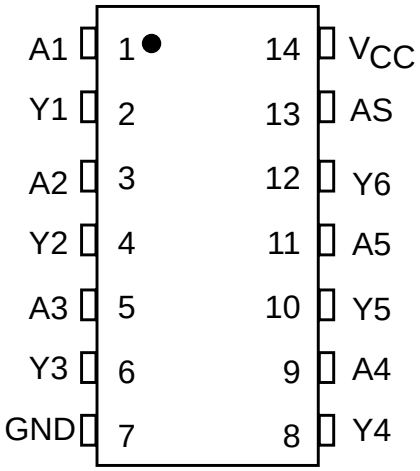
PIN FUNCTION

Pin Name	Function
A0, A1, A2	Device Adress Inputs
SDA	Serial Data/Address
SCL	Serial Clock
WP	Write Protect
Vcc	+1.8V to + 6.0V power Supply
Vss	Ground

BLOCK DIAGRAM

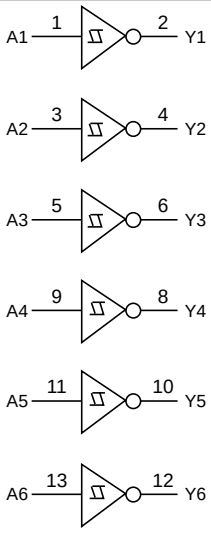


MC74HCT14ADR2 14P



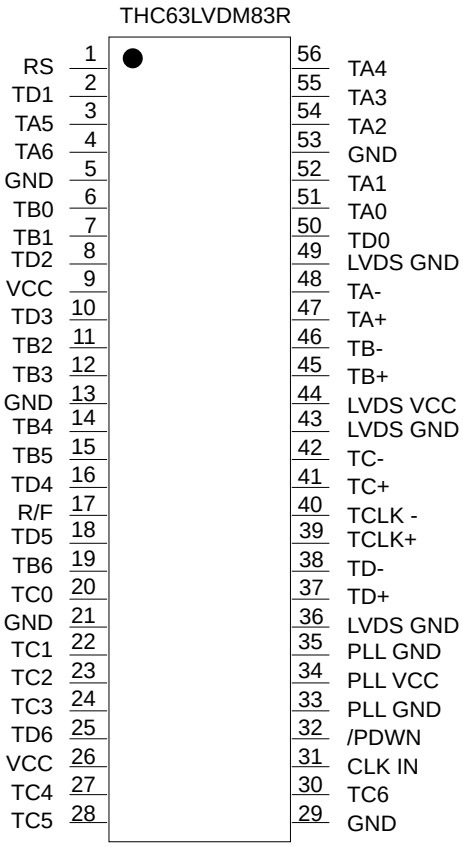
PIN CONFIGURATION

BLOCK DIAGRAM

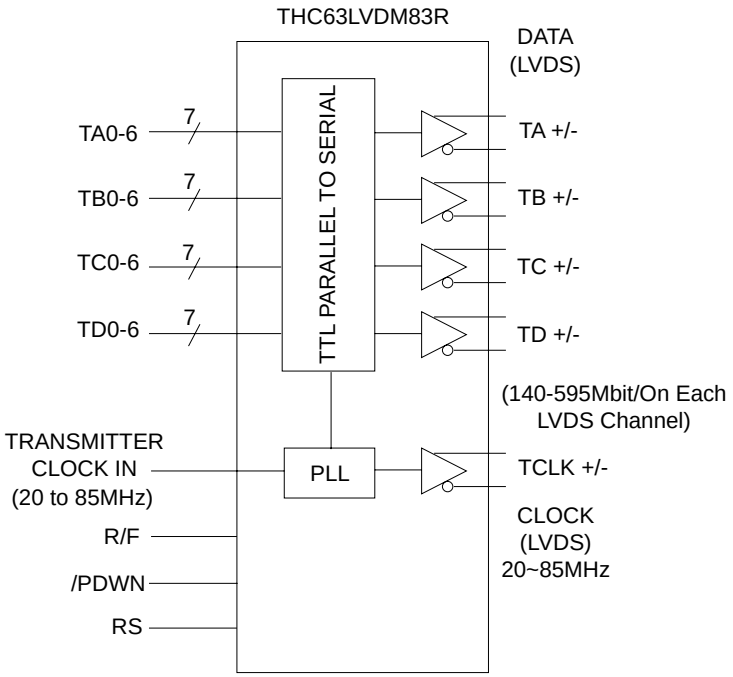


PIN 14=V_{CC}
PIN 7=GND

PIN CONFIGURATION

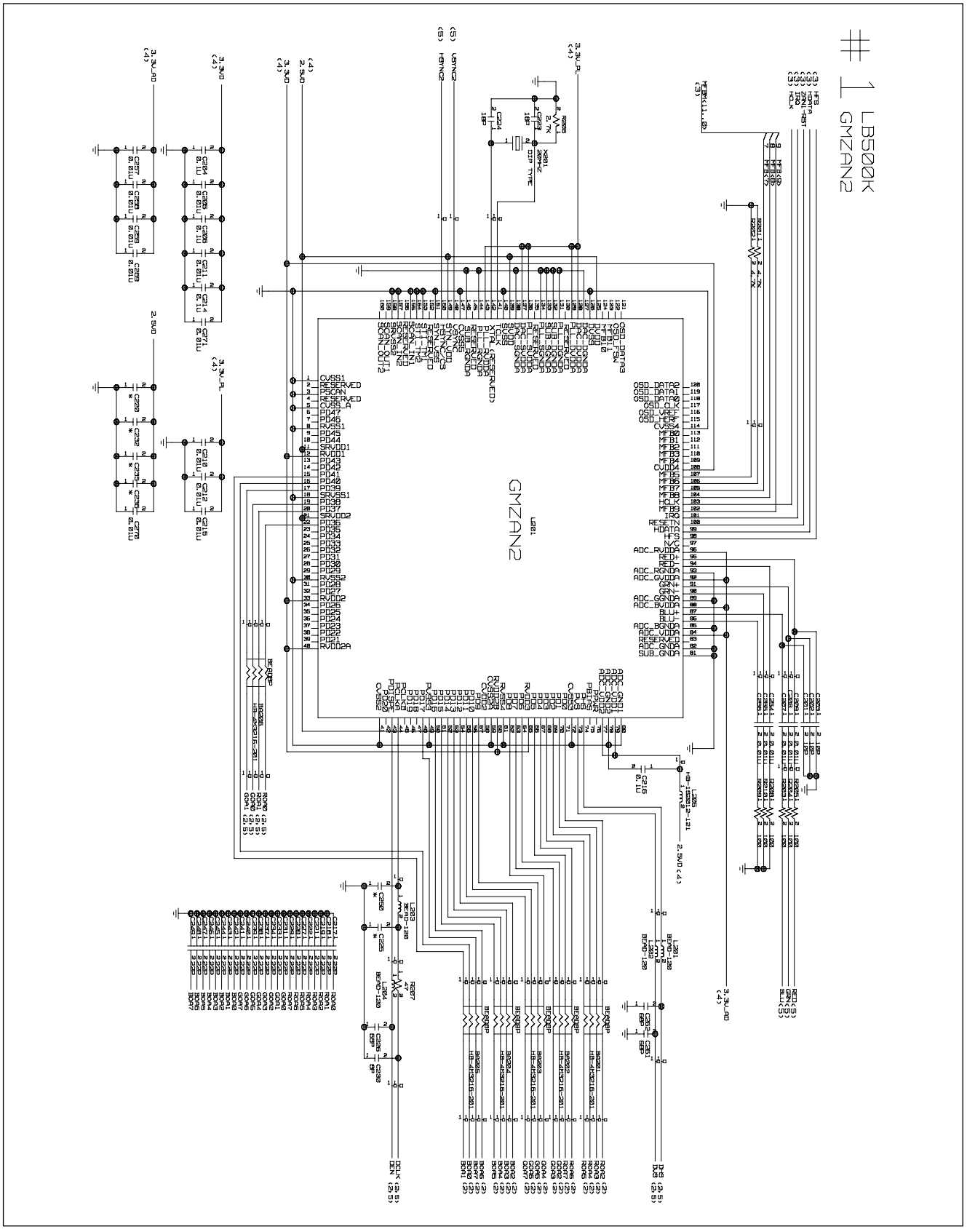


BLOCK DIAGRAM

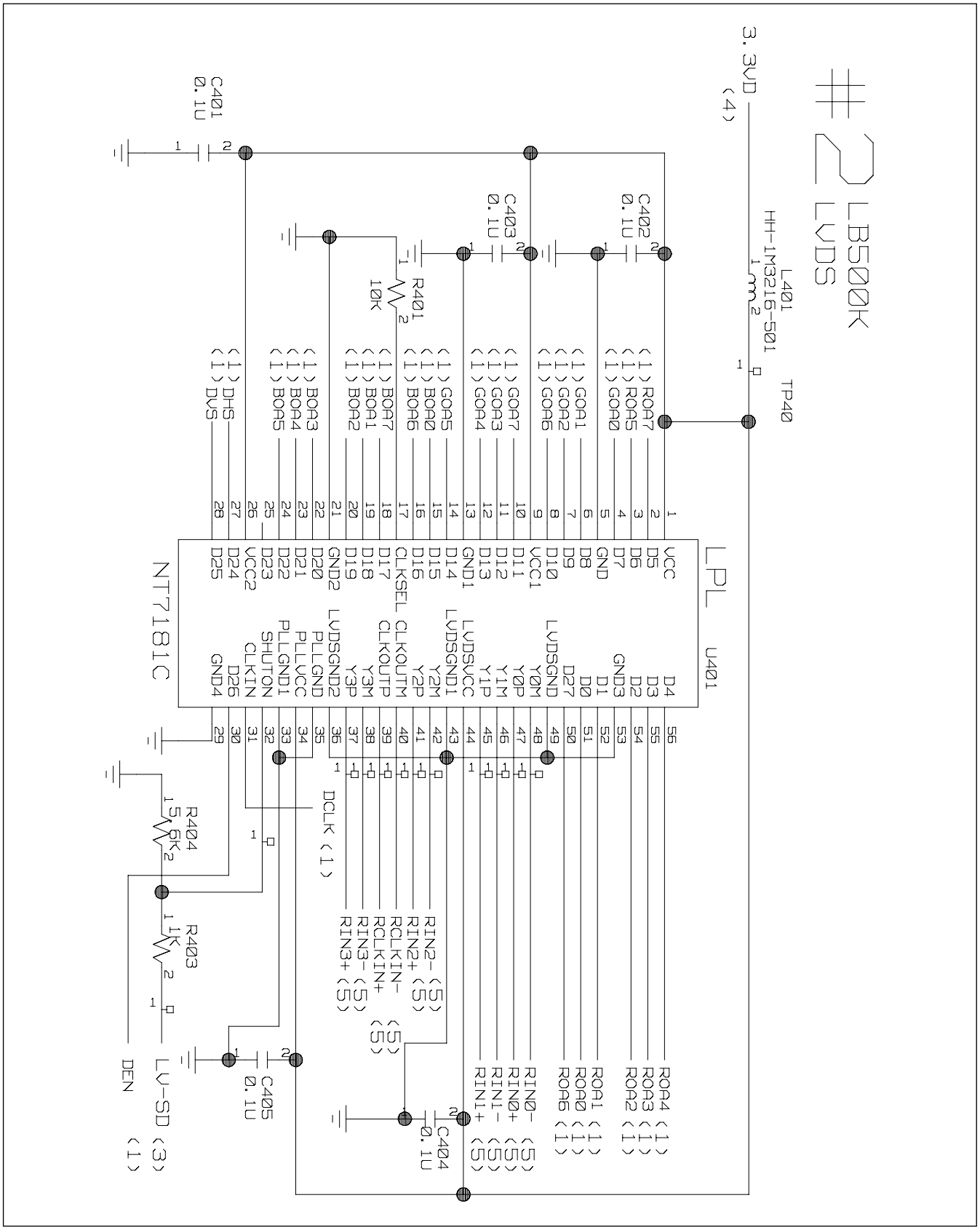


SCHEMATIC DIAGRAM

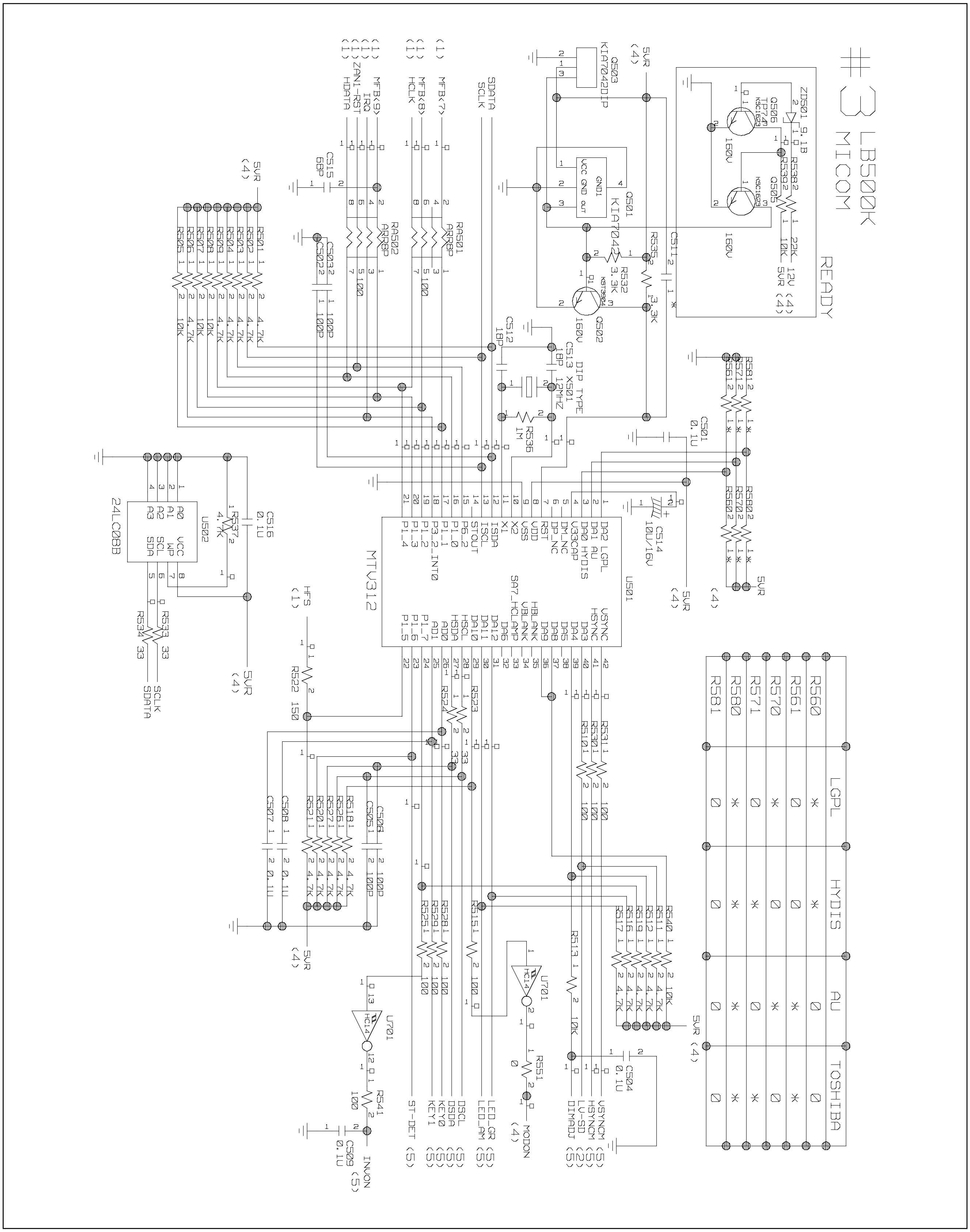
1. GMZAN2



2. LVDS

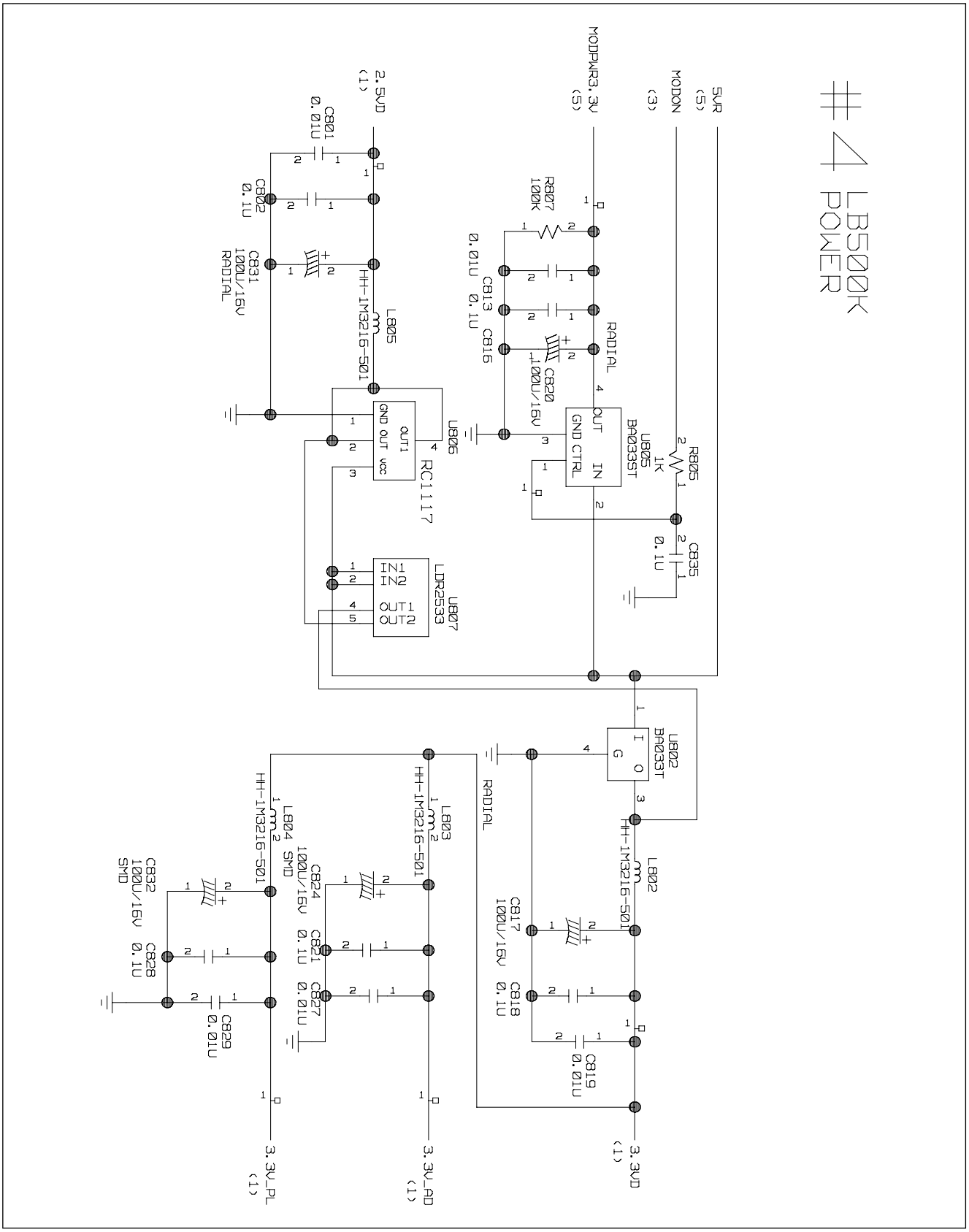

#2 LB500K LVDS
3.3VD (4)
L401 HH-1M3216-501
TP40
C401 0.1U
C402 0.1U
C403 0.1U
R401 10K
R403 1K
R404 5.6K
C404 0.1U
C405 0.1U
LPL U401
NT71810C
VCC D5 D6 D7 GND D8 D9 D10 VCC1 D11 D12 D13 GND1 D14 D15 D16 CLKSEL D17 D18 D19 GND2 D20 D21 D22 D23 VCC2 D24 D25
D4 D3 D2 GND3 D1 D0 D27 LVDSGND Y0M Y0P Y1M Y1P LVDSVCC LVDSGND1 Y2M Y2P CLKOUTM CLKOUTP Y3M Y3P LVDSGND2 PLLGND PLLVCC PLLGND1 SHUTON CLKIN D26 GND4
(1) ROA7 (1) ROA5 (1) ROA0 (1) GOA0 (1) GOA1 (1) GOA2 (1) GOA6 (1) GOA7 (1) GOA3 (1) GOA4 (1) GOA5 (1) BOA0 (1) BOA6 (1) BOA7 (1) BOA1 (1) BOA2 (1) BOA3 (1) BOA4 (1) BOA5 (1) DHS (1) DVS
ROA4 (1) ROA3 (1) ROA2 (1) ROA1 (1) ROA0 (1) ROA6 (1)
RIN0- (5) RIN0+ (5) RIN1- (5) RIN1+ (5)
RIN2- (5) RIN2+ (5) RCLKIN- (5) RCLKIN+ (5) RIN3- (5) RIN3+ (5)
DCLK (1)
LV-SD (3)
DEN (1)

3. MICOM

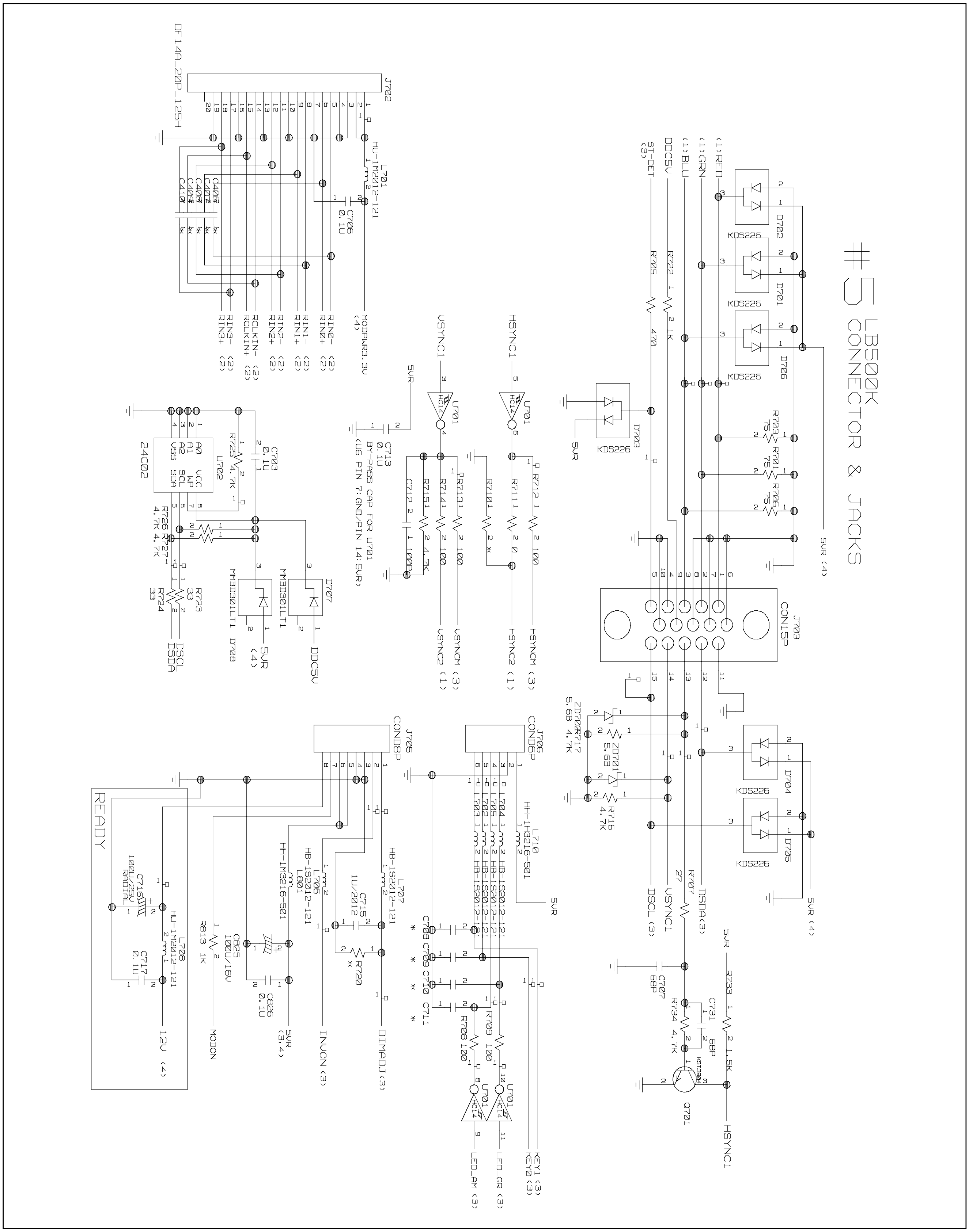


#3 LB500K MICOM
READY
MTV312
U501
24LC08B
U502
KIA7042
LGPL
HYDIS
AU
TOSHIBA

4. DC/DC BLOCK


#4 LB500K POWER
5VR
(5)
MODON
(3)
MODPWR3.3V
(5)
2.5VD
(1)
R807
100K
C801
0.01U
C802
0.1U
C831
100U/16V
RADIAL
HH-1M3216-501
L805
C813
0.01U
C816
0.1U
RADIAL
C820
100U/16V
U805
BA033ST
GND CTRL OUT IN
R805
1K
C835
0.1U
U806
RC1117
GND OUT VCC OUT1
U807
LDR2533
IN1 IN2 OUT1 OUT2
U802
BA033T
I O G
L802
HH-1M3216-501
C817
100U/16V
C818
0.1U
C819
0.01U
3.3VD
(1)
RADIAL
L803
HH-1M3216-501
C824
100U/16V
C821
0.1U
C827
0.01U
3.3V_AD
(1)
L804 SMD
HH-1M3216-501
C832
100U/16V SMD
C828
0.1U
C829
0.01U
3.3V_PL
(1)

5. CONNECTOR & JACKS



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