TATUNG

L5CD Series

LCD Monitor

Service Manual

1.0	1. Original document	May 3, 2000
1.0A	1. Add material numbers in part lists	July 28, 2000

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1. Precautions and Notices

1.1 Safety Precautions

Although LCD monitors are displays without high voltage as that in the CRTs, the following precautions still should be take care of.

1) Observe all cautions and safety related notes located inside the display cabinet and on the display chassis.
2) Operation of these displays outside the cabinet or with the cover removed involves a shock hazard from the display backlight's inverter. Work on the display should not be attempted by anyone who is not thoroughly familiar with precautions necessary when working on high voltage equipment.
3) Before returning a serviced display to the customer, a thorough safety test must be performed to verify that the display is safe to operate without danger or shock.

1.2 Product Safety Notice

1) Many electrical and mechanical parts in this chassis provide special visual safety protection. The protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc.
2) Before replacing any of these components, read the parts list 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, wrap the wires around terminals before soldering.
2) Keep wires away from high temperature components.
3) Keep cable and their shielding in their original position so as to reduce interference.

2. Specifications

2.1 Monitor Specification

Power Input	
Voltage	AC 90V to 264V Full Range
Input Current	< 1.2A @ 110V; < 0.6A @ 230V
Maximum Inrush Current	< 50A @ 110V; < 70A @ 230V (Measured when switched off for at least 10 mins.)
Frequency	47Hz to 63Hz
Power Consumption	< 35W
Signal Input	
Video Signals	RGB positive 0.7V p-p
Input Impedance	75Ω
Sync Signals	Separate, Positive/Negative TTL voltage levels
Connector	15 pin Mini D type, Standard.
Input Frequency	f_H : 31.5kHz ~ 60kHz f_V : 56Hz ~ 75Hz
Recommended mode	1024 x 768 / 60Hz
Environment	
Operating Conditions	
Temperature	5℃ to 40℃ (41℉ to 104℉) at altitude 0 ~ 2000m 5℃ to 30℃ (41℉ to 86℉) at altitude 2000 ~ 3000m
Relative Humidity	20% to 85% (non-condensing)
Altitude	3000m max.
Storage Conditions	
Temperature	-20℃ to +60℃ (-4℉ to 140℉)
Relative Humidity	5% to 95%
Altitude	10,000m max
Panel Characteristics	
Panel Type	15”XGA TFT LCD(active matrix)
Pixel Format	1024(H) x 768(V) (1 pixel = R+G+B dot)
Pixel Pitch	0.297 mm(H) x 0.297 mm(V)
Pixel Configuration	R、G、B vertical stripe
Display Area	304.1 mm(H) x 228.1 mm(V)
Faceplate Coating	Anti-glare, and hard-coating 3H (Haze value = 28)
Luminance	200 Cd/m² (typ.)
Contrast Ration	350:1 (typ.)
White Point	(x, y) = (0.30, 0.32)
Display Color	16,777,216
Viewing Angle	H: -60º ~ 60º (typ.) V: -55º ~ 45º (typ.)
Panel Characteristics	DDC2B
Power Management	Complies with EPA and DPMS
Dimension	377 mm x 374 mm x 220 mm (W x H x D)
Weight	Net: 5.1 kg, Gross: 6.8 kg

2.2 Timing Supported

Mode	Resolution	f_H (kHz)	f_V (Hz)	Pixel Clock (MHz)	H pol.	V pol..
1	640 x 350	31.47	70.0	25.175	+	-
2	720 x 400	31.47	70.0	28.322	-	+
3	640 x 480	31.47	60.0	25.175	-	-
4	640 x 480	37.50	75.0	31.50	-	-
5	800 x 600	35.16	56.2	36.00	+	+
6	800 x 600	37.88	60.3	40.00	+	+
7	800 x 600	46.87	75.0	59.50	+	+
8	832 x 624	49.73	75.0	57.284	-	-
9	1024 x 768	48.36	60.0	65.00	-	-
10	1024 x 768	56.48	70.0	75.00	-	-
11	1024 x 768	60.02	75.0	78.75	+	+
12	640 x 480	37.86	72.0	31.50	-	-
13	800 x 600	40.08	72.0	50.00	+	+
14	640 x 480	35.00	67.00	32.04	-	-

3. Control Buttons and Functions

3.1 User Control Buttons

There are three control buttons and one power button on the front panel of the display, as well as a LED for power status indication.

And their functions are described as below:

Button	Function Description
Select	(1) Select item for user adjustment. (2) Hold down for 2 sec will clear OSD menu
Up (+)	(1) Item selection move upward or user-adjustable value increasing. (2) Bring-up Brightness Menu (Direct-key function).
Down (-)	(1) Item selection move downward, user-adjustable valu decreasing (in Main Menu) (2) Auto Setup (Direct-key function).

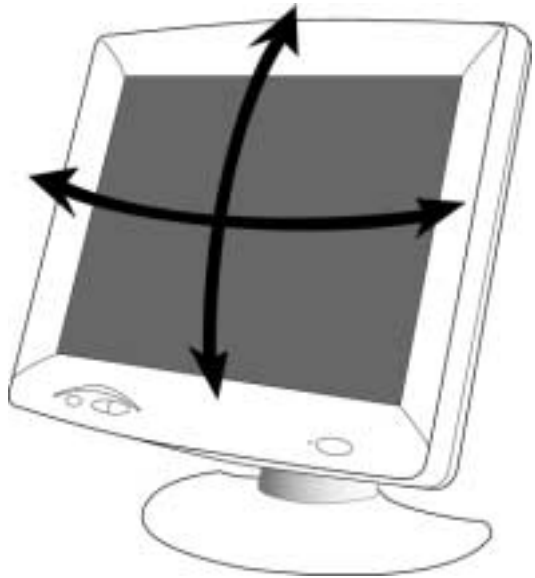
3.2 Power LED

The color of the power LED depends on the power status of the monitor. When the LED color is continuously green, it indicates the monitor is at normal operation state. When the LED is in amber and blinking, it indicates the monitor is at a power saving state.

3.3 Tilting the Display

L5CD has a tilt feature that allows you to tilt the display back and forth to find the most

comfortable viewing position. To tilt the display, grasp the sides and push the display back or pull it toward you until it is in the desired position. The display can be tilted 35º backward and 5º forward.



Note: ***Do not tilt the display by grasping the top edge.***

4. Disassembly Instructions

To disassembly the monitor, follow the steps as below:

1) Face Down the Monitor.

Note: ***Face down the monitor on a smooth plane with a soft material on that plane to protect the panel faceplate.***

2) Swivel Base Removal

In Fig. 4-1, remove 4 screws indicated by “A” from the back cover, and then remove the whole base (indicated by “C”) for the monitor.

Please note that the base need not be removed from back cover while only repairing or replacing the PCB or backlight.

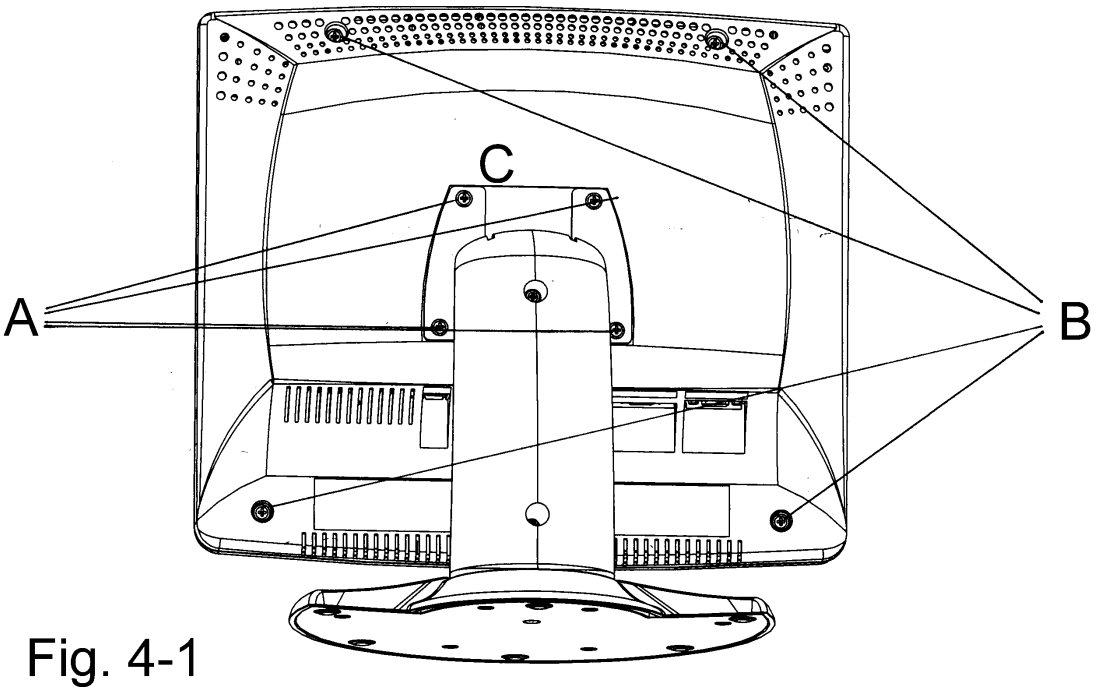


Fig. 4-1

3) Back Cover Removal:

In Fig. 4-1, remove 4 screws indicated as “B” from the back cover. Then remove the back cover.

4) Metallic Cover Removal:

In Fig. 4-2, remove 6 screws indicated as “D” from the back metallic cover. Then remove the back metallic cover.

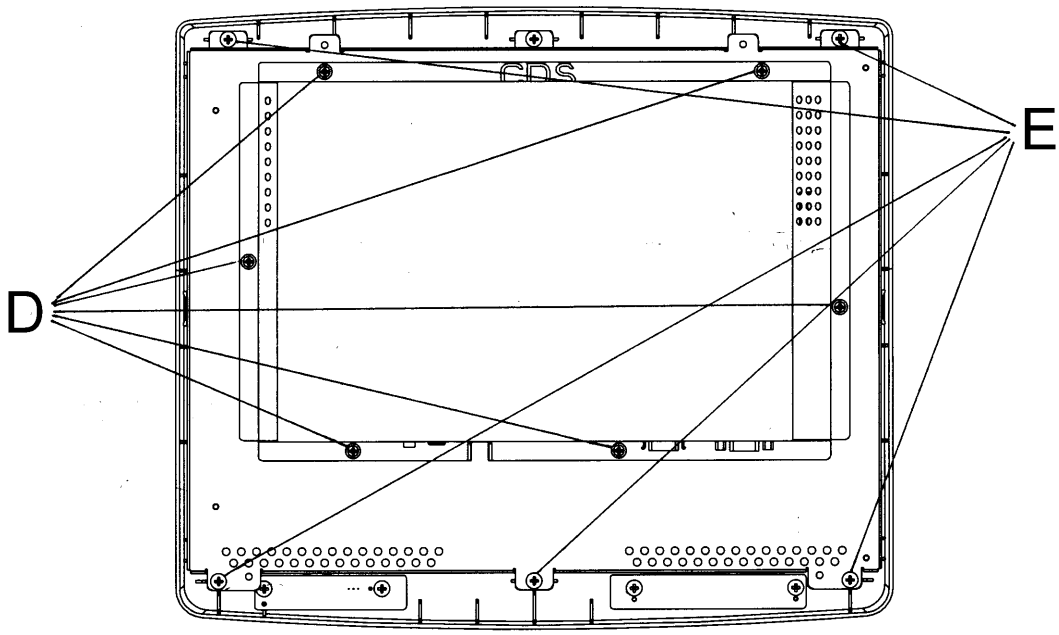


Fig. 4-2

5) PCB Assembly Removal:

Caution: ***When serving or replacing the panel, disconnect the DC power jack completely.***

(a) Unplug all connected wires from the PCB.

(b) Remove 3 screws indicated as “F” from the inverter board, and then remove the board carefully. (left side in Fig. 4-3)

(c) Remove 3 screws indicated as “G” from the DC jack board, and then remove the board carefully.

(d) Remove 5 screws indicated as “H” from the main board connected with front cover. (Fig. 4-3)

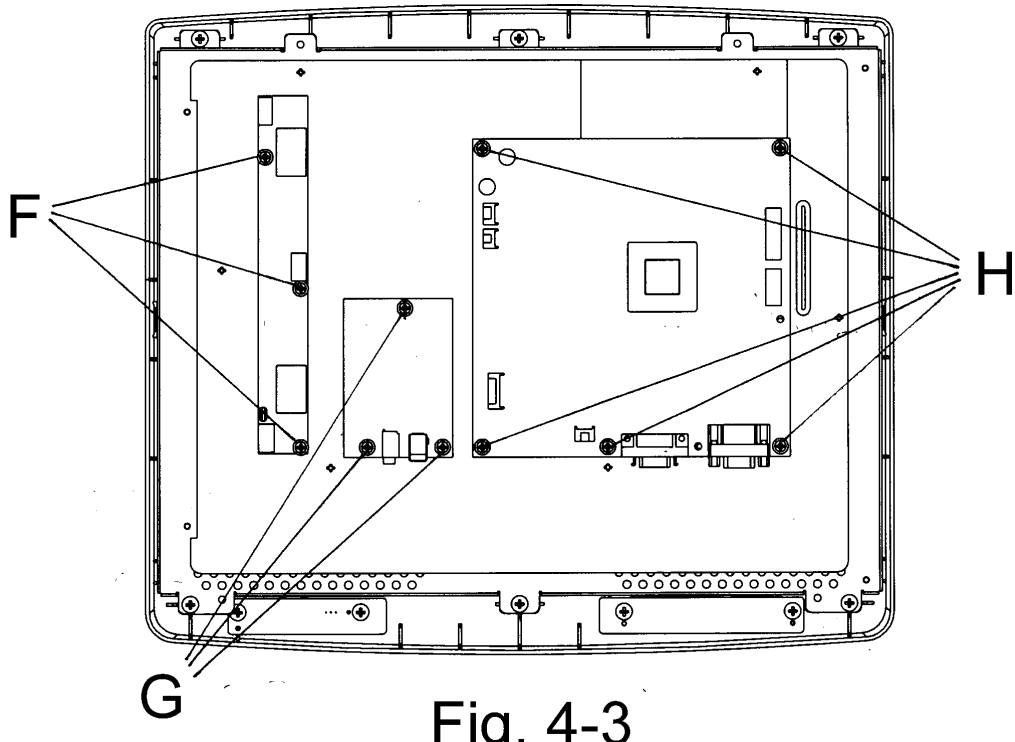


Fig. 4-3

6) Panel Removal:

(a) Panel is supplied as ITC.

(b) Remove 5 screws indicated as “E” from the front cover (Fig. 4-2) to remove the panel.

5. General Connection and Applications

Procedures for installing and using this L5CD LCD monitor are described as below.

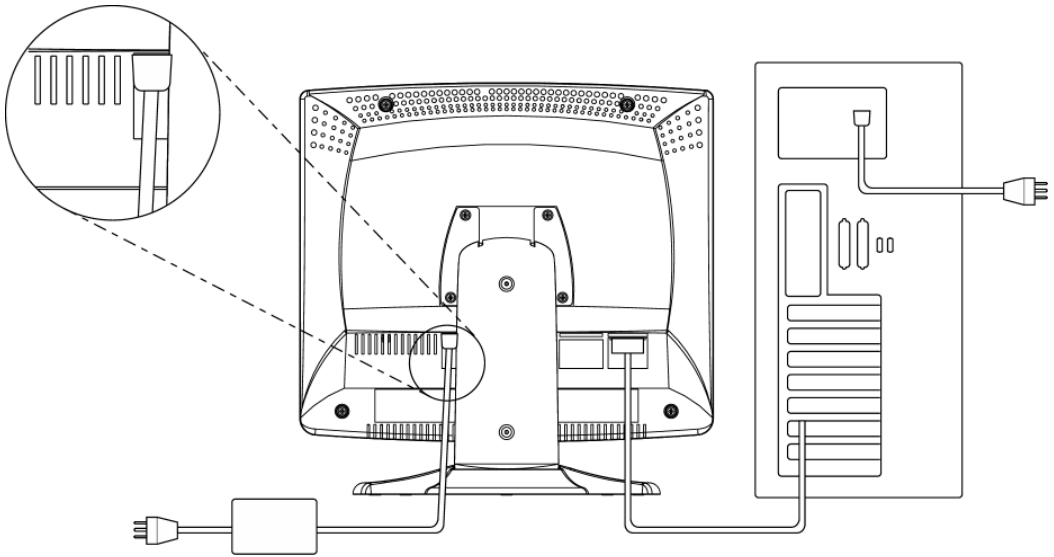
5.1 Connecting the monitor to the computer

1) Place the display on a flat, sturdy surface. Choose an area free from excessive heat, moisture, and sunlight. Avoid possible sources of electromagnetic interference, such as transformers, motors, and fluorescent lighting.

2) Locate the AC power adapter with attached power cable and then connect the power cable to the power jack on the back of the display. Plug the two-prong power cord into a power outlet, and plug the other end into the AC power adapter. The two-prong power cord is a shielded type and is provided as a safety precautions to ensure proper electrical grounding.

3) Plug the D-SUB 15-pin analog video signal cable into the Analog Video Input port on the back of the display. Connect the other end of the video cable into your computer's video port. The assignment of the pins of the connector is as follows:

Pin Assignment of 15-pin D-SUB	
1	Red Video
2	Green Video
3	Blue Video
4	Monitor Ground
5	DDC-Return
6	Red Ground
7	Green Ground
8	Blue Ground
9	+5V for DDC circuit
10	Logic Ground
11	Monitor Ground
12	DDC-Serial Data
13	H-Sync.
14	V-Sync.
15	DDC-Serial Clock



4) First turn the PC power switch ON. Then apply power to the display by pressing the power button to turn the monitor on. The power indicator LED will then illuminate.

Note: ***Do not force the cable into the connector; line it up carefully so that you don't bend the pins.***

6. Electronic Circuit Description

The block diagram of L5CD LCD monitor is shown in Appendix A.

6.1 Main Board Circuit

The circuit diagrams of main board that labeled with PWB-0199-E are shown in Appendix B. The circuit diagrams of keyboard and inverter are shown in Appendix C and D, respectively.

(1) PCB Interface ADC

Refer to circuit diagrams Sheet 1 of PWB-0199-01 in Appendix B.

The analog R, G, B video input signals are supplied through the cable which is terminated at P001 (located at **A2-A3** of Sheet 1). These input signals are approximately 0.7 V_{PP} in amplitude.

R001, R002 and R003 (**B2**) give a resistance of 75Ω for impedance matching. These R, G, B video signals are AC coupled via 0.1uF capacitors C009, C010 and C011 and then fed into the video signal processor I006 at pin-C13, pin-C15 and pin-C17 respectively (**C2**). These analog R, G and B video signals are converted to their digital forms in I006.

RESETN signal comes from reset circuit (in Sheet 4) and is fed into pin-A12 of I006 provides the necessary reset signal for the proper operation of I006.

VGA_CON from pin-10 of P001 is fed to I006 also. (Refer to Sheet 3)

I001 provides the necessary plug and play function with PC via its pin-5 and pin-6.

D001~D009 and D012~D016 provide ESD protection for I001, I006 and the associated components.

(2) PLL

Refer to circuit diagrams Sheet 2 of PWB-0199-01 (HIT) in Appendix B.

The H. and V. sync signals from P001 (in Sheet 1) are fed into I006 at pin-C1 and pin-A1 via I003A and I003B respectively (**C3** of Sheet 2). I006 utilize this H. sync to generate the necessary pixel clock for further processing internally.

(3) OSD and User Interface

Refer to circuit diagrams Sheet 3 of PWB-0199-01 in Appendix B.

User commands from the keyboard are terminated at P003 (located at **D2** of Sheet 3). There are four signals, 'POWER', 'SELECT', 'UP' and 'DOWN', which are buffered by R025, R026, R027 and R034 and pulled up to +3.3 volt by R012, R014, R017 and R019, from P003 to I006. I006 scans the status of these four signals to determine whether there is any key depressed or not as well as which key is depressed.

There are two LEDs (green and amber) controlled by the status of I006's pin-A4 and pin-B3 and buffered by Q001 and Q002. Their operating status refers to Section 3.2.

VGA_CON signal (located at **B2** of Sheet 3) comes from pin-10 of P001 (in Sheet 1) and is fed into pin-B5 of I006. The purpose of this signal is used for the determination of the signal cable connectivity.

Signal IRQ from pin-C9 of I006 is fed to pin-14 of I002 (in Sheet 4). It is used for the

signaling from I002 to I006.

The four signals designated HDATA0~HDATA3 are used for the data transfer between I006 and I002. This data transfer operation is under the control of HCLK and HFS signals between I006 and I002.

(4) Microcontroller

Refer to circuit diagrams Sheet 4 of PWB-0199-01 in Appendix B.

C018 and R014 constitute a reset circuit (located at **B2** of Sheet 4). It provides the necessary active high reset signal for I002 (Microcontroller) to operate properly. This reset signal then inverted by I003:D (74HCT14D) and results an RESETN signal that is fed into pin-A12 of I006 (in Sheet 1) to provide the necessary system reset for the proper operation of I006.

The Microcontroller (I002) is running with the clock based on X001 (12 MHz). Pin-35 of I002 (/EA/VP)[1] is pull-up to +5 volt through R010 (10 kΩ) to force I002 read/write memory internally. It is important that pin-35 of I002 shall be so pulled up for its proper operation.

Signal IRQ comes from I006 (in Sheet 3) and is fed to pin-14 of I002 (INT0).

The signals designated HDATA0~HDATA3 (pin-2~pin-5 of I002), HCLK and HFS (pin-6 and pin-7 of I002, respectively) are control and data signals used for transferring data between I006 and I002.

The signal PWM1 (pin-8 of I002) is used for brightness control by adjusting inverter's voltage. It is buffered by R077, low-pass filtered by R022 and C127, and then fed to pin-3 of P004.

The signal PWM2 (pin-9 of I002) is used for audio volume control, which is not used in current design. It is buffered by R078, low-pass filtered by R033 and C126, and then fed to pin-2 of P008.

The signals TXD and RXD (pin-13 and pin-11 of I002, respectively) are used for debugging during firmware

The signal PBIAS (pin-17 of I002) and the other signal from pin-E18 of I006 (Sheet 5) both are used for the control of backlight's On/off State. But they will not be used simultaneously.

The signal AUDIO (pin-18 of I002) controls the On/off State of Audio function.

The signal input to pin-19 of I002 is designated with LVDET (Low Voltage Detection), which is used by I002 to determine whether the power is going down or not.

I007 (24LC16B) provides necessary non-volatile storage for system operating variables and parameters. It is controlled by I002 via SCL and SDA signals, which pulled up to +5 volt with R042 and R043 (10 kΩ).

(5) Panel Interface

Refer to circuit diagrams Sheet 5 of PWB-0199-01 in Appendix B.

The signals of panel interface are all from I006 to the LCD panel. Pin-E17 of I006 (PPWR), I008:A and Q003 (with its associated components R044 and C044) control the +5V power to

[1] "/EA" means EA signal is active "low".

the LCD panel.

The signal PBIAS (pin-E18 of I006) and the other PBIAS signal from pin-17 of I002 (Sheet 4) both are used for the control of backlight's On/off State. They will not be used simultaneously. If signal PBAIS from pin-17 of I002 is used, then Q004 and R045 will not be installed on the PCB. If pin-E18 is used, then R076 will not be installed.

The signal CLK comes from pin-R17 (PCLKA) of I006, buffered by R057, filtered by C081 (for the EMI issue), and then fed to pin-44 (CLK) of P006. The signal DE comes from pin-T17 (DISPE) of I006, buffered by R056, filtered by C080 (for the EMI issue), and then fed to pin-42 (DE) of P006. The signals P_HS and P_VS come from pin-E19 and pin-E20 of I006, buffered by R47 and R46, filtered by C052 and C048, and then fed to pin-38 and pin-40 of P006 respectively. These four signals are used for panel image display controls.

Pin-PD0 to pin-PD47 are data outputs form I006 to P006 and P005 (to LCD panel). They are buffered by RP001~RP010 and filtered associated capacitors. These outputs are organized into even (RA0~RA7, GA0~GA7 and BA0~BA7) and odd (RB0~RB7, GB0~GB7 and BB0~BB7) parts, each with 24 outputs.

(6) Power

Refer to circuit diagrams Sheet 6 of PWB-0199-01 in Appendix B.

The DC +12V output of AC adapter is fed into the monitor through P007. This supply is regulated by L010 to provide +12V for the whole system. The output of pin-3 of L010 (+12V) is fed into I011 to provide +5V supply and into I012 to provide +3.3V supply.

I009:A (LM393) is used for the monitoring of +12V supply. If the +12V supply drops to less than +7.1V, the output of I009:A (LVDET) will turn to "low" to signal MCU that the supply is abnormal that it shall take some protection actions.

6.2 Keyboard Circuit, LED Board and DC Jack Board

The circuit diagrams of keyboard circuit, LED board and DC jack board are shown in Appendix C.

6.3 Inverter Circuit

The circuit diagrams of inverter is shown in Appendix D. The inverter supplies power for backlight for the LCD panel.

7. Troubleshooting Flow Chart

The flow chart of the procedures for troubleshooting please refers to Appendix E.

8. PCB Layout

The PCB layout of L5CD LCD monitor is shown in Appendix F for main board.

9. Electrical Part List

9.1 Main PCB

Subject: Part List

Model: LCD I/F Board (PWB-0199-E) 5097687700

CKT No.	Specification	Material No.	Q'ty	VenderA	VenderB
C001	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C002	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C003	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C004	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C005	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C006	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C007	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C008	Aluminum E-capacitor, 10uF/50V	5213610002	1	TEAPO	CAPXON
C009	Chip capacitor SMD, 10000PF/50V 0603	5230610391	1	PHILIPS	MURATA
C010	Chip capacitor SMD, 10000PF/50V 0603	5230610391	1	PHILIPS	MURATA
C011	Chip capacitor SMD, 10000PF/50V 0603	5230610391	1	PHILIPS	MURATA
C012	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C013	Chip capacitor SMD, 30PF/50V 0603	5240630091	1	PHILIPS	MURATA
C014	Chip capacitor SMD, 30PF/50V 0603	5240630091	1	PHILIPS	MURATA
C015	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C016	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C018	Aluminum E-capacitor, 10uF/50V	5213610002	1	TEAPO	CAPXON
C019	Chip capacitor SMD, 10000PF/50V 0603	5230610391	1	PHILIPS	MURATA
C020	Chip capacitor SMD, 10000PF/50V 0603	5230610391	1	PHILIPS	MURATA
C021	Chip capacitor SMD, 10000PF/50V 0603	5230610391	1	PHILIPS	MURATA
C022	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C023	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C024	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C025	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C026	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C027	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C028	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C029	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C030	Aluminum E-capacitor 10uF/50V	5213447002	1	TEAPO	CAPXON
C031	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C032	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA

CKT No.	Specification	Material No.	Q'ty	VenderA	VenderB
C033	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C035	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C036	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C037	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C038	Chip capacitor SMD, 30PF/50V 0603	5240630091	1	PHILIPS	MURATA
C039	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C040	Aluminum E-capacitor, 10uF/50V	5213610002	1	TEAPO	CAPXON
C041	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C044	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C046	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C047	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C048	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C049	Aluminum E-capacitor, 47uF/25V	5213447002	1	TEAPO	CAPXON
C050	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C051	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C052	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C053	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C054	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C055	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C056	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C057	Aluminum E-capacitor, 47uF/25V	5213447002	1	TEAPO	CAPXON
C058	Aluminum E-capacitor, 47uF/25V	5213447002	1	TEAPO	CAPXON
C060	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C061	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C062	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C063	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C064	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C065	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C066	Aluminum E-capacitor, 47uF/25V	5213447002	1	TEAPO	CAPXON
C067	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C068	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C069	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C070	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C071	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C072	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C073	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C074	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C075	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C076	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C077	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA

CKT No.	Specification	Material No.	Q'ty	VenderA	VenderB
C078	Aluminum E-capacitor, 10uF/50V	5213610002	1	TEAPO	CAPXON
C079	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C080	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C081	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C082	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C083	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C084	Aluminum E-capacitor, 330uF/25V	5216008802	1	ENGEL	
C085	Aluminum E-capacitor, 100uF/25V	5213410102	1	TEAPO	CAPXON
C086	Chip capacitor SMD, 22000PF/25V 0603	5230005391	1	PHILIPS	MURATA
C087	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C088	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C089	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C090	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C091	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C092	Chip capacitor SMD, 10000PF/50V 0603	5230610391	1	PHILIPS	MURATA
C093	Chip capacitor SMD, 1000PF/50V 0603	5230610291	1	PHILIPS	MURATA
C094	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C095	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C096	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C097	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C098	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C099	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C100	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C101	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C102	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C103	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C104	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C105	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C106	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C107	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C108	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C109	Chip capacitor SMD, 2700PF/50V 0805	5230827291	1	PHILIPS	MURATA
C110	Aluminum E-capacitor, 330uF/25V	5216008802	1	ENGEL	
C111	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C112	Aluminum E-capacitor, 330uF/25V	5216008802	1	ENGEL	
C113	Aluminum E-capacitor, 330uF/25V	5216008802	1	ENGEL	
C114	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C115	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA

CKT No.	Specification	Material No.	Q'ty	VenderA	VenderB
C116	Chip capacitor SMD, 22000PF/25V 0603	5230005391	1	PHILIPS	MURATA
C117	Chip capacitor SMD, 1000PF/50V 0603	5230610291	1	PHILIPS	MURATA
C118	Chip capacitor SMD, 10000PF/50V 0603	5230610291	1	PHILIPS	MURATA
C119	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C120	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C121	Aluminum E-capacitor, 330uF/25V	5216008802	1	ENGEL	
C122	Chip capacitor SMD, 2700PF/50V 0805	5230827291	1	PHILIPS	MURATA
C123	Aluminum E-capacitor, 330uF/25V	5216008802	1	ENGEL	
C124	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C125	Chip capacitor SMD, 0.1uF/25V 0603	5230005491	1	PHILIPS	MURATA
C127	Chip capacitor SMD, 1uF/16V 0805	5230801091	1	PHILIPS	MURATA
C128	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C129	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C130	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C131	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C132	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C133	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C134	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C135	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C136	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C137	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C138	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C139	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C140	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C141	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C142	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C143	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C144	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C145	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C146	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C147	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C148	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C149	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C150	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C151	Chip capacitor SMD, 47PF/50V 0603	524064709	1	PHILIPS	MURATA
C152	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C153	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C154	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C155	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA

CKT No.	Specification	Material No.	Q'ty	VenderA	VenderB
C156	Chip capacitor SMD, 47PF/50V 0603	5240647091	1	PHILIPS	MURATA
C157	Chip capacitor SMD, 0.1PF/25V 0603	5230005491	1		
D001	Switching Diode, 150mA/70V	6613003052	1	HIT	
D002	Switching Diode, 150mA/70V	6613003052	1	HIT	
D004	Switching Diode, 150mA/70V	6613003052	1	HIT	
D005	Switching Diode, 150mA/70V	6613003052	1	HIT	
D006	Switching Diode, 150mA/70V	6613003052	1	HIT	
D007	Switching Diode, 150mA/70V	6613003052	1	HIT	
D008	Switching Diode, 150mA/70V	6613003052	1	HIT	
D009	Switching Diode, 150mA/70V	6613003052	1	HIT	
D010	Rectifier Diode, 1A/20V	6611070541	1	LITEON	TSC
D011	Rectifier Diode, 1A/20V	6611070541	1	LITEON	TSC
D012	Switching Diode, 150mA/70V	6613003052	1	HIT	
D013	Switching Diode, 150mA/70V	6613003052	1	HIT	
D014	Switching Diode, 150mA/70V	6613003052	1	HIT	
D015	Switching Diode, 150mA/70V	6613003052	1	HIT	
D016	Switching Diode, 150mA/70V	6613003052	1	HIT	
D017	Zener Diode, 4.7V	6615014653	1	LITEON	HIT
D018	Rectifier Diode , 1A/20V	6611070541	1	LITEON	TSC
D019	Rectifier Diode, 1A/40V	6611036146	1	TSC	
D020	Rectifier Diode, 1A/40V	6611036146	1	TSC	
D021	Switching Diode, 150mA/70V	6613003052	1	HIT	
F001	Fuse, 3A/125V,FB,7.1x3.18	5054430072	1	BELL	
I001	EEPROM, 24WC02 SO-8	6647051862	1	CATALYST	
I002	MCU, 87C51RD2 PLCC44PIN	6647029452	1	TEMIC	
I002A	IC SOCKET, 44PIN PLCC	5056304402	1		
I003	Linear IC, 74HCT14D SO-14	6646032253	1	PHILIPS	
I006	LSI IC, gmB135 BGA292	6647006951	1	GENESIS	
I007	EEPROM, 24*16 SOIC-8	6647026357	1	CATALYST	MICROCHIP
I008	MOSFET, CEM4953 SO-8	6642004950	1	CET	
I009	Linear IC, LM393MX SOIC8	6644042450	1	NS	
I011	DC/DC CONVERTER, L4971D SO-16	6644051052	1	ST	
I012	DC/DC CONVERTER, L4971D SO-16	6644051052	1	ST	
L001	Ferrite Bead, N1608ZA601T01 0603	5062122480	1	TOKIN	
L002	Ferrite Bead, N1608ZA601T01 0603	5062122480	1	TOKIN	
L003	Ferrite Bead, N1608ZA601T01 0603	5062122480	1	TOKIN	
L004	Ferrite Bead, N1608ZA601T01 0603	5062122480	1	TOKIN	
L005	Coil, 50uH	5062129200	1	JSI	SYE
L006	Coil, 50uH	5062122480	1	JSI	SYE
L008	Coil, 50uH	5062122480	1	JSI	SYE

CKT No.	Specification	Material No.	Q'ty	VenderA	VenderB
L009	Coil, 50uH	5062129200	1	JSI	SYE
L010	Filter, STC-682D	5050717491	1	NIIGATA SEIMITSU	
P001	Connector, D-sub 15P	5056309110	1	LEOCO	GREATLAND
P003	Connector, 5P DIP	5056415570	1	LEOCO	JAE
P004	Connector, 8P DIP	5056415852	1	LEOCO	JAE
P005	Connector, 30P SMD	5056303006	1	LEOCO	
P006	Connector, 45P SMD	5056304507	1	LEOCO	
P007	Connector, 4P DIP	5056415484	1	LEOCO	JAE
Q001	TR NPN, KN3904S	6621015356	1	KEC	
Q002	TR NPN, KN3904S	6621015356	1	KEC	
Q003	TR NPN, KN3904S	6621015356	1	KEC	
R001	Chip resistor SMD, 1/16W 75J 0603	5134375009	1	YAGEO	WALSIN
R002	Chip resistor SMD, 1/16W 75J 0603	5134375009	1	YAGEO	WALSIN
R003	Chip resistor SMD, 1/16W 75J 0603	5134375009	1	YAGEO	WALSIN
R005	Chip resistor SMD, 1/16W 47KJ 0603	5134347309	1	YAGEO	WALSIN
R006	Chip resistor SMD, 1/16W 0J 0603	5134300009	1	YAGEO	WALSIN
R007	Chip resistor SMD, 1/16W 0J 0603	5134300009	1	YAGEO	WALSIN
R008	Chip resistor SMD, 1/16W 0J 0603	5134300009	1	YAGEO	WALSIN
R009	Chip resistor SMD, 1/16W 51J 0603	5134351009	1	YAGEO	WALSIN
R010	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R011	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R012	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R013	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R014	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R015	Chip resistor SMD, 1/16W 51J 0603	5134351009	1	YAGEO	WALSIN
R016	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R017	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R018	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R019	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R020	Chip resistor SMD, 1/16W 2KJ 0603	5134320209	1	YAGEO	WALSIN
R021	Chip resistor SMD, 1/16W 1KJ 0603	5134347209	1	YAGEO	WALSIN
R022	Chip resistor SMD, 116W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R024	Chip resistor SMD, 1/16W 1KJ 0603	5134347209	1	YAGEO	WALSIN
R025	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R026	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R027	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R028	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R029	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN

CKT No.	Specification	Material No.	Q'ty	VenderA	VenderB
R030	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R031	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R032	Chip resistor SMD, 1/16W 2KJ 0603	5134347209	1	YAGEO	WALSIN
R034	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R035	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R036	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R037	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R038	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R039	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R040	Chip resistor SMD, 1/16W 22J 0603	5134322009	1	YAGEO	WALSIN
R041	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R042	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R043	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R044	Chip resistor SMD, 1/16W 51KJ 0603	5134351309	1	YAGEO	WALSIN
R045	Chip resistor SMD, 1/16W 51KJ 0603	5134351309	1	YAGEO	WALSIN
R046	Chip resistor SMD, 1/16W 22J 0603	5134322009	1	YAGEO	WALSIN
R047	Chip resistor SMD, 1/16W 22J 0603	5134322009	1	YAGEO	WALSIN
R048	Chip resistor SMD, 1/16W 1KJ 0603	5134300009	1	YAGEO	WALSIN
R049	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R050	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R051	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R052	Chip resistor SMD, 1/16W 3.3KJ 0603	5134333209	1	YAGEO	WALSIN
R054	Chip resistor SMD, 1/16W 1KJ 0603	5134310209	1	YAGEO	WALSIN
R056	Chip resistor SMD, 1/16W 22J 0603	5134322009	1	YAGEO	WALSIN
R057	Chip resistor SMD, 1/16W 22J 0603	5134322009	1	YAGEO	WALSIN
R060	Chip resistor SMD, 1/16W 4.7KJ 0603	5134347209	1	YAGEO	WALSIN
R061	Chip resistor SMD, 1/16W 2.4KJ 0603	5134324209	1	YAGEO	WALSIN
R062	Chip resistor SMD, 1/16W 9.1KJ 0603	5134391209	1	YAGEO	WALSIN
R063	Chip resistor SMD, 1/16W 0J 0603	5134300009	1	YAGEO	WALSIN
R064	Chip resistor SMD, 1/16W 0J 0603	5134300009	1	YAGEO	WALSIN
R065	Chip resistor SMD, 1/16W 0J 0603	5134300009	1	YAGEO	WALSIN
R069	Chip resistor SMD, 1/16W 20KF 0603	5134120029	1	YAGEO	WALSIN
R070	Chip resistor SMD, 1/16W 9.1KJ 0603	5134391209	1	YAGEO	WALSIN
R071	Chip resistor SMD, 1/16W 20KF 0603	5134120029	1	YAGEO	WALSIN
R072	Chip resistor SMD, 1/16W 1KJ 0603	5134310209	1	YAGEO	WALSIN
R075	Chip resistor SMD, 1/16W 10KJ 0603	5134310309	1	YAGEO	WALSIN
R076	Chip resistor SMD, 1/16W 1KJ 0603	5134310209	1	YAGEO	WALSIN
R078	Chip resistor SMD, 1/16W 750J 0603	5134375109	1	YAGEO	WALSIN
PR001	Chip resistor SMD, 1/16W 22J 8P4R	5160310902	1	YAGEO	WALSIN
RP002	Chip resistor SMD, 1/16W 22J 8P4R	5160310902	1	YAGEO	WALSIN

CKT No.	Specification	Material No.	Q'ty	VenderA	VenderB
RP003	Chip resistor SMD, 1/16W 22J 8P4R	5160310902	1	YAGEO	WALSIN
RP004	Chip resistor SMD, 1/16W 22J 8P4R	5160310902	1	YAGEO	WALSIN
RP005	Chip resistor SMD, 1/16W 22J 8P4R	5160310902	1	YAGEO	WALSIN
RP006	Chip resistor SMD, 1/16W 22J 8P4R	5160310902	1	YAGEO	WALSIN
RP007	Chip resistor SMD, 1/16W 22J 8P4R	5160310902	1	YAGEO	WALSIN
RP008	Chip resistor SMD, 1/16W 22J 8P4R	5160310902	1	YAGEO	WALSIN
RP009	Chip resistor SMD, 1/16W 22J 8P4R	5160310902	1	YAGEO	WALSIN
RP010	Chip resistor SMD, 1/16W 22J 8P4R	5160310902	1	YAGEO	WALSIN
RP011	Chip resistor SMD, 1/16W 22J 8P4R	5160310902	1	YAGEO	WALSIN
RP012	Chip resistor SMD, 1/16W 22J 8P4R	5160310902	1	YAGEO	WALSIN
U003	PCB, 4Layer 160mmX120mm	5053101990	1	CCI	
X001	Crystal, 12MHZ	6699114105	1	HARMONY	
X002	OSC, 50MHZ	6699302001	1	HARMONY	

9.2 Keyboard PCB

Subject: Part List
Model: KEY Board (PWB-0236) 5097687800

CKT NO.	Description Specification	Material No.	Q'ty	VenderA	VenderB
D601	LED, YELLOW/GREEN 30mA	6618019900	1	CSC	
P601	WIRE ASSEMBLY, 8PIN/200mm	5057408053	1	LIANG-SAN	JST
P602	WIRE ASSEMBLY, 4PIN/140mm	5057404233	1	LIANG-SAN	JST
P603	DC JACK, 2.5mm	5056300707	1	LIH SHENG	
R601	RESISTOR, 1/6W 47J	5142147095	1	YAGEO	WALSIN
R602	RESISTOR, 1/6W 47J	5142147095	1	YAGEO	WALSIN
S601	SWITCH, TACT SPST	5054512951	1	FORWARD	
S602	SWITCH, TACT SPST	5054512951	1	FORWARD	
S603	SWITCH, TACT SPST	5054512951	1	FORWARD	
S604	SWITCH, TACT SPST	5054512951	1	FORWARD	
U006	PCB, PWB-0236	5053102000	1	TATUNG	

9.3 Inverter PCB

Subject: Part List
Model: TIV- 07 (INVERTOR) 5097672118

CKT No	Specification	Material No.	Vender
C02	CPAPCITOR,MONOLITHIC SMD RELL, 25V 0.1 μ FK	5230007391	MURATA, TDK, PHILIPS, TAIYO, YUDEN
C03	CPAPCITOR,MONOLITHIC SMD RELL 25V 0.1 μ FK	5230007391	MURATA, TDK, PHILIPS,TAIYO, YUDEN
C04	CPAPCITOR,MONOLITHIC SMD RELL 50V 1000PFK	5230810291	MURATA,TDK,PHILIPS,TAIYO,YUDEN
C05	CPAPCITOR,MONOLITHIC SMD RELL 25V 1 μ FZ	5230007491	MURATA,TDK,PHILIPS, TAIYO, YUDEN
C06	CPAPCITOR,METALIZED P.E 63V 0.15 μ FJ T	5275115401	AVX
C07	CPAPCITOR,CERAMIC 3KV 30PFK	5249900701	PAN OVERSEAS
C09	CPAPCITOR,MONOLITHIC SMD RELL 25V 0.1 μ FK	5230007391	MURATA,TDK,PHILIPS, TAIYO, YUDEN
C10	CPAPCITOR,MONOLITHIC SMD RELL 25V 0.1 μ FK	5230007391	MURATA,TDK,PHILIPS, TAIYO, YUDEN
C11	CPAPCITOR,MONOLITHIC SMD RELL 50V 1000PFK	5230810291	MURATA,TDK,PHILIPS, TAIYO, YUDEN

CKT No	Specification	Material No.	Vender
C12	CPAPCITOR,MONOLITHIC SMD RELL 25V 1 μFZ	5230007491	MURATA,TDK,PHILIPS, TAIYO, YUDEN
C13	CPAPCITOR,METALIZED P.E 63V 0.15 μFJT	5275115401	AVX
C14	CPAPCITOR,CERAMIC 3KV 30PFK	5249900701	PAN OVERSEAS
C15	CAPACITOR,TANTALUM 22 μF /25V D	5280002891	ELNA
	CAPACITOR,TANTALUM 22 μF /25V D0	5284422091	ELNA
	CAPACITOR,TANTALUM 22 μF /25V D	5280003691	KEMET
	CAPACITOR, MONOLITHIC SMD RELL 25V 22 μFZ	5230003791	NIPPON CHEMICON
D01	DIODE RECTIFIER SBD RB160L-40 40V 1A SMD	6611070358	ROHM
D02	DIODE SWITCHING SMD RLS4148 (LL-34) SMD	6613003059	ROHM
D03	DIODE SWITCHING SMD RLS4148 (LL-34) SMD	6613003059	ROHM
D04	DIODE RECTIFIER SBD RB160L-40 40V 1A SMD	6611070358	ROHM
D05	DIODE SWITCHING SMD RLS4148 (LL-34) SMD	6613003059	ROHM
D06	DIODE SWITCHING SMD RLS4148 (LL-34) SMD	6613003059	RO HM
F01	FUSE 125V/2A FB 7.2x2.4 UL,CSA	5054420042	BEL
	FUSE 125V/2A FB 7.2x2.4 UL,CSA	5054420072	LITTLE FUSE
F02	FUSE 250V/2A 115℃	5054420094	UCHIHASHI
F03	FUSE 250V/2A 115℃	5054420094	UCHIHASHI
F02A	TUBE 1 φx7	6707010110	TA YA
F02B	TUBE 1 φx7	6707010110	TA YA
F03A	TUBE 1 φx7	6707010110	TA YA
F03B	TUBE 1 φx7	6707010110	TA YA
I01	IC,LINEAR SMD KA7500BD SOP-16 PWMCONTROLLER	6644031954	SAMSUNG
I02	IC,LINEAR SMD KA7500BD SOP-16 PWMCONTROLLER	6644031954	SAMSUNG
L01	COIL,CHOKE CHK-291A 140 μH 0.5x63.5TS 8x10	5062129101	MINJEC JET SIGNAL SHINING YUAN
L02	COIL,CHOKE CHK-291A 140 μH 0.5x63.5TS 8x10	5062129101	MINJEC JET SIGNAL SHINING YUAN
P01	BASE AND PIN, S5B-PH-SM3-TB	5056415560	JST
P02	BASE & PIN, SMO2(8.0) B-BHS-1-TB	5056415282	JST
P03	BASE & PIN, SMO2(8.0) B-BHS-1-TB	5056415282	JST
Q01	TR NPN HF SMD, DTC144WKA	6621001855	ROHM
Q02	TR PNP HF SMD, DTA144WKA	6623001051	ROHM

CKT No	Specification	Material No.	Vender
Q03	TR PNP LF SMD, 2SA1797Q	6624000753	ROHM
Q04	TR NPN HF SMD, 2SC4672Q	6621010352	ROHM
Q05	TR NPN HF SMD, 2SC4672Q	6621010352	ROHM
Q06	TR NPN HF SMD, DTC144WKA	6621001855	ROHM
Q07	TR PNP HF SMD, DTA144WKA	6623001051	ROHM
Q08	TR PNP LF SMD, 2SA1797Q	6624000753	ROHM
Q09	TR NPN HF SMD, 2SC4672Q	6621010352	ROHM
Q10	TR NPN HF SMD, 2SC4672Q	6621010352	ROHM
R01	RESISTOR,THICK FILM CHIP 0805 1/10W 680.00 J T	5132368109	YAGEO KOA
R02	RESISTOR,THICK FILM CHIP 1206 1/8W 680.00 J T	5131368109	YAGEO KOA
R03	RESISTOR,THICK FILM CHIP 0805 1/10W 22.00KJ T	5132322309	YAGEO KOA
R04	RESISTOR,THICK FILM CHIP 0805 1/10W 4.7KJ T	5132347209	YAGEO KOA
R05	RESISTOR,THICK FILM CHIP 0805 1/10W 7.5KJ T	5132375209	YAGEO KOA
R06	RESISTOR,THICK FILM CHIP 0805 1/10W 2.2KF T	5132122019	YAGEO KOA
R07	RESISTOR,THICK FILM CHIP 0805 1/10W 2.2KF T	5132122019	YAGEO KOA
R08	RESISTOR,THICK FILM CHIP 0805 1/10W 1.5KJ T	5132315209	YAGEO KOA
R09	RESISTOR,THICK FILM CHIP 0805 1/10W 10.00KF T	5132110029	YAGEO KOA
R10	RESISTOR,THICK FILM CHIP 0805 1/10W 7.5KJ T	5132375209	YAGEO KOA
R11	RESISTOR,THICK FILM CHIP 0805 1/10W 5.6KJ T	5132356209	YAGEO KOA
R12	RESISTOR,THICK FILM CHIP 0805 1/10W 3.9KJ T	5132339209	YAGEO KOA
R13	RESISTOR,THICK FILM CHIP 1206 1/8W 820.00 J T	5131382109	YAGEO KOA
R14	RESISTOR,THICK FILM CHIP 1206 1/8W 1KJ T	5131310209	YAGEO KOA
R15	RESISTOR,THICK FILM CHIP 0805 1/10W 680.00 J T	5132368109	YAGEO KOA
R16	RESISTOR,THICK FILM CHIP 1206 1/8W 680.00 J T	5131368109	YAGEO KOA
R17	RESISTOR,THICK FILM CHIP 0805 1/10W 22.00KJ T	5132322309	YAGEO KOA
R18	RESISTOR,THICK FILM CHIP 0805 1/10W 4.7KJ T	5132347209	YAGEO KOA

CKT No	Specification	Material No.	Vender
R19	RESISTOR,THICK FILM CHIP 0805 1/10W 7.5KJ T	5132375209	YAGEO KOA
R20	RESISTOR,THICK FILM CHIP 0805 1/10W 2.2KF T	5132122019	YAGEO KOA
R21	RESISTOR,THICK FILM CHIP 0805 1/10W 2.2KF T	5132122019	YAGEO KOA
R22	RESISTOR,THICK FILM CHIP 0805 1/10W 1.5KJ T	5132315209	YAGEO KOA
R23	RESISTOR,THICK FILM CHIP 0805 1/10W 10.00KF T	5132310029	YAGEO KOA
R24	RESISTOR,THICK FILM CHIP 0805 1/10W 7.5KJ T	5132375209	YAGEO KOA
R25	RESISTOR,THICK FILM CHIP 0805 1/10W 5.6KJ T	5132356209	YAGEO KOA
R26	RESISTOR,THICK FILM CHIP 0805 1/10W 3.9KJ T	5132339209	YAGEO KOA
R27	RESISTOR,THICK FILM CHIP 1206 1/8W 820.00 J T	5131382109	YAGEO KOA
R28	RESISTOR,THICK FILM CHIP 1206 1/8W 1.0KJ T	5131310209	YAGEO KOA
R29	RESISTOR,THICK FILM CHIP 1206 1/8W 2.0KJ T	5131320209	YAGEO KOA
R30	RESISTOR,THICK FILM CHIP 0805 1/10W 680.00 J T	5132368109	YAGEO KOA
T01	POWER TRANFORMER,SWITCHING TPW-703	5061370300	FDK
T02	POWER TRANFORMER,SWITCHING TPW-703	5061370300	FDK
U01	PCB , PWB-0252 180x25MM FR-4	5053101360	GIATZOONG
Y01	THERMALLY CONDUCTIVE ADHESIVE LOCTITE 384	5383011016	LOCTITE
Y02	INSTANT ADHESIVE LOCTITE 444	0792524144	LOCTITE

9.4 Panel/Accessory/Miscellaneous

CKT NO.	Specification	Material No.	Q'ty	Note
ADP8	AC/DC Adapter TPS-048 100/240VAC/12V/4ADC	5061370307	1	
P102	Wire Assembly W/05P Connector UL/CSA1007#24 PHR/PHR L=140	5057405110	1	
P104	Single Side Flexible FPC 30-pin FPC (T09-2FI-05603B) 200 mm	5057445000	1	
P104B	Shield Cross Tube, 8 x 200 mm	5057401300	1	
P105	Single Side Flexible FPC 45-pin FPC (T09-2FI-05503B) 200 mm	5057430001	1	
P105B	Shield Cross Tube, 6 x 200 mm	5057401301	1	
P106	Signal Cable UL2919 (3+5) Gray D-SUBX2 L=1800	5057415162	1	
P801	Power Cord, Set UL SVT#18 x 3C 1.8M BLK SHIELD	5056705900	1	
P902	Wire Assembly W/05P Connector UL/CSA 3239#24 BHR/BHMR L=25	5057402251	1	
V901	15” TFT LCD Panel CPT CLAA150XA03	5051253600	1	

10. Mechanical Disassembly

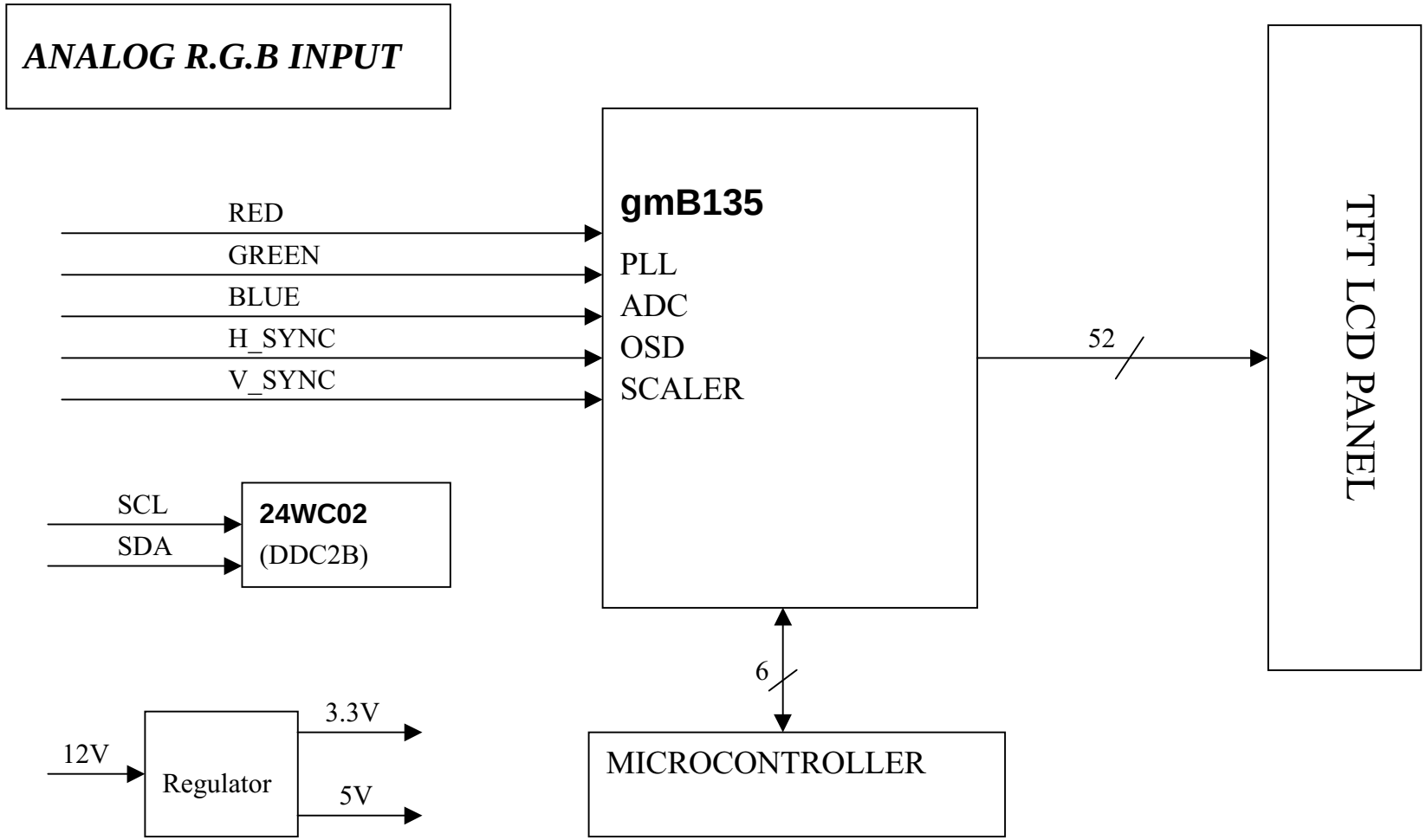
For mechanical disassembly, please refer to Appendix G.

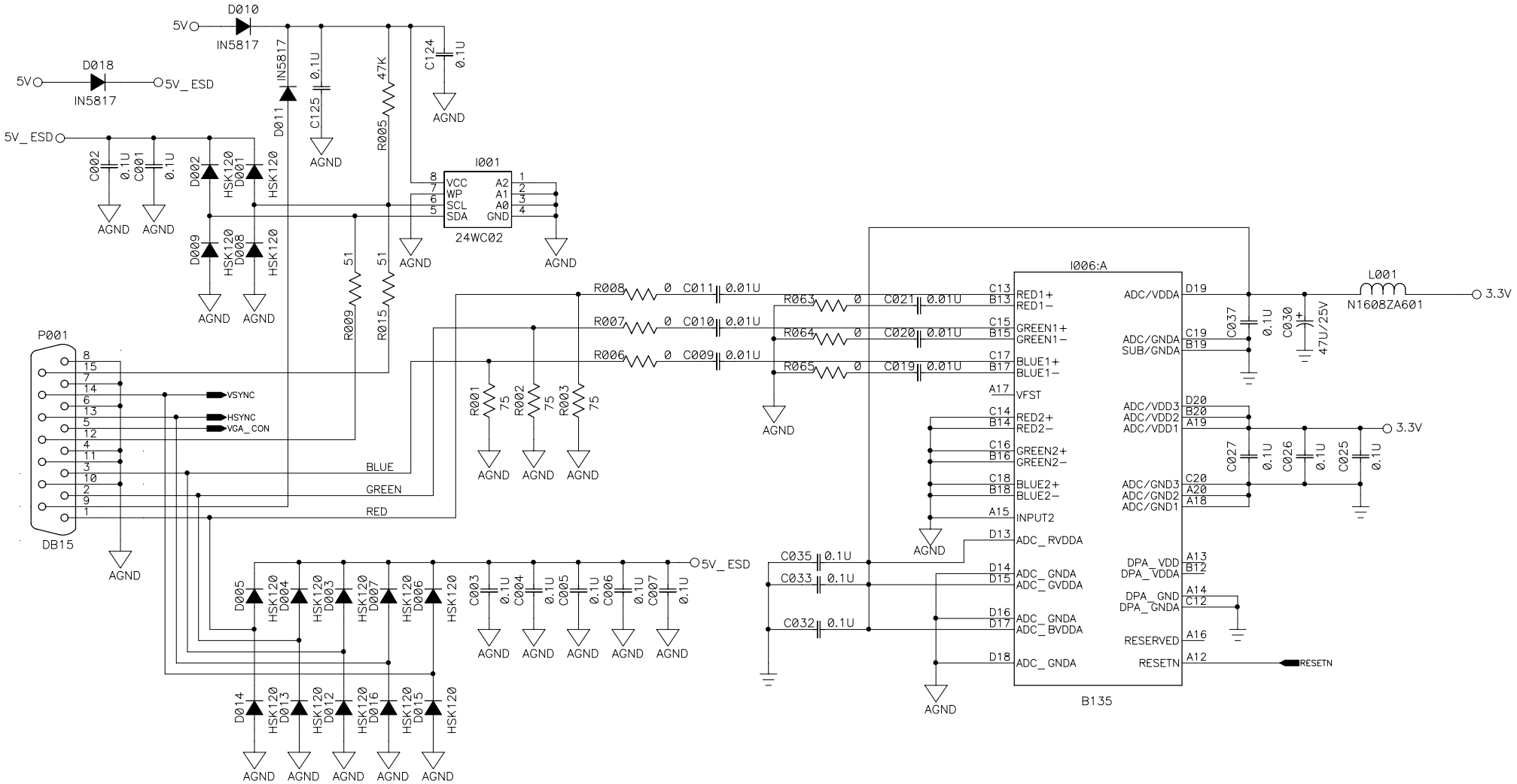
11. Mechanical Part List

The number list in this mechanical part list corresponds to the part numbered in the mechanical disassembly (see Appendix G).

No.	Material No.	Description	Note
1	5642278100	FRONT COVER	L5CDSDP
	5642278101		L5CDTDP
2	5642838600	FUNCTION KEY	
3	5642838300	POWER KEY	
4	5648727900	BRACKET MAIN	
5	5646247900	BACK SHEET	
6	5648727800	BRACKET B/C&HINGWE	
7	5642278004	BACK COVER	L5CDSDP
	5642278010		L5CDTDP
8	5642277900	NECK-F	
9	5648727700	HINGE TILT	
10	5648728000	BRACKET NECK	
11	5642277800	NECK-B	
12	5641408100	BASE	
13	5642025100	RUBBER FOOT	
14	5648109100	BASE PLATE	
15	5642025000	NYION WASHER	

Appendix A. L5CD Block Diagram





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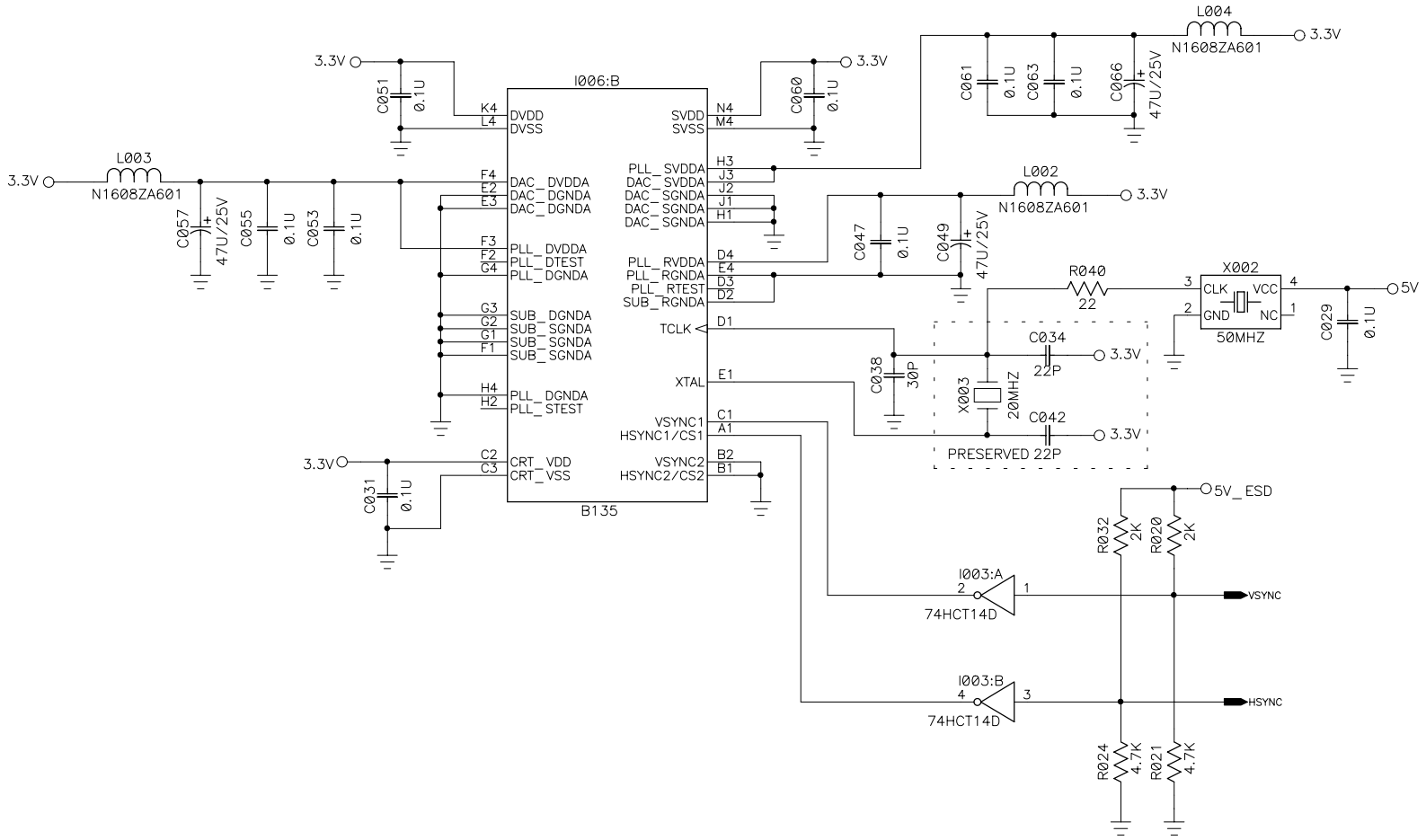

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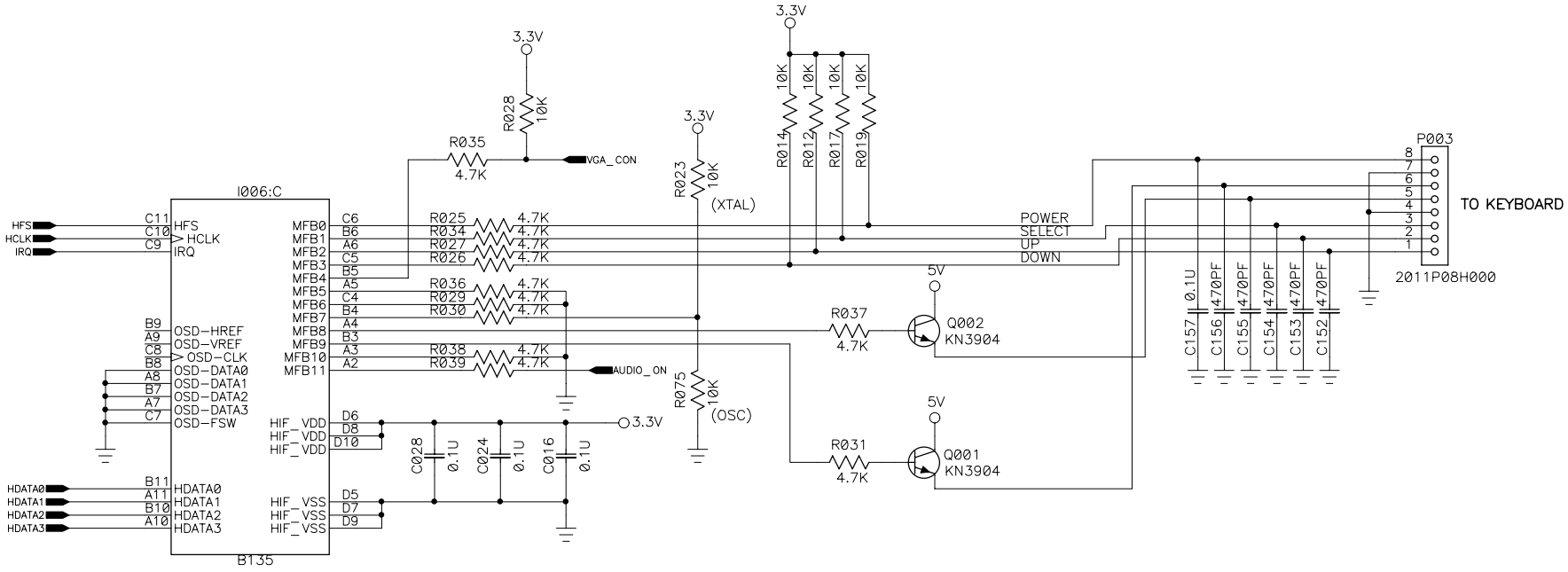

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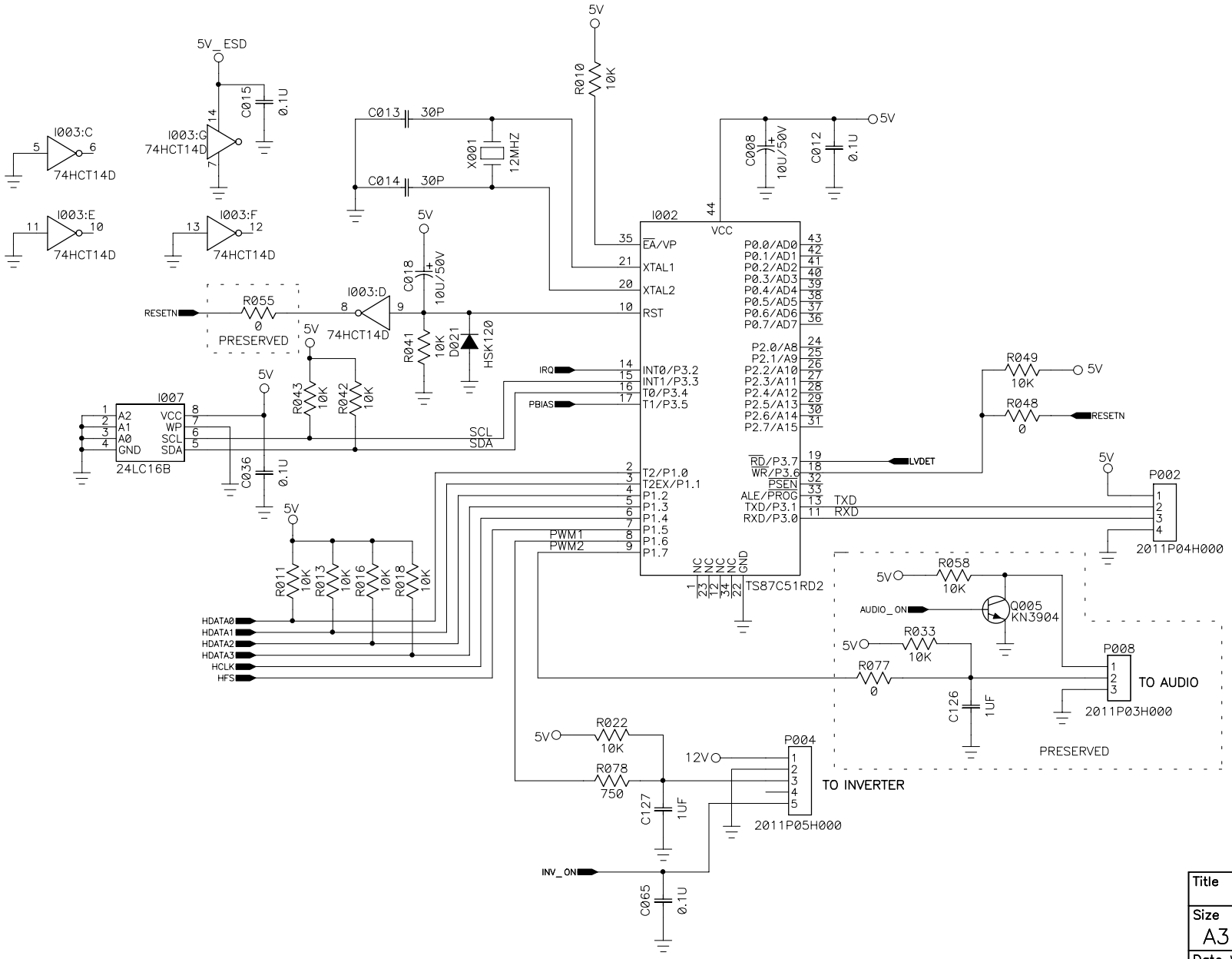

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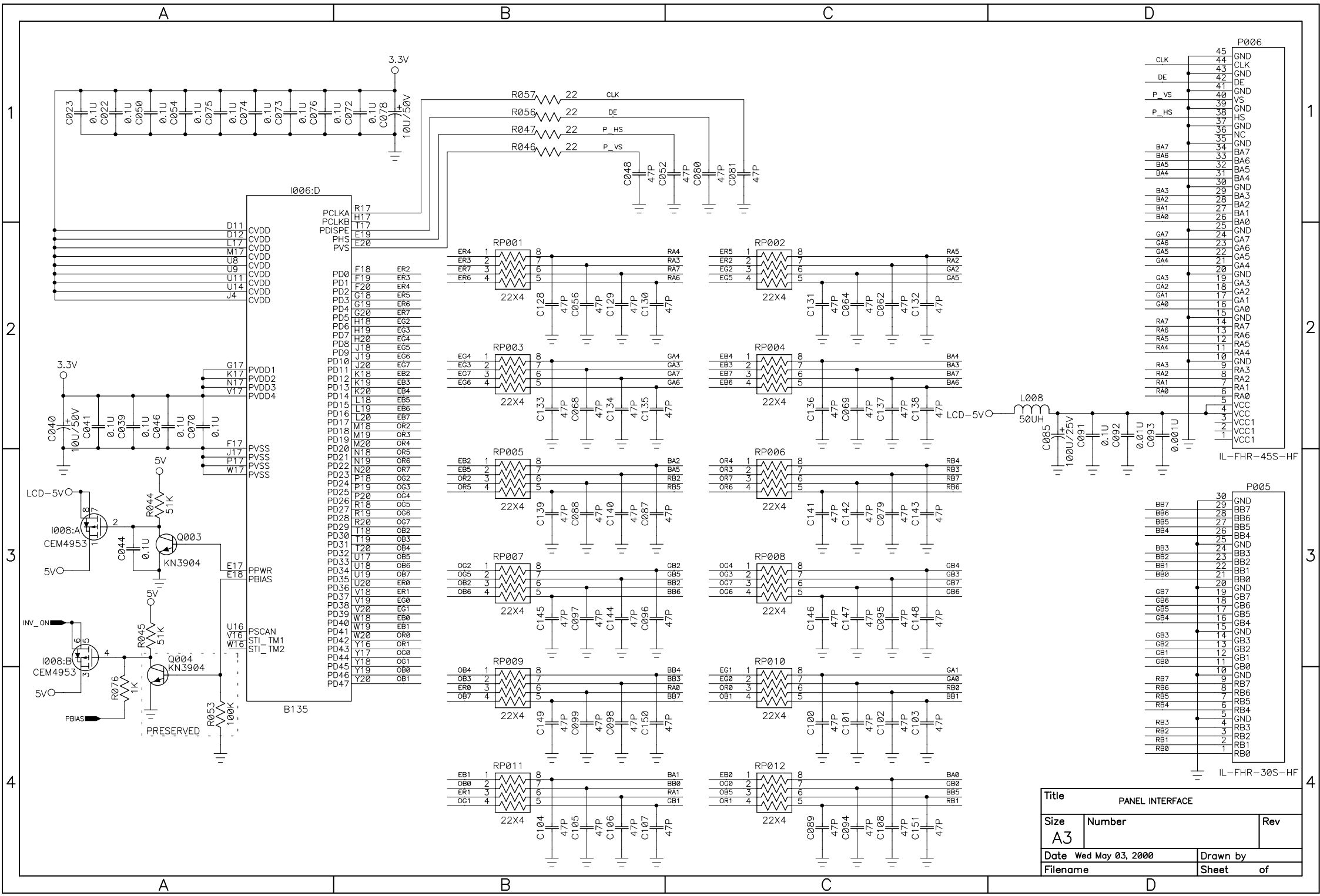
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C022 0.1U
C050 0.1U
C054 0.1U
C075 0.1U
C074 0.1U
C073 0.1U
C076 0.1U
C072 0.1U
C078 10U/50V
R057 22 CLK
R056 22 DE
R047 22 P_HS
R046 22 P_VS
C048 47P
C052 47P
C080 47P
C081 47P
I006:D
PCLKA R17
PCLKB H17
PDISPE T17
PHS E19
PVS E20
D11 CVDD
D12 CVDD
L17 CVDD
M17 CVDD
U8 CVDD
U9 CVDD
U11 CVDD
U14 CVDD
J4 CVDD
PD0 F18 ER2
PD1 F19 ER3
PD2 F20 ER4
PD3 G18 ER5
PD4 G19 ER6
PD5 G20 ER7
PD6 H18 EG2
PD7 H19 EG3
PD8 H20 EG4
PD9 J18 EG5
PD10 J19 EG6
PD11 J20 EG7
PD12 K18 EB2
PD13 K19 EB3
PD14 K20 EB4
PD15 L18 EB5
PD16 L19 EB6
PD17 L20 EB7
PD18 M18 OR2
PD19 M19 OR3
PD20 M20 OR4
PD21 N18 OR5
PD22 N19 OR6
PD23 N20 OR7
PD24 P18 OG2
PD25 P19 OG3
PD26 P20 OG4
PD27 R18 OG5
PD28 R19 OG6
PD29 R20 OG7
PD30 T18 OB2
PD31 T19 OB3
PD32 T20 OB4
PD33 U17 OB5
PD34 U18 OB6
PD35 U19 OB7
PD36 U20 ER0
PD37 V18 ER1
PD38 V19 EG0
PD39 V20 EG1
PD40 W18 EB0
PD41 W19 EB1
PD42 W20 OR0
PD43 Y16 OR1
PD44 Y17 OG0
PD45 Y18 OG1
PD46 Y19 OB0
PD47 Y20 OB1
B135
3.3V
G17 PVDD1
K17 PVDD2
N17 PVDD3
V17 PVDD4
C040 10U/50V
C041 0.1U
C039 0.1U
C046 0.1U
C070 0.1U
F17 PVSS
J17 PVSS
P17 PVSS
W17 PVSS
5V
LCD-5V
R044 51K
I008:A
CEM4953
Q003
KN3904
C044 0.1U
5VO
E17 PPWR
E18 PBIAS
INV_ON
R045 51K
I008:B
CEM4953
Q004
KN3904
R076 1K
R053 100K
PBIAS
PRESERVED
U16 PSCAN
V16 STI_TM1
W16 STI_TM2
RP001 22X4
ER4 ER3 ER7 ER6 RA4 RA3 RA7 RA6
C128 47P C056 47P C129 47P C130 47P
RP002 22X4
ER5 ER2 EG2 EG5 RA5 RA2 GA2 GA5
C131 47P C064 47P C062 47P C132 47P
RP003 22X4
EG4 EG3 EG7 EG6 GA4 GA3 GA7 GA6
C133 47P C068 47P C134 47P C135 47P
RP004 22X4
EB4 EB3 EB7 EB6 BA4 BA3 BA7 BA6
C136 47P C069 47P C137 47P C138 47P
RP005 22X4
EB2 EB5 OR2 OR5 BA2 BA5 RB2 RB5
C139 47P C088 47P C140 47P C087 47P
RP006 22X4
OR4 OR3 OR7 OR6 RB4 RB3 RB7 RB6
C141 47P C142 47P C079 47P C143 47P
RP007 22X4
OG2 OG5 OB2 OB6 GB2 GB5 BB2 BB6
C145 47P C097 47P C144 47P C096 47P
RP008 22X4
OG4 OG3 OG7 OG6 GB4 GB3 GB7 GB6
C146 47P C147 47P C095 47P C148 47P
RP009 22X4
OB4 OB3 ER0 OB7 BB4 BB3 RA0 BB7
C149 47P C099 47P C098 47P C150 47P
RP010 22X4
EG1 EG0 OR0 OB1 GA1 GA0 RB0 BB1
C100 47P C101 47P C102 47P C103 47P
RP011 22X4
EB1 OB0 ER1 OG1 BA1 BB0 RA1 GB1
C104 47P C105 47P C106 47P C107 47P
RP012 22X4
EB0 OG0 OB5 OR1 BA0 GB0 BB5 RB1
C089 47P C094 47P C108 47P C151 47P
LCD-5V
L008 50UH
C085 100U/25V
C091 0.1U
C092 0.01U
C093 0.001U
P006
CLK DE P_VS P_HS
45 GND
44 CLK
43 GND
42 DE
41 DE
40 GND
39 VS
38 GND
37 HS
36 GND
35 NC
34 GND
BA7 BA6 BA5 BA4
33 BA7
32 BA6
31 BA5
30 BA4
29 GND
BA3 BA2 BA1 BA0
28 BA3
27 BA2
26 BA1
25 BA0
24 GND
GA7 GA6 GA5 GA4
23 GA7
22 GA6
21 GA5
20 GA4
19 GND
GA3 GA2 GA1 GA0
18 GA3
17 GA2
16 GA1
15 GA0
14 GND
RA7 RA6 RA5 RA4
13 RA7
12 RA6
11 RA5
10 RA4
9 GND
RA3 RA2 RA1 RA0
8 RA3
7 RA2
6 RA1
5 RA0
4 VCC
3 VCC
2 VCC1
1 VCC1
VCC1
IL-FHR-45S-HF
P005
30 GND
BB7 BB6 BB5 BB4
29 BB7
28 BB6
27 BB5
26 BB4
25 GND
BB3 BB2 BB1 BB0
24 BB3
23 BB2
22 BB1
21 BB0
20 GND
GB7 GB6 GB5 GB4
19 GB7
18 GB6
17 GB5
16 GB4
15 GND
GB3 GB2 GB1 GB0
14 GB3
13 GB2
12 GB1
11 GB0
10 GND
RB7 RB6 RB5 RB4
9 RB7
8 RB6
7 RB5
6 RB4
5 GND
RB3 RB2 RB1 RB0
4 RB3
3 RB2
2 RB1
1 RB0
IL-FHR-30S-HF
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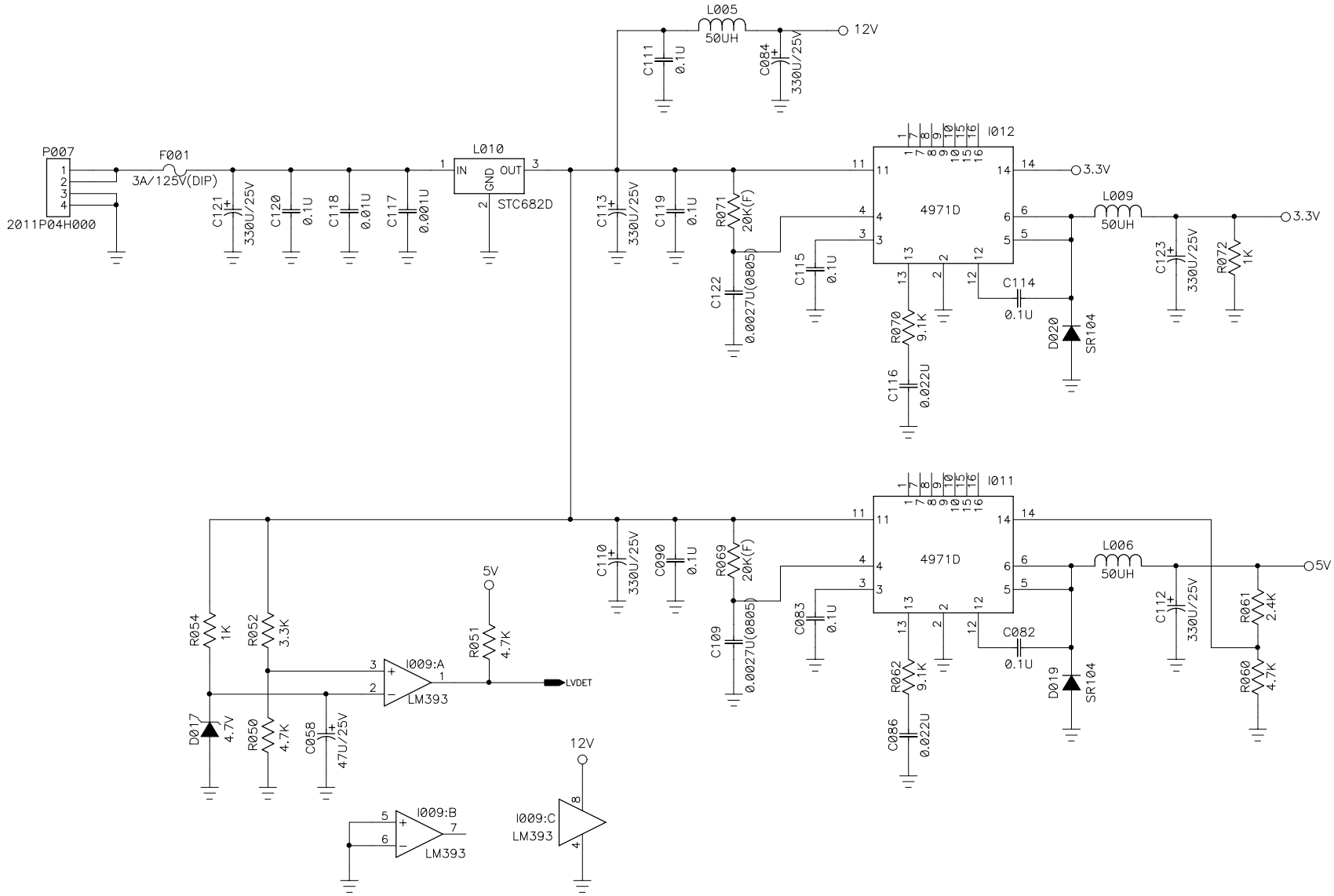

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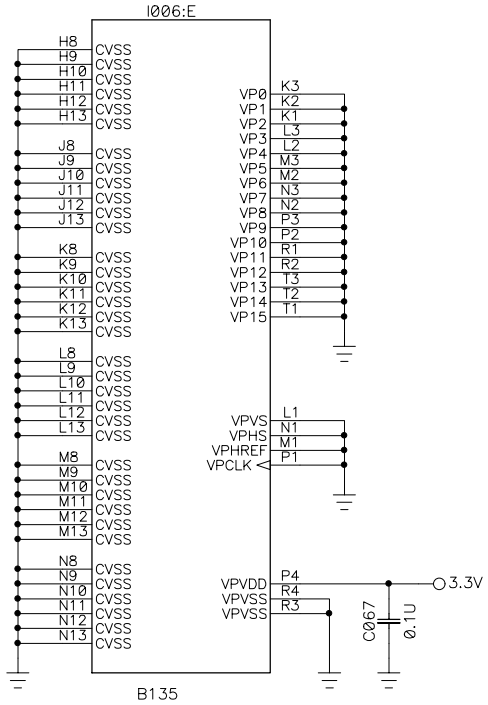

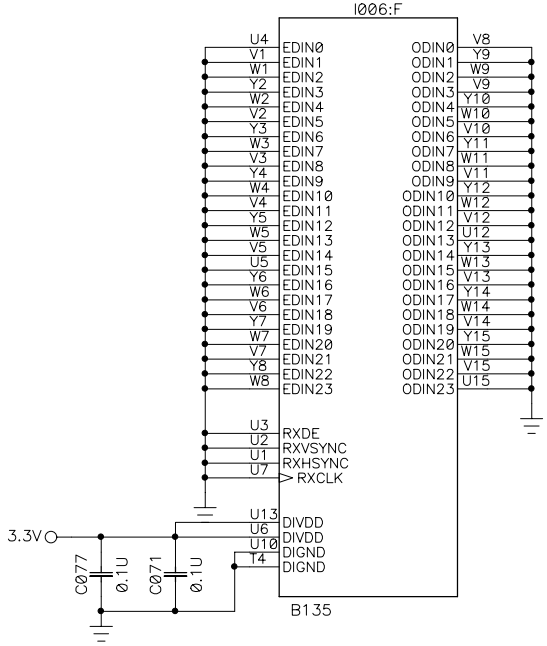

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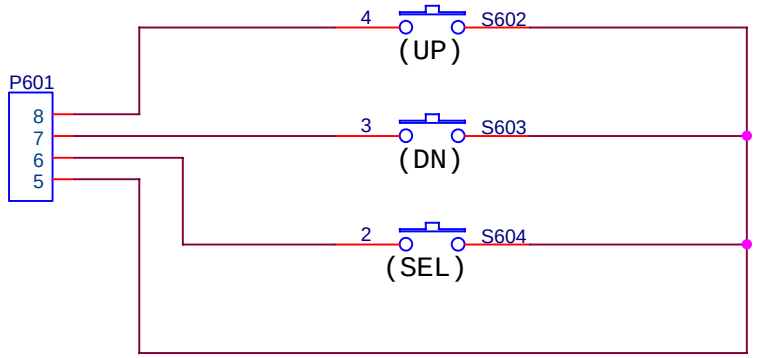
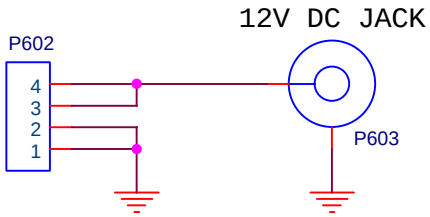
Appendix C

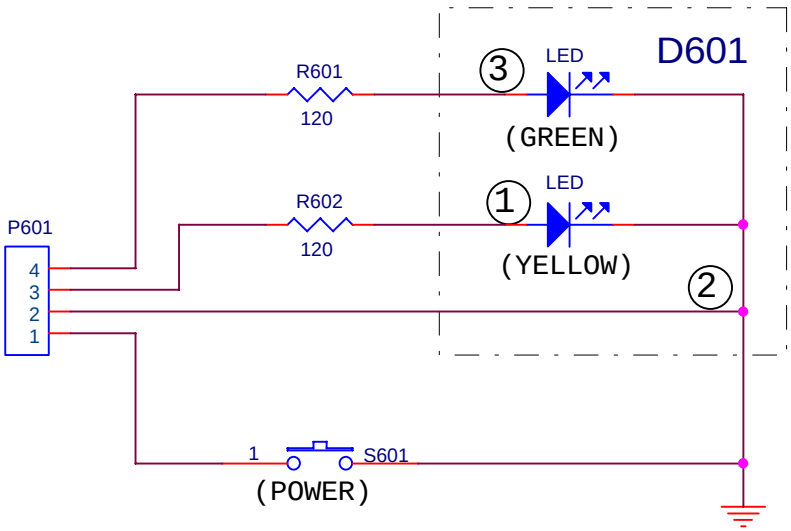
KEY BOARD



DC JACK BOARD



LED BOARD



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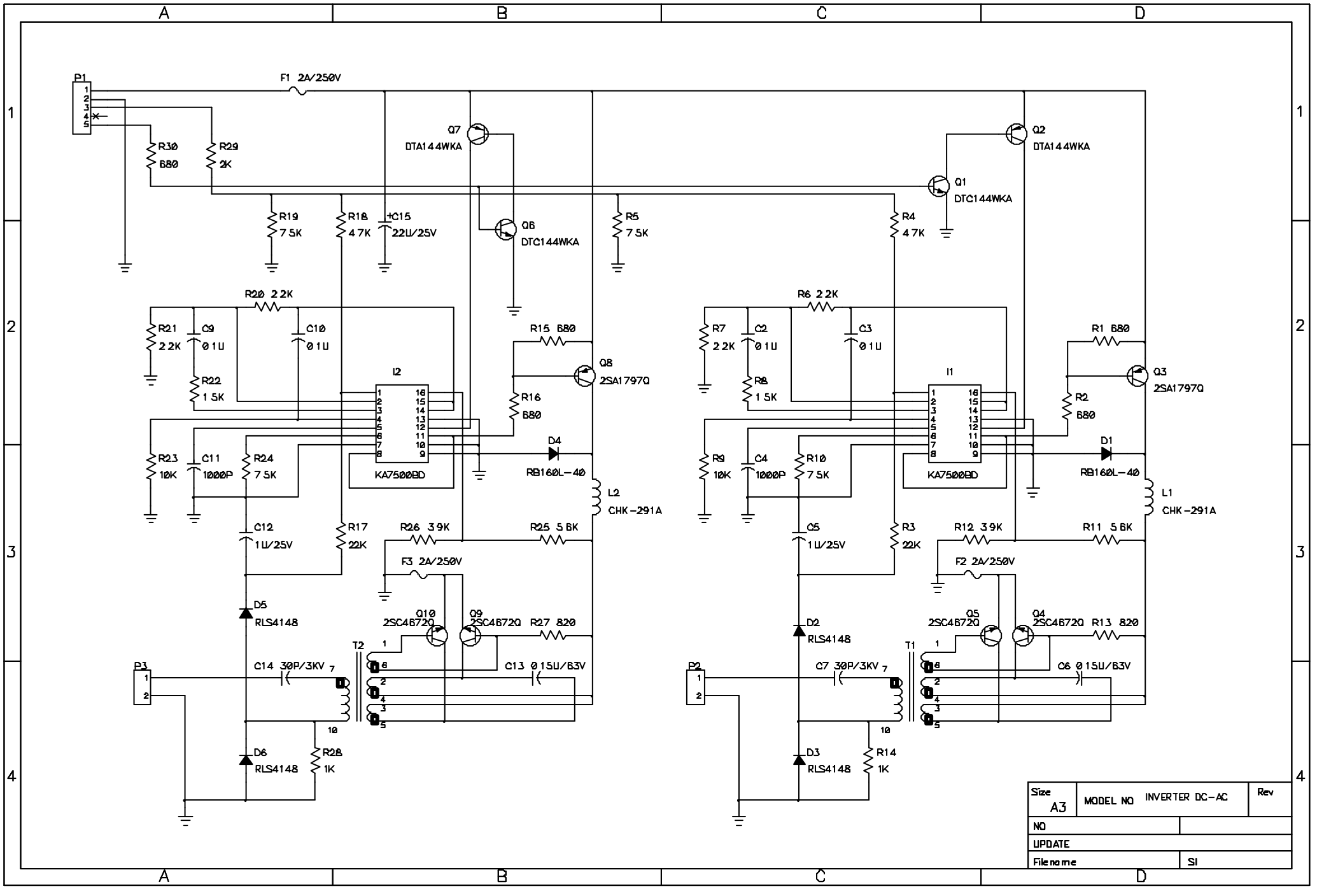
P1
F1 2A/250V
R30 680
R29 2K
Q7 DTA144WKA
Q2 DTA144WKA
Q1 DTC144WKA
R19 7.5K
R18 4.7K
+C15 22U/25V
Q6 DTC144WKA
R5 7.5K
R4 4.7K
R20 2.2K
R6 2.2K
R21 2.2K
C9 0.1U
C10 0.1U
R7 2.2K
C2 0.1U
C3 0.1U
R15 680
R1 680
Q8 2SA1797Q
Q3 2SA1797Q
I2
I1
R22 1.5K
R8 1.5K
R16 680
R2 680
D4
D1
R23 10K
C11 1000P
R24 7.5K
R9 10K
C4 1000P
R10 7.5K
KA7500BD
RB160L-40
L2 CHK-291A
L1 CHK-291A
C12 1U/25V
R17 22K
R26 3.9K
R25 5.6K
C5 1U/25V
R3 22K
R12 3.9K
R11 5.6K
F3 2A/250V
F2 2A/250V
D5 RLS4148
D2 RLS4148
Q10 2SC4672Q
Q9 2SC4672Q
Q5 2SC4672Q
Q4 2SC4672Q
R27 820
R13 820
T2
T1
P3
P2
C14 30P/3KV
C13 0.15U/63V
C7 30P/3KV
C6 0.15U/63V
D6 RLS4148
R28 1K
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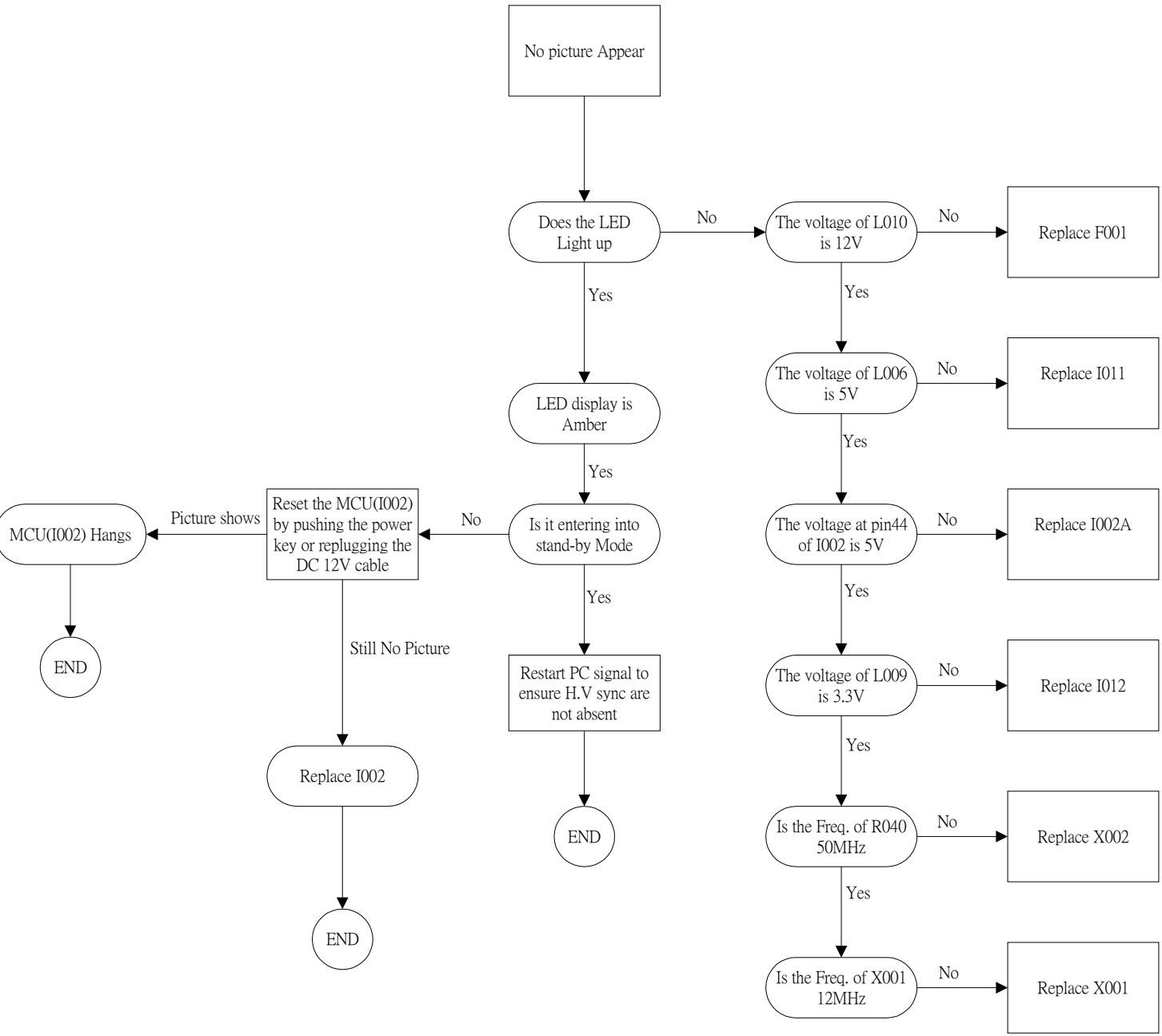
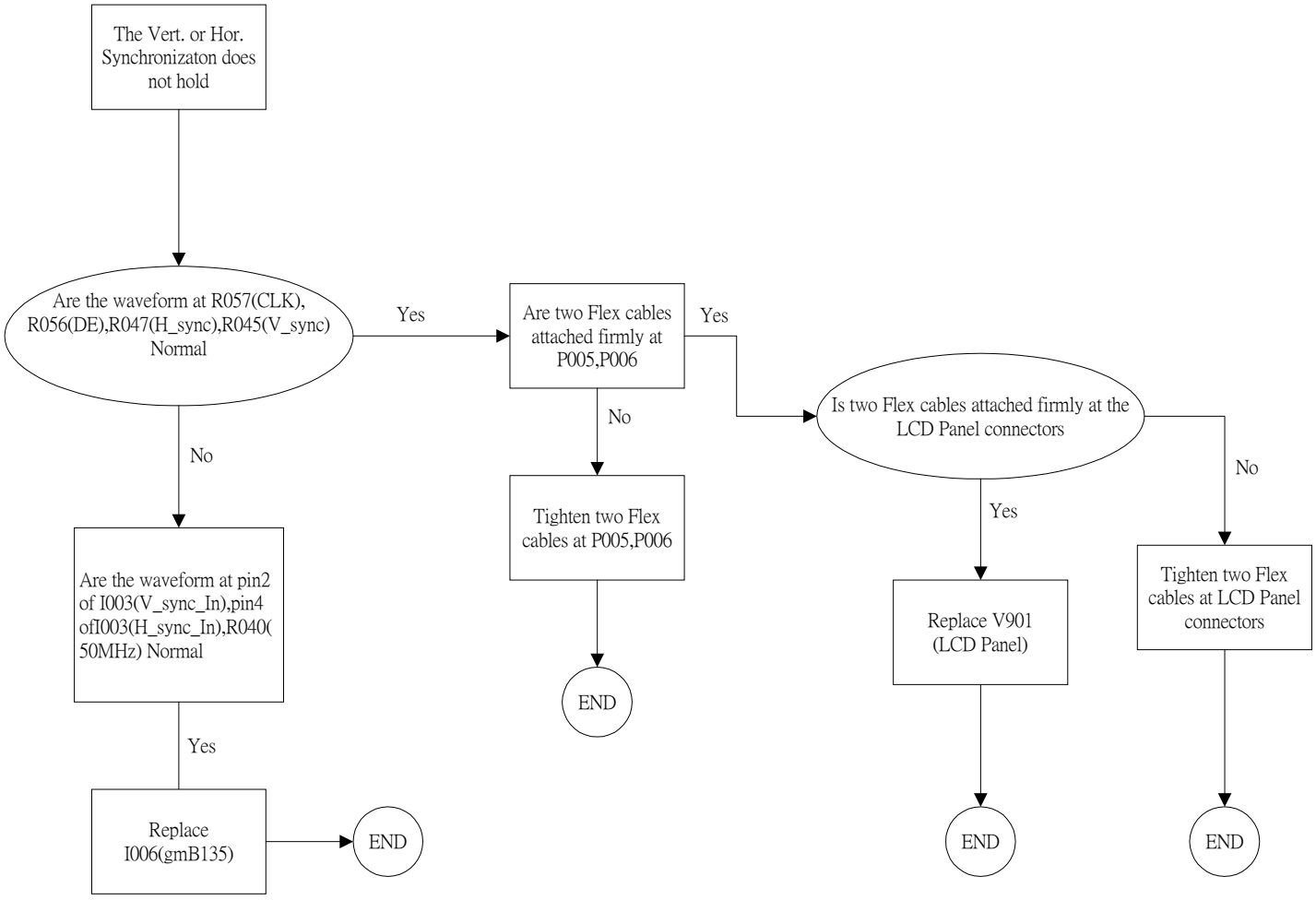
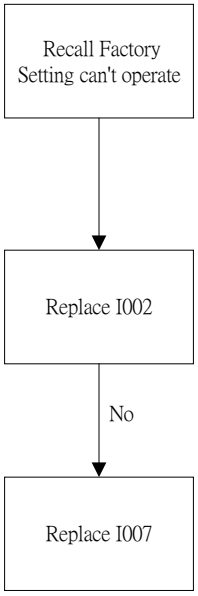
Rev
NO
UPDATE
Filename
SI

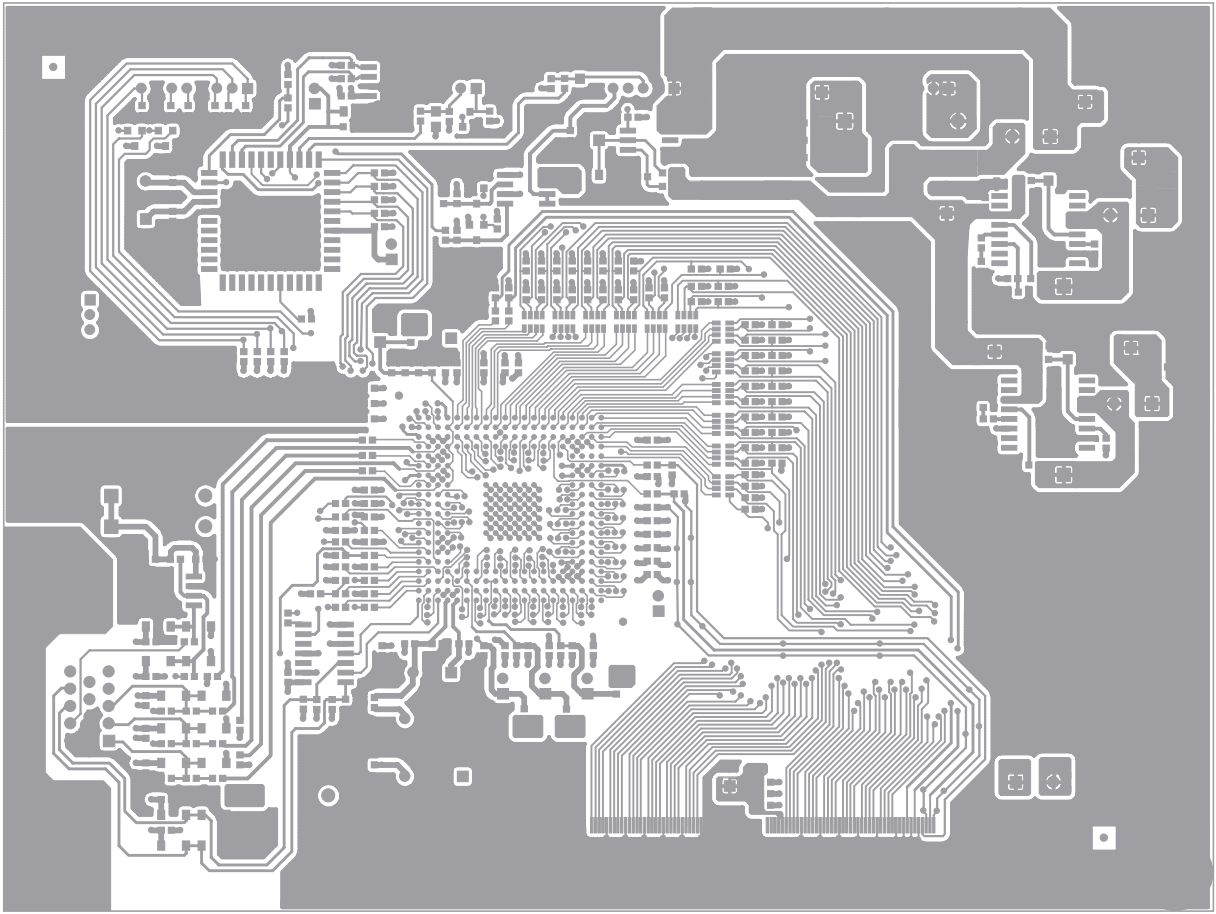
Appendix E. Troubleshooting Flow Chart(1)

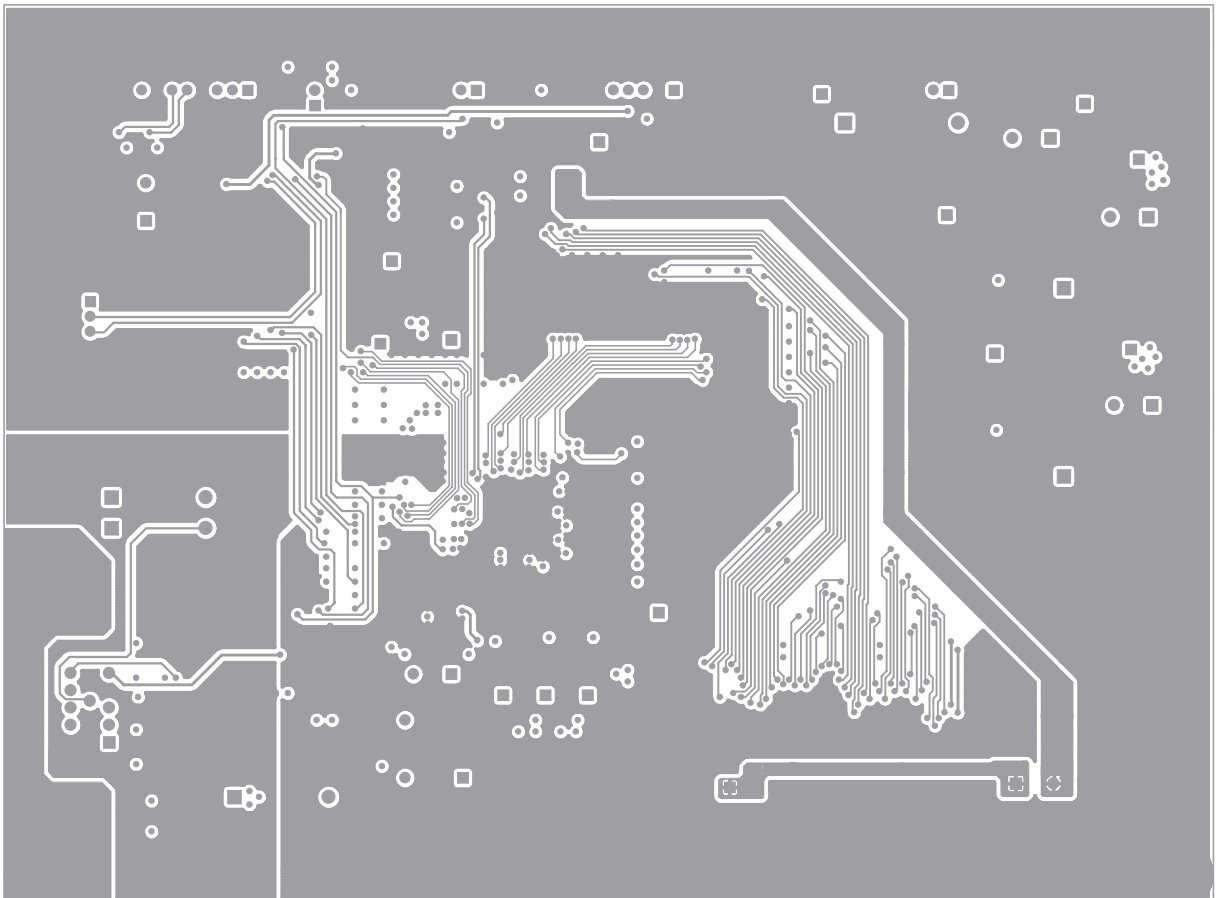


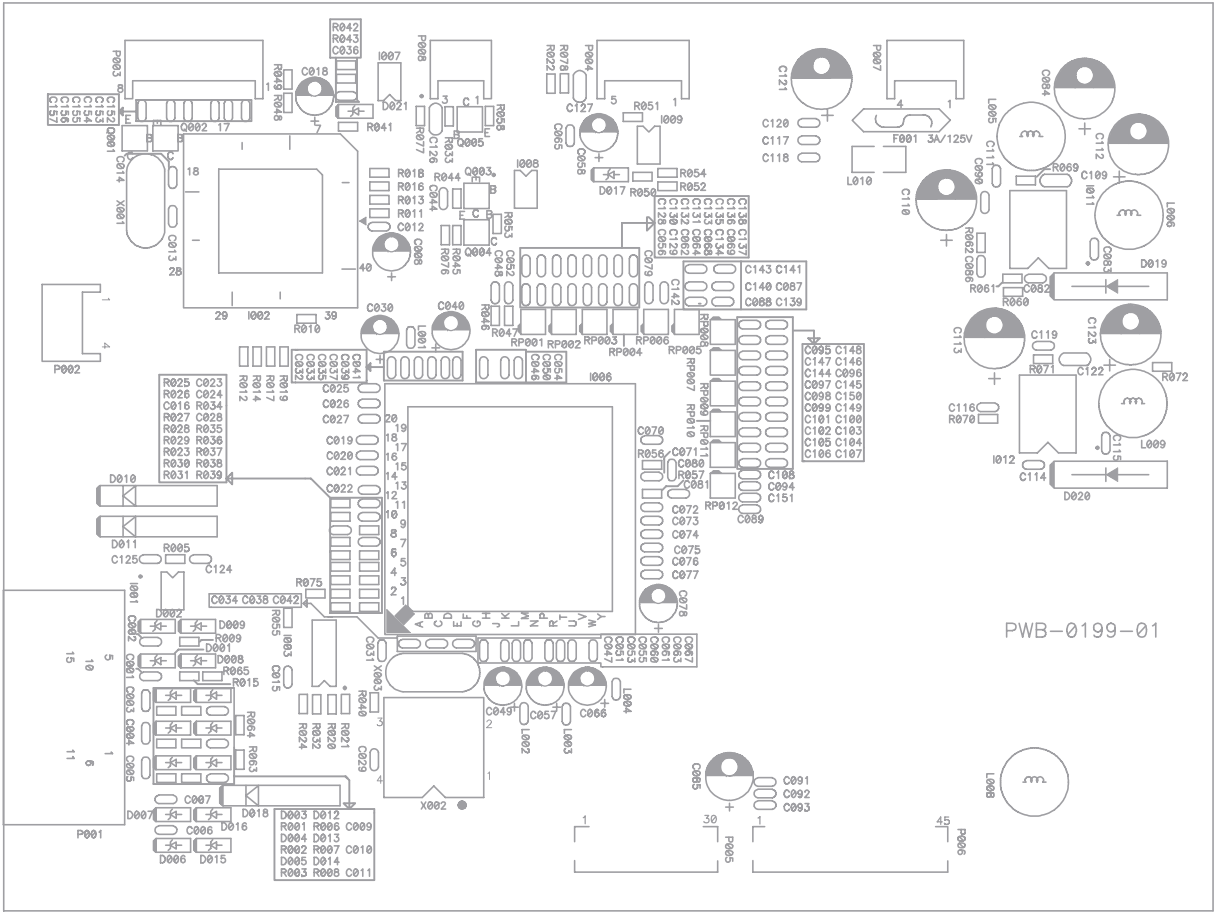
Appendix E. Troubleshooting Flow Chart(2)







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F001 3A/125V
P001
P002
P003
P004
P005
P006
P007
P008
X001
X002
Q001
Q002
Q003
Q004
Q005
D001
D002
D003 D012
R001 R006 C009
R004 D013
R002 R007 C010
D005 D014
R003 R008 C011
D006 D015
D007
D016
D018
D019
D020
L001
L002
L003
L004
L005
L006
L008
L009
I001
I002
I003
I004
I005
I006
I007
I008
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