

# Service Service Service



# Service Manual



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**CLASS 1  
LASER PRODUCT**

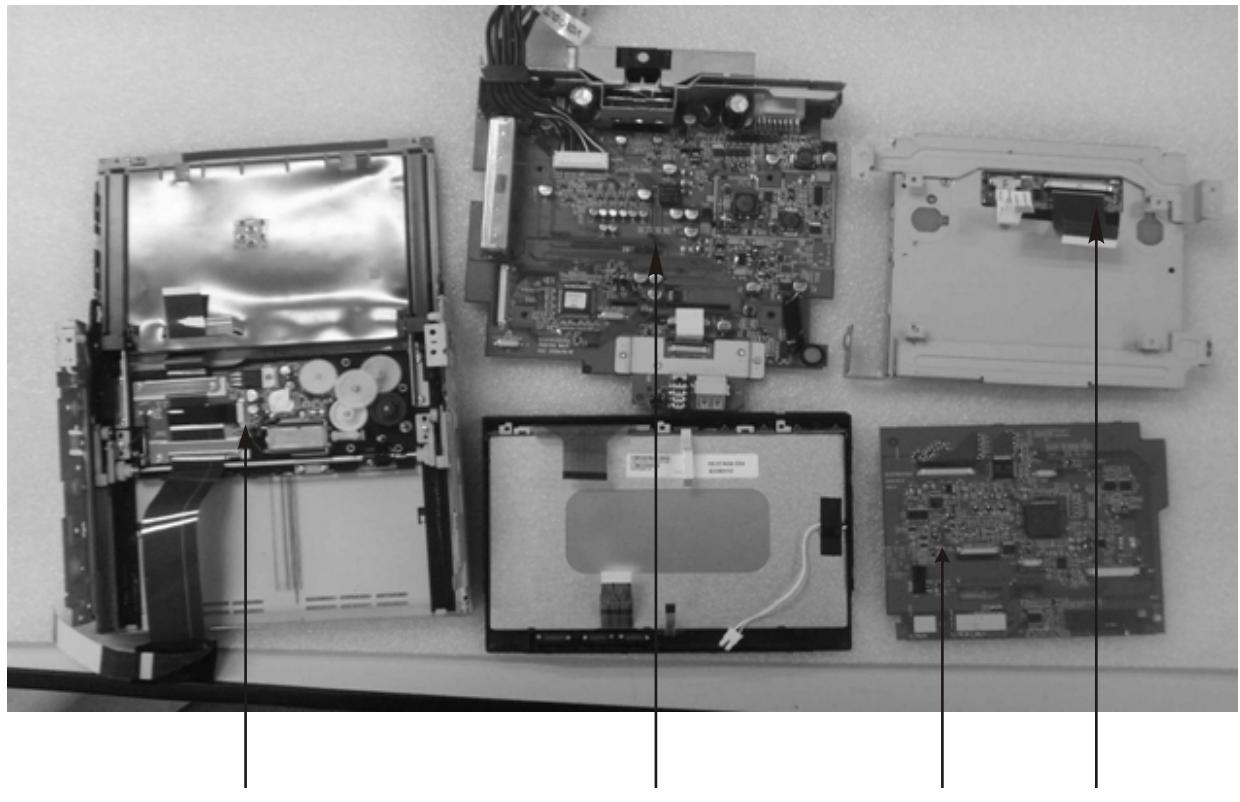
3141 785 33263

**Version 1.3**



**PHILIPS**

## Location of PCBs



## VERSION VARIATIONS:

## Specifications

### General

Power supply:	12V DC(11V-16V) negative ground
Fuse:	15A
Suitable speaker impedance:	4-8Ω
Maximum power output:	50W×4channels
Continuous power out:	24W×4channels(4Ω 10% T.H.D.)
Pre-Amp output voltage:	2.0V(CD play mode;1kHz,0dB,10kΩ load)
Subwoofer output voltage:	2.0V(CD play mode)
Aux-in level:	≥500mV
Dimensions(W×H×D):	188×58×193mm
Weight:	2.5kg

### Disc Player

System:	Disc digital audio system
Frequency response:	20Hz-20k Hz
Signal/noise ratio:	> 75dB
Total harmonic distortion:	Less than 0.3%(1KHz)
Channel separation:	> 55dB
Video signal for mat:	NTSC/PAL/AUTO
Video output:	1+/0.2V

### LCD

Screen size:	7inches(16:9)
Display resolution:	480×234 dots
Active area:	154.08×86.58mm
Dot pitch:	0.107×0.370mm
Contrast ratio:	350
Brightness:	200cd/m

### Bluetooth

Communication system:	Bluetooth Standard version 2.0
Output:	Bluetooth Standard Power Classer 2
Maximum communication range:	Line of sight approx.10m
Frequency band:	2.4GHz band(2.4000GHz-2.4835GHz)
Modulation method:	FHSS
Compatible	Hands-Free Profile(HFP)
bluetooth	Hands-Free Profile(HFP)
profiles	Advanced Audio
	Distribution Profile(A2DP)
	Audio Video Remote
	Control Profile(AVRCP)
Supported	SBC(Sub Band Codec),MP3
codecs	SBC(Sub Band Codec)
Receive	
Transmit	

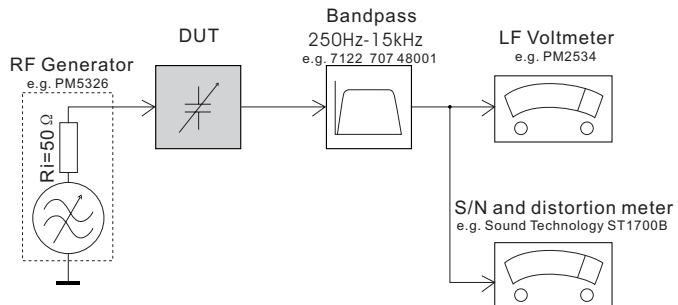
### Tuner

Frequency range —FM	87.5-108.0MHz(Eur) 65.0-74.0MHz (OIRT)
	87.5-107.9MHz(Ame)
Frequency range —AM(MW)	522-1620KHz(Eur)
	530-1710MHz(Ame)
Usable sensitivity —FM	8uV
Usable sensitivity —AM(MW)(S/N=20db)	30uV
Frequency response	30Hz-15KHz
Stereo separation	30db(1KHz)
Signal/noise ratio	> 55db

Note: Specifications and design are subject to change without notice for product improvements.

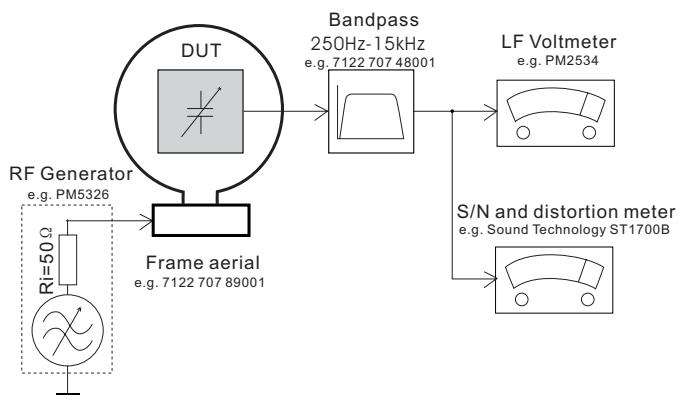
## MEASUREMENT SETUP

### Tuner FM



Use a bandpass filter to eliminate hum(50Hz,100Hz) and disturbance from the pilottone(19kHz,38kHz).

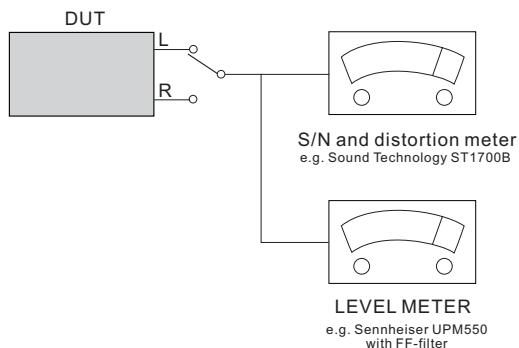
### Tuner AM (MW,LW)



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage.  
Use a bandpass filter ( or at least a high pass filter with 250Hz) to eliminate hum ( 50Hz,100Hz ).

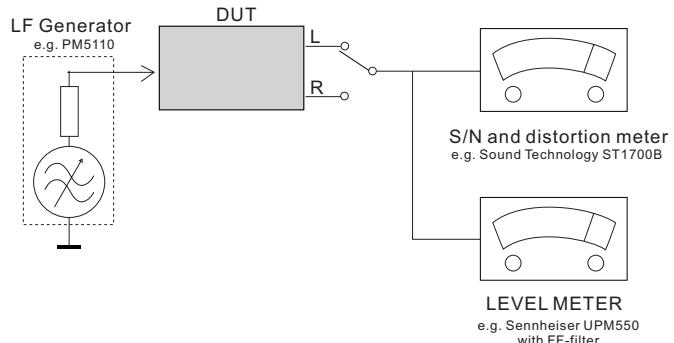
### CD

Use Audio Signal Disc SBC429 4822 397 30184  
(replaces test disc 3)



### Cassette

Use Universal Test Cassette CrO2 SBC419 4822 397 30069  
or Universal Test Cassette Fe SBC420 4822 397 30071



## SERVICE AIDS

### (GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.

Keep components and tools also at this potential.

### ESD



### (GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used

Safety components are marked by the symbol .

**CLASS 1  
LASER PRODUCT**

## INFORMATION ABOUT LEAD-FREE SOLDERING

Philips CE is producing lead-free sets from 1.1.2005 onwards.

### IDENTIFICATION:

Regardless of special logo (not always indicated) one must treat all sets from 1 Jan 2005 onwards, according next rules:



- On our website [www.atyourservice.ce.Philips.com](http://www.atyourservice.ce.Philips.com) you find more information to:
  - \* BGA-de-/soldering (+ baking instructions)
  - \* Heating-profiles of BGAs and other ICs used in Philips-sets
  - \* Lead free

You will find this and more technical information within the "magazine", chapter "workshop news".

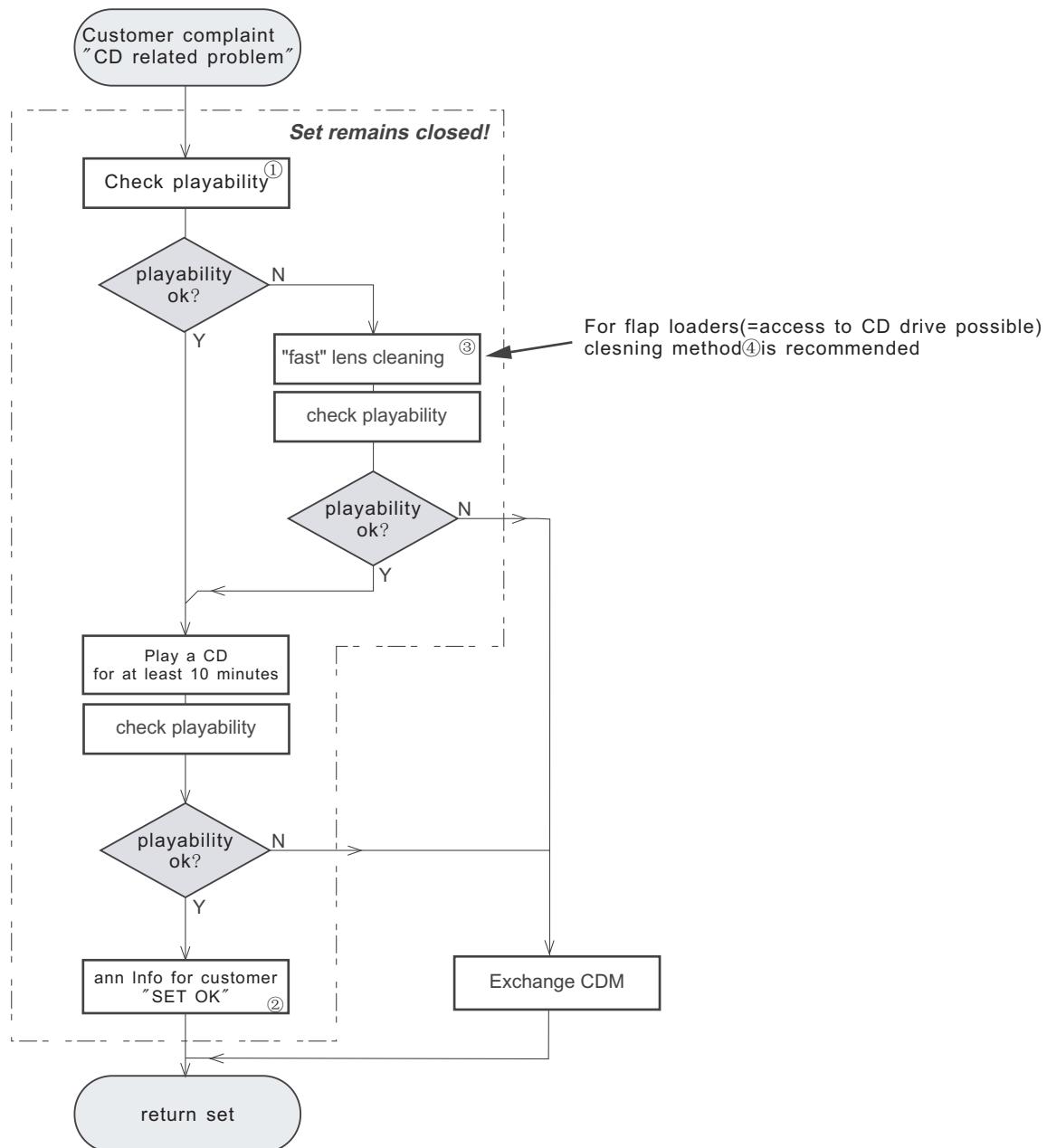
For additional questions please contact your local repair-helpdesk.

## SERVICE INSTRUCTION

Safety regulations require that after a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the AC Power lead for external damage.
- Check the strain relief of the AC Power cord for proper function.
- Check the electrical DC resistance between the AC Power Plug and the secondary side (only for sets which have a AC Power isolated power supply):
- 1. Unplug the AC Power cord and connect a wire between the two pins of the AC Power plug.
- 2. Set the AC Power switch to the "on" position (keep the AC Power cord unplugged!).
- 3. Measure the resistance value between the pins of the AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be larger than 4.5 Mohm (For U.S. it should be between 4.2 Mohm and 12 Mohm).
- 4. Switch "off" the set, and remove the wire between the two pins of the AC Power plug.
- Check the cabinet for defects, to avoid touching of any inner parts by the customer.

## INSTRUCTIONS ON CD PLAYABILITY



①-④For description-see following pages

## INSTRUCTIONS ON CD PLAYABILITY

(1)

### PLAYABILITY CHECK

For sets which are compatible with **CD-RW** discs  
use CD-RW Printed Audio Disc ..... 7104 099 96611  
TR 3 (Fingerprint)  
TR 8 (600 $\mu$  Black dot) **maximum at 01:00**

- playback of these two tracks without audible disturbance  
playing time for: Fingerprint  $\geq$  10seconds  
Black dot from 00:50 to 01:10
- jump forward/backward (search) within a reasonable time

For all other sets  
use CD-DA SBC 444A ..... 4822 397 30245  
TR 14 (600 $\mu$  Black dot) **maximum at 01:15**  
TR 19 (Fingerprint)  
TR 10 (1000 $\mu$  wedge)

- playback of all these tracks without audible disturbance  
playing time for: 1000 $\mu$  wedge  $\geq$  10seconds  
Fingerprint  $\geq$  10seconds  
Black dot from 01:05 to 01:25
- jump forward/backward (search) within a reasonable time

(2)

### CUSTOMER INFORMATION

It is proposed to add an addendum sheet to the set which informs the customer that the set has been checked carefully - but no fault was found.  
The problem was obviously caused by a scratched, dirty or copy-protected CD. In case problems remain, the customer is requested to contact the workshop directly.  
The lens cleaning (method ③) should be mentioned in the addendum sheet.

The final wording in national language as well as the printing is under responsibility of the Regional Service Organizations.

(4)

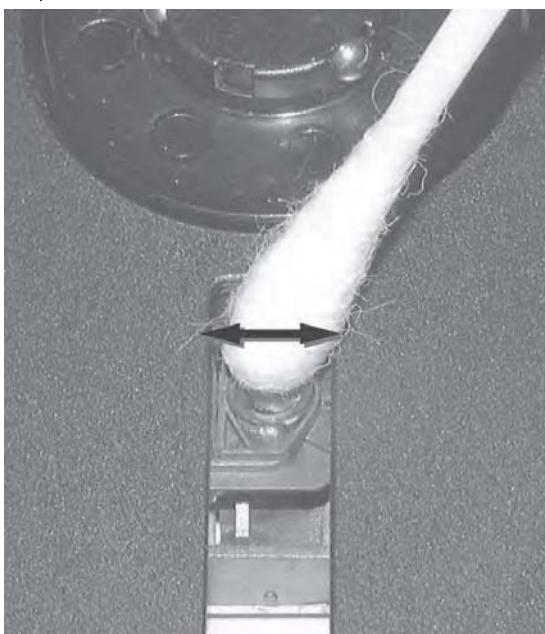
### LIQUID LENS CLEANING

Before touching the lens it is advised to clean the surface of the lens by blowing clean air over it.  
This to avoid that little particles make scratches on the lens.

Because the material of the lens is synthetic and coated with a special anti-reflectivity layer, cleaning must be done with a non-aggressive cleaning fluid. It is advised to use "Cleaning Solvent"

The actuator is a very precise mechanical component and may not be damaged in order to guarantee its full function. Clean the lens gently (don't press too hard) with a soft and clean cotton bud moistened with the special lens cleaner.

The direction of cleaning must be in the way as indicated in the picture below.

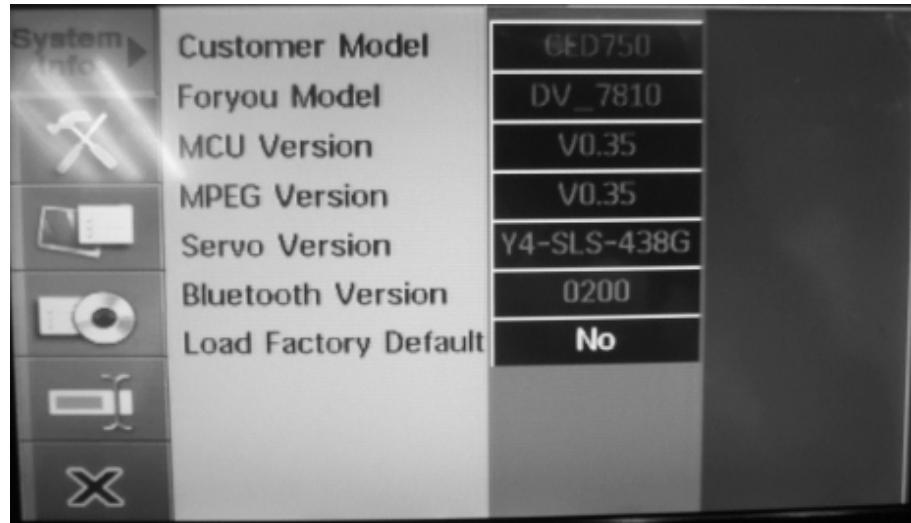


2-1

### Software version check & upgrade

#### Software version check

Open the Settings menu, and then press the numeric keys ?43210?on the remote control in turn. A picture contained version information will be displayed.

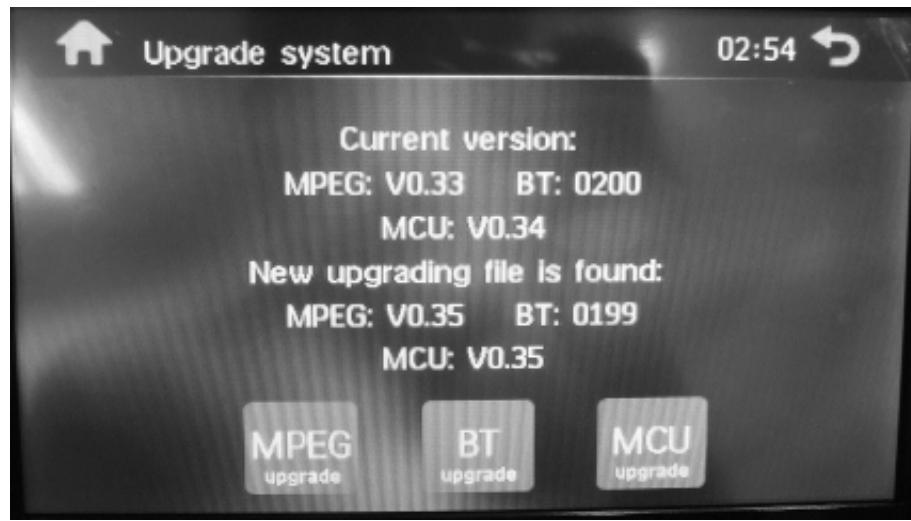


#### MPEG upgrade

1. First, copy the upgrade files to SD card or USB storage device. To ensure success, add some media files larger than 8M such as MP3 to the storage device meanwhile.

Upgrade Files: MPEG.BIN MCU.BIN BT.BIN

2. Insert the storage device contained upgrade files into the player and the player will load the upgrade files automatically. Following picture will be displayed.

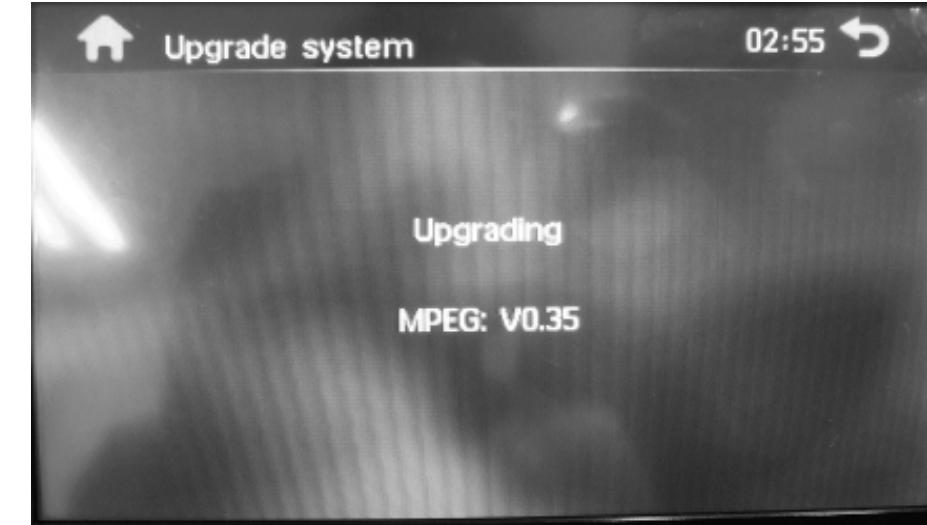


3. Following picture will be displayed after you select the 'MPEG upgrade' option.

2-1



4. Touch 'upgrade' to start upgrade process and following picture will be displayed. Meanwhile, Beep tone can be heard during the upgrade process.



#### BT upgrade

1. First, copy the upgrade files to SD card or USB storage device. To ensure success, add some media files larger than 8M such as MP3 to the storage device meanwhile.

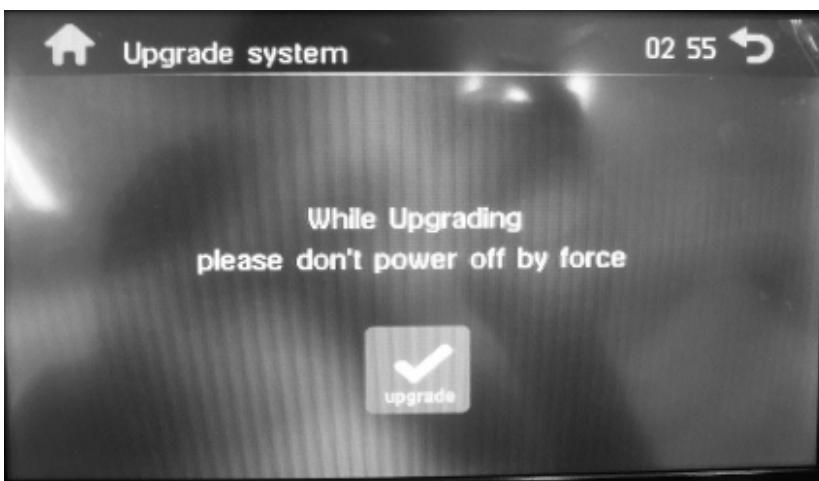
Upgrade Files: MPEG.BIN MCU.BIN BT.BIN

2. Insert the storage device contained upgrade files into the player and the player will load the upgrade files automatically. Following picture will be displayed.

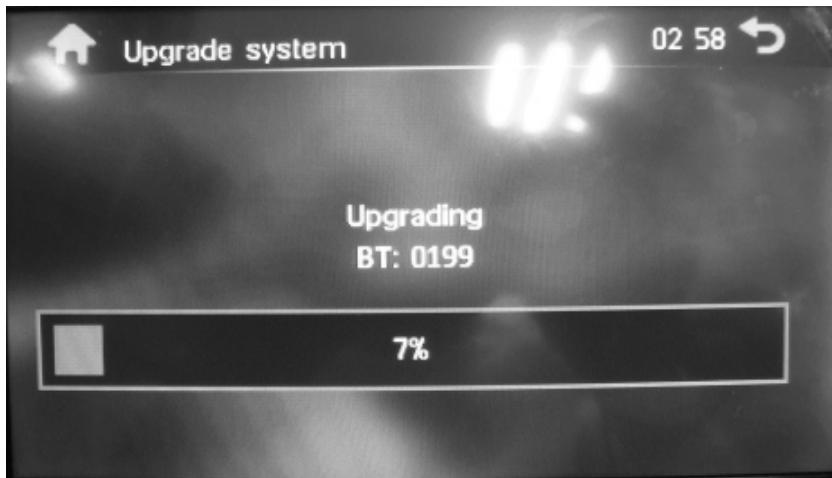
### Software version check & upgrade



3. Following picture will be displayed after you select the 'BT upgrade' option.



5. Touch 'Upgrade' to start upgrade process and following picture will be displayed.



#### MCU upgrade

1. First, copy the upgrade files to a SD card or USB storage device. To ensure success, add some media files larger than 8M such as MP3 to the storage device meanwhile.

Upgrade Files: MPEG.BIN MC.U.BIN BT.BIN

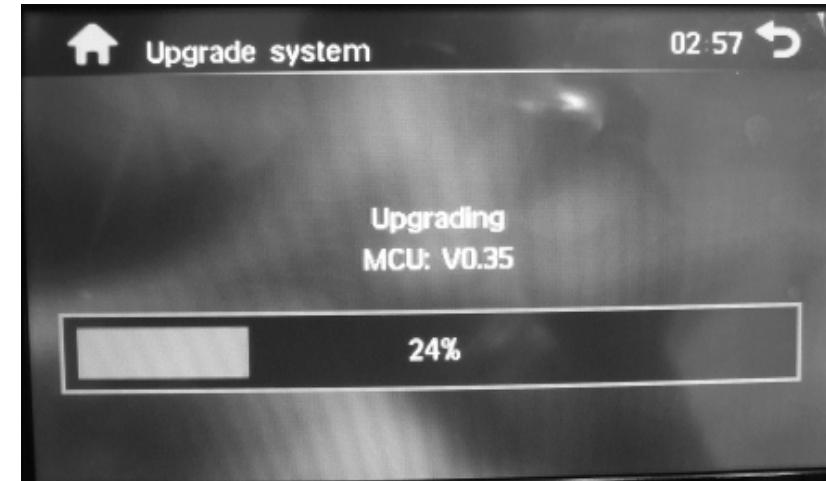
2. Insert the storage device contained upgrade files into the player and the player will load the upgrade files automatically. Following picture will be displayed.



3. Following picture will be displayed after you select the 'MCU upgrade' option.



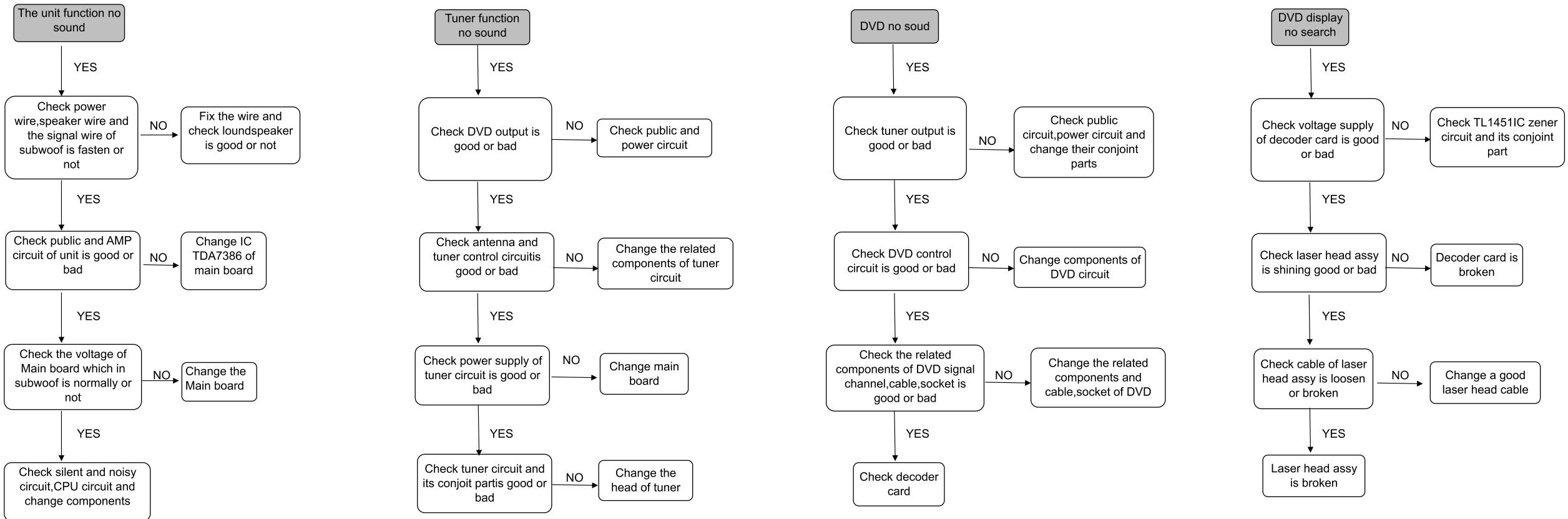
4. Touch 'Upgrade' to start upgrade process and following picture will be displayed.



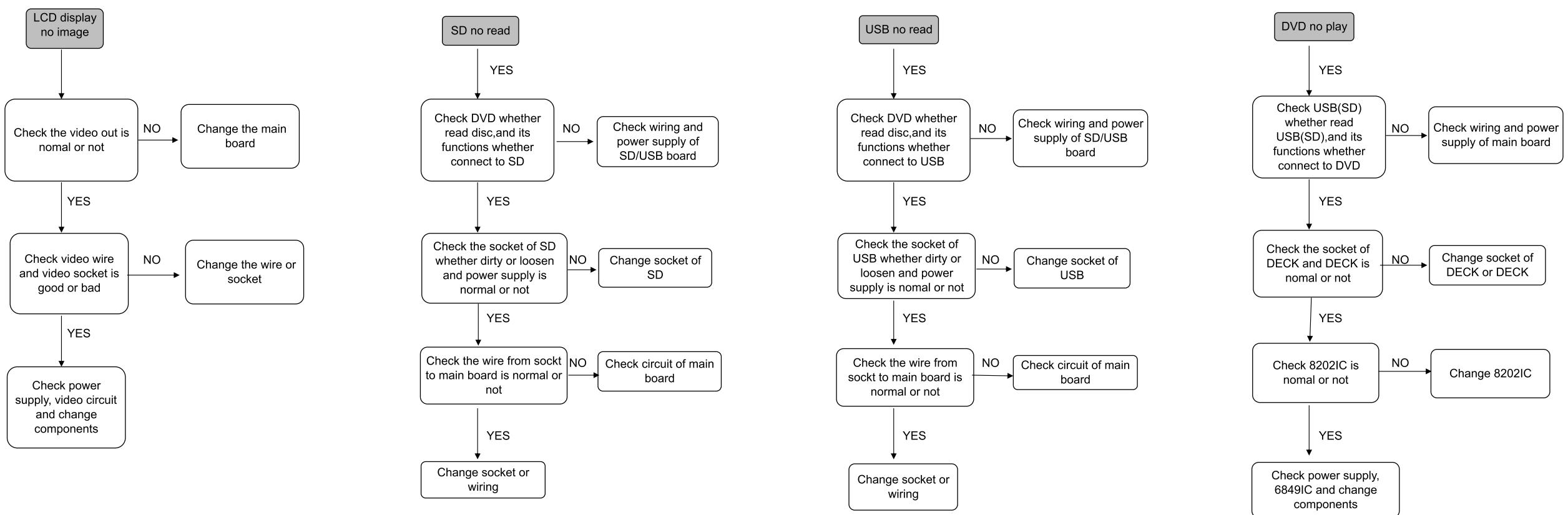
5. When the upgrade process of MCU has been done, the player will reset automatically and the whole upgrade process is done.

2-3

### Malfunction Check Chart



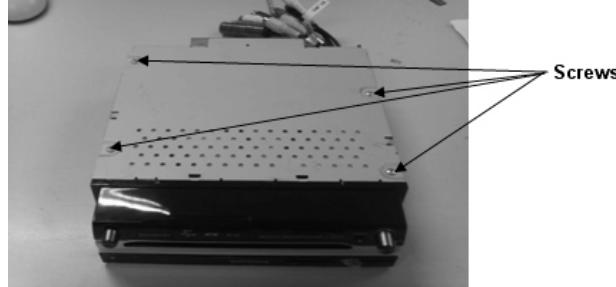
2-3



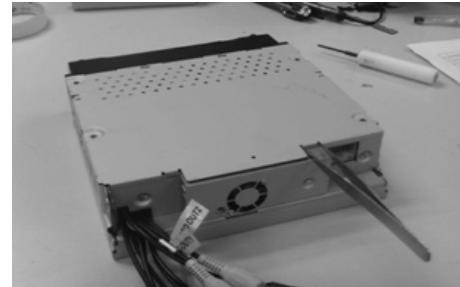
3-1

### Disassembly Diagram

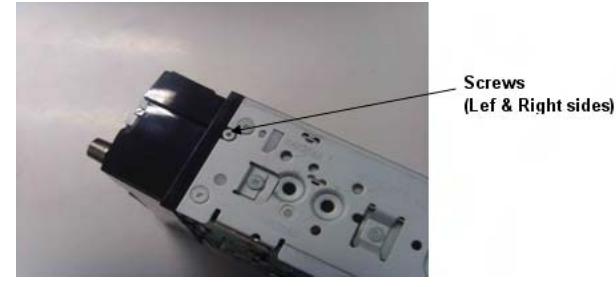
1. Loosen and take out the four screws with a screw-driver.



2. Take out the top cover with a forceps.



3. Loosen and take out the two screws with a screw-driver.



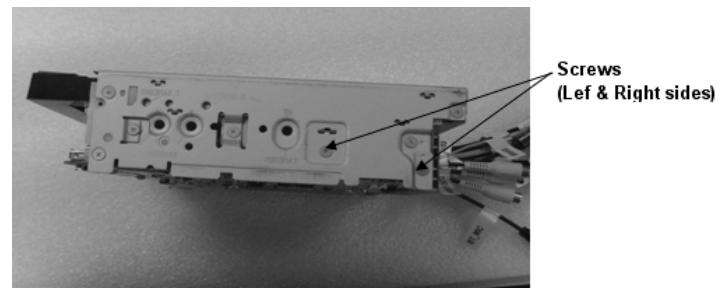
4. Take out the front panel.



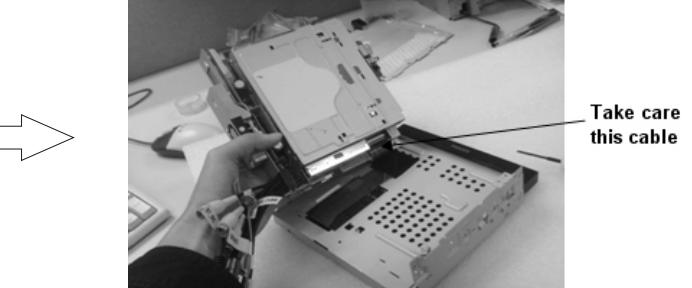
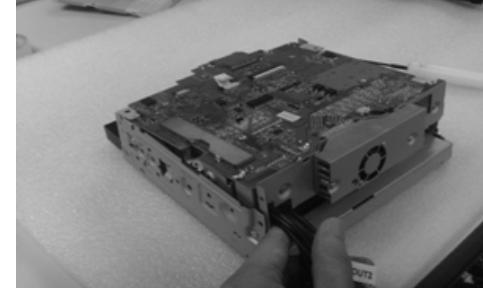
5. Take out the front panel.



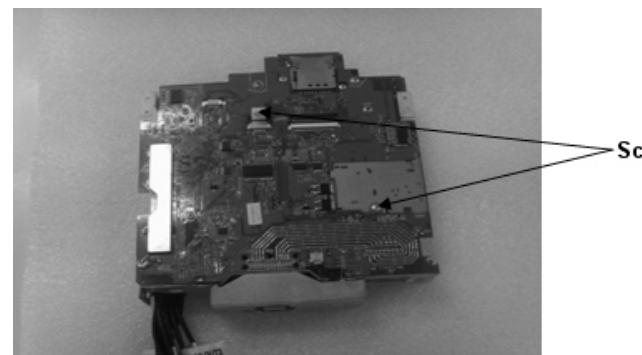
6. Loosen and take out the four screws with a screw-driver.



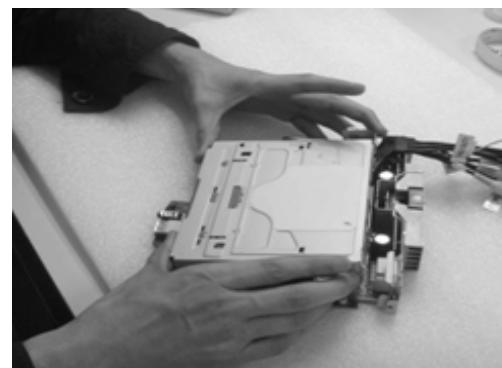
7. Take out the main board.



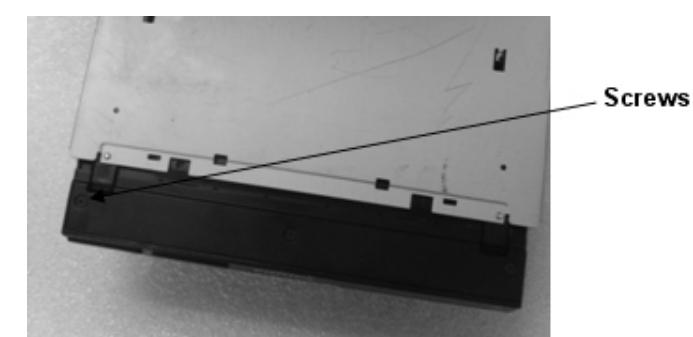
8. Pull out the two pieces of connection-peg to the loader carefully and take out the four screws fastened the loader with a screw-driver.



9. Take out the loader.



10. Take out the three screws fastened the top cover of the TFT monitor.



11. Take out the top cover of the TFT monitor.

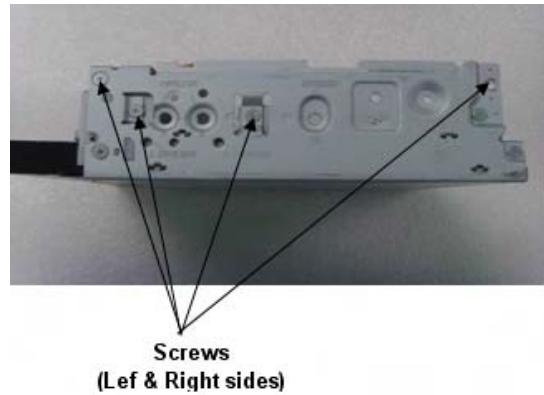


3-1

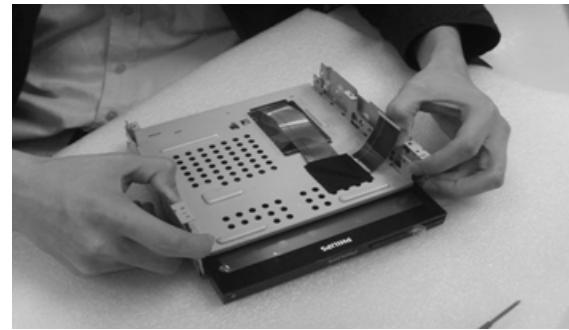
3-2

### Disassembly Diagram

12. Take out the eight screws fastened the underprop board.



12. Take out the eight screws fastened the underprop board.

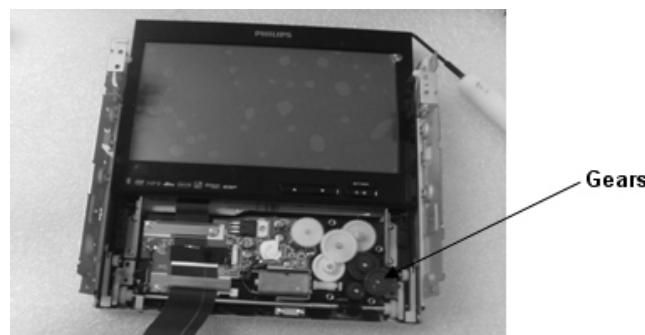


3-2

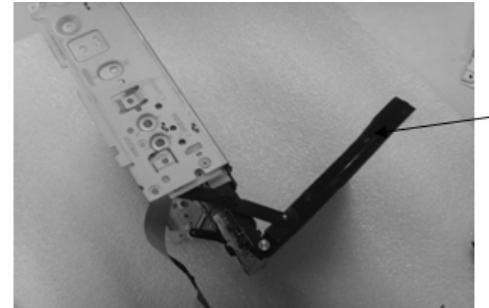
14. Take out the five screws fastened the gear board.



15. Take out the gears.



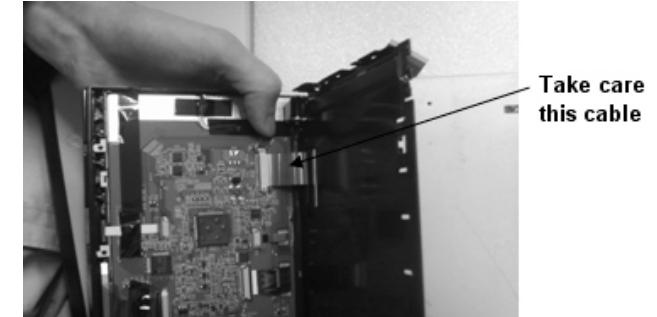
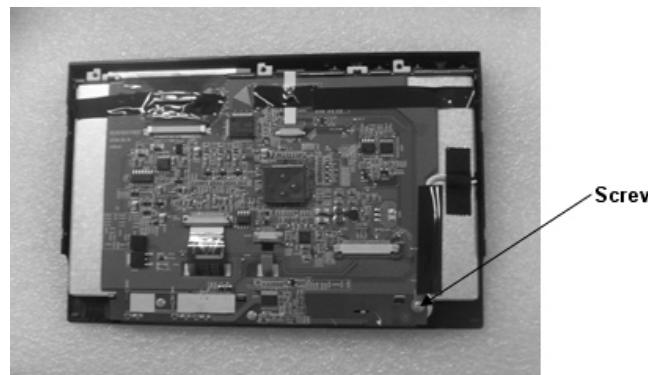
16. Loosen and take out the four screws with a screw-driver.



17. Take out the display module.

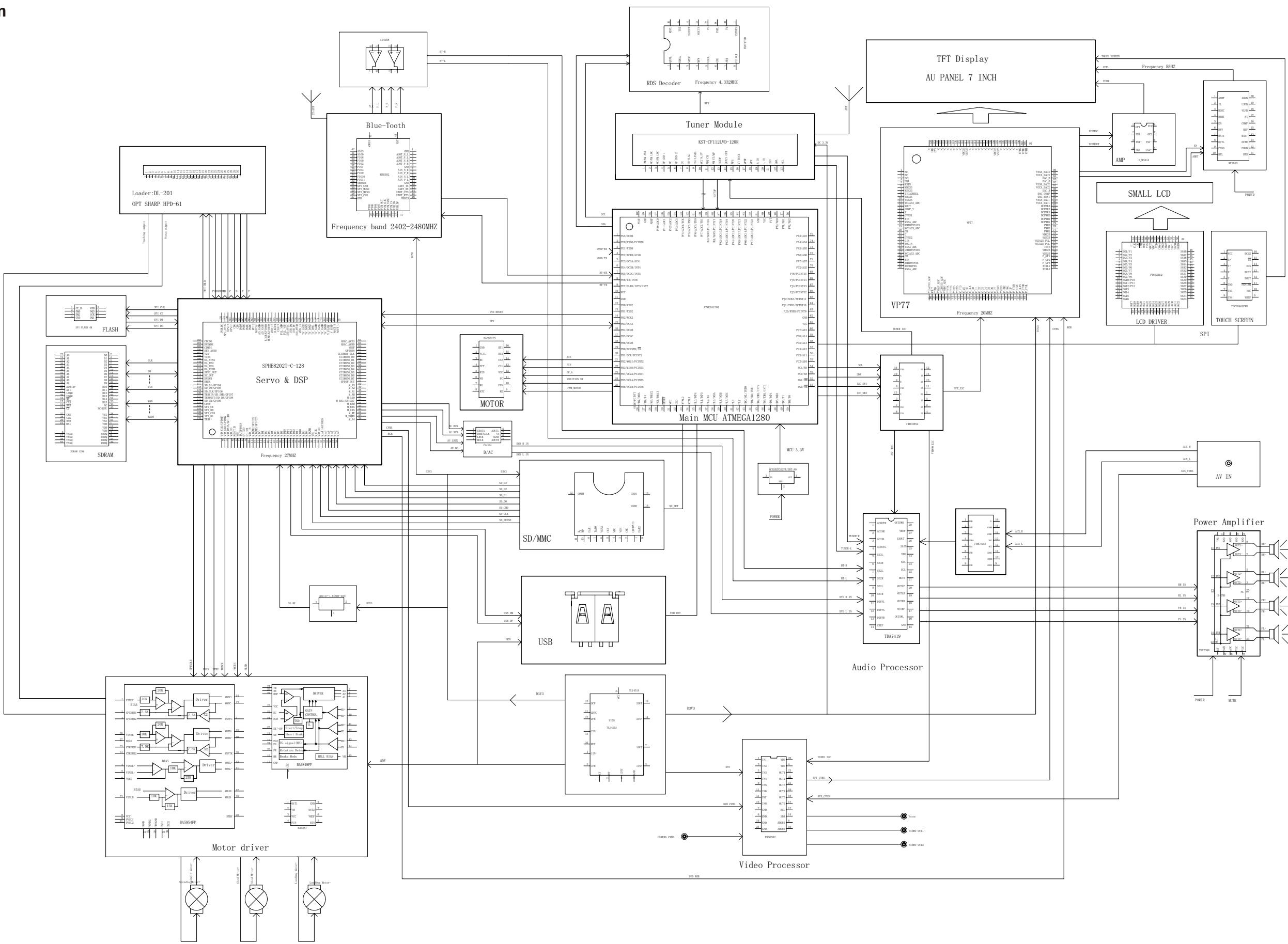


18. Take out the three screws fastened the TFT driver board and the connection-peg to take out the TFT driver board.



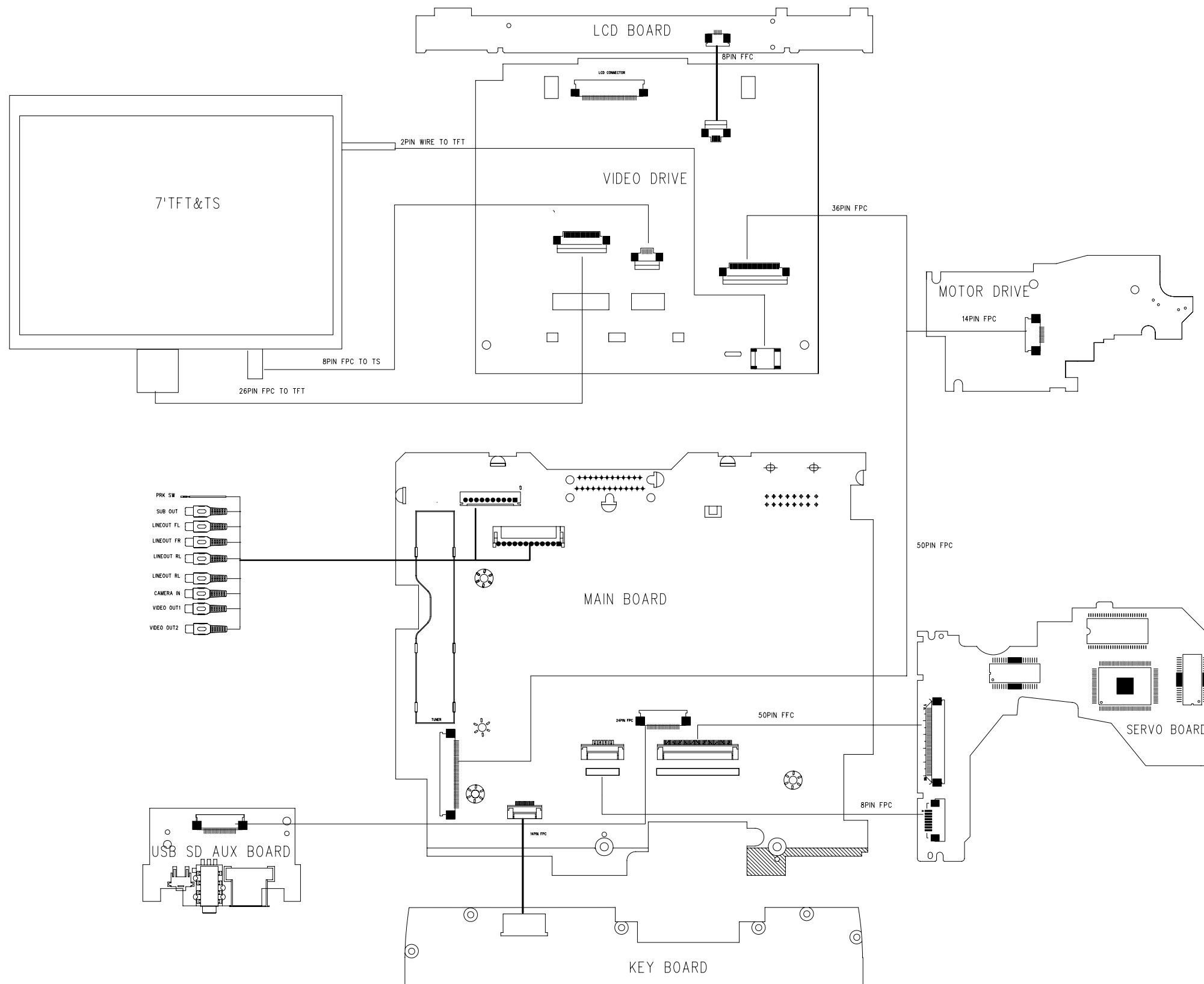
4-1

## Block Diagram



4-1

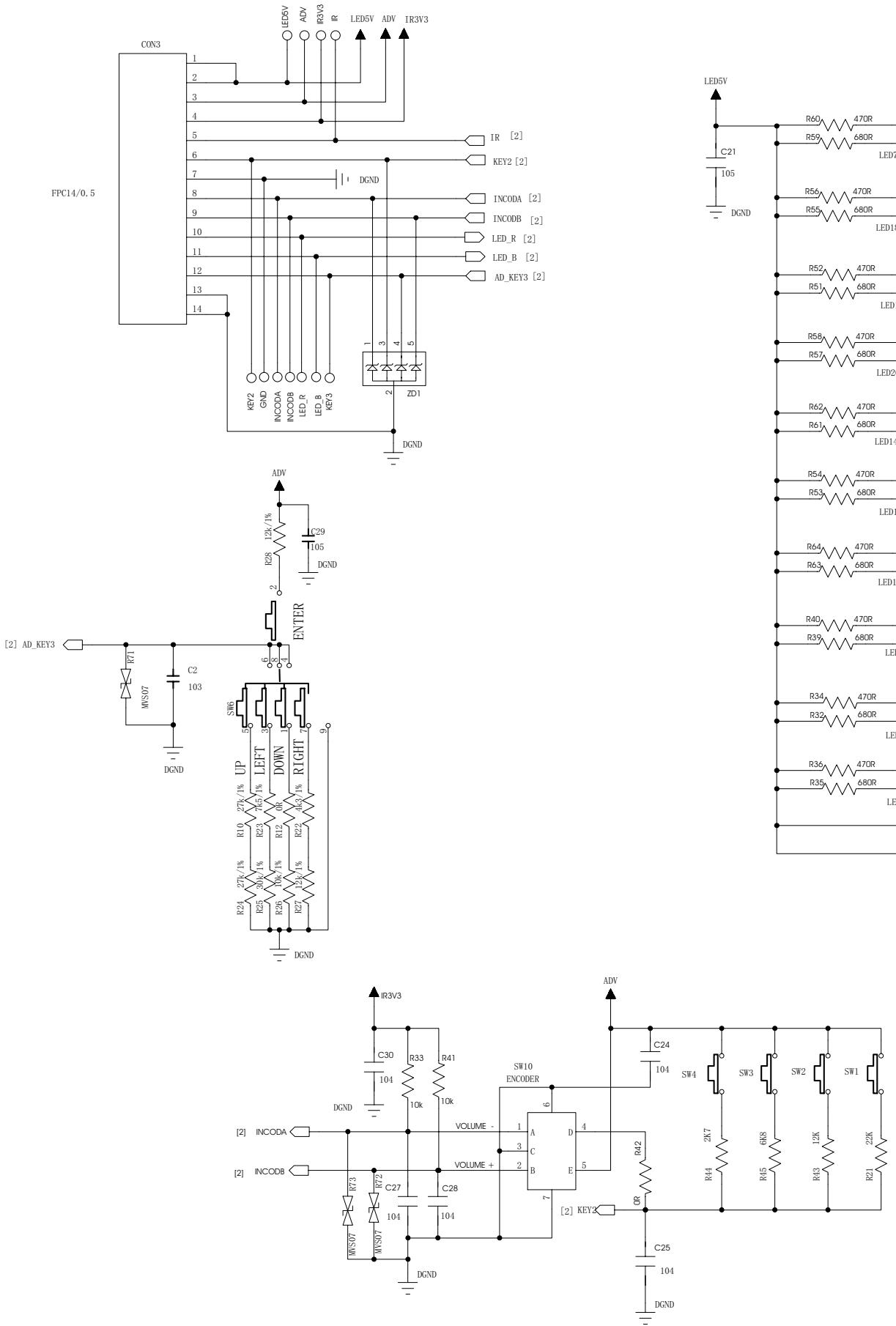
4-2

**Wiring Diagram**

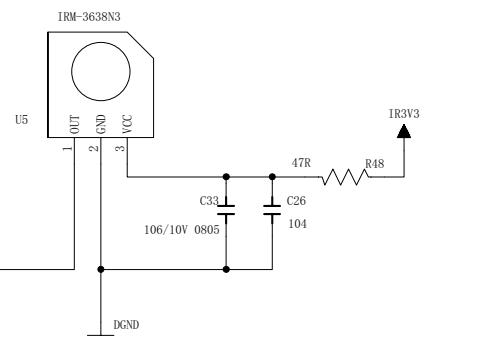
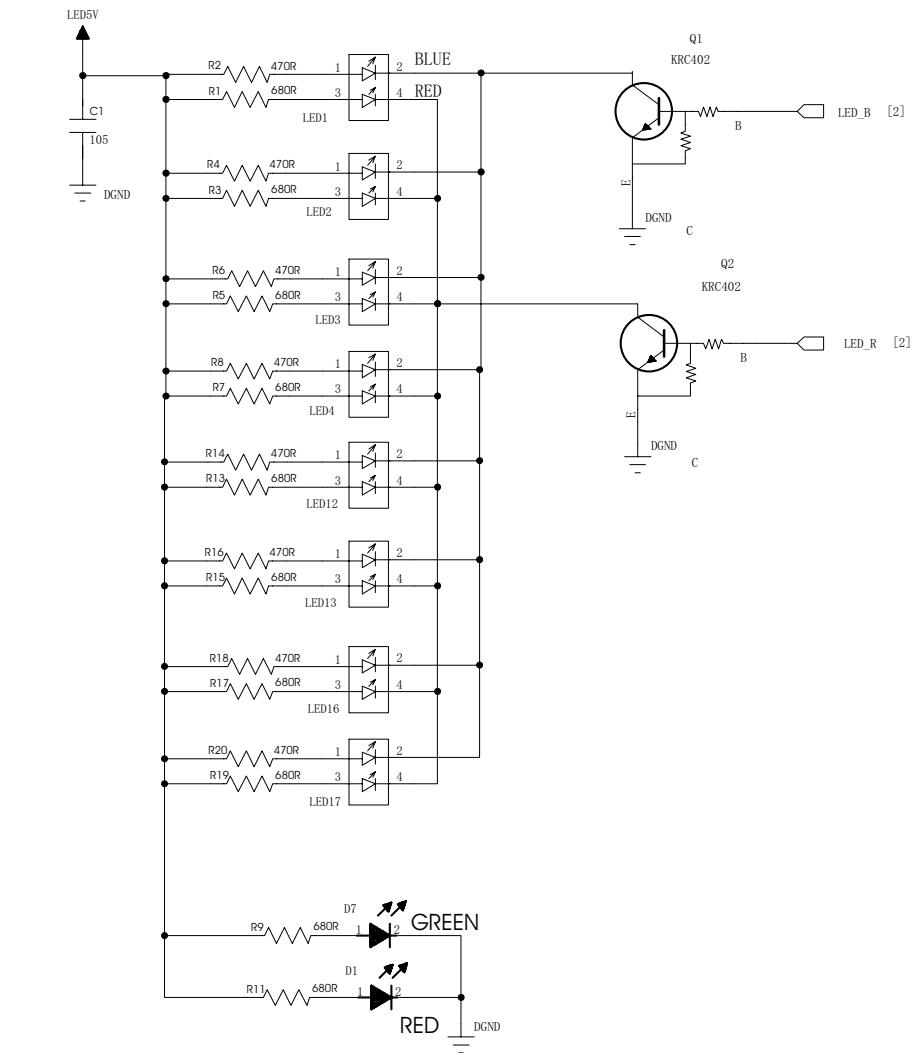
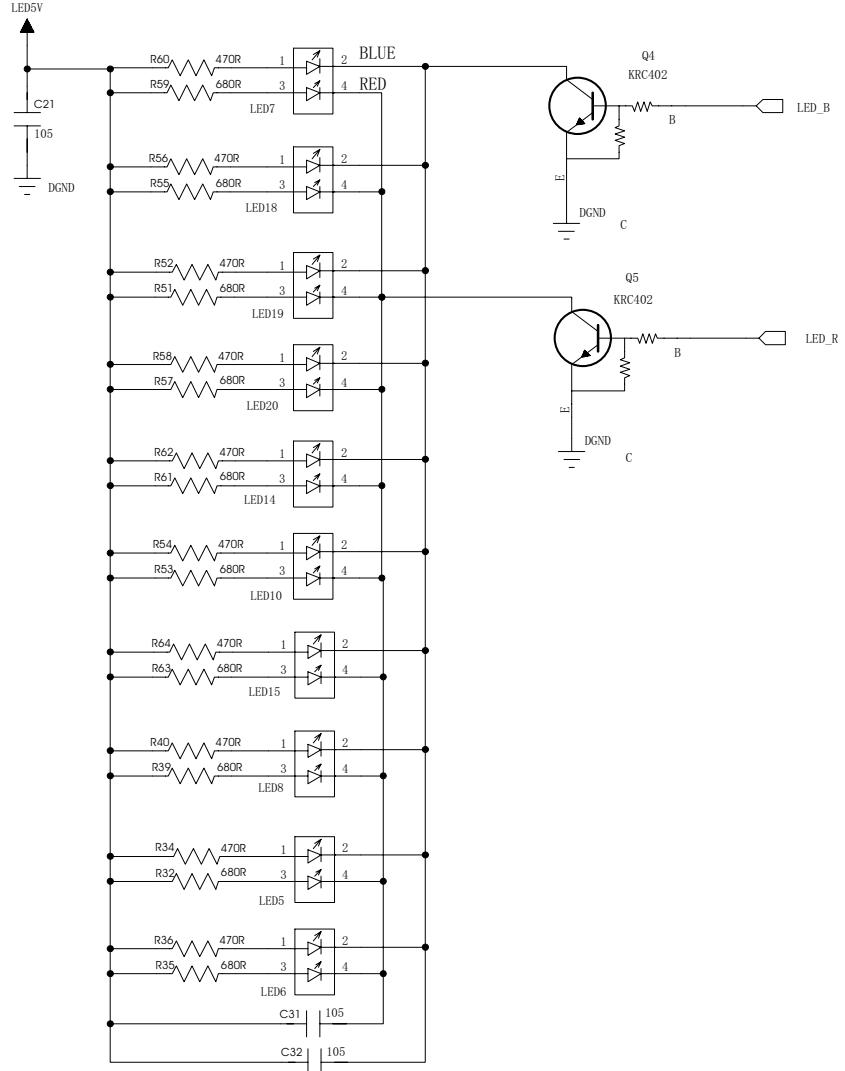
4-2

5-1

## KEY BOARD-Circuit Diagram



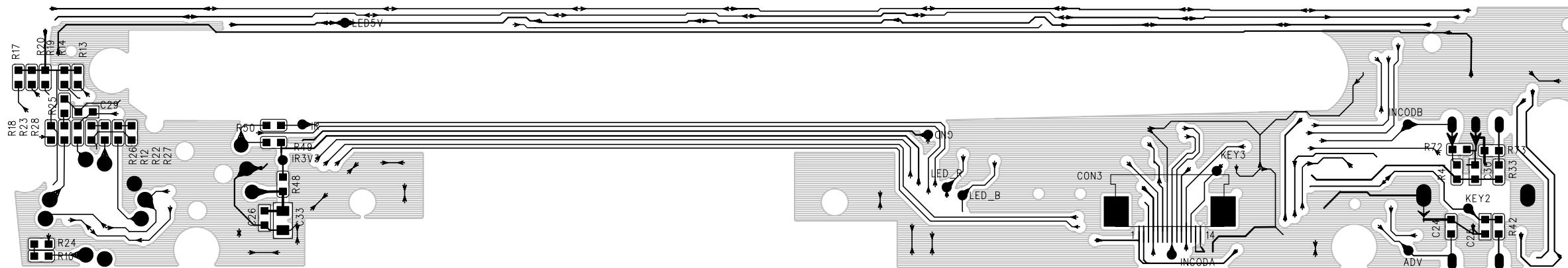
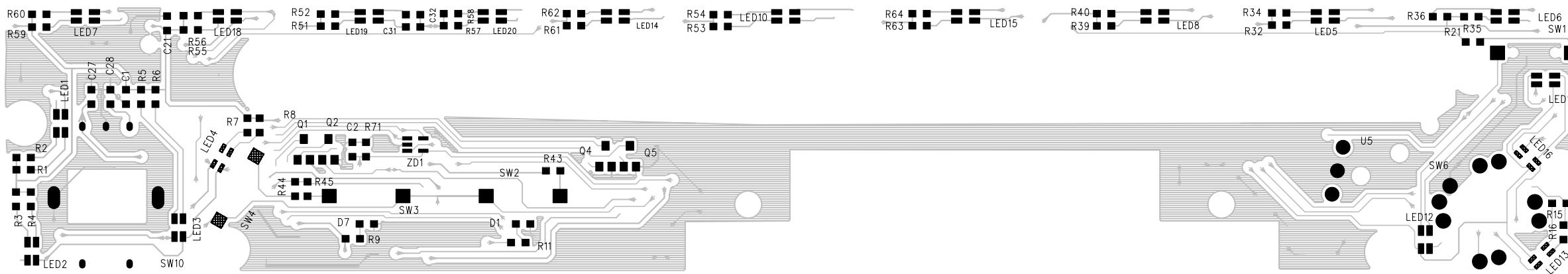
5-1



5-2

5-2

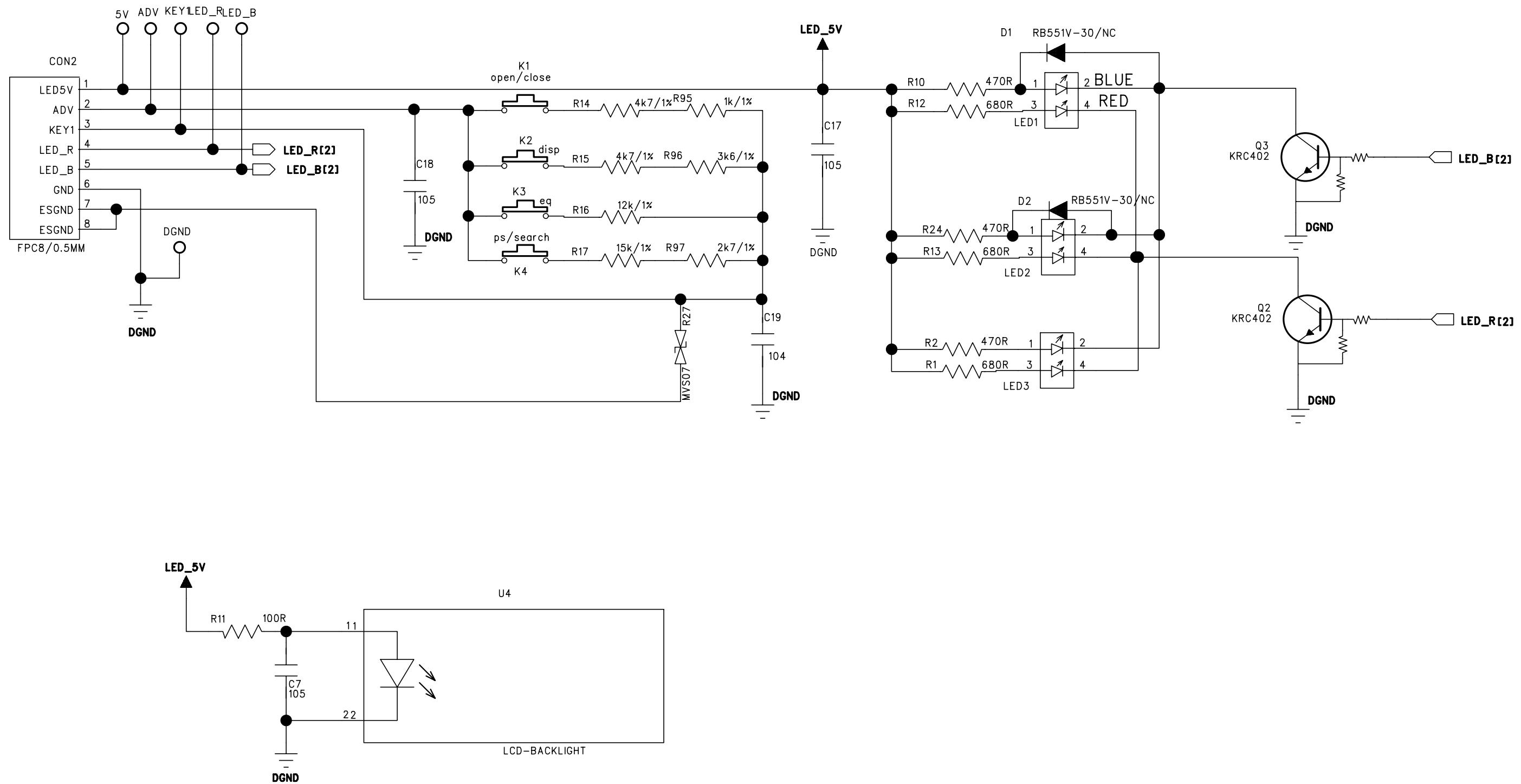
### KEY BOARD-Layout Diagram



6-1

**LCD BOARD-Circuit Diagram**

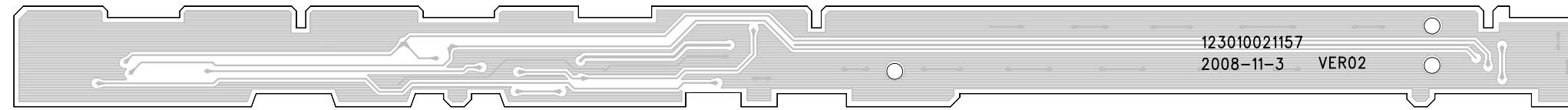
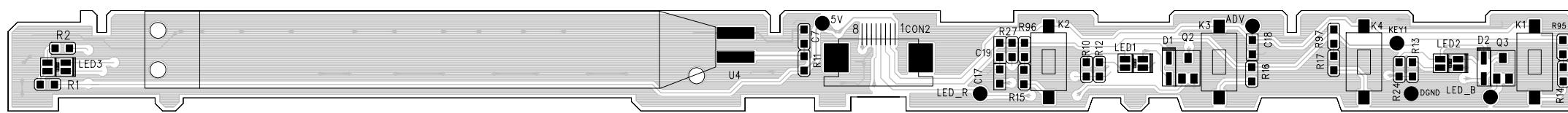
6-1



6-2

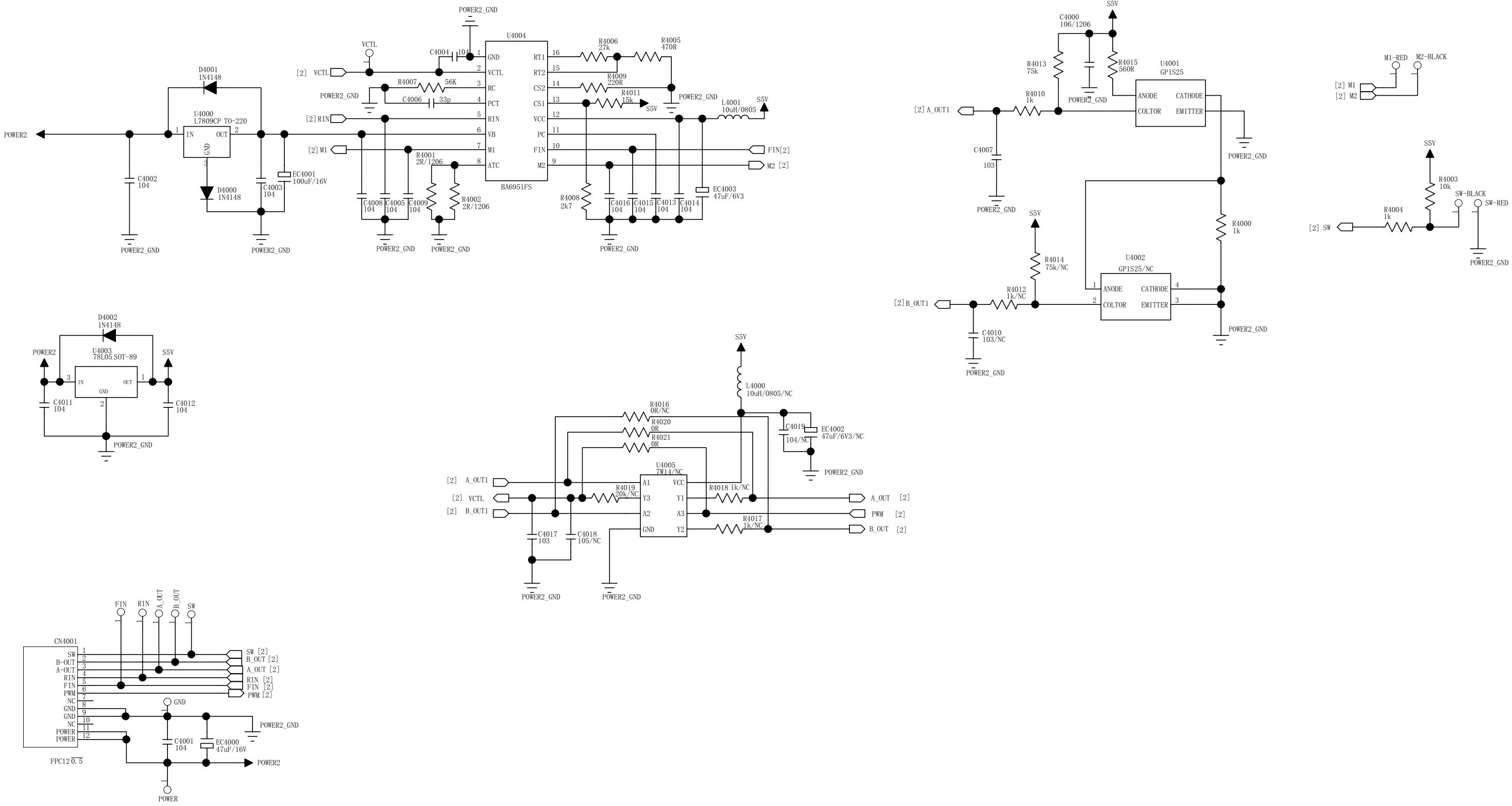
6-2

LCD BOARD-Layout Diagram



7-1

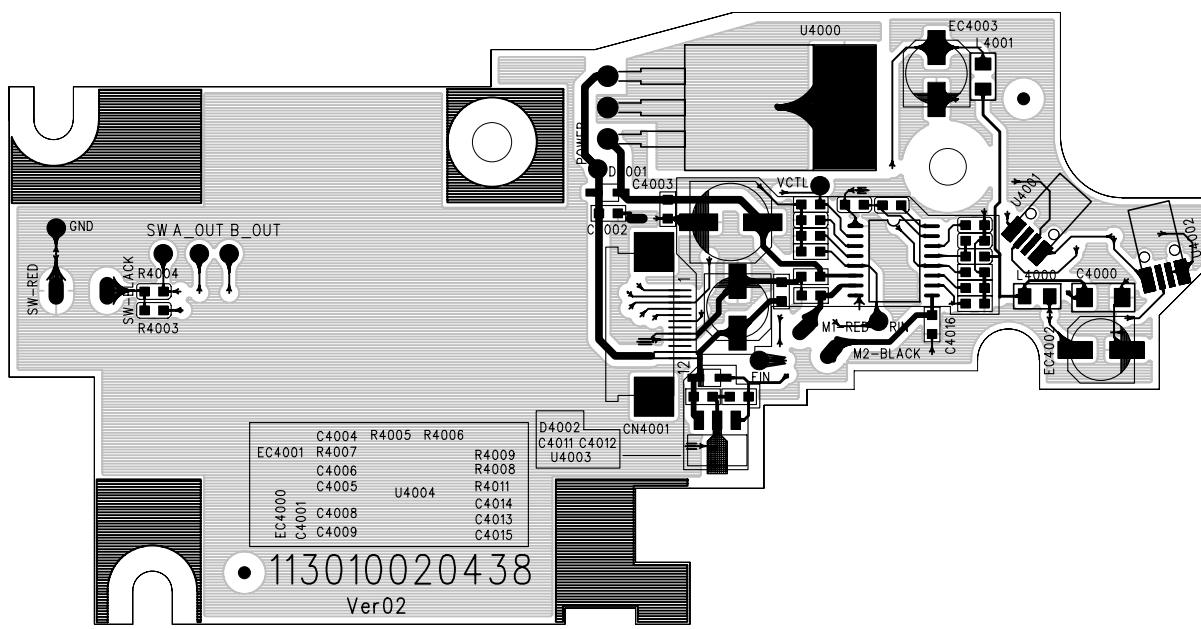
## MOTOR BOARD-Circuit Diagram



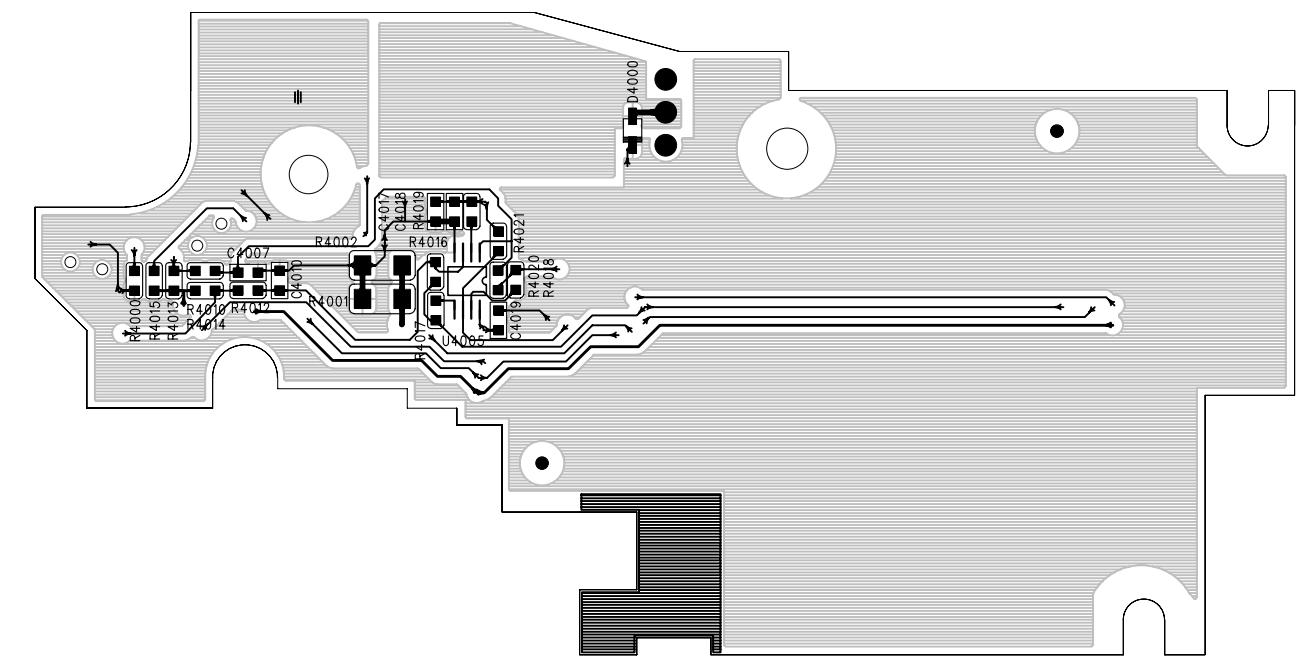
7-1

7-2

MOTOR BOARD-Layout Diagram

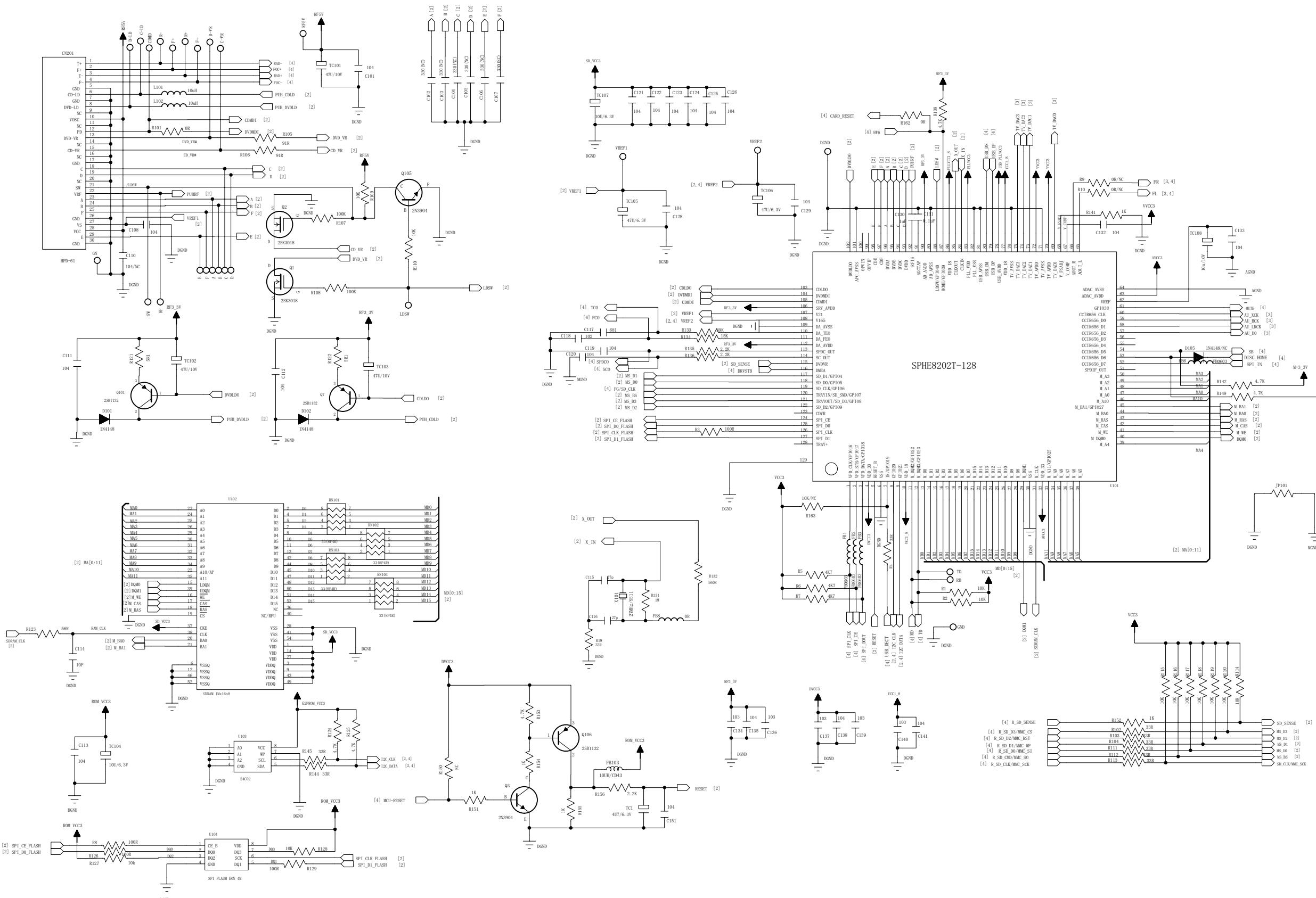


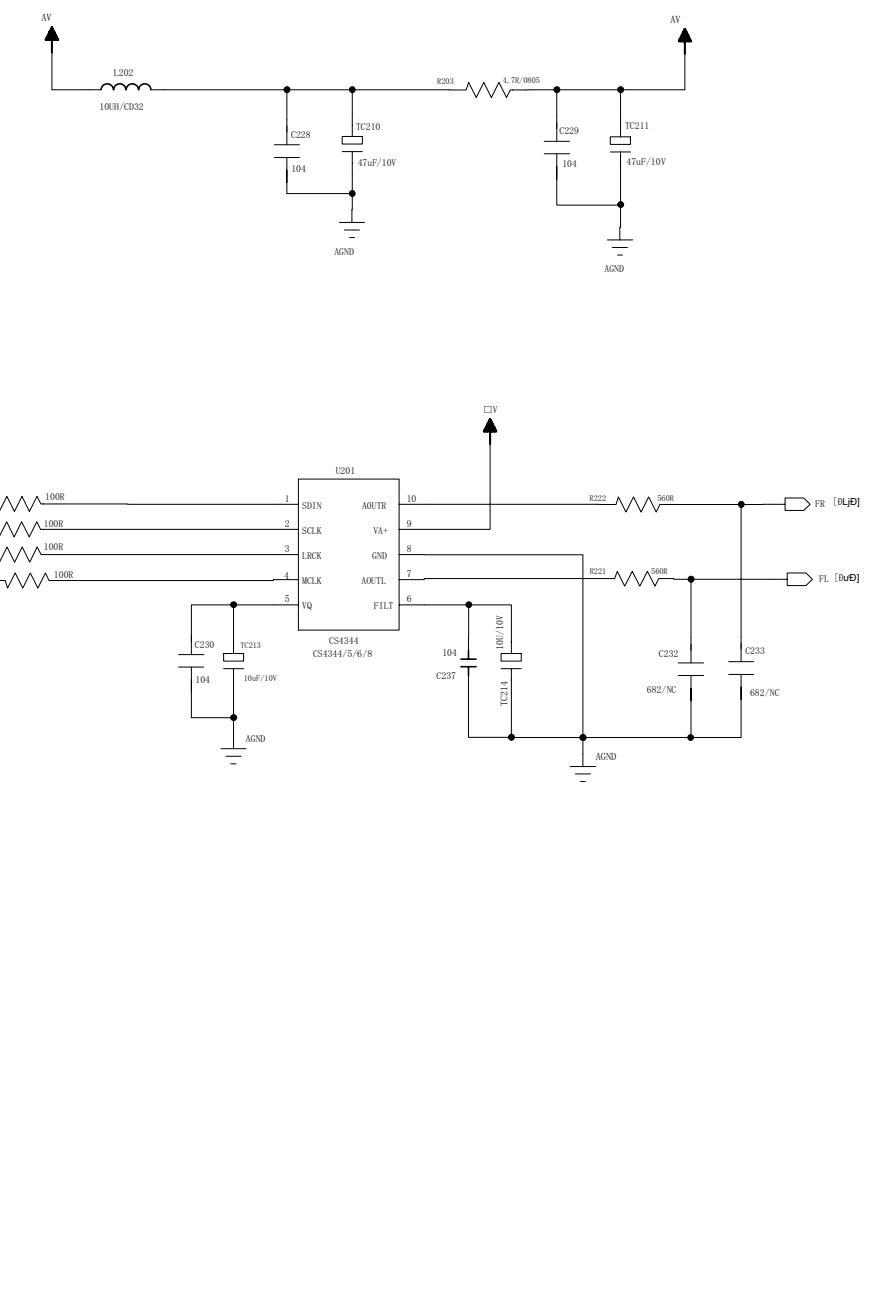
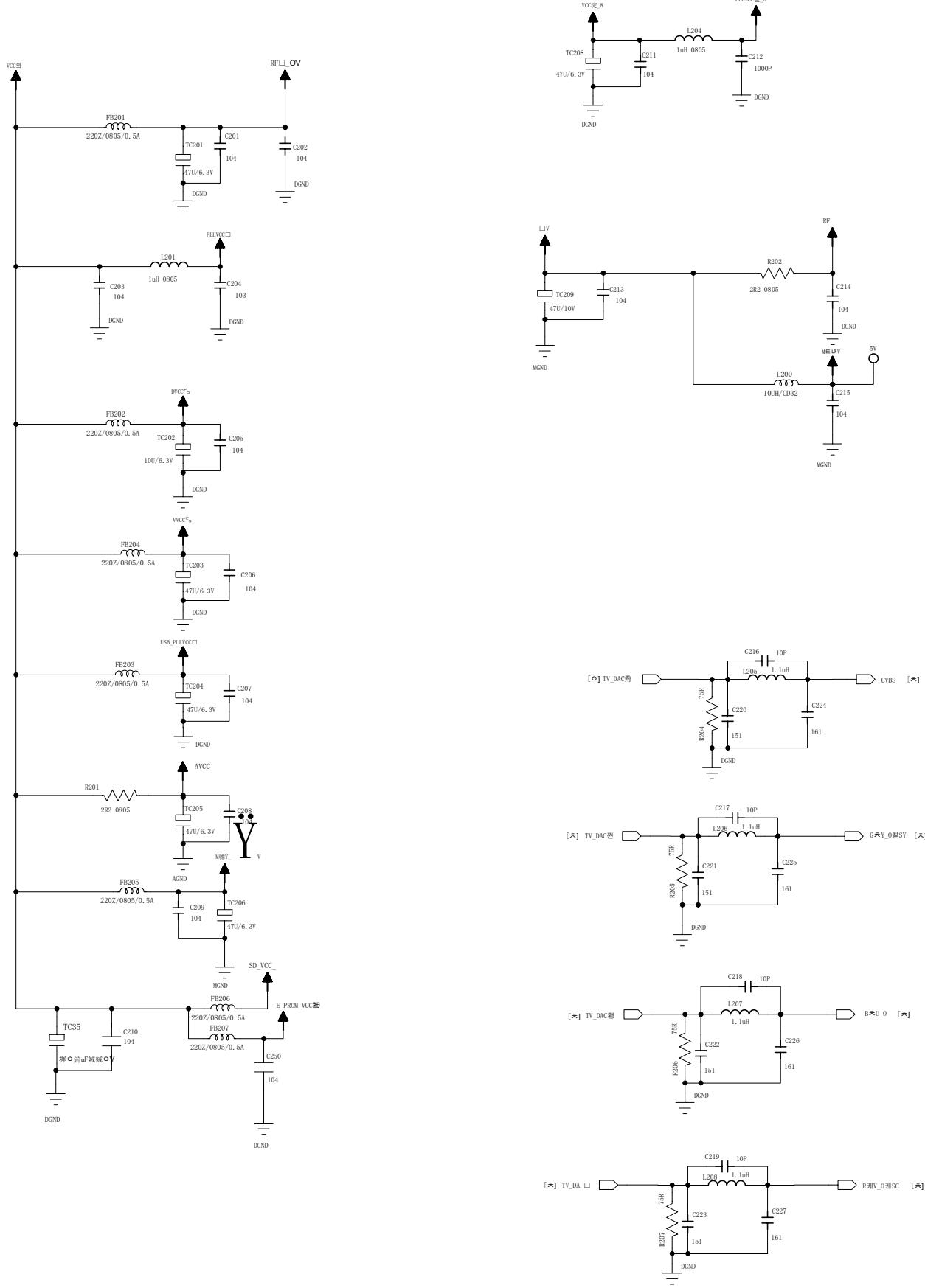
7-2



8-1

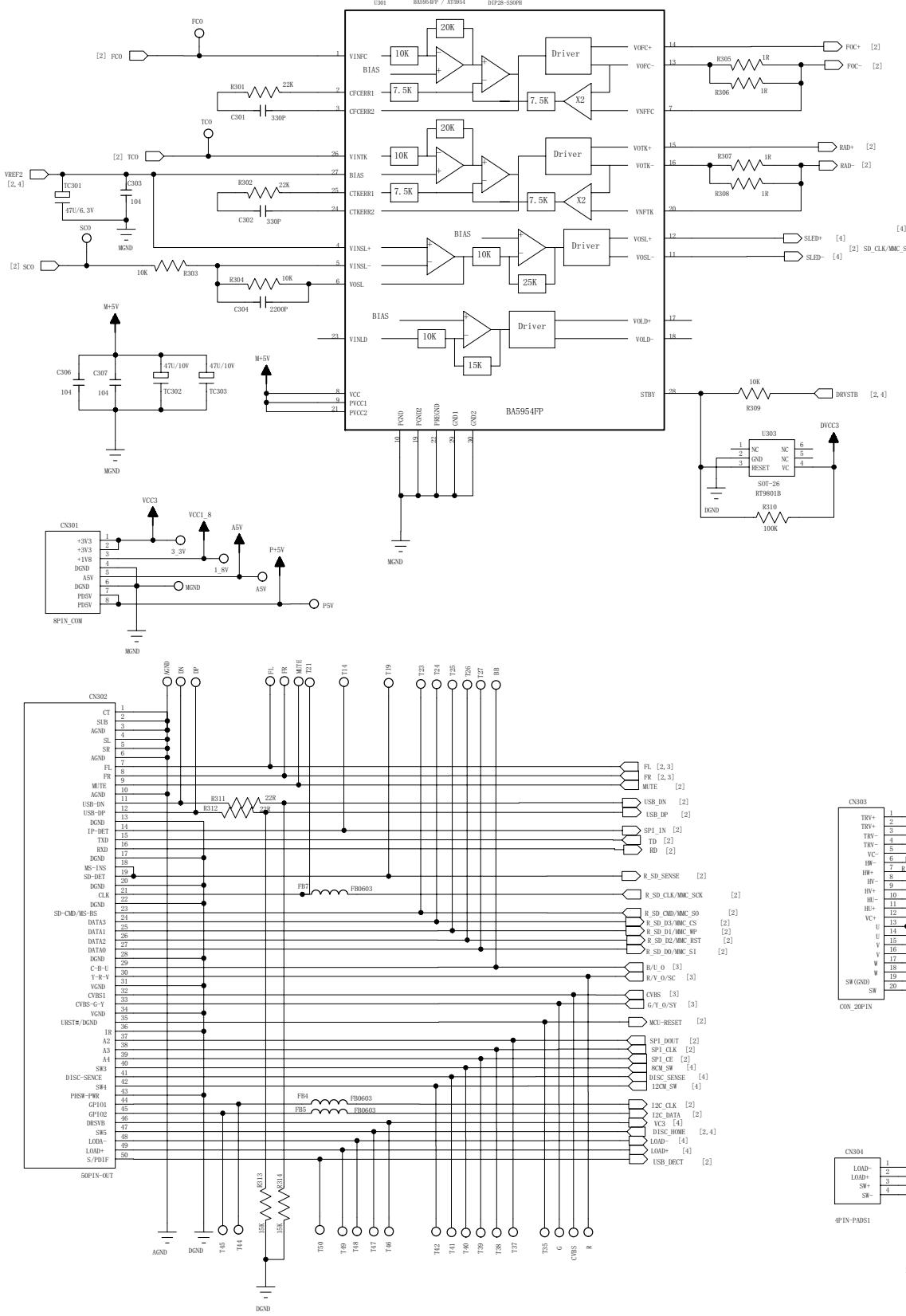
## SERVO BOARD-Circuit Diagram-1



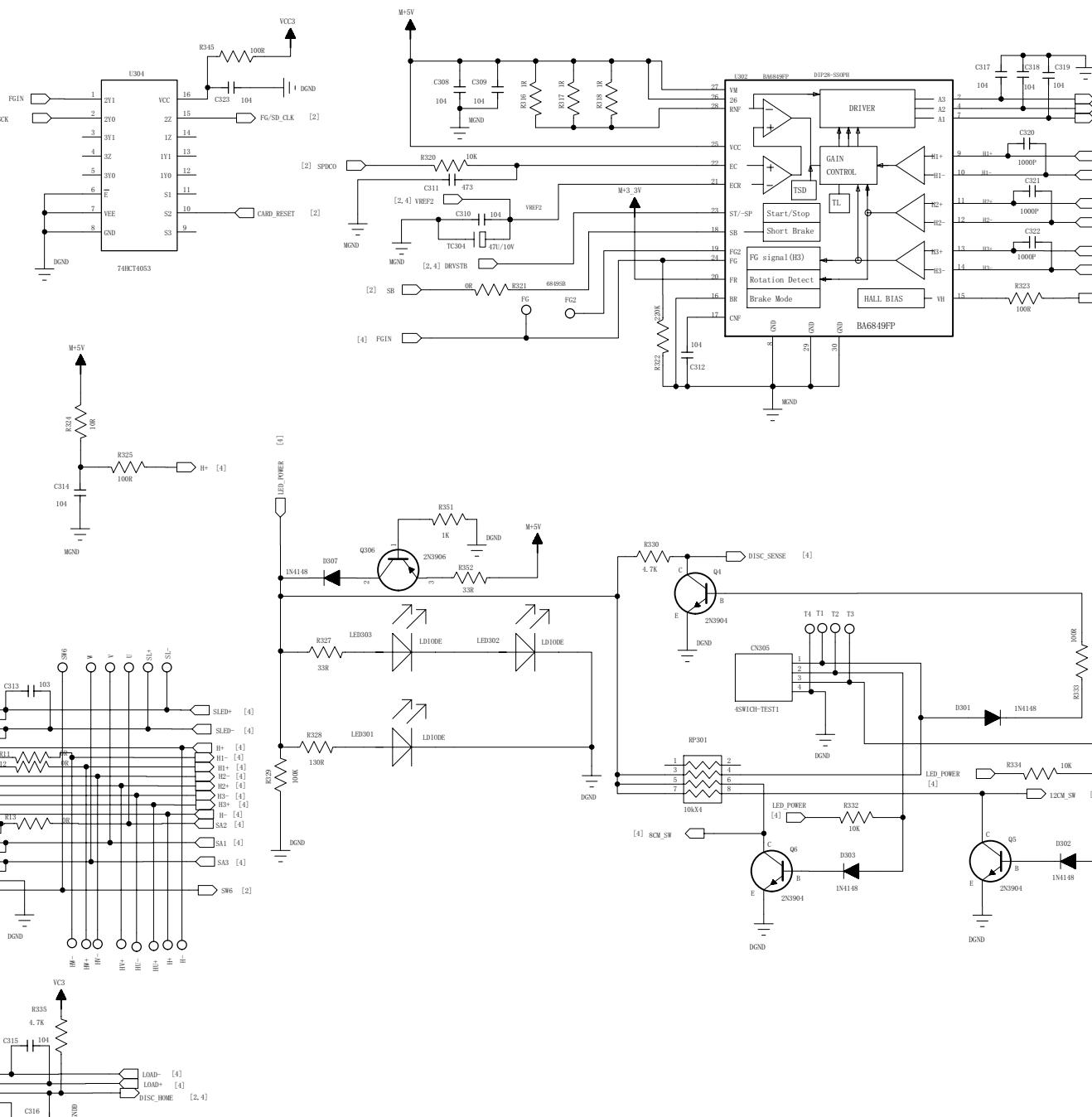
**SERVO BOARD-Circuit Diagram-2**

8-3

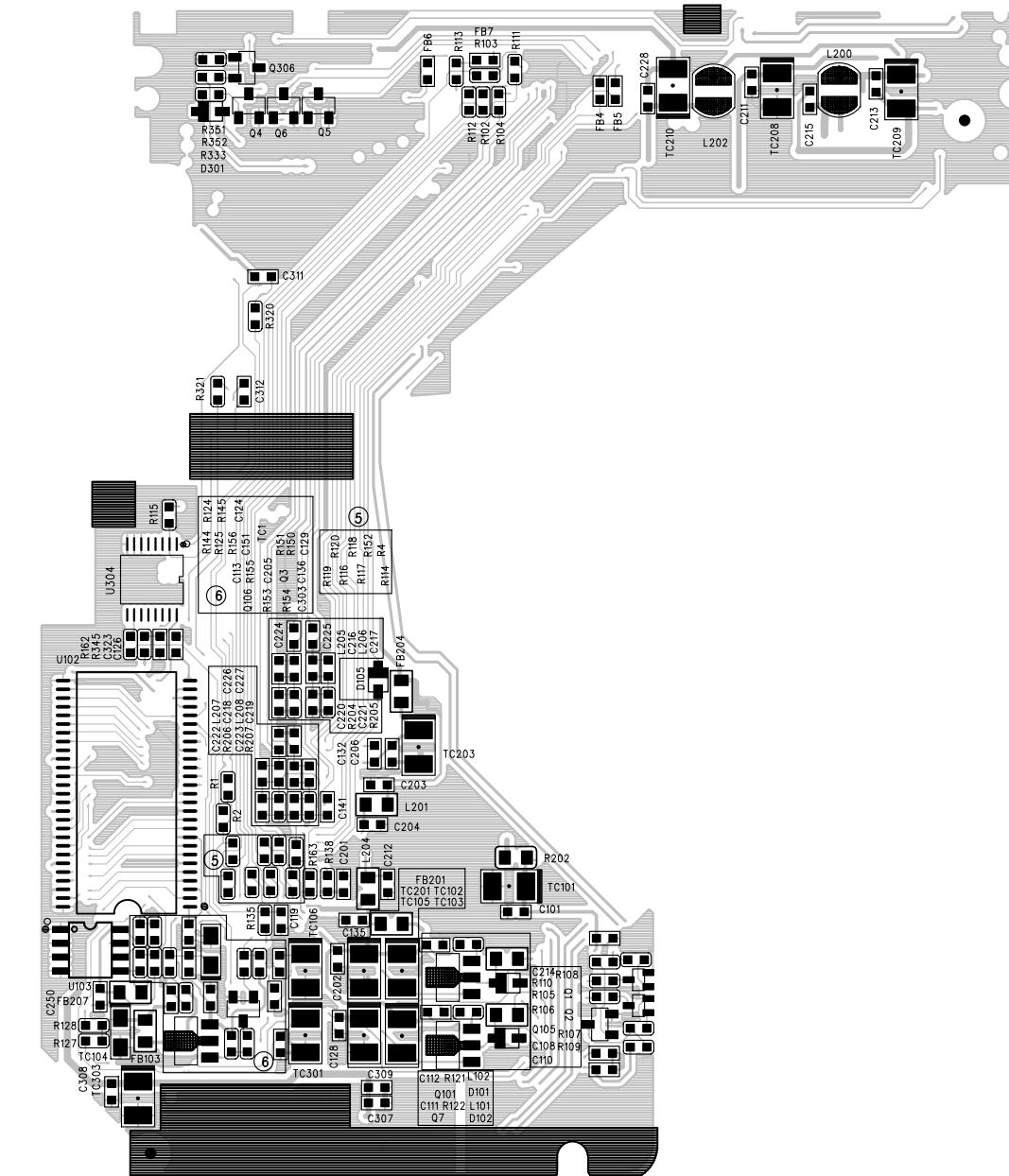
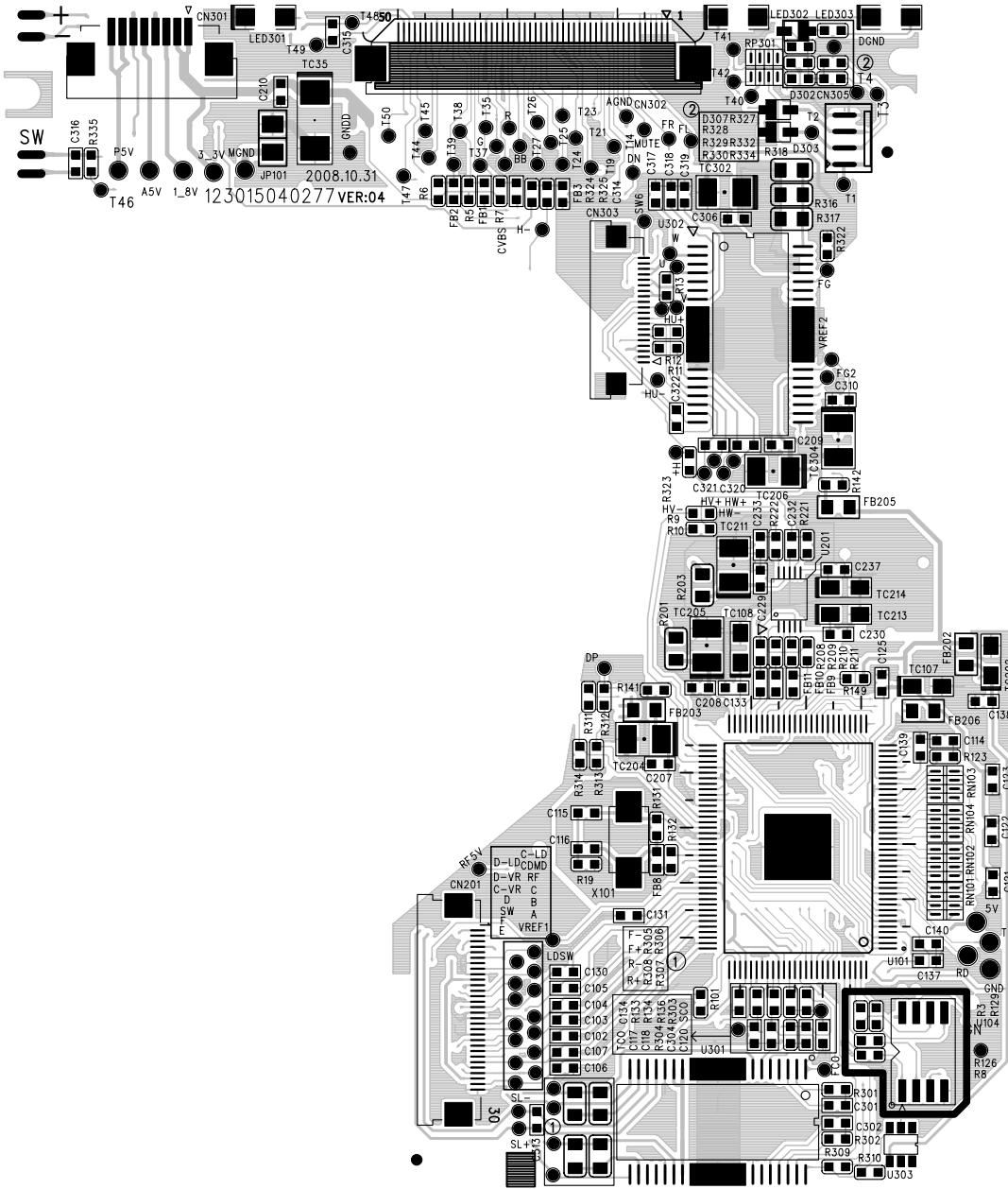
## SERVO BOARD-Circuit Diagram-3



8-



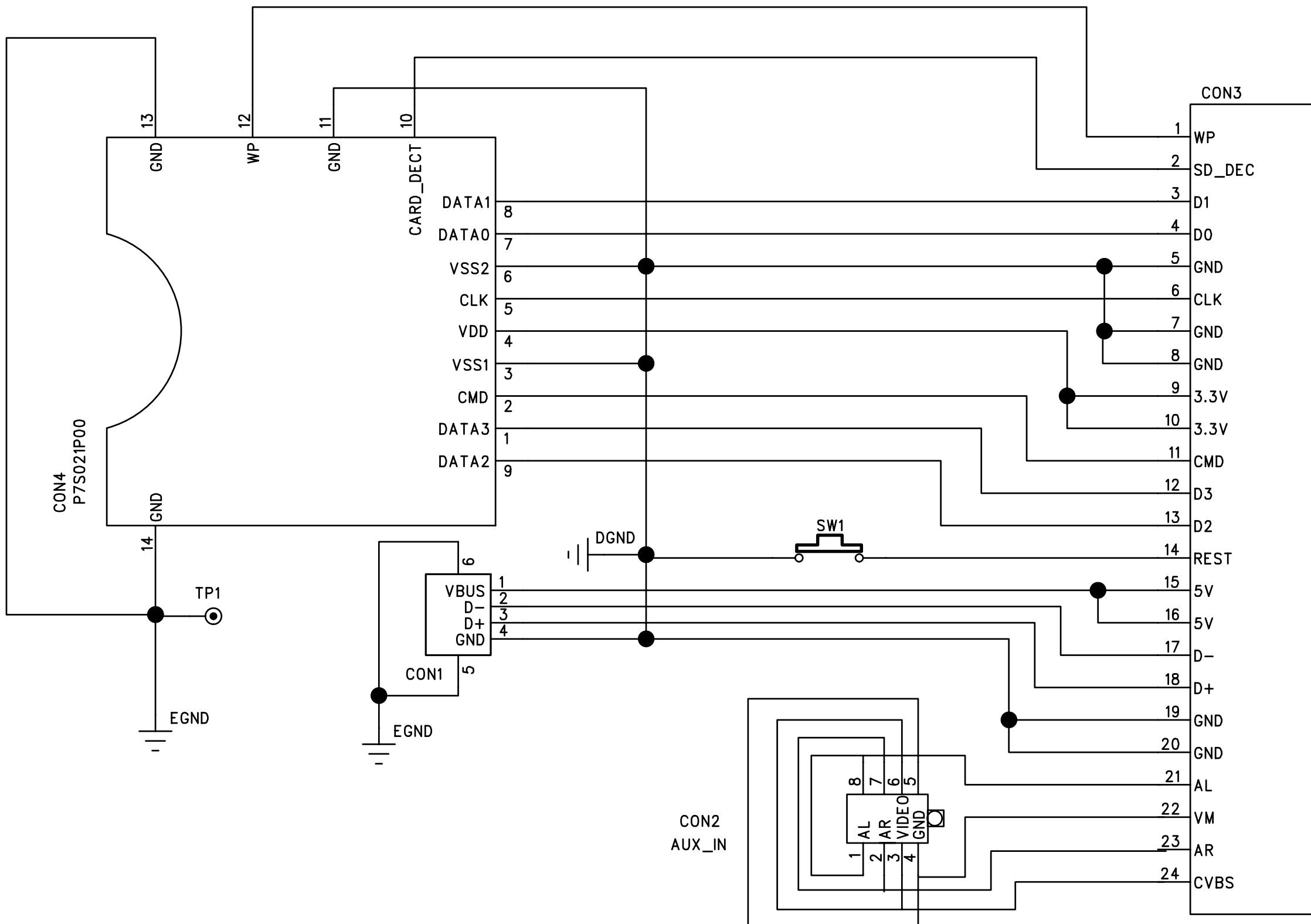
## SERVO BOARD-Layout Diagram



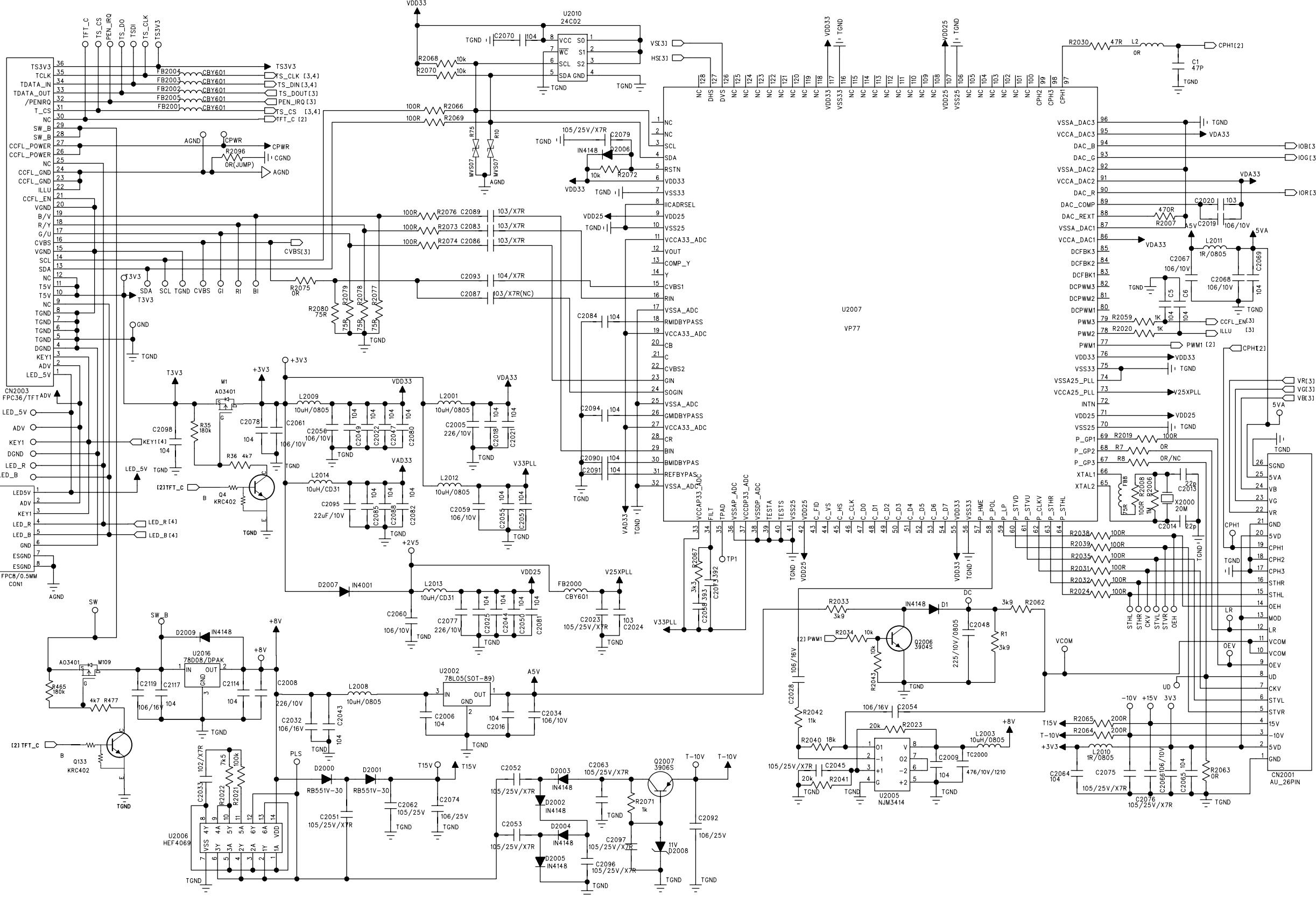
9-1

9-1

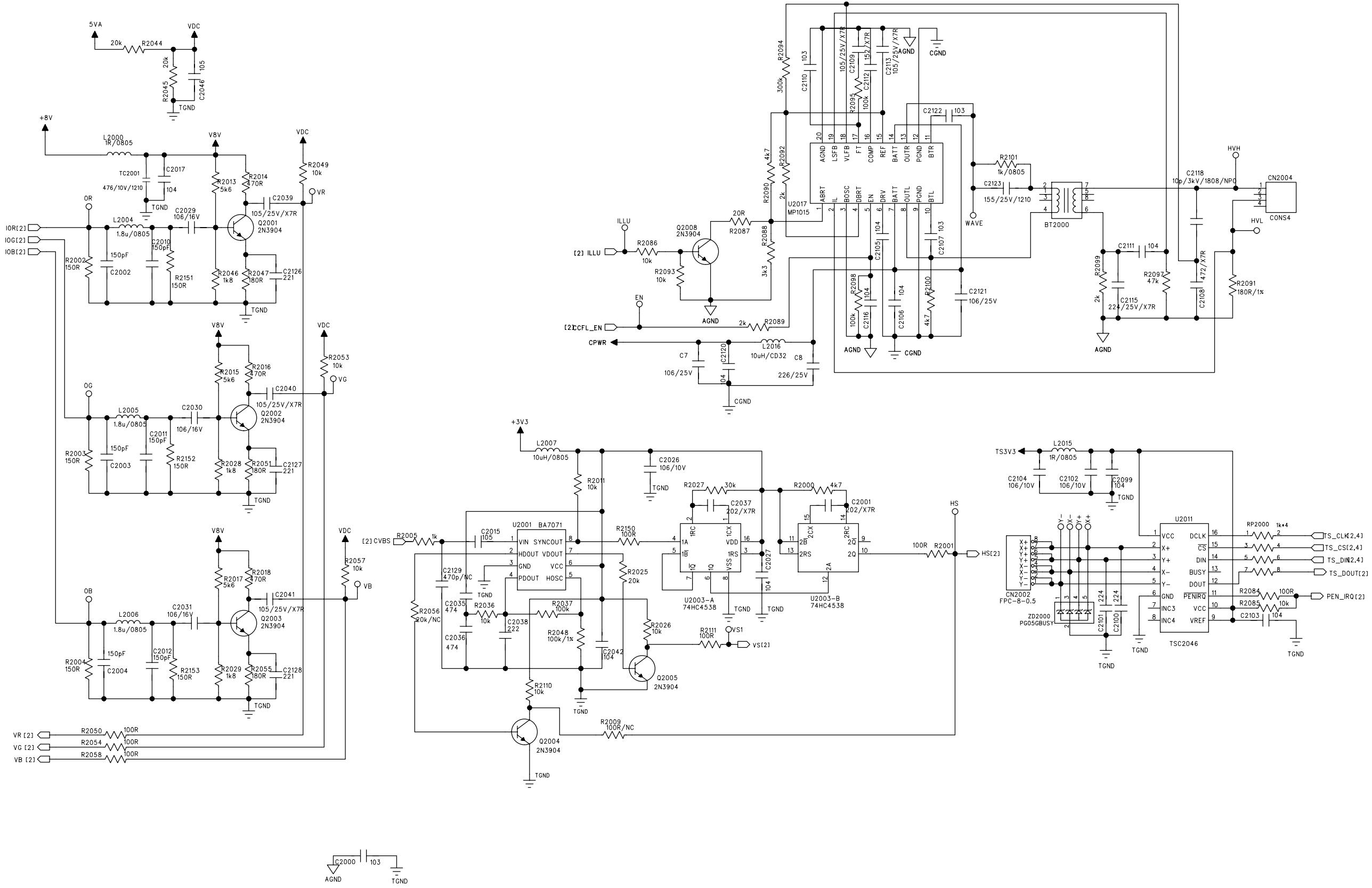
### USB/SD BOARD-Circuit Diagram



## **TFT BOARD-Circuit Diagram-1**



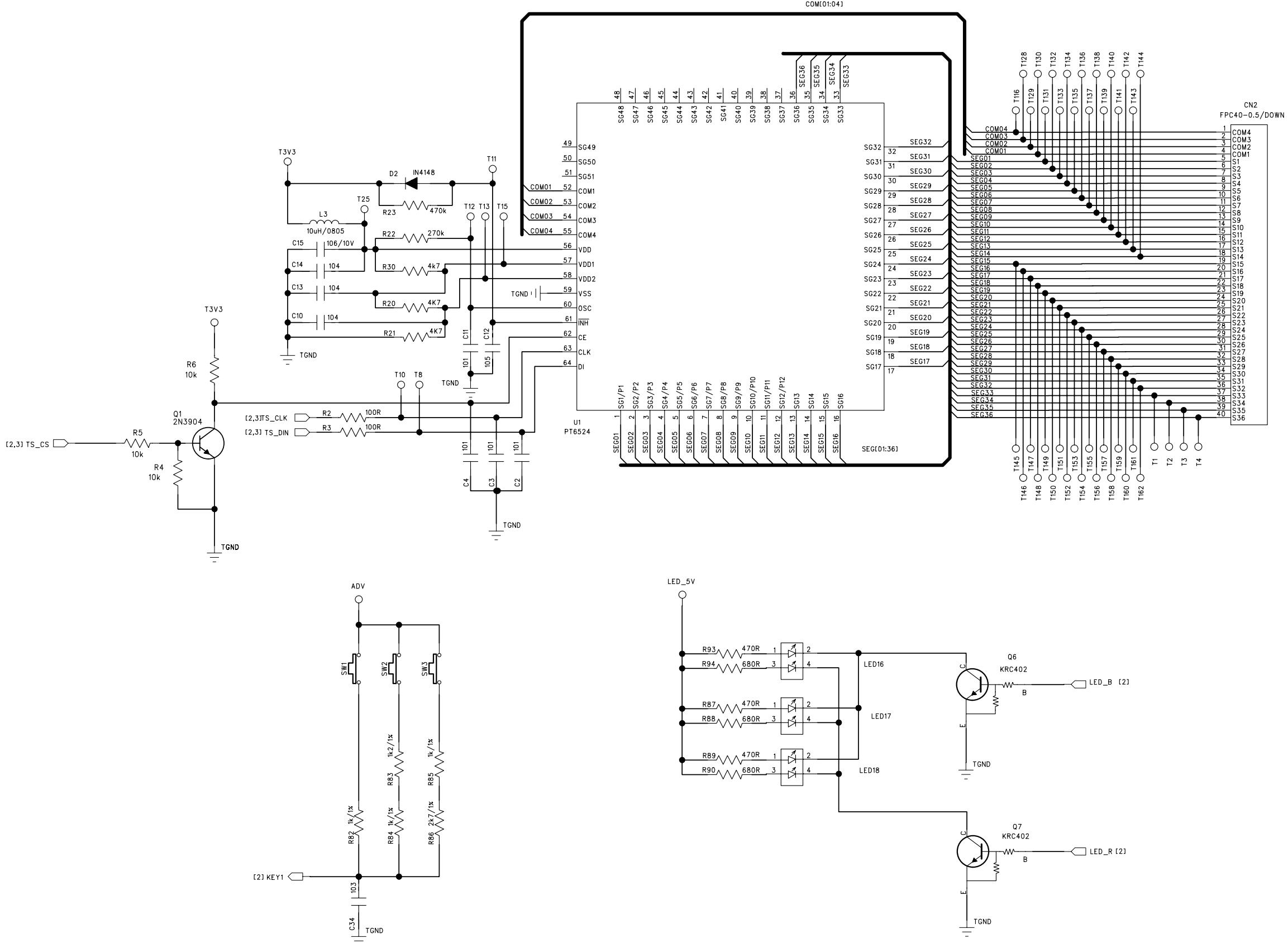
## TFT BOARD-Circuit Diagram-2



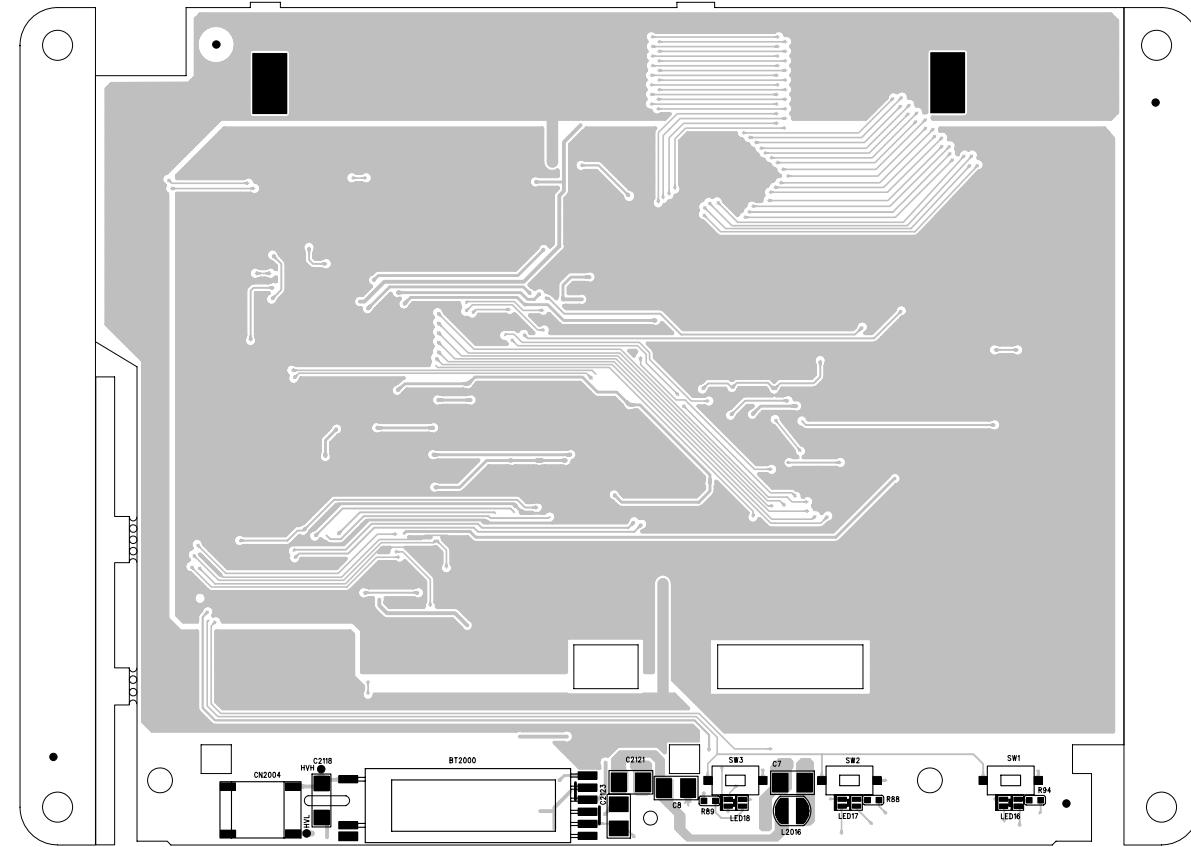
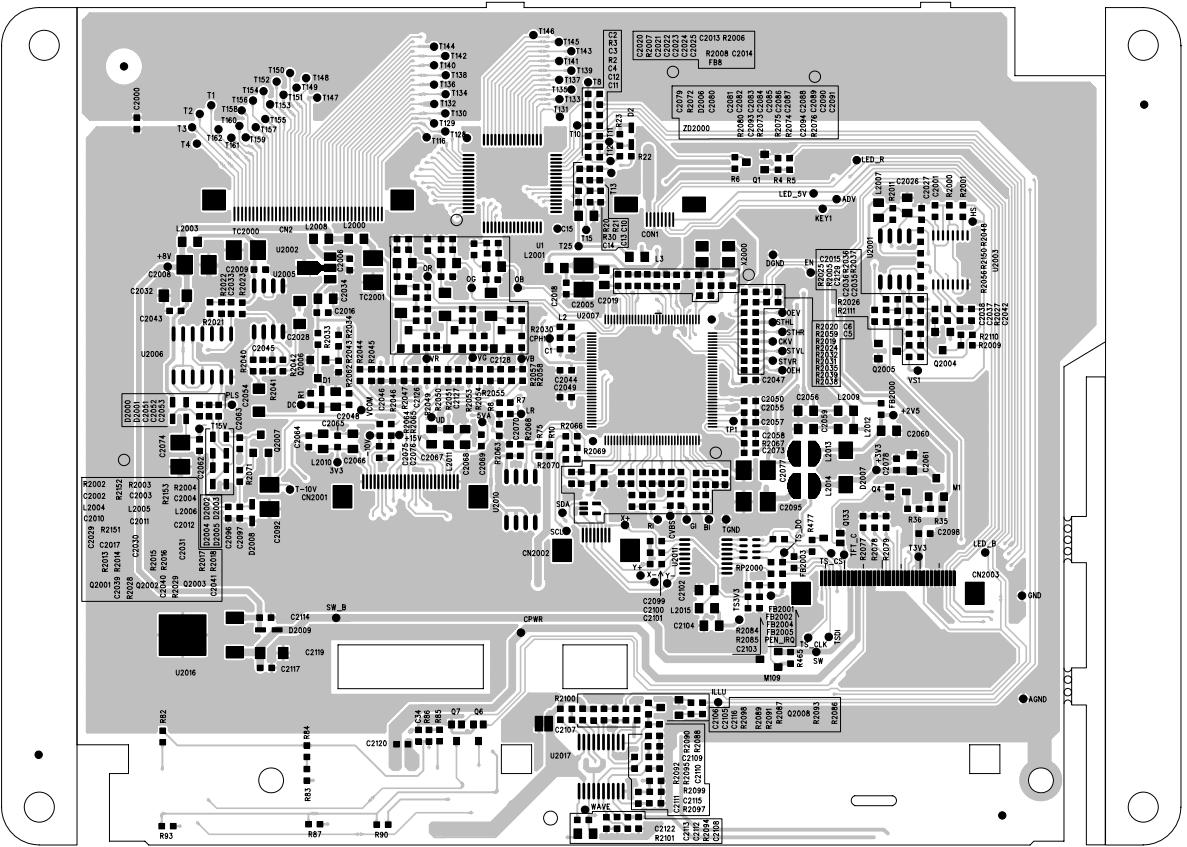
10-3

## TFT BOARD-Circuit Diagram-3

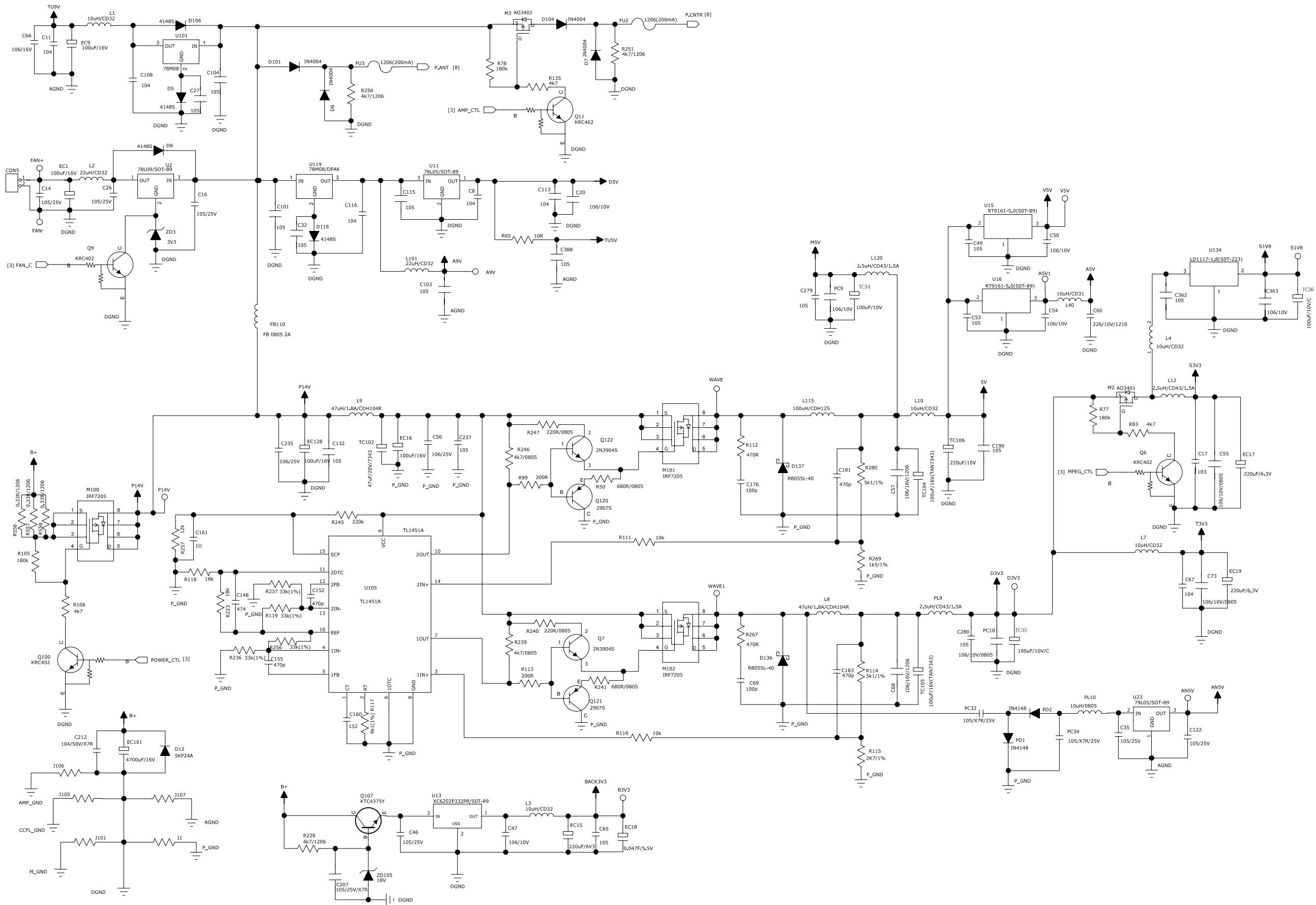
10-3



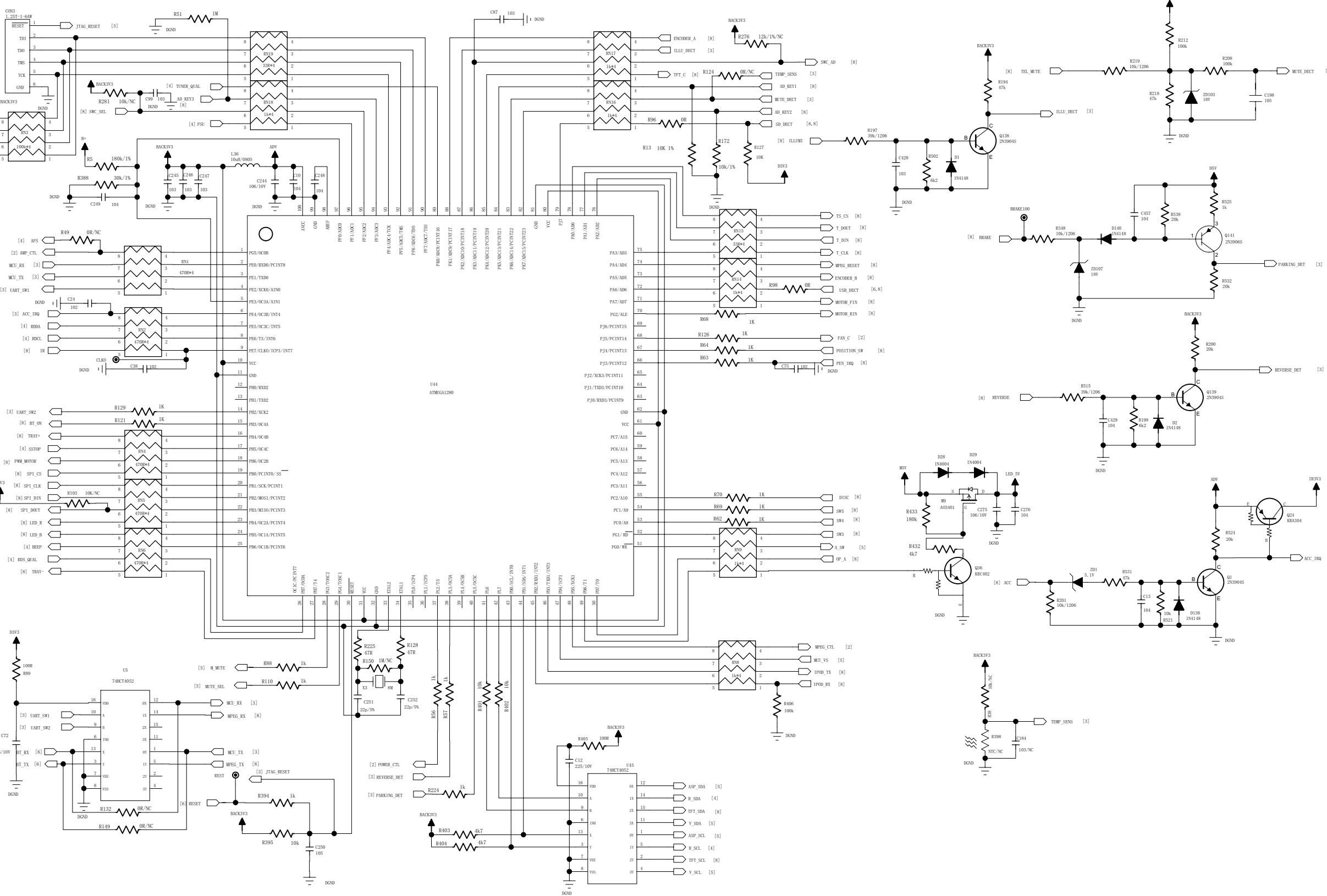
## TFT BOARD-Layout Diagram



## MAIN BOARD-Circuit Diagram-1

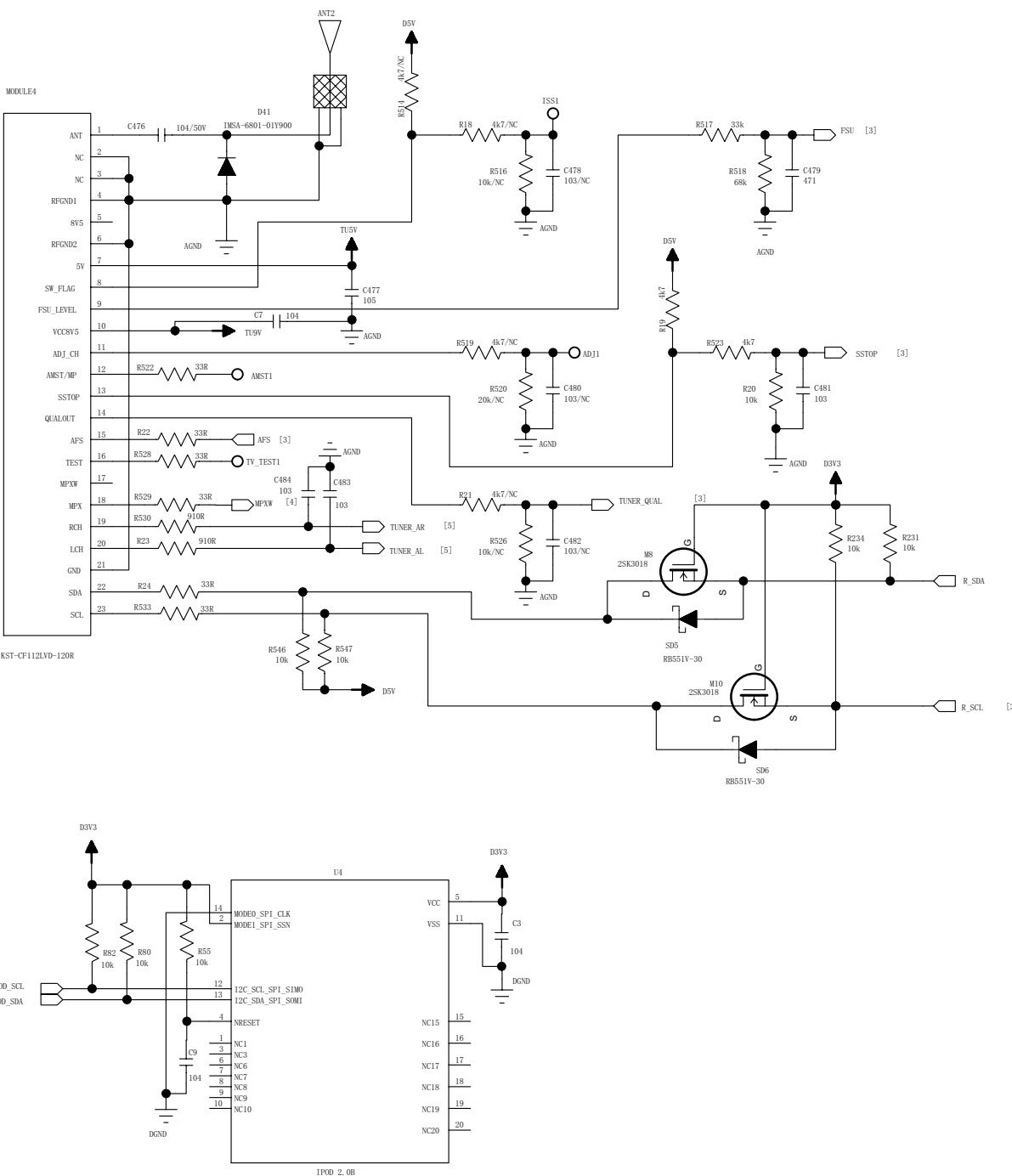


# **MAIN BOARD-Circuit Diagram-2**

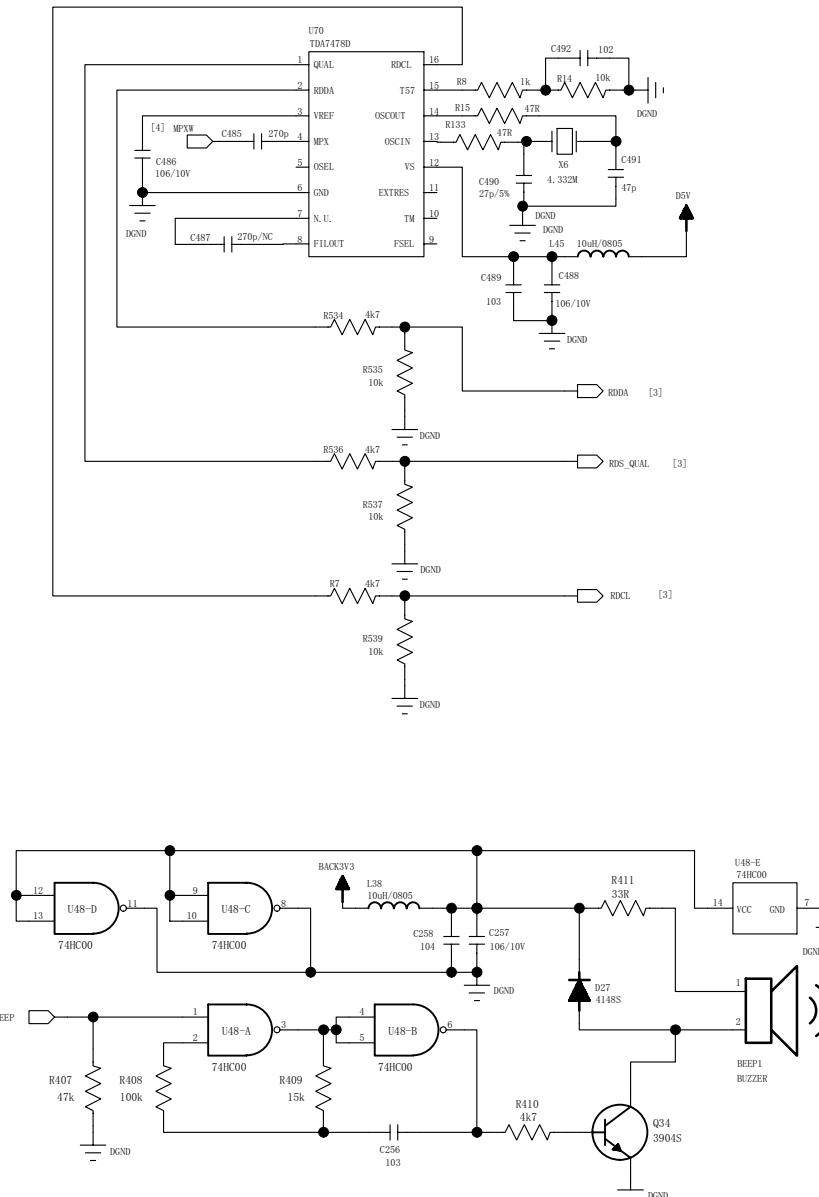


11-3

## **MAIN BOARD-Circuit Diagram-3**



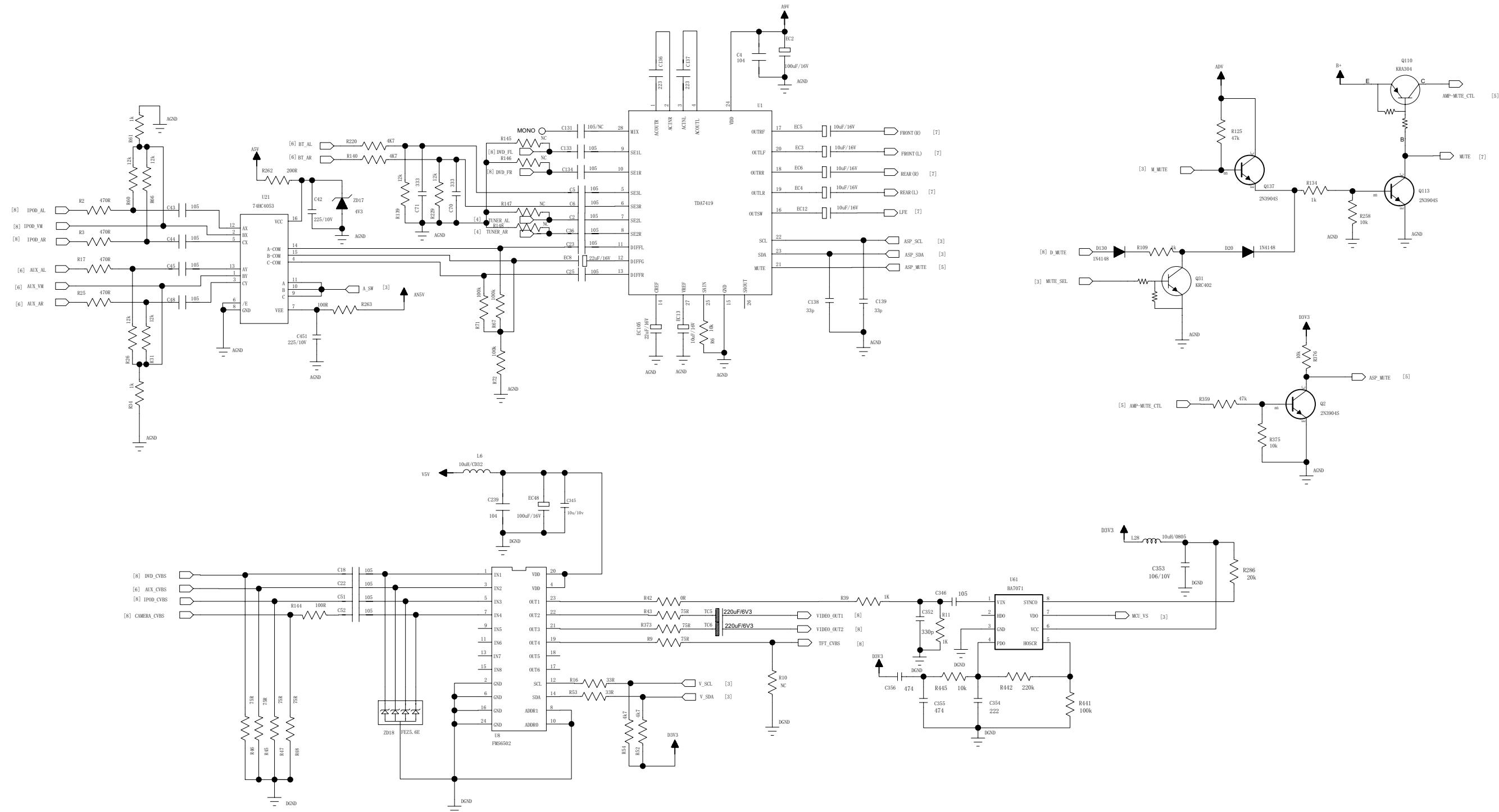
11-3



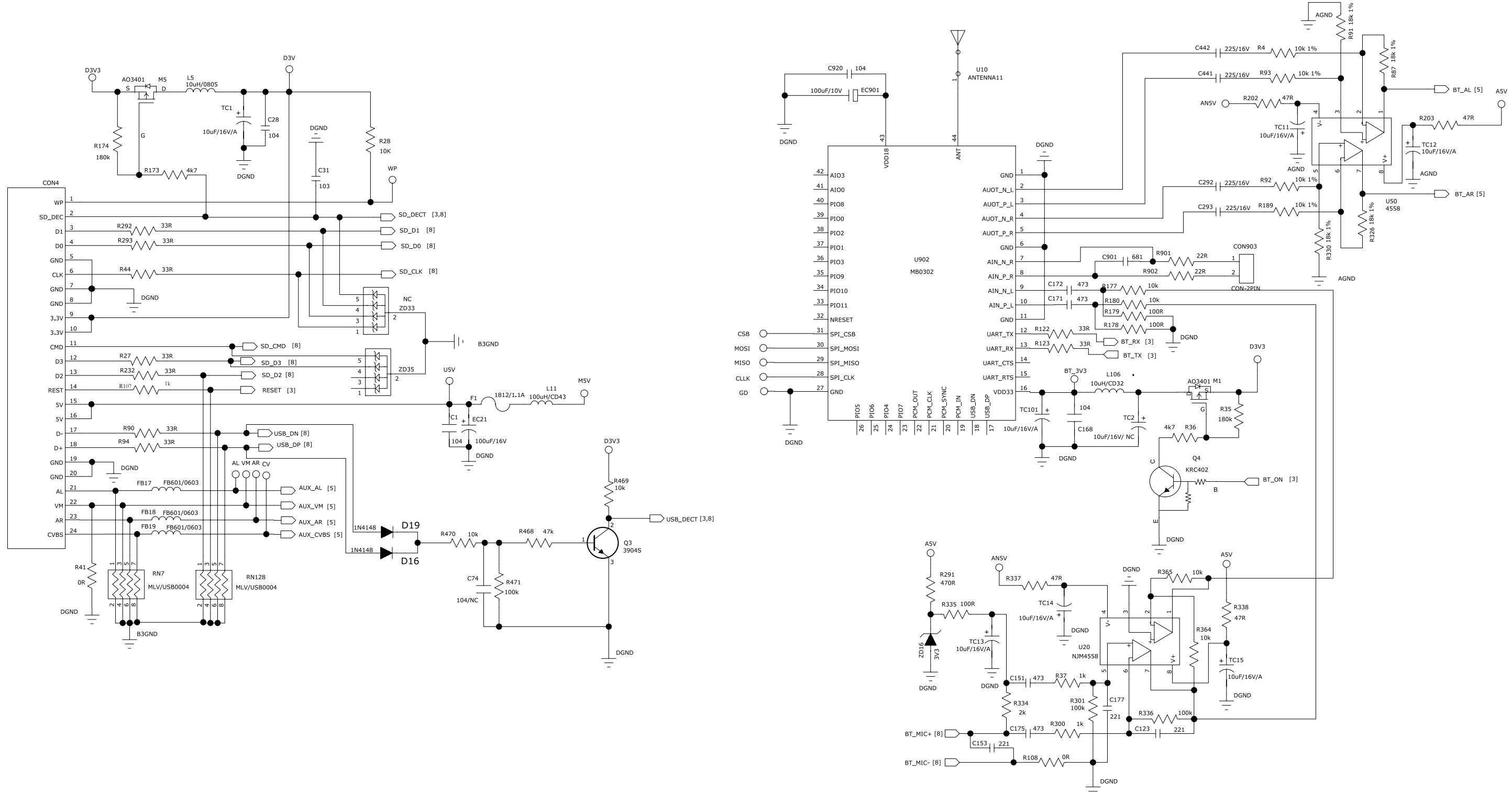
11-4

11-4

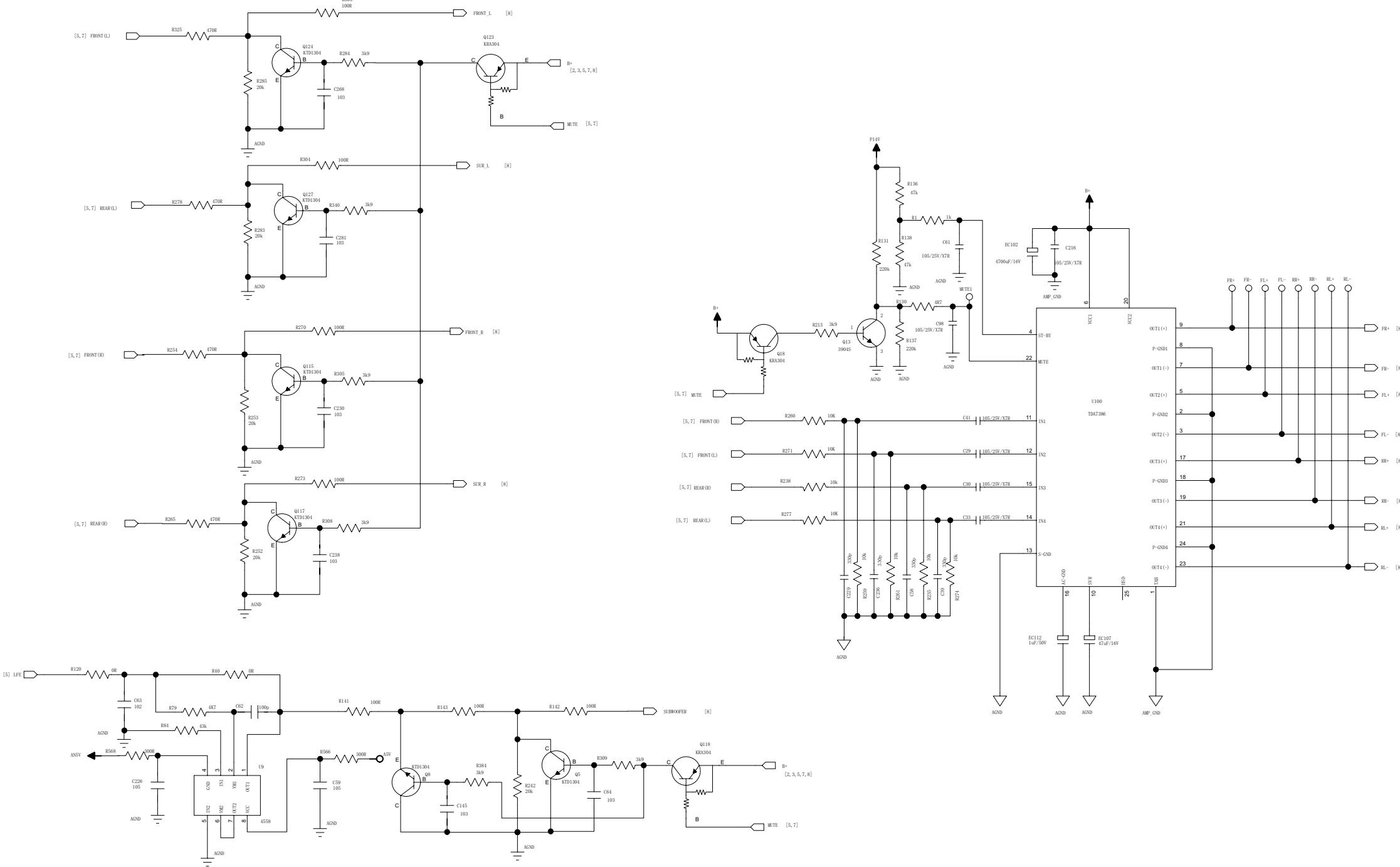
## **MAIN BOARD-Circuit Diagram-4**



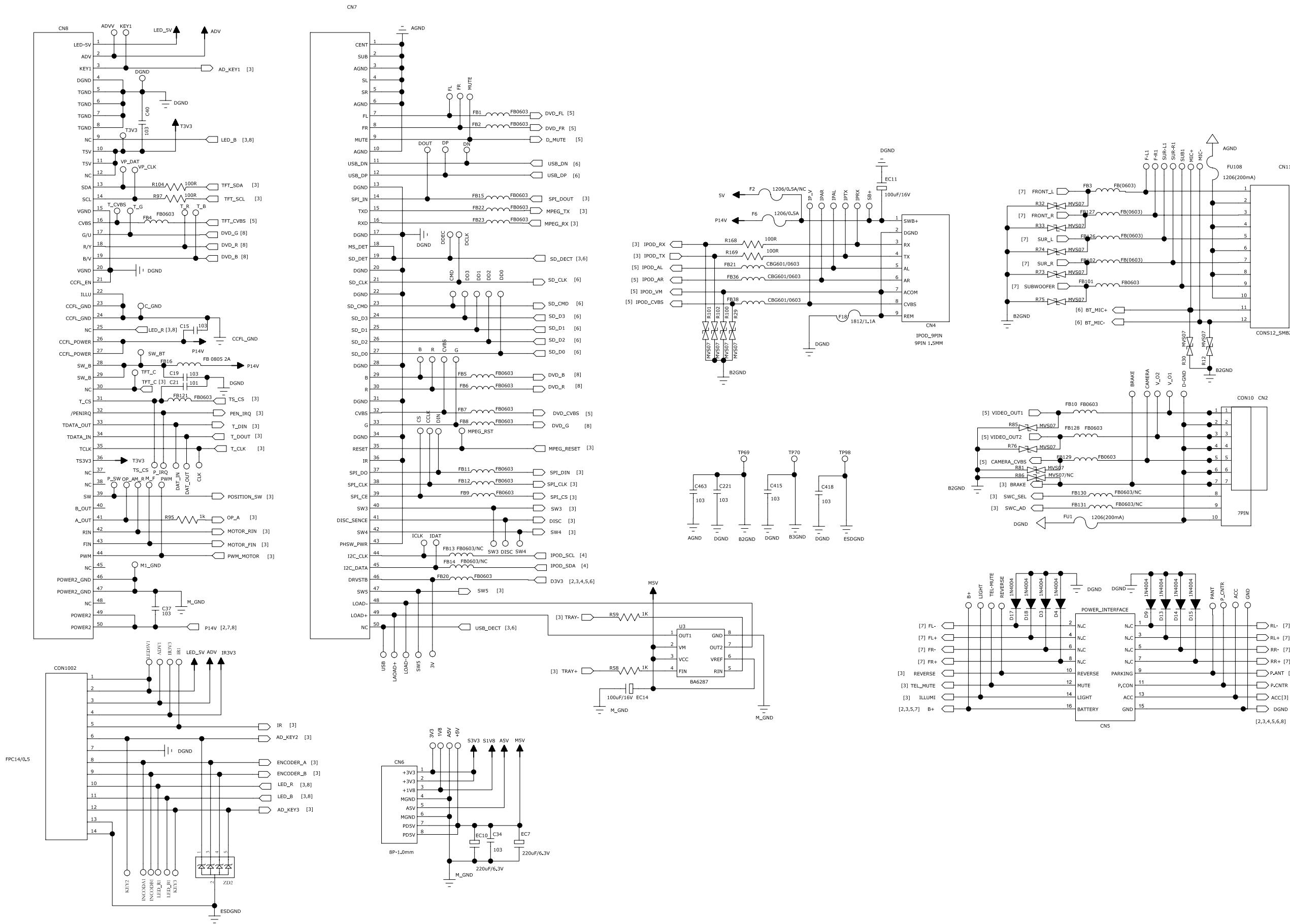
## **MAIN BOARD-Circuit Diagram-5**



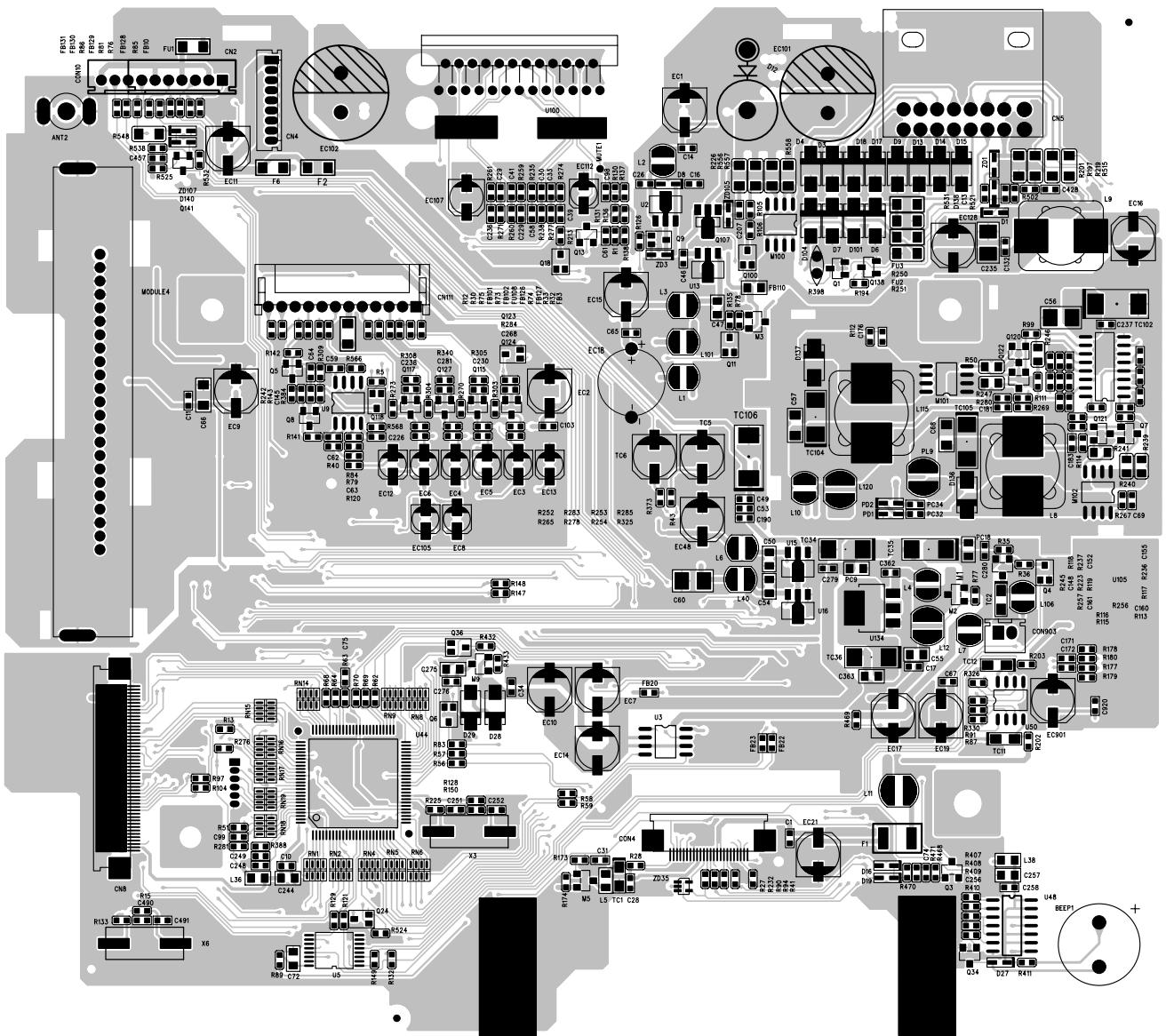
## **MAIN BOARD-Circuit Diagram-6**



## **MAIN BOARD-Circuit Diagram-7**

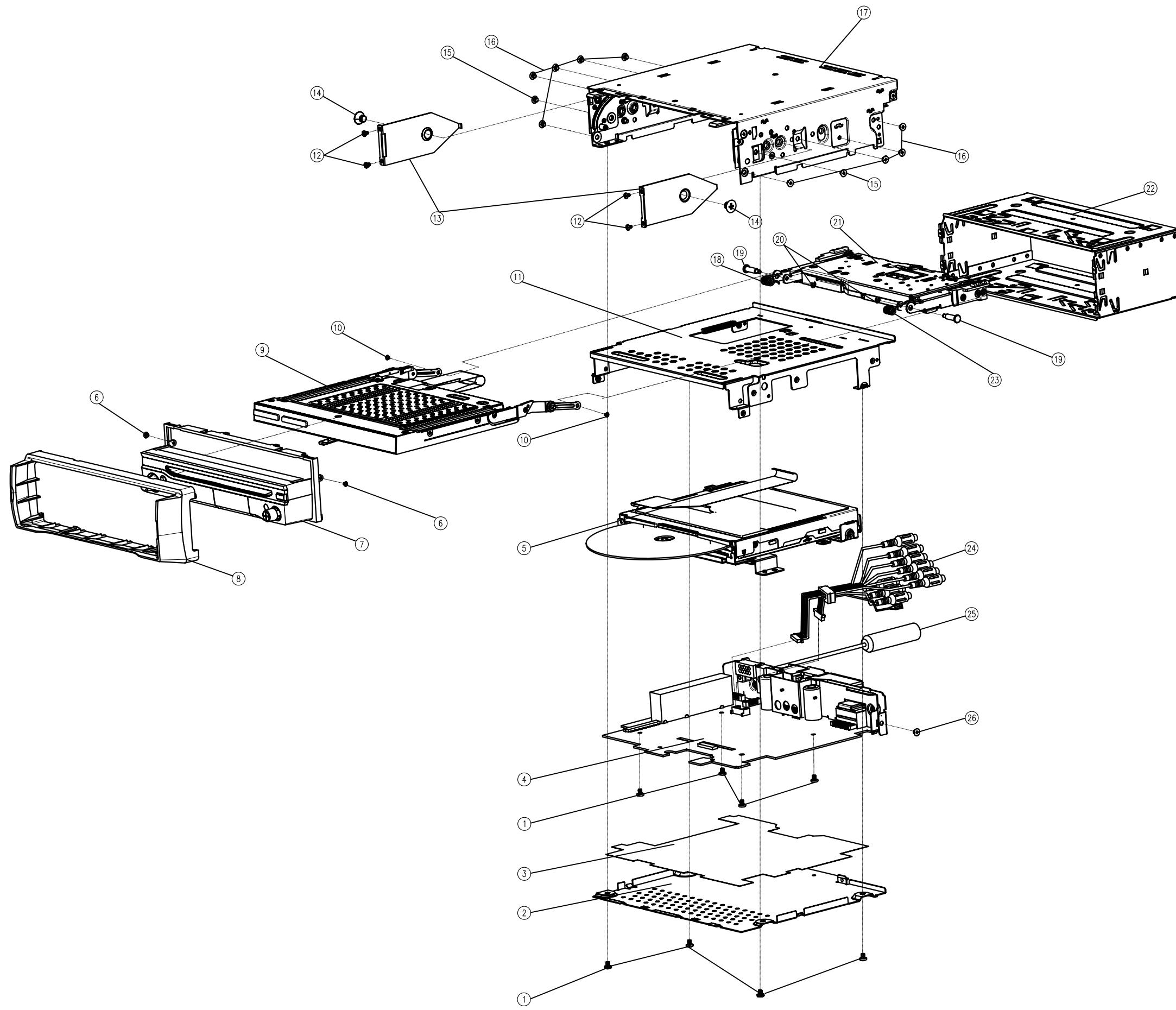


## MAIN BOARD-Layout Diagram

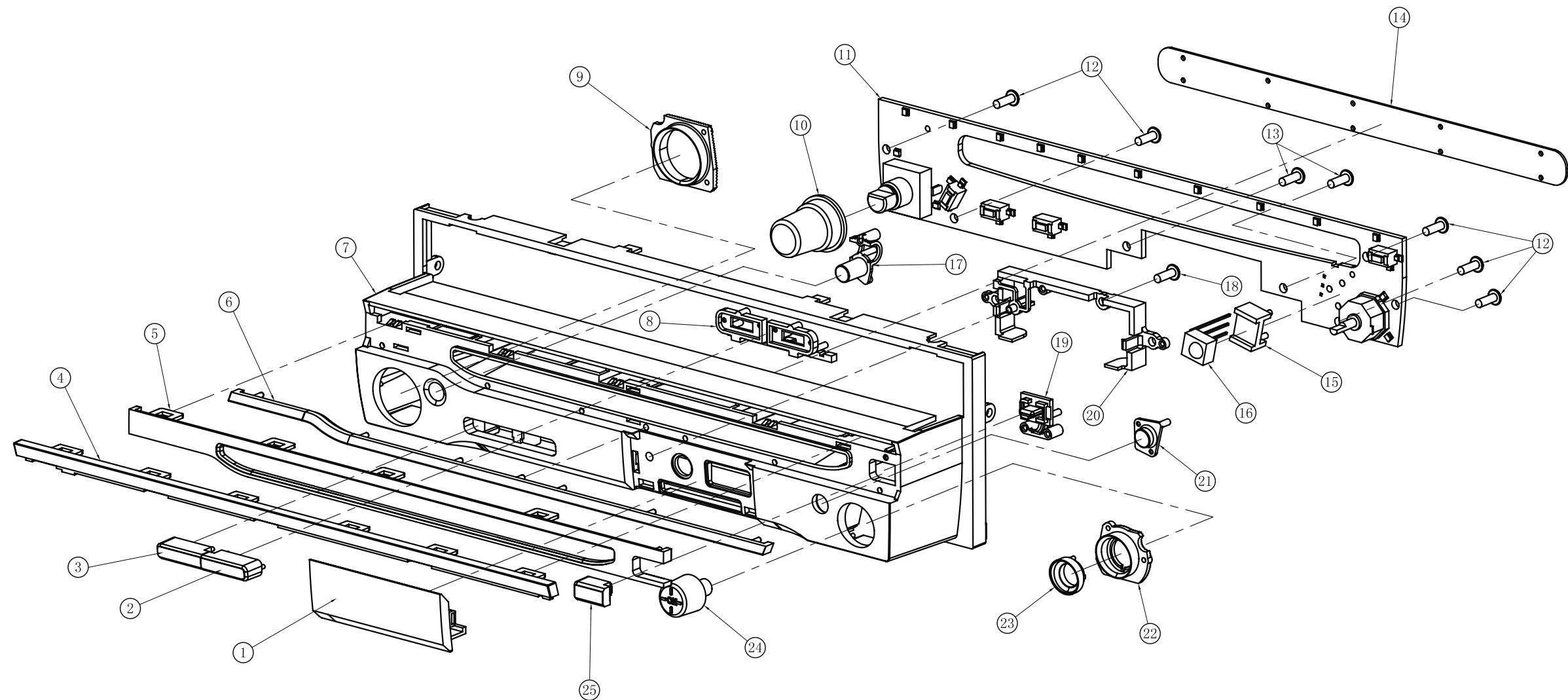


12-1

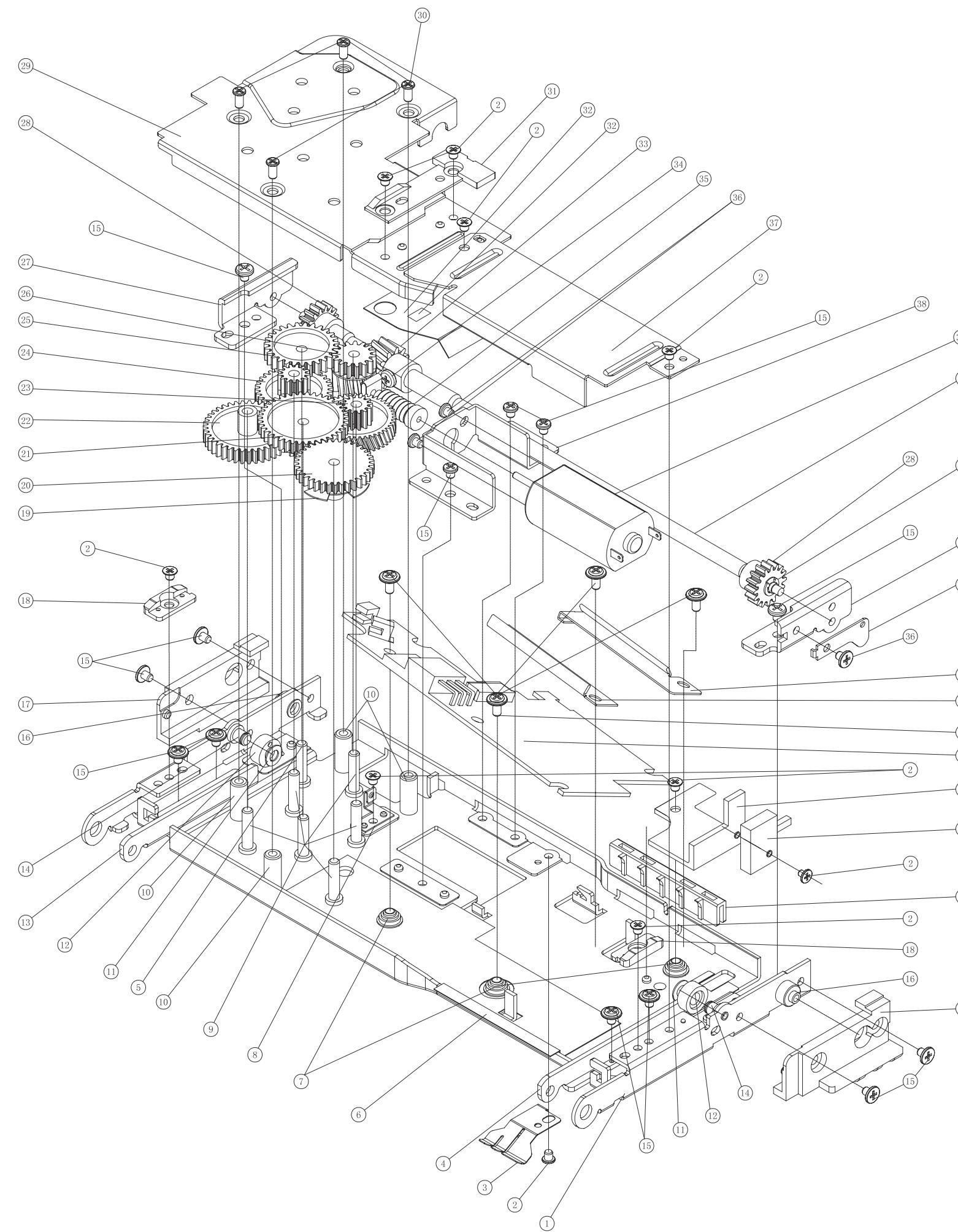
12-1

**EXPLODE VIEW**

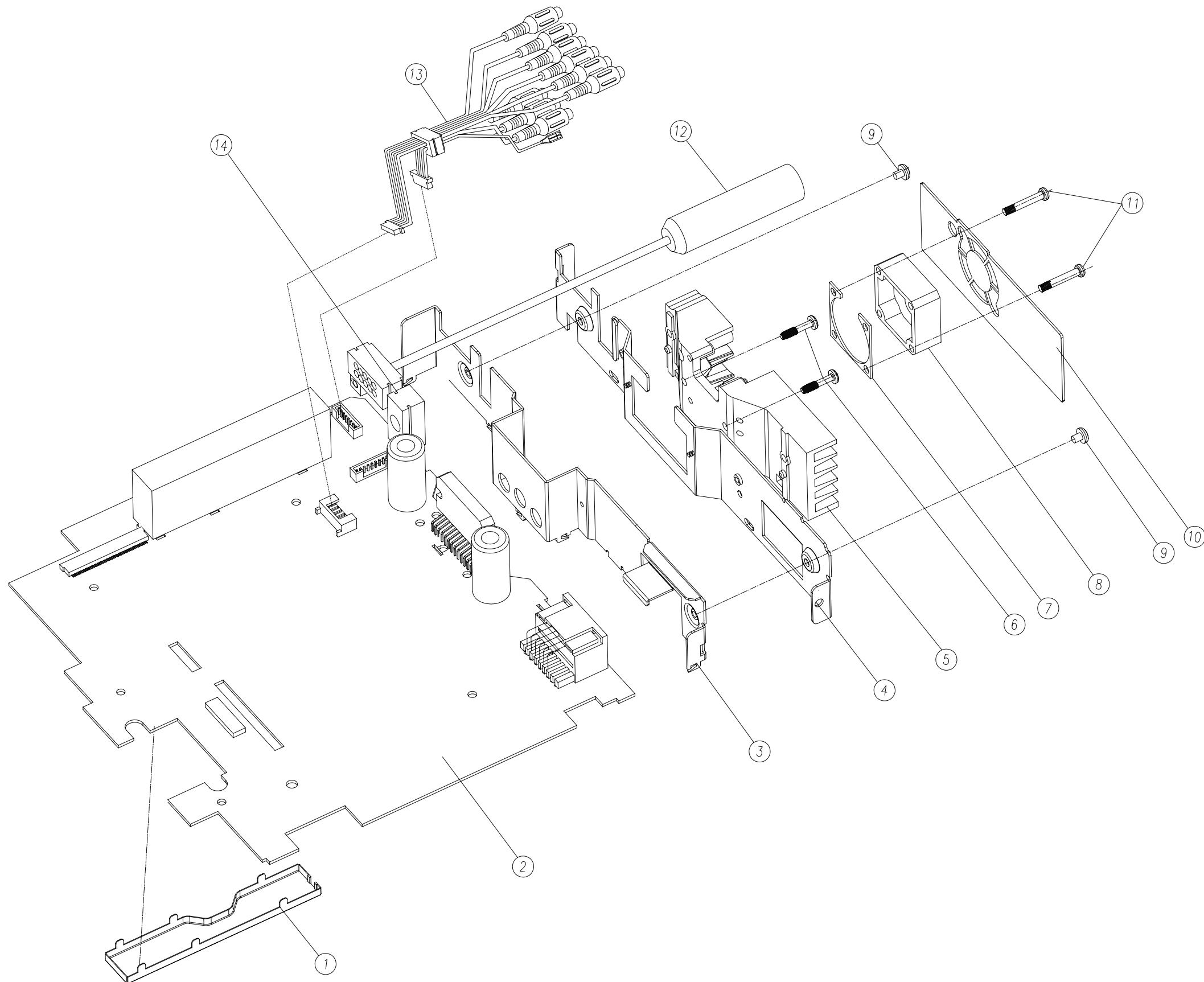
**SET MECHANICAL EXPLODED VIEW --- BREAKDOWN**  
**PART1 \_ FRONT PANEL ASSEMBLY**



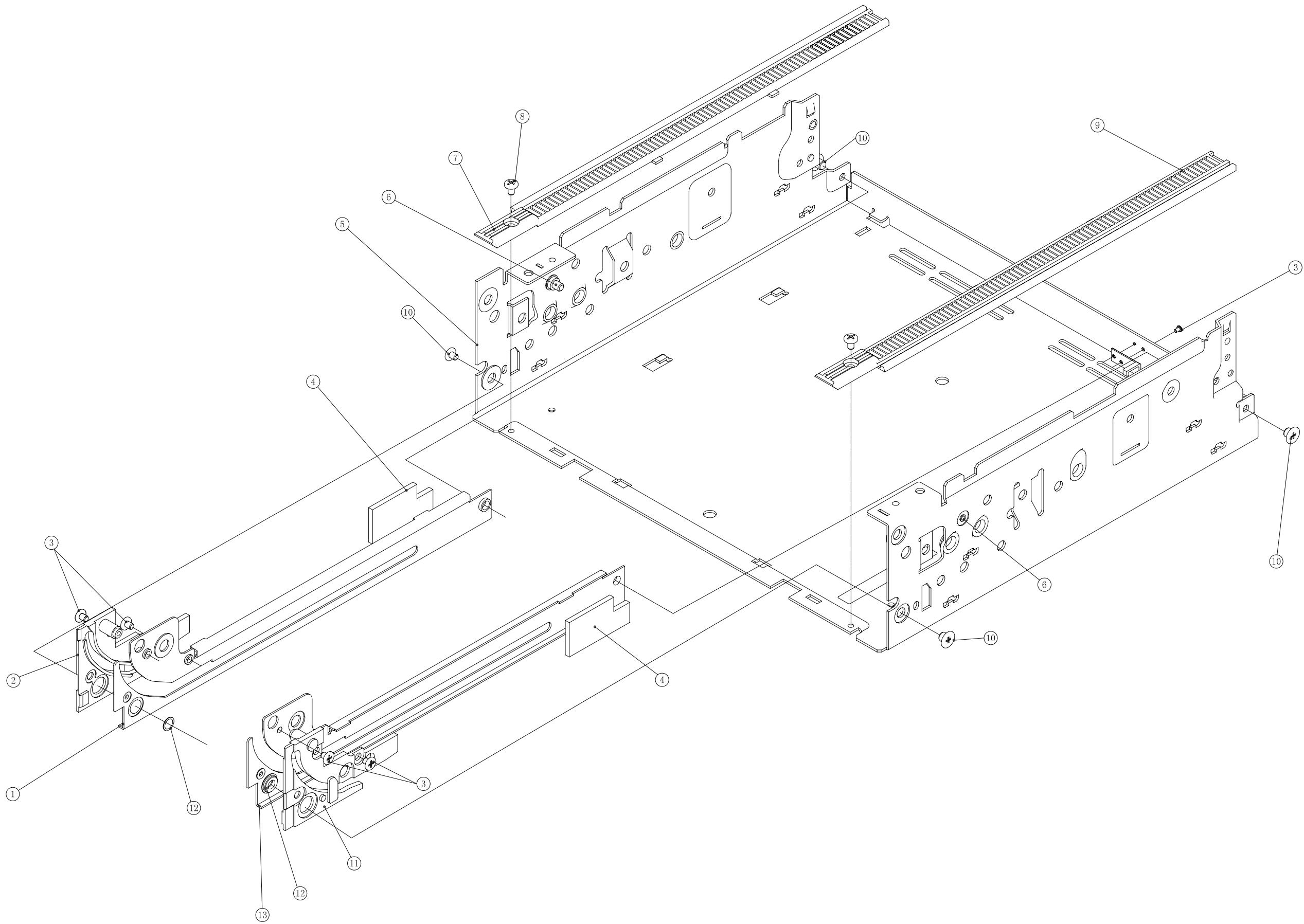
**SET MECHANICAL EXPLODED VIEW --- BREAKDOWN**  
**PART 2 \_ SLIDE BRACKET ASSEMBLY**



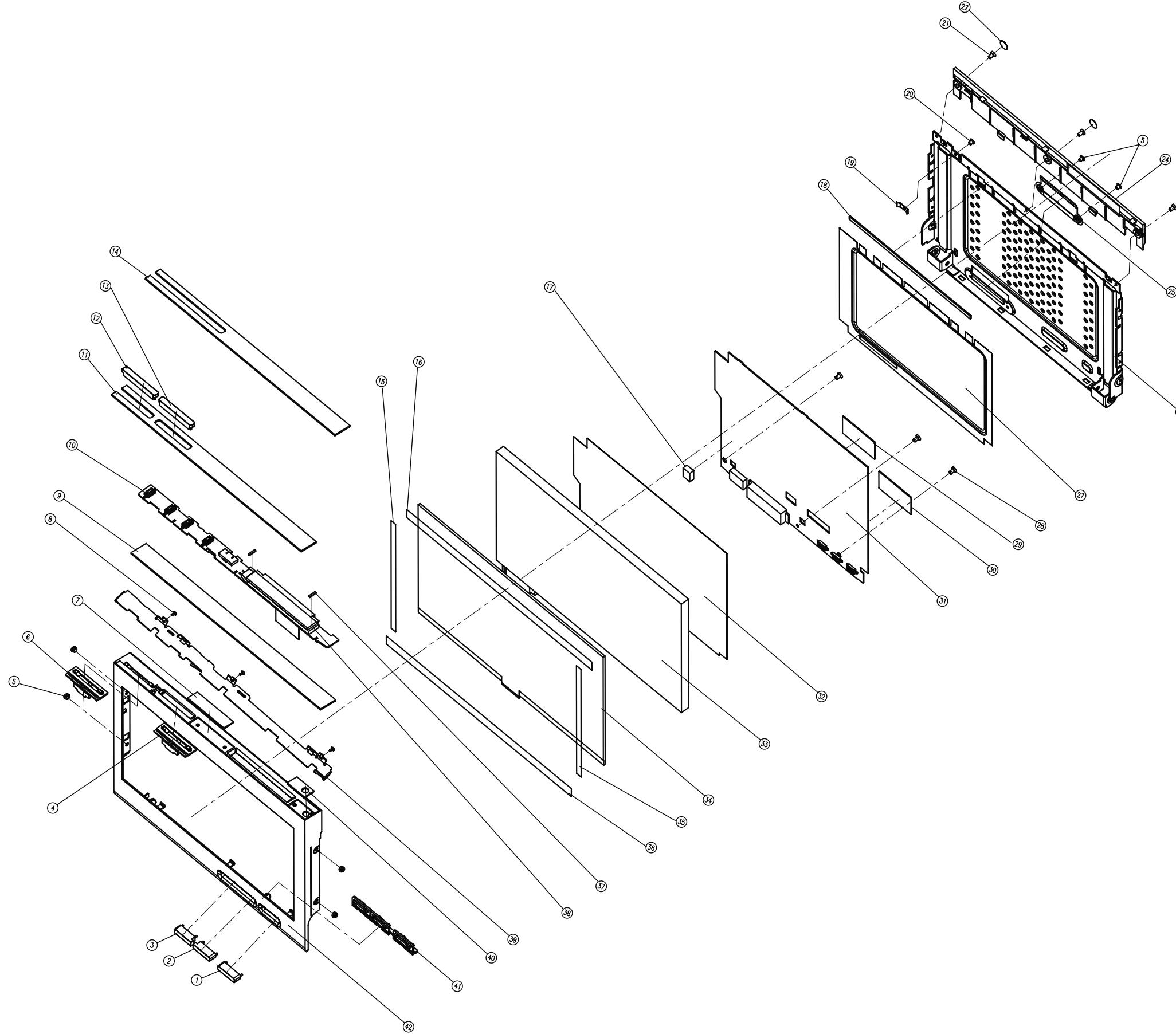
**SET MECHANICAL EXPLODED VIEW --- BREAKDOWN**  
**PART 3 \_ MAIN BOARD ASSEMBLY**



**SET MECHANICAL EXPLODED VIEW --- BREAKDOWN**  
**PART 4 \_ BOTTOM COVER ASSEMBLY**



**SET MECHANICAL EXPLODED VIEW --- BREAKDOWN**  
**PART 5 \_ TFT SCREEN ASSEMBLY**



(ONLY FOR /55)

**MECHANICAL & ACCESSORIES PARTS LIST - OVERALL VIEW**

4	996510020441	MAIN BOARD	KB1	996510020508	KEY BOARD MI ASSM
5	996510020532	SERVO BOARD & DVD DRIVE	LCD1	996510020530	LCD BOARD
7	(CLR)	FRONT PANEL ASS'Y	MB1	996510020394	FFC 50P 0.5MM
8	996510020529	RIM	MIC1	996510020244	EXTERNAL MICROPHONE 3M
9	(CLR)	TFT SCREEN ASS'Y	RM0	996510020533	REMOTE CONTROL
21	(CLR)	SLIDE BRACKET ASS'Y	SD1	996510020498	USB/SD/AUX BOARD
24	996510020435	AUDIO WIRE 19P	TFT0	996510020514	TFT DRIVE BOARD
FFC1	996510020395	FFC 8P 1.0mm			
FFC2	996510020396	FFC 24P 0.5mm			
FFC3	996510020434	FFC 14P			REMARK: CLR=COMPONENTS LEVEL REPAIR

**MECHANICAL PARTS LIST - FRONT PANEL ASS'Y**

PAL2	996510020430	BT BUTTON 2	PAL19	996510020425	EJECT BUTTON BKT
PAL3	996510020429	BT BUTTON 1	PAL20	996510020423	USB BKT
PAL5	996510020427	DECO BRZ+TI	PAL21	996510020426	REMOTE LENS
PAL6	996510020428	DECO-PLT+TI	PAL23	996510020433	GUIDE BKT
PAL7	996510020418	FRONT PANEL	PAL24	996510020420	5D BUTTON
PAL8	996510020432	BT BUT BKT	PAL25	996510020424	EJECT BUTTON
PAL9	996510020421	VOL LI-GUIDE	PAL44	996510020422	DIR LI-GUIDE
PAL10	996510020419	VOL KNOB			
PAL15	996510020431	REM BKT			
PAL17	996510020417	SRC BUTTON			

**MECHANICAL PARTS LIST - SLIDE BRACKET ASS'Y**

SLI20	996510020391	VM-700 GEAR 6
SLI21	996510020387	VM-700 GEAR 2
SLI22	996510020383	VM-700 GEAR 3
SLI23	996510020369	VM-700 GEAR 1
SLI24	996510020386	VM-700 GEAR 4 PA
SLI25	996510020390	VM-700 GEAR 5 PA
SLI26	996510020385	VM-700 BEVEL WHEEL-A PA
SLI28	996510020372	VM-700 GEAR 7
SLI33	996510020384	VM-700 BEVEL WHEEL-B PA

**MECHANICAL PARTS LIST - MAIN BOARD ASS'Y**

8	996510020443	FAN
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**MECHANICAL PARTS LIST - BOTTOM COVER ASS'Y (ONLY FOR /55)**

BOT2	996510020392	VM-700 R-TRACK
BOT7	996510020388	VM-700 LEFT RACK
BOT9	996510020389	VM-700 RIGHT RACK
BOT11	996510020393	VM-700 L-TRACK

**MECHANICAL PARTS LIST - TFT SCREEN ASS'Y**

TFT1	996510020401	WIDE BUTTON	TFT26	996510020415	SCN BOT COVER S C T0.8
TFT2	996510020411	TFT DOWN BUTTON	TFT33	996510020413	TFT/A A070FW03-V4 7"
TFT3	996510020402	TFT UP BUTTON	TFT34	996510020414	TOUCH SCREEN 7"
TFT4	996510020407	BAND BUT BKT	TFT38	996510020412	LCD FSTN F
TFT6	996510020404	OPEN BUT BKT	TFT39	996510020409	SKB BKT SECC T0.6
TFT7	996510020416	LENS BKT2	TFT40	996510020408	LENS BKT
TFT11	996510020406	TFT LENS BLK	TFT41	996510020405	WIDE BUT BKT
TFT12	996510020399	OPEN BUTTON	TFT42	996510020397	FE TFT PANEL
TFT13	996510020400	DISP BUTTON			
TFT24	996510020398	RE TFT PANEL			

**ELECTRICAL PARTS LIST - KEY BOARD**

CON3	996510020482	FFC SOCKET 14P	Q4	996510020462	TR KRC402 USM
D1	996510020513	LED RED	Q5	996510020462	TR KRC402 USM
D7	996510019822	LED GREEN 19-217/GHC-YRSM/3T	SW1	996510020512	TACT SW
LED1	996510019610	LED B/R	SW10	996510020509	ENCODER
LED10	996510019610	LED B/R	SW2	996510020512	TACT SW
LED12	996510019610	LED B/R	SW3	996510020512	TACT SW
LED13	996510019610	LED B/R	SW4	996510020512	TACT SW
LED14	996510019610	LED B/R	SW7	996510020511	ROCKER SW
LED15	996510019610	LED B/R	U5	996510020510	INFRARED RECEIVER
LED16	996510019610	LED B/R	ZD1	996510019580	ESD DIODE PG05GBUSV 200W
LED17	996510019610	LED B/R			
LED18	996510019610	LED B/R			
LED19	996510019610	LED B/R			
LED2	996510019610	LED B/R			
LED20	996510019610	LED B/R			
LED3	996510019610	LED B/R			
LED4	996510019610	LED B/R			
LED5	996510019610	LED B/R			
LED6	996510019610	LED B/R			
LED7	996510019610	LED B/R			
LED8	996510019610	LED B/R			
Q1	996510020462	TR KRC402 USM			
Q2	996510020462	TR KRC402 USM			

**ELECTRICAL PARTS LIST - LCD BOARD**

BL1	996510020531	BACK LIGHT BH-H102SW
CON2	996510020488	FFC SOCKET 8P
K1	996510020518	TACT SW
K2	996510020518	TACT SW
K3	996510020518	TACT SW
K4	996510020518	TACT SW
LED1	996510019610	LED B/R
LED2	996510019610	LED B/R
LED3	996510019610	LED B/R
Q2	996510020462	TR KRC402 USM
Q3	996510020462	TR KRC402 USM

**ELECTRICAL PARTS LIST - MAIN BOARD**

D20	996510020452	REC DIODE
D27	996510020452	REC DIODE
D28	996510020452	REC DIODE
D29	996510020452	REC DIODE
D3	996510020452	REC DIODE
D4	996510020452	REC DIODE
D41	996510020459	ESD DIODE
D5	996510020452	REC DIODE
D6	996510020456	REC DIODE
D7	996510020456	REC DIODE
D8	996510020452	REC DIODE
D9	996510020452	REC DIODE
EC101	996510020446	E.CAP 4700uF
EC102	996510020446	E.CAP 4700uF
EC18	996510020449	CAP 0.047F 5.5V
F1	△ 996510020458	FUSE
FU1	△ 996510020457	FUSE
FU108	△ 996510020457	FUSE
FU2	△ 996510020457	FUSE
FU3	△ 996510020457	FUSE
L11	996510020465	INDUCTOR 100uH CD43
L12	996510020466	POWER INDUCTOR
L120	996510020466	POWER INDUCTOR
M10	996510019712	MOSFET 2SK3018 UMT3
M100	996510020460	MOSFET
M101	996510020460	MOSFET
M102	996510020460	MOSFET
M2	996510019572	MOSFET AO3401
M3	996510019572	MOSFET AO3401
M5	996510019572	MOSFET AO3401
M8	996510019712	MOSFET 2SK3018 UMT3
M9	996510019572	MOSFET AO3401
MODULE	996510020445	TUNER
PD1	996510020452	REC DIODE
PD2	996510020452	REC DIODE
PL9	996510020466	POWER INDUCTOR
Q1	996510019571	TRANSISTOR 2N3904(NPN)
Q100	996510020462	TR KRC402 USM
Q107	996510020464	TR KTC4375Y SOT-89 KEC
Q11	996510020462	TR KRC402 USM
Q110	996510020461	TR KRA304 USM
Q113	996510019571	TRANSISTOR 2N3904(NPN)
Q115	996510020463	TR KTD1304 SOT-23 KEC
Q117	996510020463	TR KTD1304 SOT-23 KEC
Q118	996510020461	TR KRA304 USM
D16	996510020452	REC DIODE
D17	996510020452	REC DIODE
D18	996510020452	REC DIODE
D19	996510020452	REC DIODE
D2	996510020452	REC DIODE



**ELECTRICAL PARTS LIST - TFT DRIVE BOARD**

BT2000	996510020525	T-3386(UI9.8)	Q2002	996510019571	TRANSISTOR 2N3904(NPN)
CN2	996510020491	F SOCKET 40P	Q2003	996510019571	TRANSISTOR 2N3904(NPN)
CN2001	996510020487	FFC SOCKET 26P	Q2004	996510019571	TRANSISTOR 2N3904(NPN)
CN2002	996510020488	FFC SOCKET 8P	Q2005	996510019571	TRANSISTOR 2N3904(NPN)
CN2003	996510020492	FFC SOCKET 36P	Q2006	996510019571	TRANSISTOR 2N3904(NPN)
CN2004	996510020527	SOCKET 2P	Q2007	996510019570	TRANSISTOR MMBT3906LT1(PNP)
CON1	996510020488	FFC SOCKET 8P	Q2008	996510019571	TRANSISTOR 2N3904(NPN)
D1	996510020503	SW DIODE	Q4	996510020462	TR KRC402 USM
D2	996510020503	SW DIODE	Q6	996510020462	TR KRC402 USM
D2000	996510019698	SCHOTTKY DIODE RB551 0.5A 20V	Q7	996510020462	TR KRC402 USM
D2001	996510019698	SCHOTTKY DIODE RB551 0.5A 20V	SW1	996510020518	TACT SW
D2002	996510020503	SW DIODE	SW2	996510020518	TACT SW
D2003	996510020503	SW DIODE	SW3	996510020518	TACT SW
D2004	996510020503	SW DIODE	U1	996510020494	IC PT6524LQ
D2005	996510020503	SW DIODE	U2001	996510020479	IC BA7071 SOP8 ROHM
D2006	996510020503	SW DIODE	U2002	996510020475	IC 78L05L SOT-89 UTC
D2007	996510020452	REC DIODE	U2003	996510020522	IC 74HC4538PW PHILIPS
D2008	996510020517	ZENER DIODE	U2005	996510019701	IC NJM3414AM SOP-8
D2009	996510020503	SW DIODE	U2006	996510020519	IC HEF4069UBT PHILIPS
FB2000	996510020516	CHIP BEAD	U2007	996510020524	IC VP77-LF LQFP128
FB2001	996510020516	CHIP BEAD	U2010	996510020523	IC AT24C02BN-10SU-1.8
FB2002	996510020516	CHIP BEAD	U2011	996510020521	IC TSC2046IPWR TSSOP16 TI
FB2003	996510020516	CHIP BEAD	U2016	996510019672	IC KIA78M08 DPAK KEC
FB2004	996510020516	CHIP BEAD	U2017	996510020520	IC MP1015 TSSOP20 MPS
FB2005	996510020516	CHIP BEAD	X2000	996510020526	TCXO 20.00M
GS1	996510020528	VM-700 GROUND SPRING	ZD2000	996510019580	ESD DIODE PG05GBUSV 200W
GS2	996510020528	VM-700 GROUND SPRING			
L2001	996510019795	INDUCTOR 10uH			
L2003	996510019795	INDUCTOR 10uH			
L2004	996510020515	INDUCTOR 1.8uH 0805			
L2005	996510020515	INDUCTOR 1.8uH 0805			
L2006	996510020515	INDUCTOR 1.8uH 0805			
L2007	996510019795	INDUCTOR 10uH			
L2008	996510019795	INDUCTOR 10uH			
L2009	996510019795	INDUCTOR 10uH			
L2012	996510019795	INDUCTOR 10uH			
L3	996510019795	INDUCTOR 10uH			
LED16	996510019610	LED B/R			
LED17	996510019610	LED B/R			
LED18	996510019610	LED B/R			
M1	996510019572	MOSFET AO3401			
M109	996510019572	MOSFET AO3401			
Q1	996510019571	TRANSISTOR 2N3904(NPN)			
Q133	996510020462	TR KRC402 USM			
Q2001	996510019571	TRANSISTOR 2N3904(NPN)			

- Note:**
- 1) Only these parts mentioned in the list are normal service parts.
  - 2) For Main Board & Servo Board & TFT Drive Board & USB/SD/AUX Board , module level repair can be a service option also.
  - 3) For DVD Mechanism must be ordered with Servo board, the combined part is with code number 996510020532

**ONLY FOR CED750/51 & /98****MECHANICAL & ACCESSORIES PARTS LIST - OVERALL VIEW**

4	996510031149	MAIN BOARD ASSM	KB1	996510020508	KEY BOARD ASSM
5	996510031159	SERVO BOARD & DVD DRIVE /51	LCD1	996510027828	LCD MI ASSM
5	996510024015	SERVO BOARD & DVD DRIVE /98	MB1	996510020394	FPC MB TO LOADER 50P
7	(CLR)	FRONT PANEL ASS'Y	MB2	996510029962	50P CABLE MAIN TO TFT
8	996510020529	RIM	MIC1	996510020244	EXTERNAL MICROPHONE 3M
9	(CLR)	TFT SCREEN ASS'Y	RM0	996510020533	REMOTE CONTROL
21	(CLR)	SLIDE BRACKET ASS'Y	TFT0	996510020514	TFT DRIVE BOARD ASSM
ASS24	996510020435	I/O WIRE 19P	WIH2	996510031156	PWR WIRE 16P 15A 200MM /51
FFC1	996510020395	FFC 8P 1.0mm	WIH2	996510020437	PWR WIRE 16P 15A 200MM /98
FFC2	996510020396	FFC 24P 0.5mm	WIR2	996510020438	I/O WIRE 3P A/V
FFC3	996510020434	FFC 14P	WIR3	996510020440	WIRE 2P 29mm 28#
			WIR4	996510020442	WIRE 2P 1.25mm 80mm

REMARK: CLR=COMPONENTS LEVEL REPAIR

**MECHANICAL PARTS LIST - FRONT PANEL ASS'Y**

PAL10	996510027837	VOL KNOB	PAL25	996510020424	EJECT BUTTON
PAL15	996510020431	REM BKT	PAL3	996510020429	BT BUTTON 1
PAL17	996510020417	SRC BUTTON	PAL44	996510020422	DIR LI-GUIDE
PAL19	996510020425	EJECT BUTTON BKT	PAL5	996510020427	DECO BRZ+TI
PAL2	996510020430	BT BUTTON 2	PAL6	996510020428	DECO-PLT+TI
PAL20	996510020423	USB BKT	PAL7	996510020418	FRONT PANEL
PAL21	996510020426	REMOTE LENS	PAL8	996510020432	BT BUT BKT
PAL23	996510020433	GUIDE BKT	PAL9	996510027835	VOL LI-GUIDE
PAL24	996510020420	5D BUTTON			

**MECHANICAL PARTS LIST - BOTTOM COVER ASS'Y**

BOT2	996510020392	VM-700 R-TRACK
BOT7	996510020388	VM-700 LEFT RACK
BOT9	996510020389	VM-700 RIGHT RACK
BOT11	996510020393	VM-700 L-TRACK

**MECHANICAL PARTS LIST - SLIDE BRACKET ASS'Y**

SLI20	996510020391	GEAR 6	SLI25	996510027842	GEAR 5
SLI21	996510020387	GEAR 2	SLI26	996510020385	BEVEL WHEEL-A
SLI22	996510020383	GEAR 3	SLI28	996510027841	GEAR 7
SLI23	996510020369	GEAR 1	SLI33	996510020384	BEVEL WHEEL-B
SLI24	996510020386	GEAR 4 PA			

**MECHANICAL PARTS LIST - TFT SCREEN ASS'Y**

TFT1	996510020401	WIDE BUTTON	TFT38	996510020412	LCD FSTN F
TFT11	996510027832	TFT LENS BLK	TFT39	996510020409	SKB BKT SECC T0.6
TFT12	996510027829	OPEN BUTTON	TFT4	996510020407	BAND BUT BKT
TFT13	996510020400	DISP BUTTON	TFT40	996510020408	LENS BKT
TFT2	996510020411	TFT DOWN BUTTON	TFT41	996510020405	WIDE BUT BKT
TFT24	996510020398	RE TFT PANEL	TFT42	996510031166	FE TFT PANEL /51
TFT26	996510020415	SCN BOT COVER S C T0.8	TFT42	996510027831	FE TFT PANEL /98
TFT3	996510020402	TFT UP BUTTON	TFT6	996510027834	OPEN BUT BKT
TFT33	996510020413	TFT/A A070FW03-V4 7"	TFT7	996510020416	LENS BKT
TFT34	996510020414	TOUCH SCREEN 7"			

**ELECTRICAL PARTS LIST - USB/SD/AUX BOARD**

CON1	996510020499	SOCKET 4P 2.0mm USB2.0	U1	996510020500	SOCKET EARPHONE
CON3	996510020502	FFC SOCKET 24P			
CON4	996510019625	12P 2.5MM SD/MMC SOCKET			

**ELECTRICAL PARTS LIST - MOTOR DRIVE BOARD**

CN4001	996510020506	FFC SOCKET 12P	U1	996510020500	SOCKET EARPHONE
D4000	996510020503	DIODE 1N4148 200mW 300mA	U4000	996510020507	IC L7809CV TO-220 ST
D4001	996510020503	DIODE 1N4148 200mW 300mA	U4001	996510020505	OPT. ELEC. COUNTER GP1S25
D4002	996510020503	DIODE 1N4148 200mW 300mA	U4003	996510027838	IC 78L05L SOT-89 UTC
L4001	996510019710	INDUCTOR 10uH 0805	U4004	996510020504	IC BA6951FS
SW1	996510020501	TACT SW 7.5mm			

**ELECTRICAL PARTS LIST - SERVO BOARD & DVD DRIVE**

U104	996510031157	IC MX25L3205DM2I-12G 32M W/SW /51
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**ELECTRICAL PARTS LIST - KEY BOARD**

CON3	996510020482	F SOCKET 14P	LED5	996510019610	LED B/R
D1	996510020513	LED RED	LED6	996510019610	LED B/R
D7	996510019822	LED GREEN 19-217/GHC-YRSM/3T	LED7	996510019610	LED B/R
LED1	996510019610	LED B/R	LED8	996510019610	LED B/R
LED10	996510019610	LED B/R	Q1	996510020462	TR KRC402 USM
LED12	996510019610	LED B/R	Q2	996510020462	TR KRC402 USM
LED13	996510019610	LED B/R	Q4	996510020462	TR KRC402 USM
LED14	996510019610	LED B/R	Q5	996510020462	TR KRC402 USM
LED15	996510019610	LED B/R	SW1	996510020512	TACT SW 7.5mm
LED16	996510019610	LED B/R	SW10	996510020509	ENCODER
LED17	996510019610	LED B/R	SW2	996510020512	TACT SW 4.3mm
LED18	996510019610	LED B/R	SW3	996510020512	TACT SW 4.3mm
LED19	996510019610	LED B/R	SW4	996510020512	TACT SW 4.3mm
LED2	996510019610	LED B/R	SW7	996510020511	ROCKER SW
LED20	996510019610	LED B/R	U5	996510020510	INFRARED RECEIVER
LED3	996510019610	LED B/R	ZD1	996510019580	DIODE PG05GBUSV 200W 24A
LED4	996510019610	LED B/R			

**ELECTRICAL PARTS LIST - LCD BOARD**

BL1	996510020531	BACK LIGHT BH-H102SW	LED1	996510019610	LED B/R 0603 25mA
CON2	996510020488	FFC SOCKET 8P	LED2	996510019610	LED B/R 0603 25mA
K1	996510020518	TACT SW 2.5mm	LED3	996510019610	LED B/R 0603 25mA
K2	996510020518	TACT SW 2.5mm	Q2	996510020462	TR KRC402 USM
K3	996510020518	TACT SW 2.5mm	Q3	996510020462	TR KRC402 USM
K4	996510020518	TACT SW 2.5mm			

**ELECTRICAL PARTS LIST - MAIN BOARD**

ANT2	996510020450	I/O 2P FM-ANT	CN7	996510027833	FFC SOCKET 50P 0.5mm /51
BEEP1	996510020444	BUZZER HC12-105B	CN7	996510020485	FFC SOCKET 50P /98
CN111	996510020451	SOCKET 12P 2.0mm DIP90	CN8	996510027833	FFC SOCKET 50P 0.5mm /51
CN2	996510020448	SOCKET 7P 2.0mm DIP180	CN8	996510020485	FFC SOCKET 50P /98
CN5	996510031152	SOCKET 16P 2.5MM DIP 90 /51	CON1002	996510020482	FPC SOCKET 14P 0.5mm UP
CN5	996510020486	SOCKET 16P 2.5MM DIP 90 /98	CON4	996510020489	FFC SOCKET 24P 0.5mm
CN6	996510020484	FFC SOCKET 8P 1.0mm	CON5	996510020483	SOCKET 2P 1.25mm

**ELECTRICAL PARTS LIST - MAIN BOARD**

D1	996510020503	DIODE 1N4148 200mW 300mA /51	Q107	996510020464	TR KTC4375Y SOT-89 KEC
D1	996510020452	DIODE 1N4004 3A 1V 400V /98	Q11	996510020462	TR KRC402 USM
D101	996510020456	REC DIODE 1SR154 1A 400V	Q110	996510020461	TR KRA304 USM
D104	996510020456	REC DIODE 1SR154 1A 400V	Q113	996510019571	TRANSISTOR 2N3904(NPN)
D106	996510020503	DIODE 1N4148 200mW 300mA	Q115	996510020463	TR KTD1304 SOT-23 KEC
D116	996510020503	DIODE 1N4148 200mW 300mA	Q117	996510020463	TR KTD1304 SOT-23 KEC
D12	996510020447	TVS DIODE 5KP24A-E3/54 8W 600A	Q118	996510020461	TR KRA304 USM
D13	996510020452	REC DIODE 1N4004 3A 1V 400V	Q120	996510020493	TR KN12907A SOT-23
D130	996510020503	DIODE 1N4148 200mW 300mA	Q121	996510020493	TR KN12907A SOT-23
D136	996510020495	SCHOT DIODE RB055L-40 40V 3A	Q122	996510019571	TRANSISTOR 2N3904(NPN)
D137	996510020495	SCHOT DIODE RB055L-40 40V 3A	Q123	996510020461	TR KRA304 USM
D138	996510020503	DIODE 1N4148 200mW 300mA	Q124	996510020463	TR KTD1304 SOT-23 KEC
D14	996510020452	REC DIODE 1N4004 3A 1V 400V	Q127	996510020463	TR KTD1304 SOT-23 KEC
D140	996510020503	DIODE 1N4148 200mW 300mA	Q13	996510019571	TRANSISTOR 2N3904(NPN)
D15	996510020452	REC DIODE 1N4004 3A 1V 400V	Q137	996510019571	TRANSISTOR 2N3904(NPN)
D16	996510020503	DIODE 1N4148 200mW 300mA	Q138	996510019571	TRANSISTOR 2N3904(NPN)
D17	996510020452	REC DIODE 1N4004 3A 1V 400V	Q139	996510019571	TRANSISTOR 2N3904(NPN)
D18	996510020452	REC DIODE 1N4004 3A 1V 400V	Q141	996510019570	TRANSISTOR MMBT3906LT1
D19	996510020503	DIODE 1N4148 200mW 300mA	Q18	996510020461	TR KRA304 USM
D2	996510020503	DIODE 1N4148 200mW 300mA	Q2	996510019571	TRANSISTOR 2N3904(NPN)
D20	996510020503	DIODE 1N4148 200mW 300mA	Q24	996510020461	TR KRA304 USM
D27	996510020503	DIODE 1N4148 200mW 300mA	Q3	996510019571	TRANSISTOR 2N3904(NPN)
D28	996510020452	REC DIODE 1N4004 3A 1V 400V	Q31	996510020462	TR KRC402 USM
D29	996510020452	REC DIODE 1N4004 3A 1V 400V	Q34	996510019571	TRANSISTOR 2N3904(NPN)
D3	996510020452	REC DIODE 1N4004 3A 1V 400V	Q36	996510020462	TR KRC402 USM
D4	996510020452	REC DIODE 1N4004 3A 1V 400V	Q5	996510020463	TR KTD1304 SOT-23 KEC
D41	996510020459	DIODE IMSA-6801-01Y901	Q6	996510020462	TR KRC402 USM
D5	996510020503	DIODE 1N4148 200mW 300mA	Q7	996510019571	TRANSISTOR 2N3904(NPN)
D6	996510020456	REC DIODE 1SR154 1A 400V	Q8	996510020463	TR KTD1304 SOT-23 KEC
D7	996510020456	REC DIODE 1SR154 1A 400V	Q9	996510020462	TR KRC402 USM
D8	996510020503	DIODE 1N4148 200mW 300mA	RN128	996510020481	V-RES AVX 0603*4 10p 18V
D9	996510020452	REC DIODE 1N4004 3A 1V 400V	RN7	996510020481	V-RES AVX 0603*4 10p 18V
EC101	996510020446	E.CAP 4700uF ±20% 16V 105°C	SD5	996510019698	SCHOTTKY DIODE RB551 0.5A 20V
EC102	996510020446	E.CAP 4700uF ±20% 16V 105°C	SD6	996510019698	SCHOTTKY DIODE RB551 0.5A 20V
EC18	996510027872	CAP 0.22F 5.5V 10.5*5.5 /51	TC106	996510027839	TAN.CAP 220uF /51
EC18	996510020449	CAP 0.047F 5.5V /98	TC106	996510020496	TAN.CAP 220uF /98
F1	996510020458	FUSE 1812FSMD110 1.1A 6V	U1	996510019656	IC TDA7419TR SO28 ST
FAN	996510020443	FAN DFB251012M YLTC	U100	996510019650	IC E-TDA7386 FLEXIWATT25 ST
FU1	996510020457	FUSE FSMD020-1206 0.2A 8V	U101	996510019672	IC KIA78M08 DPAK KEC
FU108	996510020457	FUSE FSMD020-1206 0.2A 8V	U105	996510020490	IC TL1451ACD SOIC16
FU2	996510020457	FUSE FSMD020-1206 0.2A 8V	U11	996510031148	IC 78L05 SOT-89 UTC /51
FU3	996510020457	FUSE FSMD020-1206 0.2A 8V	U11	996510020475	IC 78L05L SOT-89 UTC /98
L11	996510020465	INDUCTOR 100uH CD43	U119	996510019672	IC KIA78M08 DPAK KEC
L12	996510020466	POWER INDUCTOR	U13	996510020469	IC XC6202P332PR
L120	996510020466	POWER INDUCTOR	U134	996510020467	IC LD1117A-1.8V
M1	996510031014	MOSFET AO3401A SOT-23	U15	996510020468	IC RT9161A-50X
M10	996510019712	MOSFET 2SK3018 UMT3	U16	996510020468	IC RT9161A-50X
M100	996510031147	MOSFET AO4419 SO-8 AOS	U2	996510020476	IC 78L09 SOT-89 KEC
M101	996510031147	MOSFET AO4419 SO-8 AOS	U20	996510019713	IC UTC4558 SOP-8
M102	996510031147	MOSFET AO4419 SO-8 AOS	U21	996510020474	IC 74HC4053PW TSSOP-1
M2	996510031014	MOSFET AO3401A SOT-23	U23	996510020477	IC 79L05 SOT-89 UTC
M3	996510031014	MOSFET AO3401A SOT-23	U3	996510020480	IC BA6287F SOP-8 ROMH
M5	996510031014	MOSFET AO3401A SOT-23	U44	996510031158	IC ATMEGA1280-16AU W/SW /51
M8	996510019712	MOSFET 2SK3018 UMT3	U44	996510020478	IC ATMEGA1280-16AU W/SW /98
M9	996510031014	MOSFET AO3401A SOT-23	U45	996510020472	IC 74HCT4052DB SSOP16
MDL4	996510020445	TUNER FM/OIRT/AM/LM	U48	996510020473	IC 74HC00 SOP14
PD1	996510020503	DIODE 1N4148 200mW 300mA	U50	996510019713	IC UTC4558 SOP-8
PD2	996510020503	DIODE 1N4148 200mW 300mA	U61	996510020479	IC BA7071 SOP8 ROHM
PL9	996510020466	PWR INDUCTOR 2.5uH ±20% 1.5A	U8	996510019659	IC FMS6502 TSSOP24
Q1	996510019571	TRANSISTOR 2N3904(NPN)	U902	996510031373	MODULE BLUETOOTH CED750
Q100	996510020462	TR KRC402 USM			

## **ELECTRICAL PARTS LIST - MAIN BOARD**

X3	996510020470	TCXO 8.00M ±15ppm 20pF
ZD1	996510020454	ZENER DIODE 5.6V 300mW
ZD105	996510020453	ZENER DIODE 18V 300mW
ZD107	996510020453	ZENER DIODE 18V 300mW
ZD16	996510020455	ZENER DIODE 3.3V 300mW
ZD17	996510020471	ZENER DIODE 4.3V ±0.3V SOD323
ZD18	996510019580	DIODE PG05GBUSV 200W 24A
ZD2	996510019580	DIODE PG05GBUSV 200W 24A
ZD3	996510020455	ZENER DIODE 3.3V 300mW
ZD35	996510019580	DIODE PG05GBUSV 200W 24A

## **ELECTRICAL PARTS LIST - TFT DRIVE BOARD**

BT2000	996510020525	TRASFO T-3386(UI9.8)	Q2003	996510019571	TRANSISTOR 2N3904(NPN)
CN2	996510020491	FPC SOCKET 40P 0.5mm DOWN	Q2004	996510019571	TRANSISTOR 2N3904(NPN)
CN2001	996510020487	FFC SOCKET 26P 0.5mm	Q2005	996510019571	TRANSISTOR 2N3904(NPN)
CN2002	996510020488	FFC SOCKET 8P 0.5mm	Q2006	996510019571	TRANSISTOR 2N3904(NPN)
CN2003	996510020492	FPC SOCKET 36P 0.5mm UP	Q2007	996510019570	TRANSISTOR MMBT3906LT1
CN2004	996510020527	SOCKET 2P PWR	Q2008	996510019571	TRANSISTOR 2N3904(NPN)
CON1	996510020488	FFC SOCKET 8P 0.5mm	Q4	996510020462	TR KRC402 USM
D1	996510020503	DIODE 1N4148 200mW 300mA	Q6	996510020462	TR KRC402 USM
D2	996510020503	DIODE 1N4148 200mW 300mA	Q7	996510020462	TR KRC402 USM
D2000	996510019698	SCHOTTKY DIODE RB551 0.5A 20V	SW1	996510020518	TACT SW 2.5mm
D2001	996510019698	SCHOTTKY DIODE RB551 0.5A 20V	SW2	996510020518	TACT SW 2.5mm
D2002	996510020503	DIODE 1N4148 200mW 300mA	SW3	996510020518	TACT SW 2.5mm
D2003	996510020503	DIODE 1N4148 200mW 300mA	U1	996510020494	IC PT6524LQ
D2004	996510020503	DIODE 1N4148 200mW 300mA	U2001	996510020479	IC BA7071 SOP8 ROHM
D2005	996510020503	DIODE 1N4148 200mW 300mA	U2002	996510020475	IC 78L05L SOT-89 UTC
D2006	996510020503	DIODE 1N4148 200mW 300mA	U2003	996510020522	IC 74HC4538PW PHILIPS
D2007	996510020452	REC DIODE 1N4004 3A 1V 400V	U2005	996510019701	IC NJM3414AM SOP-8
D2008	996510020517	ZENER DIODE 11V 300mW	U2006	996510020519	IC HEF4069UBT PHILIPS
D2009	996510020503	DIODE 1N4148 200mW 300mA	U2007	996510020524	IC VP77-LF LQFP128
FB2000	996510020516	CHIP BEAD 0603 600R	U2010	996510020523	IC AT24C02BN-10SU-1.8
FB2001	996510020516	CHIP BEAD 0603 600R	U2011	996510020521	IC TSC2046IPWR TSSOP16 TI
FB2002	996510020516	CHIP BEAD 0603 600R	U2016	996510019672	IC KIA78M08 DPAK KEC
FB2003	996510020516	CHIP BEAD 0603 600R	U2017	996510020520	IC MP1015 TSSOP20 MPS
FB2004	996510020516	CHIP BEAD 0603 600R	X2000	996510020526	TCXO 20.00M
FB2005	996510020516	CHIP BEAD 0603 600R	ZD2000	996510019580	DIODE PG05GBUSV 200W 24A
GS1	996510020528	GROUND SPRING			
GS2	996510020528	GROUND SPRING			
L2001	996510019795	INDUCTOR 10uH 0805			
L2003	996510019795	INDUCTOR 10uH 0805			
L2004	996510020515	INDUCTOR 1.8uH 0805			
L2005	996510020515	INDUCTOR 1.8uH 0805			
L2006	996510020515	INDUCTOR 1.8uH 0805			
L2007	996510019795	INDUCTOR 10uH 0805			
L2008	996510019795	INDUCTOR 10uH 0805			
L2009	996510019795	INDUCTOR 10uH 0805			
L2012	996510019795	INDUCTOR 10uH 0805			
L3	996510019795	INDUCTOR 10uH 0805			
LED16	996510019610	LED B/R 0603 25mA			
LED17	996510019610	LED B/R 0603 25mA			
LED18	996510019610	LED B/R 0603 25mA			
M1	996510019572	MOSFET AO3401			
M109	996510019572	MOSFET AO3401			
Q1	996510019571	TRANSISTOR 2N3904(NPN)			
Q133	996510020462	TR KRC402 USM			
Q2001	996510019571	TRANSISTOR 2N3904(NPN)			
Q2002	996510019571	TRANSISTOR 2N3904(NPN)			

**Note:** 1) Only these parts mentioned in the list are normal service parts.

2) For Main Board & Servo Board & TFT Drive Board , module level repair can be a service option also.

3) For DVD Mechanism must be ordered with Servo board.

## REVISION LIST

### **1.0 Manual 3141 785 33260**

Initial Service Manual released.

### **1.1 Manual 3141 785 33621**

In this version, version /94 added.

In Chapter 12, Mechanical & Electrical Parts List updated.

### **1.2 Manual 3141 785 33622**

In this version, version /98 added.

In Chapter 12, Mechanical & Electrical Parts List updated.

### **1.3 Manual 3141 785 33623**

In this version, version /51 added.

In Chapter 12, Mechanical & Electrical Parts List updated.