

# TELEFUNKEN

## TF32K82A TF37A82H

### SERVICE MANUAL



#### Caution

Be sure to read this manual before servicing. To assure safety from fire, electric shock, injury, harmful radiation and materials, various measures are provided in this Hitachi liquid crystal television/monitor. Be sure to read the cautionary items described in the manual to maintain safety before servicing.

#### Service Warning

1. The LCD Panel Module is made of glass. When handling broken LCD Panel Module, take special care not to be injured.
2. Replacement work should only start after the LCD Panel Module and the AC/DC Power Supply has become sufficiently cool.
3. Take special care of the LCD display panel and do not damage its surface.
4. Do not touch the LCD Panel Module with your bare hands and protect its surface from stains.
5. It is recommended to use clean soft gloves during servicing in order to protect the LCD display panel and the service personnel himself.

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SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT


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**Liquid Crystal Display Television/Monitor**


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# Safety Notice

Maintenance and repair of this LCD TV/monitor should be done by qualified service personnel only.


Critical parts that have special safety characteristics are identified by a  in the replacement parts list. Use of any substitute replacement part that does not have the same safety characteristics as the recommended replacement part in the parts list might create shock, fire and / or other hazards.

Read and comply with all caution and safety related notes on or inside the LCD/monitor cabinet, the printed circuit boards or the LCD Panel Module. Please note the following safety symbols indicated below.




**CAUTION**


RISK OF ELECTRIC SHOCK DO NOT OPEN



TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol indicates "dangerous voltage" inside the product that presents a risk of electric shock or personal injury.



This symbol indicates important instructions accompanying the product.

## PC Display Modes

### COMPONENT VIDEO (YPbPr) INPUT

Mode	Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
576i	576	15.63	50.00
480i	480	15.73	59.94/60.00
576p	576	31.26	50.00
480p	480	31.47	59.94/60.00
1080i/50	1080	28.13	50.00
1080i/60	1080	33.75	59.94/60.00
720p/60	720	44.96	59.94/60.00

# Display Modes

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## RGB INPUT

Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)	Pixel Frequency (MHz)	Comment
640x480	31.47 (N)	60.00 (N)	25.18	DOS
800x600	37.88 (P)	60.32(P)	40.00	VESA
1024x768	38.36(N)	60.00(N)	65.00	VESA
1280X768	64.00(P)	60.00(P)	108.00	VESA

## HDMI INPUT

Mode	Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
VGA	640X480	31.47	59.94
576p	720X576	31.25	50.00
1080i/50	1920X1080	28.13	50.00
1080i/60	1920X1080	33.75	60.00
720p/50	1280X720	37.50	50.00
720p/60	1280X720	45.00	60.00

- Modes, which are not listed in the above table, may not be supported. For an optimal picture is recommended to choose a mode listed in the table.
- The incoming display modes compatible with WINDOWS as shown in the table above.
- Sometimes, the image may be disrupted due to the frequency standard from the VGA card. However, this is not an error. You may improve this situation by activating the automatic adjustment or by manually changing the phase and the clock settings in the menu.
- To extend the service life of the product, we recommend that you use your computer's power management function.

# Specifications

<b>LCD Panel</b>		
Size	32" Diagonal	37" Diagonal
Display size	697.68(H) X 392.26 (V) mm	819.6(H) X 460.8 (V) mm
Pixel Pitch	0.51075(H) X 0.51075 (V) mm	0.6(H) X 0.6 (V) mm
View Angle	178 °/178°(H/V)	178 °/178°(H/V)
<b>Frequency</b>		
Horizontal	30~80KHz	30~80KHz
Vertical	56~60Hz	56~60Hz
Display color	16.7M colors	16.7M colors
<b>Display Resolution</b>		
Maximum Mode	1280 X 768 @ 60Hz	1280 X 768 @ 60Hz
Optimum Mode	1280 X 768 @ 60Hz	1280 X 768 @ 60Hz
<b>Input Source</b>		
Sync.	H/V separate, TTL, P. or N.	H/V separate, TTL, P. or N.
Video Signal	1Vp-p @ 75 ohm	1Vp-p @ 75 ohm
RGB Signal	0.7 Vp-p @ 75 ohm	0.7 Vp-p @ 75 ohm
<b>TV</b>		
Color System	PAL/SECAM	PAL/SECAM
Sound System	BG, DK, I, L	BG, DK, I, L
<b>Video</b>		
Color System	PAL/SECAM/NTSC	PAL/SECAM/NTSC
Video Format	CVBS, S-VHS, RGB	CVBS, S-VHS, RGB
<b>Power Supply</b>		
Input	AC 100~240V, 50/60Hz	AC 100~240V, 50/60Hz
<b>Power Consumption</b>		
Working	165W	200W
Standby	< 3W	< 3W
<b>Environmental Considerations</b>		
Operating Temperature	10°C ~ 40 °C(50°F ~ 104°F)	10°C ~ 40 °C(50°F ~ 104°F)
Operating Humidity	10% ~ 80%	10% ~ 80%
<b>Audio Characteristics</b>		
Audio Input	RCA Jack (L, R), 0.5Vrms (-9dB)	RCA Jack (L, R), 0.5Vrms (-9dB)
Audio Input (PC)	RCA Jack (L, R), 0.5Vrms (-9dB)	RCA Jack (L, R), 0.5Vrms (-9dB)
Frequency	RF: 100Hz~12KHz (at ± 3dB)	RF: 100Hz~12KHz (at ± 3dB)
Response	A/V: 100Hz~13KHz (at ± 3dB)	A/V: 100Hz~13KHz (at ± 3dB)
<b>Dimension (WXDXH) mm</b>		
Without Stand	796X114X546	947X126X644
With Stand	796X233X582	947X310X710
<b>Weight (Kg)</b>		
Net Weight	15.2	23.5
Gross Weight	18.2	27

**Note:**

- Design and specifications are subject to change without notice.
- Weight and dimensions shown are approximate values only.



# Location and Function of Controls

## REMOTE CONTROLLER

### STANDBY

Switch on the LCD TV when at standby mode or vice versa.

### DISPLAY

Display the source and channel information.

### INPUT SOURCE SELECT

#### TV button

Select the TV mode.

#### VIDEO button

Select a mode among AV, S-Video and SCART.

#### PC button

Select the VGA and HDMI mode.

#### COMP button

Select the YPbPr mode.

### PROGRAM SELECT

Press these buttons to select a TV program directly.

### MENU SELECT

Enter or exit from the OSD menu.

### CH+/CH-

Select channel in ascending or descending order.

### ▲▼◀▶ and ENTER

select menu items and adjust menu values.

### VOL+/VOL-

Press to increase or decrease volume.

### PICTURE MODE

You may recall the picture mode by pressing this button. Each time pressed, picture mode is changed in following sequence:

Sport→Vivid→Hi-Bright  
↑ User ↓

### RETURN

Return to previously selected program number.

### MUTE

Switch the sound on or off.

### NICAM

Switch between NICAM Stereo, NICAM DUAL1, NICAM DUAL2, NICAM Mono or Mono.

### EQ MODE

You may recall the equalizer mode by pressing this button. Each time pressed, EQ mode is changed in following sequence.

Off→Rock→Pop→Live→Dance  
↑ Soft ↓ Classic ↓ Techno ↓

### DISPLAY MODE

You may recall the display mode by pressing this button. Each time pressed, display mode is changed in following sequence.

Full→4:3→16:9→Auto  
↑ Normal ↓

### TELETEXT

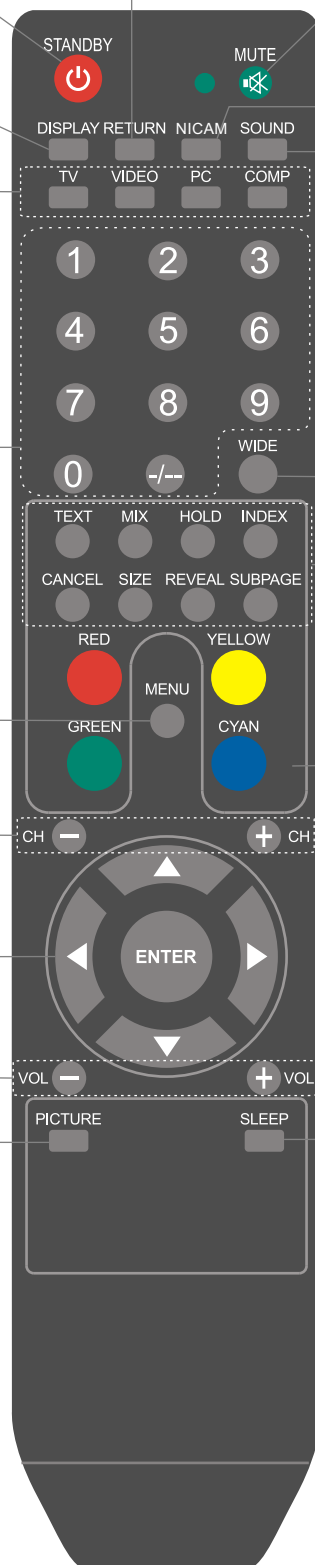
These buttons are used for certain models with Teletext functions. For further details, refer to "TELETEXT FUNCTION" section.

### COLOR BUTTONS

These buttons are used for program editing function. For further details, refer to "Program Edit".

### SLEEP

To select the sleep time.

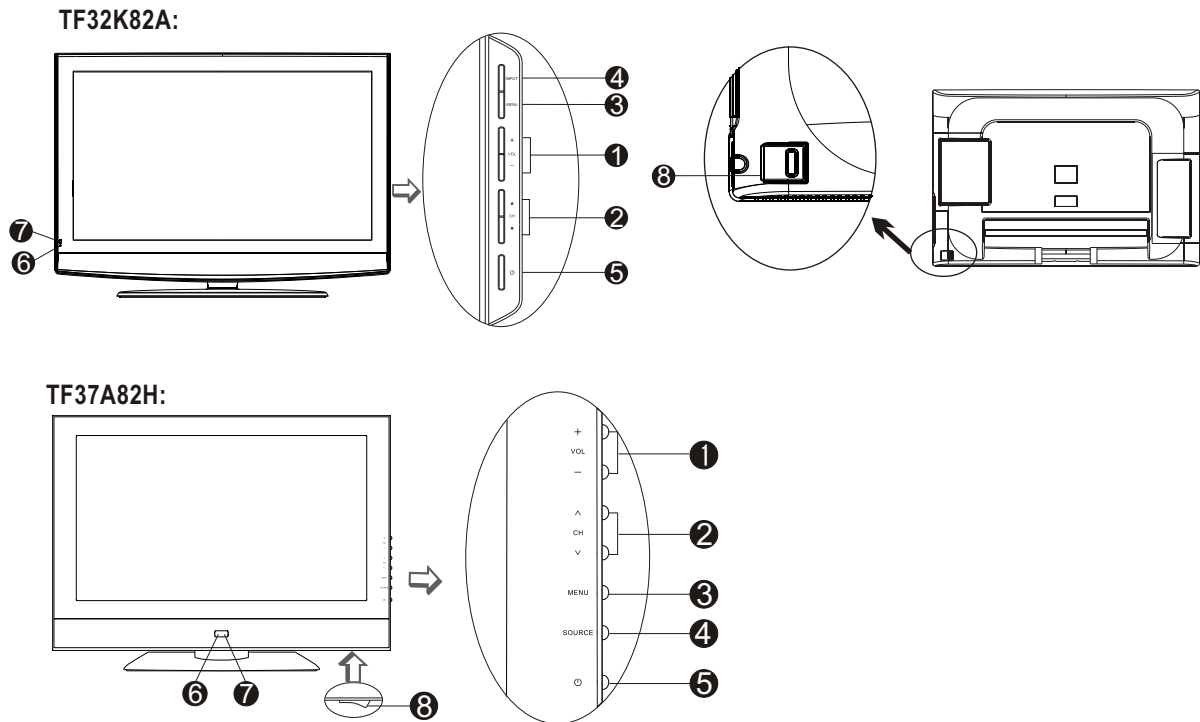


### Note:

the prompt message "Invalid Key" will appear if you press a button for a function that is not available.

# Location and Function of Controls

## FRONT PANEL



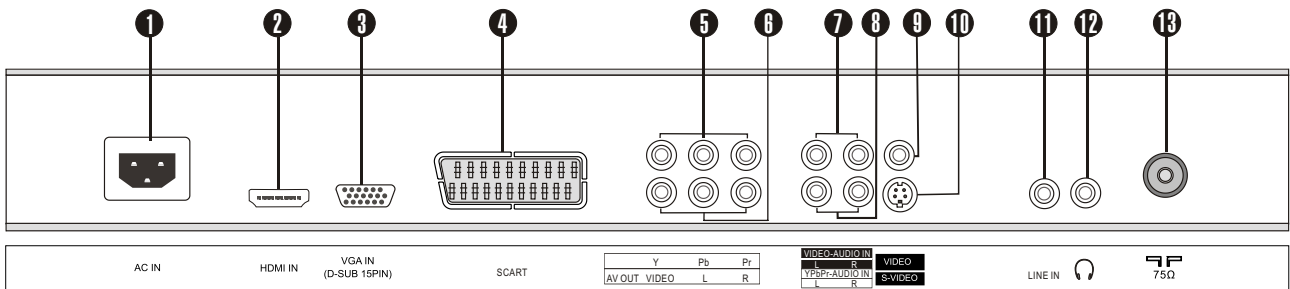
Item	Button Name	Description
①	<b>VOL +/-</b>	Increase or decrease the volume. Adjust the values of the selected menu item in the OSD menu.
②	<b>CH <math>\nabla/\wedge</math></b>	When you are watching the TV program, press these buttons to select channel in ascending or descending order. Select the upper or lower menu item in the OSD menu.
③	<b>MENU</b>	Enter or exit from the menu.
④	<b>SOURCE/INPUT</b>	Select an input signal between TV, AV, S-Video, SCART, YPbPr, HDMI and VGA.
⑤	<b>⏻</b>	Switch on the LCD TV when in standby mode or vice versa.
⑥	<b>Power Indicator</b>	Illuminates red in standby mode. Illuminates green when the LCD TV is switched on.
⑦	<b>Remote Sensor</b>	Infrared sensor for the remote control.
⑧	<b>Main Power Switch</b>	Switch on/off the LCD TV.

**Note:**

If there is no signal input from VGA/HDMI for 1 minute, or no signal input from other video source (the blue background should be set to On) for over 15 minutes, the LCD TV will switch to standby automatically. The power indicator will light up in red.

# Installation and Connecting

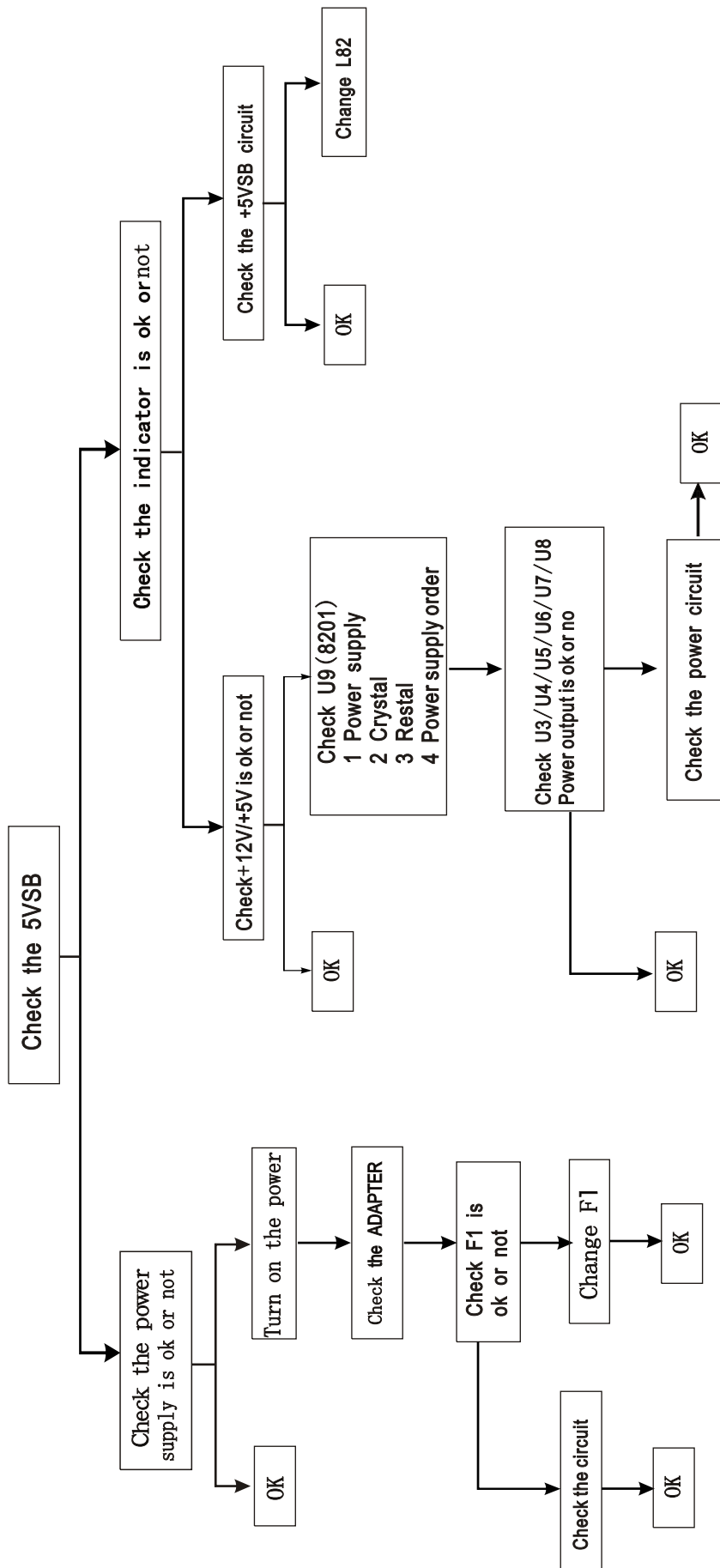
## REAR PANEL



- ❶ AC Input Socket
- ❷ HDMI Input Connector
- ❸ VGA Input Terminal
- ❹ SCART Connector
- ❺ YPbPr Component Video Input Terminals
- ❻ AV Out Terminals
- ❼ Video-Audio Input Terminals
- ❽ YPbPr-Audio Input Terminals
- ❾ Video Input Terminal
- ❿ S-VIDEO Terminal
- ⓫ LINE IN (VGA Audio) Terminal
- ⓬ Headphone Output Terminal
- ⓭ RF Input Socket

# Trouble shooting Charts

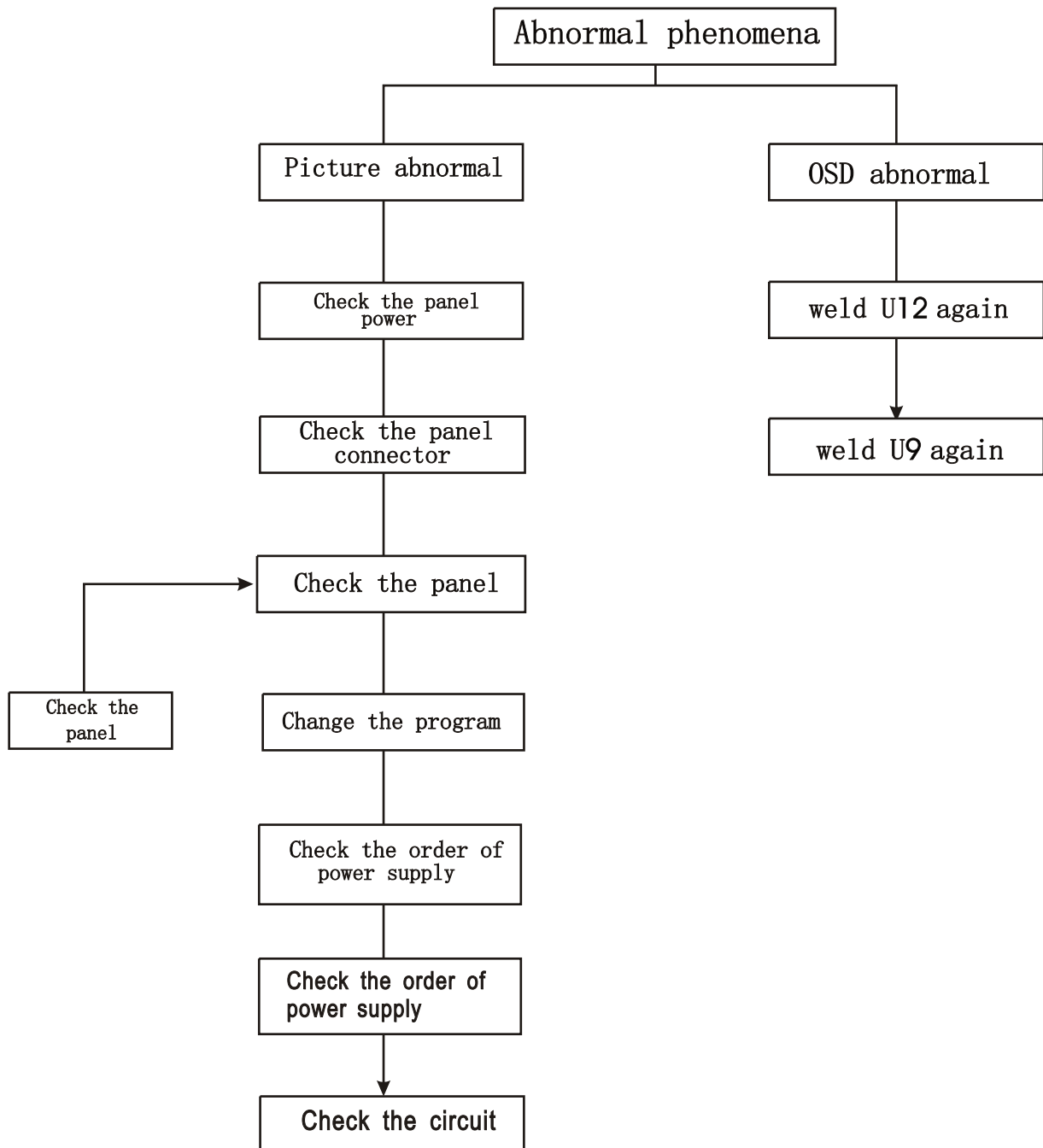
## 1. power supply Trouble



# Trouble shooting Charts

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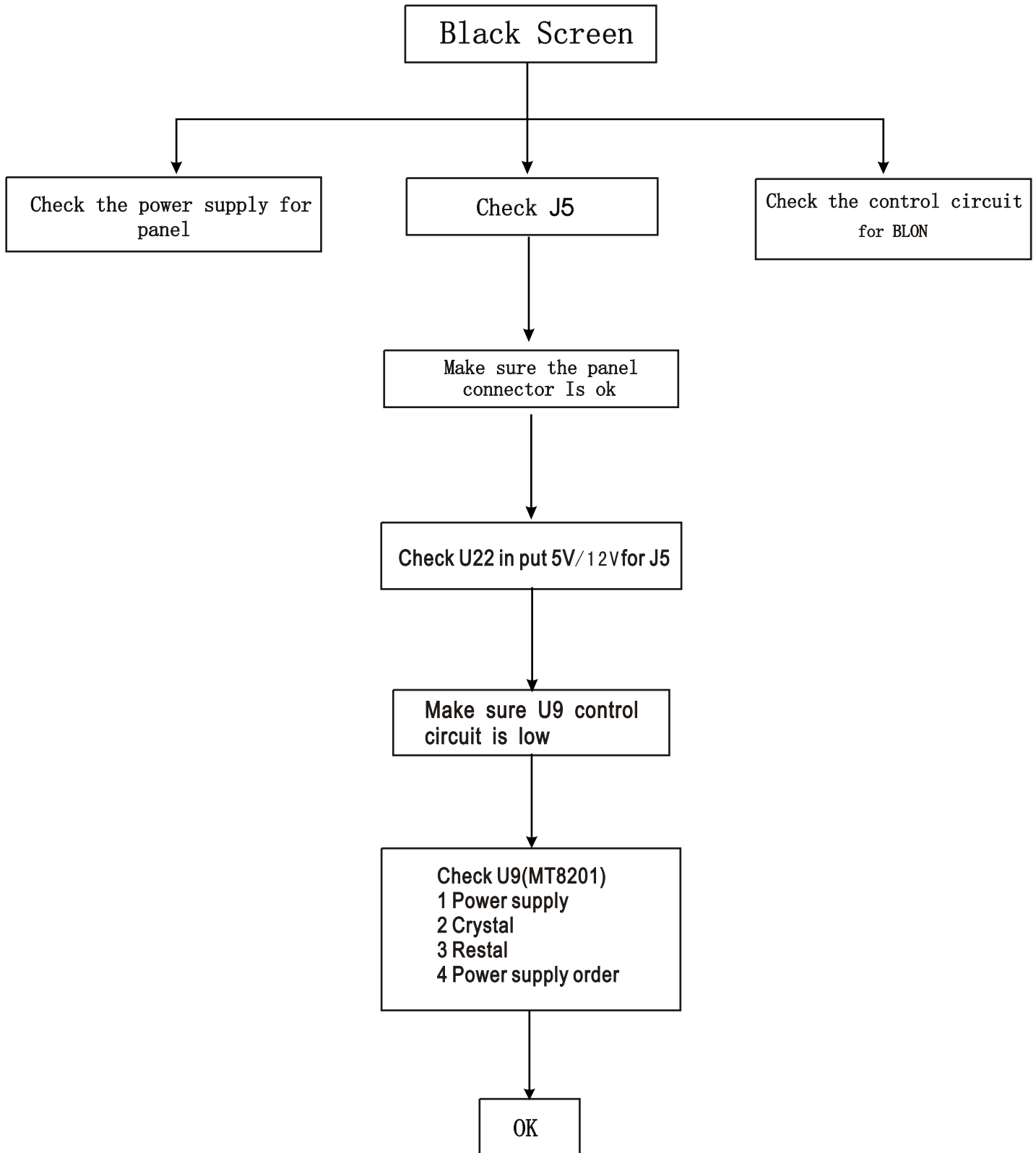
## 1.1 Abnormal screen



# Trouble shooting Charts

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## 2.2Black Screen

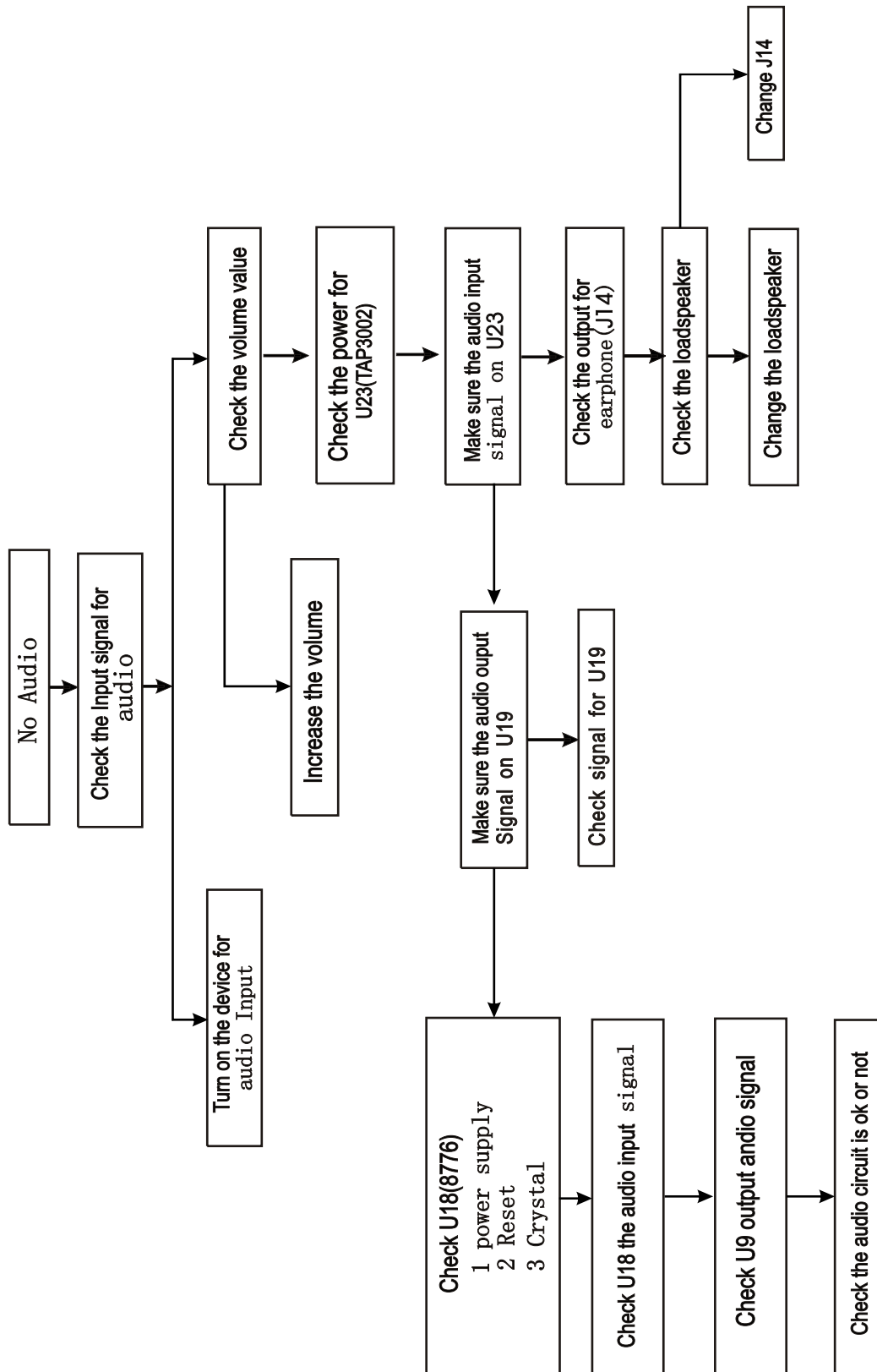


# Trouble shooting Charts

## 3. Audio Trouble

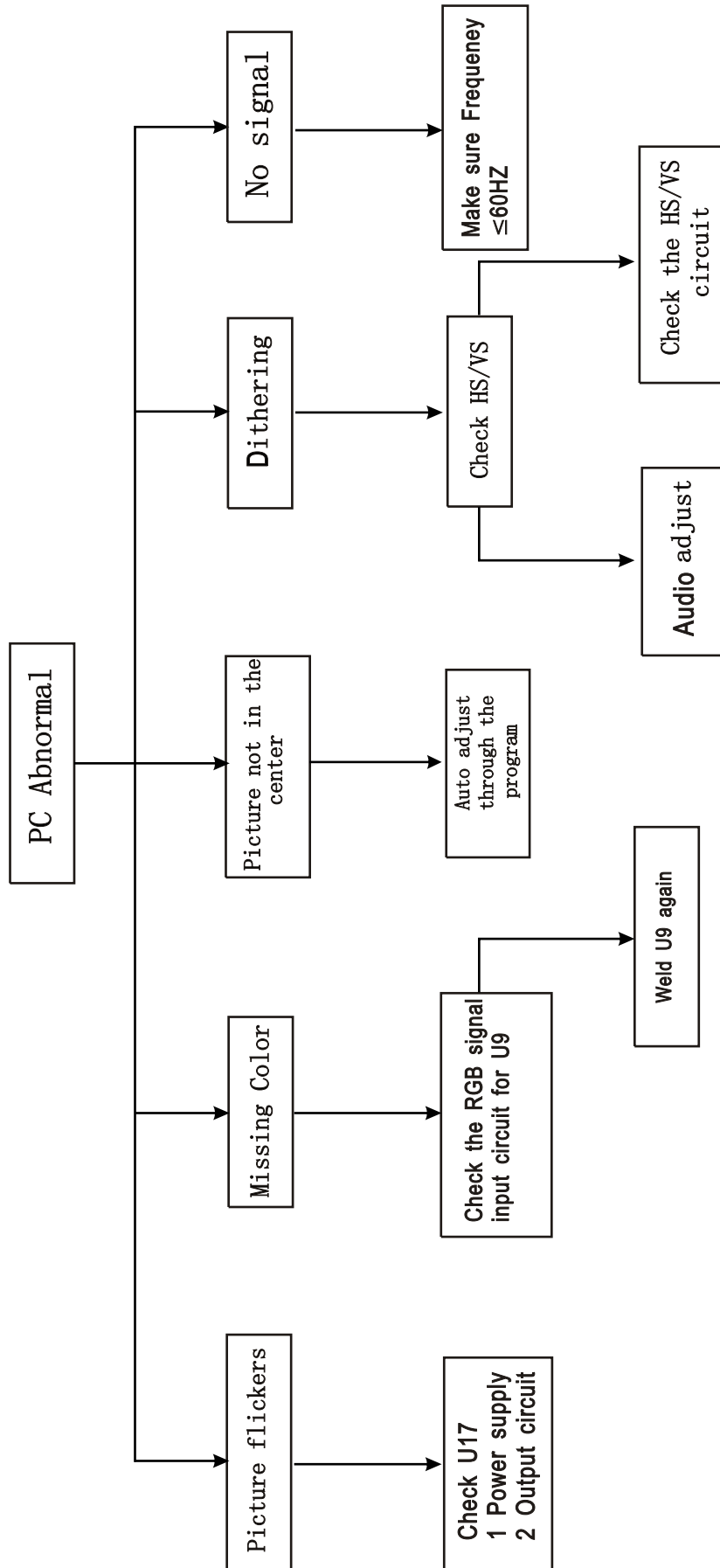
### 3.1 Audio

### 3.2 No Audio



# Trouble shooting Charts

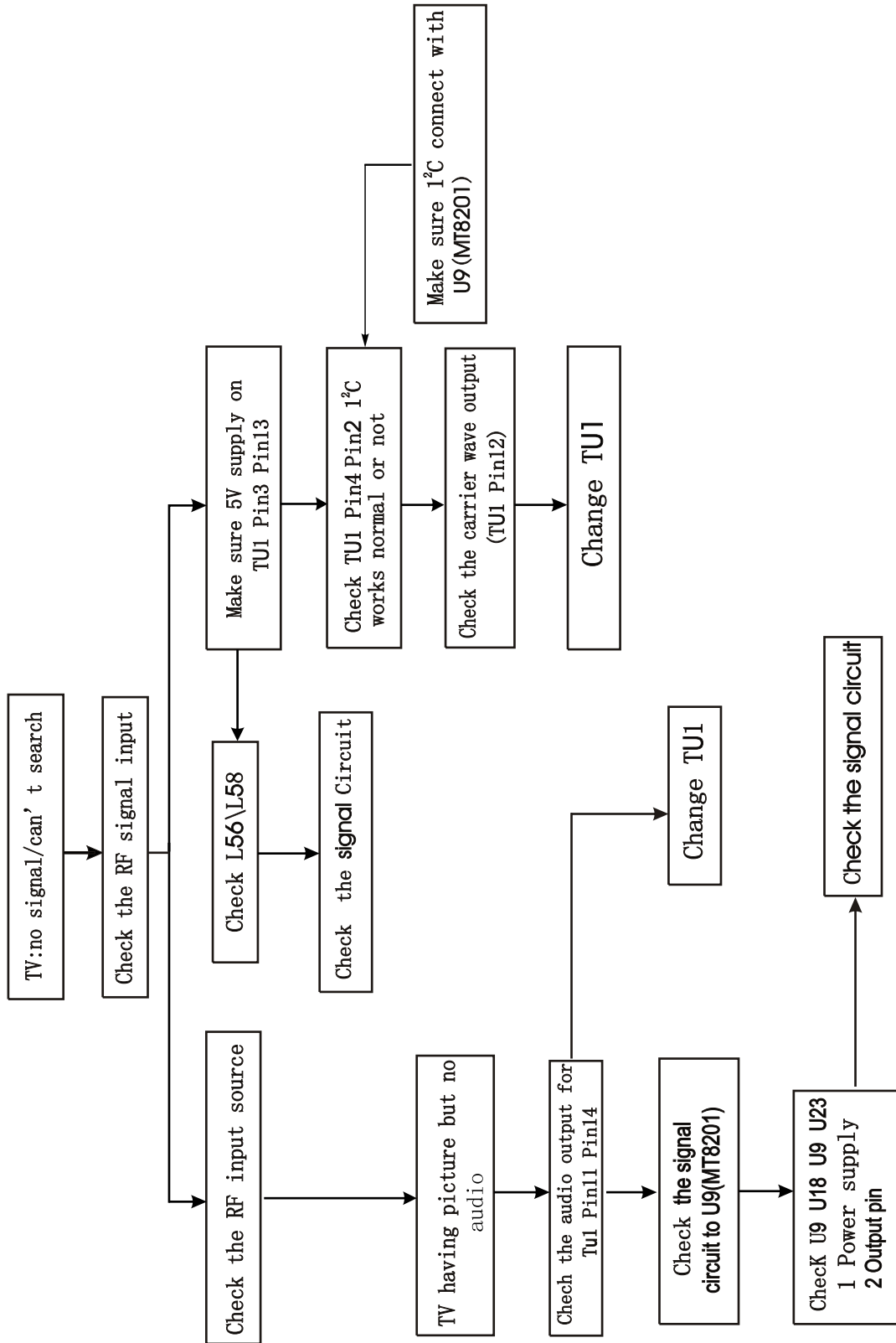
## 4.1 PC





# Trouble shooting Charts

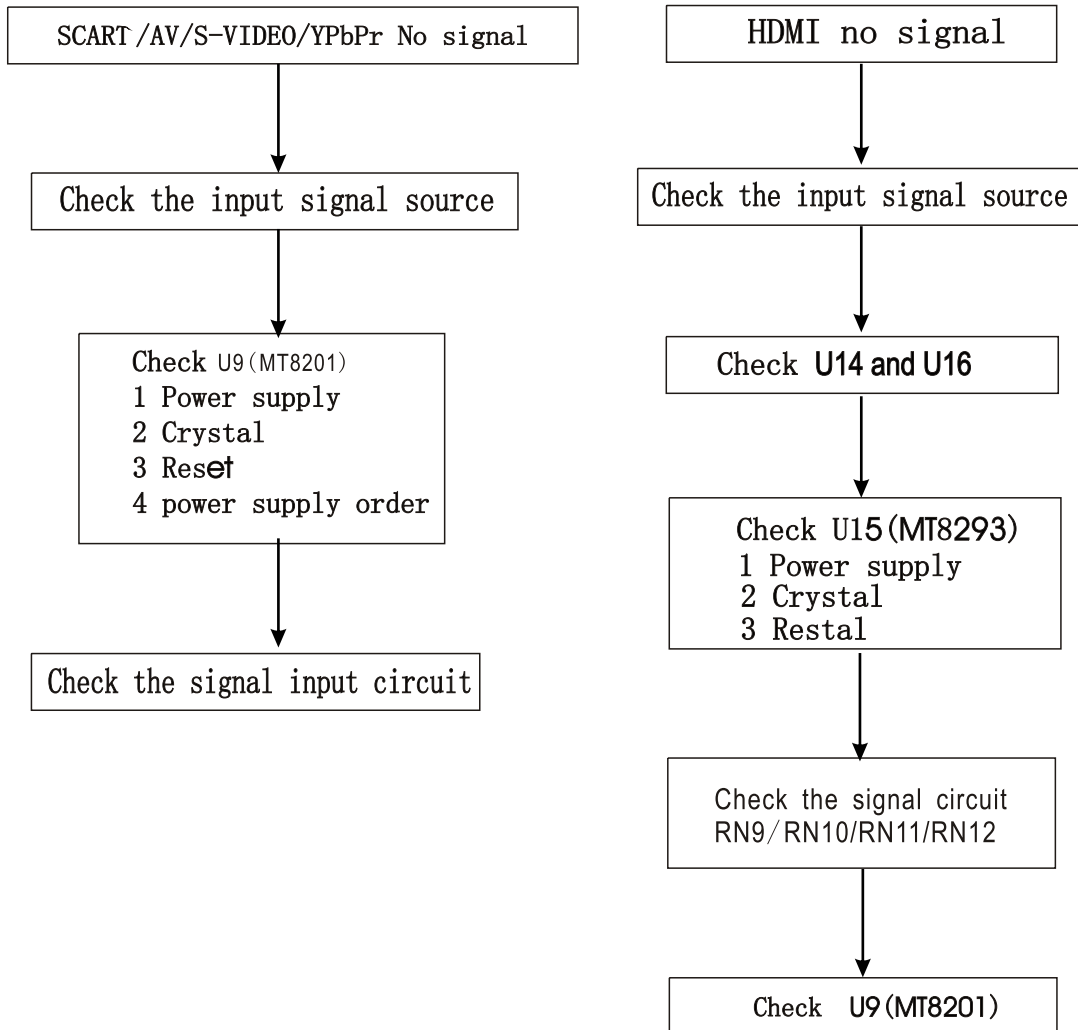
## 4.2 TV



# Trouble shooting Charts

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## 4.3 No signal



## 01. INDEX/POWER/RESET/EEPROM

NUSTC\_MT8201\_V30

### MT8201 (LQFP256) LCDTV DEMO/VERIFICATION BOARD 2 LAYERS

1. INDEX / POWER / RESET / EEPROM
2. LDO
3. MT8201 LQFP256 / KEY PAD / RESET TRAPPING
4. MT8201 ANALOG DECOUPLING
5. DDR MEMORY & FLASH
6. HDMI INPUT MT8293
7. VGA IN & PC AUDIO IN
8. AV BOARD I/F / DEBUG PORT / GPIO LIST
9. VIDEO IN CIRCUIT
10. WM8766(8768) ADAC
11. LVDS OUT / BACK LIGHT

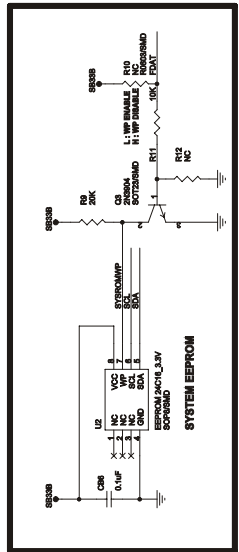
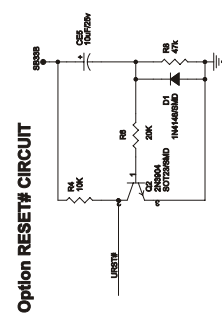
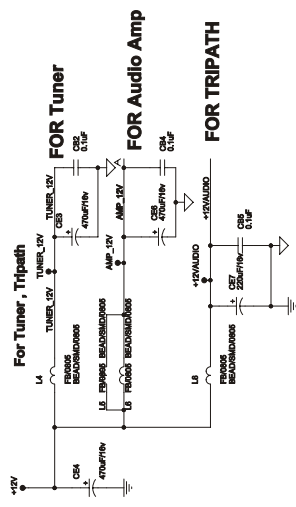
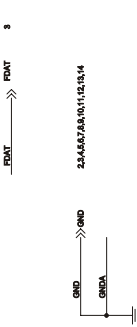
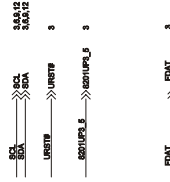
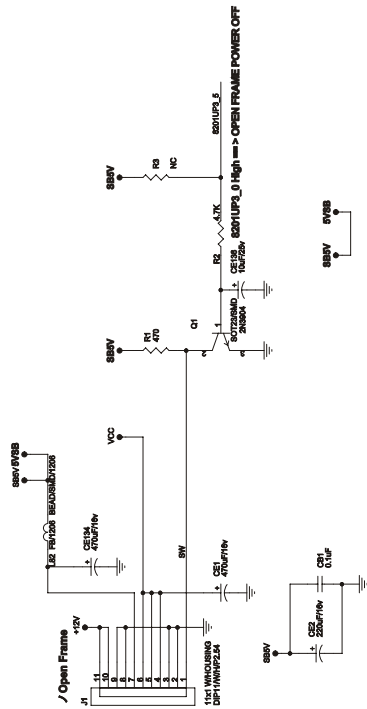


Figure 1-1.1DRIVE Schematic Circuit

# Schematic Diagrams

## 02.POWER

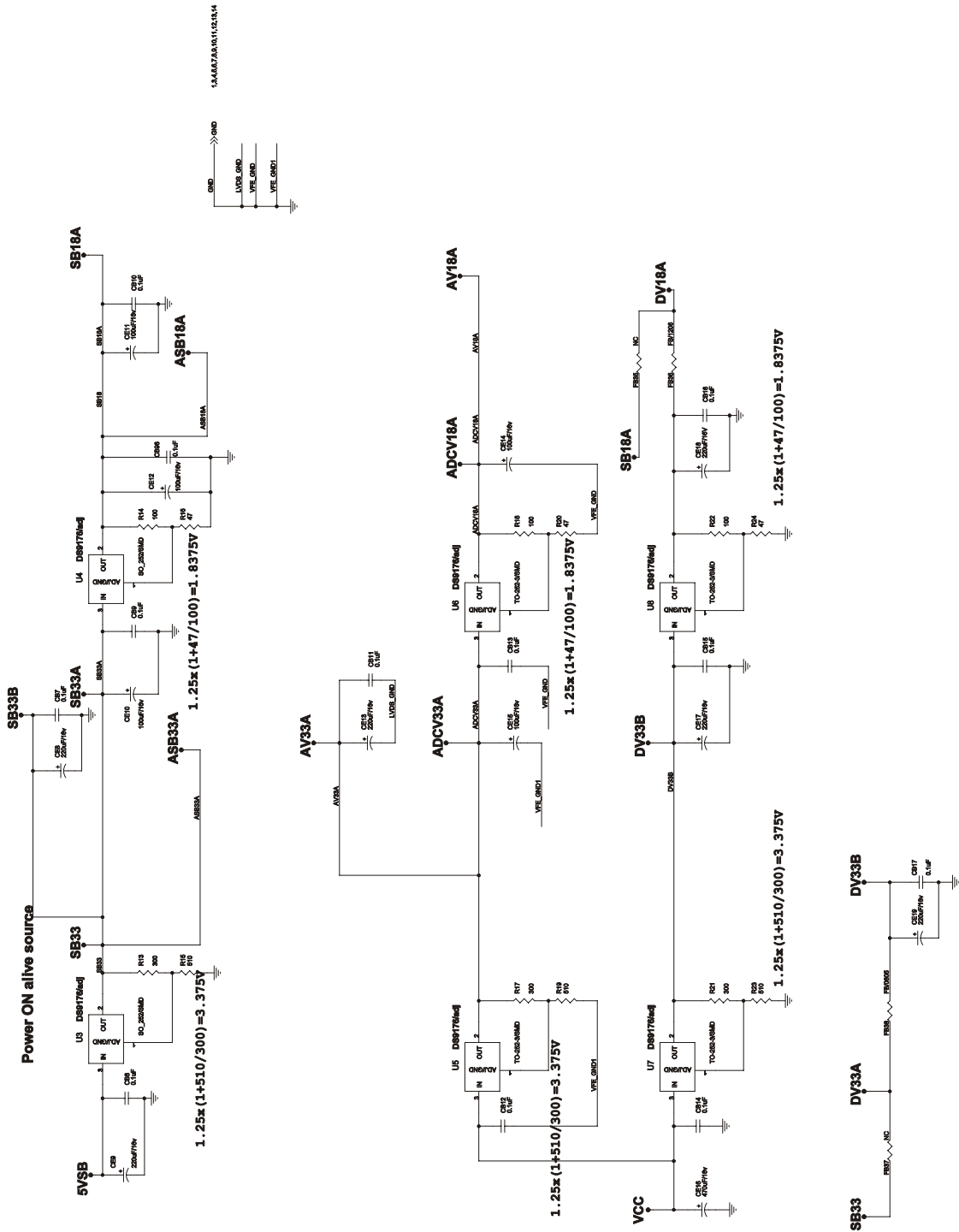


Figure 1-1.2DRIVE Schematic Circuit

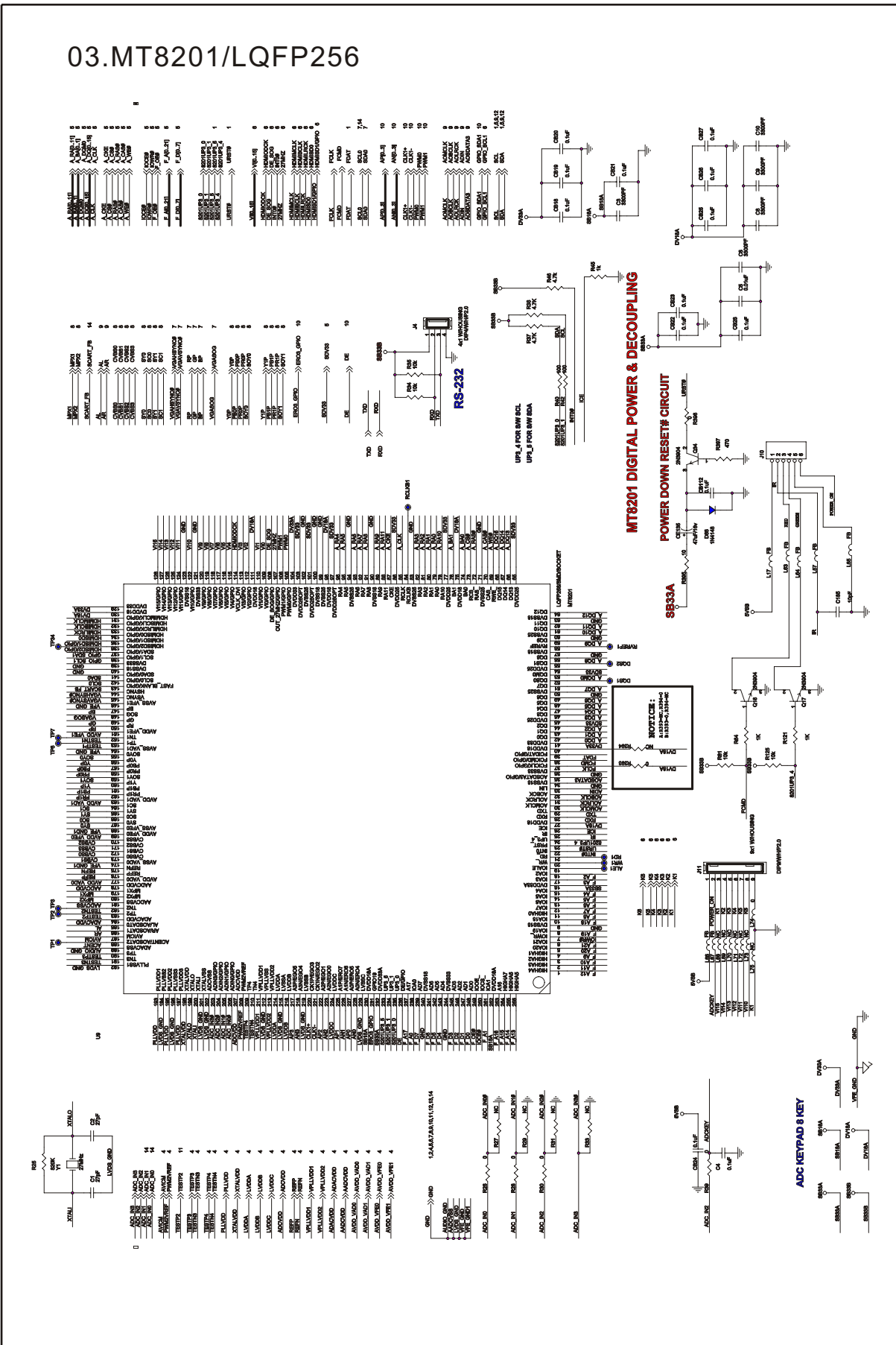


Figure 1-1.3 DRIVE Schematic Circuit



## 05.SDRAM MEMORY&FLASH

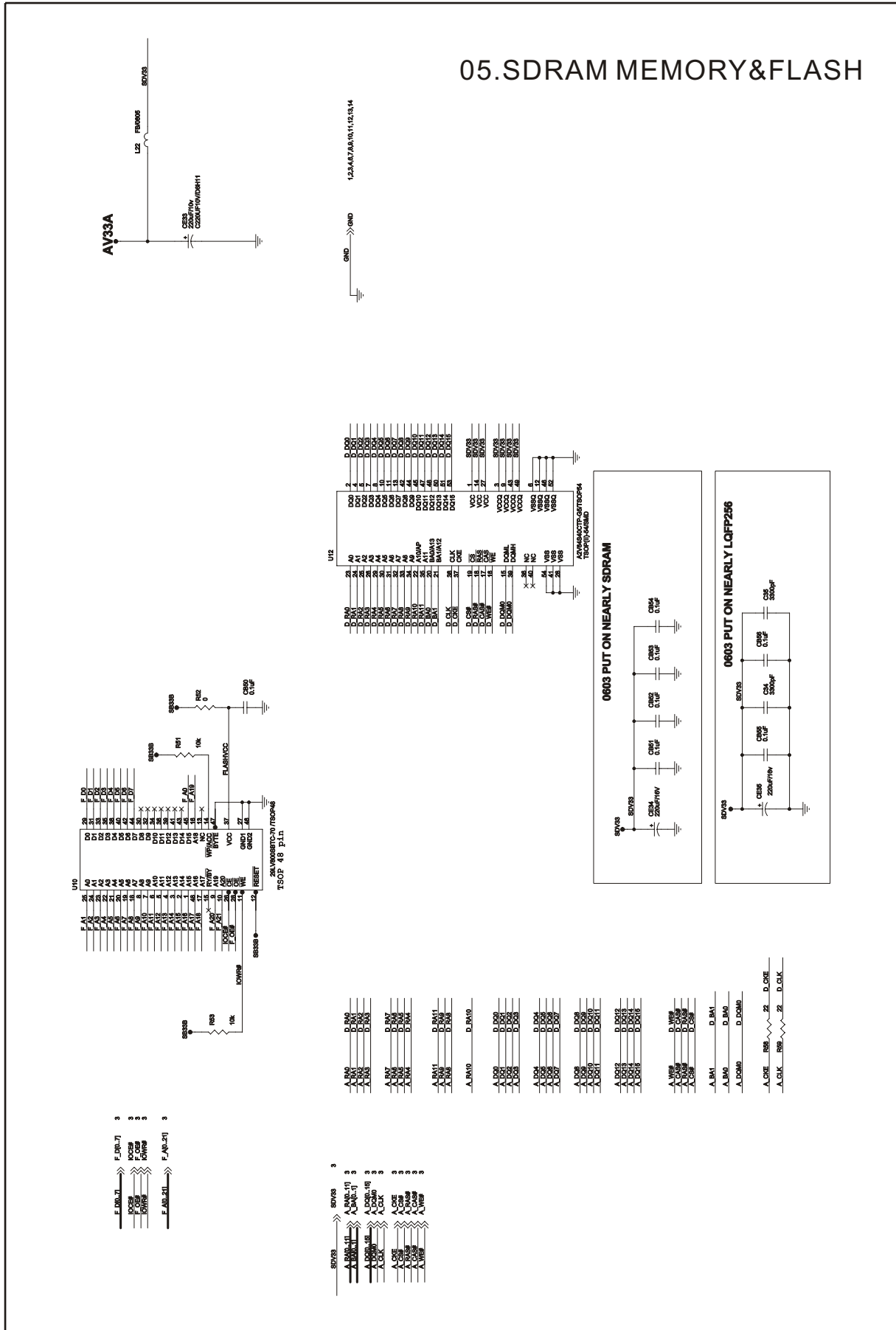


Figure1-1.5 DRIVE Schematic Circuit

# Schematic Diagrams

## 06.HDMI INPUT-MT8293

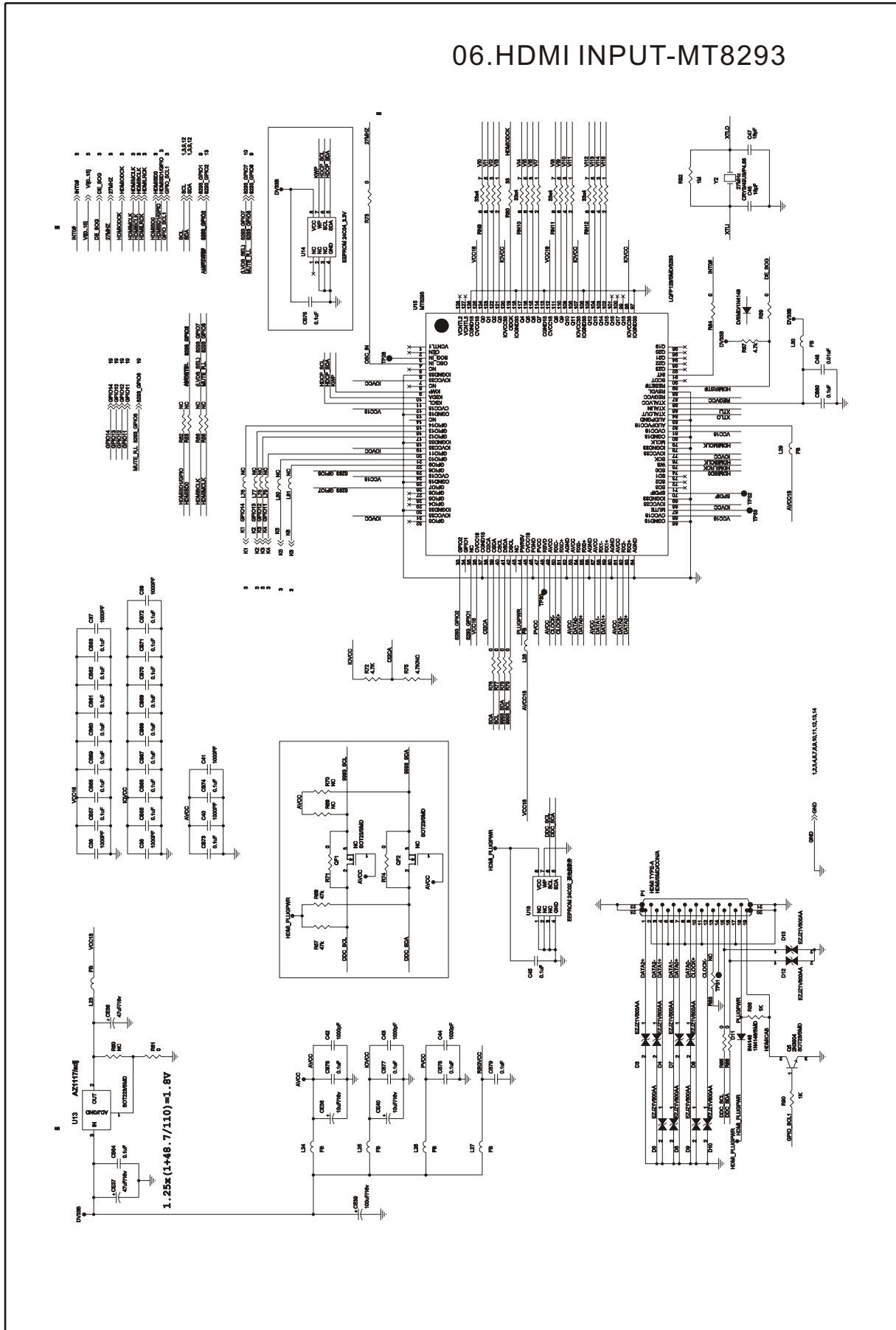


Figure 1-1.6 DRIVE Schematic Circuit



## 07.VGA IN&PC AUDIO IN

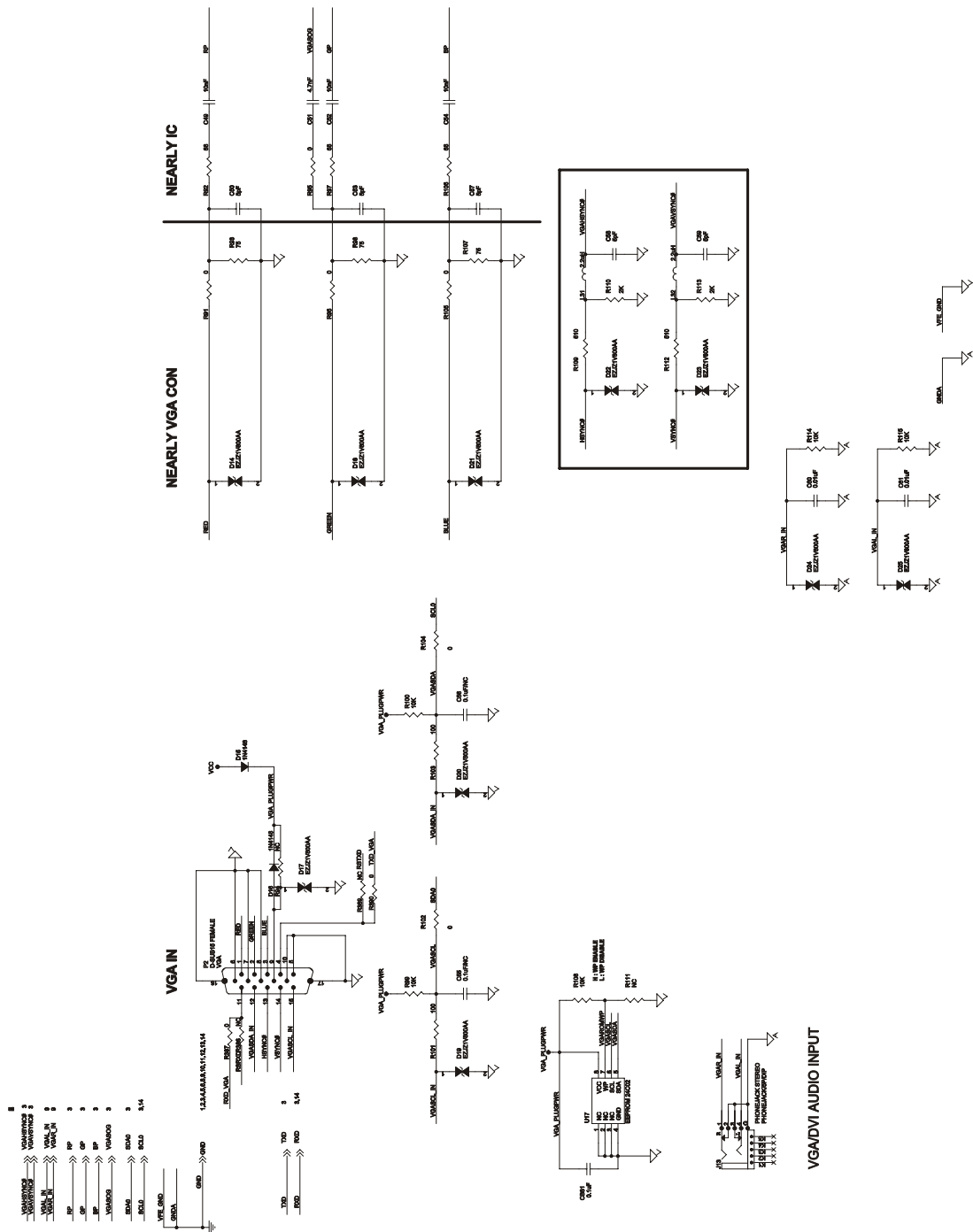


Figure 1-1.7 DRIVE Schematic Circuit

## 08. AUDIO/VIDEO IN CIRCUIT

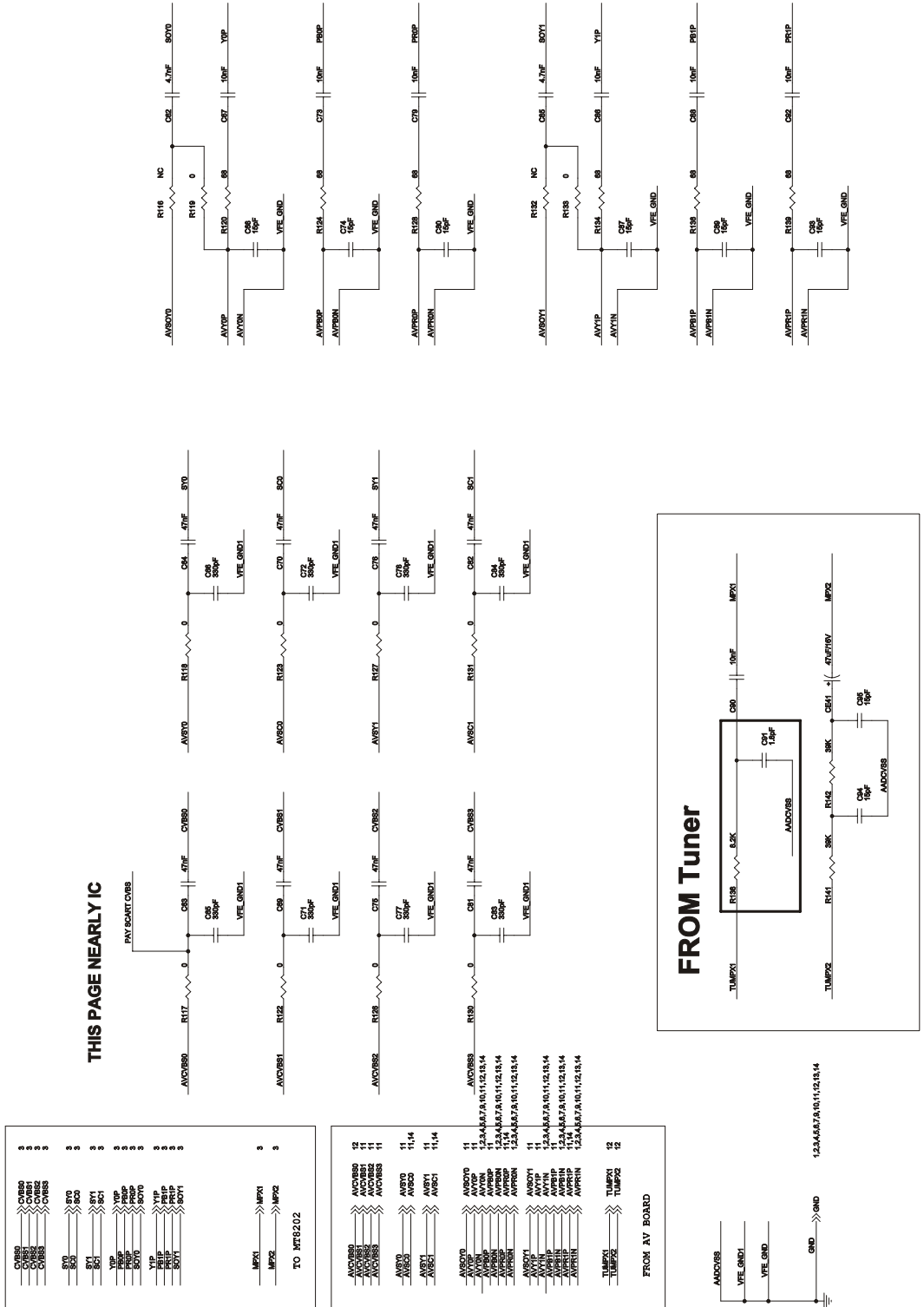


Figure1-1.8 DRIVE Schematic Circuit

## 09. AUDIO Wm8776 ADAC

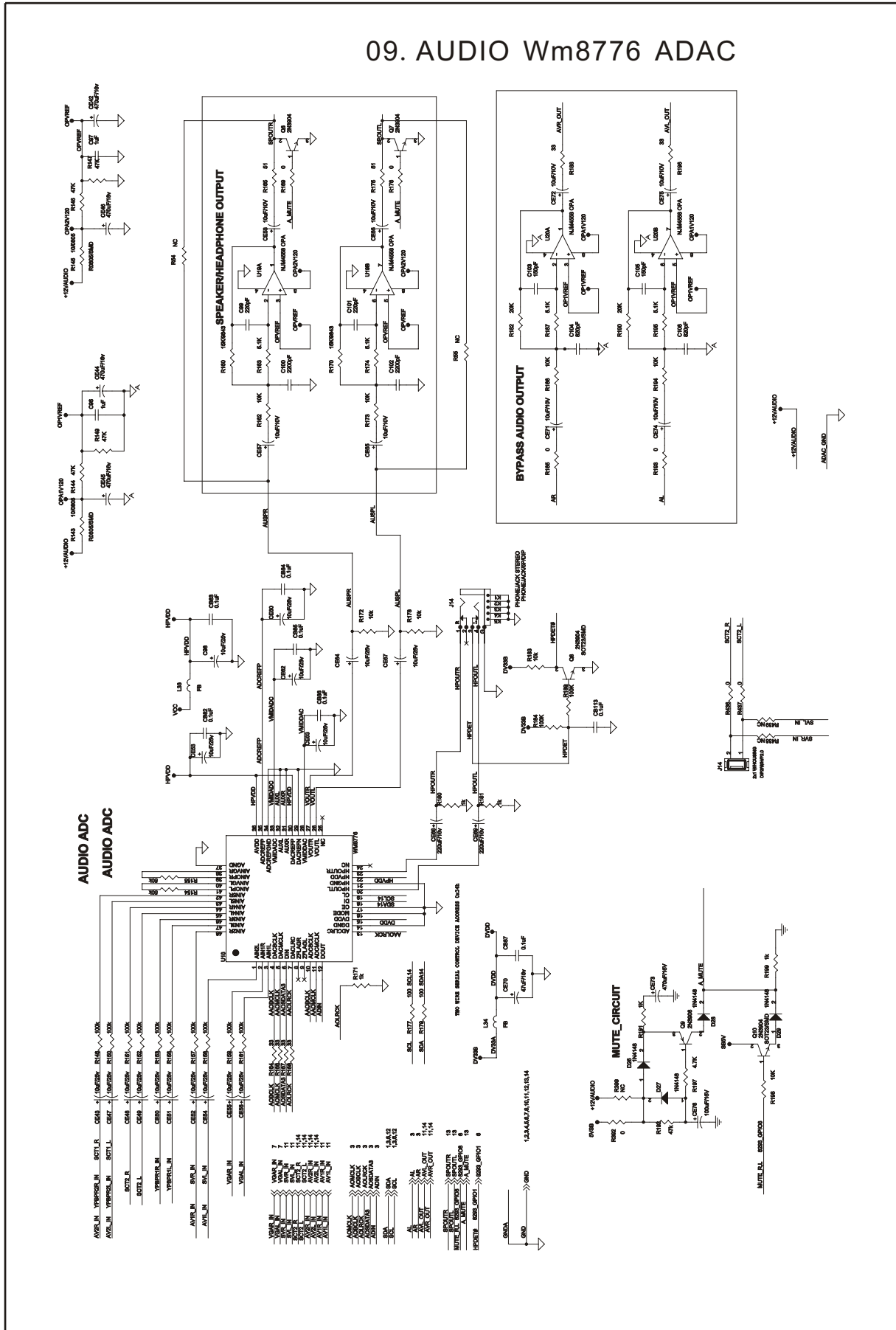


Figure1-1.9 DRIVE Schematic Circuit

# Schematic Diagrams

## 10. LVDS

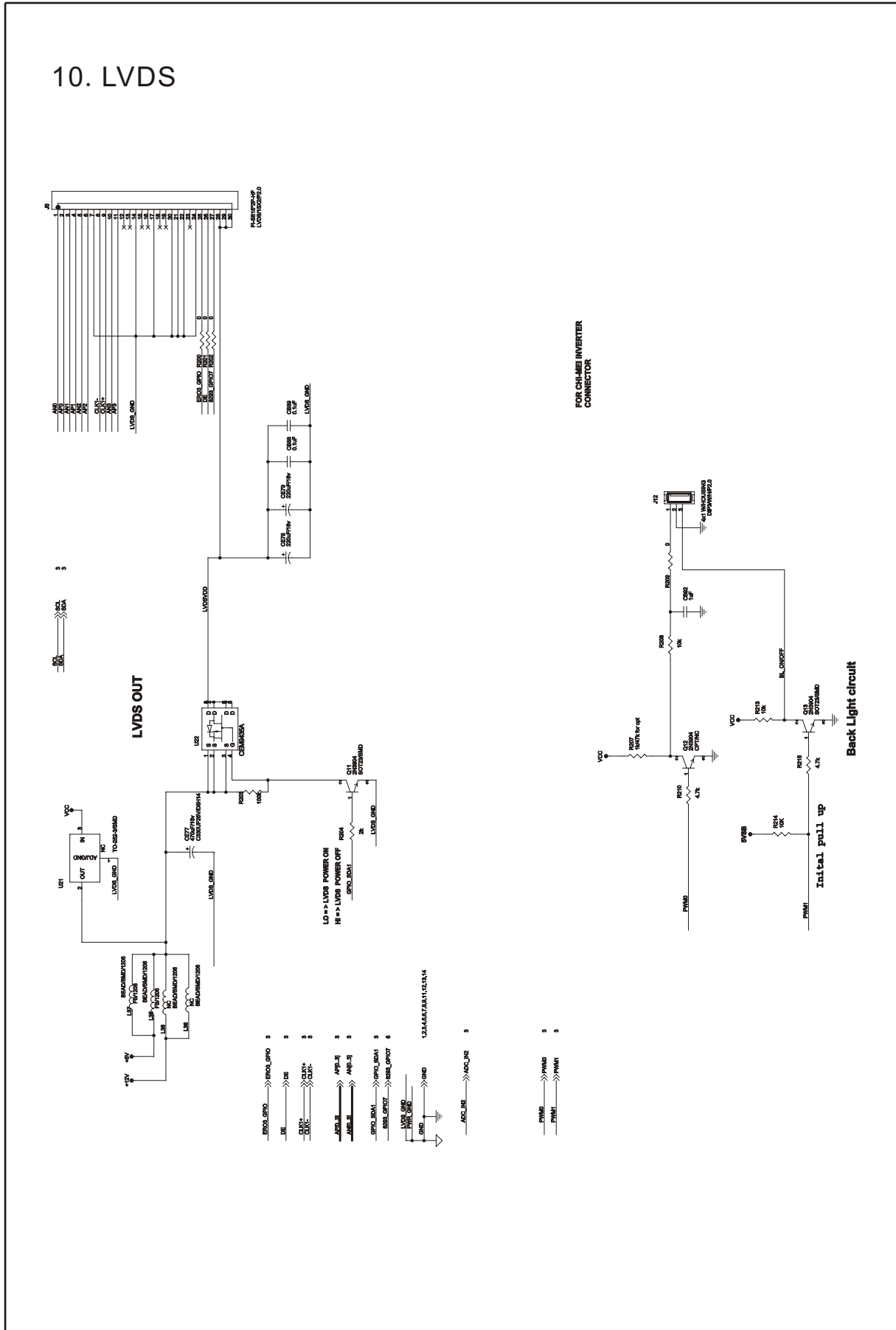


Figure 1-1.10 DRIVE Schematic Circuit







# Schematic Diagrams

## 14. AUDIO\_AMP\_TFA9843

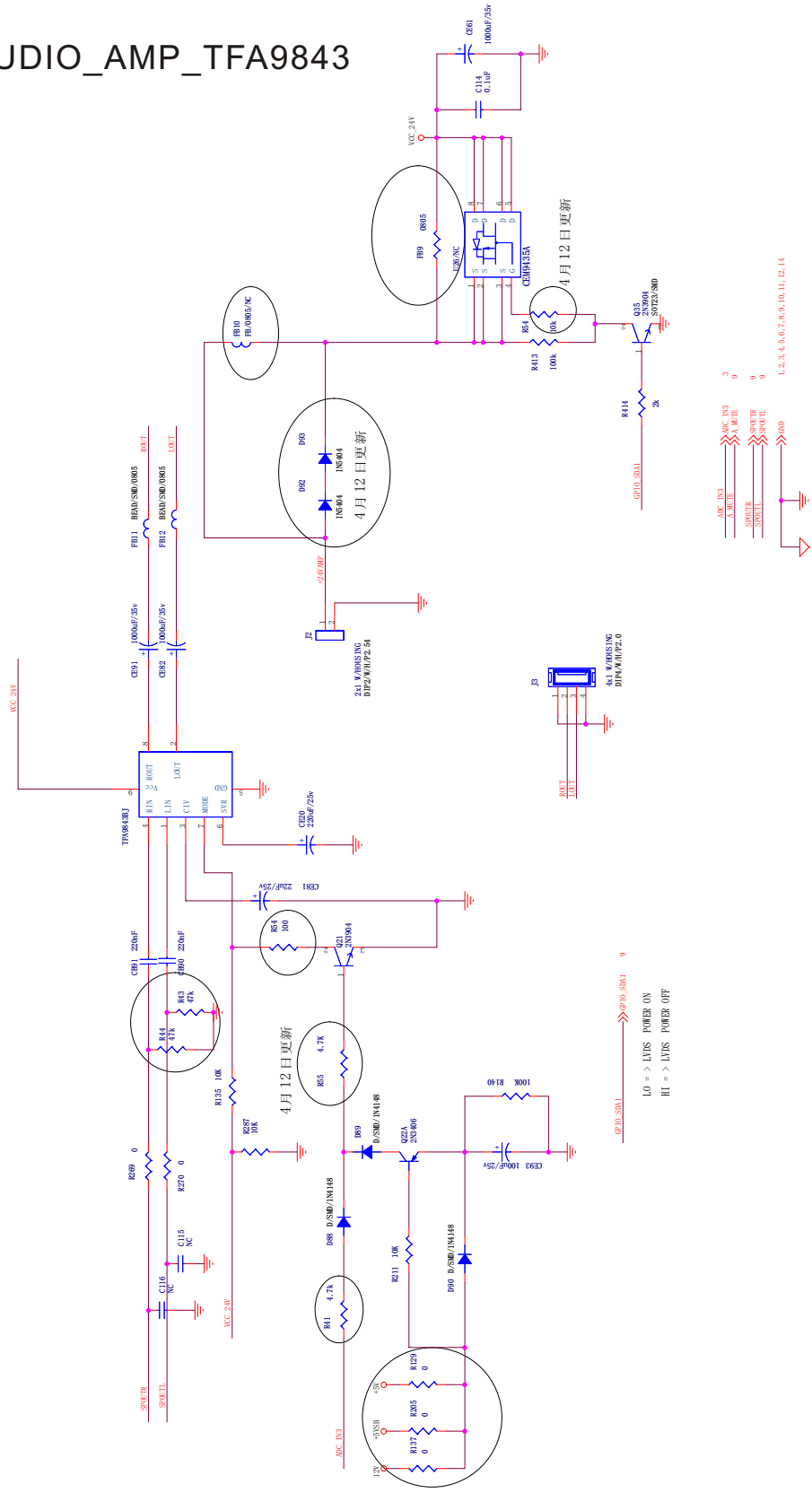


Figure1-13 DRIVE Schematic Circuit



# Schematic Diagrams

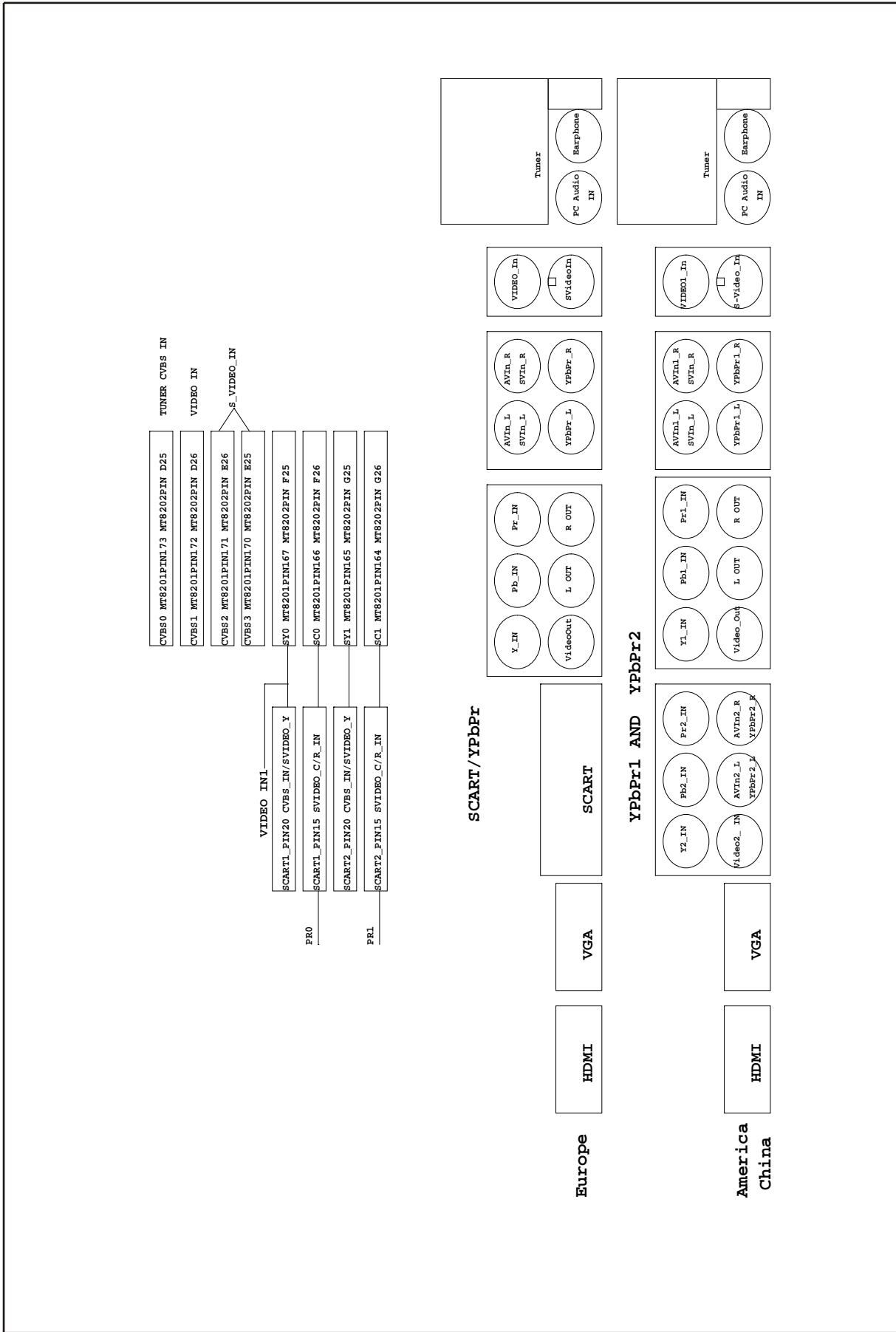


Figure1-14 DRIVE Schematic Circuit

# Schematic Diagrams

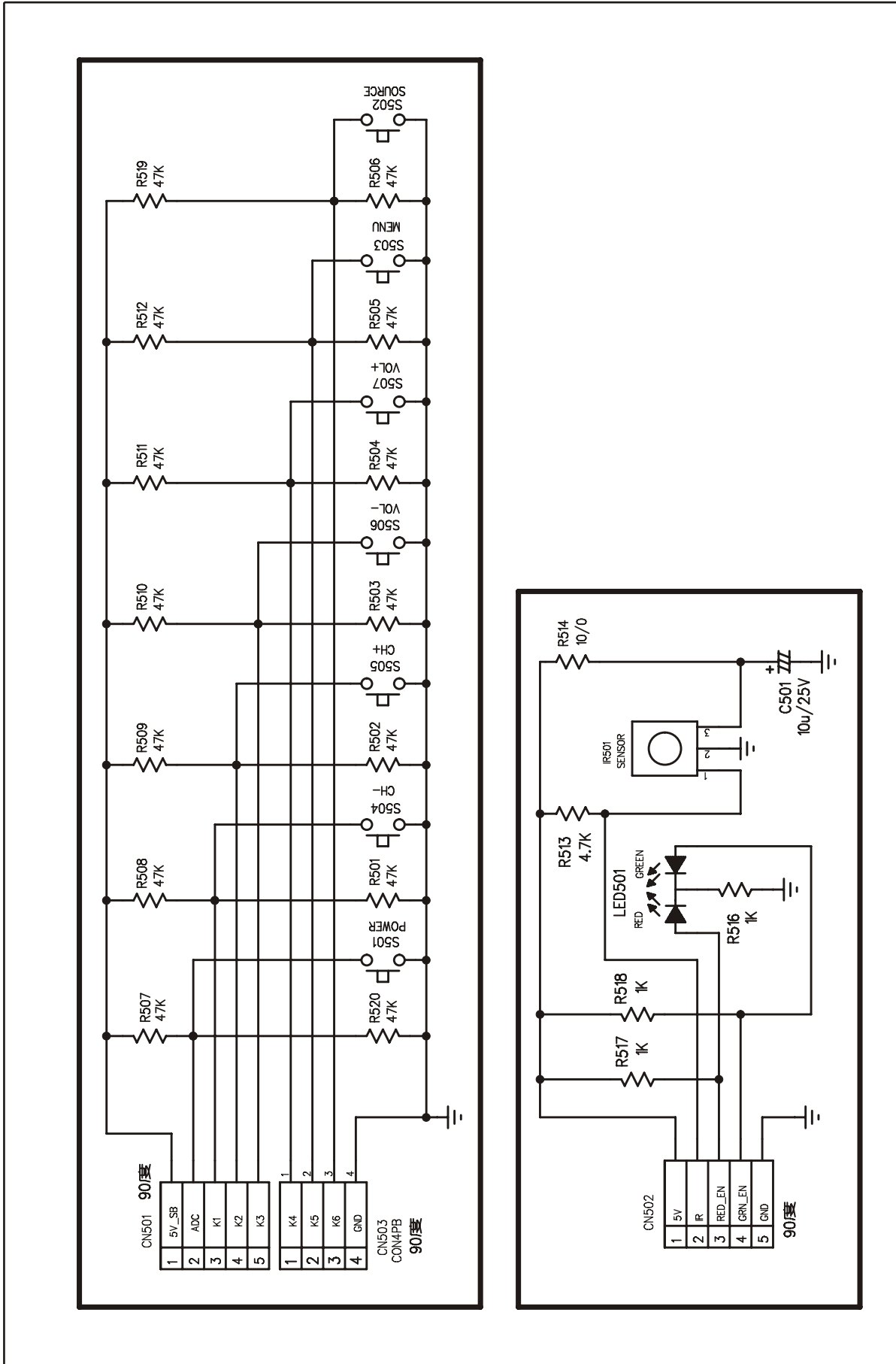


Figure1-1CONTROL KEYS Schematic Circuit

# Printed Circuit Board

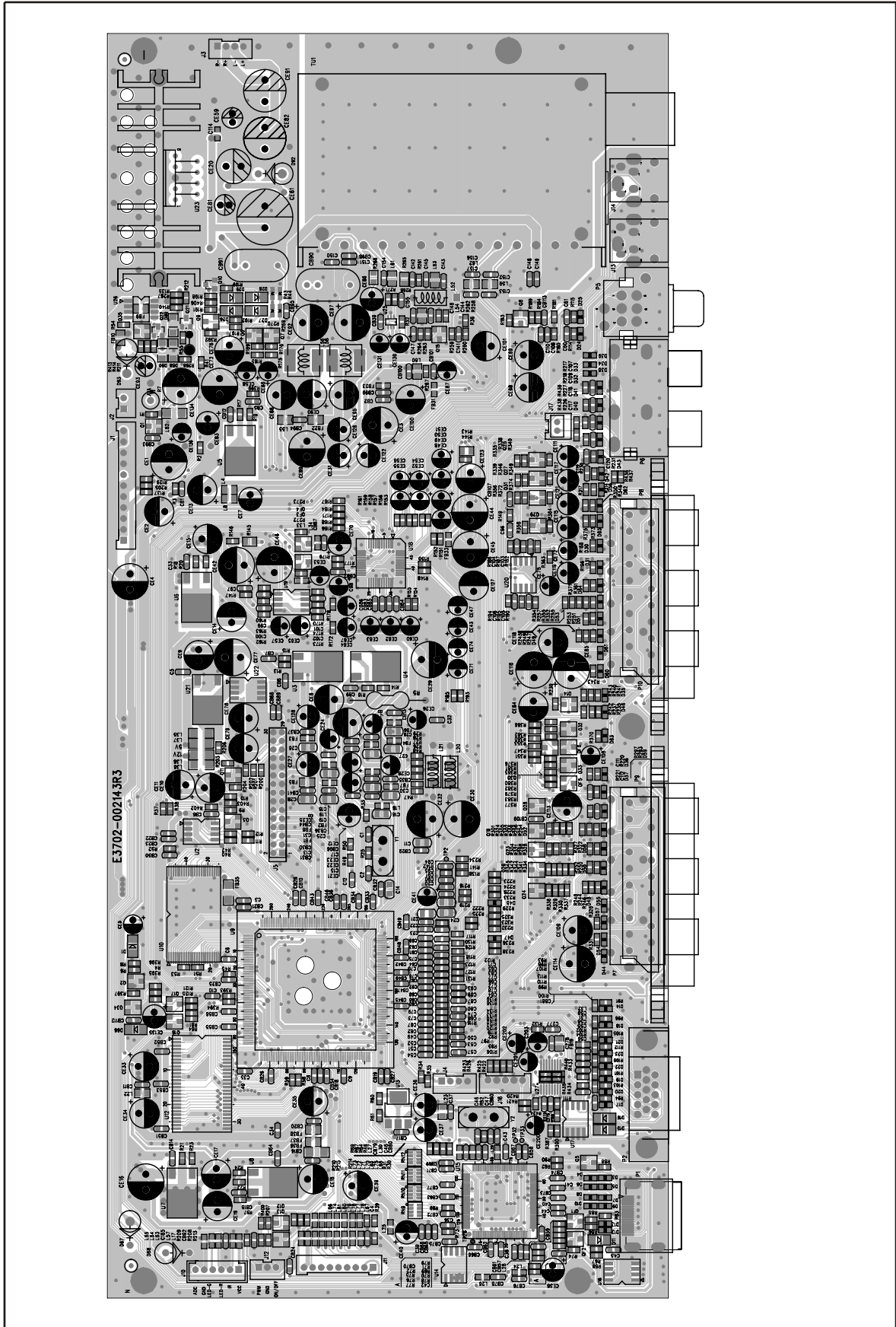


Figure2-1.1 .DRIVE Board(Top Side)

# Printed Circuit Board

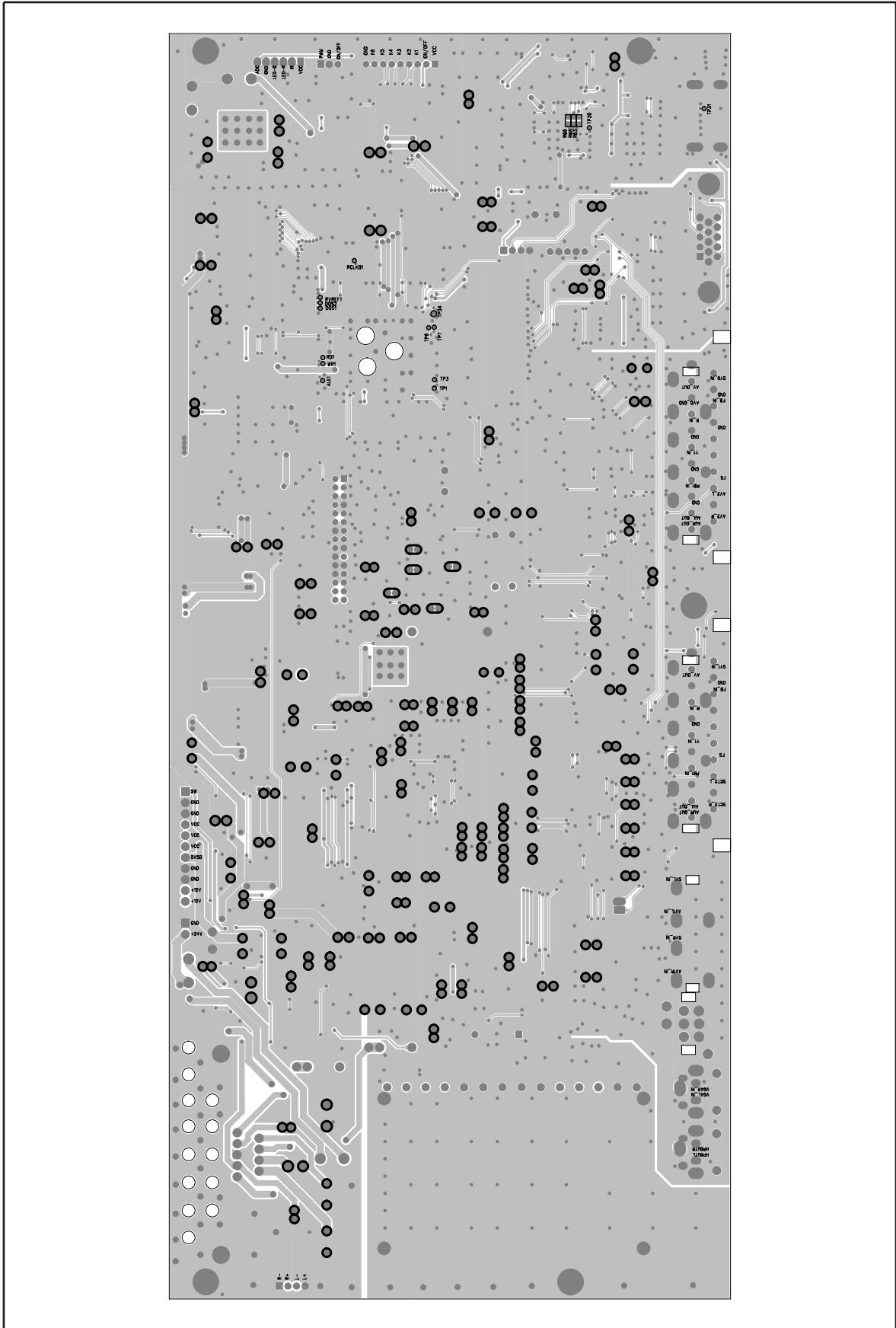


Figure2-1.2 .DRIVE Board(Bottom Side)

# Printed Circuit Board

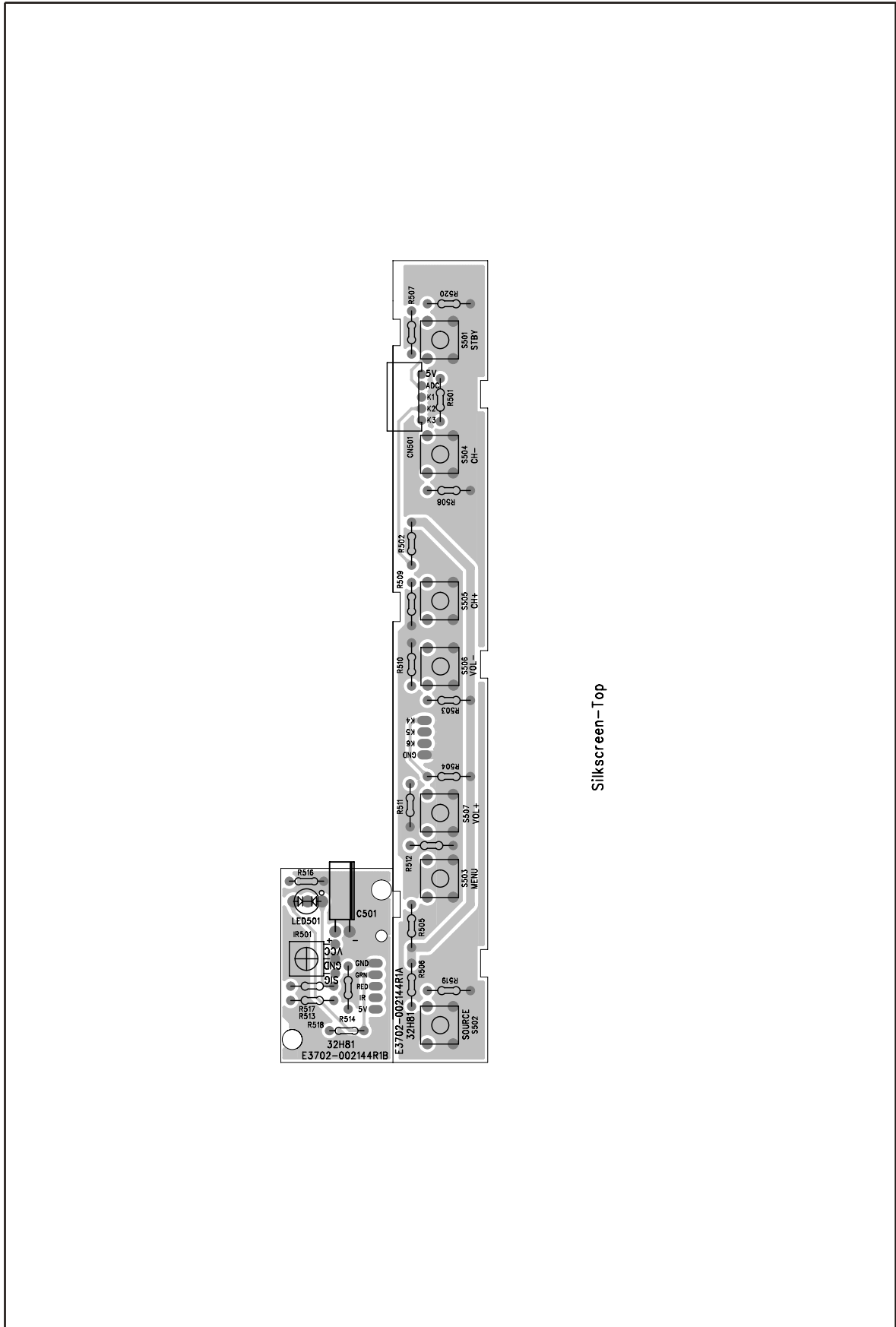


Figure2-3.1 CONTROL KEYS Board(Top Side)

# Printed Circuit Board

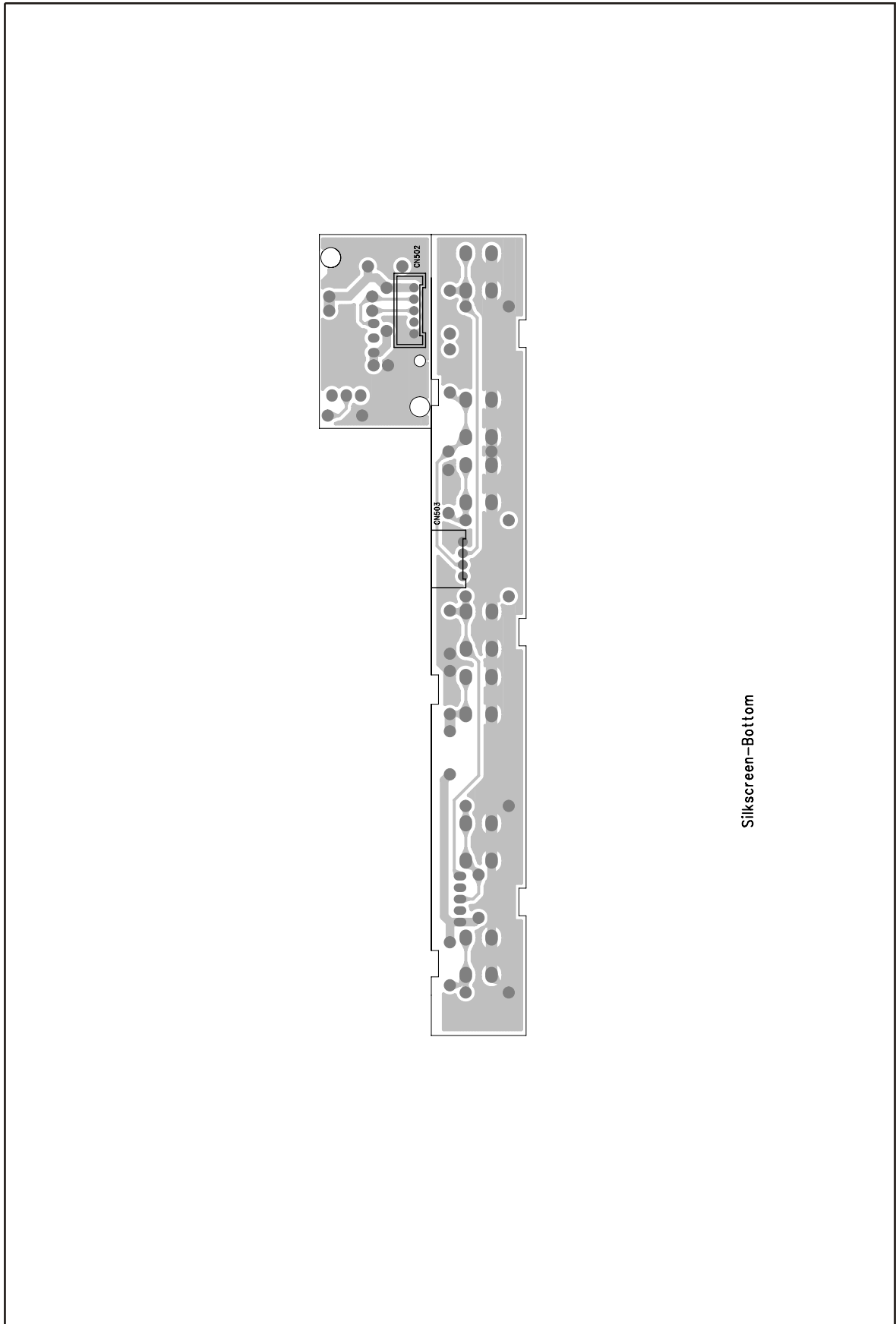


Figure2-3.2 CONTROL KEYS Board(BOTTOM Side)

# Wiring Diagram

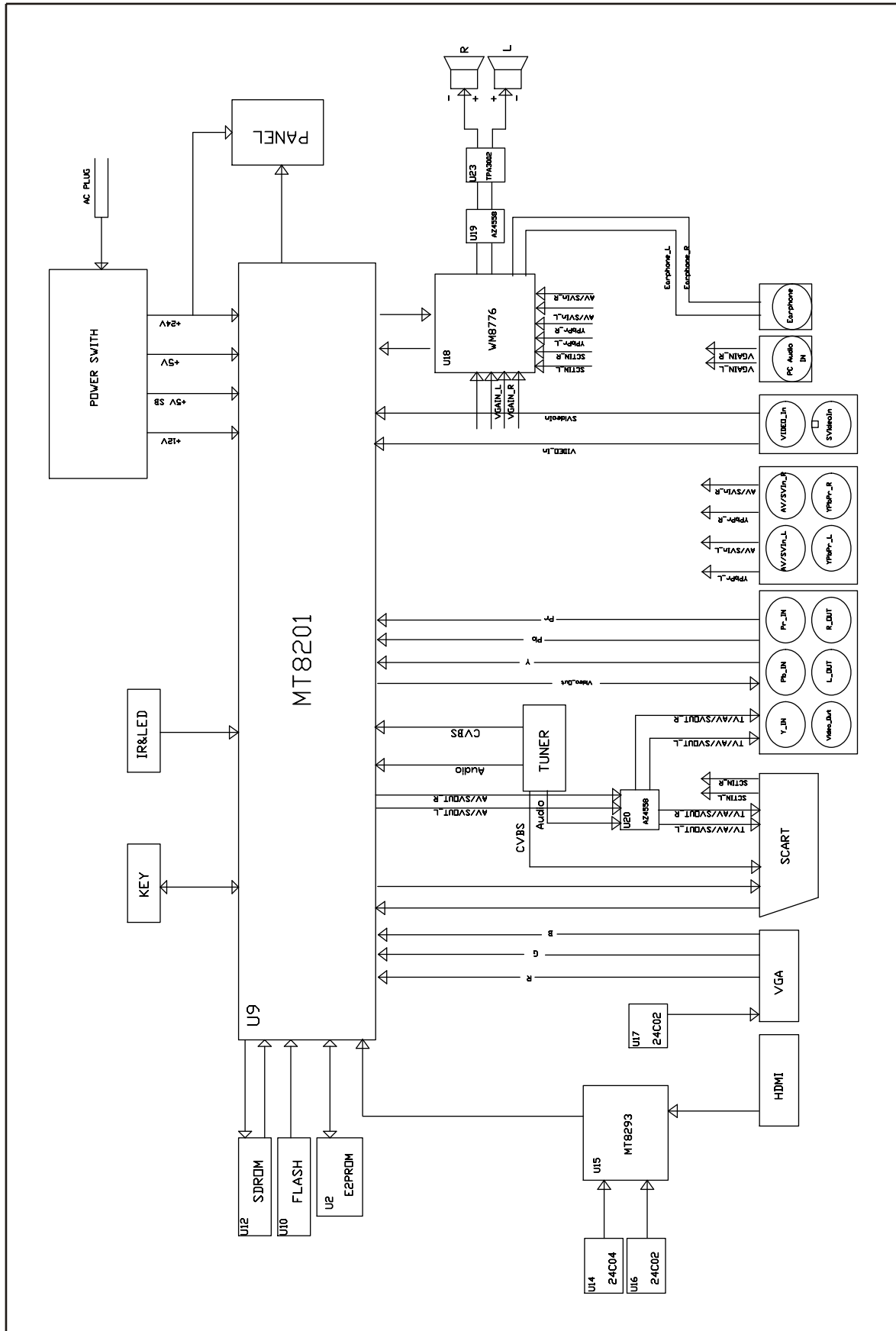
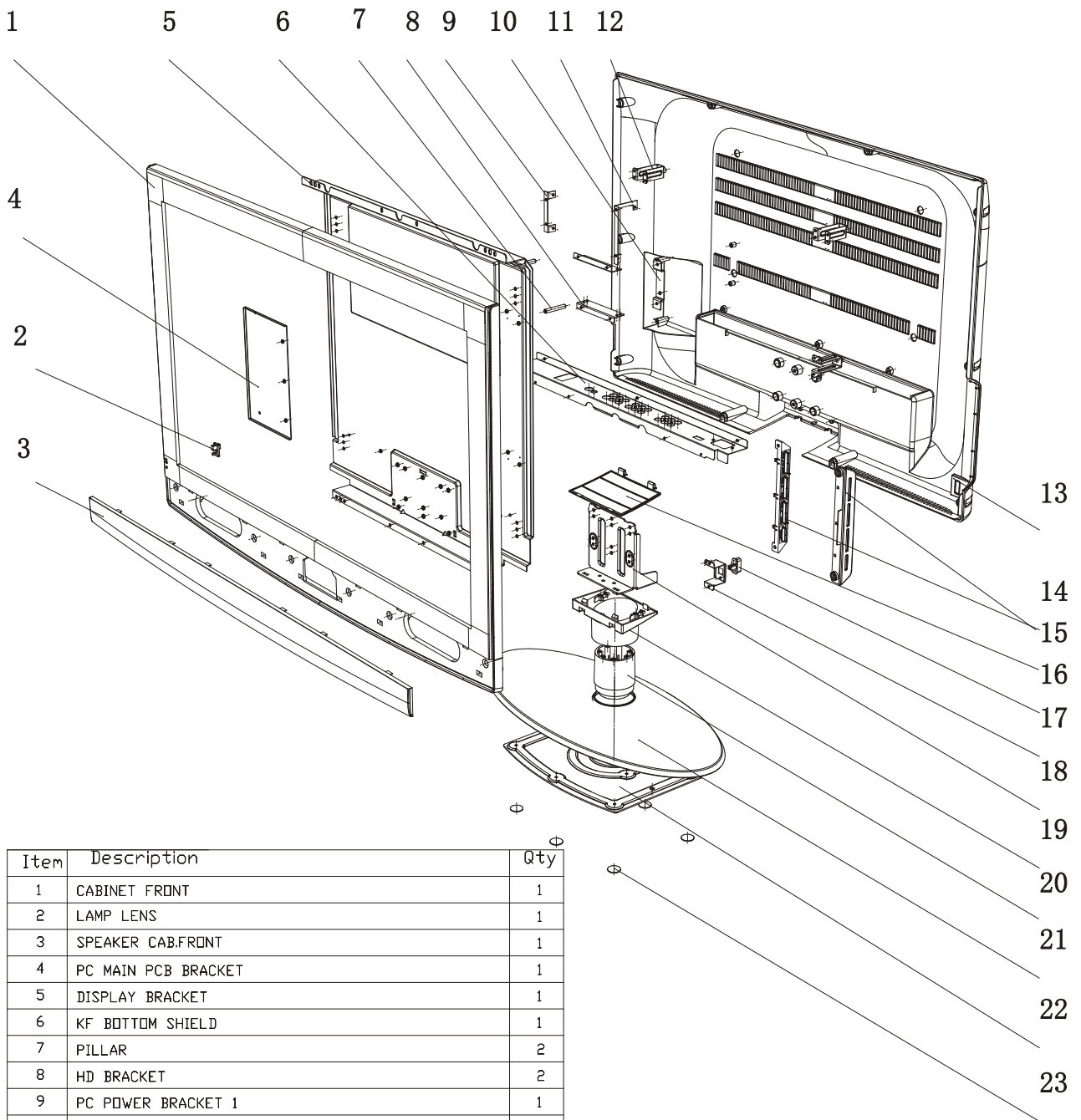


Figure 3-2 Wiring Diagram

# Exploded View and Mechanical Parts List

TF32K82A

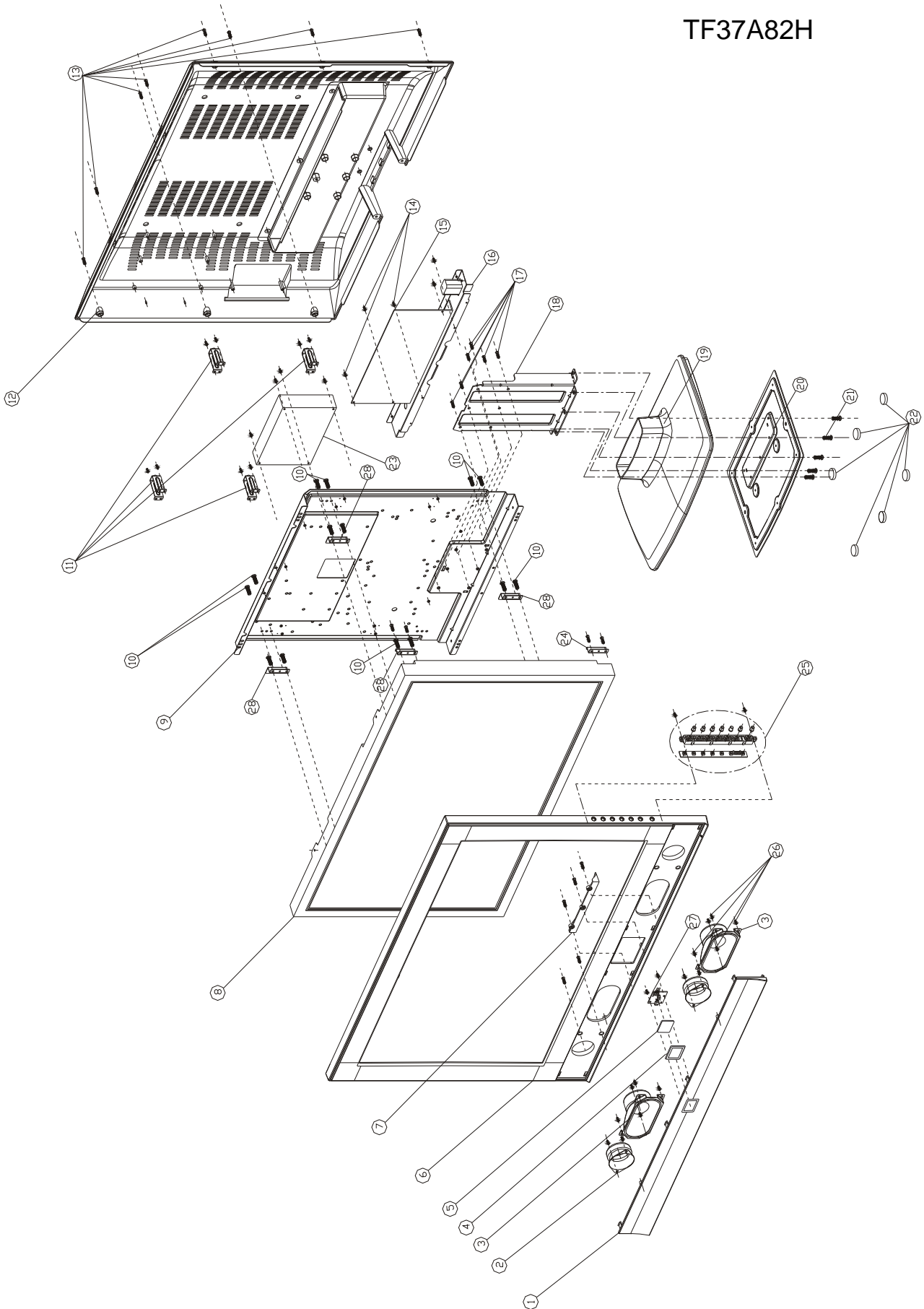


Item	Description	Qty
1	CABINET FRONT	1
2	LAMP LENS	1
3	SPEAKER CAB.FRONT	1
4	PC MAIN PCB BRACKET	1
5	DISPLAY BRACKET	1
6	KF BOTTOM SHIELD	1
7	PILLAR	2
8	HD BRACKET	2
9	PC POWER BRACKET 1	1
10	WALL MOUNTING ADAPTER 1	1
11	PC POWER BRACKET 2	1
12	WALL MOUNTING ADAPTER 2	3
13	CABINET BACK	1
14	FUNCTION KEY ASS'Y	1
15	STAND COVER	1
16	POWER KEY	1
17	POWER BRACKET	1
18	STAND BRACKET	1
19	FRONT STAND COVER	1
20	FRONT STAND COVER	1
21	BASE COVER	1
22	STAND BASE PLATE	1
23	RUBBER PAD CORD	6



# Exploded View and Mechanical Parts List

TF37A82H



## Exploded View and Mechanical Parts List

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TF37A82H

Item	Description	Qty
1	SPEAKER CAB.FRONT	1
2	SPEAKER 8ΩHM 3W	2
3	SPEAKER 8ΩHM 15W	2
4	DECO LENS	1
5	LAMP LENS	1
6	CABINET FRONT	1
7	STAND COVER	1
8	LCD PANEL	1
9	DISPLAY BRACKET	1
10	MACHINE SCREW BINDING HEAD BM4x8H-Zn	16
11	WALL MOUNTING ADAPTER	4
12	CABINET BACK	1
13	SELF-TAPPING SCREW WITH PAN HEAD PST 4.0X12-HNi	10
14	MACHINE SCREW WITH BINDING HEAD BM3X6- HNi	4
15	DRIVE PCB	1
16	KF BOTTOM SHIELD	1
17	MACHINE SCREW WITH BINDING HEAD BM4X10-Hni	6
18	STAND BRACKET	1
19	BASE COVER	1
20	STAND BASE PLATE	1
21	MACHINE SCREW WITH BINDING HEAD BM4X10-Hni	5
22	RUBBER PAD CORD	6
23	POWER PCB	1
24	SUB BRACKET FOR CMO PANEL	4
25	FUNCTION KEY ASS'Y	1
26	SELF-TAPPING SCREW FOR METAL WITH PAN HEAD PTB4X8BM-Zn	8
27	REMOTE PCB	1
28	PANEL BRACKET	4

# Information of ICs

## U18

PIN	NAME	DESCRIPTION
1	AIN2L	Channel 2 left input multiplexor virtual ground
2	AIN1R	Channel 1 right input multiplexor virtual ground
3	AIN1L	Channel 1 left input multiplexor virtual ground
4	DACBCLK	DAC audio interface bit clock
5	DACMCLK	Master DAC clock; 256, 384, 512 or 768fs (fs = word clock frequency)
6	DIN	DAC data input
7	DACLRC	DAC left/right word clock
8	ZFLAGR	DAC Right Zero Flag output (external pull-up resistor required)
9	ZFLAGL	DAC Left Zero Flag output (external pull-up resistor required)
10	ADCBCLK	ADC audio interface bit clock
11	ADCMCLK	ADC audio interface master clock
12	DOUT	ADC data output
13	ADCLRC	ADC left/right word clock
14	DGND	Digital negative supply
15	DVDD	Digital positive supply
16	MODE	Control interface mode select (5V tolerant)
17	CE	Serial interface Latch signal (5V tolerant)
18	DI	Serial interface data (5V tolerant)
19	CL	Serial interface clock (5V tolerant)
20	HPOUTL	Headphone left channel output
21	HPGND	Headphone negative supply
22	HPVDD	Headphone positive supply
23	HPOUTR	Headphone right channel output
24	NC	
25	NC	
26	VOUTL	DAC channel left output
27	VOUTR	DAC channel right output
28	VMIDDAC	DAC midrail decoupling pin ; 10uF external decoupling
29	DACREFN	DAC negative reference input
30	DACREFP	DAC positive reference input
31	AUXR	DAC mixer right channel input
32	AUXL	DAC mixer left channel input
33	VMIDADC	ADC midrail divider decoupling pin; 10uF external decoupling
34	ADCREFGND	ADC negative supply and substrate connection
35	ADCREFP	ADC positive reference decoupling pin; 10uF external decoupling
36	AVDD	Analogue positive supply
37	AGND	Analogue negative supply and subVstrate connection
38	AINVGR	Right channel multiplexor virtual ground
39	AINOPR	Right channel multiplexor output
40	AINVGL	Left channel multiplexor virtual ground
41	AINOPL	Left channel multiplexor output
42	AIN5R	Channel 5 right input multiplexor virtual ground
43	AIN5L	Channel 5 left input multiplexor virtual ground
44	AIN4R	Channel 4 right input multiplexor virtual ground
45	AIN4L	Channel 4 left input multiplexor virtual ground
46	AIN3R	Channel 3 right input multiplexor virtual ground
47	AIN3L	Channel 3 left input multiplexor virtual ground
48	AIN2R	Channel 2 right input multiplexor virtual ground

# Information of ICs

## U23

PIN	NAME	DESCRIPTION
26, 30	AGND	Analog ground for digital/analog cells in core
33	AVCC	High-voltage analog power supply (8.5 V to 14 V)
29	AVDD	5-V Regulated output capable of 100-mA output
7	AVDDREF	5-V Reference output—provided for connection to adjacent VREF terminal.
13	BSLN	Bootstrap I/O for left channel, negative high-side FET
24	BSLP	Bootstrap I/O for left channel, positive high-side FET
48	BSRN	Bootstrap I/O for right channel, negative high-side FET
37	BSRP	Bootstrap I/O for right channel, positive high-side FET
28	COSC	I/O for charge/discharging currents onto capacitor for ramp generator triangle wave biased at V2P5
6	LINN	Negative differential audio input for left channel
5	LINP	Positive differential audio input for left channel
16, 17	LOUTN	Class-D 1/2-H-bridge negative output for left channel
20, 21	LOUTP	Class-D 1/2-H-bridge positive output for left channel
34	MODE	Input for MODE control. A logic high on this pin places the amplifier in the variable output mode and the Class-D outputs are disabled. A logic low on this pin places the amplifier in the Class-D mode and Class-D stereo outputs are enabled. Variable outputs (VAROUTL and VAROUTR) are still enabled in Class-D mode to be used as line-level outputs for external amplifiers.
35	MODE_OUT	Output for control of the variable output amplifiers. When the MODE pin (34) is a logic high, the MODE_OUT pin is driven low. When the MODE pin (34) is a logic low, the MODE_OUT pin is driven high. This pin is intended for MUTE control of an external headphone amplifier. Leave unconnected when not used for headphone amplifier control.
18, 19	PGNDL	Power ground for left channel H-bridge
42, 43	PGNDR	Power ground for right channel H-bridge
14, 15	PVCCL	Power supply for left channel H-bridge (tied to pins 22 and 23 internally), not connected to PVCCR or AVCC.
22, 23	PVCCL	Power supply for left channel H-bridge (tied to pins 14 and 15 internally), not connected to PVCCR or AVCC.
38,39	PVCCR	Power supply for right channel H-bridge (tied to pins 46 and 47 internally), not connected to PVCCL or AVCC.
46, 47	PVCCR	Power supply for right channel H-bridge (tied to pins 38 and 39 internally), not connected to PVCCL or AVCC.
12	REFGND	Ground for gain control circuitry. Connect to AGND. If using a DAC to control the volume, connect the DAC ground to this terminal.
3	RINP	Positive differential audio input for right channel
2	RINN	Negative differential audio input for right channel
27	ROSC	Current setting resistor for ramp generator. Nominally equal to $1/8 \cdot V_{CC}$
44, 45	ROUTN	Class-D 1/2-H-bridge negative output for right channel
40, 41	ROUTP	Class-D 1/2-H-bridge positive output for right channel
1	SD	Shutdown signal for IC (low = shutdown, high = operational). TTL logic levels with compliance to $V_{CC}$ .
9	VARDIFF	DC voltage to set the difference in gain between the Class-D and VAROUT outputs. Connect to GND or AVDDREF if VAROUT outputs are unconnected.
10	VARMAX	DC voltage that sets the maximum gain for the VAROUT outputs. Connect to GND or AVDDREF if VAROUT outputs are unconnected.
31	VAROUTL	Variable output for left channel audio. Line level output for driving external HP amplifier.
32	VAROUTR	Variable output for right channel audio. Line level output for driving external HP amplifier.
25	VCLAMPL	Internally generated voltage supply for left channel bootstrap capacitors.
36	VCLAMPR	Internally generated voltage supply for right channel bootstrap capacitors.
11	VOLUME	DC voltage that sets the gain of the Class-D and VAROUT outputs.
8	VREF	Analog reference for gain control section.
4	V2P5	2.5-V Reference for analog cells, as well as reference for unused audio input when using single-ended inputs.
Thermal Pad	—	Connect to AGND and PGND—should be center point for both grounds.

# Information of ICs

## U9

PIN	NAME	DESCRIPTION
28	RXD	RS232 received data, 2mA
29	TXD	RS232 transmitted data, 2mA
142	SCL0	1) Clock of slave0 serial interface, 2mA 2) GPIO 3) RS232 RXD
141	SDA0	1) Data of slave0 serial interface, 2mA 2) GPIO 3) RS232 TXD
138	SCL1	1) Clock of slave1 serial interface, 2mA 2) GPIO
137	SDA1	1) Data of slave1 serial interface, 2mA 2) GPIO
30	AOMCLK	Audio out master clock, 2~16mA, SR(optional), SMT
31	AOLRCK	Audio out left-right clock, 4mA, SR, SMT
32	AOBCK	Audio out bit clock, 2~16mA, SR(optional), PD(optional), SMT
35	AOSDATA3	1) GPIO (default, input in initial state) 2) Audio out data line 3, 4mA, SR, PD(optional), SMT
33	LIN	Audio line in
11	HIGHA0	Microcontroller address 8, 2~16 mA, PU
4	HIGHA1	Microcontroller address 9, 2~16 mA, PU
3	HIGHA2	Microcontroller address 10, 2~16 mA, PU
2	HIGHA3	Microcontroller address 11, 2~16 mA, PU
1	HIGHA4	Microcontroller address 12, 2~16 mA, PU
256	HIGHA5	Microcontroller address 13, 2~16 mA, PU
255	HIGHA6	Microcontroller address 14, 2~16 mA, PU
254	HIGHA7	Microcontroller address 15, 2~16 mA, PU
239	AD7	Microcontroller address/data 7, 2~16 mA, SR
241	AD6	Microcontroller address/data 6, 2~16 mA, SR
242	AD5	Microcontroller address/data 5, 2~16 mA, SR
243	AD4	Microcontroller address/data 4, 2~16 mA, SR
245	AD3	Microcontroller address/data 3, 2~16 mA, SR
246	AD2	Microcontroller address/data 2, 2~16 mA, SR
247	AD1	Microcontroller address/data 1, 2~16 mA, SR
248	AD0	Microcontroller address/data 0, 2~16 mA, SR
238	IOA0	Microcontroller address 0 / IO, 2mA, SR, PU
251	IOA1	Microcontroller address 1 / IO, 2mA, SR, PU
18	IOA2	Microcontroller address 2 / IO, 2mA, SR, PU
17	IOA3	Microcontroller address 3 / IO, 2mA, SR, PU
15	IOA4	Microcontroller address 4 / IO, 2mA, SR, PU
14	IOA5	Microcontroller address 5 / IO, 2mA, SR, PU
13	IOA6	Microcontroller address 6 / IO, 2mA, SR, PU
12	IOA7	Microcontroller address 7 / IO, 2mA, SR, PU
253	A16	2mA, PU 1) Flash address 16 2) GPIO
A17	237	2mA, PU 1) Flash address 17 2) GPIO
IOA18	10	2mA, SR, PD, SMT 1) Flash address 18 / IO 2) GPIO
IOA19	8	2mA, SR, PD, SMT 1) Flash address 19 / IO 2) GPIO
IOA20	5	2mA, SR, PD, SMT 1) Flash address 20 / IO 2) GPIO
IOA21	6	2mA, SR, PD, SMT 1) Flash address 21 / IO, While External FLASH size <= 2MB 2) GPIO
IOALE	19	Microcontroller address latch enable, 2mA, PU, SMT

# Information of ICs

## U9

PIN	NAME	DESCRIPTION
249	IOOE#	Flash output enable, active low / IO, 2mA, SR, PU, SMT
7	IOWR#	2mA, PU, SMT 1) Flash write enable, active low / IO 2) GPIO
250	IOCS#	5mA, SR, SMT 1) Flash chip select, active low / IO 2) GPIO
20	UWR#	Microcontroller write strobe, active low, 2mA, PU, SMT
21	URD#	Microcontroller read strobe, active low, 2mA, PU, SMT
24	UP3_4	Microcontroller port 3-4, 2mA, PU, SMT
22	INT0#	Microcontroller external interrupt 0, active low, 2mA, PU, SMT
23	PRST_	power on reset
26	ICE	ICE mode
105	PWM0	1) GPIO (default, input in initial state), 2mA 2) PWM output 0, 2mA
106	PWM1	1) GPIO (default, input in initial state), 2mA 2) PWM output 1, 2mA
25	IR	IR control signal input, 4mA, SR, SMT
39	FCIDAT	2~16mA, SR, PU(optional), PD(optional) 1) GPIO (default, input in initial state) 2) SDIO in ms mode or DAT0 in SD mode
37	FCICLK	2~16mA, SR 1) GPIO (default, input in initial state) 2) MSCLK in ms mode or SDCLK in SD mode
38	FCICMD	2~16mA, SR, PU(optional), PD(optional) 1) GPIO (default, input in initial state) 2) BS in ms mode or CMD in SD mode
42	DQ0	dram data bus bit 0
43	DQ1	dram data bus bit 1
44	DQ2	dram data bus bit 2
46	DQ3	dram data bus bit 3
47	DQ4	dram data bus bit 4
48	DQ5	dram data bus bit 5
49	DQ6	dram data bus bit 6
51	DQ7	dram data bus bit 7
56	DQ8	dram data bus bit 8
59	DQ9	dram data bus bit 9
61	DQ10	dram data bus bit 10
62	DQ11	dram data bus bit 11
64	DQ12	dram data bus bit 12
66	DQ13	dram data bus bit 13
67	DQ14	dram data bus bit 14
68	DQ15	dram data bus bit 15
79	RA0	dram address bus bit 0
80	RA1	dram address bus bit 1
81	RA2	dram address bus bit 2
82	RA3	dram address bus bit 3
96	RA4	dram address bus bit 4
95	RA5	dram address bus bit 5
93	RA6	dram address bus bit 6
92	RA7	dram address bus bit 7
91	RA8	dram address bus bit 8
89	RA9	dram address bus bit 9
78	RA10	dram address bus bit 10
88	RA11	dram address bus bit 11
73	RCS_	dram chip select
72	RAS_	dram row address strobe
70	CAS_	dram column address strobe

# Information of ICs

## U9

PIN	NAME	DESCRIPTION
69	RWE_	dram write enable
87	CKE	dram clock enable
84	RCLKB	dram clock
85	RCLK	dram clock invert
53	DQM0	data mask 0
74	BA0	bank address 0
76	BA1	bank address 1
58	RVREF	reference voltage
52	DQS0	data strobe 0
55	DQS1	data strobe 1
109	VI0	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[0]
110	VI1	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[1]
112	VI2	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[2]
113	VI3	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[3]
115	VI4	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[4]
116	VI5	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[5]
117	VI6	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[6]
118	VI7	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[7]
119	VI8	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[0]
120	VI9	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[1]
122	VI10	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[2]
124	VI11	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[3]
125	VI12	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[4]
126	VI13	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[5]
127	VI14	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[6]

# Information of ICs

## U9

PIN	NAME	DESCRIPTION
128	VI15	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[7]
114	VCLK_DVI	Video Clock input, 2mA
108	DE_SOG	1) GPIO (default, input in initial state) 2) SOG input from external AD
107	OUT_27MHZ	1) GPIO (default, input in initial state) 2) OSC clock output for external chip
131	HDMIMCLK	1) GPIO (default, input in initial state) 2) MCLK for HDMI
132	HDMIBCLK	1) GPIO (default, input in initial state) 2) BCK for HDMI
133	HDMILRCK	1) GPIO (default, input in initial state) 2) LRCK for HDMI
134	HDMISD0	1) GPIO (default, input in initial state) 2) CH 1/2 data input for HDMI
135	HDMISD1	1) GPIO (default, input in initial state) 2) CH 3/4 data input for HDMI
136	HDMISD2	1) GPIO (default, input in initial state) 2) CH 5/6 data input for HDMI
236	DE	1) GPIO (default, input in initial state) 2) Data enable, 2mA
235	ERO0	2mA 1) GPIO (default, input in initial state) 2) UP30 3) R output of Channel Even 4) Monitored pin
234	ERO1	2mA 1) GPIO (default, input in initial state) 2) UP31 3) R output of Channel Even 4) Monitored pin
233	ERO2	2mA 1) GPIO (default, input in initial state) 2) UP35 3) R output of Channel Even 4) Monitored pin
231	ERO3	2mA 1) GPIO (default, input in initial state) 2) R output of Channel Even 3) Monitored pin
190	TP3	Positive PLL group test pin
191	TN3	Negative PLL group test pin
192	PLLVSS1	PLL group ground
193	PLLVDD1	1.8v PLL group power
194	PLLVSS2	PLL group ground
195	PLLVDD2	1.8v PLL group power
196	PLLVSS3	PLL group ground
197	PLLVDD3	1.8v PLL group power
198	XTALVDD	1.8v XTAL power
199	XTALO	XTAL I/O clock
200	XTALI	XTAL I/O clock
201	XTALVSS	XTAL ground
202	ADCVSS	Servo ADC ground
203	ADIN3	1) Servo ADC input 2) GPIO
204	ADIN2	1) Servo ADC input 2) GPIO



# Information of ICs

## U9

PIN	NAME	DESCRIPTION
205	ADIN1	1) Servo ADC input 2) GPIO
206	ADIN0	1) Servo ADC input 2) GPIO
207	ADCVDD	Servo ADC power
208	PWM2VREF	Servo ADC reference pin
209	TP4	Positive VPLL test pin
210	TN4	Negative VPLL test pin
211	VPLLVD1	1.8v VPLL power
212	VPLLVSS	1) VPLL ground
213	VPLLVD2	3.3v VPLL power
214	LVDDA	3.3v LVDS power
215	LVSSA	LVDS ground
216	LVDDB	3.3v LVDS power
217	A3P	1) LVDS Tx positive output 2) G[5] output of Channel Even
218	A3N	1) LVDS Tx negative output 2) G[4] output of Channel Even
219	LVSSB	LVDS ground
220	CK1P	1) LVDS Tx positive output 2) G[3] output of Channel Even
221	CK1N	1) LVDS Tx negative output 2) G[2] output of Channel Even
222	A2P	1) LVDS Tx positive output 2) G[1] output of Channel Even
223	A2N	1) LVDS Tx negative output 2) G[0] output of Channel Even
224	LVDDC	3.3v LVDS power
225	A1P	1) LVDS Tx positive output 2) R[7] output of Channel Even
226	A1N	1) LVDS Tx negative output 2) R[6] output of Channel Even
227	A0P	1) LVDS Tx positive output 2) R[5] output of Channel Even
228	A0N	1) LVDS Tx negative output 2) R[4] output of Channel Even
229	LVSSC	LVDS ground
144	HSYNC	VFE Horizontal sync input
145	VSYNC	VFE Vertical sync input
146	AVSS_VFE	RGB Video front end ground
147	B	Blue+ differential input ( <b>input range: 0.5V~1.5V</b> )
148	SOG	Sync on Green
149	G	Green+ differential input ( <b>input range: 0.5V~1.5V</b> )
150	R	Red+ differential input ( <b>input range: 0.5V~1.5V</b> )
151	AVDD_VFE	1.8v RGB video front end power
152	TN1	negative RGB video front end test pin
153	TP1	positive RGB video front end test pin
154	AVSS_VAD1	RGB ADC ground
155	SOY0	Sync on Y0
156	Y0	Component Y0+ differential input ( <b>input range: 0.5V~1.5V</b> )

# Information of ICs

## U9

PIN	NAME	DESCRIPTION
157	PB0	Component Pb0+ differential input (input range: 0.5V~1.5V)
158	PR0	Component Pr0+ differential input (input range: 0.5V~1.5V)
159	SOY1	Sync on Y1
160	Y1	Component Y1+ differential input (input range: 0.5V~1.5V)
161	PB1	Component Pb1+ differential input (input range: 0.5V~1.5V)
162	PR1	Component Pr1+ differential input (input range: 0.5V~1.5V)
163	AVDD_VAD1	1.8v RGB ADC power
164	SC1	S-Video C1 input (input range: 0.5V~1.5V)
165	SY1	S-Video Y1 input (input range: 0.5V~1.5V)
166	SC0	S-Video C0 input (input range: 0.5V~1.5V)
167	SY0	S-Video Y0 input (input range: 0.5V~1.5V)
168	AVSS_VFE0	CVBE video front end ground
169	AVDD_VFE0	3.3v CVBS video front end power
170	CVBS3	CVBS3 input (input range: 0.5V~1.5V)
171	CVBS2	CVBS2 input (input range: 0.5V~1.5V)
172	CVBS1	CVBS1 input (input range: 0.5V~1.5V)
173	CVBS0	CVBS0 input (input range: 0.5V~1.5V)
174	AVSS_VAD0	CVBE ADC ground
175	REFP	Positive CVBS ADC Voltage Reference
176	REFN	Negative CVBS ADC Voltage Reference
177	AVDD_VAD0	3.3v CVBS ADC power
178	AADCVDD	3.3v Audio front end power
179	SIF	Audio Frequency input0
180	AF	Audio Frequency input1
181	AADCVSS	Audio front end ground
182	TN2	negative Audio ADC reference pin
183	TP2	1) positive Audio ADC reference pin 2) bypass CVBS video output pin
184	ADACVDD	3.3v Audio front end power
188	AVICM	1) Audio DAC output 2) I2S , ASDATA2 3) GPIO
187	ACENT	Audio DAC input common voltage
186	AL	1) Audio DAC output 2) I2S , ASDATA0 3) GPIO
185	AR	1) Audio DAC output 2) I2S , ASDATA1 3) GPIO
189	ADACVSS	Video ADC Voltage Reference N0

## U19、U20

PIN	NAME	DESCRIPTION
1	OUTPUT 1	
2	INPUT 1-	
3	INPUT 1+	
4	V <sub>EE</sub>	Supply Voltage
5	V <sub>CC</sub>	Supply Voltage
6	OUTPUT 2	
7	INPUT 2-	
8	INPUT 2+	

# Information of ICs

## U10

PIN	NAME	DESCRIPTION
1	A15	19 Addresses
2	A14	19 Addresses
3	A13	19 Addresses
4	A12	19 Addresses
5	A11	19 Addresses
6	A10	19 Addresses
7	A9	19 Addresses
8	A8	19 Addresses
9	NC	Pin Not Connected Internally
10	NC	Pin Not Connected Internally
11	WE#	Write Enable
12	RESET#	Hardware Reset Pin, Active Low
13	NC	Pin Not Connected Internally
14	NC	Pin Not Connected Internally
15	RY/BY#	Ready/Busy Output
16	A18	19 Addresses
17	A17	19 Addresses
18	A7	19 Addresses
19	A6	19 Addresses
20	A5	19 Addresses
21	A4	19 Addresses
22	A3	19 Addresses
23	A2	19 Addresses
24	A1	19 Addresses
25	A16	19 Addresses
26	BYTE#	Selects 8-bit or 16-bit mode
27	Vss	Device Ground
28	DQ15/A-1	DQ15 (Data Input/Output, Word Mode) A-1 (LSB Address Input, Byte Mode)
29	DQ7	15 Data Inputs/Outputs
30	DQ14	15 Data Inputs/Outputs
31	DQ6	15 Data Inputs/Outputs
32	DQ13	15 Data Inputs/Outputs
33	DQ5	15 Data Inputs/Outputs
34	DQ12	15 Data Inputs/Outputs
35	DQ4	15 Data Inputs/Outputs
36	Vcc	3.0 volt-only single power supply (see Product Selector Guide for speed options and voltage supply tolerances)
37	DQ11	15 Data Inputs/Outputs
38	DQ3	15 Data Inputs/Outputs
39	DQ10	15 Data Inputs/Outputs
40	DQ2	15 Data Inputs/Outputs
41	DQ9	15 Data Inputs/Outputs
42	DQ1	15 Data Inputs/Outputs
43	DQ8	15 Data Inputs/Outputs
44	DQ0	15 Data Inputs/Outputs
45	OE#	Output Enable
46	Vss	19 Addresses
47	CE#	Chip Enable
48	A0	19 Addresses

# Information of ICs

## U14

PIN	NAME	DESCRIPTION
1~3	A0 to A2	Address Inputs
4	GND	Ground
5	SDA	Serial Data
6	SCL	Serial Clock Input
7	WP	Write Protect
8	VCC	Power Supply

## U15

PIN	NAME	DESCRIPTION
12,24,36,45,66,81,112,125	CVCC18	Digital Logic 1.8V power
13,25,37,65,80,113,126	CGND18	Digital Logic ground
7,19,31,68,77,98,107,120	IOVCC33	Input/Output Pin 3.3V power
6,18,30,69,78,97,106,118	IOGND33	Input/Output Pin ground
49,53,57,61	AVCC	TMDS Analog 3.3V power
52,56,60,64	AGND	TMDS Analog ground
47	PVCC	TMDS PLL 3.3V power
46	PGND	TMDS PLL ground
82	UDPVCC18	ACR PLL 1.8V power
83	AUDPGND	ACR PLL ground
86	XTALVCC	ACR PLL crystal input 3.3V power
87	REGVCC	ACR PLL regulator 3.3V power
91	INT	Interrupt output
89	RESET#	Reset Pin. Active low
42	DSCL	DDC I2C clock, 5V tolerance
41	DSDA	DDC I2C data, 5V tolerance
40	C_SCL	Configuration I2C clock
39	C_SDA	Configuration I2C data
11	K_SCL	KEYS EERPOM I2C clock
10	K_SDA	KEYS EEPROM I2C data
9	K_WP	KEYS EEPROM write protect
90	SCDT	Indicates active video at HDMI input port
38	CISCA	I2C device address select
44	PWR5V	TMDS port transmitter detect (hot plug), 5V tolerance
88	RSVDL	Must be tied low
48	RSVD	
43	NC	No connect
5,8,14,35	NC	No connect
4	OSC_IN	Oscillator input, External in
3	SOG_IN	SOG input, External AD in
2	CEN	Clock enable, for 8202 CEN input
79	MCLK	Audio master clock input reference
76	SCK	I2S serial clock output
75	WS	I2S word select output
74	SD0	I2S serial data output
73	SD1	I2S serial data output
72	SD2	I2S serial data output
71	SD3	I2S serial data output
70	SPDIF	S/PDIF audio output
67	MUTE	Mute audio output
34	GPIO1	GPIO
33	GPIO2	GPIO
32	GPIO3	GPIO
29	GPIO4	GPIO
28	GPIO5	GPIO
27	GPIO6	GPIO
26	GPIO7	GPIO

# Information of ICs

## U15

PIN	NAME	DESCRIPTION
23	GPIO8	GPIO
22	GPIO9	GPIO
21	GPIO10	GPIO
20	GPIO11	GPIO
17	GPIO12	GPIO
16	GPIO13	GPIO
15	GPIO14	GPIO
1	CNTL1	Video output control signal 1
128	CNTL2	Video output control signal 2
127	CNTL3	Video output control signal 3
119	ODCK	Output data clock
124	Q0	24-bit pixel
123	Q1	24-bit pixel
122	Q2	24-bit pixel
121	Q3	24-bit pixel
117	Q4	24-bit pixel
116	Q5	24-bit pixel
115	Q6	24-bit pixel
114	Q7	24-bit pixel
111	Q8	24-bit pixel
110	Q9	24-bit pixel
109	Q10	24-bit pixel
108	Q11	24-bit pixel
105	Q12	24-bit pixel
104	Q13	24-bit pixel
103	Q14	24-bit pixel
102	Q15	24-bit pixel
101	Q16	24-bit pixel
100	Q17	24-bit pixel
99	Q18	24-bit pixel
96	Q19	24-bit pixel
95	Q20	24-bit pixel
9	Q21	24-bit pixel
93	Q22	24-bit pixel
92	Q23	24-bit pixel
51	RXC+	TMDS input clock pair
50	RXC-	TMDS input clock pair
55	RX0	TMDS input data pair
54	RX0	TMDS input data pair
59	RX1	TMDS input data pair
58	RX1	TMDS input data pair
63	RX2	TMDS input data pair
62	RX2	TMDS input data pair
85	XTALIN	Crystal input PAD
84	XTALOUT	Crystal output PAD

## U16、U17

PIN	NAME	DESCRIPTION
1~3	A0 - A2	Address Inputs
4	GND	Ground
5	SDA	Serial Data
6	SCL	Serial Clock Input
7	WP	Write Protect
8	VCC	Power Supply

# Information of ICs

## U2

PIN	NAME	DESCRIPTION
1,3-4,6-7,60-61, 63-64,68-69,71-72, 97-98,100,	DQ <sub>0</sub> -DQ <sub>15</sub>	Data inputs/outputs are multiplexed on the same pins.
2,8,14,22,59,67,73,79 ,86,95	VDDQ	Isolated power supply and ground for the output buffers to provide improved noise immunity.
5,11,19,62,70,76, 82,92,99	VSSQ	Isolated power supply and ground for the output buffers to provide improved noise immunity.
9-10,12-13,17-18, 20-21,74-75,77-78, 80-81,83-84	DQ <sub>0</sub> -DQ <sub>31</sub>	Data inputs/outputs are multiplexed on the same pins.
15,35,65,96	VDD	Power and ground for the input buffers and core logic.
16,46,66,85	VSS	Power and ground for the input buffers and core logic.
23,24,56,57	DM <sub>0</sub> -DM <sub>3</sub>	Data in mask. Data in is masked by DM latency=0 when DM is high in burst write. DM0 for DQ0-DQ7,DM1 for DQ8-DQ15,DM2 for DQ16-DQ23, DM3 for DQ24-DQ31.
25	$\overline{\text{WE}}$	Enables write operation and row precharge. Latches data in starting from CAS,WE active.
26	$\overline{\text{CAS}}$	Latches column addresses on the positive going edge of the Ckwith CAS low. Enables column access.
27	$\overline{\text{RAS}}$	Latches row addresses on the positive going edge of the CK with RAS low. Enables row access&precharge.
28	$\overline{\text{CS}}$	CS enables the command decoder when low and disabled the command decoder when high. When the command decoder is disabled, new commands are ignored but previous operations continue.
29,30	BA <sub>0</sub> ,BA <sub>1</sub>	Selects which bank is to be active.
31-34,36, 37,45,47-51	A0-A1	Row/Column addresses are multiplexed on the same pins.Row addresses:RA0-RA11, Column addresses:CA0-CA7. Column address CA8 is used for auto precharge.
38-44 87-91	NC	No Connection
52	MCL	Must connect Low
53	CKE	Activates the CK signal when high and deactivates the CK signal when low. By deactivating the clock,CKE low indicates the power down mode or self refresh mode.
54-55	$\frac{\text{CK}}{\text{CK}}$	The differential system clock input. All of the inputs are sampled on the rising edge of the clock except DQ's and DM's that are sampled on both edges of the DQS.
58	VREF	Reference voltage for inputs,used for SSTL interface.
93	RFU	Reserved for Fucture Use
94	DQS	Data input and output are synchronized with both edge of DQS.

# Information of ICs

## U12

PIN	NAME	DESCRIPTION
1	VDD	Core Power Supply.
2	DQ0	Data Input/Output: Data bus.
3	VDDQ	DQ Power: Provide isolated power to DQs for improved noise immunity.
4	DQ1	Data Input/Output: Data bus.
5	DQ2	Data Input/Output: Data bus.
6	VSSQ	DQ Ground: Provide isolated ground to DQs for improved noise immunity.
7	DQ3	Data Input/Output: Data bus.
8	DQ4	Data Input/Output: Data bus.
9	VDDQ	DQ Power: Provide isolated power to DQs for improved noise immunity.
10	DQ5	Data Input/Output: Data bus.
11	DQ6	Data Input/Output: Data bus.
12	VSSQ	DQ Ground: Provide isolated ground to DQs for improved noise immunity.
13	DQ7	Data Input/Output: Data bus.
14	VDD	
15	LDQM	Input/Output Mask: DQM is sampled HIGH and is an input mask signal for write accesses and an output enable signal for read accesses. Input data is masked during a WRITE cycle. The output buffers are placed in a High-Z state (two-clock latency) when during a READ cycle. LDQM corresponds to DQ0–DQ7, UDQM corresponds to DQ8–DQ15. LDQM and UDQM are considered same state when referenced as DQM.
16	/WE	Command Inputs: /CAS, /RAS, and /WE (along with /CS) define the command being entered.
17	/CAS	Command Inputs: /CAS, /RAS, and /WE (along with /CS) define the command being entered.
18	/RAS	Command Inputs: /CAS, /RAS, and /WE (along with /CS) define the command being entered.
19	/CS	Chip Select: /CS enables (registered LOW) and disables (registered HIGH) the command decoder. All commands are masked when /CS is registered HIGH. /CS provides for external bank selection on systems with multiple banks. /CS is considered part of the command code.
20	Ba0	Bank Address Input(s): BA0 and BA1 define to which bank the ACTIVE, READ, WRITE or PRECHARGE command is being applied. These pins also select between the mode register and the extended mode register.
21	Ba1	Bank Address Input(s): BA0 and BA1 define to which bank the ACTIVE, READ, WRITE or PRECHARGE command is being applied. These pins also select between the mode register and the extended mode register.
22	A10	Address Inputs: A0–A11 are sampled during the ACTIVE command (row address A0–A11) and READ/WRITE command (column-address A0–A7; with A10 defining auto precharge) to select one location out of the memory array in the respective bank. A10 is sampled during a PRECHARGE command to determine if all banks are to be precharged (A10 HIGH) or bank selected by BA0, BA1 (LOW). The address inputs also provide the op-code during a LOAD MODE REGISTER command.
23	A0	Address Inputs: A0–A11 are sampled during the ACTIVE command (row address A0–A11) and READ/WRITE command (column-address A0–A7; with A10 defining auto precharge) to select one location out of the memory array in the respective bank. A10 is sampled during a PRECHARGE command to determine if all banks are to be precharged (A10 HIGH) or bank selected by BA0, BA1 (LOW). The address inputs also provide the op-code during a LOAD MODE REGISTER command.
24	A1	Address Inputs: A0–A11 are sampled during the ACTIVE command (row address A0–A11) and READ/WRITE command (column-address A0–A7; with A10 defining auto precharge) to select one location out of the memory array in the respective bank. A10 is sampled during a PRECHARGE command to determine if all banks are to be precharged (A10 HIGH) or bank selected by BA0, BA1 (LOW). The address inputs also provide the op-code during a LOAD MODE REGISTER command.
25	A2	Address Inputs: A0–A11 are sampled during the ACTIVE command (row address A0–A11) and READ/WRITE command (column-address A0–A7; with A10 defining auto precharge) to select one location out of the memory array in the respective bank. A10 is sampled during a PRECHARGE command to determine if all banks are to be precharged (A10 HIGH) or bank selected by BA0, BA1 (LOW). The address inputs also provide the op-code during a LOAD MODE REGISTER command.
26	A3	Address Inputs: A0–A11 are sampled during the ACTIVE command (row address A0–A11) and READ/WRITE command (column-address A0–A7; with A10 defining auto precharge) to select one location out of the memory array in the respective bank. A10 is sampled during a PRECHARGE command to determine if all banks are to be precharged (A10 HIGH) or bank selected by BA0, BA1 (LOW). The address inputs also provide the op-code during a LOAD MODE REGISTER command.



# Information of ICs

## U12

PIN	NAME	DESCRIPTION
27	VDD	
28	VSS	Ground.
29	A4	Address Inputs: A0–A11 are sampled during the ACTIVE command (row address A0–A11) and READ/WRITE command (column-address A0–A7; with A10 defining auto precharge) to select one location out of the memory array in the respective bank. A10 is sampled during a PRECHARGE command to determine if all banks are to be precharged (A10 HIGH) or bank selected by BA0, BA1 (LOW). The address inputs also provide the op-code during a LOAD MODE REGISTER command.
30	A5	Address Inputs: A0–A11 are sampled during the ACTIVE command (row address A0–A11) and READ/WRITE command (column-address A0–A7; with A10 defining auto precharge) to select one location out of the memory array in the respective bank. A10 is sampled during a PRECHARGE command to determine if all banks are to be precharged (A10 HIGH) or bank selected by BA0, BA1 (LOW). The address inputs also provide the op-code during a LOAD MODE REGISTER command.
31	A6	Address Inputs: A0–A11 are sampled during the ACTIVE command (row address A0–A11) and READ/WRITE command (column-address A0–A7; with A10 defining auto precharge) to select one location out of the memory array in the respective bank. A10 is sampled during a PRECHARGE command to determine if all banks are to be precharged (A10 HIGH) or bank selected by BA0, BA1 (LOW). The address inputs also provide the op-code during a LOAD MODE REGISTER command.
32	A7	Address Inputs: A0–A11 are sampled during the ACTIVE command (row address A0–A11) and READ/WRITE command (column-address A0–A7; with A10 defining auto precharge) to select one location out of the memory array in the respective bank. A10 is sampled during a PRECHARGE command to determine if all banks are to be precharged (A10 HIGH) or bank selected by BA0, BA1 (LOW). The address inputs also provide the op-code during a LOAD MODE REGISTER command.
33	A8	Address Inputs: A0–A11 are sampled during the ACTIVE command (row address A0–A11) and READ/WRITE command (column-address A0–A7; with A10 defining auto precharge) to select one location out of the memory array in the respective bank. A10 is sampled during a PRECHARGE command to determine if all banks are to be precharged (A10 HIGH) or bank selected by BA0, BA1 (LOW). The address inputs also provide the op-code during a LOAD MODE REGISTER command.
34	A9	Address Inputs: A0–A11 are sampled during the ACTIVE command (row address A0–A11) and READ/WRITE command (column-address A0–A7; with A10 defining auto precharge) to select one location out of the memory array in the respective bank. A10 is sampled during a PRECHARGE command to determine if all banks are to be precharged (A10 HIGH) or bank selected by BA0, BA1 (LOW). The address inputs also provide the op-code during a LOAD MODE REGISTER command.
35	A11	Address Inputs: A0–A11 are sampled during the ACTIVE command (row address A0–A11) and READ/WRITE command (column-address A0–A7; with A10 defining auto precharge) to select one location out of the memory array in the respective bank. A10 is sampled during a PRECHARGE command to determine if all banks are to be precharged (A10 HIGH) or bank selected by BA0, BA1 (LOW). The address inputs also provide the op-code during a LOAD MODE REGISTER command.
36	NC	Internally Not Connected: These could be left unconnected, but it is recommended they be connected to Vss.
37	CKE	Clock Enable: CKE activates (HIGH) and deactivates (LOW) the CLK signal. Deactivating the clock provides PRECHARGE POWER-DOWN and SELF REFRESH operation (all banks idle), ACTIVE POWER-DOWN (row active in any bank), DEEP POWER DOWN (all banks idle), or CLOCK SUSPEND operation (burst/access in progress). CKE is synchronous except after the device enters power-down and self refresh modes, where CKE becomes asynchronous until after exiting the same mode. The input buffers, including CLK, are disabled during power-down and self refresh modes, providing low standby power. CKE may be tied HIGH.
38	CLK	Clock: CLK is driven by the system clock. All SDRAM input signals are sampled on the positive edge of CLK. CLK also increments the internal burst counter and controls the output registers.
39	UDQM	Input/Output Mask: DQM is sampled HIGH and is an input mask signal for write accesses and an output enable signal for read accesses. Input data is masked during a WRITE cycle. The output buffers are placed in a High-Z state (two-clock latency) when during a READ cycle. LDQM corresponds to DQ0–DQ7, UDQM corresponds to DQ8–DQ15. LDQM and UDQM are considered the same state when referenced as DQM.
40	NC	Internally Not Connected: These could be left unconnected, but it is recommended they be connected to Vss.
41	VSS	Ground.



# Information of ICs

## U14

PIN	NAME	DESCRIPTION
1~3	A0 to A2	Address Inputs
4	GND	Ground
5	SDA	Serial Data
6	SCL	Serial Clock Input
7	WP	Write Protect
8	VCC	Power Supply

## U15

PIN	NAME	DESCRIPTION
12,24,36,45,66,81,112,125	CVCC18	Digital Logic 1.8V power
13,25,37,65,80,113,126	CGND18	Digital Logic ground
7,19,31,68,77,98,107,120	IOVCC33	Input/Output Pin 3.3V power
6,18,30,69,78,97,106,118	IOGND33	Input/Output Pin ground
49,53,57,61	AVCC	TMDS Analog 3.3V power
52,56,60,64	AGND	TMDS Analog ground
47	PVCC	TMDS PLL 3.3V power
46	PGND	TMDS PLL ground
82	UDPVCC18	ACR PLL 1.8V power
83	AUDPGND	ACR PLL ground
86	XTALVCC	ACR PLL crystal input 3.3V power
87	REGVCC	ACR PLL regulator 3.3V power
91	INT	Interrupt output
89	RESET#	Reset Pin. Active low
42	DSCL	DDC I2C clock, 5V tolerance
41	DSDA	DDC I2C data, 5V tolerance
40	C_SCL	Configuration I2C clock
39	C_SDA	Configuration I2C data
11	K_SCL	KEYS EERPOM I2C clock
10	K_SDA	KEYS EEPROM I2C data
9	K_WP	KEYS EEPROM write protect
90	SCDT	Indicates active video at HDMI input port
38	CISCA	I2C device address select
44	PWR5V	TMDS port transmitter detect (hot plug), 5V tolerance
88	RSVDL	Must be tied low
48	RSVD	
43	NC	No connect
5,8,14,35	NC	No connect
4	OSC_IN	Oscillator input, External in
3	SOG_IN	SOG input, External AD in
2	CEN	Clock enable, for 8202 CEN input
79	MCLK	Audio master clock input reference
76	SCK	I2S serial clock output
75	WS	I2S word select output
74	SD0	I2S serial data output
73	SD1	I2S serial data output
72	SD2	I2S serial data output
71	SD3	I2S serial data output
70	SPDIF	S/PDIF audio output
67	MUTE	Mute audio output
34	GPIO1	GPIO
33	GPIO2	GPIO
32	GPIO3	GPIO
29	GPIO4	GPIO
28	GPIO5	GPIO
27	GPIO6	GPIO
26	GPIO7	GPIO

# Information of ICs

## U12

PIN	NAME	DESCRIPTION
42	DQ8	Data Input/Output: Data bus.
43	VDDQ	DQ Power: Provide isolated power to DQs for improved noise immunity.
44	DQ9	Data Input/Output: Data bus.
45	DQ10	Data Input/Output: Data bus.
46	VSSQ	DQ Ground: Provide isolated ground to DQs for improved noise immunity.
47	DQ11	Data Input/Output: Data bus.
48	DQ12	Data Input/Output: Data bus.
49	VDDQ	DQ Power: Provide isolated power to DQs for improved noise immunity.
50	DQ13	Data Input/Output: Data bus.
51	DQ14	Data Input/Output: Data bus.
52	VSSQ	DQ Ground: Provide isolated ground to DQs for improved noise immunity.
53	DQ15	Data Input/Output: Data bus.
54	VDD	

## U13

PIN	NAME	DESCRIPTION
1~3	GND	Ground
4	VDS	Date-Source Voltage
5	VGS	Gate-Source Voltage
6	VGS	Gate-Source Voltage
7	VGS	Gate-Source Voltage
8	VGS	Gate-Source Voltage

## U3、U5、U4、U7、U8

PIN	NAME	DESCRIPTION
1	ADJ	Power ground.
2	VOUT	Adjustable output voltage.
3	VIN	Power Input.

## U22

PIN	NAME	DESCRIPTION
1~3	S	Input
4	G	Ground
5~8	D	Output

## Parts List (For Reference Only) (TF32K82A)

### FOR REFERENCE ONLY

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### ELECTRONIC COMMON PART ASSEMBLY(FOR FSP ADAPTER) (RoHS)

Item	Part No.	Description	Location
1	E0002-001005R0	BATTERY R03P MERCURY-FREE (RoHS)	
2	E0002-002022R0	TOROIDAL FERRITE T22.5*10*13.8 (RoHS)	
3	E0002-103008R0	SHRINKABLE TUBE S-901(FLAME-REDARDANT) 125°C VW-1 Φ4.0 (Φ4.5 TO Φ2.0) (RoHS)	
4	E3202-001036R1	JACK AC POWER SOCKET TU-301-A-A 3PIN 180° (RoHS)	
5	E3404-001027R2	AC CORD VDE VH3.96-3Y Φ4.2 3×0.75mm <sup>2</sup> 2.5A 640mm (RoHS)	
6	E3405-001064R0	AC CORD EUROPEAN Y003+H05VV-F 3× 0.75mm <sup>2</sup> +ST3 L= 2000mm (RoHS)	
7	E3421-002263R1	WIRE ASSY PH-4Y/ UL2468#22 L=800mm /400mm 2.0mm 4P (RoHS)	
8	E3421-002344R0	WIRE ASSY PH-9Y/PH-5Y/PH-4Y UL2547#26 L=500/580mm 2.0mm/2.0mm/2.0mm 9P/5P/4P (RoHS)	
9	E3421-002387R0	WIRE ASSY PH-6Y/PH-5Y UL2547#28 L= <del>700</del> mm 2.0mm/2.0mm 6P/5P (RoHS)	
10	E3421-002415R0	WIRE ASSY TJC3-4Y/2Y UL2468#22 L=250mm 2.5/2.0mm 4P/2P (RoHS)	
11	E3421-002416R0	WIRE ASSY TJC3-11Y/11Y/10Y/7Y UL2468#22 L=220/180/180mm 11P/11P/10P/7P (RoHS)	
12	E3421-002417R0	WIRE ASSY TJC3-10Y PH-14Y/3Y UL2468#22 L=530/230mm 2.5/2.5/2.0mm 14P/10P/3P (RoHS)	
13	E3421-004046R0	WIRE UL1672#18 L=380mm 1P BLUE (RoHS)	
14	E3421-004047R0	WIRE UL1672#18 L=380mm 1P BROWN (RoHS)	
15	E3421-006057R1	WIRE ASSY 2.0-2X15P/JAE FI-X-30P(WITH LOCK) L=290mm 2.0mm/1.0mm 30/30p (RoHS)	
16	E3422-001020R0	WIRE AV RCA M*3/RCA M*3 S518-02-001 L=1500MM 3P (RoHS)	
17	E4101-001017R0	PUSH BUTTON SWITCH KDC-A04-S 250VAC 10A (RoHS)	
18	E5501-001051R0	ADAPTER VP192UG01-GP 5Vsb/0.5A 5V/4A 12V/2A 24V/5A 24V /1A (ROHS)	
19	E5601-001039R1	SPEAKER 8OHM 15W YDT513-1A (RoHS)	
20	E6101-001096R2	TFT-LCD LC320WX3-SLE1 LG-PHILIPS(RoHS)	

## Parts List (For Reference Only) (TF37A82H)

### FOR REFERENCE ONLY

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### ELECTRONIC COMMON PART ASSEMBLY(FOR FSP ADAPTER) (RoHS)

Item	Part No.	Description	Location
1	E0002-002022R0	TOROIDAL FERRITE T22.5*10*13.8 (RoHS)	
2	E0002-001005R0	BATTERY R03P MERCURY-FREE (RoHS)	
3	E0002-103004R0	SHRINKABLE TUBE S-901(FLAME-REDARDANT) 125°C VW-1 Φ2.0 (Φ2.5 TO Φ1.0) (RoHS)	
4	E0002-103008R0	SHRINKABLE TUBE S-901(FLAME-REDARDANT) 125°C VW-1 Φ4.0 (Φ4.5 TO Φ2.0) (RoHS)	
5	E1302-003006R1	CAP EC NP V CD71-BP T05 1R0M 50DC 5×11 (RoHS)	
6	E3202-001036R1	JACK AC POWER SOCKET TU-301-A-A 3PIN 180° (RoHS)	
7	E3404-001027R2	AC CORD VDE VH3.96-3Y Φ4.2 3×0.75mm <sup>2</sup> 2.5A 640mm (RoHS)	
8	E3405-001064R0	AC CORD EUROPEAN Y003+H05VV-F 3× 0.75mm <sup>2</sup> +ST3 L= 2000mm (RoHS)	
9	E3421-002328R1	WIRE ASSY PH-4Y UL2468 #22 L=960/460mm 2.0mm/ 4P (RoHS)	
10	E3421-002362R1	WIRE ASSY PH-9Y/PH-5Y/PH-4Y UL2547#26 L=580/660mm 2.0mm/2.0mm/2.0mm 9P/5P/4P (RoHS)	
11	E3421-002387R0	WIRE ASSY PH-6Y/PH-5Y UL2547#28 L=700mm 2.0mm/2.0mm 6P/5P (RoHS)	
12	E3421-002480R0	WIRE ASSY TJC3-10Y PH-14Y/3Y UL2468#22 L=600/300mm 14P/10P/3P (RoHS)	
13	E3421-002415R0	WIRE ASSY TJC3-4Y/2Y UL2468#22 L=250mm 2.5/2.0mm 4P/2P (RoHS)	
14	E3421-002416R0	WIRE ASSY TJC3-11Y/11Y/10Y/7Y UL2468#22 L=220/180/180mm 11P/11P/10P/7P (RoHS)	
15	E3421-004045R0	WIRE 22# L=150mm RED/BLACK 2P (RoHS)	
16	E3421-004046R0	WIRE UL1672#18 L=380mm 1P BLUE (RoHS)	
17	E3421-004047R0	WIRE UL1672#18 L=380mm 1P BROWN (RoHS)	
18	E3421-006057R1	WIRE ASSY 2.0-2X15P/JAE FI-X-30P(WITH LOCK) L=290mm 2.0mm/1.0mm 30/30p (RoHS)	
19	E3422-001020R0	WIRE AV RCA M*3/RCA M*3 S518-02-001 L=1500MM 3P (RoHS)	
20	E4101-001018R0	SWITCH POWER KND3-B31 (RoHS)	
21	E5501-001051R1	ADAPTER VP192UG01-GP 5Vsb/0.5A 5V/4A 12V/2A 24V/5A 24V/1A (ROHS)	
22	E5601-001040R0	SPEAKER 8OHM 15W (RoHS)	
23	E5601-001042R0	SPEAKER YDG50-1 8OHM 3W (RoHS)	
24	E6101-001115R0	TFT-LCD LC370WX4-SLA1 LG-PHILIPS (RoHS)	

# Parts List (For Reference Only) TF32K82A TF37A82H

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### DRIVE PCB ASSEMBLY (W/O AV YPRPB) (RoHS)

Item	Part No.	Description	Location
1	E1101-001025R1	COIL FIX H AL0204S T52 220J (RoHS)	L52 L20 L21
2	E1111-002019R1	COIL FIX CHIP CMI1608VBP 2R2M 0603 (RoHS)2.2uH	L31 L32 L59 L62
3	E1111-003018R2	COIL FIX CHIP CMI2012VTP 1R8K 0805 (RoHS)	L54 L53
4	E1111-014004R1	FB FIX CHIP CBY160808UBP 190 0603 (ROHS)	FB1 FB2 FB3 FB4 FB6 FB7 FB8 L17 L18 L19 L23 FB23 L24 L25 L26 L27 L28 L29 L30 FB31 L33 FB33 L34 L57 L60 L63 L64 L65 L66 L67 L76 L77 L78 L79 L80 L81
5	E1111-015003R1	FB FIX CBY201209UBP 190 0805(ROHS)	L22 FB5 L4 L8 FB22 FB38 L55
6	E1111-016001R2	FB FIX CHIP CBY321611UBP 190 1206(ROHS)	L35 L37 L82 FB36
7	E1112-001007R0	COIL FIX LBS7045-470MT 47uH 0.75A (RoHS)	L56 L58
8	E1301-002001R1	CAP EC V CD11X-BP T05 100M 16DC 4×7 (RoHS)	CE5 CE22 CE23 CE24 CE25 CE26 CE27 CE28 CE38 CE40 CE43 CE47 CE50 CE51 CE52 CE53 CE54 CE55 CE56 CE57 CE58 CE60 CE62 CE63 CE64 CE65 CE66 CE67 CE71 CE72 CE74 CE75 CE83 CE87 C98 CE136
9	E1301-002003R1	CAP EC V CD11X-BP T05 330M 16DC 5×7 (RoHS)	CE86 CE108 CE111 CE115 CE119
10	E1301-002004R1	CAP EC V CD11X-BP T05 470M 16DC 5×7 (RoHS)	CE21 CE36 CE37 CE41 CE70 CE122 CE126 CE128 CE135
11	E1301-002005R1	CAP EC V CD11X-BP T05 101M 16DC 6.3×7 (RoHS)	CE8 CE10 CE11 CE12 CE14 CE15 CE17 CE18 CE19 CE33 CE34 CE35 CE76 CE88 CE100 CE123 CE127
12	E1301-002008R1	CAP EC V CD11X-BP T05 471M 16DC 8×12 (RoHS)	CE1 CE3 CE4 CE73 CE77 CE85 CE89 CE92 CE97 CE114 CE134
13	E1301-003003R1	CAP EC V CD11X-BP T05 220M 25DC 5×7 (RoHS)	CE81
14	E1301-009001R1	CAP EC V CD11X-BP T05 221M 25DC 8×9 (RoHS)	CE20
15	E1301-012015R1	CAP EC V CD11-BP T05 221M 16DC 6×12 (RoHS)	CE2 CE9 CE13 CE16 CE29 CE30 CE32 CE42 CE44 CE45 CE46 CE68 CE69 CE78 CE84 CE90 CE95 CE101
16	E1301-013010R1	CAP EC V CD11-BP T05 102M 25DC 12×20 (RoHS)	CE82 CE91
17	E1301-014012R1	CAP EC V CD11-BP T05 102M 35DC 13x20 (ROHS)	CE61
18	E1301-020004R1	CAP EC V CD11 T05 101M 16DC 5×7(RoHS)	CE93
19	E1321-230037R1	CAP POLYESTER FILM CL11 224J 100VDC (RoHS)	CB90 CB91
20	E1326-001006R2	CAP CHIP CC41-CGNT NPO T06 5R0J 50DC 0603 (RoHS)	C50 C53 C57 C58 C59
21	E1326-001011R2	CAP CHIP CC41-CGNT NPO T06 100J 50DC 0603 (RoHS)	C185
22	E1326-001013R2	CAP CHIP CC41-CGNT NPO T06 150J 50DC 0603 (RoHS)	C68 C74 C80 C87 C89 C93 C94 C95

# Parts List (For Reference Only)

## FOR REFERENCE ONLY

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### DRIVE PCB ASSEMBLY (W/O AV YPRPB) (RoHS)

Item	Part No.	Description	Location
23	E1326-001014R2	CAP CHIP CC41-CGNT NPO T06 180J 50DC 0603 (RoHS)	C2 C1 C46 C47
24	E1326-001018R2	CAP CHIP CC41-CGNT NPO T06 270J 50DC 0603 (RoHS)	C143
25	E1326-001029R2	CAP CHIP CC41-CGNT NPO T06 151J 50DC 0603 (RoHS)	C105 C103
26	E1326-001032R2	CAP CHIP CC41-CGNT NPO T06 221J 50DC 0603 (RoHS)	C99 C101
27	E1326-001035R2	CAP CHIP CC41-CGNT NPO T06 331J 50DC 0603 (RoHS)	C65 C66 C71 C72 C77 C78 C83 C84 C149 C151 C145 C146
28	E1326-001040R2	CAP CHIP CC41-CGNT NPO T06 821J 50DC 0603 (RoHS)	C106 C104
29	E1326-001057R2	CAP CER CHIP CC41-CGNT NPO 1R8J 50DC 0603	C91
30	E1326-003015R2	CAP CER CHIP CC41-BNT X7R T06 102K 50DC 0603 (RoHS)	C36 C37 C38 C39 C40 C41 C42 C43 C44
31	E1326-003020R2	CAP CER CHIP CC41-BNT X7R T06 222K 50DC 0603 (RoHS)	C100 C102
32	E1326-003023R1	CAP CER CHIP CC41-BNB X7R T06 332K 50DC 0603 (RoHS)	C3 C6 C8 C9 C10 C34 C35
33	E1326-003029R2	CAP CER CHIP CC41-BNT X7R T06 103K 50DC 0603 (RoHS)	C5 C23 C48 C60 C61 C107 C109 C111 C112 C117 C118 C119 C120 C49 C52 C54 C67 C73 C79 C86 C88 C90 C92 C141 C142 C144
34	E1326-003039R2	CAP CER CHIP CC41-BNT X7R 473K 50DC 0603 (RoHS)	C63 C64 C69 C70 C75 C76 C81 C82
35	E1326-003051R2	CAP CER CHIP CC41-BNT X7R 472K 50DC 0603 (RoHS)	C51 C62 C85
36	E1326-055029R2	CAP CER CHIP 0603F 104M500NB 104M 50D 0603 (ROHS)	CB1 CB2 C4 CB5 CB6 CB7 CB8 CB9 CB10 CB11 CB12 C12 CB13 CB14 CB15 CB16 CB17 CB18 CB19 CB20 CB21 CB22 C22 CB23 CB24 CB25 CB26 CB27 CB28 CB29 CB30 CB31 CB32 CB33 CB34 CB36 CB38 CB40 CB41 CB42 CB43 CB45 C45 CB46 CB47 CB48 CB49 CB50 CB51 CB52 CB53 CB54 CB55 CB56 CB57 CB58 CB59 CB60 CB61 CB62 CB63 CB64 CB65 CB66 CB67 CB68 CB69 CB70 CB71 CB72 CB73 CB74 CB75 CB76 CB77 CB78 CB79 CB80 CB81 CB82 CB83 CB84 CB85 CB86 CB87 CB88 CB89 CB93 CB94 CB95 CB96 CB98 CB99 CB100 CB101 CB107 CB109 CB112 CB113 C114
37	E1326-064002R2	CAP CER CHIP CC41-0805E106Z T08 106Z 10DC 0805 (ROHS)	C11 C20 C21 C24
38	E1326-105031R2	CAP CER CHIP CC41-FNT Y5V 105M 25DC 0603(ROHS)	C15 C17 C18 C32 C33 CB35 CB37 CB44 CB92 C96 C97 C148 C150
39	E1326-106001R2	CAP CER CHIP 475Z 6.3DC 0603 (ROHS)	C13 C14 C16 C19 C25 C26 C27 C28 C29 C30 C31
40	E1503-321109R1	RES MOF H 2W S 430J T52 (RoHS)	R5 R7
41	E1505-011003R2	RES CHIP RC-03KTP T06 1/10W 100J 0603 (RoHS)	R263 R301 R321 R329 R338 R358 R395
42	E1505-011004R2	RES CHIP RC-03KTP T06 1/10W 101J 0603 (RoHS)	R14 R18 R22 R40 R42 R101 R103 R169 R176 R177 R179 R212
43	E1505-011005R2	RES CHIP RC-03KTP T06 1/10W 102J 0603 (RoHS)	R1 R45 R04 R88 R90 R121 R171 R180 R181 R191 R259 R260 R340 R364 R100 R207

# Parts List (For Reference Only)

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### DRIVE PCB ASSEMBLY (W/O AV YPRPB) (RoHS)

Item	Part No.	Description	Location
44	E1505-011006R2	RES CHIP RC-03KTP T06 1/10W 103J 0603 (RoHS)	R4 R11 R34 R35 R51 R53 R54 R99 R100 R114 R115 R162 R172 R173 R178 R183 R186 R194 R208 R213 R214 R217 R218 R220 R221 R226 R227 R230 R231 R272 R273 R304 R327 R334 R335 R339 R356 R363 R371 R379 R381 R382 R242 R135 R287 R211 R206 R406
45	E1505-011007R2	RES CHIP RC-03KTP T06 1/10W 104J 0603 (RoHS)	R148 R150 R153 R156 R157 R158 R159 R161 R184 R189 R203 R140 R413
46	E1505-011008R2	RES CHIP RC-03KBP T06 1/10W 105J 0603 (RoHS)	R82 R25
47	E1505-011013R2	RES CHIP RC-03KTP T06 1/10W 111J 0603 (RoHS)	R336 R243
48	E1505-011042R2	RES CHIP RC-03KBP T06 1/10W 153J 0603 (RoHS)	R160 R170
49	E1505-011057R2	RES CHIP RC-03KTP T06 1/10W 180J 0603 (RoHS)	R216 R222 R223
50	E1505-011059R2	RES CHIP RC-03KTP T06 1/10W 182J 0603 (RoHS)	R258
51	E1505-011068R2	RES CHIP RC-03KBP T06 1/10W 202J 0603 (RoHS)	R110 R113 R204 R380 R414
52	E1505-011069R2	RES CHIP RC-03KTP T06 1/10W 203J 0603 (RoHS)	R9 R6
53	E1505-011075R2	RES CHIP RC-03KTP T06 1/10W 220J 0603 (RoHS)	R58 R59
54	E1505-011076R2	RES CHIP RC-03KTP T06 1/10W 221J 0603 (RoHS)	R262
55	E1505-011078R2	RES CHIP RC-03KTP T06 1/10W 223J 0603 (RoHS)	R182 R190
56	E1505-011101R2	RES CHIP RC-03KTP T06 1/10W 301J 0603 (RoHS)	R13 R17 R21
57	E1505-011108R2	RES CHIP RC-03KTP T06 1/10W 330J 0603 (RoHS)	R80 R267 R376 R377 R164 R166 R167 R168 R188 R196 R330 R240
58	E1505-011110R2	RES CHIP RC-03KTP T06 1/10W 332J 0603 (RoHS)	R239 R298 R328 R347
59	E1505-011111R2	RES CHIP RC-03KTP T06 1/10W 333J 0603 (RoHS)	R361 R322
60	E1505-011127R2	RES CHIP RC-03KTP T06 1/10W 393J 0603 (RoHS)	R141 R142
61	E1505-011140R2	RES CHIP RC-03KTP T06 1/10W 470J 0603 (RoHS)	R16 R20 R24
62	E1505-011141R2	RES CHIP RC-03KTP T06 1/10W 471J 0603 (RoHS)	R397
63	E1505-011142R2	RES CHIP RC-03KTP T06 1/10W 472J 0603 (RoHS)	R2 R37 R38 R41 R46 R55 R72 R87 R197 R210 R215 R383
64	E1505-011143R2	RES CHIP RC-03KTP T06 1/10W 473J 0603 (RoHS)	R8 R43 R44 R67 R68 R144 R146 R147 R149 R192 R326 R370
65	E1505-011148R2	RES CHIP RC-03KTP T06 1/10W 510J 0603 (RoHS)	R47 R48 R49 R50 R165 R175
66	E1505-011149R2	RES CHIP RC-03KTP T06 1/10W 511J 0603 (RoHS)	R15 R19 R23 R109 R112
67	E1505-011150R2	RES CHIP RC-03KTP T06 1/10W 512J 0603 (RoHS)	R163 R174 R187 R195
68	E1505-011151R2	RES CHIP RC-03KTP T06 1/10W 513J 0603 (RoHS)	R154 R155

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### DRIVE PCB ASSEMBLY (W/O AV YPRPB) (RoHS)

Item	Part No.	Description	Location
69	E1505-011156R2	RES CHIP RC-03KTP T06 1/10W 560J 0603 (RoHS)	R219 R224 R225
70	E1505-011172R2	RES CHIP RC-03KTP T06 1/10W 680J 0603 (RoHS)	R92 R97 R106 R120 R124 R128 R134 R136 R139
71	E1505-011180R2	RES CHIP RC-03KTP T06 1/10W 750J 0603 (RoHS)	R93 R98 R107 R233 R237 R248 R249 R252 R253 R257 R264 R271 R302 R305 R306 R323 R324 R325
72	E1505-011190R2	RES CHIP RC-03KTP T06 1/10W 822J 0603 (RoHS)	R138
73	E1505-011202R2	RES CHIP RC-03KTP T06 1/10W 000 0603 (RoHS)	R26 R28 R30 R32 R39 R52 R57 L61 R61 R71 R73 R74 L74 R76 R77 R78 R79 R84 R85 R86 R89 R91 R95 R96 R102 R104
74	E1505-025003R1	RES CHIP RC-05KJT 1/8W 100J 0805 (RoHS)	R143 R145
75	E1505-025202R1	RES CHIP RC-05KJT 1/8W 000 0805 (RoHS)	FB9
76	E1510-001108R2	RES CHIP TFN RCML08WTP 1/16W 330J 0603×4 (RoHS)	RN9 RN10 RN11 RN12
77	E2111-001015R1	TR PNP CHIP TC3906 SOT-23 TP (RoHS)	Q9 Q22
78	E2112-001016R1	TR NPN CHIP TC3904 SOT-23 TP (RoHS)	Q1 Q2 Q3 Q5 Q6 Q7 Q8 Q10 Q11 Q12 Q13 Q14 Q15 Q17 Q18 Q19 Q21 Q23 Q24 Q25 Q29 Q32 Q33 Q34 Q35
79	E2115-001006R1	TR AP9435GM SINGLE P-CHANNEL MOSFET SO-8(RoHS)	U22
80	E2115-001022R0	SSS2N7002E N-CHANNEL ENHANCEMENT MODE MOSFET SOT23 (RoHS)	QF3 QF4 QF5
81	E2301-001091R0	IC TFA9843J 2-CHANNEL AUDIO AMPLIFIER(SE:1W TO 20W RO BTL:4W TO 40W DBS9P	U23
82	E2351-001176R0	IC AIC1084CE 5A LOW DROPOUT POSITIVE REGULATOR TO-252 (RoHS)	U3 U5 U4 U6 U7 U8
83	E2351-001206R0	IC AF24BC02-SI(2K) 2-wire Serial EEPROM 8-pin SOIC (RoHS)	U16 U17
84	E2351-001210R0	IC AZ1117H-1.8 (RoHS)	U13
85	E2351-001222R0	IC MT8201 ADC+DECODER+SCALING+MCU LQFP-256 (RoHS)	U9
86	E2351-001223R0	IC MT8293 HDMI PANELLINK RECEIVER LQFP128 (RoHS)	U15
87	E2351-001225R0	IC WM8776 LQFP48 (RoHS)	U18
88	E2351-001227R0	IC AT24C04N-10SI-2.7 4K(256X8) SERIAL EEPROM 8S1 (RoHS)	U14
89	E2351-001237R0	IC AZ4558CM-E1 DUAL OPERATIONAL AMPLIFIER SOIC-8 (RoHS)	U19 U20
91	E2354-001058R0	IC ES29LV800EB-70TG 8M FLASH MEMORY TSOP48 (RoHS)	U10
92	E2354-001064R0	IC SDRAM M12L64164A-5TG TSOP-54(RoHS)	U12



# Parts List (For Reference Only)

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### DRIVE PCB ASSEMBLY (W/O AV YPRPB) (RoHS)

Item	Part No.	Description	Location
93	E2501-003021R1	DIODE SILICON H 1N5404 T52 DO-201AD BP (RoHS)	D92 D93
94	E2502-001009R0	DIODE CHIP LL4148 (RoHS)	D15 D16 D26 D27 D28 D29 D66 D11 D1 D88 D89 D90
95	E2502-001014R0	MULTILAYER VARISTOR CHIP TYPE EZJZ1V270GA 0603 ESD	D14 D17 D18 D19 D20 D21 D22 D23 D24 D25 D30 D31 D32 D33 D34 D35 D36 D37 D38 D39 D40 D41 D42 D44 D45 D46 D48 D49 D50 D51 D52 D53 D54 D55 D56 D57 D58 D60 D61 D62 D63 D64 D65
96	E3101-001002R1	PLUG PH-3A PIN HEADER (180°) 2.0mm 3P (RoHS)	J12
97	E3101-001003R1	PLUG PH-4A PIN HEADER (180°) 2.0mm 4P (RoHS)	J4 J3
98	E3101-001005R1	PLUG PH-6A PIN HEADER (180°) 2.0mm 6P (RoHS)	J10
99	E3101-001008R1	PLUG PH-6A PIN HEADER (180°) 2.0mm 9P (RoHS)	J11
100	E3101-002001R1	PLUG TJC3-11A PIN HEADER (180°) 2.5mm 2P (RoHS)	J2
101	E3101-002010R1	PLUG TJC3-11A PIN HEADER (180°) 2.5mm 11P (RoHS)	J1
102	E3101-015005R1	SOCKET PIN HEADER (180°) 2.0mm 2×15P (RoHS)	J5
103	E3201-001090R1	SOCKET PIN SCART CS-2104 21P (RoHS)	P9
104	E3201-001095R1	JACK PIN AV4-13W-070 W/R W/R 4P (RoHS)	P6
105	E3201-001125R1	SPEAKER JACK CK3-3.5-720 7P (RoHS)	J13 J14
106	E3201-001126R2	D-sub 1152-015-201-000 3.08mm Footprint 15P (90°) (RoHS)	P2
107	E3201-001137R1	JACK PIN AV6-11WD-550 G/B/R Y/W/R 6P (RoHS)	P8
108	E3201-001138R1	JACK PIN AV-S+02B 4P/1P(RoHS)	P5
109	E3202-001047R1	JACK HDMI RIGHT ANGLE HEADER ASSRMBLY E11001-04 (RoHS)	P1
110	E3702-002143R3	MTK32H81 DRIVE PCB 293mmX142mm (RoHS)	
111	E4301-001070R0	OSCILLATOR X' TAL HC-49US 27.000MHz (RoHS)	Y1 Y2
112	E5401-001031R0	TUNER JS-6H2/121A25 PAL BG/DK/I SECAM L/L' XUGUANG(RoHS)	TU1
113	M4601-32B614100R	HEAT SINK AL THK=2.0MM (RoHS)	
114	M4601-32B622000R	HEAT SINK AL (RoHS)	
115	M8004-300603413R	SELF-TAPPING SCREW WITH BINDING HEAD BST3X6HZn (RoHS)	HEAT SINK -1
116	M8007-300801313R	SELF-TAPING SCREW FOR METAL WITH FLAT HEAD KTB3.0×8B-HZn (RoHS)	HEAT SINK -2

## Parts List (For Reference Only) TF32K82A

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#### KEY PCB FOR JTM32K82 ASSEMBLY (RoHS)

Item	Part No.	Description	Location
1	E1505-011143R2	RES CHIP RC-03KTP T06 1/10W 473J 0603 (RoHS)	R501 R502 R507 R505 R504 R505 R506 R508 R509 R510 R511 R512 R519 R520
2	E3101-001003R2	PLUG PH-2AW PIN HEADER (90°) 2.0mm 4P (RoHS)	CN503
3	E3101-001004R2	PLUG PH-5AW PIN HEADER (90°) 2.0mm 5P (RoHS)	CN501
4	E3702-002160R1A	KEY PCB 139.5mmX16.5mm 94V0 (RoHS)	
5	E4102-001001R0	SWITCH TACT KFC-A06-02 6×6×5 (RoHS)	S501 S502 S503 S504 S505 S506 S507

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#### REMOTE PCB FOR JTM32K82 ASSEMBLY (RoHS)

Item	Part No.	Description	Location
1	E1301-002004R1	CAP EC V CD11X-BP T05 470M 16DC 5×7 (RoHS)	C501
2	E1505-011005R2	RES CHIP RC-03KTP T06 1/10W 102J 0603 (RoHS)	R516 R517 R518
3	E1505-011140R2	RES CHIP RC-03KTP T06 1/10W 470J 0603 (RoHS)	R514
4	E1505-011142R2	RES CHIP RC-03KTP T06 1/10W 472J 0603 (RoHS)	R513
5	E2509-002001R1	DIODE LED V 3RGPHW-A RED GREEN (RoHS)	LED501
6	E2701-001008R1	IR DETECTOR HS0038B (RoHS)	IR501
7	E3101-001004R1	PLUG PH-5AW PIN HEADER (180°) 2.0mm 5P (RoHS)	CN502
8	E3702-002160R1B	REMOTE PCB 50.0mmX13.0mm 94V0 (RoHS)	

## Parts List (For Reference Only) TF37A82H

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#### KEY&REMOTE PCB ASSEMBLY (RoHS)

Item	Part No.	Description	Location
1	E1501-301143R2	RES CF H 1/6W 473J T52 (RoHS)	R507 R508 R509 R510 R511 R512 R506 R508 R509 R510 R511 R512 R510 R511
2	E3101-001001R2	PLUG PH-5AW PIN HEADER (90°) 2.0mm 2P (RoHS)	CN501
3	E3101-001002R2	PLUG PH-5AW PIN HEADER (90°) 2.0mm 3P (RoHS)	CN1
4	E3101-001003R2	PLUG PH-2AW PIN HEADER (90°) 2.0mm 4P (RoHS)	CN503
5	E3702-002145R3A	KEY PCB 126mmX13mm 94V0 (RoHS)	
6	E4102-001001R0	SWITCH TACT KFC-A06-02 6×6×5 (RoHS)	S501 S502 S503 S504 S505 S506 S507

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#### REMOTE PCB ASSEMBLY (RoHS)

Item	Part No.	Description	Location
1	E1301-002004R1	CAP EC V CD11X-BP T05 470M 16DC 5×7 (RoHS)	C501
2	E1501-301005R1	RES CF H 1/6W 102J T52 (RoHS)	R516 R517 R518
3	E1501-301140R2	RES CF H 1/6W 470J T52 (RoHS)	R514
4	E1501-301142R2	RES CF H 1/6W 472J T52 (RoHS)	R513
5	E2509-002001R1	DIODE LED V 3RGPHW-A RED GREEN (RoHS)	LED501
6	E2701-001008R1	IR DETECTOR HS0038B (RoHS)	IR501
7	E3101-001004R2	PLUG PH-5AW PIN HEADER (90°) 2.0mm 5P (RoHS)	CN502
8	E3701-002057R1B	REMOTE PCB 59mmX20mm 94V0 (RoHS)	
9	M6901-007005040R	EVA 7X5X4mm(Single side Adhesive) (RoHS)	REMOTE PCB