TDE-F61PM\62PM\63PM\66P\68P\80P

AVD-F61C

SERVICE MANUAL

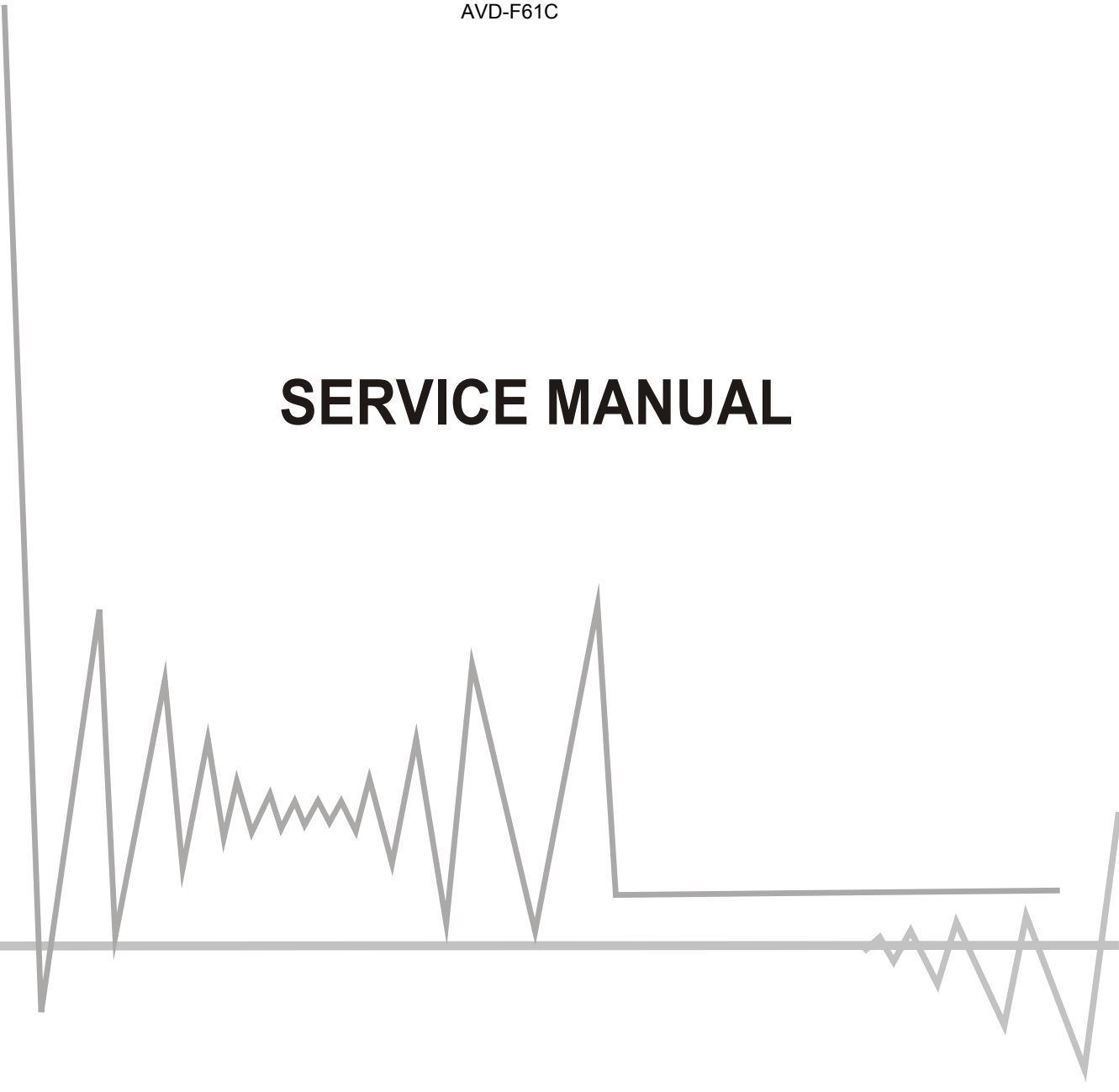

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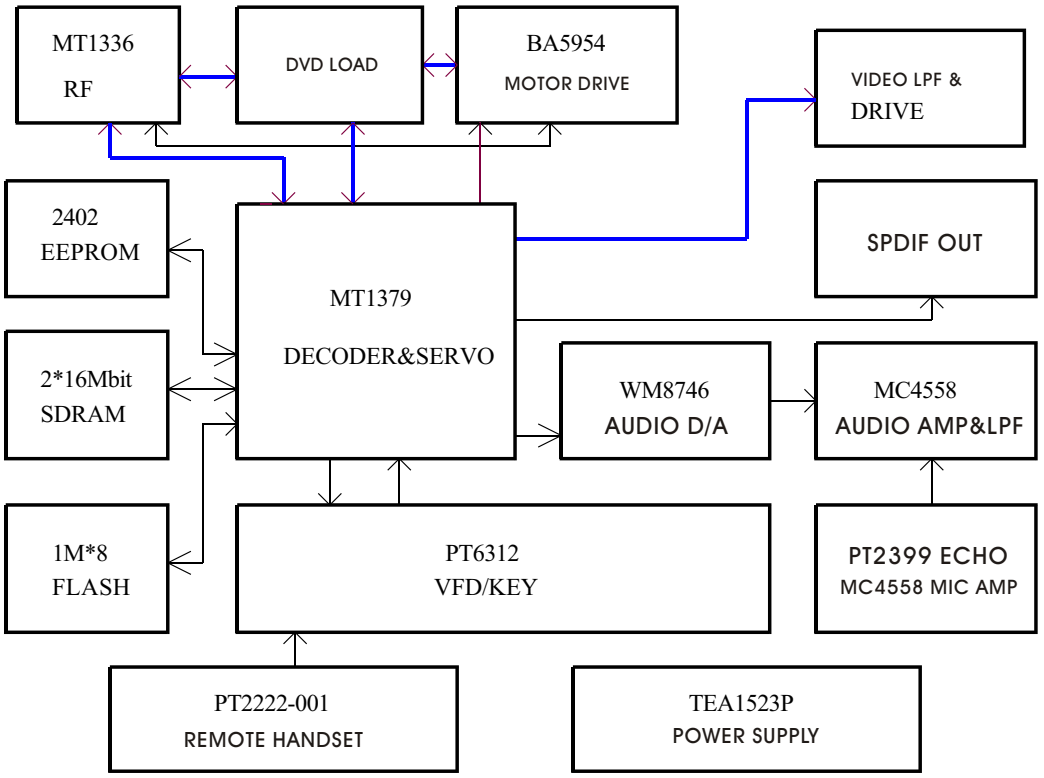
Figure 2: Basic Circuit Diagram



1.Troubleshooting and service of the Power Supply Board

1.1Principle of Power Supply Operation

This appliance adopts a switched-mode power supply, which is assembled with the TEA1523P power switch module from Philips and is capable of protecting itself from over-current, over-voltage, over-heat and short-circuit. The circuit mainly stabilizes a t +3.3v and fluctuate within a permissible range, such as +5V, +12V, -12V, +3.3V and -24V. Please pay attention to the high voltage inside the white silkscreen with the mark "CAUTION" on the PCB while repairing. When using an oscillograph to check the circuit,an isolated transformer must be connected.

1.2Troubleshooting and Service

l+3.3V voltage varies out of the permissible range

Please check whether the sampling resistor R324 and R325 is eroded, and check if the voltage of the first pin of the regulating fiducial IC U303 (TL431) is 2.5V. If the deviation is over 0.15V, then TL431 is defected or eroded and needs to be replaced. When repairing, do not loop +3.3V sampling circuit, that is, do not open-circuit D313, L306, R324, R325, R322, U302 (PC123Y) and U303; otherwise, the output voltage will be too high and will damage the subsequent circuits.

lAll the output voltages are 0V and the voltage of the anode of capacitor C305 is over 150VCheck whether +5V, +3.3V, +12V, -12V and -24V are short. Check if pin 3 of U301 has 100KHz vibrating signal, if not, then U301 is eroded.

l+12V and +5V voltage are not normal, while other voltages are normalCheck whether D309, R315, L303 and ZD303 are open or short, whether C315, C316 and C317 are short or leak electricity. Any problem of these components will result in abnormal +12V and +5V voltage. Open-circuit or short-circuit of D312, L305, ZD305, R319 and Q304, and electricity-leakage and short-circuit of C324, C325, C326, C335 and C328 will result in abnormal +5V voltage.

l-24V and AC1-AC2 voltage are not normal, while other voltages are normalCheck whether R311, D307, D308, R313, R312 and R314 are open or short, whether C312, C313 and C314 are short or leak electricity.

lAll output voltages are under permissible range (refer to 2.2 of Chapter one)Check whether ZD 302, C308 and R303 are defected or eroded. If +3.3V output is normal and other voltages are under range, check if the appliance is in standby mode. In standby mode, it is rational that all voltages except +3.3V are not normal. If in playing mode, +3.3V output is normal, 5V output is 0V or too low, please check whether +5V is short-circuit and whether R320, Q305, ZD305, D312, R319, C324, C325, C326, C328 and C335 are defected or eroded.

2. Troubleshooting and Service of the Loader

a. No running of loader

a). Check whether the 24P ribbon wire to loader is in good contact.

b). Check whether +5V voltage is normal.

c). Check whether laser voltage (about 2V for VCD and 2.2V for DVD respectively) exists at the C pole of Q1 and Q2, and whether U2 and adjacent parts are damaged or weld falsely.

d). If the above parts are normal and no laser emits, replace the loader.

b. Read no disc

a). Check whether the ribbon wire from 24P to loader is in good contact.

b). Check whether the RFO signal of the 10th pin of CN6 is transmitted to the 96th pin of U1.

c). Check whether laser voltage (about 2V for VCD and 2.2V for DVD respectively) exists at the C pole of Q1 and Q2, and whether the voltage is normal.

d) Check whether U1, U2 and adjacent parts are damaged or weld falsely.

e). If the above parts are normal, replace U1 or the loader.

c. Read DVD discs only or read other discs beyond DVD only

a). Check whether the ribbon wire from 24P to loader is in good contact.

b). Check whether laser voltage of 2V outputs at the C pole of Q2, and whether the 125th pin of U1 is at low level.

c). Check whether the pins from the 1st to the 38th of U1 and adjacent parts are weld falsely, damaged or erode.

d). If the above parts are normal, replace U1 or the loader.

3. Troubleshooting and service of decoding part

a. No video, no audio, no display on VFD, and no operation of keys

a). Check whether the power sources of the decoder board are normal.

b). Check whether there is 27MHz signal output. If not, X1 crystal and adjacent parts are eroded or damaged.

c). Check whether there is 81MHz signal output at R64. If not, check whether there is short circuit, false welding or alien substance for audio D/A circuit U5 and SDRAM U8 and U9.

d). Check whether the reset circuit composed of C7, R37 and D1 is normal (constant 0V after tens of milliseconds of high level). If it is at low level constantly, C7, R37 and D1 are damaged.

e). If the reset level is normal, check whether the chip selection signal, address and data of the 12th pin of U5 are normal.

f). Check U10 that whether the data of pins from the 1st to the 8th, hsync and vsync signal of the 10th and 11th pins, and 27MHz signal of the 29th pin are normal, and whether C162 and R68 are normal. If not, replace U10.

g). When U5 works normally, check the connection between U8, U9 and U3. If abnormal, replace U8 or U9.

h). Replace the main chip U3 after making sure no damage to the adjacent parts and no short circuit or false welding for the circuit board.

4. Troubleshooting and service of video part

1). Normal sound, no video picture

Check U10 that whether the data of pins from the 1st to the 8th, hsync and vsync signal of the 10th and 11th pins, and 27MHz signal of the 29th pin are normal, and whether C162 and R68 are normal. If not, replace U10.

2). Abnormal color of the video picture

a). If there are horizontal or vertical streaks, or improper color appears on the picture after reading a disc, the U3 decoding servo chip on the decoder board or U6 EEPROM may be in problems.

b). Check board whether the 3.3V and 2.5V power sources are normal, whether the ripple factor is too high, and whether the data wire of Y(0, 7) between U3 and U10 is normal.

c). Check whether the video filter network circuit on the decoder board works normally.

5. Troubleshooting and service of audio part

a. Normal picture, no sound

a). Firstly, check whether the +8V and -8V power sources for the operational amplifier IC U12~U14 are normal.

b). Check whether the C poles of muting tube Q14, Q15, Q22, Q23, Q21 and Q20 are at low level constantly. If so, the above tubes are not in good conditions.

c). Check whether the output of C poles of Q18 and Q19 are at high levels constantly. If so, Q18 and Q19 have been broken down, or C209 are short.

d). Check whether the six audio signal lines on the 20P ribbon wire from decoder board to output board are in good contact. If abnormal, replace the ribbon wire. Check the signal reaching the input of U12~U14. If the input is normal while the output is not, replace the operational amplifier IC.

e). Check whether the signals of the 17th, 19th, 21st, 23rd, 25th and 27th pins of U5 on the decoder board are normal. If not, check the signals of the pins from the 2nd to the 7th. If the clock signals of ACLK, ABCK and ALRCK output by U3 are normal after R130, RN2 and R131 are disconnected, replace U11.

b. Distorted audio and loud noise

a). Firstly, check whether the +8V and -8V power sources for the operational amplifier IC U12~14 are normal.

b). Check whether the muting tubes are in good conditions.

c). Check whether the signals of the 17th, 19th, 21st, 23rd, 25th and 27th pins of U11 on the decoder board are normal. If not, check the signals of the pins from the 2nd to the 7th. If the clock signals of ACLK, ABCK and ALRCK output by U1 are normal after R130, RN2 and R131 are disconnected, replace U5.

c. Pop noise during ON/OFF

Check whether the MUTE signal line on the output board is broken, then check whether Q18, Q19, muting tubes and adjacent parts are damaged or eroded.

6. Troubleshooting and service of KARAOKE part

a. Microphone with sound but no echo

a). Check whether the level of the 1st pin of U1 on the KARAOKE board is +5V. If not, check whether JP1 is damaged.

b). If the voltage is proper, check whether there is anything wrong with the adjacent parts of U1.

b. No sound of microphone

a). Check whether the microphone indicator on VFD lights. If the level of C pole of Q16 is low, the C and E poles of Q16 are short.

b). Check whether the power source of U2 on the KARAOKE board is normal and with microphone signal output. If not, check whether the parts of input circuit for microphone jack are damaged and check whether the microphone jack is rusty or short.

c. The sound of microphone can not be turned off

Check whether Q16 and Q17 are open or not in good contact.

d. self-excitation once KARAOKE is turned on

Check whether the adjacent parts of U1 on the KARAOKE board are damaged.

7. Full screen display or no display on VFD

a). Full screen display on VFD is often caused by abnormal -24V bias voltage. Check whether D5, C19 and R17 are disconnected.

b). If there is no display on VFD, firstly, check whether the filament lights in red. If not, and there is no 3.3V voltage difference between AC1 and AC2, check whether D6, C9 and R21 are damaged. If the filament is not red, while 3.3V voltage difference exists between AC1 and AC2, replace VFD.

c). If -24V and AC1-AC2 voltage are normal, check whether there are CS, DATA and CLK signals from CN301 on the front board. Then replace PT16312 (PT6554) under the condition that both of the above mentioned are normal.

8. **No operation of some keys on the front board, disordered display on VFD**

Check whether the welding from the 12th, 13th, 15th pins of U301 to the 37th pin is in good conditions.

Check whether D301~D303 on the front board are damaged, whether circuit is disconnected, and whether R309, R310 and R311 are open.

9. **No sensitive remote reception, or no reception from the remote handset**

Check whether the power source of the remote sensor is proper.

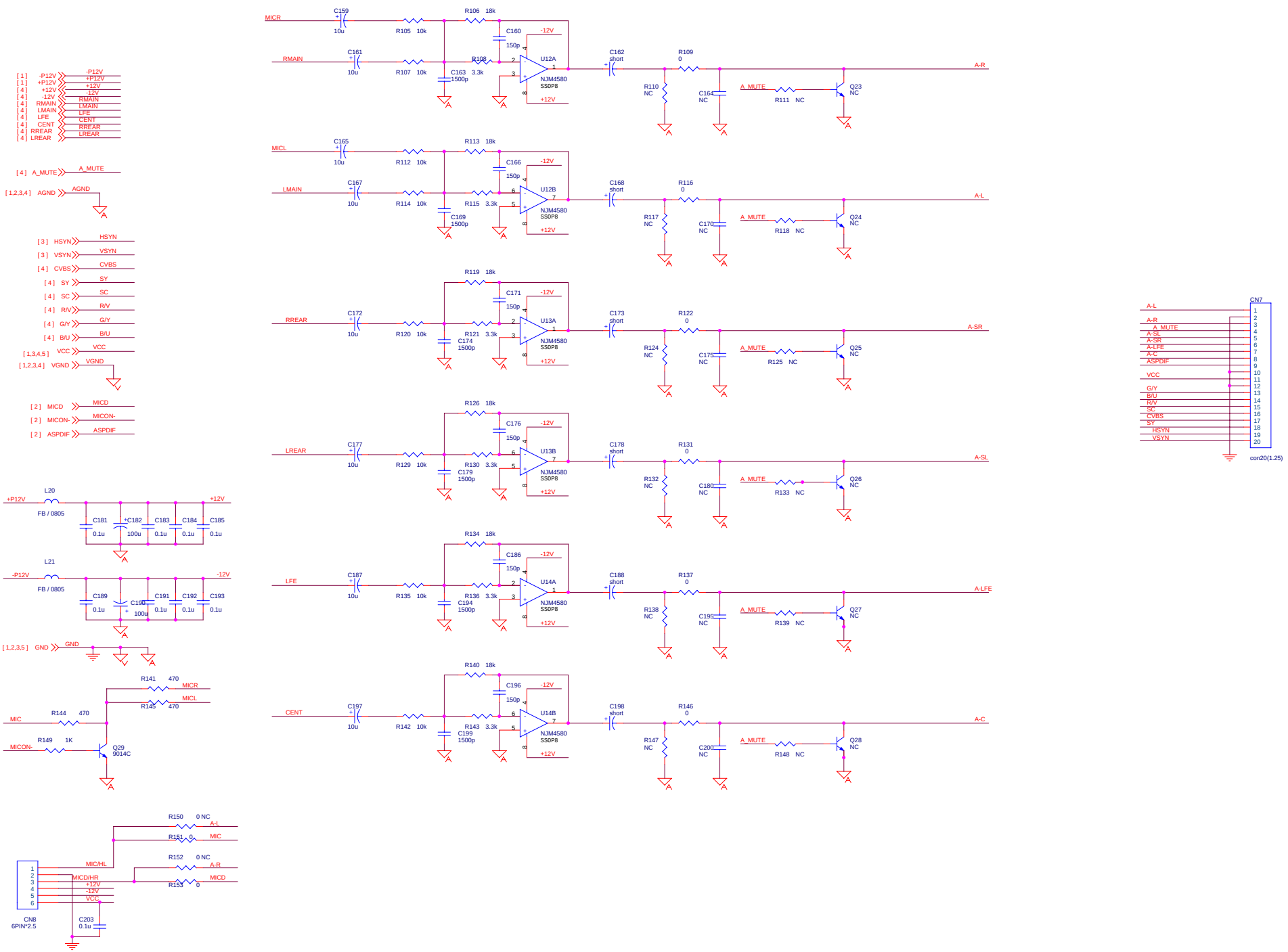
Check whether the remote handset is in good operation mode.

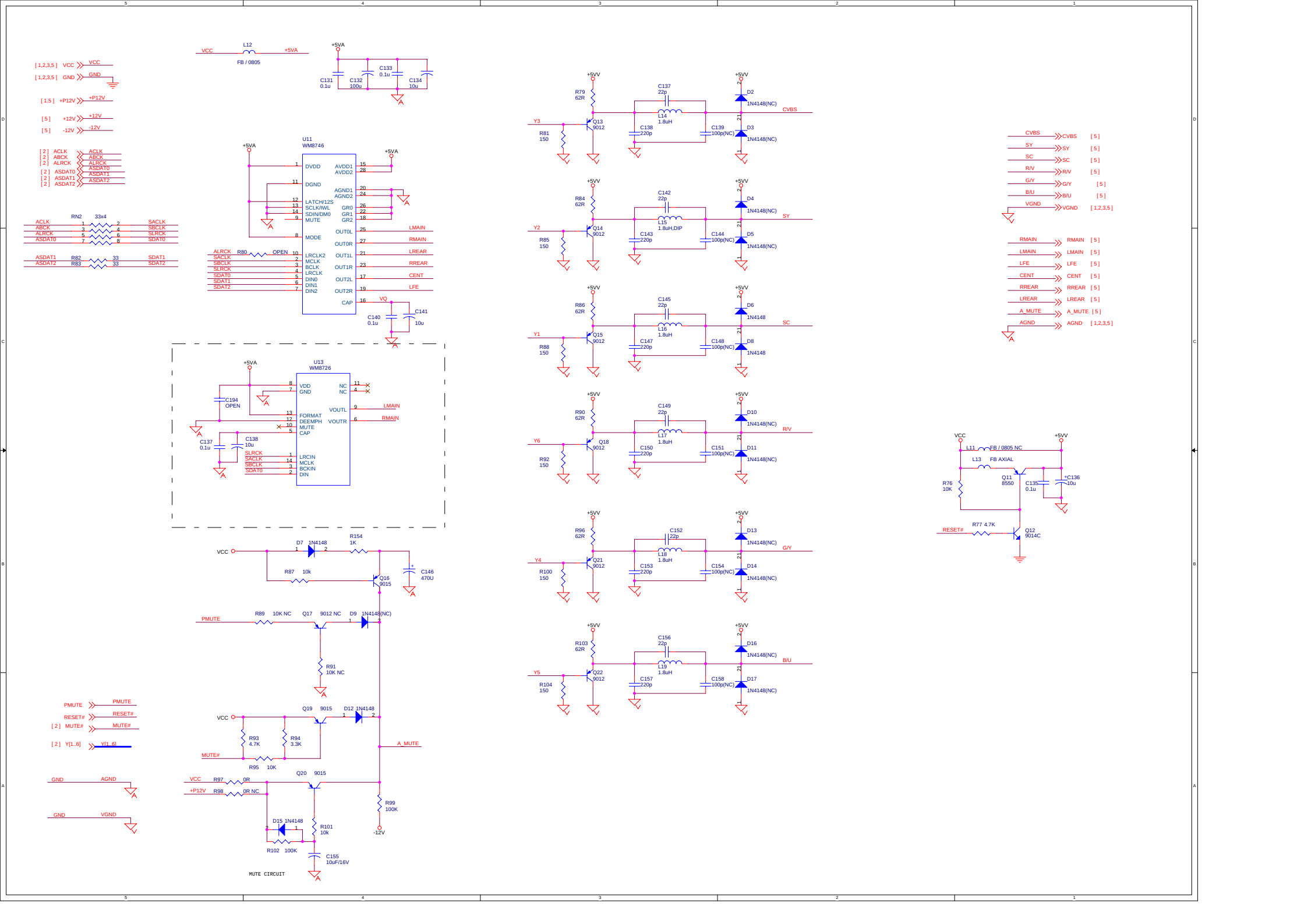
Use an oscillator to observe whether there is output wave from the 1st pin IR of the sensor after each pressing of keys on the remote handset. If the remote handset is good, while no output from the sensor, the sensor is damaged.

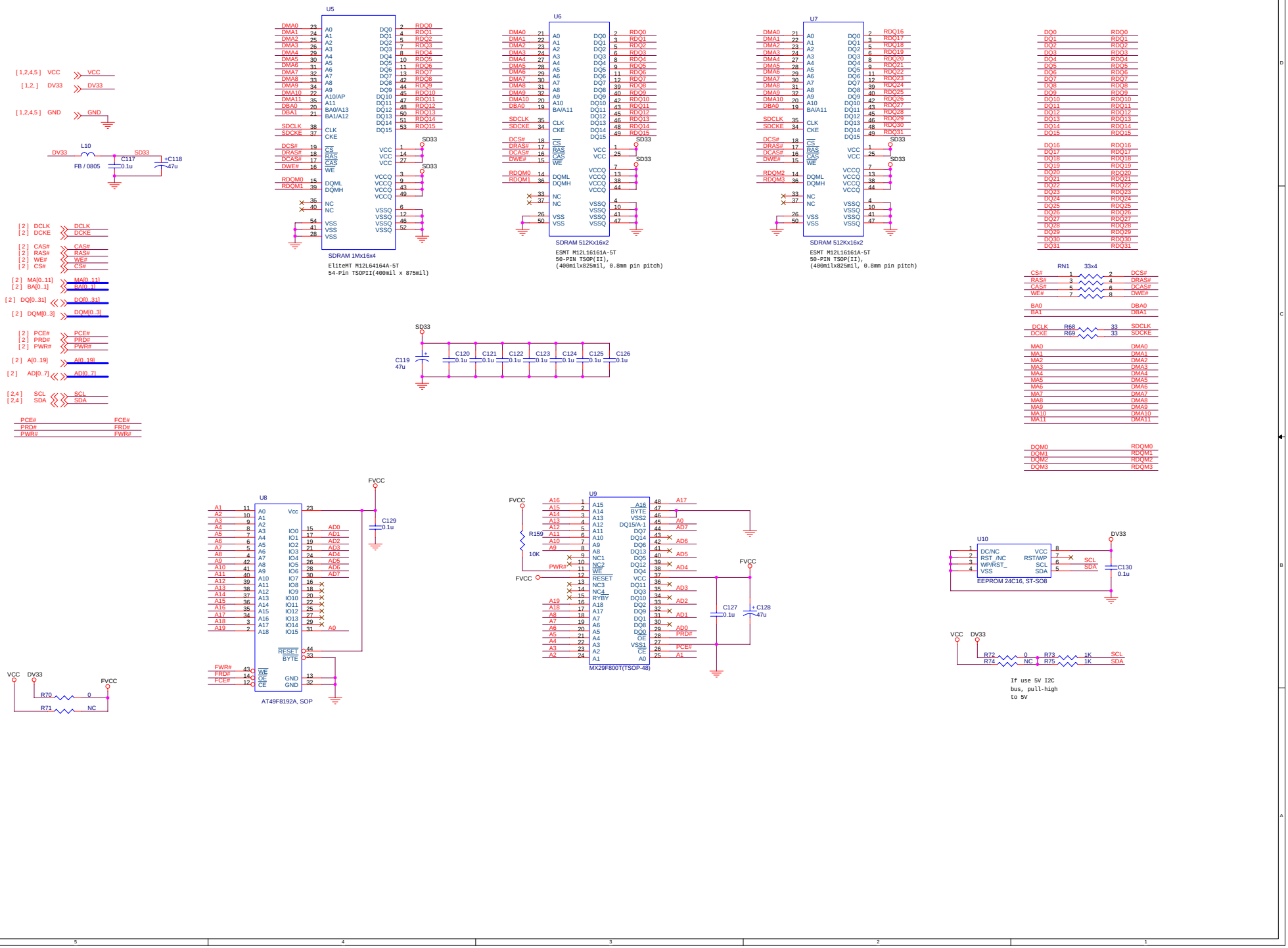
10. **The machine can not be turned on or off**

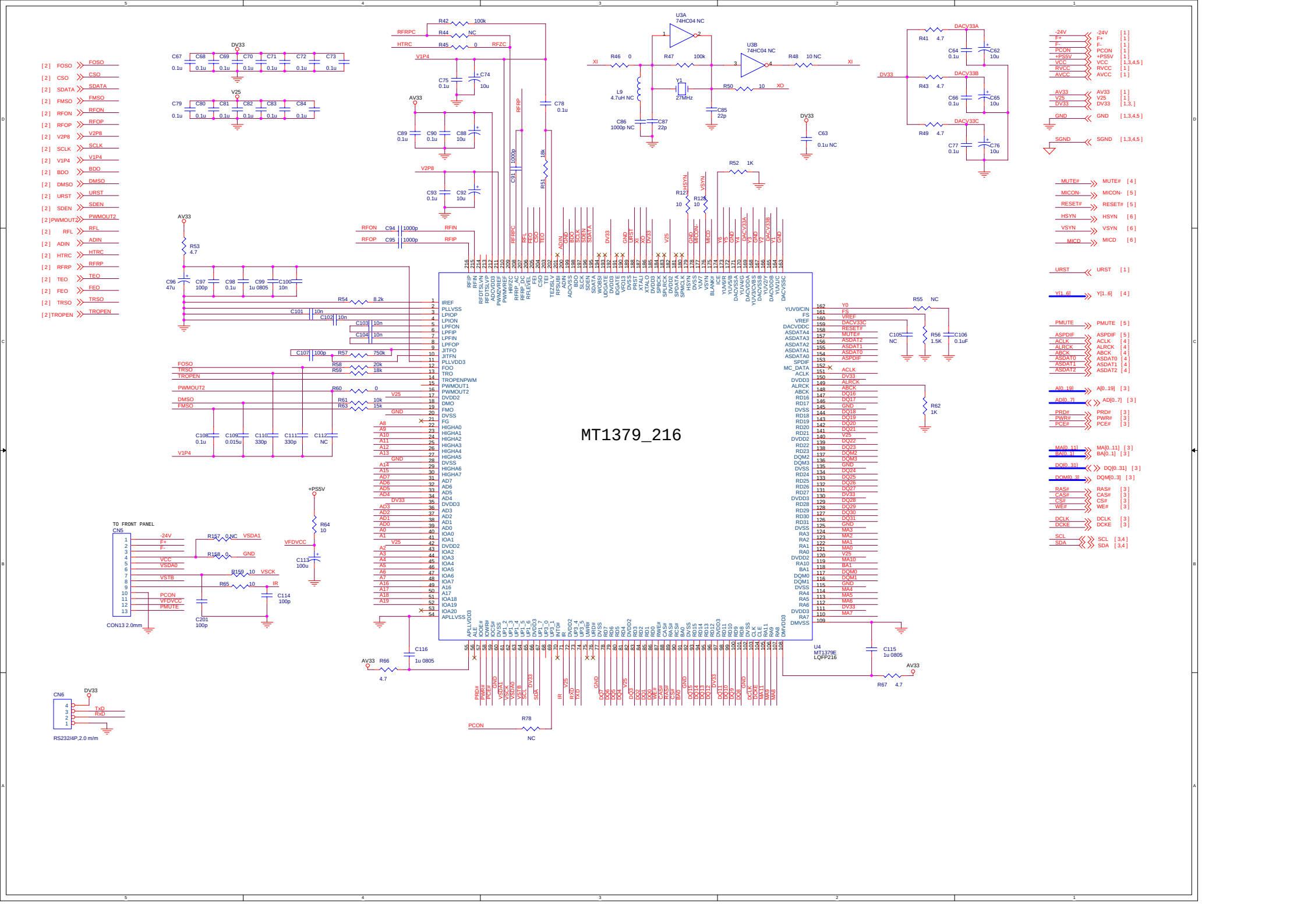
If the machine can not be turned on or off after pressing the STANDBY key on the remote handset and the POWER key on the front board, replace the main chip U3.

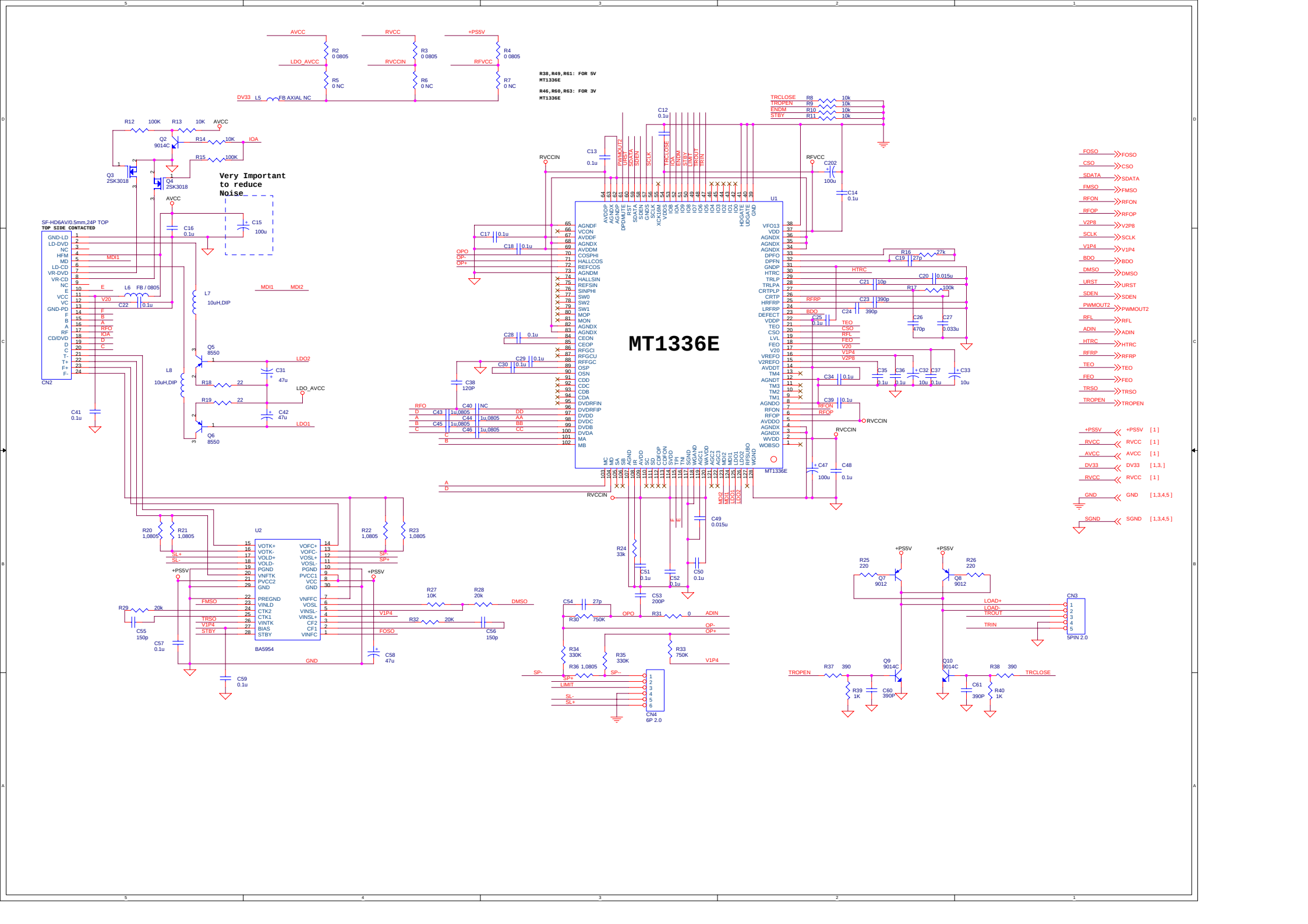
Note: The above information is only for reference. If there is any mistake, please feel free to point out.

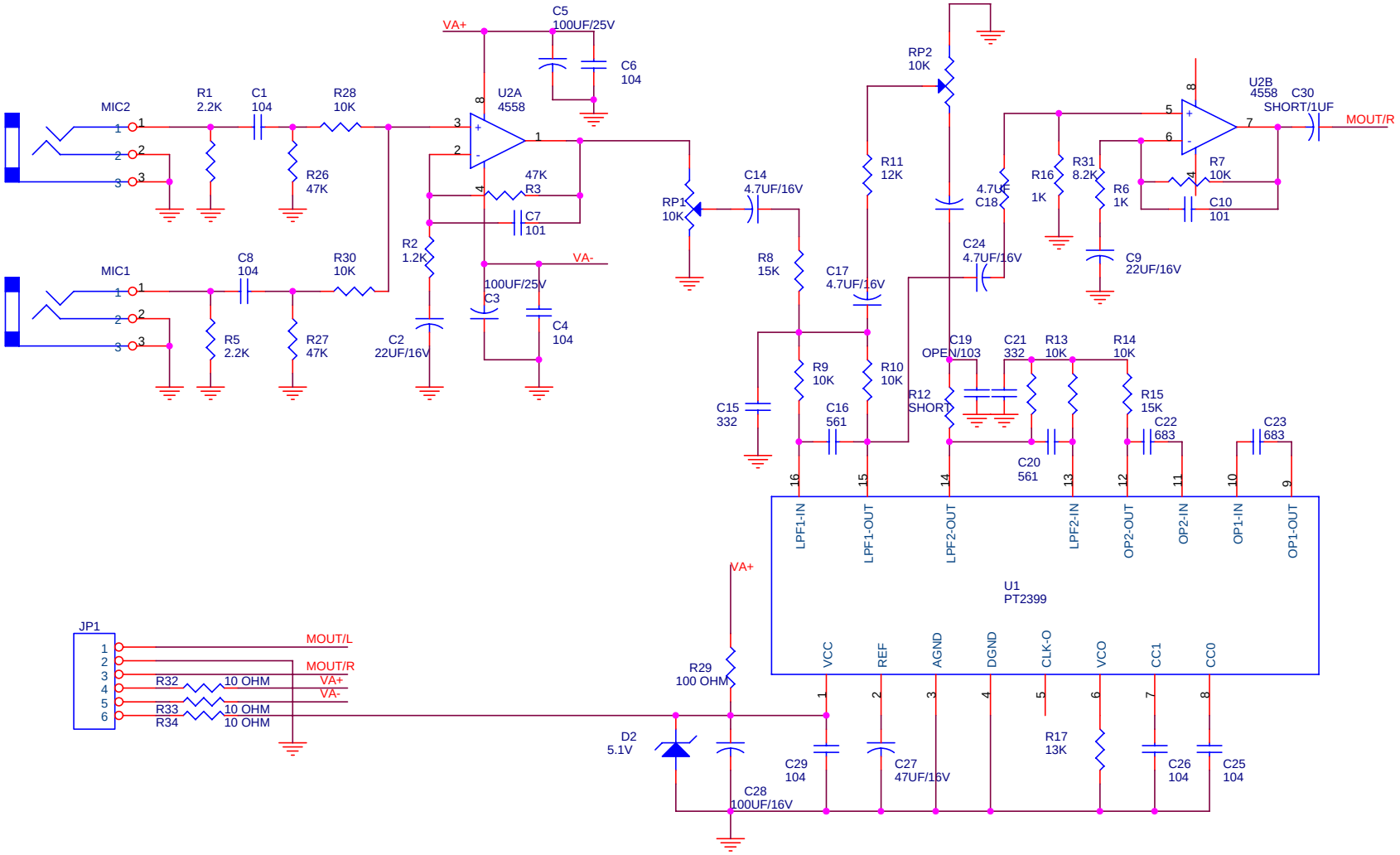

[1] -P12V
[1] +P12V
[4] +12V
[4] -12V
[4] RMAIN
[4] LMAIN
[4] LFE
[4] CENT
[4] RREAR
[4] LREAR
[4] A_MUTE
[1,2,3,4] AGND
[3] HSYN
[3] VSYN
[4] CVBS
[4] SY
[4] SC
[4] R/V
[4] G/Y
[4] B/U
[1,3,4,5] VCC
[1,2,3,4] VGND
[2] MICD
[2] MICON-
[2] ASPDIF
[1,2,3,5] GND
MICR
RMAIN
MICL
LMAIN
RREAR
LREAR
LFE
CENT
MIC
MICON-
MIC/HL
MICD/HR
CN8
6PIN*2.5
CN7
con20(1.25)
NJM4580
SS0P8
FB / 0805
short
NC

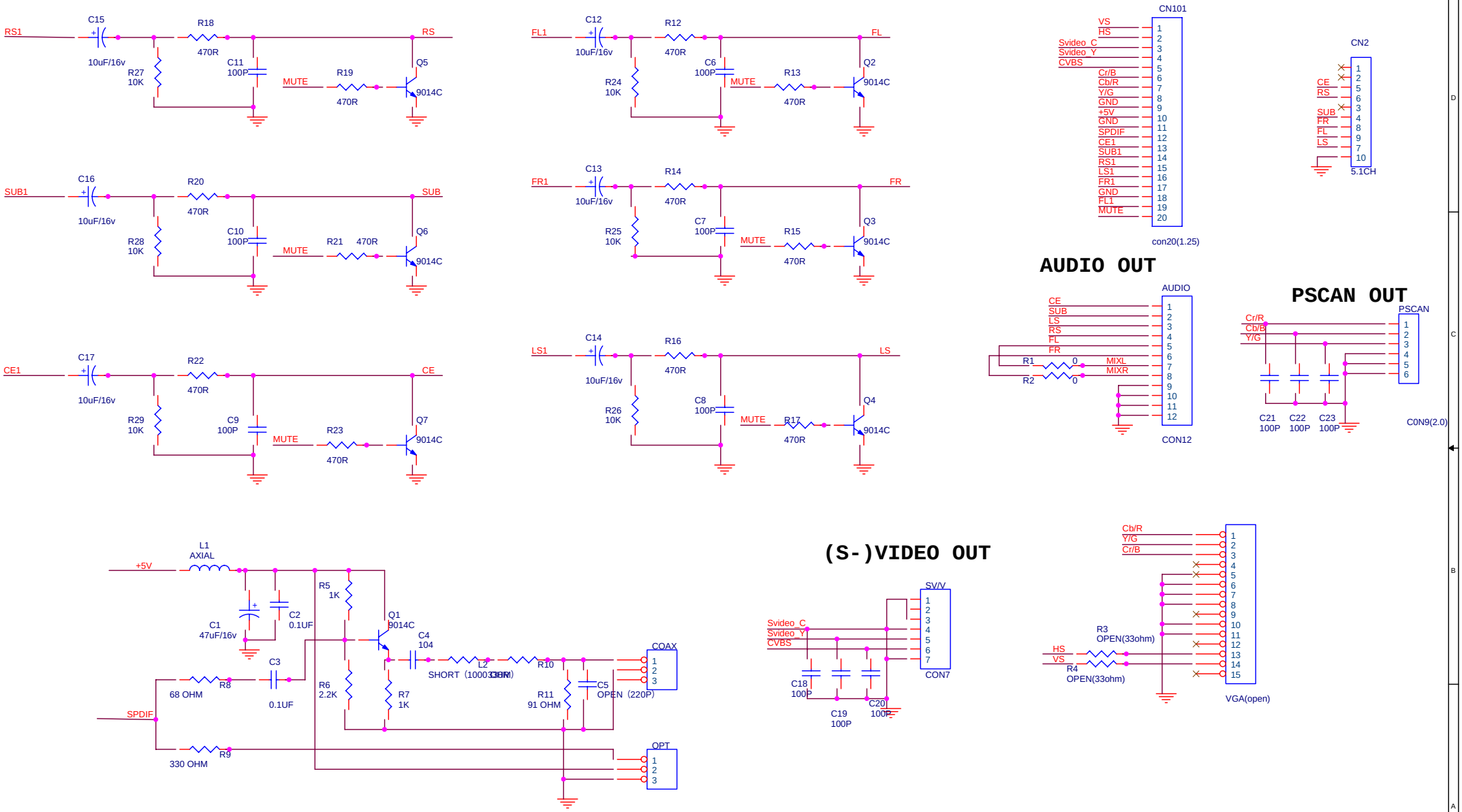

[1,2,3,5] VCC
[1,2,3,5] GND
[1,5] +P12V
[5] +12V
[5] -12V
[2] ACLK
[2] ABCK
[2] ALRCK
[2] ASDAT0
[2] ASDAT1
[2] ASDAT2
RN2 33x4
ACLK 1 2 SACLK
ABCK 3 4 SBCLK
ALRCK 5 6 SLRCK
ASDAT0 7 8 SDAT0
ASDAT1 R82 33 SDAT1
ASDAT2 R83 33 SDAT2
VCC L12 +5VA
FB / 0805
C131 0.1u
C132 100u
C133 0.1u
C134 10u
U11 WM8746
DVDD AVDD1 AVDD2
DGND AGND1 AGND2
LATCH/12S SCLK/IWL SDIN/DM0 MUTE
GR0 GR1 GR2
MODE
OUT0L OUT0R OUT1L OUT1R OUT2L OUT2R CAP
LMAIN RMAIN LREAR RREAR CENT LFE VQ
ALRCK R80 OPEN
SACLK SBCLK SLRCK SDAT0 SDAT1 SDAT2
C140 0.1u
C141 10u
U13 WM8726
VDD GND NC NC
VOUTL VOUTR
FORMAT DEEMPH MUTE CAP
LRCIN MCLK BCKIN DIN
SLRCK SACLK SBCLK SDAT0
C194 OPEN
C137 0.1u
C138 10u
D7 1N4148
R154 1K
R87 10k
Q16 9015
C146 470U
PMUTE
R89 10K NC
Q17 9012 NC
D9 1N4148(NC)
R91 10K NC
Q19 9015
D12 1N4148
R93 4.7K
R94 3.3K
R95 10K
MUTE#
A_MUTE
Q20 9015
R97 0R
R98 0R NC
R99 100K
D15 1N4148
R101 10k
R102 100K
C155 10uF/16V
-12V
MUTE CIRCUIT
PMUTE
RESET#
[2] MUTE#
[2] Y[1..6]
GND AGND
GND VGND
R79 62R
C137 22p
L14 1.8uH
D2 1N4148(NC)
Y3
Q13 9012
R81 150
C138 220p
C139 100p(NC)
D3 1N4148(NC)
CVBS
R84 62R
C142 22p
L15 1.8uH,DIP
D4 1N4148(NC)
Y2
Q14 9012
R85 150
C143 220p
C144 100p(NC)
D5 1N4148(NC)
SY
R86 62R
C145 22p
L16 1.8uH
D6 1N4148
Y1
Q15 9012
R88 150
C147 220p
C148 100p(NC)
D8 1N4148
SC
R90 62R
C149 22p
L17 1.8uH
D10 1N4148(NC)
Y6
Q18 9012
R92 150
C150 220p
C151 100p(NC)
D11 1N4148(NC)
R/V
R96 62R
C152 22p
L18 1.8uH
D13 1N4148(NC)
Y4
Q21 9012
R100 150
C153 220p
C154 100p(NC)
D14 1N4148(NC)
G/Y
R103 62R
C156 22p
L19 1.8uH
D16 1N4148(NC)
Y5
Q22 9012
R104 150
C157 220p
C158 100p(NC)
D17 1N4148(NC)
B/U
+5VV
CVBS [5]
SY [5]
SC [5]
R/V [5]
G/Y [5]
B/U [5]
VGND [1,2,3,5]
RMAIN [5]
LMAIN [5]
LFE [5]
CENT [5]
RREAR [5]
LREAR [5]
A_MUTE [5]
AGND [1,2,3,5]
VCC
L11 FB / 0805 NC
L13 FB AXIAL
R76 10K
Q11 8550
C135 0.1u
+C136 10u
RESET#
R77 4.7K
Q12 9014C


U5
SDRAM 1Mx16x4
EliteMT M12L64164A-5T
54-Pin TSOPII(400mil x 875mil)
U6
SDRAM 512Kx16x2
ESMT M12L16161A-5T
50-PIN TSOP(II),
(400milx825mil, 0.8mm pin pitch)
U7
SDRAM 512Kx16x2
ESMT M12L16161A-5T
50-PIN TSOP(II),
(400milx825mil, 0.8mm pin pitch)
RN1
33x4
U8
AT49F8192A, SOP
U9
MX29F800T(TSOP-48)
U10
EEPROM 24C16, ST-SO8
If use 5V I2C
bus, pull-high
to 5V


MT1379_216
U4
MT1379E
LQFP216
U3A
74HC04 NC
U3B
74HC04 NC
Y1
27MHz
CON13 2.0mm
CN5
CN6
RS232/4P,2.0 m/m
TO FRONT PANEL
DV33
AV33
V25
+PS5V
DACV33A
DACV33B
DACV33C


MT1336E
R38,R49,R61: FOR 5V MT1336E
R46,R60,R63: FOR 3V MT1336E
Very Important to reduce Noise
SF-HD6AV/0.5mm,24P TOP
TOP SIDE CONTACTED
CN2
BA5954
MT1336E
U1
U2
AVCC
RVCC
+PS5V
DV33
LDO_AVCC
RVCCIN
RFVCC
LDO1
LDO2
MDI1
MDI2
FOSO
CSO
SDATA
FMSO
RFON
RFOP
V2P8
SCLK
V1P4
BDO
DMSO
URST
SDEN
PWMOUT2
RFL
ADIN
HTRC
RFRP
TEO
FEO
TRSO
TROPEN
GND
SGND
LOAD+
LOAD-
TROUT
TRIN
5PIN 2.0
CN3
CN4
6P 2.0


MIC2
MIC1
R1 2.2K
C1 104
R28 10K
R26 47K
R5 2.2K
R27 47K
C8 104
R30 10K
VA+
C5 100UF/25V
C6 104
U2A 4558
47K R3
C7 101
R2 1.2K
C2 22UF/16V
100UF/25V C3
C4 104
VA-
RP1 10K
C14 4.7UF/16V
RP2 10K
R11 12K
R8 15K
C17 4.7UF/16V
R9 10K
R10 10K
C15 332
C16 561
R12 SHORT
C19 OPEN/103
C21 332
R13 10K
R14 10K
R15 15K
C22 683
C23 683
C20 561
4.7UF C18
C24 4.7UF/16V
R16 1K
R31 8.2K
R6 1K
C9 22UF/16V
U2B 4558
C30 SHORT/1UF
MOUT/R
R7 10K
C10 101
LPF1-IN
LPF1-OUT
LPF2-OUT
LPF2-IN
OP2-OUT
OP2-IN
OP1-IN
OP1-OUT
U1 PT2399
VCC
REF
AGND
DGND
CLK-O
VCO
CC1
CC0
JP1
MOUT/L
MOUT/R
VA+
VA-
R32 10 OHM
R33 10 OHM
R34 10 OHM
R29 100 OHM
D2 5.1V
C29 104
C27 47UF/16V
C28 100UF/16V
R17 13K
C26 104
C25 104



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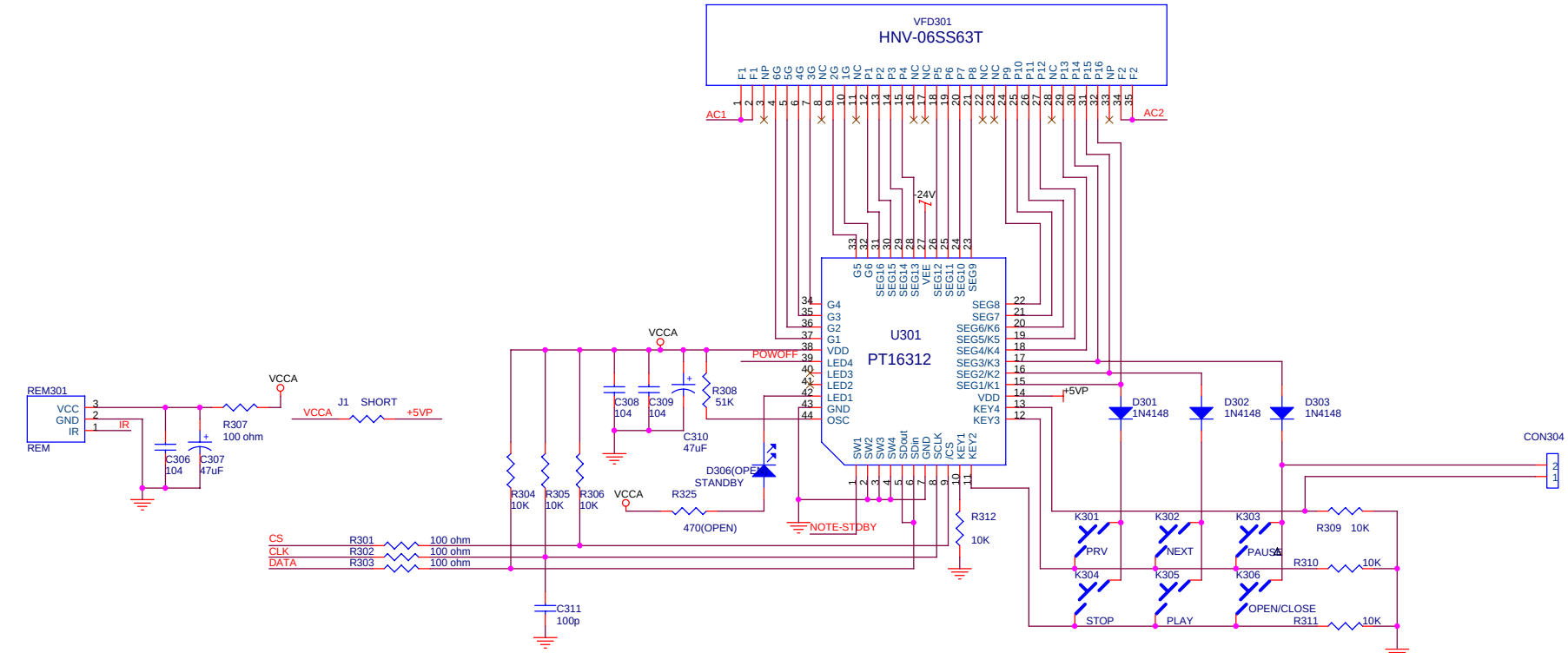
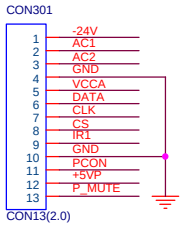
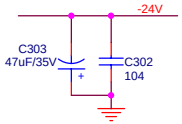
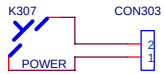


FROM MAIN BOARD







TCL王牌电子（深圳）有限公司			序号	更改标记	数量	版本	更改说明	签字	日期
研发中心AV设计所			设 计			日 期			
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型 号	TD-F62	图号	批 准			日 期			
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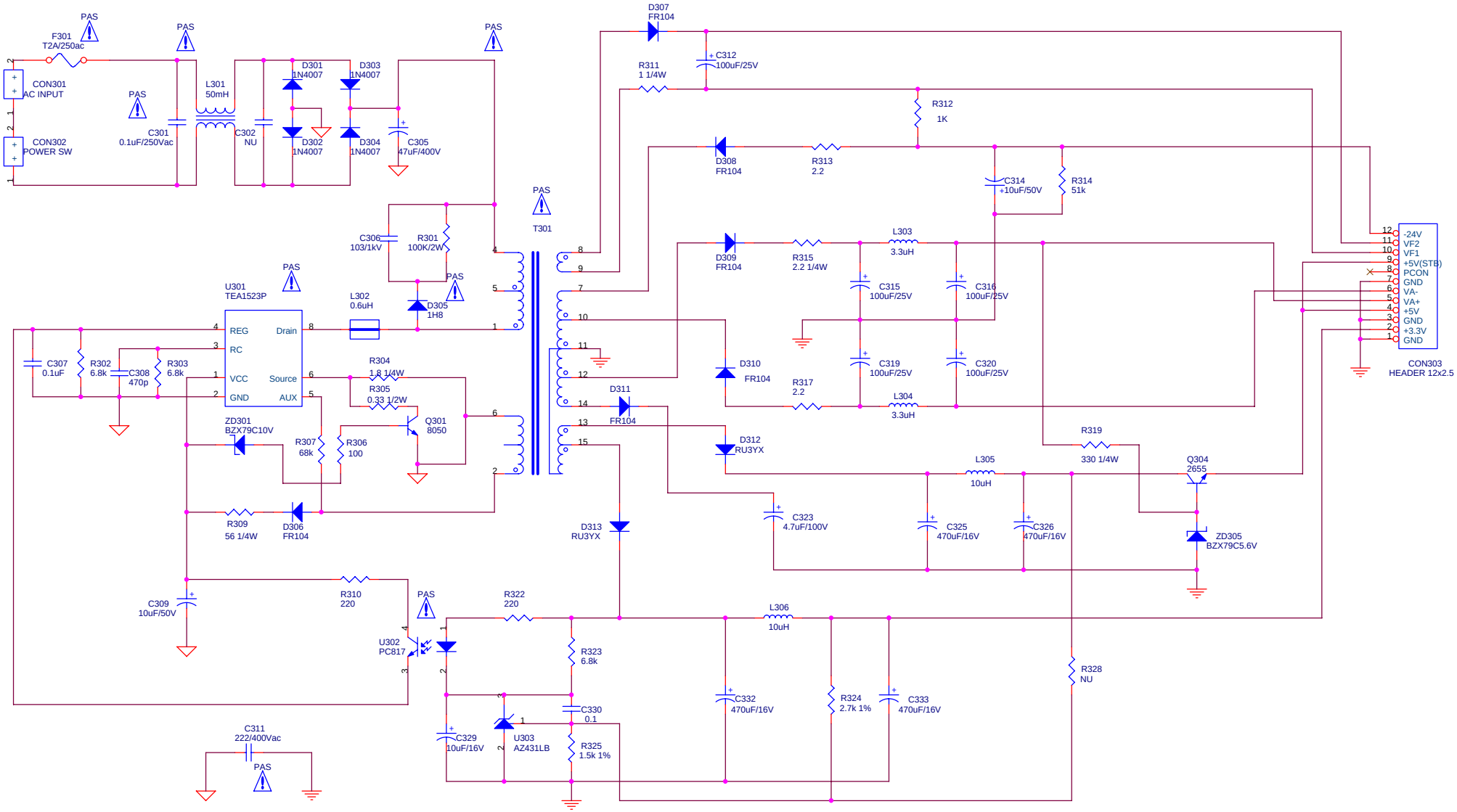

*** CAUTION :**

THE PARTS MARKED WITH PAS ARE IMPORTANT PARTS ON THE SAFETY.

PLEASE USE THE PARTS HAVING THE DESIGNATED PARTS NUMBER WITHOUT FAIL.

TCL1379M6-11.1

1 INDEX & POWER, RESET
2 RF / SERVO
3 MPEG - MT1336E / MT1379E
4 MEMORY - SDRAM, FLASH/EEPROM
5 AUDIO - WM8746, VIDEO FILTER
6 AUDIO FILTER/OUT PUT

NAME	TYPE	DEVICE
VCC	Digital 5V	SUPPLY
RVCC	Servo 5V	MT1336E
AVCC	RF 5V	PICKUP HEADER
V33	Digital 3.3V	SDRAM, Flash, VideoDAC
DV33	Digital 3.3V	MT1379E
AV33	Servo 3.3V	MT1379E
V25	Digital 2.5V	MT1379E
+5VA	Audio 5V	Audio DAC
+5VV	Video 5V	Video FILTER
+12V	Audio 12V	Audio filter

NAME	TYPE
GND	Digital Ground
SGND	Servo Analog Ground
AGND	Audio Ground
VGND	Video Ground