

Quality Uncompromised

ROTEL[®]

Technical Manual

DVD AUDIO/VIDEO PLAYER **RDV-1060**

Table of Contents

Specification.....	1
Parts List.....	2~7
Upgrade	8
Wiring.....	9
PCB Assembly.....	10~14
Schematic Diagram	15~19

Specifications

General

Readable discs:

DVD-Audio, DVD-Video, Audio CD, Video CD, SVCD, MP3, JPEG in CD-R/RW, DVD-/+R

Video format:

For NTSC discs, the scanning mode can be selected between Interlaced scan and Progressive scan. For PAL discs, only the interlaced scan mode is available.

Other

Power requirements:

AC 110-240 V, 50/60 Hz

Power consumption:

26 W

Weight:

5.1 kg (11.2 lbs)

Dimensions (W x H x D):

432 mm x 92 mm x 336 mm
17.01" x 3.62" x 13.23"

Front Panel Height

(feet removed/for rack mount)
80 mm/3.15"

Video output

COMPONENT (pin jack):

Y Output: 1.0 Vp-p (75 ohm)

PB/PR Output: 0.7 Vp-p (75 ohm)

VIDEO OUT (pin jack):

1.0 Vp-p (75 ohm)

S-VIDEO OUT (S jack):

Y Output: 1.0 Vp-p (75 ohm)

C Output (NTSC): 286 mVp-p (ohm)

C Output (PAL): 300mVp-p (75 ohm)

Horizontal resolution:

500 Lines

Signal to noise ratio:

65 dB

Audio output

Analog Out (pin jack):

2.0 Vrms (220 ohms)

Digital Out:

Optical: -21dBm to -15dBm (Peak)

Coaxial: 0.5 Vp-p (75 ohm)

Audio characteristics

Frequency response:

CD (at 44.1 kHz): 2 Hz to 20 kHz

DVD (at 48 kHz): 2 Hz to 22 kHz

DVD (at 96/88.2 kHz): 2 Hz to 44 kHz

DVD (at 192/176.4 kHz) : 2 Hz to 88 kHz

Dynamic range:

16 bit: more than 100 dB

20 bit: more than 110 dB

24 bit: more than 110 dB

Wow and flutter:

Unmeasurable (less than $\pm 0.002\%$)

Total harmonic distortion:

16 bit: less than 0.0018%

20/24 bit: less than 0.0012%

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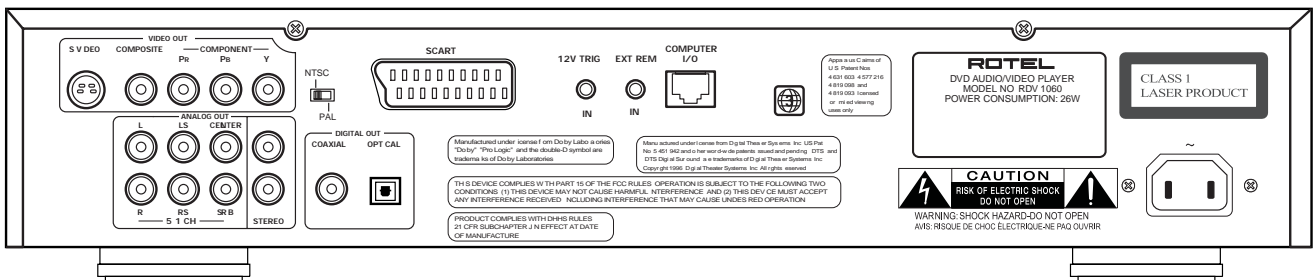
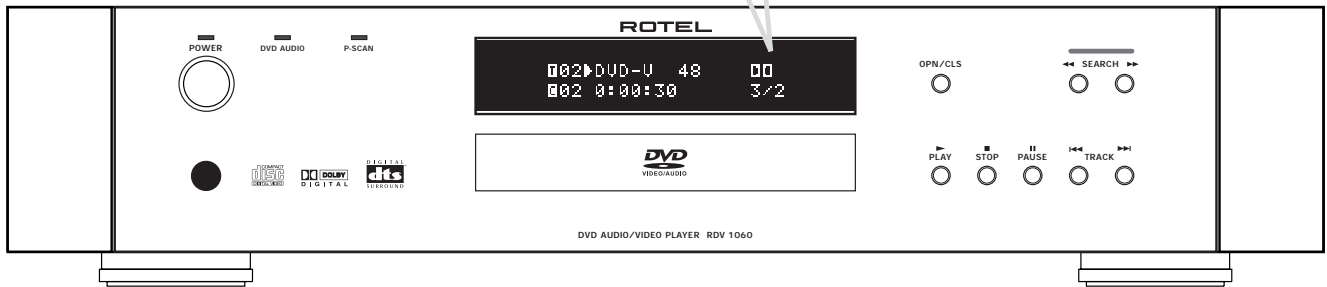
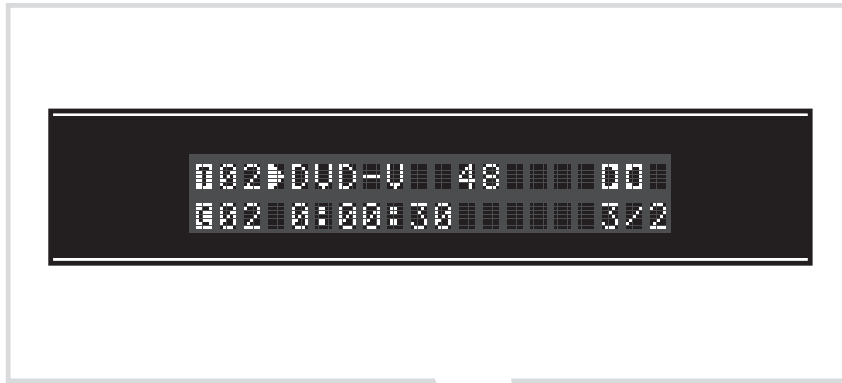
SHINSEN-BLD. 4F 10-10 SHINSEN-CHO, SHIBUYA-KU,
TOKYO 150-0045, JAPAN

Serial. NO.
Beginning

Y-371A0308/pdf

Appearance

RDV-1060



SYMBOL	PARTS NO.	DESCRIPTION
016 X-1359A01-02 PCB ASSY		
	501 X-1359	PCB ASSY (FRONT)
X1	023 HC49US-008	CRYSTAL HC49US18.432MHZ
U2	030 PIC16F876-DV1060	IC (CUP-FLASH) PIC16F876
U1	031 1R9H8	IC (REMOTE EYE) 1R9H8
U3	031 TC74HC595AP	IC (8BIT SHIFT REGISTER) TC74HC595AP
D1,2	034 T1N4148-86	DIODE 1N4148TAP-50
FL1	035 DN2025E	FL TUBE
C3	041 TUTCX1E100-TF	ELECTROLYTIC CAPACITOR 25V10uF
C1	041 TUTCX1H330-TF	ELECTROLYTIC CAPACITOR 50V33uF
C2,7	043 TC50V103	CERAMIC CAPACITOR 0.01uF
C4,5	043 TC50V220	CERAMIC CAPACITOR 22pF
C9	044 DE1307E472M	SPARK KILLER 4700pF
C6	046 T50V103K	CERAMIC CAPACITOR 50V0.01uF
C8	046 T50V104K	CERAMIC CAPACITOR 50V0.1uF
R12,13	054 TMF16-1001	METAL RESISTOR 1/6W 1K
R8-11,14,15	054 TMF16-1002	METAL RESISTOR 1/6W 10K
R1,2	054 TMF16-33R0	METAL RESISTOR 1/6W 33
R19-21	054 TMF16-4700	METAL RESISTOR 1/6W 470
R16-18	054 TMF16-4701	METAL RESISTOR 1/6W 4.7K
S1-8	061 4TR-3118	TACT SWITCH SKHHBW2720
SW	061 C-4176A08	POWER SWITCH PS3-22SPA-P7AZ TV-8(PCB)
U2	068 ISS28T1/03	IC SOCKET 28P for U2
J5	068 B2P3-VH	CONNECTOR POST
016 E-1360A00 PCB ASSY		
	501 E-1360	PCB ASSY (AUDIO)
FB1-12	021 FBC102	FERRITE BEAD BLM21AH102SN1CHIP
U13	031 74AHCT125D	IC (QUAD BUFFER) 74AHCT125D
U1-3	031 CS4396KS	IC (DAC) CS4396KS
U12	031 LM337T	IC (REGULATOR) LM337T
U11	031 NJM317F	IC (REGULATOR) NJM317F
U10	031 NJM7805FA	IC (REGULATOR+50V) NJM7805FA
U4-9	031 OPA2134PA	IC (OPE DUAL) OPA2134PA
Q3	032 A1162-YG	TRANSISTOR 2SA1162-YG
Q2	032 C2712-YG	TRANSISTOR 2SC2712-YG
Q4-15	032 C3326-AB	TRANSISTOR 2SC3326-AB
C97,100-104	041 TEEUFC1E221B	ELECTROLYTIC CAPACITOR 25V220uF
C1-6,98,99	041 TEEUFC1E470B	ELECTROLYTIC CAPACITOR 25V47uF
C20-31,68-79	041 TEEUFC1H100LB	ELECTROLYTIC CAPACITOR 50V10uF
C7-19,80-91,106,107	047 ECJ2VB1H103K	CERAIC CAPACITOR CHIP 0.01uF
C62-67	047 ECJ2VG1H102J	CERAIC CAPACITOR CHIP 1000pF
C32-43	047 ECJ2VG1H151J	CERAIC CAPACITOR CHIP 150pF
C44-61	047 ECJ2VG1H561J	CERAIC CAPACITOR CHIP 560pF
R75,76	055 ERJ6ENF1001V	RESISTOR CHIP 1K
R77,78	055 ERJ6ENF1102V	RESISTOR CHIP 11K
R14-19,32-37	055 ERJ6ENF1782V	RESISTOR CHIP 17.8K
R1-12	055 ERJ6ENF2002V	RESISTOR CHIP 20K
R38	055 ERJ6GEY0R00V	RESISTOR CHIP 0
R50-61	055 ERJ6GEYJ101V	RESISTOR CHIP 100
R20-31,69-74	055 ERJ6GEYJ102V	RESISTOR CHIP 1K
R13	055 ERJ6GEYJ103V	RESISTOR CHIP 10K
R79	055 ERJ6GEYJ151V	RESISTOR CHIP 150
R80	055 ERJ6GEYJ330V	RESISTOR CHIP 33
R48	055 ERJ6GEYJ472V	RESISTOR CHIP 4.7K
R49,62-68	055 ERJ6GEYJ473V	RESISTOR CHIP 47K
R82	055 ERJ6GEYJ680V	RESISTOR CHIP 68
R81	055 ERJ6GEYJ750V	RESISTOR CHIP 75
J7	066 C-4733A02	1P PIN JACK (YEL)
J6	066 C-4815A01	8P PIN JACK

SYMBOL	PARTS NO.	DESCRIPTION
U14	066 TOTX179	OPTICAL TRANSMITTER
J4	068 PHDS14G11	CONNECTOR BASE 14P
J5	068 PHDS40G11	CONNECTOR BASE 40P
J3	068 B8B-XH-A	CONNECTOR POST
016 E-1361A00 PCB ASSY		
	501 E-1361	PCB ASSY (VIDEO)
FB1-11	021 FBA101	FERRITE BEAD CORE AXAL
L3	021 LF168A00	MICRO INDUCTOR 0.39uH
L1,2	021 LF169A00	MICRO INDUCTOR 0.68uH
U1	031 BH7862FS	IC (VIDEO DRIVER) HB7862FS SMD
U2,3	031 PC817B	IC (PHOTO COUPLER) PC817B
U4	031 ST232CN	IC (RS232) ST232CN
Q4,5	032 TA1015-YO	TRANSISTOR 2SA1015-YO
Q1-3	032 TC3327-AB	TRANSISTOR 2SC3327-AB
D1,2	034 LTL1214A	LED (RED) 2F
D4-27	034 T1N4148-86	DIODE 1N4148TAP-50
D3	034 TRD5.1JST1	ZENER DIODE 5.1V (AB2)
C7-10	041 TUTES1E101-TF	ELECTROLYTIC CAPACITOR 25V100uF
C11,12,20-24	041 TUTES1H010-TF	ELECTROLYTIC CAPACITOR 50V1uF
C15-17	041 TUTES1H220-TF	ELECTROLYTIC CAPACITOR 50V22uF
C13,14	041 TUTES1H470-TF	ELECTROLYTIC CAPACITOR 50V47uF
C18,19	041 TUTES1V331-TS	ELECTROLYTIC CAPACITOR 35V330uF
C4-6	043 TC50V104	CERAMIC CAPACITOR 0.1uF
C3	043 TC50V220	CERAMIC CAPACITOR 22pF
C1,2	043 TC50V470	CERAMIC CAPACITOR 47pF
R31	054 TMF16-1000	METAL RESISTOR 1/6W 100
R5-7,27,28	054 TMF16-1001	METAL RESISTOR 1/6W 1K
R1-4,14	054 TMF16-1002	METAL RESISTOR 1/6W 10K
R26	054 TMF16-1003	METAL RESISTOR 1/6W 100K
R10,11	054 TMF16-2203	METAL RESISTOR 1/6W 220K
R12,13	054 TMF16-3301	METAL RESISTOR 1/6W 3.3K
R30	054 TMF16-4701	METAL RESISTOR 1/6W 4.7K
R8,9,15	054 TMF16-4702	METAL RESISTOR 1/6W 47K
R16-25	054 TMF16-75R0	METAL RESISTOR 1/6W 75
SW1	064 SK12F16G6	SLIDE SWITCH
J9,10	065 C-4817A01	3.5Φ JACK WTJ035-34
J4	066 C-4814A01	4P PIN JACK (Y/R/B/G)
J11	066 C-4818A01	RJ45 TERMINAL (8P) 260-88-N
J3	066 C-4819A01	MINI DIA JACK MH11041-MO
J2	068 C-4816A01	CONNECTOR SCART 21P WRC021V-04
J1	068 B4B-XH-A	CONNECTOR POST
J5	068 B8B-XH-A	CONNECTOR POST
J7,8	069 C-4370A01	PCB TERMINAL 3MM TAP TP-96
016 E-1381A00 PCB ASSY		
	501 E-1381	PCB ASSY (AC INLET)
L1	021 LF170A00	CHOKE COIL
C1	044 C-4824A00	SPARK KILLER 0.1uF
J2	068 B2P3-VH	CONNECTOR POST
POWER SUPPLY PCB		
	P20-028-95WAC	PCB ASSY
IC1	110-201-0004	IC (PWM) UC3842AM
IC3	115-200-0002	IC KA431AZ / TL431AZ
IC2	120-004-0009	IC (OPTO) LTV-817C
D10	125-310-0402	DIODE SBL1040CT 10A40V
D3,D4,D5	130-101-0804	DIODE IN4148
BD1,BD2,BD3,BD4	130-101-1201	DIODE 1N4007 1A1KV
D2	140-201-0401	DIODE PR1004 1A400V
D7,D8	145-201-0401	DIODE UF1004 1A400V

Parts List 3/4

RDV-1060

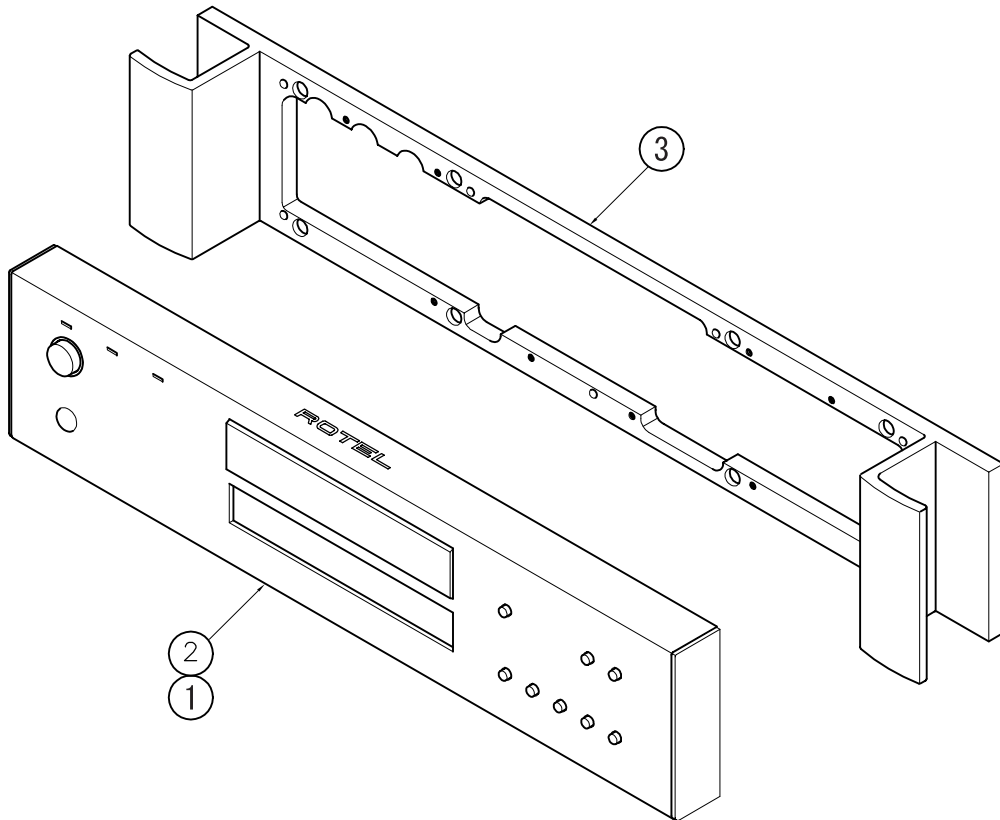
SYMBOL	PARTS NO.	DESCRIPTION
D1	145-201-1001	DIODE UF1007 1A1KV
D9	145-303-0206	DIODE HER303 3A200V
ZD1	150-101-5781	ZENER DIODE HZ6B1 0.5W 5.7V
D61	150-101-1601	ZENER DIODE HZ16-2 0.5W 16V
Q1	165-404-6010	MOSFET PHX4N60E 600V4A / 2SK2625LS
Q11,Q12	170-101-0501	TRANSISTOR 2SC1815-GR
SCR1	180-101-4003	SCR P0102DA 0.8A400V
R34	190-101-1010	CARBON RESISTOR 1/8W 100
R17	190-101-4710	CARBON RESISTOR 1/8W 470
R28,R14,R65,R66	190-101-1020	CARBON RESISTOR 1/8W 1K
R29,R63,R64	190-101-2220	CARBON RESISTOR 1/8W 2.2K
R13	190-101-3920	CARBON RESISTOR 1/8W 3.9K
R11,R12,R16,R68	190-101-1030	CARBON RESISTOR 1/8W 10K
R9,R26	190-201-1000	CARBON RESISTOR 1/4W 10
R15	190-201-4700	CARBON RESISTOR 1/4W 47
R8	190-201-1010	CARBON RESISTOR 1/4W 100
R4,R5,R6	190-201-4730	CARBON RESISTOR 1/4W 47K
R27	190-301-1010	CARBON RESISTOR 1/2W 100
R25	190-301-2210	CARBON RESISTOR 1/2W 220
R23	190-301-1020	CARBON RESISTOR 1/2W 1K
R22	190-301-5120	CARBON RESISTOR 1/2W 5.1K
R1,R2	190-201-1050	CARBON RESISTOR 1/4W 1M
R10	190-101-1520	CARBON RESISTOR 1/8W 1.5K
R32	195-101-2261	METAL RESISTOR 1/8W 2.26K 1%
R31	195-101-2371	METAL RESISTOR 1/8W 2.37K 1%
R18	200-101-5690	MOF RESISTOR 1WS 0.56
R7	200-202-1040	MOF RESISTOR 2WS 100K
THR1	225-230-5082	THERMISTOR SCK054 5ohms
ZNR1	230-330-0001	VARISTOR TVR10471K 300V
C6	255-210-1532	MPE CAPACITOR 100V0.015uF
C23	255-110-1042	MPE CAPACITOR 63V0.1uF
C9	255-210-4721	MPE CAPACITOR 100V0.0047uF
C19	270-020-2221	CERAMIC CAPACITOR 50V2200pF
C67	270-350-1031	CERAMIC CAPACITOR 1KV0.01uF
C7,C24	270-040-1041	CERAMIC CAPACITOR 50V0.1uF
C3,C5,C10	270-020-4711	CERAMIC CAPACITOR 50V470pF
C2	270-250-4721	CERAMIC CAPACITOR 500V4700pF
C1	275-217-6869	ELECTROLYTIC CAPACITOR 400V68uF
C27,C28	290-400-1076	ELECTROLYTIC CAPACITOR 25V100uF
C14,C18,C21,C22	290-400-3376	ELECTROLYTIC CAPACITOR 25V330uF
C4,C12,C13,C15	290-600-4766	ELECTROLYTIC CAPACITOR 50V47uF
C8	290-600-1058	ELECTROLYTIC CAPACITOR 50V1uF
C20	295-202-1082	ELECTROLYTIC CAPACITOR 10V1000uF
C17	295-301-1087	ELECTROLYTIC CAPACITOR 16V1000uF
CX1	300-211-4744	CAPACITOR (X) 275V0.47uF
CY1	305-220-3325	CAPACITOR (Y) 250V3300pF
LF1	330-280-1501	LINE FILTER UU15.7
T1	335-133-0009	TRANSFORMER EI-33 600uH
T11	335-133-0001	TRANSFORMER EE-13 1mH
L3,L2	350-106-0803	CHOKE COIL DR6x8 0.4Φ
J5,J6	350-106-0810	CHOKE COIL DR6x8 0.6Φ
L6	350-106-0813	CHOKE COIL DR6x8 0.25Φ
L5	350-304-2004	CHOKE COIL DR4x20 1.2Φ
L4	350-304-1503	CHOKE COIL DR4x15 1.2Φ
FUSE	370-232-0201	FUSE 250V2A
P3	500-104-0001	CONNECTOR 8822-04
P5	500-106-0001	CONNECTOR 8822-06
P2	500-108-0001	CONNECTOR 8822-08
CON1	500-203-0002	CONNECTOR A3961WV2-3P-D
HS1,HS2	505-410-0001	HEAT SINK BOARD 23.5x32.7x1.0

SYMBOL	PARTS NO.	DESCRIPTION
OTHERS		
	011 FP-560A-B	BLACK PANEL ASSY
	011 FP-560A-S	BLACK PANEL ASSY
	012 RV4-09A00	PUSH BUTTON 14F (BLACK)
	012 RV4-09A01	PUSH BUTTON 14F (SILVER)
	012 TN2-08A00	TACT BUTTON 15KEY (BLACK)
	012 TN2-08A01	TACT BUTTON 15KEY (SILVER)
	014 C-4713A02	UPPER COVER
	014 C-4715A00	SIDE CAPACITOR H80mm (BLACK)
	014 FP-561-B	PLASTIC DOOR (BLACK)
	014 FP-561-S	PLASTIC DOOR (SILVER)
	019 4TSH-19#2	PLASTIC FOOT 50Φ (BLACK)
	034 SEL1124R	LED (RED) 1X5
	034 SEL1E24W	LED (BLU) 1X5
	069 C-4629A03	AC 2P INLET 6102.3100 (WIRING)
	072 C-4621A02	AC CORD SET SJT AWG16 for USA
	072 C-4622A02	AC CORD SET for AUSTRALIA
	072 C-4623A03	AC CORD SET for U.K.
	072 C-4624A01	AC CORD SET for EUROPE
	081 UQ3-08A00	INSIDE CARTON
	081 UQ3-09A00	SHIPPING CARTON
	081 Z-204	STYROL MOULDING
	082 OMRDV-1060	OWNER'S MANUAL
	092 E-1362A00	PCB ASSY (DSP)
	092 DV2H2SA	DVD LODER ASSY(W/SERVO PCB)
	092 RR-DV94	REMOTE CONTROL UNIT

Addendum List for Black and Silver

RDV1060

SYMBOL	PARTS	DESCRIPTION
①	011FP-560A-B	SUB PANEL(BLK)
②	011FP-560A-S	SUB PANEL(SLV)
③	011 TF3-01A00	H/S PANEL H80
	012RV4-09A00	PUSH BUTTON 14F (BLK)
	012RV4-09A01	PUSH BUTTON 14F (SLV)
	012TN2-08A00	TACT BUTTON 15KEY(BLK)
	012TN2-08A01	TACT BUTTON 15KEY(SLV)
	014FP-561-B	PLASTIC DOOR(BLK)
	014FP-561-S	PLASTIC DOOR(SLV)
	019C-4714A00	POWER KNOB RING 14F (BLK)
	019C-4714A01	POWER KNOB RING 14F (SLV)
	034SEL1124R	LED (RED) 1X5
	034SEL1E24W	LED (BLU) 1X5



Procedure of RDV-1060 software upgrade

Before proceed the software Upgrade, prepare the software in CD-R or CD-RW, and DVD-Audio disc which is contained the "CPPM" code in the disc.

(The file size of software itself is 1.02Mb, so it is difficult to read by RDV-1060 such a small size file, thus you make 20Mb temporary file together to easy to read)

1. Connect the Power cable and TV monitor to the RDV-1060. Then power RDV-1060 to ON.
2. Playback the DVD-AUDIO disc which is contained "CPPM" code and run more than 10sec to confirm the playback on the TV Monitor. Then, take out the disc.
3. Insert the Upgrade software disc and play. Wait until the unit automatically to STANDBY mode. The reading procedure is READ BANK30.ROM --→ flashing the "WAITING" 7 times --→ DONE --→ unit to STANDBY mode (TV screen and FL display is OFF)
4. Press POWER button of front panel to OFF and ON again. The unit read again Upgrade software and finish. Then, the unit automatically opens the door. Take out the Upgrade software disc.
5. Playback the DVD-AUDIO disc which is contained "CPPM" code again to confirm if the unit can playback the DVD-AUDIO disc. Finished.

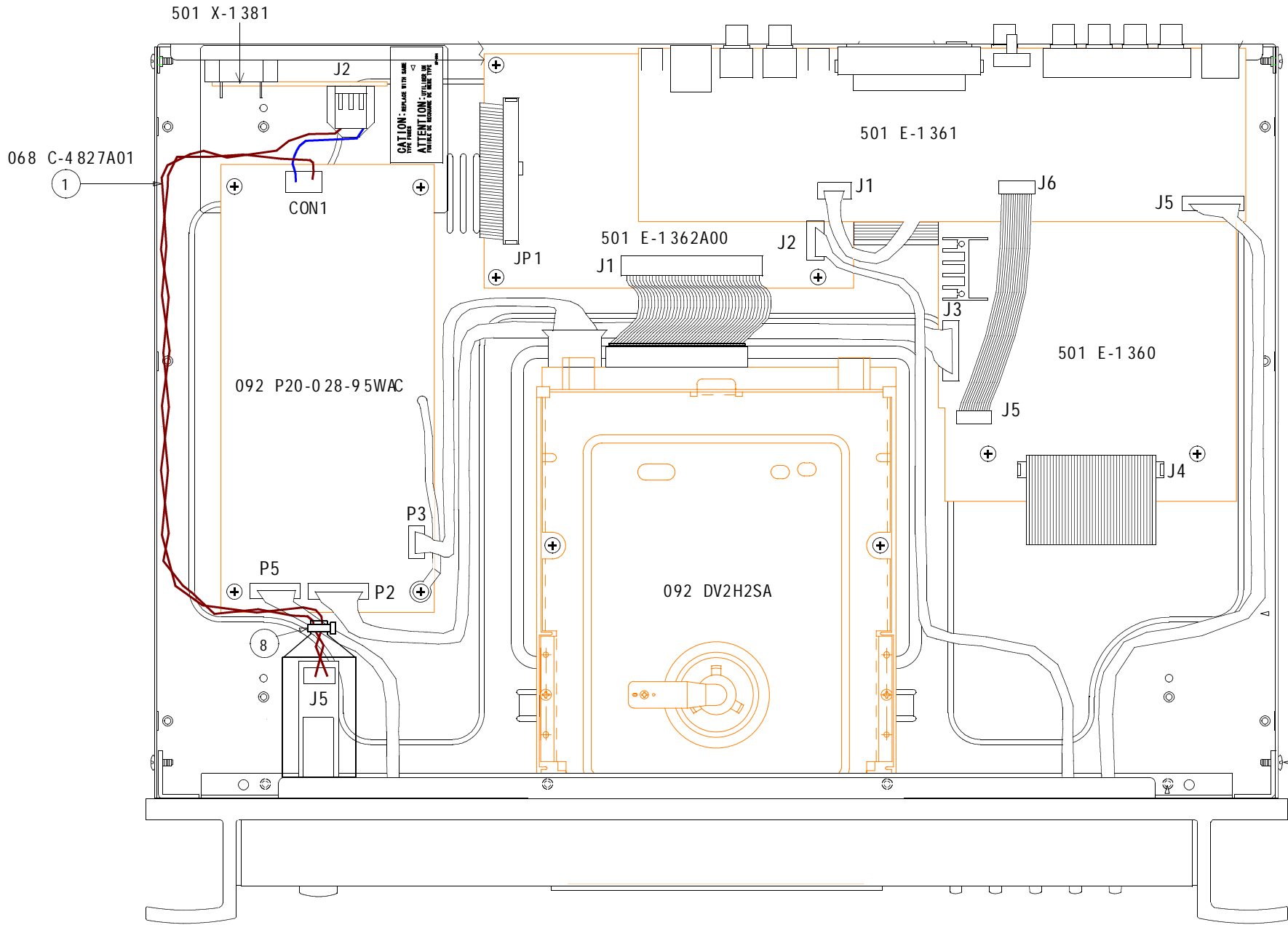
CAUTION: Do not power off during updating until the unit is in standby mode automatically. If it is happened, it is never retuned the unit to normal.

To confirm the current software version in the unit:

1. Power ON the unit. OFF by remote unit and ON again. Then, open the door.
2. Press Cursor down, up, right and left. It will be appeared the version display on TV Monitor. Read the Version Number, issued date, REGION number and PIC IC version Number. When access the other button, the display will disappear.

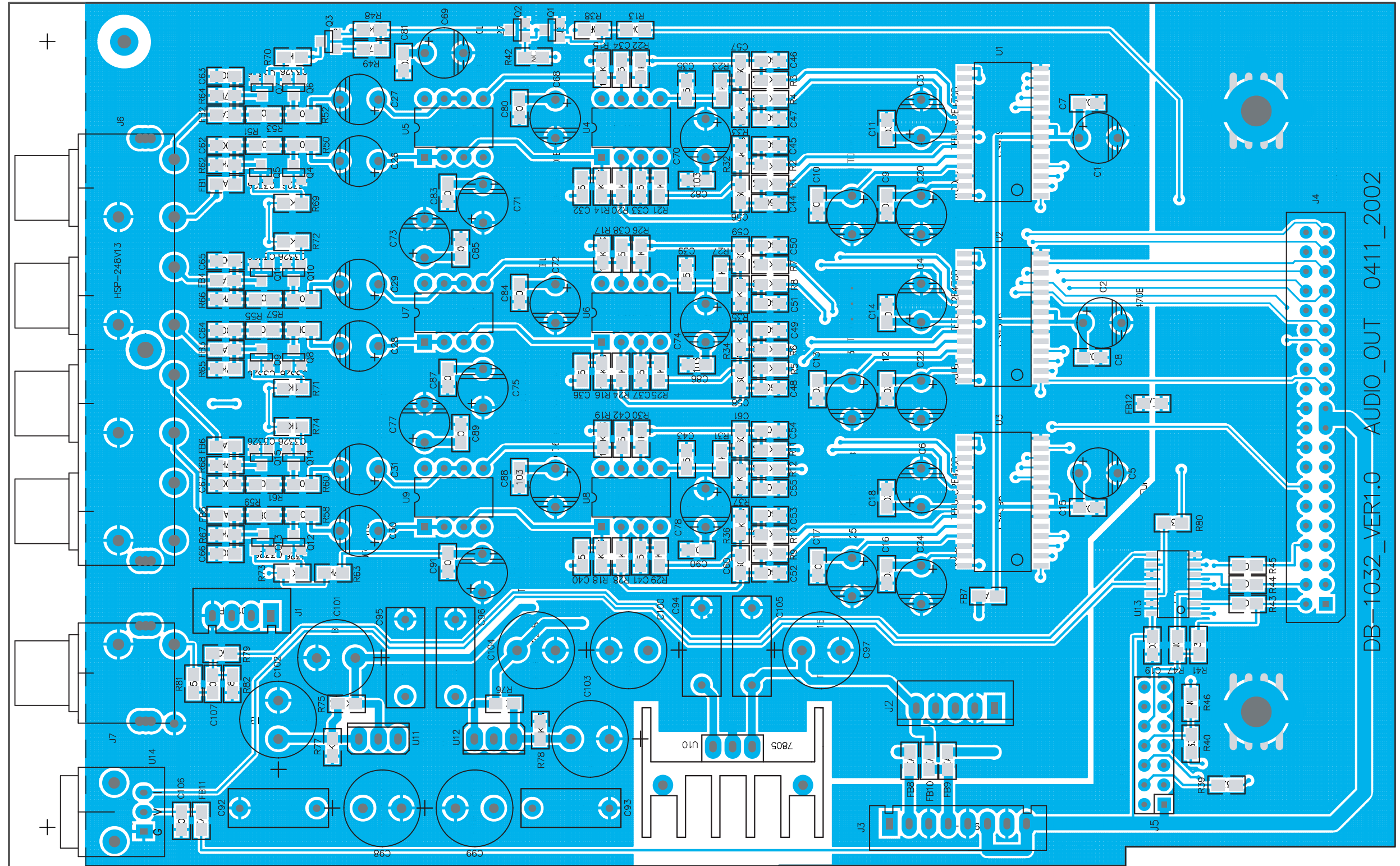
Please note: The Upgrade software name is always "BANK30.ROM". If you change the file name, the RDV-1060 can not read the Upgrade software. The Region is included in the Upgrade software file. Make sure the Region code for your market.

Wiring Diagram



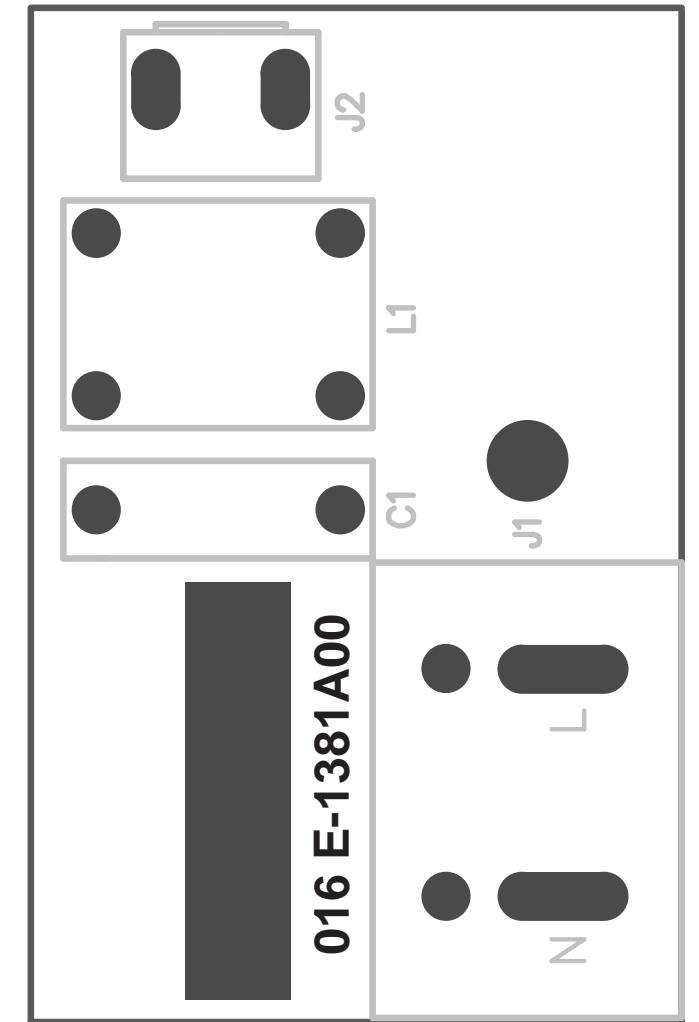
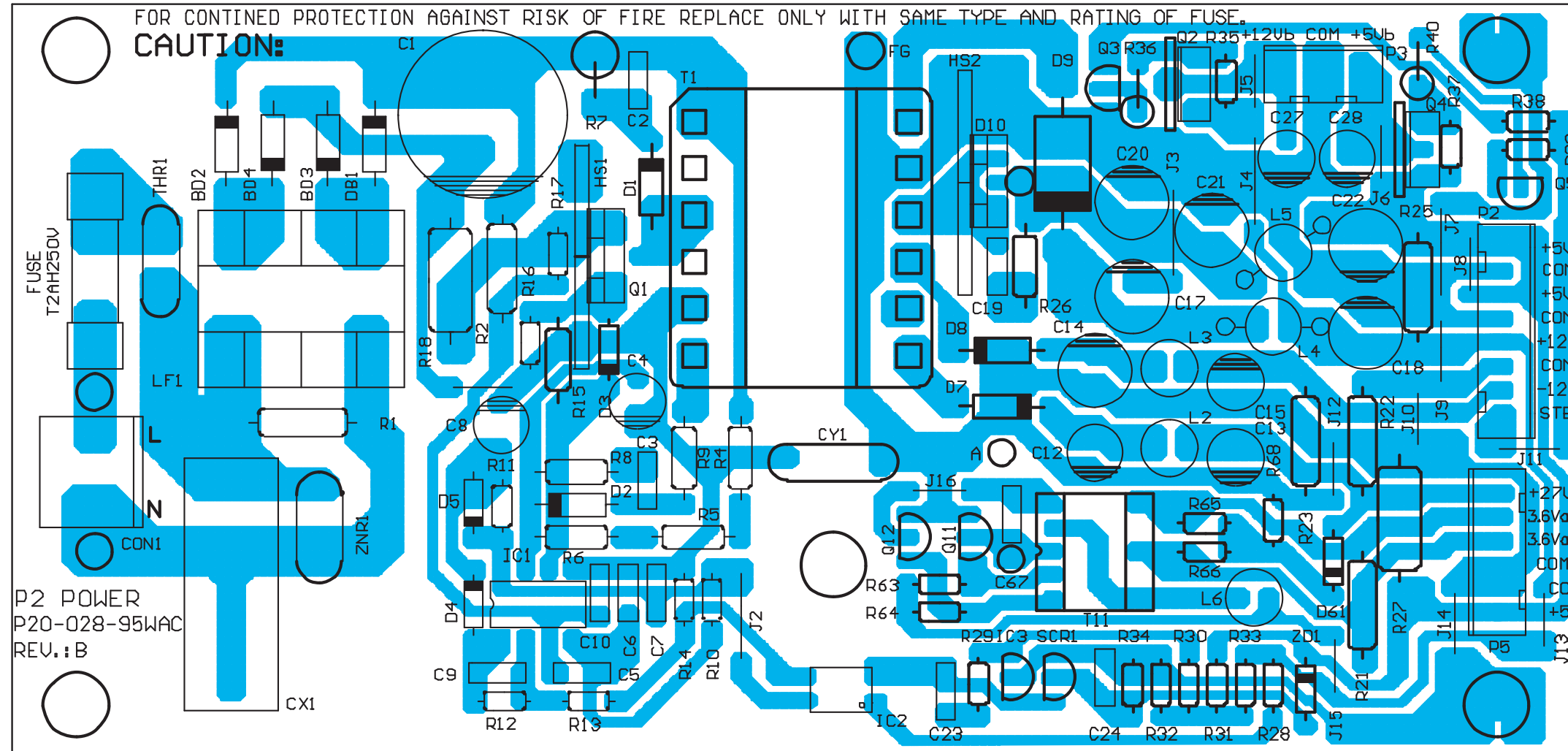
- 068 C-4810A05 40P 120mm Loader Assy 092 DV2H2SA to DSP PCB E-1362 J1
- 068 C-4822A01 4P 260mm Loader Assy 092 DV2H2SA to Power PCB P3
- 068 C-4810A03 14P 150mm Audio PCB E-1060 J5 to Video PCB E-1361 J6
- 068 C-4820A01 4P 160mm Audio PCB E-1360 J1 to Video PCB E-1361J1
- 068 C-4826A01 8P 420mm Audio PCB E-1360 J3 to Power PCB P2
- 068 C-4827A01 360mm
AC Inlet PCB E-1381 J2 to Power PCB CON1, Power SW PCB J5
- 068 C4825A01 J1 of Front Assy to Power PCB P5
- 068C-4825A02 J2 of Front Assy to DSP PCB E-1362 J2
- 068 C-4825A03 J4 of Front Assy to Video PCB E-1361 J5
- 068 C-4810A04 40P 500mm DSP PCB E-1362 JP1 to Audio PCB E-1360 J4

Audio PCB 016 E-1360A00



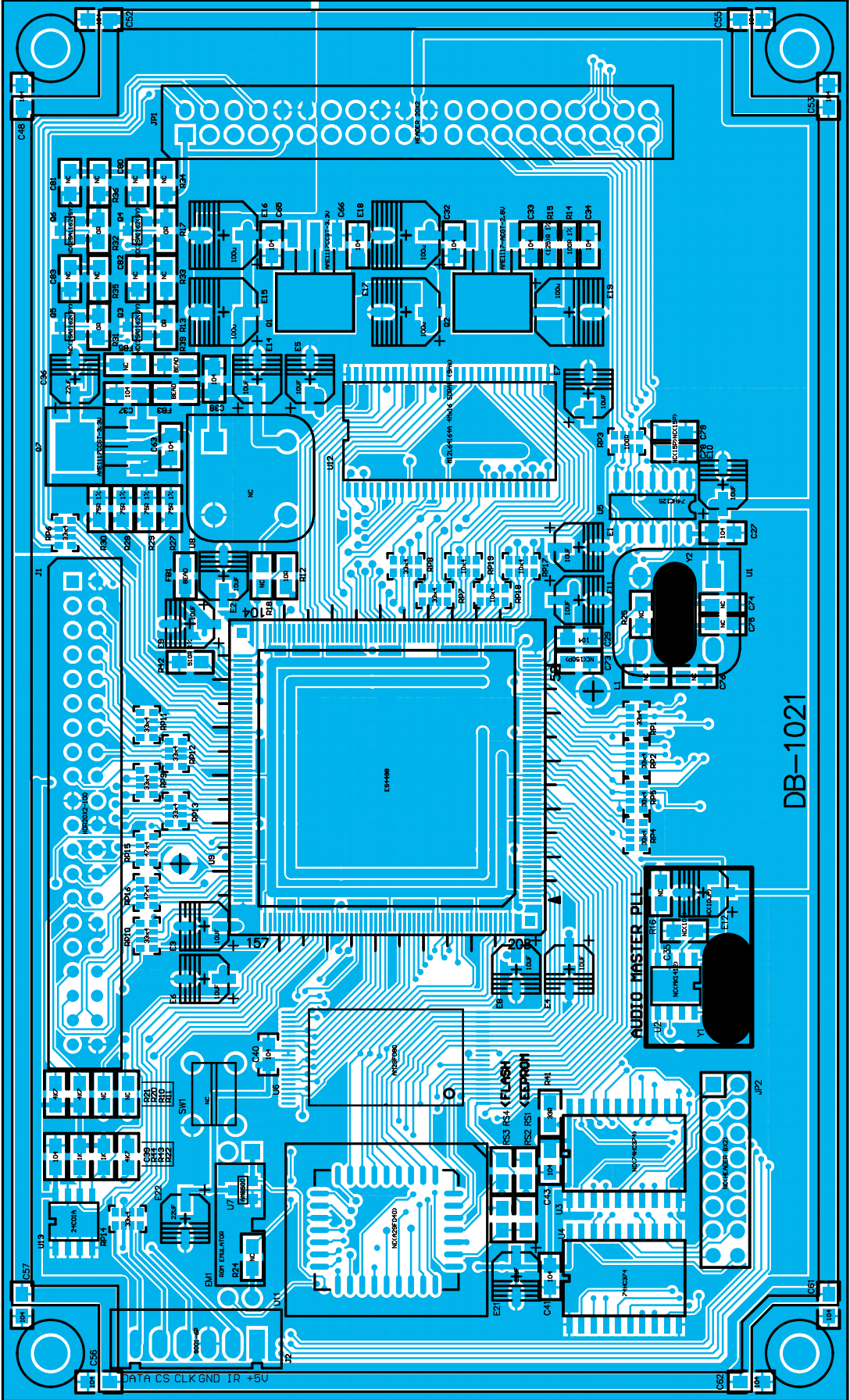
Power Supply PCB 092 P20-028-95WAC

AC INPUT PCB 016 E-1381A00

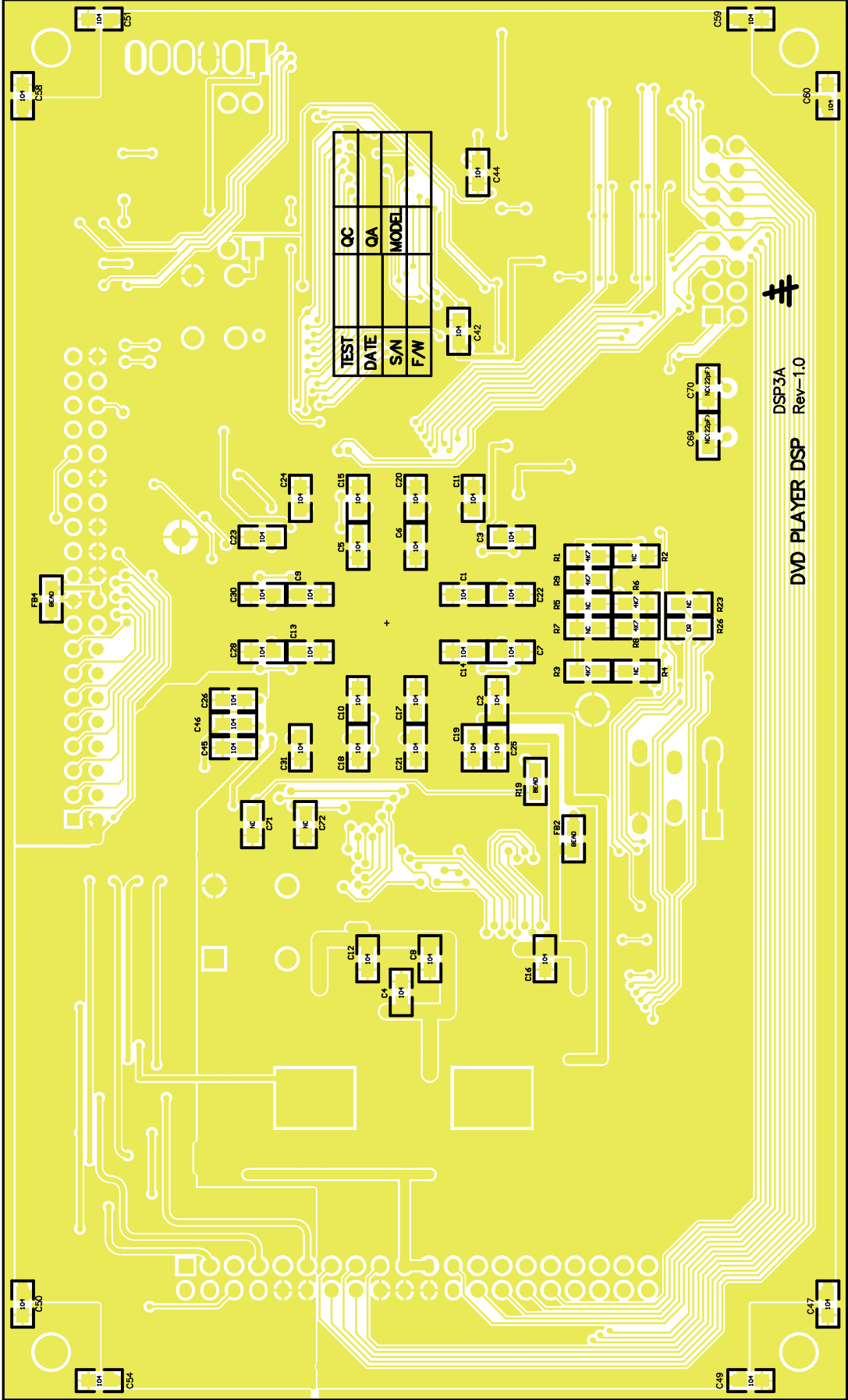


DSP PCB (1/2)

Top side view

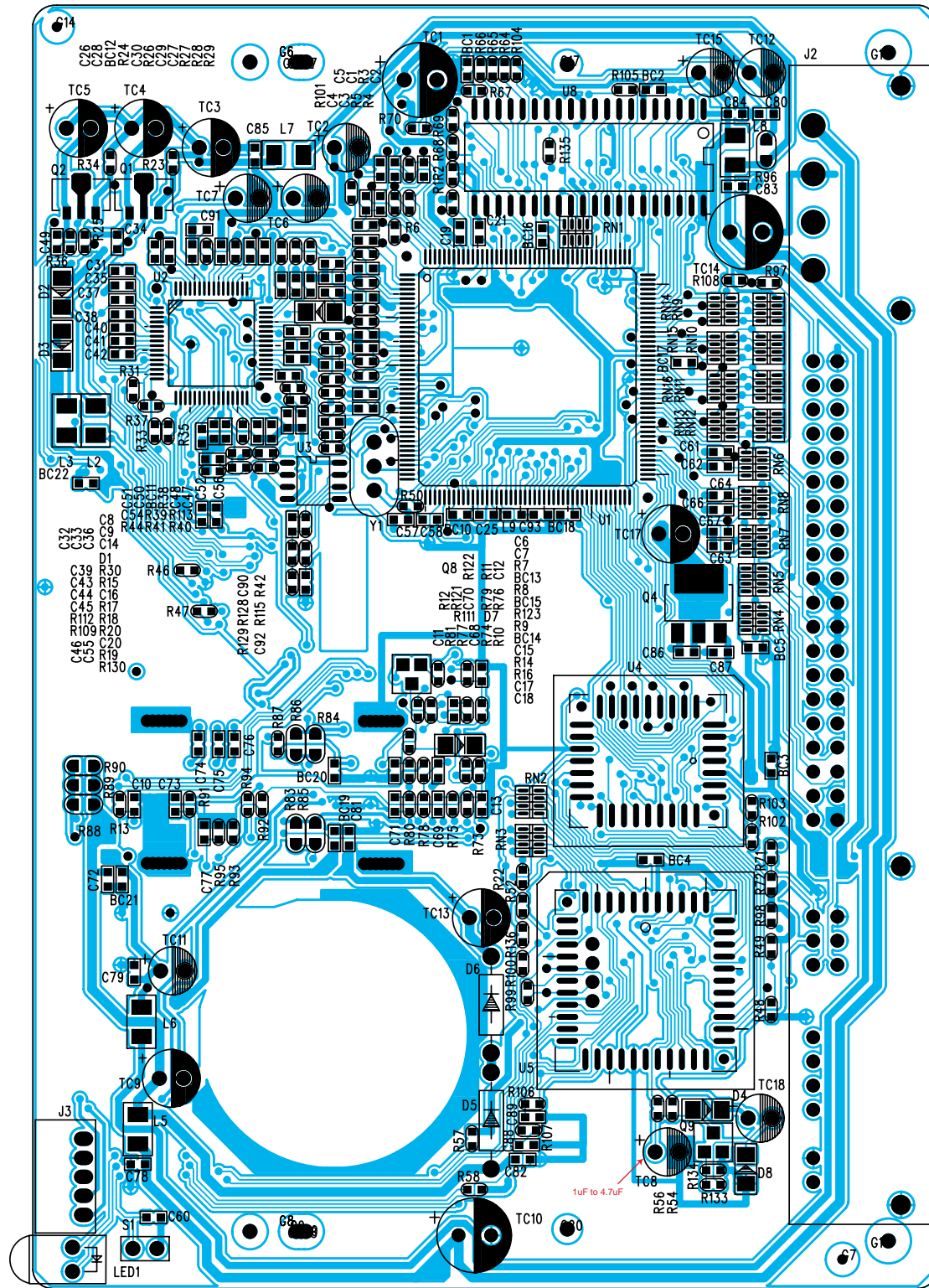


Bottom side view

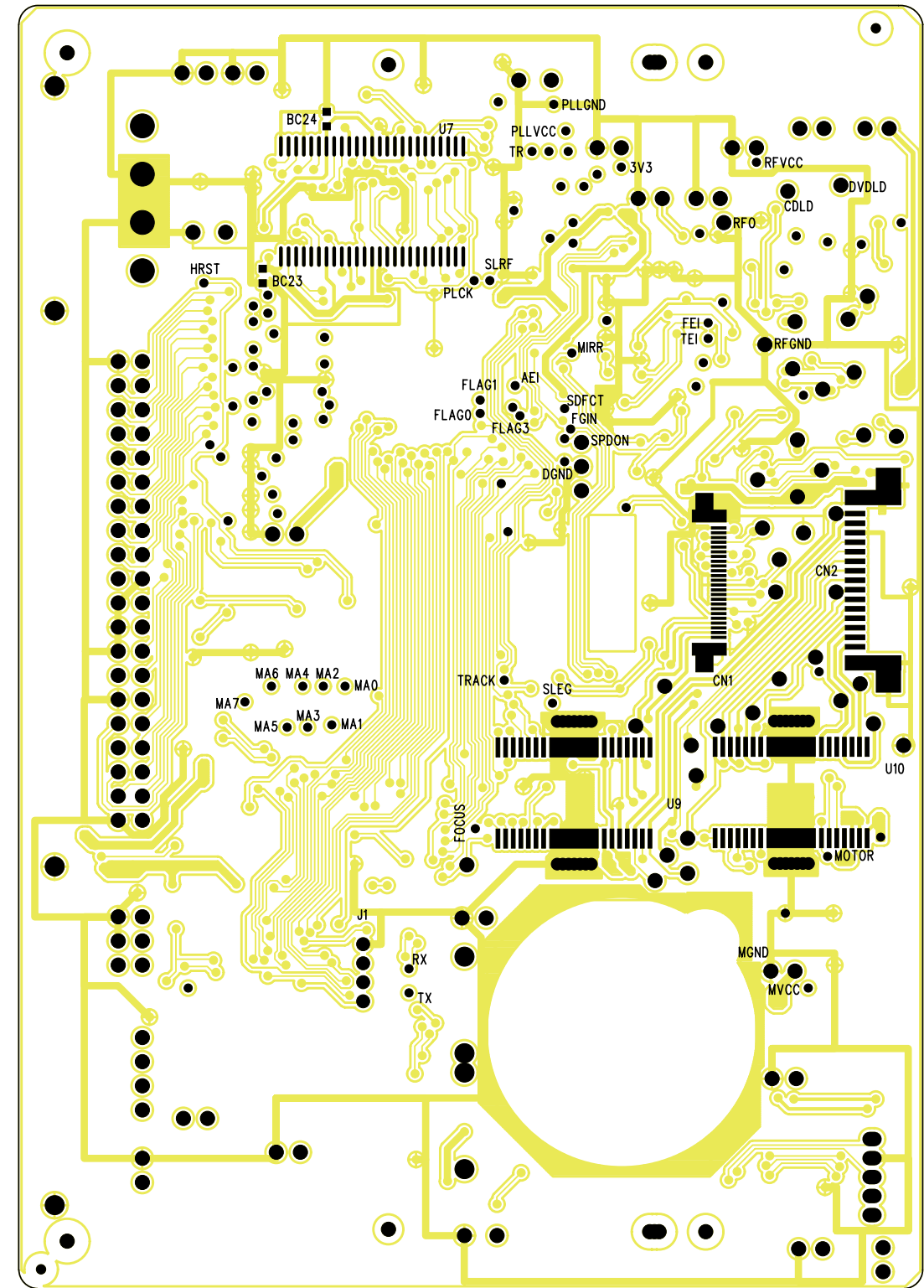


Loader PCB 5705

Top side view



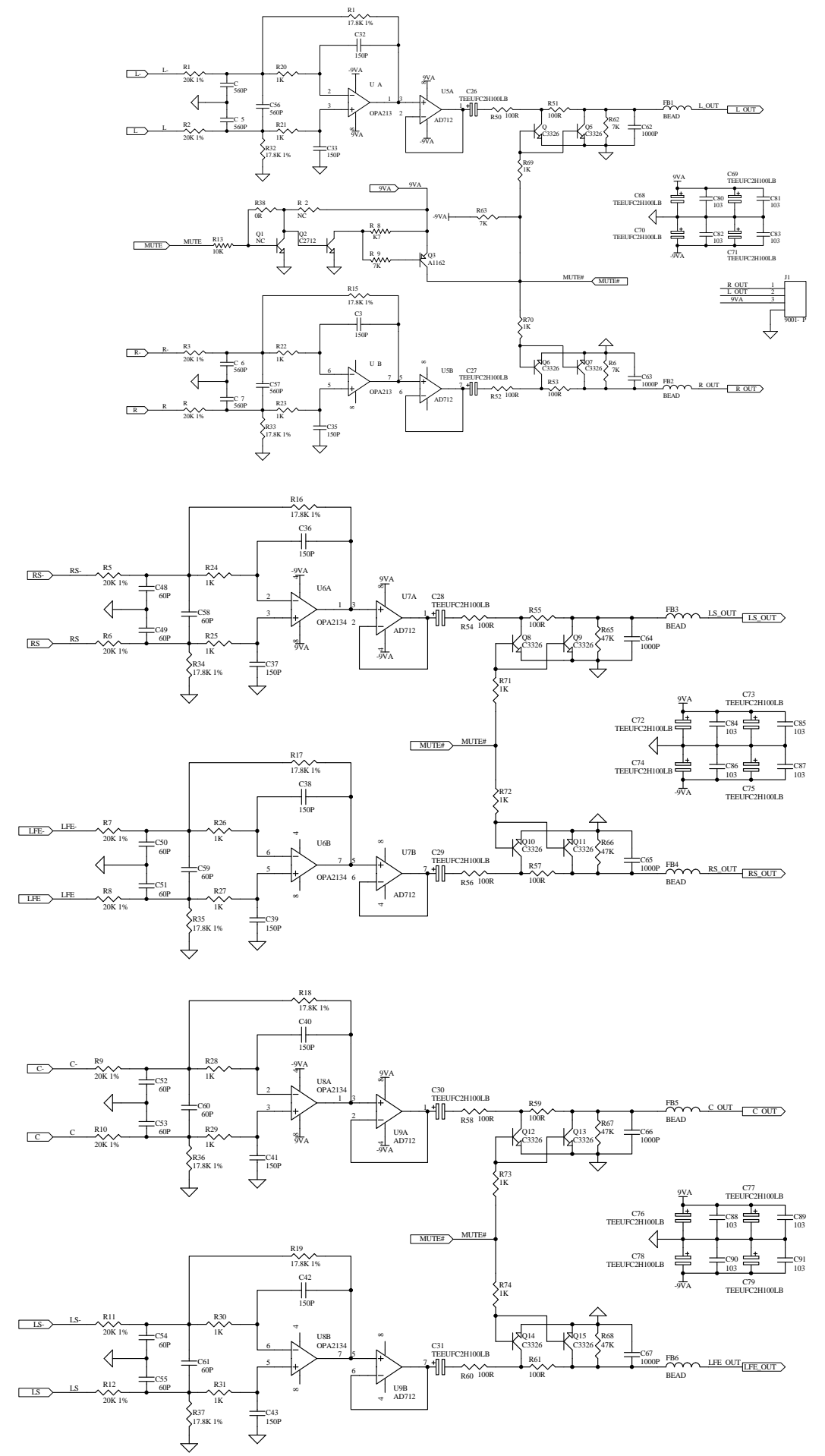
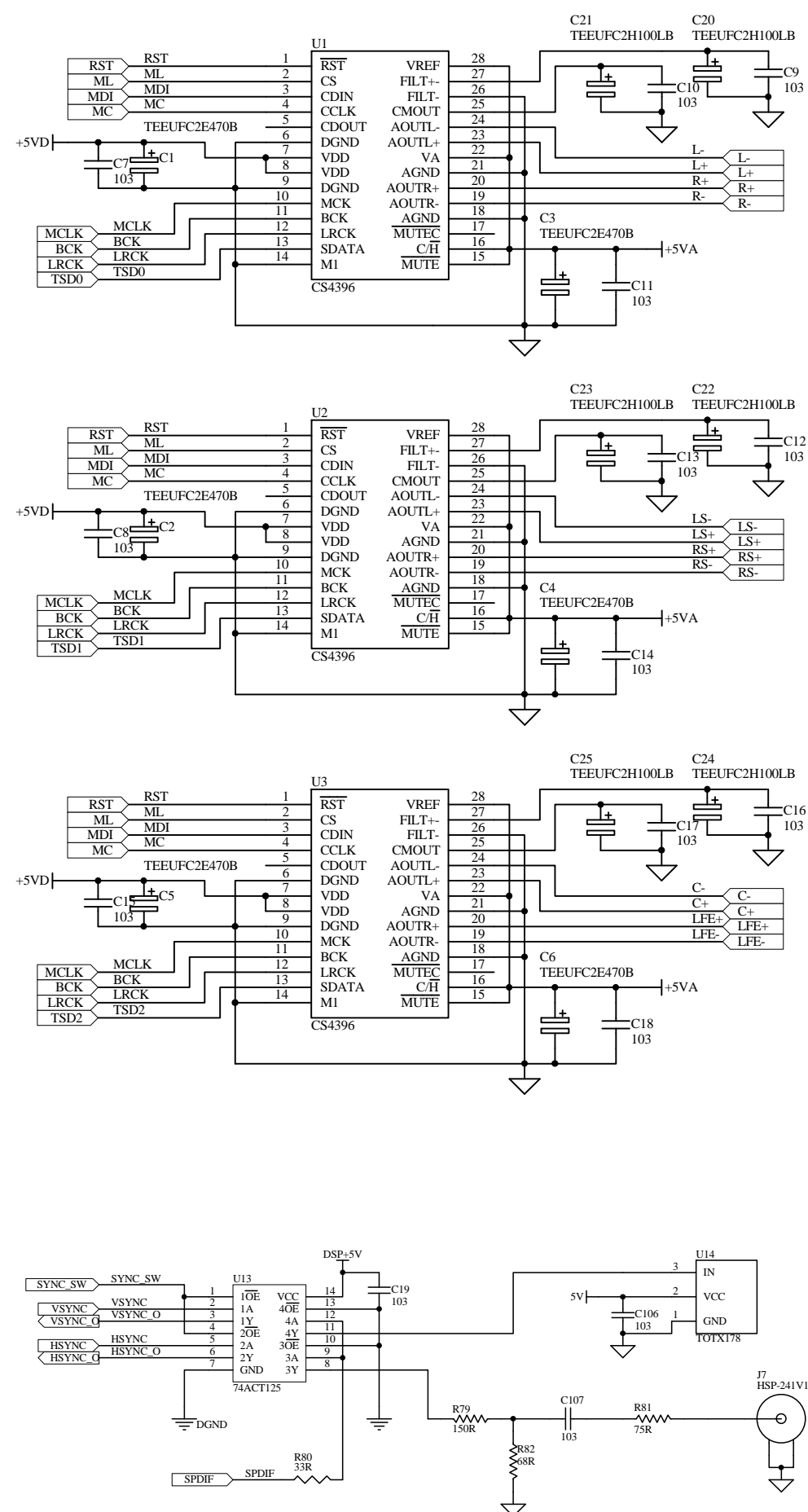
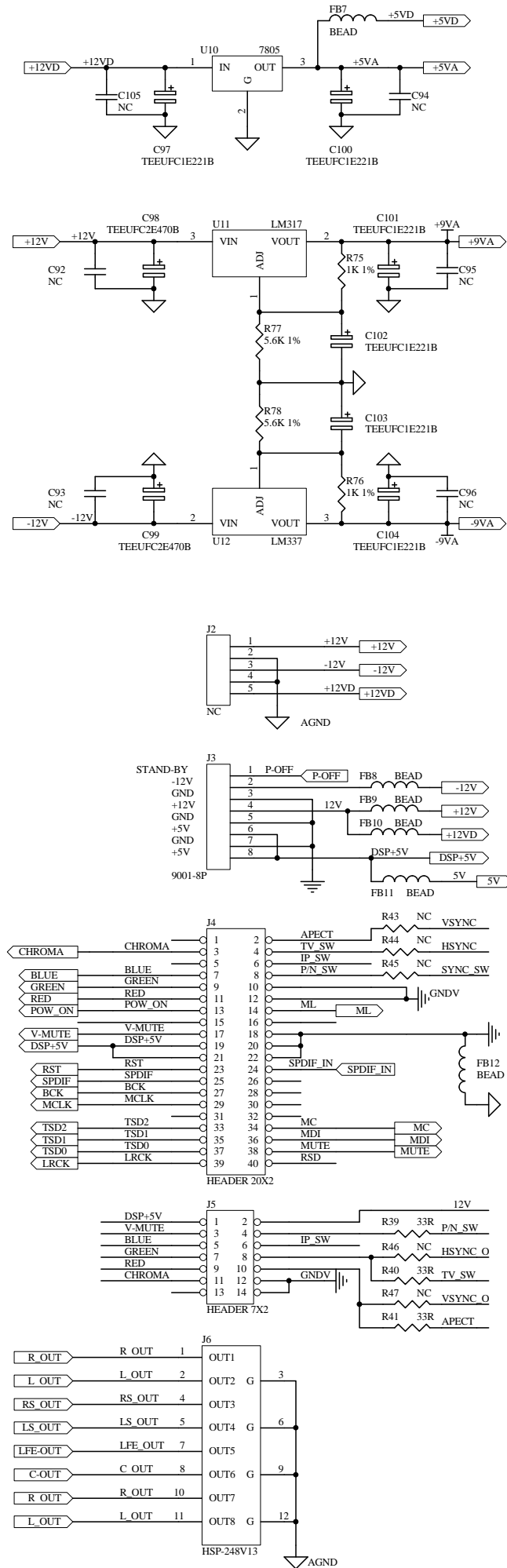
Bottom side view

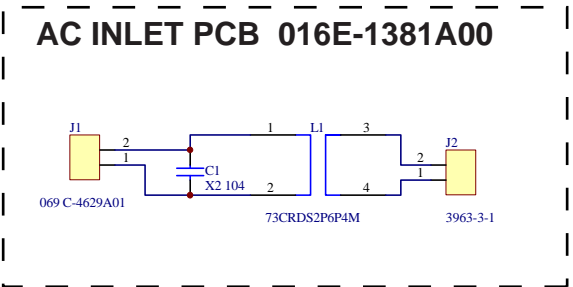
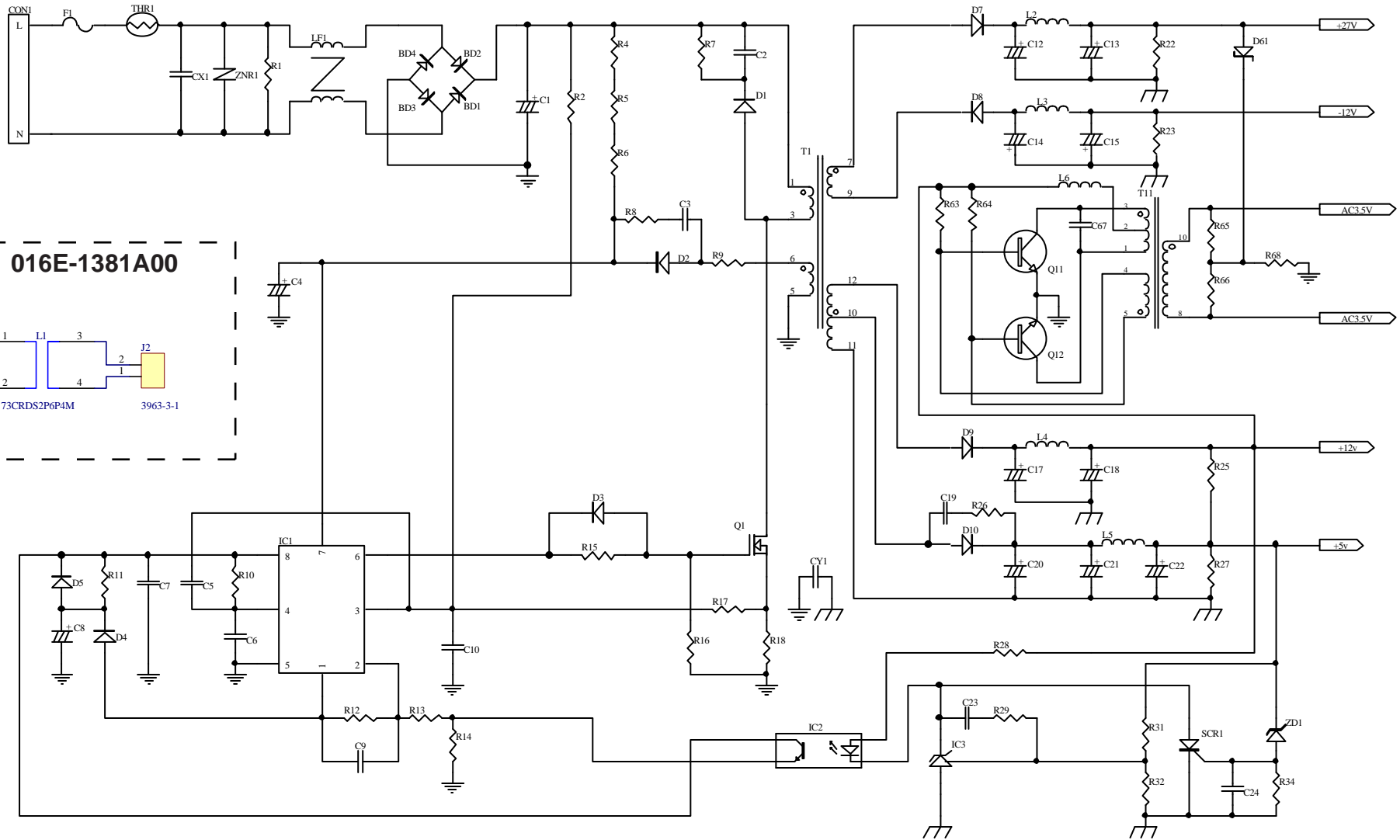


Schematic Diagram 3/5

Audio PCB 016E-1360A00

RDV1060

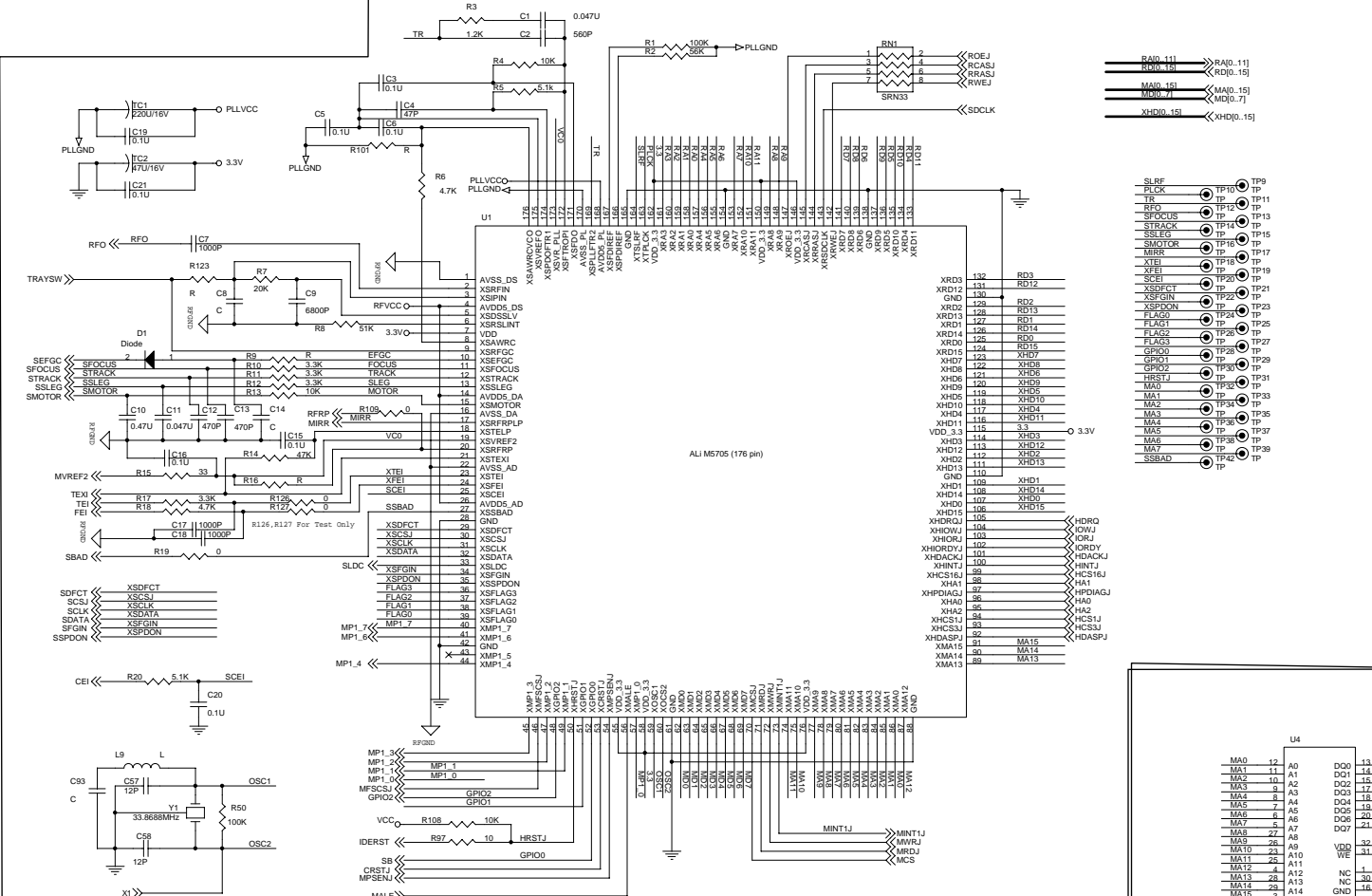




Schematic Diagram 5/5

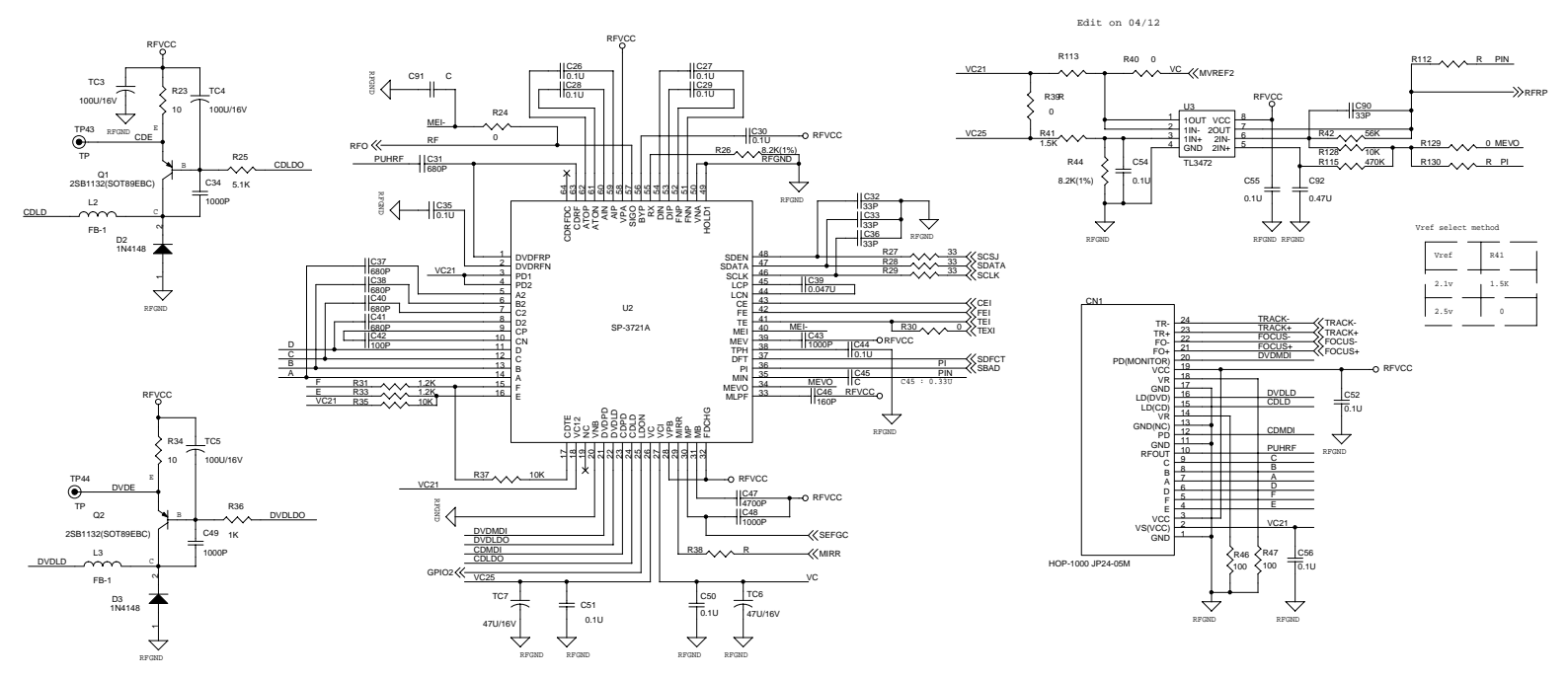
DECODER.SCH

ALI M5705 (176 PIN) DVD/CD DECODER



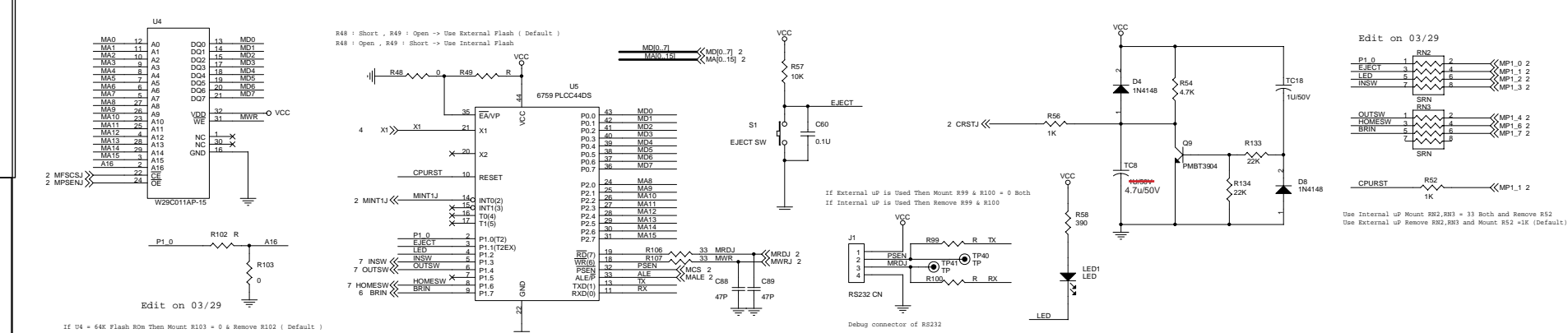
PREAMP.SCH

TI-SP3721A PRE-AMP CIRCUIT



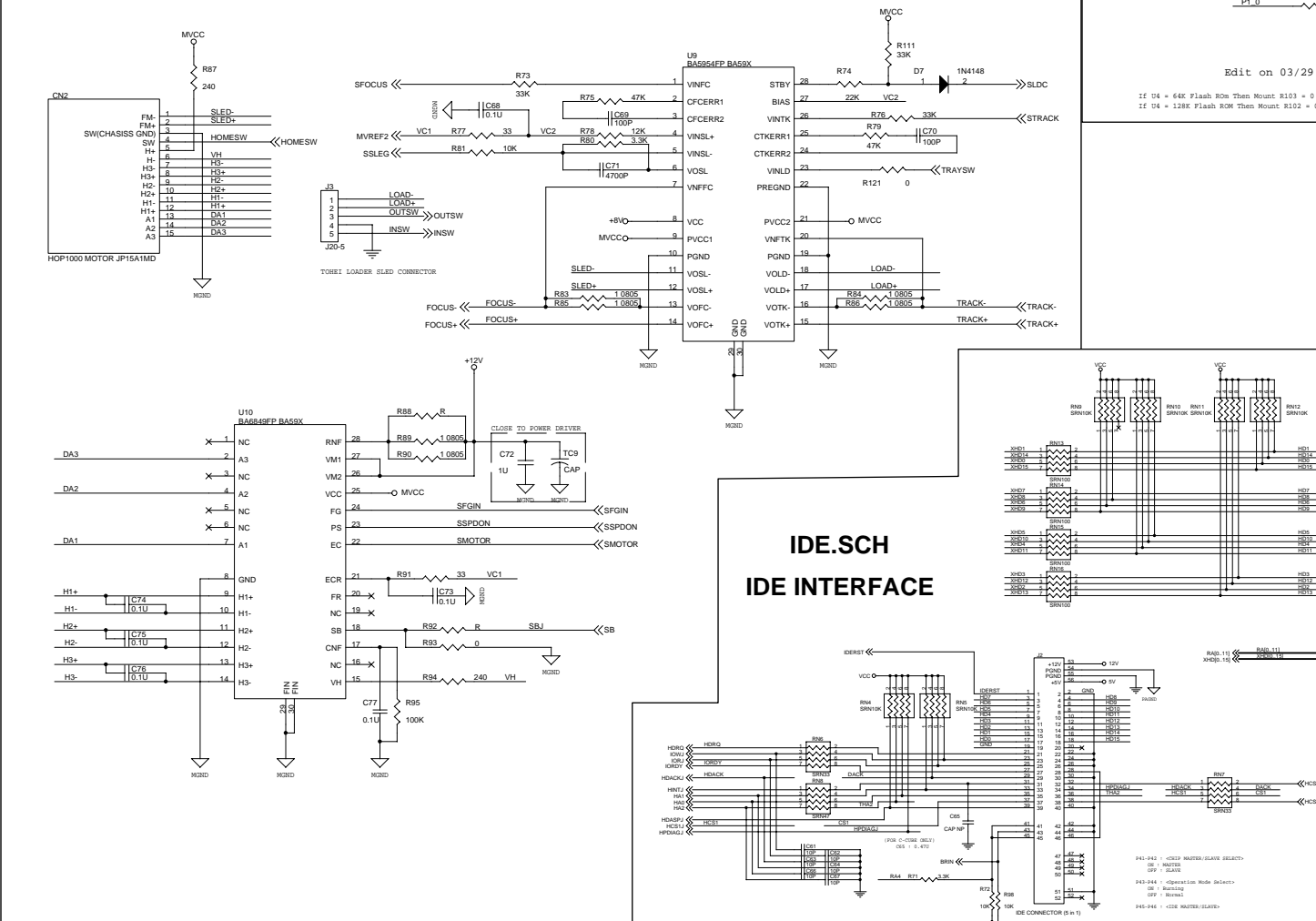
INTEL.SCH

INTEL 8032 SERIES MCU & RESET CIRCUIT



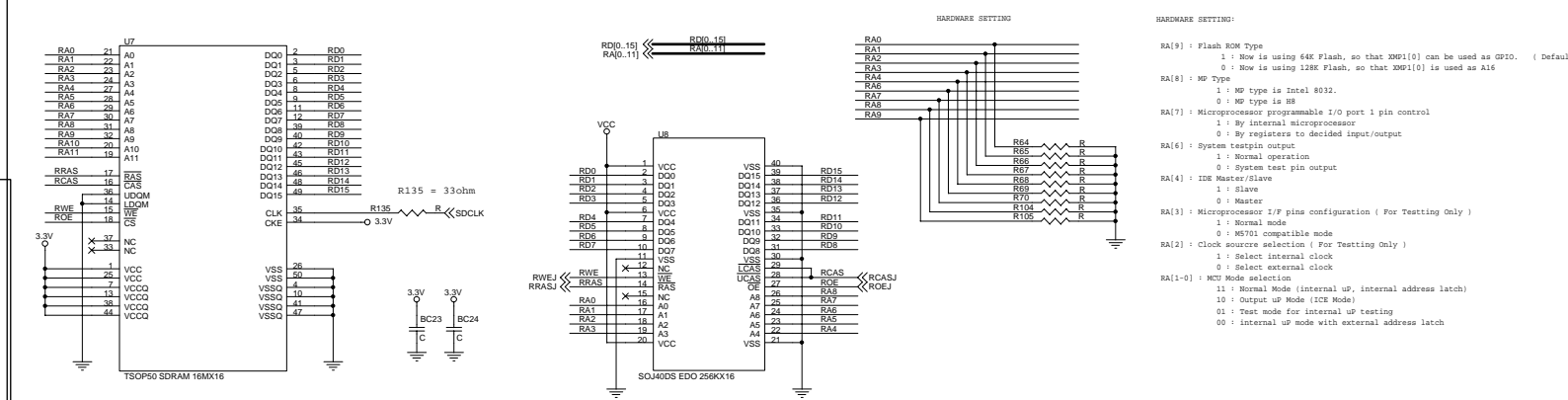
DRIVE.SCH

ROHM SPINDLE & SLED DRIVER



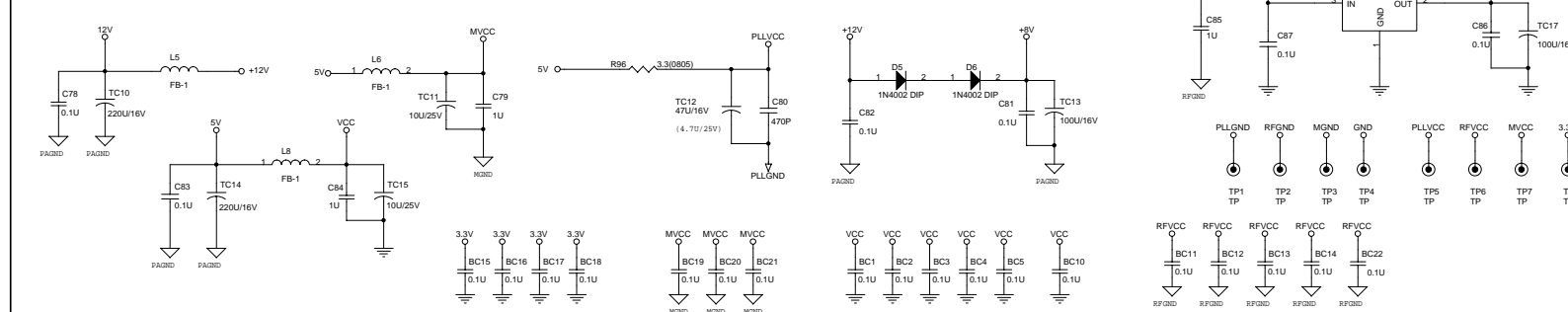
MEMORY.SCH

EDO RAM/SDRAM, H/W SETTING & REGION CODE



POWER.SCH

POWER MODULES



IDE.SCH

IDE INTERFACE

