

STRONG



Service Manual (SRT4375)

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1. Technical specifications

1.1. Conditional Access Interface

PCMCIA	2. Slot(type I or type II) DVB Common Interface Standard (Viaccess, Nagra Vision, Conax, Cryptoworks, Irdeto, ASTON)
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1.2. Tuner & Channel

<Digital Part>

Input Connector	F-type, IEC169-24, Female
Frequency Range	950MHz to 2150MHz
Input Impedance	75ohm unbalanced
Signal Level	-25 to -65dBm
IF Bandwidth	55MHz
LNB Power	Vertical: +13V Horizontal: +18V Current: Max, 400mA
Polarization	13V/18V or Skew Control
22kHz Tone	Frequency: 22±4kHz Amplitude: 0.6±0.2V
DiSEqC control	Version 1.0 Compatible
Demodulation	QPSK
Input Symbol Rate	2-45 Ms/s
FEC Decoder	Convolution Code Rate 1/2, 2/3, 3/4, 5/6, and 7/8 With Constraint Length K=7

<Analog Part>

Input Connector	F-type, IEC169-24, Female
Input Connector	2
Frequency Range	950MHz to 2150MHz
Input Impedance	75ohm unbalanced
Signal Level	-30 to -60dBm
IF Frequency	480MHz
IF Bandwidth	18/27MHz
LNB Power	Vertical: +13V Horizontal: +18V Current: Max, 400mA
Polarization	13V/18V or Skew Control
22kHz Tone	Frequency: 22±4kHz Amplitude: 0.6±0.2V
DiSEqC Control	Version 1.0 Compatible



1.3. System & Memory

Main Processor	L64108(LSI-LOGIC)
Flash Memort	1Mbyte
Program Dram	2Mbyte
EEPROM	8kbyte
Channel Memory (Total : 3500)	Digital Channel: 3000 Analog Channel: 500
Multi-Satellite	UP to 64
Multi-Language Menu	English/Spanish/French/Italian/German/Portuguese
Front	7 keys, 4-digit 7-segment display
Remote Controller	30-31 keys, IR Remote Control

1.4. MPEG Transport Stream & A/V Decoding

<Digital Part>

Transport Stream	MPEG-2 ISO/IEC 13818 Transport Stream Specification
Profile Level	MPEG-2 MP@ML
Input Rate	Max. 40Mbit/s
Aspect Ratio	4:3, 16:9
Frame Rate	25Hz for PAL, 30Hz for NTSC
Video Resolution	720x576(PAL), 720x480(NTSC)
Teletext	Through VBI
Audio Decoding	MPEG/MusiCam Layer I & II
Audio Mode	Single channel/Dual channel joint stereo/Stereo
Frequency Response	20~20kHz, <+/- 2dB 60Hz~18kHz <+/- 0.5dB
Sampling Rate	32, 44.1, 48kHz

<Analog Part>

Video Type	PAL/NTSC
Video Deemphasis	CCIR rec. 405/625
Audio Mode	Mono, Stereo
Audio Carrier Frequency	5.58~8.80MHz
Audio Demmphasis	50us/J17/Wagner Panda

1.5. A/V & Date In/Out

TV Scart Output	RGB, CVBS, L, R Output with Volume control
VCR Scart In/Out	CVBS, L, R In CVBS, L, R Out



AUX Scart In/Out	RGB, CVBS, L, R In CVBS, L, R Output
RCA Output	CVBS, L, R Output(Yellow, White, Red Hack) with Volume Control
0V/12V Output	RCA Jack Output(Black Jack), Max. 150mA
Data Interface	RS-232, Bit Rate: 115200baud Connector: 9-pin D-sub type

1.6. Positioner

Output Power	36V, 2A/5A max(10minute max, 50%)
Output Connector	6 Push Terminal (M1, M2, SEN, +5VDC, GND, SEN)
Sensor Type	Reed or Hall Effect Switch

1.7. RF-Modulator

RF-Connector	75w IEC169-2, Male/Female
Frequency	470MHz to 860MHz
Output Channel	CH 21-69 for the Demodulator
TV Standard	PAL B/G/I/D/K Selectable by Menu Setting
Audio Output	Mono with Volume Control
Preset Channel	CH 40 (or TBD). Soft ware changeable by Menu screen

1.8. Power Supply

Input Voltage	AC90 to 260V, 50Hz/60Hz
Type	PWM Regulator
Power Consumption	Max. 40W(without Positioner) Max. 240W(with 5A/36V Positioner)
Stand-by Power	<= 10W
Protection	Separate Internal Fuse The input shall have the lighting protection

1.9. Physical Specification

Size (WxHxD)	380x60x280mm Excluding the foot. Foot height is 10mm.
Weight	3.5Kg

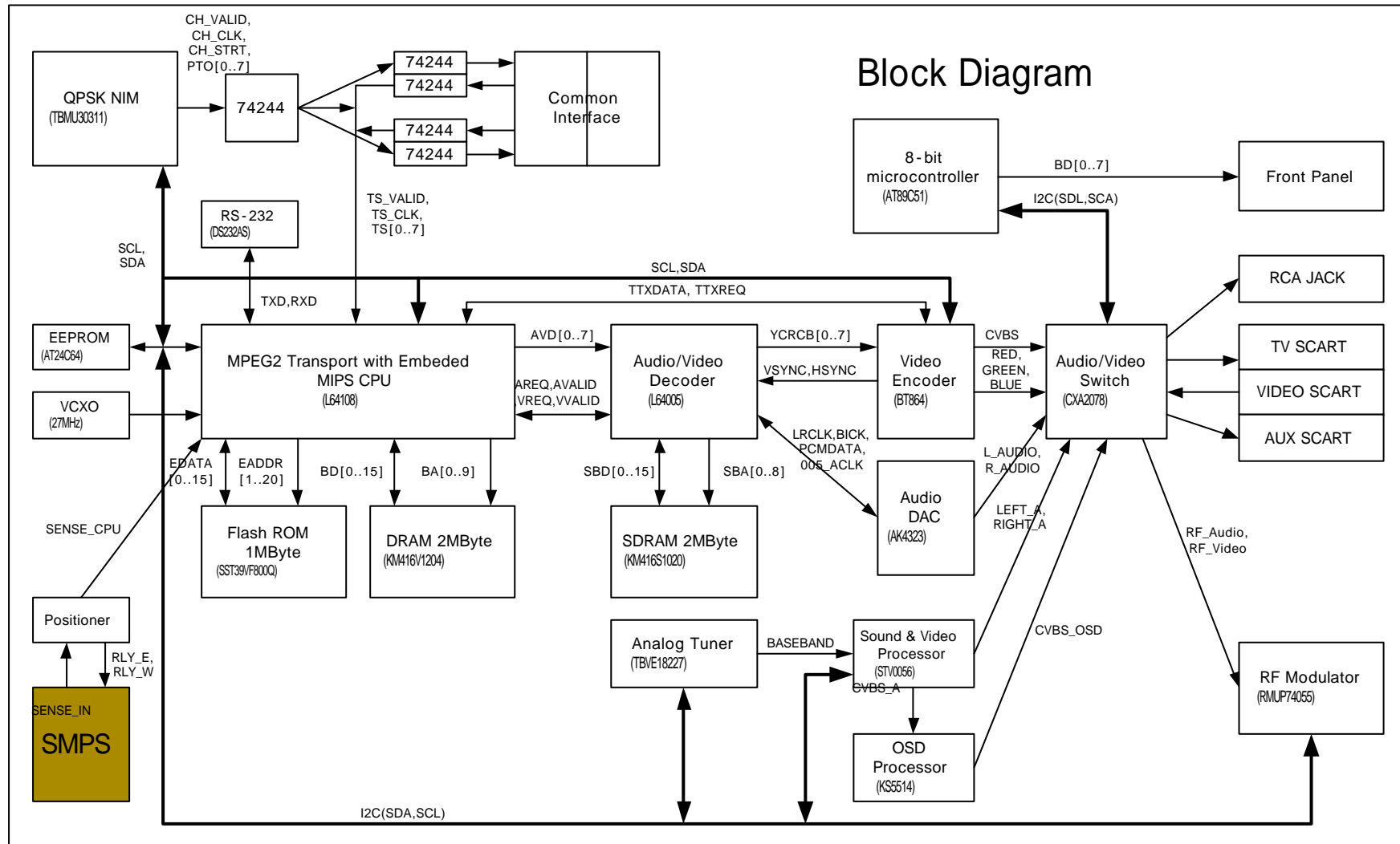


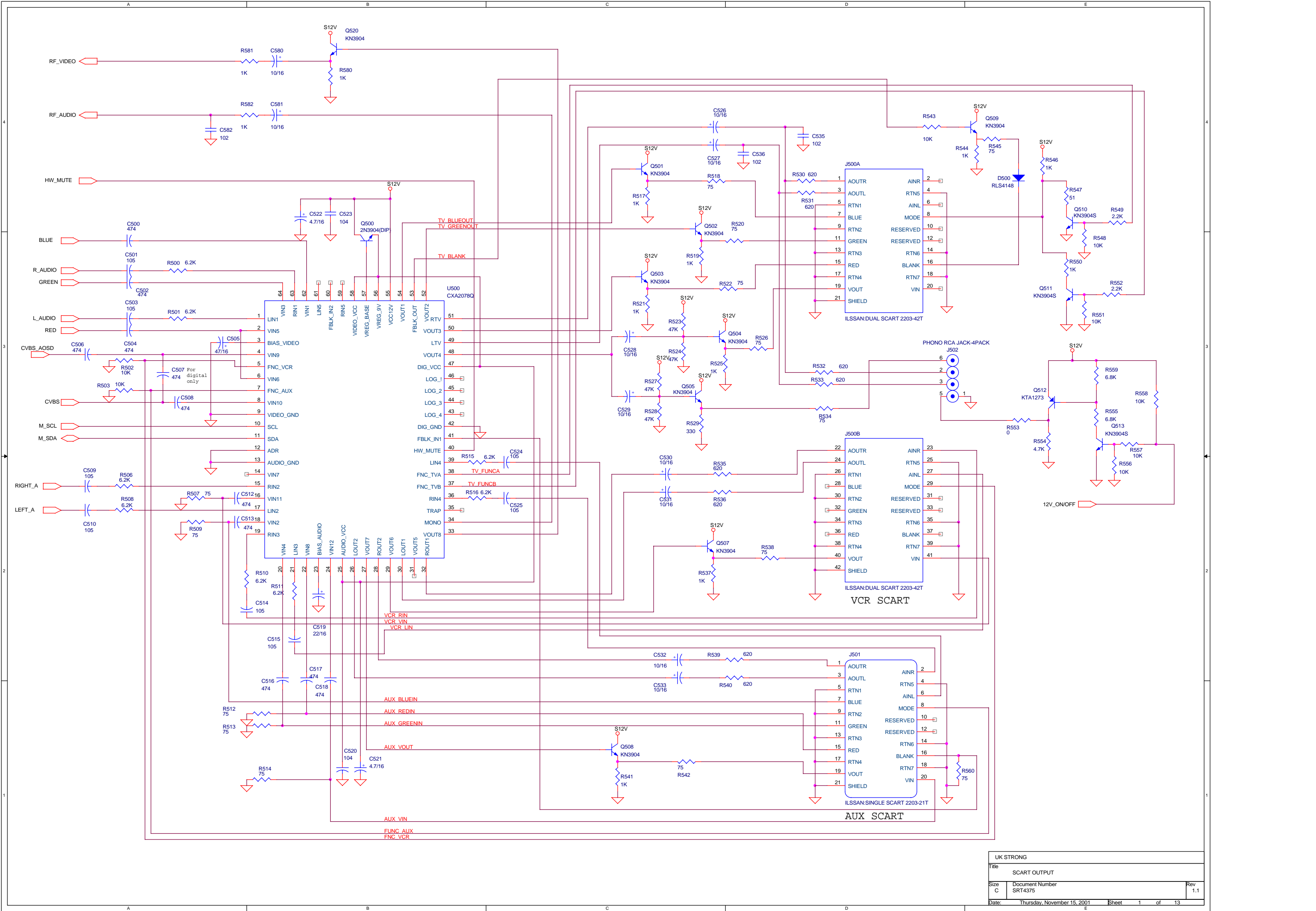
1.10. Environmental Condition

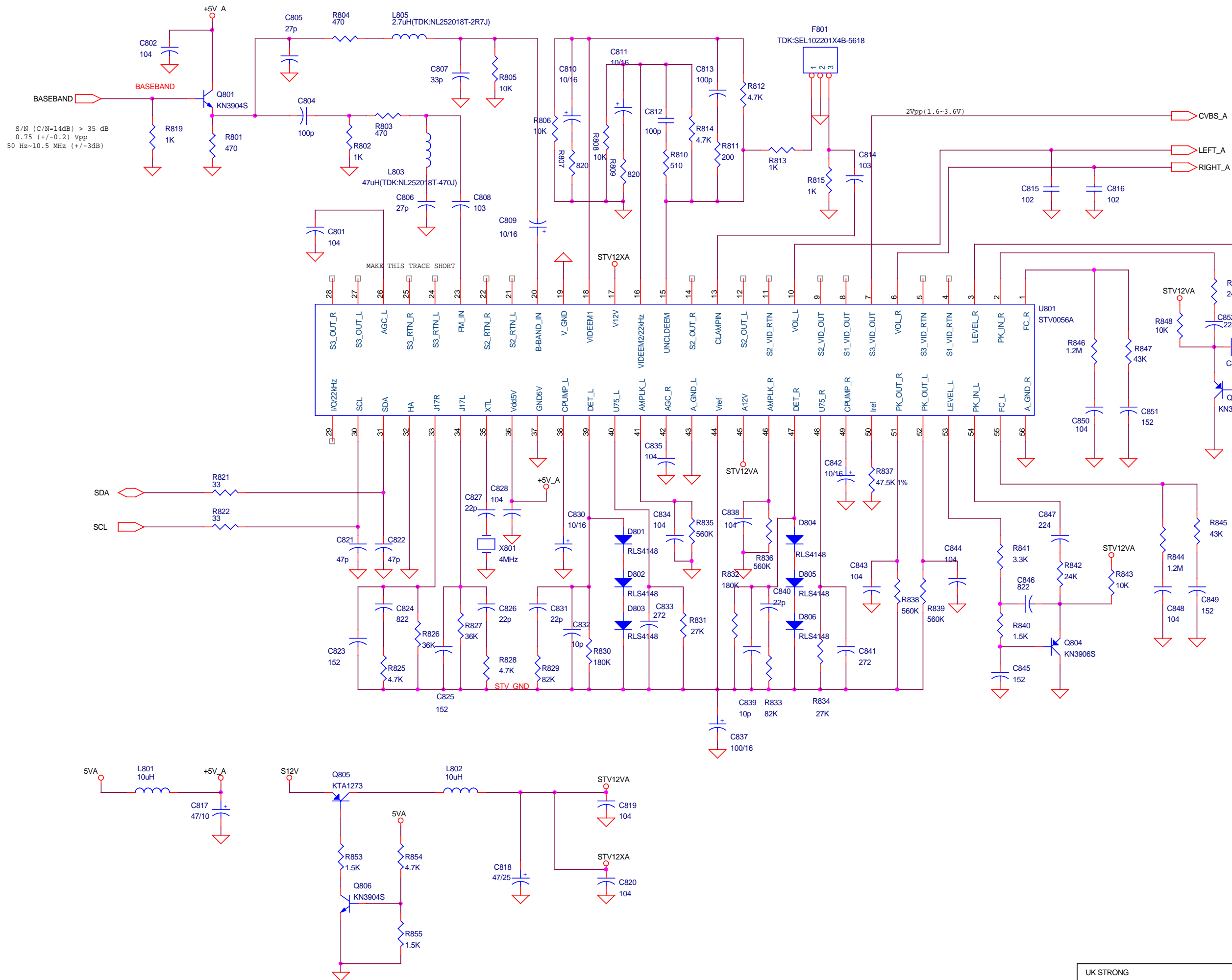
Operating Temperature	0~40C
Storage Temperature	-10C~+50C
Operating Humidity Range	10~85% RH, Non-condensing
Storage Humidity Range	5~90% RH, Non-condensing



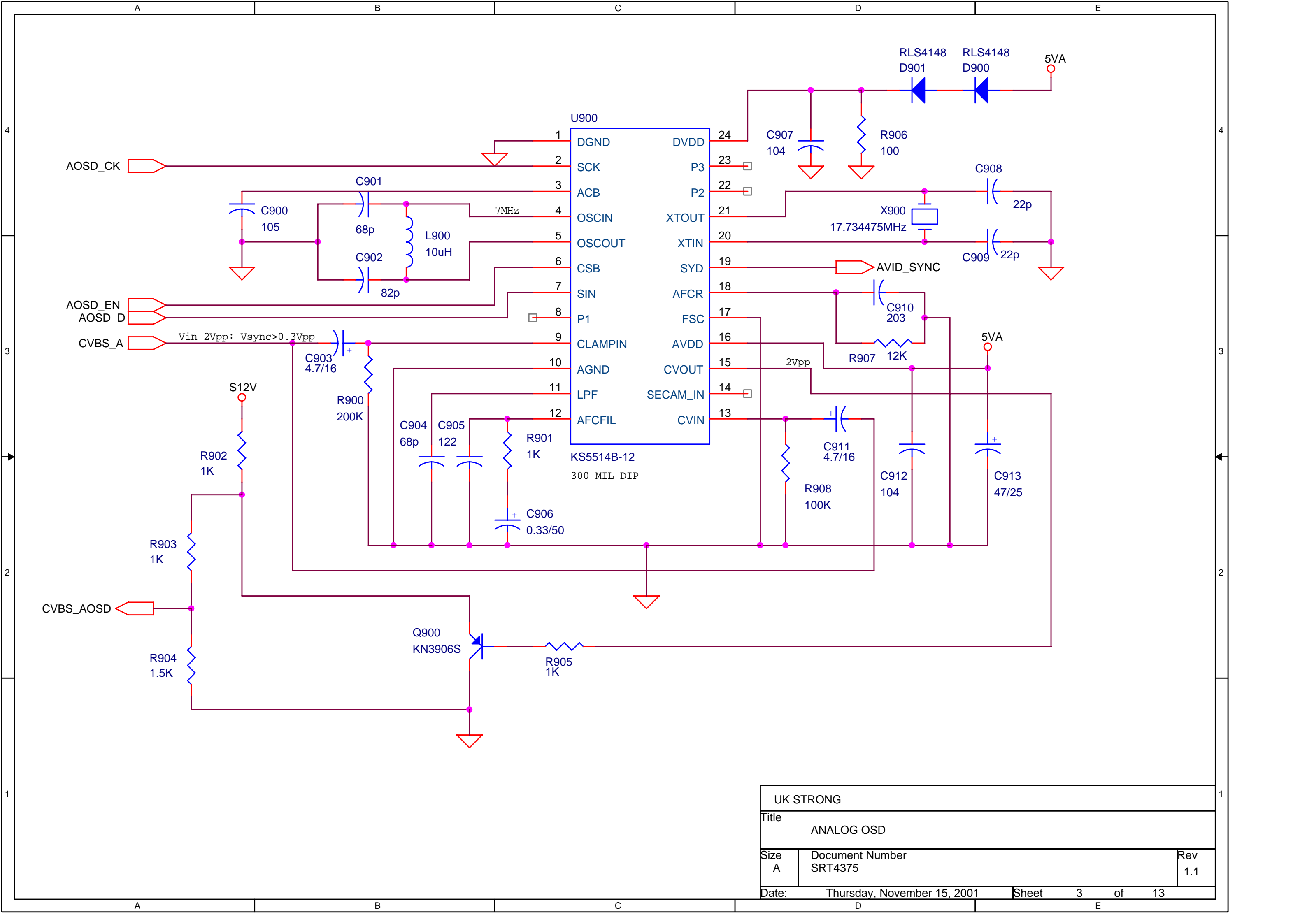
2. Block Diagram



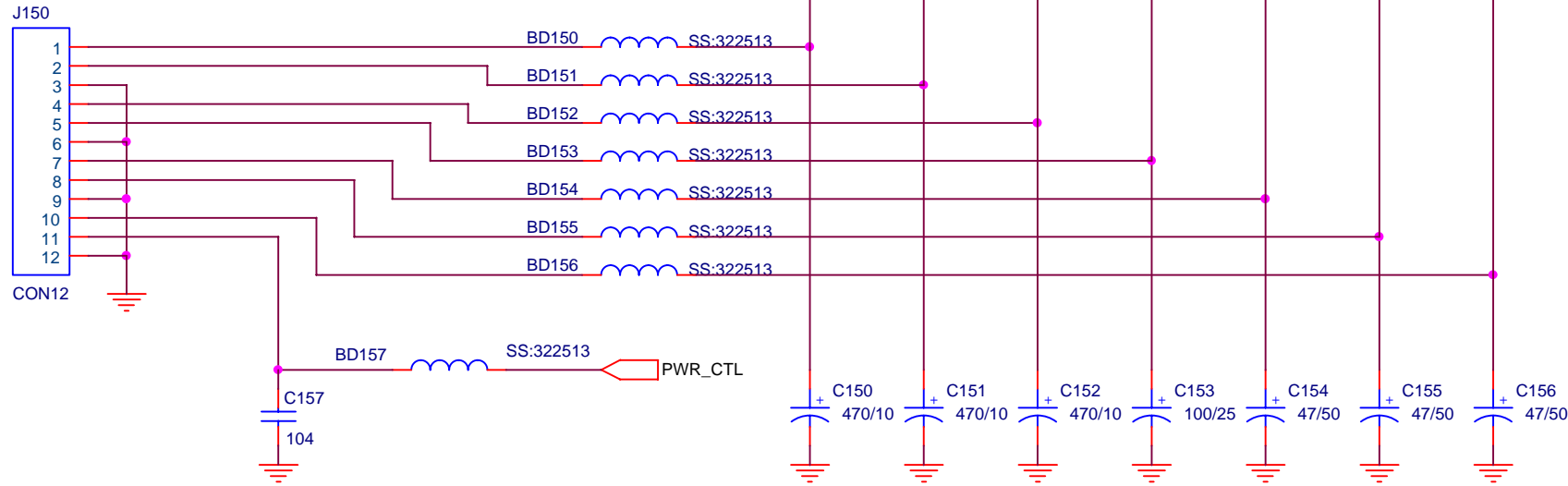




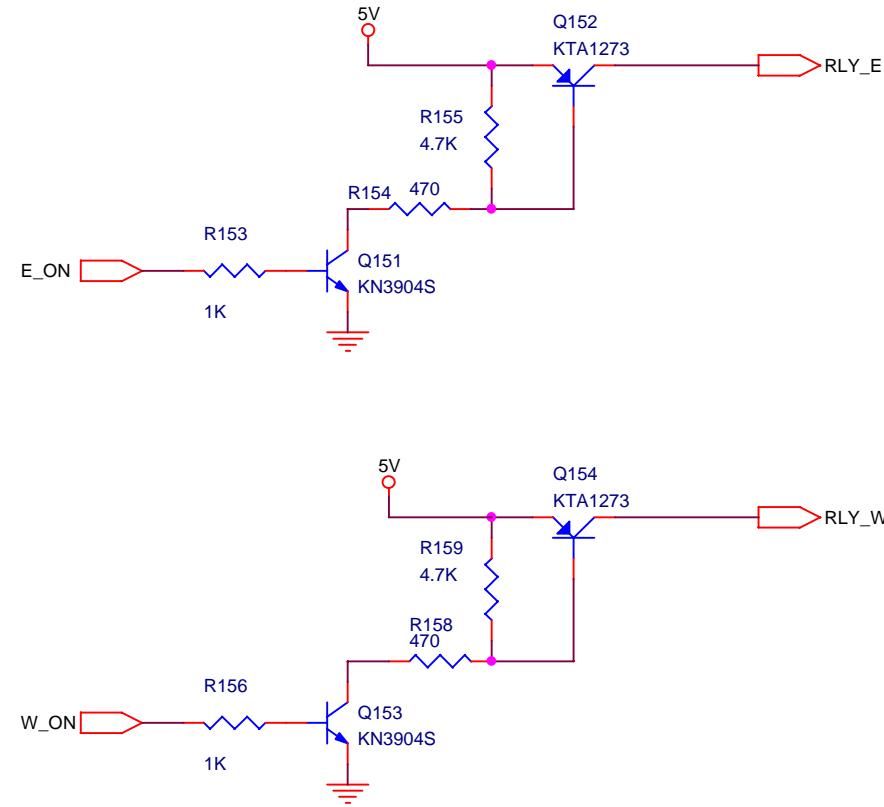
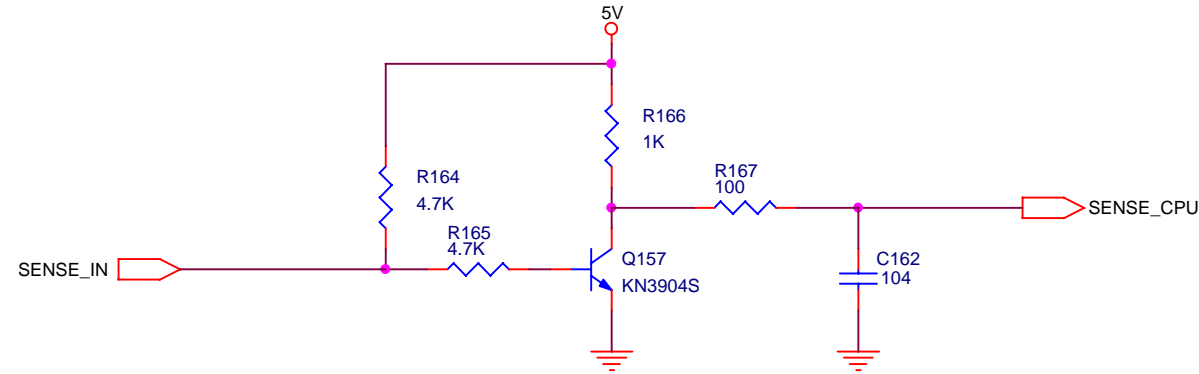
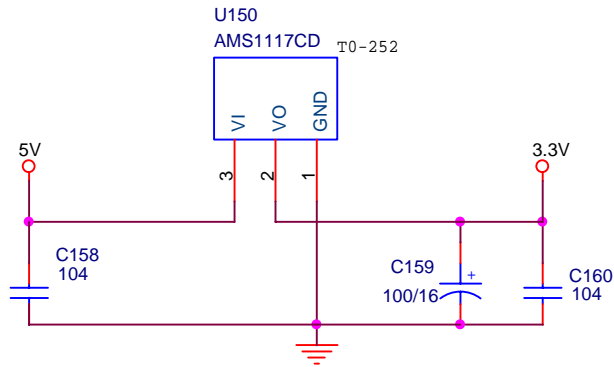
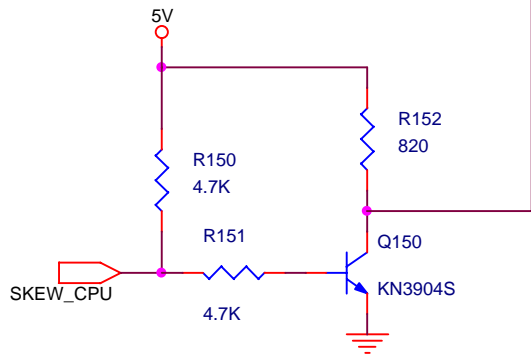
UK STRONG		
Title		ANALOG
Size	Document Number	Rev
Custom	SRT4375	1.1
Date: Monday, February 12, 2001		Sheet 2 of 13



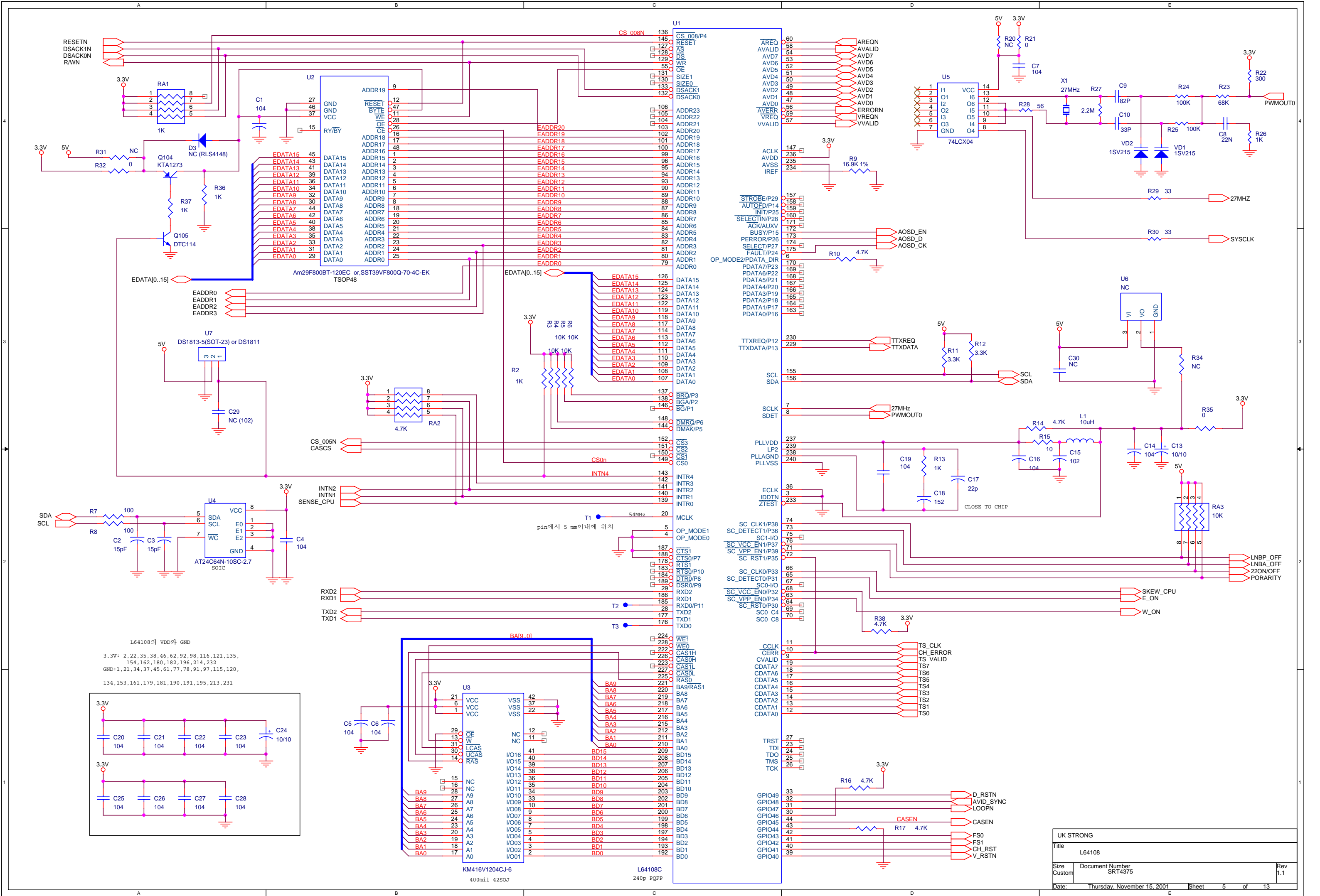
2.5MM PITCH

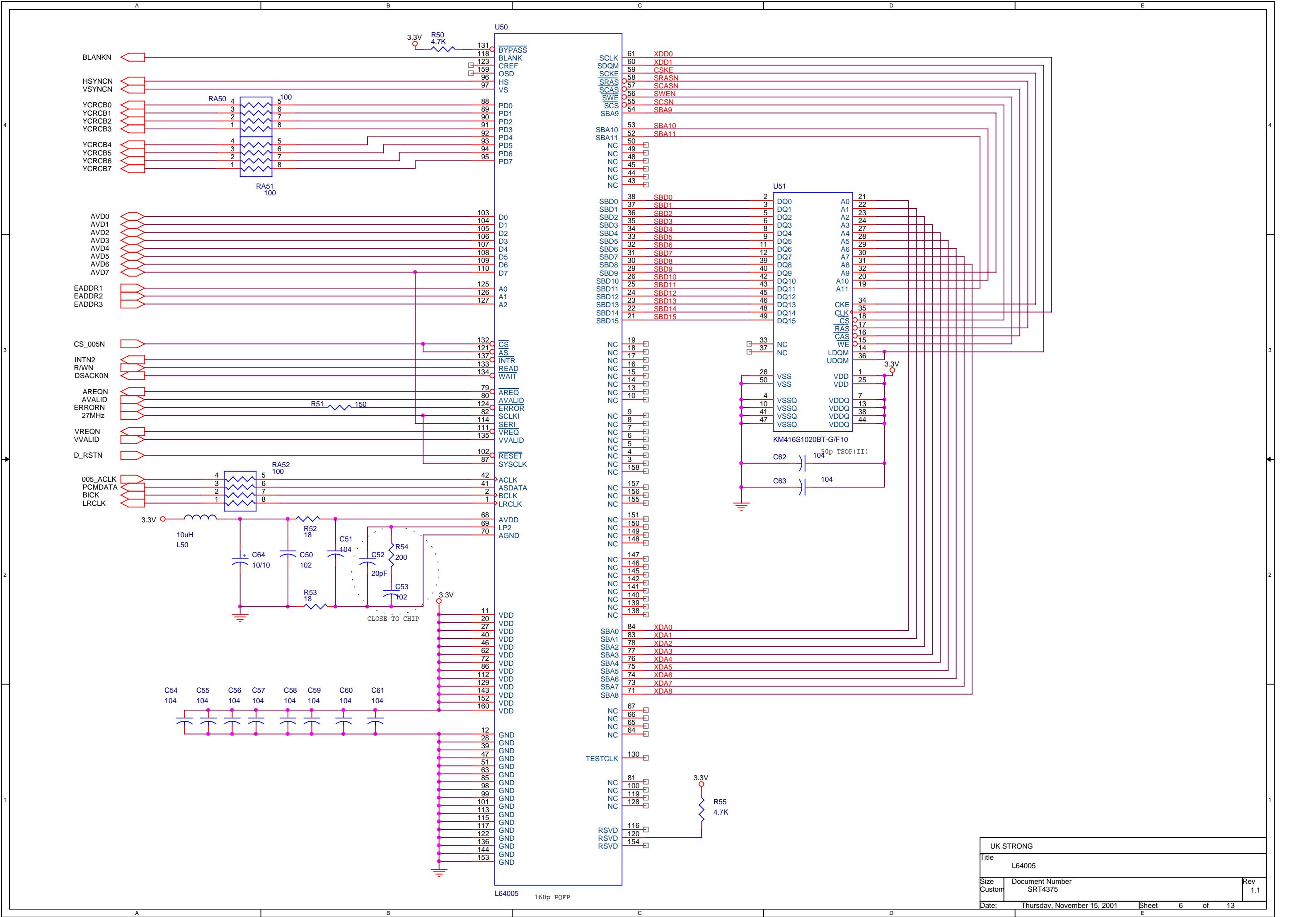


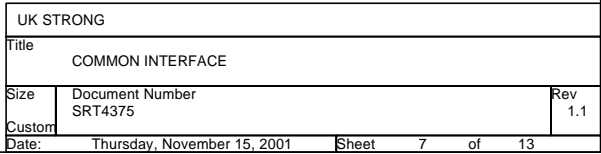
2.5MM PITCH

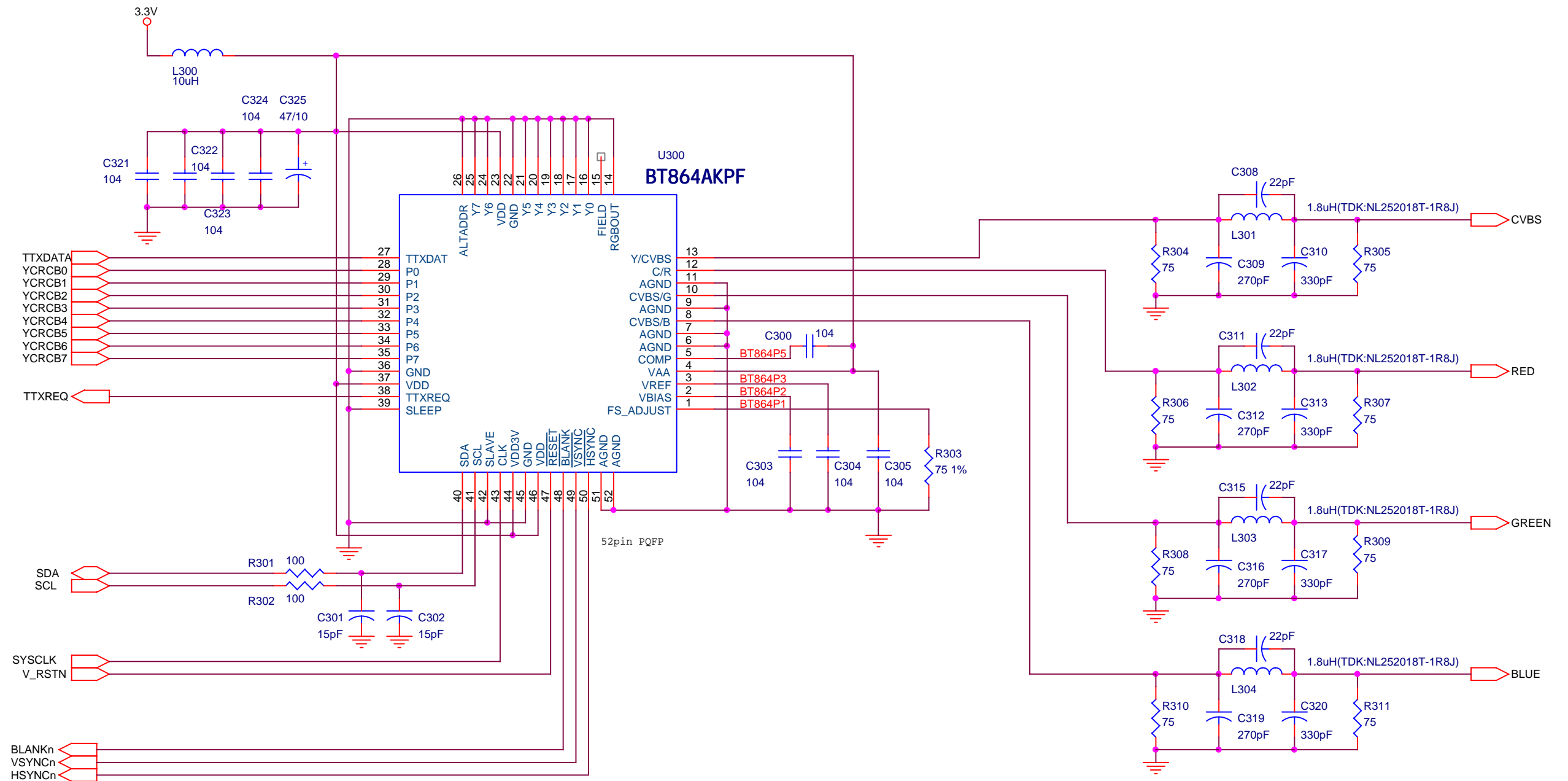


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Size	Document Number	Rev
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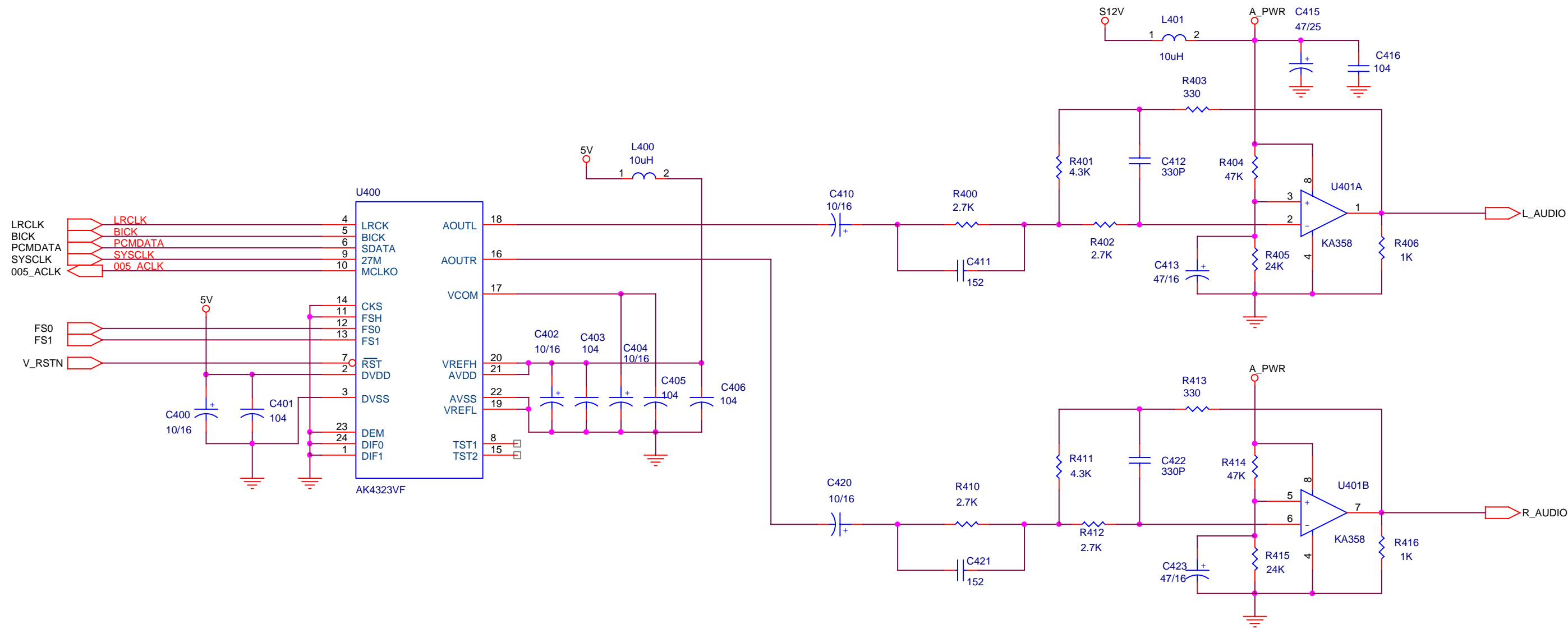




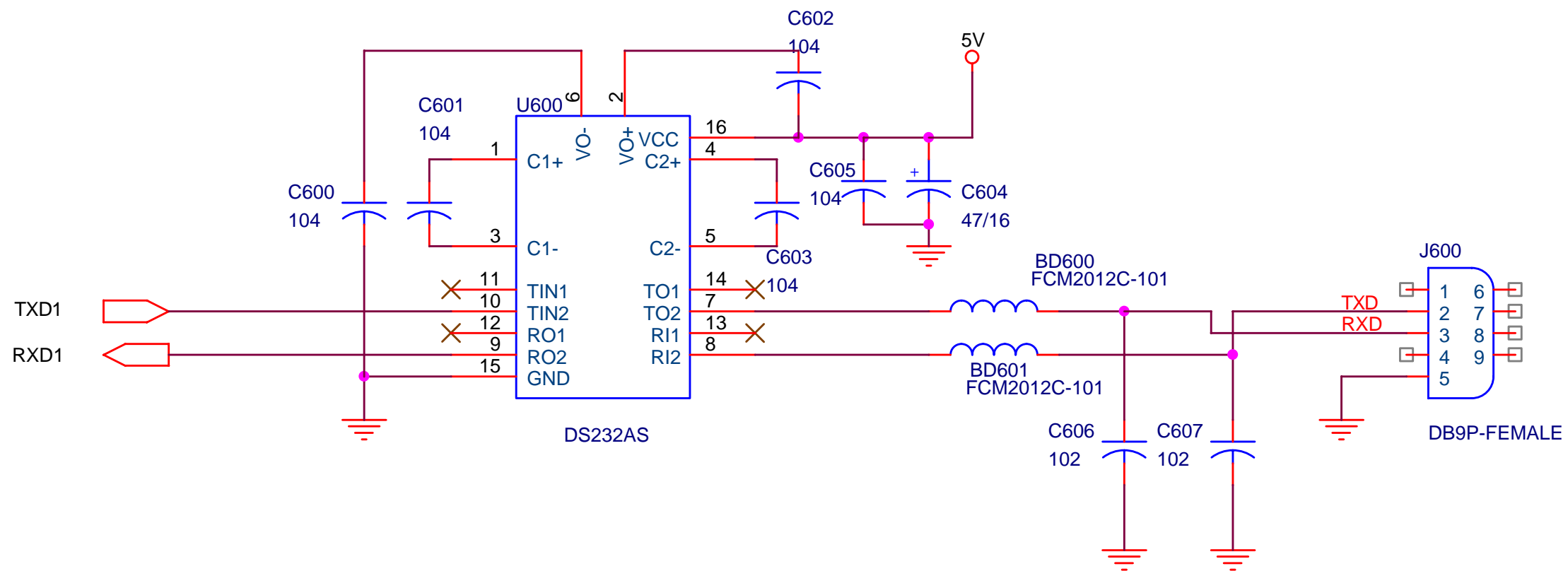




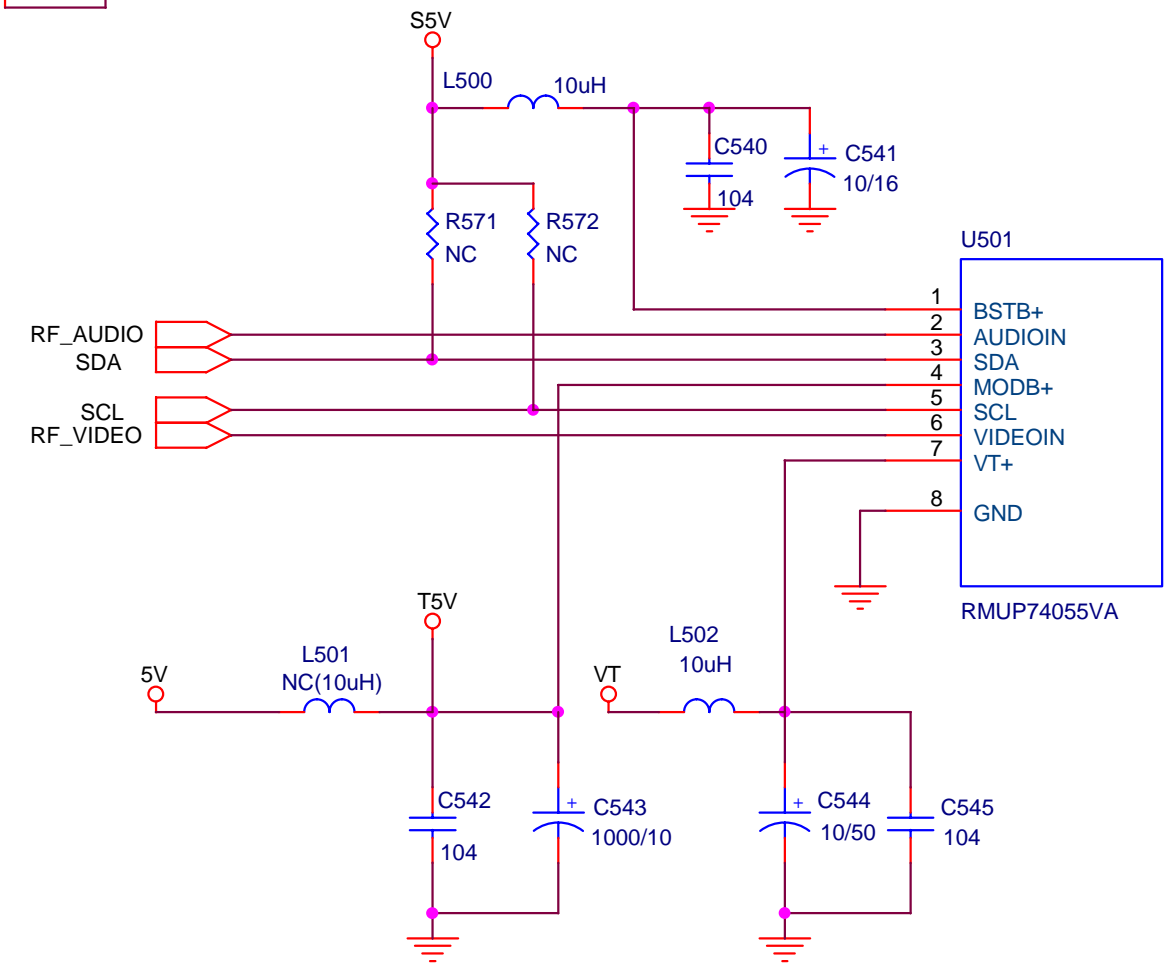
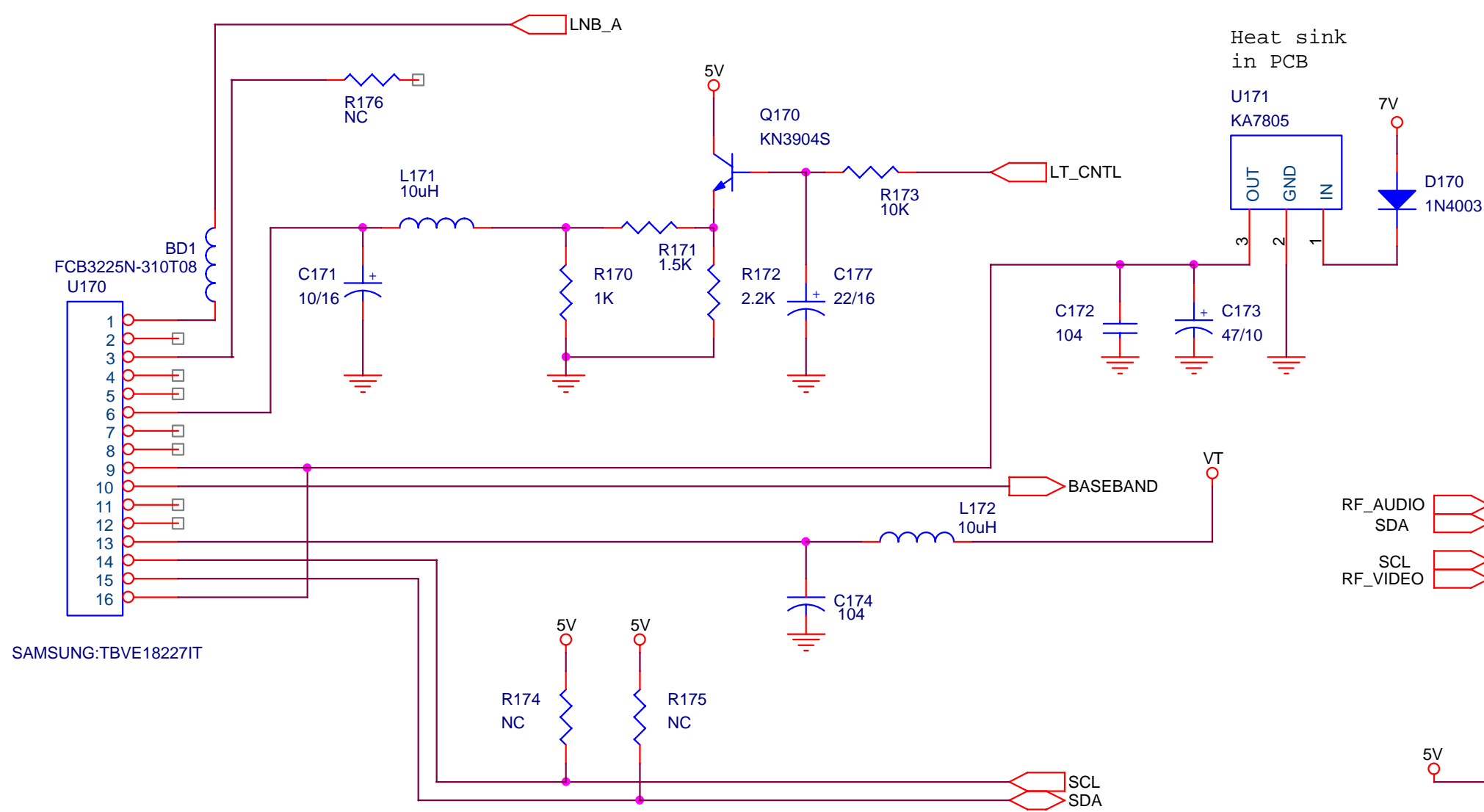
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Title		
VIDEO ENCODER		
Size	Document Number	Rev
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Date:	Monday, February 12, 2001	Sheet 8 of 13



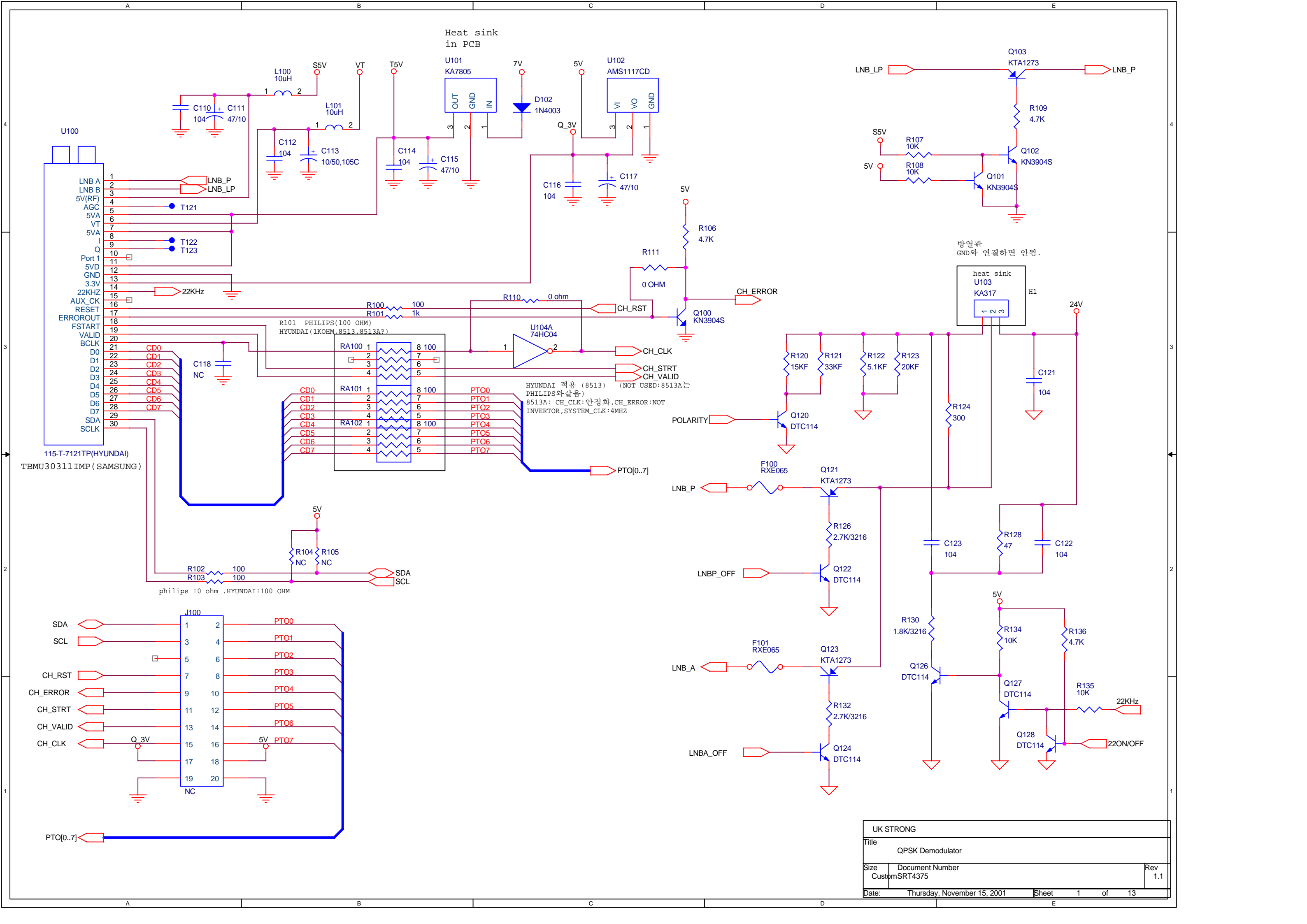
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AUDIO DAC		
Size	Document Number	Rev
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Date:	Thursday, November 15, 2001	Sheet 9 of 13

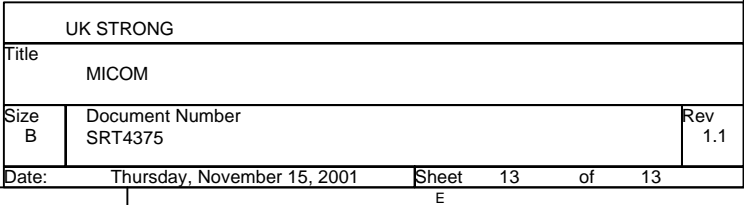


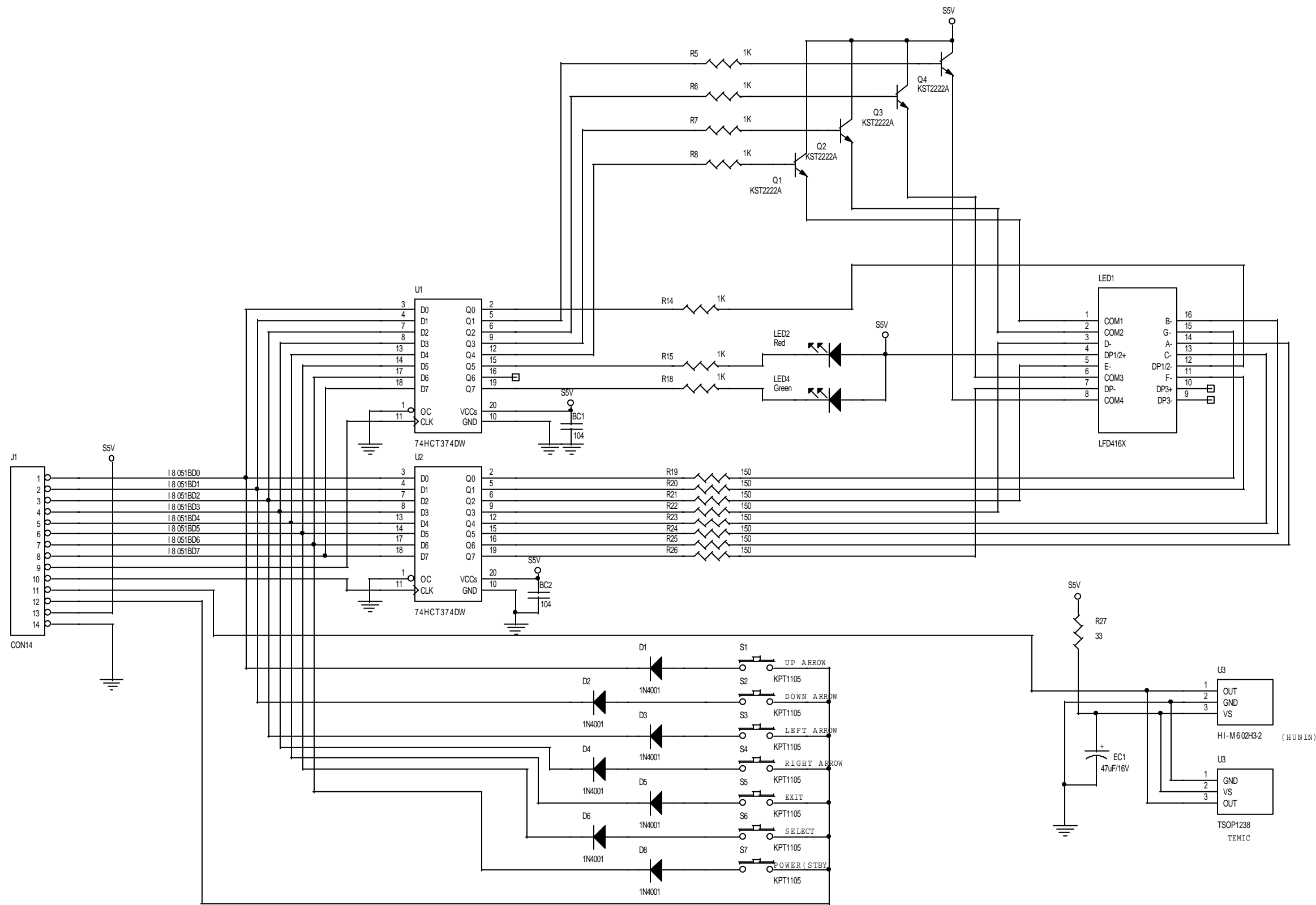
UK STRONG		
Title		
RS232C		
Size	Document Number	Rev
A	SRT4375	1.1
Date:	Monday, February 12, 2001	Sheet 10 of 13



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Title			
Tuner & Modulator			
Size	Document Number		Rev
Custom	SRT4375		1.1
Date:	Thursday, November 15, 2001		Sheet 1 of 13







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Title		
FRONT CIRCUIT		
Size	Document Number	Rev
B		1.1
Date:	Friday, July 27, 2001	Sheet 1 of 1



4. List of Error codes

E001: Tuner Error.

E002: EEPROM Error.

E003: RF Error.

E004: BT864 Error.

E005: L64005 Error.

E006: DRAM Error.

E007: STV0056 Error.

E008: ATuner Error.

5. Trouble Shooting

There may be various reasons for the abnormal operation of the receiver. Check the receiver according to the procedures shown below.

If the receiver does not work properly after checking it, please contact the dealer. Don't open the receiver cover. It may cause a dangerous situation.

5.1. trouble shooting

Symptom	Cause	Remedy
The display on front Panel does not light up.	The power cord is Not plugged in	Check that the power cord Is plugged in to the wall outlet.
No picture or sound.	Wrong connection of The Audio/Video output Of the receiver to TV. Audio muting. TV power off.	Connect the Audio/Video Output of the receiver to TV correctly Press the MUTE button. Turn TV on.
No picture.	The receiver can't Receive the signal. Incorrect values of some Tuner parameters. Wrong direction of the dish	Check the antenna cable, Replace the cable, or connect The cable to the receiver tightly. Set the values of tuner Parameters correctly in System set-up menu. Check the signal strength With a spectrum analyzer and Adjust your dish correctly.



The remote controller Does not working.	The batteries of the Remote controller are Not inserted or Exhausted.	Check whether the batteries Are inserted correctly in your Remote controller. Check the batteries, and if Exhausted, replace the Batteries of the remote Controller.
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5.2. Check point about badness STB

5.2.1. When nothing appears on TV screen(front panel display "0000")

(1) Check the SMPS' s voltage

- Power Connect(J150) -> pin1, pin 2, pin 4 : 4.75~5.25V
- Power Connect(J150) -> pin5 : 10.2~12.6V
- Power Connect(J150) -> pin7 : 21V~24V
- Power Connect(J150) -> pin8 : 27V ~ 33V
- Power Connect(J150) -> pin10 : 7.5~8.5V

Action) : If voltage is not normalcy, it change, and measure again SMPS first. Still, SMPS is normalcy if voltage is low. There are possibility that is badness with parts that use the voltage in Main Board.

(2) Confirm that R32' s voltage becomes 3.3V

Action) : If 3.3V is not normalcy in R32, if more than 100 ohm comes when measured resistance value between R32 and GND after do AC POWER OFF normalcy . On this time, change U150(3.3V REGULATOR).

(3) Confirm by Oscilloscope whether 27 MHz break out in R29 and R33.

Action) : if 27Mhz do not break out, X1(27Mhz CRYSTAL), or U5(74LCX04) change .

(4) ROM Read cycle(Pulse) should be happened continuously through Oscilloscope at Power off/on in pin 26 of U2(39vf800A Flash ROM).

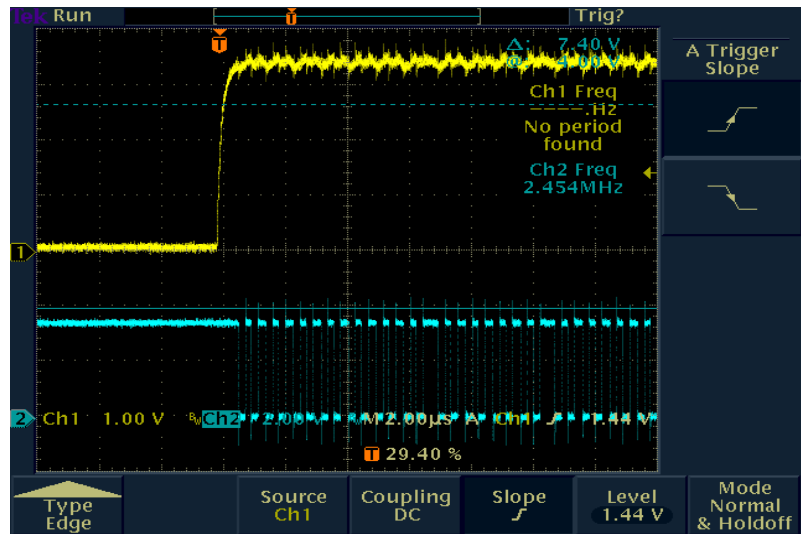
(If U2's pin 26 is 3.3V by Voltage Meter, it is normalcy)

Action) : if U2-pin26 is measured (0V ~ 2V) by Voltage Meter, U2(39VF800A FLASH ROM) change, still, change U1(L64108 CPU) if do not act.

(5) Flash-Rom of Start Control Signal uses reset, chip-Select

RESET --→
Check Point : U2(12pin)

CE --→
Check Pint : U2(26 pin)



Action) : If the flash-Rom(U2) not operation. , must be Checking chip-select pin from L64108. Replacement of part is required. Because Reset and Chip-Select signal is not Booting.
Also , Checking soldering or Chip is consider flash-rom and CPU
Where are replace of component Part, and Check the insertion of part

(6) Confirm that Message is displayed when interlink STB and PC by RS232 CABLE and did Power off/on

Execute Hyper terminal in PC and do together Setup with next time

Baud Rate: 115,200bps.

Data bit:8 bit

Parity bit :none

Stop bit :1

Control: none

1) When Message is not displayed:

1. Do AC Power put on in state that click Menu and Select key simultaneously after AC power put off, (method by boot mode Booting) Still, if any message is not displayed, it changes U2(39VF800A flash ROM)



2. if "starting boot" message is displayed, Do Download again by suitable Firmware to model.
3. Do STB Power off/on after Download is completed.
4. If screen is displayed, it does FACTORY RESET necessarily.

2) When Message is displayed:

(Message can be different according to Firmware Version)

```
Set ACLK <32000>
PHILIPS TDA8044 connected
IT520S SET-TOP BOX MONITOR v1.10 BY INTEGRA TELECOM
Nov 02 2000,23:35:35, http: www.integra.co.kr
>size of sysconfig=140
flash pattern(ffff)
flash pattern(ffff)
flash pattern(ffff)
PHILIPS TDA8044 connected
Enable AV Interrupts
launch OSD
launch OSD 3
Set ACLK <3>
launch OSD 4
launch OSD 4.5
launch OSD 5
intr EN end[D:0][AV:3c00]
RegValue23=3
AVO:OSD Initialized
AV decoder and OSD initialized
```

1. When " I2C ERROR " , " EEPROM ERROR " , " TUNER CONNECT FAIL " message happens After AC POWER OFF, measuring resistance between U1's pin 156 and GND, pin 155 and GND, if it is measured (20ohm ~ 0 ohm), L64108 (CPU) must change.
2. When "EEPROM ERROR" Message happens
U4 : EEPROM(24C64) change



3. When “Tuner connect Fail” Message happens
If POWER supplied to Tuner is normalcy, Tuner must change.
4. When “ FLUSH DRAM ” Message happens
U50(L64005) and U51(KM416S1020) Re-soldering do, and
change U50(L64005) if is happened again.
5. Normal Message as being displayed, change MICOM if TV screen
does not come

5.2.2. When “NO SIGNAL” message appears

(1) U103:(KA317(Regulator)) -> pin 3 : 21V~24V

U103:(KA317(Regulator))-> pin 2 : 13V /18V

If confirm that voltage is measured and is not measured, U103 change

Action) : When U103's(KA317) input voltage is low, do you change SMPS,
do U103 Voltage Line check in SMPS if change SMPS and is
low.

(2) Measure by Voltage Meter(Oscilloscope) whether VERTICAL(13Volt) or
HORIZONTAL(18Volt), 22KHz(ON/OFF) is displayed normally measuring
voltage of F100's Lead(or Tuner LNB OUT PORT) when do SCAN
satellite in INSTALL MENU.
(LNB supply voltage check)

(3) When LNB voltage(13V/18V) is not displayed, it changes Q121(TR:kta1273) if
13V/18V is displayed measuring Q121's(TR:kta1273) Emitter monad by
Voltage Meter and measure whether 13V/18V is displayed in F100(Poly
Switch)

Action) : If mania is happened to F100 or Q121 after shift Tuner shift

(4) Voltage measurement supplied to TUNER

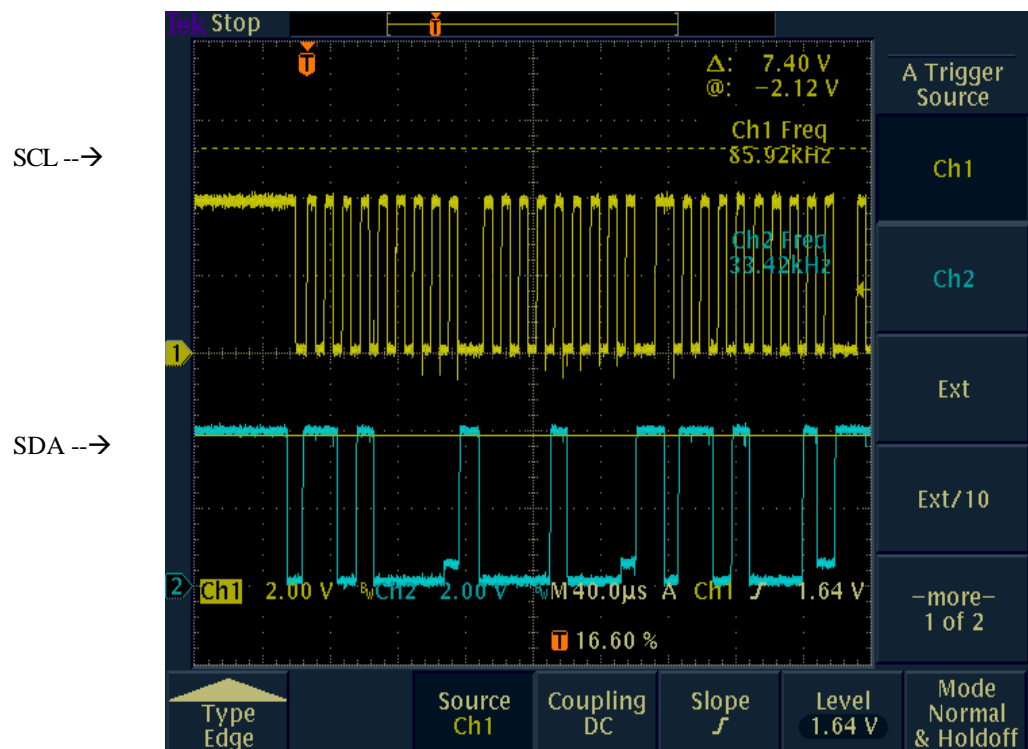
1. L100(Coil) : about 5V,
L101(Coil): about 28V ,
U101(Regulator)-Pin 3 : about 5V
U102(Regulator)-PIN 2, (C117(+))Elect Cap) : 3.3V
Action) : If voltage is normalcy TUNER change .

2. U101(Regulator)-Pin3 : 3V~ 0V

Action) : If it is 100 ohm lows, doing AC POWER OFF and measure
U101's(Regulator) 3Pin and resistance between GND,
Tuner change

(5) Check I2C Control Signal

Action) : if Voltage is drop SCL as well as SDA. “ No Signal ” message will
be Display at TV Screen. therefore each of part check have to
SCL with SDA of Voltage 3.2 ~3.5V. Check the install chip-position
and short of solder, cold solder, etc. Where are replace of
component Part, Check the insertion of part



(6) Changing SMPS test

(7) Try scan again after Factory reset



Action) : Do U2(39VF800A Flash ROM) and U1(L64108 CPU) Re-solder if “Wait to Reset setting” Message comes continually when did Factory Reset. Still, change U2(39VF800A Flash ROM) if do not become.

5.2.3. POSITIONER fail

(1) hen do to act AUTO LIMMIT in POSITIONER MENU SMPS side RELAY both that act confirm

Action) : If RELAY in SMPS acts both, MAIN board side circuit is normalcy and most change SMPS

(2) Change SMPS and try TEST

(3) Do L64108 re-soldering .

(4) Do L64108 change .

5.2.4. “CI CARD INITIALIZING NOW...” Message becomes Display continually on screen and when Menu transfer is slow Firmware again Download do .

5.2.5. When do not act whether FRONT 7-SEGMENT(DISPLAY) acts strangely

(7) Change FRONT PANEL

(8) Change MICOM(U700) (AT89C51)

U700 : Confirm by SCOPE whether 11.0592 MHzs break out in pin 19

(9) Confirm by SCOPE whether 11.0592 MHzs break out in U700-pin 18, 19

5.2.6. When VIDEO screen gets into Scratch occurrence

(1) If scratch is happened on Video screen and Audio noise or stop phenomenon is happened Tuner change .

(2) Audio is normalcy and if scratch is happened Video screen U50 : (L64005) U51 : (km416S1020 sdram) change

(3) When Video Color is badness, U300 : (BT864) change.

(4) After Power ON, when that stop screen phenomenon happens U400 : (AKM4323) change

(5) Video Filter from Bt864A (Digital Video Encoder)

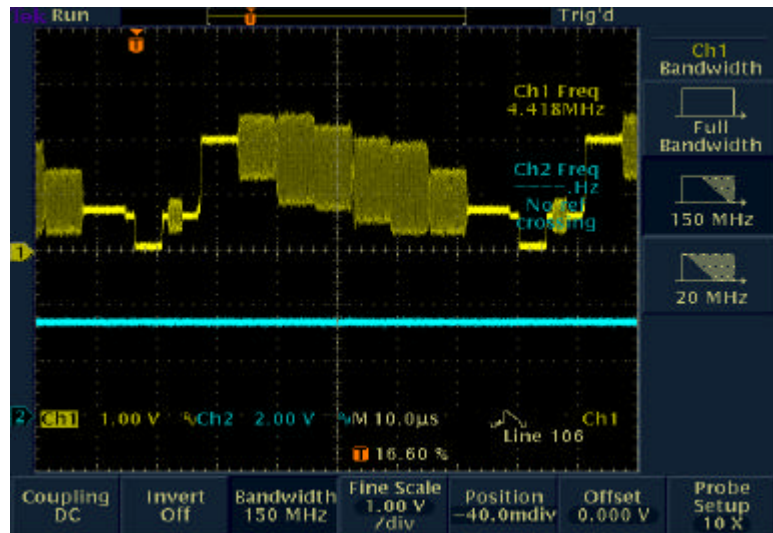
Action) : If the Color signal is not operation. Shoud be Checking 43pin(SYSCLK) 27Mhz Of U300 and VCC(3.3V) if you have

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checking, If No problem. Check the install chip-poistion and short of solder, cold solder, etc. Where are replace of component Part, Check the insertion of part

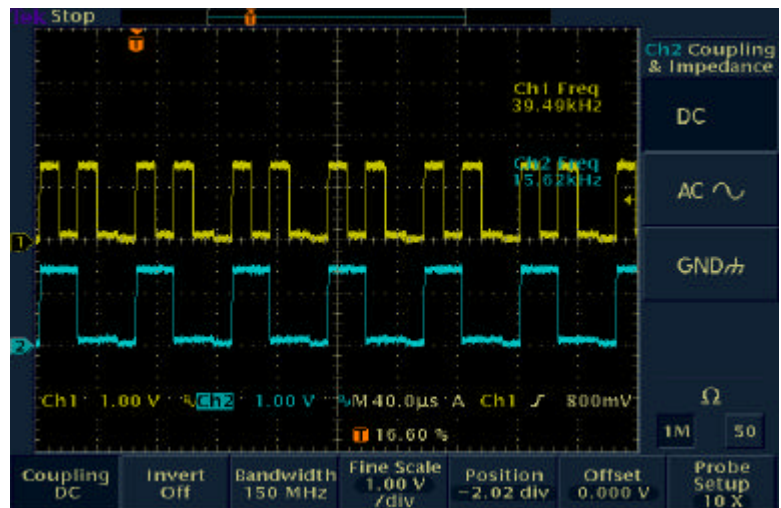
CVBS -->

(LOW active) RESET -->

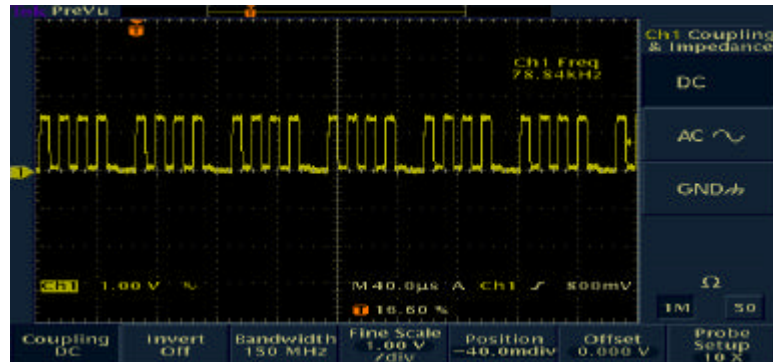


RED -->

GREEN -->



BLUE -->



6. Materials list

6.1 Main PCB materials list

Item	Quantity	Reference	Part Number	VENDOR
1	1	PCB main	ST640V5 VER 5.0	
2	9	BD150,BD151,BD152,BD153, BD154,BD155,BD156,BD157 BD1	SMB403025	TAI-Tech
2	2	BD600,BD601	FCM2012C-101	TAI-Tech
4	93	C1,C4,C5,C6,C7,C14,C16, C19,C20,C21,C22,C23,C25, C26,C27,C28,C51,C54,C55, C56,C57,C58,C59,C60,C61, C62,C63,C110,C112, C114,C116,C157,C158,C160, C162,C172,C174,C200,C201, C204,C205,C206,C207,C208, C209,C210,C211,C212,C213, C214,C215,C216,C300,C303, C304,C305,C321,C322,C323, C324,C401,C403,C405,C406, C416,C520,C523,C540,C542, C545,C600,C601,C602,C603, C605,C701,C801,C802,C819, C820,C828,C834,C835,C838, C843,C844,C848,C850,C907, C912,C121,C122,C123	CS2012Y5V104Z500NR	SAMWHA
5	4	C2,C3,C301,C302	CS2012COG150J500NR	SAMWHA
6	1	C8	CS2012X7R223K500NR	SAMWHA
7	2	C902,C9	CS2012COG820J250NR	SAMWHA
8	2	C10,C807	CS2012C0G330J500NR	SAMWHA
9	11	C15,C29,C50,C53,C535, C536,C582,C815,C606,C607	CS2012C0G102J500NR	SAMWHA

10	11	C816 C17,C826,C827,C831,C840, C308,C311,C315,C318 C908,C909	CS2012C0G220J500NR	SAMWHA
11	9	C18,C411,C421,C823,C825, C845,C849,C851,C854	CS2012X7R152K500NR	SAMWHA
12	1	C52	CS2012C0G200J500NR	SAMWHA
13	2	C703,C702	CS2012C0G180J500NR	SAMWHA
14	2	C821,C822	CS2012COG470J500NR	SAMWHA
15	4	C309,C312,C316,C319	CS2012COG271J500NR	SAMWHA
16	6	C310,C313,C317,C320 C422,C412	CS2012COG331J500NR	SAMWHA
17	10	C500,C502,C504,C506, C508,C512,C513,C516,C517, C518	CS2012Y5V474Z160NR	SAMWHA
18	9	C501,C503,C509,C510,C514, C515,C524,C525,C900	CS2012Y5V105Z160NR	SAMWHA
19	2	C808,C814	CS2021X7R103K500NR	SAMWHA
20	2	C806,C805	CS2012C0G270J500NR	SAMWHA
21	3	C804,C812,C813	CS2012C0G101J500NR	SAMWHA
22	3	C824,C846,C853	CS2012X7R822K500NR	SAMWHA
23	2	C832,C839	CS2012C0G100J500NR	SAMWHA
24	2	C833,C841	CS2012X7R272K500NR	SAMWHA
25	2	C847,C852	CS2012Y5V224Z250NR	SAMWHA
26	2	C901,C904	CS2012COG680J500NR	SAMWHA
27	1	C905	CS2012X7R122K500NR	SAMWHA
28	1	C910	CS2012X7R203K500NR	SAMWHA
29	10	D500,D700,D801,D802,D803, D804,D805,D806,D900,D901	RLS4148	Rohm
30	14	L1,L50,L100,L101,L171, L172,L300,L400,L401,L500, L502,L801,L802,L900	FCI2012-100K	TAI-Tech
31	4	L301,L302,L303,L304	FCI2012-1R8K	TAI-Tech
32	1	L803	NL252018T-470J	TDK
33	1	L805	FCI2012-2R7K	TAI-Tech
34	21	Q101,Q102, Q150,Q151,Q153,Q157, Q170,Q510,Q511,Q513,Q801, Q501,Q502,Q503,Q504, Q505,Q507,Q508,Q509,Q520 Q806	KST3904-MTF	SAMSUNG
35	3	Q802,Q804,Q900	KST3906-MTF	SAMSUNG
36	7	Q120,Q122,Q124,Q126,Q127, Q128,Q105	DTC114EKA	ROHM
37	1	RA1	CN 164 102 JT	HAN RYUK
38	7	RA2,RA200,RA201,RA202,RA203 RA700,RA701	CN 164 472 JT	HAN RYUK
39	1	RA3	CN 164 103 JT	HAN RYUK

40	8	RA50,RA51,RA52,RA100,RA101 RA102,RA204,RA205	CN 164 101 JT	HAN RYUK
41	34	R2,R13,R26,R36,R37, R153,R156,R166,R170, R200,R207,R208,R406,R416, R517,R519,R521,R525,R537, R541,R544,R546,R550,R580, R581,R582,R802,R813,R815, R819,R901,R902,R903,R905	CR 1/10 102 JT	HAN RYUK
42	41	R10,R14,R16,R17,R50, R55,R106,R109,R136 R150,R151,R155,R159, R164,R165,R201,R202,R554 R203,R204,R205,R206,R209, R210,R211,R212,R215,R216, R704,R707,R812,R814,R825, R828,R854,R703,R708 R710,R711,R712,R38	CR 1/10 472 JT	HAN RYUK
43	25	R3,R4,R5,R6,R107, R108,R173,R502,R503,R543, R548,R551,R556,R557,R558, R701,R702,R705,R805,R806, R808,R843,R848,R134,R135	CR 1/10 103 JT	HAN RYUK
44	10	R7,R8,R100,R101,R167 R223,R224,R301,R302,R906	CR 1/10 101 JT	HAN RYUK
45	1	R9	CR 1/10 1692 FT	HAN RYUK
46	4	R11,R12,R841,R849	CR 1/10 332 JT	HAN RYUK
47	1	R15	CR 1/10 100 JT	HAN RYUK
48	10	R21,R32,R35,R111 R221,R222,R553,R110,R102,R103	CR 1/10 000JT	HAN RYUK
49	1	R23	CR 1/10 683JT	HAN RYUK
50	3	R24,R25,R908	CR 1/10 104 JT	HAN RYUK
51	1	R27	CR 1/10 225 JT	HAN RYUK
52	1	R28	CR 1/10 560 JT	HAN RYUK
53	1	R51	CR 1/10 151 JT	HAN RYUK
54	2	R53,R52	CR 1/10 180 JT	HAN RYUK
55	2	R811,R54	CR 1/10 201 JT	HAN RYUK
56	7	R154,R158,R801,R803,R804 R39,R40	CR 1/10 471 JT	HAN RYUK
57	6	R171,R840,R850,R853,R855, R904	CR 1/10 152 JT	HAN RYUK
58	3	R172,R549,R552	CR 1/10 222 JT	HAN RYUK
59	10	R303 R304,R305,R306,R307,R308, R309,R310,R311,R560	CR 1/10 750 FT	HAN RYUK
60	4	R400,R402,R410, R412	CR 1/10 272 JT	HAN RYUK
61	3	R403,R413,R529	CR 1/10 331 JT	HAN RYUK

62	6	R404,R414,R523,R524,R527, R528	CR 1/10 473 JT	HAN RYUK
63	4	R405,R415,R842,R851	CR 1/10 243 JT	HAN RYUK
64	8	R500,R501,R506,R508,R510, R511,R515,R516	CR 1/10 622 JT	HAN RYUK
65	13	R507,R509,R512,R513,R514, R518,R520,R522,R526,R534, R538,R542,R545	CR 1/10 750 JT	HAN RYUK
66	8	R530,R531,R532,R533,R535, R536,R539,R540	CR 1/10 621 JT	HAN RYUK
67	1	R547	CR 1/10 510 JT	HAN RYUK
68	2	R555,R559	CR 1/10 682 JT	HAN RYUK
69	3	R807,R809,R152	CR 1/10 821 JT	HAN RYUK
70	1	R810	CR 1/10 511 JT	HAN RYUK
71	2	R401,R411	CR 1/10 432 JT	HAN RYUK
72	4	R822,R821,R29,R30	CR 1/10 330 JT	HAN RYUK
73	2	R826,R827	CR 1/10 363 JT	HAN RYUK
74	2	R833,R829	CR 1/10 823 JT	HAN RYUK
75	2	R832,R830	CR 1/10 184 JT	HAN RYUK
76	2	R831,R834	CR 1/10 273 JT	HAN RYUK
77	4	R835,R836,R838,R839	CR 1/10 564 JT	HAN RYUK
78	1	R837	CR 1/10 4752 FT	HAN RYUK
79	2	R844,R846	CR 1/10 125 JT	HAN RYUK
80	2	R845,R847	CR 1/10 433 JT	HAN RYUK
81	1	R900	CR 1/10 204 JT	HAN RYUK
82	1	R907	CR 1/10 123 JT	HAN RYUK
83	1	R120	CR 1/10 153 FT	HAN RYUK
84	1	R121	CR 1/10 333FT	HAN RYUK
85	1	R122	CR 1/10 512FT	HAN RYUK
86	1	R123	CR 1/10 203FT	HAN RYUK
87	2	R124,R22	CR 1/10 301JT	HAN RYUK
88	1	R128	CR 1/10 470JT	HAN RYUK
89	2	R126,R132	CR 1/8 272JT	HAN RYUK
90	1	R130	CR 1/8 182JT	HAN RYUK
91	1	U1	L64108-54 _ 65041A1	LSI logic
92	1	U2	SST39VF800A -90-4C-EK	SST
93	1	U3	KM416V1204CJ-6	SAMSUNG
94	1	U4	AT24C64N-10SC-2.7	ATMEL
95	1	U5	74LCX04M	Fairchild
96	1	U7	DS1811-10	Dallas
97	1	U50	L64005F	LSI logic
98	1	U51	KM416S1020CT -G10	SAMSUNG
99	2	U150,U102	AMS1117CD-3.3	AMS
100	1	U200	MM74HCT245SJ	Fairchild
101	10	U201,U202,U205,U206,U207, U208,U209,U210,U211,U212	MM74HCT244SJ	Fairchild
102	1	U300	BT864AKPF	Rockwell
103	1	U400	AK4323-V F	AKM



104	1	U401	KA358D	Fairchild
105	1	U500	CXA2078Q	Sony
106	1	U600	DS232AR SOIC -16	ST
107	2	VD1,VD2	1SV215	Toshiba

Item	Quantity	Reference	Part Number	VENDOR
1	1	C906	RSS/TA -0.33/50-5*11*5	DAEWOO
2	13	C111,C115,C117 C413,C423,C505,C604 C415,C818,C913 C173,C325,C817	RSS/TA -47/25-5*11*5	DAEWOO
3	3	C154,C155,C156	RSS/TA -47/50-6.3*11*5	DAEWOO
4	4	C521,C522,C903,C911	RSS/TA -4.7/50-5*11*5	DAEWOO
5	27	C13,C24,C64,C700,C705 C171,C400,C402,C404,C410, C420,C526,C527,C528,C529, C530,C531,C532,C533,C541, C580,C581,C809,C810,C811, C830,C842	RSM/TA -10/25-5*7*5	DAEWOO
6	2	C113,C544	RSS/TA -10/50-5*11*5	DAEWOO
7	3	C150,C151,C152	RSS/TA -470/10-8*11.5*5	DAEWOO
8	2	C837,C159	RSS/TA -100/16-6.3*11*5	DAEWOO
9	1	C153	RSS/TA -100/25-6.3*11*5	DAEWOO
10	2	C202,C203	RSS/TA -1/50-5*11*5	DAEWOO
11	2	C519,C177	RSM/TA -22/16-5*7*5	DAEWOO
12	1	C543	RSS/TS -1000/10-10*16*5	DAEWOO
13	2	D102,D170	1N4004	PHILIP
14	1	Q500	2N3904	SAMSUNG
15	10	Q103,Q104,Q152,Q154,Q121,Q123 Q200,Q201,Q512,Q805	KTA1273Y	KEC
16	1	F801	SEL5618	TDK
17	2	F100,F101	RXE065	MANSUNG
18	1	J150	5267-12	Molex
19	1	J151	5267-05	Molex
20	1	J500	2203-42ST (-A- Type)	ILSSAN
21	1	J501	2202-21ST(B)	ILSSAN
22	1	J502	JS0401315N	DAE RYUNG
23	1	J600	3302-09S-AFS-0	ILSSAN
24	1	J700	14pin socket	molex
25	1	P200,P201	P1T2B1393	OTAX
26	1	U100	TBMU 30311 IMP	SAMSUNG
27	1	U103	KA -317T	Fairchild
28	1	H1	Extrusion TYPE C	INSUNG
29	2	U171,U101	KA7805	Fairchild
30	1	U170	TBVE18227IT	SSEM
31	1	U501	HSM-3052MPV	HANSE

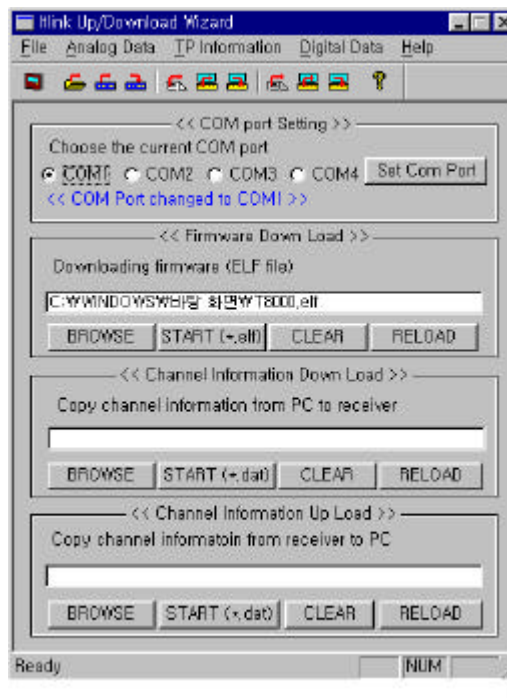
32	2	U204,U203	PALCE22V10H-25PC/4	AMD
33	2	U204,U203 socket	4000-24SD-3	ILSSAN
34	1	U700	AT89C51-16PI	ATMEL
35	1	U700 socket	4000-40SD6-1	ILSSAN
36	1	U801	STV0056A	ST
37	1	U900	KS5514B-12	SAMSUNG
38	1	X1(27MHz X-tal)	HC-49/U 17	Kony
39	1	X700(11.0592MHz X-tal)	11.0592MHz(crytal)	SHINYOUNG
40	1	X801(4MHz X-tal)	4MHz	SHINYOUNG
41	1	X900(17.734475MHz X-tal)	17.734475MHz	SHINYOUNG
42	1	TT2, BIN(+)*WTH 3*6 (BLACK) T		
43	1	SMPS -P -108P0	SMPS ; POSITIONER	
44	1	KKJ650	AC POWER CORD	
45	1	RG-59 RF CABLE, 75ohm	CABLE-LOOP	

6.2 Front PCB materials list

Item	Quantity	Reference	Part Number	Vendor
1	2	BC1,BC2	CR051BX7R104Z500R	SAMWHA
2	7	D1,D2,D3,D4,D5,D6,D8	1N4001	PHILIPS
3	1	J1	14162020(core) 160mm	MOLEX
4	1	FOUR DIGIT LED DISPLAY	LFD4162-10/SP8	LIGITEK
5	1	FOUR DIGIT LED support	support : 10mm	
6	1	LED2	LH3330	LIGITEK
7	1	LED3	LG3330	LIGITEK
8	2	LED support	support : 7mm	
9	4	Q1,Q2,Q3,Q4	2N2222A	SAMSUNG
10	7	R5,R6,R7,R8,R14,R15,R18	RNL 1/6 102 JT -52	HAN RYUK
11	8	R19,R20,R21,R22,R23,R24, R25,R26	RNL 1/6 151 JT -52	HAN RYUK
12	1	R27	RNL 1/6 330 JT -52	HAN RYUK
13	7	S1,S2,S3,S4,S5,S6,S7	KPT-1115A	KYUNG IN
14	1	EC1	RSS/TS 25-47 5*11 2.5	DAEWOO
15	2	U1,U2	74HCT374N	TI,ST,LG
16	1	U3	HI-M602H3-2	HEONIN
17	1	U3 support	support : 10mm	
18	1	front PCB	ST640F -R2 VER:2.0	

7. Software download instructions(OTA and PC download)

7.1 Program Download



Firmware download

You can download firmware to receiver

- Press “BROWE” button to select firmware (ELF) to downloading.
- After selecting firmware, you can start downloading by pressing “START” button.
- You can see progressing bar while downloading
- The receiver will automatically restart when downloading is finished.

Channel Information upload

You can save channel information of receiver to PC file by using this function

- You have to select a file to save in PC by pressing “BROWSE” button.
- Press “START” button to start uploading

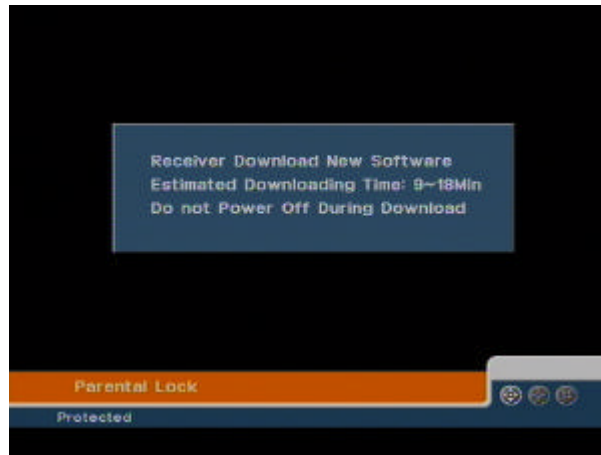
Channel Information download

You can download channel information saved above to receiver

- You have to select a file to download to receiver by pressing “BROWSE” button.
- Press “START” button to start downloading

7.2 System Upgrade

If there is a new version of software available for your receiver, you are able to download it automatically via the satellite signal of ASTRA 19.2 East.



1. Please wait while your receiver is checking if your software version is the newest one available.
2. If you already have the newest version nothing will happen, and you can leave the menu. When you need the newest version software, the receiver will automatically download that version from the satellite signal. After the download is finished, your screen will turn green for a few seconds while the receiver is re-booting.

When the screen is back is to normal, you can leave the menu.

Tips : Do not turn off your receiver while you are downloading new software.

Be sure that your receiver is connected to the satellite signal of ASTRA 19.2 East.

8. Specification of required cables for software download

