



LCD TV
Service Manual

MODEL: LCT-32KX1ESTP

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IMPORTANT SAFETY PRECAUTION

Electricity is used to perform many useful functions, but it can also cause personal injuries and property damage if improperly handled. This product has been engineered and manufactured with the highest priority on safety. However, improper use can result in electric shock and/or fire. In order to prevent potential danger, please observe the following instructions when installing, operating and cleaning the product. To ensure your safety and prolong the service life of your LCD colour TV product, please read the following precautions carefully before using the product.

1. Read instructions—All operating instructions must be read and understood before the product is operated.
2. Keep this manual in a safe place—These safety and operating instructions must be kept in a safe place for future reference.
3. Observe warnings—All warnings on the product and in the instructions must be observed closely.
4. Follow instructions—All operating instructions must be followed.
5. Attachments—Do not use attachments not recommended by the manufacturer. Use of inadequate attachments can result in accidents.
6. Power source—This product must operate on a power source specified on the specification label. If you are not sure of the type of power supply used in your home, consult your dealer or local power company.
7. AC cord protection—The AC cords must be routed properly to prevent people from stepping on them or objects from resting on them. Check the cords at the plugs and product.
8. Overloading—Do not overload AC outlets or extension cords. Overloading can cause fire or electric shock.
9. Entering of objects and liquids—Never insert an object into the product through vents or openings. High voltage flows in the product, and inserting an object can cause electric shock and/or short internal parts. For the same reason, do not spill water or liquid on the product.
10. Servicing—Do not attempt to service the product yourself. Removing covers can expose you to high voltage and other dangerous conditions. Request a qualified service person to perform servicing.
11. Repair—If any of the following conditions occurs, unplug the AC cord from the AC outlet, and request a qualified service person to perform repairs.
 - a. When the AC cord or plug is damaged.
 - b. When a liquid was spilled on the product or when objects have fallen into the product.
 - c. When the product has been exposed to rain or water.
 - d. When the product does not operate properly as described in the operating instructions.
Do not touch the controls other than those described in the operating instructions. Improper adjustment of controls not described in the instructions can cause damage, which often requires extensive adjustment work by a qualified technician.
 - e. When the product has been dropped or damaged.
 - f. When the product displays an abnormal condition. Any noticeable abnormality in the product indicates that the product needs servicing.
12. Replacement parts—In case the product needs replacement parts, make sure that the service person uses replacement parts specified by the manufacturer, or those with the same characteristics and performance as the original parts. Use of unauthorized parts can result in fire, electric shock and/or other danger.
13. Safety checks—Upon completion of service or repair work, request the service technician to perform safety checks to ensure that the product is in proper operating condition.
14. Wall or ceiling mounting—When mounting the product on a wall or ceiling, be sure to install the product according to the method recommended by the manufacturer.

SPECIFICATION

Category				Dimension		
Panel	LCD	Type		LCD Panel		
		Vendor		LG, Samsung AUO, Sharp, CMO		
		Aspect Ratio		16:9		
		Refresh Rate		50Hz, 60Hz		
		Supported Pixel Rate		1366 x 768		
		Interface		LVDS		
Signals Supported	TV	PAL / SECAM	Analog	PAL		
				Sound System :B/G, D/K, I		
				SECAM		
				Sound System :B/G, D/K, L/L'		
	Component 1			480i / 576i, 480p / 576p, 720p, 1080i		
	CVBS; S-VIDEO			NTSC-4.43; NTSC-3.58;SECAM;PAL; PAL-60		
	Analog RGB (PC)	H. Frequency Range		20 ~ 72kHz		
		V. Frequency Range		55 ~ 75kHz		
		MAX. Resolution		1366 x 768 @ 60Hz		
		MAX. Pixel Rate		108MHz		
		DTV mode Support		480p, 720p, 1080i		
		Separate / Composite / SPG sync support				
	HDMI (DVI)	VIDEO		Max Pixel input : 1920 x 1080i		
		AUDIO		Sample rate up to 192 kHz		
		Data Protection		HDCP v 1.1		
		DVI		Applicable when using DVI to HDMI cable		
	DVI Sound In	Stereo audio-in jack Audio Stereo Input (sharing with PC audio				
	Connections	INPUT	HDMI (DVI)		HDMI jack (Type A)	
					DVI Audio (stereo audio-in jack L/R In) (applicable when using DVI to HDMI cable)	
VGA (RGB)			Analog RGB (15 Pin D-Sub)			
Component 1,2			3 RCA (Y Pb Pr)			
			2 RCA Stereo (L/R)			

Category			Dimension	
CONNECTION	SUB BOARD (PAL / SECAM)	AV / S-VIDEO	Sharing Audio-In	
		SCART 1	Full SCART Type (RGB IN, CVBS IN, TV OUT, Stereo In / Out)	
		SCART 2	Full SCART Type (RGB IN, CVBS IN, CVBS OUT, Stereo In / Out)	
		TV Antenna	Antenna In (75 ohm)	
		AV2 / S-Video2 / AV3	Only (37" 40") AV3 Side Connector Port (S-Video2 / AV2 & RCA Audio L/R input)	
		RS-S232	For Service	
TV	MAIN BOARD (IDTV)	RF Frequency Range	45MHz ~ 889MHz	
		Video System	PAL, SECAM	
		Sound System	B/G, D/K, I, L/L'	
		Audio	Dual (Mono / Stereo / Bilingual	
			NICAM. FM de-modulation	
OSD (MMENU)	Colour		8bit Colour (256 Colour Palette from 16 bit Colour)	
	Type		Graphical & Text User Interface	
	Language		English, Spanish, Italian, German, French, Russian	
USER FUNCTION	TV	PAL / SECAM	Channel Scan	Auto / Manual
			Manual Channel Setting	Colour System
				Sound System
				Channel Edit
				Fine Tune
			Channel Edit	Channel Add / Erase
	Channel Name Edit			
	Image Setting (Video & Graphic)		Contrast / Brightness / Sharpness / Colour	
			4 Colour Tone Temperature Modes (Normal / Warm /	

			Cool / User)	
			5 Picture Modes (User / Dynamic / Standard / Mild / Game)	
			7 Aspect Ratio Modes (16:9, 14:9, 4:3, Full, Zoom, Original, Spectacle)	
	Sound		Volume / Balance	
			Band Equalizer	
			Mono / Stereo / MTS	
			Auto Volume	
			5 Sound Standard (User, Flat, Music, Movie, Special)	
USER FUNCTION	PC Function		Auto Adjustment	
			Phase Adjustment	
			Position Adjustment	
	PIP & PBP		RF PIP	
			Sub Picture Source Select	
			Sub Picture Size	
			Sub Picture Position	
			Picture Swap	
	TTX (Euro)		Up to 1000 Page	
			Support WSS, PDC, VPS	
	Timer		Sleep (Off / 10 / 20 / 30 / 60 / 90 / 120 / 180 / 240 min)	
TV	Miscellaneous	Blue Screen Function	Blue Black Screen	
		Picture Still	Pause Moving Image	
		HDMI & HDCP	High Digital Multimedia Interface High-Bandwidth Digital Content Protection	
		DNR	Digital Noise Reduction of Image (SD Only)	
			Disable all the buttons on TV set	
SOURCE IN/OUT		Consumption	Stand-By	< 3W
			Maximum	TDB
			Y/C IN	Y:1.0±0.2VP-P C:0.7 VP-P
			CVBS	1.0±0.2VP-P
			AUDIO IN	0.2 ~ 2V (Normal 0.5V)
			RGB IN	RGB IN: ≤ 0.7VP-P

3) PIP & PBP Support Table

SUB MAIN	TV	SCART1	SCART2	AV/ S-VIDEO	Component 1	Component 2	VGA	HDMI
TV	O	O	O	O	O	O	O	O
SCART1	O	X	O	O	O	O	O	O
SCART2	O	O	X	O	O	O	O	O
AV/ S-VIDEO	O	O	O	*	O	O	O	O
Component 1	O	O	O	O	X	X	X	O
Component 2	O	O	O	O	X	X	X	O
VGA	O	O	O	O	X	X	X	O
HDMI	O	O	O	O	O	O	O	X

* AV/S-VIDEO SOMETIMES CAN'T PIP

4) PC compatibility chart

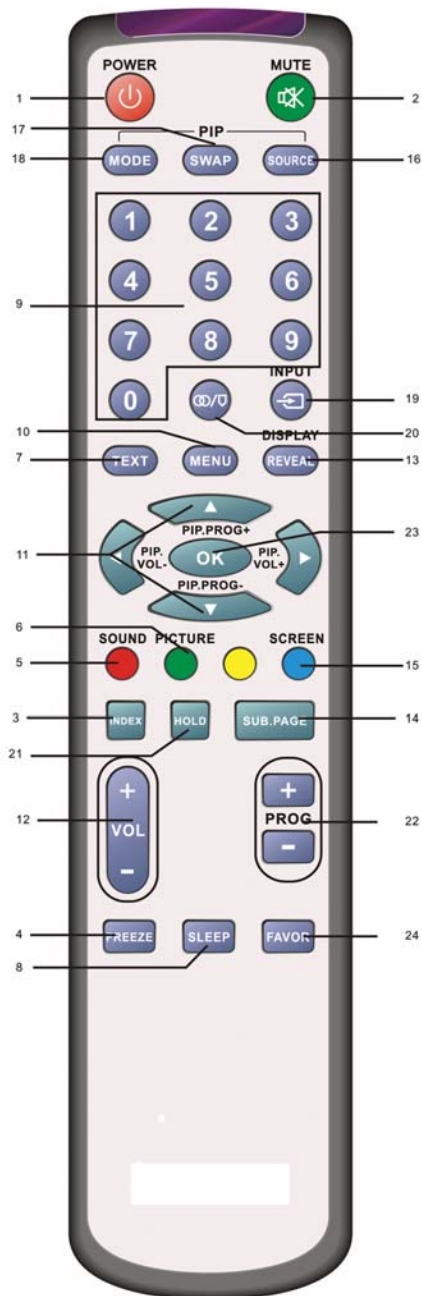
To reduce the need for adjustment for different modes, the TV has default setting modes that are most commonly used. These are shown in the table below. For optimum adjustment, the user is suggested to perform the Auto Setup in Windows "Full Screen" pattern.

RESOLUTION	V.FREQ.(Hz)	H.FREQ.(KHz)	BAND WIDTH(MHz)
640*350	85	37.86	31.5
640*400	85	37.86	31.5
640*480	60	31.469	25.175
640*480	72	37.86	31.5
640*480	75	37.5	31.5
800*600	56	35.156	36
800*600	60	37.88	40
800*600	72	48	50
800*600	75	46.875	49.5
1024*768	60	48.363	65
1024*768	70	56.476	75

1024*768	75	60	78.75
1152*864	75	67.5	108
1280*720	60	45	88
1280*960	60	60	108
1280*1024	60	63.981	108
1366*768	60	47.7	85.5

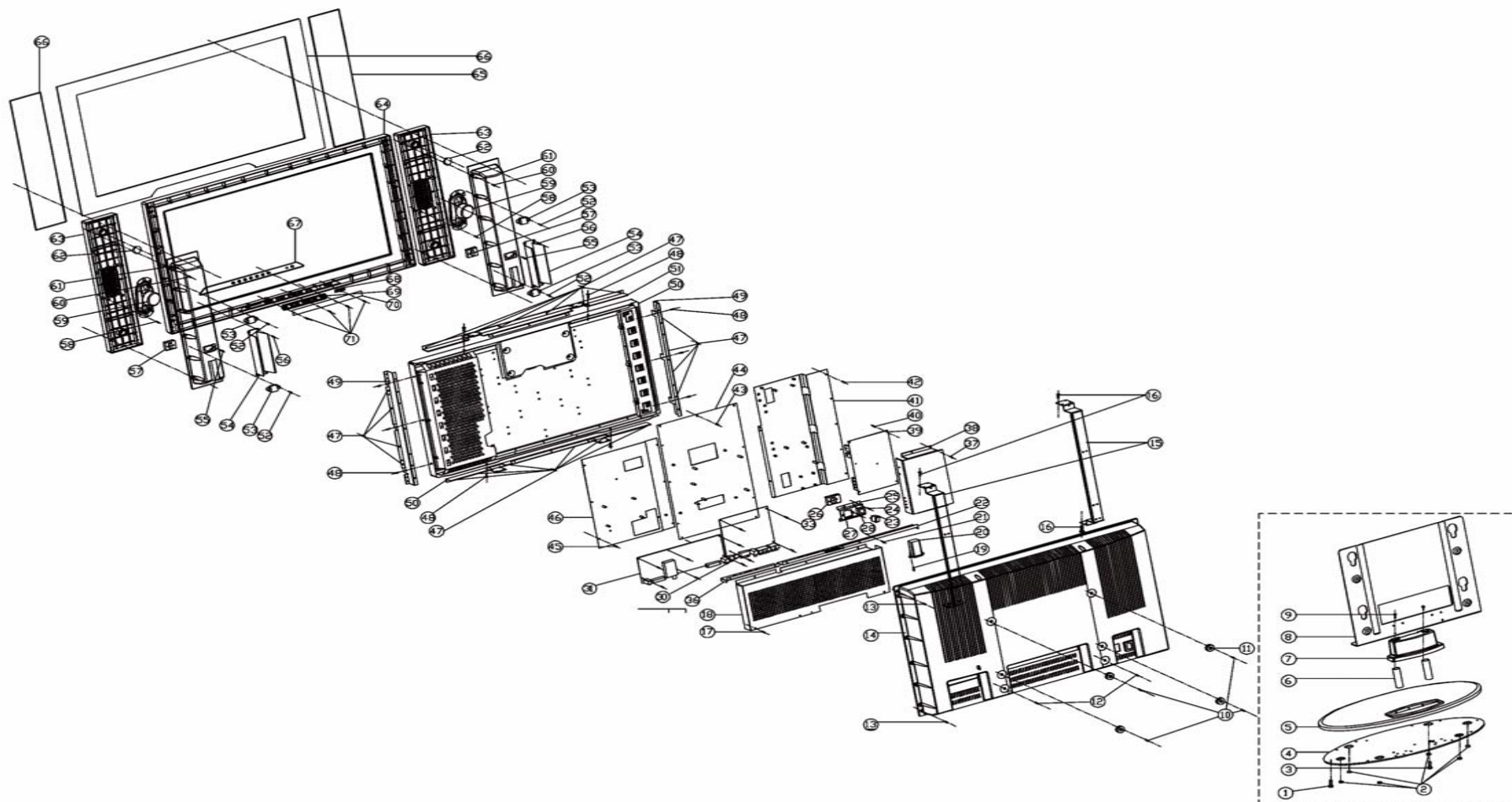
(recommended resolution is 1024*768@60Hz)

Appearance Remote Control



1. (Standby/on): To switch the power on and off.
2. (Mute): Mute the loudspeaker's sound.
3. Index:
Teletext mode: Display an index page for CEEFAZ /FLOL information.
4. Freeze/Hold:
TV/External input mode: Picture freeze.
5. Sound: Select the sound multiplex mode.
6. Picture: Picture effect selection .
7. Text: Select the TELETEXT mode.
8. Sleep: Set the sleep time.
9. 0~9:
TV/External Input mode: set the channel.
TELETEXT mode: set the page.
10. MENU: Display the menu screen.
11. / : Direction key on-screen menu.
/ : Headphone volume increase or decrease.
/ : In PIP/POP mode, select the sub picture's channel.
12. VOL+/-: Loudspeaker's volume increase or decrease.
13. Reveal/Display:
To call up or exit the information of the current source (Normal state);
Stop sub picture browse (Multi.win state).
Q.View: Previous channel.
14. Sub.page: To turn the sub.page on and off (TELETEXT mode).
15. Screen: Change the wide image mode.
16. PIP.soure: The source of the sub picture select.
17. PIP.Swap: Interchange the main and sub picture.
18. PIP.Mode :Picture-in-picture On/Off.
19. : Select an input source .
20. : DUAL I-II button.
21. HOLD:
TELETEXT mode: Hold the picture.
22. PROG+/-:
TV/External input mode: select the channel or switch to either TV input mode.
TELETEXT mode: set the page.
23. OK:
Affirm user's setting on OSD.
Auto adjust when VGA input.
24. Fav./Index:
TV mode: Favorite channel browse.

Exploded View and Part List



PARTS LIST

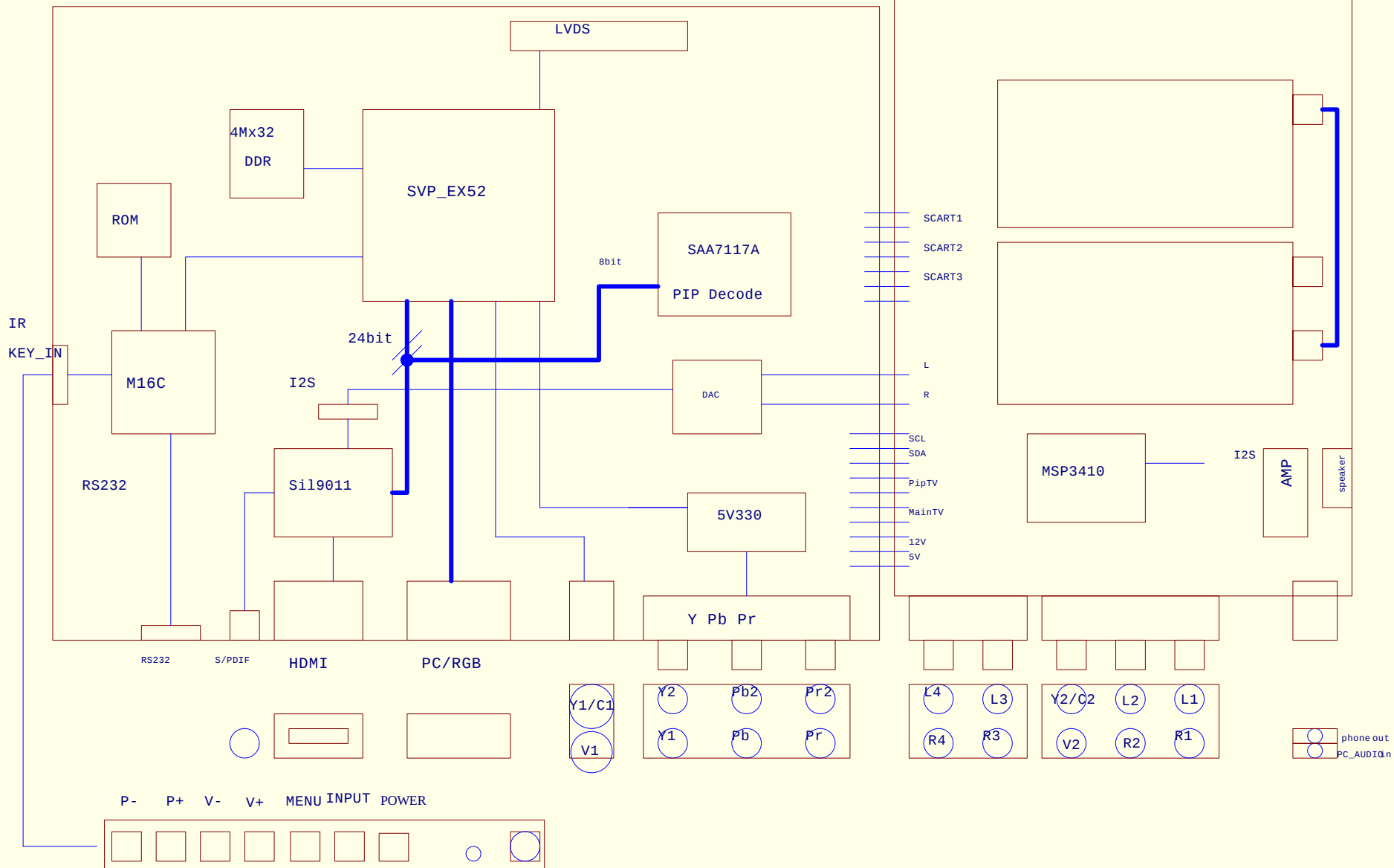
NO.	PART CODE	DESCRIPTION	QTY
1	6020KTB040080	SELF-TAPPING SCREW 4*8 K/T	10
2	503T300100030	RUBBER FOOT Ø20*4	6
3	6020KMB40080	MACHINE CREW 4*8 KM	4
4	302E320102B01	SUPPORT PLATE	1
5	102E320102B01	SUPPORT DECORATE BASE	1
6	305T320104004	SUPPORT AXIS	2
7	105E320100030	SUPPORT DECORATE BRACKET	1
8	305T320102B02	SUPPORT BRACKET (2)	1
9	6020BMW0400B0	MACHINE SCREW 4*8 B/M	4
10	6020BMZ050120	MACHINE SCREW 5*12 B/M	4
11	305T300100130	STATOR TACH	4
12	6020BMZ050160	MACHINE SCREW 5*16 B/M	2
13	6020BTB04010D	SELF-TAPPING SCREW 4*100 B/T	4
14	101E320102103	REAR CABINET	1
15	305T320104003	SUPPORT BRACKET	1
16	6020KMB040080	MACHINE SCREW 4*8 KM	8
17	6020BMW030060	MACHINE SCREW 3*6 BM	7
18	304T320103004P	MPCB SHIELD CAN	1
19	6020BMW030060	MACHINE SCEW 3*6 B/M	2
20	4200AC1020010	AC SOCKET	1
21	6020BMW030060	MACHINE SCREW 3*6 B/M	6
22	305T320103019	SOCKET BRACKET (2)	1
23	7516T2601000M	POWER SWITCH	1
24	6020BMW030060	MACHINE SCREW 3*6 B/M	6
25	305T320103007	SWITCH BRACKET	1
26	4208E32010400	SPEAKER LINE CLAMP	1
27	305E320103004	SPEAKER LINE BRACKET	1
28	6020KTB030080	SELF-TAPPING SCREW 3*8 K/T	2
29	6020BMW030060	MACHINE SCREW 3*6 B/M	6
30	7536T3202005A	MAIN PCB	1
31	7596T3202002A	AMP PCB	1

NO.	PART CODE	DESCRIPTION	QTY
32		NIL	
33	6020BMW030060	SCREW 3*6 B/M	10
34			2
35			1
36	305T3201030B4P	SOCKET BRACKET (1)	1
37	6020BMW030060	MACHINE SCREW 3*6 B/M	4
38	425T320100010	POWER SINK	1
39	7506T3201001F	POWER PCB	1
40	6020BMW030060	MACHINE SCREW 3*6 B/M	4
41	305T320103003	POWER PCB BRACKET	1
42	6020BMW030060	MACHINE SCREW 3*6 B/M	7
43	6020BMW030060	MACHINE SCREW 3*6 B/M	6
44	305E320103B11P	PCB BRACKET (2)	1
45	6020BMW030060	MACHINE SCREW 3*6 B/M	5
46	305E320103B10P	PCB BRACKET (1	1
47	6020BTB040100	SELF TAPPING SCREW 4*10 B/T	20
48	6020KMB040080	MACHINE SCREW 4*8 K/M	10
49	305T320104002	LCD BRACKET (LEFT / RIGHT)	2
50	419T3201T315X	LCD PANEL	1
51	305T320104001	LCD BRACKET (TOP/ BOTTOM)	2
52	6020BTB040140	SELF TAPPING SCREW 4*14	8
53	110E320100001	SOUND BOX STATOR BRACKET	4
54	305E320103001	SOUND BOX STATOR BRACKET	2
55	6020BTB030080	SELF TAPPING SCREW 3*8 B/T	4
56	6020BTB040140	SELF TAPPING SCREW 4*14 B/T	8
57	4208E32010200	SPEAKER LINE CLMAP	2
58	6020BTB040100	SELF TAPPING SCREW 4*10 B/T	8
59	4400000600830	SPEAKER	2
60	6020BTB040120	SELF TAPPING SCREW 4*12 B/T	8
61	101E320102B06	SPEAKER BACK CABINET	2
62	103T300100010	SPEAKER COVER	2
63	101E320102B04	SPEAKER FRONT CABINET	2
64	101E320102B01	FRONT CABINET	1
65	101E320102B05	SPEAKER WEB	2

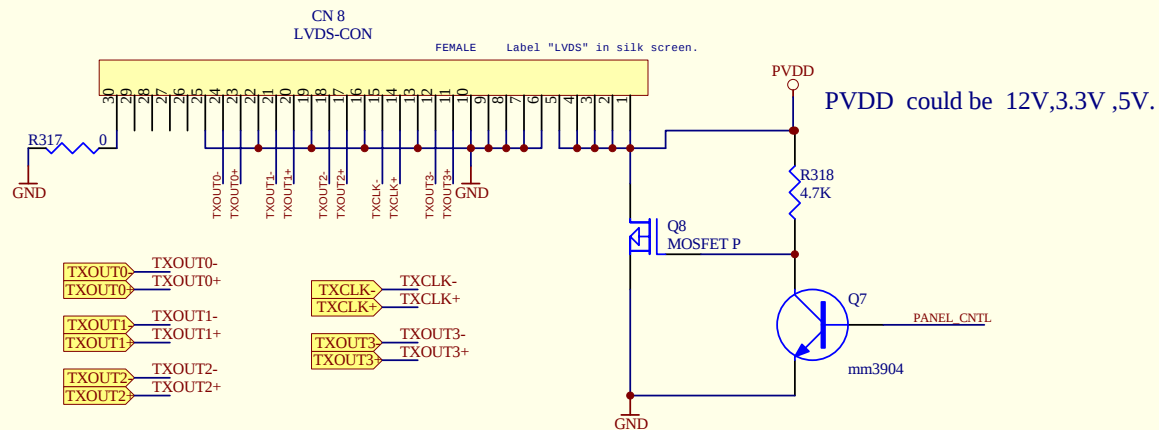
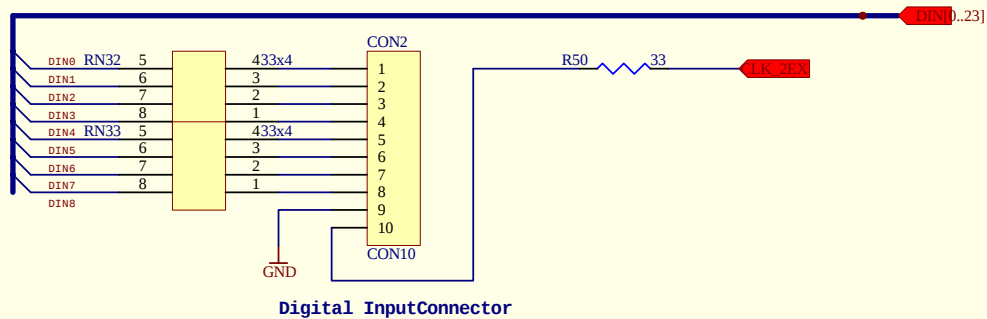
NO.	PART CODE	DESCRIPTION	QTY
66	101E320103030	PMMA DECORATION PANEL	1
67	305E320102003	DECORATION PANEL (AL)	1
68	101E320100002	LENS	1
69	107E320102B01	FUCNTION KNOB	1
70	7516T32010000	KEY PCB	1
71	6020BTW030080	SELF TAPPING SCREW 3*8 B/T	4

ELECTRICAL DIAGRAMS and PRINT LAY-OUT

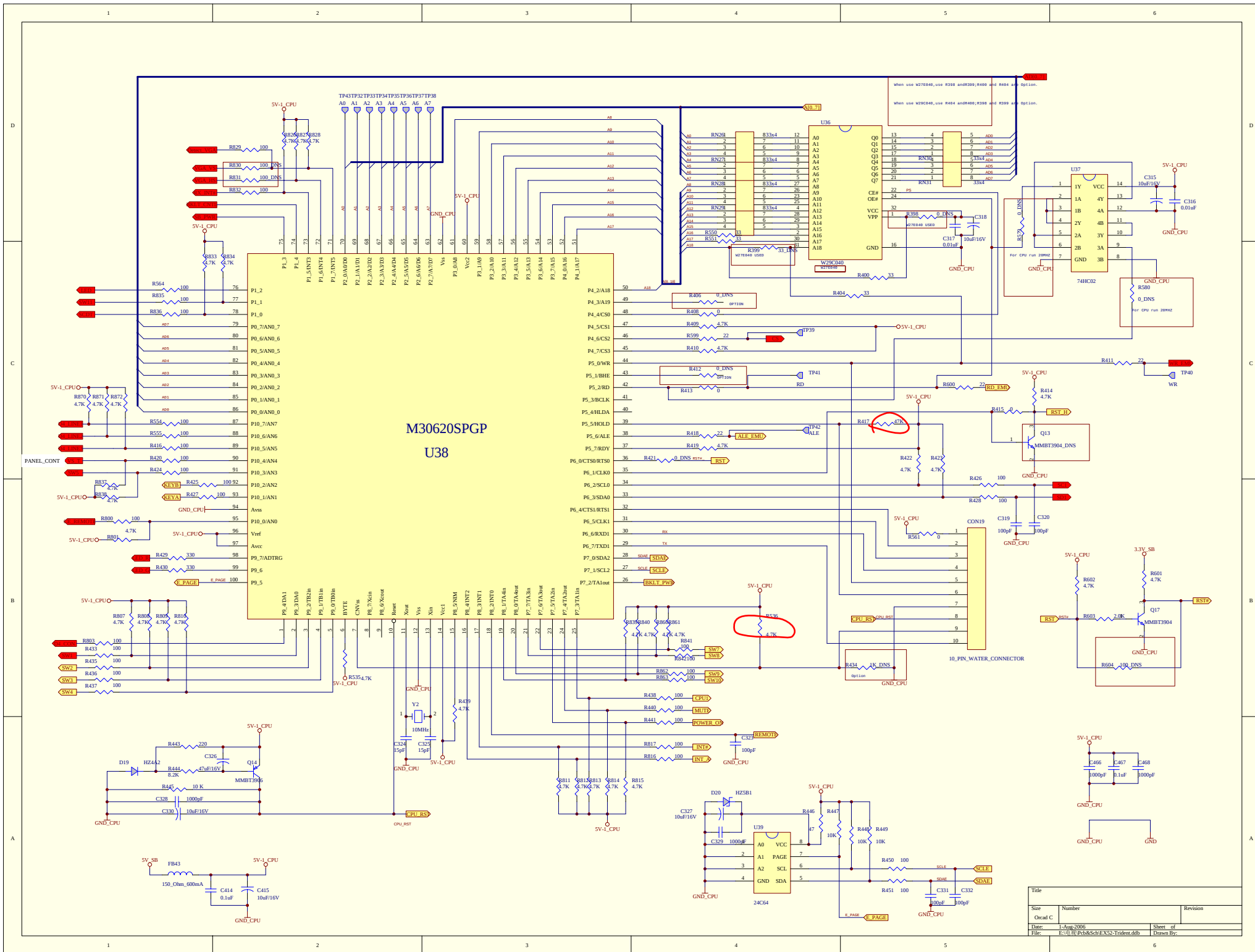
LCD702C: SVP-EX52(256) +M16C+ HDMI+SIL9011- Block Diagram



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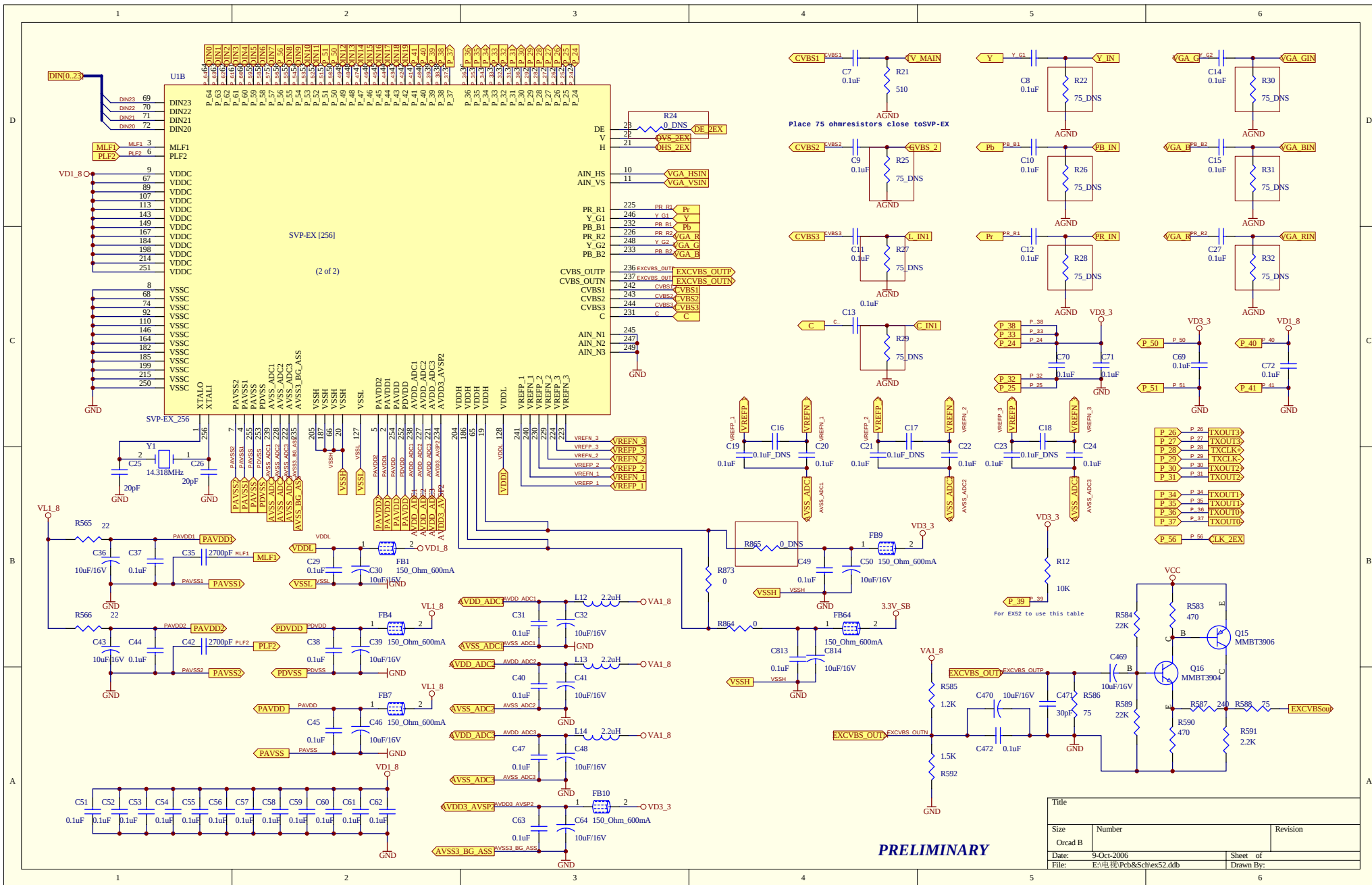
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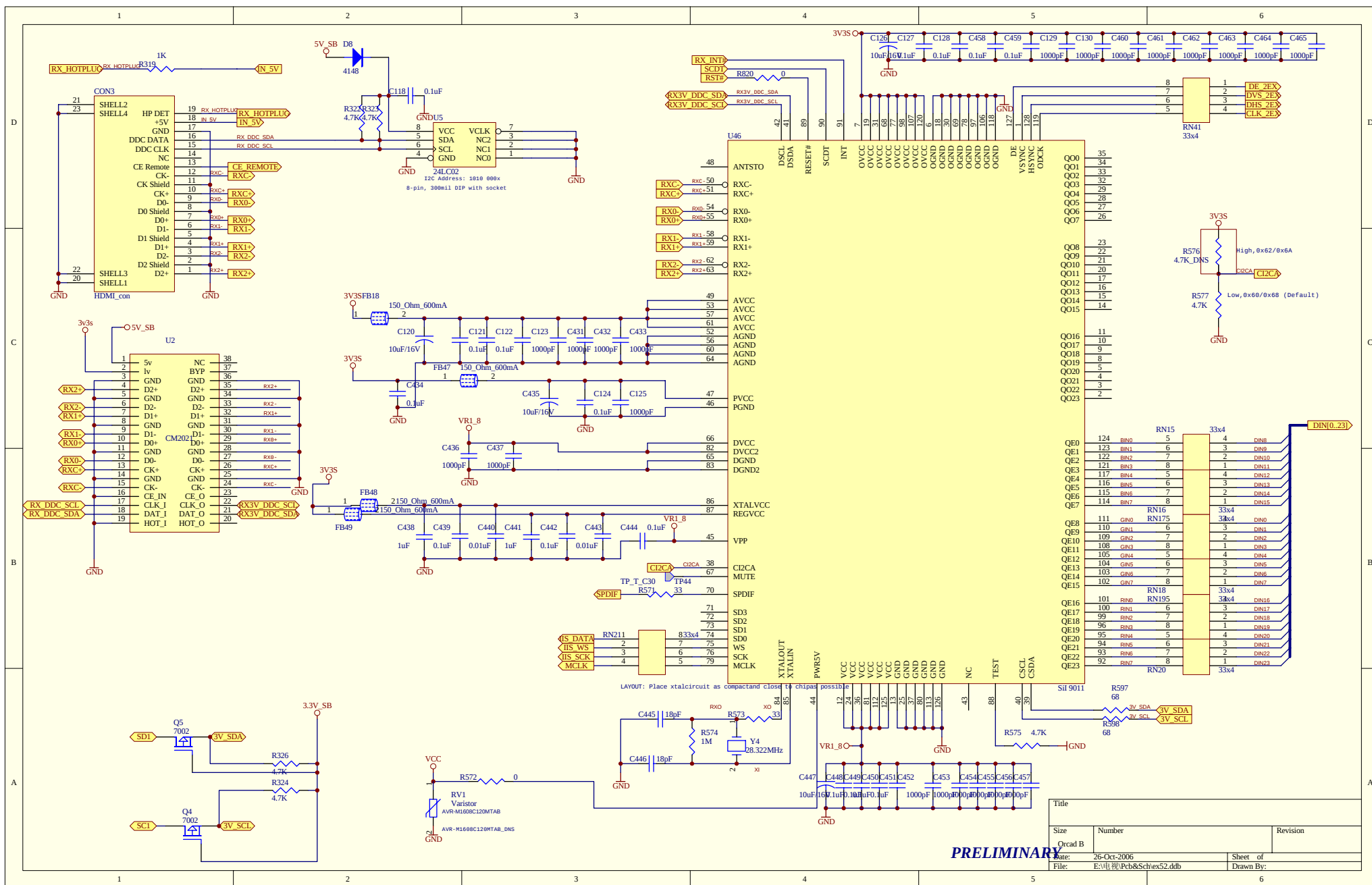
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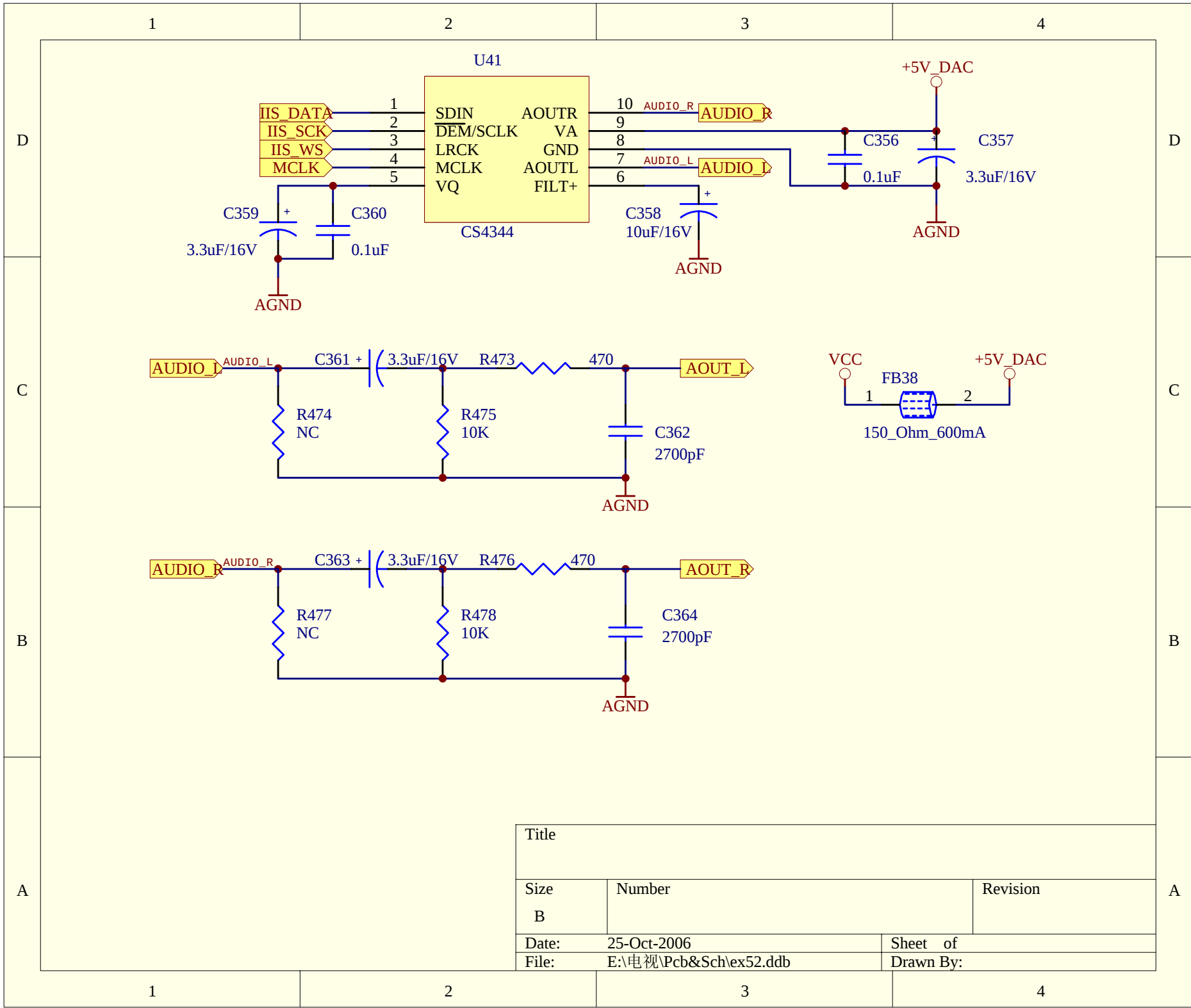


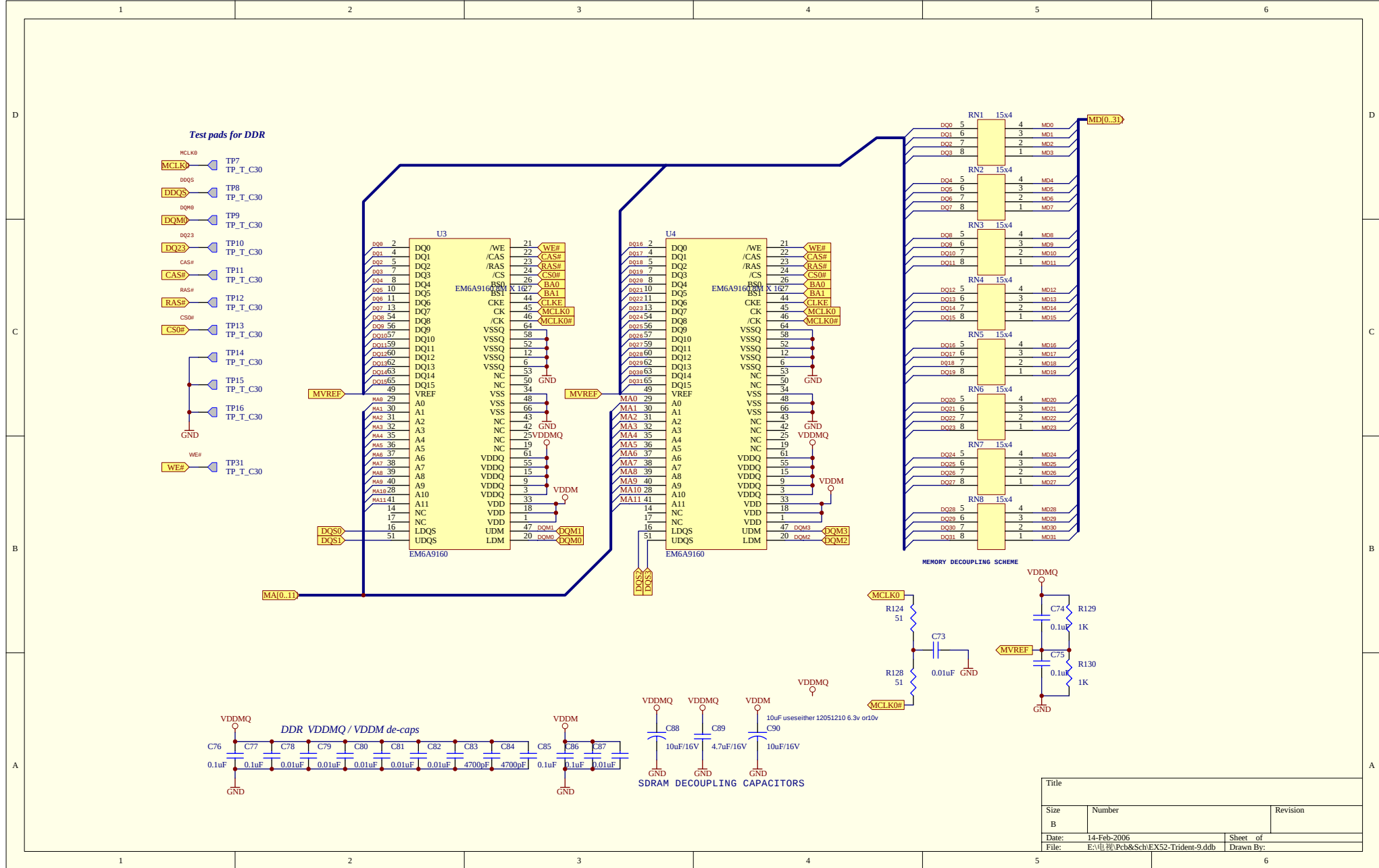
*CS1N is not a input or output pin
CS1N=0: SVP-EX CPU access enabled
CS1N=1: SVP-EX CPU access disabled

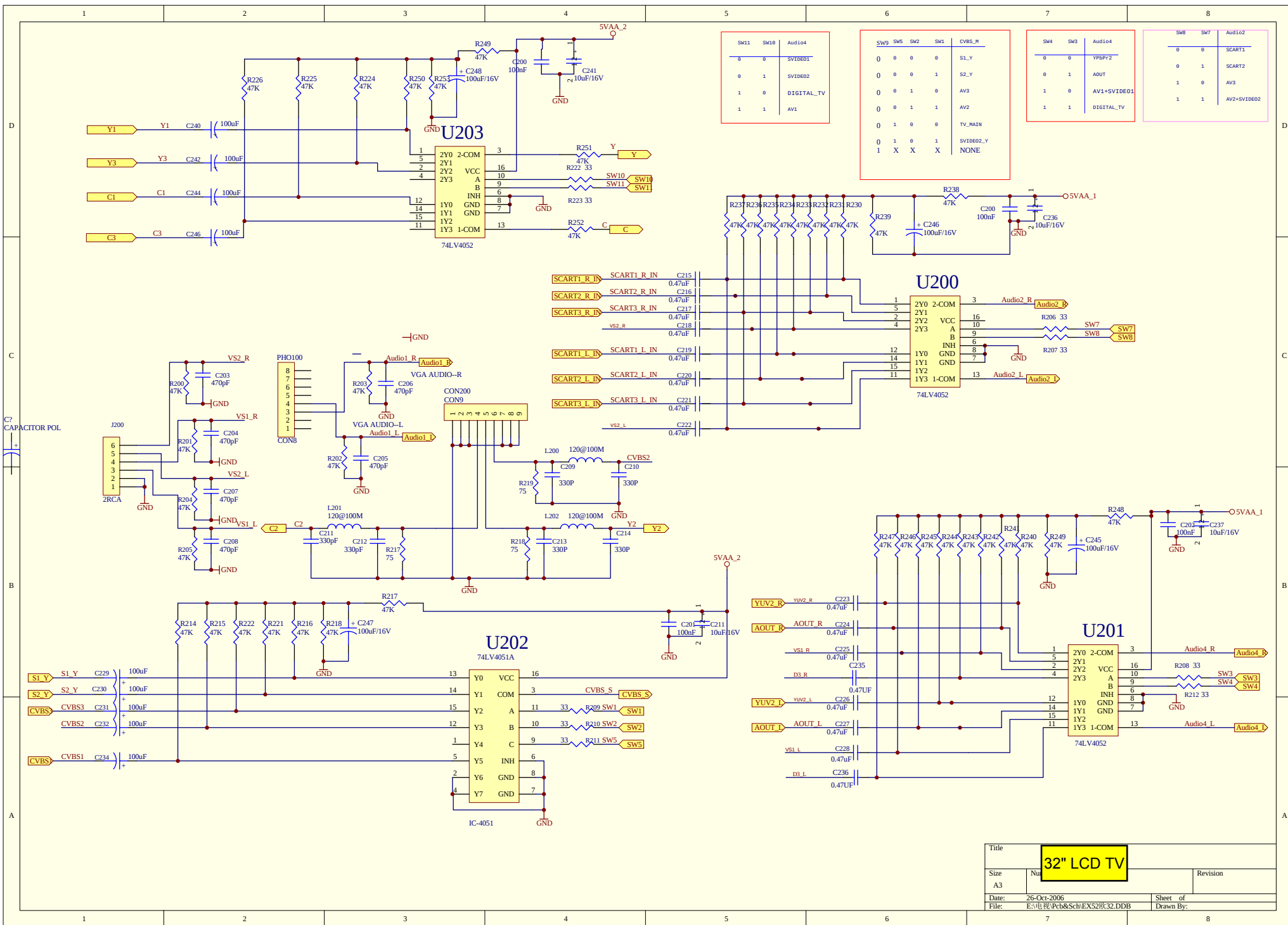


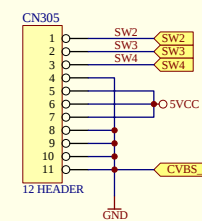
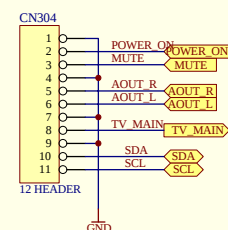
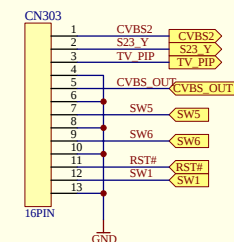
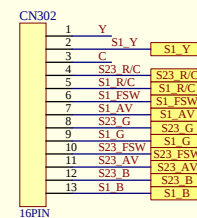
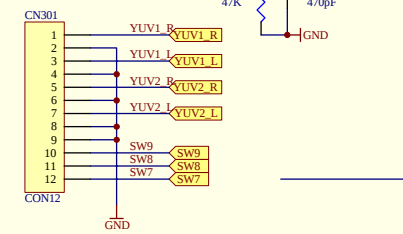
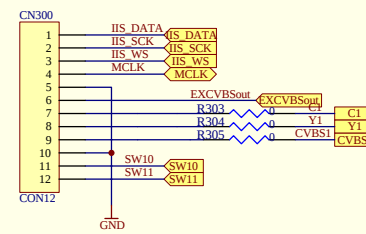
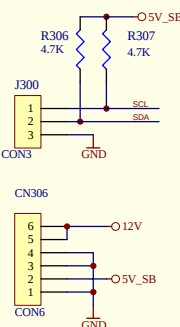
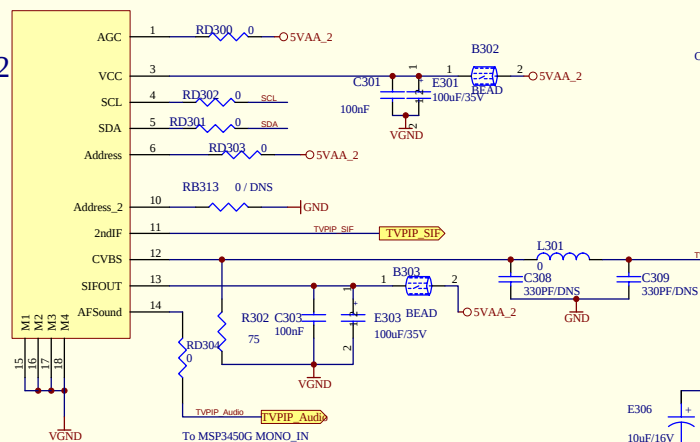
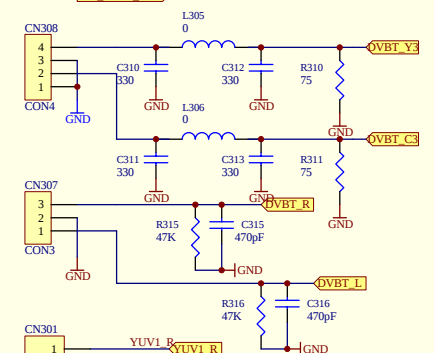
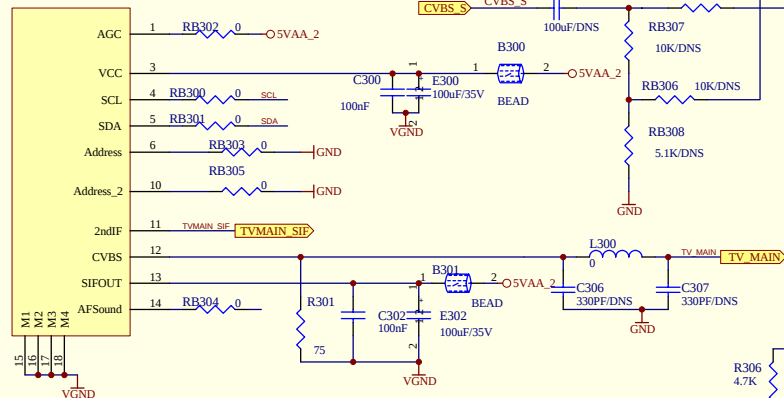
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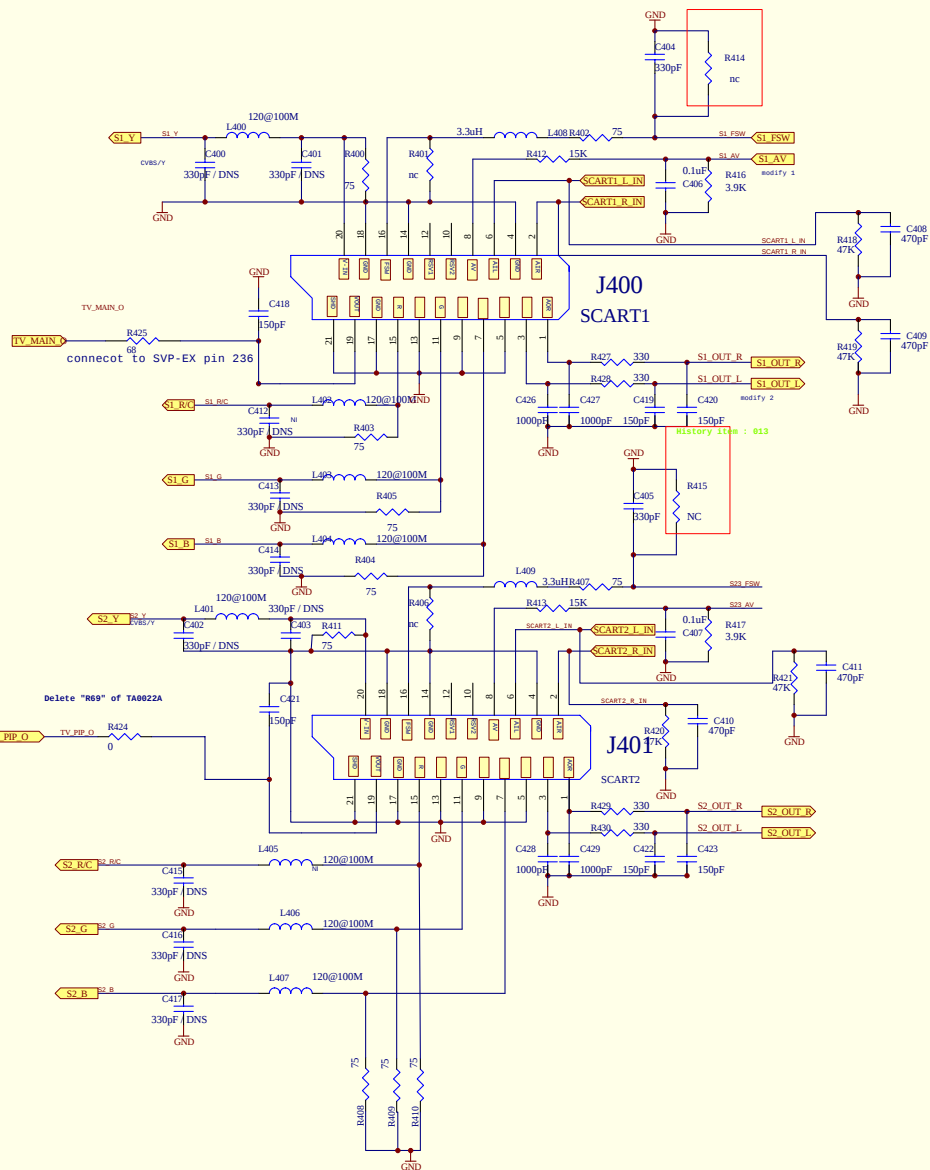




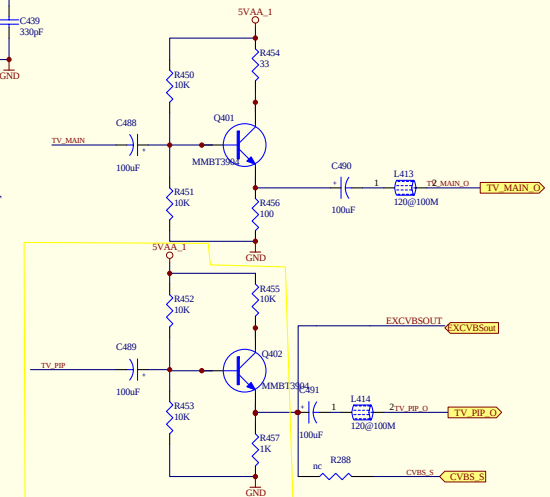
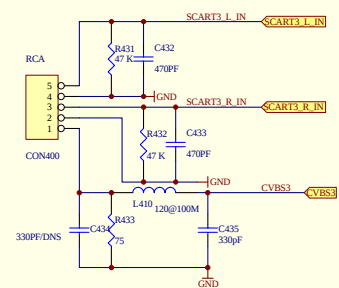


JUMPER POWERSOURCE	JP2	JP3	JP4	JP5	JP6	JP7
LCD702C PCPOWER SUPPLY	X	V	X	V	X	X
DC POWER JACK	V	X	V	X	V	V

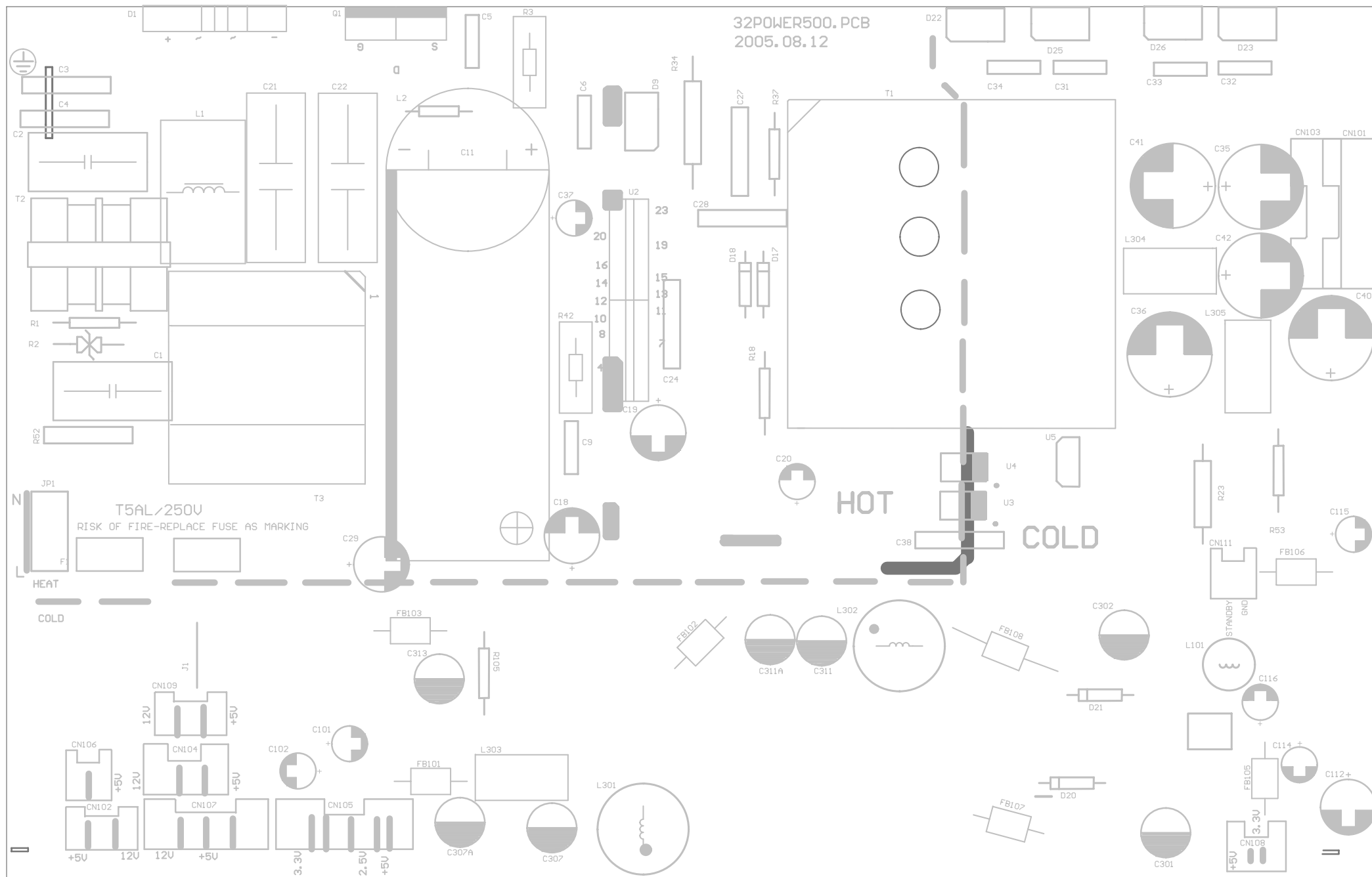
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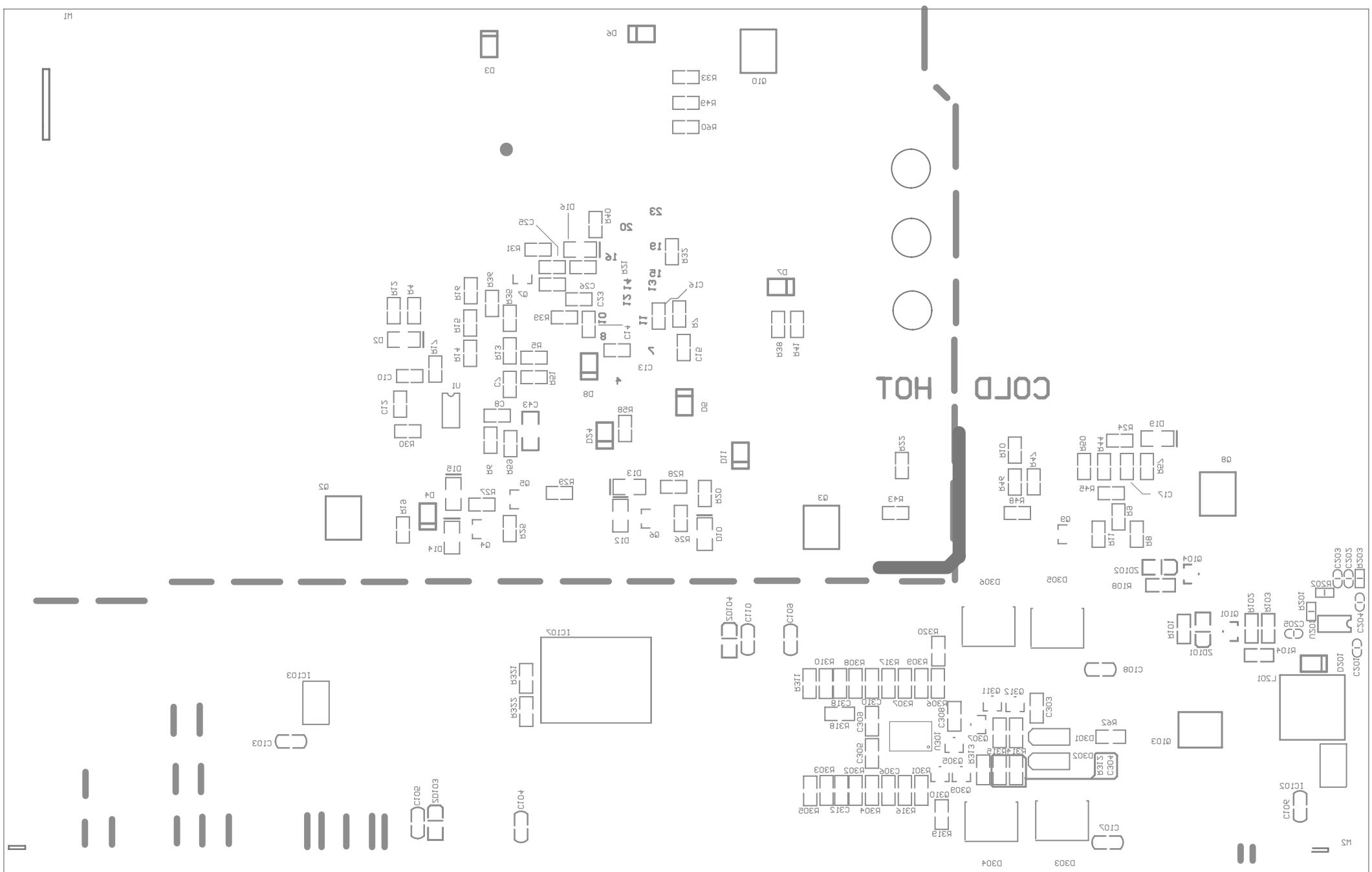


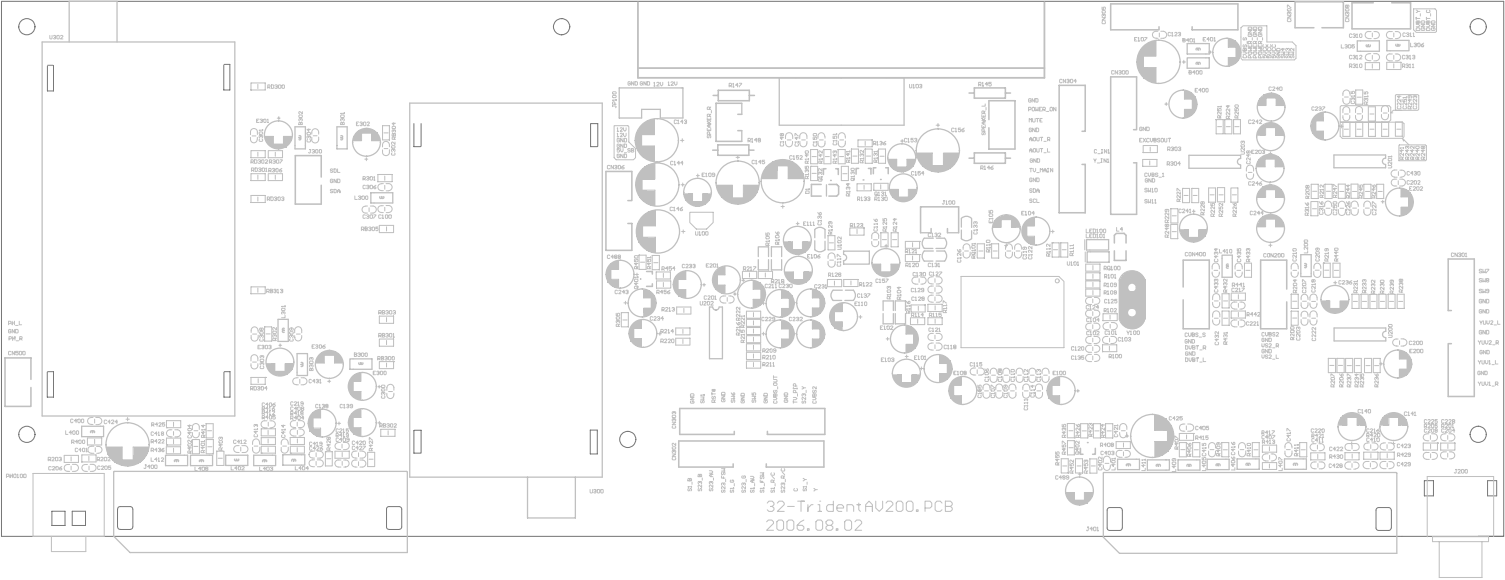
SCART3 IS REPLACED BY A VIDEO INPUT

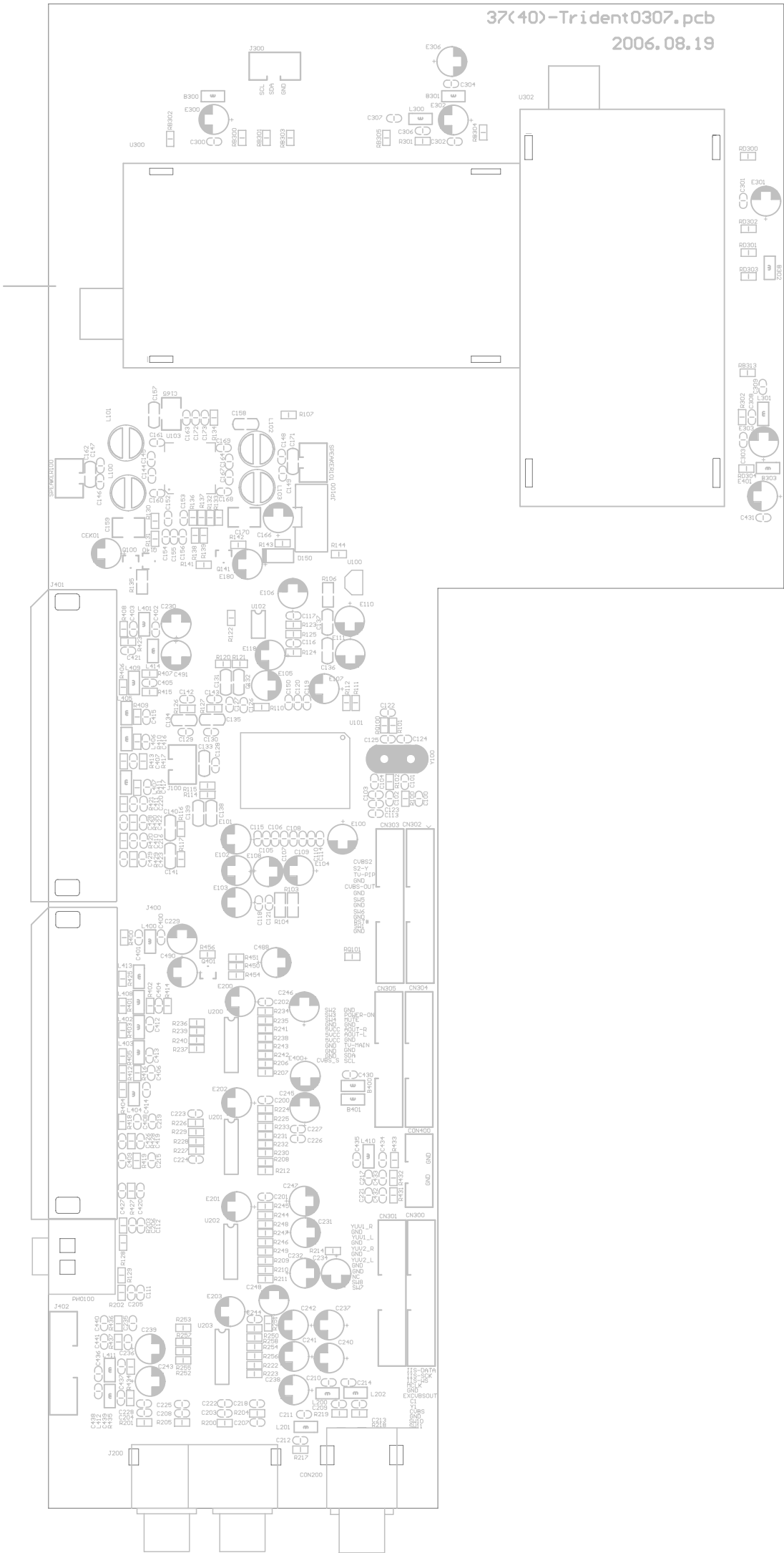


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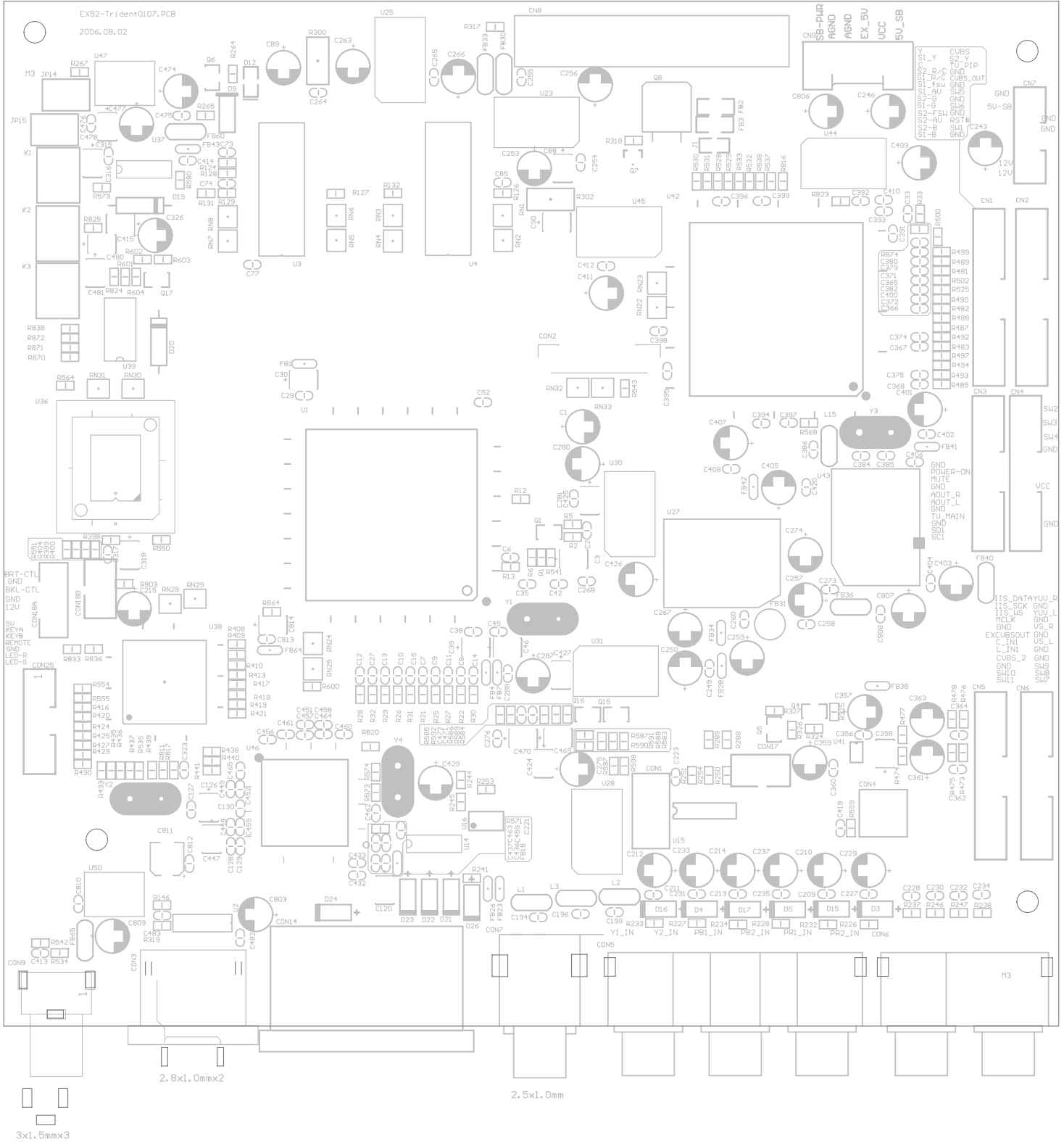






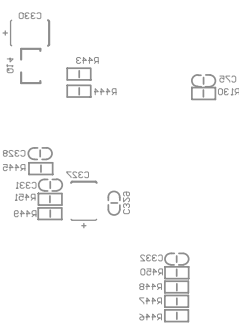
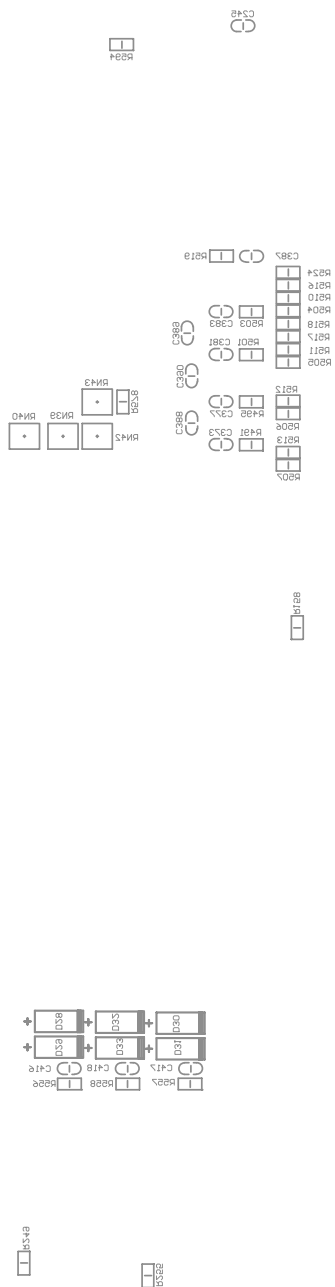
EX52-Trident0107.PCB

2006.08.02



5+50

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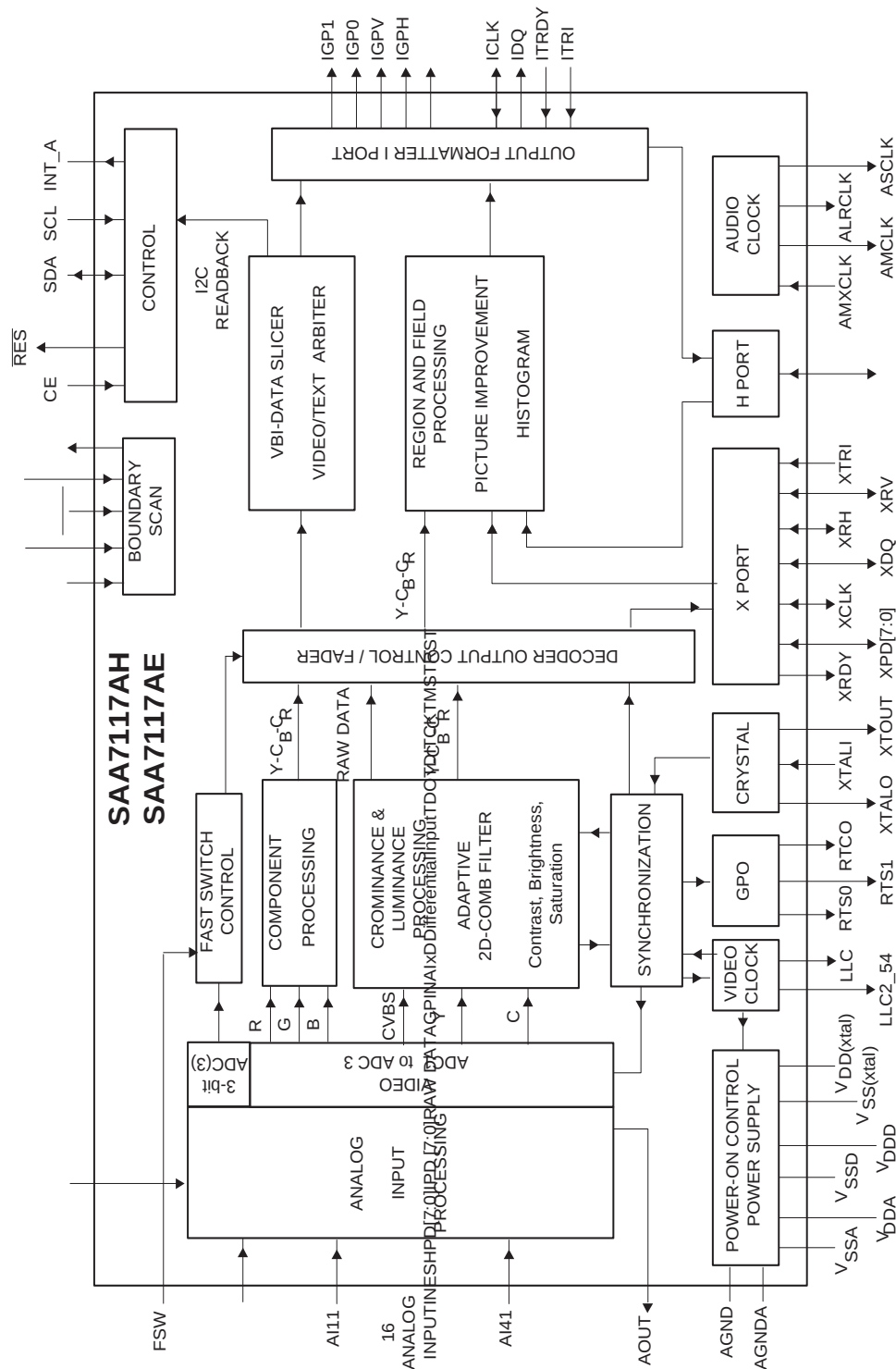


Fig.3 SAA7117AH/E Block Diagram

3.2 Analog Frontend

3.2.1 Analog Frontend of SAA7117A

3.2.1.1 Overview

The SAA7117A offers sixteen analog signal inputs, which are fed to four analog main channels with source switches, clamp circuits, analog amplifiers, and 10-bit CMOS ADCs with decimation filters. Some auxiliary inputs are provided which can be utilized to detect 3-level configuration signals common on SCART- or D-connector.

- Automatic Gain Control (AGC) for the selected CVBS or Y/C channel, or manually adjustable gain for all signal types
- Automatic clamp control for CVBS, Y/C, and component video
- Supporting fast channel switching
- Automatic detection of activity on Fast Blanking pin (RGB- switch control)
- Seamless Fast Blanking between CVBS input and synchronous RGB-SCART input
- RMS noise level estimation.

Figure 4 shows the principle usage of the analog video inputs in an application with SCART and its connections to the following digital blocks: AV-detect, FSW, combdec and component processing.

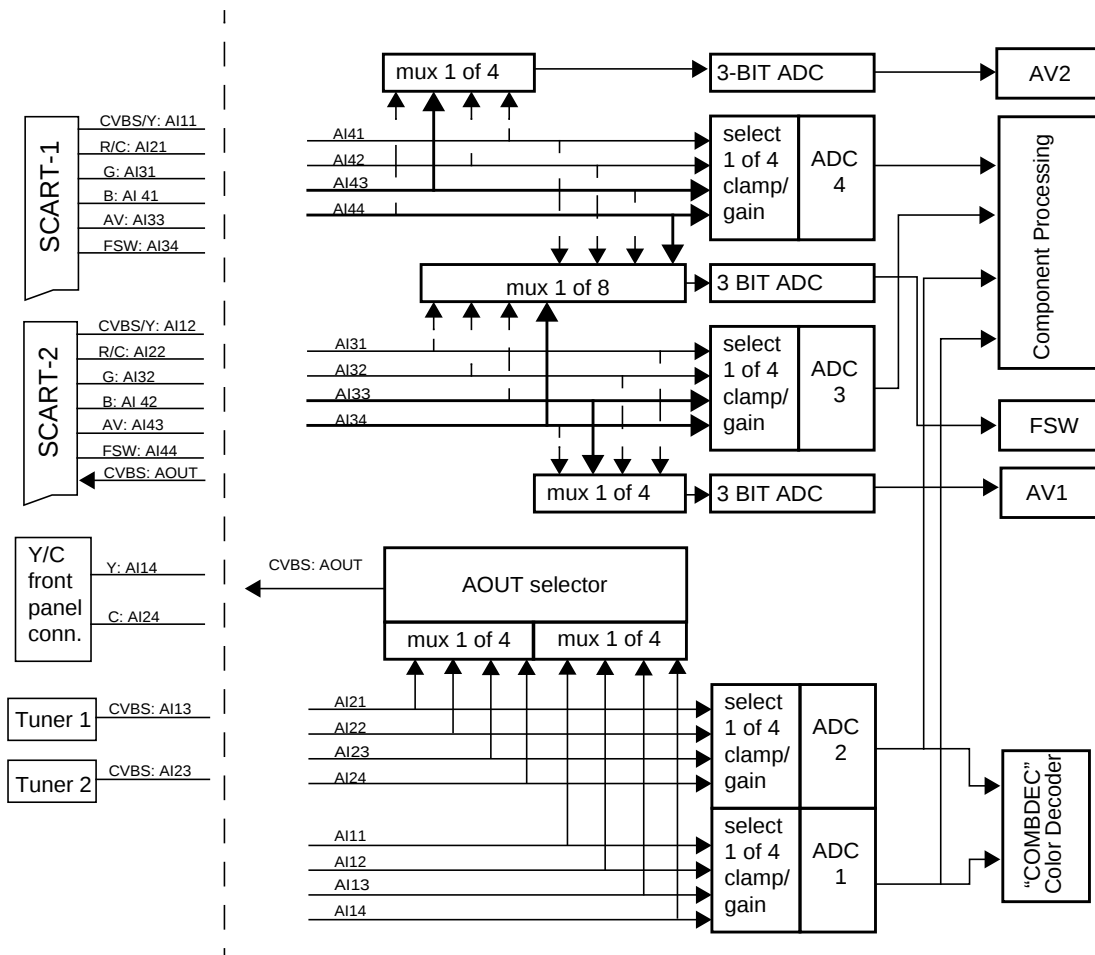


Fig.4 Analog frontend of 7117A.

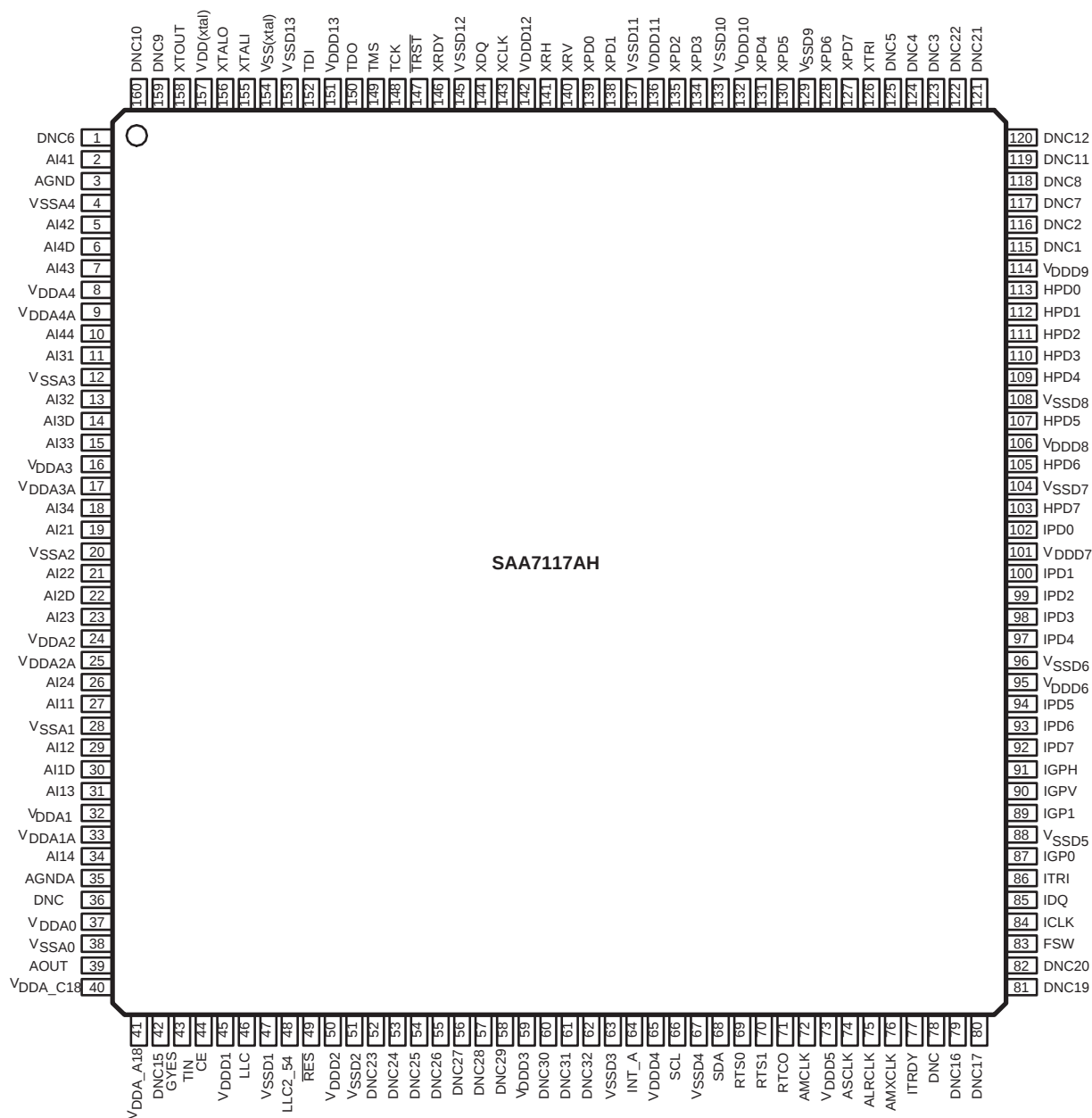


Fig.3 Pin configuration SAA7117AH (QFP160).

Multistandard video decoder with adaptive
comb filter and component video input

SAA7117(A)H/V2
SAA7117(A)E/V2

3 ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
SAA7117E/V2	BGA156	plastic ball grid array package; 156 balls; body 15 × 15 × 1.15 mm	SOT472-3
SAA7117E/V2/G	BGA156	leadfree version of SAA7117E/V2	SOT472-3
SAA7117AE/V2	BGA156	plastic ball grid array package; 156 balls; body 15 × 15 × 1.15 mm	SOT472-3
SAA7117AE/V2/G	BGA156	leadfree version of SAA7117AE/V2	SOT472-3
SAA7117H/V2	QFP160	plastic quad flat package; 160 leads (lead length 1.6 mm); body 28 × 28 × 3.4 mm; high stand-off height	SOT322-23 SOT322-33
SAA7117AH/V2	QFP160	plastic quad flat package; 160 leads (lead length 1.6 mm); body 28 × 28 × 3.4 mm; high stand-off height	SOT322-23 SOT322-33

4 PINNING

SYMBOL	PIN		TYPE ⁽¹⁾	DESCRIPTION
	QFP160	BGA156		
DNC6	1	B2	I	do not connect, reserved for future extensions and for testing
AI41	2	B1	I	analog input 41 (either video or D1/SCART sensor) (7117A only)
AGND	3	C2	P	analog signal ground
V _{SSA4}	4	C1	P	ground for analog inputs AI4x
AI42	5	D2	I	analog input 42 (either video, D1/SCART sensor) (7117A only)
AI4D	6	D3	I	differential input for ADC channel 4 (pins AI41 to AI44)
AI43	7	D1	I	analog input 43 (either video or D1/SCART sensor) (7117A only)
V _{DDA4}	8	D4	P	analog supply voltage for analog inputs AI4x (3.3 V)
V _{DDA4A}	9	E2	P	analog supply voltage for analog inputs AI4x (3.3 V)
AI44	10	E1	I	analog input 44 (either video, D1/SCART sensor)
AI31	11	E3	I	analog input 31 (either video or D1/SCART sensor) (7117A only)
V _{SSA3}	12	E4	P	ground for analog inputs AI3x
AI32	13	F2	I	analog input 32 (either video, D1/SCART sensor) (7117A only)
AI3D	14	F1	I	differential input for ADC channel 3 (pins AI31 to AI34)
AI33	15	F3	I	analog input 33 (either video or D1/SCART sensor) (7117A only)
V _{DDA3}	16	F4	P	analog supply voltage for analog inputs AI3x (3.3 V)
V _{DDA3A}	17	G2	P	analog supply voltage for analog inputs AI3x (3.3 V)
AI34	18	G1	I	analog input 34 (either video or D1/SCART sensor) (7117A only)
AI21	19	G4	I	analog input 21(7117A only)
V _{SSA2}	20	H3	P	ground for analog inputs AI2x
AI22	21	G3	I	analog input 22;
AI2D	22	H1	I	differential input for ADC channel 2 (pins AI24 to AI21)
AI23	23	H2	I	analog input 23 (7117A only)
V _{DDA2}	24	H4	P	analog supply voltage for analog inputs AI2x (3.3 V)
V _{DDA2A}	25	J1	P	analog supply voltage for analog inputs AI2x (3.3 V)
AI24	26	J3	I	analog input 24

Multistandard video decoder with adaptive
comb filter and component video input

SAA7117(A)H/V2
SAA7117(A)E/V2

SYMBOL	PIN		TYPE ⁽¹⁾	DESCRIPTION
	QFP160	BGA156		
AI11	27	J2	I	analog input 11
V _{SSA1}	28	J4	P	ground for analog inputs AI1x
AI12	29	K1	I	analog input 12
AI1D	30	K3	I	differential input for ADC channel 1 (pins AI14 to AI11)
AI13	31	K2	I	analog input 13
V _{DDA1}	32	K4	P	analog supply voltage for analog inputs AI1x (3.3 V)
V _{DDA1A}	33	L1	P	analog supply voltage for analog inputs AI1x (3.3 V)
AI14	34	L3	I	analog input 14
AGNDA	35	L2	P	analog signal ground
DNC	36	M1	NC	do not connect, reserved for future extensions and for testing
V _{DDA0}	37	M3	P	analog supply voltage (3.3 V)
V _{SSA0}	38	M2	P	analog ground
AOUT	39	N1	O	analog output (7117A only)
VDDA_C18	40	N2	P	analog supply voltage (1.8 V)
VDDA_A18	41	P2	P	analog supply voltage (1.8 V)
DNC15	42	N3	I	do not connect, reserved for future extensions and for testing
GPIN	43	P3	I/pu	general purpose input (with internal pull-up)
CE	44	N4	I/pu	chip enable or reset input (with internal pull-up)
V _{DD1}	45	M4	P	digital supply voltage 1 (peripheral cells, 3.3 V)
LLC	46	P4	O	line-locked system clock output (27 MHz nominal)
V _{SS1}	47	L4	P	digital ground 1 (peripheral cells)
LLC2_54	48	N5	O	line-locked 1/2 clock output (13.5 MHz nominal), or adc_clock 54 MHz, selectable via I ² C
RES	49	P5	O	reset output (active LOW)
V _{DD2}	50	M5	P	digital supply voltage 2 (core, 1.8 V)
V _{SS2}	51	L5	P	digital ground 2
DNC23	52	N6	I	do not connect, reserved for future extensions and for testing
DNC24	53	P6	O	do not connect, reserved for future extensions and for testing
DNC25	54	M6	O	do not connect, reserved for future extensions and for testing
DNC26	55	L6	O	do not connect, reserved for future extensions and for testing
DNC27	56	N7	O	do not connect, reserved for future extensions and for testing
DNC28	57	P7	O	do not connect, reserved for future extensions and for testing
DNC29	58	L7	O	do not connect, reserved for future extensions and for testing
V _{DD3}	59	M8	P	digital supply voltage 3 (peripheral cells, 3.3 V)
DNC30	60	M7	O	do not connect, reserved for future extensions and for testing
DNC31	61	P8	O	do not connect, reserved for future extensions and for testing
DNC32	62	N8	O	do not connect, reserved for future extensions and for testing
V _{SS3}	63	L8	P	digital ground 3 (peripheral cells)
INT_A	64	P9	O/od	I ² C-bus interrupt flag (LOW if any enabled status bit has changed)
V _{DD4}	65	M9	P	digital supply voltage 4 (core, 1.8 V)

Multistandard video decoder with adaptive
comb filter and component video input

SAA7117(A)H/V2
SAA7117(A)E/V2

SYMBOL	PIN		TYPE ⁽¹⁾	DESCRIPTION
	QFP160	BGA156		
SCL	66	N9	I	serial clock input (I ² C-bus)
V _{SSD4}	67	L9	P	digital ground 4 (core; connects to substrate)
SDA	68	P10	I/O/od	serial data input/output (I ² C-bus)
RTS0	69	M10	O	real-time status or sync information, controlled by subaddresses 11h and 12h
RTS1	70	N10	O	real-time status or sync information, controlled by subaddresses 11h and 12h
RTCO	71	L10	O/st/pd	real-time control output; contains information about actual system clock frequency, field rate, odd/even sequence, decoder status, subcarrier frequency and phase and PAL sequence (see “RTC Functional Description”); notes 5 and 6
AMCLK	72	P11	O	audio master clock output
V _{DD5}	73	M11	P	digital supply voltage 5 (peripheral cells, 3.3 V)
ASCLK	74	N11	O	audio serial clock output
ALRCLK	75	P12	O/st/pd	audio left/right clock output; notes 5 and 7
AMXCLK	76	M12	I	audio master external clock input
ITRDY	77	N12	I/pu	target ready input for image port data
DNC0	78	P13	NC	do not connect, reserved for future extensions and for testing
DNC16	79	N13	I/O	do not connect, reserved for future extensions and for testing
DNC17	80	N14	NC	do not connect, reserved for future extensions and for testing
DNC19	81	–	NC	do not connect, reserved for future extensions and for testing
DNC20	82	–	NC	do not connect, reserved for future extensions and for testing
FSW	83	M13	I/pd	Legacy fast switch function of SAA7118 (with internal pull-down)
ICLK	84	M14	I/O	clock output signal for image port, or optional asynchronous back-end clock input
IDQ	85	L13	O	output data qualifier for image port (optional: gated clock output)
ITRI	86	L12	I	image port output control signal, affects all input port pins inclusive ICLK, enable and active polarity is under software control
IGP0	87	L14	O	general purpose output signal 0 of image port
V _{SSD5}	88	L11	P	digital ground 5 (peripheral cells)
IGP1	89	K13	O	general purpose output signal 1 of image port
IGPV	90	K14	O	multi purpose vertical reference output signal of image port
IGPH	91	K12	O	multi purpose horizontal reference output signal of image port
IPD7	92	K11	O	MSB0 of image port data 1 output
IPD6	93	J13	O	MSB1 of image port data 1 output
IPD5	94	J14	O	MSB2 of image port data 1 output
V _{DD6}	95	J12	P	digital supply voltage 6 (peripheral cells, 3.3 V)
V _{SSD6}	96	J11	P	digital ground 6 (core; connects to substrate)
IPD4	97	H13	O	MSB3 of image port data 1 output
IPD3	98	H14	O	MSB4 of image port data 1 output
IPD2	99	H11	O	MSB5 of image port data 1 output

SYMBOL	PIN		TYPE ⁽¹⁾	DESCRIPTION
	QFP160	BGA156		
IPD1	100	G12	O	MSB6 of image port data 1 output
V _{DD7}	101	H12	P	digital supply voltage 7 (core, 1.8 V)
IPD0	102	G14	O	LSB of image port data 1 output
HPD7	103	G13	I/O	MSB0 of host port data I/O, extended C _B -C _R input for expansion port, extended C _B -C _R output for image port
V _{SS7}	104	G11	P	digital ground 7 (peripheral cells)
HPD6	105	F14	I/O	MSB1 of host port data I/O, extended C _B -C _R input for expansion port, extended C _B -C _R output for image port
V _{DD8}	106	F12	P	digital supply voltage 8 (core, 1.8 V)
HPD5	107	F13	I/O	MSB2 of host port data I/O, extended C _B -C _R input for expansion port, extended C _B -C _R output for image port
V _{SS8}	108	F11	P	digital ground 8 (core)
HPD4	109	E14	I/O	MSB3 of host port data I/O, extended C _B -C _R input for expansion port, extended C _B -C _R output for image port
HPD3	110	E12	I/O	MSB4 of host port data I/O, extended C _B -C _R input for expansion port, extended C _B -C _R output for image port
HPD2	111	E13	I/O	MSB5 of host port data I/O, extended C _B -C _R input for expansion port, extended C _B -C _R output for image port
HPD1	112	E11	I/O	MSB6 of host port data I/O, extended C _B -C _R input for expansion port, extended C _B -C _R output for image port
HPD0	113	D14	I/O	LSB of host port data I/O, extended C _B -C _R input for expansion port, extended C _B -C _R output for image port
V _{DD9}	114	D12	P	digital supply voltage 9 (peripheral cells, 3.3 V)
DNC1	115	D13	NC	do not connect, reserved for future extensions and for testing
DNC2	116	C14	NC	do not connect, reserved for future extensions and for testing
DNC7	117	C12	NC	do not connect, reserved for future extensions and for testing
DNC8	118	C13	NC	do not connect, reserved for future extensions and for testing
DNC11	119	B14	NC	do not connect, reserved for future extensions and for testing
DNC12	120	B13	NC	do not connect, reserved for future extensions and for testing
DNC21	121	–	NC	do not connect, reserved for future extensions and for testing
DNC22	122	–	NC	do not connect, reserved for future extensions and for testing
DNC3	123	A13	NC	do not connect, reserved for future extensions and for testing
DNC4	124	B12	NC	do not connect, reserved for future extensions and for testing
DNC5	125	A12	I	do not connect, reserved for future extensions and for testing
XTRI	126	B11	I	X-port output control signal, affects all X-port pins (XPD7 to XPD0, XRH, XRV, XDQ and XCLK), enable and active polarity is under software control
XPD7	127	C11	I/O	MSB0 of expansion port data
XPD6	128	A11	I/O	MSB1 of expansion port data
V _{SS9}	129	D11	P	digital ground 9 (peripheral cells)
XPD5	130	B10	I/O	MSB2 of expansion port data

SYMBOL	PIN		TYPE ⁽¹⁾	DESCRIPTION
	QFP160	BGA156		
XPD4	131	A10	I/O	MSB3 of expansion port data
V _{DD} 10	132	C10	P	digital supply voltage 10 (core, 1.8 V)
V _{SS} 10	133	D10	P	digital ground 10 (core)
XPD3	134	B9	I/O	MSB4 of expansion port data
XPD2	135	A9	I/O	MSB5 of expansion port data
V _{DD} 11	136	C9	P	digital supply voltage 11 (peripheral cells, 3.3 V)
V _{SS} 11	137	D9	P	digital ground 11 (peripheral cells)
XPD1	138	B8	I/O	MSB6 of expansion port data
XPD0	139	A8	I/O	LSB of expansion port data
XRV	140	D8	I/O	vertical reference I/O expansion port
XRH	141	C7	I/O	horizontal reference I/O expansion port
V _{DD} 12	142	C8	P	digital supply voltage 12 (core, 1.8 V)
XCLK	143	A7	I/O	clock I/O expansion port
XDQ	144	B7	I/O	data qualifier for expansion port or Source-Select (pixelwise switch between X-port input/decoder output)
V _{SS} 12	145	D7	P	digital ground 12 (core; connects to substrate)
XRDY	146	A6	O	task flag or ready signal from the region and field processing, I ² C-controlled
TRST	147	C6	I/pu	test reset input (active LOW), for boundary scan test (with internal pull-up); notes 2, 3 and 4
TCK	148	B6	I/pu	test clock for boundary scan test; note 2
TMS	149	D6	I/pu	test mode select input for boundary scan test or scan test; note 2
TDO	150	A5	O	test data output for boundary scan test; note 2
V _{DD} 13	151	C5	P	digital supply voltage 13 (peripheral cells, 3.3 V)
TDI	152	B5	I/pu	test data input for boundary scan test; note 2
V _{SS} 13	153	D5	P	digital ground 13 (peripheral cells)
V _{SS} (xtal)	154	A4	P	ground for crystal oscillator
XTALI	155	B4	I	input terminal for 24.576 MHz (32.11 MHz) crystal oscillator or connection of external oscillator
XTALO	156	A3	O	24.576 MHz (32.11 MHz) crystal oscillator output; do not connect if clock input of XTALI is used
V _{DD} (xtal)	157	B3	P	supply voltage for crystal oscillator (1.8 V)
XTOUT	158	A2	O	crystal oscillator output signal; auxiliary signal
DNC9	159	C3	NC	do not connect, reserved for future extensions and for testing
DNC10	160	C4	NC	do not connect, reserved for future extensions and for testing

Notes

1. I = input, O = output, P = power, NC = not connected, st = strapping, pu = pull-up, pd = pull-down, od = open-drain.
2. In accordance with the "IEEE1149.1" standard the pads TDI, TMS, TCK and TRST are input pads with an internal pull-up transistor and TDO is a 3-state output pad.
3. For board design without boundary scan implementation connect the TRST pin to ground.

REPLACEMENT PARTS LIST

PART CODE	DESCRIPTION	QTY	LOCATION
405T320200110P	CONTROL BOARD	1	
410A010300020	LEDφ3 RED / GREEN COLOUR	1	LED
4121010116J40P	CARBON RES. 1/6W-100Ω	1	R900
4121010316J40P	CARBON RES. 1/6W-10KΩ	1	R901
4121015216J40	CARBON RES. 1/6W-1.5KΩ	2	R903 905
4121033216J40	CARBON RES. 1/6W-3.3K	2	R902 906
4121051216J40	CARBON RES. 1/6W-5.1KΩ	1	R904
4300KSM603LM0P	I/R PCB GP1UX511QS	1	REMOTE
POWER BOARD			
4041920002010P	SOCKET 2PIN/2.0[ROHS]	1	CN111
4041920003010P	SOCKET 3PIN/2.0[ROHS]	1	CN108
4041920005010P	SOCKET 5PIN/2.0	1	CN104
4041920008010P	SOCKET 8PIN/2.0	1	CN107
4041920010010P	SOKCET 10PIN/2.0[ROHS]	2	CN101,CN103
4041979202030P	2P SOCKET 7.92VH SERIES [ROHS]	1	JP1
4110LEQ300010	TRANSFORMER LEQ30-001	1	T3
411BCK493400AP	TRANSFORMER BCK-4934[ROHS]	1	T1
4121010512J10	CARBON RES. 1/2W-1MΩ-J	1	R37
4121022512J10	CARBON RES. 1/2W-2.2MΩ-J	1	R1
412102R212J40	CARBON RES. 1/2W-2.2Ω	1	R18
4122033331J10	METAL OXIDE FILM RES. 3W-33K-J	1	R34
41250R1002J20	CERAMIC CAPA.2W-0.1Ω-J 15X5-7.5	1	R3
4129008R05A00	THERMAL RES. NTC 8D-15 5A 8R	1	R52
412A0471D14A0	PIEZO RES. ENC471D-14A	1	R2
4130471102M00	EL- CAPA. ENC471D-14A	1	C6
4136151102M00	CERAMIC CAPA. Y DC1000V-151	1	C5
4136471251M00	CERAMIC CAPA. Y CAPA.AC250V-471 M	3	C3,4,38
4138104101M00	METAL MYLAR CAPA.. 100V-0.1uF-M	1	C24
4138184101M01	METAL MYLAR CAPA.. 100V-0.18uF	1	C9

PART CODE	DESCRIPTION	QTY	LOCATION
4138223102K00	METAL MYLAR CAPA.. 1000V-0.022 μ F-K	1	C27
4138224275M00	METAL MYLAR CAPA.. 275V-0.22 μ F-M	2	C1,2
4138564451J00	METAL MYLAR CAPA.. 450V-0.56 μ F-J	2	C21,22
414010216RM60P	EL-CAP, 16V-1000uF M, [JICON][ROHS]	2	C301,302
414022216RM03P	EL-CAP,105°High Frequency / Low Impedance, [JICON][ROHS]	2	C36,40
414110116RM03P	EL-CAP,105°High Frequency / Low Impedance 16V-100uF-M(CRY-06)[ROHS]	2	C114 C115
414110150RM02P	EL-CAPA. High Frequency / Low Impedance (CRY-06), 50V-100uF-M 105°C[ROHS]	1	C18,
4141181451M01P	EL-CAP, High Frequency / Low Impedance 450V-180uF-M 105°C [ROHS]	1	C11
414118235RM01P	EL-CAP, High Frequency Low Impedance Φ 13*25, 35V-1800uF-M 105°C[ROHS]	3	C35,41,42
414122210RM02P	EL-CAP, High Frequency/ Low Impedance 105°C, 10V-2200uF-M[ROHS]	2	C307, C307A
414122R101M01P	EL-CAP, High Frequency / Low Impedance 105°C, 100V-22uF-M (CRY-06)[ROHS]	1	C20
414122R35RM01P	EL-CAP, High Frequency / Low Impedance 105°C, 35V-22uF-M (CRY-06)[ROHS]	1	C29
414147110RM03P	EL-Cap, High Frequency / Low Impedance 105°C	2	C112 C116
41414R750RM02P	EL-Cap, High Frequency / Low Impedance 105°C ,50V-4.7uF-M (CRY-06)[ROHS]	1	C37
4151000027020	DIODE ZENER 1W-27V-J, DO-41	2	D17,18
4152YG868C150P	DIODE YG868C15R, ROHS] 150V/30A TO-220F	4	D22,23,D25 26
4152YG972S6R0	DIODE YG972S6RSC, 600V/10A TO-220F	1	D9
41530IN581940	TRANSISTOR 1N5819	1	D20
41540GBU60610	GBU606	1	D1
41602SK352801P	TRANSISTOR 2SK3528-01R[ROHS]	1	Q1
417000PC817B0	PHOTO COUPLE IC PC817B	2	U3,4
41700KA431AZ0	IC KA431AZ TO-92	1	U5
4170F9222L000P	IC F9222L-F219[ROHS]	1	U2
4222500500041	FUSE T 5A 250V VDE/UL	1	F1
425T320100010	MTV-3201 HEAT SINK (1) WJETV3201#390100(AL)	1	PCB BOARD
425T320100020	MTV-3201 HEAT SINK (2) WJETV3201#390200(AL)	1	U2&D9
42902101KT800	INDUCTOR L2006-100Uh, T80-26	1	L1

PART CODE	DESCRIPTION	QTY	LOCATION
4290235011000	INDUCTOR 3.5X1X10 120Ω, RN10	2	L2, L101
4290250R00040	INDUCTOR 50Ω (100MHz)	3	FB105,106,107
4290301614000	INDUCTOR LCL-1614	1	T2
42905703RJ000	INDUCTOR TB0624A0070 7uH	2	L304 L305
42905TD1415A0	INDUCTOR TD1415A0100, 10uH	1	L301
42905TT1206A2	INDUCTOR TT1206A2001 1.8mH	1	L303
4320005001000	JUMPER 10mm	1	J1
4320006000900	JUMPER 9mm	1	R42
412700R01AJ60	CHIP RES 1/10W-0Ω-J 0805	2	R304 R62
412701011AJ60	CHIP RES 1/10W-100Ω 0805 J	1	R17,
412701021AJ60P	CHIP RES 1/10W-1KΩ 0805 J	1	R313
412701031AJ60	CHIP RES 1/10W-10KΩ 0805 J	7	R6,7,10,11,24,103,108
412701041AJ60	CHIP RES 1/10W-100KΩ 0805 J	5	R19,20,21,22,59
412701051AJ60	CHIP RES 1/10W-1MΩ 0805 J	1	R51
4127010R1AJ60P	CHIP RES 1/10W-10Ω 0805 J	2	R4,R319
412701631AJ60	CHIP RES 1/10W-16K-J 0805	1	R5
412702211AJ60	CHIP RES 1/10W-220Ω 0805 J	1	R43
412702231AF60	CHIP RES 1/10W-22KΩ-F 0805	1	R57
412702231AJ60	CHIP RES 1/10W-22KΩ 0805 J	5	R8,29,30,31,32
4127022R1AJ60	CHIP RES 1/10W-22Ω 0805 J	1	R41
412702711AJ60	CHIP RES 1/10W-270Ω 0805 J	1	R38
412702721AJ60	CHIP RES 1/10W-2.7KΩ 0805 J	1	R48
412702731AJ60	CHIP RES 1/10W-27KΩ 0805 J	1	R302
412703311AJ60	CHIP RES 1/10W-330Ω 0805 J	1	R316
412703321AJ60	CHIP RES 1/10W-3.3KΩ 0805 J	3	R40,46,301
412703331AF60	1/10W-33KΩ-F 0805	2	R47,R58
412703331AJ60	CHIP RES 1/10W-33KΩ 0805 J	2	R39,R306
412703921AF60	CHIP RES 1/10W-3.9KΩ-F 0805	1	R44
412703R31AJ60	CHIP RES 1/10W-3.3Ω 0805 J	1	R12
412704031AF70	CHIP RES 1/4W-40.2KΩ-F 1206	1	D19
412704721AJ60	CHIP RES 1/10W-4.7KΩ 0805 J	3	R45,101,312
412704731AJ60	CHIP RES 1/10W-47KΩ 0805 J	5	R25,26,27,28,305
412704741AJ60	CHIP RES 1/10W-470KΩ 0805 J	3	R14,15,16
412705121AJ60	CHIP RES 1/10W-5.1KΩ 0805 J	1	R303
412706841AJ60	CHIP RES 1/10W-680KΩ 0805 J	4	R33,49,60 R13
412708241AJ60	CHIP RES 1/10W-820KΩ 0805 J	2	R35,36
413582R50RJ40	CHIP CAPA 50V-82P-J 0805 NPO	1	C312
413510250RM40	CHIP CAPA 50V-102 0805 M	1	C10
413510425RK40	CHIP CAPA 0805, 25V-104-K	3	C104,105,C305

PART CODE	DESCRIPTION	QTY	LOCATION
413510450RZ40	CHIP CAPA 50V-104 0805 Z	7	C308 C12,13,14,15,17,106
413510550RZ50	CHIP CAPA 1206 50V-1uF-Z	1	C43
413522250RK40	CHIP CAPA 0805, 50V-222 K	2	C7,8
413533150RK40	CHIP CAPA 50V-330P 0805 K	1	C25
413547250RK40	CHIP CAPA 50V-472 0805 K	1	C26
413547350RK40	CHIP CAPA 0805, 50V-0.047uF-K	2	C306 C23
415000SS14010	CHIP DIODE SS14 1A/40V	5	D3,4,5,6,7
4150SS1H10010	CHIP DIODE SS1H10-11 1A/100V OR TE12RA SC802-09	2	D11,24
4151000005170	CHIP DIODE ZENER 1206 5.1V 0.5W K	1	ZD102
4151000005671P	CHIP DIODE ZENER 5.6V 0.5W SOD-123[ROHS]	3	D15,D16,ZD103
4151000011070	CHIP DIODE ZENER 1206,11V 0.5W	1	D13
4151000015070P	CHIP DIODE ZENER 1206, 15V 0.5W[ROHS]	1	ZD101
4151000018071	CHIP DIODE ZENER 1206, 18V 0.5W	1	D14
4151000022070	CHIP DIODE ZENER 1206, 22V 0.5W	1	D10
4151000024070	CHIP DIODE ZENER 1206, 24V 0.5W	1	D12
415201N414870P	CHIP DIODE ZENER 1N4148 1206[ROHS]	2	D2,D302
4160000390420P	CHIP TRANSISTOR 2N3904 NPN β ,200-300[ROHS]	6	Q309,Q4,5,6,9,101,
4160000390620	CHIP TRANSISTOR 2N3906 SOT-23	1	Q310
416002N7002L0P	MOSFET 2N7002LT1G SOT-23	2	Q104,305
41600NTD40N03P	MOSFET NTD40N03RT4G TO-252	2	D303,304
41600A0D44410	CHIP MOSFET AOD444 TO-252 P 12A/60V	2	Q2,3,
41602SK207100P	CHIP TRANSISTOR 2SK2071-01S-TB16R(S)	1	Q10
4162SC2412K20	TRANSISTOR 2SC2412K SOT-23	1	Q7
41700AMS11170	IC AMS1117[SOP]3.3V SOT-223	1	IC102
4170NCP5425D0P	IC NCP5425DBR2G TSSOP-20[ROHS]	1	U301
417FA5500AN20	IC FA5500AN-TE1 SOP-8	1	U1

PART CODE	DESCRIPTION	QTY	LOCATION
413547150RK40	CHIP CAPA 50V-470P 0805 K	1	C304
41600AOD40500P	CHIP MOSFET AOD405 TO-252	1	Q103
412701531AF80	CHIP RES.1/10W-15KΩ 0603 F	1	R202
4170MP1410010	IC MP1410	1	U201
413510325RK60	CHIP CAPA 0603, 25V-103-K	2	C201 C202
42904223RM000	CHIP INDCUTOR KDRH104R-220 22uH	1	L201
4152B340A1100	CHIP DIODE B340A-11	1	D201
412747521AF80	CHIP RES 1/10W-47.5KΩ 0603 F	1	R201
412702041AF80	CHIP RES 1/10W-200KΩ 0603 F	1	R203
413582150RK60	CHIP CAPA 50V-820P 0603 K	1	C203
414122150RM02P	EL-CAPA (CRY-06) 50V-220uF-M 105°C[ROHS]	1	C19
4121027316J10	CHIP RES 1/6W-27KΩ J	1	Q1(G)TO GND
414110210RM03P	EL-CAPA(Hi-Frequency Low Impedance 10*18) , 10V-1000uF-M[ROHS]	1	CN111
MAIN BOARD ASSEMBLY - ETV-3202 /AU PANEL		1	
4041920003010P	SOCKET 3PIN/2.0[ROHS]	2	CON17 CON18B
4041920007010P	SOCKET 7PIN/2.0 [ROHS]	1	CON25
4041920011010P	SOCKET 11PIN/2.0[ROHS]	2	CN3 4
4041920012010	SOCKET 12PIN/2.0	2	CN5 6
4041920013010	SOCKET 13PIN/2.0	2	CN1 2
4041925406010	SOCKET 6PIN/2.54	1	CN9
41403R316RM00	EL-CAPA 16V-3.3uF M or 25V、35V、50V	4	C357 359 361 363
414110116RM00	EL-CAPA 16V-100uF M φ6*7	3	C1 426 246
414122R16RM00	EL-CAPA □5*11, CD110-16V-22uF-M	22	C250 253 256 257 259 263 266 267 274 275 280 287 401 403 405 407 409 411 429 474
414147R16RM00	EL-CAPA 16V-47uF Mφ5*7	11	C89 210 212 214 215 229 233 237 326 807 803
4151000003940	DIODE ZENER DW3.9V	1	D19
4151000005140	DIODE ZENER DW5.1V	1	D20
41700024C6410	IC 24C64 DIP8	1	U39
4202DVD260410	AV SOCKET AV4-8.4-13	1	CON6
4202T32020610	RCA SOCKET AV6-8.4-13D	1	CON5
4203T32020110	MTV-3202 SOCKET V1-8.4-3B(BLACK)	1	CON9
420A0301A0510	DP301A S-VIDEO TERMINAL AV-8.4-13S	1	CON7
420DT15011510	SOCKET , DB-15	1	CON14
424000006101A	CRYSTAL OSCILLATOR (49S) -10□---80□ 10M(+20PPM ,20PF)	1	Y2
424003186142A	CRYSTAL OSILLATOR (49S) -10□---80□ 14.31818M(+15PPM,20PF)	1	Y1
4240032262820	CRYSTAL OSCILLATOR (49S) -10□---80□ 28.322MHZ 20PF 20PPM	1	Y4

PART CODE	DESCRIPTION	QTY	LOCATION
4240057662411	CRYSTAL OSILLATOR (49S)24.576MHZ (20PF, +-20PPM)	1	Y3
4105010300060	LED 0805, A0805G1C-1A-01	1	D12
412700R01AJ60	CHIP RES. 1/10W-0Ω-J 0805	1	R552
412700R01AJ80	CHIP RES.1/10W-0Ω 0603J	41	R6 231 235 236 250 251 254 266 267 317 408 413 415 421 481 482 483 485 R487-490 492-494 497 499 500 502 525 560 561 572 802 820 823 824 849 864 873
412701011AJ80	CHIP RES.1/10W-100Ω 0603 J	32	R416 420 424 425 433 435 436 437 438 440 441 450 451 554 564 800 803 804 816 817 R825 829 832 835 836 841 842 862 863 R555 5 427
412701021AJ80	CHIP RES.1/10W-1KΩ 0603 J	6	R20 129 130 531 1 319
412701031AJ80	CHIP RES.1/10W-10KΩ 0603 J	12	R12 17 252 253 445 447 448 449 475 478 479 541
412701041AJ80	CHIP RES.1/10W-100KΩ 0603 J	2	R534 848
412701051AJ80	CHIP RES.1/10W-1MΩ 0603 J	2	R574 847
412701221AJ80	CHIP RES.1/10W-1.2KΩ 0603 J	1	R585
412701521AJ80	CHIP RES.1/10W-1.5KΩ 0603 J	1	R592
412702021AJ80	CHIP RES.1/10W-2KΩ 0603 J	1	R603
412702211AJ80	CHIP RES.1/10W-220Ω 0603 J	1	R591
412702221AJ80	CHIP RES.1/10W-2.2KΩ 0603 J	2	R229 230
412702231AJ80	CHIP RES.1/10W-22KΩ 0603 J	2	R589 R584
4127022R1AJ80	CHIP RES.1/10W-22Ω 0603 J	14	R126 127 131 132 239 240 243 245 411 418 565 566 599 600
412702411AJ80	CHIP RES.1/10W-240Ω 0603 J	1	R443
412702741AJ80	CHIP RES.1/10W-270KΩ 0603 J	2	R474 477
412703331AJ80	CHIP RES.1/10W-33KΩ 0603 J	1	R846
4127033R1AJ80P	CHIP RES.1/10W-33Ω 0603 J[ROHS]	7	R241 400 404 550 551 571 573
412703R31AJ80	CHIP RES.1/10W-3.3Ω 0603 J	1	R519
412704711AJ80P	CHIP RES.1/10W-470Ω 0603 J[ROHS]	4	R473 476 583 R590
412704721AJ80	CHIP RES.1/10W-4.7KΩ 0603 J	51	R13 146 268 269 272 280 288 289 318 322 323 409 410 414 419 R439 528 535 536 568 575 577 594 601 602 801 805 807-815 R826-828 833

PART CODE	DESCRIPTION	QTY	LOCATION
412704731AJ80	CHIP RES.1/10W-47KΩ 0603 J	5	R237 238 246 247 417
4127047R1AJ80	CHIP RES.1/10W-47Ω 0603 J	5	R446 491 495 501 503
412705111AJ80	CHIP RES.1/10W-510Ω 0603 J	2	R21 158
412705131AJ80P	CHIP RES.1/10W-51KΩ 0603 J	1	R146
4127051R1AJ80	CHIP RES.1/10W-51Ω 0603 J	8	R9 10 124 128 537 538 597 598
412706811AJ80	CHIP RES.1/10W-680Ω 0603 J	5	R264 265 429 430 587
4127068R1AJ80	CHIP RES.1/10W-68Ω 0603 J	1	R588
4127075R1AJ80P	CHIP RES.1/10W-75Ω 0603 J[ROHS]	14	R226 227 228 232 233 234 542 547 548 549 586 843 844 845
412708221AJ80	CHIP RES.1/10W-8.2KΩ 0603 J	1	R444
413510150RJ60P	CHIP CAPA. 50V-100P 0603 J NPO[ROHS]	4	C323 331 332 804
413510250RK60	CHIP CAPA.50V-102-K 0603	25	C123 125 129 130 328 329 431 432 433 436 437 452 453 454 455 456 457 460 461 462
			C463 464 465 466 468
413510350RK60	CHIP CAPA.0603 50V-10nF-K	19	C2 73 78 79 80 81 82 87 209 211 213 227 231 235 239 316 317 440 443
413510450RZ60	CHIP CAPA.50V-104 0603 Z	108	C6-24 27 29 31 37 38 40 44 45 47 49 51-63 69-72 273 74-77 85 86 118 121 122 124
			C127 128 221 223 225 249 254 255 258 260 264 265 268 276 281 288 360 387 402 404
413510510RZ40	CHIP CAPA.0805, 10V-105-Z	2	C438 441
413510616RZ70	CHIP CAPA.1210, 10uF-16V-Z	35	C30 32 36 39 41 43 46 48 50 64 88 90 120 126 244 315 318 327 330 358 415 421
			C423 424 425 427 428 435 447 469 470 478 480 481 814
413515R50RJ60	CHIP CAPA.50V-15P 0603 J NPO	2	C324 325
413518R50RJ60	CHIP CAPA.50V-18P 0603 J NPO	2	C445 446
413520R50RJ60	CHIP CAPA.50V-20P 0603 J NPO	2	C25 26

PART CODE	DESCRIPTION	QTY	LOCATION
413522350RZ60	CHIP CAPA.50V-0.022 μ 0603 Z	16	C365-368 371-375 377 379 380 381 382 383 400
413527150RK60	CHIP CAPA.50V-270P 0603 K	4	C388 391 394 397
413527250RK60	CHIP CAPA.50V-2700P 0603 K	7	C35 42 362 364 393 396 399
413530R50RJ60	CHIP CAPA.50V-30P 0603 J NPO	3	C471 384 385
413533150RK60	CHIP CAPA.50V-330P 0603 K	10	C194 195 196 197 198 199 228 230 232 234
413533250RK60	CHIP CAPA.50V-3300P 0603 K	1	C390
413547250RK60P	CHIP CAPA.50V-472 0603 K[ROHS]	2	C83 84
413547350RZ60	CHIP CAPA.0603 50V-47n-Z	2	C800 801
413547416RZ60	CHIP CAPA.0603, 16V-474-Z	1	C802
413547R50RJ60	CHIP CAPA.50V-47P 0603 J NPO	1	C805
413568150RK60	CHIP CAPA.50V-680P 0603 K	4	C389 392 395 398
413568R50RJ60	CHIP CAPA.50V-68P 0603 J NPO	2	C4 5
414522R10RMZ0	EL-CAP.10V-22 μ F M	1	C811
415201N414870	CHIP DIODE 1N4148 1206	10	D3 4 5 15 16 17 21 22 23 8
41520BAT54C60	CHIP DIODE S0-23, BAT54C	1	D6
4160000390420P	CHIP TRANSISTOR 2N3904 NPN β 200-300[ROHS]	6	Q1 6 7 16 17 18
4160000390620	CHIP TRANSISTOR 2N3906 SOT-23	2	Q14 15
416002N7002L0P	MOSFET 2N7002LT1G SOT-23	1	Q4 5
416PCHAN20P03	MOSFET P-CHANNEL TO-252 MTD20P03HDLT4/代25P03	1	Q8
41700024LC010	IC 24LC02 SOP-8L	1	U5
417000CM20210P	IC CM2021 TSSOP-38	1	U2
41700AMS11170	IC AMS1117[SOP]3.3V, SOT-223	2	U47 50
41700CS434410	IC CS4344, TSSOP10, 24bit 192KHz	1	U41
41700QFP25610P	IC SVP-EX52, 256EDHS-QFP(LF) ROHS	1	U1
417024LC21A00P	IC 24LC21A/SN(SO8) ROHS	1	U16
41708M0001620	IC HY5DU281622ET-5 8M*16 DDR SDRAM TSOP-66[2M*4*16bit]	2	U3 4
4170SII901110	IC SII9011	1	U46
417AM29F040B0	IC AM29F040B PLCC32S	1	U36
417AMS1117180P	IC AZ1117H-1.8TRE1 (TO-252)	4	U28 31 44 45

PART CODE	DESCRIPTION	QTY	LOCATION
417AMS1117250	IC AMS1117-2.5V (TO-252)	1	U25
417AZ1084S1V8	IC (TO-252) AZ1084D-1.8TR	1	U30
417AZ1084S3V3	IC (TO-263) AZ1084S-3.3V	2	U27 43
417FSAV330M10	IC (SO16)P15V330/FSAV330M	1	U15
417M30620SP10	IC M30620SPGP , LQFP100-P-1414-0.5	1	U38
417SAA7117H00	IC SAA7117H QFP160	1	U42
417SN74LVC140P	IC SN74LVC14ADR SO14	1	U14
420FT15013010	SOCKET, DF14-30S-1.25C	1	CN8
420HM32021910	HDMI SOCKET, HMR41-AK5200	1	CON3
42815R0082010	CHIP RES.15Ω*4 0603	8	RN1-8
42833R0082010P	CHIP RES.33Ω*4 0603[ROHS]	21	RN15-21 24-31 39 40 41 42 44 45
429025R6K0010	CHIP INDUCTOR 1210, DR43-5R6K	1	FB31
429042R2J7010	CHIIP INDUCTOR 1210, ALM322522-2R2K	3	L12 13 14
4290512107010	CHIP INDUCTOR 1206, 20 OHM@100MHz 1A	3	L1 2 3
4290512207030	CHIP INDUCTOR 1206 HCB3216K-122T25 100MHZ 300MA	6	R302 FB33 36 40 60 65
4290515108010	CHIP INDUCTOR 0603, 150 OHM@600mA	20	FB1 4 7 9 10 17 18 23 26 43 47-49 64 28 34 38 41 42 44
425P110000030	AVP1100 4408 HEATSINK	1	
4320006000250	JUMPER 2.5mm	1	FB2
7566T3001000M	MTV-3001VGA PCB ASSEMBLY	1	
4041920003010P	SOCKET 3PIN/2.0[ROHS]	1	CN1
405T300105600	PCB DOUBLE SIDE, 3001 42*20mm	1	
420ET15010920	SOCKET , DB9	1	P1
7576T3201002F	ETV-3201 SPEAKER ASSEMBLY	1	
4208E32010400	WP4-3B	1	
4042920002010P	SOCKET 2PIN/2.0	2	CON1,CON2
7596T3202002A	ETV-3202	1	
305T320103012	MTV-3201 HEATSINK SUPPORT WJETV3201#420700	2	
4041920002010P	SOCKET 2PIN/2.0[ROHS]	1	SPEAKER_R
4041920003010P	SOCKET 3PIN/2.0[ROHS]	1	SPEAKER_L
4041920011010P	SOCKET 11PIN/2.0[ROHS]	2	CN304 305
4041920012010	SOCKET 12PIN/2.0	2	CN300 301
4041920013010	SOCKET 13PIN/2.0	2	CN302 303
4041925404010P	SOCKET 4PIN/2.54	1	JP100
4121010214J40P	CARBON RES 1/4W-1KΩ[ROHS]	4	R145-R148
414022125RM00	EL-CAPA.25V-220uF M	1	C156
41404R716RM00	EL-CAPA.16V-4.7uF M or 25V、35V、50V	1	E108
414110116RM00	EL-CAPA.16V-100uF M φ6*7	18	C153 229 230 232 234 240 243 244 488 489 E200-203 300-303
414110R16RM00P	EL-CAPA.16V-10uF-M[ROHS], RB.2.5/5	15	C138-141 E100-106 E109 306 400 401

PART CODE	DESCRIPTION	QTY	LOCATION
414122R16RM00	EL-CAPA.□5*11, CD110-16V-22uF-M	1	C154
414147116RM00P	EL-CAPA.□8*12, CD110-16V-470uF-M[ROHS]	3	E107 C424 425
414147125RM00	EL-CAPA.25V-470uF M≤φ8*15	5	C143-146 152
414147R16RM00	EL CAPA16V-47uF Mφ5*7	5	E110 111 C157 236 237
417000078L080	DIODE ZENER 78L08	1	U100
417TDA8947J10P	IC TDA8947J/N3 SOT243-1[ROHS]	1	U103
4202T32020010	RCA SOCKET AV2-8.4-13	1	J200
4204T32020010	HEADPHONE SOCKET, CKX-3.5-036	1	PHO100
420BT15012110	SCART SOCKET, RC-2105	2	J400 401
424004326183A	CYSTAT OSCILLATOR 18.432MHZ 15PPM 15PF 49S -10□---80□	1	Y100
425E320200010P	ETV-3202 HEATSINK 70*27*15mm	1	
437T320200070	MTV-3202 CONNECTOR	1	
442JS6H212110	DTV-3702 TUNER JS-6H2/,121A25-A2	1	U300
442JS6H212120	DTV-3702 TUNER JS-6H2/,122A2	1	U302
412700R01AJ60	CHIP RES.1/10W-0Ω-J 0805	2	R103 106
412700R01AJ80	CHIP RES.1/10W-0Ω 0603J	11	R303-305 424 RQ101 RB302-304 RD300 303 304
412701011AJ80P	CHIP RES.1/10W-100Ω 0603 J	7	R111 112 114-117 132
412701021AJ80P	CHIP RES.1/10W-1KΩ 0603 J[ROHS]	11	R100-102 128 129 221 224 213-216
412701031AJ80P	CHIP RES.1/10W-10KΩ 0603 J[ROHS]	4	R124 125 131 136
412701231AJ80P	CHIP RES.1/10W-12KΩ 0603 J[ROSH]	2	R412 413
412702211AJ80P	CHIP RES.1/10W-220Ω 0603 J[ROHS]	2	R456 457
412702231AJ80	CHIP RES.1/10W-22KΩ 0603 J	2	R451 453
412702721AJ80	CHIP RES.1/10W-2.7KΩ 0603 J	1	R133
412703311AJ80	CHIP RES.1/10W-330Ω 0603 J	4	R427-430
412703321AJ80P	CHIP RES.1/10W-3.3KΩ 0603 J[ROHS]	1	R130
4127033R1AJ80P	CHIP RFES.1/10W-33Ω 0603 J[ROHS]	14	R206-R212 220 227 228 RB300 301 RD301 302
412703921AJ80	CHIP RES.1/10W-3.9KΩ 0603 J	4	R120-123
412704721AJ80P	CHIP RES.1/10W-4.7KΩ 0603 J[ROHS]	3	R110 134 135
412704731AJ80P	CHIP RES.1/10W-47KΩ 0603 J[ROHS]	26	R140-143 201-203 205 R418-421 230 231 234 235 238-242 244-246 248 249
4127047R1AJ80	CHIP RES.1/10W-47Ω 0603 J	3	R454 455 R436

PART CODE	DESCRIPTION	QTY	LOCATION
412705121AJ80P	CHIP RES.1/10W-5.1KΩ 0603 J[ROHS]	2	R415 416
412705621AJ80P	CHIP RES.1/10W-5.6KΩ 0603 J[ROHS]	2	R450 452
4127075R1AJ80P	CHIP RES.1/10W-75Ω 0603 J[ROHS]	13	R302 R400-411
413510150RJ60P	CHIP CAPA.50V-100P 0603 J NPO[ROHS]	2	C100 101
413510250RK60	CHIP CAPA.50V-102-K 0603	8	C126 127 129 130 426-429
413510425RZ60	CHIP CAPA.25V-104 0603 Z	21	C114-117 147 148 150 151 200-202 248 300-304 406 407 430 431
413510516RZ40	CHIP CAPA.16V-1μ 0805 Z	4	C131 132 136 137
413515150RK60P	CHIP CAPA.50V-150P 0603 K[ROHS]	6	C418-423
413515250RK60	CHIP CAPA.50V-1500P 0603 K	3	C121-123
413515R50RJ60P	CHIP CAPA.50V-15P 0603 J NPO	2	C124 125
413522150RK60	CHIP CAPA.50V-220P 0603 K	1	C135
413533150RK60	CHIP CAPA.50V-330P 0603 K	2	C404 405
413533416RZ60P	CHIP CAPA.16V-0.33μ 0603 Z	9	C105-113
413547150RK60P	CHIP CAPA.50V-470P 0603 K[ROHS]	11	C118-120 204-206 208 408-411
413547416RZ60	CHIP CAPA. 0603, 16V-474-Z	10	C215 216 219 220 223-228
413556R50RJ60	CHIP CAPA.50V-56P 0603 J NPO	3	C102-104
415201N414870P	CHIP DIOIDE 1N4148 1206[ROHS]	1	D1
4160000390420P	CHIP TRANSISTOR 2N3904 NPN β200-300[ROHS]	2	Q401 402
4160000901421	CHIP TRANSISTOR (SOT23)9014 NPN	2	Q130 131
4160000901520P	CHIP TRANSISTOR 9015[ROHS]	1	Q132
41774HC405110	IC 74HC4051(SO-16)	1	U202
41774LV405210	IC 74LV4052 SO-16	3	U200 201 203
417MSP3410010P	IC MSP3410G-QA-B8-V3--T [PQFP80]	1	U101
417TDA1308010	IC TDA1308(SO-8)	1	U102
4281020082010	CHIP RES.1K*4 0603	4	RA204 207 210 211
429042R2J7010P	CHIP INDUCTOR 1210, ALM322522-2R2K[ROHS]	1	L4
429043R300060	CHIP INDUCTOR 3.3uH 0805 K	2	L408 409
4290512106010	CHIP INDUCTOR 0805, 120 OHM@100MHz 2A	12	L300 301 400-407 411 412
4290515106010	CHIP INDUCTOR 0805, 150 OHM@600mA	6	B300-303 400 401
7596T3702002A	DTV-3702	1	
4041920002010P	SOCKET 2PIN/2.0[ROHS]	2	SPEAKER100 SPEAKER101
4041920005010P	SOCKET 5PIN/2.0	1	CON400
4041925404010P	SOCKET 4PIN/2.54	1	JP100

PART CODE	DESCRIPTION	QTY	LOCATION
414110116RM00	EL-CAP 16V-100uF M ϕ 6*7	19	C166 229 230 231 232 234 245-248 488 490 491 E118 180 300-303
414110R16RM00P	EL-CAP 16V-10uF-M[ROHS]	13	E100-107 C237 238 240 241 242
414147R16RM00	EL-CAP 16V-47uF M ϕ 5*7	10	E110 111 E200 201 202 203 306 400 401 CEK01
417000078L080	IC 78L08	1	U100
4202DT3720410	AV SOCKET AV4-8.4-13D	1	J200
4204T32020010	EAR PHONE SOCKET CKX-3.5-036	1	PHO100
420A0301A0510	DP301A S-VIDEO AV-8.4-13S	1	CON200
420B009882110P	SCART SOCKET [21 PIN] SC103	2	J400 401
424004326183A	OSCILLATOR 18.432MHZ 15PPM 15PF	1	Y100
442JS6H212110	DTV-3702 TUNER JS-6H2/	1	U300
442JS6H212120	DTV-3702 TUNER JS-6H2/	1	U302
412700R01AJ60	CHIP RES.1/10W-0 Ω -J 0805	2	R103 106
412700R01AJ80	CHIP RES.1/10W-0 Ω 0603J	7	R423 RB302 RB303 RD300 RD303 RD304 RQ101
412701011AJ80P	CHIP RES.1/10W-100 Ω 0603 J	7	R111 112 114-117 456
412701021AJ80P	CHIP RES.1/10W-1K Ω 0603 J[ROHS]	24	R100-102 126-130 214 244-258
412701031AJ80P	CHIP RES.1/10W-10K Ω 0603 J[ROHS]	6	R124 125 450 451 R136 139
412701231AJ80P	CHIP RES.1/10W-12K Ω 0603 J[ROSH]	2	R412 413
412701241AJ80	CHIP RES.1/10W-120K Ω 0603 J	1	R134
412703311AJ80	CHIP RES.1/10W-330 Ω 0603 J	4	R427-430
4127033R1AJ80P	CHIP RES.1/10W-33 Ω 0603 J[ROHS]	14	R206-R212 222 223 454 RB300 RB301 RD301 RD302
412704721AJ80P	CHIP RES.1/10W-4.7K Ω 0603 J[ROHS]	8	R120-123 131 141 142 143
412704731AJ80P	CHIP RES.1/10W-47K Ω 0603 J[ROHS]	32	R200-205 R224-226 232-240 R418-421 431 432 227 228 229 230 231 241 242 243
412705121AJ80P	CHIP RES.1/10W-5.1K Ω 0603 J[ROHS]	2	R416 417
4127068R1AJ80	CHIP RES.1/10W-68 Ω 0603 J	1	R425
4127075R1AJ80P	CHIP RES.1/10W-75 Ω 0603 J[ROHS]	17	R217-219 302 400-404 409-411 433 405 406 407 408
413510150RJ60P	CHIP CAPA.50V-100P 0603 J NPO[ROHS]	2	C100 101

PART CODE	DESCRIPTION	QTY	LOACTION
413510250RK60	CHIP CAPA.50V-102-K 0603	14	C126 127 129 130 142 143 146-149 426 427 428 429
413510450RZ60P	CHIP CAPA.50V-104 0603 Z[ROHS]	27	C114-117 144 145 163 167 200 300-304 406 407 430 431 201 202 244 164 C152156
413510510RZ60P	CHIP CAPA.10V-1μ 0603 Z[ROHS]	1	C172
413510516RZ40	CHIP CAPA.16V-1μ 0805 Z	8	C131 132 134 135 136 137 157 158
413510625RZ70P	CHIP CAPA.1210 10Uf-25V-Z	3	C159 165 170
413515150RK60P	CHIP CAPA.50V-150P 0603 K[ROHS]	4	C419 420 422 423
413515250RK60P	CHIP CAPA.50V-1500P 0603 K	3	C121-123
413520R50RJ60	CHIP CAPA.50V-20P 0603 J NPO	2	C124 125
413522150RK60	CHIP CAPA.50V-220P 0603 K	2	C150 173
413522425RZ60P	CHIP CAPA.25V-0.22u 0603 Z	4	C160 161 168 169
413522610RZ50P	CHIP CAPA.10V-22μ 1206 Z[ROHS]	4	C138 139 140 141
413533150RK60	CHIP CAPA.50V-330P 0603 K	24	C209-214 306-308 403-405 412-417 309 400 401 402 434 435
413533416RZ60P	CHIP CAPA.16V-0.33μ 0603 Z	9	C105-113
413547150RK60P	CHIP CAPA.50V-470P 0603 K[ROHS]	15	C118-120 203-208 408-411 432 433
413547416RZ60	CHIP CAPA.0603 16V-474-Z	14	C215-228
413547450RZ40	CHIP CAPA.50V-474 0805 Z	2	C162 171
413556R50RJ60	CHIP CAPA.50V-56P 0603 J NPO	3	C102-104
415201N414870P	CHIP DIODE 1N4148 1206[ROHS]	1	D150
4160000390420P	CHIP TRANSISTOR B2N3904 NPN	1	Q401
4160000901421	CHIP TRANSISTOR B(SOT23)9014 NPN	2	Q100 140
4160000901520P	CHIP TRANSISTOR 9015[ROHS]	1	Q141
4170000LM3580P	IC (S0-8) AZ358M-E1[ROHS]	1	U102
41774LV405110	IC 74LV4051 SO-16	1	U202
417MSP3410010	IC MSP3410G [PQFP80]	1	U101
417S0HCF40520	IC HCF4052 SOP	3	U201 200 203
417TPA3005D10	IC TPA3005D	1	U103
4290512106010	CHIP INDUCTOR 0805, 120 OHM@100MHz 2A	24	L200-202 300 301 410 413 414 400-407 B300 301 302 303 B400 401 L408 409
4291022R00040P	CHIP INDUCTOR 22uH SM5845-220K(f) [ROHS] 1.2A	4	L100 101 102 103

The data are subject to change without prior notice.

INSTALLATION INSTRUCTION

HANG ON THE WALL

Step 1 : Disassemble the pedestal.

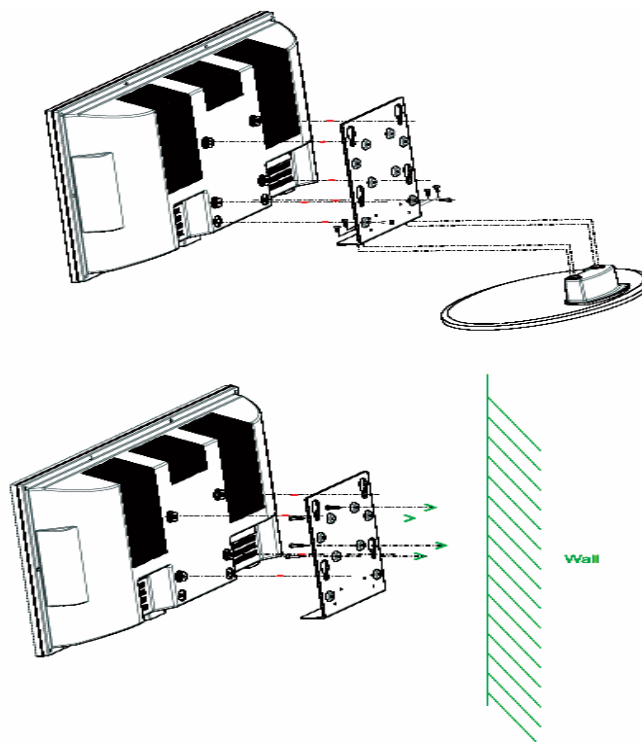
Step 2 : Install part A on the wall.

Step 3 : Hang the TV on the wall

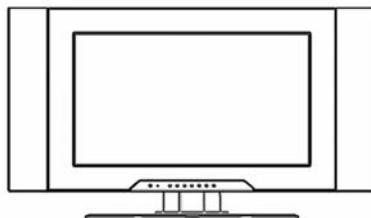
Note :

1. Installtion of the display unit on the wall should be carried out by qualified serviceman.
Improper installtion may render the unit unsafe in the event of an earthquake etc.
2. Two or more people are require to hand this TV on wall.
3. The unit must be fixed to a concrete wall.

Refer to drawings below :-



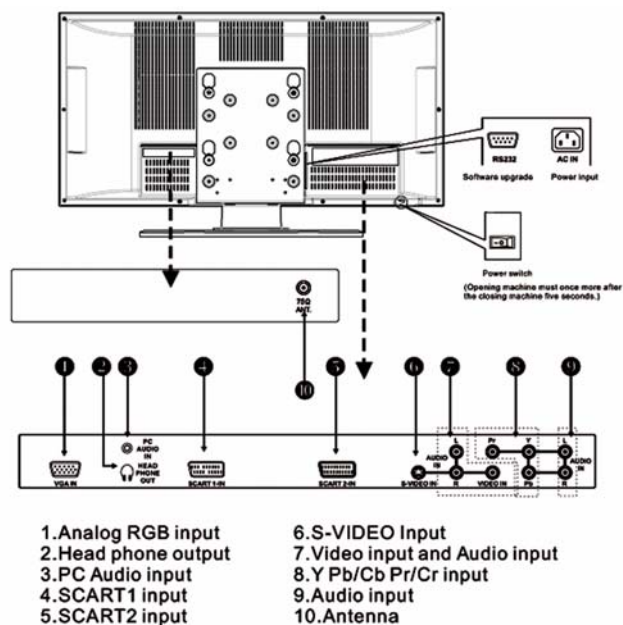
FRONT



KEYS:

- 1.PROG+: channel up select, it is equivalent ▲ .
- 2.PROG-: channel down select, it is equivalent ▼ .
- 3.VOL+: volume up adjust, it is equivalent ► .
- 4.VOL-: volume down adjust, it is equivalent ◄ .
- 5.MENU: to enter into menu operation.
6.  : press the button once to select a signal source.
- 7.POWER: press the key to turn off the set (standby).
- 8.(Power on/standby)indicator:Lights up in green when the set is working. When in standby mode, the indicator light red.

BACK

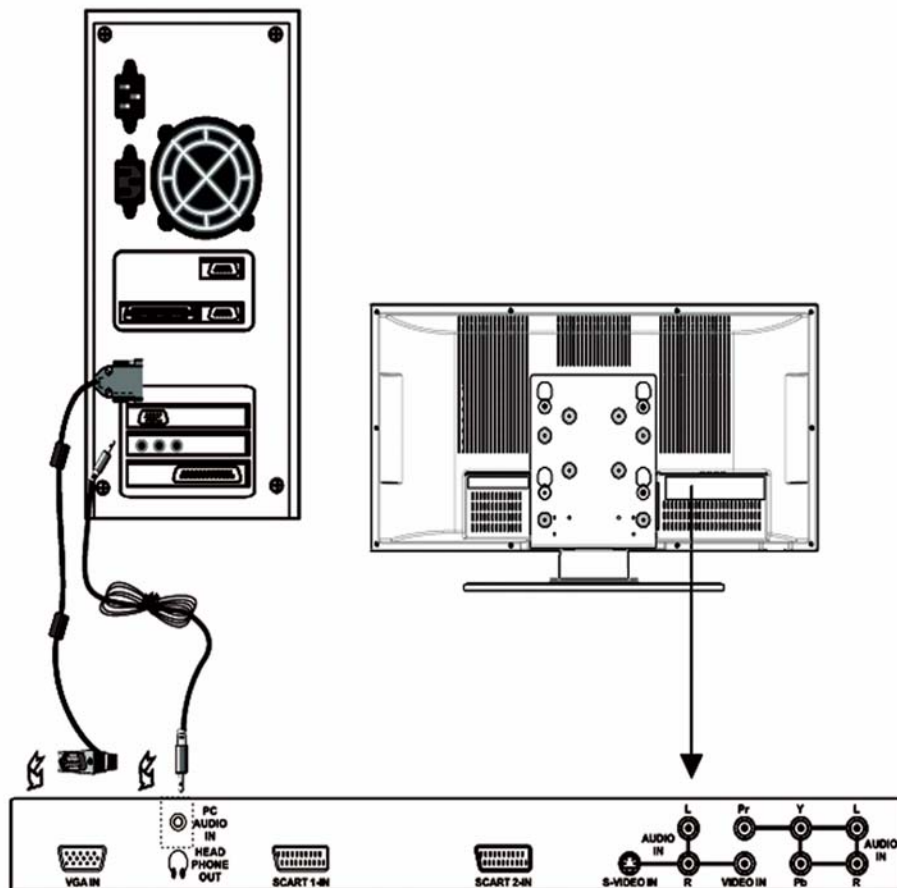


PC

STEPS:

1. Make sure both the TV and computer are Power-Off
2. Connect VGACable from computer to the TV.
3. Connect the Audio cable.
4. Connect power cord
5. Turn Power On
Power-On the TV first, then Power-On the computer.
This sequence is very important.
6. If the TV still does not function properly, please refer to the troubleshooting section to diagnose the problem.

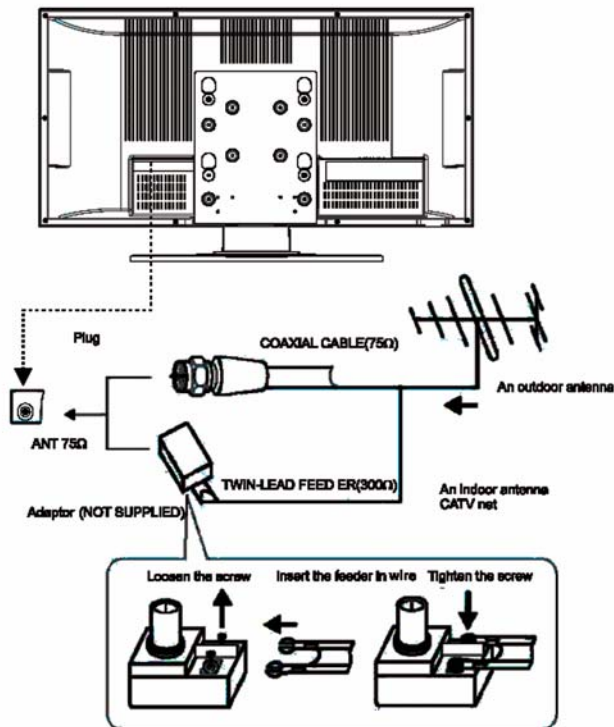
Note: Please don't open the Cover.



CAUTION:

Make sure both computer and TV are power off before unplug any one of the connections.
Do not directly pull off the cords as it would cause damage.

ANTENNA



Note:

Aerial connections: Standard-phonos socket female 75Ω or IEC (female) .
input impedance:75Ω unbalanced.

TROUBLESHOOTING GUIDE

PART I (PC)

This LCD TV has pre-adjusted using factory standard VGA timings. Due to the output timing differences among various VGA cards in the market, users may initially experience an unstable or unclear display whenever a new display mode or new VGA card is selected.

ATTENTION

This LCD TV Supports Multiple VGA Modes.

Refer to the Standard Timing Table for a listing of modes supported by this LCD TV.

PROBLEM **Picture is unclear and unstable**

The picture is unclear and unstable, please perform the following steps:

1. Enter PC to "Shut Down Windows" status while you're in MS-WINDOWS environment.
2. Check the screen to see if there are any black vertical stripes appear. If so, use the "Clock" function in OSD menu and adjust (by toggling numbers) until those bars disappear.
3. Move to "Phase" function in OSD menu again and adjust the TV screen to its most clear display.
4. Click "No" on "Shut Down Windows" and back to the normal PC operating environment.

PROBLEM **There is no picture on LCD TV**

If there's no picture on the LCD TV, please perform the following steps:

1. Make sure the power indicator on the LCD TV is ON, all connections are secured, and the system is running on the correct timing.
2. Turn off the LCD TV and then turn it back on again. If there is still no picture, press the Adjustment Control button several times.
3. If step 2 doesn't work, connect your PC system to another external CRT. If your PC system Functions properly with a CRT TV but it does not function with the LCD TV, the output timing of the VGA card may be out of the LCD's synchronous range. Please change to an alternative mode listed in the Standard Timing Table or replace the VGA card, and then repeat steps 1 and 2.

PROBLEM **There is no picture on LCD TV**

If you have chosen an output timing that is outside of the LCD TV's synchronous range (Horizontal: 24~61KHz and Vertical: 56~75Hz), the OSD will display a "Out of Range" message. Choose a mode that is supported by your LCD TV. Also, if the signal cable is not connected to LCD TV at all or properly, the TV screen will display a message "No Input Signal".

PART II (VIDEO)

Incorporated in your TV receiver are the most up-to-date devices to eliminate interference. Local radiation however, can create disturbances which visibly affect your picture. Proper installation, a good aerial are your best safe-guards against these disturbances.

RF INTERFERENCE

Moving ripples across the screen are caused by nearby transmitting or receiving-short-wave radio equipment.

DIATHERMY

Herringbone pattern and partial picture loss can result from the operation of diathermy equipment from a nearby doctor's surgery or hospital.

SNOW

Weak TV signals from long distant stations result in an unstable picture and give the effect of falling snow. An antenna adjustment or antenna amplifier may be needed.

GHOST

Multiple image caused by TV signals reflected back from surrounding buildings, hills, aircraft, etc. is minimized by correct aerial positioning.

CAR IGNITION

Nearby cars and electrical motors can cause small streaks across the picture or make the picture roll.

SELF-HELP

Before calling for service, have you checked (☒) the following chart on symptoms and solutions.

Symptoms	Solution	Try different channel, if OK, probably station trouble	Check aerial connections on back of set	Check aerial for broken wires	Re-orient aerial (if indoor type)	Probably local interference, such as an appliance	Adjust the tuning control	Adjust brightness control	Check contrast control	Adjust station to broadcasting colour	Check colour control	Check system switch is correct	Check on/off switch is "on"	Check batteries in remote control
No picture, no sound														
Poor sound, picture OK														
Poor picture, sound OK														
Weak picture														
Blurred picture														
Double image														
Lines in picture														
Distorted picture														
Weak reception on some channels														
Horizontal bars														
Picture rolls vertically														
Poor colour														
No colour														
Misoperation of Remote control														
No Remote control														
On Screen Display Control outside the screen														

