

IBBK

SERVICE MANUAL

DW9914S

Ver 0.0



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BASIC INFORMATION

Features

Introducing American LSI (C-CUBE) Company's latest So C AV system (AVS) recorder processor this unit is, capable of recording all kinds of AV input signals, such as TV, ordinary VCD and DV video camera, into high quality DVD disc. In addition, this player is also a high capacity DVD player, capable of realizing all functions of ordinary DVD player. His 2-in-1 unit will make your life more enjoyable and wonderful.

Support multiple input sources recording

- 1 Composite video input
- 2 S-video input
- 3 TV tuner input
- 4 DV input
- 5 Analog audio terminal input
6. SCART input

Provide multiple output signals

1. Composite video output
2. S-video output
3. Component video output
4. SCART output
5. L/R double audio channels output
6. Optical / Coaxial output

Multiple DVD recording qualities

This unit provides you with 4 kinds of recording qualities, each of which has different resolution and recording time, to make you choose between high resolution picture quality and super long time of recording.

Multiple recording methods

This unit facilitates your usage with three kinds of recording methods: ordinarily manual recording, time recording, OTR one-touch recording and DV recording.

Convenient menu operation

This unit incorporates convenient interface menu operation. No need for you to remember the multifarious function buttons on remote control, and you can realize the majority of functions through using a few direction and selection buttons.

Standby function

Remote control standby function makes your operation more convenient and helps you fulfill time recording function on the basis of saving electric power.

Highly intelligent upgrading function

This unit has automatic upgrading function to make you upgrade it into the latest edition with our upgrading disc at any time.

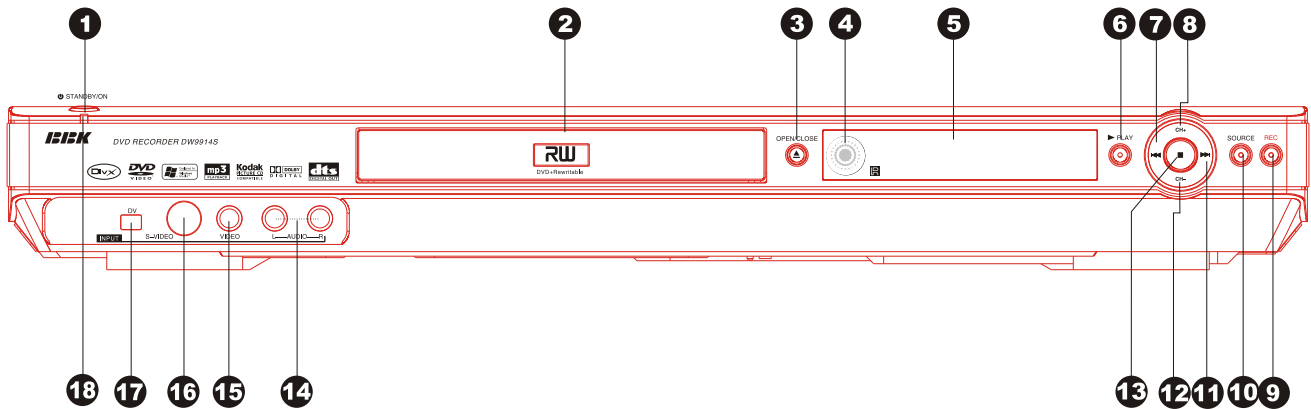
This player can use the following discs

This unit can play DVD, DVD+R, DVD+RW, VCD, SVCD, CD-DA and MP3.

This unit can record DVD+R and DVD+RW

BASIC INFORMATION

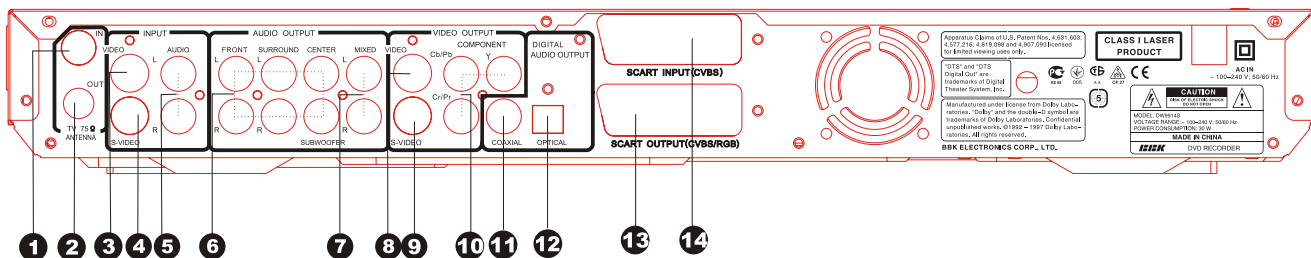
Illustration of the Front Panel



- | | | |
|--------------------------|-----------------|------------------------------------|
| ① STANDBY/ON button | ⑦ PREV button | ⑬ STOP button |
| ② Disc tray | ⑧ CH+ button | ⑭ L/R audio channel input terminal |
| ③ OPEN/CLOSE button | ⑨ REC button | ⑮ Front Video input terminal |
| ④ Infrared remote sensor | ⑩ SOURCE button | ⑯ Front S-Video input terminal |
| ⑤ VFD display window | ⑪ NEXT button | ⑰ DV input terminal |
| ⑥ PLAY button | ⑫ CH- button | ⑱ STANDBY indicator |

- The function of buttons on the front panel is the same with that of the corresponding ones on the remote control.
- The input terminals on the front panel can only be seen when the protection cover is opened.

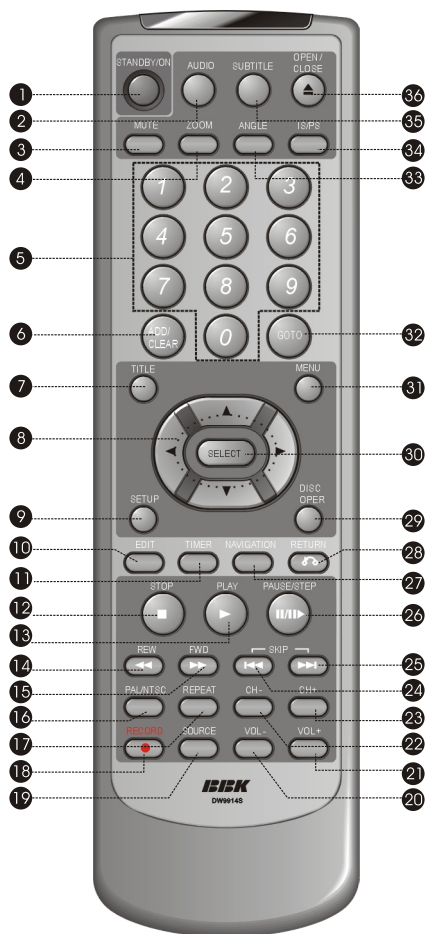
Illustration of the Rear Panel



- | | | |
|---|-------------------------------------|---------------------------------------|
| ① TV TUNER input terminal
※ The antenna cable plug is inserted here | ⑤ L/R channel audio input terminals | ⑩ COMPONENT VIDEO output terminal |
| ② TV TUNER output terminal
※ This terminal is directly connected with the TV TUNER Input Terminal inside this unit | ⑥ 5.1CH output terminals | ⑪ COAXIAL output terminal |
| ③ Rear Video input terminal | ⑦ L/R channel audio output terminal | ⑫ OPTICAL output terminal |
| ④ Rear S-Video input terminal | ⑧ COMPOSITE VIDEO out terminal | ⑬ CVBS/ RGB and audio output terminal |
| | ⑨ S-VIDEO output terminal | ⑭ CVBS and audio input terminal |

BASIC INFORMATION

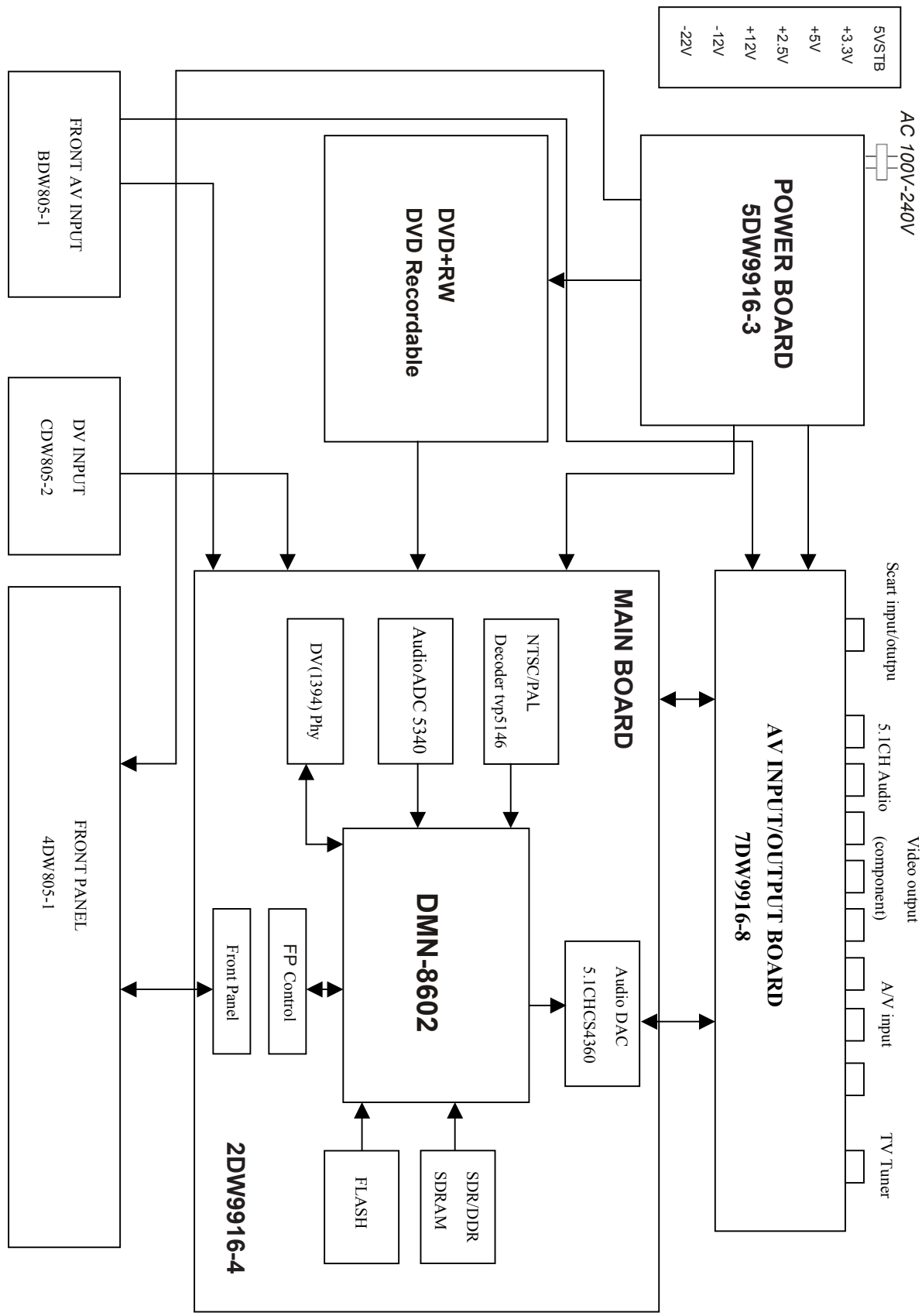
Illustration of the Remote Control



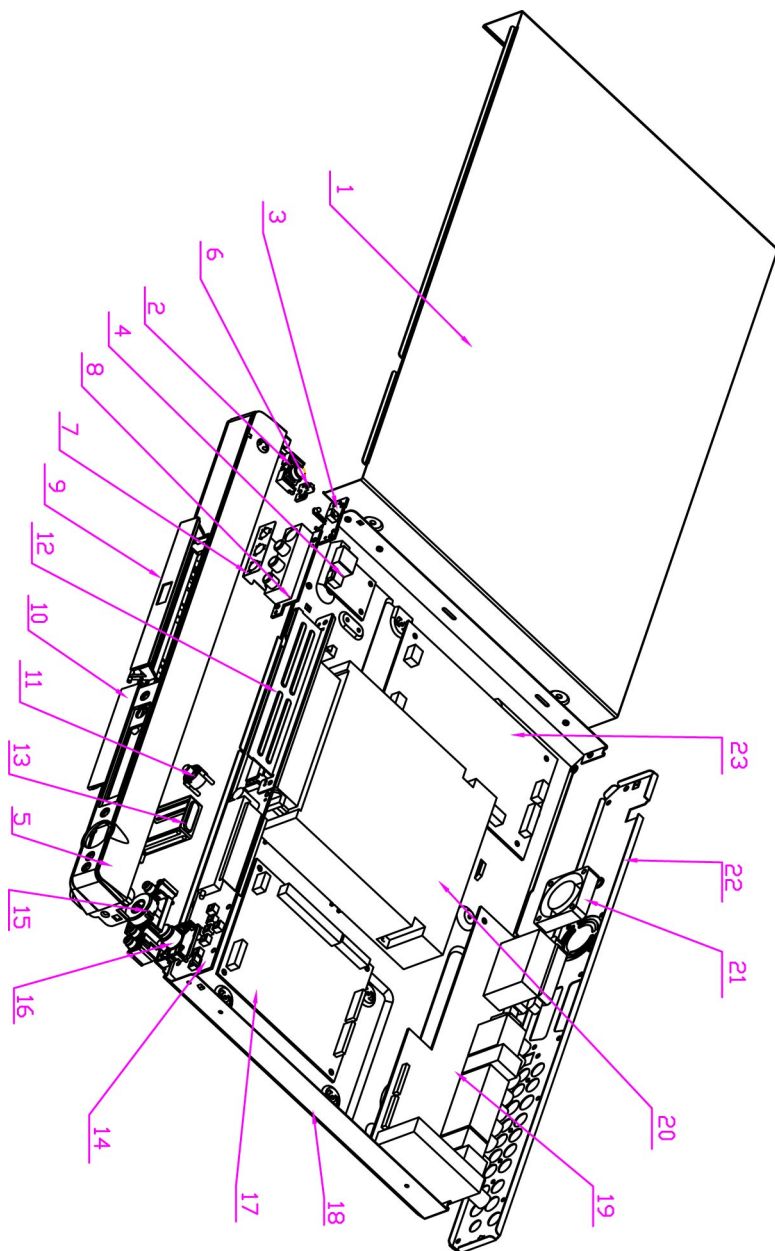
- 28 RETURN button**
Back to the previous menu
- 29 DISC OPER button**
Enter the disc operate mode
- 30 SELECT button**
Confirm the selected item
- 31 MENU button**
※Display the disc menu
※Open/close PBC
- 32 GOTO button**
Play from the desired location
- 33 ANGLE button**
Change camera angles
- 34 IS/PS button**
The progressive scan and interlacing scan conversion
- 35 SUBTITLE button**
Change subtitle languages
- 36 OPEN/CLOSE button**
Open or close the disc tray

- 1 STANDBY/ON button**
Standby
- 2 AUDIO button**
※Switch the audio channel
※Switch the audio stream
- 3 MUTE button**
Mute the sound
- 4 ZOOM button**
Zoom in the DVD picture.
- 5 NUMBER buttons**
- 6 ADD/CLEAR button**
※Add/Clear the content items in the list window
※Clear the wrong input numbers
- 7 TITLE button**
Display DVD titles menu
- 8 CURSOR buttons**
Move the cursor
- 9 SETUP button**
System setup
- 10 EDIT button**
Enter the edit mode
- 11 TIMER button**
Enter the timing record setup
- 12 STOP button**
Stop playing/recording
- 13 PLAY button**
Play a disc
- 14 REW button**
Fast backward play
- 15 FWD button**
Fast forward play
- 16 PAL/NTSC button**
The PAL/NTSC TV output system conversion
- 17 REPEAT button**
Repeat playback
- 18 RECORD button**
Record the external signals
- 19 SOURCE button**
Enter monitoring mode, switch external input signal source.
- 20 VOL- button**
Decrease volume
- 21 VOL+ button**
Increase volume
- 22 CH- button**
Switch TV channels
- 23 CH+ button**
Switch TV channels
- 24 PREV button**
Skip backward
- 25 NEXT button**
Skip forward
- 26 PAUSE/STEP button**
Pause or play frame by frame
- 27 NAVIGATION button**
Display/hide menu

BLOCK DIAGRAM



EXPLODED VIEW



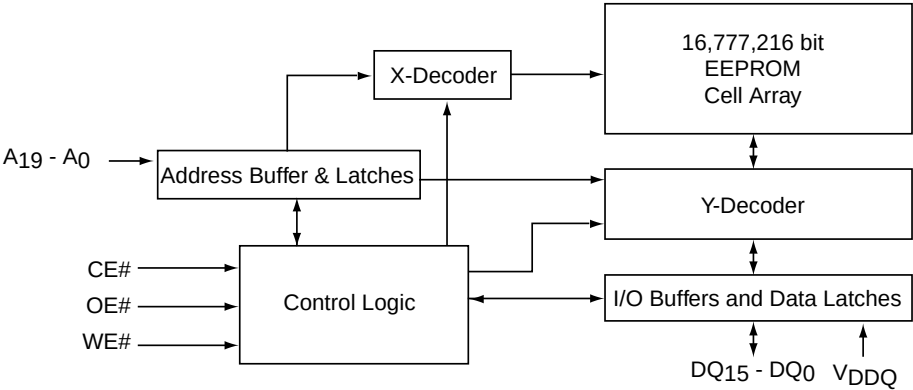
Exploded Drawing

- | | |
|-----------------|------------------|
| 1.TOPCOVER, | 13.VICE BKT, |
| 2.POWERKEY | 14.FACE BOARD, |
| 3.STANDBYPCB, | 15.SEVEN BUTTON, |
| 4.DVPCB, | 16.PAUSE BUTTON, |
| 5.FRONTSHELL, | 17.MAIN BOARD, |
| 6.LIGHTER, | 18.BOTTOM SHELL, |
| 7.AV-JIEDI, | 19.AV PCB, |
| 8.FRONT AV | 20.DRIVER, |
| 9.CD DDDR, | 21.FAN, |
| 10.MIRROR, | 22.BACK COVER, |
| 11.OPEN BUTTON | 23.POWER BOARD, |
| 12.FRONT-BKT01, | |

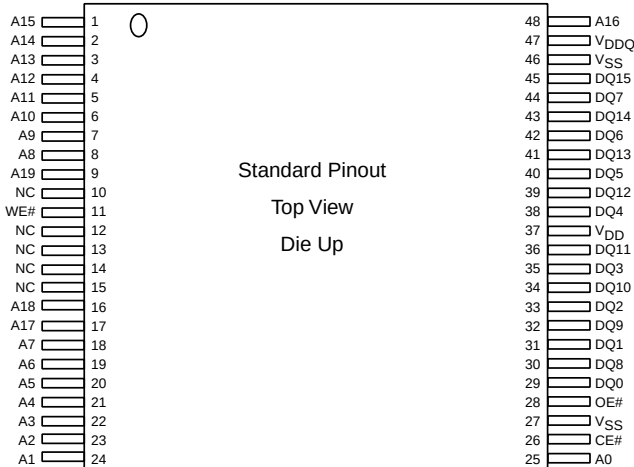
16 Megabit Multi-Purpose Flash
SST39VF160Q / SST39VF160

Advance Information

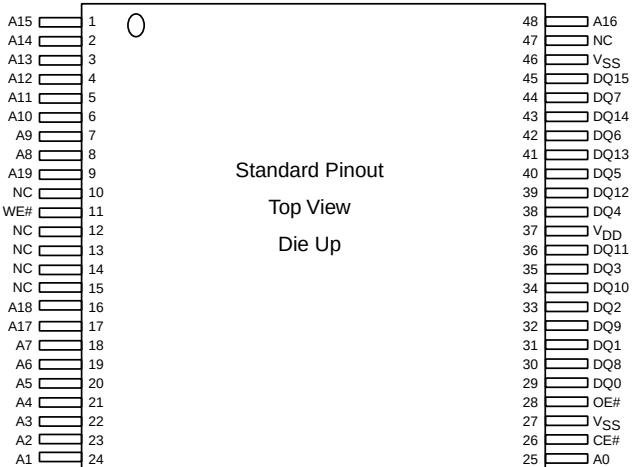
FUNCTIONAL BLOCK DIAGRAM



329 ILL B1.2



329 ILL F01.2



329 ILL F01a.0

FIGURE 1: PIN ASSIGNMENTS FOR 48-PIN TSOP PACKAGES

	1	2	3	4	5	6
A	A3	A7	NC	WE#	A9	A13
B	A4	A17	NC	NC	A8	A12
C	A2	A6	A18	NC	A10	A14
D	A1	A5	NC	A19	A11	A15
E	A0	DQ0	DQ2	DQ5	DQ7	A16
F	CE#	DQ8	DQ10	DQ12	DQ14	VDDQ
G	OE#	DQ9	DQ11	VDD	DQ13	DQ15
H	VSS	DQ1	DQ3	DQ4	DQ6	VSS

SST39VF160Q

329 ILL F02.4

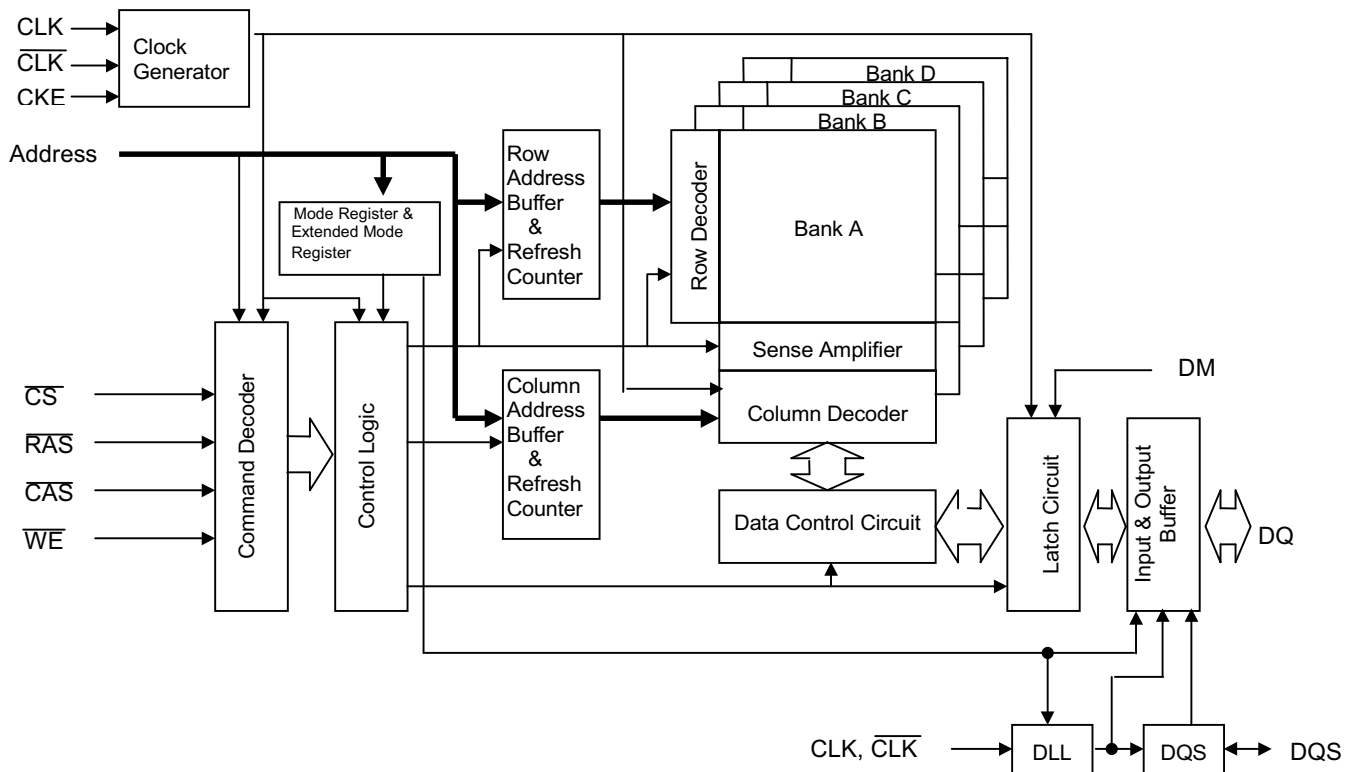
	1	2	3	4	5	6
A	A3	A7	NC	WE#	A9	A13
B	A4	A17	NC	NC	A8	A12
C	A2	A6	A18	NC	A10	A14
D	A1	A5	NC	A19	A11	A15
E	A0	DQ0	DQ2	DQ5	DQ7	A16
F	CE#	DQ8	DQ10	DQ12	DQ14	NC
G	OE#	DQ9	DQ11	VDD	DQ13	DQ15
H	VSS	DQ1	DQ3	DQ4	DQ6	VSS

SST39VF160

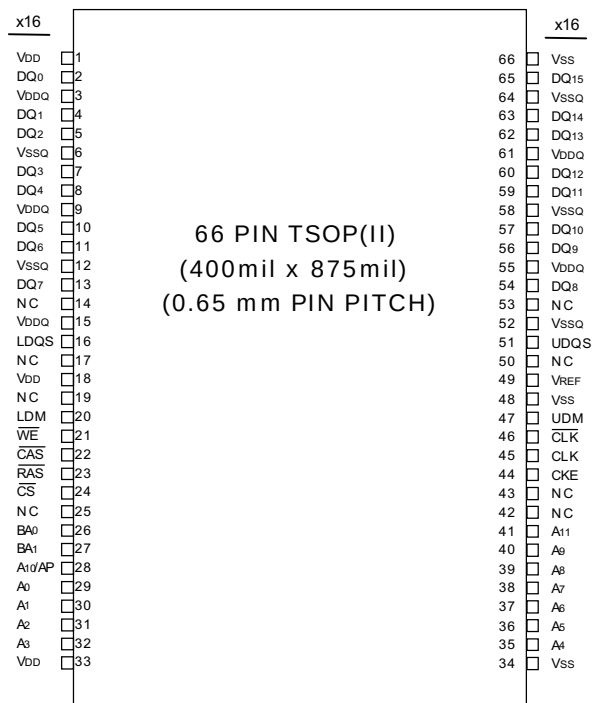
329 ILL F02a.0

FIGURE 2: PIN ASSIGNMENTS FOR 48-PIN TFBGA

Functional Block Diagram



Pin Arrangement



TSB41AB1

IEEE 1394a-2000 ONE-PORT CABLE

TRANSCEIVER/ARBITER

SLLS423D – JUNE 2000 – REVISED SEPTEMBER 2002

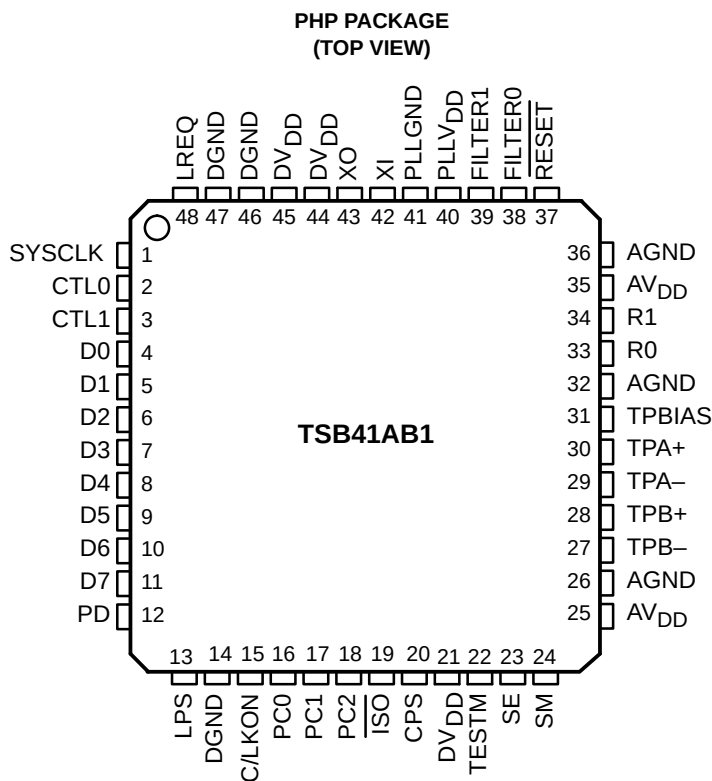
description (continued)

required for normal network operation regardless of the state of the PHY-LLC interface. When the interface is in the reset or disabled state and LPS is again observed active, the PHY initializes the interface and returns it to normal operation.

When the PHY-LLC interface is in the low-power disabled state, the TSB41AB1 automatically enters a low-power mode if the port is inactive (disconnected, disabled, or suspended). In this low-power mode, the TSB41AB1 disables its internal clock generators and also disables various voltage and current reference circuits depending on the state of the port (some reference circuitry must remain active in order to detect new cable connections, disconnections, or incoming TPBIAS, for example). The lowest power consumption (the ultralow-power sleep mode) is attained when the port is either disconnected, or disabled with the port interrupt enable bit cleared. The TSB41AB1 exits the low-power mode when the LPS input is asserted high or when a port event occurs which requires that the TSB41AB1 become active in order to respond to the event or to notify the LLC of the event (for example, incoming bias is detected on a suspended port, a disconnection is detected on a suspended port, a new connection is detected on a nondisabled port, etc.). The SYSCLK output becomes active (and the PHY-LLC interface is initialized and becomes operative) within 7.3 ms after LPS is asserted high when the TSB41AB1 is in the low-power mode.

The PHY uses the C/LKON terminal to notify the LLC to power up and become active. When activated, the C/LKON signal is a square wave of approximately 163-ns period. The PHY activates the C/LKON output when the LLC is inactive and a wake-up event occurs. The LLC is considered inactive when either the LPS input is inactive, as described above, or the LCtrl bit is cleared to 0. A wake-up event occurs when a link-on PHY packet addressed to this node is received, or when a PHY interrupt occurs. The PHY deasserts the C/LKON output when the LLC becomes active (both LPS active and the LCtrl bit set to 1). The PHY also deasserts the C/LKON output when a bus reset occurs unless a PHY interrupt condition exists which would otherwise cause C/LKON to be active.

PHP package terminal diagram



1.5 Functional Block Diagram

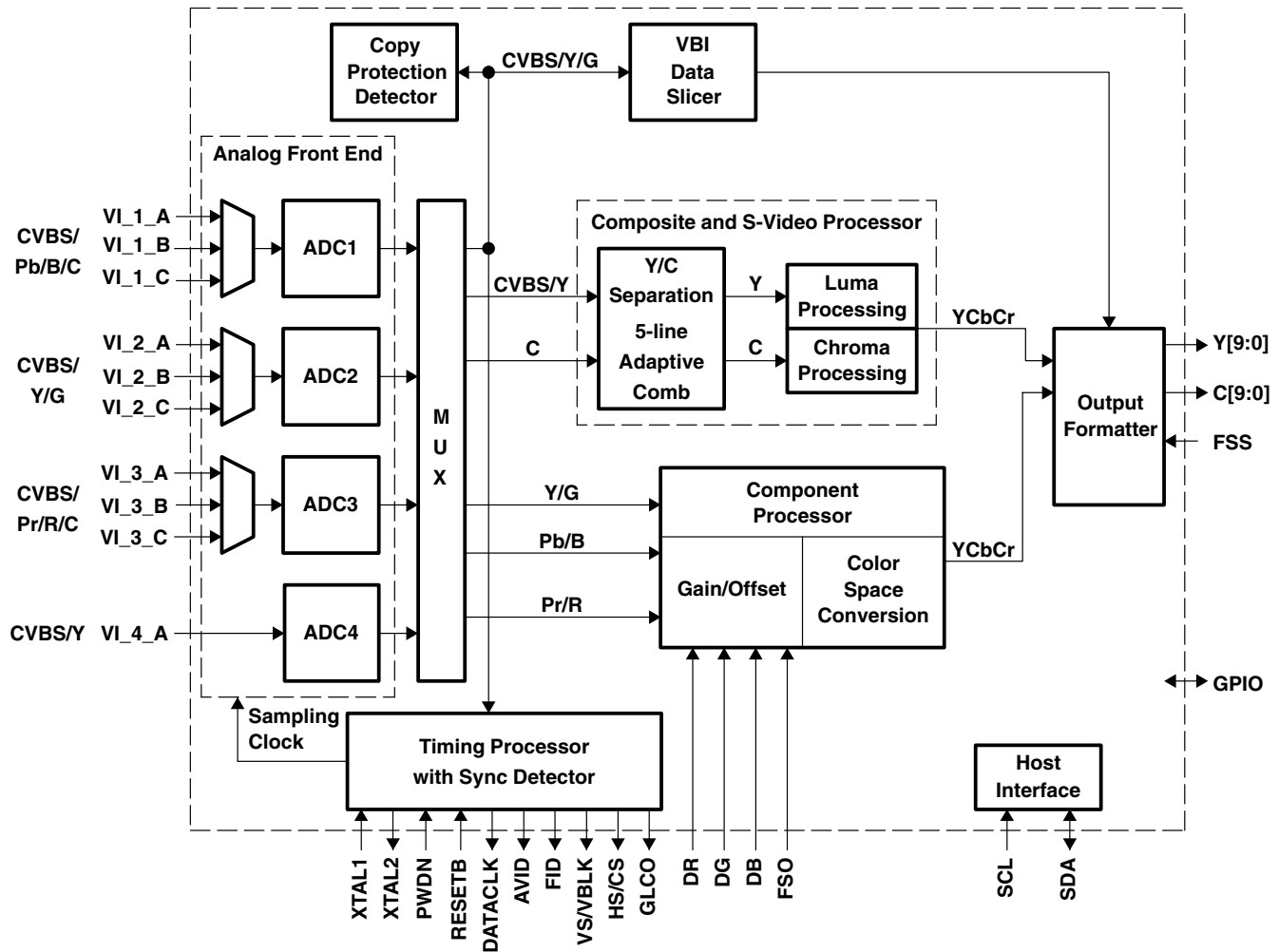


Figure 1–1. Functional Block Diagram

1.6 Terminal Assignments

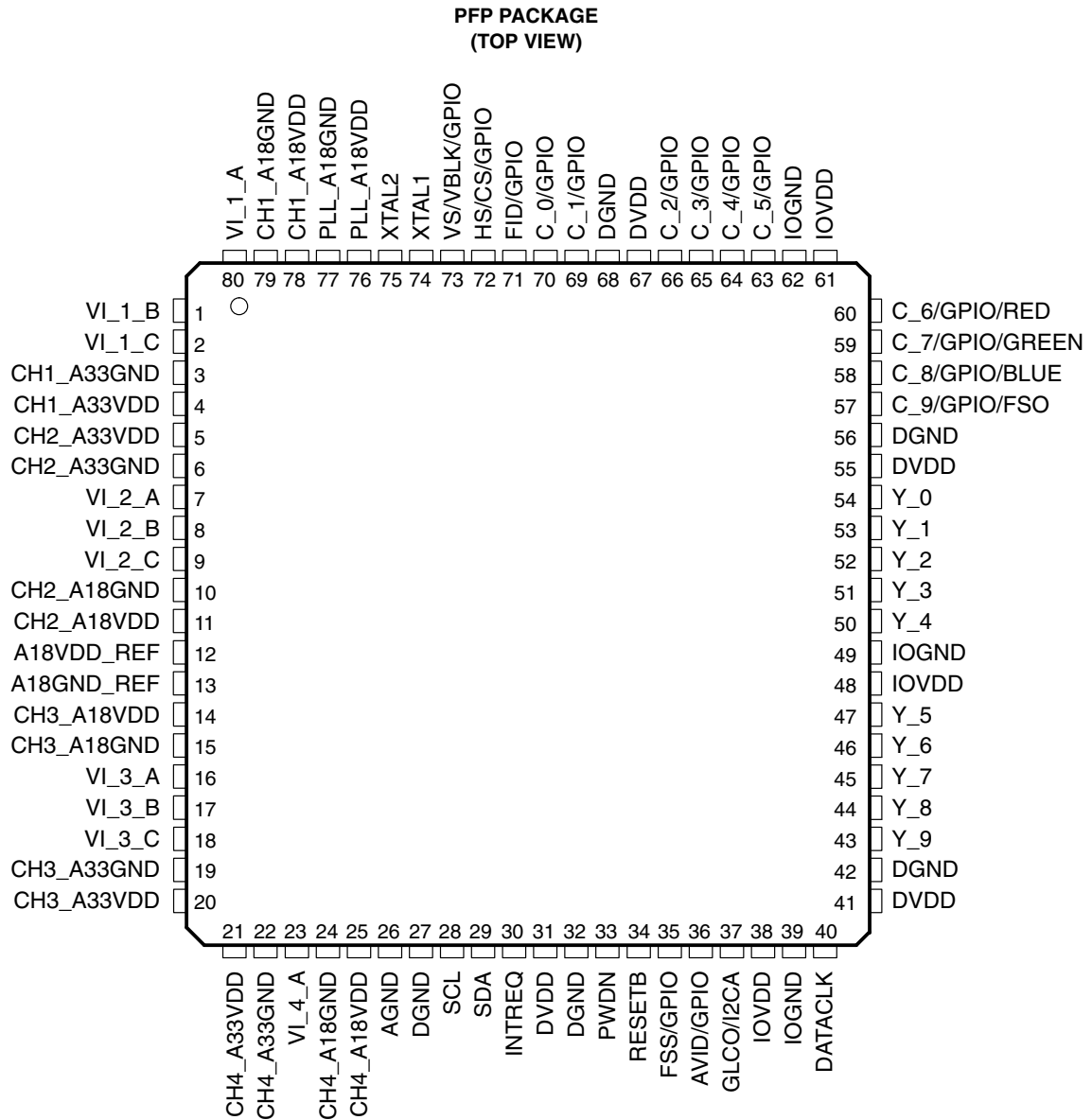


Figure 1–2. Terminal Assignments Diagram

1.7 Terminal Functions

Table 1–1. Terminal Functions

TERMINAL		I/O	DESCRIPTION
NAME	NUMBER		
Analog Video			
VI_1_A	80	I	VI_1_x: Analog video input for CVBS/Pb/B/C
VI_1_B	1		VI_2_x: Analog video input for CVBS/Y/G
VI_1_C	2		VI_3_x: Analog video input for CVBS/Pr/R/C
VI_2_A	7		VI_4_A: Analog video input for CVBS/Y
VI_2_B	8		Up to 10 composite, 4 S-video, and 2 composite or 3 component video inputs (or a combination thereof) can be supported.
VI_2_C	9		
VI_3_A	16		
VI_3_B	17		
VI_3_C	18		
VI_4_A	23	The inputs must be ac-coupled. The recommended coupling capacitor is 0.1 μF.	
			The possible input configurations are listed in the input select register at I ² C subaddress 00h (see Section 2.11.1).
Clock Signals			
DATACLK	40	O	Line-locked data output clock.
XTAL1	74	I	External clock reference input. It may be connected to an external oscillator with a 1.8-V compatible clock signal or a 14.31818-MHz crystal oscillator.
XTAL2	75	O	External clock reference output. Not connected if XTAL1 is driven by an external single-ended oscillator.
Digital Video			
C[9:0]/ GPIO[9:0]	57, 58, 59, 60, 63, 64, 65, 66, 69, 70	O	Digital video output of CbCr, C[9] is MSB and C[0] is LSB. Unused outputs can be left unconnected. Also, these terminals can be programmable general-purpose I/O. For the 8-bit mode, the two LSBs are ignored.
D_BLUE	58	I	Digital BLUE input from overlay device
D_GREEN	59	I	Digital GREEN input from overlay device
D_RED	60	I	Digital RED input from overlay device
FSO	57	I	Fast-switch overlay between digital RGB and any video
Y[9:0]	43, 44, 45, 46, 47, 50, 51, 52, 53, 54	O	Digital video output of Y/YCbCr, Y[9] is MSB and Y[0] is LSB. For the 8-bit mode, the two LSBs are ignored. Unused outputs can be left unconnected.
Miscellaneous Signals			
FSS/GPIO	35	I/O	Fast-switch (blanking) input. Switching signal between the synchronous component video (YPbPr/RGB) and the composite video input. Programmable general-purpose I/O
GLCO/I2CA	37	I/O	Genlock control output (GLCO). Two Genlock data formats are available: TI format and real time control (RTC) format. During reset, this terminal is an input used to program the I ² C address LSB.
INTREQ	30	O	Interrupt request
PWDN	33	I	Power down input: 1 = Power down 0 = Normal mode
RESETB	34	I	Reset input, active low

Table 1–1. Terminal Functions (Continued)

TERMINAL NAME	NUMBER	I/O	DESCRIPTION
Host Interface			
SCL	28	I	I ² C clock input
SDA	29	I/O	I ² C data bus
Power Supplies			
AGND	26	I	Analog ground. Connect to analog ground.
A18GND_REF	13	I	Analog 1.8-V return
A18VDD_REF	12	I	Analog power for reference 1.8 V
CH1_A18GND	79	I	Analog 1.8-V return
CH2_A18GND	10		
CH3_A18GND	15		
CH4_A18GND	24		
CH1_A18VDD	78	I	Analog power. Connect to 1.8 V.
CH2_A18VDD	11		
CH3_A18VDD	14		
CH4_A18VDD	25		
CH1_A33GND	3	I	Analog 3.3-V return
CH2_A33GND	6		
CH3_A33GND	19		
CH4_A33GND	22		
CH1_A33VDD	4	I	Analog power. Connect to 3.3 V.
CH2_A33VDD	5		
CH3_A33VDD	20		
CH4_A33VDD	21		
DGND	27, 32, 42, 56, 68	I	Digital return
DVDD	31, 41, 55, 67	I	Digital power. Connect to 1.8 V.
IOGND	39, 49, 62	I	Digital power return
IOVDD	38, 48, 61	I	Digital power. Connect to 3.3 V or less for reduced noise.
PLL_A18GND	77	I	Analog power return
PLL_A18VDD	76	I	Analog power. Connect to 1.8 V.
Sync Signals			
HS/CS/GPIO	72	I/O	Horizontal sync output or digital composite sync output Programmable general-purpose I/O
VS/VBLK/GPIO	73	I/O	Vertical sync output (for modes with dedicated VSYNC) or VBLK output Programmable general-purpose I/O
FID/GPIO	71	I/O	Odd/even field indicator output. This terminal needs a pulldown resistor. Programmable general-purpose I/O
AVID/GPIO	36	I/O	Active video indicator output Programmable general-purpose I/O

2. TYPICAL CONNECTION DIAGRAM

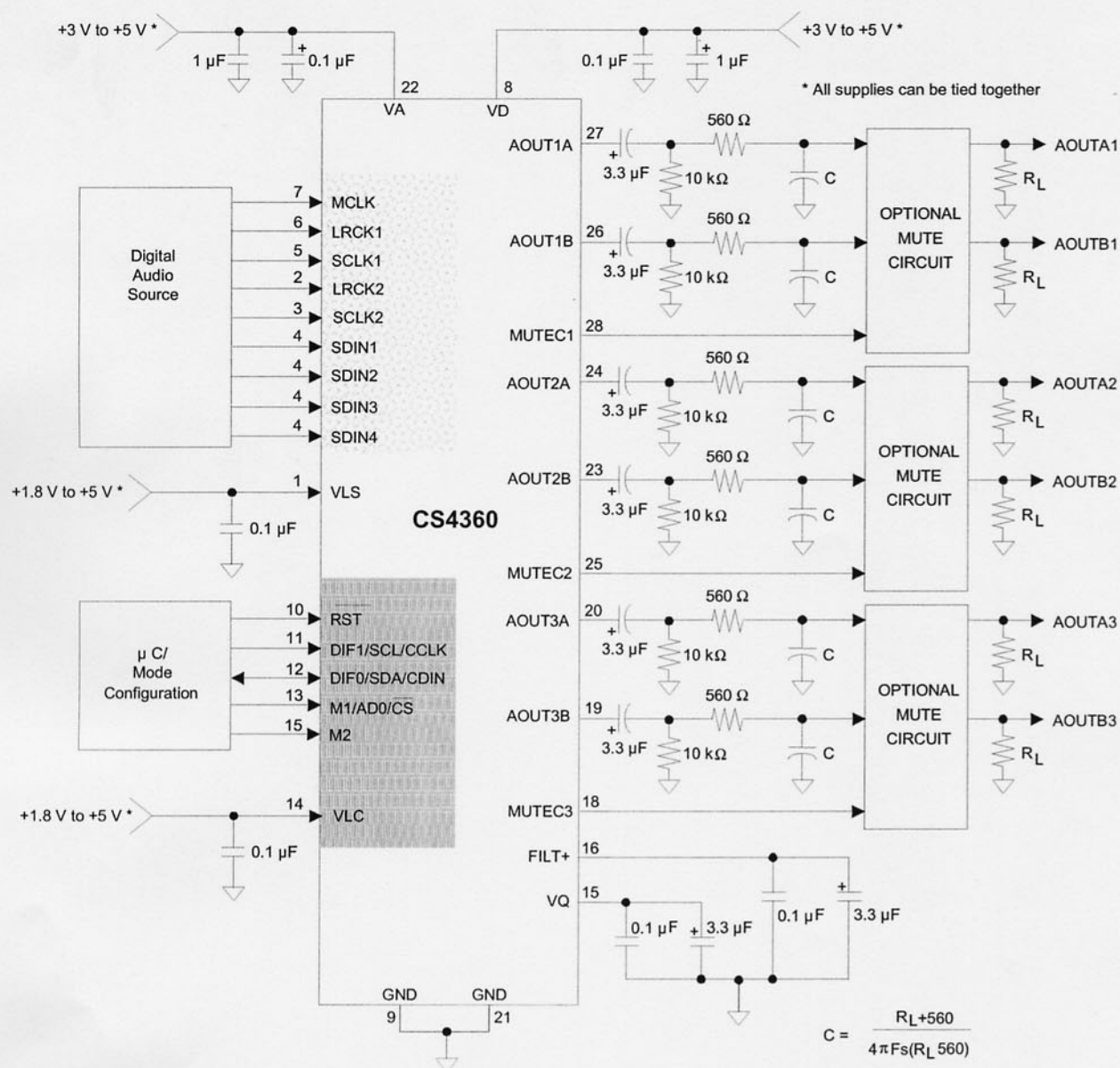


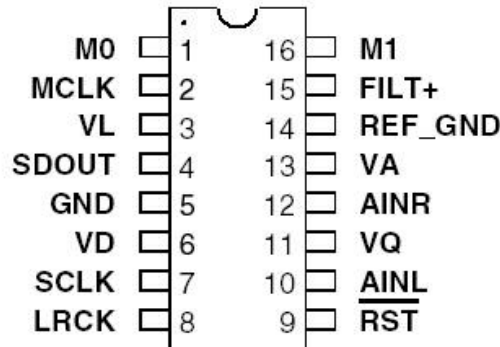
Figure 4. Typical Connection Diagram

5. PIN DESCRIPTION

Serial Audio Power	VLS	1	28	MUTE1	Mute Control 1
Serial Data Input 1	SDIN1	2	27	AOUTA1	Analog Output A1
Serial Data Input 2	SDIN2	3	26	AOUTB1	Analog Output B1
Serial Data Input 3	SDIN3	4	25	MUTE2	Mute Control 2
Serial Clock	SCLK	5	24	AOUTA2	Analog Output A2
Left/Right Clock	LRCK	6	23	AOUTB2	Analog Output B2
Master Clock	MCLK	7	22	VA	Analog Power
Digital Power	VD	8	21	GND	Ground
Ground	GND	9	20	AOUTA3	Analog Output A3
Reset	RST	10	19	AOUTB3	Analog Output B3
DIF1 / SCL / CCLK	DIF1/SCL/CCLK	11	18	MUTE3	Mute Control 3
DIF0 / SDA / CDIN	DIF0/SDA/CDIN	12	17	VQ	Quiescent Voltage
Mode1 / AD0 / CS	M1/AD0/CS	13	16	FILT+	Positive Voltage Reference
Control Port Power	VLC	14	15	M2	Mode 2

Pin Name	#	Pin Description
VLS	1	Serial Audio Interface Power (Input) - Determines the required signal level for the serial audio interface. Refer to the Recommended Operating Conditions for appropriate voltages. Applies to pins 2-7.
SDIN1	2	Serial Audio Data Input (Input) - Input for two's complement serial audio data. SDIN1 corresponds to AOUT1x, SDIN2 corresponds to AOUT2x and SDIN3 corresponds to AOUT3x.
SDIN2	3	
SDIN3	4	
SCLK	5	Serial Clock (Input) - Serial clock for the serial audio interface.
LRCK	6	Left / Right Clock (Input) - Determines which channel, Left or Right, is currently active on the serial audio data line. The frequency of the left/right clock must be at the audio sample rate, Fs.
MCLK	7	Master Clock (Input) - Clock source for the delta-sigma modulator and digital filters. Table 6 illustrates several standard audio sample rates and the required master clock frequency.
VD	8	Digital Power (Input) - Positive power supply for the digital section. Refer to the Recommended Operating Conditions for appropriate voltages.
GND	9 21	Ground (Input) - Ground reference. Should be connected to analog ground.
RST	10	Reset (Input) - The device enters a low power mode and all internal registers are reset to their default settings when low. The control port cannot be accessed when Reset is low.
VLC	14	Control Port Interface Power (Input) - Determines the required signal level for the control port and provides power for bidirectional control port pins. Refer to the Recommended Operating Conditions for appropriate voltages. Applies to pins 10-13 and 15.
FILT+	16	Positive Voltage Reference (Output) - Positive reference voltage for the internal sampling circuits. Requires the capacitive decoupling to GND as shown in the Typical Connection Diagram.

2 PIN DESCRIPTION



Pin Name	#	Pin Description
M0	1	Mode Selection (Input) - Determines the operational mode of the device.
M1	16	
MCLK	2	Master Clock (Input) - Clock source for the delta-sigma modulator and digital filters.
VL	3	Logic Power (Input) - Positive power for the digital input/output.
SDOUT	4	Serial Audio Data Output (Output) - Output for two's complement serial audio data.
GND	5,14	Ground (Input) - Ground reference. Must be connected to analog ground.
VD	6	Digital Power (Input) - Positive power supply for the digital section.
SCLK	7	Serial Clock (Input/Output) - Serial clock for the serial audio interface.
LRCK	8	Left Right Clock (Input/Output) - Determines which channel, Left or Right, is currently active on the serial audio data line.
RST	9	Reset (Input) - The device enters a low power mode when low.
AINL	10	Analog Input (Input) - The full scale analog input level is specified in the Analog Characteristics specification table.
AINR	12	
VQ	11	Quiescent Voltage (Output) - Filter connection for the internal quiescent reference voltage.
VA	13	Analog Power (Input) - Positive power supply for the analog section.
FILT+	15	Positive Voltage Reference (Output) - Positive reference voltage for the internal sampling circuits.

3 TYPICAL CONNECTION DIAGRAM

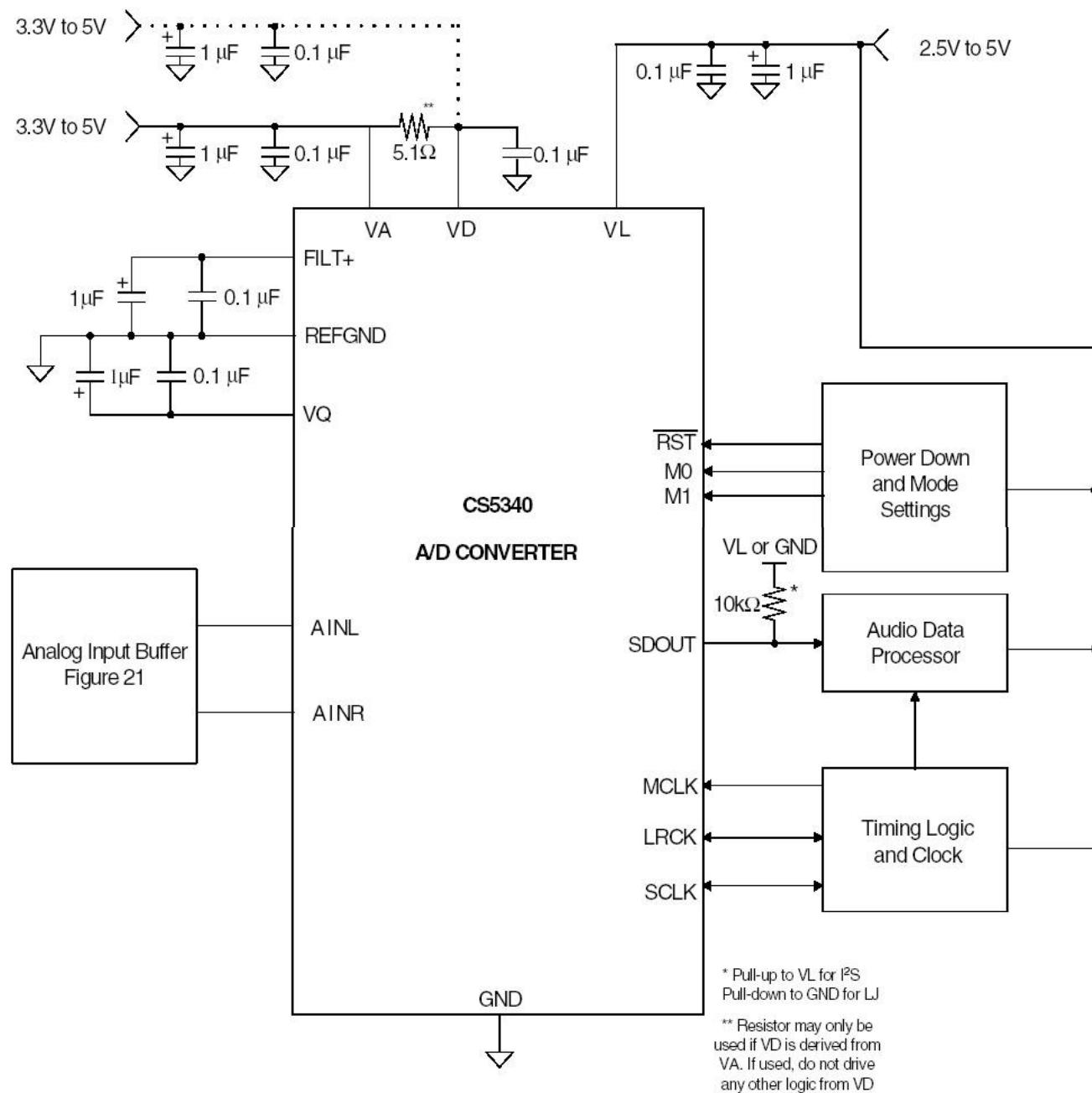


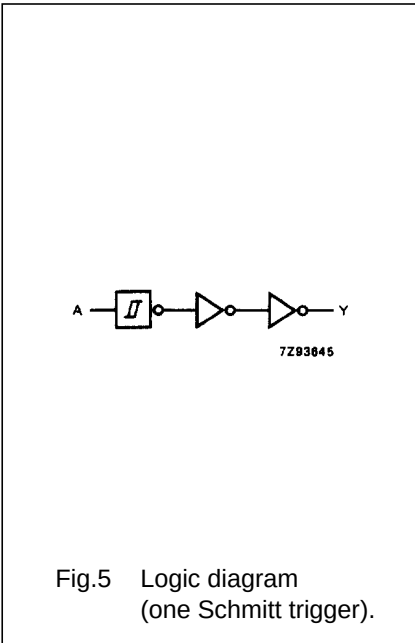
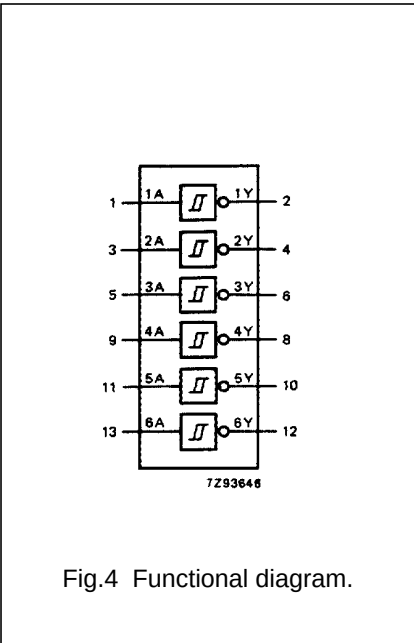
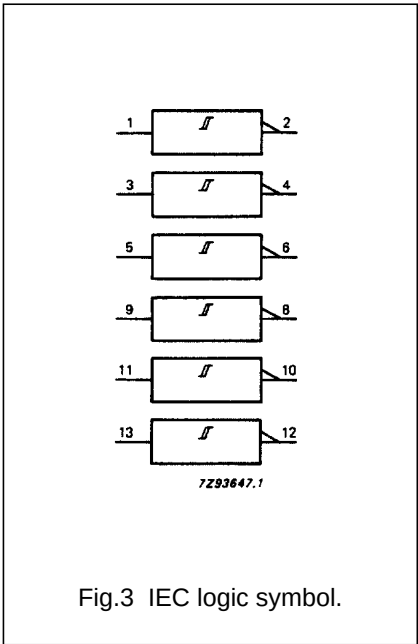
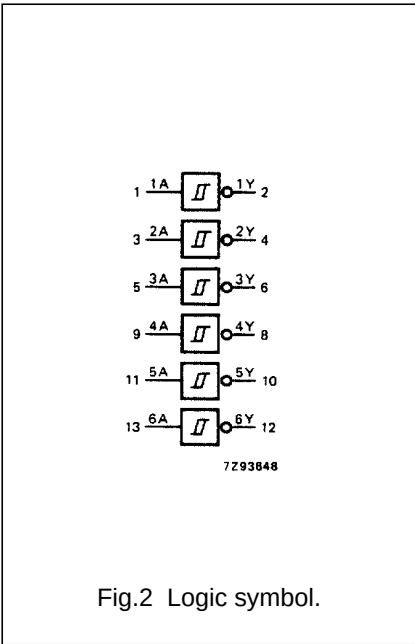
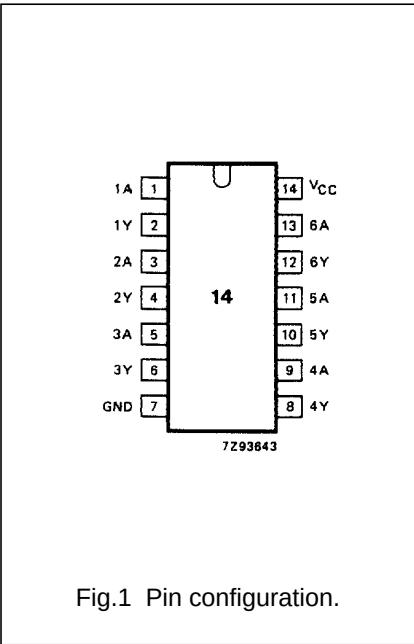
Figure 17. Typical Connection Diagram

Hex inverting Schmitt trigger

74HC/HCT14

PIN DESCRIPTION

PIN NO.	SYMBOL	NAME AND FUNCTION
1, 3, 5, 9, 11, 13	1A to 6A	data inputs
2, 4, 6, 8, 10, 12	1Y to 6Y	data outputs
7	GND	ground (0 V)
14	V _{CC}	positive supply voltage



FUNCTION TABLE

INPUT	OUTPUT
nA	nY
L	H
H	L

Notes

- 1. H = HIGH voltage level
- L = LOW voltage level

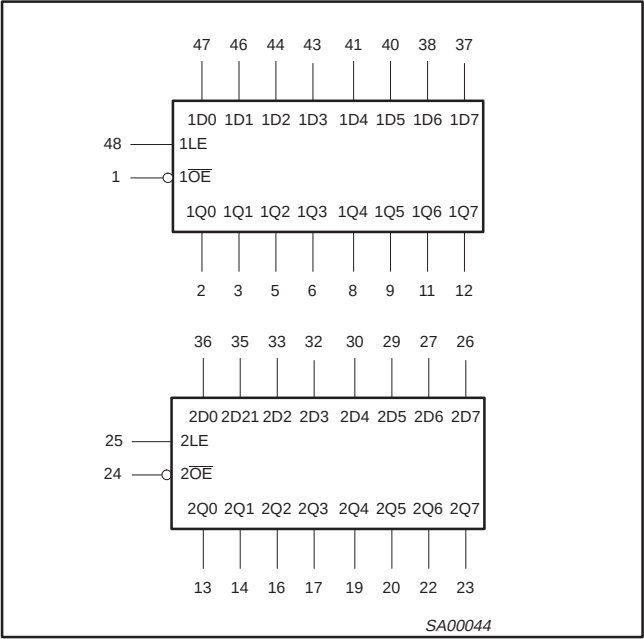
APPLICATIONS

- Wave and pulse shapers
- Astable multivibrators
- Monostable multivibrators

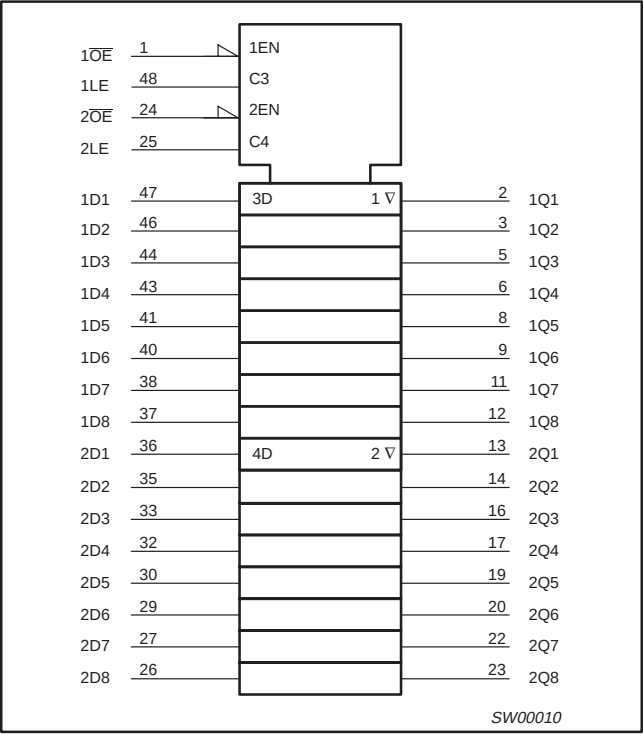
2.5V/3.3V 16-bit transparent D-type latch (3-State)

74ALVT16373

LOGIC SYMBOL



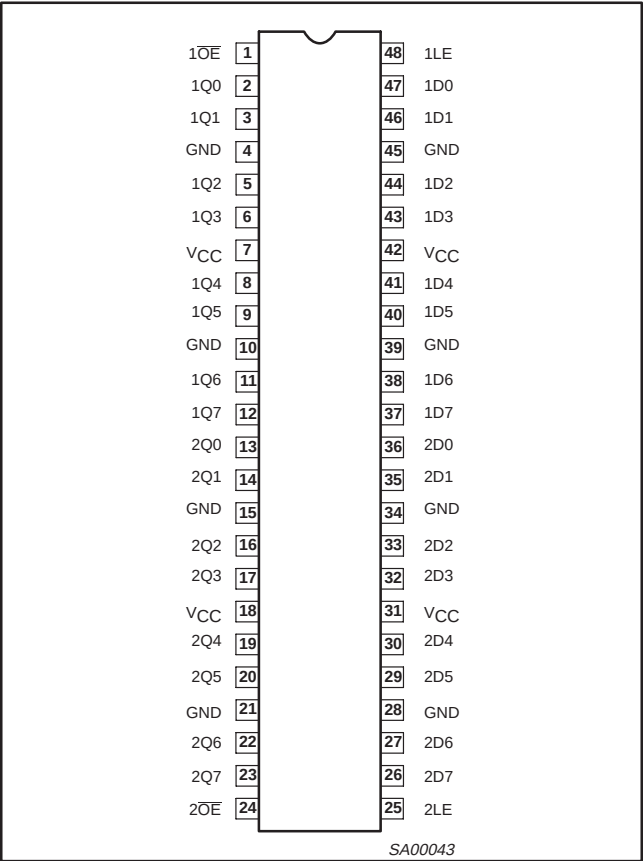
LOGIC SYMBOL (IEEE/IEC)



PIN DESCRIPTION

PIN NUMBER	SYMBOL	FUNCTION
47, 46, 44, 43, 41, 40, 38, 37, 36, 35, 33, 32, 30, 29, 27, 26	1D0 – 1D7 2D0 – 2D7	Data inputs
2, 3, 5, 6, 8, 9, 11, 12, 13, 14, 16, 17, 19, 20, 22, 23	1Q0 – 1Q7 2Q0 – 2Q7	Data outputs
1, 24	1OE, 2OE	Output enable inputs (active-Low)
48, 25	1LE, 2LE	Enable inputs (active-High)
4, 10, 15, 21, 28, 34, 39, 45	GND	Ground (0V)
7, 18, 31, 42	VCC	Positive supply voltage

PIN CONFIGURATION



2-Input 1-Output Video Switch (75Ω driver)/3-Input 1-Output Video Switch (75Ω driver) Monolithic IC MM1221~MM1228

Outline

These ICs are high grade video switches with 2-input 1-output or 3-input 1-output and built-in 75Ω driver. The series includes those with and without built-in clamp and 6dB amp circuits. Circuit configuration tables and block diagrams are as follows. MM1228 is used as the representative model in this description.

MM1221~MM1228 Series Circuit Configuration Table

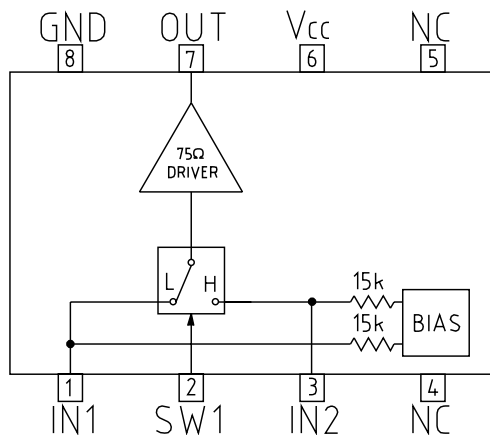
Model name	# of Inputs	# of Outputs	6dB amp circuit	Clamp circuit	Power supply voltage range
MM1221	2	1	No	No	8~13V
MM1222	2	1	Yes	No	8~13V
MM1223	3	1	No	No	8~13V
MM1224	3	1	Yes	No	8~13V
MM1225	2	1	No	Yes	4.7~13V
MM1226	2	1	Yes	Yes	4.7~13V
MM1227	3	1	No	Yes	4.7~13V
MM1228	3	1	Yes	Yes	4.7~13V

MM1221~MM1228 Input/Output Voltage Measurement Values (typ.)

Model name	Power supply voltage	5V	9V	12V	Unit
MM1221	Input voltage		4.53	6.05	V
	Output voltage		4.5	6.1	V
MM1222	Input voltage		4.05	5.4	V
	Output voltage		5.34	7.12	V
MM1223	Input voltage		4.53	6.05	V
	Output voltage		4.5	6.1	V
MM1224	Input voltage		4.05	5.4	V
	Output voltage		5.34	7.12	V
MM1225	Input voltage	1.27	2.17	2.86	V
	Output voltage	1.31	2.25	2.96	V
MM1226	Input voltage	1.3	2.2	2.9	V
	Output voltage	1.4	2.23	2.88	V
MM1227	Input voltage	1.27	2.17	2.86	V
	Output voltage	1.31	2.25	2.96	V
MM1228	Input voltage	1.3	2.2	2.9	V
	Output voltage	1.4	2.23	2.88	V

Block Diagram (MM1221~MM1228)

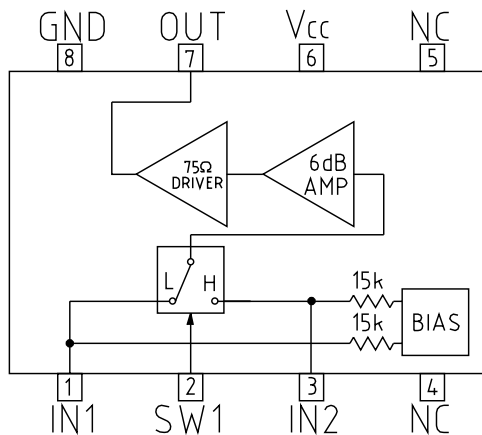
MM1221



Control input truth table

SW	OUT
L	IN1
H	IN2

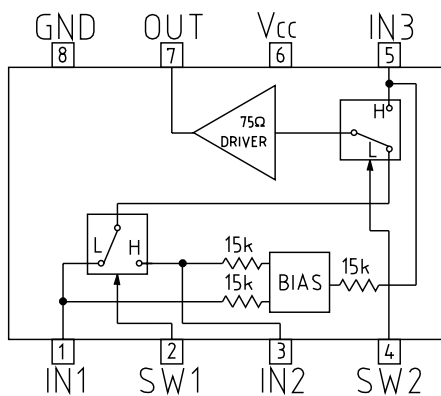
MM1222



Control input truth table

SW	OUT
L	IN1
H	IN2

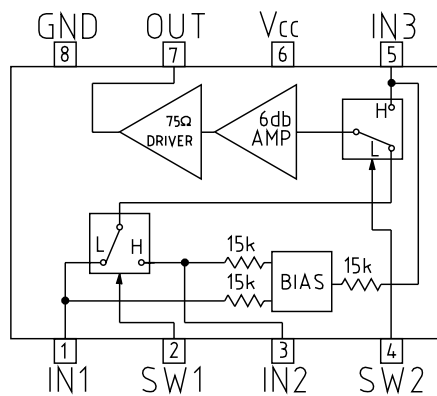
MM1223



Control input truth table

SW1	SW2	OUT
L	L	IN1
H	L	IN2
L/H	H	IN3

MM1224



Control input truth table

SW1	SW2	OUT
L	L	IN1
H	L	IN2
L/H	H	IN3

LP2995 DDR Termination Regulator

General Description

The LP2995 linear regulator is designed to meet the JEDEC SSTL-2 and SSTL-3 specifications for termination of DDR-SDRAM. The device contains a high-speed operational amplifier to provide excellent response to load transients. The output stage prevents shoot through while delivering 1.5A continuous current and transient peaks up to 3A in the application as required for DDR-SDRAM termination. The LP2995 also incorporates a V_{SENSE} pin to provide superior load regulation and a V_{REF} output as a reference for the chipset and DDR DIMMS.

Patents Pending

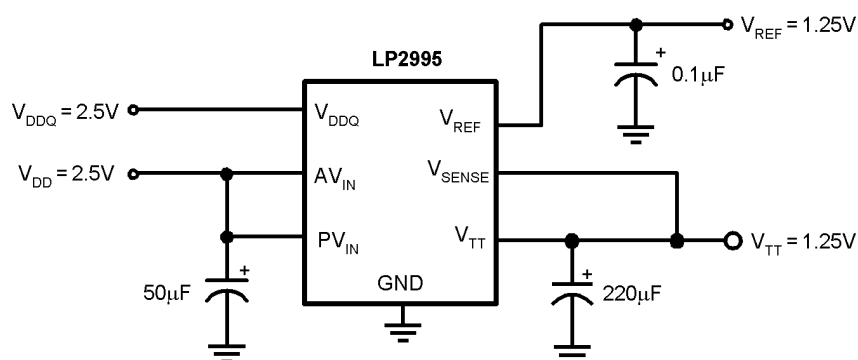
Features

- Low output voltage offset
- Works with +5v, +3.3v and 2.5v rails
- Source and sink current
- Low external component count
- No external resistors required
- Linear topology
- Available in SO-8, PSOP-8 or LLP-16 packages
- Low cost and easy to use

Applications

- DDR Termination Voltage
- SSTL-2
- SSTL-3

Typical Application Circuit



20039302

PQxxxEZ02Z Series

Low Voltage Operation Low Power-loss Voltage Regulator

■ Features

- Low voltage operation (Minimum operating voltage: 2.35V)
2.5V input → available 1.5 to 1.8V output
- Low dissipation current
Dissipation current at no load: MAX.2mA
Output OFF-state dissipation current: MAX.5μA
- Low power-loss
- Built-in overcurrent and overheat protection functions

■ Applications

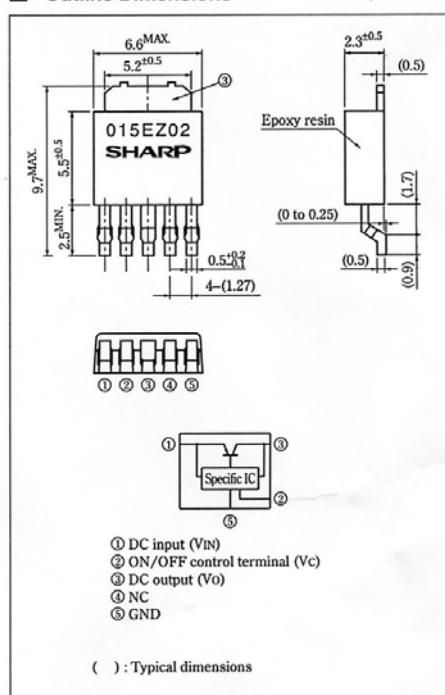
- Power supplies for personal computers and peripheral equipment
- Power supplies for various electronic equipment such as DVD player or STB

■ Model Line-up

Output current (I _o)	Output Voltage (V _o)		
	1.5V	1.8V	2.5V
2.0A	PQ015EZ02Z	PQ018EZ02Z	PQ025EZ02Z

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_a=25°C)

Parameter	Symbol	Rating	Unit
*1 Input voltage	V _{IN}	10	V
*1 ON/OFF control terminal voltage	V _c	10	V
Output current	I _o	2	A
*2 Power dissipation	P _D	8	W
*3 Junction temperature	T _j	150	°C
Operating temperature	T _{opr}	-40 to + 85	°C
Storage temperature	T _{stg}	-40 to +150	°C
Soldering temperature	T _{sol}	260 (10s)	°C

*1 All are open except GND and applicable terminals

*2 P_D:With infinite heat sink

*3 Overheat protection may operate at 125 < T_j < 150°C

•Please refer to the chapter "Handling Precautions".

SHARP

Notice In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.
Internet Internet address for Electronic Components Group <http://sharp-world.com/ecg/>

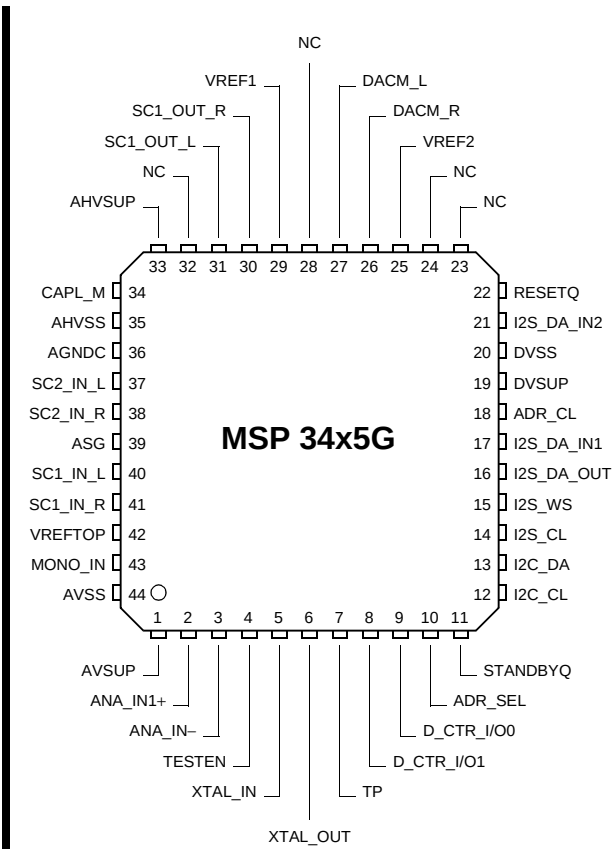
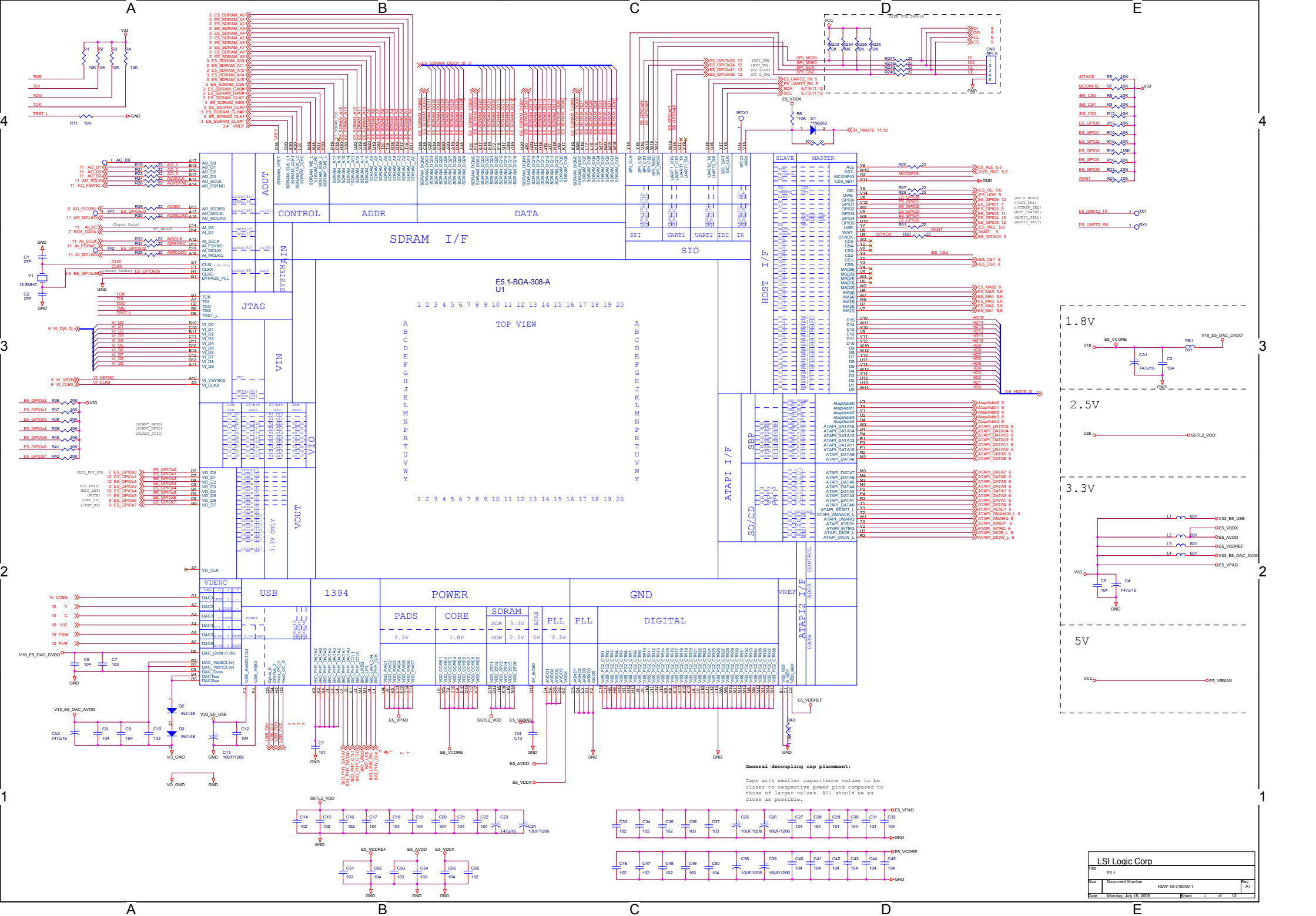


Fig. 4–10: 44-pin PMQFP package

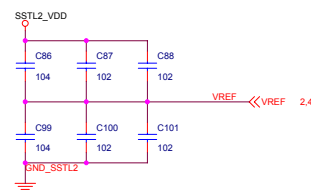
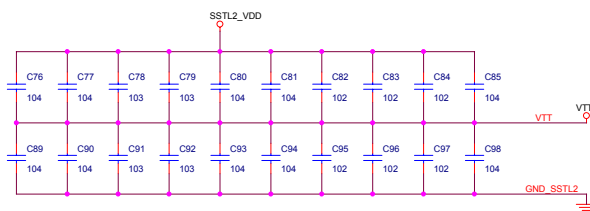
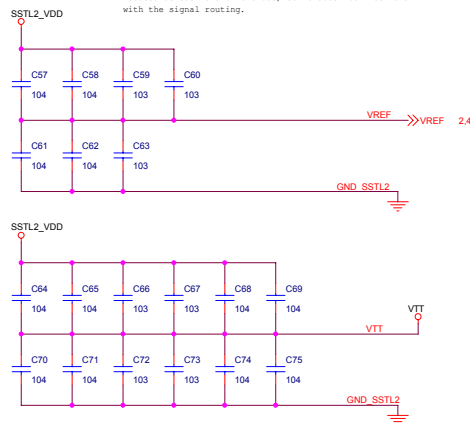
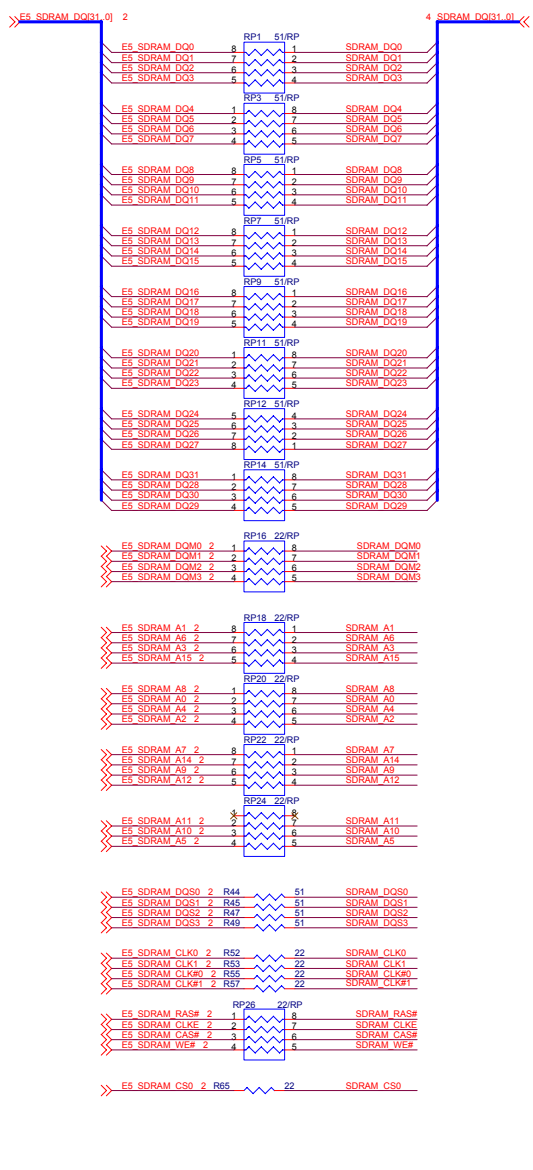




TERMINATION AT E5.1

TERMINATION AT DDR

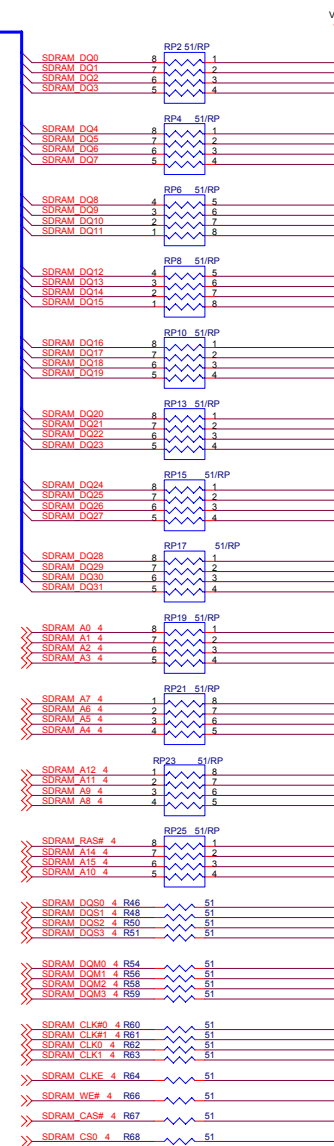
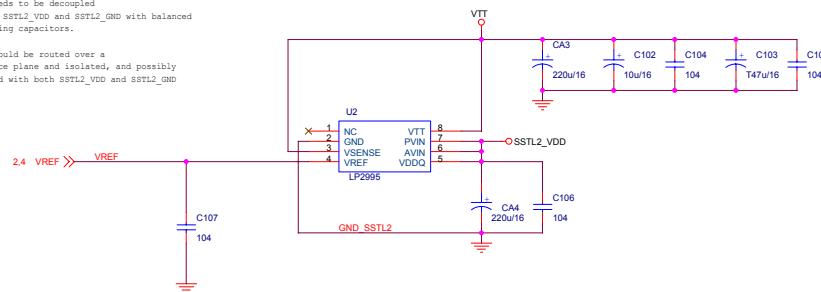
The VTT side of the termination resistors should be placed on a wide VTT island on the surface layer. The island is located at each end of the bus, so it does not interfere with the signal routing.



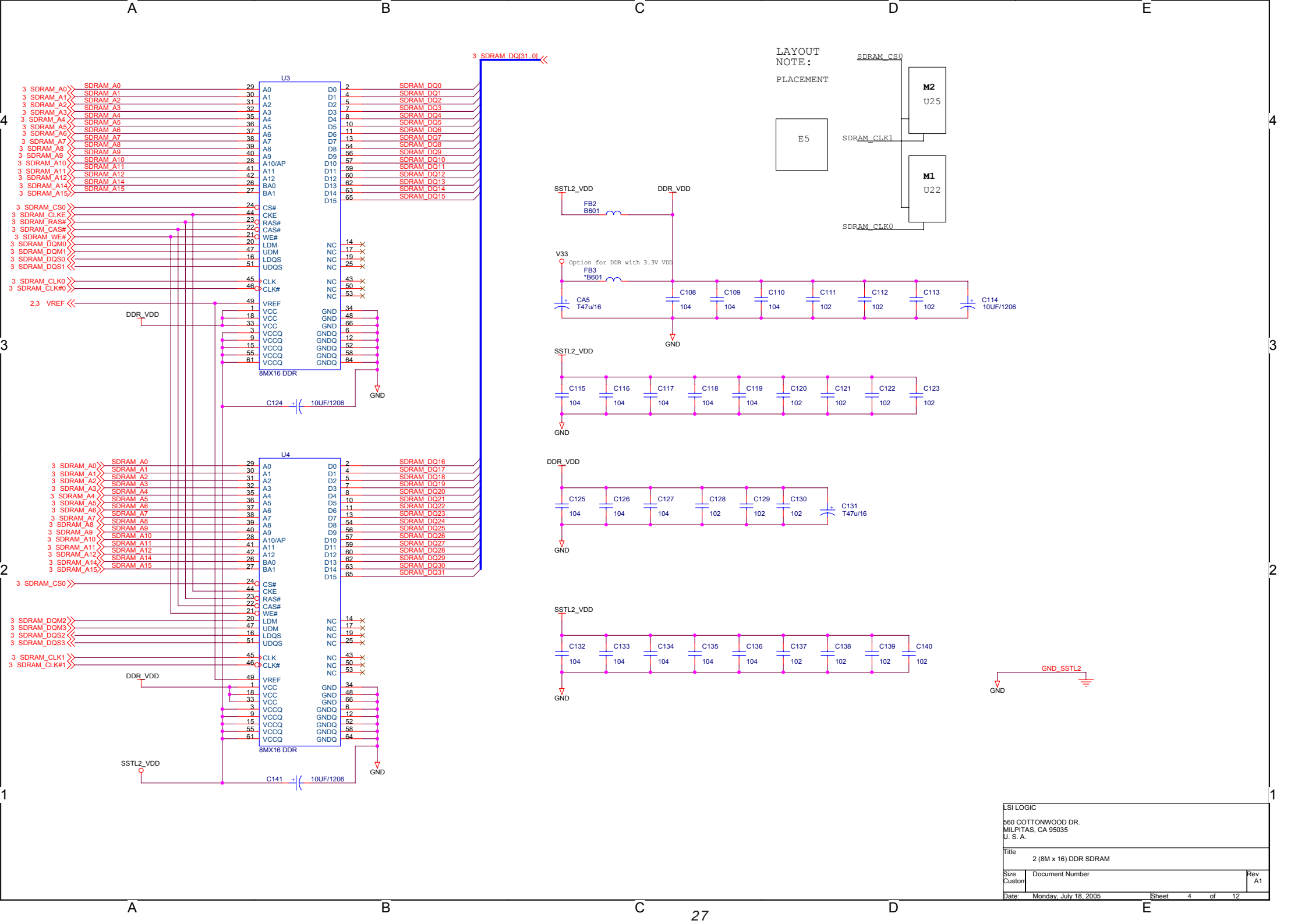
DDR TERMINATION VOLTAGE REGULATOR

VREF needs to be decoupled to both SSTL2_VDD and SSTL2_GND with balanced decoupling capacitors.

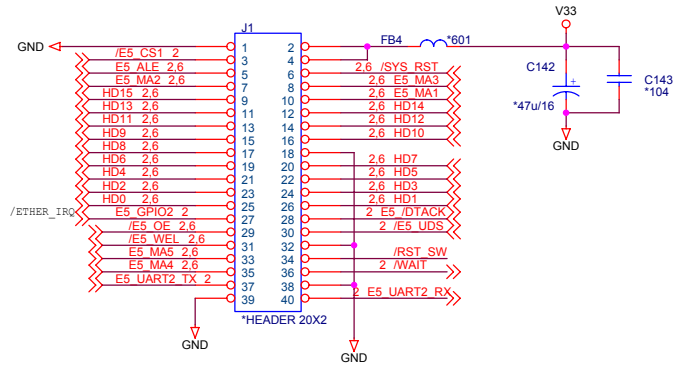
VREF should be routed over a reference plane and isolated, and possibly shielded with both SSTL2_VDD and SSTL2_GND



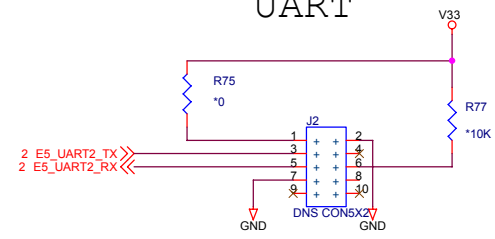
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860 COTTONWOOD DR. MILPITAS, CA 95035 U. S. A.		
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Size	Document Number	Rev
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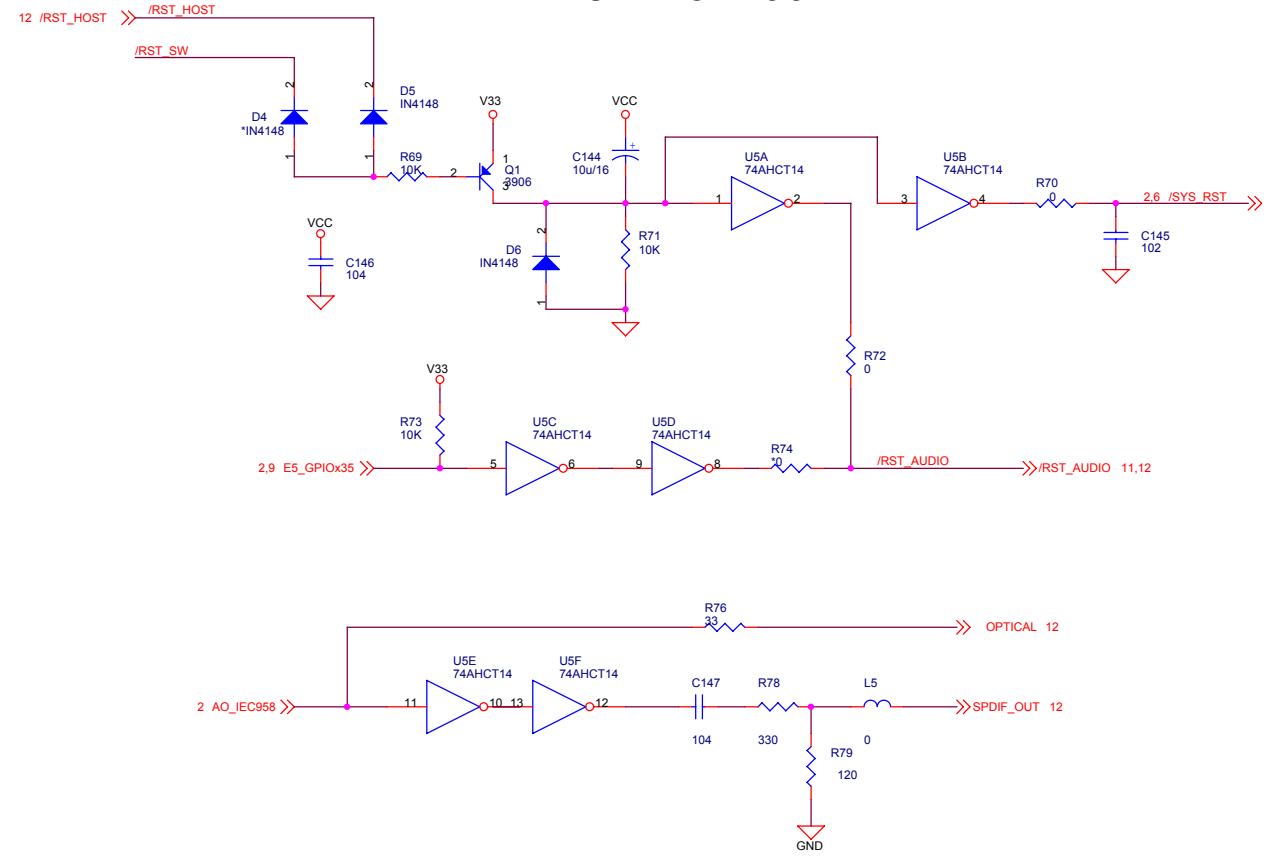
E-Link III Connector



UART

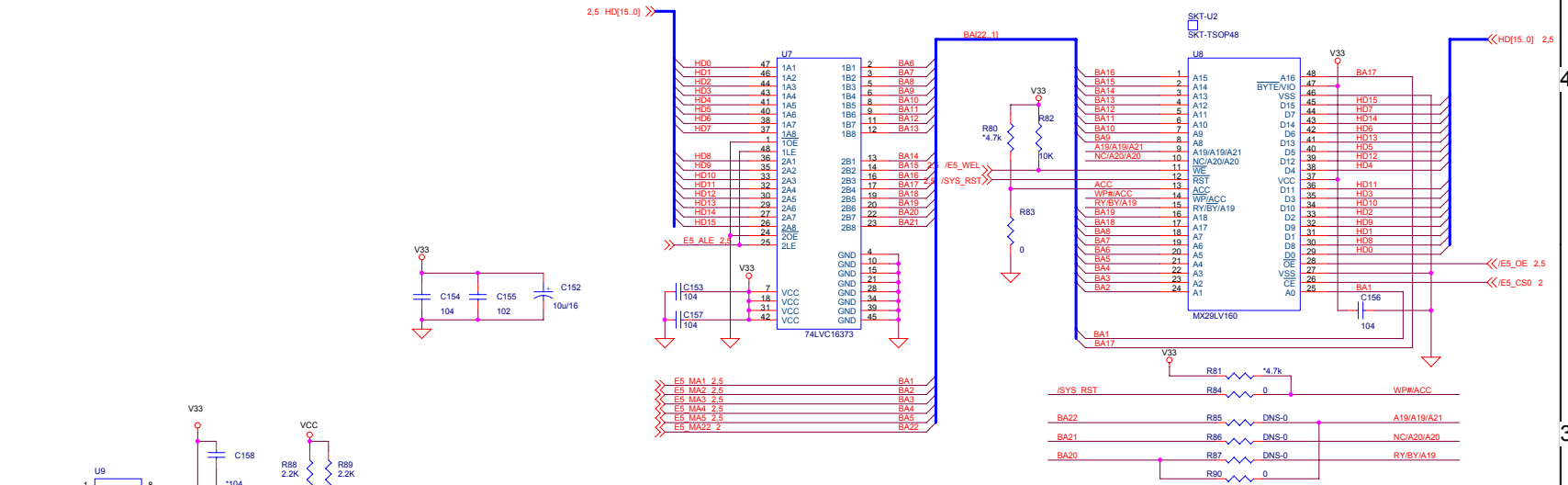


RESET CIRCUITRY



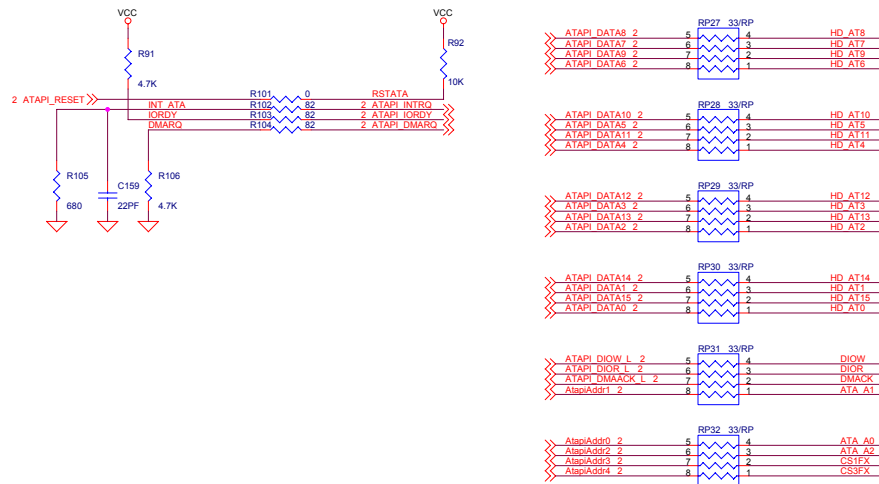
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Size A3	Document Number	Rev A1
Date: Monday, July 18, 2005	Sheet 5 of 12	

FLASH MEMORY (2 or 4 or 8 Mb)

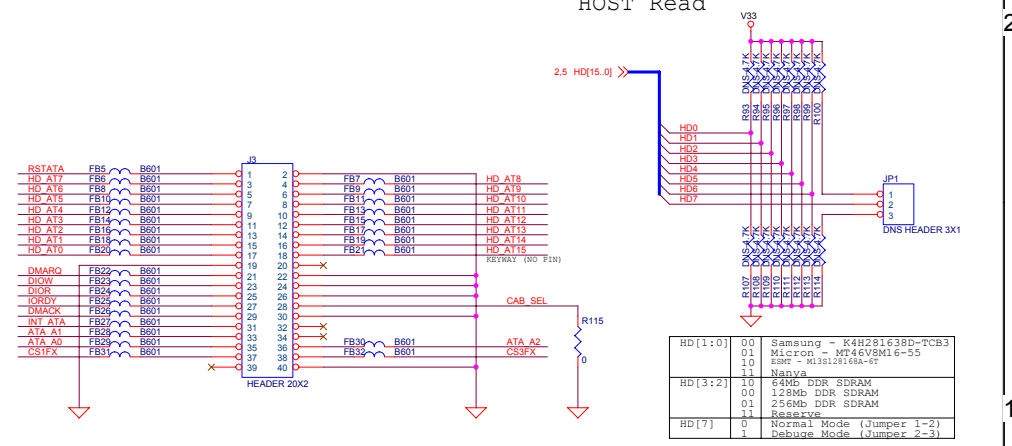


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2MB (Default)	R90	R85, R86, R87
4MB	R86, R90	R85, R87
8MB	R85, R86, R87	R90

DEDICATED ATAPI INTERFACE



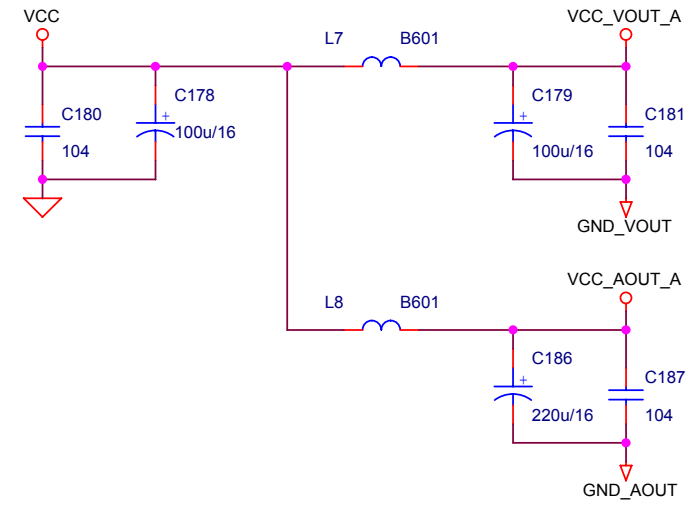
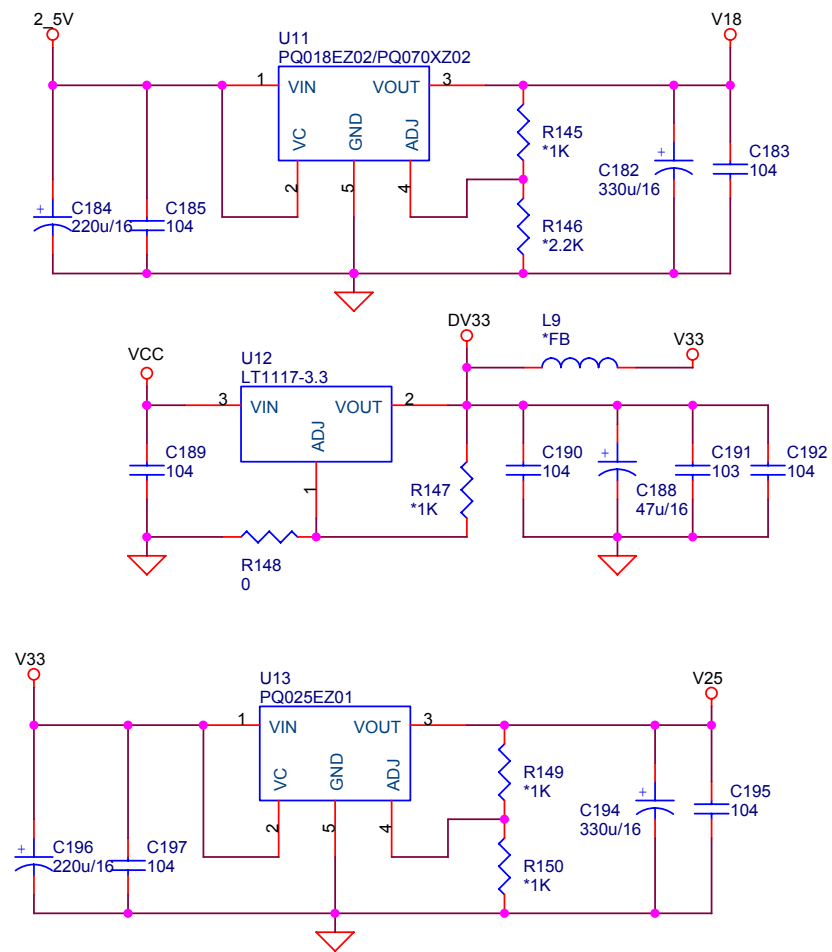
HOST Read



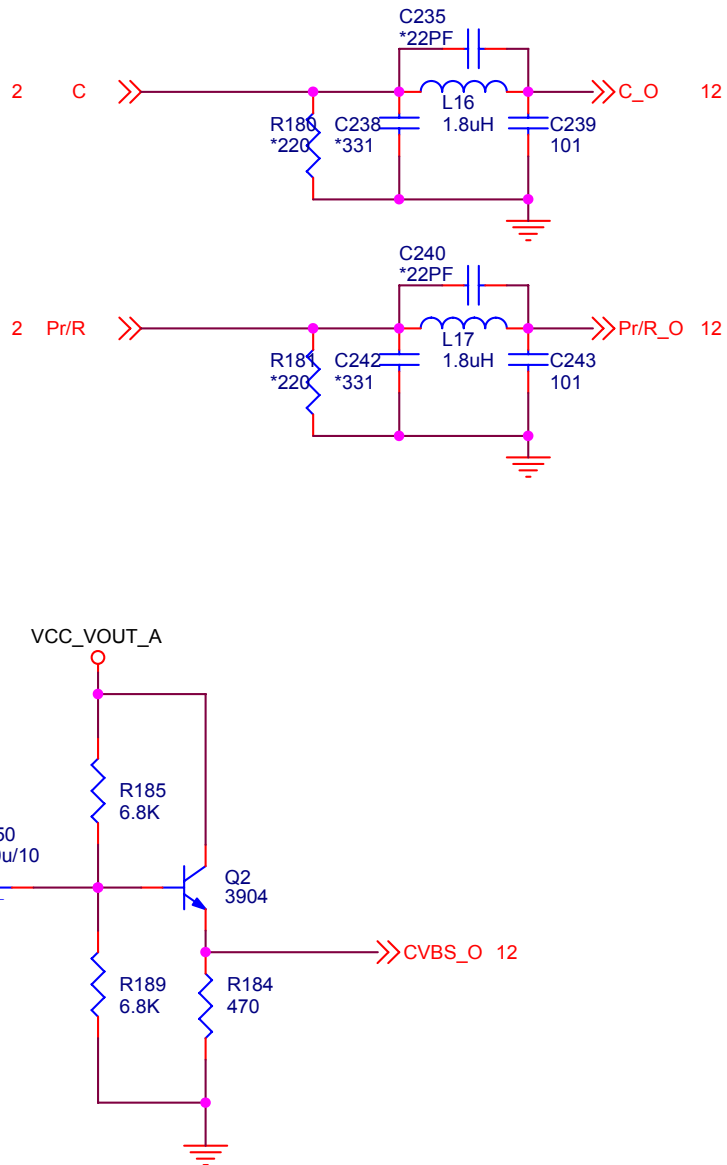
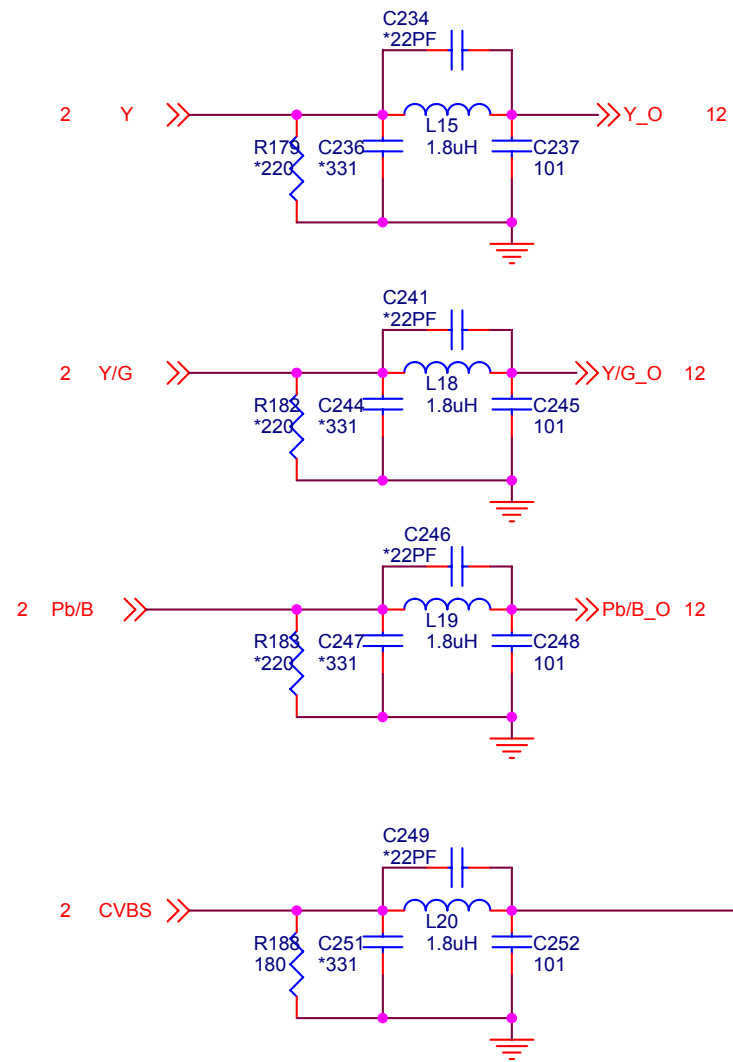
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	01	Micron - MT46V8M16-55
	10	ESST - M38128168A-67
	11	Nanya
HD[3:2]	10	64Mb DDR SDRAM
	00	128Mb DDR SDRAM
	01	256Mb DDR SDRAM
	11	Reserve
HD[7]	0	Normal Mode (Jumper 1-2)
	1	Debug Mode (Jumper 2-3)

LSI LOGIC 560 COTTONWOOD DR. MILPITAS, CA 95035 U. S. A.	File FLASH, ATA, EEPROM
Size C	Document Number Rev A1
Date Monday, July 18, 2005	Sheet 6 of 12

MAIN POWER REG

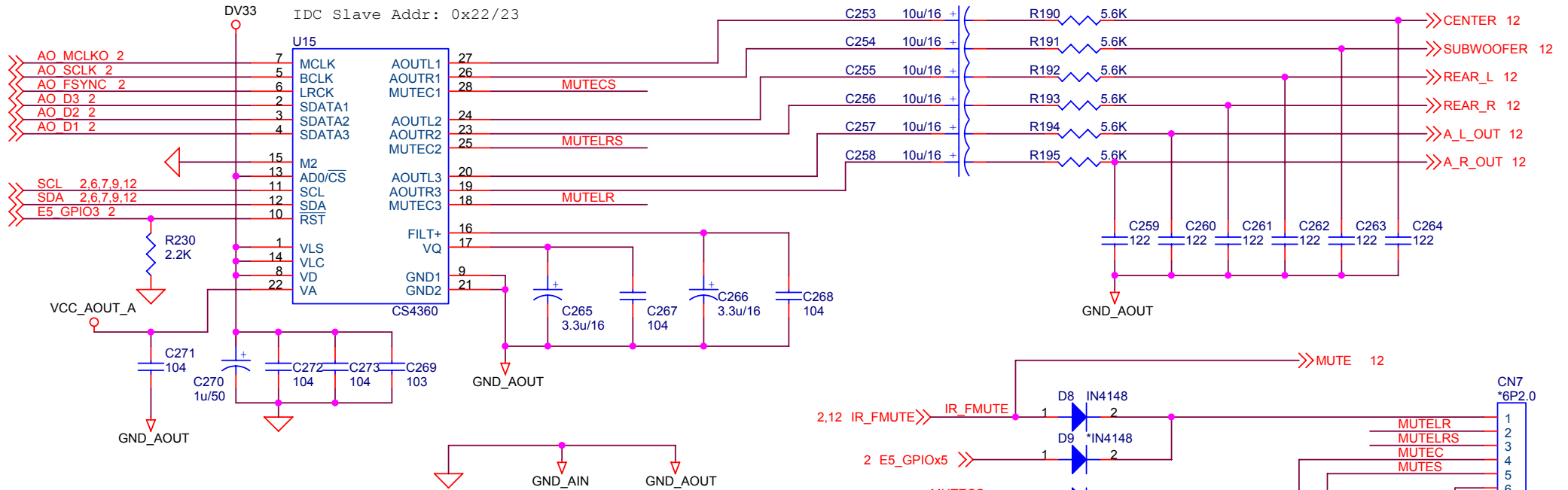


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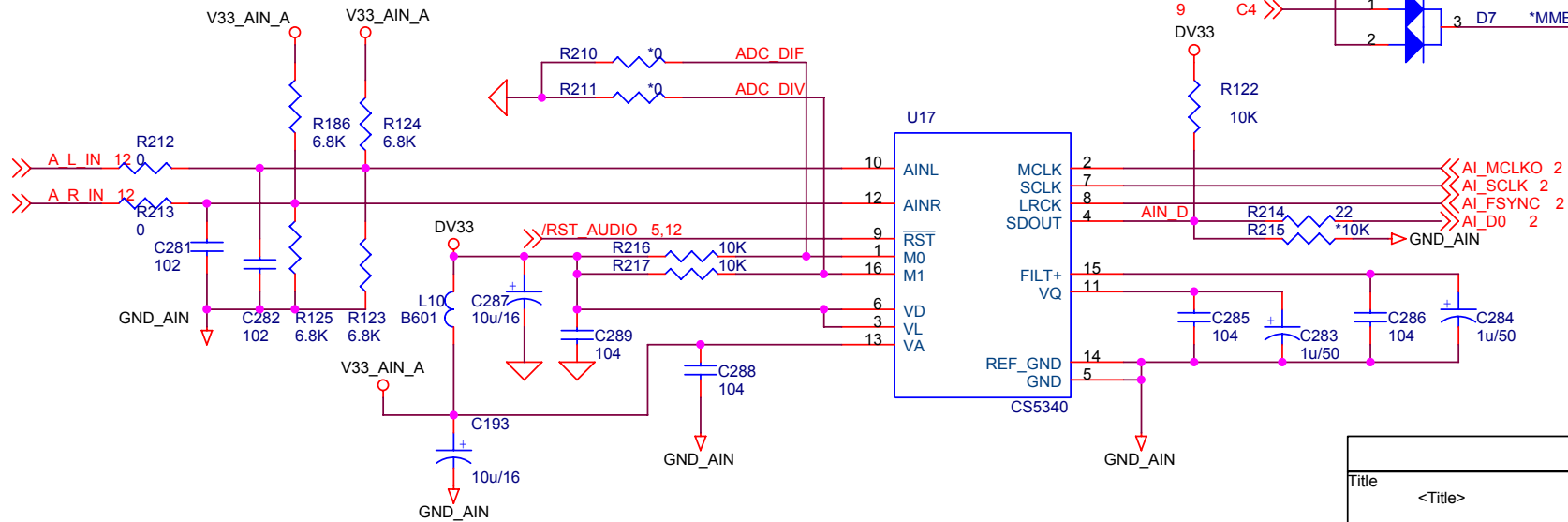


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Date:	Monday, July 18, 2005	Sheet 10 of 12

Audio Out (2 & 6 ch)

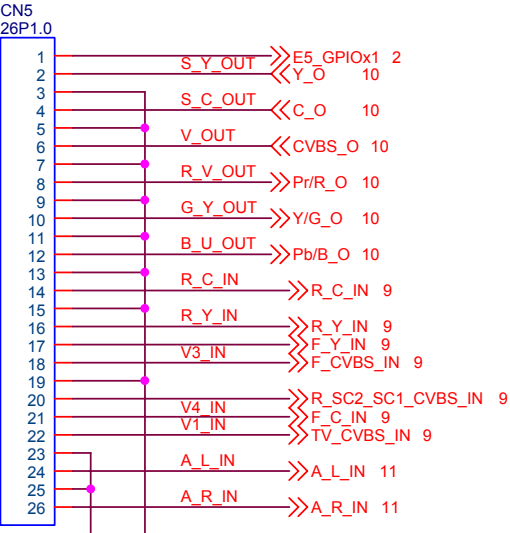
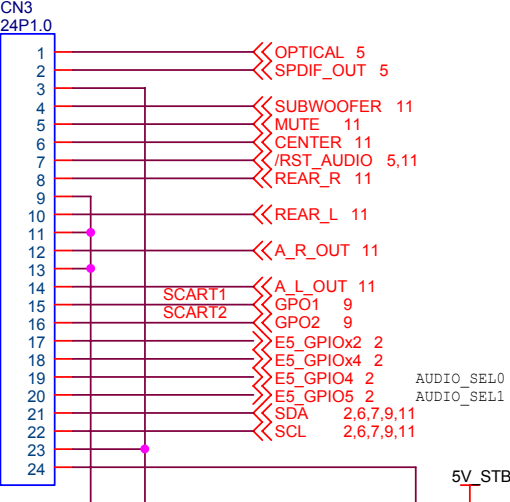
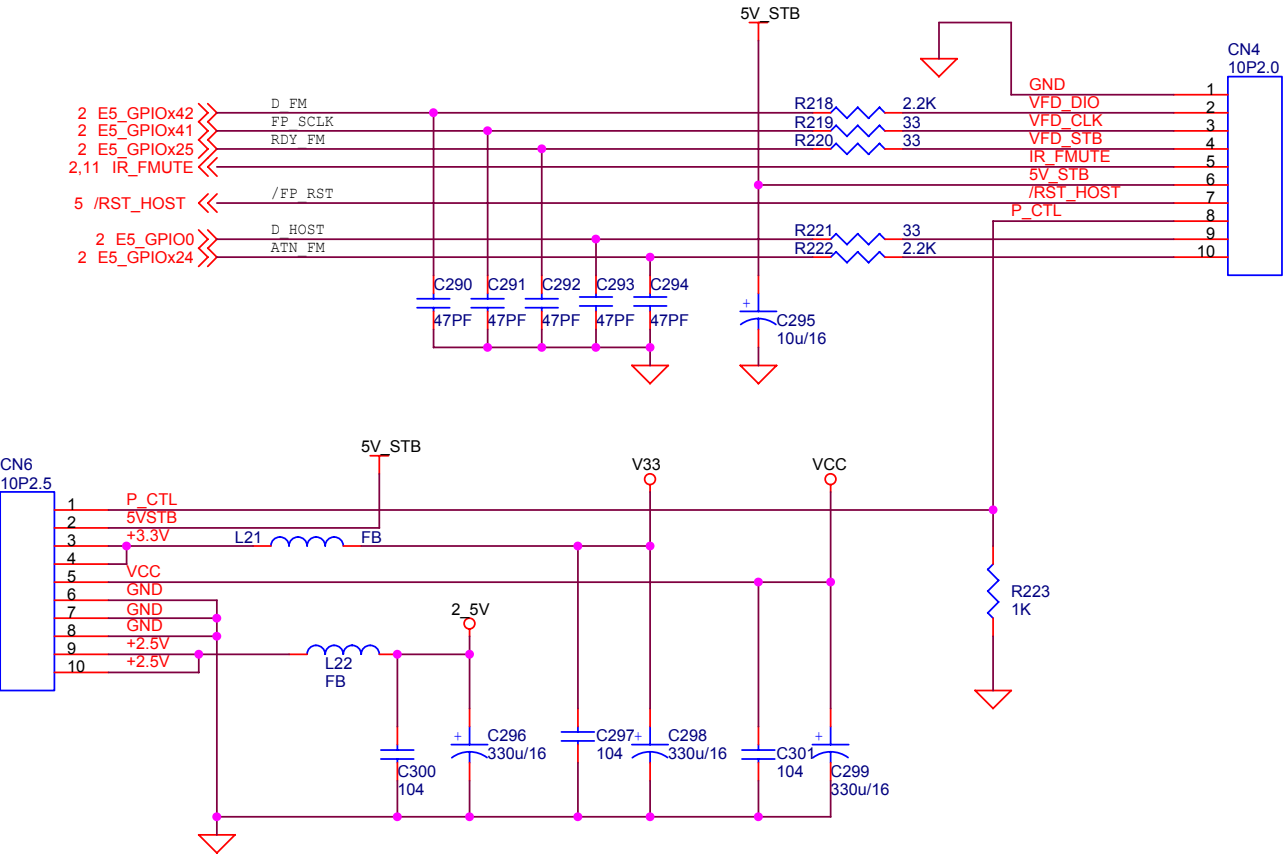


Audio In



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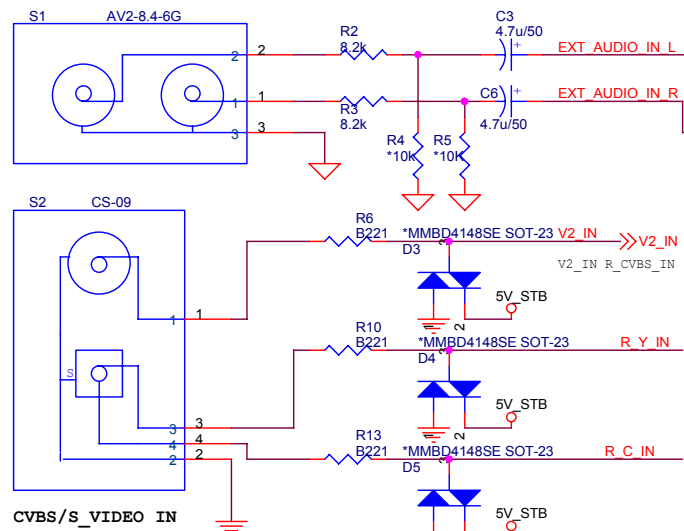
FRONT PANEL INTERFACE



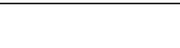
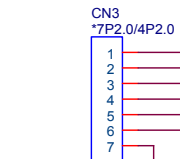
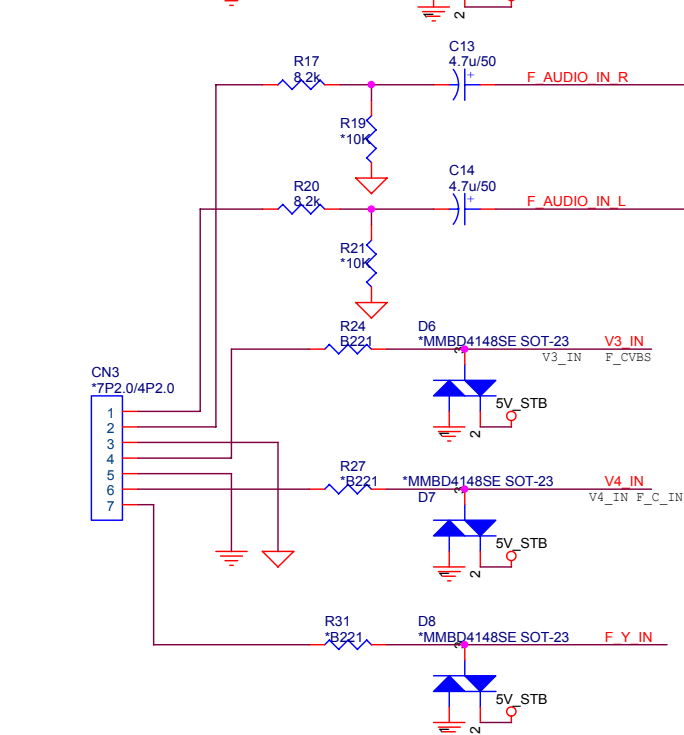
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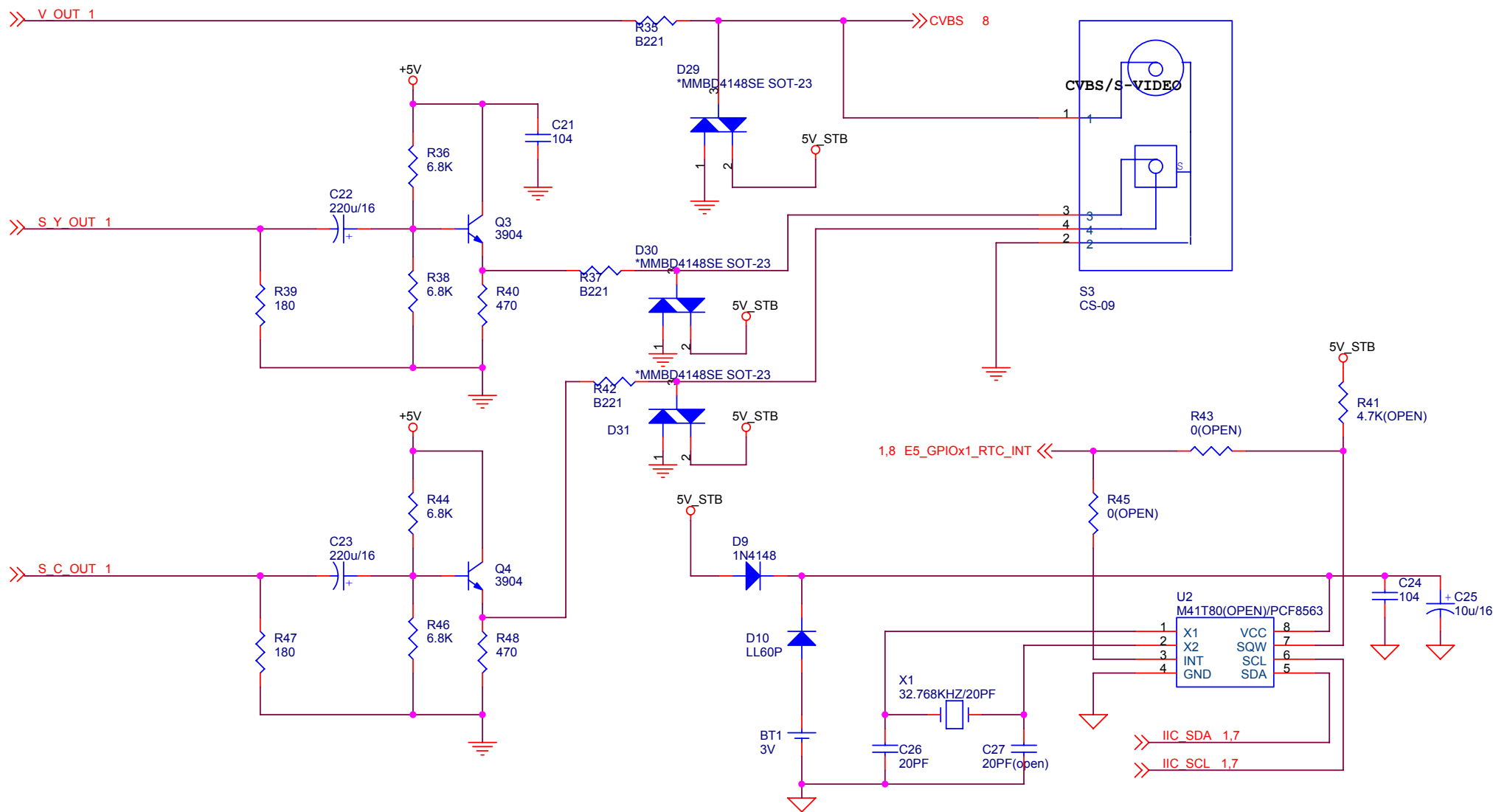
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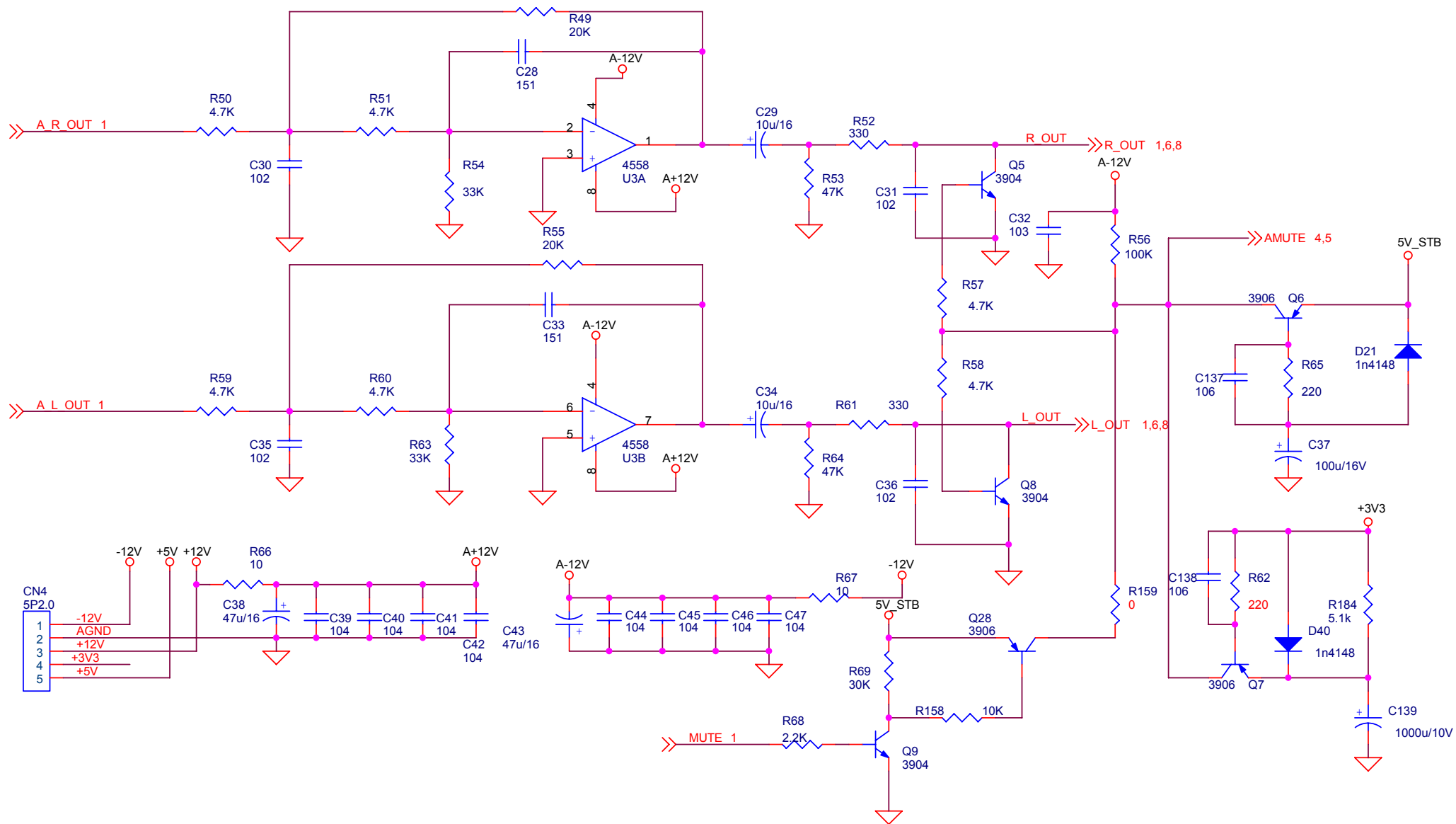


CVBS/s_VIDEO IN

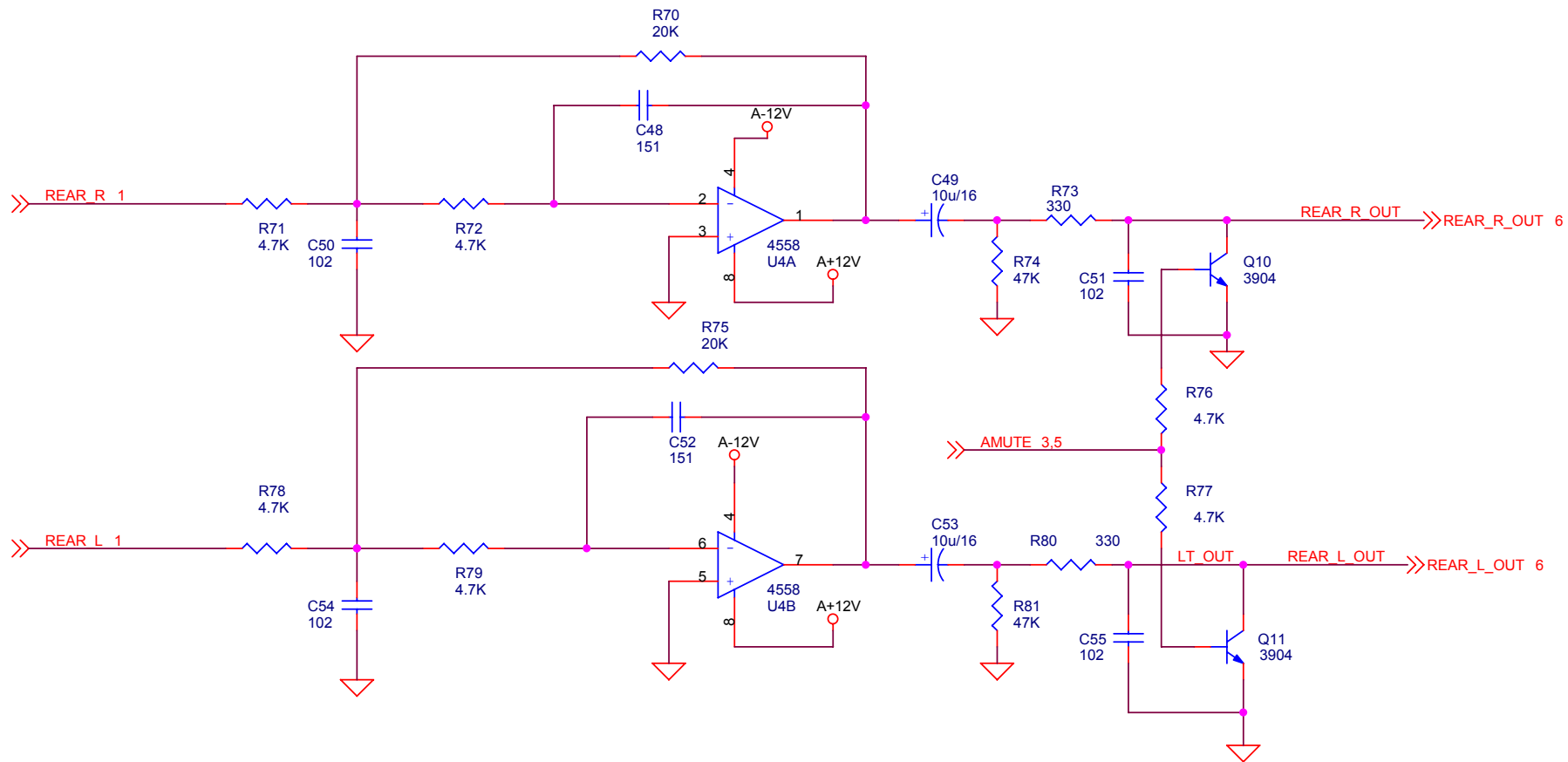




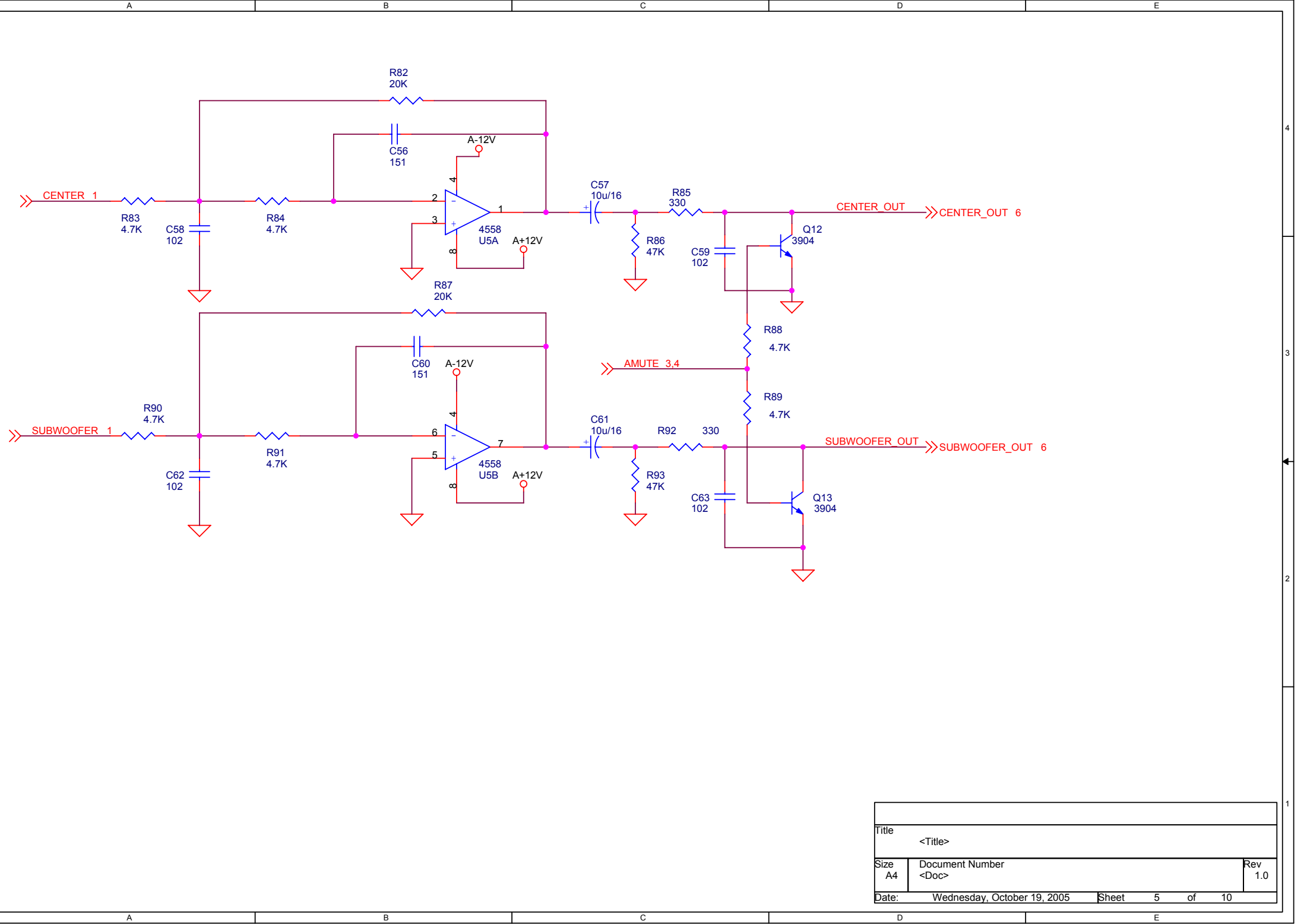
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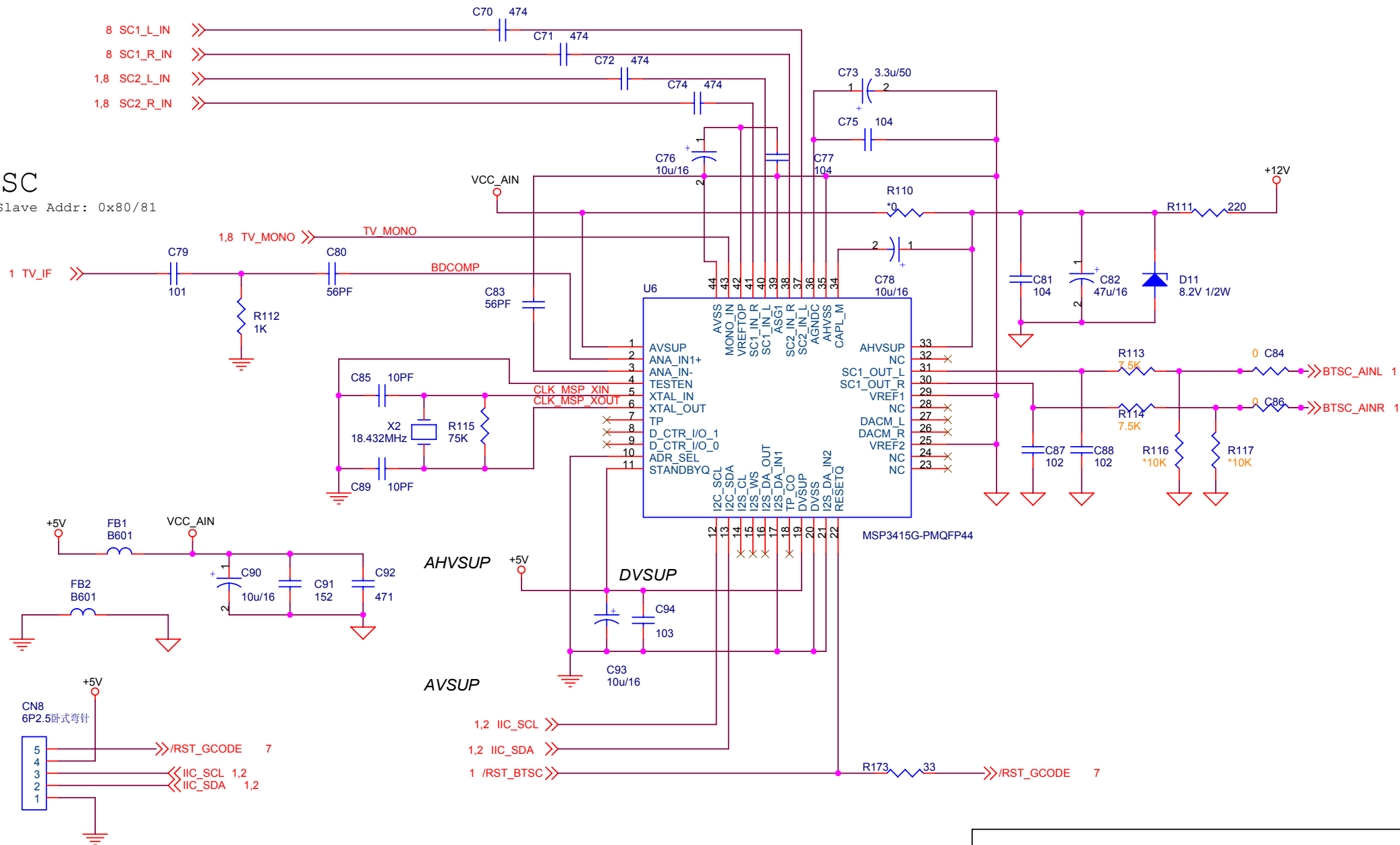
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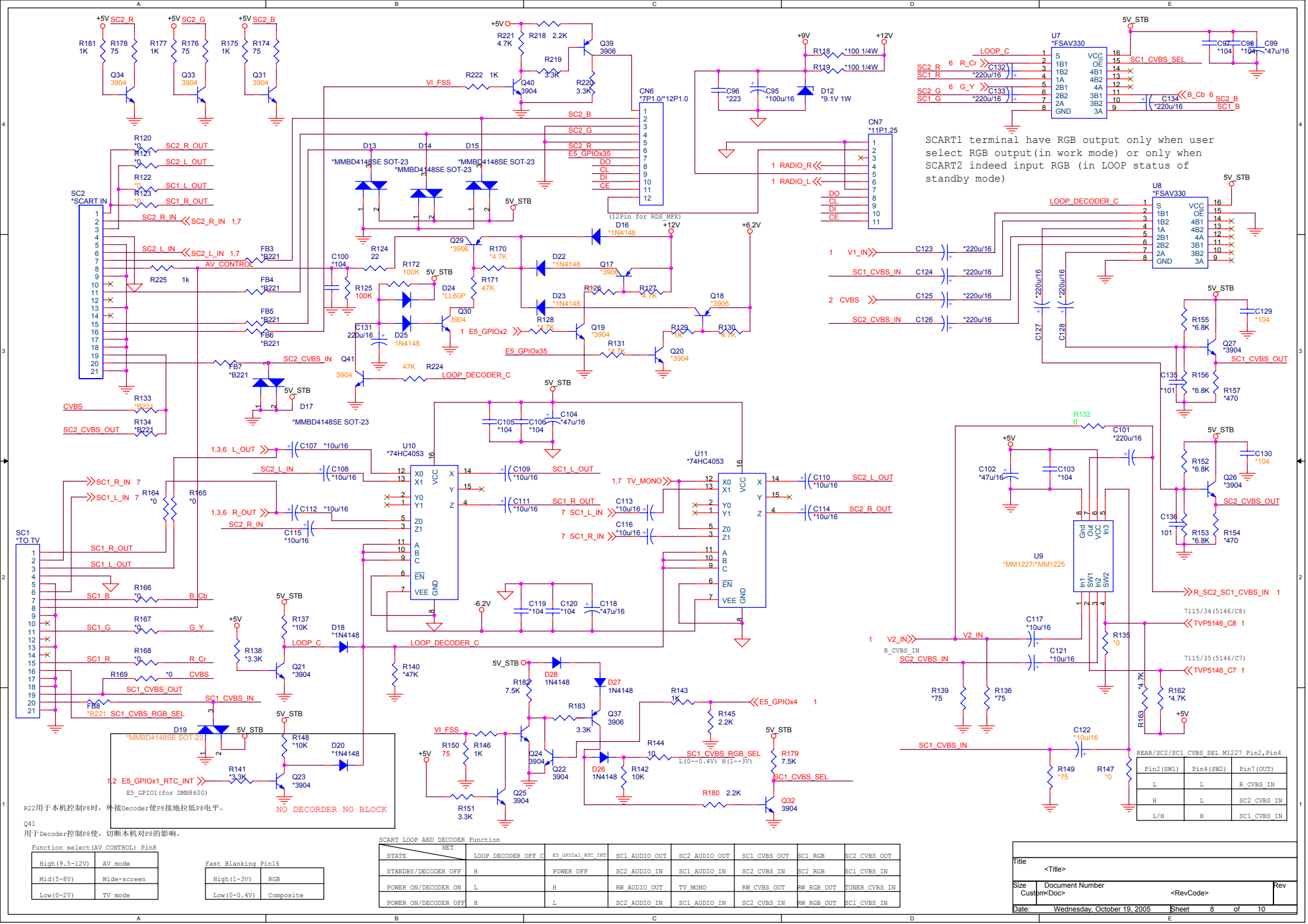
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BTSC

IDC Slave Addr: 0x80/81



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Date:	Wednesday, October 19, 2005	Sheet 7 of 10



R22用于本机控制P8时，外接Decoder使P8接地拉低P8电平。

Q41
用于Decoder控制P8使，切断本机对P8的影响。

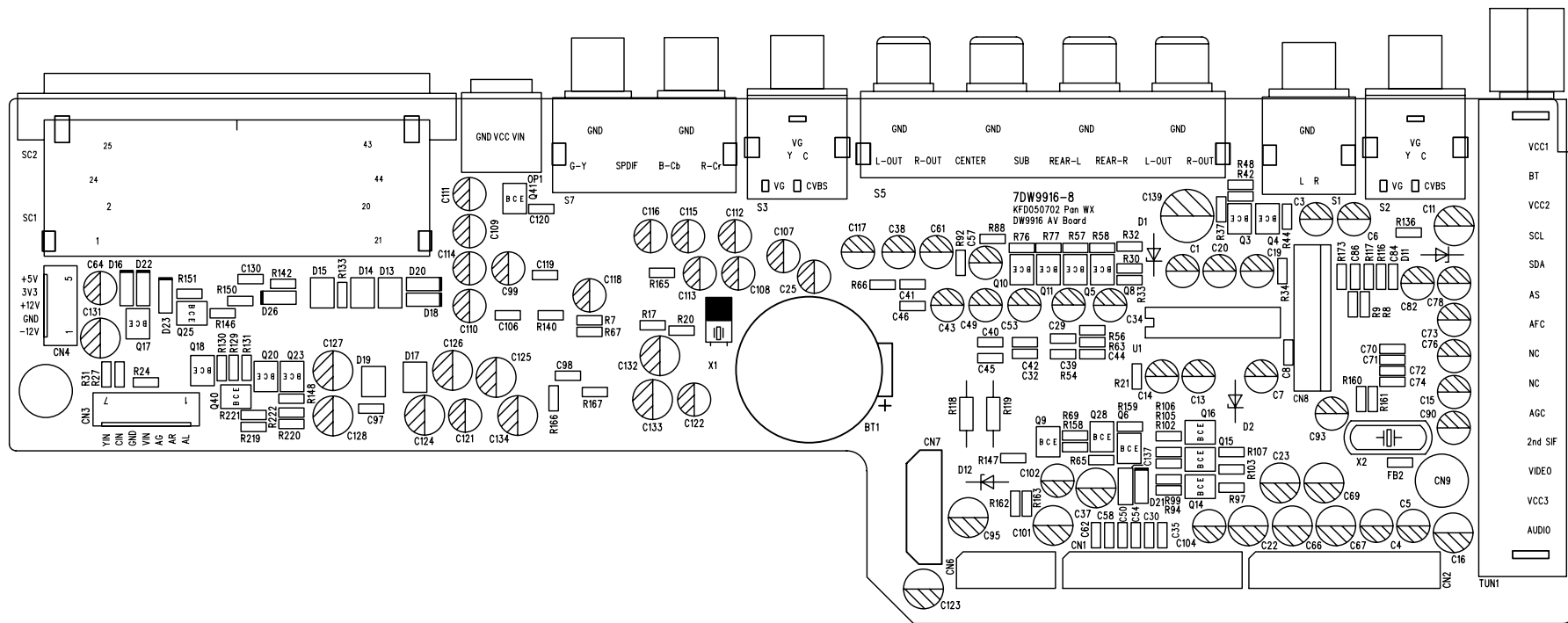
Function select (AV CONTROL) Pin8	
High(9.5-12V)	AV mode
Mid(5-8V)	Wide-screen
Low(0-2V)	TV mode

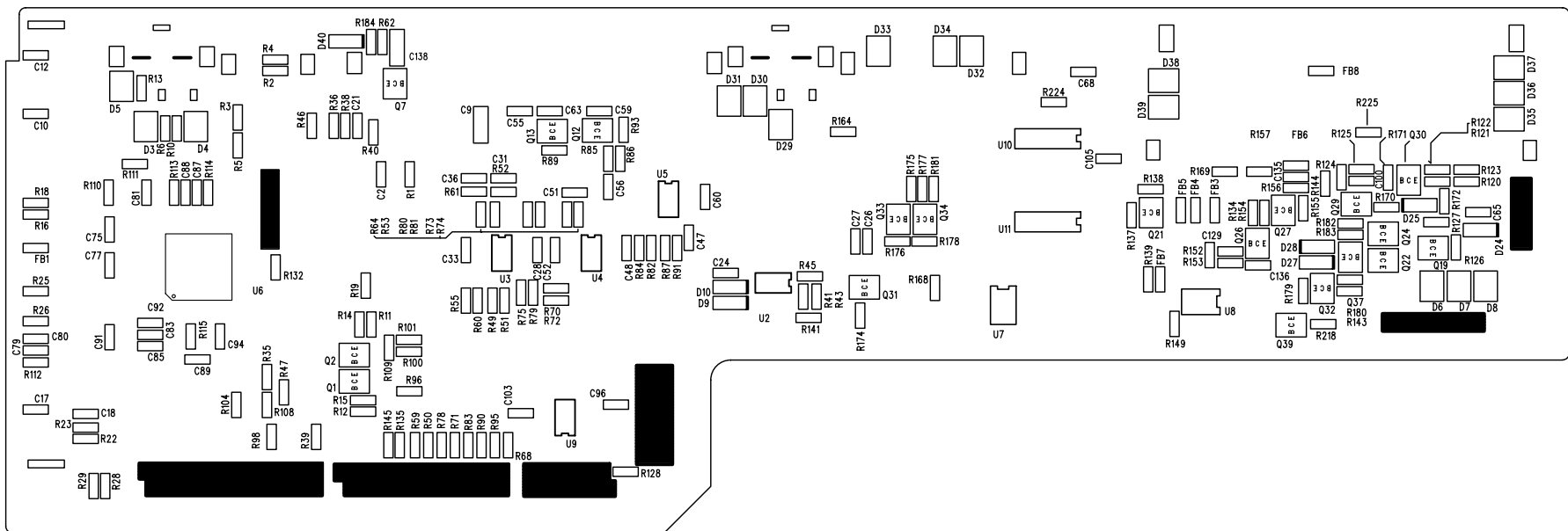
Fast Blanking Pin16	
High(1-3V)	RGB
Low(0-0.4V)	Composite

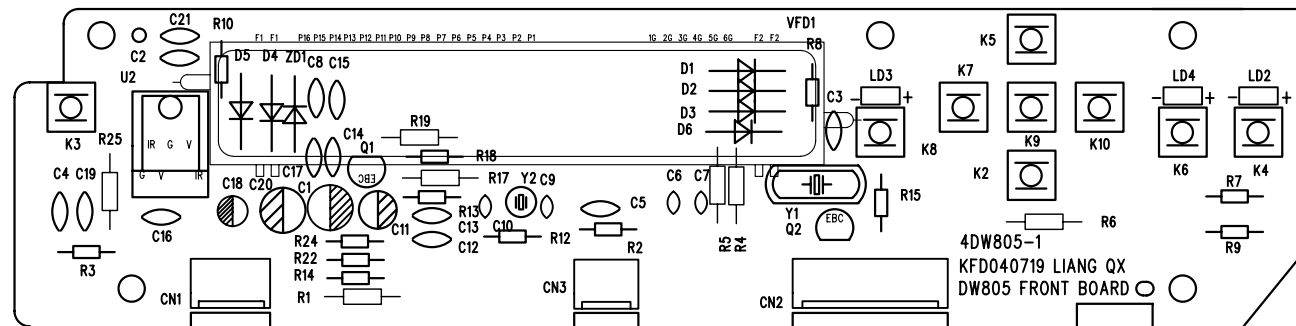
SCART LOOP AND DECODER Function

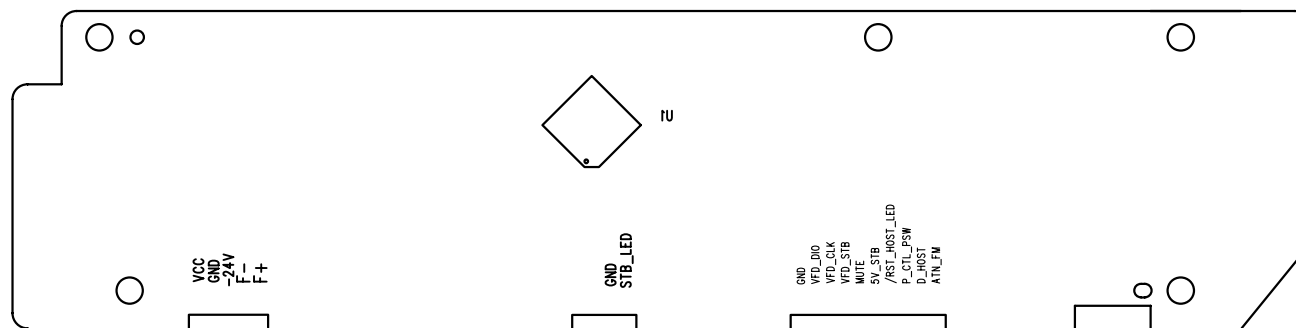
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STANDBY/DECODER OFF	H	H	POWER OFF	SC2 AUDIO IN	SC1 AUDIO IN	SC2 CVBS IN	SC2 RGB	SC1 CVBS IN
POWER ON/DECODER ON	L	L	RW AUDIO OUT	TV MONO	RW CVBS OUT	RW RGB OUT	TUNER CVBS IN	
POWER ON/DECODER OFF	H	H	SC2 AUDIO IN	SC1 AUDIO IN	SC2 CVBS IN	RW RGB OUT	SC1 CVBS IN	

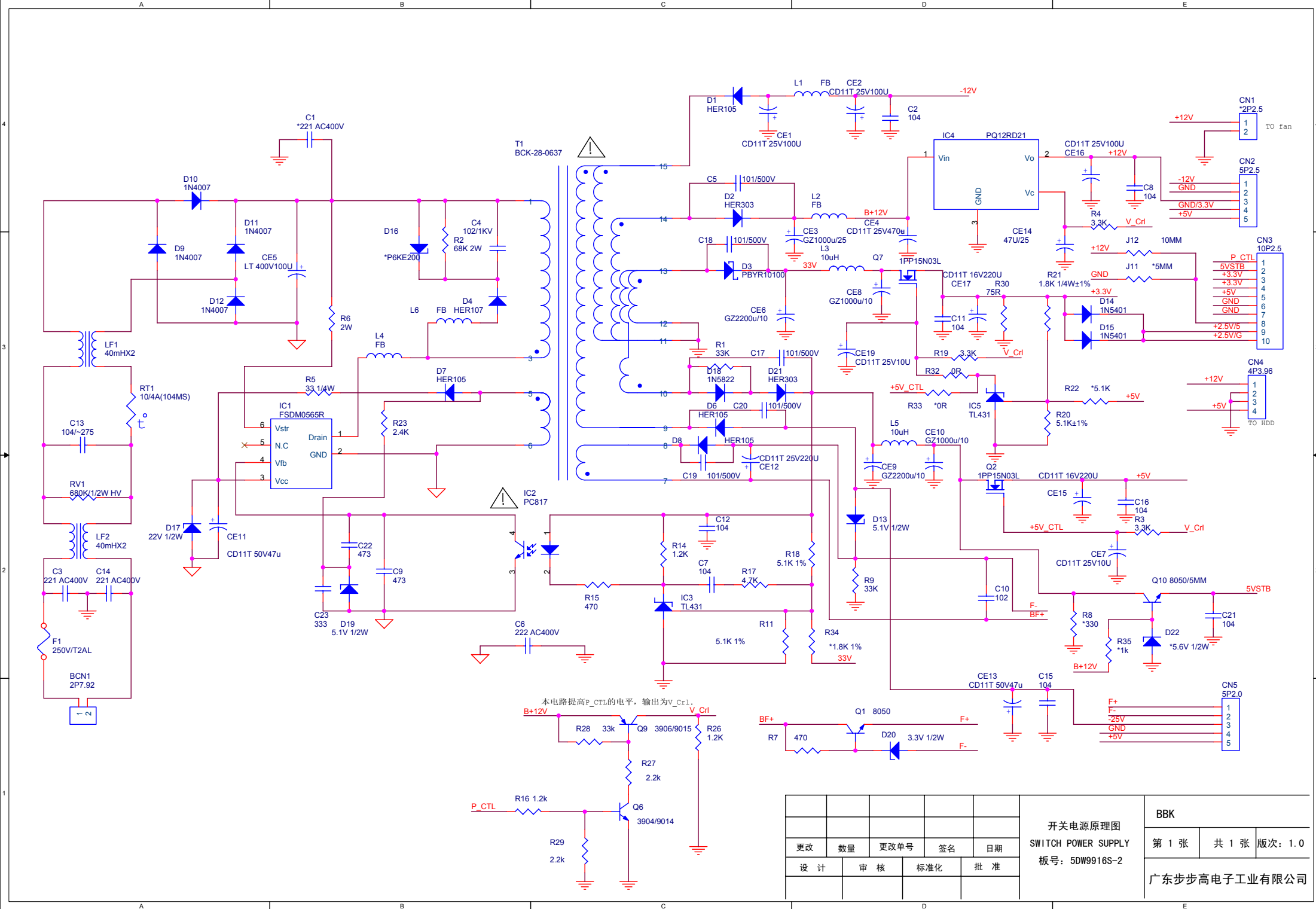
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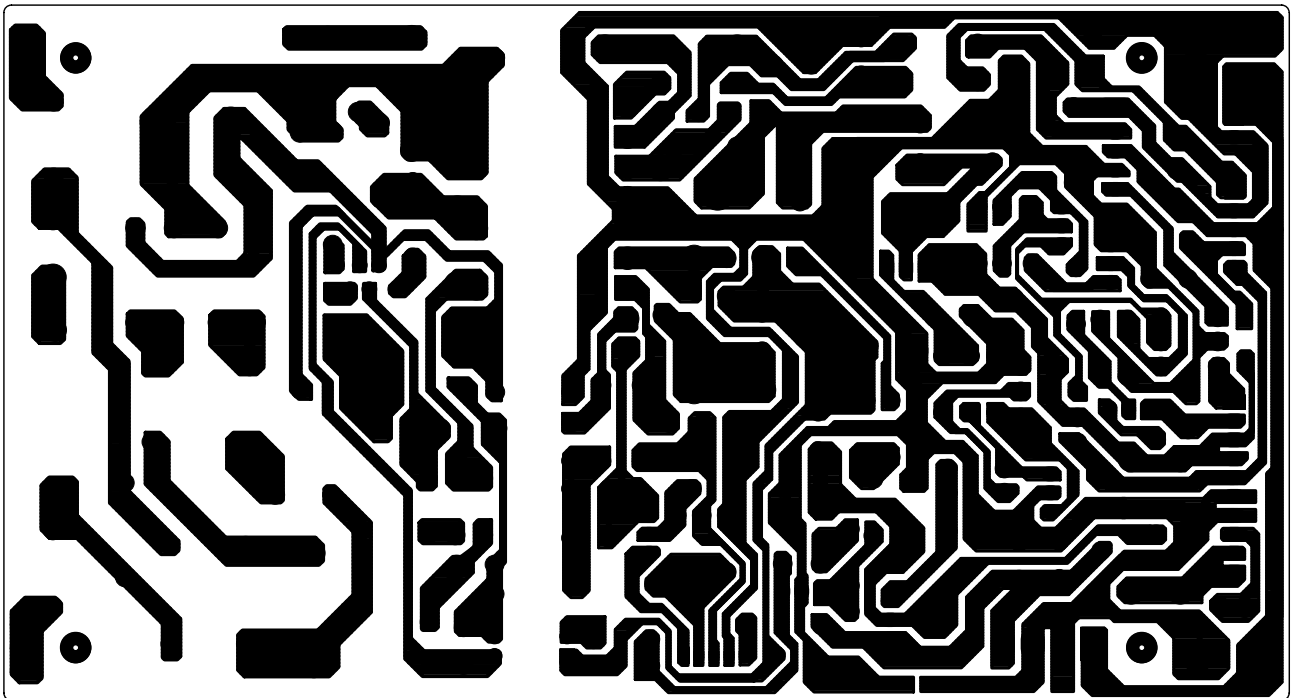












PARTS LIST					MAIN BOARD	
ITEM		DECRPTION			QTY	LOCATION
1		0090001	CHIP RESISTOR	1/16W 0 Ω $\pm$ 5% 0603	15	L5,R70,R72,R83,R84,R90,R101,R115,R148,R212,R213,R17,R151,R158,R166
2		0090296	CHIP RESISTOR	1/16W 18 Ω $\pm$ 5% 0603	7	R154,R156,R160,R164,R168,R170,R172
3		0090004	CHIP RESISTOR	1/16W 22 Ω $\pm$ 5% 0603	22	R19,R20,R21,R23,R24,R26,R27,R28,R29,R30,R31,R32,R33,R34,R35,R52,R53,R55,R57,R65,R119, R214
4		0090005	CHIP RESISTOR	1/16W 33 Ω $\pm$ 5% 0603	8	R76,R162,R163,R174,R175,R219,R220,R221
5		0090220	CHIP RESISTOR	1/16W 51 Ω $\pm$ 5% 0603	21	R44,R45,R46,R47,R48,R49,R50,R51,R54,R56,R58,R59,R60,R61,R62,R63,R64,R66,R67,R68,R117
6		0090291	CHIP RESISTOR	1/16W 56 Ω $\pm$ 5% 0603	10	R120,R121,R126,R127,R155,R157,R161,R165,R169,R171
7		0090273	CHIP RESISTOR	1/16W82 Ω $\pm$ 5% 0603	3	R102,R103,R104
8		0090181	CHIP RESISTOR	1/16W 100 Ω $\pm$ 5% 0603	1	R176
9		0090221	CHIP RESISTOR	1/16W 120 Ω $\pm$ 5% 0603	1	R79
10		0090007	CHIP RESISTOR	1/16W 180 Ω $\pm$ 5% 0603	1	R188
11		0090009	CHIP RESISTOR	1/16W 330 Ω $\pm$ 5% 0603	1	R78
12		0090011	CHIP RESISTOR	1/16W 470 Ω $\pm$ 5% 0603	1	R184
13		0090013	CHIP RESISTOR	1/16W 680 Ω $\pm$ 5% 0603	4	R105,R135,R138,R141
14		0090014	CHIP RESISTOR	1/16W 1K $\pm$ 5% 0603	3	R132,R133,R223
15		0090175	EXACTITUDE CHIP RESISTOR	1/10W 1.18K $\pm$ 1% 0805	1	R43
16		0090017	CHIP RESISTOR	1/16W 2.2K $\pm$ 5% 0603	10	R88,R89,R128,R218,R222,R228,R230,R231,R232,C221
17		0090019	CHIP RESISTOR	1/16W 4.7K $\pm$ 5% 0603	2	R91,R106
18		0090020	CHIP RESISTOR	1/16W 5.1K $\pm$ 5% 0603	1	R130
19		0090225	CHIP RESISTOR	1/16W 5.6K $\pm$ 5% 0603	6	R190,R191,R192,R193, R194,R195
20		0090185	CHIP RESISTOR	1/16W 6.2K $\pm$ 5% 0603	1	R116
21		0090021	CHIP RESISTOR	1/16W 6.8K $\pm$ 5% 0603	6	R185,R189,R186,R123,R124,R125
22		0090023	CHIP RESISTOR	1/16W 10K $\pm$ 5% 0603	35	R1,R2,R3,R4,R5,R7,R8,R9,R11,R12,R13,R14,R15,R18,R22,R25,R36,R37,R38,R39,R40,R41,R69,R71,R73,R82,R92,R131,R136,R142,R173,R177,R216,R217,R122
23		0090024	CHIP RESISTOR	1/16W 15K $\pm$ 5% 0603	2	R143,R144
24		0090034	CHIP RESISTOR	1/16W 100K $\pm$ 5% 0603	1	R226
25		0090109	CHIP RESISTOR	1/16W 1M Ω $\pm$ 5% 0603	1	R118
26		0100028	CHIP RESISTOR	1/16W22 Ω $\pm$ 5% 8P	6	RP16,RP18,RP20,RP22,RP24,RP26
27		0100019	CHIP RESISTOR	1/16W33 Ω $\pm$ 5% 8P	8	RP27,RP28,RP29,RP30,RP31,RP32,RP33, RP34
28		0100030	CHIP RESISTOR	1/16W51 Ω $\pm$ 5% 8P	20	RP1,RP2,RP3,RP4,RP5,RP6,RP7,RP8,RP9,R P10,RP11,RP12,RP13,RP14,RP15,RP17,RP19 ,RP21,RP23,RP25
29		0260190	ELEC.CAP	CD110 50V1U $\pm$ 20%5 $\times$ 11 2	1	C164
30		0260033	ELEC.CAP	CD11 25V3.3U $\pm$ 20%5 $\times$ 11 2	2	C265,C266
31		0260019	ELEC.CAP	CD11 16V10U $\pm$ 20%5 $\times$ 11 2	15	C102,C144,C168,C193,C210,C215,C253,C254,C255,C256,C257,C258,C287,C295,C270
32		0260025	ELEC.CAP	CD11 16V47U $\pm$ 20%5 $\times$ 11 2	2	C169,C188
33		0260570	ELEC.CAP	CD11T 16V47U $\pm$ 20%5 $\times$ 11 2	8	C4,C23,CA5,C103,C131,C170,CA1,CA2
34		0260027	ELEC.CAP	CD11 16V100U $\pm$ 20%6 $\times$ 12 2.5	4	C178,C179,C222,C223
35		0260028	ELEC.CAP	CD11 16V220U $\pm$ 20%6 $\times$ 12 2.5	6	CA3,CA4,C184,C186,C196,C250
36		0260214	ELEC.CAP	CD11 16V330U $\pm$ 20%8 $\times$ 12 3.5	5	C182,C194,C296,C298, C299

PARTS LIST					MAIN BOARD	
ITEM		DESCRIPTION			QTY	LOCATION
37		0310043	CHIP CAP	50V 22P ±5% NPO 0603	1	C159
38		0310190	CHIP CAP	50V 27P ±5% NPO 0603	4	C1,C2,C160,C161
39		0310044	CHIP CAP	50V 33P ±5% NPO 0603	2	C198,C200
40		0310045	CHIP CAP	50V 47P ±5% NPO 0603	5	C290,C291,C292,C293, C294
41		0310192	CHIP CAP	50V 56P ±5% NPO 0603	1	C163
42		0310047	CHIP CAP	50V 101 ±5% NPO 0603	7	C237,C239,C243,C245, C248,C252,C148
43		0310049	CHIP CAP	50V 221 ±5% NPO 0603	1	C166
44		0310066	CHIP CAP	50V 102 ±10% X7R 0603	38	C14,C15,C16,C33,C34,C35,C46,C47,C48,C56,C82,C83,C84,C87,C88,C95,C96,C97,C100,C101,C111,C112,C113,C120,C121,C122,C123,C128,C129,C130,C137,C138,C139,C140,C145,C155,C281,C282
45		0310231	CHIP CAP	50V 122 ±10% X7R 0603	6	C259,C260,C261,C262,C263,C264
46		0310072	CHIP CAP	50V 103 ±10% X7R 0603	24	C7,C10,C36,C37,C49,C51,C53,C54,C59,C60,C63,C66,C67,C72,C73,C78,C79,C91,C92,C171,C172,C173,C191,C269
47		0310207	CHIP CAP	50V 104 ±20% X7R 0603	135	C3,C5,C6,C8,C9,C12,C13,C17~C22,C27~C32,C40~C45,C50,C52,C55,C57,C58,C61,C62,C64,C65,C68~C71,C74~C77,C80,C81,C85,C86,C89,C90,C93,C94,C98,C99,C104~C110,C115~C119,C125,C126,C127,C132~C136,C146,C147,C153,C154,C156,C157,C162,C167,C174~C177,C180,C181,C183,C185,C187,C189,C190,C192,C195,C197,C199,C201~C209,C211~C214,C216~C220,C224~C233,C267,C268,C271,C272,C273,C285,C286,C288,C289,C297,C300,C301
48		0310505	CHIP CAP	25V 224 +80%-20% Y5V 0603	1	C165
	48.1	0310112	CHIP CAP	16V 224 ±10% X5R 0603	1	C165
49		0310216	CHIP CAP	10V 105 +80%-20% Y5V 0603	2	C283,C284
50		0310219	CHIP CAP	16V 106 +80%-20% Y5V 1206	10	C11,C24,C25,C26,C38,C39,C114,C124,C141,C152
51		0390052	FERRITE BEAD	FB	2	L21,L22
52		0390096	CHIP INDUCTOR	1.8UH ±10% 1608	6	L15,L16,L17,L18,L19,L20
53		0390142	CHIP BEAD	FCM1608-601T02	43	FB1,FB2,FB5,FB6,FB7,FB8,FB9,FB10,FB11,FB12,FB13,FB14,FB15,FB16,FB17,FB18,FB19,FB20,FB21,FB22,FB23,FB24,FB25,FB26,FB27,FB28,FB29,FB30,FB31,FB32,L6,L7,L8,L10,L11,L12,L13,L14,L1,L2,L3,L4,L23
54		0700007	CHIP DIODE	1N4148	5	D2,D3,D5,D6,D8
55		0780041	CHIP TRANSISTOR	3906(100-300) SOT-23	1	Q1
56		0780040	CHIP TRANSISTOR	3904(100-300) SOT-23	1	Q2
57		0100034	CHIP RESISTOR	1/16W0Ω±5% 0603×4 8P	1	T1
58		0881935	IC	DMN-8602 BGA	1	U1
59		0881814	IC	LP2995 SOP	1	U2
60		0881815	IC	M13S128168A-6T TSOP	2	U3,U4
61		0881816	IC	SN74HCT14PWR TSSOP	1	U5
62		0881818	IC	SN74ALVCH16373 TSSOP	1	U7
63		0881819	IC	TSB41AB1PHP QFP	1	U10
64		0881820	IC	PQ018EZ02ZP	1	U11
65		0881127	IC	RT9164-33CG SOT-223	1	U12

PARTS LIST					MAIN BOARD	
ITEM		DESCRIPTION			QTY	LOCATION
66		0881821	IC	PQ025EZ01ZP	1	U13
67		0881936	IC	TVP5146 PQFP	1	U14
	67.1	0882672	IC	L2146 PQFP	1	U14
68		0881057	IC	CS4360 SSOP	1	U15
69		0882353	IC	CS5340 TSSOP	1	U17
70		0960171	CRYSTAL	13.50MHZ 49-S	1	Y1
71		0960169	CRYSTAL	24.576MHz 49-S	1	Y2
72		0960229	CRYSTAL	14.31818MHZ 49-S	1	Y3
73		1632480	PCB	2DW9916-4	1	
74		1940005	SOCKET	6P 2.0mm	1	CN1
75		1940046	SOCKET	10P 2.0mm	1	CN4
76		1940030	SOCKET	10P 2.5mm	1	CN6
77		1940224	SOCKET	4/3P 1.0mm	1	CN2
78		1940161	SOCKET	12P1.0mm	1	CN3
79		1940120	SOCKET	13P1.0mm	1	CN5
80		1940062	SOCKET	20P 2.5mm	1	J3
81		0911533	FLASH	ROM9914SRU-0A(16M)	1	U8
82		3580117	RADIATOR	28×28×12 BBK9906(HK)	1	

PARTS LIST					AV BOARD	
ITEM		DESCRIPTION			QTY	LOCATION
1		0090001	CHIP RESISTOR	1/16W 0 Ω $\pm$ 5% 0603	6	R16,R135,R147,R159,C84,C86
2		0090003	CHIP RESISTOR	1/16W 10 Ω $\pm$ 5% 0603	3	R66,R67,R144
3		0090004	CHIP RESISTOR	1/16W 22 Ω $\pm$ 5% 0603	1	R124
4		0090006	CHIP RESISTOR	1/16W 75 Ω $\pm$ 5% 0603	6	R136,R139,R178,R176,R174,R150
5		0090007	CHIP RESISTOR	1/16W 180 Ω $\pm$ 5% 0603	5	R39,R47,R98,R104,R108
6		0090008	CHIP RESISTOR	1/16W 220 Ω $\pm$ 5% 0603	4	R1,R7,R65,R111
7		0090009	CHIP RESISTOR	1/16W 330 Ω $\pm$ 5% 0603	6	R52,R61,R73,R80,R85,R92
8		0090011	CHIP RESISTOR	1/16W 470 Ω $\pm$ 5% 0603	6	R40,R48,R99,R105,R109,R157
9		0090014	CHIP RESISTOR	1/16W 1K $\pm$ 5% 0603	18	R57,R58,R62,R76,R77,R88,R89,R112,R126, R129,R143,R146,R171,R181,R177,R175,R22 2,R225
10		0090017	CHIP RESISTOR	1/16W 2.2K $\pm$ 5% 0603	4	R68,R145,R218,R180
11		0090018	CHIP RESISTOR	1/16W 3.3K $\pm$ 5% 0603	7	R12,R15,R138,R151,R183,R219,R220
12		0090019	CHIP RESISTOR	1/16W 4.7K $\pm$ 5% 0603	18	R50,R51,R59,R60,R71,R72,R78,R79,R83,R8 4,R90,R91,R127,R128,R130,R131,R170,R22 1
13		0090021	CHIP RESISTOR	1/16W 6.8K $\pm$ 5% 0603	12	R36,R38,R46,R94,R97,R102,R103,R106,R10 7,R44,R155,R156
14		0090186	CHIP RESISTOR	1/16W 7.5K $\pm$ 5% 0603	4	R179,R182,R114,R113
15		0090023	CHIP RESISTOR	1/16W 10K $\pm$ 5% 0603	6	R11,R14,R137,R142,R158,R56
16		0090022	CHIP RESISTOR	1/16W 8.2K $\pm$ 5% 0603	4	R2,R3,R17,R20
17		0090025	CHIP RESISTOR	1/16W 20K $\pm$ 5% 0603	6	R49,R55,R70,R75,R82,R87
18		0090189	CHIP RESISTOR	1/16W 30K $\pm$ 5% 0603	1	R69
19		1910159	CHIP RESISTOR	DASW-02	2	S2,S3
20		0090028	CHIP RESISTOR	1/16W 33K $\pm$ 5% 0603	2	R63,R54
21		0090029	CHIP RESISTOR	1/16W 47K $\pm$ 5% 0603	7	R53,R64,R74,R81,R86,R93,R224
22		0090242	CHIP RESISTOR	1/16W 75K $\pm$ 5% 0603	1	R115
23		0090034	CHIP RESISTOR	1/16W 100K $\pm$ 5% 0603	2	R172,R125
24		0260028	ELEC.CAP	CD11 16V220U $\pm$ 20%6 $\times$ 12 2.5	14	C16,C22,C23,C66,C67,C69,C101,C125,C126 ,C128,C131,C132,C133,C134
25		0260019	ELEC.CAP	CD11 16V10U $\pm$ 20%5 $\times$ 11 2	20	C25,C29,C34,C49,C53,C57,C61,C64,C76,C7 8,C90,C93,C107,C108,C109,C111,C112,C11 5,C117,C121
26		0260025	ELEC.CAP	CD11 16V47U $\pm$ 20%5 $\times$ 11 2	9	C1,C7,C38,C43,C82,C99,C102,C104,C118
27		0260027	ELEC.CAP	CD11 16V100U $\pm$ 20%6 $\times$ 12 2.5	2	C37,C11
28		0310219	CHIP CAP	16V 106 +80%-20% Y5V 1206	1	C9
29		0260127	ELEC.CAP	CD11 16V4.7U $\pm$ 20%5 $\times$ 11 2	6	C3,C4,C5,C6,C13,C14
30		0260211	ELEC.CAP	CD11 50V3.3U $\pm$ 20%5 $\times$ 11 2	1	C73
31		0310185	CHIP CAP	50V 5P $\pm$ 0.25P NPO 0603	2	C89,C85
32		0310085	CHIP CAP	50V 20P $\pm$ 5% NPO 0603	1	C26
33		0310192	CHIP CAP	50V 56P $\pm$ 5% NPO 0603	2	C83,C80
34		0310047	CHIP CAP	50V 101 $\pm$ 5% NPO 0603	2	C79,C135
35		0310048	CHIP CAP	50V 151 $\pm$ 5% NPO 0603	6	C28,C33,C48,C52,C56,C60
36		0310196	CHIP CAP	50V 471 $\pm$ 10% X7R 0603	1	C92
37		0310066	CHIP CAP	50V 102 $\pm$ 10% X7R 0603	14	C30,C31,C35,C36,C50,C51,C54,C55,C58,C5 9,C62,C63,C87,C88
38		0260690	ELEC.CAP	CD288H 10V1000U $\pm$ 20%8 $\times$ 16 3.5	1	C139
39		0310752	CHIP CAP	25V 106 $\pm$ 10% X5R 1206	2	C137,C138
40		0310067	CHIP CAP	50V 152 $\pm$ 10% X7R 0603	1	C91
41		0310072	CHIP CAP	50V 103 $\pm$ 10% X7R 0603	5	C10,C12,C17,C32,C94
42		0310207	CHIP CAP	50V 104 $\pm$ 20% X7R 0603	26	C2,C8,C21,C24,C39,C40,C41,C42,C44,C45, C46,C47,C65,C68,C75,C77,C81,C97,C98,C1 00,C103,C105,C106,C119,C120,C129

PARTS LIST					AV BOARD	
ITEM		DESCRIPTION			QTY	LOCATION
43		0310379	CHIP CAP	25V 474 +80%-20% Y5V 0603	2	C72,C74
	43.1	0310542	CHIP CAP	16V 474 ±10% X5R 0603	2	C72,C74
44		0390095	CHIP BEAD	FCM1608K-221T05	13	FB3,FB4,FB5,FB6,FB7,R24,R35,R37,R42,R95,R96,R100,R101
45		0390142	CHIP BEAD	FCM1608-601T02	7	FB1,FB2,R6,R13,R10,R27,R31
46		0580007	ZENER	6.2V ±5% 1/2W	2	D2,D1
47		0090020	CHIP RESISTOR	1/16W 5.1K ±5% 0603	1	R184
48		0580008	ZENER	8.2V ±5% 1/2W	1	D11
49		0700007	CHIP DIODE	1N4148	10	D9,D18,D22,D23,D25,D26,D27,D28,D40,D21
50		0680057	CHIP SCHOTTKY DIODE	LL60P MINI-MELF	2	D24,D10
51		0700056	Chip Double Diode	MMBD4148SE SOT-23	11	D3~D6,D13,D14,D15,D17,D29,D7,D8
52		0780040	CHIP TRANSISTOR	3904(100-300) SOT-23	28	Q1,Q2,Q3,Q4,Q5,Q8,Q9,Q10,Q11,Q12,Q13,Q14,Q15,Q16,Q19,Q20,Q21,Q22,Q24,Q25,Q27,Q30,Q32,Q40,Q31,Q33,Q34,Q41
	52.1	0780062	CHIP TRANSISTOR	9014C	28	Q1,Q2,Q3,Q4,Q5,Q8,Q9,Q10,Q11,Q12,Q13,Q14,Q15,Q16,Q19,Q20,Q21,Q22,Q24,Q25,Q27,Q30,Q32,Q40,Q31,Q33,Q34,Q41
53		0780041	CHIP TRANSISTOR	3906(100-300) SOT-23	8	Q6,Q7,Q17,Q18,Q28,Q29,Q37,Q39
	53.1	0780063	CHIP TRANSISTOR	9015C	8	Q6,Q7,Q17,Q18,Q28,Q29,Q37,Q39
54		0880443	IC	CD4052BCN DIP	1	U1
	54.1	0881429	IC	CD4052BE DIP	1	U1
55		0881080	IC	PCF8563T SO8	1	U2
56		0881226	IC	RC4558D SOP	3	U3,U4,U5
57		0881842	IC	MSP3415G QFP	1	U6
58		0882267	IC	FSAV330 TSSOP	2	U8,U7
59		0881817	IC	MM1225XF SOP	1	U9
60		0881992	IC	HC4053M SOIC	1	U10
61		0960017	CRYSTAL	32.768KHz 3×9	1	X1
62		0960274	CRYSTAL	18.432MHz ±10PPM 49-S 12P	1	X2
63		1020023	TUNER	JS-6B2F/L121-D5	1	TUN1
64		1090009	OPTICAL OUTPUT	GP1F32T	1	OP1
	64.1	1090024	OPTICAL OUTPUT	TX179AT	1	OP1
65		1632479	PCB	7DW9916-8	1	
66		1860056	SCART SOCKET	SCART SOCKET	1	SC1
67		1910062	SOCKET	AV2-8.4--6G	1	S1
68		1910079	SOCKET	AV8-8.4-6G-3	1	S5
69		1910078	SOCKET	AV4-8.4-6G-3	1	S7
70		1940024	SOCKET	5P 2.0mm	1	CN4
71		1940023	SOCKET	7P 2.0mm	1	CN3
72		1940120	SOCKET	13P 1.0mm	1	CN2
73		1940161	SOCKET	12P 1.0mm	1	CN1
74		1940224	SOCKET	4/3P 1.0mm	1	CN6(LOCAL AT THE FIRST FOOT)
75		3630185	SOCKET	1403G6-GBK4B	1	BT1
	75.1	3630281	SOCKET	1403G7-GBK4B	1	BT1

PARTS LIST						MAIN KEY BOARD	
ITEM		DECRPTION			QTY	LOCATION	
1		0000268	CARBON FILM RESISTOR	1/4W2.2Ω±5%	1	R1	
2		0000270	CARBON FILM RESISTOR	1/4W10Ω±5	1	R25	
3		0000133	CARBON FILM RESISTOR	1/6W4.7K±5%	2	R15,R22	
4		0000294	CARBON FILM RESISTOR	1/4W10K±5%	3	R4,R5,R6	
5		0000137	CARBON FILM RESISTOR	1/6W10K±5%	2	R14,R24	
6		0000488	CARBON FILM RESISTOR	1/6W220Ω±5%	4	R2,R7,R8,R9	
7		0000441	CARBON FILM RESISTOR	1/4W2.7K±5%	2	R17,R19	
8		0000475	CARBON FILM RESISTOR	1/6W2.7K±5%	1	R18	
9		0000118	CARBON FILM RESISTOR	1/6W10Ω±5%	1	R10	
10		0000122	CARBON FILM RESISTOR	1/6W100Ω±5%	1	R12	
11		0000667	CARBON FILM RESISTOR	1/6W270K±5%	1	R3	
12		0200313	CER.CAP	50V 104±10%	1	C2	
13		0200167	CER.CAP	50V 20P ±10% NPO 2.5mm	2	C9,C10	
14		0200020	CER.CAP	50V 30P ±10% NPO 2.5mm	7	C6,C7,C12,C13,C14,C15,C16	
15		0200123	CER.CAP	50V 102 ±10% 5mm	2	C8,C17	
16		0200131	CER.CAP	50V 103 ±10% 5mm	5	C3,C4,C5,C19,C21	
	16.1	0200132	CER.CAP	50V 103 ±20% 5mm	5	C3,C4,C5,C19,C21	
17		0260076	ELEC.CAP	CD11C 50V22U±20%6×7 2.5	1	C1	
18		0260241	ELEC.CAP	CD11C 16V4.7U±20%4×7 1.5	1	C11	
19		0260196	ELEC.CAP	CD11C 16V10U±20%4×7 1.5	1	C18	
20		0260200	ELEC.CAP	CD11C 16V47U±20%5×7 2	1	C20	
21		0570006	DIODE	1N4148	6	D1~D6	
22		0780033	TRANSISTOR	9015C(200-600) TO-92	1	Q2	
23		0780050	TRANSISTOR	S8050D	1	Q1	
24		0881013	IC	D16316 QFP	1	U1	
25		0960017	CRYSTAL	32.768KHz 3×9	1	Y2	
26		0960114	CRYSTAL	5.00MHZ 49-S	1	Y1	
27		1200535	LED DISPLAYS	HNV-06SC30	1	VFD1	
	27.1	1200538	LED DISPLAYS	FHD81×16-0662	1	VFD1	
28		1340003	TACT SWITCH	6×6×1	9	K2~K10	
29		2121365	CABLE	10P125 2.0 2	1	CN2	
30		2121626	CABLE	5P450 2.0 2	1	CN1	
31		2121491	CABLE	4P340 2.0 2	1	CN3	
32		2110166	CABLE	20# 80mm	2		
33		2360016	REMOTE RECEIVING	HS0038B3V	1	U2	
	33.1	2360024	REMOTE RECEIVING	LTOP-4338	1	U2	
	33.2	2360028	REMOTE RECEIVING	GP1UX301QS	1	U2	
	33.3	2360019	REMOTE RECEIVING	AT138B	1	U2	
36		1631753	PCB	4DW805-1	1		

PARTS LIST				POWER BOARD		
ITEM		DESCRIPTION			QTY	LOCATION
1		00000059	CARBON FILM RESISTOR	1/6W33Ω±5%	1	R5
2		00000089	CARBON FILM RESISTOR	1/6W75Ω±5%	1	R30
3		00004069	CARBON FILM RESISTOR	1/6W180Ω±5%	1	R7
4		00000169	CARBON FILM RESISTOR	1/6W470Ω±5%	1	R15
5		00000229	CARBON FILM RESISTOR	1/6W1K±5%	3	R14,R26,R16
6		00000279	CARBON FILM RESISTOR	1/6W2.2K±5%	2	R29,R27
7		00003509	CARBON FILM RESISTOR	1/6W2.4K±5%	1	R23
8		00000309	CARBON FILM RESISTOR	1/6W3.3K±6%	3	R4,R19,R3
9		00000349	CARBON FILM RESISTOR	1/6W4.7K±6%	1	R17
10		00000509	CARBON FILM RESISTOR	1/6W33K±7%	2	R9,R28
11		0070008	HIGH VOLTAGE RESISTOR	@1/2W680K±5% CQC	1	RV1
12		00100819	METAL FILM RESISTOR	1/6W1.8K±1%	1	R21
13		00101299	METAL FILM RESISTOR	1/6W4.7K±1%	1	R11
14		00103099	METAL FILM RESISTOR	1/6W5.1K±1%	2	R20,R18
15		0010157	METAL OXIDE FILM RESISTOR	2W68K±5% 15×7	2	R2,R6
16		02001369	CER CAP	50V 473±20% 5mm	1	C9
17		02003189	CER CAP	50V 104 ±20% 5mm	8	C2,C7,C8,C12,C15,C16,C11,C21
18		0200232	CER CAP	500V 101 ±10% 5mm	4	C18,C5,C20,C19
19		0200228	CER CAP	1000V 101 ±10% 7.5mm	1	C17
20		0200351	CAP	@250VAC 471±10% 10mmVDE	2	C6,C1
21		02102059	CAP	630V 102 ±5% 5MM	1	C4
22		02100919	CAP	63V 473 ±5% 5mm	1	C22
23		02100249	CAP	100V 333 ±10% 5mm	1	C23
24		0210207	CAP	@275V 104 ±20% 15mm VDE	1	C13
	24.1	0210206	CAP	@275V104±10%15mm VDE	1	C13
25		02607149	ELEC.CAP	CD11T 25V100U±20%6×12 C5	3	CE1,CE2,CE16
26		02606869	ELEC.CAP	CD11T 25V220U±20%8×12 C5	1	CE12
27		02605589	ELEC.CAP	CD11T 25V470u±20%10×16 5	1	CE4
28		02607239	ELEC.CAP	CD288H 25V1000U±20% 10×20 5	1	CE3
29		02607159	ELEC.CAP	CD11T 25V10U±10%5×11 C5	2	CE7,CE19
30		02606849	ELEC.CAP	CD11T 50V47u±20%6×12 C5	3	CE11,CE13,CE14
31		02607139	ELEC.CAP	CD11T 16V220U±20%6×12 C5	2	CE15,CE17
32		0260725	ELEC.CAP	CD288H 10V2200u ±20% 10×25 5	2	CE6,CE9
33		02607269	ELEC.CAP	CD288H 10V1000U±20%8×16 C5	2	CE8,CE10
34		0260584	ELEC.CAP	LT 400V100U±20%22×30 10	1	CE5
35		03900529	FERRITE BEAD	FB	4	L1,L2,L4,L6
36		0410077	INDUCTOR IRON	10UH 3A 5mm	2	L3,L5
37		0460521	TRANSFOMER	@BCK-28-0681VDE	1	T1
38		0570045	DIODE	BYW29E-200 TO-220	1	D21
39		05700059	DIODE	1N4007	4	D9,D10,D11,D12
40		0570007	DIODE	1N5401	2	D14,D15
41		05700139	DIODE	HER105	4	D1,D6,D7,D8
42		05700149	DIODE	HER107	1	D4
43		0570077	DIODE	SF34 DO-27 17.5×8	1	D2
44		05800069	ZENER	5.1V ±5% 1/2W	1	D13
45		05800469	ZENER	3.6V ±5% 1/2W	1	D20
46		05800489	ZENER	22V ±5% 1/2W	1	D17

PARTS LIST				POWER BOARD		
ITEM		DESCRIPTION			QTY	LOCATION
47		0680047	Schottky DIODE	PBYR10100 TO-220	1	D3
48		07800249	TRANSISTOR	2N3906	1	Q9
	48.1	07800339	TRANSISTOR	9015C	1	Q9
49		07800239	TRANSISTOR	2N3904(100-300) TO-92	1	Q6
	49.1	07800329	TRANSISTOR	9014C	1	Q6
50		07800299	TRANSISTOR	C8050	1	Q1
51		0790024	MOSFET	1PP14N03L TO-220	2	Q7,Q2
	51.1	0790025	MOSFET	AP40N03P TO-220	2	Q7,Q2
	51.2	0790028	MOSFET	1PP15N03L TO-220	2	Q7,Q2
52		08805539	IC	LM431ACZ TO-92	2	IC3,IC5
	52.1	08805819	IC	TL431C TO-226AA(LP)	2	IC3,IC5
	52.2	08808009	IC	431L TO-92	2	IC3,IC5
53		0881326	IC	PQ12RD21 TO-220	1	IC4
54		0881934	IC	FSDM0565R TO-220F-6L	1	IC1
55		1000045	INDUCTOR IRON	@UT-20 30mH+ ∞ -0% VDE	1	LF2
56		1050012	THERM RESISTOR	@NTC SCK-104MS $\pm$ 20% CQC	1	RT1
57		1563847	PCB	@5DW9916S-3 UL	1	
58		1940004	SOCKET	5P 2.5mm	1	CN2
59		1940024	SOCKET	5P 2.0mm	1	CN5
60		1940030	SOCKET	10P 2.5mm	1	CN3
61		1940037	SOCKET	4P 3.96mm	1	CN4
62		1940045	SOCKET	2P 8.0mm 2#	1	BCN1
63		1940001	SOCKET	2P 2.5mm	1	CN1
65		1080032	OPTOTRANSISTOR	@HS817 VDE	1	IC2
70		2300035	FUSE	@T2AL 250V VDE	1	F1
71		3020402	SOCKE	BLX-2	1	F1
72		3580091	RADIATOR	11 $\times$ 15 $\times$ 31 LFDR9905	3	D3,Q7,D21
73		3580165	RADIATOR	25 $\times$ 15 $\times$ 6 DW9927	1	IC4
74		3580143	RADIATOR	11 $\times$ 15 $\times$ 31 DW9915R	1	IC1

PARTS LIST					DV BOARD	
ITEM		DECRPTION			QTY	LOCATION
1		1860040	1394 SOCKET	IEEE1394 4P/F DIP	1	J2
2		2150145	CABLE	6P350 2.0T2 2×2P	1	JP2 TO CN1
3		1632157	PCB	CDW805-2	1	

PARTS LIST					FRONT AV BOARD	
ITEM		DESCRIPTION			QTY	LOCATION
1		1563505	PCB	BDW805-1	1	
2		1910112	SOCKET	AV3-SK-01	1	J1
3		2110166	CABLE	20# 80mm	1	
4		2121476	CABLE	7P 360 2.0	1	JP1

PARTS LIST					AUXILIARY KEY BOARD	
ITEM		DECRPTION			QTY	LOCATION
1		1563295	PCB	9DW805-1	1	
2		1340001	TACT SWITCH	6×7×1	1	K1
3		0620106	LED	3R 4HD	1	LD6
4		2110198	CABLE	20# 60mm	1	GND

PARTS LIST					CONTROLLER	
ITEM		DESCRIPTION			QTY	LOCATION
1		0260196	ELEC.CAP	CD11C 16V10U±20%4×7 1.5	1	C801
2		0200062	CER. CAP	50V 151 ±10% 2.5mm	2	C802,C803
3		0090014	CHIP RESISTOR	1/16W 1K ±5% 0603	1	R802
4		0000381	CARBON FILM RESISTO	1/6W2.2 Ω ±5%7.5mm	1	R801
5		0570006	DIODE	1N4148	2	D801,D803
6		0630002	REMOTE OUTPUT	LTE-3271	1	LED801
	6.1	0630003	REMOTE OUTPUT	TSAL6200	1	LED801
	6.2	0630008	REMOTE OUTPUT	TSAL7200	1	LED801
7		0780130	CHIP TRANSISTOR	STC3265	1	Q801
	7.1	0780150	CHIP TRANSISTOR	UTC 8050S (D9-D)	1	Q801
8		0880186	IC	HT6222 SOP	1	U801
	8.1	0880220	IC	PT2222 SOP	1	U801
9		0970003	CAP	455E	1	X801
10		1563169	PCB	8DW9917-1	1	



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