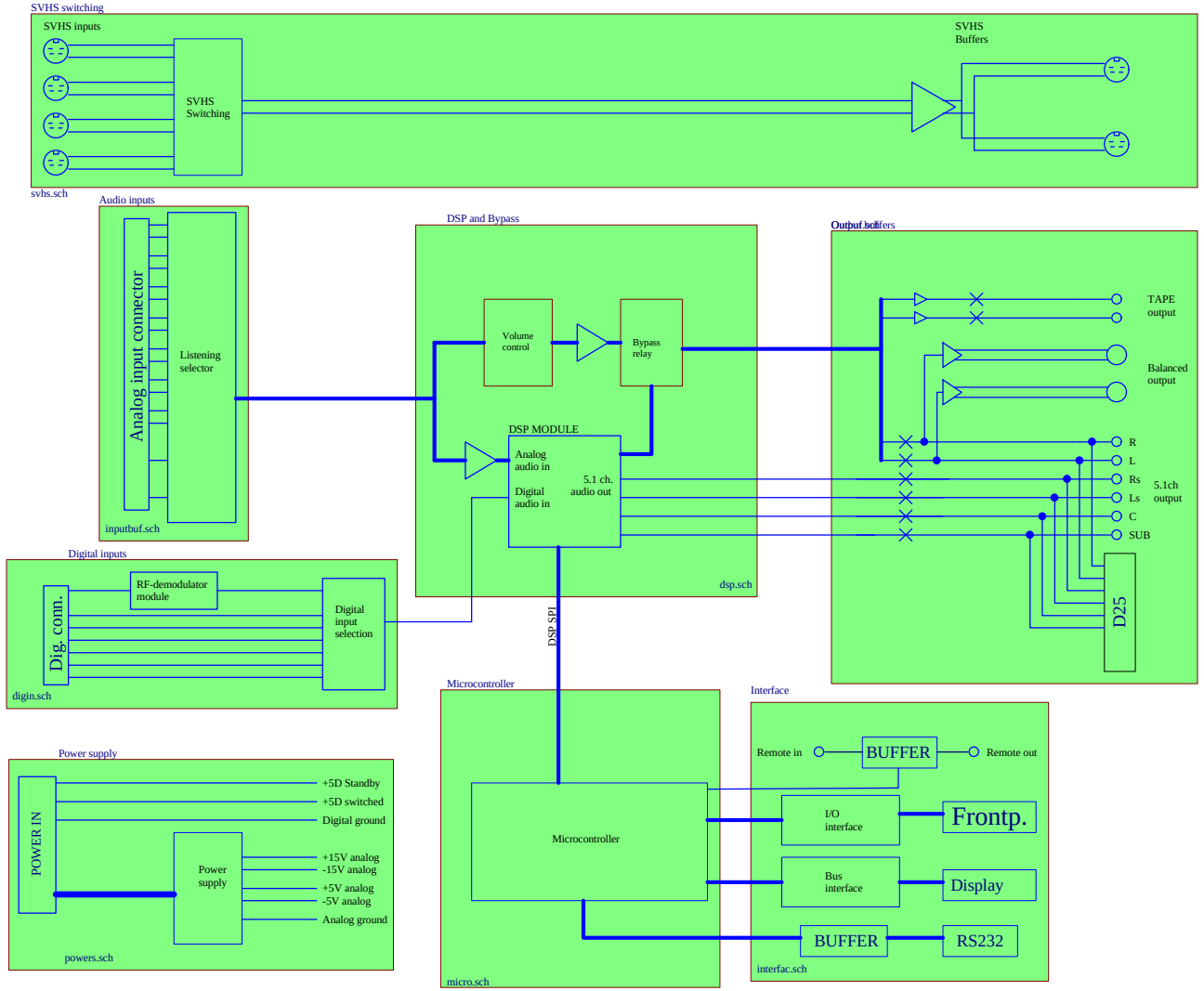
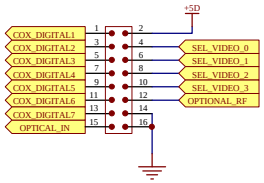
SSP-25 Motherboard



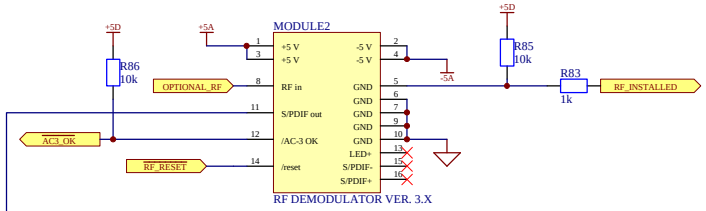
Title:	**SSP-25**
Project:	**MB block diagram**
Classe Audio Inc	Sheet: 1 of 9 , revision 3.0 Printed: 2-Dec-1998 , drawn by Tero File: D:\CLASSE\HW\VER30\MOTHER~1\DESIGN~1\MOTHER.PR
	Classe Audio Inc

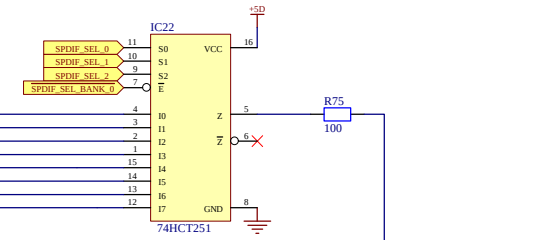
SPDIF RECEIVER & RF DEMODULATOR & SWITCHING

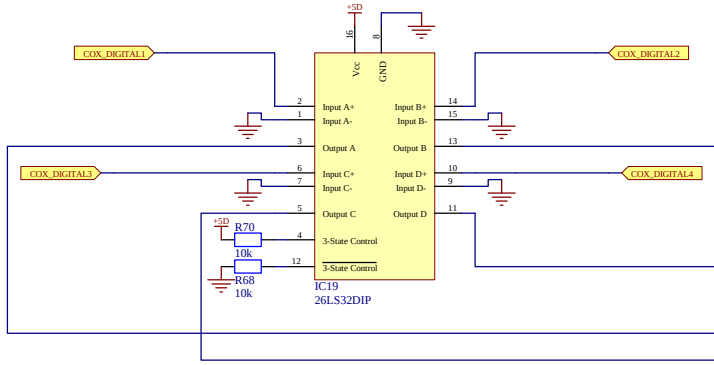
DIGITAL CONNECTOR

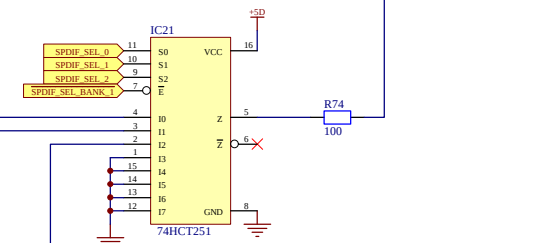


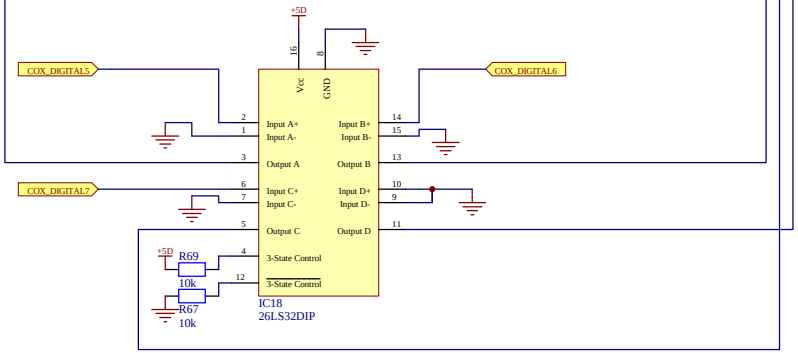
X15
16Pin IDC PCB mounting header

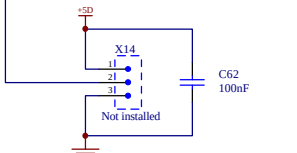


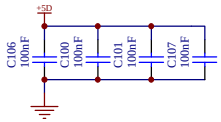




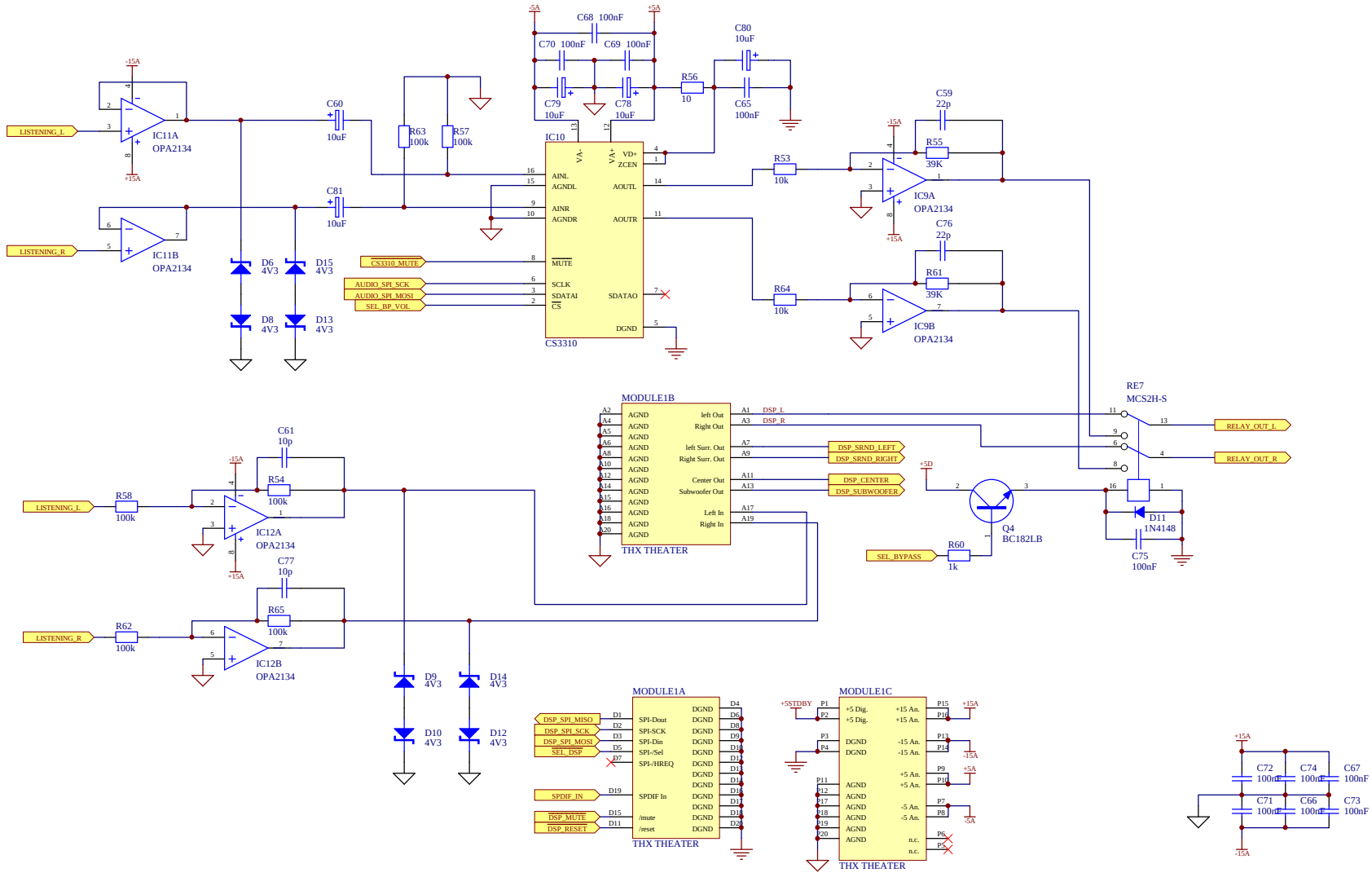








Title:	**SSP-25**
Project:	**Digital inputs**
Classe Audio Inc	Sheet: 3 of 9 , revision 3.0 Printed: 2-Dec-1998 , drawn by Tero File: D:\CLASSE\HW\VER30\MOTHER~1\DESIGN~1\DIGIN.SCH
	Classe Audio Inc



Title: **SSP-25**

Project: **DSP & Bypass**

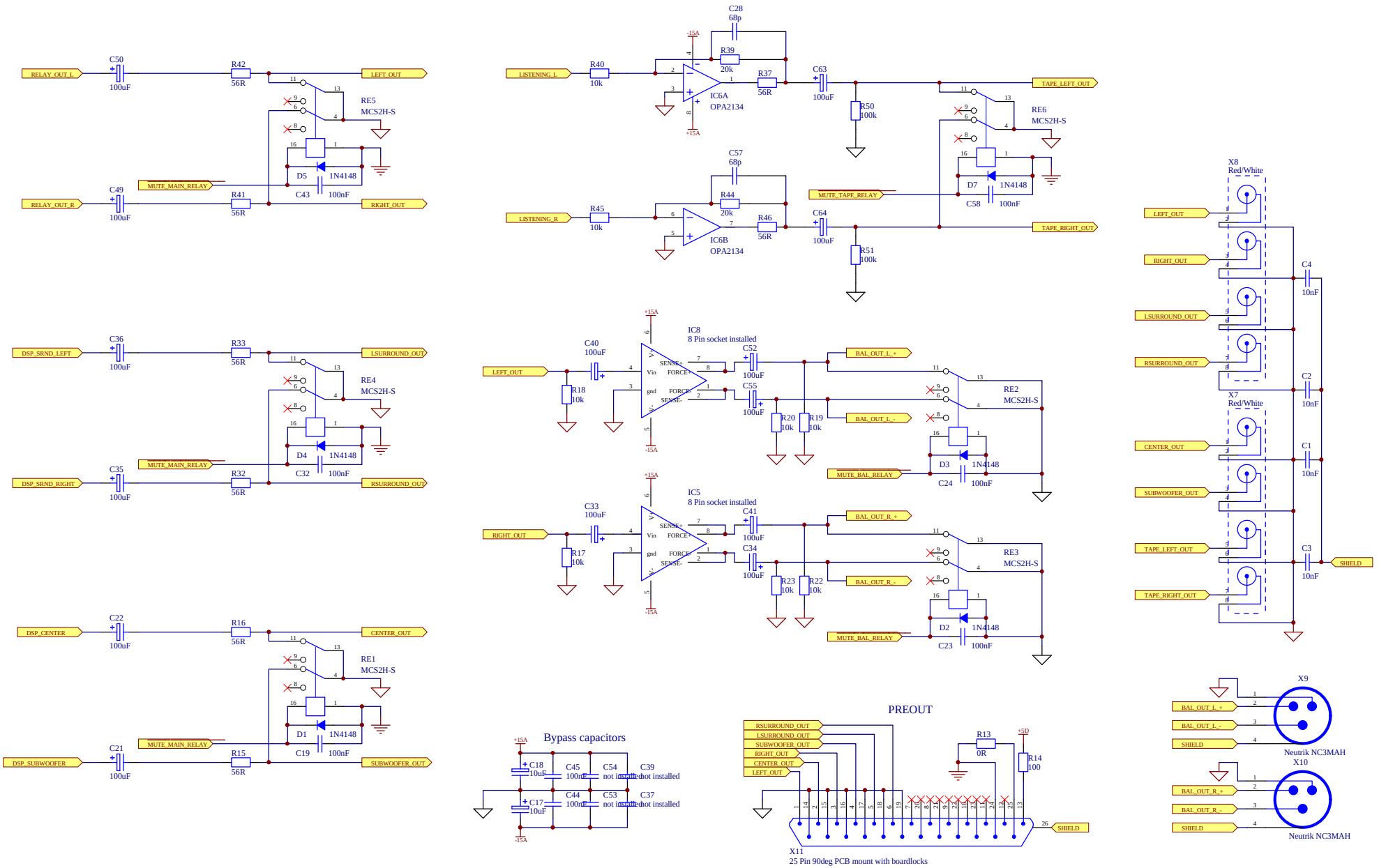
Classe Audio Inc

Sheet: 3 of 9 , revision 3.0

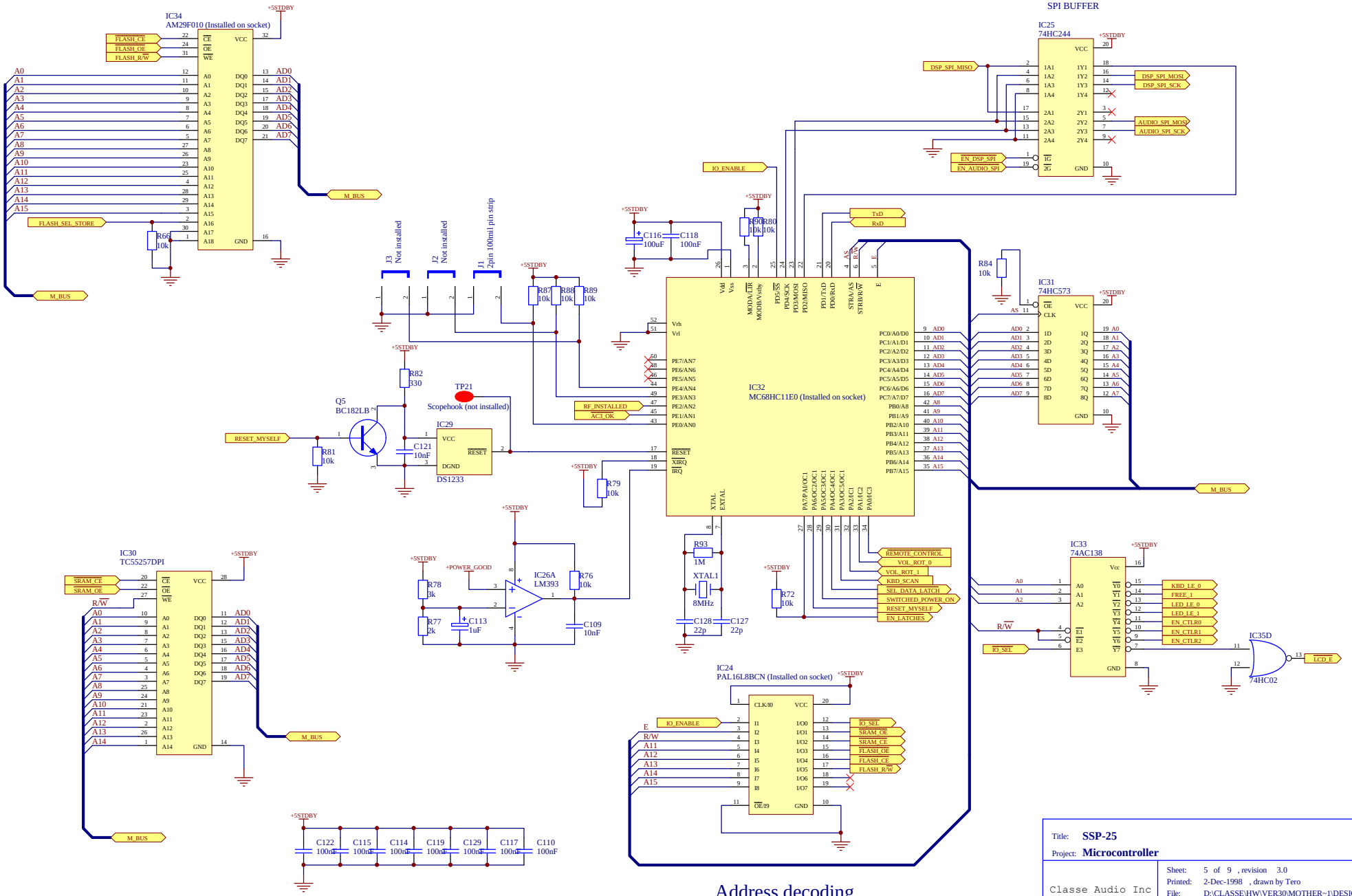
Printed: 2-Dec-1998 , drawn by Tero

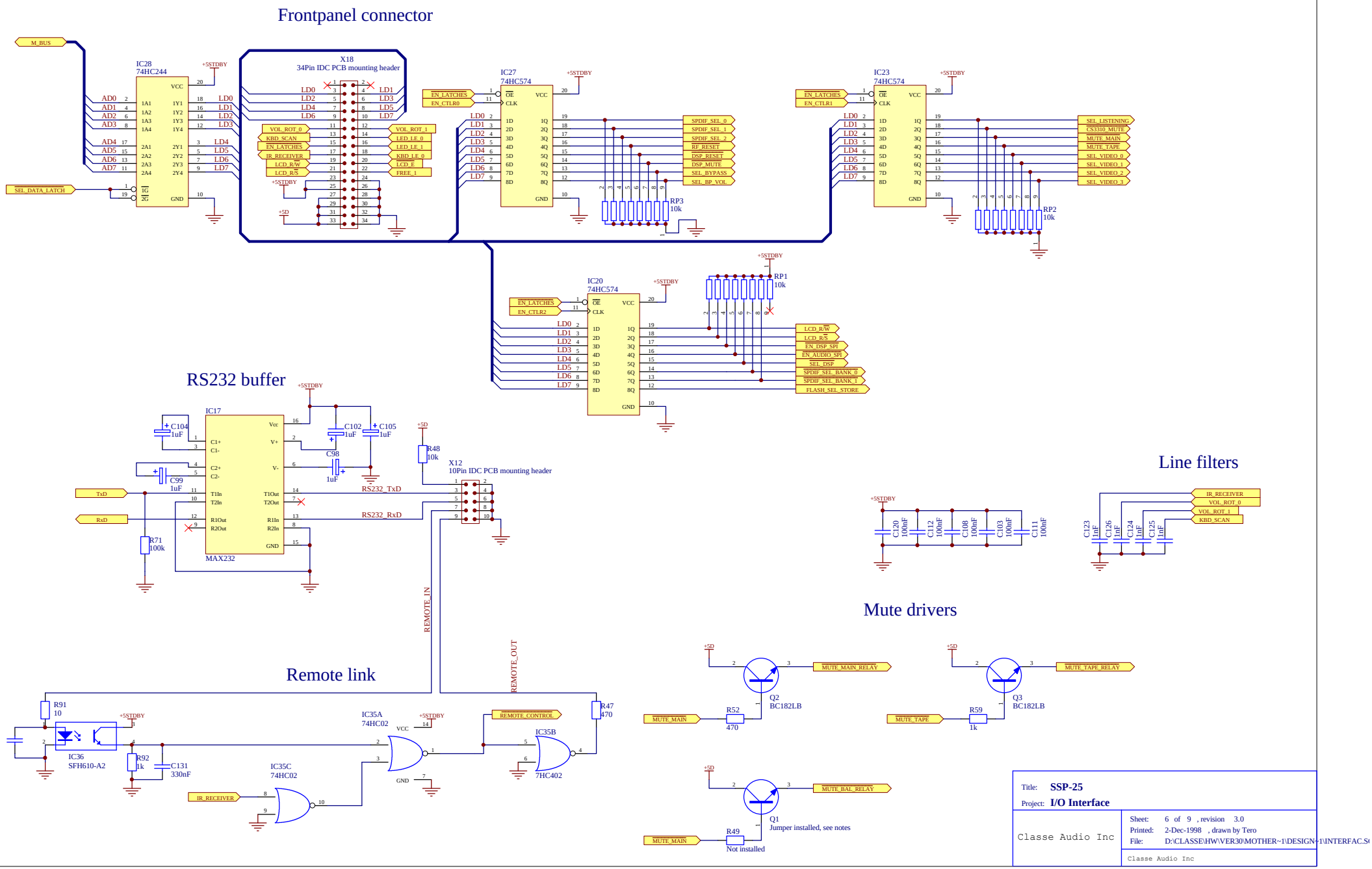
File: D:\CLASSE\HW\VER30\MOTHER~1\DESIGN~1\DSP.SCH

Classe Audio Inc

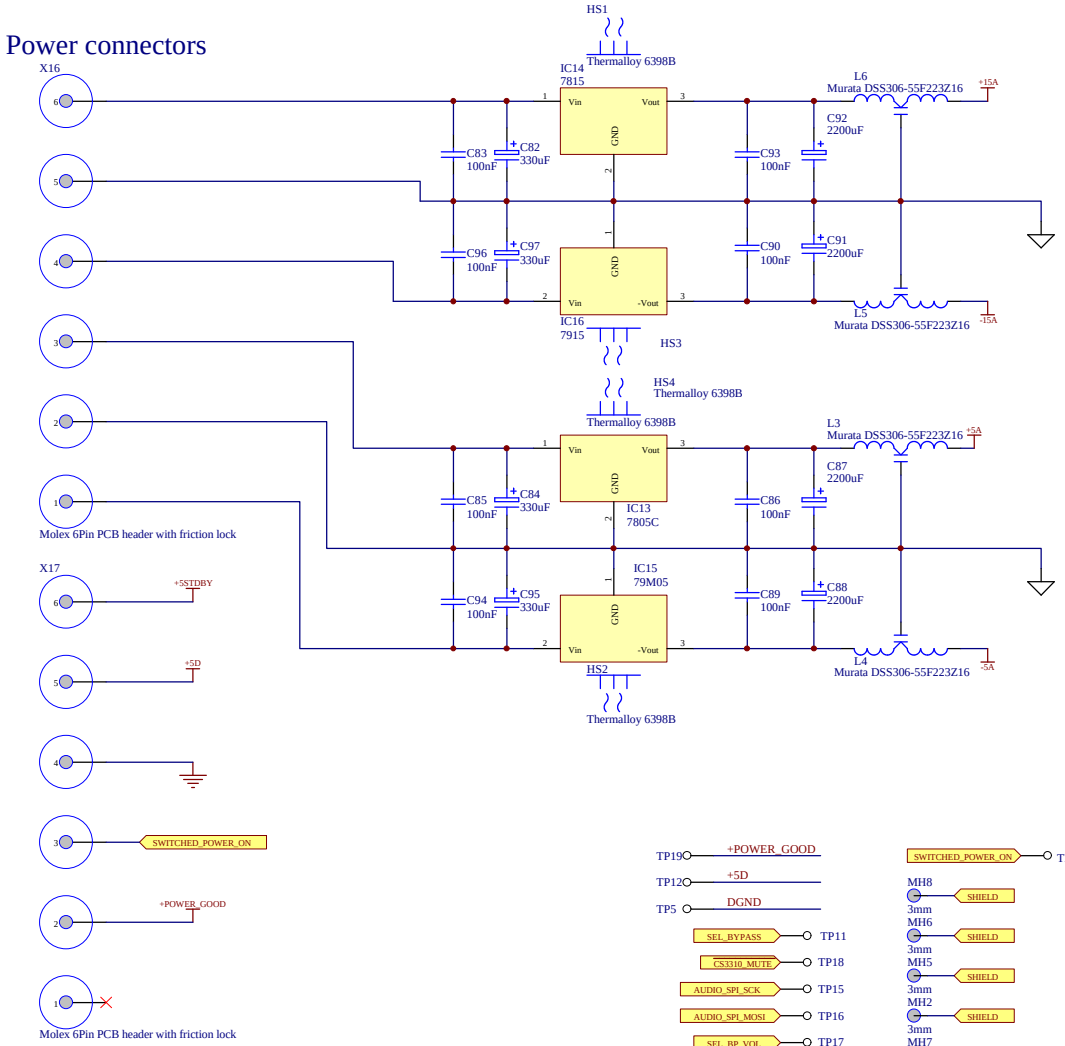


Title:	**SSP-25**
Project:	**Output buffers**
Classe Audio Inc	Sheet: 4 of 9 , revision 3.0 Printed: 2-Dec-1998 , drawn by Tero File: D:\CLASSE\HW\VER30\MOTHER~1\DESIGN~1\OUTBUF.SCH
Classe Audio Inc	

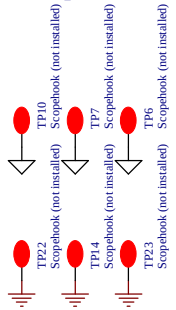

IC34
AM29F010 (Installed on socket)
FLASH_CE
FLASH_OE
FLASH_R/W
FLASH_SEL_STORE
R66 10k
M_BUS
SPI BUFFER
IC25
74HC244
DSP_SPI_MISO
DSP_SPI_MOSI
DSP_SPI_SCK
AUDIO_SPI_MOSI
AUDIO_SPI_SCK
EN_DSP_SPI
EN_AUDIO_SPI
IO_ENABLE
TxD
RxD
J3 Not installed
J2 Not installed
J1 2pin 100mil pin strip
C116 100uF
C118 100nF
R90 10k
R80 10k
R87 10k
R88 10k
R89 10k
R84 10k
IC31
74HC573
IC32
MC68HC11E0 (Installed on socket)
RF_INSTALLED
AC3_OK
R82 330
Q5
BC182LB
TP21
Scopehook (not installed)
RESET_MYSELF
R81 10k
IC29
DS1233
C121 10nF
R79 10k
R93 1M
XTAL1
8MHz
C128 22p
C127 22p
R72 10k
REMOTE_CONTROL
VOL_ROT_0
VOL_ROT_1
KBD_SCAN
SEL_DATA_LATCH
SWITCHED_POWER_ON
RESET_MYSELF
EN_LATCHES
IC33
74AC138
KBD_LE_0
FREE_1
LED_LE_0
LED_LE_1
EN_CTLR0
EN_CTLR1
EN_CTLR2
IO_SEL
IC35D
74HC02
LCD_E
IC30
TC55257DPI
SRAM_CE
SRAM_OE
R/W
IC26A
LM393
+POWER_GOOD
R78 3k
R77 2k
C113 1uF
R76 10k
C109 10nF
IC24
PAL16L8BCN (Installed on socket)
C122 100nF
C115 100nF
C114 100nF
C119 100nF
C129 100nF
C117 100nF
C110 100nF
Address decoding
Title: SSP-25
Project: Microcontroller
Classe Audio Inc
Sheet: 5 of 9 , revision 3.0
Printed: 2-Dec-1998 , drawn by Tero
File: D:\CLASSE\HW\VER30\MOTHER~1\DESIGN~1\MICRO.SCH
Classe Audio Inc


Frontpanel connector
M_BUS
IC28
74HC244
+5STDBY
AD0
AD1
AD2
AD3
AD4
AD5
AD6
AD7
LD0
LD1
LD2
LD3
LD4
LD5
LD6
LD7
SEL_DATA_LATCH
X18
34Pin IDC PCB mounting header
VOL_ROT_0
KBD_SCAN
EN_LATCHES
IR_RECEIVER
LCD_R/W
LCD_RS
VOL_ROT_1
LED_LE_0
LED_LE_1
KBD_LE_0
LCD_E
FREE_1
+5D
IC27
74HC574
EN_CTLR0
SPDIF_SEL_0
SPDIF_SEL_1
SPDIF_SEL_2
RF_RESET
DSP_RESET
DSP_MUTE
SEL_BYPASS
SEL_BP_VOL
RP3
10k
IC23
74HC574
EN_CTLR1
SEL_LISTENING
CS3310_MUTE
MUTE_MAIN
MUTE_TAPE
SEL_VIDEO_0
SEL_VIDEO_1
SEL_VIDEO_2
SEL_VIDEO_3
RP2
10k
IC20
74HC574
EN_CTLR2
LCD_R/W
LCD_RS
EN_DSP_SPI
EN_AUDIO_SPI
SEL_DSP
SPDIF_SEL_BANK_0
SPDIF_SEL_BANK_1
FLASH_SEL_STORE
RP1
10k
RS232 buffer
IC17
MAX232
C104
1uF
C102
1uF
C105
1uF
C98
1uF
C99
1uF
R48
10k
X12
10Pin IDC PCB mounting header
TxD
RxD
RS232_TxD
RS232_RxD
R71
100k
Line filters
C120
100nF
C112
100nF
C108
100nF
C103
100nF
C111
100nF
C123
1nF
C126
1nF
C124
1nF
C125
1nF
IR_RECEIVER
VOL_ROT_1
KBD_SCAN
Mute drivers
MUTE_MAIN_RELAY
MUTE_TAPE_RELAY
MUTE_BAL_RELAY
MUTE_MAIN
MUTE_TAPE
Q2
BC182LB
Q3
BC182LB
R52
470
R59
1k
Q1
Jumper installed, see notes
R49
Not installed
Remote link
REMOTE_IN
REMOTE_OUT
REMOTE_CONTROL
R91
10
C130
Not installed
IC36
SFH610-A2
R92
1k
C131
330nF
IC35A
74HC02
IC35B
7HC402
IC35C
74HC02
R47
470
Title: SSP-25
Project: I/O Interface
Sheet: 6 of 9 , revision 3.0
Printed: 2-Dec-1998 , drawn by Tero
File: D:\CLASSE\HW\VER30\MOTHER~1\DESIGN~1\INTERFAC.S
Classe Audio Inc

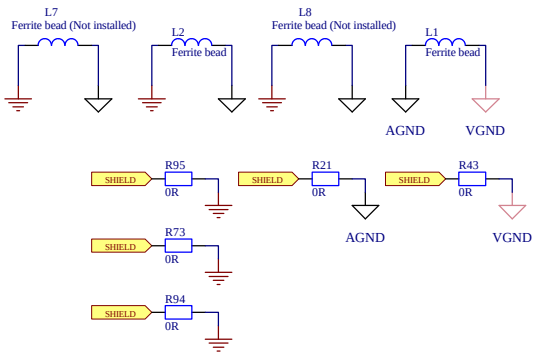
Power connectors

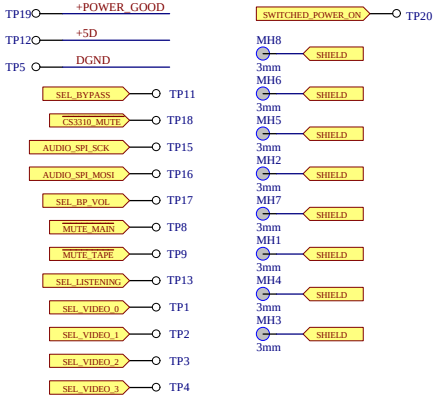


Scope hooks

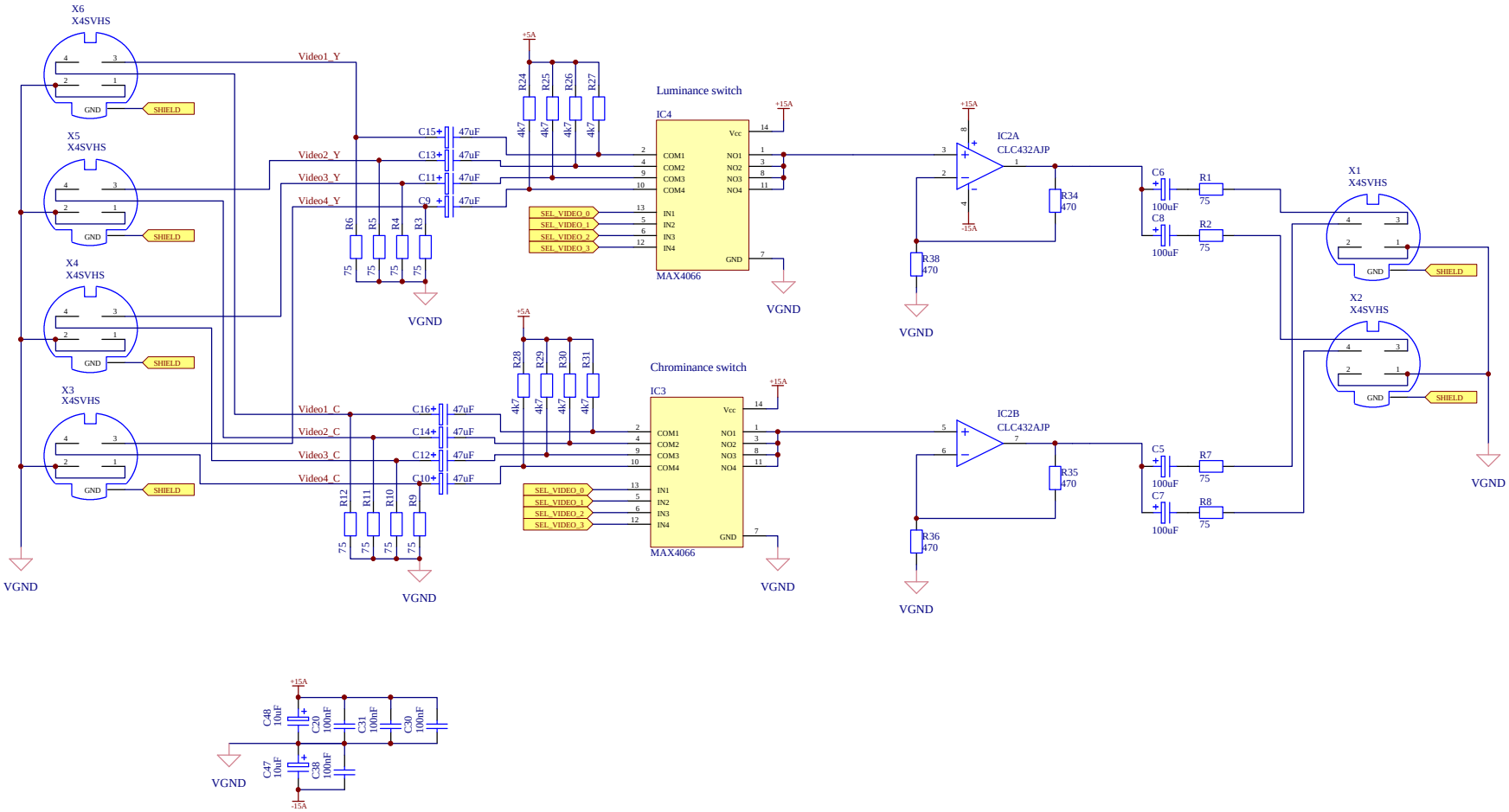


Ground connects





Title:	**SSP-25**
Project:	**Power supplies**
Classe Audio Inc	Sheet: 8 of 9 , revision 3.0 Printed: 2-Dec-1998 , drawn by Tero File: D:\CLASSE\HW\VER30\MOTHER~1\DESIGN~1\POWERS.SCH
	Classe Audio Inc



Title: **SVHS Switching**

Project: **SSP-25**

Classe Audio Inc

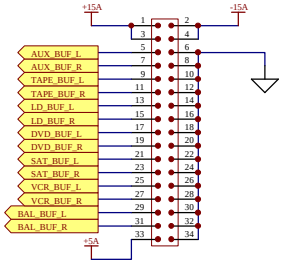
Sheet: 9 of 9 , revision 3.0

Printed: 2-Dec-1998 , drawn by Tero

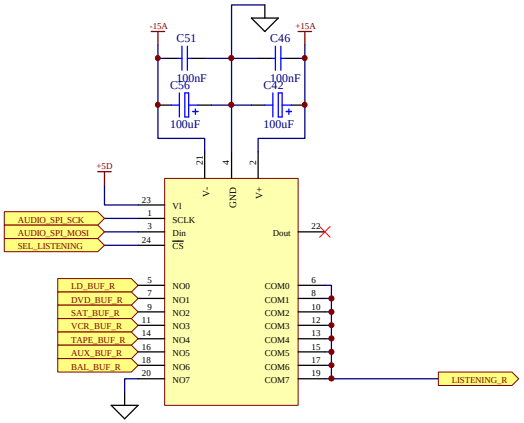
File: D:\CLASSE\HW\VER30\MOTHER~1\DESIGN~1\SVHS.SCH

Classe Audio Inc

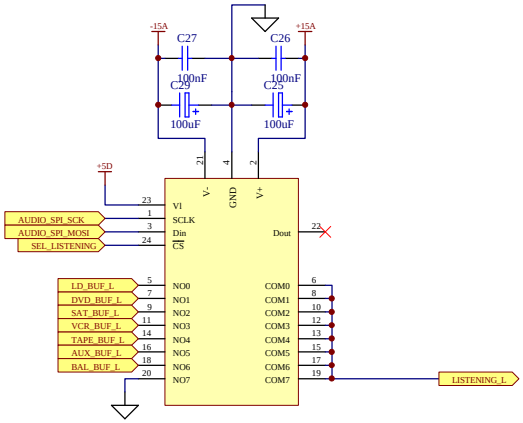
ANALOG INPUT CONNECTOR



X13
34Pin IDC PCB mounting header



IC7
MAX335



IC1
MAX335

Title: **SSP-25**

Project: **Analog input switching**

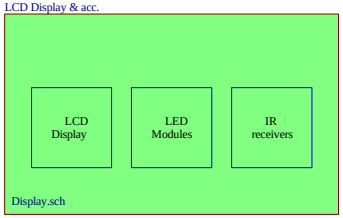
Classe Audio Inc

Sheet: 2 of 9 , revision 3.0
Printed: 2-Dec-1998 , drawn by Tero
File: D:\CLASSE\HW\VER30\MOTHER~1\DESIGN~1\INPUTBUF.S

Classe Audio Inc

Intermediate PCB

LCD Display & acc.



Title: **Display panel**

Project: **SSP-25**

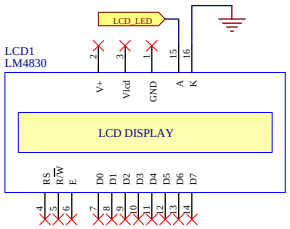
Classe Audio Inc

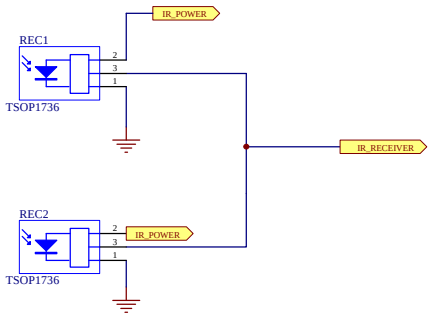
Sheet: 1 of 2 , revision 2.0

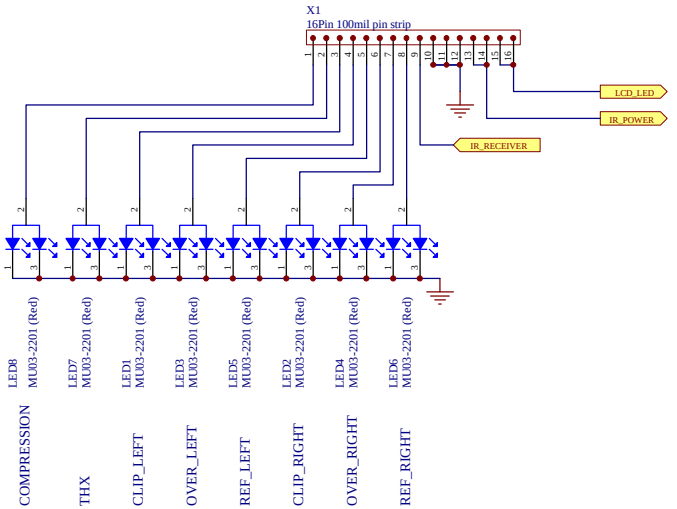
Printed: 20-Aug-1998 , drawn by Tero

File: Y:\TECHNI~1\CUSTOM~1\SSP-25\REV20\DISPLA~1\DESIGN

Classe Audio Inc







Title: **Led modules & IR receivers**

Project: **SSP-25**

Classe Audio Inc

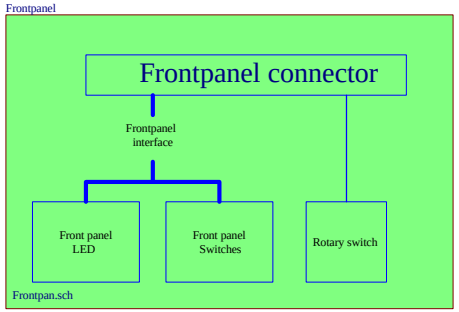
Sheet: 2 of 2 , revision 2.0

Printed: 20-Aug-1998 , drawn by Tero

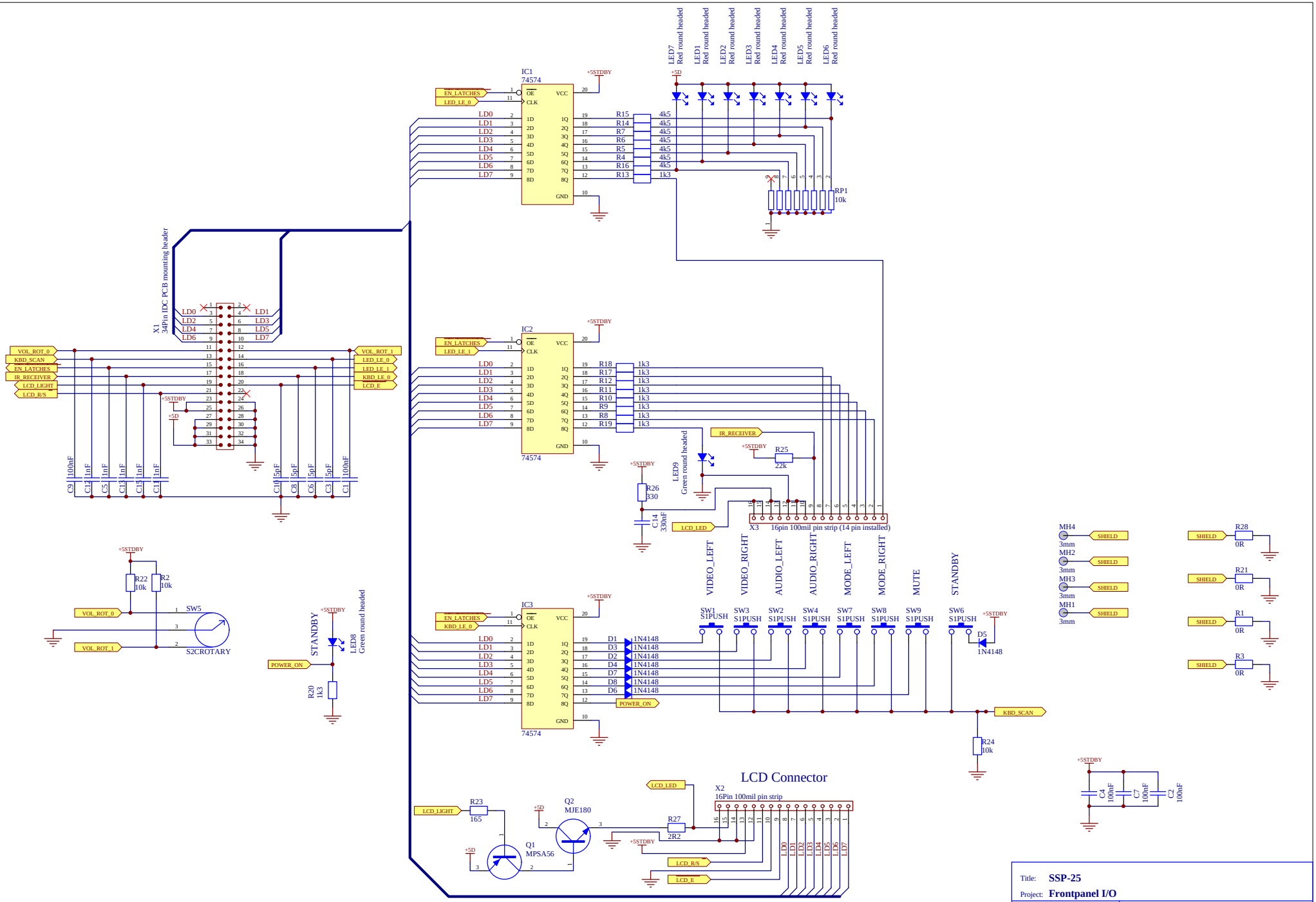
File: Y:\TECHNI~1\CUSTOM~1\SSP-25\REV20\DISPLA~1\DESIGN

Classe Audio Inc

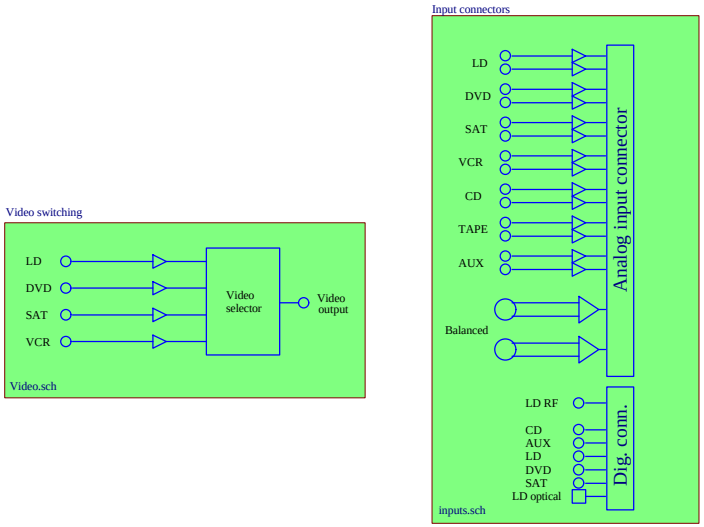
SSP-25 Frontpanel



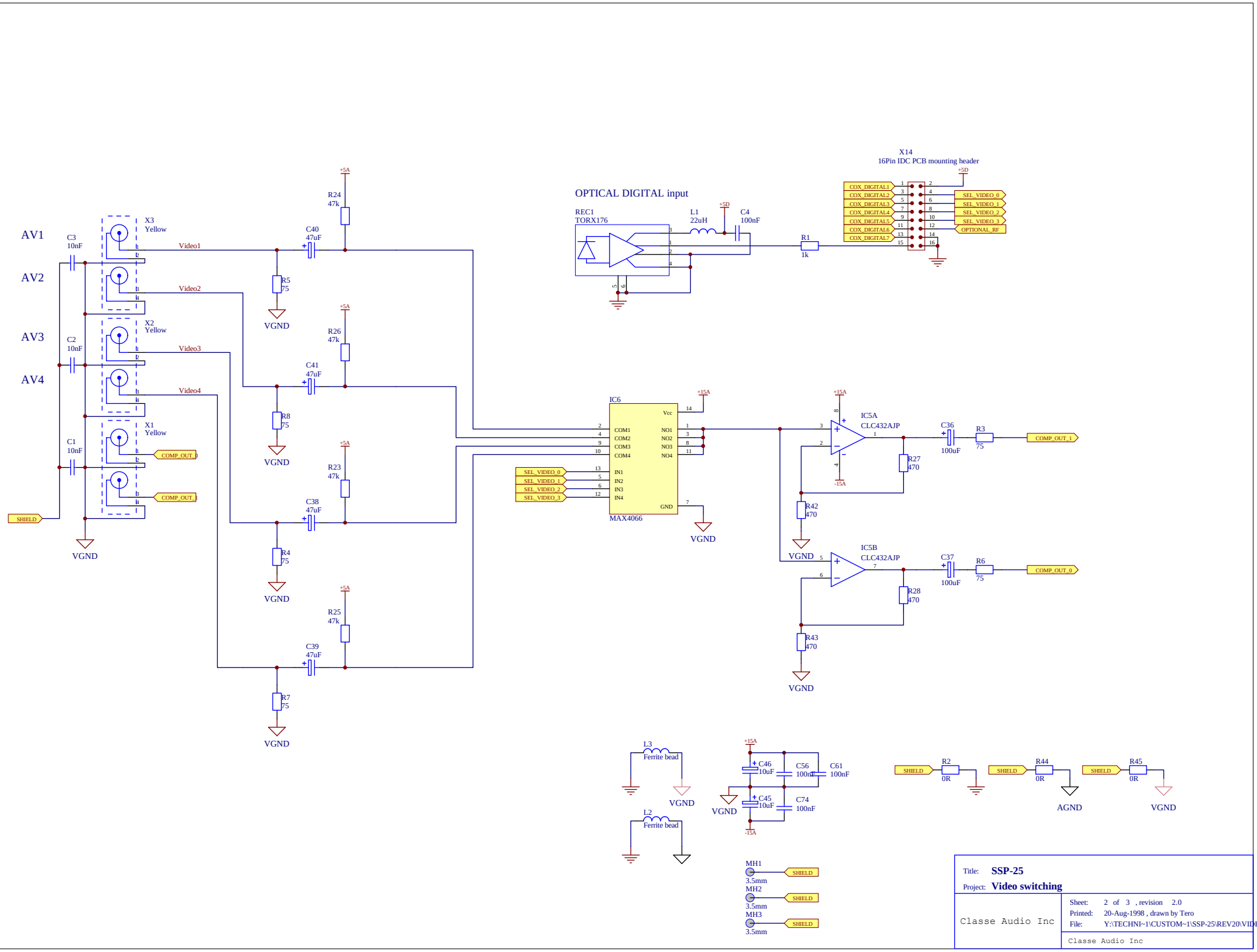
Title: **SSP-25**	
Project: **FP Block diagram**	
Classe Audio Inc	Sheet: 1 of 2 , revision 3.0 Printed: 1-Dec-1998 , drawn by Tero File: D:\CLASSE\HW\VER30\FRONTP~1\DESIGN~1\FRONT.PRJ
	Classe Audio Inc


LED7 Red round headed
LED1 Red round headed
LED2 Red round headed
LED3 Red round headed
LED4 Red round headed
LED5 Red round headed
LED6 Red round headed
IC1
74574
EN_LATCHES
LED_LE_0
LD0
LD1
LD2
LD3
LD4
LD5
LD6
LD7
+5STDBY
+5D
R15 4k5
R14 4k5
R7 4k5
R6 4k5
R5 4k5
R4 4k5
R16 4k5
R13 1k3
RP1 10k
X1
34Pin IDC PCB mounting header
VOL_ROT_0
KBD_SCAN
EN_LATCHES
IR_RECEIVER
LCD_LIGHT
LCD_R/S
VOL_ROT_1
LED_LE_0
LED_LE_1
KBD_LE_0
LCD_E
C9 100nF
C12 1nF
C5 1nF
C13 1nF
C15 1nF
C11 1nF
C10 5pF
C8 5pF
C6 5pF
C3 5pF
C1 100nF
IC2
74574
LED_LE_1
R18 1k3
R17 1k3
R12 1k3
R11 1k3
R10 1k3
R9 1k3
R8 1k3
R19 1k3
IR_RECEIVER
R25 22k
LED9 Green round headed
R26 330
C14 330nF
LCD_LED
X3 16pin 100mil pin strip (14 pin installed)
VIDEO_LEFT
VIDEO_RIGHT
AUDIO_LEFT
AUDIO_RIGHT
MODE_LEFT
MODE_RIGHT
MUTE
STANDBY
IC3
74574
KBD_LE_0
D1 1N4148
D3 1N4148
D2 1N4148
D4 1N4148
D7 1N4148
D8 1N4148
D6 1N4148
POWER_ON
SW1 S1PUSH
SW3 S1PUSH
SW2 S1PUSH
SW4 S1PUSH
SW7 S1PUSH
SW8 S1PUSH
SW9 S1PUSH
SW6 S1PUSH
D5 1N4148
KBD_SCAN
R24 10k
MH4 3mm
MH2 3mm
MH3 3mm
MH1 3mm
SHIELD
R28 0R
R21 0R
R1 0R
R3 0R
R22 10k
R2 10k
SW5
S2CROTARY
STANDBY
LED8 Green round headed
R20 1k3
LCD Connector
X2
16Pin 100mil pin strip
R23 165
Q2 MJE180
Q1 MPSA56
R27 2R2
C4 100nF
C7 100nF
C2 100nF
Title: SSP-25
Project: Frontpanel I/O
Classe Audio Inc
Sheet: 2 of 2 , revision 3.0
Printed: 1-Dec-1998 , drawn by Tero
File: D:\CLASSE\HW\VER30\FRONTP~1\DESIGN~1\FRONTPAN.S
Classe Audio Inc

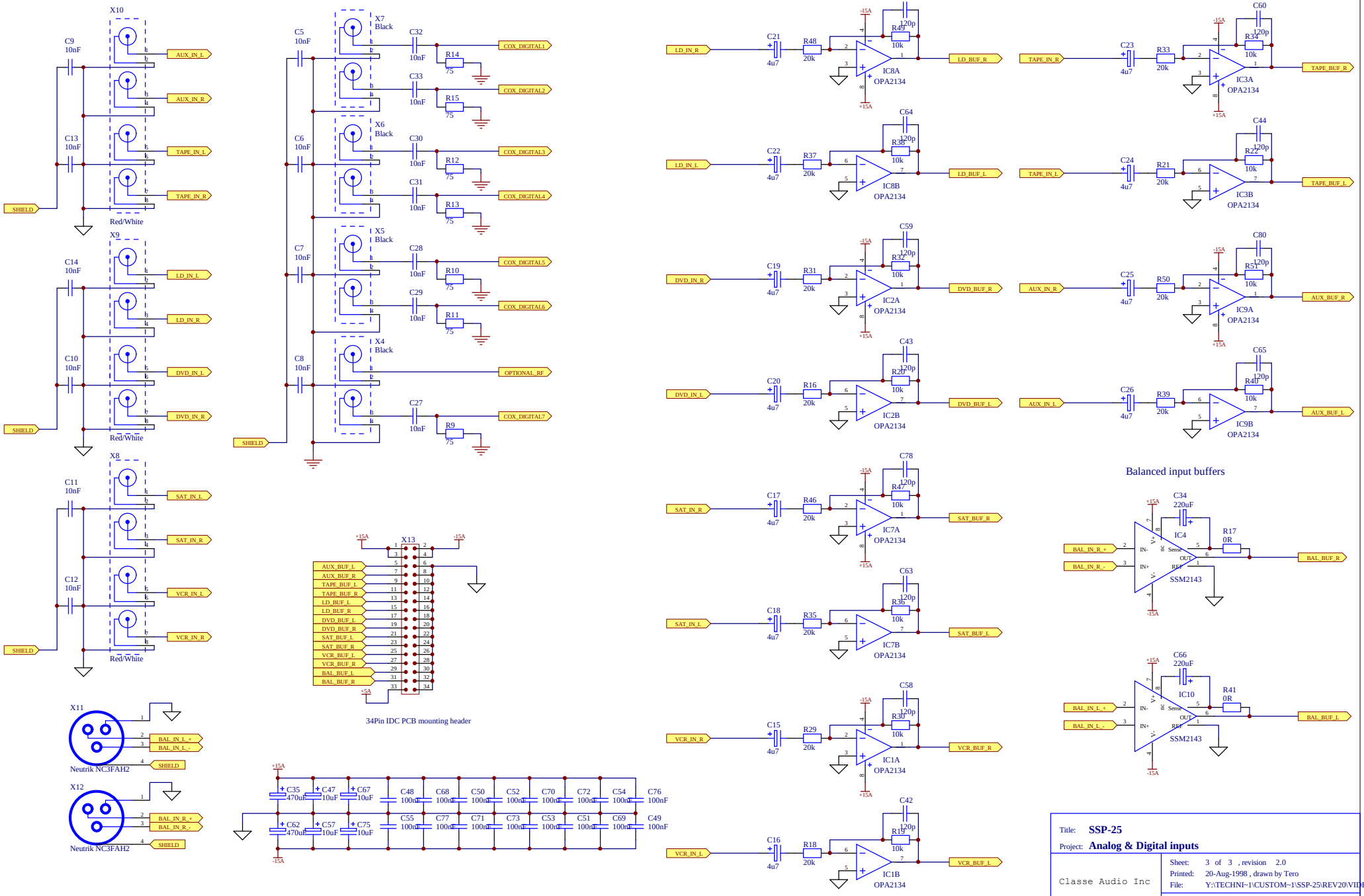
SSP-25 Video board



Title: **SSP-25**	
Project: **Video board**	
Classe Audio Inc	Sheet: 1 of 3 , revision 2.0 Printed: 20-Aug-1998 , drawn by Tero File: Y:\TECHNI~1\CUSTOM~1\SSP-25\REV20\VIDEOB~1\DESIGN
	Classe Audio Inc



Title:	**SSP-25**
Project:	**Video switching**
Classe Audio Inc	Sheet: 2 of 3 , revision 2.0
	Printed: 20-Aug-1998 , drawn by Tero
	File: Y:\TECHNI~1\CUSTOM~1\SSP-25\REV20\VIDEOB~1\DESIGN
	Classe Audio Inc


X10
C9 10nF
C13 10nF
AUX_IN_L
AUX_IN_R
TAPE_IN_L
TAPE_IN_R
SHIELD
Red/White
X9
C14 10nF
C10 10nF
LD_IN_L
LD_IN_R
DVD_IN_L
DVD_IN_R
SHIELD
Red/White
X8
C11 10nF
C12 10nF
SAT_IN_L
SAT_IN_R
VCR_IN_L
VCR_IN_R
SHIELD
Red/White
X11
Neutrik NC3FAH2
BAL_IN_L_+
BAL_IN_L_-
SHIELD
X12
Neutrik NC3FAH2
BAL_IN_R_+
BAL_IN_R_-
SHIELD
C5 10nF
C6 10nF
C7 10nF
C8 10nF
X7 Black
X6 Black
X5 Black
X4 Black
C32 10nF
C33 10nF
C30 10nF
C31 10nF
C28 10nF
C29 10nF
C27 10nF
R14 75
R15 75
R12 75
R13 75
R10 75
R11 75
R9 75
COX_DIGITAL1
COX_DIGITAL2
COX_DIGITAL3
COX_DIGITAL4
COX_DIGITAL5
COX_DIGITAL6
COX_DIGITAL7
OPTIONAL_RF
SHIELD
X13
+15A
-15A
+5A
AUX_BUF_L
AUX_BUF_R
TAPE_BUF_L
TAPE_BUF_R
LD_BUF_L
LD_BUF_R
DVD_BUF_L
DVD_BUF_R
SAT_BUF_L
SAT_BUF_R
VCR_BUF_L
VCR_BUF_R
BAL_BUF_L
BAL_BUF_R
34Pin IDC PCB mounting header
C35 470uF
C62 470uF
C47 10uF
C57 10uF
C67 10uF
C75 10uF
C48 100nF
C68 100nF
C50 100nF
C52 100nF
C70 100nF
C72 100nF
C54 100nF
C76 100nF
C55 100nF
C77 100nF
C71 100nF
C73 100nF
C53 100nF
C51 100nF
C69 100nF
C49 100nF
LD_IN_R
LD_IN_L
DVD_IN_R
DVD_IN_L
SAT_IN_R
SAT_IN_L
VCR_IN_R
VCR_IN_L
C21 4u7
C22 4u7
C19 4u7
C20 4u7
C17 4u7
C18 4u7
C15 4u7
C16 4u7
R48 20k
R37 20k
R31 20k
R16 20k
R46 20k
R35 20k
R29 20k
R18 20k
C79 120p
C64 120p
C59 120p
C43 120p
C78 120p
C63 120p
C58 120p
C42 120p
R45 10k
R38 10k
R32 10k
R27 10k
R47 10k
R30 10k
R28 10k
R15 10k
IC8A OPA2134
IC8B OPA2134
IC2A OPA2134
IC2B OPA2134
IC7A OPA2134
IC7B OPA2134
IC1A OPA2134
IC1B OPA2134
LD_BUF_R
LD_BUF_L
DVD_BUF_R
DVD_BUF_L
SAT_BUF_R
SAT_BUF_L
VCR_BUF_R
VCR_BUF_L
TAPE_IN_R
TAPE_IN_L
AUX_IN_R
AUX_IN_L
C23 4u7
C24 4u7
C25 4u7
C26 4u7
R33 20k
R21 20k
R50 20k
R39 20k
C60 120p
C44 120p
C80 120p
C65 120p
R34 10k
R22 10k
R51 10k
R40 10k
IC3A OPA2134
IC3B OPA2134
IC9A OPA2134
IC9B OPA2134
TAPE_BUF_R
TAPE_BUF_L
AUX_BUF_R
AUX_BUF_L
Balanced input buffers
C34 220uF
C66 220uF
R17 0R
R41 0R
IC4
IC10
SSM2143
BAL_IN_R_+
BAL_IN_R_-
BAL_IN_L_+
BAL_IN_L_-
BAL_BUF_R
BAL_BUF_L
Title: SSP-25
Project: Analog & Digital inputs
Classe Audio Inc
Sheet: 3 of 3 , revision 2.0
Printed: 20-Aug-1998 , drawn by Tero
File: Y:\TECHNI~1\CUSTOM~1\SSP-25\REV20\VIDEOB~1\DESIGN
Classe Audio Inc

SSP-25 MOTHER PCB

-Install chips ver 1.40 to 1C34, SSP-25 pal 1.00 to 1C24

1. Follow steps on input PCB testing from A to D
2. Feed output probe to left and right audio outputs of mother PCB.
3. Feed input cable to AV4 and select AV4 to the display. Check the output signal.
4. Remove the output cable and feed record, left and right. Check output signal.
5. Remove the output cable and install the balance adapter and feed to the left. Signal output should be out of phase.
6. Press invert on the scope, signal output should now be in phase.
7. Check right balance output.
8. Remove adapter and plug back to left and right output.
9. Press invert, should be normal.
10. Press mode on remote control and select analog bypass. Check output signal.
11. Return to stereo. Check output signal.
12. Press mute many times and listen to the clicking of relays and output signal.
13. IR testing→remove all output and input cables
    A) IR out of CP 35 to IR in mother PCB.
    B) Aim RC of SSP 25 to CP 35 display and press volume up and down. Check the volume of the SSP 25 to see if it is working.
    C) IR in of CP 35 to IR out of mother PCB.
    D) Aim RC of CP 35 to SSP 25 display and press volume up and down, Check the volume of the CP 35 to see if it is working.
14. To check relays:
    A) Output cable to the left and right of mother PCB.
    B) Press menu on RC
    C) System set-up and enter.
    D) Balance set-up and enter.
    E) Check output signal
    F) Press mute many times while watching the output signal.
    G) Repeat the same steps to surround left and right output.
    H) Center and sub output.
15-Reset→remove all cable output.
    A) Press menu

B) System set-up and enter
C) Feature set-up and enter
D) Software version and enter→1.40/6.17
E) Press menu
F) Select back arrow
G) Factory reset, enter
H) Enter to reset

SSP-25 Display
(B224XR04)

A. INSPECTION

-visually check all parts for: solder bridges or splashes, backwards or missing components, component orientation.

B. FUNCTIONS

1. Install all LEDs (led 8 & SW9 are green).
2. Switch on the unit, led 8 must light.
3. Press SW6 “Classé SSP-25” will appear followed by AV3 and then analog stereo appears.
4. Press all switches one at a time. Check if they are working properly. All LEDs must light corresponding to the function button you press. All functions, relays must click.
5. Mute switch must click.
6. Check volume control manually.
7. Check remote control if all functions are working.

SSP-25 Power Supply PCB (B223XR01)

A.INSPECTION

-visually check all parts for: solder bridges or splashes, backwards or missing components and component orientation.

B. POWER SUPPLY VOLTAGES

-Install jumper on TO SW & to FR SW
-Crank to 30 VAC check polarities.
-Crank to 60 VAC check voltages.
-Full blast 120 VAC.

1. X11 Across PIN # 4 & # 6 → 54V
2. X11 Across PIN # 1 & # 3 → 24V
3. Q1, Q2 → 78 T05 with respect to GND.
   C24 → +5V
   C14 → +10V
   C15 → +5V
4. Discharge all capacitors.

SSP-25 INPUT PCB
(SSP-25 V Board REV 2.0)

A-INSPECTION:

1-Visually check all parts for: solder bridges, or splashes, backwards or missing components, and component orientation.

2-Check jacks if colors are fading.

B-Analog audio inputs:

1-Switch unit on.

2-Prepare all cables from osc. scope and feed to audio output left and right of mother board.

-Select UED 1 and 5 on display.

3-Feed balance cable left and right to the PCB.

-Check signal if correct.

4-Remove left channel, right channel must be working only, then remove right channel cable.

5-Feed input cable left and right from CP 35 to AUD 2 of input PCB. Select the right button on display PCB. Check signal if correct.

6-Remove input right channel and feed to AUD 3.

-Signal on AUD 2 must only be left channel.

7-Press AUD 3 on display. Signal must only be right channel.

8-Remove left channel input and fee to AUD 3.

-Check signal left and right if correct.

9-Follow steps 5-8 to the ff: AV1, AV2, AV3, and AV4.

C-Digital audio input:

1-Press play to CDP.

2-Digital output from CDP to AUD 1.

3-Select LED 1 and LED 5 on display.

4-Check signal if correct.

5-Follow procedure 2-4 on Audio 2, Audio 3, AV1, AV2, AV3, AV4

and select it’s proper button on every input.

D-Video testing:

1-Oscilloscope must be on AC.

2-One input cable connect to video in (AV1).

3-Ch 1 output cable of oscilloscope to video out (main)

4-Press LED 1 on display and check signal

5-Press switches on LED 2, 3, 4 →there must be no output.

6-Repeat procedures 2-5 on AV 2, AV 3, AV 4.

7-The same procedure #3 this time output cable to video out (record).

SSP-25 VOLTAGE CHANGE

1- Unplug unit from the AC and from the system

2- Jumpers located at 115A and 115B are for the 120 VAC.
(see diagram below).

3- Jumper located at 230 is for the 220 VAC or 240 VAC.
(see diagram below).

4- Install a 130 Varistor for 120 VAC, or a 250 Varistor for 220 VAC.

5- Line fuse F1 for 120 VAC 1a Slow Blow, and 0.5a Slow Blow for 220 VAC.

6- Replace the top cover and test the unit at the appropriate voltage.