

Service Manual **CD72/92**

Issue 1.0

DiVA CD72, CD92 Compact Disc Player



ARCAM

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CD72/CD92 Circuit Description

SUMMARY

The Main PCB for the DiVA CD72/92 player may be built as two different versions:

- With all components fitted for the Alpha CD72 (L887RS)
- With audio components and connectors omitted, for use as a motherboard for plug-in DAC module L816 (L888RS) for CD92

The CD72 version may be converted for use with an upgrade plug-in DAC board by removing a configuration connector.

The system is based on a Sony kit, comprising CDM14-5BD10 laser mechanism & loader, micro-controller and fluorescent display.

The PCM 1716, as per the 1710, can be operated in either Software or Hardware mode. The default for the CD72 is hardware mode.

Power Supplies & Reset/Mute

Selection for 230V or 115V mains operation is made by inserting a fuse into the appropriate position. The mains transformer has three secondary windings:

1. Provides +12V and -12V supplies for the audio output circuitry via regulators Z204 and Z205.
2. This produces the digital, motor drive and fluorescent display grid supplies:

+7.3V	(Z206)	Mechanism and motor driver supply
+5V	(Z208)	General digital logic supply
+5V	(Z207)	Supply to DAC
+5V	(Z203)	Supply to system clock generator
-30V	(Z209)	Display grid voltage.
3. Provides an AC supply for the display filament.

The power-on reset signal XRST is generated by R17 and C29. When the power switch is turned off one of its poles discharges C29 quickly. This, along with the AMUTE signal from the micro, controls the output mute transistors via level shifter Q3.

Remote Control/PIC Micro

The PIC micro controller converts the RC-5 format data into the NEC format required by the Sony micro. The PIC also controls the configuration of the digital filter/DAC on the DAC board.

Micro controller & Display Board

The system micro controller Z212 has the following functions:

- Control of the mechanism & decoder on the CDM14
- Control of mute, attenuation and deemphasis for the DAC
- Direct drive of the fluorescent display
- Remote control decoding
- Keyboard scanning

The keyboard scanning works by connecting the keys to a resistor ladder on an ADC input to the micro. Pressing a key presents a unique voltage to this input.

The remote control data contains a 'Customer Code' that identifies this as an Arcam product. The diode network D291 to D297 configures the micro to accept this code.

Motor Driver

The status of the drawer is indicated to the micro by two micro switches 'INSW' and 'OUTSW' on SK205. The micro controls the drawer motor via driver Z210.

DAC & System Clock

The DAC is a Burr Brown PCM1716. Mute, attenuation and deemphasis functions can be controlled via a 3-wire serial link from the system micro to pins 26, 27 & 28 via resistors R31 R32 & R33 respectively. Currently resistors R31 to R33 are not fitted and the DAC is configured for hardware control.

Digital audio is input on pins 1, 2 & 3 in standard Sony format, i.e. Word Clock, Bit Clock and Data.

The system clock is based around 16.9344 MHZ crystal X1 and transistor Q2. This produces a stable clock with low jitter. Z202E & D provide amplification and buffering to the DAC.

Analogue Filters

Z1A (& Z101A) provides the basis for a 2-pole filter. Z1B (& Z101B) buffer the audio and set the output level.

Digital Output

An SPDIF format digital output signal is generated by the decoder on the mechanism assembly. This is passed through isolating transformer T202 to a single phono socket SK5. Optical digital output via Z2 is also tapped off the digital output signal. Power is supplied to Z2 via Z3 a 78L05 regulator.

Upgrade to CD92

The CD72 includes a configuration PCB connected to PL1. This provides power to the DAC and clock generator, connects the digital audio and system clock signals to the DAC and provides additional clock buffering with Z4 A&B .

Removing this board removes these connections and allows the system clock generated on the DAC board to pass through to the CDM14.

Upgrading a CD72 to CD92

1. **Disconnect the mains supply from the DiVA CD player.**
2. Remove the top cover by taking out the 2 screws from the top edge of the rear panel (marked 1) and on each side (marked 2).
3. Pull off the sticky plastic gasket between the digital output socket and the audio output sockets to reveal the 4 audio output socket holes through which the DAC board sockets will pass.
4. Any remnants of adhesive can be removed by rubbing it gently with your finger and rolling it off. We do not recommend the use of solvents.
5. Fit the 2 supplied PCB (printed circuit board) pillars to the holes in the main board on either side of the flexfoil coming from the display board. These are marked 3 on the drawing overleaf. The big end of the PCB pillars goes into the main PCB. These push in and clip home. Take great care not to damage the main circuit board.
6. Remove the Configuration Module (the small vertically mounted PCB in the centre of the main board). It will not be needed once the new DAC board is fitted.
7. Note: The original nickel plated audio output sockets are no longer connected after the upgrade and cannot be used. However the digital output still functions.
8. Remove the following jumpers :- PL2, PL3, PL4, PL6. Fit the following jumpers :- PL5, PL7.
9. Fit the magnetic shielding plate, by peeling off one side of (E923MC the adhesive pad) and stick to (E922MC the shielding plate). Then peel the backing off the other side of pad & Align the top edge with the top of the transformer and fit centrally. It MUST align with the top edge of the transformer, if it is fitted too low to the board it may cause shorting.
10. Take static precautions first. With the aluminium extrusion of the DAC module uppermost fit the flexfoils from the module in to the appropriate sockets in the main board, ensuring they are pushed fully home. If they are not pushed fully home, the unit may not read discs. You may find it helps to slide the module into the unit so that the audio output sockets fit through the holes in the rear panel and angle the module slightly upwards to achieve this.
11. Push the module down firmly on to the support pillars.
12. Fit the supplied screws with integral washers to the 3 points marked 4 on the drawing overleaf to secure the module in place. The 2 slightly shorter screws and the shake proof washers should be fitted to the 2 points marked 6.
13. Refit the top cover, connect the unit to live mains and switch on. Press load to allow the tray to come fully out and then remove the mains lead from the unit. Remove the draw front and fit the new draw front with the CD92 / HDCD logo on.
14. Check the unit functions correctly and if you have an HDCD disc check that a red glow is seen behind the display window when it is playing.

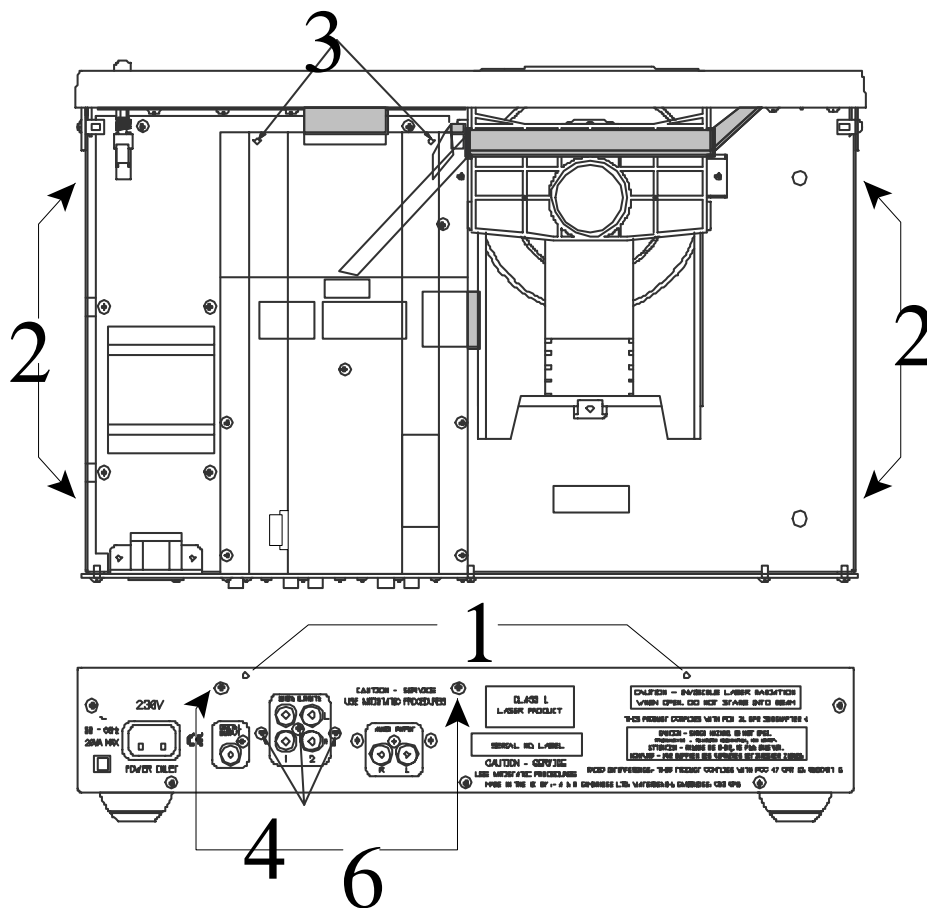
Upgrading a CD72 (TEXT) to CD92 (TEXT)

1. **Disconnect the mains supply from the DiVA CD player.**
2. Remove the top cover by taking out the 2 screws from the top edge of the rear panel (marked 1) and on each side (marked 2).
3. Pull off the sticky plastic gasket between the digital output socket and the audio output sockets to reveal the 4 audio output socket holes through which the DAC board sockets will pass.
4. Any remnants of adhesive can be removed by rubbing it gently with your finger and rolling it off. We do not recommend the use of solvents.
5. Fit the 2 supplied PCB (printed circuit board) pillars to the holes in the main board on either side of the flexfoil coming from the display board. These are marked 3 on the drawing overleaf. The big end of the PCB pillars goes into the main PCB. These push in and clip home. Take great care not to damage the main circuit board.
6. Note: The original nickel plated audio output sockets are no longer connected after the upgrade and cannot be used. However the digital output still functions.
7. Set the main board jumper settings as listed below :-

PL200	ON
PL201	ON
PL202	ON
PL203	OFF
PL204	ON
PL205	OFF
PL300	2 and 3
PL400	OFF
PL401	OFF
PL402	OFF

8. Fit the magnetic shielding plate (part no E922MC) to the adhesive pad (part no E923MC).
Peel the backing off the other side of the mains transformer. Align the top edge with the top of the transformer and fit centrally.
9. Take static precautions first. With the aluminium extrusion of the DAC module uppermost fit the flexfoils from the module in to the appropriate sockets in the main board, ensuring they are pushed fully home. If they are not pushed fully home, the unit may not read discs. You may find it helps to slide the module into the unit so that the audio output sockets fit through the holes in the rear panel and angle the module slightly upwards to achieve this.

10. Push the module down firmly on to the support pillars.
11. Fit the supplied screws with integral washers to the 3 points marked 4 on the drawing overleaf to secure the module in place. The 2 slightly shorter screws and the shake proof washers should be fitted to the 2 points marked 6.
12. Refit the top cover, connect the unit to live mains and switch on. Press load to allow the tray to come fully out and then remove the mains lead from the unit. Remove the draw front and fit the new draw front with the CD92 / HDCD logo on.
13. Check the unit functions correctly and if you have an HDCD disc check that a red glow is seen behind the display window when it is playing



CD72 / CD92 Service Guide

Fault diagnostics

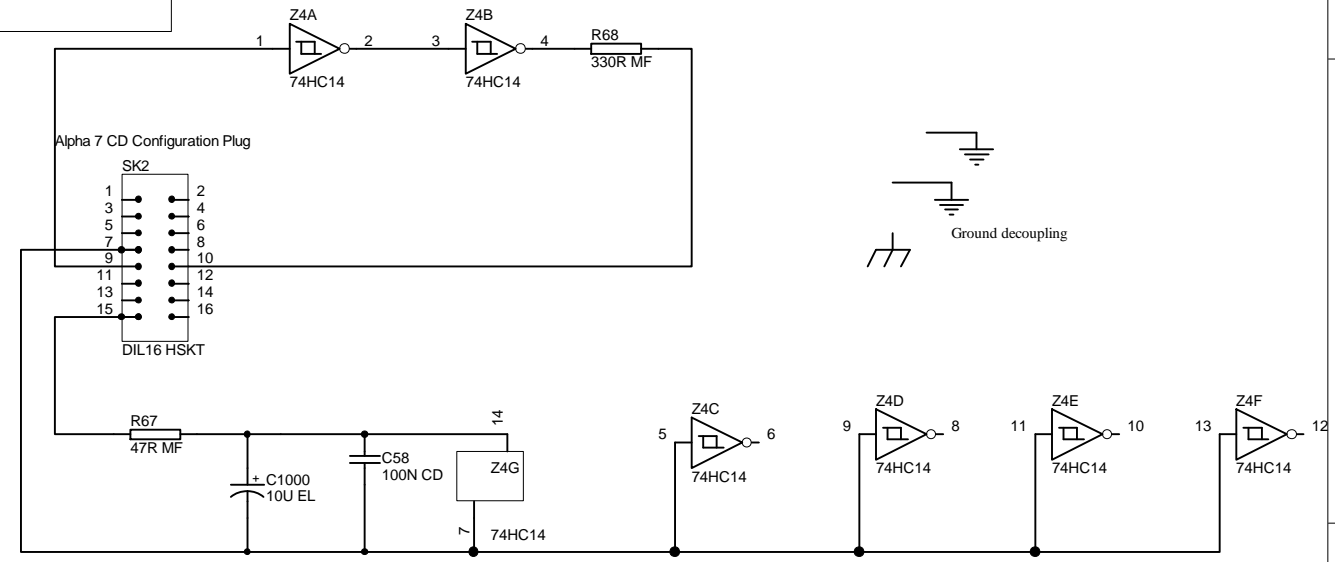
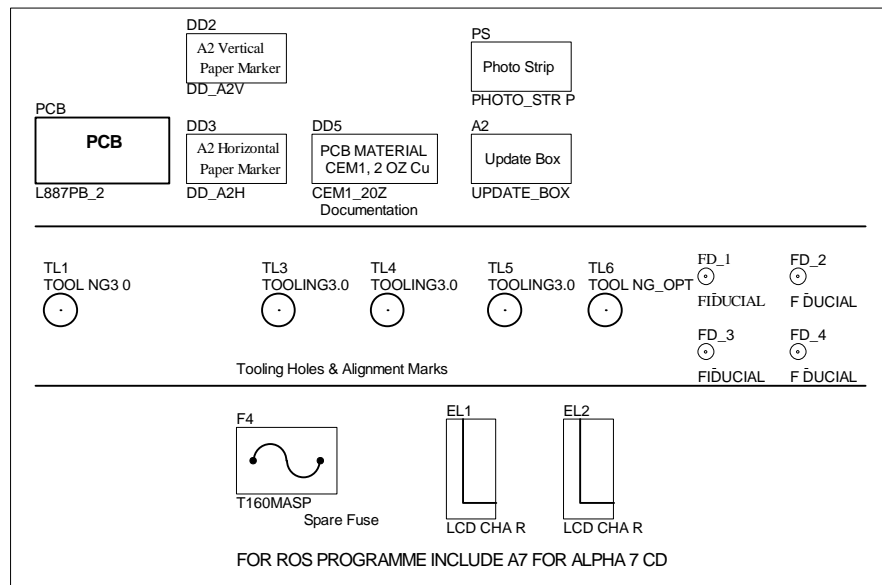
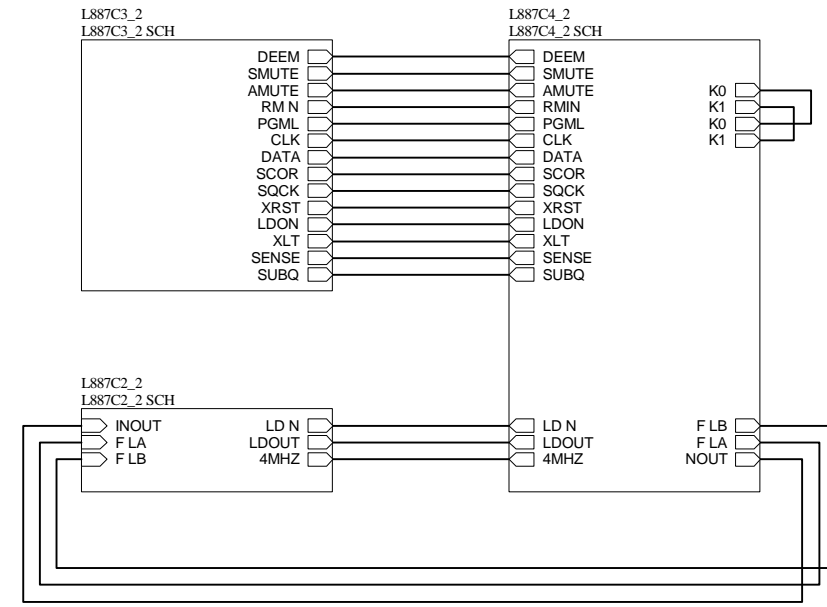
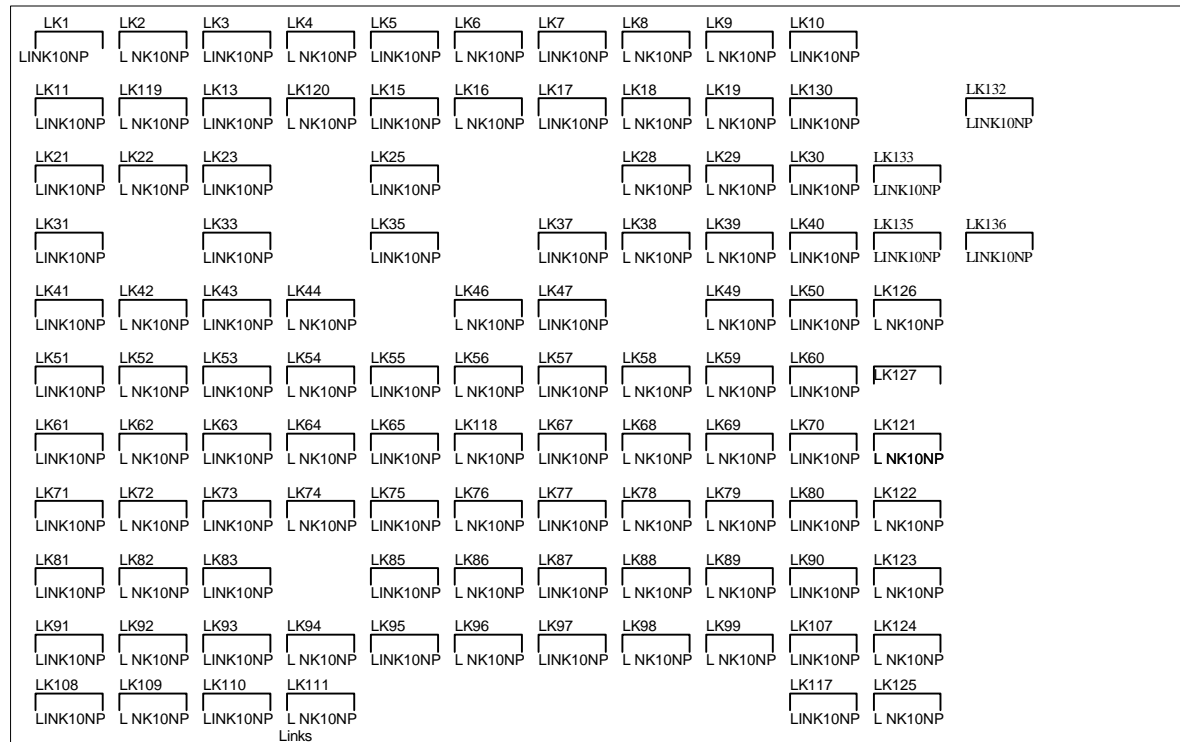
Fault	Action
No power	Check mains fuse Check power supply rails
No Audio output	Check for digital output, if ok then check power supply voltages Check DAC chip
Intermittent noise on output	Check Dac chip
Fails to respond to commands	Check supply to remote circuit Check remote flex foil cable Check for +4.9volts on RX201 o/p
Fails to read disc	Check mech supply Check clock signal
Laser optic moves to end stop position	Caused by failure of clock signal to the mech Check mech supply Check clock signal
No Display	Check filament voltage 3.1vac Check flex foil cable Check for dry joints on micro and display
Spurious display readout	Check for dry joints on display board

Power supply test points

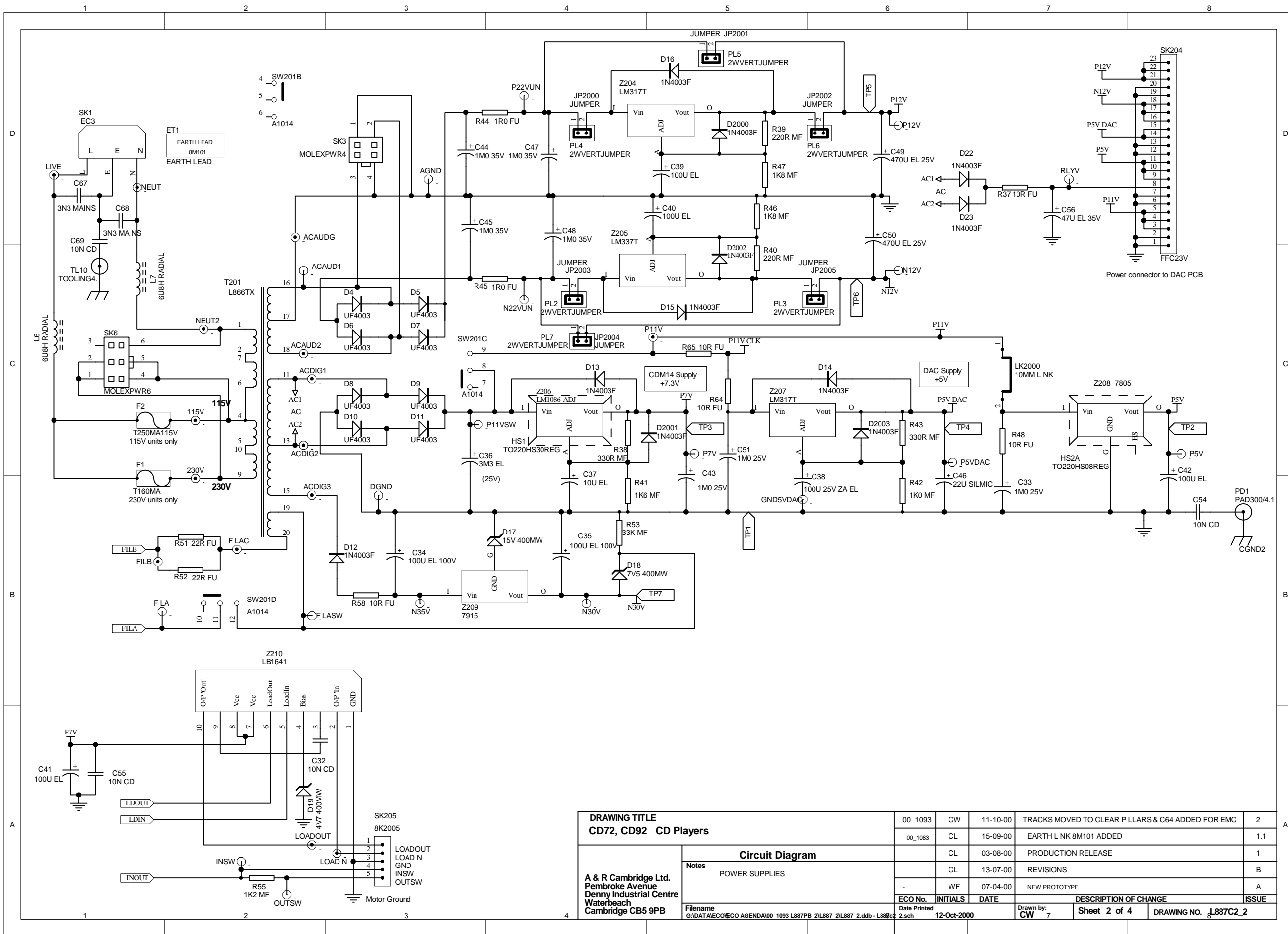
Position	Voltage
DGND	0 volts
PL6	+12 volts
PL3	-12 volts
R65	+11 volts
Z206 o/p	+7.3 volts - mech supply
Z207 o/p	+5 volts - DAC supply
Z208 o/p	+5 volts
Z209 o/p	-30 volts
SK291 across pins 1 and 32	3.1 volts AC – display filament

Hints & tips

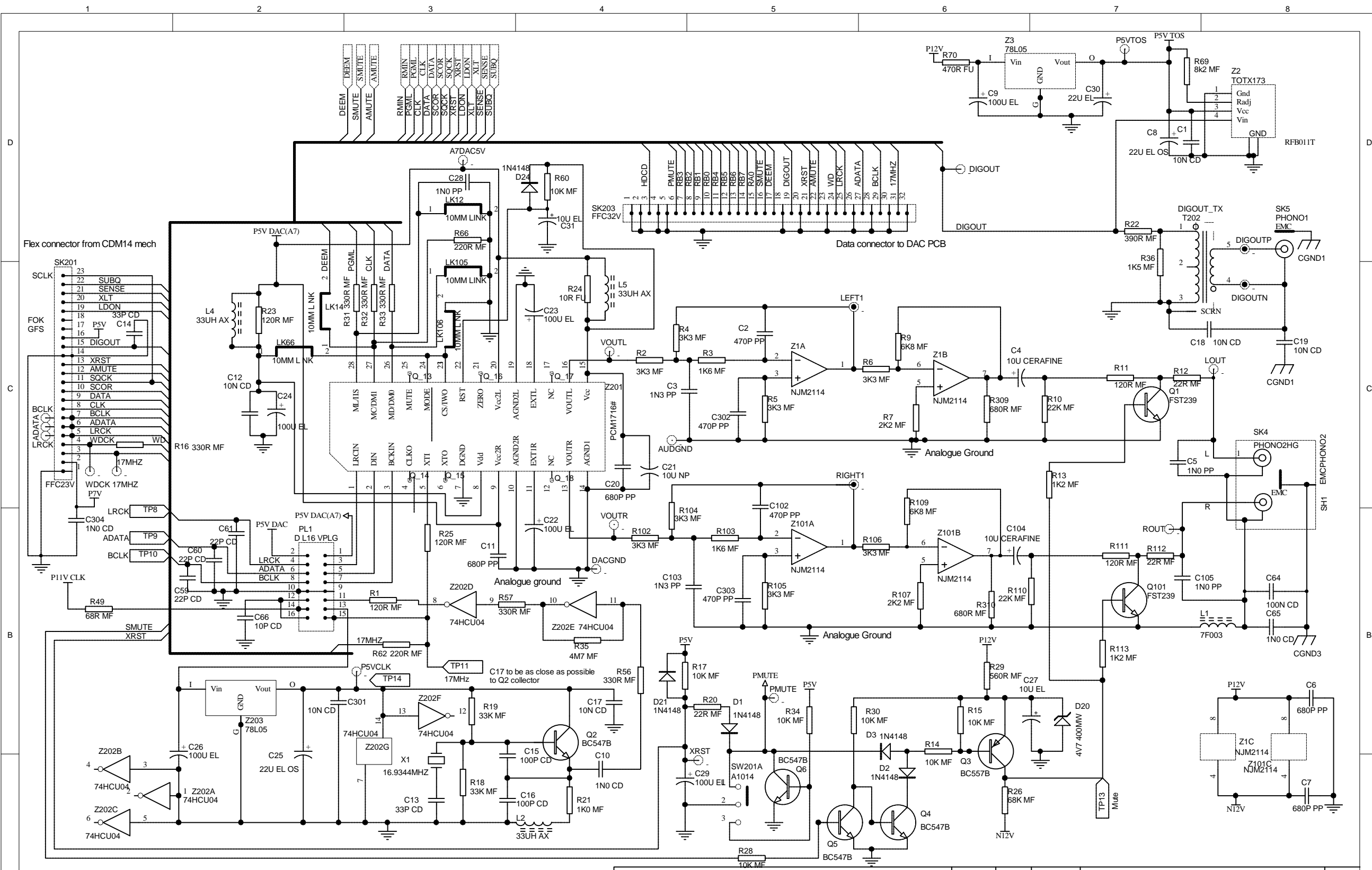
- ❑ When upgrading from CD72 to CD92 remember to fit the steel plate to the transformer, this reduces noise.
- ❑ The CDM14 mech (part no. B2009) is interchangeable between the Alpha7 series and the DiVA CD72/92 non text version.
- ❑ Please note that the CD72/92 TEXT units use a different mech (part no. B2012), the display and main boards are also different and therefore are not interchangeable parts.
- ❑ Voltage conversion 230/115VAC by changing the internal fuse position and fitting the correct rated fuse. 100VAC requires a different transformer.



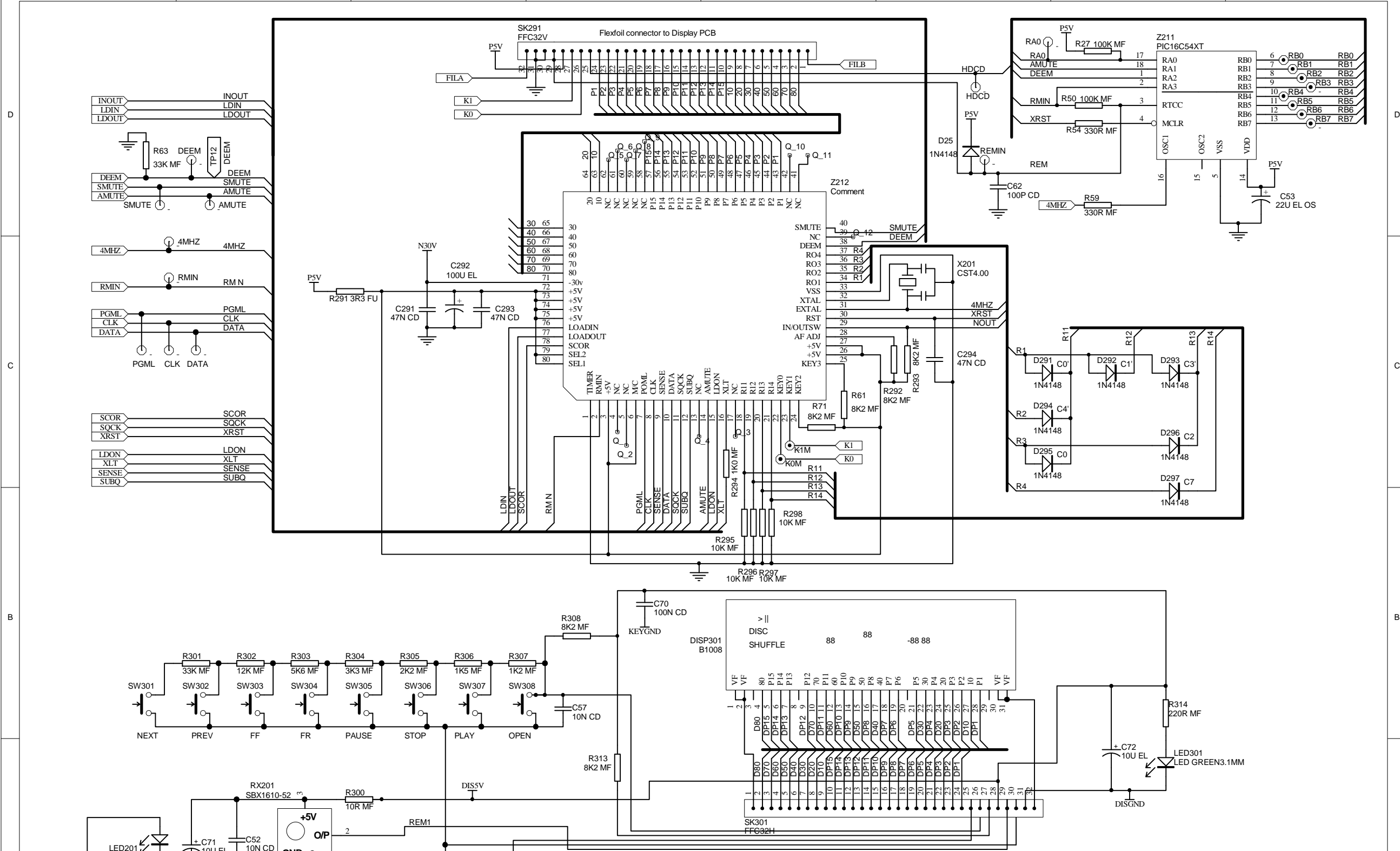
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Circuit Diagram Notes A & R Cambridge Ltd. Pembroke Avenue Denny Industrial Centre Waterbeach Cambridge CB5 9PB			CL	03-08-00	PRODUCTION RELEASE	1
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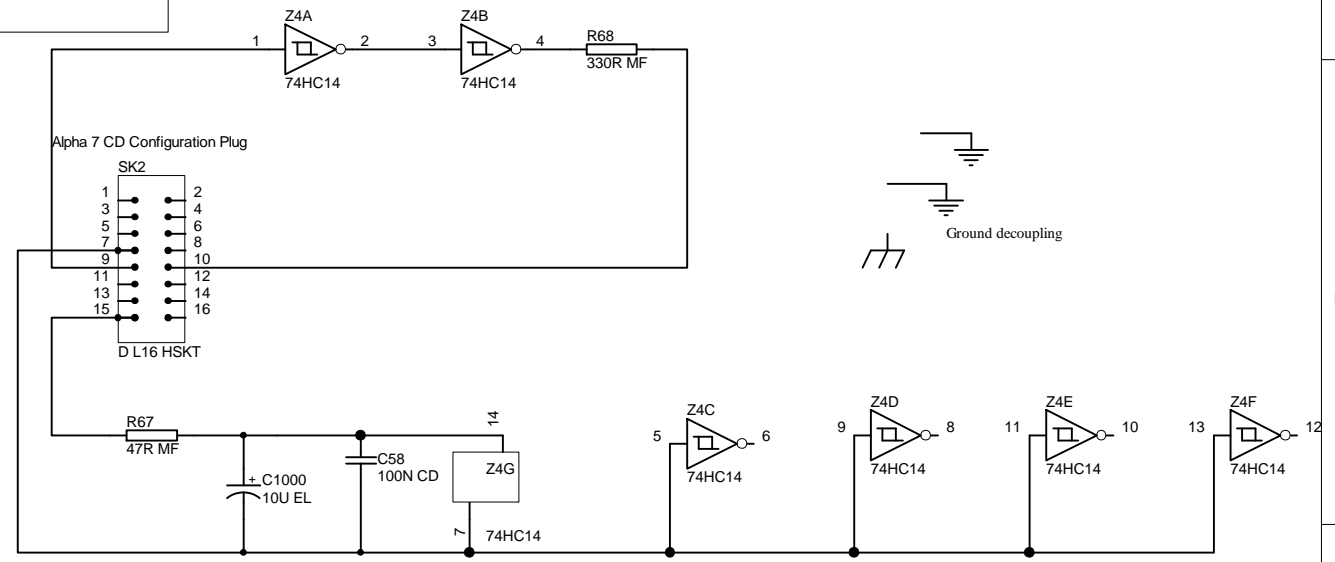
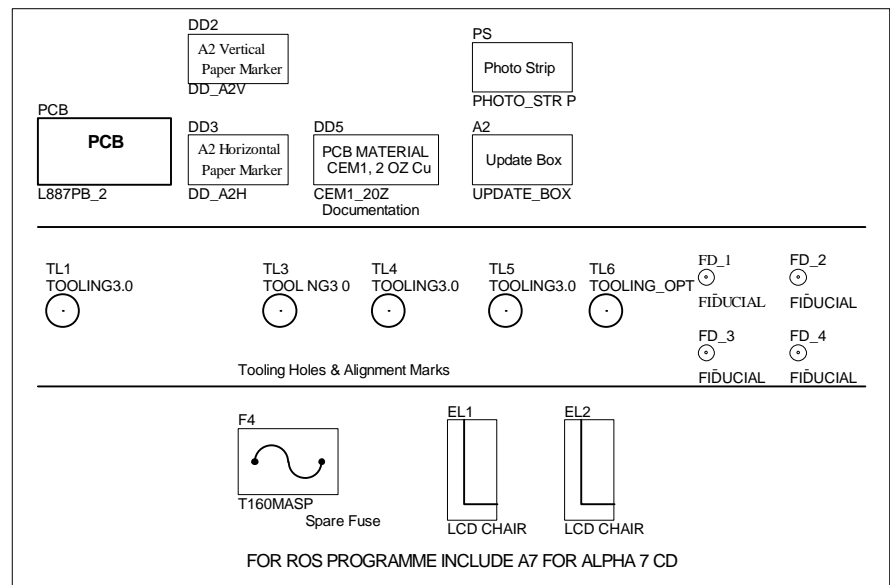
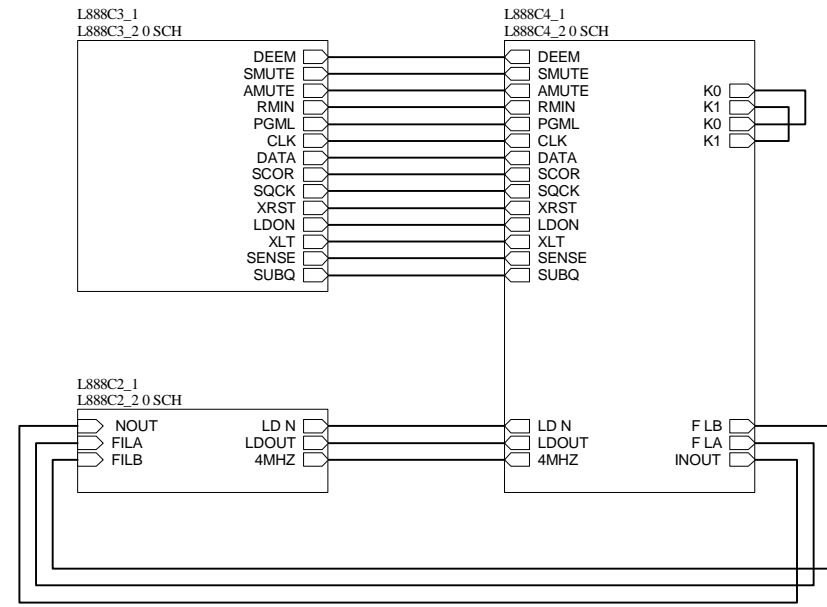
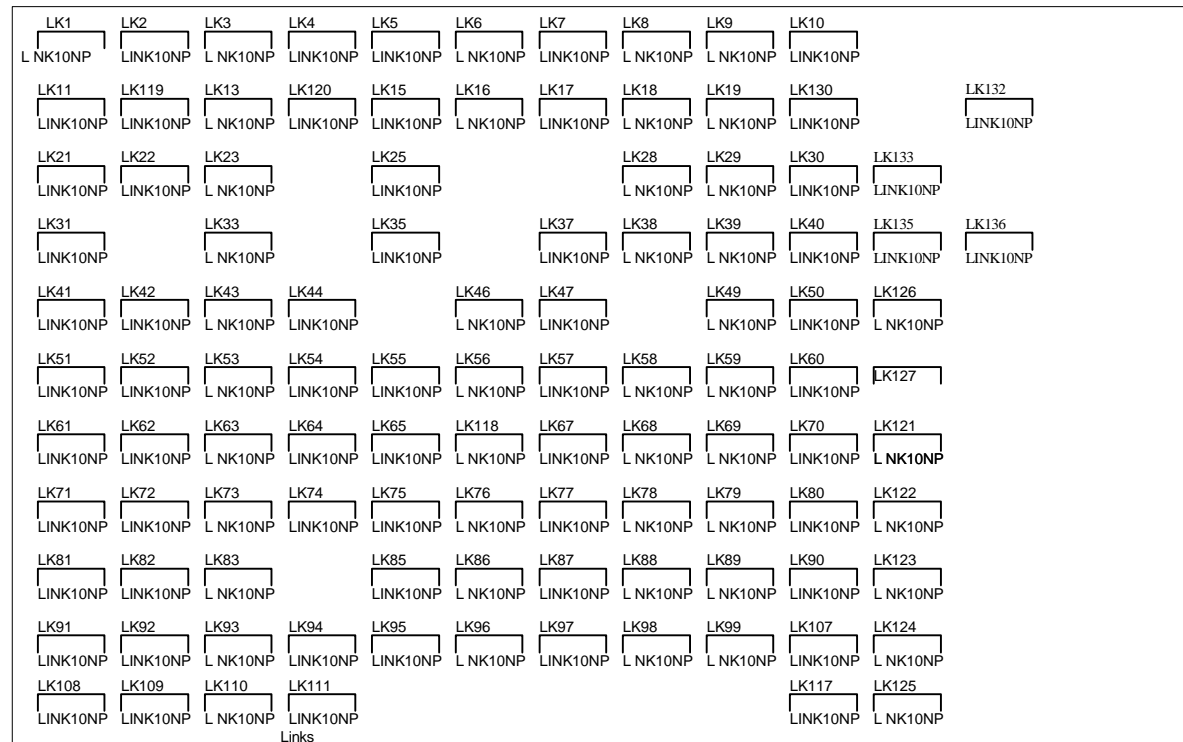


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CD72, CD92 CD Players		00_1083	CL	15-09-00	EARTH L NK 8M101 ADDED	1.1
Circuit Diagram			CL	03-08-00	PRODUCTION RELEASE	1
			CL	13-07-00	REVISIONS	B
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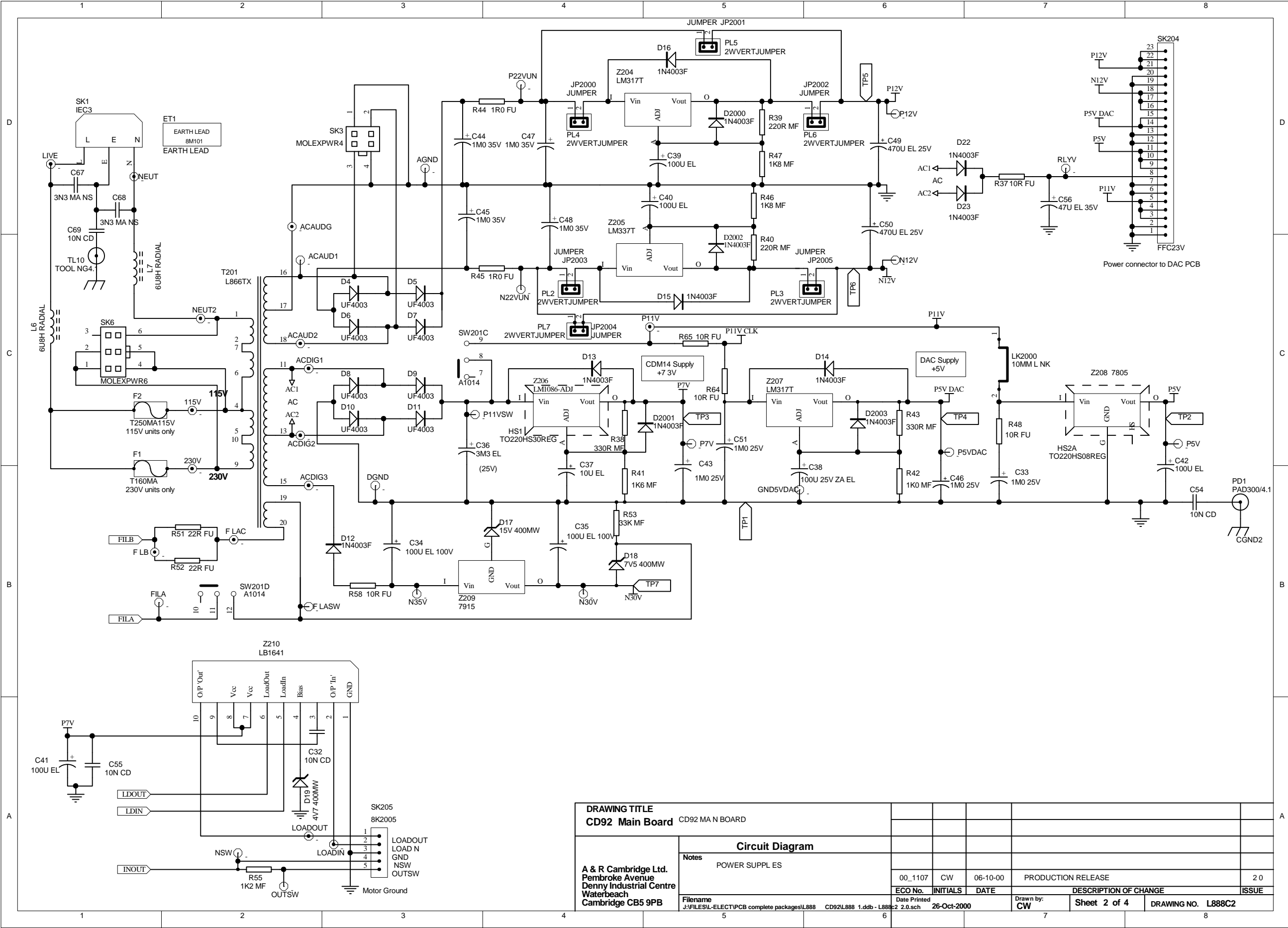


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CD72, CD92 CD Players		00_1083	CL	15-09-00	EARTH LINK 8M101 ADDED	1.1
Notes			CL	03-08-00	PRODUCTION RELEASE	1
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			WF	07-04-00	NEW PROTOTYPE	A
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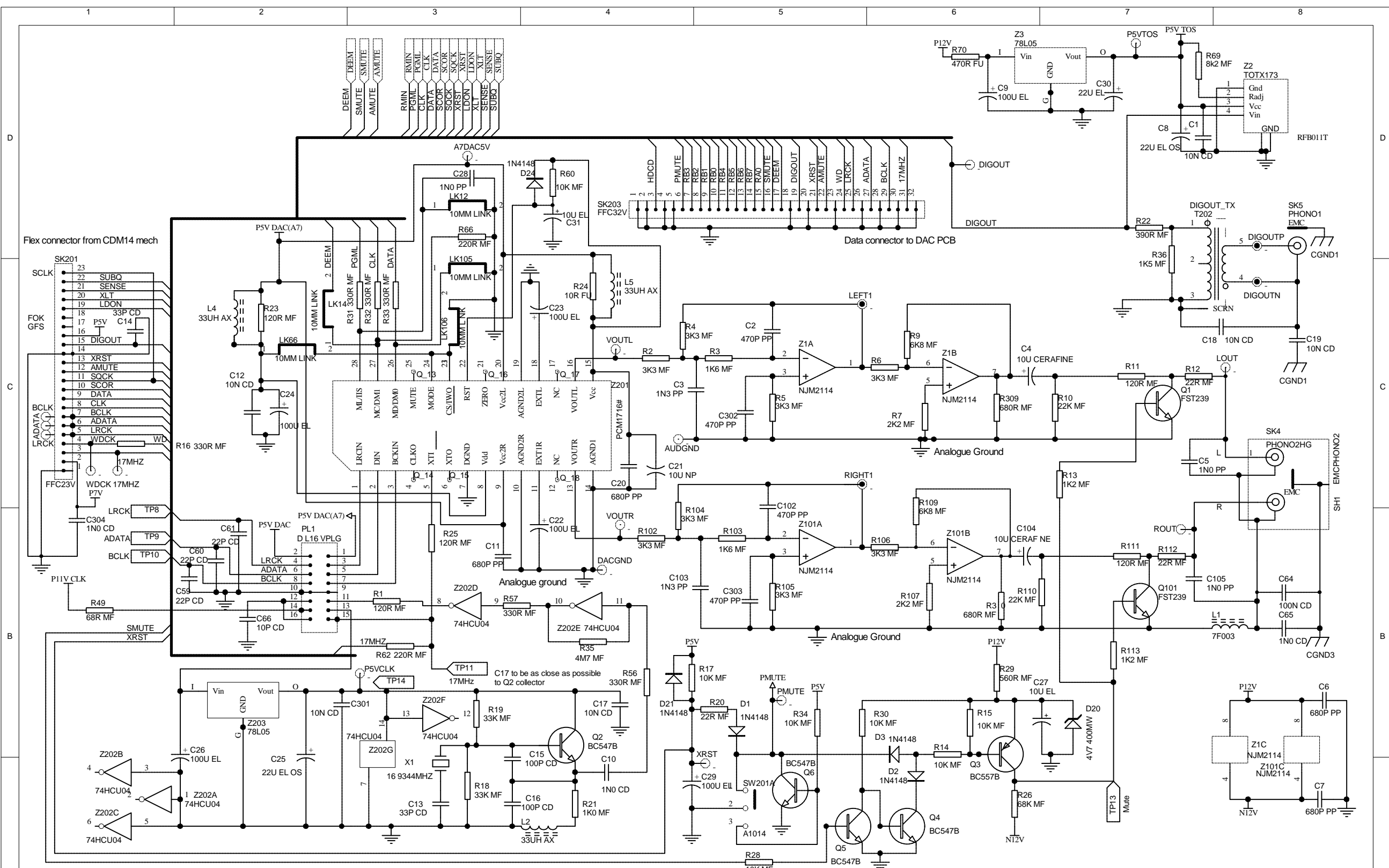




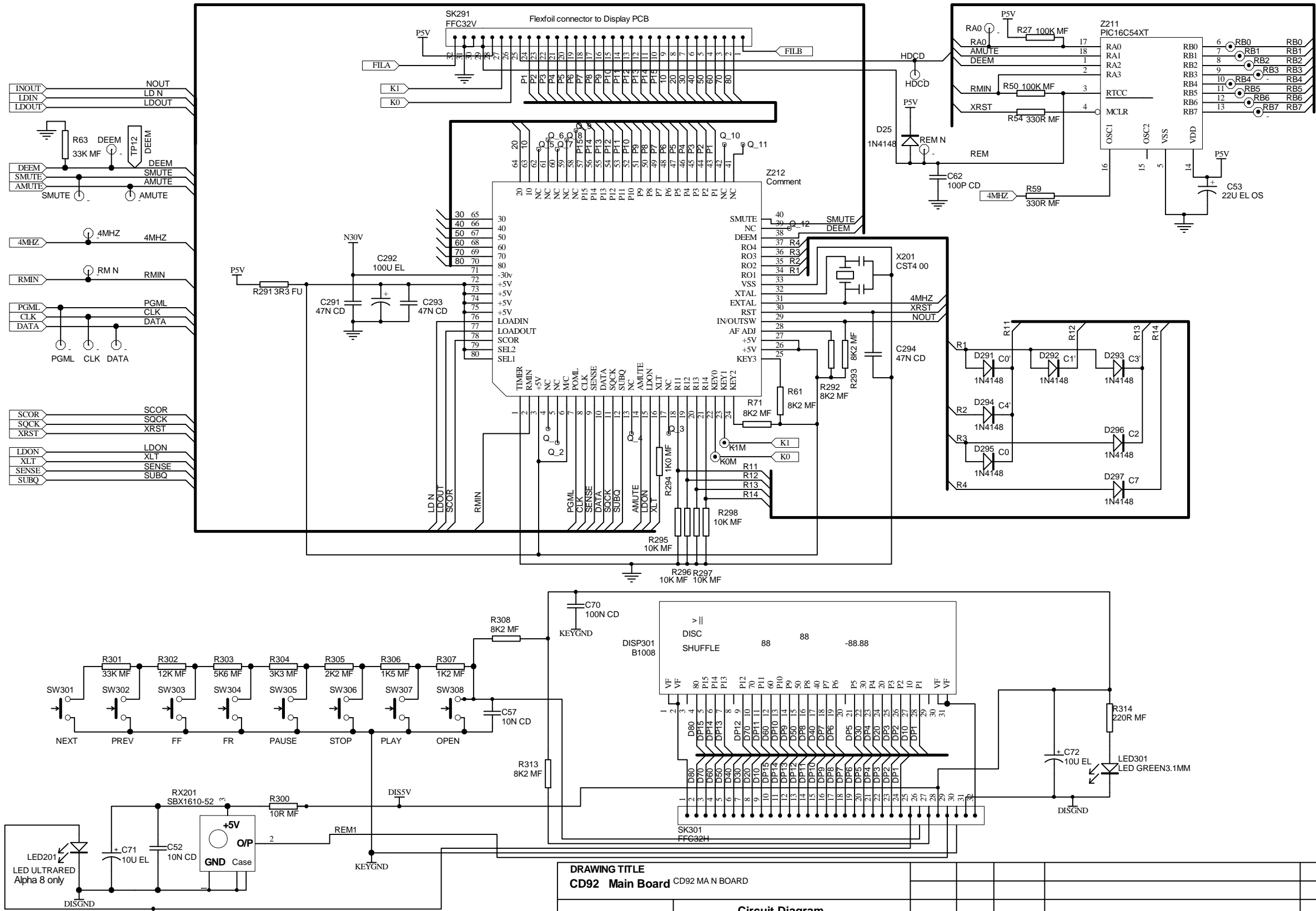
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Circuit Diagram							
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Circuit Diagram							
Notes POWER SUPPL ES							
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Circuit Diagram			
Notes DAC & Audio outputs			
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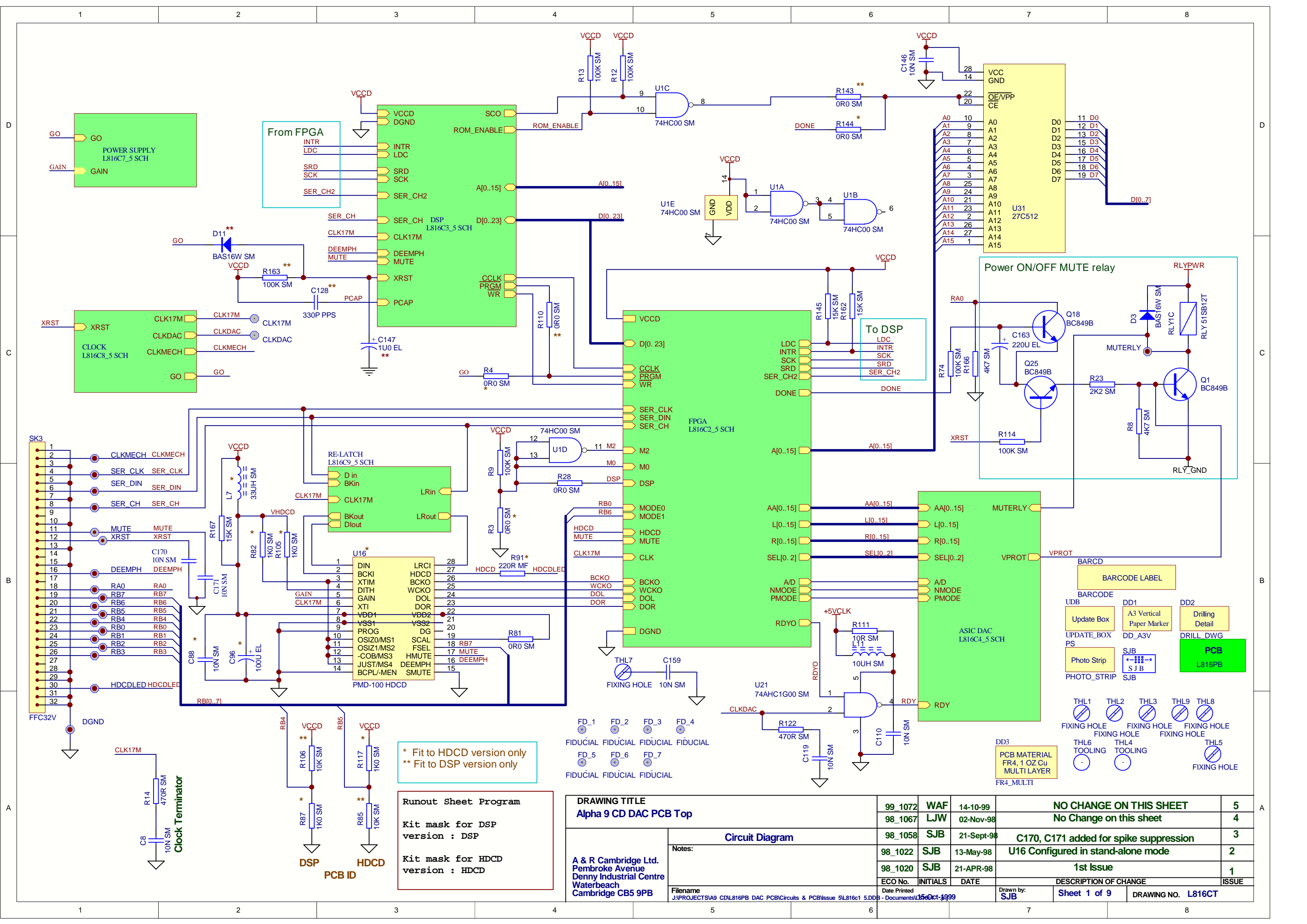


DRAWING TITLE
CD92 Main Board CD92 MA N BOARD

Notes
 Microcontroller & Display

A & R Cambridge Ltd.
 Pembroke Avenue
 Denny Industrial Centre
 Waterbeach
 Cambridge CB5 9PB

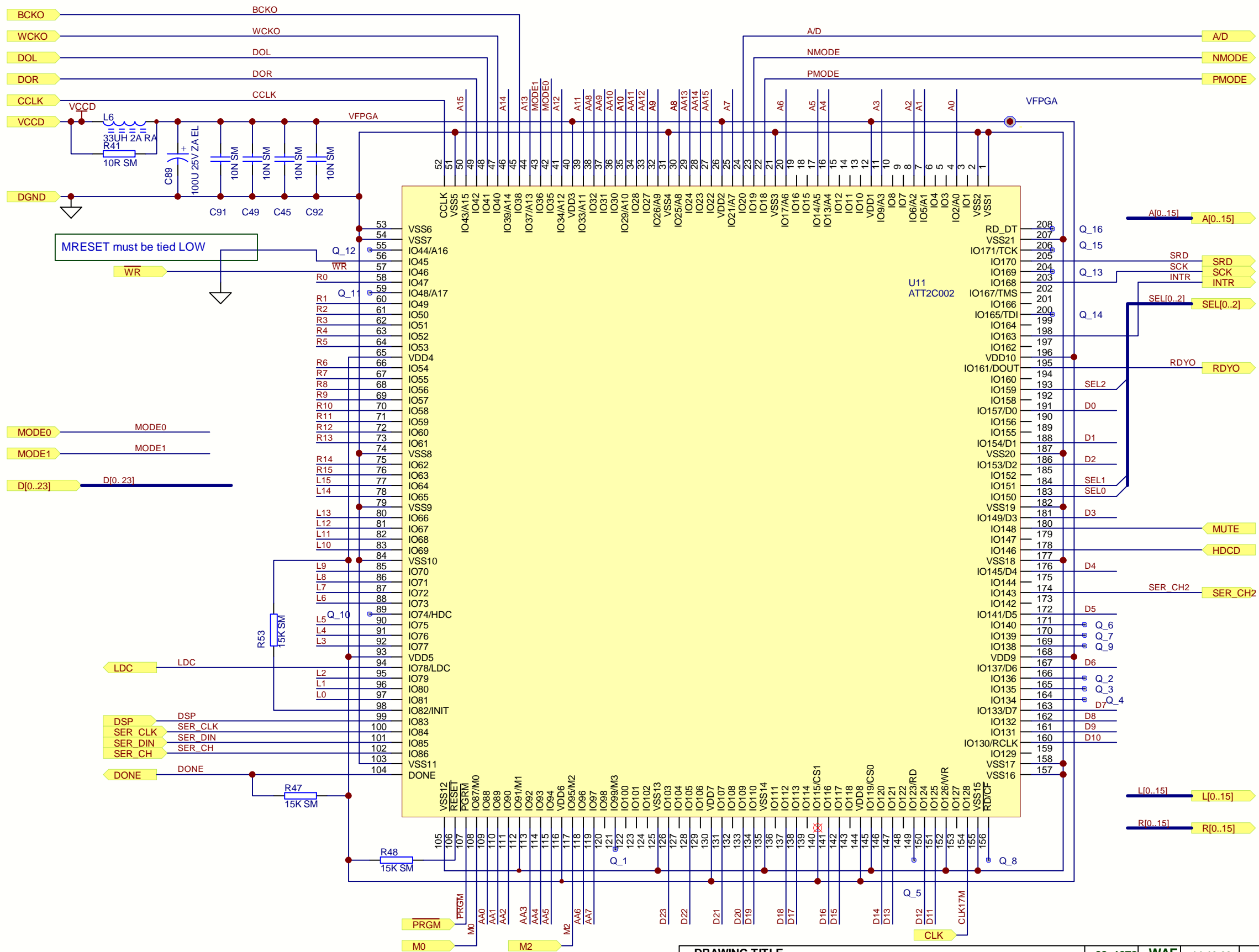
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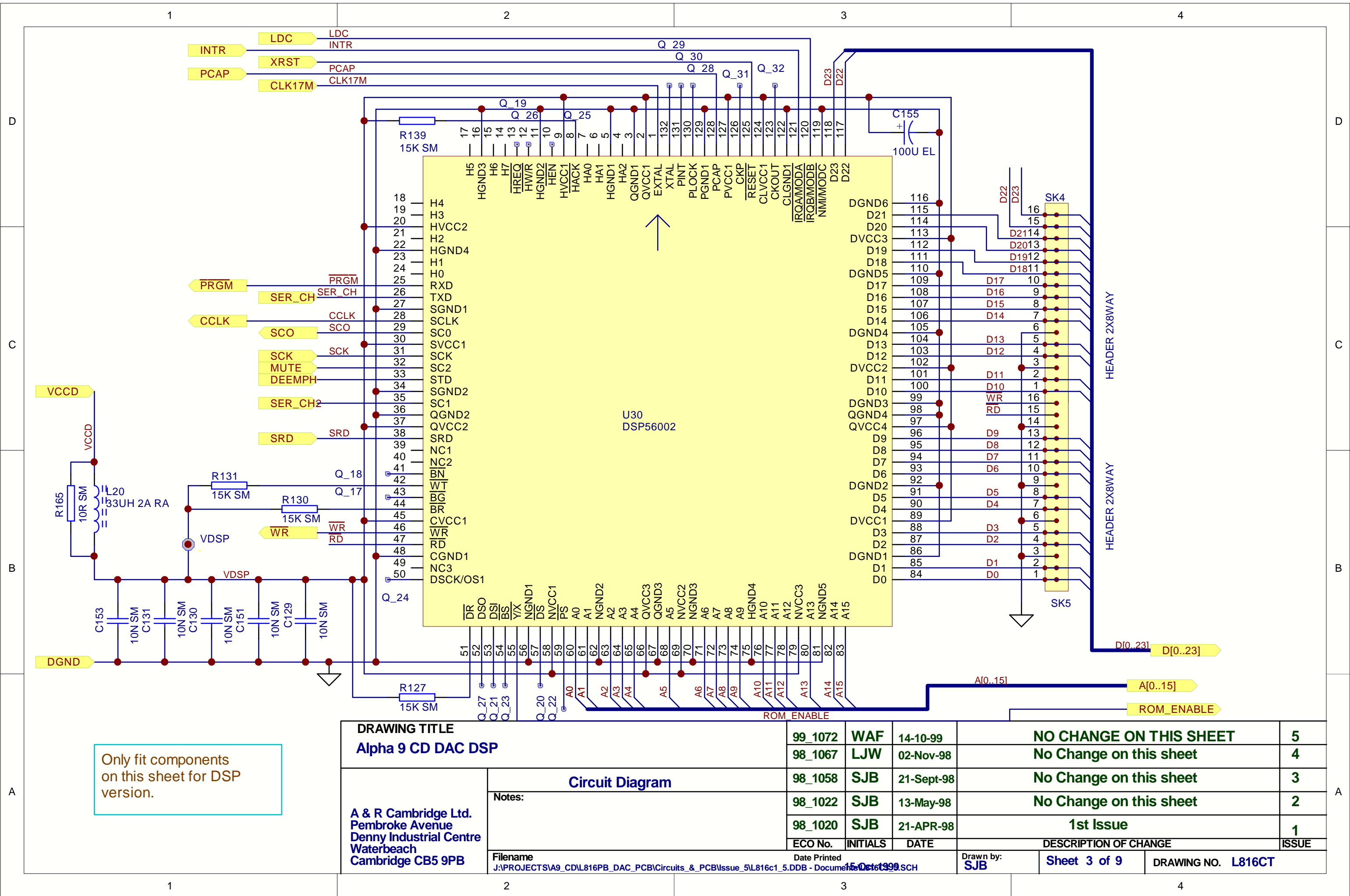
* Fit to HDCD version only
 ** Fit to DSP version only

Runout Sheet Program
 Kit mask for DSP
 version : DSP
 Kit mask for HDCD
 version : HDCD

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Notes: Circuit Diagram		98_1058	SJB	21-Sept-98	C170, C171 added for spike suppression	3
		98_1022	SJB	13-May-98	U16 Configured in stand-alone mode	2
		98_1020	SJB	21-APR-98	1st Issue	1
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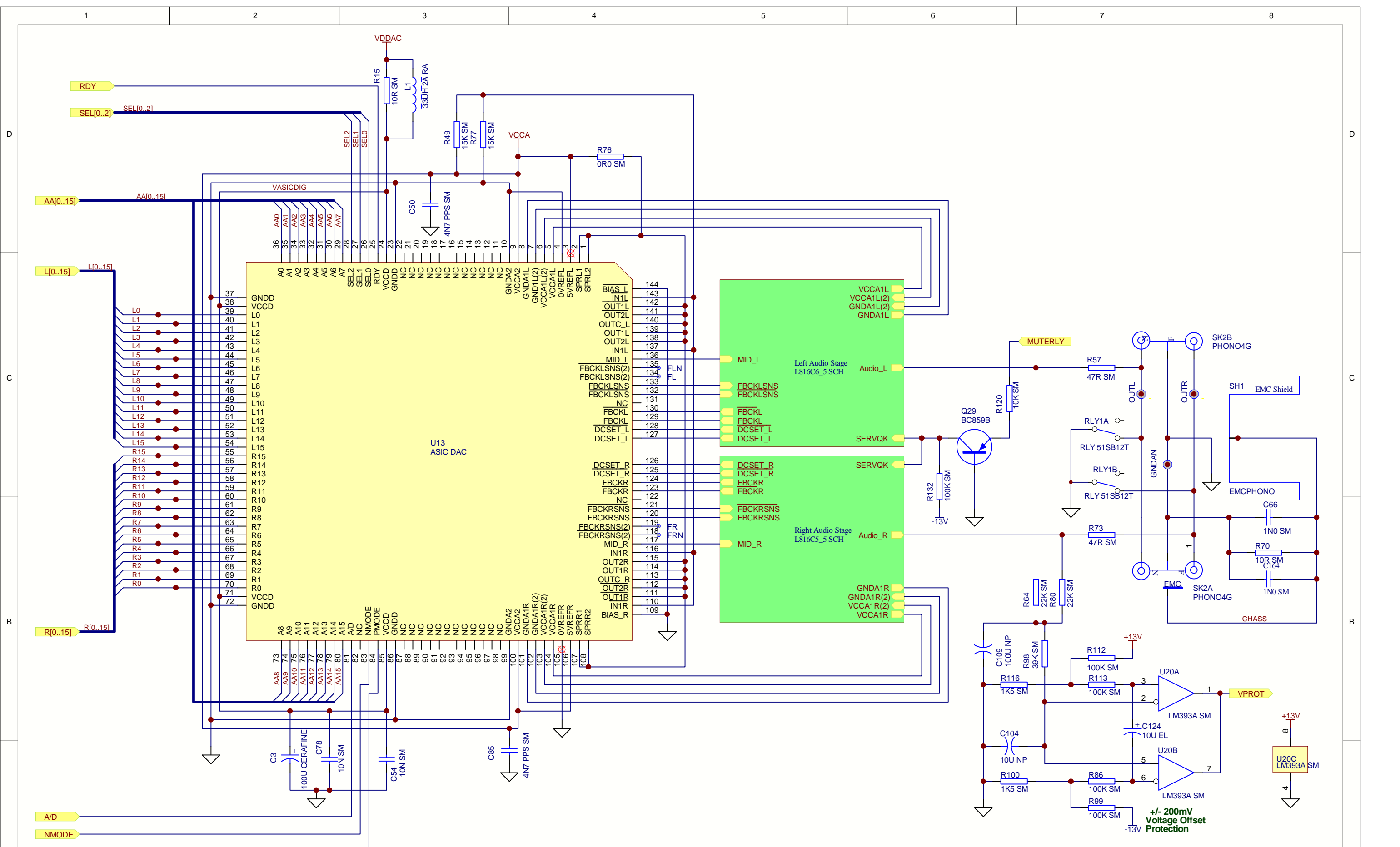


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Notes:		1st Issue				1
		ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
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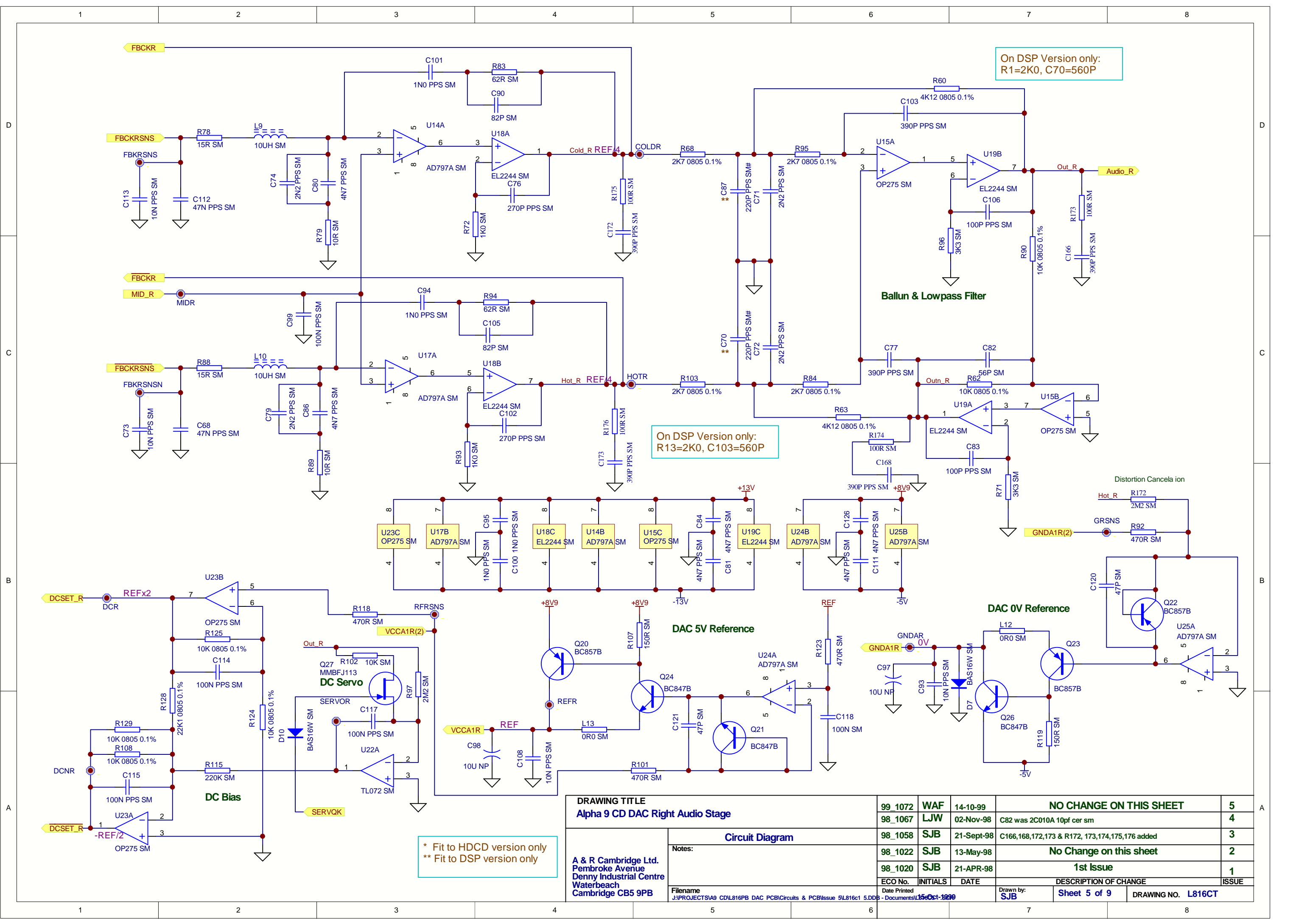


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Alpha 9 CD DAC DSP		98_1067	LJW	02-Nov-98	No Change on this sheet	4
Circuit Diagram		98_1058	SJB	21-Sept-98	No Change on this sheet	3
Notes:		98_1022	SJB	13-May-98	No Change on this sheet	2
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Only fit components on this sheet for DSP version.



DRAWING TITLE		99_1072	WAF	14-10-99	NO CHANGE ON THIS SHEET	5
Alpha 9 CD DAC ASIC		98_1067	LJW	02-Nov-98	C3 was 2P22C 22uf 50v oscon	4
Notes:		98_1058	SJB	21-Sept-98	No Change on this sheet	3
		98_1022	SJB	13-May-98	C164 added for EMC, C3 changed from 100U to 22U	2
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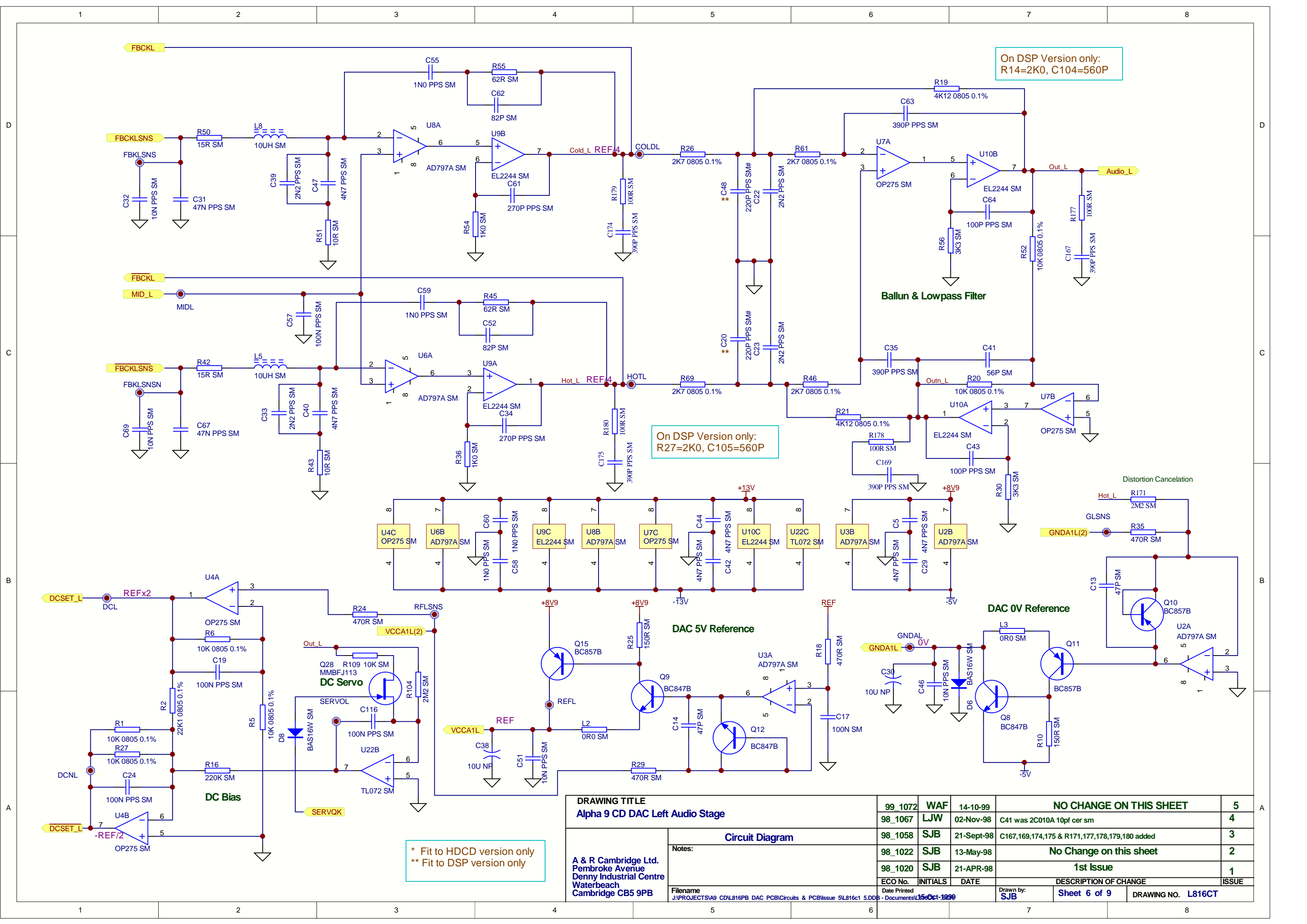


On DSP Version only:
R1=2K0, C70=560P

On DSP Version only:
R13=2K0, C103=560P

* Fit to HDCD version only
** Fit to DSP version only

DRAWING TITLE		99_1072	WAF	14-10-99	NO CHANGE ON THIS SHEET	5
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Circuit Diagram		98_1058	SJB	21-Sept-98	C166,168,172,173 & R172, 173,174,175,176 added	3
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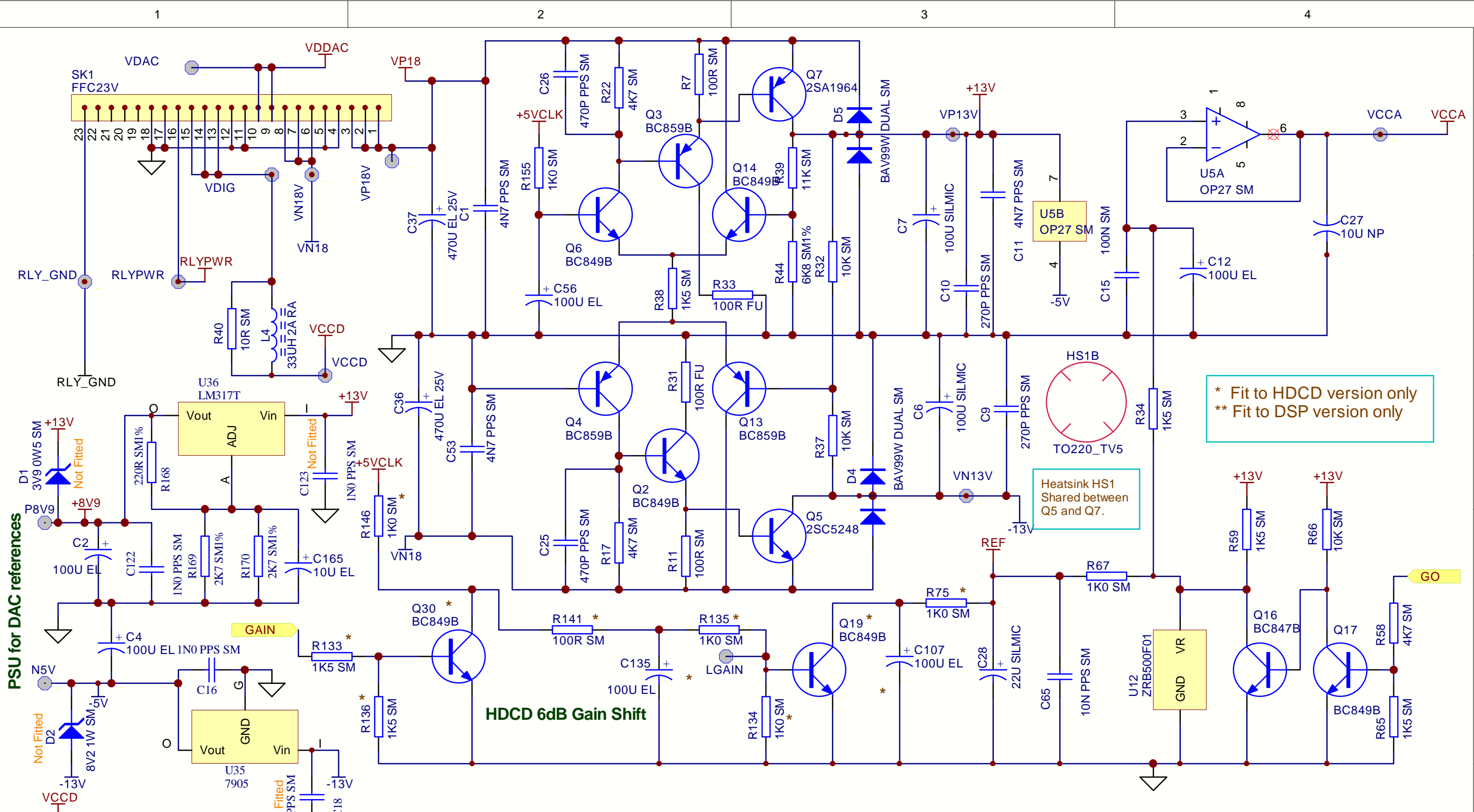


On DSP Version only:
R14=2K0, C104=560P

On DSP Version only:
R27=2K0, C105=560P

* Fit to HDCD version only
** Fit to DSP version only

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Circuit Diagram		98_1058	SJB	21-Sept-98	C167,169,174,175 & R171,177,178,179,180 added	3
		98_1022	SJB	13-May-98	No Change on this sheet	2
Notes:		98_1020	SJB	21-APR-98	1st Issue	1
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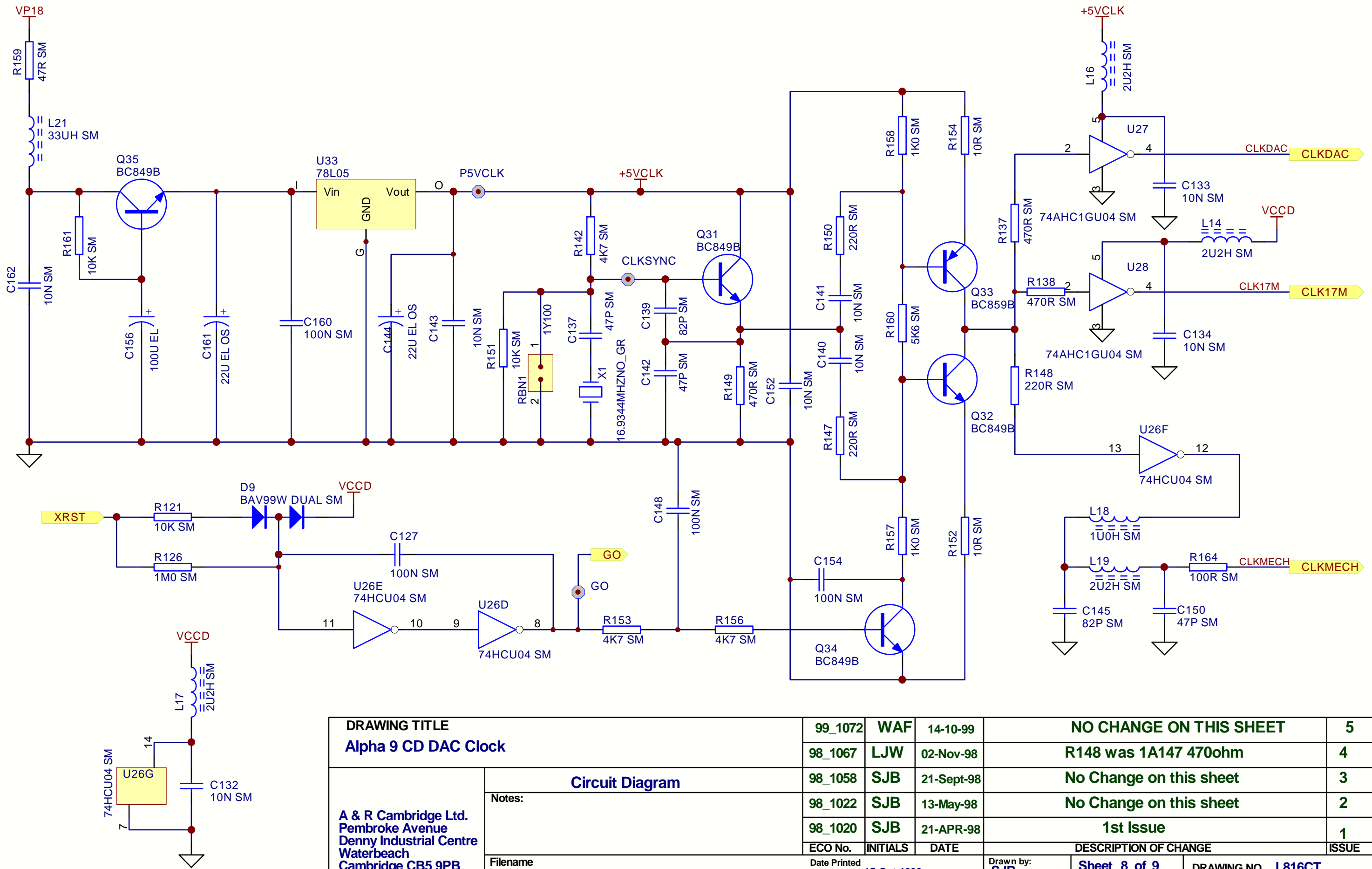
* Fit to HDCD version only
 ** Fit to DSP version only

Heatsink HS1 Shared between Q5 and Q7.

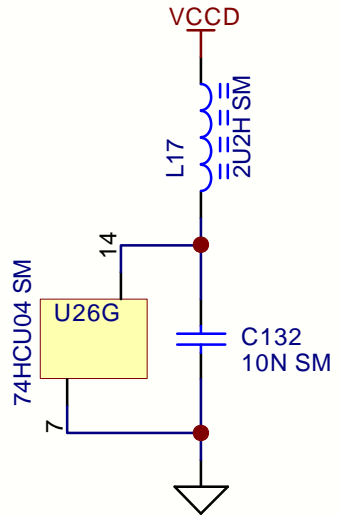
PSU for DAC references

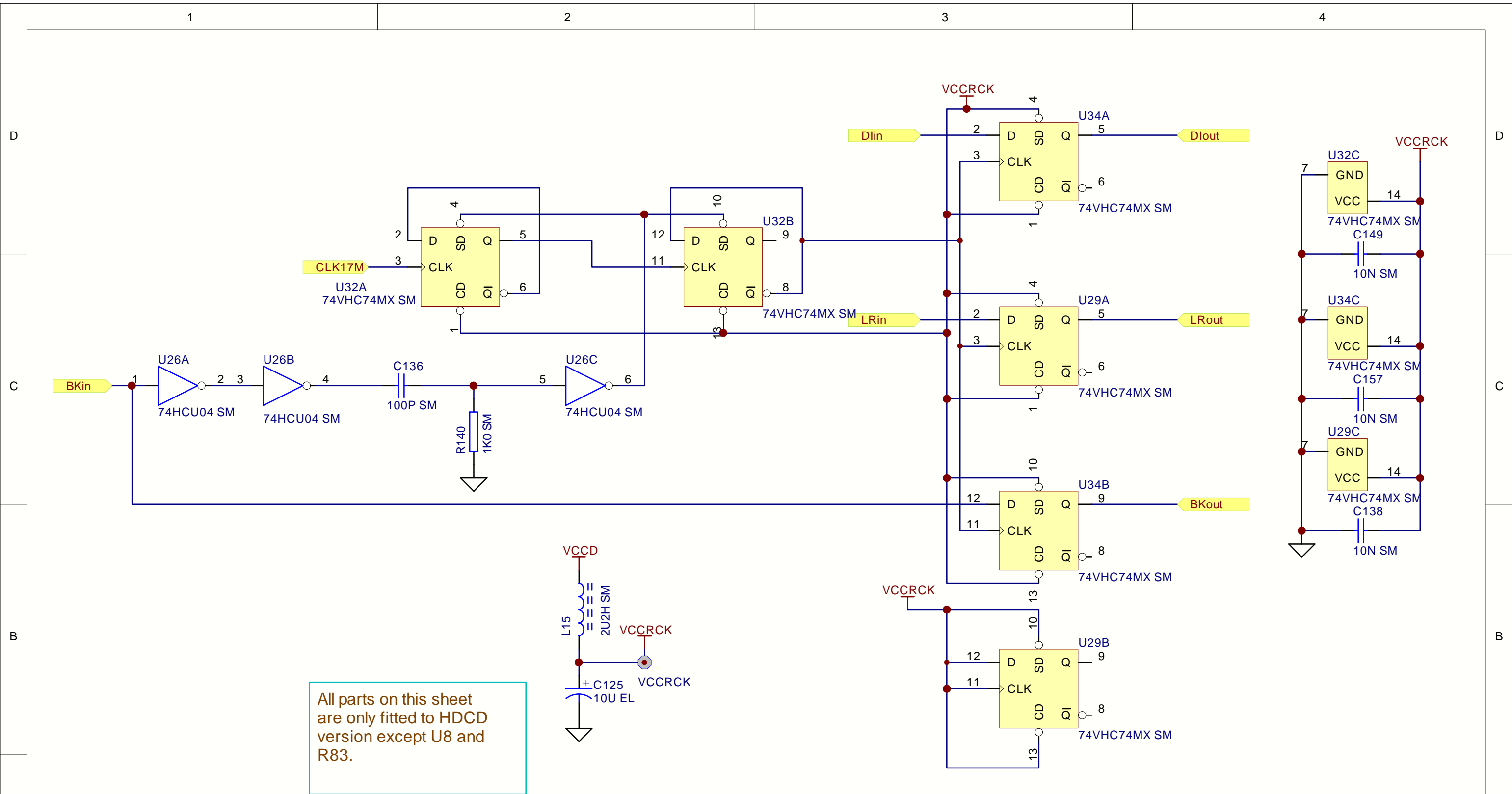
HDCD 6dB Gain Shift

DRAWING TITLE		99_1072	WAF	14-10-99	C28, C65 VALUE CHANGE	5
Alpha 9 CD DAC PSU		98_1067	LJW	02-Nov-98	No Change on this sheet	4
Circuit Diagram		98_1058	SJB	21-Sept-98	No Change on this sheet	3
Notes:		98_1022	SJB	13-May-98	D1 & D2 not fitted. U35 & U36 added & supporting components	2
A & R Cambridge Ltd. Pembroke Avenue Denny Industrial Centre Waterbeach Cambridge CB5 9PB		98_1020	SJB	21-APR-98	1st Issue	1
Filename	Date Printed	ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
J:\PROJECTS\A9_CD\L816PB_DAC_PCB\Circuits & PCB\Issue_5\L816c1_5.DDB - Documents\Doc15.SCH	15 Oct 1999					
		Drawn by:	Sheet 7 of 9		DRAWING NO. L816CT	
		SJB				



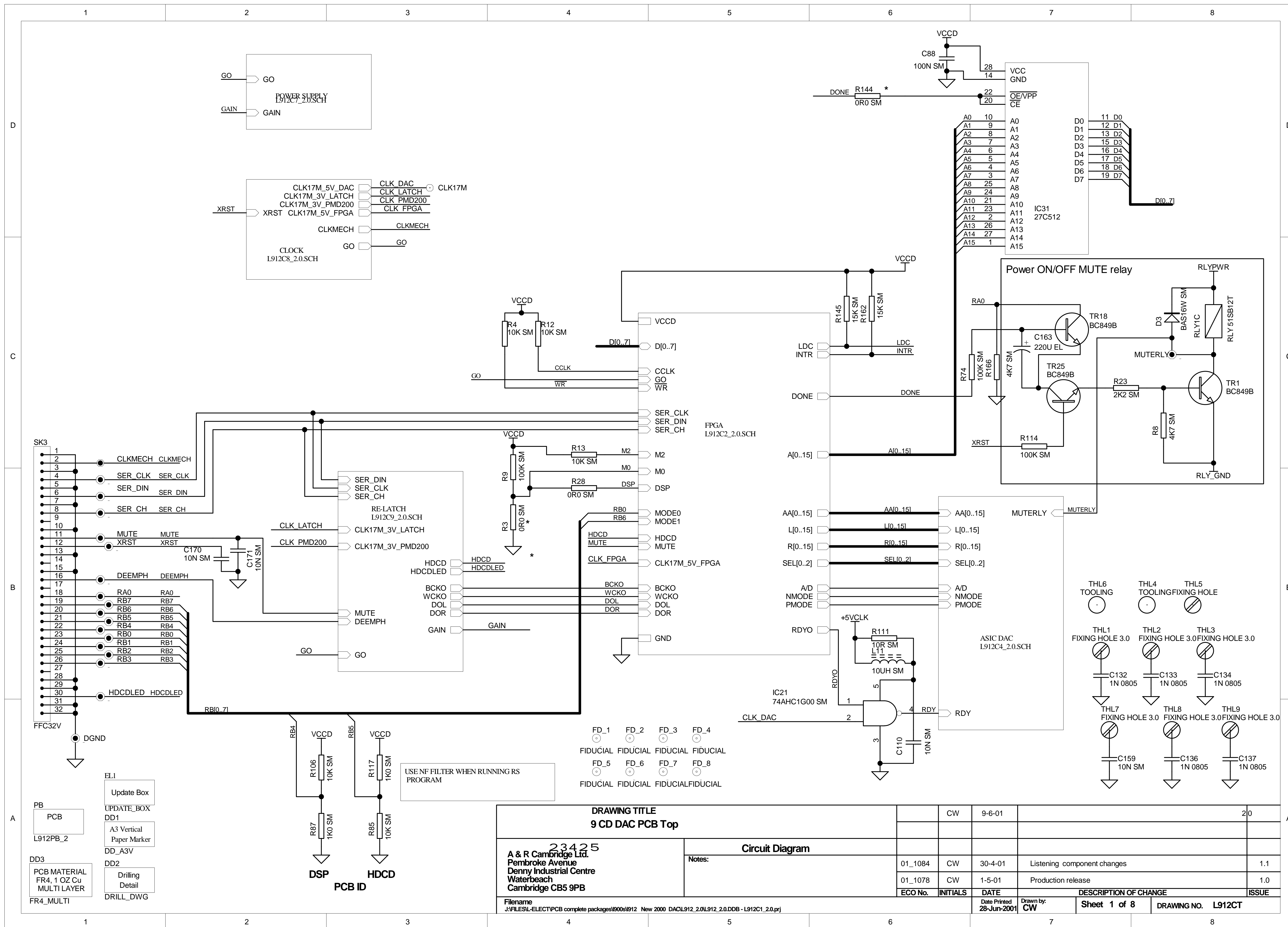
DRAWING TITLE		99_1072	WAF	14-10-99	NO CHANGE ON THIS SHEET	5
Alpha 9 CD DAC Clock		98_1067	LJW	02-Nov-98	R148 was 1A147 470ohm	4
Notes:		98_1058	SJB	21-Sept-98	No Change on this sheet	3
		98_1022	SJB	13-May-98	No Change on this sheet	2
		98_1020	SJB	21-APR-98	1st Issue	1
A & R Cambridge Ltd. Pembroke Avenue Denny Industrial Centre Waterbeach Cambridge CB5 9PB		ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
Filename: J:\PROJECTS\A9_CD\L816PB_DAC_PCB\Circuits & PCB\Issue_5\L816c1_5.DDB - Document Date: 15-Oct-99		Date Printed:	15-Oct-99	SCH	Sheet 8 of 9	DRAWING NO. L816CT
		Drawn by: SJB				



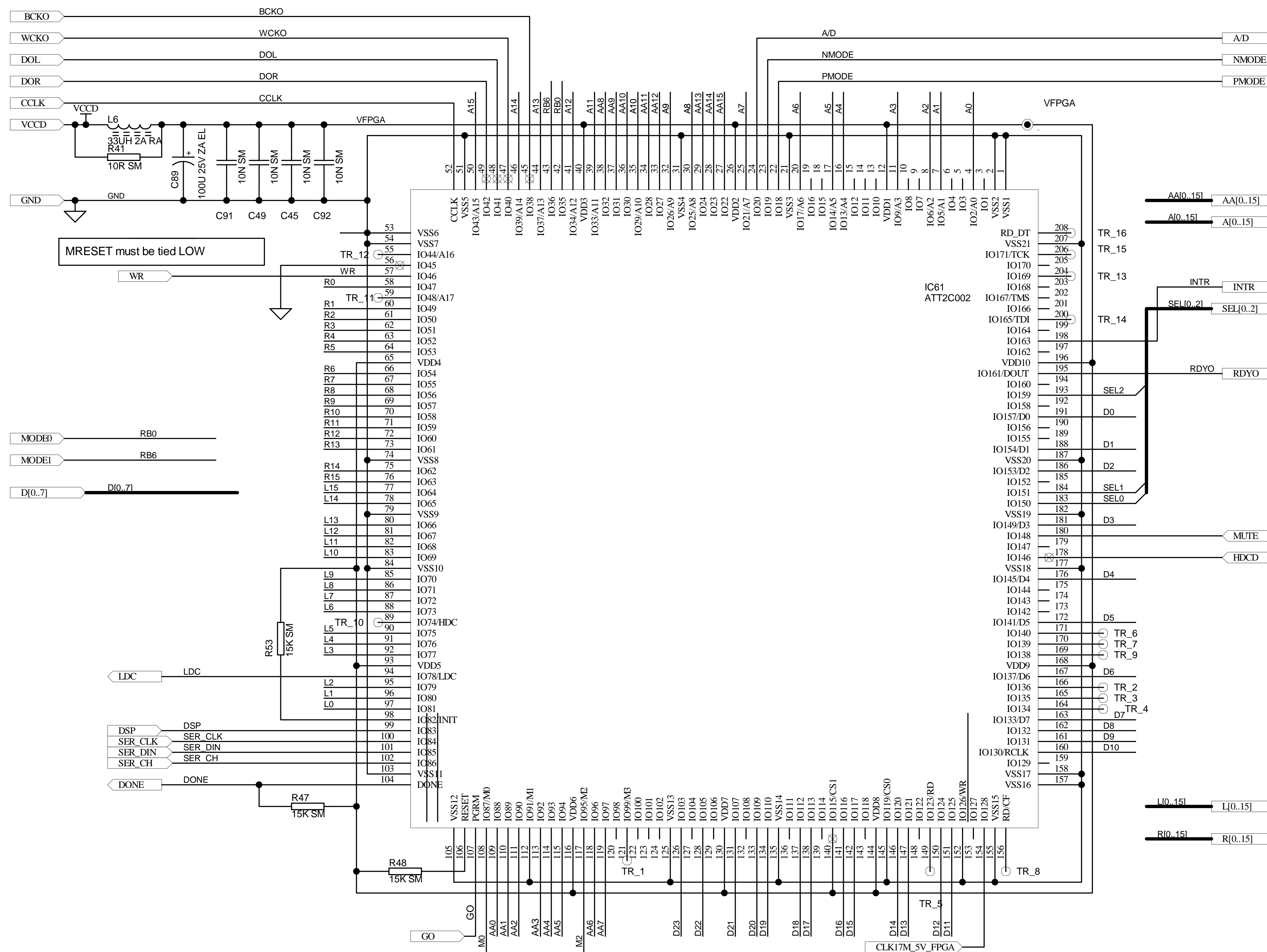


All parts on this sheet are only fitted to HDCD version except U8 and R83.

DRAWING TITLE		99_1072	WAF	14-10-99	NO CHANGE ON THIS SHEET	5
Alpha 9 CD DAC Re-clocking for PMD-100		98_1067	LJW	02-Nov--98	No change on this sheet	4
A & R Cambridge Ltd. Pembroke Avenue Denny Industrial Centre Waterbeach Cambridge CB5 9PB	Circuit Diagram	98_1058	SJB	21-Sept-98	No Change on this sheet	3
	Notes:	98_1022	SJB	13-May-98	No Change on this sheet	2
		98_1020	SJB	21-APR-98	1st Issue	1
	Filename	INITIALS	DATE	DESCRIPTION OF CHANGE		ISSUE
	J:\PROJECTS\A9_CD\L816PB_DAC_PCB\Circuits & PCB\Issue_5\L816c1_5.DDB - Documents	Date Printed	15 Oct 1999	Sheet 9 of 9	DRAWING NO. L816CT	

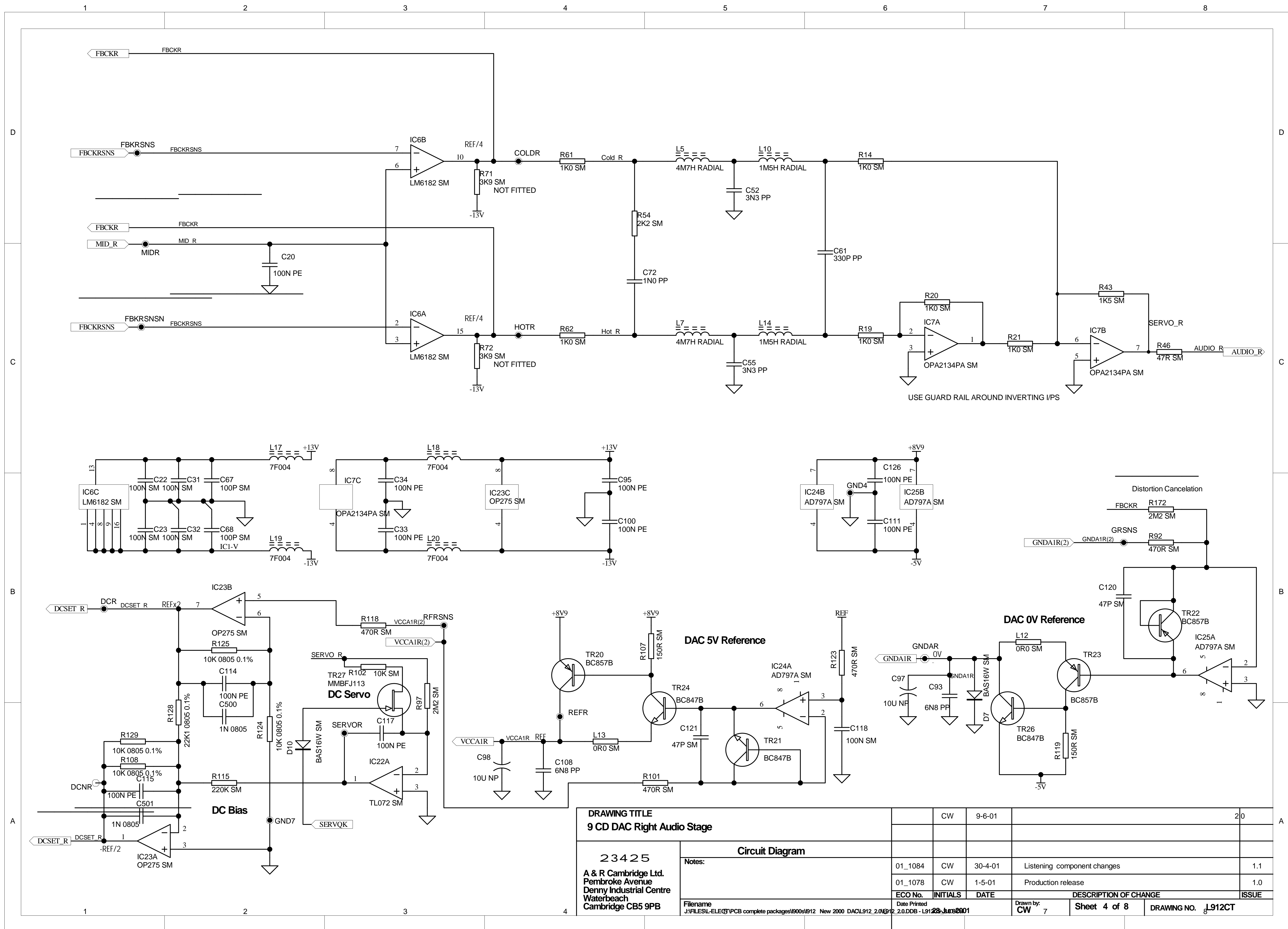


DRAWING TITLE					CW		9-6-01		20		
9 CD DAC PCB Top											
A & R Cambridge Ltd. 23425 Pembroke Avenue Denny Industrial Centre Waterbeach Cambridge CB5 9PB					Circuit Diagram Notes:						
					01_1084	CW	30-4-01	Listening component changes			1.1
					01_1078	CW	1-5-01	Production release			1.0
					ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE			ISSUE
Filename J:\FILES\ELECT\PCB complete packages\900s\912 New 2000 DA\CL912_2.0\L912_2.0.DDB - L912C1_2.0.prj					Date Printed	28-Jun-2001	Drawn by:	CW		Sheet 1 of 8	DRAWING NO. L912CT

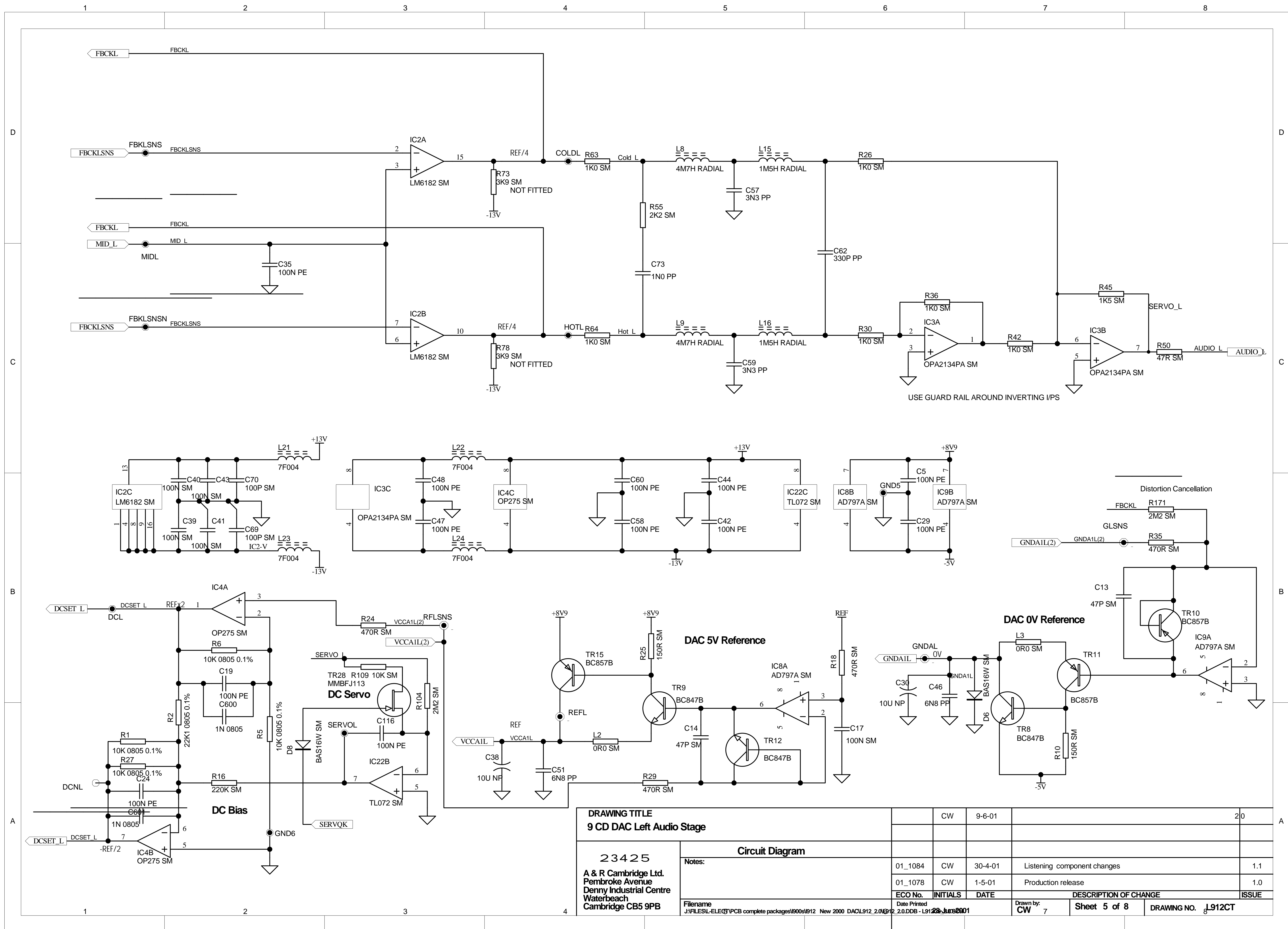


MRESET must be tied LOW

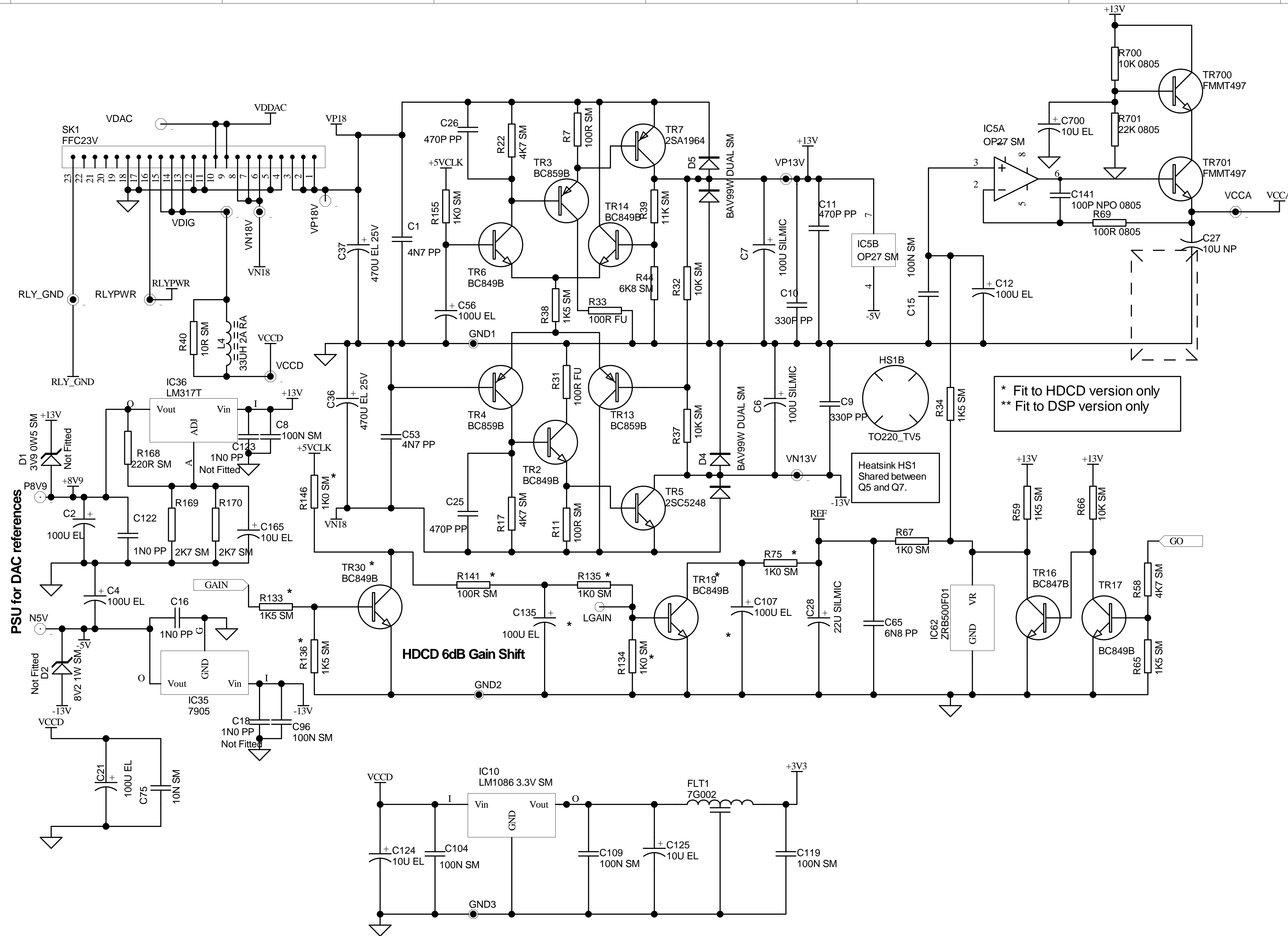
DRAWING TITLE			
9 CD DAC DRIVER			
23425 A & R Cambridge Ltd. Pembroke Avenue Denny Industrial Centre Waterbeach Cambridge CB5 9PB		Circuit Diagram Notes:	
Filename	J:\FILES\1-ELECT\PCB cdmplete packages\900s\912 New 2000 DAQL912 2.0L912 2.0.BDB - L912C2 2.0.SCH		
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE
01_1084	CW	9-6-01	
01_1078	CW	30-4-01	Listing component changes
		1-5-01	Production release
			1.0
			ISSUE
Date Printed		Drawn by:	Sheet 2 of 8
28-Jun-2001		CW 7	DRAWING NO. L912CT



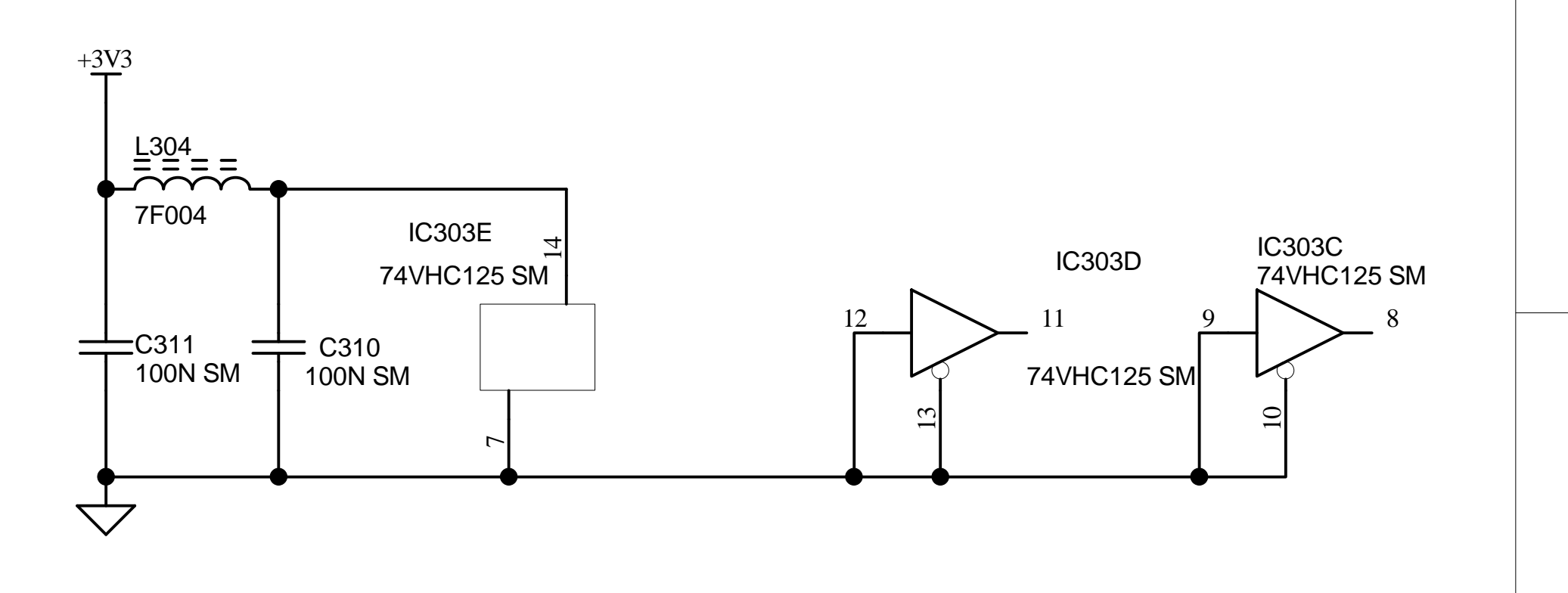
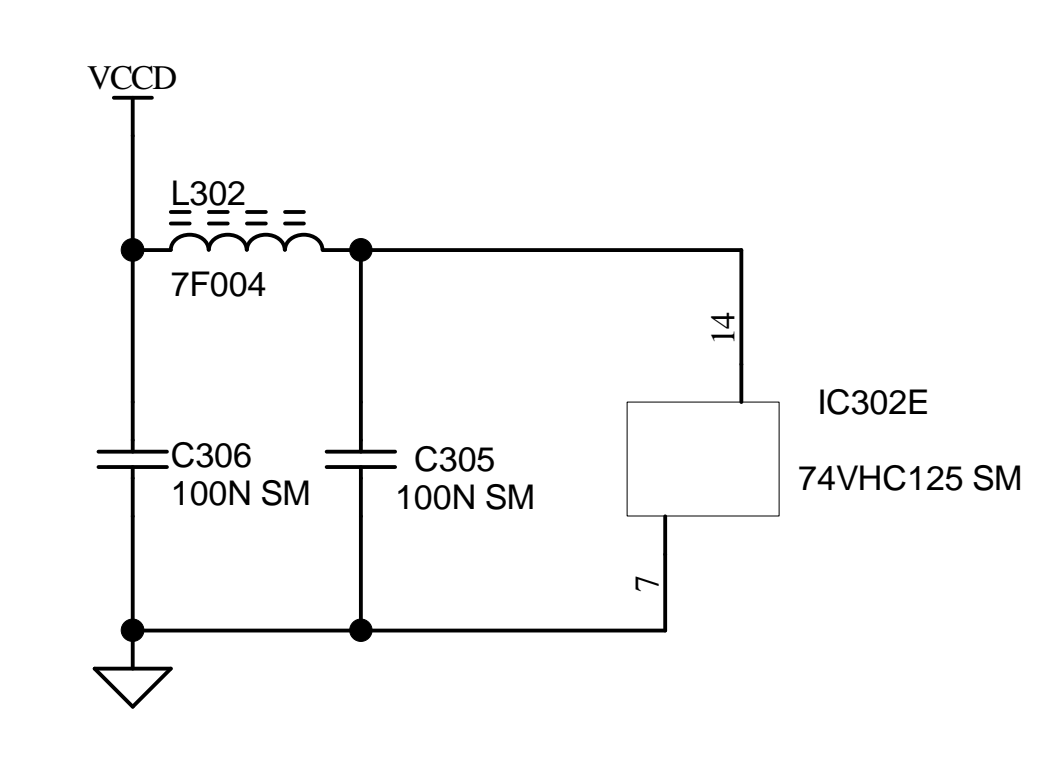
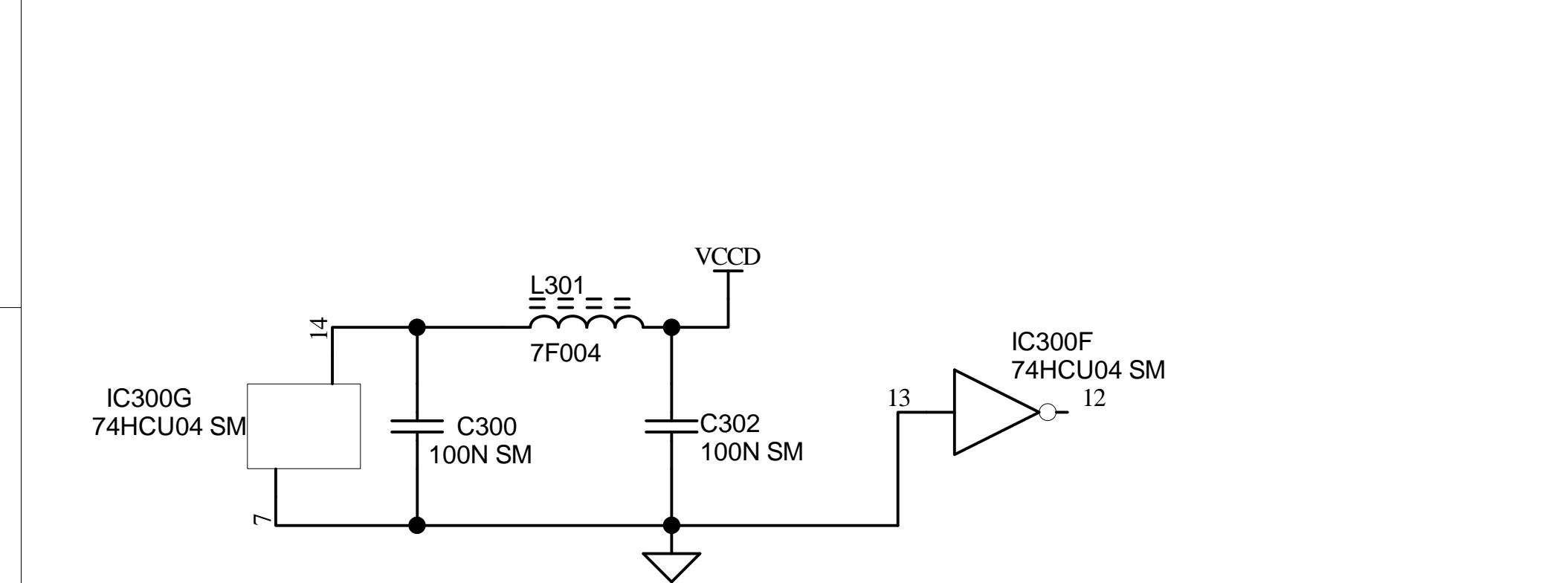
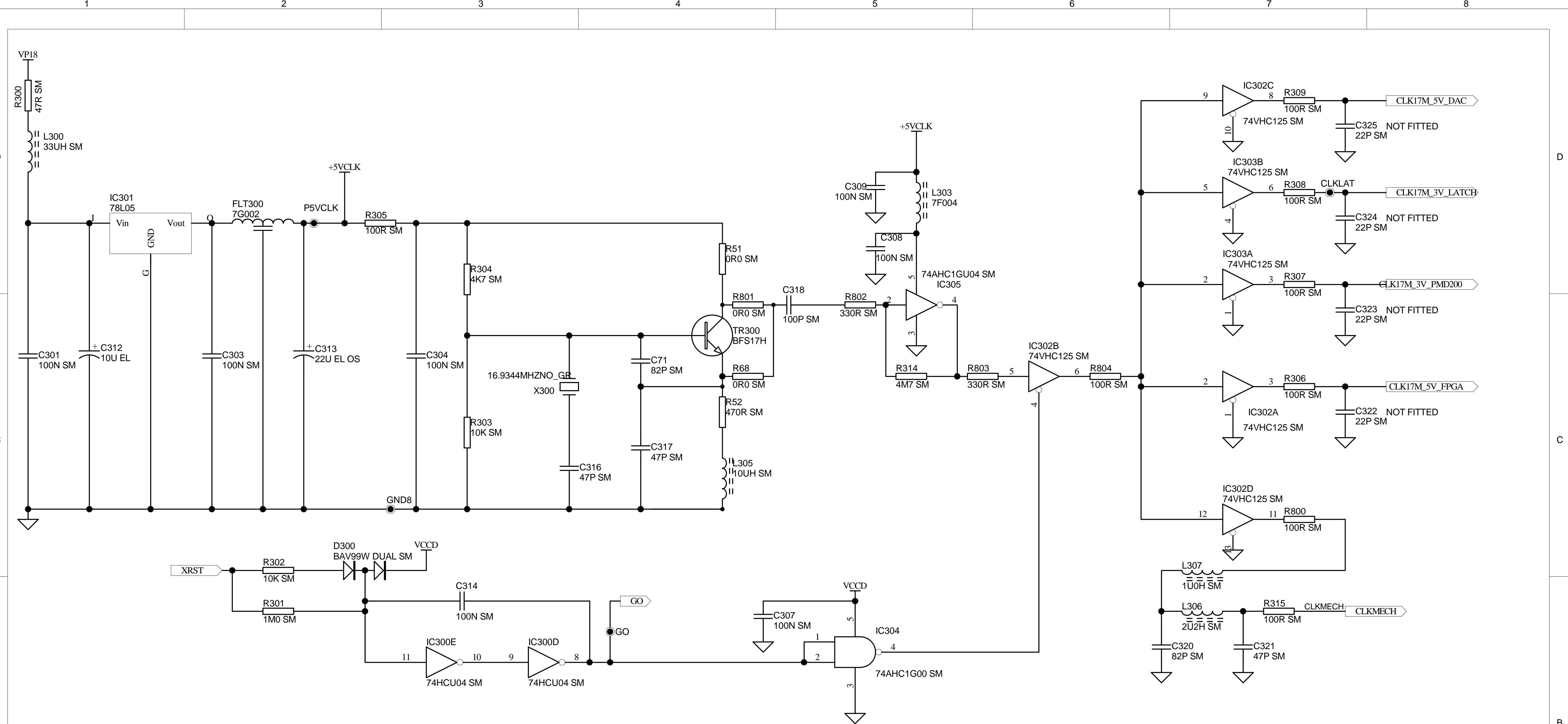
DRAWING TITLE		CW	9-6-01	20
9 CD DAC Right Audio Stage				
23425				
A & R Cambridge Ltd. Pembroke Avenue Denny Industrial Centre Waterbeach Cambridge CB5 9PB				
Notes:				
01_1084	CW	30-4-01	Listening component changes	1.1
01_1078	CW	1-5-01	Production release	1.0
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
Filename	Date Printed	Drawn by:	Sheet 4 of 8	DRAWING NO. L912CT
J:\FILES\ELEGE\PCB complete packages\900s\912 New 2000 DACL912 2.0.DDB	23 Jun 2001	CW 7		



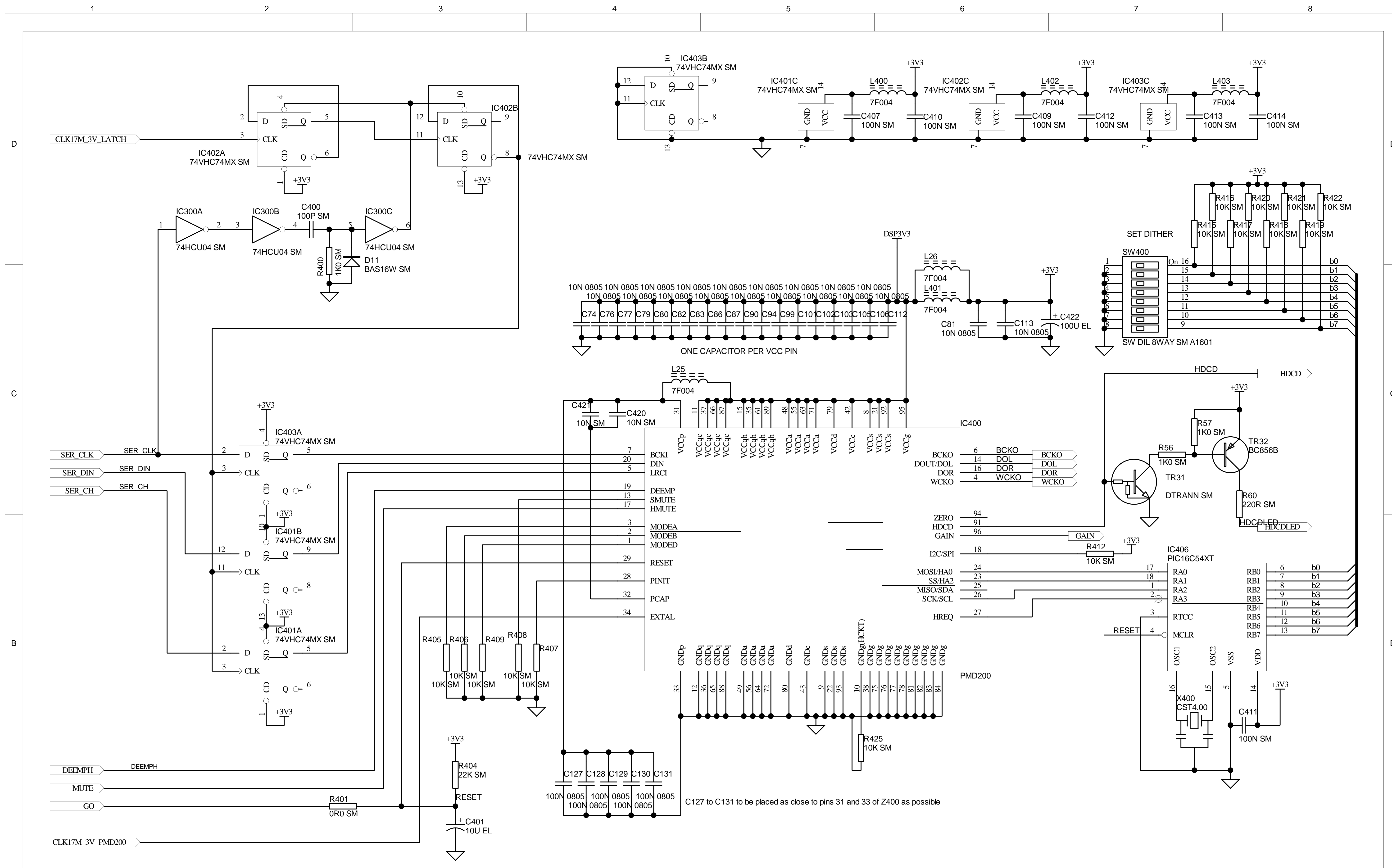
DRAWING TITLE		CW	9-6-01	20
9 CD DAC Left Audio Stage				
23425				
A & R Cambridge Ltd. Pembroke Avenue Denny Industrial Centre Waterbeach Cambridge CB5 9PB				
Notes:				
01_1084	CW	30-4-01	Listening component changes	1.1
01_1078	CW	1-5-01	Production release	1.0
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
Filename	Date Printed	Drawn by:	Sheet 5 of 8	DRAWING NO. L912CT
J:\FILES\ELEGE\PCB complete packages\900s\912 New 2000 DACL912 2.0.DDB	20.06.2001	CW 7		



DRAWING TITLE		CW	9-6-01	20
9 CD DAC PSU				
A & R Cambridge Ltd. 23425 Pembroke Avenue Denny Industrial Centre Waterbeach Cambridge CB5 9PB		Circuit Diagram		
Notes:				
01_1084	CW	30-4-01	Listing component changes	1.1
01_1078	CW	1-5-01	Production release	1.0
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
Filename		Date Printed	Drawn by:	Sheet 6 of 8
J:\FILES\ELECT\PCB cdmplete packages\900s\912 New 2000 DAQL912 2.0L912 2.0.BDB - L912CT_2.0.SCH		28-Jun-2001	CW 7	DRAWING NO. L912CT



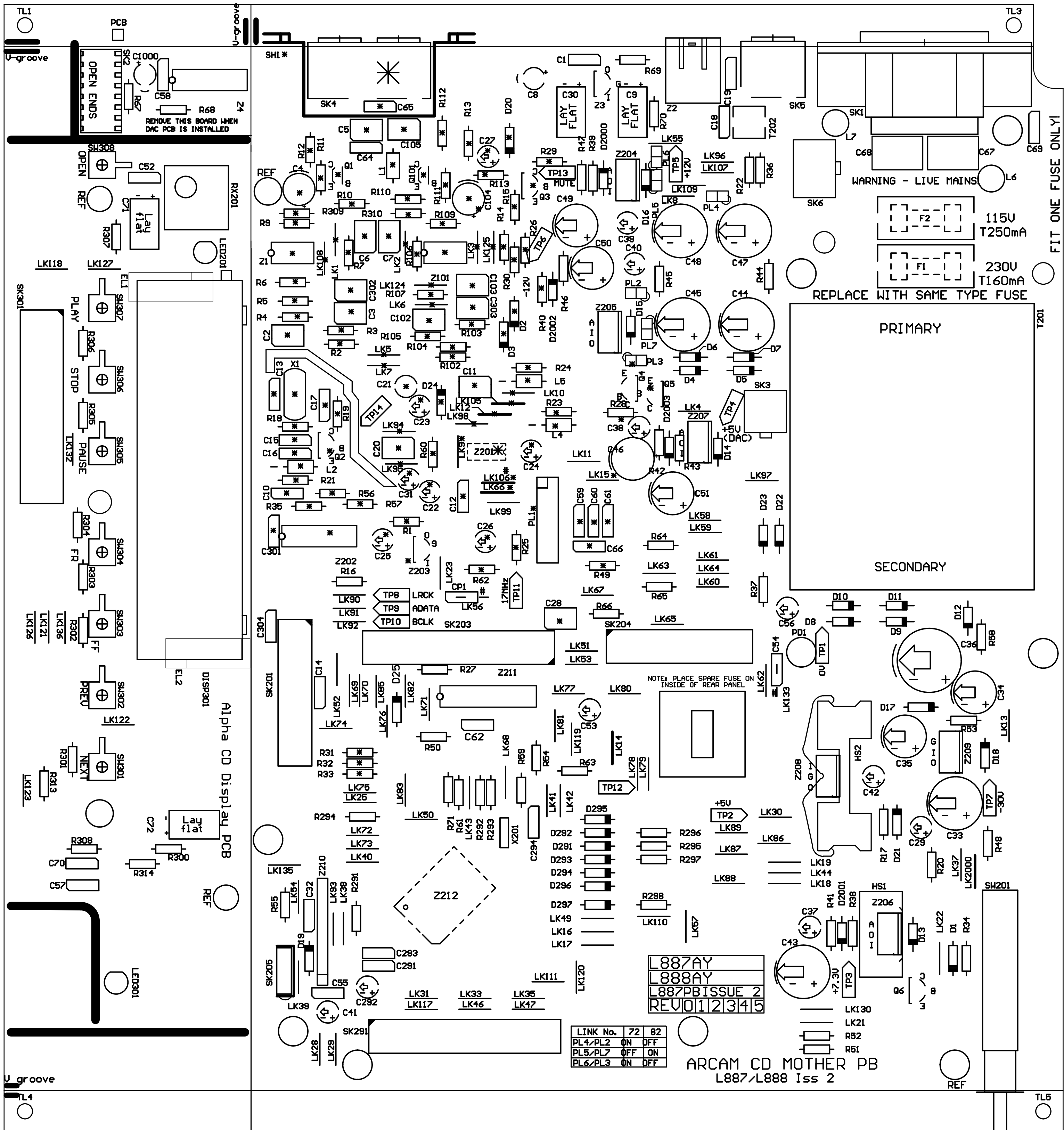
DRAWING TITLE		CW		9-6-01		20		
9 CD DAC Clock								
23425 A & R Cambridge Ltd. Pembroke Avenue Denny Industrial Centre Waterbeach Cambridge CB5 9PB		01_1103		MGM	5/6/01	ADMIN CHANGE SCHEMATIC UPDATED TO LIBRARY TO CHANGE C320 (2C082) TO 500A		
		01_1084		CW	30-4-01	Listening component changes		1.1
		01_1078		CW	1-5-01	Production release		1.0
ECO No.		INITIALS		DATE		DESCRIPTION OF CHANGE		
Filename		Date Printed		Drawn by:		ISSUE		
J:\FILES\ELECT\PCB cd\complete packages\900s\912 New 2000 DA\CL912_2.0\L912_2.0.BDB - L912C8_2.0.SCH		28-Jun-2001		CW 7		Sheet 7 of 8 DRAWING NO. L912CT		



DRAWING TITLE		CW		9-6-01		2.0	
9 CD DAC Re-clocking & PMD200							
23425 A & R Cambridge Ltd. Pembroke Avenue Denny Industrial Centre Waterbeach Cambridge CB5 9PB		Circuit Diagram Notes:					
		01_1084	CW	30-4-01	Listening component changes		1.1
		01_1078	CW	1-5-01	Production release		1.0
ECO No.	INITIALS	DATE	DESCRIPTION OF CHANGE				ISSUE
		Date Printed 28-Jun-2001	Drawn by: CW 7	Sheet 8 of 8		DRAWING NO. L912CT	

Filename J:\FILES\ELECT\PCB cdmplete packages\900s\912 New 2000 DA\CL912_2.0L912_2.0.BDB - L912C9_2.0.SCH

L887PB_2.pcb
 Top Overlay
 12-Oct-2000

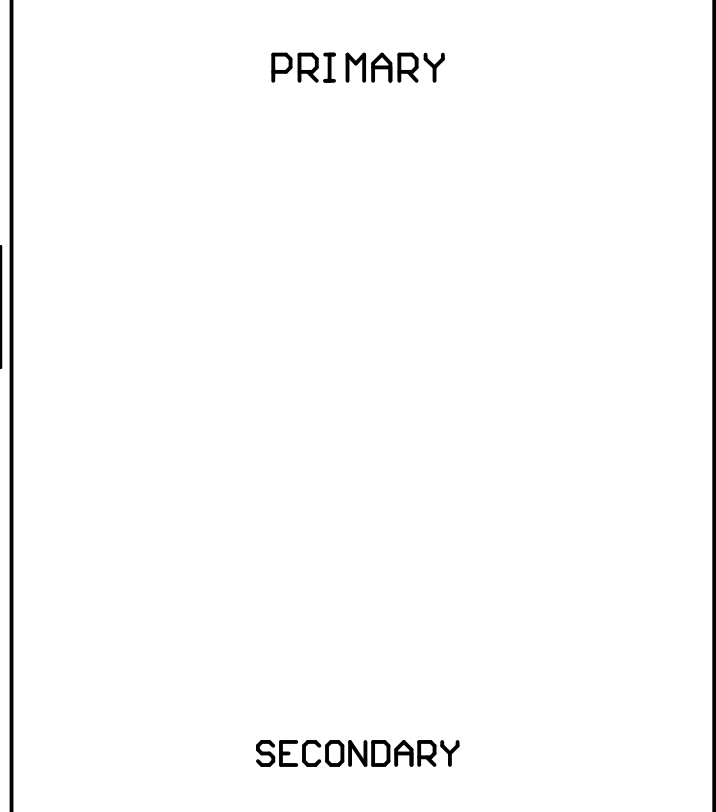


WARNING - LIVE MAINS

115V T250mA

230V T160mA

REPLACE WITH SAME TYPE FUSE



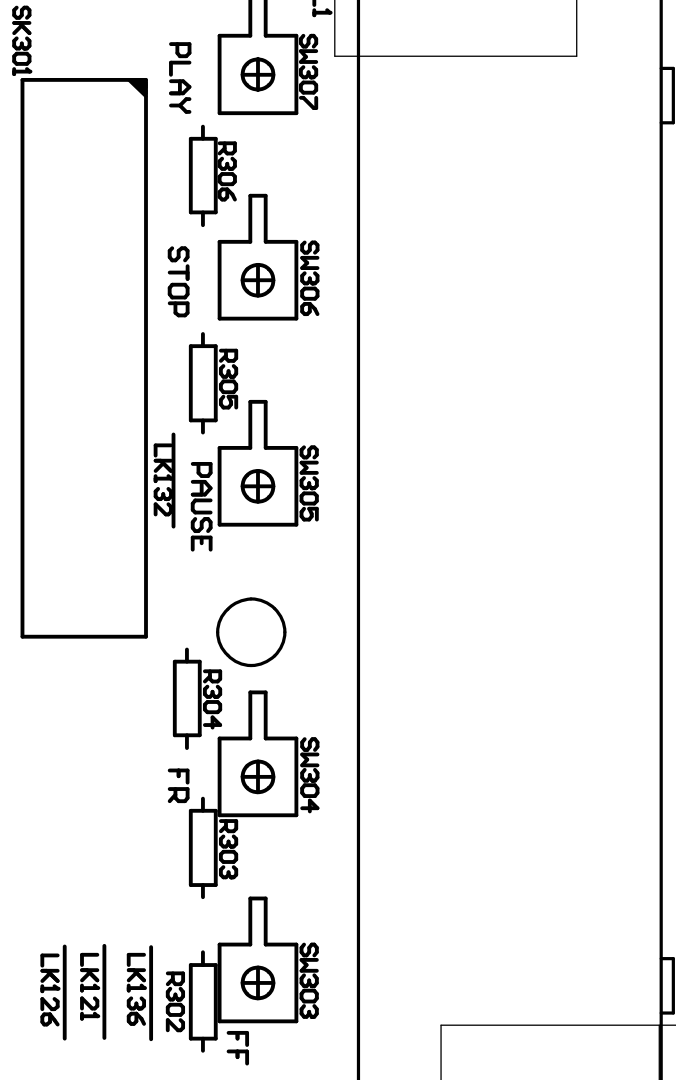
887AY
 888AY
 887PB ISSUE 2
 REV 01123415

LINK No.	72	82
PL4/PL2	ON	OFF
PL5/PL7	OFF	ON
PL6/PL3	ON	OFF

ARCAM CD MOTHER PB
 L887/L888 Iss 2

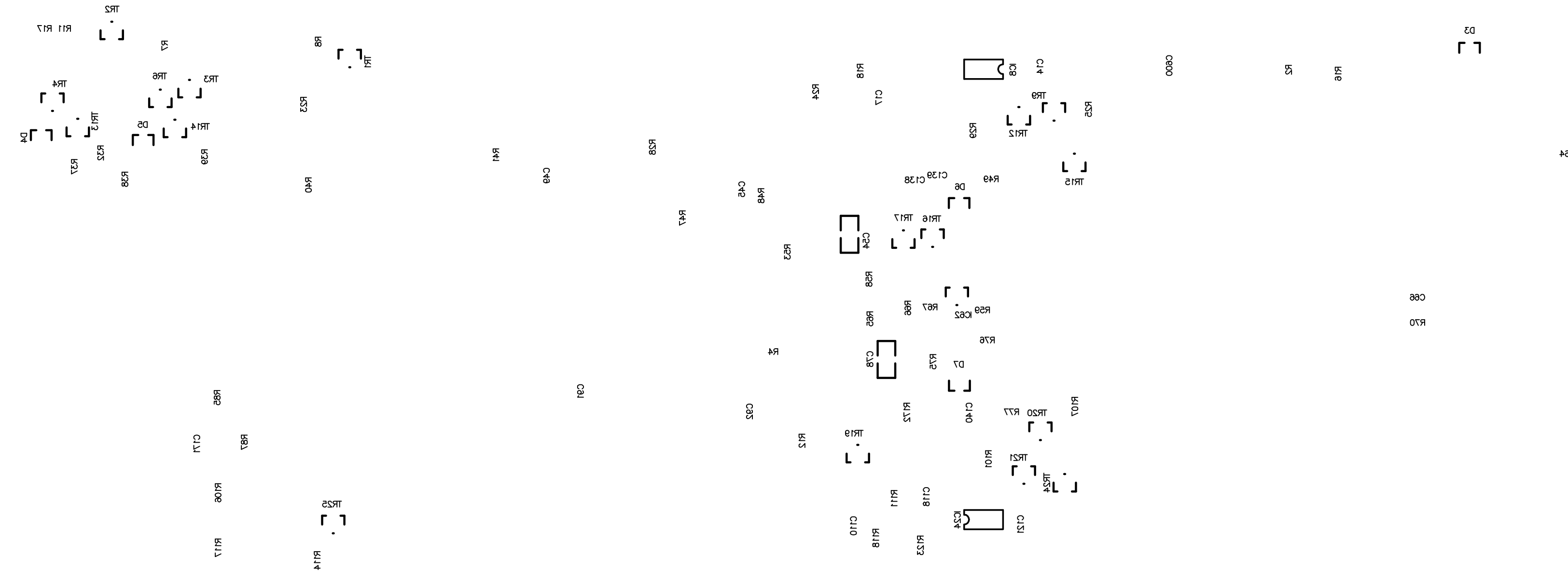
OPEN ENDS

REMOVE THIS BOARD WHEN DAC PCB IS INSTALLED



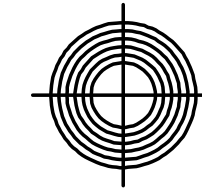
Alpha CD Display PCB

L912PB issue 2
Bottom Overlay



L912PB issue 2

MECHANICAL DATA	
LAYER STACKUP	



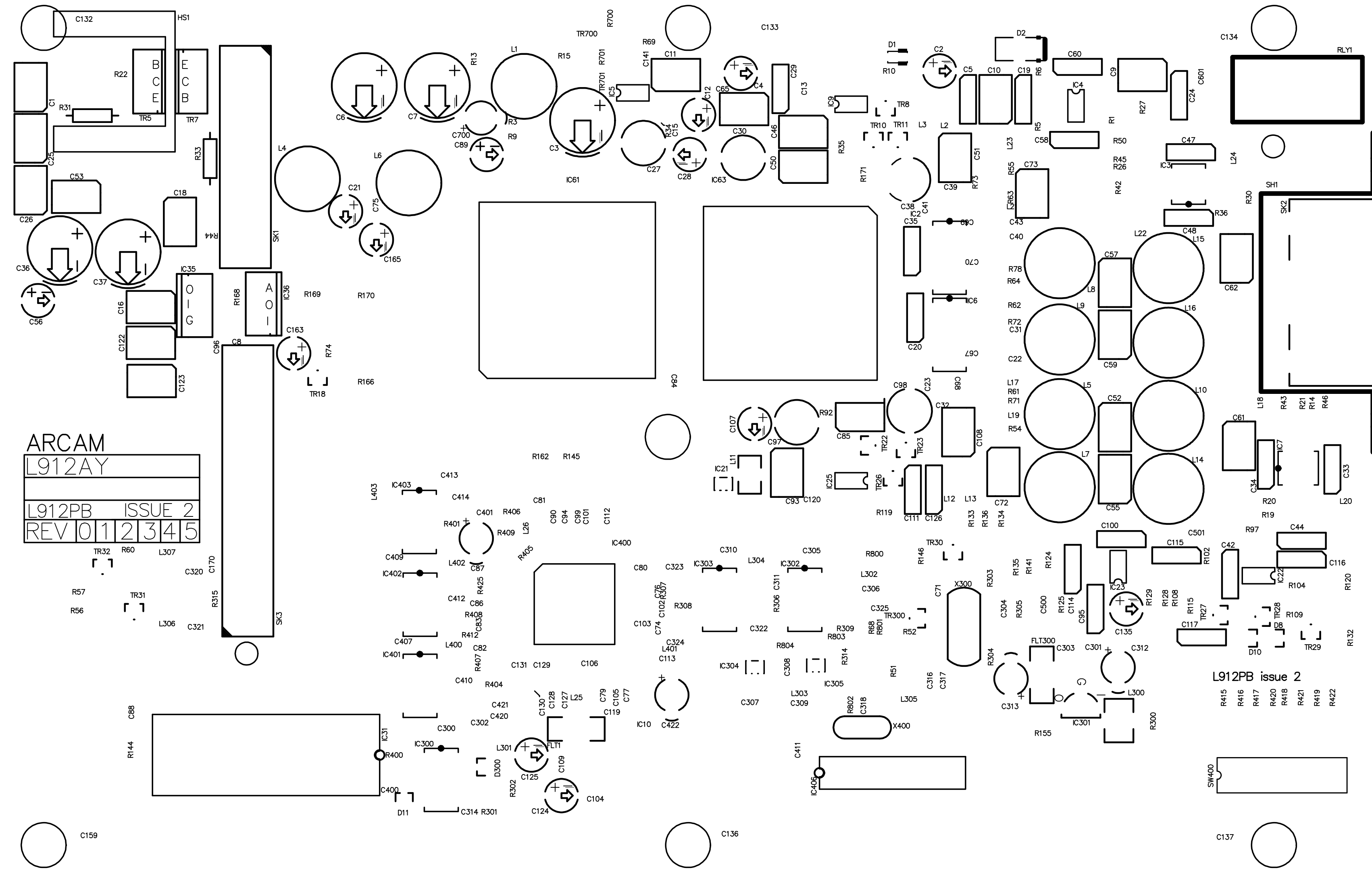
L912PB_2.GBO	Bottom Overlay
--------------	----------------

MATERIAL	FR4
COPPER WEIGHT	1oz
HOLE SIZES	FINISHED (SEE NOTE 2)
ROUTING	SEE NOTE 3
LAYERS	FOUR (SEE NOTE 4)
MINIMUM WIDTH	6 MIL
MINIMUM GAP	7 MIL
RESIST	GREEN (SEE NOTE 5)
IDENT	WHITE
VENDOR CODES	SEE NOTE 6
FINISH	SILVER
SCORING	SEE NOTE 7

NOTES:- 1/ Manufacture in accordance with IPC-A-600F Class 1. 2/ Always use NC drill file as reference. 3/ All routing 2.0mm unless otherwise shown on drill drawing. 4/ Pre-preg between layers 1&2 and 3&4. 5/ Photo image resist. 6/ Mark month/year of manufacture on ident layer. 7/ Scoring denoted by ->>>- on drill drawing.
GENERAL TOLERANCES PCB Dims. +/- 0.2mm Routing +/- 0.1mm All holes +/-0.08mm ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED

DRAWING TITLE RING DAC PCB Bottom Overlay						
Filename: L912PB_2.pcb						
ARCAM A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9PB	DRAWING NO. L912PB	CL	08/06/01	SERVO CHANGES	2	
	E.C.O. No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE	
Contact Engineer: CHRIS WOOLRYCH		Contact Tel: +44 (0) 1223 203271		Printed: 13-Jan-2001		Sheet 12 of 12

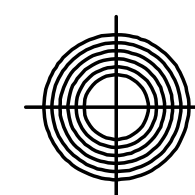
L912PB issue 2
Top Overlay



ARCAM
L912AY
L912PB ISSUE 2
REV 0112345

L912PB issue 2

MECHANICAL DATA	
LAYER STACKUP	
L912PB_2.GTO	Top Overlay



MATERIAL	FR4
COPPER WEIGHT	1oz
HOLE SIZES	FINISHED (SEE NOTE 2)
ROUTING	SEE NOTE 3
LAYERS	FOUR (SEE NOTE 4)
MINIMUM WIDTH	6 MIL
MINIMUM GAP	7 MIL
RESIST	GREEN (SEE NOTE 5)
IDENT	WHITE
VENDOR CODES	SEE NOTE 6
FINISH	SILVER
SCORING	SEE NOTE 7

NOTES:-
 1/ Manufacture in accordance with IPC-A-600F Class 1.
 2/ Always use NC drill file as reference.
 3/ All routing 2.0mm unless otherwise shown on drill drawing.
 4/ Pre-preg between layers 1&2 and 3&4.
 5/ Photo image resist.
 6/ Mark month/year of manufacture on ident layer.
 7/ Scoring denoted by →→→ on drill drawing.

GENERAL TOLERANCES
 PCB Dims. +/- 0.2mm
 Routing +/- 0.1mm
 All holes +/- 0.08mm
 ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED

DRAWING TITLE		RING DAC PCB Top Overlay				
 A & R Cambridge Ltd. Pembroke Avenue Waterbeach Cambridge CB5 9PB	Filename: L912PB_2.pcb		CL	08/06/01	SERVO CHANGES	2
	DRAWING NO.		KAL	20-04-01	RING DAC FOOTPRINT MODIFIED	1
Contact Engineer: CHRIS WOOLRYCH		E.C.O. No.	INITIALS	DATE	DESCRIPTION OF CHANGE	ISSUE
Contact Tel: +44 (0) 1223 203271		Printed: 13-Jan-2001		Sheet 5 of 12		

CD72 Main Board L887_2.0

Reference	Description	Part Number
C1	CERD 10N 63V -20% +80% RA	2A310
C2	PPRO 470P 63V 5% RA	2D147N
C3	PPRO 1N3 63V 5% RA	2D213N
C4	ELEC 10U 25V CERAFINE	2P610CC
C5	PPRO 1N0 5% 63V RA	2D210
C6,C7	PPRO 680P 5% 63V RA	2D168
C9	ELST 100U 25V	2N710
C10	CERD 1N0 63V 20% RA	2A210
C11	PPRO 680P 5% 63V RA	2D168
C12	CERD 10N 63V -20% +80% RA	2A310
C13,C14	CERD 33P 63V 20% RA	2A033
C15,C16	CERD 100P 63V	2A110
C17-C19	CERD 10N 63V -20% +80% RA	2A310
C20	PPRO 680P 5% 63V RA	2D168
C21	ELST NON POLAR 10UF 35V	2U610
C22-C24	ELST 100U 25V	2N710
C25	ELST 22U 20V OSCON	2P622
C26	ELST 100U 25V	2N710
C27	ELST 10U 50V	2N610
C28	PPRO 1N0 5% 63V RA	2D210
C29	ELST 100U 25V	2N710
C30	ELST 22U 63V	2N622
C31	ELST 10U 50V	2N610
C32	CERD 10N 63V -20% +80% RA	2A310
C33	ELST 1M0 25V	2N810
C34,C35	ELST 100U 100V	2N710B
C36	ELST 3M3 25V	2N833
C37	ELST 10U 50V	2N610
C38	ELST 100U 25V ZA RUBYCON	2P710ZA
C39-C42	ELST 100U 25V	2N710
C43	ELST 1M0 25V	2N810
C44,C45	ELST 1M0 35V	2N810C
C46	ELEC 22U 25V SILMIC	2P622AS
C47,C48	ELST 1M0 35V	2N810C
C49,C50	ELST 470U 25V RA	2N747
C51	ELST 1M0 25V	2N810
C52	CERD 10N 63V -20% +80% RA	2A310
C53	ELST 22U 20V OSCON	2P622
C54,C55	CERD 10N 63V -20% +80% RA	2A310
C56	ELST 47 35V	2N647
C57	CERD 10N 63V -20% +80% RA	2A310
C58	CERD 100N 63V -20% +80% RA	2A410
C59,C61	CERD 22P 63V 20% RA	2A022
C62	CERD 100P 63V	2A110
C64	CERD 100N 63V -20% +80% RA	2A410
C65	CERD 1N0 63V 20% RA	2A210
C66	CERD 10P 63V 20% RA	2A010
C67,C68	SUPPR CAP 3N3 250V	2K233
C69	CERD 10N 63V -20% +80% RA	2A310
C70	CERD 100N 63V -20% +80% RA	2A410
C71,C72	ELST 10U 50V	2N610
C102	PPRO 470P 63V 5% RA	2D147N
C103	PPRO 1N3 63V 5% RA	2D213N
C104	ELEC 10U 25V CERAFINE	2P610CC
C105	PPRO 1N0 5% 63V RA	2D210
C291	CERD 47N 63V -20% +80% RA	2A347
C292	ELST 100U 25V	2N710
C293,C294	CERD 47N 63V -20% +80% RA	2A347
C301	CERD 10N 63V -20% +80% RA	2A310
C302	PPRO 470P 63V 5% RA	2D147N

C303	PPRO 470P 63V 5% RA	2D147N
C304	CERD 1N0 63V 20% RA	2A210
C1000	ELST 10U 50V	2N610
D1-D3	SSDIODE 1N4148 75V	3A4148
D4-D11	ULTRAFast RECTIFIER DIODE UF4003 1A	3B4003F
D12-D16	RECTIFIER 1N4003F 1A 200V	3B4003
D17	ZENER 15V 400MW	3C11504
D18	ZENER 7V5 400MW	3C07504
D19,D20	ZENER 4V7 400MW	3C04704
D21	SSDIODE 1N4148 75V	3A4148
D22,D23	RECTIFIER 1N4003F 1A 200V	3B4003
D24,D25	SSDIODE 1N4148 75V	3A4148
D291,D297	SSDIODE 1N4148 75V	3A4148
D2000-D2003	RECTIFIER 1N4003F 1A 200V	3B4003
DISP301	DISPLAY ALPHA 7/8/9 (SONY)	B1008
EL1,EL2	2000 RANGE DISPLAY SUPPORT	E874PM
ET1	EARTH LEAD	8M101
F1	FUSE 20mm 160mA T S504160mA	C11166
F1	INS COVER PCB FUSEHOLDER	F022
F1,F2	FUSEHOLDER 20mm PCB	8S004
F2	INS COVER PCB FUSEHOLDER	F022
HS1	HEATSINK TO220 CLIP 30	F007
HS2	HEATSINK CLIP TO220 13/8.6 DC/W	F006
HS2	HEATSINK TO220 8.6 DEGC/W	F008
JP2000-JP2005	JUMPER SOCKET 0.1"	8K004
L1,L2	FERRITE BEAD SINGLE AXIAL TAPED 2K BOX	7F003
L4,L5	33UH IND 34-48330	7D033
L6,L7	6U8H INDUCTOR	7D968A
LED201	LED ULTRARED 5MM	3D003
PCB	PRINTED CIRCUIT BOARD	L887PB 2
PL1	16 WAY DIL PIN HEADER	8K6316
PL2-PL7	2WAY MOLEX VERT MALE CONNECTOR	8K6201
Q1	TRANS LF MP N FST239	4B239
Q2-Q6	TRANS LF SS N BC547B	4A547
Q101	TRANS LF MP N FST239	4B239
R1	RES MF W4 120R 1%	1H112
R2	RES MF W4 3K3 1%	1H233
R3	RES MF W4 1K6 1%	1H216
R4-R6	RES MF W4 3K3 1%	1H233
R7	RES MF W4 2K2 1%	1H222
R9	RES MF W4 1% 6K8	1H268
R10	RES MF W4 22K 1%	1H322
R11	RES MF W4 120R 1%	1H112
R12	RES MF W4 22R 1%	1H022
R13	RES MF W4 1K2 1%	1H212
R14,R15	RES MF W4 10K 1%	1H310
R16	RES MF W4 330R 1%	1H133
R17	RES MF W4 10K 1%	1H310
R18,R19	RES MF W4 33K 1%	1H333
R20	RES MF W4 22R 1%	1H022
R21	RES MF W4 1K0 1%	1H210
R22	RES MF W4 390R 1%	1H139
R23	RES MF W4 120R 1%	1H112
R24	RES MF FU W3 10R 5% NFR25	1G010
R25	RES MF W4 120R 1%	1H112
R26	RES MF W4 1% 68K	1H368
R27	RES MF W4 100K 1%	1H410

R28	RES MF W4 10K 1%	IH310
R29	RES MF W4 1% 560R	IH156
R30,R34	RES MF W4 10K 1%	IH310
R35	RES MF W4 4M7 1%	IH547
R36	RES MF W4 1K5 1%	IH215
R37	RES MF FU W3 10R 5% NFR25	1G010
R38	RES MF W4 330R 1%	IH133
R39,R40	RES MF W4 220R 1%	IH122
R41	RES MF W4 1K6 1%	IH216
R42	RES MF W4 1K0 1%	IH210
R43	RES MF W4 330R 1%	IH133
R44,R45	RES MF FU W3 1R0 5% NFR25	1G810
R46,R47	RES MF W4 1% 1K8	IH218
R48	RES MF FU W3 10R 5% NFR25	1G010
R49	RES MF W4 68R 1%	IH068
R50	RES MF W4 100K 1%	IH410
R51,R52	RES MF FU W3 22R 5% NFR25	1G022
R53	RES MF W4 33K 1%	IH333
R54	RES MF W4 330R 1%	IH133
R55	RES MF W4 1K2 1%	IH212
R56,R57	RES MF W4 330R 1%	IH133
R58	RES MF FU W3 10R 5% NFR25	1G010
R59	RES MF W4 330R 1%	IH133
R60	RES MF W4 10K 1%	IH310
R61	RES MF W4 8K2 1%	IH282
R62	RES MF W4 220R 1%	IH122
R63	RES MF W4 33K 1%	IH333
R64,R65	RES MF FU W3 10R 5% NFR25	1G010
R66	RES MF W4 220R 1%	IH122
R67	RES MF W4 1% 47R	IH047
R68	RES MF W4 330R 1%	IH133
R69	RES MF W4 8K2 1%	IH282
R70	RES MF FU W3 470R 5% NFR25	1G147
R71	RES MF W4 8K2 1%	IH282
R102	RES MF W4 3K3 1%	IH233
R103	RES MF W4 1K6 1%	IH216
R104- R106	RES MF W4 3K3 1%	IH233
R107	RES MF W4 2K2 1%	IH222
R109	RES MF W4 1% 6K8	IH268
R110	RES MF W4 22K 1%	IH322
R111	RES MF W4 120R 1%	IH112
R112	RES MF W4 22R 1%	IH022
R113	RES MF W4 1K2 1%	IH212
R291	RES MF FU W3 3R3 5% NFR25	1G833
R292,R29 3	RES MF W4 8K2 1%	IH282
R294	RES MF W4 1K0 1%	IH210
R295- R298	RES MF W4 10K 1%	IH310
R300	RES MF W4 1% 10R	IH010
R301	RES MF W4 33K 1%	IH333
R302	RES MF W4 12K 1%	IH312
R303	RES MF W4 5K6 1%	IH256
R304	RES MF W4 3K3 1%	IH233
R305	RES MF W4 2K2 1%	IH222
R306	RES MF W4 1K5 1%	IH215
R307	RES MF W4 1K2 1%	IH212
R308	RES MF W4 8K2 1%	IH282
R309,R31 0	RES MF W4 1% 680R	IH168
R313	RES MF W4 8K2 1%	IH282
R314	RES MF W4 220R 1%	IH122

RX201	REMOTE CONTROL RECEIVER SBX1610-62 38KHZ	B2103
SH1	PHONO EMC SHIELD	E808MC
SK1	COPPER RIVET TCP/D48 BS	HP007
SK1	COPPER RIVET TCP/D48 BS	HP007
SK1	IEC MAINS CONN PCB INS PX	8A001
SK2	8+8 WAY FEMALE HORIZ SKT	8K6416
SK4	PHONO SKT 2-WAY HOR EMC GOLD	8D230
SK5	PHONO SKT SINGLE EMC	8D220
SK201	23-WAY FFC C ONN VERT	8K8023
SK203	32-WAY FFC C ONN VERT	8K8032
SK204	23-WAY FFC C ONN VERT	8K8023
SK205	5-WAY AMP CT CONN	8K2005
SK291	32-WAY FFC C ONN VERT	8K8032
SK301	32-WAY FFC C ONN HORIZ	8K8132
SW201	SW PUSH 4PCO PBT	A1014
SW301	TACT SWITCH 2-PIN LOW PROF	A1504
SW302- SW308	TACT SWITCH 2-PIN LOW PROF	A1504
T201	9 CD COOL FRAME TRANFS MULTI-VOLTAGE	L866TX
T202	DIGITAL OUTPUT COUPLER K	7E015
X1	CRYSTAL 16.9344MHz PARALLEL	7X012
X201	CER RESON 4.00MHz	7W005
Z1	IC OPAMP DUAL NJM2114D	5B2114
Z2	OPTO TRANSMITTER TOSLINK TOTX173	5T173T
Z3	IC VREG POS 78L05	5D78L05
Z4	IC HCMOS 74HC14	5J7414
Z101	IC OPAMP DUAL NJM2114D	5B2114
Z201	24 bit DAC	5G1716
Z202	IC HCMOS 74HCU04	5J7404
Z203	IC VREG POS 78L05	5D78L05
Z204	IC VREG POS LM317T	5D317T
Z205	IC VREG POS LM337T	5D337
Z206	IC VREG LM1086CT-ADJ	5D1086A
Z207	IC VREG POS LM317T	5D317T
Z208	IC VREG POS 7805	5D7805
Z209	IC VREG NEG 7915	5D7915
Z210	IC MOTOR DRIVER LB1641	5Q1641
Z211	IC SOCKET 18 PIN 0.3"	8S018
Z211	IC CMOS MICRO PIC16C54XT/P	5HI6C54 X
Z212	IC CD CXP826P16Q MICRO	5G826

CD92 Main Board L888_2.0

(Used on Alpha9, and non text CD92, CD23 models)

Reference	Description	Part Number
C1	CERD 10N 63V -20% +80% RA	2A310
C9	ELST 100U 25V	2N710
C14	CERD 33P 63V 20% RA	2A033
C18	CERD 10N 63V -20% +80% RA	2A310
C19	CERD 10N 63V -20% +80% RA	2A310
C29	ELST 100U 25V	2N710
C30	ELST 22U 63V	2N622
C32	CERD 10N 63V -20% +80% RA	2A310
C33	ELST 1M0 25V	2N810
C34	ELST 100U 100V	2N710B
C35	ELST 100U 100V	2N710B
C36	ELST 3M3 25V	2N833
C37	ELST 10U 50V	2N610
C38	ELST 100U 25V ZA RUBYCON	2P710ZA
C41	ELST 100U 25V	2N710
C42	ELST 100U 25V	2N710
C43	ELST 1M0 25V	2N810
C44	ELST 1M0 35V	2N810C
C45	ELST 1M0 35V	2N810C
C46	ELST 1M0 25V	2N810
C49	ELST 470U 25V RA	2N747
C50	ELST 470U 25V RA	2N747
C51	ELST 1M0 25V	2N810
C52	CERD 10N 63V -20% +80% RA	2A310
C53	ELST 22U 20V OSCON	2P622
C54	CERD 10N 63V -20% +80% RA	2A310
C55	CERD 10N 63V -20% +80% RA	2A310
C56	ELST 47 35V	2N647
C57	CERD 10N 63V -20% +80% RA	2A310
C62	CERD 100P 50V -20% +80% RA	2A110
C67	SUPPR CAP 3N3 250V	2K233
C68	SUPPR CAP 3N3 250V	2K233
C69	CERD 10N 63V -20% +80% RA	2A310
C70	CERD 100N 63V -20% +80% RA	2A410
C71	ELST 10U 50V	2N610
C72	ELST 10U 50V	2N610
C291	CERD 47N 63V -20% +80% RA	2A347
C292	ELST 100U 25V	2N710
C293	CERD 47N 63V -20% +80% RA	2A347
C294	CERD 47N 63V -20% +80% RA	2A347
C301	CERD 10N 63V -20% +80% RA	2A310
C304	CERD 1N0 63V 20% RA	2A210
D1	SSDIODE 1N4148 75V	3A4148
D4-D11	ULTRAFAST RECTIFIER DIODE UF4003 1A	3B4003F
D12-D14	RECTIFIER 1N4003F 1A 200V	3B4003
D17-D19	ZENER 15V 400MW	3C11504
D21	SSDIODE 1N4148 75V	3A4148
D22	RECTIFIER 1N4003F 1A 200V	3B4003
D23	RECTIFIER 1N4003F 1A 200V	3B4003
D25	SSDIODE 1N4148 75V	3A4148
D291-D297	SSDIODE 1N4148 75V	3A4148
D2001	RECTIFIER 1N4003F 1A 200V	3B4003
D2003	RECTIFIER 1N4003F 1A 200V	3B4003
DISP301	DISPLAY ALPHA 7/8/9 (SONY)	B1008
EL1	2000 RANGE DISPLAY SUPPORT	E874PM
EL2	2000 RANGE DISPLAY SUPPORT	E874PM

ET1	EARTH LEAD	8M101
F1	FUSE 20mm 160mA T S504160mA	C11166
F1	FUSEHOLDER 20mm PCB	8S004
F1	INS COVER PCB FUSEHOLDER	F022
F2	INS COVER PCB FUSEHOLDER	F022
F2	FUSEHOLDER 20mm PCB	8S004
F4	FUSE 20mm 160mA T S504160mA	C11166
F4	SPARE FUSEHOLDER	F062
HS1	HEATSINK TO220 CLIP 30	F007
HS2	HEATSINK TO220 8.6 DEGC/W	F008
HS2	HEATSINK CLIP TO220 13/8.6 DC/W	F006
JP2001	JUMPER SOCKET 0.1"	8K004
JP2004	JUMPER SOCKET 0.1"	8K004
L6	6U8H INDUCTOR	7D968A
L7	6U8H INDUCTOR	7D968A
LED201	LED ULTRARED 5MM	3D003
LED301	LED GREEN 3.1MM SLR-37MG3F	3D007
PCB	PRINTED CIRCUIT BOARD	L887PB 2
PL5	2WAY MOLEX VERT MALE CONNECTOR	8K6201
PL7	2WAY MOLEX VERT MALE CONNECTOR	8K6201
Q6	TRANS LF SS N BC547B	4A547
R16	RES MF W4 330R 1%	1H133
R17	RES MF W4 10K 1%	1H310
R20	RES MF W4 22R 1%	1H022
R22	RES MF W4 390R 1%	1H139
R27	RES MF W4 100K 1%	1H410
R34	RES MF W4 10K 1%	1H310
R36	RES MF W4 1K5 1%	1H215
R37	RES MF FU W3 10R 5% NFR25	1G010
R38	RES MF W4 330R 1%	1H133
R41	RES MF W4 1K6 1%	1H216
R42	RES MF W4 1K0 1%	1H210
R43	RES MF W4 330R 1%	1H133
R44	RES MF FU W3 1R0 5% NFR25	1G810
R45	RES MF FU W3 1R0 5% NFR25	1G810
R48	RES MF FU W3 10R 5% NFR25	1G010
R50	RES MF W4 100K 1%	1H410
R51	RES MF FU W3 22R 5% NFR25	1G022
R52	RES MF FU W3 22R 5% NFR25	1G022
R53	RES MF W4 33K 1%	1H333
R54	RES MF W4 330R 1%	1H133
R55	RES MF W4 1K2 1%	1H212
R58	RES MF FU W3 10R 5% NFR25	1G010
R59	RES MF W4 330R 1%	1H133
R61	RES MF W4 8K2 1%	1H282
R63	RES MF W4 33K 1%	1H333
R64	RES MF FU W3 10R 5% NFR25	1G010
R65	RES MF FU W3 10R 5% NFR25	1G010
R69	RES MF W4 8K2 1%	1H282
R70	RES MF FU W3 470R 5% NFR25	1G147
R71	RES MF W4 8K2 1%	1H282

R291	RES MF FU W3 3R3 5% NFR25	1G833
R292	RES MF W4 8K2 1%	1H282
R293	RES MF W4 8K2 1%	1H282
R294- R298	RES MF W4 1K0 1%	1H210
R300	RES MF W4 1% 10R	1H010
R301	RES MF W4 33K 1%	1H333
R302	RES MF W4 12K 1%	1H312
R303	RES MF W4 5K6 1%	1H256
R304	RES MF W4 3K3 1%	1H233
R305	RES MF W4 2K2 1%	1H222
R306	RES MF W4 1K5 1%	1H215
R307	RES MF W4 1K2 1%	1H212
R308	RES MF W4 8K2 1%	1H282
R313	RES MF W4 8K2 1%	1H282
R314	RES MF W4 220R 1%	1H122
RX201	REMOTE CONTROL RECEIVER SBX1610-62 38KHZ	B2103
SK1	COPPER RIVET TCP/D48 BS	HP007
SK1	COPPER RIVET TCP/D48 BS	HP007
SK1	IEC MAINS CONN PCB INS PX	8A001
SK5	PHONO SKT SINGLE EMC	8D220
SK201	23-WAY FFC C ONN VERT	8K8023
SK203	32-WAY FFC C ONN VERT	8K8032
SK204	23-WAY FFC C ONN VERT	8K8023
SK205	5-WAY AMP CT CONN	8K2005
SK291	32-WAY FFC C ONN VERT	8K8032
SK301	32-WAY FFC C ONN HORIZ	8K8132
SW201	SW PUSH 4PCO PBT	A1014
SW301- SW308	TACT SWITCH 2-PIN LOW PROF	A1504
T201	9 CD COOL FRAME TRANFS MULTI-VOLTAGE	L866TX
T202	DIGITAL OUTPUT COUPLER K	7E015
X201	CER RESON 4.00MHz	7W005
Z2	OPTO TRANSMITTER TOSLINK TOTX173	5T173T
Z3	IC VREG POS 78L05	5D78L05
Z206	IC VREG LMI086CT-ADJ	5D1086A
Z207	IC VREG POS LM317T	5D317T
Z208	IC VREG POS 7805	5D7805
Z209	IC VREG NEG 7915	5D7915
Z210	IC MOTOR DRIVER LB1641	5Q1641
Z211	IC CMOS MICRO PIC16C54XT/P	5H16C54 X
Z211	IC SOCKET 18 PIN 0.3"	8S018
Z212	IC CD CXP826P16Q MICRO	5G826

Alpha 9 DAC Board L816

CD92 before serial number C92P02151

CD23 before serial number F23C02426

Reference	Description	Part Number
C1	PPHEN 4N7 50V 2% SM 1206	2G247
C2	ELST 100U 25V	2N710
C3	ELEC 100U 25V CERAFINE	2P710AC
C4	ELST 100U 25V	2N710
C5	PPHEN 4N7 50V 2% SM 1206	2G247
C6	ELEC 100U 25V SILMIC	2P710AS
C7	ELEC 100U 25V SILMIC	2P710AS
C8	MLC 10N 50V X7R 10% SM	2C310
C9	PPHEN 270P 50V 2% SM 0805	2G127
C10	PPHEN 270P 50V 2% SM 0805	2G127
C11	PPHEN 4N7 50V 2% SM 1206	2G247
C12	ELST 100U 25V	2N710
C13	MLC 47P 100V NPO 5% SM	2C047
C14	MLC 47P 100V NPO 5% SM	2C047
C15	MLC 100N 50V X7R 10% SM	2C410
C16	PPHEN 1N0 50V 2% SM 0805	2G210
C17	MLC 100N 50V X7R 10% SM	2C410
C19	PPHEN 100N 50V 2% SM 1812	2G410
C21	ELST 100U 25V	2N710
C22	PPHEN 2N2 50V 2% SM 0805	2G222
C23	PPHEN 2N2 50V 2% SM 0805	2G222
C24	PPHEN 100N 50V 2% SM 1812	2G410
C25	PPHEN 470P 50V 2% SM 0805	2G147
C26	PPHEN 470P 50V 2% SM 0805	2G147
C27	ELST NON POLAR 10UF 35V	2U610
C28	ELEC 22U 25V SILMIC	2P622AS
C29	PPHEN 4N7 50V 2% SM 1206	2G247
C30	ELST NON POLAR 10UF 35V	2U610
C31	PPHEN 47N 50V 2% SM 1812	2G347
C32	PPHEN 10N 50V 2% SM 1206	2G310
C33	PPHEN 2N2 50V 2% SM 0805	2G222
C34	PPHEN 270P 50V 2% SM 0805	2G127
C35	PPHEN 390P 50V 2% SM 0805	2G139
C36	ELST 470U 25V RA	2N747
C37	ELST 470U 25V RA	2N747
C38	ELST NON POLAR 10UF 35V	2U610
C39	PPHEN 2N2 50V 2% SM 0805	2G222
C40	PPHEN 4N7 50V 2% SM 1206	2G247
C41	MLC 56P 100V NPO 5% SM	2C056A
C42	PPHEN 4N7 50V 2% SM 1206	2G247
C43	PPHEN 100P 50V 2% SM 0805	2G110
C44	PPHEN 4N7 50V 2% SM 1206	2G247
C45	MLC 10N 50V X7R 10% SM	2C310
C46	PPHEN 10N 50V 2% SM 1206	2G310
C47	PPHEN 4N7 50V 2% SM 1206	2G247
C49	MLC 10N 50V X7R 10% SM	2C310
C50	PPHEN 4N7 50V 2% SM 1206	2G247
C51	PPHEN 10N 50V 2% SM 1206	2G310
C52	MLC 82P 100V NPO 5% SM	2C082
C53	PPHEN 4N7 50V 2% SM 1206	2G247
C54	MLC 10N 50V X7R 10% SM	2C310
C55	PPHEN 1N0 50V 2% SM 0805	2G210
C56	ELST 100U 25V	2N710
C57	PPHEN 100N 50V 2% SM 1812	2G410
C58-C60	PPHEN 1N0 50V 2% SM 0805	2G210
C61	PPHEN 270P 50V 2% SM 0805	2G127
C62	MLC 82P 100V NPO 5% SM	2C082
C63	PPHEN 390P 50V 2% SM 0805	2G139
C64	PPHEN 100P 50V 2% SM 0805	2G110
C65	PPHEN 10N 50V 2% SM 1206	2G310
C66	MLC 1N0 50V X7R 10% SM	2C210
C67	PPHEN 47N 50V 2% SM 1812	2G347

C68	PPHEN 47N 50V 2% SM 1812	2G347
C69	PPHEN 10N 50V 2% SM 1206	2G310
C71	PPHEN 2N2 50V 2% SM 0805	2G222
C72	PPHEN 2N2 50V 2% SM 0805	2G222
C73	PPHEN 10N 50V 2% SM 1206	2G310
C74	PPHEN 2N2 50V 2% SM 0805	2G222
C75	MLC 10N 50V X7R 10% SM	2C310
C76	PPHEN 270P 50V 2% SM 0805	2G127
C77	PPHEN 390P 50V 2% SM 0805	2G139
C78	MLC 10N 50V X7R 10% SM	2C310
C79	PPHEN 2N2 50V 2% SM 0805	2G222
C80	PPHEN 4N7 50V 2% SM 1206	2G247
C81	PPHEN 4N7 50V 2% SM 1206	2G247
C82	MLC 56P 100V NPO 5% SM	2C056A
C83	PPHEN 100P 50V 2% SM 0805	2G110
C84-C86	PPHEN 4N7 50V 2% SM 1206	2G247
C88	MLC 10N 50V X7R 10% SM	2C310
C89	ELST 100U 25V ZA RUBYCON	2P710ZA
C90	MLC 82P 100V NPO 5% SM	2C082
C91	MLC 10N 50V X7R 10% SM	2C310
C92	MLC 10N 50V X7R 10% SM	2C310
C93	PPHEN 10N 50V 2% SM 1206	2G310
C94	PPHEN 1N0 50V 2% SM 0805	2G210
C95	PPHEN 1N0 50V 2% SM 0805	2G210
C96	ELST 100U 25V	2N710
C97	ELST NON POLAR 10UF 35V	2U610
C98	ELST NON POLAR 10UF 35V	2U610
C99	PPHEN 100N 50V 2% SM 1812	2G410
C100	PPHEN 1N0 50V 2% SM 0805	2G210
C101	PPHEN 1N0 50V 2% SM 0805	2G210
C102	PPHEN 270P 50V 2% SM 0805	2G127
C103	PPHEN 390P 50V 2% SM 0805	2G139
C104	ELST NON POLAR 10UF 35V	2U610
C105	MLC 82P 100V NPO 5% SM	2C082
C106	PPHEN 100P 50V 2% SM 0805	2G110
C107	ELST 100U 25V	2N710
C108	PPHEN 10N 50V 2% SM 1206	2G310
C109	ELST NON POLAR 10UF 16V	2V710
C110	MLC 10N 50V X7R 10% SM	2C310
C111	PPHEN 4N7 50V 2% SM 1206	2G247
C112	PPHEN 47N 50V 2% SM 1812	2G347
C113	PPHEN 10N 50V 2% SM 1206	2G310
C114- C117	PPHEN 100N 50V 2% SM 1812	2G410
C118	MLC 100N 50V X7R 10% SM	2C410
C119	MLC 10N 50V X7R 10% SM	2C310
C120	MLC 47P 100V NPO 5% SM	2C047
C121	MLC 47P 100V NPO 5% SM	2C047
C122	PPHEN 1N0 50V 2% SM 0805	2G210
C124	ELST 10U 50V	2N610
C125	ELST 10U 50V	2N610
C126	PPHEN 4N7 50V 2% SM 1206	2G247
C127	MLC 100N 50V X7R 10% SM	2C410
C132- C134	MLC 10N 50V X7R 10% SM	2C310
C135	ELST 100U 25V	2N710
C136	MLC 100P 100V NPO 5% SM	2C110
C137	MLC 47P 100V NPO 5% SM	2C047
C138	MLC 10N 50V X7R 10% SM	2C310
C139	MLC 82P 100V NPO 5% SM	2C082
C140	MLC 10N 50V X7R 10% SM	2C310
C141	MLC 10N 50V X7R 10% SM	2C310
C142	MLC 47P 100V NPO 5% SM	2C047
C143	MLC 10N 50V X7R 10% SM	2C310
C144	ELST 22U 20V OSCON	2P622
C145	MLC 82P 100V NPO 5% SM	2C082
C146	MLC 10N 50V X7R 10% SM	2C310
C148	MLC 100N 50V X7R 10% SM	2C410
C149	MLC 10N 50V X7R 10% SM	2C310
C150	MLC 47P 100V NPO 5% SM	2C047

C152	MLC 10N 50V X7R 10% SM	2C310
C154	MLC 100N 50V X7R 10% SM	2C410
C156	ELST 100U 25V	2N710
C157- C159	MLC 10N 50V X7R 10% SM	2C310
C160	MLC 100N 50V X7R 10% SM	2C410
C161	ELST 22U 20V OSCON	2P622
C162	MLC 10N 50V X7R 10% SM	2C310
C163	ELST 220U 16V	2N722
C164	MLC 1N0 50V X7R 10% SM	2C210
C165	ELST 10U 50V	2N610
C166- C169	PPHEN 390P 50V 2% SM 0805	2G139
C170	MLC 10N 50V X7R 10% SM	2C310
C171	MLC 10N 50V X7R 10% SM	2C310
C172- C175	PPHEN 390P 50V 2% SM 0805	2G139
D3	DIODE SS SM BAS16W	3AS16W
D4	DIODE SS SM BAV99W	3AV99W
D5	DIODE SS SM BAV99W	3AV99W
D6-D8	DIODE SS SM BAS16W	3AS16W
D9	DIODE SS SM BAV99W	3AV99W
D10	DIODE SS SM BAS16W	3AS16W
HS1	M/C PAN SUPA M3x12 STBK	HA3A12B
HS1	HEATSINK TO220 13 DEGC/W	F002
HS1	M3 NYLOC NUT	HJ3A00F
L1	33UH IND 2A RA 34-62086	7C033
L2	RES SM W4 2% 0R0	1A000
L3	RES SM W4 2% 0R0	1A000
L4	33UH IND 2A RA 34-62086	7C033
L5	10UH IND SM NL322522T- 100J	7B010
L6	33UH IND 2A RA 34-62086	7C033
L7	33UH IND SM 1812 180mA	7B033
L8-L11	10UH IND SM NL322522T- 100J	7B010
L12	RES SM W4 2% 0R0	1A000
L13	RES SM W4 2% 0R0	1A000
L14-L17	2UH2 IND SM NL322522T- 2R2J	7B822
L18	1UH0 IND SM NL322522T- 1R0J	7B810
L19	2UH2 IND SM NL322522T- 2R2J	7B822
L20	33UH IND 2A RA 34-62086	7C033
L21	33UH IND SM 1812 180mA	7B033
PCB	PRINTED CIRCUIT BOARD	L816PB
Q1	TRANS LF SS N SM BC849B	4A849B
Q2	TRANS LF SS N SM BC849B	4A849B
Q3	TRANS LF SS P SM BC859B	4A859B
Q4	TRANS LF SS P SM BC859B	4A859B
Q5	TRANS AUDIO DRIVER N 2SC5248	4B5248
Q6	TRANS LF SS N SM BC849B	4A849B
Q7	TRANS AUDIO DRIVER P 2SA1964	4B1964
Q8	TRANS LF SS N SM BC847B	4A847
Q9	TRANS LF SS N SM BC847B	4A847
Q10	TRANS LF SS P SM BC857B	4A857B
Q11	TRANS LF SS P SM BC857B	4A857B
Q12	TRANS LF SS N SM BC847B	4A847
Q13	TRANS LF SS P SM BC859B	4A859B
Q14	TRANS LF SS N SM BC849B	4A849B
Q15	TRANS LF SS P SM BC857B	4A857B
Q16	TRANS LF SS N SM BC847B	4A847
Q17-Q19	TRANS LF SS N SM BC849B	4A849B
Q20	TRANS LF SS P SM BC857B	4A857B
Q21	TRANS LF SS N SM BC847B	4A847
Q22	TRANS LF SS P SM BC857B	4A857B
Q23	TRANS LF SS P SM BC857B	4A857B

Q24	TRANS LF SS N SM BC847B	4A847
Q25	TRANS LF SS N SM BC849B	4A849B
Q26	TRANS LF SS N SM BC847B	4A847
Q27	TRANS JFET SM MMBFJ113	4JF113
Q28	TRANS JFET SM MMBFJ113	4JF113
Q29	TRANS LF SS P SM BC859B	4A859B
Q30-Q35	TRANS LF SS N SM BC849B	4A849B
R1	RES SM 0805 0.1% 10K	1L310
R2	RES SM 0805 0.1% 22K1	1L2221
R3	RES SM W4 2% 0R0	1A000
R4	RES SM W4 2% 0R0	1A000
R5	RES SM 0805 0.1% 10K	1L310
R6	RES SM 0805 0.1% 10K	1L310
R7	RES SM W4 1% 100R	1A110
R8	RES SM W4 2% 4K7	1A247
R9	RES SM W4 2% 100K	1A410
R10	RES SM W4 1% 150R	1A115
R11	RES SM W4 1% 100R	1A110
R12	RES SM W4 2% 100K	1A410
R13	RES SM W4 2% 100K	1A410
R14	RES SM W4 2% 470R	1A147
R15	RES SM W4 2% 10R	1A010
R16	RES SM W4 1% 220K	1A422
R17	RES SM W4 2% 4K7	1A247
R18	RES SM W4 2% 470R	1A147
R19	RES SM 0805 0.1% 4K12	1L1412
R20	RES SM 0805 0.1% 10K	1L310
R21	RES SM 0805 0.1% 4K12	1L1412
R22	RES SM W4 2% 4K7	1A247
R23	RES SM W4 2% 2K2	1A222
R24	RES SM W4 2% 470R	1A147
R25	RES SM W4 1% 150R	1A115
R26	RES SM 0805 0.1% 2K7	1L227
R27	RES SM 0805 0.1% 10K	1L310
R28	RES SM W4 2% 0R0	1A000
R29	RES SM W4 2% 470R	1A147
R30	RES SM W4 1% 3K3	1A233
R31	RES MF FU W3 100R 5% NFR25	1G110
R32	RES SM W4 1% 10K	1A310
R33	RES MF FU W3 100R 5% NFR25	1G110
R34	RES SM W4 1% 1K5	1A215
R35	RES SM W4 2% 470R	1A147
R36	RES SM W4 2% 1K0	1A210
R37	RES SM W4 1% 10K	1A310
R38	RES SM W4 1% 1K5	1A215
R39	RES SM W4 1% 11K	1A311
R40	RES SM W4 2% 10R	1A010
R41	RES SM W4 2% 10R	1A010
R42	RES SM W4 1% 15R	1A015
R43	RES SM W4 2% 10R	1A010
R44	RES SM W8 6K8 1%	1A268A
R45	RES SM W4 1% 62R	1A062
R46	RES SM 0805 0.1% 2K7	1L227
R47-R49	RES SM W4 2% 15K	1A315
R50	RES SM W4 1% 15R	1A015
R51	RES SM W4 2% 10R	1A010
R52	RES SM 0805 0.1% 10K	1L310
R53	RES SM W4 2% 15K	1A315
R54	RES SM W4 2% 1K0	1A210
R55	RES SM W4 1% 62R	1A062
R56	RES SM W4 1% 3K3	1A233
R57	RES SM W4 1% 47R	1A047
R58	RES SM W4 2% 4K7	1A247
R59	RES SM W4 1% 1K5	1A215
R60	RES SM 0805 0.1% 4K12	1L1412
R61	RES SM 0805 0.1% 2K7	1L227
R62	RES SM 0805 0.1% 10K	1L310
R63	RES SM 0805 0.1% 4K12	1L1412
R64	RES SM W4 1% 22K	1A322

R65	RES SM W4 1% 1K5	1A215
R66	RES SM W4 1% 10K	1A310
R67	RES SM W4 2% 1K0	1A210
R68	RES SM 0805 0.1% 2K7	1L227
R69	RES SM 0805 0.1% 2K7	1L227
R70	RES SM W4 2% 10R	1A010
R71	RES SM W4 1% 3K3	1A233
R72	RES SM W4 2% 1K0	1A210
R73	RES SM W4 1% 47R	1A047
R74	RES SM W4 2% 100K	1A410
R75	RES SM W4 2% 1K0	1A210
R76	RES SM W4 2% 0R0	1A000
R77	RES SM W4 2% 15K	1A315
R78	RES SM W4 1% 15R	1A015
R79	RES SM W4 2% 10R	1A010
R80	RES SM W4 1% 22K	1A322
R81	RES SM W4 2% 0R0	1A000
R82	RES SM W4 2% 1K0	1A210
R83	RES SM W4 1% 62R	1A062
R84	RES SM 0805 0.1% 2K7	1L227
R86	RES SM W4 2% 100K	1A410
R87	RES SM W4 2% 1K0	1A210
R88	RES SM W4 1% 15R	1A015
R89	RES SM W4 2% 10R	1A010
R90	RES SM 0805 0.1% 10K	1L310
R91	RES MF W4 1% 220R	1H122
R92	RES SM W4 2% 470R	1A147
R93	RES SM W4 2% 1K0	1A210
R94	RES SM W4 1% 62R	1A062
R95	RES SM 0805 0.1% 2K7	1L227
R96	RES SM W4 1% 3K3	1A233
R97	RES SM W4 1% 2M2	1A522
R98	RES SM W4 1% 39K	1A339
R99	RES SM W4 2% 100K	1A410
R100	RES SM W4 1% 1K5	1A215
R101	RES SM W4 2% 470R	1A147
R102	RES SM W4 1% 10K	1A310
R103	RES SM 0805 0.1% 2K7	1L227
R104	RES SM W4 1% 2M2	1A522
R105	RES SM W4 2% 1K0	1A210
R107	RES SM W4 1% 150R	1A115
R108	RES SM 0805 0.1% 10K	1L310
R109	RES SM W4 1% 10K	1A310
R111	RES SM W4 2% 10R	1A010
R112- R114	RES SM W4 2% 100K	1A410
R115	RES SM W4 1% 220K	1A422
R116	RES SM W4 1% 1K5	1A215
R117	RES SM W4 2% 1K0	1A210
R118	RES SM W4 2% 470R	1A147
R119	RES SM W4 1% 150R	1A115
R120	RES SM W4 1% 10K	1A310
R121	RES SM W4 1% 10K	1A310
R122	RES SM W4 2% 470R	1A147
R123	RES SM W4 2% 470R	1A147
R124	RES SM 0805 0.1% 10K	1L310
R125	RES SM 0805 0.1% 10K	1L310
R126	RES SM W4 1% 1M0	1A510
R128	RES SM 0805 0.1% 22K1	1L2221
R129	RES SM 0805 0.1% 10K	1L310
R132	RES SM W4 2% 100K	1A410
R133	RES SM W4 1% 1K5	1A215
R134	RES SM W4 2% 1K0	1A210
R135	RES SM W4 2% 1K0	1A210
R136	RES SM W4 1% 1K5	1A215
R137	RES SM W4 2% 470R	1A147
R138	RES SM W4 2% 470R	1A147
R140	RES SM W4 2% 1K0	1A210
R141	RES SM W4 1% 100R	1A110
R142	RES SM W4 2% 4K7	1A247
R144	RES SM W4 2% 0R0	1A000

R145	RES SM W4 2% 15K	1A315
R146	RES SM W4 2% 1K0	1A210
R147	RES SM W4 1% 220R	1A122
R148	RES SM W4 1% 220R	1A122
R149	RES SM W4 2% 470R	1A147
R150	RES SM W4 1% 220R	1A122
R151	RES SM W4 1% 10K	1A310
R152	RES SM W4 2% 10R	1A010
R153	RES SM W4 2% 4K7	1A247
R154	RES SM W4 2% 10R	1A010
R155	RES SM W4 2% 1K0	1A210
R156	RES SM W4 2% 4K7	1A247
R157	RES SM W4 2% 1K0	1A210
R158	RES SM W4 2% 1K0	1A210
R159	RES SM W4 1% 47R	1A047
R160	RES SM W4 1% 5K6	1A256
R161	RES SM W4 1% 10K	1A310
R162	RES SM W4 2% 15K	1A315
R164	RES SM W4 1% 100R	1A110
R166	RES SM W4 2% 4K7	1A247
R167	RES SM W4 2% 15K	1A315
R168	RES SM W8 220R 1%	1A122A
R169	RES SM W8 2K7 1%	1A227A
R170	RES SM W8 2K7 1%	1A227A
R171	RES SM W4 1% 2M2	1A522
R172	RES SM W4 1% 2M2	1A522
R173- R180	RES SM W4 1% 100R	1A110
RLY1	RELAY 960 OHM 51SB12T	A205
SH1	PHONO EMC SHIELD	E821MC
SK1	23-WAY FFC CONN VERT	8K8023
SK2	PHONO SKT 4-WAY EMC GOLD	8D225
SK3	32-WAY FFC CONN VERT	8K8032
SK4	HEADER 2x8-WAY 0.1" PCB	8K698X2
SK5	HEADER 2x8-WAY 0.1" PCB	8K698X2
U1	IC HCMOS SM 74HC00	5K7400
U2	IC OPAMP SM AD797AR	5B797
U3	IC OPAMP SM AD797AR	5B797
U4	IC AUDIO DUAL SM OP275	5B275S
U5	IC OPAMP SM OP27	5B027S
U6	IC OPAMP SM AD797AR	5B797
U7	IC AUDIO DUAL SM OP275	5B275S
U8	IC OPAMP SM AD797AR	5B797
U9	IC AUDIO DUAL EL2244	5B2244
U10	IC AUDIO DUAL EL2244	5B2244
U11	IC CMOS FPGA ATT2C002	5R2C002
U12	IC VREF POS ZRB500F01 SOT32 1%	5D500
U13	IC ASIC SUPER-DAC	5XDSY1
U14	IC OPAMP SM AD797AR	5B797
U15	IC AUDIO DUAL SM OP275	5B275S
U16	IC CMOS HDCD DIG FILTER PMD-100	5G100
U17	IC OPAMP SM AD797AR	5B797
U18	IC AUDIO DUAL EL2244	5B2244
U19	IC AUDIO DUAL EL2244	5B2244
U20	IC COMPARATOR SM DUAL LM393A	5M393AD
U21	IC AHC SN74AHC1G00	5KA100
U22	IC AUDIO SM DUAL TL072	5B072D
U23	IC AUDIO DUAL SM OP275	5B275S
U24	IC OPAMP SM AD797AR	5B797
U25	IC OPAMP SM AD797AR	5B797
U26	IC HCMOS SM 74HC04	5K7404
U27	IC AHC SN74AHC1GU04	5KA1U04
U28	IC AHC SN74AHC1GU04	5KA1U04
U29	IC VHCMOS SM 74VHC74MX	5K7474V
U31	IC SOCKET 28 PIN	8S028
U31	IC CMOS EPROM 27C512 120NS	5G27512

U32	IC VHCMOS SM 74VHC74MX	5K7474V
U33	IC VREG POS 78L05	5D78L05
U34	IC VHCMOS SM 74VHC74MX	5K7474V
U35	IC VREG NEG 7905	5D7905
U36	IC VREG POS LM317T	5D317T
X1	CRYSTAL 16.9344MHz PARALLEL	7X012

CD92 DAC Board L912_2.0

CD92 after serial number C92P02150

CD23 after serial number F23C02425

Reference	Description	Part number
C1	PPRO 4N7 63V 5% RA	2D247N
C2	ELST 100U 25V	2N710
C3	ELEC 100U 25V CERAFINE	2P710AC
C4	ELST 100U 25V	2N710
C5	PEST 100N 63V 10%	2K410
C6	ELEC 100U 25V SILMIC	2P710AS
C7	ELEC 100U 25V SILMIC	2P710AS
C9	PPRO 330P 5% 63V RA	2D133
C10	PPRO 330P 5% 63V RA	2D133
C11	PPRO 470P 63V 5% RA	2D147N
C12	ELST 100U 25V	2N710
C13	MLC 47P 100V NPO 5% SM	2C047
C14	MLC 47P 100V NPO 5% SM	2C047
C15	MLC 100N 50V X7R 10% SM	2C410
C16	PPRO 1N0 5% 63V RA	2D210
C17	MLC 100N 50V X7R 10% SM	2C410
C18	PPRO 1N0 5% 63V RA	2D210
C19	PEST 100N 63V 10%	2K410
C20	PEST 100N 63V 10%	2K410
C21	ELST 100U 25V	2N710
C22	MLC 100N 50V X7R 10% SM	2C410
C23	MLC 100N 50V X7R 10% SM	2C410
C24	PEST 100N 63V 10%	2K410
C25	PPRO 470P 63V 5% RA	2D147N
C26	PPRO 470P 63V 5% RA	2D147N
C27	ELST NON POLAR 10UF 35V	2U610
C28	ELEC 22U 25V SILMIC	2P622AS
C29	PEST 100N 63V 10%	2K410
C30	ELST NON POLAR 10UF 35V	2U610
C31	MLC 100N 50V X7R 10% SM	2C410
C32	MLC 100N 50V X7R 10% SM	2C410
C33-C35	PEST 100N 63V 10%	2K410
C36	ELST 470U 25V RA	2N747
C37	ELST 470U 25V RA	2N747
C38	ELST NON POLAR 10UF 35V	2U610
C39-C41	MLC 100N 50V X7R 10% SM	2C410
C42	PEST 100N 63V 10%	2K410
C43	MLC 100N 50V X7R 10% SM	2C410
C44	PEST 100N 63V 10%	2K410
C45	MLC 10N 50V X7R 10% SM	2C310
C46	PPRO 6N8 5% 63V RA	2D268
C47	PEST 100N 63V 10%	2K410
C48	PEST 100N 63V 10%	2K410
C49	MLC 10N 50V X7R 10% SM	2C310
C50	PPRO 4N7 63V 5% RA	2D247N
C51	PPRO 6N8 5% 63V RA	2D268
C52	PPRO 3N3 5% 63V RA	2D233
C53	PPRO 4N7 63V 5% RA	2D247N
C54	MLC 10N 50V X7R 10% 0805	2J310
C55	PPRO 3N3 5% 63V RA	2D233
C56	ELST 100U 25V	2N710
C57	PPRO 3N3 5% 63V RA	2D233
C58	PEST 100N 63V 10%	2K410
C59	PPRO 3N3 5% 63V RA	2D233
C60	PEST 100N 63V 10%	2K410
C61	PPRO 330P 5% 63V RA	2D133
C62	PPRO 330P 5% 63V RA	2D133
C65	PPRO 6N8 5% 63V RA	2D268
C66-C70	MLC 1N0 50V X7R 10% SM	2C210
C71	MLC 82P 50V NPO 5% SM	2C082
C74	MLC 10N 50V X7R 10% 0805	2J310
C75	MLC 10N 50V X7R 10% SM	2C310

C76-C84	MLC 10N 50V X7R 10% 0805	2J310
C85	PPRO 4N7 63V 5% RA	2D247N
C86	MLC 10N 50V X7R 10% 0805	2J310
C87	MLC 10N 50V X7R 10% 0805	2J310
C88	MLC 100N 50V X7R 10% SM	2C410
C89	ELST 100U 25V ZA RUBYCON	2P710ZA
C90	MLC 10N 50V X7R 10% 0805	2J310
C91	MLC 10N 50V X7R 10% SM	2C310
C92	MLC 10N 50V X7R 10% SM	2C310
C93	PPRO 6N8 5% 63V RA	2D268
C94	MLC 10N 50V X7R 10% 0805	2J310
C95	PEST 100N 63V 10%	2K410
C97	ELST NON POLAR 10UF 35V	2U610
C98	ELST NON POLAR 10UF 35V	2U610
C99	MLC 10N 50V X7R 10% 0805	2J310
C100	PEST 100N 63V 10%	2K410
C101- C103	MLC 10N 50V X7R 10% 0805	2J310
C104	MLC 100N 50V X7R 10% SM	2C410
C105	MLC 10N 50V X7R 10% 0805	2J310
C106	MLC 10N 50V X7R 10% 0805	2J310
C107	ELST 100U 25V	2N710
C108	PPRO 6N8 5% 63V RA	2D268
C109	MLC 100N 50V X7R 10% SM	2C410
C110	MLC 10N 50V X7R 10% SM	2C310
C111	PEST 100N 63V 10%	2K410
C112	MLC 10N 50V X7R 10% 0805	2J310
C113	MLC 10N 50V X7R 10% 0805	2J310
C114- C117	PEST 100N 63V 10%	2K410
C118	MLC 100N 50V X7R 10% SM	2C410
C119	MLC 100N 50V X7R 10% SM	2C410
C120	MLC 47P 100V NPO 5% SM	2C047
C121	MLC 47P 100V NPO 5% SM	2C047
C122	PPRO 1N0 5% 63V RA	2D210
C123	PPRO 1N0 5% 63V RA	2D210
C124	ELST 10U 50V	2N610
C125	ELST 10U 50V	2N610
C126	PEST 100N 63V 10%	2K410
C127- C131	MLC 100N 50V X7R 10% 0805	2J410
C132- C134	MLC 1N 50V X7R 10% 0805	2J210
C135	ELST 100U 25V	2N710
C136	MLC 1N 50V X7R 10% 0805	2J210
C137	MLC 1N 50V X7R 10% 0805	2J210
C138	MLC 10N 50V X7R 10% 0805	2J310
C141	MLC 100P 100V NPO 5% 0805	2L110
C159	MLC 10N 50V X7R 10% SM	2C310
C163	ELST 220U 16V	2N722
C164	MLC 1N0 50V X7R 10% SM	2C210
C165	ELST 10U 50V	2N610
C170	MLC 10N 50V X7R 10% SM	2C310
C171	MLC 10N 50V X7R 10% SM	2C310
C300- C311	MLC 100N 50V X7R 10% SM	2C410
C312	ELST 10U 50V	2N610
C313	ELST 22U 20V OSCON	2P622
C314	MLC 100N 50V X7R 10% SM	2C410
C316	MLC 47P 100V NPO 5% SM	2C047
C317	MLC 47P 100V NPO 5% SM	2C047
C318	MLC 100P 50V NPO 5% SM	2C110
C320	MLC 82P 50V NPO 5% SM	2C082
C321	MLC 47P 100V NPO 5% SM	2C047
C400	MLC 100P 50V NPO 5% SM	2C110
C407	MLC 100N 50V X7R 10% SM	2C410
C409- C414	MLC 100N 50V X7R 10% SM	2C410
C420	MLC 10N 50V X7R 10% SM	2C310

C421	MLC 10N 50V X7R 10% SM	2C310
C422	ELST 100U 25V	2N710
C500	MLC 1N 50V X7R 10% 0805	2J210
C501	MLC 1N 50V X7R 10% 0805	2J210
C600	MLC 1N 50V X7R 10% 0805	2J210
C601	MLC 1N 50V X7R 10% 0805	2J210
C700	ELST 10U 50V	2N610
D3	DIODE SS SM BAS16W	3AS16W
D4	DIODE SS SM BAV99W	3AV99W
D5	DIODE SS SM BAV99W	3AV99W
D6	DIODE SS SM BAS16W	3AS16W
D7	DIODE SS SM BAS16W	3AS16W
D8	DIODE SS SM BAS16W	3AS16W
D10	DIODE SS SM BAS16W	3AS16W
D11	DIODE SS SM BAS16W	3AS16W
D300	DIODE SS SM BAV99W	3AV99W
FLT1	EMI FILTER SM NFM61R30T472	7G002
FLT300	EMI FILTER SM NFM61R30T472	7G002
HS1	M3 NYLOC NUT	HJ3A00F
HS1	HEATSINK TO220 13 DEGC/W	F002
HS1	M/C PAN SUPA M3x12 STBK	HA3A12B
IC2	IC CURRENT FEEDBACK DUAL LM6182 SM	5B6182
IC3	IC OPAMP DUAL SM OPA2134PA	5B2134
IC4	IC AUDIO DUAL SM OP275	5B275S
IC5	IC OPAMP SM OP27	5B027S
IC6	IC CURRENT FEEDBACK DUAL LM6182 SM	5B6182
IC7	IC OPAMP DUAL SM OPA2134PA	5B2134
IC8	IC OPAMP SM AD797AR	5B797
IC9	IC OPAMP SM AD797AR	5B797
IC10	IC VREG LMI086CS-3.3	5D10863S
IC21	IC AHC SN74AHC1G00	5KA100
IC22	IC AUDIO SM DUAL TL072	5B072D
IC23	IC AUDIO DUAL SM OP275	5B275S
IC24	IC OPAMP SM AD797AR	5B797
IC25	IC OPAMP SM AD797AR	5B797
IC31	IC SOCKET 28 PIN	8S028
IC31	IC CMOS EPROM 27C512 120NS	5G27512
IC35	IC VREG NEG 7905	5D7905
IC36	IC VREG POS LM317T	5D317T
IC61	IC CMOS FPGA ATT2C002	5R2C002
IC62	IC VREF POS ZRB500F01 SOT32 1%	5D500
IC63	IC ASIC SUPER-DAC	5XDSY1
IC300	IC HCMOS SM 74HCU04	5K7404
IC301	IC VREG POS 78L05	5D78L05
IC302	IC HCMOS SM 74VHC125	5K74125 V
IC303	IC HCMOS SM 74VHC125	5K74125 V
IC304	IC AHC SN74AHC1G00	5KA100
IC305	IC AHC SN74AHC1GU04	5KA1U04
IC400	IC CD DIGITAL FILTER HDCD PMD-200	5G200
IC401	IC VHCMOS SM 74VHC74MX	5K7474V
IC402	IC VHCMOS SM 74VHC74MX	5K7474V
IC403	IC VHCMOS SM 74VHC74MX	5K7474V
IC406	IC CMOS MICRO PIC16C54XT/P	5H16C54 X
IC406	IC SOCKET 18 PIN 0.3"	8S018
L1	33UH IND 2A RA 34-62086	7C033
L2	RES SM W4 2% 0R0	1A000
L3	RES SM W4 2% 0R0	1A000
L4	33UH IND 2A RA 34-62086	7C033

L5	4m7H INDUCTOR	7D247
L6	33UH IND 2A RA 34-62086	7C033
L7-L9	4m7H INDUCTOR	7D247
L10	1m5H INDUCTOR	7D215
L11	10UH IND SM NL322522T- 100J	7B010
L12	RES SM W4 2% 0R0	1A000
L13	RES SM W4 2% 0R0	1A000
L14	1m5H INDUCTOR	7D215
L15	1m5H INDUCTOR	7D215
L16	1m5H INDUCTOR	7D215
L17-L26	FERRITE BD 1206 BL31A700S	7F004
L300	33UH IND SM 1812 180mA	7B033
L301- L304	FERRITE BD 1206 BL31A700S	7F004
L305	10UH IND SM NL322522T- 100J	7B010
L306	2UH2 IND SM NL322522T- 2R2J	7B822
L307	1UH0 IND SM NL322522T- 1R0J	7B810
L400- L403	FERRITE BD 1206 BL31A700S	7F004
PB	PRINTED CIRCUIT BOARD	L912PB 2
R1	RES SM 0805 0 1% 10K	1L310
R2	RES SM 0805 0 1% 22K1	1L2221
R3	RES SM W4 2% 0R0	1A000
R4	RES SM W4 1% 10K 1206	1A310
R5	RES SM 0805 0 1% 10K	1L310
R6	RES SM 0805 0 1% 10K	1L310
R7	RES SM W4 1% 100R 1206	1A110
R8	RES SM W4 2% 4K7	1A247
R9	RES SM W4 2% 100K	1A410
R10	RES SM W4 1% 150R	1A115
R11	RES SM W4 1% 100R 1206	1A110
R12	RES SM W4 1% 10K 1206	1A310
R13	RES SM W4 1% 10K 1206	1A310
R14	RES SM W4 2% 1K0	1A210
R15	RES SM W4 2% 10R	1A010
R16	RES SM W4 1% 220K	1A422
R17	RES SM W4 2% 4K7	1A247
R18	RES SM W4 1% 470R 1206	1A147
R19-R21	RES SM W4 2% 1K0	1A210
R22	RES SM W4 2% 4K7	1A247
R23	RES SM W4 2% 2K2	1A222
R24	RES SM W4 1% 470R 1206	1A147
R25	RES SM W4 1% 150R	1A115
R26	RES SM W4 2% 1K0	1A210
R27	RES SM 0805 0.1% 10K	1L310
R28	RES SM W4 2% 0R0	1A000
R29	RES SM W4 1% 470R 1206	1A147
R30	RES SM W4 2% 1K0	1A210
R31	RES MF FU W3 100R 5% NFR25	1G110
R32	RES SM W4 1% 10K 1206	1A310
R33	RES MF FU W3 100R 5% NFR25	1G110
R34	RES SM W4 1% 1K5 1206	1A215
R35	RES SM W4 1% 470R 1206	1A147
R36	RES SM W4 2% 1K0	1A210
R37	RES SM W4 1% 10K 1206	1A310
R38	RES SM W4 1% 1K5 1206	1A215
R39	RES SM W4 1% 11K	1A311
R40	RES SM W4 2% 10R	1A010
R41	RES SM W4 2% 10R	1A010
R42	RES SM W4 2% 1K0	1A210
R43	RES SM W4 1% 1K5 1206	1A215
R44	RES SM W4 1% 6K8 1206	1A268
R45	RES SM W4 1% 1K5 1206	1A215
R46	RES SM W4 1% 47R 1206	1A047

R47-R49	RES SM W4 2% 15K	1A315
R48	RES SM W4 2% 15K	1A315
R49	RES SM W4 2% 15K	1A315
R50	RES SM W4 1% 47R 1206	1A047
R51	RES SM W4 2% 0R0	1A000
R52	RES SM W4 1% 470R 1206	1A147
R53	RES SM W4 2% 15K	1A315
R56	RES SM W4 2% 1K0	1A210
R57	RES SM W4 2% 1K0	1A210
R58	RES SM W4 2% 4K7	1A247
R59	RES SM W4 1% 1K5 1206	1A215
R60	RES SM W4 1% 220R 1206	1A122
R61-R64	RES SM W4 2% 1K0	1A210
R62	RES SM W4 2% 1K0	1A210
R63	RES SM W4 2% 1K0	1A210
R64	RES SM W4 2% 1K0	1A210
R65	RES SM W4 1% 1K5 1206	1A215
R66	RES SM W4 1% 10K 1206	1A310
R67	RES SM W4 2% 1K0	1A210
R68	RES SM W4 2% 0R0	1A000
R69	RES SM 0805 100R	1M110
R70	RES SM W4 2% 10R	1A010
R74	RES SM W4 2% 100K	1A410
R75	RES SM W4 2% 1K0	1A210
R76	RES SM W4 2% 0R0	1A000
R77	RES SM W4 2% 15K	1A315
R87	RES SM W4 2% 1K0	1A210
R92	RES SM W4 1% 470R 1206	1A147
R97	RES SM W4 1% 2M2	1A522
R101	RES SM W4 1% 470R 1206	1A147
R102	RES SM W4 1% 10K 1206	1A310
R104	RES SM W4 1% 2M2	1A522
R107	RES SM W4 1% 150R	1A115
R108	RES SM 0805 0.1% 10K	1L310
R109	RES SM W4 1% 10K 1206	1A310
R111	RES SM W4 2% 10R	1A010
R114	RES SM W4 2% 100K	1A410
R115	RES SM W4 1% 220K	1A422
R117	RES SM W4 2% 1K0	1A210
R118	RES SM W4 1% 470R 1206	1A147
R119	RES SM W4 1% 150R	1A115
R120	RES SM W4 1% 10K 1206	1A310
R123	RES SM W4 1% 470R 1206	1A147
R124	RES SM 0805 0.1% 10K	1L310
R125	RES SM 0805 0.1% 10K	1L310
R128	RES SM 0805 0.1% 22K1	1L2221
R129	RES SM 0805 0.1% 10K	1L310
R132	RES SM W4 2% 100K	1A410
R133	RES SM W4 1% 1K5 1206	1A215
R134	RES SM W4 2% 1K0	1A210
R135	RES SM W4 2% 1K0	1A210
R136	RES SM W4 1% 1K5 1206	1A215
R141	RES SM W4 1% 100R 1206	1A110
R144	RES SM W4 2% 0R0	1A000
R145	RES SM W4 2% 15K	1A315
R146	RES SM W4 2% 1K0	1A210
R155	RES SM W4 2% 1K0	1A210
R162	RES SM W4 2% 15K	1A315
R166	RES SM W4 2% 4K7	1A247
R168	RES SM W4 1% 220R 1206	1A122
R169	RES SM W4 1% 2K7 1206	1A227
R170	RES SM W4 1% 2K7 1206	1A227
R171	RES SM W4 1% 2M2	1A522
R172	RES SM W4 1% 2M2	1A522
R300	RES SM W4 1% 47R 1206	1A047
R301	RES SM W4 1% 1M0	1A510
R302	RES SM W4 1% 10K 1206	1A310
R303	RES SM W4 1% 10K 1206	1A310
R304	RES SM W4 2% 4K7	1A247

R305-R309	RES SM W4 1% 100R 1206	1A110
R314	RES SM W4 2% 4M7	1A547
R315	RES SM W4 1% 100R 1206	1A110
R400	RES SM W4 2% 1K0	1A210
R401	RES SM W4 2% 0R0	1A000
R405-R409	RES SM W4 1% 10K 1206	1A310
R412	RES SM W4 1% 10K 1206	1A310
R415-R422	RES SM W4 1% 10K 1206	1A310
R425	RES SM W4 1% 10K 1206	1A310
R700	RES SM 0805 10K	1M310
R701	RES SM 0805 22K	1M322
R800	RES SM W4 1% 100R 1206	1A110
R802	RES SM W4 1% 330R 1206	1A133
R803	RES SM W4 1% 330R 1206	1A133
R804	RES SM W4 1% 100R 1206	1A110
RLY1	RELAY 960 OHM 51SB12T	A205
SH1	PHONO EMC SHIELD	E821MC
SK1	23-WAY FFC CONN VERT	8K8023
SK2	PHONO SKT 4-WAY EMC GOLD	8D225
SK3	32-WAY FFC CONN VERT	8K8032
SW400	DIL 8WAY SW SM	A1601
TR1-TR4	TRANS LF SS N SM BC849B	4A849B
TR5	TRANS AUDIO DRIVER N 2SC5248	4B5248
TR6	TRANS LF SS N SM BC849B	4A849B
TR7	TRANS AUDIO DRIVER P 2SA1964	4B1964
TR8	TRANS LF SS N SM BC847B	4A847
TR9	TRANS LF SS N SM BC847B	4A847
TR10	TRANS LF SS P SM BC857B	4A857B
TR11	TRANS LF SS P SM BC857B	4A857B
TR12	TRANS LF SS N SM BC847B	4A847
TR13	TRANS LF SS P SM BC859B	4A859B
TR14	TRANS LF SS N SM BC849B	4A849B
TR15	TRANS LF SS P SM BC857B	4A857B
TR16	TRANS LF SS N SM BC847B	4A847
TR17	TRANS LF SS N SM BC849B	4A849B
TR18	TRANS LF SS N SM BC849B	4A849B
TR19	TRANS LF SS N SM BC849B	4A849B
TR20	TRANS LF SS P SM BC857B	4A857B
TR21	TRANS LF SS N SM BC847B	4A847
TR22	TRANS LF SS P SM BC857B	4A857B
TR23	TRANS LF SS P SM BC857B	4A857B
TR24	TRANS LF SS N SM BC847B	4A847
TR25	TRANS LF SS N SM BC849B	4A849B
TR26	TRANS LF SS N SM BC847B	4A847
TR27	TRANS JFET SM MMBFJ113	4JF113
TR28	TRANS JFET SM MMBFJ113	4JF113
TR29	TRANS LF SS P SM BC859B	4A859B
TR30	TRANS LF SS N SM BC849B	4A849B
TR31	DIGITAL TRANS NPN SM 10KX2	4D10KN
TR32	TRANS LF SS P SM BC856B	4A856B
TR300	TRANS NPN SM BFS17H	4D17H
TR700	TRANS LF SS N SM FMMT497	4AFMMT497
TR701	TRANS LF SS N SM FMMT497	4AFMMT497
X300	CRYSTAL 16.9344MHz PARALLEL	7X012
X400	CER RESON 4.00MHz	7W005

CD72 General Assembly Parts List

ITEM	240V	115V	100V	SILVER	BLACK	DESCRIPTION	WHERE USED	QTY
				E828CP	E827CP	COVER PLATE		1
				E968AY	E981AY	CD72 FRONT PANEL		1
				E991AY	E992AY	CD DRAW FRONT		1
				HA4V06S	HA4V06B	M4 X 6mm SCREW		4
	5H16C54X					PIC CHIP + L802SW		1
	B2009					SONY MECH		1
	C11166	C11256	C11316			FUSE TIME 1.25A S506CC 642129		2
	E027AY					CHASSIS & DVD / CD SUB PANEL ASSY		1
	E029AY					REAR PANEL ASSEMBLY		1
	E802AP					DAMPING PAD		0.5
	E806MI					MAINS INSULATOR		1
	E851MC					2000 CD DAMPENING PLATE		1
	E870PM					MAINS BUTTON		1
	E879PM					FOOT		4
	E879SL					PRODUCT CONFIGURATION CONTROL LABEL	INSIDE CHASSIS NEXT TO SL115	1
	F022					FUSE HOLDER COVER		2
	F062					SPARE FUSE HOLDER		1
	F164					TAPE 3509 BK 3M TESA. 5MM WIDE		400MM
	F205					DAMPING PLATE		250MM
	F214					WHITE 12MM DOUBLE SIDED STICKY TAPE	STICK ADAPTOR TO MECH FRONT 120MM	
	HA3V10A					M3 x 6mm MACHINE SCREW	pcb to chassis pillar	10
	HA4A12B					M/C PAN SUPA M4X12 STBK (500)		3
	HE6V06B					No. 6 x 6mm SELF TAPPER	lid to chassis	8
	HF4V09B					No. 4 x 9mm SELF TAPPER	display,mech, remote pcb,rear panel	17
	HJ4A00A					NUT M4 FULL STZP (1000)		3
	HL4AF					M4 FIBRE WASHER	BETWEEN DISPLAY PCB & SUB PANEL BEHIND LOAD BUTTON	1
	HL4SA					WASHER M4 IN LOCK STZP		1
	K5408					LIGHT PIPE SLEEVING (6mm)		1
	L806CA					5-WAY RIBBON & CONNS.	CD MECH. LEAD	1
	L811CA3					23-WAY FLEX-FOIL	CD MECH. LEAD	1
	L855CA					CD 72/92 DISPLAY TO MAIN FCC CABLE	DISPLAY LEAD	1
	L866TX	L866TX	L906TX			7/8SE CD TRANSFORMER		1
	WC72P 1A					MOTHER/DISP. PCB BUILD STD L887AY		1
	SL017					BLANKING LABEL	rear panel	1
	SL025					LASER WARNING (CLASS 1 LASER PRODUCT)	rear panel	1
	SL115					LASER LABEL (DANGER RADIATION)	INSIDE CHASSIS	1

CD92 General Assembly Parts List

ITEM	240V	115V	100V	SILVER	BLACK	DESCRIPTION	WHERE USED	QTY
				E828CP	E827CP	COVER PLATE		1
				E968AY	E981AY	CD92 FRONT FASCIA ASSEMBLY		1
				E995AY	E996AY	CD DRAWER FRONT		1
				HA4V06S	HA4V06B	M4 X 6MM SCREW	COVER TO CHASSIS	4
	5H16C54X					PIC CHIP + L802SW	FOR MOTHER PCB	1
	B2009					SONY MECH		1
	C11166	C11256	C11316			FUSE	FOR FUSE & SPARE	2
	E027AY					CHASSIS & DVD / CD SUB PANEL ASSY		1
	E029AY					REAR PANEL ASSEMBLY		1
	E063AY					DIVA 92 DAC TO SUB CHASSIS ASSY		1
	E806MI					MAINS INSULATOR	UNDER MOTHER PCB	1
	E851MC					DAMPING PLATE		1
	E870PM					MAINS BUTTON		1
	E879PM					FOOT		4
	E879SL					CONFIGURATION LABEL		1
	E922MC					MAGNETIC SHIELDING PLATE	ATTACHED TO ITEM 15	1
	E923MC					ADHESIVE PAD (TRANSFORMER)	ATTACHED TO TRANSFORMER TX200	1
	F022					FUSE HOLDER COVER	FOR FUSE HOLDERS	2
	F062					SPARE FUSE CLIP	FOR SPARE FUSE	1
	F164					TAPE		400M M
	F205					DOUBLE SIDED TAPE	DAMPING PLATE	250M M
	F214					WHITE 12MM DOUBLE SIDED STICKY TAPE	STICK ADAPTOR TO MECH FRONT	120M M
	H014					45mm tall stand off	Sunb chassis fitting	2
	HA3V10A					M3 x 10mm MACHINE SCREW	MOTHER PCB FXGS	10
	HA4A12B					M4 SCREW	EARTH TO MECH	3
	HE6V06B					No. 6 x 6mm SELF TAPPER	MOTHER PCB, FACIA FXGS, COVER	6
	HF4V09B					No. 4 x 9mm SELF TAPPER	TRANF, RR PAN, DISP. PCB, REMOTE RX PCB, MECH.	19
	HJ4A00A					NUT M4		3
	HJ4A00A					NUT M4 FULL STZP (1000)		3
	HL4AF					M4 FIBRE WASHER		1
	HL4SA					WASHER M4 IN LOCK STZP		1
	K5408					LIGHT PIPE SLEEVING (6mm)		1
	L805CA					23 WAY FLEX FOIL	DAC PCB	1
	L806CA					5-WAY RIBBON & CONNS	CD MECH.	1
	L807CA					32 WAY FLEX FOIL	DISPLAY TO DAC	1
	L811CA 3					23-WAY FLEX-FOIL	CD MECH.	1
	L855CA					32 WAY	DISPLAY TO MAIN PCB	1
	L866TX	L866TX	L906TX			TRANSFORMER	TX	1

CD92 General Assembly Parts List

ITEM	240V	115V	100V	SILVER	BLACK	DESCRIPTION	WHERE USED	QTY
	L888AY					CD92 MOTHER/DISP. PCB BUILD STD		1
	SL017					BLANKING LABEL	FOR REAR PANEL	1
	SL025					LASER WARNING	FOR REAR PANEL	1
	SL115					LASER LABEL	FOR INSIDE OF CHASSIS	1

ITEM	240V	115V	100V	DESCRIPTION	WHERE USED	QTY
14	E922MC			MAGNETIC SHIELDING PLATE	ATTACHED TO ITEM 15	1
15	E923MC			ADHESIVE PAD (TRANSFORMER)	ATTACHED TO TRANSFORMER TX200	1
13	H037			44mm TALL STAND-OFF	SUB-CHASSIS FXGS	2
12	HF4V09B			No. 4 x 9mm SELF TAPPER	EDGE OF PCB FIXINGS & SUB CHASSIS TO CASE	5
1	E100AY			DIVA 92 DAC SUB ASSEMBLY		1