

Issue Date: 07th February 2007

SERVICE MANUAL



SPECIFICATIONS:

D/A Converters	Dual Analog Devices AD1955 24 bit DAC's	Total correlated jitter	< 130pS
		Crosstalk @ 1kHz	< -130dB
Digital Filter	Analog Devices Black Fin ADSP-BF532 32 bit DSP Performing ATF™ Up sampling to 24 bit 384 kHz	Crosstalk @ 20kHz	< -114dB
		Output impedance	< 50 ohms
Analog Filter	2 Pole Fully Differential Linear Phase Bessel Filter	Digital input word widths supported	16-24 bit
		Digital output word widths supported	16, 20, 24 bit
Frequency Response	20Hz – 20kHz (+\ -0.1 dB)	Digital input sampling frequencies supported	32kHz, 44.1kHz, 48kHz, 88.2kHz 96kHz, 176.4kHz, 192kHz
THD @ 1 KHz 0dBFs	< 0.0005%	Digital output sampling frequencies supported	32 kHz – 192 kHz pass through (including 44.1 kHz for CD) 48 kHz, 96 kHz, 192 kHz up sampled
THD @ 1KHz -10dBFs	< 0.0004%	Audio output up sampling	Fixed 24 bit, 384kHz
THD @ 20 KHz 0dBFs	< 0.0007%	Dimensions (H x W x D)	115 x 430 x 360 mm (4.5 x 16.9 x 14.7")
IMD (19/20 kHz) 0dBFs	< 0.0002%	Weight	8.5kg (18.7lbs)
Linearity @ -90dBFs	+/- 0.5dB		
Stopband Rejection (> 24 kHz)	> 120dB		
S to N ration, A weighted	> 113dB		

AP21184/I

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840C SERVICE MANUAL

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SAFETY PRECAUTIONS & IMPORTANT NOTES

1. Check that the rear of the product indicates the correct supply voltage for your area.



2. The lightning flash with the arrowhead within an equilateral triangle is intended to alert the user or service agent to the presence of dangerous voltages within the product enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



3. The exclamation point within an equilateral triangle is intended to alert the user or service agent to the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the appliance.

4. This product complies with EEC Low Voltage (73/23/EEC) and Electromagnetic Compatibility (89/336/EEC) Directives when used and serviced in accordance with this manual. For continued compliance all components marked safety and EMC critical must only be replaced by Cambridge Audio approved parts.

5. Any unauthorised design alterations or additions will void the manufacturer's warranty; furthermore the manufacturer cannot accept responsibility for personal injury or property damage resulting therefrom.

6. When servicing, care should be taken to observe the original routing and dressing of the leads and it should be confirmed that they have been returned to normal after re-assembly.

Notes on chip component replacement

Never reuse a component that has been removed from a PCB

Notice that the minus side of a tantalum capacitor may be damaged by heat

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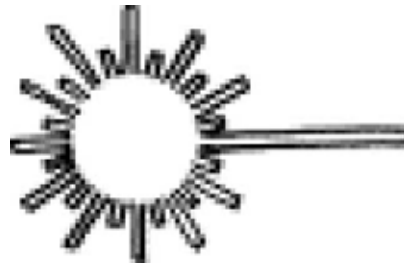
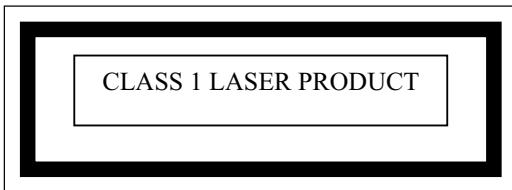
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LASER SAFETY PRECAUTIONS

Caution: These labels may be attached to the unit on the rear and inside to inform that it contains a laser component. Use of controls or adjustments, or performance of procedures other than those specified within the service or instruction manual may result in hazardous radiation exposure.



WARNING!

1. Service should only be performed by qualified personnel.
2. This equipment has been designed and manufactured to meet international safety standards; it is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Any repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety and EMC critical components are replaced with Cambridge Azur approved parts only.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

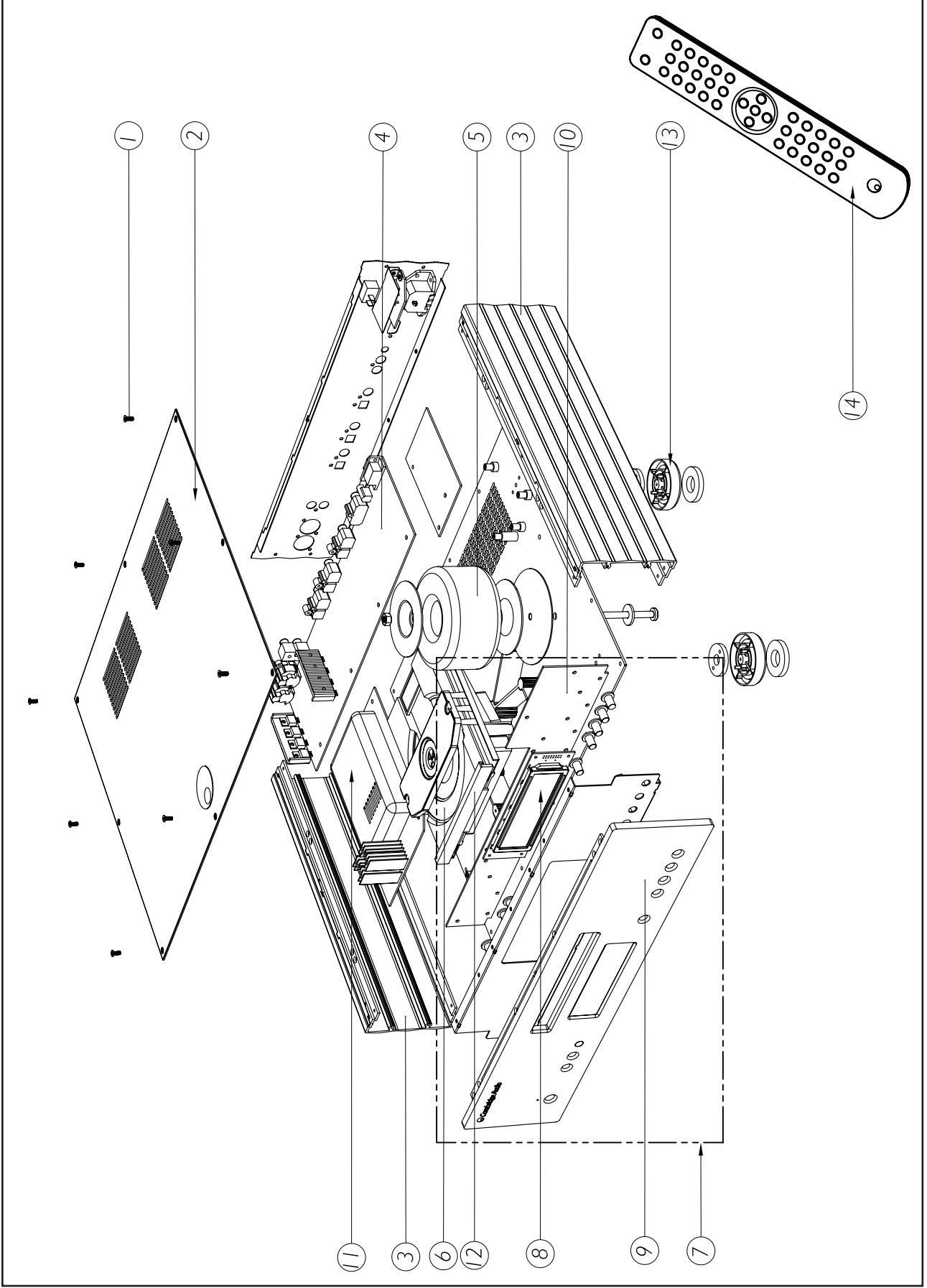
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30cm away from the objective lens.

Cambridge Audio Azur 840C CD Player

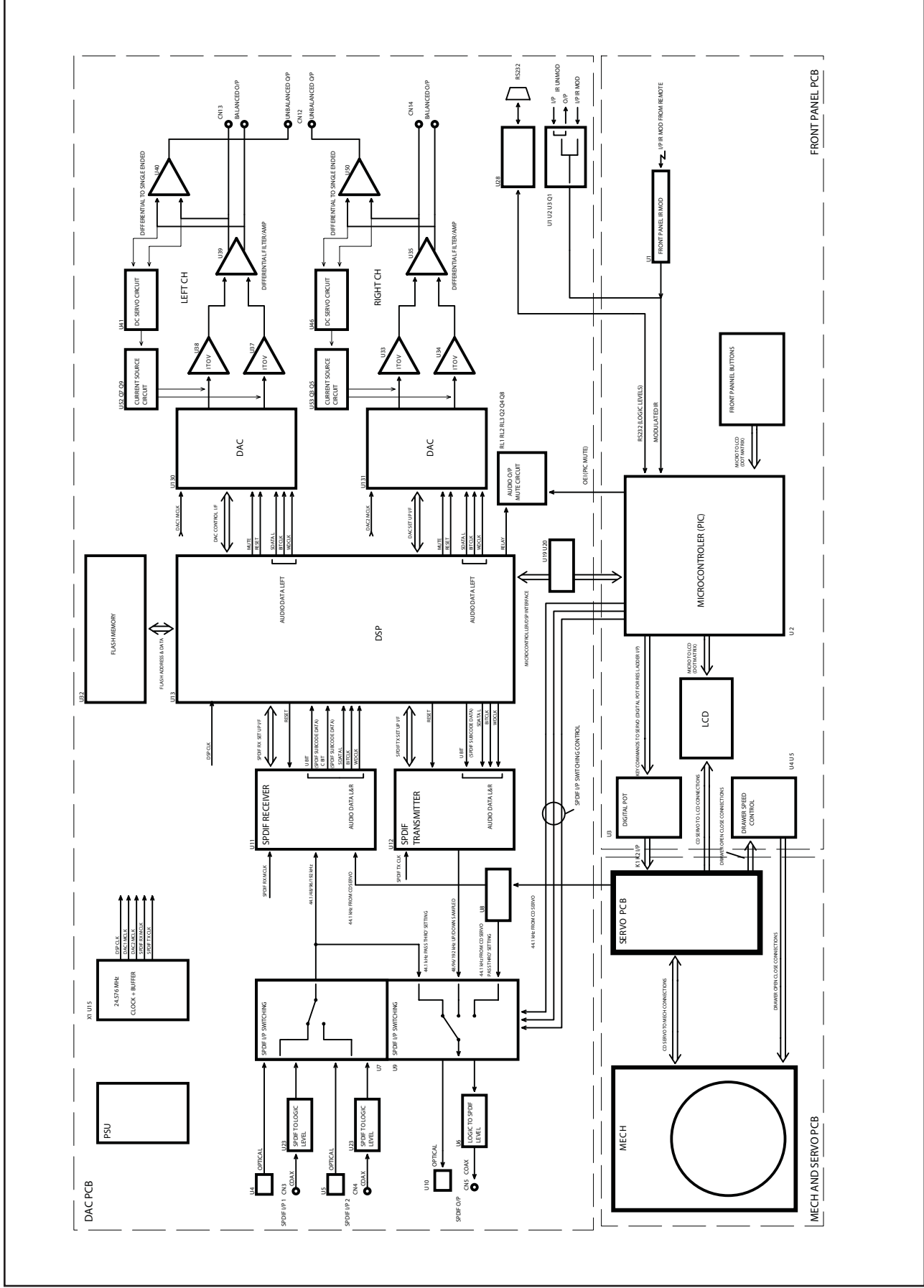


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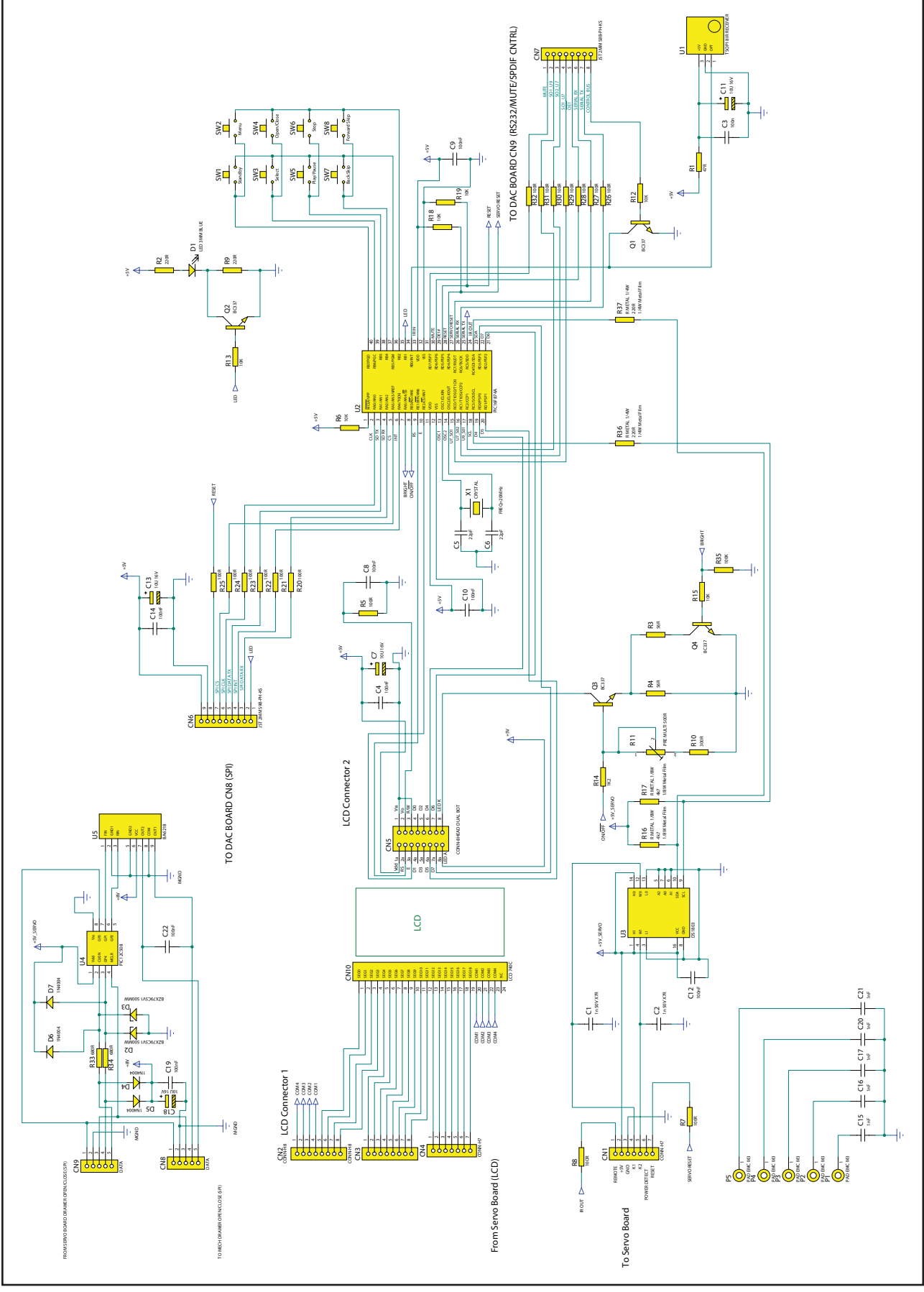
Exploded Drawing Parts List

Drawing Ref.	AP Part	Factory Reference	Description
1	PY1228	7003-008010E006	Screw M3*8 M/C 1/K Torx Recess ZN-PT (Silver)
1	PY1229	7003-008010E001	Screw M3*8 M/C 1/K Torx Recess BLK-PT (Black)
2	PY1218	6574-010003E000-01	Azur 840C Top Panel (Black)
2	PY1219	6574-010003E000-02	Azur 840C Top Panel (Silver)
3	PY1127	6574-150013E000-01	Azur 840A Side Panel, (Black)
3	PY1128	6574-150013E000A01	Azur 840A Side Panel, Silver
4	PY1110	4006-840058E001	840C DAC Module
5	PY1217	3200-080551E000	Transformer AC115/230V T08055A<AP19141/4>Azur-840C
6	PY940	9692-006002-201	Azur V2 CD Mechan assy with Sanyo DA11V Rev A
Not Shown	PY941	3009-110000-002	V2 CD Sanyo Laser DA11V
7	PY1220	8584-001010E301	Azur 840C UK/EU Black Front Panel Assy
7	PY1221	8584-001000E301	Azur 840C UK/EU Silver Front Panel Assy
8	PY1222	4006-840001E000	Azur 840C Display Module MBCF00003B00V0 <RCL>
9	PY1223	6574-010002E000-01	Azur 840C Front Panel -B Artwork (Print Cool Grey 7C) Black
9	PY1224	6574-010002E000A01	Azur 840C Front Panel-S Artwork (Print Coll Grey 8C) Silver
10	PY1225	9484-001000E041	Azur-840C Control PCB Assy Rev A
11	PY1226	9484-001000E181	Azur-840C Servo PCBA <T-TYPE> Rev A
12	PY554	6564-010006-000-01	Azur 640C.B CD Door W/Silkscreen PMS Cool Grey 7C
12	PY568	6564-010006-000A01	Azur 640C.S CD Door W/Silkscreen PMS Cool Grey 7C
13	PY1122	6074-150004E000	Azur 840A Plastic Foot (Black) AP16837*
13	PY1124	6074-150004E000A01	Azur 840A Plastic Foot (Silver) AP16837*
14	PY1165	9805-084000E001	Azur 840A/C Remote Control Assy Rev A
Not Shown	PY1227	5100-840100E100	Azur 840C Multilingual User Manual (AP18655*)

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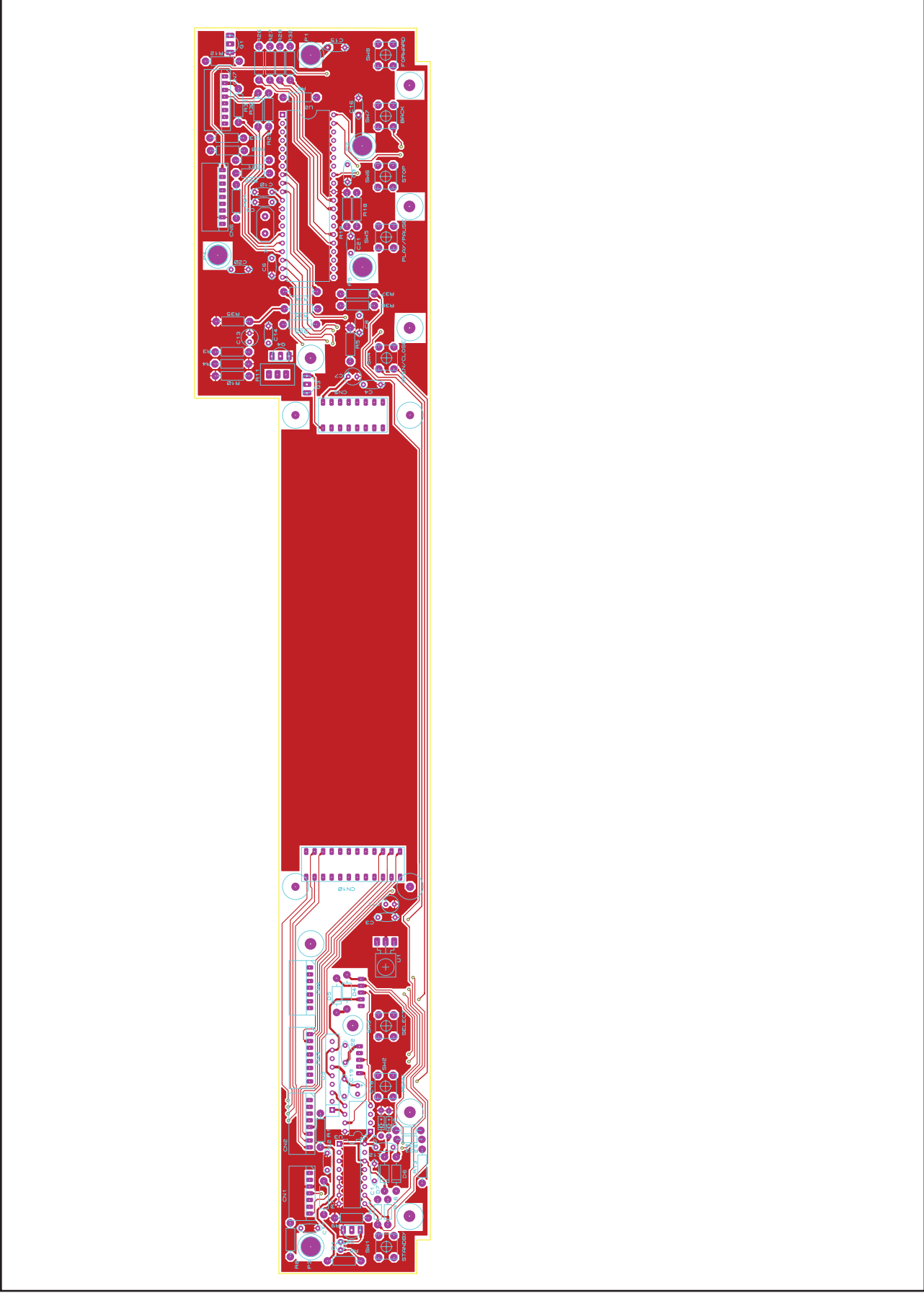


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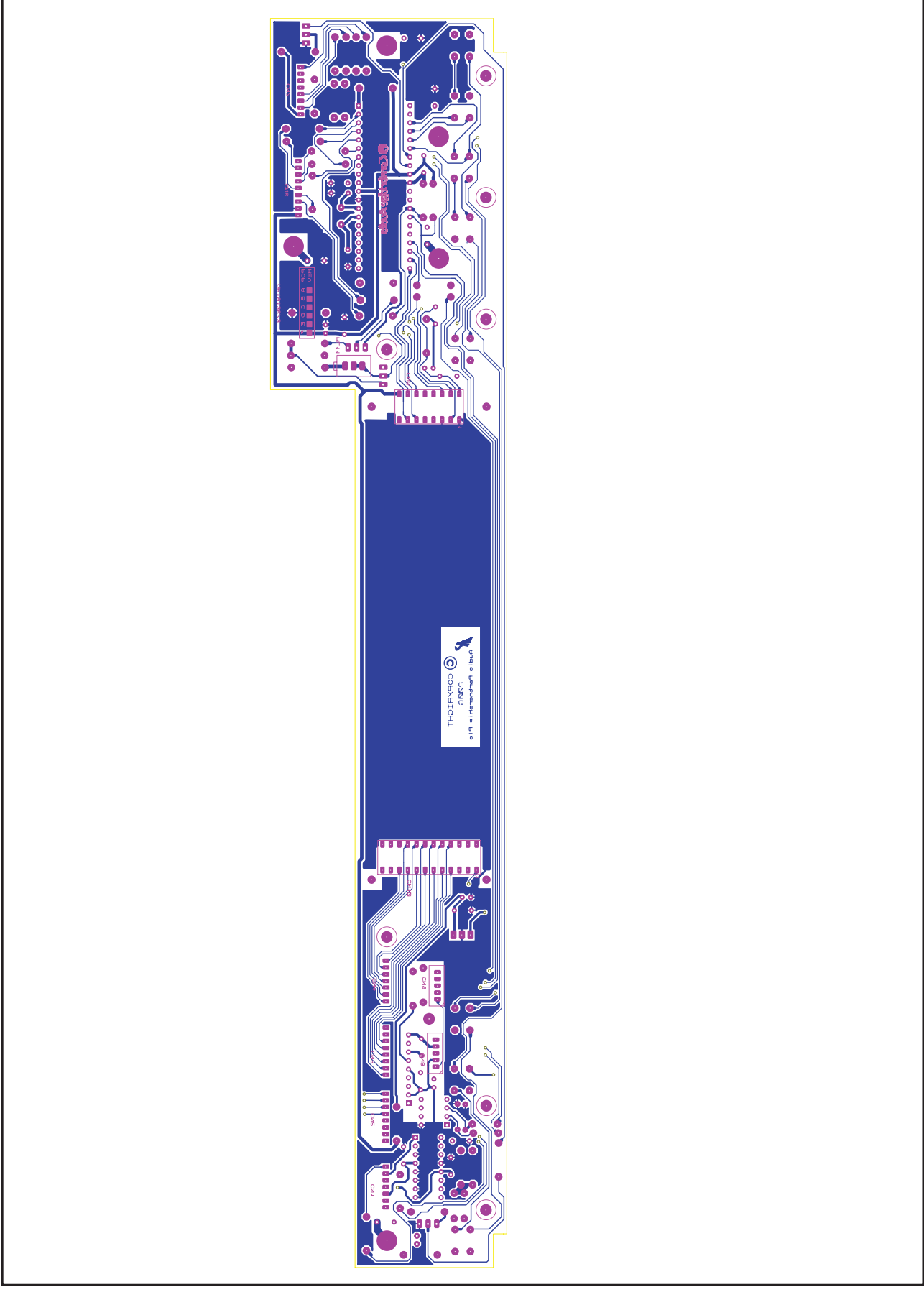


API9135/4 Front Panel Circuit Diagram

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AP19135/3 Front Panel Board Layout (Bottom Side)

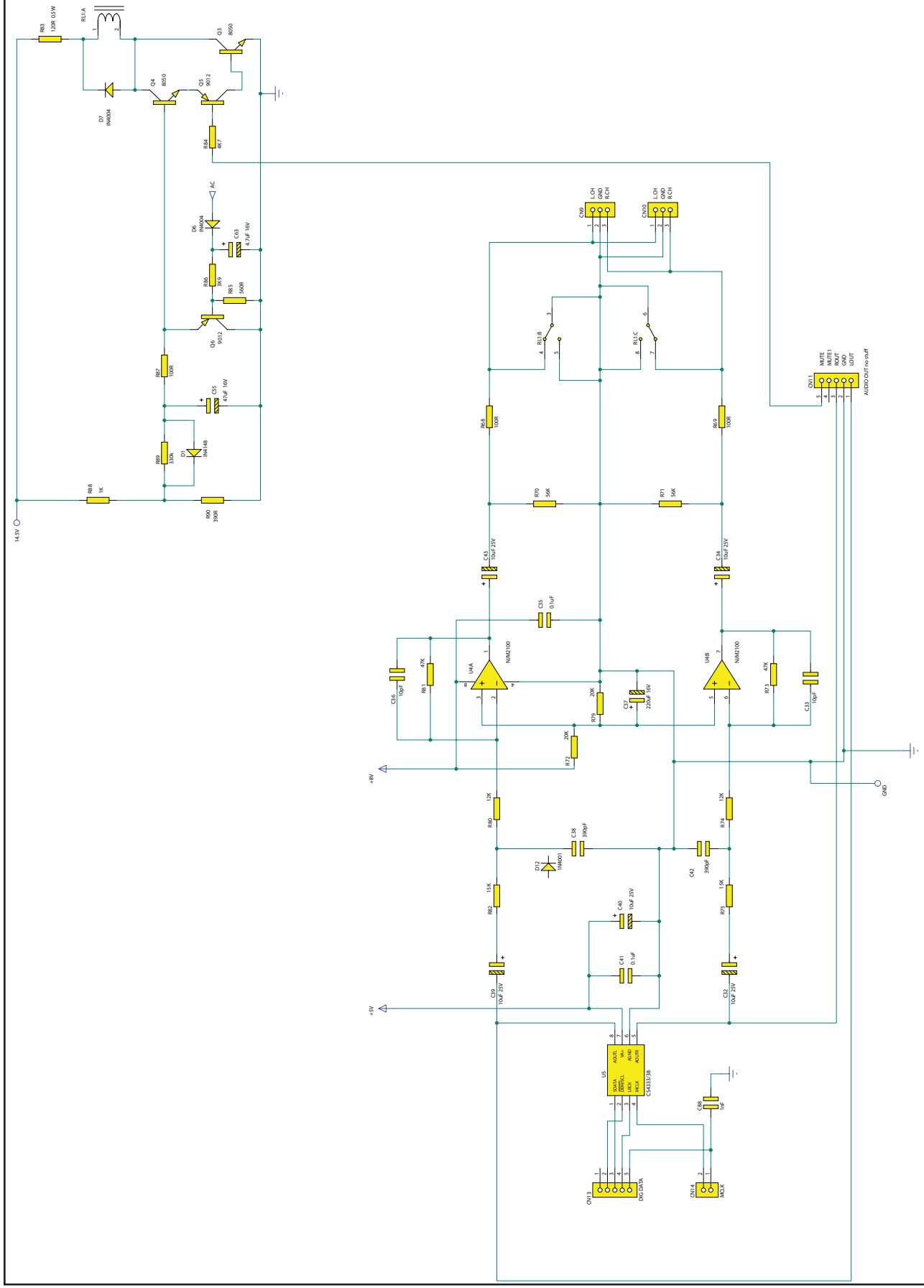
Cambridge Audio Azur 840C Front Panel PCB BOM

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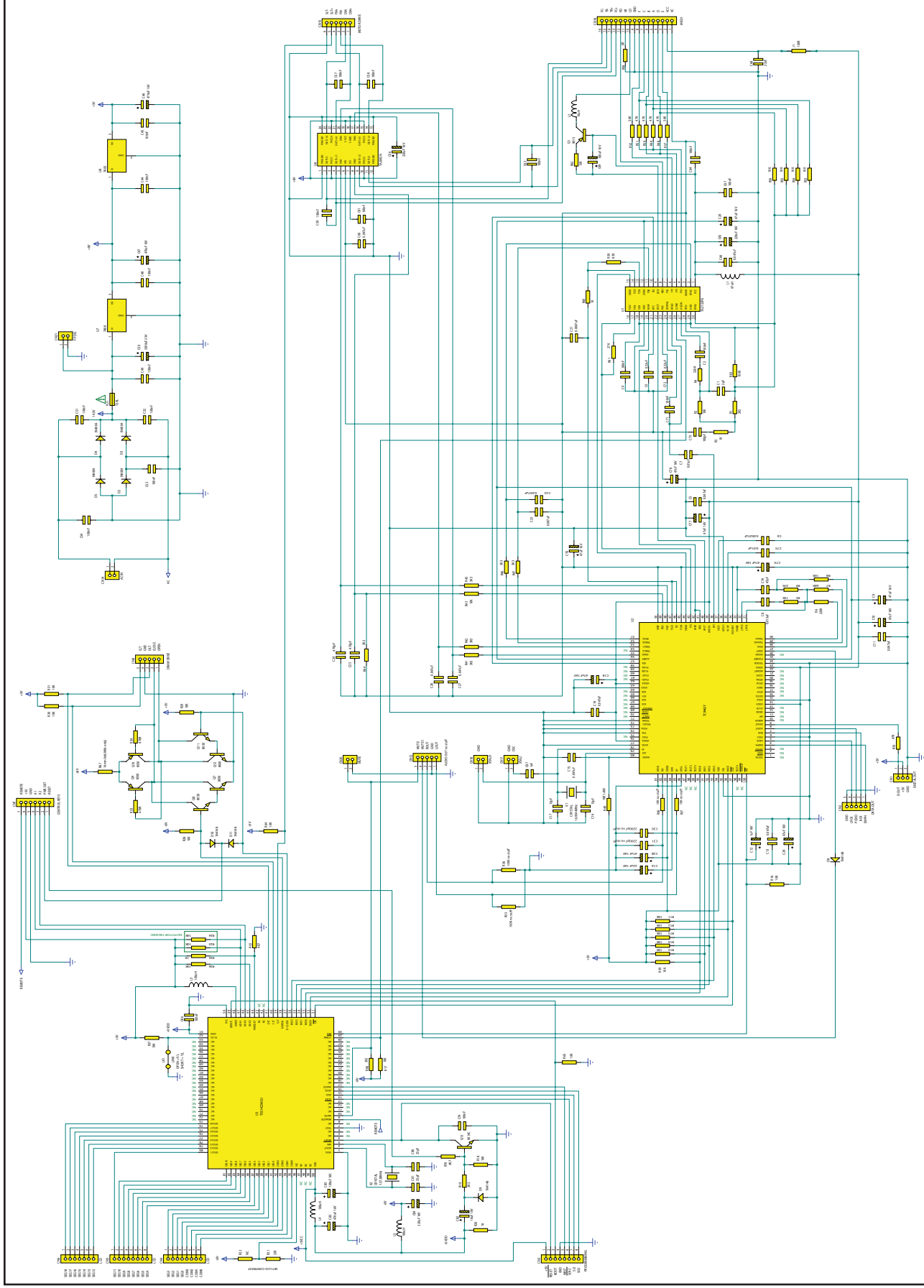
AP Part No.	Value	Description	Factory Part No	Qty	Component Ident	Notes
	RESISTORS					
	47R	0.25 W 1% Metal Fil m		1	R1	
	56R	0.25 W 1% Metal Fil m		2	R3, R4	
	100R	0.25 W 1% Metal Fil m		16	R5, R7, R8, R20-R3 2	
	220R	0.25 W 1% Metal Fil m	1012-201014E000	4	R2, R9, R36, R3 7	
	300R	0.25 W 1% Metal Fil m		1	R10	
	680R	0.125 W 1% Metal Fil m	1016-801016E020	2	R33, R34	
	1K2	0.25 W 1% Metal Fil m		1	R14	
	4K7	0.25 W 1% Metal Fil m		2	R16, R1 7	
	10k	0.25 W 1% Metal Fil m		6	R6, R12, R13, R15,R18, R1 9	
	100K	0.25 W 1% Metal Fil m		1	R35	
	PRE MULTI 500R	Side adjust Footprint 9.5 x 4.5 mm	VR B500 OHM +- 10% WI 3296NOXOX-XA1-013	1	R11	Mount on bottom side of PCB with screw adjust facing upwards
	CAPACITORS					
	22pF	Ceramic NPO, Pitch = 5.0mm		2	C5, C6	
	1nF	Ceramic 50V Pitch = 5.0mm		7	C1, C2, C15-C17, C20,C21	
	100nF	Ceramic 50V Pitch = 5.0mm		9	C3, C4, C8-C10, C12, C14, C19, C22	
	10uF	Miniature 16V Pitch 2.5mm Height 5.2mm		4	C7, C11, C13, C18	
	SEMICONDUCTORS					
	TSOP1836SS3V	TSOP IR RECEIVER		1	U1	Mount 13.5mm height from PCB, Please support using foam pad spacer
	PIC16F877A-I/P	PIC		1	U2	Programme with AP20058/2, Please add version label - See AP Service Dept.
PY983	DS18030-050	DIGITAL PO T	4118-030051E200	1	U3	
	PIC12C508A-I/P	PIC		1	U4	Programme with AP20231/1, Please add version label - See AP Service Dept
PY260	BA6218	CD DRIVER IC		1	U5	
	TRANSISTORS					
PY214	BC33 7	NPN SMALL SIGNA L		4	Q1-Q4	
	DIODES					
	LED BLUE			1	D1	
	5V1 ZENE R	BZX79C5V1	1402-511201E20 0	2	D2, D3	
	1N4004	GENERAL PURPOSE RECTIFIER		4	D4, D5, D6, D7	
	MISCELLANEOUS					
PY043	TACT SWITCH	TACT SW 2P2T KPT-1105A (5MM)		8	SW1-SW8	
	20MHz CRYSTAL	20MHz, HEIGHT ABOUT 3.5MM	CL20PF HC-49US	1	X1	+ - 30PPM

Note: resistors, capacitors and other 'generic' electronic components are not usually stocked by the manufacturer. Please obtain these locally.

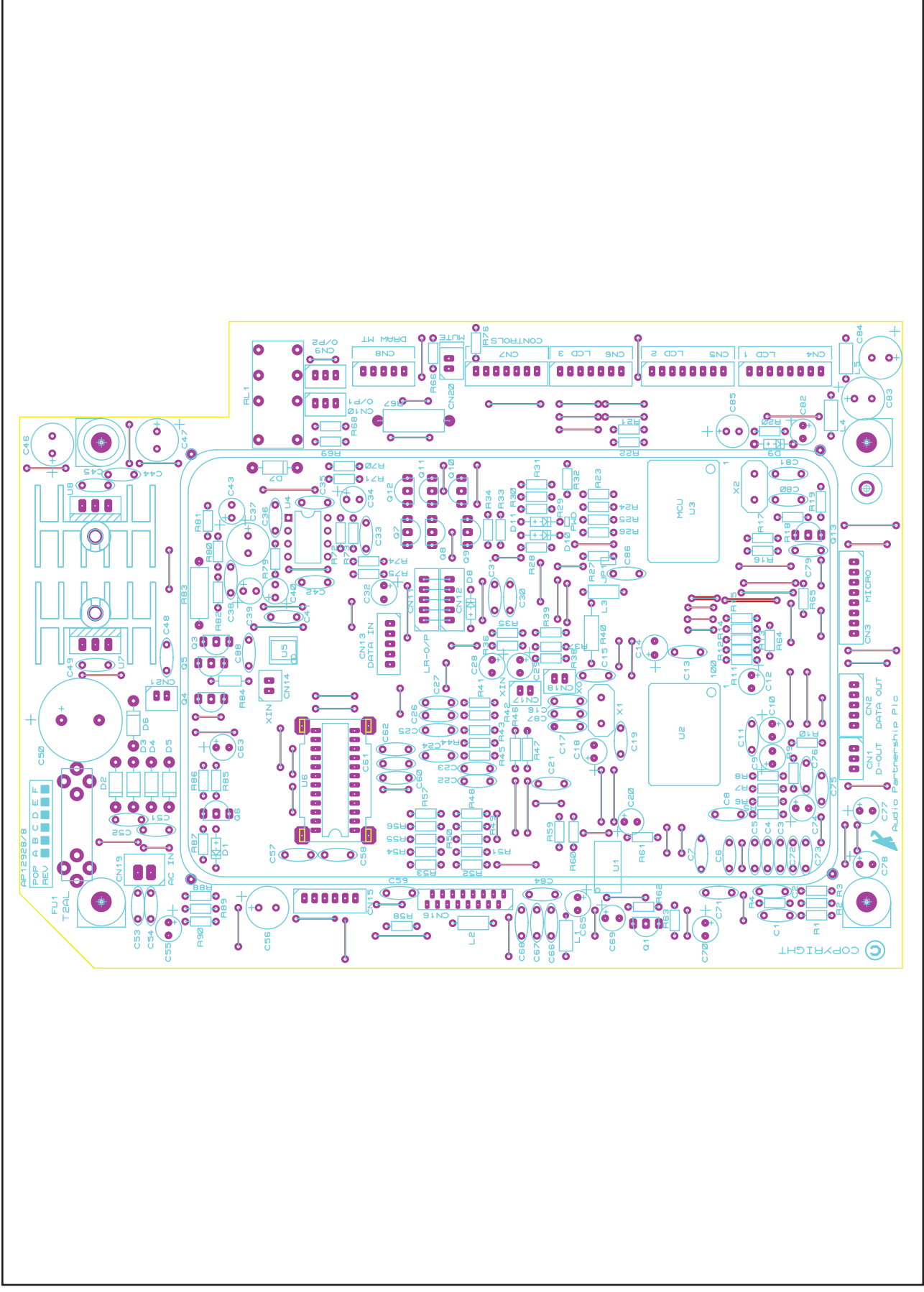
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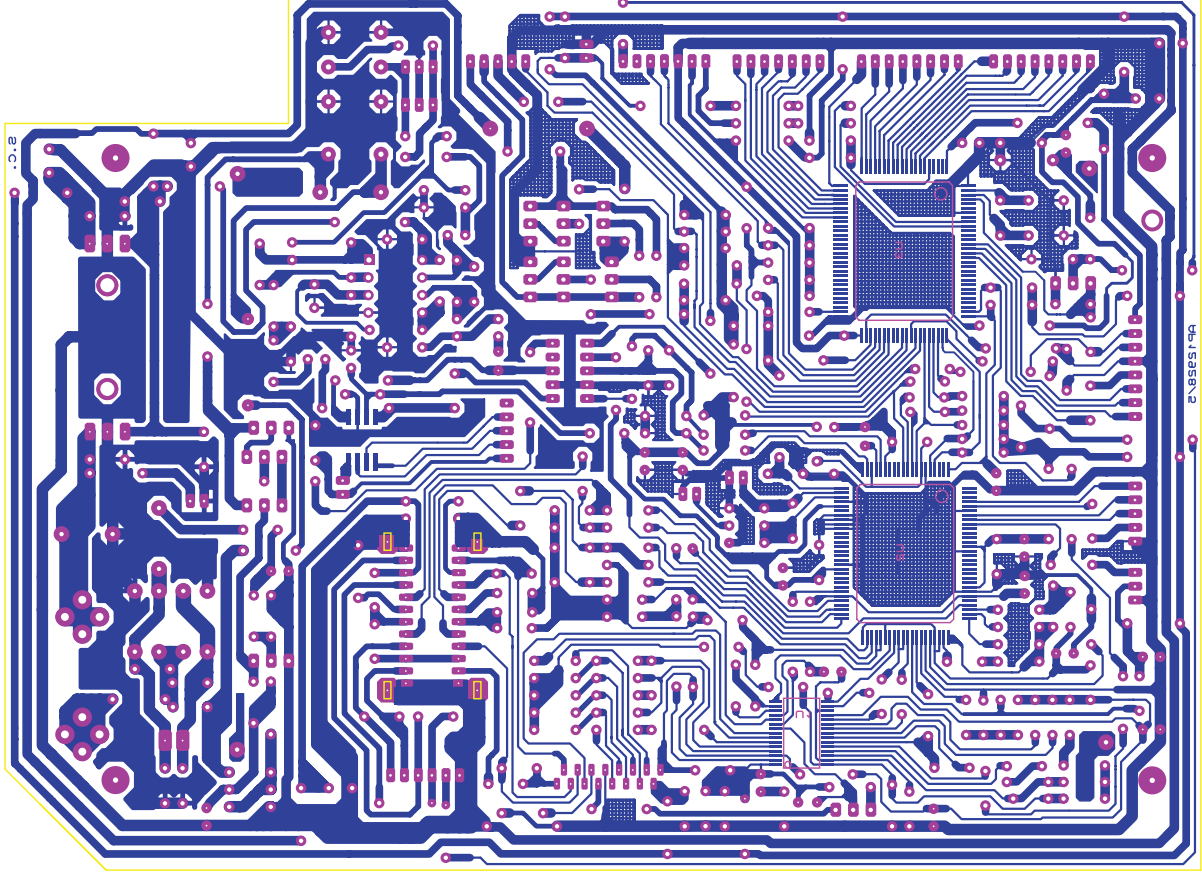
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API2927/8 CD Servo Board Layout (Top Side)

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AP I2927/8 CD Servo Board Layout (Bottom Side)

Cambridge Audio Azur 840C Servo PCB Assembly BOM

AP19969/3

AP Part No	Value	Description	Qty	Component Ident	Factory Part no	Notes
RESISTORS						
	10R	0.25 W Metal Film Resistor	1	R40	1011-000014-000	
	15R	0.125 W Metal Film Resistor	1	R62		
	link	14mm link	1	R67		For 840C ONLY. Use link
	47R	0.125 W Metal Film Resistor	1	R10,	1014-700018-000	
	100R	0.125 W Metal Film Resistor	1	wirelink (J1)	1011-001016-000	wirelink is positioned between C68 and L2. This must be 100R resistor
	220R	0.125 W Metal Film Resistor	1	R4	1012-201018-000	
	470R	0.125 W Metal Film Resistor	2	R33, 34	1014-701016-000	
	1K	0.125 W Metal Film Resistor	5	R3, 20, 25, 60	1011-002018-000	
	2K2	0.125 W Metal Film Resistor	2	R1, 66	1012-202016-000	
	3K3	0.125 W Metal Film Resistor	7	R19, 41, 42, 44, 45, 46, 47	1013-302018-000	
	4K7	0.125 W Metal Film Resistor	2	R32, 76	1014-702016-000	
	10K	0.125 W Metal Film Resistor	26	R2, 8, 11, 12, 13, 14, 15, 16, 17, 18, 26, 27, 28, 29, 30, 31, 39, 43, 53, 54, 55, 56, 64, 65	1011-003016-000	
	15K	0.125 W Metal Film Resistor	1	R5,	1011-503018-000	
	22K	0.125 W Metal Film Resistor	1	R21		
	27K	0.125 W Metal Film Resistor	1	R61		
	47K	0.125 W Metal Film Resistor	5	R9, 48, 49, 50, 51	1014-703016-000	
	56K	0.125 W Metal Film Resistor	2	R52, 57		
	68K	0.125 W Metal Film Resistor	2	R7,	1016-803018-000	
	82K	0.125 W Metal Film Resistor	1	R59	1018-203018-000	
	100K	0.125 W Metal Film Resistor	1	R63	1011-004016-000	
	220K	0.125 W Metal Film Resistor	1	R6	1012-204016-000	
CAPACITORS						
	3pF	Ceramic COG 50V 5mm Pitch	1	C1		
	15pF	Ceramic COG 50V 5mm Pitch	2	C16, 17	1100-150043-000	
	25pF	Ceramic COG 50V 5mm Pitch	2	C80, 81	1100-250042-000	
	47pF	Ceramic COG 50V 5mm Pitch	1	C76	1100-470043-000	
	100pF	Ceramic COG 50V 5mm Pitch	1	C73		
	470pF	Ceramic 50V 5mm Pitch	2	C24, 25	1100-471043-000	
	1nF	Ceramic 50V 5mm Pitch	1	C87	1100-102043-000	
	10nF	Ceramic 50V 5mm Pitch	1	C75	1100-103043-000	
	10nF	Mylar 5mm Pitch	1	C7		
	15nF	Ceramic 50V 5mm Pitch	1	C8	1100-153043-000	
	47nF	Ceramic 50V 5mm Pitch	11	C5, 11, 13, 15, 19, 22, 23, 26, 27, 60, 66	1100-473044-000	
	100nF	Ceramic 50V 5mm Pitch	20	C2, 4, 44, 45, 48, 49, 51, 52, 53, 54, 57, 58, 59, 61, 62, 64, 67, 71, 79, 86	1106-104044-000	
	220nF	Ceramic 50V 5mm Pitch	2	C3, 72	1100-224044-000	
	2n7	Mylar 5mm Pitch	1	C6	1101-272063-000	
	4n7	Mylar 5mm Pitch	1	C21	1101-472062-000	
	1uF	16V Electrolytic	1	C12	1102-107044-000	
	10uF	16V Electrolytic	1	C82	1102-100024-000	
	22uF	16V Electrolytic	2	C14, 68	1102-220014-000	
	47uF	16V Electrolytic	10	C9, 10, 18, 20, 28, 29, 70, 74, 77, 78	1102-470014-000	
	100uF	16V Electrolytic	2	C69, 85	1102-101014-000	
	220uF	16V Electrolytic	3	C56, 65, 84	1102-221014-000	
	470uF	16V Electrolytic	3	C46, 47, 83	1102-471014-000	
	3300uF	25V Electrolytic	1	C50	1102-332024-000	
SEMICONDUCTORS						
PY474	TA2153FN	TOSHIBA RF Amplifier	1	U1	4121-530103-000	
PY475	TC9462FG	TOSHIBA Digital Servo-chip Processor	1	U2	4194-620123-000	100PINS QFP TOSHIBA

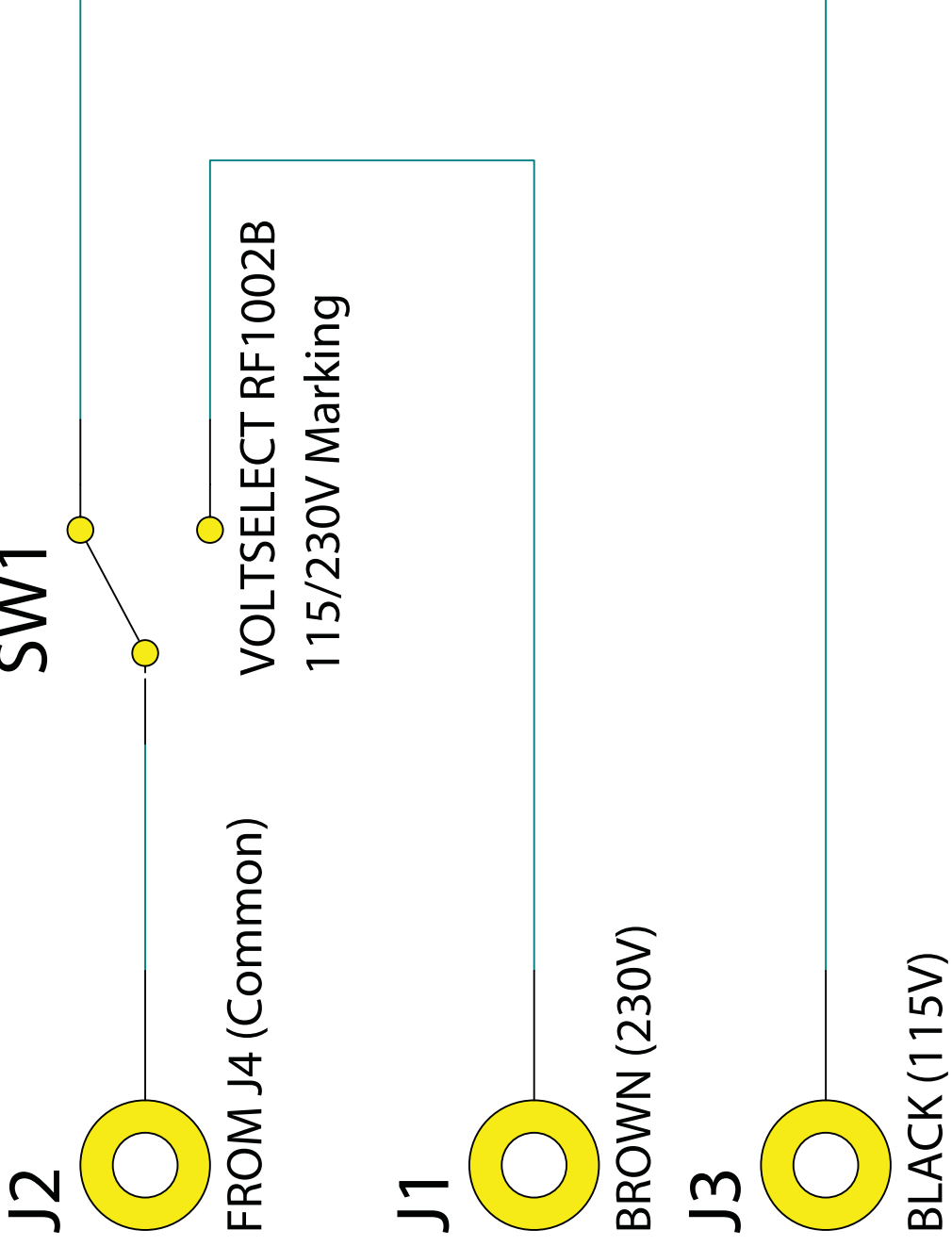
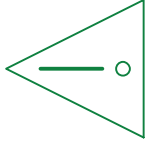
Note: resistors, capacitors and other 'generic' electronic components are not usually stocked by the manufacturer. Please obtain these locally.

Cambridge Audio Azur 840C Servo PCB Assembly BOM

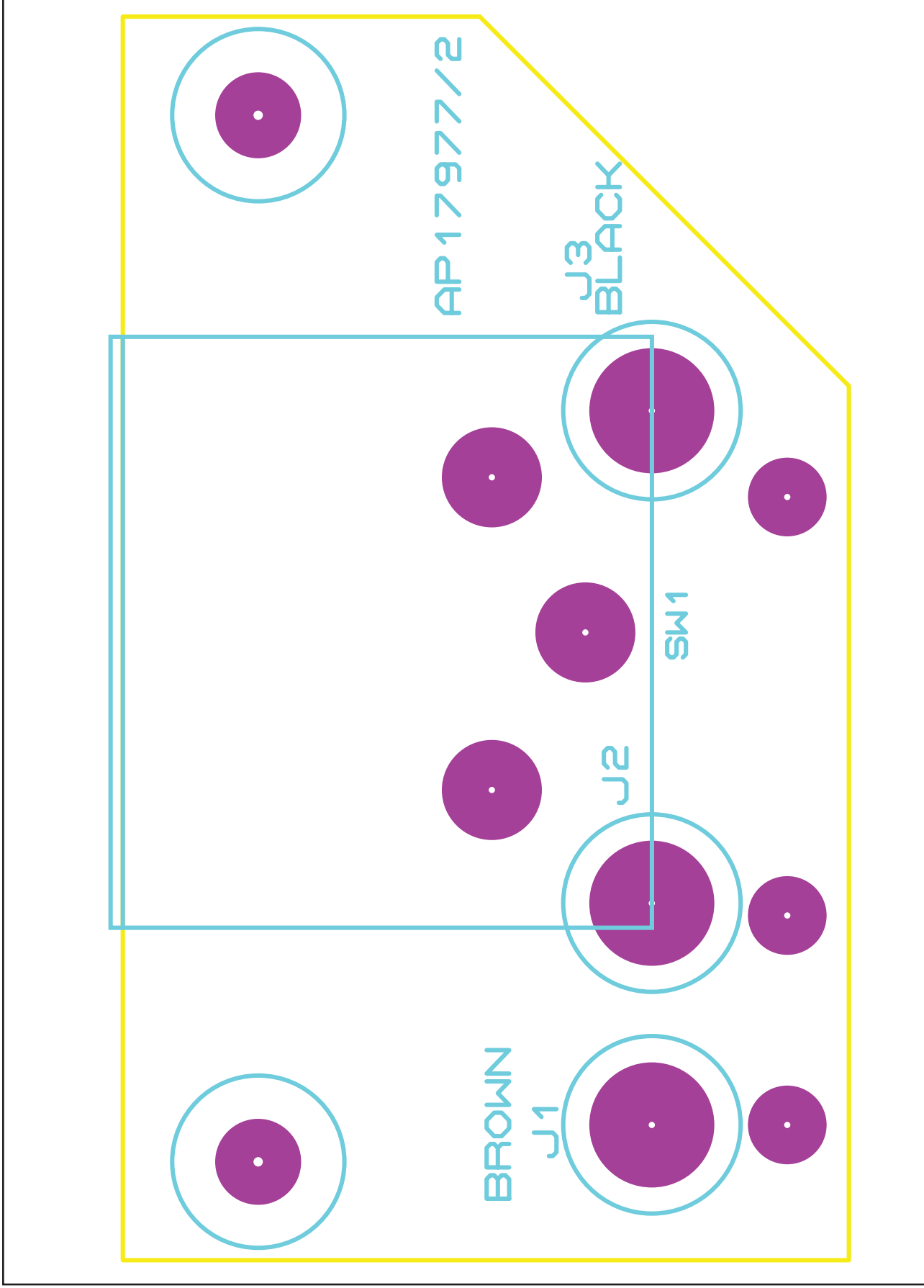
AP19969/3

AP Part No	Value	Description	Qty	Component Ident	Factory Part no	Notes
PY565	TOSHCDMCU	MCU TMP87EP26F-1J15 SOP TOSHIBA	1	U3	4187-260103-000	
PY473	TA2092N	TOSHIBA Power driver IC	1	U6	4120-920053-000	fit heatsink to top of driver IC
PY316	7808	TO-220 + 8V Regulator	1	U7	4178-080302-600	mount on heatsink using heatsink compound only
PD035	7805	TO-220 + 5V Regulator	1	U8	4178-050334-700	
PY014	C8050D	NPN Transistor TO92	4	Q7, 8, 11, 12	1300-805000-100	
PY558	9014C	NPN Transistor	1	Q13	1300-901400-100	
PY559	C8550	PNP Transistor	2	Q9, 10	1301-855000-100	
PY560	9015C	PNP Transistor	1	Q1	1301-901500-100	
	1N4148	Signal Diode	3	D9, 10, 11	1401-141480-000	
	1N4004	Rectifier Diode	4	D2, 3, 4, 5	1401-140040-000	stand up off PCB by 7.5mm
	CRYSTALS					
PY027	16.9344MHz	2 Pin 5mm Pitch	1	X1	1600-169343-000	
PY561	7.3728MHz	2 Pin 5mm Pitch	1	X2	1600-737282-990	
	CONNECTORS					
	2 Way	2mm Pitch JST	2	CN 17 21	2300-002000-001	
	3 Way	2mm Pitch JST	1	CN 1,	2300-003000-001	
	5 Way	2mm Pitch JST	2	CN 2, 8,	2300-005000-000	
	6 Way	2mm Pitch JST	1	CN 15	2300-006000-000	
	7 Way	2mm Pitch JST	2	CN 6, 7	2300-007000-000	
	8 Way	2mm Pitch JST	3	CN 3, 4, 5	2300-008000-000	
	2 Way	2.5mm Pitch JST	1	CN 19	2300-002100-003	
	16 Way	FFC 1.0mm Pitch	1	CN 16	2301-016901-000	
	MISCELLANEOUS					
	20mm	PCB Mount Fuse Holder	1	FU1	4031-050100-001	
	T2AL	2A delay 20mm Fuse 250V LBC (low breaking capacity)	1	FU1	4030-618002-001	
	10uH	Inductor 8mm Pitch	1	L2		
	47uH	Inductor 8mm Pitch	1	L1	1504-470300-100	
	100uH	Inductor 8mm Pitch	3	L3, 4, 5	1504-101300-100	

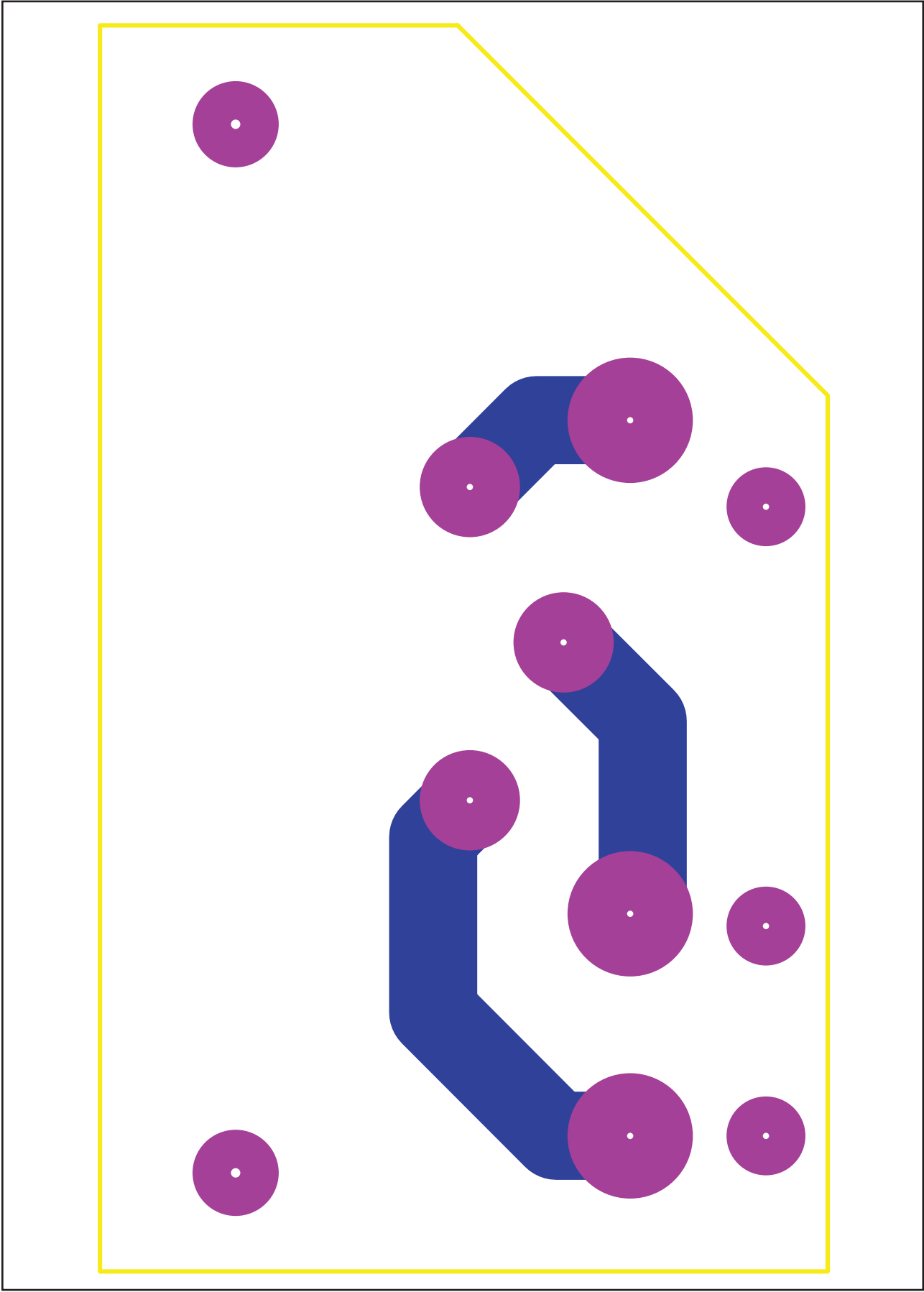
Note: resistors, capacitors and other 'generic' electronic components are not usually stocked by the manufacturer. Please obtain these locally.



Cambridge Audio Azur 840C CD Player



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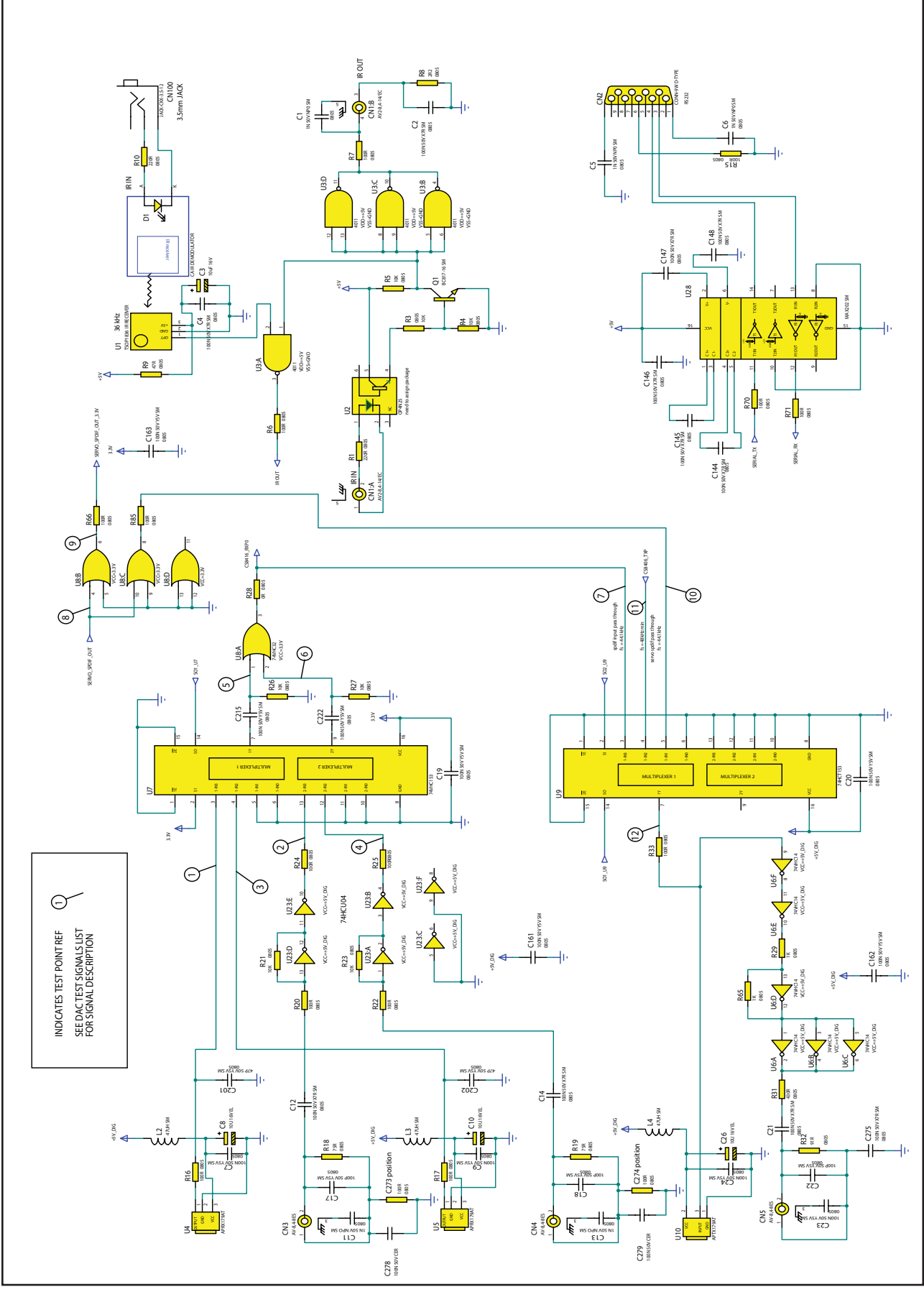
Cambridge Audio Azur 840C V2 Voltage Selector PCB Assembly BOM

AP17980/1

AP Part No	Value	Description	Qty	Component Ident	Factory Part Number	Notes
	CONNECTORS					
	RF1002B	Voltage Selector	1	SW1	2406-010200-000	

Note: resistors, capacitors and other 'generic' electronic components are not usually stocked by the manufacturer. Please obtain these locally.

Cambridge Audio Azur 840C CD Player

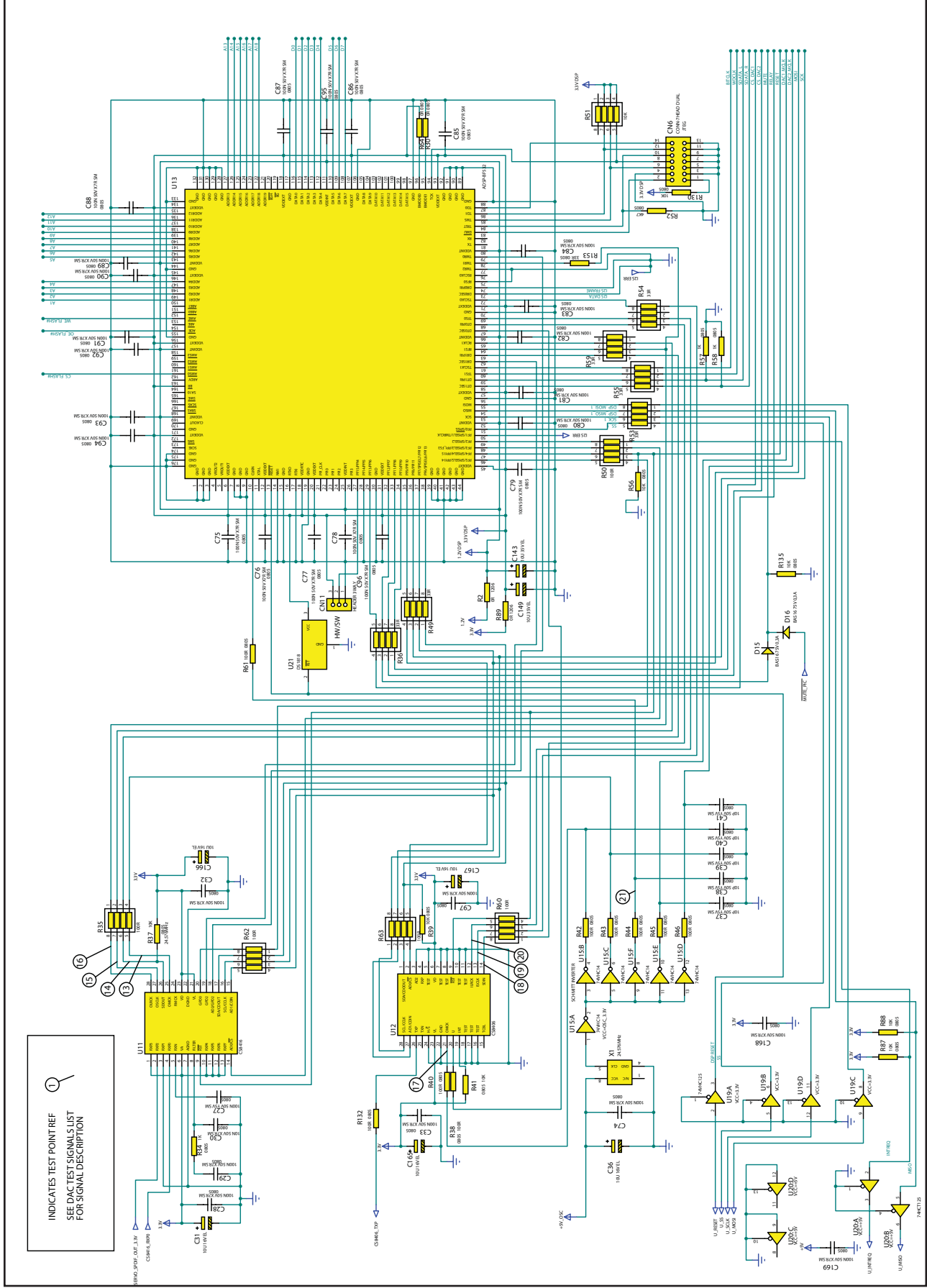


1 INDICATES TEST POINT REF SEE DAC TEST SIGNALS LIST FOR SIGNAL DESCRIPTION

Cambridge Audio Azur 840C CD Player

Test Point Schematic Ref	Page	Signal Type	Measurement Node	Description	Measurement	Meter Type
1	1	Digital	U7 pin 3	SPDIF optical 1 I/P	5V C Continuous serial data signal	'scope
2	1	Digital	U7 pin 13	SPDIF coax 1 I/P after level convert	5V C Continuous serial data signal	'scope
3	1	Digital	U7 pin 4	SPDIF optical 2 I/P	5V C continuous serial data signal	'scope
4	1	Digital	U7 pin 12	SPDIF coax 2 I/P after level convert	5V C Continuous serial data signal	'scope
5	1	Digital	U8 pin 1	SPDIF optical I/P 1 or 2 (I/P 1 or 2 selected)	3V3 C Continuous serial data signal	'scope
6	1	Digital	U8 pin 2	SPDIF coax I/P 1 or 2 (I/P 1 or 2 selected)	3V3 Continuous serial data signal	'scope
7	1	Digital	U9 pin 3	SPDIF signal after I/P selection to SPDIF RX ch 0 (to DSP)	3V3 Continuous serial data signal	'scope
8	1	Digital	U8 pin 4	SPDIF signal from CD servo (CD playback selected)	5V C Continuous serial data signal	'scope
9	1	Digital	U8 pin 6	SPDIF signal from CD servo to SPDIF RX ch 2 (to DSP)	3V3 C continuous serial data signal	'scope
10	1	Digital	U9 pin 5	SPDIF signal from CD servo 3V3 pass thro' (CD playback & Pass thro' selected)	3V3 Continuous serial data signal	'scope
11	1	Digital	U9 pin 4	SPDIF signal from SPDIF TX (from DSP)	3V3 Continuous serial data signal	'scope
12	1	Digital	U9 pin 7	SPDIF coax/optical O/P	5V Continuous serial data signal	'scope

Cambridge Audio Azur 840C CD Player



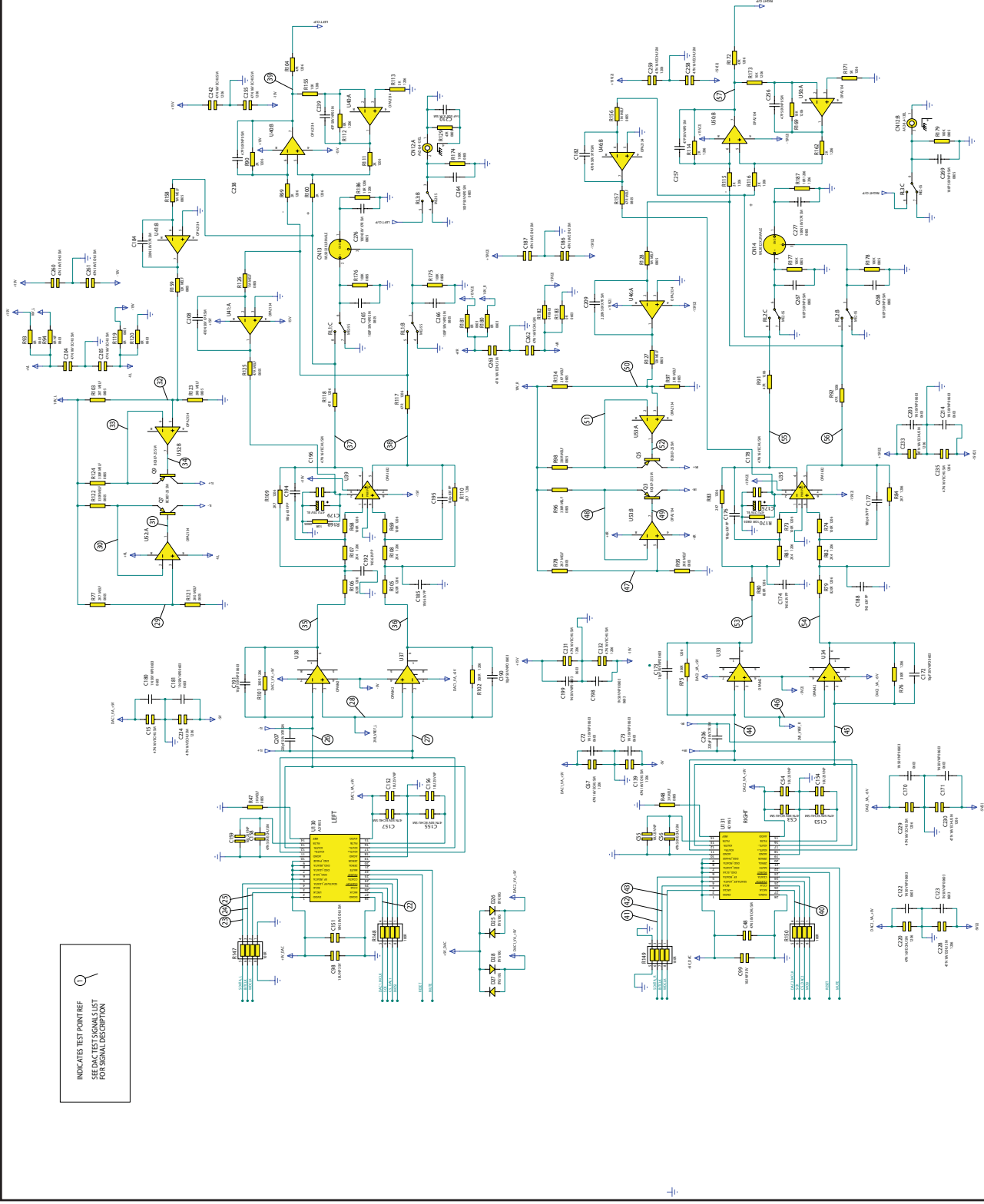
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API9129/4 DAC DSP Circuit Diagram (DSP)

Cambridge Audio Azur 840C CD Player

Test Point Schematic Ref	Page	Signal Type	Measurement Node	Description	Measurement	Meter Type
13	2	Digital	U11 pin 25	SPDIF RX master clock	3V3 24.576MHz square wave	'scope
14	2	Digital	U11 pin 26	From SPDIF RX Digital audio Data (SPDIF I/P or CD With disc playing)	3V3 Continuous serial data signal	'scope
15	2	Digital	U11 pin 27	From SPDIF RX Digital audio Bit CLK (CD selected With disc playing)	3V3 square wave 2.8MHz (for 44.1kHz sample freq from CD)	'scope
16	2	Digital	U11 pin 28	From SPDIF RX Digital audio Word CLK (CD selected With disc playing)	3V3 square wave 44.1kHz (for 44.1kHz sample freq from CD)	'scope
17	2	Digital	U12 pin 21	SPDIF TX master clock	3V3 24.576MHz square wave	'scope
18	2	Digital	U12 pin 14	To SPDIF TX Digital audio Data (SPDIF I/P or CD With disc playing)	3V3 Continuous serial data signal	'scope
19	2	Digital	U12 pin 13	To SPDIF TX Digital audio Bit CLK (CD selected With disc playing & Upsample frequency set to 48kHz)	3V3 square wave 3MHz (for 48kHz sample freq from DSP)	'scope
20	2	Digital	U12 pin 12	To SPDIF TX Digital audio Word CLK (CD selected With disc playing)	3V3 square wave 48kHz (for 48kHz sample freq from DSP)	'scope
21	2	Digital	R44/C38	DSP Master clock	3V3 24.576MHz square wave	'scope

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Test Point Schematic Ref	Page	Signal Type	Measurement Node	Description	Measurement	Meter Type
22	4	Digital	U130 pin 27	To DAC1 master clock	3V3 24.576MHz square wave	'scope
23	4	Digital	U130 pin 4	To DAC1 Digital audio Data (SPDIF I/P or CD With disc playing)	3V3 Continuous serial data signal	'scope
24	4	Digital	U130 pin 3	To DAC1 Digital audio Bit CLK (CD selected With disc playing)	3V3 square wave 12.288MHz	'scope
25	4	Digital	U130 pin 2	To DAC1 Digital audio Word CLK (CD selected With disc playing)	3V3 pulses to 0V repetition rate 384kHz.	'scope
26	4	Voltage	U38 pin 2	Mid rail DC voltage of + ve current O/P of DAC	2.8V dc	voltmeter
27	4	Voltage	U37 pin 2	Mid rail DC voltage of -ve current O/P of DAC	2.8V dc	voltmeter
28	4	Voltage	U37 pin 3	Mid rail DC voltage ref	2.8V dc	voltmeter
29	4	Voltage	U52 pin 3	Current source ref voltage	4.0V dc	voltmeter
30	4	Voltage	U52 pin 2	Current source ref voltage	4.0V dc	voltmeter
31	4	Voltage	U52 pin 1	Current source ref voltage	3.3V dc	voltmeter
32	4	Voltage	U52 pin 5	Current source ref voltage	4.0V dc	voltmeter
33	4	Voltage	U52 pin 6	Current source ref voltage	4.0V dc	voltmeter
34	4	Voltage	U52 pin 7	Current source ref voltage	3.3V dc	voltmeter

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Test Point Schematic Ref	Page	Signal Type	Measurement Node	Description	Measurement	Meter Type
35*	4	Voltage/Analogue	U38 pin 6	Current to voltage O/P +ve dc voltage / ac waveform / THD measurement (CD selected With disc playing 1kHz 0dB FS tone)	Approx -0.45V dc	voltmeter
					1kHz sine wave 2V p-p	'scope
					0.02% THD+N (22K BW)	THD meter
36*	4	Voltage/Analogue	U37 pin 6	Current to voltage O/P -ve dc voltage / ac waveform / THD measurement (CD selected With disc playing 1kHz 0dB FS tone)	Approx -0.45V dc	voltmeter
					1kHz sine wave 2V p-p	scope
					0.02% THD+N (22K BW)	THD meter
37*	4	Voltage/Analogue	U39 pin 4	O/P from filter stage +ve dc voltage / ac waveform / THD measurement (CD selected With disc playing 1kHz 0dB FS tone)	Less than 5mV dc	Voltmeter'scope
					1kHz sine wave 6.3V p-p 2.2Vrms	scope
					approx 0.001% THD+N (22K BW)	THD meter
38	4	Voltage/Analogue	U39 pin 5	O/P from filter stage -ve dc voltage / ac waveform / THD measurement (CD selected With disc playing 1kHz 0dB FS tone)	(0.0006% bal THD +N (22K BW) a/c pins 4 & 5 U39)	THD meter
					Less than 5mV dc	voltmeter
					1kHz sine wave 6.3V p-p 2.2Vrms	'scope
39*	4	Voltage/Analogue	U40 pin 7	O/P unbalanced stage dc voltage / ac waveform / THD measurement (CD selected With disc playing 1kHz 0dB FS tone)	approx 0.001% THD+N (22K BW)	THD meter
					(0.0006% THD +N (22K BW) bal a/c pins 4 & 5 U39)	THD meter
					Less than 5mV dc	voltmeter
39*	4	Voltage/Analogue	U40 pin 7	O/P unbalanced stage dc voltage / ac waveform / THD measurement (CD selected With disc playing 1kHz 0dB FS tone)	1kHz sine wave 6.3V p-p 2.2Vrms	scope
					approx 0.0006% THD +N (22K BW)	THD meter

*THD Measurements: Measurements taken using Audio Precision System 1 with X1 1M scope prob

Cambridge Audio Azur 840C CD Player

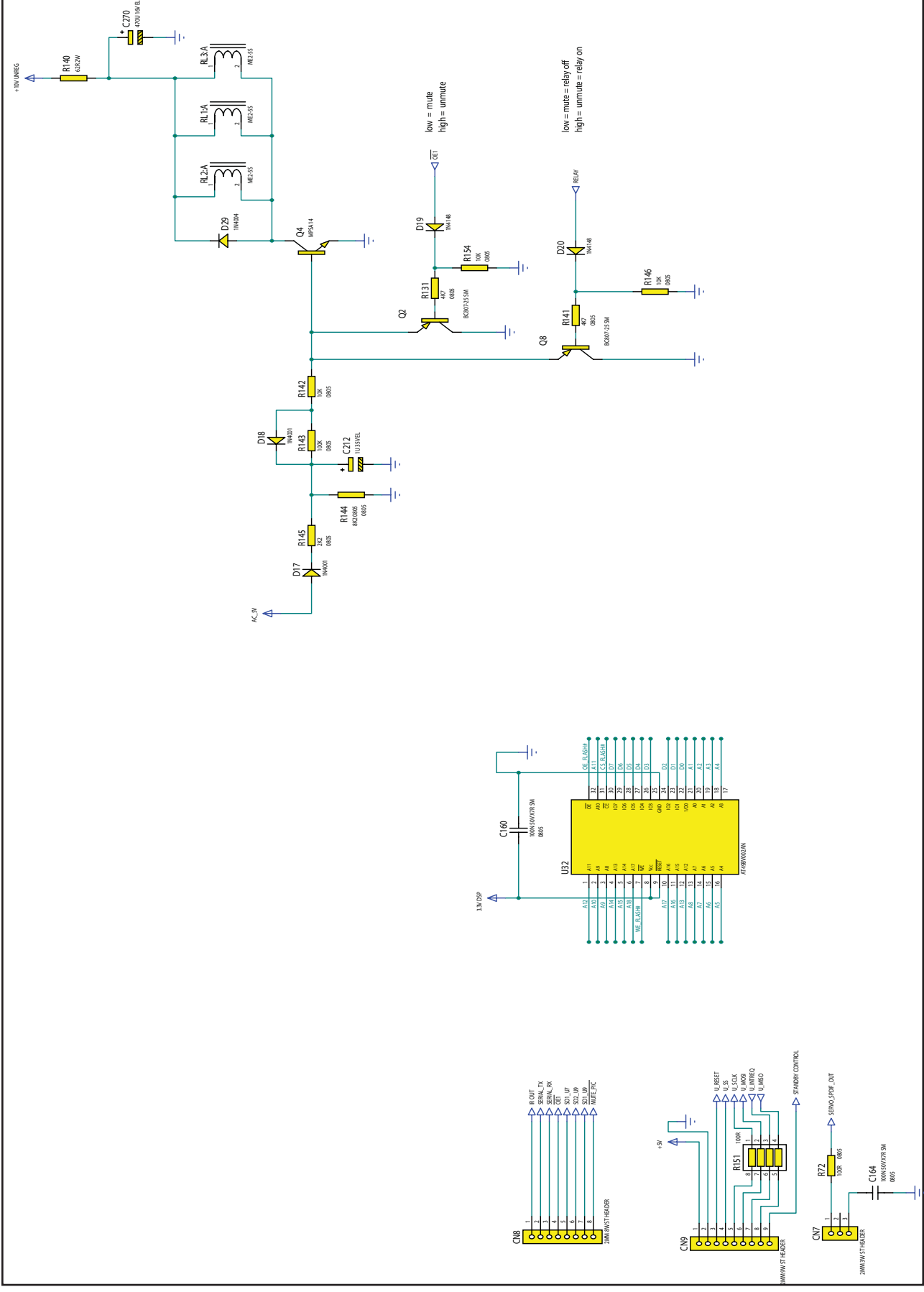
Test Point Schematic Ref	Page	Signal Type	Measurement Node	Description	Measurement	Meter Type
40	4	Digital	U131 pin 27	To DAC2 master clock	3V3 24.576MHz square wave	'scope
41	4	Digital	U131 pin 5	To DAC2 Digital audio Data (SPDIF I/P or CD With disc playing)	3V3 Continuous serial data signal	'scope
42	4	Digital	U131 pin 3	To DAC1 Digital audio Bit CLK (CD selected With disc playing)	3V3 square wave 12.288MHz	'scope
43	4	Digital	U131 pin 2	To DAC1 Digital audio Word CLK (CD selected With disc playing)	3V3 pulses to 0V repetition rate 384kHz.	'scope
44	4	Voltage	U33 pin 2	Mid rail DC voltage of +ve current O/P of DAC	2.8V dc	voltmeter
45	4	Voltage	U34 pin 2	Mid rail DC voltage of -ve current O/P of DAC	2.8V dc	voltmeter
46	4	Voltage	U33 pin 3	Mid rail DC voltage ref	2.8V dc	voltmeter
47	4	Voltage	U53 pin 5	Current source ref voltage	4.0V dc	voltmeter
48	4	Voltage	U53 pin 6	Current source ref voltage	4.0V dc	voltmeter
49	4	Voltage	U53 pin 7	Current source ref voltage	3.3V dc	voltmeter
50	4	Voltage	U53 pin 3	Current source ref voltage	4.0V dc	voltmeter
51	4	Voltage	U53 pin 2	Current source ref voltage	4.0V dc	voltmeter
52	4	Voltage	U53 pin 1	Current source ref voltage	3.3V dc	voltmeter

Cambridge Audio Azur 840C CD Player

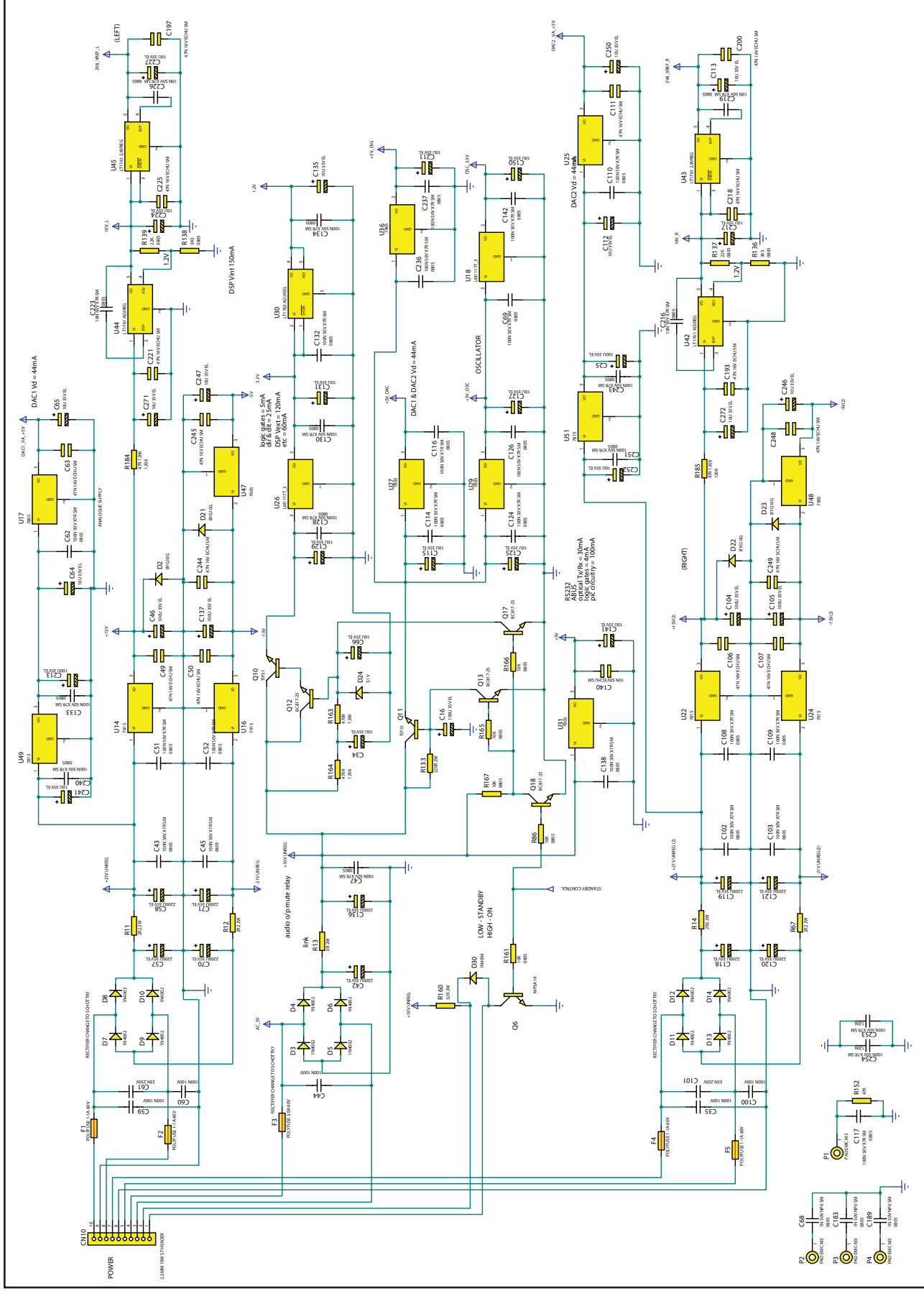
Test Point Schematic Ref	Page	Signal Type	Measurement Node	Description	Measurement	Meter Type
53	4	Voltage/Analogue	U33 pin 6	Current to voltage O/P +ve dc voltage / ac waveform / THD measurement (CD selected With disc playing 1kHz 0dB FS tone)	Approx -0.45V dc	Voltmeter/scope
					1kHz sine wave 2V p-p	scope
					0.02% THD+N (22K BW)	THD meter
54 *	4	Voltage/Analogue	U34 pin 6	Current to voltage O/P -ve dc voltage / ac waveform / THD measurement (CD selected With disc playing 1kHz 0dB FS tone)	Approx -0.45V dc	voltmeter
					1kHz sine wave 2V p-p	scope
		THD meter			0.02% THD+N (22K BW)	THD meter
55 *	4	Voltage/Analogue	U35 pin 4	O/P from filter stage +ve dc voltage / ac waveform / THD measurement (CD selected With disc playing 1kHz 0dB FS tone)	Less than 5mV dc	Voltmeter/scope
					1kHz sine wave 6.3V p-p 2.2Vrms	scope
		THD meter			approx 0.001% THD+N (22K BW)	THD meter
					(0.0006% THD +N (22K BW) bal a/c pins 4 & 5 U35)	THD meter
56 *	4	Voltage/Analogue	U35 pin 5	O/P from filter stage -ve dc voltage / ac waveform / THD measurement (CD selected With disc playing 1kHz 0dB FS tone)	Less than 5mV dc	voltmeter
					1kHz sine wave 6.3V p-p 2.2Vrms	scope
		THD meter			approx 0.001% THD+N (22K BW)	THD meter
					(0.0006% THD +N (22K BW) bal a/c pins 4 & 5 U35)	THD meter
57 *	4	Voltage/Analogue	U50 pin 7	O/P unbalanced stage dc voltage / ac waveform / THD measurement (CD selected With disc playing 1kHz 0dB FS tone)	Less than 5mV dc	voltmeter
					1kHz sine wave 6.3V p-p 2.2Vrms	scope
		THD meter			approx 0.0006% THD +N (22K BW)	THD meter

*THD Measurements: Measurements taken using Audio Precision System 1 with X1 1M scope prob

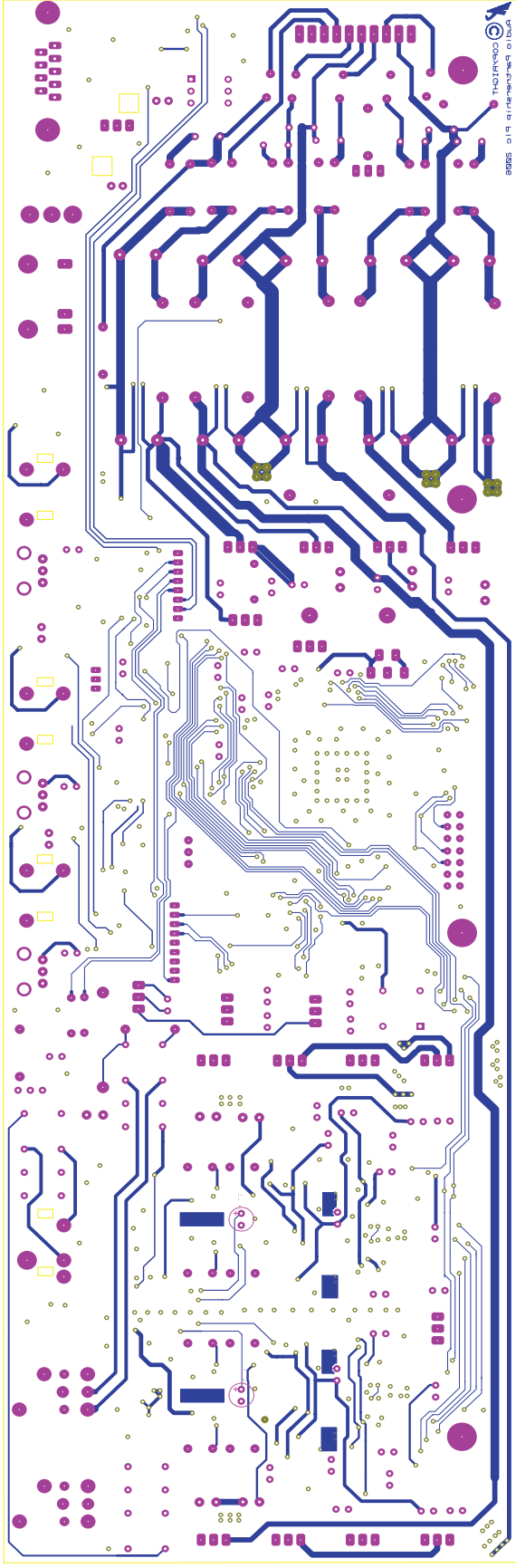
Cambridge Audio Azur 840C CD Player



Cambridge Audio Azur 840C CD Player



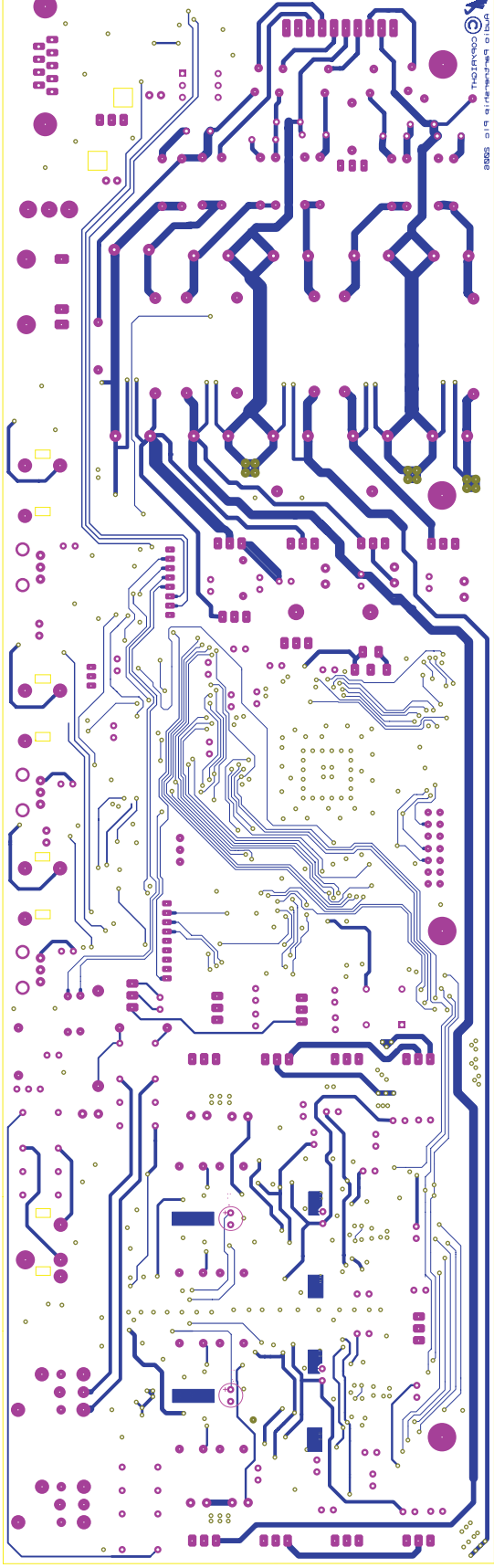
Cambridge Audio Azur 840C CD Player



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AP19129/4 DAC DSP Board Layout (Top Side)

Cambridge Audio Azur 840C CD Player



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API9129/4 DAC DSP Board Layout (Bottom Side)

AP Part No	Value	Description	Factory Part No	Qty	Component Ident	Notes
	Resistors					
220R		Resistor 0.063W		2	R1, R10	
0R		Resistor 0.125W		4	R2, R89, R186, R187	Rated current 2A Surge current 10A
10K		Resistor 0.063W		23	R3-R5, R21, R23, R26, R27, R37, R39, R41, R56, R86-R88, R130, R135, R142, R146, R154, R161, R165-R167	
100R		Resistor 0.063W		26	R6, R7, R15, R16, R17, R20, R22, R24, R25, R33, R38, R40, R42-R46, R61, R66, R70-R72, R85, R132, C273 position, C274 position	
2R2		Resistor 0.063W		1	R8	
47R		Resistor 0.063W		2	R9, R129	
32R 2W		Resistor 2W Carbon		1	R160	mount on formed leads above PCB
2R2 2W		Resistor 2W Carbon		4	R11, R12, R14, R67	mount on formed leads above PCB
2K2		Resistor 0.063W		1	R145	
75R		Resistor 0.063W		2	R18, R19	
0R		Resistor 0.063W		3	R28, R30, R64	
1K		Resistor 0.063W		5	R29, R34, R57, R58, R65	
430R		Resistor 0.063W		1	R31	
91R		Resistor 0.063W		1	R32	
100R		Resistor pack		10	R35, R50, R60, R62, R63, R147-R151	
33R		Resistor pack		6	R36, R49, R53-R55, R59	
3K		Resistor MELF type 0.2W		2	R47, R48	
10K		Resistor pack		1	R51	
4K7		Resistor 0.063W		3	R52, R131, R141	
47R		Resistor 0.125W		8	R91, R92, R104, R117, R118, R172, R184, R185	
300R		Resistor 0.125W		4	R75, R76, R101, R102	
2K7		Resistor MELF type 0.2W		4	R77, R78, R103, R134	
820R		Resistor 0.125W		4	R79, R80, R105, R106	
2K4		Resistor 0.125W		4	R81, R82, R107, R108	
2K7		Resistor 0.125W		4	R83, R84, R109, R110	
2K		Resistor 0.125W		8	R90, R99, R100, R111, R114-R116, R162	
0R		Resistor 0.063W		4	R93, R120, R181 R183	
2K		Resistor MELF type 0.2W		4	R95, R97, R121, R123	
330R		Resistor MELF type 0.2W		4	R96, R98, R122, R124	
10K		Resistor 0.125W		4	R112, R155, R169, R173	
5K		Resistor 0.125W		2	R113, R171	
12K		Resistor MELF type 0.2W		2	R127, R159	
1M		Resistor MELF type 0.2W		4	R126, R128, R156, R158	
220R 2W		2W Carbon		1	R133	mount on formed leads above PCB
3K3		Resistor 0.063W		2	R136, R138	
22K		Resistor 0.063W		2	R137, R139	
62R 2W		2W Carbon		1	R140	mount on formed leads above PCB
100K		Resistor 0.063W		7	R143, R174-R179	
8K2		Resistor 0.063W		1	R144	
47R		0.25W metal film		1	R152	
33R		Resistor 0.063W		1	R153	
47R		Resistor MELF type 0.2W		2	R125, R157	
100R		Resistor 0.125W		4	R68, R69, R73, R74	
470R		Resistor 0.125W		2	R163, R164	
10R		Resistor 0.063W		2	R168, R170	
	Capacitors					
10pF 50V		NPO Ceramic		4	C172, C173, C190, C191	
10pF 50V		NPO Ceramic		5	C37-C41	
47P 50V		NPO Ceramic		6	C201, C202, C238, C239, C256, C257	
100P 50V		NPO Ceramic		9	C17, C18, C22, C264-C269	
220pF 50V		NPO Ceramic		2	C206, C207	
150pF 63V PP		Polypropelene		4	C176, C177, C194, C195	7.2 X 4.5 (If different manufacturer please send sample)
1N 50V		NPO Ceramic		12	C72, C73, C122, C123, C170, C171, C180, C181, C198, C199, C203, C214	
1N 50V		NPO Ceramic		9	C1, C5, C6, C11, C13, C68, C183, C189, C210	
1N 5 63V PP		Polypropelene		4	C174, C185, C188, C192	7.2 X 4.5 (If different manufacturer please send sample)
10N 50V		X7R Ceramic		5	C30, C216, C219, C223, C226	
33nF 250V		Ceramic or Polyester		2	C61, C101	
47N 16V		ECHU		51	C15, C48, C49, C50, C53, C56, C63, C67, C106, C107, C111, C139, C151, C153, C155, C157, C158, C178, C186, C187, C193, C196, C197, C200, C204, C205, C218, C220, C221, C225, C228-C235, C242, C244, C245, C248, C249, C255, C258-C263	
100N 50V		X7R Ceramic		21	C75-C84, C86-C96	

Note: resistors, capacitors and other 'generic' electronic components are not usually stocked by the manufacturer. Please obtain these locally.

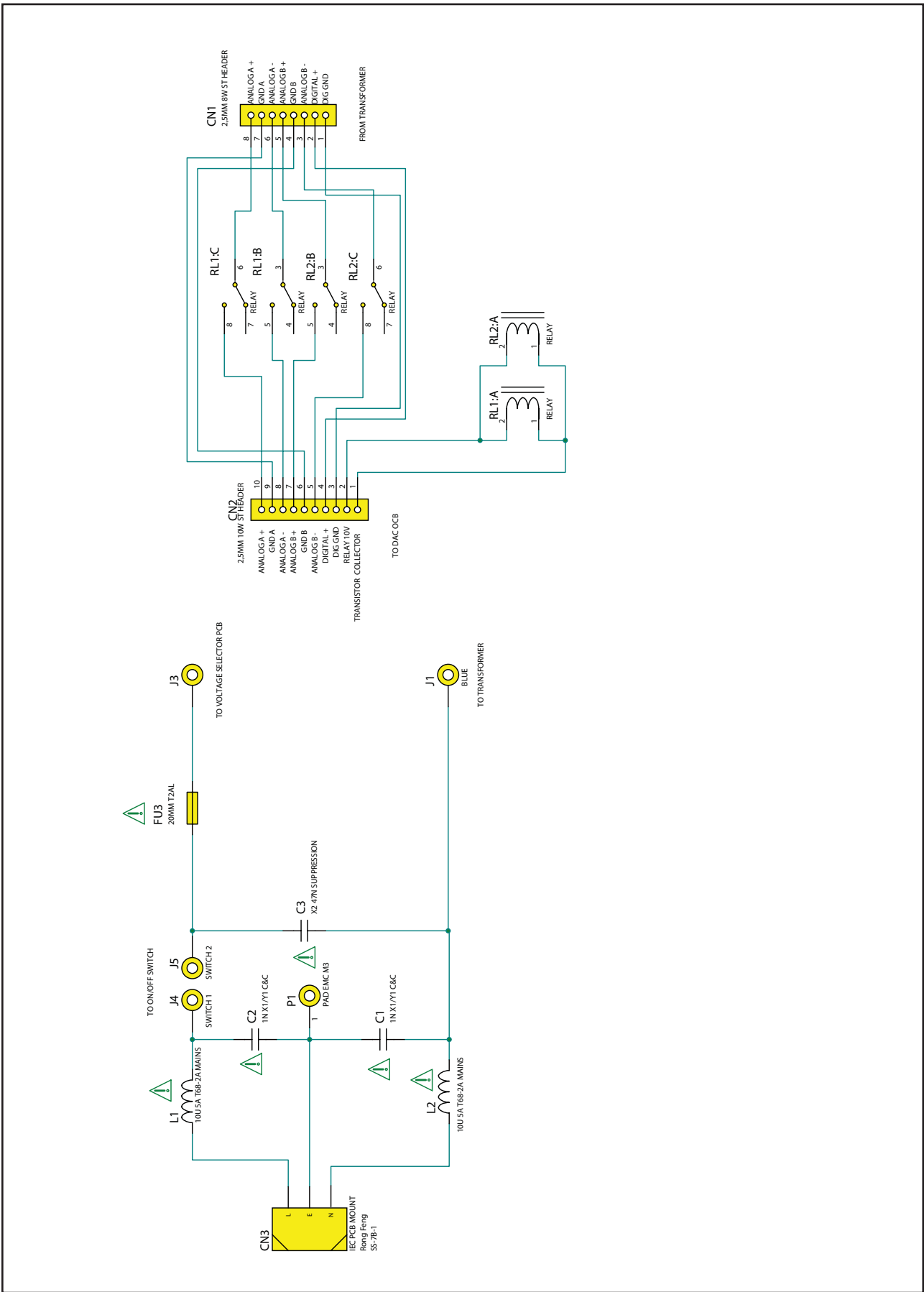
AP Part No	Value	Description	Factory Part No	Qty	Component Ident	Notes
	100N 50V	X7R Ceramic		66	C2, C4, C7, C9, C12, C14, C21, C19, C20, C23, C24, C27, C28, C29, C32, C33, C43, C45, C47, C51, C52, C62, C69, C74, C85, C97, C102, C103, C108-C110, C114, C116, C117, C124, C126, C128, C130, C132-C134, C138, C140, C142, C144-C148, C160, C161-C163, C164, C168, C169, C215, C222, C236, C237, C240, C243, C251, C275-C277	
	100N 50V	X7R Ceramic		2	C253, C254	
	100N 50V	X7R Ceramic		2	C278, C279	
	100N 100V	Monolithic Ceramic		5	C35, C44, C59, C60, C100	
	220N 50V	X7R Ceramic		2	C184, C209	
	470N 50V	X7R Ceramic		2	C182, C208	
	10U 16V	Polar Electrolytic		10	C3, C8, C10, C26, C31, C36, C165-C167, C212	
	10U 35V	Polar Electrolytic		27	C34, C64-C66, C112, C113, C115, C125, C127, C129, C131, C135, C141, C143, C149, C150, C211, C217, C224, C227, C241, C246, C247, C250, C252, C271, C272	
	10U 35V NP			8	C54, C55, C98, C99, C152, C154, C156, C159	
	100U 35V	Polar Electrolytic		7	C16, C25, C46, C104, C105, C137, C213	
	470U 16V	Polar Electrolytic		1	C270	
	2200U 35V	Polar Electrolytic		10	C42, C57, C58, C70, C71, C118-C121, C136	With Cambridge Audio sleeve AP19456/*
	Transistors					
		PNP	BC807-25 SM	6	Q2, Q3, Q5, Q7-Q9	
		NPN (Darlington)	MPSA14	2	Q4, Q6	
		NPN (Power)	TIP31	2	Q10, Q11	Mount on heatsink AP19208/3
		NPN	BC817-25	5	Q1, Q12, Q13, Q17, Q18	
	Diodes					
PY962		RED LED	MV50640	1	D1	IR housing (AP17339/3) with LED MV50640 & TSOP1836 IR Receiver
		SMT DIODE	BYG10G	8	D2, D21-D23, D25-D28	
PY1191		SCHOTTKY RECTIFIER DIODE 1A	SB1H100	4	D3-D6	SUB : 1. MBR1100TR = International rectifier
		DIODE	1N4004	10	D7-D14, D29, D30	
		SMT DIODE	BAS16	2	D15, D16	
		DIODE	1N4001	2	D17, D18	
		DIODE	1N4148	2	D19, D20	
		6.2V ZENER	BZX79-C6V2	1	D24	
	Integrated Circuits					
		IR Receiver	TSOP1836 IR RECEIVER	1	U1	
		Opto-isolator	OP4N25	1	U2	
		Quad NAND CMOS	4011	1	U3	
		OPTICAL RECEIVER	RX179AT	2	U4, U5	
		HEX Inverter	74VHC14	2	U6, U15	
PY990		Dual 4-1 MUX	74VHC153	1	U7	
PY990		Dual 4-1 MUX	74HCT153	1	U9	
		Quad OR Gates	74VHC32	1	U8	
PY363		OPTICAL TRANSMITTER	TX179AT	1	U10	
PY980		SPDIF RX IC	CS8416CZ	1	U11	
PY979		SPDIF TXIC	CS8406CZ	1	U12	
PY982		DSP	ADSP-BF532BST Z400	1	U13	
		+15V REGULATOR	7815	4	U14, U22, U49, U51	
		-15V REGULATOR	7915	2	U16, U24	
		+5V REGULATOR	7805	6	U17, U25, U27, U29, U31, U36	
PY986		+3.3V REGULATOR	LM1117T_3.3	2	U18, U26	
		Quad Buffer	74VHC125	1	U19	
		Quad Buffer	74HCT125	1	U20	
		Reset IC	DS1818	1	U21	
		Hex Inverter	74HCU04	1	U23	
			MAX202CSE	1	U28	
PY988		+1.2V REGULATOR	LT1963AET	1	U30	
PY985		Flash ROM	AT49BV002AN 70TU	1	U32	Program with Software
		OP-AMP single	OPA842ID	4	U33, U34, U37, U38	
		OP-AMP balanced	OPA1632DGN	2	U35, U39	
		OP-AMP dual	OPA2134UA	6	U40, U41, U46, U50, U52, U53	
PY987		REGULATOR	LT1761ES5-BYP	2	U42, U44	
PY987		2.8V REGULATOR	LT1761ES5-2.8	2	U43, U45	
		-5V REGULATOR	7905	2	U47, U48	
PY981		DAC	AD1955ARS	2	U130, U131	
	Connectors					
		Phono Socket dual horizontal	AV2-8.4-14/EC	1	CN1	orange insert, gold plated

Note: resistors, capacitors and other 'generic' electronic components are not usually stocked by the manufacturer. Please obtain these locally.

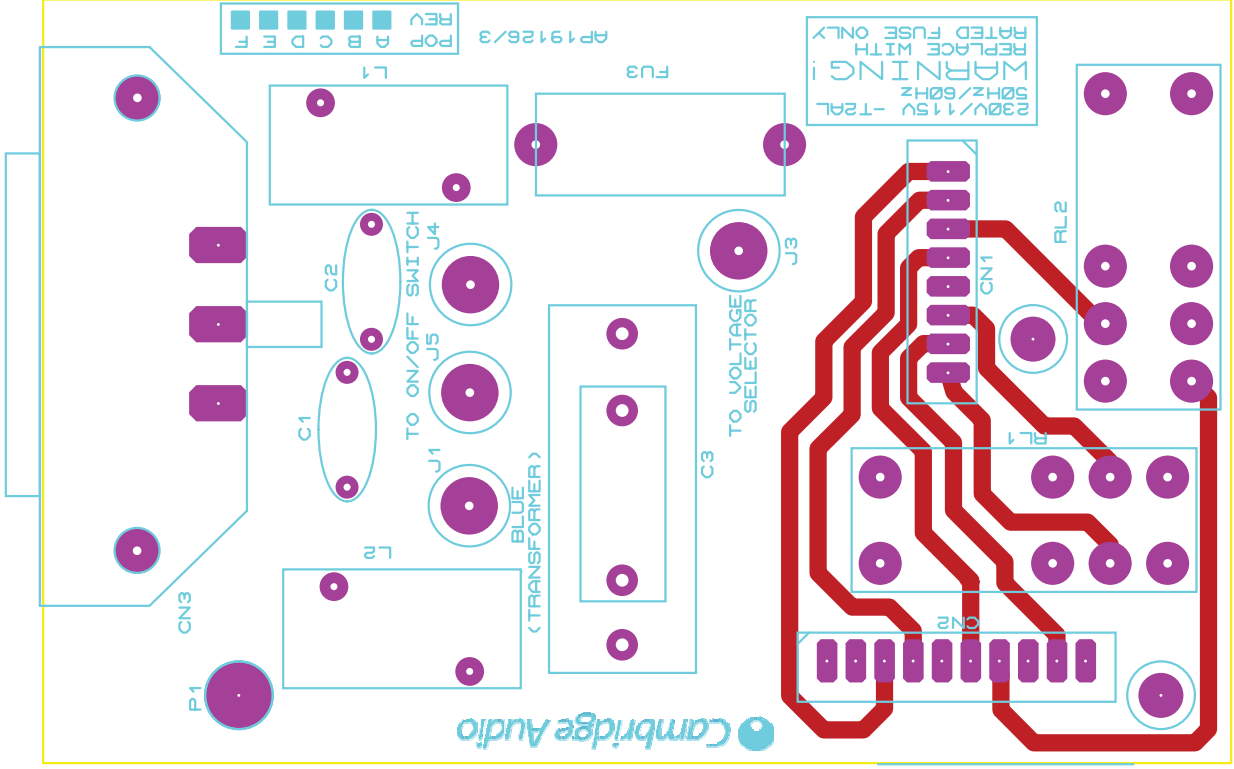
AP Part No	Value	Description	Factory Part No	Qty	Component Ident	Notes
		9 Way D Type PCB Right Angle		1	CN2	
		Phono Socket single	AV-8.4-8ES	3	CN3-CN5	black insert, gold plated
		2x7 Way Vertical Header		1	CN6	
		2MM 3W ST HEADER	B3B-PH-KS	1	CN7	
		2MM 8W ST HEADER	B9B-PH-KS	1	CN8	
		2MM 9W ST HEADER	B9B-PH-KS	1	CN9	
		2,5MM 10W ST HEADER	B10B-XH-A	1	CN10	
		Phono Socket vertical dual	AV2-8.4-13EL	1	CN12	white insert (top)/red insert (bottom), gold plated
		XLR SKT Male	5032A	2	CN13, CN14	latching type
		3.5mm JACK SKT	CKX-3.5-12	1	CN100	
	Crystal					
	24.576MHz		CH015M2457600-AFHJ00	1	X1	
	Inductor					
	47uH			3	L2-L4	Idc min= 150mA
	Relay					
			ME2-5S	3	RL1-RL3	
	Fuse					
	3.0A	Polyfuse	WH60-300	1	F3	
	1.1A	Polyfuse	WH60-110	4	F1,F2,F4,F5	

Note: resistors, capacitors and other 'generic' electronic components are not usually stocked by the manufacturer. Please obtain these locally.

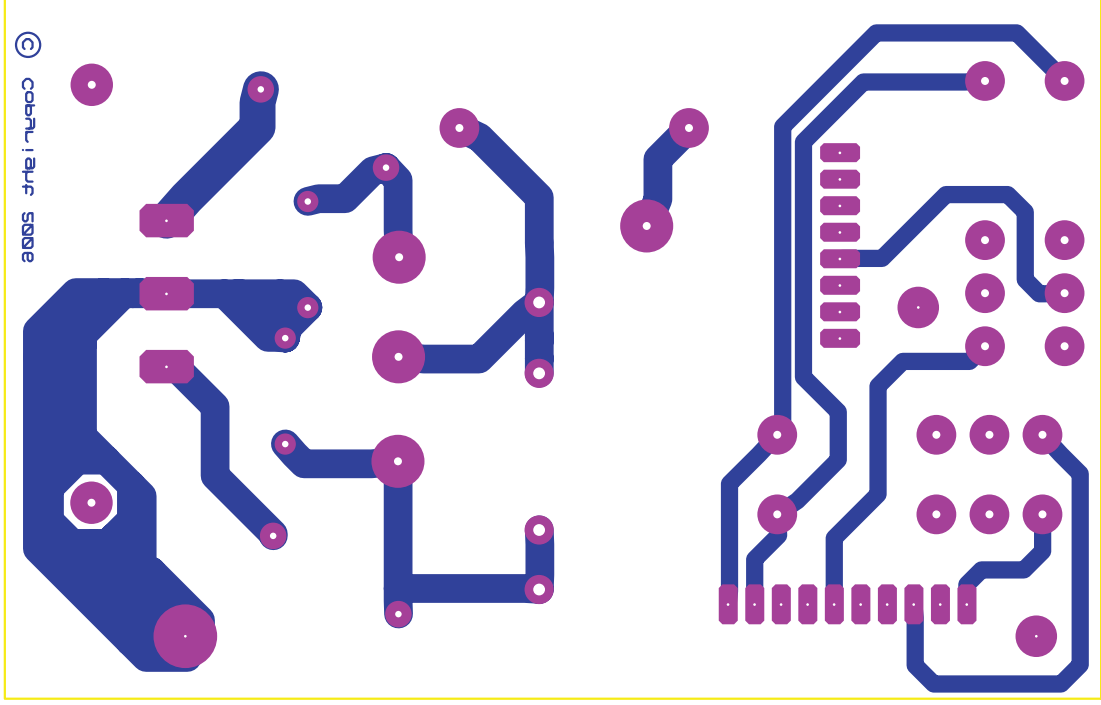
Cambridge Audio Azur 840C CD Player



Cambridge Audio Azur 840C CD Player



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AP19125/3 Mains PCB Board Layout (Bottom Side)

Cambridge Audio Azur 840C CD Player Mains PCB BOM

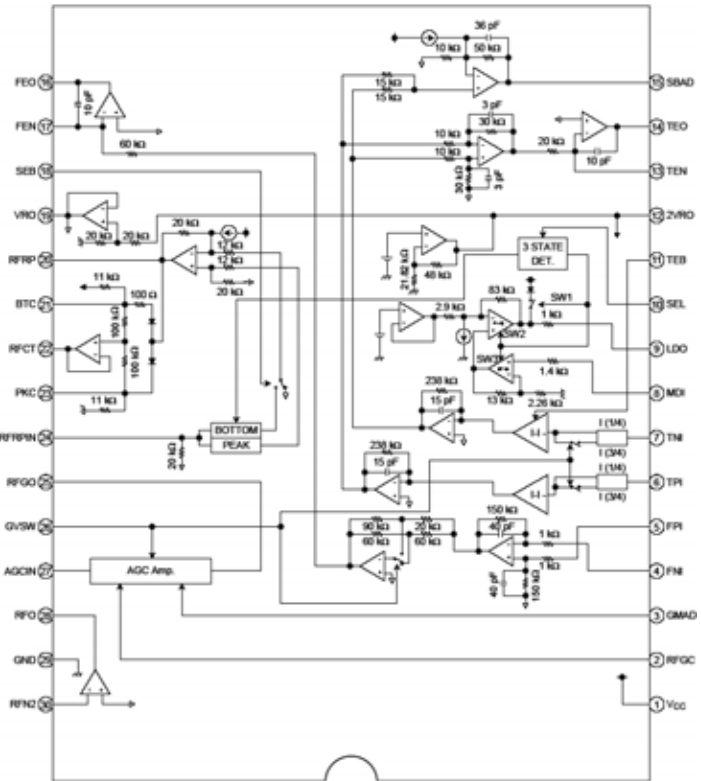
AP19128/2

AP Part No	Value	Description	Qty	Component Ident	Factory Part No.	Notes
	CAPACITORS					
	1n X1/Y1	10mm pitch Polyester Capacitor	2	C1, C2		
	47N X2	15mm pitch Polyester Capacitor	1	C3		15mm Pitch
	CONNECTORS					
	IEC-SOCKET	3 Way IEC Connector	1	CN3	2336-003910-002	
	B10B-XH-A	JST 10 Way 2.54mm	1	CN2		
	B8B-XH-A	JST 8 Way 2.54mm	1	CN1		
	MISCELLANEOUS					
	AP13570/1	10uH 5A Mains Inductor	2	L1, L2		T68-2A 32.5 Turns with UL Heatsink
	ME-11 005	Relay 5V ME-11	2	RL1, RL2		
	T2AL	2A slow blow fuse 20mm LBC (low breaking capacity)	1	FU3	4030-618002-001	
		20MM Fuse Holder	3	FU3	4034-000030-000	
		Fuse Cover	3	FU3	4031-050100-001	

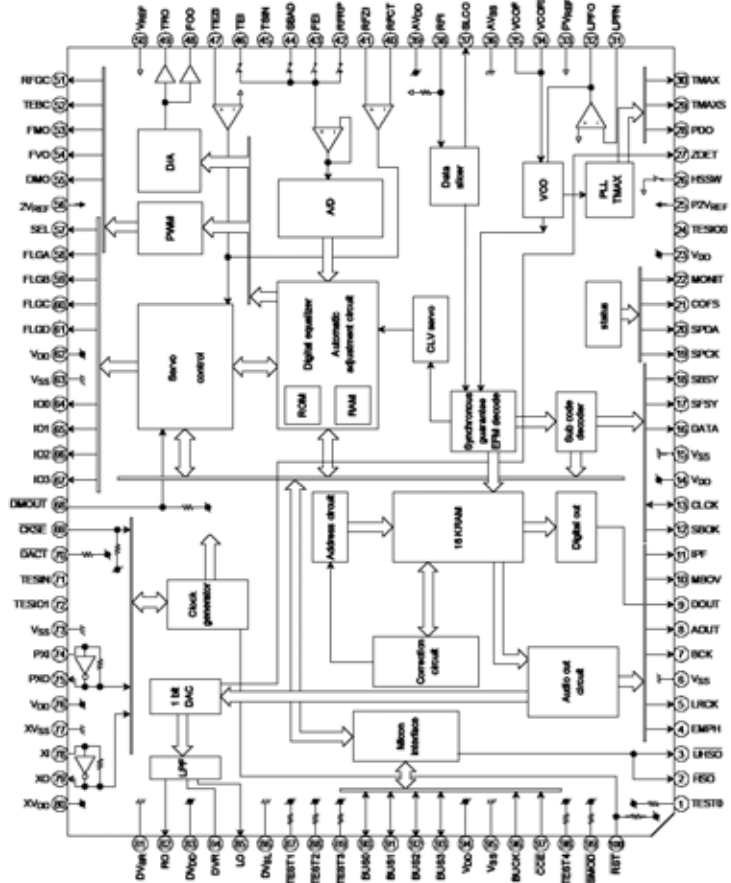
Note: resistors, capacitors and other 'generic' electronic components are not usually stocked by the manufacturer. Please obtain these locally.

Cambridge Audio Azur 840C CD player IC Pin Layout Details

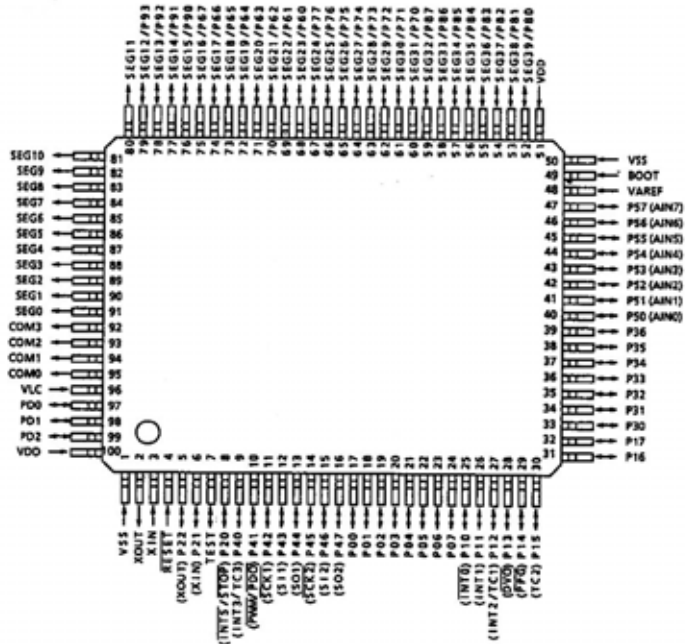
TA2153FN
Servo PCB (U1)



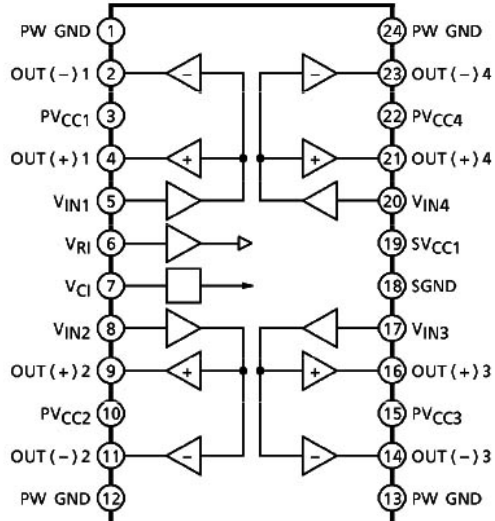
TC9462FG
Servo PCB (U2)



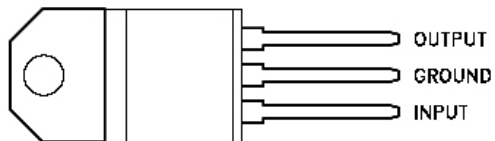
MCU TMP87EP26F-1J15
Servo PCB (U3)



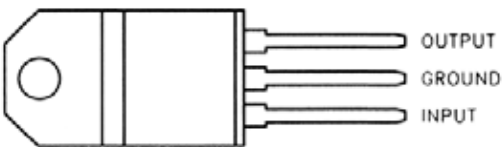
TA2092N
Servo PCB (U6)



7808
Servo PCB (U7)



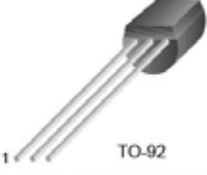
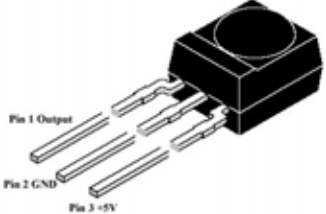


7805
Servo PCB (U8)
DAC PCB (U17, U25, U27, U29, U31 & U36)

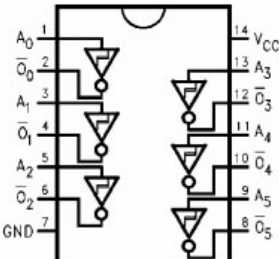
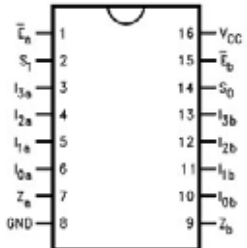
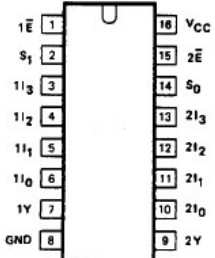
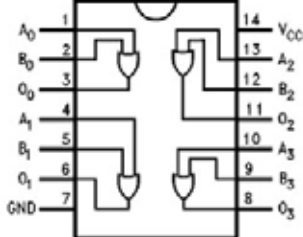



C8050D
Servo PCB (Q7, Q8, Q11 & Q12)

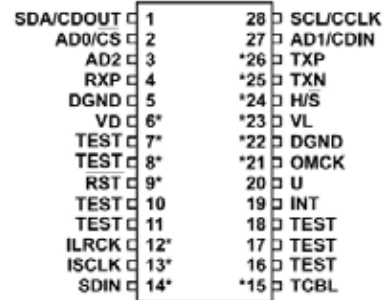


<p>9014C Servo PCB (Q13)</p>	 <p>Pin : 1. Emitter 2. Base 3. Collector</p>																																																																																																																																																																																				
<p>C8550 Servo PCB (Q9 & Q10)</p>	<p>TO-92A</p>  <p>EBC</p>																																																																																																																																																																																				
<p>9015C Servo PCB (Q1)</p>	 <p>TO-92 1. Emitter 2. Base 3. Collector</p>																																																																																																																																																																																				
<p>TSOP1836SS3V Front Panel PCB (U1)</p>	 <p>Pin 1 Output Pin 2 GND Pin 3 -5V</p>																																																																																																																																																																																				
<p>PIC16F877A-I/P Front Panel PCB (U2)</p>	<table border="0"> <tr> <td>MCLR/VPP</td><td>→</td><td>□</td><td>1</td><td></td><td>40</td><td>□</td><td>↔</td><td>RB7/PGD</td> </tr> <tr> <td>RA0/AN0</td><td>↔</td><td>□</td><td>2</td><td></td><td>39</td><td>□</td><td>↔</td><td>RB6/PGC</td> </tr> <tr> <td>RA1/AN1</td><td>↔</td><td>□</td><td>3</td><td></td><td>38</td><td>□</td><td>↔</td><td>RB5</td> </tr> <tr> <td>RA2/AN2/VREF-/CVREF</td><td>↔</td><td>□</td><td>4</td><td></td><td>37</td><td>□</td><td>↔</td><td>RB4</td> </tr> <tr> <td>RA3/AN3/VREF+</td><td>↔</td><td>□</td><td>5</td><td></td><td>36</td><td>□</td><td>↔</td><td>RB3/PGM</td> </tr> <tr> <td>RA4/T0CKI/C1OUT</td><td>↔</td><td>□</td><td>6</td><td></td><td>35</td><td>□</td><td>↔</td><td>RB2</td> </tr> <tr> <td>RA5/AN4/SS/C2OUT</td><td>↔</td><td>□</td><td>7</td><td></td><td>34</td><td>□</td><td>↔</td><td>RB1</td> </tr> <tr> <td>RE0/RD/AN5</td><td>↔</td><td>□</td><td>8</td><td></td><td>33</td><td>□</td><td>↔</td><td>RB0/INT</td> </tr> <tr> <td>RE1/WR/AN6</td><td>↔</td><td>□</td><td>9</td><td></td><td>32</td><td>□</td><td>←</td><td>VDD</td> </tr> <tr> <td>RE2/CS/AN7</td><td>↔</td><td>□</td><td>10</td><td></td><td>31</td><td>□</td><td>←</td><td>VSS</td> </tr> <tr> <td>VDD</td><td>→</td><td>□</td><td>11</td><td></td><td>30</td><td>□</td><td>↔</td><td>RD7/PSP7</td> </tr> <tr> <td>VSS</td><td>→</td><td>□</td><td>12</td><td></td><td>29</td><td>□</td><td>↔</td><td>RD6/PSP6</td> </tr> <tr> <td>OSC1/CLKI</td><td>→</td><td>□</td><td>13</td><td></td><td>28</td><td>□</td><td>↔</td><td>RD5/PSP5</td> </tr> <tr> <td>OSC2/CLKO</td><td>←</td><td>□</td><td>14</td><td></td><td>27</td><td>□</td><td>↔</td><td>RD4/PSP4</td> </tr> <tr> <td>RC0/T1OSO/T1CKI</td><td>↔</td><td>□</td><td>15</td><td></td><td>26</td><td>□</td><td>↔</td><td>RC7/RX/DT</td> </tr> <tr> <td>RC1/T1OSI/CCP2</td><td>↔</td><td>□</td><td>16</td><td></td><td>25</td><td>□</td><td>↔</td><td>RC6/TX/CK</td> </tr> <tr> <td>RC2/CCP1</td><td>↔</td><td>□</td><td>17</td><td></td><td>24</td><td>□</td><td>↔</td><td>RC5/SDO</td> </tr> <tr> <td>RC3/SCK/SCL</td><td>↔</td><td>□</td><td>18</td><td></td><td>23</td><td>□</td><td>↔</td><td>RC4/SDI/SDA</td> </tr> <tr> <td>RD0/PSP0</td><td>↔</td><td>□</td><td>19</td><td></td><td>22</td><td>□</td><td>↔</td><td>RD3/PSP3</td> </tr> <tr> <td>RD1/PSP1</td><td>↔</td><td>□</td><td>20</td><td></td><td>21</td><td>□</td><td>↔</td><td>RD2/PSP2</td> </tr> </table>	MCLR/VPP	→	□	1		40	□	↔	RB7/PGD	RA0/AN0	↔	□	2		39	□	↔	RB6/PGC	RA1/AN1	↔	□	3		38	□	↔	RB5	RA2/AN2/VREF-/CVREF	↔	□	4		37	□	↔	RB4	RA3/AN3/VREF+	↔	□	5		36	□	↔	RB3/PGM	RA4/T0CKI/C1OUT	↔	□	6		35	□	↔	RB2	RA5/AN4/SS/C2OUT	↔	□	7		34	□	↔	RB1	RE0/RD/AN5	↔	□	8		33	□	↔	RB0/INT	RE1/WR/AN6	↔	□	9		32	□	←	VDD	RE2/CS/AN7	↔	□	10		31	□	←	VSS	VDD	→	□	11		30	□	↔	RD7/PSP7	VSS	→	□	12		29	□	↔	RD6/PSP6	OSC1/CLKI	→	□	13		28	□	↔	RD5/PSP5	OSC2/CLKO	←	□	14		27	□	↔	RD4/PSP4	RC0/T1OSO/T1CKI	↔	□	15		26	□	↔	RC7/RX/DT	RC1/T1OSI/CCP2	↔	□	16		25	□	↔	RC6/TX/CK	RC2/CCP1	↔	□	17		24	□	↔	RC5/SDO	RC3/SCK/SCL	↔	□	18		23	□	↔	RC4/SDI/SDA	RD0/PSP0	↔	□	19		22	□	↔	RD3/PSP3	RD1/PSP1	↔	□	20		21	□	↔	RD2/PSP2
MCLR/VPP	→	□	1		40	□	↔	RB7/PGD																																																																																																																																																																													
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RA1/AN1	↔	□	3		38	□	↔	RB5																																																																																																																																																																													
RA2/AN2/VREF-/CVREF	↔	□	4		37	□	↔	RB4																																																																																																																																																																													
RA3/AN3/VREF+	↔	□	5		36	□	↔	RB3/PGM																																																																																																																																																																													
RA4/T0CKI/C1OUT	↔	□	6		35	□	↔	RB2																																																																																																																																																																													
RA5/AN4/SS/C2OUT	↔	□	7		34	□	↔	RB1																																																																																																																																																																													
RE0/RD/AN5	↔	□	8		33	□	↔	RB0/INT																																																																																																																																																																													
RE1/WR/AN6	↔	□	9		32	□	←	VDD																																																																																																																																																																													
RE2/CS/AN7	↔	□	10		31	□	←	VSS																																																																																																																																																																													
VDD	→	□	11		30	□	↔	RD7/PSP7																																																																																																																																																																													
VSS	→	□	12		29	□	↔	RD6/PSP6																																																																																																																																																																													
OSC1/CLKI	→	□	13		28	□	↔	RD5/PSP5																																																																																																																																																																													
OSC2/CLKO	←	□	14		27	□	↔	RD4/PSP4																																																																																																																																																																													
RC0/T1OSO/T1CKI	↔	□	15		26	□	↔	RC7/RX/DT																																																																																																																																																																													
RC1/T1OSI/CCP2	↔	□	16		25	□	↔	RC6/TX/CK																																																																																																																																																																													
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RD0/PSP0	↔	□	19		22	□	↔	RD3/PSP3																																																																																																																																																																													
RD1/PSP1	↔	□	20		21	□	↔	RD2/PSP2																																																																																																																																																																													
<p>DS18030-050 Front Panel PCB (U3)</p>	<table border="0"> <tr> <td>H1</td><td>□</td><td>1</td><td></td><td>16</td><td>□</td><td>VCC</td> </tr> <tr> <td>NC</td><td>□</td><td>2</td><td></td><td>15</td><td>□</td><td>NC</td> </tr> <tr> <td>L1</td><td>□</td><td>3</td><td></td><td>14</td><td>□</td><td>H0</td> </tr> <tr> <td>W1</td><td>□</td><td>4</td><td></td><td>13</td><td>□</td><td>L0</td> </tr> <tr> <td>A2</td><td>□</td><td>5</td><td></td><td>12</td><td>□</td><td>W0</td> </tr> <tr> <td>A1</td><td>□</td><td>6</td><td></td><td>11</td><td>□</td><td>NC</td> </tr> <tr> <td>A0</td><td>□</td><td>7</td><td></td><td>10</td><td>□</td><td>SDA</td> </tr> <tr> <td>GND</td><td>□</td><td>8</td><td></td><td>9</td><td>□</td><td>SCL</td> </tr> </table>	H1	□	1		16	□	VCC	NC	□	2		15	□	NC	L1	□	3		14	□	H0	W1	□	4		13	□	L0	A2	□	5		12	□	W0	A1	□	6		11	□	NC	A0	□	7		10	□	SDA	GND	□	8		9	□	SCL																																																																																																																												
H1	□	1		16	□	VCC																																																																																																																																																																															
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L1	□	3		14	□	H0																																																																																																																																																																															
W1	□	4		13	□	L0																																																																																																																																																																															
A2	□	5		12	□	W0																																																																																																																																																																															
A1	□	6		11	□	NC																																																																																																																																																																															
A0	□	7		10	□	SDA																																																																																																																																																																															
GND	□	8		9	□	SCL																																																																																																																																																																															

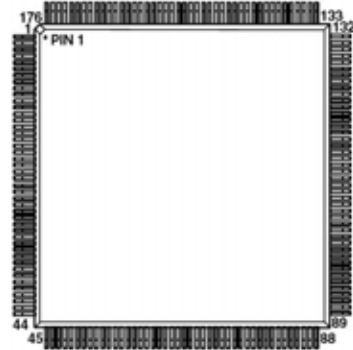
<p>PIC12C508A-I/P Front Panel PCB (U4)</p>	
<p>BA6218 Front Panel PCB (U5)</p>	
<p>BC337 Front Panel PCB (Q1, Q2, Q3 & Q4)</p>	
<p>TSOP1836 DAC PCB (U1)</p>	
<p>OP4N25 DAC PCB (U2)</p>	
<p>4011 DAC PCB (U3)</p>	
<p>RX179AT DAC PCB (U4 & U5)</p>	

<p>74VHC14 DAC PCB (U6 & U15)</p>																																																									
<p>74VHC153 DAC PCB (U7)</p>																																																									
<p>74HCT153 DAC PCB (U9)</p>																																																									
<p>74VHC32 DAC PCB (U8)</p>																																																									
<p>TX179AT DAC PCB (U10)</p>	 <p>PIN CONNECTION: 1: GND 2: VCC 3: INPUT</p>																																																								
<p>CS8416CZ DAC PCB (U11)</p>	<table border="0"> <tr> <td>RXP3</td><td>1*</td><td>28</td><td>OLRCK</td> </tr> <tr> <td>RXP2</td><td>2</td><td>27</td><td>OSCLK</td> </tr> <tr> <td>RXP1</td><td>3</td><td>26</td><td>SDOUT</td> </tr> <tr> <td>RXP0</td><td>4</td><td>25</td><td>OMCK</td> </tr> <tr> <td>RXN</td><td>5</td><td>24</td><td>RMCK</td> </tr> <tr> <td>VA</td><td>6</td><td>23</td><td>VD</td> </tr> <tr> <td>AGND</td><td>7</td><td>22</td><td>DGND</td> </tr> <tr> <td>FILT</td><td>8</td><td>21</td><td>VL</td> </tr> <tr> <td>RST</td><td>9</td><td>20</td><td>GPO0</td> </tr> <tr> <td>RXP4</td><td>10</td><td>19</td><td>GPO1</td> </tr> <tr> <td>RXP5</td><td>11</td><td>18</td><td>AD2 / GPO2</td> </tr> <tr> <td>RXP6</td><td>12</td><td>17</td><td>SDA / CDDUT</td> </tr> <tr> <td>RXP7</td><td>13</td><td>16</td><td>SCL / CCLK</td> </tr> <tr> <td>AD0 / CS</td><td>14</td><td>15</td><td>AD1 / CDIN</td> </tr> </table>	RXP3	1*	28	OLRCK	RXP2	2	27	OSCLK	RXP1	3	26	SDOUT	RXP0	4	25	OMCK	RXN	5	24	RMCK	VA	6	23	VD	AGND	7	22	DGND	FILT	8	21	VL	RST	9	20	GPO0	RXP4	10	19	GPO1	RXP5	11	18	AD2 / GPO2	RXP6	12	17	SDA / CDDUT	RXP7	13	16	SCL / CCLK	AD0 / CS	14	15	AD1 / CDIN
RXP3	1*	28	OLRCK																																																						
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RXN	5	24	RMCK																																																						
VA	6	23	VD																																																						
AGND	7	22	DGND																																																						
FILT	8	21	VL																																																						
RST	9	20	GPO0																																																						
RXP4	10	19	GPO1																																																						
RXP5	11	18	AD2 / GPO2																																																						
RXP6	12	17	SDA / CDDUT																																																						
RXP7	13	16	SCL / CCLK																																																						
AD0 / CS	14	15	AD1 / CDIN																																																						

CS8406CZ
DAC PCB (U12)

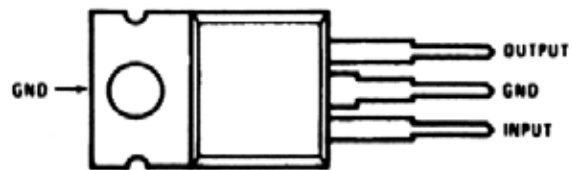


ADSP-BF532BSTZ400
DAC PCB (U13)

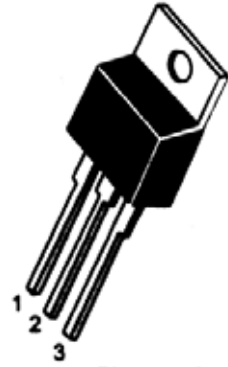


Lead No.	Signal	Lead No.	Signal	Lead No.	Signal	Lead No.	Signal	Lead No.	Signal
1	GND	41	GND	81	TX	121	ADDR19	161	AMS0
2	GND	42	GND	82	RX	122	ADDR18	162	ARDY
3	GND	43	GND	83	EMU	123	ADDR17	163	BR
4	VROUT1	44	GND	84	TRST	124	ADDR16	164	SA10
5	VROUT0	45	VDDEXT	85	TMS	125	ADDR15	165	SWE
6	VDDEXT	46	PF5	86	TDI	126	ADDR14	166	SCAS
7	GND	47	PF4	87	TDO	127	ADDR13	167	SRAS
8	GND	48	PF3	88	GND	128	GND	168	VDDINT
9	GND	49	PF2	89	GND	129	GND	169	CLKOUT
10	CLKIN	50	PF1	90	GND	130	GND	170	GND
11	XTAL	51	PF0	91	GND	131	GND	171	VDDEXT
12	VDDEXT	52	VDDINT	92	GND	132	GND	172	SMS
13	RESET	53	SCK	93	VDDEXT	133	GND	173	SCKE
14	NMI	54	MISO	94	TCK	134	VDDEXT	174	GND
15	GND	55	MOSI	95	BMODE1	135	ADDR12	175	GND
16	RTX0	56	GND	96	BMODE0	136	ADDR11	176	GND
17	RTX1	57	VDDEXT	97	GND	137	ADDR10		
18	VDDRTC	58	DT1SEC	98	DATA15	138	ADDR9		
19	GND	59	DT1PRI	99	DATA14	139	ADDR8		
20	VDDEXT	60	TFS1	100	DATA13	140	ADDR7		
21	PI_CLK	61	TSCLK1	101	DATA12	141	ADDR6		
22	PI0	62	DR1SEC	102	DATA11	142	ADDR5		
23	PI1	63	DR1PRI	103	DATA10	143	VDDINT		
24	PI2	64	RFS1	104	DATA9	144	GND		
25	VDDINT	65	RSCLK1	105	DATA8	145	VDDEXT		
26	PI3	66	VDDINT	106	GND	146	ADDR4		
27	PI5	67	DT0SEC	107	VDDEXT	147	ADDR3		
28	PI14	68	DT0PRI	108	DATA7	148	ADDR2		
29	PI13	69	TFS0	109	DATA6	149	ADDR1		
30	GND	70	GND	110	DATA5	150	ABET		
31	VDDEXT	71	VDDEXT	111	VDDINT	151	ABE0		
32	PI12	72	TSCLK0	112	DATA4	152	ABE		
33	PI11	73	DR0SEC	113	DATA3	153	ABE		
34	PI10	74	DR0PRI	114	DATA2	154	ABE		
35	PI9	75	RFS0	115	DATA1	155	GND		
36	PI8	76	RSCLK0	116	DATA0	156	VDDEXT		
37	PI7	77	TMR2	117	GND	157	VDDINT		
38	PI6	78	TMR1	118	VDDEXT	158	AMS3		
39	GND	79	TMR0	119	BZ	159	AMS2		
40	GND	80	VDDINT	120	BGH	160	AMS1		

7815
DAC PCB (U14, U22, U49 & U51)

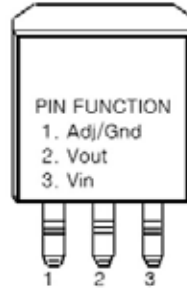


7915
DAC PCB (U16 & U24)

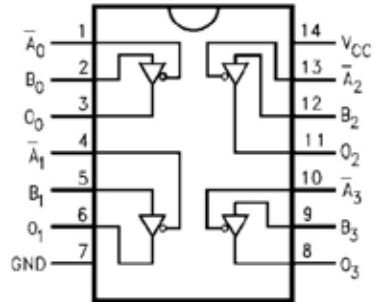


Pin 1. Ground
2. Input
3. Output

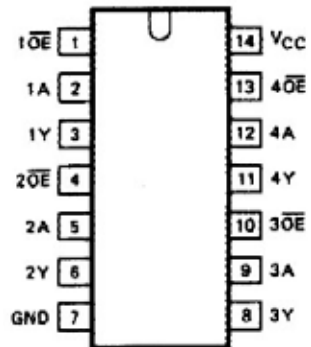
LM1117T_3.3
DAC PCB (U18 & U26)



74VHC125
DAC PCB (U19)



74HCT125
DAC PCB (U20)

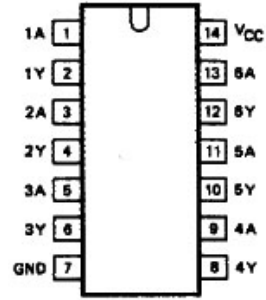


DS1818
DAC PCB (U21)

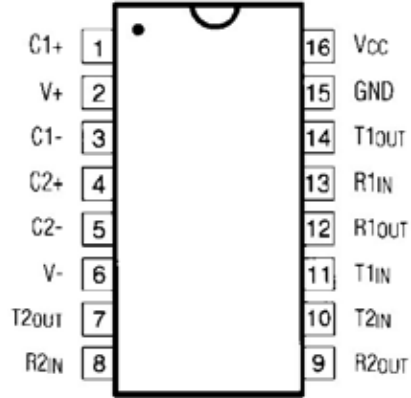


1 $\overline{\text{RST}}$ Active Low Reset Output
2 V_{CC} Power Supply
3 GND Ground

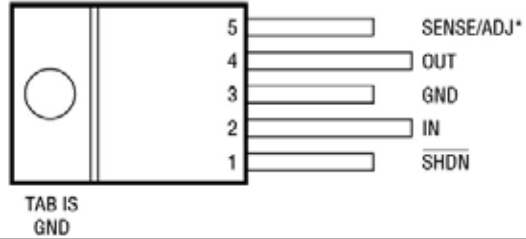
74HCU04
DAC PCB (U23)



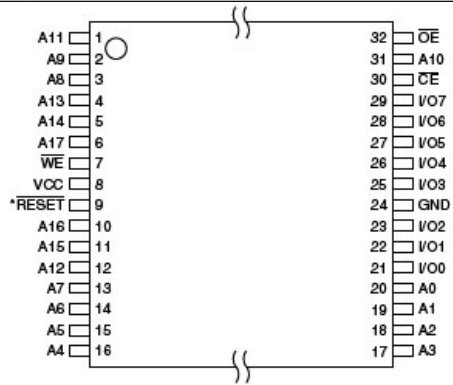
MAX202CSE
DAC PCB (U28)



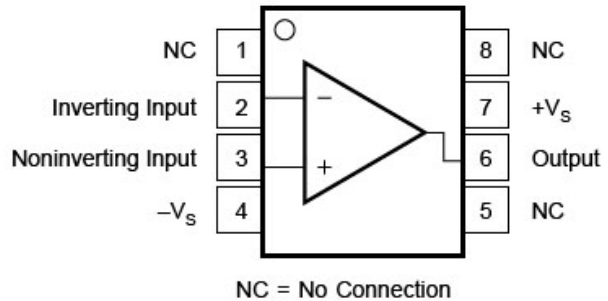
LT1963AET
DAC PCB (U30)

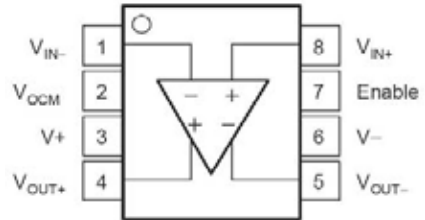
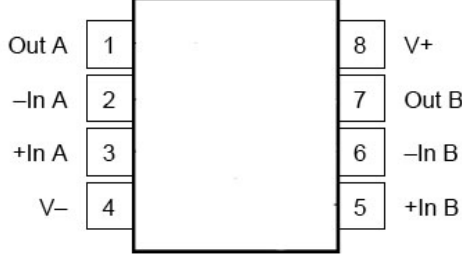
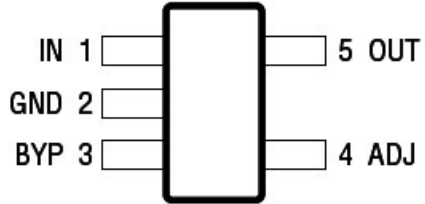
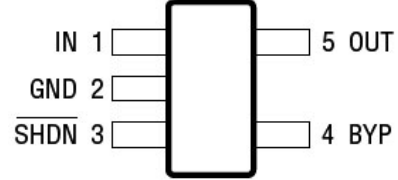
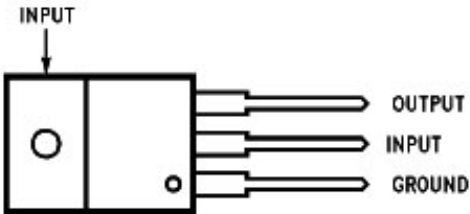
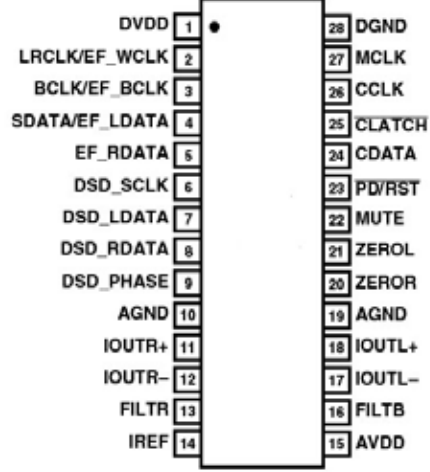
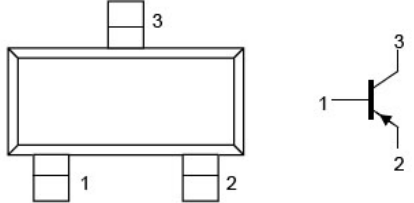


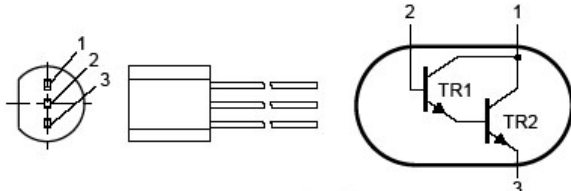

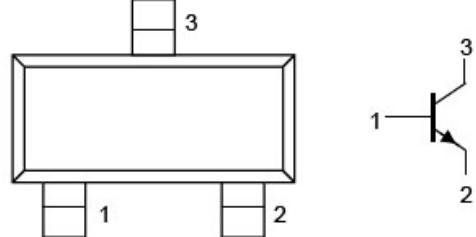
AT49BV002AN70TU
DAC PCB (U32)



OPA8421D
DAC PCB (U33, U34, U37 & U38)



<p>OPA1632DGN DAC PCB (U35 & U39)</p>	
<p>OPA2134UA DAC PCB (U40, U41, U46, U50, U52 & U53)</p>	
<p>LT1761ES5-BYP DAC PCB (U42 & U44)</p>	
<p>LT1761ES5-2.8 DAC PCB (U43 & U45)</p>	
<p>7905 DAC PCB (U47 & U48)</p>	
<p>AD1955ARS DAC PCB (U130 & U131)</p>	
<p>BC807-25 DAC PCB (Q2, Q3, Q5, Q7, Q8 & Q9)</p>	

<p>MPSA14 DAC PCB (Q4 & Q6)</p>	
<p>TIP31 DAC PCB (Q10 & Q11)</p>	
<p>BC817-25 DAC PCB (Q1, Q12, Q13, Q17 & Q18)</p>	

Circuit Description To Follow.



AP21487/1

Azur 840C CD Player Upgrade Software Instructions

Cambridge Audio
Gallery Court
Hankey Place
London SE1 4BB
England

www.cambridge-audio.com

Introduction

The following instructions are a step-by-step guide on how to upgrade the DSP (Digital Signal Processor) chip (Type is Analog Devices ADSP-BF532BSTZ400 and ident on PCB is U13) and the PIC Microcontroller chip (Type is Microchip PIC16F877A-I/P and ident on PCB is U2), inside the 840C CD Player.

Equipment Required

- 1 x 840C CD Player with mains lead.
- 1 x Desktop PC or Laptop with Windows XP Service Pack 2 installed, and with one 9 way D-Type serial communications port free.
- 1 x 9 way female-female D-Type Null Modem Cable. Example cable to use is: Product Code 976-880 from Farnell (<http://uk.farnell.com>). Pin layout and example cable pictures are shown below.

Pin Layout

Connector A		Connector B
2		3
3		2
8		7
7		8
4		6
6		4
5		5
Shell	Drain	Shell

Example Cable



Laptop (840C Loader Program.zip).

- 1 x 840C Loader Program installed on PC or

- 1 x Latest 840C DSP Software (AP20059X 740C-840C DSP software upload file VX.X (6.1.ZZ).bin).
- 1 x Latest 840C PIC Software (AP20058X 840C VX.X.HEX).

Note: All the required software can be found on the Service Extranet. Please download and save all software onto your PC or Laptop Hard Drive.

Checking Software Version

Before you start, you need to make a note of the current version of software installed in the 840C. To do this:

1. Connect the 840C to the mains supply using an IEC power cord, making sure the voltage selector switch is set to the correct voltage for your local mains supply.
2. Switch the 840C on using the Power On/Off switch on the rear panel and the Standby/On button on the front panel.
3. When the 840C has switched on and is ready to be used (i.e. "No Disc" is displayed on the front panel LCD), press the "Menu" button on the front panel 4 times until "SOFTWARE VERSION XX / YYY / Z.Z" is displayed on the front panel LCD. XX is the DSP version number, YYY is the DSP build number and Z.Z is the PIC version number. Note down the full software version number.
4. Switch the 840C off using the Power On/Off switch on the rear panel.

Upgrade Instructions – PIC Software

To upgrade the 840C software, please carry out the following:

1. Install the 840C Loader Program onto your PC or Laptop (by following the on screen instructions), by unpacking 840C Loader Program.zip and running setup.exe. **Make sure the Loader Program is not running before continuing.**
2. Connect one end of the Null Modem cable to a 9 way D-Type spare socket on the PC or Laptop.



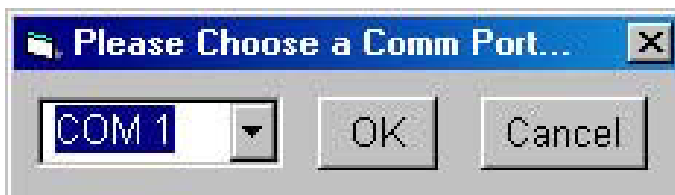
3. Connect the other end of the Null Modem cable to the RS232C port on the back of the 840C.



- Switch the 840C on using the Power On/Off switch on the rear panel, while pressing and holding the Standby/On button on the front panel. This will then display "DOWNLOAD!" on the front panel LCD. This means the 840C is ready to receive new software.



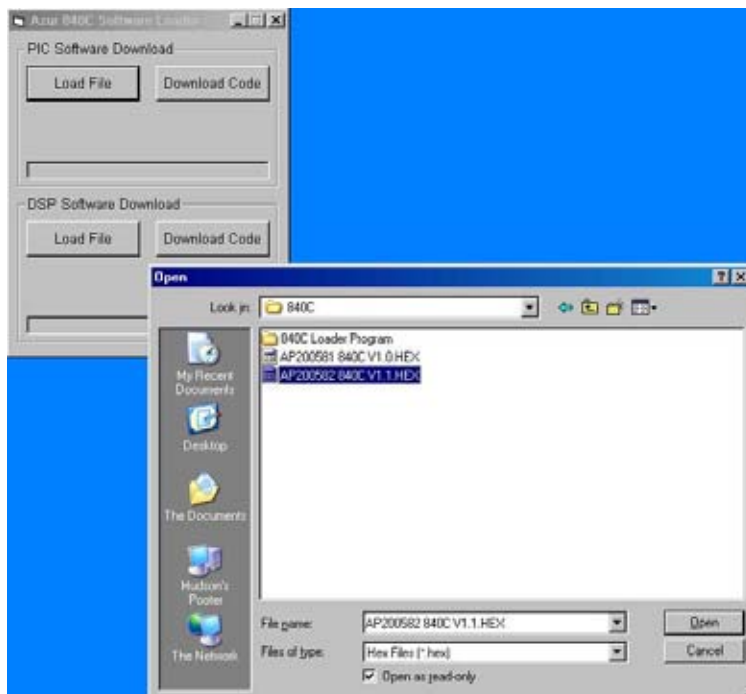
- Load the 840C loader software on your PC or Laptop by pressing "Start", "Programs", "840C" then select the "Loader" icon to start up the loader software.
- The picture below shows the first screen that appears on your PC screen. Select the number of the communications (Comm) port that you plugged the Null Modem into on your PC or Laptop, then press "OK".



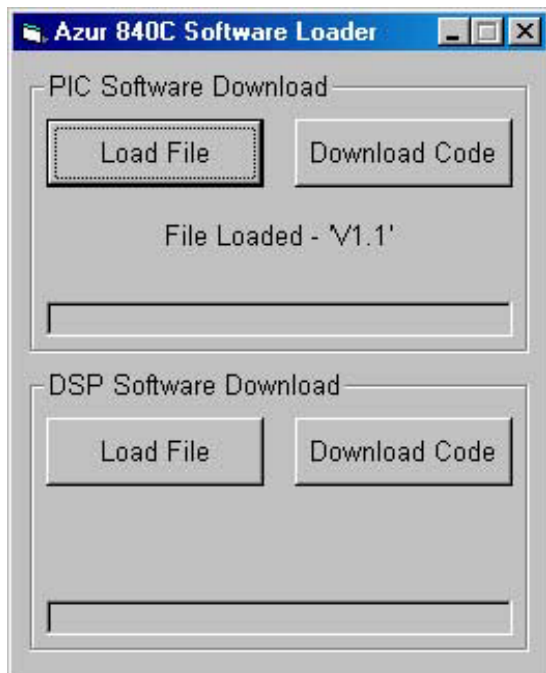
- The window that now appears is shown below.



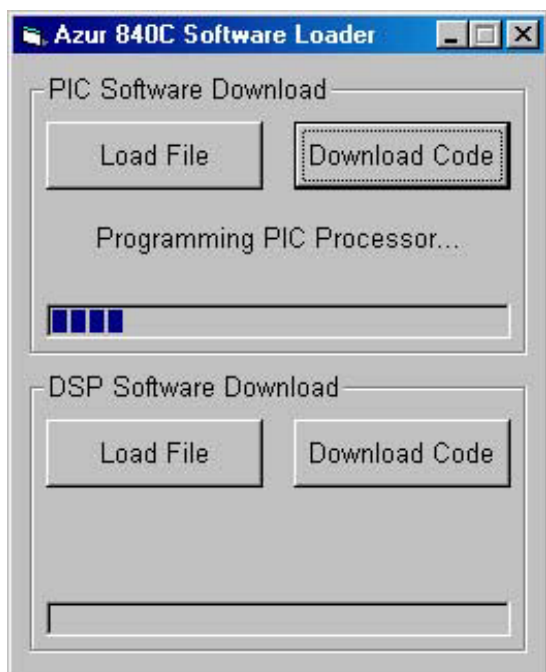
8. If the wrong comm port is selected, please close down the software and repeat the process, from step 6, above.
9. Select the “Load File” button corresponding to “PIC Software Download.”
10. This will then bring up a browse menu. Please locate the latest PIC software (the file extension is .HEX) for the 840C and press “Open.”



11. The loader window will now display “File Loaded – VX.X,” where X.X is the version number, as shown below.



12. Now press the "Download Code" button corresponding to "PIC Software Download" to start the process. "Programming PIC Processor..." will now display on the PC screen and the progress bar will start to move. Also "Loading PIC..." will be displayed on the 840C front panel LCD.



13. When the process is complete, the program will display the following:



Also, the 840C will return to its Standby mode.

14. If at any time during the process, there is a failure, an error message will be displayed. If this occurs, please repeat the steps above. If the problem persists, please seek advice from our servicing department.

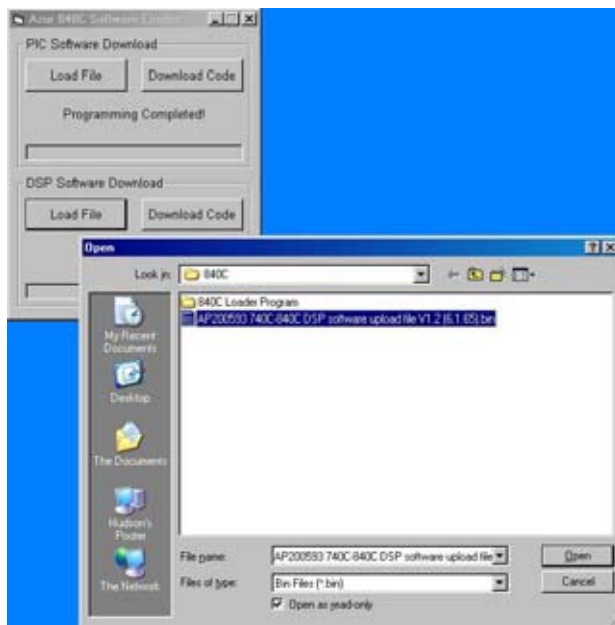


15. Switch the unit off via the On/Off switch on the rear panel.

The PIC has been successfully updated.

Upgrade Instructions – DSP Software

1. Make sure the 840C is switched off.
2. Repeat steps 1 to 9 for the PIC software above. **Note:** Please skip step 1 if you already have the PC/Laptop installer program installed. Also make sure you press and hold the Standby/On button while switching on the 840C via the On/Off switch on the rear panel.
3. Select the “Load File” button corresponding to “DSP Software Download.”
4. This will then bring up a browse menu. Please locate the latest DSP software (the file extension is .BIN) for the 840C and press “Open.”



5. The loader window will now display “File Loaded!” as shown below.



6. Now press the “Download Code” button corresponding to “DSP Software Download” to start the process. “Programming DSP...” will now display on the

screen and the progress bar will start to move. Also “Loading DSP...” will be displayed on the 840C front panel LCD.



7. When the process is complete, the program will display the following:



Also, the 840C will return to its Standby mode.

8. If at any time during the process, there is a failure, an error message will be displayed. If this occurs, please repeat the steps above. If the problem persists, please seek advice from our servicing department.



Testing

1. Repeat the procedure "Checking Software Version" above and note the new software version. This should be the same number as the numbers located on the file names of the HEX and BIN files. In this example the HEX version is 1.1 (see item 10 PIC picture above) and BIN build version is 065 (see item 4 DSP picture above).
2. Switch the unit off via the On/Off switch on the rear panel.
3. Remove 9 way D-Type Null Modem cable from the 840C.
4. Switch the unit on and place a CD in the tray.
5. Close the CD tray and play the CD.
6. Test all front panel buttons and audio outputs. If the unit is functioning correctly, then the upgrade is complete.

The DSP has been successfully updated.

The process is now complete.