

640P/540P

Issue Date: 23rd August 2005

SERVICE MANUAL



SPECIFICATIONS:

	540P	640P (MM)	640P (MC)
Max Power Consumption	5W	5W	5W
Gain @ 1kHz	39dB	39dB	55dB
Input Impedance	47k	47k	100R
Nominal Output	300mV	300mV	300mV
Sensitivity for Nominal Output	3.35mV	3.35mV	0.5mV
THD 20Hz-20kHz	0.009%	0.005%	0.002%
RIAA Curve Accuracy	+/-0.65dB 25Hz-20kHz	<+/-0.3dB 20Hz-50kHz (Subsonic filter off)	<+/-0.3dB 20Hz-50kHz
Signal to Noise Ratio Using Audio Precision RIAA-1 with grounded inputs.	>85db	>86dB	>72dB
Crosstalk @ 20kHz	>76dB	>83dB	>69dB
Dimensions (HxWxD)			
mm	46x215x133	46x215x133	46x215x133
inches	1.8x8.5x5.2	1.8x8.5x5.2	1.8x8.5x5.2
Weight			
kg	0.8	0.9	0.9
lbs	1.8	2	2

AP18705/1

540P & 640P 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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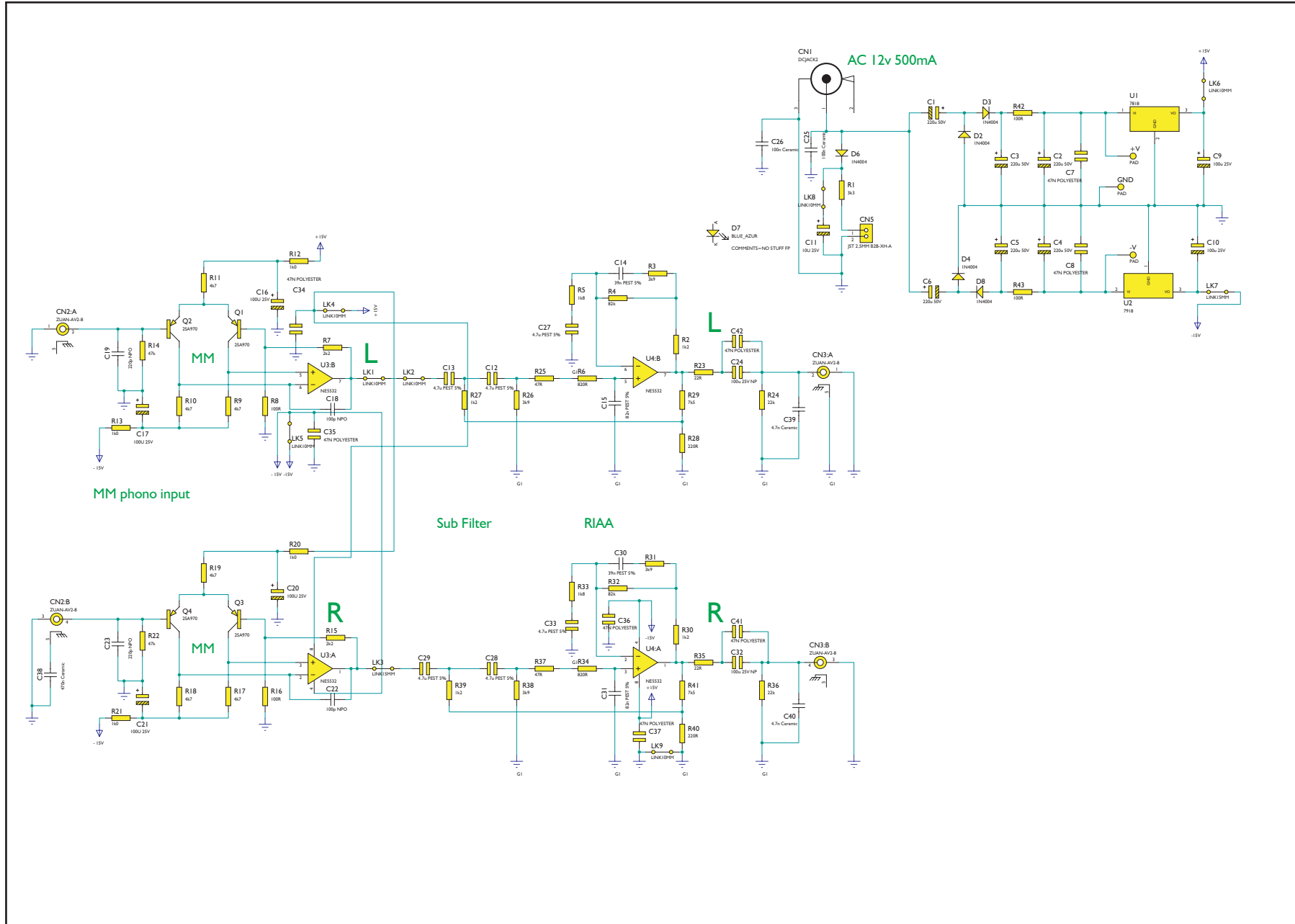
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Cambridge Audio Azur 540P / 640P Phono Stage Main Assembly BOM**API5869/2 & API6524/3**

AP PART NO	AP DRAWING NO	DESCRIPTION	QTY	NOTES
	API4509/2	Azur 540.640P User's Manual Multi-Language -	1	5100-549900-100
	API5655/1	Azur 640/640P Woven Bag	1	5299-262191-300
PY912		EU PSU Unit	1	GPG411200500WA00
PY913		CU PSU Unit	1	GPU351200500WA00
PY868		Australia / NZ PSU Unit	1	GPS411200500WA01
PY867		UK PSU Unit	1	GPB411200500WA00 (4021-411200-107)

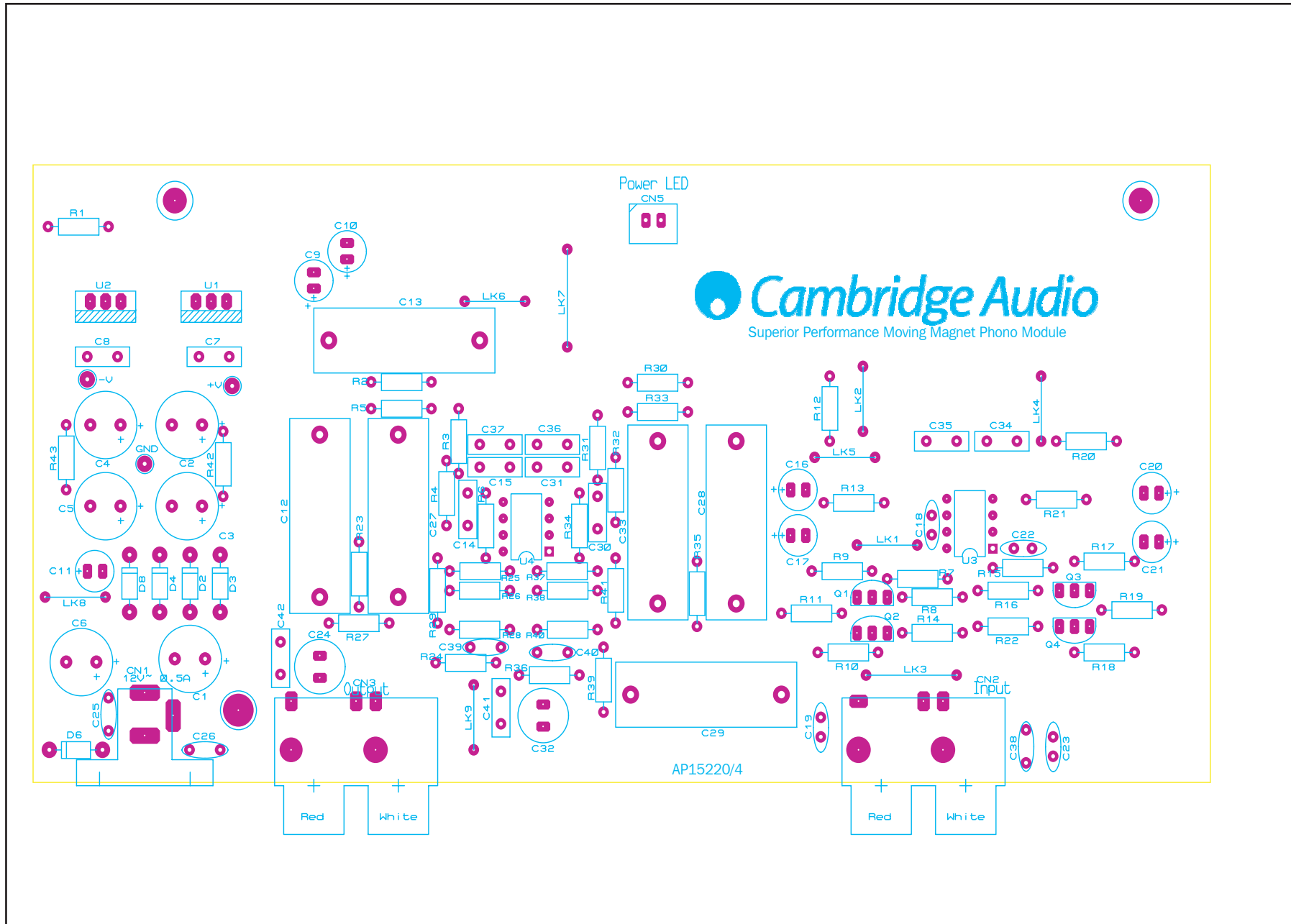
Note: resistors, capacitors and other 'generic' electronic components are not usually stocked by the manufacturer. Please obtain these locally.

Cambridge Audio Azur 540P Phono Stage



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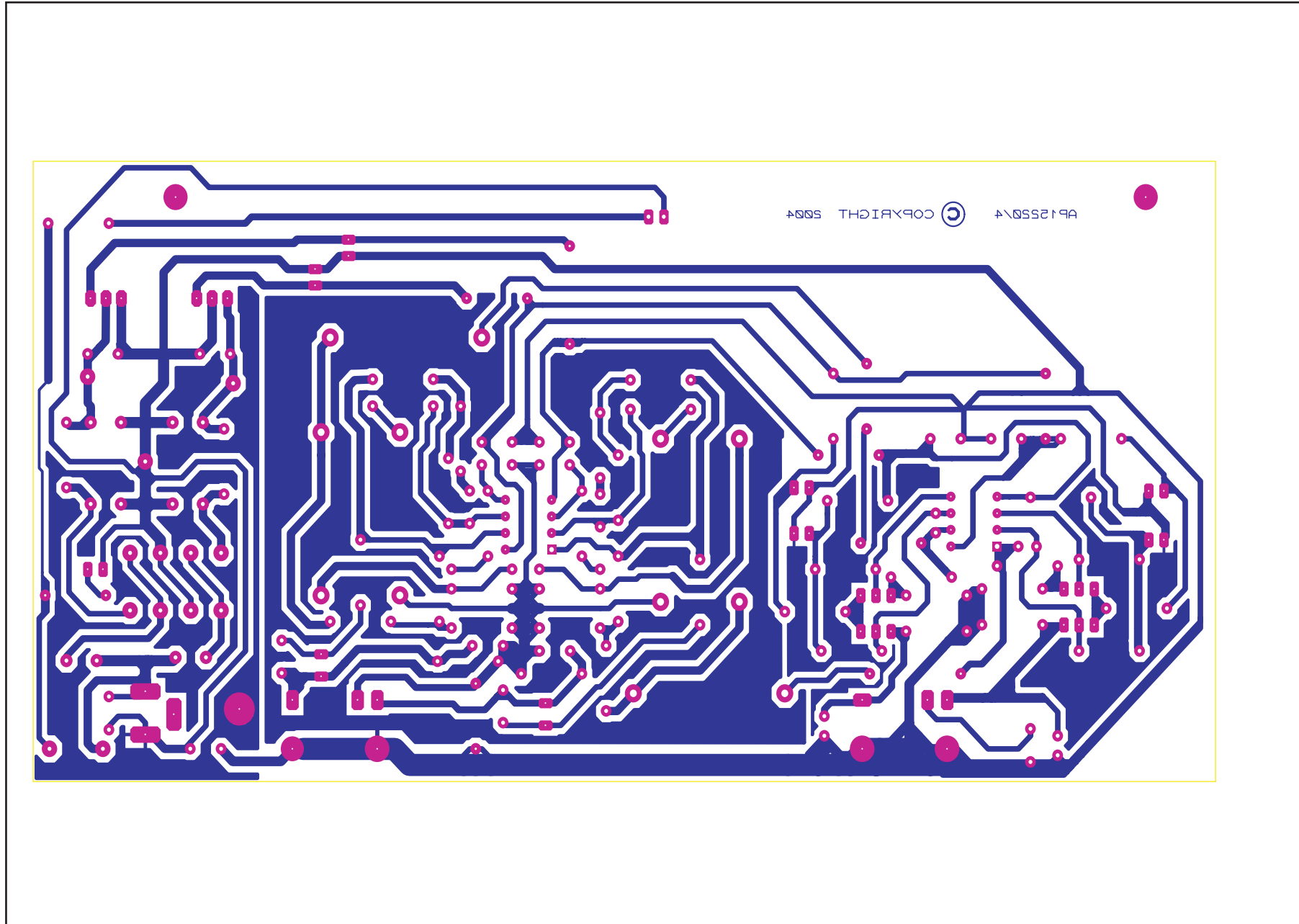
Cambridge Audio Azur 540P Phono Stage



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API5219/4 Main PCB Layout (Top Side)

Cambridge Audio Azur 540P Phono Stage



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API5219/4 Main PCB Layout (Bottom Side)

Cambridge Audio Azur 540P PCB Assembly BOM

API5222/3

AP PART NUMBER	VALUE	DESCRIPTION	QTY	COMPONENT IDENT	NOTES
	RESISTORS				
	22R	0.25W metal film	2	R23, R35	
	47R	0.25W metal film	2	R25, R37	
	100R	0.25W metal film	4	R8, R16, R42, R43	
	220R	0.25W metal film	2	R28, R40	
	820R	0.25W metal film	2	R6, R34	
	1K	0.25W metal film	4	R12, R13, R20, R21	
	1K2	0.25W metal film	4	R2, R27, R30, R39	
	1K8	0.25W metal film	2	R5, R33	
	2K2	0.25W metal film	2	R7, R15	
	3K3	0.25W metal film	1	R1	
	3K9	0.25W metal film	4	R3, R26, R31, R38	
	4K7	0.25W metal film	6	R9, R10, R11, R17, R18, R19	
	7K5	0.25W metal film	2	R29, R41	
	22K	0.25W metal film	2	R24, R36	
	47K	0.25W metal film	2	R14, R22	
	82K	0.25W metal film	2	R4, R32	
	CAPACITORS				
	100p	NPO Ceramic 5mm Pitch	2	C18, C22	
	220p	NPO Ceramic 5mm Pitch	2	C19, C23	
	4.7n	NPO Ceramic 5mm Pitch	2	C39, C40	
	39n	5% Polyester Film 5mm Pitch	2	C14, C30	CMEA393J063RB050 Mini Box metallised polyester 39n 63V 5% 7.3x2.5mm, 5mm pitch.
	47n	10% Polyester Film 5mm Pitch	8	C7, C8, C34, C35, C36, C37, C41, C42	
	82n	5% Polyester Film 5mm Pitch	2	C15, C31	CMEA823J063RB050 Mini Box metallised polyester 82n 63V 5% , 7.3x2.5mm, 5mm pitch.
	100n	Ceramic X7R 5mm Pitch	2	C25, C26	
	470n	Ceramic X7R 5mm Pitch	1	C38	
	4.7u	5% Polyester Film 25mm Pitch	6	C12, C13, C27, C28, C29, C33	CMEF475J100RB250 Radical metallised polyester 4.7u 100V 5% , 28x9mm, 25mm pitch

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

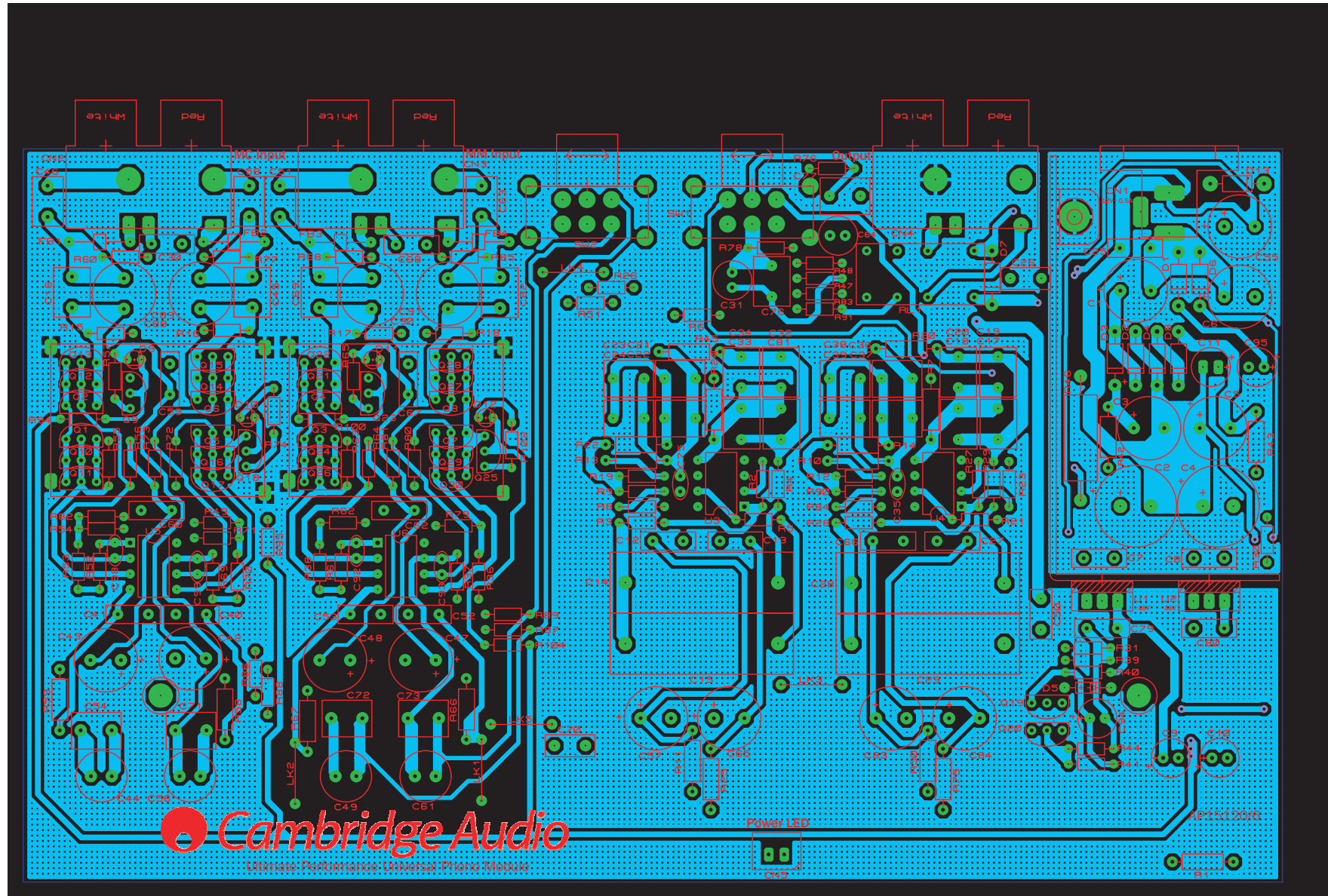
Cambridge Audio Azur 540P PCB Assembly BOM

API5222/3

AP PART NUMBER	VALUE	DESCRIPTION	QTY	COMPONENT IDENT	NOTES
	10u	25V Polarised Electrolytic	1	C11	
	100u	25V Non Polarised Electrolytic	2	C24, C32	
	100u	25V Polarised Electrolytic	6	C9, C10, C16, C17, C20, C21	
	220u	50V Polarised Electrolytic	6	C1, C2, C3, C4, C5, C6	Height Restriction 16mm Max
	SEMICONDUCTORS				
	7818	18 volt 1A TO220 Positive Voltage regulator	1	U1	To be mounted on API5814/1 heatsink/shield
	7918	18 volt 1A TO220 Negative voltage regulator	1	U2	To be mounted on API5814/1 heatsink/shield
PY259	NE5532	8 pin DIL Audio OpAmp	2	U3, U4	4155-320052-100
	TRANSISTORS				
	2SA970	TO92 PNP Very low noise transistor	4	Q1, Q2, Q3, Q4	1301-970000-100
	DIODES				
	1N4004	Rectifier Diodes	5	D2, D3, D4, D6, D8	

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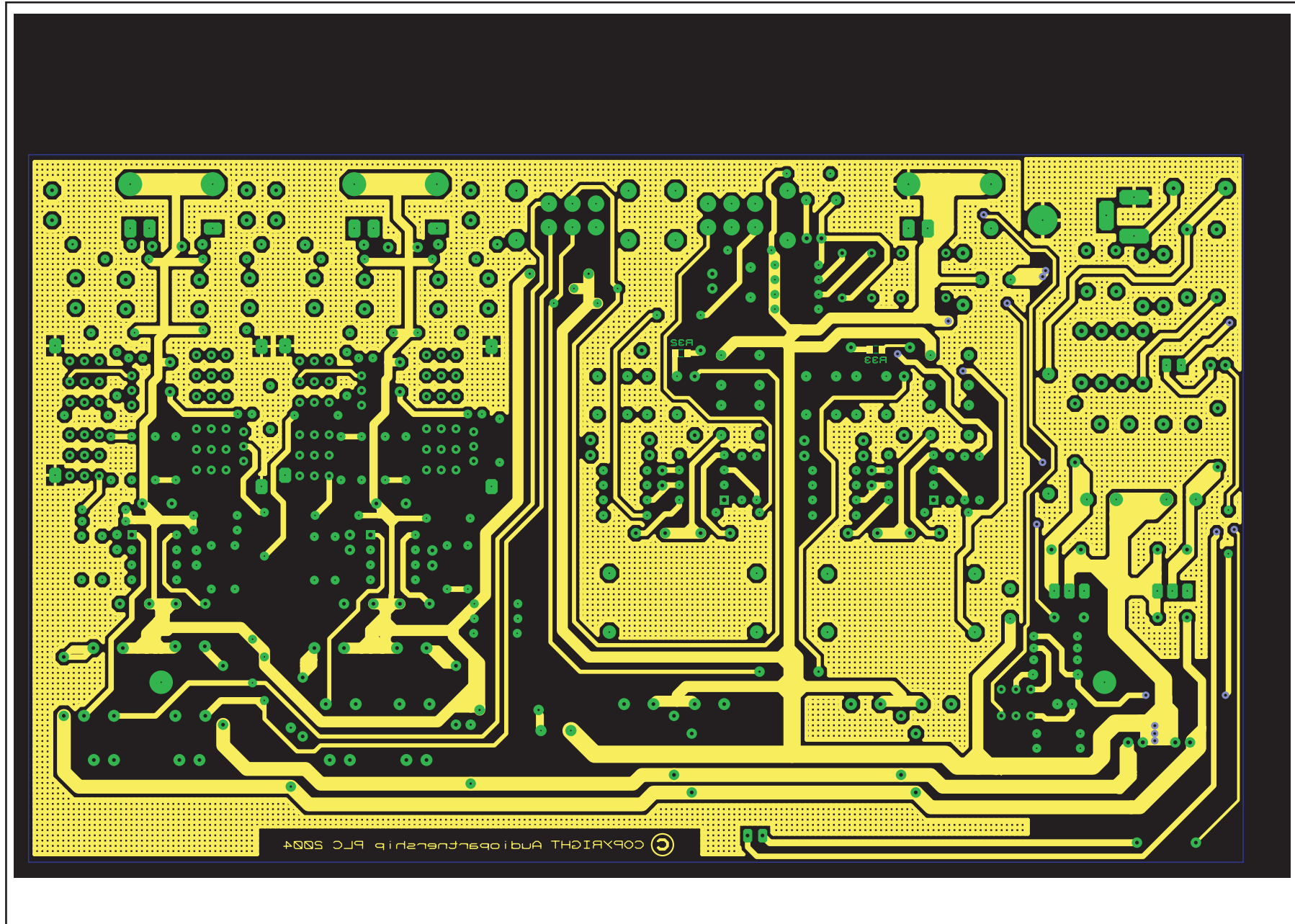
Cambridge Audio Azur 640P MM/MC Phono Stage



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API51199/I Main PCB Layout (Top Side)

Cambridge Audio Azur 640P MM/MC Phono Stage



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AP151199/1 Main PCB Layout (Bottom Side)

Cambridge Audio Azur 640P PCB Assembly BOM

API51224

AP PART NO	VALUE	DESCRIPTION	TOLERANCE	FACTORY PART NO	QTY	COMPONENT IDENT	NOTES
	RESISTORS						
	18R	0.125W metal film	1%		2	R54, 71	
	47R	0.125W metal film	1%		4	R5, R6, R21, R23	
	91R	0.125W metal film	1%		2	R62, 79	
	100R	0.125W metal film	1%		1	R30	
	130R	0.125W metal film	1%		2	R15, 16	
	470R	0.125W metal film	1%		2	R60, 77	
	910R	0.125W metal film	1%		4	R36, 37, 38, 61	
	1K	0.125W metal film	1%		3	R12, 19, 39	
	1K2	0.125W metal film	1%		4	R8, 9, 84, 90	
	1K3	0.125W metal film	1%		8	R52, 53, 57, 65, 69, 70, 74, 107	
	1K6	0.125W metal film	1%		2	R3, 28	
	2K2	0.125W metal film	1%		6	R26, 51, 86, 87, 88, 89	
	3K	0.125W metal film	1%		4	R94, 95, 100, 104	
	3K9	0.125W metal film	1%		4	R2, 4, 27, 29	
	11K	0.125W metal film	1%		4	R63, 64, 80, 81	
	15K	0.125W metal film	1%		5	R31, 55, 56, 72, 73	
	47K	0.125W metal film	1%		4	R47, 48, 76, 78	
	51K	0.125W metal film	1%		3	R17, 18, R44	
	220K	0.125W metal film	1%		4	R40, 41, 83, 91	
	560K	0.125W metal film	1%		2	R68, 85	
	82R	0.25W metal film	1%		1	R42	
	100R	0.25W metal film	1%		4	R11, 25, 50, 75	
	150R	0.25W metal film	1%		1	R43	
	470R	0.25W metal film	1%		2	R58, 66	
	1K2	0.25W metal film	1%		2	R59, 67	
	3K3	0.25W metal film	1%		1	R1	
	1K87	0.25W metal film	0.10%		4	R7, 20, 27, 45	
	3.92K	0.25W metal film	0.10%		2	R14, 22	
	75K	0.25W metal film	0.10%		2	R10, 13	
	180k	0805 Thick Film	1%		2	R32, 33	
	270R	2W Carbon Film	10%		1	R46	
	CAPACITORS						
	22pF 50V	NP0 Ceramic	5%	1181-220042-000	2	C35, 75	
	33pF 50V	NP0 Ceramic	5%		2	C98, 99	
	47pF 50V	NP0 Ceramic	5%	1181-470042-000	2	C92, 93	
	220pF 63V	Polypropylene	5%	1114-221062-000	4	C46, 51, 58, 63	
	10nF 63V	Polypropylene	5%	1114-103062-000	10	C16, 45, 54, 69, 71, 72, 73, 76, 77, 82	
	10nF 63V	Polypropylene	1%		16	C17-C24, 32, 33, 34, 36, 37, 38, 39, 81	6.3mm x 11mm x 5mm
	47nF 63v	Polyester Film	10%	1117-473053-000	12	C7, 8, 12, 13, 27, 40, 41, 52, 53, 66, 79, 80	
	100nF 63v	Polyester Film	10%	1117-104053-000	7	C25, C30, 59, 60, 62, 67, 68	
	470nF 63V	Polyester Film	10%		3	C26, 50, 70	
	4.7uF 100V	Polyester Film	5%	1117-475062-000	4	C14, 15, 28, 29	CMEF475J100RB250
	1uF 50V	Polarised Electrolytic	20%	1102-107044-000	1	C95	

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

Cambridge Audio Azur 640P PCB Assembly BOM

API51224

AP PART NO	VALUE	DESCRIPTION	TOLERANCE	FACTORY PART NO	QTY	COMPONENT IDENT	NOTES
	10uF 25V	Polarised Electrolytic	20%	1102-100024-000	1	C11	
	100uF 25V	Polarised Electrolytic	20%	1102-101024-000	3	C9, 10, 94	
	330uF 50V	Polarised Electrolytic	20%		4	C1, 3, 5, 6	High Temperature 105 Degrees C
	470uF 25V	Polarised Electrolytic	20%		4	C57, 65, 83, 84	
	1000uF 25V	Polarised Electrolytic	20%	1102-102024-000	5	C42, 43, 47, 48, 55	
	1000uF 35V	Polarised Electrolytic	20%	1102-102034-000	2	C2, 4	
	47uF 16V	Non Polarised Electrolytic	20%		2	C31, 64	
	220uF 6.3V	Non Polarised Electrolytic	20%		4	C44, 49, 56, 61	
	470uF 6.3V	Non Polarised Electrolytic	20%		4	C88, 89, 90, 91	
SEMICONDUCTORS							
	7818	18 volt 1A Positive Voltage regulator		4178-180302-600	1	U1	Mount on API5814/1 heatsink TO220 Silipad and Insulating Bush
	7918	18 volt 1A Negative voltage regulator		4179-180302-600	1	U2	Mount on API5814/1 heatsink with TO220 Silipad and Insulating Bush
	NE5532	Audio OpAmp		4155-320052-900	4	U3, 4, 5, 6	
TRANSISTORS							
	2SA970GR	PNP Very low noise		1301-970000-100	24	Q1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 21, 22, 24, 26, 27, 28, 29, 30	Top of transistor must not be higher than 8.5mm from PCB
	BC560C	PNP Low noise			5	Q9, 18, 19, 23, 25	Top of transistor must not be higher than 8.5mm from PCB
	MPSA14	NPN Darlington			1	Q20	
DIODES							
	1N4004	Rectifier Diodes		1401-140040-000	8	D1, 2, 3, 4, 6, 7, 8, 13	
	1N4148	Signal Diodes		1401-141480-000	1	D5	
	MRB32C	Red Led			4	D9, 10, 11, 12	Must be specified type only NO ALTERNATIVES TO BE USED, Top of transistor must not be higher than 8.5mm from PCB
CONNECTORS							
	2 Way Horizontal	GOLD plated RCA socket		2330-004911-003	3	CN2, 3, 4	AV2-8.4-14/EC
	2 Way	PCB socket		2300-002100-003	1	CN5	LED cable assembly plugs into here (Part No. B2B-XH-A)
		PCB/Chassis mount power socket		2303-003911-300	1	CN1	RDC-020-14A

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Cambridge Audio Azur 640P PCB Assembly BOM**API51224**

AP PART NO	VALUE	DESCRIPTION	TOLERANCE	FACTORY PART NO	QTY	COMPONENT IDENT	NOTES
	MISCELLANEOUS						
	1uH	Ferrite Bead on 24AWG		1503-000000-100	4	FBI, 2, 3, 4	
	24AWG	Tinned Copper Link Wire			5	LK1, 2, 3, 4, 5	10mm LINK
PY584	ME2-5S	Relay		4050-000005-002	1	RL 1	
		2 pole 2 way switch			2	SWI, 2	SS004P022YPF8

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Cambridge Audio Azur 540P/640P IC Pin Layout Details

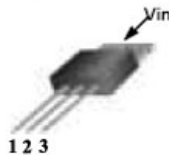
Main PCB

540P/640P - 7818 (U1)



1. Input 2. GND 3. Output

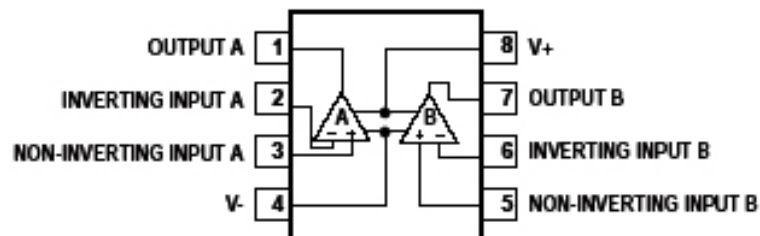
540P/640P - 7918 (U2)



1. GND 2. Input 3. Output

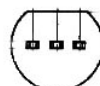
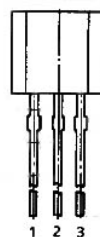
540P - NE5532 (U3 & U4)

640P - NE5532 (U3, U4, U5 & U6)



540P - 2SA970GR (Q1, 2, 3, 4)

640P - 2SA970GR (Q1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14,
15, 16, 17, 21, 22, 24, 26, 27, 28, 29, 30)



1. EMITTER
2. COLLECTOR
3. BASE