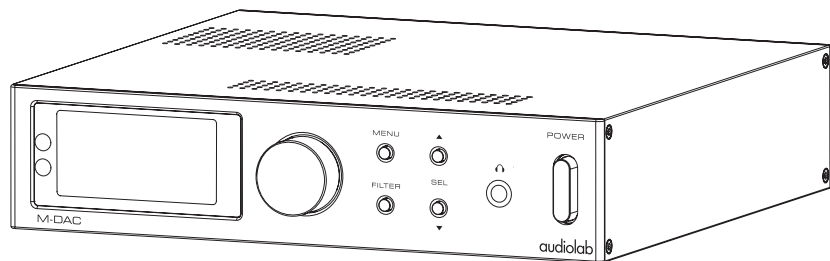


Service Manual

E l e c t r o n i c s

M-DAC



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SPECIFICATION

M-DAC-Specification and Features-P1/2

M-DAC Performance Test

Test condition: AC~253V, COAX: 997Hz Digital Signal,SR: 48kHz

Load: 10 kohms impedance, with Filter NAL setting

Z-out: 20ohms

No.	Test Items	Condition	Units	RCA		XLR	
				L	R	L	R
1	Output Level	997Hz,Digital COAX Input	Vrms	2.21	2.22	4.23	4.22
2	THD	stereo 997Hz output 2V	%	0.001	0.001	0.001	0.001
		stereo 20kHz output 2V	%	0.0005	0.0005	0.0002	0.0002
3	S/N	Line output,	dB	108	108	116	116
		Line output, with 22-22kHz BW and A-wtd	dB	112	112	120	120
4	Gain	0dBFS Input (0dBV)	dB	7.1		13.2	
5	Noise Level	no signal,pre-amp out	dBV	-100.8	-101.4	102.5	102.7
6	DC Offset	To measure the output DC Voltage	mV	0.8	0.5		
7	Crosstalk	L/R Cross talk,refer to 997Hz	dB	108	108	116	116
8	L/R different	L/R different,un-balance	dB	0.05		0.01	
9	Phase	no reverse	deg	0		0	
10	Freq Respond	Refer to 997Hz input as 0dBr,+/-0.5dB	Hz	20-20k		20-20k	
12	Idle Current	Idle Current,230VAC	mA	18mA			

Digital OUT Test

No.	Test item	Track	Units	Limit	COAX		OPT	
					L	R	L	R
1	Output Level	32, 44.1,48,96KHz (16,24bit)	dBFS	0±0.05	0	0	0	0
2	Harmonic Distortion		%	<0.005	0.00001	0.00001	0.00001	0.00001
3	L/R phase		deg	±1	0	0	0	0
4	Digital Output Intensity		Vpp	>500	580		/	
5	Level Linearity		dBFS		-143	-143	-143	-143
6	Frequency response		dB	0.5dB	0.01	0.01	0.01	0.01
7	Output impedance		ohm	75±1	75			
8	Sampling Rate	32KHz	kHz					
		44.1KHz		44.1±0.01	44.1KHz	44.1KHz		
		48KHz		48±0.01	48KHz	48KHz		
		96KHz		96±0.01	96KHz	96KHz		

- 32Bit 84.000MHz 512 Element MultiBit Array DAC
- Asynchronous USB supporting 24 Bits / 96kHz with Remote Control of PC / MAC MediaPlayer via HID support
- x2 192KHz 24Bits Coax SPDIF Digital Inputs
- x2 96KHz Optical Digital Inputs
- High Current, High Linearity RCA Single Ended & XLR True Balanced with fully discrete JFET CROSS* Class A Output stage's
- High Current, High Linearity CROSS* JFET Class A Headphone Amplifier
- Triple cascaded Jitter attenuation stages, with triple cascaded Asynchronies Clock domain isolation all but eliminating the First order effects of Jitter from the external input

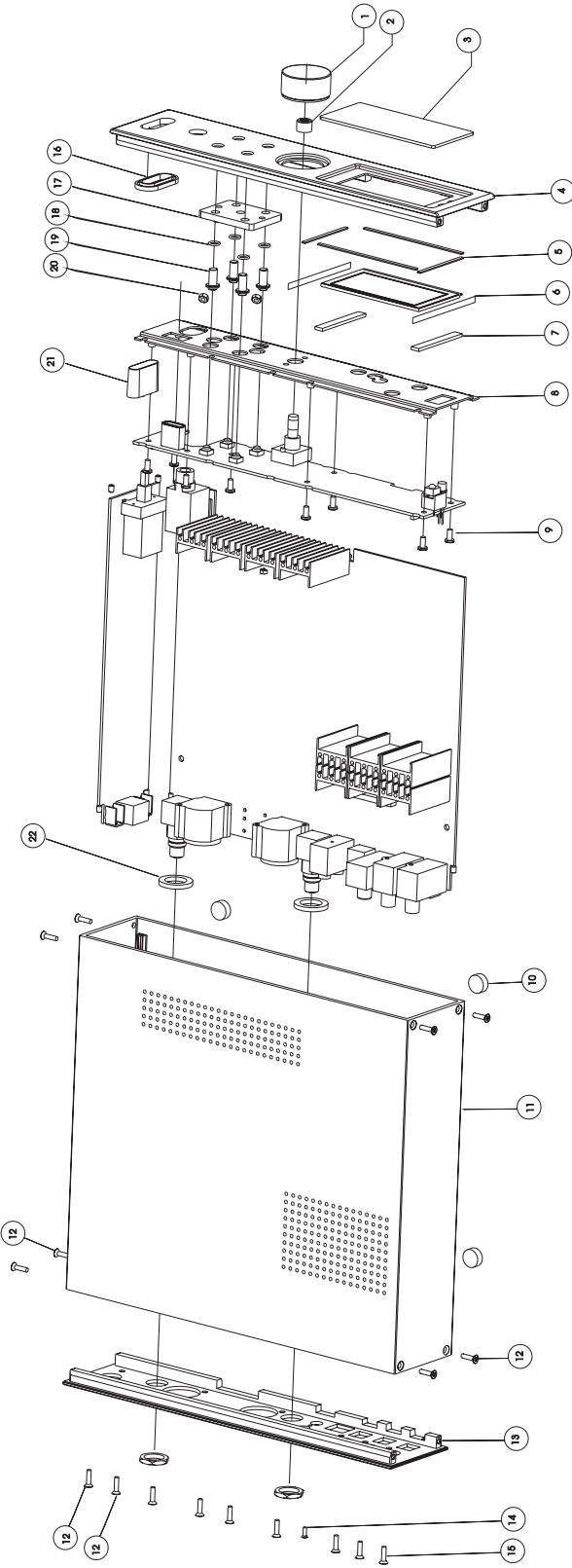
M-DAC-Specification and Features-P2/2

sources on the Digital to Audio Conversion process

- . Selectable DAC Mode or Digital Pre-Amplifier Mode, allowing direct connection to Power Amplifiers and Active speakers in Digital only systems
- . 2.7" High contrast OLED display
- . "Bit Perfect" Digital Data source analyzer
- . Intelligent real-time Bit Depth analysis engine Displays the "True" Bit depth of the Digital input source
- . Digital Data Decorrelation Engine Decorrelates the fixed "LSB's" data pattern within the Audio data stream when less then 24Bits. Data decorrelation at the DAC substrate level reduces both Digital and Analogue Second order effects within the DAC at the silicon Die level
- . MS Windows LSB Data restoration for "Bit Perfect" reply corrects Windows' LSB rounding errors. Allows Bit Perfect "Plug and Play" with Windows Media Player
- . ASYNC USB Buffer level display to insure correct functionality and diagnostics of the USB HOST device in ASYNC Audio streaming mode
- . "Actual" or "Nominal" Sampling Frequency display displays the TRUE input sampling frequency with 1Hz resolution
- . Digital level meters in dB with Peak hold
- . CD / DVD SPDIF subcode embedded Track and Time Display
- . Advanced De-Jittered Optical and Coax SPDIF Output, with USB to SPDIF output.
- . Selectable Optical or Coax Clock-Lock interface allowing "Jitter Free" Clock-Locked connection with compatible CD transports etc.
- . Full Remote Control + External Remote / BUS I/O loop
- . 26 Internal regulated supply rails
- . 10 Ultra Low Noise, Low Impedance Discrete Regulators
- . 7 User Selectable Digital Filters Fully Software upgradeable via the USB Port
- . Master Clock Jitter less then 3pS Short Term - Measured directly at DAC "XOut"
- . Organic Ultra Low ESR capacitors, High Tolerance Polypropylene film / Foil capacitors, Ultra Stable Very Low VCR 0.1% MELF SMD resistors, 4 Layer PCB
- . External upgradeable Power supply interface for a future upgrade path
- * CROSS Current Regulated Output Stage Solution

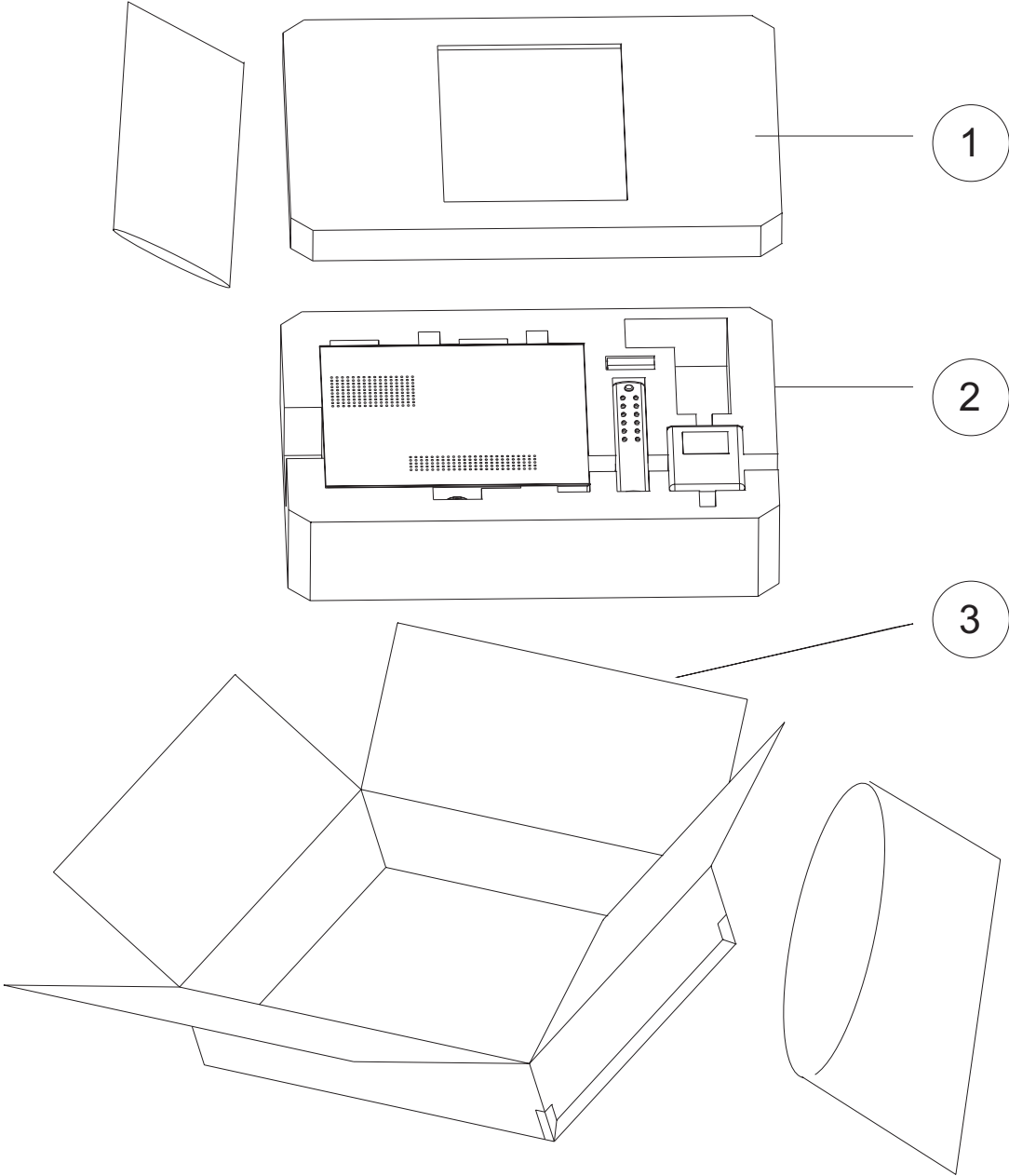
ASSEMBLY SKETCH

M-DAC-Product Exploded Drawing-P1/1



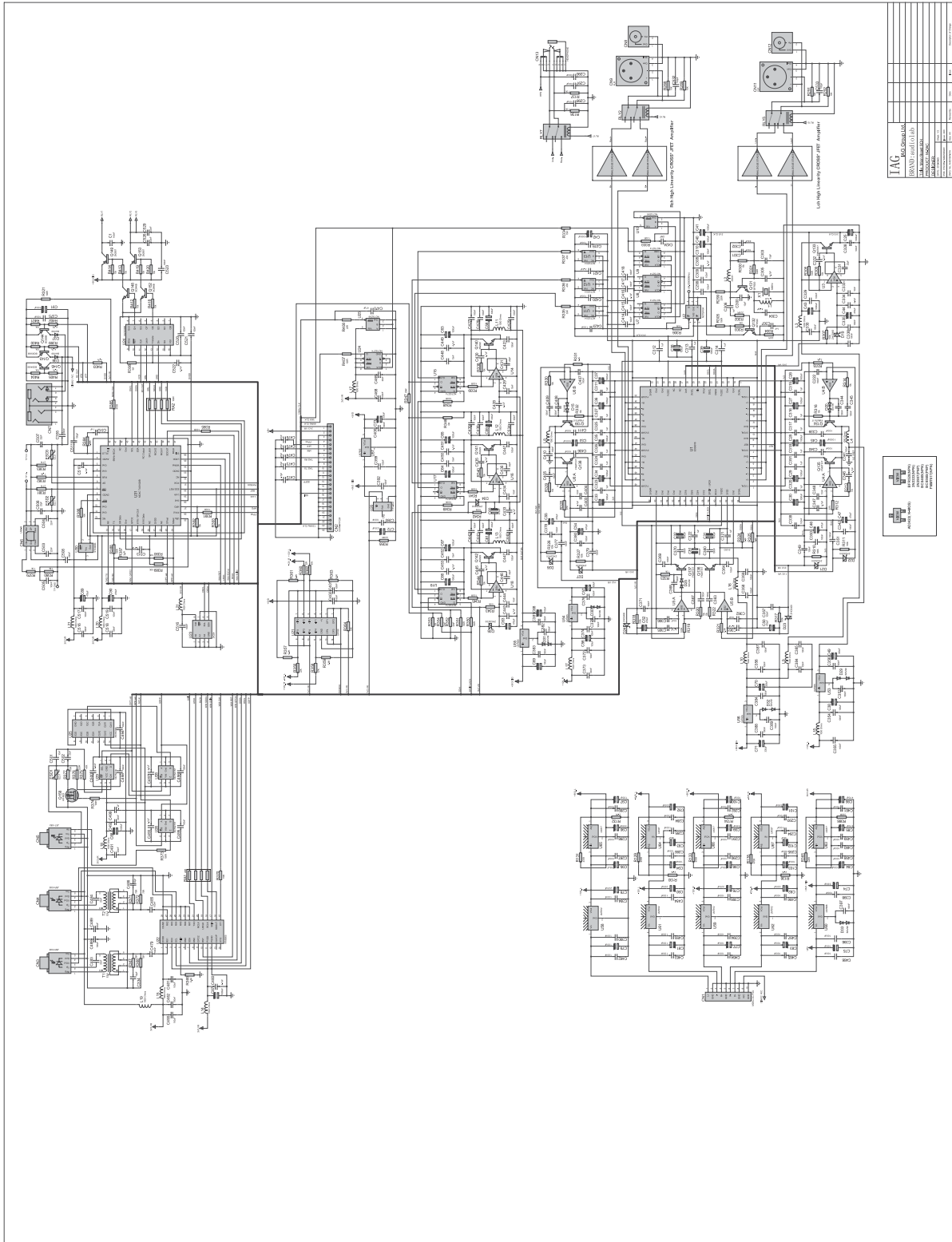
ASSEMBLY SKETCH

M-DAC-Packing Exploded Drawing-P1/1



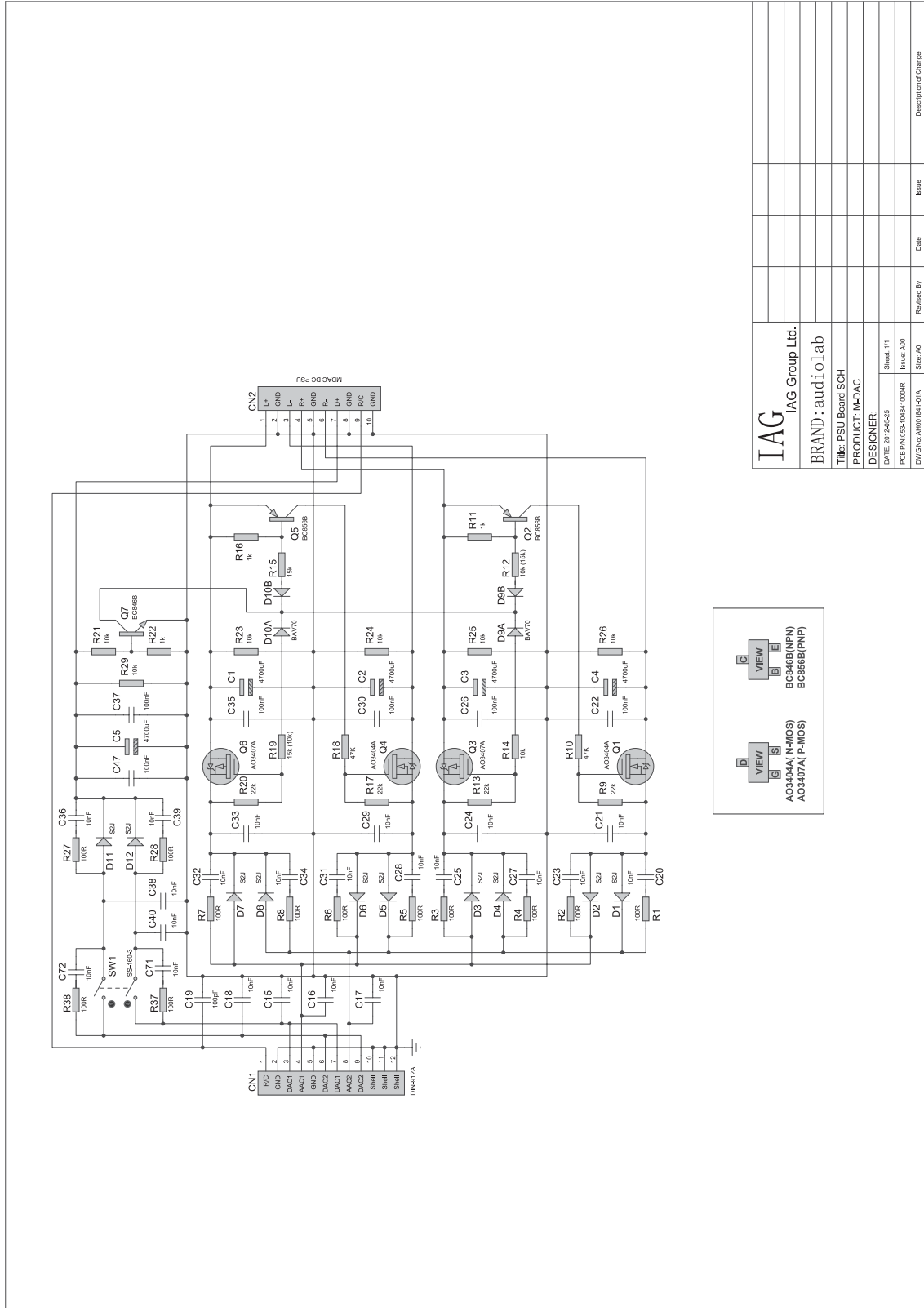
SCHEMATIC DIAGRAM

M-DAC-Mainboard-P1/1



SCHEMATIC DIAGRAM

M-DAC-PSU Board-P1/1



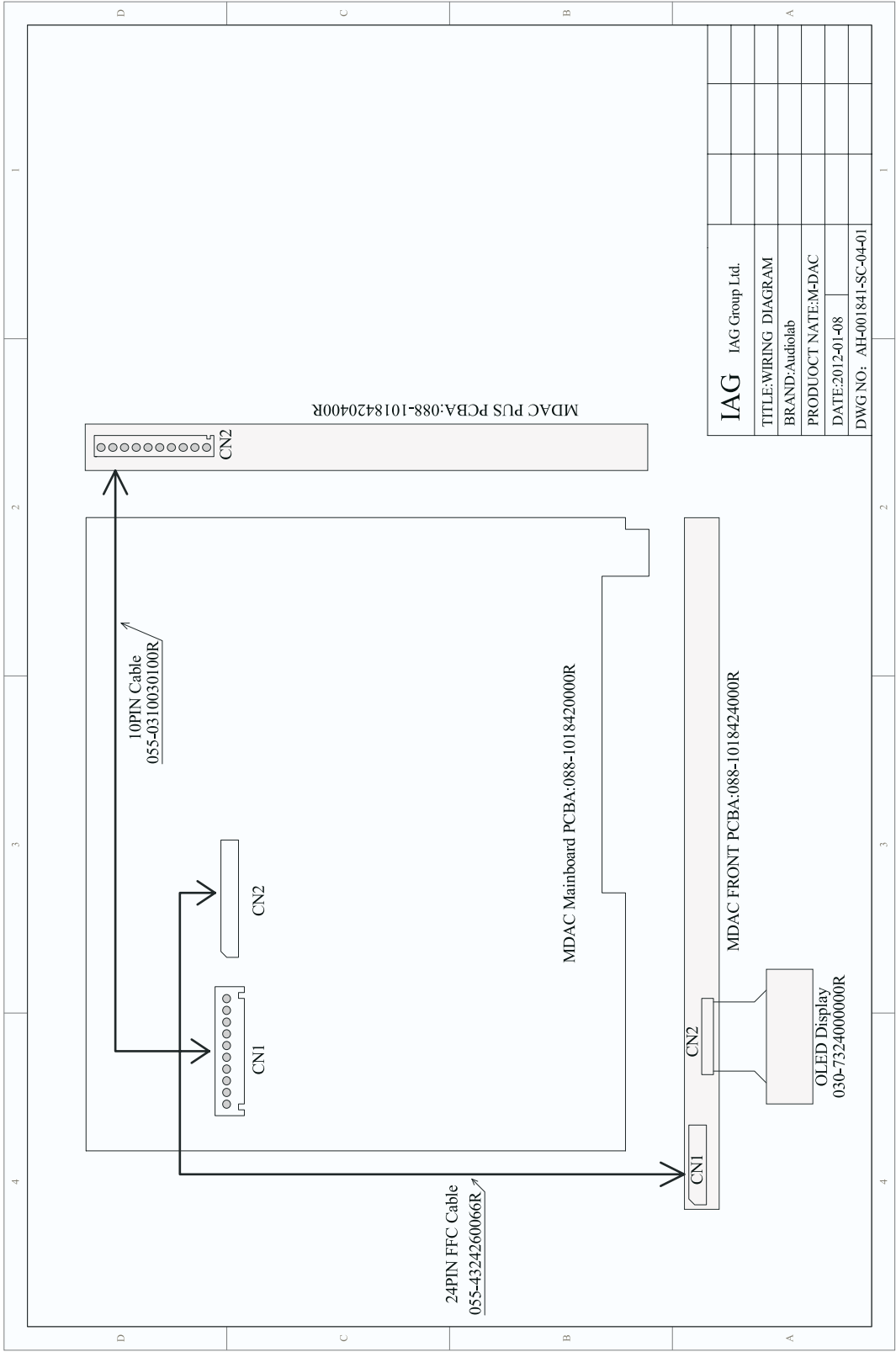
IAG IAG Group Ltd.	
BRAND: audiolab	
Title: PSU Board SCH	
PRODUCT: M-DAC	
DESIGNER:	
DATE: 2012-02-25	Sheet: 1/1
PCB P/N: ICS-10M4100P4R	Issue: A00
DWG N: AN0181-01A	Size: A0
Revised By:	Date:
	Issue:
	Description of Change:

VIEW
AC3404A (N-MOS)
AC3407A (P-MOS)

VIEW
BC346B (NPN)
BC356B (PNP)

WIRING DIAGRAM

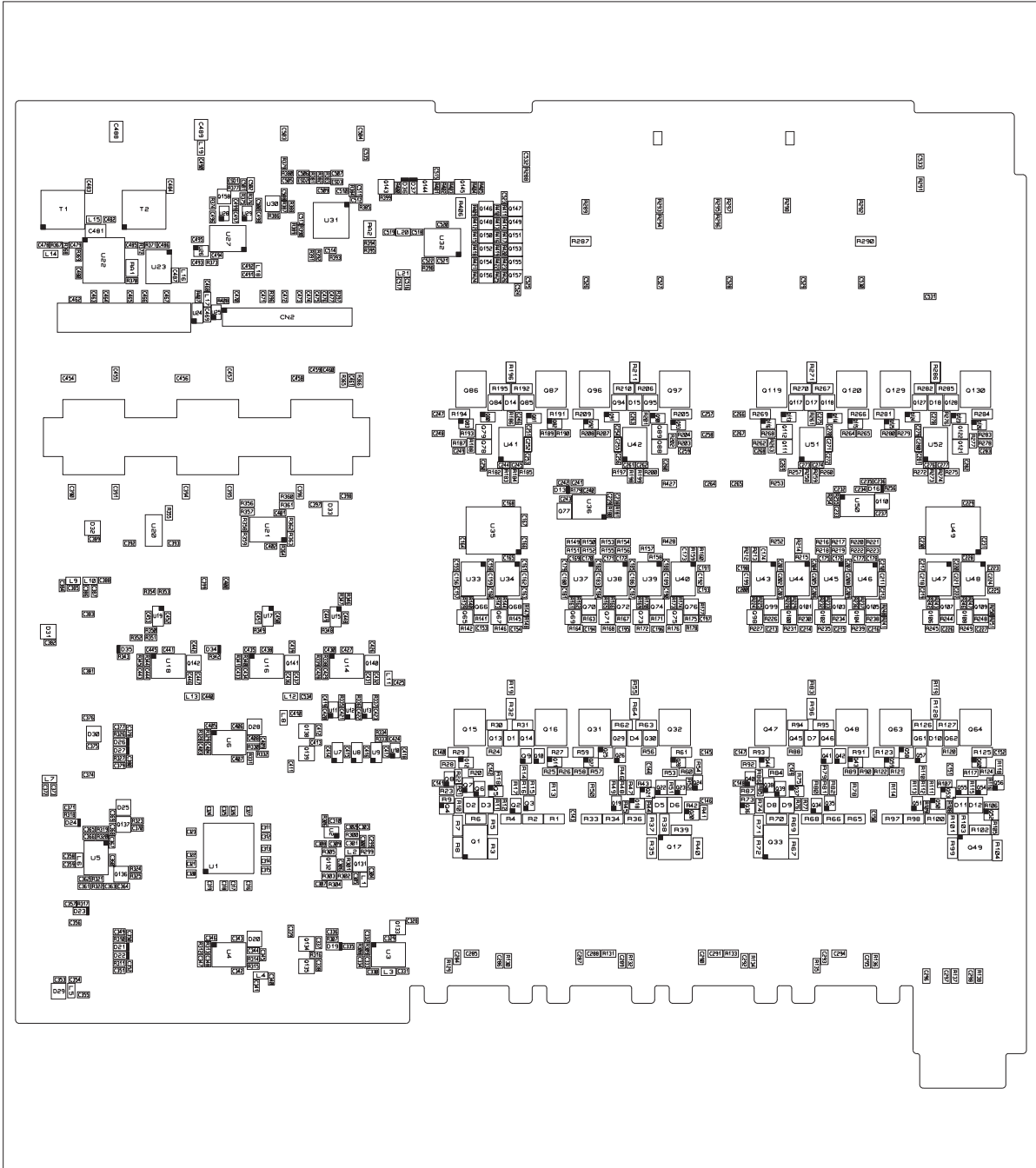
M-DAC-Wiring Diagram-P1/1



IAG IAG Group Ltd.	
TITLE: WIRING DIAGRAM	
BRAND: Audiolab	
PRODUCT NAME: M-DAC	
DATE: 2012-01-08	
DWGNO: AH-001841-SC-04-01	

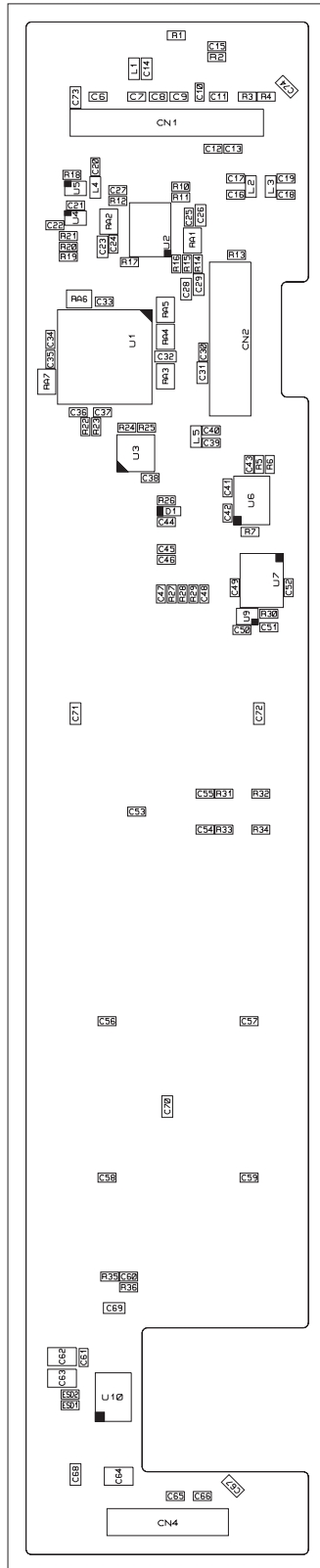
SILKSCREEN OF TOP / BOTTOM

M-DAC-Mainboard-SMD-Silkscreen-P1/1



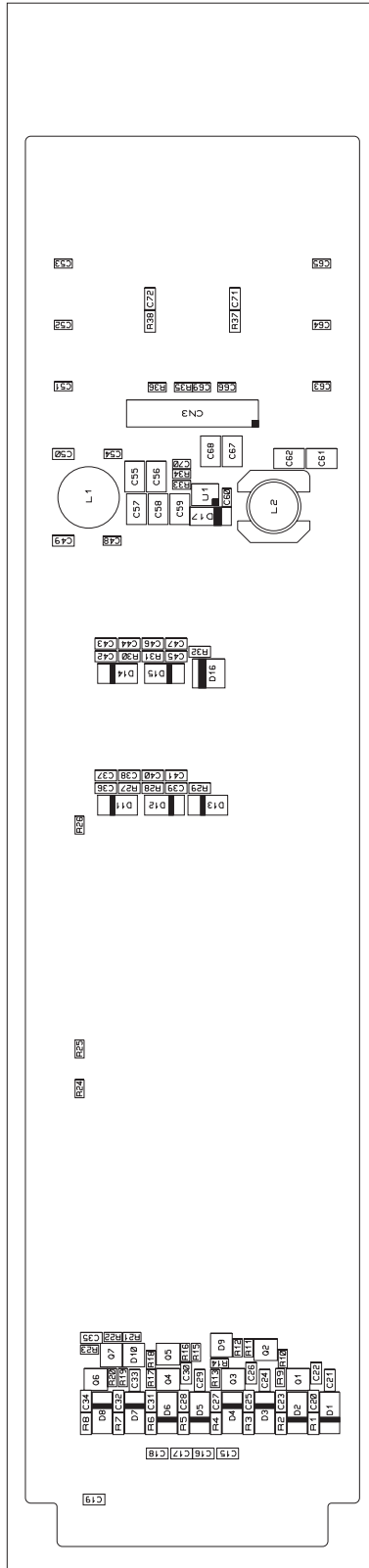
SILKSCREEN OF TOP / BOTTOM

M-DAC-Front Board-SMD-Silkscreen-P1/1



SILKSCREEN OF TOP / BOTTOM

M-DAC-Front Board-SMD-Silkscreen-P1/1



MAINTENANCE ALIGNMENT PROCEDURE

M-DAC-Ageing Test Step-P1/2

MDAC Soak Test procedure Rev 0.1

1. Insure that Mains input voltage is set to +/- 5% of rated input voltage.
2. Lock to an External SPDIF source Play Music file / source.
3. Insure Display, Knob and Buttons function correctly.
4. Confirm R/C function.
5. Insure audio is replayed correctly (Headphones can be used).
6. Soak test for > 8Hours.
7. Insure Display and Buttons function correctly.
8. Insure audio is replayed correctly (Headphones can be used).
9. Inspect internals of Unit for Blown Electrolytic capacitors Blown SMD Components etc.

Post Soak test performance verification

1. Set to COAX1, (Set Digital Generator on AP to 44.1KHz, 24 Bit, Dither, 997Hz, 0dB).
2. Check Unit is "Locked" and indicates 44.1kHz Freq. (As indicated on Display).
3. Check L & R SE Audio Outputs, Level 2.1V RMS (+/- 0.1dB).
4. Check L & R SE Audio THD, 0.0025% Max (Norm 0.001%).
5. Set AP to 997Hz -60dB, check L&R SE, SNR >54dB (=>114dB).
6. Set AP to -120dB 997Hz, Check L&R SE outputs, DC Level <= +/-5mV.
7. Set Digital Generator on AP to 44.1KHz, 24 Bit, Dither, 997Hz, 0dB.
8. Check L & R Balanced Audio Outputs, Level 4.2V RMS (+/- 0.1dB).
9. Check L & R Balanced Audio Outputs THD, 0.001% Max (Norm 0.0006%).
10. Set AP to 997Hz -60dB, check L&R Balanced, SNR >58dB (=>118dB).
11. Set AP to 44.1KHz, 24 Bit, Dither, 997Hz, 0dB.
12. Confirm COAX2, Optical 1&2 function (Locked indicated on display & Audio Signal output).
13. Confirm USB function, replay Stereo 997Hz 0dB on PC media player, confirm SE Level 2.1V RMS (+/- 0.1dB), Audio THD, 0.0025% Max (Norm 0.001%).
14. Confirm R/C function.

MAINTENANCE ALIGNMENT PROCEDURE

M-DAC-Ageing Test Step-P2/2

15. Test Optical and BNC Digital CD Output function (with AP or external DAC), Digital Output greater then =>500mV Pk-Pk into 75 Ohms.
16. Completion of Post Soak Test performance verification.

Listening Test

1. Connect to audio System (via RCA's), Lock to external SPDIF or USB Source, confirm no undue noise function OK.
2. Test all Digital inputs (Coax1, 2, Optical 1 & 2) and USB (With PC) repeat listening test.
3. Confirm Remote function.
4. Completion of Listening tests.

Shipping Settings

1. Restore unit to Factory defaults.
2. End of Shipping settings.

ASSEMBLY PARTS LIST

M-DAC-Product Parts List-P1/1

No.	P/N	PART NAME	DESCRIPTION	QTY	UNIT
1	340-1018420000R	knob	black painted	1	PCS
2	243-1009410000R	plastic pad	φ6*φ9*6.5MM,	1	PCS
3	206-1018420002R	lens	85.3*39.3*1.5mm, transparent	1	PCS
4	300-1018420001-1R	front panel	silkscreened, light grey(BLACK)	1	PCS
5	263-0074020052R	EVA	74*2*0.5 (thickness)mm, EVA, black	3	PCS
6	262-0500005010R	dustproof pad	5*50*0.25dustproof	6	PCS
7	226-0330050331R	feet pad	33*5*3 (thickness) mm, PORON, black	2	PCS
8	308-1018420000R	metal block	painted	1	PCS
9	588-3000066037R	screw	M3*6	19	PCS
10	231-2000000052R	feet	RF11-5I、SILICON、black	4	PCS
11	309-1018420001-1R	main chassis	black anodized	1	PCS
12	534-3002100906R	screw	M3*10	10	PCS
13	300-1018420002-1R	back panel	silkscreened, light grey(BLACK)	1	PCS
14	524-2023061001R	screw	M2*6.5	1	PCS
15	524-2923091016R	screw	M3*9.5	8	PCS
16	215-1027420001R	button cap	silver painted,ABS757#	1	PCS
17	205-1018420000R	button bracket	30*40*4mm,ABS	1	PCS
18	231-3007005102R	rubber washer	φ5*φ7*1mm	4	PCS
19	340-1018420001R	function button	black painted	4	PCS
20	500-3050240300AR	nut	M3 NI	2	PCS
21	215-1027420000R	power button	silver painted,ABS757#	1	PCS
22	262-0200013011R	washer	φ20*φ13*2.6MM, black	2	PCS

ASSEMBLY PARTS LIST

M-DAC-Packing Parts List-P1/1

No.	P/N	PART NAME	DESCRIPTION	QTY	UNIT
1	401-1018420000R	Top Foam	EPE white 455*330*35mm, ROHS	1	PCS
2	401-1018420001-1R	Bottom Foam	EPE white 455*330*90mm, ROHS	1	PCS
3	409-1018420000R	Outer Carton	AUDIOLAB MDAC K=K, inner size: 455*330*127MM	1	PCS

ELECTRONIC PARTS LIST

M-DAC-Electronic Bom-P1/5

No.	LEVEL	P/N	PART NAME	DESCRIPTION	QTY	UNIT	LOCATION
1	1	022-1000023405R	Power adaptor	INPUT=AC120V OUTPUT=AC13.8V*2,0.5A, USA Mains Cable	1	PCS	
2	1	032-1018420000R	Remote	AUDIOLAB MDAC , black 180*3	1	PCS	
3	1	036-1307015000R	Battery	1.5V SIZE AAA	2	PCS	
4	1	055-4324260066R	FFC Cable	24pin PH=1MM L=280MM C type 0.1mm black	1	PCS	
5	1	088-1018420000R	Main board PCBA	Main board PCBA	1	PCS	
6	2	006-1014051123-3R	Electrolytic Capacitor	100uF/10V 20% D5*11MM PH=2.5MM Lelon RXY series 105°C	11	PCS	C48.C49.C56.C57.C68.C69.C91.C92.C96.C99.C101
7	2	006-1014060833R	Electrolytic Capacitor	100uF16V 6.3*8 20% 105°C Lelon OCRZ series	4	PCS	C120.C121.C130.C131
8	2	006-1014061143-3R	Electrolytic Capacitor	100uF/25V 20% D6.3*11MM PH=5MM Lelon RXY series	5	PCS	C75.C77.C79.C81.C83
9	2	006-1024080803R	Electrolytic Capacitor	1000uF 4V8*8 20% 105°C Lelon OCRZ series	25	PCS	C25.C26.C27.C28.C29.C30.C31.C32.C33.C34.C35.C36.C37.C38.C39.C40.C41.C42.C63.C64.C65.C66.C67.C87.C88
10	2	006-1024081213R	Electrolytic Capacitor	1000uF,6.3V,105DegC,8mmDia,12mmH,3.5mmPitch,Lelon,20%	4	PCS	C43.C45.C51.C53
11	2	006-2214061133-1R	Electrolytic Capacitor	220uF/16V 20% D6.3*11MM PH=5MM Lelon RXY series	4	PCS	C76.C78.C80.C82
12	2	006-3314061123-1R	Electrolytic Capacitor	330uF/10V 20% D6.3*11MM PH=5MM Lelon RXY series	11	PCS	C58.C59.C61.C70.C71.C74.C84.C94.C97.C100.C103.
13	2	006-3914081223R	Electrolytic Capacitor	390uF 10V 8mm Dia 12mm H 3.5mm Pitch Lelon OCRZ series	4	PCS	C124.C125.C134.C135.
14	2	006-4714061113-1R	Electrolytic Capacitor	470uF/6.3V 20% D6.3*11MM PH=5MM Lelon RXY series	15	PCS	C44.C46.C47.C50.C52.C54.C55.C60.C62.C72.C73.C85.C86.C89.C90
15	2	006-4724123533R	Electrolytic Capacitor	4700u/16V 20% Lelon RZD 12.5*35mm 105°C	24	PCS	C104.C105.C106.C107.C108.C109.C110.C111.C112.C113.C114.C115.C116.C117.C118.C119.C126.C127.C128.C129.
16	2	006-5604051130R	Electrolytic Capacitor	56uF/16V 20% D5*11mm 105°C Lelon RXY series	4	PCS	C93, C95, C98, C102
17	2	016-1017000001R	Capacitor	100pF/400V 5% PH=2.5MM 2.5*7*4.6MM WIMA FKP02	4	PCS	C9.C12.C19..C24
18	2	016-1021132201QR	Capacitor	FKP2 1000PF/100V 2.5% WIMA PCM5	8	PCS	C3.C4.C5.C6.C15.C16.C20.C21
19	2	016-1031130001R	Capacitor	10NF/100V 2.5% EVOX RIFA (PFR5103J100J13L4)	8	PCS	C1.C2.C7.C10.C13.C14.C17.C22
20	2	016-3317000001R	Capacitor	330pF/400V 5% PH=2.5MM 2.5*7*4.6MM WIMA FKP02	4	PCS	C8.C11.C18.C23
21	2	017-1240000000R	IC	L7812CV TO-220 ST	2	PCS	U58.U59
22	2	017-1377000000R	IC	MC7805CTG TO-220 ON	5	PCS	U53.U54.U55.U56.U57
23	2	017-1378000000R	IC	LM337T (1.5A) TO-220 NS	2	PCS	U64.U67
24	2	017-1380000000R	IC	LM317T(1.5A) TO-220 (ST)	3	PCS	U63.U65.U66
25	2	017-7510000000R	IC	L7808 +8v TO220 ST	1	PCS	U60
26	2	018-9807912111R	IC	L7912CV TO-220 ST	2	PCS	U61.U62
27	2	020-1022120017R	Potentiometer	1K 100ppm/°C ±10% W13362NOXOX-PA2-B1K	4	PCS	RV1.RV2.RV3.RV4
28	2	024-1120101011R	Relay	HJR1-2C-12VDC	3	PCS	RLY2.RLY5.RLY7
29	2	044-4850000000R	Dual 3.5mm Stereo Jack	Dual Vertical PCB Mount 3.5mm	1	PCS	CN7
30	2	044-4860000000R	RCA + Toslink Combo	Combined 16Mbps Optical receiver & Gold plated RCA JACK JSR1583	2	PCS	CN3.CN4
31	2	044-5500000000R	RCA Jack Black	PCB Mount 180Deg Black AEC Connectors	1	PCS	CN8
32	2	044-5510000000R	RCA Jack Black	PCB Mount 180Deg RED AEC Connectors	1	PCS	CN12
33	2	044-5520000000R	UBSRA-004	USB, Thur Hole, Gold Plated	1	PCS	CN6
34	2	044-5550000000R	XLR Jack	PCB Mount 90Deg XLR Jack LX-1601H-3	2	PCS	CN11.CN9
35	2	044-5690000000R	RCA + Toslink Combo	Combined 16Mbps Optical & Gold plated RCA JACK JSR1583	1	PCS	CN5
36	2	049-1309223000R	6.35mm Stereo Jack	Vertical PCB Mount 6.35mm Stereo Jack	1	PCS	CN13
37	2	050-0400000000R	Transistor Clip	10*6MM TR-1	5	PCS	U53 Support.U54 Support.U55 Support.U56Support.U57 Support.
38	2	056-4110000000R	Connector	10PIN 2.54 Box Header	1	PCS	CN1
39	2	059-8400002331R	Crystal	Crystal 84MHz AT5thOT,+/-30PPM HC-49/U 3P(Centre Ground PIN)	1	PCS	X1
40	2	271-0180000000R	Plastic Post	Kangyang PDC-5.5D H=5.5 MM	1	PCS	
41	2	274-2001900168R	Washer	FR4 1.6 , 17.5*18MM	1	PCS	
42	2	277-0130000000R	Washer	TW-136	10	PCS	
43	2	323-1117000331R	Crystal Base Insulator	4.4*10.8*1.0 HC-49 QW- 1	1	PCS	X1a
44	2	324-0180130100R	Mica	TO-220 18*13MM	10	PCS	
45	2	538-3001080301R	Screw	M3x8	10	PCS	
46	2	604-1018420000R	Heatsink	H40mm x W23mm x D15.5mm	10	PCS	

ELECTRONIC PARTS LIST

M-DAC-Electronic Bom-P2/5

No.	LEVEL	P/N	PART NAME	DESCRIPTION	QTY	UNIT	LOCATION
47	2	088-1018420001R	Main board PCBA	Main board PCBA(SMD components assembled)	1	PCS	
48	3	002-0000011050R	Resistor	0R 0603 1% 50V	2	PCS	R346.R353.
49	3	002-0000032010R	Resistor	OR 1/8W 1%	8	PCS	R14.R24.R46.R56.R79.R88.R110.R120
50	3	002-0000033050R	Resistor	1206 0R 1/8W 5%	2	PCS	R287.R290
51	3	002-1000011010R	Resistor	10K 1% 0603 50V	29	PCS	R309.R313.R314.R316.R320.R322.R323.R329.R330.R332.R338.R340.R344.R364.R369.R379.R386
52	3	002-1000032010R	Resistor	10Ω 1/8W 1% 0805	4	PCS	R20.R51.R84.R115
53	3	002-1001021010R	Resistor	RES 100 OHM 1/10W 1% 0603	28	PCS	R11.R12.R21.R44.R45.R52.R76.R77.R85.R108.R109.R116.R308.R319.R333.R339.R341.R345.R348.R349.R350.R351
54	3	002-1001032010R	Resistor	100Ω 1/8W 1% 0805	4	PCS	R19.R55.R83.R119
55	3	002-1001033010R	Resistor	100R 1% SMD 0603	1	PCS	R406
56	3	002-1002049010R	Resistor	1K MELF 0204 1% 250V 1/4W	8	PCS	R2.R5.R34.R37.R66.R69.R98.R101
57	3	002-1003032010R	Resistor	10KΩ 1/8W 1% 0805	6	PCS	R137.R138.R288.R289.R291.R292
58	3	002-1004021010R	Resistor	RES 100K OHM 1/10W 1% 0603	9	PCS	R307.R310.R311.R317.R318.R326.R327.R342.R343.
59	3	002-1005021010R	Resistor	RES 1M OHM 1/10W 1% 0603	1	PCS	R398
60	3	002-1100021010R	Resistor	110R, 1%, 0603, 1/10W	1	PCS	R377
61	3	002-1204032010R	Resistor	0805 120K 1/8W 1% ROHS	4	PCS	R25.R57.R89.R121
62	3	002-1301032010R	Resistor	130R 1/8W 0805 1%	8	PCS	R26.R28.R58.R60.R90.R92.R122.R124
63	3	002-1500021010R	Resistor	15R, 1%, 0603, 1/10W	3	PCS	R306.R334.R370
64	3	002-1500032010R	Resistor	150R 1/8W 1% 0805	1	PCS	R305
65	3	002-1502021010R	Resistor	RES 1.5K OHM 1/10W 1% 0603	1	PCS	R382
66	3	002-1503032010HR	Resistor	15K 1% 100PPM 0805 1/8W VISHAY CRCW080515K00FKEA	2	PCS	R300.R303
67	3	002-1801032010R	Resistor	180Ω 1/8W 1% 0805	8	PCS	R15.R16.R47.R48.R81.R82.R111.R112
68	3	002-1803071010R	Resistor	18K 0603 1% 1/16W	1	PCS	R380
69	3	002-2200009010R	Resistor	22R MELF 0204 1% 1/2W	8	PCS	R27.R29.R59.R61.R91.R93.R123.R125.
70	3	002-2200021010R	Resistor	22R 0603 1/10W 1%	1	PCS	R408
71	3	002-2200032010R	Resistor	22Ω 1/8W 1% 0805	1	PCS	R304
72	3	002-2201021010R	Resistor	220R 0603 1/10W 1%	1	PCS	R376
73	3	002-2201032010R	Resistor	220Ω 1/8W 1% 0805	3	PCS	R299.R302.R355
74	3	002-2202021010R	Resistor	RES 2.2K OHM 1/10W 1% 0603	6	PCS	R315.R321.R324.R325.R331.R387
75	3	002-2203032010R	Resistor	22K 1/8W 1% 0805	10	PCS	R10.R22.R42.R53.R74.R86.R106.R117.R356.R360
76	3	002-2209049010R	Resistor	220R MELF 0204 1% 1/2W	16	PCS	R1.R4.R7.R8.R33.R36.R38.R40.R65.R68.R71.R72.R97.R100.R103.R104.
77	3	002-2261032010R	Resistor	226R, 1%, 0805, 1/8W	1	PCS	R365
78	3	002-2700061010R	Resistor	27R, 1%, 0603, 1/10W	4	PCS	R312.R328.R381.R383
79	3	002-2702032010R	Resistor	2.7KΩ 1/8W 1% 0805	4	PCS	R130.R132.R134.R136.
80	3	002-3092061010R	Resistor	3.09K, 1%, 0603, 1/10W	1	PCS	R384
81	3	002-3300011010QR	Resistor	33R 1/16W 1%	1	PCS	R335
82	3	002-3301032010R	Resistor	330Ω 1/8W 1% 0805	1	PCS	R301
83	3	002-3901032010R	Resistor	390Ω 1/8W 1% 0805	1	PCS	R366
84	3	002-4700021010R	Resistor	47R 0603 1/10W 1%	3	PCS	R336.R337.R375
85	3	002-4700059010R	Resistor	47R MELF 0204 1% 1/2W	8	PCS	R3.R6.R35.R39.R67.R70.R99.R102
86	3	002-4701021010R	Resistor	470R 0603 1/10W 1%	1	PCS	R385
87	3	002-4701032010R	Resistor	470Ω 1/8W 1% 0805	4	PCS	R129.R131.R133.R135
88	3	002-4702021010R	Resistor	RES 4.7K OHM 1/10W 1% 0603	6	PCS	R399.R402.R403.R405.R412.R418
89	3	002-4703032010R	Resistor	47KΩ 1/8W 1% 0805	2	PCS	R358.R362
90	3	002-4709049010R	Resistor	4R7 MELF 0204 1% 250V 1/4W	12	PCS	R30.R31.R32.R62.R63.R64.R94.R95.R96.R126.R127..R128
91	3	002-5101032010R	Resistor	510Ω 1/8W 1% 0805	4	PCS	R18.R43.R75.R107
92	3	002-5602032010R	Resistor	5.6KΩ 1/8W 1% 0805	2	PCS	R359.R363
93	3	002-6800032010R	Resistor	68R 1/8W 1%	4	PCS	R23.R54.R87.R118
94	3	002-6802032010R	Resistor	6.8KΩ 1/8W 1% 0805	6	PCS	R13.R50.R78.R114.R357.R361
95	3	002-7500021010R	Resistor	75R 1/10W 0603 1%	4	PCS	R367.R368.R371.R372
96	3	002-8200032010R	Resistor	SMD0805 82R 1%	4	PCS	R9.R41.R73.R105
97	3	003-1000080001R	Resistor	100R 1/16W 1% 0603 8pin	1	PCS	RA2
98	3	003-2210000005R	Resistor	8P 22R 63MW 1206 5% 3.2*1.6MM	1	PCS	RA1
99	3	007-1000001060R	Capacitor	10PF/50V NPO 0603K	3	PCS	C300.C478.C486
100	3	007-1000061060R	Capacitor	10NF 50V X7R 0603 1/16W 10%	13	PCS	C302.C333.C348.C362.C366.C404.C429.C434.C444.C448.C450.C452.C501
101	3	007-1000072060R	Capacitor	10nF, 200V, 0805, X7R, 20%	2	PCS	C503.C504
102	3	007-1000074010R	Capacitor	100uF/6.3V 1210 X5R ±20% GRM32ER60J107M MURATA	3	PCS	C481.C488.C489.
103	3	007-1001031061R	Capacitor	0603 100P/50V 5% MURATA	3	PCS	C467.C512.C535
104	3	007-1001051060R	Capacitor	100NF 0603 10% Murata 25V	138	PCS	C140-C152.C299.C309.C310.C328.C329.C330.C335-C341.C343.C344.C345.C349-C360.C364.C367-C389

ELECTRONIC PARTS LIST

M-DAC-Electronic Bom-P3/5

No.	LEVEL	P/N	PART NAME	DESCRIPTION	QTY	UNIT	LOCATION
105	3	007-1001052060QR	Capacitor	100PF50V 5% NPO 0805	4	PCS	C297.C298.C532.C533
106	3	007-1002051063R	Capacitor	1nF 0603 50v 5% COG	3	PCS	C306.C307.C511
107	3	007-1004052060R	Capacitor	100nF 50V 5% 0805	22	PCS	C284-- C296.C390.C391.C394.C395.C396.C454 .C455.C456.C457
108	3	007-1005061022R	Capacitor	1U 10V 0306 10% (LWK107B7105KA-T)	17	PCS	C311.C312.C313.C314.C315.C316.C317 .C318.C319.C320.C321.C322.C323.C32 4.C325.C326.C327
109	3	007-1500001060R	Capacitor	15PF/50V NPO 0603K	1	PCS	C303
110	3	007-2200031061R	Capacitor	0603 22P/50V 5% NPO	6	PCS	C331.C431.C436.C446.C506.C507
111	3	007-2206052010R	Capacitor	0805 22U/6.3V X5R 20%	6	PCS	C301.C469.C483.C484.C487.C502
112	3	007-3009061060R	Capacitor	3P 50V 10% 0603 (EZJZ1V500AA)	3	PCS	ESD1.ESD2.ESD3
113	3	007-4700051060R	Capacitor	47PF/50V 0603 5%	6	PCS	C470.C473--C477
114	3	007-4705051010R	Capacitor	0603 4.7U/6.3V 5% MURATA	33	PCS	C308.C332.C334.C342.C346.C347.C361 .C363.C365.C403.C405.C407.C415.C41 7.C419.C420.C423.C428.C433.
115	3	007-4708051061R	Capacitor	4.7pF, 50V, 0603, NPO, 5%	2	PCS	C305.C472
116	3	007-8209051063R	Capacitor	8.2pF, 50V, 0603, COG, 5%	1	PCS	C304
117	3	017-0211000000R	IC	74VHC393MTC TSSOP14 Fairchild	1	PCS	U27
118	3	017-0470000000R	IC	WM8805GEDS SSOP-28 Wolfson Microelectronics	1	PCS	U22
119	3	017-0480000000R	IC	NC7SZ18P6X SC70-6 Fairchild	1	PCS	U29
120	3	017-1083000000R	IC	TC74VHC595FT TSSOP16 Toshiba	1	PCS	U32
121	3	017-1089000000R	IC	NC7SZ157P6X SC70-6 Fairchild	2	PCS	U26.U28.
122	3	017-1091000000R	IC	NE5532D SOIC-8 TI	3	PCS	U4.U5.U6
123	3	017-1092000000R	IC	BC847BS SOT-363 Philips	24	PCS	Q2.Q4.Q6.Q8.Q9.Q12.Q18.Q20.Q22.Q2 4.Q26.Q28.Q34.Q36.Q39.Q40.Q41.Q44. Q50.Q52.Q55.Q56.Q57.Q60
124	3	017-1093000000R	IC	BC857BS SOT-363 Philips	20	PCS	Q3.Q5.Q7.Q10.Q.11.Q19.Q21.Q23.Q25. Q27.Q35.Q37.Q38.Q42.Q43.Q51.Q53.Q 54.Q58.Q59
125	3	017-1126000000R	IC	ZHCS400 SOD323 ZETEX	9	PCS	D19.D21.D22.D23.D24.D26.D27.D34.D3 5
126	3	017-1250000000R	IC	NC7SZ74K8X US8 fairchild	7	PCS	U7.U8.U9.U15.U17.U19.U24
127	3	017-1251000000R	IC	NC7SZ04P5 SC70-5 FAIRCHILD	4	PCS	U11.U12.U13.U25
128	3	017-1252000000R	IC	NC7SZ86P5X SC70-5 FAIRCHILD	1	PCS	U10
129	3	017-1253000000R	IC	NC7WZ04P6X SC70-6 FAIRCHILD	1	PCS	U2
130	3	017-1254000000R	IC	TAS1020B TQFP48 TI	1	PCS	U31
131	3	017-1264000000R	IC	LM339PWR. TSSOP14 TI	1	PCS	U21
132	3	017-1267000000R	IC	AT24C64CN-SH-T SO-8 ATMEL	1	PCS	U23.
133	3	017-1292000000R	IC	ES9018 QFP 64 ESS Technologies	1	PCS	U1
134	3	017-1295000000R	IC	LM1117MPX-ADJ SOT-223 N03A NS	1	PCS	U20
135	3	017-1391000000R	IC	STC809S SOT23 STC Micro	1	PCS	U30
136	3	017-8160000000R	IC	NE5534D SO-8 W=3.9MM TI	4	PCS	U3.U14.U16.U18
137	3	018-000222222QR	Transistor	MMBT2222A NPN SMD SOT-23	3	PCS	Q140.Q141.Q142
138	3	018-1080617227R	Transistor	FMMT617 SOT23 15V 3A 625mW ZETEX	7	PCS	Q133.Q134.Q135.Q136.Q137.Q138.Q13 9
139	3	018-1400846227R	Transistor	BC846 BLT1 SOT-23 PHILIPS	7	PCS	Q14.Q29.Q46.Q61.Q145.Q148.Q152
140	3	018-1400856227R	Transistor	BC856 BLT1 SOT-23	6	PCS	Q13.Q30.Q45.Q62.Q143.Q144
141	3	018-1500520227R	Transistor	BFR520 SOT23 PHILIPS	2	PCS	Q131.Q132
142	3	018-4302907227AR	Transistor	MMBT2907ALT1G SOT-23 ON	2	PCS	Q149.Q153
143	3	018-4500690224R	Transistor	FZT690B SOT-223 Zetex	4	PCS	Q16.Q31.Q48.Q63
144	3	018-4500790224R	Transistor	FZT790A SOT-223 Zetex	4	PCS	Q15.Q32.Q47.Q64
145	3	018-7203422227R	MOSFET	AO3422 Nch SOT-23 Alpha & Omega	1	PCS	Q158
146	3	018-9800389236R	JFET	LSK389-C-SOIC-8 SOIC-A Linear Systems	4	PCS	Q1.Q17.Q33.Q49
147	3	022-1009044385R	SMD Transformer	ER-9.5 Screened Digital Isolation Transformer	2	PCS	T1 T2
148	3	027-3383022000R	Inductor	330nH Wire Wound 0805 5% Inductor	1	PCS	L2
149	3	027-4793022000R	Inductor	4.7uH Wire Wound 0805 5% Inductor	1	PCS	L1
150	3	035-1003062051R	Inductor	1000ohm/100MHz 0805 BLM21BD102SN1D	19	PCS	L3-L21
151	3	053-1048410000R	MDAC/QDAC Main board PCB Rev0.3	Class 3 PCB 4 Layer FR4 1.6MM 1oZ 211.7 x 206.9mm	1	PCS	
152	3	056-8124551194R	FPC Connector	SMD 24pin PH=1mm Vertical ZIF FFC Connector	1	PCS	CN2
153	3	067-7700099112R	Diode	BAV99 DUAL SOT-23 Philips/nxp	20	PCS	D1-- D12.D20.D25.D28.D29.D30.D31.D32.D33
154	3	067-7700316119R	Diode	BAS316 SOD323 PHILIPS	2	PCS	D36.D37
155	1	088-1018424000R	MDAC Front PCBA	MDAC Front PCBA	1	PCS	
156	2	006-1014080733R	Electrolytic Capacitor	100uF 16V 20% D8*7MM SXJseries Lelon 105°C	1	PCS	C5
157	2	006-1024080803R	Electrolytic Capacitor	1000uF 4V OCRZ series 8*8 20% 105°C Lelon	3	PCS	C1.C2.C3
158	2	006-4704080743R	Electrolytic Capacitor	47uF 25V 20% D8*7MM SXJseries Lelon 105 °C	1	PCS	C4
159	2	020-0002227134R	Encoder + Push Switch	EC162101E1B-HA1-016 L=20MM φ6mm R/T200~450gf	1	PCS	SW5

ELECTRONIC PARTS LIST

M-DACE-Electronic Bom-P4/5

No.	LEVEL	P/N	PART NAME	DESCRIPTION	QTY	UNIT	LOCATION
160	2	026-000003000R	Light Sensor	AT405-ALS-T2 PH=5MM GOODTAKE	1	PCS	U10
161	2	030-7324000000R	OLED	VG-2864ASWDT09 128x64Dot 2.7 WISE CHIP	1	PCS	
162	2	039-3000000000R	Tact Switch	TC-17XA 7.8*7.8*5	4	PCS	SW1.SW2.SW3.SW4
163	2	044-6570000000R	Connector	6PIN sh-56-01 PH=2.54MM 13.2*18MM	1	PCS	CN3
164	2	044-6590000000R	IR PAD	11*10*9.6 RCEB-8	1	PCS	
165	2	052-2200000000R	IR receiver	KS1838	1	PCS	U11
166	2	223-0500120803R	Plastic Post	LEDK-8 (KangYang) , NYLON66 (UL) 94V-2	1	PCS	Light Sensor+FRONT PCB
167	2	277-0120000001R	Plastic Post	RCEB-7 (KangYang) NYLON66 (UL) 94V-2	1	PCS	IR+FRONT PCB
168	2	088-1018424001R	MDAC Front PCBA	MDAC Front PCBA(SMD components assembled)	1	PCS	
169	3	002-0000011050R	Resistor	0R 0603 5% 50V	1	PCS	R17
170	3	002-1000011010R	Resistor	10K 1% 0603 50V	10	PCS	R3.R7.R14.R15.R16.R26.R31.R32.R33.R34.
171	3	002-1001021010R	Resistor	RES 100 OHM 1/10W 1% 0603	4	PCS	R1.R11.R20.R21
172	3	002-1002021010R	Resistor	RES 1K OHM 1/10W 1% 0603	1	PCS	R4
173	3	002-1004021010R	Resistor	RES 100K OHM 1/10W 1% 0603	2	PCS	R2 R5
174	3	002-1203021010R	Resistor	RES 12K OHM 1/10W 1% 0603	1	PCS	R6
175	3	002-1500021010R	Resistor	15R, 1%, 0603, 1/10W	1	PCS	R12
176	3	002-9103021010R	Resistor	910K 0603 1/10W 1%	1	PCS	R13
177	3	003-1000080001R	Resistor	100R 1/16W 1% 0603 8pin	7	PCS	RA1.RA2.RA3.RA4.RA5.RA6.RA7
178	3	007-1000001060R	Capacitor	10PF/50V NPO 0603K	1	PCS	C7.
179	3	007-1000061060R	Capacitor	10NF 50V X7R 0603 1/16W 10%	3	PCS	C24.C25.C30
180	3	007-1000072060R	Capacitor	10nF, 200V, 0805, X7R, 20%	8	PCS	C67.C68.C69.C70.C71.C72.C73.C74
181	3	007-1001031061R	Capacitor	0603 100P/50V 5% MURATA	1	PCS	C6
182	3	007-1001051060R	Capacitor	100NF 0603 10% Murata 25V(20100830	21	PCS	C15.C16.C17.C18.C19.C20.C21.C27.C3 3.C34.C35.C36.C37.C39.C40.C41.C42.C 43.C48.C54.C55
183	3	007-1002051063R	Capacitor	1nF 0603 50v 5% COG	5	PCS	C53.C56.C57.C58.C59
184	3	007-1006072034R	Capacitor	10uF 16V 20% X5R 0805	2	PCS	C28.C29
185	3	007-2200031061R	Capacitor	0603 22P/50V 5% NPO	8	PCS	C9.C10.C11.C12.C13.C44.C45.C46.
186	3	007-2206052010R	Capacitor	0805 22U/6.3V X5R 20%	5	PCS	C14.C23.C26.C31.C32
187	3	007-3001001060R	Capacitor	33PF/50V NPO 0603K	1	PCS	C22
188	3	017-0170000000-1R	IC	PIC24FJ64GB106-I/PT TQFP64 Microchip	1	PCS	U1
189	3	017-0211300000R	IC	LP2951 S08 ADJ 100mA ON(CDR2G) Fairchild(CM)	1	PCS	U6
190	3	017-0480000000R	IC	NC7SZ18P6X SC70-6 Fairchild	1	PCS	U4
191	3	017-1089000000R	IC	NC7SZ157P6X SC70-6 Fairchild	1	PCS	U5
192	3	017-1405000000R	IC	WM8804GEDS SSOP-20 Wolfson	1	PCS	U2
193	3	035-1003062051R	Inductor	1000ohm/100MHz 0805 BLM21BD102SN1D	5	PCS	L1.L2.L3.L4.L5
194	3	053-1048410048R	MDAC/QDAC Front PCB Rev0.2	Class 3 PCB 4 Layer FR4 1.6MM 1oz 216.5 x 40mm	1	PCS	
195	3	056-0230552190R	FPC Connector	SMD 30pin PH=0.5mm Parallel ZIF FFC Connector 1226-30-02	1	PCS	CN2
196	3	056-8124551194R	FPC Connector	SMD 24pin PH=1mm Vertical ZIF FFC Connector	1	PCS	CN1
197	3	067-7700316119R	Diode	BAS316 SOD323 PHILIPS	1	PCS	D1
198	1	088-1018420400R	MDAC PSU PCBA	MDAC PSU PCBA	1	PCS	
199	2	349-1006000001R	Grounding piece	PCB-2	2	PCS	MH1, MH2
200	2	044-6550000000R	S-video	9pin DIN-912A chunsheng	1	PCS	CN1
201	2	041-1376000000QR	SWITCH	SWITCH MAINS 2 P SDDSA 3289A	1	PCS	SW1
202	2	006-4724183503R	Electrolytic Capacitor	4700u/25V 20% Lelon RXY 18*35mm 105°C	5	PCS	C1.C2.C3.C4.C5
203	2	088-1018420401R	MDAC PSU PCBA	MDAC PSU PCBA(SMD components assembled)	1	PCS	
204	3	055-0310030100R	10P Cable	2.54MM L=250MM 1007 24AWG	1	PCS	
205	3	002-1000011010R	Resistor	10K 1% 0603 50V	7	PCS	R12.R14.R21.R23.R24.R25.R26
206	3	002-1001032010R	Resistor	100Q 1/8W 1% 0805	12	PCS	R1-R8, R27.R28.R37.R38
207	3	002-1002021010R	Resistor	RES 1K OHM 1/10W 1% 0603	3	PCS	R11.R16.R22
208	3	002-1503011010R	Resistor	RC03K153JT	2	PCS	R15.R19
209	3	002-2203021010R	Resistor	RES 22K OHM 1/10W 1% 0603	4	PCS	R9.R13.R17.R20
210	3	002-4703021010R	Resistor	0603 47K1/8W1%	2	PCS	R10.R18
211	3	007-1000072060R	Capacitor	10nF, 200V, 0805, X7R, 20%	22	PCS	C15.C16.C17.C18.C20.C21.C23.C24.C2 5.C27.C28.C29.C31.C32.C33.C34.C36.C 38.C39.C40.C71.C72
212	3	007-1001052060QR	Capacitor	100PF50V 5% NPO 0805	1	PCS	C19
213	3	007-1004052060R	Capacitor	100nF 50V 5% 0805	6	PCS	C22.C26.C30.C35.C37.C41
214	3	018-1400846227R	Transistor	BC846 BLT1 SOT-23 PHILIPS	1	PCS	Q7
215	3	018-1400856227R	Transistor	BC856 BLT1 SOT-23	2	PCS	Q2.Q5
216	3	018-5600070227R	Transistor	BAV70LT1G SOT-23 ON	2	PCS	D9.D10
217	3	018-7203404227R	MOSFET	A03404A Nch SOT-23 Alpha & Omega	2	PCS	Q1.Q4
218	3	018-7203407227R	MOSFET	A03407A Pch SOT-23 Alpha & Omega	2	PCS	Q3.Q6
219	3	053-1048410004R	MDAC/QDAC PUS PCB Rev0.3	Class 3 PCB 2Layer FR4 1.6MM 2oz 198.4x 47mm	1	PCS	
220	3	067-2200002103R	Doide	S2J Silicon Rectifier Diode 2A 600V, SMA (D0-214)	11	PCS	D1.D2.D3.D4.D5.D6.D7.D8.D11.D12.D13

PRODUCT VERSION DEVIATION

M-DAC-Color Deviation-P1/1

No.	P/N	PART NAME	DESCRIPTION	QTY	UNIT
1	340-1018420000R	knob	black painted	1	PCS
	340-1018420002R		silver painted	1	PCS
2	300-1018410000-2R	front panel	silkscreened, light grey、 silver、	1	PCS
	300-1018420001-1R		silkscreened, light grey、 black 、	1	PCS
3	309-1018410000-2R	main chassis	silver painted	1	PCS
	309-1018420001-1R		black anodized	1	PCS
4	534-3002100606R	screw	M3*10NI	10	PCS
	534-3002100906R		M3*10Black	10	PCS
5	301-1084100000-2R	back panel	silkscreened, light grey、 silver、	1	PCS
	300-1018420002-1R		silkscreened, light grey、 black 、	1	PCS
6	524-2025050601R	screw	M2*5NI	1	PCS
	524-2023061001R		M2*6.5Black	1	PCS
7	524-2923090616R	screw	ST2.9*9.5NI	8	PCS
	524-2923091016R		ST2.9*9.5Black	8	PCS
8	215-1027420001R	button cap	silver painted,ABS757#	1	PCS
	215-1027410001R		black painted,ABS757#	1	PCS
9	309-1018410000R	function button	silver painted	4	PCS
	309-1018420001R		black painted	4	PCS
10	215-1027410000R	power button	silver painted,ABS757#	1	PCS
	215-1027420000R		black painted,ABS757#	1	PCS

PRODUCT VERSION DEVIATION

M-DAC-Country Deviation-P1/1

No.	UNIT CODE	COLOR	COUNTRY	P/N	PART NAME	DESCRIPTION
1	AH-001841-01A	silver	CH	022-1000013405R	Power adaptor	EI TYPE INPUT=AC220V OUTPUT=AC14.2V*2@0.5A,CH
	AH-001842-01A	black				
2	AH-001841-02A	silver	USA	022-1001023405R	Power adaptor	EI TYPE INPUT=AC110-120V OUTPUT=AC13.8V*2@0.5A,USA
	AH-001842-02A	black				
3	AH-001841-03A	silver	UK	022-1000033405R	Power adaptor	EI TYPE INPUT=AC230V OUTPUT=AC13.8V*2@0.5A,UK
	AH-001842-03A	black				
4	AH-001841-05A	silver	AU	022-1000073405R	Power adaptor	EI TYPE INPUT=AC230V OUTPUT=AC13.8V*2@0.5A,AU
	AH-001842-05A	black				
5	AH-001841-06A	silver	TW	022-1004023405R	Power adaptor	EI TYPE INPUT=AC110V OUTPUT=AC13.8V*2@0.5A,TW
	AH-001842-06A	black				
6	AH-001841-07A	silver	FG	022-1000063405R	Power adaptor	EI TYPE INPUT=AC230V OUTPUT=AC13.8V*2@0.5A,FG
	AH-001842-07A	black				
7	AH-001841-12A	silver	JP	022-1000603405R	Power adaptor	EI TYPE INPUT=AC100V OUTPUT=AC15V*2@0.5A,JP
	AH-001842-12A	black				

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