

RPi-DAC-RCA

lot of 50 pcs.

Component	Part	pcs.	opt.	Package	Digikey part	Comments	USD/pc.	USD	USD	Total	
PCB	ExpressPCB	1				bundle boards !	10.00	10.00	7.00	7.00	optimize
DAC	PCM5102-Q1	1		20TSSOP	296-37277-1-ND		6.92	6.92	5.58	5.58	
<i>Connectors:</i>											
I2S	2x4	1		SMT, female	S5674-ND	RPi P5	1.42	1.42	0.98	0.98	
3.5mm stereo		1		SMT	CP1-3515SJPICT-ND	RCA out with adapter	1.94		1.50		optimize
or:		1		SMT	CP1-3514SJCT-ND		1.70	1.70	1.33	1.33	
or:		1		SMT	CP1-2523SJCT-ND	RCA out with adapter	1.26		0.99		
jumper header	1x2	2		through hole	A30786-ND	or 0R	0.58	1.16	0.43	0.86	optimize
or:		2		SMT	952-1913-ND		0.21		0.15		
or:		2		SMT	S1033E-02-ND	gold	0.93		0.69		
inductor	68μH/50mA	3		SMT 1206	490-6609-1-ND	CPVDD, AVDD, DVDD	0.77	2.31	0.56	1.68	optimize
or:	47μH/100mA	3		SMT 1206	490-6592-1-ND		0.77		0.56		
<i>Resistors:</i>											
	470R	2		SMT 0603	P470DBCT-ND	RCA out filter 0.1%	0.63	1.26	0.25	0.50	
	10K	2		SMT 0603	311-10.0KHRCT-ND	jumper FILT, DEMP 1%	0.10	0.20	0.02	0.04	
	5.23K	1		SMT 0603	311-5.23KHRCT-ND	XSMT 1%	0.10	0.10	0.02	0.02	
	10K	1		SMT 0603	311-10.0KHRCT-ND	XSMT 1%	0.10	0.10	0.02	0.02	
	33R	3		SMT 0603	311-33.0HRCT-ND	I2S 1%	0.10	0.30	0.02	0.06	
	0R	1		SMT 0603		3.3V I2S connector					
<i>Capacitors:</i>											
	47μ/25V	5	2	SMT 1206	445-8047-1-ND	deblocking C	1.25		1.02		optimize
or:	68μ/6.3V	5	2	SMT 1206	445-14671-1-ND		1.26		1.06		
or:	47μ/6.3V	5	2	SMT 1206	490-3907-1-ND		0.53	3.71	0.31	2.17	
or:	47μ/6.3V	5	2	SMT 1206	478-8178-1-ND	Tantalum, 2 Ohm	0.47		0.21		
	1μ/50V	3	1	SMT 0603	445-7468-1-ND	deblocking C	0.18	0.72	0.13	0.52	
	2.2μ	2		SMT 0603	587-1254-1-ND	charge pump 10%	0.12	0.24	0.05	0.10	
	0.1μ	1		SMT 0603	490-1532-1-ND	LDOO 10%	0.10	0.10	0.02	0.02	
	2.2n	2		SMT 0603	490-1459-1-ND	RCA out filter 5%	0.12	0.24	0.05	0.10	
SUM:								30.48		20.98	

Option A)	with LDO				for 3.3V VDD					
LDO	TPS7A4700	1	20VQFN	296-34769-1-ND		5.70	5.70	4.60	4.60	
connector	1x2	1	through hole	A30786-ND	5V In	0.58	0.58	0.43	0.43	
electrolyte C	820 μ /25V	1	SMT	PCE5011CT-ND	or ceramic C	1.44		1.05		optimize
or:	470μ/25V	1	SMT	493-2194-1-ND		0.80	0.80	0.67	0.67	
LED	gn/ye	1	SMT 0603	VLMG1300-GS08CT-ND		0.46	0.46	0.28	0.28	
<i>Resistors:</i>										
	130R	1	SMT 0603	311-130HRCT-ND	for LED 1%	0.10	0.10	0.02	0.02	
<i>Capacitors:</i>										
	1 μ /50V	2	SMT 0603	445-7468-1-ND		0.18	0.36	0.13	0.26	
	47 μ /25V	1	SMT 1206	445-8047-1-ND		1.25		1.02		
or:	47μ/6.3V	1	SMT 1206	490-3907-1-ND		0.53	0.53	0.31	0.31	
or:	22 μ /25V	1	SMT 1206	1276-3047-1-ND		0.50		0.29		
SUM:										6.57
SUM:							38.48			27.24
Option D)	with RCA									
RCA connector		2	through hole	SC1852-ND	RCA out	1.04	2.08	0.80	1.60	
SUM:										2.00
Option B, C)	with SPS				for RPi 5V					
SPS	LMZ14202H	1	TO-PMOD-7	LMZ14202HTZ/NOPBCT-ND		11.87	11.87	11.18	11.18	
rectifier	bridge, 2A	1	SMT	641-1434-1-ND		0.84	0.84	0.66	0.66	
diode	2A, schottky	1	SMT	CMS06QMCT-ND		0.59	0.59	0.44	0.44	
inductor	12 μ H/2A	1	SMT	308-1870-1-ND	or self-made ferrite	0.97		0.71		
or:	100 μ H/1A	1	SMT	587-2004-1-ND		0.57		0.51		
or:	100μH/1A	1	SMT	SRN8040-101MCT-ND		0.54	0.54	0.39	0.39	
electrolyte C	820 μ /25V	2	SMT	PCE5011CT-ND	or ceramic C	1.44		1.05		optimize
or:	470μ/25V	2	SMT	493-2194-1-ND		0.88	1.76	0.67	1.34	
connector	1x2	1	through hole	A30786-ND	AC In	0.58	0.58	0.43	0.43	
<i>Resistors:</i>										
	100K	1	SMT 0603	311-100KHRCT-ND	Ron 1%	0.10	0.10	0.02	0.02	
	34K	1	SMT 0603	311-34.0KHRCT-ND	Rfbb 1%	0.10	0.10	0.02	0.02	

Sheet1

	6.49K	1		SMT 0603	311-6.49KHRCT-ND	Rfbb 1%	0.10	0.10	0.02	0.02
Capacitors:										
	1 μ /50V	4		SMT 0603	445-7468-1-ND		0.18	0.72	0.13	0.52
	47 μ /25V	4	6	SMT 1206	445-8047-1-ND		1.25		1.02	
or:	22μ/25V	4	6	SMT 1206	1276-3047-1-ND		0.50	5.00	0.29	2.90
or:	10 μ /25V	4	6	SMT 1206	478-8496-1-ND	Tantalum	1.10		0.59	
	22n/25V	1		SMT 0603	1276-2001-1-ND	10.00%	0.10	0.10	0.03	0.03
	4.7n/25V	1		SMT 0603	399-7927-1-ND	10.00%	0.10	0.10	0.03	0.03
SUM:										17.98
SUM:								63.49		53.70
Other parts:	optional									
connector	1x2	3		through hole	A30786-ND	5V, 3.3V, GND	0.58	1.74	0.43	1.29
	1x2	1		through hole	A30786-ND	for 2 nd AC	0.58	0.58	0.43	0.43
	1x2	4		SMT	S1033E-02-ND	gold	0.93	3.72	0.63	2.52
standoff	4x 6mm	4		through hole	25508K-ND	for PCB, M3 thread	0.59	2.36	0.43	1.72
	2x 12mm	1		through hole	25502K-ND	for RPi, M3 thread, shaft	0.54	0.54	0.33	0.33
SUM:								8.94		6.29
Option D)					smaller height	C instead electrolyte				
ceramic C	47 μ /25V	0	15	SMT 1206	445-8047-1-ND	instead electrolyte	1.25		1.02	
or:	22μ/25V	0	15	SMT 1206	1276-3047-1-ND		0.50	7.50	0.29	4.35