

APD Power Supply rev 1 BOM														
date		2013sep13												
revision		1.0												
qty to build		5	Dan: needs to update this; parts have been price at quantity to match the full run of PCBs which is 50											
	Qty					Distributor	Qty	Qty	Qty	unit	net			cost per
	Per													
Item	PCB	Reference Designators	Description	Vendor	Part Number	Distributor	Order Number	req	stk	buy	price	PO cost	comments	board
1	3	C8, C10, and C6. DO NOT POPULATE C6	0.1uF 250V X7R 1206 10% cap. ESR not specified. Vref trim and op amp bypass	Samsung	CL31B104KEHSFNE	Digikey	1276-3083-1-ND	15	0	15	\$0.05	\$0.79	cut tape, price at quantity = 250	\$0.16
2	1	C3	5.6 uF, 25V ripple 0.8 Amps, ESR 0.1 ohm at input to the Vref	Panasonic	25TQC5R6M	Digikey	P16518CT-ND	5	0	5	\$1.48	\$7.38	loose parts, price at quantity = 50	\$1.48
3	2	C4, C9	3.3 uF, 16V, ripply 0.66 Amp, ESR 0.260 ohm. At output of the Vref	Panasonic	16SVP3R3M	Digikey	P16465CT-ND	10	0	10	\$0.81	\$8.08	cut tape, price at quantity = 100	\$1.62
4	2	C5, C7	33 pF, 250V NPO 0603 +/- 5% ESR < 0.2 ohms. Op Amp enable bypass, op amp feedback	Johanson Tec	251R14S330JV4T	Digikey	712-1342-1-ND	10	0	10	\$0.15	\$1.47	cut tape, price at quantity = 100	\$0.29
5	2	C1, C2	aluminum cap, 470 uF, 200V, 20%, ripply 1.85Amp, ESR 0.388 ohm primary input CLC filtering. Overkill	Panasonic	ECO-S2DP471BA	Digikey	P6120-ND	10	0	10	\$2.00	\$20.00	cut tape, price at quantity = 50	\$4.00
6	1	D1	15 volt zener diode, 1 Watt, Vf 1.2 V @ 0.2 Amp, 14 ohm, axial	NXP Semi	1N4744A, 113	Digikey	568-1364-1-ND	5	0	5	\$0.14	\$0.72	cut tape, price at quantity = 25	\$0.14
7	2	D2, D3	small signal diode, 100V, 0.2A DC, 1V @ .01A, recovery 4 ns	NXP Semi	1N4148, 113	Digikey	568-1360-1-ND	10	0	10	\$0.05	\$0.53	cut tape, price at quantity = 100	\$0.11
8	2	JP1, JP2	Eurostyle terminal block, side entry, 10 amp 150V 16-30 AWG. For 1.8V and 3.3V	TE Conn	282834-2	Digikey	A98333-ND	10	0	10	\$0.58	\$5.77	loose parts. Price @ quantity = 100.	\$1.15
9	1	L	Shielded 100uh 10% 0.65 ohm 0.4 Amp Fsr = 13 MHz, size .256" x .256" inductor	Bourns	SRR0604-101KL	Digikey	SRR0604-101KLCT-ND	5	0	5	\$0.54	\$2.68	cut tape. Price at quantity = 50	\$0.54
10	1	Q1	PNP Amplifier transistor, Vceo = 150V, PC 0.625 watt, TO-92 package	Fairchild	2N5401	Digikey	2N5401YBU-ND	5	0	5	\$0.18	\$0.91	bulk, price at QTY=10	\$0.18
11	1	R6	100 ohm 1%, 50 PPM, 1 / 4 Watt axial, final output	Stackpole Electronics	RNFM14FTC100R	Digikey	S100CACT-ND	5	0	5	\$0.05	\$0.26	cut tape. Price at quantity = 50	\$0.05
12	1	R10	15K ohm 1% 50 PPM, 1 / 4 Watt axial, fine Rvariable to ground	Stackpole Electronics	RNMF14FTC15K0	Digikey	S15KCACT-ND	5	0	5	\$0.04	\$0.20	cut tape. Price at quantity = 100	\$0.04
13	1	R1	22K ohm 1% 50 PPM, 0.6 Watt axial, Vdrop into zener diode	TE Conn	1622389-1	Digikey	A105956CT-ND	5	0	5	\$0.05	\$0.23	cut tape. Price at quantity = 100	\$0.05
14	1	R13	24.9K ohm 1% 100 PPM, 1 / 4 Watt axial, fine Rvariable wiper load	Yageo	MFR-25FBF52-24K9	Digikey	24.9KXBK-ND	5	0	5	\$0.03	\$0.16	cut tape. Price at quantity = 100	\$0.03
13	1	R9	75K ohm 1% 50 PPM, 1 / 4 Watt axial, coarse Rvariable to ground	Stackpole Electronics	RNMF14FTC75K0	Digikey	S75KCACT-ND	5	0	5	\$0.04	\$0.20	cut tape. Price at quantity = 100	\$0.04
14	1	R3	33.2K ohm 1% 100 PPM, 1 / 4 Watt axial,output to transistor	Stackpole Electronics	RNF14FTD33K2	Digikey	RNF14FTD33K2CT-ND	5	0	5	\$0.04	\$0.22	cut tape. Price at quantity = 100	\$0.04
15	1	R5	220k ohm 1% 50 PPM 1 / 4 Watt axial, out transistor gate	Stackpole Electronics	RNMF14FTC220K	Digikey	S220KCACT-ND	5	0	5	\$0.04	\$0.20	cut tape. Price at quantity = 100	\$0.04
16	3	R8, R11, R12	1M ohm 1% 50 PPM 1 / 4 Watt axial, feedback and pullup and pulldown	Stackpole Electronics	RNMF14FTC1M00	Digikey	S1MCACT-ND	15	0	15	\$0.04	\$0.59	cut tape. Price at quantity = 250	\$0.12
17	1	R7	9.09M ohm 1% 250 PPM 1 / 2 Watt axial, feedback	Vishay	HVR3700009094FR500	Digikey	PPCHF9.09MCT-ND	5	0	5	\$0.34	\$1.69	cut tape, price at quantity = 50	\$0.34
16	1	R7 alternative 100 PPM	see above but 100 PPM. Requires second PO to Mouser	Yageo	MFR-25FRF52-9M09	Mouser	603-MFR-25FRF52-9M09	5	0	0	\$0.11	\$0.00	cut tape, price at quantity = 50. see quantity scaled by 0	\$0.11
16	1	R7 SMT 100 PPM alternative	see above but 100 PPM and SMT 1206. would require (simple) rework	Yageo	RC1206FR-079M09L	Digikey	311-9.09MFRCT-ND	5	0	0	\$0.02	\$0.00	cut tape, price at quantity = 25. see price scaled by \$0.0	\$0.02

18	1	R2	5K ohm variable resistor, 25 turn, 0.5 Watt	Bourns	3296Y-1-502LF	Digikey	3296Y-502LF-ND	5	0	5	\$1.75	\$8.76	loose parts, price at quantity = 50	\$1.75
19	1	R2	25K ohm variable resistor, 25 turn, 0.5 Watt	Bourns	3296Y-1-253LF	Digikey	3296Y-253LF-ND	5	0	5	\$1.75	\$8.76	loose parts, price at quantity = 50	\$1.75
20	1	U1	100 V, 0.05 Amp, operational amplifier, G=1 stable. 8-SOIC	TI	OPA454AIDDA	Digikey	296-22997-5-ND	5	0	5	\$6.09	\$30.44	Tube or loose parts, price at quantity = 25	\$6.09
21	1	U2	low noise very low drift precision voltage reference. 10 V .05 % 3 PPM/degC. 0.01 Amp output, 8 SOIC	TI	REF5010ID	Digikey Mouser	296-24022-5-ND 595-REF5010ID	5	0	5	\$5.98	\$29.91	cut tape, price at quantity = 25	\$5.98
DO NOT POPULATE														
	1	C6												
Other items														
21	1	PCB fab (bare board)		Advanced Circuits		Advanced Circuits	ordered 2013sep12	5	0	50	\$9.98	\$499.00	Qty=50 at 3 day turn around	\$9.98
22	8	ground test points	1x1 0.025" square straight header 15 uin gold	TE Conn	5-146280-1	Digikey	A107006-ND	40	0	100	\$0.10	\$10.47	loose parts. Price at quantity = 100.	\$0.84
Post stuff and solder components														
1	4	screw for the 4 standoffs	philips pan head machine screw. Zinc plated steel. #6-32 by 5 / 16 "	McMASTER-CARR	90272A145	McMASTER-CARR	90272A145	0.04	0	0.04	\$1.85	\$0.07	\$5.x if stainless.	\$7.40
1b	4	standoff. How tall	#6-32 standoff. TBD height. Total guess of 0.5 "	McMASTER-CARR	93265A470	McMASTER-CARR	93265A470	4	0	4	\$1.10	\$4.40	price is quantity > 10	\$4.40
													board total	\$48.74