

mini Aleph

Capacitors

	<u>value digikey part #</u>	<u>Note</u>
C1-C3	220uf P10326-ND	footprint allows for 12.5mm diameter caps (35v will work if rails are below 35v)
C4	10pf 338-1090-ND	mica capacitor - CD5 package
C5	1nf PS1H103G-ND	Panasonic ECHS PPS film
C6	47nF BC2068-ND	BC Polypropylene 47nF capacitor for D5

Diodes

	<u>value digikey part #</u>	<u>Note</u>
D1-D5	9.1v zener 1N4739ADICT-ND	

Resistors

	<u>value digikey part #</u>	<u>Note</u>
R0	3.0 P3.0W-3BK-ND	3w 5% metal film
R1	10.0K PPC10.0KXCT-ND	PPC + Value + XCT-ND
R2	100K PPC100KXCT-ND	
R3	68.1K PPC68.1KXCT-ND	
R4	221 PPC221XCT-ND	
R5	4.75K PPC4.75KXCT-ND	
R6	optional PPC + Value + XCT-ND	optional, for closer matching of Q1 and Q2
R7	221 PPC221XCT-ND	
R8	221 PPC221XCT-ND	
R9	10.0K PPC10.0KXCT-ND	
R10	68.1K PPC68.1KXCT-ND	
R11	221 PPC221XCT-ND	
R12	750 PPC750XCT-ND	* initial value, could be optimized for expected power/load conditions
R13	47.5K PPC47.5KXCT-ND	* initial value, could be optimized for expected power/load conditions
R14	1.50K PPC1.50KXCT-ND	
R15	100K PPC100KXCT-ND	
R16	1.50K PPC1.50KXCT-ND	
R17	100 PPC100XCT-ND	* initial value, could be optimized for expected power/load conditions
R18	392 PPC392XCT-ND	
R19	221 PPC221XCT-ND	
R20	1.00k PPC1.00kXCT-ND	
R21	221 PPC221XCT-ND	
R22	221 PPC221XCT-ND	
R23	0.47 P0.47W-3BK-ND	3w 5% metal film
R24	0.47 P0.47W-3BK-ND	3w 5% metal film
R25	not used	used for higher power designs
R26	not used	used for higher power designs
R27	0.47 P0.47W-3BK-ND	3w 5% metal film
R28	0.47 P0.47W-3BK-ND	3w 5% metal film
R47	not used	used for higher power designs - not shown on layouts, stacks over R23-26
R48	not used	used for higher power designs - not shown on layouts, stacks over R23-26
R49	not used	used for higher power designs - not shown on layouts, stacks over R23-26

Transistors

	<u>value digikey part #</u>	<u>Note</u>
Q1-Q3	IRF9610 IRF9610-ND	Q1 and Q2 should be matched Vgs
Q4-Q5	ZTX450 ZTX450-ND	
Q6-Q7	IRFP044 IRFP044-ND	IRFP240-ND will also work for Q6 and Q7

Output boards

not used

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Capacitors

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C5	1nf PS1H103G-ND	Panasonic ECHS PPS film
C6	47nF BC2068-ND	BC Polypropylene 47nF capacitor for D5

Diodes

	<u>value digikey part #</u>	<u>Note</u>
D1-D5	9.1v zener 1N4739ADICT-ND	

Resistors

	<u>value digikey part #</u>	<u>Note</u>
R0	3.0 P3.0W-3BK-ND	3w 5% metal film
R1	10.0K PPC10.0KXCT-ND	PPC + Value + XCT-ND
R2	100K PPC100KXCT-ND	
R3	68.1K PPC68.1KXCT-ND	
R4	221 PPC221XCT-ND	
R5	4.75K PPC4.75KXCT-ND	
R6	optional PPC + Value + XCT-ND	optional, for closer matching of Q1 and Q2
R7	221 PPC221XCT-ND	
R8	221 PPC221XCT-ND	
R9	10.0K PPC10.0KXCT-ND	
R10	68.1K PPC68.1KXCT-ND	
R11	221 PPC221XCT-ND	
R12	825 PPC825XCT-ND	* initial value, could be optimized for expected power/load conditions
R13	47.5K PPC47.5KXCT-ND	** initial value, could be optimized for expected power/load conditions
R14	1.50K PPC1.50KXCT-ND	
R15	100K PPC100KXCT-ND	
R16	1.50K PPC1.50KXCT-ND	
R17	392 PPC392XCT-ND	*** initial value, could be optimized for expected power/load conditions
R18	392 PPC392XCT-ND	
R19	not used	output boards used instead
R20	1.00k PPC1.00kXCT-ND	
R21	221 PPC221XCT-ND	
R22	not used	output boards used instead
R23	0.47 P0.47W-3BK-ND	3w 5% metal film
R24	0.47 P0.47W-3BK-ND	3w 5% metal film
R25	0.47 P0.47W-3BK-ND	3w 5% metal film
R26	0.47 P0.47W-3BK-ND	3w 5% metal film
R27	not used	output boards used instead
R28	not used	output boards used instead
R47	0.47 P0.47W-3BK-ND	3w 5% metal film - not shown on layouts, stacks over R23-26
R48	0.47 P0.47W-3BK-ND	3w 5% metal film - not shown on layouts, stacks over R23-26
R49	not used	used for higher power designs - not shown on layouts, stacks over R23-26

Transistors

	<u>value digikey part #</u>	<u>Note</u>
Q1-Q3	IRF9610 IRF9610-ND	Q1 and Q2 should be matched Vgs
Q4-Q5	ZTX450 ZTX450-ND	
Q6-Q7	not used	output boards used instead

Output boards

Q8-Q13	IRFP240	IRFP240-ND Q8-Q13 should have matched VGS
R29-R34	221 PPC221XTR-ND	
R35-R40	0.47 P0.47W-3BK-ND	3w 5% metal film

* R21 on Aleph 30 schematic
** R19 on Aleph 30 schematic
*** R16 on Aleph 30 schematic

Layout



