

Amplifier board

<u>Capacitors</u>	<u>value</u>	<u>digikey part #</u>
C1-C3	220uf	P10326-ND
C4	10pf	338-1090-ND
C5	1nf	PS1H103G-ND

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

<u>Resistors</u>	<u>value</u>	<u>digikey part #</u>
R0	3.0	P3.0W-3BK-ND
R1	10.0K	PPC10.0KXCT-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
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
R13	47.5K	PPC47.5KXCT-ND
R14	1.50K	PPC1.50KXCT-ND
R15	100K	PPC100KXCT-ND
R16	1.50K	PPC1.50KXCT-ND
R17	100	PPC100XCT-ND
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
R24	0.47	P0.47W-3BK-ND
R25	not used	
R26	not used	
R27	0.47	P0.47W-3BK-ND
R28	0.47	P0.47W-3BK-ND
R47	not used	
R48	not used	
R49	not used	

<u>Transistors</u>	<u>value</u>	<u>digikey part #</u>
Q1-Q3	IRF9610	IRF9610-ND
Q4-Q5	ZTX450	ZTX450-ND
Q6-Q7	IRFP044	IRFP044-ND

Output boards

not used

Note

footprint allows for 12.5mm diameter caps
mica capacitor - CD5 package
Panasonic ECHS PPS film

Note

Note

3w 5% metal film
PPC + Value + XCT-ND

optional, for closer matching of Q1 and Q2

* initial value, could be optimized for expected power/load conditions
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3w 5% metal film

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used for higher power designs

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used for higher power designs - not shown on layouts, stacks over R23-26

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Note

Q1 and Q2 should be matched Vgs

Amplifier board	Original A30	A5	<u>value</u>
<u>Capacitors</u>			
C1-C3	C9 - C11	C5, C9, C10	220uf
C4	C8	C8	10pf
C5	C7	C7	1nf
		C6	680pf
C6	Mod	Mod	1 - 4.7uf
<u>Diodes</u>			
D1-D5	Z1 - Z5	Z1 - Z5	9.1v zener
<u>Resistors</u>			
R0	R0	LINK	3.0
R1, R9	R2, R3	R2, R3	10.0K
R2, R15	R4, R7	R6, R7	100K
R3, R10	R5, R6	R5, R4	68.1K
R4, 7, 8, 11, 21	R9, 10, 11, 12, 15	R9, 10, 11, 12, 15	221
R5	R13	R13	4.75K
R6	R1		optional
R12	R21	R21, value 453	820
R13	R19	R19, value 221K	47.5K
R14	R17	R17 value 4.75K	1.50K
R16	R18	R18	1.50K
R18	R14	R14,	392
R17	R16	R16 value 75	392
R19			not used
R20	R20	R20	1.00k
R22,27,28,49			not used
R23 - R26,R47,R48	R22 - R27	R22- R25	0.47
<u>Transistors</u>			
Q1-Q3	Q1-Q3	Q1-Q3	IRF9610
Q4-Q5	Q4-Q5	Q4-Q5	ZTX450
Q6-Q7			not used
Output boards			
Q8-Q13	Q6 - Q11	Q6 - 8, Q18 - 20	IRFP240
R29-R34	R28 - R33	R28 - 30, R52 - 54	221
R35-R46	R34 - R39	R40 - 42, R64 - 66	1

Note

footprint allows for 12.5mm diameter caps
mica capacitor - CD5 package
A5 VALUE .047
no position on pcb
Zener bypass

Note

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3w 5% metal film
PPC + Value + XCT-ND

10K ON ALEPH 5

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optional, for closer matching of Q1 and Q2

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A30 R16 initial value, could be optimized for expected power/load conditions

output boards used instead

output boards used instead

3w 5% metal film R47,R48 not shown on layouts, stacks over R23-26

Note

Q1 and Q2 should be matched Vgs

output boards used instead

Q8-Q13 should have matched VGS

2w 5% metal film (2 paralleled for closer matching for A30 and mini. One only on A5)

R21 on Aleph 30 schematic
R19 on Aleph 30 schematic

R16 on Aleph 30 schematic

Amplifier board		A5 Diagram	
<u>Capacitors</u>			<u>value</u>
C1-C3	C5, C9, C10		220uf
C4	C8		10pf
C5	C7		1nf
	C6		680pf
C6	Mod		1 - 4.7uf
<u>Diodes</u>			<u>value</u>
D1-D5	Z1 - Z5		9.1v zener
<u>Resistors</u>			<u>value</u>
R0	LINK		3.0
R1, R9	R2, R3		10.0K
R2, R15	R6, R7		100K
R3, R10	R5, R4		10K
R4, 7, 8, 11, 21	R9, 10, 11, 12, 15		221
R5	R13		10K
R6			optional
R12	R21		453
R13	R19		221K
R14	R17		4.75K
R16	R18		1.50K
R18	R14,		392
R17	R16		75
R19			not used
R20	R20		1.00k
R22,27,28,49			not used
R23 - R26,R47,R48	R22- R25		0.47
<u>Transistors</u>			<u>value</u>
Q1-Q3	Q1-Q3		IRF9610
Q4-Q5	Q4-Q5		ZTX450
Q6-Q7			not used
Output boards			
Q8-Q13	Q6 - 8, Q18 - 20		IRFP240
R29-R34	R28 - 30, R52 - 54		221
R35-R46	R40 - 42, R64 - 66		1

Note

footprint allows for 12.5mm diameter caps
mica capacitor - CD5 package
A5 VALUE .047
no position on pcb
Zener bypass

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3w 5% metal film
PPC + Value + XCT-ND

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A30 R16 initial value, could be optimized for expected power/load conditions

output boards used instead

output boards used instead

3w 5% metal film R47,R48 not shown on layouts, stacks over R23-26

Note

Q1 and Q2 should be matched Vgs

output boards used instead

Q8-Q13 should have matched VGS

R21 on Aleph 30 schematic
R19 on Aleph 30 schematic

R16 on Aleph 30 schematic