

AMP4 kit

Component	Q	Type	Pos
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Bag 0	Cap 35V Elect Snap-In 10000uF D22	2	hmt	C1000,C1001
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*Comment: Main power bulk caps**Spec: 10000 uF high ripple
D22, RM10*

Bag 0	AMP4 PCB	1	-	PCB
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*Comment: PCB**Spec: Double layer, Double
weight*

Bag 1	Cap 50V Elect 3.3uF Low ESR D5	2	hmt	C100,C200
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*Comment: Input capacitors**Spec: 3.3 uF min 10V
Panasonic FC or
equivalent*

Bag 1	Cap 35V Elect 330uF U-low ESR D10	2	hmt	C50,C51
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*Comment: 5V system input decoupling /
LP filter**Spec: Min 35V 150 uF D10
RM5*

Bag 1	Cap 50V Film 0.22uF Polyester RM5	4	hmt	C11,C23,C25,C36
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*Comment: Output filter**Spec: 50V 0.22uF Poly-film
RM5*

Bag 1	Cap 100V Film 0.1uF Polyester RM5	2	hmt	C17,C32
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*Comment: Output filter side-side**Spec: 100V 0.1uF Poly-film
RM5*

Bag 1	Cap 35V Elect 1500uF U-Low ESR D12	2	hmt	C102,C103
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*Comment: Close-up PS bulk caps**Spec: Ultra low ESR min
1000uF 35V D12 RM5*

Bag 1	Cap 10V Elect 1000uF Low ESR	1	hmt	C1
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*Comment: 5V bulk cap**Spec: 1000uF 10V RM 3.5 D8*

Bag 1	Cap 100V Film 0.22uF Polyester RM7.5	2	hmt	C15,C28
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*Comment: Output filter**Spec: 0.22uF 100V RM7.5
poly-film*

Bag 2	Res 2.2Kohm 1/10W 0.5% 0805	9	smt	R12,R19,R27,R3,R59,R81,R82,R83,R84
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*Comment: Feedback network, LED driver,
5V dummy load*

Spec: 2.2K 0805 1% Low noise

Bag 2 Ferrite chip 60 Ohm 1 smt L5
3000mA 0805

Comment: Separates AGND from power GND

Spec: 50 to 100 ohm at 100MHz, 0805

Bag 2 Res 120R 1/10W 0.5% 0805 1 smt R57

Comment: 9V Voltage setpoint

Spec: 120 Ohm 0805 1%

Bag 2 Res 49.9Kohm 5 smt (R21, R23, R29, R13) R55
1/10W 0.5% 0805

Comment: 47K or 50K Alternate values for input feedback, gate pullup

Spec: 1% low noise

Bag 2 Cap 50V Elect 22uF 1 hmt C91
U-Low ESR D5 RM2

Comment: Stabilizing of V5 regulator ADJ pin

Spec: Min 10uF 10V Low ESR

Bag 2 Cap 50V Cer 470pF 2 smt C38,C39
NP0/COG 0805

Comment: Feedback delay

Spec: 390pF NPO / COG 10%

Bag 3 Res 20.0Kohm 5 smt R21,R23,R29,R31
1/10W 0.5% 0805

Comment: Input resistors / Input stage feedback

Spec: 20K or 22K Low noise 1%

Bag 3 Trim pot Cerm 2 hmt POT1,POT2
5Kohm mini 12TRN Top

Comment: Trim output offset

Spec: 5K multiturn

Bag 3 Res 10R 1/4W 1% 1 smt R6
1206

Comment: Current limit / LP filter for 5V section

Spec: 10 ohm 0.25W 1206

Bag 3 Res 510Kohm 4 smt R18,R2,R26,R4
1/10W 0.5% 0805

Comment: Output offset trim limiting

Spec: 470K to 690K low noise

Bag 3 Cap 50V Cer 390pF 2 smt C40,C41
NP0/COG 0805

Comment: Feedback delay

Spec: 390pF NPO / COG 10%

Bag 3 Res 20R 1/4W 5% 2 smt R43,R51
1206 SMD

Comment: Output HF snubber

Spec: 20 ohm 0.25W 1206

Bag 4 Cap 100V Cer 330pF NP0 0805 2 smt C13,C26

Comment: Output HF snubber

Spec: 330pF NPO 100V 0805

Bag 4	Res 8.25Kohm 1/10W 0.5% 0805	1	smt	R5
Comment:	<i>Internal Tripath chip Reference voltage</i>			
Spec:	<i>8.2K or 8.25K 1%</i>			
Bag 4	Res 14.0Kohm 1/10W 0.5% 0805	4	smt	R103,R107,R112,R114
Comment:	<i>Modulator feedback</i>			
Spec:	<i>14K 1% low noise. Value is rail voltage dependent</i>			
Bag 4	Res 1.0Kohm 1/10W 0.5% 0805	4	smt	R14,R22,R30,R7
Comment:	<i>Feedback network</i>			
Spec:	<i>1K 1% 0805 thin film / low noise</i>			
Bag 4	Res 11.3Kohm 1/8W 1% 0805	1	smt	R53
Comment:	<i>Disabling of negative rail voltage sense</i>			
Spec:	<i>11K 10% 0805</i>			
Bag 4	Res 200Kohm 1/10W 0.5% 0805	2	smt	R52,R54
Comment:	<i>Positive rail voltage sense</i>			
Spec:	<i>200K 1% 0805</i>			
Bag 4	Res 249R 1/10W 0.5% 0805	1	smt	R110
Comment:	<i>5V setpoint</i>			
Spec:	<i>249 Ohm 1%</i>			
Bag 5	Cap 50V Cer 0.1uF X7R 0805	20	smt	C2,C3,C4,C7,C10,C12,C14,C18,C21,C22,C24,C31,C35,C60,C61,C62,C110,C112
Comment:	<i>Various decoupling</i>			
Spec:	<i>0.1 uF X7R 0805 50V</i>			
Bag 5	Cap 50V Film 1.0uF Polyester RM5	2	hmt	C100,C200
Comment:	<i>Alternate input capacitors</i>			
Spec:				
Bag 5	Res 10Kohm 1/10W 0.5% 0805	8	smt	R37,R40,R45,R58
Comment:	<i>Pull-up / Pull-down for status pins. Alternate modulator feedback values</i>			
Spec:	<i>1% 0805 10K</i>			
Bag 5	Res 750R 1/10W 0.5% 0805	2	smt	R56,R111
Comment:	<i>Voltage setpoint</i>			
Spec:	<i>750 ohm 1% low noise</i>			
Bag 5	Res Ax. Met. Film 0.4W 3.4mm 100R	1	hmt	R100
Comment:	<i>Value depends on rail voltage</i>			
Spec:				
Bag 5	Res Ax. Met. Film 1W 6.5mm 15ohm	2	hmt	R42,R50
Comment:	<i>Output filter</i>			
Spec:	<i>15 Ohm 1W RM10, metal film</i>			
Bag 6	Relay Pwr PC MNT DPDT 8A 24VDC	1	hmt	REL1
Comment:	<i>Speaker shut-off relay</i>			

Spec: 2x8A, 24V coil

Bag 6 Res Ax. Met. Film 1 hmt R100
0.4W 3.4mm 270R

Comment: Value depends on rail voltage

Spec:

Bag 6 Toroid T80-2 4 - L1,L2,L3,L4

Comment: Output filter

Spec: Iron powder toroid, min
6A saturation @15uH

Bag 6 Copper wire 0.6mm 1 - L1,L2,L3,L4
x 1.25m x 4

Comment: For winding toroids

Spec: 0.6 mm diam, soft
copper, insulated, 1.2m
per toroid

Bag 7 Tripath TP2050 1 smt U2

Comment: Output driver chip

Spec: Tripath TP2050 or
STA50X

Bag 7 Rect Bridge 200V 1 hmt D99
8A GBU802

Comment: Main rectifier

Spec: 8A continous / 100V
GBU - KBU package

Bag 7 MCP810T Superv. 1 smt U5
4.85V A-high SOT23

Comment: Voltage supervisor 4.75V
Active High SOT23

Spec:

Bag 7 LED Red Hi-eff 3 hmt External
Diffused 3mm

Comment: Thermal warning, input
overload, fault

Spec:

Bag 7 MOSFET N-ch 3 smt U10,U11,U12
115mA 60V SOT-23
(702)

Comment: Relay drivers

Spec: N chan FET SOT-23 min
50 mA / 50V

Bag 7 MOSFET P-ch 50V 3 smt Q4,Q5,Q6
130mA SOT-23 (SP)

Comment: Status LED Drivers

Spec: P-chan 25V / 50mA min

Bag 7 Voltage Reg Adj 1 hmt Q10
1.5A TO-220

Comment: Pre-regulator 9V. Metal surface
is conducting. Do NOT ground!

Spec:

Bag 7 Voltage Reg Pos Adj 1 hmt Q2
100mA TO-92

Comment: 5V regulator

Spec: LM317L TO-92

Bag 7 Diode U-fast1A 1 smt D1
200V SMB (809)

Comment: Relay coil driver overshoot
protection

Spec: Min 1A 50V SMB

Bag 7 LED Green Hi-eff 1 hmt⌘ External
Diffused 3mm

Comment: HMUTE

Spec:

Bag 7 Tripath TC2001 1 smt⌘ U1

Comment: Tripath input / modulator chip

Spec: TC2000 or TC2001

(c) www.41hz.com

Notes:

⌘ = ESD sensitive

hmt=Hole Mount

smt=Surface Mount