



HF SuperPacker Pro 100W Amp MPU Module MPU-100 R3

Capacitor Assembly

Assembly note: Insert capacitors and bend leads over at a 45 degree angle to hold them on the board. Solder, clip flush to board with side cutters and reflow solder joint. The parts are listed in the order of assembly from top to bottom of the board.

Install 1000pf (102) capacitors.

C39,C18,C42,C40,C41,C26,C16,C20,C28,C35,C27,C19.

Install 0.01uF (103) capacitors.

C4 (back side),C30,C17,C8,C15,C14,C12,C13,C1

Install 0.22uF (224) capacitors.

C36, C37

Install 1000uH choke

L1

Install Diode 1N4007

D5

Install 100 ohm Resistors (1/8W 5%)

R30,R28,R29,R11,R18,R17,R16,R14,R19,R21,R20,R5,R6,R7

Install 10K Resistors (1/8W 1%)

R22,R1,R2,R26,R25,R3,R4

Install 33 ohm Resistor (1/8W 5%)

R8

Install 2K Resistor (1/8W 5%)

R12,R10



Install 4.99K Resistor (1/8W 1%)

R23

Install 470 ohm Resistor (1/8W 5%)

R27,R9

Install 28 pin DIP socket.

This socket installed on the backside at U2 location. Note the notch in the socket body aligns with the silkscreen indicator. Solder one pin to hold it in position. Press socket, if needed while reheating pin soldered to make the socket flush with the circuit board.

Install 16 pin Header.

Insert header on the back side at the J1 location. Note the silkscreen indicator. Solder one pin and then adjust alignment and flush against the circuit board.

Install 6 pin Socket.

Snap the plastic retainer pins into the holes along with the 6 pins. Solder.

Assembly note: The leads of ICs are not perfectly perpendicular and you will need to push the pins orthogonal so it will plug into the socket. You can place the chip on the circuit board with a column of leads against the flat surface. Gently rock the part forward changing the angle of the leads to perpendicular. Repeat for the other side. When installing the chip, take caution not to bend a lead under. Inspect before soldering.

Install U3 (74HVC4053N)

Install on the top side of the board at the indicated position. Make sure notch or dot at top of chip aligns with the top of the silkscreen pattern. Solder.

Install U1 (6B595)

Install on the top side of the board at the indicated position. Make sure notch or dot at top of chip aligns with the top of the silkscreen pattern. Solder.

Install U4 (LM340)

This part lays flat on the circuit board at the indicated outline for U4. Bend the legs with a right-angle bend so that the part lines up and allows a screw to pass through the circuit board and part. Attach with a 4-40 x 1/4 screw, lock washer and #4 nut. Solder.



Insert U2 (PIC16F886)

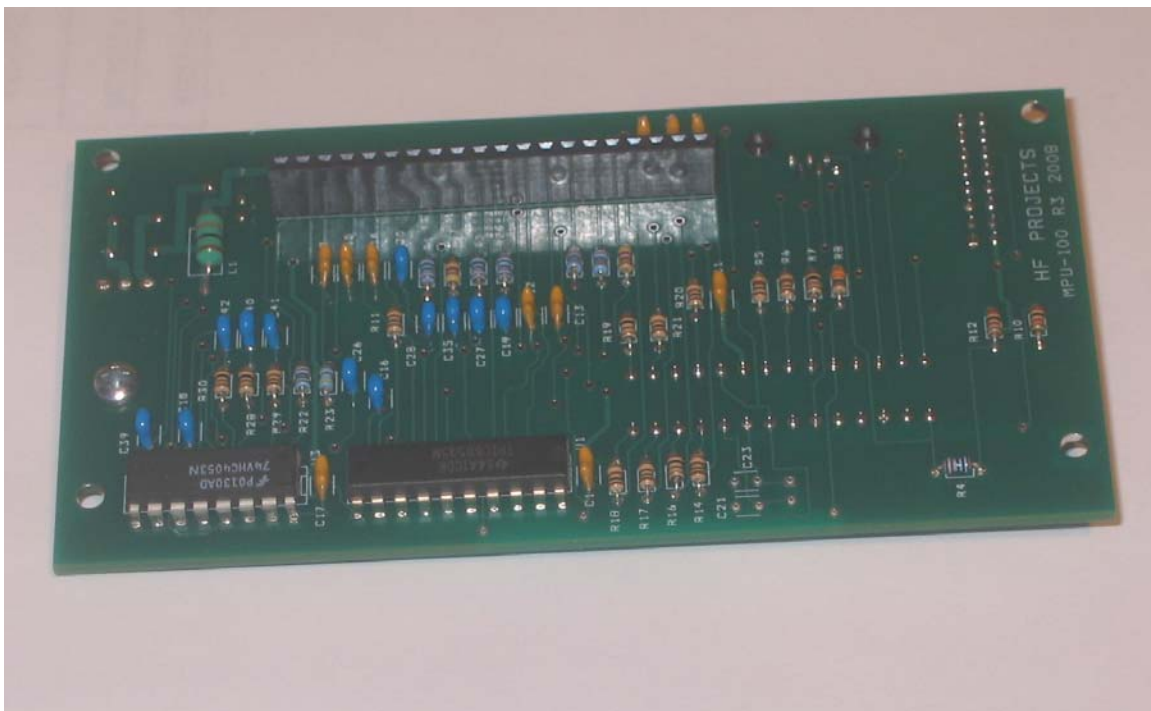
Make sure the chip is flush in the socket and that no pins are bent under.

Connector Assembly

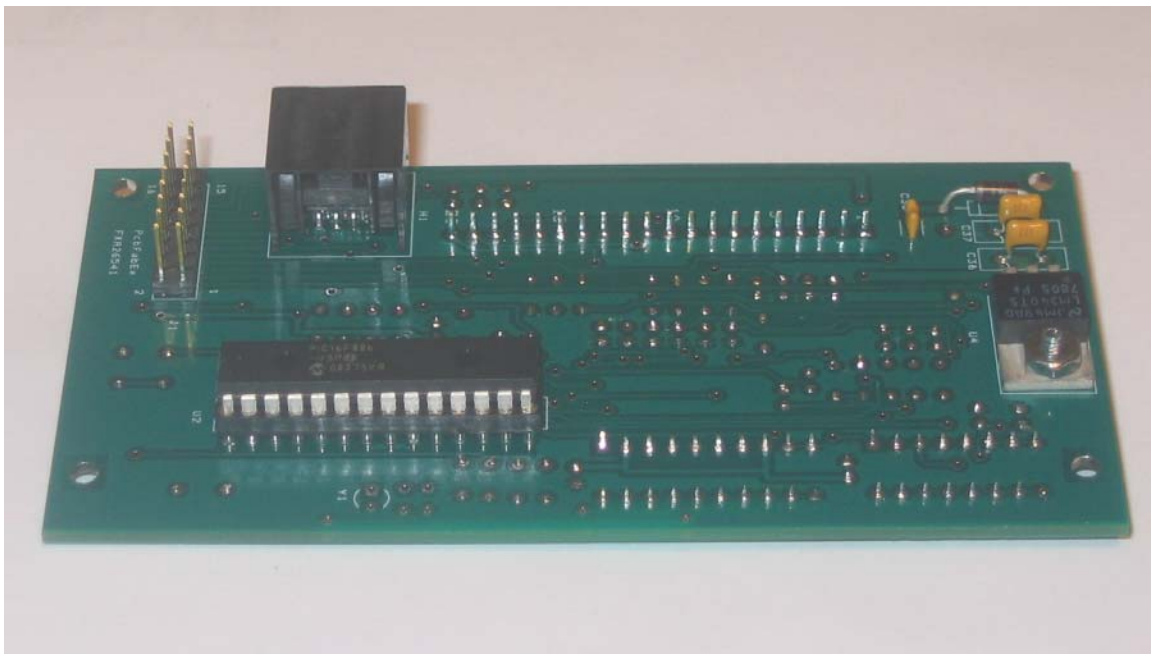
Insert J2 at the outline. Take care that the connector is flush against the circuit board and perpendicular. Solder.

Board Cleaning

I recommend board cleaning to remove residue that might provide a conduction path at high frequencies and subvert the overall frequency response of the filters. I use TechSpray Blue Shower available from Mouser Electronics (1630-16S). Use in a well ventilated area (outside) to remove solder flux from the board. Follow directions on the can.



Top Side



Bottom Side

Operation

The MPU-100 R3 is the control module for the HF SuperPacker Pro 100W Amplifier. Analog signals are digitized for display and control decisions. The control module selects the relays and provides the proper sequence of operation. The Panel Module connects via a short 16-pin flat cable. The LCD and LED are controlled to provide useful operator information. Power input is 12V and is regulated to 5V for use on the board.

Signal Inputs

Temperature, Carrier, Current, RF Input Power, RF Output Power, Reflected Power, Voltage and Frequency.

Signal Outputs

Relay outputs (6) to control low pass filter selection, Fan, TX Relay, Attenuate Relay

Computations

Power Input, Power Output, Reflected Power, SWR, Frequency, Filter Band, Gain



Bill Of Materials

Item	Qty	Ref	Description
1	12	C1,C5,C6,C7,C8,C11,C12,C13,C14,C15,C17,C30	Cap, .01uFSR151C103K AVX 100V 10%
2	12	C16,C18,C19,C20,C26,C27,C28,C35,C39,C40,C41,C42	Cap, .001uF
3	2	C37,C36	Cap 0.22 Radial
4	1	D5	1N4004
5	1	L1	Inductor 1000 uH
6	7	R1,R2,R3,R4,R22,R25,R26	Resistor 10K 1/8W 1%
7	14	R5,R6,R7,R11,R14,R16,R17,R18,R19,R20,R21,R28,R29,R30	Resistor 100 ohm 1/8W 5%
8	1	R8	Resistor 33 ohm 1/8W 5%
9	2	R9,R27	Resistor 470 ohm 1/8W 5%
10	1	R23	Resistor 4.99K 1/8W 1%
11	2	R10,R12	Resistor, 2K 1/8W 5%
12	1	U1	6B595 IC PWR 8-BIT SHIFT REGIS 20-DIP
13	1	U2	PIC16F886

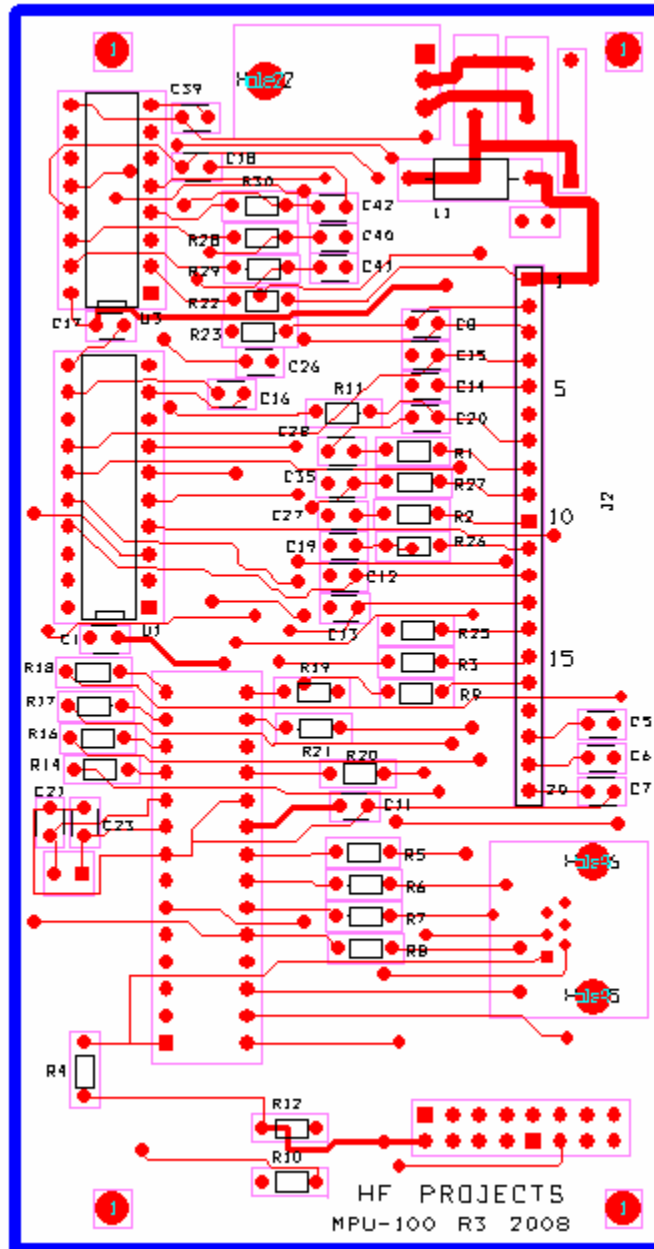


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14	1	U3	74VHC4053N
15	1	U4	LM340T-5.0
16	1		MPU-100 Blank Circuit board Rev 3
17	1	H1	Header 7P
18	1	J2	Socket Strip, 20-pin x 1
19	1	LCD1	LCD 8x2 Header
20	1	H1	R.A. Inverted MOD Jack 6x6
21	1	U2	DIP Low Profile Sockets 28P GLD PIN GLD CONT
22	1		Screw 4-40 x 1/4
23	1		Washer, Lock
24	1		Nut #4



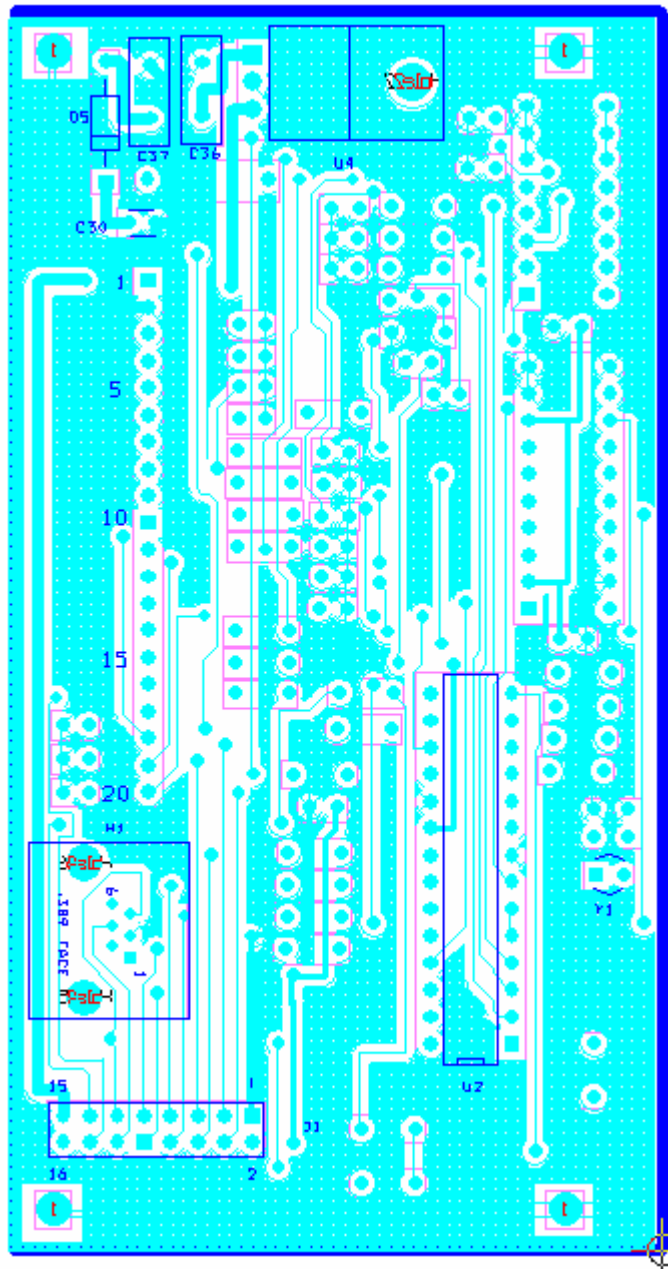
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Top View Parts Placement

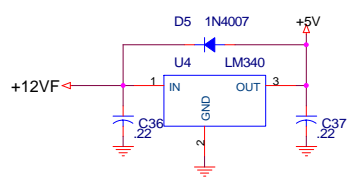
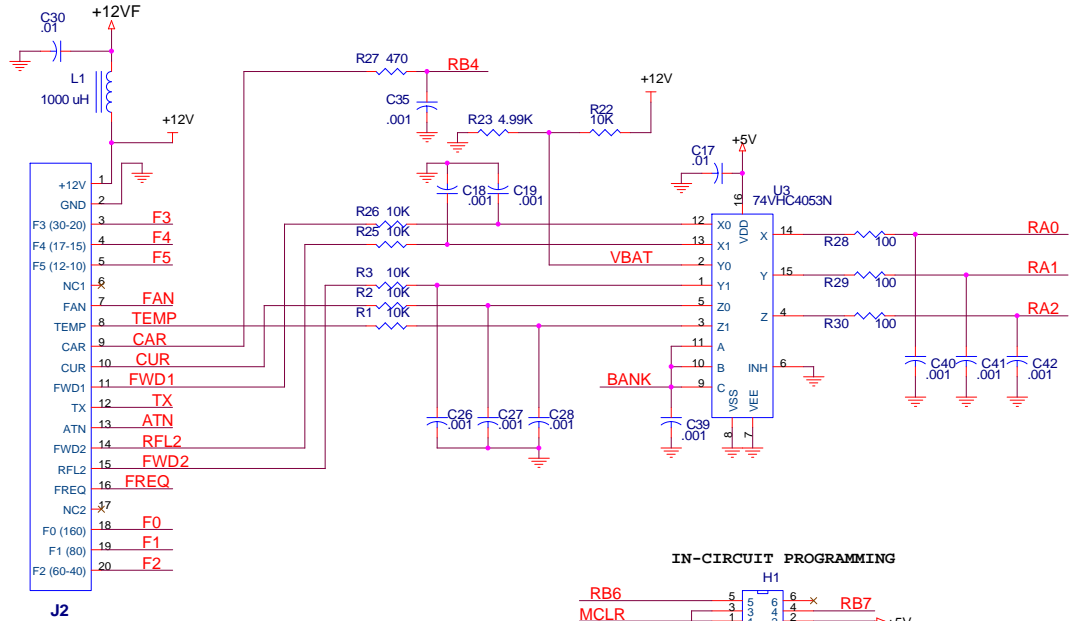
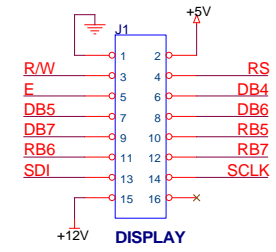
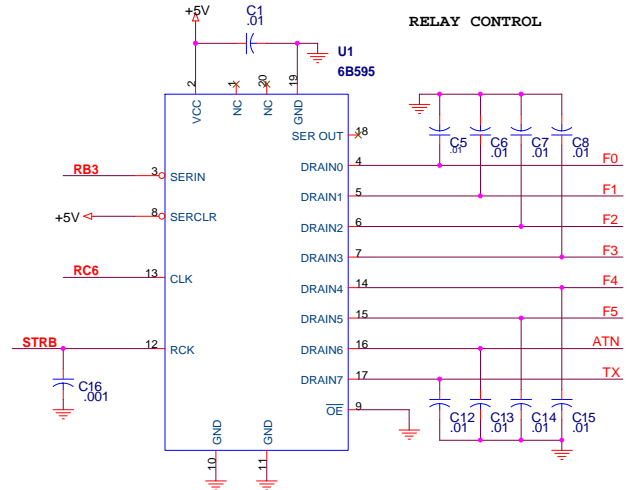
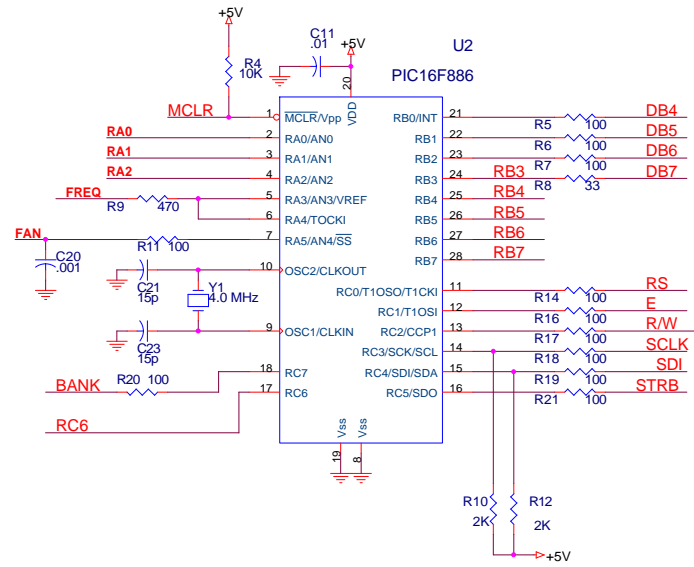


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Parts Placement Bottom View

Note: C21, C23 and Y1 not installed



HF PROJECTS			
Title	MPU - HF SUPERPACKER - 100W AMP		
Size	Document Number		Rev
C	2008 MPU-100 R3		0
Date	Tuesday, December 16, 2008 1 of 1		