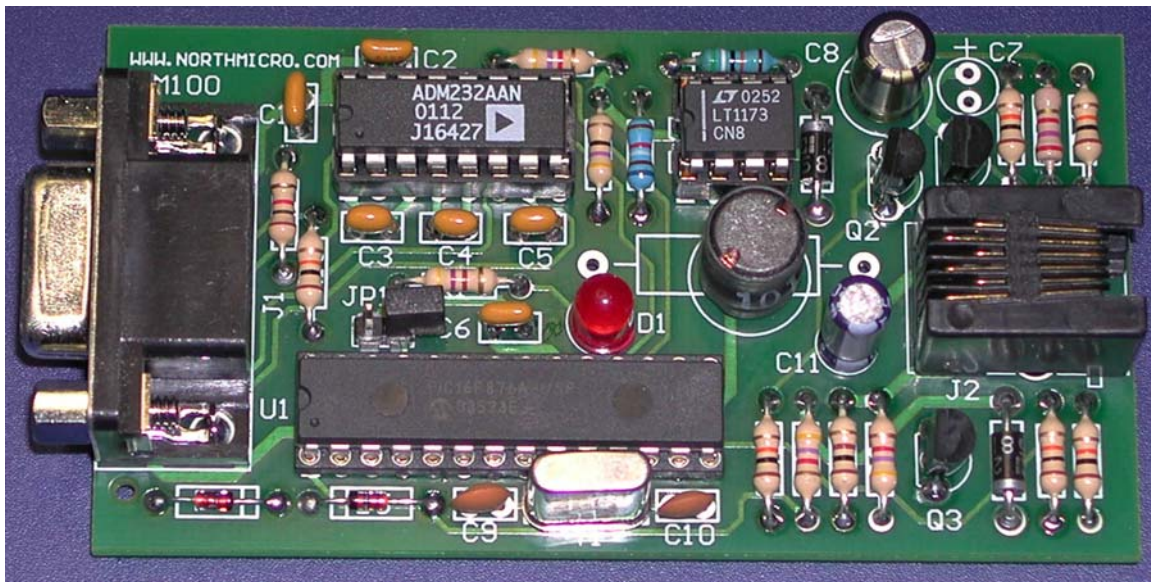


# NM100: PIC In Circuit Programmer

## Assembly Manual



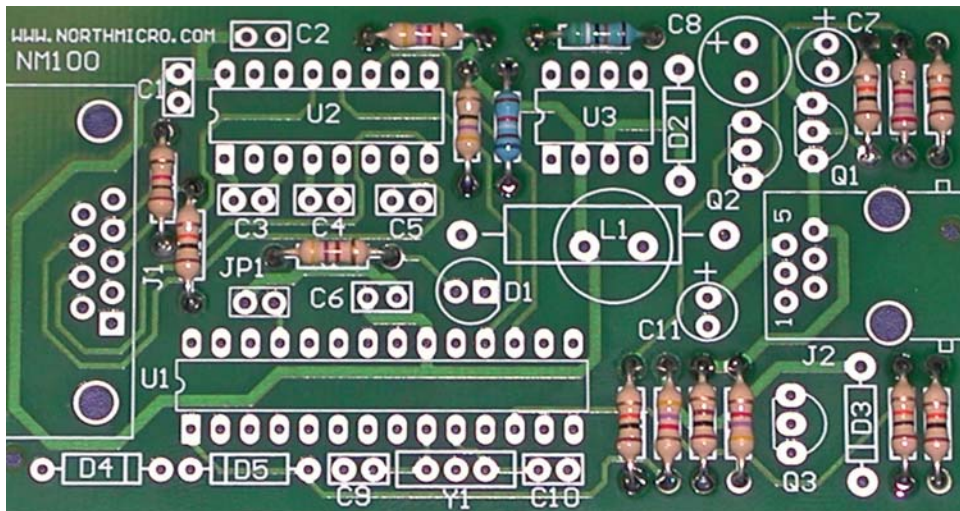
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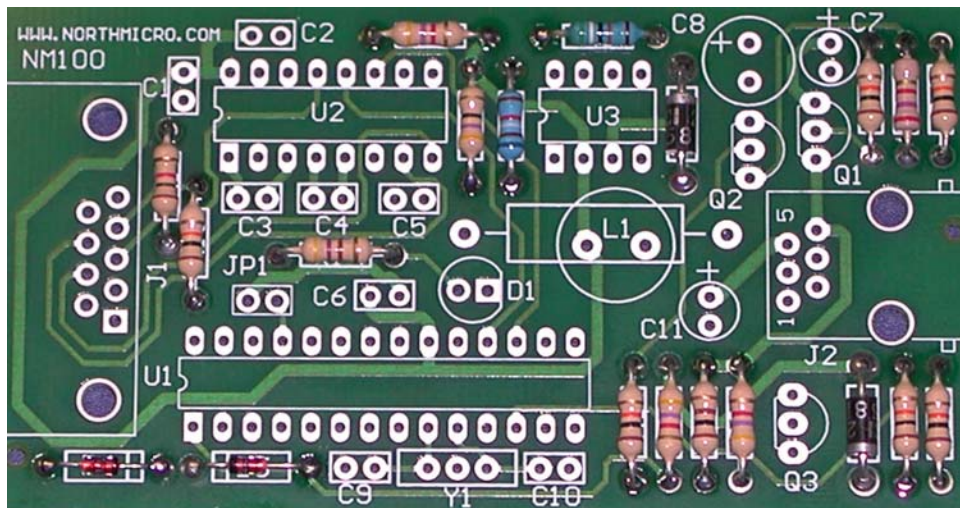
Solder the following resistors into place:

47 $\Omega$ in R2 (yellow-violet-black-gold)	4.7K $\Omega$ in R9, R16, R17 (yellow-violet-red-gold)
100 $\Omega$ in R10 (brown-black-brown-gold)	10K $\Omega$ in R5, R6, R7, R11, R12, R15 (brown-black-orange-gold)
470 $\Omega$ in R14 (yellow-violet-brown-gold)	61.9K $\Omega$ in R4 (blue-brown-white-red-brown)
1K $\Omega$ in R1 (brown-black-red-gold)	590K $\Omega$ in R3 (green-white-black-orange-brown)
2.7K $\Omega$ in R8 (red-violet-red-gold)	

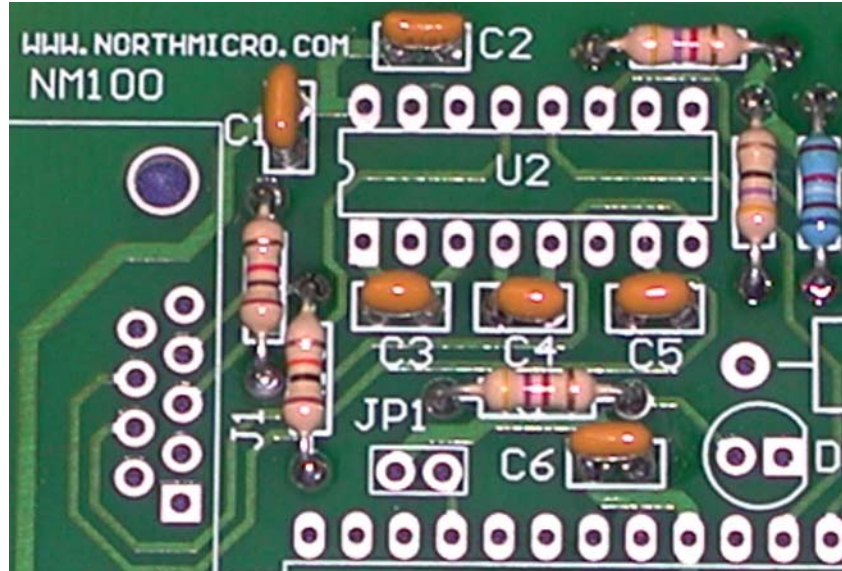
Be particularly careful of R2 and R14. R2 is 47 $\Omega$  whereas R14 is 470 $\Omega$



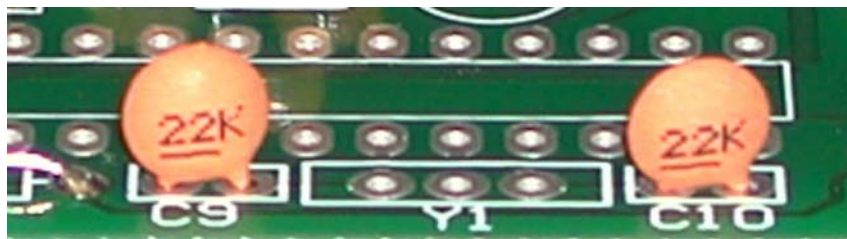
Next install the four diodes. D2 and D3 are both Schottky diodes and can be either 1N 5818 or 1N 5819. D4 and D5 are either 1N 4148 or 1N 914 signal diodes. **Note the orientation of the band on the diode.**



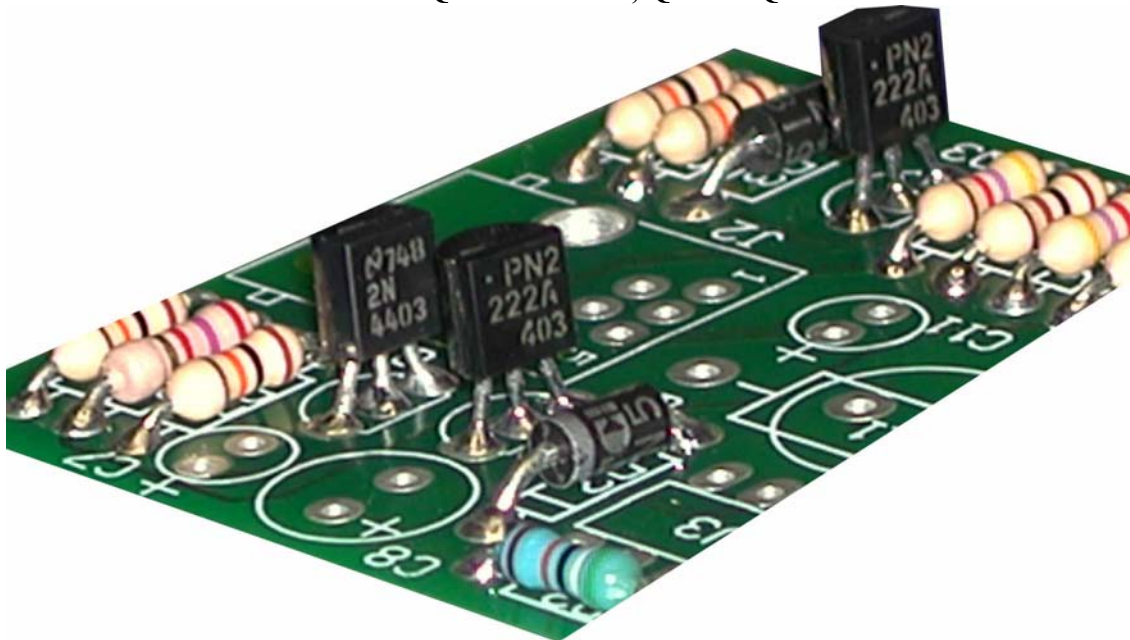
Install the six 0.1  $\mu\text{F}$  ceramic capacitors into C1 to C6.



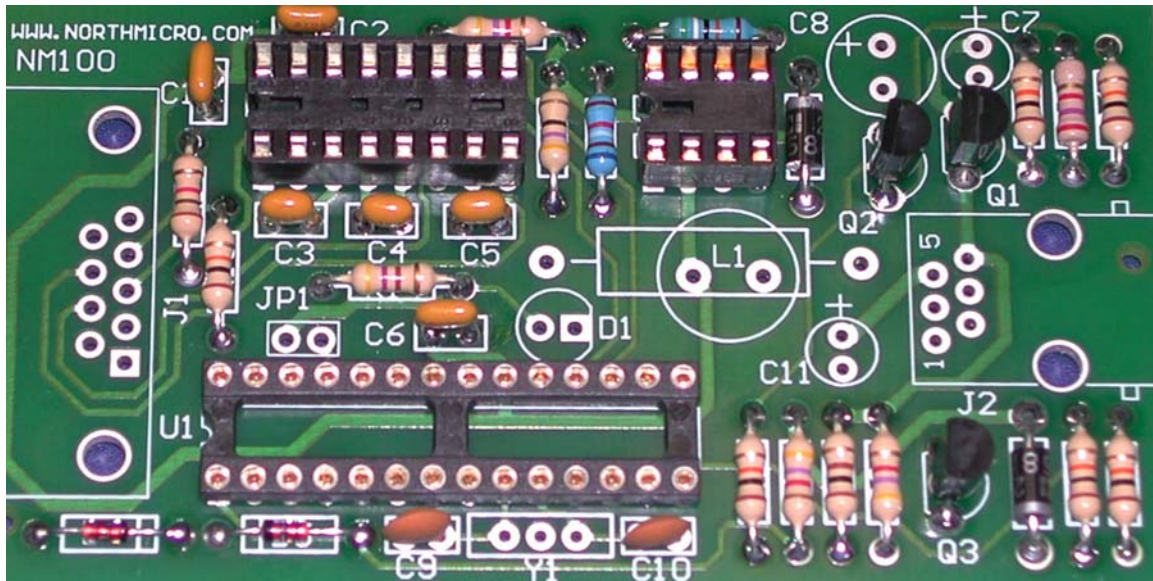
The two 22pF caps are soldered into C9 and C10.



Install all three transistors. Note Q1 is a 2N4403, Q2 and Q3 are 2N2222s.

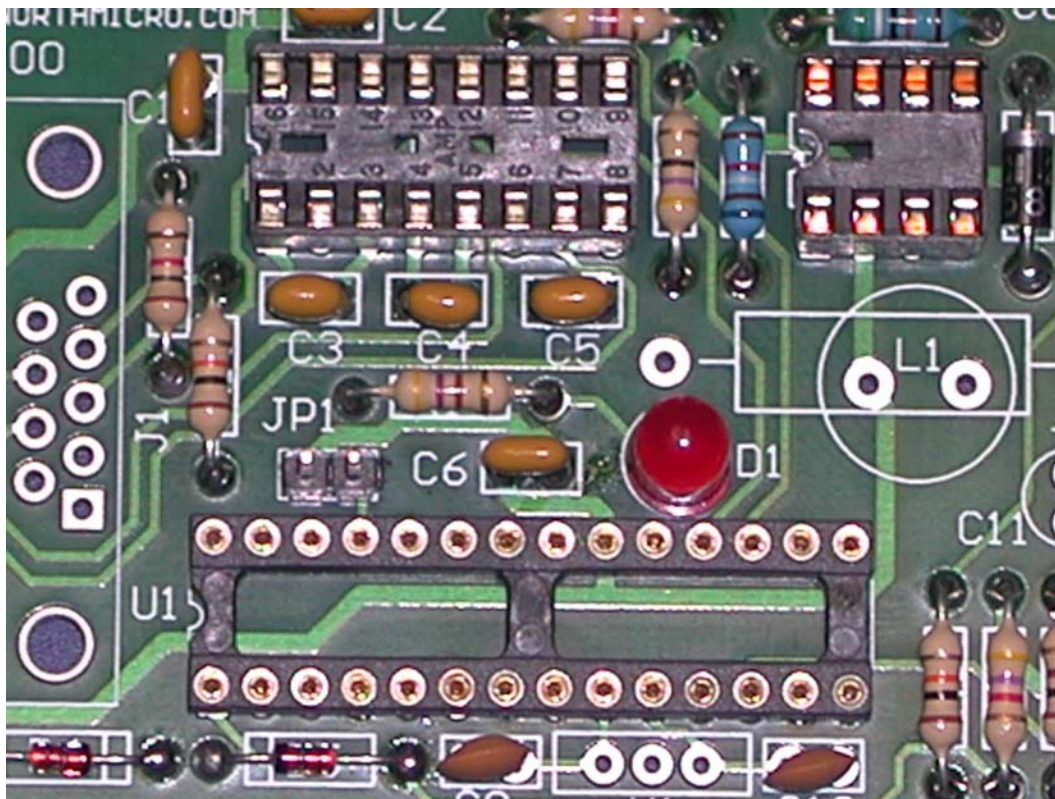


Next install the three IC sockets in U1, U2, and U3. **Note the orientation of the notch on the end of the dip socket matches the notches on the outline of the socket on the board.**



Install the LED in D1. The flat side of the LED should line up with the flat side on the circuit board outline.

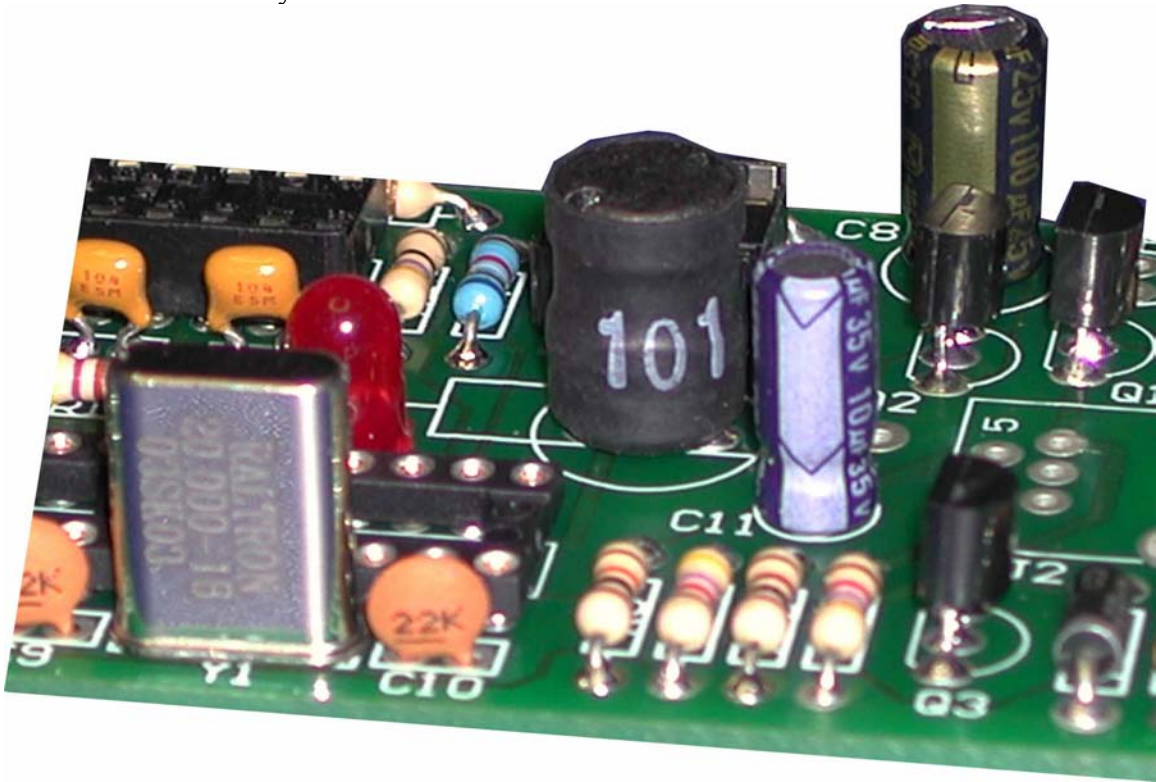
Install the 2 pin header in JP1. **Do not attach the jumper to the JP1 pins. The Programmer will not respond in MPLAB while the jumper is in place.**



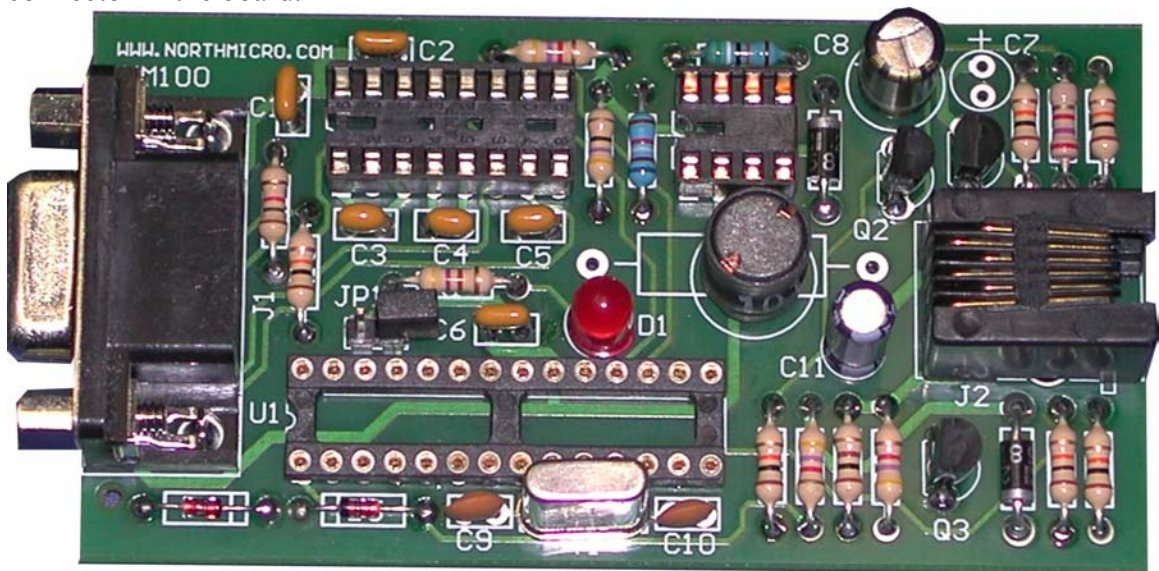
Install the 10uF capacitor in C11 and the 100uF in C8. Take care to orient the capacitors so that they are installed with the correct polarity. **Note location C7 is currently not used.**

Install the 100uH inductor in L1. It could be an axial or radial component.

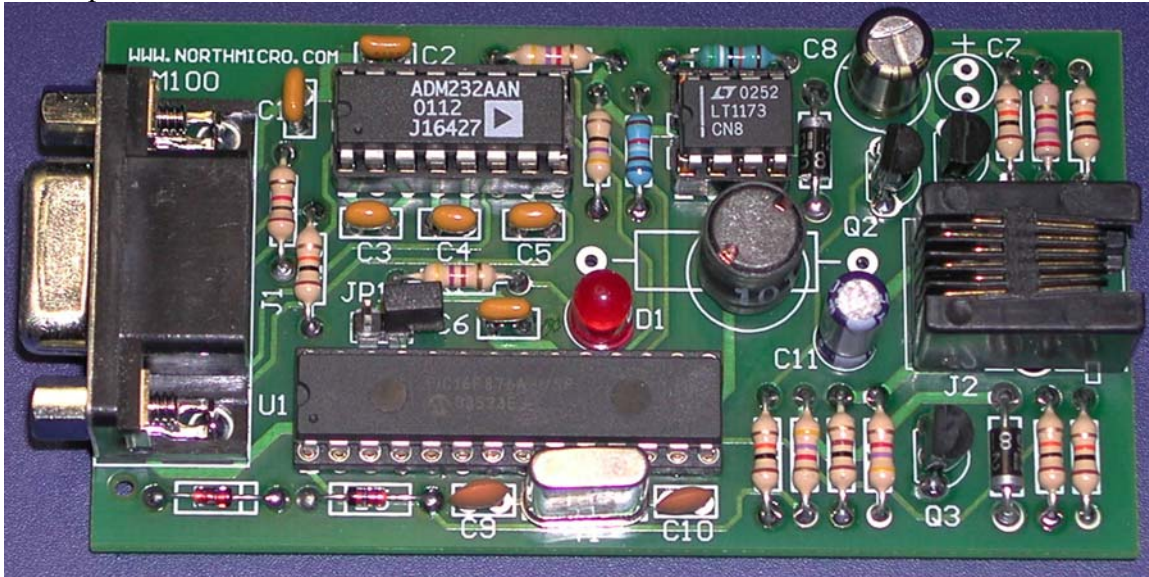
Install the 20 MHz crystal in Y1.



Finally install the 9 pin D connector in J1 and the RJ11 jack in J2. Solder the mechanical supporting lugs of the 9 pin D connector to the board. This will help to support the connector in the board.



Insert the IC's carefully into the appropriate sockets. Make sure the notch on the chip lines up with the notch on the socket.



Follow the instructions in the programmer user manual to verify that the programmer is functioning correctly.

**Make sure that the programmer is not sitting on a conductive surface.**

When you have verified the operation of the programmer then proceed to stick on the foam backing or rubber feet.

It is suggested that you clean the solder side of the board with Isopropyl alcohol (rubbing Alcohol) available at any drugstore before attaching the foam or feet.

Congratulations. Your NM100 PIC programmer is complete.

## Parts List

QTY	Value	Designator	
1	47	R2	Resistors
1	100	R10	
1	470	R14	
1	1K	R1	
1	2.7K	R8	
3	4.7K	R16,R17,R9	
6	10K	R5,R6,R7,R11,R12,R15	
1	61.9K	R4	1% Resistors
1	590K	R3	
6	0.1uF	C1,C2,C3,C4,C5,C6	Capacitors
1	10uF	C11	
		C7	not used
1	100uF	C8	
2	22pF	C9,C10	
1	100uH	L1	Inductors
2	1N 4148 or 1N 914	D4,D5	Diodes
2	1N 5818 or 1N 5819	D2,D3	Schottky Diodes
1	Red LED	D1	LED
2	2N2222	Q2,Q3	NPN Transistor
1	2N4403	Q1	PNP Transistor
1	20MHz	Y1	Crystal
1	DB9 - 9pin Female	J1	Connectors
1	RJ11 6 pin	J2	
1	28 pin socket	U1	Sockets
1	16 pin socket	U2	
1	8 pin socket	U3	
1	PIC16F876A	U1	ICs
1	XXX232A	U2	Various manufacturers
1	LT1173 CN8	U3	
1	2 pin header	JP1	Miscellaneous
1	2 pin jumper	JP1	
1	NM100 PCBoard		
1	Programming Cable		

# Component Layout

