

PARTS LIST

Fixed resistors are 1/4-watt, 5% values.

R1	51 Ω
R2	100 Ω trimmer
R3	390 Ω
R4	470 Ω
R5	1k
R6	2k
R7	2k, +3500ppm/ $^{\circ}$ C thermistor
R8	2.7k
R9	4.7k
R10 - R17	10k
R18	10k trimmer
R19	10k linear potentiometer
R20	11k
R21	12k
R22	18k
R23	27k
R24	33k
R25 - R28	47k
R29	50k trimmer
R30	56k
R31	75k
R32	82k
R33 - R42	100k
R43 - R48	100k linear potentiometer
R49	110k
R50	150k
R51, R52	220k
R53	1M
R54 - R57	1M linear potentiometer
R58	1M trimmer
R59, R60	1.5M
R61	3.3M
R62	4.7M
R63	10M

All capacitors are 16V or better.

C1, C2	100pF disc
C3, C4	470pF disc
C5	470pF poly
C6, C7	0.001 μ F mylar
C8 - C12	0.01 μ F disc
C13	0.022 μ F mylar
C14	0.047 μ F mylar
C15	0.22 μ F mylar
C16	0.47 μ F mylar
C17 - C19	4.7 μ F electrolytic
C20 - C22	10 μ F electrolytic

Semiconductors

D1, D2	1N4148 diode
Q1/Q2	LM394 matched transistor pair
Q3 - Q5	2N3904
IC1	SN76477
IC2	4046 phase locked loop
IC3, IC4	LF444 quad op-amp

Other components

J1 - J10	1/4" phone jack, n.o.
S1, S2	SPST toggle switch
S3	SPDT toggle switch
S4, S5	SP3T rotary switch

Miscellaneous: printed circuit board, IC sockets, front panel, knobs, wire, solder, heat sink grease, etc.

NOTE: For 1Hz to 16KHz operation without pulse width modulation, replace R21 with 8.2k and R50 with 270k. Then dial trimmer R18 to its lowest position (ground).