

CAUTION: STATIC SENSITIVE

Electrostatic discharge can damage the unit. Product must be shipped in an antistatic container. Individual devices should be managed only at static free workstations. All operators must be grounded.

Bill of Materials (assembled circuit board)

Item	Qty	Reference designator	Part No. & Description	Notes
1	1	C1	Miniature Aluminum Electrolytic Capacitor, 100 μ F, 35V, 8X11.5, SANYO, 35MV100AX, (Disti: B&D Enterprises) or Panasonic ECA1HM101 (50V version)	
2	2	C2, C3	Surface Mount Tantalum Capacitors, 22 μ F, 16V, size B, AVX, TAJB226M016R, DIGIKEY: 478-1684-1-ND	
3	4	C4, C5, C6, C10	Ceramic capacitors (0805), 0.1 μ F, 50V, X7R TAIYO YUDEN, UMK212BJ104KG, PASSIVE COMPONENTS, INC. (PCPI) or AVX Corporation 08055C104KAT2A	
4	2	C12, C13	Ceramic Chip Capacitors, 22pF, 50V, (1206), NPO, KEMET, C1206C220J5GACTU, DIGIKEY: 399-1197-1-ND	
5	4	C14, C15, C16, C17	Ceramic Chip Capacitors, 100pF, 50V, (0805), NP0, PANASONIC, ECJ-2VC1H101J, DIGIKEY: PCC101CGCT-ND	
6	4	D1, D2, D3, D4	Silicon Rectifiers, 1A, 50V, (DO-41), Diodes Incorporated, 1N4001, DIGIKEY: 1N4001DICT-ND	
7	2	D5, D6	Schottky Barrier Diodes, 200mA 25V DUAL, (SOT-23), FAIRCHILD, BAT54S, DIGIKEY: BAT54SFCT-ND	
8	1	D7	LED, RED, (0603), PANASONIC, LNJ208R8ARA, DIGIKEY: P524CT-ND	
9	1	J1	Closed frame power jack, 2.1 x 5.5mm, 12VDC@1A, CUI Inc., PJ-002A, DIGIKEY: CP-002A-ND	
10	1	J2	DB9 Female Right Angle D-Sub Connectors (.318 footprint), NORCOMP, 182-009-212-531, DIGIKEY: 182-09F-ND	
11	1/8	J6	80-position Breakaway Header, 0.025 square post, Double Row, AMP, 4-103186-0, DIGIKEY: A26529-ND	cut to fit
12	1	J7	Electro-Acoustic Transducers, Murata Electronics PKM35-4A0, http://www.onlinecomponents.com	
13	1/18	JP1	36 Pin Header 0.1 Centers, SULLINS ELECTRONICS CORP, PTC36SAAN, DIGIKEY: S1012-36-ND	for programming jumper, cut to fit
14	1	JP2	Shunt, Tin Plated, 0.1 center, SULLINS ELECTRONICS CORP, STC02SYAN, DIGIKEY: S9000-ND	mount on JP1
15	1	JP3	16 Pin Header 0.1 Centers, 0.23/0.42, SULLINS ELECTRONICS CORP, PTC16SADN	for LCD connection
16	4	H1, H2, H3, H4	Nylon Male/Female .250" Hex Threaded Standoffs, 4-40 Thread, KEYSTONE ELECTRONICS, 4801, DIGIKEY: 4801K-ND	for LCD mounting
17	4	H5, H6, H7, H8	Nylon Hex Nuts, 4-40 Thread, BUILDING FASTENERS, NY HN 440, DIGIKEY: H616-ND	for LCD standoff
18	4	H9, H10, H11, H12	Adhesive backed protective bumpers, transparent, 0.44 wide x 0.2 high, 3M, SJ-5303, DIGIKEY: SJ5303-7-ND	board standoff
19	1	LCD1	LCD Character Module, 16 Characters x 1 Line, AZ DISPLAYS, INC., ACM1601C-RN-GBS	

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20	2	P1, P2	Surface-Mount iButton Clip, F50, DALLAS SEMICONDUCTOR, DS9094SM50	
21	3	Q1, Q2, Q3	N-Channel MOSFET, SOT-23, CENTRAL SEMICONDUCTOR, 2N7002	
22	2	R1, R3	10k Ohm 5% Resistor (1206)	
23	1	R7	Cermet Trimmer Potentiometers, 2k Ohm, BOURNS INC., 3306W-1-202, NEWARK: 46F1092	
24	4	R8, R9, R10, R11	1k Ohm 5% Resistor (1206)	
25	2	R12, R13	10 Ohm 5% Resistor (1206)	
26	2	R14, R15	22 Ohm 5% Resistor (1206)	
27	1	R16	680 Ohm 5% Resistor (1206)	
28	1	RJ1	Single Port Modular Jacks, 12.6mm Height, 6 positions, 6 contacts, AMP, 555165-1, DIGIKEY: A9031-ND	
29	1	RP1	Thick Film Resistor Network, conformal SIP, bussed, 10-pin, 10k Ohm, BOURNS, 4610X-101-103, NEWARK: 04F4051	
30	1	U1	Positive Voltage Regulator, 5V, 1A, TO-220, FAIRCHILD SEMICONDUCTOR, MC7805CT, DIGIKEY: MC7805CT-ND	
31	1	U2	Quadruple Bus Buffer Gates With 3-State Outputs, 14-pin SOIC, 150 mil, TEXAS INSTRUMENTS, SN74HC125D, ALLIED: Stock No. 735-0551	
32	1	U3	+5V RS-232 Transceivers, 20L SSOP, MAXIM INTEGRATED PRODUCTS, MAX203CWP	
33	1	U4	Ultra-High-Speed Microcontroller, 33MHz, 44-lead TQFP, DALLAS SEMICONDUCTOR, DS89C420-ECL	
34	1	X1	CRYSTAL, 11.0592 MHZ HC49/US, CITIZEN, HC49US11.0592MABJ, DIGIKEY: 300-6024-ND	
35	1	H13	Adhesive pad, DALLAS SEMICONDUCTOR, DS9096P	For attaching piezo sounder.

Circuit Board

Material:	FR4
Size:	100 x 160 mm
Thickness:	1.6 mm
Layers:	2
Solder Mask:	Top and bottom
Legends:	White
Copper Clad:	35µm min

EDGE CONNECTOR: None.

PLATING:	
Thru Holes:	0.0254 mm
Finish:	Immersion Gold.

TOLERANCES:	
Board Dimensions	± 0.254 mm
Plated-Thru Holes:	± 0.0762 mm
Pattern-to Pattern	± 0.127 mm
Solder Mask to Pattern	± 0.127 mm
Legend to Legend	± 0.1778 mm