

ARC Expansion Board

Kit Contents

The “so*” and “1206” components are surface mount. The markings for the resistors are shown in [brackets]. The 0.1uF capacitors are unlabeled.

For the resistor networks, the last 3 digits indicate resistance (shown in [brackets]).

Anti-static Bag

Item	Qty
74589 parallel-serial, so16	2
74595 serial-parallel/latch, so16	2
7404 hex inverter, so14	1
LM386 audio amp, so8	1
33k resistor, 1206 [3302]	1
100k resistor, 1206 [1003]	1
47k resistor, 1206 [4702]	1
10 Ohm resistor, 1206 [10R]	1
0.1uF capacitor, 1206 [unlabeled]	8
0.047 uF capacitor	1
220 uF capacitor	1
10 uF capacitor	1
red LED	4
green LED	4

Item	Qty
PCB	1
resistor network: 7x 680 [...681]	1
resistor network: 7x 100k [...104]	1
resistor network: 5x 100k [...104]	1
5k linear potentiometer	1
10k audio potentiometer	1
jumper	1
1x2 pin header	1
2x7 pin header	1
1x7 socket	1
elevated socket strip, 2x8	1
elevated socket strip, 2x13	1
joystick button	1
joystick button cap	1
pushbutton	3
low-profile pushbutton	1
4-position DIP switch	1
speaker	1
14-contact IDC socket connector	2
14-conductor ribbon cable, 8"	1

Assembly Instructions

The surface mount components can be soldered by hand using a good soldering iron with a fine tip. You may also find it helpful to use 0.025” diameter solder (e.g. Digi-Key KE1404-ND) and a flux pen (e.g. Digi-Key KE1804-ND), although these are not required.

Pay attention to polarity when installing components.

- Mount the (surface mount) components on the bottom first, then the surface mount components, *except the joystick*, on top. This includes ICs, resistors, and capacitors.
- Install the following items, in this order:
 - 0.047uF capacitor
 - 5k linear potentiometer
 - low-profile pushbutton
 - 10k audio pot
 - resistor networks -- the dot on the resistor corresponds to the “X” on the board

- Put the red and green LEDs in whatever positions you like. You can do a mixture of colors, or combine the LEDs in this kit with the ones from the Level 2 kit to do all 6 in one color. The long leg goes toward the back (near edge) of the board.
- Install the following items, in this order:
 - joystick button
 - 4-position DIP switch -- the 1 goes at the top
 - pin headers (1x2 and 2x7)
 - 1x7 socket
 - elevated socket strips (2x8 and 2x13) -- do not trim the leads
 - 220 uF capacitor -- stripe/short leg on the - side
 - 10 uF capacitor -- stripe/short leg on the - side
 - speaker -- watch +/-
- Push the joystick cap onto the joystick button.
- Put the jumper on the 1x2 pin header. Removing this jumper will turn off the speaker.

Schematic

