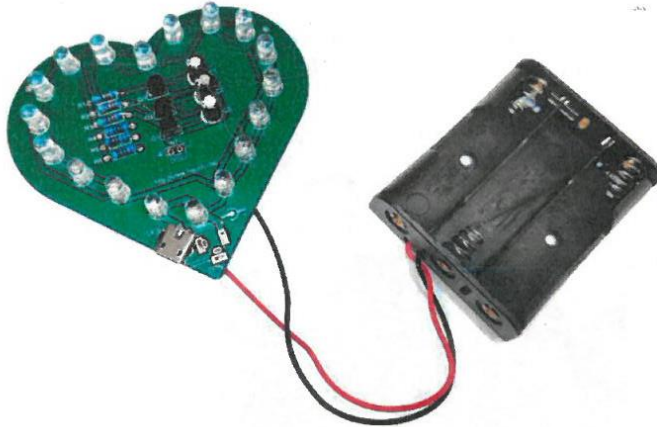


# ABRA

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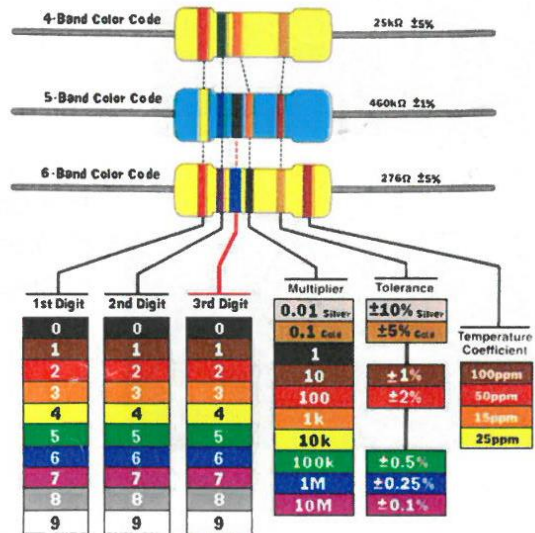
## D.I.Y LED Flashing Heart Kit

Level: Beginner    AK-175



### Component list:

- 18x Various RGB 5mm LED
  - 6x ¼ W resistors (R1-4.7k, R2-4.7k, R3-4.7k, R4-100, R5-100, R6-100) \*
  - 3x 10 µF polarized capacitor
  - 3x NPN Transistor (C331)
  - 3 AA Battery Holder
- \*R1, R2, R3: Yellow, Violet, Black, Brown, Brown;  
\*R4, R5, R6: Brown, Black, Black, Black, Brown;

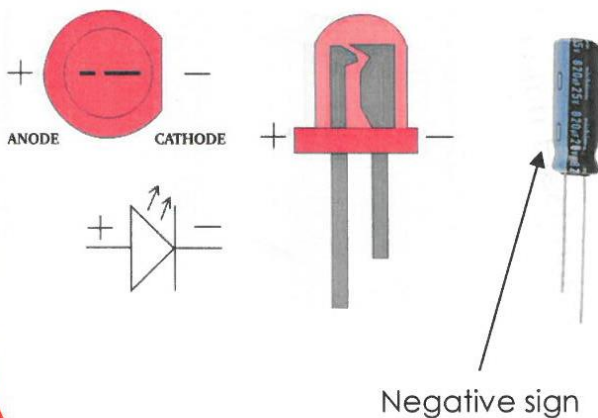


### Component polarity:

When dealing with polarized components, it is important to be able to identify which pins represent the anode (positive) and cathode (negative).

Here are a few ways of doing so for LEDs and capacitors:

- The shorter pin usually is the cathode (negative). However, for LEDs if the leads are cut you can assume the cathode lead is on the side of the LED that has a flat cut. For capacitors, there usually is a sign on the component indicating which lead is the cathode (-).



### Guide:

1) Turn on iron to 285°C (545°F) temperature (solder used for this kit 60 tin/40 lead).

2) Place in components and solder (make sure the side of the board with the silkscreen is facing up when inserting components):

2.1) First place resistors and make sure their values match, refer to component list. Tip: bend the leads of the resistor outwards on the back of the board to provide minimal mechanical grip but ensure that the angle formed by the bend is not smaller than 45 degrees.

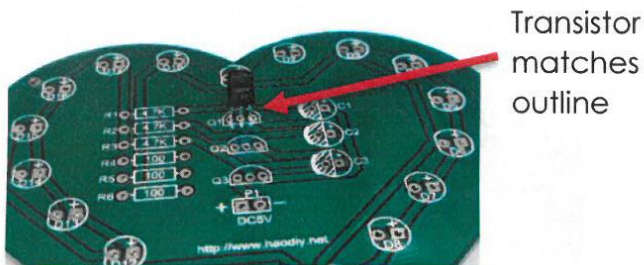
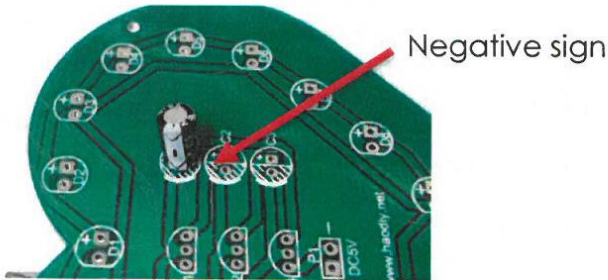
2.2) Solder the leads of the placed resistors to the pads and cut them off once done soldering. (using flush cutter)

2.3) Next, begin placing the capacitors. Refer to previous notes about identifying component polarity. You must make sure the negative lead of the capacitor is placed in the stripped area of the capacitor silkscreen on the board.

2.4) Solder the leads and cut when done.

2.5) Now place the transistors. Refer to the white layout on the board to properly place the transistors. It is very important to make sure you place it as shown in the silkscreen which is a top view of the transistor.

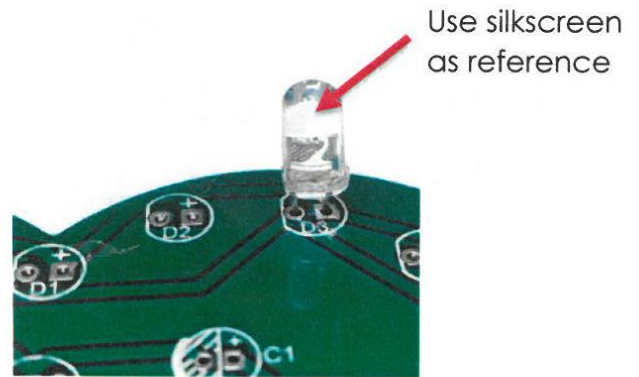
2.6) Solder the leads and cut.



2.7) Now, start placing the LEDs. The order in which they are placed around the board is decided by the assembler. There are no restrictions in this respect. What is important however is the polarity of the component, refer to previous notes concerning this and to the silkscreen on the top of the board.

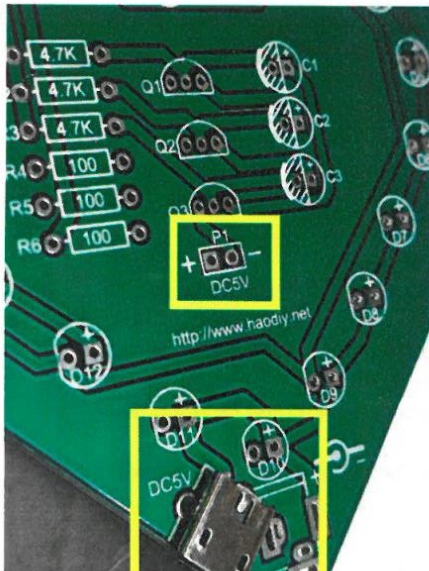
The bar on the silkscreen represents where the cathode lead of the LED should be placed. (It is recommended that you gradually place and solder the LEDs on the board to avoid overcrowding the back which can cause annoyance when soldering)

2.8) Solder and cut.



2.9) Take the AA battery holder and solder the two wires in the yellow area shown below. Alternatively, if you want, you can solder the Micro USB port for powering via USB cable if you have one or purchase our 2.1mm DC jack connector.

3) When all the assembly is done, insert 3 AA batteries and enjoy.



Part Number for DC Adapter  
or Micro USB Cable

373-ADA  
CAB-600