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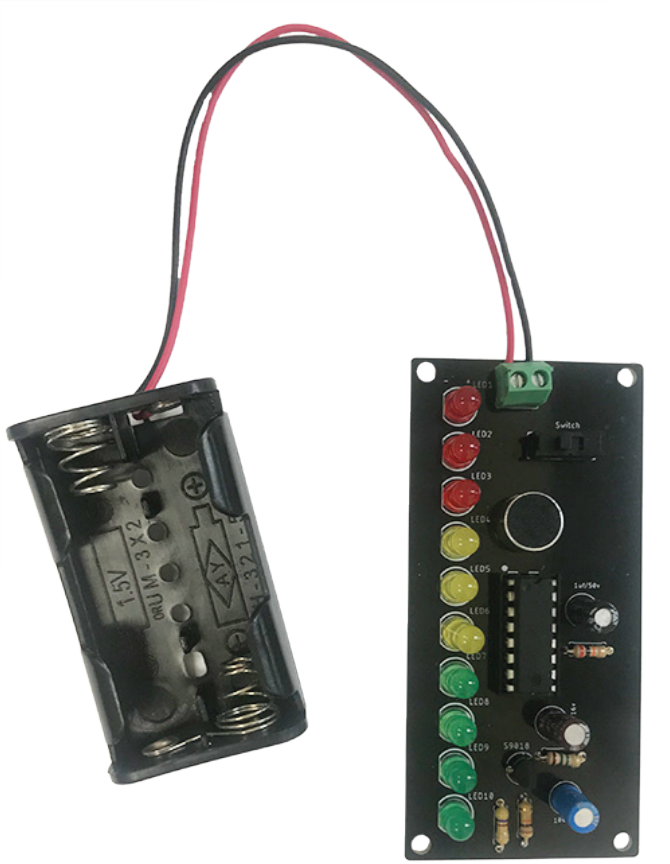
Audio Visualizer LED Ripple D.I.Y. Kit

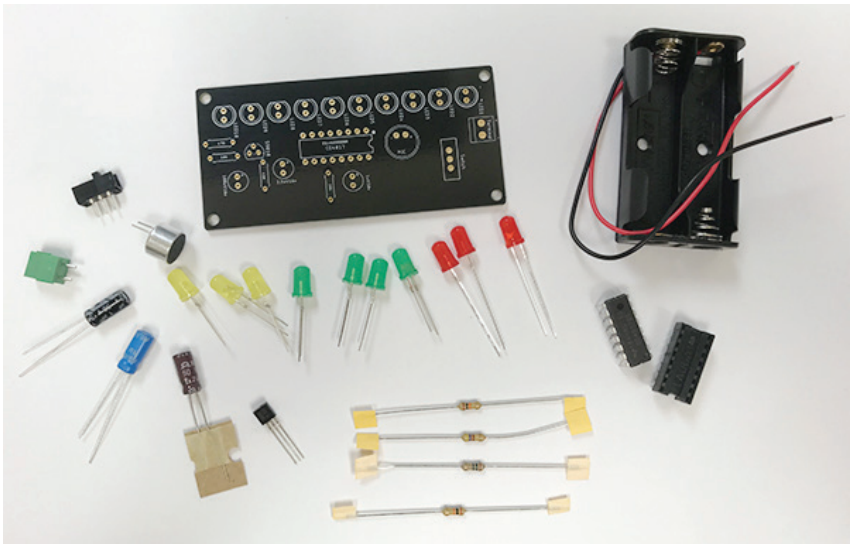


AK-110

Kit Includes

Quantity	Description	Part Number
1	PCB	AK-110-BRD
1	CD4017 Logic IC	4017
1	S9018 NPN Transistor	S9018
3	5mm Red LED	LED-5R
3	5mm Yellow LED	LED-5Y
4	5mm Green LED	LED-5G
1	3.5mm Pitch Terminal Block	2444P
1	Slide Switch SPDT	SSW-120-BB
1	1uf 50V Electrolytic Capacitor	1R50
1	2.2uf 50V Electrolytic Capacitor	2.2R50
1	100uf 16V Electrolytic Capacitor	100R16
1	Resistor 1/4W 5% 1.5MΩ	R1/4-1.5M
1	Resistor 1/4W 5% 10KΩ	R1/4-10K
1	Resistor 1/4W 5% 470Ω	R1/4-470
1	Resistor 1/4W 5% 20KΩ	R1/4-20K
1	SocketT IC DIP 16 Positions	16LP
1	Electret Condenser MIC	99-WM-52BH
1	2 x AA Battery Holder with Wires	150-320W

**Does not include AA batteries



Introduction

The LED Ripple Kit is a basic and easy to assemble kit that is great for learning how to solder. This kit runs with a CD4017 counter IC. When a analog signal or sound is recognized by the MIC on the board, the LEDs will blink one after another in a consecutive manner. The CD4017 on the board is responsible for this pattern and acts as a counter. Follow the assembly process below.

Assembly

Before assembling the board heat up your soldering iron.

Tips:

1. Check component and board polarity twice before attempting any soldering.
2. The microphone is small and can handle only small signals; the best ripple comes by blowing near the MIC

Step 1:

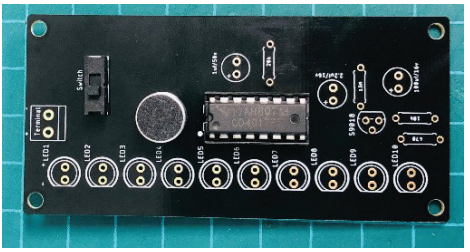
First you start with the core part of the board i.e. the CD4017 IC. Place the 16-pin socket on the board and solder as shown in the picture. Then install the IC in the socket. The notch on the IC should be placed in the same direction as the notch on the PCB and the socket.

Step 2:

Now you will solder the MIC (microphone). Make sure the polarity is correct. The mark near the MIC pins represents negative ground terminal.

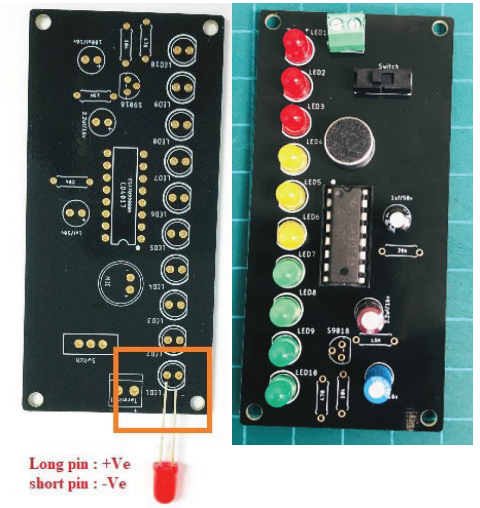
Step 3:

Install and solder the slide switch and terminal block. Do not cut pin leads.



Step 4:

Now it is time for the LEDs. Please follow the pictures on the right. Install the 3 Red LEDs first, then the 3 Yellow LEDs, finally the 4 Green LEDs. Before soldering make sure you have installed the LEDs according to their polarity. The longer lead represents (+) while the shorter one is ground (-). Cut the excess pin leads.



Step 5:

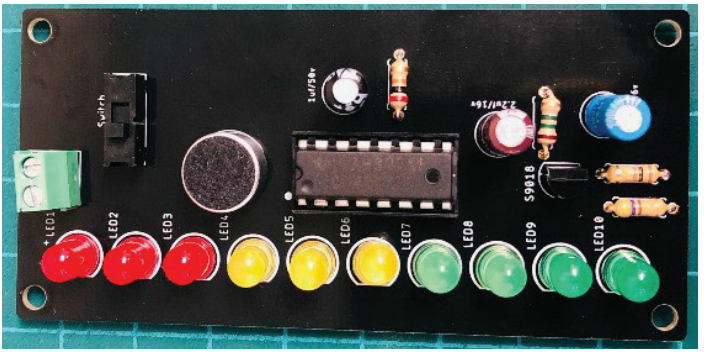
You now need to prepare the transistor for installation. You must gently bend the transistor's middle pin backwards so that the pins conform to the silkscreen outline as on the board. The transistor should be seated ¼" from the surface of the board. Install and solder the transistor, cut the excess from pin leads.

Step 6:

For the final soldering step, you must install and solder all the capacitors and resistors according to the silkscreen designation on the PCB.

(Please Note: that the 2.2uF 50V capacitor provided is an equivalent to the 2.2uF 16V that is indicated on the PCB).

Please check the picture below to verify that the components are in the right place.Cut resisitors and capacitors leads.

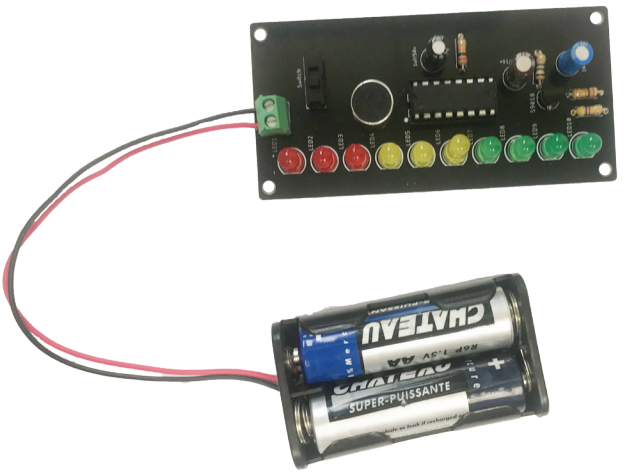


Step 7:

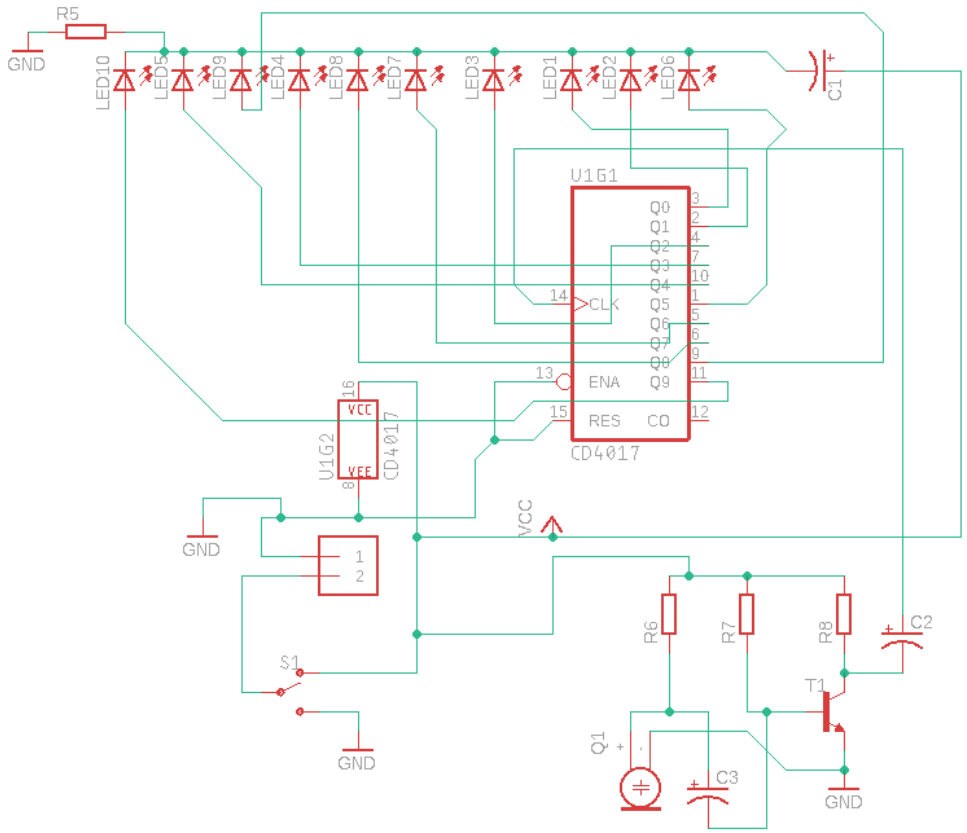
The final step is to power up the module. You can use either an external power source or the AA battery holder provided in the kit (AA batteries are not included). The device works with a 3-5VDC input. We recommend the use of an external 5V power supply.

The terminal block makes it easy to hook up the power wires to the board. Please make sure the polarity is correct, follow the marking on the board (Positive (+) is the pin closest to LEDs, Negative (-) is the pin furthest from LEDs).

You are now finished and can power up your device.



Schematic


R5
GND
LED10
LED5
LED9
LED4
LED8
LED7
LED3
LED1
LED2
LED6
C1
U1G1
Q0
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
CLK
ENA
RES
CO
CD4017
U1G2
VCC
VEE
CD4017
GND
VCC
S1
GND
R6
R7
R8
C2
T1
Q1
C3
GND