



1.Introduction:

FED-301K is a Audio Spectrum Indicator DIY Kit. It can display in Red/Green according to the input audio signal from microphone or AUX audio socket.It can be used to display the intensity of audio.The number of LED displayed changes according to the intensity of the audio.



2.Feature:

- 1>.40pcs highlight red green dual color LED
- 2>.Mono dual LED light bar display
- 3>.Audio peak hold display
- 4>.Automatically switch between AUX and MIC audio inputs
- 5>.Adjustable LED flashing sensitivity
- 6>.Perfect simple circuit
- 7>.Automatic flashing

3.Parameter:

- 1>.Product Name:FED-301K Audio Spectrum Indicator DIY Kit
- 2>.Product Number:FED-301K
- 3>.Work Voltage:DC 5V or 6V-24V
- 4>.Work Current:75mA(Max)
- 5>.Power Type:3.5mm Power Socket or XH2.54-2P Socket
- 6>.Color:Red/Green LED
- 7>.Work Temperature:-40℃~85℃
- 8>.Work Humidity:5%~85%RH
- 9>.Size(Installed):187*35*12mm

4.Parameter:

1>.There are three work power supply input terminals: two DC3.5mm socket and one XH2.54-2P white socket. User can use any one of them. Note: DC3.5mm socket need connect 5V and white socket need connect to DC 6V-24V.

2>.It can start working after connected power. The LED will start working when playing music into the microphone.

3>.Rotating potentiometer can be used to adjust the sensitivity of LED.

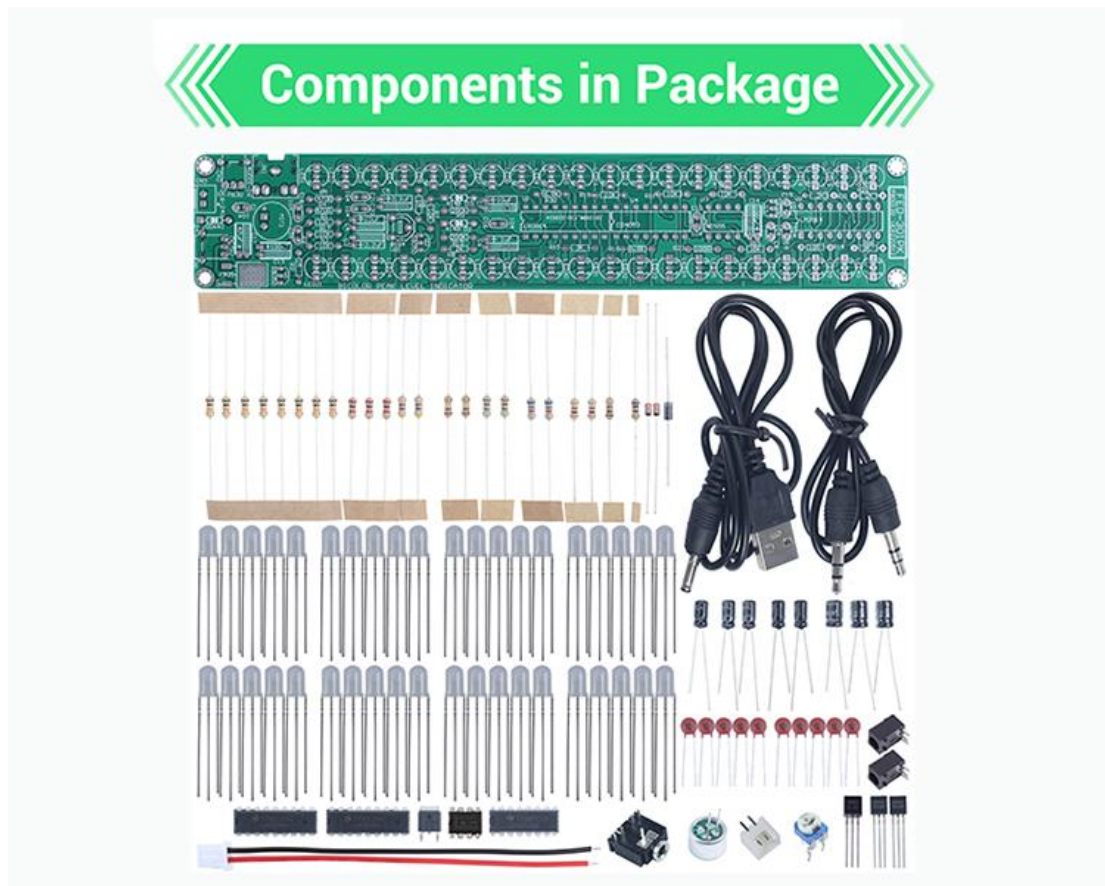
4>.AUX audio socket also can input audio signal and then LED will flashing with input audio signal.

5>.AUX audio socket has a higher priority than MIC, so it work with AUX audio if both AUX audio and MIC get signal.

5. Component Listing:

NO.	Component Name	PCB Marker	Parameter	QTY
1	Metal Film Resistor	R14	10ohm	1
2	Metal Film Resistor	R23	100ohm	1
3	Metal Film Resistor	R4,R5	470ohm	2
4	Metal Film Resistor	R8,R21,R22	2Kohm	3
5	Metal Film Resistor	R15,R16	3Kohm	2
6	Metal Film Resistor	R18,R20	6.8Kohm	2
7	Metal Film Resistor	R1,R3,R7,R11,R2,R13,R17,R19	10Kohm	8
8	Metal Film Resistor	R9,R10	200Kohm	2
9	Metal Film Resistor	R2,R6	1Mohm	2
10	Ceramic Capacitor	C1,C2,C8-C10,C16,C18-C21	0.1uF 104	10
11	Electrolytic Capacitor	C6	1uF	1
12	Electrolytic Capacitor	C3,C5	2.2uF	2
13	Electrolytic Capacitor	C4,C7	10uF	2
14	Electrolytic Capacitor	C17	47uF 25V	1
15	Electrolytic Capacitor	C13,C14	100uF	2
16	1N4007 Diode	D4	DO-41	1
17	1N4148 Diode	D2,D3	DO-35	2
18	S8050 Transistor	Q1,Q2	TO-92	2
19	S8550 Transistor	Q3	TO-92	1
20	LM3914 Operational Amplifier	U1,U2	DIP-18	2
21	NE555 Timer	U3	DIP-8	1
22	CD4053 Logic IC	U4	DIP-16	1
23	L7805 Voltage Regulator	U5	TO-263	1
24	Potentiometer	VR1	100Kohm	1
25	Microphone	MIC1	9*7	1
26	AUX Audio Socket	JK1	5Pin	1
27	DC Power Socket	CN1,CN2	3.5mm	2
28	XH2.54-2P Socket	CN3	2.54mm	1
29	USB Power Wire		50cm	1
30	Audio Wire		50cm	1
31	XH2.54-2P Wire		20cm	1
32	Red/Green Dual Color LED	LED1-LED40	5mm	40
33	PCB		187*35*1.6mm	1

Note:Users can complete the installation according to the PCB silk screen and component list.



6. Installation Tips:

- 1>.User needs to prepare the welding tool at first.
- 2>.Please be patient until the installation is complete.
- 3>.The package is DIY kit.It need finish install by user.
- 4>.The soldering iron can't touch the components for a long time(1.0 second), otherwise it will damage the components.
- 5>.Pay attention to the positive and negative of the components.
- 6>.Strictly prohibit short circuit.
- 7>.User must install the LED according to the specified rules.Otherwise some LED will not light.
- 8>.Install complex components preferentially.
- 9>.Make sure all components are in right direction and right place.
- 10>.Check that all of the LED can be illuminated.
- 11>.It is strongly recommended to read the installation manual before starting installation!!!
- 12>.Please wear anti-static gloves or anti-static wristbands when installing electronic components.

7. Installation Steps(Please be patient):

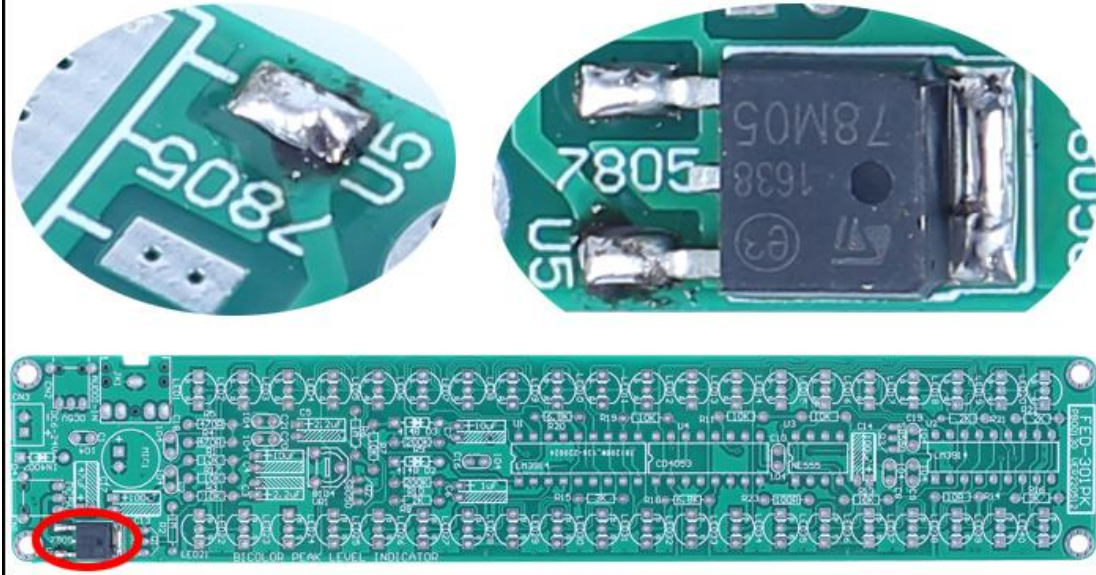
- 1>.Step 1: Install 1pcs SMD components TO-263 L7805 Voltage Regulator at U5.
 - 1.1.Randomly choose a pad on the PCB, and then melt the solder on this pad.
 - 1.2.Use a soldering iron to melt tin on the pad just now and hold IC with tweezers in the other hand to place/press on U5 to prevent movement.
 - 1.3.Take care to match and align each pins to pads.
 - 1.4.Then remove soldering iron after align pins.
 - 1.5.Then remove tweezers after solder tin cooling and solidification.
 - 1.6.Connect others pads on STC15F104W to pads on PCB by tin and soldering iron.
- 2>.Step 2: Install 8pcs 10Kohm Metal Film Resistor at R1,R3,R7,R11,R2,R13,R17,R19.
- 3>.Step 3: Install 3pcs 2Kohm Metal Film Resistor at R8,R21,R22.
- 4>.Step 4: Install 2pcs 470ohm Metal Film Resistor at R4,R5.

- 5>.Step 5: Install 2pcs 3Kohm Metal Film Resistor at R15,R16.
6>.Step 6: Install 2pcs 6.8Kohm Metal Film Resistor at R18,R20.
7>.Step 7: Install 2pcs 200Kohm Metal Film Resistor at R9,R10.
8>.Step 8: Install 2pcs 1Mohm Metal Film Resistor at R2,R6.
9>.Step 9: Install 1pcs 10ohm Metal Film Resistor at R14.
10>.Step 10: Install 1pcs 100ohm Metal Film Resistor at R23.
- 11>.Step 11: Install 2pcs DO-35 1N4148 Diode at D2,D3.The black mark is negative pole and connect to mark on PCB.
12>.Step 12: Install 1pcs DO-41 1N4007 Diode at D4.The black mark is negative pole and connect to mark on PCB.
13>.Step 13: Install 10pcs 0.1uF 104 Ceramic Capacitor at C1,C2,C8-C10,C16,C18-C21.
14>.Step 14: Install 1pcs DIP-18 LM3914 Operational Amplifier at U1,U2.There is a mark on one end of IC and there is a mark on PCB where IC can place on.These two marks are corresponding to each other and are used to specify the installation direction of IC.
15>.Step 15: Install 1pcs DIP-16 CD4053 Logic IC at U4 by the same methods.
- 16>.Step 16: Install 1pcs DIP-8 NE555 Timer at U3 by the same methods.
17>.Step 17: Install 2pcs DC Power Socket at CN1,CN2. It is recommended to use metal wire which from the cut resistor metal pin to fix the black socket.
18>.Step 18: Install 1pcs 1uF Electrolytic Capacitor at C6 and it is placed horizontally on the PCB. The Longer pin is positive pole that inserted into the rectangular pad.
19>.Step 19: Install 2pcs 2.2uF Electrolytic Capacitor at C3,C5 by the same methods.
20>.Step 20: Install 2pcs 100uF Electrolytic Capacitor at C13,C14 by the same methods.
- 21>.Step 21: Install 1pcs 47uF 25V Electrolytic Capacitor at C17 by the same methods.
22>.Step 22: Install 2pcs 10uF Electrolytic Capacitor at C4,C7 by the same methods.
23>.Step 23: Install 1pcs 5Pin 3.5mm Audio Socket at JK1.
24>.Step 24: Install 1pcs 9*7mm Microphone at MIC1.The marked pin is negative pole.
25>.Step 25: Install 1pcs 100Kohm Potentiometer at VR1.
- 26>.Step 26: Install 2pcs S8050 Transistor Transistor at Q1,Q2. Pay attention to the installation direction.
27>.Step 27: Install 1pcs S8550 Transistor Transistor at Q3.
28>.Step 28: Install 1pcs XH2.54-2P White Socket at CN3.
29>.Step 29: Identify the pins and installation direction of the LED. The shortest pin is inserted into pad G.
30>.Step 30: Install 40pcs 5mm Red/Green Dual Color LED at LED1-LED40.
- 31>.Step 31: Test.
31.1>.There are three work power supply input terminals: two DC3.5mm socket and one XH2.54-2P white socket. User can use any one of them. Note: DC3.5mm socket need connect 5V and white socket need connect to DC 6V-24V.
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31.3>.Rotating potentiometer can be used to adjust the sensitivity of LED.
31.4>.AUX audio socket also can input audio signal and then LED will flashing with input audio signal.
31.5>.AUX audio socket has a higher priority than MIC, so it work with AUX audio if both AUX audio and MIC get signal.

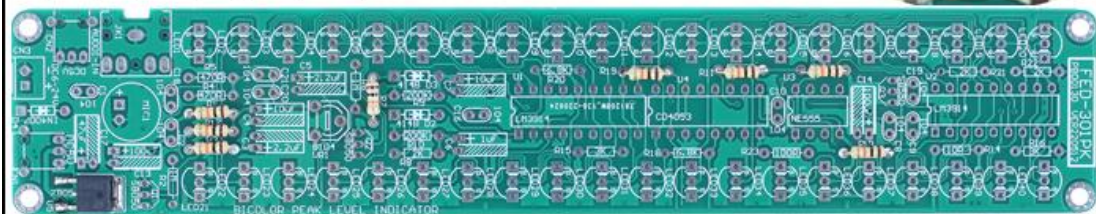
8.Install shown steps:

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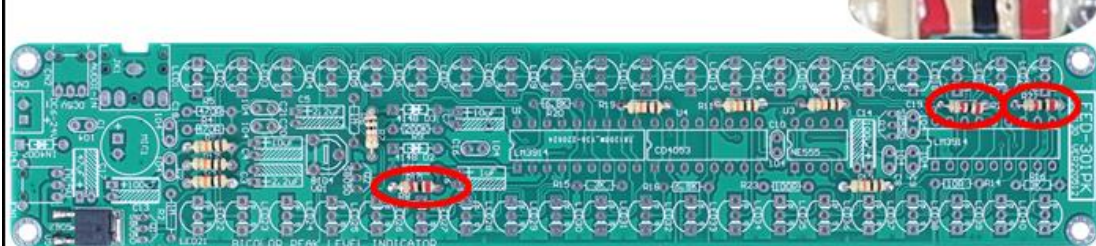
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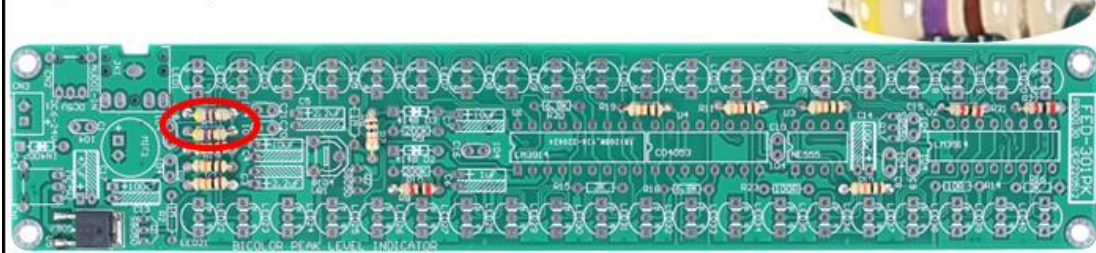
Step 2: Install 8pcs 10Kohm Metal Film Resistor at R1,R3,R7,R11,R2,R13,R17,R19.



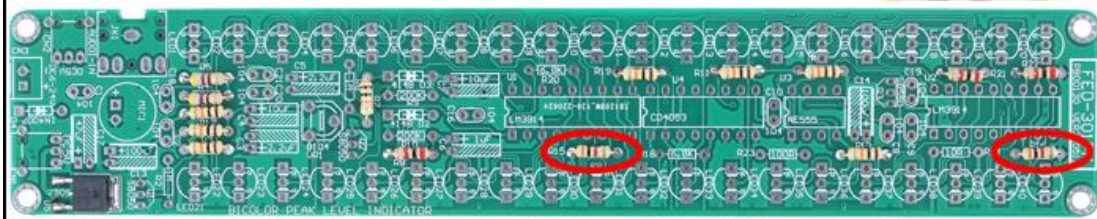
Step 3: Install 3pcs 2Kohm Metal Film Resistor at R8,R21,R22.



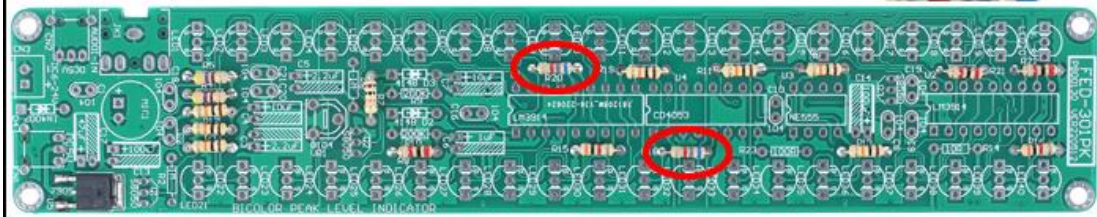
Step 4: Install 2pcs 470ohm Metal Film Resistor at R4,R5.



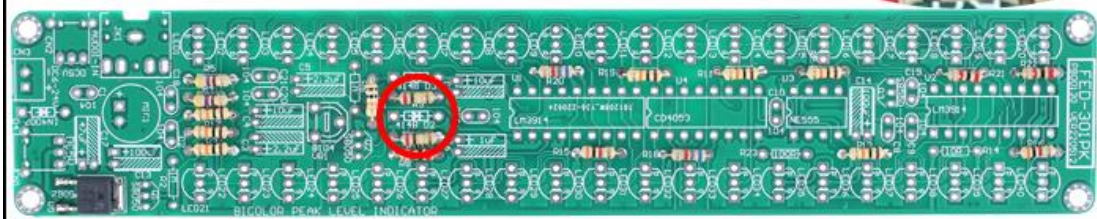
Step 5: Install 2pcs 3Kohm Metal Film Resistor at R15,R16.



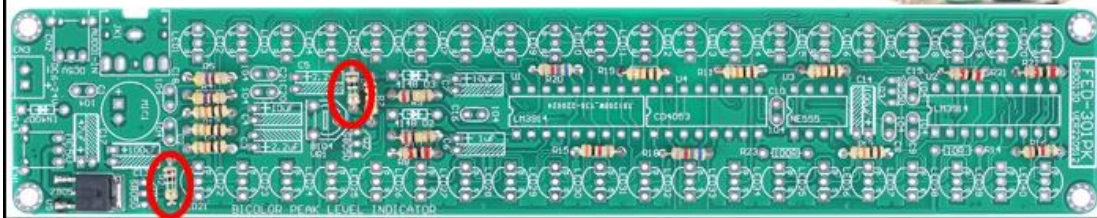
Step 6: Install 2pcs 6.8Kohm Metal Film Resistor at R18,R20.



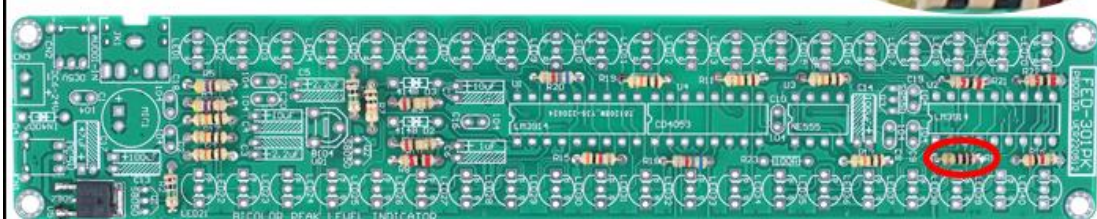
Step 7: Install 2pcs 200Kohm Metal Film Resistor at R9,R10.



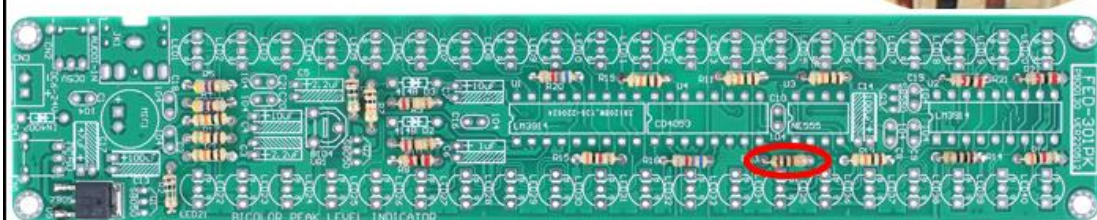
Step 8: Install 2pcs 1Mohm Metal Film Resistor at R2,R6.



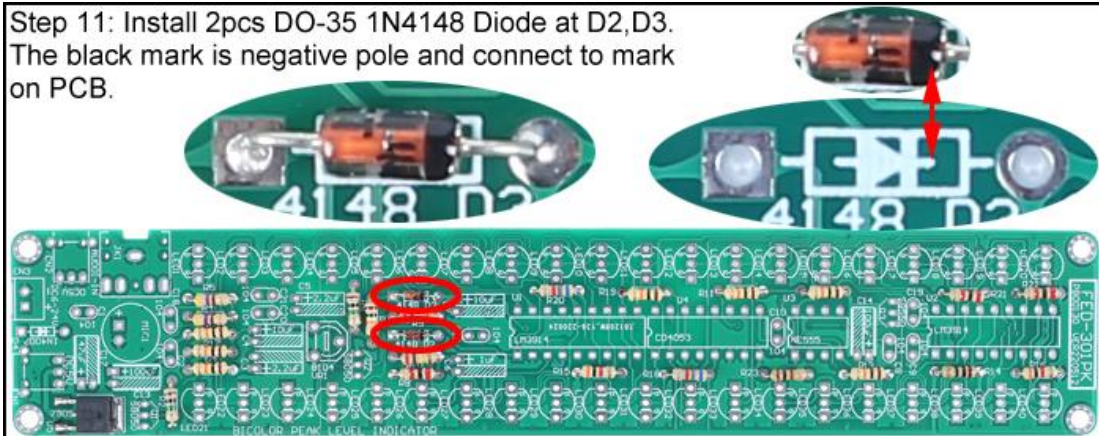
Step 9: Install 1pcs 10ohm Metal Film Resistor at R14.



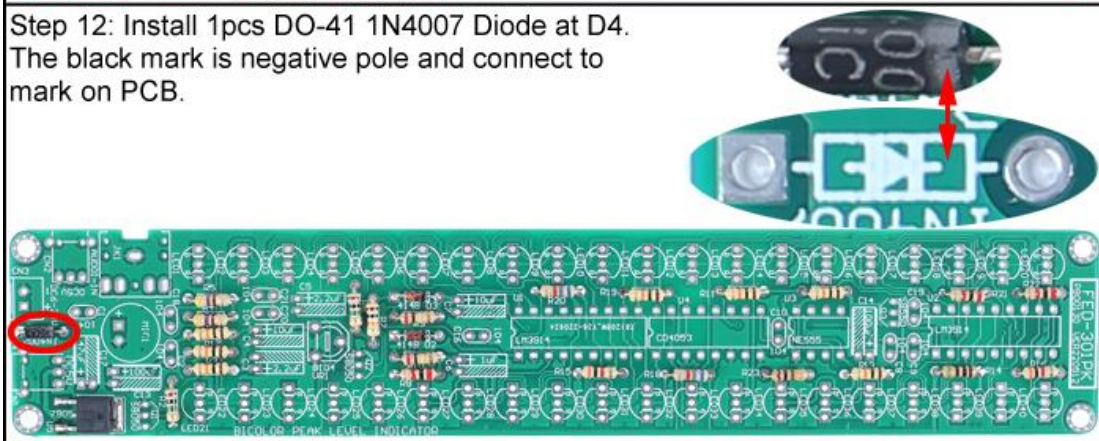
Step 10: Install 1pcs 100ohm Metal Film Resistor at R23.



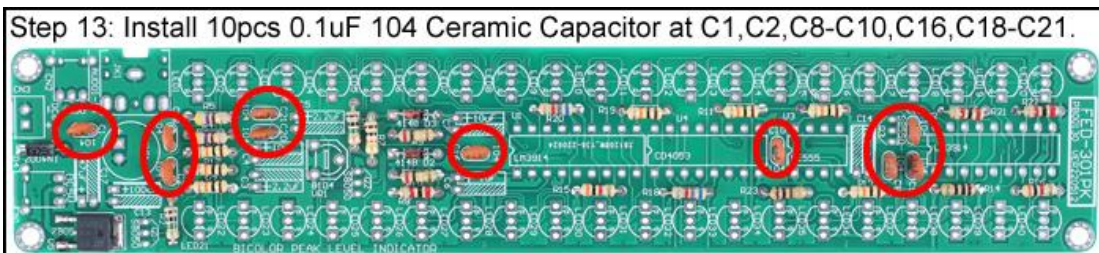
Step 11: Install 2pcs DO-35 1N4148 Diode at D2,D3. The black mark is negative pole and connect to mark on PCB.



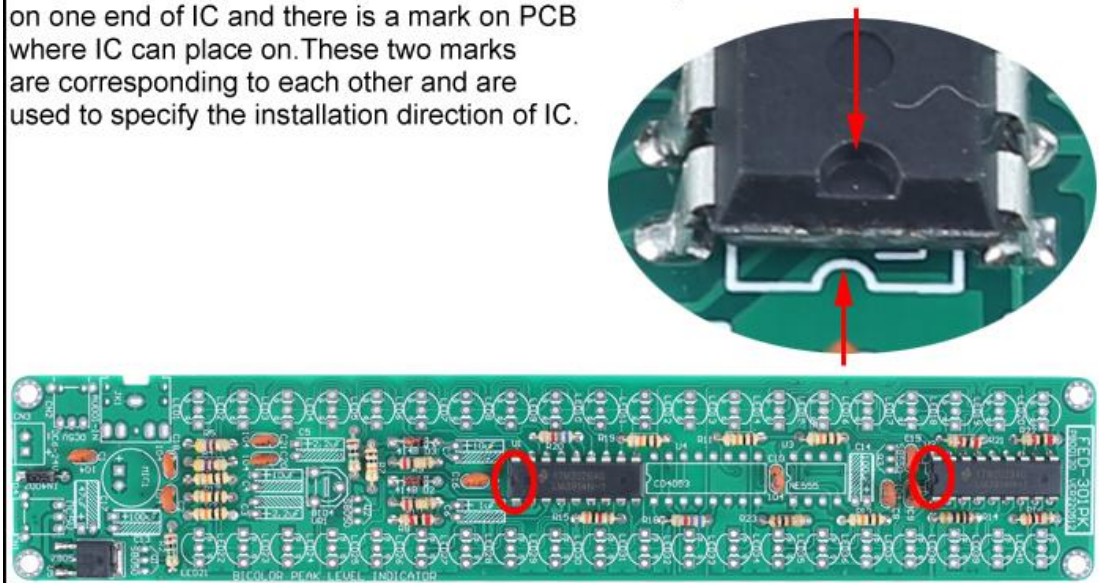
Step 12: Install 1pcs DO-41 1N4007 Diode at D4. The black mark is negative pole and connect to mark on PCB.



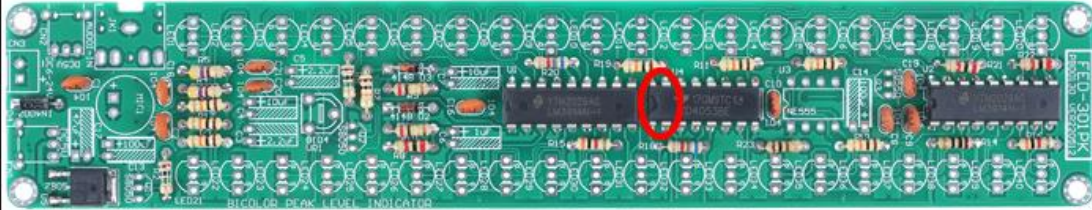
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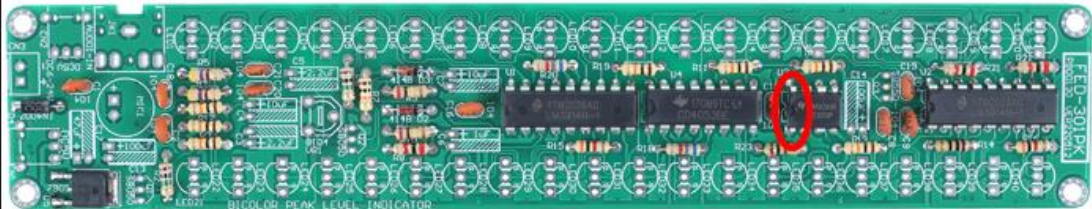
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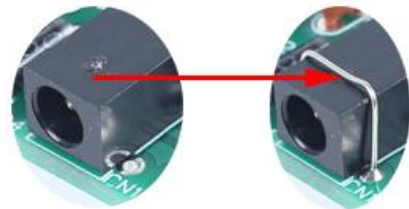
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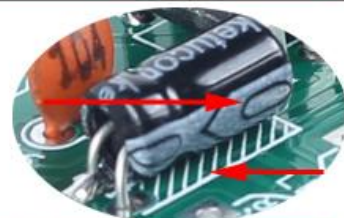
Step 16: Install 1pcs DIP-8 NE555 Timer at U3 by the same methods.



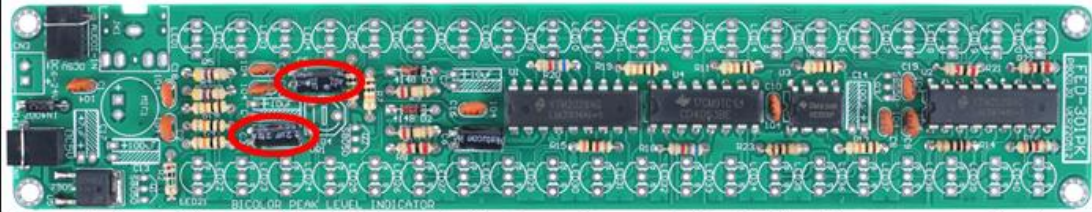
Step 17: Install 2pcs DC Power Socket at CN1, CN2. It is recommended to use metal wire which from the cut resistor metal pin to fix the black socket.



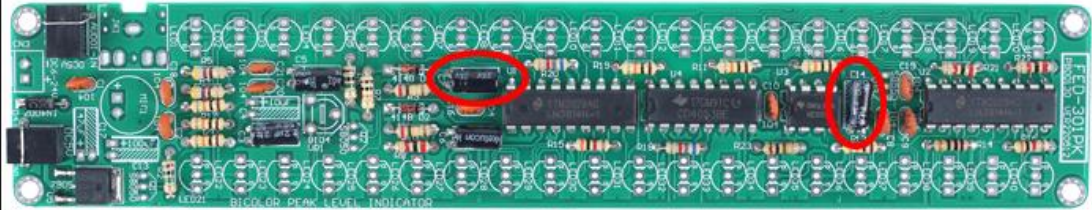
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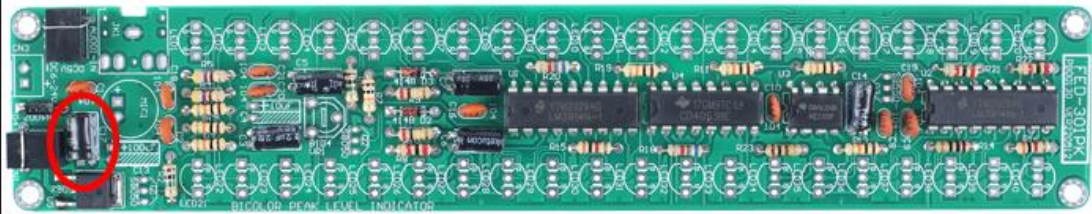
Step 19: Install 2pcs 2.2uF Electrolytic Capacitor at C3,C5 by the same methods.



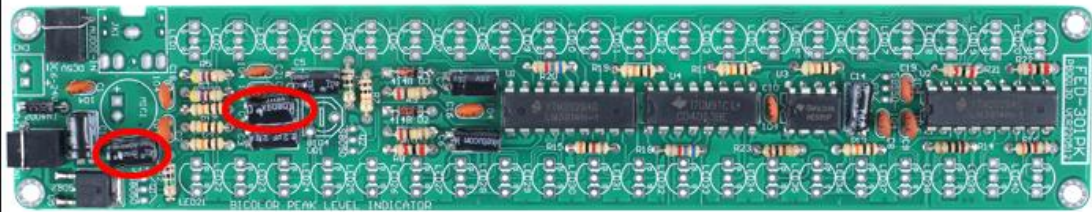
Step 20: Install 2pcs 100uF Electrolytic Capacitor at C13,C14 by the same methods.



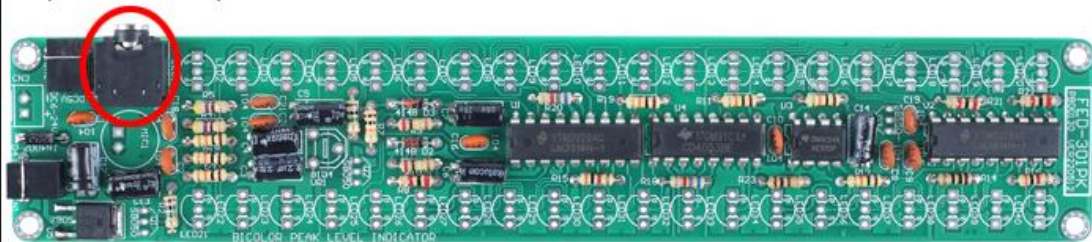
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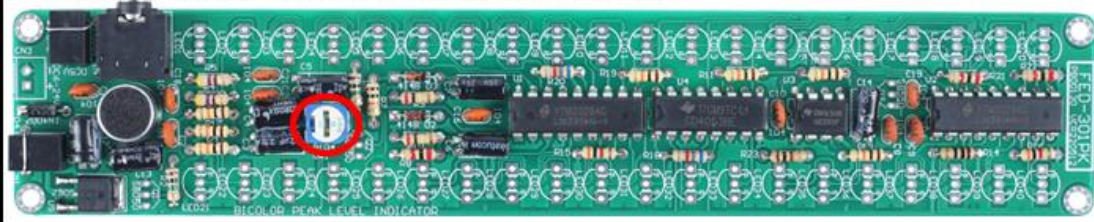
Step 23: Install 1pcs 5Pin 3.5mm Audio Socket at JK1.



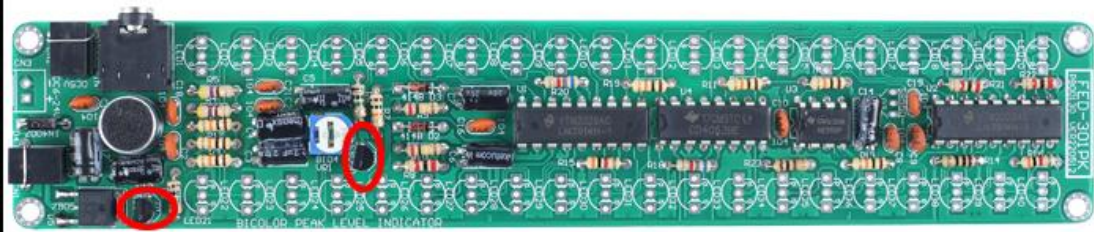
Step 24: Install 1pcs 9*7mm Microphone at MIC1.
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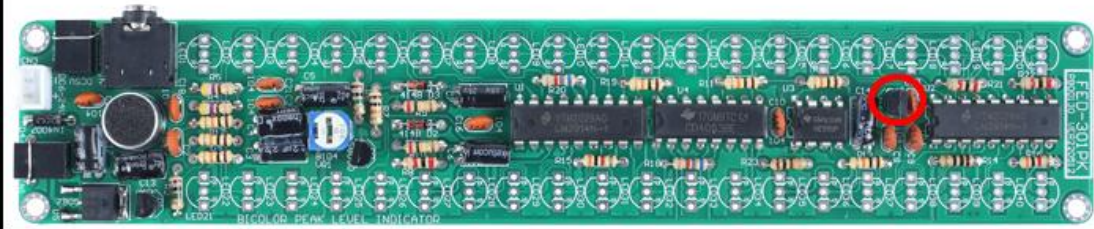
Step 25: Install 1pcs 100Kohm Potentiometer at VR1.



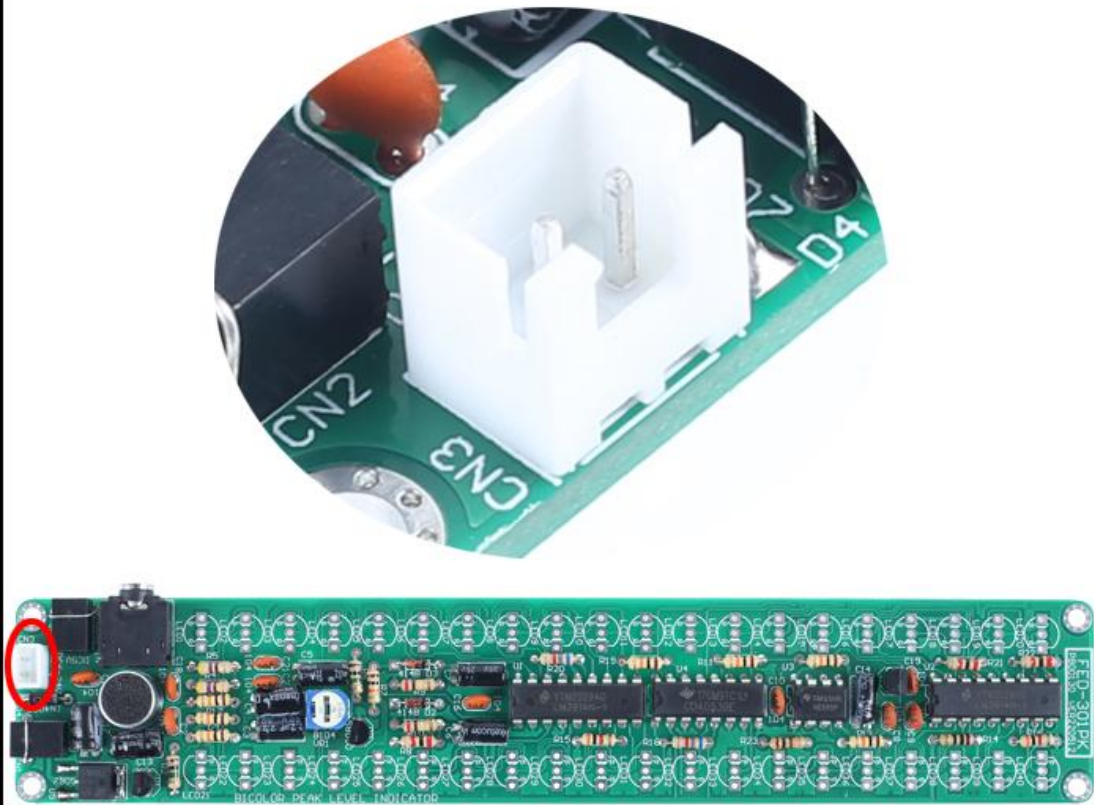
Step 26: Install 2pcs S8050 Transistor Transistor at Q1,Q2.
Pay attention to the installation direction.



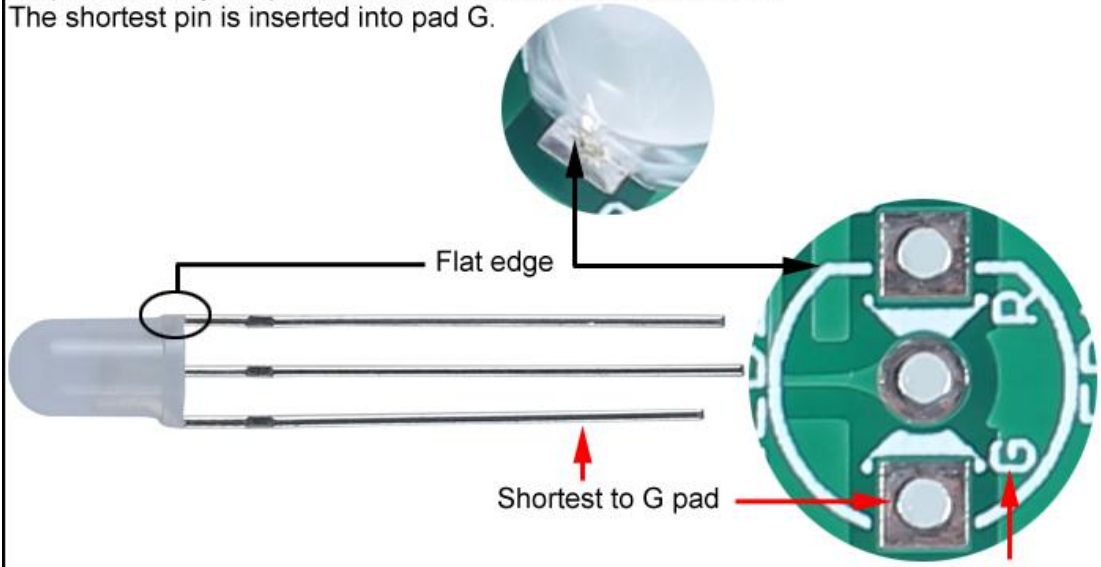
Step 27: Install 1pcs S8550 Transistor Transistor at Q3.



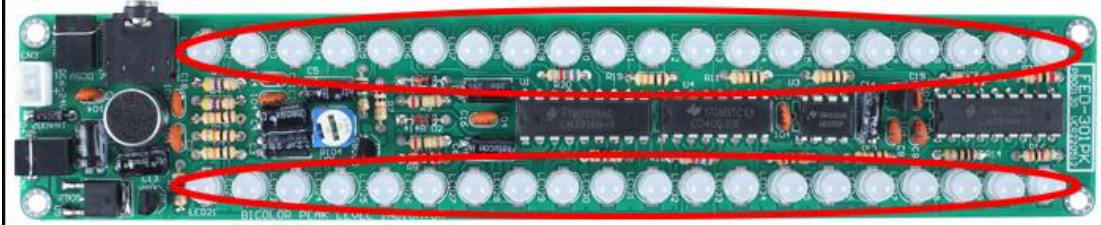
Step 28: Install 1pcs XH2.54-2P White Socket at CN3.



Step 29: Identify the pins and installation direction of the LED.
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