

SPEAKER PROTECTION (MONO)

CODE 649

LEVEL 2

Speaker protection (mono) circuit can be connected with OCL amplifier in order to protect speaker. If the amplifier has no protection circuit, transistor output shorted AC will directly damaged speaker.

Specification:

- Supply voltage : 12 VDC
- Consumption : 35mA.max
- Dimension : 2.32 x 1.34 inches.

How it works:

TR2 doesn't work when first giving power supply because the base of TR2 has not enough current to bias TR2 and TR3 to conduct current. C4 charges voltage 1.4 volt and TR2 and TR3 can conduct current within 2-5 seconds by adjusting 100K variable resistance. When we open amplifier, there will be a sound at speaker. C2 will delay sound at speaker by having relay as a switcher and LED displays result. Whenever DC voltage over 4 volts passes IN, TR1 is worked. Shorting the collector of TR1 to ground, the base of TR2 will not have voltage, so TR2, TR3 do not work. Relay will cut speaker signal from amplifier while LED is shutting down.

PCB assembly:

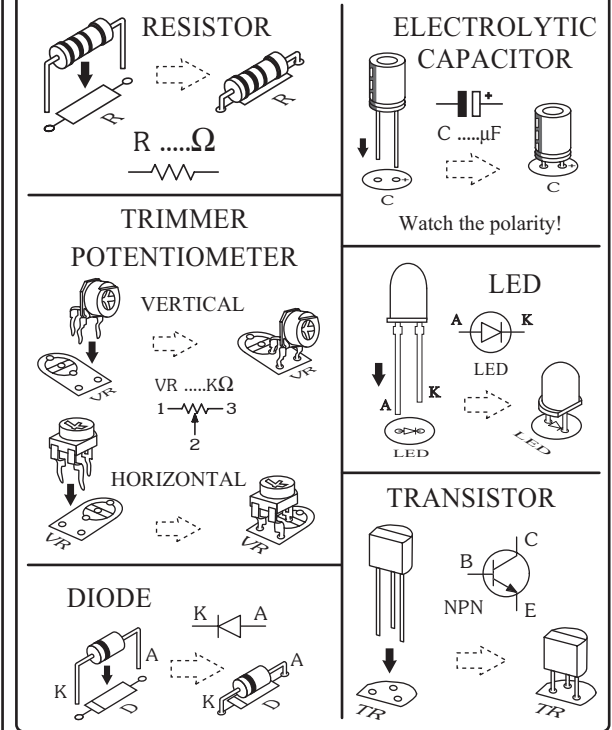
Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. If the pins will not enter the holes with ease, use a small drill to slightly enlarge the opening. All components with axial leads should be carefully bent to fit the position on the PCB and then soldered into place. Make sure that the electrolytic capacitors are inserted the correct way around. Some components are particularly sensitive to heat (ie: Transistors, IC's, diodes etc.) extra care must be taken to only apply the iron for as little time as possible, using a

pair of pliers to grip the leads will help conduct heat away. Trim components leads with wire cutters to prevent excess lengths causing a short circuit. Now check that you really did mount them all the right way round!

Testing:

Do not connecting IN, OUT to the circuit. Giving voltage 12 volts. Firstly LED does not display. 2-5 seconds later, when we adjust variable resistance, LED will display while relay works. Jumping IN with +12 volt point. LED will shut down while relay started. Taking jumping point between IN and +12 volt off.

Figure 1. Installing the components



Troubleshooting:

The most problem like the fault soldering. Check all the soldering joint suspicious. If you discover the short track or the short soldering joint, re-solder at that point and check other the soldering joint. Check the position of all component on the PCB. See that there are no components missing or inserted in the wrong places. Make sure that all the polarised components have been soldered the right way round.

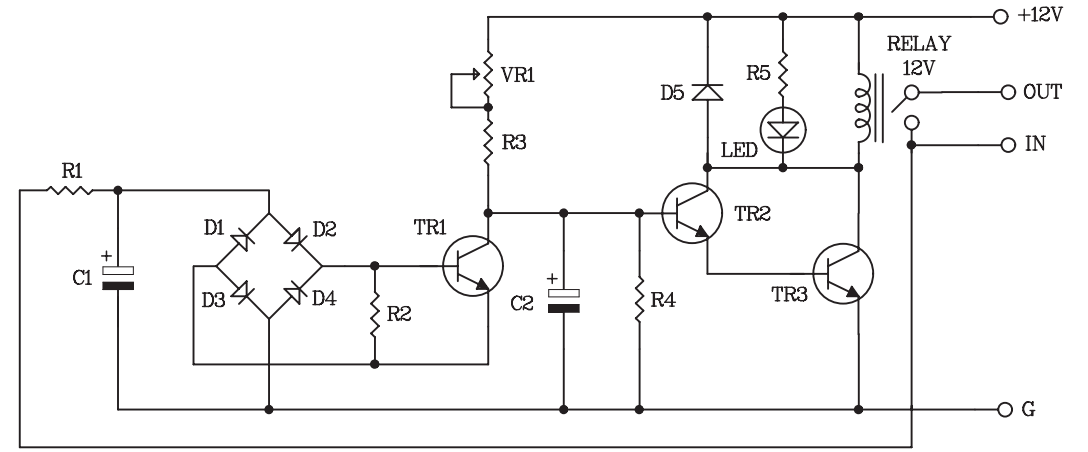


Figure 2. The speaker protection (mono) circuit

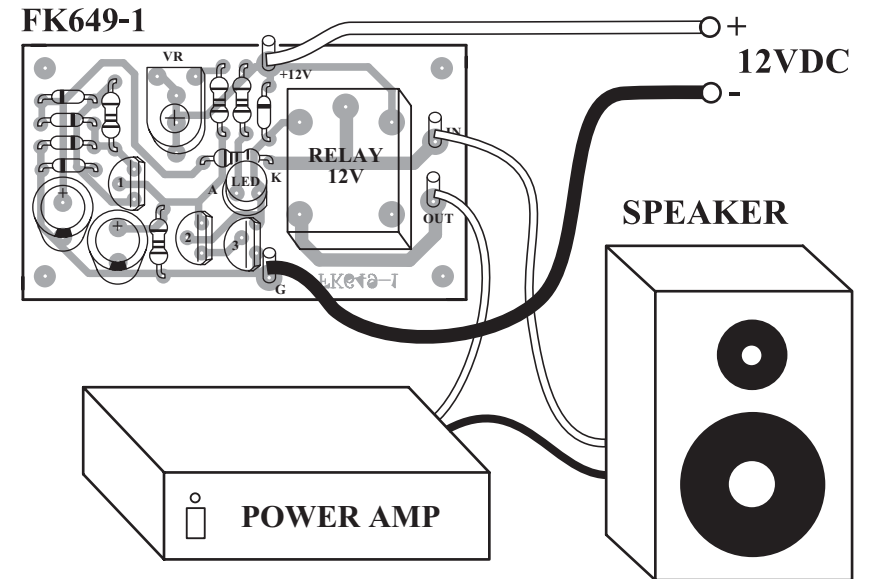


Figure 3. Connections

NEW KIT SET

CODE FK	DESCRIPTION	POWER
168	NO SMOKING FLASHER 46 LED	9-12VDC.
169	DANCING ROBOT FLASHER 33 LED	9-12VDC.
170	DANGER FLASHER 42 LED	9-12VDC.
171	TWO LAMP FLASHER	3VDC.
172	THREE STEP FLASHER 19 LED	9-12VDC.
173	HALLOWEEN PUMPKIN FLASHER 23 LED	9-12VDC.
174	5x7 ANIMATED LED SIGNBOARD	3-5VDC.
816	VARIABLE REGULATOR 0-50V. 3A.	50VDC.
817	TRANSFORMERLESS POWER SUPPLY 6-9-12V 50mA	220-240VAC.