


It has not been known for a long time that the alarm alerts, the painter paints and the resistor puts up resistance. So, if one day someone were to ask you what the Colorophon actually does, the answer is childishly simple - the Colorophon colours :) However, we know that not everyone has as sophisticated a sense of humour as we do, so we also include the product description below if necessary.

The colorophone catches the surrounding sounds and, depending on their tone, frequency and intensity, lights up in a quite different way for each sound. The application of this smart device is much more interesting than it might seem.

It is not only useful for partygoers, musicians and audiophiles - there are many more options. From rave parties (or indeed all parties), to signalling to children that they are too loud, even to checking who is snoring in what key. Referring to the above description, virtually countless other possibilities for the use of our Colorophone come to mind.

Of course, the most essential function of our EDU kit is the opportunity to develop passion and soldering skills.

Specifications

- integrated micron - no direct connection to sound source required
- light source - LEDs in three colours
- stepless sensitivity adjustment
- light effect produced to the rhythm of the music
- responds to low, medium and high tones
- supply: 12 VDC /200 mA (2.1/5.5) 
- board size: 149 x 79 mm



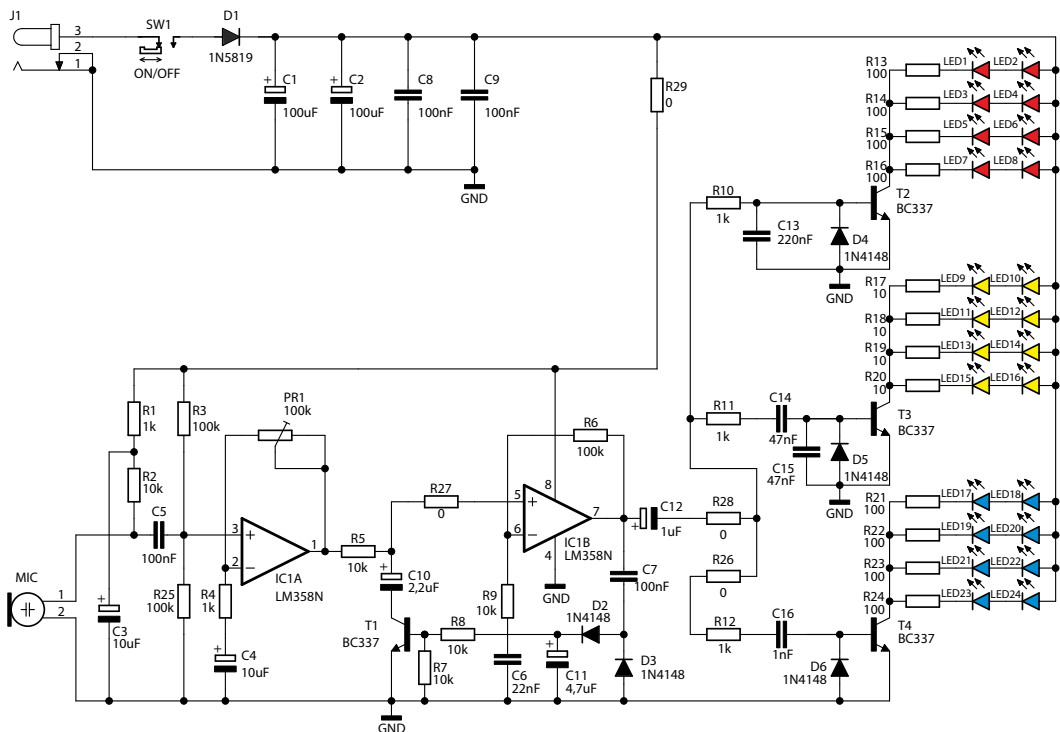


Fig. 1 Schematic diagram

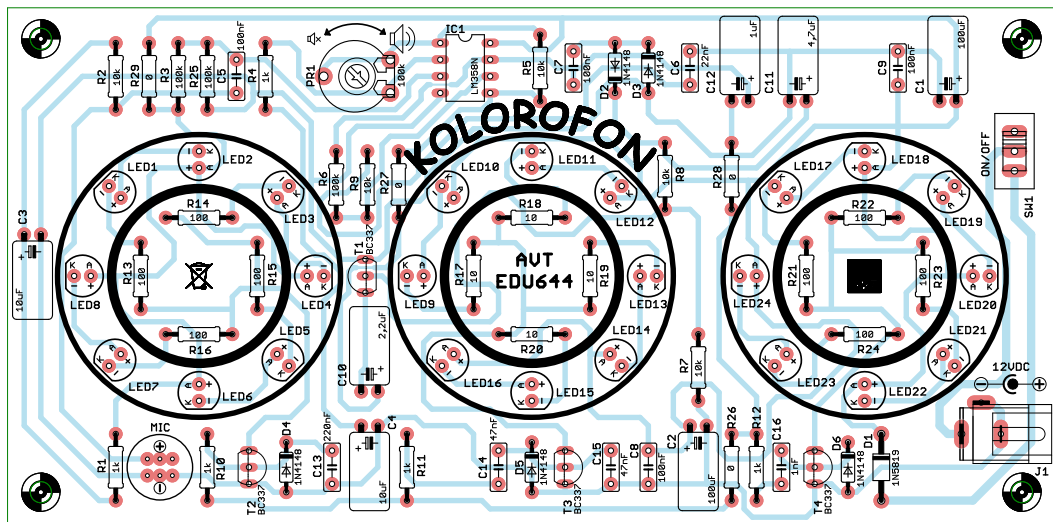


Fig. 2. Arrangement of components on the PCB

Mounting and start-up

Figure 2 shows the layout of the components on the PCB.

Solder the components sequentially onto the board, starting with the smallest ones. Once the system has been mounted, very carefully check correctness of installation. Check that the components have not been soldered in the wrong direction or in the wrong

places and that no soldering points have been short-circuited during soldering. The sensitivity of the Colorophone can be adjusted using potentiometer PR1.

Recommended mounting order:

- R1, R4, R10-R12:.....1 k Ω (brown-black-red-gold)
- R2, R5, R7-R9:.....10 k Ω (brown-black-orange-gold)
- R3, R6, R25:100 k Ω (brown-black-yellow-gold)
- R13-R16, R21-R24:100 Ω (brown-black-brown-gold)
- R17-R20:.....10 Ω (brown-black-black-gold)
- R26-R29:.....0 Ω (black)
- D1:.....1N5819 !
- D2-D6:.....1N4148 !
- IC1:LM358 chip + base !
- C5, C7-C9:.....100 nF (can be labelled 104)
- C6:22 nF (can be labelled 223)
- C13:.....220 nF (can be labelled 224)
- C14, C15:.....47 nF (can be labelled 473)
- C16:.....1 nF (can be labelled 102)
- C1, C2:.....100 μ F !
- C3, C4:.....10 μ F !
- C10:.....2.2 μ F !
- C11:.....4.7 μ F !
- C12:.....1 μ F !
- MIC:microphone
- T1-T4:BC337 ! (or similar)
- PR1:100k Ω potentiometer + adjustment shaft
- LED1-LED8:.....RED LED !
- LED9-LED16:YELLOW LED !
- LED17-LED24:BLUE LED !
- SW1:on/off switch
- J1:power socket

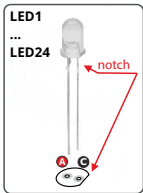
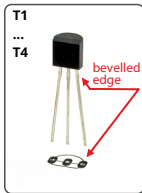
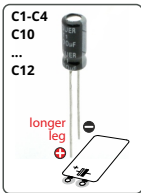
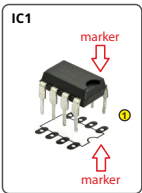
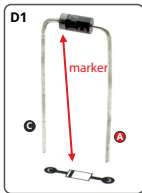
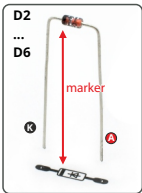


Start assembly by soldering components into the board, in the order of their size, from the smallest to the largest. When mounting components marked with an exclamation mark, pay attention to their polarity.

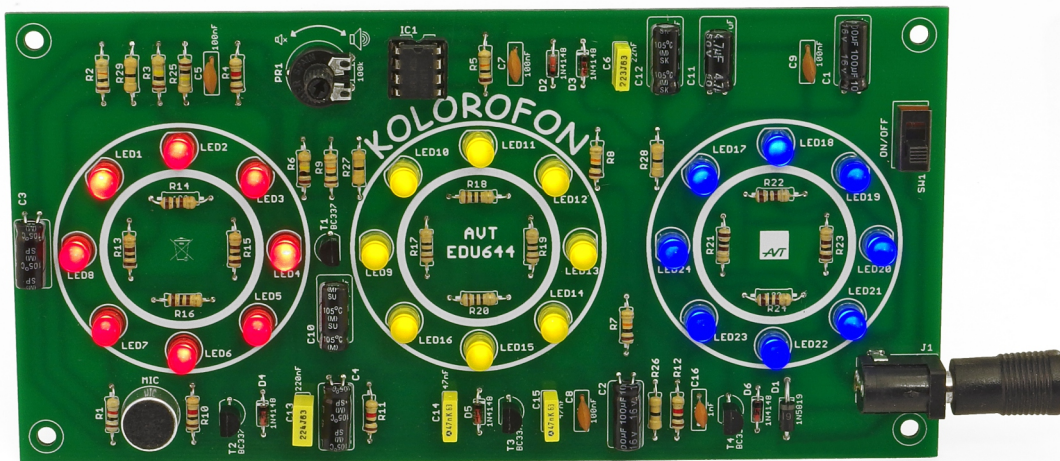
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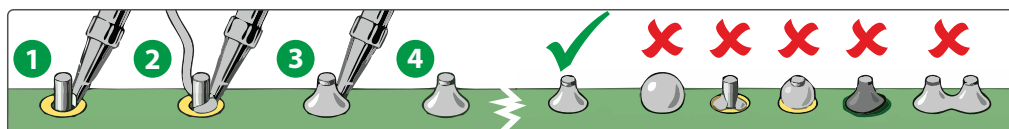
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Components received in the kit, may differ in appearance from those shown in the photograph. Despite this, they have the same parameters, and their appearance will not affect their operation in the unit.



Mounting instructions



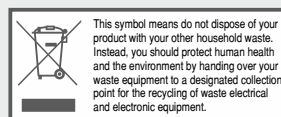
- 1 Use the tip of a hot soldering iron to touch the leg/end of the component just outside the soldering field
- 2 Then apply the "tin"/spoil
- 3 Once the cone has formed, remove the 'tin' and then the soldering iron
- 4 The entire process should take 2-3 seconds
The prerequisites for the formation of a correct solder are the cleanliness of the surfaces to be joined, the presence of flux in the binder, a sufficiently high temperature (320-360°C) and the correct amount of binder.

Too much binder will cause a bead to form or two adjacent solder points to join.
Too low a temperature or amount of binder, as well as impurities, can lead to "cold solders", i.e. the binder and the flux contained in it do not wet the surfaces to be joined and an impermanent solder is formed, which will oxidise over time, a break will occur and the device will cease to function



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