

EK028 – Night light USB

Description:

EK028 is a simple light-controlled LED that turns on when the ambient light is low. The circuit consists of a light dependent resistor, a transistor and an LED. The light dependent resistor together with the three 1 Mohm resistors makes a voltage divider that controls the transistor. When the transistor starts to conduct, it will pull current through the LED which lights up. The protruding part of the PCB is a simple, double-sided USB



connector, which provides a simple way to both mount and power the kit. It can be plugged into a USB port of a computer or a USB charger. The two diodes makes it possible to insert the board either way into a USB port. Two holes marked "+" and "-" can be used as an alternate input from any regular DC power source. To change the sensitivity, mount either one, two or all three 1 Mohm resistors. One resistor provides high sensitivity, two medium and with all three mounted, lowest sensitivity.

- * Supply voltage: 5 - 15VDC
- * Current draw: ~5mA (5V)
- * Dimensions: 25.4 x 38.75mm

Assembly guide:

Before you begin mounting components, make sure the board is free from damage and scratches. Make sure all the components are included and are of correct value. Compare with the component list!

This kit is pretty simple and contains very few parts. Except for the resistors, each component can only be placed in one spot. Please note the polarity marks for the capacitor, transistor and the two diodes. They have to be mounted the correct way for the circuit to function.

Component list:

RefDes	Value	Qty	Part.no.	
C1	100uF 16V	1	41017679	
D1	LED 5mm white	1	40307039	
D2, D3	1N4148	2	40310010	
LDR1	Photo resistor	1	40850001	
R1, R2, R3	1 Mohm	3	40811610	
R4	100 ohm	1	40811210	
T1	BC547C	1	40320001	



Schematic:

PCB:

