Kitronik Ltd – Using a 1W star LED

TECHNOLOGY DATA SHEET AND SPECIFICATIONS

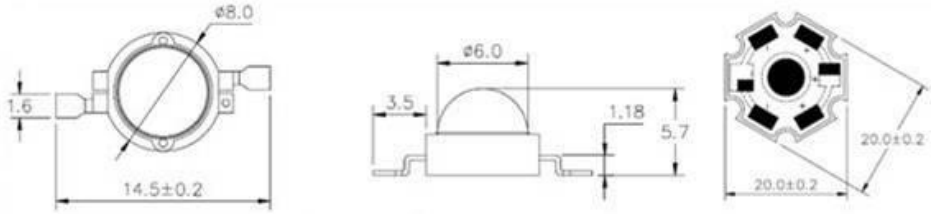
Introduction

These power LED stars offer an extremely high light output in an energy efficient way. The power LED comes mounted on to special PCB star that acts to draw heat away from the LED, therefore extending its operational life. This makes them perfect for many lighting applications and this sheet explains how.

Technical Information

Forward Voltage:	3.0V – 3.4V
Angle:	110 deg
Luminus Flux (lm):	110 – 130
Colour Temp:	2700K – 3300K

Mechanical Information



Ordering

Description:
1W warm white power LED star

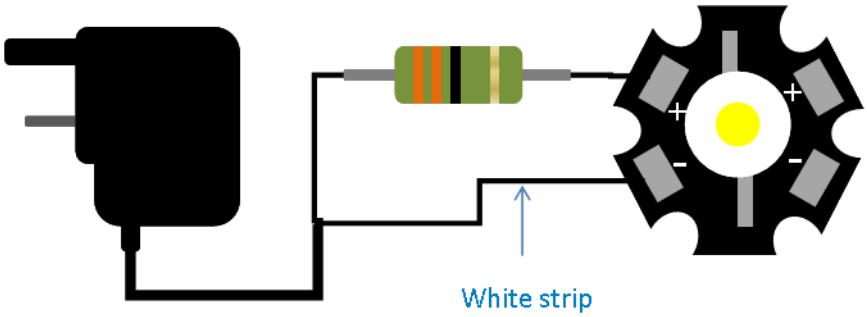
Stock code:
3547

Using the LED

The LED is a 1W LED and the forward voltage is rated at 3.0V to 3.4V so for the purpose of the calculations a forward voltage of 3.2V is used. The typical current of the LED will therefore be 310mA (from Power = Current x Voltage). The power source used with the LED must therefore be able to deliver at least 310mA. Since most power supplies will be higher than 3.2V a current limit resistor will be required. The next page shows a few examples of using this LED with different power supplies and what value this resistor needs to be. The resistor also needs to handle 310mA flowing through it and as a result will need to be a power resistor. Please note that during use both the star LED and the resistor will get hot and shouldn't be touched.

The LED has markings for '+' and '-' as indicated below:

Single LED powered by a 12V wall block

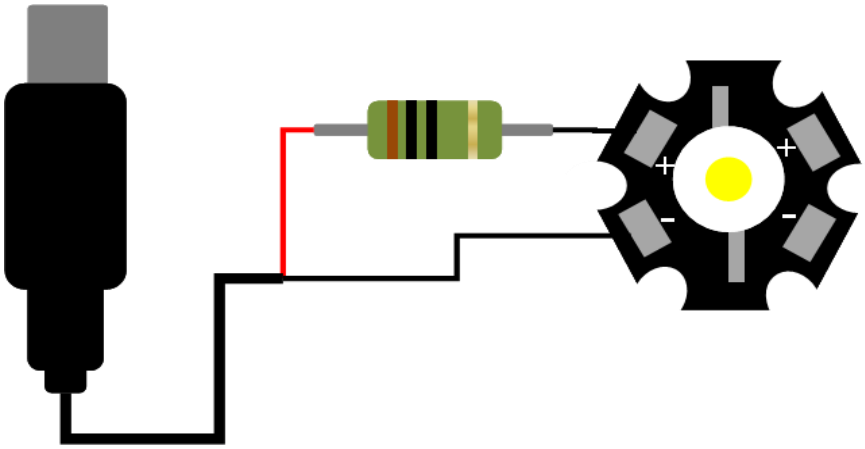


Parts list
12V wall block PSU
(2260)

1W star LED
(3547)

33 ohm power resistor
(3009-33R)

Single LED powered by a USB lead



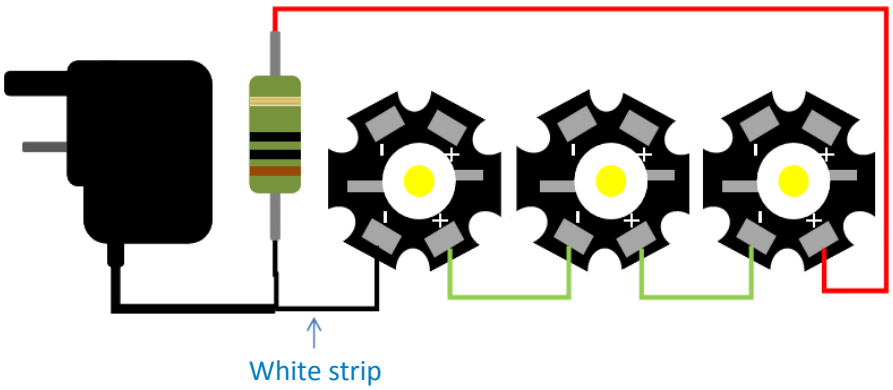
Parts list
USB power cable 1m
(4101)

1W star LED
(3547)

10 ohm power resistor
(3009-10R)

Please note:
Don't use at the same time as other high power USB devices.

Three LEDS powered by a 12V wall block



Parts list
12V wall block PSU
(2260)

1W star LED x3
(3547)

10 ohm power resistor
(3009-10R)

PLEASE NOTE: The resistor values (and power rating) listed have been calculated for the specific configurations demonstrated in this datasheet. If you make any alterations to the configurations listed, you must ensure that you use a suitably rated resistor of the correct value.