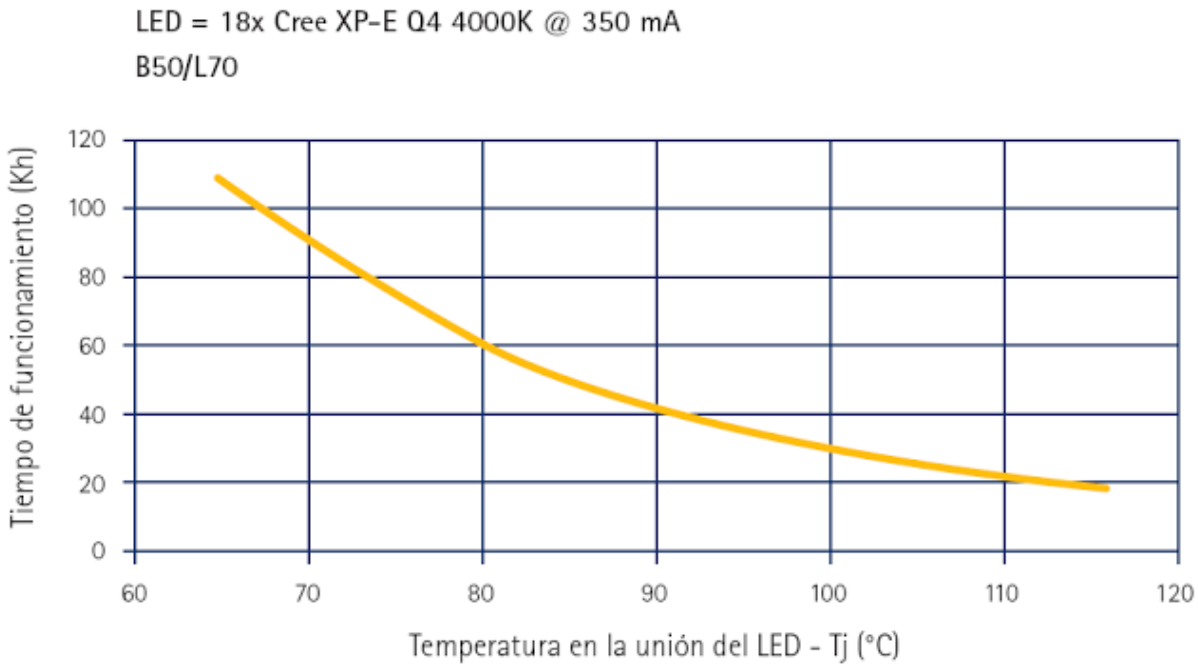
THE IMPORTANCE OF LED TEMPERATURE

The ledes last longer the lower is the junction temperature (in the semiconductor, where the light originates), so that an efficient system to remove the excess heat is very necessary.



Influencia de la temperatura de unión en la vida útil

Source: LED Dossier

Usually these lamps come with aluminum housing for better cooling, making them extremely expensive. However in this case the design could not be more economical, simple and effective; presents only vents just behind the LEDS plate appears sufficient to maintain a controlled temperature.

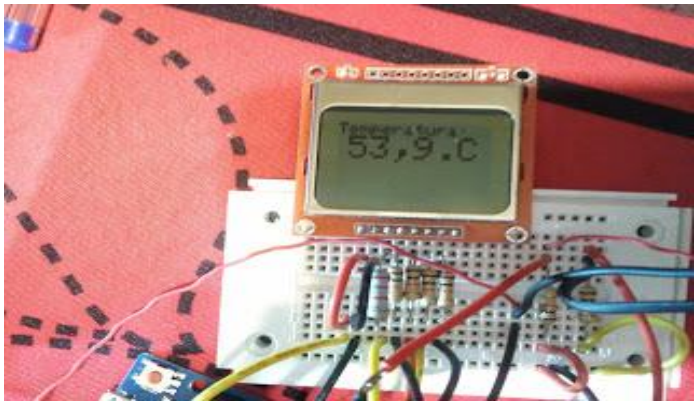
The life of the LED's not only determines the junction temperature, but also the power that is required. The more electric current is applied, the more light, but also less durable. There are cheap LEDS that are overfed to illuminate more with less semiconductor material, thereby shorten its life at the expense of giving more light. In these cases, if we decide to or not rely on this data, it all depends on the manufacturer's reputation.

In addition, **more current passes through an LED, it's lights, but lowering their performance as they apply more intensity** (lumens / watt going down) to reach a plateau where all the extra electricity is converted into heat, stressing the LED (damaging it and shortening its life far). Manufacturers by tables indicate the optimum operating current and recommended; For example the novel MK-R CREE chip (4 leds power series inside) has a performance of 149 11,7V and 750mA lm / W, but if we lower the intensity at 350mA **up 168 lm performance / W even reach 200 lm / W if you went down to 100 mA, but this intensity LED lights only, so it is not practical.**

To verify that the temperature stays below 65 ° C as indicated by the manufacturer, with an ambient temperature of 22, I used the temperature sensor that I recently made with Arduino , hitting the sensor directly to the plate:

It reassembles every subject with tape and puts stress:

After half an hour the temperature stops rising, has almost reached 54 ° C, a very "healthy" for the semiconductor, and consistent with the characteristics announced temperature.



It remains only to check its duration, but time will tell. Currently we are using them for a month, and as the day;).

Where to use them

As with any investment, one should be cautious and make considering that it will continue to drop much in price, and install where it goes really profitable (alas if the government had been wiser and more farsighted if only a little. .. we would not be where we are ... :().

TIP: You should go slowly changing to LED lighting; as well as become cheaper quickly, its effectiveness is growing as technology improves **(it's been giving 40 lm / W in 2004 to more than 70 lm / W in 2011, with a forecast of 170 lm / W 2015)**.

They are recommended for:

- **Local high traffic but where the ignition timing is short** (between 5 minutes and 1 hour), as **rooms, bathrooms, hallways, kitchen extractor lights,** etc.
- **Inaccessible places,** low maintenance LED will prevent us often change the lamp (p. Ex. **High ceiling lamps** in neighboring communities).
- **Where its shock resistance and low power consumption are important, and flashlights.**

If the lamp is going to be little used, it is best to use the incandescent reduced power while its price is not affordable.

The LEDs **are ideal to place in conjunction with detectors,** flashing not damaged.

And by this time I completed my analysis of the LEDs, increasingly present in our daily lives (screens, phones, etc) and now in our homes.

Given the rapid evolution of this technology, it is not surprising that in the coming years ledes are achieved with little loss of energy, or almost zero, and very cheap (less materials used).

Source: http://crecimiento-sostenible.blogspot.in/2014/10/report-led-lighting-present-and-future.html