



## **Introduction:**

Dominant SpiceLED is ideal for applications in backlighting, status indicator, front panel illumination purpose, etc. It is equivalent to the industry standard 0603 chipped with additional improvements as stated below:

- Copper lead-frame construction for better moisture resistance and lower thermal resistance.
- Enlarged cathode base to enhance heat dissipation, which allow maximum driving current up to 20mA in order to provide higher brightness.
- Wider operating temperature ranged from -40°C to +100°C.
- NiPdAu plating for better solderability.

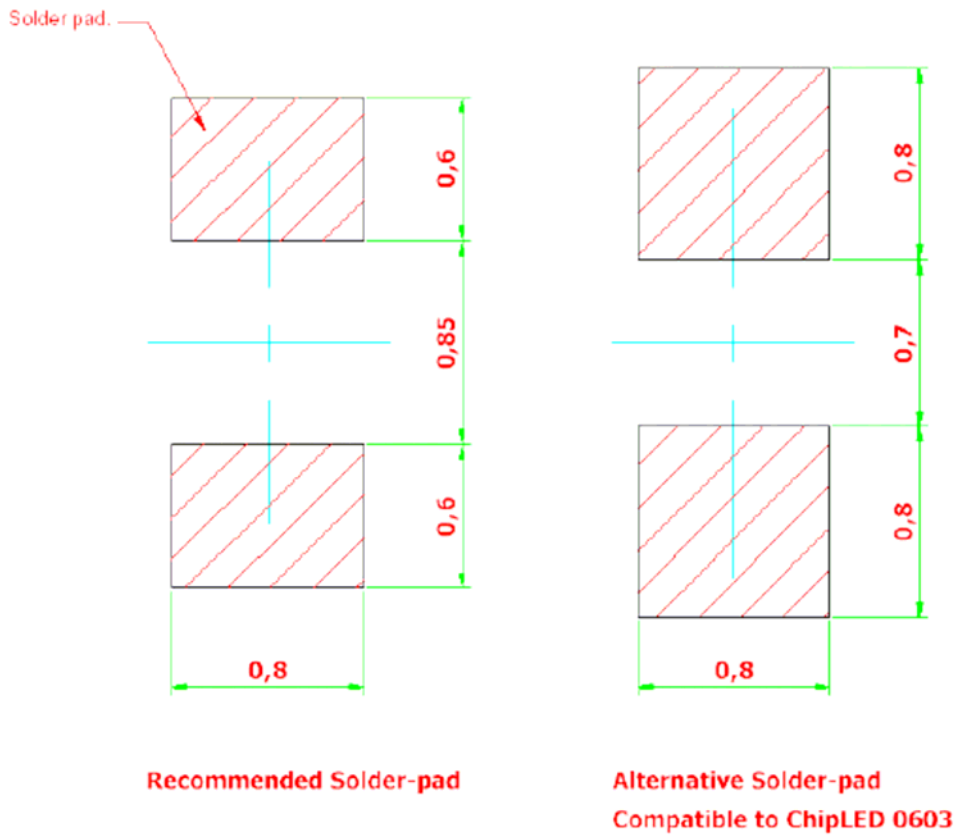
## **Surface Mounting – Factors to Consider**

This application note provides a guideline for the surface mounting of SpiceLED. The following parameters have to be considered in order to optimize the surface mounting performance.

- Solder pad size
- Solder stencil size and thickness
- Pipette (nozzle)
- Solder paste

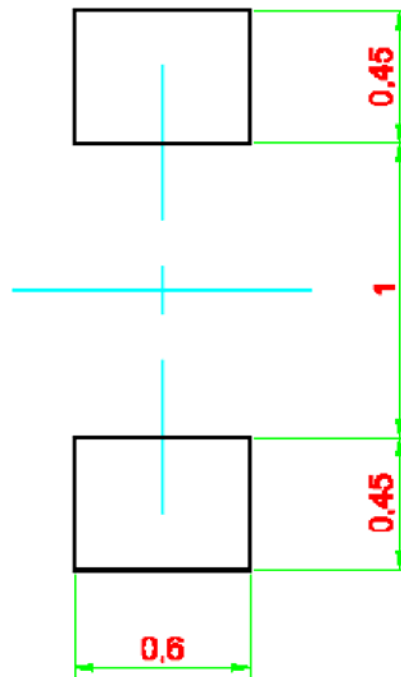
## Solder pad size

SpiceLED is compatible to the 0603 chipLED package out-line. However, SpiceLED is not recommended to be soldered directly onto a standard chipLED's solder pad design. This is to avoid 'shorting' failure. It is highly recommended to deploy the following solder pad design. This solder pad design can be also be used for the standard 0603 chipLED surface mounting without any problem.



## Solder stencil

In order to minimize solder bridging problems, it is common to design stencil aperture size to be smaller than the recommended solder pad. This is particularly important for SpiceLED due to the small size and lightweight. Excessive amount of solder paste deployed will result to lifted parts and inaccurate solder position. The picture below illustrates a suitable stencil aperture size for SpiceLED. In addition, the stencil thickness should typically be less or equal to 5 mils (0.125 mm). This thickness will ensure an optimum solder paste thickness on the PCB for small packages such as SpiceLED.



## Pipette

Pick and place machine should be able to process 0603 devices with placement accuracy better than  $\pm 0.1$  mm.

## Solder paste

We recommend using solder paste type III or better in order to achieve a consistent solder paste thickness.