

# Orphek New LED Technology

## FlipChip LED

Orphek New LED Technology FlipChip White/Blue LED enables the next generation of lighting applications, gives customers complete design flexibility.

It includes the highest flux-density chip scale package, maximizing beam control and enabling high packing density on a PCB. Its wide viewing angle delivers increased uniformity and potential for system cost reductions in diffuse and omnidirectional lighting applications.

In addition, Orphek FlipChip White/Blue LED is the ideal choice for cost sensitive applications as it can achieve high efficacy and flux at high current density, providing leading lm/\$.



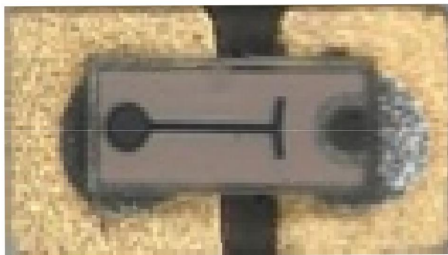
### Features

- Allow for direct attach and reflow— no wire bonds for high reliability.
- Micro sized for design flexibility and high packing density.
- Small source size for highest luminance and beam control.
- Wide viewing angle provides increased uniformity.
- High efficacy at high drive current provides leading system level lm/\$.
- Low thermal resistance.

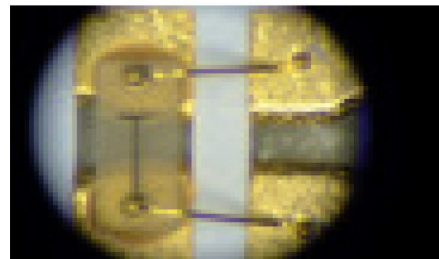
## What is **FlipChip** LED?

Orphek FlipChip LED is a new patented technology by mounting the LED diode upside down compare to the present day LED production. (Diagram A)

Majority of the current market LED products are using gold wire bonding method for their LED (Diagram B)



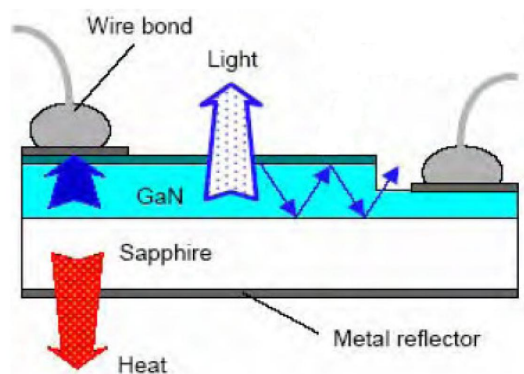
(Diagram A)



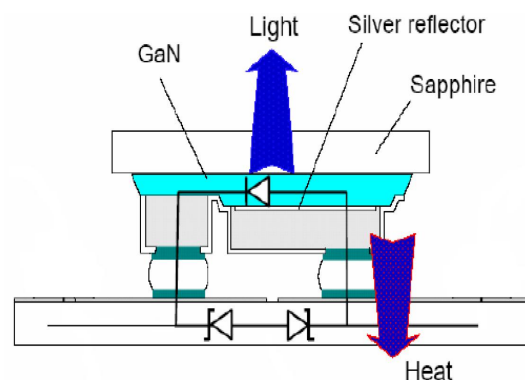
(Diagram B)

## Diagrams

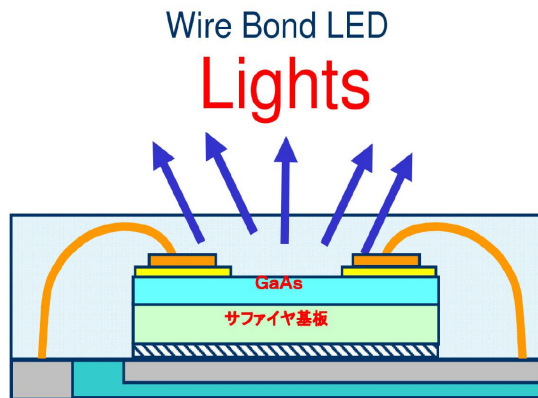
### Current LED (Wire Bond)



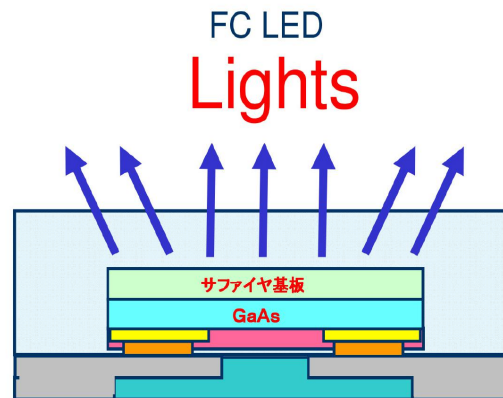
### Flip Chip LED



## No Shadow of Light



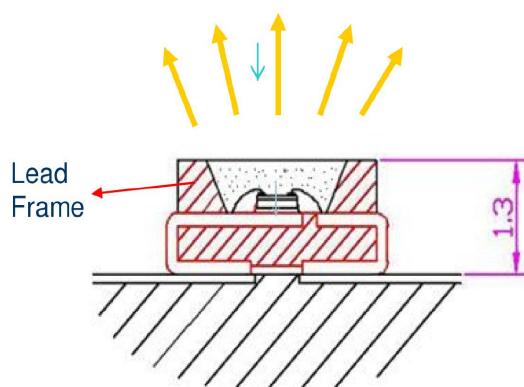
- 20% radiate light covered by wires.
- Chip-by-chip encapsulating (Lead Frame) phosphor.
- Require lots of equipments because of point 2.



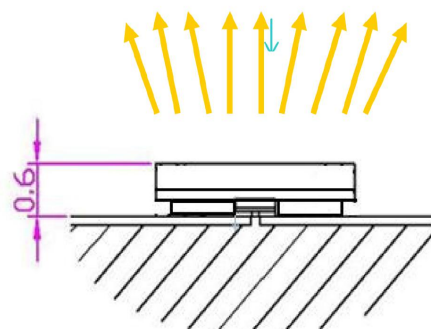
- No wire no cover for radiate surface.
- Phosphor powder printing by module.
- 90% less equipments required.

## No Lead Frame for Certain Light Angles

Encapsulated Lead Frame  
High power LED Chip



FlipChip LED Technology



## Benefit of the FlipChip LED?

Orphek FlipChip LED not only shorten the production process (which means more stable quality), but also significantly reduce thermal resistance and result in higher heat dissipation rate than in the traditional golden wire bonding LED.

Therefore, by release the heat much faster, and no lead frame for certain light angles, Orphek FlipChip LED light engine is the ideal lighting component for your need.

Below are some of the Exciting Benefits from FlipChip LED:

- No need heavy weight thermal heat sink (due to better heat dissipation rate).
- Cheaper in production: Less cost due to minimizing heat sink unit.
- Longer life: almost no decay (estimated about 3% in 6000 hours).
- Surface light (COB-Chip on Board) instead of spot light (individual separate LED bulbs unit), FlipChip LED also provides higher module reflective brightness.
- No shadow of light, no lead frame for certain light angles limitation.