

Sharp – Mini Zenigata LED Reverse Costing Report

System Plus Consulting - April 2011

Physical Analysis of the Device Step by Step Reconstruction of the Process Flow Cost of Manufacturing and Estimation of Selling Price

System Plus Consulting is proud to publish the reverse costing report of the GW5BTF27K00 Warm White LED supplied by Sharp. Based on a complete teardown process, the report provides an estimation of the production cost as well as the selling price of the component.

- The GW5BTF27K00 has a maximum brightness of 355lm at 700mA with a consumption of 6.7W.
- The module is provided in a specific 2-pins package integrating multiple LED chips using COB.

It can be used in a wide range of lighting applications, including commercial/residential directional lighting, general indoor/outdoor illumination, LED retrofit bulbs, spotlight, road lighting...

This report provides complete teardown of the LED with:

- Detailed photos
- Material analysis
- Schematic assembly description
- Manufacturing Process Flow
- In-depth economical analysis
- Manufacturing cost breakdown
- Selling price estimation

LEDs in the package

Optical and SEM views : the LEDs in the package, 45 LEDs are assembled on the ceramic substrate.

The substrate is 127um thick

In active layers are grown on the substrate.

The GaN layer is etched before laser scribe step.

cost is due to the yield losses cost (~40%) in the "Medium Yield" version. This is due to the yield (85% for the medium scenario) and to the high cost of the SiC epi-substrate (~\$708).

The materials are also important (~28% in the "Medium Yield" version). The gold used for the contacts is mainly responsible of this value.

Category	Percentage
Other FE Yield losses	90%
Materials	28%
Salary	13%
Equipment	15%
Clean Room	4%

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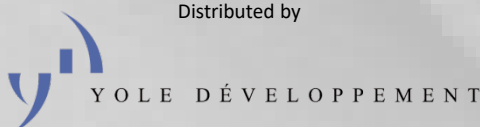
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