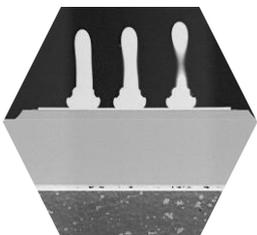
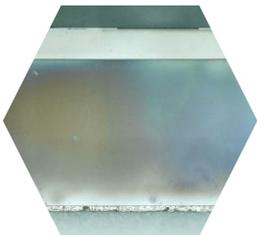


Hamamatsu Photodiode and Laser in Livox's Horizon LiDAR

Analysis of the six channels and 905nm pulsed laser and photodiode from Hamamatsu, in Livox's LiDAR for automotive ADAS.



LiDARS are manufactured around four main components: the pulsed laser diode, avalanche photodiodes, opto-mechanical system (to scan the environment in front of the car), and the processor.

System Plus Consulting proposes an analysis of the pulsed laser and the photodiode in the Horizon LiDAR from Livox: a Chinese company that sells a LiDAR system for automotive ADAS.

The LiDAR sensing module includes a custom six-photodiode array die from Hamamatsu, specifically developed for this LiDAR application. The design is particularly optimized to increase the sensibility of the six avalanche photodiodes. The photodiode dies are assembled in a package with a 905nm narrow bandpass filter.

This LiDAR uses six edge-emitting lasers designed to have three epitaxially stacked emitters. The six laser dies are assembled horizontally with an inclined mirror to send the light perpendicular. Thermal management is performed by a sophisticated substrate.

This report includes a complete technical analysis of the two main optoelectronic

components in Livox's LiDAR: the photodiodes and the emitting lasers. This technical analysis is based on optical and SEM pictures of the packaging and dies. Moreover, thanks to a complete manufacturing process analysis, this report explains the cost and estimates the price for the two components. Also included is a technical and cost comparison with the laser and photodiode in LeddarTech's Leddar Vu and Valeo's Scala LiDAR.

COMPLETE TEARDOWN WITH

- Detailed photos
- Precise measurements
- Materials analysis
- Manufacturing process flow
- Supply-chain evaluation
- Manufacturing cost analysis
- Estimated sales price
- Comparison with LeddarTech's Leddar Vu and Valeo's Scala LiDAR

Title: Hamamatsu Photodiode and Laser in Livox's Horizon LiDAR

Pages: 115

Date: July 2020

Format: PDF & Excel file

Price: EUR 3,990

Reference: SP20559

TABLE OF CONTENTS

Overview/Introduction

Company Profile

Physical Analysis

- Summary of the Physical Analysis
- LiDAR Module Assembly
 - ✓ Module views and opening
- Edge-Emitting Laser
 - ✓ Package
 - ✓ Die overview and dimensions, process, cross-section and process characteristics
- Photodiode Component
 - ✓ Package
 - ✓ Die view and dimensions, cross-section and process characteristics

Manufacturing Process Flow

- Global Overview
- Photodiode Process Flow & Fabrication Unit
- Laser Die Front-End Process & Fabrication Unit

Cost Analysis

- Laser Component
 - ✓ NIR EE laser - front-end cost
 - ✓ NIR EE laser - probe test, thinning and dicing
 - ✓ NIR EE laser - die wafer cost
 - ✓ NIR EE laser - package cost
 - ✓ NIR EE laser - component cost
- Photodiode
 - ✓ Photodiode - front-end cost
 - ✓ Photodiode - probe test, thinning and dicing
 - ✓ Photodiode - die wafer cost
 - ✓ Photodiode - package cost
 - ✓ Photodiode - component cost
- LiDAR Module
 - ✓ Complete module price

Technical and Cost Comparison

- Livox Horizon vs. LeddarTech Leddar Vu vs. Valeo Scala LiDAR

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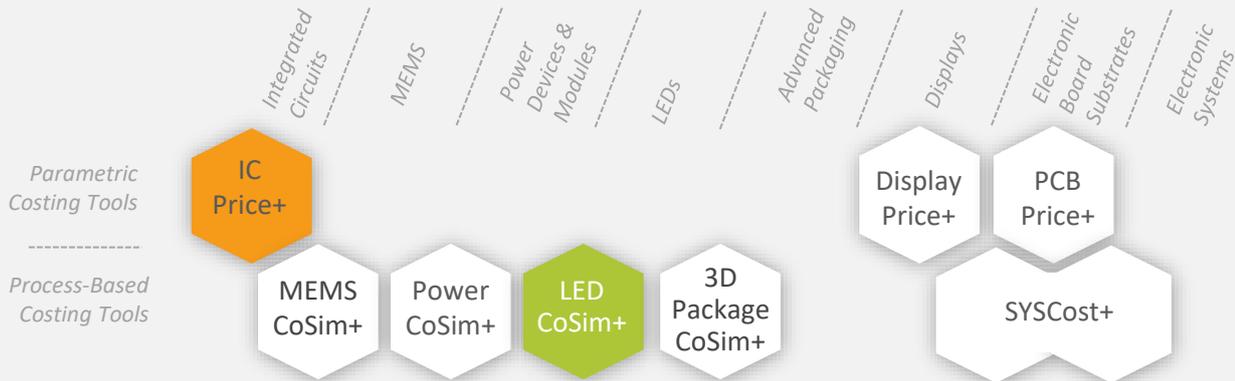


Valeo SCALA Laser Scanner

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COSTING TOOLS



Our analysis is performed with our costing tools IC Price+ and LED CoSim+.

System Plus Consulting offers powerful costing tools to evaluate any process or device, the production cost and selling price, from single chip to complex structures. All these tools are on sale under corporate license.

IC Price+

The tool performs the necessary cost simulation of any Integrated Circuit: ASICs, microcontrollers, memories, DSP, smartpower...

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WHAT IS A REVERSE COSTING®?

Reverse Costing® is the process of disassembling a device (or a system) in order to identify its technology and calculate its manufacturing cost, using in-house models and tools.



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TERMS AND CONDITIONS OF SALES

1. INTRODUCTION

The present terms and conditions apply to the offers, sales and deliveries of services managed by System Plus Consulting except in the case of a particular written agreement.

Buyer must note that placing an order means an agreement without any restriction with these terms and conditions.

2. PRICES

Prices of the purchased services are those which are in force on the date the order is placed. Prices are in Euros and worked out without taxes. Consequently, the taxes and possible added costs agreed when the order is placed will be charged on these initial prices.

System Plus Consulting may change its prices whenever the company thinks it necessary. However, the company commits itself in invoicing at the prices in force on the date the order is placed.

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The quoted prices already include the rebates and discounts that System Plus Consulting could have granted according to the number of orders placed by the Buyer, or other specific conditions. No discount is granted in case of early payment.

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System Plus Consulting delivered services are to be paid within 30 days end of month by bank transfer except in the case of a particular written agreement.

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When payment terms are over 30 days end of month, the Buyer has to pay a deposit which amount is 10% of the total invoice amount when placing his order.

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System Plus Consulting remains sole owner of the delivered services until total payment of the invoice.

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The delivery schedule on the purchase order is given for information only and cannot be strictly guaranteed. Consequently any reasonable delay in the delivery of services will not allow the buyer to claim for damages or to cancel the order.

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