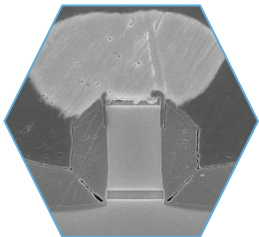
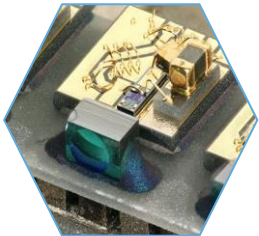
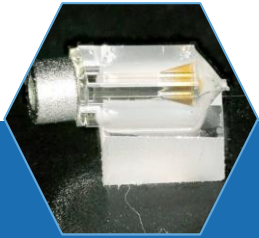


InnoLight's 400G QSFP-DD Optical Transceiver

Deep analysis of the 400Gb optical transceiver from a leading Chinese company.



This full reverse costing study provides insight into technology data, manufacturing cost and selling price of InnoLight's T-DP4CNT-N00 400Gb QSFP-DD Optical Transceiver.

Datacom market growth will be driven by adoption of higher data rate optical transceivers from core/spine networks down to inter-rack connections. 400G transceivers are expected to have the highest Compound Annual Growth Rate (CAGR) over the next five years, at 65%. 400G adoption started in 2019 with InnoLight being one of the top five suppliers.

InnoLight's 400G QSFP-DD is one of the first 400G optical transceivers on the market, allowing communication up to 2km using PSM4 modulation. The InnoLight solution is based on the INO10C50 PAM4 Digital Signal Processor (DSP) chipset, four GaAs laser driver dies, and a Transimpedance Amplifier (TIA) die, all designed by Inphi.

The transceivers came with a transmitter that integrates four InP lasers driven by four GaAs dies. Other components are added to the system in order to focus or isolate the signals. The data are processed using a PAM4 DSP from Inphi. The DFB lasers are electro-absorption modulated. The connector assembly is complex. For the four emission fibers, a laser, a lens, an isolator and the fiber are aligned. The lasers are integrated with a peltier cooler.

The receiver function is performed by four

InP photodiode die and a TIA circuit. A fiber optic coupler and focusing lenses are used to connect the photodiode die with the fiber optic.

This report is an exhaustive analysis of the InnoLight 400G QSFP-DD optical transceiver. It includes a full analysis of the laser die, photodiode die, the TIA circuit, GaAs laser driver circuit, the PAM4 DSP circuit along with a cost analysis and price estimate. A complete physical analysis with Scanning Electron Microscope pictures, cross-sections and Energy Dispersive X-ray analysis to identify the materials has been performed to show all the technical characteristics of the main components of the optical transceiver. The other parts, electronics, optics and housing, are also studied. More details on the optical parts and the assembly are described in the report. Finally, the report estimates the cost of assembly of the electronics and the optics.

Title: InnoLight's 400G QSFP-DD Optical Transceiver

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Date: January 2021

Format: PDF & Excel file

Price: EUR 3,990

Reference: SPR21577

COMPLETE TEARDOWN WITH

- Detailed photos
- Precise measurements
- Materials analysis
- Manufacturing process flow
- Supply chain evaluation
- Manufacturing cost analysis
- Didactic explanation of device operation
- Estimated sales price

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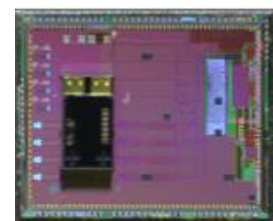
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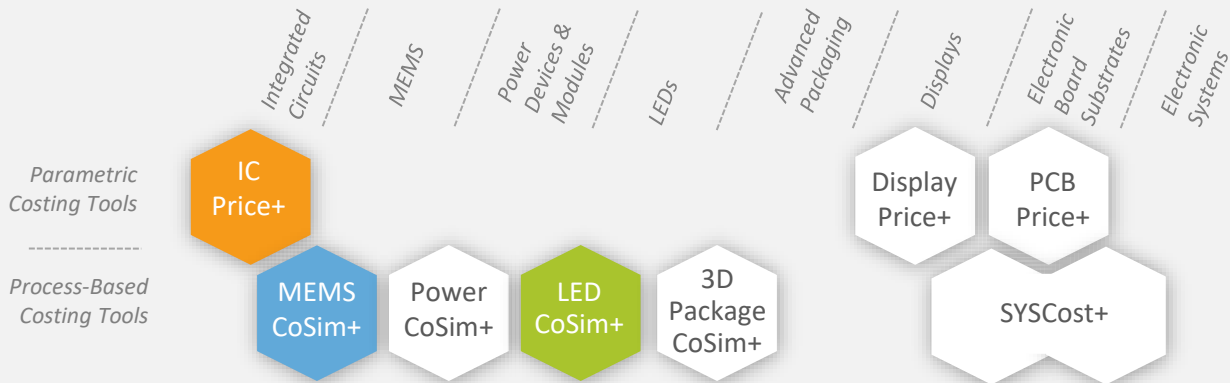


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ABOUT SYSTEM PLUS CONSULTING

System Plus Consulting is specialized in the cost analysis of electronics from semiconductor devices to electronic systems. A complete range of services and costing tools to provide in-depth production cost studies and to estimate the objective selling price of a product is available.

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