Hitachi Releases 10 Gbps Optical Receiver Module HR1161PDS, the Industry's Smallest and Low-voltage Operation Module

— Product of a compact size of volume about 0.3 cc and 2.6 mm thick,
and low voltage operation of photo diode 5 V and pre-amplifier 3.3 V —

Tokyo, March 4, 2002— Hitachi, Ltd. (TSE: 6501) today announced the HR1161PDS for a compact optical receiver module of 10 Gbps and low-voltage operation for high-speed communication optical transceivers of short-to-medium distance. Sample shipments will begin in May 2002 in Japan.

This module incorporates a photo diode that converts optical receiving signals coming out from an optical fiber to electrical signals and a pre-amplifier that amplifies the electrical signals. This module is 2.6 mm thick and the smallest volume about 0.3 cc (17.4 mm x 7.4 mm x 2.6 mm) in the industry. The operation voltage has been reduced dramatically to the specification of 5 V for the photo diode and 3.3 V for the pre-amplifier, enabling downsizing and reduction of power consumption of optical transceivers.

[Background]

Recently, the demand for optical transceivers of 10 Gbps that are used for short-to-medium distance communication is increasing with an increase of communication capacities as represented by the Internet. In addition, requests for a compact and low-voltage optical receiver module to be incorporated in optical transceivers are increasing in terms of space saving and energy conservation.

However, optical receiver module normally uses a hermetic package for protecting inside chips against humidity and so on. As some pieceparts like a ferrule have to be used to keep inside hermetic, they are causing larger module size than volume 0.6 cc.

To increase the speed of a photo diode, it is generally necessary to increase the operation voltage and reduce the carrier transit time that is generated by light absorption. Therefore, the conventional photo diode for 10 Gbps requires a high voltage of 10 V and uses a pre-amplifier with the operation voltage of 5 V.

Under this background, Hitachi developed a 10 Gbps optical receiver module that achieved the smallest module size in the industry and low voltage operation to respond to the requirements of the market.

(more)

[About this Product]

HR1161PDS is an optical receiver module with 1.3μm wavelength sensitive and is corresponding to the optical communication of 10 Gbps and has the following features.

(1) Smallest module size in the industry

Hitachi employed the non-hermetic packaging technology, which make it possible to eliminate some pieceparts for keeping inside hermetic. This simplified the package structure, achieving 2.6 mm thick and the smallest module size in the industry, with a volume of about 0.3cc (17.4mm x 7.4 mm x 2.6 mm).

(2) Low voltage operation
Hitachi developed a photo diode with optimizing its structure and process to achieve a high enough response for 10 Gbps under operation voltage of 5 V. Additionally, by incorporating high-speed SiGe IC of 3.3 V operation, Hitachi achieved the low voltage operation.

< Typical Applications >

- 10 Gbps optical transceiver for short-to-medium distance communication

< Prices in Japan >(For Reference)

Product Code	**Sample Price (Yen)**
HR1161PDS	90,000

< Specifications >

Item	**Specifications**
IC operation voltage	3.3 V
IC current	46 mA
PD reverse voltage	5.0 V
Sensitivity	- 18 dBm
Module size	Volume about 0.3 cc (17.4 mm × 7.4 mm × 2.6 mm)

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