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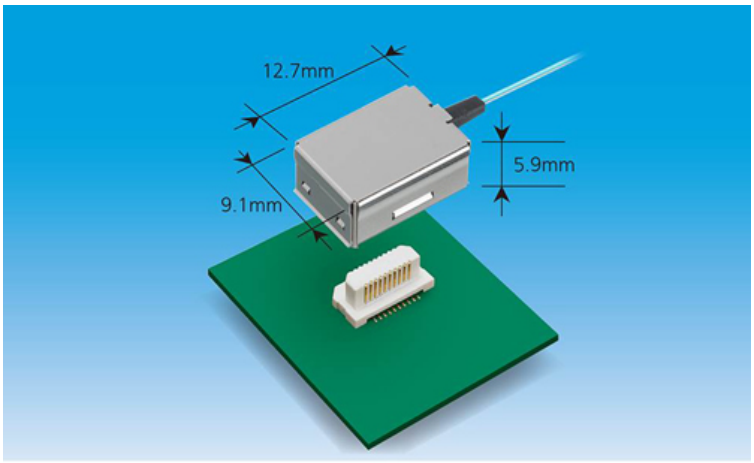
Panasonic Commercializes "Active Optical Connector V series Uni-directional 2 ch" for High-speed Transmission



"Active Optical connector V series (uni-directional 2 ch)"

(September 2016, Panasonic)

Panasonic's new "Active Optical Connector V series Uni-directional 2 ch" supports high-speed transmission of large data at up to 16 Gbps.

Osaka, Japan - Panasonic Corporation announced today that it has developed "Active Optical Connector [1] V series Uni-directional 2 ch" suitable for device integration, which is capable of high-speed optical transmission of large data. Panasonic will start accepting orders from October 1, 2016.

The ever-increasing performance of medical devices, measuring instruments, industrial equipment and industrial printers has necessitated high-speed transmission of large data between board units and modules within such devices. This is needed to achieve high-speed data processing, such as handling high-definition images. A promising approach to meeting this requirement is optical data transmission, since it is less susceptible to electromagnetic noise, compared to electrical data transmission, and suffers little signal degradation. In particular, it is an effective means of data transmission in industrial devices and other equipment used in severe environments with high levels of electromagnetic noise. It also allows electrical isolation between boards and modules, which is quite beneficial, for example, in medical equipment that comes in contact with human bodies and sensitive measuring instruments. Future need for high-speed transmission of larger data is particularly expected for medical equipment and printers, which will need to handle 4K and 8K images. While Panasonic already has bi-directional 1-ch active optical connectors, the company will launch a new uni-directional 2-ch product that achieves high-speed transmission of large data at up to 16 Gbps to meet the need for larger data transmission.

Panasonic's "Active Optical Connector V series Uni-directional 2ch" features:

1. **Achieving high-speed transmission of large data with uni-directional 2-ch type**
   Broadband transmission rate: 20 Mbps to 16 Gbps (8 Gbps/ch)
   Enables transmission at speeds up to 16 Gbps
   (Panasonic's conventional products* : 20 Mbps to 6 Gbps)

2. **Achieving a compact device equipped with a built-in optical/electrical conversion function at the plug sections**
   Shape: 9.1 (L) × 12.7 (W) × 6.5 mm (H) [plug and receptacle are mated]
   (Panasonic's conventional products* : Equivalent)
3. **Facilitating noise reduction for high-speed signals and electrical isolation**
   * Panasonic's conventional products* : Optical active connector (bi-directional 1-ch)

Suitable applications:

Signal connection between units, modules, and boards within equipment such as medical equipment, industrial printers, measuring instruments, security cameras, robots, and industrial devices (e.g.: Connection between main body control board and image processing board).

Remarks:

This product will be exhibited at InterOpto 2016 from September 14 to 16 at PACIFICO Yokohama and at CEATEC JAPAN 2016 from October 4 to 7 at Makuhari Messe in Japan.

[Panasonic's technologies]

1. Achieving high-speed transmission of large data with uni-directional 2ch type

Optical data transmission is capable of high-speed transmission of large data as a wire-saving technique compared to conventional electrical data transmission. Its applications are becoming wider, from communication infrastructure to connections between devices and, even further, to devices' internal connections such as the connection between boards and modules. In particular, medical equipment and printers are expected to handle more high-definition 4K and 8K images in the future, thus requiring high-speed transmission of larger data. Panasonic has commercialized a uni-directional 2-ch connector by adopting a silicon bench structure [2] that includes optical/electrical conversion circuits and optical fiber mounted on silicon substrates using Panasonic's unique microfabrication technology, thus achieving multi-channel integration. Furthermore, for this new product, we suppressed signal degradation by improving the high-frequency circuit design in the plugs. The product supports broadband optical transmission at 20 Mbps to 8 Gbps per channel, enabling high-speed transmission of large information at up to 16 Gbps. This will contribute to achieving higher definition and higher-speed processing of images handled by medical equipments as well as shorter inspection times by measuring instruments. The addition of this product, which provides higher-speed and larger-sized transmission, to Panasonic's lineup that already includes bi-directional 1-ch products will give customers a wider range of selection.

2. Achieving a compact device equipped with a built-in electrical/optical conversion function at plug sections

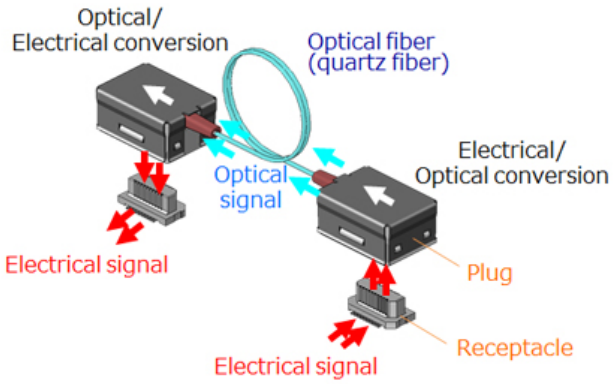
Multi-channel transmission has involved a device-size issue: Preventing optical signals from affecting adjacent circuits (i.e. crosstalk) requires that a certain distance and a particular structure be arranged between the channels. This product, which is equipped with a built-in electrical/optical conversion function at the plug sections, has achieved a compact device size by adopting the silicon bench structure that suffers little optical loss in the optical transmission paths and shows little effect on adjacent channels. This has eliminated the need to set up a distance and a structure between multiple channels, allowing integration with small substrates and modules.

3. Facilitating noise reduction for high-speed signals and electrical isolation

Electrical data transmission has become more susceptible to electromagnetic noise with the recent increases in speed, requiring more parts and labor-hours to reduce electromagnetic noise. On the other hand, while optical transmission suffers little noise at its optical fiber section and eliminates the need to reduce electromagnetic noise, its optical/electrical conversion circuit section is susceptible to noise in some cases. This product achieves noise-resistant capabilities, even during 16 Gbps high-speed transmission, by using a metal cover structure at the plug sections that excels in noise suppression. Furthermore, measuring instruments that handle high voltages require devices for electrical isolation between high-voltage circuits and signal-processing circuits to protect the instruments during electrical data transmission. This

product, which converts an electrical signal to an optical signal, achieves both isolation and 16 Gbps high-speed transmission, well-suited for the data transmission by medical devices that contact human bodies.

[Structure]



[Basic specifications]

Item	Specification values
Shape	Length 9.1 × width 12.7 × height 6.5 mm [plug and receptacle are mated]
Channel	Uni-directional 2 ch
Laser	Oscillation wavelength: 850 nm
Fiber length	Standard: 50 mm, 500 mm, 1 m Customizable: up to 10 m
Transmission rate	20 Mbps to 16 Gbps (8 Gbps/ch)
Supply voltage	3.3 V DC
Power consumption	≤ 230 mW at uni-directional, 2 ch
Operating temperature	0 to +70ºC
Storage temperature	-20 to +85ºC (without package), -20 to +50ºC (with package)

[Term Descriptions]

[1] Active Optical connector
Optical fiber-integrated device equipped with electrical/optical conversion function at each fiber-end plug section
[2] Silicon bench structure
Structure with electrical/optical conversion circuits and optical fiber optimally mounted on small silicon substrates using microfabrication technology developed by Panasonic

About Panasonic

Panasonic Corporation is a worldwide leader in the development of diverse electronics technologies and solutions for customers in the consumer electronics, housing, automotive, enterprise solutions and device industries. Since its founding in 1918, the company has expanded globally and now operates 474 subsidiaries and 94 associated companies worldwide, recording consolidated net sales of 7.553 trillion yen for the year ended March 31, 2016. Committed to pursuing new value through innovation across divisional lines, the company uses its technologies to create a better life and a better world for its customers. To learn more about Panasonic: http://www.panasonic.com/global.

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