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Mitsubishi Electric to Ship Samples of Wider-temperature-range CWDM 100Gbps (53Gbaud PAM4) EML Chip for Data Centers

Will reduce power consumption and costs of 400 Gbps optical transceivers for data centers

TOKYO, October 21, 2021– Mitsubishi Electric Corporation (TOKYO: 6503) announced today that it will begin shipping samples of its 100Gbps (53Gbaud) four-level pulse-amplitude modulation (PAM4) electro-absorption modulator (EML) laser diode chip for coarse wavelength division multiplexing (CWDM) on November 1. The semiconductor diode is expected to be applied in sets of four EML chips as a light source in optical transceivers for 400Gbps optical fiber communication in data centers. Thanks to the new EML's operability in a wider range of temperatures, it will help to lower the power consumption and costs of optical transceivers by eliminating the need for conventional temperature-control units.

1) High-speed, wider-temperature operation with unique hybrid waveguide structure

- Unique hybrid waveguide structure (Fig. 1) combines a buried heterostructure laser diode for high optical-output-power and a high-mesa waveguide electro absorption modulator (EAM) for a high extinction ratio and wide frequency range.
- 53Gbaud PAM4 operation is available in temperatures ranging from 5 to 85°C (Fig. 2) due to optimized design parameters for the laser diode and modulator sections.

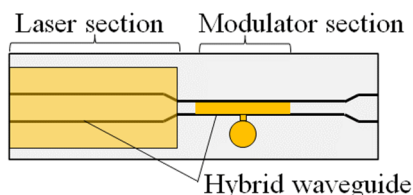


Fig. 1 Wider-temperature-range 100Gbps (53Gbaud PAM4) EML Chip

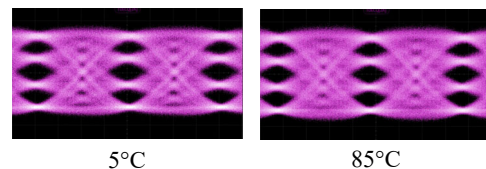


Fig. 2 53Gbaud PAM4 eye diagram (back-to-back, Vpp = 1.0 V)

2) Reduces power consumption and costs of optical transceivers

- Operability in a wider-temperature range eliminates the need for chip temperature control units in optical transceivers, thereby reducing both power consumption and costs.
- By enabling low-power optical transceivers, helps to reduced power consumption in data centers.

Sales Schedule

Product	Model	Wavelength	Temperature range	Shipment date
Wider-temperature-range CWDM 100Gbps (53Gbaud PAM4) EML chip	ML7CP70	1271,1291, 1311 and 1331 nm	5 to 85°C	November 1, 2021

Background

Mobile data traffic volume is rapidly increasing in parallel with increasing optical fiber communication transmission rates and capacity in data centers. The high-density deployment of servers and routers in data centers, however, is creating major problems in terms of increasing power consumption. In response, Mitsubishi Electric has developed and will begin shipping samples of its new CWDM 100Gbps (53Gbaud PAM4) EML chip, which operable in temperatures from 5 to 85°C as a semiconductor laser diode light source for 400Gbps optical fiber communications.

Main Specifications

Model	ML7CP70
Wavelengths	1271, 1291, 1311 and 1331 nm
Operating temperature range	5 to 85°C
Optical modulation amplitude	More than 5 dBm, V _{pp} = 1.0 V
Frequency response bandwidth	From 35GHz

Environmental Awareness

This product is compliant with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive 2011/65/EU and (EU) 2015/863.

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About Mitsubishi Electric Corporation

With 100 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Mitsubishi Electric enriches society with technology in the spirit of its "Changes for the Better." The company recorded a revenue of 4,191.4 billion yen (U.S.\$ 37.8 billion*) in the fiscal year ended March 31, 2021. For more information, please visit www.MitsubishiElectric.com

*U.S. dollar amounts are translated from yen at the rate of ¥111=U.S.\$1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2021