Centre for Integrated Photonics

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40Gbit/s and 10Gbit/s indium-phosphide modulators provide advanced solutions for optical network transmission

** specifications offer flexible platform for next-generation communications systems*

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The Centre for Integrated Photonics (CIP) has launched a range of electro-absorption modulators fabricated using indium-phosphide. Available in 40Gbit/s and 10Gbit/s versions for either single wavelength or DWDM communications applications, the devices offer compelling advantages as building blocks for next-generation optical networks including low insertion loss, very small size, high bandwidth and low drive voltages. CIP's comprehensive III-V semiconductor design and manufacturing services can also be used to produce customer specific variants of the device with application-specific characteristics to suit emerging system architecture requirements such as RZ (return-to-zero) data modulation and OTDM (optical time division multiplexing).

A key feature of CIP's electro-absorption modulator (EAM) device design is low insertion loss. Figures of 4.5dB or 4dB typical for the 40Gbit/s and 10Gbit/s variants respectively provide good power margins for system design. This feature stems from novel structures employed in the devices including a buried heterostructure geometry.

The 40Gbit/s version of the device - 40G-SR-EAM - offers an excellent bandwidth of 32GHz typical for high-quality error-free transmission, and a drive voltage of just 2.9V. These performance parameters compare well to those that can typically be achieved using modulators fabricated from lithium-niobate material but result in a dramatically smaller footprint. CIP's low-chirp, indium phosphide (InP) device is very small, and is offered in a compact package with a K connector, or in chip-on-carrier form. Variants of 40G-SR-EAM are available for use in either the 1550nm or 1300nm wavelength bands.

The 10Gbit/s version of the device - 10G-LR-EAM - offers a bandwidth of 10GHz minimum, and a drive voltage of 2.9V. This InP device is also offered in a compact package with a K connector, or in chip-on-carrier form. It is suitable for 1550nm wavelength band applications transmitting over uncompensated links up to 100km.

The new EAMs join a comprehensive range of compound-semiconductor device functions for optical networking developed over many years by the Centre for Integrated Photonics (CIP). CIP has a long pedigree in optoelectronics, having previously been part of Corning, and before that British Telecom's Photonic Technology Research Centre. The organisation has its own semiconductor fabrication plant and is able to create variants of the EAM devices with application-specific performance requirements. Using CIP's significant capabilities in hybrid integration the EAM may also be integrated with additional optoelectronic elements such as lasers and amplifiers.

A datasheet is available on request from info@ciphotonics.com
Image & text available at: www.wordsun.com/cip1.html or www.ciphotonics.com/cip_press.htm

The Centre for Integrated Photonics Ltd (CIP) is an R&D facility specialising in integration technologies for microsystems and nanotechnologies, with a key competence in photonic integration. The company has been set up to carry out contract research and development in photonic integration, using the underpinning technologies of III-V photonic materials, silicon micromachining, and planar silica. CIP's extensive facilities and capability include design, fabrication, analysis, packaging and system testing to support world-leading device innovations. The centre's staff are highly experienced in commercial R&D (>300 man years for core technical staff) and internationally recognised in their technical areas. The Centre is set up as an open access laboratory to offer services to both industry and academia, and act as a bridge between them, allowing industry access to new ideas from academia, and academia access to downstreaming routes to industry.

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