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BinOptics produces first short-cavity cw GaN blue laser using etched facets

BinOptics Corp of Ithaca, NY, USA claims to be the first manufacturer to produce a short-cavity, GaN-based, continuous-wave blue laser using etched-facet technology instead of the mechanical cleaving method currently used by the industry.

“Our etched-facet technology allows us to manufacture devices with much shorter cavities than possible with cleaved facets and, as a result, we are able to obtain at least three times as many blue lasers from a wafer than can be produced using the conventional cleaved-facet method,” says CEO Alex Behfar. Demand for competitively priced blue lasers is growing rapidly, and the firm claims that its technology could enable the market for HD-DVDs, game consoles, and optical storage devices using blue lasers to grow with rising consumer demand.

“Although etched-facet technology has clearly demonstrated its value for InP-based communications in meeting the challenging performance and cost targets of telecom and datacom up to [data transmission rates of] 10Gb/s, these same benefits are only now being realized by BinOptics for GaN-based blue lasers,” says Al Schremer, director of GaN R&D. “We have made continuous-wave blue lasers with cavity lengths as short as 100µm and a threshold current as low as 10mA,” he adds. “Current cleaved-facet laser cavity lengths are on the order of 500 to 600µm.”

Founded in November 2000 and based in the Cornell Business & Technology Park, BinOptics uses lithography and chemically assisted ion-beam etching (CAIBE) in its 10,000ft² fab to manufacture monolithically integrated laser chips based on its proprietary etched-facet technology, which significantly reduces the cost of production, testing, and handling compared to conventional laser processing, the firm claims. In addition, because of the technology’s flexibility and high yield, it also enables monolithic integration of multiple functions on a single chip. Products include edge-emitting lasers with optional integrated monitoring detectors as well as the industry’s first horizontal-cavity surface-emitting laser (HCSEL). The firm currently manufactures high-reliability InP-based lasers operating at wavelengths of 1310nm, 1490nm and 1550nm and data rates of up to 10Gb/s for datacom and telecom applications such as 10 Gigabit Ethernet, as well as non-telecom applications.

The latest development follows BinOptics last November increasing its funding to \$24.1m through a \$6m series C round, led by new investor STIC International, the Palo Alto, USA-based arm of South Korea’s STIC Investments. The firm said at that time that the new funding would support the scale-up of production of its line of InP-based lasers and accelerate product development of etched-facet blue lasers, aiming for roll out in 2007. BinOptics said it was also developing blue lasers for other applications, including displays.

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[BinOptics to accelerate blue laser development with \\$6m funding](#)

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