



December 2014

Stats & Chats

Essential Information from our Industry Experts

Providing high quality PVD materials to the Advanced Memory Industry

VCSEL Technology Now Invading Homes

VCSEL is an acronym for Vertical Cavity Surface Emitting Laser. A VCSEL is an advanced semiconductor device that is formed in special, epitaxial layers grown on n-type GaAs or InP substrates. Unlike conventional laser diodes that emit light from the cleaved sidewalls of the chip, VCSELs emit laser light normal to the face of the chip. Vertical light emission is a major practical advantage in packaging VCSELs. The emitted laser beam can be pointed into the desired direction, and can be easily coupled to a fiber optic. VCSELs can also be tested over the area of a wafer prior to dicing.

Fabrication & Structure of VCSELs

The starting material for a VCSEL is a single crystal wafer of n-type GaAs or InP. The VCSEL structure is created by depositing multiple, monocrystalline semiconductor layers atop the wafer. These epitaxial layers are grown by molecular beam epitaxy (MBE) or metal organic chemical vapor deposition (MOCVD). The epitaxial layers are all monocrystalline, but their chemical composition, doping level, refractive index and thickness are carefully controlled. [Read more....](#)

NiPt Magnetic Targets - Attracting Attention



There is a growing demand for high performance Nickel-Platinum (Ni-Pt) targets for use in the semiconductor industry. Ultra high purity targets are particularly required to custom-manufacture silicide gates in CMOS devices and for electronic microcircuit devices such as Ni-Pt silicide Schottky diodes.

Materion's capabilities and technologies produce these high quality targets that feature fine, uniform grain sizes for improved film uniformity and consistent sputtering performance.

Materion's Brewster, NY facility fabricates hundreds of different magnetic alloy sputter target materials. Our extensive experience with magnetic materials such as NiPt alloys gives us a unique proficiency for developing processes which tailor the magnetic properties of the target for optimal deposition performance.

[Read more...](#)

Improve Your Memory with STT-RAM Products

Memory and data storage is used in every computer system and mobile device in existence today. Cost, performance and reliability are major factors in determining the success or failure of different types of memory devices and architectures brought to market.

Over the next decade, non-volatile memories will change the way software is used in computers, servers, and consumer products. These low power memory options will allow hardware designers to create more powerful devices providing an enhanced user experience. [Read more....](#)

In This Issue

[VCSELs Advantages](#)
[Optimal NiPt Deposition](#)
[Advanced Memory Industry](#)
[Meet Nic Baloi](#)

Face to Face

Meet Nicolae Baloi, Materion's new Vice President of Quality for the Advanced Materials Group. Nic is based at corporate headquarters in Mayfield Heights, Ohio and will manage all aspects of developing the company's Quality System and Quality Improvement Plan (Lean and Six Sigma).



As a member of the Leadership Team, Nic reports to President Don Klimkowicz, and has direct oversight for all Advanced Materials Group US facilities with some responsibility for Ireland and Asia locations. His involvement to date has required considerable exposure to multiple Materion sites and US-based customers. Remarkable on his current travels, Nic is "impressed by the level of cooperation and collaboration I am seeing between sites and the commitment Materion has made to invest in its employees." [Read more....](#)



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