

Press Release

For immediate publication

02/04/14

Mirrorcle Technologies now offers multiple new antireflection-coated window options

Mirrorcle Technologies, Inc. (MTI), the leading manufacturer of gimbal-less microelectromechanical system (MEMS) mirror devices and provider of related control electronics, services, and full system solutions, today announced the availability of 2 additional types of cover windows. The company's MEMS mirrors are available with gold or aluminum coatings and from 0.8mm to several mm in diameter with a variety of packaging options. MTI devices are used in a broad variety of laser beam-steering applications, whether in point-to-point (P2P) mode or e.g. raster or vector scans. To protect the optical mirror surface of any contamination or accidental contact, Mirrorcle MEMS are covered by protective windows made of 0.5mm thick optical-quality fused silica substrate. To date, the windows had only been available with double-side anti-reflection (AR) coating for visible wavelengths. Due to increasing customer requests at longer wavelengths, MTI now offers windows with broadband AR coatings for two additional ranges from ~650nm to ~1100nm (Type B) and from ~1000nm to ~1600nm (Type C) as cost-free options to its customers. Therefore in their orders, customers will be choosing among the three window options:

Type A 425nm – 675nm double-side AR coating
Type B 650nm – 1100nm double-side AR coating
Type C 1000nm – 1600nm double-side AR coating

For best performance each coating type should be used at as-designed incidence angles and kept as clean as possible and without any contact.

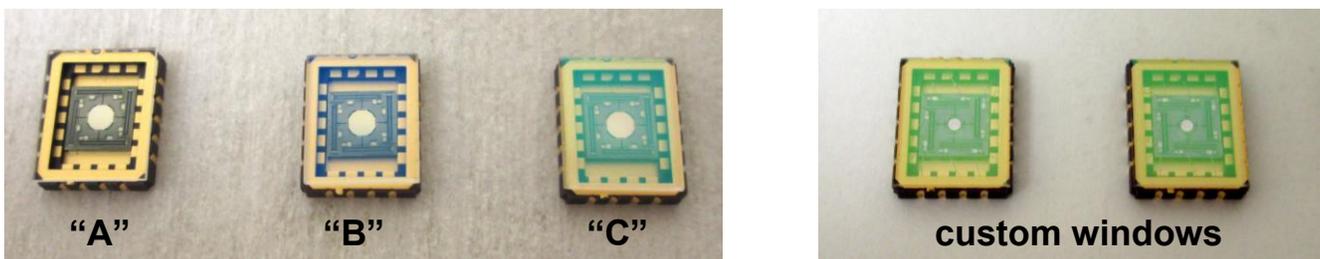


Figure 1. Type A, B, and C cover windows for MTI MEMS mirror devices in LCC18 packages (left). Custom window coating for 680nm-800nm, a customer-specific requirement.

Laser beam-steering applications rely on high-quality optical components

Mirrorcle Technologies is globally the only supplier of very compact MEMS mirrors that can scan in two axes for true point-to-point (P2P) and other laser beam-steering applications at practically usable speeds. Entirely funded by sales, the company looks back at continued healthy growth, both internally as well as in terms of customers and global reach. “Many of our new and/or established customers were requesting an alternative to our double-side AR

coated windows that are optimized for visible wavelengths", said Dr. Veljko Milanovic, company Founder and Chief Executive Officer. "We decided early on that initial experiments with our devices are easiest and most efficient when performed with visible light sources, which have the advantage of omitting any need for suitable photodiodes or other detecting equipment. Over the years, it became evident that our devices are suitable for many high-tech applications that require NIR or IR wavelengths, which is why we decided to offer the two new window coatings to our customers." In mid-2013, a variety of different procurement options were evaluated, including procurement of high-grade fused silica wafers, coating and dicing services, all organized in-house. During the course of the year, a number of vendors were identified that can supply ready-to use high-quality windows with double-side AR coatings that are cut to size to fit MTI's DIP24 and LCC packages.

AR coatings improve prototyping with MEMS mirrors

So far, a number of customers opted to remove the protective cover windows in their clean-rooms because window reflections were found to be detrimental in their prototyping. In most applications, a light beam is directed from the outside of the package through two window surfaces (top and bottom) onto the Al- or Au-coated MEMS mirrors, to be reflected in the desired direction and then exit the package again through two window surfaces. Depending on customers' wavelength(s), the windows cause unwanted reflections and also reduce the outgoing laser power. "Our experience shows that many of our customers use light sources with longer than 700nm wavelengths," said Dr. Milanovic. "Especially developing customers in biomedical imaging, free-space communication, LIDAR and other applications are utilizing NIR or IR for their purposes. Broadband windows are never perfect, but they are the best available solution to make our devices available in R&D volumes for anyone. Now we have improved that availability significantly. Ultimately in a volume product we provide our customers with a specific coating for their exact requirements." Mirrorcle also offers specialty coatings to customer's specification such as e.g. V-coatings for specific wavelengths. An example of a customer specific NIR coating is shown in Figure 1 (right).

###

Media contact:

C h r i s t i a n T h i e l

christian [at] mirrorcletech [dot] com

Tel. +1 510 524 8820

About Mirrorcle Technologies, Inc.

Mirrorcle Technologies, Inc. (MTI), founded in 2005, is a California corporation that commercially provides products and services based on its proprietary optical microelectromechanical system (MEMS) technology. Since its founding, and supported by its continuous investment in R&D, MTI has offered the world's fastest point-to-point two-axis beam-steering mirrors, as well as resonating-type micromirror devices with rates up to HD video display. MTI is globally the only provider of tip-tilt MEMS actuators in combination with mirrors from 0.8mm to several mm in diameter, offering customers a wide selection of specifications to optimize their paths to successful commercialization. In addition to a variety of existing designs and in-stock products, MTI also contracts to create specialty designs and fabricate custom units and full system solutions.

In addition to the laboratory at its headquarters, MTI has year-round, 24-7 access to wafer-based CMOS and MEMS fabrication facilities. Micromirror fabrication and wafer-level testing are performed in a clean-room environment. Since 2010, MTI has established a manufacturing service cooperation with a leading MEMS wafer foundry, allowing the company to ramp up volume-production while maintaining highest quality standards.

As a privately held company, MTI is able to act efficiently, offering creative and highly responsive service to its customers. The motivated staff is dedicated to provide highest-quality products and support to facilitate customers' product development and successful commercialization. It draws on several decades of staff's combined experience in MEMS design, fabrication, and testing.