4905 Central Ave. • Suite 200 • Richmond CA 94804
Tel. 510-524-8820 • Fax. 510-542-8806 • www.mirrorcletech.com

PRESS RELEASE
For immediate publication

02/05/2025

Mirrorcle announces Hermetic Packaged MEMS Mirrors for Aerospace Applications

In recent years, developments in the aerospace and medical industries have significantly increased demand for hermetically sealed beam steering devices. Mirrorcle's, now 20 year running production of MEMS Mirrors has in general relied on more flexible and modular packaging solutions. This has allowed a much wider portfolio of products, especially with respect to compatibility of different users' optical and mechanical requirements. Over that period, Mirrorcle has also supported some customers with hermetic packaged MEMS devices in biomedical and Free Space Optical Communication (FSOC) industries where the final product was a bespoke solution specific for a given customer's requirement.
In 2024, Mirrorcle worked towards establishing standardized production of MEMS mirrors in hermetically sealed packages, both as standalone TO-8 packages ("TO8" option) and as connectorized PCBA version ("TINYTO8" option). The process of sourcing reliable caps with high optical quality windows, packaging and hermetically sealing the MEMS mirrors has been established, and Mirrorcle is excited to announce the new product line of Hermetic Packaged MEMS Devices towards aerospace applications and beyond.

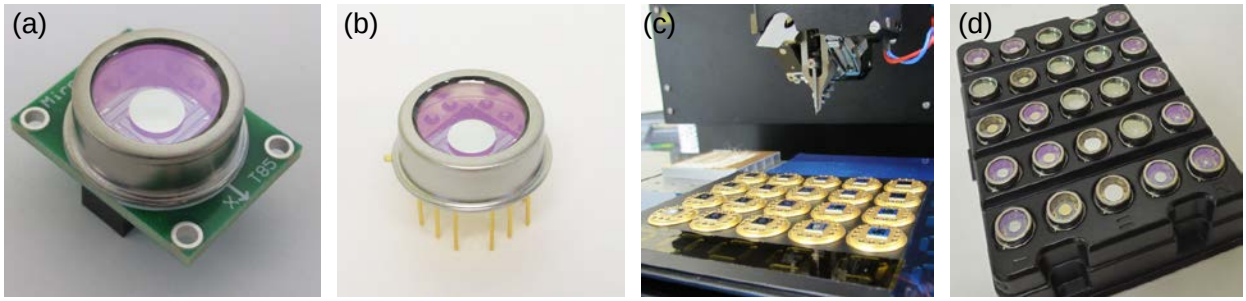

Figure 1. (a) MEMS Mirror (P/N: MEMS device A5L2.2-4600AL-TINYTO8.4-CAPSC2) in hermetic and connectorized package TINYTO8.4, (b) MEMS Mirror (P/N: A5L3.3-5000AL-TO8-CAPSC2) in a bare TO8 hermetic package, (c) MEMS Mirror automated assembly in Mirrorcle's facilities, (d) manufactured hermetically packaged devices for customer delivery.

Hermetic packaged MEMS expand use cases to harsh environments, space, and beyond

What are the benefits of a hermetic packaged MEMS device? These devices take an already existing reliable and robust MEMS device, and make it suitable for applications with low or non-existent atmosphere, harsh environments, remote locations, and in general – cases where high reliability performance is critical. Hermetic packaging provides environmental protection from moisture, dust, corrosive environments, or changes in pressure. The hermetic packaging helps maintain a controlled internal environment within the package for the MEMS device, which extends the operational life, provides stable performance and reduces maintenance for a given MEMS device.

In FSOC, there has been a customer demand towards MEMS devices in applications operating in harsher terrestrial environments such as tropical regions – specifically the Asian subcontinent areas. Additionally, customers in aerospace applications such as space terminals, space lidars, have also requested for hermetic packaged MEMS to provide a uniform performance over the various challenging space environments.

The hermetic packaged MEMS devices are available as of January 2025 through Mirrorcle Technologies sales channels. For more details on lead times, pricing, and MOQs, please contact sales@mirrorcletech.com.

###

Media contact:
C h r i s t i a n
christian [at] mirrorcletech [dot] com
Tel. +1 510 524 8820

About Mirrorcle Technologies, Inc.

Mirrorcle Technologies, Inc., founded in 2005, is a private California corporation that commercially provides products and laser systems based on its proprietary optical microelectromechanical system (MEMS) technology. Since its founding, and supported by its continuous investment in R&D, the company has been offering the world's fastest point-to-point (quasi-static) two-axis beam-steering MEMS Mirrors, as well as resonant-type micromirror devices with video rates. Mirrorcle is globally the only provider of tip-tilt MEMS actuators in combination with mirrors from submillimeter to several mm in diameter, offering customers a wide selection of specifications to optimize their paths to successful commercialization. Mirrorcle products can be found today in 3D metrology systems, biomedical imaging systems, solid-state Lidars, AR/VR prototypes, laser projectors, and classrooms. Mirrorcle’s system solutions include the world’s most compact vector graphics laser projectors and 3D Lidars.

Mirrorcle maintains multiple cleanroom laboratories at its Richmond, California headquarters, and year-round, 24-7 access to a wafer-based CMOS and MEMS fabrication facility. Beyond its own facilities, the company has established high-volume manufacturing with leading MEMS wafer foundries and qualified opto-mechanical assembly houses.