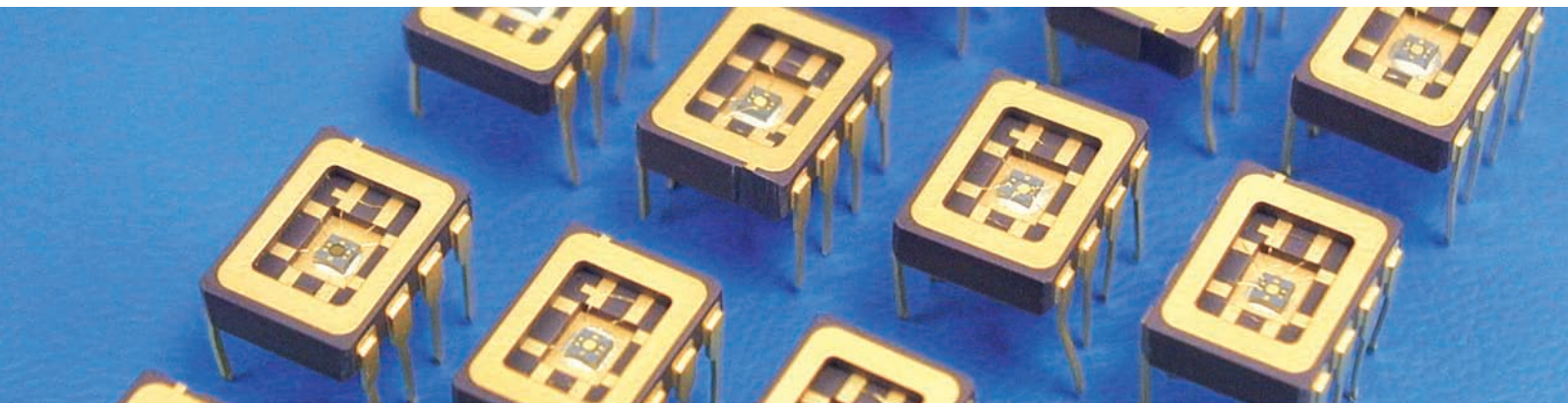




MEMS Devices



Jenoptik has the knowledge and tools to perform detailed design and analysis for a variety of micro-electro-mechanical systems (MEMS) devices. An important MEMS technology that can be used in many industries is the scanning two-axis tilt mirror. There are several major benefits of JENOPTIK tilt mirrors. First, the electrostatically generated tilt angle is analog as opposed to "on-off". Second, most competing products have holes in the mirror surface as a result of processing requirements, Jenoptik devices have no holes in the mirror surface, allowing for a better reflection of all incident light. Finally, low voltages are required for actuation, a total of less than 70 volts is required for the full 3 degrees of tilt with less voltage is required for less tilt deflection.

Features:

- Full 360° of rotation
- Up to 3° tilt angle
- Surface free of (release) holes
- Low voltages required for actuation

Applications:

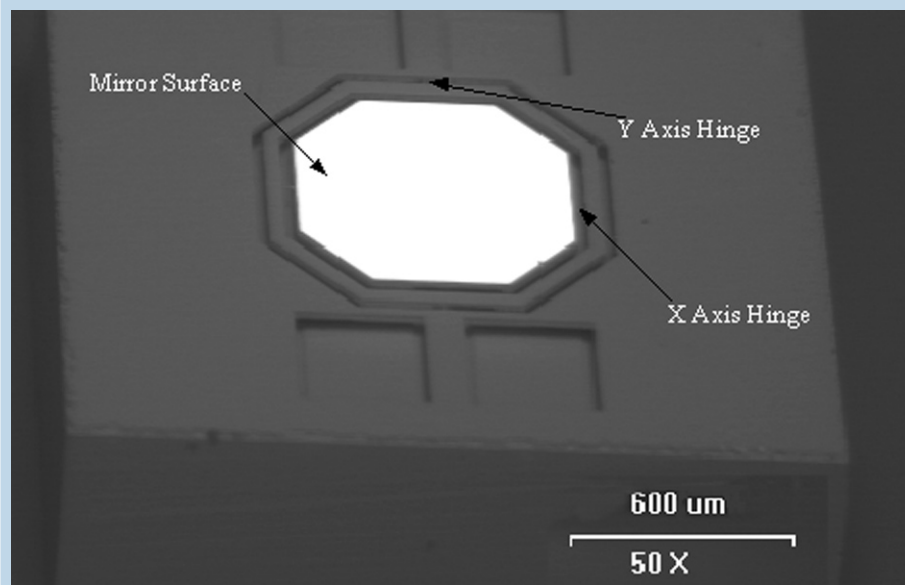
- Tunable attenuators
- Spatial light modulators
- Optical switches
- Lasers communication systems

MEMS Devices

Specifications

Mirror size:	520 μm across
Reflective area:	510 μm across
Shape:	Octagonal
Mirror thickness:	13 μm
Surface roughness:	$< 8 \text{ \AA}$ rms
Surface reflectivity:	$> 95\%$ at 630 nm (gold)
Bias voltage:	35 to 55 Volts
Drive voltage:	0 to 110 Volts (0 to 2X Bias)
Resonant rotation frequency:	outer axis 1.3 kHz, inner axis 1.8 kHz
Operating Temperature:	0 to 50 $^{\circ}\text{C}$
Radius of Curvature:	> 0.4 meters within operating temperature
Product number:	029157

Microscopic view on a two-axis tilt mirror



It is our policy to constantly improve the design and specifications. Accordingly, the details represented herein cannot be regarded as final and binding.



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