

**Replace your electro-optic modulator (EOM) or acousto-optic modulator (AOM) in sub-MHz applications**

**Features:**

- High throughput in the VIS to Mid IR
- No polarization effects
- DC to 200kHz operation
- Typical/Potential Applications
  - Scanning microscopy
  - Laser beam intensity modulation



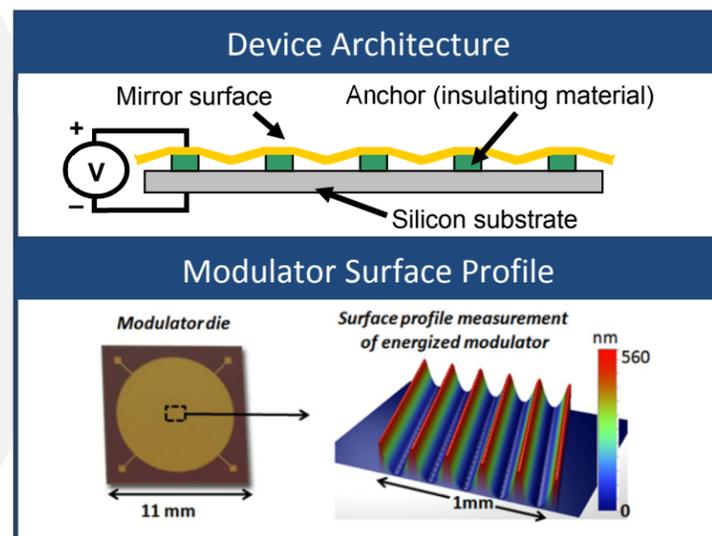
**Device Specifications**

	BOM-115	BOM-200
Peak Contrast	>90%	>98%
Rise/fall time: 10%-90%	<3μs	<5μs
3dB roll-off	200 kHz	100 kHz
Max. Contrast Frequency Limit	80 kHz	30 kHz
Active Aperture (mm)	8.5*	

\*Custom-sized apertures available upon request

The Broadband Optical Modulator is a reflective diffraction grating with controllable groove depth for operation over a broad range of wavelengths from the visible to the mid-infrared. It is capable of intensity variation by switching between an unpowered flat mirror-state and a powered diffractive-state.

**Modulator Technology Overview**



**MEMS Broadband Optical Modulators**

The device design is based on BMC's MEMS deformable mirror technology that uses hysteresis-free electrostatic actuators to deform a continuous mirror facesheet. The device microfabrication process is well-suited for the creation of high-precision optical components and is optimal for high volume production using commercial semiconductor batch processing techniques.

**Enabling component for asymmetric free-space lasercomm**

**Features:**

- High throughput in the VIS to Mid IR
- No polarization effects
- DC to >200kHz operation
- Typical/Potential Applications
  - Remote Sensing
  - Intelligence, Surveillance, Reconnaissance (ISR)



**MRR Specifications**

- >50% Peak Contrast
- Housing diameter: 1 inch
- Retro Aperture 14 mm\*
- Coating: Gold
- Beam deviation: <30 arcsec

\*Custom-sized apertures available upon request

When mounted as one facet of a hollow corner cube retroreflector, the Broadband Optical Modulator enables modulating the intensity of an interrogating laser source for asymmetric communication. In its unpowered state, the MRR acts as a typical retroreflector, returning a high percentage of the light to the source. In the powered state, most of this light is scattered.

**MEMS Modulating RetroReflectors**

The MRR system has been demonstrated to provide continuous asymmetric free-space optical communication at data rates up to 200 kbps. The MRR subcomponent is housed in a compact, easy-to-integrate package geared for laboratory demonstration. This technology can be used out of the box with the MB-200 Series High Voltage Driver or integrated into a complete setup through the use of high voltage drive electronics and standard optical components.

**Modulating RetroReflector Concept**

