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MODEL H-101 ACOUSTO-OPTIC MODULATOR (AOM)

Silicon dioxide (SiO₂) cavity dumper/pulse picker for argon-ion, Ti:sapphire and Nd:YAG lasers

The L3Harris Model H-101 AOM is a high-speed, Brewster-windowed device. It is designed to support pulse-picking and mode-locking applications that require higher optical power handling capability than is available with single crystal devices offering similar modulation capability. Light from a coherent optical source is focused to a beam waist within the optical medium, which is composed of low-loss, ultraviolet-grade, fused silica. The light is proportionally directed into a primary intense diffraction order when an acoustic pulse is introduced by a suitable radio frequency (RF) source. The RF input signal is converted to an equivalent traveling acoustic pulse via a single crystal piezoelectric transducer, which is alloy bonded to the fused silica substrate under high vacuum.

PERFORMANCE PARAMETERS

PARAMETER	SPECIFICATION
Unless otherwise noted, all specifications are at 514.5 nm wavelength	
Rise time	<8 ns
Optical polarization	Perpendicular to acoustic axis
Diffraction efficiency	>10% at 500 mW drive power (single pass)
Bandwidth	>100 MHz
Static contrast ratio	>500:1
Center frequency	380 MHz
Maximum average/peak drive power	1 W/10 W for 1 ms max
Nominal input impedance	50 ohms



APPLICATIONS

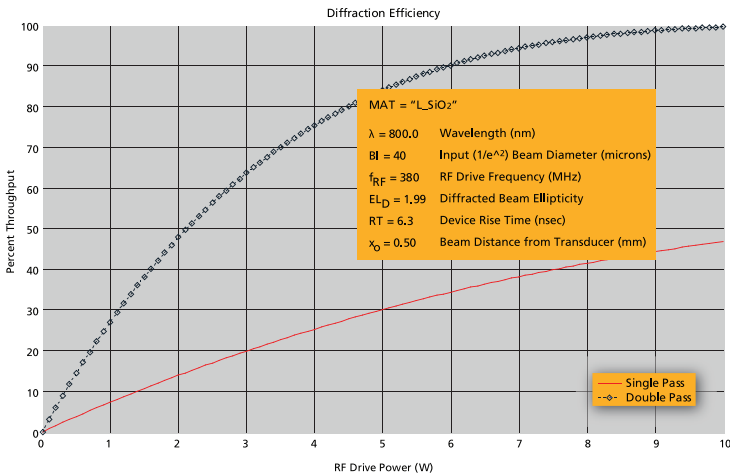
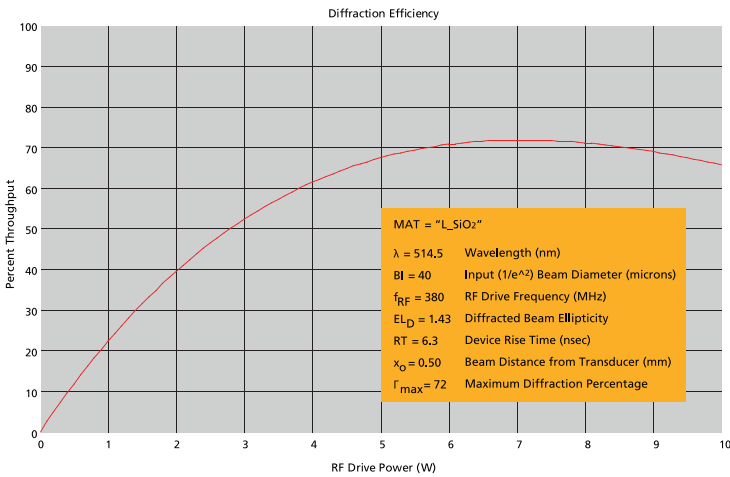
- > Electrically controlled optical switch for selecting a single pulse out of a pulse train
- > Intracavity use in conjunction with mode locker to increase the energy of a single pulse or select ultrashort pulses
- > General-purpose, high-speed modulation

HIGHLIGHTS

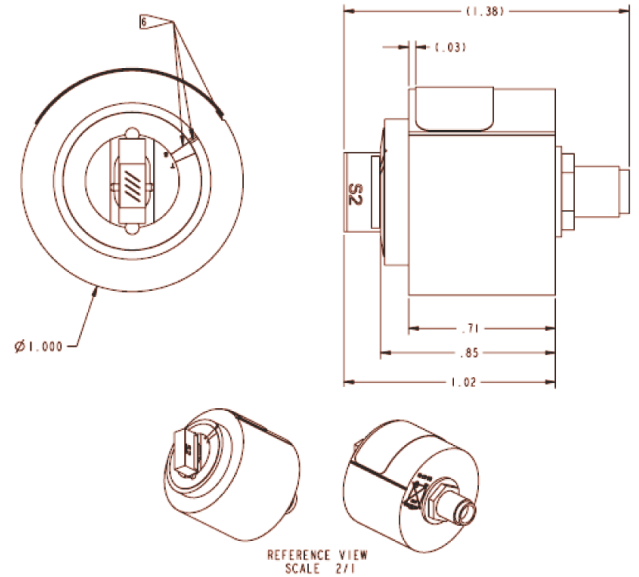
- > Delivers exceptional performance due to specialized fabrication techniques
- > Uses of high-frequency, bulk wave transducers
- > Assures high reliability with high-vacuum application of alloy-bonded transducer
- > Has rise time of less than 8 nanoseconds

PREDICTED PERFORMANCE VS. WAVELENGTH

The following plots show the simulated performance for the H-101 AOM at various wavelengths and may be used as a guide for extrapolating performance at other wavelengths. See specifications for guaranteed performance characteristics and applicable wavelength.



MECHANICAL CONFIGURATION



Part Ordering Configuration

H101-SI-CF-R

H-100 series AOM model number

R for ROHS compliant

Material-SI for SiO₂

Center frequency - 380 MHz nominally, optionally +/- 40 MHz

H101-SI-380-R is the standard configuration. Please call the factory for pricing and availability of optional configurations. Specifications subject to change without notice.

For additional information, email Acousto-Optics@L3Harris.com or visit www.L3Harris.com/Acousto-Optics.

Model H-101 Acousto-optic modulator

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Nonexport-controlled Information

L3Harris Technologies is an agile global aerospace and defense technology innovator, delivering end-to-end solutions that meet customers' mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains.



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