

1205C*

Acousto-Optic Modulator

APPLICATIONS

- Modulator
- Low Resolution Deflector
- Frequency Shifter

FEATURES

- Low Drive Power
- Small Size
- Good Temperature Stability

DRIVERS

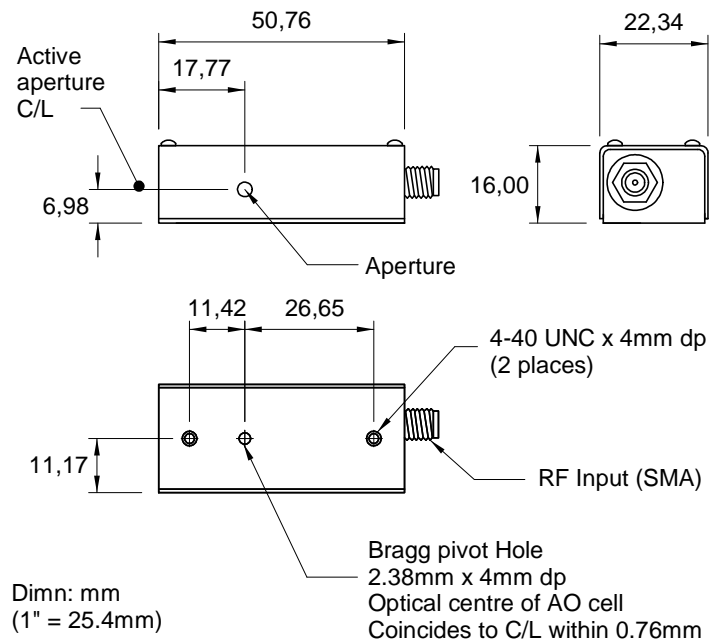
MODEL 522C (DIGITAL MODULATION)
MODEL 532C (ANALOG MODULATION)

MODEL 630C-80 (VARIABLE FREQUENCY & MOD'N)

* 1205C-1
1205C-2

1mm Active Aperture
2mm Active Aperture

OUTLINE DRAWING



ALL SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

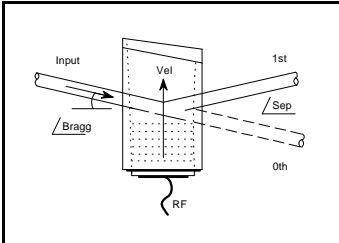
ISOMET CORP, 5263 Port Royal Rd, Springfield, VA 22151, USA.

Tel: (703) 321 8301 Fax: (703) 321 8546

E-mail: ISOMET@ISOMET.COM Web Page: WWW.ISOMET.COM

Quality Assured.

In-house: Crystal Growth,
Optical Polishing,
A/R coating, Vacuum Bonding



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Acousto-Optic Modulator

SPECIFICATIONS

Spectral Range:	.442-> 1.5 μ m*
Standard Operating Wavelengths:	442-488nm, 488-633nm, 633-830nm
Interaction Medium:	Lead Molybdate (PbMoO ₄)
Acoustic Velocity:	3.63mm/ μ s
Active Aperture:	1mm and 2mm (see below)
Centre Frequency (CF):	80MHz
RF Bandwidth:	30MHz
Input Impedance:	50 Ω Nominal
VSWR:	<1.5:1 @ 80MHz
DC Contrast Ratio:	>1000:1 min (>2000:1 typical)

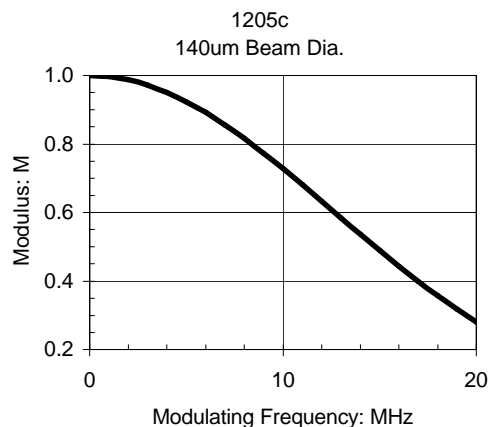
PERFORMANCE vs. WAVELENGTH

Wavelength (nm):	442	488	515	633	830*
RF Drive Power, 1205C-1 (W):	<0.3	<0.4	<0.4	<0.6	<0.8
RF Drive Power, 1205C-2 (W):	<0.4	<0.5	<0.6	<1.0	<1.5
Bragg angle (mrad):	4.9	5.4	5.7	7.0	9.1
Beam Separation (mrad):	9.7	10.7	11.3	13.9	18.3
Static Insertion Loss (%):	<10	<5	<3	<3	<3

PERFORMANCE vs. BEAM DIAMETER

Beam Diameter (mm):	2.0	1.0	0.34	0.2	0.14
Rise Time (ns):	360	180	60	35	25
Modulation Bandwidth (MHz) @ MTF = 0.5:	1.0	1.9	5.8	10	15
Deflection Efficiency (% @ CF):	90	85	85	80	75

*Operation at near IR wavelengths with reduced efficiency and modulation bandwidth.
Special A/R coatings to 1.5 μ m.



The typical MTF (depth of modulation) curve for the 1205C modulator assuming a 0.14mm beam diameter is shown at the left. For larger beam diameters the abscissa scales linearly. The curve is closely approximated by the function.

$$M \cong \exp - (f/f_0)^2$$

where: f = modulating frequency in MHz
 f_0 = parameter of modulator related to beam waist diameter = 18MHz (from experimental data)

The value of M from the curve may be used to the sine wave contrast ratio at a particular modulating according to the relation:

$$CR = 1+M/1-M$$

For digital on-off modulation, the contrast ratio will be greater than the value calculated from the above equation

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