MT80-A2-1064

AO MODULATOR/SHIFTER

TECHNICAL DATA SHEET 2014

Product Overview

These free space modulators are proposed with a large aperture 2x2 mm² for 1030-1080nm lasers. They have been specially designed for general purpose high speed application such as amplitude modulation.
They can also be used as fixed frequency shifters or variable frequency shifters as well as a high speed but low resolution deflector.

Features

- Large active aperture
- Linear polarization
- High diffraction efficiency

Access to your operating manual

Parameter	MT80-A2-1064
Material-Acoustic mode-Velocity	Te02 [L] - 4200 m/s
Optical Wavelength range (AR coated)	1064: 980nm-1100 nm
Optical Transmission	> 95 %
Input / Output Polarization	Linear / Linear
Active Aperture	2 x 2 mm²
Carrier Frequency / Frequency shift	+/- 80 MHz
Separation Angle (0-1)	20.3 mrad @ 1064 nm
Static Extinction Ratio	> 33 dB
Rise / Fall time	160 ns / mm
Diffraction Efficiency	>= 85 %, nom 90 % with TEM00 laser beam
Analog Amplitude modulation BW (-3 dB)	3 MHz, with 1 mm beam diameter (1/e²)
Max optical power density (CW)	1064: >10 W/mm²
Input impedance	Nom 50 Ω
V.S.W.R.	Nom < 1.2/1
RF Power	**nom 2.7 W / max duty cycle 50%** **Max 2.2W CW**
Duty cycle	**Maximum 50% FULL POWER**
Connector	SMA
Size / Weight	(Lxlxh) 50.9 x 22.4 x 17.3 / 50 g IN PRO 004
Cooling	Through baseplate
Operating Temperature	+10 to +40 Non condensing
Storage Temperature	-40 to +50 Non condensing

Attention: operation with >2.2Watts RF power in CW mode may damage the component

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Rise Time (Tr) is beam diameter (Φ) sensitive:

$$Tr = 0.66\frac{\Phi}{V}$$

Amplitude modulation bandwidth (F_{-3dB}) is rise time (Tr) sensitive:

$$F_{-3dB} = \frac{0.48}{Tr}$$

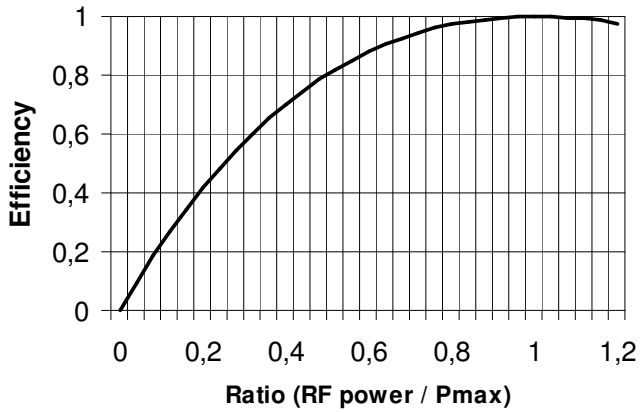
Separation angle (Δθ) is wavelength (λ) sensitive:

$$\Delta\theta = \frac{\lambda F}{V}$$

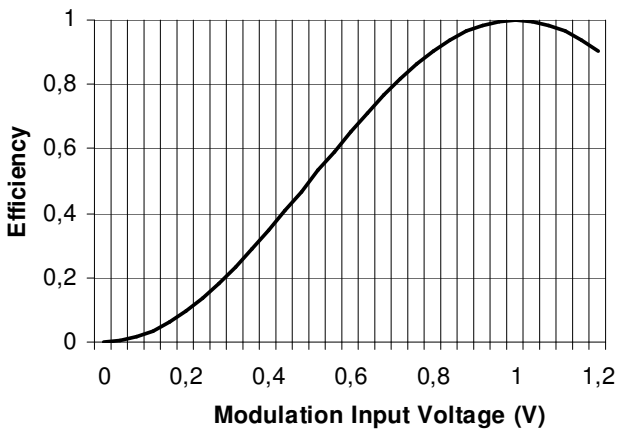
RF power (P) is wavelength (λ) sensitive:

$$\frac{P_1}{P_2} = \frac{\lambda_1^2}{\lambda_2^2}$$

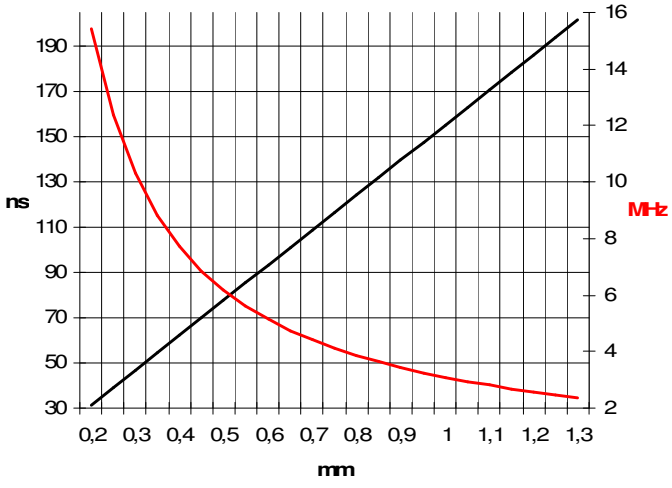
Relative Efficiency versus RF power



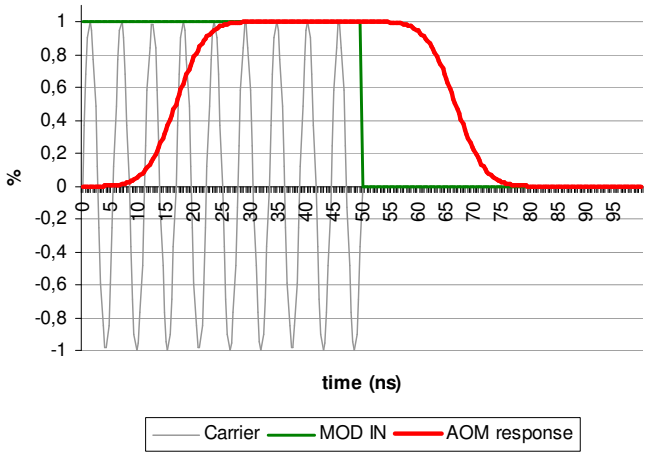
AO relative Efficiency vs driver MOD IN



Rise Time (black) / Analog Modulation BW (-3dB) vs Beam diameter



Relative Efficiency / AOM temporal response



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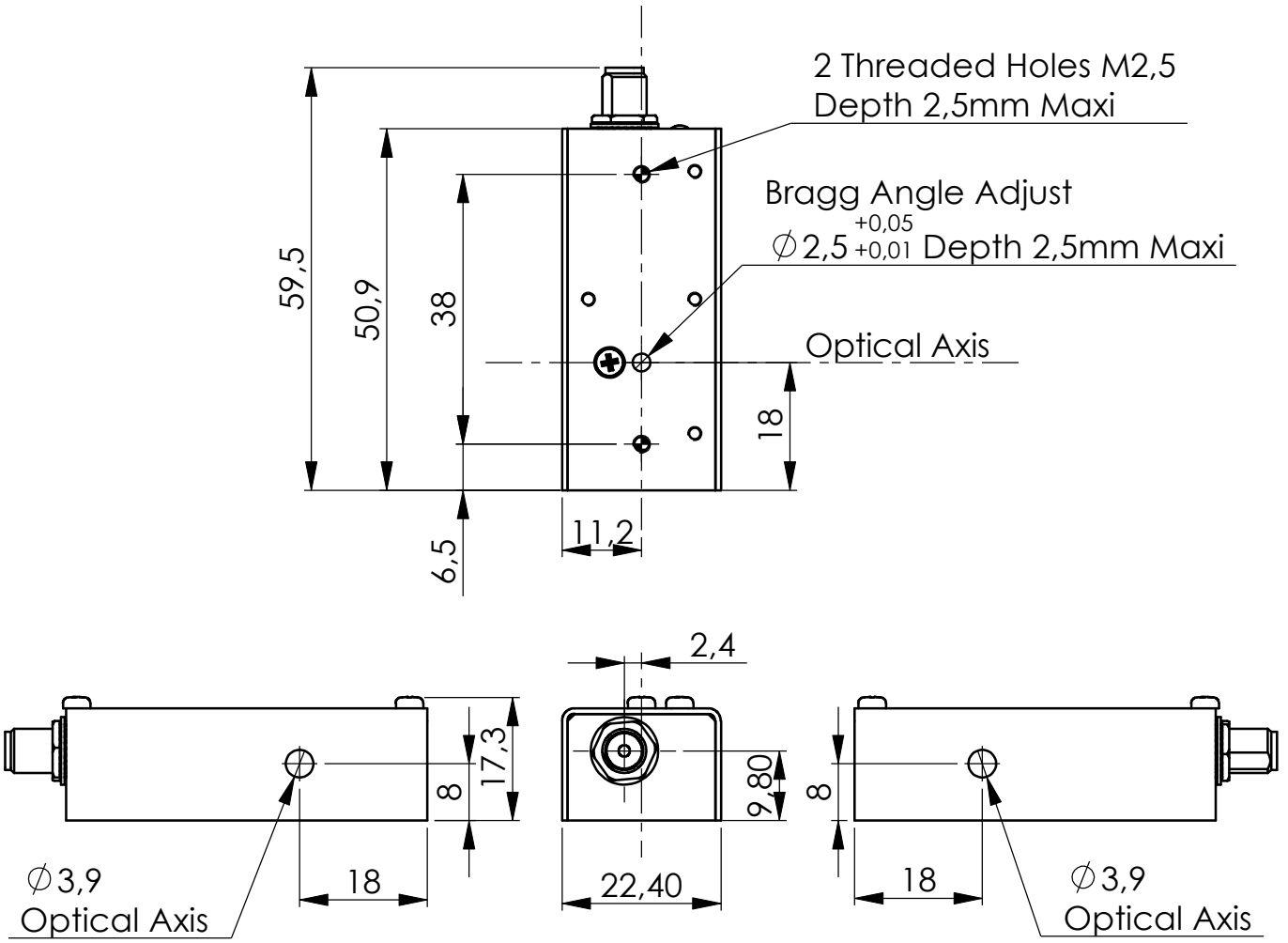

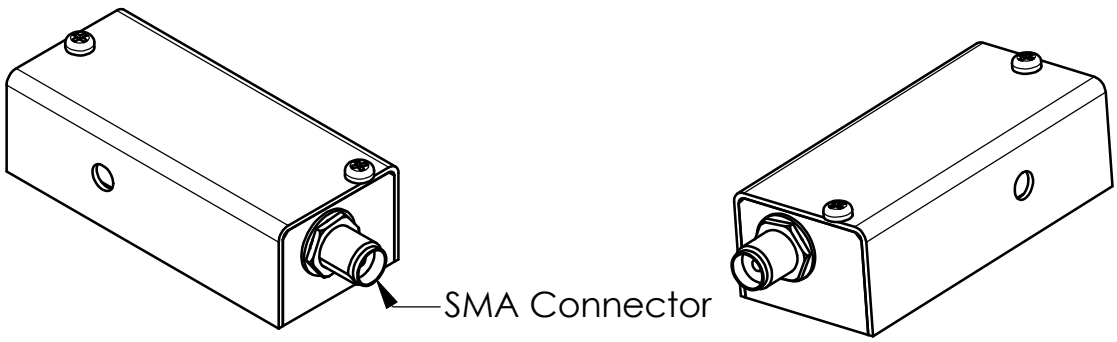

Indice Index	Date	Auteur Author	Modifications
B	18/12/06	E.D	Mise en page
A	15/10/03	OGB	Plan initial / Initial Drawing

Conception Design: E.D	PLAN D'INTERFACE / OUTLINE DRAWING	OPTO-ELECTRONIC A.A. SA OPTO-ELECTRONIQUE DIVISION 18, rue Nicolas Appert F-91898 ORSAY tel : 08 11 09 76 76 fax : 01 76 91 50 31
Vérification Checking: E.D		
Tolérance Tolerance: ISO 2768mK	Référence / Reference IN-PRO-004	
Echelle Scale: 1:1		
Format A4		Folio / Sheet: 1/1 Indice / Index: B