

MTS40-A3-750.850

AO MODULATOR/SHIFTER 750-850 nm



Product Overview

These modulators/shifters have been specially designed for large beam diameters without additional optics. Their high efficiency and low drive power will suit most of the low speed applications. They can also be used as variable frequency shifters over 40+/- 1 MHz.

Features

- Large active aperture
- Linear polarization
- High diffraction efficiency
- Low RF power



Access to your operating manual



Technical Specifications

| Parameter | Specification |
|---|--|
| Material-Acoustic mode-Velocity | TeO ₂ - [S] - 650 m/s |
| Optical Wavelength range | 750 to 850, AR coated |
| Optical Transmission | > 95, Nom 98% |
| Input / Output Polarization | Linear / Polarization flip |
| Active Aperture | 3 x 3 mm ² |
| Carrier Frequency / Frequency shift | - 40 MHz (horizontal polar), + 40 MHz (vertical polar) |
| Separation Angle (0-1) | 48 mrd @780 nm |
| Static Extinction Ratio | > 33 dB |
| Rise / Fall time | 1 μs / mm |
| Diffraction Efficiency | > 85%, nom 90% with TEM ₀₀ laser beam |
| Analog Amplitude modulation bandwidth (-3 dB) | 480 kHz with 1 mm beam diameter |
| Max optical power density | 10 W/mm ² |
| Input impedance | Nom 50 Ω |
| V.S.W.R. | Nom < 1.2/1 |
| RF Power / Connector | < 1W/ SMA |
| Size / Weight | (LxHxh) 59.5 x22.4 x 17.3 / 50 g IN PRO 005 |
| Operating Temperature | +10 to +40 Non condensing |
| Storage Temperature | -40 to +50 Non condensing |

Options / On request

VARIABLE FREQUENCY SHIFT 40 +/- 1 MHz

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

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

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

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

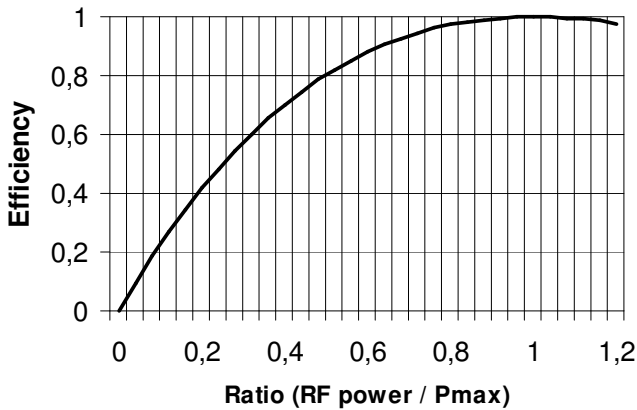
Separation angle ($\Delta\theta$) is wavelength (λ) sensitive:

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

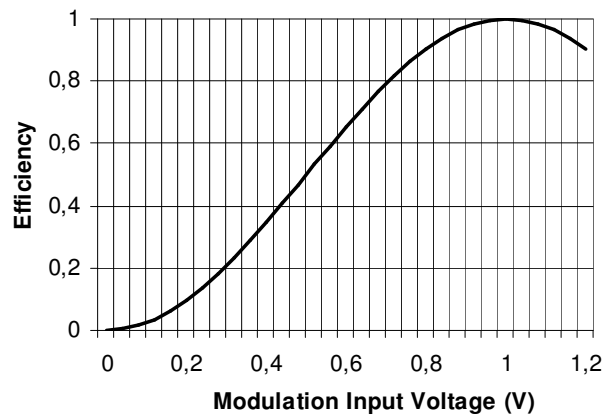
RF power (P) is wavelength (λ) sensitive:

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

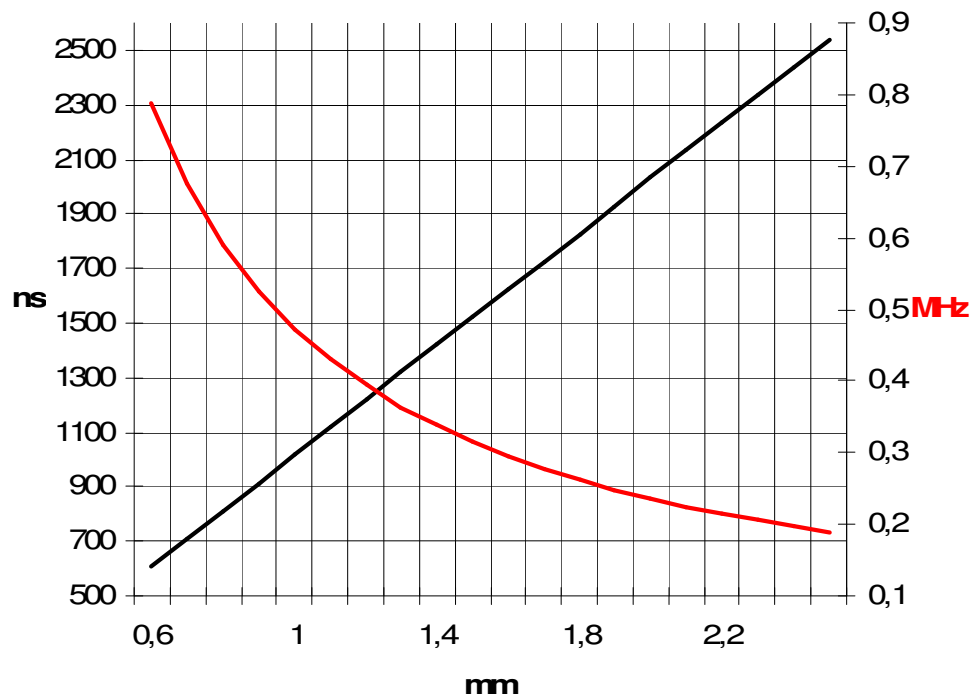
Relative Efficiency versus RF power



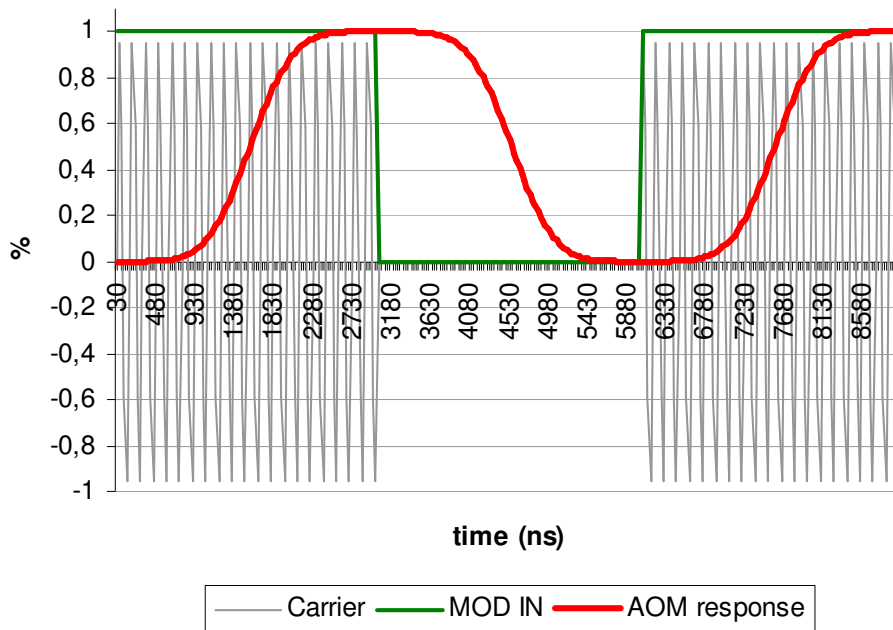
AO relative Efficiency vs driver MOD IN



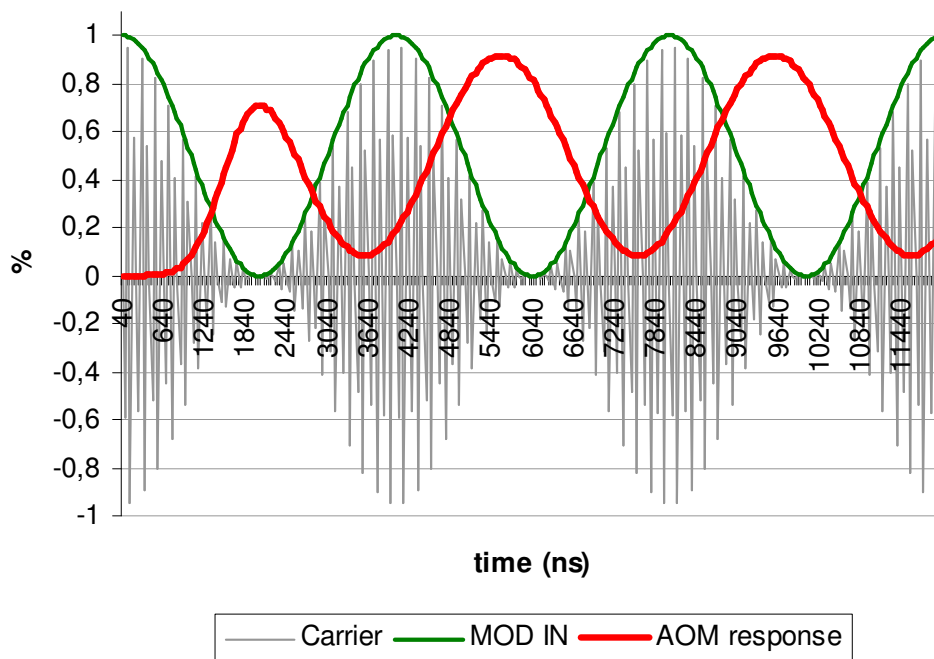
Rise Time (black) / Analog Modulation BW (-3dB) vs Beam diameter

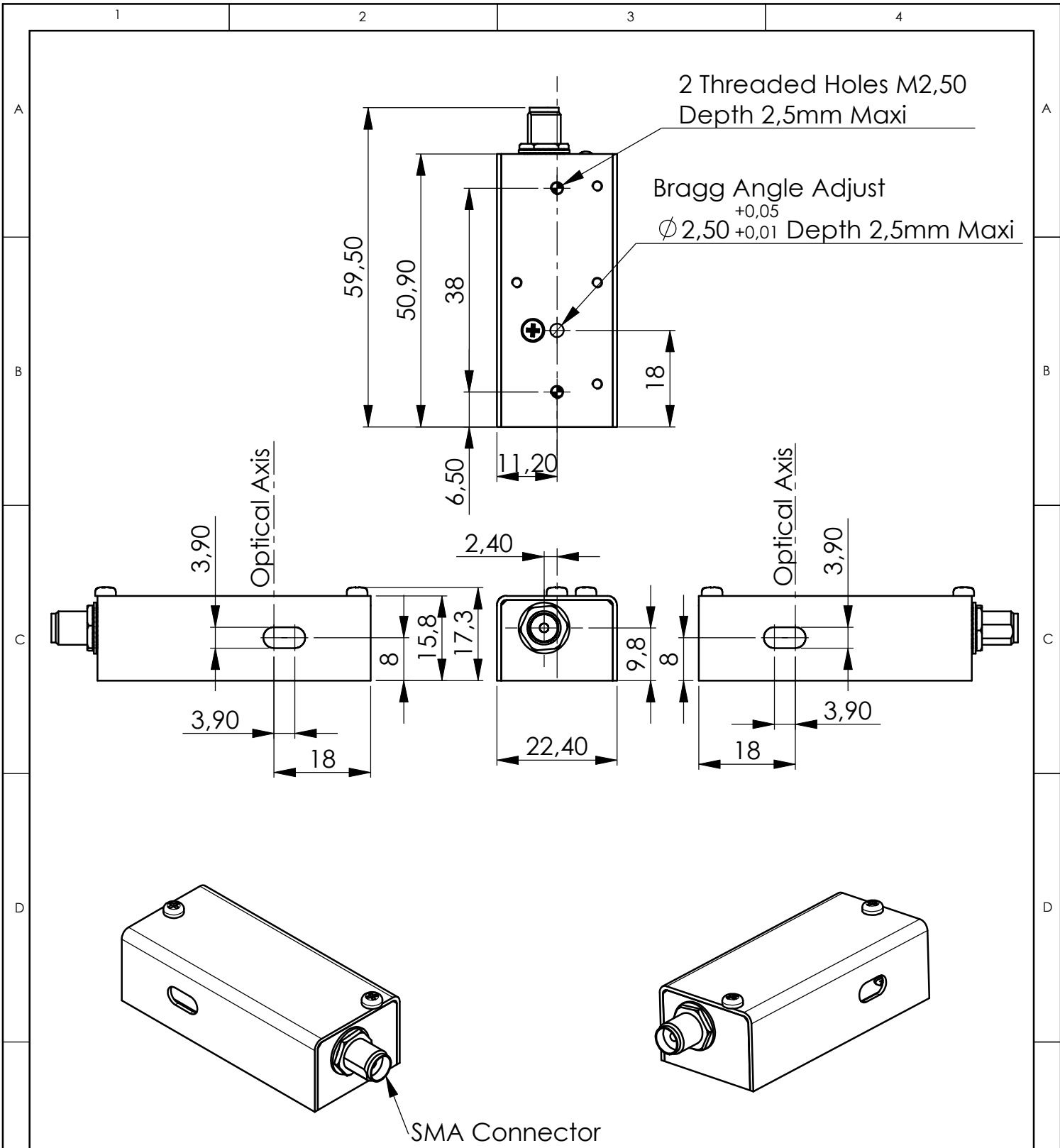


Relative Efficiency / AOM temporal response (1mm)



Relative Efficiency / AOM temporal response (0,25 MHz)





| | | | | |
|--------------------------|--------------|---|--------------------------------|--|
| B | 18/12/06 | E.D | Reprise mise en plan | |
| A | 15/10/03 | F.C | Plan initial / Initial Drawing | |
| Index | Date | Auteur Author | Modifications | |
| Conception Design | E.D | PLAN D'INTERFACE / OUTLINE DRAWING | | |
| Vérification Checking | L.F | | | |
| Tolérance Tolerance | ISO 2768mK | Référence / Reference IN-PRO-005 | | |
| Echelle Scale | 1:1 | 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 | | |
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