

MT250

Fast AO Modulator/Shifter

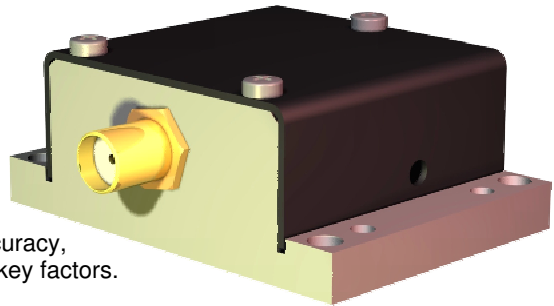
TeO2 modulator for 450-1100 nm lasers

• High speed • Linear or random Polar • Printing

These modulators have been specially designed for high speed printing and facsimile applications, for which high accuracy, stability, repeatability, high extinction ratio and low noise are the key factors.

They can also be used as fixed frequency shifters @250 Mhz, as well as variable frequency shifters with a frequency range up to 250 +/- 50 MHz.

With an adapted frequency range, user will be able to operate this device as a high speed low resolution deflector.



Specifications

Material-Acoustic mode	TeO2 [L]
Acoustic Velocity	V=4200 m/s
Optical Wavelength range	VIS: 450-700 nm IR: 700-1100 nm 1064 nm: 980-1100 nm
Transmission	VIS/IR: > 95 % 1064 nm: 98% @1064nm
Optical Input / Output polarizations	Linear
Aperture	0.5 x 2 mm ²
Carrier frequency / Frequency shift	250 MHz
Separation angle	31.7 mrd @532 nm 63.3 mrd @1064 nm
Diffraction efficiency (with TEM00 beam, M² ≤ 1.1)	VIS: 85 % @300 μm, 75 % @50 μm IR: 85 % @300 μm, 65 % @50 μm 1064 nm: 70 % @300 μm, 60 % @100 μm
Rise time	160 ns/mm (min 8 ns)
Amplitude modulation bandwidth	> 60 MHz (-3 dB, @50μm)
Static extinction ratio	> 2000/1
Max optical power density	VIS : 5 W / mm ² , IR : > 10 W / mm ²
Input impedance	Nom 50 Ω
V.S.W.R.	Nom < 1.5/1
RF Power	VIS: ≤ 1.3 Watts IR/1064 nm: ≤ 2.2 Watts
Connector	SMA
Size / Weight	(LxIxh) 47x 33 x 17.8 mm ³ / 50 g
Operating Temperature	10 to 40 °C



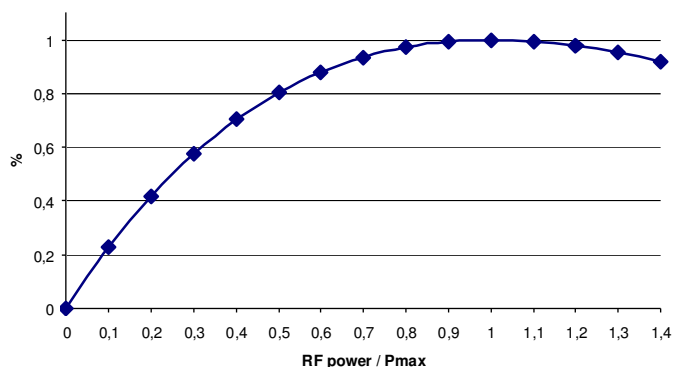
Relative Diffraction Efficiency vs RF Power

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

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

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

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



OPTION

Frequency range 250+/-50MHz
 Nominal efficiency over 250+/-50MHz > 50% (VIS, @800nm)

MT250-Ax-zz

X = 0.5 (aperture, mm) or **0.2**
Y = frequency range (MHz) if any
ZZ = VIS (450-700 nm), **IR** (700-1100 nm), **@1064nm**

Outline Drawing

sizes in mm

