

MG40

AO Modulator/Shifter

Ge modulator for 9.3 μm and 10.6 μm lasers

- 10.6 and 9.3 μm standard designs • Water cooling • Up to 200 Watts

These modulators have been specially designed for far infrared range operation from 3 μm to 11 μm . A standard design for 10.6 μm is proposed.

They can also be used as fixed frequency shifters @40 Mhz, as well as variable frequency shifters or deflectors with a frequency range up to 40 +/- 2.5 MHz.



Specifications

	MG40-Ax-10600	MG40-Ax-9300
Material-Acoustic mode		Germanium
Acoustic Velocity		V=5500 m/s
Optical Wavelength range	10.6 μm	9.3-9.4 μm
Transmission		Nom > 90 %
Optical Input / Output polarizations		Linear //
Aperture		6 x 10 mm ² or 8 x 10 mm ²
Carrier frequency / Frequency shift		40 MHz
Separation angle	77 mrd	67.6 mrd
Diffraction efficiency (with TEM00 beam, M ² \leq 1.1)		80 %
Rise time		120 ns /mm
Amplitude modulation bandwidth		> 800 KHz (-3 dB, @5 mm)
Static extinction ratio		> 2000/1
Max optical power density		5 W / mm ²
Input impedance		Nom 50 Ω
V.S.W.R.		Nom < 1.5/1
RF Power	Nom 50 Watts	Nom 40 Watts
Connector		BNC
Size / Weight		(LxIxh) 71.5 x 63.4 x 39.5 mm ³ / 250 g
Heat exchange		Water cooling (typ 250 ml/min)
Thermal security sensor		Security cu-off for over temperature
Water connectors		
Operating Temperature		10 to 40 $^{\circ}\text{C}$

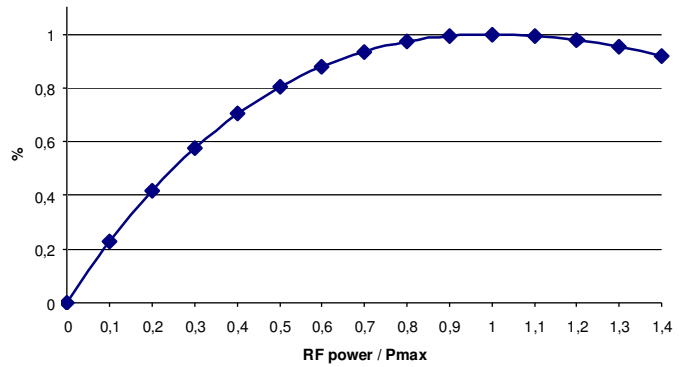
Relative Diffraction Efficiency vs RF Power

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

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

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

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



MG40-Ax-10600

X (aperture, mm) = **6 or 8**

10600 = wavelength (nm: 10600 or 9300)

Outline Drawing

sizes in mm

