

## MT80-Ax-xx – MT80-BxAX-xx

### Product Overview

These free space modulators operate at 80MHz and at various wavelength ranges covering the 450-700 nm, 700-1100, 980-1100 nm, 1300-1600 nm and 1900-2100 nm. The intended application can be amplitude modulation as well as frequency shifting (fixed and variable) or low resolution deflection.

### FEATURES

- Fast rise time/Access time
- Linear polarization
- High diffraction efficiency



### SPECIFICATIONS (T=25°C)

PARAMETER	RATING	UNIT
Material-Acoustic mode-Velocity	TeO <sub>2</sub> -L - 4200	m/s
Carrier Frequency / Frequency shift	+/-80	MHz
Transmission	≥95, nom 98	%
Input / Output Polarization	Linear	
Rise/fall time (T <sub>r</sub> )	160	ns/mm
Static Extinction Ratio	>33	dB
Input impedance	50	Ω
V.S.W.R.	< 1.2:1	
Connector	SMA female	
Size	59.5 x 22.4 x 17.3	mm <sup>3</sup>
Weight	Nom 100	g
Packaging	IN PRO 004	
Operating Temperature (non condensing)	+10 to +40	°C
Storage Temperature (non condensing)	-40 to +65	°C
RoHS Compliance	Yes	

### Versions

	MT80-A1-400.442	MT80-A1-VIS	MT80-A1-IR	MT80-A1-1064
Wavelength	400-442nm	450-700nm	700-1100nm	980-1100nm
Active aperture	1x2 mm <sup>2</sup>	1x2 mm <sup>2</sup>	1x2 mm <sup>2</sup>	1x2 mm <sup>2</sup>
Minimum rise time	25 ns (∅ 0.15 mm)	25 ns (∅ 0.15 mm)	25 ns (∅ 0.15 mm)	25 ns (∅ 0.15 mm)
Separation angle (0-1)	>7.6 mrd	>8.6 mrd	>13.3 mrd	>18.7 mrd
Diffraction efficiency	>85 %	>85 %	>85 %	>85 %
Maximum RF power	1 W	1 W	2 W	2 W
Maximum Laser power density	0.5 W/mm <sup>2</sup>	5 W/mm <sup>2</sup> @633nm	10 W/mm <sup>2</sup>	10 W/mm <sup>2</sup>
Option Variable frequency	80+/-15 MHz MT80-B30A1-400.442 Efficiency typ >70 %	80+/-15 MHz MT80-B30A1-VIS Efficiency typ >70 %	80+/-15 MHz MT110-B30A1-IR Efficiency typ >65 %	0+/-15 MHz MT80-B30A1-1064 Efficiency typ >60 %

## MT80-Ax-xx – MT80-BxAx-xx

	MT80-A1.5-400.442	MT80-A1.5-VIS	MT80-A1.5-IR	MT80-A1.5-1064
Wavelength	400-442nm	450-700nm	700-1100nm	980-1100nm
Active aperture	1.5x2 mm <sup>2</sup>	1.5x2 mm <sup>2</sup>	1.5x2 mm <sup>2</sup>	1.5x2 mm <sup>2</sup>
Minimum rise time	48 ns (∅ 0.3 mm)	48 ns (∅ 0.3 mm)	48 ns (∅ 0.3 mm)	48 ns (∅ 0.3 mm)
Separation angle (0-1)	>7.6 mrd	>8.6 mrd	>13.3 mrd	>18.7 mrd
Diffraction efficiency	>85 %	>85 %	>85 %	>85 %
Maximum RF power	1 W	1 W	2.2 W	2.2 W
Maximum Laser power density	0.5 W/mm <sup>2</sup>	5 W/mm <sup>2</sup> @633nm	10 W/mm <sup>2</sup>	10 W/mm <sup>2</sup>
Option Variable frequency	80+/-15 MHz MT80-B30A1-400.442 Efficiency typ >65 %	80+/-15 MHz MT80-B30A1-VIS Efficiency typ >65 %	80+/-15 MHz MT110-B30A1-IR Efficiency typ >65 %	0+/-15 MHz MT80-B30A1-1064 Efficiency typ >55 %

	MT80-A0.7-1300.1600	MT80-A0.4-2000
Wavelength	1300-1600nm	1950-2100nm
Active aperture	0.7x2 mm <sup>2</sup>	0.4x1 mm <sup>2</sup>
Minimum rise time	48 ns (∅ 0.3 mm)	32 ns (∅ 0.2 mm)
Separation angle (0-1)	>24.7 mrd	>37 mrd
Diffraction efficiency	>70 % typ 75%	>65 % typ 70%
Maximum RF power	2.5 W	2.5 W
Maximum Laser power density	0.5 W/mm <sup>2</sup>	5 W/mm <sup>2</sup> @633nm
Option Variable frequency	80+/-21 MHz MT80-B42A0.7-1300.1600 Efficiency typ >40 %	80+/-15 MHz MT80-B30A0.4-2000 Efficiency typ >50 %

$$T_r = 0.66 \frac{\phi}{V} * F_{-3dB} = \frac{0.48}{T_r} * \Delta\theta = \frac{\lambda F}{V} * \frac{P_1}{P_2} = \frac{\lambda_1}{\lambda_2}$$

### OUTLINE DRAWING IN PRO 004, mm

