AOM640 / AOM650 -H
High Power AO Modulator/Deflector

APPLICATIONS
- Material Processing
- Via Hole Drilling
- Surface texturing

FEATURES
- Low loss
- High Optical Power
- All Solid-State

The AOM6x0 series have been designed to minimize thermal lensing and reduce beam degradation at high optical powers. This device can be used as a high power intensity modulator and/or medium resolution high power AO deflector.

SPECIFICATIONS (TYPICAL)

- Operating Wavelength: 9.4μm or 10.6μm (as specified)*
- Interaction Material: Germanium
- Active Aperture:
  - H=7: 7mmH x 30mmW
  - H=8: 8mmH x 30mmW
  - H=9: 9mmH x 30mmW
- Centre Frequency (x=fc):
  - AOM640-H: 40 MHz
  - AOM650-H: 50 MHz
- Sweep Bandwidth:
  - 20 MHz
- Diffraction Efficiency at fc: > 85%, 90% typical
- RF Power for max’ D/E: < 140 Watts total (H=8)
- Static Insertion Loss: < 5%
- Maximum Optical Power: 600 Watts, 7mm dia. Gaussian beam
- Bragg Angle:
  - 9.3μm: 40.0 / 50.0 MHz
  - 10.6μm: 48.3 / 50.0 MHz
- Separation Angle:
  - 33.9 / 42.4 mrad
  - 38.6 / 48.3 mrad
- Scan Angle (20MHz sweep):
  - 67.7 / 84.8 mrad
  - 77.1 / 96.5 mrad
- Laser Polarization: Linear, Horizontal
- Water Cooling (Minimum): > 2 Liter/Min. @ < 20°C
- Modulator performance:
  - Optical Rise Time: 0.12μsec / mm beam diameter
  - Diffraction Efficiency: > 85%
  - Modulator Drive Electronics: RFA240-2-x (40MHz) or RFA-250-2-x (50MHz)
- Deflector Performance:
  - for 7mm (H) x 30mm (W) beam
  - Diffraction Efficiency: > 80% across 20MHz scan
  - Access Time: 5.5μsec
  - Resolution: 100
  - Deflector Drive Electronics: **
    - iHHS-2, RFA200-2 for scanning applications
    - RFA4060-2K for dual spot modulation

* Optional designs are available for other wavelengths in the 2.5μm - 11.2μm range.
** The iHHS-2 exhibits progressive phase shifting across two RF channels. This feature compensates for the variation in efficiency across the scan.
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OUTLINE DRAWING
Dimensions: mm

NOTES:
1. THIS DEVICE REQUIRES WATER COOLING TO PREVENT THERMAL RUNAWAY. THE INTEGRAL NC THERMAL INTERLOCK SWITCH OPENS AT 35 DEGREES CENTIGRADE.

2. THE WATER COOLED CASE PARTS ARE ALUMINIUM, IT IS RECOMMENDED THAT A CORROSION INHIBITOR BE ADDED TO THE COOLING SYSTEM.

Refer application note AN0901 regarding Coolant Specification

Alternative low corrosion Brass case parts, option -BR