SOM Series Modulator

A semiconductor optical modulator (SOM) utilizes an SOA (Semiconductor Optical Amplifier) as a light modulator. A CW laser diode signal is coupled into the SOA. The bias current driving the SOA is switched ON/OFF in a pulsed mode at very high repetition rate. The result is a high speed fiber optic modulator which has many benefits relative to an AOM or EOM.
SOM Series
High-speed fiber modulator/shutter

This turn-key fiber-coupled module has a switching speed <1 ns and operates as a lossless high dynamic range amplitude modulator, a high-speed optical isolation switch or a full-range variable optical attenuator (VOA).

Key features

- SOM (Semiconductor Optical Modulators) are a smart alternative to ADM (Acousto optic Modulators), EDM (Electro Optics Modulators) or even direct diode modulation. It is a lossless, low noise, high speed, high dynamic range, high extinction ratio and highly polarizing solution working from 750 to 1700 nm.
- Min. pulse duration: <1.5 ns, timing Jitter down to 8 ps, up to 250 MHz repetition rate.
- SOM are SOA-based Amplitude Modulator. The SOA (Semiconductor Optical Amplifier) offer proven reliability and performance. Current/temperature control circuits and safety limits are pre-set and optimized to ensure the highest level of performance in pulsed mode.
- Wavelength from 750 to 1650 nm needs to be precised at the order (see table last page).
- All versions can be controlled either through USB link or through analog signals.
- Most versions show fast delivery for immediate customer use.
- 1 version also includes 3 pulse-delay-generators for external synchronizations (SOM-Shape).
Technical Specifications

**SOM-std & SOM-HPP**

**SOM-shape pulse GUI**

**SOM-shape**

## Specifications

<table>
<thead>
<tr>
<th>Version:</th>
<th>SOM-std</th>
<th>SOM-HPP (High Pulse Performance)</th>
<th>SOM-shape (Pulse shaping)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength (nm)</td>
<td>Any wavelength to be chosen between 700 and 1650 nm (see wavelength table next page)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optical Bandwidth (nm)</td>
<td>From 20 nm to 110 nm to be selected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extinction ratio (dB, typ)</td>
<td>50 dB*</td>
<td>40 dB*</td>
<td></td>
</tr>
<tr>
<td>Switching speed (typ)</td>
<td>1 ns</td>
<td>1 ns</td>
<td>2 ns</td>
</tr>
<tr>
<td>Dynamic Range (up to)</td>
<td>60 dB</td>
<td>60 dB</td>
<td>48 dB</td>
</tr>
<tr>
<td>Small signal Gain</td>
<td>From 22 to 40 dB (see wavelength table next page)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trigger-to-pulse Jitter</td>
<td>&lt;20 ps</td>
<td>&lt;8 ps</td>
<td>&lt;2 ns</td>
</tr>
<tr>
<td>Pulse shaping</td>
<td>no</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>CW offset [in pulse mode]</td>
<td>no</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Max repetition rate</td>
<td>10 MHz</td>
<td>250 MHz</td>
<td>20 MHz</td>
</tr>
<tr>
<td>Max Output Power</td>
<td>From 20 to 100 mW (more than 500 mW have been measured in some pulsed configuration)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compatibilities and Libraries</td>
<td>USB - Windows 7/10 - DLLs - Hexa - Labview</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(*: @ 10dBm input power, extinction ratio can be lower above this input power level)

## SOM-std GUI Interface

### SOM-std GUI Interface

- Control
- File
- Config
- Info

### SOM-std GUI Interface

- Pulse Settings
- DC Parameters
- Diode Temp.
- Trigger/Pulse Dur. Adj.

## Electrical

**Operating voltage**

12-15 Vdc (OEM) 110/220 V (SOM-std & HPP)

24Vdc (OEM) 110/220 V (SOM-Shape)

AC/DC converter included

**Input impedance**

50 Ω
PRODUCT SALES AND SERVICE:
Orders for this product are fulfilled by Laser Lab Source in North America and select international regions. It is manufactured by Aerodiode, Talence, France.

PRODUCT WARRANTY:
This product is sold with a full one year warranty. It is warranted to be free from defects in material and/or workmanship for a period of one year from the date of shipment.

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