

## BroadBand Variable Optical Attenuator, bare version

Description : This product will be delivered as a fiber on which an electrically sensitive material is applied. A pair of electrodes is fixed at each end of the active area that is partially protected. No additional package is included although it must either mounted on a board or protected in some way before it could be used. There is no moving part and the light path is not interrupted. The *Transparent* model has no attenuation when no voltage is applied while both the *Opaque* and the *Shutter* are in the attenuation mode when no voltage is applied.

Operation : Applying an external electric signal will change the refractive index of the electrically sensitive material, near the core of the fiber. Changing the index of that material will induce a variable attenuation of the signal by diverting a portion, or all, of the signal outside the fiber. There is no absorption of light. A small electronic interface is supplied to adapt the input signal to the VOA.

Assembly : The fiber with the electrodes can be installed in a tight enclosure/package, it does not need to be vacuum sealed. It can also be mounted on a board The electronic interface terminals will be accessible from outside the enclosure (butterfly/custom) or simply connected to terminals on a board. Multiple fibers can be installed in a one larger enclosure or on a board with a single adapted electronic interface.

### Target specifications :

Parameter	Transparent	Opaque *	Shutter (On-Off switch)
<b>Optical</b>			
Operating Wavelength	S,C or Land	S,C or Land	S,C or Land
Attenuation Range	0-30dB	0-30dB	0 or 70dB
Attenuation resolution	0.1dB@0-10dB, 0.2dB@10-20dB, 0.5dB@20-30dB	0.1dB@0-10dB, 0.2dB@10-20dB, 0.5dB@20-30dB	NA
Insertion Loss	<0.2dB	<0.2dB	<0.7dB
Return Loss	-55dB	-55dB	-55dB
Flatness 0-20 dB	<0.03 dB/nm	<0.03 dB/nm	NA
PDL (0- 20 dB)	<0.25 dB	<0.17 dB	<0.17 dB
Switch On	< 10ms	< 40ms	< 400ms
Switch Off	< 25ms	< 45ms	< 450ms
Maximal Optical Power	300mW	300mW	500mW
PMD	TBA	TBA	TBA
Fiber Type	SMF 28/custom	SMF 28/custom	SMF 28/custom
Operating temp	-10° to + 63° C	-10° to + 75° C	-10° to + 75° C



<b>Dimensions</b>			
Bare VOA length**	25mm	25mm	25mm
Bare VOA dimensions (HxW)	3x5mm	1mm diameter	1mm diameter
Diameter of electrodes	planar	0.1mm	0.1mm
Package internal Volume needed w/o electronic interface (HxW)	3x5mm	2x3mm	2x3mm
Package internal Volume needed with electronic interface (HxW)	6x5mm	6x4mm	6x4mm
Pigtail length	Custom	Custom	Custom
Electronic interface dimensions	3x4x10mm	3x4x10mm	3x4x10mm
<b>Electrical</b>			
Actuation type	Non-Latching	Non-Latching	Non-Latching
DC drive voltage requirement	5V	5V	5V
Voltage damage threshold	TBA	TBA	TBA
Resistance	Negligible	20 ohm	20 ohm
Capacitance	TBA	TBA	TBA
Power Consumption	< 2 mW	< 400 mW	< 400 mW
Control Type	I2C/Custom	I2C/Custom	I2C/Custom

\* To meet some specifications, the *Opaque* version may need a thermoelectric cooler (TEC), be 2 mm thicker and has higher power consumption.

\*\* The versions with 1 or 2 taps may be longer (up to 35 mm and 50 mm respectively).

*Photintech* can provide packaged demo units and electronic interface for evaluation of the performances as well as bare units for enclosure design. Alternative specifications are possible, feel free to ask.

Specifications subject to change without notice.