# NanoSpeed™
# Variable Fiber Optical Attenuator Array (48 Channels)
## (SMF, Bidirectional)

(Protected by U.S. patent 7,403,677B1 and pending patents)

DATASHEET

BUY NOW


The High Speed Variable Fiber Optical Attenuator Array (NSAA) features fast response, ultracompact size, and low driving voltage. It controls laser power with channel number up to 48 in an integrated package. This is achieved using a special waveguide configuration. The response is about 100 to 300ns. Agiltron offers electronic driver with convenient 0-5V control input.

## Features

- Solid-State
- High Speed
- Up to 48 Channels
- Low Loss
- Compact

## Applications

- Optical blocking
- Configurable operation
- Instrumentation

## Specifications

| Parameter | | Min | Typical | Max | Unit |
|---|---|---|---|---|---|
| Central wavelength | | 960 | | 1650 | nm |
| Wavelength Bandwidth | | | 40 | | nm |
| Insertion Loss [1] | 1260~1650nm | | 1.2 | 1.8 | dB |
| | 960~1100nm | | 1.5 | 2.3 | |
| Attenuation Range | | 20 | 25 | 35 | dB |
| PDL (SMF VOA only) | | | 0.1 | 0.3 | dB |
| PMD (SMF VOA only) | | | 0.1 | 0.3 | ps |
| ER (PMF VOA only) | | 18 | 25 | | dB |
| Resolution | | | Continuous | | dB |
| Return Loss | | 45 | 50 | 60 | dB |
| Response Time (Rise, Fall) | | 100 | | 300 | ns |
| Repeat Rate | | DC | | 5 | kHz |
| Control Voltage | | 0 | | 5 | V |
| Control Current (Each Channel) | | 0 | | 35 | mA |
| Optic power Handling [2] | | | 30 | 150 | mW |
| Operating Temperature | | -20 | | 70 | °C |
| Storage Temperature | | -40 | | 85 | °C |

**Notes**:

[1]. Measured without connectors. Connector add 0.3dB each

[2]. Defined at 1310nm/1550nm. For the shorter wavelength, the handling power is reduced.

Warning: **The device mounted on the PCB is an OEM module designed for system integration only, not for general uses. Do not touch the PCB by hand. The electrical static can kill the chips even without a power plug-in, and unpleasant electrical shock may also be felt. For laboratory use, please buy a protected Turnkey system.**



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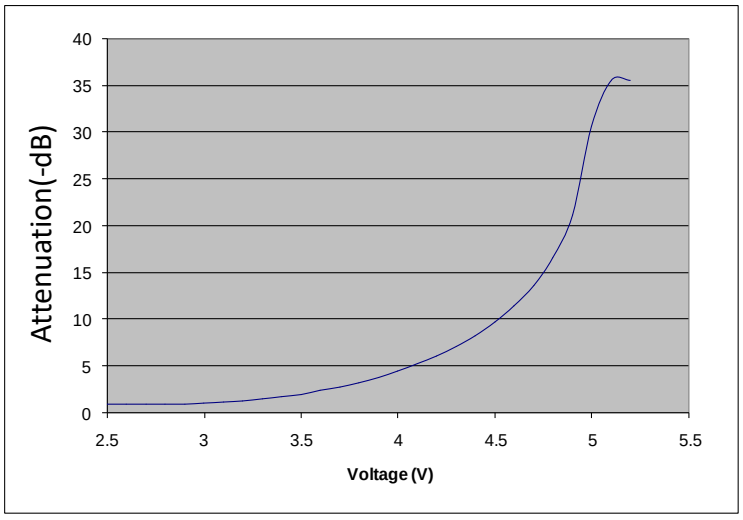
## Mechanical Dimensions (mm)

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

## Typical Attenuation versus Voltage



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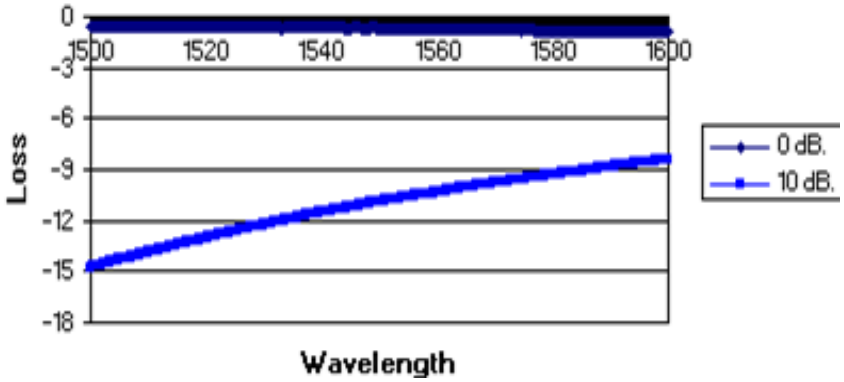
## Typical WDL @10dB attenuation




## Ordering Information

| | ☐☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
|---|---|---|---|---|---|---|---|---|
| **Prefix** | **Channel** | **Wavelength** | **Configuration** | **Driver** | **Fiber Type** | **Fiber Cover** | **Fiber Length** | **Connector** |
| **NSAA-** | 6 = 06<br>8 = 08<br>12 = 12<br>16 = 16<br>20 = 20<br>48 = 48 | 1550nm = 5<br>1060nm = 6<br>1310nm = 3<br>Special = 0 | Standard = 1<br>Special = 0 | No = 1<br>Yes = 2<br>Special = 0 | SMF-28 = 1<br>HI1060 = 2<br>PM1550 = B<br>Special = 0 | Bare fiber = 1<br>Special = 0 | 0.25m = 1<br>0.5m = 2<br>1.0 m = 3<br>Special = 0 | None = 1<br>FC/PC = 2<br>FC/APC = 3<br>SC/PC = 4<br>SC/APC = 5<br>LC/PC = 7<br>LC/APC = 9<br>LC/UPC = U<br>Special = 0 |

## Operation Manual

1. Connect a control signal to the SMA connector on the PCB.
2. Attach the accompanied power supply (typically a wall-pluggable unit).
3. The device should then function properly.

Note: Do not alter device factory settings.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## Application Notes

**Fiber Core Alignment**
Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

**Fiber Cleanliness**
Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

**Maximum Optical Input Power**
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.


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