

50kHz VOA Driving Board NS-VOA-LF-V03



(patents pending)

DATASHEET

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The module NS-VOA-LF-V03 is dedicated to drive Agiltron's NanoSpeed VOA with features of low power consumption, low drift and high operating frequency up to 50 kHz

Features

- High Speed
- High Output Voltage
- Wide Input Voltage Range
- TTL/CMOS/Other Control
- Push-Pull Output Design
- Low Power Consumption

Applications

- Optical VOA
- Optical Switch
- Optical Modulator

Specifications

Parameter	Min	Typical	Max	Unit
Rising Speed (Sr) ^[1]	450	550	700	ns
Falling Speed (Sf) ^[2]	650	800	950	ns
Repetition Rate	DC		50	kHz
Pulse Width ^[3]	1.0			μs
Input Control Voltage ^[4]	0		3/5	V
Power Consumption ^[5]			2.2	W
Power Supply	5		12	V
Operating Temperature	-5		70	°C
Storage Temperature	-40		80	°C
Electrical Connector	XH2.54-2P for DC supply PH2.0-2P for signal input			

Notes:

- [1]. Duration from begin of electronic signal to end of optic intensity change
- [2]. Duration from begin of electronic signal to end of optic intensity change
- [3]. Pulse working mode
- [4]. 3V or 5V configurable for full attenuation
- [5]. Dependent on repetition frequency, measured at 50kHz

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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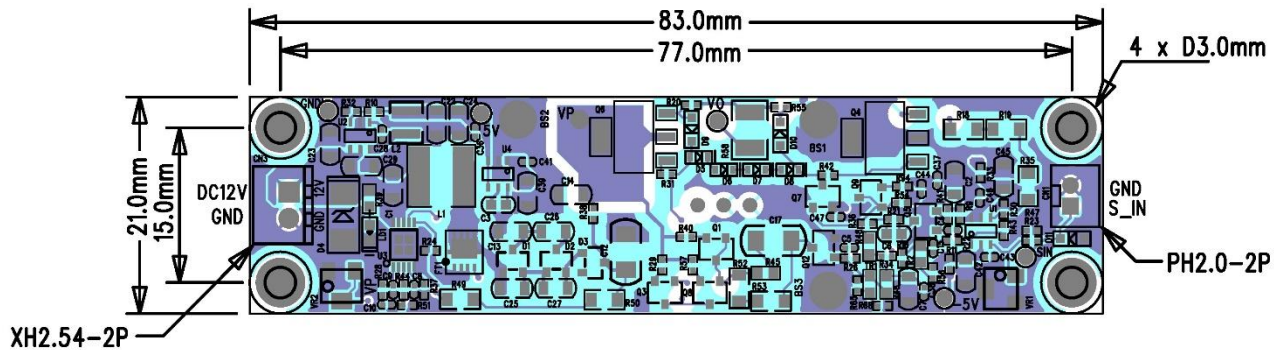


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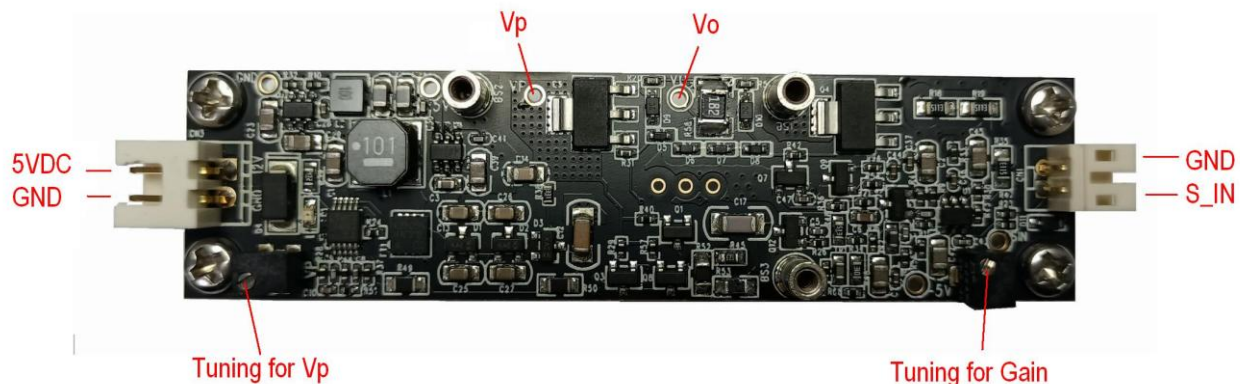
Mechanical Dimensions (mm)

Size of the board is 83mm(H) x 21mm(V), pitch of mounting holes is 77mm(H) x 15mm(V), diameter of mounting holes is 3.0mm



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

Tuning procedures



Step 1. Setting Vp.

The VR2 is for setting the Vp.

Method 1: Set the Vp equal to the nominal voltage of the NS VOA that can be found on the test report of the VOA.

Method 2: Import 5VDC to the PH2.0-2P, turn the VR1 to end of anticlockwise, and then turn VR2 to let VOA reach maximum attenuation point.

Step 2. Setting Gain.

The VR1 is for setting the DC Gain, makes output of Vo to be half of Vp when importing half level signal.

For 5V driving signal, import half of 5V (2.5V) DC to the PH2.0-2P, then turn the Vo to be half level of Vp.

For 3V driving signal, import half of 3V (1.5V) DC to the PH2.0-2P, then turn the Vo to be half level of Vp.

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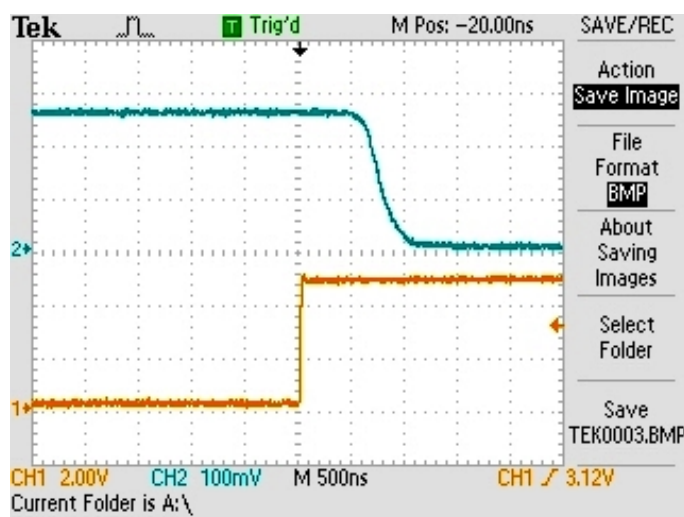
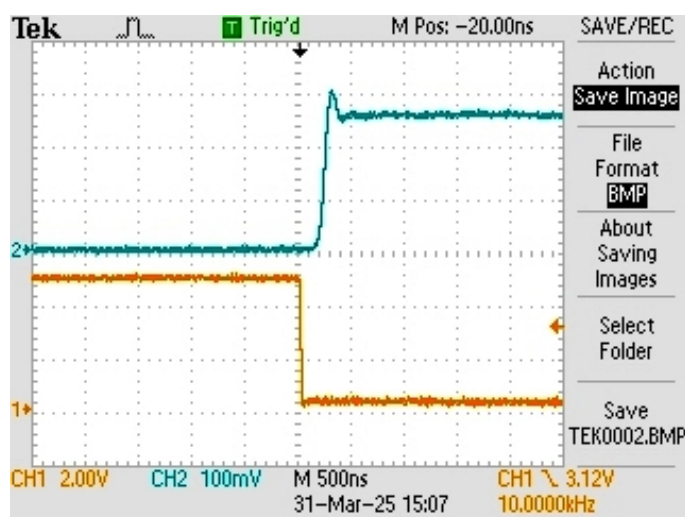
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Operating Ambient Conditions

The module should be operated in free flowing air and how much ambient temperature that depends on power consumption, it is generally considered that when the power consumption is below 1W, the module can operate within an ambient temperature range of -10~70 °C, however when power consumption increases especially close to 2W maximum rate in continuous operation mode, the user should consider applying additional air cooling.

Electric-Optic Switching Response



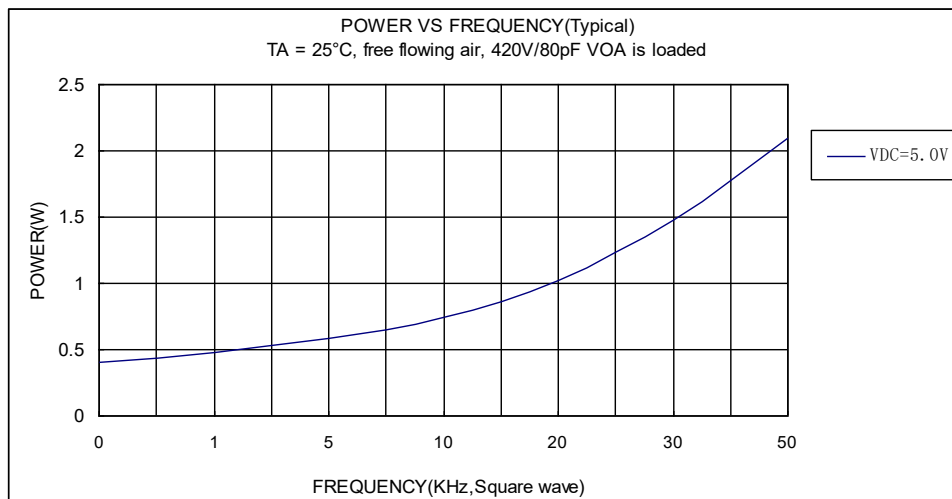
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Power Consumption



Ordering Information (Part Number)

	1 1	4	2	☐	1	☐ ☐	☐
Prefix	Type	Repetition		Size		# of VOA	Connector ^[1]
NVDR-		DC-50kHz = 4 Special = 0		3.27"x0.83" = 4 Special = 0		Single VOA = 11 Special = 00	SMA = 2 Special = 0

[1]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

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.