JDS Uniphase

Product Bulletin

Preliminary

MEMS Based
Voltage-Controlled Attenuators

JDS Uniphase is pleased to announce our latest generation variable optical attenuator. Based on MEMS technology, it is ideal for all key network optical power management applications. It features small size, fast response time, and high reliability.

The MEMS design achieves highly repeatable optical attenuation over C and/or L bands through a thermally actuated beam-blocking vane intercepting a light beam.

Operation of the MEMS attenuator requires applying a drive voltage to two pins located on the bottom of the package. When driven in a closed-loop to ensure operation in constant electrical power mode, excellent temperature performance is possible over diverse environmental conditions. The MEMS attenuator offers a considerable price advantage over traditional voltage controlled attenuators. This is achieved through lower manufacturing costs associated with batch wafer fabrication processing.

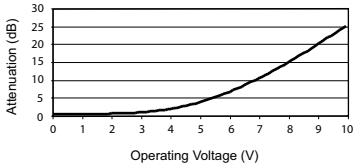
Key Features
- Fast response time
- Small size
- Array configurable
- Superior reliability
- Low polarization dependence
- C- and/or L-band operation
- Single or multichannel applications

Applications
- Power equalization in multichannel optically amplified networks
- Gain-tilt control in optical amplifiers
- Power control into narrowband WDMs and configurable networks
- Power control into receivers

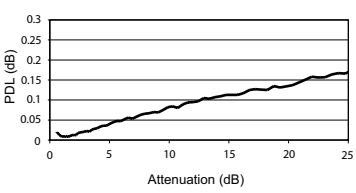
Performance
- Low loss
- Excellent wavelength and polarization dependence
- Low drive power

The plots below show typical performance curves for the MEMS based VOA.

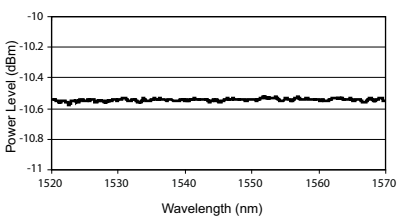
Attenuation Characteristics



PDL Characteristics



Wavelengh Dependence
@ 10 dB attenuation (C Band, 23 °C)



Target Specifications

Parameter		Specification
Optimized wavelength range	C band	1525 to 1575 nm
	L band	1570 to 1610 nm
Attenuation range		20 dB
Insertion loss[1]		0.8 dB maximum (start of life)
		1.0 dB maximum (end of life)
Tuning speed[3]		20 ms
Peak power consumption[3]		150 mW
Optical power handling		23 dBm
Wavelength dependence[2]	Flatness	0.3 dB maximum
	Ripple	0.1 dB maximum
Polarization dependent loss[1, 2]	0 to 10 dB	0.1 dB maximum
	10 to 20 dB	0.2 dB maximum
Temperature dependence of attenuation[5]		0.3 dB typical
Repeatability		0.1 dB maximum
Return Loss[1]		50 dB minimum
Drive voltage[3]		10 V_{DC} maximum
Dimensions (W x H x D)[4]		12.7 x 6.2 x 22.1 mm
Operating temperature		-5 to 75 °C
Reliability qualification		Telcordia 1209 and 1221

1. Excluding connectors.
2. Over 0 to 20 dB attenuation.
3. For full dynamic range.
4. Excluding strain relief and pin connectors.
5. Under constant drive power conditions.

Ordering Information

For more information on this or other products and their availability, please contact your local JDS Uniphase sales representative or JDS Uniphase directly at 613 727-1303, by fax at 613 727-8284, or via e-mail at sales@jdsuniphase.com. Visit our Web site at www.jdsuniphase.com.

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