1064nm Polarization insensitive Semiconductor Optical Amplifier

Allwave Lasers
Photonic Devices Inc.

1064nm Polarization insensitive Semiconductor Optical Amplifier

Devices Datasheet

1. Product Information

Part Number： SOAD-01011233122

Product Description: The Semiconductor Optical Amplifier Devices at 1064nm are designed by using a high quality angled multi-quantum-well SOA chip in a 14-pin butterfly package with thermoelectric cooler (TEC), thermistor for closed-loop temperature control which can assure a stable amplified output for a large dynamic input signal. The devices are available in a standard 8-PIN/14-PIN butterfly package at the 1064nm. The SOA devices have high optical gain, high saturation output power, low polarization dependent loss, low noise figure and broad wavelength range, SM fibers. The products are Telcordia GR-468-CORE qualified and in compliance with RoHS requirement.

Applications:

- Loss compensation for fiber-optic connection and switch
- WDM fiber-optic networks
- 100G fiber-optic data center

Features:

- Wide optical bandwidth
- High saturation output power
- Low polarization sensitivity
- Low gain ripple

Reliability: Telcordia GR-468-CORE, RoHS

2. Performance Specifications

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Storage Temperature	Ts	-	-40	-	+85	℃
Operating Case Temperature	T_C	-	-20	-	+70	℃
Forward Current	I_F	-	-	-	600	mA
SOA Reverse Voltage	V_R	-	-	-	2.5	V
TEC Current	I_{TEC}	-	-	1.0	1.5	A
TEC Voltage	V_{TEC}	-	-	2.8	3.5	V

Optical Characteristics (at 25 ℃ temperature)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Center Wavelength	λc	T_L=15～35℃, CW	1044	1064	1084	nm

3dB Optical Bandwidth	$\Delta\lambda_{3dB}$	-	40	-	-	nm
Saturation Output Power@-3dB	Psat	CW	10	-	-	dBm
Small Signal Gain @λc (@ P_{in} = -25 dBm)	G_{max}	-	13	-	-	dB
Gain Ripple with Respect to λ	ΔG	-	-	0.5	1.0	dB
Noise Figure	NF	-	-	8	9	dB
Polarization Dependent Gain	PDG	-	-	0.5	1.0	dB
Optical Isolation	ISO	-	NA	-	-	dB

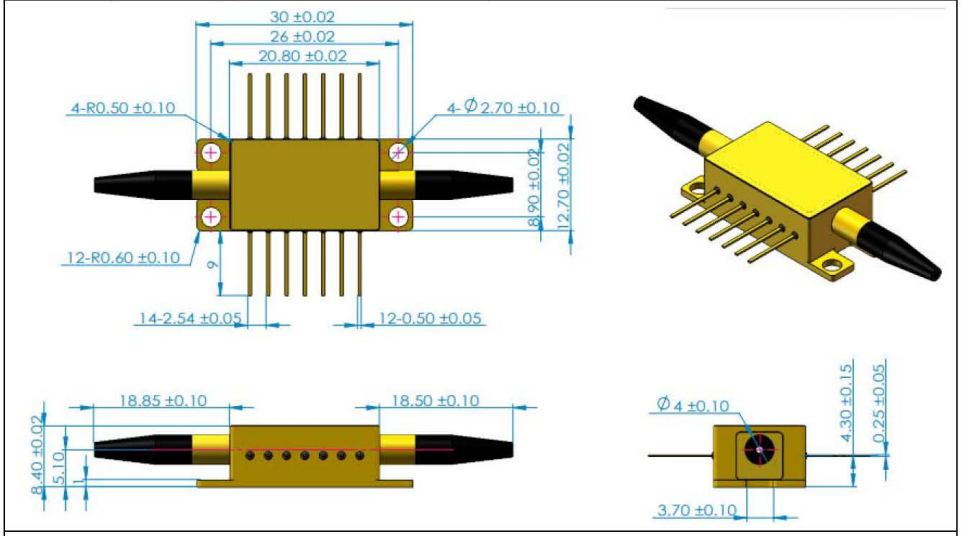
Electrical Characteristics (at 25 °C emperature)

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Operating Current	I_{op}	-	-	450	550	mA
TEC Set Temperature	Ts	-	15	-	35	°C
Thermistor Current	I_{TC}	-	10	-	100	μA
Thermistor Resistance	R_{TH}	T_L = 25 °C	9.5	10	10.5	KΩ
Thermistor Temperature	-	-	-	-	100	°C

Input/Output Fiber Pigtail Specifications

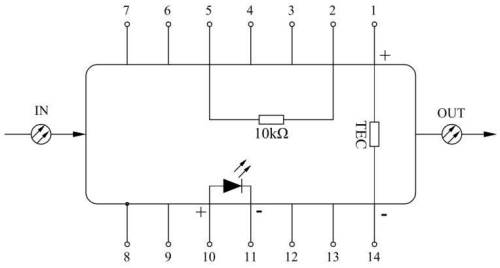
Parameters	Specifications	Parameters	Specifications
Fiber Type	HI 1060	Pigtail Length	1.0±0.1m
Jacket Type	900μm loose tube	Connector Type	FC/APC

3. Package Drawing (Mechanical Dimensions):



Dimensions are in millimeters.

4. Pinout Assignments:



1	Thermoelectric Cooler (+)
2	Thermistor
3	NC
4	NC
5	Thermistor
6	NC
7	NC
8	Case Ground
9	NC
10	SOA Anode (+)
11	SOA Cathode (–)
12	NC
13	NC
14	Thermoelectric Cooler (–)

5. Test Report: The test report should be provided when the products are delivered. Following characteristic test data should be included: Saturation Output Power, Center wavelength, Small Signal Gain, PDG, Pinout Assignments.

6. Packaging: Vacuum sealed anti-static plastic package. Following items should be indicated on the outer packaging surface：Product Name; Product Number; Serial Number.

7. Ordering Info: SOAD-01011233122: SOAD= semiconductor optical amplifier device, 10=1064nm, 1= Polarization insensitive, 1=14-PIN butterfly, 2=10dBm, 3=HI 1060 input fiber, 3= HI 1060 output fiber, 1=900μm loose tube, 2=100cm long input and output pigtail length, 2= FC/APC

Ordering Information

SOAD-	☐☐	☐	☐	☐	☐	☐	☐	☐	☐
SOAD-	Wavelength	Polarization Type	Package	Ouput Power	Input Fiber Type	Output Fiber Type	Pigtail Type	Pigtail length	Connector
	10: 1064nm	:Polarization insensitiv	1: 14-PIN	0: 6dBm	0: SMF-28e	0: SMF-28e	0:250μm bare fiber	1:50cm	0:None
	31: 1310nm	2:Single polarization	2: 8-PIN	1: 8dBm	1:PMF-1310	1:PMF-1310	1:900μm loose tube	2:100cm	1:FC/UPC
	45: 1450nm			2: 10dBm	2:PMF-1550	2:PMF-1550	2:900μm tight tube	3:150cm	2:FC/APC
	55: 1550nm			3: 13dBm	3: HI 1060	3: HI 1060	C: Customized	4:200cm	3:SC/UPC
	65: 1650nm			C: Customized	C: Customized	C: Customized		C:Customized	4:SC/APC
									5:LC/UPC
									6:LC/APC
									C:Customized
Example of Ordering Form: SOAD-5511100222-01									
SOAD-	55	1	1	1	0	0	2	2	2
	1550nm	Polarization	14-PIN	8dBm	SMF-28e	SMF-28e	900μm tight tube	100cm	FC/APC

End