Alphion®
Enabling the photonic future™

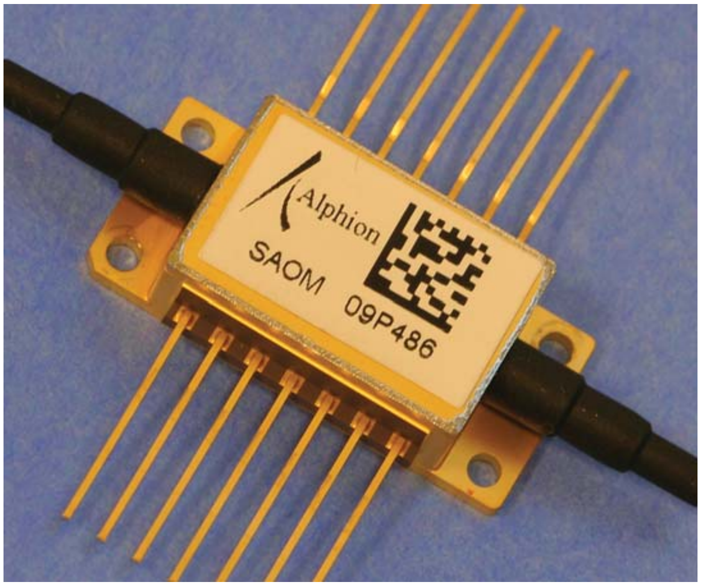
Product Brief

QLight® O-Amp

Models OL, OM, and OH

Features

- 14-Pin MSA package
- Wide optical bandwidth
- O Band (1310 nm) coverage
- Supports rates up to 160 Gb/s
- Low polarization dependence
- High output power



Applications

- Transmit booster
- Receiver pre-amplifier
- In-line amplifier
- Loss compensation
- Gain medium for swept sources

Description

The QLight® O-Amp is a semiconductor optical amplifier (SOA) designed for communications, fiber optic sensing, medical imaging, and test and measurement applications. It is based on the Alphion proprietary QLight® technology platform for the manufacturing of advanced discrete photonics and photonic integrated circuits (PICs).

The O-Amp is available in a MSA compliant, 14-pin butterfly package, based on the Alphion standard packaging platform. The use of a laser-welded, hermetic, organics-free package ensures highly reliable operation. The package incorporates both a thermistor and a thermo-electric cooler to provide stable operation of the SOA over the full operating temperature range. The product is available in three models, OL, OM, and OH, differentiated by the the level of gain provided.

The Alphion QLight O-Amp has unsurpassed performance in amplification of burst-mode traffic and when used in broadly tunable laser sources.

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SPECIFICATIONS

Absolute Maximum Ratings*

Parameter	Symbol	Min	Typ	Max	Unit	Note
Operating Temperature	T_{case}	0		70	˚C	Case Temperature
Storage Temperature	T_{store}	-40		85	˚C	
Operating Bias Current	I_f			300	mA	**OL Model; 450 and 600 for OM and OH**
Optical Amplifier Reverse Bias	V_{rev}			2	V	
Thermistor Current	I_{therm}			5	mA	
TEC Current	I_{TEC}			1.8	A	
TEC Voltage	V_{TEC}			3.4	V	

* 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 section of the datasheet. Exposure to Absolute Maximum Ratings for extended periods can adversely affect the device reliability.

Operating Specifications*

Parameter	Symbol	Min	Typ	Max	Unit	Note
Operating Wavelength	λ	1270		1350	nm	
Peak Gain	G_{pk}	5		30	dB	**Varies by O-Amp model**
Peak Gain WL	λ_{pk}		1310		nm	
BW Gain Flatness	GF_{BW}		3.0		dB	
Gain Ripple	GR		0.2		dB	
Noise Figure	NF		7.0		dB	Max gain pol., -20 dBm input power
Polarization Dependent Gain	PDG		1.0		dB	
Saturation Output Power	P_{1dB}		10		dBm	1.0 dB gain compression
Saturation Output Power	P_{3dB}		13		dBm	3.0 dB gain compression
Forward Voltage	V_f		2		V	
Operating Bias Current	I_{op}	120		420	mA	**Varies by O-Amp model**
Thermistor Resistance	R_{therm}		10		kΩ	At 25˚C
Total Power Consumption	P			4	W	T_{case} = 70˚C, By design

**Specifications are subject to change without notice.*

Pin Assignments			
1	TEC (+)	14	TEC (-)
2	Thermistor	13	NC
3	NC	12	NC
4	NC	11	Chip (-)
5	Thermistor	10	Chip (+)
6	NC	9	NC
7	NC	8	NC

*Note: Pin #1 is marked by a bevel (notch) at the base of the housing