

QLight[®] S-Amp

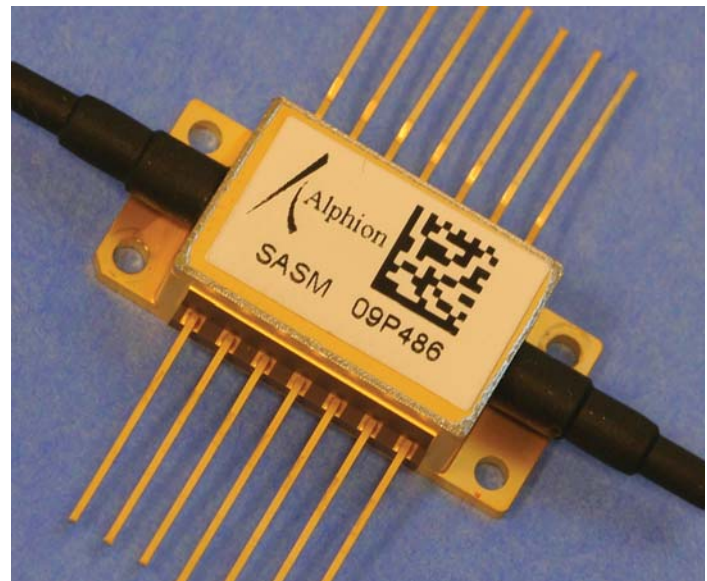
Models SL, SM, and SH

Features

- ◆ 14-Pin MSA package
- ◆ Wide optical bandwidth
- ◆ S Band (1490 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[®] S-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 S-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, SL, SM, and SH, differentiated by the the level of gain provided.

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

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	SL Model; 450 and 600 for SM and SH
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	1460		1540	nm	
Peak Gain	G _{pk}	5		30	dB	Varies by S-Amp model
Peak Gain WL	λ_{pk}		1490		nm	
BW Gain Flatness	G _{FBW}		3.0		dB	
Gain Ripple	GR		0.2		dB	
Noise Figure	NF		6.0		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 S-Amp model
Thermistor Resistance	R _{therm}		10		k Ω	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

