

QLight™ S-Amp

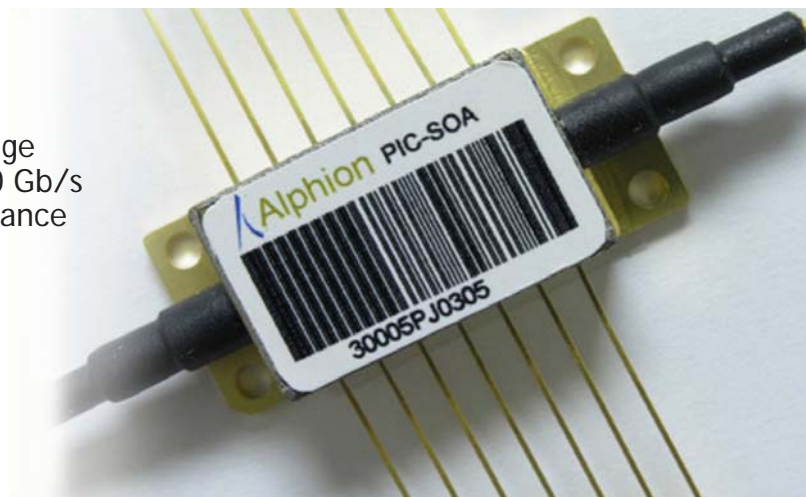
Models SL, SM, and SH

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 Alphion proprietary QLight™ technology platform for the manufacturing of advanced discrete photonics and photonic integrated circuits (PICs).

The S-Amp is available in the MSA compliant, 14-pin butterfly package, based on 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 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 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.



Models SL, SM, and SH SPECIFICATIONS

Absolute Maximum Ratings*

| Parameter | Symbol | Min | Typ | Max | Unit | Note |
|--------------------------------|-------------|-----|-----|-----|-------------|-------------------------------------|
| Operating Temperature | T_{case} | 0 | | 70 | $^{\circ}C$ | |
| Storage Temperature | T_{store} | -40 | | 85 | $^{\circ}C$ | |
| 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 | BW_{op} | 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 | GF_{BW} | | 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 $^{\circ}C$ |
| Total Power Consumption | P | | 2.2 | 4 | W | $T_{case} = 70^{\circ}C$ |

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 |

