# 1550nm Semiconductor Optical Amplifier




## Description:

The PL-SOA-A-A81-W1550-PAPA 1550nm Semiconductor Optical Amplifier (SOA) is single-pass, traveling-wave amplifier that perform well with both monochromatic and multi-wavelength signals. The SOA consists of a highly efficient InP/InGaAsP Multiple Quantum Well (MQW) layer structure.

## Features:

- Single mode input/output
- Low chip-to-fiber coupling loss
- CW or pulsed operation
- SM or PM Fiber (ø0.9mm)
- FC-APC connectors
- 14-pin butterfly package
- Built-in thermistor and TEC
- Low power consumption

## Optional:

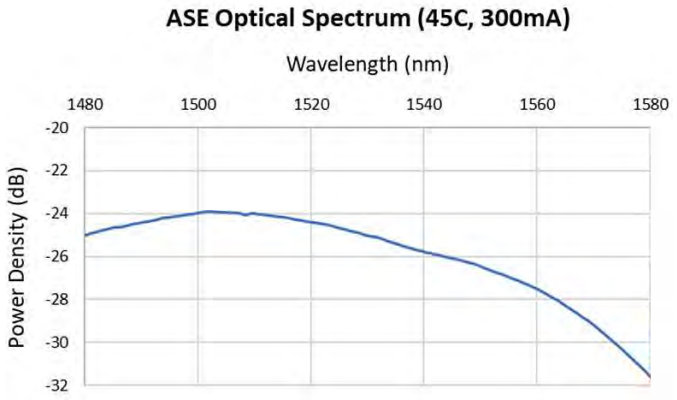
- Fiber transmission systems
- Fiber optic gyros
- Fiber optic sensors
- Optical coherence tomography
- Testing Light source

## E/O Characteristics:

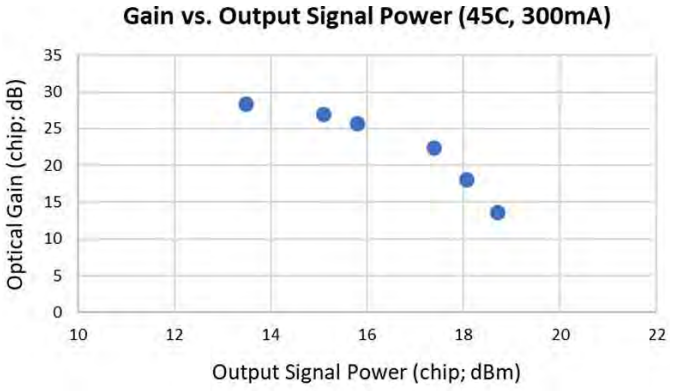
Electrical/Optical Characteristics (Tsub=25°C, CW bias unless stated otherwise)

| tem # | Symbol | PL-SOA-A-A81-W1550-PAPA | | |
|---|---|---|---|---|
| | | Min | Typical | Max |
| Operating Current | IOP | - | 450 mA | 500 mA |
| Operating Wavelength Range | | 1528 nm | - | 1562 nm |
| Center Wavelength | λC | - | 1550 | - |
| Saturation Output Powerb (@ -3 dB) | PSAT | 15 dBm | 16.5 dBm | - |
| Polarization extinction ratio | PER | 15 dB | 20 dB | |
| Small Signal Gain (Over C-Band @ Pin = -15dBm) | G | 20 dB | 25 dB | - |
| Gain Flatness (Over C-Band @ Pin = -20 dBm) | ΔG | - | 5 dB | 7 dB |
| Gain Ripple (p-p) @ IOP, λC | δG | - | 0.1 dB | 0.5 dB |
| Polarization Dependent Gain | PDG | - | 1.0 dB | 1.8 dB |
| Noise Figure | NF | - | 8 dB | 9.5 dB |
| Forward Voltage | VF | - | 1.6 V | 1.8 V |
| Chip Length | - | - | 1.5 mm | - |
| Waveguide Refractive Index | - | - | 3.2 | - |
| TEC Operation (Typical/Max @ TCASE = 25/70 °C) | | | | |
| TEC Current | ITEC | - | 0.23 A | 1.5 A |
| TEC Voltage | VTEC | - | 0.5 V | 4.0 V |
| Thermistor Resistance | RTH | - | 10 kΩ | - |

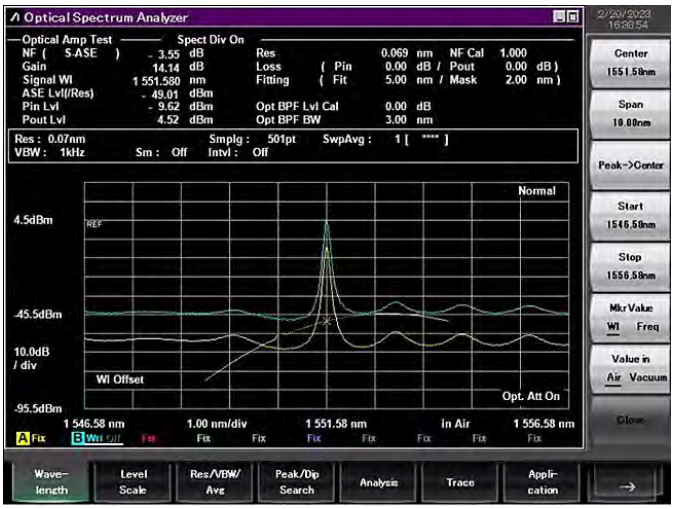
## ASE Spectrum:



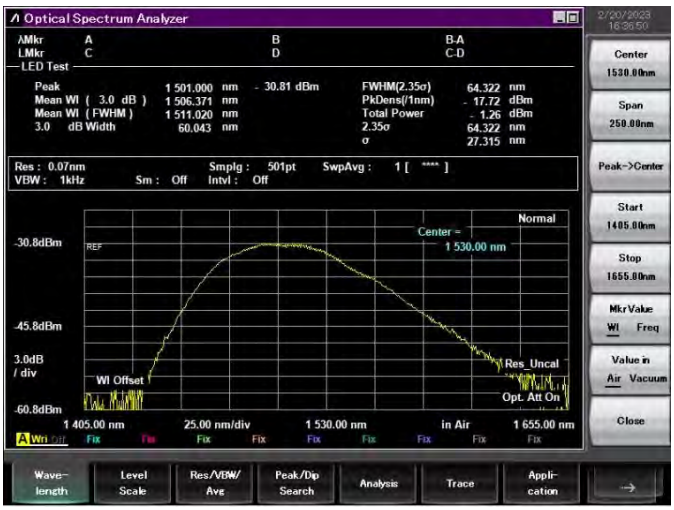
## Gain with Output Signal Power:




## SOA Power Amplification Comparison(25deg,Pin=0dBm,I=400mA):

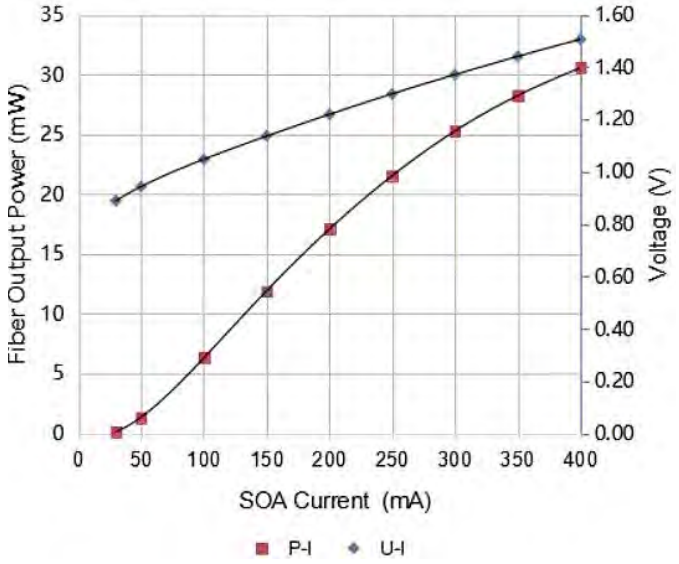



## SOA ASE Spectrum(25deg,I=400mA):

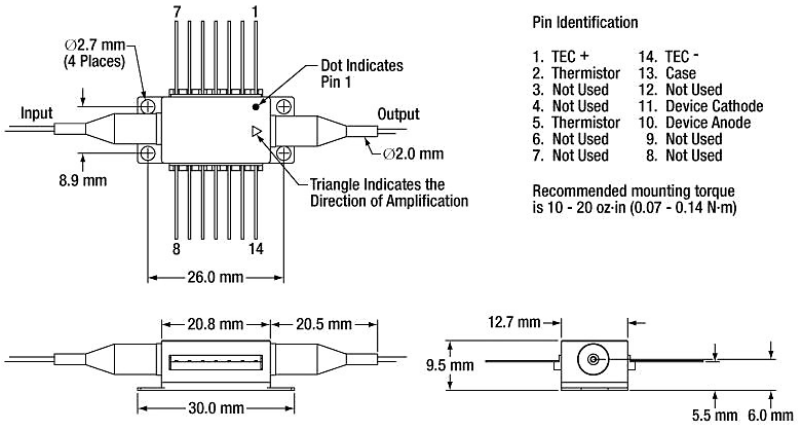



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## SOA Characteristic Graph(25deg,Pin=0dBm):




## Dimensions and Pin definitions:




Pin Identification

| | | | |
|---|---|---|---|
| 1. | TEC + | 14. | TEC - |
| 2. | Thermistor | 13. | Case |
| 3. | Not Used | 12. | Not Used |
| 4. | Not Used | 11. | Device Cathode |
| 5. | Thermistor | 10. | Device Anode |
| 6. | Not Used | 9. | Not Used |
| 7. | Not Used | 8. | Not Used |

Recommended mounting torque
is 10 - 20 oz-in (0.07 - 0.14 N-m)

## Ordering Info:

PL-SOA-☆-A8▽-W□□□□-XX

☆: Output Power

A: 12dbm

B: 15dbm

C: 20dBm

▽: Bandwidth

1: 60-70nm

2: 30-40nm

□□□□: Wavelength

780: 680nm

850: 850nm

*****

1060: 1060nm

1550: 1550nm

XX: Fiber and Connector Type

SASA=(SMF-28E+ FC/APC)+(SMF-28E+ FC/APC)

SPSP=(SMF-28E+ FC/PC)+(SMF-28E+ FC/PC)

PAPA=(PM Fiber+ FC/APC)+(PM Fiber+ FC/APC)

PPPP=(PM Fiber+ FC/PC)+(PM Fiber+ FC/PC)

PAPA=(PM Fiber+ FC/APC)+(PM Fiber+ FC/APC)