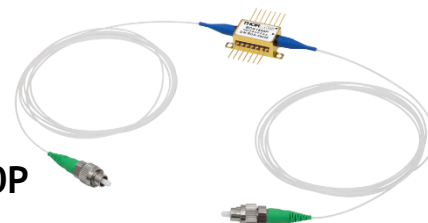


1550 nm Booster Optical Amplifier, PM



Description

BOA1550P

Thorlabs' BOA1550P Booster Optical Amplifier (BOA) is designed to amplify polarized optical signals around 1550 nm. The semiconductor device is housed in a standard 14-pin butterfly package with FC/APC connectors. Polarization maintaining fiber (PM15-U40A) is used on both input and output sides. An integrated TEC and thermistor provide temperature control to stabilize the gain and optical spectrum.

Specifications

CW; $T_{CHIP} = 25\text{ }^{\circ}\text{C}$; $T_{CASE} = 0 - 70\text{ }^{\circ}\text{C}$

| BOA1550P Specifications | | | | |
|---|-------------|---------|---------------|---------|
| | Symbol | Min | Typical | Max |
| Center Wavelength ^a | λ_C | 1530 nm | 1550 nm | 1580 nm |
| Operating Current | I_{OP} | - | 900 mA | 950 mA |
| Optical 3 dB Bandwidth | BW | 95 nm | 105 nm | - |
| Small Signal Gain @ $P_{IN} = -20\text{ dBm}^{b,c}$ | G | 24 dB | 27 dB | - |
| Saturation Output Power (@ -3 dB) ^{b,c} | P_{SAT} | 17 dBm | 18 dBm | - |
| Gain Ripple (RMS) ^b | δG | - | 0.04 dB | 0.3 dB |
| Noise Figure ^{b,c} | NF | - | 8.5 dB | 9.5 dB |
| Polarization Extinction Ratio | PER | - | 18 dB | - |
| Forward Voltage ^b | V_F | - | 1.6 V | 2.1 V |
| TEC Operation (Typical/Max @ $T_{CASE} = 25\text{ }^{\circ}\text{C} / 70\text{ }^{\circ}\text{C}$) | | | | |
| TEC Current | I_{TEC} | - | 0.55 A | 1.5 A |
| TEC Voltage | V_{TEC} | - | 0.70 V | 4.0 V |
| Thermistor Resistance | R_{TH} | - | 10 k Ω | - |

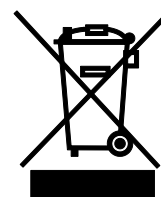
a. This is the center wavelength of the amplified spontaneous emission (ASE), and is not necessarily the operating wavelength. An operating wavelength of 1550 nm was selected for testing to yield the specified saturated output power (P_{SAT}).

b. At I_{OP} .

c. At 1550 nm

| BOA1550P Absolute Maximum Ratings ^a | | | |
|--|------------|-----------------------|-----------------------|
| | Symbol | Min | Max |
| Operating Current | I_{OP} | - | 950 mA |
| Optical Output Power, CW | P_{OUT} | - | 150 mW |
| Chip Temperature (TEC) | T_{CHIP} | 10 $^{\circ}\text{C}$ | 30 $^{\circ}\text{C}$ |
| Case Temperature | T_{CASE} | 0 $^{\circ}\text{C}$ | 70 $^{\circ}\text{C}$ |

a. Absolute maximum rating specifications should never be exceeded. Operating at or beyond these conditions can permanently damage the amplifier.



| Fiber Specifications | |
|----------------------|--------------------------------------|
| | Value |
| Fiber Type | PM15-U40A |
| Mode Field Diameter | $10.5 \pm 0.5 \mu\text{m}$ @ 1550 nm |
| Numerical Aperture | 0.125 |
| Fiber Pigtail Length | 1.5 m |
| Connector | FC/APC, 2.0 mm Narrow Key |

Performance Plots

