

**BOA1250P**

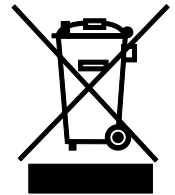
### Description

Thorlabs' BOA1250P Booster Optical Amplifier (BOA) is designed to amplify polarized optical signals around 1250 nm. The semiconductor device is housed in a standard 14-pin butterfly package with FC/APC connectors. Polarization maintaining fiber (PM980-XP) 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;  $T_{CHIP} = 25\text{ }^{\circ}\text{C}$ ;  $T_{CASE} = 0 - 70\text{ }^{\circ}\text{C}$

BOA1250P Specifications				
	Symbol	Min	Typical	Max
Center Wavelength <sup>a</sup>	$\lambda_C$	1230 nm	1250 nm	1270 nm
Operating Current	$I_{OP}$	-	600 mA	700 mA
Optical 3 dB Bandwidth	BW	70 nm	78 nm	-
Small Signal Gain @ $P_{IN} = -20\text{ dBm}^{b,c}$	G	27 dB	32 dB	-
Saturation Output Power (@ -3 dB) <sup>b,c</sup>	$P_{SAT}$	15 dBm	17 dBm	-
Gain Ripple (RMS) <sup>b</sup>	$\delta G$	-	0.13 dB	0.3 dB
Noise Figure <sup>b,c</sup>	NF	-	7 dB	9 dB
Forward Voltage <sup>b</sup>	$V_F$	-	1.6 V	2.1 V
TEC Operation (Typical/Max @ $T_{CASE} = 25\text{ }^{\circ}\text{C} / 70\text{ }^{\circ}\text{C}$ )				
TEC Current	$I_{TEC}$	-	0.34 A	1.5 A
TEC Voltage	$V_{TEC}$	-	0.40 V	4.0 V
Thermistor Resistance	$R_{TH}$	-	10 k $\Omega$	-



a. This is the center wavelength of the amplified spontaneous emission (ASE), and is not necessarily the operating wavelength. An operating wavelength of 1250 nm was selected for testing to yield the specified saturated output power ( $P_{SAT}$ ).

b. At  $I_{OP}$ .

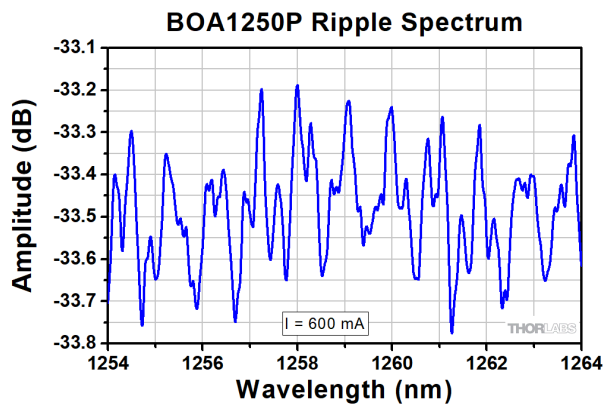
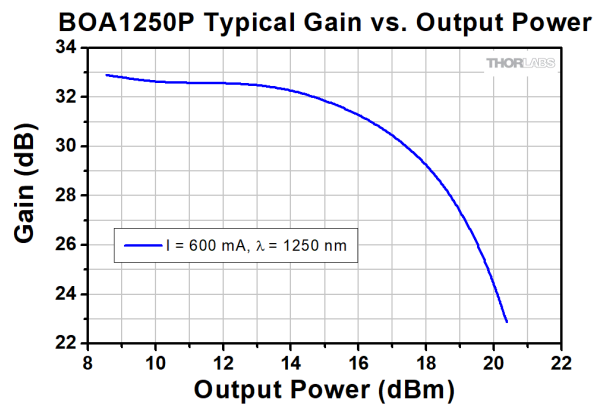
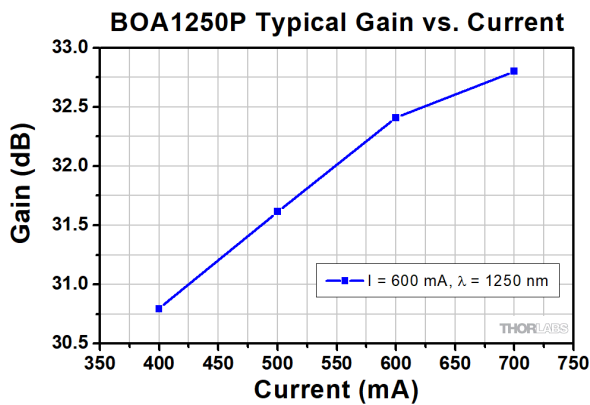
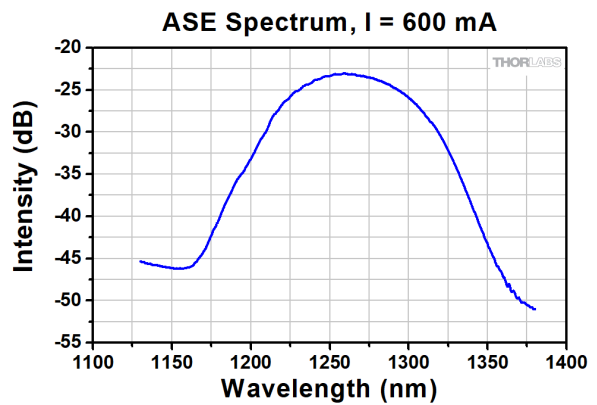
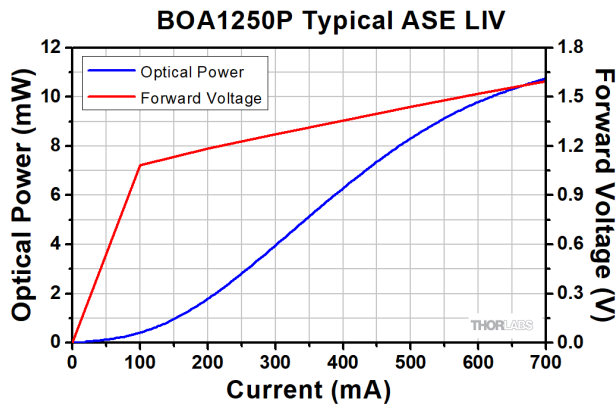
c. At 1250 nm

BOA1250P Absolute Maximum Ratings <sup>a</sup>			
	Symbol	Min	Max
Operating Current	$I_{OP}$	-	700 mA
Optical Output Power, CW	$P_{Out}$	-	250 mW
Chip Temperature (TEC)	$T_{Chip}$	10 $^{\circ}\text{C}$	30 $^{\circ}\text{C}$
Case Temperature	$T_{Case}$	0 $^{\circ}\text{C}$	70 $^{\circ}\text{C}$

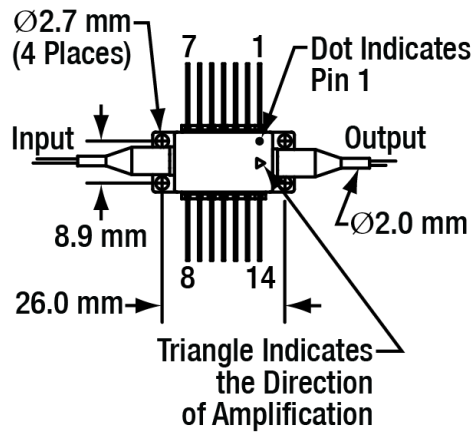
a. Absolute maximum rating specifications should never be exceeded. Operating at or beyond these conditions can permanently damage the amplifier.

Fiber Specifications	
	Value
Fiber Type	PM980-XP
Mode Field Diameter	$6.6 \pm 0.5 \mu\text{m}$ @ 980 nm
Numerical Aperture	0.12
Fiber Pigtail Length	1.5 m
Connector	FC/APC, 2.0 mm Narrow Key

## Performance Plots



## Drawings



### 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)

