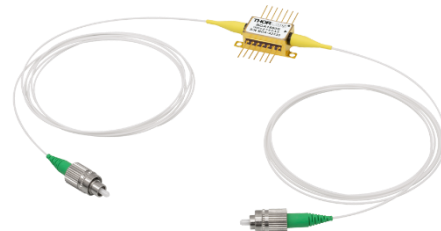


### BOA1550S



### Description

Thorlabs' BOA1550S 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. Single mode fiber (SMF-28e) is used on both input and output sides. An integrated TEC and thermistor provide temperature control to stabilize the gain and optical spectrum.

### Specifications

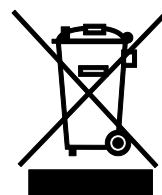
CW;  $T_{CHIP} = 25\text{ }^{\circ}\text{C}$ ;  $T_{CASE} = 0 - 70\text{ }^{\circ}\text{C}$

BOA1550S Specifications				
	Symbol	Min	Typical	Max
Center Wavelength <sup>a</sup>	$\lambda_C$	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) <sup>b,c</sup>	$P_{SAT}$	17 dBm	18 dBm	-
Gain Ripple (RMS) <sup>b</sup>	$\delta G$	-	0.04 dB	0.3 dB
Noise Figure <sup>b,c</sup>	NF	-	8.5 dB	9.5 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	$I_{TEC}$	-	0.55 A	1.5 A
TEC Voltage	$V_{TEC}$	-	0.70 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 1550 nm was selected for testing to yield the specified saturated output power ( $P_{SAT}$ ).

b. At  $I_{OP}$ .

c. At 1550 nm



BOA1550S Absolute Maximum Ratings <sup>a</sup>			
	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	SMF-28e
Mode Field Diameter	$9.2 \pm 0.4 \mu\text{m}$ @ 1310 nm $10.4 \pm 0.5 \mu\text{m}$ @ 1550 nm
Numerical Aperture	0.14
Fiber Pigtail Length	1.5 m
Connector	FC/APC, 2.0 mm Narrow Key

## Performance Plots

