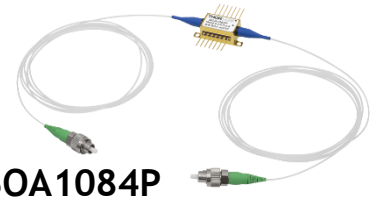
1685 nm Booster Optical Amplifier, PM Fiber



BOA1084P

Description

Thorlabs' BOA1084P Booster Optical Amplifier (BOA) is designed to amplify polarized optical signals around 1685 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 °C; T_{CASE} = 0 - 70 °C

BOA1084P Specifications				
	Symbol	**Min**	**Typical**	**Max**
Center Wavelength[a]	λ_C	1650 nm	1685 nm	1710 nm
Operating Current	I_{OP}	-	600 mA	700 mA
Optical 3 dB Bandwidth	BW	95 nm	110 nm	-
Small Signal Gain @ P_{IN} = -20 dBm[b,c]	G	16 dB	20 dB	-
Saturation Output Power (@ -3 dB)[b,c]	P_{SAT}	14 dBm	17 dBm	-
Gain Ripple (RMS)[b]	δG	-	0.05 dB	0.3 dB
Noise Figure[b,c]	NF	-	-	10.6 dB
Forward Voltage[b]	V_F	-	1.6 V	2.1 V
TEC Operation (Typical/Max @ T_{CASE} = 25 °C / 70 °C)				
TEC Current	I_{TEC}	-	0.40 A	1.5 A
TEC Voltage	V_{TEC}	-	0.5 V	4.0 V
Thermistor Resistance	R_{TH}	-	10 kΩ	-

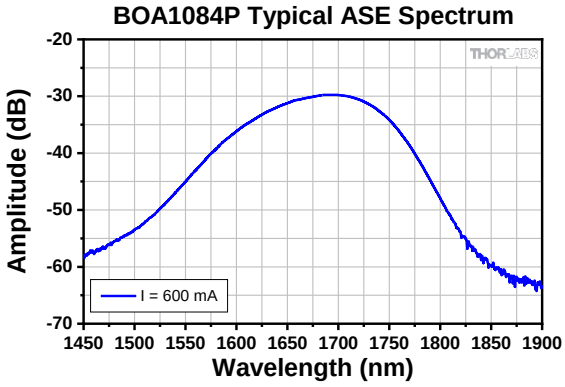
a. This is the center wavelength of the amplified spontaneous emission (ASE), and is not necessarily the operating wavelength. An operating wavelength of 1679 nm was selected for testing to yield the specified saturated output power (P_{SAT}).
b. At I_{OP}.
c. At 1679 nm

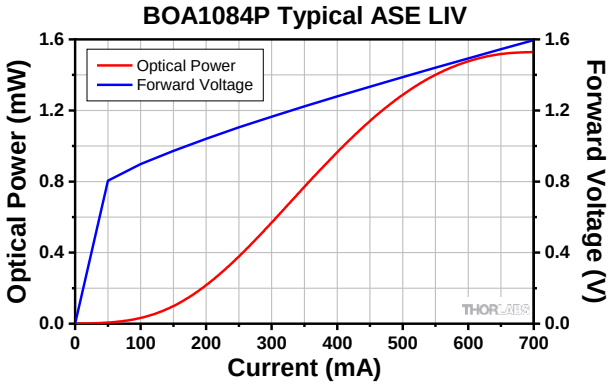
BOA1084P Absolute Maximum Ratings[a]			
	Symbol	**Min**	**Max**
Operating Current	I_{OP}	-	700 mA
Optical Output Power, CW	P_{Out}	-	110 mW
Chip Temperature (TEC)	T_{Chip}	10 °C	30 °C
Case Temperature	T_{Case}	0 °C	70 °C

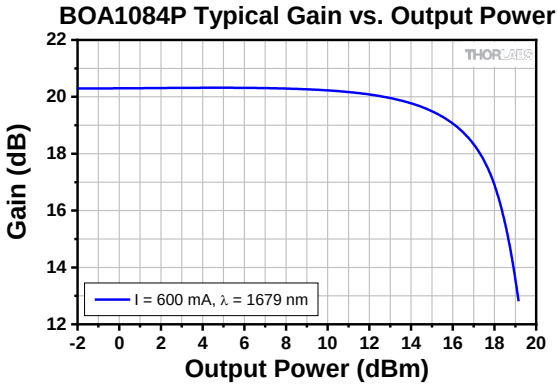
a. Absolute maximum rating specifications should never be exceeded. Operating at or beyond these conditions can permanently damage the amplifier.

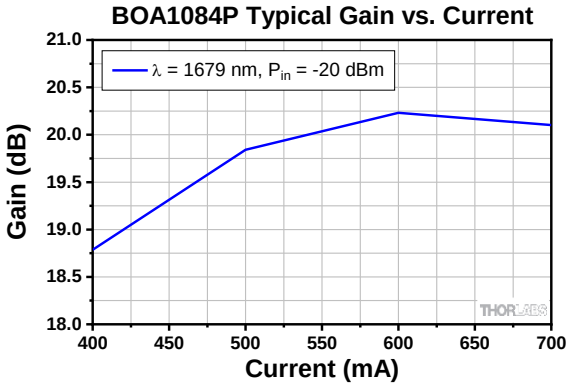
Fiber Specifications	
	Value
Fiber Type	PM15-U40A
Mode Field Diameter	10.5 ± 0.5 µm @ 1550 nm
Numerical Aperture	0.125
Fiber Pigtail Length	1.5 m
Connector	FC/APC, 2.0 mm Narrow Key

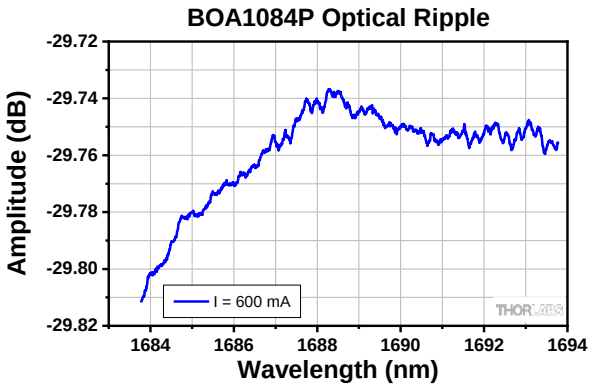
Performance Plots



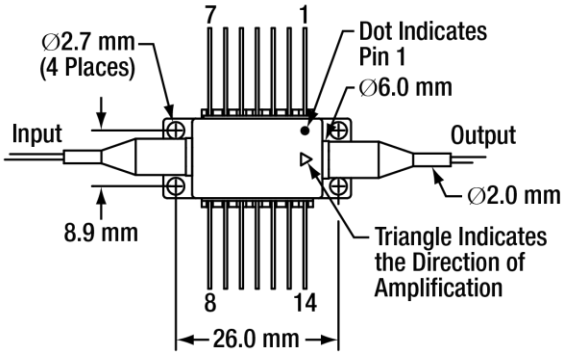








Drawings



Pin Identification

1.	TEC +	14.	TEC -
2.	Thermistor	13.	Ground
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)