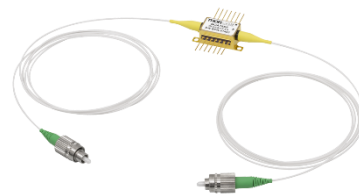


785 nm Booster Optical Amplifier, SM Fiber



BOA785S

Description

Thorlabs' BOA785S Booster Optical Amplifier (BOA) is designed to amplify polarized optical signals around 785 nm. The semiconductor device is housed in a standard 14-pin butterfly package with FC/APC connectors. Single mode fiber (780HP) 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; $T_{CHIP} = 25\text{ }^{\circ}\text{C}$; $T_{CASE} = 0 - 70\text{ }^{\circ}\text{C}$

BOA785S Specifications				
	Symbol	Min	Typical	Max
Center Wavelength ^a	λ_C	760 nm	775 nm	790 nm
Operating Current	I_{OP}	-	300 mA	325 mA
Optical 3 dB Bandwidth	BW	25 nm	28 nm	-
Small Signal Gain @ $P_{IN} = -20\text{ dBm}^{b,c}$	G	14 dB	17 dB	-
Saturation Output Power (@ -3 dB) ^{b,c}	P_{SAT}	15 dBm	16.5 dBm	-
Gain Ripple (RMS) ^b	δG	-	0.02 dB	0.3 dB
Noise Figure ^{b,c}	NF	-	9.5 dB	12 dB
Forward Voltage ^b	V_F	-	2.0 V	2.7 V
TEC Operation (Typical/Max @ $T_{CASE} = 25\text{ }^{\circ}\text{C} / 70\text{ }^{\circ}\text{C}$)				
TEC Current	I_{TEC}	-	0.2 A	1.5 A
TEC Voltage	V_{TEC}	-	0.3 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 785 nm was selected for testing to yield the specified saturated output power (P_{SAT}).

b. At I_{OP} .

c. At 785 nm

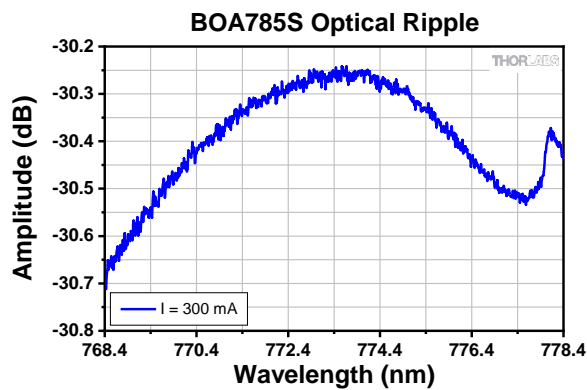
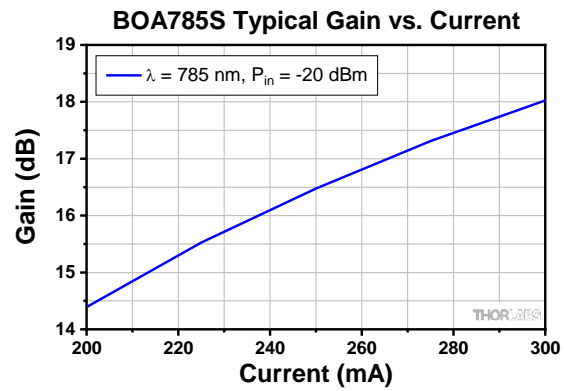
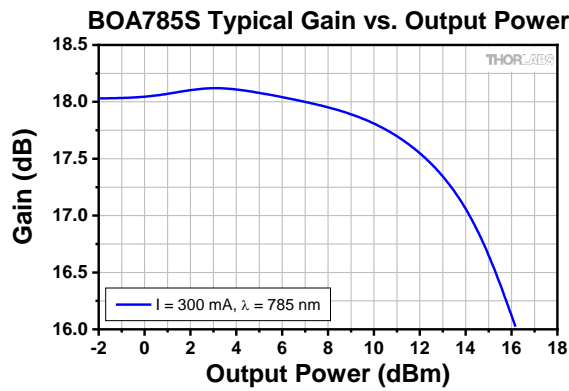
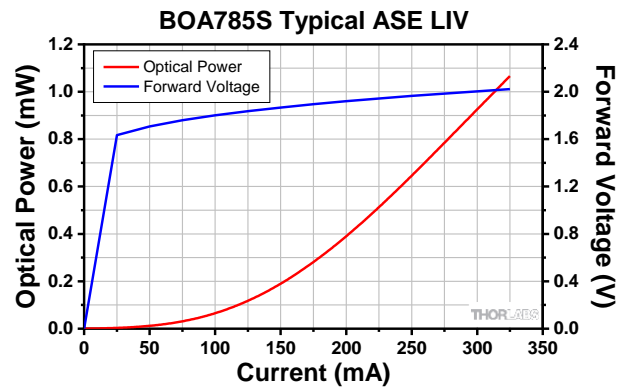
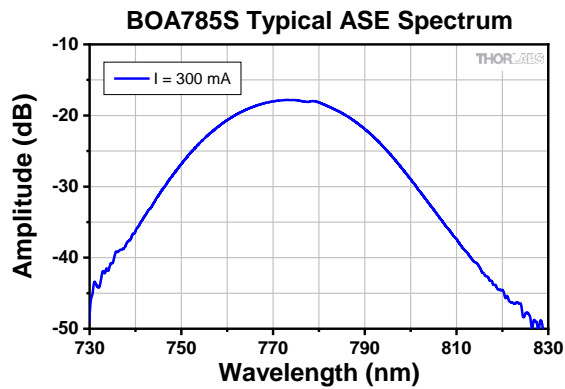
BOA785S Absolute Maximum Ratings ^a			
	Symbol	Min	Max
Operating Current	I_{OP}	-	325 mA
Optical Output Power, CW	P_{Out}	-	80 mW
Chip Temperature (TEC)	T_{Chip}	10 $^{\circ}\text{C}$	30 $^{\circ}\text{C}$
Case Temperature	T_{Case}	0 $^{\circ}\text{C}$	70 $^{\circ}\text{C}$

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

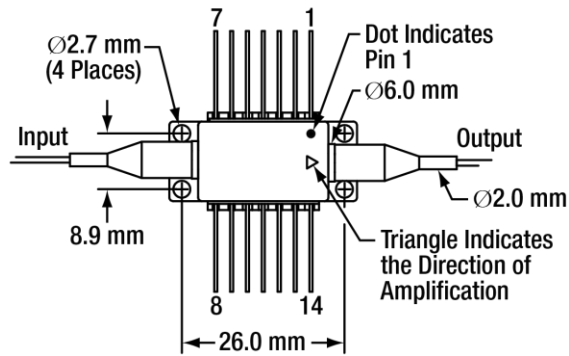


Fiber Specifications	
	Value
Fiber Type	780HP
Core Diameter	4.4 μm
Numeric Aperture	0.13
Fiber Pigtail Length	1.5 m
Connector	FC/APC, 2.0 mm Narrow Key

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)

