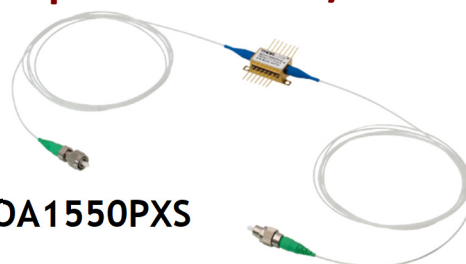


1550 nm Polarization-Dependent Optical Shutter / Switch



BOA1550PXS

Description

Thorlabs' BOA1550PXS polarization-dependent switch enables full control of the power level, making it ideal for high-power laser pulse generation systems such as cavity ring-down sensors and LIDAR systems. The device comes in an industry-standard, 14-pin butterfly package with PM fiber pigtailed that are terminated with FC/APC connectors and key-aligned to the slow axis.

Specifications

BOA1550PXS Specifications ($T_{CHIP} = 25\text{ }^{\circ}\text{C}$; $T_{CASE} = 0 - 70\text{ }^{\circ}\text{C}$)				
	Symbol	Min	Typical	Max
Operating Current	I_{OP}	-	900 mA	950 mA
ASE Center Wavelength	λ_C	1530 nm	1550 nm	1580 nm
Optical 3 dB Bandwidth	BW	95 nm	105 nm	-
Optical Isolation ^a (P_{IN} / P_{OUT}) @ 0 mA	-	40 dB	-	-
Extinction Ratio ^{a,b} (On/Off @ $P_{IN} = -20\text{ dBm}$)	-	-	70 dB	-
Switching Speed	-	-	1 ns	-
Max Output Power for CW Input Signal ^a	P_{CW-MAX}	-	21 dBm	-
Max Average Output Power for Pulse Input Signal	$P_{PULSE-MAX}$	-	See Footnote c	-
Saturation Output Power (@ -3 dB) ^{a,b}	P_{SAT}	17 dBm	18 dBm	-
Small Signal Gain @ $P_{IN} = -20\text{ dBm}$ ^{a,b}	G	24 dB	27 dB	-
Noise Figure ^{a,b}	NF	-	8.5 dB	9.5 dB
Forward Voltage ^b	V_F	-	1.6 V	2.1 V
Chip Length	-	-	1.5 mm	-
Waveguide Refractive Index	-	-	3.2	-
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. At 1550 nm

b. At I_{OP}

c. For rectangular on/off pulse: $P_{PULSE-MAX} \approx P_{CW-MAX} + 10 \times \log(D)$. D is the duty cycle ratio of pulsed signal.



BOA1550PXS 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 °C	30 °C
Case Temperature	T_{Case}	0 °C	70 °C

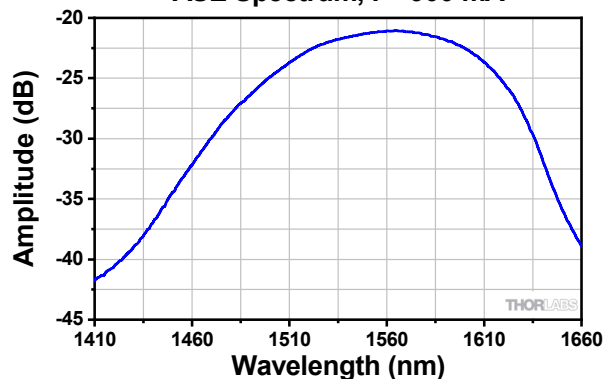
- a. Absolute maximum rating specifications should never be exceeded. Operating at or beyond these conditions can permanently damage the amplifier.

Fiber Specifications

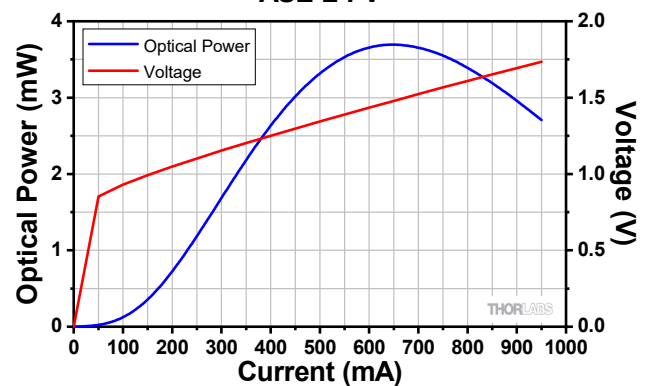
	Value
Fiber Type	Corning PM15-U40A
Mode Field Diameter	$10.5 \pm 0.5 \mu\text{m}$ @ 1550 nm
Numerical Aperture	0.125
Fiber Pigtail Length	1.5 m
Connector	FC/APC, 2.0 mm Narrow Key

Performance Plots

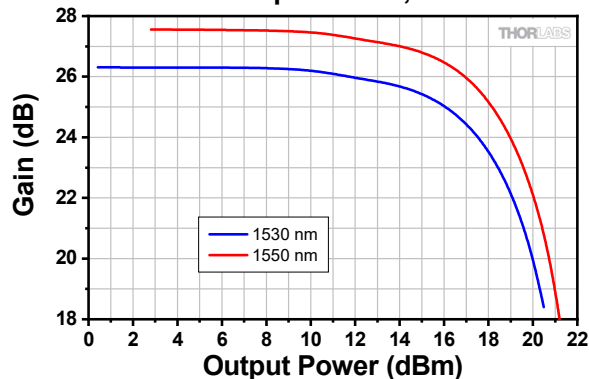
ASE Spectrum, $I = 900$ mA



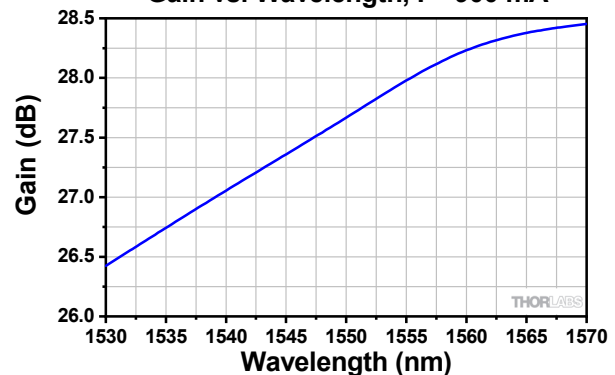
ASE L-I-V

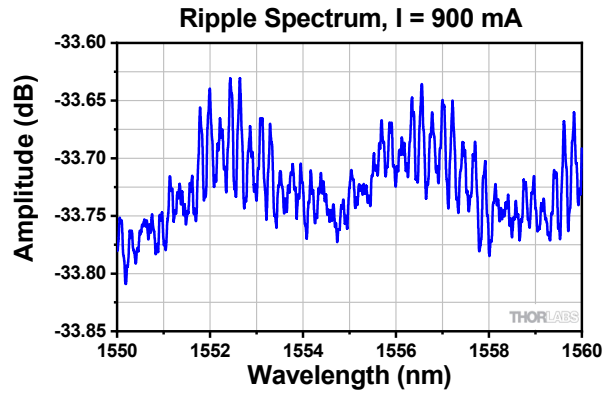


Gain vs. Output Power, $I = 900$ mA

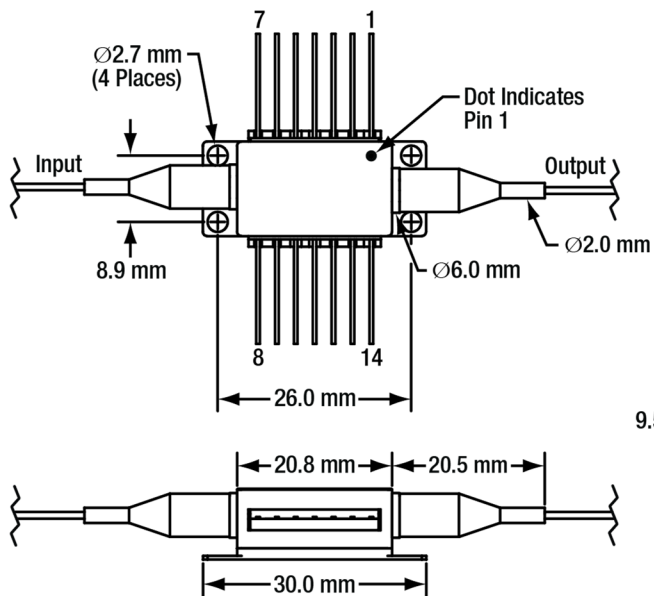


Gain vs. Wavelength, $I = 900$ mA





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)

