



Figure 1. Top View

## FEATURES

- Wavelength Range: Operates at 1550nm, a widely used wavelength for optical communication and sensing applications.
- High Gain: Small signal gain of 25dB with excellent power handling.
- Low Noise: The device offers a low noise figure (7-9 dB), ensuring minimal signal degradation.
- Polarization Insensitivity: Achieved with PDG (polarization dependent gain) <2.0dB, making it suitable for diverse signal environments.
- Compact Butterfly Package: The device comes in a sealed, standard butterfly package that ensures high reliability and ease of integration into existing systems.
- Temperature Range: Operates across a broad temperature range from  $-10^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ , suitable for

both indoor and outdoor environments.

- Customizable Options: Available for custom configurations, including special wavelengths and integration options.

## APPLICATIONS

The 1550nm Butterfly SOA is designed for a variety of optical applications:

- Fiber Optic Sensing Systems: Used as a modulator or chopper in distributed fiber optic sensor systems, replacing acousto-optic modulators (AOMs).
- Optical Communications: Amplifies optical signals in communication systems, replacing parts of EDFA systems for cost and space savings.
- Lidar Systems: Used in high-power SOA arrays for enhancing transmission power and generating pulses in TOF and FMCW Lidar applications.



- Wind Radar Systems: Integrated into wind Lidar systems for improved sensitivity.
- Space-Based Optical Communication: Used in space light detection and communication systems due to its compact form and radiation-resistant properties.

## SPECIFICATIONS

Table 1.

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit/Note
ASE Central Wavelength	$\lambda_{ASE}$	$I_f = 250mA,$ $T_A = 25^\circ C$		1515		nm
Working Wavelength	$\lambda$	$I_f = 250mA,$ $T_A = 25^\circ C$		1550		nm
Gain Spectrum (-3dB)	$\Delta\lambda$	$P_{in} = 0dBm$	100			nm
Max Output Power	$P_{max}$	$I_f = 250mA,$ $P_{in} = 5dBm @1550nm$		13		dBm
Small Signal Gain	SSG	$I_f = 250mA,$ $P_{in} = 5dBm @1550nm$		25		dB
Polarization Dependent Gain	PDG	$I_f = 250mA,$ $T_A = 25^\circ C$		1.0	2.0	dB
Noise Figure	NF	$T_A = 25^\circ C,$ $I_f = 250mA @1550nm$		7	9	dB
Operating Current	$I_f$			250	400	mA
Forward Voltage	$V_f$			1.3	1.5	V
Extinction Ratio 1	ER	$I_f = 250mA/I_f = 0mA,$ $P_{in} = 0dBm$		50		dB
Extinction Ratio 2	ER	$I_f = 250mA/I_f = -5mA,$ $P_{in} = 0dBm$		70		dB
TEC Current	$I_{TEC}$				1.8	A
TEC Voltage	$V_{TEC}$				3.4	V
Thermistor Resistance	$R_{th}$	$T_A = 25^\circ C$	9.5	10	10.5	k $\Omega$
Thermistor Current	$I_{th}$				5	mA
Leakage Rate		$T_A = 25^\circ C$	$1 \times 10^{-12}$	$1 \times 10^{-11}$	$1 \times 10^{-8}$	Pa.m <sup>3</sup> /s
Operating Temperature	$T_{opr}$	$I = I_{opr}$	-10		70	$^\circ C$
Storage Temperature	$T_{stg}$				85	$^\circ C$
Total Power Consumption	P				4	W

### TYPICAL CHARACTERISTICS

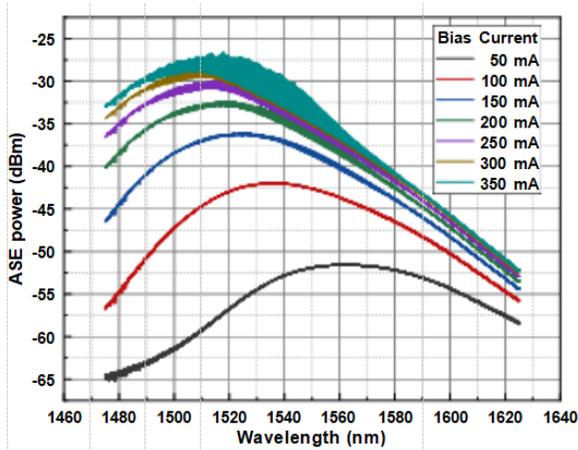


Figure 2. ASE Spectra

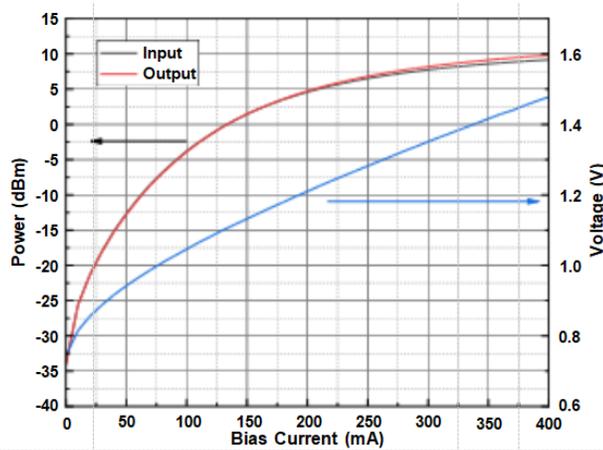


Figure 5. ASE LIV Characteristics

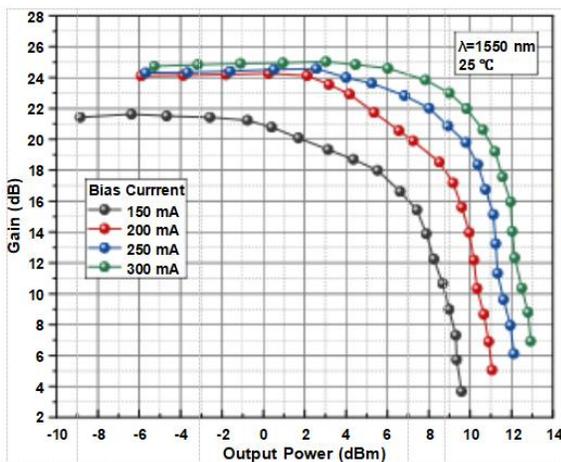


Figure 3. Gain vs. Output Power

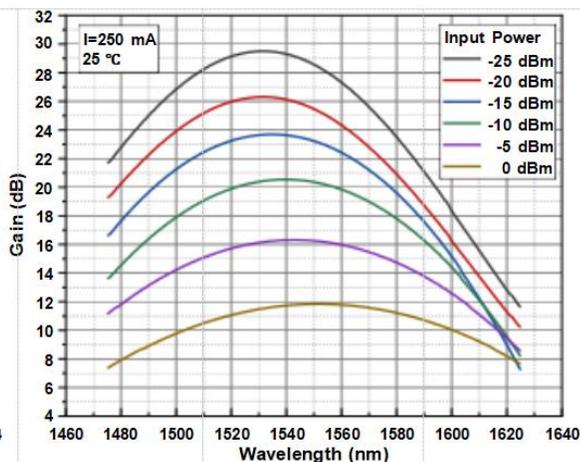


Figure 6. Gain Spectra

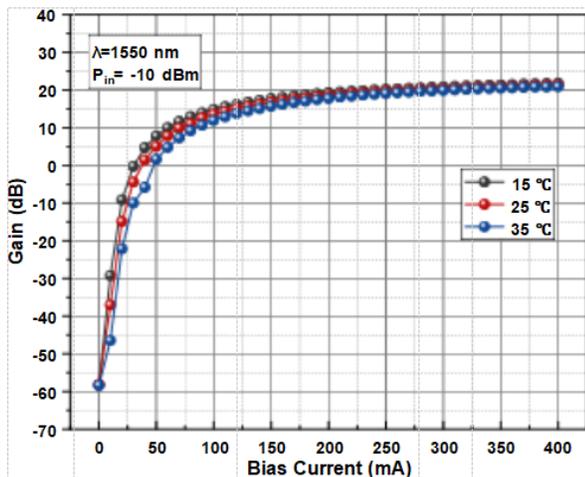


Figure 4. Gain vs. Current (different temperature)

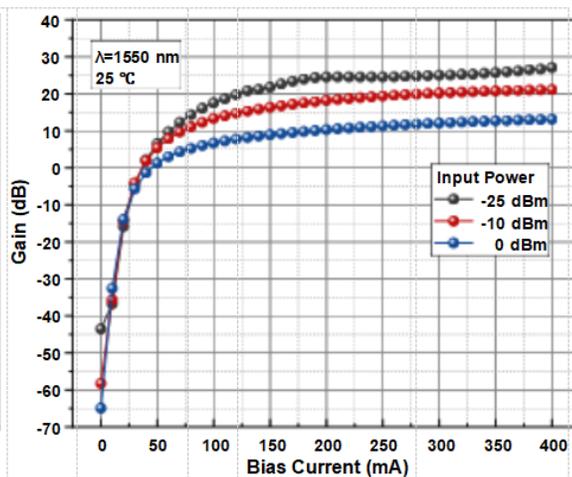


Figure 7. Gain vs. Current (different input power)

### NAMING PRINCIPLE

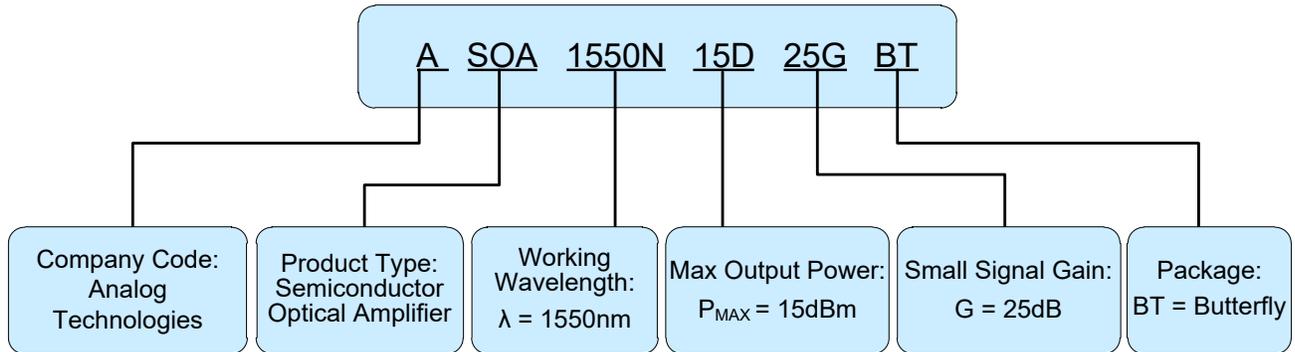


Figure 8. Naming Convention of ASOA1550N15D25GBT

### OUTLINE DIMENSIONS

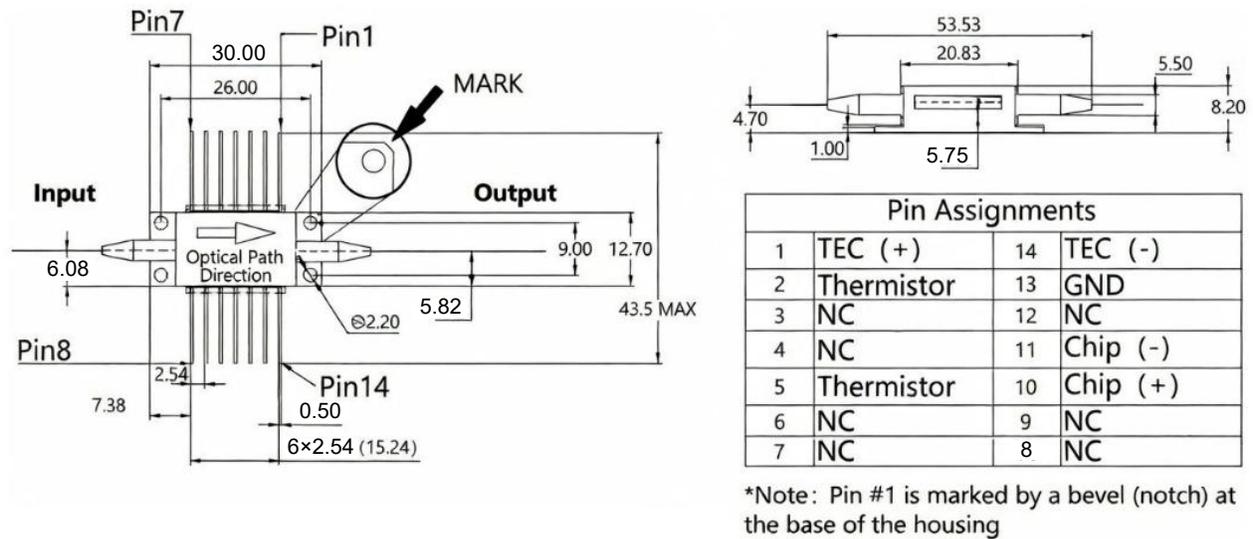


Figure 9. Outline Dimensions

**ORDERING INFORMATION**

Part Number	Buy Now
ASOA1550N15D25GBT	 *  *

\*: both  and  are our online store icons. Our products can be ordered from either one of them with the same pricing and delivery time.

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