Analog Technologies

Semiconductor Optical Amplifier

ASOA1550N21D35GBT

Figure 1. Top View

FEATURES

- Operating wavelength: 1550 nm
- 90 nm typical −3 dB gain bandwidth
- Small-signal gain: 30 dB minimum, 35 dB typical
- Maximum optical output power: 21 dBm
- Noise figure: 6 dB typical, 8 dB maximum
- Typical polarization-dependent gain: 12 dB
- 60 dB typical shutdown extinction ratio
- Hermetically sealed standard butterfly package
- Operating temperature range: −10°C to +70°C
- Custom configurations available

APPLICATIONS

- Distributed fiber-optic sensing systems
- Optical modulators and choppers as alternatives to AOMs
- Broadband light sources for fiber grating demodulation
- 1550 nm optical communication systems
- Partial replacement of EDFA amplification stages
- Wind LiDAR systems
- Narrow-linewidth MOPA laser systems
- Space-based optical detection and communication systems

SPECIFICATIONS

Table 1.

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit/Note
ASE Central Wavelength	λ_{ASE}	I_f = 1000mA, T_A = 25°C		1520		nm
Working Wavelength	λ	I_f = 1000mA, T_A = 25°C		1550		nm
Gain Spectrum (−3dB)	$\Delta\lambda$	P_{in} = 0dBm, I_f = 1000mA		90		nm
Max Output Power	P_{max}	I_f = 1000mA, P_{in} =5dBm @1550nm		21		dBm
Small Signal Gain	SSG	I_f = 1000mA, P_{in} =−25dBm @1550nm	30	35		dB
Polarization Dependent Gain	PDG	I_f = 1000mA, T_A = 25°C		12		dB
Noise Figure	NF	T_A = 25°C, I_f = 1000mA @1550nm		6	8	dB
Operating Current	I_f			1000	1300	mA
Forward Voltage	V_f			1.5	2	V
Shutdown Extinction Ratio	ER	I_f = 1000mA/I_f = 0mA, P_{in} = 0dBm		60		dB
TEC Current	I_{TEC}				1.8	A
TEC Voltage	V_{TEC}				3.4	V
Thermistor Resistance	R_{th}	T_A = 25°C	9.5	10	10.5	kΩ
Thermistor Current	I_{th}				5	mA
Leakage Rate		T_A = 25°C	1×10^{-12}	1×10^{-11}	1×10^{-8}	$Pa.m^3/s$
Operating Temperature	T_{opr}	I = I_{opr}	−10		70	°C
Storage Temperature	T_{stg}				85	°C
Total Power Consumption	P				5	W

TYPICAL CHARACTERISTICS

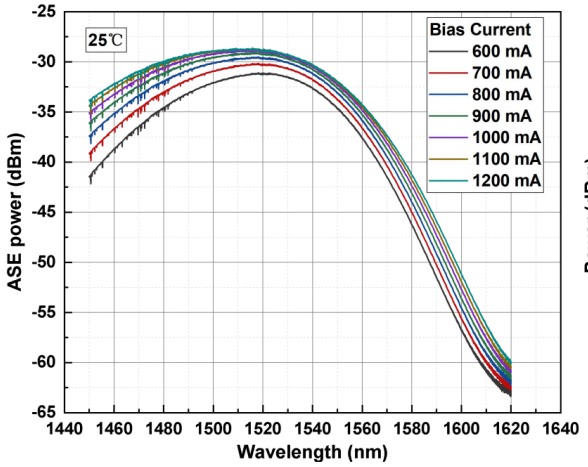


Figure 2. ASE Spectra

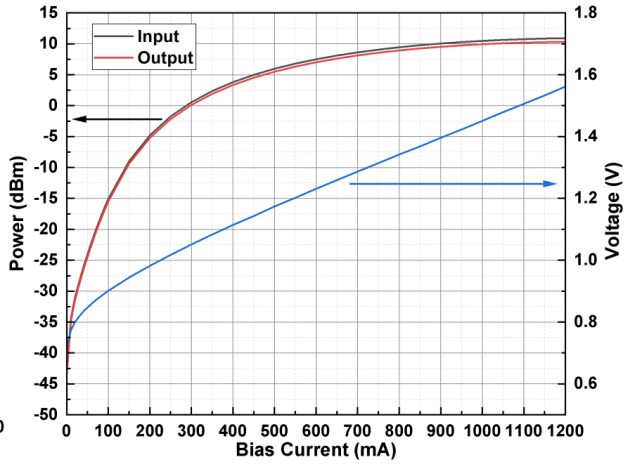


Figure 5. ASE LIV Characteristics

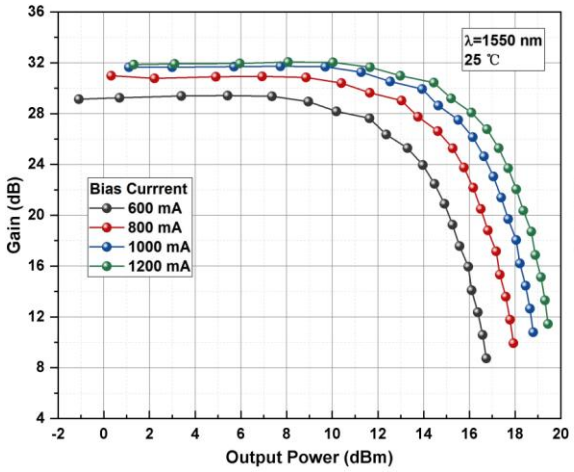


Figure 3. Gain vs. Output Power

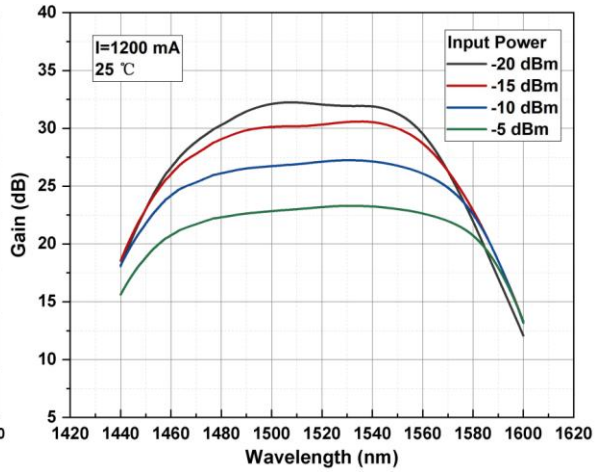


Figure 6. Gain Spectra

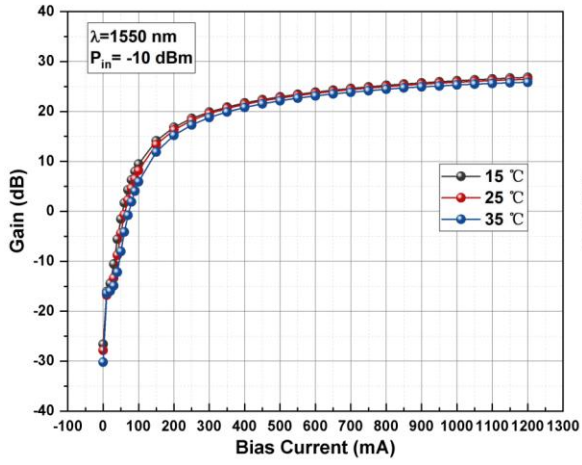


Figure 4. Gain vs. Current
(different temperature)

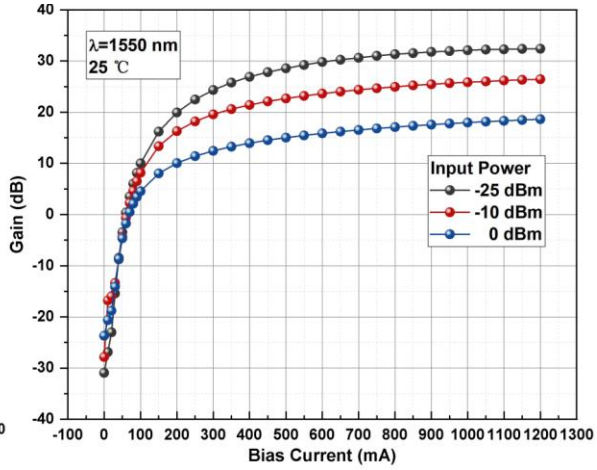


Figure 7. Gain vs. Current
(different input power)

NAMING PRINCIPLE

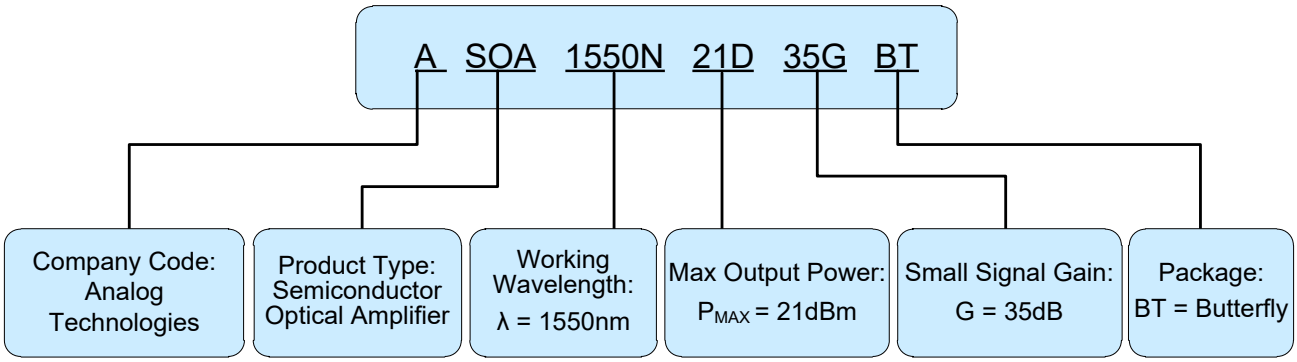
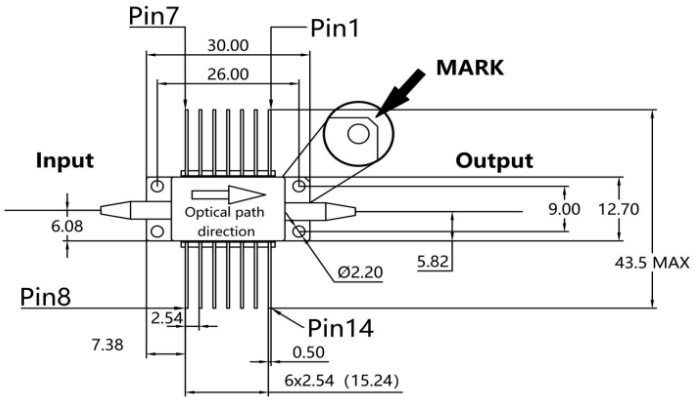
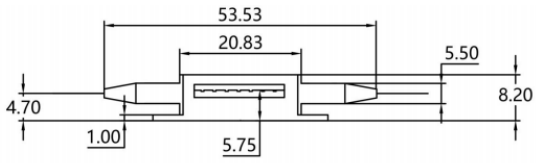


Figure 8. Naming Convention of ASOA1550N15D25GBT

OUTLINE DIMENSIONS





Pin Assignments			
1	TEC (+)	14	TEC (-)
2	Thermistor	13	GND
3	NC	12	NC
4	NC	11	Chip (-)
5	Thermistor	10	Chip (+)
6	NC	9	NC
7	NC	8	NC

*Note: Pin #1 is marked by a bevel (notch) at the base of the housing

Figure 9. Outline Dimensions

ORDERING INFORMATION

Part Number	Buy Now
ASOA1550N21D35GBT	* *

*: 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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