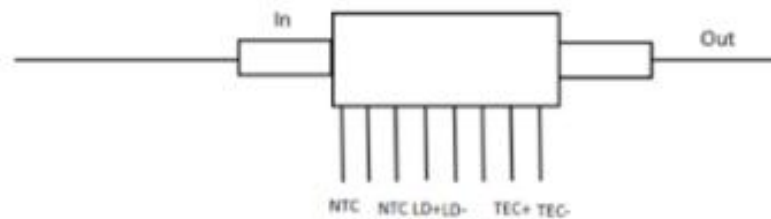


## 1530-1557nm Semiconductor Optical Amplifier



- **Product Description**

Semiconductor Optical Amplifier (SOA) is a PN junction device with a quantum well structure. Under external forward bias, population inversion is achieved, which induces stimulated radiation via optical signals to realize optical signal amplification. SOA features low cost, compact size and easy integration. In the era of new infrastructure, it is widely applied in access networks, metropolitan network edges and optical fiber sensing fields.

- **Product features**

Wide wavelength tuning range; high gain; low noise; compact package; fast response

## ● Part Number

MP-SOA-1530-25dB-27-PA

## ● Application area

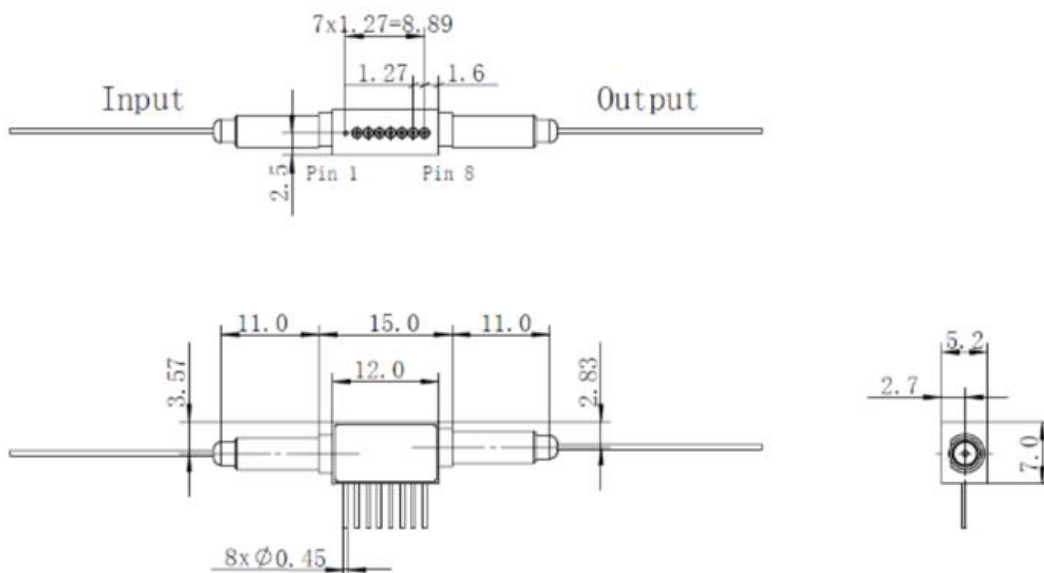
Fiber optical communication | Optical signal processing | Quantum optics |

Sensing network | Laboratory testing

## ● Core parameters

Input Optical Power	Output Power	Operate Wavelength
-15~10dBm	18~20dBm	1530~1557nm

## ● Dimension Drawing



## ● General Parameters

### Detailed Specifications

#### Core Parameters

Parameter	Unit	Specification
Operating Wavelength	nm	1530 ~ 1557
Input Optical Power	dBm	-15 ~ 10
Maximum Module Output Power* <sup>1</sup>	dBm	18 ~ 20
Maximum Small-Signal Gain* <sup>2</sup>	dB	≥25
Gain Flatness	dB	≤2.0
Return Loss	dB	≥40
Noise Figure	dB	≤7.0
Input Optical Extinction Ratio	dB	≥10
Output Optical Extinction Ratio	dB	≥20
Optical Power / Gain Accuracy	dB	≤1.0
Pigtail Length	cm	40 ~ 60
Pigtail Type	—	Polarization-Maintaining Fiber



<b>Connector Type</b>	—	<b>FC/APC</b>
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**Notes:**

The output optical power is guaranteed to be higher than 18 dBm under 5 dBm input optical power and 800 mA driving current.

The amplification gain of the amplifier can exceed 25 dB when the input optical signal is lower than -10 dBm and the driving current is higher than 150 mA.

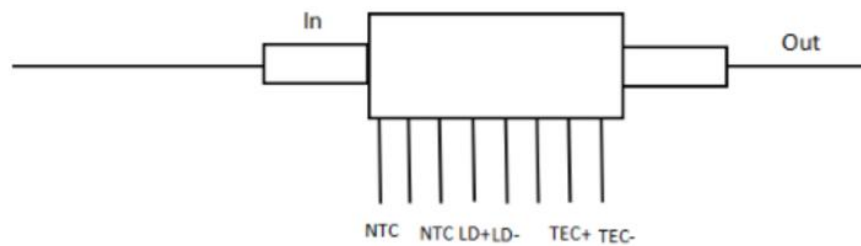
## Electrical Parameters

Parameter	Unit	Specification
SOA Operating Voltage	V	$\leq 2.5$
SOA Operating Current	mA	$\leq 800$
Threshold Current	mA	95
TEC Operating Voltage	V	$\leq 5.0$
TEC Operating Current	A	$\leq 1.0$
Thermistor Resistance	k $\Omega$	10

## Environmental Parameters

Parameter	Condition	Specification
Operating Ambient Temperature	—	-5 °C ~ +55 °C
Operating Ambient Humidity	—	5%RH ~ 90%RH
Storage Temperature	—	-40 °C ~ +85 °C
Storage Humidity	—	5%RH ~ 95%RH

## Pin Definition



Pin assignment in order from left to right;

**PIN 1:** Thermistor **Pin 2 and Pin 6** are unconnected and unused.

**PIN 3:** Thermistor **PIN 4:** SOA Anode **PIN 5:** SOA Cathode **PIN 7:** TEC Positive **PIN 8:**  
 TEC Negative

## Appendix 1: Model and Item Number Comparison Table

Product Title	Operating Wavelength	Input Power	Output Power	Gain Flatness	Noise Figure	Return Loss
1530~1557 nm Semiconductor Optical Amplifier (SOA)	1530~1557 nm	-15~10 dBm	18~20 dBm	≤2.0 dB	≤7.0 dB	≥40 dB