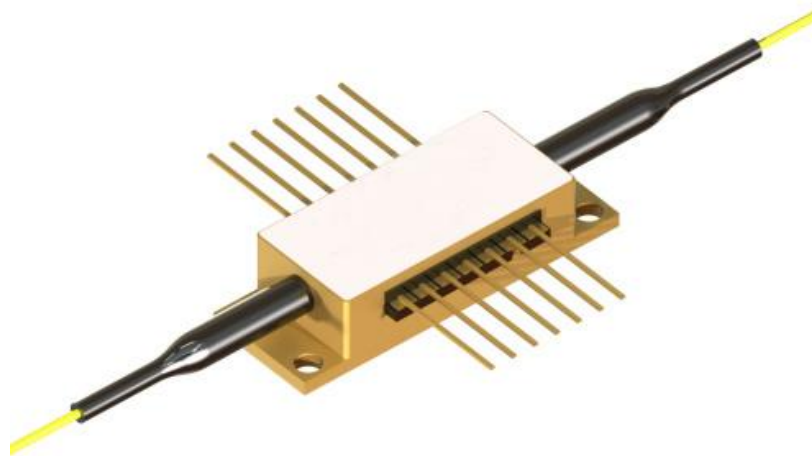


1300nm 22dBm BOA Fiber-Coupled Booster

Semiconductor Optical Amplifier



● Product Description

A high-power fiber coupled booster optical amplifier designed specifically for O-band applications with a center wavelength of 1300nm. This product adopts proprietary anti reflection coating technology and can provide a saturated output power of up to 22dBm, with an output power greater than 350mW @ 1300nm. It is suitable for various application scenarios that require high-power and broadband optical signal amplification.



- **Product features**

Fiber-coupled; high-power amplification; wide wavelength range; low noise;
compact package

- **Part Number**

MP-BOA-1300-125-60-XA

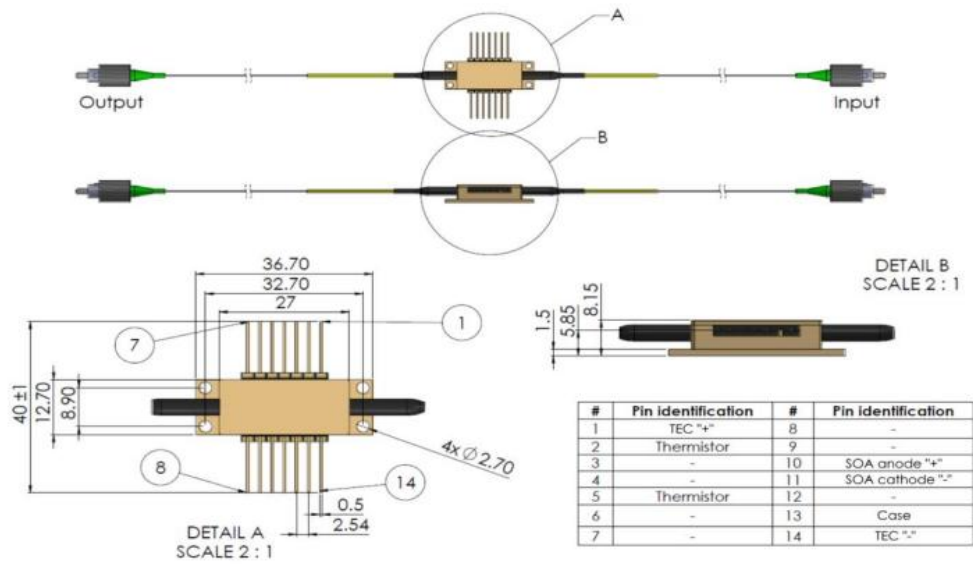
- **Application area**

Fiber Communication | Laser Processing | Sensing System | Medical Laser |
National Defense Technology

- **Core parameters**

| Center Wavelength | Saturated Output Power@-3dB | Bandwidth@-3dB |
|-------------------|-----------------------------|----------------|
| 1300nm | 22dBm | 60nm |

● Dimension Drawing



● General Parameters

Detailed Specifications

Recommended Operating Conditions

@ CW, Tcase = 25°C

| Parameter | Min. | Typ. | Max. | Unit |
|-----------------------------------|------|------|------|------|
| Chip Temperature | 20 | 25 | 40 | °C |
| Forward Current | — | 2000 | 3000 | mA |
| Output Power (Amplification Mode) | — | — | 350 | mW |
| Input Optical Power | -20 | 10 | 15 | dBm |



Gain Characteristics

@ CW, 25°C, 2000mA, Input Signal 10dBm, 1300nm

| Parameter | Min. | Typ. | Max. | Unit |
|-------------------------------------|------|------|------|------|
| Forward Current @ 400mW | — | — | 3000 | mA |
| Saturation Output Power @ -3dB | 17 | 22 | — | dBm |
| Gain | 12 | 16 | — | dB |
| Small Signal Gain @ Pin = -20dBm | 24 | 28 | — | dB |
| Peak Wavelength | 1290 | 1300 | 1310 | nm |
| Bandwidth @ -3dB | — | 60 | — | nm |
| Noise Figure @ Pin = -20dBm | — | 6.4 | — | dB |

ASE Characteristics

@ CW, 25°C, 2000mA, No Input Signal

| Parameter | Min. | Typ. | Max. | Unit |
|-------------------------------------|------|------|------|------|
| Output Power (Per Port) | — | 30 | — | mW |
| Forward Voltage | — | 1.7 | 2.4 | V |
| Average Wavelength | — | 1201 | — | nm |
| Bandwidth (FWHM) | — | 16 | — | nm |
| Ripple (RMS)** | — | 0.05 | 1 | dB |
| Polarization Extinction Ratio (PER) | 15 | 16 | — | dB |
| Polarization | — | TE | — | — |

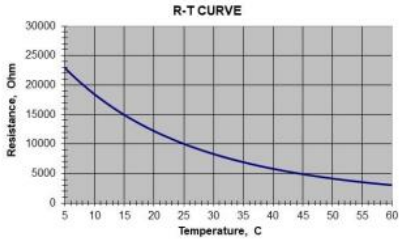
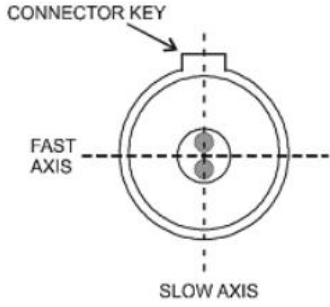
** Measured within 1nm range near the spectral maximum with 20pm resolution



Absolute Maximum Ratings

| Parameter | Min. | Max. | Unit |
|--|------|------|------|
| Output Optical Power | — | 1000 | mW |
| Input Optical Power | — | 20 | dBm |
| Forward Current | — | 4000 | mA |
| Reverse Voltage | — | 2 | V |
| TEC Current | — | 3 | A |
| TEC Voltage | — | 4 | V |
| Chip Operating Temperature | 5 | 50 | °C |
| Case Operating Temperature | 0 | 50 | °C |
| Storage Temperature | 0 | 50 | °C |
| Lead Soldering Temperature (10s max, Max. Case Temp 120°C) | — | 300 | °C |
| Fiber Bend Radius | 3 | — | cm |

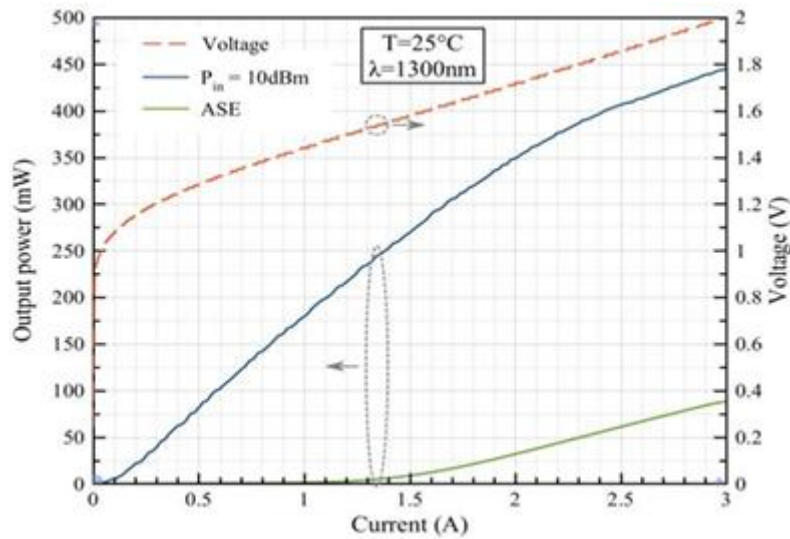


| Thermistor Specifications | | | Fiber Specifications | | | |
|---|-----------|------|--|---------------------|-----------|------|
| Parameter | Value | Unit | Parameter | PM980 | HI1060 | Unit |
| Thermistor Type | NTC | — | Numerical Aperture, typical | 0.12 | 0.14 | — |
| Resistance @ 25 °C | 10 ± 0.1 | kΩ | Cutoff Wavelength | 900 ± 70 | 920 ± 50 | Nm |
| Beta (25–85 °C) | 3434 ± 1% | K | Mode Field Diameter (@ 1060 nm) | 6.6 ± 0.3 | 6.2 ± 0.3 | μm |
|  | | | Cladding Diameter | 125 ± 1 | 125 ± 1 | μm |
| | | | Coating Diameter | 245 ± 15 | 245 ± 15 | μm |
| | | | Loose Tube Diameter (Optional) | 900 | 900 | μm |
| | | | Connector | FC/APC (narrow key) | | |
| | | | Connector Alignment aligned with PANDA fiber | | | |
| | | |  | | | |
| | | | <p>Output light is polarized along the slow axis of the PM fiber.</p> | | | |

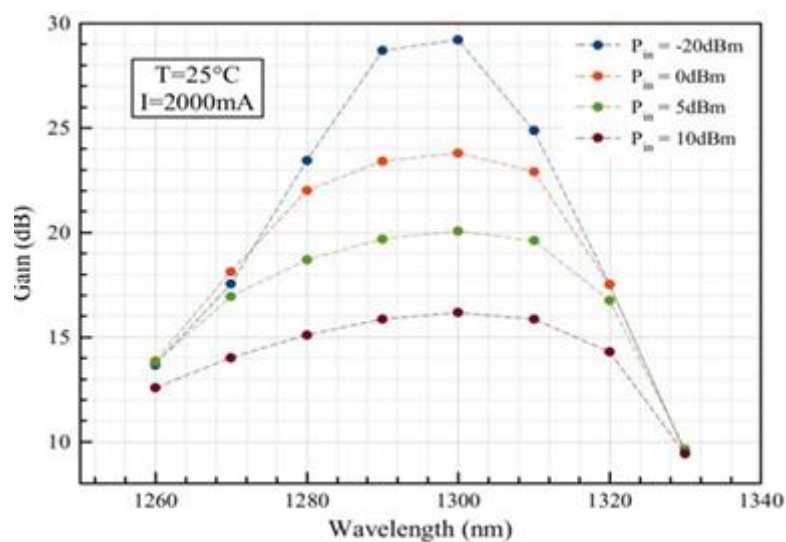
Characteristic Curves Typical Performance (For Reference Only)

@ CW, Tcase = 25°C

Output Power vs Operating Current

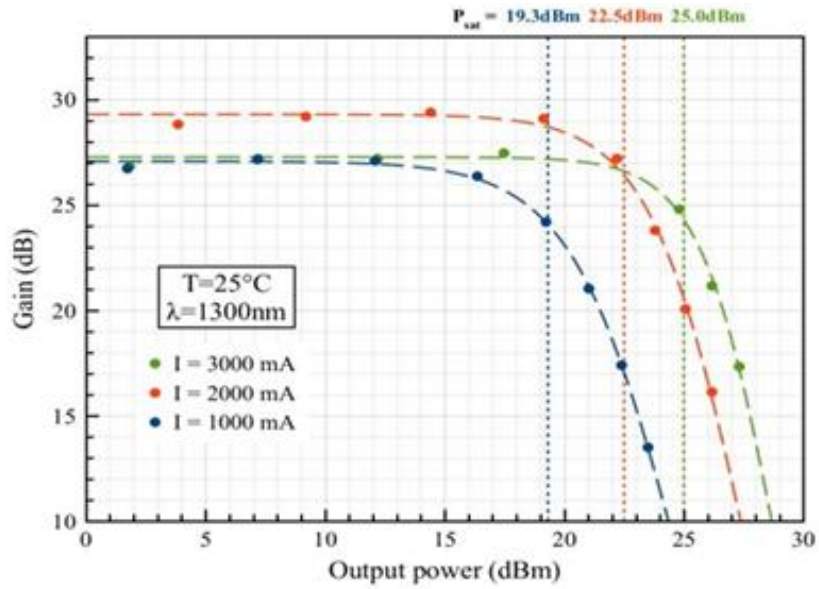


Gain spectra

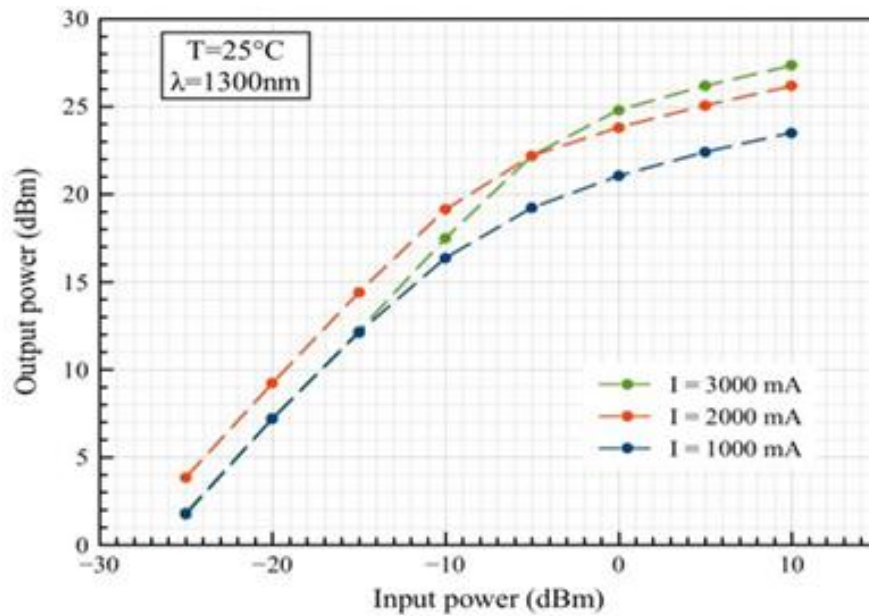




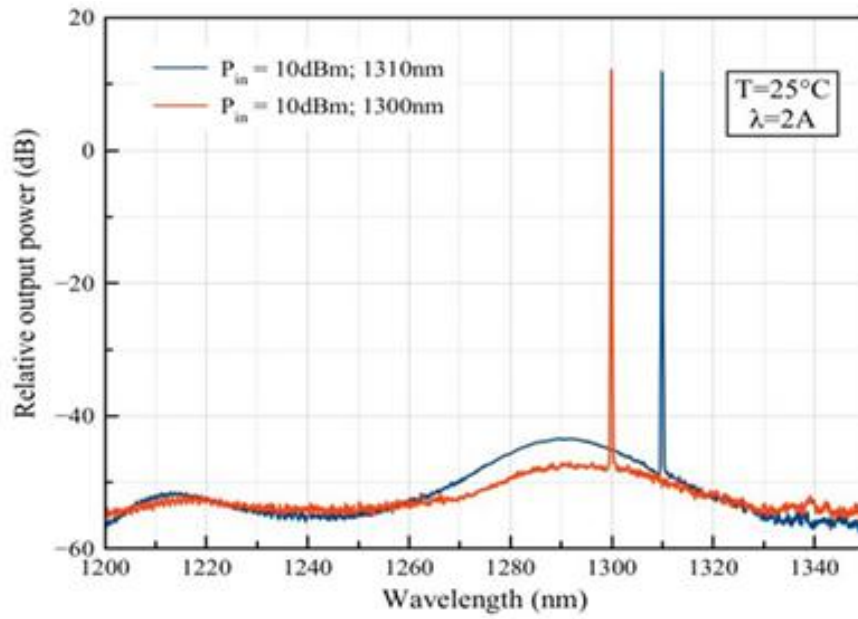
Gain vs Output Power



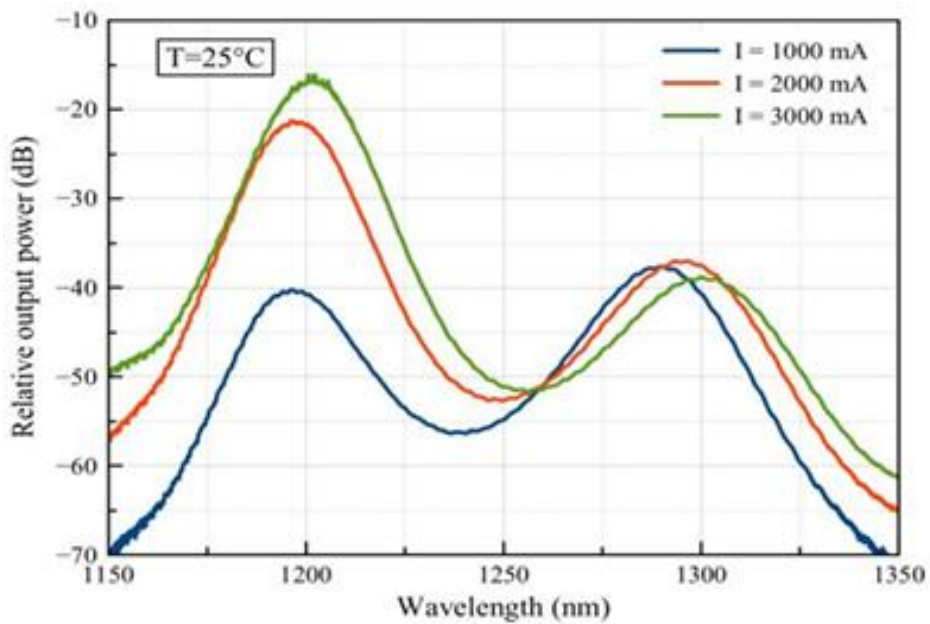
Output Power vs Input Power



Optical Spectra of amplified optical signals



Optical spectra(ASE)





Safety and Operating Instructions

The light emitted by this device is invisible and harmful to human eyes. Avoid direct eye exposure to the fiber connector while the device is in operation. Proper laser safety goggles must be worn when operating with the connector open.

Absolute maximum ratings should only be applied to the device for short periods. Prolonged exposure to maximum ratings or exposure to multiple maximum ratings simultaneously may damage the device or impair its reliability. Operation beyond the absolute maximum ratings may result in device failure or safety hazards. A power supply suitable for the assembly must be used to ensure the maximum forward current is not exceeded.

Devices mounted on a heat radiator require an appropriate heat sink. The device must be installed on the heat sink using 4 screws (cross-tightened with an initial torque of 0.075 Nm and a final torque of 0.15 Nm) or a clamping mechanism. The flatness deviation of the heat sink surface must be less than 0.05 mm. The use of indium foil or a soft thermally conductive material as a thermal interface between the bottom of the package and the heat sink is recommended. Thermal grease is not suitable for this purpose.

Avoid back-reflection to the device. It may degrade the device performance in terms of spectral and power stability. It may also cause catastrophic facet



damage. The use of an optical isolator to suppress back-reflection is strongly recommended.

Do not pull the fiber. Do not bend the fiber with a radius smaller than 3 cm. The fiber tip shall be protected against contamination or damage at all times during installation. After removing the dust cap from the fiber tip, carefully clean it by wiping in one direction with optical lens cleaning paper or a cotton swab moistened with isopropyl alcohol or ethanol. Operate the device only with clean fiber connectors.

ESD Protection – Electrostatic discharge is a major cause of unexpected product failure. Extreme caution shall be taken to prevent ESD. ESD protection must be maintained during device installation – use wrist straps, grounded work surfaces, and strict anti-static techniques when handling the product.

