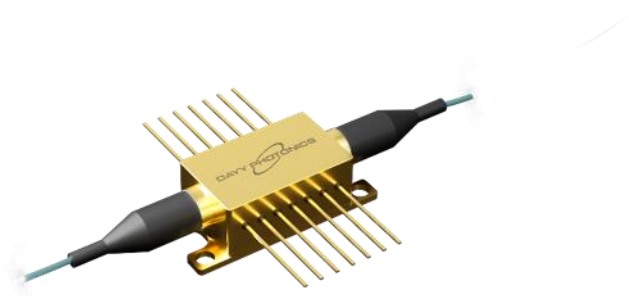


DATASHEET

**Semiconductor Optical Amplifier Optical Switching Type,
Spectral Engine G9: 14-Pin Butterfly Package, 1 SOA: 1640nm,
PM Fiber, High Degree of Polarization, Spectral Coverage:
1610nm-1670nm, FWHM: 60nm, CW: 1640nm, Gain 20dB,
Saturation 13dBm**

Part# ASM0006002



#DAY-0SE7-1640-PM-HP-1610_1670-60-1640-20_2025_01_01

This document is the property of DAYY Photonics, and contains proprietary information. DAYY Photonics reserves the right to make product design or specification changes without notice.

DAYY Photonics Corporation 5150 Tacoma Dr, Houston, TX, USA, 77041
sales@dayyphotonics.com, +1(346)263-3032, www.dayyphotonics.com

PRODUCT DESCRIPTION

The Single-Polarization Semiconductor Optical Amplifier (SOA) at 1640nm are designed by using a high quality angled multi-quantum-well SOA chip in a 14-pin butterfly package with TEC/thermistor for closed-loop temperature control which can assure a stable amplified output for a large dynamic input signal. The devices are available in a standard,

The SOA device has high small signal gain, high saturation output power, high polarization extinction ratio, low noise figure and broad wavelength bandwidth. The product is Telcordia GR-468-CORE qualified and in compliance with RoHS Directives.

KEY FEATURES

- Center Wavelength 1640nm
- Small Signal Gain >20dB
- Bandwidth FWHM: >60nm
- Light output: FC/APC Connector
(Optional: FC/PC or SMA)
- SLED comes with a built-in independent monitor photodiode and one thermoelectric cooler (TEC)

APPLICATIONS

- Optical Component Testing
- Telecom Test Equipment
- Medical Optical Coherence Tomography
- Industrial Optical Coherence Tomography
- Metrology
- Fiber Optic Gyroscopes
- Biomedical Imaging Systems
- Optical Sensing
- White Light Interferometry & Chromatic Dispersion
- Research and Development



#DAY-0SE7-1640-PM-HP-1610_1670-60-1640-20_2025_01_01

This document is the property of DAYY Photonics, and contains proprietary information. DAYY Photonics reserves the right to make product design or specification changes without notice.

DAYY Photonics Corporation 5150 Tacoma Dr, Houston, TX, USA, 77041
sales@dayyphotonics.com, +1(346)263-3032, www.dayyphotonics.com

A. Performance Specifications Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Condition	Min.	Typical	Max	Unit
Storage Temperature	T _S	-	-40	-	+85	°C
Operating Case Temperature	T _{case}	-	-20	-	+70	°C
SOA Forward Current	I _F	-	-	-	650	mA
SOA Reverse Voltage	V _R	-	-	-	2.5	V
TEC Current	I _{TEC}	-	-1.5	-	+1.5	A
TEC Voltage	V _{TEC}	-	-3.5	-	+3.5	V

B. Optical Characteristics (SOA chip temperature at 15°C)

Parameter	Symbol	Condition	Min.	Typical	Max	Unit
Center Wavelength	λ _c	-	1620	1640	1660	nm
3dB Optical Bandwidth	Δλ _{3dB}	-	60	-	-	Nm
Saturation Output Power (@-3dBm)	P _{sat}	CW	13	-	-	dBm
Small Signal Gain @ c (@Pin=-25dBm)	G _{max}	-	20	-	-	dB
Polarization Extinction Ratio	PER	-	-	20	-	dB
Noise Figure	NF	-	-	8	-	dB
Optical Isolation	ISO	-	30	-	-	dB

C. Electrical Characteristics (SOA chip temperature at 15°C)

Parameter	symbol	Condition	Min.	Typical	Max	Unit
Operating Current	I _{op}	-	-	500	600	mA
Laser Forward Voltage	V _F	P _o =P _{sat}	-	2	3	V
TEC Set Temperature	T _S	-		25		°C
TEC Current	I _{TEC}	T _L =25C, T _c =70C	-1.5	-	+1.5	A
TEC Voltage	V _{TEC}	T _L =25C, T _c =70C	-3.5	-	+3.5	V
Thermistor Current	I _{TC}	-	10	-	100	μA
Thermistor Resistance	R _{TH}	T _L =25C	9.5	10	10.5	KΩ
Thermistor Constant	B	-	3800	-	4100	k
Thermistor Temperature	-	-	-	-	100	°C

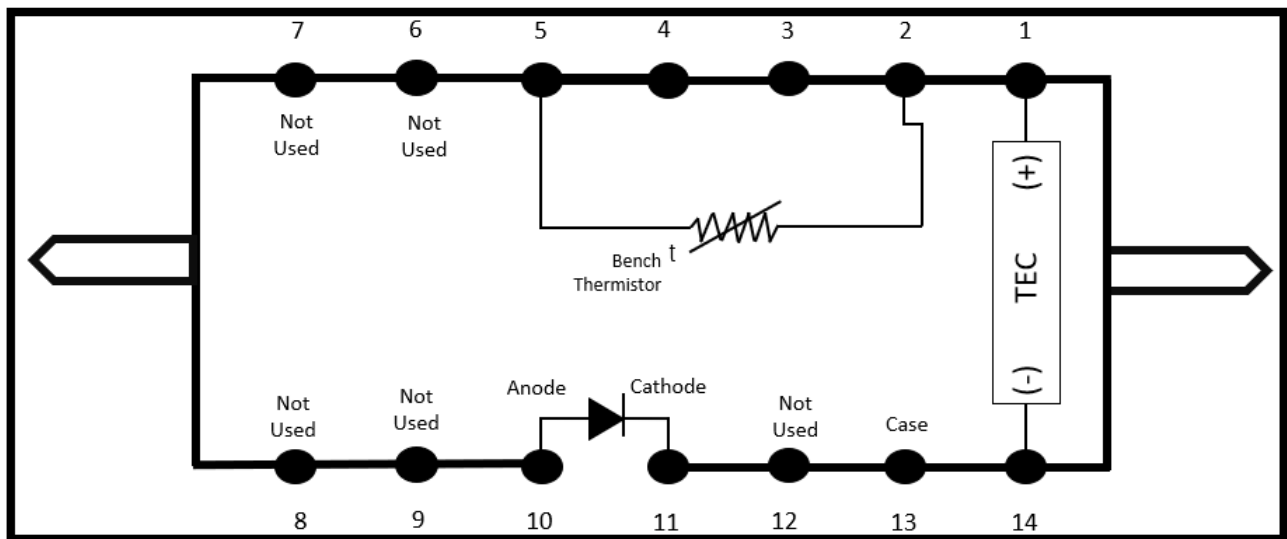
#DAY-0SE7-1640-PM-HP-1610_1670-60-1640-20_2025_01_01

This document is the property of DAYY Photonics, and contains proprietary information. DAYY Photonics reserves the right to make product design or specification changes without notice.

D. Input\Output Fiber

Parameters	Description
Fiber Type	PM1550-XP
Pigtail Type	900μm loose tube
Pigtail Length	1.0±0.1m
Connector Type	FC/APC (Narrow Key)

E. PIN OUT



Pin	Function	Pin	Function
1	TEC (+)	8	Case Ground
2	Thermistor	9	Not Used
3	Not Used	10	Device Anode
4	Not Used	11	Device Cathode
5	Thermistor	12	Not Used
6	Not Used	13	Not Used
7	Not Used	14	TEC (-)

#DAY-0SE7-1640-PM-HP-1610_1670-60-1640-20_2025_01_01

This document is the property of DAYY Photonics, and contains proprietary information. DAYY Photonics reserves the right to make product design or specification changes without notice.

DAYY Photonics Corporation 5150 Tacoma Dr, Houston, TX, USA, 77041
sales@dayyphotonics.com, +1(346)263-3032, www.dayyphotonics.com

F. MOUNTING RECOMMENDATIONS:

The SOA can be mounted on a flat cooling surface without having to risk forming the pins. Mounting surface should be flat, with no physical obstructions underneath to cause any discontinuity in the surface flatness. If a heatsink is used, the base of the butterfly package will rest on the surface of a heatsink in order to cool the internal TEC.

Maximum torque to avoid damage to the device is 13 lb.in. /1.5 Nm. Minimum torque is 9 lb.in/1.1 nm. Do not use self-tapping screws. This light source should be mounted so that mechanical vibrations cannot cause short circuits between leads. AZIMUTH 7 pin, 0.100" pitch Sockets are recommended. The 14 pins will rest on a pair of spring-loaded sockets and be squeezed between the contacts and a plastic clamp.

G. SAFETY

All statements regarding safety of operation and technical data will only apply when the unit is operated correctly.

This OSA is a Class 1M laser product. It is safe for all conditions of use except when passed through magnifying optics such as microscopes and telescopes. It produces a beam that is divergent. If light is re-focused use protective eye wear.