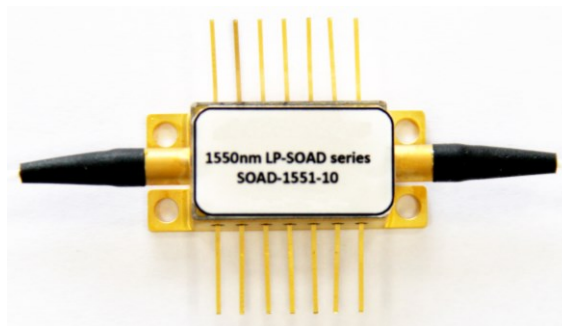


## Semiconductor Optical Amplifier Devices Single Polarization (SP-SOAD) & Low Polarization (LP-SOAD)



**2022 V1**

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## Single-Polarization Semiconductor Optical Amplifiers: SP-SOAD

Single Polarization Semiconductor Optical Amplifier Devices (SP-SOAD) at 1060/1310/1450/1550/1600 /1650nm are designed by using high-quality angled SOA chips and dual lenses coupling to different SM/PM fibers to achieve different output powers. A closed loop TEC/thermistor temperature control ensures a stable amplified output for a large dynamic input signal. The SOA devices are available in standard, 14-pin or 8-PIN butterfly packages. The SOA devices have high optical gain, high saturation output power, low or single polarization, low noise figure and a broad wavelength range. We have options of optical isolators on the input and output side as well as output fibers of SM/PM fibers and other special fibers per customer requirements. The products are Telcordia GR-468 qualified, and in compliance with RoHS requirements.

### Applications

- Loss compensation for fiberoptic connection and switch
- WDM fiberoptic networks
- 100G fiberoptic data center

### Features

- Wide wavelength range
- MQW design
- High saturation output power
- Select of low/single polarization
- Low gain ripple and NF

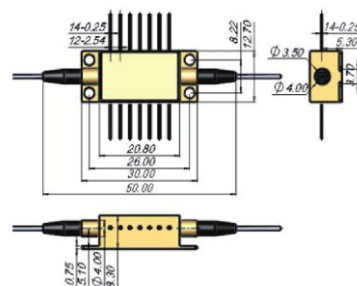
### Product Photo



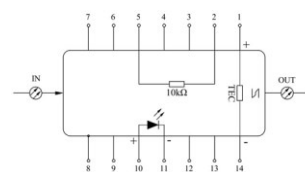
### Optical and Electric Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Center Wavelength (1060nm)	$\lambda_c$	1040	1060	1080	nm
Center Wavelength (1310nm)	$\lambda_c$	1290	1310	1330	nm
Center Wavelength (1450nm)	$\lambda_c$	1430	1450	1470	nm
Center Wavelength (1550nm)	$\lambda_c$	1525	1545	1565	nm
Center Wavelength (1600nm)	$\lambda_c$	1580	1600	1620	nm
Center Wavelength (1650nm)	$\lambda_c$	1620	1640	1660	nm
Small Signal Gain at @-25dBm Signal	$G_{max}$	15	20	-	dB
Saturation Output Power (@0dBm input Power)	$P_{sat}$	10	12	-	dBm
Operating Current	$I_F$	-	450	650	mA
3dB Gain Bandwidth	$\Delta\lambda_{c3dB}$	45	60	-	nm
Gain Ripple (p-p) @ $\lambda_c$	$\Delta G$	-	0.5	1	dB
Polarization Extinction Ratio	PER	20	-	-	dB
Noise Figure	NF	-	8	9	dB
Reverse Voltage	$V_R$	-	-	2.5	V
TEC Current	$I_{TEC}$	-	1	1.5	A
TEC Voltage	$V_{TEC}$	-	2.8	3.7	V
Thermistor Resistance @25 °C	$R_{TH}$	9.5	10	10.5	k $\Omega$
Optical Isolation	ISO	30	-	-	dB
Operating temperature	Top	-5	-	70	°C
Storage Temperature	$T_S$	-40	-	85	°C

### Mechanical Dimensions



### PIN Definition



### Ordering Information

SOAD-	□	□	□	□	□	□	□	□	□
SOAD-	Wavelength	Polarization Type	Package	Output Power	Input Fiber Type	Output Fiber Type	Pigtail Type	Pigtail length	Connector
	06: 1060nm	1:Polarization insensitive	1: 14-PIN	0: 6dBm	0: SMF-28e	0: SMF-28e	0:250 $\mu$ m bare fiber	1:50cm	0:None
	31: 1310nm	2:Single polarization	2: 8-PIN	1: 8dBm	1: PMF-1310	1: PMF-1310	1:900 $\mu$ m loose tube	2:100cm	1 :FC/UFC
	45: 1450nm			2: 10dBm	2: PMF-1550	2: PMF-1550	2:900 $\mu$ m tight tube	3:150cm	2:FC/APC
	55: 1550nm			3: 13dBm	8: PM980	8: PM980	C: Customized	4:200cm	3:SC/UFC
	60: 1600nm			C: Customized	9: Flexcol060	9: Flexcol060		C:Customized	4:SC/APC
	65: 1650nm				C: Customized	C: Customized			5:LC/UFC
									6:LC/APC
									C:Customized
Example of Ordering Form: SOAD-5521122122-01									
SOAD-	55	2	1	1	2	2	1	2	2
	1550nm	Single polarization	14-PIN	8dBm	PMF-1550	PMF-1550	900 $\mu$ m loose tube	100cm	FC/APC

## Low - Polarization Semiconductor Optical Amplifiers: LP-SOAD

The Low Polarization(LP) Semiconductor Optical Amplifiers at 1310/1550/1600nm are designed by using high-quality angled SOA chips and dual lenses coupling to different SM/PM fibers to achieve different output powers. A closed loop TEC/thermistor temperature control ensures a stable amplified output for a large dynamic input signal. The SOA devices are available in standard, 14-pin or 8-PIN butterfly packages. The SOA devices have high optical gain, high saturation output power, low or single polarization, low noise figure and a broad wavelength range. We have options of optical isolators on the input and output side as well as output fibers of SM/PM fibers and other special fibers per customer requirements. The products are Telcordia GR-468 qualified, and in compliance with RoHS requirements.

### Applications

- Loss compensation for fiberoptic connection and switch
- WDM fiberoptic networks
- 100G fiberoptic data center

### Features

- Wide wavelength range
- High saturation output power
- Low polarization sensitivity
- Low gain ripple and NF
- MQW design

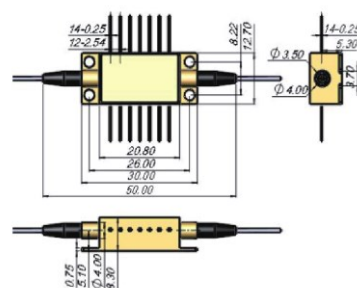
### Product Photo



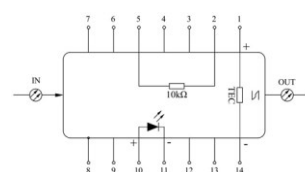
### Optical and Electric Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Center Wavelength (1310nm)	$\lambda_c$	1270	1310	1330	nm
Center Wavelength (1550nm)	$\lambda_c$	1525	1545	1565	nm
Center Wavelength (1600nm)	$\lambda_c$	1580	1600	1620	nm
Small Signal Gain at @-25dBm Signal	$G_{max}$	15	20	-	dB
Saturation Output Power(1310nm@ -3 dB)	$P_{sat}$	10	12	-	dBm
Saturation Output Power (1550nm@ -3 dB)	$P_{sat}$	8	10	-	dBm
Saturation Output Power (1600nm@ -3 dB)	$P_{sat}$	8	10	-	dBm
Operating Current	$I_F$	-	450	650	mA
3dB Gain Bandwidth	$\Delta\lambda_{c3dB}$	45	60	-	nm
Gain Ripple (p-p) @ $I_{op}$ , $\lambda_c$	$\Delta G$	-	0.5	1	dB
Polarization Dependent Gain	PDG	-	0.5	1	dB
Noise Figure	NF	-	8	9	dB
Reverse Voltage	$V_R$	-	-	2.5	V
TEC Current	$I_{TEC}$	-	1	1.5	A
TEC Voltage	$V_{TEC}$	-	2.8	3.7	V
Thermistor Resistance@25 °C	$R_{TH}$	9.5	10	10.5	k $\Omega$
Optical Isolation	ISO	30	-	-	dB
Operating temperature	$T_{op}$	-5	-	70	°C
Storage Temperature	$T_s$	-40	-	85	°C

### Mechanical Dimensions



### PIN Definition



### Ordering Information

SOAD-	□	□	□	□	□	□	□	□	□
Wavelength	Polarization Type	Package	Output Power	Input Fiber Type	Output Fiber Type	Pigtail Type	Pigtail length	Connector	
10: 1064nm	1 Polarization insensitive	1: 14-PIN	0: 6dBm	0: SMF-28e	0: SMF-28e	0:250um bare fiber	1:50cm	0:None	
31: 1310nm	2:Single polarization	2: 8-PIN	1: 8dBm	1:PMF-1310	TPMF-1310	1:900um loose tube	2:100cm	1 :FC/UPC	
45: 1450nm			2: 10dBm	2:PMF-1550	2:PMF-1550	2:900um tight tube	3:150cm	2:FC/APC	
55: 1550nm			3: 13dBm	C: Customized	C: Customized	C: Customized	4:200cm	3:SC/UPC	
65: 1650nm			C: Customized				C:Customized	4:SC/APC	
								5:LC/UPC	
								6:LC/APC	
								C:Customized	
Example of Ordering Form: SOAD-5511100222-01									
SOAD-	55	1	1	1	0	0	2	2	2
	1550nm	Polarization insensitive	14-PIN	8dBm	SMF-28e	SMF-28e	900um tight tube	100cm	FC/APC