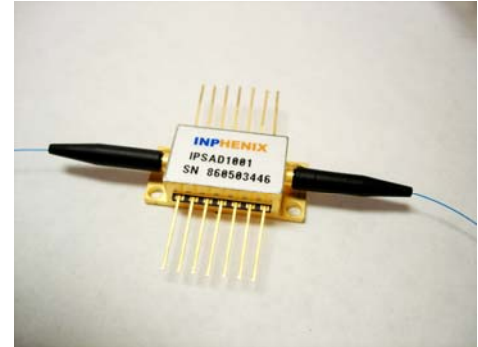# INPHENIX

Semiconductor Optical Amplifier Device (Switch Type)

IPSAD1302 (1310nm)

Features

- Wide Optical Bandwidth
- Fast Switching Speed
- High Extinction Ratio
- Low Polarization Sensitivity
- MQW or Bulk Structure

Applications

- Optical Gate Switching with Loss Compensation
- Wavelength Routing
- Matrix Switch

Device Specifications

Parameter		Symbol	Specifications			Unit
			Min.	Typ.	Max.	
Drive Current		I_F	-	100	150	mA
Operating Wavelength		λ_o	1280	1310	1340	nm
3dB Optical Bandwidth		$\Delta\lambda_{3dB}$	-	50	-	nm
Small Signal Gain @ - 25dBm Signal		G_{max}	-	10	-	dB
Gain Ripple with Respect to λ		ΔG	-	0.2	1	dB
Saturation Output Power		P_{sat}	4	-	-	dBm
Noise Figure		NF	-	7	9	dB
Polarization Dependent Gain		PDG	-	1.5	-	dB
Extinction Ratio		ER	40	-	-	dB
Switching Properties	Rise Time	t_r	-	500	-	ps
	Fall Time	t_f	-	500	-	ps

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Absolute Maximum Ratings

Parameter	Min.	Max.	Unit
Operating Temperature	– 20	70	°C
Storage Temperature	– 40	85	°C
SOA Forward Current	-	300	mA
SOA Reverse Voltage	-	2.5	V
TEC Drive Current	-	1.5	A
TEC Drive Voltage	-	3.6	V
Thermistor Resistance	10kΩ @ 25°C		
SOA Chip Temperature Setting	25°C		
Fiber Type	SMF/PMF/MMF ClearCurve Fiber		
Fiber Jacket	250µm tight buffer with/without 900µm loose tube, or 900µm tight buffer		
Package	14-pin Butterfly		

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Package Dimensions
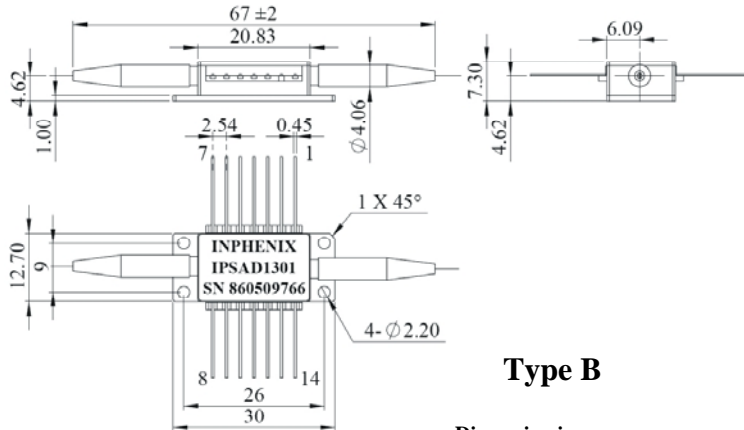
Type B

Dimension in mm
Tol: ±0.13

Pin Definition

Pin	14-pin Butterfly
1	TEC(+)
2	NC
3	Thermistor *
4	Thermistor *
5	NC
6	NC
7	NC
8	NC
9	NC
10	SOA(+)
11	SOA(-)
12	NC
13	Case
14	TEC(-)

Option: Pin 2 & Pin 5 for thermistor
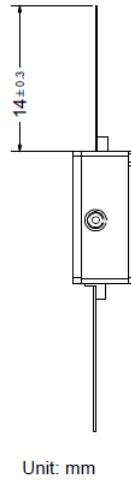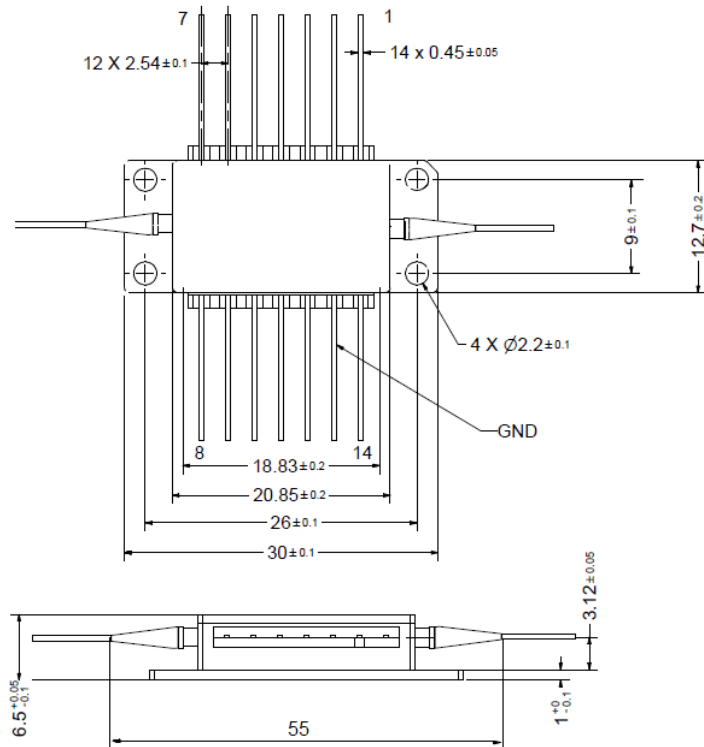
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Unit: mm

Type C

Dimension in mm
Tol: ±0.13

Pin Definition

Pin	14-pin Butterfly
1	TEC(+)
2	NC
3	Thermistor *
4	Thermistor *
5	NC
6	NC
7	NC
8	NC
9	NC
10	SOA(+)
11	SOA(-)
12	NC
13	Case
14	TEC(-)

Option: Pin 2 & Pin 5 for thermistor

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Part Numbering System

```
IPSADXXXX  [ ] [ ] [ ] [ ]
```
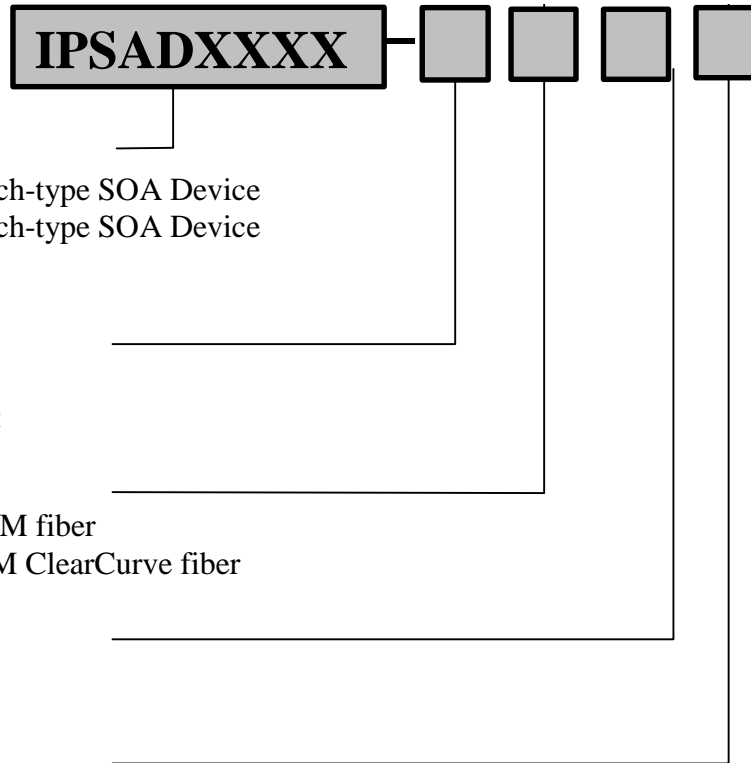
Model:
IPSAD1302: 1310nm Switch-type SOA Device
IPSAD1502: 1550nm Switch-type SOA Device

Package:
5: 14-pin Butterfly, Type B
6: 14-pin Butterfly, Type C

Fiber Type:
1: SM fiber   3: MM fiber
2: PM fiber   8: SM ClearCurve fiber

Jacket Type:
1: 900μm
2: 250μm

Connector Type:
0: No Connectors
3: FC/APC
4: FC/UPC
7: SC/APC
8: SC/UPC

Example: IPSAD1302-5110: 1310nm Switch-type SOA in 14-pin Butterfly Package with 900μm SM Fiber with no Connectors.