

SPA4300-GM02 (70×90×12mm)

Single Channel Gain Block MSA Compact Pre-Amplifier EDFA Module

PRODUCT DESCRIPTION

SPA4300-GM02 is a gain block optical Pre-amplifier EDFA module, adopts 70 × 90 × 12mm MSA compact package. It is featured with high reliability, superior optical performance and compact reasonable configuration by Industrial standard, creating the most flexible and variable low-cost amplifier in the market. This module is suitable for multiple network application, especially the application that requires 40GB/S transmission speed.

SPA4300-GM02 gain block optical Pre-amplifier EDFA module adopts the standard version of single channel and narrow bandwidth. The module uses high performance pump laser that

with cooling function. A standard 20-PIN electric connector (HIROSE DF11-20DP-2DSA) allows the simple electric connection.

SPA4300-GM02 gain block optical Pre-amplifier EDFA module, main installed before the receiver to improve receiver sensitivity and extend signal transmission distance.



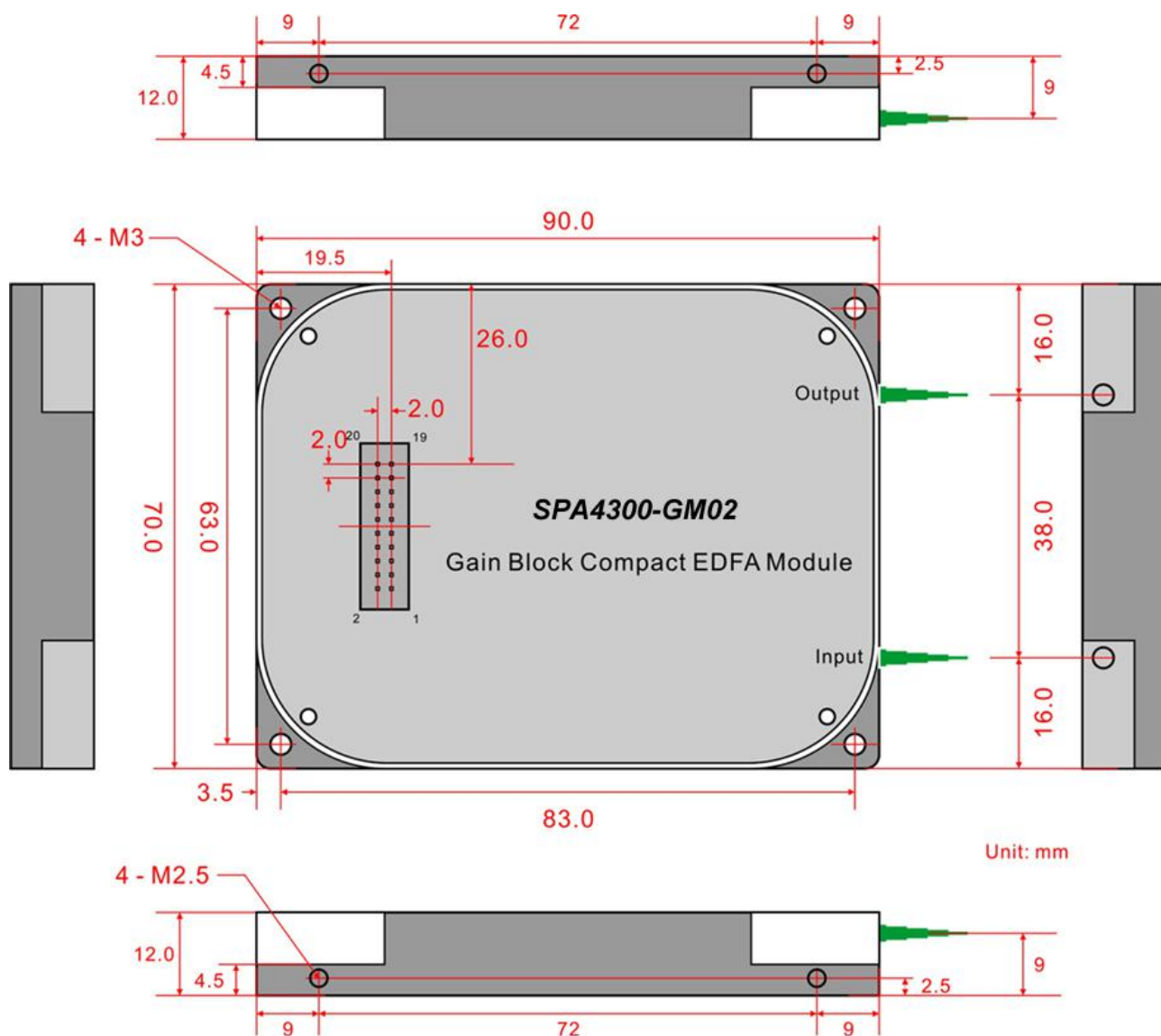
PRODUCT FEATURES

- ▶ Gain block
- ▶ Wide operating temperature range
- ▶ 20dB, 25dB, 30dB, 35dB, 40dB, Gain optional
- ▶ MSA compact package (70×90×12mm)
- ▶ Low power consumption
- ▶ Low cost

MAIN APPLICATION

- ▶ Metropolitan and access networks
- ▶ CATV
- ▶ Single-channel or DWDM sub-systems
- ▶ Optical Add/Drop and Cross-Connects
- ▶ Transmitter and Receiver Amplification
- ▶ Power equalization and flexible pre-emphasis

DIMENSIONS



TECHNICAL INDEX

Optical features & General feature

Performance			Min.	Typ.	Max.	
Optical feature	Operating wavelength range		(nm)	1528	1564	
	Input optical power (pin)		(dBm)	-45	-30	-10
	Signal gain @ Pin = - 30dBm	SPA4320-GM02	(dB)	20		
		SPA4325-GM02		25		
		SPA4330-GM02		30		
		SPA4335-GM02		35		
		SPA4340-GM02		40		
	Noise figure		(dB)		4.0	4.5
	Polarization dependent gain (PDG)		(dB)			0.3
	Polarization mode dispersion (PMD)		(ps)			0.3
	Polarization dependent loss (PDL)		(dB)			0.3
	Pump power leakage		(dB)			-30
	Output & input isolation		(dB)	30		
	Return loss	UPC	(dB)	45		
APC		55				
General feature	Fiber type			SMF-28, 900μm loose tube		
	Connector type			LC, SC, FC		
	Connector polish			UPC, APC		
	Operating temp.		(°C)	-5		70
	Storage temp.		(°C)	-40		+85
	Relatice humidity		(%RH)	+5		+95
	Size (W) × (L) × (H)		(mm)	70× 90 × 12		

Note: 1. Optional built-in filter to reduce the noise figure of EDFA, such as adopt C34 (1550.12nm), applicable SDH network

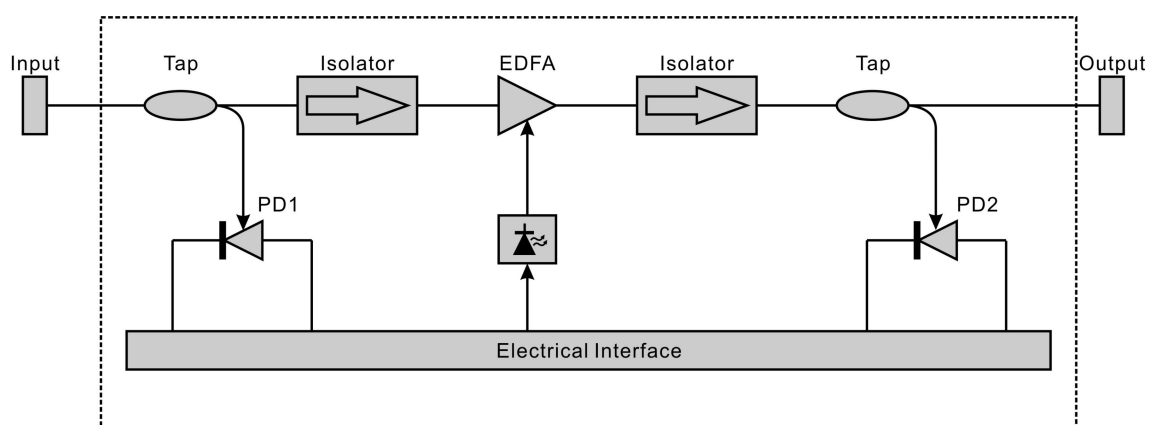
Input and output monitor PD specifications

Performance		Min.	Typ.	Max.
Input monitor PD responsivity	($\mu\text{A/mW}$)	30	-	75
Output monitor PD responsivity	($\mu\text{A/mW}$)	4.0	-	25
Monitor PD reverse voltage	(V)	-	5	20
Monitor PD forward current	(mA)	-	-	10
Dark current (-5v, 25°C)	(nA)	-	-	1

Pump laser specifications

Performance		Min.	Typ.	Max.
Pump laser threshold current	(mA)	-	40	55
Pump laser operating current (BOL)	(mA)	-	-	900
Pump laser operating voltage	(V)	-	-	2.6
TEC current (max. $\Delta T=50^\circ\text{C}$)	(A)	-	1.5	1.7
TEC voltage (max. $\Delta T=50^\circ\text{C}$)	(V)	-	-	2.6
Thermistor resistance (25°C)	(K Ω)	9.5	10	10.5

FUNCTIONAL DIAGRAM



ELECTRICAL 20-PIN ASSIGNMENTS

Pin	Definition	Pin	Definition
1	Ground, optical power monitor PD	2	Input monitor PDcathode(-)
3	Input monitor PD anode(+)	4	Output monitor PD cathode(-)
5	Output monitor PD anode(+)	6	Thermistor
7	Laser diode anode(+)	8	Pump laser diode anode (+)
9	Pump backfacet monitor PD cathode (-)	10	Pump backfacet monitor PD anode (+)
11	TEC anode (+)	12	TEC anode (+)
13	TEC anode (+)	14	TEC cathode (-)
15	TEC cathode (-)	16	TEC cathode (-)
17	Ground, pump laser diode	18	Thermistor
19	Pump laser diode cathode (-)	20	Pump laser diode cathode (-)

Note 1: Electrical connection is made via a male 20 PIN connector (2 rows of 10, pin pitch 2.0mm, 0.5×0.5mm), Samtec TMMH-110-01-G-DV-EC or equivalent.

Note 2: The gain block case is isolated with the pump laser diode case.

PRODUCT SERIES

Model	Gain (dB) (Pin=-30dBm)	Output power (dBm) (Pin=-30dBm)	Noise figure (dB)	Filter
SPA4320-GM02/S-000	20	-10	<4.5	Without filter
SPA4325-GM02/S-000	25	-5	<4.5	
SPA4330-GM02/S-000	30	0	<4.5	
SPA4335-GM02/H-000	35	5	<4.5	
SPA4325-GM02/S-XXX	25	-5	<4.0	With filter
SPA4330-GM02/S-XXX	30	0	<4.0	
SPA4335-GM02/H-XXX	35	5	<4.0	
SPA4340-GM02/H-XXX	40	10	<4.0	

MODEL EXPLANATION

SPA 4 3 □□ - GM 02 - □ - □□□ - □□ / □□

Product series	Optical bandwidth		Product Type		Gain		Module Type		Exterior		Type		Built-in filter		Connector		Fiber length	
Single-channel PAEDFA Module	4	C-Band (1528~1564)	3	PA	15	15dB	GM	Gain block module	01	40×70×12	S	Standard	000	NO	LA	LC/APC	05	0.5m
					20	20dB			02	70×90×12					LP	LC/UPC	08	0.8m
				25	25dB	FM	Full function module	05	125×150×22	H	Low noise, high gain	C34	1550.12nm Applicable SDH network	SA	SC/APC	10	1.0m	
				30	30dB													
				35	35dB													
				40	40dB													
													CXX	100GHz ITU Standard wavelength	SP	SC/UPC		
														HXX	50GHz ITU Standard wavelength	FA	FC/APC	
												CBL	1528~1543nm					
													CRe	1547~1563nm				