

SPA4300-FM02 Series
Full Function Single Channel
MSA Compact EDFA Module

Technical Specification

CONTENT

1.0 PRODUCT DESCRIPTION.....	1
2.0 PRODUCT FEATURE.....	2
3.0 MAIN APPLICATION.....	2
4.0 FUNCTIONAL DIAGRAM.....	3
5.0 DIMENSIONS.....	3
6.0 ELECTRICAL 30-PIN ASSIGNMENTS.....	4
7.0 TECHNIQUE INDEX.....	5
8.0 PRODUCT SERIES.....	6
9.0 ORDER INFORMATION.....	6

1.0 PRODUCT DESCRIPTION

SPA4300-FM02 is a full-function optical Pre-amplifier with digital control circuit, adopts 70×90×15mm 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-FM02 full-function optical Pre-amplifier module adopts the standard version of single channel and narrow bandwidth. The module uses high performance pump laser that with cooling function (also can use high performance non-cooling pump laser). A standard 30-PIN electric connector (HIROSE DF11-30DP-2DSA) allows the simple electric connection.

SPA4300-FM02 full-function Pre-Amplifier EDFA module, main installed before the receiver to improve receiver sensitivity and extend signal transmission distance

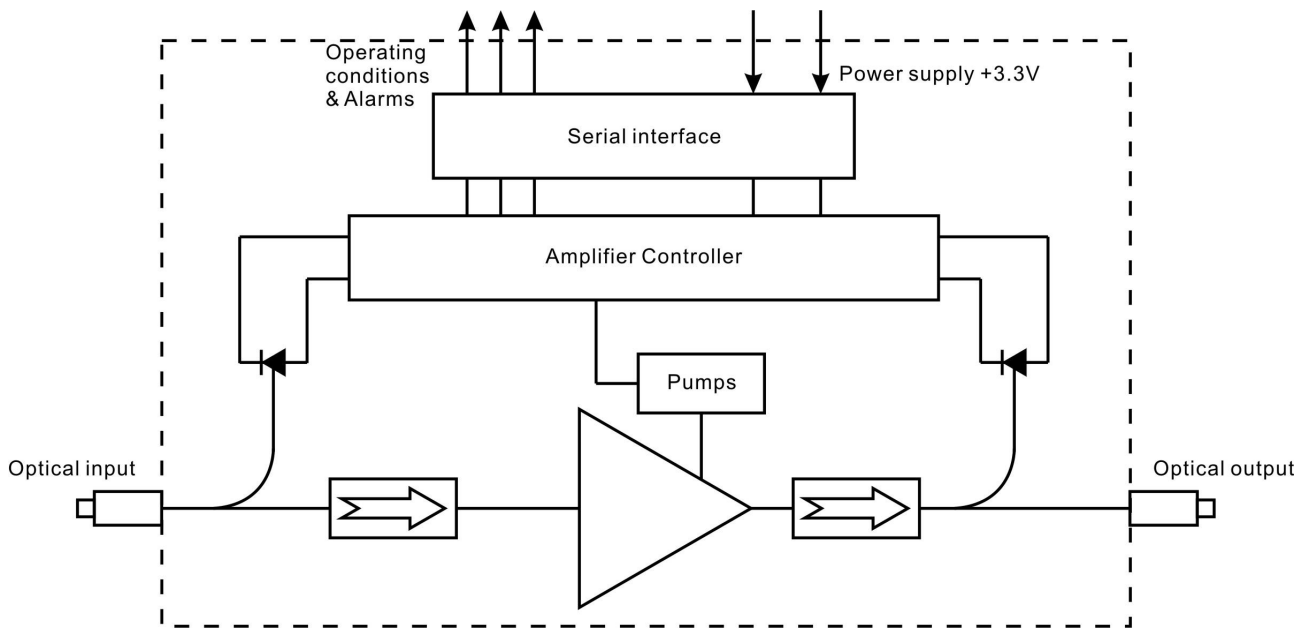
2.0 PRODUCT FEATURE

- With Digital Control Electronics (Full Function)
- APC, ACC mode
- RS-232 standard communication interface, (Optional I²C)
- 20dB, 25dB, 30dB, 35dB, 40dB, Gain optional
- MSA compact package (70×90×15mm)
- Low power consumption
- Low cost
- Wide operating temperature range

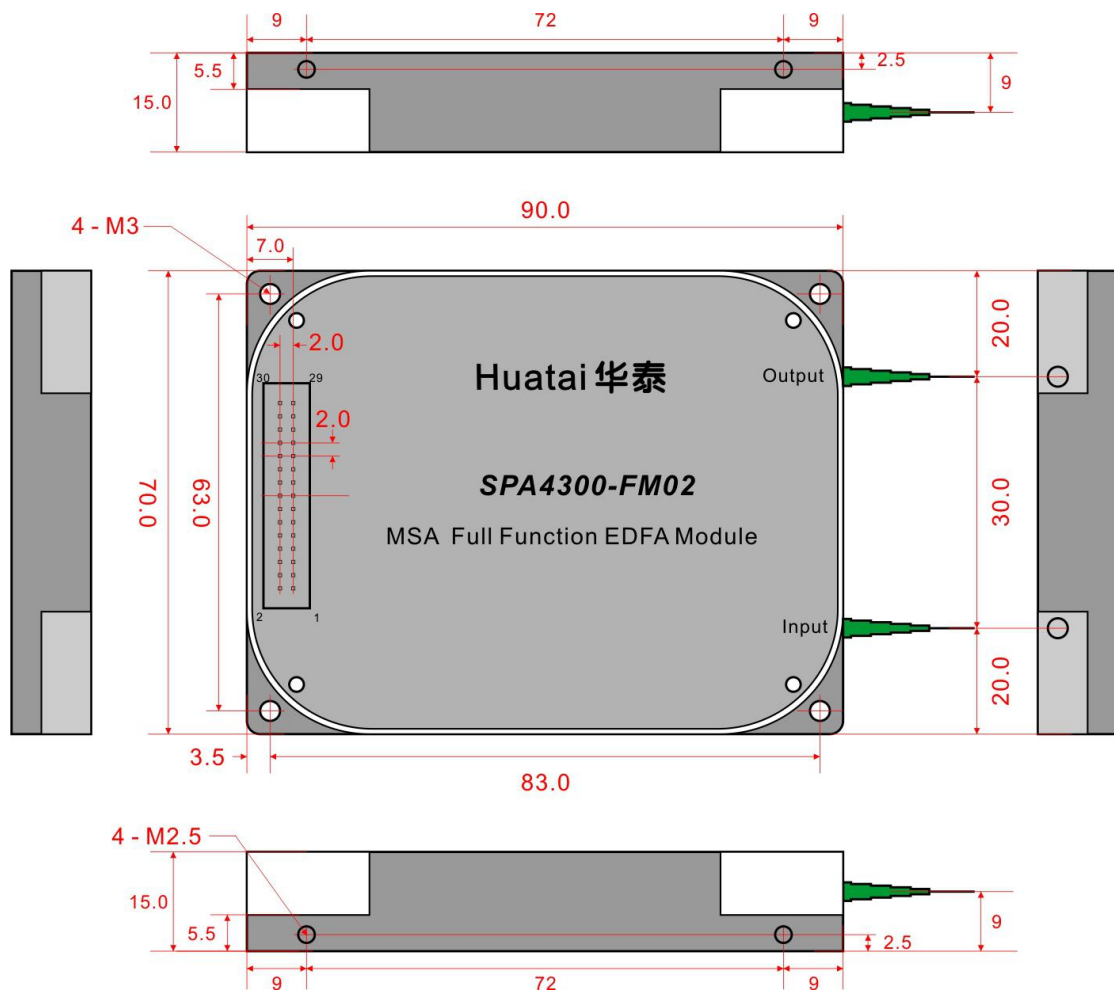
3.0 MAIN APPLICATION

- Metropolitan and access networks
- CATV
- Single-channel or DWDM sub-systems
- Optical Add/Drop and Cross-Connects
- Optical receiver optical power amplification
- Power equalization and flexible pre-emphasis

4.0 Functional diagram



5.0 Dimensions



6.0 Electrical 30-Pin Assignments

Pin	Definition	Pin	Definition
1	+3.3V	2	+3.3V
3	NC	4	NC
5	GND	6	GND
7	RS-232 Rx	8	RS-232 Tx
9	GND	10	GND
11	NC	12	RESET input, (active Low)
13	Amplifier disable input, (active high)	14	Output power mute input, (active high)
15	Case temperature alarm, (active high)	16	Common alarm, (active Low)
17	Pump temperature alarm, (active high)	18	Pump bias alarm, (active high)
19	Loss of input alarm, (active high)	20	Loss of output alarm, (active high)
21	Input power monitor ground	22	Output power monitor ground
23	Input power monitor	24	Output power monitor
25	GND	26	GND
27	NC	28	NC
29	+3.3V	30	+3.3V

Note: 30-Pin type: HIROSE DF11-30DP-2DSA

7.0 Technique index

Performance			Min.	Typ.	Max.	
Optic feature	Operating wavelength range		(nm)	1528		1564
	Input optical power (Pin)		(dBm)	-45	-30	-10
	Signal gain @ Pin = -30dBm	SPA4320-FM02	(dB)	20		
		SPA4325-FM02		25		
		SPA4330-FM02		30		
		SPA4335-FM02		35		
		SPA4340-FM02		40		
	Noise figure@Pin=-30dBm		(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		
Fiber type			SMF-28, 900μm loose tube			
Connector type			LC,SC, FC,			
Connector polish			UPC, APC			
General feature	Communication interface			RS232		
	Power supply voltage		(V)	3.1	3.3	3.5
	Power consumption	Uncooled	(W)		1.0	2.0
		Cooled			2.0	6.0
	Operating temp.		(°C)	-5		70
	Store temp.		(°C)	-40		+85
	Relative humidity		(%RH)	+5		+95
Size(W) × (L) × (H)		(mm)	70× 90 × 15			

- Note: 1. Optional built-in filter to reduce the noise figure of EDFA, such as adopt C34 (1550.12nm) , applicable SDH network
2. Power supply voltage optional DC+5V

8.0 PRODUCT SERIES

Model	Gain (dB) (Pin=-30dBm)	Output power (dBm) (Pin=-30dBm)	Noise figure (dB)	Filter
SPA4320-FM02/S-000	20	-10	<4.5	Without filter
SPA4325-FM02/S-000	25	-5	<4.5	
SPA4330-FM02/S-000	30	0	<4.5	
SPA4335-FM02/H-000	35	5	<4.5	
SPA4325-FM02/S-XXX	25	-5	<4.0	With filter
SPA4330-FM02/S-XXX	30	0	<4.0	
SPA4335-FM02/H-XXX	35	5	<4.0	
SPA4340-FM02/H-XXX	40	10	<4.0	

9.0 ORDER INFORMATION

SPA 4 3 □□ - FM 02 / □ - □□□ - □□ / □□

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