VGA4700-FM06 (70×90×15mm)

C-Band DWDM VGA Module with MSA Next-Generation Variable Gain EDFA Module

PRODUCT DESCRIPTION

VGA4700-FM06 series is a next generation variable gain optical amplifier module, which with the most excellent performance and most completes functions in the market. It adopts nowadays most excellent optical performance, most advanced electronic technology and most complete software functions. Remarkable transient suppression control technology and heat management control technology let many complicated optical functions achieved. It is the most versatile multifunction optical amplifier in the market.

This next generation variable gain amplifier module is composed with two stages amplifier: variable gain pre-amplifier (PA) and variable gain booster amplifier (BA). The gain of these two stages amplifier can be independently set in a certain range. There is a connector between the two stages amplifier, which used for mid-stage access, such as optical Add-Drop module (OADM), dispersion compensation module (DCM) and others optical modules.

VGA4700-FM06 adopts 70 × 90 × 15mm (including heat sinks) ultra-thin appearance; signal unit +5VDC power supply, low consumption.

VGA4700-FM06 is a device with Mid-stage Access, which according with various communication technology requirements of C-Band 44 or 88 channels DWDM system, widely used in long distance and ultra-long distance transmission network. Since its complete functions, it can be used as line amplifier, pre-amplifier, booster amplifier.

PRODUCT FEATURES

▶Nest-generation Variable Gain Amplifies Module
▶With Mid-stage Access Version
▶Accord with the various communication technology requirements of C-Band 44 or 88 channels DWDM system
▶Adopt latest total integration electronic transient control technology
▶Adopt digital control technology which can adapt to heat management
▶Saturation large output power optional: 18dBm, 20dBm, 23dBm, 24dBm
▶AGC, APC, ACC working mode
▶Optical monitoring channels optional: OSC Add/Drop
▶Carrier-class security and reliability
▶Ultra-thin appearance 70×90×15mm(including heat sinks)
▶Low power consumption
▶Excellent cost performancce in area

MAIN APPLICATION

▶OADM optical Add-Drop multiplexing
▶DCM ultra-long trunk dispersion compensation
▶ASON intelligent optical network
▶ROADM reconfigurable optical Add-Drop multiplexing
▶Long distance and Ultra-long distance network among the cities
▶Line amplifier, pre-amplifier, booster amplifier or Add-Drop multiplexing amplifier

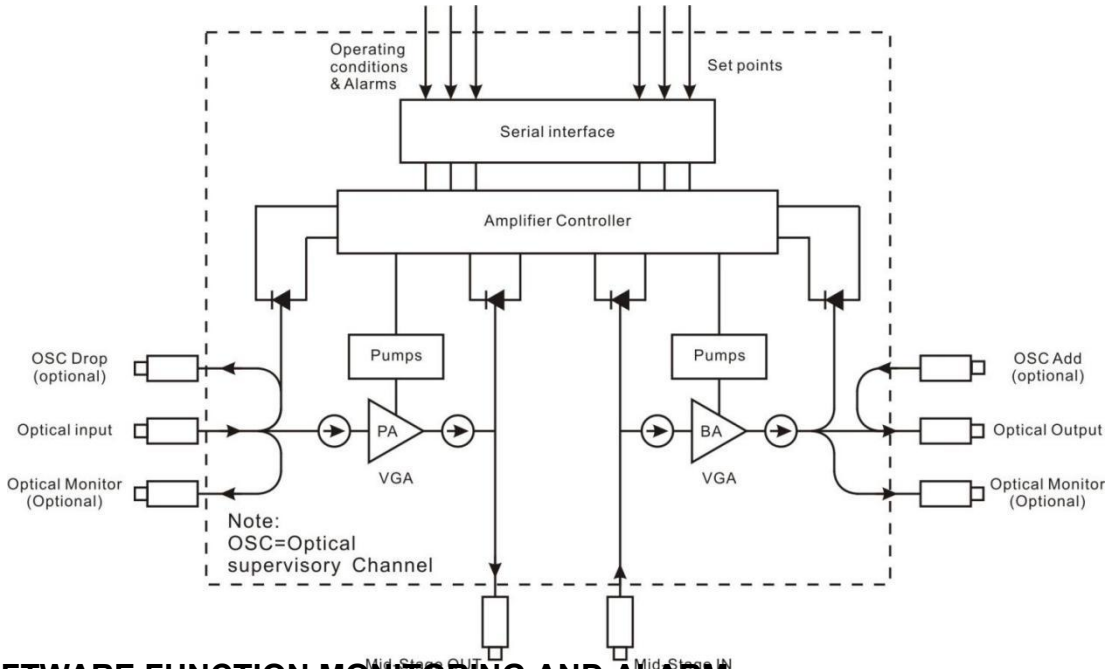
TECHNICAL INDEX

Performace			Index			Supplement
			Min.	Typ.	Max.	
Optical feature	Working wavelength range (λ)	(nm)	1529.16		1563.86	ITU 88CH
	Input power range [1]	(dBm)	-35		+3	VGA4718-FM06 Typ.
			-35		+3	VGA4720-FM06 Typ.
			-40		0	VGA4723-FM06 Typ.
			-40		0	VGA4724-FM06 Typ.
	Gain range [2]	(dB)	13		21.5	G21 Typ
			18		30	G30 Typ
			23		35	G35 Typ
			29		41	G40 Typ
			12		24	G25 Typ
	Mid-stage loss range [3]	(dB)	0		8	
			0		10	
			0		12	
	Max. output power [4]	(dBm)			18	VGA4718-FM06
					20	VGA4720-FM06
					23	VGA4723-FM06
					24	VGA4724-FM06
	Gain flatness	(dB)		0.7	1.0	Peak-to-peak
	Noise figure	(dB)		5.0	5.9	Max gain
	Polarization dependence loss (PDL)	(dB)			0.3	
	Polarization dependence Gain (PDG)	(dB)			0.3	
	Polarization mode dispersion (PMD)	(ps)			0.3	
	Pump leakage power	(dBm)			-30	
	Return loss[5]	(dB)	40			UPC
	Wavelength range of optic management	(nm)	1500	1510	1520	
Transient feature	Transient setting time	(μs)			500	16dB Add/Drop
	Transient Overshoot	(dB)	-1.5		1.0	16dB Add/Drop
	Transient gain changes	(dB)			0.5	
General feature	Communication interface		RS232			
	Fiber type		Coming SMF-28™ or equivalent			
	Pigtail buffer diameter	(μm)		900		
	Pigtail length	(mm)		1000		
	Power supply	(V)	+4.75	+5	+5.25	
	Power consumption	(W)	14		20	
	Working temp.	(°C)	0		+70	
	Storage temp.	(°C)	-40		+85	
	Working relative humidity	(%)	5		95	
	Size (W)×(D)×(H)	(")	70× 90 × 15			(W)×(D)×(H)

Note: 1, 2, 3, 4: these optic performance are typical application, can be customized according to customers' requirements.

5: APC optional, return loss>50dB

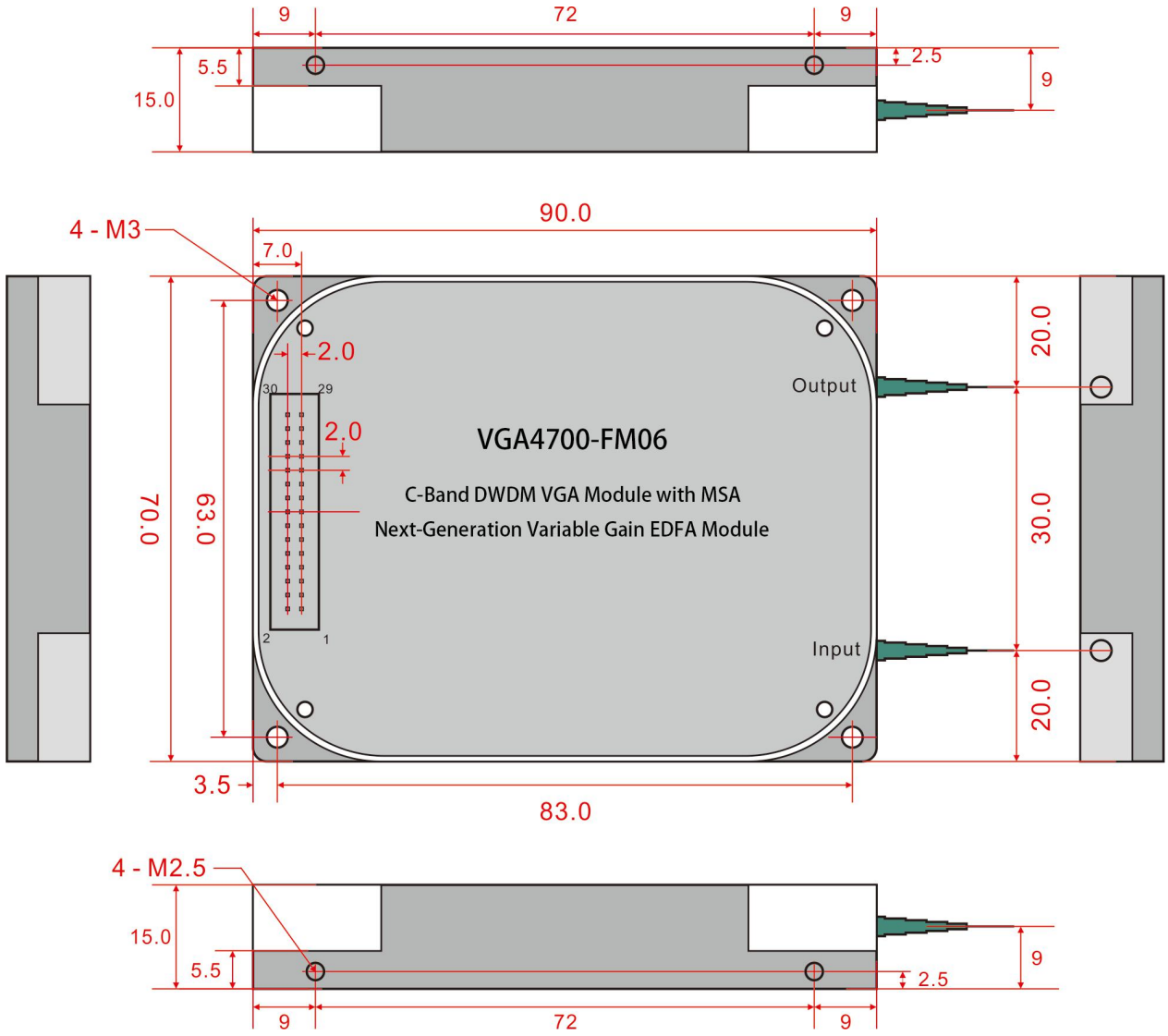
OPTO-ELECTRICAL DIAGRAM



SOFTWARE FUNCTION MONITORING AND ALARM

Functions	In-Service Firm ware Upgrades
	Auto Shut Down
	Gain Control Mode with Automatic Power limiting (VGA)
	Independent Stage Mode (on variants with Mid-Sage Access)
	Output Power Control Mode
	Pump Current Control Mode
	Eye-Safe Power Mode
	Non-Volatile Event Log
Monitors	Total Input Power
	Total Output Power
	Optical Backreflection
	Pump Status
	Module Temperature
Alarms	Loss-of-Signal Alarm
	Low Output Power Alarm
	Module Temperature Alarm
	Pump Temperature Alarm
	Pump Bias Alarm
	Excess Backreflection Alarm (Optional)

DIMENSIONS


9
72
9
5.5
15.0
2.5
9
4 - M3
90.0
7.0
2.0
30
29
2.0
2
1
Output
VGA4700-FM06
C-Band DWDM VGA Module with MSA
Next-Generation Variable Gain EDFA Module
Input
70.0
63.0
20.0
30.0
20.0
3.5
83.0
4 - M2.5
15.0
5.5
9
2.5
9
72
9

50 PIN DEFINATION

Pins	Description	Pins	Description
1	Power supply	2	Power supply
3	Power supply	4	Power supply
5	Power supply	6	Power supply
7	Ground	8	Ground
9	Ground	10	Ground
11	Reserved (do not connect)	12	Output reflection alarm
13	Ground	14	Resent input
15	Serial input	16	Serial output
17	Pump current alarm	18	Stage 1 input LOS alarm
19	Ground	20	Ground
21	Reserved (do not connect)	22	Reserved (do not connect)
23	Reserved (do not connect)	24	Reserved (do not connect)
25	Ground	26	Reserved (do not connect)
27	Stage 2 input LOS alarm	28	Ground
29	Stage 2 output/Gain alarm	30	Ground
31	Ground	32	Ground
33	Case temperature alarm	34	Stage 1 output / Gain alarm
35	Pump temperature alarm	36	Pin is absent (Polarization key)
37	Amplifier disable input	38	Output Power mute input
39	I2C SCL (Optional)	40	I2C SDA (Optional)
41	Ground	42	Ground
43	Ground	44	Ground
45	Power supply	46	Power supply
47	Power supply	48	Power supply
49	Power supply	50	Power supply

PRODUCT SERIES

Model	Max. output optical power (dBm)	Gain range (dB)	Input power range Typ.(dBm)	Mid-stage insertion loss (dB)	Monitor optical port mode	OSC optical port mode
VGA4718-G30-FM06-M00-S00	18	16~28	+3~-35	0~10	Without	Without
VGA4718-G35-FM06-M00-S00		23~35	0~-35	0~12		
VGA4718-G40-FM06-M00-S00		28.5~40.5	+3~-30			
VGA4720-G30-FM06-M00-S00	20	18.5~30.5	+3~-35	0~12		
VGA4720-G35-FM06-M00-S00		23~35	0~-35			
VGA4720-G40-FM06-M00-S00		29~41	+3~-35			
VGA4723-G30-FM06-M00-S00	23	19~31	0~-35	0~12		
VGA4723-G35-FM06-M00-S00		25~37	0~-37			
VGA4723-G40-FM06-M00-S00		29~41	0~-40			
VGA4724-G35-FM06-M00-S00	24	25~37	0~-37	0~12		
VGA4724-G40-FM06-M00-S00		30.5~42.5	0~-40			

Note : 1) .Optical port monitoring mode options: 1, MO (With output monitoring optical port)
2, MI (With input monitoring optical port)
3, MIO (With input and output monitoring optical port)
2) . OSC optical port mode of optical management channel:1,OD (OSC / Drop)
2,OA (OSC / Add)
3,ODA (OSC / Drop & Add)

MODEL EXPLANATION

VGA 4 7 □□ – G□□ – FM 06 – □□ – M□□ – O□□

NGB Variable Gain EDFA Module	Wavelength		Product type		Max.Output power(dBm)		Gain Range Typ(dB)		Module type		Module size No.		Connector		Optical port Monitoring optional		OSC Optical port optional	
	4	C-Band (1528~1564)	7	VGA withMSA	18	18	30	18~30	FM	Full function module	06	130×212×19.5mm	LP	LC/UPC	M00	Without optical port monitoring	O00	WithoutOSC
					20	20	35	23~35					SP	SC/UPC			OD	OSC/Drop
			5	VGA without MSA	23	23	40	29~41					LA	LC/APC	MO	With output optical port monitoring	OA	OSC/Add
					24	24	25	12~24					SA	SC/APC			ODA	OSC/Drop & Add
															MI	With input optical port monitoring		
															MIO	With input, output optical port monitoring		