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# Variable Gain Dual Stage EDFA

## With Mid-stage Access or in East/West Configuration

### Key Features

- ▶ 15 dB variable gain range for each gain stage
- ▶ Gain flatness 0.7 dB peak-to-peak for each gain stage (<1.2 dB total with mid-stage access)
- ▶ Transient suppression for 19 dB add/drop with gain excursion of less than 1 dB and setting time of less than 400 μsec
- ▶ Up to 23 dBm output power
- ▶ Up to 15 dB variable mid-stage loss
- ▶ Noise figure <5.5 dB at highest gain
- ▶ Class 1M\* laser safety including also output powers above 21 dBm (using patented APR mechanisms)
- ▶ RS232 and I<sup>2</sup>C communication, full set of control options and alarms
- ▶ Certified to GR1312 and GR1089

### Applications

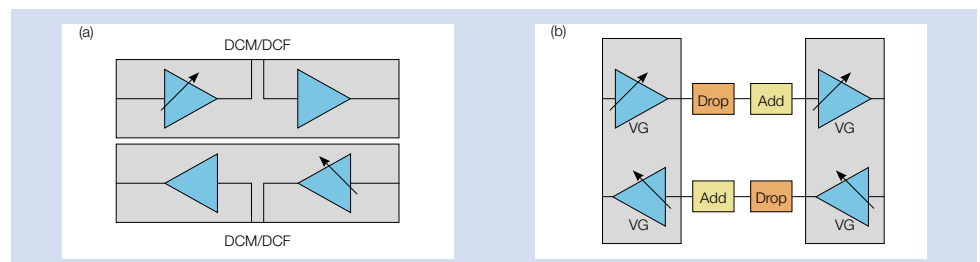
- ▶ Regional / long haul networks
- ▶ ROADM Nodes
- ▶ High capacity links (up to 96 channels)
- ▶ Legacy networks with DCF

### Overview

Finisar's Variable Gain (VG) Dual Stage EDFA provides flattened gain across the C-band, low noise figure, and a large dynamic gain range (up to 15 dB). The product also includes many other advanced features such as comprehensive transient control, tunable mid-stage access (MSA) loss, and gain tilting functionality. The Variable Gain Dual Stage EDFA can be implemented in all network segments (access, metro, regional and long haul) and for all network applications (telecom, cable and enterprise).

The Variable Gain Dual Stage EDFA can be provided in two possible configurations, as shown in the figure below:

- ▶ With mid-stage access configuration allowing a dispersion compensating fiber to be placed at the amplifier mid-stage
- ▶ East/West configuration for ROADM applications comprising two completely independent Variable Gain Dual Stage EDFA gain stages, ensuring maximum network design flexibility. This configuration is also useful for packaging two single stage variable gain amplifiers within a single module, leading to cost and space savings.



Configurations for implementing the Variable Gain Dual Stage EDFA



# Variable Gain Dual Stage EDFA

## Specifications

Parameter	P/N	FOA-M7100DA-EVG2C-AA013		FOA-M7100DA-EVG2C-AA014		FOA-R7100DA-EVG2C-AA015	
	Unit	Specifications		Specifications		Specifications	
		Min.	Max.	Min.	Max.	Min.	Max.
Form Factor	mm	100x150x18		100x150x18		100x150x18	
Amplifier Type	-	WDM VGA with Mid-stage access		WDM VGA with Mid-stage access		WDM VGA with Mid-stage access	
Operating Wavelength Range	nm	1529.5	1564	1529.5	1564	1529.5	1564
Input Power Range	dBm	-40	-3.5	-42	5	-38	6
Output Power Range	dBm	-2	20.5	-5	20.5	-2	23
Saturated Output Power	dBm	20.5		20.5		23	
Gain Range	dB	25	40	17	40	17	40
Gain/Power Setting Accuracy	dB	-0.5	0.5	-0.4	0.4	-0.4	0.4
Gain Flatness vs. Wavelength	dB		±0.6		±0.6		±0.6
Gain / Power Stability	dB		±0.1		±0.2		±0.2
Settable Gain Tilt Range	dB	-3.5	0	-2	0	-2	0
Mid-Stage Loss	dB	4	9	4	9.5	4	9.5
Noise Figure1	dB	6.1	7.2	5.6	12.5	6.6	16.3
Return loss	dB	45		40		40	
PDG	dB		0.3		0.3		0.5
PMD	ps		0.2		0.2		0.3
Multi-Path Interference	dB		-40		-40		-40
Laser Safety Classification	-	Class 1M		Class 1M		Class 1M with APR	
Optical Connectors	-	5: In, out, Out mon, MSA in, MSA Out		5: In, out, Out mon, MSA in, MSA Out		5: In, out, Out mon, MSA in, MSA Out	
Operating Modes	-	AGC, APC, Manual		AGC, APC, Manual		AGC, APC, Manual	
Power Supply Voltage	V	4.75	5.25	4.75	5.25	4.75	5.25
Power Consumption	W		17		17		26
Operating Case Temperature	°C	0	70	0	70	0	70
Communications Protocol	-	RS-232 LVTTTL		RS-232 LVTTTL		RS-232 LVTTTL	
Default Baud Rate	Baud	19200		19200		19200	
Eval Board P/N	-	50-45-0069-01R		50-45-0069-01R		50-45-0069-01R	
Eval Board Cable P/N	-	18-10-0006R		18-10-0006R		18-10-0006R	

Notes:

1. Max NF at minimum gain setting; min NF at maximum gain setting

Standard, available part number currently in production are listed above. Custom specifications can be considered to meet customers' needs.



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