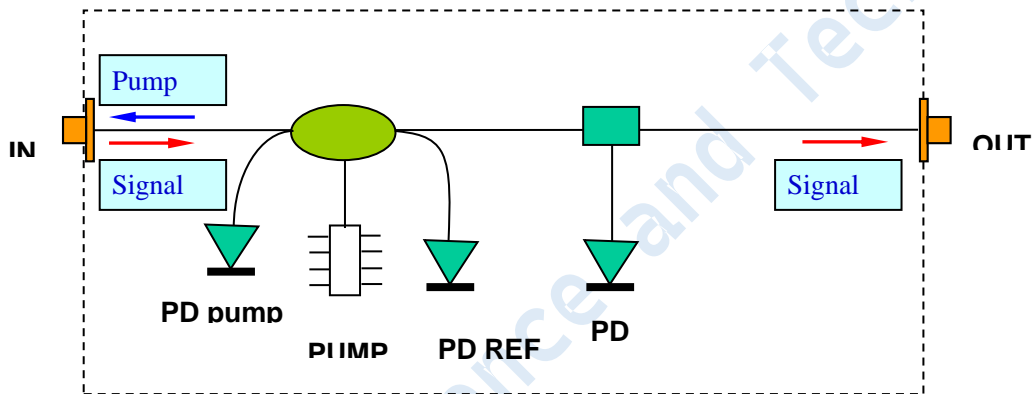


Raman Amplifier

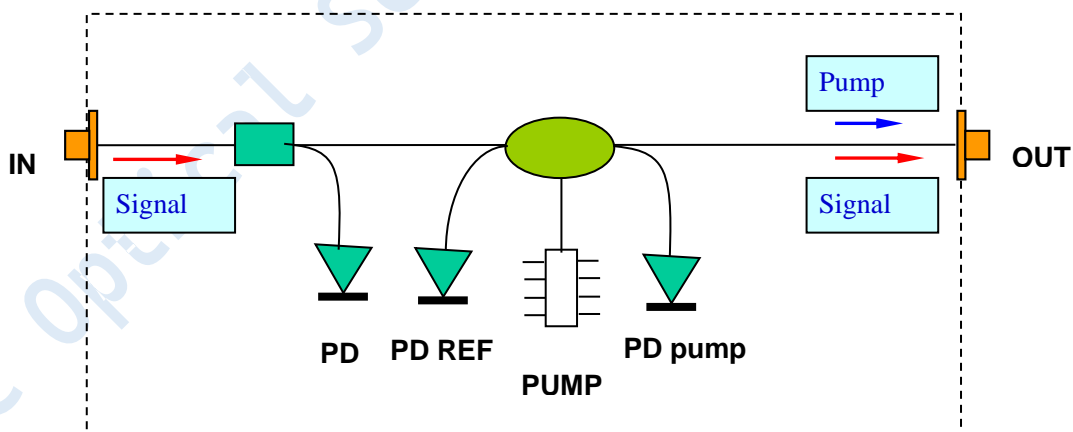
1. Scope

This document specifies the requirements of a C-band distributed Raman amplifier. The amplifier modules can be operated at constant pump power (Automatic Pump Power Control, APPC). Different wavelength pump power can be adjusted to achieve smooth gain spectrum for the DWDM network application. It can amplify the single channel signal, in order to achieve the best OSNR; the module integrated a narrow band filter to suppress the ASE power.

Counter-propagating pumping configuration, Pre-DRA:



Co-propagating pumping configuration, Boost-DRA:



2. Performance

2.1. Absolute maximum ratings

Parameter	Min	Max	Unit
Operating case temperature	-5	55	°C
Operating relative humidity	5	95	%
Storage Temperature	-40	75	°C
Storage relative humidity	5	95	%
Power consumption		45	W

2.2 Optical characters

PRE-DRA for DWDM network application

Name1: Pre-DRA G26 for DWDM

Vendor PN: DRAOP-G26-5D-LU-CW

Item	Min.	Typ.	Max.	Unit	Note
Operation wavelength	1528		1565	nm	
Input power	-36		-10	dBm	
Effective Gain		26	28	dB	@ G652 fiber >40km Attenuation coefficient 0.20dB/km
Gain flatness			2.5	dB	@G=26
Pump wavelength		1423~1465		nm	
Total Pump out power	1300			mw	@/pump 500mw setting
Noise figure			0	dB	
Input signal threshold	-38			dBm	

Name2: Pre-DRA G14 for DWDM

Vendor PN: DRAOP-G14-5D-LU-CW

Item	Min.	Typ.	Max.	Unit	Note
Operation wavelength	1528		1565	nm	
Input power	-36		-10	dBm	
Effective Gain	12	14	15	dB	@ G652 fiber >40km Attenuation coefficient 0.20dB/km
Gain flatness			2.2	dB	@G=14
Pump wavelength		1423~1465		nm	
Total Pump out power	700			mw	@/pump 500mw setting
Noise figure			0	dB	

Input signal threshold	-38			dBm	
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2.3 General specification

Item	Min	Typ	Max	Units	Note
Polarization dependence gain			0.5	dB	
Polarization mode dispersion			0.5	ps	
Return Loss	45			dB	UPC connector

2.4 Pigtail

Function	connector	Length(cm)	description
Input	LC/UPC	50±5	900um,tight,white
Output	LC/UPC	50±5	900um,tight,white

3. Electrical interface

DRA module electrical connector is 50 pin male, DC3-50p 2.54mm

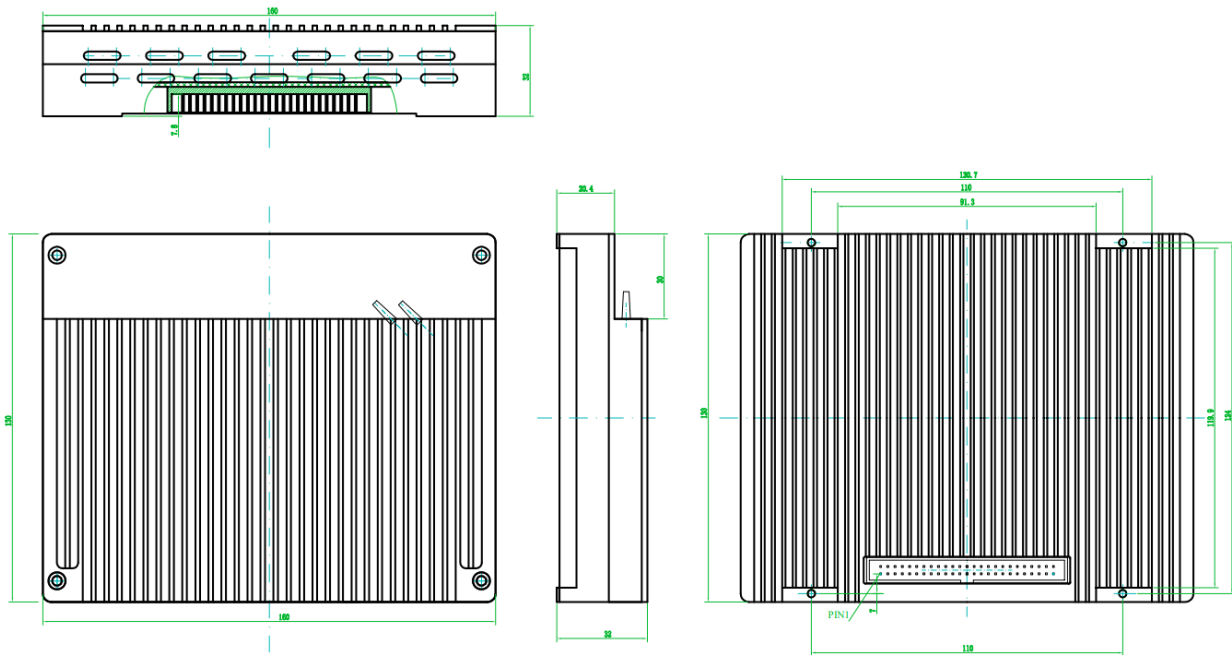
NO.	Pin Name	NO.	Pin Name
1	+5.0V	2	+5.0V
3	+5.0V	4	+5.0V
5	+5.0V	6	+5.0V
7	+5.0V	8	+5.0V
9	+5.0V	10	GND
11	GND	12	GND
13	GND	14	GND
15	GND	16	GND
17	GND	18	GND
19	RX (LVTTTL)	20	TX (LVTTTL)
21	NC	22	NC
23	NC	24	NC
25	GND	26	GND
27	Signal Power Alarm	28	Reflection Power Alarm
29	Pump Current Alarm	30	Pump Temp Alarm
31	Case Temp Alarm	32	RESET
33	GND	34	GND
35	GND	36	GND

37	GND	38	GND
39	GND	40	GND
41	GND	42	+5.0V
43	+5.0V	44	+5.0V
45	+5.0V	46	+5.0V
47	+5.0V	48	+5.0V
49	+5.0V	50	+5.0V

Note: Alarm active is high 3.3 V

4. Dimension

unit: mm 160X130X32



5. Commands

Baud Rate 57600



RAMAN ASCII
 Command_20240