

Applications

- CWDM Forward Path
- Broadcast and Narrowcast Networks
- CWDM Cuts New Fiber Costs
- High Optical Splits

Features

- OC-48 Pinout Compatible
- Telcordia Technologies™ 468 Compliant
- Up to 110 Channel Count
- Up to 20 mW
- Wide Temperature Range – Stable even in Harsh Environments

The 1622 ITU G.695 compliant CWDM forward path DFB laser components are designed for both broadcast and narrowcast analog applications. The highly linear, OC-48 pinout compatible components feature options for up to 20 mW of minimum optical output power with superior distortion performance over an enhanced temperature range of -40°C to +85°C.

Performance Highlights

	Min	Typical	Max	Units
Wavelength	1287	1291	1295	nm
	1307	1311	1315	
	1327	1331	1335	
	1347	1351	1355	
	1367	1371	1375	
Optical Output Power	4	-	-	mW
	6			
	8			
	10			
	13			
	16			
	20			
Temperature Range	-40	-	+85	°C
Frequency Range	5	-	1002	MHz
Carrier to Noise Ratio	51	-	-	dB
Composite Second Order (1622B versions)	-	-	-59	dBc
Composite Triple Beat	-	-	-65	dBc



Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Condition	Min	Max	Unit
Operating Temperature Range	T_C	Continuous	-40	+85	°C
Storage Temperature Range	T_{STG}	-	-40	+85	°C
Laser Forward dc Current	-	-	-	150	mA
Photodiode Reverse Voltage	V_{RPD}	-	-	10	V
Laser Reverse Voltage, dc	-	-	-	1	V
ESD	-	HBM: R = 1500 Ohm, C = 100pF	-500	500	V
TEC Current	I_{TEC}	Continuous	-1.9	1.9	A

Electrical/Optical Characteristics

Laser Temperature (TL) = 25°C, $I_F = I_{OP}$, Beginning of Life (BOL)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Wavelength	λ	1290 nm option 1310 nm option 1330 nm option 1351 nm option 1371 nm option	1287 1307 1327 1347 1367	1291 1311 1331 1351 1371	1295 1315 1335 1355 1375	nm
Optical Output Power	-	-04 version -06 version -08 version -10 version -13 version -16 version -20 version	4 6 8 10 13 16 20	- - - - - - -	- - - - - - -	mW
Optical Isolation	ISO	-	30	-	-	dB
Side-Mode Suppression Ration	SMSR	-	35	-	-	dB
Threshold Current	I_{TH}	-	-	-	20	mA
Operating Current	I_{OP}	Varies with power option	-	-	120	mA
Monitor PD Responsivity	r_{PD}	$V_{RM}=5V$	10	-	200	$\mu A/mW$
Slope Efficiency	η	Points measured @ $I_F = I_{TH} + 20$ and $I_{TH} + 60$	0.084	-	-	mW/mA
Thermistor Resistance	R_{TH}	$T_{OP}=25^\circ C$	9.5	10	10.5	KOhm
Thermistor Temp. Coefficient	TC_{TH}	$T_{OP}=25^\circ C$	-	-4.4	-	%/°C
TEC Current	I_{TEC}	$-40 < T_C < +85^\circ C$, $I_F = 100$ mA	-1.5	-	16	A
Fiber Length	-	May include splice	1.0	1.5	-	M
Fiber Buffer	-	-	-	900	-	μm
Fiber Core/Cladding	-	-	-	9/125	-	μm

RF Characteristic

Laser Temperature (TL) = 25°C, $I_F = I_{OP}$, Beginning of Life (BOL)

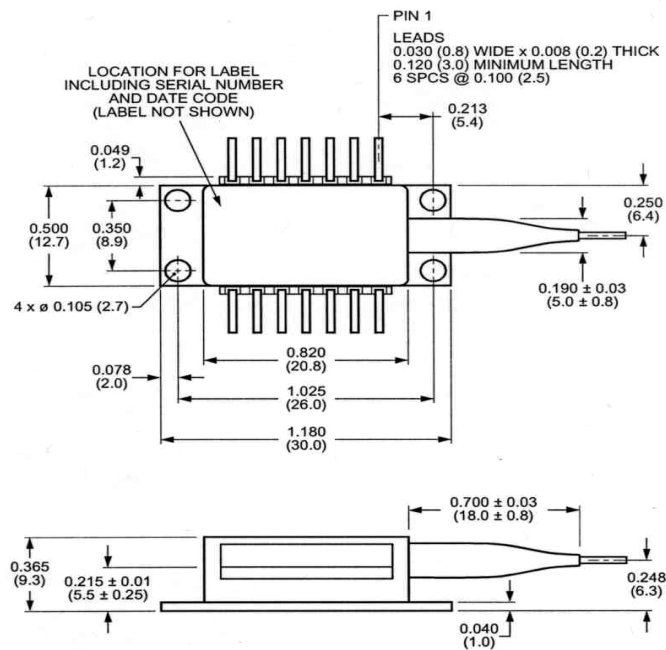
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Frequency Range	F	-	5	-	1002	MHz
Frequency Response	S21	$I_{OP} = 60 \text{ mA}$, 5 - 1002 MHz	-	-	± 0.75	dB
Carrier-to-Noise Ratio	CNR	-	51	-	-	dB
Comp. Second Order	CSO ⁽¹⁾	Standard Options (1622A) Enhanced Options (1622B)	-	-	-56 -59	dBc
Composite Triple Beat	CTB ⁽¹⁾	1622A & 1622B	-	-	-65	dBc
Relative Intensity Noise	RIN	-	-	<-155	-	dB/Hz

3.2% OMI, 79 ch. NTSC

In order to prevent reflection-induced distortion, the laser must be connected to an optical cable having a return loss of at least 55 dB for discrete reflections and 30 dB for distributed reflections.

⁽¹⁾ Distortion performance assumes 0km dispersion.

Outline Drawing (dimensions are in inches & mm)



Electrical Schematics

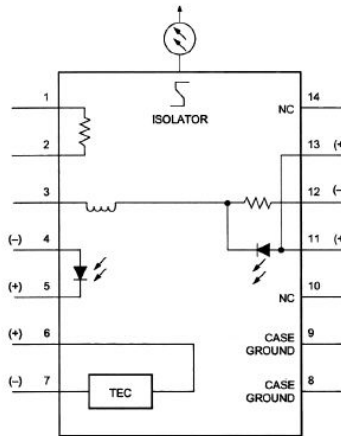


Figure 1. 1622 CWDM Laser Schematic

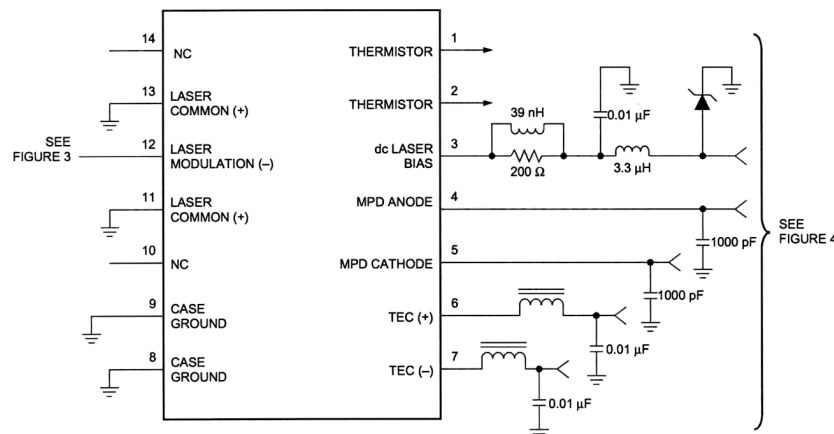


Figure 2. 1622 CWDM Circuit Schematic

Pin Definitions

Pin	Description
1	Thermistor
2	Thermistor
3	Dc Laser Bias (-)
4	MPD Anode (-)
5	MPD Cathode (+)
6	Thermal Electric Cooler (+)
7	Thermal Electric Cooler (-)
8	Case Ground
9	Case Ground
10	NC
11	Laser Common (+)
12	Laser Modulation (-)
13	Laser Common (+)
14	NC

Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1 laser product. This device has been classified with the FDA/CDRH under accession number 0220191.

All Versions of this laser are Class 1 laser product, tested according to IEC 60825-1:2007/EN 60825-1:2007

Single-mode fiber pigtail with SC/APC connectors (standard).

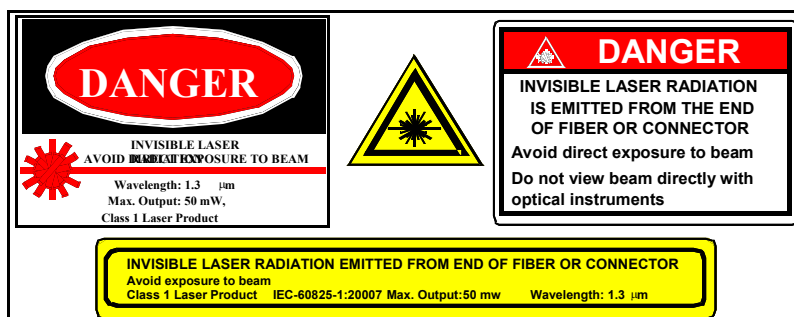
Wavelength = 1.3 μm .

Maximum power = 50 mW.

Because of size constraints, laser safety labeling (including an FDA class 1 label) is not affixed to the module, but attached to the outside of the shipping carton.

Product is not shipped with power supply.

Caution: Use of controls, adjustments and procedures other than those specified herein may result in hazardous laser radiation exposure.



Ordering Code Definitions

1622x – www – aa – yyyy – zz

						Family Name Analog O-Band CWDM DFB, Laser
						CSO Performance X = A Standard Performance X = B Enhanced Performance (CSO)
						Frequency Plan www = 079: 79 Channel NTSC
						Optical Connector aa = FC: FC/APC aa = SC: SC/APC
						Center Wavelength yyyy = 1291: 1291 nm yyyy = 1311: 1311 nm yyyy = 1331: 1331 nm yyyy = 1351: 1351 nm yyyy = 1371: 1371 nm
						Minimum Optical Power zz = 04: 4 mW zz = 06: 6 mW zz = 08: 8 mW zz = 10: 10 mW zz = 13: 13 mW zz = 16: 16 mW zz = 20: 20 mW

Example

1622B-79-SC-1331-10: CWDM Laser, Enhanced performance, 79 channel NTSC, SC/APC connector, 1331 nm center wavelength, 10 mW minimum optical power.