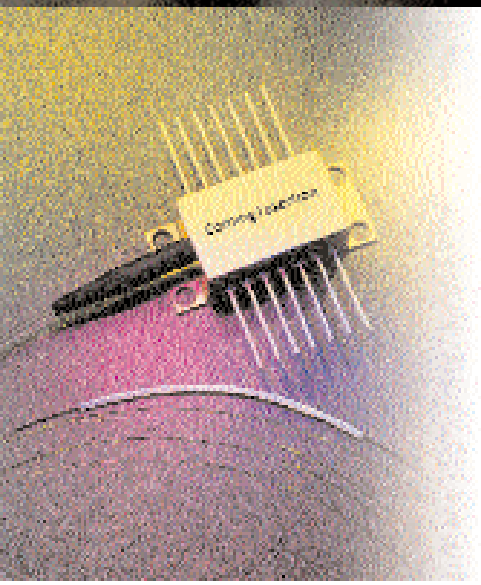
Optilock™ VR Series 2

14xxnm Fiber Bragg Grating Stabilized Raman Pump Laser

CORNING
Discovering Beyond Imagination

Rev. 2 Updated 11/12/01

Corning Lasertron



- **For Raman amplified DWDM systems**
- **Fiber Bragg Grating stabilized**
- **Up to 300mW output power**
- **High chip efficiency**
- **Superior thermal performance**
- **Wavelength range from 1400nm to 1520nm**

Description

The Optilock™ VR Series 2 14xxnm Fiber Bragg Grating stabilized Raman pump laser is used in long wavelength, high power applications. Patented chip materials enable the Optilock™ VR Series 2 to offer excellent power stability and high chip efficiency, as well as state-of-the-art thermal impedance. The superior low profile Gibraltar 3 package, which operates up to 70 degrees C, offers increased reliability and improved thermal performance. Wavelengths from 1400 to 1520nm can be specified.

Applications

The Optilock™ VR Series 2 is designed to operate in Raman amplified DWDM systems, enabling extended system reach and span length, as well as faster bit rates. The relatively shorter wavelength Raman power transfers energy to the longer wavelength optical signal. Multiple pumps may be used to flatten and/or broaden gain. Superb power and wavelength locking capability serve to ensure the long-term reliability of Raman amplifiers.

Optilock™ VR Series 2 14xxnm Fiber Bragg Grating Stabilized Raman Pump Laser

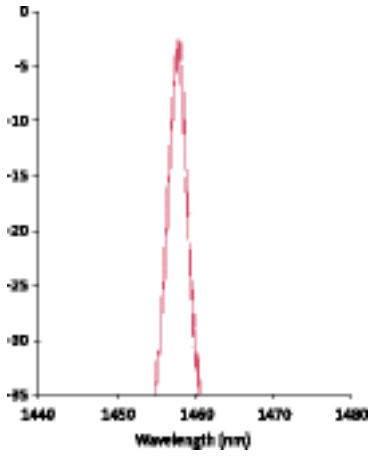
Contact Corning Lasertron regarding special requirements.

(T_S=25°C, T_{case}=0 to 65°C, except as noted)

Parameter	Conditions	Min	Typical	Max	Units
Absolute Maximum Rating					
Case Storage Temp.		-40		85	°C
Case Operating Temp.	P_o	0		70	°C
Soldering Temp.	10sec.			260	°C
Soldering Duration				10	sec
Fiber Bend Radius		21			mm
Short-Time Relative Humidity	30 days @ 40°C	5		95	%
LD Forward Drive Current				1500	mA
ESD Damage	C=100pF, R=1.5 KΩ, HBM			1000	V
BFM (PD) Reverse Voltage				17	V
BFM (PD) Forward Current				10	mA
Thermistor Voltage				10	V
Thermistor Current				2	mA
Thermoelectric Cooler Current	Cooling; under control, $T_{submount}$=25°C			4.5	A
Thermoelectric Cooler Voltage	Cooling; under control, $T_{submount}$=25°C			5.8	V
Spectral Characteristics					
Center Wavelength (λ_C)	Rated Power (P_o) @ 25°C	1400		1520	nm
Spectral Width ($\Delta\lambda_{RMS}$)	Rated Power (P_o) @ 25°C			1.5	nm
Spectral Stability vs. Time	Rated Power (P_o) @ 25°C			0.2	nm
Spectral Stability vs. Temp.	$T_{submount}$ = 20°C..30°C, T_{case} = 25°C			0.015	nm/°C

Fixed Narrow-Band Spectrum Over Time

The Optilock™ VR exhibits excellent wavelength locking capability, guaranteeing long-term reliability of Raman amplifiers. Superior chip materials enable higher chip efficiency as well as greater flexibility to extend wavelength coverage.

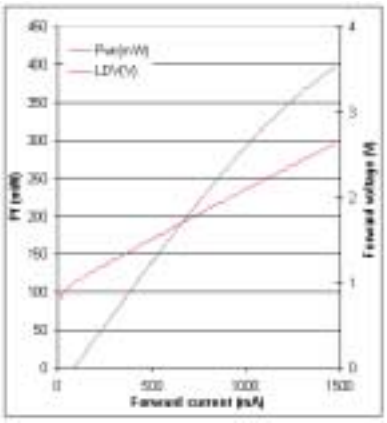


PRELIMINARY

Parameter	Conditions	Min	Typical	Max	Units
L-I Characteristics					
Fiber Coupled Power	$I_f = I_{f,\ BOL}$	120	250	300	mW
Threshold Current (I_{th})	120-250mW P_o		60	100	mA
Operating Voltage (V_{op})	T_s=25°C, T_{case}=0, 25, 70°C for all powers				
	120mW P_o			1.7	V
	250mW P_o			2.3	V
	300mW P_o			2.5	V
Operating Current (I_{OP})	T_s=25°C, T_p=0, 25, 70°C for all powers, BOL				
	120mW P_o			530	mA
	250mW P_o			1050	mA
	300mW P_o			1200	mA
Laser Operating Temp.	@ Rated Power (P_o)		25		°C

Kink-free Power

The Optilock™ VR Series 2 has demonstrated up to 400mW FBG pump power and excellent power stability over time, as well as state of the art thermal impedance.

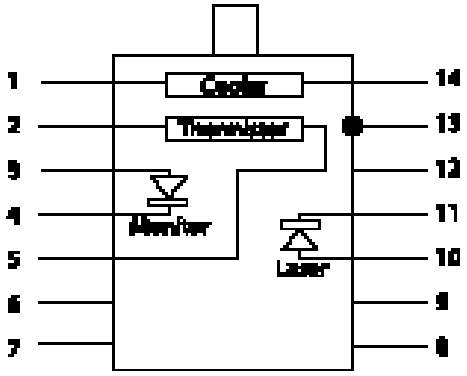


Parameter	Conditions	Min	Typical	Max	Units
Photodetector Characteristics					
Monitor Photocurrent	V_R=5V, $I_{f,\ BOL}$	50		3000	µA
Photodetector Dark Current (ID)	V_R=5V, T_{case}=25°C			100	nA
Thermoelectric Cooler Characteristics (100-300mW P_o)					
TEC Current	ΔT=40°C, I_L=I_k @ 70°C			2.7	A
TEC Voltage	ΔT=40°C, I_L=I_k @ 70°C			5.0	V
Thermistor Characteristics					
Thermistor resistance (R_{TH})	$T_{submount}$= 25°C	9.5	10	10.5	KΩ
Fiber Specification					
Fiber Type			Polarization Maintaining Fiber		
Coating Diameter		230	250	270	µm
Cladding Diameter		122	125	128	µm
Fiber Proof Test Level		100			kpsi
Grating Bend Radius		21			mm
Grating Protection Diameter		350		1100	µm

Pin Assignment

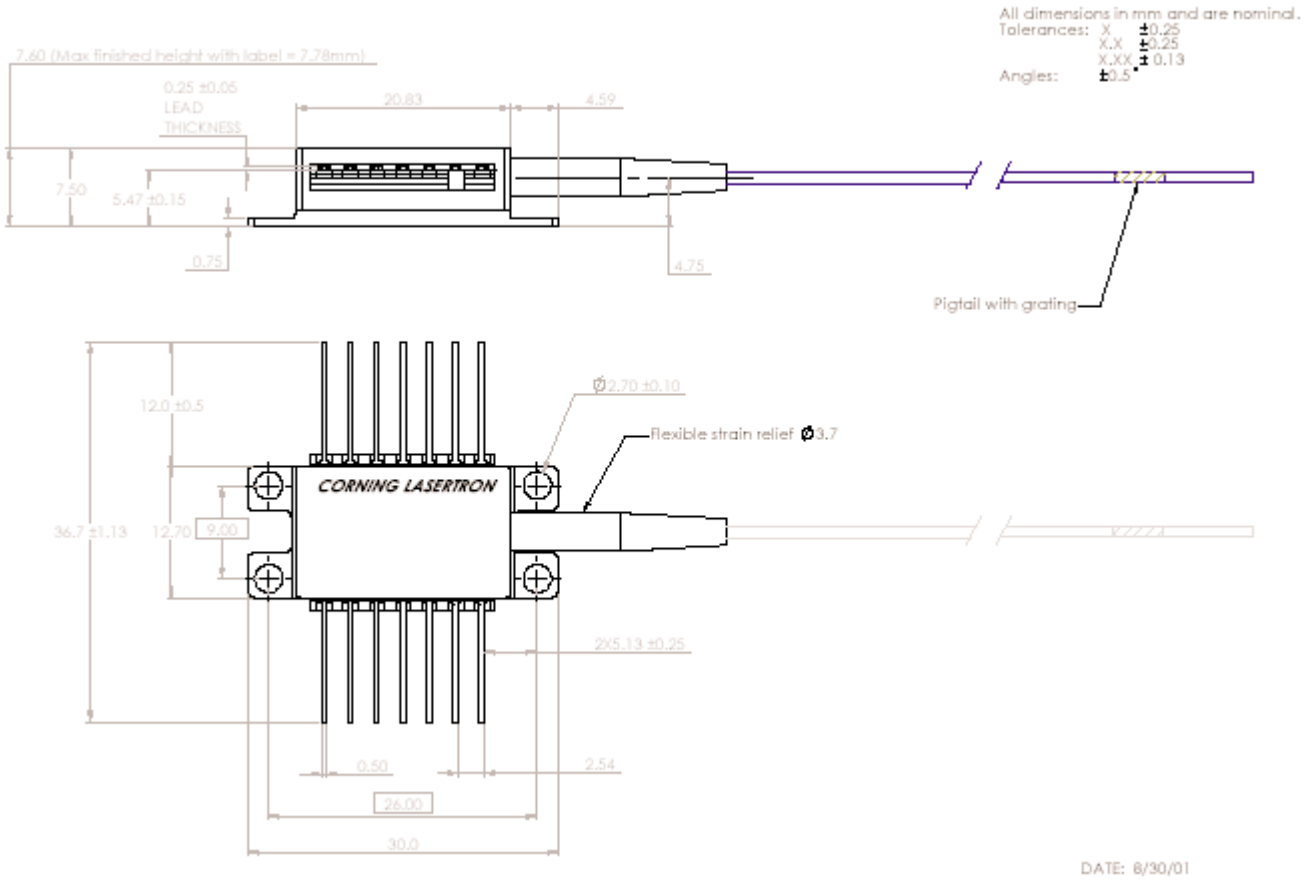
1	Cooler	8	NC
2	Thermistor	9	NC
3	Monitor Anode (-)	10	Laser Anode (+)
4	Monitor Cathode (+)	11	Laser Cathode (+)
5	Thermistor	12	NC
6	NC	13	Case Ground
7	NC	14	Cooler (-)

Total Floating Pinout



Dimensions

Package Dimensions (mm)



Ordering Information

Placing Orders

Orders for all Corning Lasertron products may be placed by contacting the Corning Lasertron sales office. All orders are subject to acceptance by the Sales Department at Corning Lasertron Headquarters in Bedford, MA, USA.

Warranty

Unless otherwise noted, Corning Lasertron warrants all standard pump laser products, when operated at or below noted optical power and within specified temperature and electric limits, against defects in material and workmanship for 3 years from the date of shipment.

For product coding please call the Sales Office at 781.280.9000 or at US toll free 866.OPTO.4.ME.

Corning Lasertron
11 Oak Park
Bedford, MA 01730
Telephone 781.280.9000
Fax 781.280.3300
www.Lasertroninc.com