

# UNCOOLED MULTI-MODE LASERS

High reliability fiber-coupled designs in 14-pin butterfly package

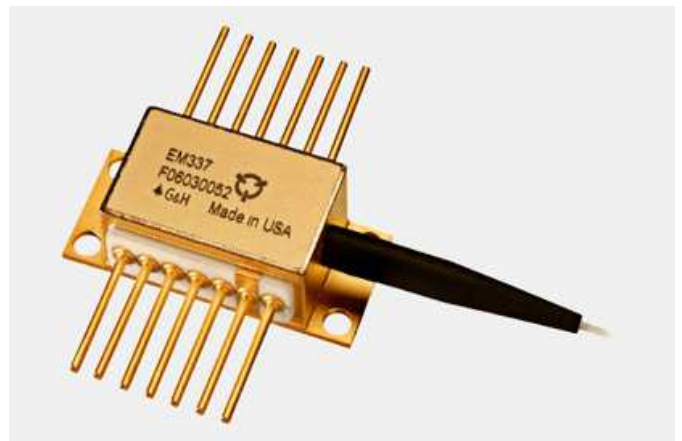
EM322 - 329

The uncooled lasers are a member of Gooch & Housego cooled and uncooled lasers in a variety of packages to meet customer requirements.

The G&H high power laser has a fiber coupled output power of typical 6 W. The module is ideal for use in a variety of applications where brightness is essential with a reliable and robust packaging.

The module is a hermetically sealed 14-pin butterfly metal ceramic package and contains a thermistor and monitor detector.

The module is pigtailed using a step index fiber with a 0.15 or 0.22 numerical aperture, 105 micron core diameter.



## Options available

- 6, 7 W output power
- 915, 940, 960 or 975 nm wavelengths
- 0.15 and 0.22 numerical aperture options

## Features

- 915, 940, 960, or 975 nm center wavelength
- 0.15 or 0.22NA, 105  $\mu\text{m}$  core multimode fiber
- Uncooled
- Laser welded and epoxy free
- Hermetically sealed
- Built in thermistor
- Tested to Telcordia GR-468 Core / MIL-Std 883

## Applications

- Fiber lasers
- Yb laser pumping
- Marking
- Material processing
- Defense

## Optical and Electrical Characteristics

$T_C = 25^\circ\text{C}$ , unless otherwise specified

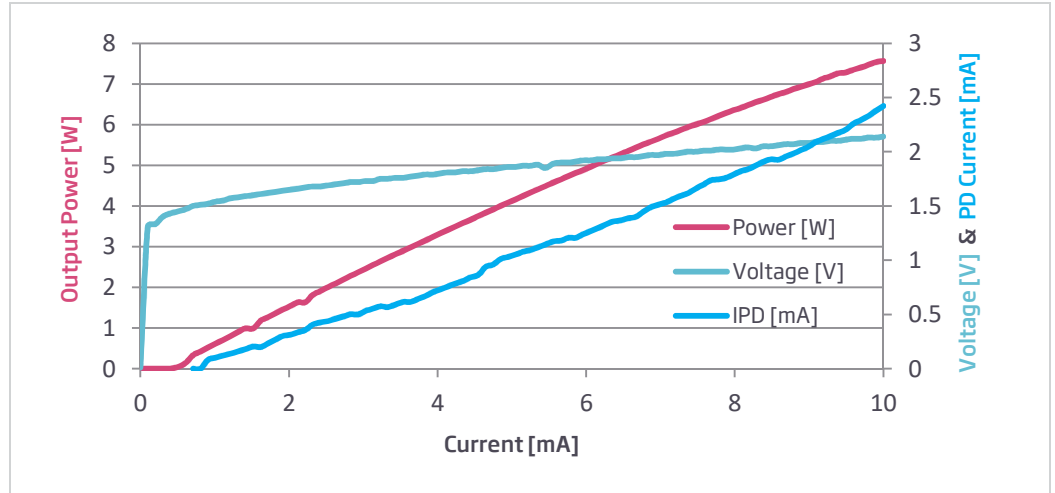
Parameter	Sym	Condition	Min	Typ	Max	Unit
Center wavelength	$\lambda_C$	$I = I_{OP}$	-10		+10	nm
Output power	$P_{OP}$	975nm model	6			W
		915, 940, and 960nm models	7			W
Operating voltage	$V_{OP}$	$I = I_{OP}$			2.2	V
Operating current	$I_{OP}$	$P = P_{OP}$ ; 975nm model			8	A
		915, 940, and 960nm models			9	A
Threshold current	$I_{TH}$			0.4	0.6	A
Wavelength drift vs $T_C$	$\delta\lambda/\delta T_C$			0.3		nm/ $^\circ\text{C}$
Spectral width	$\Delta\lambda$	17dB down from peak		6		nm
PD reverse voltage	$V_{PD}$				20	V
PD current	$I_{PD}$		0.1			mA
Operating case temperature	$T_C$		0		45	$^\circ\text{C}$
Thermistor resistance	$R_{TH}$	$T = 25^\circ\text{C}$	9500	10000	10500	$\Omega$
Themistor $\beta$ coefficient	$\beta$	0 / $50^\circ\text{C}$		3892		

## Fiber Specification

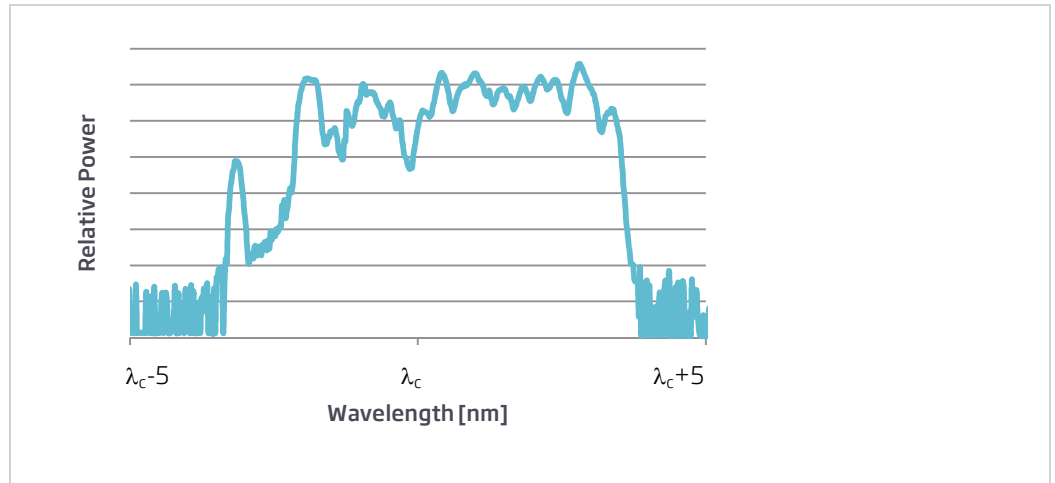
Parameter		Min	Typ	Max	Unit
Fiber type, jacket material	Step index, PVDF				
Numerical aperture	See ordering info			+0.2	
Core diameter		102	105	108	$\mu\text{m}$
Cladding diameter		123	125	128	$\mu\text{m}$
Buffer diameter		235	250	265	$\mu\text{m}$
Jacket diameter			900		$\mu\text{m}$
Jacket length from end of boot		75		95	mm
Pigtail length		1			m

## Data Tables

Typical output power and voltage vs current

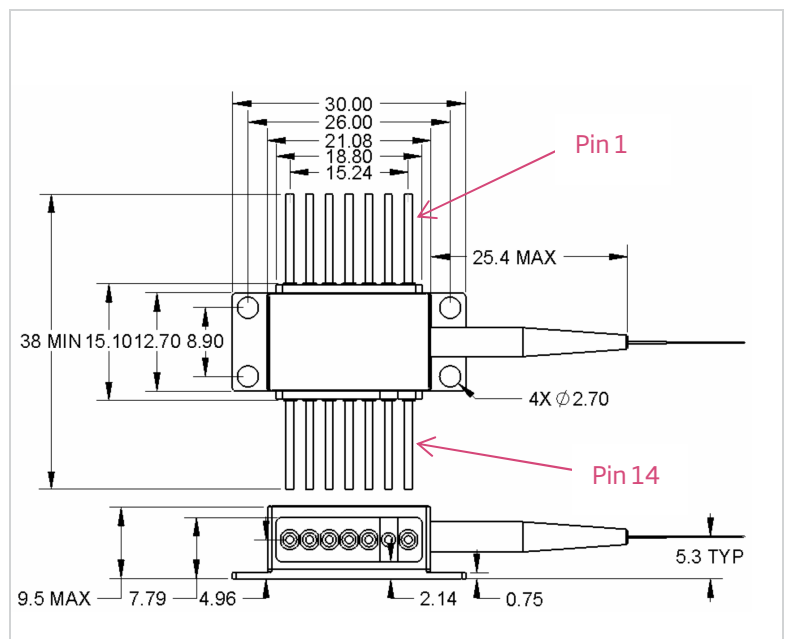


Typical Spectrum  
 $T_c=25^\circ\text{C}$



## Pinout and Mechanical drawing

Pin	Description	Pin	Description
1	NC	14	NC
2	Thermistor	13	Case GND
3	Monitor PD anode	12	NC
4	Monitor PD cathode	11	Laser cathode
5	Thermistor	10	Laser anode
6	Monitor PD cathode	9	Laser cathode
7	Monitor PD anode	8	NC



### 6W COOLED MULTIMODE LASERS IN 14-PIN PACKAGE

## Absolute Maximum Ratings

Parameter	Sym	Min	Max	Unit
Storage temperature	T <sub>STG</sub>	-40	+85	°C
Operating case temperature	T <sub>OP</sub>	-20	+70	°C
Laser forward current	I <sub>F</sub>		11	A
Laser reverse voltage	V <sub>R</sub>		2	V
Photo diode photo current	I <sub>PD</sub>		20	mA
Photo diode reverse voltage	V <sub>PD</sub>		20	V
Thermistor current			2	mA
Thermistor voltage			5	V
Lead soldering time			10	s
Lead soldering temperature			250	°C
Fiber pull force			5	N
Fiber bend radius		35		nm
ESD (human body model)			500	V

\* Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only and operation of the device at or beyond these conditions is not implied. Exposure to absolute maximum ratings for extended periods of time may affect device reliability.

## Models available

Models	EM322	EM323	EM324	EM325	EM326	EM327	EM328	EM329
① Wavelength	915 nm	915 nm	940 nm	940 nm	960 nm	960 nm	975 nm	975 nm
Power	7 W	7 W	7 W	7 W	7 W	7 W	6 W	6 W
Numerical aperture	0.15	0.22	0.15	0.22	0.15	0.22	0.15	0.22

### For further information

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