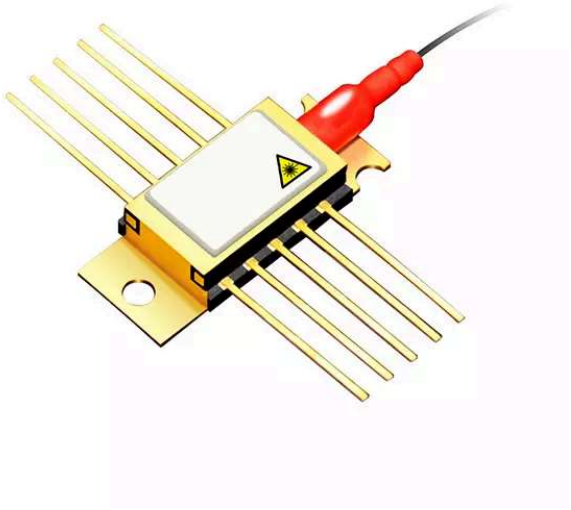
COHERENT

DATASHEET

Diode Lasers

WAVELENGTH STABILIZED 1064 nm HIGH POWER MINI-BUTTERFLY DFB LASER DIODE MODULE



The Coherent CMDFB10xxA wavelength stabilized high power single mode laser module has been designed as a light source for pulsed narrow bandwidth fiber laser and direct frequency conversion applications. A distributed feedback grating (DFB) located in the laser cavity results in the wavelength stabilization within couple of round trips. The laser chip and package are optimized for subnanosecond pulse operation. Processes and techniques of coupling the fiber to the laser allow high peak output powers that are very stable with both time and temperature.

FEATURES AND BENEFITS

- Wavelength: 1064 nm
- High output CW and pulse power: 200 and 800 mW, respectively
- Short pulse modulation, down to 100 ps
- Lateral and longitudinal single mode in short pulse operation
- Polarization maintaining single mode optical fiber
- Internal thermoelectric heat pump and monitor diode
- Hermetically sealed 10-pin mini-butterfly package
- High reliability

APPLICATIONS

- Fiber laser systems
- Frequency conversion
- Spectroscopy

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Parameter	CMDFB1064A/B
Package	10-pin Butterfly
Operating Condition	Pulsed
CW Electrical and Optical Specification[1]	
Threshold Current (mA)	40 (typ.), 15 (min.), 70 (max.)
Operating Forward Current[2] (mA)	400 (max.)
Operating Power (W)	200 (typ.), 150 (min.)
Operating Forward Voltage (V)	2 (typ.), 2.5 (max.)
PULSED SPECIFICATIONS	
Output Power (mW)	400 (typ.), 300 (min.), peak power
Operating Peak Current (A)	0.8 (max.)
Center Wavelength (Centroid) (nm)	1064.5 (typ.)
Center Wavelength Range (nm)	1050 - 1075
Pulse Width (ns)	10 (min.), 200 (max.)
Duty Cycle (%)	5
Short Pulse Modulation	
Optical Pulse Width[3] (ns)	0.1 - 10
Operating Pulsed Peak Current (A)	1.6
Pulsed Peak Power (mW)	800 (typ.), 600 (min.)
SMSR[4] (dB)	20 (min.)
Duty Cycle (%)	1 (max.)
Chip Series Resistance[5] (Ohm)	2 (typ.)
Chip Capacitance[5] (pF)	50 (typ.)
ABSOLUTE MAXIMUM RATINGS[6]	
Package	
Storage Temperature (°C)	-40 - 85
Lead Soldering Temperature (10 s max) (°C)	350 (max.)
TEC Current (A)	-2.2 - 2.2
TEC Voltage (V)	-3.3 -3.3
Laser	
CW Laser Forward Current (10 s max) (mA)	1500 (max.)
Laser Reverse Voltage (V)	2 (max.)
Fiber Pigtail	
Fiber Bend Radius (mm)	20 (min.)
Fiber Type	Polarization maintaining Nufern PM980-HP or equivalent (e.g. Fujikura SM98)
Fiber Core Diameter (µm)	6.6
Mode Field Diameter (µm)	6.6 (typ.), 5.6 (min.), 7.6 (max.)
Buffer Diameter (µm)	250 (typ.), 230 (min.), 270 (max.)
Fiber Length (module case to fiber end) (m)	1 (min.)
Pristine Fiber Proof Test Level (kpsi)	200 (min.)
Fiber Pull to Housing (psi)	150 (min.)
Miscellaneous	

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Parameter	CMDFB1064A/B
RoHS Compliance	compliant (China RoHS 50)
Laser Safety	Class 4 Laser Product

Notes:
1. Conditions unless otherwise stated: Case temperature -20 to +75°C Submount temperature 25°C, CW operation"
2. Also for current pulses >200 ns
3. ~100 ps is achievable in gain switching regime with dedicated pulse driver
4. Tested and guaranteed only at 1.5 ns pulse width, 300 kHz repetition rate, no bias
5. Small signal equivalent circuit parameters for laser chip
6. The absolute maximum ratings are conditions for which the device is expected to recover fully the specified performance. Exceeding these limits may impair the device reliability. The ratings apply to each parameter in isolation; that is when all other parameter have values within the relevant characteristics. It cannot be assumed that limiting values of more than one parameter may be applied to a device at the same time.

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