



## DFB-2004-3

### Description

2.0  $\mu\text{m}$  DFB laser diodes (in the following a 2004nm device is exemplary presented) show unique device performance to meet the requirements of our customers.

Their high side mode suppression ratio (SMSR) and high spectral purity make them perfectly suited for applications like e.g.  $\text{CO}_2$  spectroscopy. Mode-hop free DFB emission with a high side mode suppression ratio (SMSR) around 35dB is guaranteed for the device in the entire specified temperature and current range of operation.

### Spectrum

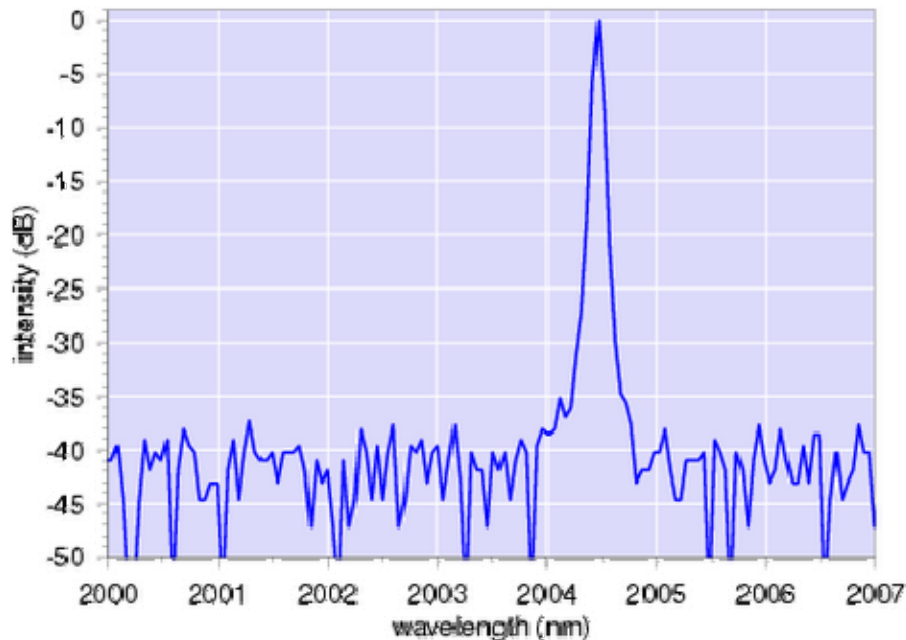


Fig. 1: Spectrum of a 2004nm DFB Laser diode.

### Applications

- trace gas sensing of  $\text{CO}_2$



## Absolute Maximum Ratings

Parameter	Symbol	Unit	Rating
LD forward current	$I_f$	mA	100
LD reverse voltage	$U_r$	V	1.5
Operating temperature	$T_{op}$	°C	-20 ... 50
Storage temperature	$T_{store}$	°C	-20 ... 85

## Electrical/Optical Characteristics

Parameter	Symbol	Unit	min	typical	max
Wavelength	$\lambda$	nm	2003	2004	2005
Side mode suppression		dB	32	35	40
Optical output power	$P_{opt}$	mW		3	
Forward current	$I_f$	mA	40	50	100
Threshold current	$I_{th}$	mA	20	25	50
Beam divergence parallel		deg.	25	30	35
Beam divergence perpendicular		deg.	45	50	60
Slope efficiency	$e$	mW/mA	0.08	0.12	0.15
Current tuning rate	$C_I$	nm/mA	0.01	0.02	0.03
Temperature tuning rate	$C_T$	nm/K	0.18	0.2	0.22



## Packages

Different packaging options are available for those LD. Shown here are standard TO headers (e.g. TO5.6, TO9, TO8) with and without Peltier cooler. Mounting on customer specific submounts and bare chips are also available upon request.



plain chip



TO 5.6 mm



TO 9 mm



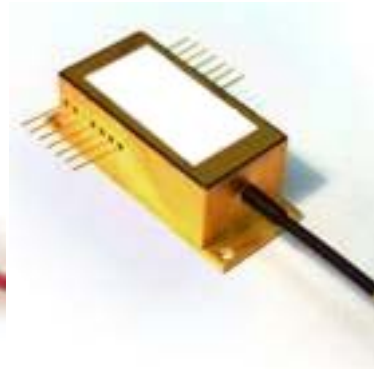
TO 5 with integrated  
TEC and thermistor



TO 8 with integrated  
TEC and thermistor



fiber coupled



fiber coupled with TEC and  
thermistor



C-mount