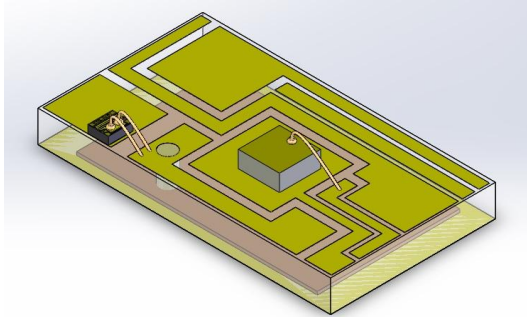


**DFB-1392-COS-20-CW-XX-N172**

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**Features**

- Advanced Multiple Quantum Well (MQW) Distributed Feedback (DFB) Laser Design
- High-output power
- Chip on submount with temperature sensor

**Applications**

- Sensor development
- Water gas monitoring

**Description**

The DFB-1392-COS-20-CW-XX-N172 series of Multi-Quantum Well (MQW) Distributed Feedback (DFB) lasers have been designed specifically to satisfy the requirements of the sensor application.

The devices feature high output power and wide operating temperature range.

This Chip on Submount (COS) packages is build with a thermister for the temperature measurement.





## DFB-1392-COS-20-CW-XX-N172

### Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Max	Unit
Operating Temperature	$T_c$	$I=I_{op}$	10	50	°C
Storage condition		Non-condensing environment	--	--	
Laser Forward Current	$I_f$	--	--	120	mA
Laser Reverse Bias	$V_r$	--	--	2	V

### Electrical and Optical Characteristics

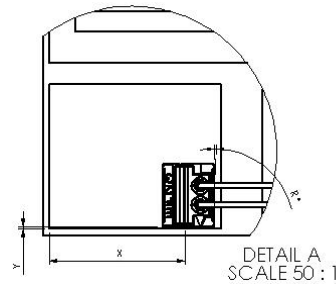
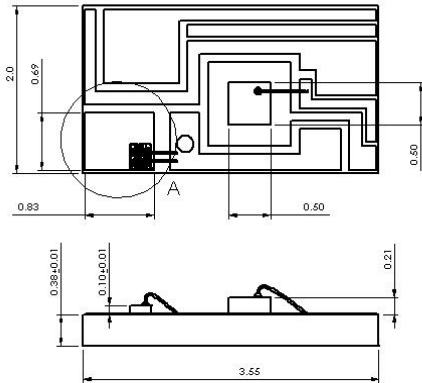
Parameters are tested at 25 °C unless otherwise noted.

Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Operating Temperature	$T_c$	10	--	50	°C	
Optical Output Power	$P_o$	20	--	--	mW	CW,
Threshold Current	$I_{th}$	--	--	50	mA	
Forward Voltage	$V_F$	--	--	2	V	$P_o=P_L$
Operating Current	$I_{op}$	--	--	120	mA	$P_o=P_L$
Slope Efficiency	SE	0.35	--	--	mW/mA	
Center Wavelength*	$\lambda_c$		1392		nm	$P_o=P_L$
Center Wavelength Tolerance	$\Delta\lambda_c$	-2	--	2	nm	$P_o=P_L$
Spectral Linewidth		--	--	10	MHz	$P_o=P_L$
Side-mode Suppression Ratio	SMSR	30	--	--	dB	$P_o=P_L$
Transverse laser beam divergence angle (FWHM)	$\Theta_T$	27	30	33	degree	CW, $P_o=P_L$
Lateral laser beam divergence angle (FWHM)	$\Theta_L$	17	20	23	degree	CW, $P_o=P_L$

**DFB-1392-COS-20-CW-XX-N172**

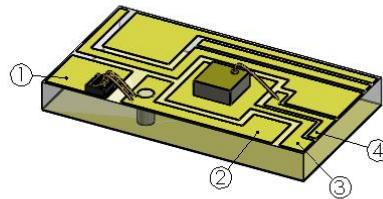
**Outline Diagram**

Dimensions are in millimeters (Tolerance are  $\pm 0.05$  for X.X, and  $\pm 0.02$  for X.XX, otherwise as indicated)



Laser Die Location (Refer to Detail A)

Item	Description	Dimension
X	Distance X-Axis	670 ± 50 $\mu$ m
Y	Distance Y-Axis	0-50 $\mu$ m
R	Slant/Rotation	0° ± 3°



**Electrical Connection Information:**

Wiring contact	Description	Remark
1	LD Cathode (-)	
2	LD Anode (+)	Pad 2 is connected to the bottom of the submount
3	Thermister	
4	Thermister	



**DFB-1392-COS-20-CW-XX-N172**

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Ordering Options

**DFB-1392-COS-20-CW-XX-N172**



Submount Option	Description
00	AOI BTF-SM-0004

## DFB-1392-COS-20-CW-XX-N172

### Safety Information

All versions of this laser are Class 1M laser products per IEC<sup>1</sup>/EN<sup>2</sup> 60825-1:2007. Users should observe safety precautions such as those recommended by ANSI<sup>3</sup> Z136.1-2000, ANSI Z36.2-1997 and IEC 60825-1:2007.

#### Notes about Laser Safety Class:

The Food and Drug Administration's Center for Devices and Radiological Health (FDA/CDRH) in the USA has decided to harmonize their requirements with 21 CFR 1040.10 and 1040.11 with the IEC/EN 60825-1 and IEC/EN 60601-2-22 standards. This process has not yet happened and in the interim, the CDRH agency has released '[Laser Notice No.50](#)' to reduce the regulatory burden. This notice allows IEC/EN classification and labeling of lasers within the USA.

#### IEC<sup>1</sup>/EN<sup>2</sup> 60825-1 Laser Class

**Class 1M:** laser is safe for all conditions of use except when passed through magnifying optics such as microscopes and telescopes. Class 1M lasers produce large-diameter beams, or beams that are divergent. The MPE for a Class 1M laser cannot normally be exceeded unless focusing or imaging optics are used to narrow the beam. If the beam is refocused, the hazard of Class 1M lasers may be increased and the product class may be changed. A laser can be classified as Class 1M if the total output power is below (IEC/EN) class 3B but the power that can pass through the pupil of the eye is within Class 1.

#### FDA Laser Class

**Class IIIB:** moderate power lasers (cw: 5-500 mW, pulsed: 10 J/cm<sup>2</sup> or the diffuse reflection limit, whichever is lower). In general Class IIIB lasers will not be a fire hazard, nor are they generally capable of producing a hazardous diffuse reflection. Specific controls are recommended.

This product does not conform to 21 CFR 1040.10 and 1040.11. Consequently, this laser module is only intended for use as a component by manufacturers of electronic products and equipment.

Wavelength = 1270 – 1610 nm  
 Maximum Power = 75mW  
 Single-mode fiber pigtail  
 Fiber Numerical Aperture = 0.14

Labeling is not affixed to the laser module due to size constraints; rather, labeling is placed on the outside of the shipping box.

This product is not shipped with a power supply.

**Caution: use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.**



classified in accordance with IEC 60825-1:2007

(1) IEC is a registered trademark of the International Electrotechnical Commission

(2) Within Europe the IEC standard has been adopted as a European Normative standard known as EN 60825, and each European country will have its own version of this standard, for example, the British Standards version known as BS EN 60825. There can be small differences between the different countries versions of EN 60825, and these are in part caused by the process of translating the standard into the native language of that country.

(3) ANSI is a registered trademark of the American National Standards Institute