



## Description

The DFB-1310-C5-2-A2-xx-x-x series of Multi-Quantum Well (MQW) Distributed Feedback (DFB) lasers have been designed specifically for analog applications, especially wireless repeater applications. The devices feature high output power, wide operating temperature range, low distortion characteristics, low RIN noise, and high side mode suppression.

Their uncooled, hermetically sealed, coaxial fiber-pigtailed packages are a cost-effective means of providing a highly linear light source for intermediate-reach and long-reach analog transmission applications.

## Features

- ❑ Advanced Multiple Quantum Well (MQW) Distributed Feedback (DFB) Laser Design
- ❑ Low Distortion
  - IMD3 typ. -60 dBc
- ❑ RIN < -145 dB/Hz
- ❑ Cost-effective Uncooled Laser Technology
- ❑ SMSR typ. 40 dB
- ❑ 5.6-mm TO-style package with SMF pigtail

## Applications

- ❑ Wireless (CDMA) fiber-optic repeaters
- ❑ Analog transmission



**DFB-1310-C5-2-A2-xx-x-x**

**Absolute Maximum Ratings**

Parameter	Symbol	Condition	Min	Max	Unit
Operating Case Temperature	$T_c$	$I = I_{op}$	-20	85	°C
Storage Temperature	$T_{stg}$	--	-40	100	°C
Laser Forward Current	$I_f$	--	--	120	mA
Laser Reverse Bias	$V_r$	--	--	2	V
Photodiode Reverse Bias	$V_{rpd}$	--	--	10	V

**Electrical and Optical Characteristics**

Parameters are at 25 °C unless otherwise noted.

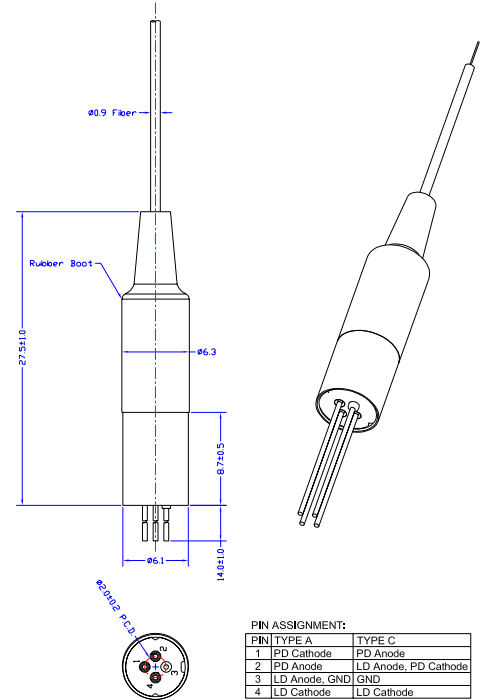
Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Operating Temperature	T	-20	--	85*	°C	
Optical Output Power	$P_o$	2.0	--	--	mW	CW
Threshold Current	$I_{th}$	--	12	18	mA	$T = 25\text{ }^\circ\text{C}$ $T = 85\text{ }^\circ\text{C}$
Operating Current	$I_{op}$	--	60	90	mA	$T = 85\text{ }^\circ\text{C}$
Forward Voltage	$V_f$	--	1.1	1.6	V	$P_o = 2.0\text{ mW}$
Center Wavelength	$\lambda_c$	1290	1310	1330	nm	$P_o = 2.0\text{ mW, CW}$
Spectral Width (-20 dB)	$\Delta\lambda$	--	0.1	1.0	nm	$P_o = 2.0\text{ mW}$
Wavelength temperature coefficient	$\Delta\lambda/\Delta T$	--	0.09	--	nm/°C	
Side-mode Suppression Ratio	SMSR	30	40	--	dB	$P_o = 2.0\text{ mW}$
Monitor Current	$I_{mon}$	25	--	375	$\mu\text{A/mW}$	$V_{rpd} = 5\text{ V}$
Monitor Dark Current	$I_D$	--	--	10	nA	$V_{rpd} = 5\text{ V}$
Tracking Error	$\gamma$	-1	--	1	dB	$I_{mon} = \text{const, } \gamma = 10 \log(P_o/2.0)$ [dB]
Optical Isolation	ISO	--	30	--	dB	

\* See Ordering Options for operating temperature ranges available.

**RF Characteristics**

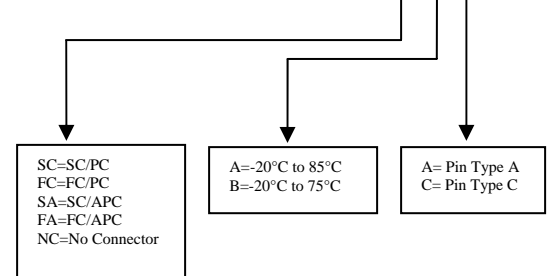
Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Relative Intensity Noise	RIN	--	--	-145	dB/Hz	CW, $P_o = 2.0\text{ mW}$ , $f = 50\text{ MHz}$ to $900\text{ MHz}$
Modulation Bandwidth	BW	2.5	--	--	GHz	-3 dB, $P_o = 2\text{ mW}$
Third-Order Intermodulation	IMD3	--	--	-60	dBc	$T = 25\text{ }^\circ\text{C}$ , $P_o = 2.0\text{ mW}$ , $\text{OMI} = 0.2$ , Two-tone test, 936 MHz and 958 MHz
RF Bandpass Flatness	BF	--	--	1.0	dB	Peak to valley, 50 MHz to 1000 MHz

**Dimensions (in mm)**



**Ordering Options:**

**DFB-1310-C5-2-A2-xx-x-x**



## Safety Information

All versions of this laser are Class 1M laser products per IEC\* 60825-1:2001. Users should observe safety precautions such as those recommended by ANSI\*\* Z136.1-2000, ANSI Z36.2-1997 and IEC 60825-1:2001.

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 = 1.3  $\mu$ m  
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: 2001-08

\*IEC is a registered trademark of the International Electrotechnical Commission

\*\*ANSI is a registered trademark of the American National Standards Institute