

DFB Laser Module 1650nm 5mW



DFB-1650-14BF distributed feedback laser is single frequency laser diode module designed for optical measurement and communication. The laser is packaged in 14-pin standard butterfly package with monitor photodiode and thermo-electric cooler (TEC).

Key Features

- Optical output: 5mW
- Narrow linewidth ($\Delta\nu < 10\text{MHz}$)
- Wavelength: 1650nm @ 25°C
- SM or PM Fiber ($\varnothing 0.9\text{mm}$)
- FC-APC connector
- 14-pin butterfly package
- Internal monitor PD and TEC
- Optical isolator (optional)

Optical and electrical characteristics: (T = 25°C)

Item	Symbol	Test condition	Min.	Typ.	Max.	Unit
Output Power, CW	P_f			4	5	mW
Output Power, Pulse	P_p				10	mW
Forward Voltage	V_F	$P_f=4\text{mW}$			2	V
Threshold Current	I_{th}		14	17	20	mA
Forward Current	I_F	$P_f=4\text{mW}$		40	50	mA
Center Wavelength	λ_c	$P_f=4\text{mW}$	1648	1650	1652	nm
Spectral Width	$\Delta\lambda$	$P_f=4\text{mW}$		5	10	MHz
Side Mode Suppression Ratio	SMSR	$P_f=4\text{mW}$	35	40		dB
Relative Intensity Noise	RIN	$P_f=4\text{mW}$		-140		dB/Hz
Monitor Current	I_m	$P_f=3\text{mW}, V_{RD}=5\text{V}$	40		500	μA
PD Dark Current	I_d	$V_{RD}=5\text{V}$			0.1	μA
Cooler Voltage	V_C	$I_F=EOL, TC=70^\circ\text{C}$			2.7	V
Cooler Current	I_C	$I_F=EOL, TC=70^\circ\text{C}$			1.4	A
Thermal Resistance	R_0	$T_{LD}=25^\circ\text{C}, B=3900\pm 100\text{K}$	9.5	10.0	10.5	$\text{k}\Omega$
Extinction Ratio	X_P	$P_f=4\text{mW}$	19			dB
Single-Frequency Continuous Tuning Range	Δf			2.5		nm
Current Tuning	$\Delta\lambda/\Delta I$			0.002		nm/mA
Temperature Tuning	$\Delta\lambda/\Delta T$			0.09		nm/ $^\circ\text{C}$
Optical Isolation (optional)	I_{ISO}		25			dB

Absolute Maximum Ratings

Item	Symbol	Rating	Unit
LD Forward Current	I_f	60	mA
LD Reverse Voltage	V_r	1.8	V
PD Reverse Voltage	V_{RD}	10	V
Operation Case Temperature	T_C	-40 to +70	°C
Storage Temperature	T_{stg}	-40 to +85	°C
Cooler Current	I_C	1.4	A

PACKAGING

No.	FUNCTION	No.	FUNCTION
1	Cooler anode	8	NC
2	Thermistor	9	NC
3	PD anode	10	LD anode
4	PD cathode	11	LD cathode
5	Thermistor	12	NC
6	NC	13	Case
7	NC	14	Cooler anode

