

Diplexer Pigtailed Optical Subassembly



Description

The DFB-1490-DP-1-3AT-2.5-xx-C-C series of Bidirectional modules are designed specifically for full-duplex communication over a single fiber and FTTx applications.

The devices are integrated with a 2.5Gb/s 1490nm DFB laser and a 1.25Gb/s InGaAs APD-TIA together with optical filters providing good crosstalk and isolation performance.

Features

- ❑ 1490nm Laser Diode with Multi-Quantum Well structure, suitable for burst-mode transmission
- ❑ 1310nm APD with integrated TIA
- ❑ Operation over wide temperature range
- ❑ Cost-effective Uncooled Laser Technology

Applications

- ❑ 2.5 Gbps upstream and 1.25Gbps downstream FTTx OLT application



DFB-1490-DP-1-3AT-2.5-xx-C-C
Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Storage Temperature	Tstg	-40	+85	°C	
Operating Case Temperature	Top	-40	+85	°C	
Forward Current (LD)	I _{fL}	--	150	mA	
Reverse Voltage (LD)	V _{rL}	--	2	V	
Reverse Voltage (Monitoring PD)	V _{rMP}	--	15	V	
Reverse Current (Monitoring PD)	I _{rMP}	--	2	mA	
Supply Voltage (IC)	V _{dd}	--	4	V	
Supply Current (IC)	I _{dd}	--	65	mA	
APD Reverse Current	I _r	--	2	mA	
APD Forward Current	I _r	--	2	mA	
Soldering Temperature	Stemp	--	260	°C	Maximum 10 sec

2.5Gbps Transmitter Electro-Optical Characteristics

Parameters are at 25 °C unless otherwise noted, Pf=5dBm.

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Output Optical Power (I _{op} =I _{th} +20mA)	Pf	2.5	3.5	--	dBm	CW
		0	--	--		CW, T _C =-40~+85°C
Threshold Current	I _{th}	--	10	15	mA	CW
		--	--	50	mA	CW, T _C =-40~85°C
Operating Voltage	V _{op}	--	--	1.8	V	CW, T _C =-40~85°C
Center Wavelength	λ	1480	--	1500	nm	CW, T _C =-40~85°C
Side-mode suppression ratio	SMSR	30	--	--	dB	CW, T _C =-40~85°C
Transmitter Reflectance	ORL	12	--	--	dB	λ=1490nm
Monitor Capacitance	I _{dmp}	--	--	10	pF	V _r =5V, f=1MHz
Monitor Current	I _{mon}	50	--	--	μA	CW, V _r =5V, T _C =-40~+85°C
Monitor Dark Current	I _d	--	1	10	nA	V _{RD} =5V
Tracking Error	TE	-1.5		1.5	dB	I _m @Pf=3dBm(25°C), CW, T _C =-40~+85°C

DFB-1490-DP-1-3AT-2.5-xx-C-C

1.25Gbps Receiver Electro-Optical Characteristics

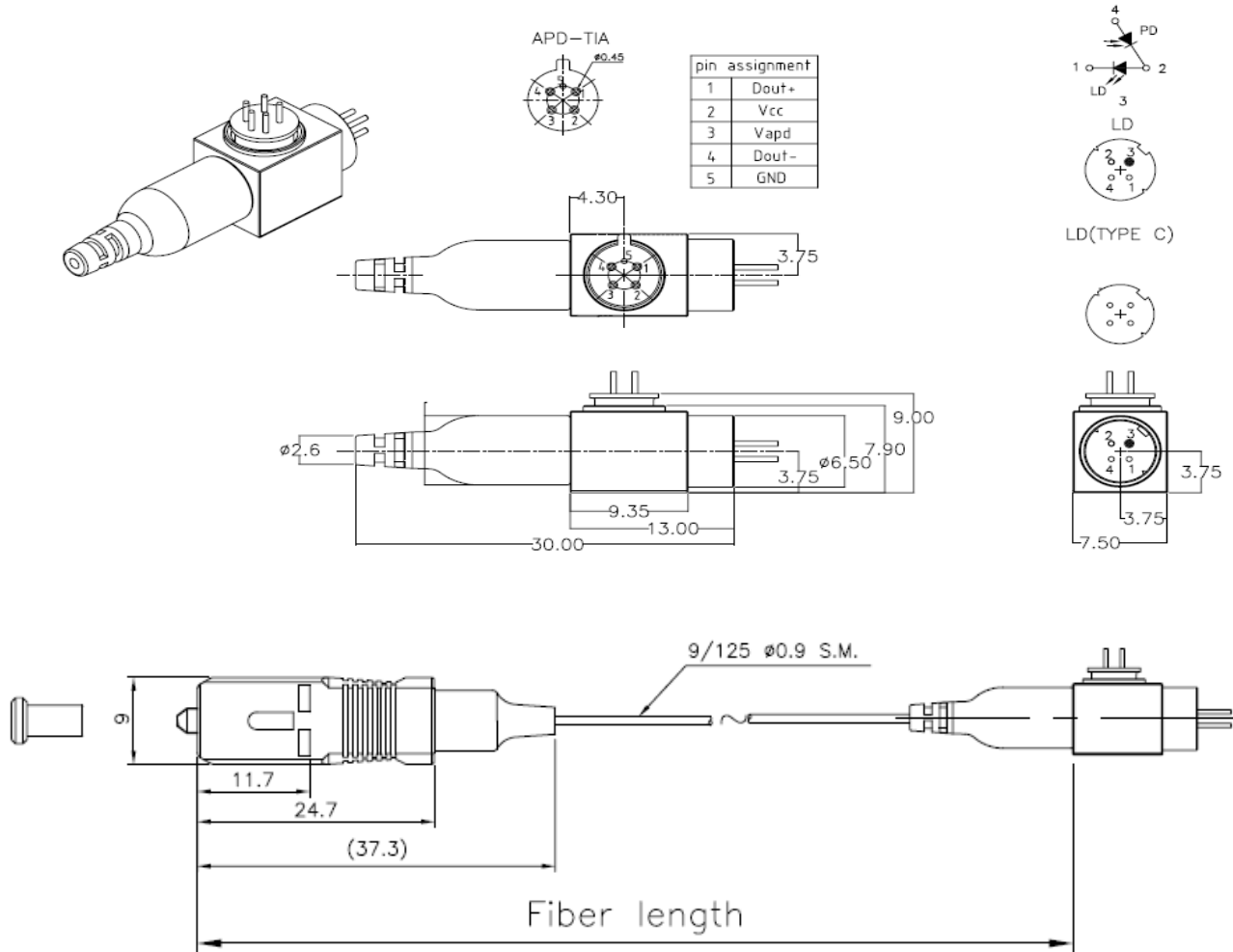
Parameters are at 25 °C unless otherwise noted.

Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Receiving Wavelength	λ	1260	1310	1360	nm	$T_C = -40 \sim 85^\circ\text{C}$
Breakdown Voltage (APD)	VBR	33	--	60	V	$I_r = 10\mu\text{A}$
Sensitivity at 1244Mbps	Smin	--	-33	--	dBm	Continuous mode, $\lambda = 1310\text{nm}$, BER= 10^{10} , M=10
		--	--	-28		Continuous mode, $\lambda = 1310\text{nm}$, BER= 10^{10} (*2), M=10, $T_C = -40 \sim 85^\circ\text{C}$
Optical Crosstalk	X_{OPT}	--	--	-47	dB	From 1490nm laser
Optical Return Loss	ORL	20	--	--	dB	$\lambda = 1310\text{nm}$, $T_C = -40 \sim 85^\circ\text{C}$
Power Supply Current	Icc	--	43	60	mA	APD-TIA, $T_C = -40 \sim 85^\circ\text{C}$

Note:*1 Pop=2mW

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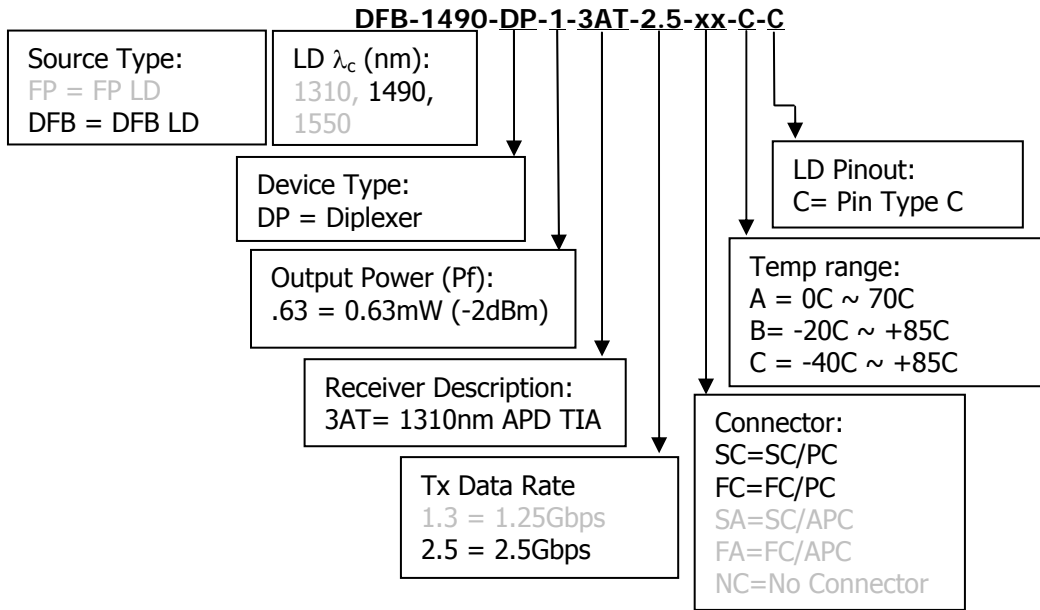
Outline Dimensions:





DFB-1490-DP-1-3AT-2.5-xx-C-C

Ordering Options



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.

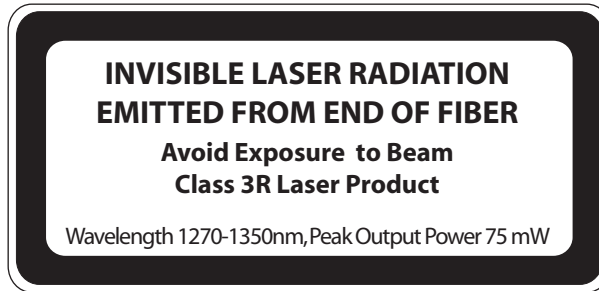
This product does not conform to 21 CFR 1040.10 and 1040.11. Consequently, this laser module is only intended for use as a component by manufacturers of electronic products and equipment.

Wavelength = 1.5 μ 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