

GDLM-5xxxxxx

**1.55um MQW-DFB Laser Diode pigtail Module:
Analog from 1GHz to 2GHz application**



Features

- ◆ Coaxial Package
- ◆ InGaAsP/InP MQW-DFB laser Diode
- ◆ Low threshold, high slope efficiency and high output power LD
- ◆ Operating case temperature: -40°C to +85°C
- ◆ Single-mode fiber pigtailed with SC, LC, FC or ST connector
- ◆ Optional with Isolator
- ◆ RoHS Compliant

Applications

- ◆ CATV Analog Return Path Optical Transmitter
- ◆ GSM/CDMA Optical Repeater
- ◆ W-CDMA/CDMA2000/TD-SCDMA Optical Repeater
- ◆ Microwave Transmission System
- ◆ Test Equipments

General

GDLM-5xxxxxx Series are 1.55µm InGaAsP/InP MQW-DFB laser diode modules designed for fiber optic communication systems. These modules are pigtail modules, and have low threshold current and high performance at high temperature.

A laser diode is mounted into a coaxial package integrated with a single mode fiber pigtail, an isolator and an InGaAs monitor PD.

Ordering information (Standard version ^{*Note1})

Part No.	Package series	Pin Type	Isolator	Connector	RF Bandwidth
GDLM-5010ASA1G	A	LD-Pin-1	Single Stage	SC/APC	<1GHz
GDLM-5120BFA2G	B	LD-Pin-2	Single Stage	FC/APC	<2GHz
GDLM-5130CSA1G	C	LD-Pin-1	Single Stage	SC/APC	<2GHz
GDLM-5020DT1G	D	LD-Pin-1	Single Stage	ST/PC	<1GHz
GDLM-5120EFA2G2	E	LD-Pin-2	Dual Stage	FC/APC	<2GHz
GDLM-5120CFA1G2	C	LD-Pin-1	Dual Stage	FC/APC	<2GHz

*Note1: For more ordering information, please refer the nomenclature and contact EPOTOLINK sales.

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Absolute maximum ratings *Note2

Parameter	Symbol	Ratings	Unit
Storage temperature	Tstg	-40~+100	°C
Operating case temperature	Top	-40~+85	°C
Forward current (LD)	I _{fL}	150	mA
Reverse voltage (LD)	V _{rL}	2	V
Reverse voltage (PD)	V _{rP}	15	V
Reverse current (PD)	I _{rP}	2	mA
Soldering temperature (<10s)	Stemp	260	°C

*Note2: Exceeding any one of these values may destroy the device immediately.

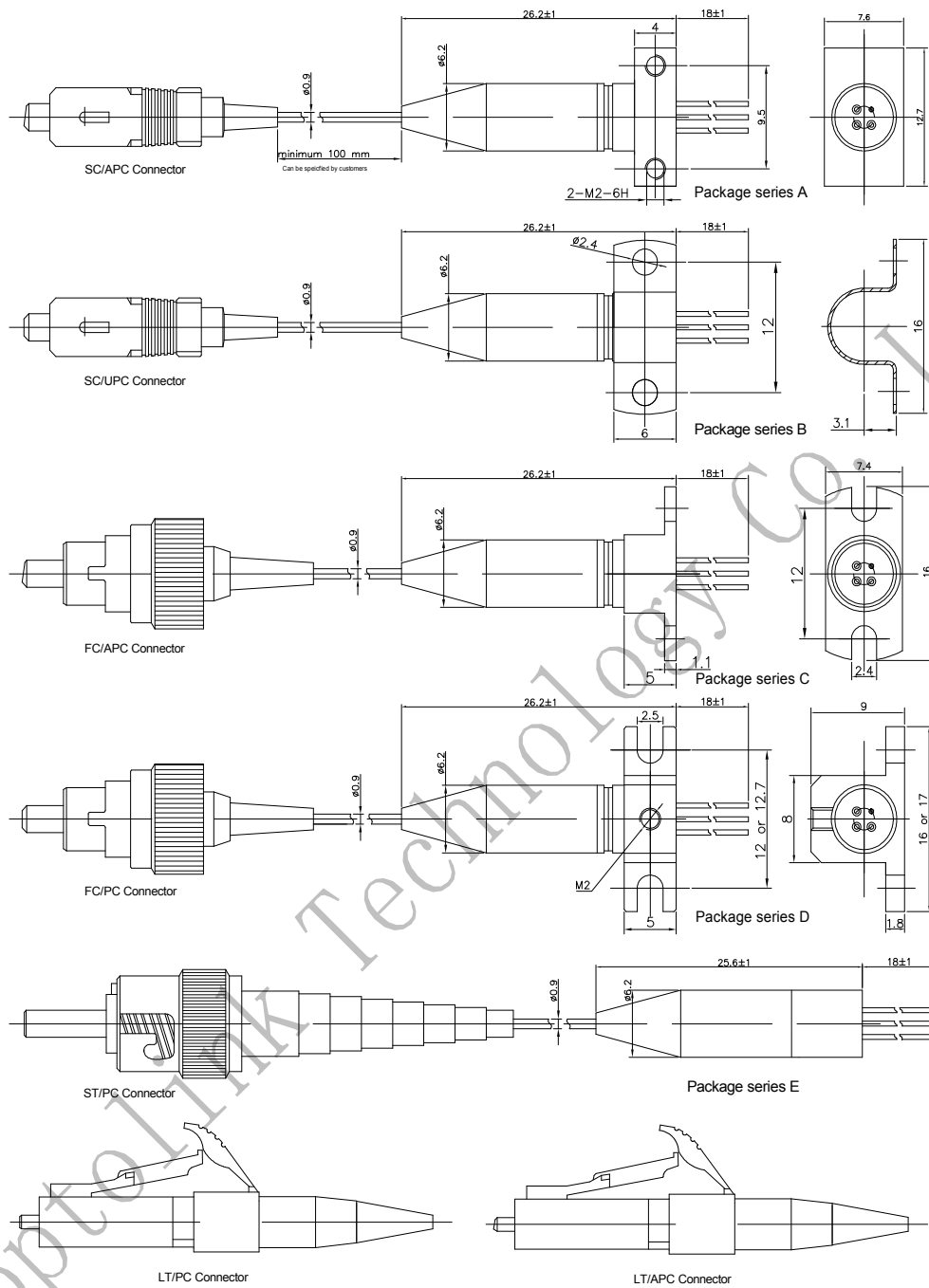
Electrical and optical characteristics

(P_o=3mW, SMF, T_c=+25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Threshold current	I _{th}	CW	—	10	15	mA
		CW, T _c =-40~+85	—	—	50	
Output Power (After coupled)	P _o	CW, I _f =I _{th} +20mA	—	2	3.5	mW
Operating current	I _f	CW	—	30	40	mA
		CW, T _c =-40~+85	—	40	70	
Operating voltage	V _f	CW, T _c =-40~+85	—	—	1.6	V
Slope efficiency	S _e	CW	—	—	0.175	mW/mA
Wavelength	λ _c	CW	1540	1550	1560	nm
		CW, T _c =-40~+85	1530	—	1570	
Spectral Width	Δλ	CW, -20dB, T _c =-40~+85	—	—	1	nm
Side-mode suppression ratio	SMSR	CW, T _c =-40~+85	30	—	—	dB
Tracking error	ΔP _f	I _m hold(@P _f =3mW(25°C)), CW, T _c =-40~+85	-1	—	1	dB
Relative intensity noise *Note3	RIN	CW	—	—	-145	dB/Hz
Monitor current	I _m	CW, V _{rP} =5V, T _c =-40~+85	80	500	—	uA
Monitor dark current	I _d	CW, V _{rP} =5V	—	1	10	nA
Monitor capacitance	C	V _{rP} =5V, f=1MHz	—	—	10	pF
Connector repeatability	—	—	-1	—	1	dB
Optical Isolation	—	Single Stage	30	—	—	dB
	—	Dual Stage	40	—	—	

*Note3: Zero link loss, f=1780MHz

Pigtail Package dimension and pin assignment *Note4· 5· 6



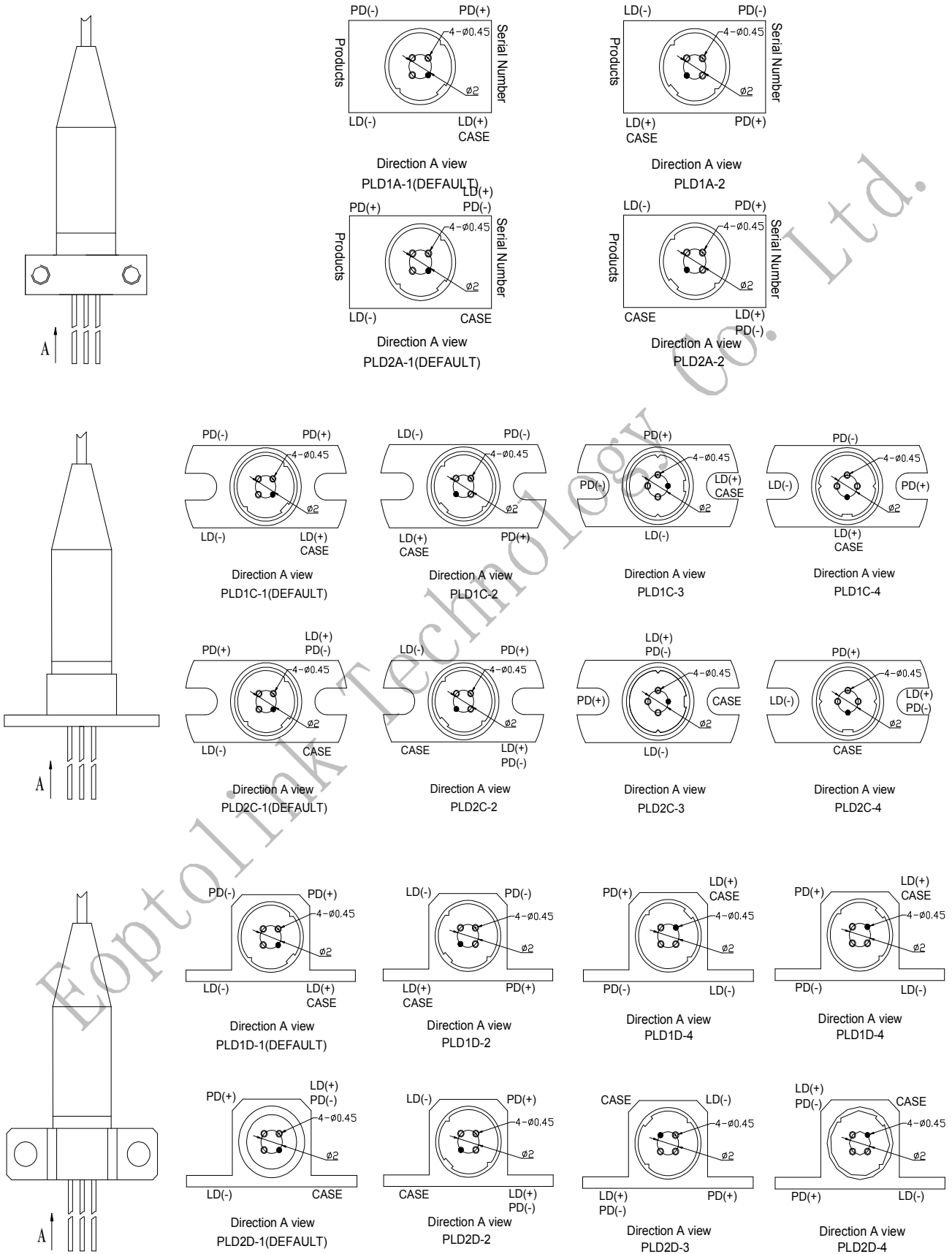
*Note4: PIN direction and laser mark can be customized. Pigtail is standard SM fiber; the length also can be customized.

*Note5: For the package series D, the clamping rings dimensions (A) and drill size (B) are can be selected. The following types can be available. Please designate the detailed type while ordering the package series D.

Fixed card type	A(mm)	B(mm)
D	16	12
D-S	17	12.7

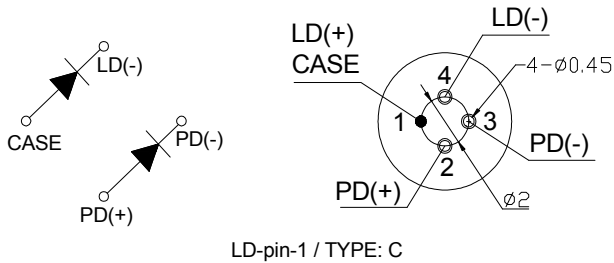
*Note6: For the package series B, the fix card is fixed by customer self. For the detailed information of fix card of A, C, D package series, please refers the following graphs.

The direction of fix card

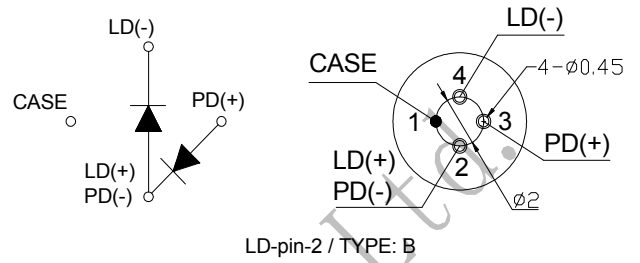


Pin Assignment

TYPE: 1



TYPE: 2



Nomenclature

G D L M — □ □ □ □ □ □ □
 A B C D E F G

Order	Parameter	Detailed Description				
A	Center Wavelength	5=1550				
B	RF Bandwidth	0<1GHz		1<2GHz		
C	Power	10=1-1.99mW		20=2-2.99mW		
D	Package series	A	B	C	D	E
E	Connector	F=FC/PC		S=SC/PC		T=ST/PC
		FA=FC/APC		SA=SC/APC		LA=LC/APC
F	Pin Type	1=LD-pin-1		2=LD-pin-2		
G	Isolator	Blank=None		G= Single Stage		G2=Dual Stage

Nomenclature of assembly direction ^{*Note7}

Code: P LD X X - X

Pigtail | Laser Diode | Assembly Direction

1=Type-1
2=Type-2

A=A Type Fixed Cards
C=C Type Fixed Cards
D=D Type Fixed Cards

*Note7: Please designate the code of assembly direction.

Precaution

- (1) The modules should be handled in the same manner as ordinary semiconductor devices to prevent the electro-static damages. For safe keeping and carrying, the modules should be packaged with ESD proof material. To assemble the modules on PCB, the workbench, the soldering iron and the human body should be grounded.
- (2) Please pay special attention to the atmosphere condition because the dew on the module may cause some electrical damages.
- (3) Under such a strong vibration environment as in automobile, the performance and reliability are not guaranteed.

Obtaining Document

You can visit our website:

<http://www.eoptolink.com>

Or contact Eoptolink Technology Inc., Ltd. listed at the end of the documentation to get the latest documentation.

Revision History

Version	Initiated	Reviewed	Approved	Release Date
Va-5	Zore.Zhao	Kelly.Cao		2010-4-6
Vb-1	Jack.Jiang	Zore.Zhao Kelly.Cao	Delete power segments of information of "30"	2012-4-19
Vb-2	Jack.Jiang	Zore.Zhao Kelly.Cao	Add "RoHS Compliant"	2012-5-15

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