Sumitomo Electric Industries, Ltd.
Part No. : SLT4410 SLT4460-xxxxx series
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Technical Specification
of
1.55µm MQW-DFB Laser Diode Module:
for CWDM 622Mb/s and 2.5Gb/s transmission

SLT4410-xxxxx series
SLT4460-xxxxx series

SUMITOMO ELECTRIC

1. General

SLT4410-xxxxx Series and SLT4460-xxxxx Series are 1550nm band InGaAsP/InP MQW-DFB laser diode modules designed for fiber optic communication systems. These modules are ideally suitable for CWDM of 622Mb/s and 2.5Gb/s transmission applications.

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

Especially SLT4460 Series have a single stage isolator integrated inside.

2. Package dimension and pin assignment

(See attached appendix.)

3. Absolute maximum ratings (Tc=25°C, unless otherwise noted.)

Parameter	Symbol	Ratings	Unit
Storage temperature	Tstg	-40~+90	°C
Operating case temperature	Top	0~+70	°C
Forward current (LD)	IfL	150	mA
Reverse voltage (LD)	VrL	2	V
Reverse voltage (PD)	VrP	15	V
Reverse current (PD)	IrP	2	mA
Soldering temperature (<10sec.)	Stemp	260	°C

4. Electrical and optical characteristics (Pf=2.0mW, Tc=25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold current	Ith	CW	—	10	20	mA
		CW, Tc=0~+70°C	—	—	50	
Optical output power	Pf	CW, If=Ith+20mA	1.0	2	2.5	mW
		CW, If=Ith+20mA, Tc=0~+70°C	0.6	—	4.0	
Operating voltage	Vf	CW, Tc=0~+70°C	—	—	1.7	V
Slope efficiency	Se	CW, Average(Ith to Ith+20mA)	0.050	—	0.125	mW/mA
		CW, Average(Ith to Ith+20mA) Tc=0~+70°C	0.030	—	0.200	
Peak wavelength	λp	CW, Pf=2mW (rank A)	λpn-2	λpn*	λpn+2	nm
		CW, Pf=2mW (rank B)	λpn-3	λpn*	λpn+3	
Temperature dependence of peak wavelength	Δλp/ΔT	CW, Pf=2mW Tc=0~+70°C	0.08	0.1	0.12	nm/°C
Side-mode suppression ratio	SSR	CW, Tc=0~+70°C	30	—	—	dB
Tracking error	ΔPf	Im hold(@Pf=2mW(25°C)), CW Tc=0~+70°C	-1.0	—	1.0	dB
Rise time	tr	Ib=Ith, 20-80%, Tc=0~+70°C	—	0.05	0.10	nsec.
Fall time	tf	Ib=Ith, 80-20%, Tc=0~+70°C	—	0.10	0.15	nsec.
Extinction ratio	Er	10log(2mW/Pf(Ith)), Tc=0~+70°C	10	—	—	dB
Monitor current	Im	CW, VrP=5V, Tc=0~+70°C	50	—	1500	μA
Monitor dark current	Id	VrP=5V	—	1	10	nA
Monitor capacitance	C	VrP=5V, f=1MHz	—	—	10	pF

Note: Peak wavelength λpn*; n=1: 1510nm, n=2; 1530nm, n=3; 1550nm, n=4; 1570nm, n=5; 1590nm, and n=6; 1610nm.

5. Fiber pigtail specification

Parameter	Min.	Typ.	Max.	Unit
Type	Single Mode			—
Mode field diameter	8.5	9.5	10.5	μm
Cladding diameter	122	125	128	μm
Outer jacket diameter	0.8	0.9	1.0	mm
Bending radius	40	—	—	mm

6. Optical isolator specification (for SLT4460 Series)

Parameter	Condition	Min.	Typ.	Max.	Unit
Type		Single stage			—
Optical isolation	Tc=+25°C	30	—	—	dB
	Tc=0~+70°C	25	—	—	

Note: Since the SLT4410-xxxxx Series have no optical isolator inside, to integrate externally a similar

isolator to the listed above is recommended for long reach of 2.5Gb/s transmission applications.

7. Ordering Information

A) Outline

Part number	Pin assignment	Optical isolator	Connector type	Flange type (hole pitch)
SLT4410-CN	Type A	No isolator	SC/PC	Flangeless
SLT4410-CP				Vertical (12mm)
SLT4410-CS				Horizontal (12.7mm)
SLT4410-QN			SC/Angled PC	Flangeless
SLT4410-QP				Vertical (12mm)
SLT4410-QS				Horizontal (12.7mm)
SLT4410-XN			No connector	Flangeless
SLT4410-XP				Vertical (12mm)
SLT4410-XS				Horizontal (12.7mm)
SLT4460-CN	Type A	Single stage isolator	SC/PC	Flangeless
SLT4460-CP				Vertical (12mm)
SLT4460-CS				Horizontal (12.7mm)
SLT4460-QN			SC/Angled PC	Flangeless
SLT4460-QP				Vertical (12mm)
SLT4460-QS				Horizontal (12.7mm)
SLT4460-XN			No connector	Flangeless
SLT4460-XP				Vertical (12mm)
SLT4460-XS				Horizontal (12.7mm)

B) Transmitting wavelength

n of λpn	-xxxxx code	Wavelength range at Tc=25°C
1	-F850A	1510+/-2nm
	-F850B	1510+/-3nm
2	-F590A	1530+/-2nm
	-F590B	1530+/-3nm
3	-F340A	1550+/-2nm
	-F340B	1550+/-3nm
4	-F095A	1570+/-2nm
	-F095B	1570+/-3nm
5	-E855A	1590+/-2nm
	-E855B	1590+/-3nm

6	-E620A	1610+/-2nm
	-E620B	1610+/-3nm

8. Precaution

(1) Radiation emitted by laser devices can be dangerous to the eyes. Avoid eye or skin exposure to direct or scattered radiation.

(2) 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.

(3) The stress to the fiber pigtail may cause the damage on the performance. The fiber pigtail may snap off by dropping the module.

(4) Please pay special attention to the atmosphere condition because the dew on the module may cause some electrical damages.

Appendix

Part No.: SLT44□□-□□/ □□□ - xxxxx

(Wavelength code)

(Customize code)

Code	Isolator
1	No isolator
6	Single stage

Pin No.	Pin function for type C
1	(CASE)
2	LD cathode
3	PD anode
4	LD anode/PD cathode

Code	Connector type
C	SC/PC
D	FC/PC
Q	SC/Angled PC
X	No connector

Connector type

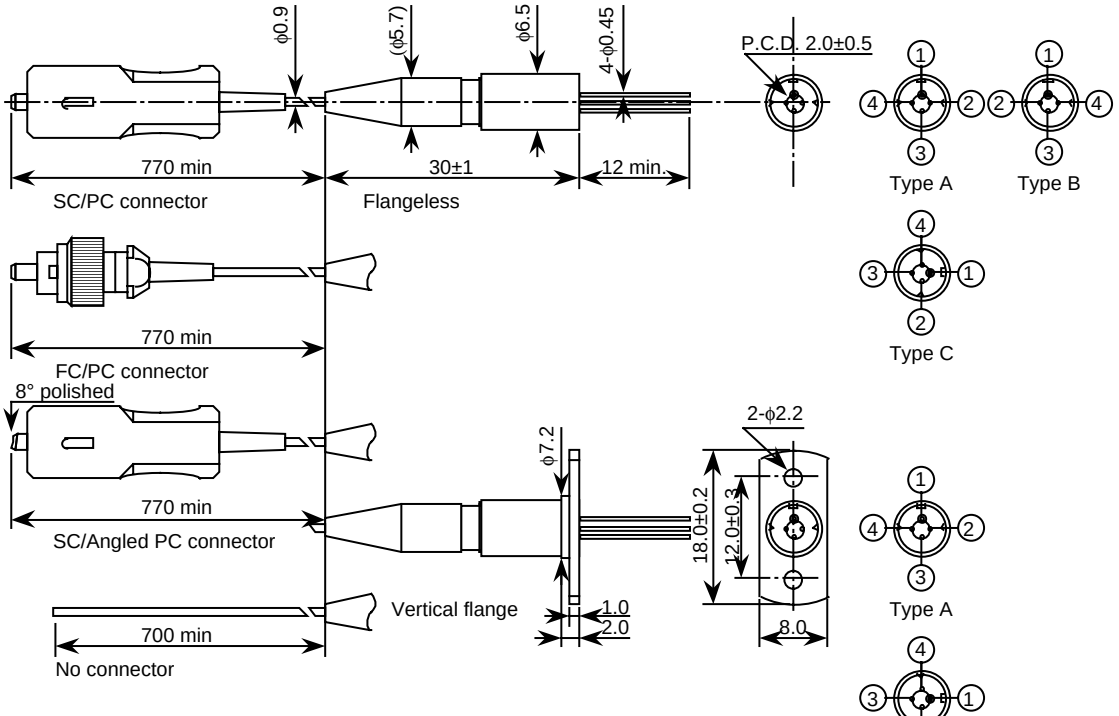
Code	Flange type
N	Flangeless
P	Vertical (12.0mm)
S	Horizontal (12.7mm)
X	(Customize)

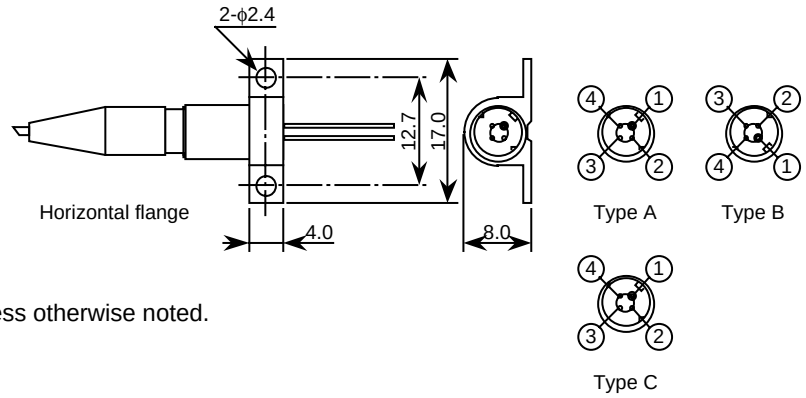
Flange type

Code	Pin assignment
0	Type A
1	Type B
6	Type C

Pin assignment

Pin No.	Pin function for typeA and typeB
1	LD anode (CASE)
2	LD cathode
3	PD cathode
4	PD anode





Unit: mm

Tolerance: ±0.1mm, unless otherwise noted.

9. For More Information

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