Sumitomo Electric Industries, Ltd.
Part No.: SLT4410-xnnnx Series
SLT4460-xnnnx Series
Document No.: HUW9924208-01E
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Technical Specification
of
1.47µm~1.61µm MQW-DFB Laser Diode Module:
for CWDM of 622Mb/s and 2.5Gb/s transmission

SLT4410-xnnnx Series
SLT4460-xnnnx Series

SUMITOMO ELECTRIC

1. General

SLT4410-xnnnx Series and SLT4460-xnnnx Series are 1.47µm~1.61µm InGaAsP/InP MQW-DFB laser diode modules designed for fiber optic communication systems. These modules are ideally suitable for CWDM of 622Mb/s or 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-xnnnx Series have a single stage isolator integrated inside.

2. Package dimension and pin assignment

(See attached appendix.)

3. Absolute maximum ratings

Parameter	Symbol	Ratings	Unit
Storage temperature	Tstg	-40~+85	°C
Operating case temperature	Top	0~+70	°C
Fiber output power	Pf	10	mW
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=2mW, 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	—	0.20	
Peak wavelength	p	CW	(*1)			nm
Wavelength temperature coeff.	—	CW, 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	Pf	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: *1. Detail of peak wavelength specification

Rank A					Rank B				
Channel No.	Min.	Typ.	Max.	Unit	Channel No.	Min.	Typ.	Max.	Unit
-G390A	1468	1470	1472	nm	-G390B	1467	1470	1473	nm
-G120A	1488	1490	1492		-G120B	1487	1490	1493	
-F850A	1508	1510	1512		-F850B	1507	1510	1513	
-F590A	1528	1530	1532		-F590B	1527	1530	1533	
-F340A	1548	1550	1552		-F340B	1547	1550	1553	
-F095A	1568	1570	1572		-F095B	1567	1570	1573	
-E855A	1588	1590	1592		-E855B	1587	1590	1593	
-E620A	1608	1610	1612		-E620B	1607	1610	1613	

5. Fiber pigtail specification

Parameter	Min.	Typ.	Max.	Unit
Type	Single Mode			—
Mode field diameter@1310nm	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	30	—	—	mm

6. Optical isolator specification (=1550nm, unless otherwise noted.(for SLT4460-xnnnx Series))

Parameter	Condition	Min.	Typ.	Max.	Unit
Type		Single stage			—
Optical isolation	Tc=+25°C	30	—	—	dB
	Tc=-40~+85°C	20	—	—	

Note: Since the SLT4410-xnnnx 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

Part number	Pin assignment	Optical isolator	Connector type	Flange type (hole pitch)
SLT4410-CP-xnnnx	Type A	No isolator	SC/PC	Vertical (12mm)
SLT4410-CS-xnnnx				Horizontal (12.7mm)
SLT4410-CN-xnnnx				Flangeless
SLT4410-XP-xnnnx			No connector	Vertical (12mm)
SLT4410-XS-xnnnx				Horizontal (12.7mm)
SLT4410-XN-xnnnx				Flangeless
SLT4416-CP-xnnnx	Type C		SC/PC	Vertical (12mm)
SLT4416-CS-xnnnx				Horizontal (12.7mm)
SLT4416-CN-xnnnx				Flangeless
SLT4416-XP-xnnnx			No connector	Vertical (12mm)
SLT4416-XS-xnnnx				Horizontal (12.7mm)
SLT4416-XN-xnnnx				Flangeless
SLT4460-CP-xnnnx	Type A	Single-stage isolator	SC/PC	Vertical (12mm)
SLT4460-CS-xnnnx				Horizontal (12.7mm)
SLT4460-CN-xnnnx				Flangeless
SLT4460-XP-xnnnx			No connector	Vertical (12mm)
SLT4460-XS-xnnnx				Horizontal (12.7mm)
SLT4460-XN-xnnnx				Flangeless
SLT4466-CP-xnnnx	Type C		SC/PC	Vertical (12mm)
SLT4466-CS-xnnnx				Horizontal (12.7mm)
SLT4466-CN-xnnnx				Flangeless
SLT4466-XP-xnnnx			No connector	Vertical (12mm)
SLT4466-XS-xnnnx				Horizontal (12.7mm)
SLT4466-XN-xnnnx				Flangeless

Channel (-xnnnx)	p@25°C	Range
-G390A	1470nm	±2nm
-G390B		±3nm
-G120A	1490nm	±2nm
-G120B		±3nm
-F850A	1510nm	±2nm
-F850B		±3nm
-F590A	1530nm	±2nm
-F590B		±3nm
-F340A	1550nm	±2nm
-F340B		±3nm
-F095A	1550nm	±2nm
-F095B		±3nm
-E855A	1590nm	±2nm
-E855B		±3nm
-E620A	1610nm	±2nm
-E620B		±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.

(5) Under such a strong vibration environment as in automobile, the performance and reliability are not guaranteed.

Appendix

Part No.: SLT44□□-□□/□□□-□□□□□

(Customize code)

Code	Connector type
C	SC/PC
D	FC/PC
L	LC/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
6	Type C

Pin assignment

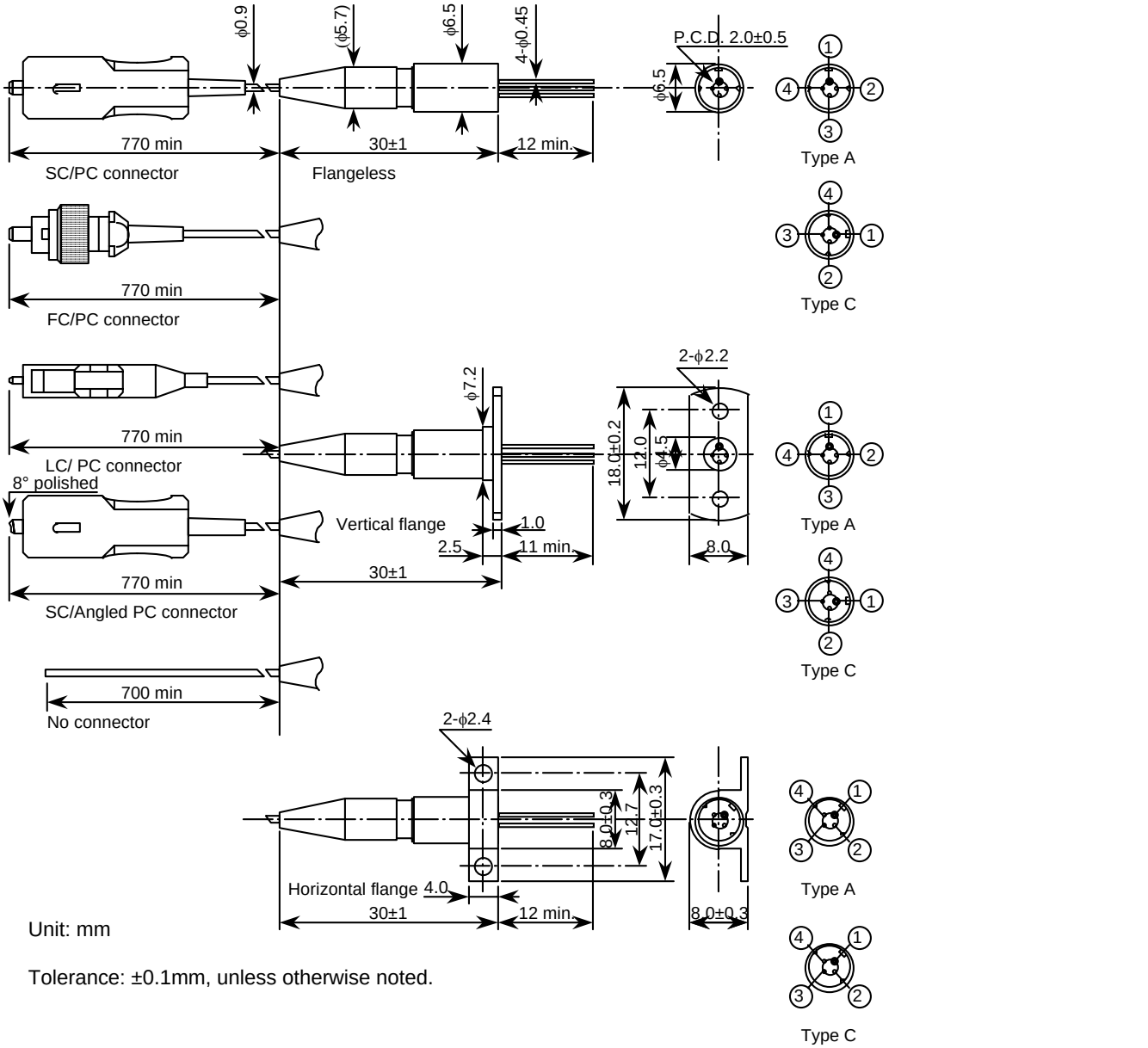
Code	Wavelength range
A	±2nm
B	±3nm

Channel	Wavelength @25deg.
-G390	1470nm
-G120	1490nm
-F850	1510nm
-F590	1530nm
-F340	1550nm
-F095	1570nm
-E855	1590nm
-E620	1610nm

Code	Isolator
1	No isolator
6	Single stage

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

Pin No.	Pin function for typeA
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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Revision Record

Document No.	Date of issue	Description	Incorporated by	Checked by	Approved by
HUW9924208-01A	Feb./25/00	Initial issue.	T. Fujitani	M. Yoshimura	T. Fujitani
HUW9924208-01B	Mar./03/00	Typ. Pf at 25 deg.C has been revised to 2mW. "-xxxxx" code of p5 has been changed to E855A and E855B.	M. Yoshimura	T. Fujitani	T. Fujitani
HUW9924208-01C	Aug./21/00	Corrected Tstg from -40~+90°C to -40~+85°C; Added channels of 1470nm and 1490nm; Removed type B of pin assignment; Corrected bending radius from min.: 40mm to min.: 30mm; Corrected tolerance of the horizontal flange; Changed the vertical flange design.	T. Nakanishi	M. Yoshimura	T. Fujitani
HUW9924208-01D	Aip./26/01	Corrected the condition of Se from -40~+85°C to 0~+70°C.	R.Shigemoto	T. Nakanishi	M. Yoshimura
HUW9924208-01E	Aug./29/01	Added the absolute maximum ratings of Pf; Addded LC/PC connector option in drawing; Corrected tolerance of the horizonal flange from ±0.2mm to ±0.3mm.	R.Shigemoto	T. Nakanishi	M. Yoshimura