

Sumitomo Electric Industries, Ltd.

Part No.: SLT4110 Series

Document No.: HUW9924168-01E

Date of issue: December 25, 2007



Technical Specification
of
1.3 μ m MQW-FP Laser Diode Module

SLT4110 Series

RoHS Compliant



1. General

SLT4110 Series are 1.3 μ m InGaAsP/InP MQW-FP laser diode modules designed for fiber optic communication systems. These modules have low threshold current and high performance at high temperature.

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

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	-40~+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	—	6	15	mA
		CW, Tc=-40~+70°C	—	—	40	
Optical output power	Pf	CW, If=Ith+30mA	2.0	—	3.5	mW
		CW, If=Ith+30mA, Tc=-40~+70°C	0.9	—	—	
Operating voltage	Vf	CW, Tc=-40~+70°C	—	—	1.8	V
Slope efficiency	Se	CW, Average(Ith to Ith+30mA)	0.065	—	—	mW/mA
Central wavelength	λ_c	CW	1290	1310	1330	nm
		CW, Tc=-40~+70°C	1260	—	1360	
Spectral width	$\Delta\lambda$	CW, RMS, Tc=-40~+70°C	—	2	5	nm
Tracking error	ΔPf	I _m hold(@Pf=2.0mW(25°C)), CW Tc=-40~+70°C	-1.5	—	1.5	dB
Rise time	tr	I _b =Ith, 20-80%, Tc=-40~+70°C	—	0.3	0.5	ns
Fall time	tf	I _b =Ith, 80-20%, Tc=-40~+70°C	—	0.3	0.5	ns.
Extinction ratio	Er	10log(2.0mW/Pf(Ith)) Tc=-40~+70°C	10	—	—	dB
Monitor current	I _m	CW, VrP=5V, Tc=-40~+70°C	150	—	2000	μA
Monitor dark current	I _d	VrP=5V	—	1	10	nA
Monitor capacitance	C	VrP=5V, f=1MHz	—	—	10	pF

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. Ordering Information (Standard)

Part Number for RoHS compliance	Pin assignment	Optical isolator	Connector type	Flange type (hole pitch)
SLT4110-DP/RH1	Type A	No isolator	FC/PC	Vertical (12mm)
SLT4111-CS/RH1	Type B		SC/PC	
SLT4111-DS/RH1			FC/PC	Horizontal (12.7mm)
SLT4111-QS/RH1			SC/Angled PC	
SLT4111-XS			No connector	

7. 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.

8. RoHS Compliancy

On January 27, 2003, the European Parliament and the Council of the European Union issued the directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).

Member States shall ensure that, from July 1, 2006, new electrical and electronic equipment put on the market does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).

Applications listed in the Annex are exempted.

This product is compliant with RoHS 6/6 directive with exemptions "Lead in glass of cathode ray tubes, electronic components and fluorescent tubes" and "Lead as an alloying element in steel containing up to 0.35 % lead by weight, aluminium containing up to 0.4 % lead by weight and as a copper alloy containing up to 4 % lead by weight".

Appendix

Part No.: SLT411□-□□/□□□

RH1 or (Customize code)

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

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

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

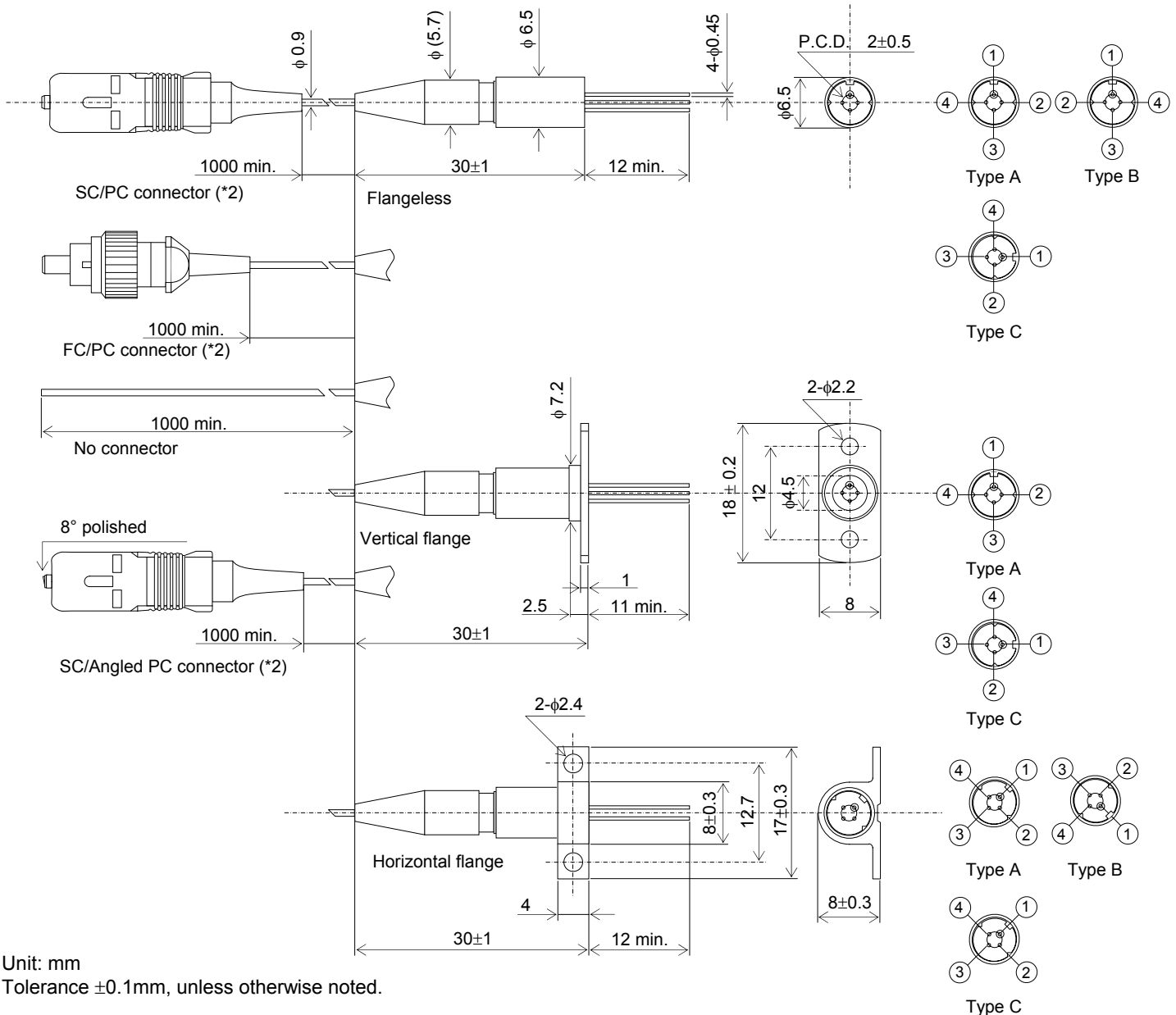
Pin No.	Pin function for type A and Type B
1	LD anode (CASE)
2	LD cathode
3	PD cathode
4	PD anode

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

Connector type

Flange type

Pin assignment



Unit: mm

Tolerance ± 0.1 mm, unless otherwise noted.

Note: *2. IEC and JIS compliant. Detailed design not specified in the IEC and JIS standards is a subject to change without notice.

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9. For More Information

U.S.A.

ExceLight Communications Inc.

4021 Stirrup Creek Drive, Suite 200, Durham NC, 27703

U.S.A.

Tel. (919) 361-1600

Fax. (919) 361-1619

E-mail: info@excelight.com

URL: <http://www.excelight.com>

Europe

Sumitomo Electric Europe Ltd.

220 Centennial Park, Centennial Avenue, Elstree, Herts, WD6 3SL

United Kingdom

Tel. (020) 8953-8118

Fax. (020) 8207-5950

URL: <http://www.sumielectric.com>

Japan

Sumitomo Electric Industries, Ltd. (Opto-electronic Products Sales Div.)

3-12, Moto-Akasaka 1-chome, Minato-ku Tokyo, 107-8468

Japan

Tel. (03) 3423-5031

Fax. (03) 3423-5247

E-mail: product_info@ppd.sei.co.jp

URL: http://www.sei.co.jp/Electro-optic/index_e.html

Revision Record

Document No.	Date of issue	Description	Incorporated by	Checked by	Approved by
HUW9924168-01A	Jan./06/00	Initial issue.	T. Nakanishi	M. Yoshimura	T. Fujitani
HUW9924168-01B	Jun./01/00	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
HUW9924168-01C	Jul./10/00	Added SC/Angled PC to the connector option.	T. Nakanishi	M. Yoshimura	T. Fujitani
HUW9924168-01D	Jul./19/06	Added RoHS compliancy and new part No. for RoHS	T. Kounosu	M. Furumai Y. Yamasaki	M. Yoshimura
HUW9924168-01E	Dec./25/07	Changed RoHS compliancy expression.	T. Takagi	N. Fukushima	H. Michikoshi