



Technical Specification  
of  
1.51 $\mu$ m MQW-DFB Laser Diode Module:  
for up to 622Mb/s transmission

SLT4400-xx-S850 Series

RoHS Compliant



### 1. General

SLT4400-xx-S850 Series are 1.51 $\mu$ m InGaAsP/InP MQW-DFB laser diode modules designed for fiber optic communication systems. This module is ideally suitable for long reach and intermediate reach of up to 622Mb/s transmission applications.

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

Parameter	Symbol	Ratings	Unit
Storage temperature	Tstg	-40~+85	°C
Operating case temperature	Top	-40~+85	°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 (<10s)	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=-40~+85°C	—	—	50	
Optical output power	Pf	CW, If=Ith+20mA	1.0	2	2.5	mW
		CW, If=Ith+20mA, Tc=-40~+85°C	0.6	—	4.0	
Operating voltage	Vf	CW, Tc=-40~+85°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=-40~+85°C	0.030	—	0.200	
Peak wavelength	λp	CW	1505	1510	1515	nm
		CW, Tc=-40~+85°C	1498	—	1522	
Side-mode suppression ratio	SSR	CW, Tc=-40~+85°C	30	—	—	dB
Tracking error	ΔPf	Im hold(@Pf=2.0mW(25°C)), CW Tc=-40~+85°C	-1.0	—	1.0	dB
Rise time	tr	Ib=Ith, 20-80%, Tc=-40~+85°C	—	0.05	0.10	ns
Fall time	tf	Ib=Ith, 80-20%, Tc=-40~+85°C	—	0.10	0.15	ns
Extinction ratio	Er	10log(2.0mW/Pf(Ith)), Tc=-40~+85°C	10	—	—	dB
Monitor current	Im	CW, VrP=5V, Tc=-40~+85°C	50	—	1500	μA
Monitor dark current	Id	VrP=5V	—	1	10	nA
Monitor capacitance	C	VrP=5V, f=1MHz	—	—	10	pF

Note: Since the SLT4400-xx-S850 Series have no optical isolator inside, to integrate externally an optical isolator is recommended for long reach of transmission applications.

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

Part Number for RoHS compliance	Pin assignment	Optical isolator	Connector type	Flange type (hole pitch)	Old Part number	RoHS compliance of old part number
SLT4400-CN/RH1-S850	Type A	No isolator	SC/PC	Flangeless	SLT4400-CN-S850	Not Compliant (*2)
SLT4400-CP/RH1-S850				Vertical (12mm)	SLT4400-CP-S850	
SLT4400-CS/RH1-S850				Horizontal (12.7mm)	SLT4400-CS-S850	
SLT4400-XN-S850			No connector	Flangeless	SLT4400-XN-S850	Compliant
SLT4400-XP-S850				Vertical (12mm)	SLT4400-XP-S850	
SLT4400-XS-S850				Horizontal (12.7mm)	SLT4400-XS-S850	

Note:\*2. Some products in this category have been already RoHS compliant.

If any query, please contact us with part number and serial number.

## 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. : SLT440 - / -S850

(Customize code)

Code	Connector Type
C	SC/PC
D	FC/PC
L	LC/PC
X	No Connector

Code	Flange Type
N	Flangeless
P	Vertical (12.0mm)
S	Horizontal (12.7mm)
X	(Customized)

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

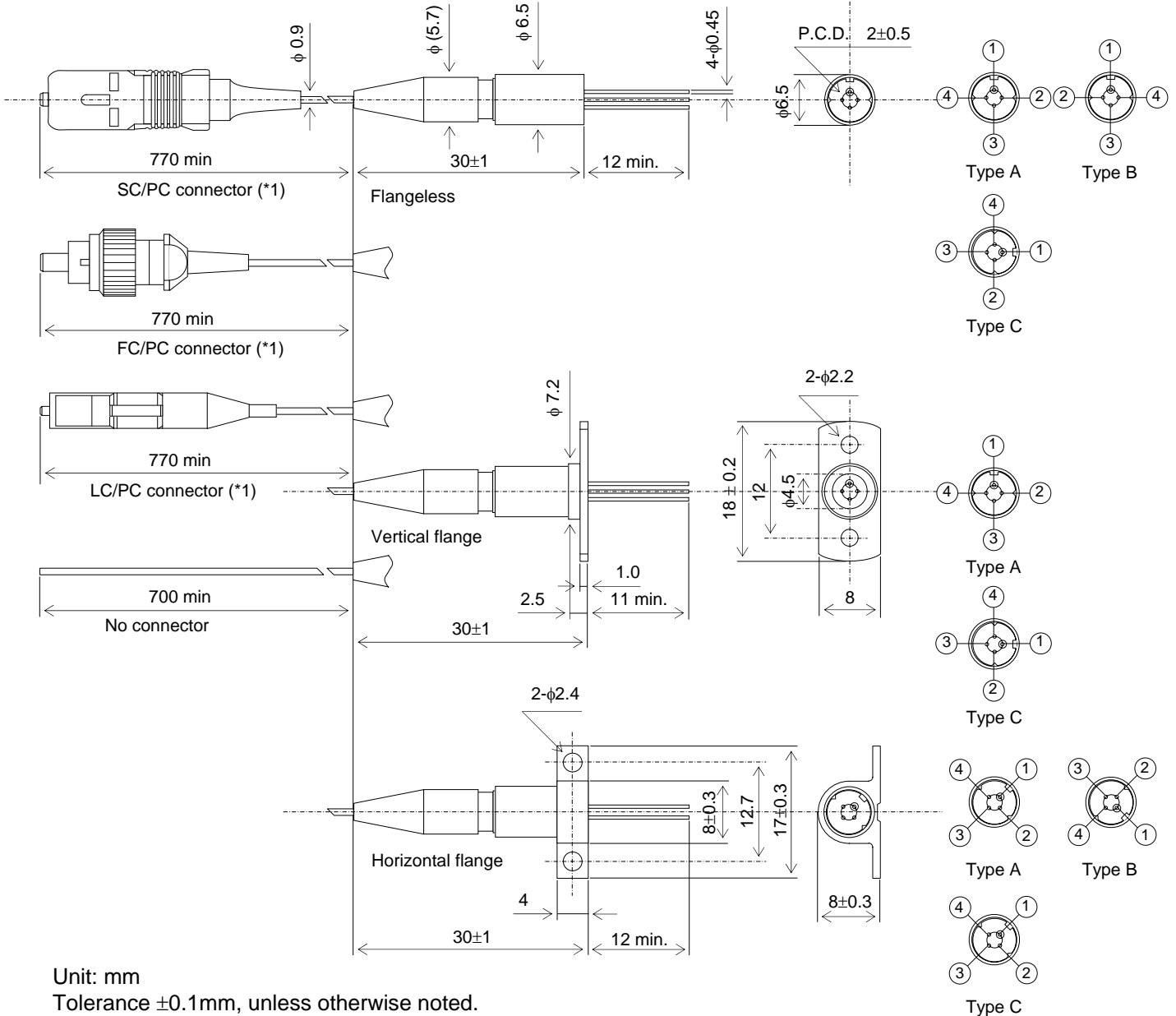
Pin No.	Pin Function for Type C
1	(CASE)
2	LD Cathode
3	PD Anode
4	LD Anode / PD Cathode

Pin No.	Pin Function for Type A & B
1	LD Anode(CASE)
2	LD Cathode
3	PD Cathode
4	PD Anode

Connector type

Flange type

Pin assignment



Unit: mm

Tolerance  $\pm 0.1$ mm, unless otherwise noted.

Note: \*1. IEC and JIS compliant. Detailed design not specified in the IEC and JIS standards is a subject to change without notice.

## 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](mailto: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](mailto:product_info@ppd.sei.co.jp)

URL: [http://www.sei.co.jp/Electro-optic/index\\_e.html](http://www.sei.co.jp/Electro-optic/index_e.html)

Revision Record

Document No.	Date of issue	Description	Incorporated by	Checked by	Approved by
HUW9824071-01A	Jan./08/99	Initial issue.	T. Nakanishi	T. Nakabayashi	T. Fujitani
HUW9824071-01B	May/21/99	Revised part number from SLT4410-xx-S850 Series to SLT4400-xx-S850 Series; Removed the description on 2.5Gb/s.	T. Nakanishi	M. Yoshimura	T. Fujitani
HUW9824071-01C	Jul./24/99	Removed the section of an optical isolator specification.	T. Nakanishi	M. Yoshimura	T. Fujitani
HUW9824071-01D	Jan./13/00	Added "@1310nm" to the description of the mode field diameter in the section 5.	T. Nakanishi	M. Yoshimura	T. Fujitani
HUW9824071-01E	May/24/00	Revised part number from SLT4400-xx-S850 Series to SLT4410-xx-S850 Series; Revised Pf on condition of -40~+85°C from max.: 3mW to max.: 4mW; Corrected bending radius from min.: 40mm to min.: 30mm; Corrected the optical isolation on condition of Tc=-40~+85°C from 25dB to 20dB; Corrected tolerance of the horizontal flange; Changed the vertical flange design.	T. Nakanishi	M. Yoshimura	T. Fujitani
HUW9824071-01F	May/26/00	Corrected part number from SLT4410-xx-S850 Series to SLT4400-xx-S850 Series.	T. Nakanishi	M. Yoshimura	T. Fujitani
HUW9824071-01G	Jun./15/00	Corrected Se on condition of Tc=-40~+85°C from 0.015mW/mA to 0.020mW/mA.	T. Nakanishi	M. Yoshimura	T. Fujitani
HUW9824071-01H	Aug./09/01	Corrected Tstg from Tc=-40~+90°C to Tc=-40~+85°C; Added the absolute maximum ratings of Pf.	T. Nakanishi	K. Ojima	M. Yoshimura
HUW9824071-01I	Sep./22/03	Added LC/ PC connector specification.	T. Kounosu	M. Furumai Y. Yamasaki	M. Yoshimura
HUW9824071-01J	Aug./09/06	Added RoHS compliancy.	Y. Yamasaki	N. Fukushima T. Kounosu	M. Yoshimura
HUW9824071-01K	Feb./28/08	Removed SLT4460-xx-S850 series. Changed the wording of RoHS Compliancy.	N. Fukushima	T. Takagi  Y. Yamasaki	H. Michikoshi