



Sumitomo Electric Industries, Ltd.
Part No.: SLT4400-xx-S850 Series
SLT4460-xx-S850 Series
Document No.: HUW9824071-01F
Date of issue: May 26, 2000

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

SLT4400-xx-S850 Series
SLT4460-xx-S850 Series



1. General

SLT4400-xx-S850 Series and SLT4460-xx-S850 Series are 1.51 μ m InGaAsP/InP MQW-DFB laser diode modules designed for fiber optic communication systems. These modules are 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.

Especially SLT4460-xx-S850 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	-40~+85	°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=-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	—	0.150	
Peak wavelength	λ_p	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	nsec.
Fall time	tf	Ib=Ith, 80-20%, Tc=-40~+85°C	—	0.10	0.15	nsec.
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	μ A
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	μ m
Cladding diameter	122	125	128	μ m
Outer jacket diameter	0.8	0.9	1.0	mm
Bending radius	30	—	—	mm

6. Ordering Information

Part number	Pin assignment	Optical isolator	Connector type	Flange type (hole pitch)
SLT4400-CN-S850	Type A	No isolator	SC/PC	Flangeless
SLT4400-CP-S850				Vertical (12mm)
SLT4400-CS-S850				Horizontal (12.7mm)
SLT4400-XN-S850			No connector	Flangeless
SLT4400-XP-S850				Vertical (12mm)
SLT4400-XS-S850				Horizontal (12.7mm)
SLT4460-CN-S850	Type A	Single stage isolator	SC/PC	Flangeless
SLT4460-CP-S850				Vertical (12mm)
SLT4460-CS-S850				Horizontal (12.7mm)
SLT4460-XN-S850			No connector	Flangeless
SLT4460-XP-S850				Vertical (12mm)
SLT4460-XS-S850				Horizontal (12.7mm)

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 an automobile, the performance and reliability are not guaranteed.

Appendix

Part No.: SLT44  S850

(Customize code)

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

Connector type

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

Flange type

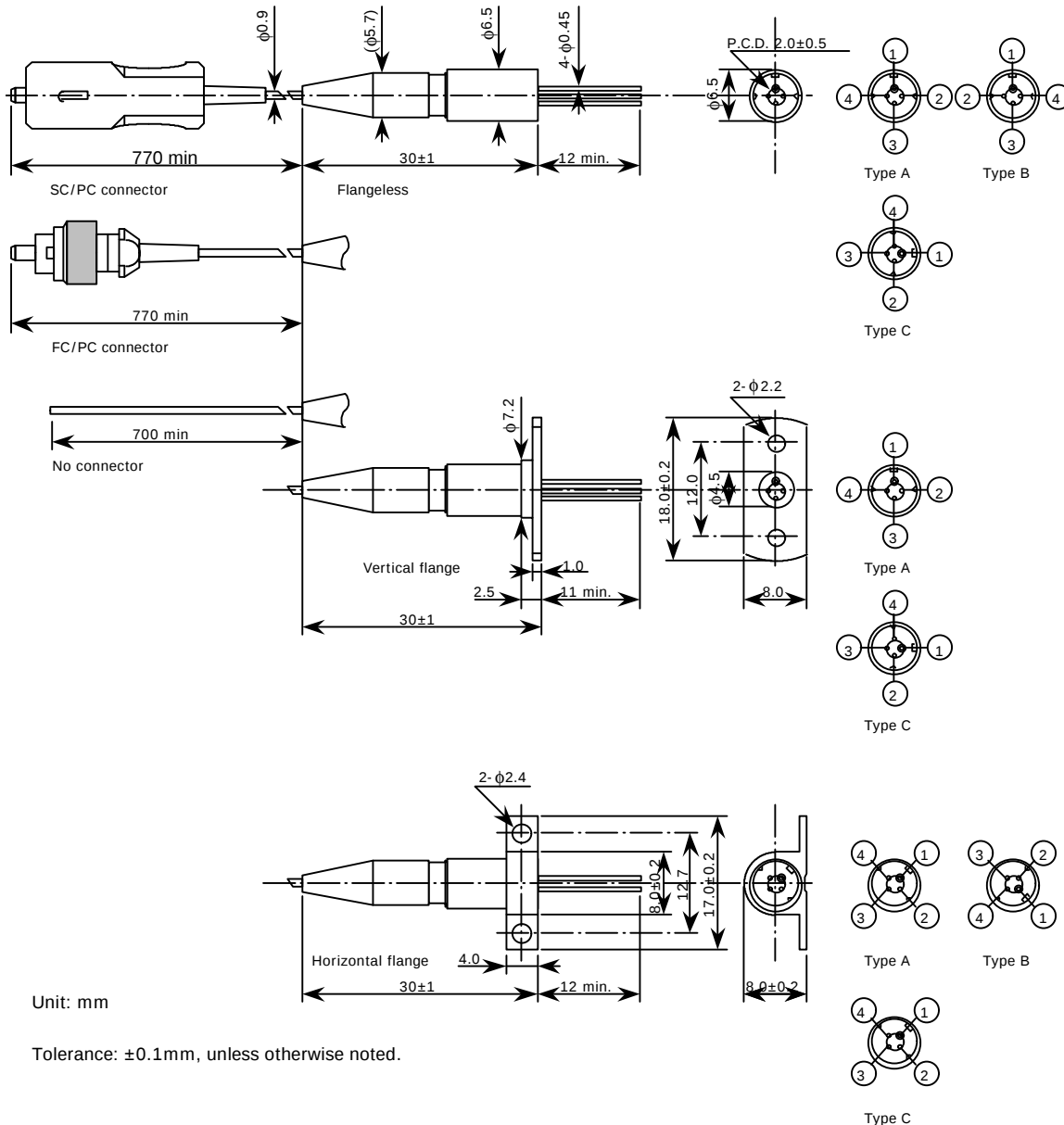
Code	Pin assignment
0	Type A
1	Type B
6	Type C

Pin assignment

Code	Isolator
0	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

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



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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 Pfoncondition 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