

Sumitomo Electric Industries, Ltd.

Part No.: S LT4100 Series

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

SLT4100 Series

Sumitomo Electric Industries, Ltd.

1. General

SLT4100 Series are 1.3 μ m InGaAsP/InP MQW-FP laser diode modules designed for fiber optic communication systems. These modules are ideally suitable for long reach of up to 622Mb/s transmission applications and 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 ($T_c=25^\circ\text{C}$, unless otherwise noted.)

Parameter	Symbol	Ratings	Unit
Storage temperature	Tstq	-40~+90	$^\circ\text{C}$
Operating case temperature	Top	-40~+85	$^\circ\text{C}$
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	$^\circ\text{C}$

4. Electrical and optical characteristics ($P_f=1.0\text{mW}$, $T_c=25^\circ\text{C}$, unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold current	I _{th}	CW	-	6	15	mA
		CW, $T_c=-40\sim+85^\circ\text{C}$	-	-	40	
Optical output power	P _f	CW, I _f =I _{th} +20mA	0.6	1.0	1.6	mW
		W, I _f =I _{th} +20mA, $T_c=-40\sim+85^\circ\text{C}$	0.3	-	-	
Forward Current	-	CW, P _f =0.5mW	-	-	35	mA
		CW, P _f =0.5mW, $T_c=-40\sim+85^\circ\text{C}$	-	-	100	
Operating voltage	V _f	CW, $T_c=-40\sim+85^\circ\text{C}$	-	-	1.6	V
Slope efficiency	Se	CW, Average(I _{th} to I _{th} +20mA)	0.03	-	-	mW/mA
Central wavelength	λ_c	CW	1290	1310	1330	nm
		CW, $T_c=-40\sim+85^\circ\text{C}$	1260	-	1360	
Spectral width	$\Delta\lambda$	CW, RMS, $T_c=-40\sim+85^\circ\text{C}$	-	2	5	nm
Tracking error	ΔP_f	I _m hold(@ P _f =1.0mW(25°C)), CW, $T_c=0\sim+70^\circ\text{C}$	-1.0	-	1.0	dB
		I _m hold(@ P _f -- 1.0mW(25°C)), CW, $T_c=-40\sim+85^\circ\text{C}$	-1.5	-	1.5	
Rise time	t _r	I _b =I _{th} , 20-80%, $T_c=-40\sim+85^\circ\text{C}$	-	0.3	0.5	nsec.
Fall time	t _f	I _b =I _{th} , 80-20%, $T_c=-40\sim+85^\circ\text{C}$	-	0.3	0.5	nsec.
Extinction ratio	Er	10log(1.0mW/P _f (I _{th})) $T_c=-40\sim+85^\circ\text{C}$	10	-	-	dB
Monitor current	I _m	CW, V _{rP} =5V, $T_c=-40\sim+85^\circ\text{C}$	150	-	1500	μA
Monitor dark current	I _d	V _{rP} =5V	-	1	10	nA
Monitor capacitance		V _{rP} =5V, f=1 MHz	-	-	10	pF

5. Fiber pigtail specification

Parameter	Min.	Typ.	Max.	Unit
Fiber 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	30	-	-	mm

6. Ordering Information

Part number	Pin assignment	Connector type	Flange type (hole pitch)
SLT4100-CS	Type A	SC/PC	Horizontal (12.7mm)
SLT4100-DP		FC/PC	Vertical (12mm)
SLT4100-CS	Type B	SC/PC	Horizontal (12.7mm)
SLT4100-DS		FC/PC	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 governmental approval is required to export this product to other countries. To dispose of this product, the appropriate procedure should be taken to prevent illegal exportation.
- (3) 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.
- (4) The stress to the fiber pigtail may cause the damage on the performance. The fiber pigtail may snap off by dropping the module.
- (5) Please pay special attention to the atmosphere condition because the dew on the module may cause some electrical damages.
- (6) Performance is not guaranteed under a strong vibrational environment, such as an automobile.

Appendix

Part No.: SLT410□-□□/□□□

(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)

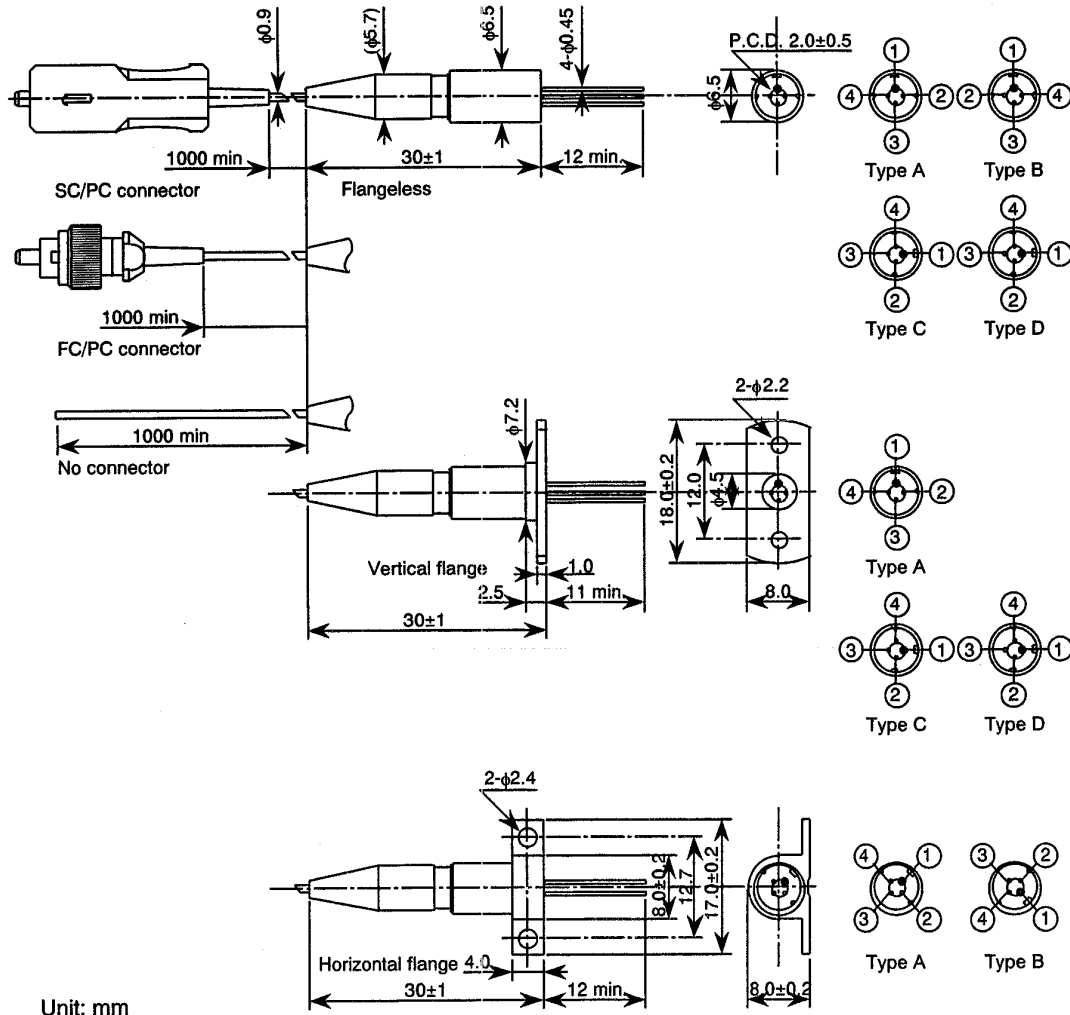
Flange type

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

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

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



Unit: mm

Tolerance: $\pm 0.1 \text{ mm}$, unless otherwise noted.

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8. For More Information

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