Sumitomo Electric Industries, Ltd.
Part No.: SLW4460-xx/RH2-xnnnx Series
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Technical Specification

of

1.29μm~1.57μm MQW-DFB Laser Diode Module

for Optical Microwave Transmission

SLW4460-xx/RH2-xnnnx Series

RoHS Compliant

SUMITOMO ELECTRIC

1. General

SLW4460-xx/RH2-xnnnx Series are 1.29μm~1.57μm InGaAsP/InP MQW-DFB laser diode modules designed for wireless communication systems. These modules are ideally suitable for CWDM of optical microwave transmission applications.

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

Especially SLW4460-xx/RH2-xnnnx Series have a single stage isolator integrated inside. The lead content of this isolator is less than 1000ppm.

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	-20~+85	°C
Peak optical 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=3mW, Tc=+25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold current	Ith	CW	—	9	20	mA
		CW, Tc=-20~+85°C	—	—	50	
Operating current	If	CW	—	30	50	mA
		CW, Tc=-20~+85°C	—	—	90	
Operating voltage	Vf	CW, Tc=-20~+85°C	—	—	1.7	V
Slope efficiency	Se	CW	0.07	0.15	0.25	mW/mA
Thermal slope efficiency	TSe	CW, Se(Tc)/Se(25°C) Tc=-20~+85°C	0.5	—	1.5	—
Peak wavelength	λp	CW		(*3)		nm
Wavelength temperature coeff.	—	CW, Tc=-20~+85°C	0.07	0.1	0.12	nm/°C
Side-mode suppression ratio	SSR	CW, Tc=-20~+85°C	30	40	—	dB
Tracking error	ΔPf	Im hold(@Pf=3mW(+25°C)) CW, Tc=-20~+85°C	-1.0	—	1.0	dB
Third order inter-modulation distortion	IMD3	OMI=20%, (*1)	—	-65	-56	dBc
Relative intensity noise	RIN	CW, (*2)	—	-155	-145	dB/Hz
Monitor current	Im	CW, VrP=5V, Tc=-20~+85°C	100	500	2000	μA
Monitor dark current	Id	VrP=5V	—	1	10	nA
Monitor capacitance	C	VrP=5V, f=1MHz	—	—	10	pF

Note: *1. Zero link loss, 2tone (1770MHz, 1772.5MHz)

*2. Zero link loss, f=1780MHz

Note: *3. Detail of peak wavelength specification

Rank A					Rank B				
Channel No.	Min.	Typ.	Max.	Unit	Channel No.	Min.	Typ.	Max.	Unit
-K240A	1288	1290	1292	nm	-K240B	1287	1290	1293	nm
-J885A	1308	1310	1312		-J885B	1307	1310	1313	
-J540A	1328	1330	1332		-J540B	1327	1330	1333	
-J205A	1348	1350	1352		-J205B	1347	1350	1353	
-H885A	1368	1370	1372		-H885B	1367	1370	1373	
-G675A	1448	1450	1452		-G675B	1447	1450	1453	
-G390A	1468	1470	1472		-G390B	1467	1470	1473	
-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	

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

Parameter	Condition	Min.	Typ.	Max.	Unit
Type	—		Single stage		—
Optical isolation	Tc=0~+70°C	20	—	—	dB

7. Ordering Information (Standard)

Part Number for RoHS compliance	Pin assignment	Optical isolator	Connector type	Flange type (hole pitch)
SLW4460-QP/RH2-xnnnx	Type A	Single-stage isolator	SC/Angled-PC	Vertical (12mm)
SLW4460-QS/RH2-xnnnx				Horizontal (12.7mm)
SLW4460-QN/RH2-xnnnx				Flangeless
SLW4460-PP/RH2-xnnnx			FC/Angled-PC	Vertical (12mm)
SLW4460-PS/RH2-xnnnx				Horizontal (12.7mm)
SLW4460-PN/RH2-xnnnx				Flangeless
SLW4460-XP/RH2-xnnnx			No connector	Vertical (12mm)
SLW4460-XS/RH2-xnnnx				Horizontal (12.7mm)
SLW4460-XN/RH2-xnnnx				Flangeless

Channel (-xnnnx)	λp@25°C	Range
-K240A	1290nm	±2nm
-K240B		±3nm
-J885A	1310nm	±2nm
-J885B		±3nm
-J540A	1330nm	±2nm
-J540B		±3nm
-J205A	1350nm	±2nm
-J205B		±3nm
-H885A	1370nm	±2nm
-H885B		±3nm
-G675A	1450nm	±2nm
-G675B		±3nm
-G390A	1470nm	±2nm
-G390B		±3nm
-G120A	1490nm	±2nm
-G120A		±3nm
-F850A	1510nm	±2nm
-F850B		±3nm
-F590A	1530nm	±2nm
-F590B		±3nm
-F340A	1550nm	±2nm
-F340B		±3nm
-F095A	1570nm	±2nm
-F095B		±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.

9. 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. SLW446□-□□/□□□-□□□□□

RH2 or Customized code

Code	Pin assignment
0	Type A

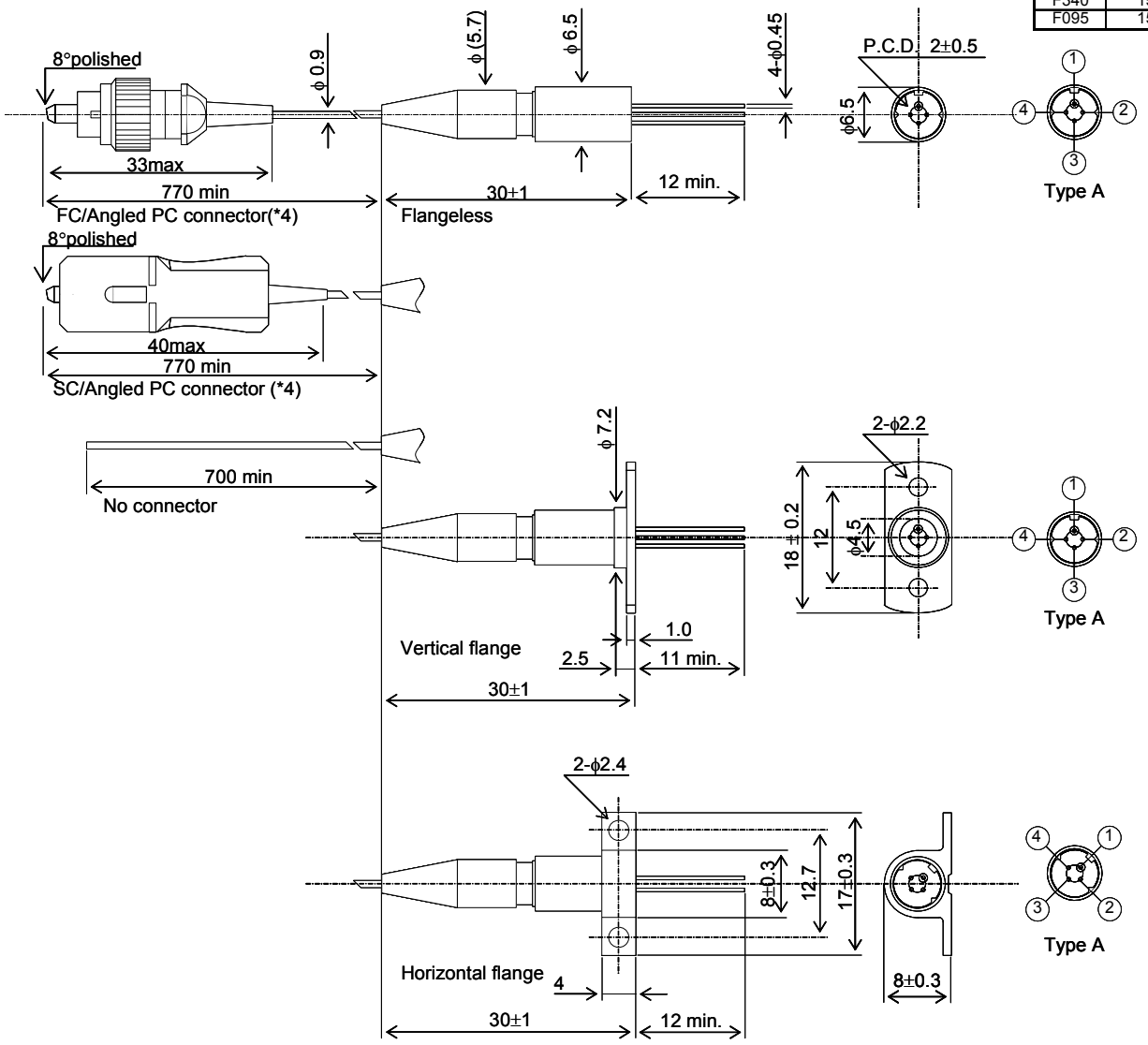
Code	Connector type
P	FC/Angled PC
Q	SC/Angled PC
X	No connector

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

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

Code	Wavelength range
A	±2nm
B	±3nm

Channel	Wavelength @25deg.C
K240	1290nm
J885	1310nm
J540	1330nm
J205	1350nm
H885	1370nm
G675	1450nm
G390	1470nm
G120	1490nm
F850	1510nm
F590	1530nm
F340	1550nm
F095	1570nm



Unit mm
Tolerance: ±0.1mm, unless otherwise noted

Note: *4. IEC60874-14 compliant. Detailed design not specified in the IEC standards is a subject to change without notice.

10. For More Information

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Revision Record

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