Sumitomo Electric Industries, Ltd.
Part No.: SLW4270-xx/RH2 Series
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Technical Specification
of
1.31μm MQW-DFB Laser Diode Module
for Optical Microwave Transmission

SLW4270-xx/RH2 Series

RoHS Compliant

SUMITOMO ELECTRIC

1. General

SLW4270-xx/RH2 Series are 1.31μm InGaAsP/InP MQW-DFB laser diode modules designed for wireless communication systems.

These modules are ideally suitable for optical microwave transmission applications.

A laser diode is mounted into a coaxial package integrated with a single mode fiber pigtail, a double-stage isolator (lead content is less than 1000ppm) and an InGaAs monitor PD.

2. Package dimension and pin assignment

(See attached appendix.)

3. Absolute maximum ratings

Parameter	Symbol	Ratings	Unit
Storage temperature	Tstg	-40 to+85	°C
Operating case temperature	Top	-20 to+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 to+85°C	—	—	50	
Operating current	If	CW	—	30	50	mA
		CW, Tc=-20 to+85°C	—	—	90	
Operating voltage	Vf	CW, Tc=-20 to+85°C	—	—	1.7	V
Slope efficiency	Se	CW	0.1	0.15	0.25	mW/mA
Thermal slope efficiency	TSe	CW, Se(Tc)/Se(25°C) Tc=-20 to+85°C	0.5	—	1.5	—
Peak wavelength	λp	CW	1300	1310	1320	nm
		CW, Tc=-20 to+85°C	1290	—	1330	
Side-mode suppression ratio	SSR	CW, Tc=-20 to+85°C	30	40	—	dB
Tracking error	ΔPf	Im hold(@Pf=3mW(+25°C)) CW, Tc=-20 to+85°C	-1.0	—	1.0	dB
Third order inter-modulation distortion	IMD3	OMI=20%, (*1)	—	-65	-60	dBc
		OMI=20%, Tc=-20 to+85°C, (*1)	—	-55	—	
Relative intensity noise	RIN	CW, Tc=-20 to+85°C, (*2)	—	-150	-140	dB/Hz
Monitor current	Im	CW, VrP=5V, Tc=-20 to+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 (2135MHz, 2145MHz)

*2. Zero link loss, f=2170MHz

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 (λ=1310nm, unless otherwise noted.)

Parameter	Condition	Min.	Typ.	Max.	Unit
Type	—	Double stage			—
Optical isolation	Tc=+25°C	40	—	—	dB
	Tc=-20 to+85°C	30	—	—	

7. Ordering Information

Part number for RoHS compliance	Pin assignment	Optical isolator	Connector type	Flange type (hole pitch)
SLW4270-QS/RH2	Type A	Single isolator	SC/Angled PC	Horizontal (12.7mm)
SLW4270-QN/RH2				Flangeless
SLW4270-XS/RH2			No connector	Horizontal (12.7mm)
SLW4270-XN/RH2				Flangeless

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. SLW4270-□□/□□□

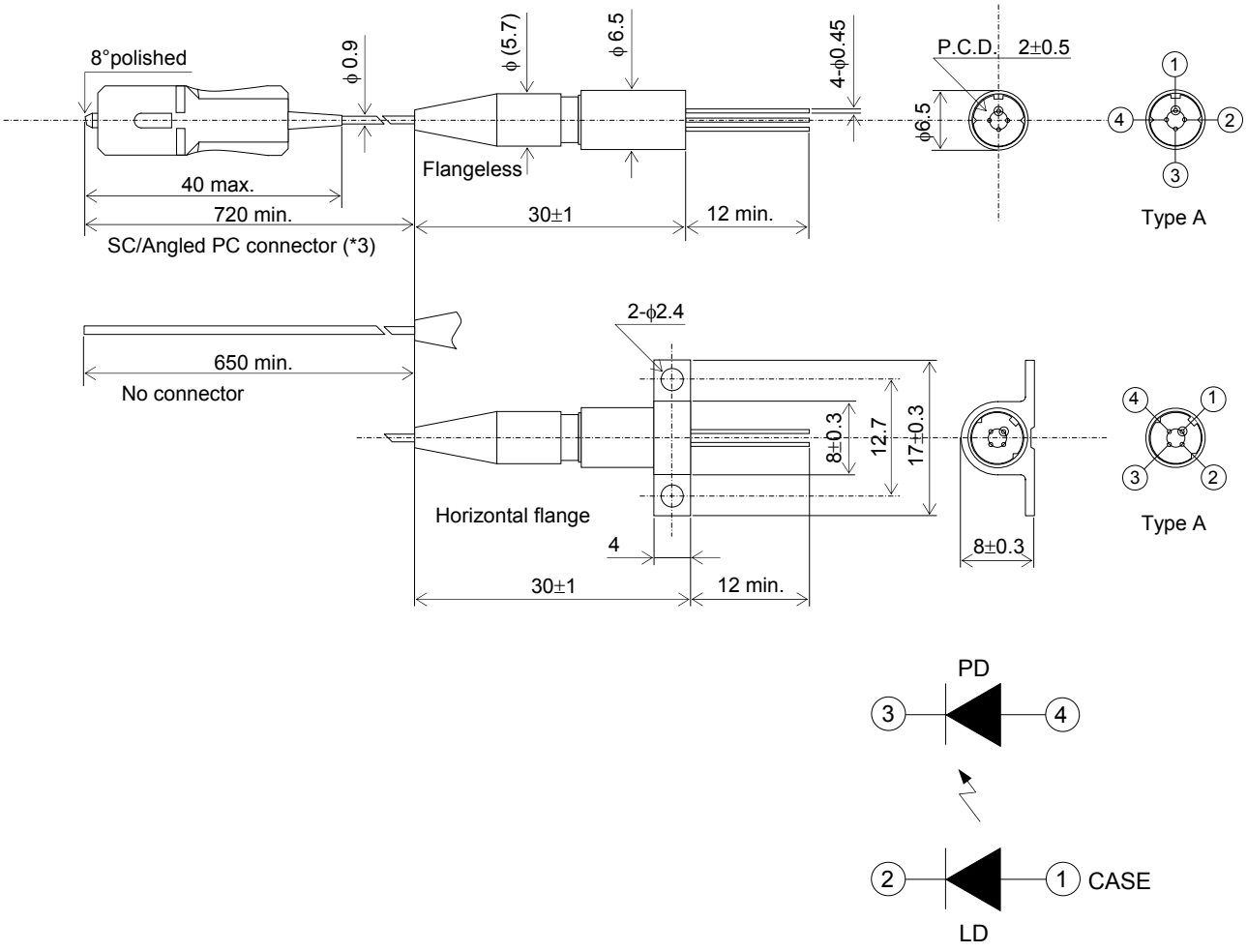
(Customize code)

Code	Pin assignment
0	Type A

Code	Connector type
Q	SC/Angled PC
X	No connector

Code	Flange type
N	Flangeless
S	Horizontal (12.7mm)

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



Unit: mm
Tolerance ±0.1mm, unless otherwise noted.

Note:*3.IEC 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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HUW0724101-01A	Dec./28/07	Initial issue.	N. Fukushima	Y. Yamasaki T. Takagi	H. Michikoshi