Sumitomo Electric Industries, Ltd.
Part No.: SLW4260 Series
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Specification
of
1.31µm MQW-DFB Laser Diode Module
for Optical Microwave Transmission

SLW4260 Series

RoHS Compliant

SUMITOMO ELECTRIC

1. General

SLW4260 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 single-stage isolator 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~+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	1300	1310	1320	nm
		CW, Tc=-20~+85°C	1290	—	1330	
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	-60	dBc
		OMI=20%, Tc=-20~+85°C, (*1)	—	-55	—	
Relative intensity noise	RIN	CW, Tc=-20~+85°C, (*2)	—	-150	-140	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

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		Single stage			—
Optical isolation	Tc=+25°C	30	—	—	dB
	Tc=-20~+85°C	20	—	—	

7. Ordering Information

Part number	Pin assignment	Connector type	Flange type (hole pitch)	Old part number	RoHS compliance of old part number
SLW4260-QS/RH1	Type A	SC/ Angled PC	Horizontal (12.7mm)	SLW4260-QS	Not Compliant (*4)
SLW4260-QN/RH1			Flangeless	SLW4260-QN	
SLW4260-QP/RH1			Vertical (12.0mm)	SLW4260-QP	
SLW4260-XS		No connector	Horizontal (12.7mm)	SLW4260-XS	Compliant
SLW4260-XN			Flangeless	SLW4260-XN	
SLW4260-XP			Vertical (12.0mm)	SLW4260-XP	

Note: *4) Some products in this category have been already RoHS compliant. If any query, please contact us with part number and serial number.

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

Compliancy versus requirements contained inside the following reference document is guaranteed: “Directive 2002/95/EC of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment” from official journal of European Union (European Parliament and of the Council). This product is compliant at RoHS-6/6 level and using only eutectic AuSn solder for LD and PD chip attachments to components.

For isolator, please refer ODRO05132.

Appendix

Part No.: SLW426□-□□/□□□

RH1 or Customized code

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

Connector type

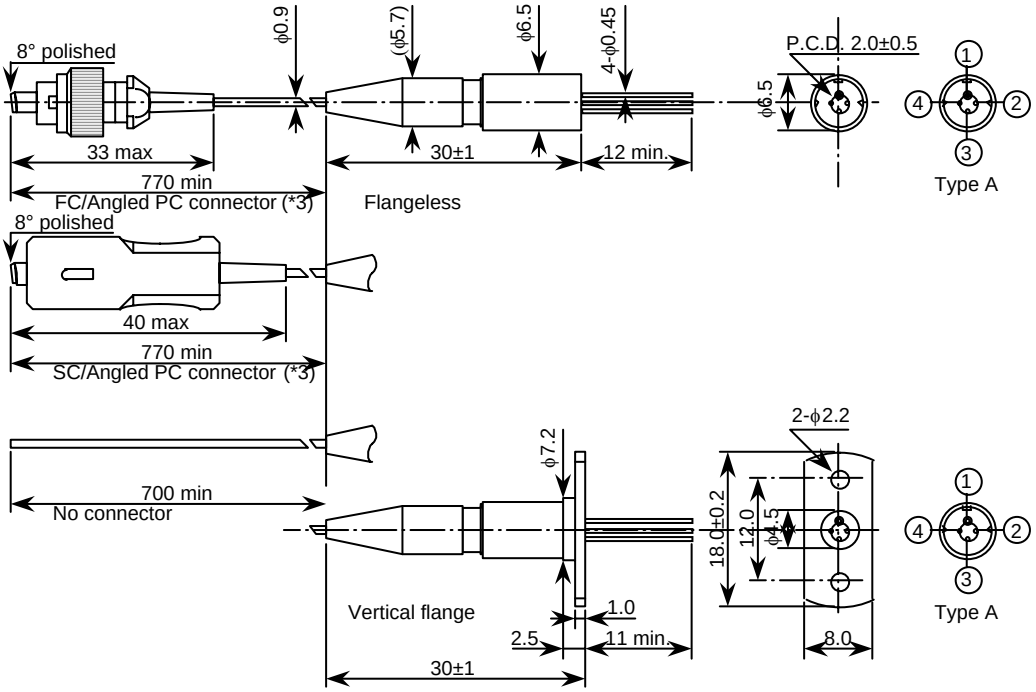
Code	Flange type
N	Flangeless
P	Vertical (12.0mm)
S	Horizontal (12.7mm)
X	(Customize)

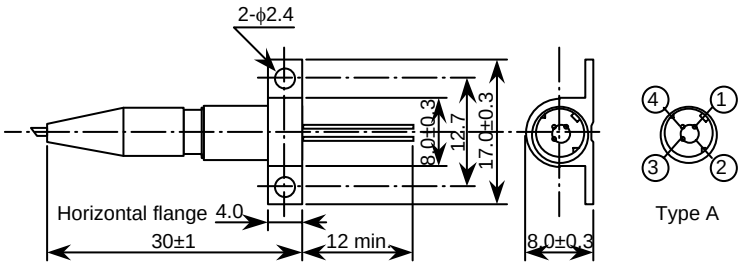
Flange type

Code	Pin assignment
0	Type A

Pin assignment

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





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

Note:*3.IEC and JIS compliant. Detailed design not specified in the IEC and JIS standards is a subject to change without notice.

10. For More Information

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Revision Record

Document No.	Date of issue	Description	Incorporated by	Checked by	Approved by
HUW0224014-01A	May/10/02	Preliminary issue.	T. Nakanishi	Y. Yamasaki	M. Yoshimura
HUW0224014-01B	Aug/28/02	Initial issue. Added typ. values of Se, SSR, RIN, and Im.	Y.Yamasaki	N.Kushida	M.Yoshimura
HUW0224014-01C	Dec./25/02	Revised IMD3 on condition of Tc=+25°C from max.: -50dBc to max.: -60dBc; Removed max. value of IMD3 on condition of Tc=-20~+85°C.	Y.Yamasaki	H.Koseki	M.Yoshimura
HUW0224014-01D	Aug./9/06	Added RoHS compliancy. Added new part number. Preliminary is deleted.	Y.Matsumura	Y. Yamasaki	M.Yoshimura