



Preliminary Specification  
of  
1.31 $\mu$ m MQW-FP Laser Diode Module  
for Optical Microwave Transmission

SLW4760 Series

RoHS Compliant



1. General

SLW4760 Series are 1.31 $\mu$ m InGaAsP/InP MQW-FP 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	—	5	20	mA
		CW, Tc=-20~+85°C	—	—	50	
Operating current	If	CW	—	25	65	mA
		CW, Tc=-20~+85°C	—	—	90	
Operating voltage	Vf	CW, Tc=-20~+85°C	—	—	1.7	V
Slope efficiency	Se	CW	0.07	—	0.25	mW/mA
Thermal slope efficiency	TSe	CW, Se(Tc)/Se(25°C) Tc=-20~+85°C	0.5	—	1.5	—
Central wavelength	$\lambda_c$	CW	1280	1295	1340	nm
		CW, Tc=-20~+85°C	1250	—	1370	
Spectral width	$\Delta\lambda$	CW, RMS, 20dB down Tc=-20~+85°C	—	2	5	nm
Tracking error	$\Delta Pf$	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)	—	-60	—	dBc
		OMI=20%, Tc=-20~+85°C, (*1)	—	-45	—	
Relative intensity noise	RIN	CW, (*2)	—	-150	—	dB/Hz
		CW, Tc=-20~+85°C, (*2)	—	-145	—	
Monitor current	Im	CW, VrP=5V, Tc=-20~+85°C	100	—	2000	$\mu$ A
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	$\mu$ m
Cladding diameter	122	125	128	$\mu$ m
Outer jacket diameter	0.8	0.9	1.0	mm
Bending radius	30	—	—	mm

6. Optical isolator specification ( $\lambda=1310$ nm, 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 for RoHS compliance	Pin assignment	Optical isolator	Connector type	Flange type (hole pitch)	Old part number	RoHS compliance of old part number
SLW4760-QS/RH1	Type A	Single isolator	SC/Angled PC	Horizontal (12.7mm)	SLW4760-QS	Not compliant (*4)
SLW4760-QN/RH1				Flangeless	SLW4760-QN	
SLW4760-XS			No connector	Horizontal (12.7mm)	SLW4760-XS	Compliant
SLW4760-XN				Flangeless	SLW4760-XN	

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.: SLW476□-□□/□□□

(Customize code)

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)

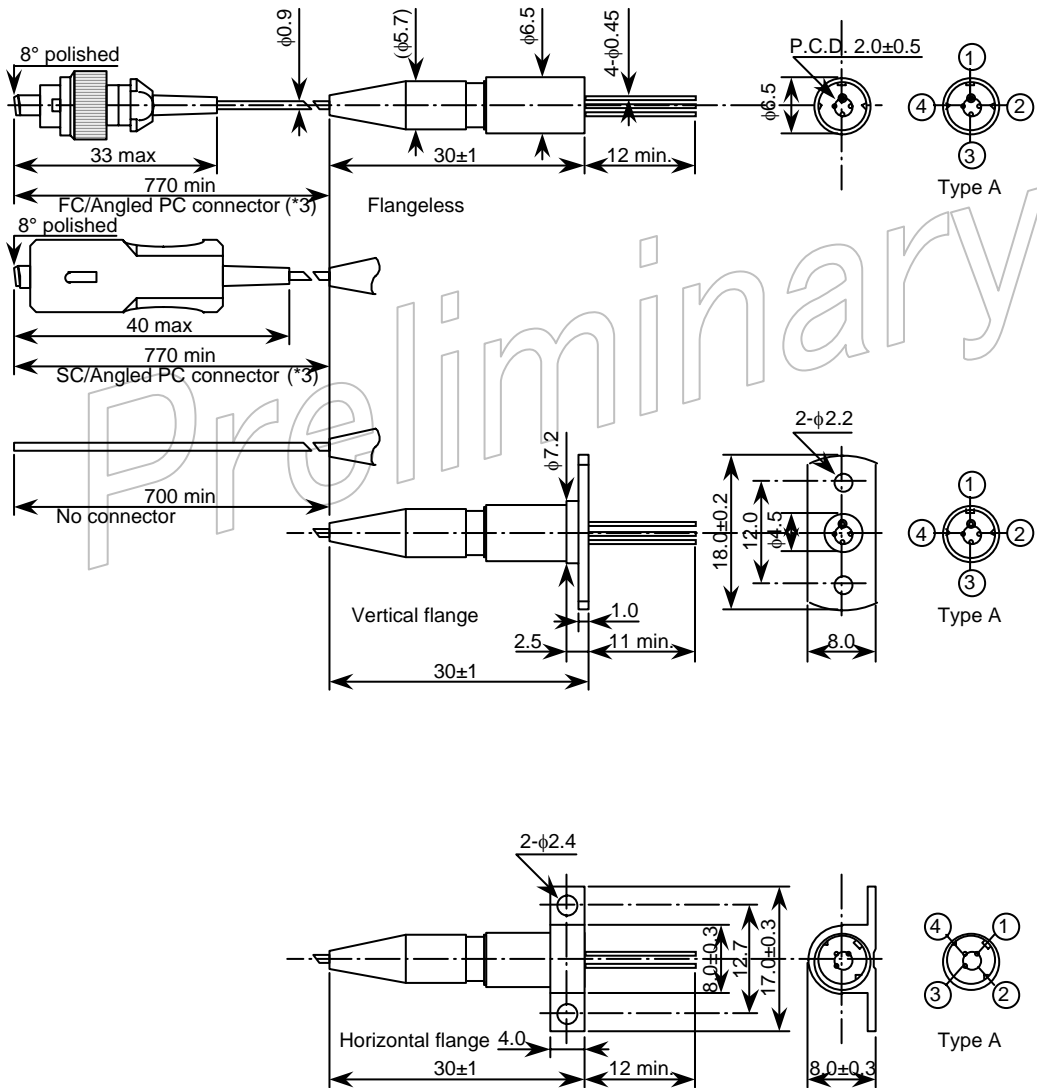
Code	Pin assignment
0	Type A

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

Connector type

Flange type

Pin assignment



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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Preliminary