



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

SLW4260-xx/RH2 Series

RoHS Compliant



### 1. General

SLW4260-xx/RH2 Series are 1.31 $\mu$ m 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 (the lead content of this isolator 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~+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)<br>Tc=-20~+85°C          | 0.5  | —    | 1.5  | —       |
| Peak wavelength                         | $\lambda_p$ | 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                          | $\Delta Pf$ | Im hold (@Pf=3mW(+25°C))<br>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 | $\mu$ 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 ( $\lambda$ =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 | Optical isolator      | Connector type | Flange type (hole pitch) |
|----------------|----------------|-----------------------|----------------|--------------------------|
| SLW4260-QS/RH2 | Type A         | Single-stage isolator | SC/ Angled PC  | Horizontal (12.7mm)      |
| SLW4260-QN/RH2 |                |                       |                | Flangeless               |
| SLW4260-QP/RH2 |                |                       |                | Vertical (12.0mm)        |
| SLW4260-XS/RH2 |                |                       | No connector   | Horizontal (12.7mm)      |
| SLW4260-XN/RH2 |                |                       |                | Flangeless               |
| SLW4260-XP/RH2 |                |                       |                | Vertical (12.0mm)        |

## 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.: SLW426□-□□/□□□

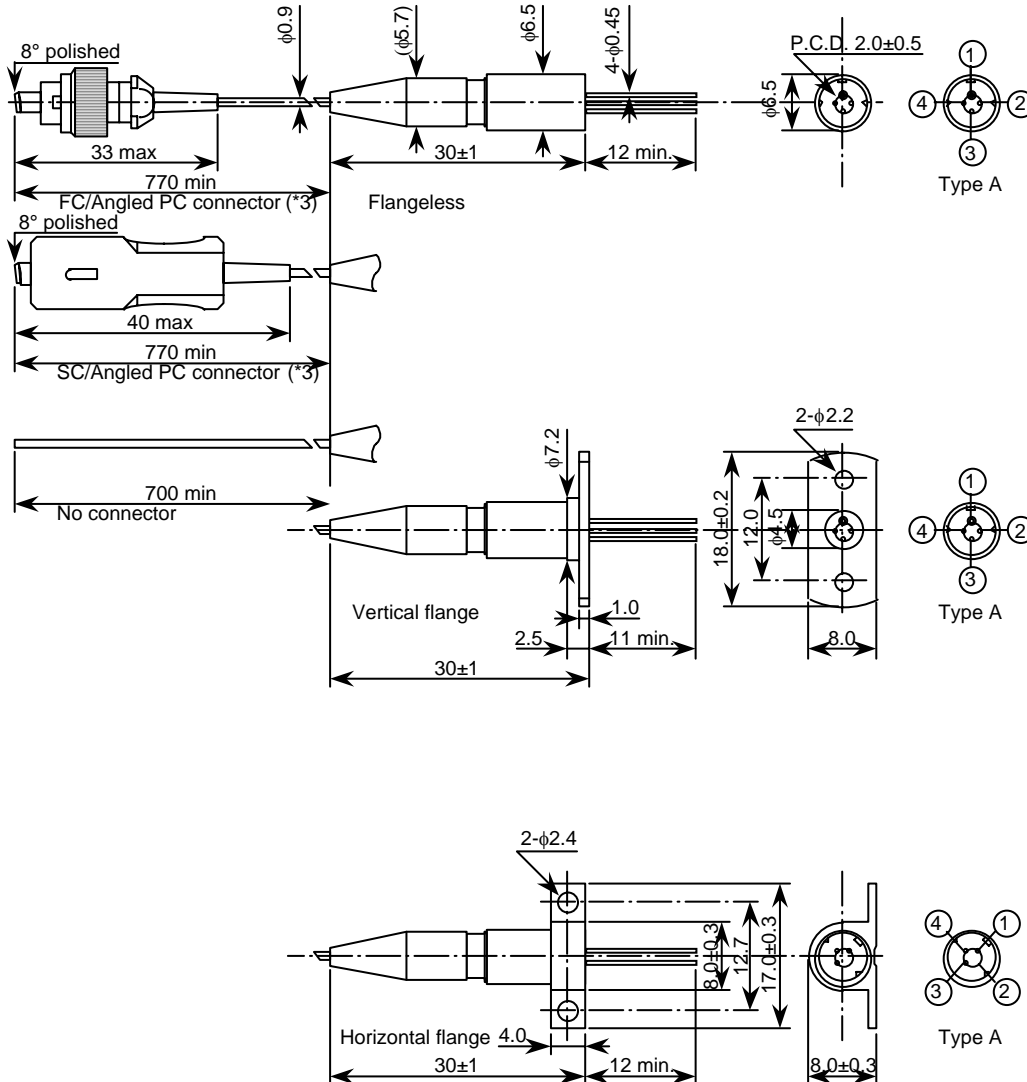
RH2 or Customized code

| Code | Connector type | Code | Flange type         | Code | Pin assignment | Pin No. | Pin function for typeA and typeB |
|------|----------------|------|---------------------|------|----------------|---------|----------------------------------|
| P    | FC/Angled PC   | N    | Flangeless          | 0    | Type A         | 1       | LD anode (CASE)                  |
| Q    | SC/Angled PC   | P    | Vertical (12.0mm)   |      |                | 2       | LD cathode                       |
| X    | No connector   | S    | Horizontal (12.7mm) |      |                | 3       | PD cathode                       |
|      |                | X    | (Customize)         |      |                | 4       | PD anode                         |

Connector type

Flange type

Pin assignment



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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