



Technical Specification
of
1.55 μ m MQW-DFB Laser Diode Module
for CATV Return-Path Application

SLV4470-xx/RH2 Series

RoHS Compliant



1. General

SLV4470-xx/RH2 Series are 1.55 μ m InGaAsP/InP MQW-DFB laser diode modules designed for fiber optic CATV return path applications. These modules are ideally suitable for high capacity transmission including several video channels.

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~+85	°C
Operating case temperature	Top	-20~+85	°C
Fiber output power	Pf	5	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=2mW, Tc=+25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold current	Ith	CW	—	10	15	mA
		CW, Tc=-20~+85°C	—	—	50	
Operating current	If	CW	—	28	45	mA
		CW, Tc=-20~+85°C	—	—	80	
Operating voltage	Vf	CW, Tc=-20~+85°C	—	—	1.6	V
Slope efficiency	Se	CW	0.05	—	0.2	mW/mA
Thermal slope efficiency	TSe	CW, Se(Tc)/Se(25°C) Tc=-20~+85°C	0.5	—	1.5	—
Peak wavelength	λp	CW	1540	1550	1565	nm
		CW, Tc=-20~+85°C	1530	—	1575	
Side-mode suppression ratio	SSR	CW, Tc=-20~+85°C	30	—	—	dB
Tracking error	ΔPf	Im hold(@Pf=2.0mW(25°C)) CW, Tc=-20~+85°C	-1.0	—	1.0	dB
Passband flatness	—	peak to peak, f=5~200MHz	—	—	1.0	dB
Second order inter-modulation distortion	IMD2	OMI=20%, Tc=-20~+85°C, (*1)	—	—	-40	dBc
Third order inter-modulation distortion	IMD3	OMI=20%, Tc=-20~+85°C, (*1)	—	—	-55	dBc
Carrier to noise ratio with carrier ON	CNRon	OMI=20%, Tc=-20~+85°C, (*2)	40	—	—	dBc
Carrier to noise ratio with carrier OFF	CNRoff	OMI=20%, Tc=-20~+85°C, (*2)	40	—	—	dBc
Monitor current	Im	CW, VrP=5V, Tc=-20~+85°C	50	—	1500	μA
Monitor dark current	Id	VrP=5V	—	1	10	nA
Monitor capacitance	C	VrP=5V, f=1MHz	—	—	10	pF
Optical Isolation	—	Tc=-20~+85°C	30	—	—	dB

Note: *1. Optical loss=6.6dB (1550nm), 2tone (13MHz, 19MHz)

*2. Optical loss=6.6dB (1550nm), Carrier signal=19MHz, Res. B.W.=30kHz,

Video B.W.=30Hz, Bandwidth for Calculated CNR=35MHz, Measured point=19MHz

5. Fiber pigtail specification

Parameter	Min.	Typ.	Max.	Unit
Type	Single Mode			—
Mode field diameter	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. Order information

Part number for RoHS compliance	Pin assignment	Connector type	Flange type (hole pitch)
SLV4470-QN/RH2	Type A	SC/Angled PC	Flangeless
SLV4470-QP/RH2			Vertical (12.0mm)
SLV4470-QS/RH2			Horizontal (12.7mm)
SLV4470-XN/RH2		No connector	Flangeless
SLV4470-XP/RH2			Vertical (12.0mm)
SLV4470-XS/RH2			Horizontal (12.7mm)

7. 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.

8. 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.: SLV447□-□□/□□□

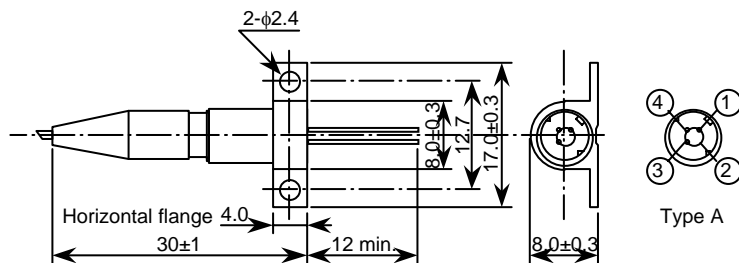
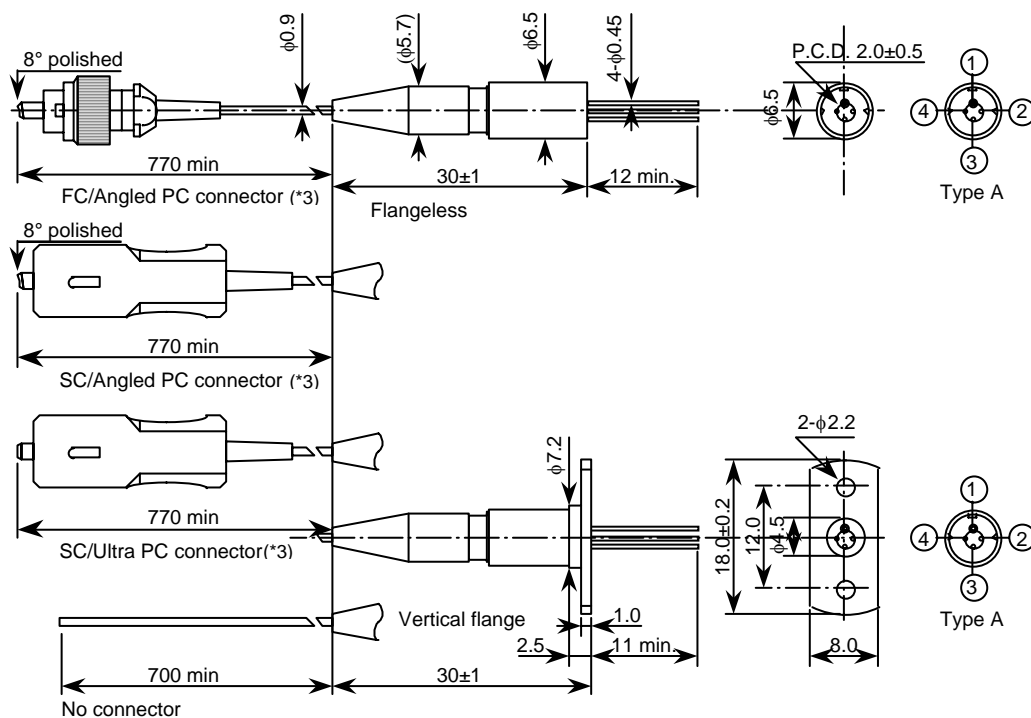
(RH2 or Customize code)

Code	Connector type	Code	Flange type	Code	Pin assignment	Pin No.	Pin function for typeA 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
U	SC/Ultra PC	S	Horizontal (12.7mm)			3	PD cathode
X	No connector	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.

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Part No.: SLV4470-xx/RH2 Series
Document No.: HUW0724176-01A
Date of issue: March 3, 2008

9. For More Information

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Sumitomo Electric Industries, Ltd.
Part No.: SLV4470-xx/RH2 Series
Document No.: HUW0724176-01A
Date of issue: March 3, 2008

Revision Record

Document No.	Date of issue	Description	Incorporated by	Checked by	Approved by
HUW0724176-01A	Mar./03/08	Initial issue.	Y. Yamasaki	T. Takagi N. Fukushima	H. Michikoshi