Sumitomo Electric Industries, Ltd.
Part No.: SLV3160 Series
Document No.: HUW9824002-01B
Date of issue: October 21, 1998

Technical Specification of 1.3μm MQW-FP Laser Diode Module for CATV Return-Pass Application

SLV3160 Series

Sumitomo Electric Industries, Ltd.

Sumitomo Electric Industries, Ltd.
Part No.: SLV3160 Series
Document No.: HUW9824002-01B
Date of issue: October 21, 1998

1. General

SLV3160 Series are 1.3µm InGaAsP/InP MQW-FP laser diode modules designed for fiber optic CATV return path applications. These modules have low spurious noise for wide temperature range. A laser diode is mounted into a coaxial package integrated with an InGaAs monitor photodiode, a single stage isolator and a single mode fiber pigtail.

2. Package dimension and pin assignment

(See attached drawing.)

3. Absolute maximum ratings *(Pf=0.5mW, Tc=+25°C, unless otherwise noted.)*

Parameter	Symbol	Ratings	Unit
Storage temperature	Tstg	-40~+90	°C
Operating case temperature	Top	-40~+85	°C
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 (l0sec.)	Stemp	260	°C

4. Electrical and optical characteristics *(Pf=0.5mW, Tc=+25°C, unless otherwise noted.)*

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Threshold current	Ith	CW	-	6	15	mA
		CW, Tc=-40~+85°C	-	-	40	
Operating current	If	CW	-	25	55	mA
		CW, Tc=-40~+85°C	-	-	90	
Operating voltage	Vf	CW, Tc=-40~+85°C	-	-	1.6	V
Slope efficiency	Se	CW, Average(Ith to Ith+20mA)	0.016	-	-	mW/mA
Thermal slope efficiency	TSe	CW, Se(Tc)/Se(25°C) Tc=-40~+85°C	0.5	-	-	
Central wavelength	λc	CW	1290	1310	1330	nm
		CW, Tc=-40~+85°C	1260	-	13	
Spectral width	Δλ	CW, RMS, Tc=-40~+85°C	-	2	5	nm
Tracking error	ΔPf	Im hold(@ Pf=0.5mW(25°C)) CW, Tc=-40~+85°C	-1.0	-	1.0	dB
Passband flatness		peak to peak, f=5~200MHz	-	-	1.0	dB
Spurious noise with carrier ON	SNon	Tc=+25°C, (1)	-	-60	-	dBc
		Tc=+85°C, (1)	-	-54	-	
Spurious noise with carrier OFF	SNoff	Tc=+25°C, (1)	-	-51	-	dBc
		Tc=+85°C, (1)	-	-45	-	
Relative intensity noise	RIN	CW, (*2)	-	-130	-	dB/Hz
Monitor current	Im	CW, VrP=5V, Tc=-40~+85°C	150	-	1500	pA
Monitor dark current	Id	VrP=5V	-	1	10	nA
Monitor capacitance	C	rP=5V, f=1 MHz		-	10	pF

Note: *1. OMI=20%, Optical loss =9dB, Modulation signal=19MHz, f=5~65MHz, Res.B.W.=100KHz
Video BW=10KHz, Hold time=2min.
Using high- gain optical receiver with responsivity of 90-100A/W
Since spurious noise is strongly dependent on an optical receiver, crosscheck is strongly recommended.

*2. Zero link loss, ORL=50dB, f=5-200MHz

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	40	-	-	mm

6. Order information

Part number	Pin assignment	Connector type	Flange type (hole pitch)
SLV3160-UN	Type A	SC/Ultra PC	Flangeless
SLV3160-UP			Vertical (12mm)
SLV3160-US			Horizontal (12.7mm)
SLV3160-XN		No connector	Flangeless
SLV3160-XS			Vertical (12mm)
SLV3160-XP			Horizontal (12.7mm)
SLV3161-UN	Type B	SC/Ultra PC	Flangeless
SLV3161-US			Horizontal (12.7mm)
SLV3161-XN		No connector	Flangeless
SLV3161 -XS			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 governmental approval is required to export this product to other countries. To dispose of this product, the appropriate procedure should be taken to prevent illegal exportation.

(3) The modules should be handled in the same manner as ordinary semiconductor devices to prevent the electro-static damages. For safekeeping 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.

(4) The stress to the fiber pigtail may cause the damage on the performance. The fiber pigtail may snap off by dropping the module.

(5) Please pay special attention to the atmosphere condition because the dew on the module may cause some electrical damages.

(6) Under such a strong vibration environment as in automobile, the performance and reliability are not guaranteed.

Appendix

Part No.: SLV316□-□□/□□□

(Customize code)

Code	Connector type
U	SC/Ultra PC
V	FC/Ultra PC
X	No connector

Connector type

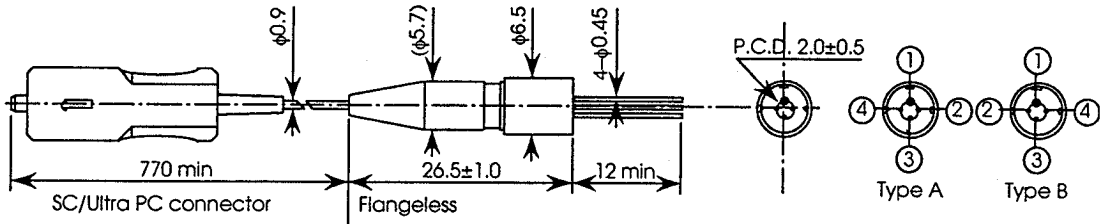
Code	Flange type
N	Flangeless
P	Vertical (12.0mm)
S	Horizontal (12.7mm)
X	(Customize)

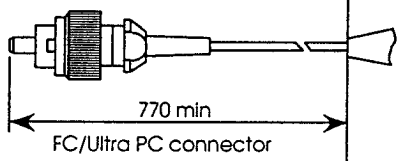
Flange type

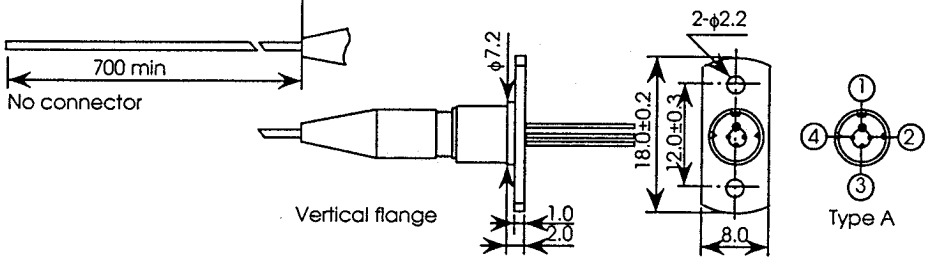
Code	Pin assignment
0	Type A
1	Type B

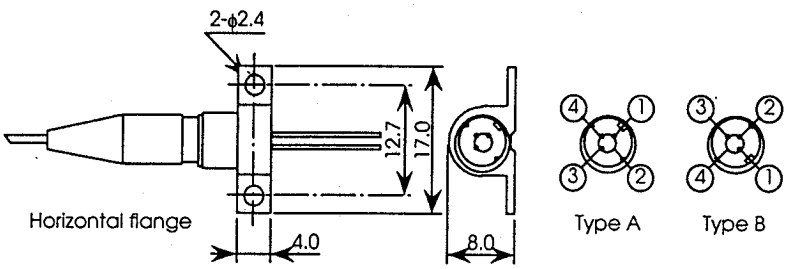
Pin assignment

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









Unit: mm

Tolerance: ±0.1mm, unless otherwise noted

8. For More Information

U.S.A.

Sumitomo Electric Lightwave Corp.
78 Alexander Drive
Research Triangle Park, NC 27709
U.S.A.
Tel. (919)541-8100
Fax. (919)541-8376
www.sumitomoelectric.com

Europe

Sumitomo Electric Europe Ltd.
Unit 11, Magnolia House
Spring Villa Park, Spring Villa Road
Edgware, Middlesex, HA8 7EB
United Kingdom
Tel. (181)905-6160
Fax. (181)905-6195

Japan

Sumitomo Electric Industries, Ltd.
(International Business Division
3-12, Moto-Akasaka 1-chome
Minato-ku Tokyo 107
Japan
Tel. (03)3423-5771
Fax.(03)3423-5099

Sumitomo Electric Industries, Ltd.
Part No.: SLV3160 Series
Document No.: . HUW9824002-01B
Date of issue: October 21, 1998

Revision Record

Document No.	Date of issue	Description	Incorporated by	Checked by	Approved by
HUW9824002-01A	Sep./07/98	Initial issue	T. Nakanishi	H. Michikoshi	T. Fujitani
HUW9824002-01B	Oct./21/98	Corrected TSe from max.=1.25 to max="____" Revised Δλ from max.=10nm to max.=5nm; Revised the condition of RIN from Tc=-40~+85°C to Tc=+25°C; Revised the condition of Im from Tc=+25°C to Tc=-40~+85°C; Revised Im from min.=200pA to min.=150pA; Revised ld from max.=100nA to max.=10nA; Correct the tolerance of vertical flange hole pitch from ±0.1mm to ±0.3mm.	T. Nakanishi	H. Michikoshi	T. Fujitani