

Sumitomo Electric Industries, Ltd.

Part No.: SLT2270-xN Series

Document No.: HUW9924097-01F

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Technical Specification
of
1.3 μ m MQW-DFB Laser Diode Module:
(Transmitter Optical Sub-assembly in Small PKG)

SLT2270-xN Series



1. General

SLT2270-xN Series are 1.3 μ m InGaAsP/InP MQW-DFB laser diode modules designed for fiber optic communication systems. These modules are transmitter optical sub-assembly with low threshold current and high performance at high temperature, and are ideally suitable for long reach and intermediate reach of up to 2.5Gbps transmission applications.

A laser diode is mounted into a ϕ 3.8mm coaxial package integrated with an InGaAs monitor PD, a single-mode fiber-stub and a split sleeve for the optical connector with ϕ 1.25mm ferrule.

2. Package dimension and pin assignment

(See attached appendix.)

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

Parameter	Symbol	Ratings	Unit
Storage temperature	Tstg	-40~+85	°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 (<10sec.)	Stemp	260	°C

4. Electrical and optical characteristics

(Pf=1.5mW, SMF(9.5/125 μ m), Tc=+25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold current	Ith	CW	—	9	15	mA
		CW, Tc=-40~+85°C	—	—	50	
Optical output power	Pf	CW, If=Ith+20mA	1.0	1.5	3.0	mW
		CW, If=Ith+20mA, Tc=-40~+85°C	0.50	—	—	
Operating voltage	Vf	CW, Tc=-40~+85°C	—	—	1.6	V
Slope efficiency	Se	CW, Average(Ith to Ith+20mA)	0.05	0.075	0.15	mW/mA
Peak wavelength	λ_p	CW	1300	1310	1320	nm
		CW, Tc=-40~+85°C	1280	—	1335	
Side-mode suppression ratio	SSR	CW, Tc=-40~+85°C	30	—	—	dB
Tracking error	Δ Pf	Im hold (@Pf=1.5mW(25°C)) CW, Tc=-40~+85°C	-1.5	—	1.5	dB
Rise time	tr	Ib=Ith, 20-80%, Tc=-40~+85°C	—	—	0.15	nsec.
Fall time	tf	Ib=Ith, 80-20%, Tc=-40~+85°C	—	—	0.15	nsec.
Extinction ratio	Er	10log(1.5mW/Pf(Ith)) Tc=-40~+85°C	10	—	—	dB
Monitor current	Im	CW, VrP=5V, Tc=-40~+85°C	50	—	—	μ A
Monitor dark current	Id	VrP=5V	—	1	10	nA
		VrP=5V, Tc=-40~+85°C	—	—	100	
Monitor capacitance	C	VrP=5V, f=1MHz	—	—	10	pF
Connector repeatability	—	(*1)	—	\pm 0.5	\pm 1.0	dB

Note: *1. Measured with SEI's master plug and an extra receptacle.

5. Ordering information

Part number	Pin assignment	Number of pin	Pin cercle diameter
SLT2270-LN	TypeA	4	1.35±0.20
SLT2276-LN	TypeC	4	1.35±0.20
SLT2279-LN	TypeE	3	1.27±0.20

6. 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) Please pay special attention to the atmosphere condition because the dew on the module may cause some electrical damages.
- (4) Under such a strong vibration environment as in automobile, the performance and reliability are not guaranteed.

Appendix

Part No.: SLT227□-□N/□□□

(Customize code)

Code	Fiber-sleeve type
L	LC

Code	Pin assignment	Pin circle (D1)
0	Type A	$\phi 1.35 \pm 0.20$
6	Type C	$\phi 1.35 \pm 0.20$
9	Type E	$\phi 1.27 \pm 0.20$

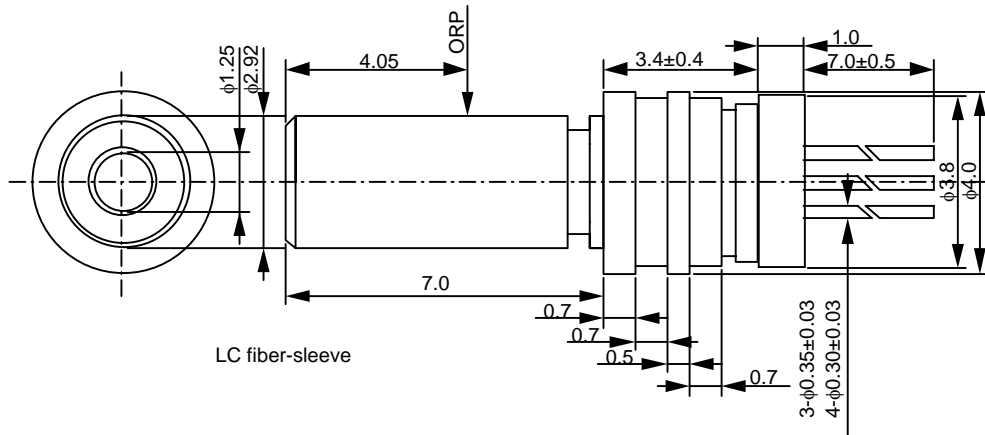
Pin No.	Pin function for typeA
1	LD anode (CASE)
2	LD cathode
3	PD cathode
4	PD anode

Pin No.	Pin function for typeE
1	LD anode/PD cathode (CASE)
2	LD cathode
3	PD anode

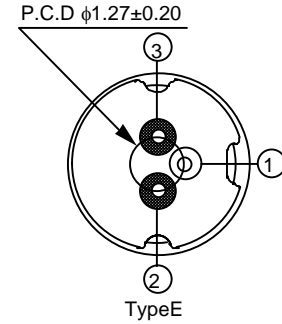
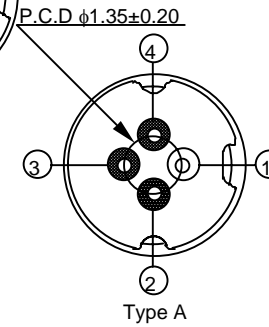
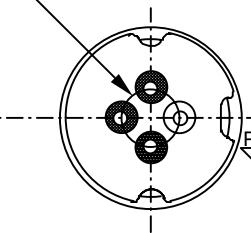
Pin No.	Pin function for typeC
1	(CASE)
2	LD cathode
3	PD anode
4	LD anode/PD cathode

Fiber-sleeve type

Pin assignment and pin circle



P.C.D D1 (See the table.)



Unit: mm

Tolerance: ± 0.1 mm, unless otherwise noted.

7. For More Information

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Revision Record

Document No.	Date of issue	Description	Incorporated by	Checked by	Approved by
HUW9924097-01A	Oct./05/99	Initial issue.	M. Yoshimura	M. Yoshimura	T. Fujitani
HUW9924097-01B	Feb./24/00	Pin circle diameter of 4-pin type PKG has been changed from 1.27 mm to 1.35mm.	M. Yoshimura	T. Fujitani	T. Fujitani
HUW9924097-01C	Oct./02/00	Initial issue; Corrected Tstg from -40~+90°C to -40~85°C; Removed min of Vf; Added max. of Pf on condition of Tc=+25°C; Added max. of Se on condition of Tc=+25°C.	T. Nakanishi	M. Yoshimura	T. Fujitani
HUW9924097-01D	Oct./04/00	Corrected Pf on condition of Tc=+25°C from max.: 2.5mW to max.: 3.0mW; Corrected Se on condition of Tc=+25°C from max.: 0.125mW/mA to max.: 0.15mW/mA.	T. Nakanishi	M. Yoshimura	T. Fujitani
HUW9924097-01E	Jan./24/01	Revised Id on condition of Tc=-40~+85°C from max.: 30nA to max.: 100nA; Corrected the tolerance of the distance of ORP; Added the pin diameter of 3 pins type and 4 pins type.	T. Nakanishi	M. Yoshimura	M. Yoshimura
HUW9924097-01F	Feb./07/01	Corrected the tolerance of the pin diameter.	R. Shigemoto	T. Nakanishi	M. Yoshimura