



Sumitomo Electric Industries, Ltd.  
Part No.: SLT4210-xnnnT Series  
SLT4260-xnnnT Series  
Document No.: HUW0224006-01D  
Date of issue: August 09, 2006

Technical Specification  
of  
1.275 $\mu\text{m}$ ~1.35 $\mu\text{m}$  MQW-DFB Laser Diode Module  
for CWDM of Parallel 10Gb/s Ethernet

SLT4210-xnnnT Series  
SLT4260-xnnnT Series

RoHS Compliant



1. General

SLT4210-xnnnT Series and SLT4260-xnnnT Series are 1.275 $\mu$ m~1.35 $\mu$ m InGaAsP/InP MQW-DFB laser diode modules designed for fiber optic communication systems. These modules are ideally suitable for CWDM of parallel 10Gb/s Ethernet applications.

A laser diode is mounted into a coaxial package integrated with an InGaAs monitor PD and a single mode fiber pigtail.

Especially SLT4260-xnnnT Series have a single stage isolator integrated inside.

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	0~+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=2mW, Tc=+25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold current	Ith	CW	—	10	15	mA
		CW, Tc=0~+85°C	—	—	40	
Optical output power	Pf	CW, If=Ith+20mA	1.0	2	3.0	mW
		CW, If=Ith+20mA, Tc=0~+85°C	0.5	—	5.0	
Operating voltage	Vf	CW, Tc=0~+85°C	—	—	1.6	V
Slope efficiency	Se	CW, Average(Ith to Ith+20mA)	0.05	—	0.15	mW/mA
		CW, Average(Ith to Ith+20mA) Tc=0~+85°C	0.025	—	0.25	
Peak wavelength	$\lambda_p$	CW	(*1)			nm
Wavelength temperature coeff.	—	CW, Tc=0~+85°C	0.07	0.1	0.11	nm/°C
Side-mode suppression ratio	SSR	CW, Tc=0~+85°C	30	—	—	dB
Tracking error	$\Delta Pf$	I <sub>m</sub> hold (@ Pf=2mW(+25°C)), CW Tc=0~+85°C	-1.5	—	1.5	dB
Rise time	t <sub>r</sub>	I <sub>b</sub> =Ith, 20-80%, Tc=0~+85°C	—	0.05	0.10	ns
Fall time	t <sub>f</sub>	I <sub>b</sub> =Ith, 80-20%, Tc=0~+85°C	—	0.10	0.15	ns
Extinction ratio	Er	10log(2mW/Pf(Ith)), Tc=0~+85°C	10	—	—	dB
Monitor current	I <sub>m</sub>	CW, VrP=5V, Tc=0~+85°C	50	—	1500	μA
Monitor dark current	I <sub>d</sub>	VrP=5V	—	1	10	nA
Monitor capacitance	C	VrP=5V, f=1MHz	—	—	10	pF

Note: \*1. Detail of peak wavelength specification

Rank T				
Channel No.	Min.	Typ.	Max.	Unit
-K515T	1269.0	—	1282.4	nm
-K060T	1293.5	—	1306.9	
-J625T	1318.0	—	1331.4	
-J205T	1342.5	—	1355.9	

5. Fiber pigtail specification

Parameter	Min.	Typ.	Max.	Unit
Type	Single Mode			—
Mode field diameter@1310nm	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. Optical isolator specification (for SLT4260-xnnnT Series)

Parameter	Condition	Min.	Typ.	Max.	Unit
Type		Single stage			—
Optical isolation	Tc=+25°C	30	—	—	dB
	Tc=0~+85°C	20	—	—	

Note: Since the SLT4210-xnnnT Series have no optical isolator inside, to integrate externally a similar isolator to the listed above is recommended for long reach of 2.5Gb/s transmission applications.

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	
SLT4210-CP/RH1-xnnnT	Type A	No isolator	SC/PC	Vertical (12mm)	SLT4210-CP-xnnnT	Not Compliant (*2)	
SLT4210-CS/RH1-xnnnT				Horizontal (12.7mm)	SLT4210-CS-xnnnT		
SLT4210-CN/RH1-xnnnT				Flangeless	SLT4210-CN-xnnnT		
SLT4210-XP-xnnnT			No connector	Vertical (12mm)	SLT4210-XP-xnnnT	Compliant	
SLT4210-XS-xnnnT				Horizontal (12.7mm)	SLT4210-XS-xnnnT		
SLT4210-XN-xnnnT				Flangeless	SLT4210-XN-xnnnT		
SLT4216-CP/RH1-xnnnT	Type C		No isolator	SC/PC	Vertical (12mm)	SLT4216-CP-xnnnT	Not Compliant (*2)
SLT4216-CS/RH1-xnnnT					Horizontal (12.7mm)	SLT4216-CS-xnnnT	
SLT4216-CN/RH1-xnnnT					Flangeless	SLT4216-CN-xnnnT	
SLT4216-XP-xnnnT				No connector	Vertical (12mm)	SLT4216-XP-xnnnT	Compliant
SLT4216-XS-xnnnT					Horizontal (12.7mm)	SLT4216-XS-xnnnT	
SLT4216-XN-xnnnT					Flangeless	SLT4216-XN-xnnnT	
SLT4260-CP/RH1-xnnnT	Type A	Single-stage isolator		SC/PC	Vertical (12mm)	SLT4260-CP-xnnnT	Not Compliant (*2)
SLT4260-CS/RH1-xnnnT					Horizontal (12.7mm)	SLT4260-CS-xnnnT	
SLT4260-CN/RH1-xnnnT					Flangeless	SLT4260-CN-xnnnT	
SLT4260-XP-xnnnT				No connector	Vertical (12mm)	SLT4260-XP-xnnnT	Compliant
SLT4260-XS-xnnnT					Horizontal (12.7mm)	SLT4260-XS-xnnnT	
SLT4260-XN-xnnnT					Flangeless	SLT4260-XN-xnnnT	
SLT4266-CP/RH1-xnnnT	Type C		Single-stage isolator	SC/PC	Vertical (12mm)	SLT4266-CP-xnnnT	Not Compliant (*2)
SLT4266-CS/RH1-xnnnT					Horizontal (12.7mm)	SLT4266-CS-xnnnT	
SLT4266-CN/RH1-xnnnT					Flangeless	SLT4266-CN-xnnnT	
SLT4266-XP-xnnnT				No connector	Vertical (12mm)	SLT4266-XP-xnnnT	Compliant
SLT4266-XS-xnnnT					Horizontal (12.7mm)	SLT4266-XS-xnnnT	
SLT4266-XN-xnnnT					Flangeless	SLT4266-XN-xnnnT	

Note:\*2. 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.: SLT42□□ - □□ / □□□ - □□□□T

(Customize code)

Code	Connector type
C	SC/PC
D	FC/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
6	Type C

Channel	Wavelength @25deg.
-K515	1275nm
-K060	1300nm
-J625	1325nm
-J205	1350nm

Code	Isolator
1	No isolator
6	Single stage

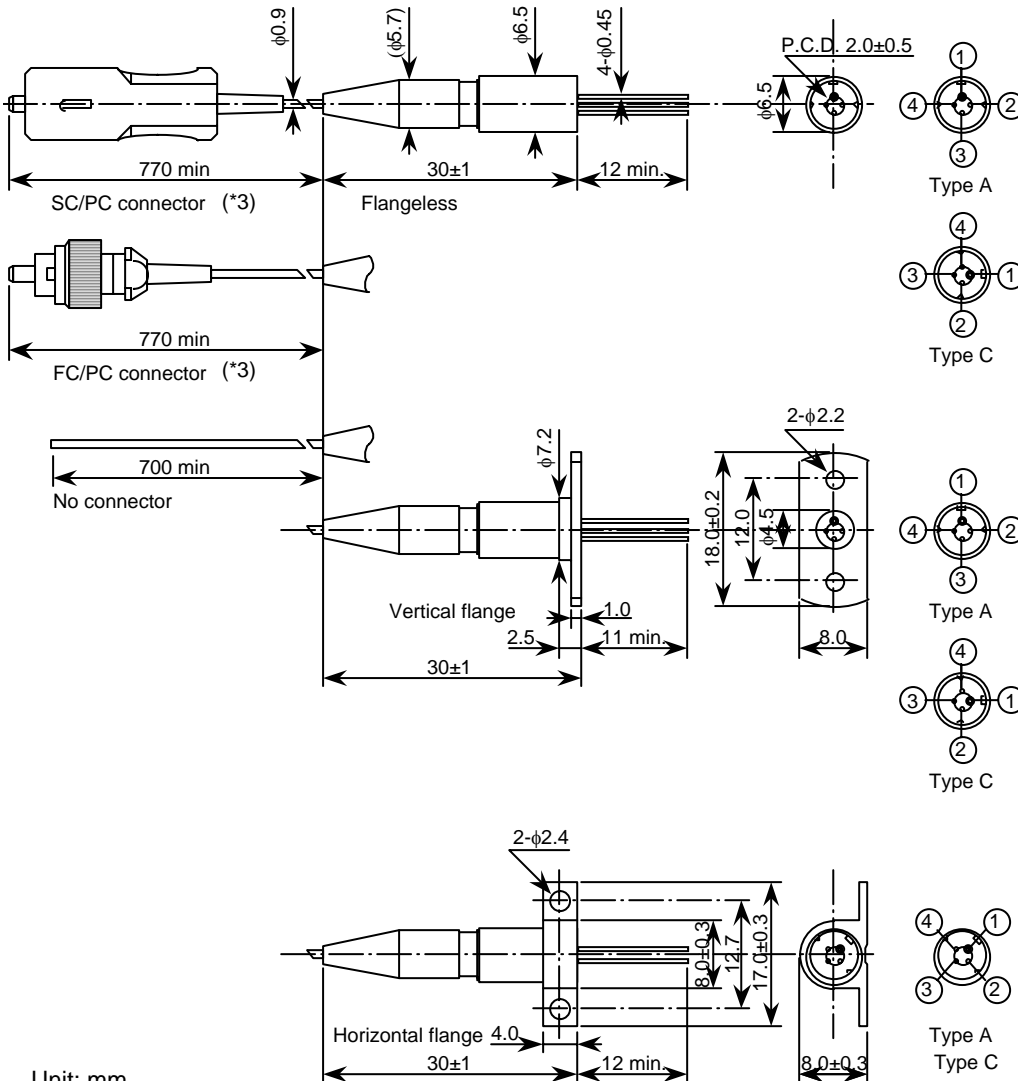
Pin No.	Pin function for typeC
1	(CASE)
2	LD cathode
3	PD anode
4	LD anode/ PD cathode

Pin No.	Pin function for typeA
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 and JIS compliant. Detailed design not specified in the IEC and JIS standards is a subject to change without notice.

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## 10. For More Information

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Revision Record

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HUW0224006-01A	Apr./16/02	Preliminary issue.	T. Nakanishi	Y. Yamasaki	M. Yoshimura
HUW0224006-01B	Mar./01/05	Changed Top from 0~70degC to 0~85degC. Changed lth, Pf, Vf, λp spec.	M. Furumai	Y. Yamasaki	M. Yoshimura
HUW0224006-01C	Nov./07/05	Added ordering information.	M. Furumai	Y. Yamasaki	M. Yoshimura
HUW0224006-01D	Aug./09/06	Added RoHS compliancy.	M. Furumai	N. Fukushima  Y. Yamasaki	M. Yoshimura