



Technical Specification
of
1.55 μ m MQW-DFB Laser Diode Module:
for 622Mb/s and 2.5Gb/s transmission

SLT4410 Series
SLT4460 Series

Sumitomo Electric Industries, Ltd.

1. General

SLT4410 Series and SLT4460 Series are 1.55 μ m InGaAsP/InP MQW-DFB laser diode modules designed for fiber optic communication systems. These modules are ideally suitable for long reach and intermediate reach of 622Mb/s and 2.5Gb/s transmission applications.

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

Especially SLT4460 Series have a single stage isolator integrated inside.

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~+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 (<10sec.)	Stemp	260	°C

4. Electrical and optical characteristics (Pf=2.0mW, Tc=25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold current	Ith	CW	—	10	20	mA
		CW, Tc=-40~+85°C	—	—	50	
Optical output power	Pf	CW, If=Ith+20mA	1.0	2	2.5	mW
		CW, If=Ith+20mA, Tc=-40~+85°C	0.6	—	4.0	
Operating voltage	Vf	CW, Tc=-40~+85°C	—	—	1.7	V
Slope efficiency	Se	CW, Average(Ith to Ith+20mA)	0.050	—	0.125	mW/mA
		CW, Average(Ith to Ith+20mA) Tc=-40~+85°C	0.030	—	0.200	
Peak wavelength	λ_p	CW	1540	—	1565	nm
		CW, Tc=-40~+85°C	1530	—	1575	
Side-mode suppression ratio	SSR	CW, Tc=-40~+85°C	30	—	—	dB
Tracking error	ΔPf	Im hold(@Pf=2.0mW(25°C)), CW Tc=-40~+85°C	-1.0	—	1.0	dB
Rise time	tr	Ib=Ith, 20-80%, Tc=-40~+85°C	—	0.05	0.10	nsec.
Fall time	tf	Ib=Ith, 80-20%, Tc=-40~+85°C	—	0.10	0.15	nsec.
Extinction ratio	Er	10log(2.0mW/Pf(Ith)), Tc=-40~+85°C	10	—	—	dB
Monitor current	Im	CW, VrP=5V, Tc=-40~+85°C	50	—	1500	μA
Monitor dark current	Id	VrP=5V	—	1	10	nA
Monitor capacitance	C	VrP=5V, f=1MHz	—	—	10	pF

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. Optical isolator specification (for SLT4460 Series)

Parameter	Condition	Min.	Typ.	Max.	Unit
Type		Single stage			—
Optical isolation	Tc=+25°C	30	—	—	dB
	Tc=-40~+85°C	20	—	—	

Note: Since the SLT4410 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	Pin Assignment	Optical Isolator	Connector Type	Flange Type (hole Pitch)
SLT4410-CS	Type A	No Isolator	SC/PC	Horizontal (12.7mm)
SLT4410-DP			FC/PC	Vertical (12mm)
SLT4410-XS			None	Horizontal (12.7mm)
SLT4416-DP	Type C		FC/PC	Vertical (12mm)
SLT4460-CP	Type A	Single Stage Isolator	SC/PC	Vertical (12mm)
SLT4460-CS				Horizontal (12.7mm)
SLT4460-DN			FC/PC	Flangeless
SLT4460-DP				Vertical (12mm)
SLT4460-DS				Horizontal (12.7mm)
SLT4460-QS			SC/APC	Horizontal (12.7mm)
SLT4460-XS			None	Horizontal (12.7mm)
SLT4461-CS	Type B		SC/PC	Horizontal (12.7mm)
SLT4461-XN			None	Flangeless
SLT4466-CN	Type C		SC/PC	Flangeless
SLT4466-CP				Vertical (12mm)
SLT4466-DP			FC/PC	Vertical (12mm)

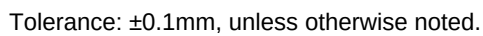
8. Precaution

- (1) Radiation emitted by laser devices can be dangerous to the eyes. Avoid eye or skin exposure to direct or scattered radiation.
- (2) The 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 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.
- (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.

Part No.: SLT44□□ -□□ /□□□

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

–Pin assignment



9. 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

info@sumitomoelectric.com

Europe

Sumitomo Electric Europe Ltd.
Unit 11, Magnolia House
Spring Villa Park, Spring Villa Road
Edgware, Middlesex, HA8 7EB

United Kingdom

Tel. (0181) 905-6167

Fax.(0181) 905-6120

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

www.sei.co.jp/Electro-optic/index_e.html

product_info@yfocs.sei.co.jp