



Technical Specification
of
1.31 μ m MQW-DFB Laser Diode Module
for 622Mb/s and 2.5Gb/s Transmission

STP3ZEn-xx

RoHS Compliant



1. General

STP3ZEn-xx are 1.31 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, single mode fiber pigtail and single stage isolator. These products are complaint with RoHS.

2. Package dimension and pin assignment

(See attached appendix.)

3. Absolute maximum ratings

Parameter	Symbol	Ratings	Unit
Storage temperature	Tstg	-40~+100	°C
Operating case temperature	Top	-40~+85	°C
Peak optical output power	Po	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	—	5.5	15	mA
		CW, Tc=-40~+85°C	—	—	50	
Optical output power	Pf	CW, If=Ith+20mA	1.5	2.0	3.5	mW
		CW, If=Ith+20mA, Tc=-40~+85°C	0.75	—	5.0	
Operating voltage	Vf	CW, Tc=-40~+85°C	—	—	1.6	V
Peak wavelength	λ_p	CW	1300	1310	1320	nm
		CW, Tc=-40~+85°C	1290	—	1330	
Spectral width	$\Delta\lambda$	CW, RMS, Tc=-40~+85°C	—	—	1	nm
Side-mode suppression ratio	SSR	CW, Tc=-40~+85°C	30	—	—	dB
Tracking error	ΔPf	Im hold(@Pf=2mW(+25°C)), CW Tc=-40~+85°C	-1.0	—	1.0	dB
Rise time(*1)	tr	Ib=Ith, 20-80%, Tc=-40~+85°C	—	0.10	0.15	ns
Fall time(*1)	tf	Ib=Ith, 80-20%, Tc=-40~+85°C	—	0.10	0.15	ns
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

Note: *1. Measured with the standard equipment of SEDI.

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 (λ =1310nm, unless otherwise noted.)

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

7. Ordering Information

Part Number for	Pin assignment	Optical isolator	Connector type	Flange type (hole pitch)
STP3ZE0-CS	Type A	Single stage isolator	SC/PC	Horizontal (12.7mm)
STP3ZE0-CN				Flangeless
STP3ZE0-DS			FC/PC	Horizontal (12.7mm)
STP3ZE0-DN				Flangeless
STP3ZE0-QS			SC/Angled PC	Horizontal (12.7mm)
STP3ZE0-QN				Flangeless
STP3ZE0-XS			No connector	Horizontal (12.7mm)
STP3ZE0-XN				Flangeless
STP3ZE6-CS	Type C		SC/PC	Horizontal (12.7mm)
STP3ZE6-CN				Flangeless
STP3ZE6-DS			FC/PC	Horizontal (12.7mm)
STP3ZE6-DN				Flangeless
STP3ZE6-QS			SC/Angled PC	Horizontal (12.7mm)
STP3ZE6-QN				Flangeless
STP3ZE6-XS			No connector	Horizontal (12.7mm)
STP3ZE6-XN				Flangeless

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 laser diodes 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.: STP3ZE \square - \square \square

Code	Connector Type
C	SC/PC
D	FC/PC
Q	SC/Angled PC
X	No Connector

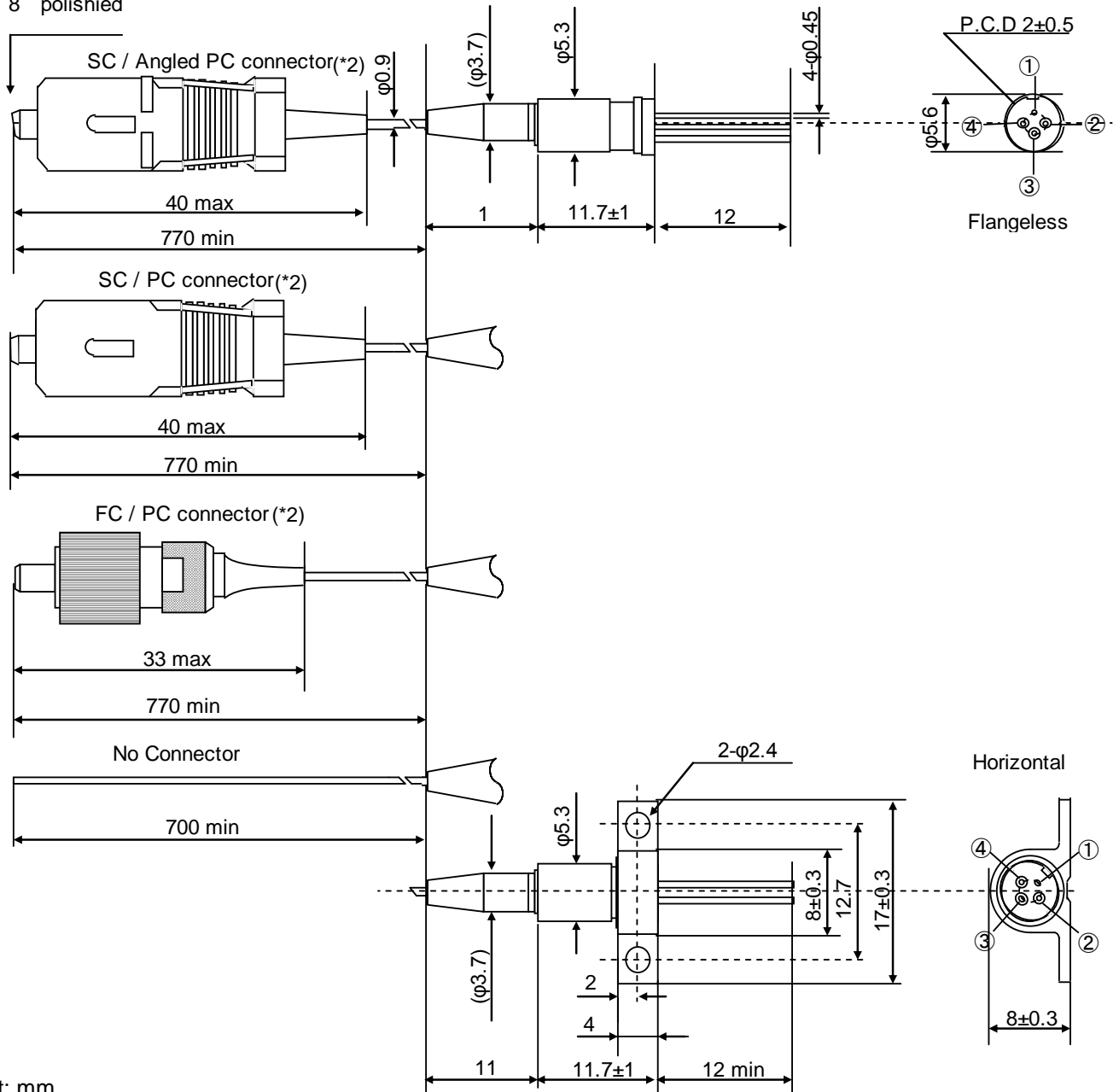
Code	Flange Type
N	Flangeless
S	Horizontal

Code	Pin Assignment
0	Type A
6	Type C

Pin No.	Type A Pin Function
1	LD Anode(Case)
2	LD Cathode
3	PD Cathode
4	PD Anode

Pin No.	Type C Pin Function
1	(Case)
2	LD Cathode
3	PD Anode
4	LD Anode / PD Cathode

8° polished



Unit: mm

Tolerance ± 0.1 mm, unless otherwise noted.

Note:*2. IEC and JIS compliant. Detailed design not specified in the IEC and JIS standards is a subject to change without notice.

9. For More Information

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HUW1224067-01A	Aug.14.12	Initial issue.	K. Yoshida	T. Wakasaki	Y. Matsumura
HUW1224067-01B	Oct. 9.12	Added the optical isolator specification.	Y. Matsumura	T. Wakasaki	Y. Matsumura
HUW1224067-01C	Dec. 19.12	Removed Fiber coupling power specification Corrected Rise time from 0.10ns MAX to 0.15ns MAX	T. Wakasaki	T. Okada	Y. Matsumura

Sumitomo Electric reserves the right to change the design and or specifications of SEDI's products without notice at any time.