



Preliminary Specification  
of  
Bi-directional Transceiver Devices  
(for 622Mbps downstream, and  
155Mbps upstream transmission applications)  
SXT4720-S  
(1.3 $\mu$ m(T)/1.49 $\mu$ m(R))



## 1. General

SXT4720-S is a bi-directional transceiver device suitable for fiber optic bi-directional transmission applications, 622Mbps downstream and 155Mbps upstream.

A laser diode and a monitoring photodiode as transmitter components and a detector PD and a pre-Amplifier as digital receiver components are mounted into a package integrated with a single mode fiber pigtail.

## 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	-40~+85	°C
Forward current (LD)	IfL	150	mA
Reverse voltage (LD)	VrL	2	V
Reverse voltage (monitoring PD)	VrMP	15	V
Reverse current (monitoring PD)	IrMP	2	mA
Supply voltage (IC)	Vcc	4	V
Reverse voltage (detector PD)	VrDP	5	V
Reverse current (detector PD)	IrDP	2	mA
Soldering temperature (<10s)	Stemp	260	°C

#### 4. Electrical and optical characteristics

##### 4-1 . Transmitter (Pf=+2dBm, Tc=+25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold current	I <sub>th</sub>	CW	—	4	15	mA
		CW, Tc=-40~+85°C	—	—	45	
Operating output power	P <sub>f</sub>	CW, I <sub>f</sub> =I <sub>th</sub> +20mA	0	2	4	dBm
		CW, I <sub>f</sub> =I <sub>th</sub> +20mA, Tc=-40~+85°C	-3	—	6	
Operating voltage	V <sub>f</sub>	CW, Tc=-40~+85°C	—	—	1.8	V
Central wavelength	λ <sub>c</sub>	CW	1270	1300	1340	nm
		CW, Tc=-40~+85°C	1260	—	1360	
Spectral width	Δλ	CW, Tc=-40~+85°C (RMS)	—	1.5	5	nm
Tracking error	ΔP <sub>f</sub>	I <sub>m</sub> hold (@P <sub>f</sub> =2dBm(25°C)) CW, Tc=-40~+85°C	-1.5	—	1.5	dB
Monitor current	I <sub>m</sub>	CW, V <sub>r</sub> P=5V, Tc=-40~+85°C	80	—	1600	μA
Monitor dark current	I <sub>dmp</sub>	V <sub>r</sub> P=5V	—	1	10	nA
Monitor capacitance	C <sub>mp</sub>	V <sub>r</sub> P=5V, f=1MHz	—	—	10	pF

##### 4-2 . Digital Receiver (Ta=+25°C, Vcc=3.3V, unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Receiver wavelength	λ <sub>c</sub>	—	1480	1490	1500	nm
Sensitivity	S <sub>min</sub>	λ=1490nm, 622Mbps, BER=10 <sup>-10</sup> ER=10dB (*1)	—	—	-29	dBm
Overload	S <sub>max</sub>	λ=1490nm, 622Mbps, BER=10 <sup>-10</sup> ER=10dB (*1)	-5	—	—	dBm
Pre-Amp. Supply current	I <sub>cc</sub>		—	35	45	mA
Optical return loss	ORL	λ=1490nm	20	—	—	dB

Note:\*1.Measured with the standard equipment of SEI.

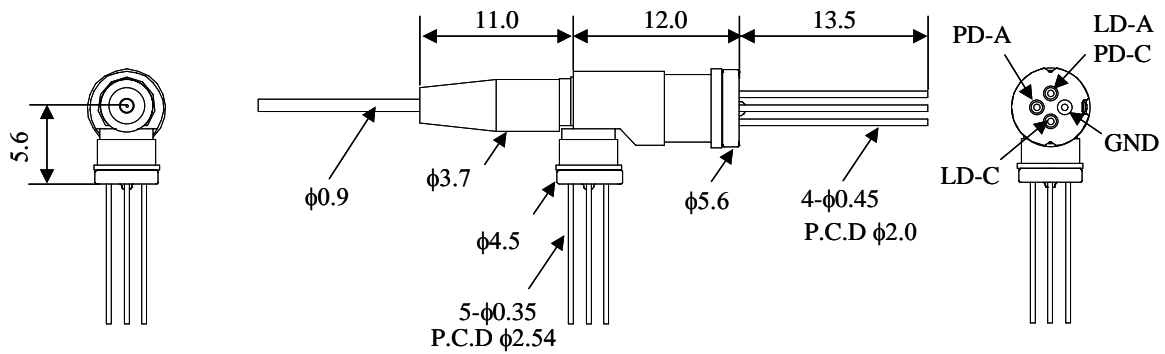
## Precaution

- (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.

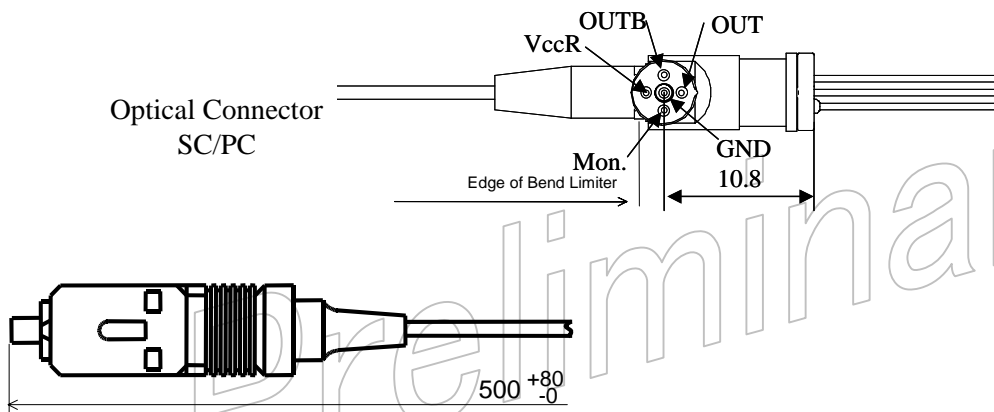
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# Outline Drawings

## Transmitter



## Receiver



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