



Preliminary Specification
of
Bi-directional Transceiver Devices
(for 1.25Gbps 1.49/1.3 transmission applications)
SXT4432-S (1.49 μ m(T)/1.3 μ m(R))



1. General

SXT4432-S is a bi-directional transceiver device suitable for 1.25Gbps simplex fiber optic bi-directional transmission applications.

A laser diode and a monitoring photodiode as transmitter components and a detector APD and a pre-Amplifier as 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	0~+70	°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)	Vdd	4	V
Supply current (IC)	Idd	65	mA
APD Reverse current	Ir	2	mA
APD Forward current	If	2	mA
Soldering temperature (<10s)	Stemp	260	°C

4. Electrical and optical characteristics

4-1 . Transmitter (Pf=+3dBm, Tc=+25°C, unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Threshold current	Ith	CW, Tc=25°C	—	8	15	mA
		CW, Tc=0~+70°C	—	—	50	
Operating output power	Pf	CW, If=Ith+20mA, Tc=25°C	3	—	6	dBm
		CW, If=Ith+20mA, Tc=0~+70°C	0	—	—	
Operating voltage	Vf	CW, Tc=0~+70°C	—	—	1.8	V
Monitor current	Im	CW	0.05	—	1.5	mA
Monitor dark current	Id	Vr=5V	—	1	10	nA
Peak wavelength	λ_p	CW, Tc=0~+70°C	1480	—	1500	nm
Side-mode suppression ratio	SSR	CW, Tc=0~+70°C	30	—	—	dB
Spectral width	$\Delta\lambda$	CW, Tc=0~+70°C (-20dB)	—	—	1	nm
Tracking error	ΔPf	Im hold (@ Pf=3dBm(25°C)) CW, Tc=0~+70°C	-1	—	1	dB

4-2 . Receiver (Ta=+25°C, Vdd=3.3V, Vss=GND unless otherwise noted.)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Receiver wavelength	λ_c	—	1260	1310	1360	nm
Breakdown voltage (APD)	VBR	Ir=100uA	50	65	70	V
Reverse voltage (APD)	VRM10	M=10	45	60	65	V
Dark current (APD)	Id	Vpd=0.9VBR	—	80	120	nA
		Vpd=0.9VBR, Ta=70°C	—	1000	1500	
Responsivity	R	$\lambda=1310\text{nm}$, M=1	0.6	—	—	A/W
Sensitivity	Smin	$\lambda=1310\text{nm}$, M=10, BER=10 ⁻¹² (*1)	—	—	-30	dBm
Pre-Amp. Supply current	Idd		—	43	60	mA
Optical return loss	ORL	$\lambda=1310\text{nm}$	20	—	—	dB
Optical crosstalk	Xopt	(*2)	—	—	-47	dB

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

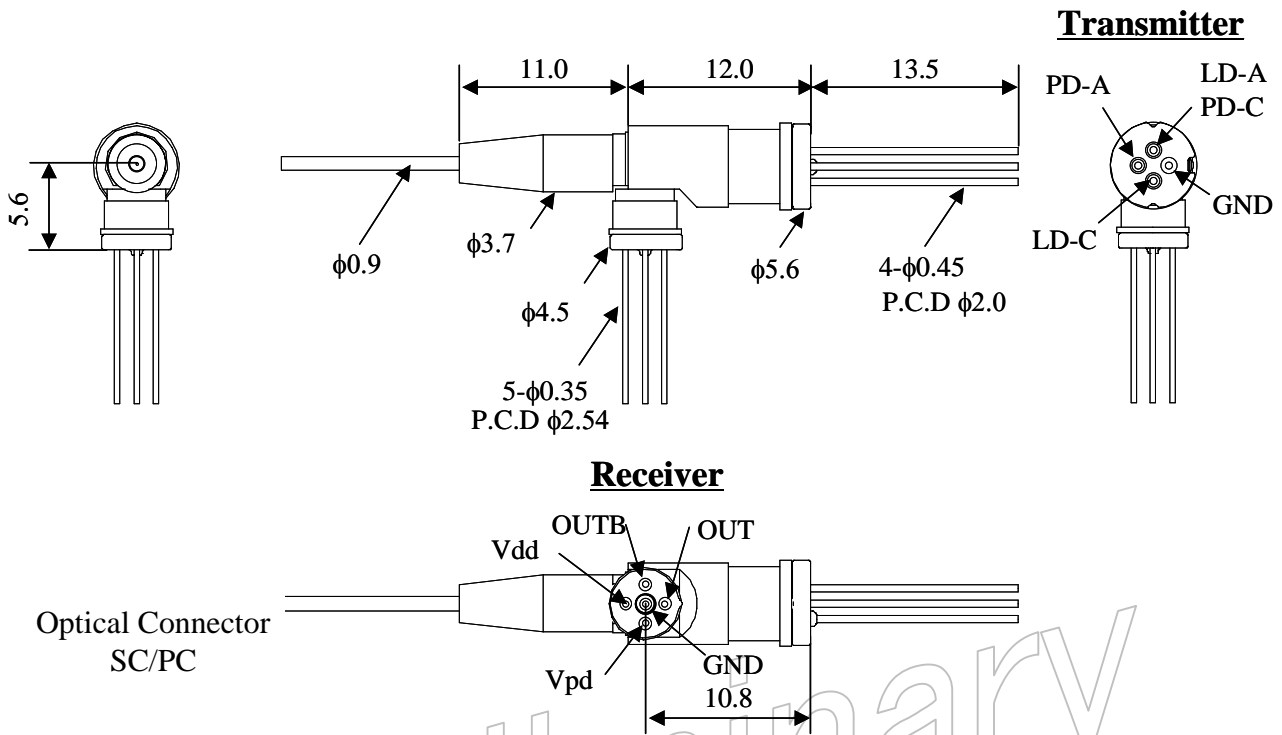
Note:*2.Xopt=10xlog{(I_{Xopt}/R)/Pf}. I_{Xopt} is photocurrent at Pf=3dBm.

5. 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.

Preliminary

Outline Drawings



Revision Record

Document No.	Date of issue	Description	Incorporated by	Checked by	Approved by
HUW0324105-01A	Sep.25,2003	Preliminary issue.	M. Furumai	T. Kounosu	M. Yoshimura
HUW0324105-01B	Apr.26,2004	Corrected wavelength spec. Changed max. Im spec. from 1.0mA to 1.5mA.	M. Furumai	T. Kounosu Y. Yamasaki	M. Yoshimura
HUW0324105-01C	June,07,2004	Added Pf Min. spec. at Tc=25°C and Tc=0~+70°C.	M. Furumai	Y. Yamasaki	M. Yoshimura

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