●DEVICE NUMBER: OSTX -1001/H4
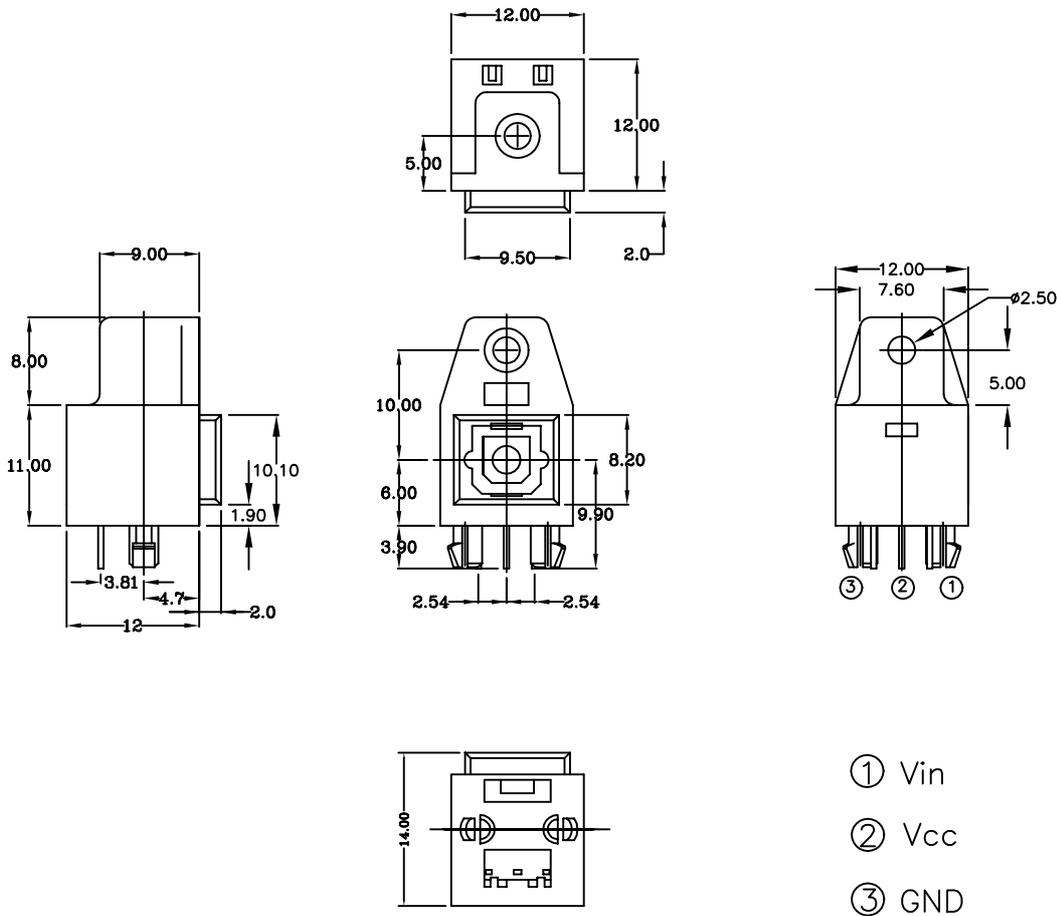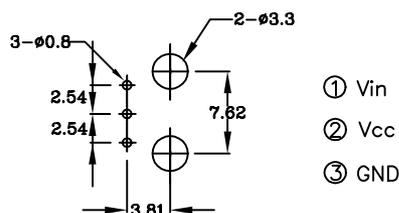
●Features:

1. Uni-directional data transmission using plastic fiber.
2. Operating voltage: 4.75 to 5.25 V.
3. TTL and high speed C-MOS LOGIC compatible.
4. Compatible Toshiba Toslink.

●Outline Dimensions

① Vin

② Vcc

③ GND

●Recommended drilling as viewed from the soldering face

① Vin

② Vcc

③ GND

NOTES: Tolerance is ±0.3 mm unless otherwise noted.

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PHOTO LINK TRANSMITTER SPECIFICATION

●**Absolute Maximum Ratings　(Ta=25℃)**

Parameter	Symbol	Rating	Unit
Power Dissipation	Pd	100	mw
Supply voltage	Vcc	-0.5 to + 7	V
Input voltage	Vin	-0.5 to Vcc + 0.5	V
Operating temperature	Topr	-20 to + 70	℃
Storage temperature	Tstg	-30 to + 80	℃
Soldering temperature	Tsol	260 For 5sec	

●**Electro-Optical Characteristics　(Ta=25℃)**

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Peak wavelength	λp		---	660	---	nm
Operating supply voltage	Vcc		4.75	5.0	5.25	V
Data rate	T	NRZ code	---	---	12.0	Mbps
Transmission Distance	D	Using All Plastic Fiber (970/1000μm) and TORX179	0.2	---	5	m
Optical power output	Pc	Refer to Fig. 1	-21	-17	-15	dBm
Dissipation current	Icc	Refer to Fig. 2	---	8	13	mA
High level input voltage	V_{iH}	Refer to Fig. 2	1.5	---	Vcc	V
Low level input voltage	V_{iL}	Refer to Fig. 2	0	---	0.8	V
Low→High delay time	t_{PLH}	Refer to Fig. 3	---	---	180	ns
High→Low delay time	t_{PHL}	Refer to Fig. 3	---	---	180	ns
Pulse width distortion	$\triangle tw$	Refer to Fig. 3	-25	---	+25	ns
Jitter	$\triangle tjr$	Refer to Fig. 3	---	4	25	ns

●**Mechanical Characteristics (Ta=25℃)**

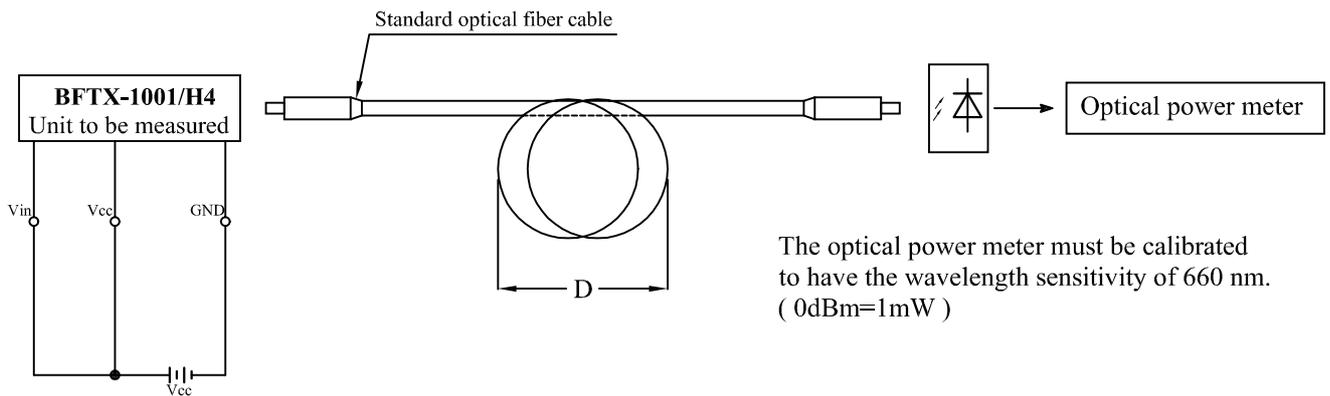| Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Insertion Force		＊1	---	---	40	N
Withdrawal Force		＊1	6	---	40	N
Torque for Self-Tap		Using self-tapping screw (M3 x 8)	60	---	100	N-cm

＊1： Using standard optical fiber cable (970/1000 μm)

●Fig.1 Measuring Method of Optical Output Coupling with Fiber.

Standard optical fiber cable

BFTX-1001/H4
Unit to be measured

Vin   Vcc   GND

Vcc

D

Optical power meter

The optical power meter must be calibrated
to have the wavelength sensitivity of 660 nm.
(0dBm=1mW)

Notes: (1) Vcc=5.0V (State of operating)
           (2) To bundle up the standard fiber optic cable, make it into a loop with the diameter D=10cm or more.

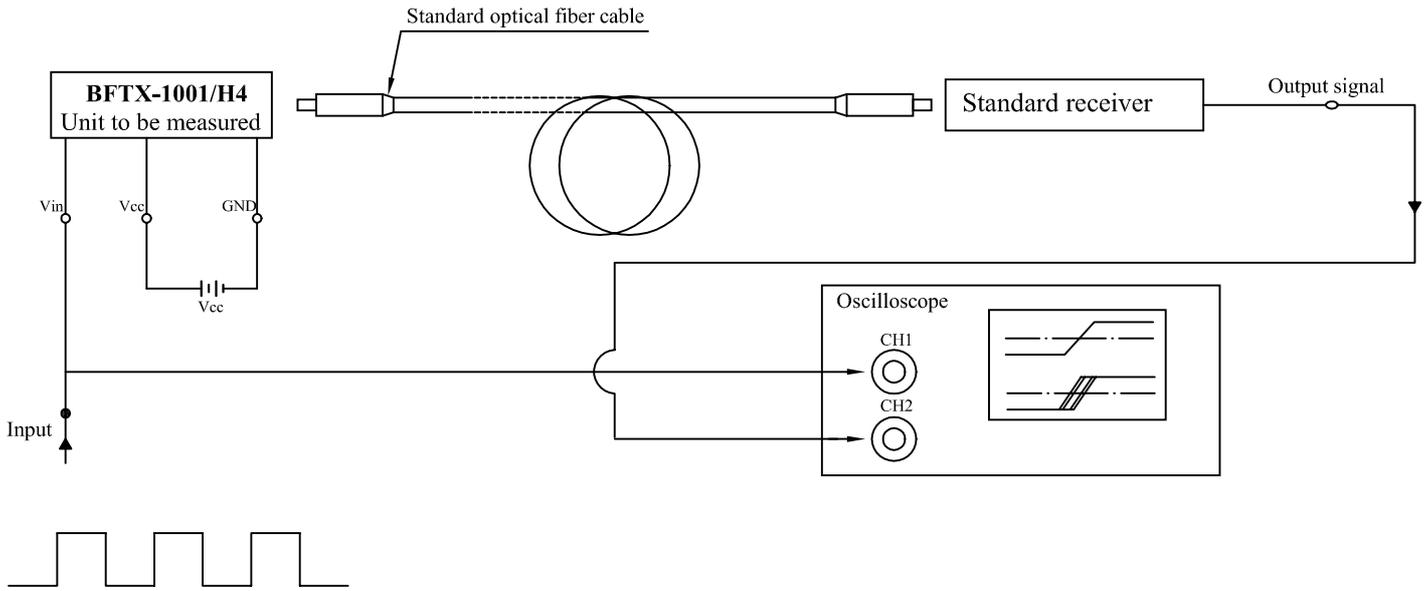## ●Fig.2 Measuring Method of Input Voltage and Supply Current.

Standard optical fiber cable

BFTX-1001/H4
Unit to be measured

Vin   Vcc   GND

Vin   Icc

Vcc

D

Optical power meter

The optical power meter must be calibrated
to have the wavelength sensitivity of 660 nm.
(0dBm=1mW)
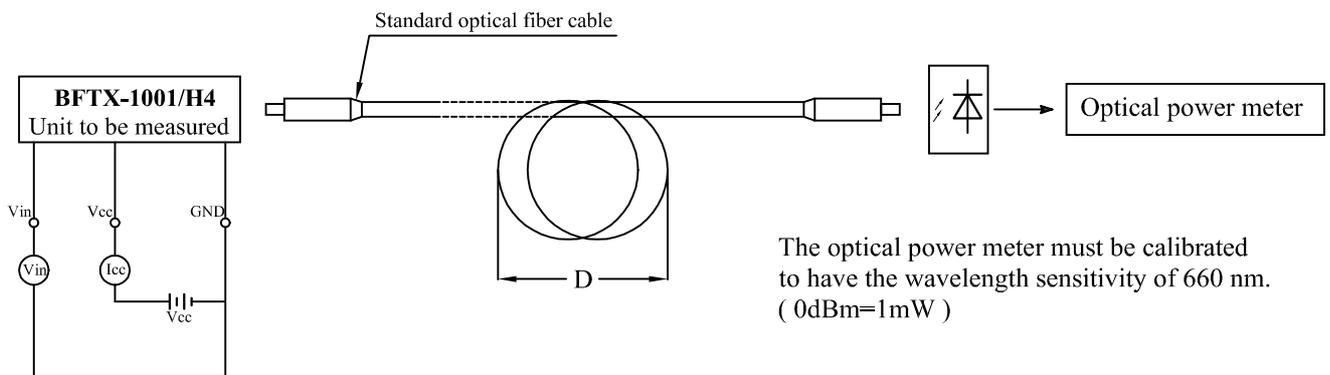
Input conditions and judgment method Supply Current.

Conditions	Judgment method
Vin=2.1V or more	-21 dBm$\leq$Pc$\leq$-15 dBm, Icc=13mA or less
Vin=0.8 V or less	Pc$\leq$-36 dBm, Icc=13mA or less

Notes: Vcc=5.0V (State of operating).

●**Fig.3 Measuring Method of Pulse Response and Jitter.**

Standard optical fiber cable

BFTX-1001/H4
Unit to be measured

Vin   Vcc   GND

Vcc

Input

Standard receiver

Output signal

Oscilloscope
CH1
CH2

12Mbps NRZ code, duty 50%

Input signal — 50%

t_{PLH} t_{PHL}

Standard receiver output — 50%

△tjr   △tjf
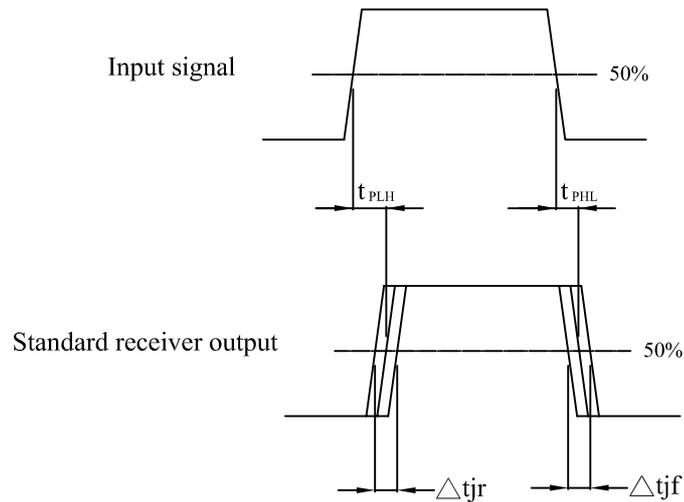
Test item

| Test item	Symbol	Test item
Low→High pulse delay time	t_{PLH}	Refer to the above prescriptions.
High→Low pulse delay time	t_{PHL}	Refer to the above prescriptions.
Pulse width distortion	△tw	△tw=t_{PHL} -$t_{PLH.}$
Low→High Jitter	△tjr	Set the trigger on the rise of input signal to measure the jitter of the rise of output.
High→Low Jitter	△tjf	Set the trigger on the fall of input signal to measure the jitter of the fall of output.

Notes: (1) The waveform write time shall be 4 seconds. But do not allow the waveform to be distorted by increasing the brightness too much.
(2) Vcc=5.0V (State of operating)
(3) To probe for the oscilloscope must be more than 1MΩ and less than 10pF.

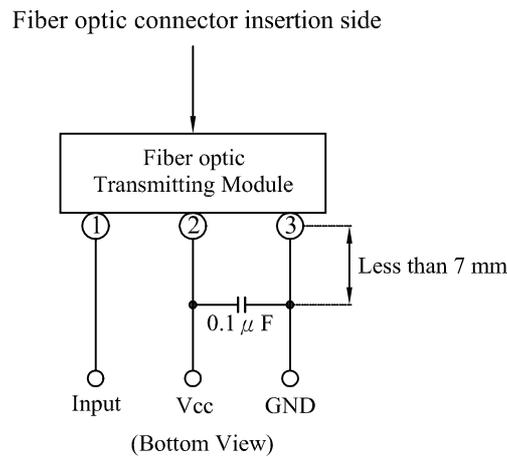●DEVICE NUMBER: OSTX-1001/H4   PAGE: **5**

REVISION: 1.0

●**System Configuration Example:**
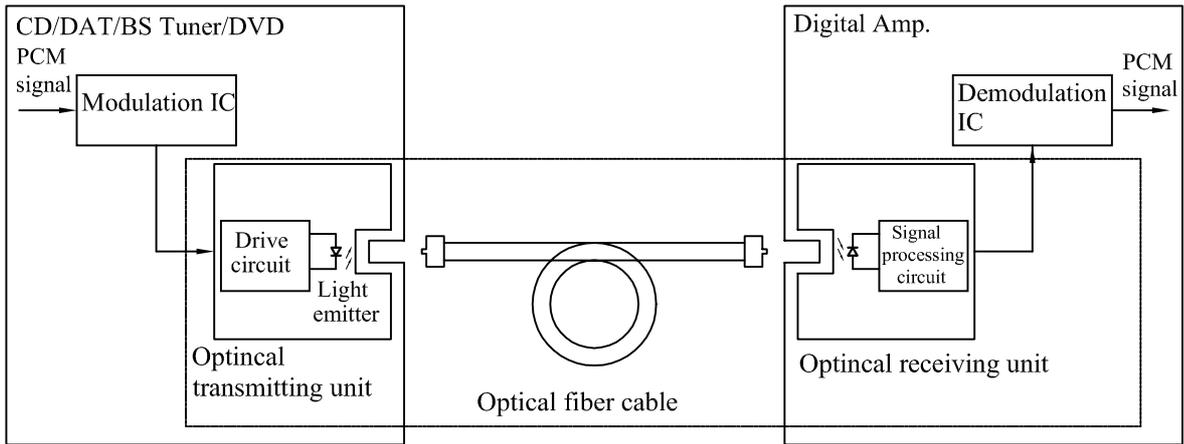
●**Application Circuit:**

OPTO-SENSOR LTD.

PHOTO LINK TRANSMITTER SPECIFICATION

RELIABILITY TEST

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS C 7021 :B-1	Connect with a power Vcc,Vin=5V Ta=Under room temperature Test time=1,000hrs	0/20
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS C 7021 :B-11	Ta=85℃±5℃ RH=90%-95% Test time=240hrs	0/20
	High Temperature Storage	MIL-STD-883:1008 JIS C 7021 :B-10	High Ta=105℃±5℃ Test time=1,000hrs	0/20
	Low Temperature Storage	JIS-C-7021 :B-12	Low Ta=-55℃±5℃ Test time=1,000hrs	0/20
Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS C 7021 :A-4	-55℃ ~ 25℃ ~ 105℃ ~ 25℃ 30min 5min 30min 5min Test Time=10cycle	0/20
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011	-55℃±5℃ ~ 105℃±5℃ 10min 10min Test Time=10cycle	0/20
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS C 7021 :A-1	T.sol=260±5℃ Dwell Time=5±1sec.	0/20
	Solder ability	MIL-STD-202:208D MIL-STD-750:2026 MIL-STD-883:2003 JIS C 7021 :A-2	T.sol=230±5℃ Dwell Time=5±1sec.	0/20
	Lead Bending Stress	MIL-STD-750:2036 JIS C 7021 :A-11	0˚~90˚~0˚bend , 3 cycles Weight 250g	0/20

JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

Parameter	Symbol	Measuring conditions	Judgement criteria for failure
Optical power output	Pc	Vcc,Vin=5V	-21dBm~-15dBm
Dissipation current	Icc	Vcc,Vin=5V	Over Ux2

Note: 1.U means the upper limit of specified characteristics.   S means initial value.

2.Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

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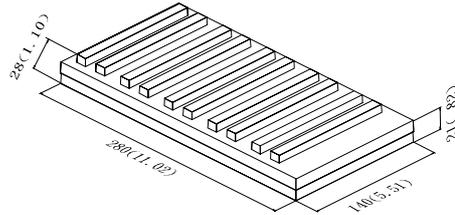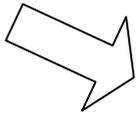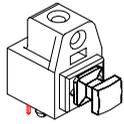## PHOTO LINK TRANSMITTER SPECIFICATION
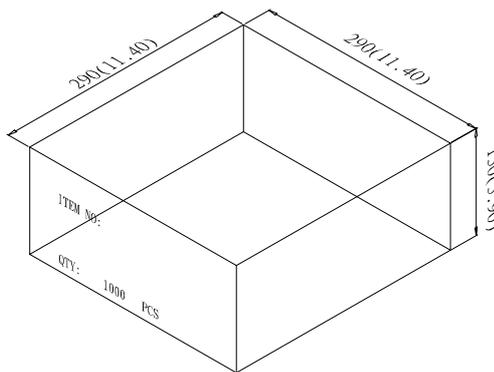
PACKAGING DIMMENSIONS

● DEVICE NUMBER: OSTX-1001/H4

● Package Method:(unit:mm)

Tray
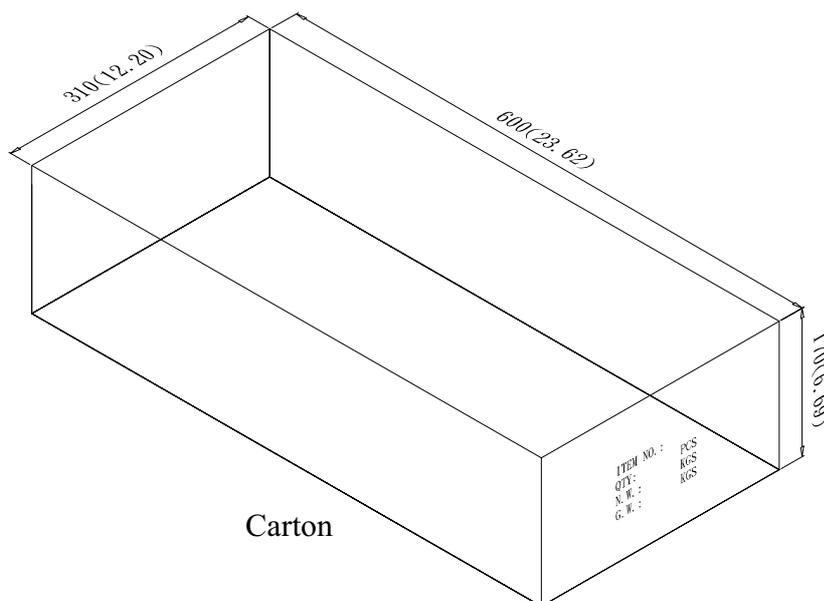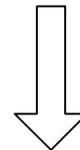
100 Pcs / Tray
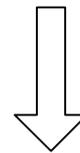
Inner box

10 Tray / Inner box

Carton

2 Inner box / Carton

NOTES : Tray : Tolerance is ± 5 mm unless otherwise noted.

Inner box : Tolerance is ± 10 mm unless otherwise noted.

Carton : Tolerance is ± 10 mm unless otherwise noted.