

● **Features:**

1. Unit-directional data transmission using plastic fiber.
2. High speed signal transmission.
3. Operating voltage:2.7 to 5. 5V.
4. TTL and high speed C-MOS logic compatible.
5. Compatible Toshiba Toslink.
6. Good ESD protection:up to 7KV.
7. This product doesn't contain restriction substance, comply ROHS standard

● **Descriptions**

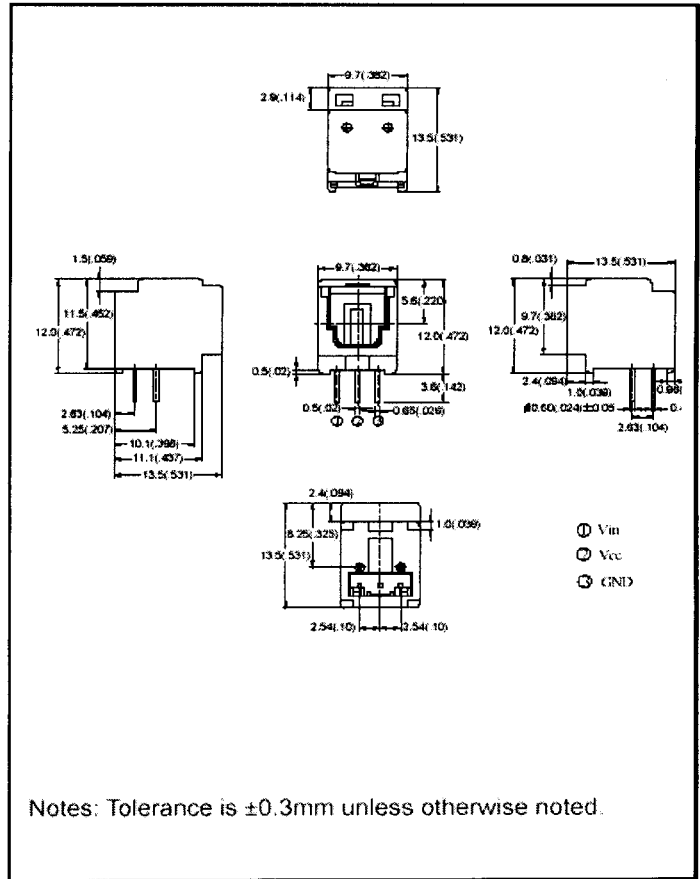
The light transmitting unit is a standard-package product with connector and opto-electric component packaged with LED and drive IC. The function of unit changes the electric signal into light signal and be transmitted by plastic fiber.

The unit is operated at single 2.7V~5. 5V and the input signal is TTL compatible. The BFTX-1001/HS has a maximum operating speed of 12Mbps. The light signal is coupled into plastic fiber by connector. The unit has high performance at low dissipation current, steady light output and efficient light coupling.

● **Application:**

- ◆ Audio equipment
- ◆ Automobile
- ◆ Digital audio
- ◆ PC, Notebook
- ◆ Sound card

● **Package Dimensions**



● **Absolute Maximum Ratings (Ta=25°C)**

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	
Operating temperature	Topr	-20 to +70	°C
Storage temperature	Tstg	-30 to +80	
Soldering temperature	Tsol	260 For 5sec	



● Electro-Optical Characteristics (Ta=25°C)

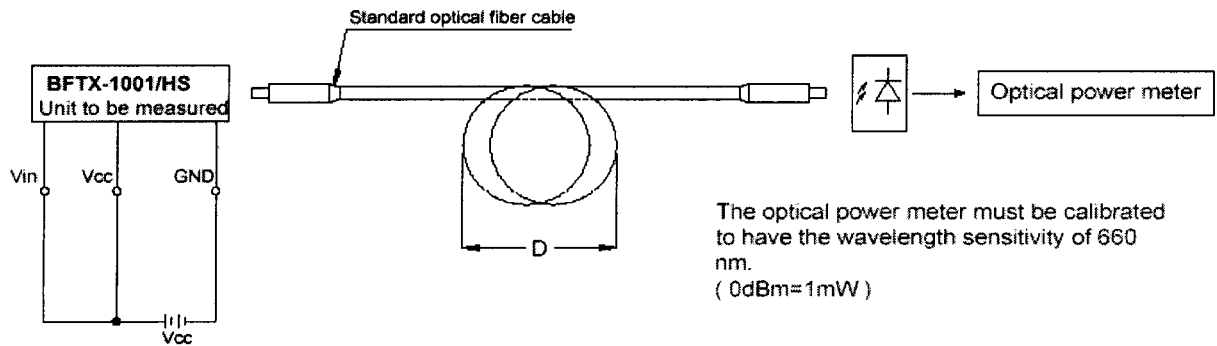
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Peak wavelength	λ_p		---	660	---	nm
Operating supply voltage	Vcc		2.7	5.0	5.5	V
Data rate	T	NRZ code	---	---	12.0	Mbps
Transmission Distance	D	Using All Plastic Fiber (970/1000 μ m) and TORX179	0.2	---	5	m
Optical power output	Pc	Refer to Fig. 1	-21	-17	-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	
Low → High delay time	t _{PLH}	Refer to Fig. 3	---	---	100	ns
High → Low delay time	t _{PHL}	Refer to Fig. 3	---	---	100	
Pulse width distortion	Δtw	Refer to Fig. 3	-15	---	+15	
Jitter	Δt_{jr}	Refer to Fig. 3	---	2	15	

● Mechanical Characteristics (Ta=25°C)

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

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

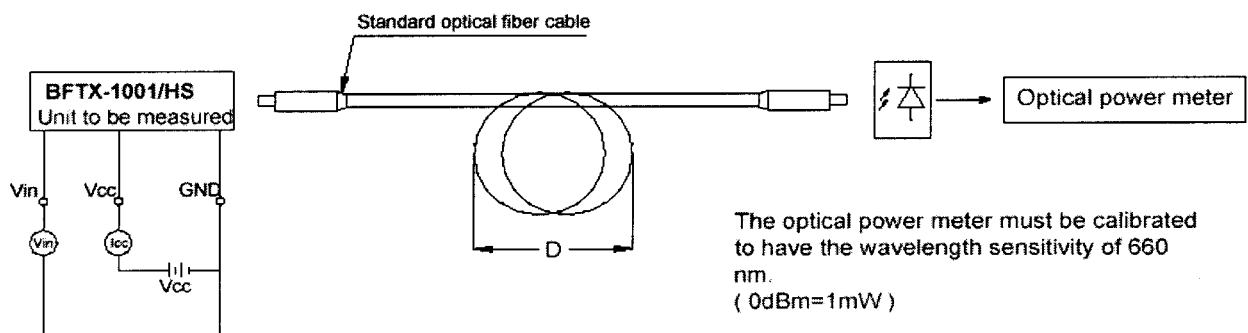
● Fig.1 Measuring Method of Optical Output Coupling with Fiber.



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.

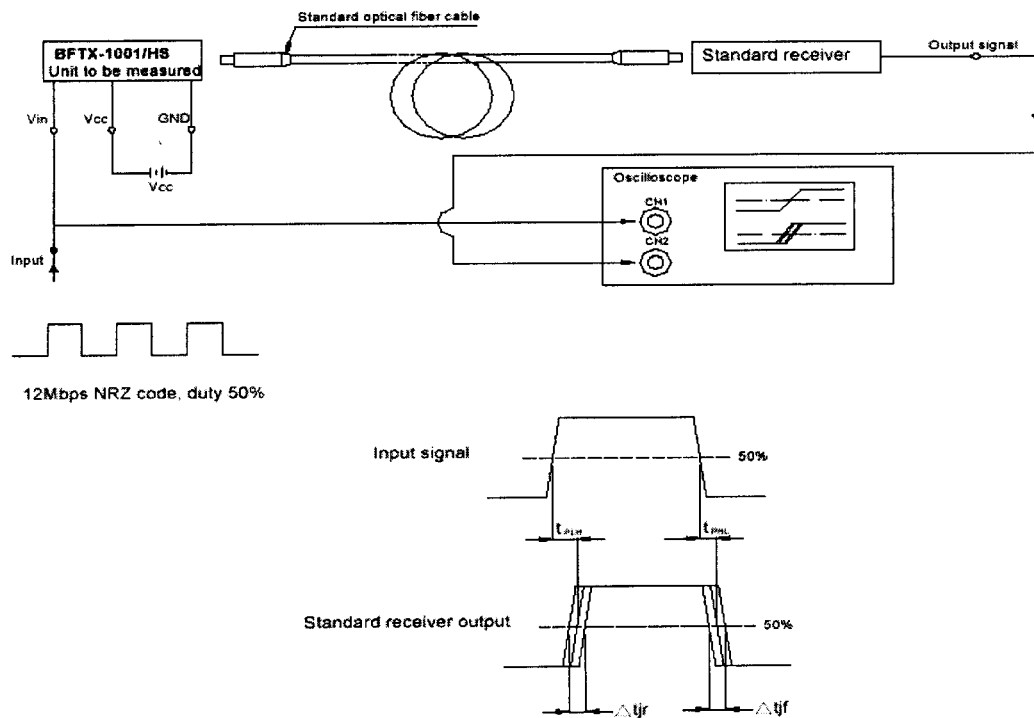


Input conditions and judgment method Supply Current.

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

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

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



Test item

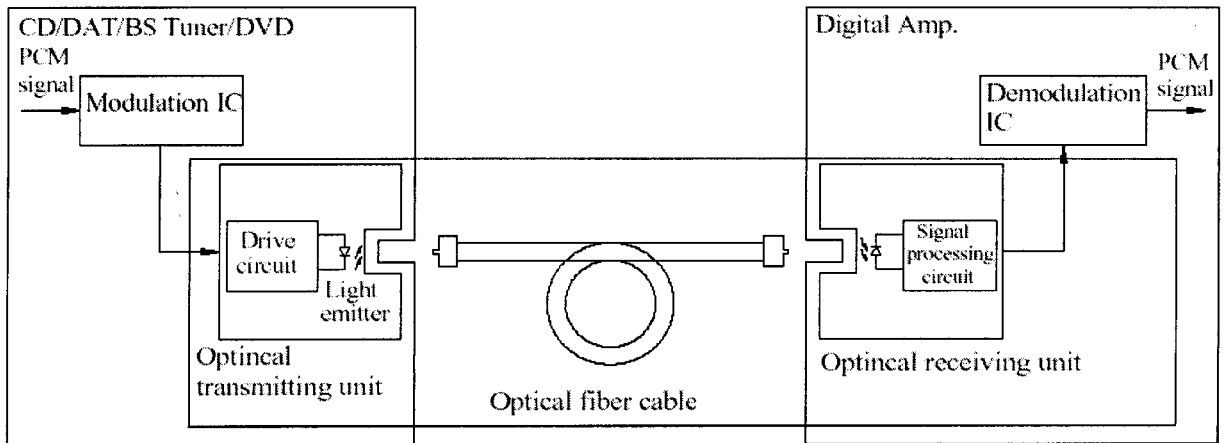
Test item	Symbol	Test item
Low → High pulse delay time	t _{PLH}	Refer to the above prescriptions.
High → Low pulse delay time	t _{PHL}	Refer to the above prescriptions.
Pulse width distortion	Δtw	Δtw = t _{PHL} - t _{PLH}
Low → High Jitter	Δt _{jr}	Set the trigger on the rise of input signal to measure the jitter of the rise of output.
High → Low Jitter	Δt _{jf}	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.

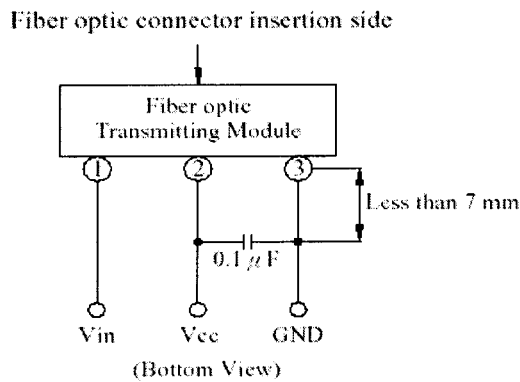
(2) Vcc=5.0V (State of operating)

(3) To probe for the oscilloscope must be more than 1MΩ and less than 10pF.

● **System Configuration Example:**



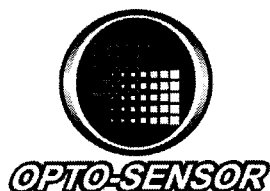
● **Application Circuit:**



● **Recommended drilling as viewed from the soldering face**



NOTES: Tolerance is ± 0.3 mm unless otherwise noted.



●RELIABILITY TEST

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-883E:1016	Ta=25°C±5°C IF=50Ma,Vce=5V Time:1000hrs	0/20
	High Temperature High Humidity Storage	MIL-STD-883E:1004.7 MIL-STD-202F:103B	Ta=65°C±5°C RH=90%-95% time=240hrs	0/20
	High Temperature Storage	MIL-STD-883E:1008.2	Ta=85°C±5°C time=240hrs	0/20
	Low Temperature Storage	JIS-C-7021:B-12	Low Ta=-35°C±5°C time=240s±2hrs	0/20
Environmental Test	Temperature Cycling	MIL-STD-883E:1010.7	-35°C±5°C(30min)~25±5°C(5min)~ 85°C±5°C(30min)~25±5°C(5min) 10cycle	0/20
	Thermal Shock	MIL-STD-883E:1011.9 MIL-STD-202F:107G	-35°C±5°C(10min)~85°C±5°C (10min)15cycle	0/20
	Solder Resistance	MIL-STD-202F:210B	T.sol=300±10°C Time=10±2sec	0/20
	Solder ability	MIL-STD-883E:2003.7 MIL-STD-202F:208F1	T.sol=270±5°C Time=5±0.5sec	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	-23dBm~-15dBm
Dissipation current	Icc	Vcc,Vin=5V	Over Ux2

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

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.