Features:

1. Uni-directional data transmission using plastic fiber.
2. High speed signal transmission.
3. Operating voltage:4.7 to 5. 5V.
4. TTL and high speed C-MOS logic compatible.
5. Compatible Sharp opto link.
6. Good ESD protection:up to 5KV.
7. This product doesn't contain restriction substance, comply RoHS standard

Descriptions

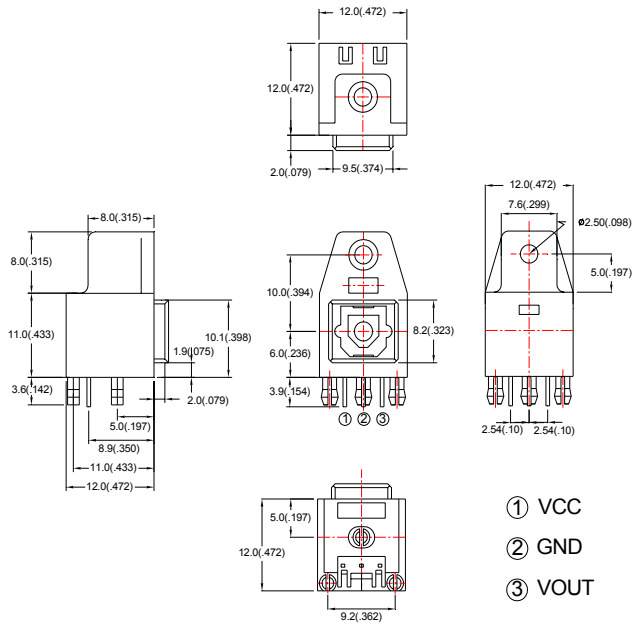
The light receiving unit is a standard-package product with connector and opto-electric component packaged with PD and I/V amplifier IC. The function of unit changes the light signal into electric signal.

The unit is operated at +5V and the input signal is TTL compatible. The BFRX-1001/H3 has a maximum operating speed of 6 Mbps.

Application:

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

Package Dimensions



Notes: Tolerance is ±0.3mm unless otherwise noted.

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Storage temperature	Tstg	-40 to + 70	℃
Operating temperature	Topr	-40 to + 85	℃
Supply voltage	Vcc	-0.5 to + 7	V
Low level Output Current	I_{OL}	5	mA
High level Output Current	I_{OH}	-1	mA
Soldering temperature	Tsol	260 (1)	℃

Note(1) Soldering time ≦5 seconds (More than 1mm apart from package).

●Electro-Optical Characteristics (Ta=25℃)

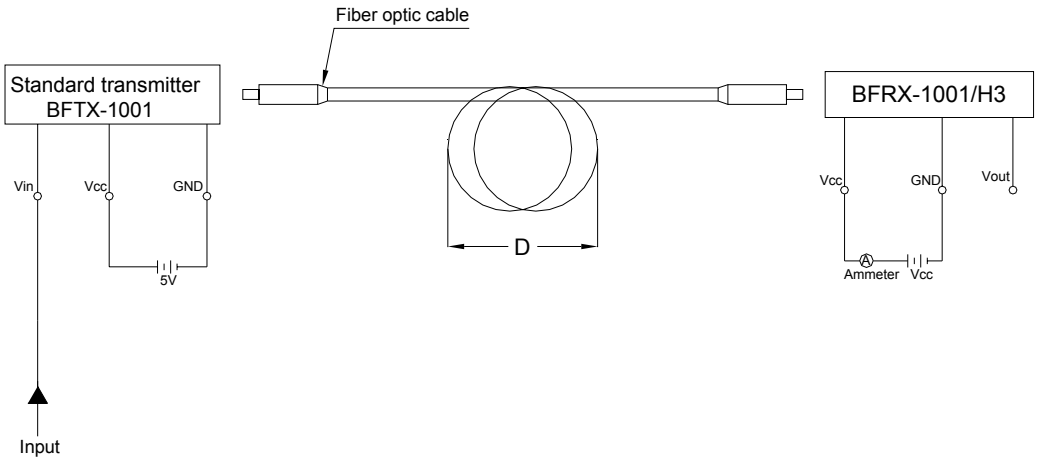
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Peak wavelength	λp		---	660	---	nm
Operating supply voltage	Vcc		4.7	5.0	5. 5	V
Data rate	T	NRZ code	0.1	---	12.0	Mbps
Transmission Distance	D	Using APF (All Plastic Fiber, 970/1000μm) and BFTX-1001	0.2	---	5	m
Maximum Receivable Power	P_{MAX}	12Mbps, Using APF	-14.5	---	---	dBm
Minimum Receivable Power	P_{MIN}	12Mbps, Using APF	---	---	-24	dBm
Dissipation current	Icc	Refer to Fig. 1	---	4	6	mA
High level output voltage	V_{oH}	Refer to Fig. 2	3.6	4.0	---	V
Low level output voltage	V_{oL}	Refer to Fig. 2	---	0.2	0.4	
Rise time	t_r	Refer to Fig. 2	---	10	20	ns
Fall time	t_f	Refer to Fig. 2	---	10	20	ns
Low→High delay time	t_{PLH}	Refer to Fig. 2	---	---	120	ns
High→Low delay time	t_{PHL}	Refer to Fig. 2	---	---	120	
Pulse width distortion	△tw	Refer to Fig. 2	-15	---	+15	
Jitter	△tj	Refer to Fig. 2	---	---	15	

●Mechanical Characteristics (Ta=25℃)

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 μm)

●Fig.1 Measuring Method of Dissipation Current.



12Mbps NRZ , Duty 50%

Notes:

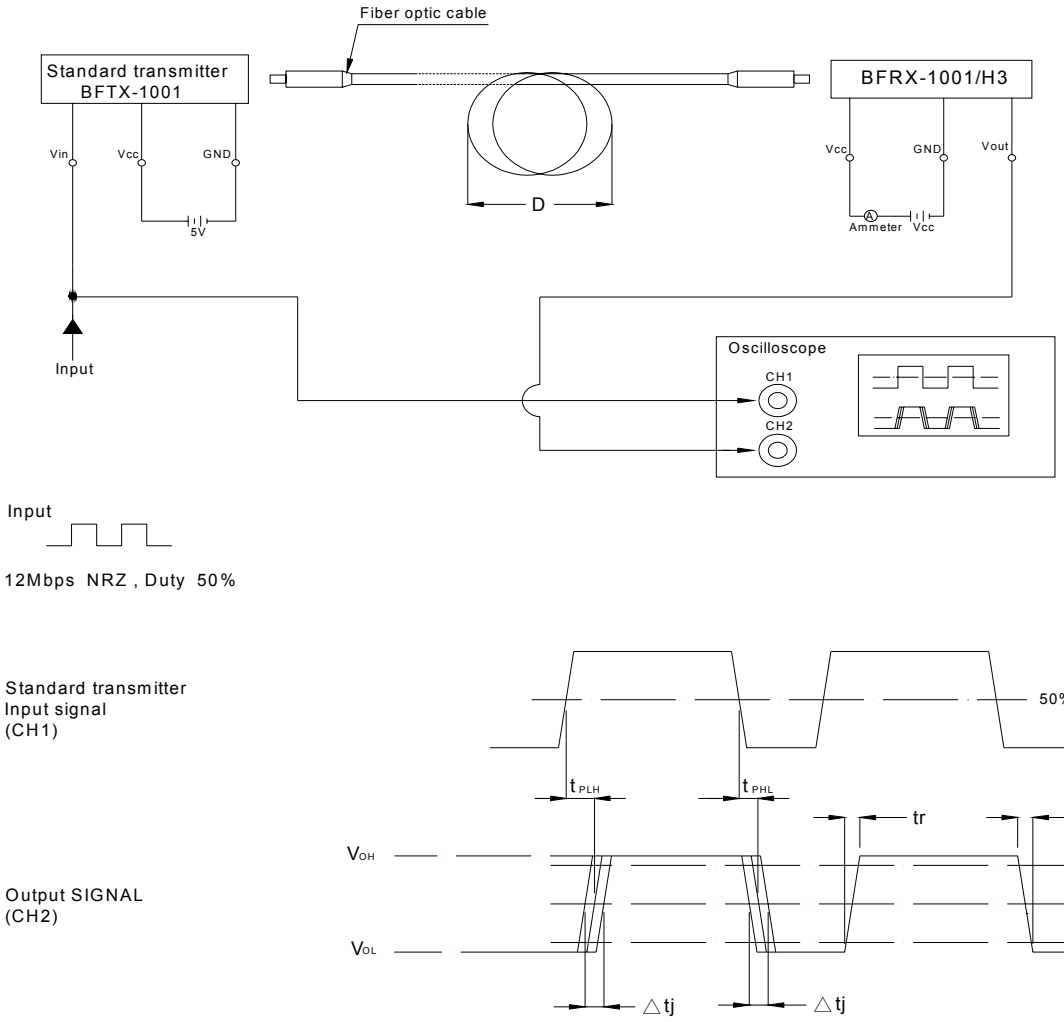
(1) Vcc=5.0V (State of operating)

(2) To bundle up the standard fiber optic cable, make it into a loop with the diameter D=10cm or more.

(3) Pc=-14.5dBm

(4) Measured on an ammeter

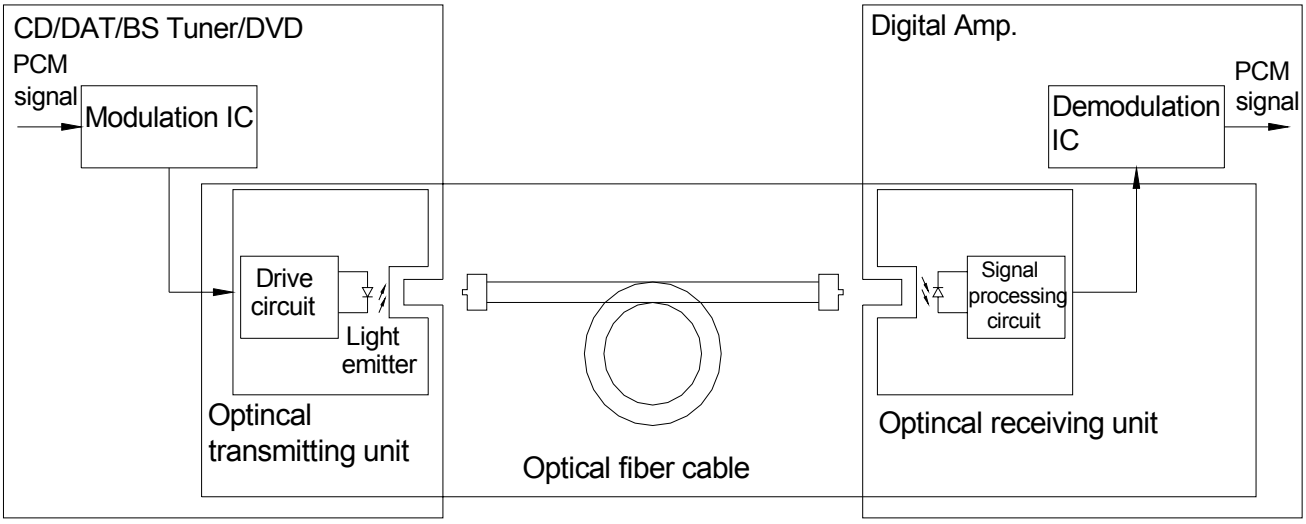
●Fig.2 Measuring Method of Pulse Response and Jitter.



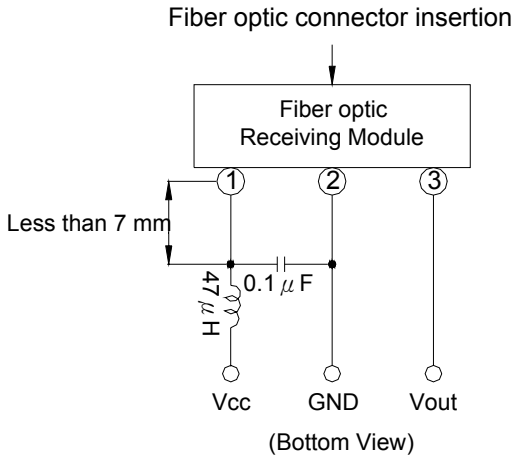
Test item

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.
Rise time	t_r	Refer to the above prescriptions.
Fall time	t_f	Refer to the above prescriptions.
High level output voltage	V_{OH}	Refer to the above prescriptions.
Low level output voltage	V_{OL}	Refer to the above prescriptions.
Pulse width distortion	△tw	△tw=t_{PHL} -t_{PLH}.
Jitter	△tj	Set the trigger on the rise of input signal to measure the jitter of the rise of output

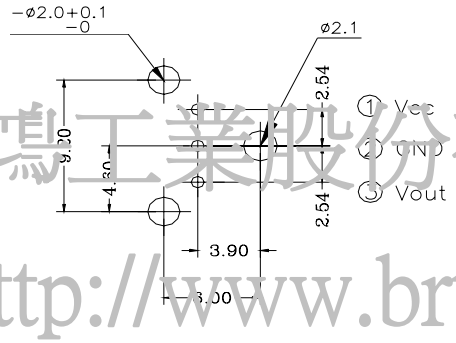
●System Configuration Example:



●Application Circuit:



●Recommended drilling as viewed from the soldering face



NOTES: Tolerance is ±0.3 mm unless otherwise noted.

●RELIABILITY TEST

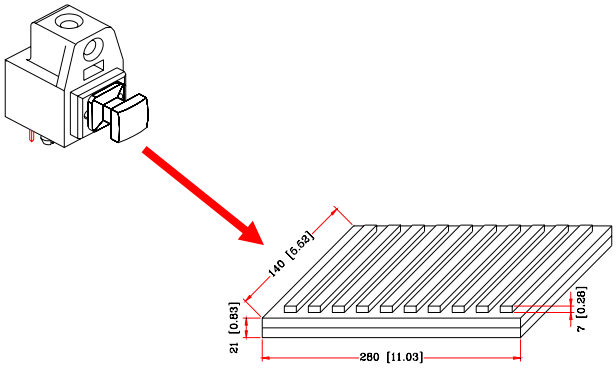
Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS C 7021 :B-1	Ta=25℃±5℃ IF=50Ma;Vce=5V Time:1000hrs	0/20
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS C 7021 :B-11	Ta=65℃±5℃ RH=90%-95% time=240hrs	0/20
	High Temperature Storage	MIL-STD-883:1008 JIS C 7021 :B-10	Ta=85℃±5℃ time=240hrs	0/20
	Low Temperature Storage	JIS-C 7021 :B-12	Low Ta=-35℃±5℃ time=240s±2hrs	0/20
Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS C 7021 :A-4	-35 ℃ ±5 ℃ (30min)~25±5 ℃ (5min)~ 85 ℃ ±5 ℃ (30min)~25±5 ℃ (5min) 10cycle	0/20
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011	-35℃±5℃(10min) ~85℃±5℃ (10min)15cycle	0/20
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS C 7021 :A-1	T.sol=300±10℃ Time=10±2sec	0/20
	Solder ability	MIL-STD-202:208D MIL-STD-750:2026 MIL-STD-883:2003 JIS C 7021 :A-2	T.sol=270±5℃ 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	Po	Vcc,Vin=5V	-23dBm~-15dBm
Dissipation current	Icc	Vcc,Vin=5V	Over Ux2

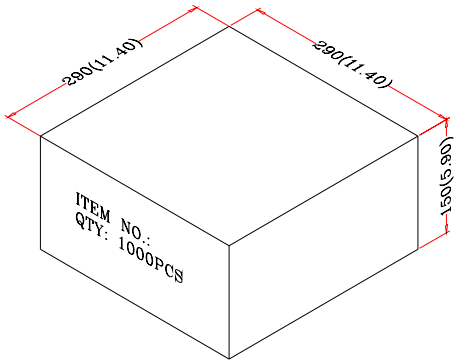
Note: 1.U means the upper limit of specified characteristics
2.Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

●Package Method:(unit:mm)



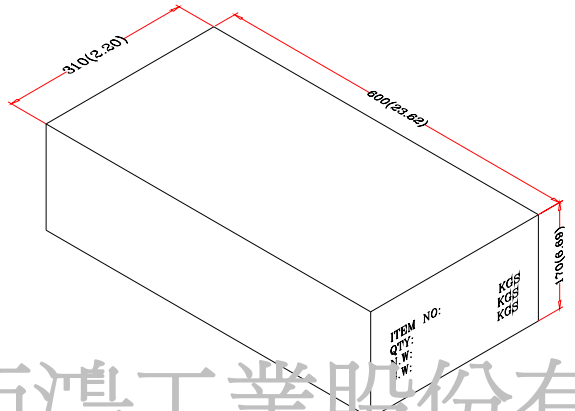
Tray

100 PCS / Tray



Inner box

10 Tray / Inner box



Carton

2 Inner box / Carton

Notes: Tray: Tolerance is ±5mm unless otherwise noted.
Inner box: Tolerance is ±10mm unless otherwise noted.
Carton: Tolerance is ±10mm unless otherwise noted.