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		DATE	2022-07-28
PART NAME	FIBER OPTIC RECEIVER	Rev	A-0
PART No.	YL-R029	DOC No.	

## 1. Application

This specification applies to the outlines of the fiber-optic receiver unit for Digital audio Interface

- PC-sound card
- AV amplifier
- Digital optical data link

## 2. Descriptions

- The optical- receiver is packaged with custom optic data link interface.
- The unit functions by converting optical signals into electrical ones.
- The signal output interface is TTL compatible with high performance at low power consumption.

## 3. Features

- High speed signal transmission (25Mbps NRZ Signal)
- Wide supply voltage: +2.7V to +5.5V
- Low power consumption for extended battery lift
- High PD sensitivity optimized for red light
- Product remain the RoHS compliant version



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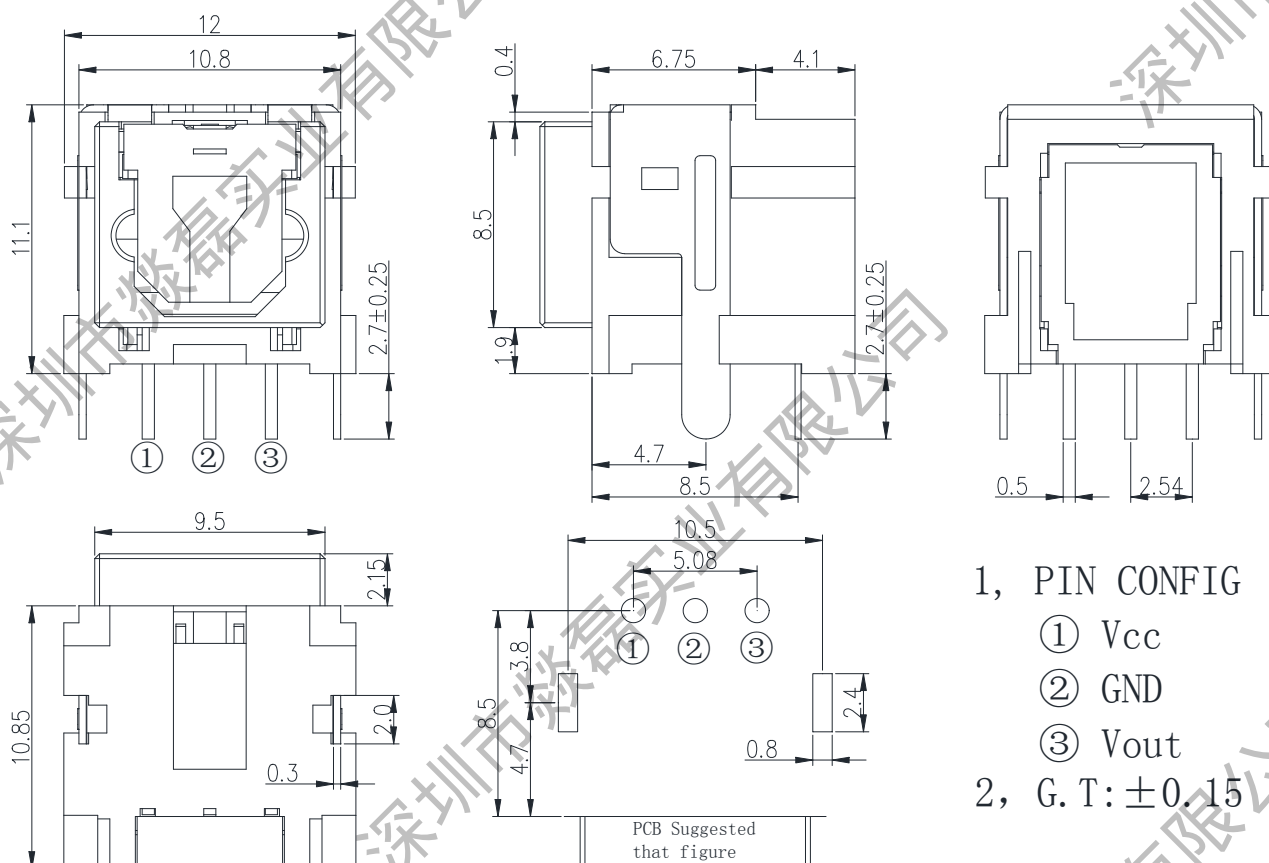
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## 4. Appearance & Dimensions

### 1) Package Dimension (Unit: mm)



### 2) Material List

Symbol	Description	Material
a	Drive IC	Silicone
	Silver Paste	Ag Epoxy + Lead Frame
	Gold Wire	Au
	C.M.C	Non-fireproof epoxy resin
b	Lead Frame	Cu Alloy (Ag Plating Thickness: 10U")



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## 5. Electro-Optical Characteristics

### 1) Absolute Maximum Rating (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Supply Voltage	Vcc	+2.4 to +5.5	V
Storage Temperature	Tstg	-40 to +85	°C
Operating Temperature	Topr	-20 to +70	°C
Soldering Temperature (※1)	Tsol	260	°C
Human Body Model ESD	HBM	8000	V
Machine Model ESD	MM	400	V

(※1) Soldering time: 10sec or less

### 2) Recommended Operating Conditions

Parameter	Symbol	Condition	Min	Typ.	Max	Unit
Power Supply Voltage	Vcc	-	2.7	-	5.25	V

### 3) Electro-Optical Characteristics (Ta=25°C, Vcc=5.0V, 25Mbps)

Parameter	Symbol	Condition	Min	Typ.	Max	Unit
Peak Emission Wavelength	$\lambda_p$		-	650	-	nm
Data Rate	FD	NRZ Signal	0.1		25	Mbps
Maximum Receiver Power	Pc_Max	Ref. to Fig.1	-	-	-14	dBm
Minimum Receiver Power	Pc_Min	Ref. to Fig.1	-27	-	-	dBm
Dissipation Current	Icc	Ref. to Fig.2	1.0	-	5.5	mA
High Level Output Voltage	VOH	Ref. to Fig.3	2.4	-	-	V
Low Level Output Voltage	VOL	Ref. to Fig.3	-	-	0.5	V
Rise Time	Tr	Ref. to Fig.3	-	10	20	ns
Fall Time	Tf	Ref. to Fig.3	-	10	20	ns
Low to High Delay Time	tpLH	Ref. to Fig.3	-	-	100	ns
High to Low Delay Time	tpHL	Ref. to Fig.3	-	-	100	ns
Pulse Width Distortion	$\Delta tw$	Ref. to Fig.3	-15	-	+15	ns
Jitter	$\Delta tj$	Ref. to Fig.4 Pc=-14dBm	-	1	15	ns
		Ref. to Fig.4 Pc=-24dBm	-	5	15	ns

\*Standard plastic optic fiber cable : 1m



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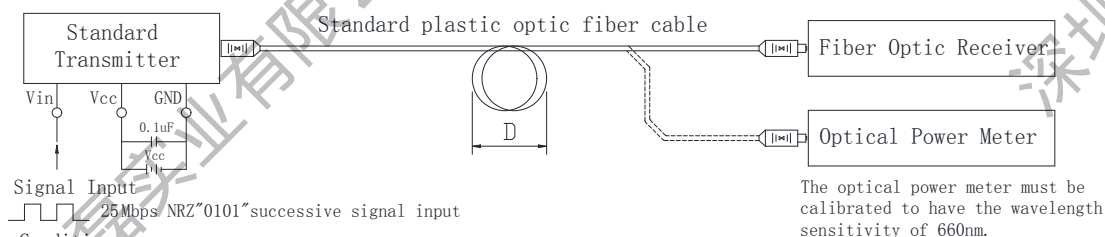
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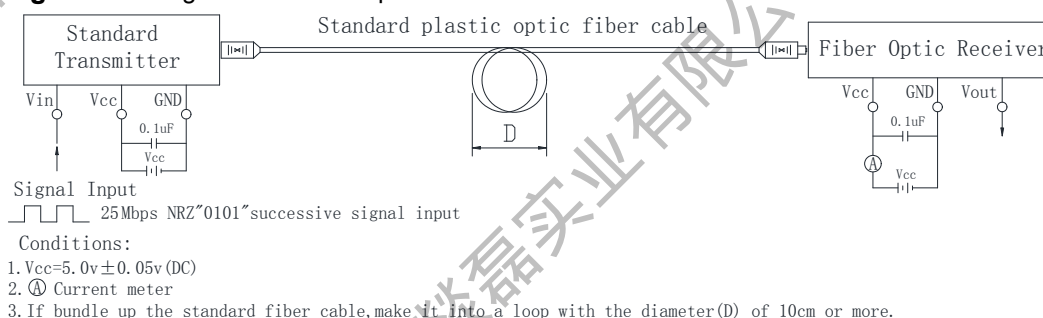
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## 4) Measurement Conditions

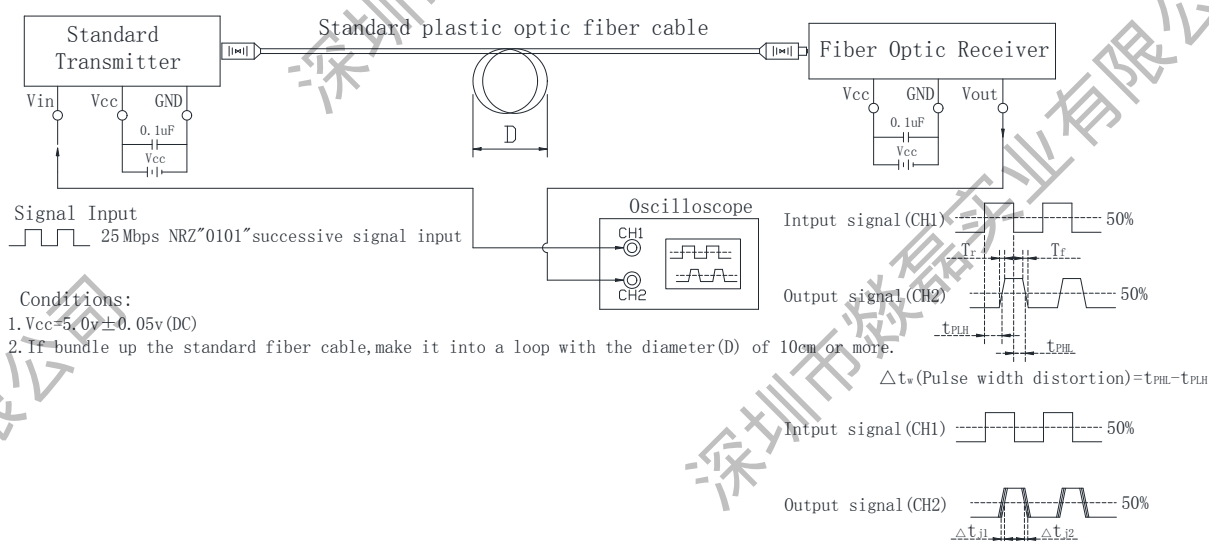
**Fig.1** Measuring Method of Maximum and Minimum Input Power that Receiver Unit Need



**Fig.2** Measuring Method of Dissipation Current



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



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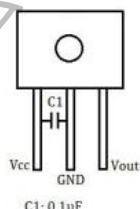
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## Application Circuit

1) General application circuit



Note:1. For having good coupling, the C1 capacitor must be placed within 7mm

## 6. Reliability Test Item and Standard.

1) All output products shall satisfy below Reliability test items.

2) Related sampling quantity and acceptance/failure judgment standard accordance with MIL standard MIL-STD-883 is as listed below.

No.	Test Items	Test Condition	Test Hour/Cycle	Sample Size	Fail(c)/ Sample(n)
1	High Temp. Storage (※2)	Ta= +85°C	500hours	22	C=0 / n=22
2	Low Temp. Storage (※2)	Ta= -30°C	500hours	22	C=0 / n=22
3	Temperature Cycle (※2)(※3)	Ta= -30°C to +85°C, cycle time: 30min	20cycle	22	C=0 / n=22
4	DC Operation Life Test	Ta= +60°C, Vcc=+5.0V	500hours	11	C=0 / n=11
5	Salt Spray (※2)	5%NaCl, Ta=35°C,80%RH	8hours	11	C=0 / n=11
6	Soldering Heat (※4)	Ta= 260±5°C	5sec./2times	11	C=0 / n=11
7	Solder ability	Ta= 260±5°C	5sec.	11	C=0 / n=11

※1. Supply voltage of load test is 5.0V.

※2. Electro-optical characteristics shall be satisfied after leaving 2 hours in the normal condition.

※3. Temperature cycle test shall repeat above condition 20 times under no load.

※4. For 5sec (after mounting on PCB with thickness of 1.6mm)

※Remark:

1. Icc (mA): Dissipation Current Attenuate Difference < ±20%

2. Pf (Fiber Coupling Output Power): Brightness Attenuate Difference < ±20%



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## 7. Outgoing Inspection

- 1) Inspection lot  
Inspection shall be carried out per each delivery lot.
- 2) Inspection method  
A single sampling plan, normal inspection level II based on ISO2859 shall be adopted.

Parameter	Inspection Item	AQL(%)
Major Defect	1 Satisfies electro-optical characteristics in parameter	0.4
	2 It should have no disconnection of lead terminal	
	3 It should have no dust and solder that would hinder PCB insertion	
Minor defect	1 Free from foreign on the connector coupling portion that would hinder plug insertion	1.5
	2 Deformation of case and lead terminal	
	Stamp should be indicated at fixed position	

## 8. Soldering Condition

- 1) The distance between holes should be the same as that of between terminal leads of the component to avoid any stress during the soldering process. This may lead to the open circuit. Also, lead forming should be done before soldering process not to apply any stress to the inside of the epoxy resin.
- 2) Not to apply any stress to the component during the soldering process.
- 3) Recommended soldering condition.

Item	Condition
Pre-heating & Solder Bath	- Pre-heating : Less than 90°C - Solder Bath : 260°C - Soldering Area : 3mm away from the bottom the epoxy resin - Dipping time : Less than 5seconds. Less than twice.
Soldering – Iron	- Temperature : Less than 350°C, within 3 seconds.

### ※ Note

- Not to apply high temperature exceeding the maximum storage temperature to the epoxy resin.
- Not to apply any force to the epoxy resin at high temperature.

- 4) Washing Some chemicals may damage the epoxy resin. Ethyl-alcohol is recommended under the following condition.

Chemical washing	- Temperature : Less than 45°C - Wash time : Less than 3 minutes
Ultrasound washing	- Power : Less than 15W - Wash time : Less than 3 minutes



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## 9. Notice

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    - Office automation equipment [ terminal ]
    - Telecommunication equipment
    - Test and measurement equipment
    - Industrial control
    - Audio visual equipment
    - Consumer electronics
  - b) Measures such as fail-safe function and redundant design should be taken to ensure reliability and safety when YL devices are used for or inconnection with equipment that requires higher reliability such as :
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    - Gas leakage sensor breakers
    - Alarm equipment
    - Various safety devices, etc.



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## 10. Packing Specifications

### 1) Label Specification

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PO: \_\_\_\_\_

MODEL: YL- \_\_\_\_\_

QTY: \_\_\_\_\_ PCS

DATE: \_\_\_\_\_

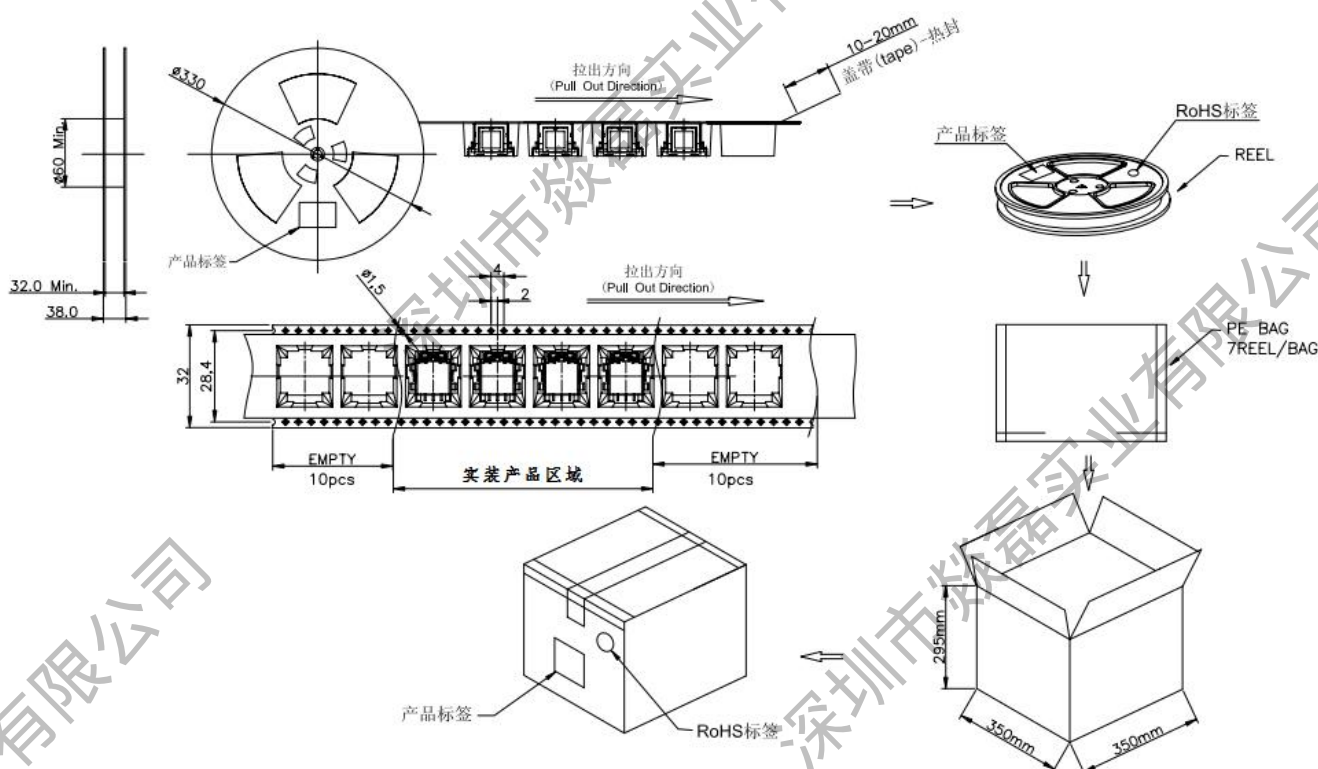
RoHS COMPLIANT



Label Dimensions (Unit: mm)

Label Type	L	W	Remark
Label #1	80	60	

### 2) Box Packing Method



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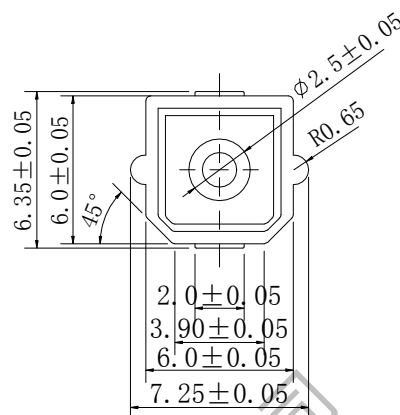
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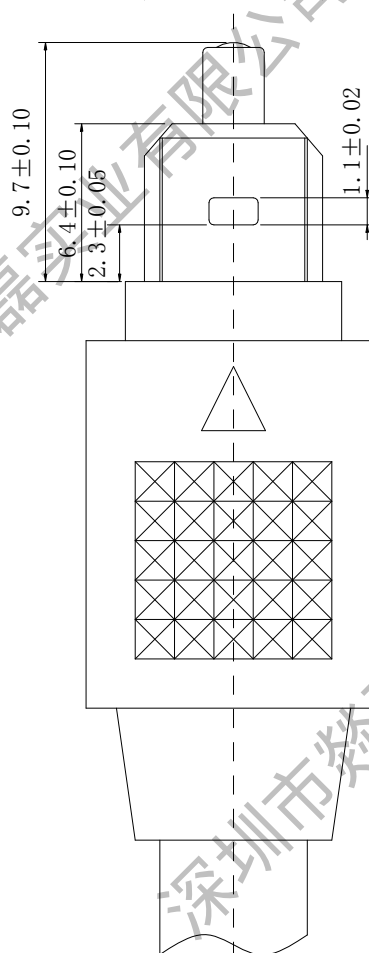
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## 11. Suggest using optical fiber line plug



Note: to not affect the use of optical fiber terminal Life, the fiber plug in the optical fiber terminal Must be inserted into the socket with the terminal When in, pull out flat out



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