

Optical Audio Toslink SPDIF Transmitters & Receivers

Description

The light transmitting unit is a standard product with connector and opto-electric component packaged with LED and drive IC. It is used to change the electric signal into light signal and be transmitted by plastic optical fiber-POF.

Transmitting part: is an electric signal inputting a certain code rate is processed by an internal driving chip to drive a semiconductor laser (LD) or a light emitting diode (LED) to emit a modulated light signal of a corresponding rate, and an optical power automatic control circuit is internally provided therein. The output optical signal power remains stable.

Receiving part: is the optical signal input module of a certain code rate is converted into an electrical signal by the light detecting diode. After the pre-amplifier, the electrical signal of the corresponding bit rate is output, and the output signal is generally PECL level. At the same time, an alarm signal is output after the input optical power is less than a certain value.

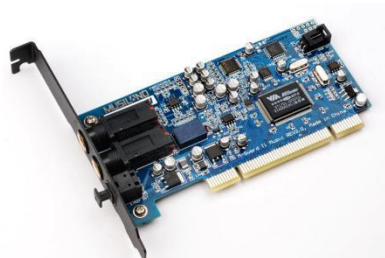
Features :

- High speed signal transmission (16Mbps,NRZ signal)
- Compatible with TTL signal
- 3-5V power
- International standard TOSLINK interface

Application

- Multimedia audio equipment
- HD Video player,DVD,MD players
- Digital TV, LED & LCD TV
- PC, Notebook
- Sound card

Application Examples :



Light Transmitting & Receiving Modules

Part Number	λ_p (nm)	Vcc (V)	Operating Transfer Rate (Mbps)	Dissipation Current (mA)		Fiber Coupling Light Output (dBm)
				Typ.	Max.	
DLT1110A	650	2.7~5.5	16	5	10	-21~-15
Unit: mm						
DLT1120A	650	2.7~5.5	16	5	10	-21~-15
Unit: mm						
DLT1130A	650	2.7~5.5	16	5	10	-21~-15
Unit: mm						
DLT1140A	650	2.7~5.5	16	5	10	-21~-15
Unit: mm						
DLT1150A	650	2.7~5.5	16	5	10	-21~-15
Unit: mm						
DLT11B0A	650	2.7~5.5	16	5	10	-21~-15
Unit: mm						
DLT1160A	650	2.7~5.5	16	5	10	-21~-15
Unit: mm						
DLT1170A	650	2.7~5.5	16	5	10	-21~-15
Unit: mm						
DLT1180A	650	2.7~5.5	16	5	10	-21~-15
Unit: mm						
DLT2140A	650	2.7~5.5	16	5	10	-21~-15
Unit: mm						
DLT2150A	650	2.7~5.5	16	5	10	-21~-15
Unit: mm						
DLT2151A	650	2.7~5.5	16	5	10	-21~-15
Unit: mm						

Max. Absolute Rating Values (Ta = 25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	-0.5 to 7	V
DC Input Voltage	Vin	-0.5 to Vcc+0.5	V
Power Dissipation	P	120	mW
Storage Temperature	Tstg	-30 to 80	°C
Operating Temperature	Topr	-20 to 70	°C
Soldering Temperature	Tsol	260*	°C

* Soldering time 5s/2times.

Photoelectric characteristics

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	Vcc	-	2.7	-	5.5	V
Peak Emission Wavelength	p	-	640	-	670	nm
Transmission Speed		NRZ signal	DC	-	16	Mbps
Transmission Distance		Using APF	0.2	-	20	m
Pulse Width Distortion	tw	16Mbps NRZ Signal	-25	-	25	ns
Fiber Coupling Light Output	Pf	*1	-21	-17	-15	dBm
Dissipation Current	Icc	*2	-	5	10	mA
High Level Input Voltage	VIH		2	-	-	v
Low Level Input Voltage	VIL		-	-	0.8	v
Rise Time	tr	*3	-	30	40	ns
Fall Time	tf	*3	-	20	30	ns
Low → High propagation delay time	tPLH	*3	-	-	100	ns
High → Low propagation delay time	tPHL	*3	-	-	100	ns
Jitter	tj	*3	-	1.5	15	ns

Reliability Test

No.	Item	Test Condition	Test Hour/Cycle	Samples	Number (n) Failure (c)
1	Soldering Heat	260°C±5°C	5 sec./2times	22	n=22, c=0
2	High temp. & Hum. storage	Ta=40°C, 90%RH	500	22	n=22, c=0
3	High temp. storage	Ta=80°C	500	22	n=22, c=0
4	Low Temp. storage	Ta=-30°C	500	22	n=22, c=0
5	Temp. cycling	-30°C ~ 80°C (30min) (5min) (30min)	20	22	n=22, c=0
6	High Temp. Operation life	Ta=60°C, Vcc=5V ON	500	22	n=22, c=0
7	Repeated operation	500 times	Coupling force < 2 kg 0.4 kg<Detaching force <2kg	22	n=22, c=0
8	Terminal Strength(tension)	Weight: 500 g 30 sec./each terminal		22	n=22, c=0
9	Terminal Strength(bending)	Weight: 500 g 2 times/each terminal		22	n=22, c=0
10	Mechanical Shock	Acceleration: 1000m/s ² Pulse width: 6 ms 3 times/ X,Y,Z direction		22	n=22, c=0
11	Vibration	Frequency range: 10~55 Hz /sweep 1 min Overall amplitude:1.5mm 2H./X,Y,Z direction		22	n=22, c=0

I_{cc} (dissipation current): CURRENT ATTENUATE DIFFERENCE < 20%

P_f (fiber coupling light output): BRIGHTNESS ATTENUATE DIFFERENCE < 20%

T_{PLH} (propagation L \rightarrow delay time): DELAY TIME DIFFERENCE < 20%

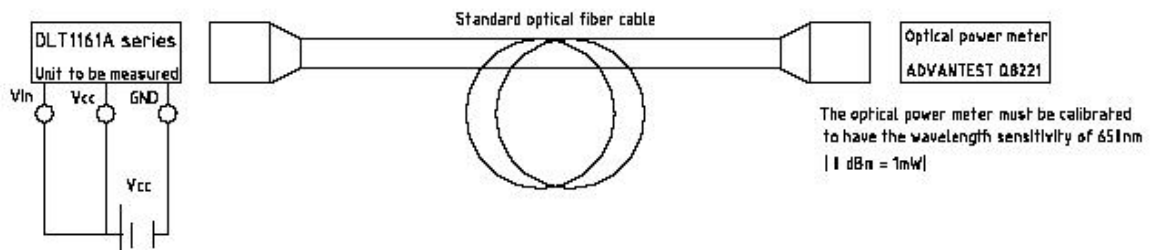
T_{PHL} (propagation H \rightarrow delay time): DELAY TIME DIFFERENCE < 20%

T_r (rise time): TIME DIFFERENCE < 20%

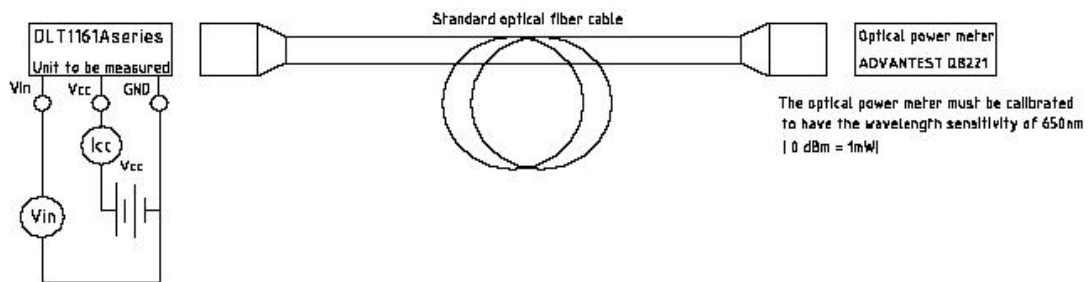
T_f (fall time): TIME DIFFERENCE < 20%

Testing Method:

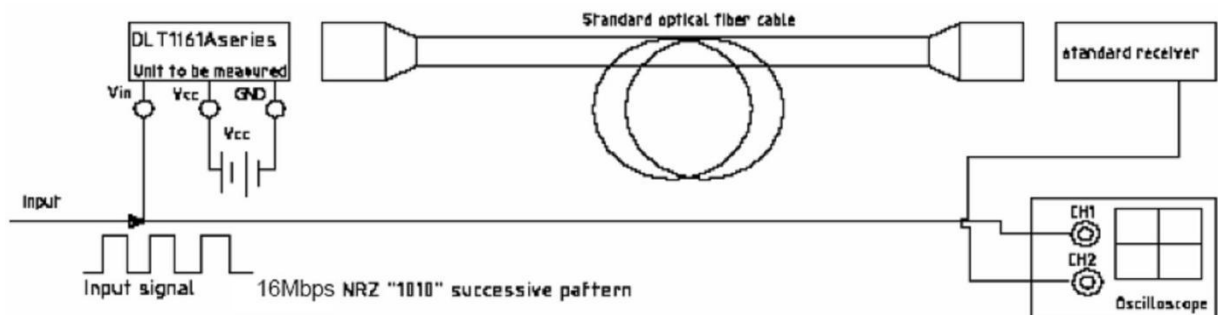
*1 Measuring method of optical output coupling fiber



*2 Input voltage/power dissipation measuring method



*3 Pulse response and jitter measuring method



Precautions for Using Method

1. Connect a by-pass capacitor (0.1uF) close to the module within 7 mm of the unit lead frame.
2. Take proper electrostatic-discharge (ESD) precautions while handling these devices. These devices are sensitive to ESD.
3. Please follow the conditions described in the diagram below.

