Technical Data Sheet- Light Transmitting Unit

TY LINK : DLT11R5-D2

Features

- High speed signal transmission
  (16Mbps, NRZ signal)
- Input TTL compatible
- +3~+5V power source

Descriptions

The TYLINK is a new design connector including traditional RCA and Data Link inner opto-electric component. Not only does TYLINK transmit electric digital signal but alsolight signal.

The optic unit is operated at single +3V~ +5V and RCA input signal at ± 0.5 V . TheDLT11R5-D2 has a maximum operating speed of 16 Mbps. The optic unit has high performance at low dissipation current, steady light output and efficient light coupling.

Applications

- DVD player

Device Selection Guide

Chip		Operating Voltage (Vcc)	Dissipation Current(mA)	Fiber Coupling Light Output (dBm)		
IC Material	LED λp(nm)		Typ.	Min.	Typ.	Max.
Si	650	2.7~5.5	5.5	-21	-	-15

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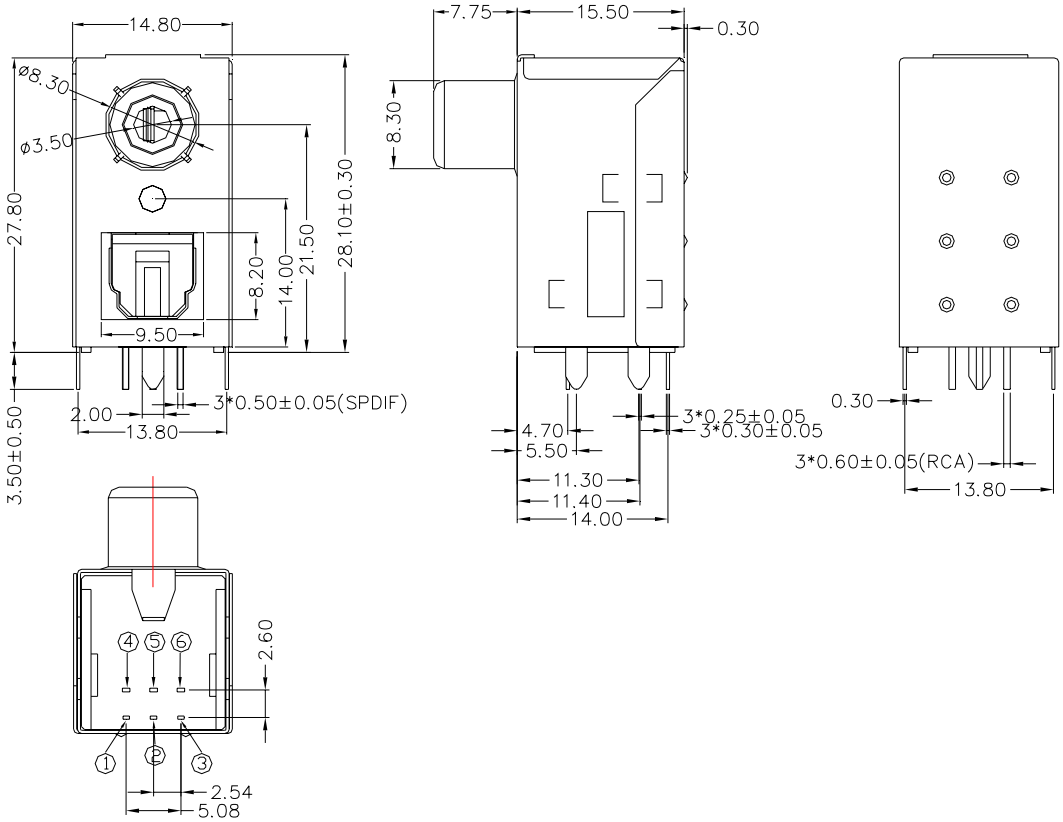
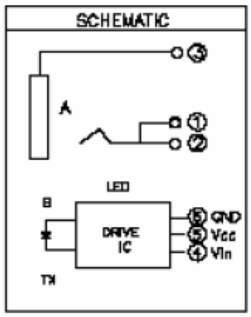
Package Dimensions



Notes: 1.All dimensions are in millimeters.
2.General Tolerance:±0.2mm



Pin Function

1. Positive	4. Vin
2. Positive	5. Vcc
3. Negative	6. GND

Absolute Maximum Ratings(Ta = 25℃)

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	℃
Operating Temperature	Topr	-20 to 70	℃
Soldering Temperature	Tsol	260*	℃

- Soldering time ≤ 5 s / 2 times.

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Electro-Optical Characteristics

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage(optic unit) (electrical unit)	Vcc	-	2.7 0.75	-	5.5 1.25	V
Peak Emission Wavelength	λp	-	640	-	670	nm
Transmission Speed		NRZ signal	DC	-	16	Mbps
Transmission Distance		Using APF	0.2	-	20	m
Pulse Width Distortion	Δtw	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	V_{IH}		2	-	-	v
Low Level Input Voltage	V_{IL}		-	-	0.8	v
Rise Time	t_r	*3	-	30	40	ns
Fall Time	t_f	*3	-	20	30	ns
Low→ High propagation delay time	t_{PLH}	*3	-	-	100	ns
High→ Low propagation delay time	t_{PHL}	*3	-	-	100	ns
Jitter (rise time)	Δtr	*3	-	1.5	15	ns
Jitter (fall time)	Δtf	*3	-	1.5	15	ns

The DLT11R5-D2 light transmitting unit satisfies EIAJ CP-1201 digital audio interface standard.

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Reliability Test Items

No.	Item	Test Condition	Test Hour/Cycle	Samples	Number (n) Failure (c)
1	Soldering Heat	260℃±5℃	5 sec./2times	22	n=22, c=0
2	High temp. & Hum. storage	Ta=40℃, 90%RH	500	22	n=22, c=0
3	High temp. storage	Ta=80℃	500	22	n=22, c=0
4	Low Temp. storage	Ta=-30℃	500	22	n=22, c=0
5	Temp. cycling	-30℃ ~ 80℃ (30min) (5min) (30min)	20	22	n=22, c=0
6	High Temp. Operation life	Ta=60℃, Vcc=5V ON	500	22	n=22, c=0
7	Repeated operation	500 times	Coupling force < 2 kg 0.4kg<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/s2 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 Overallamplitude:1.5 mm 2H./X,Y,Z direction		22	n=22, c=0

Icc (dissipation current): CURRENT ATTENUATE DIFFERENCE < 20%

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

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

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

T_r (rise time): TIME DIFFERENCE < 20%

Tf (fall time): TIME DIFFERENCE < 20%

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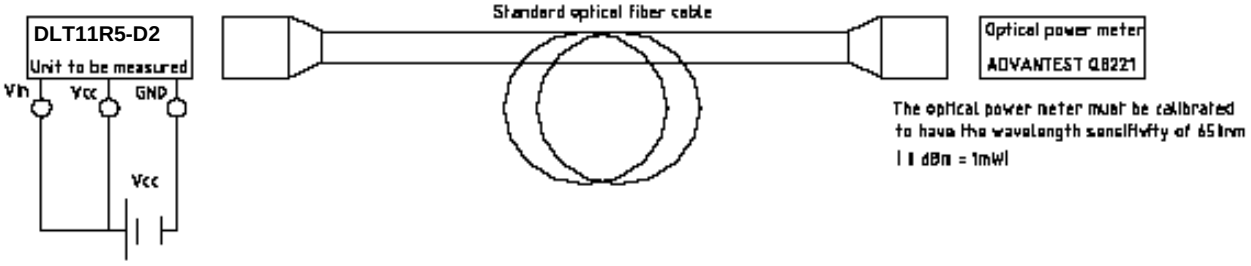
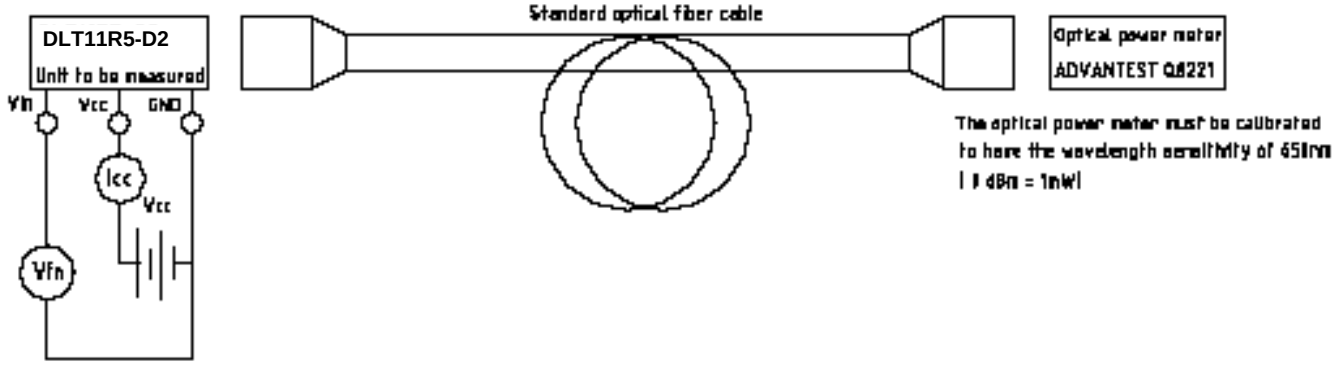
Measuring Method

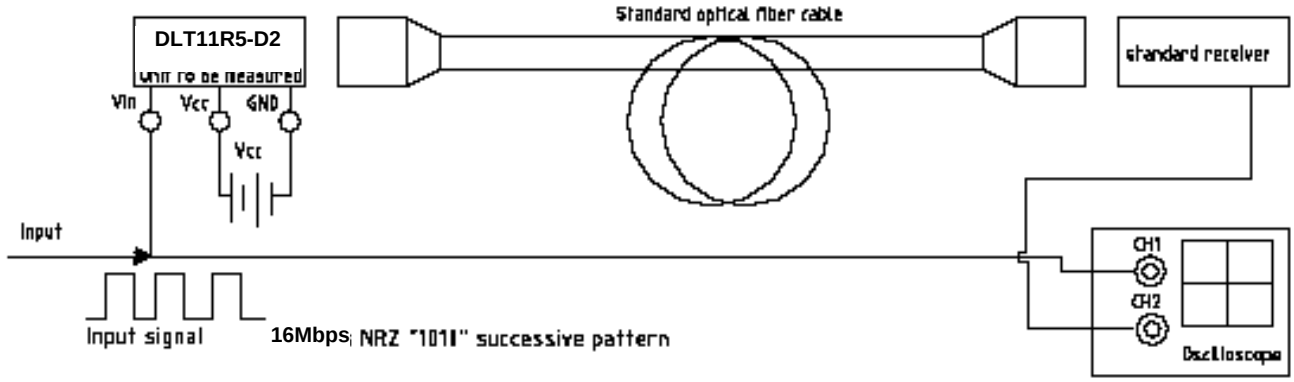
*1 Measuring method of optical output coupling fiber



*2 Input voltage/power dissipation measuring method



*3 Pulse response and jitter measuring method



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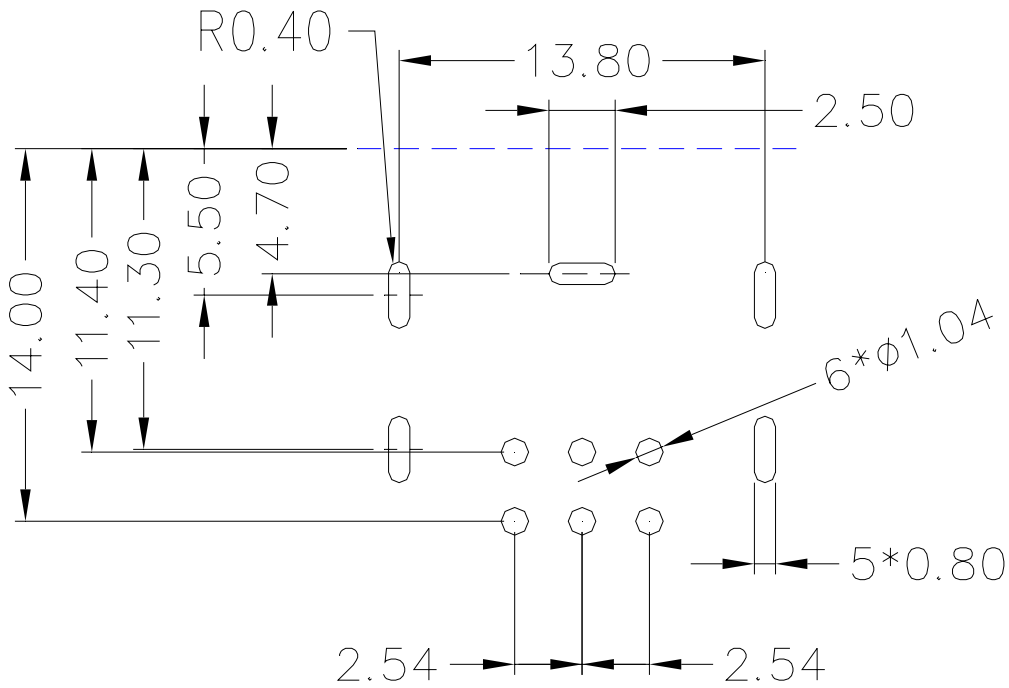
PCB Layout For Electrical Circuit



Notes:

1. Unit:mm
2. Unspecified tolerance: ±0.3mm
3.Substrate Thickness:1.6mm

Precautions for Using Method

1. Connect a by-pass capacitor (0.1uF) close to the DLT11R5-D2 within 7 mm of the unit lead frame between Vcc and GND.
2. Take proper electrostatic-discharge (ESD) precautions while handling these devices. These devices are sensitive to ESD.

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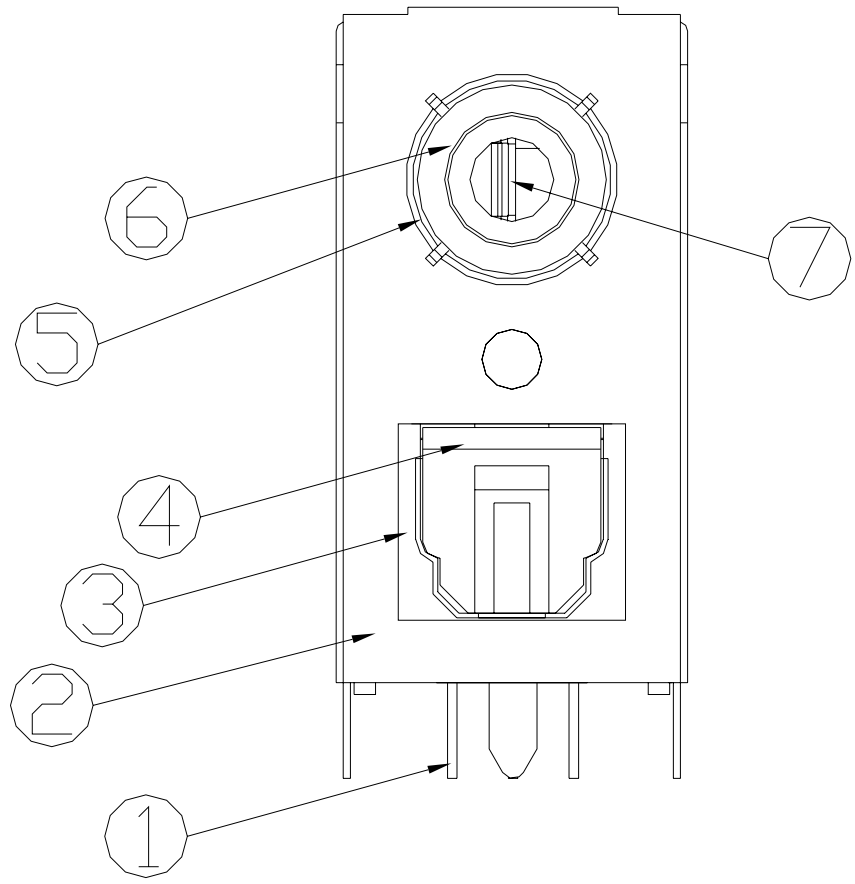
Material Description



No.	Description	Material
1	OPTIC COMPONENT	
2	Shell	TINPLATE
3	Housing	PBT
4	Shutter	PBT
5	Contact terminal (-)	C2680
6	Inner hole	PBT
7	Contact terminal (+)	C2680

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REV	DESCRIPTION	RELEASE DATE