

Technical Data Sheet- Light Receiving Unit

TY LINK : DLR11R5-D2

Features

- High PD sensitivity for red light
- High speed up to 16 Mbps
- Low power consumption and current dissipation
- +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 EDILINK receive electric digital signal but also light signal.

The optic unit is operated at single +3~+5V and RCA input signal at ± 0.5 V. The DLR11R5-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

- Amplifier
- DVD

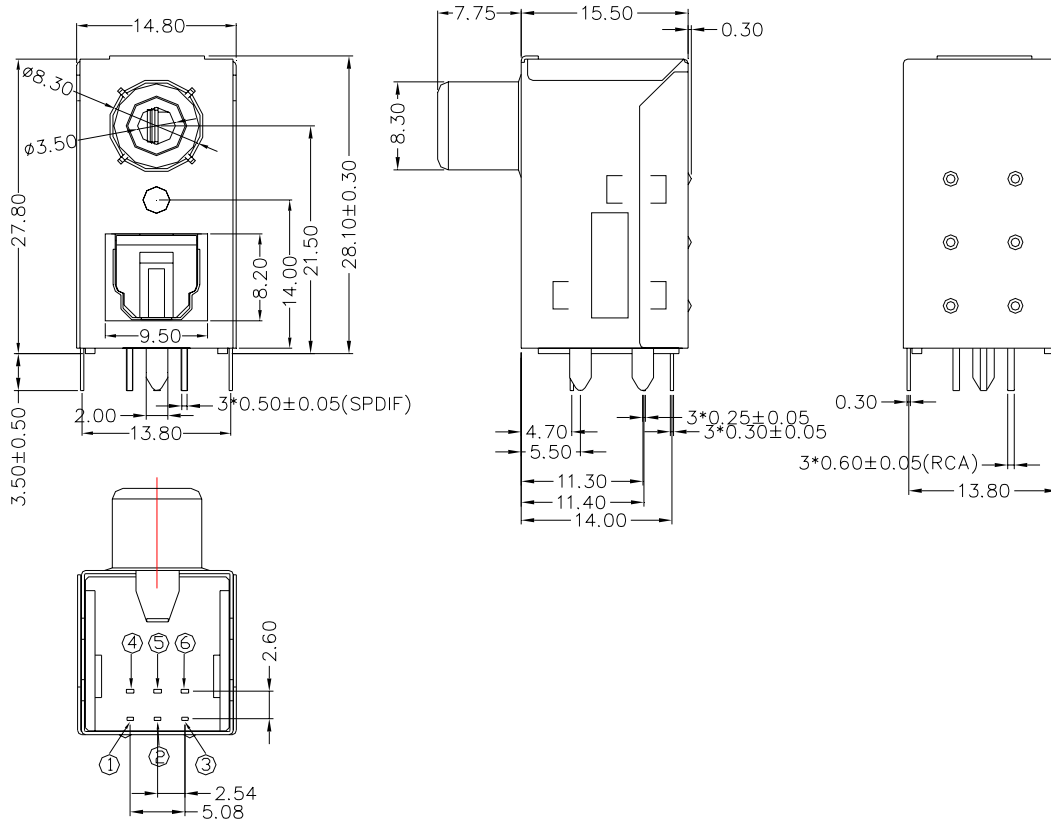
Device Selection Guide

| Chip | | Operating Voltage (Vcc) | Dissipation Current(mA) | Fiber Coupling Light Output (dBm) | | |
|-------------|-----------|-------------------------|-------------------------|-----------------------------------|------|-------|
| IC Material | LED p(nm) | | | Typ. | Min. | Max. |
| Si | 700 | 2.7~5.5 | 6.5 | -24 | - | -14.5 |

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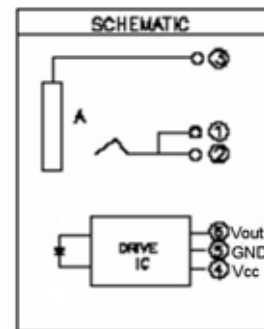
Package Dimensions



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

Pin Function

- | | |
|-------------|---------|
| 1. Positive | 4. Vcc |
| 2. Positive | 5. GND |
| 3. Negative | 6. Vout |



Absolute Maximum Ratings(Ta = 25)

| Parameter | Symbol | Rating | Unit |
|-----------------------|--------|-----------|------|
| Supply Voltage | Vcc | 5.5 | V |
| 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) | V _{cc} | - | 2.7 | - | 5.5 | V |
| (electrical unit) | | | 0.75 | | 1.25 | |
| Peak Detective Wavelength | λ_p | - | - | 700 | - | nm |
| Transfer Speed | | NRZ signal | 0.1 | - | 16 | Mbps |
| Receiving Distance | | Using APF | 0.2 | - | 20 | m |
| Pulse Width Distortion | Δtw | 16Mbps NRZ Signal | -20 | - | 20 | ns |
| Input Light power | P _i | *1 | -24 | - | -14.5 | dBm |
| Dissipation Current | I _{cc} | *2 | - | 6 | 10 | mA |
| High Level Output Voltage | V _{OH} | | 2.4 | - | - | v |
| Low Level Output Voltage | V _{OL} | | - | - | 0.4 | v |
| Rise Time | t _r | *3 | - | - | 25 | ns |
| Fall Time | t _f | *3 | - | - | 25 | ns |
| Low → High propagation delay time | t _{PLH} | *3 | - | - | 100 | ns |
| High → Low propagation delay time | t _{PHL} | *3 | - | - | 100 | ns |
| Jitter time | Δt_j | *3 | - | 1.5 | 15 | ns |

The DLR11R5-D2 light receiving 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/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 Overallamplitude:1.5 mm 2H./X,Y,Z direction | | 22 | n=22, c=0 |

I_{cc} (dissipation current): CURRENT 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%

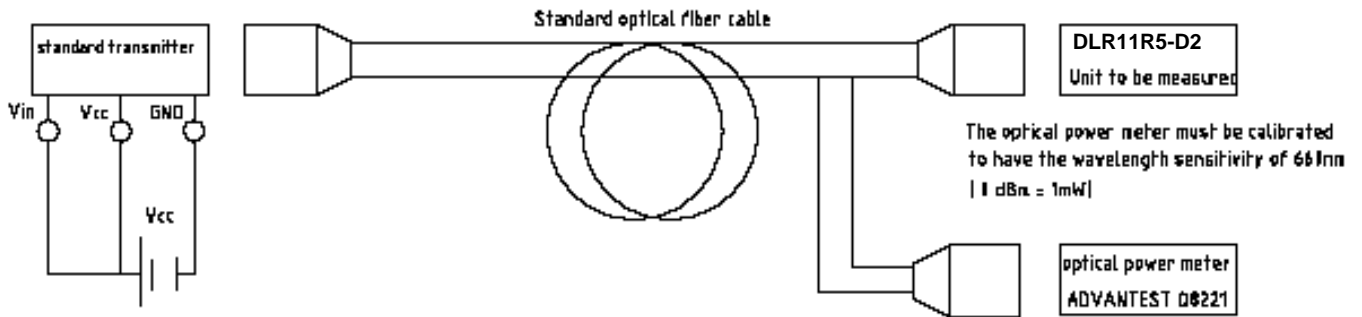
T_f (fall time): TIME DIFFERENCE < 20%

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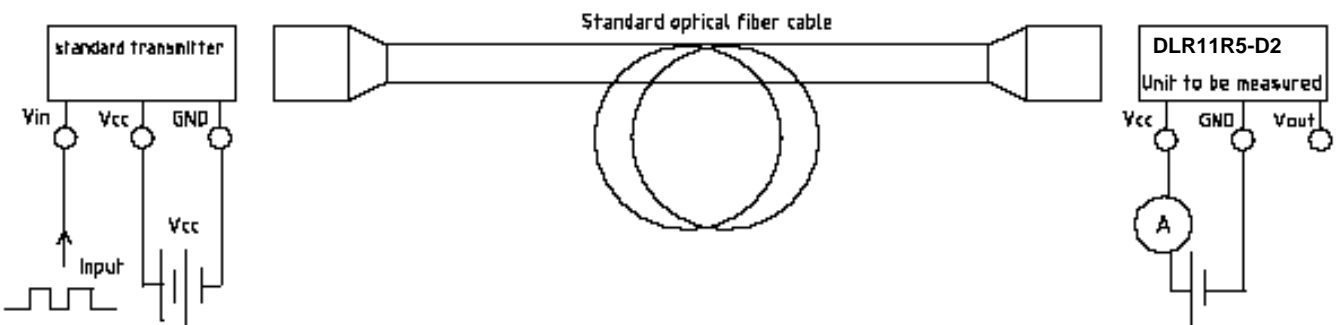
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Measuring Method

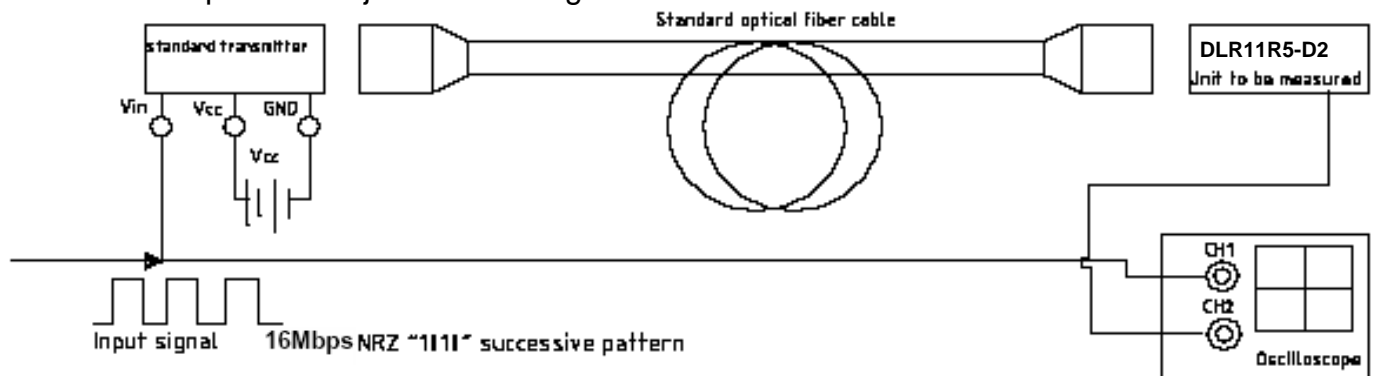
*1 Maximum receiver input optical power/Minimum receiver input optical power



*2 Current dissipation measuring method



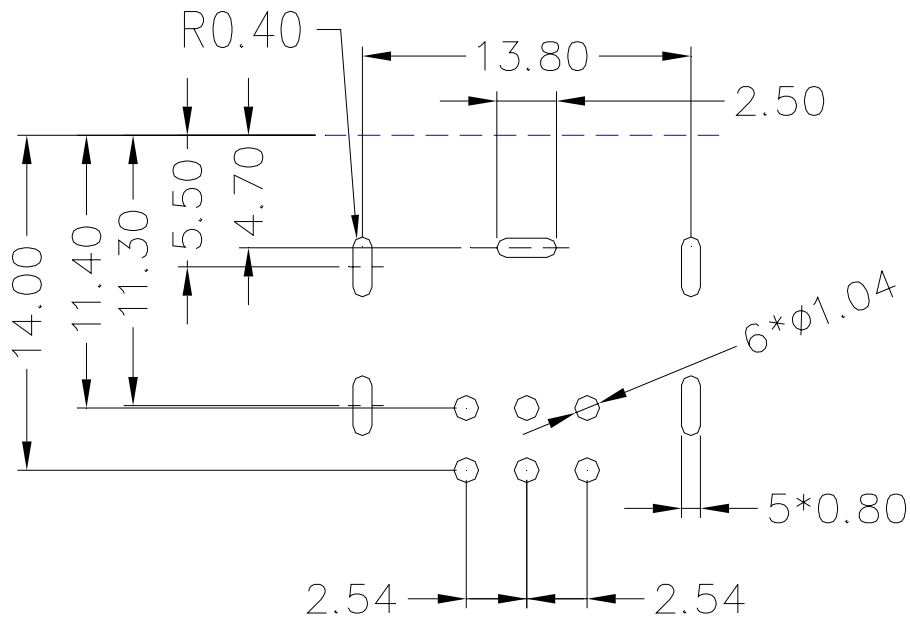
*3 Pulse response and jitter measuring method



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PCB Layout For Electrical Circuit

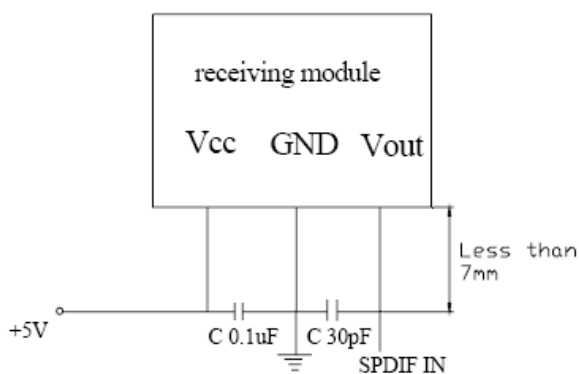


Notes:

1. Unit: mm
2. Unspecified tolerance: $\pm 0.3\text{mm}$
3. Substrate Thickness: 1.6mm

Precautions for Using Method

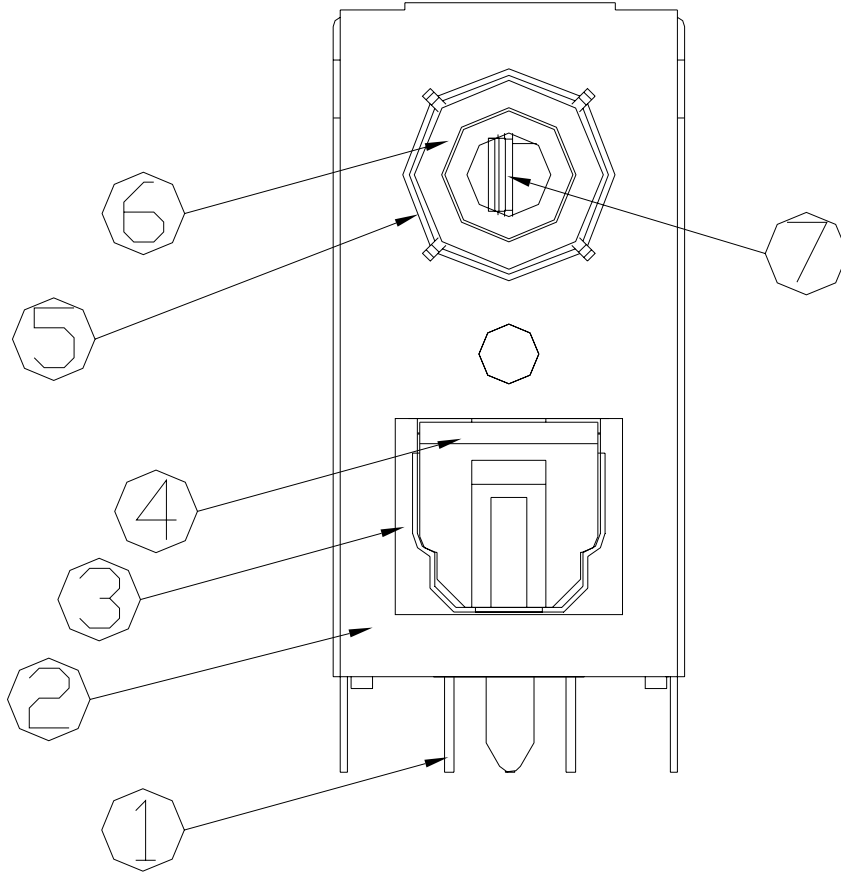
1. Connect a by-pass capacitor (0.1 μF) close to the DLR11R5-D2 within 7 mm of the unit lead frame.
2. Connect a by-pass capacitor (30pF) between GND and Vout avoid loading effect.
3. Take proper electrostatic-discharge (ESD) precautions while handling these devices. These devices are sensitive to ESD.



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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 |
|-----|-------------|--------------|
| | | |
| | | |
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