

**Technical Data Sheet**  
**Photolink-Fiber Optic Receiving**

**DLR1112**

**Features**

- High PD sensitivity for red light
- High speed up to 16 Mbps
- Low power consumption and current dissipation
- +3~+5V power source

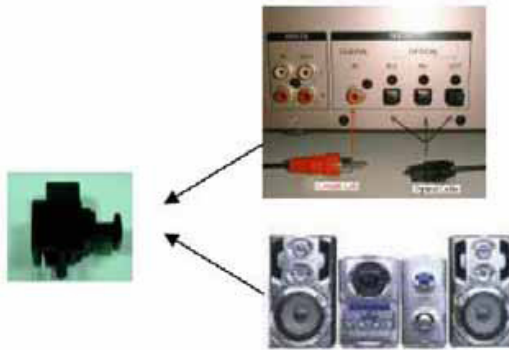
**Descriptions**

The 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 +3~+5V and the input signal is TTL compatible. The DLR1112 has a maximum operating speed of 16 Mbps.

**Applications**

- Audio equipment
- Digital optical data link
- MD
- Sound card



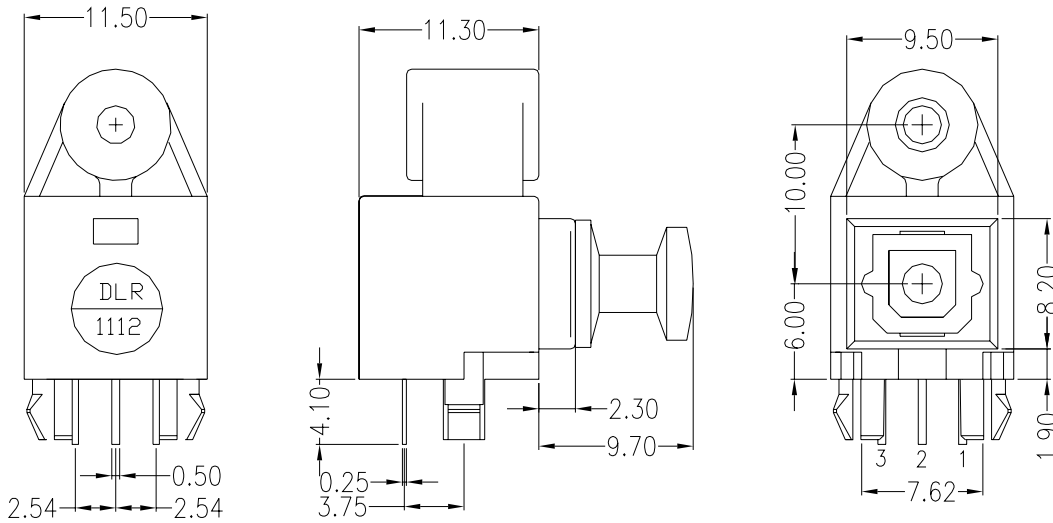
**Device Selection Guide**

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

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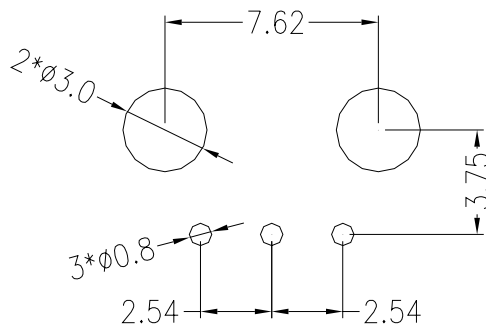
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**Package Dimensions**



- Notes:**
1. All dimensions are in millimeters.
  2. General Tolerance:  $\pm 0.2\text{mm}$
  3. Pin Function: 1.Vout 2.GND 3.Vcc

**PCB Layout For Electrical Circuit**



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



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Absolute Maximum Ratings( Ta = 25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	5.5	V
Storage Temperature	Tstg	-30 to 80	°C
Operating Temperature	Topr	-20 to 70	°C
Soldering Temperature	Tsol	260*	°C

\* Soldering time ≤ 5s / 2times.

Electro-Optical Characteristics

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	Vcc	-	2.7	-	5.5	V
Peak Detective Wavelength	λp	-	-	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	Pi	*1	-24	-	-14.5	dBm
Dissipation Current	Icc	*2	-	6.5	15	mA
High Level Output Voltage	VOH		2.4	-	-	v
Low Level Output Voltage	VoL		-	-	0.4	v
Rise Time	tr	*3	-	-	25	ns
Fall Time	tf	*3	-	-	25	ns
Low → High propagation delay time	tPLH	*3	-	-	100	ns
High → Low propagation delay time	tPHL	*3	-	-	100	ns
Jitter time	Δtj	*3	-	1.5	15	ns

The DLR1112 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°C±5°C	5 sec./2times	22	n=22, c=0
2	High temp. & Hum. storage	Ta=80°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/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 Overall amplitude:1.5mm 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%

TPLH (propagation L → H delay time): DELAY TIME DIFFERENCE < 20%

TPHL (propagation H → L delay time): DELAY TIME DIFFERENCE < 20%

Tr (rise time): TIME DIFFERENCE < 20%

Tf (fall time): TIME DIFFERENCE < 20%

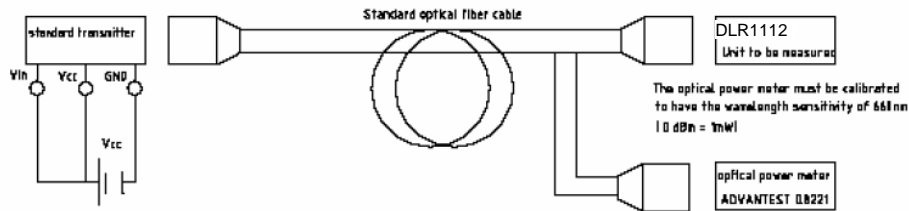
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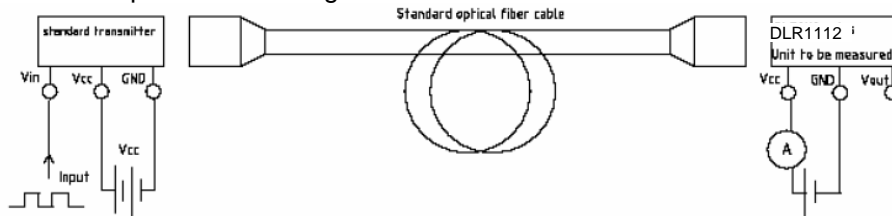
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#### Measuring Method

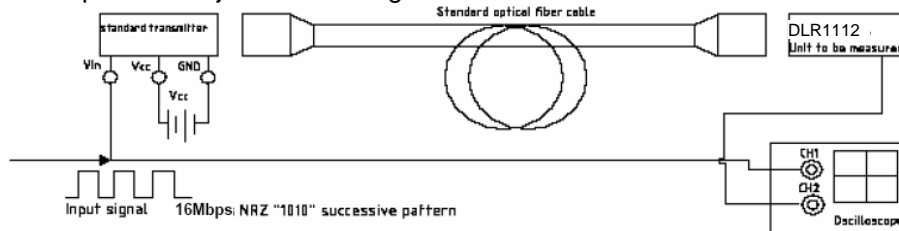
\*1 Maximum receiver input optical power/Minimum receiver input optical power



\*2 Current dissipation measuring method



\*3 Pulse response and jitter measuring method



#### Precautions for Using Method

1. Connect a by-pass capacitor (0.1uF) close to the DLR1112 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.

