



东莞市爱鑫光电科技有限公司

Aixin Opto-electrical Technology Co.,LTD

地址: 东莞市道滘镇小河工业区 TEL:0769-22474638 FAX:0769-22486470

FIBER OPTIC DATA LINK

DATA SHEET

MODEL NO : DLR2150

DATE : 2011-01-27

VERSION : A.0

DEVICE NO. : GM-FS-RD-155

| CUSTOMER | DESIGNER | CHECKER | APPROVER |
|----------|----------|---------|----------|
| | | | |



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Features

- High PD sensitivity for red light
- High speed up to 25 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 DLR2150 has a maximum operating speed of 25 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) | | | Min. | Typ. | Max. |
| Si | 650 | 2.7~5.5 | 2.5 | -24 | - | -14.5 |

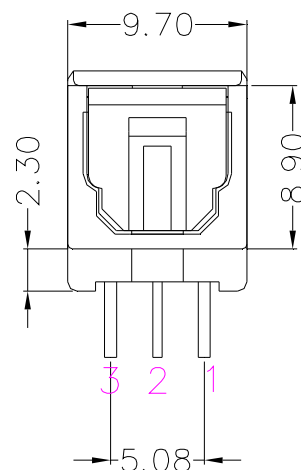
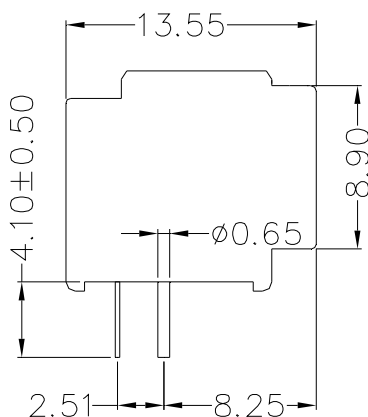
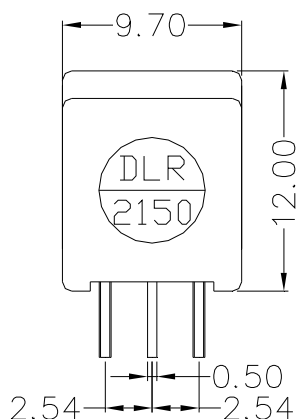


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Package Dimensions



Notes: 1.All dimensions are in millimeters.

2.General Tolerance:±0.2mm

Pin Function

1. Vout
2. GND
3. Vcc

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 ≤ 5s / 2 times.



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Electro-Optical Characteristics

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|----------------------------------|-------------|-------------------|------|------|-------|------|
| Operating Voltage | Vcc | - | 2.7 | - | 5.5 | V |
| Peak Detective Wavelength | λ_p | - | - | 650 | - | nm |
| Transfer Speed | | NRZ signal | 0.1 | - | 25 | Mbps |
| Receiving Distance | | Using APF | 0.2 | - | 20 | m |
| Pulse Width Distortion | Δtw | 25Mbps NRZ Signal | -11 | - | 11 | ns |
| Input Light power | Pi | *1 | -24 | - | -14.5 | dBm |
| Dissipation Current | Icc | *2 | - | 2.5 | 10 | mA |
| High Level Output Voltage | VOH | | 2.4 | - | - | v |
| Low Level Output Voltage | VoL | | - | - | 0.4 | v |
| Rise Time | t_r | *3 | - | - | 25 | ns |
| Fall Time | t_f | *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 | 10 | ns |

*Light Input after APF should satisfy Pi range.

The DLR2150 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=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 0.4kg<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%



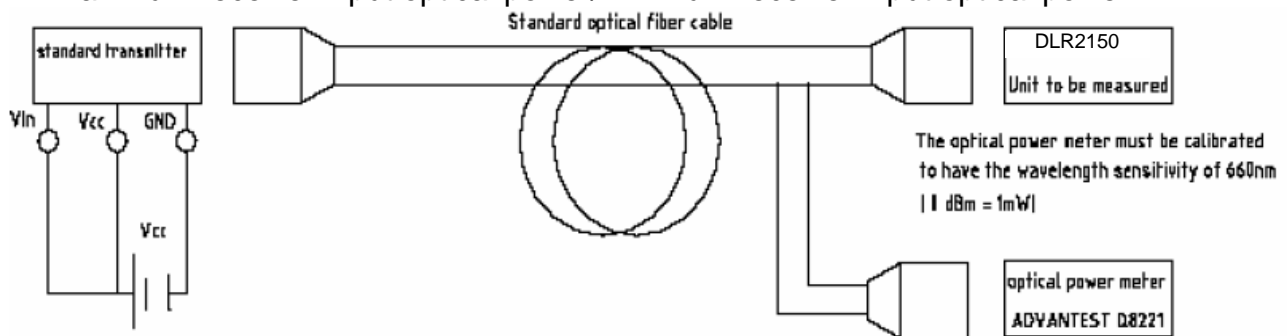
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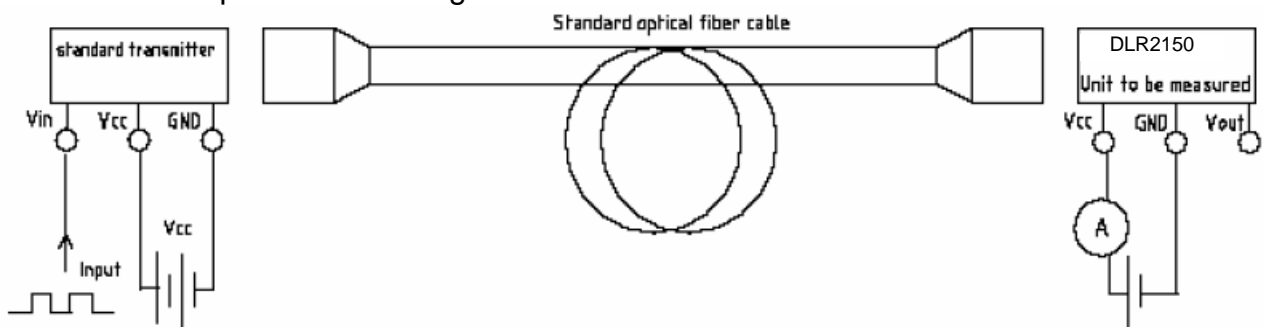
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Measuring Method

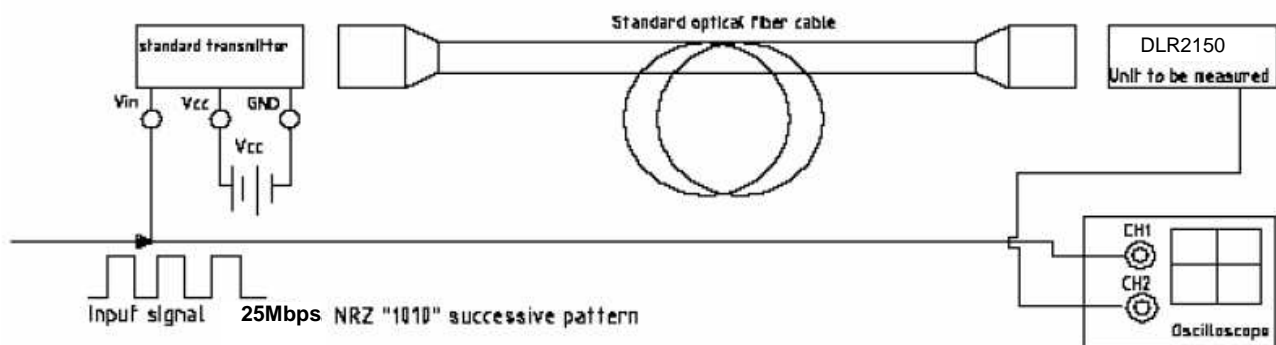
*1 Maximum receiver input optical power/Minimum receiver input optical power



*2 Current dissipation measuring method



*3 Pulse response and jitter measuring method



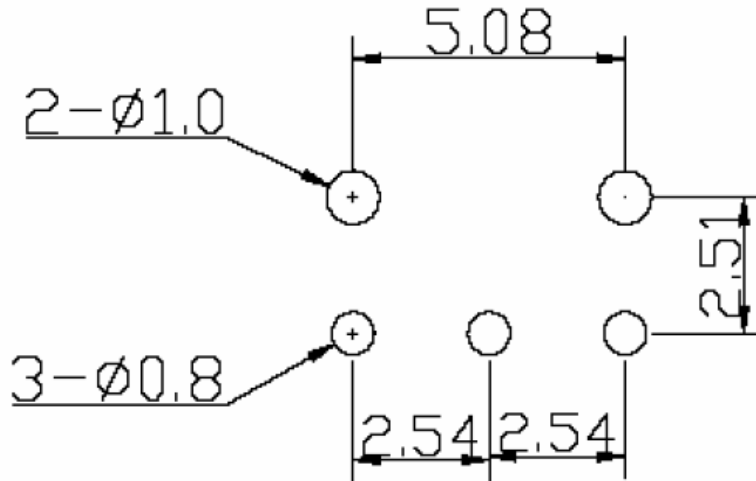


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PCB Layout For Electrical Circuit

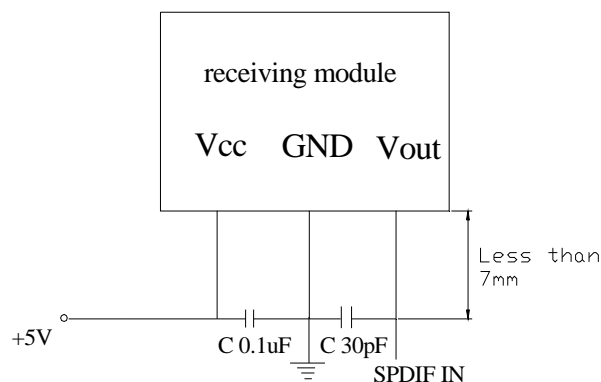


Notes:

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 DLR2150 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.





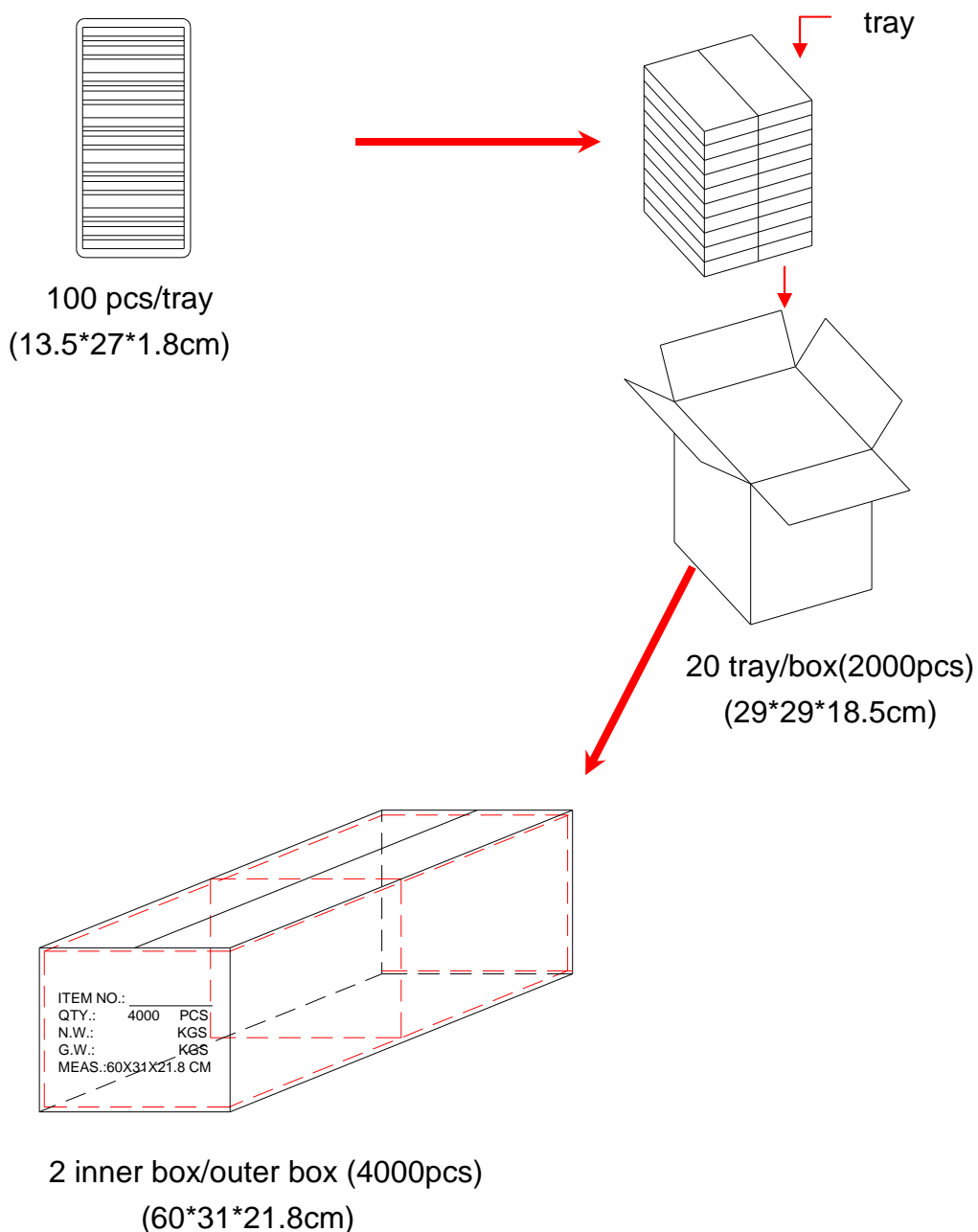
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Package

| Item | Quantity | Total | Size (long*width*high) |
|-----------|-----------------------|----------|------------------------|
| Tray | 1 | 100 pcs | 13.5*27*1.8cm |
| Inner box | 20 tray/box | 2000 pcs | 29*29*18.5 cm |
| Outer box | 2 inner box/outer box | 4000 pcs | 60*31*21.8 cm |





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| REV | DESCRIPTION | RELEASE DATE |
|-----|-------------|--------------|
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