

Technical Data Sheet
Opto Interrupter**ITR1100****Features**

- Fast response time
- High analytic
- High sensitivity
- Pb/Halogens free
- RoHS compliant

Descriptions

ITR1100 is an ultra small outline photo-interrupter, integrating both infrared emitter and silicon phototransistor detector with plastic molding housing.

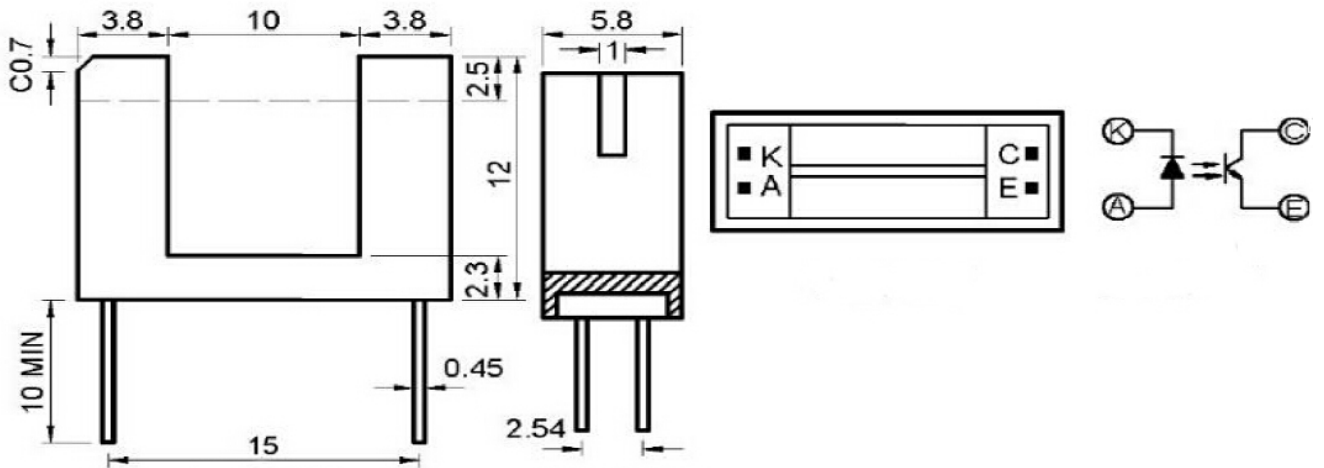
Applications

- Printer
- Digital Camera
- Optical switch

Device Selection Guide

| Device No. | Chip Material |
|------------|---------------|
| IR | AlGaAs |
| PT | Silicon |

Package Dimensions



- Notes:**
1. All dimensions are in millimeters
 2. Tolerances: $\pm 0.2\text{mm}$

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Absolute Maximum Ratings (Ta=25 °C)

| Parameter | | Symbol | Rated | Unit |
|--|--|--------------------|----------|------|
| Input | Power Dissipation at (or below) 25 °C Free Air Temperature | Pd | 75 | mW |
| | Reverse Voltage | V _R | 5 | V |
| | Forward Current | I _F | 50 | mA |
| | Peak Forward Current* ¹ | I _{FP} | 1 | A |
| Output | Collector Power Dissipation | P _C | 75 | mW |
| | Collector Current | I _C | 20 | mA |
| | Collector-Emitter Voltage | B V _{CEO} | 30 | V |
| | Emitter-Collector Voltage | B V _{ECO} | 5 | V |
| Operating Temperature | | Topr | -40~+85 | |
| Storage Temperature | | Tstg | -40~+100 | |
| Lead Soldering Temperature* ² | | Tsol | 260 | |

* 1. Pulse width t_w = 100μs, Period T=10ms * 2 t_s = 5sec

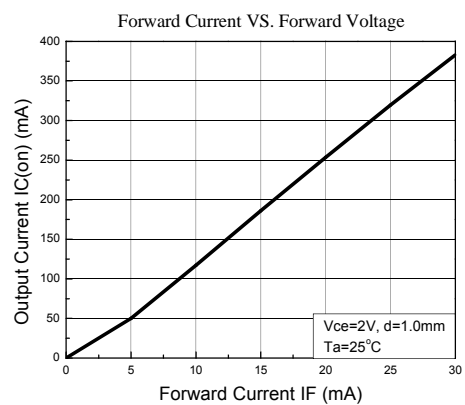
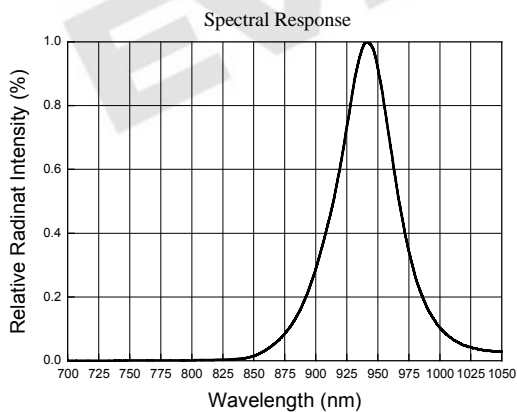
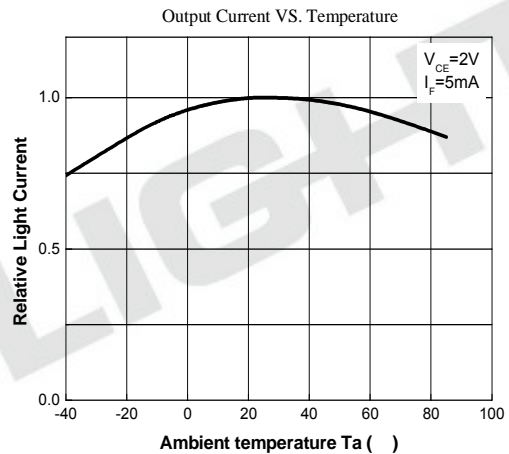
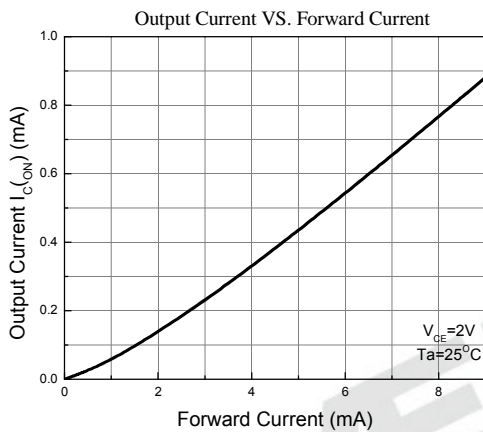
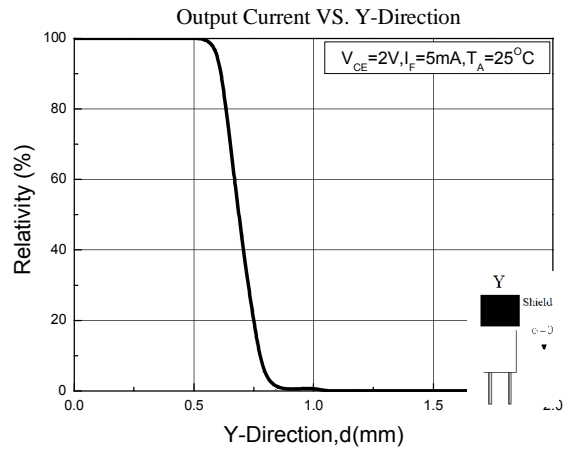
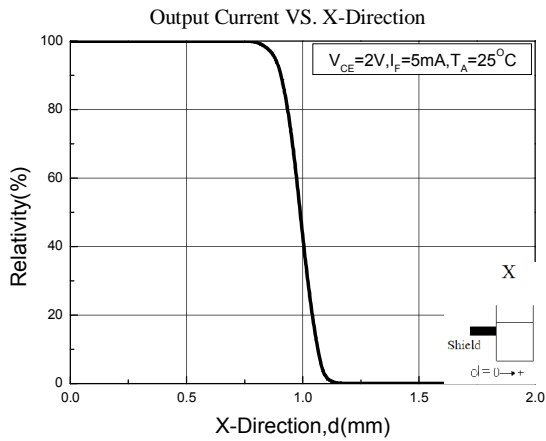
Electro-Optical Characteristics (Ta=25 °C)

| Parameter | | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------|------------------------|----------------------|------|------|------|------|--|
| Input | Forward Voltage | V _F | --- | 1.2 | 1.6 | V | I _F =20mA |
| | Reverse Current | I _R | --- | --- | 10 | μA | V _R =6V |
| | Peak Wavelength | λ _P | --- | 940 | --- | nm | I _F =20mA |
| Output | Dark Current | I _{CEO} | --- | --- | 100 | nA | V _{CE} =20V |
| | C-E Saturation voltage | V _{CE(sat)} | --- | --- | 0.4 | V | I _C =0.05mA I _F =10mA |
| Transfer Characteristics | Collector Current | I _{C(ON)} | 0.5 | --- | 10 | mA | V _{CE} =2V, I _F =5mA |
| | Rise time | t _r | --- | 15 | --- | μs | V _{CE} =5V I _C =1mA |
| | Fall time | t _f | --- | 15 | --- | μs | R _L =1KΩ |

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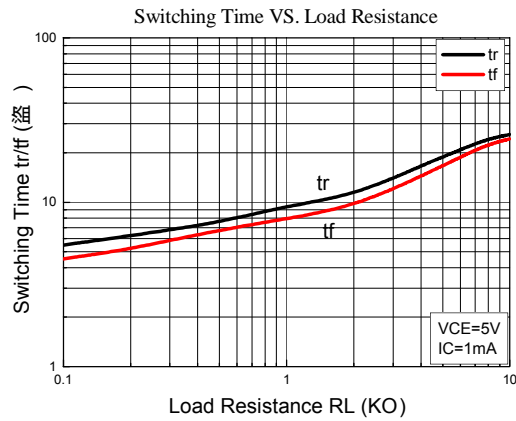
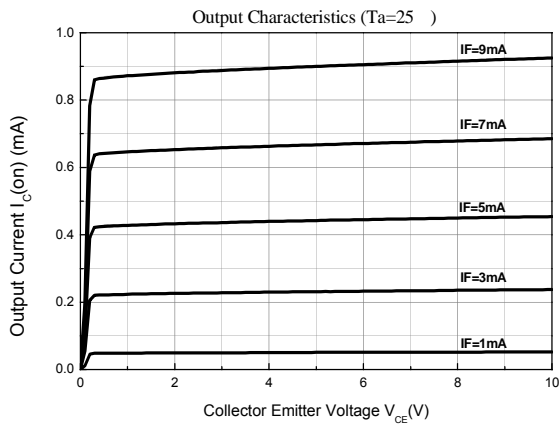
Typical Electro-Optical Characteristics Curves



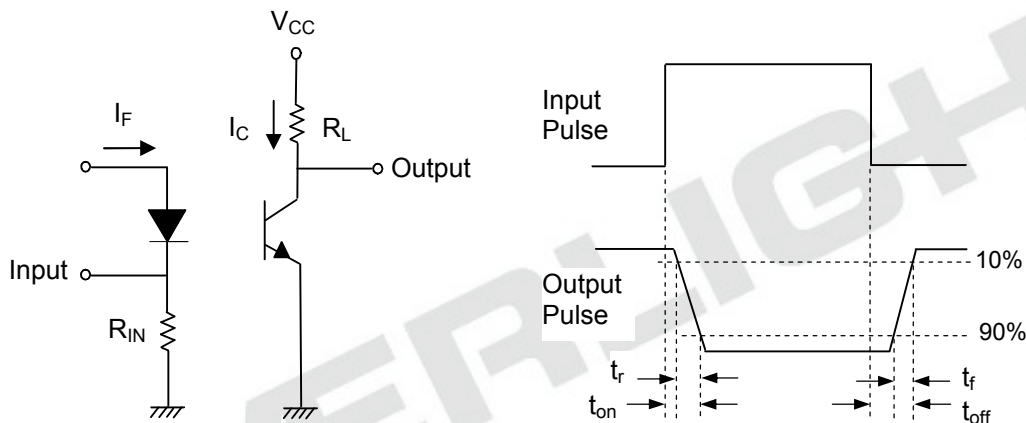
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Typical Electro-Optical Characteristics Curves



Measuring Circuit For Response Time



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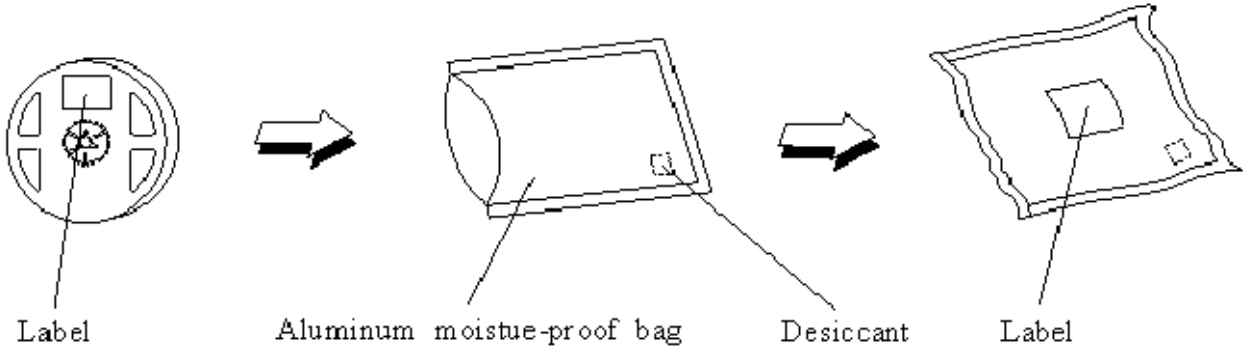
Packing Quantity Specification

1. 150pcs/1 bag

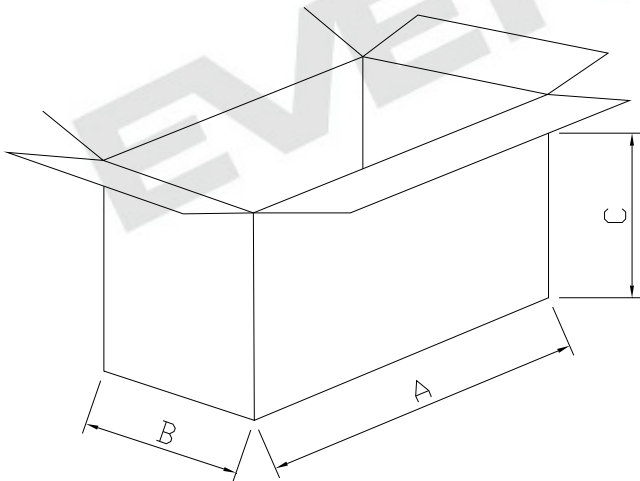
Moisture Resistant Packaging

Aluminum Moisture-Proof Bag Dimension : 400mm*375mm

Vacuum Package



Outer Carton Dimension : 490mm(A)*370mm(B)*360mm(C)



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Reliability Test Item And Condition

The reliability of products shall be satisfied with items listed below.

Confidence level : 90% LTPD : 10%

| NO. | Item | Test Conditions | Test Hours/ Cycles | Sample Sizes | Failure Judgement Criteria | Ac/Re |
|-----|---|---|-----------------------|-----------------|--|-------|
| 1 | RSH | Reflow 260°C | 10secs | 22pcs | Ic(ON) Lx0.8 U : Upper Specification Limit L : Lower Specification Limit | 0/1 |
| 2 | Temperature Cycle | H : +100 15mins ↕ 5mins L : -40 15mins | 300Cycles | 22pcs | | 0/1 |
| 3 | High Temperature Storage | TEMP. : +100 | 1000hrs | 22pcs | | 0/1 |
| 4 | Low Temp Burn in | Ta = -40°C, If =5mA, Vce=5V | 1000hrs | 22pcs | | 0/1 |
| 5 | High Temp Burn in | Ta = +85°C, If =5mA, Vce=5V | 1000hrs | 22pcs | | 0/1 |
| 6 | Room Temp Burn in | Ta = +25°C, If =5mA, Vce=5V | 1000hrs | 22pcs | | 0/1 |
| 7 | High Temperature/ High Humidity/ Operating Life | +85 / 85% R.H If =5mA, Vce=5V | 1000hrs | 22pcs | | 0/1 |

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Precautions For Use

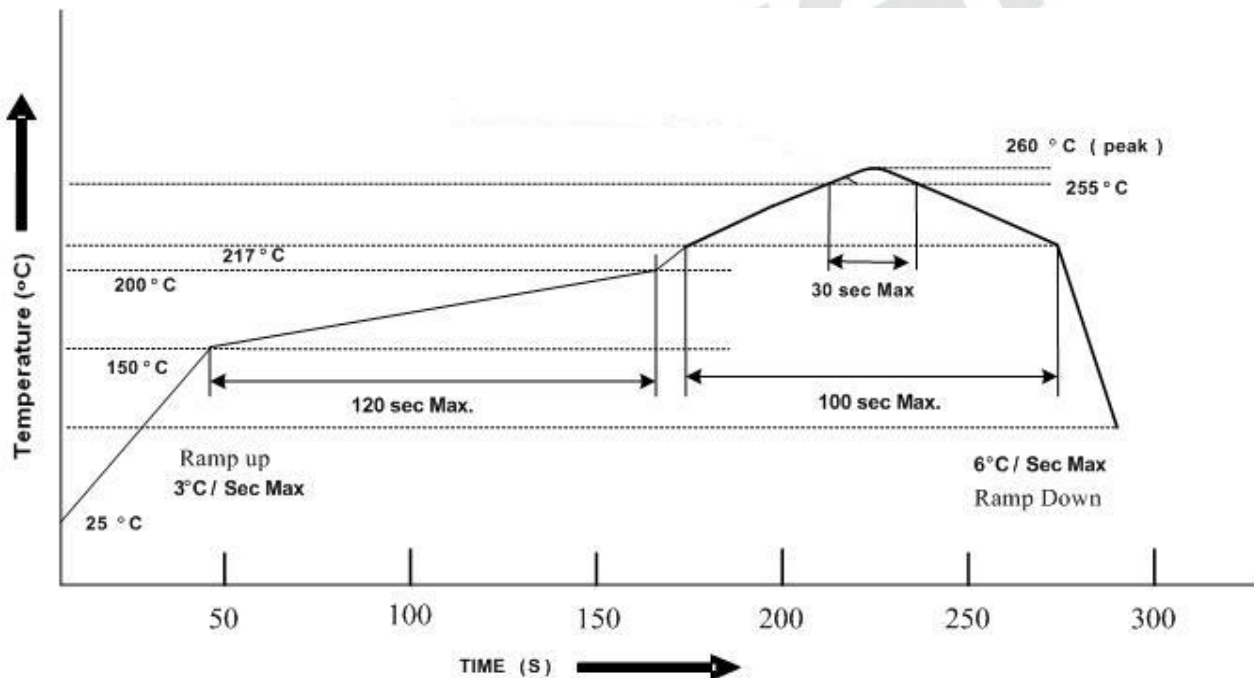
The following are general recommendations for moisture sensitive level (MSL) 3 storage and use :

1. Storage

- 1.1 Do not open moisture proof bag before the products are ready to use.
- 1.2 Before opening the package, the device should be kept at 30 °C or less and 90%RH or less.
- 1.3 The device should be used within a year.
- 1.4 After opening the package, the device should be kept at 30 °C or less and 70%RH or less.
- 1.5 The device should be used within 168 hours (7 days) after opening the package.
- 1.6 If the moisture absorbent material (silica gel) has faded away or the device have exceeded the storage time, baking treatment should be performed using the following conditions.
 Baking treatment : 60±5 °C for 24 hours.

2. Soldering Condition

2.1 Pb-free solder temperature profile



- 2.2 Reflow soldering should not be done more than two times.
- 2.3 When soldering, do not put stress on the device during heating.

2.4 After soldering, do not warp the circuit board.

3. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350 for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

4. Repairing

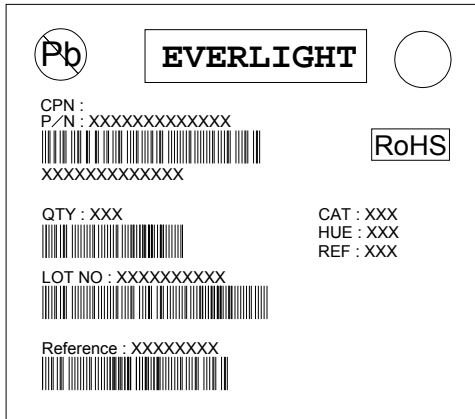
Repair should not be done after the device have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the device will or will not be damaged by repairing.

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Label Form Specification



CPN: Customer's Production Number
P/N : Production Number
QTY: Packing Quantity
CAT: Ranks
HUE: Peak Wavelength
REF: Reference
LOT No: Lot Number
MADE IN TAIWAN: Production Place

Notes

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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