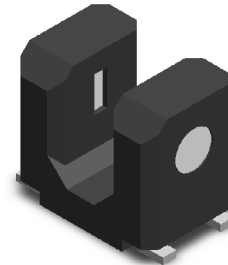


## Technical Data Sheet Opto Interrupter

### ITR1205ST11A/TR

#### Features

- Gap : 1.1 mm
- Slit : 0.3 mm
- Compact SMD Package
- Pb/Halogens free
- RoHS compliant



#### Descriptions

**ITR1205ST11A/TR** is an ultra small outline photo-interrupter, integrating both infrared emitter and silicon phototransistor detector with plastic molding housing.

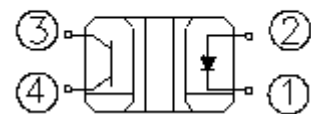
#### Applications

- Printer
- Digital Camera
- Optical switch

#### Device Selection Guide

Device No.	Chip Material
IR	AlGaAs
PT	Silicon

TOP VIEW



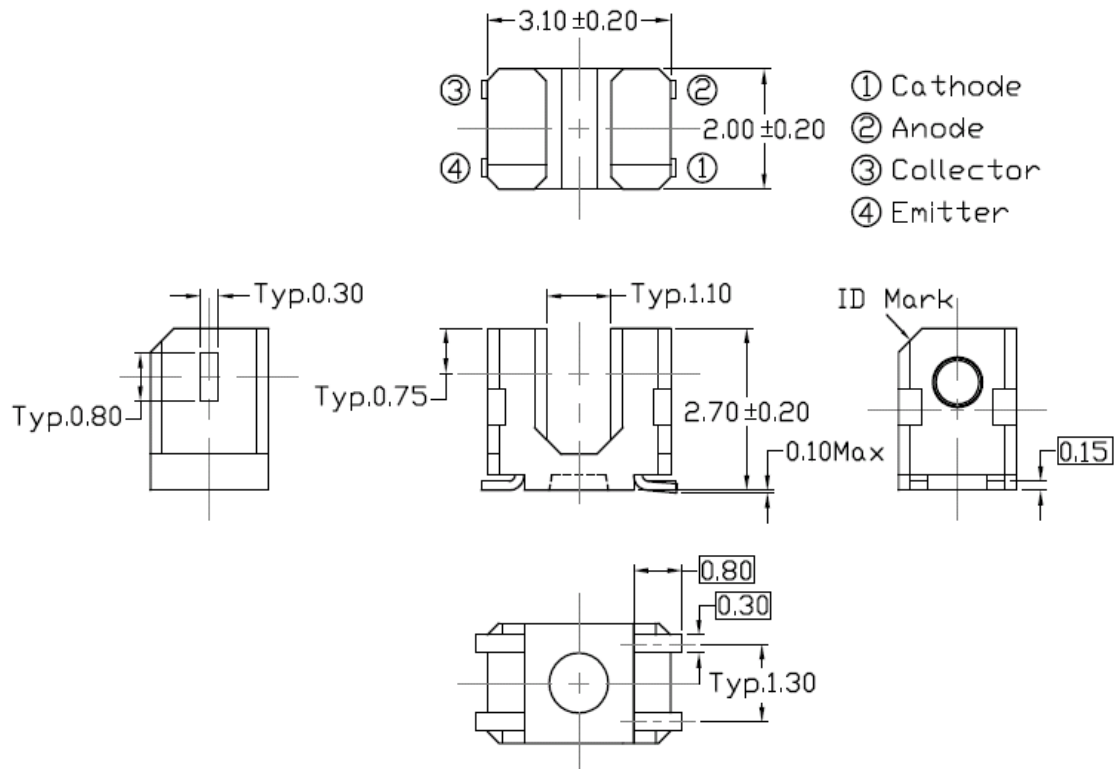
#### Pin Configuration

1. Cathode
2. Anode
3. Collector
4. Emitter

## Technical Data Sheet Opto Interrupter

### ITR1205ST11A/TR

#### Package Dimensions



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

# Technical Data Sheet

## Opto Interrupter

ITR1205ST11A/TR

### Absolute Maximum Ratings (Ta=25 °C)

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25 °C Free Air Temperature	Pd	75	mW
	Reverse Voltage	V <sub>R</sub>	5	V
	Forward Current	I <sub>F</sub>	50	mA
	Peak Forward Current* <sup>1</sup>	I <sub>FP</sub>	1	A
Output	Collector Power Dissipation	P <sub>C</sub>	75	mW
	Collector Current	I <sub>C</sub>	20	mA
	Collector-Emitter Voltage	B V <sub>CEO</sub>	35	V
	Emitter-Collector Voltage	B V <sub>ECO</sub>	6	V
Operating Temperature		Topr	-40~+85	
Storage Temperature		Tstg	-40~+100	
Lead Soldering Temperature* <sup>2</sup>		Tsol	260	

\* 1. Pulse width t<sub>w</sub> =100μs , Period T=10ms \* 2 t<sub>s</sub> = 5sec

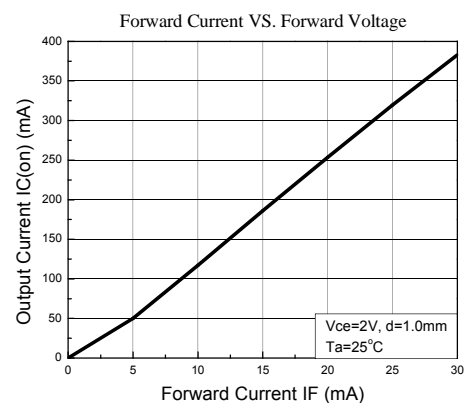
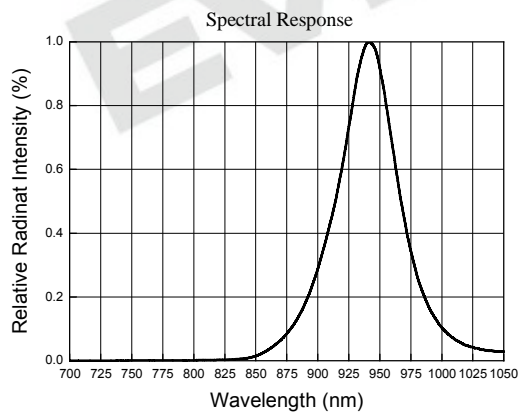
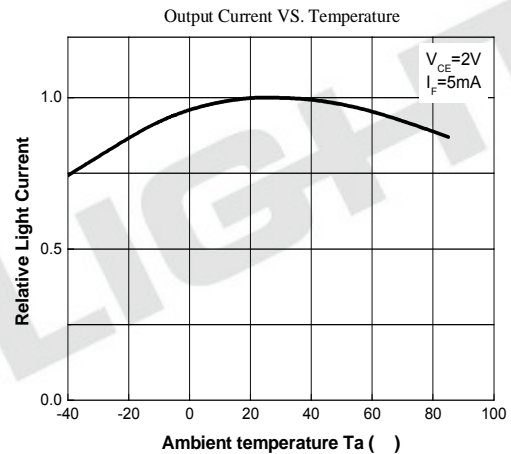
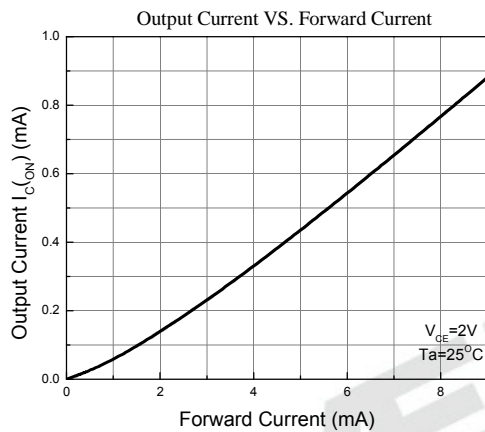
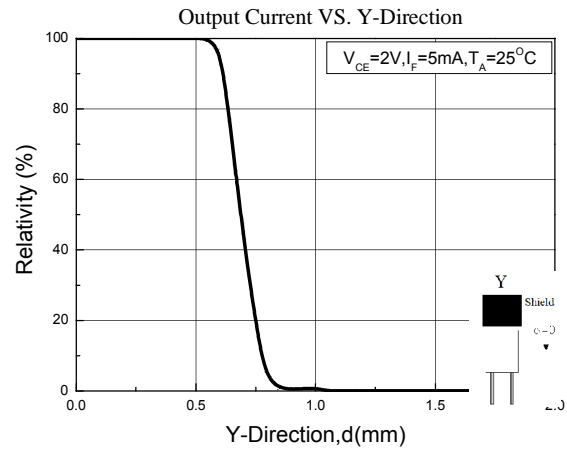
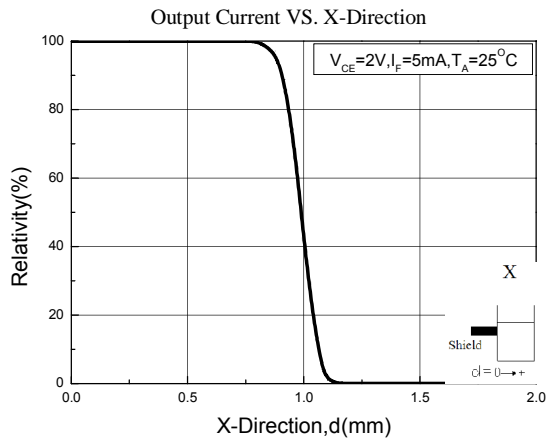
### Electro-Optical Characteristics (Ta=25 °C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V <sub>F</sub>	---	1.2	1.4	V	I <sub>F</sub> =20mA
	Reverse Current	I <sub>R</sub>	---	---	10	μA	V <sub>R</sub> =6V
	Peak Wavelength	λ <sub>P</sub>	---	940	---	nm	I <sub>F</sub> =20mA
Output	Dark Current	I <sub>CEO</sub>	---	---	0.1	μA	V <sub>CE</sub> =20V
	C-E Saturation voltage	V <sub>CE(sat)</sub>	---	---	0.4	V	I <sub>C</sub> =0.05mA I <sub>F</sub> =10mA
Transfer Characteristics	Collector Current	I <sub>C(ON)</sub>	150	---	1000	μA	V <sub>CE</sub> =2V, I <sub>F</sub> =5mA
	Rise time	t <sub>r</sub>	---	9	---	μs	V <sub>CE</sub> =5V I <sub>C</sub> =1mA
	Fall time	t <sub>f</sub>	---	8	---	μs	R <sub>L</sub> =1KΩ

## Technical Data Sheet Opto Interrupter

## ITR1205ST11A/TR

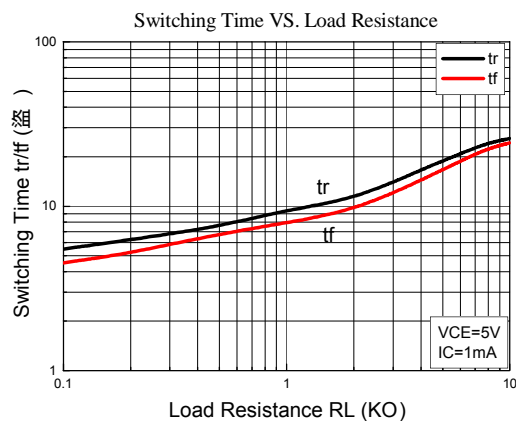
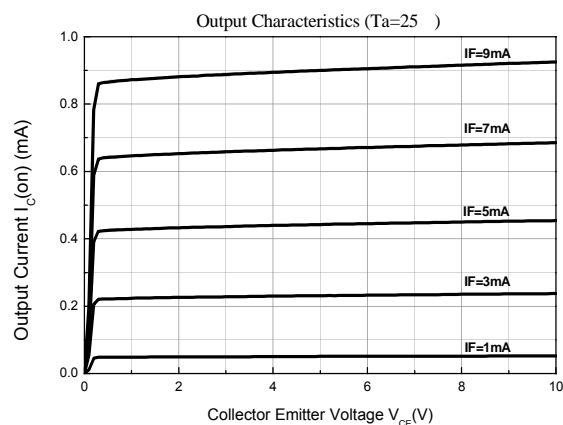
### Typical Electro-Optical Characteristics Curves



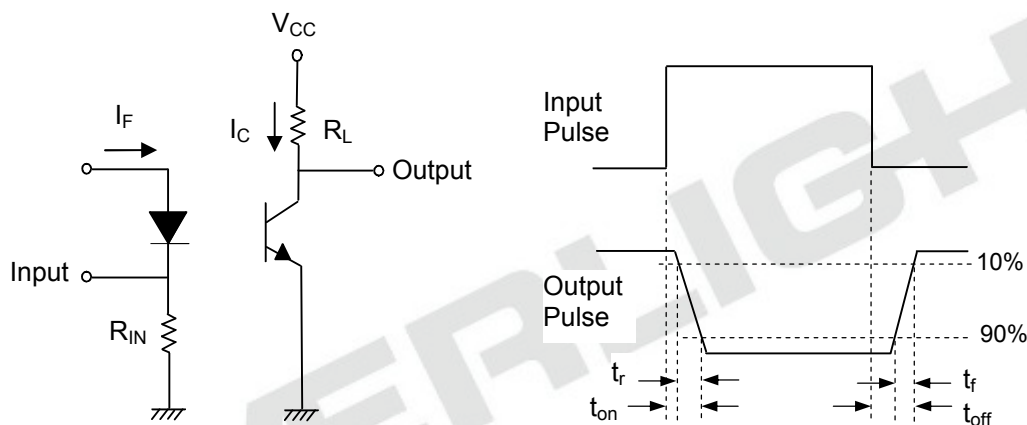
## Technical Data Sheet Opto Interrupter

## ITR1205ST11A/TR

### Typical Electro-Optical Characteristics Curves



### Measuring Circuit For Response Time





## Technical Data Sheet

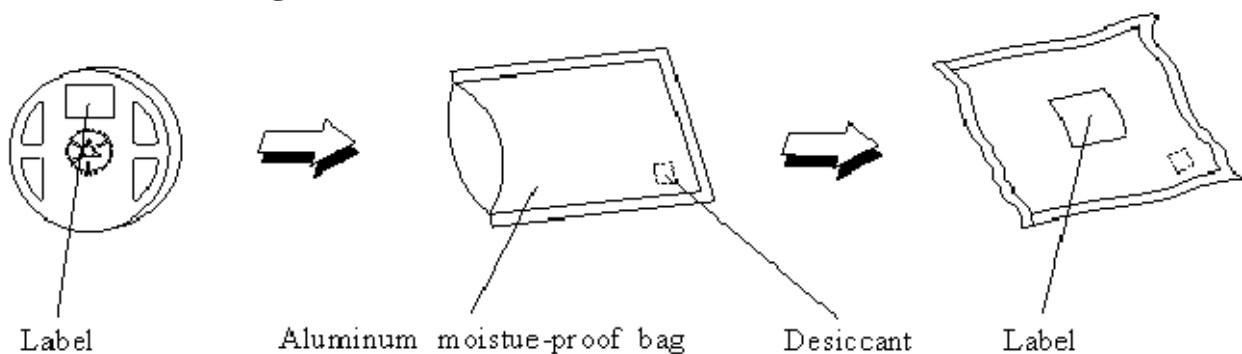
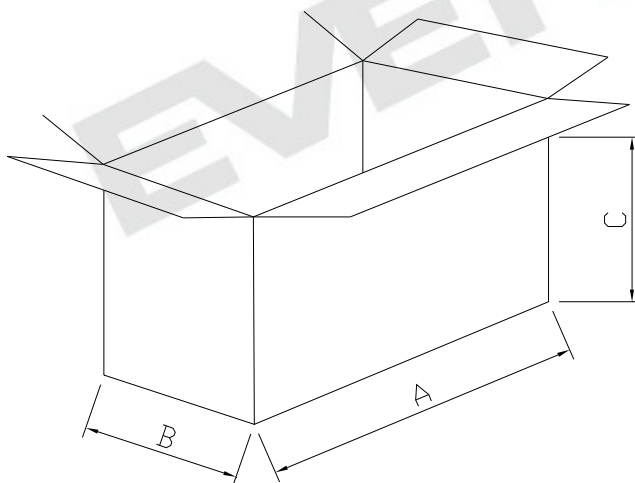
### Opto Interrupter

**ITR1205ST11A/TR**

#### Packing Quantity Specification

1. 3000pcs / 1 Reel
2. 13 Reels (39Kpcs) / 1 Carton

#### Moisture Resistant Packaging

**Aluminum Moisture-Proof Bag Dimension : 400mm\*375mm****Vacuum Package****Outer Carton Dimension : 409mm(A)\*245mm(B)\*360mm(C)**

## Technical Data Sheet Opto Interrupter

## ITR1205ST11A/TR

### 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



# Technical Data Sheet

## Opto Interrupter

**ITR1205ST11A/TR**

### Precautions For Use

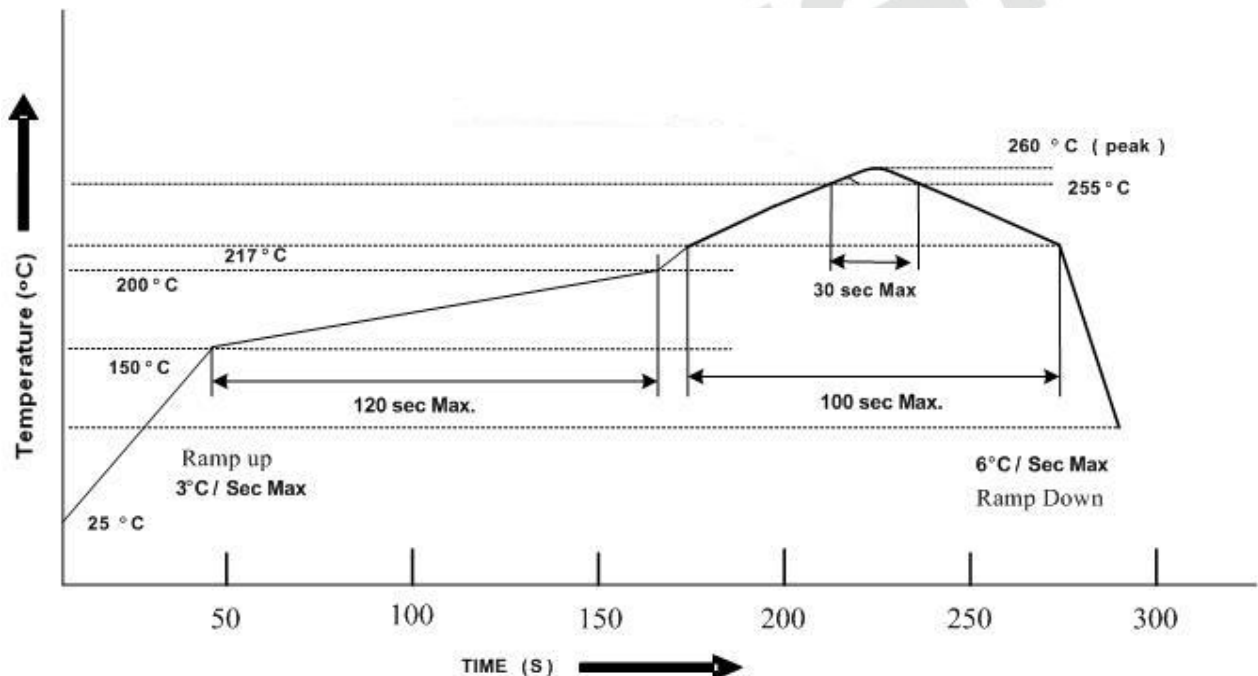
The following are general recommendations for moisture sensitive level (MSL) 3 storage and use :

#### 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.

**Technical Data Sheet**  
**Opto Interrupter****ITR1205ST11A/TR**

---

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.

EVERLIGHT

## Technical Data Sheet Opto Interrupter

## ITR1205ST11A/TR

### Label Form Specification

The diagram shows a rectangular label with the following elements:

- EVERLIGHT** logo at the top center.
- RoHS** logo on the right side.
- CPN :** Customer's Production Number (indicated by a circle with 'Pb' and a circle).
- P/N :** Production Number (indicated by a circle).
- QTY :** Packing Quantity (indicated by a circle).
- CAT :** Ranks (indicated by a circle).
- HUE :** Peak Wavelength (indicated by a circle).
- REF :** Reference (indicated by a circle).
- LOT NO :** Lot Number (indicated by a circle).
- MADE IN TAIWAN :** Production Place (indicated by a circle).
- Barcode for **CPN**.
- Barcode for **P/N**.
- Barcode for **QTY**.
- Barcode for **CAT**.
- Barcode for **HUE**.
- Barcode for **REF**.
- Barcode for **LOT NO**.
- Barcode for **Reference**.

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.
3. These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.

**EVERLIGHT ELECTRONICS CO., LTD.**  
Office: No 6-8, Zhonghua Rd., Shulin Dist.,  
New Taipei City 23860, Taiwan, R.O.C

Tel: 886-2-2685-6688  
Fax: 886-2-2685-6699  
<http://www.everlight.com>