DATASHEET

ITR2006ST30A/TR



Features

- Fast response time
- High sensitivity
- Thin and small package
- Pb free
- This product itself will remain within RoHS compliant version
- Compliance with EU REACH
- Compliance Halogen Free(Br < 900ppm, Cl < 900ppm, Br+Cl < 1500ppm)

Description

- The ITR2006ST30A/TR consists of an infrared emitting diode and a silicon phototransistor encased in a black thermo-plastic housing.
- The advantage of the device is the small package.
- Phototransistor receives radiation from the IR LED only, and avoids the noise from ambient light.

Applications

- Camera
- Copier
- Scanner
- Non-contact Switching

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Device Selection Guide

Device No.	Chip Material	Lens Color
IR	GaAlAs	Water clear
PT	Silicon	Black

Absolute Maximum Ratings (Ta=25℃)

Parameter		Symbol	Ratings	Units
Input	Power Dissipation at (or below) 25℃ Free Air Temperature	Pd	75	mW
	Reverse Voltage	V_R	5	V
	Continuous Forward Current	I_F	50	mA
Output	Power Dissipation at (or below) 25℃ Free Air Temperature	Pd	75	mW
	Collector Current	I_C	20	mA
	Collector-Emitter Voltage	BV_{CEO}	30	V
	Emitter-Collector Voltage	BV_{ECO}	5	V
Operating Temperature		Topr	-25~+80	℃
Storage Temperature		Tstg	-40~+85	℃
Lead Soldering Temperature *1 (3mm from the package)		Tsol	260	℃

Notes: *1. Soldering time≦5 sec.

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Electro-Optical Characteristics (Ta=25℃)

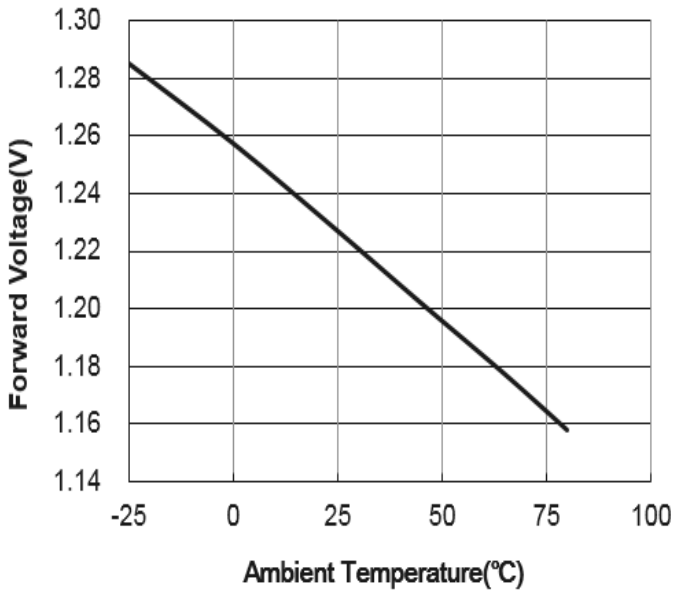
Parameter		Conditions	Symbol	Min.	Typ.	Max.	Unit
Input	Forward Voltage	I_F=20mA	V_F	---	1.23	1.6	V
	Reverse Current	V_R=5V	I_R	---	---	10	μA
	Peak Wavelength	I_F=20mA	λ_P	---	940	---	nm
Output	Collector Dark Current	V_{CE}=20V	I_{CEO}	---	---	100	nA
	Collector-Emitter Saturation Voltage	IF=10mA I_C=0.1mA	$V_{CE(sat)}$	---	---	0.4	V
Transfer Characteristics	On State Collector Current	V_{CE}=5V I_F=20mA	$I_{C(on)}$	0.2	---	5.0	mA
	Rise time	V_{CC}=5V I_C=1mA R_L=1KΩ	t_r	---	15	---	μsec
	Fall time		t_f	---	15	---	μsec

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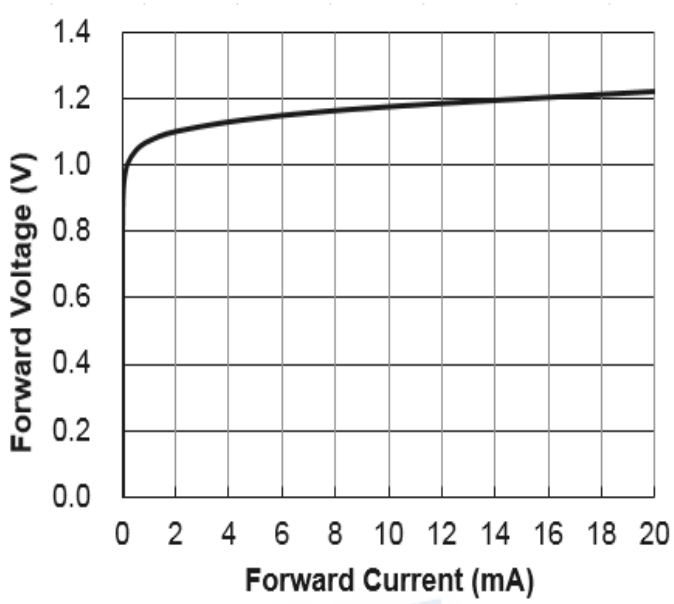
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Typical Electrical/Optical/Characteristics Curves for IR

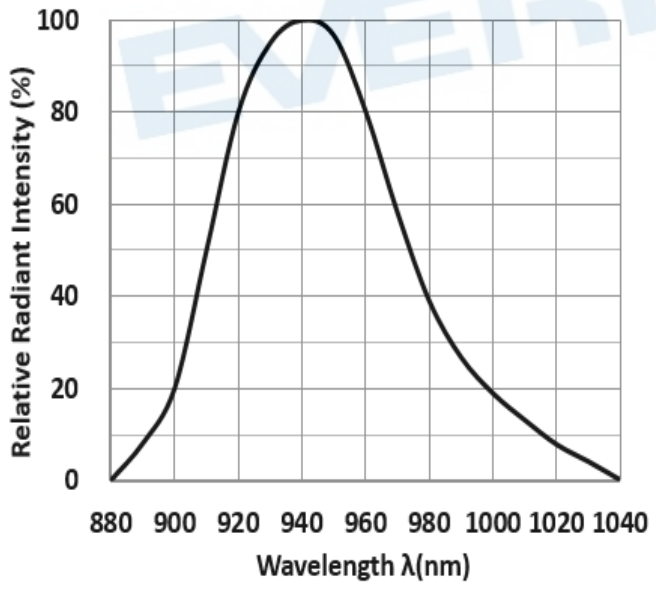
Forward Voltage VS. Ambient Temperature



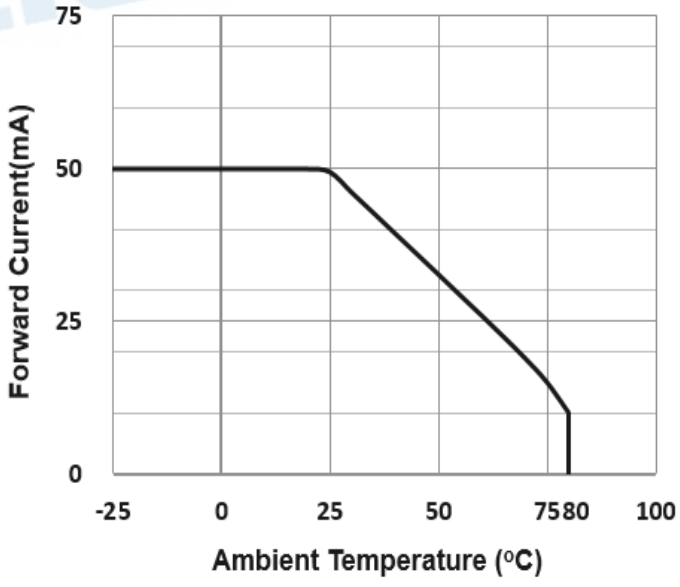
Forward Current vs. Forward Voltage



Spectral Distribution



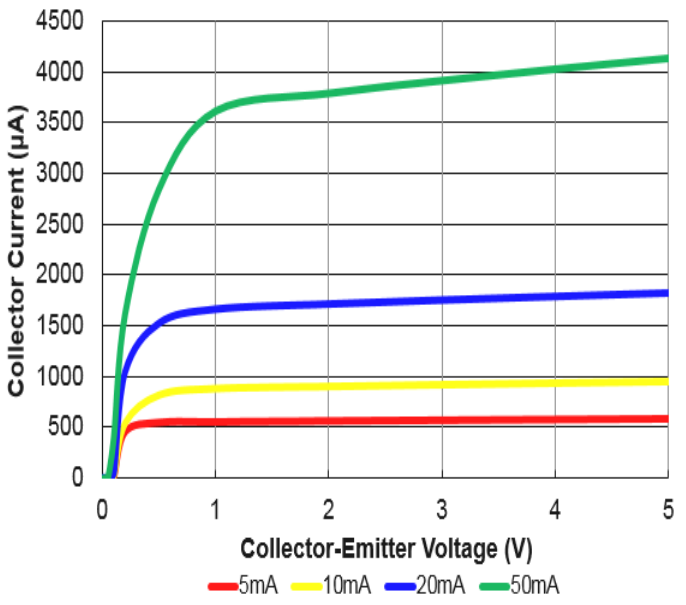
Forward Current vs. Ambient Temperature



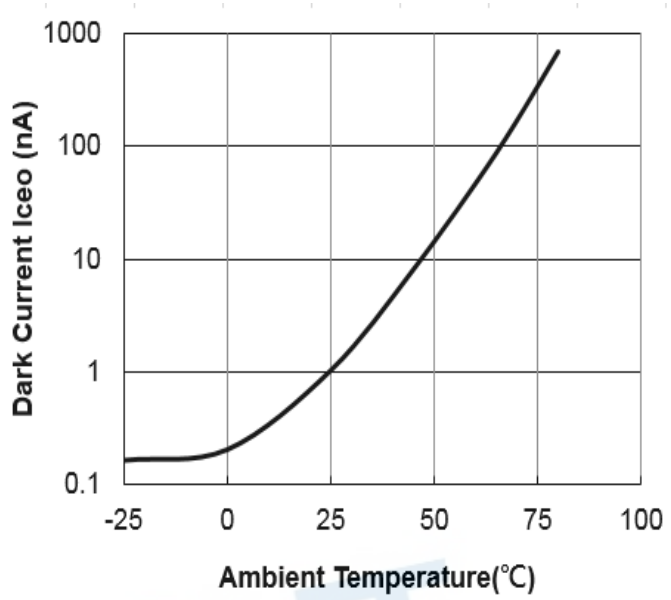
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Typical Electrical/Optical/Characteristics Curves for PT

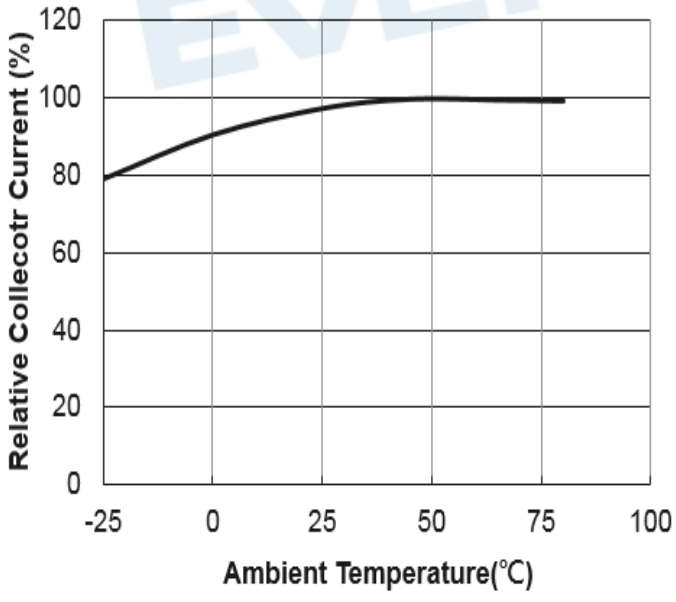
Collector Current vs. Collector-Emitter Voltage



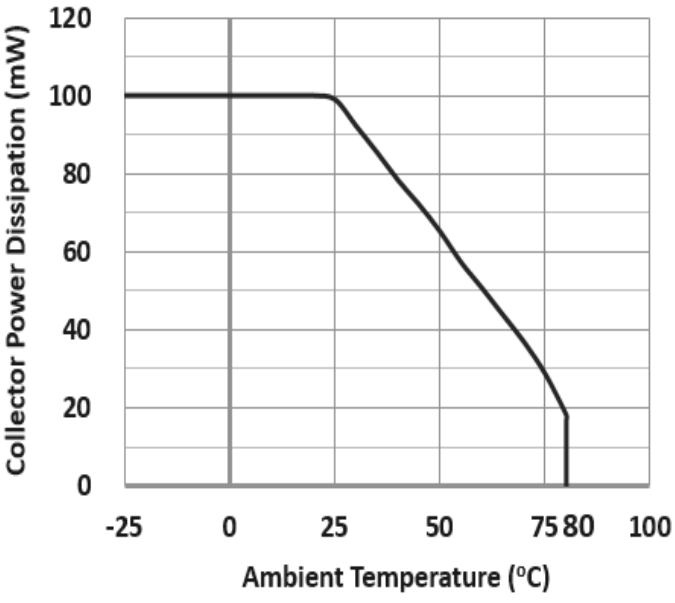
Collector Dark Current vs. Ambient Temperature



Relative Collector Current vs Ambient Temperature



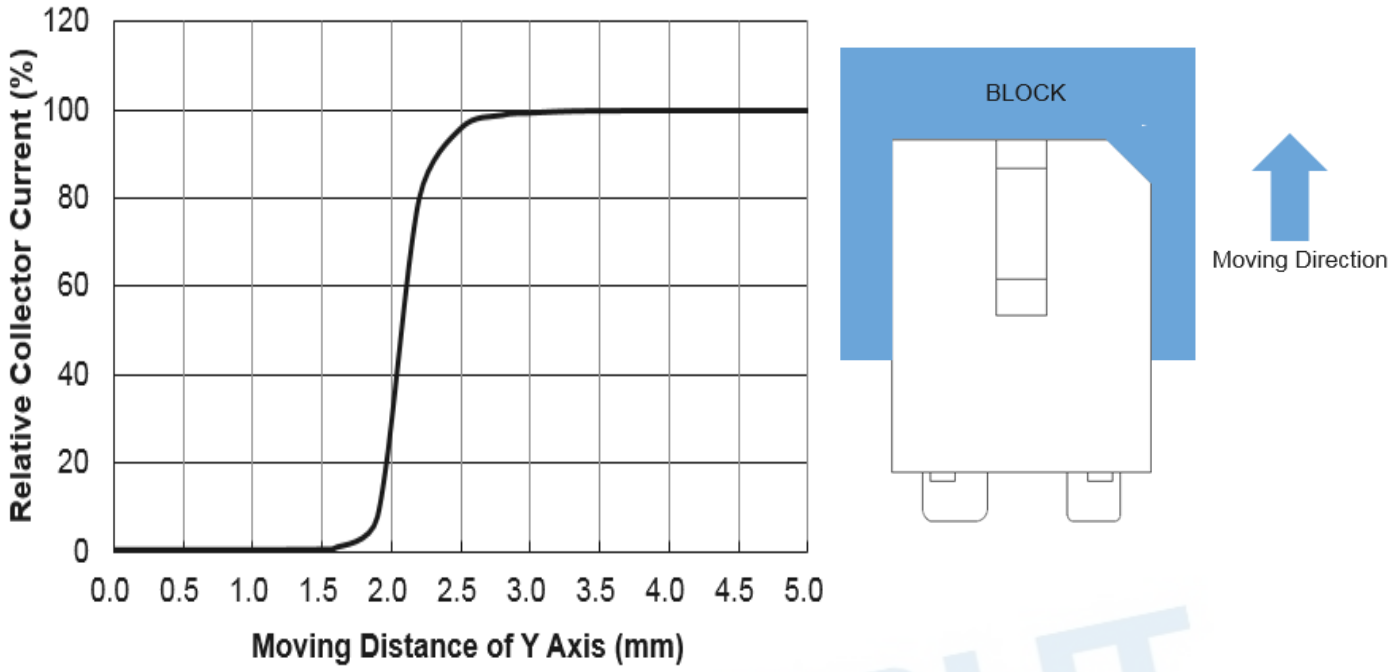
Collector Power Dissipation vs. Ambient Temperature



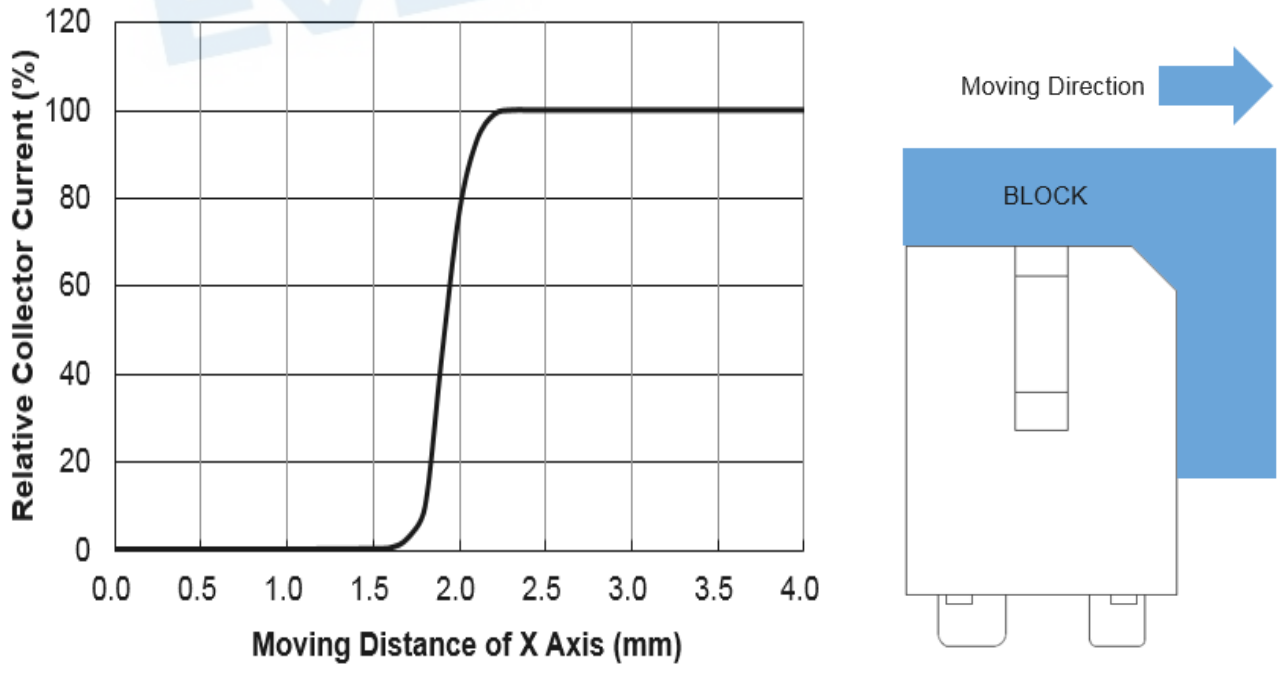
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Typical Electro/Optical/Characteristics Curves for ITR

Output Current vs Moving Distance of Y Axis



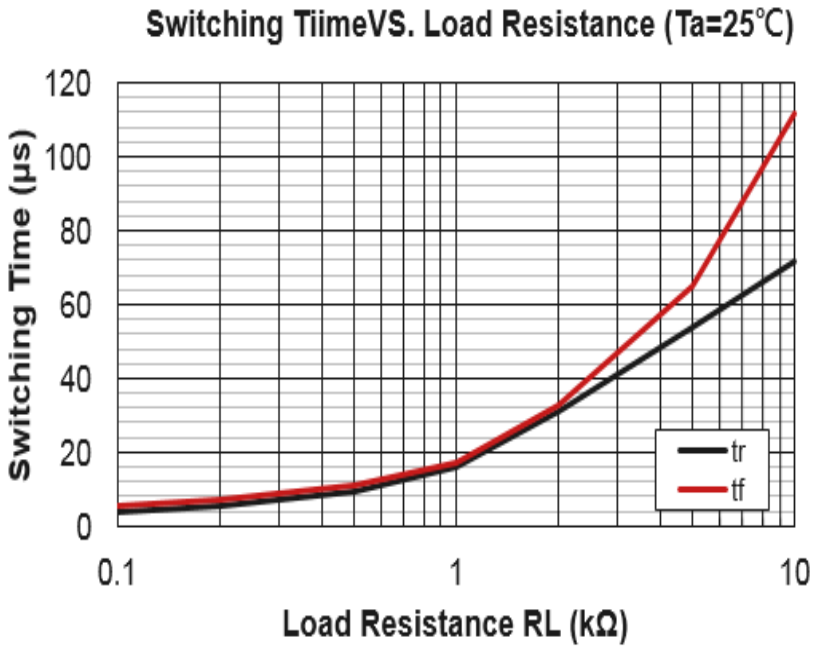
Output Current vs Moving Distance of X Axis

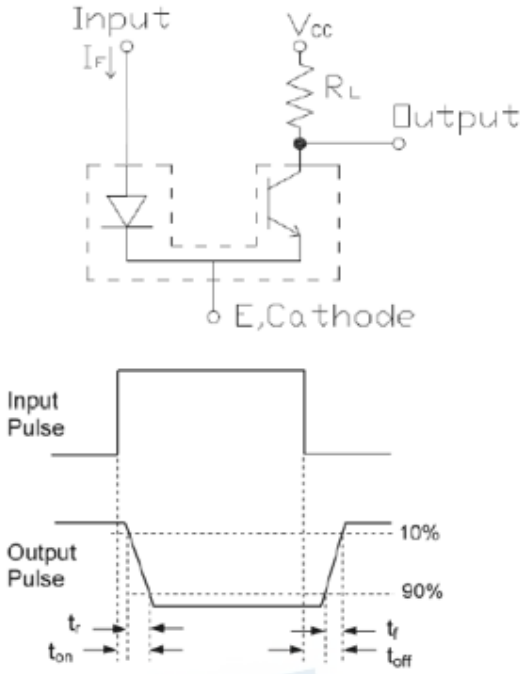


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Response Time vs Load Resistance

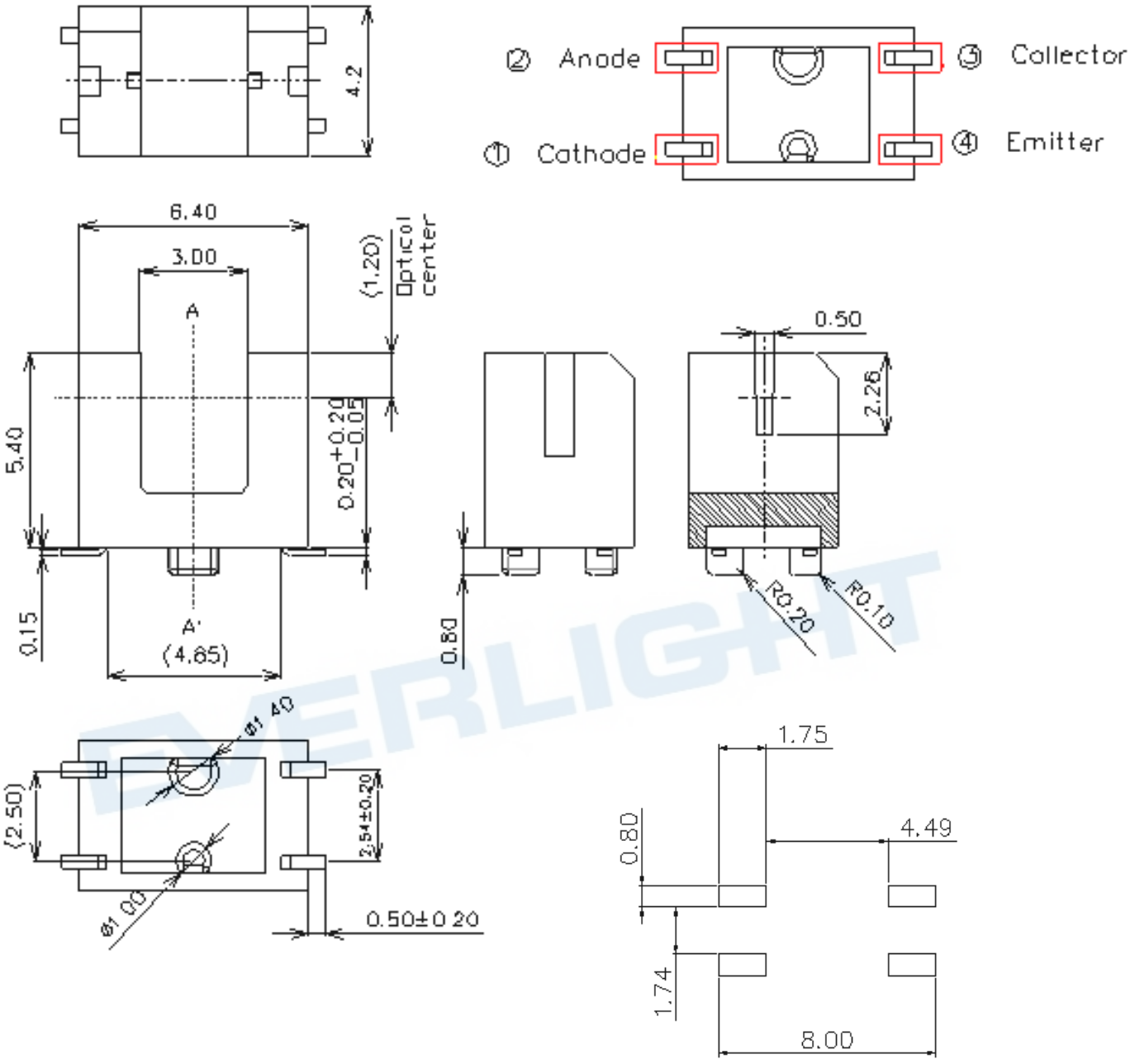




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Package Dimension



Recommended Soldering Pattern

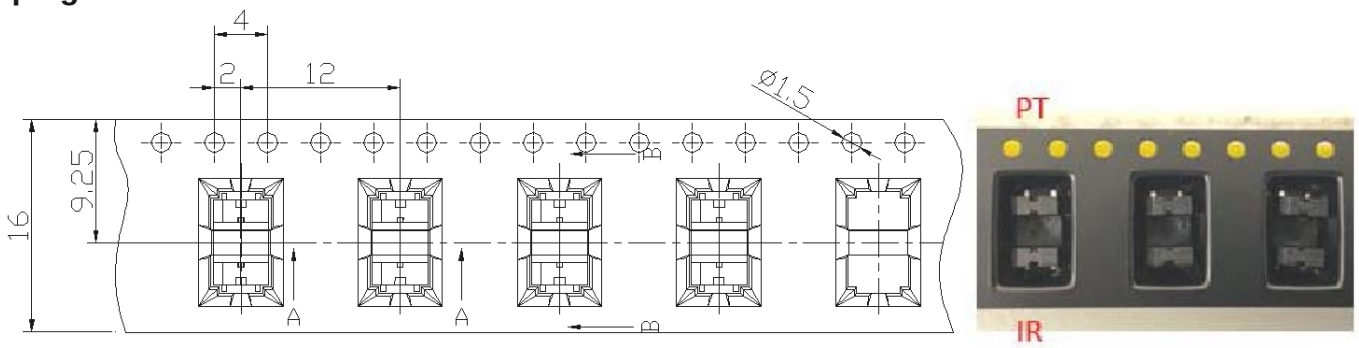
Notes:

1. All dimensions are in millimeters.
2. Tolerances unless dimensions ±0.2mm.
3. Lead spacing is measured where the lead emerge from the package.
4. Dimensions in parentheses for reference only.

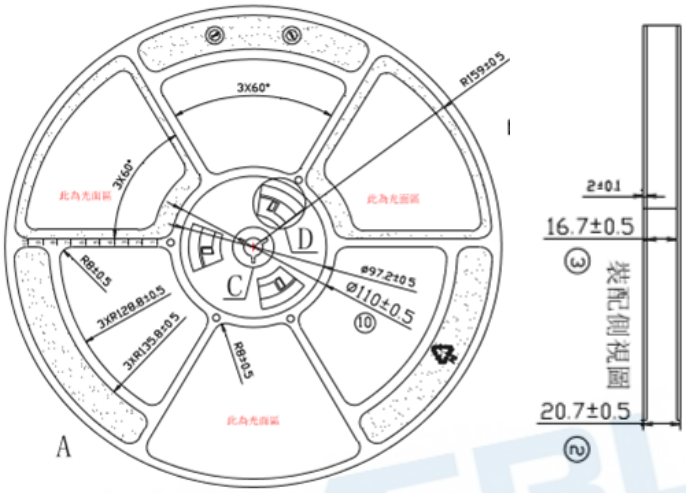
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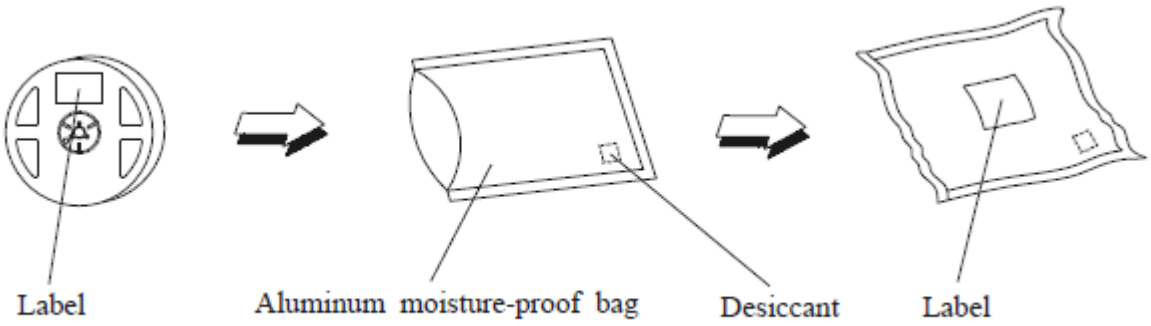
Taping Dimension



Reel Dimensions



Note: The tolerance unless mentioned is +/- 0.2mm，Unit=mm



Packing Quantity Specification

1. 800 pcs/ 1 Reel
2. 1 Reel/ 1 Box
3. 5 Box/ 1 Carton

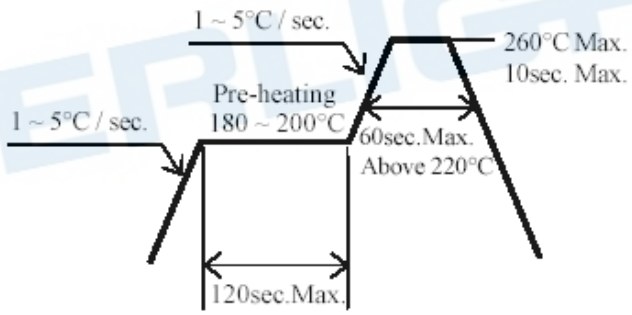
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Recommended Method of Storage

The following are general recommendations for moisture sensitive level (MSL) 4 storage and use:

1. Shelf life in sealed bag: 12 months at < 40 °C and < 90% relative humidity (RH)
2. After bag is opened, devices that will be subjected to reflow solder or other high temperature process must
   a. Mounted within 72 hours of factory conditions < 30°C/60%RH, or
   b. Stored at <20% RH
3. Devices require bake, before mounting, if Humidity Indicator Card is > 20% when read at 23 ± 5 °C
4. If baking is required, devices may be baked:
   a. 192 hours at 40℃,and <5% RH(dry air/nitrogen) or
   b. 96 hours at 60℃,and <5% RH for all device containers
   c. 24 hours at 125 °C
5. Soldering Condition
   a. Pb-free solder temperature profile



   b. Reflow soldering should not be done more than two times.
   c. When soldering, do not put stress on the LEDs during heating.
   d. After soldering, do not warp the circuit board.

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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 XXXXXX: Production Place

Heat Management

1. Heat management of Photo Interrupter must be taken into consideration during the design stage of Photo Interrupter application. The current should be de-rated appropriately by referring to the de-rating curve found in each product specification.
2. The temperature surrounding the Photo Interrupter in the application should be controlled.

ESD (Electrostatic Discharge)

1. The products are sensitive to static electricity or surge voltage. ESD can damage a die and its reliability.
2. When handling the products, the following measures against electrostatic discharge are strongly recommended:
   a. Eliminating the charge
   b. Grounded wrist strap, ESD footwear, clothes and floors
   c. Grounded workstation equipment and tools
   d. ESD table/shelf mat made of conductive materials
3. Proper grounding is required for all devices, equipment, and machinery used in product assembly. Surge protection should be considered when designing of commercial products.
4. If tools or equipment contain insulating materials such as glass or plastic, the following measures against electrostatic discharge are strongly recommended:
   a. Dissipating static charge with conductive materials
   b. Preventing charge generation with moisture
   c. Neutralizing the charge with ionizers

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DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. 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 the 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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