

LT-ITR8307S

DATA SHEET

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Based on Packaging and Testing Sensing the Future

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Revision History:

Version	Revised Content	Version Date
V1.0	New Release	Dec 24, 2024

LT-ITR8307S

Technical Data Sheet Opto Interrupter



● Features

- ★ Fast response time
- ★ High sensitivity
- ★ Cut-Off visible wavelength
- ★ Strong anti-interference ability
- ★ Thin
- ★ High reliability
- ★ Compact

● Description

LT-ITR8307S is a reflective photoelectric switch that includes a GaAs infrared LED emitter and a highly sensitive NPN phototransistor receiver, suitable for short-range detection and operating in the infrared spectral range. These two components are installed side by side in a plastic package. This photoelectric switch has the characteristics of fast response speed, high sensitivity, strong anti-interference ability, low power consumption, small size, and strong reliability.

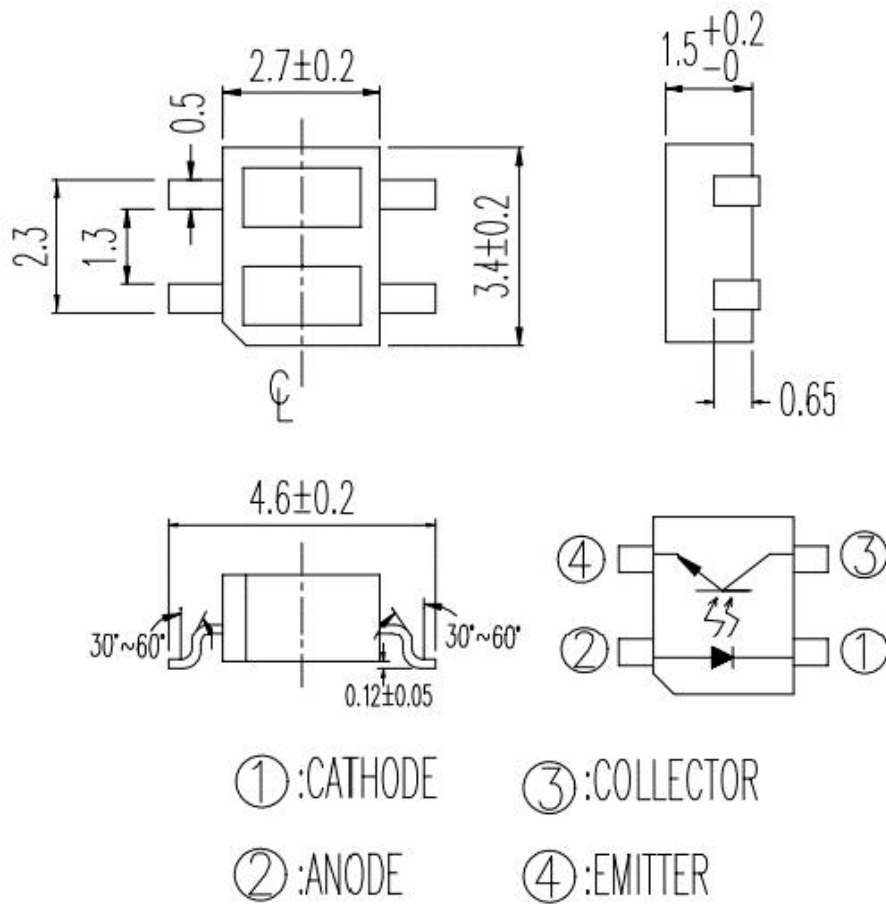
● Applications

- ★ Camera
- ★ Mouse Copier
- ★ Switch Scanner
- ★ Floppy disk driver
- ★ Non-contact Switching
- ★ For Direct Board
- ★ Various microcomputer control equipment

● Device Selection Guide

Device No.	Chip Material
IR	GaAs
PT	Silicon

● Package Dimensions



Notes: 1. All dimensions are in millimeters

2. Tolerances unless dimensions ± 0.15 mm

● **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 _R	5	V
	Forward Current	I _F	30	mA
	Peak Forward Current (*1) Pulse width ≤100μs, Duty cycle=1%	I _{FP}	50	mA
Output	Collector Power Dissipation	P _C	75	mW
	Collector Current	I _C	50	mA
	Collector-Emitter Voltage	B V _{CEO}	30	V
	Emitter-Collector Voltage	B V _{ECO}	5	V
Operating Temperature		T _{opr}	-25~+85	°C
Storage Temperature		T _{stg}	-30~+90	°C
Lead Soldering Temperature (*2)		T _{sol}	260	°C

(*1) tw=100 μsec. , T=10 msec.

(*2) t=5 Sec

● **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 =5V
	Peak Wavelength	λ _P	---	940	---	nm	---
Output	Dark Current	I _{CEO}	---	---	100	nA	V _{CE} =10V
	C-E Saturation Voltage	V _{CE} (sat)	---	---	0.4	V	I _C =2mA, Ee=1mW/c m ²
Transfer Characte- ristics	Light Current	I _C (ON)	120	---	440	μA	V _{CE} =5V I _F =10mA
	Leakage Current	I _{CEOD}	---	---	1	μA	
	Rise time	t _r	---	20	---	μsec	V _{CE} =2V I _C =100μA R _L =1KΩ
	Fall time	t _f	---	20	---	μsec	

RankConditions: $I_F=10\text{mA}$ $V_{CE}=5\text{V}$ Unit: μA

Bin Number	Min	Max
A	120	180
B1	180	230
B2	230	300
C	300	440

● Typical Electrical/Optical/Characteristics Curves for IR

Fig. 1 Forward Current vs. Ambient Temperature

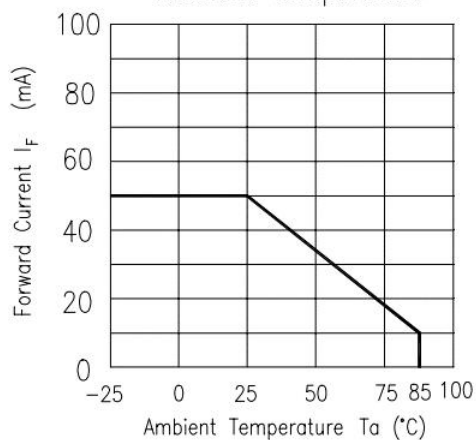


Fig. 2 Spectral Distribution

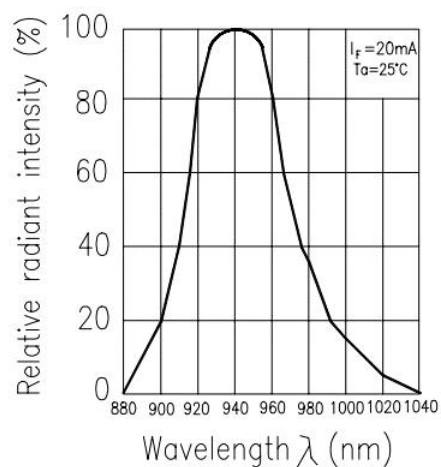


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

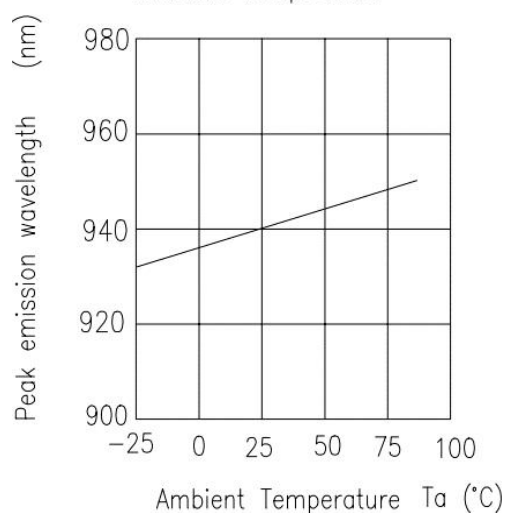


Fig. 4 Forward Current vs. Forward Voltage

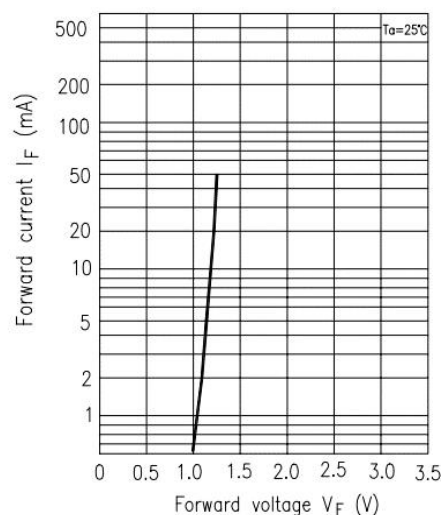


Fig. 5 Forward Voltage vs. Ambient Temperature

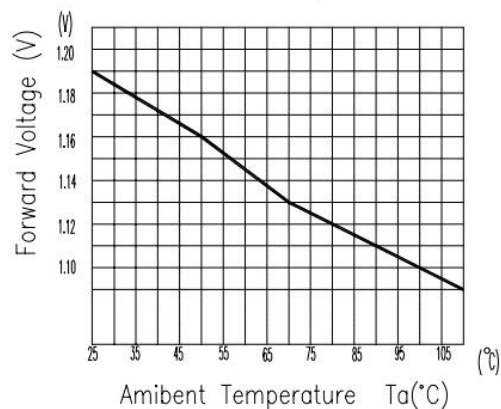
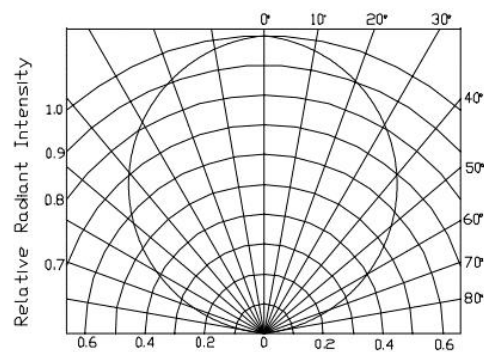
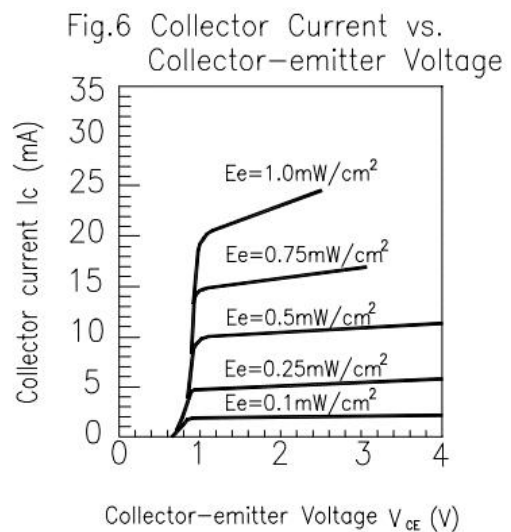
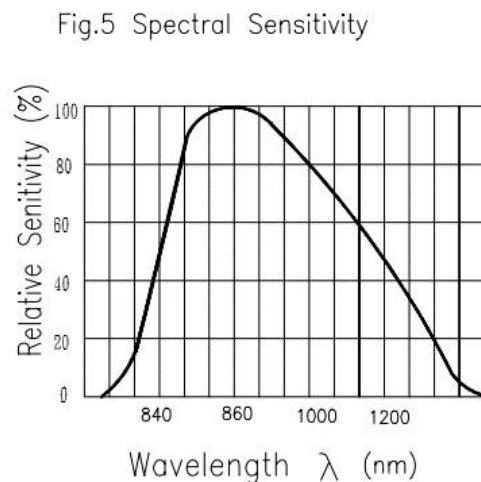
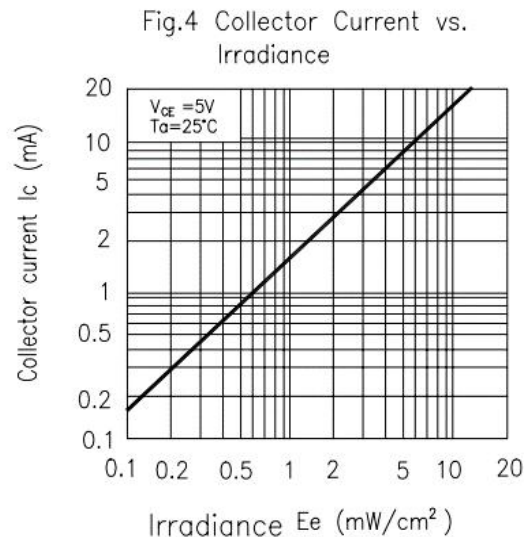
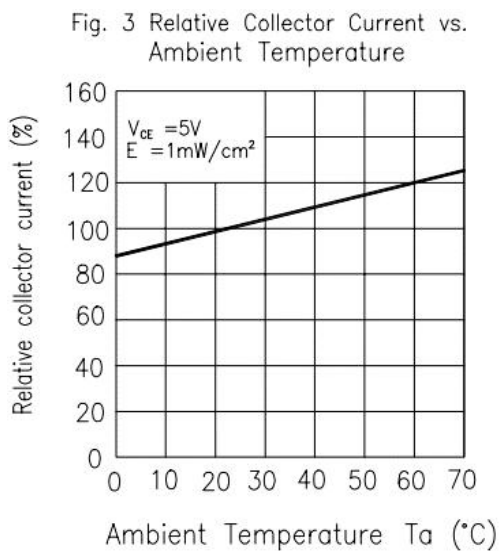
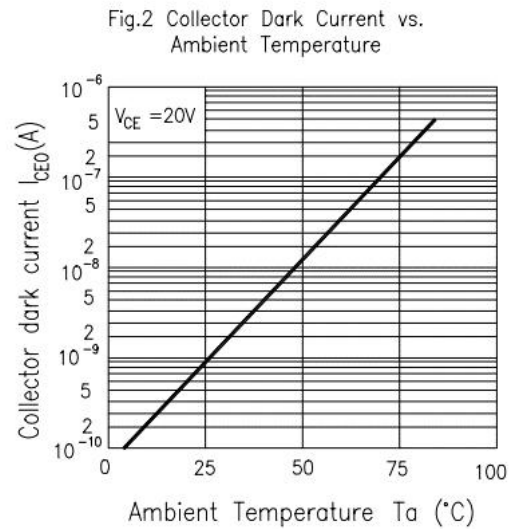
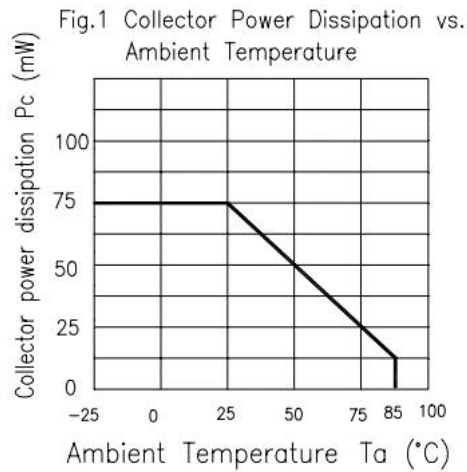


Fig. 6 Relative Radiant Intensity vs. Angular Displacement



● Typical Electro/Optical/Characteristics Curves for PT



● Typical Electrical/Optical/Characteristics Curves For ITR

Fig.1 Relative Collector Current vs. Distance between Sensor and Al Evaporation Galss

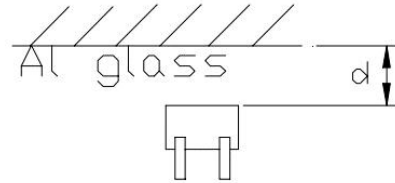
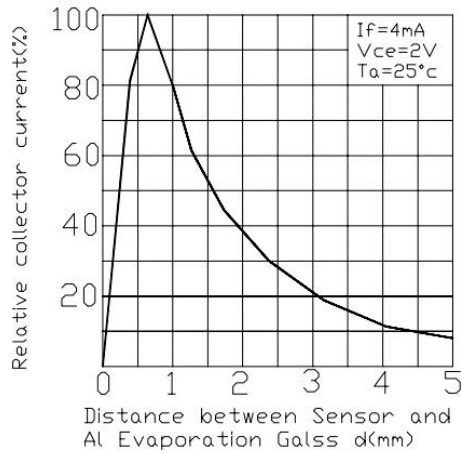


Fig.2 Relative Collector Current vs. Card Moving Distance (l)

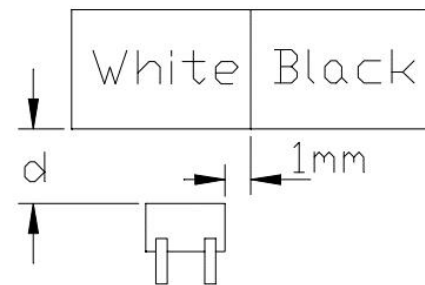
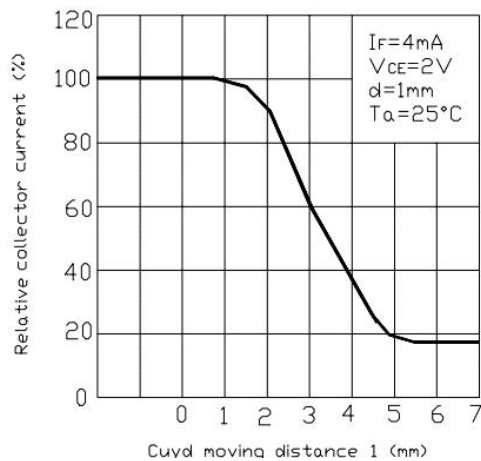
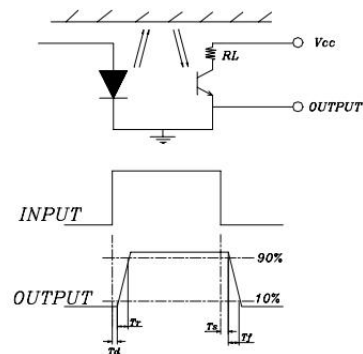
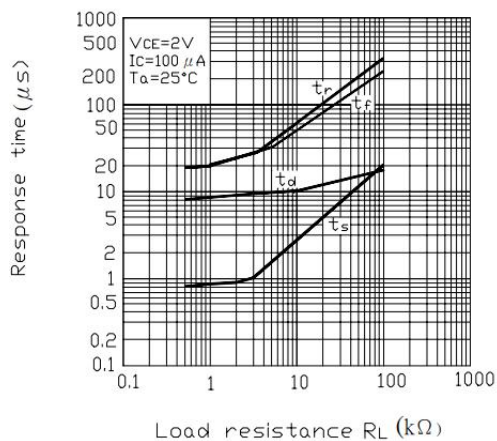
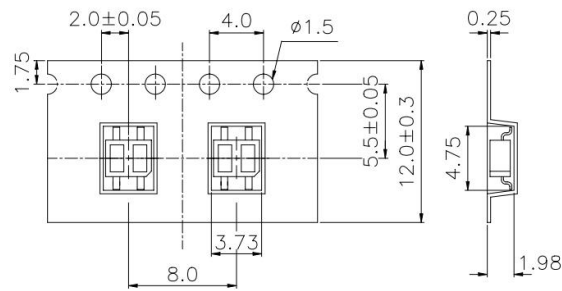


Fig.3 Response Time vs. Load Resistance

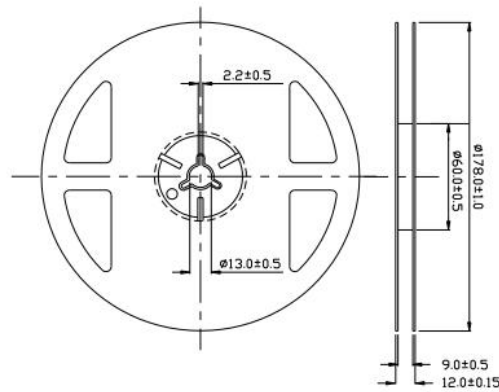


● Taping Dimension



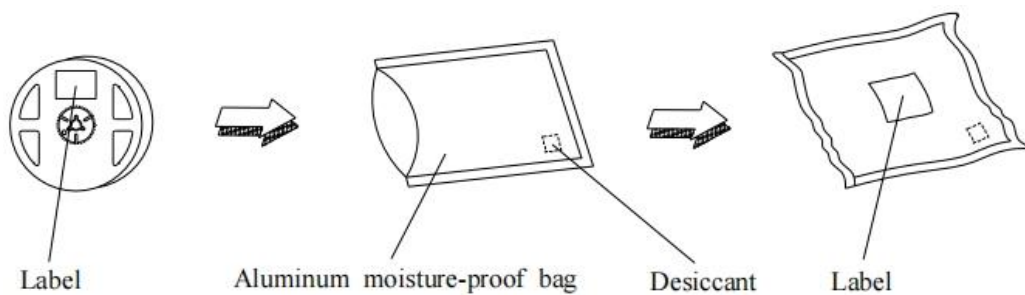
General Tolerance ± 0.1
UNIT:mm

● Reel Dimensions



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$,Unit = mm

● Moisture Resister Packaging



● Moisture Resistant Packaging

1. 1000 Pcs/ 1Reel

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