

Technical Data Sheet

Opto Interrupter

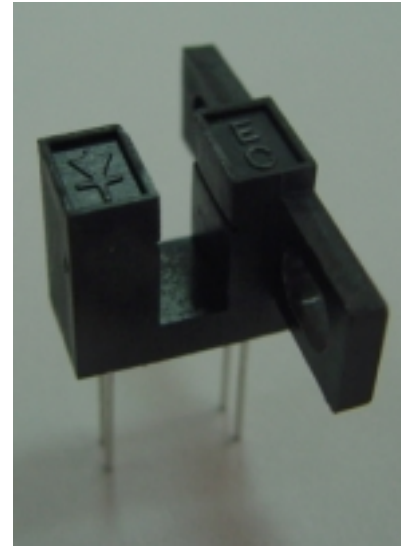
ITR20005

■ Features

- Wide gap between lighter and detector (3.8mm)
- High sensing accuracy
- PWB mounting type package

■ Descriptions

The ITR20005(Slot Optical switch) is a gallium arsenic infrared emitting diode which is coupled with a silicon photo transistor in a plastic housing. The package system is designed to optimize the mechanical resolution, coupling efficiency, and insulates ambient light. The ITR is useful in the application of interrupting the signal with printer, scanner, copier, or other opaque material, switching the output from an “ON” to “OFF” state.



■ Applications

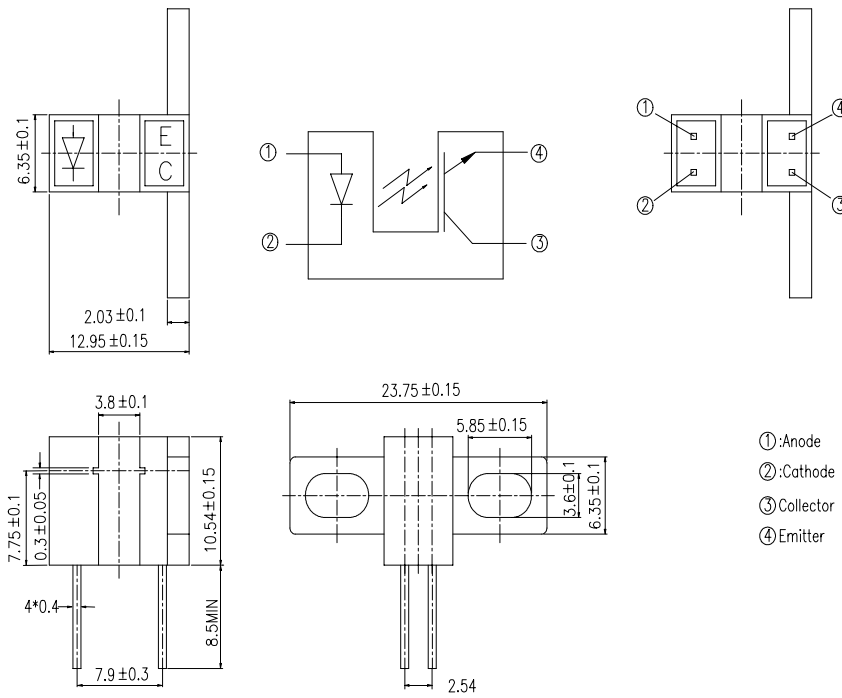
- Mouse
- Opto-electronic switches

■ Device Selection Guide

Part No.	Chip Material	Lens Color
IR	GaAs, GaAlAs	Clear
PT	Silicon	Clear

Device No:DRX-005-108

Package Dimensions



- Notes:** 1.All dimensions are in millimeters
 2.Tolerances unless dimensions ± 0.15 mm

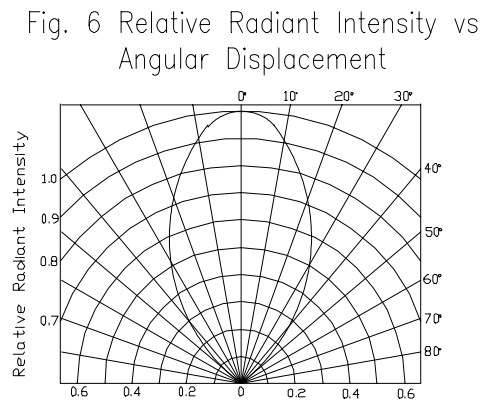
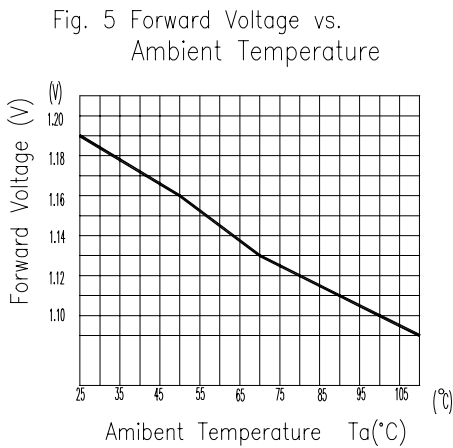
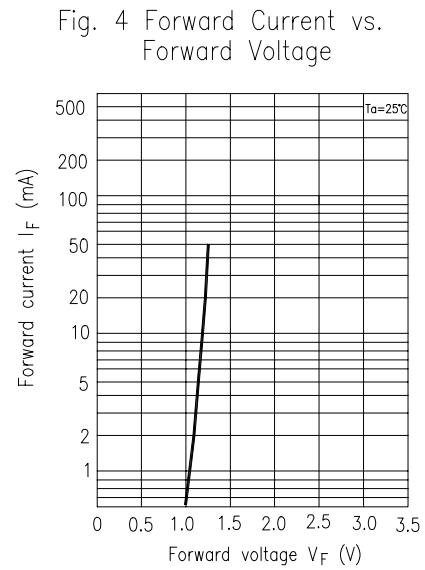
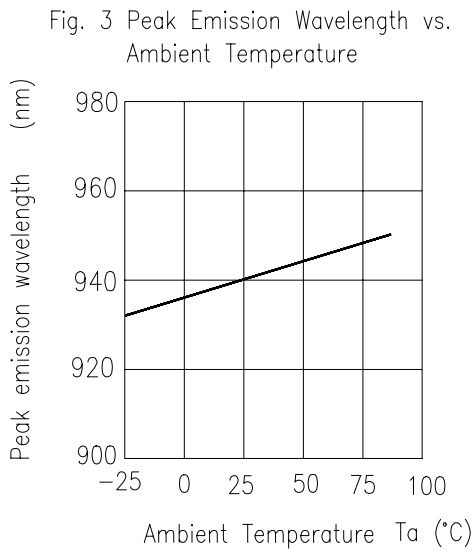
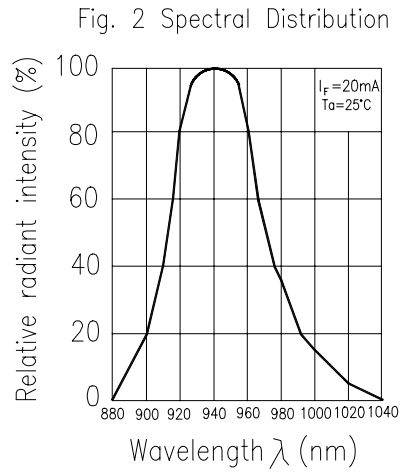
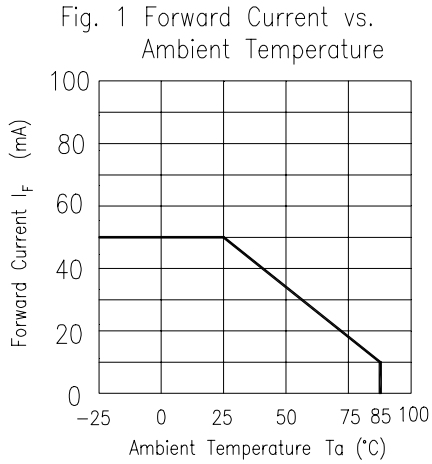
Absolute Maximum Ratings (Ta=25°C)

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	50	mA
	Peak Forward Current Pulse width ≤ 100 μs, Duty cycle=1%	I _{FP}	1	A
Output	Collector Power Dissipation	P _C	75	mW
	Collector Current	I _C	20	mA
	Collector-Emitter Voltage	V _{CEO}	30	V
	Emitter-Collector Voltage	V _{ECO}	5	V
Operating Temperature		Topr	-25~+85	°C
Storage Temperature		Tstg	-40~+85	°C
Lead Soldering Temperature (* 2) (1/16 inch from body for 5 seconds)		Tsol	260	°C

Electro-Optical Characteristics (Ta=25°C)

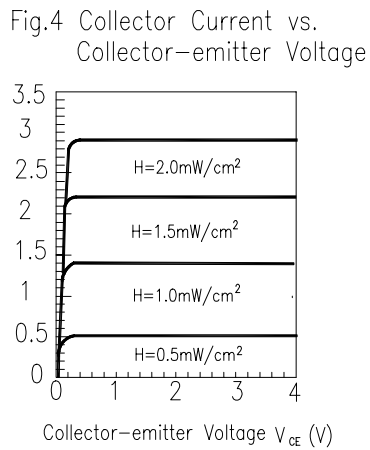
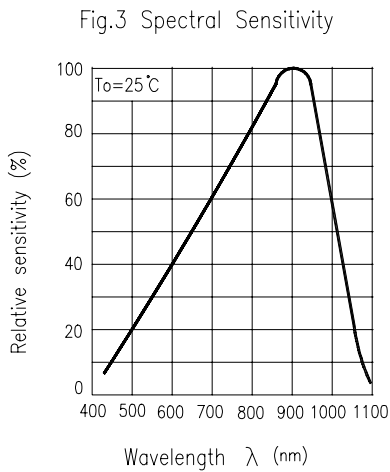
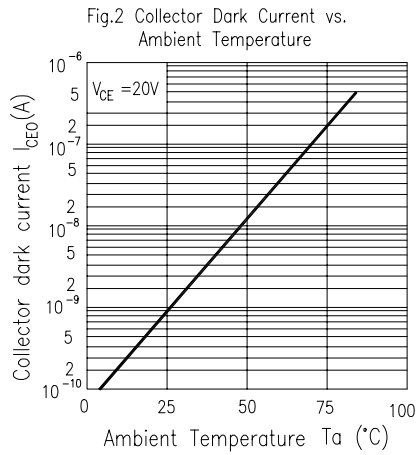
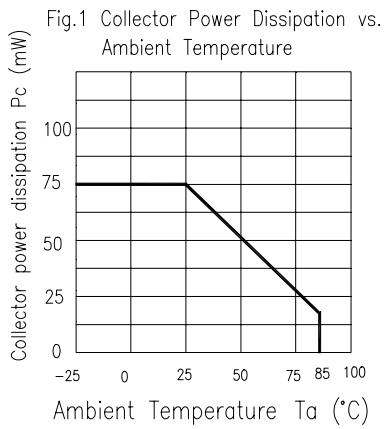
Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V _F	---	1.2	1.6	V	I _F =20mA
	Reverse Current	I _R	---	---	10	μA	V _R =5V
	Peak Wavelength	λ _p	---	940	---	nm	I _F =20mA
	View Angle	2θ _{1/2}	---	60	---	Deg	I _F =20mA
Output	Collector Dark Current	I _{CEO}	---	---	100	nA	V _{CE} =10V Ee=0mW/cm ²
Transfer Characteristic	C-E Saturation Voltage	V _{CE(sat)}	---	---	0.4	V	I _C =2mA Ee=1mW/cm ²
	Collector Current	I _{C(ON)}	0.5	---	---	mA	V _{CE} =5V I _F =20mA
	Rise time	t _r	---	20	---	μsec	V _{CE} =5V
	Fall time	t _f	---	20	---	μsec	I _C =1mA R _L =1KΩ

Typical Electrical/Optical/Characteristics Curves for IR

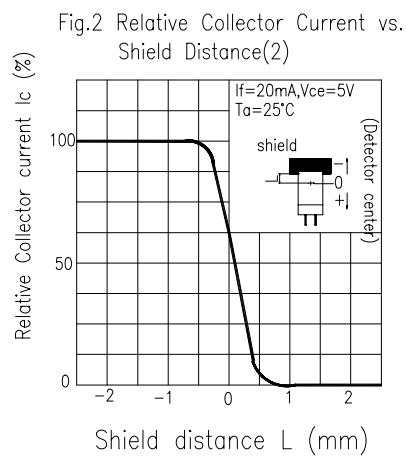
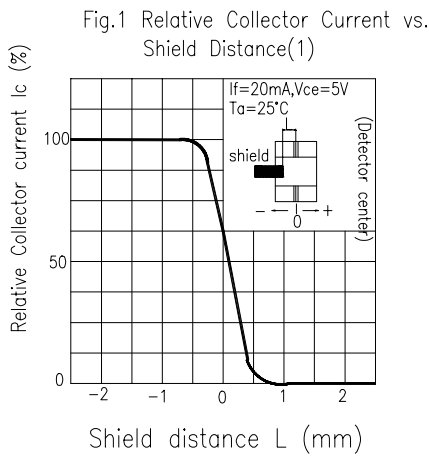


Device No:DRX-005-108

Typical Electrical/Optical/Characteristics Curves for PT



Typical Electrical/Optical/Characteristics Curves For ITR



Reliability Test Item And Condition

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

Confidence level : 90%

LTPD : 10%

NO.	Item	Test Condition	Test Hours/ Cycle	Sample Size	Failure Judgement Criteria	Ac/Re
1	Solder Heat	TEMP : 260°C ± 5 °C	5 sec	22 PCs	$I_{C(ON)} \leq L \times 0.8$ L : Lower specification limit	0/1
2	Temperature Cycle	H : +85°C 30 mins \updownarrow 5 min \updownarrow L : -55°C 30 min	50 cycle	22 PCs		0/1
3	Thermal Shock	H : +100°C 5 min \updownarrow 10 sec \updownarrow L : -10°C 5 min	50 cycle	22 PCs		0/1
4	High Temperature Storage	TEMP. : +100°C	1000 hrs	22 PCs		0/1
5	Low Temperature Storage	TEMP. : -55°C	1000 hrs	22 PCs		0/1
6	DC Operating Life	$V_{CE}=5V$	1000 hrs	22 PCs		0/1
7	High Temperature / High Humidity	85°C / 85% R.H.	1000 hrs	22 PCs		0/1

EVERLIGHT ELECTRONICS CO., LTD.
 Office: No 25, Lane 76, Sec 3, Chung Yang Rd,
 Tucheng, Taipei 236, Taiwan, R.O.C

Tel: 886-2-2267-2000, 2267-9936
 Fax: 886-2267-6244, 2267-6189, 2267-6306
<http://www.everlight.com>