



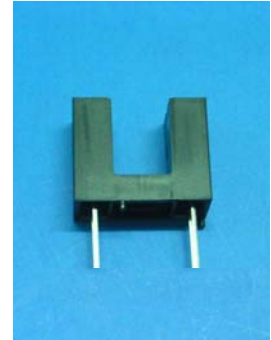
Technical Data Sheet

Opto Interrupter

ITR8402-F-A

■ Features

- Fast response time
- High analytic
- Cut-off visible wavelength $\lambda_p=940\text{nm}$
- High sensitivity
- Pb free
- This product itself will remain within RoHS compliant version.



■ Descriptions

The **ITR8402-F-A** consist of an infrared emitting diode and an NPN silicon phototransistor, encased side-by-side on converging optical axis in a black thermoplastic housing .

The phototransistor receives radiation from the IRED only .This is the normal situation. But when an object is in between , phototransistor could not receives the radiation.

For additional component information , please refer to IR928-6C-F and PT928-6C-F

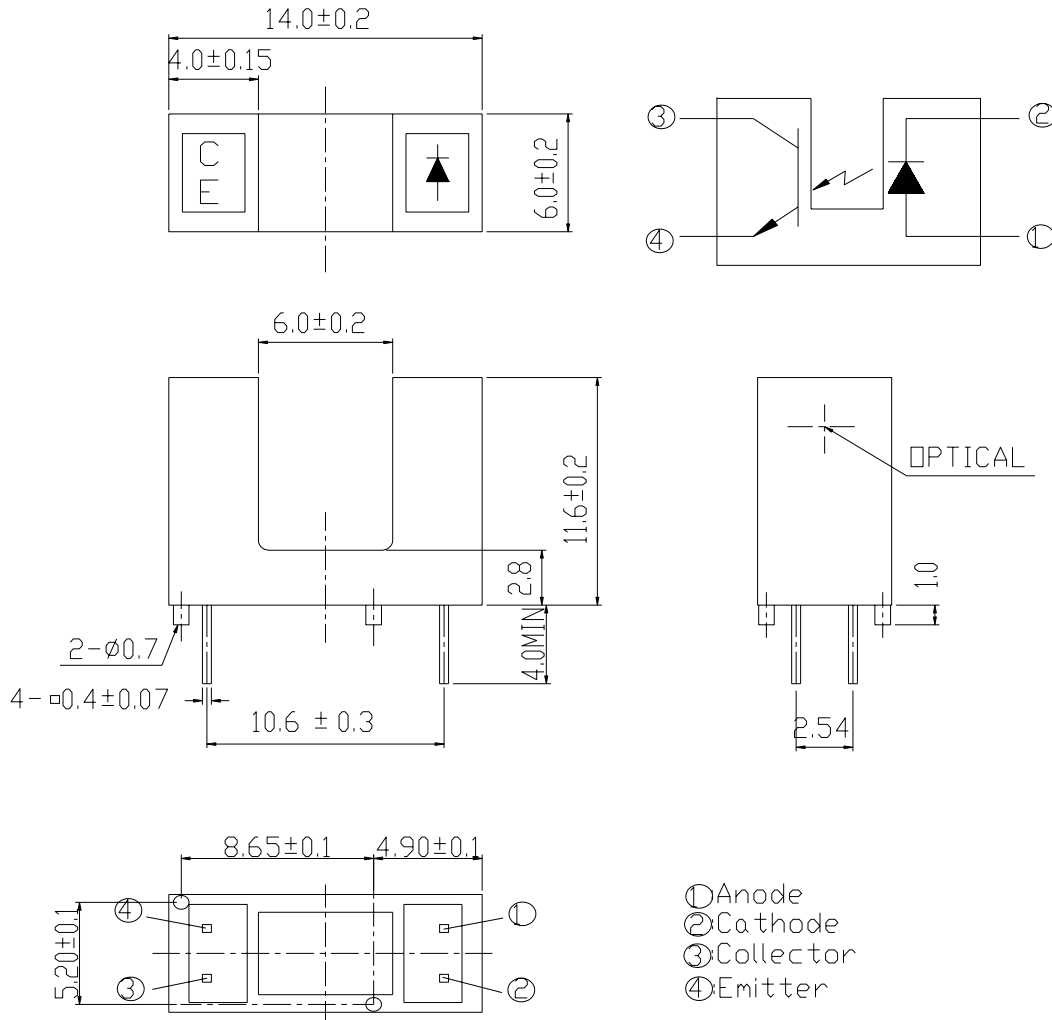
■ Applications

- Mouse Copier
- Switch Scanner
- Floppy disk driver
- Non-contact Switching
- For Direct Board

■ Device Selection Guide

Device No.	Chip Material	LENS COLOR
IR928-6C-F	GaAlAs	Water clear
PT928-6C-F	Silicon	Water clear

Package Dimensions



Notes:

1. All dimensions are in millimeters
2. Tolerances unless dimensions ± 0.2 mm

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25°C Free Air Temperature	P_D	75	mW
	Reverse Voltage	V_R	5	V
	Forward Current	I_F	50	mA
	Peak Forward Current (*1) Pulse width $\leq 100 \mu s$, Duty cycle=1%	I_{FP}	1	A
	Collector Power Dissipation	P_C	75	mW
Output	Collector Current	I_C	20	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}	-40~+85	°C	
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)	T_{sol}	260	°C	

(*1) $t_w=100 \mu sec.$, $T=10 msec.$ (*2) $t=5 Sec$

Electro-Optical Characteristics (Ta=25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V_{FI}	---	1.2	1.5	V	$I_F=20mA$
	Reverse Current	I_R	---	---	10	μA	$V_R=5V$
	Peak Wavelength	λ_p	---	940	---	nm	$I_F=20mA$
	View Angle	2 θ 1/2	---	40	---	Deg	$I_F=20mA$
Output	Dark Current	I_{CEO}	---	---	100	nA	$V_{CE}=20V, E_e=0mW/cm^2$
	C-E Saturation Voltage	$V_{CE(sat)}$	---	---	0.4	V	$I_C=2mA$ $E_e=1mW/cm^2$
Transfer Characteristics	Collect Current	$I_C(ON)$	0.8	---	---	mA	$V_{CE}=5V$
		$I_C(ON)$	---	---	20	μA	$I_F=20mA$
	Rise time	t_r	---	15	---	μsec	$V_{CE}=5V$
	Fall time	t_f	---	15	---	μsec	$I_C=1Ma$ $R_L=1K\Omega$

Typical Electrical/Optical/Characteristics Curves for IR

Fig.1 Forward Current vs.

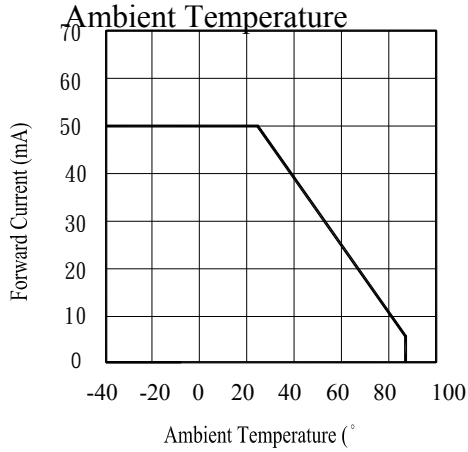


Fig.2 Spectral Distribution

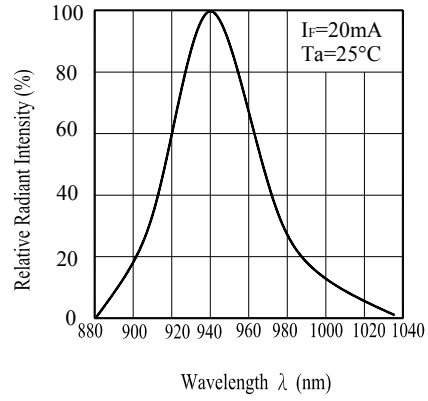


Fig.5 Relative Intensity vs.

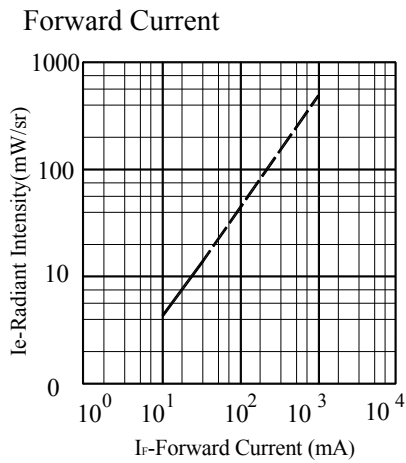


Fig.6 Relative Radiant Intensity vs.

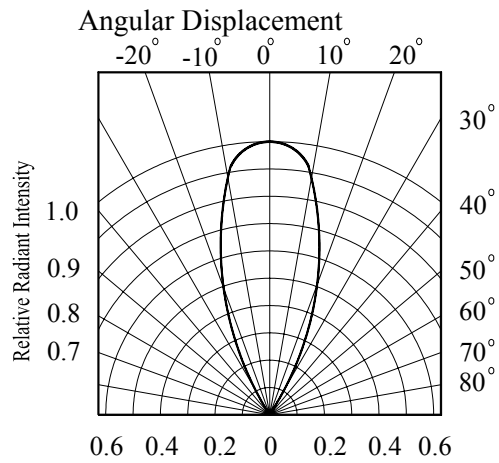


Fig.7 Relative Intensity vs.

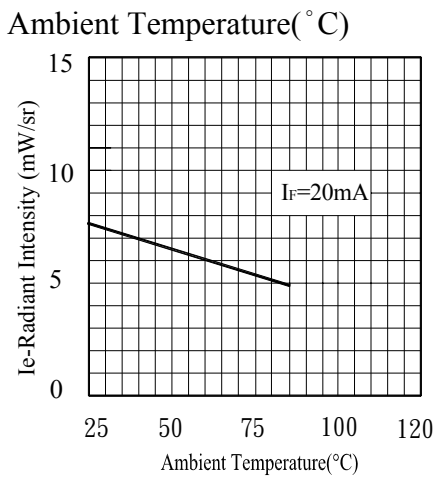
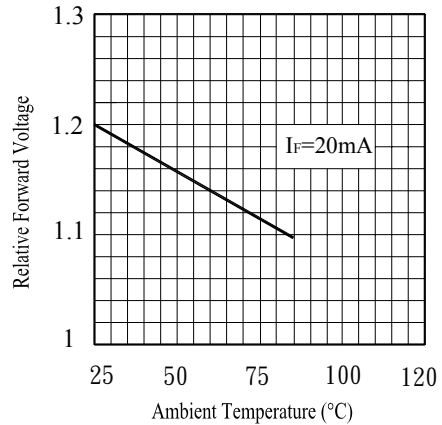


Fig.8 Forward Current vs. Ambient Temperature (°C)



Typical Electrical/Optical/Characteristics Curves for PT

Fig.1 Collector Power Dissipation vs. Ambient Temperature

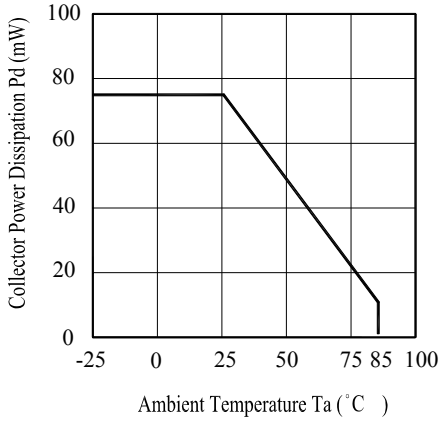


Fig.2 Spectral Sensitivity

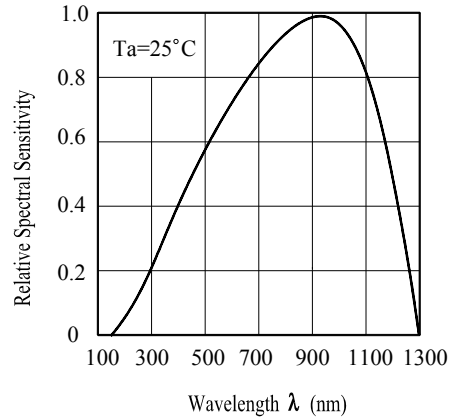


Fig.3 Relative Collector Current vs. Ambient Temperature

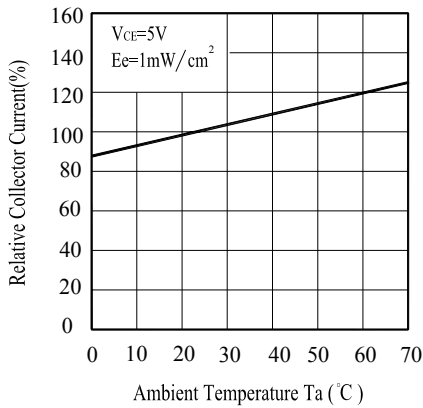


Fig.4 Collector Current vs. Irradiance

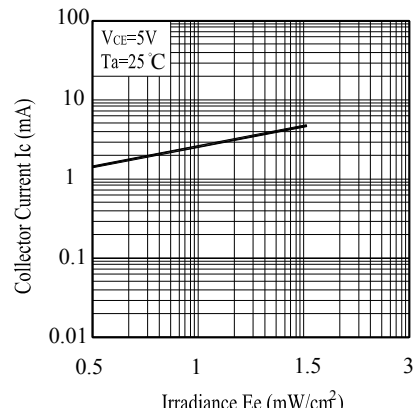


Fig.5 Collector Dark Current vs. Ambient Temperature

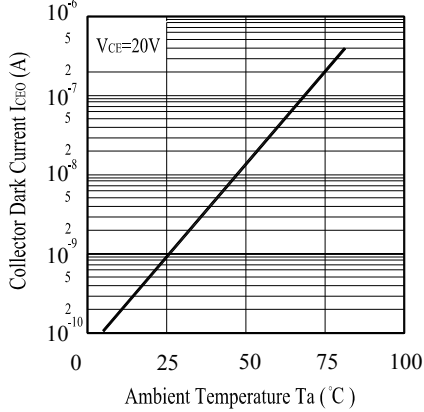
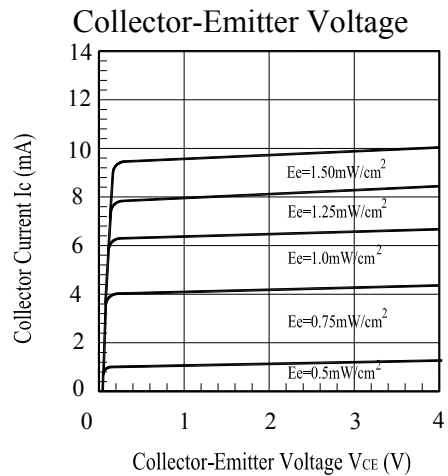


Fig.6 Collector Current vs. Collector-Emitter Voltage

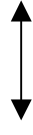
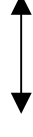


Reliability Test Item And Condition

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	More than 90% of lead to be covered by soldering $I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.2$ U :Upper specification limit L :Lower specification limit	0/1
2	Temperature Cycle	H : +100°C 15 mins  5 min L : -40°C 15 min	300 cycle	22 PCs		0/1
3	Thermal Shock	H : +100°C 5 min  10 sec L : -10°C 5 min	300 cycle	22 PCs		0/1
4	High Temperature Storage	TEMP. : +100°C	1000 hrs	22 PCs		0/1
5	Low Temperature Storage	TEMP. : -40°C	1000 hrs	22 PCs		0/1
6	DC Operating Life	$V_{CE}=5V$ $I_F=20mA$	1000 hrs	22 PCs		0/1
7	High Temperature / High Humidity	85°C / 85% R.H.	1000 hrs	22 PCs		0/1

Packing Quantity Specification

1. 120PCS/1Plate,5Plate/1Boxe, 10Boxes/1Carton

Label Form Specification

	
CPN:	CPN: Customer's Production Number
P/N:	P/N : Production Number
	QTY: Packing Quantity
ITR8402-F-A	CAT: Ranks
QTY:	HUE: Peak Wavelength
	REF: Reference
LOT NO:	LOT No: Lot Number
	

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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