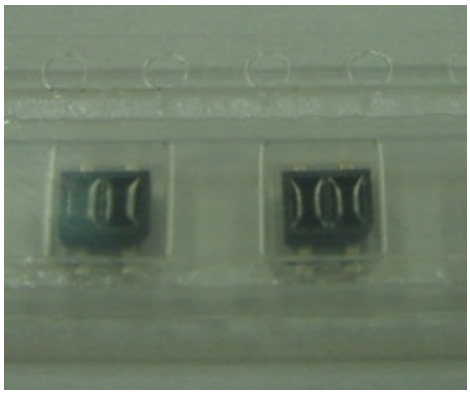
Technical Data Sheet

Opto Interrupter

ITR8307/S17/TR8



Features

- Fast response time
- High sensitivity
- Cut-Off visible wavelength
- Thin
- Compact
-

Descriptions

ITR8307/S17/TR8 is a light reflection switch which includes a GaAs IR-LED transmitter and a NPN photo-transistor with a high photosensitive receiver for short distance, operating in the infrared range. Both components are mounted side- by- side in a plastic package.

Applications

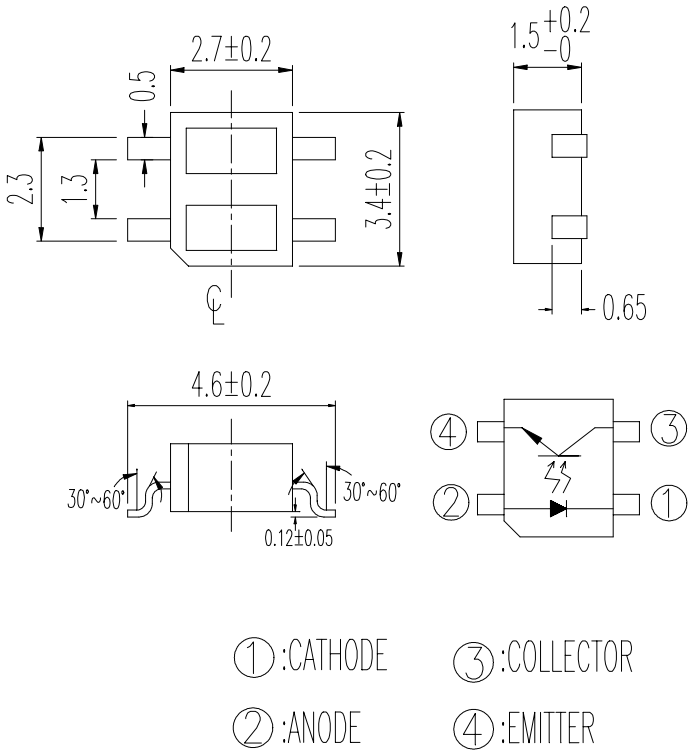
- Camera
- VCR
- Floppy disk driver
- Cassette type recorder
- Various microcomputer control equipment

Device Selection Guide

Device No.	Chip Material
IR	GaAs
PT	Silicon

Device No:DRX-083-118

Package Dimensions



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

Device No:DRX-083-118

Absolute Maximum Ratings (Ta=25℃)

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25℃ Free Air Temperature	Pd	75	mW
	Reverse Voltage	V_R	5	V
	Forward Current	I_F	50	mA
	Peak Forward Current (*1) Pulse width ≦100 μs, Duty cycle=1%	I_{FP}	1	A
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		Topr	-20~+70	℃
Storage Temperature		Tstg	-30~+80	℃
Lead Soldering Temperature (*2)		Tsol	260	℃

(＊1) tw=100 μsec. , T=10 msec. (＊2) t=5 Sec

Electro-Optical Characteristics (Ta=25℃)

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/cm^2
Transfer Characteristics	Light Current	I_C(ON)	B	180	---	300	μA	V_{CE}=5V I_F=10mA
			C	250	---	440		
	Leakage Current	I_{CEOD}		---	---	1	μA	
	Rise time	t_r		---	20	---	μsec	V_{CE}=2V I_C=100 μA R_L=1KΩ
	Fall time	t_f		---	20	---	μsec	

Device No:DRX-083-118

Typical Electrical/Optical/Characteristics Curves for IR

Fig. 1 Forward Current vs. Ambient Temperature

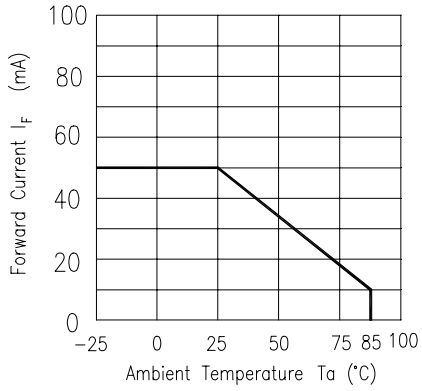


Fig. 2 Spectral Distribution

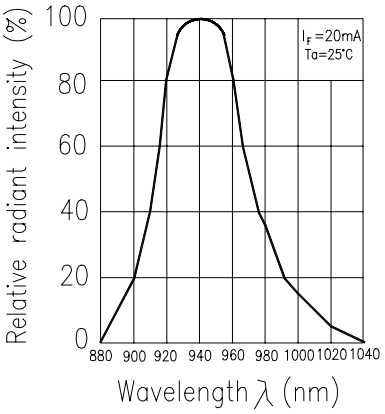


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

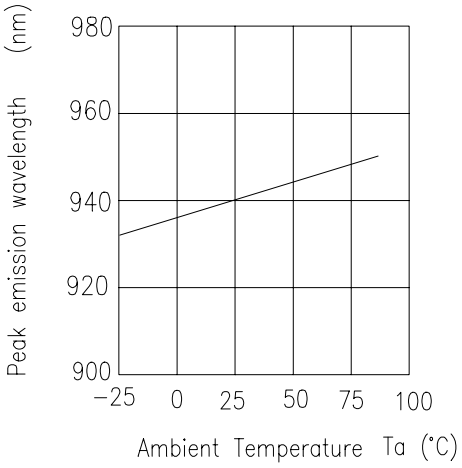


Fig. 4 Forward Current vs. Forward Voltage

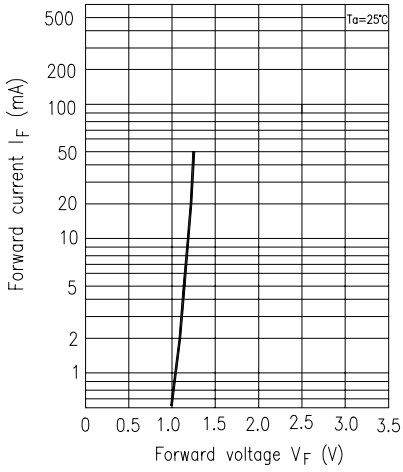


Fig. 5 Forward Voltage vs. Ambient Temperature

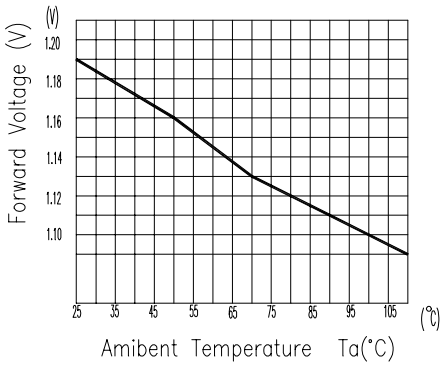
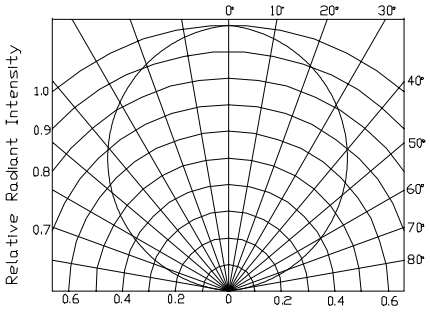


Fig. 6 Relative Radiant Intensity vs. Angular Displacement



Device No:DRX-083-118

Typical Electro/Optical/Characteristics Curves for PT

Fig.1 Collector Power Dissipation vs. Ambient Temperature

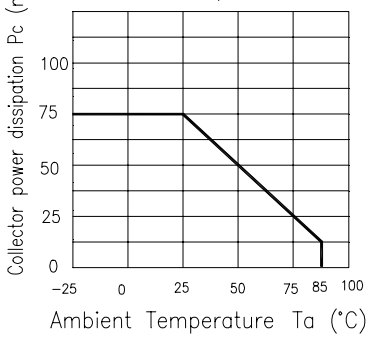


Fig.2 Collector Dark Current vs. Ambient Temperature

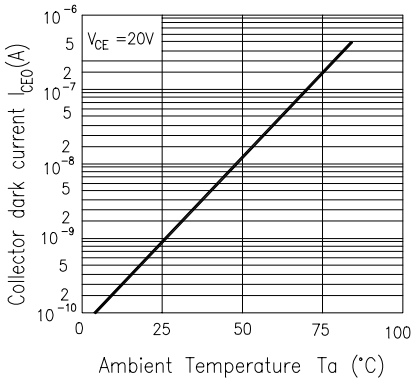


Fig. 3 Relative Collector Current vs. Ambient Temperature

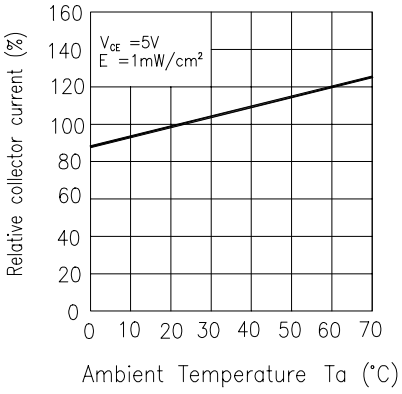


Fig.4 Collector Current vs. Irradiance

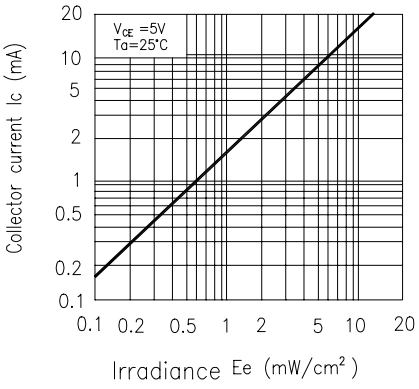


Fig.5 Spectral Sensitivity

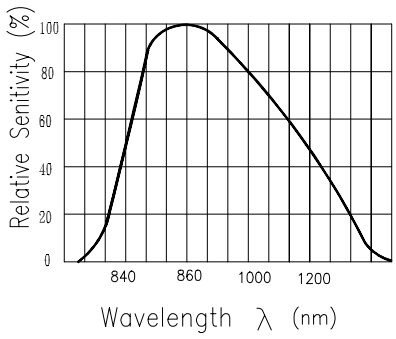
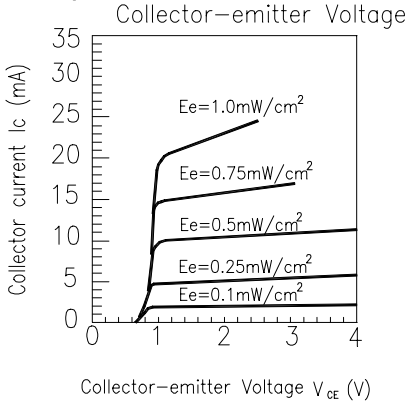


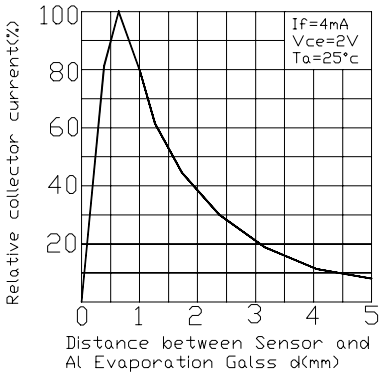
Fig.6 Collector Current vs. Collector−emitter Voltage



Device No:DRX-083-118

Typical Electrical/Optical/Characteristics Curves For ITR

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



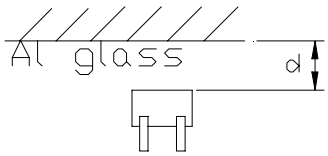
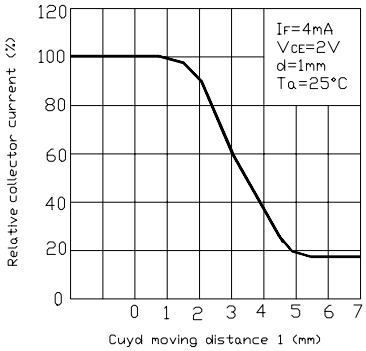


Fig.2 Relative Collector Current vs. Card Moving Distance (1)



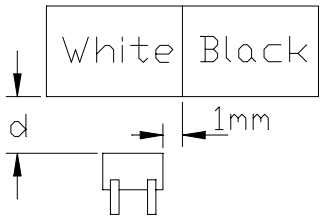
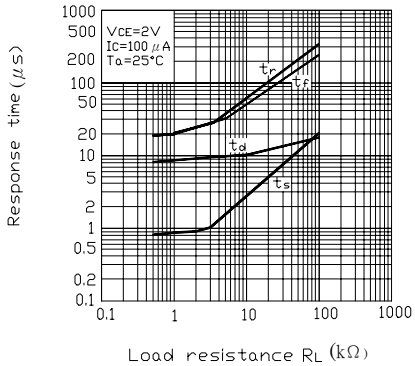
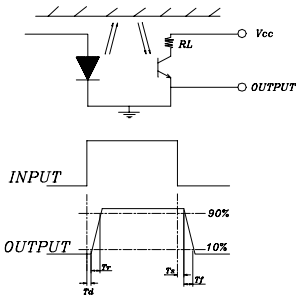


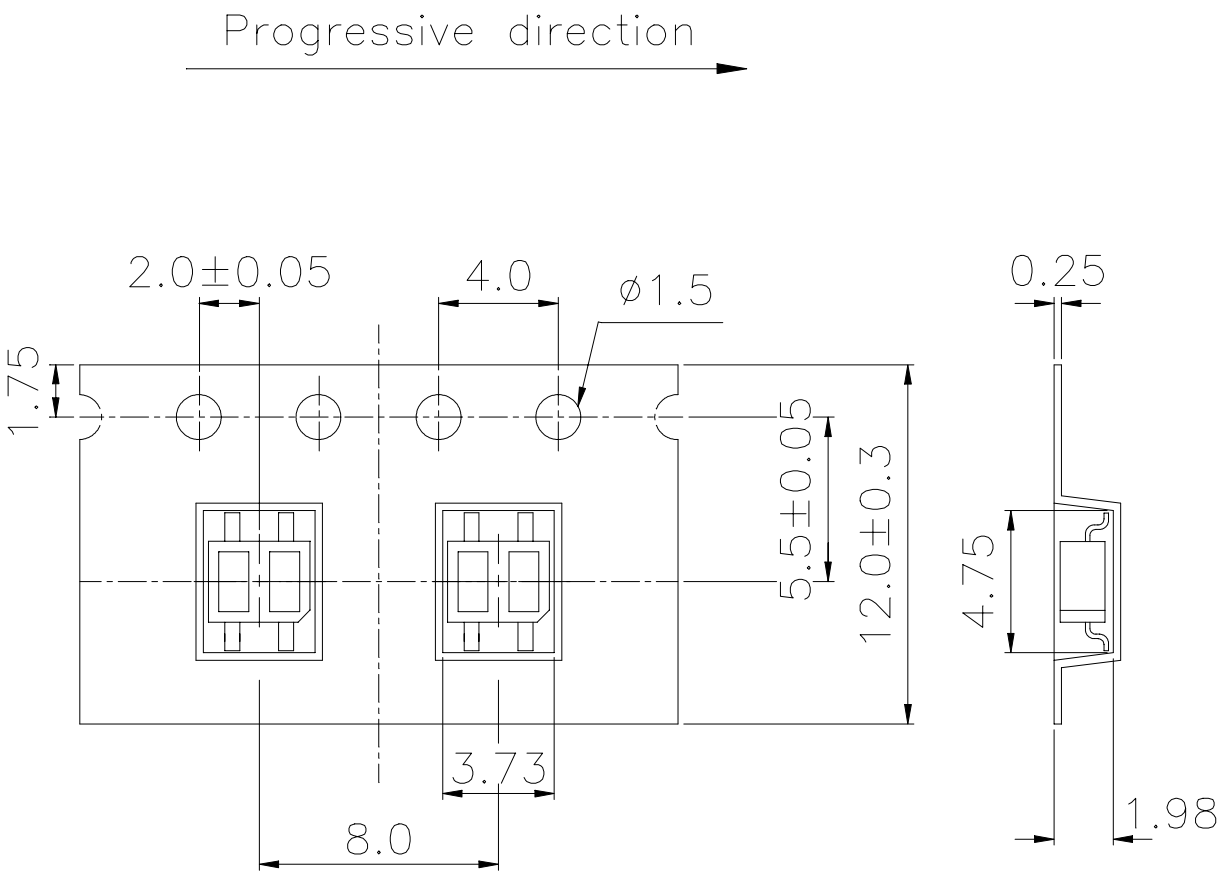
Fig.3 Response Time vs. Load Resistance





Device No:DRX-083-118

Taping Dimension

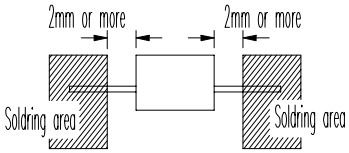


General Tolerance ±0.1
UNIT:mm

Device No:DRX-083-118

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	**Solderability** 	TEMP : 230℃ ± 5 ℃	5 sec	22 PCs	More than 90% of lead to be covered by soldering	0/1
2	**Temperature Cycle**	H : +85℃ 30 mins 5 min L : -55℃ 30 min	50 cycle	22 PCs	$I_R \geqq U \times 2$ $Ee \leqq L \times 0.8$ $V_F \geqq U \times 1.2$	0/1
3	**Thermal Shock**	H : +100℃ 5 min 10 sec L : -10℃ 5 min	50 cycle	22 PCs	U :Upper specification limit L :Lower specification limit	0/1
4	**High Temperature Storage**	TEMP. : +100℃	1000 hrs	22 PCs		0/1
5	**Low Temperature Storage**	TEMP. : -55℃	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℃ / 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: 886-2-2267-6244, 2267-6189, 2267-6306
http:\\www.everlight.com

Device No:DRX-083-118