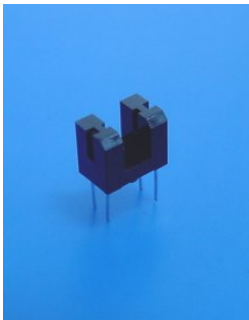


ITR20403



Features

- Fast response time
- High sensitivity
- Thin and small package
- Pb free
- This product itself will remain within RoHS compliant version

Description

The **ITR20403** 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

Device Selection Guide

Device No.	Chip Material
IR1918C	GaAlAs
PT1918B	Silicon

Absolute Maximum Ratings (Ta=25 °C)

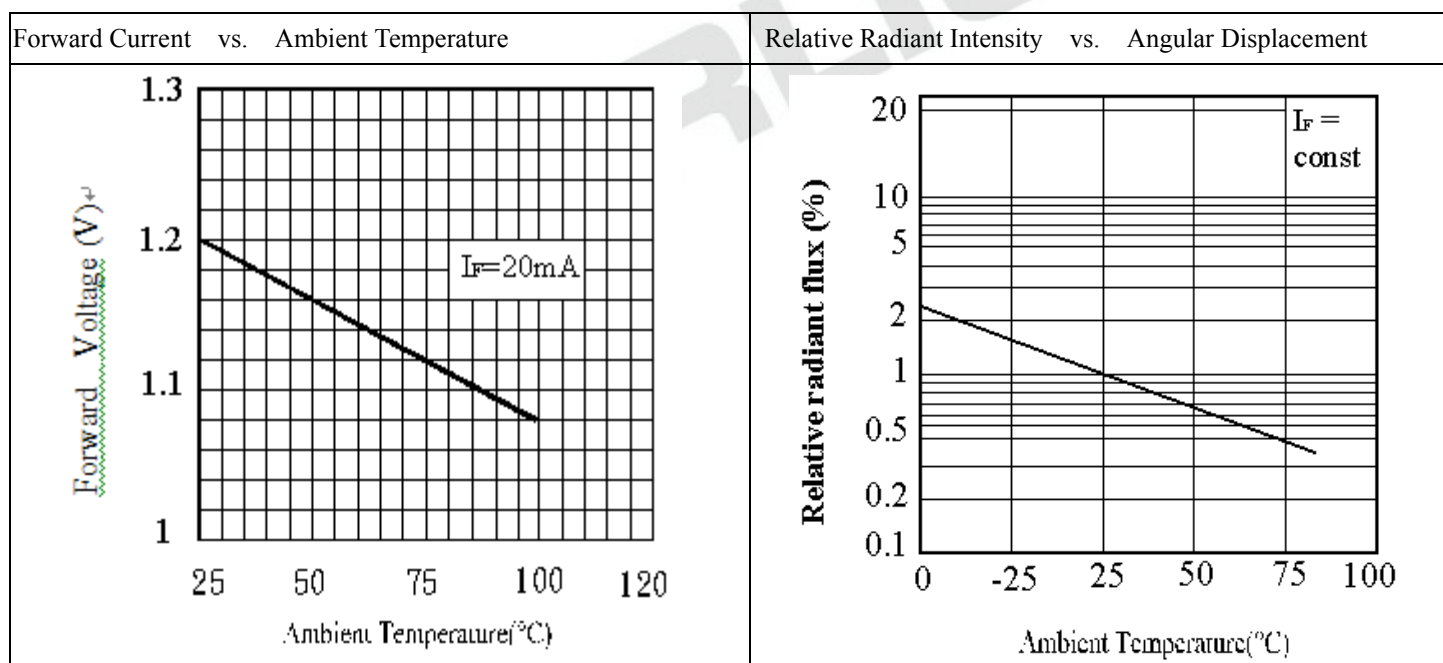
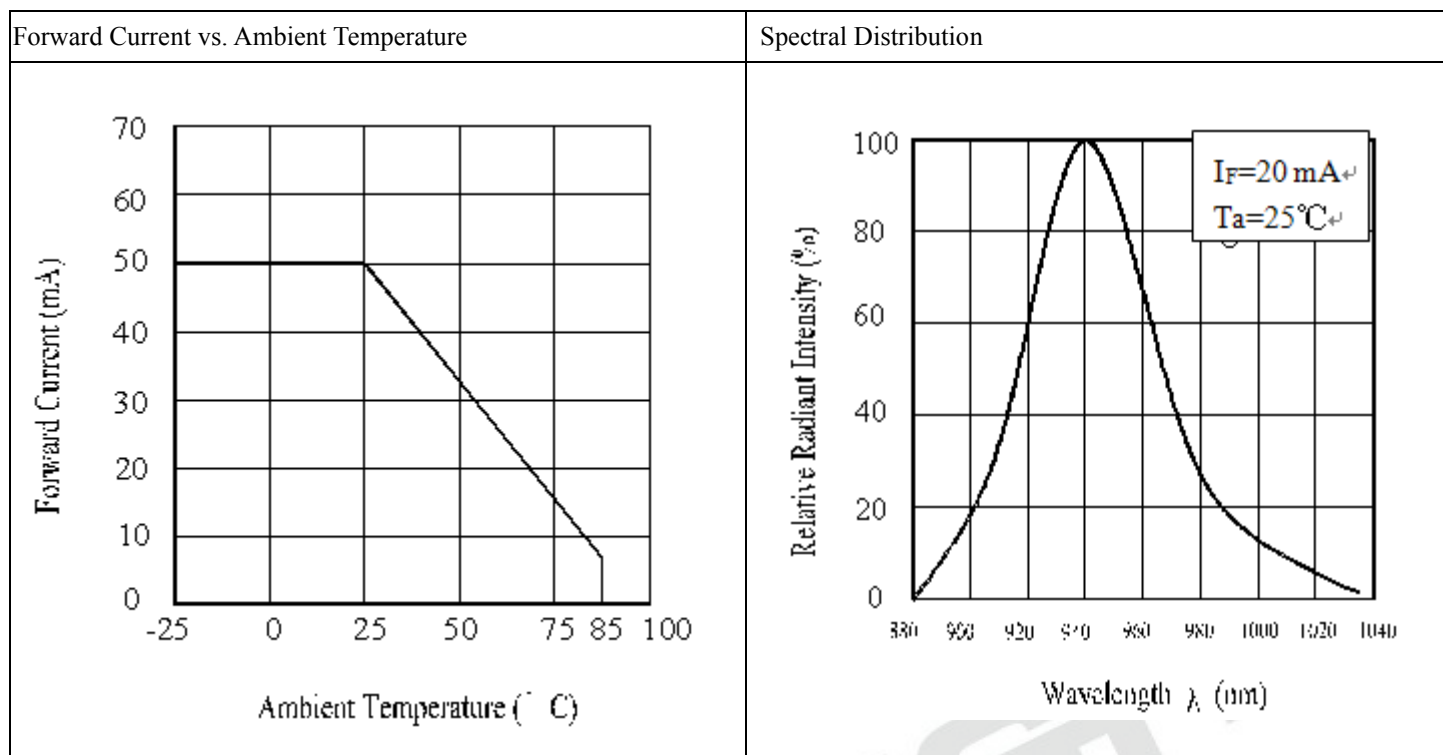
Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25 °C Free Air Temperature	Pd	75	mW
	Reverse Voltage	V _R	5	V
	Forward Current	I _F	50	mA
	Peak Forward Current (*1) Pulse width 100μs, Duty cycle=1%	I _{FP}	1	A
Output	Collector Power Dissipation	P _C	75	mW
	Collector Current	I _C	20	mA
	Collector-Emitter Voltage	B V _{CEO}	30	V
	Emitter-Collector Voltage	B V _{ECO}	5	V
Operating Temperature		Topr	-25~+85	
Storage Temperature		Tstg	-40~+85	
Lead Soldering Temperature (*2)		Tsol	260	

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

Electro-Optical Characteristics (Ta=25 °C)

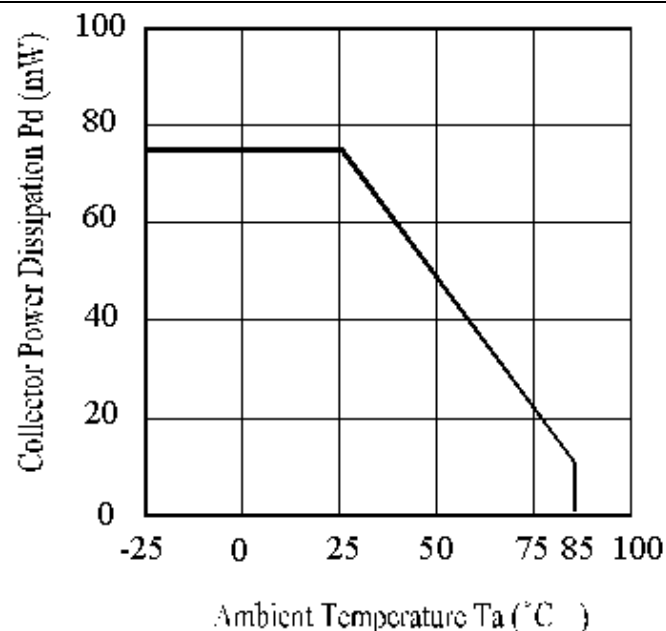
Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V_F	---	1.2	1.6	V	$I_F=20\text{mA}$
	Reverse Current	I_R	---	---	10	μA	$V_R=5\text{V}$
	Peak Wavelength	λ_p	---	940	---	nm	$I_F=20\text{mA}$
Output	Dark Current	I_{CEO}	---	1	100	nA	$V_{CE}=10\text{V}$
	C-E Saturation Voltage	$V_{CE(sat)}$	---	---	0.4	V	$I_C=2\text{mA}$ $E_e=1\text{mW/cm}^2$
Transfer Characteristics	Collector Current	$I_{C(ON)}$	0.2	---	5	mA	$V_{CE}=5\text{V}$ $I_F=20\text{mA}$
	Leakage Current	I_{CEOD}	---	---	1	μA	$V_{CE}=5\text{V}$ $I_F=20\text{mA}$
	Rise time	t_r	---	15	---	μsec	$V_{CE}=2\text{V}$ $I_C=1\text{mA}$ $R_L=1\text{K}\Omega$
	Fall time	t_f	---	15	---	μsec	

Typical Electrical/Optical/Characteristics Curves for IR

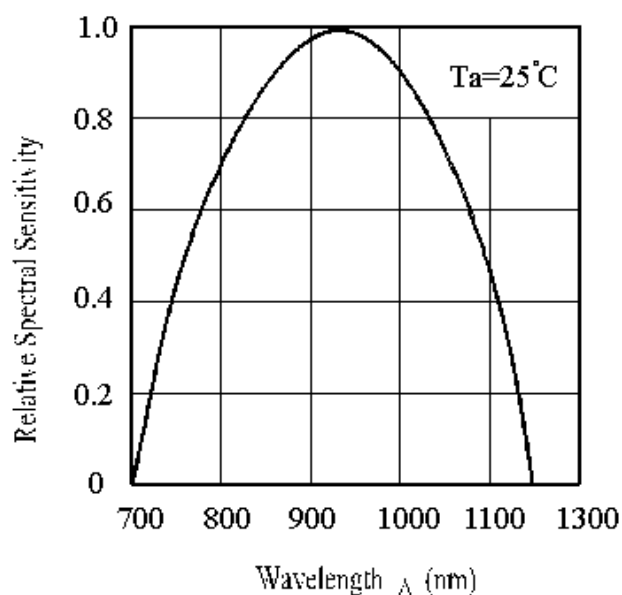


Typical Electro/Optical/Characteristics Curves for PT

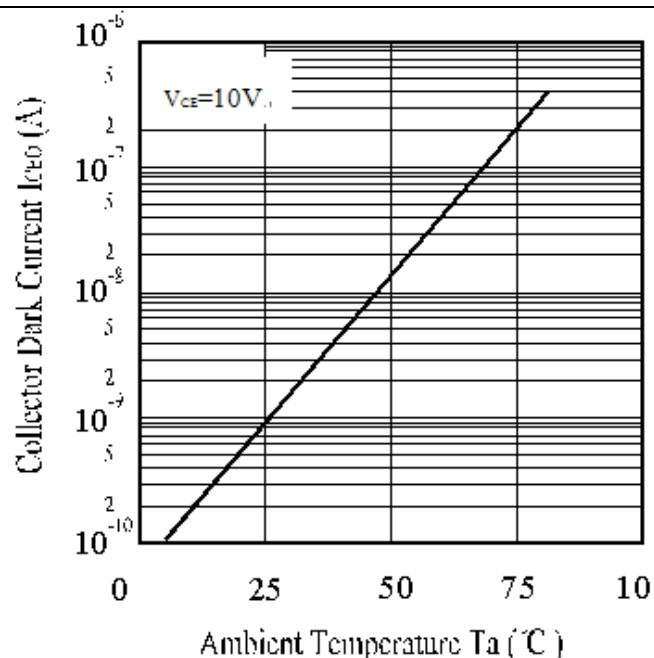
Collector Power Dissipation vs. Ambient Temperature



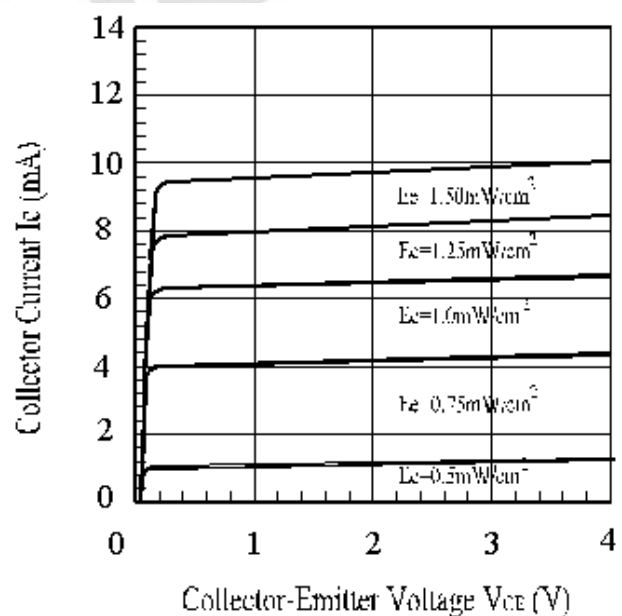
Collector Dark Current vs. Ambient Temperature



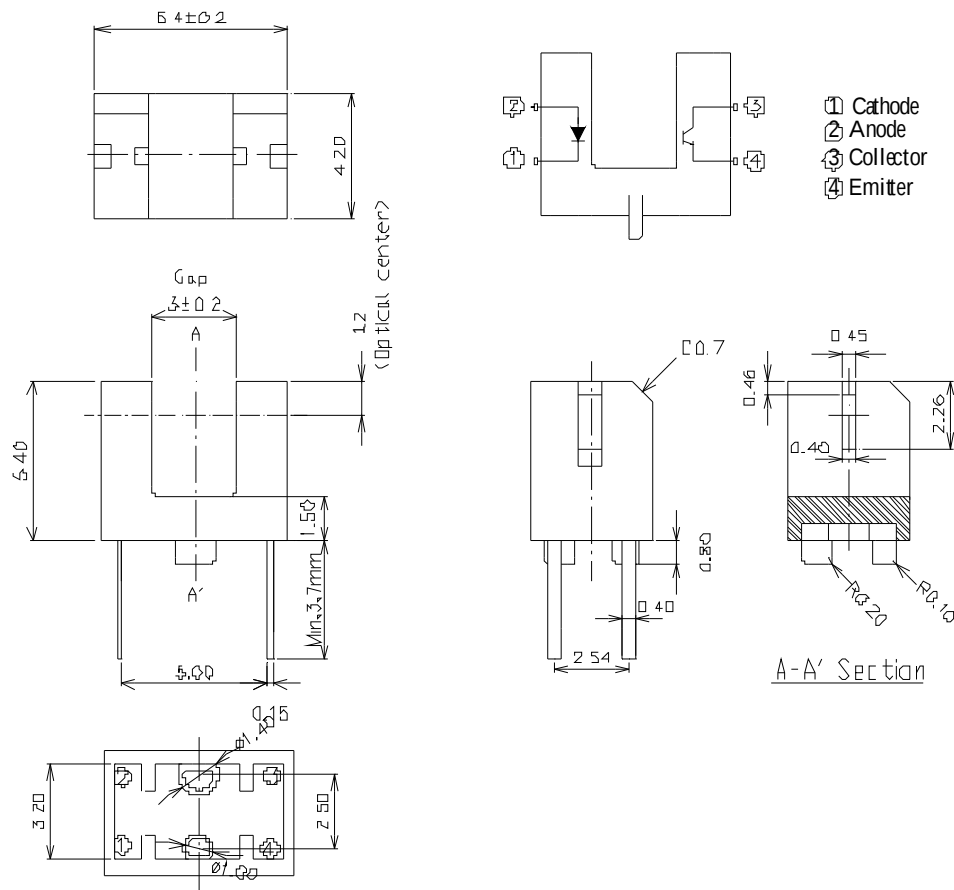
Relative Collector Current vs Ambient Temperature



Collector Current vs. Irradiance



Package Dimension



- Notes:** 1. All dimensions are in millimeters
2. Tolerances unless dimensions $\pm 0.2mm$

Reliability Test Item And Condition

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

Confidence level : 90%

LTPD : 10%

NO.	Item	Test Conditions	Test Hours/ Cycle	Sample Size	Failure Judgement Criteria	Ac/Re
1	Solder Heat	TEMP : 260 ± 5	10 sec	22 PCs	$I_{c(on)} \quad L \times 0.8$ L :Lower specification limit	0/1
2	Temperature Cycle	H : +100 15 min $\updownarrow$ 5 min L : -40 15 min	300 cycle	22 PCs		0/1
3	Thermal Shock	H : +100 5 min $\updownarrow$ 10 sec L : -10 5 min	300 cycle	22 PCs		0/1
4	High Temperature Storage	TEMP. : +100	1000 hrs	22 PCs		0/1
5	Low Temperature Storage	TEMP. : -40	1000 hrs	22 PCs		0/1
6	DC Operating Life	$V_{CE}=5V$ IF=20mA	1000 hrs	22 PCs		0/1
7	High Temperature / High Humidity	85 / 85% R.H.	1000 hrs	22 PCs		0/1

Packing Quantity Specification

200 pcs/1bag , 6 bags/1box , 10 boxes/1carton

Label Form Specification

CPN:
P/N:
QTY:
LOT NO:
Reference

EVERLIGHT

RoHS

X

Pb

- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number
- X: Month
- Reference: Identify Label 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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