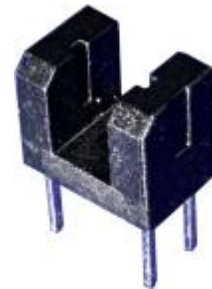


Technical Data Sheet Opto Interrupter

ITR-20403

■ Features

- . Fast response time
- . High sensitivity
- . Thin and small package
- . Pb free



■ Descriptions

- . The DP-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.

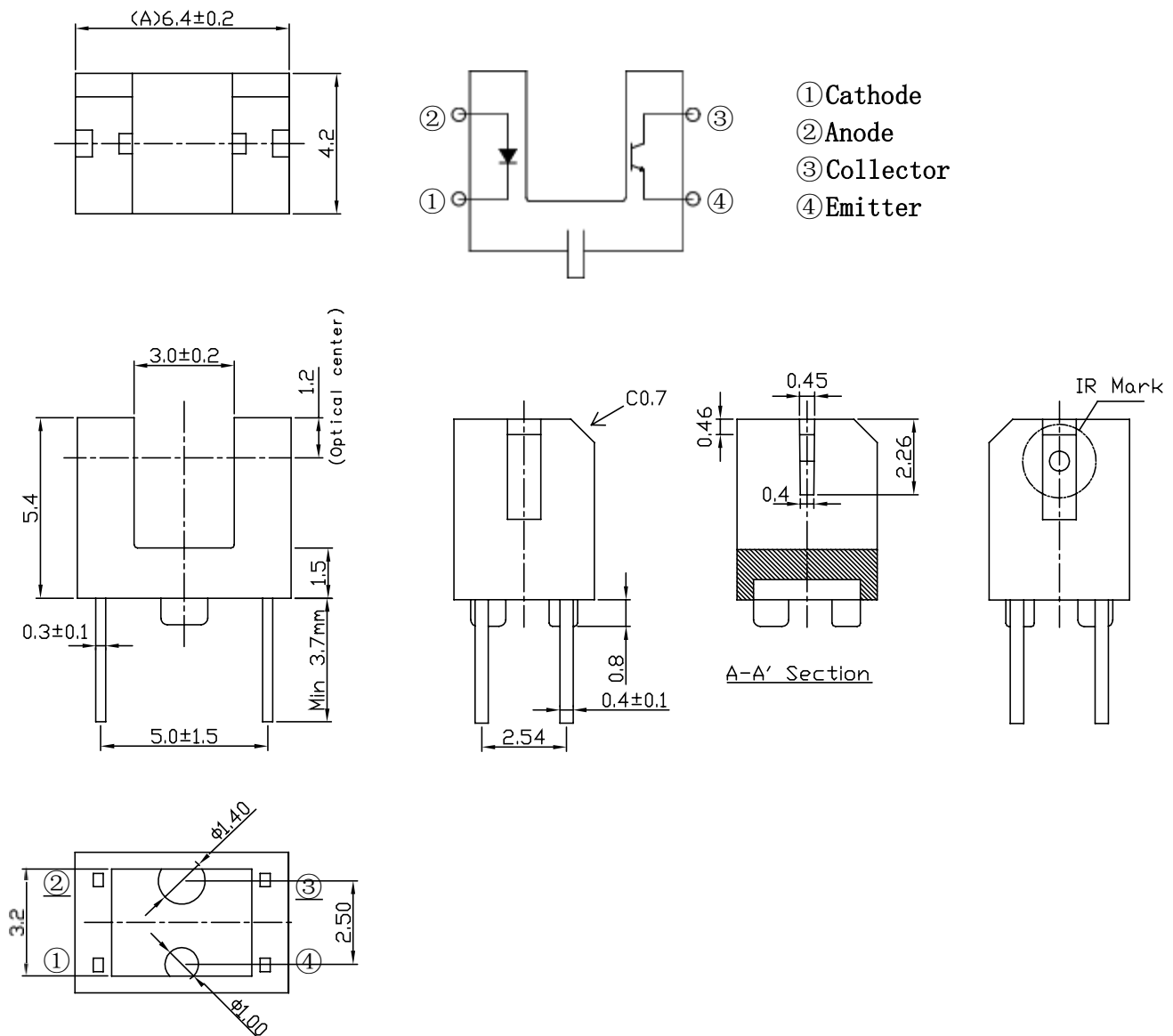
■ Applications

- . Camera
- . Copier
- . Scanner
- . Non-contact Switching

■ Device Selection Guide

Device No.	Chip Material	Lens Color
IR	GaAlAs	Water clear
PT	Silicon	Black

■ Package Dimensions



Notes:

1. All dimensions are in millimeters.
2. Tolerances unless dimensions ± 0.25 mm.
3. Lead spacing is measured where the lead emerge from the package.

■ 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	V _{CEO}	30	V
	Emitter-Collector Voltage	V _{ECO}	5	V
Operating Temperature		T _{opr}	-25~+85	°C
Storage Temperature		T _{stg}	-40~+100	°C
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		T _{sol}	260	°C

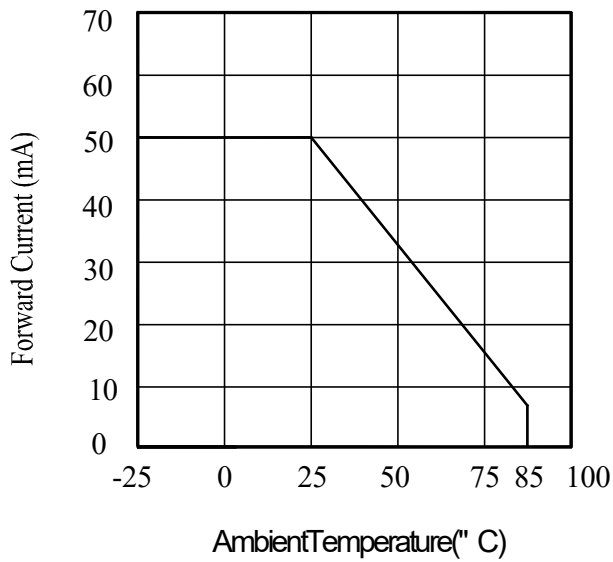
(*1) $t_w=100 \mu \text{ sec.}$, $T=10 \text{ msec.}$ (*2) $t=5 \text{ Sec}$

■ Electro-Optical Characteristics (Ta=25°C)

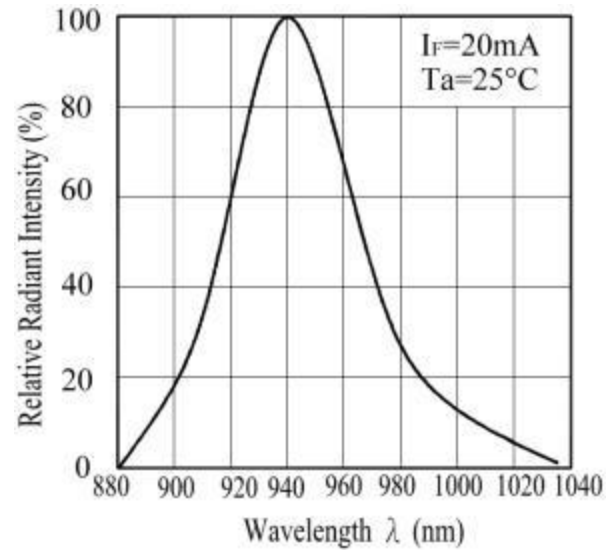
Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V _F	---	1.23	1.6	V	I _F =20mA
	Reverse Current	I _R	---	---	10	μA	V _R =5V
	Peak Wavelength	λ _p	---	940	---	nm	I _F =20mA
	View Angle	2θ _{1/2}	---	60	---	Deg	I _F =20mA
Output	Dark Current	I _{CEO}	---	---	100	nA	V _{CE} =20V, Ee=0mW/cm ²
	C-E Saturation Voltage	V _{CE(sat)}	---	---	0.4	V	I _C =2mA Ee=1mW/cm ²
Transfer Characteristics	Collect Current	I _{C(ON)}	0.20	---	5.0	mA	V _{CE} =5V I _F =20mA
	Rise time	t _r	---	15	---	μ sec	V _{CE} =5V I _C =1mA R _L =1KΩ
	Fall time	t _f	---	15	---	μ sec	

■ Typical Electrical/Optical/Characteristics Curves for IR

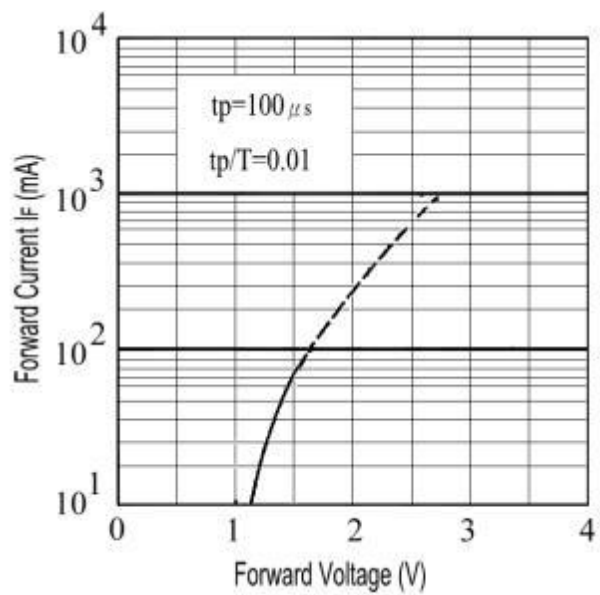
Forward Current vs. Ambient Temperature



Spectral Sensitivity



Forward Current vs. Forward Voltage



■ Typical Electrical/Optical/Characteristics Curves for PT

