Photointerrupter, Small type

RPI-222 Datasheet

Applications

- Optical control equipment
- · Digital video disc

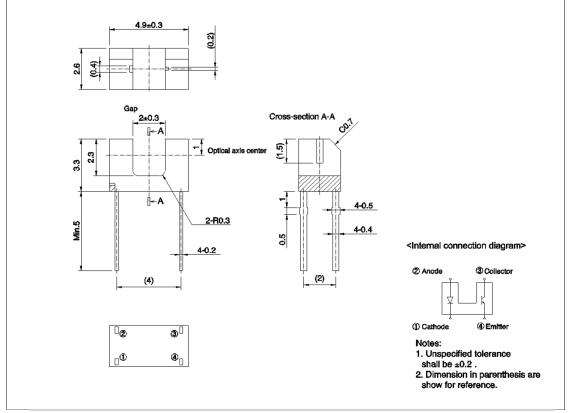
Cameras

Features

- 1) Ultra-small.
- 2) Minimal influence from stray light.
- 3) Low collector-emitter saturation voltage.







● Absolute maximum ratings (T_a = 25°C)

Parameter		Symbol	Value	Unit	
Input (LED)	Forward current	I _F	50	mA	
	Reverse voltage	V _R	5	V	
	Power dissipation	P _D	80	mW	
Output (photo- transistor)	Collector-emitter voltage	V _{CEO}	30	V	
	Emitter-collector voltage	V _{ECO}	4.5	V	
	Collector current	I _C	30	mA	
	Collector power dissipation	P _C	80	mW	
Operating temperature		T _{opr}	-25 to +85	°C	
Storage temperature		T _{stg}	-30 to +85	°C	

• Electrical and optical characteristics $(T_a = 25^{\circ}C)$

Parameter		Symbol	Conditions	Values			Limit
				Min.	Тур.	Max.	Unit
Input characteristics	Forward voltage	V _F	I _F =50mA	-	1.3	1.6	٧
	Reverse current	I _R	V _R =5V	ı	-	10	μΑ
Output characteristics	Dark current	I _{CEO}	V _{CE} =10V	ı	-	0.5	μΑ
	Peak sensitivity wavelength	λ_{p}	-	-	800	-	nm
Transfer characteristics	Collector current	I _C	$V_{CE} = 5V$, $I_F = 10mA$	0.18	0.3	0.95	mA
	Collector-emitter saturation voltage	V _{CE(sat)}	I _F =20mA, I _C =0.1mA	1	-	0.4	V
	Response time	tr∙tf	$V_{CC} = 5V$, $I_F = 20$ mA, $R_L = 100\Omega$	ı	10	ı	μS
Infrared light emitter diode	Cut-off frequency	f _C	I _F =50mA * Non-coherent Infrared light emitting diode used.	1	1	-	MHz
	Peak light emitting wavelength	λ_{p}		1	950	-	nm
Photo transistor	Response time	tr∙tf	V_{CC} =5V, I_{C} =1mA, R_{L} =100 Ω *This product is not designed to be protected against electromagnetic wave.	-	10	-	μS
	Maximum sensitivity wavelength	λ_{p}	-	-	800	-	nm

•Electrical and optical characteristics curves

Fig.1 Relative Output Current vs.Distance (I)

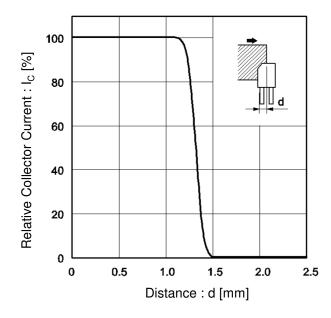


Fig.2 Relative Output Current vs.Distance (II)

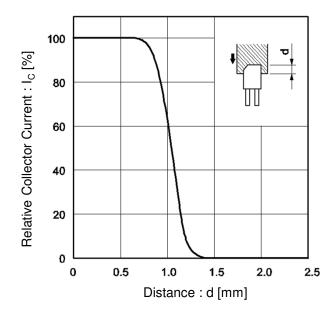


Fig.3 Forward Current Falloff

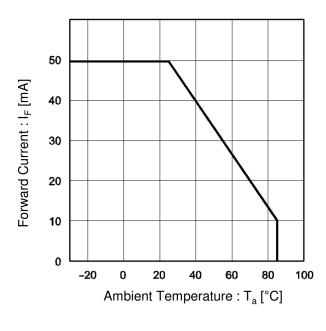
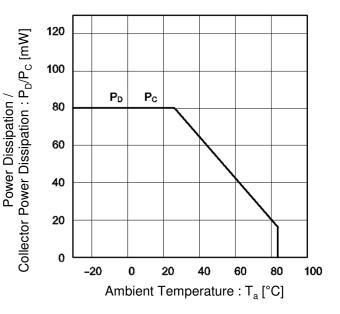


Fig.4 Power Dissipation / Collector Power Dissipation vs. Ambient Temperature



•Electrical and optical characteristics curves

Fig.5 Forward Current vs. Forward Voltage

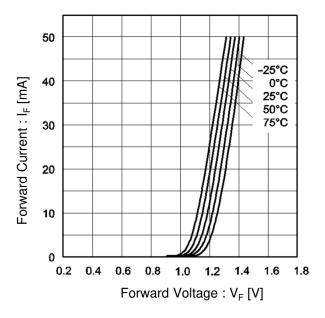


Fig.6 Collector Current vs. Forward Current

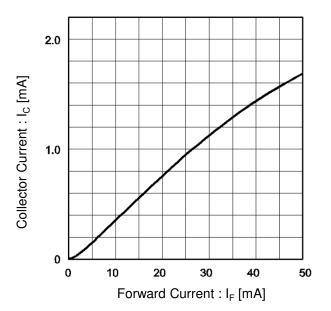


Fig.7 Relative Output vs. Ambient Temperature

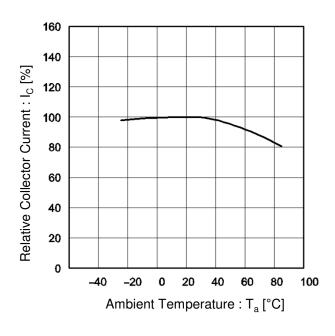
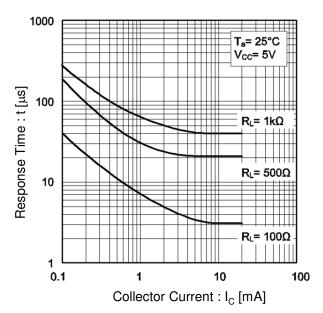


Fig.8 Response Time vs. Collector Current



•Electrical and optical characteristics curves

Fig.9 Dark Current vs. Ambient Temperature

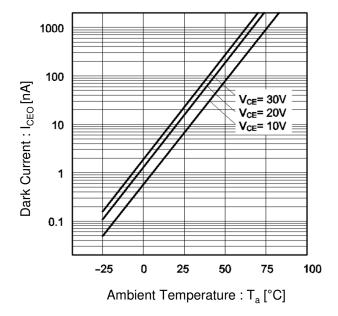


Fig.10 Output Characteristics

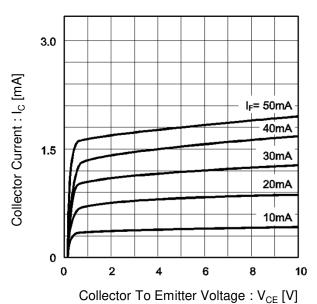
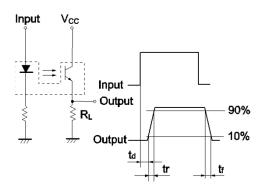


Fig.11 Response Time Measurement Circuit



t_d: Delay time

 t_r : Rise time (time for output current to rise from 10% to 90% of peak current) t_f : Fall time (time for output current to fall from 90% to 10% of peak current)

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