Photointerrupter, Ultraminiature type

Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Input(LED)	Forward current	lF	50	mA
	Reverse voltage	VR	5	V
	Power dissipation	P□	80	mW
Output (photo- (transistor)	Collector-emitter voltage	VCEO	30	V
	Emitter-collector voltage	VECO	4.5	V
	Collector current	Ic	30	mA
	Collector power dissipation	Pc	80	mW
Operating temperature		Topr	-25 to +85	°C
	Storage temperature	Tstg	-40 to +100	°C

Applications

Optical control equipment Cameras Floppy disk drives

Features

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

Electrical and optical characteristics (Ta=25°C)

Parameter		Symbol	Min.	Тур.	Max.	Unit	Conditions	
Input charac- teristics	Forward voltage	VF	-	1.3	1.6	V	I _F = 50mA	
	Reverse current	lR	-	-	10	μΑ	V _R = 5V	
Output charac- teristics	Dark current	ICEO	-	-	0.5	μΑ	VcE = 10V	
	Peak sensitivity wavelength	λр	_	800	_	nm	-	
Transfer charac- teristics	Collector current	Ic1	0.7	-	-	mA	V _{CE} = 5V, I _F = 20mA	
		Ic2	0.2	-	-	mA	VcE = 5V, IF = 5m	
	Collector-emitter saturation voltage	VCE(sat)	-	-	0.3	V	IF = 20mA, Ic = 0.3mA	
	Response time	tr • tf	_	10	-	μs	$Vcc = 5V$, $I_F = 20mA$, $R_L = 100\Omega$	
Infrared light emitter diode	Cut-off frequency	fc	-	1	-	MHz	I==50mA * Non-coherent Infrared light emitting diode used.	
	Peak light emitting wavelength	λР	_	950	_	nm		
Photo transistor	Response time	tr • tf	-	10	-	μs	$\begin{array}{c} V_{CC}\!\!=\!\!5V,I_{C}\!\!=\!\!1\text{mA},R_{L}\!\!=\!\!100\Omega\\ *\text{This product is not designed to be protected against electromagnetic wave}. \end{array}$	
	Maximum sensitivity wavelength	λР	_	800	_	nm	-	

Electrical and optical characteristics curves

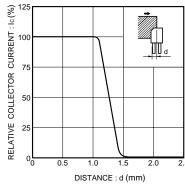


Fig.1 Relative output current vs. distance (I)

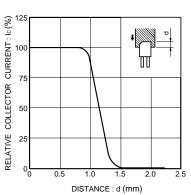


Fig.4 Relative output current vs. distance (II)

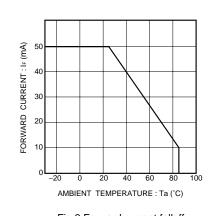


Fig.2 Forward current falloff

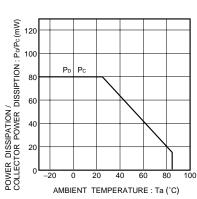


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

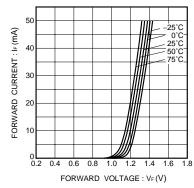


Fig.3 Forward current vs. forward voltage

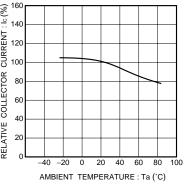
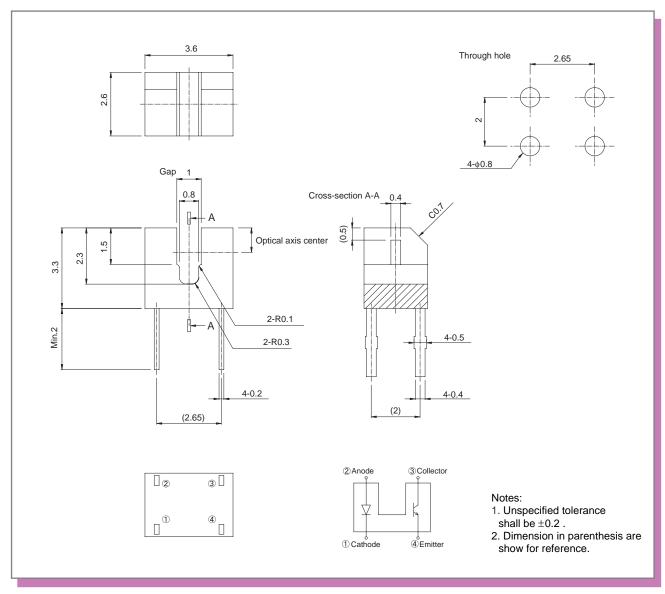
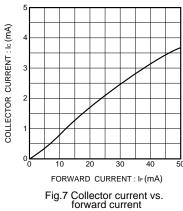
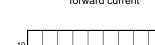


Fig.6 Relative output vs. ambient temperature

External dimensions (Unit : mm)







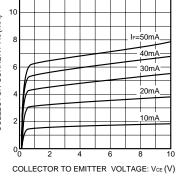


Fig.10 Output characteristics

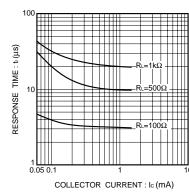


Fig.8 Response time vs. collector current



· Delay time

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

Fig.11 Response time measurement circuit

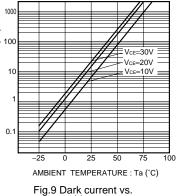


Fig.9 Dark current vs. ambient temperatur

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