

Photointerrupter, General type



Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	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}	-40 to +85	°C
Soldering temperture		T_{sol}	260 / 3 *	°C / s

* 1mm from the body bottom.

Electrical and optical characteristics (Ta=25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input charac-teristics	Forward voltage	V_F	-	1.3	1.6	V	$I_F=50\text{mA}$
	Reverse current	I_R	-	-	10	μA	$V_R=10\text{V}$
Output charac-teristics	Dark current	I_{CEO}	-	-	0.5	μA	$V_{CE}=10\text{V}$
	Peak sensitivity wavelength	λ_P	-	800	-	nm	-
Transfer characteristics	Collector current	I_C	0.5	-	-	mA	$V_{CE}=5\text{V}, I_F=20\text{mA}$
	Collector-emitter saturation voltage	$V_{CE(sat)}$	-	0.1	0.5	V	$I_F=20\text{mA}, I_C=0.1\text{mA}$
Response time	Rise time	t_r	-	10	-	μs	$V_{CC}=5\text{V}, I_F=20\text{mA}, R_L=100\Omega$
	Fall time	t_f	-	10	-	μs	
Infrared light emitter diode	Cut-off frequency	f_c	-	1	-	MHz	$I_F=50\text{mA}$
	Peak light emitting wavelength	λ_P	-	950	-	nm	* Non-coherent Infrared light emitting diode used.
Photo transistor	Response time	$t_r \cdot t_f$	-	10	-	μs	$V_{CC}=5\text{V}, I_C=1\text{mA}, R_L=100\Omega$ * This product is not designed to be protected against electromagnetic wave.
	Maximum sensitivity wavelength	λ_P	-	800	-	nm	-

Electrical and optical characteristics curves

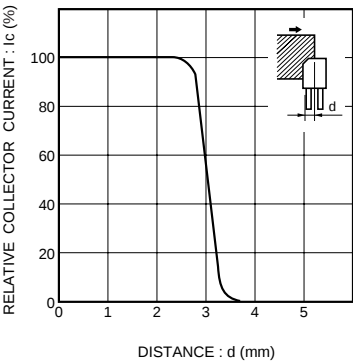


Fig.1 Relative output vs. distance (I)

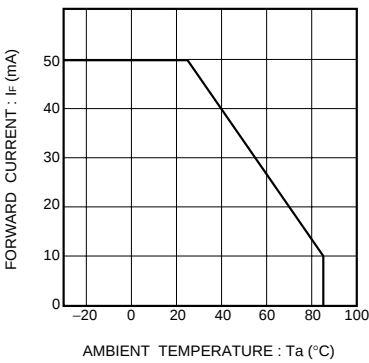


Fig.2 Forward current falloff

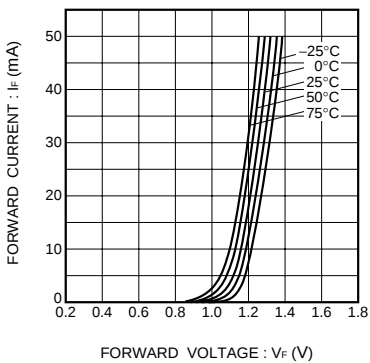


Fig.3 Forward current vs. forward voltage

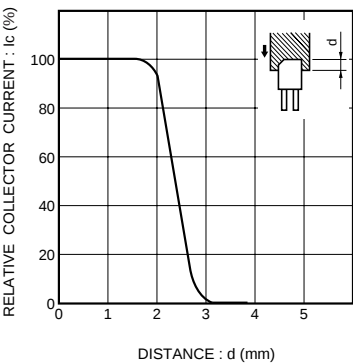


Fig.4 Relative output vs. distance (II)

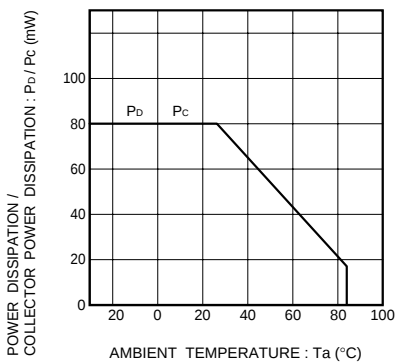


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

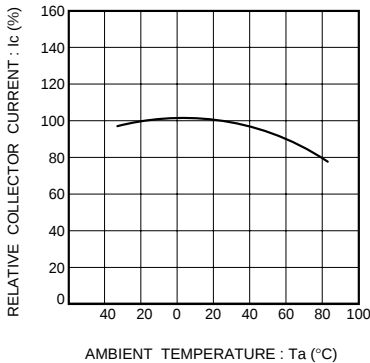
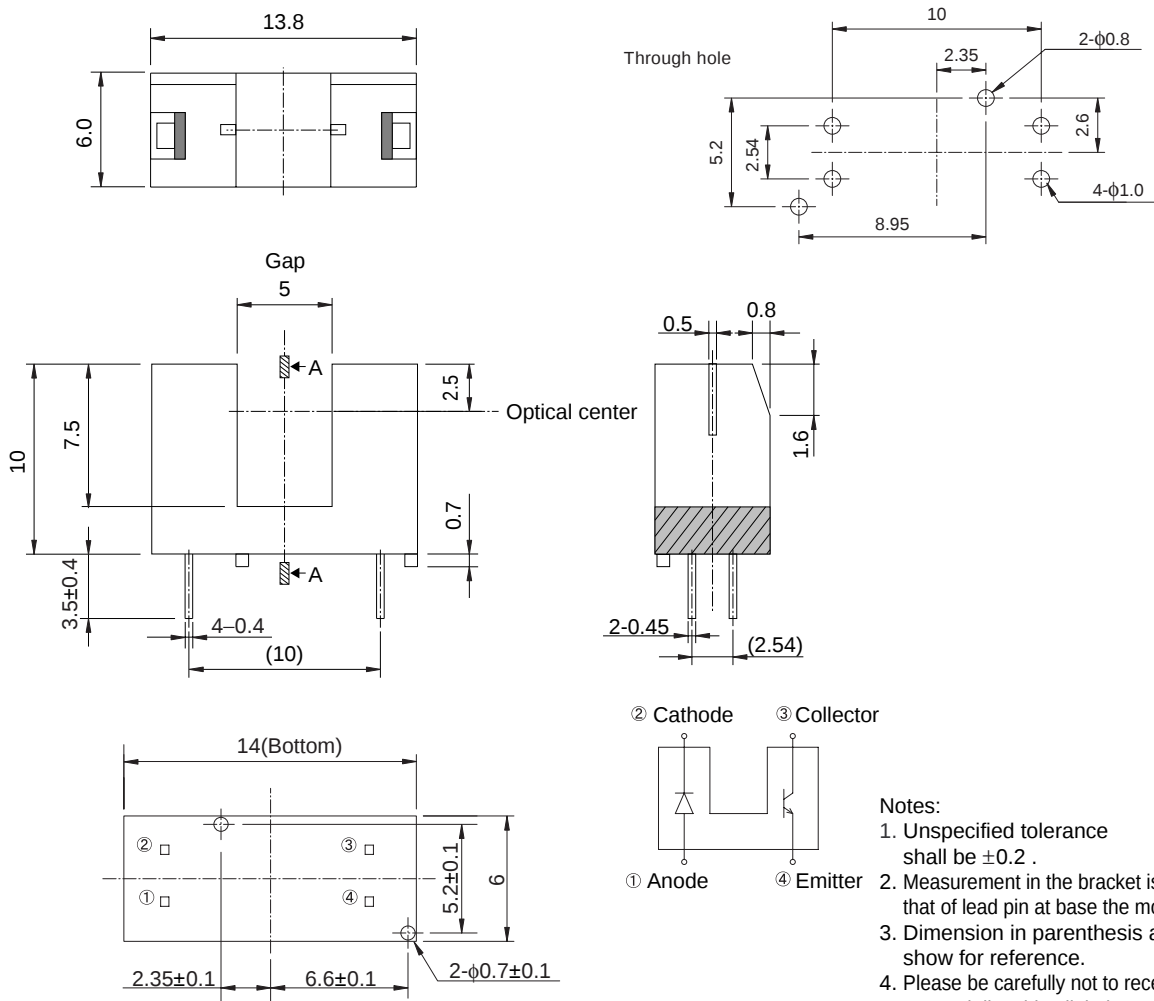


Fig.6 Relative output vs. ambient temperature

External dimensions (Unit : mm)



- Notes:
1. Unspecified tolerance shall be ± 0.2 .
 2. Measurement in the bracket is that of lead pin at base the mold.
 3. Dimension in parenthesis are show for reference.
 4. Please be carefully not to receive external disturbing light because the top and back face emitter and detector element isn't covered by case.

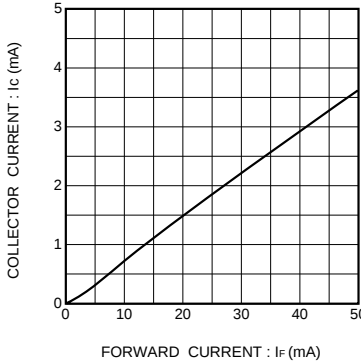


Fig.7 Collector current vs. forward current

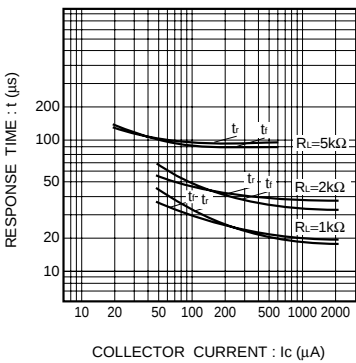


Fig.8 Response time vs. collector current

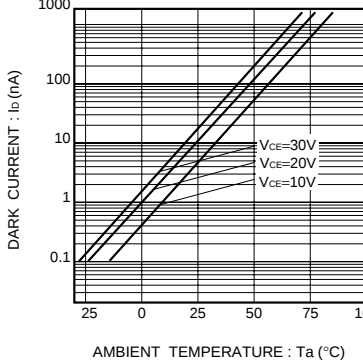


Fig.9 Dark current vs. ambient temperature

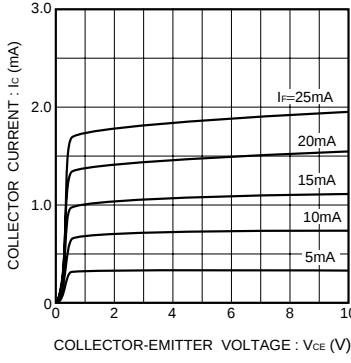


Fig.10 Output characteristics

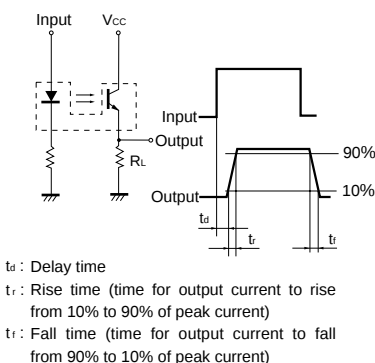


Fig.11 Response time measurement circuit

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Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.