Actuator-type photointerrupter
RPI-5100

The RPI-5100 is a compact, actuator-type photointerrupter.
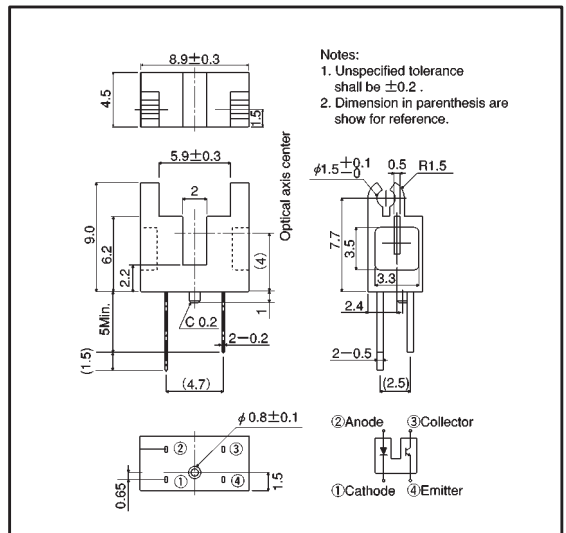
●External dimensions (Units: mm)

Notes:
1. Unspecified tolerance shall be ±0.2 .
2. Dimension in parenthesis are show for reference.

②Anode   ③Collector
①Cathode   ④Emitter

●Applications
Optical control equipment
Facsimiles
Plain paper copiers

●Features
1) Compact.
2) Minimal influence from stray light.
3) Equipped with an actuator mount.

●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〜+85	℃
Storage temperature		T_{stg}	−30〜+85	℃

●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=50mA
	Reverse current	I_R	—	—	10	μA	V_R=5V
Output charac-teristics	Dark current	I_{CEO}	—	—	0.5	μA	V_{CE}=10V
	Peak sensitivity wavelength	λ_P	—	800	—	nm	—
Transfer charac-teristics	Collector current	I_C	0.2	1.0	—	mA	V_{CE}=5V, I_F=20mA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.4	V	I_F=20mA, I_C=0.1mA
	Response time	tr・tf	—	10	—	μs	V_{CC}=5V, I_F=20mA, R_L=100Ω

●Electrical and optical characteristic curves
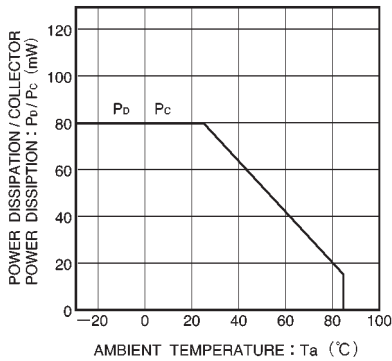
Fig.1 Power dissipation / collector power dissipation vs. ambient temperature
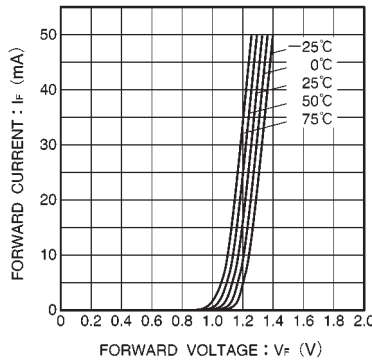
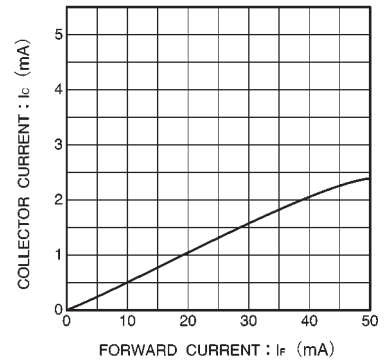

Fig.2 Forward current vs. forward voltage

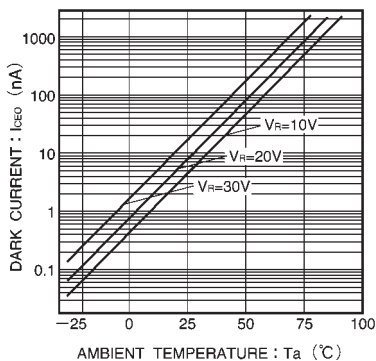Fig.3 Collector current vs. forward current
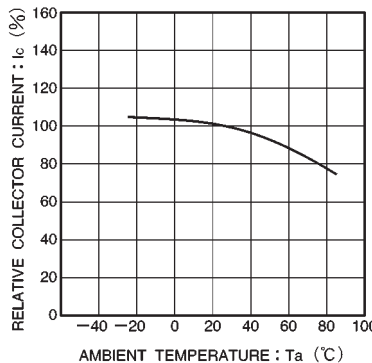

Fig.4 Dark current vs. ambient temperature
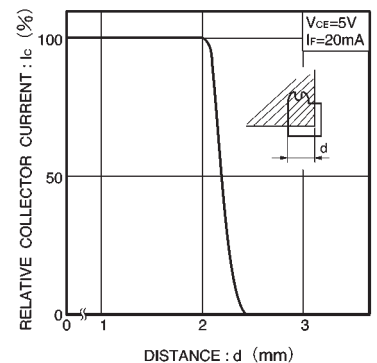

Fig.5 Relative output vs. ambient temperature
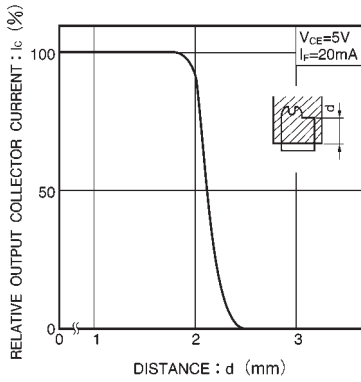

Fig.6 Relative output vs. distance（Ⅰ）

ROHM

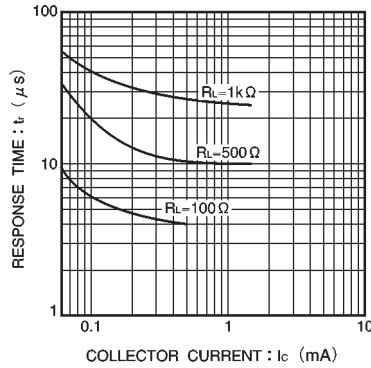Fig.7 Relative output vs. distance （Ⅱ）
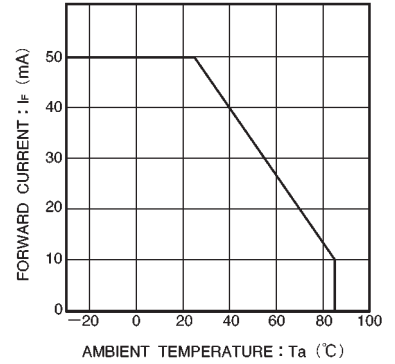
Fig.8 Response time vs. output current

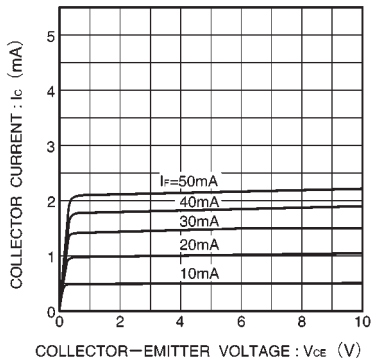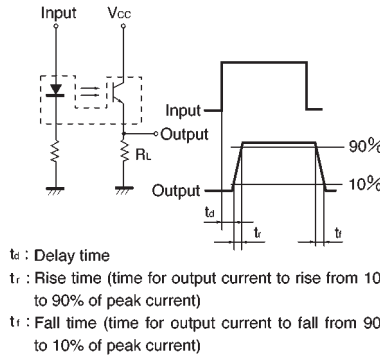Fig.9 Forward current falloff

Fig.10 Output characteristics

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)

Fig.11 Response time measurement circuit