

RPI-124F Datasheet



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DiGi Electronics Part Number	RPI-124F-DG
Manufacturer	Rohm Semiconductor
Manufacturer Product Number	RPI-124F
Description	SENSOR OPT SLOT PHOTOTRAN PCB MT
Detailed Description	Optical Sensor Through-Beam 0.039" (1mm) Photo transistor PCB Mount

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Purchase and inquiry

Manufacturer Product Number:

RPI-124F

Series:

-

Sensing Distance:

0.039" (1mm)

Output Configuration:

Phototransistor

Current - Collector (Ic) (Max):

30 mA

Response Time:

10µs, 10µs

Mounting Type:

Through Hole

Type:

Unamplified

Manufacturer:

Rohm Semiconductor

Product Status:

Active

Sensing Method:

Through-Beam

Current - DC Forward (If) (Max):

50 mA

Voltage - Collector Emitter Breakdown (Max):

30 V

Operating Temperature:

-25°C ~ 85°C

Package / Case:

PCB Mount

Base Product Number:

RPI-124

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.49.8000

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

Photo interrupter, double-layer mold type

RPI-124

The RPI-124 is an ultra-small size, double-layer mold photointerrupter.

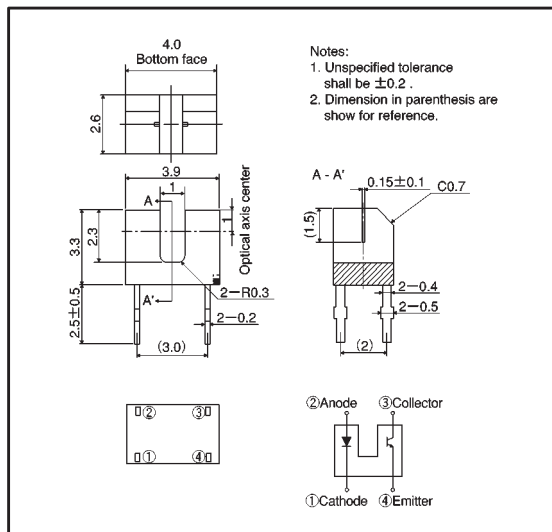
● External dimensions (Units: mm)

● Applications

Optical control equipment
Cameras
Floppy disk drives

● Features

- 1) Ultra-small.
- 2) High-precision position detection (slit width = 0.15 mm).
- 3) Minimal influence from stray light.
- 4) Low collector-emitter saturation voltage.



● 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	°C
	Storage temperature	T _{stg}	-30~+100	°C

●Electrical and optical characteristics (Ta = 25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input characteristics	Forward voltage	V_F	—	1.3	1.6	V	$I_F=50\text{mA}$
	Reverse current	I_R	—	—	10	μA	$V_R=5\text{V}$
	Dark current	I_{CEO}	—	—	0.5	μA	$V_{CE}=10\text{V}$
Output characteristics	Peak sensitivity wavelength	λ_P	—	800	—	nm	—
Transfer characteristics	Collector current	I_C	0.3	—	1.5	mA	$V_{CC}=5\text{V}$, $I_F=20\text{mA}$
	Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.3	V	$I_F=20\text{mA}$, $I_C=0.15\text{mA}$
	Response time	$t_r \cdot t_f$	—	10	—	μs	$V_{CC}=5\text{V}$, $I_F=20\text{mA}$, $R_L=100\Omega$

●Electrical and optical characteristic curves

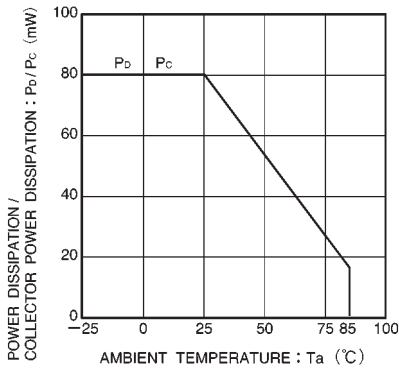


Fig.1 Power dissipation / collector power dissipation vs. ambient temperature

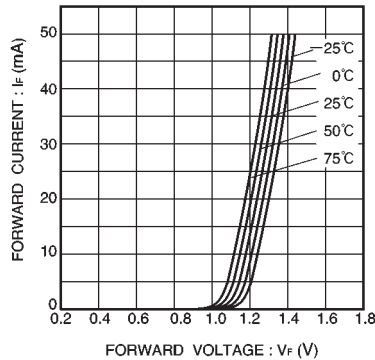


Fig.2 Forward current vs. forward voltage

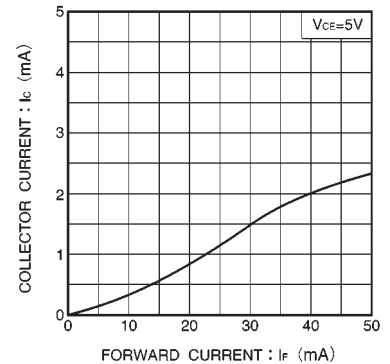


Fig.3 Collector current vs. forward current

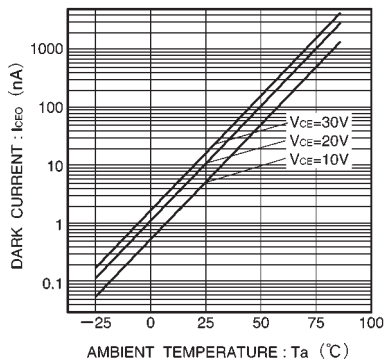


Fig.4 Dark current vs. ambient temperature

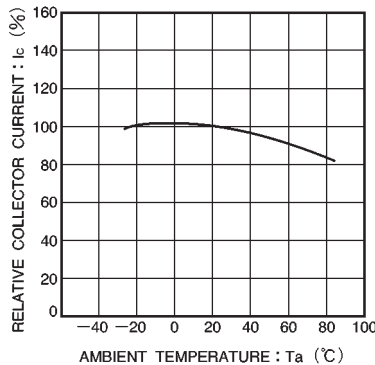


Fig.5 Relative output vs. ambient temperature

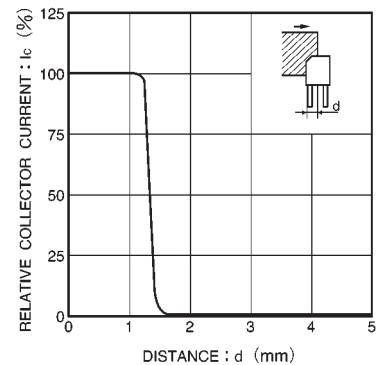


Fig.6 Relative output current vs. distance (I)

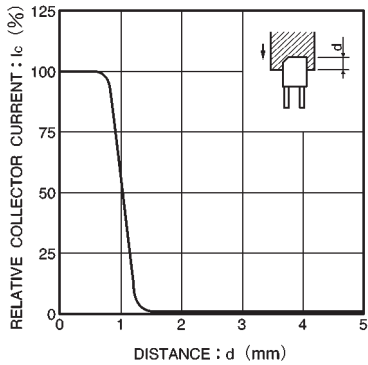


Fig.7 Relative output current vs. distance (II)

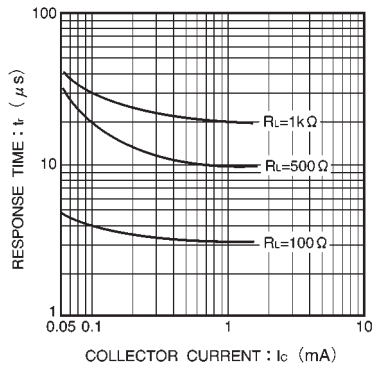


Fig.8 Response time vs. collector current

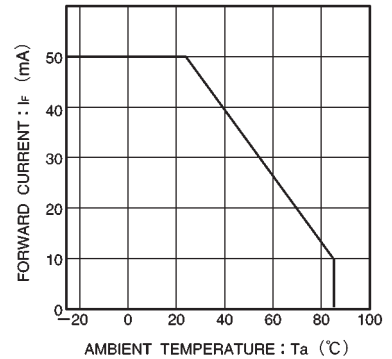


Fig.9 Forward current falloff

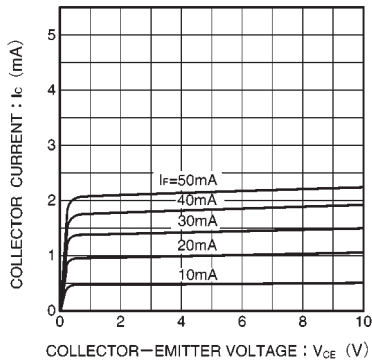
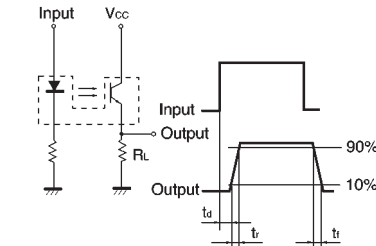


Fig.10 Output characteristics



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)

Appendix

Notes

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