Surface Mount type 4 Direction Detector

RPI-1035 Data sheet

●Applications

• DSC(Digital still camera)

• DVC(Digital video camera)

• Smart phone

• Fan heater

• Projector

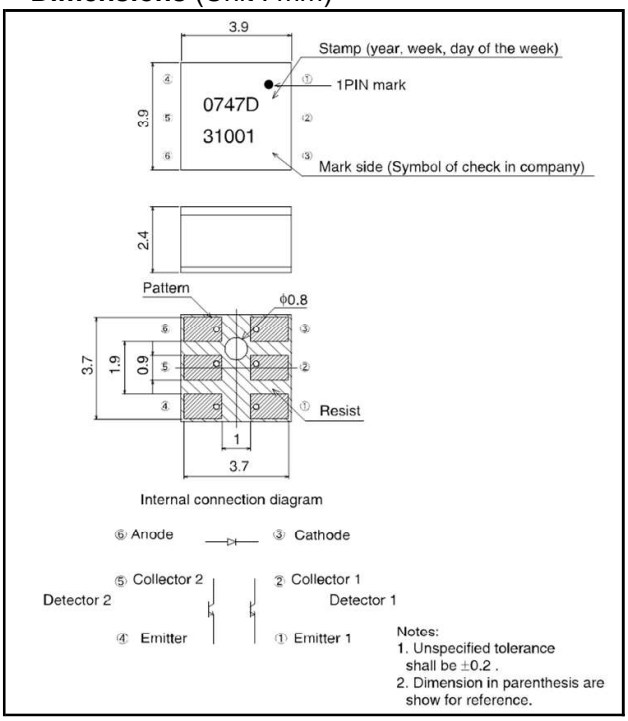
●Features

1) Surface Mount type

2) Optical Sensor

3) 4 Direction Detector

●Dimensions (Unit : mm)



●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 (Phototransistor)	Collector-emitter voltage	V_{CEO}	30	V
	Emitter-collector voltage	V_{ECO}	4.5	V
	Collector current	I_C	30	mA
	Collector 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 (Ta = 25°C)

1) Input characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Forward voltage	V_F	I_F =50mA	-	1.3	1.6	V
Reverse current	I_R	V_R =5V	-	-	10	μA

2) Output characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Dark current	I_{CED}	V_{CE} =10V	-	-	0.5	μA
Peak sensitivity wavelength	λ_p	-	-	800	-	nm

3) Transfer characteristics

Parameter		Symbol	Conditions	Values			Unit
				Min.	Typ.	Max.	
Collector current		I_C	V_{CE} =5V, I_F =5mA	100	-	-	μA
DC leakage current		I_{leak}	V_{CE} =5V, I_F =5mA	-	-	15	
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_F =20mA, I_C =0.1mA	-	-	0.4	V
Response time	Rise time	tr	V_{CC} =5V, I_F =20mA	-	10	-	ms
	Fall time	tf	R_L=100Ω	-	10	-	

4) Infrared light emitter diode

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Cut-off frequency	f_C	I_F =50mA*1	-	1	-	MHz
Peak light emitting wavelength	λ_P		-	950	-	nm

*1 Non-coherent Infrared light emitting diode used.

5) Phototransistor

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Response time	tr·tf	V_{CC}=5V, I_C=1mA, R_L=100W*2	-	10	-	μs
Maximum sensitivity wavelength	λ_P	-	-	800	-	nm

*2 This product is not designed to be protected against electromagnetic wave.

●Electrical and optical characteristic curves

Fig.1 Forward Current A Falloff

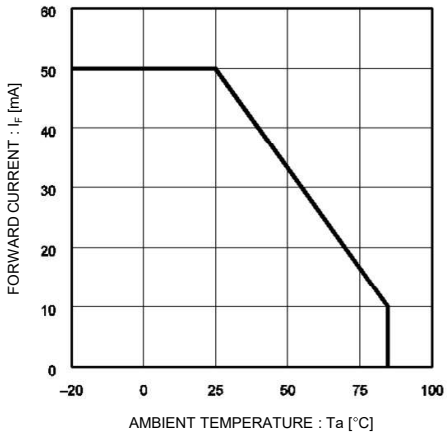


Fig.2 Forward Current vs. Forward Voltage

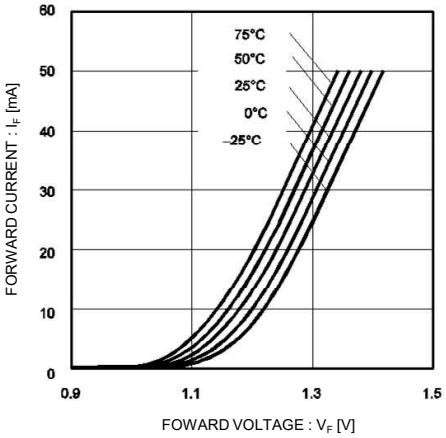


Fig.3 Power Dissipation / Collector Power Dissipation vs. Ambient Temperature

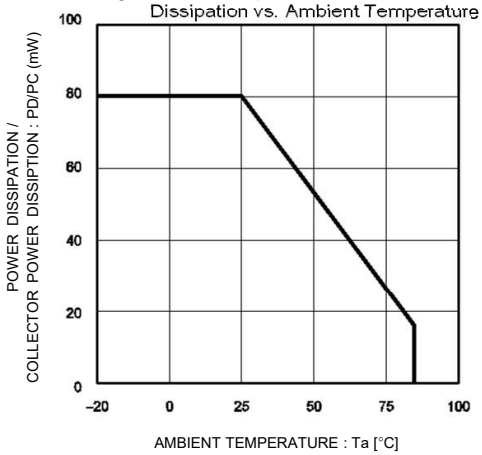


Fig.4 Relative Output vs. Ambient Temperature

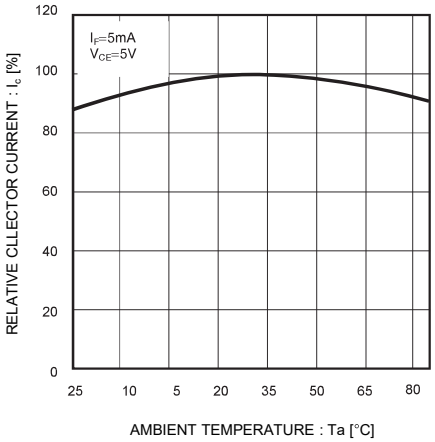


Fig.5 Collector Current vs. Forward Current

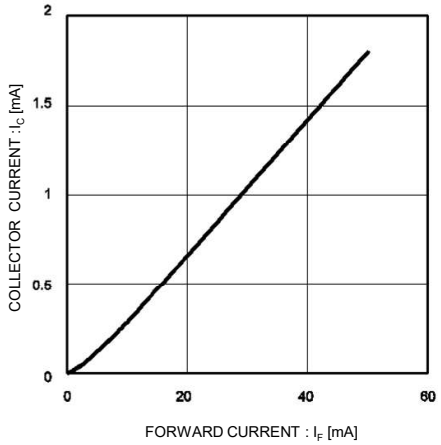
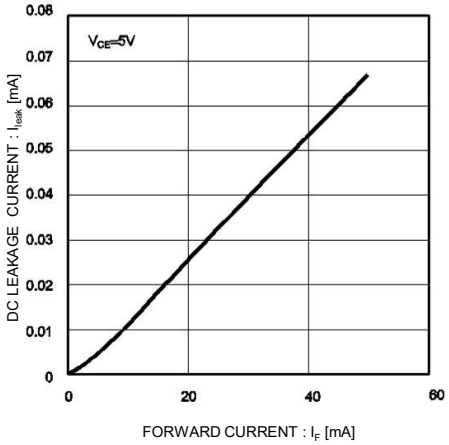


Fig.6 DC Leakage Current vs. Fforward Current



●Electrical and optical characteristic curves

Fig.7 Response Time vs. Collector Current

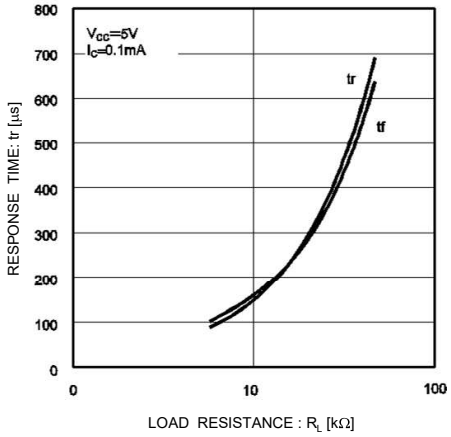


Fig.8 Dark Current vs. Ambient Temperature

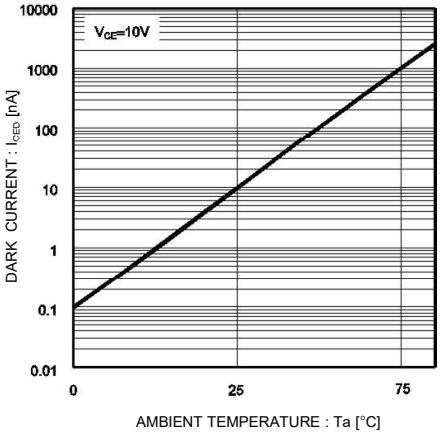


Fig.9 Output Characteristics

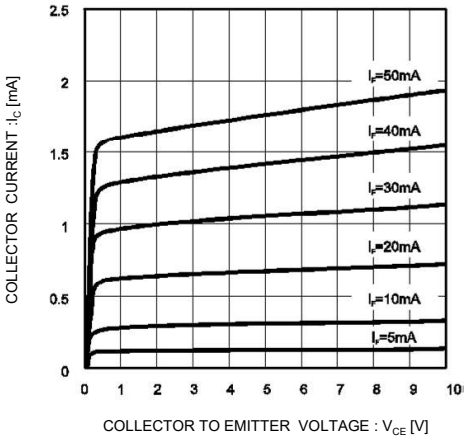
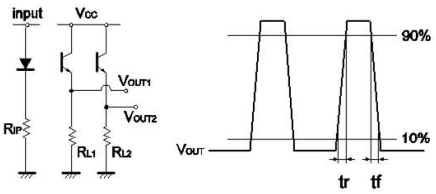


Fig.10 Response Time Measurement Circuit



Notes

1) The information contained herein is subject to change without notice.

2) Before you use our Products, please contact our sales representative and verify the latest specifications :

3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.
Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. ROHM shall have no responsibility for any damages arising out of the use of our Poducts beyond the rating specified by ROHM.

4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

5) The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM or any other parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.

6) The Products are intended for use in general electronic equipment (i.e. AV/OA devices, communication, consumer systems, gaming/entertainment sets) as well as the applications indicated in this document.

7) The Products specified in this document are not designed to be radiation tolerant.

8) For use of our Products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a ROHM representative : transportation equipment (i.e. cars, ships, trains), primary communication equipment, traffic lights, fire/crime prevention, safety equipment, medical systems, servers, solar cells, and power transmission systems.

9) Do not use our Products in applications requiring extremely high reliability, such as aerospace equipment, nuclear power control systems, and submarine repeaters.

10) ROHM shall have no responsibility for any damages or injury arising from non-compliance with the recommended usage conditions and specifications contained herein.

11) ROHM has used reasonable care to ensur the accuracy of the information contained in this document. However, ROHM does not warrants that such information is error-free, and ROHM shall have no responsibility for any damages arising from any inaccuracy or misprint of such information.

12) Please use the Products in accordance with any applicable environmental laws and regulations, such as the RoHS Directive. For more details, including RoHS compatibility, please contact a ROHM sales office. ROHM shall have no responsibility for any damages or losses resulting non-compliance with any applicable laws or regulations.

13) When providing our Products and technologies contained in this document to other countries, you must abide by the procedures and provisions stipulated in all applicable export laws and regulations, including without limitation the US Export Administration Regulations and the Foreign Exchange and Foreign Trade Act.

14) This document, in part or in whole, may not be reprinted or reproduced without prior consent of ROHM.

ROHM SEMICONDUCTOR

Thank you for your accessing to ROHM product informations.
More detail product informations and catalogs are available, please contact us.

ROHM Customer Support System

http://www.rohm.com/contact/