Surface Mount type 4 Direction Detector

RPI-1035 Data sheet

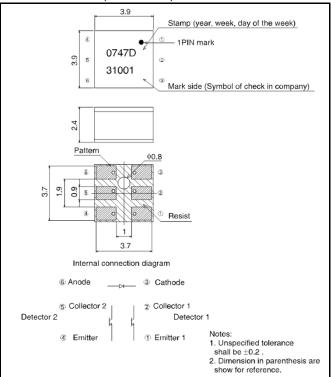
Applications

- 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			Lloit
			Min.	Тур.	Max.	Unit
Forward voltage	V_{F}	I _F =50mA	-	1.3	1.6	V
Reverse current	I _R	V _R =5V	-	-	10	μΑ

2) Output characteristics

Parameter	Symbol	Conditions	Values			Unit
Parameter			Min.	Тур.	Max.	Offic
Dark current	I _{CED}	V _{CE} =10V	ı	ı	0.5	μΑ
Peak sensitivity wavelength	λ_{p}	-	-	800	1	nm

3) Transfer characteristics

Parameter		Symbol	Conditions		Unit		
		Syllibol		Min.	Тур.	Max.	Offic
Collector current		I _C	$V_{CE} = 5V$, $I_F = 5mA$	100	-	-	^
DC leakage current		I _{leak}	$V_{CE} = 5V$, $I_F = 5mA$	-	-	15	μΑ
Collector-emitter saturation voltage		$V_{\text{CE(sat)}}$	$I_F = 20 \text{mA}, I_C = 0.1 \text{mA}$	-	-	0.4	V
Pagnanga tima	Rise time	tr	$V_{CC} = 5V$, $I_F = 20mA$	-	10	-	mo
Response time	Fall time	tf	$R_L=100\Omega$	-	10	-	ms

4) Infrared light emitter diode

Doromotor	Symbol	Conditions	Values			Limit
Parameter			Min.	Тур.	Max.	Unit
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
- Farameter			Min.	Тур.	Max.	Offic
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

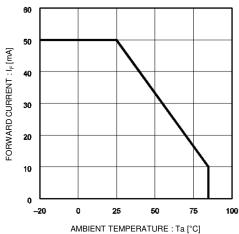


Fig.3 Power Dissipation / Collector Power Dissipation vs. Ambient Temperature

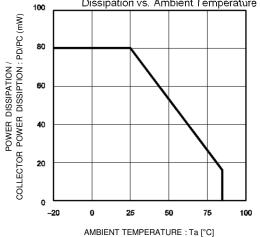


Fig.5 Collector Current vs. Forward Current

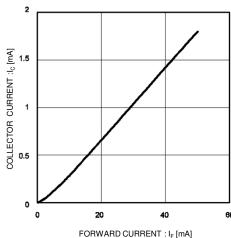


Fig.2 Forward Current vs. Forward Voltage

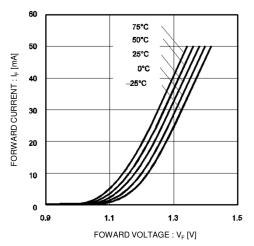


Fig.4 Relative Output vs. Ambient Temperature

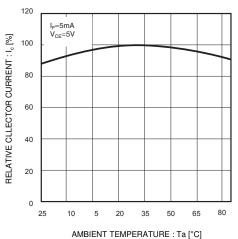
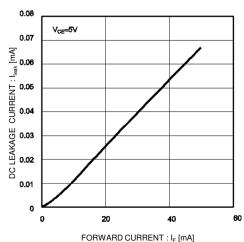


Fig.6 DC Leakage Current vs. Fforward Current



•Electrical and optical characteristic curves

Fig.7 Response Time vs. Collector Current

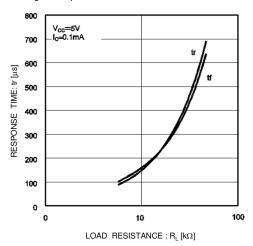


Fig.9 Output Characteristics

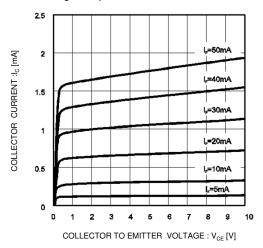


Fig.8 Dark Current vs. Ambient Temperature

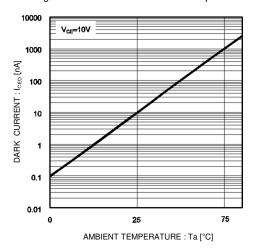
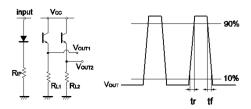


Fig.10 Response Time Measurement Circuit



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