

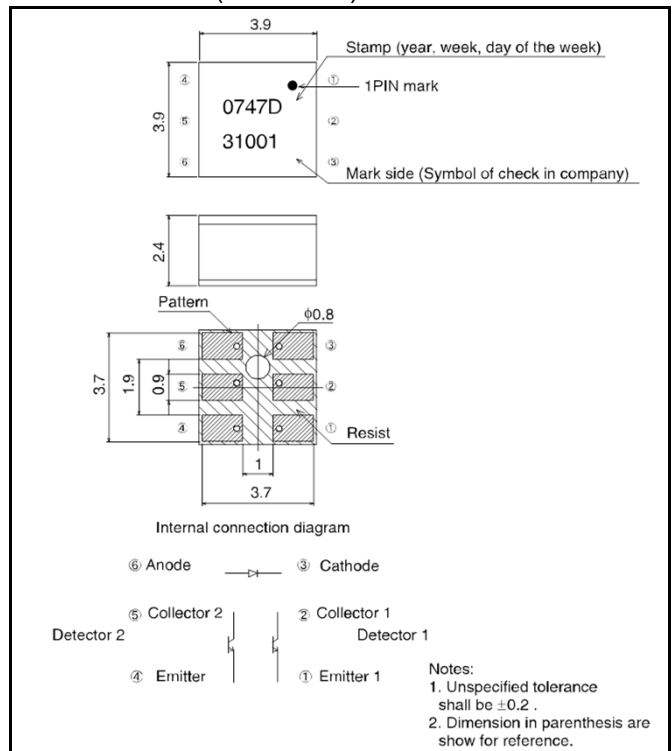
●Applications

- 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** ($T_a = 25^\circ\text{C}$)

1) Input characteristics

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

2) Output characteristics

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

4) Infrared light emitter diode

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Cut-off frequency	f_C	$I_F = 50\text{mA}^{*1}$	-	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	$t_r \cdot t_f$	$V_{CC} = 5\text{V}, I_C = 1\text{mA}, R_L = 100\Omega^{*2}$	-	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

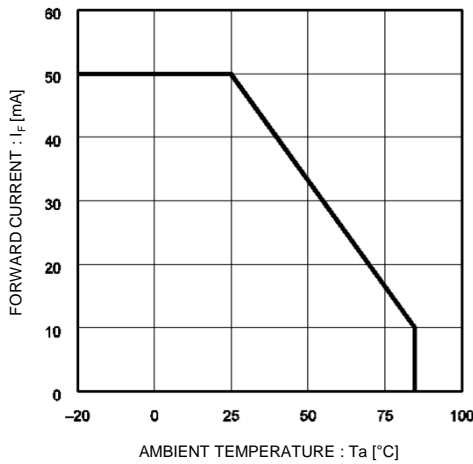


Fig.2 Forward Current vs. Forward Voltage

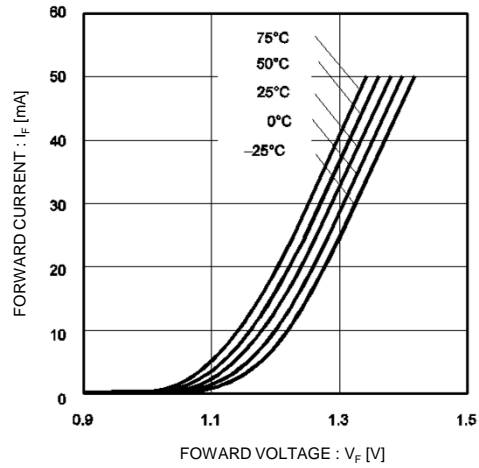


Fig.3 Power Dissipation / Collector Power Dissipation vs. Ambient Temperature

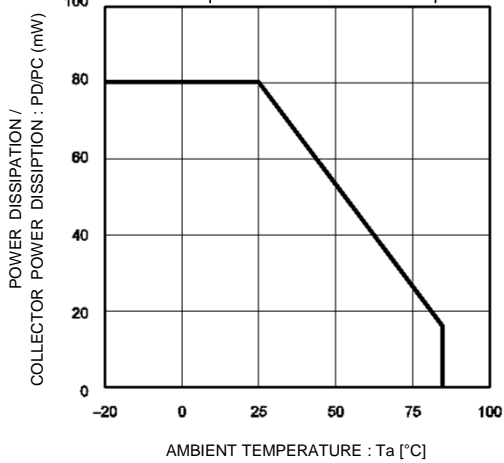


Fig.4 Relative Output vs. Ambient Temperature

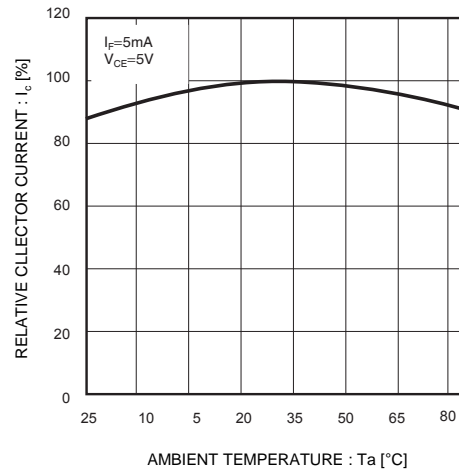


Fig.5 Collector Current vs. Forward Current

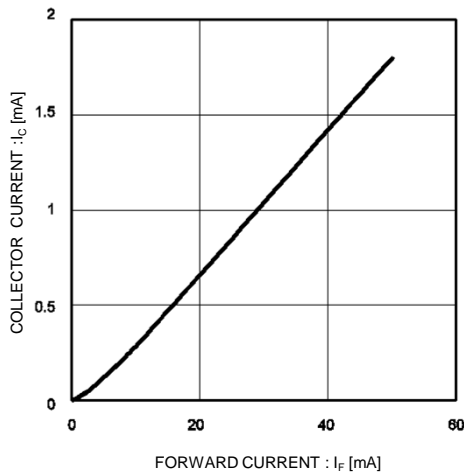
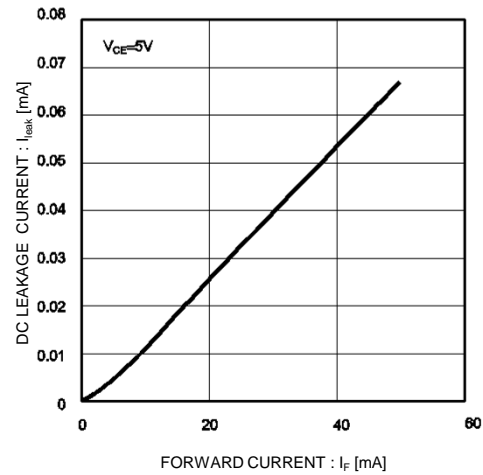


Fig.6 DC Leakage Current vs. Forward Current



●Electrical and optical characteristic curves

Fig.7 Response Time vs. Collector Current

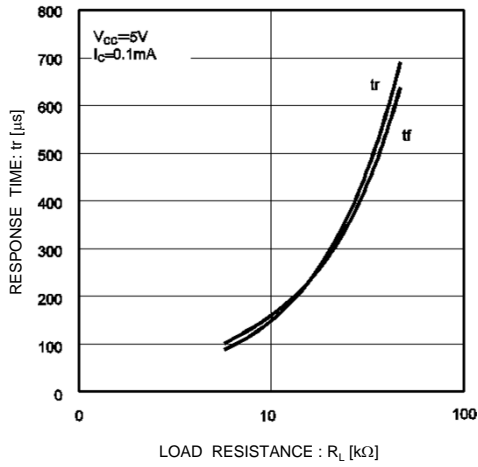


Fig.8 Dark Current vs. Ambient Temperature

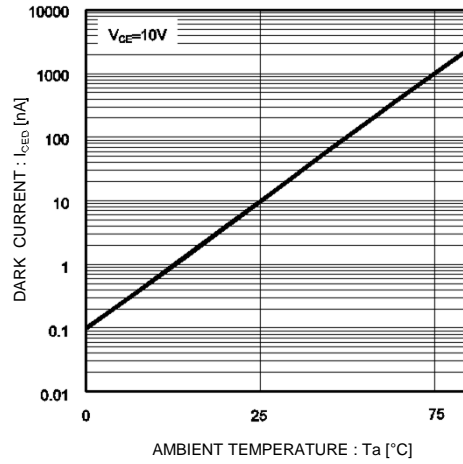


Fig.9 Output Characteristics

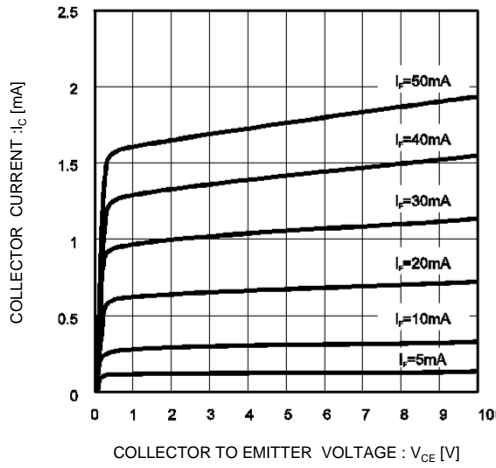
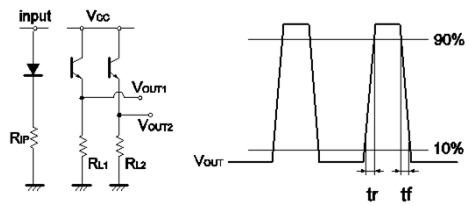


Fig.10 Response Time Measurement Circuit



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