

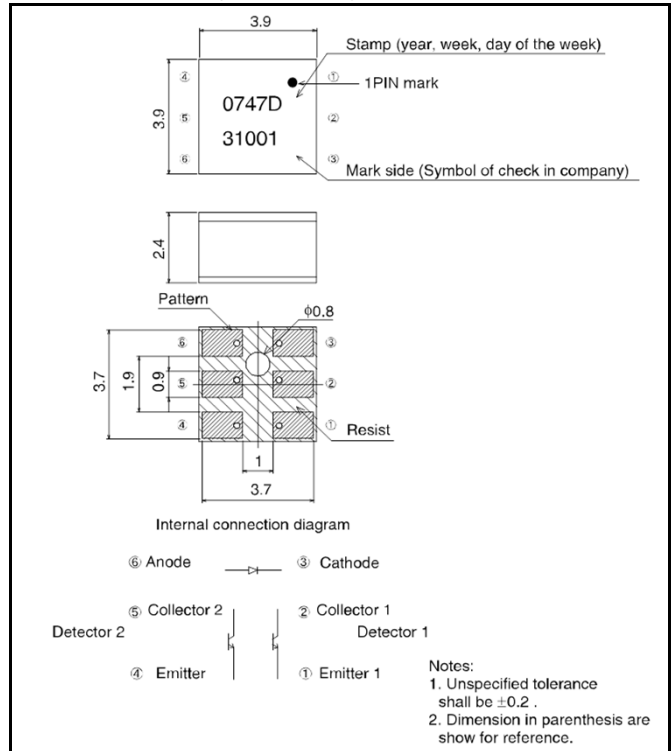
### ●Applications

- 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	$V_F$	$I_F=50\text{mA}$	-	1.3	1.6	V
Reverse current	$I_R$	$V_R=5\text{V}$	-	-	10	$\mu\text{A}$

2) Output characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Dark current	$I_{CED}$	$V_{CE}=10\text{V}$	-	-	0.5	$\mu\text{A}$
Peak sensitivity wavelength	$\lambda_p$	-	-	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	-	-	$\mu\text{A}$
DC leakage current	$I_{leak}$	$V_{CE}=5\text{V}, I_F=5\text{mA}$	-	-	15	$\mu\text{A}$
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	$V_{CC}=5\text{V}, I_F=20\text{mA}$	-	10	-	ms
	Fall time	$R_L=100\Omega$	-	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	$\lambda_p$		-	950	-	nm

\*1 Non-coherent Infrared light emitting diode used.

5) Phototransistor

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Response time	tr·tf	$V_{CC}=5\text{V}, I_C=1\text{mA}, R_L=100\Omega^{*2}$	-	10	-	$\mu\text{s}$
Maximum sensitivity wavelength	$\lambda_p$	-	-	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

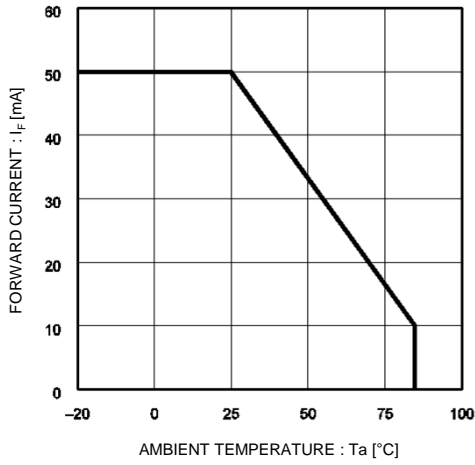


Fig.2 Forward Current vs. Forward Voltage

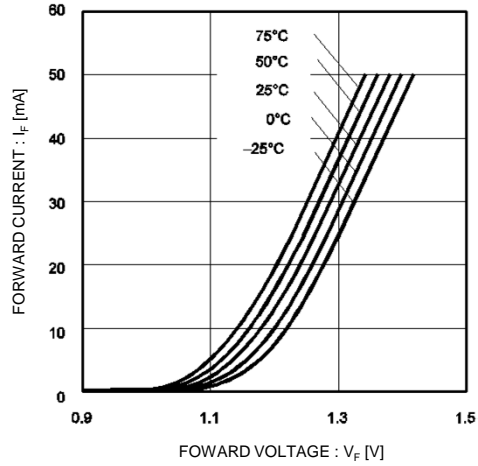


Fig.3 Power Dissipation / Collector Power Dissipation vs. Ambient Temperature

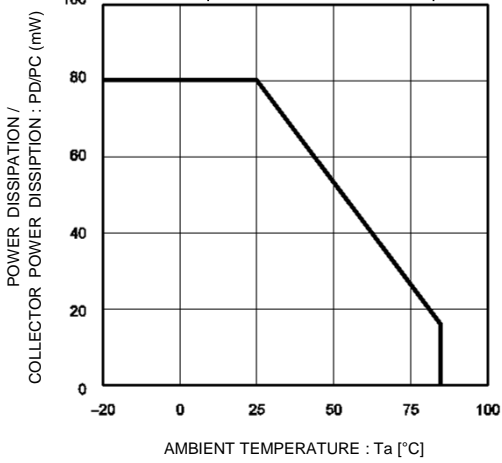


Fig.4 Relative Output vs. Ambient Temperature

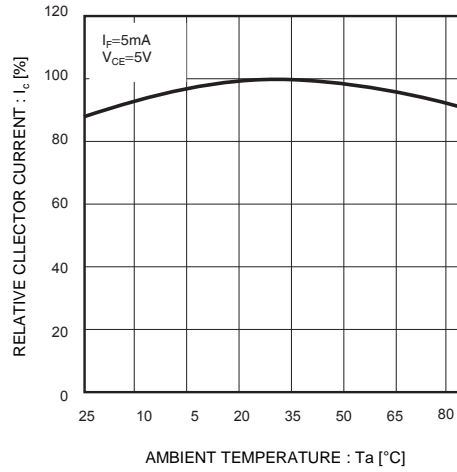


Fig.5 Collector Current vs. Forward Current

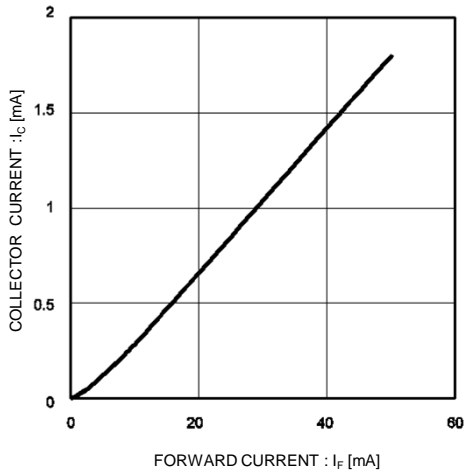
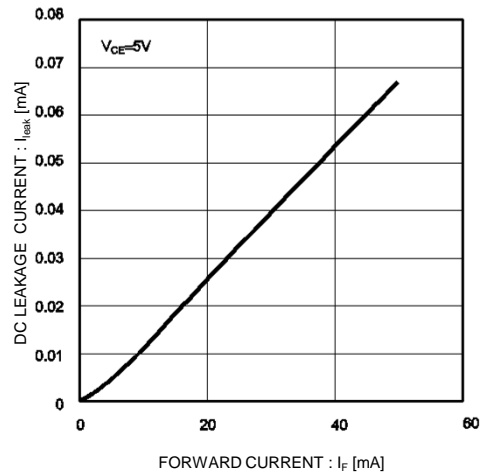


Fig.6 DC Leakage Current vs. Fforward Current



●Electrical and optical characteristic curves

Fig.7 Response Time vs. Collector Current

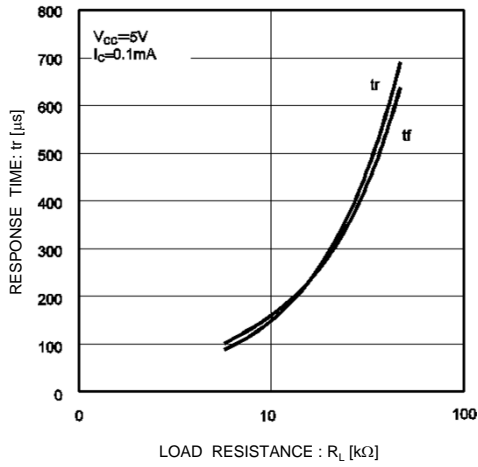


Fig.8 Dark Current vs. Ambient Temperature

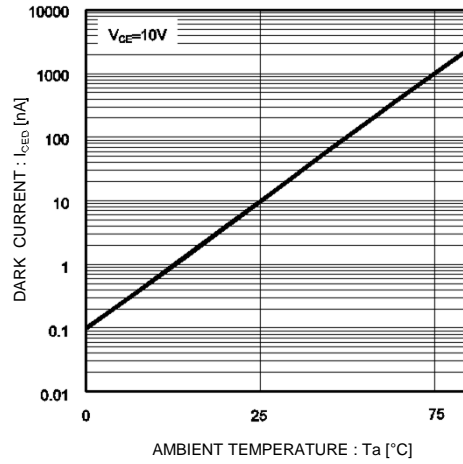


Fig.9 Output Characteristics

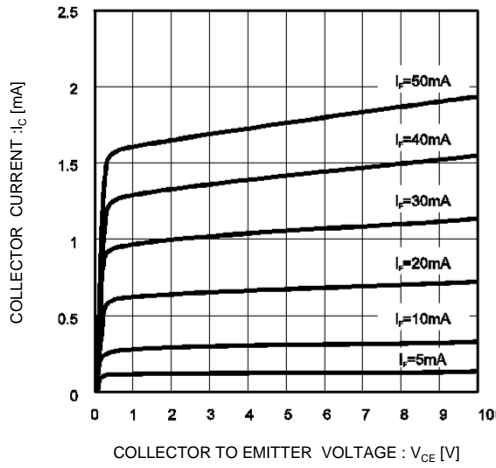
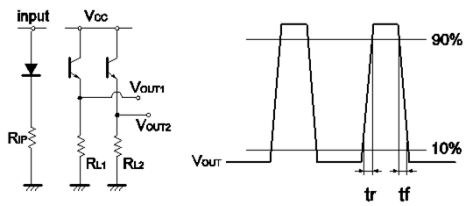


Fig.10 Response Time Measurement Circuit



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