

## Photo Interrupter

# KIT5003A

### Description

The KIT5003A is a high performance transmissive type photo interrupter, combines high-output GaAs IRED with high sensitive phototransistor.

### Features

- PWB direct mount type.
- Widely applicable.
- 5.0mm gap.
- RoHS compliant.



### Applications

- Cameras.
- Copiers.
- Printers.
- Ticket vending machines.

### Absolute Maximum Ratings (T<sub>a</sub>=25°C, Unless otherwise specified)

Characteristic		Symbol	Ratings	Unit
Input	Power Dissipation	P <sub>D</sub>	100	mW
	Forward Current	I <sub>F</sub>	60	mA
	Reverse Voltage	V <sub>R</sub>	5	V
	Peak Forward Current <sup>*1</sup>	I <sub>FP</sub>	1	A
Output	Power Dissipation	P <sub>D</sub>	100	mW
	Collector Current	I <sub>C</sub>	40	mA
	Collector-Emitter Voltage	V <sub>CEO</sub>	30	V
	Emitter-Collector Voltage	V <sub>ECO</sub>	5	V
Operating Temperature <sup>*2</sup>		T <sub>opr</sub>	-20 ~ +85	°C
Storage Temperature <sup>*2</sup>		T <sub>stg</sub>	-30 ~ +85	°C
Soldering Temperature <sup>*3</sup>		T <sub>sol</sub>	260	°C

\*1 : Pulse width (tw) ≤ 100μs, Period (T) = 10msec.

\*2 : No icebond or dew.

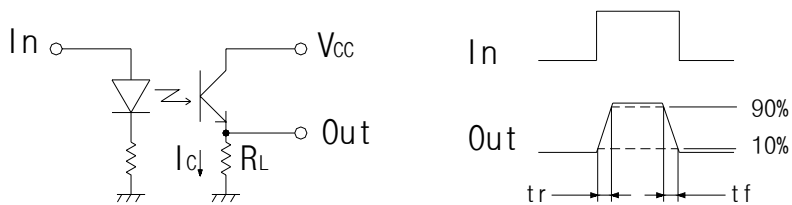
\*3 : The soldering should be 1mm away from bottom of the case t=within 5sec

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## Electrical Characteristics ( $T_a=25^\circ\text{C}$ )

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	$V_F$	$I_F=20\text{mA}$	-	1.2	1.4	V
	Peak Wavelength	$\lambda_p$	$I_F=20\text{mA}$	-	940	-	nm
	Reverse Current	$I_R$	$V_R=5\text{V}$	-	-	10	$\mu\text{A}$
Output	Dark Current	$I_{CEO}$	$V_{CE}=10\text{V}, E=0\text{lux}$	-	1	100	nA
	Peak Wavelength	$\lambda_p$	-	-	880	-	nm
Transfer Characteristics	Collector Current	$I_C$	$V_{CE}=5.0\text{V}, I_F=20\text{mA}$ (Non shading)	0.5	-	10.0	mA
	C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=0.1\text{mA}, I_F=30\text{mA}$	-	-	0.4	V
Response Time	Rise Time	$t_r$	$V_{CC}=5.0\text{V}, I_C=0.1\text{mA}$ $R_L=100\Omega$	-	4	-	$\mu\text{sec}$
	Fall Time	$t_f$		-	4	-	$\mu\text{sec}$

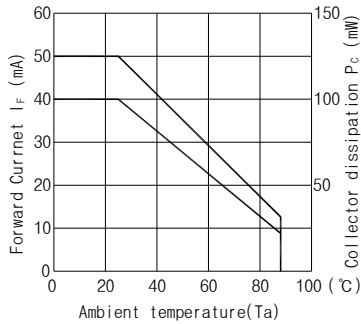
- Circuit for Measuring Response Time



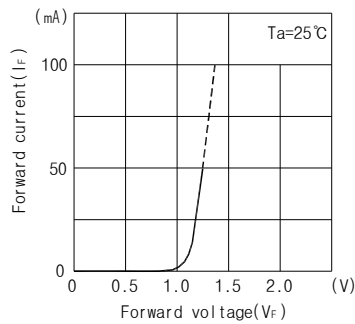
## Electrical and optical characteristic curves

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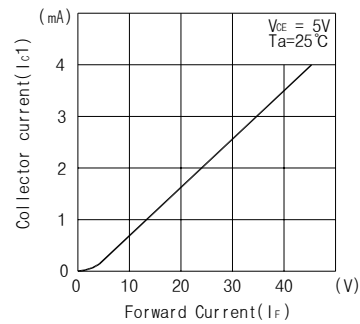
Forward Current Vs. Collector Dissipation Temperature Rating



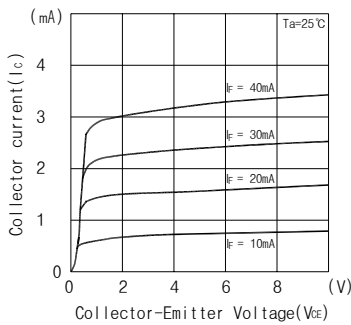
Forward current Vs. Forward voltage



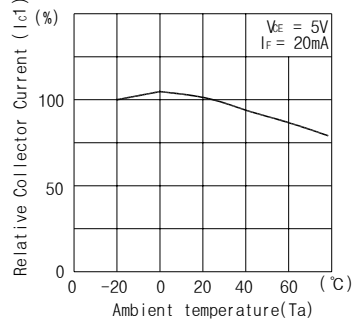
Collector Current Vs. Forward Current



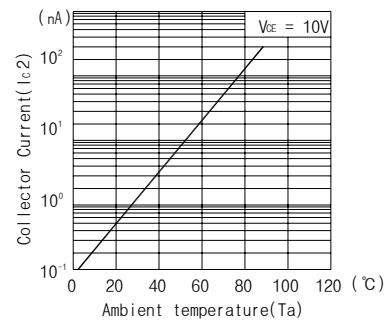
Collector Current Vs. Collector-Emitter Voltage



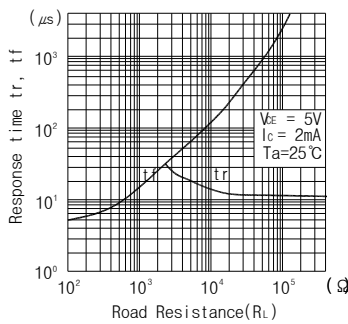
Relative Collector Current Vs. Ambient temperature



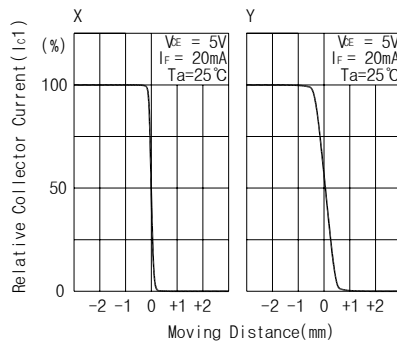
Collector Current Vs. Ambient temperature



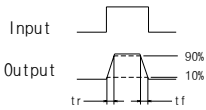
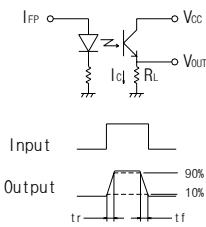
Switching time Vs. Load resistance



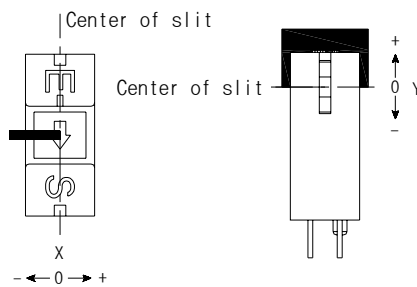
Relative Collector Current Vs. Moving distance



Switching time measurement circuit



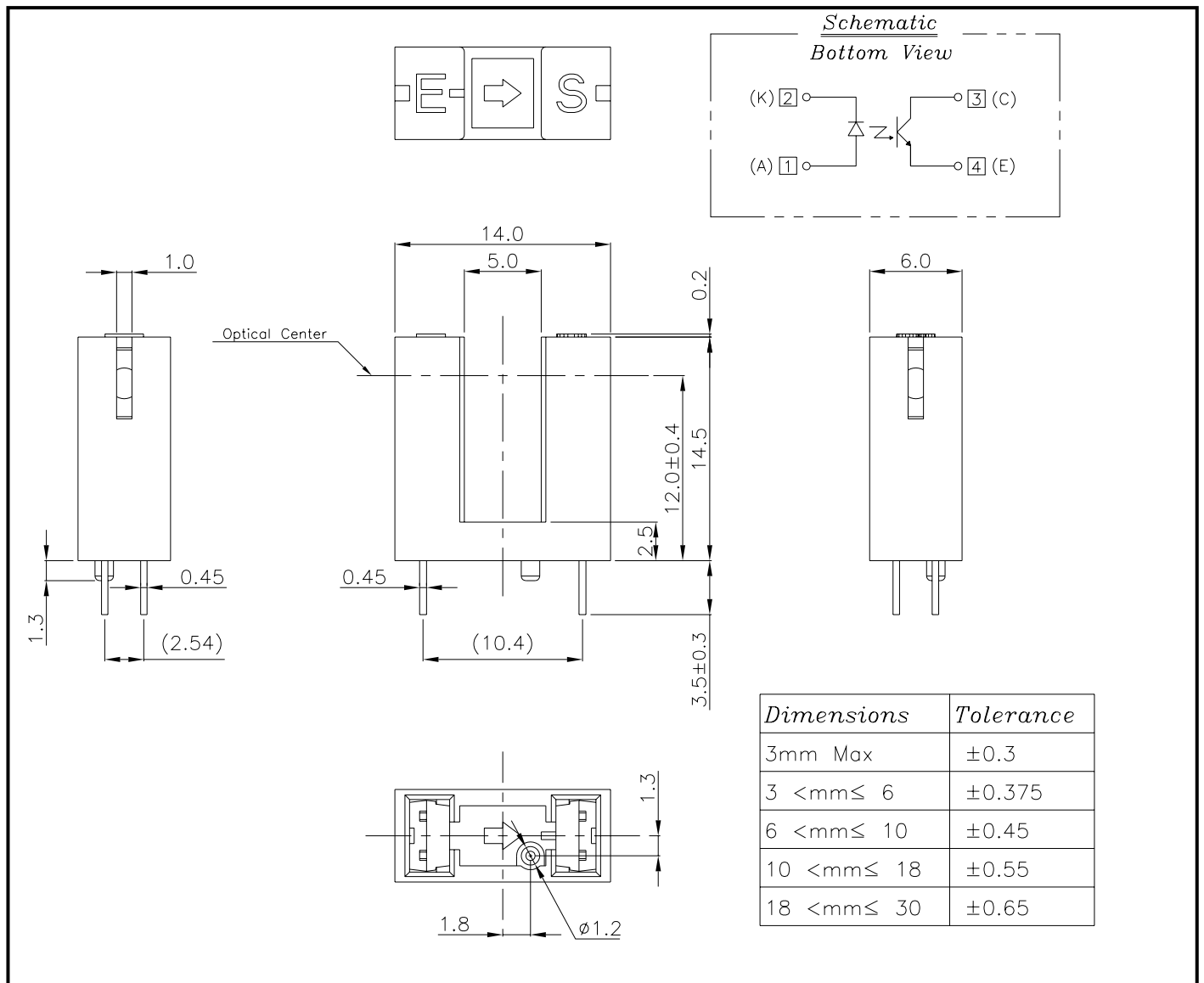
Method of measuring position detection characteristic



## Package Outline Dimensions

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