Photo Interrupter

KPI512

Description

The KPI512 is a high performance transmissive type photo interrupter, combines high-output GaAs IRED with high sensitive phototransistor.

RoHS

Features

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

Applications

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

Absolute Maximum Ratings (T_a=25℃, Unless otherwise specified)

Characteristic		Symbol	Ratings	Unit
Input	Power Dissipation	P_D	100	mW
	Forward Current	I_F	60	mA
	Reverse Voltage	V_R	5	V
	Peak Forward Current *1	I_{FP}	1	A
Output	Power Dissipation	P_D	100	mW
	Collector Current	I_C	40	mA
	Collector-Emitter Voltage	V_{CEO}	30	V
	Emitter-Collector Voltage	V_{ECO}	5	V
Operating Temperature *2		T_{opr}	-20 ~ +85	℃
Storage Temperature *2		T_{stg}	-40 ~ +85	℃
Soldering Temperature *3		T_{sol}	260	℃

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

*2 : No icebond or dew.

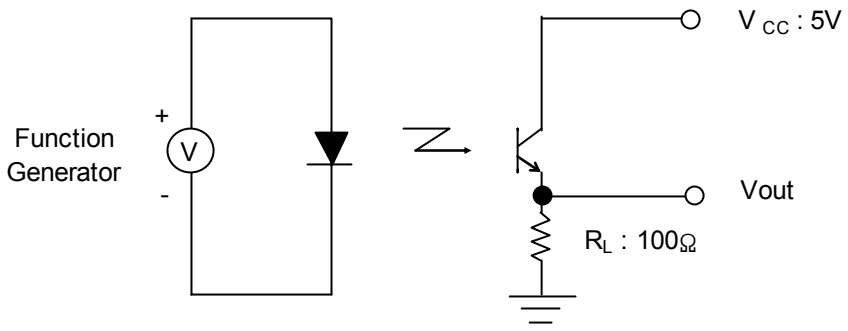
*3 : The soldering should be 1mm away from bottom of the case t=within 5sec

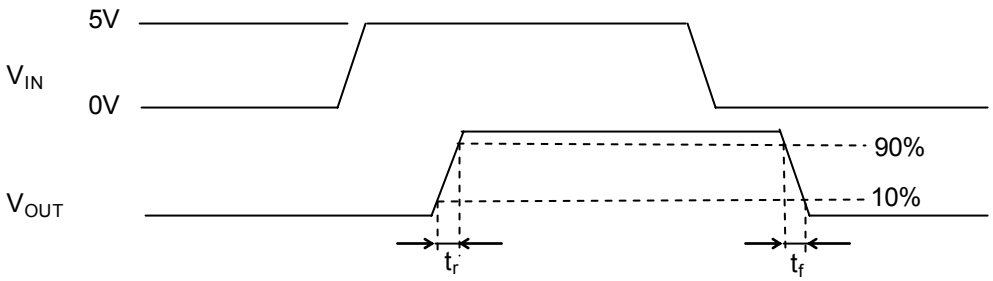
Electrical Characteristics (T_a=25℃)

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	I_F=20mA	-	1.2	1.7	V
	Peak Wavelength	λp	I_F=20mA	-	940	-	nm
	Reverse Current	I_R	V_R=5V	-	-	10	uA
Output	Dark Current	I_{CEO}	V_{CE}=10V, E=0lux	-	-	100	nA
	Peak Wavelength	λp	-	-	880	-	nm
Transfer Charac-teristics	Collector Current	I_C	V_{CE}=5.0V, I_F=20mA (Non shading)	0.2	-	-	mA
	Leakage current	I_{CEOD}	I_F=10㎃, V_{CE}=5V Shading	-	0.5	10	uA
	C-E Saturation Voltage	$V_{CE(sat)}$	I_C=0.1mA, I_F=20mA	-	-	0.4	V
Response Time	Rise Time *4	t_r	V_{CC}=5.0V, I_C=0.1mA RL=100Ω	-	5	-	usec
	Fall Time *4	t_f		-	5	-	usec

*4 : Adjust amplitude and offset of square wave so that Vout transitions from 10% to 90% of Vout range of the The Device Under Test(DUT)

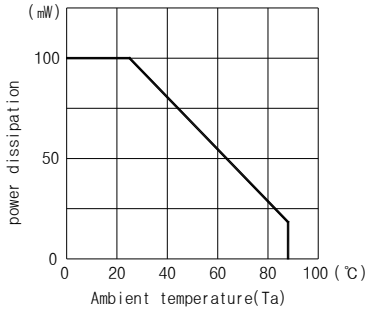
- Circuit for Measuring Response Time



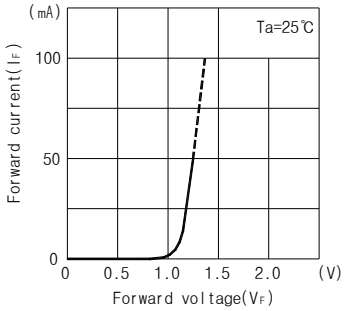


Electrical and optical characteristic curves

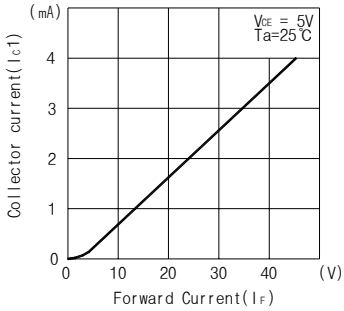
Collector power dissipation Vs. Ambient temperature



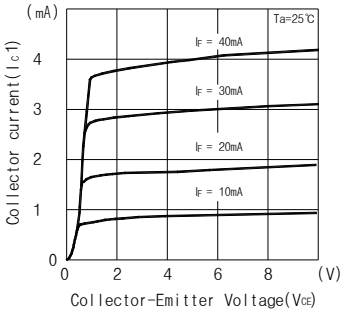
Forward current Vs. Forward voltage



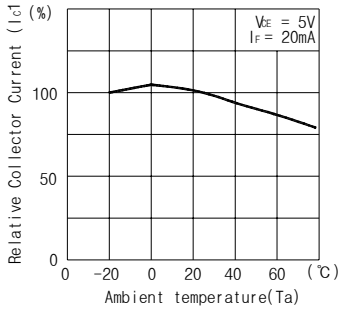
Collector Current Vs. Forward Current



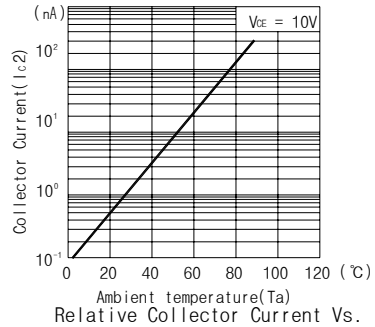
Collector Current Vs. Collector-Emitter Voltage



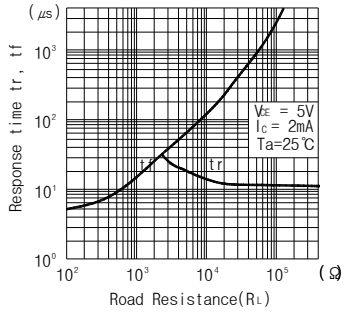
Relative Collector Current Vs. Ambient temperature



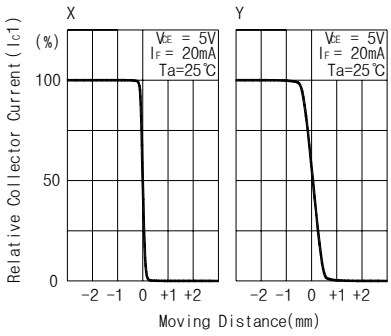
Collector Current Vs. Ambient temperature



Switching time Vs. Load resistance

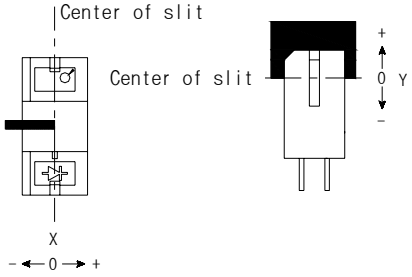


Relative Collector Current Vs. Moving distance



Switching time measurement circuit

Method of measuring position detection characteristic



Package Outline Dimensions