

SPECIFICATION

ISSUED DATE : 28th/Nov/2008

DOCUMENT NO. : KPDC-SG105F3-01

CUSTOMER :

DESCRIPTION : PhotoInterrupter

MODEL NO. : SG-105F3

[KODENSHI KOREA CORP.]

ISSUE DEPT.			BRD		SBU		Q/A	
ISSUE	REVIEW	APPR'L	REVIEW	APPR'L	REVIEW	APPR'L	REVIEW	APPR'L

[CUSTOMER APPROVAL]

[REVISION]

NO	DATE	REVISION ITEM	ISSUED BY	APPR'D BY

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KKC takes no responsibility for damage caused by improper use of the devices which does not meet the conditions and absolute maximum ratings to be used specified in the relevant specification sheet.

Please obey the instructions mentioned below for actual use of this device.

① This device is designed for general electronic equipment.

Main use of this device are as follows;

[* Computer * OA equipment * Telecommunication equipmet(Terminal)
* Measuring instrument * Machine tool *Industrial robot
* AV equipment * Home appliance,etc.]

② Please take proper steps in order to maintain reliability and safety, in case this device is used for the uses mentioned below which require high reliability.

[* Unit concerning control and safety of a vehicle (air plane,train,automobile etc.)
* Traffic signal * Gas leak detection breaker
* Fire box and burglar alarm box * Other safety equipment,etc.]

③ Please don't use for the uses mentioned below which require extremely high reliability.

[* Space equipment * Telecommunication equipment(Trunk)
* Nuclear control equipment * Medical equipment(relating to any fatal element),etc.]

1. Description

The SG-105F3 is an analog output reflective sensor with a GaAs IRED and a high-sensitivity phototransistor. This sensor is designed in a mini-size, low cost package to be used in wide range of applications such as mobile application, safety equipment, and position sensor for industry.

2. Features

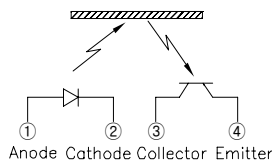
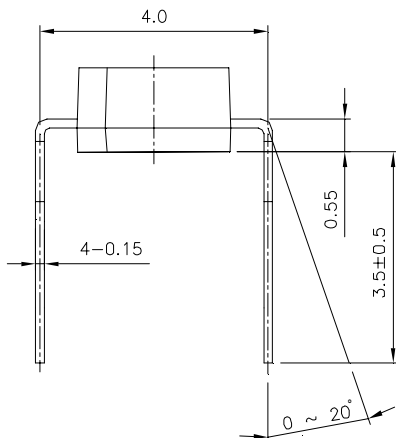
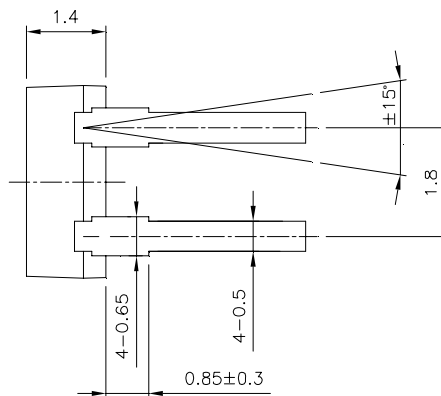
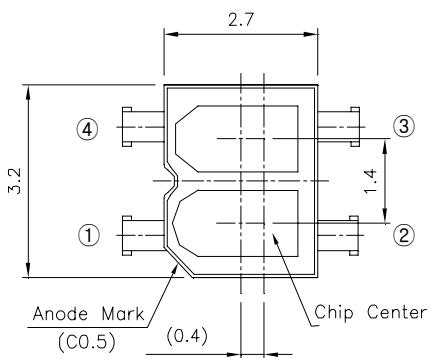
- ◆ Compact reflective photointerrupter
- ◆ Phototransistor output
- ◆ High speed response, Low optical cross-talk
- ◆ Compliant with RoHS directive

3. Applications

- ◆ Motion, proximity and edge sensing
- ◆ Mobile Phone, Digital Camera
- ◆ Printer, Optical Storage
- ◆ Industrial control, Home appliance

4. Package Outline

(ALL DIMENSIONS IN MILLIMETERS)



PIN CONFIGURATION

NOTE

1. General Tolerance : ±0.2
2. () : Reference Dimension

5. Absolute Maximum Ratings

[TA = 25°C]

Parameter		Symbol	Rating	Unit
Input	Forward Current	I_F	50	mA
	Power Dissipation	P_D	75	mW
	Reverse Voltage	V_R	5	V
	Pulse Forward Current *1	I_{FP}	1	A
Output	Collector Power Dissipation	P_C	50	mW
	Collector Current	I_C	20	mA
	Collector-Emitter Voltage	BV_{CEO}	30	V
	Emitter-Collector Voltage	BV_{ECO}	3	V
Operating Temperature *2		Topr.	-25 ~ +85	°C
Storage Temperature *2		Tstg.	-30 ~ +100	°C
Soldering Temperature *3		Tsol	240	°C

*1. $t_w \leq 100 \mu s$, period : T = 10 ms.

*2. No icebound or dew.

*3. For MAX. 5 seconds at the position of 2mm from the package.

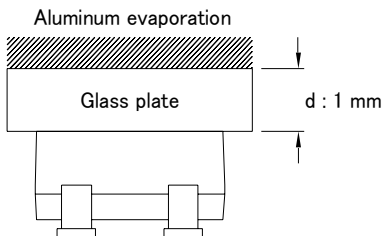
6. Elector-Optical Characteristics

[TA = 25°C]

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit.
Input	Forward Voltage	$I_F = 10mA$	-	-	1.3	V
	Reverse Current	$V_R = 5V$	-	-	10	uA
	Peak Wavelength	$I_F = 20mA$	-	940	-	nm
Output	Collector Dark Current	$V_{CE} = 10V, 0 \text{ lux}$	-	-	0.2	uA
Transmission	Collector Current *4	$V_{CE} = 5V, I_F = 10mA, d = 1mm$	Rank Table *5			uA
	Leakage Current	$V_{CE} = 5V, I_F = 10mA$	-	-	0.2	uA
Response Time	Rise Time	$V_{CC} = 2V, I_C = 0.1mA$ $R_L = 1K\Omega$	-	30	-	us
	Fall Time		-	25	-	us

*4. Test Conditon and Arrangement for Collector Current

*5. I_{CEL} Rank Table



No.	$I_C (\mu A)$
A	90 ~ 220
B	180 ~ 300
C	250 ~ 440
D	360 ~ 660

7. Inspection Criteria

7-1. All of these products shall be inspected to the following items in electro-optical characteristics.

Collector Dark Current : I_{cEO}

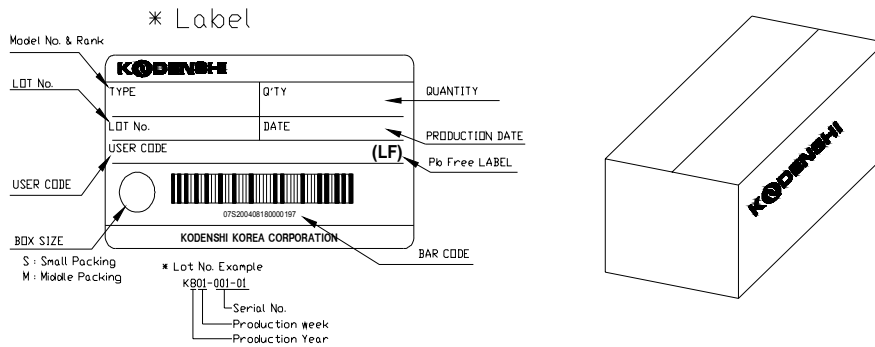
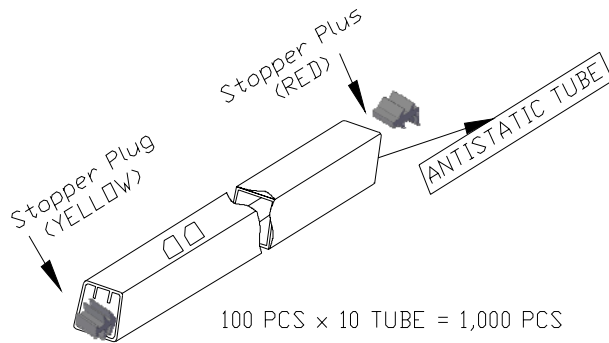
Collector Current: I_c

7-2. The other items are things that shall not particularly inspected but these products shall satisfy standards.

8. Packing

One stick is consist of 100pcs product.

10 bounded sticks is packed with Vinyl, the vinyl PK is packed with a box.



9. Cautions in Usage

- 9-1. Store and use where there is no exterior force that will cause change in shape.
- 9-2. Store and use where there is no Hydrogen Sulfide gas, or any other corrosive gas.
- 9-3. The bending or cutting of the lead should be done at room temperature, no force being applied on the package.
- 9-4. Solder the lead pin under conditions of the absolute maximum rating chart, and do not apply force on the lead pin after soldering.

10. Guarantee Period and Scope

10-1. Period

One year after delivery to the desired place.

10-2. Scope

Replacement of products will be done, if any problems lie in our company's products.

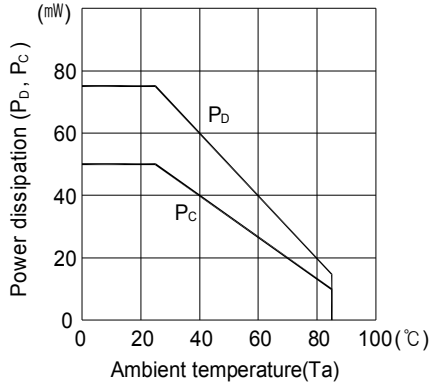
However, we are not liable for your damage by lack of caution.

11. Others

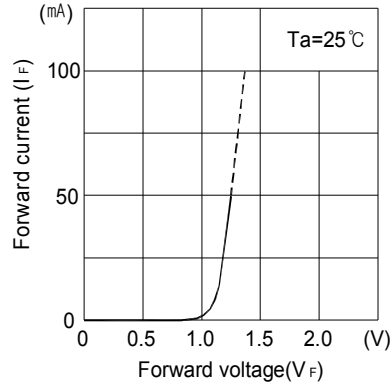
Any doubts concerning this specification should be discussed fully by both parties.

Typical Electrical - Optical Characteristics Curves

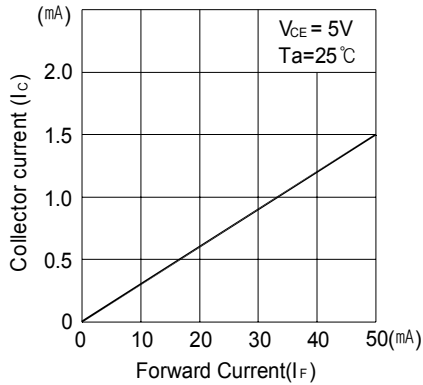
■ Input, Output power dissipation Vs. Ambient temperature



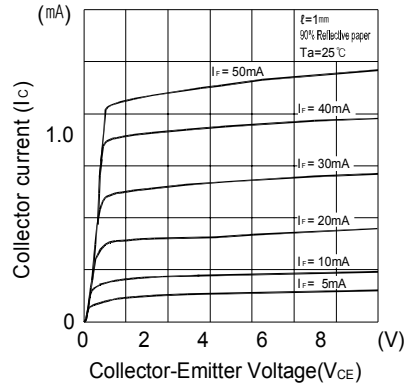
■ Forward current Vs. Forward voltage



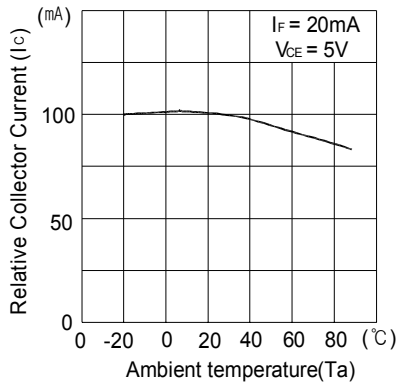
■ Collector current Vs. Forward current



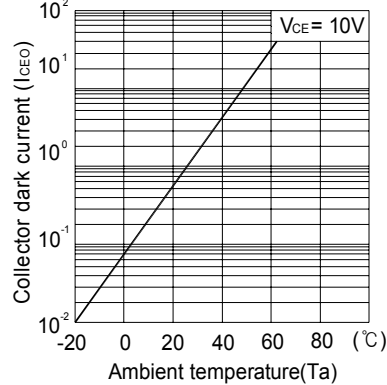
■ Collector current Vs. Collector-Emitter voltage



■ Relative collector current Vs. Ambient temperature

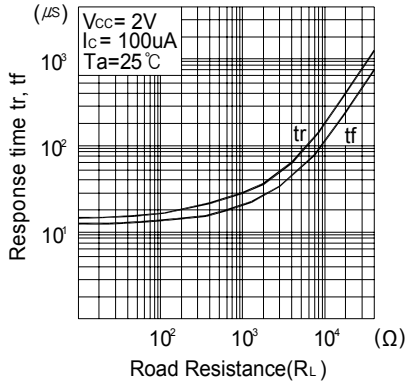


■ Dark current Vs. Ambient temperature

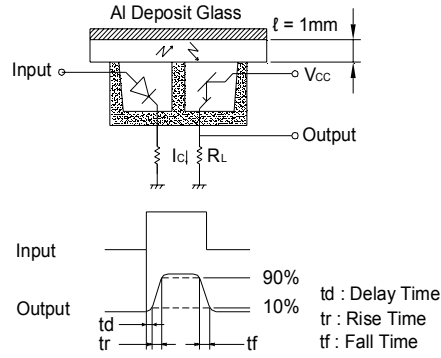


Typical Electrical - Optical Characteristics Curves

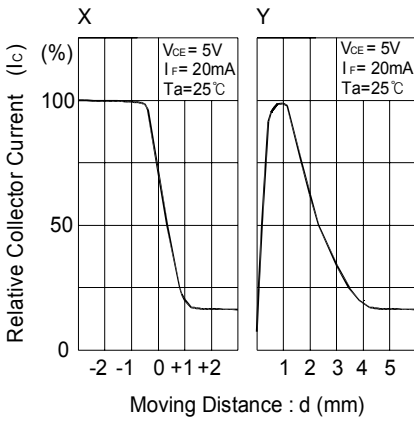
■ Switching time Vs. Load resistance



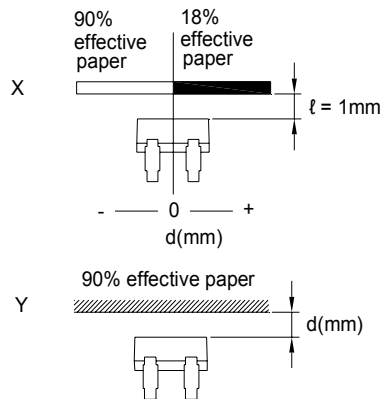
■ Test Circuit for Switching time



■ Relative Collector current Vs. Moving distance



■ Test Condition for Distance & Detecting Position Characteristics



SG-105/105F 仕様書

RANK별 분류		
ITEM	LIMIT	COND.
VF	1.3V ↓	10mA
BVR	5.0V ↑	10 μ A
BVceo	30.0V ↑	0.5mA
BVeco	3.0V ↑	0.1mA
Iceo	0.2 μ A ↓	10V
IL	A : 90 ~ 220	5V, 10mA
	B : 180 ~ 300	
	C : 250 ~ 440	
	- CA : 250 ~ 360	
	- CB : 300 ~ 440	
	D : 360 ~ 660	
	- DA : 360 ~ 550	
	- DB : 450 ~ 660 μ A	

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