

SPECIFICATION

ISSUED DATE : 16th. Aug. 2017

DOCUMENT NO : KPDC-KIS9002C-06-C

CUSTOMER : 노틸러스호성

DESCRIPTION : PTr Ass'y

MODEL NO. : KIS9002C

[AUK CORP.]

ISSUE DEPT.			PRODUCTION		Q/A	
ISSUE	REVIEW	APPR'L	REVIEW	APPR'L	REVIEW	APPR'L
DS.Han	/	CH.Cho	/	/	YS.Jung	TH.Lim

[CUSTOMER APPROVAL]

ISSUE	REVIEW					

[REVISION]

NO	DATE	REVISION ITEMS	ISSUED BY	APPR'D BY
0	10.05.04	ISSUED	MK.Lee	YP.Hong
A	14.06.27	UPDATE	HH.Yang	YH.Lee
B	17.03.08	Rank별 IL값(CTR값) 범위 변경	DS.Han	CH.Cho
C	17.08.16	Rank별 Ink Marking Color 정보 추가.	DS.Han	CH.Cho

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AUK 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 equipment(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 KIS9002C is a high-sensitivity NPN silicon phototransistor with connector has been put together in a package.

2. Features

- ◆ Difficult for dust and debris to come onto element
- ◆ Easy equipping
- ◆ High speed response
- ◆ Anti-visible ray due to visible ray cut resin for detector type
- ◆ RoHS Compliant

3. Applications

- ◆ ATM
- ◆ Printer
- ◆ Copy Machine

4. Outline Dimensions

: See the attached page Drawing No. PI-9002C-PKG-01

5. Absolute Maximum Ratings

5-1. Ambient conditions for maximum ratings are defined as follows :

- * Relative Humidity : 50% ± 20%
- * Temperature : 25 °C ± 5 °C
- * Atmospheric Pressure : 650 to 800 mm Hg

EMITTER, DETECTOR

Parameter	Symbol	Rating	Unit
Power Dissipation	P_D	100	mW
Collector Current	I_C	40	mA
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector Voltage	V_{ECO}	6	V
Operating Temperature	T_{opr}	-20 ~ 75	°C
Storage Temperature Range	T_{stg}	-30 ~ 85	°C
ESD Withstand Voltage (Human Body Model)	V_{ESD}	±2.0	kV

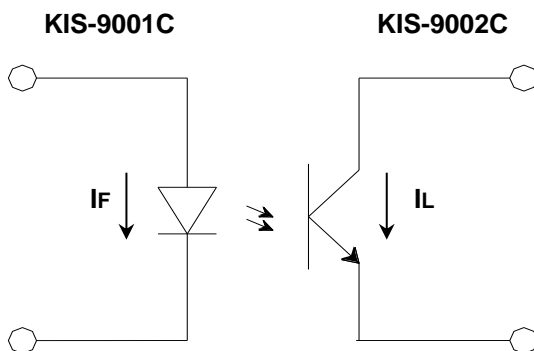
6. Electrical Characteristics

Operation is specified over the entire operating temperature / humidity range unless otherwise specified.

Operating Temperature	Topr	+5 to +45	°C
Operating Humidity (over Topr Range)	Hopr	5 ~ 95	%RH

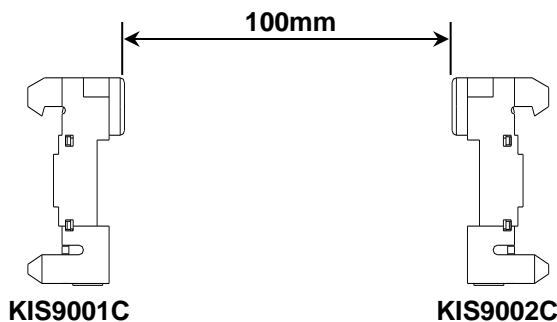
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Light Current	I_L	$I_F=20mA$	0.6	2.0	10.0	mA
Current Transfer Ratio ⁽¹⁾	CTR	$L=100mm, I_F=20mA, V_{CC}=5V$	0.03	0.1	0.5	-
Dark Current	I_{CEO}	$V_{CE}=10V, E_v=0 lx$	-	1.0	100	nA
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=0.5mA, 2000lx$	-	0.2	0.4	V
Spectral Sensitivity	λ	-	750~1050			nm
Peak Wavelength	λ_p	-	-	880	-	nm
Half Angle	$\Delta\theta$	$V_{CE}=5V$	-	± 5	-	deg.

Note 1. CTR(Current Transfer Ratio) = I_L/I_F



3. CTR(Current Transfer Ratio) Test Method

- Test Equipment : KKC KIS9002C E/T Jig



8. Cautions in Usage

- 8-1. Store and use where there is no exterior force that will cause change in shape.
- 8-2. Store and use where there is no Hydrogen Sulfide gas, or any other corrosive gas.

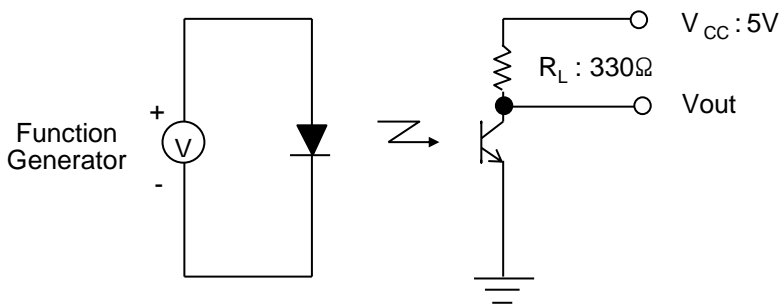
7. Timing Specifications

Operation is specified over the entire operating temperature / humidity range unless otherwise specified.

Operating Temperature	Topr	+5 to +45	°C
Operating Humidity (over Topr Range)	Hopr	15 ~ 80	%RH

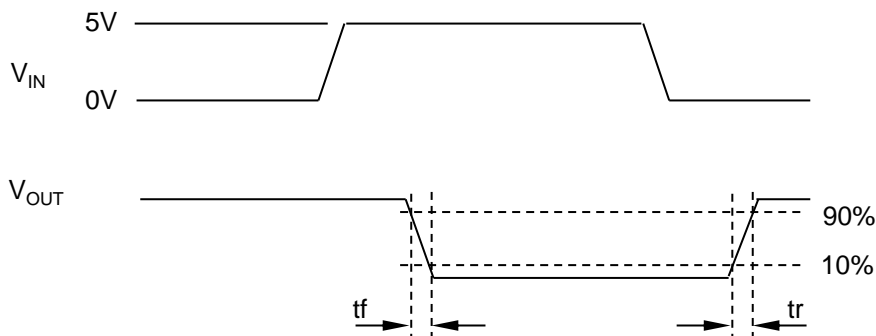
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Response Time	Rise Time	L=100mm, I _F =20mA, V _{CE} =5V, R _L =330Ω	-	8	-	μs
	Fall Time		-	8	-	μs

Note 1. Test Circuit for Rise and Fall Time



Test Circuit for Rise and Fall Time

2. CTR(Current Transfer Ratio) Test Method



Definitions for Response Times

8. Cautions in Usage

- 8-1. Store and use where there is no exterior force that will cause change in shape.
- 8-2. Store and use where there is no Hydrogen Sulfide gas, or any other corrosive gas.

9. Guarantee Period and Scope

9-1. Period

One year after delivery to the desired place.

9-2. 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.

10. Others

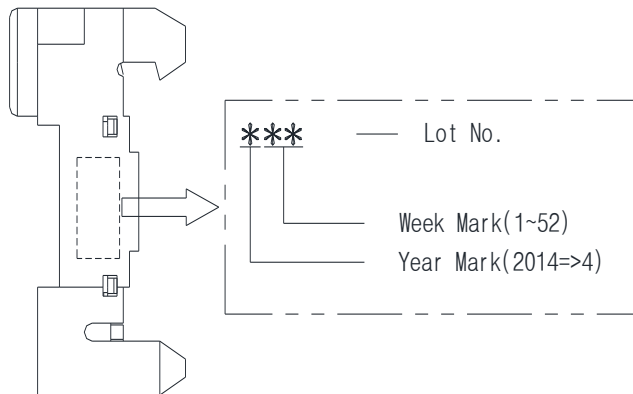
Any doubts concerning this specification should be discussed fully by both parties.

10. LOT No. Indication

10-1. Definition of LOT No.

Production place and manufacture year, week code.

10-2. Marking position and method.



11. Rank Range

11-1. Rank is divided as below according to CTR value.

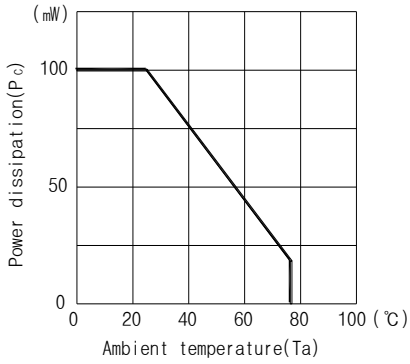
- A Rank : 0.03 ~ 0.105 (Ink Marking Color : White)
- B Rank : 0.094 ~ 0.149 (Ink Marking Color : Red)
- C Rank : 0.132 ~ 0.500 (Ink Marking Color : Yellow)

11-2. Rank is divided as below according to I_L value.

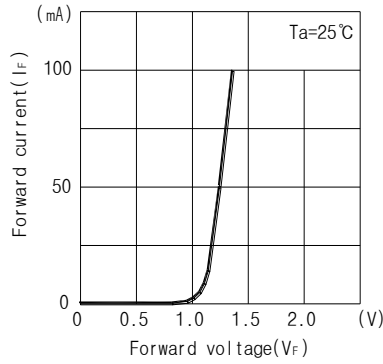
- A Rank : 0.60mA ~ 2.10mA (Ink Marking Color : White)
- B Rank : 1.70mA ~ 3.00mA (Ink Marking Color : Red)
- C Rank : 2.50mA ~ 10.00mA (Ink Marking Color : Yellow)

12. Characteristics

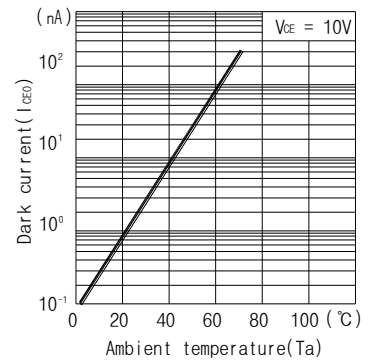
Power dissipation Vs. Ambient temperature



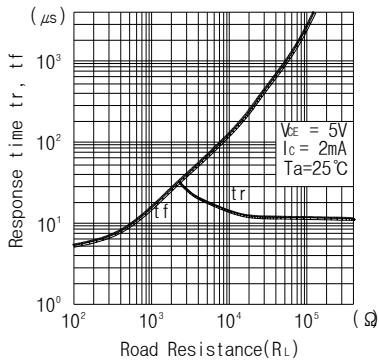
Forward current Vs. Forward voltage



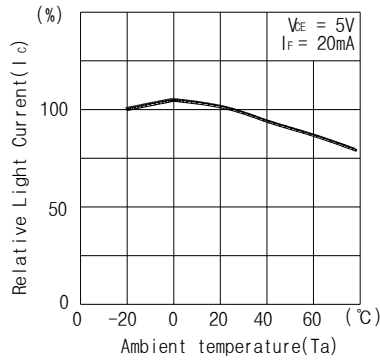
Dark current Vs. Ambient temperature



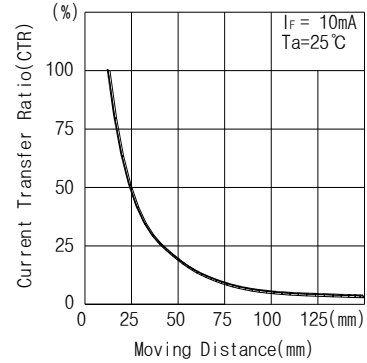
Switching time Vs. Load resistance



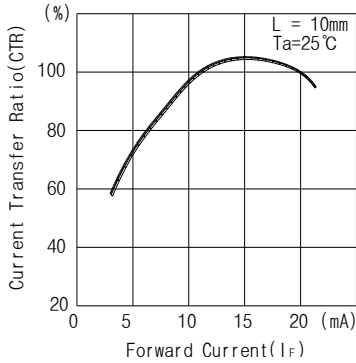
Relative Light Current Vs. Ambient temperature



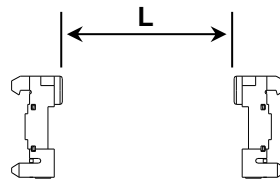
Current Transfer Ratio Vs. Moving Distance



Current Transfer Ratio Vs. Forward Current



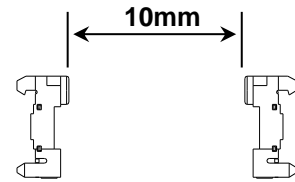
Current Transfer Ratio Vs. Moving Distance Test Method



KIS9001C

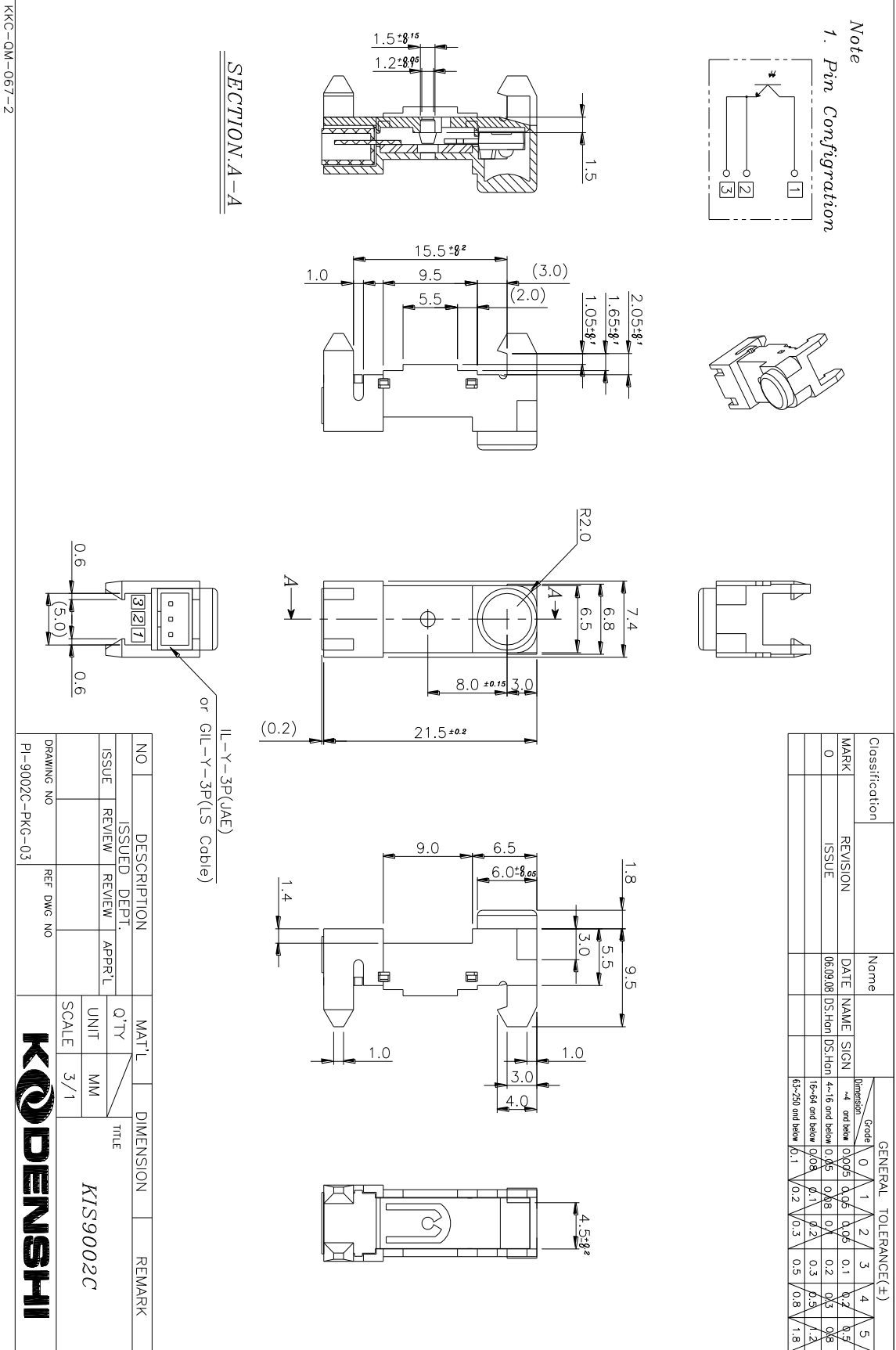
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Current Transfer Ratio Vs. Forward Current Test Method



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