

亿冠电子

KGKLIGHT

亿冠电子成立于2016年，自主生产插件、贴片红外对管、发光二极管；代理销售：台湾亿光、光耦、欧司朗消费类电子元器件；代理销售富满微：MOS管、马达驱动、触摸芯片、电源锂电管理芯片等产品；旗下全资子公司：三斧信息技术（深圳）有限公司主营：电子方案开发与设计



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1. Features:

Fast response time.

High sensitivity.

Cut-Off visible wavelength.

Thin.

Compact.

Pb free.

This product itself will remain within RoHS compliant version.

**2. Applications:**

Camera.

VCR.

Floppy disk driver.

Cassette type recorder.

Various microcomputer control equipment.

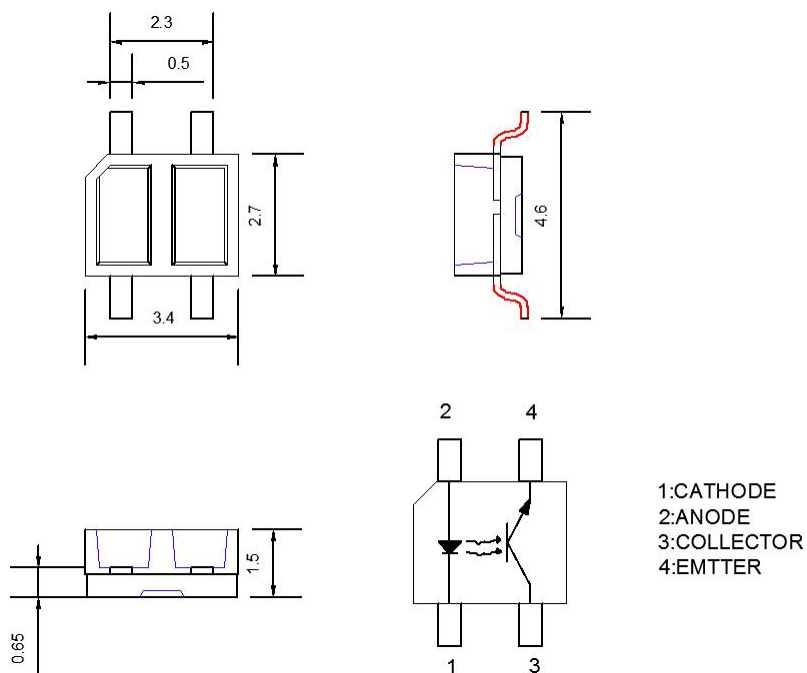
3. Descriptions:

KGK-ITR-8307-B2 is a light reflection switch which includes a GaAs IR-LED transmitter and a NPN photo-transistor with a high photosensitive receiver for short distance, operating in the infrared range. Both components are mounted side-by-side in a plastic package.

4. Device Selection Guide:

DeviceNo.	ChipMaterial
IR	GaAs
PT	Silicon

5. Package Dimensions:



NOTES:

- 1).All dimensions are in millimeters (inches).
- 2).Tolerance is $\pm 0.25\text{mm}$ unless otherwise specified.
- 3). Lead spacing is measured where the leads emerge from the package.
- 4).Specifications are subject to change without notice.

6. Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Item		Symbol	Rating	Unit
Input	Power Dissipation	P_d	75	mW
	Forward Current	I_F	50	mA
	Peak Forward Current * 1	I_{FP}	1	A
	Reverse Volage	V_R	5	V
Output	Collector Power Dissipation	P_C	75	mW
	Collector Current	I_C	50	mA
	C-E Voltage	V_{CEO}	30	V
	E-C Voltage	V_{ECO}	5	V
Operating Temperature		T_{opr}	$-40\sim+100$	$^\circ\text{C}$
Storage Temperature		T_{stg}	$-40\sim+100$	$^\circ\text{C}$
Soldering Temperature		T_{sol}	260	$^\circ\text{C}$

(*1) $t_w=100\text{ uSec.}$, $T=10\text{ mSec.}$

(*2) $t=5\text{ Sec}$

7. Electrical and optical characteristics(Ta=25°C)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	BIN NO.
Input	Forward Voltage	V_F	$I_F=20\text{mA}$	-	1.2	1.6	V	
	Peak Wavelength	λ_p	$I_F=10\text{mA}$		940		nm	
	Reverse Current	I_R	$V_R=5\text{V}$	-	-	10	μA	
Output	Dark Current	I_D	$V_{CE}=10\text{V}$	-	-	100	nA	
	C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=2\text{mA}$ $E_e=1\text{mW/cm}^2$	-	-	0.4	V	
Light Current		I_L	$V_{CE}=5\text{V}$ $I_F=10\text{mA}$ $D=1.0\text{mm}$ (90% Reflective white paper)	50	-	200	μA	BIN A
				170	-	260		BIN B1
				220	-	320		BIN B2
				280	-	440		BIN C
				400	-	900		BIN D
Speed	Rise Time	T_r	$I_{FP}=20\text{mA}$ $V_{CE}=5\text{V}$ $R_L=1000\Omega$	-	20	-	μsec	
	Fall Time	T_f		-	20	-	μsec	

8. Typical Electro-Optical Characteristics Curves (Ta=25°C)

Fig.1 Power Dissipation vs. Ambient Temperature

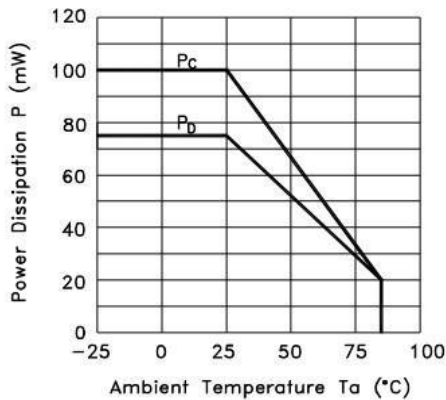


Fig.2 Forward Current vs. Forward Voltage

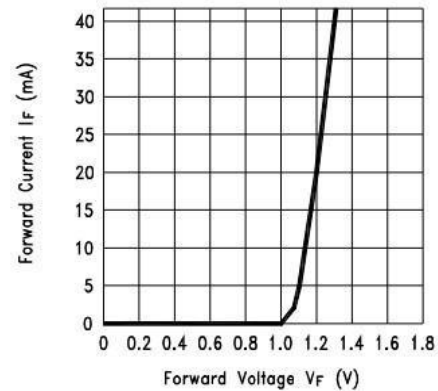


Fig.3 Collector Current vs. Collector-emitter Voltage

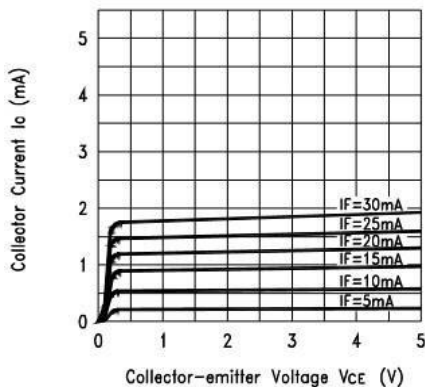


Fig.4 Collector Current vs. Ambient Temperature

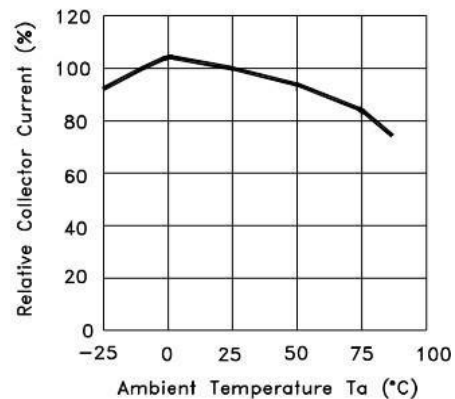


Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature

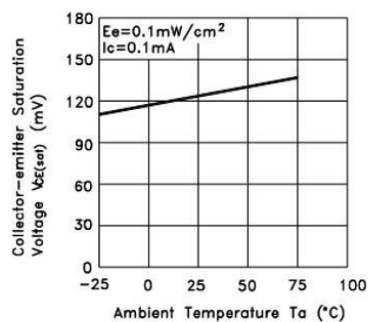


Fig.6 Response Time vs. Load Resistance

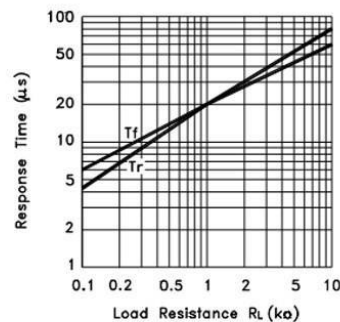
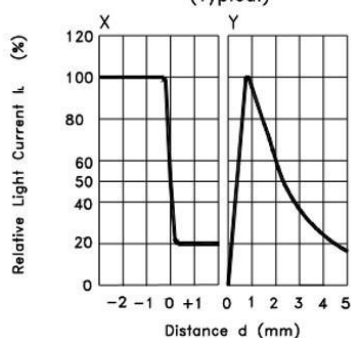
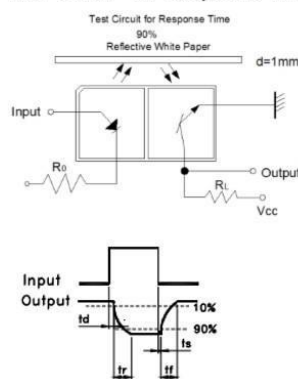


Fig.7 Sensing Position Characteristics (Typical)



Test Circuit for Response Time



(Center of Optical axis)

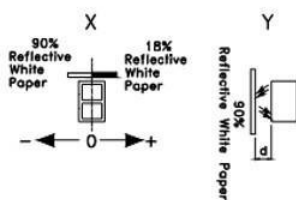
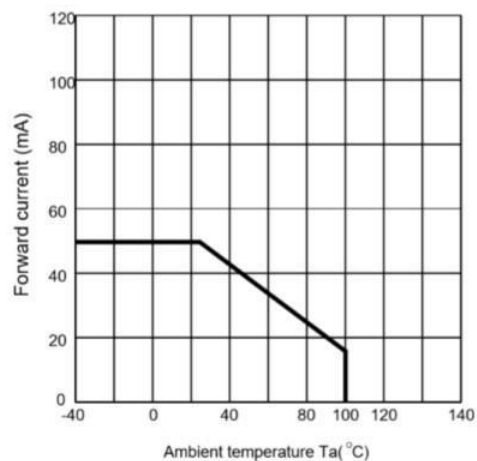
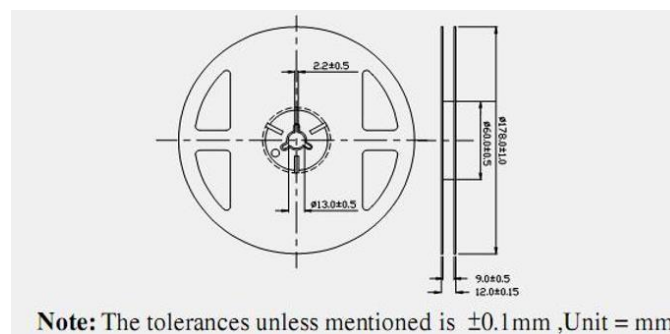
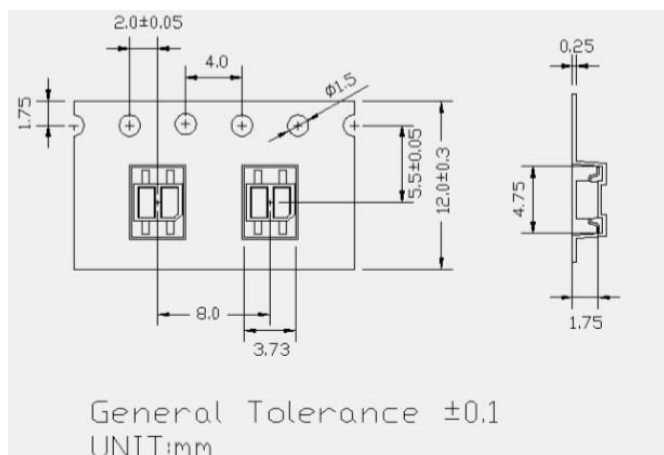


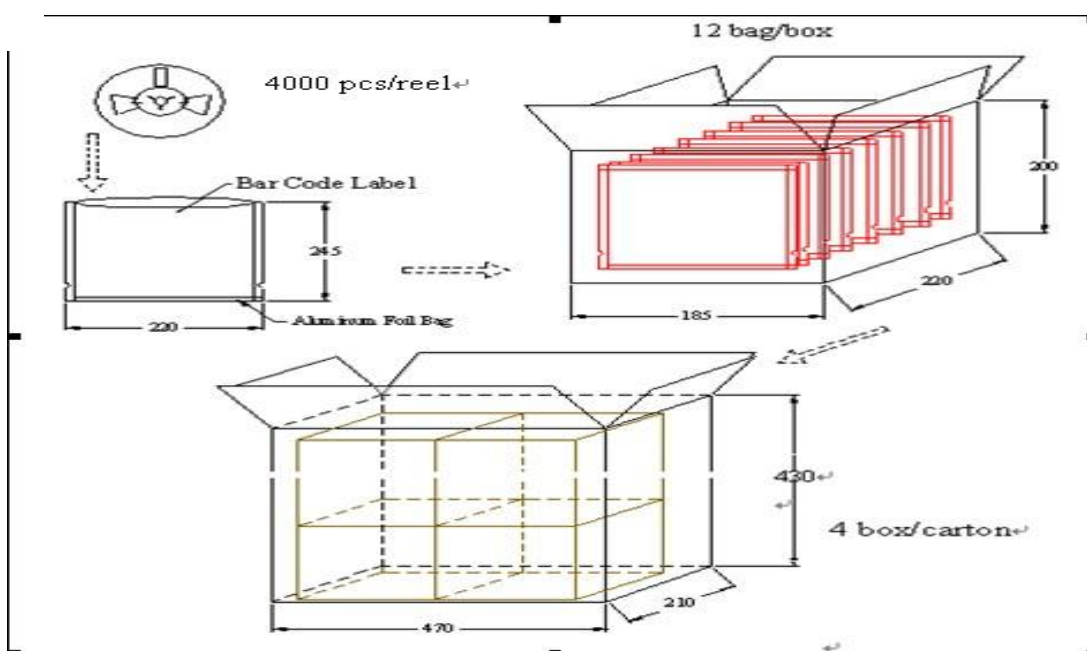
Fig.8 Forward current derating curve vs. ambient temperature



9. Tapping and packaging specifications(Units: mm)



10. Package Method:(unit:mm)



11. Package and Label of Products:

- (1) Package: Products are packed in one bag of 4000 pcs (one taping reel) and a label is attached on each bag.
- (2) Label:

12. Reliability Test

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750D:1026 MIL-STD-883D:1005 JIS-C-7021 :B-1	Connect with a power $I_f=10\text{mA}$ T_a =Under room temperature Test time=1,000hrs	0/20
	High Temperature High Humidity Storage	MIL-STD-202F:103B JIS-C-7021 :B-11	$T_a=+100^{\circ}\text{C}\pm 5^{\circ}\text{C}$ RH=90%-95% Test time=240hrs	0/20
	High Temperature Storage	MIL-STD-883:1008 JIS-C-7021 :B-10	High $T_a=+100^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Test time=1,000hrs	0/20
	Low Temperature Storage	JIS-C-7021 :B-11	Low $T_a=-40^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Test time=1,000hrs	0/20
Environmental Test	Temperature Cycling	MIL-STD-202F:107D MIL-STD-750D:1051 MIL-STD-883D:1010 JIS-C-7021 :A-2	$-40^{\circ}\text{C} \sim +25^{\circ}\text{C} \sim +100^{\circ}\text{C} \sim +25^{\circ}\text{C}$ 30min 5min 30min 5min Test Time=10cycle	0/20
	Thermal Shock	MIL-STD-202F:107D MIL-STD-750D:1051 MIL-STD-883D:1011	$-40^{\circ}\text{C}\pm 5^{\circ}\text{C} \sim +100^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 20min 20min Test Time=10cycle	0/20
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS-C-7021 :A-1	Preheating : $140^{\circ}\text{C}-160^{\circ}\text{C}$, within 2 minutes. Operation heating : $260^{\circ}\text{C}(\text{Max.})$, within 10seconds. (Max.)	0/20

13. Soldering :

PLCC LED encapsulation is very flexible, outside force easily demolish radiant surface and plastic, As soldering , Please handle with care !

(1)With No-clean Flux, according to reflow soldering cure condition when soldering, Reflow soldering should not be done more than two times, simultaneity you must insure clean on the radiant surface. Otherwise, foreign objects can affect radiant color.

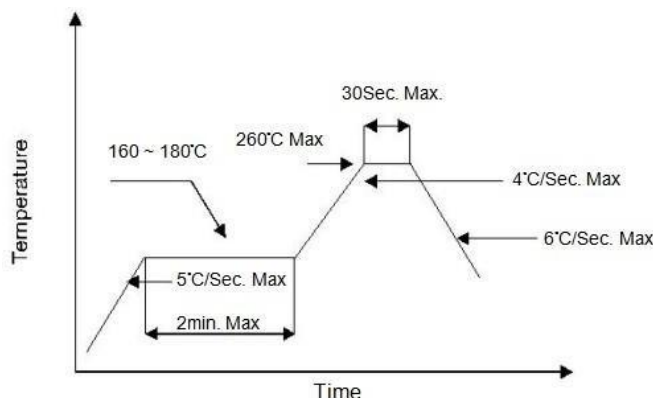
(2) Don't process manual soldering except repair. Recommended to be soldered with 25W Anti-static iron, The temp. of the iron should be lower than 300°C and soldering time should not be done more than three seconds, at the same time iron can't touch radiant surface and plastic.

(3) Don't twist LED in course of manual soldering and experiment, otherwise, the lights will not work possibly.

(4)Please use the same BIN grade in one panel, and don't mix the difference BIN grade in one panel when soldering. Otherwise, it will cause a serious uneven color problem.

(5)Please control the sulfur content of solder paste and PCB.

(6) Pb-free solder temp.-time profile as below:260°C Max.



14. Cleaning :

(1) Don't be cleaned with ultrasonic. Recommended to be wiped with isopropyl alcohol or pure alcohol, wiping time should not be more than one minute. LED must be placed at room temperature for fifteen minutes before using. After cleaning, you must insure clean on the radiant surface. Otherwise, foreign objects can affect radiant color.

(2) LED can not be in contact with isoamyl acetate, trichloroethylene, acetone, sulfide, nitride, acid, alkali, salt. These matter can destroy LED.

15. Sealing:

(1) Sealing glue can not contain sodium ion, sulfide, because these matter can affect fluorescence powder poisoning.

(2) When using normal sealing glue, Recommended to be operated life for 168hrs under normal temperature.

16. Storage:

- (1) Don't open the moisture proof bag before ready to use the LEDs.
- (2) The LEDs should be kept at 30°C or less and 60%RH or less before opening the package. The max. storage period before opening the package is 1 year.
- (3) After opening the package, the LEDs should be kept at 30-35%RH or less, and it should be used within 3 days. If the LEDs should be kept at 30-35%RH or more, and it should be used within 4 hours.
- (4) If the LEDs be kept over the conditions of 20%, baking is required before mounting. Baking condition as below: 70±5°C for 12 hrs for bulk goods, 105±5°C for 1 hrs for roll goods.
- (5) The environment have no acid, alkali, corrosive gas, intensively shake and high magnetic field.

17. Static:

- (1) Static and Peak surge voltage can destroy LED, Avoiding Instantaneous voltage when turn on or turn off the lights.
- (2) Please wear Anti-static wrist band, Anti-static glove, Anti-static shoes in the course of operation, and the equipment must be grounded.

18. Test:

- (1) Customer must apply the current limiting resistor in the circuit so as to drive the LEDs within the rated current. Otherwise slight voltage shift maybe will cause big current change and burn out will happen.
- (2) Also, caution should be taken not to overload the LEDs with instantaneous high voltage at the turning ON and OFF of the circuit. Otherwise, The LEDs will be destroyed, testing methods as follows:
- (3) The reverse voltage mustn't exceed 5v when lighting on or testing the LED, otherwise, The LEDs will be damaged.

19. Else:

Radiant color of LEDs have a little change with the current, recommended that LED is used in series and resistance, when lighting, please don't see directly radiant surface of LED, otherwise LED will burn eyes.