

*Application

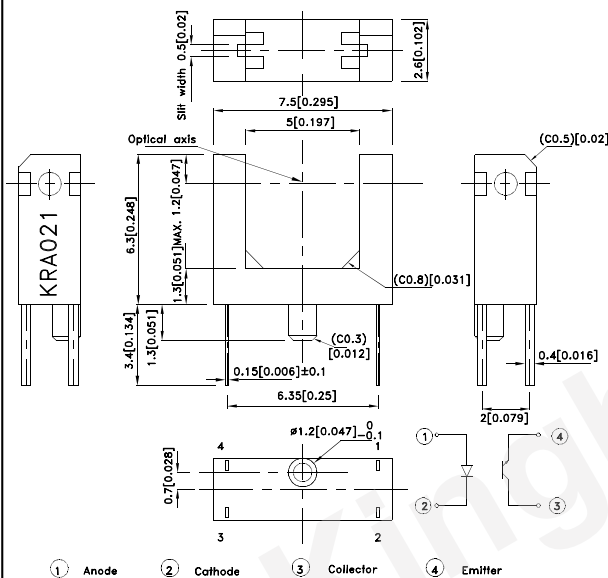
- 1.Copiers,printers and Fax Machines.
- 2.VCRs and CD players.
- 3.Various position detection sensor.

*Features

- 1.Compact package.
- 2.High sensing accuracy(Slit width:0.5mm).
- 3.Printed wiring board direct mounting type(with a locating pin).
- 3.Gap between light emitter and detector:5mm.
- 4.Compliant with European RoHS directives.
- 5.Housing UL rating:94V-0.
- 6.RoHS compliant.

*Dimensions

Note:All units are in millimeters unless otherwise indicated.



① Anode ② Cathode ③ Collector ④ Emitter

Unless otherwise, the tolerances are $\pm 0.15\text{mm}$.

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

Parameter		Symbol	Rating	Unit
Input	Forward current[1]	I_F	30	mA
	Reverse voltage	V_R	5	V
	Power dissipation	P_d	35	mW
	Peak Forward Current [2]	I_{FP}	100	mA
Output	Collector-emitter voltage	V_{CEO}	35	V
	Emitter-collector voltage	V_{ECO}	5	V
	Collector current	I_C	50	mA
	Collector power dissipation	P_C	75	mW
Operating temperature		T_{opr}	$-30\sim+85$	$^\circ\text{C}$
Storage temperature		T_{stg}	$-40\sim+100$	$^\circ\text{C}$
Soldering temperature(5s) [3]		T_{sol}	260	$^\circ\text{C}$

Notes:

- 1.Refer to the temperature rating chart if the ambient temperature exceeds 25°C .
- 2.Duty: 1/100,Pulse Width:0.1mS.
- 3.At the location of 1.5mm from the package bottom.

*Electrical / Optical Characteristics at $T_A=25^\circ\text{C}$

Parameter		Symbol	Value			Conditions
			Min.	Typ.	Max.	
Input	Forward voltage	V_F	-	1.15V	1.40V	$I_F=10\text{mA}$
	Reverse current	I_R	-	-	$10\mu\text{A}$	$V_R=5\text{V}$
	Peak Wavelength	λ_p	-	940nm	-	-
Output	Collector current	I_C/I_F	2.5%	-	50%	$I_F=10\text{mA}, V_{CE}=2\text{V}$
	Collector dark current	I_D	-	-	100nA	$V_{CE}=24\text{V}, I_F=0$
	Collector-emitter saturation voltage	$V_{CE(sat)}$	-	0.1V	0.4V	$I_C=0.25\text{mA}, I_F=20\text{mA}$
	Peak spectral sensitivity wavelength	λ_p	-	920nm	-	-
Rise time		t_r	-	$15\mu\text{sec}$	$50\mu\text{sec}$	$V_{CC}=5\text{V}, R_L=1\text{K}\Omega, I_C=1\text{mA}$
Fall time		t_f	-	$15\mu\text{sec}$	$50\mu\text{sec}$	



Fig.1 Forward Current vs. Forward Voltage

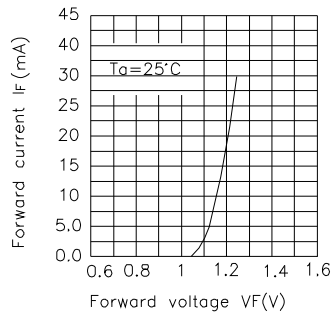


Fig.2 Collector Current vs. Forward Current

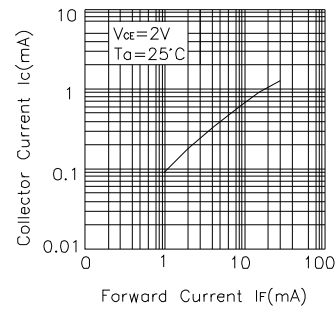


Fig.3 Collector Current vs. Ambient Temperature

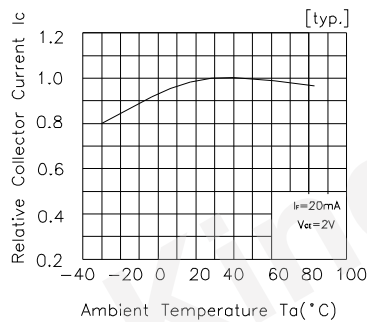


Fig.4 Collector-Emitter Saturation Voltage vs. Ambient Temperature

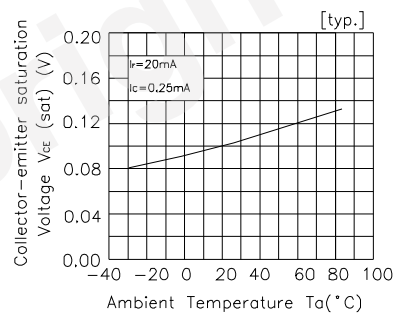


Fig.5 Forward Current vs. Collector Dissipation Temperature Rating

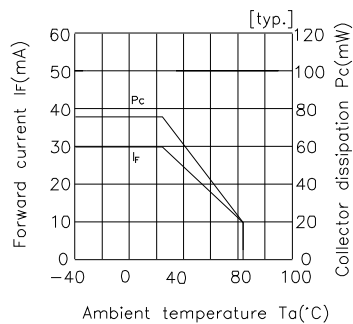


Fig.6 Forward Current vs. Collector-Emitter Voltage

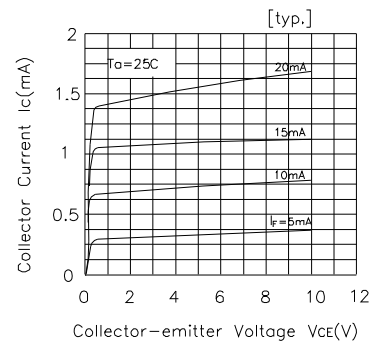


Fig.7 Relative Collector Current vs. Shield Distance(1)

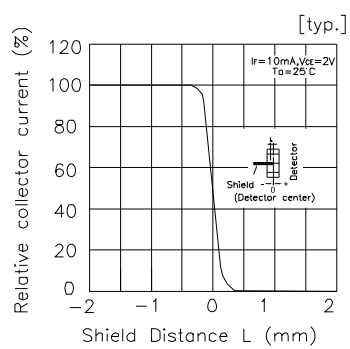


Fig.8 Relative Collector Current vs. Shield Distance(2)

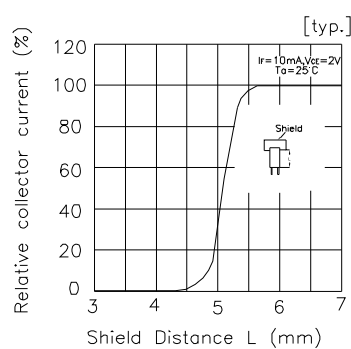
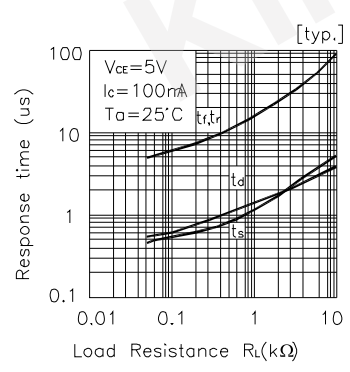
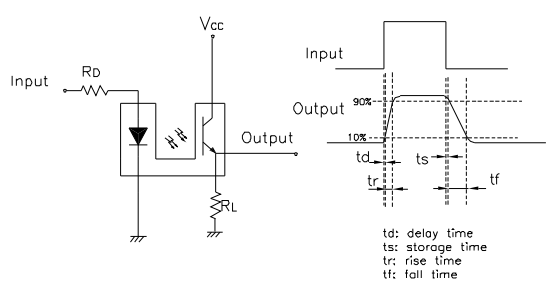


Fig.9 Response Time vs Load Resistance

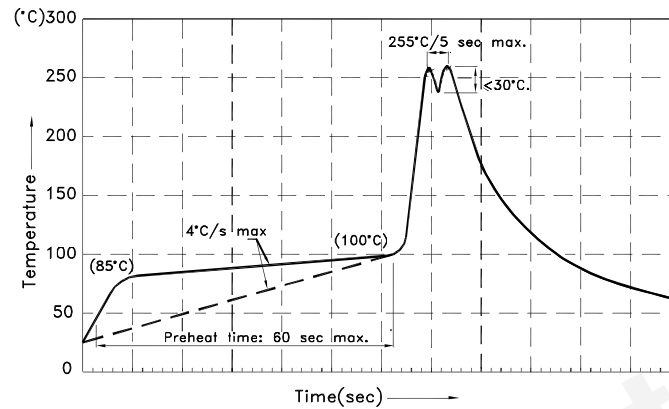


Test Circuit for Response Time



KRA021

Wave Soldering Profile For Lead-free Through-hole LED.

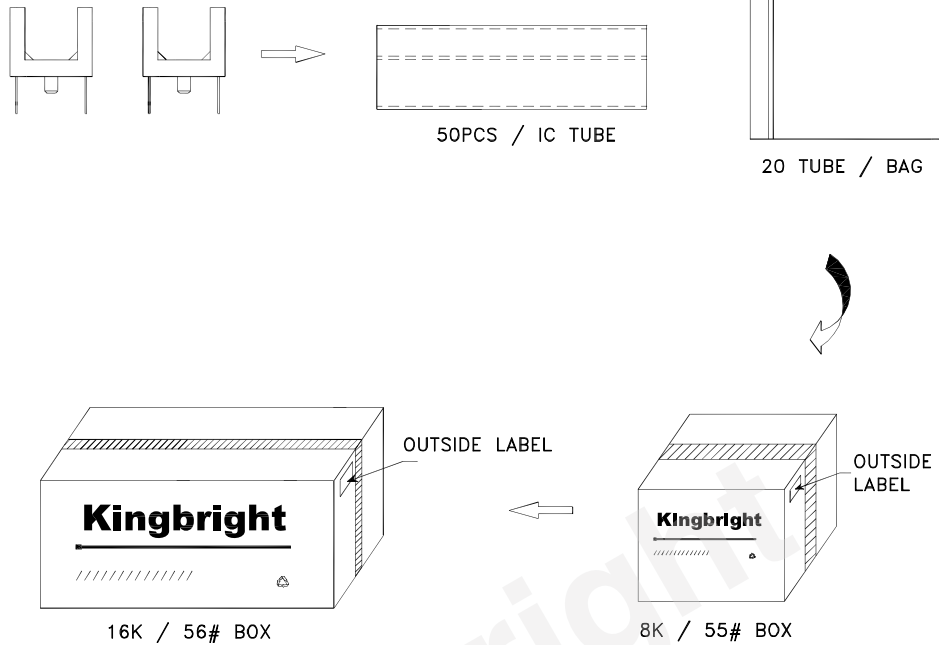


Notes:

1. Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C.
2. Peak wave soldering temperature between 245°C ~ 255°C for 3 sec (5 sec max).
3. Do not apply stress to the epoxy resin while the temperature is above 85°C.
4. Fixtures should not incur stress on the component when mounting and during soldering process.
5. SAC 305 solder alloy is recommended.
6. No more than one wave soldering pass.

PACKING & LABEL SPECIFICATIONS

KRA021



Kingbright	
P/NO: KRAxxx	
QTY: 1000 pcs	Q.C. Q C xx-xx-xxxx PASSED
S/N: XXXX	
CODE: XXX	
LOT NO:	
RoHS Compliant	

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