

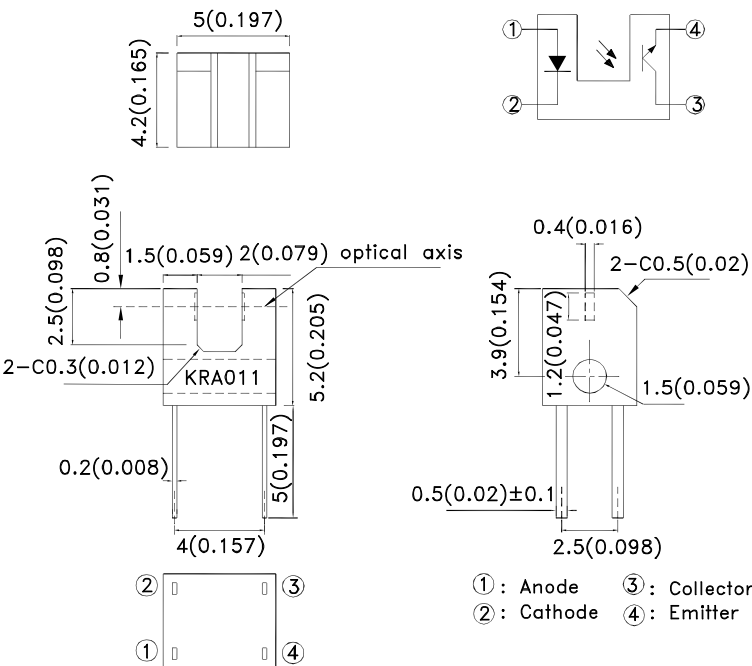
## SUBMINIATURE, HIGH SENSITIVITY PHOTOINTERRUPTER

### \*Features

- 1.Ultra-compact.
- 2.PWBmounting type package.
- 3.High sensing accuracy (Slit width:0.4mm).
- 4.Gap between light emitter and detector:2mm.
- 5.RoHS Compliant.

### \*Applications

Cassette tape recorders,VCRs.  
Floppy disk drives.  
Various microcomputerized control equipment.



UNIT : MM[INCH]  
TOLERANCE :  $\pm 0.25[\pm 0.01]$  UNLESS OTHERWISE NOTED.

Note:  
The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

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

Parameter		Symbol	Rating	Unit
Input	Forward current	$I_F$	50	mA
	Reverse voltage	$V_R$	6	V
	Power dissipation	$P_d$	75	mW
	Peak Forward Current (Pulse Width $\leq 100\mu\text{s}$ , Duty Cycle=1%)	$I_{FP}$	1	A
Output	Collector-emitter voltage	$V_{CEO}$	35	V
	Emitter-collector voltage	$V_{ECO}$	6	V
	Collector current	$I_c$	20	mA
	Collector power dissipation	$P_c$	75	mW
Operating Temperature		$T_{opr}$	-25~+85	$^\circ\text{C}$
Storage Temperature		$T_{stg}$	-40~+100	$^\circ\text{C}$
Soldering Temperature (1/16 inch from body for 5 seconds)		$T_{sol}$	260	$^\circ\text{C}$



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

Parameter			Symbol	Conditions	Min.	Typ.	Max.	Unit
Input	Forward voltage		$V_F$	$I_F=20\text{mA}$	1.0	1.2	1.5	V
	Reverse current		$I_R$	$V_R=6\text{V}$	-	-	10	$\mu\text{A}$
	Peak Wavelength		$\lambda_p$	$I_F=20\text{mA}$	-	940	-	nm
Output	Collector dark current		$I_{CEO}$	$V_{CE}=20\text{V}$	-	-	100	nA
Transfer Characteristics	Collector-emitter saturation voltage		$V_{CE(SAT)}$	$I_C=40\mu\text{A}$ , $I_F=10\text{mA}$	-	-	0.4	V
	Current transfer ratio		CTR	$V_{CE}=5\text{V}$ , $I_F=5\text{mA}$	-	8	-	%
	Response time	Rise time	$t_r$	$V_{CE}=5\text{V}$ , $I_C=0.1\text{mA}$ , $R_L=1\text{K}\Omega$	-	50	150	$\mu\text{Sec}$
		Fall time	$t_f$		-	50	150	$\mu\text{Sec}$

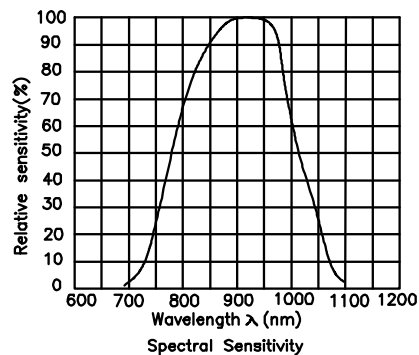


Fig.1 FORWARD CURRENT Vs. FORWARD VOLTAGE

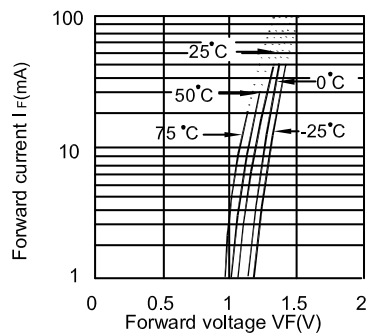


Fig.2 COLLECTOR CURRENT Vs. FORWARD CURRENT

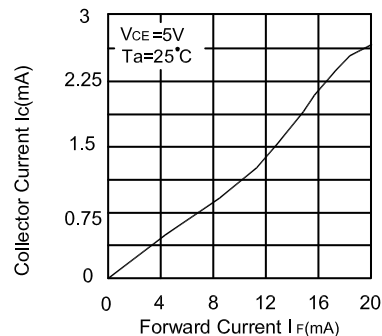


Fig.3 COLLECTOR CURRENT Vs. COLLECTOR-EMITTER VOLTAGE

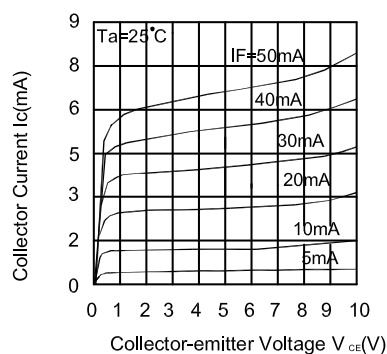


Fig.4 COLLECTOR CURRENT Vs. AMBIENT TEMPERATURE

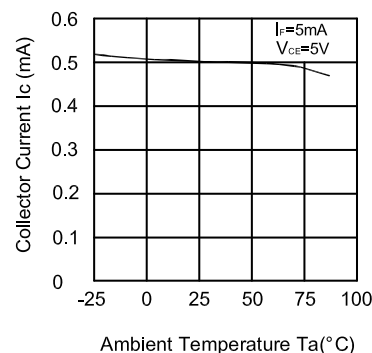


Fig.5 COLLECTOR-EMITTER SATURATION VOLTAGE Vs. AMBIENT TEMPERATURE

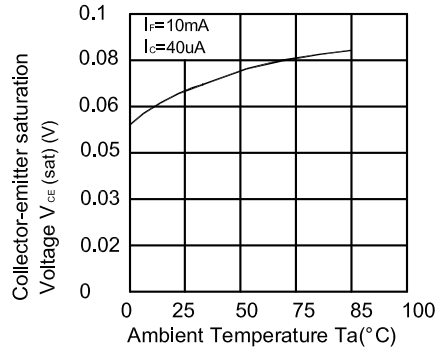


Fig.6 COLLECTOR DARK CURRENT VS. AMBIENT TEMPERATURE

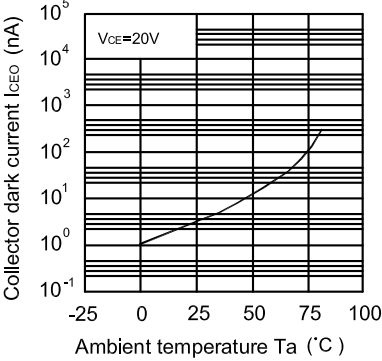


Fig.7 RELATIVE COLLECTOR CURRENT Vs. SHIELD DISTANCE (1)

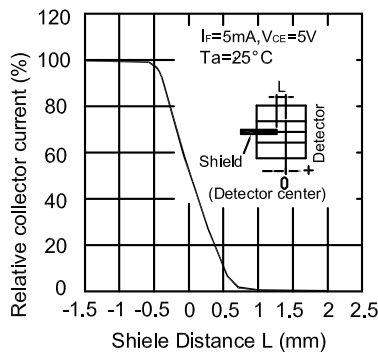


Fig.8 RELATIVE COLLECTOR CURRENT Vs. SHIELD DISTANCE (2)

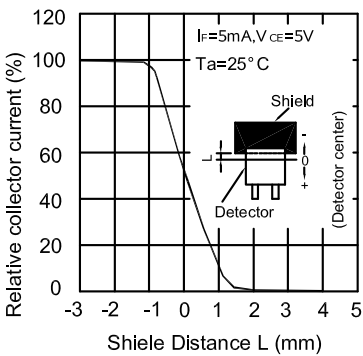
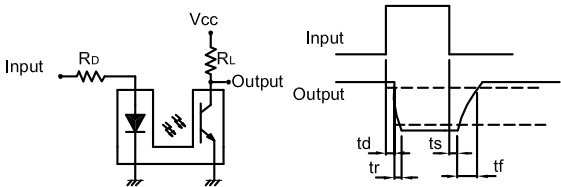
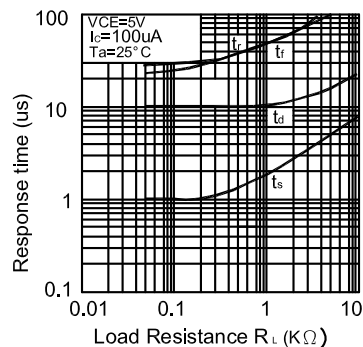


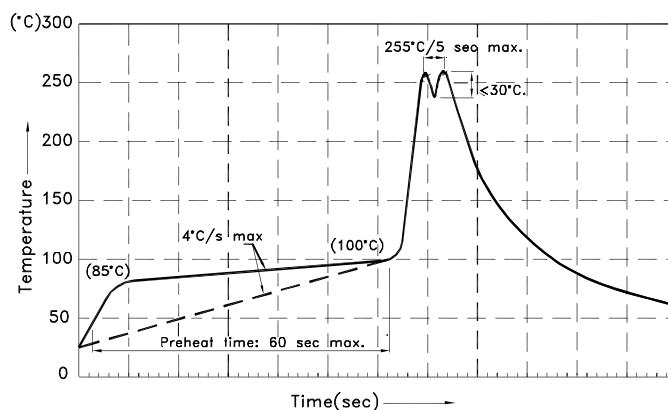
Fig.9 RESPONSE TIME Vs. LOAD RESISTANCE



Test Circuit for Response Time

KRA011

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

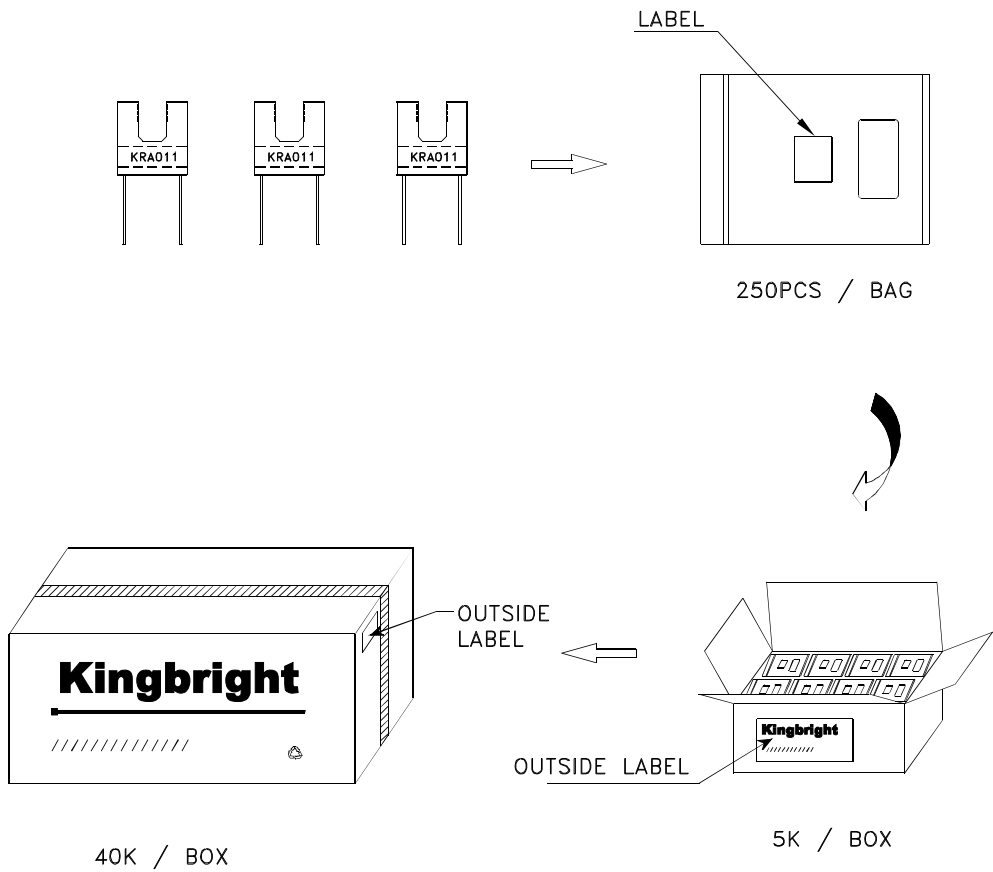



Notes:

- 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

KRA011



<b>Kingbright</b>	
P/NO: KRAxxx	
QTY: 250 pcs	Q.C. <div>Q C xx xx xxxx PASSED</div>
S/N: XXXX	
CODE: XXX	
LOT NO:	
 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	
RoHS Compliant	

Detailed application notes are listed on our website.  
[http://www.kingbright.com/application\\_notes](http://www.kingbright.com/application_notes)