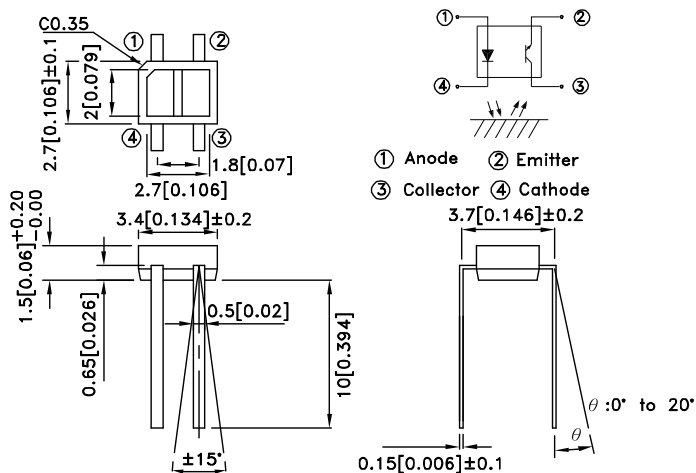


## SUBMINIATURE, HIGH SENSITIVITY PHOTOINTERRUPTER

### \*Features

- Compact and thin.
- Visible light cut-off type.
- High sensitivity.
- RoHS Compliant.



### \*Applications

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

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25(0.01")$  unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. The specifications, characteristics and technical data described in the data-sheet 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	$^{\circ}\text{C}$

Note:

1.Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.



## ■Electro-optical Characteristics

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	$I_{CEO}$	$V_{CE}=20\text{V}$	-	$10^{-9}$	$10^{-7}$	A
Transfer characteristics	*1 Collector Current	$I_C$	$V_{CE}=2\text{V}$ $I_F=4\text{mA}$	10	-	400	$\mu\text{A}$
	*2 Leak Current	$I_{LEAK}$	$V_{CE}=2\text{V}$ $I_F=4\text{mA}$	-	-	0.1	$\mu\text{A}$
	Response time	Rise time	$V_{CE}=2\text{V}$ $I_C=100\mu\text{A}$ $R_L=1\text{K}\Omega, d=1\text{mm}$	-	20	100	$\mu\text{sec}$
		Fall time		-	20	100	$\mu\text{sec}$

\*1 The condition and arrangement of the reflective object are shown below.

\*2 Without reflective object.

\*3 Excess driving current and/or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

BIN CODE	$I_C$ ( $\mu\text{A}$ )
E	10-120
F	100-250
G	200-400

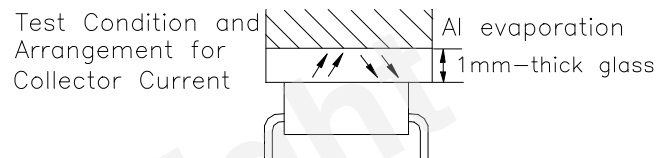


Fig. 1 Forward Current vs. Forward Voltage

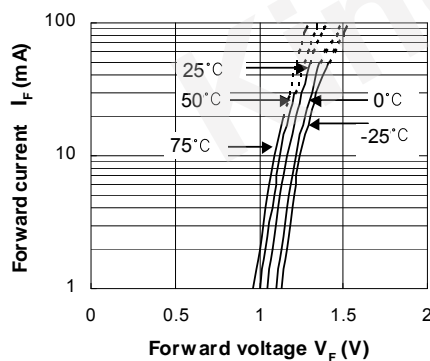


Fig. 2 Collector Current vs. Forward Current

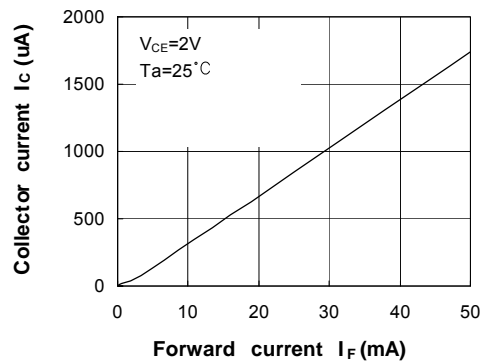


Fig. 3 Collector Current vs. Collector-emitter Voltage

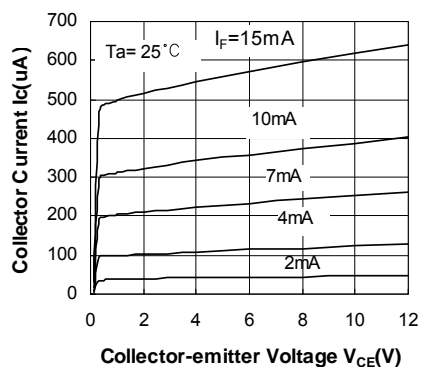


Fig. 4 Relative Collector Current vs. Ambient Temperature

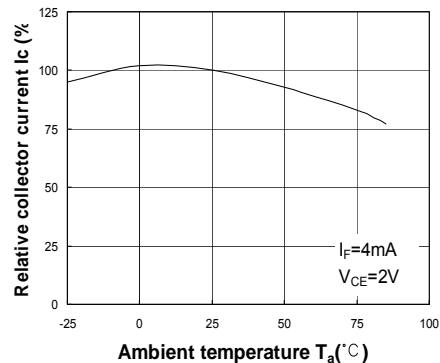
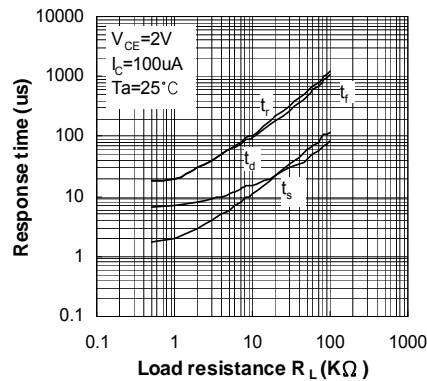


Fig. 5 Response Time vs. Load Resistance



Test Circuit for Response Time

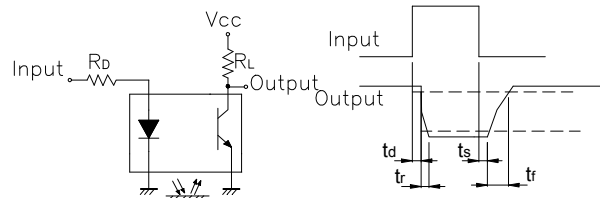


Fig. 6 Collector Dark Current vs. Ambient Temperature

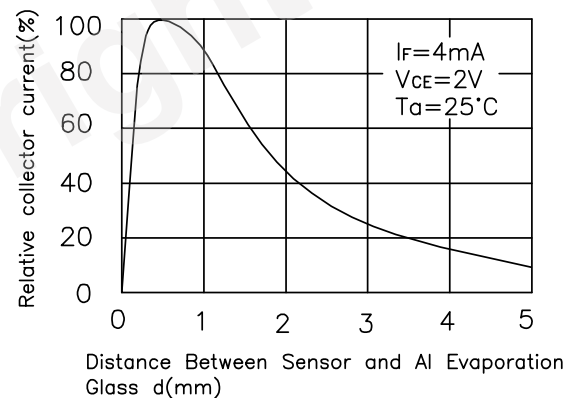
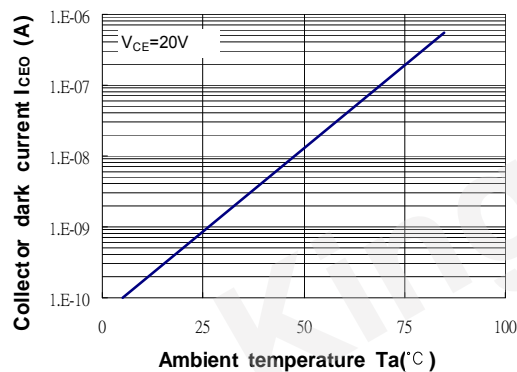


Fig. 8 Relative Collector Current vs. Card Moving Distance (1)

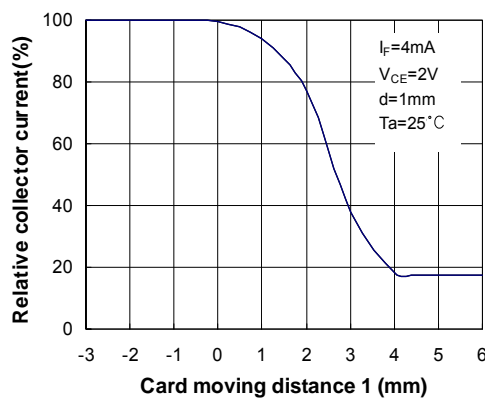
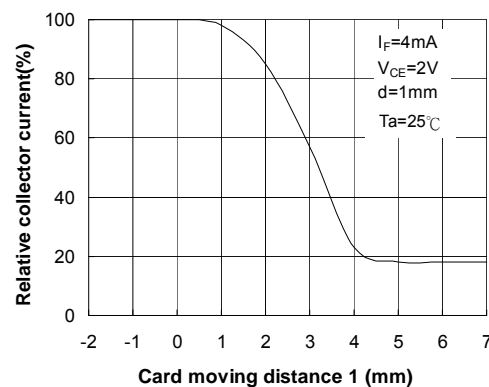
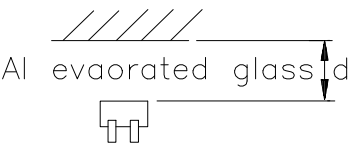


Fig. 9 Relative Collector Current vs. Card Moving Distance (2)



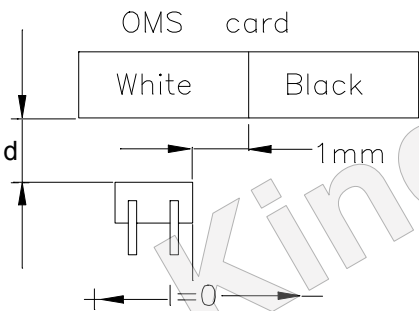
Test Condition for Distance&Detecting  
Position Characteristics

Correpond to Fig. 7



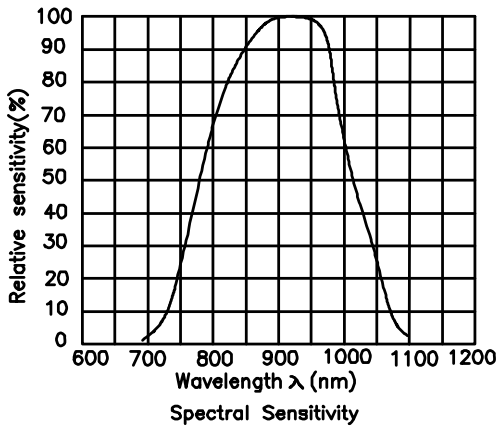
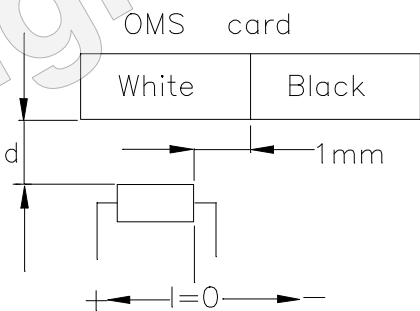
Correpond to Fig. 8  
Test condition

$I_F=4mA$   
 $V_{CE}=2V$   
 $d=1mm$

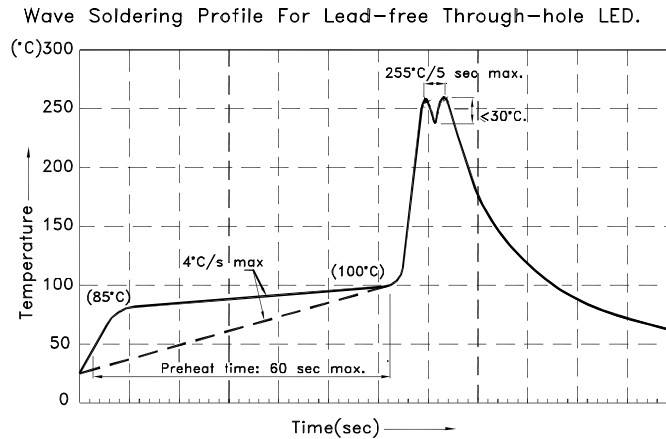


Correpond to Fig. 9  
Test condition

$I_F=4mA$   
 $V_{CE}=2V$   
 $d=1mm$



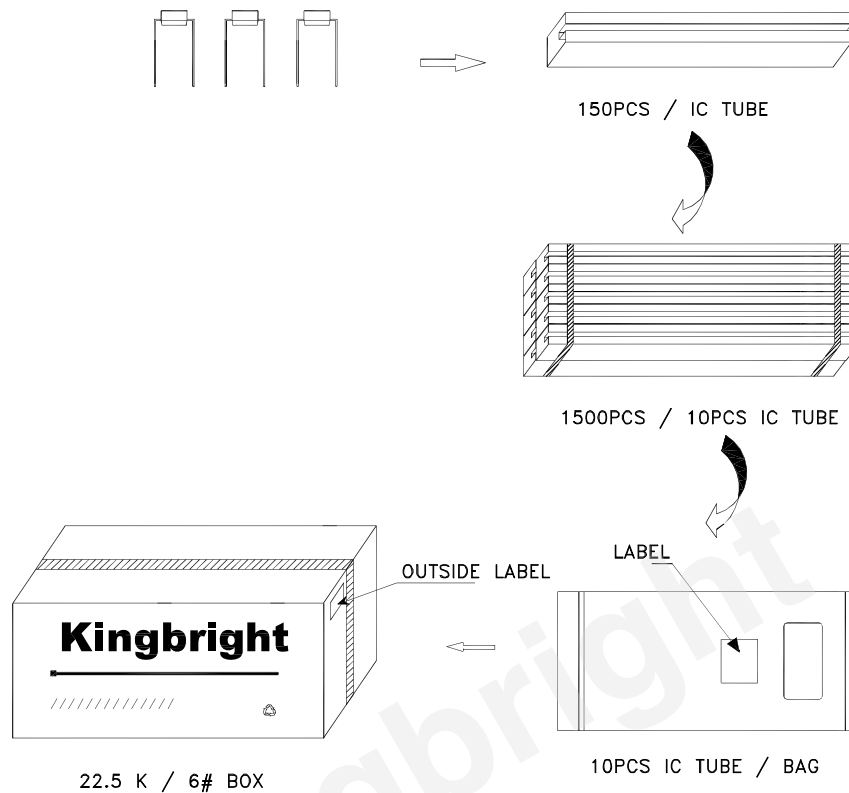
## Wave Soldering Profile



### 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



<b>Kingbright</b>		
P/NO: KTIRxxx		
QTY: 1500 pcs	Q.C.	Q C XX XX XXXX PASSED
S/N: XXXX		
CODE: XXX		
LOT NO:		
XXXXXXXXXXXXXXXXXX		
RoHS Compliant		

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