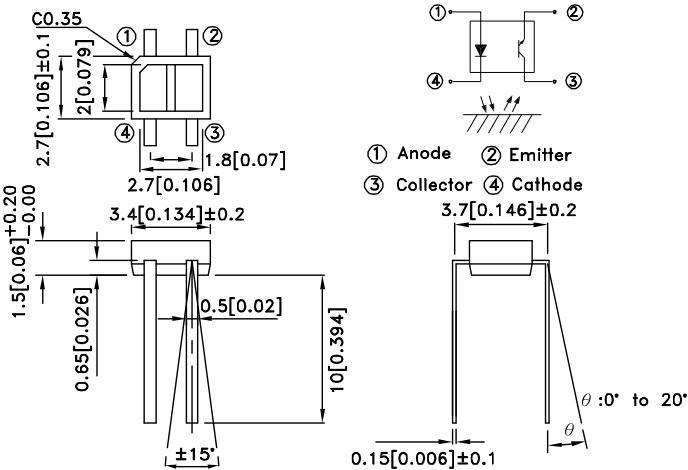


SUBMINIATURE, HIGH SENSITIVITY PHOTOINTERRUPTER

*Features

- Compact and thin
- Visible light cut-off type
- High sensitivity
- Moisture sensitivity level: 4
- 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 ±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	μA
	Peak Wavelength	λ_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	μA
	*2 Leak Current	I_{LEAK}	$V_{CE}=2\text{V}$ $I_F=4\text{mA}$	-	-	0.1	μA
	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	μsec
		Fall time		-	20	100	μsec

*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 (μA)
E	10-120
F	100-250
G	200-400

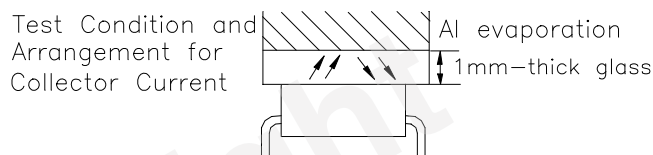


Fig. 1 Forward Current vs. Forward Voltage

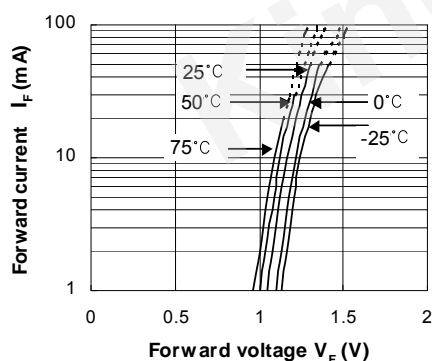


Fig. 2 Collector Current vs. Forward Current

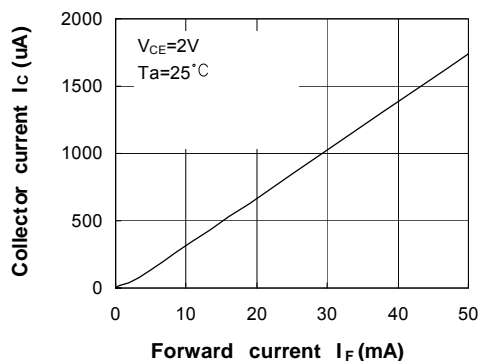


Fig. 3 Collector Current vs. Collector-emitter Voltage

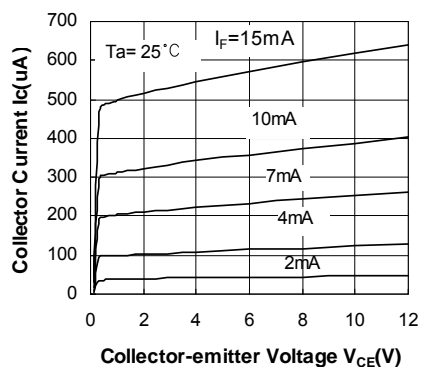


Fig. 4 Relative Collector Current vs. Ambient Temperature

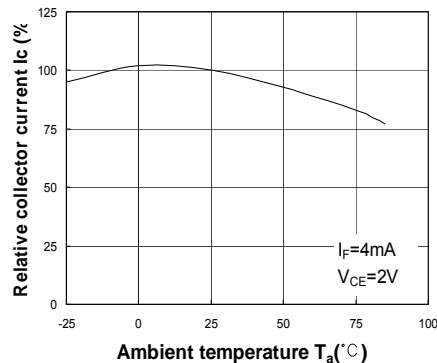
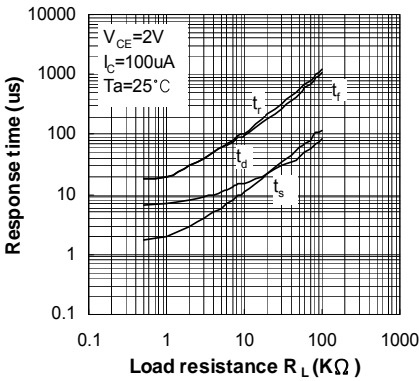


Fig. 5 Response Time vs. Load Resistance



Test Circuit for Response Time

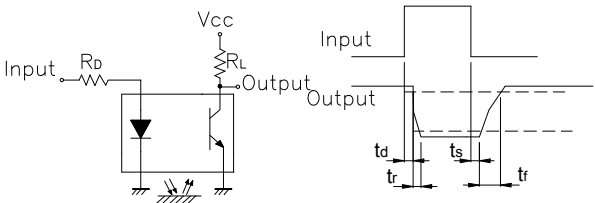


Fig. 6 Collector Dark Current vs. Ambient Temperature

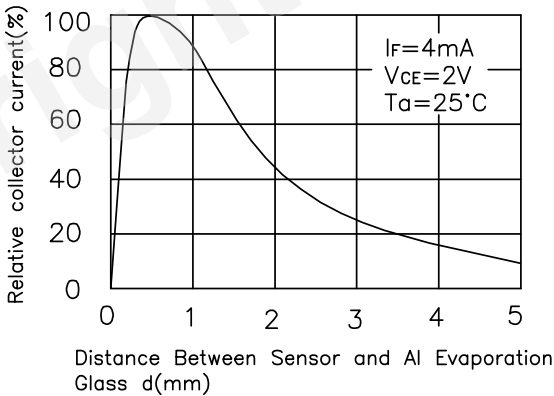
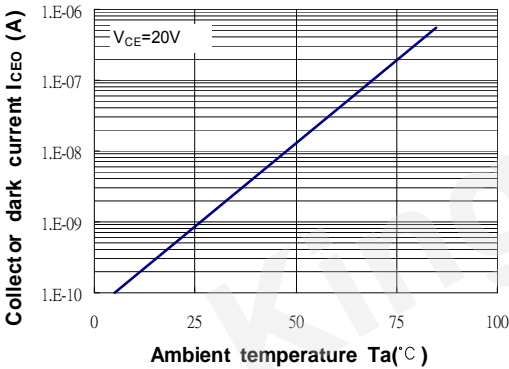


Fig. 8 Relative Collector Current vs. Card Moving Distance (1)

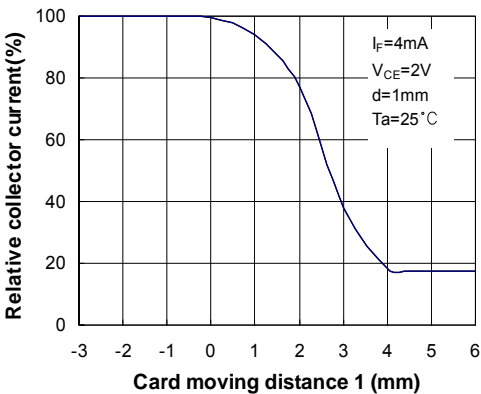
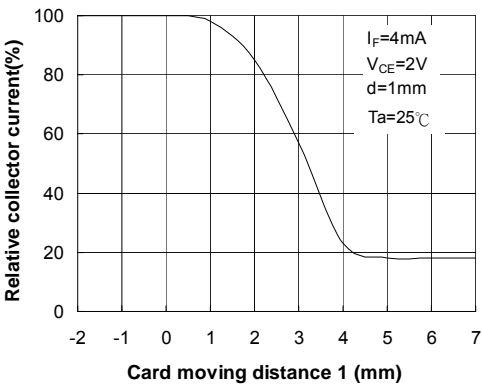
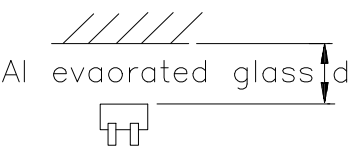


Fig. 9 Relative Collector Current vs. Card Moving Distance (2)



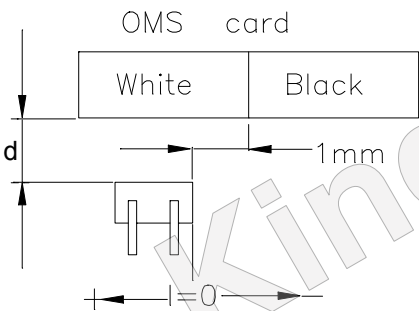
Test Condition for Distance&Detecting
Position Characteristics

Correpond to Fig. 7



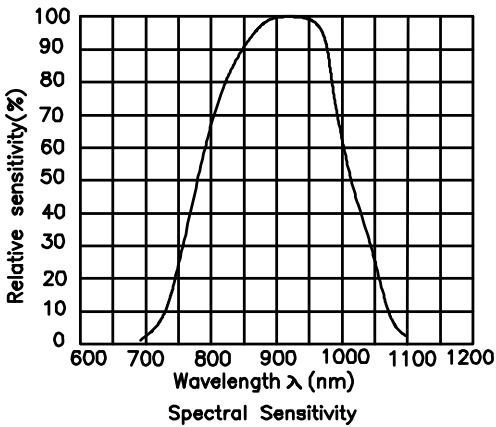
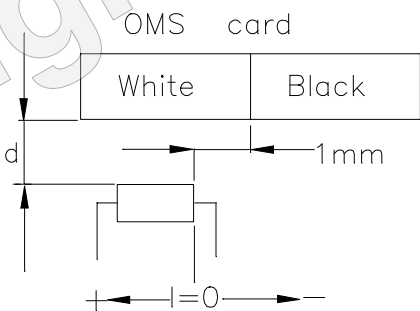
Correpond to Fig. 8
Test condition

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



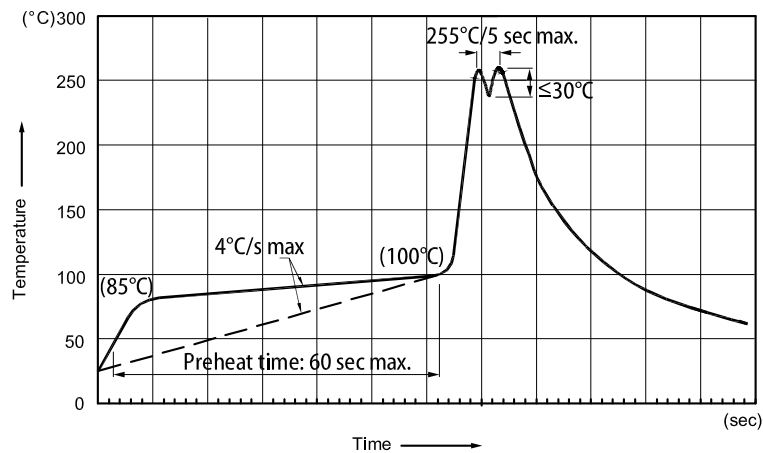
Correpond to Fig. 9
Test condition

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



Wave Soldering Profile

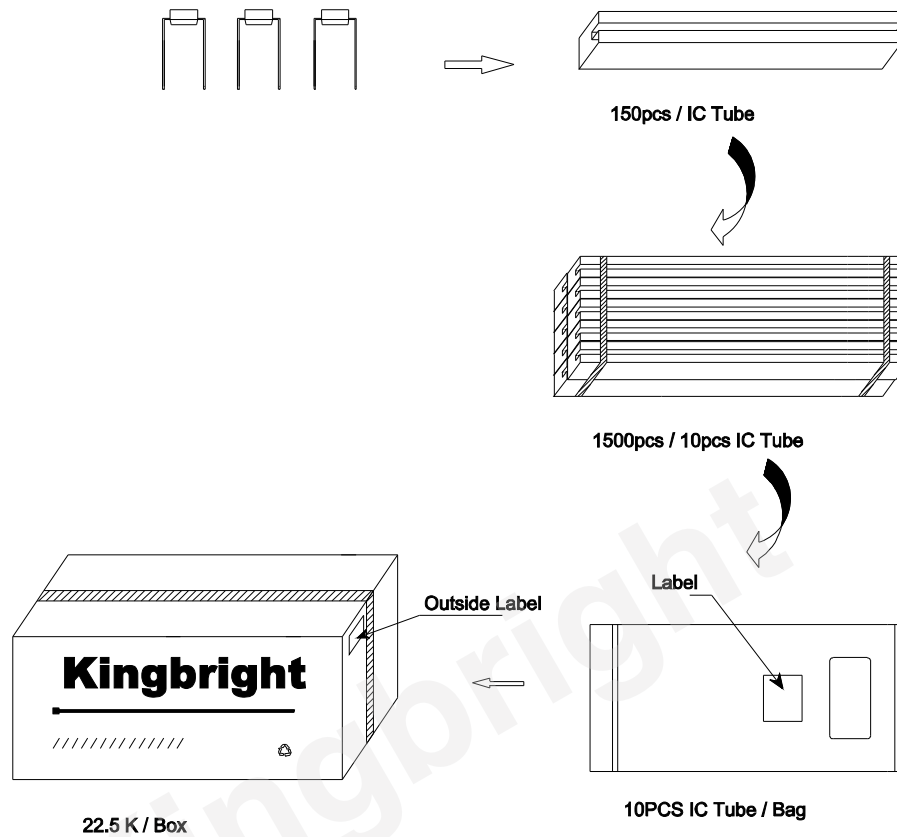
Wave Soldering Profile For Lead-free Through-hole LED.



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



Kingbright		XXXXXXXX-XXXX
P/NO: XXXXXXXX		
QTY: XXXXXpcs		
S/N: XXXX		
CODE: XX		
COUNTRY: CN	QC DATE: XXX XX XXXX PASSED	
LOT NO:		
XXXXXXXXXXXX (SP)XXXXXXXXXX		
		RoHS Compliant

Terms and conditions for the usage of this document

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
3. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Kingbright will not be responsible for any subsequent issues.
4. The information in this document applies to typical usage in consumer electronics applications. If customer's application has special reliability requirements or have life-threatening liabilities, such as automotive or medical usage, please consult with Kingbright representative for further assistance.
5. The contents and information of this document may not be reproduced or re-transmitted without permission by Kingbright.
6. All design applications should refer to Kingbright application notes available at https://www.kingbright.com/application_notes