

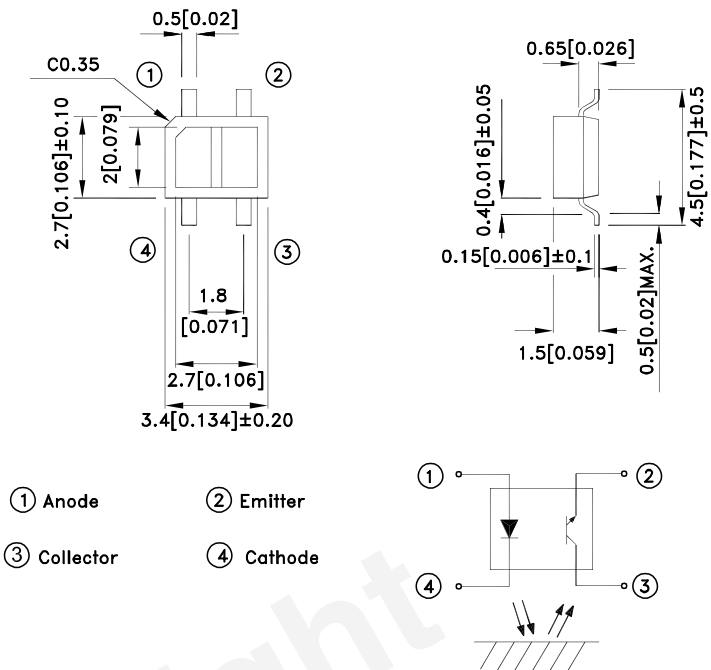
SUBMINIATURE, HIGH SENSITIVITY PHOTOINTERRUPTER

*Features

- Compact and thin.
- Visible light cut-off type.
- High sensitivity.
- Package: 1000pcs/Reel.
- Moisture sensitivity level : 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 $\pm 0.25(0.01")$ 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

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 $\leq 100\mu s$, 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	°C
Storage temperature		T_{stg}	-40~+100	°C
soldering temperature (1/16 inch from body for 5 seconds)		T_{sol}	260	°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.

■ Classification table of radiant flux

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

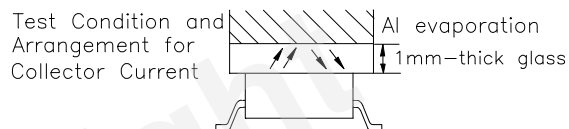


Fig. 1 Forward Current vs. Forward Voltage

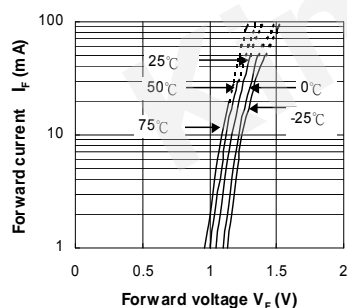


Fig. 2 Collector Current vs. Forward Current

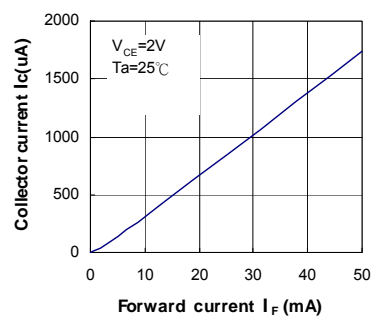


Fig. 3 Collector Current vs. Collector-emitter Voltage

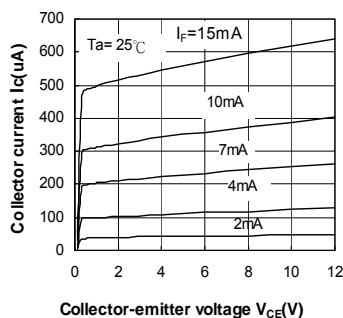


Fig. 4 Relative Collector Current vs. Ambient Temperature

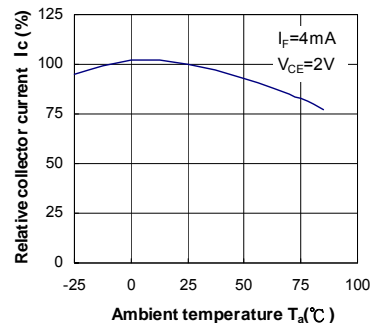
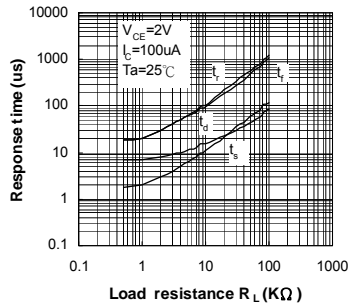


Fig. 5 Response Time vs. Load Resistance



Test Circuit for Response Time

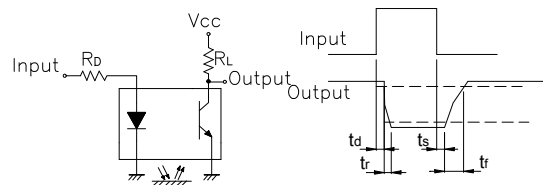


Fig. 6 Collector Dark Current vs. Ambient Temperature

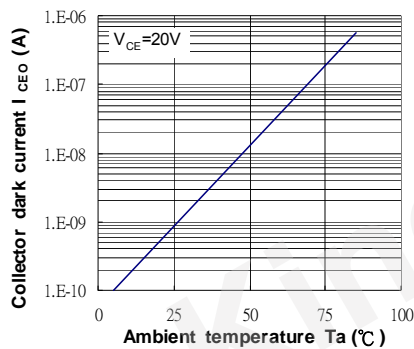


Fig. 7 Relative Collector Current vs. Distance between Sensor and Al Evaporation Glass

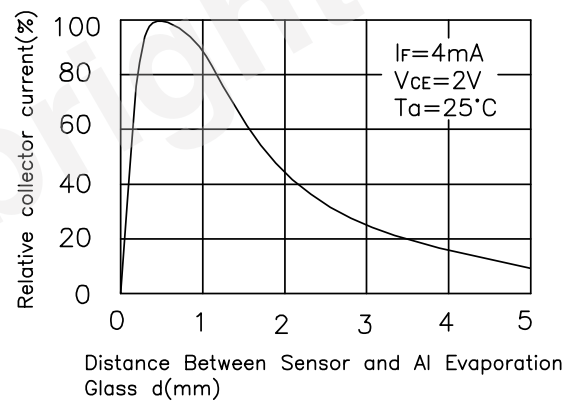


Fig. 8 Relative Collector Current vs. Card Moving Distance (1)

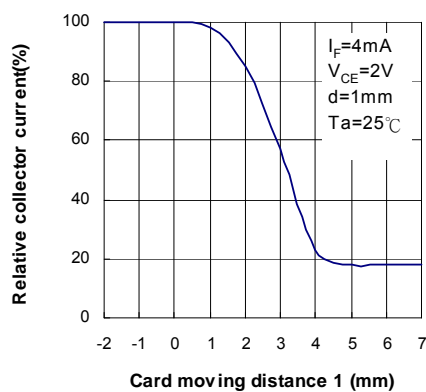
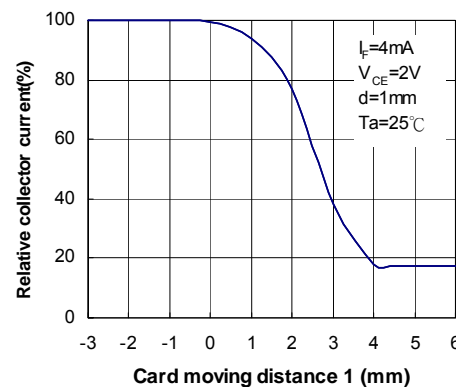


Fig. 9 Relative Collector Current vs. Card Moving Distance (2)



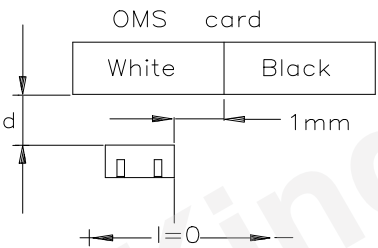
Test Condition for Distance & Detecting
Position Characteristics

Correpond to Fig. 7



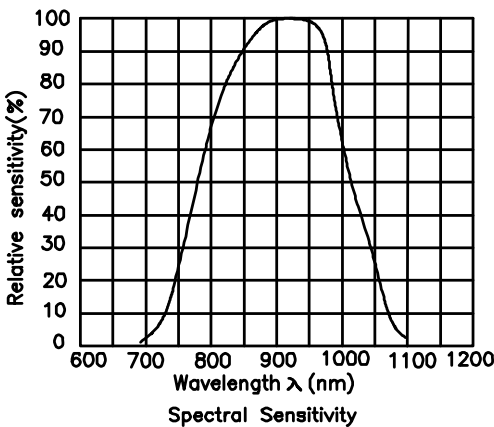
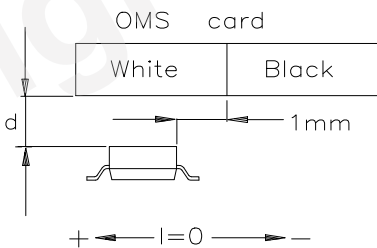
Correpond to Fig. 8
Test condition

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

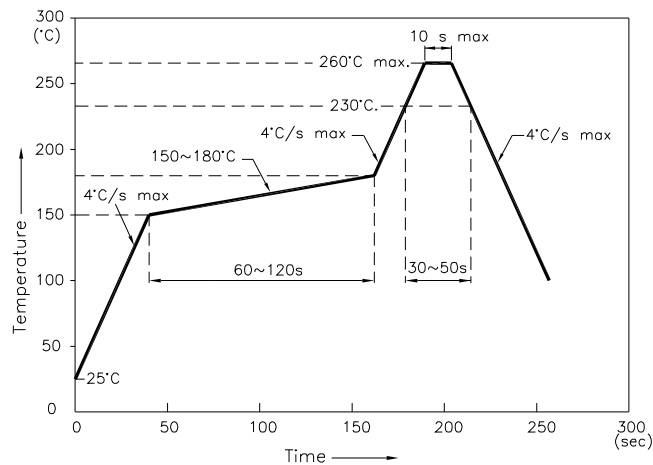


Correpond to Fig. 9
Test condition

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



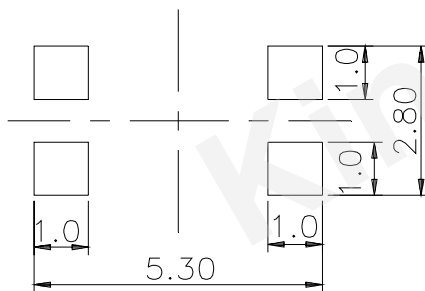
Reflow Soldering Profile For Lead-free SMT Process.



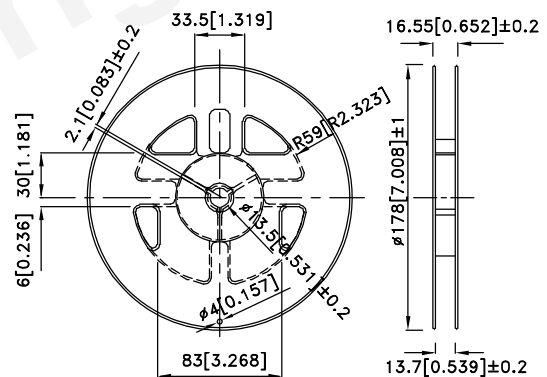
NOTES:

1. We recommend the reflow temperature 245°C(+/-5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

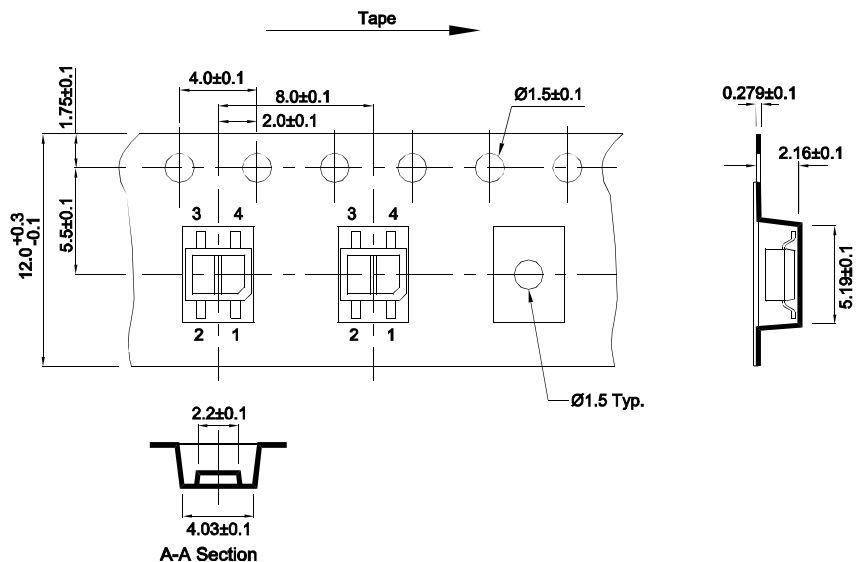
Recommended Soldering Pattern
(Units : mm; Tolerance: ± 0.1)



Reel Dimension

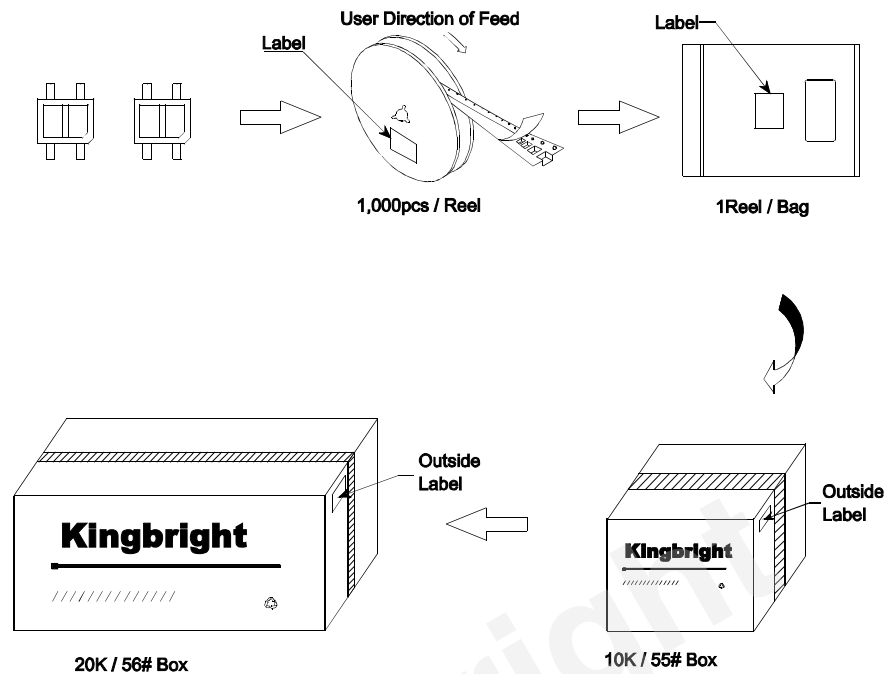


Tape Specifications
(Units : mm)



PACKING & LABEL SPECIFICATIONS

KTIR0711S



Kingbright	
P/NO: KTIRXXX	
QTY: 1,000 pcs	Q.C.
S/N: XXXX	QC XXXXXXX PASSED
CODE: XXX	
LOT NO:	
RoHS Compliant	

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