

SUBMINIATURE , HIGH SENSITIVITY PHOTOINTERRUPTER

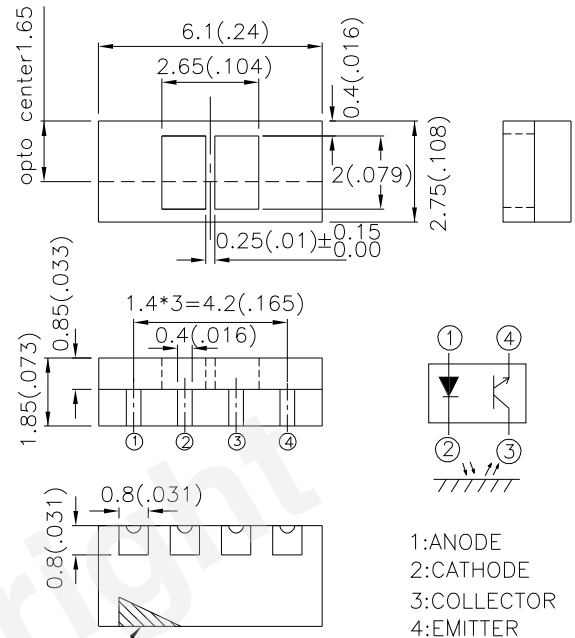
*Features

- 1.Compact and thin.
- 2.Visible light cut-off type.
- 3.High sensitivity.
- 4.Side irradiance.
- 5.Package: 3000pcs/Reel.
- 6.Moisture sensitivity level : level 4.
- 7.New PCB Production Process.
- 8.RoHS compliant.

*Applications

Cassette tape recorders,VCRs toys.

Various microcomputerized control equipment.



POLARITY MARK

UNIT : MM[INCH]

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

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

Parameter		Symbol	Rating	Unit
Input	Forward Current	I_F	30	mA
	Reverse Voltage	V_R	5	V
	Power Dissipation	P_d	37.5	mW
	Peak Forward Current (Pulse Width $\leq 100\mu\text{s}$, Duty Cycle=1%)	I_{FP}	1	A
Output	Collector-emitter voltage	V_{CEO}	30	V
	Emitter-Collector voltage	V_{ECO}	5	V
	Collector current	I_C	20	mA
	Collector Power Dissipation	P_C	75	mW
Operating temperature		T_{opr}	-25~+50	$^\circ\text{C}$
Storage temperature		T_{stg}	-25~+50	$^\circ\text{C}$
Soldering temperature (1/16 inch from body for 5 seconds)		T_{sol}	260	$^\circ\text{C}$



Electrical / Optical Characteristics at T_A=25°C

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit
Input	Forward voltage	V _F	I _F =20mA	1.0	1.2	1.5	V
	Reverse current	I _R	V _R =5V	—	—	10	μA
	Peak Wavelength	λ _p	I _F =20mA	-	940	-	nm
Output	Collector dark current	I _{CEO}	V _{CE} =20V	—	10 ⁻⁹	10 ⁻⁷	A
Viewing Angle		θ	-	-	90	-	°
Transfer Characteristics	Collector-emitter saturation voltage	V _{CE(SAT)}	I _C =0.1mA, I _F =20mA	—	0.1	0.4	V
	Collector current [1]	I _C	V _{CE} =5V, I _F =20mA	10	—	300	μA
	Leak current [2]	I _{LEAK}	V _{CE} =5V, I _F =20mA	—	—	5	μA
	Response time	Rise time	V _{CE} =2V, I _C =100μA R _L =1KΩ d=3.8mm	—	20	—	μs
		Fall time		—	20	—	μs

Notes:

- 1.The condition and arrangement of the reflective object are shown below.Fig.1, Fig.2, Fig.3, Fig.4, Fig.5 and Fig.9 in the same condition.
- 2.Without reflective object.

Test Condition and Arrangement for Collector Current

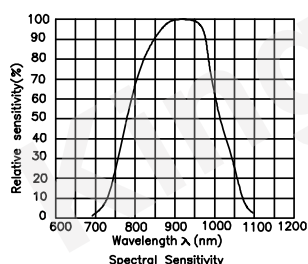
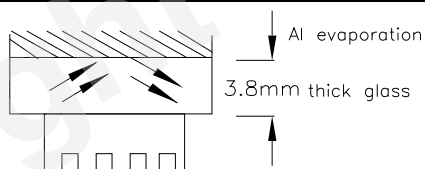


Fig.1 Forward Current Vs. Forward Voltage

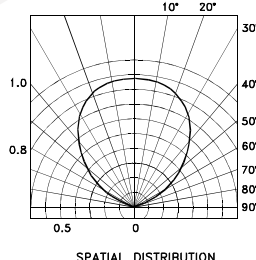


Fig.2 Collector Current Vs. Forward Current

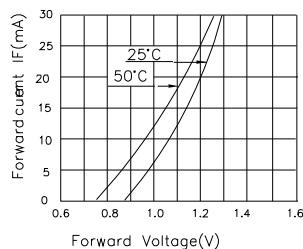
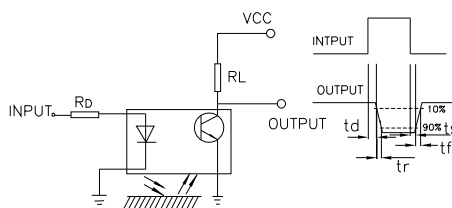
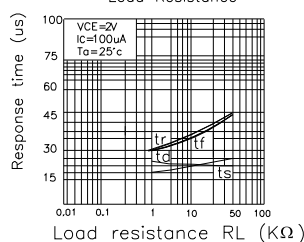
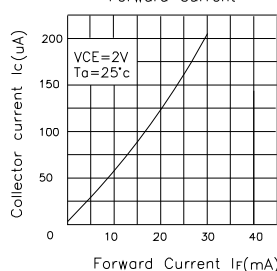


Fig.3 Response Time Vs. Load Resistance



The test circuit for response time

Fig.4 Relative Collector Current Vs. Ambient Temperature

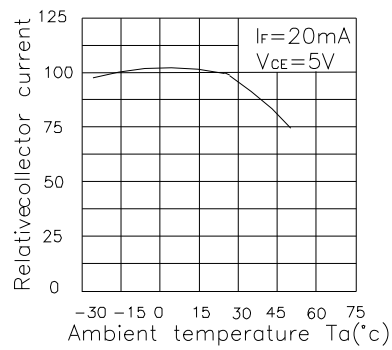
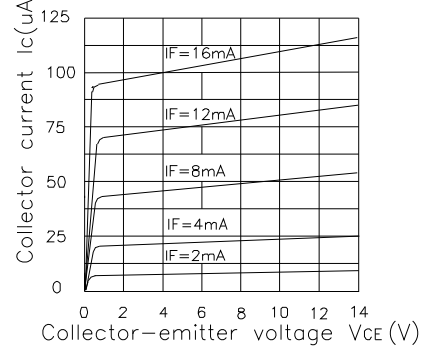
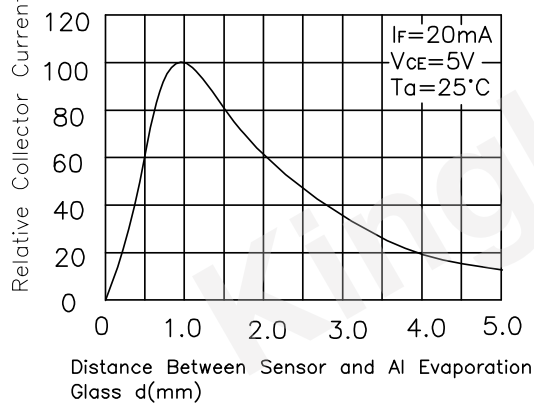


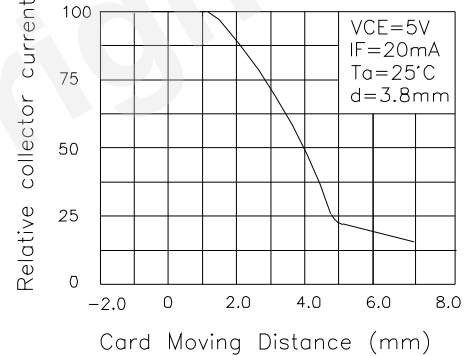
Fig.5 Collector Current Vs. Collector-Emitter Voltage



*Fig.6 Relative Collector Current Vs. Distance Between Sensor and Al Evaporation Glass



*Fig.7 Relative Collector Current Vs Card Moving Distance (1)



*Fig.8 Relative Collector Current Vs. Card Moving Distance (2)

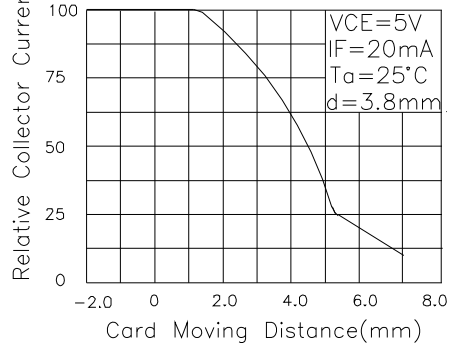
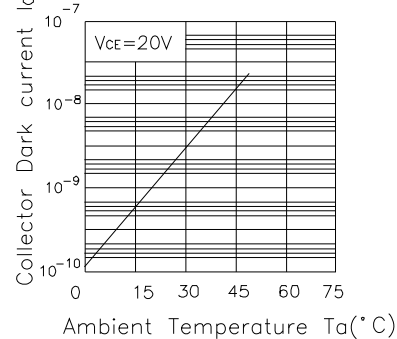
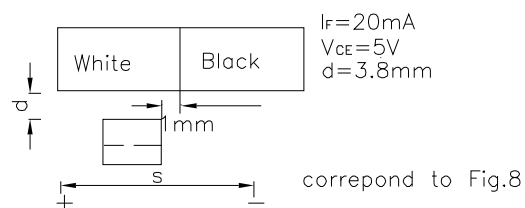
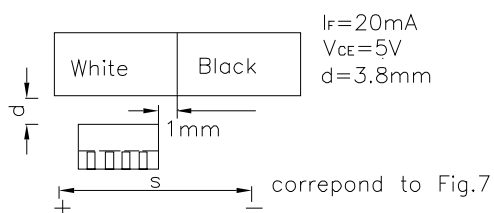
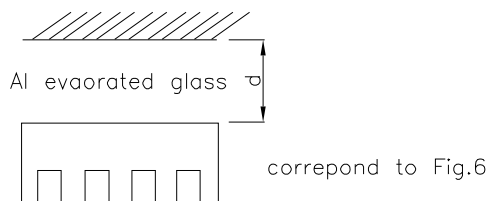


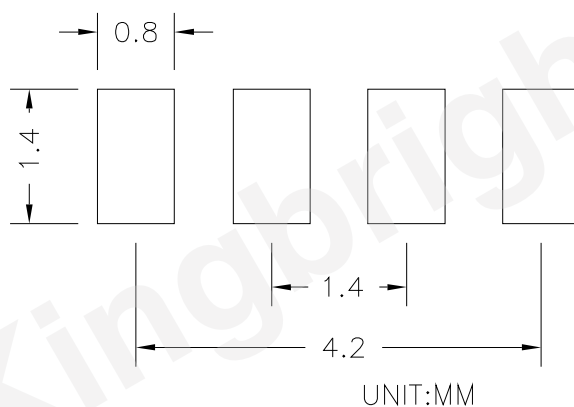
Fig.9 Collector Dark Current Vs. Ambient Temperature



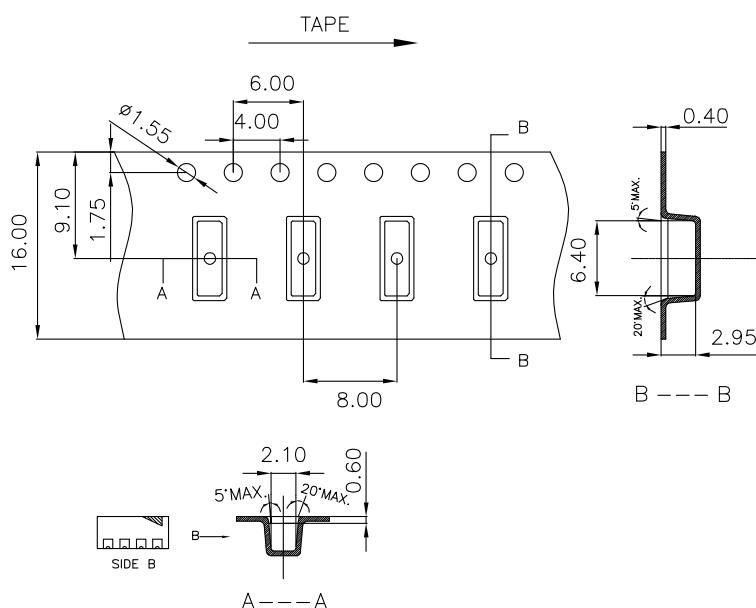
*Note:Test condition for distance



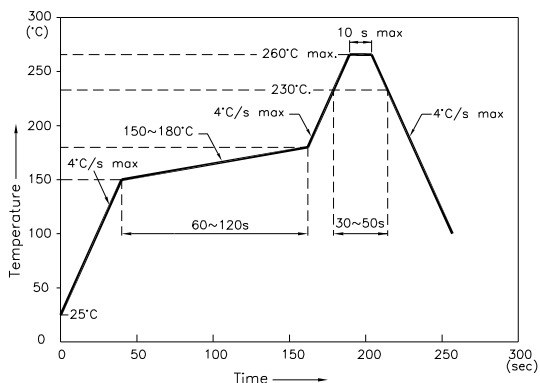
RECOMMENDED SOLDERING PATTERN



Tape Specifications (Units : mm)



Reflow Soldering Profile For Lead-free SMT Process.

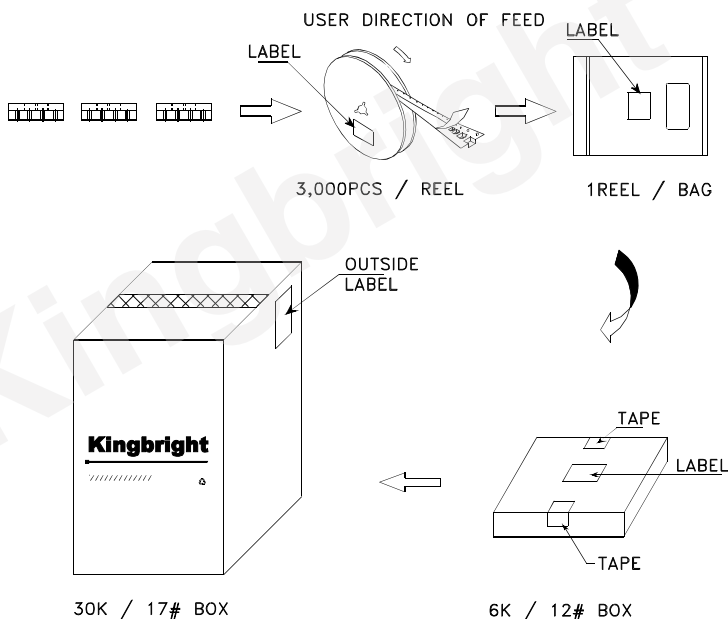


NOTES:

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.

PACKING & LABEL SPECIFICATIONS

KRC011



Kingbright	
P/NO: KRCxxx	
QTY: 3,000 pcs	Q.C. Q C xx xx xxxx PASSED
S/N: XXXX	
CODE: XXX	
LOT NO:	
xxxxxxxxxxxxxxxxxxxxxxxxxxxxx RoHS Compliant	

Detailed application notes are listed on our website.

http://www.kingbright.com/application_notes