

SUBMINIATURE , HIGH SENSITIVITY PHOTOINTERRUPTER

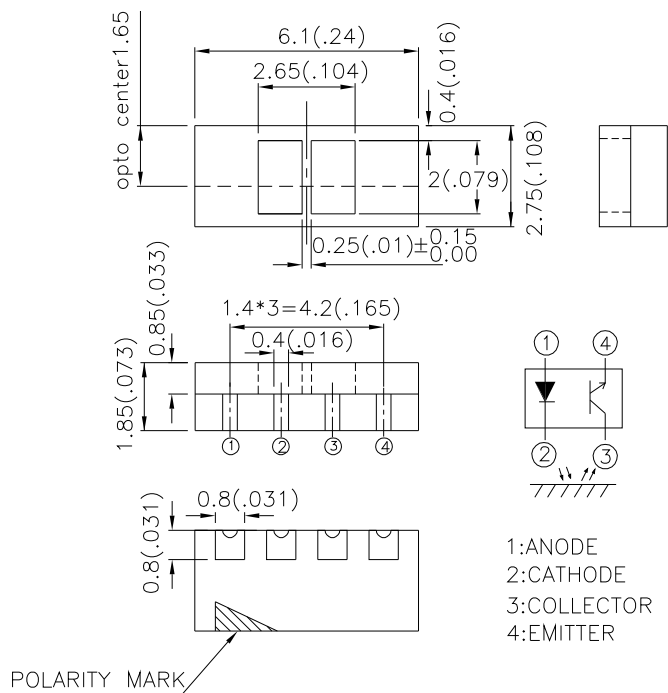
*Features

- 1.Compact and thin.
- 2.Invisible light cut-off type.
- 3.High sensitivity.
- 4.Side irradiance.
- 5.Package: 1000pcs/Reel.
- 6.RoHS compliant.

*Applications

Cassette tape recorders,VCRs toys.

Various microcomputerized control equipment.



UNIT : MM[INCH]

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

*Absolute Maximum Ratings (T_A=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward Voltage	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	°C
Storage temperature		T _{stg}	-25~+50	°C
Soldering temperature (1/16 inch from body for 5 seconds)		T _{sol}	260	°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	$V_R=5\text{V}$	—	—	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	Collector-emitter saturation voltage	$V_{CE(SAT)}$	$I_C=10\text{mA}$, $I_F=20\text{mA}$	—	0.1	0.4	V
	Current current [1]	I_C	$V_{CE}=5\text{V}$, $I_F=20\text{mA}$	10	—	300	μA
	Leak current [2]	I_{LEAK}	$V_{CE}=5\text{V}$, $I_F=20\text{mA}$	—	—	5	μA
	Response time	Rise time	$V_{CE}=2\text{V}$, $I_C=100\mu\text{A}$, $R_L=1\text{K}\Omega$, $d=3.8\text{mm}$	—	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

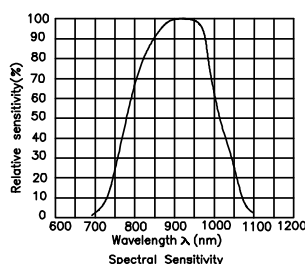
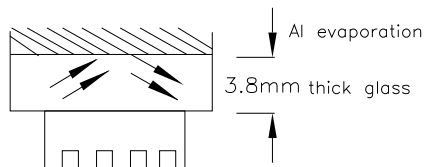


Fig.1 Forward Current Vs. Forward Voltage

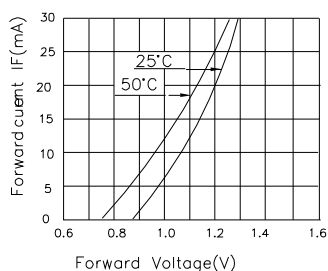


Fig.2 Collector Current Vs. Forward Current

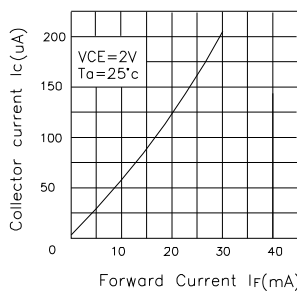
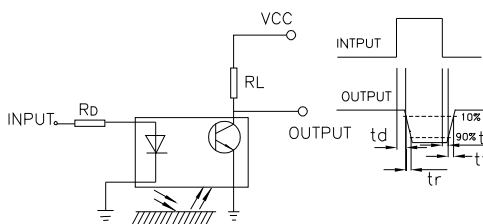
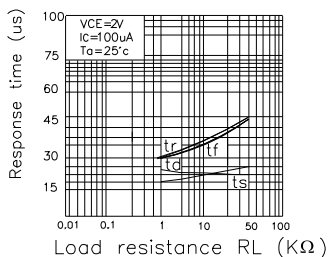


Fig.3 Response Time Vs. Load Resistance



The test circuit for response time

Fig.4 Relative Collector Current Vs. Ambient Temperature

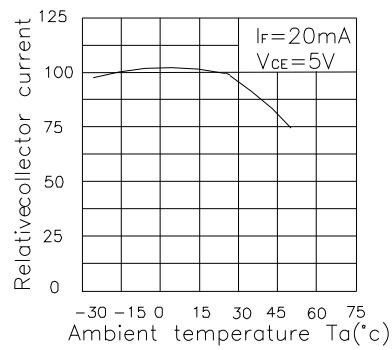
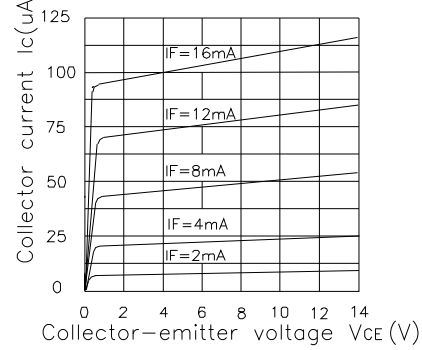
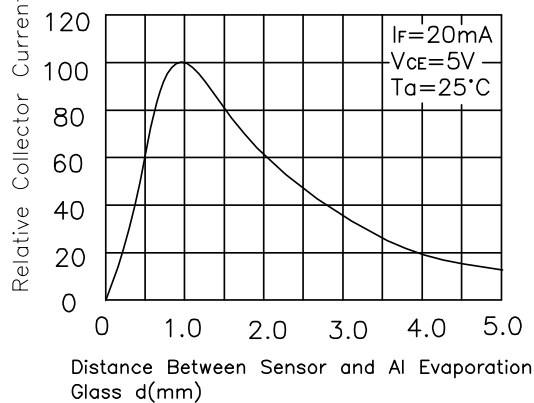


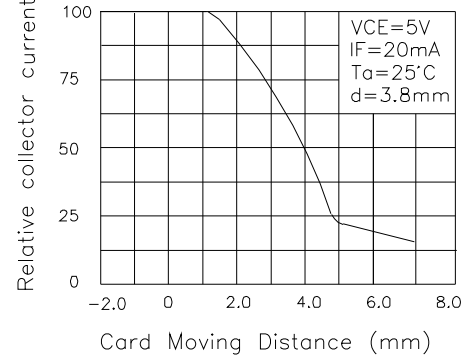
Fig.5 Collector Current Vs. Collector-Emitter Voltage



*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)

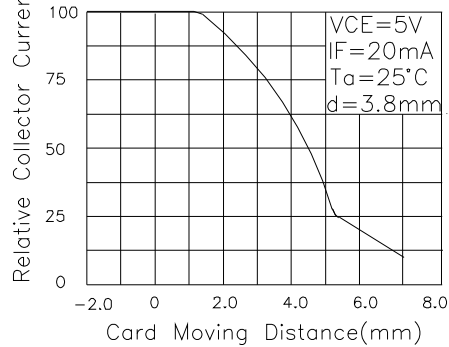
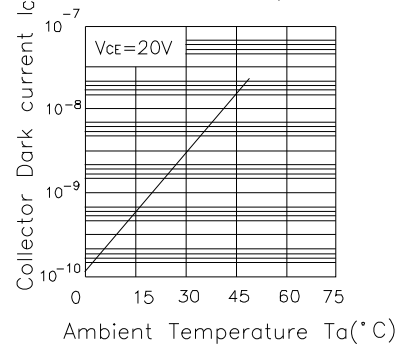
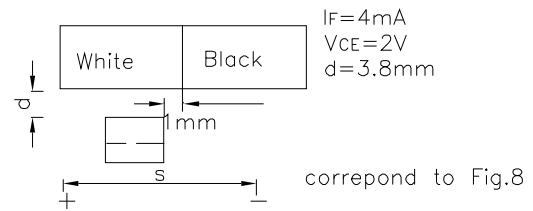
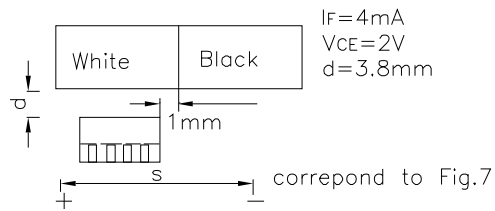
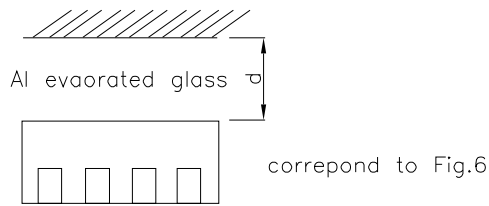


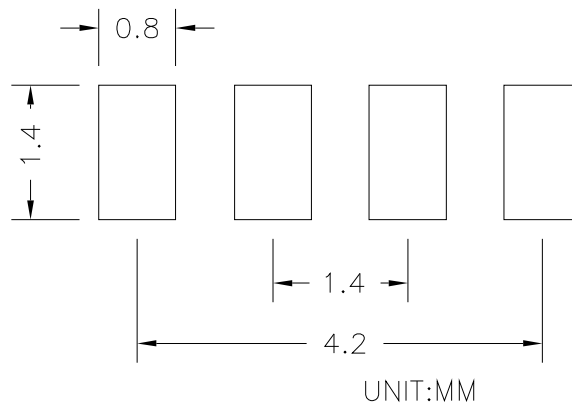
Fig.9 Collector Dark Current Vs. Ambient Temperature



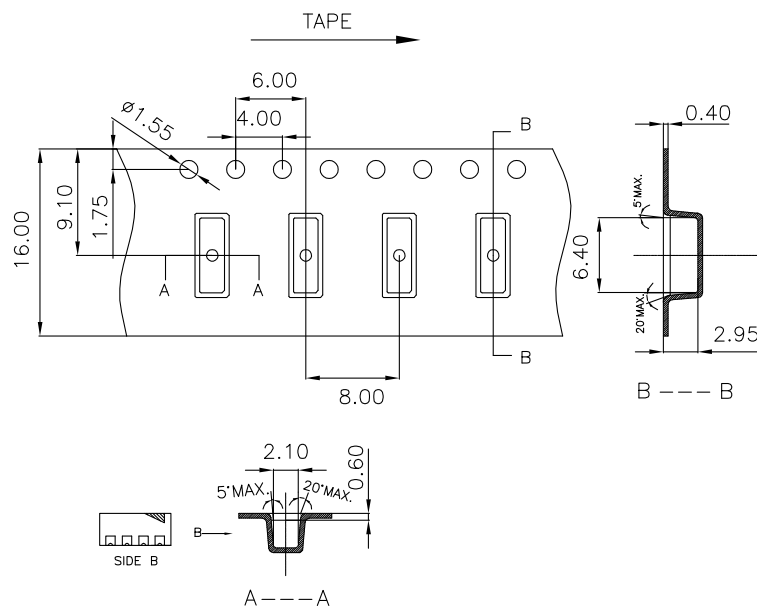
*Note:Test condition for distance



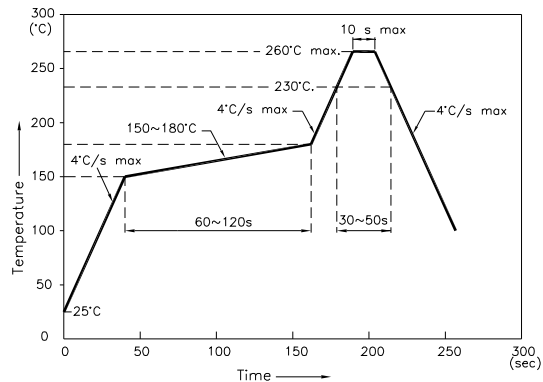
RECOMMENDED SOLDERING PATTERN



Tape Specifications (Units : mm)



Reflow Soldering Profile For Lead-free SMT Process.

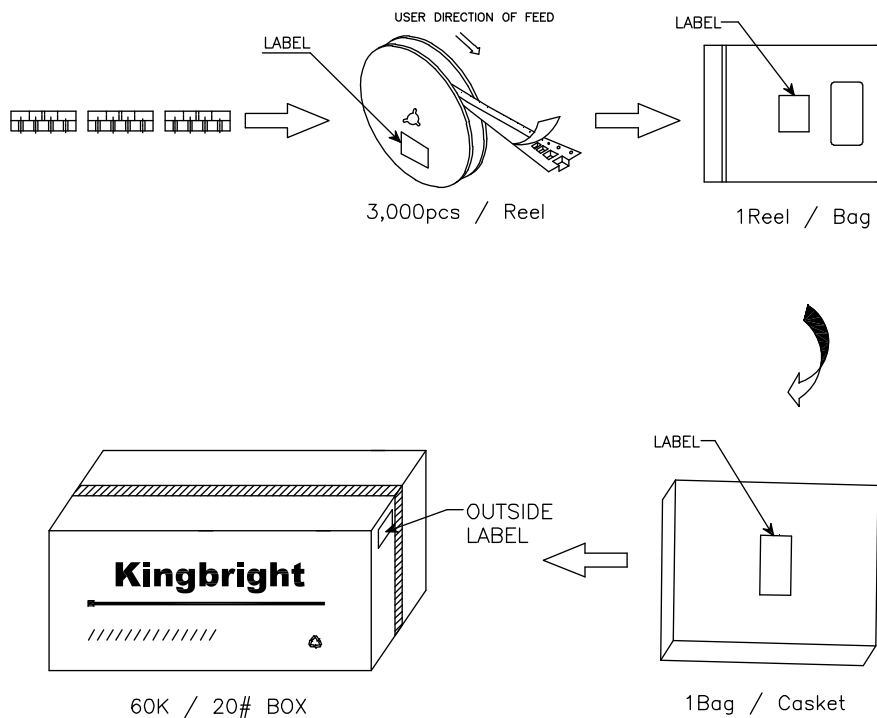


NOTES:

1. We recommend the reflow temperature $245^{\circ}\text{C} (+/-5^{\circ}\text{C})$. 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: KRC011	
QTY: 3,000 pcs	Q.C. Q C xx xx xxx PASSED
S/N: XXXX	
CODE: XX	
LOT NO:	
MADE IN CHINA	RoHS Compliant