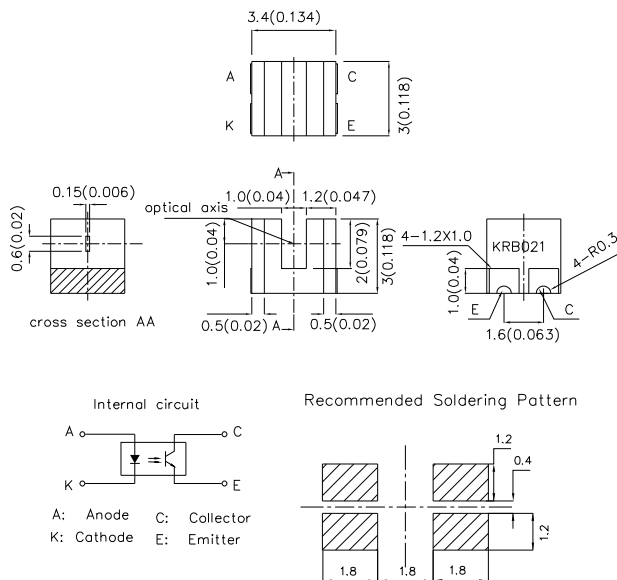


## PCB TYPE PHOTOINTERRUPTER

### \*Dimensions

Note: All units are in millimeters unless otherwise indicated.



Unless otherwise specified, the tolerances are  $\pm 0.15\text{mm}$ .

### \*Features

- 1.Ultra-compact with a 3.4mm width photointerrupter and 1mm width slot.
- 2.PCB surface mounting type.
- 3.High resolution with a 0.15mm width aperture.
- 4.RoHS compliant.

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

| Parameter             |                                                                          | Symbol    | Rating       | Unit             |
|-----------------------|--------------------------------------------------------------------------|-----------|--------------|------------------|
| Input                 | Forward current[1]                                                       | $I_F$     | 25           | mA               |
|                       | Reverse voltage                                                          | $V_R$     | 5            | V                |
|                       | Power dissipation                                                        | $P_d$     | 35           | mW               |
|                       | Peak Forward Current (Pulse Width $\leq 100\mu\text{s}$ , Duty Cycle=1%) | $I_{FP}$  | 1            | A                |
| Output                | Collector-emitter voltage                                                | $V_{CEO}$ | 20           | V                |
|                       | Emitter-collector voltage                                                | $V_{ECO}$ | 5            | V                |
|                       | Collector current                                                        | $I_C$     | 20           | mA               |
|                       | Collector power dissipation                                              | $P_C$     | 75           | mW               |
| Operating temperature |                                                                          | $T_{opr}$ | $-35\sim+85$ | $^\circ\text{C}$ |
| Storage temperature   |                                                                          | $T_{stg}$ | $-40\sim+90$ | $^\circ\text{C}$ |
| Reflow soldering[2]   |                                                                          | $T_{sol}$ | 240          | $^\circ\text{C}$ |
| Manual soldering[2]   |                                                                          | $T_{sol}$ | 300          | $^\circ\text{C}$ |

Notes:

- 1.Refer to the temperature rating chart if the ambient temperature exceeds  $25^\circ\text{C}$ .
- 2.Complete soldering within 10 seconds for reflow soldering and within 3 seconds for manual soldering.

### Electrical / Optical Characteristics at $T_A=25^\circ\text{C}$

| Parameter |                                      | Symbol        | Min.            | Typ.               | Max.            | Condition                                                        |
|-----------|--------------------------------------|---------------|-----------------|--------------------|-----------------|------------------------------------------------------------------|
| Input     | Forward voltage                      | $V_F$         | -               | 1.1V               | 1.3V            | $I_F=5\text{mA}$                                                 |
|           | Reverse current                      | $I_R$         | -               | -                  | $10\mu\text{A}$ | $V_R=5\text{V}$                                                  |
|           | Peak emission wavelength             | $\lambda_p$   | -               | 940nm              | -               | -                                                                |
| Output    | Collector current                    | $I_C$         | $50\mu\text{A}$ | $150\mu\text{A}$   | -               | $I_F=5\text{mA}, V_{CE}=5\text{V}$                               |
|           | Collector dark current               | $I_D$         | -               | -                  | $100\text{nA}$  | $V_{CE}=10\text{V}$                                              |
|           | Collector-Emitter saturation voltage | $V_{CE(sat)}$ | -               | 0.1V               | 0.4V            | $I_C=50\mu\text{A}$<br>$I_F=20\text{mA}$                         |
|           | Peak spectral sensitivity wavelength | $\lambda_p$   | -               | 920nm              | -               | -                                                                |
| Rise time |                                      | $t_r$         | -               | 8 $\mu\text{Sec}$  | -               | $V_{CC}=5\text{V}$ $R_L=1\text{k}\Omega$<br>$I_C=100\mu\text{A}$ |
| Fall time |                                      | $t_f$         | -               | 10 $\mu\text{Sec}$ | -               |                                                                  |

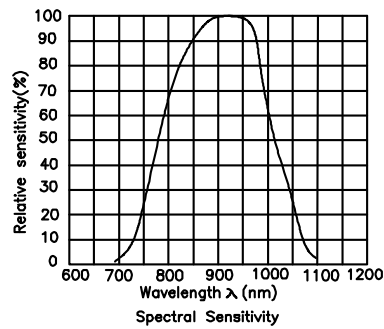


Fig.1 Forward Current vs. Forward Voltage

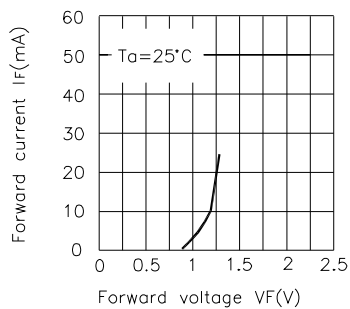


Fig.2 Collector Current vs. Forward Current

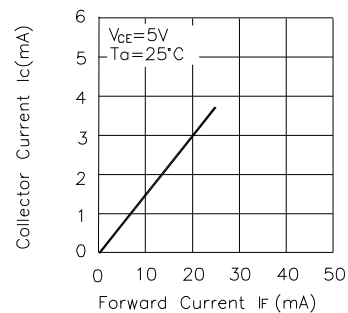


Fig.3 Collector Current vs. Ambient Temperature

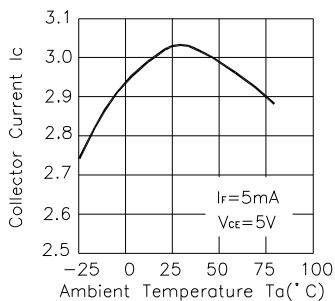


Fig.4 Collector-Emitter Saturation Voltage vs. Ambient Temperature

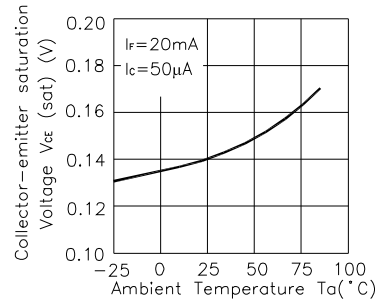


Fig.5 Forward Current vs. Collector Dissipation Temperature Rating

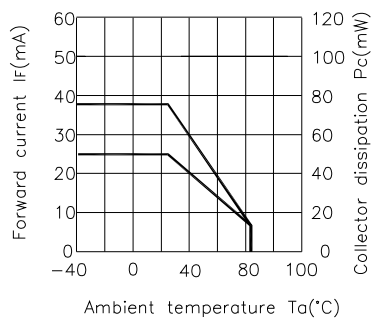


Fig.6 Forward Current vs. Collector-Emitter Voltage

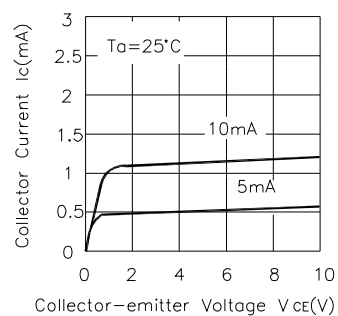


Fig.7 Relative Collector Current vs. Shield Distance(1)

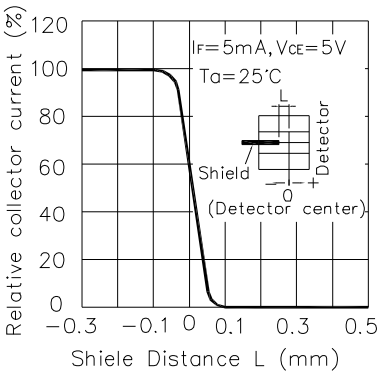


Fig.8 Relative Collector Current vs. Shield Distance(2)

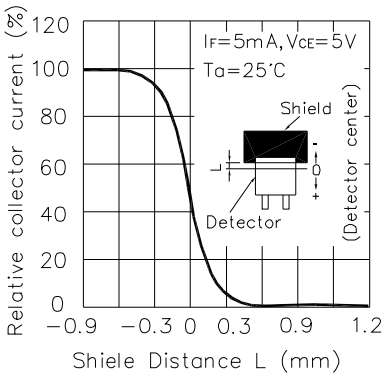
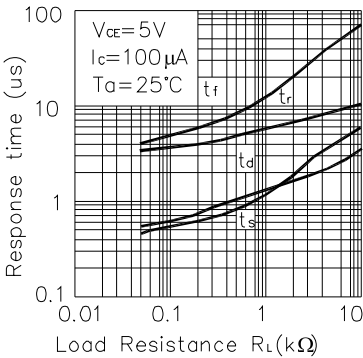
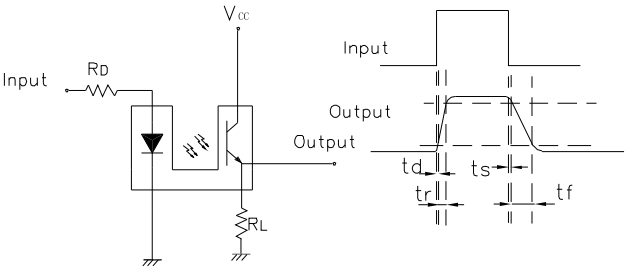


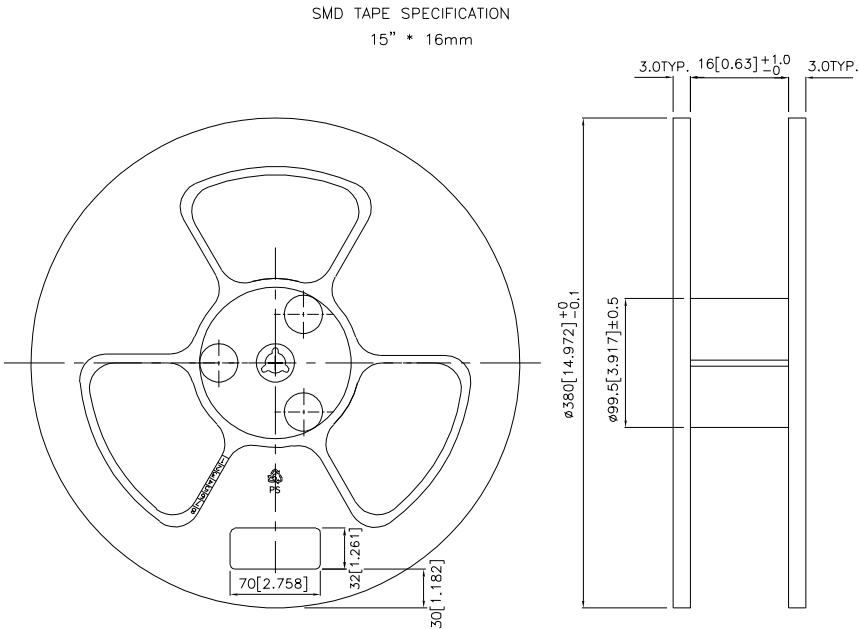
Fig.9 Response Time vs. Load Resistance



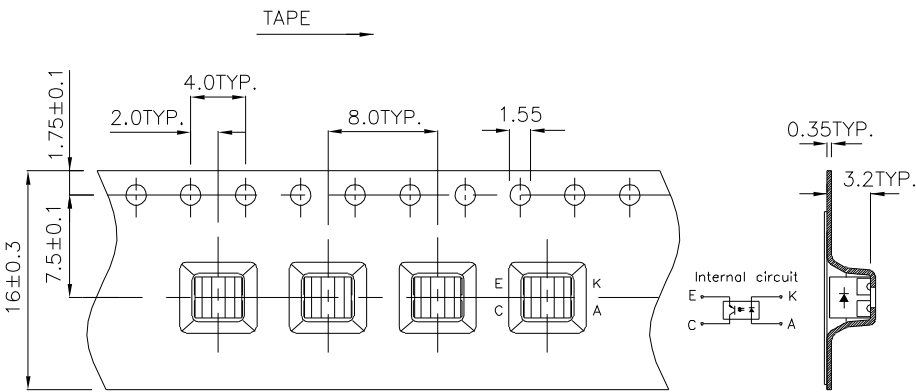
Test Circuit for Response Time



Reel Dimensions  
(Units: mm)

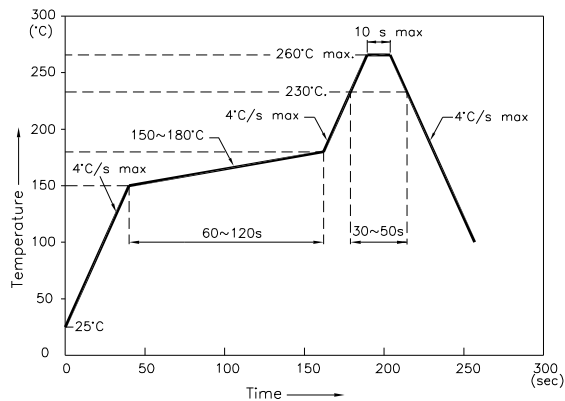


Tape Specifications  
(Units: mm)



Tape quantity 3000pcs/reel

Reflow Soldering Profile For Lead-free SMT Process.

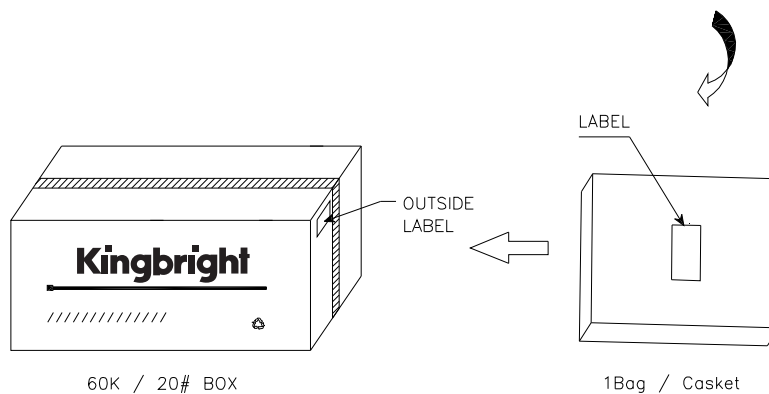
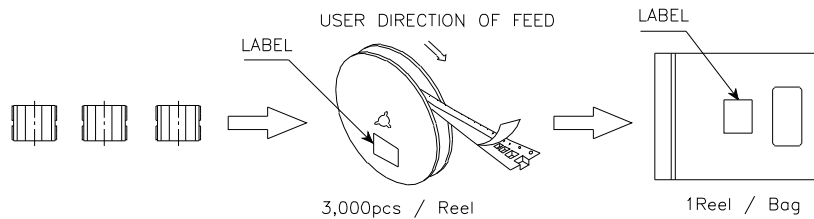


NOTES:

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

## KRB021



|                   |                                                                                                                     |
|-------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>Kingbright</b> |                                                                                                                     |
| P/NO: KRB021      |                                                                                                                     |
| QTY: 3,000 pcs    | Q.C. <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">Q.C.<br/>XX-XX-XXXX<br/>PASSED</span> |
| S/N: XXXX         | Date                                                                                                                |
| CODE: XXX         |                                                                                                                     |
| LOT NO:           |                                                                                                                     |
|                   |                                                                                                                     |
| MADE IN CHINA     | RoHS Compliant                                                                                                      |