**SUBMINIATURE, HIGH SENSITIVITY PHOTointerrupter**

*Features*

- Compact and thin.
- Visible light cut-off type.
- High sensitivity.
- Package: 1000 pcs/Reel.
- RoHS Compliant.

*Applications*

- Cassette tape recorders, VCRs.
- Floppy disk drives.
- Various microcomputerized control equipment.

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*Absolute Maximum Ratings*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Rating</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward current</td>
<td>I_f</td>
<td>50</td>
<td>mA</td>
</tr>
<tr>
<td>Reverse voltage</td>
<td>V_r</td>
<td>6</td>
<td>V</td>
</tr>
<tr>
<td>Power dissipation</td>
<td>P_d</td>
<td>75</td>
<td>mW</td>
</tr>
<tr>
<td>Peak Forward Current (Pulse Width ≤ 100μS, Duty Cycle = 1%)</td>
<td>I_{fp}</td>
<td>10</td>
<td>A</td>
</tr>
<tr>
<td>Output</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collector-emitter voltage</td>
<td>V_{CEO}</td>
<td>35</td>
<td>V</td>
</tr>
<tr>
<td>Emitter-collector voltage</td>
<td>V_{ECCO}</td>
<td>6</td>
<td>V</td>
</tr>
<tr>
<td>Collector current</td>
<td>I_c</td>
<td>20</td>
<td>mA</td>
</tr>
<tr>
<td>Collector power dissipation</td>
<td>P_c</td>
<td>75</td>
<td>mW</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>T_{op}</td>
<td>-25~+85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>T_{stg}</td>
<td>-40~+100</td>
<td>°C</td>
</tr>
<tr>
<td>Soldering temperature (1/16 inch from body for 5 seconds)</td>
<td>T_{sol}</td>
<td>260</td>
<td>°C</td>
</tr>
</tbody>
</table>

UNIT: MM [INCH]
TOLERANCE ±0.25 [± 0.01] UNLESS OTHERWISE NOTED.

**Applications**

- Cassette tape recorders, VCRs.
- Floppy disk drives.
- Various microcomputerized control equipment.

UNIT: MM [INCH]
TOLERANCE ±0.25 [± 0.01] UNLESS OTHERWISE NOTED.
# Electro-optical Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Min.</th>
<th>TYP.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>$V_F$</td>
<td>$I_F=20mA$</td>
<td>1.0</td>
<td>1.2</td>
<td>1.5</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Current</td>
<td>$I_R$</td>
<td>$V_R=6V$</td>
<td>-</td>
<td>-</td>
<td>10</td>
<td>μA</td>
</tr>
<tr>
<td>Peak Wavelength</td>
<td>$\lambda_P$</td>
<td>$I_R=20mA$</td>
<td>-</td>
<td>940</td>
<td>-</td>
<td>nm</td>
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<tr>
<td>Output</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collector Dark Current</td>
<td>$I_{CEO}$</td>
<td>$V_{CE}=20V$</td>
<td>-</td>
<td>$10^9$</td>
<td>$10^7$</td>
<td>A</td>
</tr>
<tr>
<td>Transfer characteristics</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*1 Collector Current</td>
<td>$I_C$</td>
<td>$V_{CE}=2V$</td>
<td>$I_F=4mA$</td>
<td>10</td>
<td>-</td>
<td>400</td>
</tr>
<tr>
<td>*2 Leak Current</td>
<td>$I_{LEAK}$</td>
<td>$V_{CE}=2V$</td>
<td>$I_F=4mA$</td>
<td>-</td>
<td>-</td>
<td>0.1</td>
</tr>
<tr>
<td>Response time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rise time</td>
<td>$t_r$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>μsec</td>
</tr>
<tr>
<td>Fall time</td>
<td>$t_f$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>μsec</td>
</tr>
</tbody>
</table>

*1 The condition and arrangement of the reflective object are shown below.

*2 Without reflective object.

## Classification table of radiant flux

<table>
<thead>
<tr>
<th>BIN CODE</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I_C$ (μA)</td>
<td>10~120</td>
<td>100~250</td>
<td>200~400</td>
</tr>
</tbody>
</table>

---

**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

Correspond to Fig. 7

All evaporated glass d

Correspond to Fig. 8
Test condition

I_r = 1mA
V_{oc} = 2V
d = 1mm

OMS card

White  Black

Correspond to Fig. 9
Test condition

I_r = 1mA
V_{oc} = 2V
d = 1mm

OMS card

White  Black

1100
1000
900
800
700
600

Relative sensitivity (R)

Wavelength A (nm)

Spectral Sensitivity
Part Number: KTIR0711S

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

Reel Dimension

Tape Specifications
(Units: mm)
PACKING & LABEL SPECIFICATIONS

USER DIRECTION OF FEED

LABEL

1,000PCS / REEL

LABEL

1 REEL / BAG

30K / 56# BOX

OUTSIDE LABEL

15K / 55# BOX

OUTSIDE LABEL

Kingbright

P/NO: KTIRXXX

QTY: 1,000 pcs

O.C.

S/N: XXXXX

CODE: XXX

LOT NO:

XXXXXXXXXXXXXXXXx

RoHS Compliant