### Features

1. Less influence on the colors of reflected objects and their reflectivity, due to optical triangle measuring method
2. Distance judgement type
   - Judgement distance: 80cm (Detection range: 20 to 150cm)
3. An external control circuit is not necessary
   - Output can be connected directly to a microcomputer

### Applications

1. For detection of human body and various types of objects in home appliances, OA equipment, etc

### Absolute Maximum Ratings

*(Ta=25°C)*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Rating</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage</td>
<td>Vcc</td>
<td>−0.3 to +7</td>
<td>V</td>
</tr>
<tr>
<td>*1 Output terminal voltage</td>
<td>V_o</td>
<td>−0.3 to Vcc +0.3</td>
<td>V</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>T_opr</td>
<td>−10 to +60</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>T_stg</td>
<td>−40 to +70</td>
<td>°C</td>
</tr>
</tbody>
</table>

*1 Open collector output

### Recommended Operating Conditions

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Rating</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Supply voltage</td>
<td>Vcc</td>
<td>4.5 to 5.5</td>
<td>V</td>
</tr>
</tbody>
</table>

### Outline Dimensions

(Unit: mm)

- The dimensions marked * are described the dimensions of lens center position.
- Unspecified tolerance: ±0.3mm

#### Notice

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Internet address for Electronic Components Group http://www.sharp.co.jp/ecg/
### 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>Distance measuring range</td>
<td>∆L</td>
<td><strong>2</strong> <strong>4</strong></td>
<td>20</td>
<td>–</td>
<td>150</td>
<td>cm</td>
</tr>
<tr>
<td>Output terminal voltage</td>
<td>V&lt;sub&gt;OH&lt;/sub&gt;</td>
<td><strong>2</strong> Output voltage at high level</td>
<td>V&lt;sub&gt;CC&lt;/sub&gt;–0.3</td>
<td>–</td>
<td>–</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>V&lt;sub&gt;OL&lt;/sub&gt;</td>
<td><strong>2</strong> Output voltage at low level</td>
<td>–</td>
<td>–</td>
<td>0.6</td>
<td>V</td>
</tr>
<tr>
<td>Distance characteristics of output</td>
<td>V&lt;sub&gt;O&lt;/sub&gt;</td>
<td><strong>2</strong> <strong>3</strong> <strong>5</strong></td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>cm</td>
</tr>
<tr>
<td>Average dissipation current</td>
<td>I&lt;sub&gt;CC&lt;/sub&gt;</td>
<td>–</td>
<td>–</td>
<td>33</td>
<td>50</td>
<td>mA</td>
</tr>
</tbody>
</table>

Note: L: Distance to reflective object
*2 Using reflective object: White paper (Made by Kodak Co. Ltd. gray cards R-27·white face, reflective ratio:90%)
*3 We ship the device after the following adjustment: Output switching distance L=80cm±10cm must be measured by the sensor
*4 Distance measuring range of the optical sensor system
*5 Output switching has a hysteresis width. The distance specified by V<sub>O</sub> should be the one with which the output L switches to the output H

#### Fig.1 Internal Block Diagram

![Internal Block Diagram](image)

#### Fig.2 Timing Chart

![Timing Chart](image)
Fig.3 Distance Characteristics

Distance to reflective object $L$ (cm)

Output switching point distance $L = 80 \pm 10$ cm

(Detection) (Non-detection)

Hysteresis width
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- Alarm equipment
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