TOSHIBA Photorelay
Evaluation board guidance

2019-04
Rev. 1.0
Evaluation board for checking photorelay operation

【SIP package mechanical relay】

Mounting area : 126 mm² (typ)

【Toshiba SOP6 package photorelay】

Mounting area : 44 mm² (typ)

66% miniaturization of mounting area with photorelay
Evaluation board for checking photorelay operation

Discover the benefits of replacing a mechanical relay with a Toshiba photorelay. This photorelay evaluation board replaces a mechanical relay by attaching directly to the mechanical relay mounting board (Refer to the diagram in Page 3 for the pin pattern of the compatible mechanical relay). The TLP3107 on-board is a high capacity type photorelay in a 2.54SOP6 package with VOFF 60 V / ION 3.3 A (@ Ta = 25 ℃). For the detailed TLP3107 information, please download the product datasheet.

<table>
<thead>
<tr>
<th></th>
<th>Mechanical relay (Signal relay)</th>
<th>Photorelay TLP3107</th>
<th>Remarks (Feature of Photorelay)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifetime</td>
<td>(With contact limit)</td>
<td>(No contact limit)</td>
<td>Long life</td>
</tr>
<tr>
<td>Contact Voltage (OFF Voltage)</td>
<td>AC125 V, DC 60 V</td>
<td>AC 24<del>32 V DC 48</del>60 V</td>
<td>Notes: operating voltage condition is different with mechanical relay and photorelay.</td>
</tr>
<tr>
<td>Contact Capacity</td>
<td>2A@Ta = 25℃ ~ 85℃</td>
<td>3.3A@Ta = 25℃</td>
<td>Notes: Photorelay need to consider degradation of on state current by temperature condition.</td>
</tr>
<tr>
<td>Contact Resistance (ON Resistance)</td>
<td>100 mΩ (Degraded by On/Off)</td>
<td>60 mΩ (Stable)</td>
<td>High reliability</td>
</tr>
<tr>
<td>Isolation Voltage</td>
<td>1.0 kVrms</td>
<td>1.5 kVrms</td>
<td>High isolation voltage</td>
</tr>
<tr>
<td>Operation / Release Time</td>
<td>5 ~ 10 ms</td>
<td>1 ~ 5 ms</td>
<td>High speed</td>
</tr>
<tr>
<td>Operation Sound</td>
<td>Exist</td>
<td>(no noise)</td>
<td>No noise</td>
</tr>
<tr>
<td>Miniaturization</td>
<td>126 mm²</td>
<td>44 mm²</td>
<td>Smaller size</td>
</tr>
<tr>
<td>Height</td>
<td>5 mm</td>
<td>2.1 mm</td>
<td>Smaller size</td>
</tr>
<tr>
<td>Input Power Consumption</td>
<td>(Coil)×100 mW~</td>
<td>(LED)around 0.5 mW~</td>
<td>Less power consumption</td>
</tr>
</tbody>
</table>
Evaluation board for checking photorelay operation

【Appearance of board】

【Terminal sequence】

【Driving guidance】

● Please apply the driving voltage 5V, 12V, 24V to the input side (coil side) with (+) to the pin#1 (pin#1 in TLP3107) and (-) to the pin#2 (pin#2 in TLP3107).

● The output side (contact side) is 1a contact form (AC/DC parallel using). The rating of photo relay is off voltage (60V) and on current (3.3A) at (Ta=25°C). Driving voltage is standard up to 48V DC and 32Vrms AC. The drive current should be within the maximum rating 3.3A (Ta=25°C).
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