Low-profile Lever Type

Low-profile, 1.2mm height, long travel type

### Typical Specifications

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating (max.)/(min.)</td>
<td>1mA 5V DC / 100μA 3V DC</td>
</tr>
<tr>
<td>Contact resistance</td>
<td></td>
</tr>
<tr>
<td>(Initial / After operating life)</td>
<td>30 max. / 50 max.</td>
</tr>
<tr>
<td>Operating force</td>
<td></td>
</tr>
<tr>
<td>Without load</td>
<td>50,000 cycles</td>
</tr>
<tr>
<td>With load</td>
<td>50,000 cycles (1mA 5V DC)</td>
</tr>
</tbody>
</table>

### Product Line

<table>
<thead>
<tr>
<th>Poles</th>
<th>Positions</th>
<th>Total travel (mm)</th>
<th>Terminal type</th>
<th>Location lug</th>
<th>Minimum order unit (pcs.)</th>
<th>Product No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1.93</td>
<td>For PC board</td>
<td>With</td>
<td>2,500</td>
<td>SPVR110102</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Reflow)</td>
<td>Without</td>
<td>10,000</td>
<td>SPVR120102</td>
</tr>
</tbody>
</table>

### Packing Specifications

<table>
<thead>
<tr>
<th>Taping</th>
<th>Number of packages (pcs.)</th>
<th>Tape width (mm)</th>
<th>Export package measurements (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 reel</td>
<td>2,500</td>
<td>18</td>
<td>417 × 409 × 139</td>
</tr>
<tr>
<td>1 case / Japan</td>
<td>5,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 case / export packing</td>
<td>10,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Dimensions

<table>
<thead>
<tr>
<th>Style</th>
<th>PC board mounting hole and land dimensions (Viewed from direction A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>With boss</td>
<td></td>
</tr>
</tbody>
</table>

### Terminal Layout

(Viewed from Direction A)

### Circuit Diagram

Refer to P.68 for soldering conditions.

Note:
Dimensions drawing is for type with location lugs.
## Detector Switches

### List of Varieties

<table>
<thead>
<tr>
<th>Series</th>
<th>General-purpose Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SPVS</td>
</tr>
</tbody>
</table>

**Photo**

<table>
<thead>
<tr>
<th>Operation type</th>
<th>Two-way</th>
<th>One-way</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>W</th>
<th>3.5</th>
<th>3.8</th>
<th>5.6</th>
<th>2.8</th>
<th>3.6</th>
<th>3.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>3.3</td>
<td>3.6</td>
<td>4.7</td>
<td>3.5</td>
<td>4.2</td>
<td>3</td>
<td>2.3</td>
</tr>
<tr>
<td>H</td>
<td>1</td>
<td>1.9</td>
<td>1.5</td>
<td>1.2</td>
<td>1.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating temperature range</th>
<th>−40°C to +85°C</th>
<th>−10°C to +60°C</th>
</tr>
</thead>
</table>

| Automotive use | ● | ● | ● | ● | ● | ● |

| Life cycle (availability) | ● | ● | ● | ● | ● | ● |

| Poles / Positions | 1/1 |

<table>
<thead>
<tr>
<th>Rating (max.) (Resistive load)</th>
<th>1mA 5V DC</th>
<th>50mA 20V DC</th>
<th>1mA 5V DC</th>
<th>0.1A 30V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating (min.) (Resistive load)</td>
<td>50μA 3V DC</td>
<td>100μA 3V DC</td>
<td>50μA 3V DC</td>
<td>50μA 3V DC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Durability</th>
<th>Operating life without load</th>
<th>50,000cycles 50 max.</th>
<th>100,000cycles 10 max.</th>
<th>50,000cycles 50 max.</th>
<th>50,000cycles 10 max.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Operating life with load (Rating max.) (Resistive load)</th>
<th>50,000cycles 50 max.</th>
<th>100,000cycles 10 max.</th>
<th>50,000cycles 50 max.</th>
<th>50,000cycles 10 max.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Electrical performance</th>
<th>Initial contact resistance</th>
<th>2Ω max.</th>
<th>500mΩ max.</th>
<th>2Ω max.</th>
<th>3Ω max.</th>
<th>30 max.</th>
<th>500mΩ max.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Mechanical performance</th>
<th>Terminal strength</th>
<th>0.5N for 1 minute</th>
<th>1N for 1 minute</th>
<th>0.5N for 1 minute</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actuator strength</td>
<td>5N</td>
<td>10N</td>
<td>5N</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental performance</th>
<th>Cold</th>
<th>−40°C 96h</th>
<th>−20°C 96h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry heat</td>
<td>85°C 96h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Damp heat</td>
<td>40°C, 90 to 95%RH 96h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operation force</th>
<th>0.35N max.</th>
<th>0.4N max.</th>
<th>0.35N max.</th>
<th>0.3N max.</th>
</tr>
</thead>
</table>

| Page | 16 | 19 | 21 | 24 | 26 | 27 |

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**Note:**

● Indicates applicability to all products in the series.
Example of Reflow Soldering Condition
2. Temperature measurement: Thermocouple φ0.1 to 0.2 CA (K) or CC (T) at soldering portion (copper foil surface).
   A heat resisting tape should be used for fixed measurement.
3. Temperature profile

<table>
<thead>
<tr>
<th>Series (Reflow type)</th>
<th>A (℃)</th>
<th>B (℃)</th>
<th>C (s)</th>
<th>D (℃)</th>
<th>E (℃)</th>
<th>F (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPBB</td>
<td>250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPVE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPVL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPVM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPNN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPVR</td>
<td>260</td>
<td>230</td>
<td>40</td>
<td>180</td>
<td>150</td>
<td>120</td>
</tr>
<tr>
<td>SPVS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPVT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSCM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSCQ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPVCQ</td>
<td>250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes
1. The conditions mentioned above are the temperature on the mounting surface of a PC board. There are cases where the PC board's temperature greatly differs from that of the switch, surface depending on the PC board's material, size, thickness, etc.
   The above-stated conditions shall also apply to switch surface temperatures.
2. Soldering conditions differ depending on reflow soldering machines.
   Prior verification of soldering condition is highly recommended.

Reference for Hand Soldering
(Fold PC board terminal types)

<table>
<thead>
<tr>
<th>Items</th>
<th>Preheating time</th>
<th>Soldering time</th>
<th>Duration of immersion</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPVS, SPVN, SPVT, SPVM, SPVR, SPVE, SSCQ, SSCM, SPVL, SSCT, SPVC</td>
<td>350±5℃</td>
<td>3s max.</td>
<td></td>
</tr>
<tr>
<td>SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SSCN, SPVQA</td>
<td>300±10℃</td>
<td>3 +1 / Os</td>
<td></td>
</tr>
<tr>
<td>SPPB (Reflow)</td>
<td>300±5℃</td>
<td>5s max.</td>
<td></td>
</tr>
<tr>
<td>SSCF, SPPB (For Lead, Dip)</td>
<td>350±10℃</td>
<td>3 +1 / Os</td>
<td></td>
</tr>
</tbody>
</table>

Reference for Dip Soldering
(For PC board terminal types)

<table>
<thead>
<tr>
<th>Items</th>
<th>Preheating time</th>
<th>Soldering time</th>
<th>Duration of immersion</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSCT, SPVQ3, SPVQ6, SPVQ7, SPVQ8, SPVQ9, SPVQA</td>
<td>100±10℃, 60s max</td>
<td>260±5℃, 5±1s</td>
<td></td>
</tr>
<tr>
<td>SPPW8, SPPB</td>
<td>100±5℃, 60s max</td>
<td>255±5℃, 5±1s</td>
<td></td>
</tr>
<tr>
<td>SSCF</td>
<td>–</td>
<td>260±5℃, 5±1s</td>
<td></td>
</tr>
</tbody>
</table>

References:
Detector Switches / Soldering Conditions