

Typical Specifications



| Items         | Specifications |
|---------------|----------------|
| Rating (max.) | 50mA 12V DC    |
| Rating (min.) | 10μA 1V DC     |

Product Line

| Product No. | Operating force |             | Travel (mm) |             | Operating life<br>(5mA 5V DC)                | Initial contact<br>resistance | Stem color | Guide<br>bosses | Minimum order unit (pcs.) |        |
|-------------|-----------------|-------------|-------------|-------------|--|-------------------------------|------------|-----------------|---------------------------|--------|
|             | 4-direction     | Center-push | 4-direction | Center-push |  |                               |            |                 | Japan                     | Export |
| SKRHAAE010  | 1.23N           | 2.35N       | 0.25        | 0.15        | 200,000<br>cycles<br>for each<br>direction   | 500mΩ<br>max.                 | Black      | Without         | 1,300                     | 1,300  |
| SKRHABE010  |                 |             |             |             |  |                               |            | With            |                           |        |
| SKRHACE010  | 1.2N            |             |             |             | 1,000,000<br>cycles<br>for each<br>direction | 100mΩ<br>max.                 | Natural    | Without         |                           |        |
| SKRHADE010  |                 |             |             |             |  |                               |            | With            |                           |        |

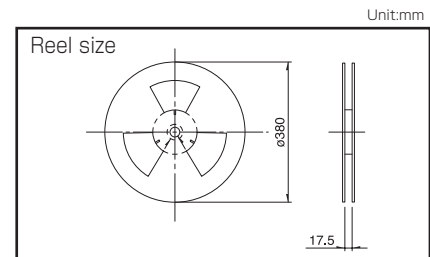
Note

4-directional operating force and travel are measured at 4.3mm height from the bottom of the switch.

Packing Specifications

Taping

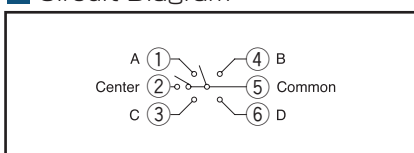
| Number of packages (pcs.) |                |                         | Tape width<br>(mm) | Export package<br>measurements (mm) |
|---------------------------|----------------|-------------------------|--------------------|-------------------------------------|
| 1 reel                    | 1 case / Japan | 1 case / export packing |                    |                                     |
| 1,300                     | 10,400         | 10,400                  | 16                 | 401×401×214                         |



Dimensions









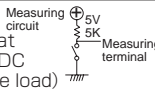

| Style      | PC board mounting hole and land dimensions<br>(Viewed from mounting face) |      |      |     |     |
|------------|---|------|------|-----|-----|
|            |   |      |      |     |     |
|            | x   | h    | a    | b   | c   |
| SKRHAAE010 | 7.35  | 1.8  | 2.14 | 1   | 8.6 |
| SKRHABE010 | 7.35  | 1.85 | 2.17 | 1.6 | 8.7 |
| SKRHACE010 | 7.45  | 1.85 | 2.17 | 1.6 | 8.7 |
| SKRHADE010 | 7.45  | 1.85 | 2.17 | 1.6 | 8.7 |

Circuit Diagram



# Multi Control Devices

## List of Varieties

| Type   |                             | Switch type   |  |   |   |   |
|--|-----------------------------|---|--|---|---|---|
| Series   |                             | SKRH  |  | SRBE  | SLLB5<br>Compact type   | SLLB  |
|  |                             | SKRHAA/AB   | SKRHAC/AD                              |   |   |   |
| Photo  |                             |    |  |    |     |    |
| Dimensions<br>(mm)                                 | W                           | 7.35/7.45   |  | —   | 9.5   | 11.8  |
|  | D                           | 7.5   |  | —   | 8.8   | 11.4  |
|  | H                           | 5   |  | —   | 2.2   | 3   |
| Shaft material                                     |                             | Resin   |  |   |   |   |
| Directional resolution                             |                             | 4-direction   |  | —   | 2-direction   |   |
| Directional operating feeling<br>(tactile feeling) |                             | With  |  |   | Without   |   |
| Lever return mechanism                             |                             | With  |  | Without   | With  |   |
| Center-push switch                                 |                             | With  |  |   |   |   |
| Encoder  |                             | Without   |  | With  | Without   |   |
| Operating temperature range                        |                             | -40℃ to +85℃  |  | -10℃ to +60℃  |   | -40℃ to +85℃  |
| Operating life                                     | Without load                | —   | —                                      | 100,000 cycles  |   |   |
|  | With load(10mA 5V DC)       | —   | —                                      | —   | 100,000 cycles  |   |
|  | With load(5mA 5V DC)        | 200,000 cycles<br>for each direction  | 1,000,000 cycles<br>for each direction | —   | —   | —   |
| Automotive use                                     |                             | —   |  | —   | —   | —   |
| Life cycle (availability)                          |                             |  |  |  |  |  |
| Rating (max.) (Resistive load)                     |                             | 50mA 12V DC   |  | 1mA 5V DC   | 10mA 5V DC  |   |
| Electrical performance                             | Output voltage              | —   |  | 1V max. at 1mA 5V DC<br>(Resistive load)  | —   |  |
|  | Encoder resolution          | —   |  | 6 pluses/360°   | —   |   |
|  | Insulation resistance       | 100MΩ min. 100V DC  |  | 10MΩ min. 50V DC  | 100MΩ min. 100V DC  |   |
|  | Voltage proof               | 100V AC for 1min.   |  | 50V AC for 1min.  | 100V AC for 1min.   |   |
| Mechanical performance                             | Directional operating force | 1.23±0.69N  | 1.2±0.69N                              | —   | 0.65±0.3N   |   |
|  | Push operating force        | 2.35±0.69N  |  | 3.5±1.5N  | 2.5±1N  | 2±1N  |
|  | Encoder detent torque       | —   |  | 3±2mN·m   | —   | —   |
|  | Terminal strength           | —   |  |   | 3N for 1min.  |   |
|  | Actuator strength           |  | —                                      | 50N   |   |   |
| 29.4N  |                             |   | —                                      | 10N   |   |   |
| Environmental performance                          | Cold                        | -40℃ 96h  |  | -30℃ 96h  | -20℃ 96h  | -40℃ 96h  |
|  | Dry heat                    | 90℃ 96h   |  | 85℃ 96h   |   |   |
|  | Damp heat                   | 60℃, 90 to 95%RH 96h  |  | 40℃, 90 to 95%RH 96h  |   |   |
| Page   |                             | 405   |  | 406   | 408   | 410   |

Switch Type Multi Control Devices Soldering Conditions . . . . . 412  
Switch Type Multi Control Devices Cautions . . . . . 413

## Reference for Manual Soldering

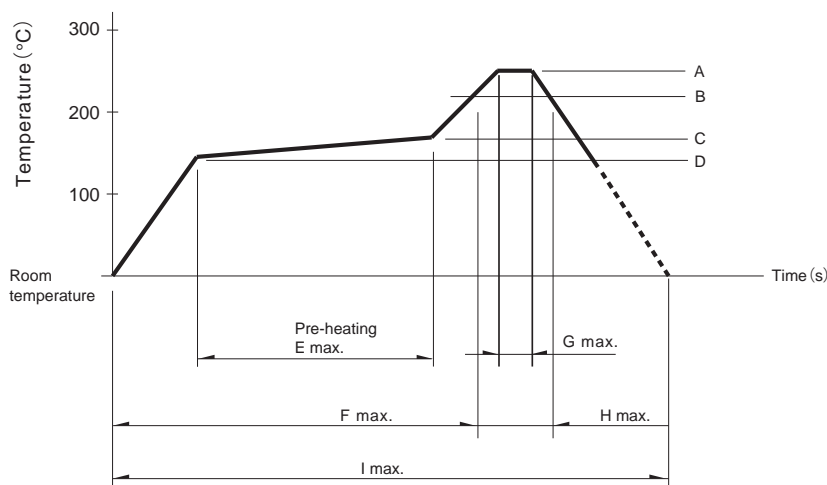
| Series  | Tip temperature | Soldering time | No. of solders |
|---|-----------------|----------------|----------------|
| <b>RKJXT1F, RKJXM, RKJXL, SLLB, SLLB5, SRBE, SKRH</b> | 350±5℃          | 3s max.        | 1 time         |

## Reference for Dip Soldering

| Series                | Preheating                    |              | Dip soldering         |                | No. of solders |
|-----------------------|-------------------------------|--------------|-----------------------|----------------|----------------|
|                       | Soldering surface temperature | Heating time | Soldering temperature | Soldering time |                |
| <b>RKJXT1F, RKJXM</b> | 100℃ max.                     | 2 min. max.  | 260±5℃                | 5±1s           | 2 time max.    |
| <b>RKJXL</b>          | 120℃ max.                     | 70s max.     | 260℃ max.             | 6s max.        | 2 time max.    |

## Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple  $\phi 0.1$  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



| Series                  | A    | B    | C    | D    | E      | F      | G | H   | I | No. of reflows |
|-------------------------|------|------|------|------|--------|--------|---|-----|---|----------------|
| <b>SLLB5</b>            | 250℃ | 230℃ | 150℃ | 150℃ | —      | 2 min. | — | 30s | — | 1 time         |
| <b>SKRH, SLLB, SRBE</b> | 260℃ | 230℃ | 180℃ | 150℃ | 2 min. | —      | — | 40s | — | 1 time         |

## Notes

1. The above temperature shall be measured on the mounting surface of a PC board. There are cases where the PC board's temperature greatly differs from that of the switch, depending on the material, size thickness of PC boards and others. 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.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Alps Alpine:

[SKRHABE010](#) [SKRHACE010](#) [SKRHADE010](#) [SKRHAAE010](#)