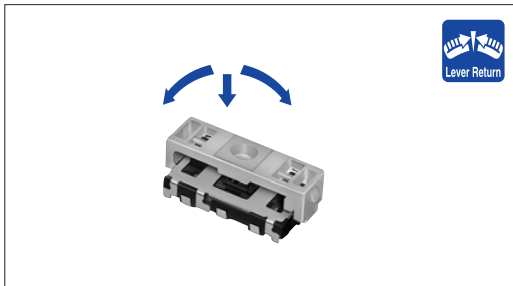


Multi Control Devices Lever and Push Operation Type Switch

SLLQ Series



Semicircular lever control and a push operation put together in one knob.



Features

- Composite operation with a single knob vertical type device.
- Reflow solderable.

Applications

- For selecting menus in personal digital assistants, electronic organizers, notebook PCs and mobile phones
- For selecting menus in remote controllers
- For DVD players/recorders, digital still cameras, digital camcorders, flat panel TVs and portable audio devices

Typical Specifications

Items		Specifications
Rating (max.) / (min.) (Resistive load)		10mA 5V DC/50 μ A 3V DC
Output voltage		1V max. at 1mA 5V DC (Resistive load)
Operating force	Lever portion	1 \pm 0.5N
	Push portion	2.6 \pm 1N
Travel (Push operation)		0.4mm
Operating life	Lever portion	100,000cycles
	Push portion	100,000cycles

Product Line

Mounting height (mm)	Operating angle (Lever operation)	Operating force (Push function) (N)	Minimum packing unit (pcs.)	Product No.	Drawing No.
4.2	15°	2.6 \pm 1	900	SLLQ110100	1
3.5	20°	2.6 \pm 1	1,400	SLLQ120100	2

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line
Package Type

Multi Control
Devices

TACT Switch™

Custom-
Products

Variable
Resistor Type

Switch
Type

Refer to **P.310** for product specifications.
Refer to **P.311** for taping package specifications.

Dimensions

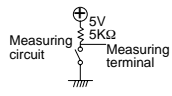
Unit:mm

- Detector
- Push
- Slide
- Rotary
- Encoders
- Power
- Dual-in-line Package Type
- Multi Control Devices**
- TACT Switch™
- Custom-Products

- Variable Resistor Type
- Switch Type**

No.	Style	PC board mounting hole and land dimensions (Viewed from switch mounting face)																												
1	<p>Mounting height 4.2mm</p> <p>Out put code</p> <table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Terminal</th> <th>1</th> <th>2</th> <th>C₁</th> <th>C₂</th> <th>T₁</th> <th>T₂</th> </tr> </thead> <tbody> <tr> <td>CW</td> <td>○</td> <td></td> <td>○</td> <td></td> <td></td> <td></td> </tr> <tr> <td>CCW</td> <td></td> <td>○</td> <td></td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>PUSH</td> <td></td> <td></td> <td></td> <td></td> <td>○</td> <td>○</td> </tr> </tbody> </table>	Terminal	1	2	C ₁	C ₂	T ₁	T ₂	CW	○		○				CCW		○		○			PUSH					○	○	
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CCW		○		○																										
PUSH					○	○																								

Product Specifications

Items	SKQU		SSAF	SRBE	SLLB ※	SLLB5 ※	SLLQ		
	SKQUAA, SKQUBA	SKQUCA, SKQUDB							
Detector	Operating temperature range		-30°C to +85°C			-10°C to +60°C		-40°C to +85°C	
Push	Rating (max.) (Resistive load)		50mA 12V DC	20mA 5V DC	1mA 5V DC	10mA 5V DC			
Slide	Output voltage		1V max. at 1mA 5V DC (Resistive load)						
Rotary	Directional resolution		4-direction	9-direction	—				
Encoders	Insulation resistance		100MΩ min. 100V DC	10MΩ min. 100V DC	50MΩ min. 50V DC	100MΩ min. 100V DC			
Power	Voltage proof		250V AC for 1minute	100V AC for 1minute	50V AC for 1minute	100V AC for 1minute			
Dual-in-line Package Type	Directional operating force		1.57 ^{+0.45} _{-0.59N}	1.57 ^{+0.39} _{-0.59N}	8-direction 0.5N ^{+0.5} _{-0.35} N	—		0.65±0.3N	1±0.5N
Multi Control Devices	Push operating force		—	3.14±0.59N	2.5 ^{+0.7} _{-0.5} N	3.5±1.5N	2±1N	2.5±1N	1.6±1N 2.6±1N
TACT Switch™	Encoder detent torque		—			3±2mN·m			—
Custom-Products	Terminal strength		29.4N for 1minute	49N for 1minute	—		3N for 1minute		
Variable Resistor Type	Switch Type	Actuator strength		Pushing direction		50N			30N
		Operating direction		50N		—			10N
Solder heat resistance	Manual soldering		350°C max. 3s max.	350±10°C 4 ⁺ ₀ s	350±5°C 3s max.				
	Dip soldering		260°C max. 5s max.	—					
	Reflow soldering		Please see P.311						
Endurance	Vibration		10 to 55 to 10Hz/min., the amplitude is 1.5mm for all the frequencies, in the 3 direction of X, Y and Z for 2 hours respectively						
	Operating life	Directional	50,000 cycles		100,000 cycles	500,000cycles	—		
		Center push	—		—	100,000cycles	—		
		Encoder	—		—				
Operating life without load		—				100,000cycles		100,000cycles	
Operating life with load (at rated load)		—				—		—	
Environmental test	Cold		-30±2°C for 96h		-40±2°C for 96h		-20±2°C for 96h		-40±2°C for 96h
	Dry heat		80±2°C for 96h		85±2°C for 96h				
	Damp heat		60±2°C, 90 to 95%RH for 96h		40±2°C, 90 to 95%RH for 96h				

Notes

1. Shall be in accordance with individual specifications.
2. ※ The operating temperature range for automotive applications can be raised upon request. Please contact us for requirements of this kind.

Soldering Conditions

Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple 0.1 to 0.2 CA(K) or CC(T) at solder joints copper foil surface) A heat resistive tape should be used to fix thermocouple.
3. Temperature profile



Series(Reflow type)	A() 3s max.	B()	C(s)	D()	E()	F(s)
SLLB, SLLB5, SLLQ	240	230	20	150	150	120
RKJXS/SKR/V/SKRH/SKQUBA,DB/SSAF/SRBE	260		40	180		

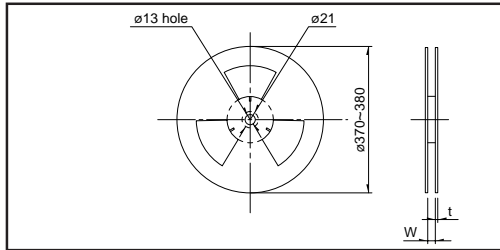
Notes

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.

Taping Specifications

Taping Packaging

Reel Size Unit:mm



Unit:mm

Applicable series	Tape dimensions
SKRH	*1
SKRV	
SKQUBA	*2
SKQUBB	

Series	Number of packages(pcs.)			Reel width W(mm)	Reel thickness t(mm)	Tape width (mm)	Tape dimensions
	1 reel	1 case (shipment within Japan)	1 case (shipment outside of Japan)				
SSAF	1,200	2,400	2,400	24.4	2	24	
SRBE	1,300	2,600	5,200	25.4	2	24	
SLLB	1,350	2,700	5,400	24.4	3	24	
SLLB5	1,500	3,000	6,000	24.4	3	24	
SLLQ11	900	1,800	3,600	24.4	3	24	
SLLQ12	1,400	2,800	5,600	24.4	3	24	
RKJXS	950	3,800	3,800	25.5	1.6 to 2	24	
SKRV	1,500	12,000	12,000	17.5	2	16	*1
SKRH	1,300	10,400	10,400	17.5	2	16	
SKQUBA	750	3,000	3,000	33.5	2	32	*2
SKQUBB	600	2,400	2,400	33.5	2	32	

Note

Please place purchase orders for taping products per minimum package units (1 reel or 1 case).