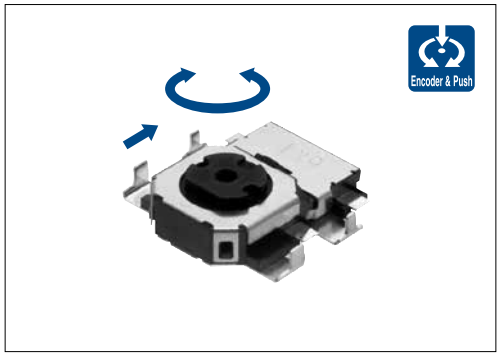
SRBE Encoder and Push Operation Type Switch

A compact multifunctional operating device that can be utilized on the side of the set device



Typical Specifications

Items		Specifications
Ratings (max.)/(min.) (Resistive load)		1mA 5V DC/50μA 3V DC
Output voltage	Jog portion	1V max. at 1mA 5V DC (Resistive load)
	Push portion	
Operating force (Push portion)		3.5±1.5N
Travel (Push operation)		0.2mm
Operating life	Jog portion	100,000 cycles
	Push portion	

Product Line

Product No.	Number of detent	Number of pulse	Operating direction	Mounting method	Rotational torque (Jog portion)	Minimum order unit (pcs.)		Drawing No.
						Japan	Export	
SRBE110301	12	6	Horizontal	Standard	3±2mN·m	1,500	6,000	1
SRBE210200				Low-profile		1,300	5,200	2

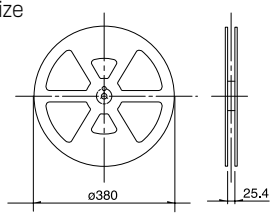
Packing Specifications

Taping

Product No.	Number of packages (pcs.)			Tape width (mm)	Export package measurements (mm)
	1 reel	1 case / Japan	1 case / export packing		
SRBE110301	1,500	3,000	6,000	24	428×413×172
SRBE210200	1,300	2,600	5,200		

Unit:mm

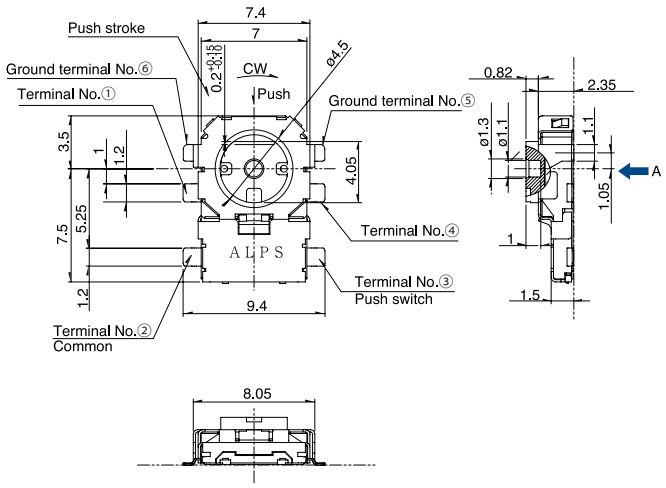
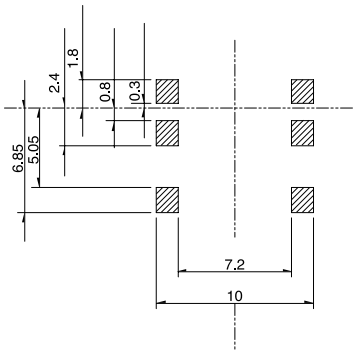
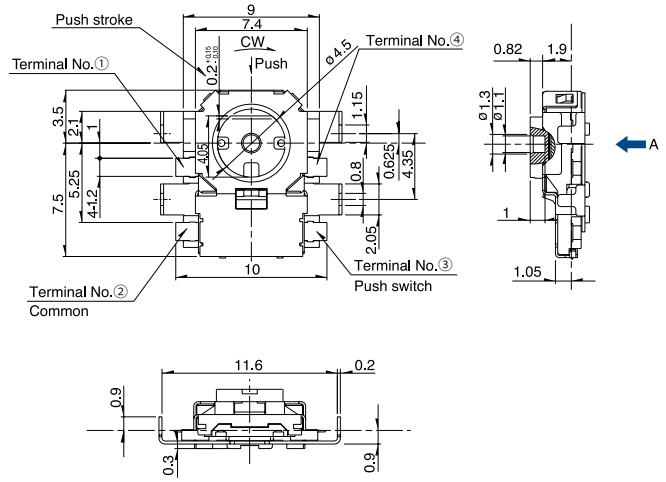
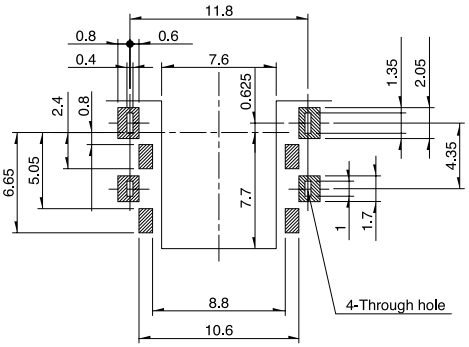
Reel size



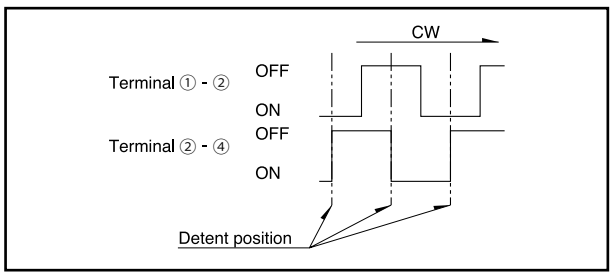
Refer to P.451 for soldering conditions.

Dimensions

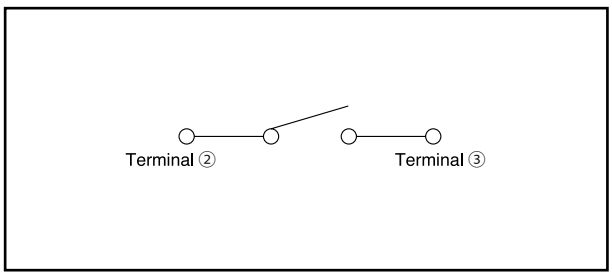
Unit:mm

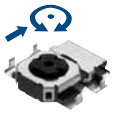
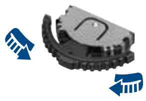
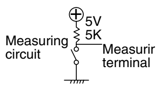
No.	Style	PC board mounting hole dimensions (Viewed from direction A)
1		
2		

Output Signal (Encoder)



Circuit Diagram



Type	Switch type		
Series	**SRBE**	**SLLB5** **Small type**	**SLLB**
Photo			
Dimensions (typical value) (mm) W	—	9.5	11.8
Dimensions (typical value) (mm) D	—	8.8	11.4
Dimensions (typical value) (mm) H	—	2.2	3
Number of operating shafts	Single-shaft		
Shaft material	Resin		
Directional resolution	—	2-direction	
Directional operating feeling (tactile feeling)	With	Without	
Lever return mechanism	Without	With	
Center-push switch	With		
Encoder	With	Without	
Operating temperature range	−10℃ to +60℃		−40℃ to +85℃
Operating life: Operating life without load	100,000 cycles		
Operating life: Operating life with load (at max. rated load)	—	100,000 cycles	
Automotive use	—	—	—
Life cycle (availability)			
Rating (max.) (Resistive load)	1mA 5V DC	10mA 5V DC	
Electrical performance: Output voltage	1V max. at 1mA 5V DC (Resistive load)	—	1V max. at 1mA 5V DC (Resistive load) 
Electrical performance: Encoder resolution	6 pluses/360°	—	
Electrical performance: Insulation resistance	10MΩ min. 50V DC	100MΩ min. 100V DC	
Electrical performance: Voltage proof	50V AC for 1min.	100V AC for 1min.	
Mechanical performance: Push operating force	—	0.65±0.3N	
Mechanical performance: Encoder detent torque	3.5±1.5N	2.5±1N	2±1N
Mechanical performance: Terminal strength	3±2mN·m	—	—
Mechanical performance: Terminal strength	—	3N for 1min.	
Mechanical performance: Actuator strength: Push / pull directions	50N		
Mechanical performance: Actuator strength: Operating direction	—	10N	
Environmental performance: Cold	−30℃ 96h	−20℃ 96h	−40℃ 96h
Environmental performance: Dry heat	85℃ 96h		
Environmental performance: Damp heat	40℃, 90 to 95%RH 96h		
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Reference for Manual Soldering

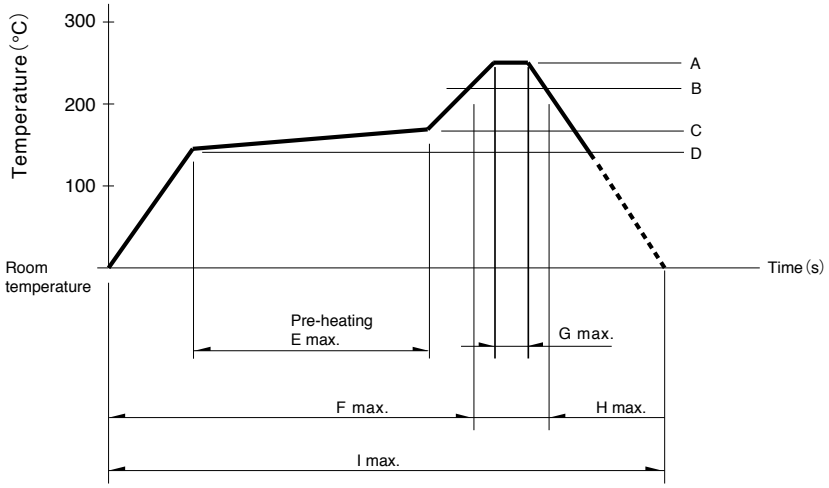
Series	Tip temperature	Soldering time	No. of solders
RKJXT1F, RKJXM, RKJXL, SLLB, SLLB5, SRBE, SKRH	350±5℃	3s max.	1 time
RKJXS	350±10℃	3^{+1}_{-0} s	2 time max.

Reference for Dip Soldering

Series	Preheating		Dip soldering		No. of solders
	Soldering surface temperature	Heating time	Soldering temperature	Soldering time	
RKJXT1F, RKJXM	100℃ max.	2 min. max.	260±5℃	5±1s	2 time max.
RKJXL	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 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



Series	A	B	C	D	E	F	G	H	I	No. of reflows
RKJXS	260℃	230℃	150℃	150℃	2 min.	—	10s	40s	4 min.	1 time
SLLB5	250℃	230℃	150℃	150℃	—	2 min.	—	30s	—	1 time
SKRH, SLLB, SRBE	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.