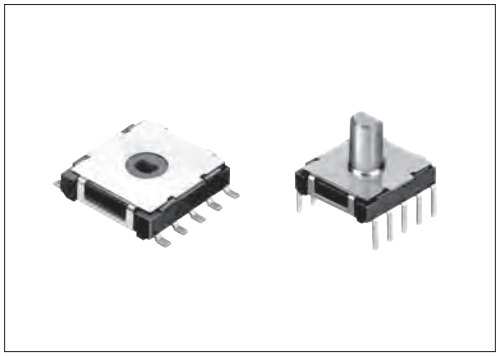
SRBQ 9-position Low-profile Vertical Type

Single-unit and dual-unit types suit a variety of controls



Typical Specifications

Items		Specifications
Rating (max.)/(min.) (Resistive load)		0.1A 16V DC / 50μA 3V DC
Contact resistance (Initial / After operating life)		50mΩ max. / 100mΩ max.
Rotational torque		6±3mN·m / 13±5mN·m
Total rotational angle	Without load	10,000 cycles
	With load	10,000 cycles (0.1A 16V DC)

Product Line

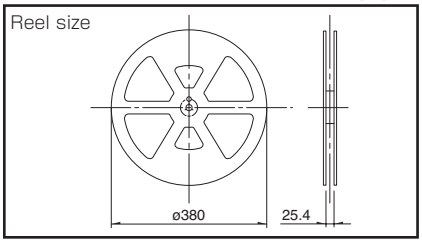
Poles	Positions	Changeover angle	Changeover timing	Rotational torque	Actuator configuration	Soldering	Actuator length (mm)	Minimum order unit (pcs.) Japan	Minimum order unit (pcs.) Export	Product No.	Drawing No.
1	9	40±3°	Non shorting	6±3mN·m	Flat	Insertion	5.8	1,215	4,860	**SRBQ090200**	1
				13±5mN·m						**SRBQ490100**	2
				6±3mN·m	Non shaft	Reflow	—	1,200	4,800	**SRBQ290301**	3

Packing Specifications

Taping

Series	Number of packages (pcs.) 1 reel	1 case /Japan	1 case /export packing	Tape width (mm)	Export package measurements (mm)
SRBQ290301	1,200	2,400	4,800	24	406×406×190

Unit:mm



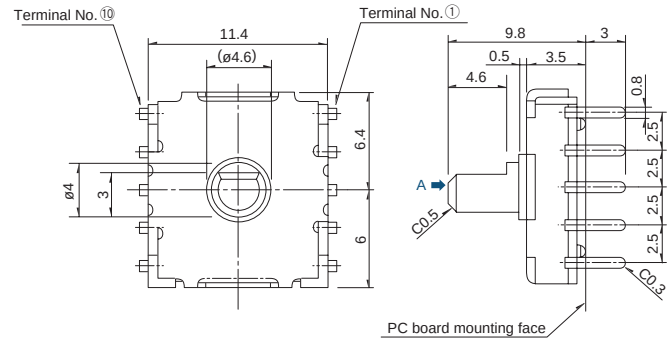
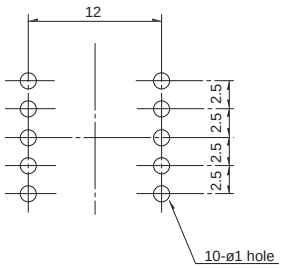
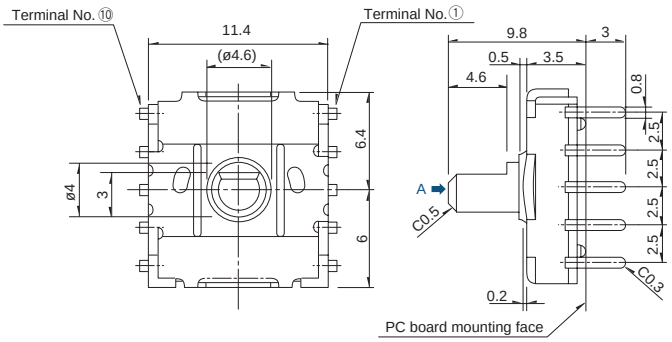
Tray

Series	Number of packages (pcs.) 1 case /Japan	1 case /export packing	Export package measurements (mm)
SRBQ090200 SRBQ490100	1,215	4,860	540×360×290

Dimensions

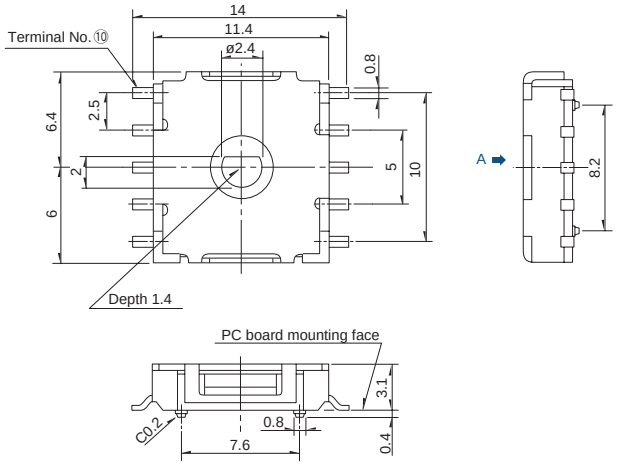
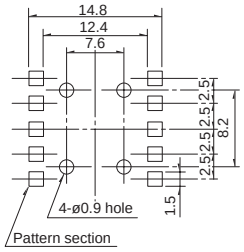
Insertion Type

Unit:mm

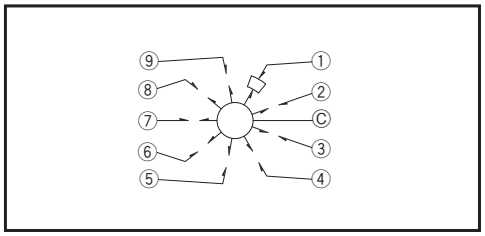
No.	Style	PC board mounting hole dimensions (Viewed from direction A)
1	**Standard torque** 	
2	**Heavy torque** 	

Reflow Type

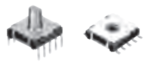
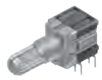
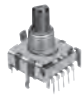
Unit:mm

No.	Style	PC board mounting hole and land dimensions (Viewed from direction A)
3		

Circuit Diagram (Viewed from Direction A)



List of Varieties

Series			SRBD	SRBQ		SRBM		SRBV	SRRM
				Insertion	Reflow type	Rotary	Pulse		
Photo									
Angle of throw			36°	40±3°		30±3°	18±3°	30±3°	
Number of poles			1			1, 2		1	1, 2 ,3, 4
Rotational torque			13±5mN·m	6±3mN·m 13±5mN·m		40±20mN·m 15±7mN·m		30±15mN·m	80±30mN·m (Shorting) 70±30mN·m (Non shorting)
Dimensions (mm)	W		10	11.4		10		16.2	—
	D			12.4		12.5		18.5	
	H		1.7	3.5		11		7.5	
Operating temperature range			−25℃ to +85℃	−10℃ to +60℃		−30℃ to +85℃		−10℃ to +85℃	−10℃ to +60℃
Automotive use			—	—		—		—	—
Life cycle			★1	★3		★3		★3	★3
Rating (max.)/(min.) (Resistive load)			1mA 5V DC 50μA 3V DC	0.1A 16V DC 50μA 3V DC				0.3A 16V DC 50μA 3V DC	0.25A 30V DC 50μA 3V DC
Durability	Operating life without load		10,000 cycles 250mΩ max.	10,000 cycles 100mΩ max.			30,000 cycles 100mΩ max.	10,000 cycles 100mΩ max.	10,000 cycles 40mΩ max.
	Operating life with load Load: as rating		10,000 cycles 250mΩ max.	10,000 cycles 100mΩ max.		10,000 cycles 150mΩ max.			10,000 cycles 60mΩ max.
Electrical performance	Initial contact resistance		200mΩ max.	50mΩ max.					20mΩ max.
	Insulation resistance		100MΩ min. 100V DC						100MΩ min. 500V DC
	Voltage proof		100V AC for 1minute						500V AC for 1minute
Mechanical performance	Terminal strength		3N for 1minute	5N for 1minute					10N for 1minute
	Actuator strength	Operating direction	—	—		0.5N·m	—	0.6N·m	1N·m
		Pulling direction	50N	20N		100N			
	Wobble of actuator		Load at the tip of shaft　SRRM, SRBM, SRBQ, SRBV : 1N (see tables below)						
Environmental performance	Cold		−40℃ 500h	−20℃ 96h		−40℃ 96h		−20℃ 96h	
	Dry heat		85℃ 500h	85℃ 96h					
	Damp heat		60℃, 90 to 95%RH 500h	40℃, 90 to 95%RH 96h					
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Wobble of actuator — Load at the tip of shaft　SRRM, SRBM, SRBQ, SRBV : 1N

The below table shows for SRRM, SRBM

Measuring position from mounting surface	Shaft wobble (max. value)	Applicable mounting dimension
10	0.17	15
15	0.25	20
20	0.35	25
25	0.42	30
30	0.5	above 35

The below table shows for SRBQ

Distance from mounting surface to the tip of shaft	Shaft wobble (max. value)
below 5	0.5
above 5 and below 10	0.9
above 10 and below 15	1.2

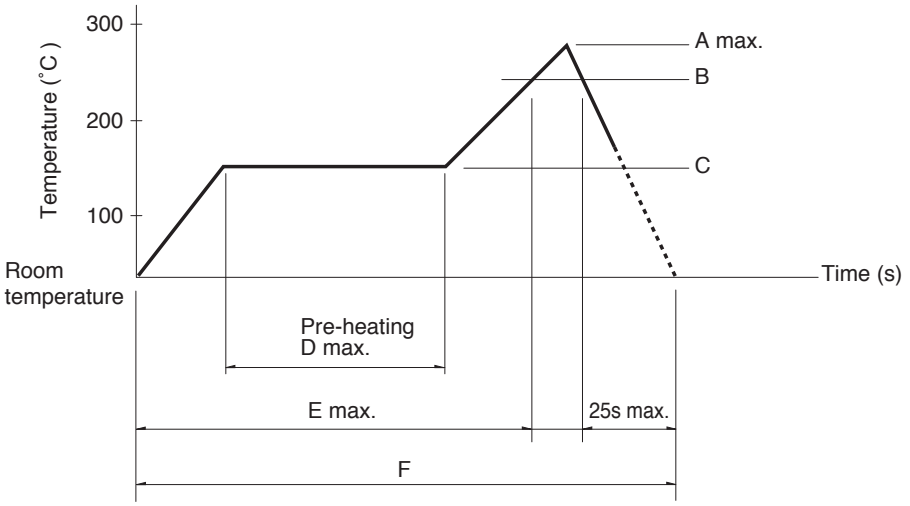
The below table shows for SRBV

Measuring position from mounting surface	Shaft wobble (max. value)	Applicable mounting dimension
10	0.2	15
15	0.3	20
20	0.4	25

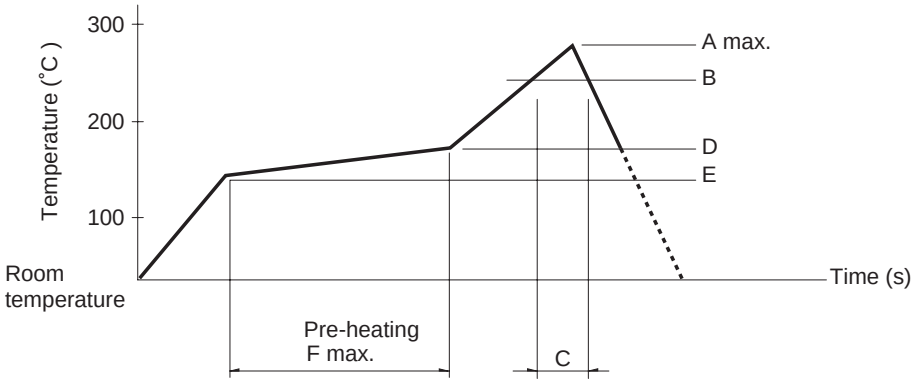
Unit:mm

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 (Reflow type)	A (℃) 3s max.	B (℃)	C (℃)	D (s)	E (s)	F (s)
SRBQ	250	200	150±5	80 to 100	—	—



Series (Reflow type)	A (℃) 3s max.	B (℃)	C (s)	D (℃)	E (℃)	F (s)
SRBD	260	230	40	180	150	120

Notes 1.The condition mentioned above is 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, 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

Series	Soldering temperature	Soldering time
SRBQ, SRBM, SRBV, SRRM	350±10℃	3+1/0s
SRBQ (Reflow type)	350±5℃	3s max.

Reference for Dip Soldering

(For PC board terminal types)

Series	Items		Dip soldering	
	Preheating temperature	Preheating time	Soldering temperature	Duration of immersion
SRBM	100℃ max.	60s max.	260±5℃	5s max.
SRBV, SRRM	—		260±5℃	10±1s
SRBQ	—		260±5℃	5±1s

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