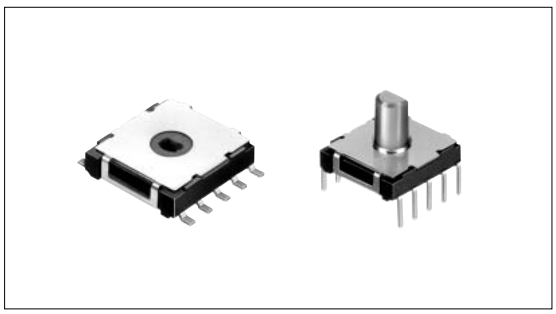
9-position Low-profile Vertical Type

SRBQ Series

RoHS compliant

Low-profile rotary switch with unique detent mechanism contributes to a lighter operating feel.



Typical Specifications

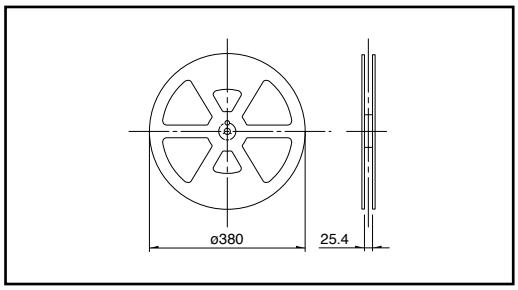
Items		Specifications
Rating (max.) / (min.) (Resistive load)		0.1A 16V DC/50μA 3V DC
Contact resistance (Initial/After operating life)		50mΩ max./100mΩ max.
Rotational torque		6±3mN·m/13±5mN·m
Operating life	Without load	10,000cycles
	With load	10,000cycles (0.1A 16V DC)

Product Line

Poles	Positions	Changeover angle	Changeover timing	Rotational torque	Actuator configuration	Soldering	Actuator length (mm)	Minimum order unit (pcs.)	Product No.	Drawing No.
1	9	40±3°	Non shorting	6±3mN·m	Flat	Insertion	5.1	2,000	SRBQ090200	1
				13±5mN·m					SRBQ490100	2
				6±3mN·m	Non shaft	Reflow	—	4,800	SRBQ290301	3

Taping Specification (Taping Packeging)

Reel Size Unit:mm



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

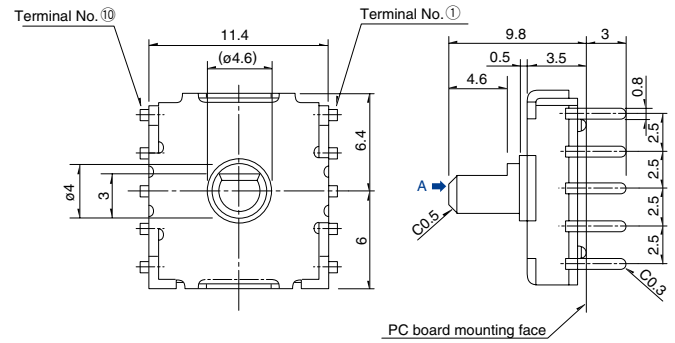
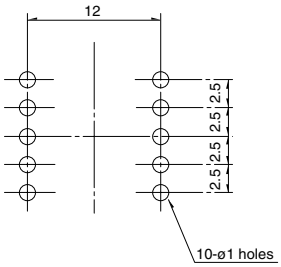
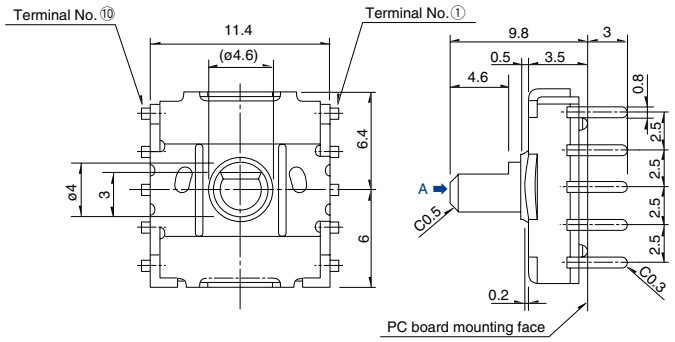
Notes

1. Products other than those listed in the above chart are also available. Please contact us for details.
2. Please place purchase orders per minimum order unit(integer).

Dimensions

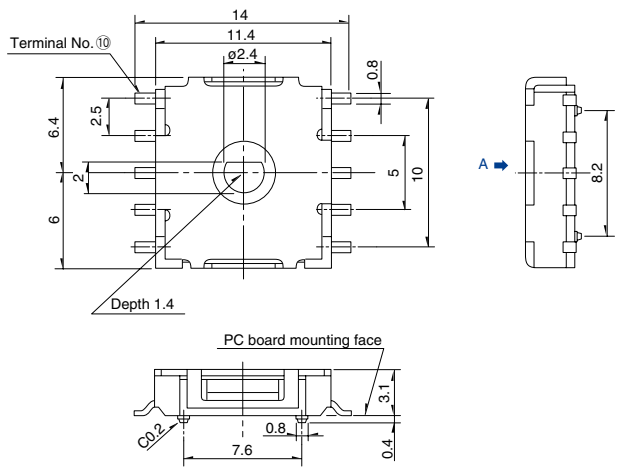
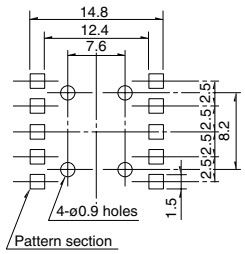
Insertion Type

Unit:mm

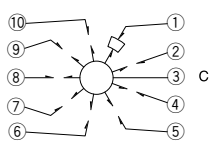
No.	Style	PC board mounting hole dimensions (Viewed from the direction A)
1	**Standard torque** 	
2	**Heavy torque** 	

Reflow Type

Unit:mm

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

Circuit Diagram (Viewed from Direction A)



List of Varieties

Series			SRBD	SRBQ Insertion	SRBQ Reflow type	SRRM	SRBV	SRBM Rotary	SRBM Pulse	SRRN
Photo										
Outline specifications	Step angle		36 °	40±3 °		30±3 °			18±3 °	30±3 °
	Number of poles		1			1 2 3 4	1	1 2		2 3 4
Dimensions (mm)	W		10	11.4		———	16.2	12.5		———
	D			12.4			18.5	10		
	H		1.7	3.5			7.5	11.5		
Operating temperature range			-25℃ to +85℃	-10℃ to +60℃			-40℃ to +85℃			-10℃ to +60℃
Rating(max)/(min) (Resistive load)			1mA 5V DC 50μA 3V DC	0.1A 16V DC 50μA 3V DC		0.25A 30V DC 50μA 3V DC	0.3A 16V DC 50μA 3V DC	0.1A 16V DC 50μA 3V DC		0.15A 12V DC 50μA 3V DC
Electrical performance	Initial contact resistance		100MΩ min. 100V DC			100MΩ min. 500V DC	100MΩ min. 100V DC			100MΩ min. 500V DC
	Insulation resistance		100V AC for 1minute			500V AC for 1minute	100V AC for 1minute			500V AC for 1minute
	Voltage proof		3N for 1minute	5N for 1minute		10N for 1minute	5N for 1minute			
Mechanical performance	Actuator strength	Rotational direction	———			1N·m	0.6N·m	0.5N·m	——	1N·m
		Push direction	50N	20N		100N				
	Wobble of actuator		Load at the tip of shaft SRRM : 5N SRBV, SRBQ : 1N (Unit : mm) Measuring position from mounting surface / Shaft wobble (max. value) / Applicable mounting dimension 10 / 0.17 / 15 15 / 0.25 / 20			The below table shows for SRBQ (Unit : mm) Distance from mounting surface to the tip of shaft / Shaft wobble (max.value) below 5 / 0.5 max. above 5 and below 10 / 0.9 max. above 10 and below 15 / 1.2 max.	The below table shows for SRBV (Unit : mm) Measuring position from mounting surface / Shaft wobble (max. value) / Applicable mounting dimension 10 / 0.2 / 15 15 / 0.3 / 20	Measuring position from mounting surface / Shaft wobble (max. value) / Applicable mounting dimension 10mm / 0.17 mm / 15 mm 15mm / 0.25 mm / 20 mm Load at the tip of shaft : 5N		
Durability	Operating life without load		10,000cycles 250mΩ max.	10,000cycles 100mΩ max.		10,000cycles 40mΩ max.	10,000cycles 100mΩ max.		30,000cycles 100mΩ max.	10,000cycles 70mΩ max.
	Operating life with load Load : (at rated load)		10,000cycles 250mΩ max.	10,000cycles 100mΩ max.		10,000cycles 60mΩ max.	10,000cycles 150mΩ max.			10,000cycles 100mΩ max.
Environmental performance	Cold		-40±2℃ for 500h	-20±2℃ for 96h						
	Dry heat		85±2℃ for 500h	85±2℃ for 96h						
	Damp heat		60±2℃, 90 to 95%RH for 500h	40±2℃, 90 to 95%RH for 96h						
Soldering	Manual soldering		———	350±10℃ 3$^{+1}_{0}$s	350±5℃ 3s max.	350±10℃, 3$^{+1}_{0}$s				
	Dip soldering		———	260±5℃ 5±1s	——	260±5℃ 10±1s		260±3℃ 5s max.		260±5℃ 10±1s
	Reflow soldering		Please see P.172	———						
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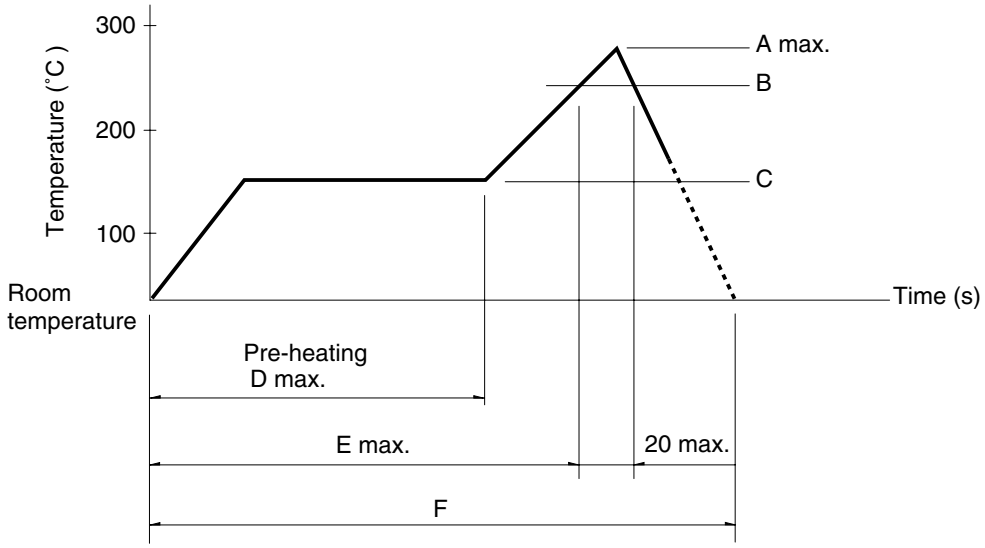
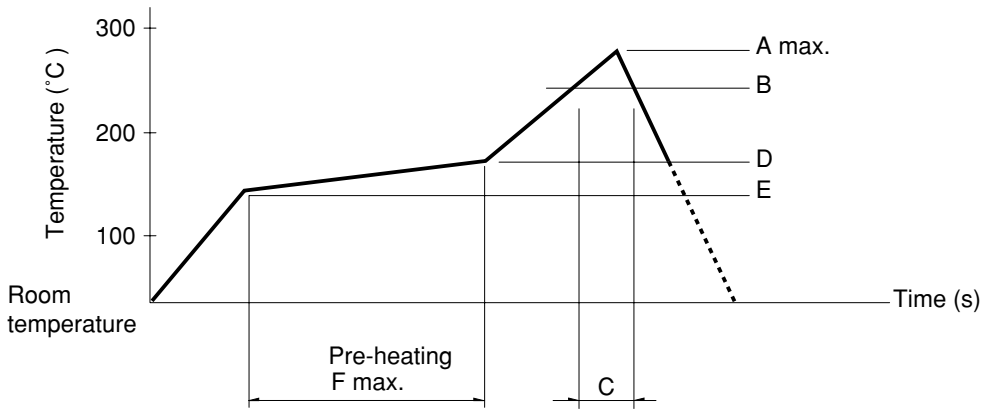
Soldering Conditions

Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple 0.1 to 0.2φ 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 (°C) 3s max.	B (°C)	C (°C)	D (s)	E (s)	F (s)
SRBQ	240	230	150	120	—	—



Series (Reflow type)	A (°C) 3s max.	B (°C)	C (s)	D (°C)	E (°C)	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.