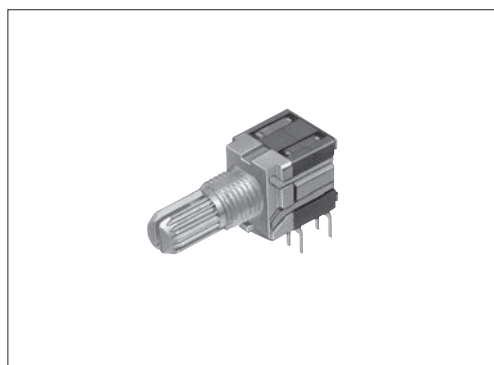


Pulse switching (20 pulses) model
available in same shape



■ Typical Specifications



Items		Specifications	
		Rotary switch	Pulse switch
Rating (max.)/(min.) (Resistive load)		0.1A 16V DC / 50μA 3V DC	
Contact resistance (Initial / After operating life)		50mΩ max. / 150mΩ max.	
Rotational torque		40±20 mN·m	15±7 mN·m
Operating life	Without load	10,000 cycles	30,000 cycles
	With load	10,000 cycles (0.1A 16V DC)	

■ Product Line

Number of wafers	Poles	Positions	Changeover angle	Changeover timing	Actuator configuration	Actuator length (mm)	Minimum order unit (pcs.)		Product No.	Drawing No.
							Japan	Export		
1	2	2	30±3°	Non shorting	18-tooth serration	L=15	200	1,600	SRBM120700	1
					Flat				SRBM121300	
		3			18-tooth serration	L=20	150	1,200	SRBM131400	
						L=15	200	1,600	SRBM140700	
		4			Flat	L=20	150	1,200	SRBM140800	
						SRBM149501				
	1	5	18±3°	—	18-tooth serration	L=15	200	1,600	SRBM150500	2
					Flat				SRBM154002	
		6			18-tooth serration				SRBM160700	
					SRBM1L0800					
		20 pulses			Flat				SRBM1L1400	

Note

All the axis are die casting shafts.

■ Packing Specifications

Tray

Product No.	Number of packages (pcs.)		Export package measurements (mm)
	1 case / Japan	1 case / export packing	
SRBM120700 SRBM121300 SRBM131300 SRBM140700 SRBM150500 SRBM154002 SRBM160700 SRBM1L0800 SRBM1L1400	200	1,600	400×270×290
SRBM131400 SRBM140800 SRBM149501	150	1,200	

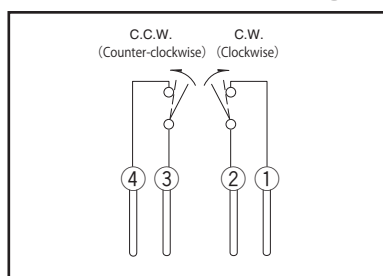
Refer to P.147 for shaft configurations.
Refer to P.156 for soldering conditions.

Single-shaft Type

Unit:mm

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

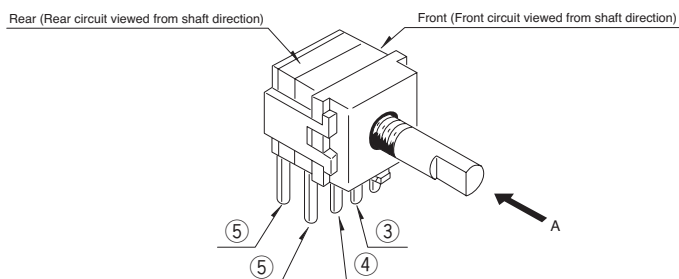
■ Pulse Switch Circuit Diagram



C.W. : ①② ON during changeover only
C.C.W. : ③④ ON during changeover only

■ Rotary Switch Circuit Diagram

(Viewed from Direction A of Below Diagram)



2 to 4-position		5-position * 1		6-position * 2	
Rear	Front	Rear	Front	Rear	Front

Notes

1. For position 2 to 4, 1 section consists of 2-pole.
2. For position 5 and 6, 1 section consists of 1-pole.
 - ※ 1: Circuit steps are position 2 to 5 at front and position 1 to 4 at rear. (External wiring to common terminal is required.)
 - ※ 2: Circuit steps are position 3 to 6 at front and position 1 to 4 at rear. (External wiring to common terminal is required.)

Rotary Switches

List of Varieties

Series		SRBD	SRBQ		SRBM		SRBV	SRRM	SRRN	
			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	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)	70±30mN·m	
Dimensions (mm)	W	10	11.4	10		16.2	—	—		
	D		12.5		18.5					
	H		11		7.5					
Operating temperature range		−25℃ to +85℃	−10℃ to +60℃		−30℃ to +85℃		−10℃ to +85℃	−10℃ to +60℃	−30℃ to +65℃	
Automotive use		—	—				—	—	—	
Life cycle										
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	0.15A 12V 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.	10,000 cycles 70mΩ 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.	10,000 cycles 100mΩ max.		
Electrical performance	Initial contact resistance	200mΩ max.	50mΩ max.					20mΩ max.	50mΩ 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	5N 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, SRRN: 5N, SRBQ, SRBV: 1N								
		The below table shows for SRRM, SRBM, SRRN			The below table shows for SRBQ			The below table shows for SRBV		
		Measuring position from mounting surface	Shaft wobble (max. value)	Applicable mounting dimension	Distance from mounting surface to the tip of shaft	Shaft wobble (max. value)	Measuring position from mounting surface	Shaft wobble (max. value)	Applicable mounting dimension	
		10	0.17	15	below 5	0.5	10	0.2	15	
		15	0.25	20	above 5 and below 10	0.9	15	0.3	20	
20		0.35	25	above 10 and below 15	1.2	20	0.4	25		
Unit:mm										
Environmental performance	Cold	−40℃ 500h	−20℃ 96h		−40℃ 96h		−20℃ 96h		−40℃ 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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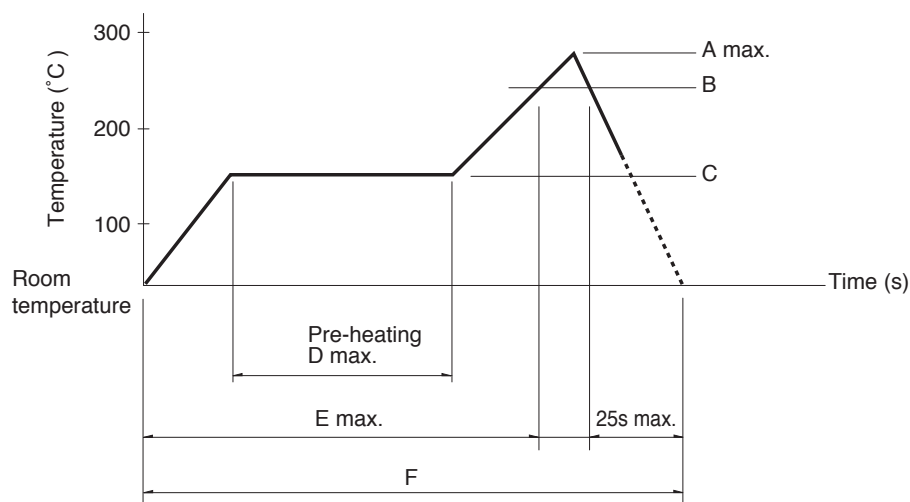
Note

- Indicates applicability to all products in the series.

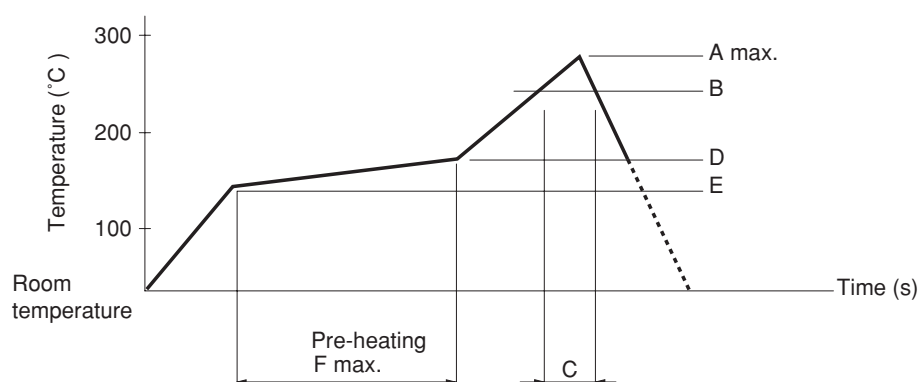
Rotary Switches Soldering Conditions

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



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.

Reference for Hand Soldering

Series	Soldering temperature	Soldering time
SRBQ, SRBM, SRBV, SRRM, SRRN	350±10°C	3+1/0s
SRBQ (Reflow type)	350±5°C	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°C max.	60s max.	260±5°C	5s max.
SRBV, SRRM, SRRN	—	—	260±5°C	10±1s
SRBQ	—	—	260±5°C	5±1s