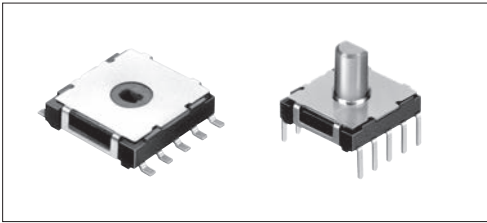


Single-unit and dual-unit types suit a variety of controls.

- Detector
- Slide
- Push
- Rotary**
- Encoders
- Power
- Dual-in-line Package Type
- TACT Switch™



**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	10,000cycles
	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.
								Japan	Export		
1	9	40±3°	Non shorting	6±3mN·m	Flat	Insertion	5.8	100	2,000	SRBQ090200	1
				13±5mN·m						SRBQ490100	2
				6±3mN·m	Non shaft	Reflow	—	1,200	4,800	SRBQ290301	3

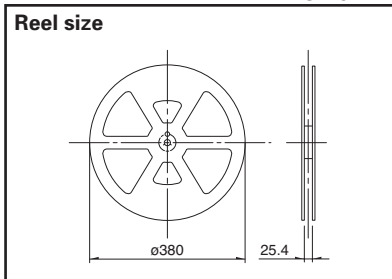
**Note**

Other varieties are also available. Please inquire.

**Packing Specifications**

**Taping**

Unit:mm



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

**Bulk**

Series	Number of packages (pcs.)		Export package measurements (mm)
	1 case / Japan	1 case / export packing	
SRBQ090200	1,000	2,000	506 × 455 × 147
SRBQ490100			

**Dimensions**

Insertion Type

Unit:mm

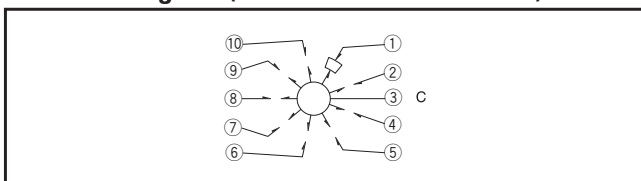
No.	Style	PC board mounting hole dimensions (Viewed from direction A)
1	<p><b>Standard torque</b></p>	
2	<p><b>Heavy torque</b></p>	

**Reflow Type**

Unit:mm

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















**Circuit Diagram (Viewed from Direction A)**



- Detector
- Slide
- Push
- Rotary**
- Encoders
- Power
- Dual-in-line Package Type
- TACT Switch™

# 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		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 (Shoting) 70±30mN·m (Non shorting)	70±30mN·m																																						
Dimensions (mm)	W	11.4		10		16.2	—	—																																						
	D	12.4		12.5		18.5																																								
	H	3.5		11		7.5																																								
Operating temperature range	-25°C to +85°C	-10°C to +60°C		-30°C to +85°C		-10°C to +85°C	-10°C to +60°C	-30°C to +65°C																																						
Automotive use	—	—		●		—	—	—																																						
Life cycle																																														
Rating(max.)/(min.) (Resistive load)	1mA 5V DC 50 μA 3V DC	0.1A 16V DC 50 μA 3V DC				0.3A 16V DC 50 μA 3V DC	0.25A 30V DC 50 μA 3V DC	0.15A 12V DC 50 μA 3V DC																																						
Durability	Operating life without load	10,000cycles 250mΩ max.	10,000cycles 100mΩ max.		30,000 cycles 100mΩ max.	10,000cycles 100mΩ max.	10,000cycles 40mΩ max.	10,000cycles 70mΩ max.																																						
	Operating life with load Load as rating	10,000cycles 250mΩ max.	10,000cycles 100mΩ max.		10,000cycles 150mΩ max.		10,000cycles 60mΩ max.	10,000cycles 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	<p>Load at the tip of shaft SRRM, SRBM, SRRN: 5N, SRBQ, SRBV: 1N</p> <p>The below table shows for SRRM, SRBM, SRRN (Unit: mm)</p> <table border="1" data-bbox="422 1563 742 1787"> <thead> <tr> <th>Measuring position from mounting surface</th> <th>Shaft wobble (max. value)</th> <th>Applicable mounting dimension</th> </tr> </thead> <tbody> <tr><td>10</td><td>0.17</td><td>15</td></tr> <tr><td>15</td><td>0.25</td><td>20</td></tr> <tr><td>20</td><td>0.35</td><td>25</td></tr> <tr><td>25</td><td>0.42</td><td>30</td></tr> <tr><td>30</td><td>0.5</td><td>above 35</td></tr> </tbody> </table> <p>The below table shows for SRBQ (Unit: mm)</p> <table border="1" data-bbox="774 1563 1029 1720"> <thead> <tr> <th>Distance from mounting surface to the tip of shaft</th> <th>Shaft wobble (max. value)</th> </tr> </thead> <tbody> <tr><td>below 5</td><td>0.5</td></tr> <tr><td>above 5 and below 10</td><td>0.9</td></tr> <tr><td>above 10 and below 15</td><td>1.2</td></tr> </tbody> </table> <p>The below table shows for SRBV (Unit: mm)</p> <table border="1" data-bbox="1061 1563 1380 1720"> <thead> <tr> <th>Measuring position from mounting surface</th> <th>Shaft wobble (max. value)</th> <th>Applicable mounting dimension</th> </tr> </thead> <tbody> <tr><td>10</td><td>0.2</td><td>15</td></tr> <tr><td>15</td><td>0.3</td><td>20</td></tr> <tr><td>20</td><td>0.4</td><td>25</td></tr> </tbody> </table>								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	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	Measuring position from mounting surface	Shaft wobble (max. value)	Applicable mounting dimension	10	0.2	15	15	0.3	20	20	0.4
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15	0.3	20																																												
20	0.4	25																																												
Environmental performance	Cold	-40±2°C for 500h	-20±2°C for 96h	-40±2°C for 96h		-20±2°C for 96h		-40±2°C for 96h																																						
	Dry heat	85±2°C for 500h																																												
	Damp heat	60±2°C, 90 to 95%RH for 500h																																												
Page	140	142	144	147	149	151																																								

- Rotary Switches Soldering Conditions . . . . . 153
- Rotary Switches Cautions . . . . . 154

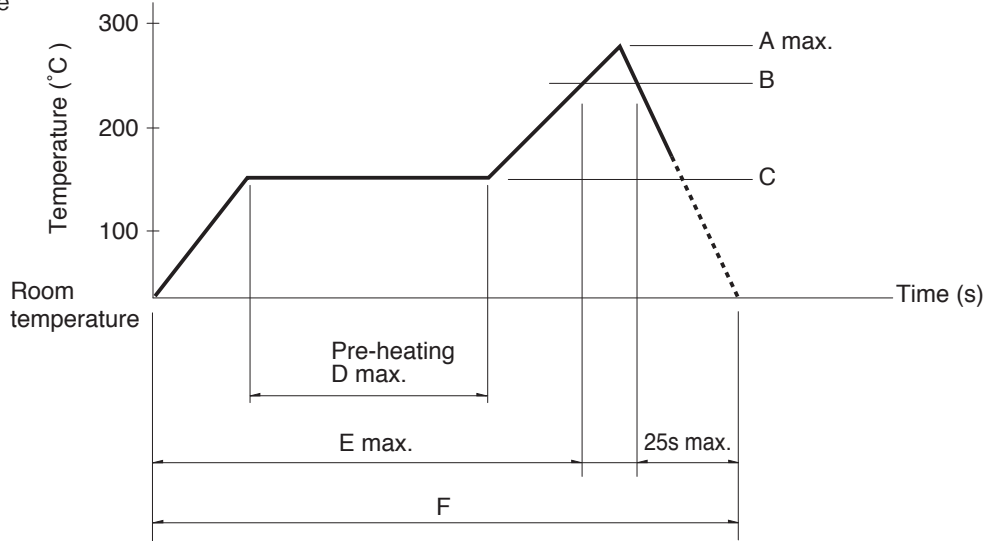
**Note** ● indicates applicability to all products in the series.

Detector  
Slide  
Push  
**Rotary**  
Encoders  
Power  
Dual-in-line Package Type  
TACT Switch™

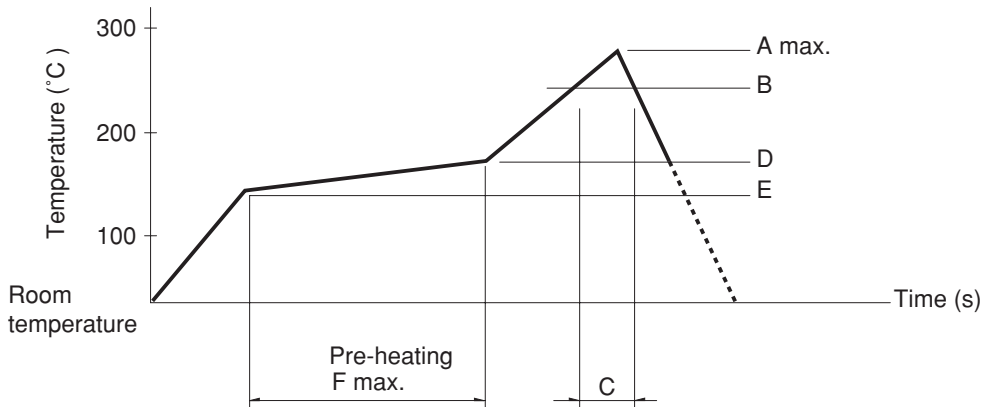
# Rotary Switches Soldering Conditions

## Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple 0.1 to 0.2 φ 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±10°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