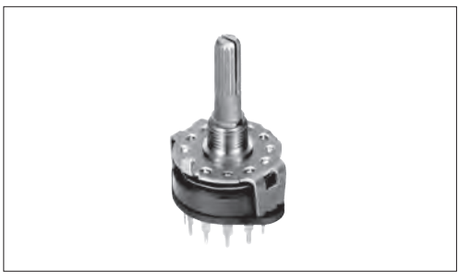
SRRM 12-position General-purpose Vertical Type

General-purpose type switch applicable to a wide range of electronic devices



Typical Specifications

Items		Specifications
Rating (max.)/(min.) (Resistive load)		0.25A 30V DC / 50μA 3V DC
Contact resistance (Initial / After operating life)		20mΩ max. / 60mΩ max.
Rotational torque	Shorting	80±30mN·m
	Non-shorting	70±30mN·m
Operating life	Without load	10,000 cycles
	With load	10,000 cycles (0.25A 30V DC)

Product Line

Poles	Positions	Changeover angle	Changeover timing	Actuator configuration	Actuator length (mm)	Minimum order unit (pcs.) Japan	Minimum order unit (pcs.) Export	Product No.
1	12 Endless	30±3°	Shorting	Round shaft with groove	15	60	240	**SRRM1C6200**
					20			**SRRM1C5400**
			Non shorting ※1	Flat				**SRRM1C7800**
2	5		Shorting	Round shaft with groove	15			**SRRM254700**
	6				20			**SRRM262400**
				Flat				**SRRM264300**
3	4			Round shaft with groove				**SRRM342800**
4	3			18-tooth serration				**SRRM433700**

Notes

1. ※1 Non-shorting type requires external wiring of common terminals.
2. All the axis are die casting shafts.

Packing Specifications

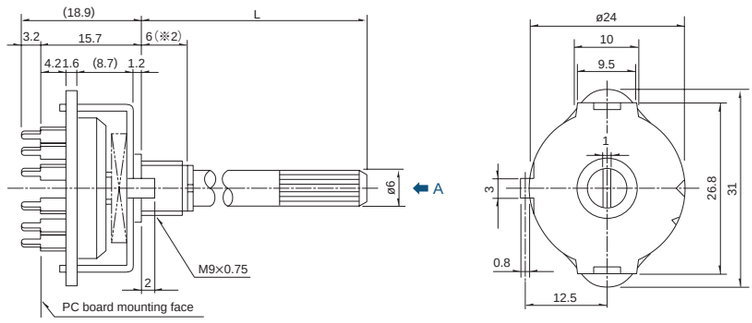
Tray

Number of packages (pcs.)		Export package measurements (mm)
1 case /Japan	1 case /export packing	
60	240	400×270×270

Dimensions

Unit:mm

Style



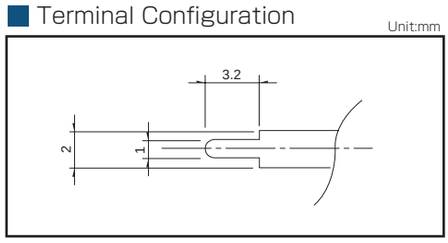
Note

※2 Round-shaft with groove (shaft length 20mm) type are 8mm length.

Refer to P.144 for shaft configurations.
Refer to P.145 for soldering conditions.

Terminal Configuration

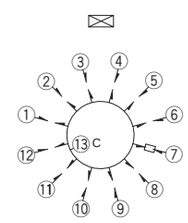
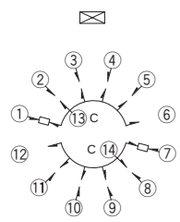
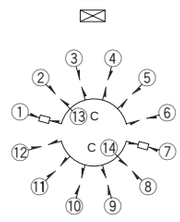
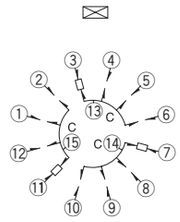
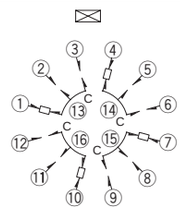
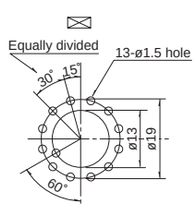
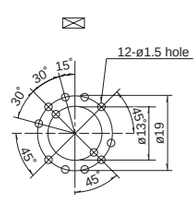
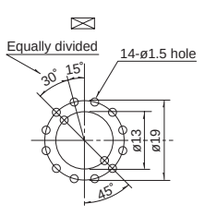
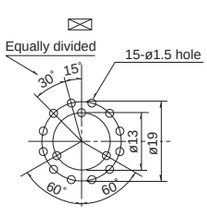
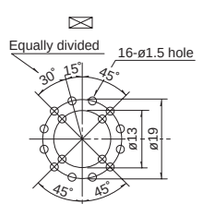
Unit:mm



Standard Circuit Diagram

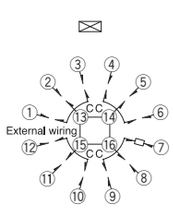
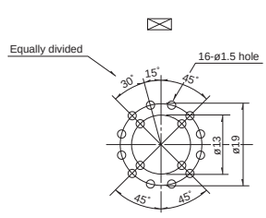
Shorting Circuit Diagram

Unit:mm

	1-pole, 12-position	2-pole, 5-position	2-pole, 6-position	3-pole, 4-position	4-pole, 3-position
Circuit diagram					
PC board mounting hole dimensions (Viewed from the direction A)					

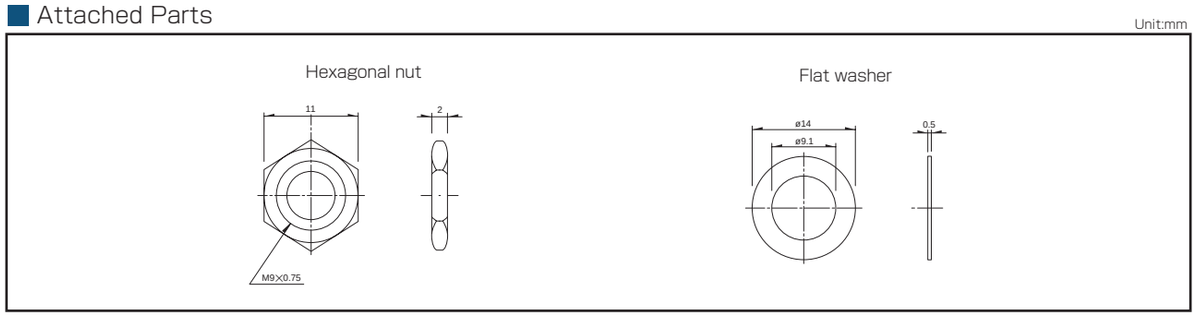
Non Shorting Circuit Diagram

Unit:mm

	Circuit diagram	PC board mounting hole dimensions (Viewed from the direction A)
1-pole, 12-position		

Attached Parts

Unit:mm



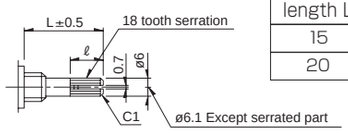
Notes

1. The ⊠ mark in the above table indicate a Lug position with the shaft turned fully counterclockwise when viewed from direction A of the diagrams.
2. Note that the location of C terminal differs depending on the number of positions.
3. External wiring is required if specified in the above diagrams.

18-tooth Serration Shaft

The shaft shows the position in which it is turned fully counterclockwise.

Die Casting Shaft

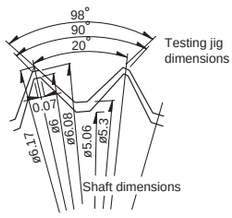


Unit:mm

Shaft length L	ℓ
15	8
20	12

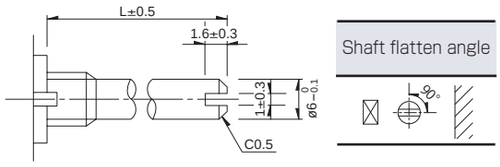
Details About Serration

(1) The mold dimensions of standard serration and the dimensions of test jigs are as shown in the figure at left.
(2) Position of the serration bottom
When the shaft is turned fully counterclockwise, the position of the serration bottom is on the AA line.
(3) Slitting angle
The slitting angle (position) is not specified.



Round Shaft with Groove

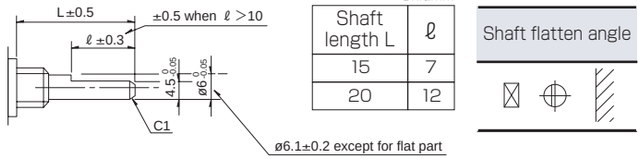
The shaft shows the position in which it is turned fully counterclockwise.



Flat Shaft

The shaft shows the position in which it is turned fully counterclockwise.

Die Casting Shaft

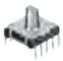
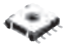
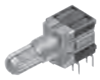
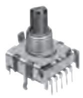


Unit:mm

Shaft length L	ℓ
15	7
20	12

Note

Please be aware that shaft flatten angle is based on ⊠ (anti-rotation lug)

Series			SRBD	SRBQ Insertion	SRBQ Reflow type	SRBM Rotary	SRBM Pulse	SRBV	SRRM
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						

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

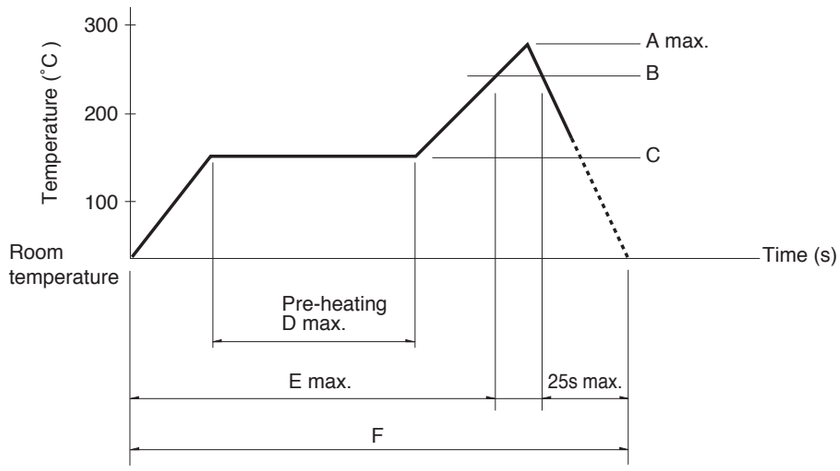
Measuring position from mounting surface	Shaft wobble (max. value)	Applicable mounting dimension
10	0.2	15
15	0.3	20
20	0.4	25

Unit:mm

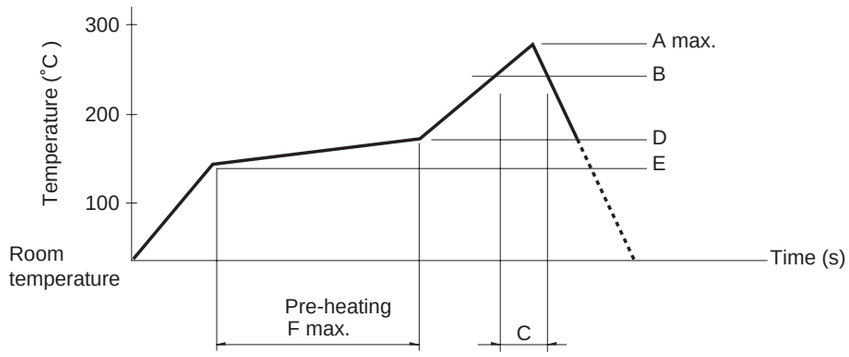
Series		SRBD	SRBQ Insertion	SRBQ Reflow type	SRBM Rotary	SRBM Pulse	SRBV	SRRM
Environmental performance	Cold	−40℃ 500h	−20℃ 96h		−40℃ 96h		−20℃ 96h	
	Dry heat	85℃ 500h	85℃ 96h					
	Damp heat	60℃, 90 to 95%RH 500h	40℃, 90 to 95%RH 96h					
Page		133	135		137		140	142

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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