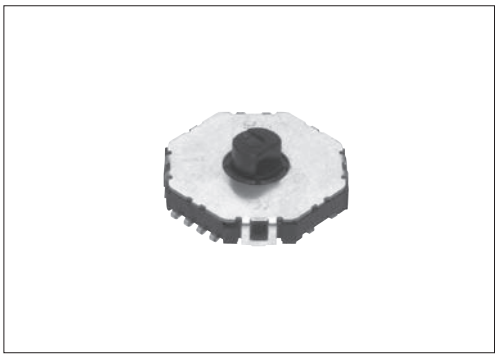
SRBD Heavy-torque Feel, Low-profile Type

Mode switching with maximum 10-position



Typical Specifications

Items	Specifications
Rating (max.)/(min.) (Resistive load)	1mA 5V DC / 50μA 3V DC
Contact resistance (Initial / After operating life)	200mΩ max. / 200mΩ max.
Rotational torque	13±5mN·m
Operating life with load	10,000 cycles (1mA 5V DC)
Voltage proof	100V AC 1minute
Angle of throw	36°

Product Line

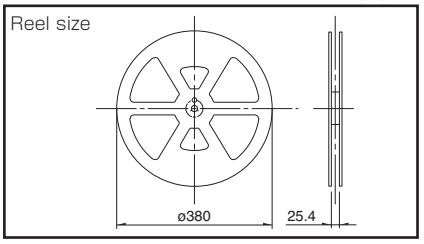
Poles	Positions	Changeover angle	Detent	Location lug	Changeover timing	Soldering	Actuator length (mm)	Minimum order unit (pcs.)		Product No.	Drawing No.
								Japan	Export		
1	10	36°	5	with	Non shorting	For PC board (Reflow)	1.7	1,200	4,800	**SRBD150201**	1
			7	without						**SRBD170401**	2
			8	with						**SRBD180201**	1
			10							**SRBD110401**	

Packing Specifications

Taping

Number of packages (pcs.)			Tape width (mm)	Export package measurements (mm)
1 reel	1 case /Japan	1 case /export packing		
1,200	2,400	4,800	24	428×413×172

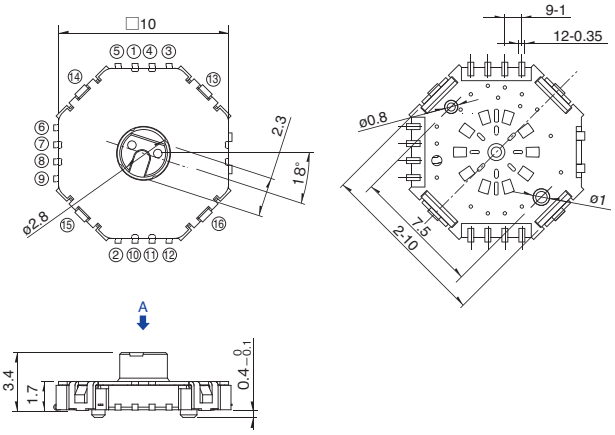
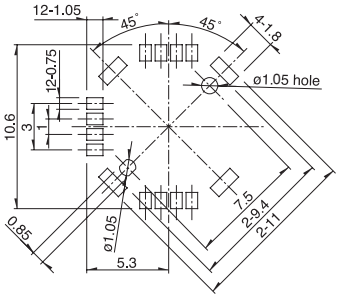
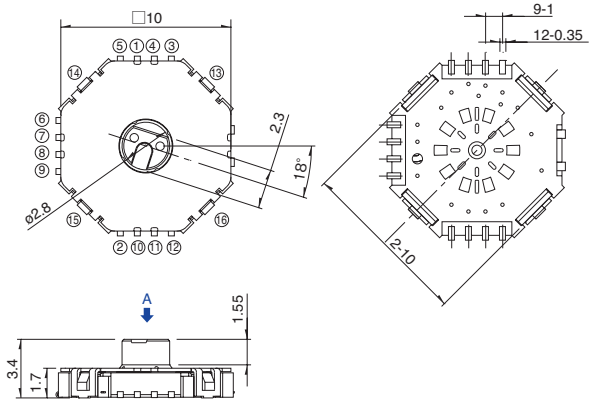
Unit:mm



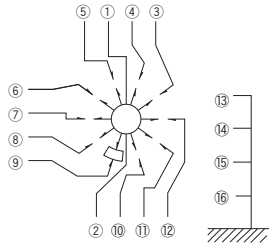
Refer to P.156 for soldering conditions.

Dimensions

Unit:mm

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

Circuit Diagram (Viewed from Direction A)

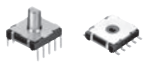
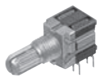


Terminal①②:Common terminal

Correspondence Table of Terminal No. and Detent

Position No.	Terminal No.	Detent			
		5	7	8	10
1	③	—	○	—	○
2	④	—	○	○	○
3	⑤	—	○	○	○
4	⑥	○	○	○	○
5	⑦	○	○	○	○
6	⑧	○	○	○	○
7	⑨	○	○	○	○
8	⑩	○	—	○	○
9	⑪	—	—	○	○
10	⑫	—	—	—	○

List of Varieties

Series			SRBD	SRBQ Insertion	SRBQ Reflow type	SRBM Rotary	SRBM Pulse	SRBV	SRRM	SRRN
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			12.4		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℃	−30℃ to +65℃
Automotive use			—	—		●		—	—	—
Life cycle			★3	★3		★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	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 (see tables below)							
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						
Page			141	143		145		148	150	153

Load at the tip of shaft SRRM, SRBM, SRRN: 5N, SRBQ, SRBV: 1N

The below table shows for SRRM, SRBM, SRRN

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

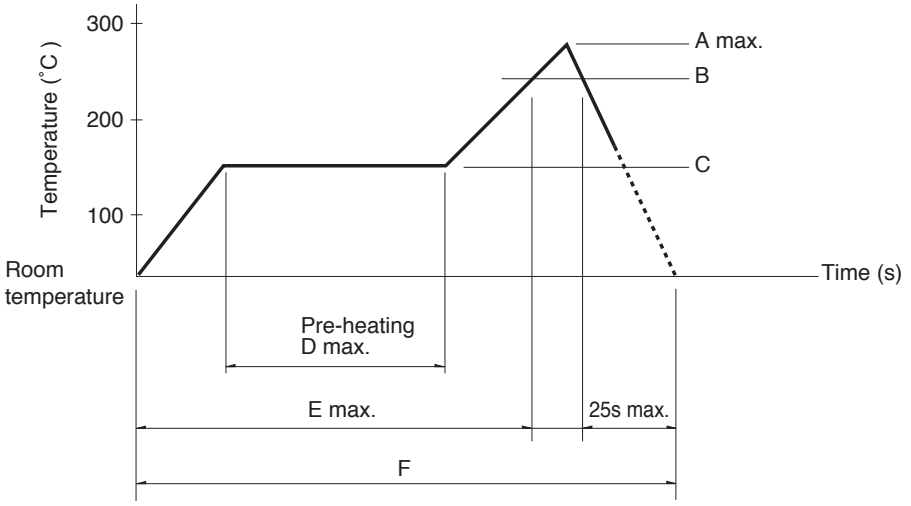
Measuring position from mounting surface	Shaft wobble (max. value)	Applicable mounting dimension
10	0.2	15
15	0.3	20
20	0.4	25

Unit:mm

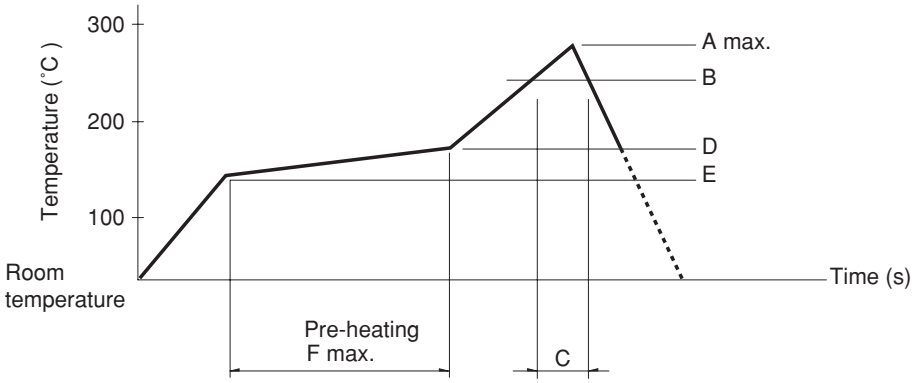
Note
● Indicates applicability to all products in the series.

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, SRRN	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, SRRN	—		260±5℃	10±1s
SRBQ	—		260±5℃	5±1s