



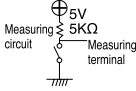


List of Varieties

Hollow Shaft
Type DevicesEncoder
TypePotentiometer
Type

Type		Hollow type				
		17mm size		22mm size	30mm size	
Series		SRGP30	SRGP40	SRGP20	SRGPWJ	
Photo						
Output		Incremental				
Outline specifications	Shaft types	Hollow shaft				
	Operating direction	Vertical				
	Number of pulse/ Number of detent	9/18	12/24	10/20	16/16 16/32	
	Push switch (Travel mm)	Without				
	Optional functions	_____				
	Changeover angle	20°	15°	18°	22.5°	
Dimensions (mm)	W	17.5		23.6	31.8	
	D	18.5	18.25	23	32	
	H	2.3	1.55	4.5		
Soldering	Manual soldering	350 ± 5 , 3s max.	350 ± 10 , 3 ± 0.5s max.	350 ± 10 , 3 ± 0.5s		
	Dip soldering	_____		260 ± 5 , 5 ± 1s		
	Reflow soldering	Please see P.198				
Maximum operating current(Resistive load)		-10 to +60		-40 to +85		
Electrical performance	Output wave	1V max. at 5V DC, 1mA (resistive load) 				
	Insulation resistance	100M min. 100V DC				
	Voltage proof	100V AC for 1minute				
Mechanical performance	Rotational torque	5 ± 2.5mN·m	2 ± 1mN·m	7 ± 3mN·m	13 ± 4mN·m	
			3.5 ± 1mN·m		6.5 ± 4mN·m	
	Terminal strength	_____		5N for 1minute		
	Actuator strength	Rotational direction	20N		40N	
Push direction						
Vibration		10 to 55 to 10Hz/min., the amplitude is 1.5mm for all the frequencies, in the 3 direction of X, Y and Z for 2 hours respectively				
Environmental performance	Cold	-40 ± 2 for 96h	-20 ± 2 for 96h			
	Dry heat	85 ± 2 for 96h				
	Damp heat	40 ± 2 , 90 to 95%RH for 96h				
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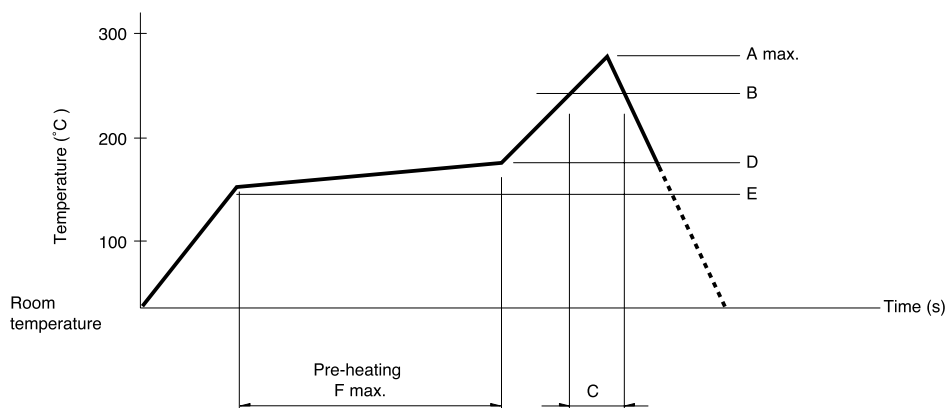
Note

※ The operating temperature range for automotive applications can be raised upon request. Please contact us for requirements of this kind.

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 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) Max	B (°C)	C (s)	D (°C)	E (°C)	F (s)
SRGP30	240	230	20	150	150	120
SRGP40	260		40	180		

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. You are requested to verify the soldering conditions thoroughly beforehand.