

# Hollow Shaft Type Devices

## Low-profile and Hollow Shaft Surface Mount Type

### SRGP40 Series



Surface mount encoder with 1.55mm height  $\phi 9.23$ mm contribute in space saving



#### Typical Specifications

Items		Specifications
Rating(max.)(min.) (Resistive load)		1mA 5V DC/50 $\mu$ A 3V DC
Output voltage		1V max. at 1mA 5V DC (Resistive load)
Operating life	Without resistor	100,000cycles
	With resistor	100,000cycles

Hollow Shaft  
Type Devices

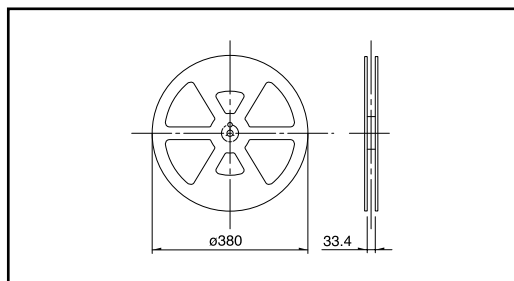
#### Product Line

Detent torque (mN·m)	Number of detent	Number of pulse	Soldering	Minimum order unit (pcs.)	Product No.
2 $\pm$ 1	24	12	Reflow	3,200	SRGP400100
3.5 $\pm$ 1					SRGP400200

#### Taping Specification (Taping Packaging)

Reel Size

Unit:mm



Number of packages(pcs.)			Tape width (mm)
1 reel	1 case / Japan	1 case / export packing	
800	1,600	3,200	32

Encoder  
Type

Potentiometer  
Type

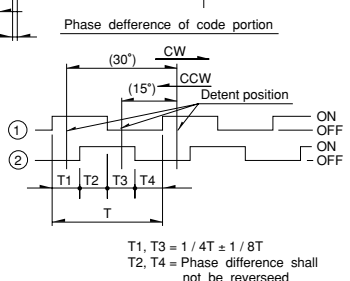
#### Note

Order products in N minimum order units ( 1 reel or 1 case ).

#### Dimensions

Unit:mm

Style	Recommended pattern for reflow (All tolerance shall be $\pm 0.05$ )





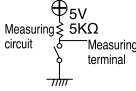


## List of Varieties

Hollow Shaft  
Type Devices

Encoder  
Type

Potentiometer  
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 ± 1s max.	350 ± 10 , 3 ± 1s	
	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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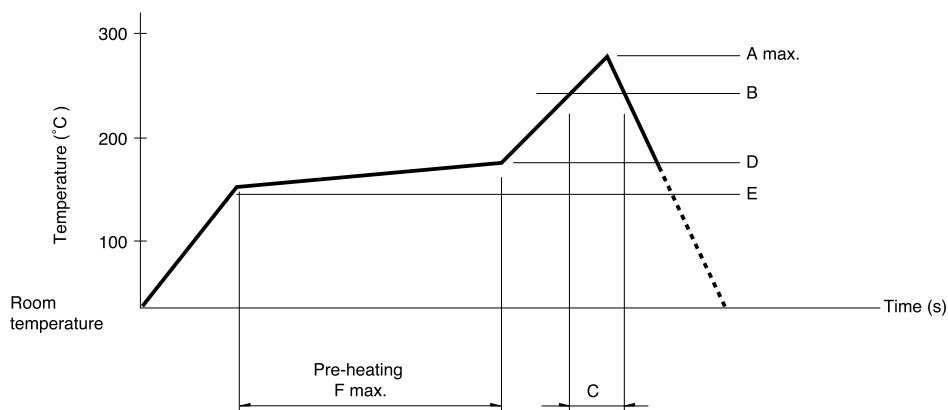
### Note

※ 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.