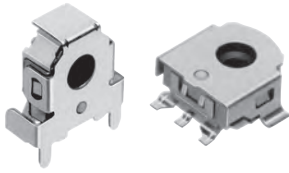


EC05E 5mm Size Through Shaft Type

Compact type employing Alps Alpine DRUMCODE™ technology



Typical Specifications

Items	Specifications
Rating	Each lead 0.55mA 5.5V DC max. Common lead 1.1mA 5.5V DC max.
Operating life	100,000 cycles
Operating temperature range	-30°C to +85°C

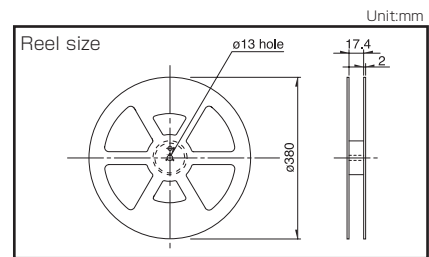
Product Line

Detent torque (mN·m)	Number of detent	Number of pulse	Control part orientation	Mount height (mm)	Minimum order unit (pcs.)		Product No.	Drawing No.
					Japan	Export		
1.6±1.3	12	12	Horizontal	4.5	4,000	8,000	EC05E1220202	1
			Vertical	—	8,000	16,000	EC05E1220203	2
							EC05E1220401	3

Packing specifications

Taping

Control part orientation	Number of packages (pcs.)			Tape width (mm)	Export package measurements (mm)
	1 reel	1 case /Japan	1 case /export packing		
Horizontal	1,000	4,000	8,000	16	485×410×246
Vertical	2,000	8,000	16,000		



Dimensions

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
1			

Encoders

Metal Shaft


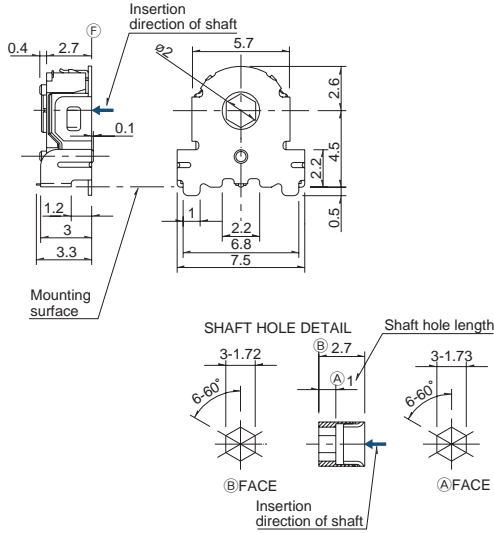
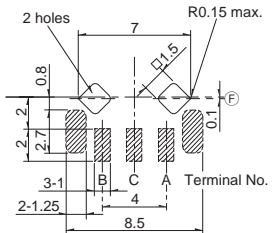

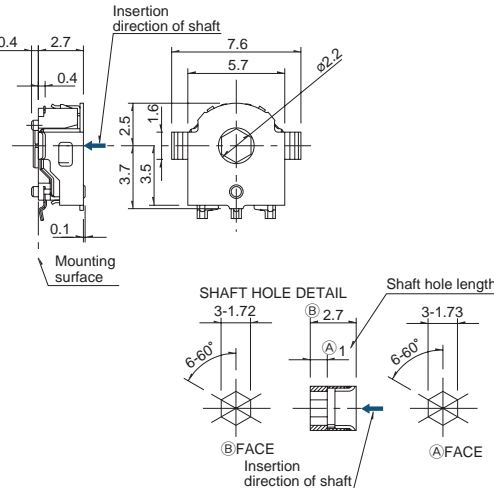
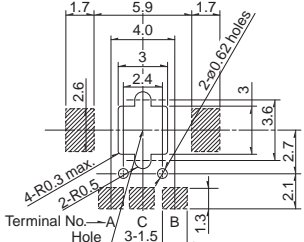
Insulated Shaft

Through Shaft Type

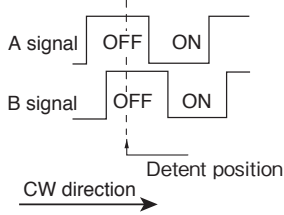
Ring Type

■ Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
2			 <p>Shaded area: Solder land</p>
3			 <p>Shaded area: Solder land</p>

■ Output Wave



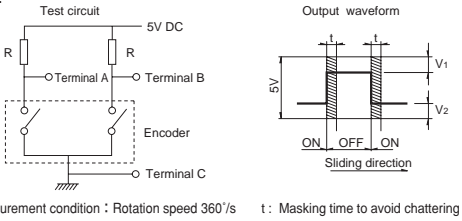
A signal OFF ON
B signal OFF ON

Detent position
CW direction →

*Signal A and signal B output at detent positions cannot be specified.

■ Sliding Noise

$V_1=V_2=2.5V$ max.











Test circuit: 5V DC, R, Terminal A, Terminal B, Encoder, Terminal C

Output waveform: 5V, V_1 , V_2 , ON, OFF, ON, Sliding direction

Measurement condition: Rotation speed 360/s t: Masking time to avoid chattering

At R = 10kΩ
Chattering: 6ms max. Bounce: 6ms max.

Type		Through shaft type			Ring type	
		5mm size		10mm size	21mm size	
Series		EC05E		EC10E	EC21A	EC21C
Photo						
Output		Incremental (Two phase A and B)				
Shaft types		Through shaft type			Ring type	
Control part orientation		Vertical	Horizontal	Horizontal	—	—
Number of pulse / Number of detent		12/12		12/24 12/12	9/18 15/30	15/30
Features		Surface mount type		—	—	—
Dimensions (mm)	W	5.7	7.5	9.8	21.6	22
	D	6	3.3	4.4		21.6
	H	2.7	7.25	10.6/12.6/14.6	4	
Operating temperature range		-30°C to +85°C		-5°C to +45°C -40°C to +85°C (For Automotive)	-40°C to +85°C	
Operating life		100,000 cycles			50,000 cycles	
Automotive use		—		○	●	●
Life cycle (availability)						
Electrical performance	Rating	0.55mA 5.5V DC		1mA 5V DC	10mA 5V DC	
	Max./min. operating current (Resistive load)	0.55mA / —		—	10mA / 1mA	
	Insulation resistance	50MΩ min. 50V DC			100MΩ min. 250V DC	
	Voltage proof	50V AC for 1 minute			300V AC for 1minute or 360V AC for 2s	300V AC for 1minute or 360V AC for 1s
Mechanical performance	Rotational torque (Without detent)	—		—	—	—
	Detent torque	1.6±1.3mN·m		5±3mN·m 6±3mN·m	7±5mN·m 12±5mN·m 16±7mN·m	17±8mN·m (Initial) 12±7mN·m (After reflow)
	Push-pull strength	—		—	100N	
Shaft configuration		Through shaft type			Ring type	
Terminal type		Reflow		Insertion		
Switch Specifications	Switch type	—		—	—	—
	Contact arrangement	—		—	—	—
	Travel (mm)	—		—	—	—
	Operating force (N)	—		—	—	—
	Rating	—		—	—	—
	Contact resistance	—		—	—	—
	Operating life	—		—	—	—
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Notes

- The operating temperature range for automotive applications can be raised upon request. Please contact us for details.
- Indicates applicability to all products in the series, while ○ indicates applicability to some products in the series.