

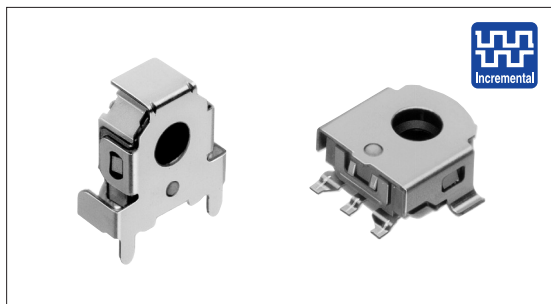
Encoder 5mm Size Hollow Shaft Type

EC05E Series



A compact 12-pulse hollow shaft encoder adopting Alps DRUMCODE™ technology.

Detector
Push
Slide
Rotary
Encoders



Typical Specifications

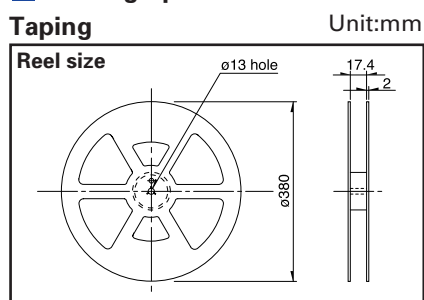
Items	Specifications
Rating	0.55mA 5V DC
Operating life	100,000cycles
Operating temperature range	-30°C to +85°C

Power
Dual-in-line
Package Type
TACT Switch™
Custom-Products

Product Line

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

Packing Specifications



Product No.	Number of packages (pcs.)			Tape width (mm)	Export package measurements (mm)
	1 reel	1 case /Japan	1 case /export packing		
EC05E1220202 EC05E1220203	1,000	4,000	8,000	16	410 × 485 × 246
EC05E1220401	2,000	8,000	16,000		


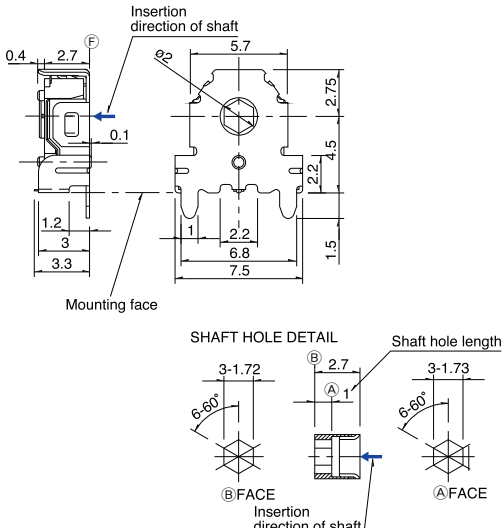
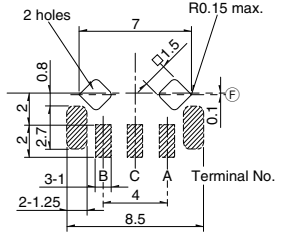
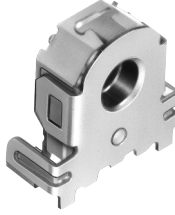
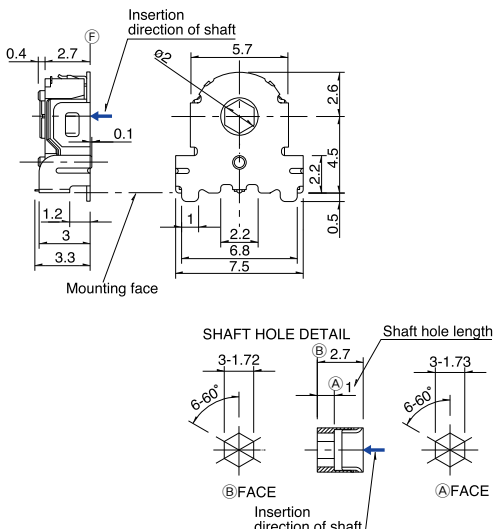
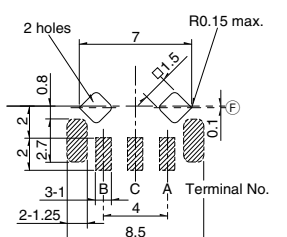
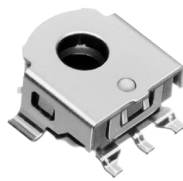
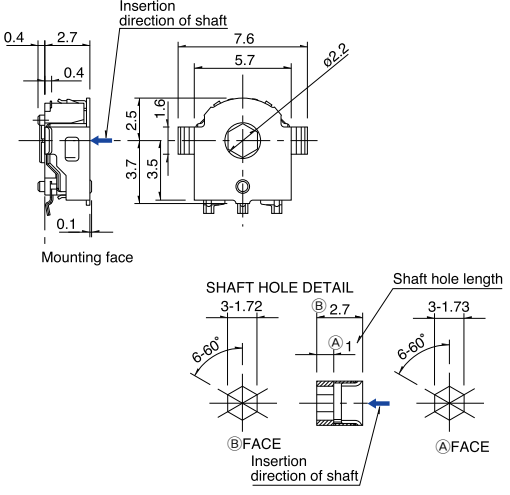
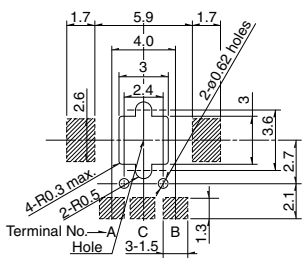
Notes

1. Please place purchase orders for taping products per minimum order unit (1 reel or 1 case).
2. Please place purchase orders per minimum order unit N (integer).




Refer to P.225 for soldering conditions.

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side, shaded area indicated soldering land)
1	<p>Horizontal type</p> 	 <p>Insertion direction of shaft</p> <p>Mounting face</p> <p>SHAFT HOLE DETAIL</p> <p>Shaft hole length</p> <p>6-60°</p> <p>6-60°</p> <p>②FACE</p> <p>①FACE</p> <p>Insertion direction of shaft</p>	 <p>2 holes</p> <p>7</p> <p>R0.15 max.</p> <p>0.8</p> <p>0.1</p> <p>Terminal No.</p> <p>3-1</p> <p>4</p> <p>2-1.25</p> <p>8.5</p>
2	<p>Horizontal type</p> 	 <p>Insertion direction of shaft</p> <p>Mounting face</p> <p>SHAFT HOLE DETAIL</p> <p>Shaft hole length</p> <p>6-60°</p> <p>6-60°</p> <p>②FACE</p> <p>①FACE</p> <p>Insertion direction of shaft</p>	 <p>2 holes</p> <p>7</p> <p>R0.15 max.</p> <p>0.8</p> <p>0.1</p> <p>Terminal No.</p> <p>3-1</p> <p>4</p> <p>2-1.25</p> <p>8.5</p>
3	<p>Vertical type</p> 	 <p>Insertion direction of shaft</p> <p>Mounting face</p> <p>SHAFT HOLE DETAIL</p> <p>Shaft hole length</p> <p>6-60°</p> <p>6-60°</p> <p>②FACE</p> <p>①FACE</p> <p>Insertion direction of shaft</p>	 <p>4-R0.3 max.</p> <p>2-R0.5</p> <p>Terminal No.—A</p> <p>Hole</p> <p>3-1.5</p> <p>1.3</p> <p>2-1</p> <p>2.7</p> <p>1.7</p> <p>5.9</p> <p>1.7</p> <p>4.0</p> <p>3</p> <p>2.4</p> <p>3.6</p> <p>3</p> <p>2-φ0.62 holes</p>

List of Varieties

Type	Hollow Shaft		Absolute type
	5mm size	10mm size	Hollow shaft
Series	EC05E	EC10E	SRGA
Photo			
Output	Incremental		Absolute type
Outline specifications	Shaft types	Hollow shaft	
	Operating direction	Vertical/Horizontal	Horizontal
	Number of pulse/ Number of detent	12/12	12/24
	Push switch (Travel mm)	Without	
	Changeover angle	15°, 30°, 45°	
Dimensions (mm)	W	5.7	9.8
	D	2.7	4.4
	H	7.3	12.6
Soldering	Manual soldering	350°C max. 3s max.	
	Dip soldering	—	260±5°C, 3±1s
	Reflow soldering	Please see P.225	—
Operating temperature range	-30°C to +85°C		-10°C to +70°C
Automotive use	—	○	●
Electrical performance	Maximum operating current (Resistive load)	0.55mA	1mA
	Output signal	Output of A and B signals, proportionate to phase difference	
	Initial contact resistance	—	
	Insulation resistance	50MΩ min. 50V DC	
	Voltage proof	50V AC for 1minute	
Mechanical performance	Rotational torque	—	
	Defent torque	1.6±1.3mN·m	5±3mN·m
	Terminal strength	—	
	Push-pull strength	—	
	Vibration	—	
Environmental performance	Cold	-40±3°C for 240h	
	Dry heat	85±3°C for 240h	
	Damp heat	40±2°C, 90 to 95%RH for 240h	
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- Encoders Cautions244, 245

Notes

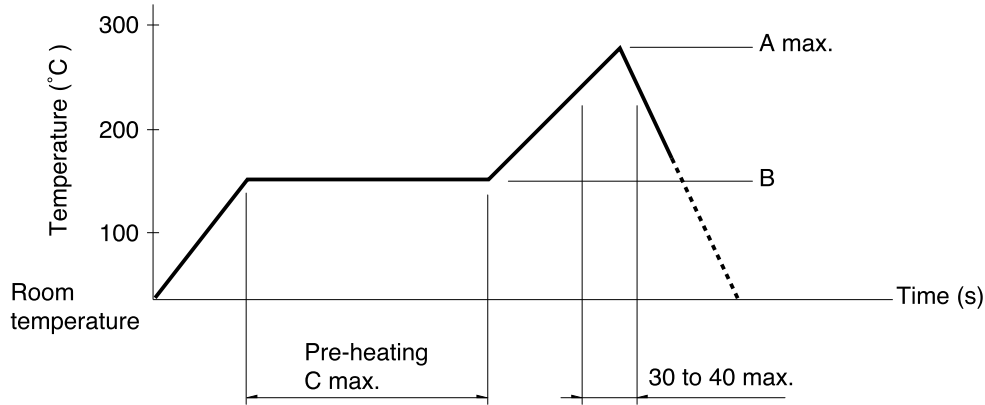
- ※ The operating temperature range for automotive applications can be raised upon request. Please contact us for details.
- marks in "Available for automotive use" indicate that some of the series products can work at the operating temperature range from -40°C to +85°C, ●marks in "Available for automotive use" indicate that all of the series products can work at the operating temperature range from -40°C to +85°C.

- Detector
- Push
- Slide
- Rotary
- Encoders
- Power
- Dual-in-line Package Type
- TACT Switch™
- Custom-Products
- Metal Shaft
- Insulated Shaft
- Hollow Shaft
- Ring Type

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 φ 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) 3s max.	B (°C)	C (s)
EC05E	260	100max.	60max.

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.

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