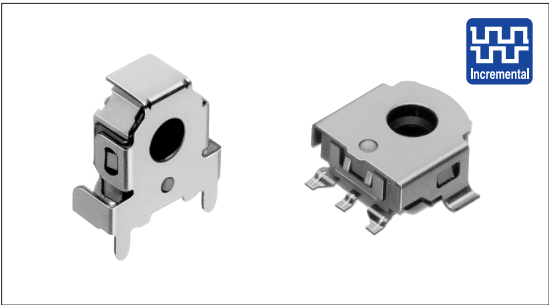


Encoder
5mm Size Hollow Shaft Type
EC05E Series



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

Detector
Push
Slide
Rotary
Encoders
Power



Typical Specifications

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

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

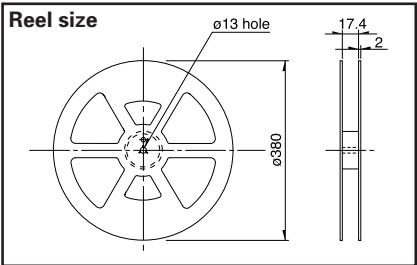
Product Line

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

Taping

Unit:mm



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	Horizontal type		
2	Horizontal type		
3	Vertical type		

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line
Package Type

TACT Switch™

Custom-
Products

Metal
Shaft

Insulated
Shaft

Hollow
Shaft

Ring
Type

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		Hollow shaft
	Operating direction	Vertical/Horizontal	Horizontal	Vertical
	Number of pulse/ Number of detent	12/12	12/24	—
	Push switch (Travel mm)	Without		Without
	Changeover angle	—		15°, 30°, 45°
Dimensions (mm)	W	5.7	9.8	18
	D	2.7	4.4	
	H	7.3	12.6	8
Soldering	Manual soldering	350°C max. 3s max.		350±10°C, 3 +1s
	Dip soldering	—	260±5°C, 3±1s	260±5°C, 10±1s
	Reflow soldering	Please see P.225	—	Please see P.229
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	—		1Ω max.
	Insulation resistance	50MΩ min. 50V DC		100MΩ min. 100V DC
	Voltage proof	50V AC for 1minute		100V AC for 1minute
Mechanical performance	Rotational torque	—		Shall be in accordance with individual specifications.
	Defent torque	1.6±1.3mN·m	5±3mN·m	—
	Terminal strength	—		5N for 1minute
	Push-pull strength	—		100N
	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±3°C for 240h		-20±2°C for 96h
	Dry heat	85±3°C for 240h		85±2°C for 96h
	Damp heat	40±2°C, 90 to 95%RH for 240h		40±2°C, 90 to 95%RH for 96h
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- Encoders Cautions244, 245

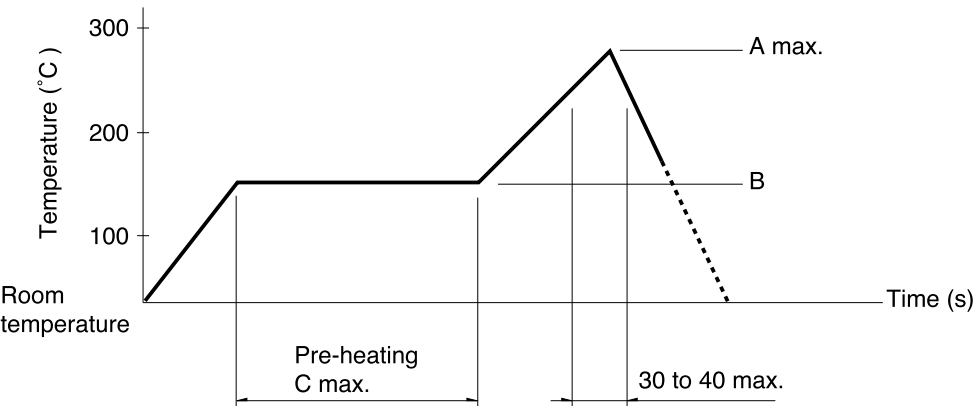
Notes

- ※ 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.

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.