

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

Dual-in-line
Package Type

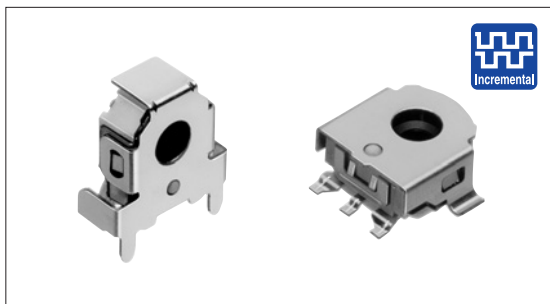
Multi Control
Devices

TACT Switch™

Custom-
Products

Incremental
Type

Absolute
Type



Features

- Compact size with a height of 2.5mm from the shaft center to the case top, 2.7mm thickness and 5.7mm width.
- A long-life operation of more than 100,000cycles.
- An excellent detent mechanism with a good operation feel.
- Available in vertical and horizontal types.

Applications

- For mobile phones, personal digital assistants and various communication devices
- For various types of control in remote controllers for AV equipment
- For digital camcorders, digital still cameras, portable audio devices and mice

Typical Specifications

Items	Specifications
Rating	0.5mA 5V DC
Operating life	100,000cycles

Product Line

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

Refer to P.235 for taping package specifications.
Refer to P.221 for product specifications.

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side, shaded area indicated soldering land)
1			
2			
3			

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line
Package TypeMulti Control
Devices

TACT Switch™

Custom-
ProductsIncremental
TypeAbsolute
Type

Product Specifications

Items		Series	EC05E	EC10E
Operating temperature range			-30°C to +85°C	
Maximum operating current (resistive load)			0.55mA	1mA
Electrical performance	Rating		0.55mA 5V DC	1mA 5V DC
	Output signal		Output of A and B signals, proportionate to phase difference	
	Output phase		_____	
	Output type		Incremental	
	Insulation resistance		50MΩ min. 50V DC	
	Voltage proof		50V AC	
Mechanical performance	Rotational torque		_____	
	Detent torque		1.6±1.3mN·m	5±3mN·m
	Push-pull strength		_____	
	Resistance to soldering heat	Manual soldering	350°C max. 3s max.	
		Dip soldering	_____	260±5°C, 3±1s
		Reflow soldering	Please see P.219	_____
Durability	Operating life		100,000cycles	
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	

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line
Package TypeMulti Control
Devices

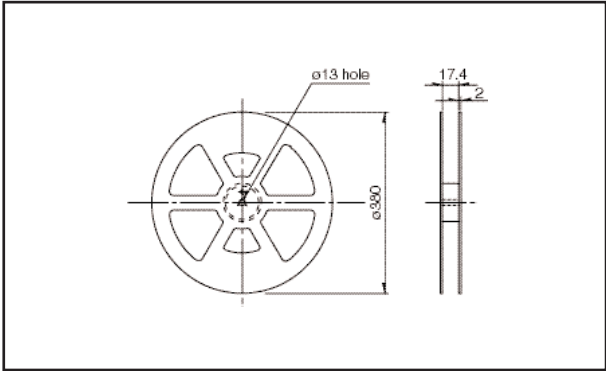
TACT Switch™

Custom-
ProductsIncremental
TypeAbsolute
Type

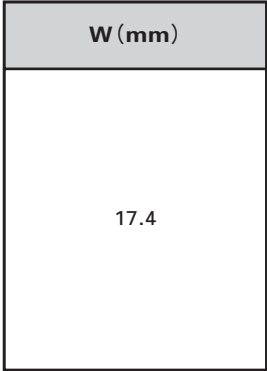
Taping Specifications

Taping Packaging

Reel Size Unit:mm



Reel Width



Unit:mm

Model	Qty/reel (pcs.) (Height)	Tape dimensions
EC05E12202	1,000 (h = 7.25) (h = 7.1)	
EC05E12204	2,000	

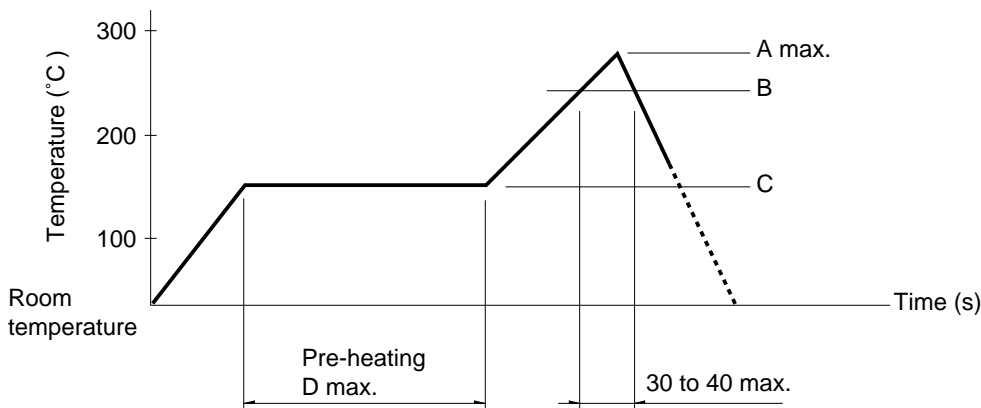
Note

Vacuum chucking is not available for mount height h=7.1 products.

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 (°C)	D(s)
EC05E	250	230	150	60 to 120

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.

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line
Package Type

Multi Control
Devices

TACT Switch™

Custom-
Products

Incremental
Type

Absolute
Type