

EC11

11 mm Size Metal Shaft Type

Compact and highly reliable type available in many varieties



■ Typical Specifications

Items	Specifications
Output signal	Two phase of A, B Self-return switch (EC111 / EC11E0B)
Rating	10mA 5V DC
Operating life	15,000 cycles 100,000 cycles (EC11K / EC11J)
Operating temperature range	-40°C to +85°C

⚠ Production to be discontinued. Not recommended for new designs.

● Re-classified as semi-standard following a review of standard products. If you are interested in this product, please inquire.

■ Product Line











Structure	Shaft configuration	Length of the shaft (mm)	Torque (mN·m)	Number of detent	Number of pulse	Push-on switch	Travel of push-on switch (mm)	Operating life (cycles)	Minimum order unit (pcs.)		Product No.	Drawing No.								
									Japan	Export										
Horizontal	Flat	20	12±7	30	15	Without	—	15,000	700	1,400	EC11B15202AN	1	⚠							
With						0.5	EC11B15242AZ				2	⚠								
						1.5	EC11B15242B1				3	⚠								
Vertical			10±7	18	9	Without	—		1,200	2,400	EC11E09204A4	4	●							
				30	15						EC11E15204A3			EC11E1820402						
				36	18						EC11E09244BS				5	●				
				18	9	EC11E15244G1	EC11E153440D													
				30	15	EC11E18244AU					EC11E183440C									
			7 ⁺³ ₋₄	Without		EC11E09244AQ						EC11E15244B2								
			10±7	36	18	EC11E1534408	●													
			7 ⁺³ ₋₄	Without		EC11E18244A5					●									
			10±7	18		9						EC11E1834403								
			30	15	With	1.5	EC11N1520401					6								
			7 ⁺³ ₋₄				Without				EC11N1524402	7								
			10±7	36			18				1.5		EC11N1525404							
			7 ⁺³ ₋₄	Without	EC11N1520402	6														
			10±7	18	9	EC11N1524403					7									
			30	15	1.5	EC11N1525405														
			7 ⁺³ ₋₄		Without	Without	—				1,000	2,000	EC11G1560414	8	⚠					
			15	10±7	30								15	With	1.5	EC11G1574402	9	⚠		
																EC11G1564411	10	⚠		
			20	10±7	30	15	With						1.5	EC11M1565403	9	⚠				
EC11M1575403														10						
Less shaft wobble			Serrated	25	12±7	30	Without						—	100,000	1,000	2,000	EC11K0920404	11	⚠	
					8.5±5												Without			EC11K1520406
	12±7	Without			EC11K0924404			⚠												
	8.5±5	Without			EC11K1524406												⚠			
Vertical	Flat	20	12±5	18	9	Without	—						100,000	1,000	2,000	EC11K0925416		12	⚠	
				30	15				With	0.5						EC11K1525413				⚠
				18	9			1.5								⚠				
				30	15	⚠														
				18	9		⚠													
				30	15			⚠												

Note

Other varieties are also available. Please inquire.

EC11 1 1 mm Size Metal Shaft Type

■ Product Line  Production to be discontinued. Not recommended for new designs.

Structure	Shaft configuration	Length of the shaft (mm)	Torque (mN·m)	Number of detent	Number of pulse	Push-on switch	Travel of push-on switch (mm)	Operating life (cycles)	Minimum order unit (pcs.)		Product No.	Drawing No.	
									Japan	Export			
Reflow	Flat	20	12±5 (Initial) 10±4 (After reflow)	18	9	Without	—	100,000	600	600	EC11J0920404	13	
				30	15						EC11J152040F		
				18	9	With	0.5				EC11J0924411	14	
				30	15						EC11J1524413		
				18	9		1.5				EC11J0925403		
											EC11J1525402		
Push lock	20-tooth Serrated	25	10±7	30	15	Without	—		800	1,600	EC11E152T409	15	
		26.4				With	8				EC11E152U402	16	
Self-return switch	Flat	15	3 to 30	Without	Self-return switch	Without	—	15,000	1,200	2,400	EC1110120005	17	
		20				With	0.5				EC111012010H	18	
							1.5				EC1110120201		
												0.5	
Dual-shaft	Slotted	Inner-shaft=25 Outer-shaft=15	10±7	30	15	Without	—	15,000	700	1,400	EC11EBB24C03	19	
	Flat	Inner-shaft=25				With	1.5				EC11E0B2LB01	20	
	Slotted	Outer-shaft=15	3 to 30	Without	Self-return switch	Without	—						

Note

Other varieties are also available. Please inquire.


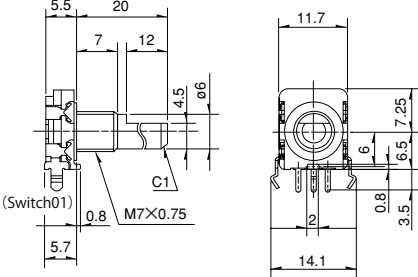
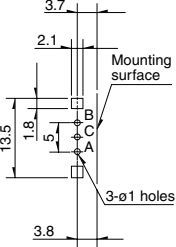

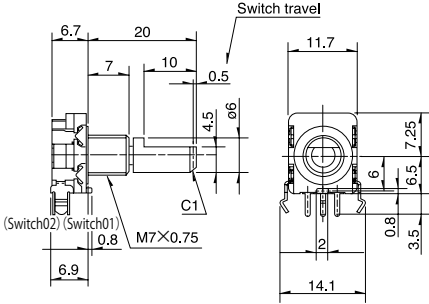
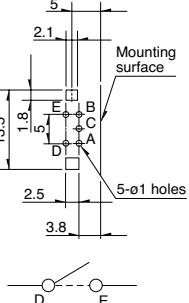

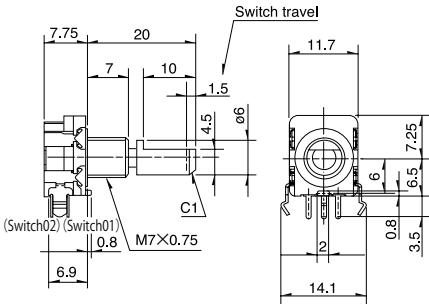
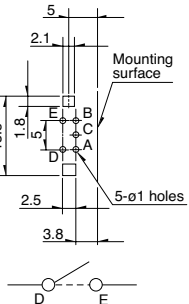

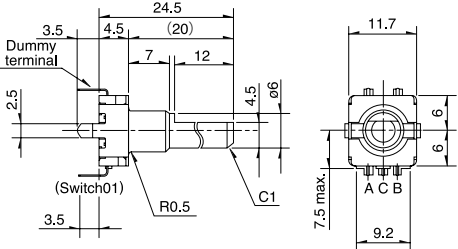
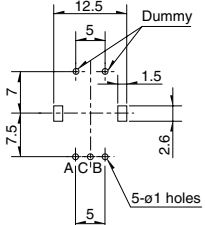

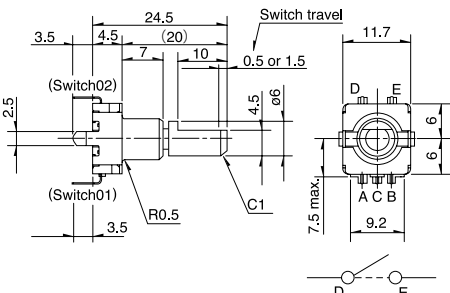
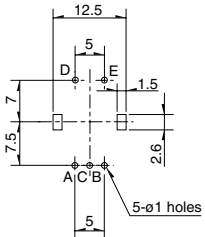
■ Packing Specifications

Tray

Product No.	Number of packages (pcs.)		Export package measurements (mm)
	1 case / Japan	1 case / export packing	
EC11B	700	1,400	524×374×201
EC11E09/15/18/EC11N	1,200	2,400	540×360×250
EC11G/EC11K/EC11M	1,000	2,000	
EC11J	600	600	369×283×263
EC11E152T/U	800	1,600	507×363×230
EC111	1,200	2,400	507×363×216
EC11E0B/BB	700	1,400	

■ Dimensions  Production to be discontinued. Not recommended for new designs.


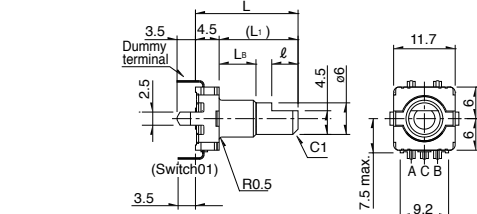
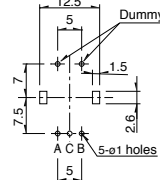

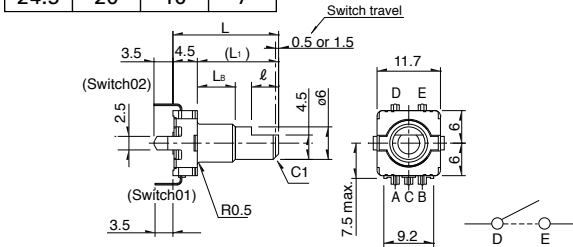
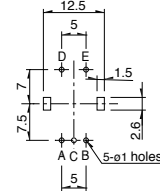


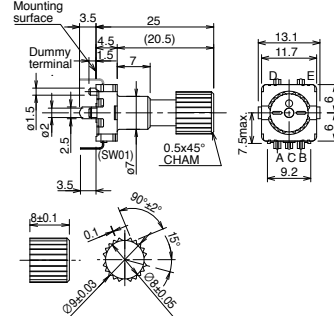
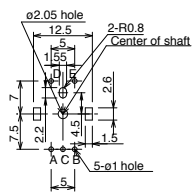


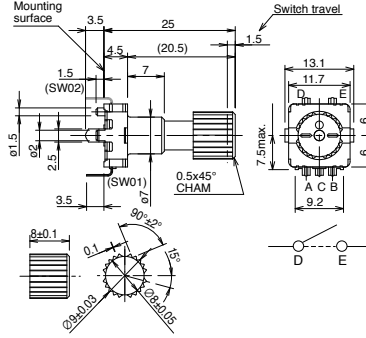
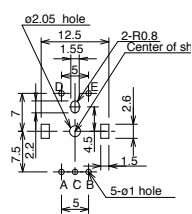
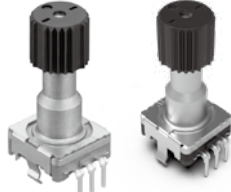

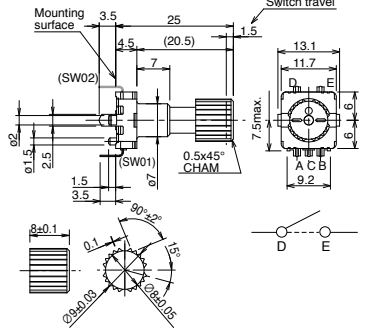
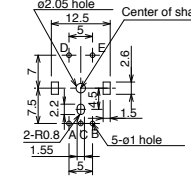
Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
1			
2			
3			
4			
5			

EC11 11 mm Size Metal Shaft Type



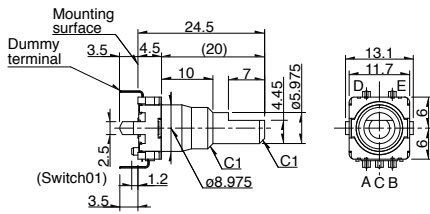
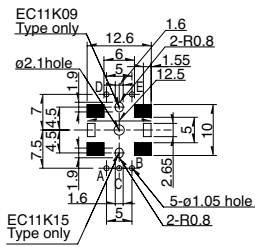


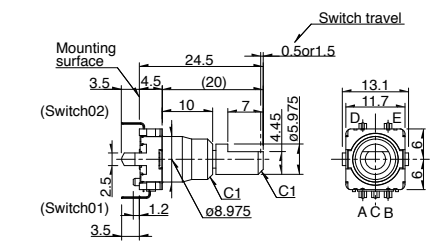
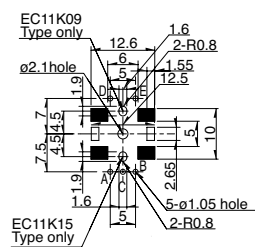


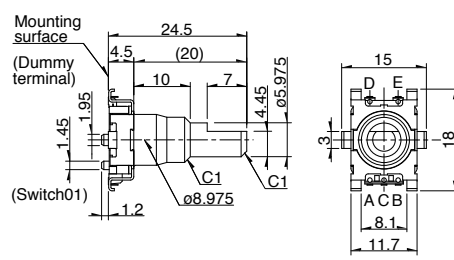
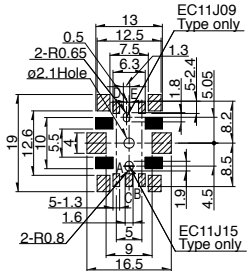


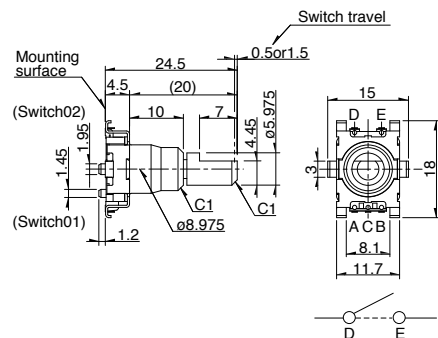
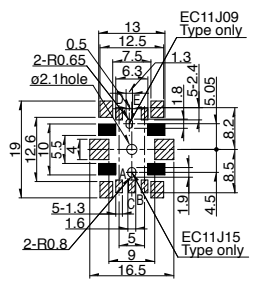


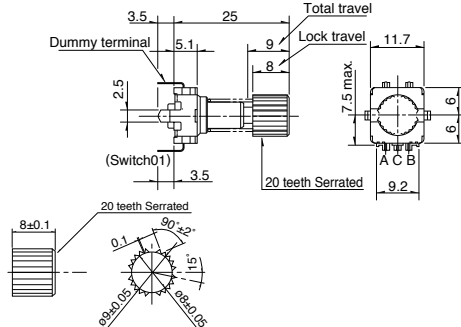
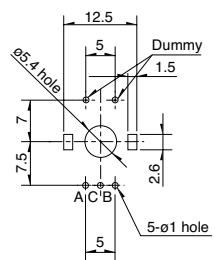
■ Dimensions  Production to be discontinued. Not recommended for new designs.

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)												
6	EC11N Vertical 	<table border="1"> <thead> <tr> <th>L</th><th>L₁</th><th>L_B</th><th>ℓ</th></tr> </thead> <tbody> <tr> <td>19.5</td><td>15</td><td>7</td><td>5</td></tr> <tr> <td>24.5</td><td>20</td><td>10</td><td>7</td></tr> </tbody> </table> 	L	L ₁	L _B	ℓ	19.5	15	7	5	24.5	20	10	7	
L	L ₁	L _B	ℓ												
19.5	15	7	5												
24.5	20	10	7												
7	EC11N Vertical with push-on switch (travel 0.5mm / 1.5mm) 	<table border="1"> <thead> <tr> <th>L</th><th>L₁</th><th>L_B</th><th>ℓ</th></tr> </thead> <tbody> <tr> <td>19.5</td><td>15</td><td>7</td><td>5</td></tr> <tr> <td>24.5</td><td>20</td><td>10</td><td>7</td></tr> </tbody> </table> 	L	L ₁	L _B	ℓ	19.5	15	7	5	24.5	20	10	7	
L	L ₁	L _B	ℓ												
19.5	15	7	5												
24.5	20	10	7												
8	EC11G Vertical  														
9	EC11G, EC11M Vertical with push-on switch (travel 1.5mm)   EC11G EC11M														
10	EC11G, EC11M Vertical with push-on switch (travel 1.5mm)   EC11G EC11M														

■ Dimensions  Production to be discontinued. Not recommended for new designs.


Unit:mm

No.	Photo	形状	PC board mounting hole dimensions (Viewed from mounting side)
11	EC11K Vertical  		 <p>Black part : Do not solder and no wiring for electrical contact.</p>
12	EC11K Vertical with push-on switch (travel 0.5mm / 1.5mm)  		 <p>Black part : Do not solder and no wiring for electrical contact.</p>
13	EC11J Reflow  		 <p>A slant line part: The solder land Black part: Do not solder and wiring for electrical contact</p>
14	EC11J Reflow with push-on switch (travel 0.5mm / 1.5mm)  		 <p>A slant line part: The solder land Black part: Do not solder and wiring for electrical contact</p>
15	EC11E152T Push-lock mechanism with push-lock switch  		


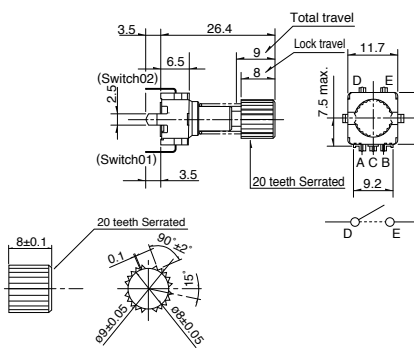
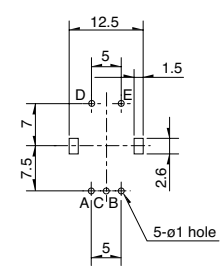

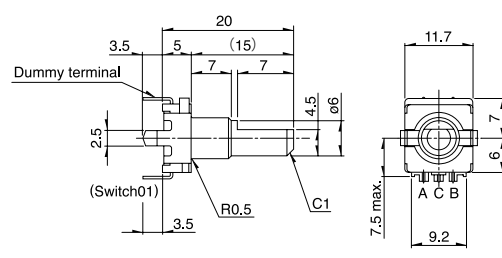
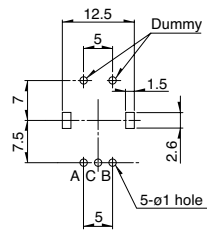

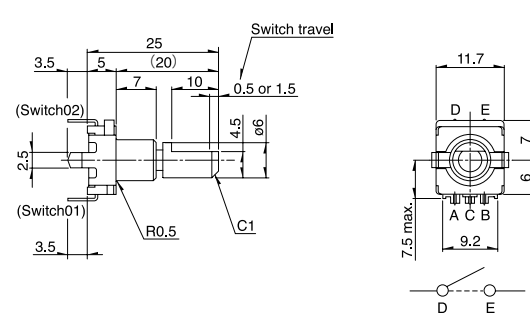
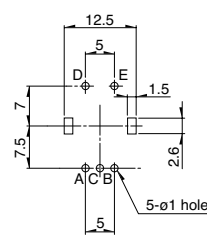

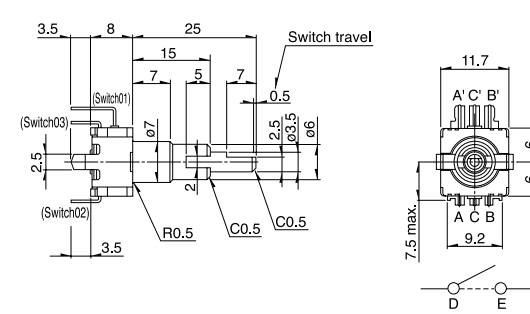
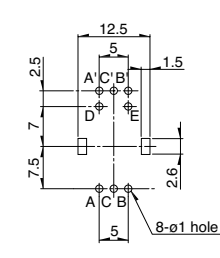

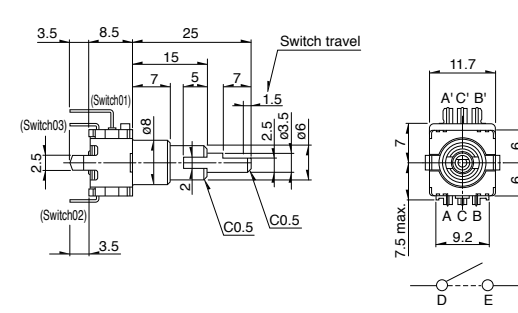
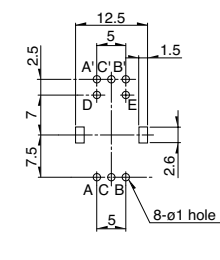
EC11

11mm Size Metal Shaft Type

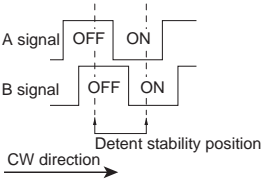
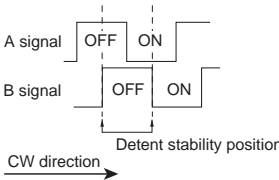
■ Dimensions

 Production to be discontinued. Not recommended for new designs.

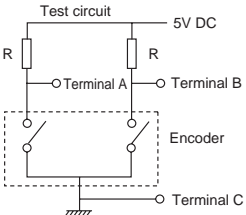
Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
16	EC11E152U Push-lock mechanism with push-lock switch 		
17	EC111 Self-return switch 		
18	EC111 Self-return switch with push-on switch (travel 0.5mm / 1.5mm) 		
19	EC11E Dual-shaft type with push-on switch (travel 0.5mm) Inner shaft: encoder Outer shaft: encoder 		
20	EC11E Dual-shaft type with push-on switch (travel 1.5mm) Inner shaft: encoder Outer shaft: self-return switch 		

Output Wave

EC11E, EC11N, EC11M	EC11E
<p>EC11E 30 detents, 15 pulse EC11N, EC11M</p> 	<p>Detent stability position cannot be specified for B signal EC11E 18 detents 9 pulse EC11E 36 detents 18 pulse</p> 

Sliding Noise



Test circuit

5V DC

R

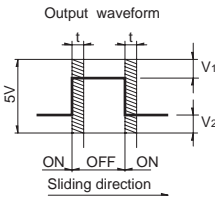
Terminal A

Terminal B

Encoder

Terminal C

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



Output waveform

5V

t

V₁

V₂

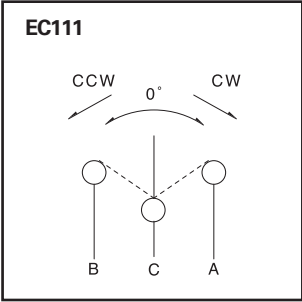
ON OFF ON

Sliding direction

**EC11E/EC11N/
EC11M**

V₁=V₂=1.5V max.
At R = 5kΩ
Chattering : 3ms max.
Bounce : 2ms max.

Circuit Diagram



1 1 mm Size Metal Shaft Type / Product Varieties

In addition to the Product Line, we accommodate the following specifications. Combinations not included in the Product Line are treated as semi-standard products.

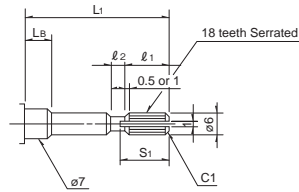
■ Shaft Dimensions

1. Single-shaft Type

1) Serrated Type

Unit:mm

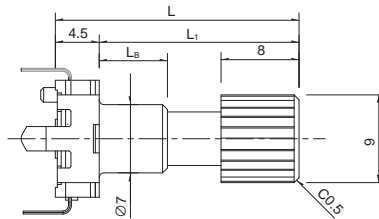
EC11 (Except EC11M) Style (Shaft diameter: $\phi 6$)



● Detailed dimensions

L_1	L_B	l_1	l_2	S_1
20	7	6	1	7
25	10	10	2	11

EC11M Style (Shaft diameter: $\phi 9$)



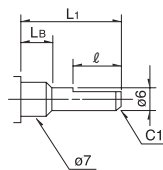
● Detailed dimensions

L	L_1	L_B
18	13.5	5
25	20.5	7
28	23.5	10

2) Flat Type

Unit:mm

EC11 Style (Shaft diameter: $\phi 6$)



● Detailed dimensions

L_1	L_B	l
※1 15	5	7
15	7	5 (6)
20	7	10 (12)
25	10	12

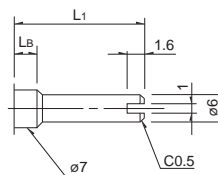
※1 Does not comply with EC111

Values in parentheses apply to products without push-on switch.

3) Slotted Type

Unit:mm

EC11 Style (Shaft diameter: $\phi 6$)



● Detailed dimensions

L_1	L_B
15	7
20	7
25	10

Notes

1. Shaded areas in shaft type details indicate specifications included in the product lineup on P.246
2. Other varieties are also available. Please inquire.

11 mm Size Metal Shaft Type / Switch Specifications

1. EC11E/EC11N/EC111 Series

Switch type		Momentary push switch	
Contact arrangement		Single pole and single throw (Push-on)	
Travel (mm)		0.5±0.3	1.5±0.5
Operating force		6 ^{+2.5} ₋₂ N	4±2N
Operating life		20,000 times	
Electrical performance	Rating	0.1A 5V DC (500μA 5V DC min. ratings)	
	Contact resistance	100mΩ max. for initial period, 200mΩ max. after operating life.	
	Insulation resistance	100MΩ min. 250V DC	
	Voltage proof	300V AC for 1 minute or 360V AC for 2 second	

2. EC11M Series

Switch type		Momentary push switch	
Contact arrangement		Single pole and single throw (Push-on)	
Travel (mm)		1.5±0.35	
Operating force		5±2N	
Operating life		20,000 times	
Electrical performance	Rating	0.15A 5V DC (500μA 5V DC min. ratings)	
	Contact resistance	100mΩ max. for initial period, 200mΩ max. after operating life.	
	Insulation resistance	100MΩ min. 250V DC	
	Voltage proof	300V AC for 1 minute or 360V AC for 2 second	