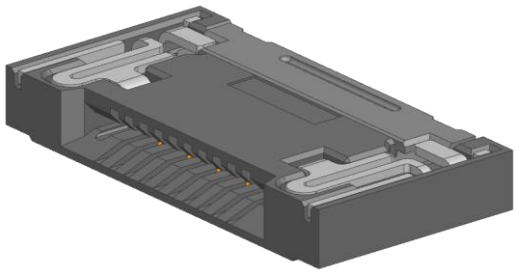
Easy-On FlexiSnap-15
FPC Connector System

0.5mm Pitch FPC Connector One-Touch R/A H=1.5
FlexiSnap-15



Series: 225019

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REVISION DESCRIPTION	RELEASED			EASY-ON FLEXISNAP-15 0.5MM PITCH FPC CONN. ONE-TOUCH R/A H=1.5			
CHANGE NO.	836270						
REVISED BY	MTAKAHASHI04	DATE	2025/02/17	DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
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INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	MTAKAHASHI04	DATE	2025/02/17	GENERAL	**2250190000-PS**	**A**	1 OF 13
INITIAL APPR	KSASAKI	DATE	2025/10/02				

1. **SUBJECT:**

This product specification covers the performance requirements for the Easy-On FlexiSnap-15 (0.5mm Pitch FPC Connector One-Touch R/A H=1.5) series.

2. **PRODUCTS:**

2.1 PRODUCTS:

PRODUCT NUMBER	DESCRIPTION
2250190**0	Easy-On FlexiSnap-15 0.5mm Pitch FPC Connector One-Touch R/A H=1.5

**: Circuit Number (Refer to the drawing)

2.2 DIMENSIONS, MATERIALS, PLATINGS

See the appropriate sales drawings for the information on dimensions, materials, and plating.

2.3 ENVIRONMENTAL CONFORMANCE:

To find product environment compliance information:
Go to molex.com and enter the part number in the search field.
At the bottom of the page go to “Product Environmental Compliance” to see compliance status.

3. **REFERENCE DOCUMENTS:**

DOCUMENT NUMBER	DESCRIPTION
TR-33207	Test Summary (Test Report Number)
2250190000-SD	Sales Drawing (Product & Embossed pkg)
2250190000-SPK	Packaging Specification (SPK)
2250190000-AS	Application Specification (AS)

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4. ELECTRICAL RATINGS

4.1 VOLTAGE: 50 Volts Maximum. [AC (RMS) / DC]

4.2 CURRENT RATING: 0.5 Amperes / pin Maximum. [AC (RMS) / DC]

4.3 TEMPERATURE

- Operating Temperature Range*1 (includes T-Rise from applied current): - 40°C to + 85°C *2*3

*1 : Non-operating connectors after reflow must follow the operating temperature range condition.
*2 : This includes the terminal temperature rise generated by conducting electricity.
*3 : Applicable FPC (FFC, wires and cables) must also meet the specified temperature range.

4.4 STORAGE CONDITION

- Temperature Rage: - 10°C to + 50°C
- Humidity: Less than 85%R.H. (Non-condensing is required.)
- Terms: 12 months after shipped. (For unopened package)

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5. **PROCEDURE:**

5.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.1.1	Contact Resistance	Mate applicable FPC and measured by dry circuit, 20mV MAX., 10 mA MAX. and subtract wire conductor resistance.	50 milliohms MAXIMUM [initial]
5.1.2	Insulation Resistance	Mate applicable FPC and apply 250 V DC between terminal and fitting nail.	100 Megohms MINIMUM
5.1.3	Dielectric Withstanding Voltage	Mate applicable FPC, apply 250 V AC rms for 1 minute between terminal and fitting nail.	No Damage on function
5.1.4	Temperature Rise	Mate applicable FPC, measure the temperature rise of contact when the maximum rated current is passed.	Temperature Rise: +30°C MAXIMUM

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5.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.2.1	FPC Insertion/Retention Force	After mate applicable FPC with connector, pull out the FPC parallel to mating direction at the speed rate of 25±3mm with lock closed.	Refer to paragraph 6	
5.2.2	Repeated Insertion/Removal	Insert and remove FPC to 20 cycles at the speed rate of less than 10 cycles per minute with lock opened position.	Contact Resistance	70 milliohms MAXIMUM.
5.2.3	Vibration	Mate the applicable FPC, apply 1 mA DC during the test, and vibrate it in three axes perpendicular to each other, including the mating axis, for two hours each. Amplitude : 1.5mm Peak to Peak Frequency : 10~55~10 Hz in 1 minute. Duration : 2 hours in each X.Y.Z.axes.	Appearance	No Damage on function
			Contact Resistance	70 milliohms MAXIMUM.
			Discontinuity	1.0 microsecond MAXIMUM.
5.2.4	Mechanical Shock	Mate the applicable FPC are tested under the following conditions: 3 impacts in 3 mutually perpendicular axes [±x, ±y, ±z, each] including the mating axis from 6 directions while 1mA DC is applied. [Total of 18 shocks] Test pulse : Half Sine Peak value : 490 m/s^2 {50 G} Duration : 11 ms	Appearance	No Damage on function
			Contact Resistance	70 milliohms MAXIMUM.
			Discontinuity	1.0 microsecond MAXIMUM.

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5.3 ENVIRONMENTAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.3.1	Heat Resistance	Mate applicable FPC and expose to 85±2 degrees C for 96 hours. Upon completion of the exposure period, the test specimens shall be left at ambient room temperature for 1 to 2 hours. After that, the measurements shall be performed.	Appearance	No Damage on function
			Contact Resistance	70 milliohms MAXIMUM
5.3.2	Cold Resistance	Mate applicable FPC and expose to -40±3 degrees C for 96 hours. Upon completion of the exposure period, the test specimens shall be left at ambient room temperature for 1 to 2 hours. After that, the measurements shall be performed.	Appearance	No Damage on function
			Contact Resistance	70 milliohms MAXIMUM
5.3.3	Humidity	Mate applicable FPC and expose to 40±2 degrees C, relative humidity 90 to 95% for 96 hours. Upon completion of the exposure period, the test specimens shall be left at ambient room temperature for 1 to 2 hours. After that, the measurements shall be performed.	Appearance	No Damage on function
			Contact Resistance	70 milliohms MAXIMUM
			Insulation Resistance	50 Megaohms MINIMUM
			Dielectric Strength	Must meet 6.1.3
5.3.4	Temperature Cycling	Mate applicable FPC and conduct test subject to the following conditions for 5cycles. Upon completion of the exposure period, the test specimens shall be left at ambient room temperature for 1 to 2 hours. After that, the measurements shall be performed. 5cycles of: a) -40±3 degrees C 30 minutes b) +85±2 degrees C 30 minutes Shifting time : within 5 minute	Appearance	No Damage on function
			Contact Resistance	70 milliohms MAXIMUM
5.3.5	Salt Spray	Mate applicable FPC and expose to the following salt mist conditions. Upon completion of the exposure period, salt deposits shall be removed by a gentle water wash or dip in running water. After that, the measurements shall be performed. NaCl solution Concentration : 5±1 % Spray time : 48+4/-4 hours Ambient temperature : 35+2/-2 degrees C	Appearance	No Damage on function
			Contact Resistance	70 milliohms MAXIMUM

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5.3 ENVIRONMENTAL PERFORMANCE continued

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.3.6	SO2 Gas	Mate applicable FPC and expose to the conditions of 25±5 ppm SO2 gas at ambient temperature 40±2 degrees C for 96 hours.	Appearance	No Damage on function
			Contact Resistance	70 milliohms MAXIMUM

5.4 OTHER PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
5.4.1	Solderability	Dip terminal and nail into flux, and immerse the area up to 0.2 mm from the product mounted surface on PCB into molten solder pot at 245±3 degrees C for 3±0.5 seconds.	Solder Wetting	95% MIN of immersed area and there are no pin holes and no gap.
5.4.2	Resistance to Soldering Heat	<Reflow soldering> Conduct the reflow twice at the condition specified in the paragraph 8.	Appearance	No Damage on function
		<Soldered by Manual Soldering iron> Using a soldering iron [350±10 degrees C for 5 seconds] heat up the area 0.2mm from the tip of the solder tails and nails. However, do not apply excessive pressure to either the terminals or nails.		

Unless otherwise expressly stated, refer to JIS C5402, JIS C60068(IEC 60068), MIL-STD-202.

The board samples of the specification test were reflowed under the reflow profile of paragraph 7.
Cream soldering paste: Sn-3Ag-0.5Cu

6. FPC INSERTION / RETENTION FORCE (Reference value)

Please refer to Test Report.

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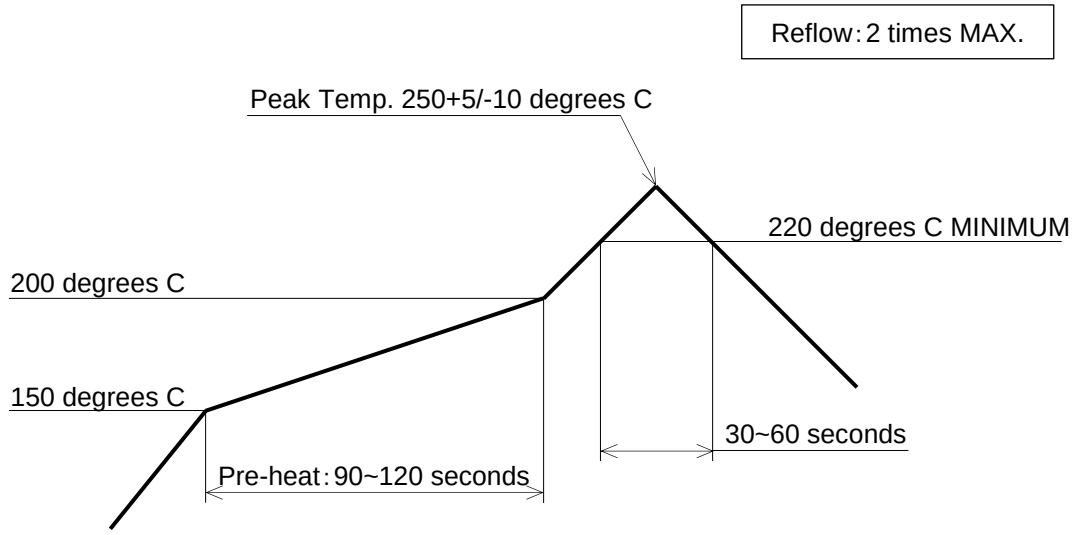
7. RECOMMENDED REFLOW CONDITION



Recommended reflow : Nitrogen reflow (O2 concentration : 2000ppm)

TEMPERATURE CONDITION GRAPH

(Temperature is measured at the soldering area on the surface of PCB)

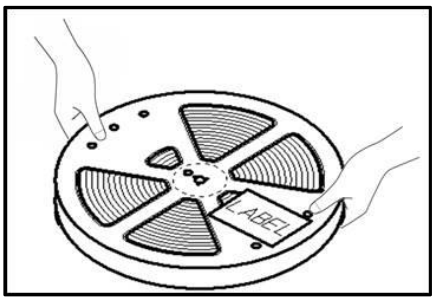
Please make sure to do test run under the mounting condition (reflow soldering condition) on your own devices before use because reflow condition may change due to the local condition (Air / N2 reflow / temperature profile / solder paste, metal mask thickness / aperture rate / pattern layout of PCB / types of PCB / and other factors). Depending on the mounting condition, product's performance might be influenced by occurrence of solder-wicking or flux wicking at contact area.

- Recommended Pattern dimension, soldering mask thickness and mask opening ratio refer to the Sales Drawing.

8. OTHER PRECAUTIONS

Handling of embossed reels

Please handle the embossed reels properly by both hands as illustration below. There is a possibility for the embossed reels to be damaged if it is held partially or unevenly.



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9. **NOTES**

Appearance

1. Although this product may have a small black dot, a weld line or a scratch on the housing, it doesn't impact the product's performance. Also, although weld line may stand out due to LCP used to mold material of this product, it doesn't impact the product's performance.
2. Although there may be slight differences in the housing color tone, it doesn't impact the product's performance.
3. Although the surface of the product could have scratch marks by frictions because of the Tin plating, it doesn't impact the product's performance.

Mount

5. The product performance was tested using rigid PCB. In case the product needs to be mounted onto FPC, please conduct a reflow test on the FPC before use.
6. In case of mounting the connector onto FPC, add a stiffener on the FPC in order to prevent the deformation.
7. Please design appropriate pattern on boards (PCB / FPC) for this connector to avoid excess temperature rise.
8. In case of designing with changing our recommended board pattern size, please consult the contact person in advance because it may cause a fatal defect.
9. The mounting specification for coplanarity does not include the influence of warpage of the printed circuit board. Mounting failure of the connector is caused by the warpage of the printed circuit board. Please conduct a reflow test on the flexible circuit board in advance.
10. Our evaluation is conducted based on Molex-recommended condition specified in this product specification.
11. Only coplanarity before reflow is guaranteed. Coplanarity in and after reflow is not guaranteed.
13. Although the top surface of tail does not get wet with solder due to the product specification, it does not impact on the product's performance.
14. If you leave any soldering area on this product open, it could occur terminal disengagement, short circuit between pins, terminal buckling or connector disengagement from the PCB. Therefore, please solder all of the soldering tails and fitting nails on the PCB.
16. If accidental contact is added onto connectors in the reflow machine, connectors could be deformed or damaged. Therefore review the reflow machine before use of the connectors.
17. Although color tone of resin parts or surface of terminal plating could be varied depending on reflow conditions, it does not impact on the product's performance.
18. Although some discoloration could be seen on the soldering tail after reflow, it does not impact on the product's performance.

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Product Specifications

19. When using this product, ensure that the specification for rated current per a circuit is followed. Do not allow the sum of the current used on several circuits to exceed the maximum allowable current.
20. Do not use the connector in a condition where the mating area (contact area) are constantly moved due to sympathetic vibration of wires and PCB or constant movement of devices. It may cause contact failure due to the worn out. Therefore fix wires and PCB on the chassis to reduces sympathetic vibration.
21. Pay special attention not to apply any pulling force/tension on the FPC while it is inserted into the connector. Avoid placing the connector where load is applied on the connector on the customer's board. The load could cause the actuator unlocked, the actuator disengagement, breaking of FPC wire, and/or damage of FPC. If the location is where constant load is applied on the FPC, fix the FPC directly on the chassis. Also, avoid applying loads to the connector by pulling FPC vertically or twisting FPC back and force horizontally while it is inserted in the connector.
22. Do not mate and un-mate applicable FPC while those are energized since this connector is not designed to allow it. It may cause danger due to sparks and functional failure of the product.
23. Use the appropriate FPC with the contact area with Gold plating (Nickel under plating).
24. Check the compatibility between the connector and the FPC prior to the use in the mass production.
25. At packaging, transportation and storing, avoid applying loads to connectors by handling, interference of connectors or piling-up packages. It could cause functional defect such as connector deformation or breakage.
26. Store the products under recommended storage condition. If the recommended storage conditions of the packaging is exceeded, check the appearance of the products and solder-wettability before use.
27. Do not stack PCB directly after mounting the connector on it.
28. Do not wash connector because it may impact the product’s function.
29. When using a flexible cable (especially FFC), ensure to comply with the temperature specification of the cable (especially FFC) Also, it is recommended to evaluate the compatibility between connector and your flexible cable.

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Product operation

30. Do not touch the terminals and fitting nails of connectors before or after mounting onto the PCB.
31. Avoid move or assembly of connector which could apply loads to the direction of the connector pitch, span or rotation. It may damage the connector and crack the soldering.
32. When inserting the FPC into the connector ensure to insert the FPC until the end of the FPC touches the housing and check the connector's lock nail is securely engaged with the FPC's ear. (See Fig.1) Diagonal insertion of the FPC into the connector could cause short circuit due to the misaligned pitch, terminal deformation and damage on FPC contact area due to interference of the FPC edge to the terminal contact. (See Fig.2 and Fig.3)

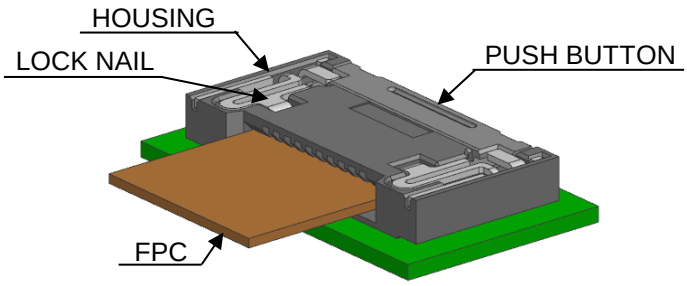

Fig 1. Image of FPC insertion

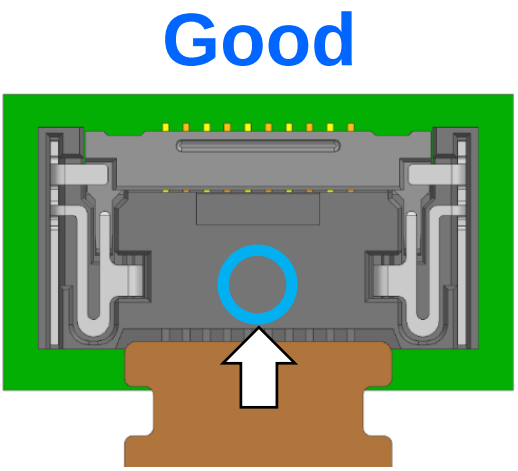

Fig 2. Straight insertion

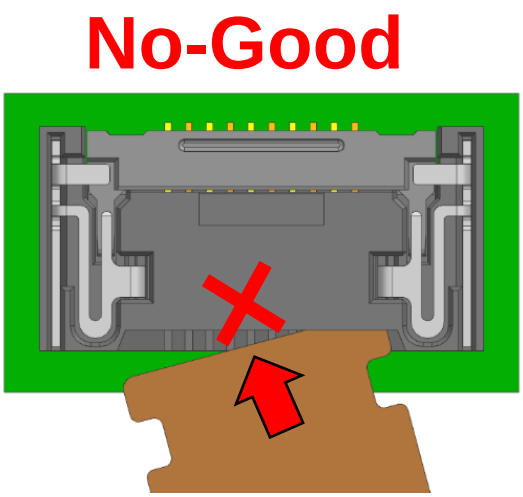

Fig 3. Diagonal insertion

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33. When removing the FPC, press the button to ensure that the lock is fully open and then remove the FPC. (see Fig.4) If the FPC is removed without the lock being fully opened, check for damage to the FPC and connector before reinstalling it. If any piece of the FPC remains in the connector slot, remove it with an air blow. Do not use sharp tools like tweezers. It can lead to deformation of the terminals and damage to the connector.

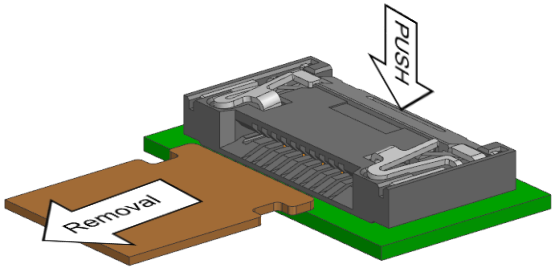

Fig 4. Image of FPC removal

34. Operation the push button only while the FPC is fully inserted into the connector after mounting on the board. Operation without FPC inserted in it could cause disengagement of the lock nail.

35. Do not use tool with a sharp tip when operating the push button. Also, be careful not to press too deeply with nails or fingers. This may cause terminal deformation, connector damage and solder area damage.

36. When operating the push button, gently press the center of the push button so that even force is applied across the push button it carefully. (See Fig.5)
Do not operate from a position biased to one side where the load concentrates on a single point, as it may damage the connector. (See Fig.6)

Good

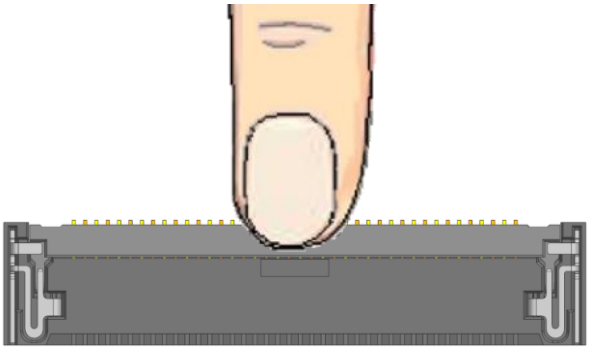

Fig 5. Apply force at the center of Push Button

No-Good

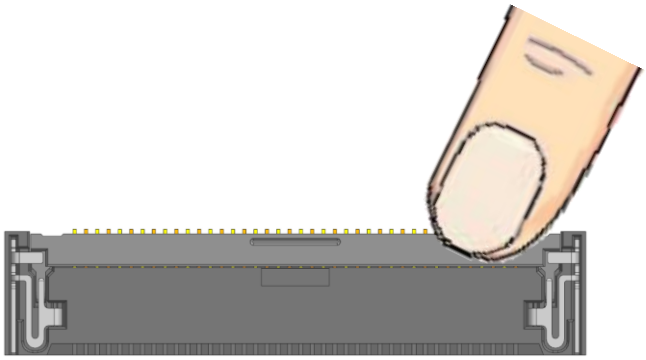

Fig 6. Apply force at the one side on Push Button

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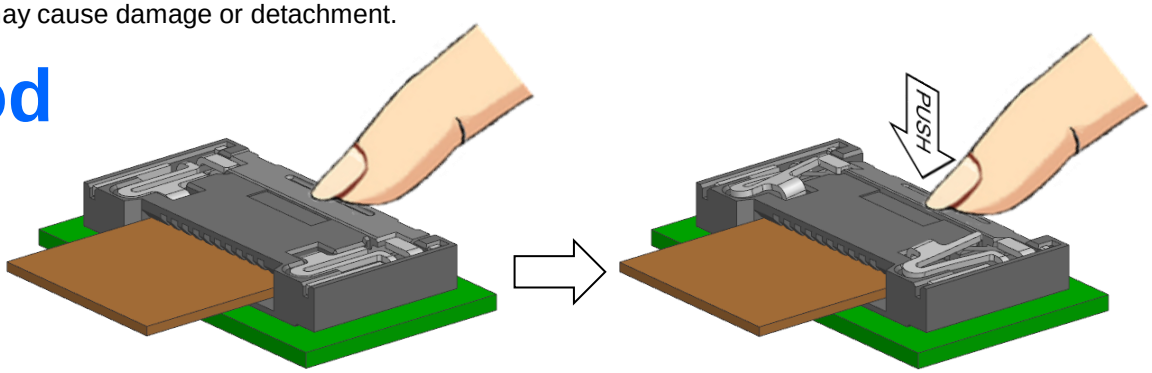
37. Avoid pushing the push button to the direction which the push button is dislodged, as shown in Fig.7. This may cause damage or detachment.

Good



No-Good

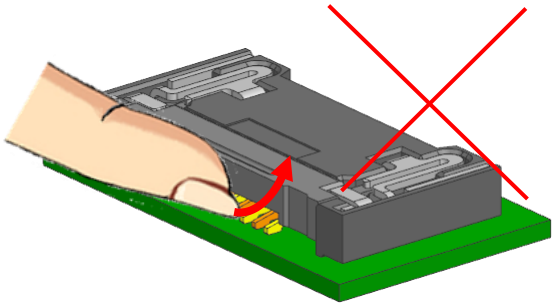


Fig 7. Image of Push Button

38. Refer to the Application Specification for details of connector handling instruction.

Repair

39. When conducting manual repairs using a soldering iron, follow the soldering conditions shown in the product specification. If the conditions in the product specification are not followed, it may cause the terminal disengagement, contact gap change, housing deformation, housing melting, and connector damage.

40. When conducting manual repairs using a soldering iron, do not use excess solder and flux than needed. It may cause solder wicking and flux wicking issues, and also eventually cause a contact defect and functional issues.

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