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This manual describes important and required points of handling about JMC connector (embossed-taping product). Be sure to read this manual thoroughly before using this connector.

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Prepared by:	Checked by:	Reviewed by:	Approved by:	
K,Takehira	-	S.Ota	H.Tomimoto	
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JST Title subject: JMC Connector	No. CHM-1-2090
 Part Name Contact Suction surface Contacting part 	Contact
Resin part/	
Top view of receptacle Cross-sectiona	al view of receptacle
Contacting part Contact Suction surface Contact Contact Contact	
Top view of applicable plug Cross-sectional vie	ew of applicable plug



2. Model Number

	Part name	Model No.	
	Lagge piege product	With boss	(* ₁)R-JMCS-G-B (* ₂)
Popontagla		Without boss	(* ₁)R-JMCS-G (* ₂)
Receptacie	Embossed taning product	With boss	(* ₁)R-JMCS-G-B-TF (* ₂)
	Embossed-taping product	Without boss	(* ₁)R-JMCS-G-TF (* ₂)
	Loose piece product	With boss	(* ₁)P(* ₃)-JMCS-G-B (* ₂)
Top optry type plug		Without boss	(* ₁)P(* ₃)-JMCS-G (* ₂)
Top entry type plug	Embossed-taping product	With boss	(* ₁)P(* ₃)-JMCS-G-B-TF(* ₂)
		Without boss	(* ₁)P(* ₃)-JMCS-G-TF(* ₂)
	Loose piece product	With boss	(* ₁)PS-JMCS-G-1B (* ₂)(LF)(SN)
Sido ontru tuno nlug	Loose piece product	Without boss	(* ₁)PS-JMCS-G-1 (* ₂)(LF)(SN)
Side entry type plug	Embossed taning product	With boss	(* ₁)PS-JMCS-G-1B-TF (* ₂)(LF)(SN)
	Empossed-taping product	Without boss	(* ₁)PS-JMCS-G-1-TF (* ₂)(LF)(SN)

Note 1: Number of circuits in two-digit figure is indicated in (*1).

- Note 2: Plating specification of contact is indicated in (*2).
- Note 3: Stacking height of top entry type plug is indicated in (*3).
- Note 4: Identification marking "(LF)(SN)" of suffix stands for purified lead-free product. (LF)(SN) shall be displayed on product label.

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- 3. Storage
 - 3-1 Connector storage

Recommended storage condition: Temperature: 5 - 35 °C, Relative humidity 60 % or less (Under packaging like the state of JST shipment)

Keep off direct sunlight, places exposing to such corrosive gas as industrial gas (generate from a stove and whatnot) and ammonia gas (generate from a toilet and whatnot), dusty place and condensation. Note that the resin molding part may break due to transportation and handling, such as processing and mating, under dry or low temperature condition. After unpacking, return products in the original package to store.

After unpacking, return products in the original package to sto

3-2 Storage of the processed connectors

Not leaving the processed connectors to stand in a place exposed to high humidity and direct sunshine, and not placing them directly on the ground, keep them in a clean storage room.

4. PC Board Pattern Layout

The following PC board pattern layout is recommended.

Receptacle side



<u> </u>		_
Circuits	A	В
14	3.0	4.2
18	4.0	5.2
20	4.5	5.7
24	5.5	6.7
30	7.0	8.2
34	8.0	9.2
40	9.5	10.7
42	10.0	11.2
46	11.0	12.2
50	12.0	13.2
60	14.5	15.7

Reference PC board pattern layout (Viewed from component side)



Applicable plug side (Top entry type plug)

JMC Connector



Circuits	Α	В	С	D
14	3.0	4.2	4.05	4.9
18	4.0	-	-	-
20	4.5	5.7	5.55	6.4
24	5.5	6.7	6.55	7.4
30	7.0	8.2	8.05	8.9
34	8.0	9.2	9.05	9.9
40	9.5	10.7	10.55	11.4
42	10.0	11.2	11.05	11.9
44	10.5	11.7	-	-
46	11.0	12.2	12.05	12.9
50	12.0	13.2	13.05	13.9
60	14.5	15.7	15.55	16.4
64	15.5	16.7	-	-

No.

Applicable plug side (Side entry type plug)



Reference PC board pattern layout (Viewed from component side)

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5. Handling Precautions

5-1 Mating operation

Normal operation method: Plug and receptacle housing are mated in a straight line.

- ① Mate both housings on the same axis without applying force such as prying. When mating operation is conducted forcibly without aligning both housings, such handling may lead to scratch or hollow of housing and breakage of connector.
- Press the whole of connector gently and mate plug with receptacle housing in a straight line. There is a "click" sound (you feel a click) when mating operation is properly completed. When there is no feeling of a click, there is a possibility that mating is not finished completely. Conduct mating operation again.

(The number of such mating and unmating operation should be decreased as much as possible.)

• Top entry type









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Prohibited matter in mating operation

Do not mate plug with receptacle with each pitch misaligned. (Such handling may cause deformation of contact and chip or crack of housing.)

• Top entry type









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Do not mate plug with receptacle by rotating plug from slanting condition after mating only one side of connector as below.

(Such handling may cause deformation of contact and chip or crack of housing.)

• Top entry type



Note: It may be difficult that plug and receptacle housing are mated in a straight line against mating axis direction until the operation is completed, judging from operating condition in massproduction line.

Therefore, it is assumed that mating operation is conducted in either of the following two methods on the next page, while larger load than the normal operation is applied to connector. (It may cause breakage of connector.)

Pay careful attention to the following precautions during mating operation in particular.

- Conduct mating operation in a straight line from above.
- Do not mate connectors with misaligned pitch.
- Do not apply excessive force to one part of connector during mating operation.
- There is feeling of a click when mating operation is properly completed.
- Do not press further down connector from above after mating operation.
- The number of mating and unmating operation should be decreased as much as possible.

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Other operation method

Method 1:	Slanting mating operation in the direction to pitch
	(Mating in the direction of the connector length)

- ① Mate connectors as nearly parallel as possible (MAX. 5°).
- Do not mate connectors pressing down the one part of connector but mate connectors gently in a straight line pressing down the whole of connector.
 There is a "click" sound (you feel a click) when mating operation is properly completed.
 When there is no feeling of a click, conduct mating operation again.
- Top entry type

• Side entry type



Prohibited matter in mating operation

Do not mate connector under the condition that connector is largely deviated to the direction to pitch, because such condition may cause deviation of pitch or breakage of housing part.

• Top entry type





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Method 2: Slanting mating operation in the rectangular direction to pitch (Mating in the direction of the connector width)

① Mate connectors as nearly parallel as possible (MAX. 5°).

Do not mate connectors pressing down the one part of connector but mate connectors gently in a straight line pressing down the whole of connector.
 There is a "click" sound (you feel a click) when mating operation is properly completed.
 When there is no feeling of a click, conduct mating operation again.

• Top entry type

• Side entry type



Prohibited matter in mating operation

Do not mate connector under the condition that connector is largely deviated to the rectangular direction to pitch, because such condition may cause deformation of receptacle contact spring part and a critical defect as electrical discontinuity of connector.

• Top entry type



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5-2 Unmating operation

Normal operation method: Plug side is straightly extracted from receptacle side (or contrary).

- ① Unmate connectors as nearly parallel as possible (MAX. 5°).
- Top entry type









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Prohibited matter in unmating operation

Do not unmate plug from receptacle by rotating it with holding one end of PC board at plug side as below, because such handling may cause deformation of contact and chip or crack of housing.

• Top entry type









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5-3 Handling of connector after mating

- ① When both connectors are mounted on rigid PC board, fix the PC board so that connector does not come off PC board due to vibration and shock.
- ② Do not apply external force to connector due to deviation of position between PC boards after screwing or fixing PC boards, because a critical defect as solder crack, etc. may occur.
 - e.g.: Top entry type



- ③ When above PC board fixing method is difficult due to mounting on FPC, etc., fix FPC and PC board by pressing to the mating direction as below.
 - e.g.: Top entry type

Secure FPC and PC board by sponge, etc.



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When FPC with connector is used, provide sufficient FPC length for handling, because external force which is caused by bending of FPC or pulling FPC is loaded to connector.

FPC length is sufficient, so that force is not loaded to connector.



Bending part of FPC is so close to connector that lateral load is loaded to connector.



Pulling force is applied to connector due to insufficient FPC length



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5-4 Precautions for soldering operation

① Reflow soldering method

Soldering should be conducted at the temperature below the temperature profile shown in Product Specification as item of "Resistance to soldering heat".

Though recommended reflow temperature condition varies depending on solder paste to be used, evaluate and find adequate condition before production.

Considering handling of this connector in mating operation, tenacious heat-resistant nylon resin is used for the material of a wafer. But 'blister' may generate on the outer surface of a wafer during the process of reflow soldering, depending on the condition of water absorption in a wafer and the condition of reflow soldering. However, because 'blister' is not caused by decomposition of resin, it does not affect the performances of the connector.

When bridge trouble appears in process of reflow soldering and repair is conducted by hand, use a soldering iron with temperature of 350°C at the tip and do it quickly within 3 seconds so that the contact pin is pushed by soldering iron tip and external load is not applied to it. If done, dismount and change connector.

Do not reuse dismounted connector.

② Solder paste

As JMC connector is a fine pitch connector, blanking part of metal mask is very small, so soldering by using solder paste for fine pitch is recommended. If solder paste which is not for fine pitch is used, solder coming off metal mask becomes worse, so that solderability may be affected.

③ Reflow soldering type

Reflow soldering by hot air reflow soldering is recommended. However, when N₂ reflow soldering or high active solder is used, use Nickel-underplated striped gold-plated type to prevent the solder wicking.

Note: Nickel-underplated striped gold-plated type has an identification marking (NSA) or (N) at the end of model number.

④ Specification of metal mask (amount of solder)

Metal mask of following blanking part ratio and thickness is recommended:

- Blanking part ratio: It shall be 100% against recommended PC board pattern layout as mentioned in item-4.
- Thickness: 120 μm

If the amount of solder increases, bridge trouble, solder rising, flux rising, etc. may occur, and if it is reduced, such condition may lead to deterioration of connector performance such as defective soldering, solder crack and so on.

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5-5 Precautions for using FPC

When either JMC connector plug or receptacle is mounted on FPC, use it under the following conditions, otherwise, defective condition such as coming off solder or pattern of FPC during unmating connector may occur.

- ① Be sure to use FPC, attaching reinforcing plate to the back part of connector mounting part. The outer dimensions of reinforcing plate should be larger than that of mounted connector.
- ② As material of reinforcing plate, be sure to use the plate which can secure sufficient strength and flat surface and its thickness shall be 0.3 mm min.