APPLICATION SPECIFICATION

2.0mm PITCH W/B CONN. Mi II System

【0. SCOPE】
This specification covers handling of the 2.0mm pitch WIRE to BOARD connector (Mi II™) series for ________________.

【1. PRODUCT NAME AND PART NUMBER】

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<tr>
<th>Wire side</th>
<th>Product Name</th>
<th>Part Number</th>
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<tr>
<td>Wire side</td>
<td>Receptacle Housing</td>
<td>51090**00</td>
</tr>
<tr>
<td>Receptacle terminal (AWG #24~30)</td>
<td>502128*00</td>
<td></td>
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<tr>
<td>Receptacle terminal (AWG #22~26)</td>
<td>503728*00</td>
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※1 Please refer to CS/RCS-50212-*** for further details.
※2 Please refer to CS/RCS-50372-*** for further details.
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【2. Instruction】

2-1. Product exterior

1. There is no influence on the product performance though the black spots or bubbles etc. might be confirmed on the plastic part of this product and the color might be different (discoloration by secular distortion etc.).
2. Slide marks may sometimes appear in plating part of the product, but there is no impact on the function of this product.
3. Resin and terminal plating may have some changes in color after reflow but there is no negative impact on the function of this product.
4. Connectors may be damaged by applying force in the machines. Please confirm before use.

2-2. Applicable wire and crimp tooling

1. Guarantee is void when product is used with wire out of application range specified in the product specifications.
2. Guarantee is void when product is used with tooling not specified by Molex.
3. The recommended electric wire is tin plating. Please confirm separately about the use of other electric wires.

2-3. About safekeeping before harness process

1. Please keep the products with the delivery being in a state. Also, please keep it under normal temperature and humidity avoiding direct sunlight.
2. Please do not allow external force from being applied during the storage.
3. During handling, avoid shock or dropping products as it may cause damage.
4. First-in, first-out of the stock is recommended.
5. Keep product in original packaging before using.
6. This product should be inspected its appearance before using after expiration date.

2-4. Harness process instruction

1. Please confirm if the products and crimp machine, crimp condition, an applicable wire are equal to product drawing, crimp specifications before use.
2. Beware of unintended damage caused by dust, debris, or foreign objects before using this product. It may result in un-satisfaction of the insertion performance to the housing and electric performance.
3. Please do not touch the terminal by bare hand.
4. When a terminal is twisted or tangled before or after crimping, please do not pull it by force. The terminal may become damaged.
5. Do not apply force to the product during work in process or in finishing goods. Product may be damaged and may not function properly as a connector.
6. Please do not expose a product and a harness half-finished goods to the following condition.
   - Dust
   - Corrosive material
   - Corrosive gas
   - High temperature and high humidity
   - Direct sunlight
   The above-mentioned conditions may cause poor contact and the corrosion of the terminal and the insulation performance deterioration of the housing. Please keep in boxes.
7. Please do not add loads to connector and harness half-finished goods during production, packaging, transportation, or storage. It may cause damage and result in poor performance.
8. When pulling the electric wire of harness half-finished goods, contact defect may be caused by adding load to contacts, crimp parts and lock parts. When performing the guidance wiring of the electric wire, do not apply excessive forces that the connector can't withstand.
9. Do not damage receptacle crimp housing and a crimp terminal intentionally. Product performance can be affected by this condition.
10. Please use the product within the day the package is opened. Moisture absorption or drying may cause the deterioration of materials by neighboring atmospheres. When you cannot use it up, please seal the bag again and keep it in a box.
11. Please be careful not to be injured by the edges part such as metal parts when handling a connector.
12. To avoid injury, please be careful when handling the paper between terminals and metal carrier on reels.
13. Do not coil electric wires around the housing or the gap of the housing lock during harness processing and packaging of harness product. In addition, please do not pull an electric wire by force when an electric wire has coiled itself around the housing and the gap of the housing lock. If wire becomes tangled, it may cause terminal damage. Please do not apply load to housing lock when removing wires.

2-5. About use in the machinery
1. Vibration of an electric wire or printed circuit board due to machinery vibration or rotation must be avoided to prevent damage to connector at contact area. Contact failure due to abrasion may be caused. Therefore, please fix electric wires and printed circuit boards in the machinery and take measures to hold resonances.
2. Please do not touch terminals before and after mounting on the circuit board.
3. Please insert and withdraw connector along fixed axis. The diagonal insertion and withdrawal cause damage to the connector.
4. After mating, do not intentionally apply force to span or rotate a connector. Such force may cause damage to connector or solder cracking.
5. If an electric wire is pulled after mating a connector, it may damage contact or crimping areas or the lock area and result in contact failure. When performing the guidance wiring of the electric wire. Please keep the wire loose to avoid applying excessive force to connector.
6. When withdrawing the connector, please hold wire lightly and remove the lock securely using the entire finger.
7. Plastic lances may be damaged after removing crimp terminals. Therefore, please use a new crimp housing when repairing a connector.
2-6. About rating / performance standard

1. Please use the product within the rating / the standard of product specifications (PS-51090-***/RPS-51090-***).
2. This product is not designed for usage in “hot-swap” applications where power is on.
3. Please confirm that machinery design standards are satisfied before using the connector.
4. Please avoid using current higher than the rated current.

2-7. Use of the product

1. This product is not designed and produced for the machine to be used under the condition involving human lives or for the use of system. If you use this product for special use such as medical, aerospace and nuclear power etc., please confirm us before using.
2. Please avoid using the product outdoors or under similar environment.
3. The name of each part and explanation

3-1. Receptacle crimp terminal: 50212 and 50372 series

It shows reel state of 50372

※ Please refer to sales drawing (SD/RSD-50212-*** or SD/RSD-50372-*** ) for product form and its dimensions.
3-2. Receptacle housing and harness: 51090 series

Indicator of 1ckt side

Receptacle housing (51090 series)

Mold lance
Fastener with terminal lance

Wire
50212: AWG #24-30
50372: AWG #22-26

Friction lock
Lock structure to mate with harness and wafer or plug harness

※ Please refer to sales drawing (SD/RSD-51090-***) for product form and its dimensions.

Fig.3-2 The name of harness
【4. Confirmation items of crimping wire】

4-1. The appearance before crimping

When using the loose terminals products before crimping, please make sure that there is no deformation of the crimp Terminal. If you find that the terminals are tangled, please do not remove them forcibly. Please refer to sales drawing (SD/RSD-50212-*** or SD/RSD-50372-*** for product form and its dimensions.

4-2. The appearance after crimping

Confirmation items and crimping failure after crimping are shown as follows. Please refer to CS/RCS-50212-*** or SD/RSD-50372-*** for specified crimp height, pull testing, and applicable wire specifications.

① No visible damage on terminal.
② No visible damage or deformation on spring contact area.
③ All wire strands are in conductor barrel.
④ The insulator part of the electric wire is located in the intermediate position of wire barrel and insulation barrel.
⑤ No damage on terminal lance.
⑥ No damage on appearance. (Dirt / foreign objects)
4-3. Crimping failure

Please be careful of the crimping failure as shown below. It may affect the insertion to housing and affect a product function.

① Bend up
It may deteriorate insertion to housing and terminal retention force or cause contact failure.

No Good

Fig. 4-2

② Bend Down
It may deteriorate insertion to housing and terminal retention force or cause contact failure.

No Good

Fig. 4-3

③ Twist
It may deteriorate insertion to housing and terminal retention force or cause contact failure.

Good

Fig. 4-4
4. Rolling
It may deteriorate insertion to housing and terminal retention force or cause contact failure.

5. Crush and deformation of contact area and contact box
It may deteriorate insertion to housing and terminal retention force or cause contact failure.

6. Wire strands are not inside the conductor barrel
It may deteriorate insertion to housing and terminal retention force or cause contact failure.
7. Crimping position: Too front
It may cause breaking of wire, deterioration of wire crimping strength and disconnection by crimping insulator.

No Good

Fig. 4-8

8. Crimping position: Too back
It may cause deterioration of wire crimping strength and disconnection by not having enough crimping margin

No Good

Fig. 4-9

As wire insulation is not crimped completely, wire insulation falls off easily when wire is pulled.

No Good

Fig. 4-10

9. Deformation of terminal lance
Locking of the terminal becomes insufficient and causes lowering of the terminal retention force.

No Good

Deformation (Crushed)

Fig. 4-11
[5. Wire bundling after crimping and package]

Please check for damaged terminal and wire insulation, when bundling wires. (We recommend to tie at about 30mm from crimp-end when these wires are bundled up by rubber band. (Fig.5-1))
Please check for the quantity per packing-box.
Do not over pack crimped wires in a box as there is risk of damaging terminals.

Instruction

※When bundling wires, please be careful not to apply excessive force to terminals. Do not fling to workbench to in order to be line up the wire end.
※When packing bundled harnesses after processing in package box, in order for force not to be applied to connector for a long period of time by piling up, please put product alternately (cross shape) in a fitting box. (Fig.5-2)
※Please lay buffer material on the bottom and top of the package box. In order to avoid applying force to connector for a long period of time by stacking the wires, please lay buffer material. (Fig.5-2)
6. Harness processing (crimping wire insertion method in Receptacle housing)

Insertion procedure and instructions (※) of the crimping wire are shown as follows:

6-1. Insertion of crimping wire

① Hold receptacle housing by pinching right and left side. Hold the cable at about 10mm away from the crimp-end with fingers lightly.

Instruction

※If you hold the wire at a position distant from terminal, wires will be easily bent and it may be difficult to insert.
※Distance value depends on wire gauge, UL, etc. Please confirm with the wire that you chose before using.

② Hold the terminal lance part toward center of receptacle housing and insert terminal slowly and straightly till the tip of terminal touches housing (with force of around 1.5〜4N). (Fig.6-1)
※ If crimping height and width are too large, there is a problem for the terminal insertion. Please follow the instructed crimping height. (Please refer to crimping specifications CS/RCS-505153-***)
※ Please use care with the direction of terminal when inserting to receptacle housing. (Fig.6-2,6-3) Please be careful that the terminal is not upside down, not having an angle, or not rotated against receptacle housing. These may cause terminal deformation or damage to receptacle housing.
※ If you feel unusual such as hooking during the insertion, please do not continue by force. After confirming there is no damage of terminal or receptacle housing, it can be inserted again. If the damage is found, do not use the terminal and receptacle housing.

Fig.6-2  Right insertion direction

Fig.6-3  Inappropriate insertion direction

- Mold lance
- Terminal lance

〇 Right insertion direction
× Upside down direction
× Having an angle
× Rotated (Ex.: 90°)
6-2. Repair of crimp terminal

When you withdraw the crimp terminal inserted once, please withdraw it with raising mold lance using something sharp like needle. However, mold lance is transformed by being raised. As strength of the transformed lance decreases extremely, the terminal might come off easily from housing even if you insert it again. Therefore, please be sure to change the receptacle housing to a new one when you repair crimp terminal.

Instruction

※Please get the state of being able to gripping wire before starting repair.
※Please avoid pulling off terminal by force.
※When repairing, please be careful not to deform or scratch terminal lance.
※DO NOT REUSE the housing that withdrew terminals.

Fig. 6-6

THE WITHDRAWAL DIRECTION

Jig with sharp end like needle

※※※
【7. Banding of harness】

When banding harness after processing, please be careful with the following point.

① Please bundle the wires at more than 50mm away from connector and uniformize the force applied to each wire. (Fig.7-1)

② As for the harness, please do not apply force to only one wire (or a few particular wires). (Fig.7-2)

※ When harnesses have tangled with each other, please do not pull them by force. That might damage to connector because the extreme force is applied to terminal and it might come off from connector.
※ Please do not drop the product or hit it against other objects.
[8. Recommended packaging of cable harness and assemblies]

When packing harness after processing, procedure and instruction (※) are shown below.

① Bundle the harness after processing. Please band 20 harness at most in one bunch.

Inspection

※When bundle the harness, in order to avoid applying excessive force constantly please do not use anything that fastens tightly such as rubber band. Please band at the center (at one point) with vinyl string. Please take a measure to protect connector from shock or load by wrapping each bunch of connector with air packing. (Fig. 8-1)

When some harnesses are banded, each connector contact and part of lock might be loaded. In that case, deformation of lock part etc. might cause defective performance because the lock being down all the time.

Fig. 8-1 A bunch of harness
① Put banded harness into carton box.
Figure below (Fig 8-2) Please take a measure not to add force to connector for a long period of time by stacking if you pack by different packing method for long harness.

Instruction
※When packing bundle of harness after processing in a package box, please follow instructed packaging and avoid applying excessive load or force to harnesses. (cross shape) (Fig.8-2 ①)
※Please lay air packing etc. on the bottom of package box. In order to prevent force from applying to connectors for a long time by piling up package boxes, please lay air packing etc. (Fig.8-2 ②)
**APPLICATION SPECIFICATION**

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**REVISE ON PC ONLY**

**TITLE:** 2.0 WIRE TO BOARD CONN
Mi II™ SYSTEM
APPLICATION SPECIFICATION

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