



# PRODUCT SPECIFICATION

## 1.50MM PITCH, WIRE-TO-BOARD SMT HEADER AND RECEPTACLE

### 1.0 SCOPE

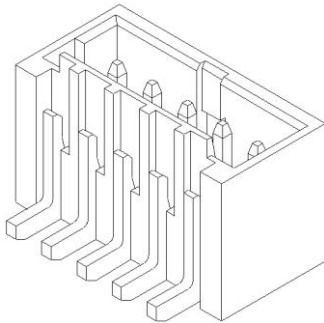
This specification covers the performance requirement for a 1.50mm pitch, Wire-To-Board Header and Receptacle System.

### 2.0 PRODUCT DESCRIPTION

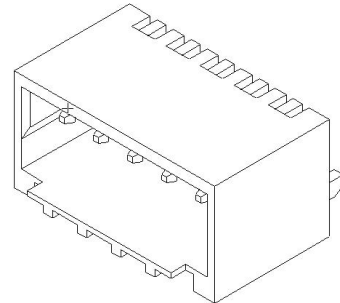
2.1 Products covered by this specification are for series number

1. 78047 (Vertical SMT Header)
2. 78048 (Right-Angle SMT Header)
3. 87439 (Receptacle housing)
4. 87421 (Receptacle Crimp Terminal)

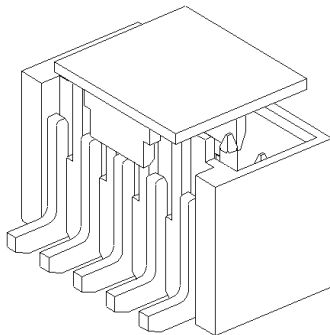
2.2 For dimensions, materials, platings and markings, refer to the appropriate Sales drawings.



78047 (Vertical SMT Header)



78048 (Right-Angle SMT Header)



78047 (Vertical SMT Header with CAP)

#### TENTATIVE RELEASE :

THIS SPECIFICATION IS BASED ON DESIGN OBJECTIVES AND IS STRICTLY TENTATIVE. PRELIMINARY TEST DATA MAY EXIST, BUT THIS SPECIFICATION IS SUBJECTED TO CHANGE BASED ON THE RESULTS OF ADDITIONAL TESTING AND EVALUATION.

|                     |   |  |                          |
|---------------------|---|--|--------------------------|
| REVISION:           | ECR/ECN INFORMATION:                                | TITLE:   | SHEET No.                |
| <b>3</b>            | EC No: <b>J2016-0573</b><br>DATE: <b>2015/12/09</b> | <b>1.50MM PITCH, WIRE-TO-BOARD<br/>SMT HEADER AND RECEPTACLE</b> | <b>1 of 5</b>            |
| DOCUMENT NUMBER:    | CREATED / REVISED BY:                               | CHECKED BY:  | APPROVED BY:             |
| <b>PS-78047-001</b> | <b>AISHIKAWA 2015/12/09</b>                         | <b>KASAKAWA 2015/12/09</b>                                       | <b>NUKITA 2015/12/09</b> |



# PRODUCT SPECIFICATION

## 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

The following documents are part of this specification to the extent specified herewith.  
In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence.  
In the event of conflict between the requirements of this specification and reference documents, this specification shall take the precedence.

|               |   |
|---------------|---|
| MIL-STD-202   | Test Methods for Electrical and Electronic Component Parts. |
| EIA Standards | Electrical Connector Test Procedure                         |
| MIL-STD-1344  | Test methods of Electrical Connector                        |

## 4.0 RATINGS

- 4.1 Voltage Rating : 250 VAC Maximum
- 4.2 Current Rating : 2.5A Maximum
- 4.3 Operating Temperature : -55°C to +105°C

## 5.0 PERFORMANCE

### 5.1 ELECTRICAL REQUIREMENTS

| ITEM | DESCRIPTION           | TEST CONDITION  | REQUIREMENT  |
|------|-----------------------|---|--|
| 1    | Contact Resistance    | Measure Contact Resistance by 10mAmp DC, open circuit voltage 20mV.<br>Per MIL-STD-1344A, Method 3004.1     | 20 mohms Maximum (Initial)<br>40 mohms Maximum (After<br>10X durability, mechanical<br>and/ or environmental test) |
| 2    | Insulation Resistance | Measurement taken between adjacent contacts where 500 VDC is applied.<br>Per MIL-STD-202F, Method 302)      | 1000 Megaohms<br>minimum   |
| 3    | Dielectric Strength   | Receptacle subjected to 500 VAC rms for 1 minute between adjacent contacts<br>Per MIL-STD-202F, Method 301) | No breakdown   |

|                  |                                       |  |                   |
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| 3                | EC No: J2016-0573<br>DATE: 2015/12/09 | 1.50MM PITCH, WIRE-TO-BOARD<br>SMT HEADER AND RECEPTACLE | 2 of 5            |
| DOCUMENT NUMBER: | CREATED / REVISED BY:                 | CHECKED BY:  | APPROVED BY:      |
| PS-78047-001     | AISHIKAWA 2015/12/09                  | KASAKAWA 2015/12/09                                      | NUKITA 2015/12/09 |



# PRODUCT SPECIFICATION

## 5.2 MECHANICAL REQUIREMENTS

| ITEM | DESCRIPTION                    | TEST CONDITION   | REQUIREMENT  |
|------|--------------------------------|--|--|
| 4.   | <b>Single Extraction Force</b> | Gauge dimension is 0.37 ±0.005<br>Withdraw pin from gauge at a rate of 12.7mm per minute | 30g Minimum (Initial)<br>25g Minimum (After 10X)   |
| 5.   | <b>Total Insertion Force</b>   | Insert connectors at a rate of 12.7mm per minute   | 2P 2.5KG Max<br>3P 3.0KG Max<br>4P 3.5KG Max<br>5P 4.0KG Max<br>6P 4.5KG Max<br>7P 5.0KG Max<br>8P 5.5KG Max<br>9P 5.5KG Max<br>10P 6.0KG Max<br>11P 6.0KG Max<br>12P 6.5KG Max<br>13P 6.5KG Max<br>14P 7.0KG Max<br>15P 7.0KG Max |
| 6.   | <b>Total Extraction Force</b>  | Withdraw connectors at a rate of 12.7mm per minute                                       | 2P 1.0-3.0KG<br>3P 1.0-3.5KG<br>4P 1.0-4.0KG<br>5P 1.0-4.5KG<br>6P 1.0-5.0KG<br>7P 1.0-5.0KG<br>8P 1.5-5.5KG<br>9P 1.5-5.5KG<br>10P 1.5-6.0KG<br>11P 1.5-6.0KG<br>12P 1.5-6.5KG<br>13P 1.5-6.5KG<br>14P 1.5-7.0KG<br>15P 1.5-7.0KG |

|                  |                                       |  |                   |
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| PS-78047-001     | AISHIKAWA 2015/12/09                  | KASAKAWA 2015/12/09                                      | NUKITA 2015/12/09 |

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# PRODUCT SPECIFICATION

## 5.2 MECHANICAL REQUIREMENTS (Continue)

| ITEM | DESCRIPTION   | TEST CONDITION  | REQUIREMENT  |
|------|---|---|--|
| 7.   | Total Extraction Force (After 10X durability, SMT preconditioning, and/or moisture resistance test) | Withdraw connectors at a rate of 12.7mm per minute                            | 2P 0.6-2.5KG<br>3P 0.6-3.0KG<br>4P 0.6-3.5KG<br>5P 0.8-4.0KG<br>6P 0.8-4.5KG<br>7P 0.8-4.5KG<br>8P 1.0-5.0KG<br>9P 1.0-5.0KG<br>10P 1.0-5.5KG<br>11P 1.0-5.5KG<br>12P 1.0-6.0KG<br>13P 1.0-6.0KG<br>14P 1.0-7.0KG<br>15P 1.0-7.0KG |
| 8.   | Thermal Life (Mated Connectors)   | Parts to be subjected to 105°C in a chamber for 168 hours.                    | 1. Contacts resistance : 40 mohms Maximum<br><br>2. Appearance : No damage   |
| 9.   | Thermal Shock (Mated Connectors)  | Parts to be subjected to 2 hours of -55°C and 2 hours of 105°C for 10 cycles. | Similar to Thermal Life  |
| 10.  | Moisture Resistance (Mated Connectors)  | Parts to be subjected to 85°C and 85% RH for a period of 168 hours            | Similar to Thermal Life  |

## 5.3 ENVIRONMENTAL REQUIREMENTS

| ITEM | DESCRIPTION                  | TEST CONDITION  | REQUIREMENT                          |
|------|------------------------------|---|--------------------------------------|
| 11   | Solderability                | Solder Time: 5+/-0.5 seconds<br>Solder temperature: 260+/-5 deg.C   | Soldered area should be 95% or more  |
| 12   | Resistance to Soldering Heat | Refer to Section 7.0 for soldering profile                          | No damage in appearance of connector |
| 13   | Push-out force               | Push header pin axially from housing at a rate of 12.7mm per minute | 0.7KG Minimum after Reflow           |

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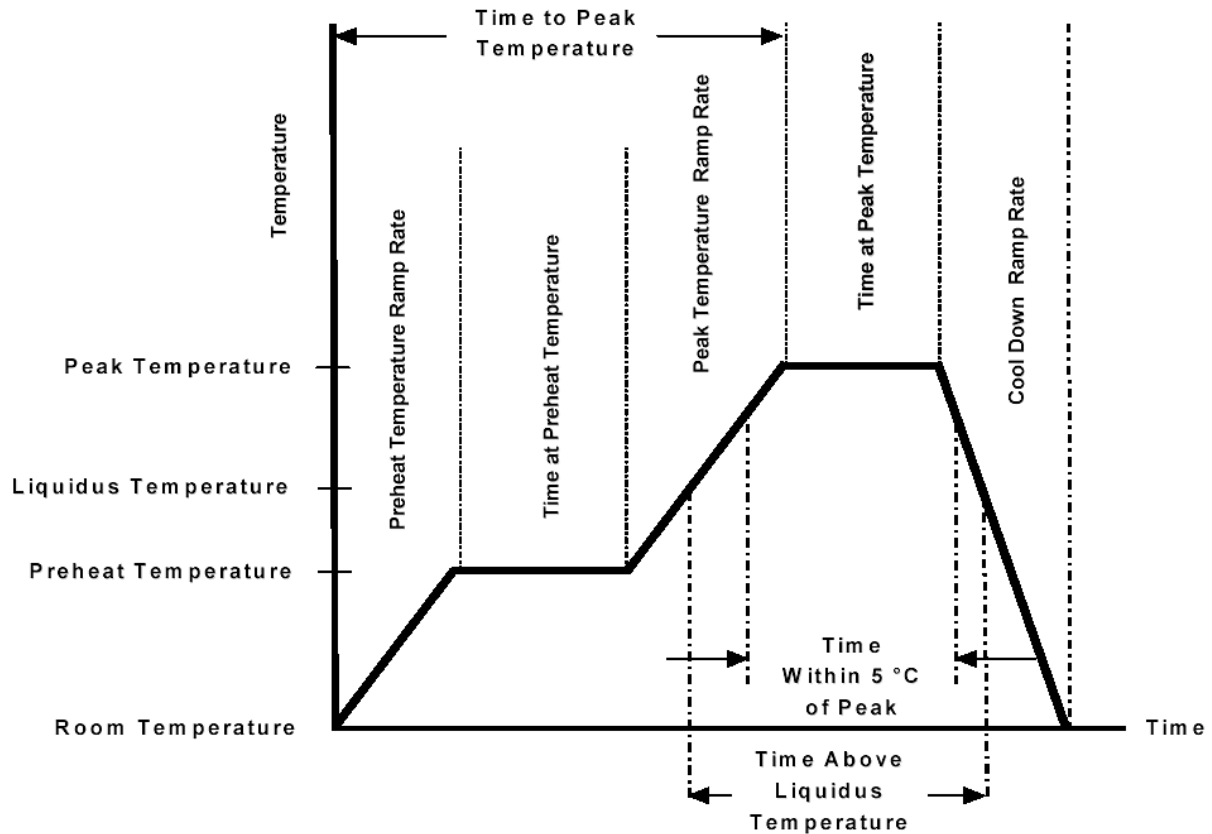


# PRODUCT SPECIFICATION

## 6.0 PACKAGING

Product shall be packaged and protected against damage during handling, transportation and storage.

## 7.0 SOLDERING PROFILE



| Description                | Requirement            |
|----------------------------|------------------------|
| Average Ramp Rate          | 3°C/sec Max            |
| Preheat Temperature        | 150°C Min to 200°C Max |
| Preheat Time               | 60 to 180 sec          |
| Ramp to Peak               | 3°C/sec Max            |
| Time over Liquidus (217°C) | 60 to 150 sec          |
| Peak Temperature           | 260 +0/-5°C            |
| Time within 5°C of Peak    | 20 to 40 sec           |
| Ramp - Cool Down           | 6°C/sec Max            |
| Time 25°C to Peak          | 8 min Max              |

|                  |                                       |  |                   |
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