

The subject products should meet the following requirements when tested under the condition of involving all circuits with terminals crimped on the specified maximum size wire.

### 1. Electrical Performance

|     | Item                      | Test Condition  | Requirement  |
|-----|---------------------------|---|--------------|
| 1-1 | Rated voltage and current | Terminal material   | Brass        |
|     |                           |   | Phos. Bro.   |
| 1-2 | Contact resistance        | Mate connectors measure by Dry Circuit, 20mV max., 10mA.            | 10 mΩ max.   |
| 1-3 | Dielectric strength       | When applied AC 1500V 1 minute between adjacent terminals or ground | No breakdown |
| 1-4 | Insulation resistance     | When applied DC 500V between adjacent terminals or ground           | 1000 MΩ min. |

### 2. Mechanical Performance

|     | Item                     | Test Condition   | Requirement                |
|-----|--------------------------|--|----------------------------|
| 2-1 | Insertion force          | Mating speed : 25±3mm/minute                                   | See para 7                 |
| 2-2 | Extraction force         | Disengaging speed : 25±3mm/minute                              | See para 7                 |
| 2-3 | Durability               | When mated up to 30 cycles by the rate of 10 cycles per minute | Contact resistance         |
|     |                          |  | Insertion extraction force |
| 2-4 | Terminal retention force | Pull speed : 25±3mm/minute                                     | 3.0 kg min.                |

### 3. Environmental Performance

|     | Item             | Test Condition  | Requirement        |
|-----|------------------|---|--------------------|
| 3-1 | Temperature rise | When carried the rated current  | 30 °C max.         |
| 3-2 | Vibration        | 1.5mm,10-55-10Hz/min.,each 2 hrs. for X,Y&Z directions, applying 1mA-DC current | Contact resistance |
|     |                  |   | Discontinuity      |
|     |                  |   | Appearance         |
| 3-3 | Shock            | 50G,each 3 times for X,Y,Z directions, applying 1mA-DC current                  | Discontinuity      |
|     |                  |   | Appearance         |

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|     | Item                             | Test Condition  | Requirement           |                          |
|-----|----------------------------------|---|-----------------------|--------------------------|
| 3-4 | Heat resistance                  | 105 ± 2°C, 96 hours   | Contact resistance    | 20 mΩ max.               |
|     |                                  |   | Appearance            | No damage                |
| 3-5 | Humidity                         | Temperature : 40±2°C<br>Relative Humidity: 90~95%<br>Duration : 96 hours<br>Measurement must be taken within 30 minute after tested     | Contact resistance    | 20 mΩ max.               |
|     |                                  |   | Dielectric strength   | To pass para 1-3         |
|     |                                  |   | Insulation resistance | 100 MΩ min.              |
|     |                                  |   | Appearance            | No damage                |
| 3-6 | Temperature cycling ( 5 cycles ) | One cycle consists of<br>(1) -55±3°C, 30 minute<br>(2) Room temp. 10~15 minute<br>(3) 105±2°C, 30 minute<br>(4) Room temp. 10~15 minute | Contact resistance    | 20 mΩ max.               |
|     |                                  |   | Appearance            | No damage                |
| 3-7 | Salt Spray                       | Temperature: 35±2°C<br>Solution : 5±1%<br>Spray time : 48±4 hours<br>Measurement must be taken after water rinse.                       | Contact resistance    | 20 mΩ max.               |
|     |                                  |   | Appearance            | No significant corrosion |
| 3-8 | SO <sub>2</sub> Gas              | 24 hours in sulfur dioxide gas (SO <sub>2</sub> ) 50±5ppm at 40±2°C   | Contact resistance    | 20 mΩ max.               |

4. Terminal To Be Used

|    | Customer P/No | Molex P/No | Wire Size     | Insulation Dia. |
|----|---------------|------------|---------------|-----------------|
| 1. |               | 5 1 6 7    | AWG #18 ~ #24 | φ (1.3)~2.5     |
| 2. |               | 5 1 6 8    | AWG #22 ~ #28 | φ (1.2)~1.7     |
| 3. |               | 2 4 7 8    | AWG #18 ~ #24 | φ (1.3)~2.5     |
| 4. |               | 2 5 7 8    | AWG #22 ~ #28 | φ (1.2)~1.7     |
| 5. |               |            |               |                 |

5. Ambient Temperature Range : -40°C ~ 105°C\*

\* : Including terminal temperature rise.

6. Construction, Dimension and Material : Specified by the attached drawing.

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7. Insertion and Extraction Force ( Terminal : 5167&5168 )

7-1 Without Lock Type

| No of Ckt. | Insertion Force (kgf, max.) |      |      | Extraction Force (kgf, min.) |      |      |
|------------|-----------------------------|------|------|------------------------------|------|------|
|            | 1st                         | 6th  | 30th | 1st                          | 6th  | 30th |
| 2          | 2.6                         | 2.4  | 2.4  | 0.25                         | 0.20 | 0.20 |
| 3          | 3.9                         | 3.6  | 3.6  | 0.40                         | 0.35 | 0.35 |
| 4          | 5.2                         | 4.8  | 4.8  | 0.55                         | 0.50 | 0.50 |
| 5          | 6.5                         | 6.0  | 6.0  | 0.70                         | 0.60 | 0.60 |
| 6          | 7.8                         | 7.2  | 7.2  | 0.80                         | 0.70 | 0.70 |
| 7          | 9.1                         | 8.4  | 8.4  | 0.95                         | 0.80 | 0.80 |
| 8          | 10.4                        | 9.6  | 9.6  | 1.10                         | 0.95 | 0.95 |
| 9          | 11.7                        | 10.8 | 10.8 | 1.25                         | 1.05 | 1.05 |
| 10         | 13.0                        | 12.0 | 12.0 | 1.40                         | 1.20 | 1.20 |
| 11         | 14.3                        | 13.2 | 13.2 | 1.50                         | 1.30 | 1.30 |
| 12         | 15.6                        | 14.4 | 14.4 | 1.65                         | 1.40 | 1.40 |
| 13         | 16.9                        | 15.6 | 15.6 | 1.80                         | 1.55 | 1.55 |
| 14         | 18.2                        | 16.8 | 16.8 | 1.95                         | 1.60 | 1.60 |
| 15         | 19.5                        | 18.0 | 18.0 | 2.10                         | 1.75 | 1.75 |

Mated with Molex parts No.

5 2 7 1 - N A

5 2 7 2 - N A

5 2 9 2 - N A

7-2 With Lock Type

| No of Ckt. | Insertion Force (kgf, max.) |      |      | Extraction Force (kgf, min.) |     |      |
|------------|-----------------------------|------|------|------------------------------|-----|------|
|            | 1st                         | 6th  | 30th | 1st                          | 6th | 30th |
| 2          | 6.5                         | 5.5  | 5.5  | 1.0                          | 0.8 | 0.8  |
| 3          | 8.5                         | 7.5  | 7.5  | 1.5                          | 1.2 | 1.2  |
| 4          | 10.5                        | 9.5  | 9.5  | 2.0                          | 1.6 | 1.6  |
| 5          | 13.0                        | 12.0 | 12.0 | 2.5                          | 1.9 | 1.9  |
| 6          | 15.0                        | 13.5 | 13.5 | 2.9                          | 2.3 | 2.3  |
| 7          | 17.0                        | 15.5 | 15.5 | 3.4                          | 2.7 | 2.7  |
| 8          | 19.0                        | 17.5 | 17.5 | 3.8                          | 3.1 | 3.1  |
| 9          | 21.0                        | 19.5 | 19.5 | 4.2                          | 3.5 | 3.5  |
| 10         | 23.0                        | 21.5 | 21.5 | 4.6                          | 3.9 | 3.9  |
| 11         | 25.0                        | 23.5 | 23.5 | 5.0                          | 4.3 | 4.3  |
| 12         | 27.0                        | 25.5 | 25.5 | 5.4                          | 4.7 | 4.7  |

Mated with Molex parts No.

5 2 7 3 - N A

5 2 7 4 - N A

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7. Insertion and Extraction Force ( Terminal : 2478&2578 )

7-1 Without Lock Type

| No of Ckt. | Insertion Force (kgf, max.) |      |      | Extraction Force (kgf, min.) |      |      |
|------------|-----------------------------|------|------|------------------------------|------|------|
|            | 1st                         | 6th  | 30th | 1st                          | 6th  | 30th |
| 2          | 2.0                         | 1.8  | 1.8  | 0.25                         | 0.20 | 0.20 |
| 3          | 3.0                         | 2.6  | 2.6  | 0.40                         | 0.35 | 0.35 |
| 4          | 4.0                         | 3.4  | 3.4  | 0.55                         | 0.50 | 0.50 |
| 5          | 5.0                         | 4.4  | 4.4  | 0.70                         | 0.60 | 0.60 |
| 6          | 6.0                         | 5.2  | 5.2  | 0.80                         | 0.70 | 0.70 |
| 7          | 7.0                         | 6.0  | 6.0  | 0.95                         | 0.80 | 0.80 |
| 8          | 8.0                         | 7.0  | 7.0  | 1.10                         | 0.95 | 0.95 |
| 9          | 9.0                         | 7.8  | 7.8  | 1.25                         | 1.05 | 1.05 |
| 10         | 10.0                        | 8.6  | 8.6  | 1.40                         | 1.20 | 1.20 |
| 11         | 11.0                        | 9.5  | 9.5  | 1.50                         | 1.30 | 1.30 |
| 12         | 12.0                        | 10.2 | 10.2 | 1.65                         | 1.40 | 1.40 |
| 13         | 13.0                        | 11.2 | 11.2 | 1.80                         | 1.55 | 1.55 |
| 14         | 14.0                        | 12.0 | 12.0 | 1.95                         | 1.65 | 1.65 |
| 15         | 15.0                        | 13.0 | 13.0 | 2.10                         | 1.80 | 1.80 |

Mated with Molex parts No.

5 2 7 1 - N A G

5 2 7 2 - N A G

5 2 9 2 - N A G

7-2 With Lock Type

| No of Ckt. | Insertion Force (kgf, max.) |      |      | Extraction Force (kgf, min.) |     |      |
|------------|-----------------------------|------|------|------------------------------|-----|------|
|            | 1st                         | 6th  | 30th | 1st                          | 6th | 30th |
| 2          | 5.5                         | 4.5  | 4.5  | 1.0                          | 0.8 | 0.8  |
| 3          | 7.0                         | 6.0  | 6.0  | 1.5                          | 1.2 | 1.2  |
| 4          | 8.5                         | 7.5  | 7.5  | 2.0                          | 1.6 | 1.6  |
| 5          | 10.0                        | 9.0  | 9.0  | 2.5                          | 1.9 | 1.9  |
| 6          | 11.5                        | 10.5 | 10.5 | 2.9                          | 2.3 | 2.3  |
| 7          | 13.0                        | 12.0 | 12.0 | 3.4                          | 2.7 | 2.7  |
| 8          | 14.5                        | 13.5 | 13.5 | 3.8                          | 3.1 | 3.1  |
| 9          | 16.0                        | 15.0 | 15.0 | 4.2                          | 3.5 | 3.5  |
| 10         | 17.5                        | 16.5 | 16.5 | 4.6                          | 3.9 | 3.9  |
| 11         | 19.0                        | 18.0 | 18.0 | 5.0                          | 4.3 | 4.3  |
| 12         | 21.5                        | 20.5 | 20.5 | 5.4                          | 4.7 | 4.7  |

Mated with Molex parts No.

5 2 7 3 - N A G

5 2 7 4 - N A G

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