



# PRODUCT SPECIFICATION

## 1.0 SCOPE

This Product Specification covers the 3.96 mm (.156 inch) centerline (pitch) Trifurcon Connectors terminated with 18 to 26 AWG wire using crimp technology when mated with 1.14mm (.045) square pin headers.

## 2.0 PRODUCT DESCRIPTION

### 2.1 PRODUCT NAME AND SERIES NUMBERS

Crimp Terminals: 6838, 7258

Crimp Housings: 41695, 6442

Headers: 41771, 41772, 41791, 41792, 42491, 42492, 41661, 41662, 41671, 41672, 41681, 41682

Other products conforming to this specification are noted on the individual drawings.

### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

Terminal Material: Brass or Phos. Bronze (for Max performance use phos bronze material.)

Housing: Nylon or Polyester

Pins: Brass

For more information on dimensions, materials, and plating see the individual drawings.

### 2.3 SAFETY AGENCY APPROVALS

UL File Number ..... E29179

CSA .....LR19980

| SERIES | Agency Voltage Rating (AC RMS or DC) except as noted |        | Agency Current Rating (Single Circuit) (Amps) |     | Agency Temperature Rating (°C) |
|--------|--|--------|---|-----|--------------------------------|
|        | UL   | CSA    | UL  | CSA | UL                             |
| 6442   | 600  | 250    | -   | 7   | 105°C                          |
| 41695  | 600  | 250VAC | -   | 7   | 105°C                          |
| 41661  | 600  | 250    | -   | 7   | 105°C                          |
| 41662  | 600  | 250    | -   | 7   | 105°C                          |
| 41671  | 600  | 250    | -   | 7   | 105°C                          |
| 41672  | 600  | 250    | -   | 7   | 105°C                          |
| 41681  | 600  | 250    | -   | 7   | 105°C                          |
| 41682  | 600  | 250    | -   | 7   | 105°C                          |
| 41771  | 600  | 250    | -   | 7   | 105°C                          |
| 41772  | 600  | 250    | -   | 7   | 105°C                          |
| 41791  | 600  | 250    | -   | 7   | 105°C                          |
| 41792  | 600  | 250    | -   | 7   | 105°C                          |
| 42491  | 600  | 250    | -   | 7   | 105°C                          |
| 42492  | 600  | 250    | -   | 7   | 105°C                          |

|                                     |   |   |                                      |
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| DOCUMENT NUMBER:<br><b>PS-40-02</b> | CREATED / REVISED BY:<br><b>MKIPPER</b>                         | CHECKED BY:<br><b>JBELL</b>   | APPROVED BY:<br><b>FSMITH-ROEMER</b> |



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### 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

None

### 4.0 RATINGS

#### 4.1 VOLTAGE

600 Volts AC (RMS) (or 600 Volts DC)

**4.2 CURRENT** (Current is dependent on connector size, contact material, plating, ambient temperature, printed circuit board characteristics and related factors. Actual current rating is application dependent and should be evaluated for each application.)

| Wire Awg | Amps (Max) With Brass Terminals | Amps (Max) With Phos Bronze Terminals | Wire Insulation Dia   |
|----------|---------------------------------|---------------------------------------|-----------------------|
| 18       | 5.00                            | 7.00                                  | See terminal drawings |
| 20       | 4.75                            | 6.25                                  | See terminal drawings |
| 22       | 4.50                            | 5.50                                  | See terminal drawings |
| 24       | 4.25                            | 5.00                                  | See terminal drawings |
| 26       | 4.00                            | 4.50                                  | See terminal drawings |

Note: current ratings are for a single circuit, based on not exceeding 30°C temperature rise.

#### 4.3 TEMPERATURE

|                           | Brass Terminals   | Phos Bronze Terminals |
|---------------------------|-------------------|-----------------------|
| Operating Temperature     | -40°C to +80°C*   | -40°C to +105°C*      |
| Non-Operating Temperature | -40°C to +105°C** | -40°C to +105°C       |

\*including terminal temperature rise.

\*\*parts not mated

|                                     |   |   |                                      |
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## 5.0 PERFORMANCE

### 5.1 ELECTRICAL REQUIREMENTS

| DESCRIPTION  | TEST CONDITION  | REQUIREMENT                         |
|--|---|-------------------------------------|
| Contact Resistance (Low Level)                     | Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA.  | 6 milliohms<br>MAXIMUM<br>[initial] |
| Contact Resistance of Wire Termination (Low Level) | Terminate the applicable wire to the terminal and measure wire using a voltage of 20 mV and a current of 100 mA.  | 2 milliohms<br>MAXIMUM<br>[initial] |
| Insulation Resistance                              | Unmate & unmount connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.   | 50 K Megohms<br>MINIMUM             |
| Dielectric Withstanding Voltage                    | Unmate connectors: apply a voltage of {two times the rated voltage plus 1000 volts} VAC for 1 minute between adjacent terminals and between terminals to ground.                                  | No breakdown                        |
| Capacitance  | Measure between adjacent terminals at 1 MHz.  | 1.2 picofarads<br>MAXIMUM           |
| Temperature Rise (via Current Cycling)             | Mate connectors: measure the temperature rise at the rated current after:<br>1) 96 hours (steady state)<br>2) 240 hours (45 minutes ON and 15 minutes OFF per hour)<br>3) 96 hours (steady state) | Temperature rise:<br>+30°C MAXIMUM  |

|                                     |   |   |                                      |
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## 5.2 MECHANICAL REQUIREMENTS

| DESCRIPTION                             | TEST CONDITION  | REQUIREMENT   |
|---|---|---|
| Connector Mate and Unmate Forces        | Per circuit when mated to an .045 Sq. pin header without friction lock. Mate and unmate connector (male to female) at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.     | 10.0 N (2.25 lbf) MAXIMUM insertion force & 3.7 N (0.84 lbf) MINIMUM withdrawal force                               |
| Terminal Insertion Force (into Housing) | Apply an axial insertion force on the terminal at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch). (Forces will change with platings and materials.)                                  | 17.8 N (4.0 lbf) MAXIMUM insertion force  |
| Terminal Retention Force (in Housing)   | Axial pullout force on the terminal in the housing at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute. (Forces will change with platings and materials.)                   | 35.6 N (8.0 lbf) MINIMUM withdrawal force   |
| Durability                              | Mate connectors up to 25 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.   | 10 milliohms MAXIMUM (change from initial)  |
| Vibration (Random)                      | Mate connectors and vibrate per EIA 364-28, test condition VII.   | 10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond  |
| Shock (Mechanical)                      | Mate connectors and shock at 50 g's with $\frac{1}{2}$ sine wave (11 milliseconds) shocks in the $\pm X, \pm Y, \pm Z$ axes (18 shocks total).  | 10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond  |
| Wire Pullout Force (Axial)              | Apply an axial pullout force on the wire at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch). (For maximum performance use molex application tooling with stranded tinned copper wire) | Wire pullout force depends on crimp tooling. See relevant Molex Application Tooling Specification for requirements. |
| Normal Force                            | Apply a perpendicular force.  | 7.34 N (748 grams) average  |

|                                     |   |   |                                      |
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## 5.3 ENVIRONMENTAL REQUIREMENTS

| DESCRIPTION                | TEST CONDITION   | REQUIREMENT   |                    |           |    |         |           |            |    |         |           |   |
|----------------------------|--|---|--------------------|-----------|----|---------|-----------|------------|----|---------|-----------|---|
| Shock<br>(Thermal)         | Mate connectors; expose to 5 cycles of:<br><table border="1"> <thead> <tr> <th>Temperature °C</th> <th>Duration (Minutes)</th> </tr> </thead> <tbody> <tr> <td>-40 +0/-3</td> <td>30</td> </tr> <tr> <td>+25 ±10</td> <td>5 MAXIMUM</td> </tr> <tr> <td>+105 +3/-0</td> <td>30</td> </tr> <tr> <td>+25 ±10</td> <td>5 MAXIMUM</td> </tr> </tbody> </table> | Temperature °C  | Duration (Minutes) | -40 +0/-3 | 30 | +25 ±10 | 5 MAXIMUM | +105 +3/-0 | 30 | +25 ±10 | 5 MAXIMUM | 10 milliohms MAXIMUM<br>(change from initial)<br>&<br>Visual: No Damage |
| Temperature °C             | Duration (Minutes)   |   |                    |           |    |         |           |            |    |         |           |   |
| -40 +0/-3                  | 30   |   |                    |           |    |         |           |            |    |         |           |   |
| +25 ±10                    | 5 MAXIMUM  |   |                    |           |    |         |           |            |    |         |           |   |
| +105 +3/-0                 | 30   |   |                    |           |    |         |           |            |    |         |           |   |
| +25 ±10                    | 5 MAXIMUM  |   |                    |           |    |         |           |            |    |         |           |   |
| Thermal Aging              | Mate connectors; expose to:<br>96 hours at 105 ± 2°C   | 10 milliohms MAXIMUM<br>(change from initial])<br>&<br>Visual: No Damage  |                    |           |    |         |           |            |    |         |           |   |
| Humidity<br>(Steady State) | Mate connectors: expose to a temperature of<br>40 ± 2°C with a relative humidity of 90-95%<br>for 96 hours.<br><br>Note: Remove surface moisture and air dry<br>for 1 hour prior to measurements.  | 10 milliohms MAXIMUM<br>(change from initial)<br>&<br>Dielectric Withstanding<br>Voltage:<br>No Breakdown at 500 VAC<br>&<br>Insulation Resistance:<br>1000 Megohms MINIMUM<br>&<br>Visual: No Damage |                    |           |    |         |           |            |    |         |           |   |
| Solderability              | Per SMES-152   | Solder coverage:<br>95% MINIMUM (per<br>SMES-152)   |                    |           |    |         |           |            |    |         |           |   |
| Solder<br>Resistance       | Dip connector terminal tails in solder:<br>Solder Duration: 5 ± 0.5 seconds;<br>Solder Temperature: 230 ± 5°C  | Visual:<br>No Damage to insulator<br>material   |                    |           |    |         |           |            |    |         |           |   |

## 6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage.

## 7.0 GAGES AND FIXTURES

## 8.0 OTHER INFORMATION

|                                     |   |   |                                      |
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