INVERTED RIGHT ANGLE MODULAR JACKS

1.0 SCOPE
This Test Summary covers the 1.02 mm (.040 inch) centerline (pitch) printed circuit board (PCB) connector series with selective gold and tin plating.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)
- Single Port Inverted Right Angle Modular Jack 43860
- Single Port Inverted Mini-PCI Modular Jack 44380
- Dual Port Inverted Modular Jack 43814
- Ganged Inverted Modular Jack 44248
- Ganged Inverted Modular Jack (RJ-45/RJ-11 Combination) 44580
- Single Port Inverted Modular Jack With Keep-Out Feature 44620
- Ganged Inverted Modular Jack (4 Port Combination Jack) 45235
- *The connectors tested were single port unshielded, except for DWV terminals to shield.

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS
See the appropriate sales drawings for the information on dimensions, materials, platings and markings.

2.3 PRODUCT SPECIFICATION TITLE AND DOCUMENT NUMBER
Title: Product Specification for Inverted Right Angle Modular Jacks
Document Number: PS-43860-003

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

3.1 TESTING PROCEDURES AND SEQUENCES
For sequences see pages 3 through 6

3.2 OTHER DOCUMENTS AND SPECIFICATIONS
Agency Approvals
- UL File Number E107635
- CSA Certificate Number LR19980A
## Test Summary

### Test Group

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<th>I</th>
<th>II</th>
<th>III</th>
<th>MISC</th>
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<tr>
<td>Contact Resistance</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td></td>
<td></td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td>Thermal Shock</td>
<td>♦</td>
<td>♦</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclic Humidity</td>
<td>♦</td>
<td>♦</td>
<td></td>
<td></td>
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<tr>
<td>Dielectric Strength</td>
<td></td>
<td></td>
<td>♦</td>
<td></td>
</tr>
<tr>
<td>Plug Insertion/Retention</td>
<td></td>
<td></td>
<td>♦</td>
<td></td>
</tr>
<tr>
<td>PCB Retention</td>
<td></td>
<td></td>
<td>♦</td>
<td></td>
</tr>
<tr>
<td>Durability</td>
<td>♦</td>
<td>♦</td>
<td></td>
<td></td>
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<tr>
<td>Vibration</td>
<td></td>
<td></td>
<td>♦</td>
<td></td>
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<tr>
<td>Mechanical Shock</td>
<td></td>
<td></td>
<td>♦</td>
<td></td>
</tr>
<tr>
<td>Thermal Aging</td>
<td>♦</td>
<td>♦</td>
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<td></td>
</tr>
<tr>
<td>Mating and Unmating Forces</td>
<td></td>
<td></td>
<td>♦</td>
<td></td>
</tr>
</tbody>
</table>
TEST SUMMARY

Sequence I
Environmental

Initial Contact
Resistance

Mate/Unmate Samples 0X
Mate/Unmate Samples 50X

Contact
Resistance

Thermal Shock
(+85°C to -40°C, 30 min. dwell, 10 cycles)

Contact
Resistance

Thermal Aging
(+85°C, 240 hours)

Contact
Resistance

Cyclic Humidity
(MIL-STD-202, Method 106)

Final Contact
Resistance
TEST SUMMARY

TEST SUMMARY FOR INVERTED RIGHT ANGLE MODULAR JACKS

Sequence II - Unmated Environmental

Initial Contact Resistance

Unmated Plugs

Thermal Shock
(+85°C to -40°C, 30 min. dwell, 10 cycles)

Thermal Aging
(+85°C, 240 hours)

Cyclic Humidity
(MIL-STD-202, Method 106)

Mate Plugs

Final Contact Resistance
TEST SUMMARY FOR INVERTED RIGHT ANGLE MODULAR JACKS

Sequence III Mechanical

Initial Contact Resistance

Mate/Unmate Samples 0X  Mate/Unmate Samples 500X

Contact Resistance

Mechanical Shock
50 g's of Three Sawtooth Waveforms in Each Direction (18 Shocks Total)
With Glitch Detection

Vibration
10-55-10 Hz Sweep in One Minute
Run for 2 Hours in Each Axis (6 Hours Total)

Final Contact Resistance
TEST SUMMARY

4.0 QUALIFICATION
Laboratory conditions and sample selection are in accordance with EIA-364.

5.0 PERFORMANCE

5.1 ELECTRICAL PERFORMANCE

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>REQUIREMENT</th>
<th>MEAN</th>
<th>MINIMUM</th>
<th>MAXIMUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1.1</td>
<td>Contact Resistance (Low Level)</td>
<td>20 milliohms MAXIMUM</td>
<td>3.47 mΩ</td>
<td>2.23 mΩ</td>
<td>4.27 mΩ</td>
</tr>
<tr>
<td>5.1.2</td>
<td>Insulation Resistance</td>
<td>500 Megaohms MINIMUM</td>
<td>100% Passing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1.3</td>
<td>Dielectric Withstanding Voltage</td>
<td>No Breakdown</td>
<td>100% Passing</td>
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</table>
## 5.2 MECHANICAL PERFORMANCE

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DESCRIPTION</th>
<th>REQUIREMENT</th>
<th>MEAN</th>
<th>MINIMUM</th>
<th>MAXIMUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2.1</td>
<td>Mating and Unmating Forces</td>
<td>22 N (5 lb) MAXIMUM (unshielded)</td>
<td>9.6 N (2.16 lb)</td>
<td>8.5 N (1.92 lb)</td>
<td>11.5 N (2.58 lb)</td>
</tr>
<tr>
<td>5.2.2</td>
<td>Plug Retention</td>
<td>Assembly to remain engaged and electrical continuity maintained when a 89 N (20 lb) axial static load is applied</td>
<td></td>
<td></td>
<td>100% Passing</td>
</tr>
<tr>
<td>5.2.3</td>
<td>Durability</td>
<td>MAXIMUM contact resistance change from initial of 10 milliohms</td>
<td></td>
<td>-0.34 mΩ</td>
<td>1.96 mΩ</td>
</tr>
<tr>
<td>5.2.4</td>
<td>Jack to Board Retention</td>
<td>Jack shall not dislodge from PCB with:</td>
<td></td>
<td>100% Passing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. 4.4 N (1 lb) force before solder reflow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. 89 N (20 lbs) force after solder reflow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2.6</td>
<td>Mechanical Shock and Vibration</td>
<td>Appearance: No damage</td>
<td></td>
<td>100% Passing</td>
<td></td>
</tr>
<tr>
<td>5.2.5</td>
<td></td>
<td>Contact Resistance: MAXIMUM contact resistance change from initial of 10 milliohms</td>
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</table>
## 5.3 ENVIRONMENTAL PERFORMANCE

<table>
<thead>
<tr>
<th>SECTION/DESCRIPTION</th>
<th>REQUIREMENT</th>
<th>MEAN</th>
<th>MINIMUM</th>
<th>MAXIMUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.3.1 Cyclic Humidity</td>
<td>Appearance: No damage Contact Resistance: MAXIMUM contact resistance change from initial of 10 milliohms Dielectric Withstanding Voltage: No Breakdown Insulation Resistance: 100 Megaohms</td>
<td>None</td>
<td>-1.82 mΩ</td>
<td>7.23 mΩ</td>
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<tr>
<td></td>
<td>Contact Resistance: MAXIMUM contact resistance change from initial of 10 milliohms</td>
<td>1.08 mΩ</td>
<td>100% Passing</td>
<td>100% Passing</td>
</tr>
<tr>
<td>5.3.2 Solder Resistance</td>
<td>Appearance: No damage to Insulator Material</td>
<td>100% Passing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3.4 Thermal Aging</td>
<td>Appearance: No damage Contact Resistance: MAXIMUM contact resistance change from initial of 10 milliohms</td>
<td>None</td>
<td>-1.86 mΩ</td>
<td>0.66 mΩ</td>
</tr>
<tr>
<td></td>
<td>Contact Resistance: MAXIMUM contact resistance change from initial of 10 milliohms</td>
<td>0.44 mΩ</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>5.3.5 Thermal Shock</td>
<td>Appearance: No damage Contact Resistance: MAXIMUM contact resistance change from initial of 10 milliohms</td>
<td>None</td>
<td>-1.59 mΩ</td>
<td>1.74 mΩ</td>
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<tr>
<td></td>
<td>Contact Resistance: MAXIMUM contact resistance change from initial of 10 milliohms</td>
<td>0.49 mΩ</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>