Mini50 Unsealed Connector System

Delivering 50% space savings over traditional USCAR 0.64mm connectors with smaller terminals to fit more signals into vehicle interiors, the Mini50 Unsealed Connector System is approved as the industry’s only USCAR 050 interface

Features and Benefits

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addition of 2 circuit-size SMT headers and receptacles</td>
<td>Delivers the only two-circuit connector with a 0.50mm terminal interface in the industry. Tested to full USCAR specifications. Enhances design flexibility</td>
</tr>
<tr>
<td>Designed and tested to USCAR 050 specifications</td>
<td>Industry’s only interface that meets USCAR 050 specifications. Offers from 4 to 24 circuits. Larger circuit versions also comply with USCAR specifications</td>
</tr>
<tr>
<td>50% smaller than USCAR 0.64mm unsealed interfaces</td>
<td>Minimizes PCB footprint for design flexibility and space saving</td>
</tr>
<tr>
<td>Independent secondary lock (ISL) terminal-retention feature</td>
<td>Secures terminal inside the housing; one piece design for applied cost savings</td>
</tr>
<tr>
<td>Orientation features molded into the header</td>
<td>Provides wire-routing and module-design flexibility for both vertical and right-angle connectors. Retains the header to the PCB during the soldering process</td>
</tr>
<tr>
<td>Board alignment and retention features</td>
<td>Simplifies header placement on the PCB and retains the header to the PCB during soldering operation(s). Protects adhesive joints during connector mating and unmating</td>
</tr>
<tr>
<td>High-temperature thermoplastic housings</td>
<td>Withstands infrared (IR) and wave lead-free solder processing per ES-40000-5013 Molex specification, up to a maximum temperature of +260°C</td>
</tr>
<tr>
<td>Gold plating option</td>
<td>Better conductivity and corrosion resistance and lower insertion force than standard tin plating.</td>
</tr>
<tr>
<td>Three polarization options</td>
<td>Enables limited customization and enforces like-to-like mating via three discrete mechanical, visual, and colored polarizations</td>
</tr>
<tr>
<td>CTX50 terminal wire grip design</td>
<td>Offers harness manufacturers the ability to reduce wire gauge sizes while maintaining retention strength</td>
</tr>
<tr>
<td>Connector position assurance (CPA) feature available</td>
<td>An optional mating assurance feedback device that prevents accidental un-mating</td>
</tr>
</tbody>
</table>

*8, 16, 24, 34 and 38 Circuit Sizes Also Available
Mini50 Unsealed Connector System

Mini50 Harness Assembly Complexity Reduction:
The independent secondary lock (ISL) is molded as part of the housing, reducing the number of components and cost.

1. Insert Crimped Terminals
2. Close ISL
3. Final Assembly

Product Improvements - Optional CPA Addition – this is available on all sizes from 4 to 24 circuits

CTX50 Female Receptacle Terminal: All dimensions shown in millimeters

<table>
<thead>
<tr>
<th>Wire Size</th>
<th>Thin Wall</th>
<th>Ultra Thin</th>
<th>Thin Wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.13mm²</td>
<td>0.22mm²</td>
<td>0.35mm²</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inner Diameter of Wire Insulation</th>
<th>1.05mm Max</th>
<th>1.2mm Max</th>
<th>1.4mm Max</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Recommended Grip Size</th>
<th>Grip S</th>
<th>Grip M</th>
<th>Grip L</th>
</tr>
</thead>
</table>

Female Terminal Wire Range
### USCAR 050 Specifications

#### Reference Information

**Packaging:**
- Housings – Bulk pack
- Terminals – Reel and loose piece

**Mates With:**
- Receptacles Series: 34791, 34824
- Vertical Headers Series: 34792, 34824, 34825
- Right-Angle Header Series: 34793, 34912, 34826, 34897

**Use With Terminals:**
- Female Series 560023

**Designed in:** Millimeters

#### Physical

**Header Housings:** High-Temperature Thermoplastic

**Receptacle Housings:** High Temperature Thermoplastic

**Contact:** Copper (Cu) Alloy

**Plating:**
- Contact Area — Tin (Sn)
- Underplating — Nickel (Ni)

**Wire Gauge:** 0.13 to 0.35mm² (22 to 26 AWG)

**Insulation Diameter:** 0.89 to 1.40mm (0.035 to 0.055”)

**Operating Temperature:** -40 to +105°C

#### Electrical

**Voltage (max.):** 500V

**Current (max.):** 4.0A

**Contact Resistance (max.):** 20 Milliohms

**Dielectric Withstanding Voltage (min.):** 1500V AC

**Isolation Resistance (min.):** 100 Megohms

#### Electrical / Mechanical

**Over-Current Loading:** No Degradation

**Durability (max.):** 20 Milliohms

**Tin (Sn) Plating:** 10 Mating Cycles

**Gold (Au) Plating:** Over 10 Mating cycles

**High-Temperature Exposure:** 1,000 hours

**USCAR-2, GMW3191:**
- Post test resistance (max.) = 20 Milliohms @ 500V DC
- Isolation resistance (max.) = 100 Megohms
- Connector Retention Force (max.) = 60N

**Temp / Humidity Cycling:** 240 hours

**USCAR-2, GMW3191:**
- Post test resistance (max.) = 20 Milliohms @ 500V DC
- Isolation resistance (max.) = 100 Megohms
- Terminal Retention (min.) = 30N

**Thermal Shock:**
- Class 2, 300 & 600 cycles (USCAR-2):
  - Post test resistance (max.) = 20 Milliohms @ 500V DC
  - Isolation resistance (max.) = 100 Megohms
  - Connector Retention Force (max.) = 60N
  - Terminal Retention (min.) = 30N

**Chemical Resistance:** (RSA 36-05-019):
- Post test resistance (max.) = 20 Milliohms @ 500V DC

**Connector Heat Resistance:** (ES-40000-5013):
- Lead-free IR reflow processing = 3 cycles, max temperature +260°C

**Random Vibration with Thermal Cycling / Mechanical Shock:**
- (Not Coupled to Engine):
  - USCAR-2, GMW3191, RSA 36-05-019

**Random vibration with Thermal Cycling / Mechanical Shock:**
- Post test resistance (max.) = 20 Milliohms @ 500V DC
- Connector Retention Force (min.) = 60N

**Corrosion Resistance:** (USCAR-2, GMW3191, RSA 36-05-019):
- Post test resistance (max.) = 20 Milliohms @ 500V DC
- Isolation resistance (max.) = 100 Megohms
- Connector Retention Force (min.) = 60N
- Terminal Retention (min.) = 30N

#### Applications

**Automotive and Commercial Vehicle**
- Headliners
- Clusters and Navigation
- Radios
- Cameras and Sensors
- HVAC
- Switches
- Lighting
- Mirrors

**Target Accounts/Customers (non-exclusive)**
- Ford/GM/Chrysler
- VW
- Most automotive OEMs

**Target Customer Job**
- End User
- Engineering
- Manufacturing
- Quality
- OEM

### Target Customer Job

- Mirrors/Cameras
- Panels / Navigation
- Interior Lighting
- HVAC
## Mini50 Unsealed Connector System

### Ordering Information

#### Receptacles

<table>
<thead>
<tr>
<th>Series No.</th>
<th>Component</th>
<th>Row</th>
<th>Circuit Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>34791</td>
<td>Receptacles</td>
<td>Single</td>
<td>2, 4 and 8</td>
</tr>
<tr>
<td>34824</td>
<td></td>
<td>Dual</td>
<td>12, 16, 20 and 24</td>
</tr>
<tr>
<td>34959</td>
<td></td>
<td>Three</td>
<td>34 Hybrid and 38</td>
</tr>
</tbody>
</table>

#### CTX50 Terminals

<table>
<thead>
<tr>
<th>Series No.</th>
<th>Plating</th>
<th>Wire Gauge (mm²)</th>
<th>Wound Direction / Payoff Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>500023</td>
<td>Tin</td>
<td>0.08 to 0.13, 0.22, 0.35</td>
<td>D=Left; B=Right</td>
</tr>
<tr>
<td>500023-05xx</td>
<td>Gold</td>
<td>0.13 to 0.35</td>
<td>D=Left; B=Right</td>
</tr>
</tbody>
</table>

Note: Reference PS-34791-000 for all validated wire types.

#### Headers

<table>
<thead>
<tr>
<th>Series No.</th>
<th>Plating</th>
<th>Rows</th>
<th>Orientation</th>
<th>Termination Style</th>
<th>Circuit Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>34792</td>
<td>Tin</td>
<td>Single</td>
<td>Vertical</td>
<td>Through-Hole</td>
<td>4 and 8</td>
</tr>
<tr>
<td>34793</td>
<td></td>
<td></td>
<td>Right Angle</td>
<td></td>
<td>2, 4 and 8</td>
</tr>
<tr>
<td>34912</td>
<td></td>
<td>Dual</td>
<td>Vertical</td>
<td>Through-Hole</td>
<td>12, 16, 20 and 24</td>
</tr>
<tr>
<td>34825</td>
<td></td>
<td></td>
<td>Vertical</td>
<td>SMT</td>
<td></td>
</tr>
<tr>
<td>34826</td>
<td></td>
<td></td>
<td>Right Angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34897</td>
<td></td>
<td>Three</td>
<td>Vertical</td>
<td>Through-Hole</td>
<td>34 Hybrid and 38</td>
</tr>
<tr>
<td>34958</td>
<td></td>
<td></td>
<td>Right Angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34961</td>
<td></td>
<td></td>
<td>Two-Bay Stacked</td>
<td>Through-Hole</td>
<td>68 (Hybrid-Hybrid), 72 (Hybrid-Three Row) and 76 (Three Row-Three Row)</td>
</tr>
<tr>
<td>34960</td>
<td></td>
<td>Single</td>
<td>Right Angle</td>
<td>SMT</td>
<td>2, 4 and 8</td>
</tr>
<tr>
<td>34912-60xx</td>
<td>Gold</td>
<td>Single</td>
<td>Right Angle</td>
<td>SMT</td>
<td>2, 4 and 8</td>
</tr>
<tr>
<td>34897-60xx</td>
<td>Gold</td>
<td>Dual</td>
<td>Right Angle</td>
<td>SMT</td>
<td>12, 16, 20 and 24</td>
</tr>
</tbody>
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