

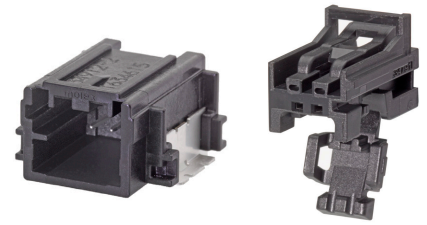
# Mini50™ Unsealed Connector System

**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**

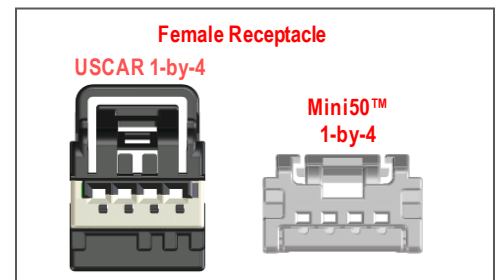
## Features and Benefits

Addition of 2 circuit-size SMT headers and receptacles	Delivers the only tow-circuit connector with a 0.50mm terminal interface in the industry. Tested to full USCAR specifications. Enhances design flexibility
Designed and tested to USCAR 050 specifications	Approved as the industry's only USCAR 050 approved interface from 4 to 24 circuits. Larger circuit versions also comply with USCAR specifications
50% smaller than USCAR 0.64mm unsealed interfaces	Minimizes PCB footprint for design flexibility and space saving
Independent secondary lock (ISL) terminal-retention feature	Secures terminal inside the housing; one piece design for applied cost savings
Orientation features molded into the header	Provides wire-routing and module-design flexibility for both vertical and right-angle connectors. Retains the header to the PCB during the soldering process
Board alignment and retention features	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
High-temperature thermoplastic housings	Withstands infrared (IR) and wave lead-free solder processing per ES-40000-5013 Molex specification, up to a maximum temperature of +260oC
Female terminal wire grips for wires 0.35mm <sup>2</sup> and smaller	Reduces wire size, and provides weight, space, and cost savings versus 0.64mm interfaces
Three polarization options	Enables limited customization and enforces like-to-like mating via three discrete mechanical, visual, and colored polarizations
CTX50 terminal wire grip design	Offers harness manufacturers the ability to reduce wire gauge sizes while maintaining retention strength
Connector position assurance (CPA) latch available	Prevents accidental un-mating

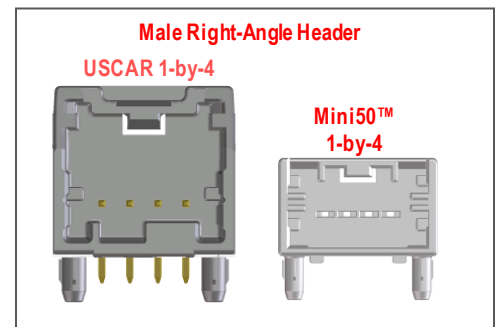
**molex®**



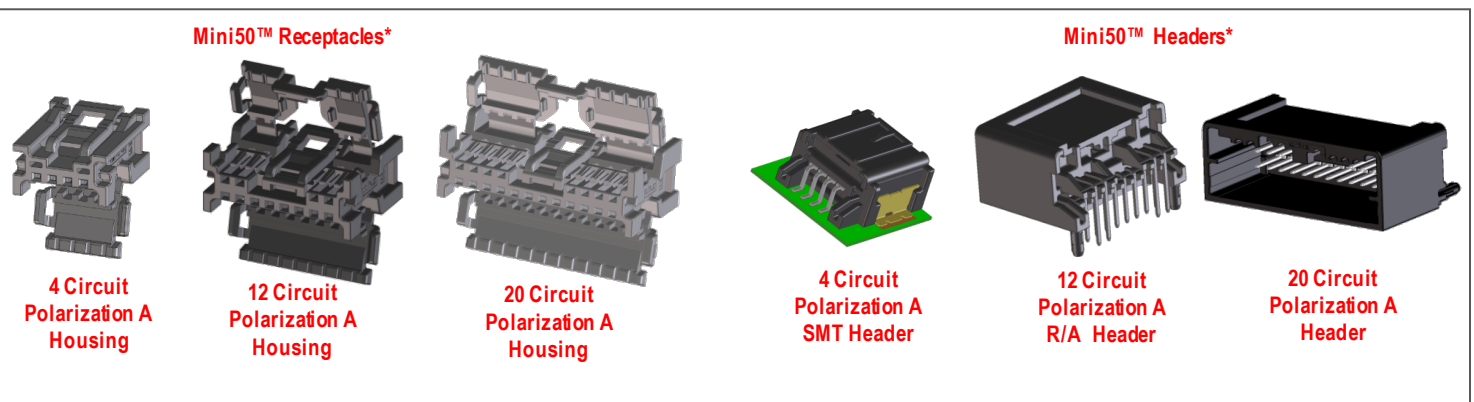
Mini50™ Two-Circuit SMT Header and Receptacle



Approximate 51% reduction in frontal area for 4-circuit receptacle



Approximate 50% reduction in frontal area for 4-circuit right-angle header



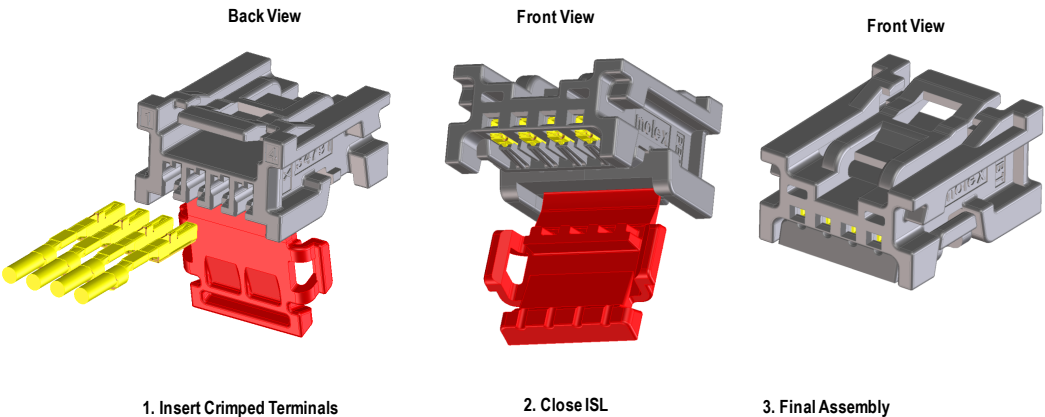
\*8, 16, 24, 34 and 38 Circuit Sizes Also Available

# Mini50™ Unsealed Connector System

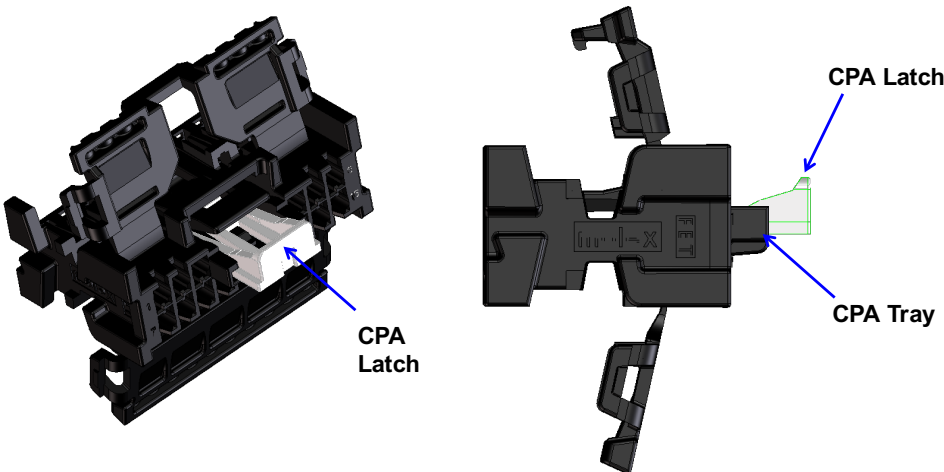


## Mini50 Harness Assembly Complexity Reduction:

The independent secondary lock (ISL) is molded as part of the housing, reducing the number of components and cost.

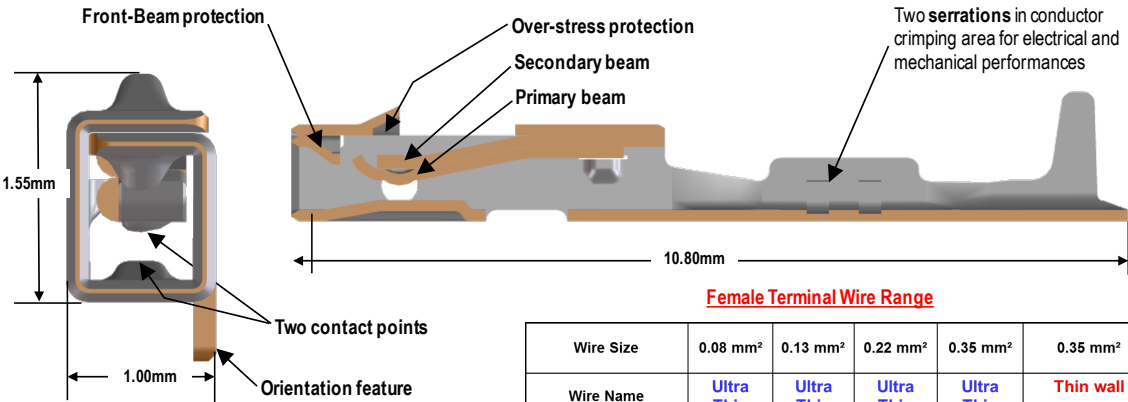


## Product Improvements - Optional CPA Latch Addition – this is available on all sizes from 4 to 24 circuits








CPA Latch and supporting features added to bridged receptacles

## CTX50 Female Receptacle Terminal: All dimensions shown in millimeters



### Female Terminal Wire Range

Wire Size	0.08 mm <sup>2</sup>	0.13 mm <sup>2</sup>	0.22 mm <sup>2</sup>	0.35 mm <sup>2</sup>	0.35 mm <sup>2</sup>
Wire Name	Ultra Thin	Ultra Thin	Ultra Thin	Ultra Thin	Thin wall
Outer Diameter of wire insulation	 0.76 mm max	 0.89 mm max	 1.0 mm max	 1.2 mm max	 1.4 mm max New
Recommended Grip Size	Grip S		Grip M		Grip L

# Mini50™ Unsealed Connector System

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## 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: 0.35 to 0.08mm<sup>2</sup> (22 to 28 AWG)  
Insulation Diameter: 1.40mm to 0.76mm (.055 to .030")  
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 Cycles  
High-Temperature Exposure , 1008 hours  
(USCAR-2 , GMW3191):  
Post test resistance (max.) – 20 Milliohms @ 500V DC  
Isolation resistance (max.) – 100 Megohms  
Connector Retention Force (min.) = 60N  
Temp / Humidity Cycling, 240 hours  
(USCAR-2 , GMW3191):  
Post test resistance (max.) – 20 Milliohms @ 500V DC  
Isolation resistance (max.) – 100 Megohms  
Connector Retention Force (max) = 60N  
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  
Sinusoidal Vibration / Mechanical Shock (Not Coupled to Engine): (USCAR-2 , VW 75174):  
Post test resistance (max.) – 20 Milliohms @ 500V DC  
Terminal Retention (min.) = 30N  
Chemical 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  
Current Capability: (USCAR-2 , Fiat 7-Z8260):  
Temperature rise over ambient < 55C  
Post test resistance (max.) – 20 Milliohms @ 500V DC  
Terminal Retention (min.) = 30N  
Terminal – Connector Insertion Force (USCAR-2, GMW3191):  
Insertion Force (max.) = 5N  
Primary Retention Force (min.) = 10N  
Secondary Retention Force (min.) = 50N

### Electrical / Mechanical

Mating Force (USCAR-2) (max.): 22N  
Unmating Force (USCAR-2) (max.): 22N  
Connector Drop Test: (USCAR-2, RSA 36-05-019) :  
Post test visual inspection  
Connector Pry Resistance: (USCAR-2) :  
Post test resistance (max.) – 20 Milliohms @ 500V DC  
Repetitive Mating / Unmating : (USCAR-2):  
Post test resistance (max.) – 30 Milliohms @ 500V DC  
Polarization Feature Effectiveness (USCAR-2):  
min = 3\* avg. mate force  
Header Pin Retention (min.): 15N  
Solderability Requirements: (SMES-152) :  
Dip Coat Method— min 95% coverage  
Connector Heat Resistance: (ES-40000-5013) :  
Lead-free IR reflow processing = 3 cycles, max temperature +260°C  
Random Vibration / Mechanical Shock (Not Coupled to Engine): (USCAR-2 , VW 75174):  
Post test resistance (max.) – 20 Milliohms @ 500V DC  
Random Vibration with Thermal Cycling / Mechanical Shock (Not Coupled to Engine): (USCAR-2 , GMW3191, RSA 36-05-019)  
Random vibration with Thermal Cycling:  
Post test resistance (max.) – 20 Milliohms @ 500V DC  
Connector Retention Force (min.) = 60N  
Random Vibration with High Temp Exposure / Mechanical Shock Not Coupled to Engine): (USCAR-2, GMW3191, RSA 36-05-019) Random vibration with Thermal Cycling:  
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 Transportation

- Headliners
- Clusters and Navigation
- Radios
- Cameras and Sensors
- HVAC
- Switches
- Lighting
- Mirrors



Mirrors/Cameras



Cluster/Navigation



Interior Lighting



HVAC

# Mini50™ Unsealed Connector System



## Ordering Information

### Receptacles

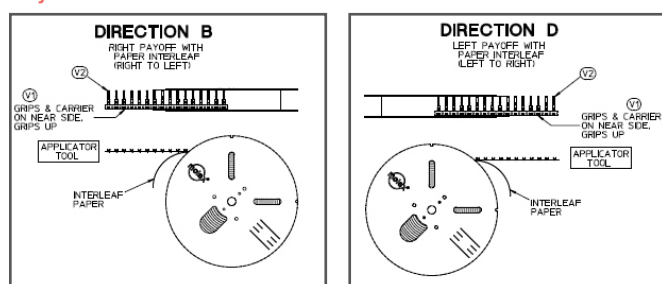
Series No.	Component	Row	Circuit Sizes
<a href="#">34791</a>	Receptacles	Single	2, 4 and 8
<a href="#">34824</a>		Dual	12, 16, 20 and 24
<a href="#">34959</a>		Hybrid	34 and 38

### CTX50 Terminals

Series No.	Plating	Wire Gauge (mm <sup>2</sup> )	Wound Direction / Payoff Direction
<a href="#">560023</a>	Receptacles	0.08 to 0.13 0.22 to 0.35	D=Left; B=Right *D-wound parts are maintained in sample plant

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

### Pay-Off Direction



### Headers

Series No.	Component	Row	Circuit Sizes	Termination Style	Circuit Sizes
<a href="#">34792</a>	Headers	Single	Vertical	Through-Hole	4 and 8
<a href="#">34793</a>			Right Angle		
<a href="#">34912</a>				SMT	2, 4 and 8
<a href="#">34825</a>		Dual	Vertical	Through-Hole	12, 16, 20 and 24
<a href="#">34826</a>			Right Angle		
<a href="#">34897</a>				SMT	
<a href="#">34958</a>		Hybrid	Vertical	Press-Fit	34 and 38
<a href="#">34961</a>			Right Angle		
<a href="#">34960</a>			Two-Bay Stacked		

[www.molex.com/link/mini50.html](http://www.molex.com/link/mini50.html)