

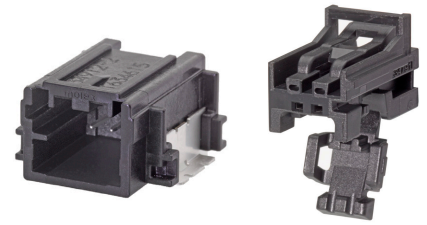
Mini50 Unsealed Connector System



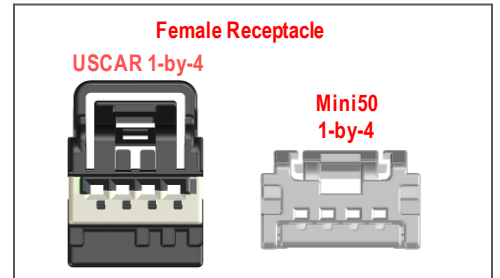
Delivering 50% space savings over traditional USCAR 0.64mm connectors with smaller terminals to fit more signals into vehicle interiors, the Mini50 Unsealed Connector System is approved as the industry's only USCAR 050 interface

Features and Benefits

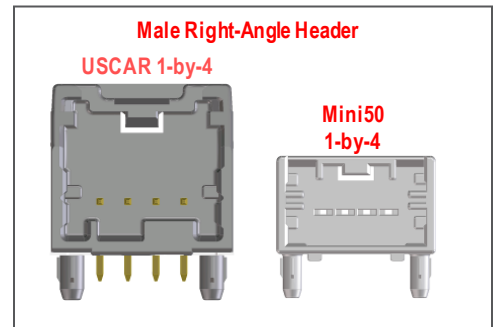
Addition of 2 circuit-size SMT headers and receptacles	Delivers the only two-circuit connector with a 0.50mm terminal interface in the industry. Tested to full USCAR specifications. Enhances design flexibility
Designed and tested to USCAR 050 specifications	Industry's only interface that meets USCAR 050 specifications. Offers 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 +260°C
Gold plating option	Better conductivity and corrosion resistance and lower insertion force than standard tin plating.
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) feature available	An optional mating assurance feedback device that prevents accidental un-mating



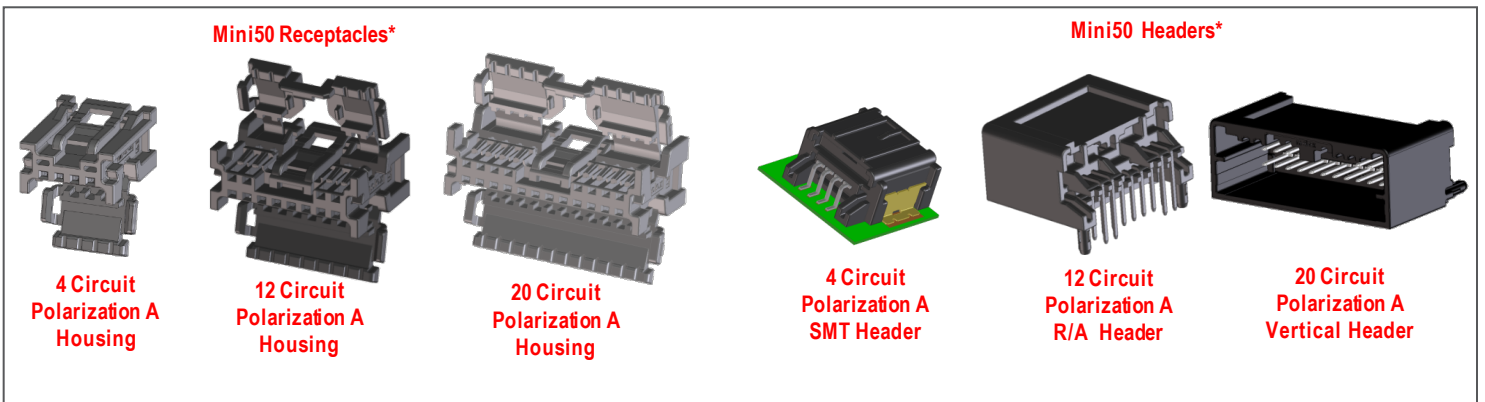
Mini50 Two-Circuit SMT Header and Receptacle



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



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



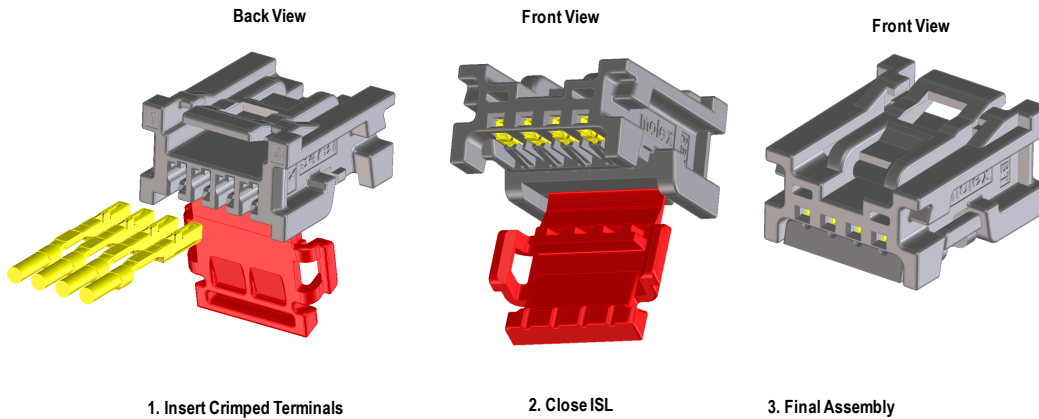
*8, 16, 24, 34 and 38 Circuit Sizes Also Available

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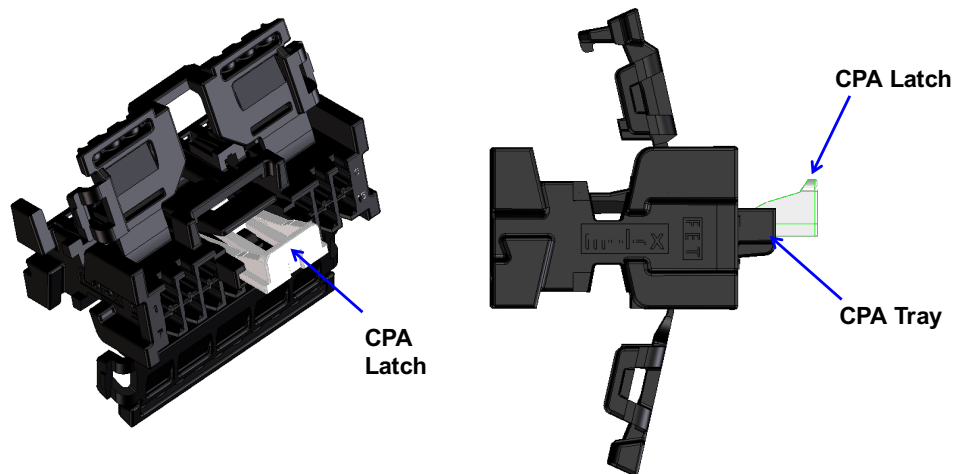


Mini50 Harness Assembly Complexity Reduction:

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

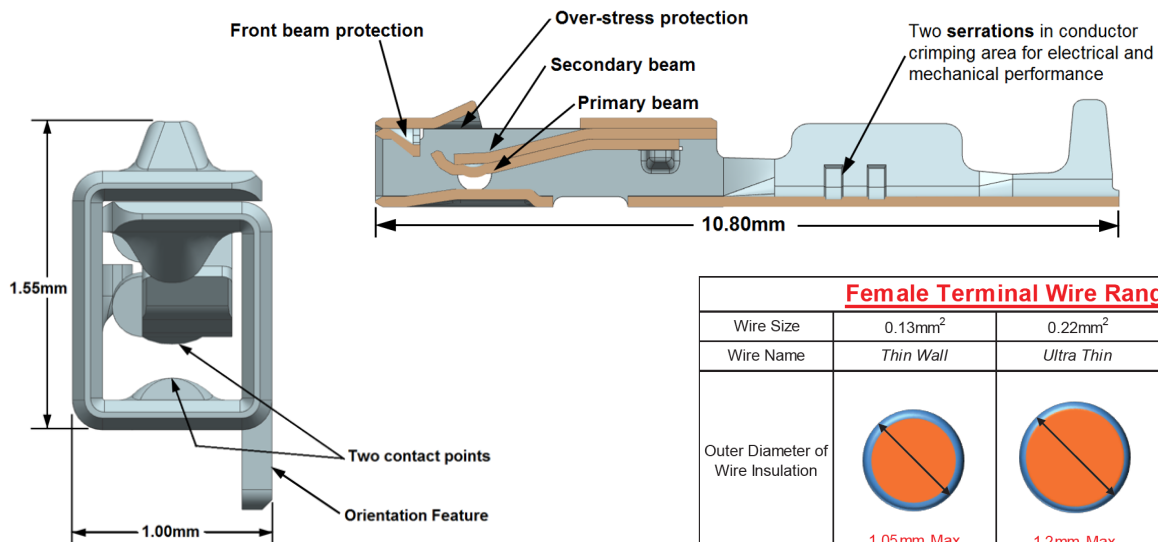


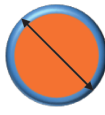
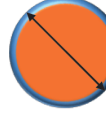
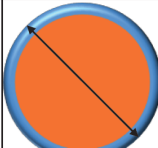
Product Improvements - Optional CPA Addition – this is available on all sizes from 4 to 24 circuits



CPA supporting features added to bridged receptacles

CTX50 Female Receptacle Terminal: All dimensions shown in millimeters



Female Terminal Wire Range			
Wire Size	0.13mm ²	0.22mm ²	0.35mm ²
Wire Name	<i>Thin Wall</i>	<i>Ultra Thin</i>	<i>Thin Wall</i>
Outer Diameter of Wire Insulation	 1.05mm Max	 1.2mm Max	 1.4mm Max
Recommended Grip Size	Grip S	Grip M	Grip L

Mini50 Unsealed Connector System



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 , 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

Chemical Resistance: (RSA 36-05-019) :

Post test resistance (max.) – 20 Milliohms @ 500V DC

Isolation resistance (max.) – 100 Megohms

Connector Retention Force (min.) = 30N

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 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

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
- Broad acceptance of the Mini50 platform

Target Customer Job

- End User
- Engineering
- Manufacturing
- Quality
- OEM



Mirrors/Cameras



Panels / Navigation



Interior Lighting



HVAC

Mini50 Unsealed Connector System



Ordering Information

Receptacles

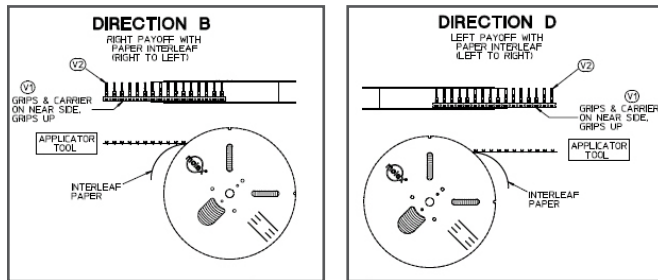
Series No.	Component	Row	Circuit Sizes
34791	Receptacles	Single	2, 4 and 8
34824		Dual	12, 16, 20 and 24
34959		Three	34 Hybrid and 38

CTX50 Terminals

Series No.	Plating	Wire Gauge (mm ²)	Wound Direction / Payoff Direction
560023	Tin	0.08 to 0.13, 0.22, 0.35	D=Left; B=Right
560023-05xx	Gold	0.13 to 0.35	D=Left; B=Right

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

Pay-Off Direction



Headers

Series No.	Plating	Rows	Orientation	Termination Style	Circuit Sizes
34792	Tin	Single	Vertical	Through-Hole	4 and 8
34793			Right Angle		
34912		Dual	Vertical	Through-Hole	12, 16, 20 and 24
34825					
34826			Right Angle	SMT	
34897		Three	Vertical	Through-Hole	34 Hybrid and 38
34958					
34961			Right Angle		
34960			Two-Bay Stacked	Through-Hole	
34912-60xx	Gold	Single	Right Angle	SMT	2, 4 and 8
34897-6xxx	Gold	Dual	Right Angle	SMT	12, 16, 20 and 24

www.molex.com/link/mini50.html

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