

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 34 and 38 circuit size hybrid headers and receptacles

Addresses industry needs for higher circuit density while maintaining a small PCB footprint

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 0.35mm² 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

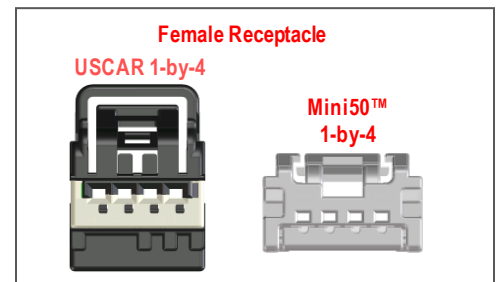
CTX50 terminal wire grip design

Offers harness manufacturers the ability to reduce wire gauge sizes while maintaining retention strength

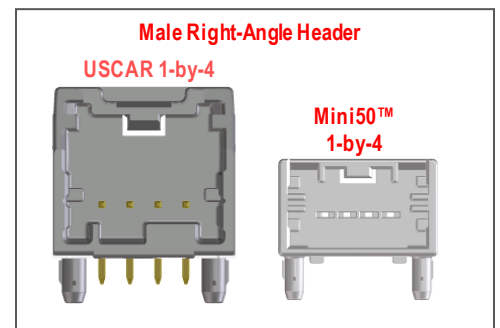
Connector position assurance (CPA) latch available

Prevents accidental un-mating

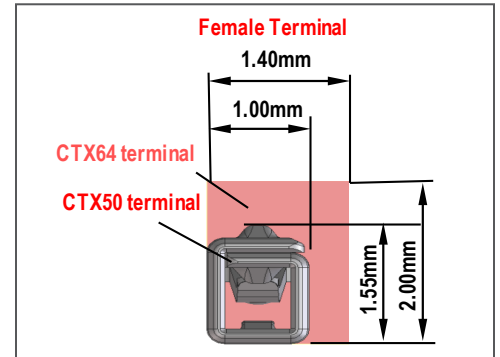
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Approximate 51% reduction in frontal area for 4-circuit receptacle

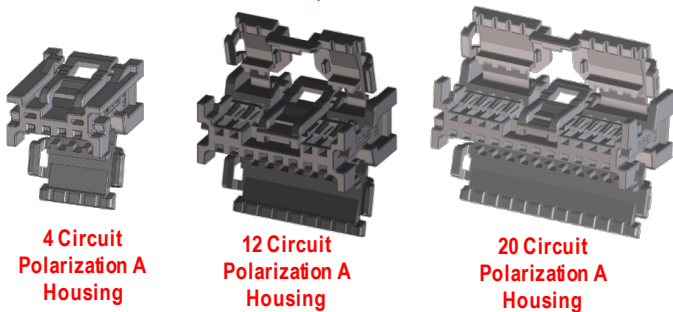


Approximate 50% reduction in frontal area for 4-circuit right-angle header

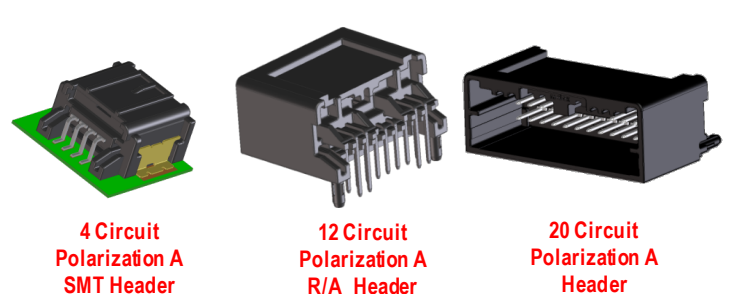


Cross-sectional area is 45% smaller than 0.64mm terminal

Mini50™ Receptacles*



Mini50™ Headers*



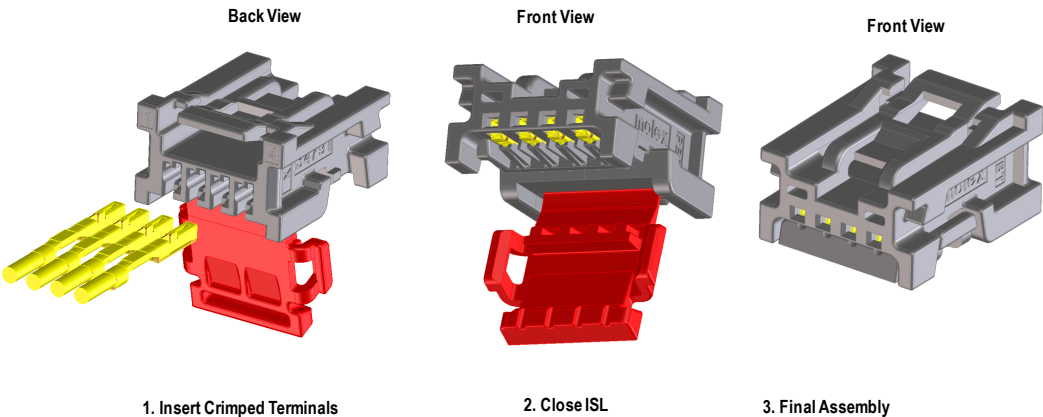
*8, 16, 24, 34 and 38 Circuit Sizes Also Available

Mini50™ Unsealed Connector System

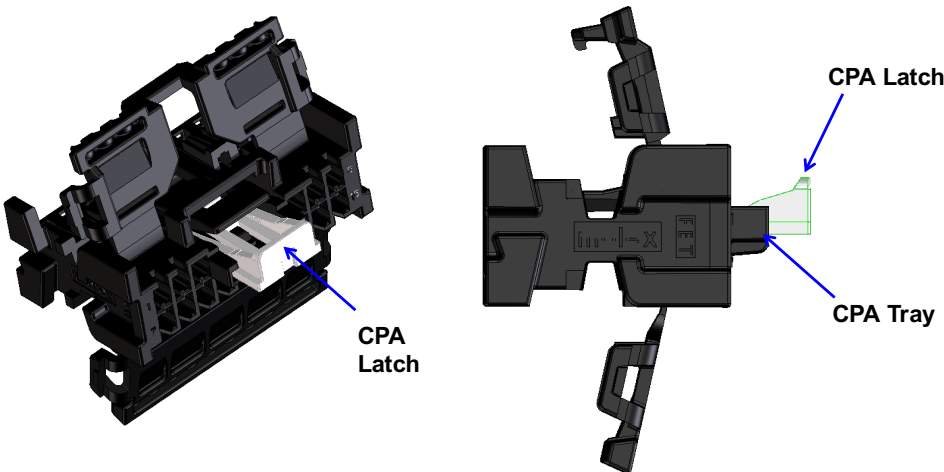


Mini50 Harness Assembly Complexity Reduction:

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

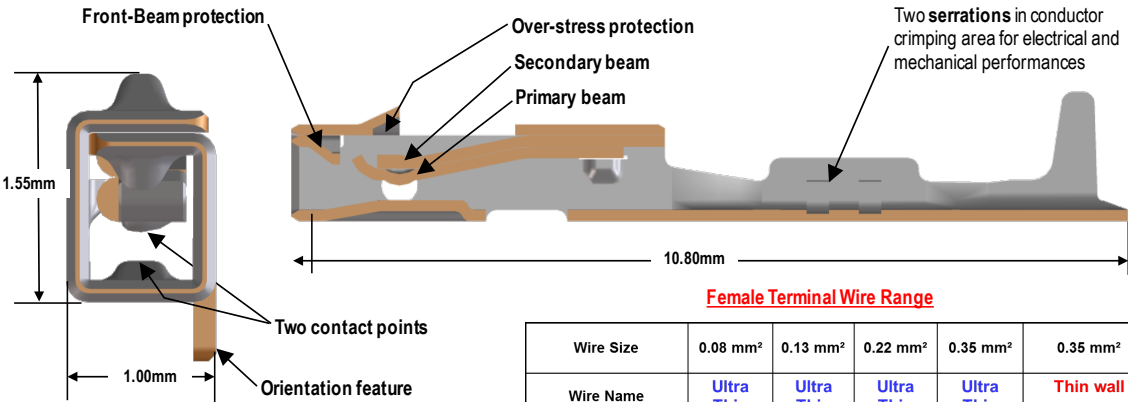


Product Improvements - Optional CPA Latch Addition – this is available on all sizes from 4 to 24 circuits

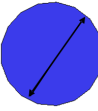


CPA Latch and supporting features added to bridged receptacles

CTX50 Female Receptacle Terminal: All dimensions shown in millimeters



Female Terminal Wire Range

Wire Size	0.08 mm ²	0.13 mm ²	0.22 mm ²	0.35 mm ²	0.35 mm ²
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 0.08mm² (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 (TSC1000G): No Degradation

Durability (max.): 20 milliohms

Tin (Sn) Plating – 10 Cycles

High-Temperature Exposure, 1008 hours (USCAR-2, GMW3191, TSC1000G):

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, TSC1000G):

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, TSC1000G):

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.) = 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, TSC1000G) (max.): 22N

Unmating Force (USCAR-2, TSC1000G) (max.): 22N

Connector Drop Test: (USCAR-2, RSA 36-05-019) :

Post test visual inspection

Connector Pry Resistance: (USCAR-2, 24012NDS01) :

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

Repetitive Mating / Unmating : (USCAR-2, 24012NDS01):

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



Transportation Industry



Cluster/Navigation



Automotive Industry



Interior Lighting



Mirrors



HVAC

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Ordering Information

Receptacles

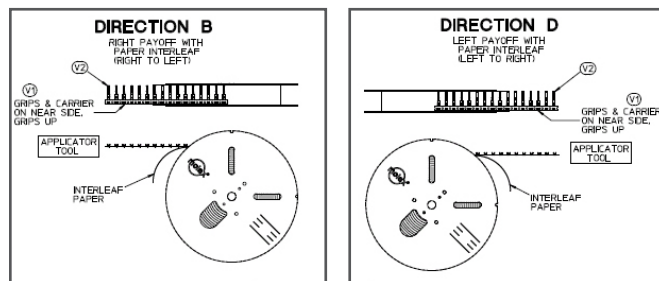
Series No.	Component	Row	Circuit Sizes
34791	Receptacles	Single	4 and 8
34824		Dual	12, 16, 20 and 24
34959		Hybrid	34 and 38

CTX50 Terminals

Series No.	Plating	Wire Gauge (mm ²)	Wound Direction / Payoff Direction
560023	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
34792	Headers	Single	Vertical	Through-Hole	4 and 8
34793			Right Angle		
34912		Dual	Vertical	Through-Hole	12, 16, 20 and 24
34825			Right Angle		
34826				SMT	
34897		Hybrid	Vertical	Press-Fit	34 and 38
34958			Right Angle		
34961			Two-Bay Stacked		68, 72 and 76
34960					

www.molex.com/link/mini50.html