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USCAR Mini50™ approved interface delivers 50% space savings over traditional USCAR 0.64mm connectors, with smaller terminals to fit more lowcurrent electrical circuits in interior, unsealed, transportation-vehicle environments

The Mini50™ unsealed, wire-to-board connection system offers customers reduced package sizes compared to conventional 0.64mm connection systems, with applied cost savings and enhanced reliability. Mini50 connectors provide reduced overall harness weight and cost savings by allowing wire-harness customers to crimp and process smaller wire gauges versus traditional 0.64mm terminal systems.

Current configurations are available in single-row, 4- and 8-circuit versions and a dual-row, 12-circuit version. The Mini50 unsealed wire-to-board system allows device manufacturers to package circuits in a smaller space by utilizing smaller pin and terminal sizes while reducing costs. The Molex Mini50 4/8/12 circuit interface was chosen by USCAR as the standard 050 interface. The Mini50 4, 8 and 12 circuit connectors are available in through-hole and SMT versions and meet USCAR standards.

Features and Benefits

Reduced package sizes	Approximately 50% smaller than USCAR 0.64mm unsealed interfaces
Designed and tested to USCAR 050 specifications	Provides the industry's only USCAR 050 approved interface
Orientation features are molded into the header	Either vertical or right-angle orientations are possible, providing wire-routing and module design flexibility. Retain the header to the PCB during the soldering process
Board alignment and retention features	Simplify header PCB placement and retain header to PCB during soldering operation(s). Protect adhesive joints during connector mating and unmating
High-temperature thermoplastic housings	Withstand infrared (IR) and wave lead-free solder processing per ES-40000-5013 Molex specification, maximum temperature +260°C
Female terminal wire grips for wires 0.35mm^2 and smaller	Wire-size reduction; weight, space and cost savings versus 0.64mm interfaces
Three polarization options	Three discrete mechanical, visual and colored polarizations
Independent secondary lock (ISL) terminal-retention feature	Molded into the receptacle housing as one piece for applied cost savings
CTX50 terminal wire grip design	Offers harness manufacturers' the ability to reduce wire gauge sizes while maintaining retention strength
Connector position assurance (CPA) latch optional	Prevents accidental un-mating

Mini50™ Unsealed Connector System 2.00mm Pitch

34791 Single-Row Receptacles

34792 Single-Row, Vertical Headers

34793 Single-Row, Right-Angle Headers

34912 Single-Row, SMT Headers

34824 Dual-Row Receptacles

34825 Dual-Row, Vertical Headers

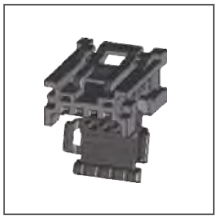
34826 Dual-Row, Right-Angle Headers

34897 Dual-Row, SMT Headers

560023 CTX50 Terminals

Mini50™ Single-Row Right-Angle Header (Series 34793)

Mini50™ SMT Right-Angle Header (Series 34897)



Mini50™ Single-Row Receptacle (Series 34791)

Mini50™ Dual-Row Receptacle (Series 34824)

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Specifications

Mini50™ Unsealed Connector System 2.00mm Pitch

Reference Information
Packaging:
  Housings – Bulk pack
  Terminals – Reel and loose piece
Mates With:
  Receptacles Series: 34791
  Vertical Headers Series: 34792
  Right-Angle Header Series: 34793
Use With Terminals:
  Female Series 560023
Designed in: Millimeters

Electrical
Voltage (max.): 500V
Current (max.): 3.0A
Contact Resistance: 20 Milliohms max.
Dielectric Withstanding Voltage: 1500V AC min.
Isolation Resistance: 100 Megohms min.

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 / Mechanical
Over-Current Loading (TSC1000G): No Degradation
Durability: 20 milliohms max.
  Tin (Sn) Plating – 10 Cycles
High-Temperature Exposure ,1008 hours
(USCAR-2 , GMW3191, TSC1000G):
  Post test resistance – 20 Milliohms @ 500V DC max.
  Isolation resistance – 100 Megohms max.
  Connector Retention Force = 60N min
Temp / Humidity Cycling, 240 hours
(USCAR-2 , GMW3191, TSC1000G):
  Post test resistance – 20 Milliohms @ 500V DC max.
  Isolation resistance – 100 Megohms max.
  Connector Retention Force = 60N max
  Terminal Retention = 30N min
Thermal Shock; class 2, 300& 600 cycles
(USCAR-2 , TSC1000G):
  Post test resistance – 20 Milliohms @ 500V DC max.
  Isolation resistance – 100 Megohms max.
  Connector Retention Force = 60N max
  Terminal Retention = 30N min.
.Sinusodial Vibration / Mechanical Shock
(Not Coupled to Engine):(USCAR-2 , VW 75174):
  Post test resistance – 20 Milliohms @ 500V DC max.
Random Vibration / Mechanical Shock
(Not Coupled to Engine): (USCAR-2 , VW 75174):
  Post test resistance – 20 Milliohms @ 500V DC max.
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 – 20 Milliohms @ 500V DC max.
  Connector Retention Force = 60N min.
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 – 20 Milliohms @ 500V DC max.
  Connector Retention Force = 60N min.
Corrosion Resistance:
(USCAR-2 , GMW3191, RSA 36-05-019) :
  Post test resistance – 20 Milliohms @ 500V DC max.
  Isolation resistance – 100 Megohms max Connector
  Connector Retention Force = 60N min.
  Terminal Retention = 30N min.
Chemical Resistance:
(USCAR-2 , GMW3191, RSA 36-05-019) :
  Post test resistance – 20 Milliohms @ 500V DC max.
  Isolation resistance – 100 Megohms max Connector
  Terminal Retention = 30N min.
Current Capability: (USCAR-2 , Fiat 7-Z8260):
  Temperature rise over ambient < 55C
  Post test resistance – 20 Milliohms @ 500V DC max.
  Terminal Retention = 30N min.
Terminal – Connector Insertion Force
(USCAR-2, GMW3191):
  Insertion Force = 5N max
  Primary Retention Force = 10N min
  Secondary Retention Force = 50N min
Mating Force (USCAR-2, TSC1000G): 22N (4.95 lb) max.
Unmating Force (USCAR-2, TSC1000G) 22N (4.95 lb) max.
Connector Drop Test: (USCAR-2 , RSA 36-05-019) :
  Post test visual inspection
Connector Pry Resistance: (USCAR-2 , 24012NDS01) :
  Post test resistance – 20 Milliohms @ 500V DC max.
Repetitive Mating / Unmating : (USCAR-2 , 24012NDS01):
  Post test resistance – 30 Milliohms @ 500V DC max.
Polarization Feature Effectiveness (USCAR-2):
  min = 3 * Avg mate force
Header Pin Retention: 15N (3.37 lb) min.
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
  Post test visual and dimensional inspection00

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Mini50™ Unsealed Connector System 2.00mm Pitch

Mini50 Package Size Reductions

Comparison between Mini50™ 1-by-4 and 0.64mm USCAR 1-by-4 footprints

Female Receptacle

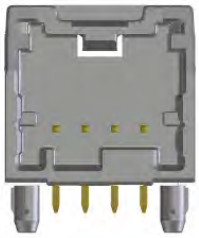
USCAR 1-by-4

Mini50™ 1-by-4

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

Male Right-Angle Header

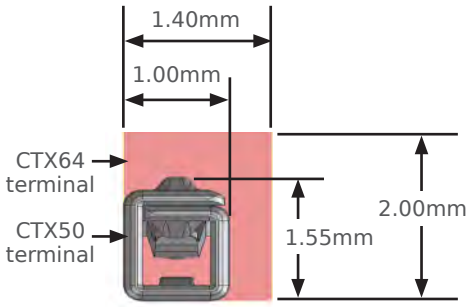
USCAR 1-by-4



Mini50™ 1-by-4

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

Female Terminal



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

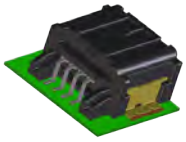
Mini50™ Receptacles

4 Circuit Polarization A Housing

8 Circuit Polarization A Housing

12 Circuit Polarization A Housing

Mini50™ Headers



4 Circuit Polarization A SMT Header

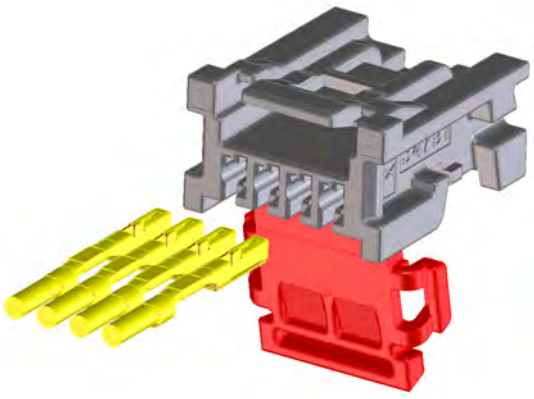
8 Circuit Polarization A Vertical Header

12 Circuit Polarization A Right-Angle Header

Mini50 Harness Assembly Complexity Reduction

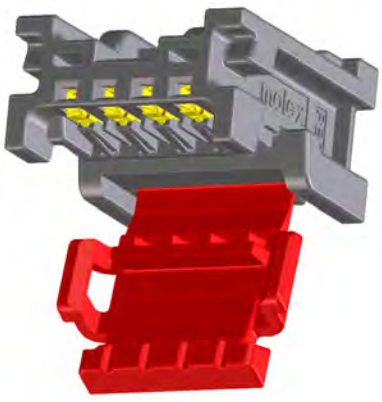
The independent secondary lock (ISL) is molded as part of the housing, reducing the number of components and cost.

Back View



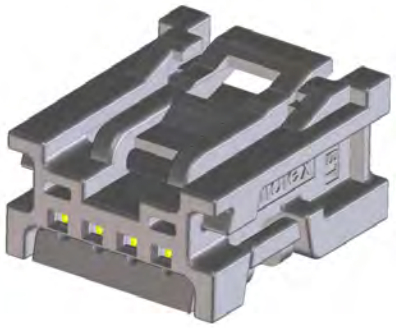
1. Insert Crimped Terminals

Front View



2. Close ISL

Front View



3. Final Assembly

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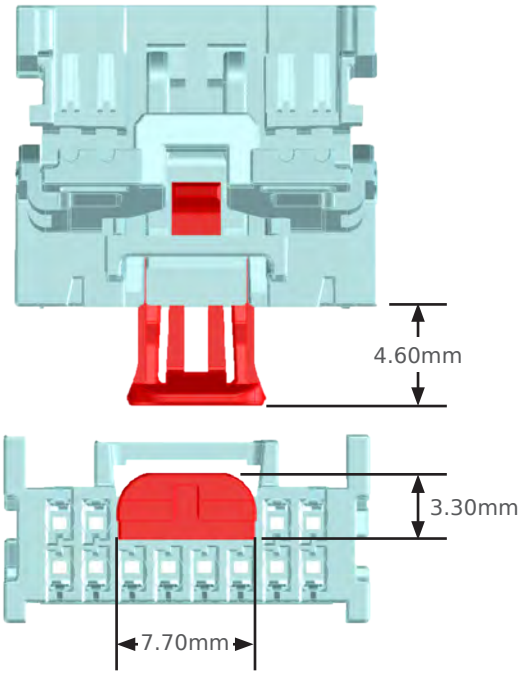
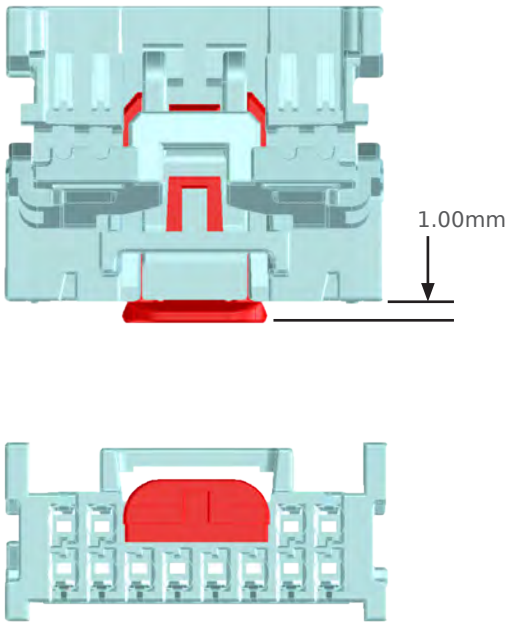
Mini50 New CPA option

Mini50™ Unsealed Connector System 2.00mm Pitch

CPA in Pre-Lock Position

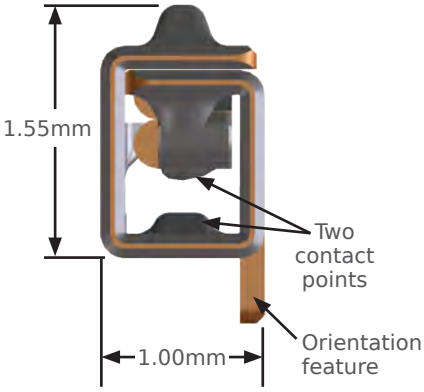


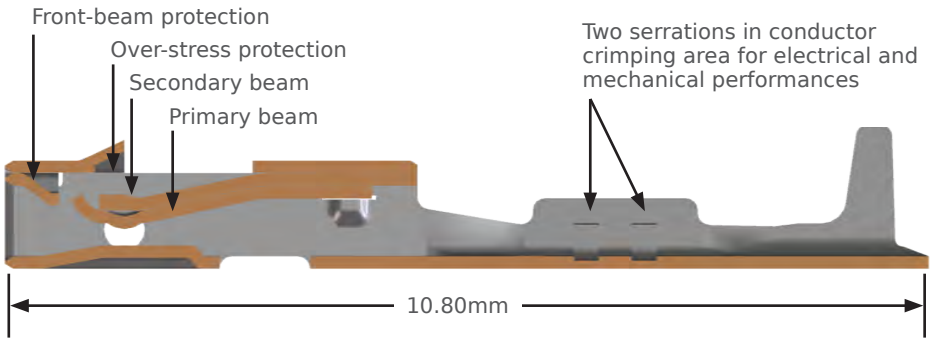
CPA in Final Lock Position



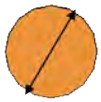
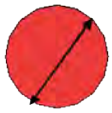
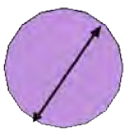
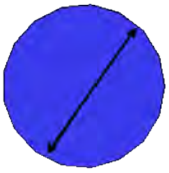
CTX50 Female Receptacle Terminal

All dimensions shown in millimeters





Female Terminal Wire Range

Wire Size	0.08mm²	0.13mm²	0.22mm²	0.35mm²	0.35mm²
Wire Name	Ultra Thin	Ultra Thin	Ultra Thin	Ultra Thin	Thin
Outer Diameter of Wire Insulation					
Recommended Grip Size	Grip S		Grip M		Grip L

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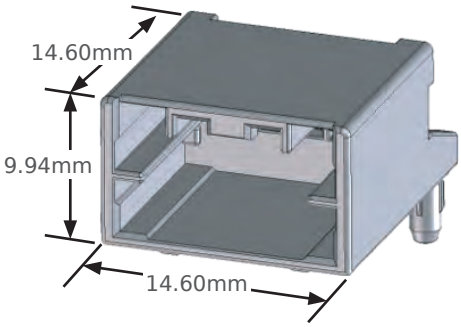
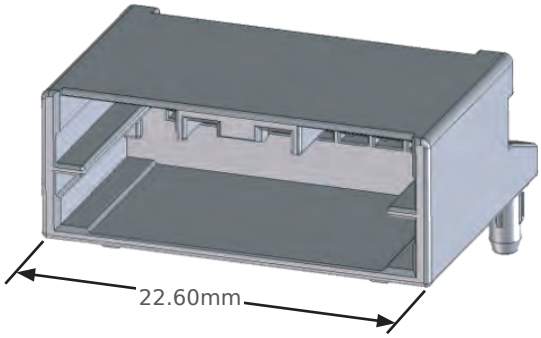
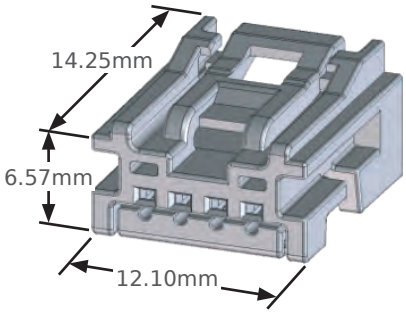
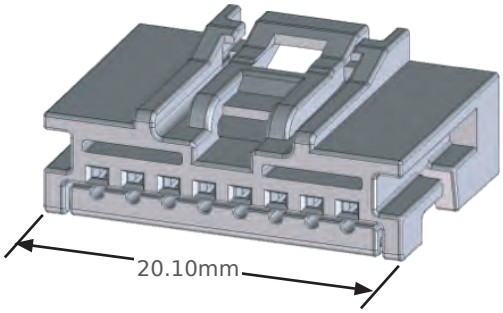
Mini50™ Unsealed Connector System 2.00mm Pitch

Mini50 Product Family

All dimensions shown in millimeters

	Single Row	
Headers		
	4 circuit	8 circuit
Receptacles		

Applications

Automotive and non-automotive transportation
- – Headliners
- – Clusters / navigation
- – Radios
- – Cameras / sensors
- – HVAC
- – Switches
- – Lighting
- – Mirrors

Mirrors / Cameras

Interior Lighting

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Mini50™ Unsealed Connector System 2.00mm Pitch

Ordering Information

Standard Receptacles

Order No.	Rows	Circuit Size	Clip Slot
34791-004†	1	4	Not Available
34791-008†		8	

† Denotes polarization and housing color:
0 = A, Black 1 = B, Light Gray 2 = C, Brown 3 = D, Green

Standard Vertical Headers

Order No.	Rows	Circuit Size
34792-004†	1	4
34792-008†		8

† Denotes polarization and housing color:
0 = A, Black 1 = B, Light Gray 2 = C, Brown 3 = D, Green

Standard Right-Angle Headers

Order No.	Rows	Circuit Size
34793-004†	1	4
34793-008†		8

† Denotes polarization and housing color:
0 = A, Black 1 = B, Light Gray 2 = C, Brown

Dual Row Receptacles and Through-Hole Headers

Order No.	Type	Circuit Size
34824-012†	Receptacle	12
34825-012†	Vertical Header	
34826-012†	Right Angle Header	

† Denotes polarization and housing color:
4 = A, Black 5 = B, Light Gray 6 = C, Brown

SMT Headers – Tape and Reel Packaging

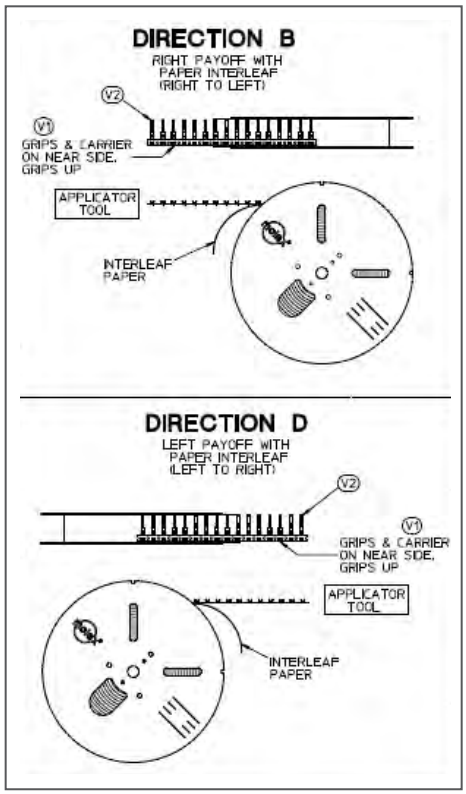
Order No.	Rows	Circuit Size
34912-804†	1	4
34912-808†		8
34897-012†	2	12

† Denotes polarization and housing color:
0 = A, Black 1 = B, Light Gray 2 = C, Brown

CTX50 Terminals

Order No.	Plating	Wire Gauge (mm²)	Wound Direction / Payoff Direction
560023-0421	Tin	0.22 - 0.35	D / Left
560023-0422		0.08 - 0.13	
560023-0423		0.22 - 0.35	B / Right
560023-0424		0.08 - 0.13	

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



www.molex.com/link/mini50.html