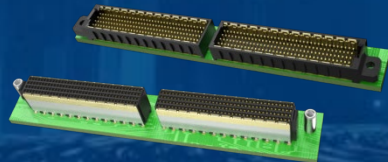


Amphenol

COMMUNICATIONS SOLUTIONS

BergStak® Secure Connector Product Presentation

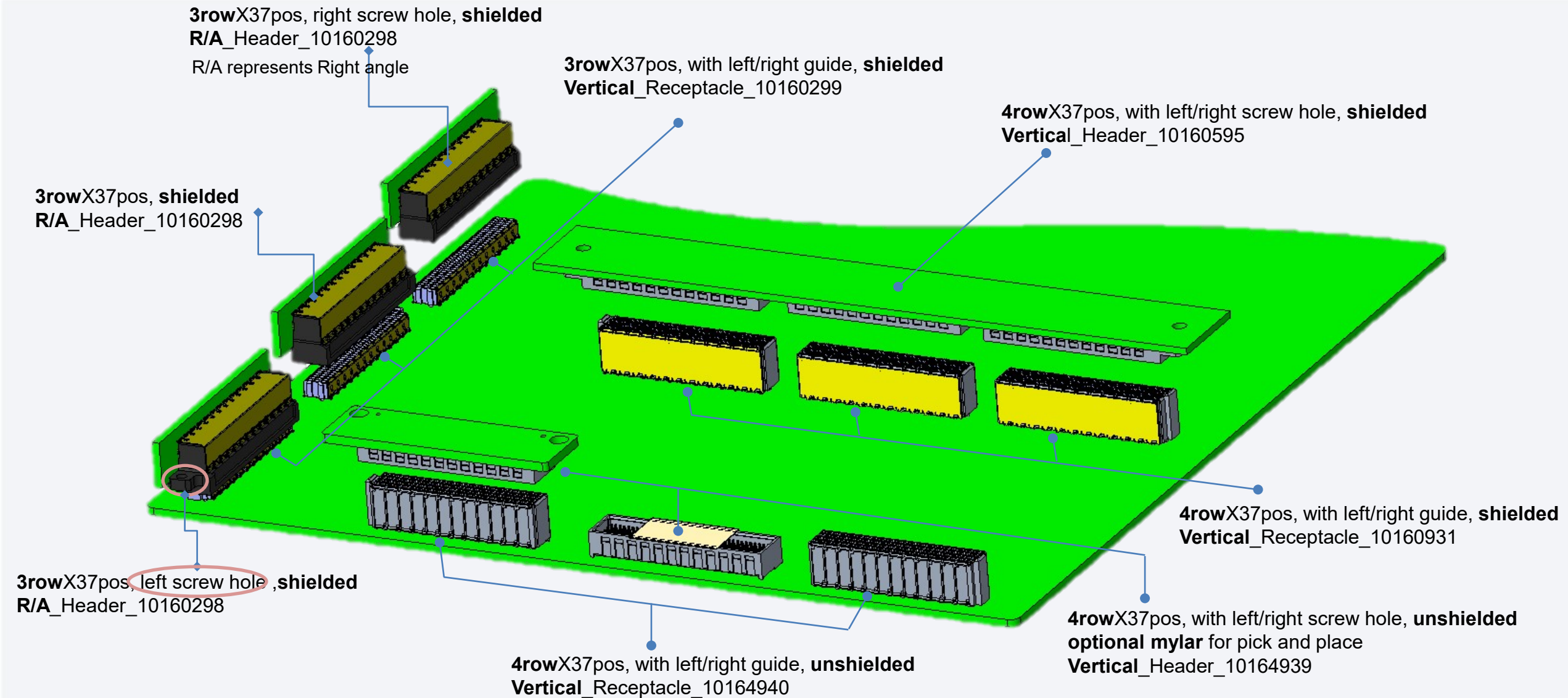


FCi Basics

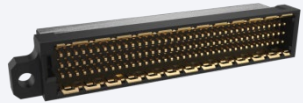
- Value Proposition
- Product Overview
- Product Specifications
- Features & Benefits
- Part Numbers
- Markets & Application

- Basics BergStak® Secure Connector family is known for its **high signal density, high data transmission, high reliability and high signal safety assurance**.
- To support **high signal density applications**, the family now has options with **3row and 4row** contacts, pitch of 1.0mmx 1.5mm in length and width direction, reach **50contacts** per cm². Such design improves the utility ratio of the boards(by 20%) VS traditional 2 row connectors. Currently we have 37pins per row available and can be extended in range of 13 to **100 pins per row** depends on customer high pincount requirements, number of rows can also be extended to **10**(can reach maximum **74 contacts** per cm²).
- Its advanced terminal design make this Secure connector support data transmission up to **32Gb/s. Dual beam** contacts design benefit to **comply USCAR-2 V2** shock and vibration criteria which makes it a good candidate for automotive applications and other applications need high vibration resistance.
- The family provides **shield** and **non-shield** version. Shield version can provide superior EMI / EMC performance, it also has ability to **transfer current(10A minimum)**. Non-shielded version to support cost sensitive requirements while retaining most of the advanced features of the family.
- This **Secure** connector also offers unique **One-Time-Use** option. The One-Time-Use solution has patented lock terminal and lock shield features which are suitable for the applications need tamper-proof connections.

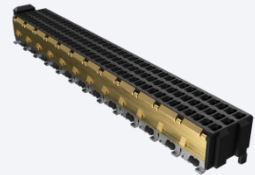
Solution Overview



3 ROW



Shielded R/A_Header_10160298

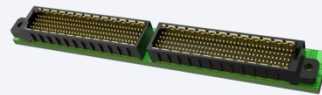


Shielded Vertical_Recptacle_10160299

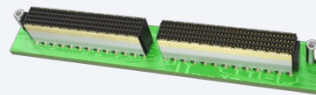


Perpendicular connection

4 ROW



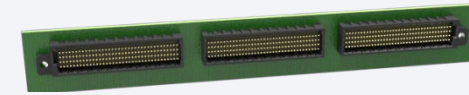
Shielded Vertical_Header_10160595



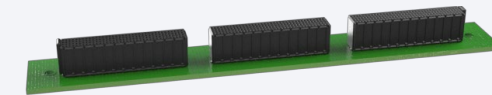
Shielded Vertical_Recptacle_10160931



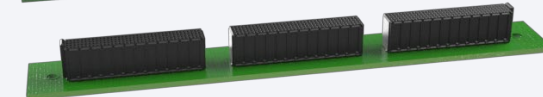
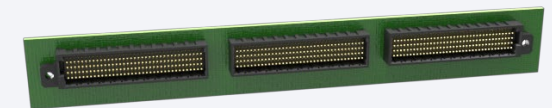
Parallel connection



Unshielded Vertical_Header_10164939



Unshielded Vertical_Recptacle_10164940



Product Facts

- 1.0mm pitch in length and 1.5mm pitch in width direction
- Perpendicular connection and **12mm** for parallel
- Data rate up to 32Gb/s
- Electromagnetic Compatibility (EMC)

Basic Specifications

Pitch	1.0 mm
Pin Count	111/148 and up to 1000
PCB Termination	SMT
Conn Direction	Vertical and Right Angle
Plating	Gold / GXT on contact area, and tin plating on soldering tail

Technical Documents

- Product Spec.: GS-12-1607

Performance Characteristics

- Durability: 200 cycles
- Mating and un-mating Force: 1N max./contact
- Operating Temperature: -55° C to +105° C
- Current Rating: 1A per contact(all pin powered); 10A per shield
- Insulation Resistance: $1 \times 10^{10} \Omega$ min.
- Contact Resistance: <50 mΩ max.
- Mechanical Shock and Vibration: USCAR-2 V2
- Signal Integrity
 - Data rate: up to 32Gbps

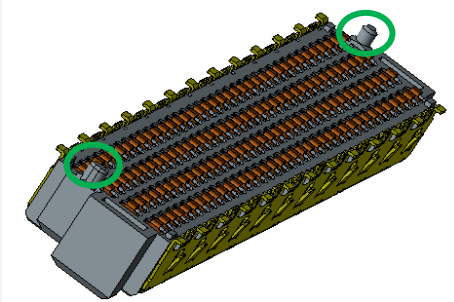
Materials

- Housing: High temperature thermoplastic LCP, Black (UL94V-0)
- Contact Base Metal
 - Receptacles: Copper Alloy, high spring
 - Headers: Copper Alloy, high spring
- Shield: High conductivity , high spring

Features	Benefits
> Optional Shielding	<ul style="list-style-type: none"> > Shielded version can provide EMI ability and support power transmission, this makes the connector suitable for hybrid application. > Unshielded version has lower cost still can fulfill the applications need high signal density and high speed or high reliability with cost consideration.
> High speed performance up to 32Gb/s Comply PCIe Gen5	> To meet HS requirements from IT&DA/Automotive/Industrial/Communication markets.
> Dual-beam receptacle contacts	> Provides high electrical reliability and withstands high level of vibration.
> Multi row and multi column contacts	> Each connector now has 3 and 4 row contacts, 37 columns per row, and it can be extended in both (10)row and (100)column directions base on customer requirements, to fulfill high pincount/high signal density requirements.
> Blind-mating features	> Suit for those tasks where visual and tactile tools are compromised during mating process.
> One-Time-Use option contains tamper-resistant screw and terminal& shield lock feature	> These optional secure features ensure un-mating action can destroy the connection. Suitable for applications where security is a top priority.

Advanced Features

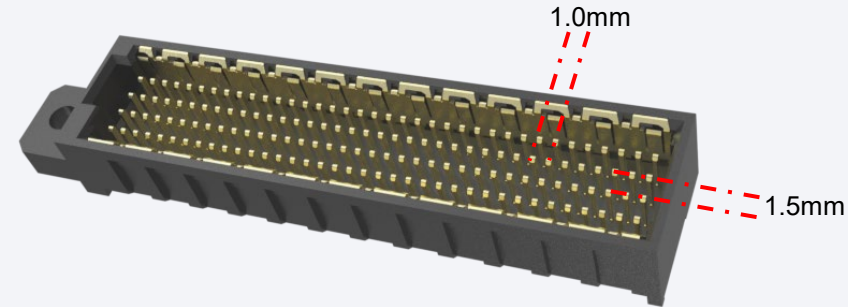
-For both Shielded and Unshielded



Easier to locate to board with help of
post pegs.

1

2



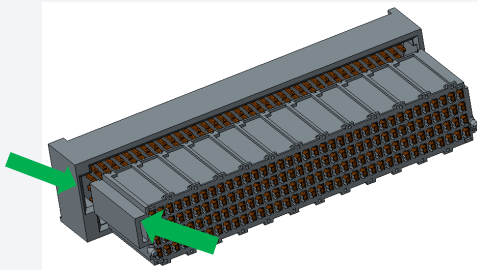
High signal density

1.0*1.5mm pitch in length/width direction.

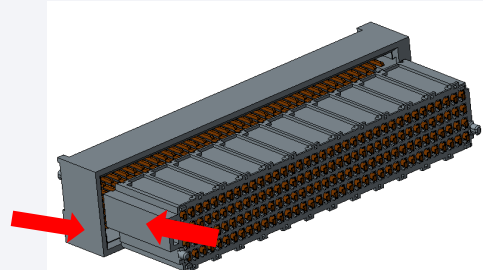
50contacts per cm² ,maximum **74contacts per cm²** .

3

4

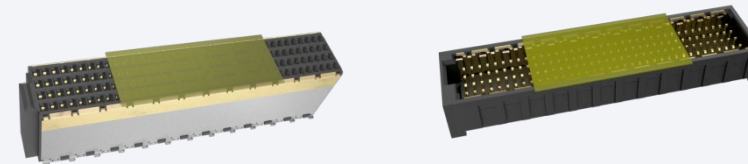


OK



NG

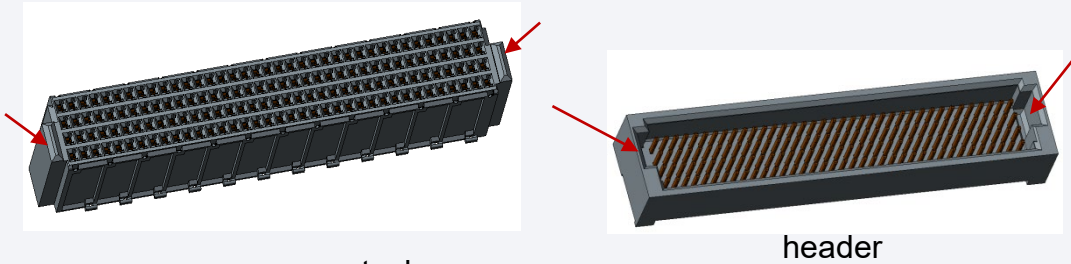
POKA-YOKE feature on HSG to avoid reverse mating.



Optional mylar on top surface to support pick/place by nozzle.
Without mylar version can be picked/placed by grab.

Advanced Features

- For both Shielded and Unshielded version

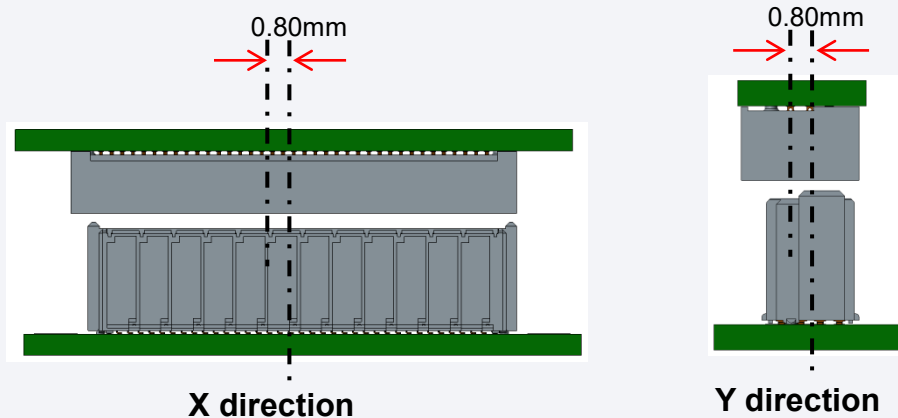


receptacle

header

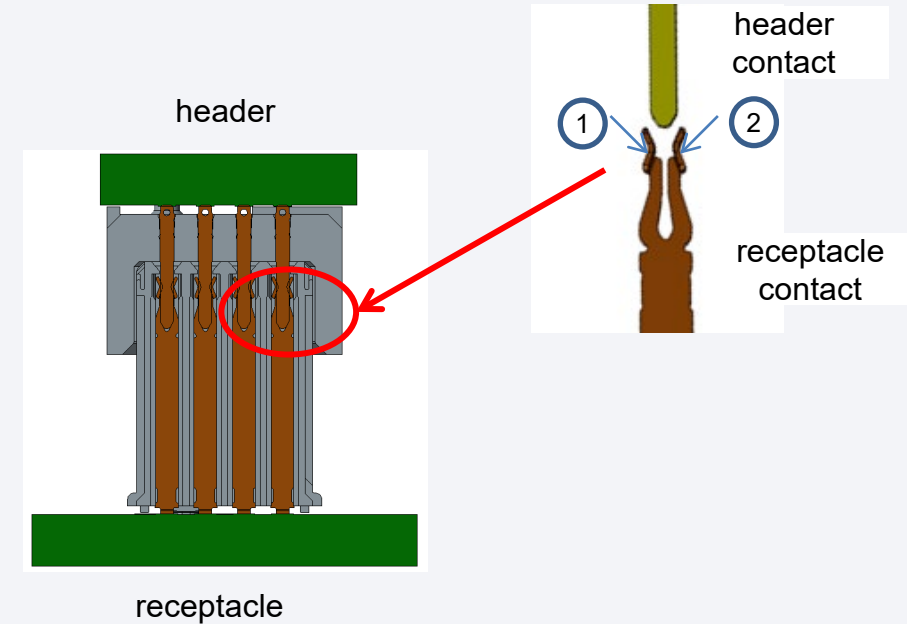
Extended guide on receptacle and chamfered header housing work together to achieve **Blind mating**.

Misalignment tolerance: +/-0.80 mm for both X/Y direction.



X direction

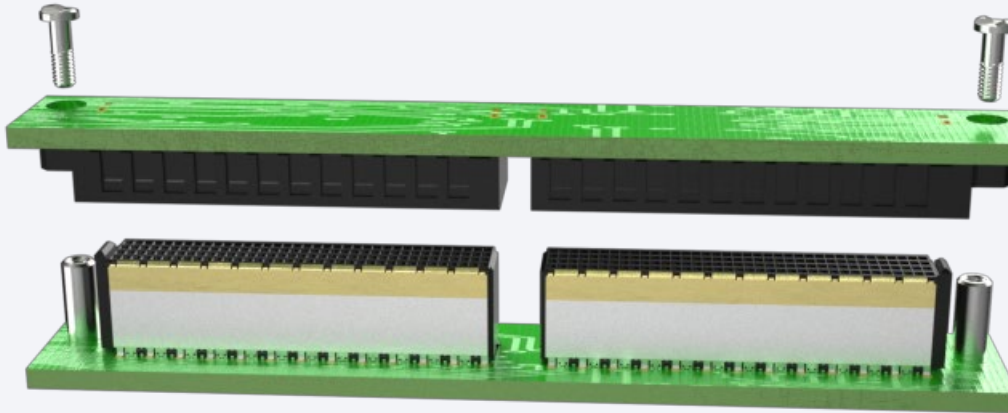
Y direction



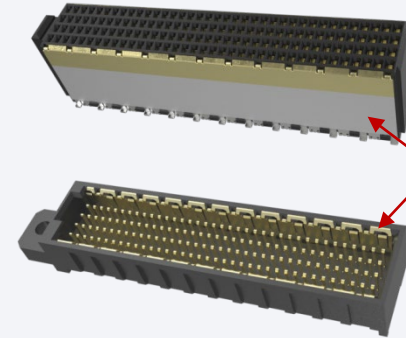
Dual-beam contact design for receptacle to achieve **High reliability connection**.
Comply with **USCAR-2** Vibration and Shock class **V2**.

Advanced Features

-For Shielded version only

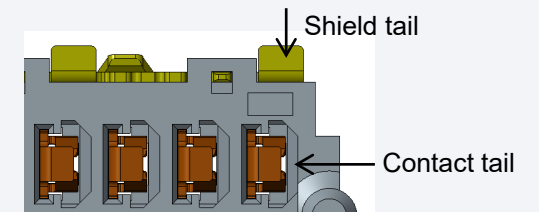
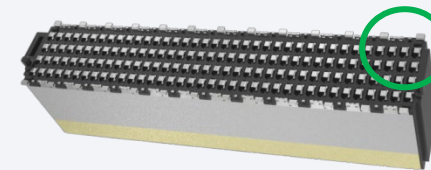


The **shield** can significantly **reduce inductive coupling**, and ensure **high signal integrity**.



Current transmission

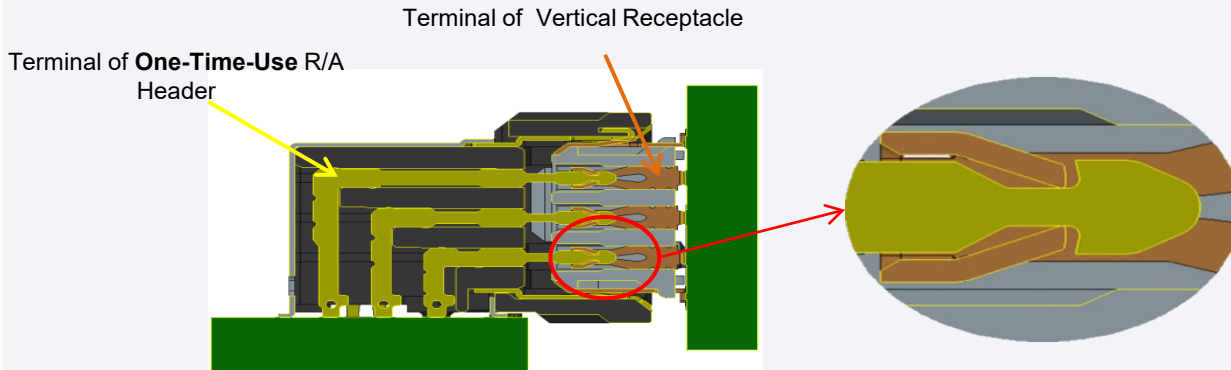
The shield can support to transfer 10A minimum.



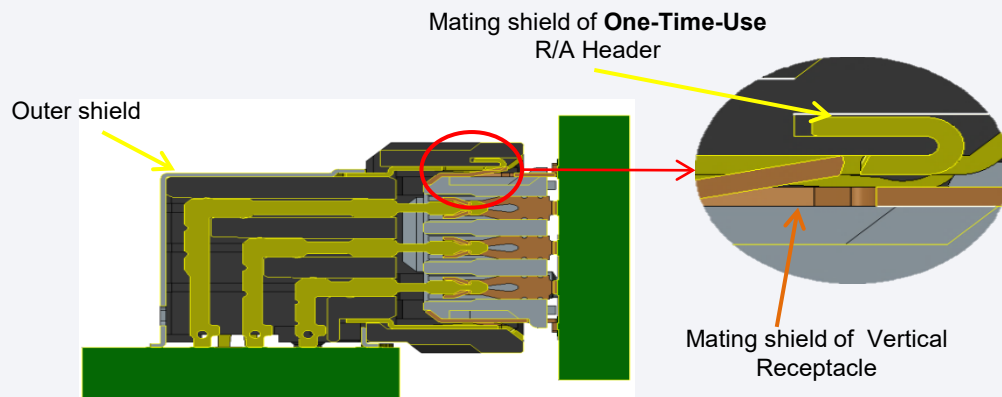
Shield tails can provide additional retention with board to achieve **robust connection**.

Advanced Features

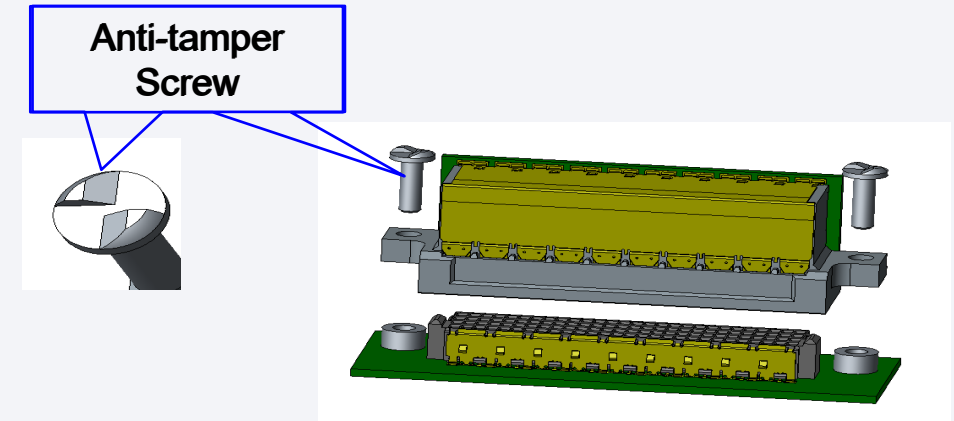
-Security Features(optional)



Unique patented lock feature on terminals.



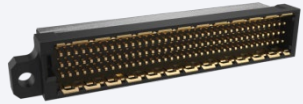
Unique patented lock feature on mating shields.
Outer shield protects the connection not to be probed.



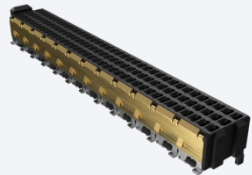
- ✓ For this One-Time-Use option, once connectors mate together, not possible to separate them without damaging PCB of Vertical receptacle (more than 90% soldering pad will peel off when do un-mating action). The lock features on terminal and shield make the most contribution to achieve this.
- ✓ Outer shield can protect the connection not to be probed.
- ✓ Optional Anti-tamper screw provides additional security.

Part Numbers

-Selector for 3 row



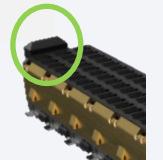
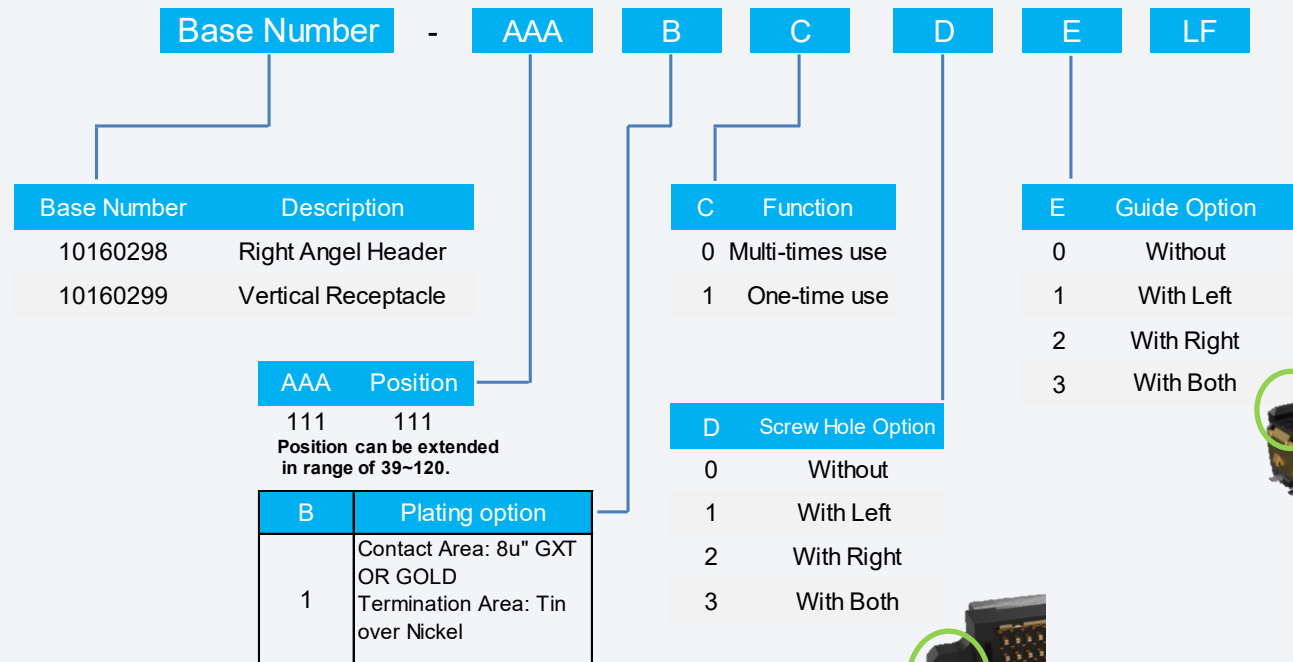
Shielded R/A_Header_10160298



Shielded Vertical_Recptacle_10160299

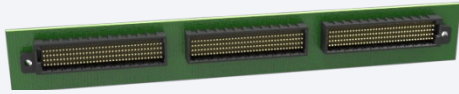


Perpendicular connection



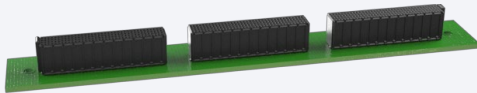
Part Numbers

-Selector for 4 row shielded and unshielded



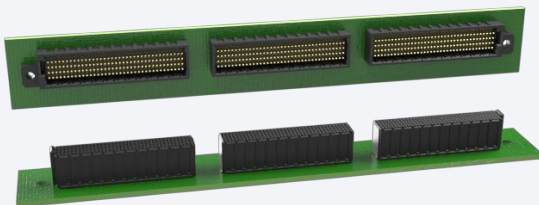
Unshielded Vertical_Header_10164939

Shielded Vertical_Header_10160595

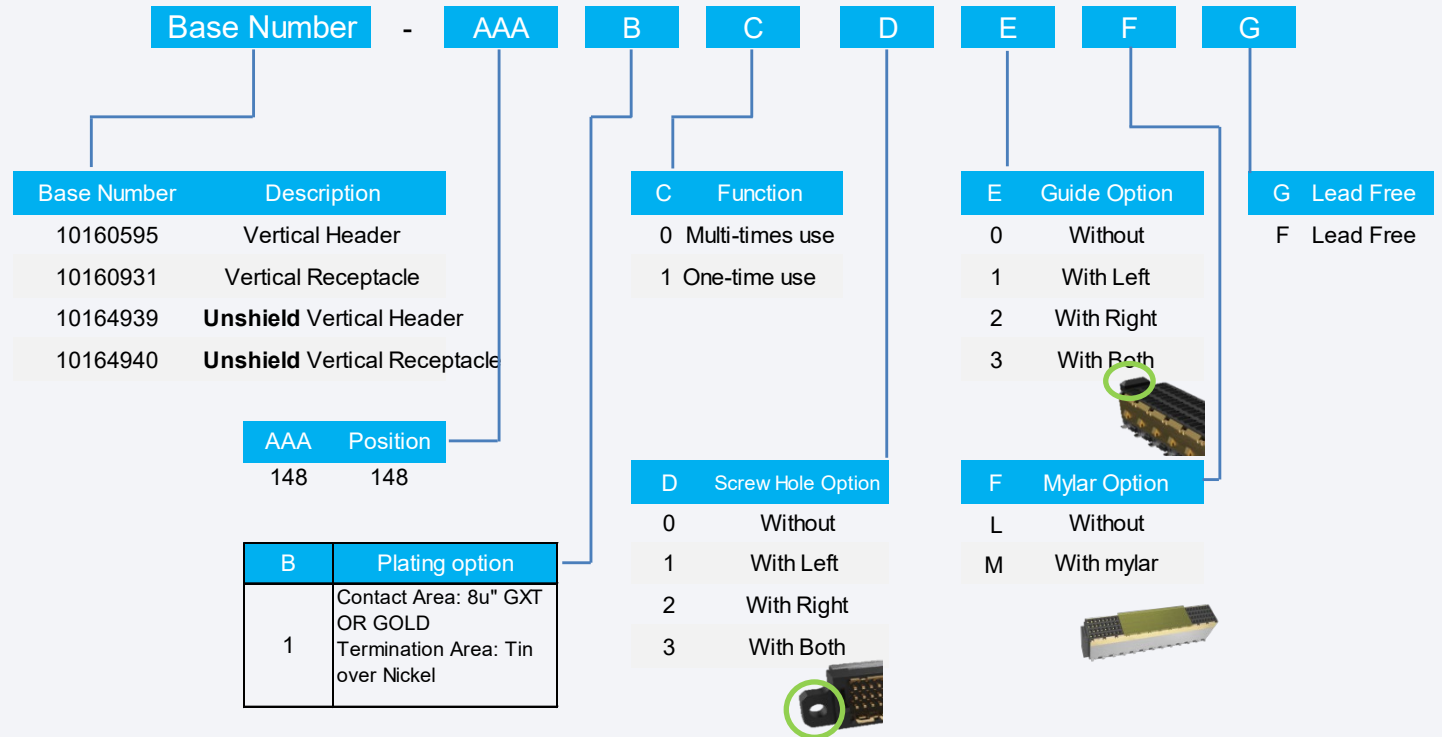


Unshielded Vertical_Recptacle_10164940

Shielded Vertical_Recptacle_10160931



Parallel connection





IT Datacom

Server/Storage



Automotive

Autonomous Driving



Industrial

Factory Automation



Mobile Networks

Networking Equipment

Thank You

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