

Amphenol

COMMUNICATIONS SOLUTIONS

ComboStak® 0.50 mm Product Presentation

 **FCi Basics**

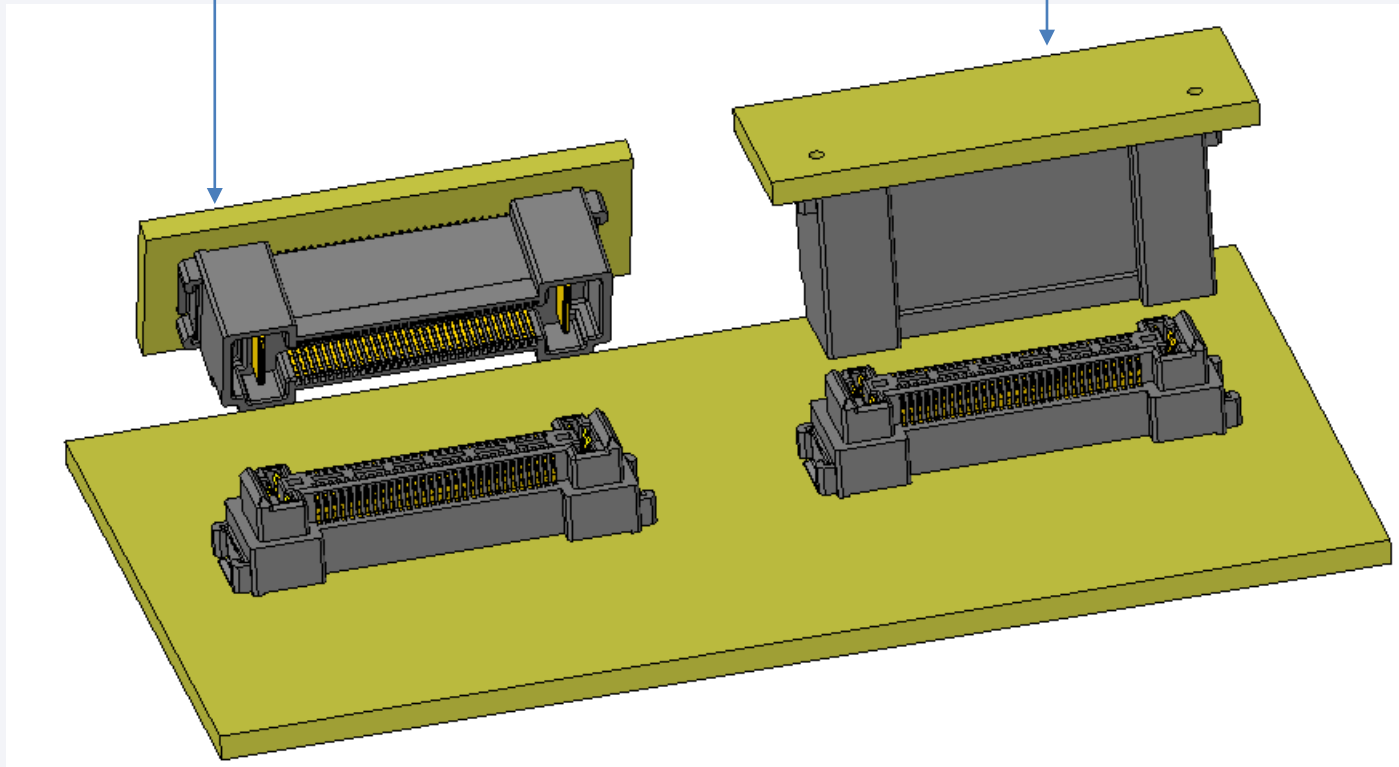


- Value Proposition
- Product Overview
- Product Specifications
- Features & Benefits
- Part Numbers
- Markets & Application

- ComboStak® 0.50 mm offers as **space saving, reliable combination of power** (2.00mm pitch) **and signal** (0.50mm pitch) **in one connector**
- ComboStak® 0.50 mm is a **symmetrical board to board connector** with an even number of power contacts at both ends of the connector and signal contacts in between
- ComboStak® 0.50 mm is designed for stack heights from **5mm to 20mm**, for **20 to 120** signal pins and an even number of **2 up to 10 power pins**
- ComboStak® 0.50 mm is a double row, mezzanine connector system with **surface-mount** solder tails
- ComboStak® 0.50 mm is **USCAR-2 V2** vibration&shock qualified
- ComboStak® 0.50 mm can support up to **PCIe Gen4 16Gb/s**, complies Simulation result passed USB type C 20Gbps Spec.
- ComboStak® 0.50 mm Connectors are ideal for applications in the **Desktop, Mobile Networks, Datacenter, Industrial & Automotive** markets.

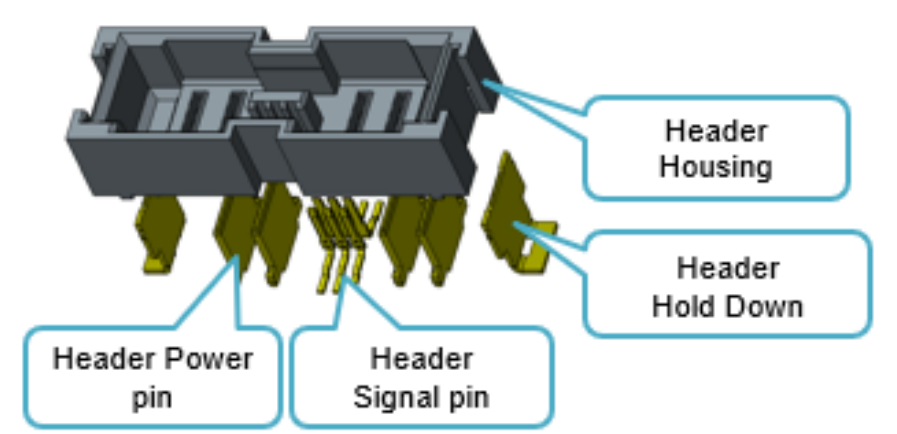
ComboStak® 0.5mm Vertical **Header**
H1.5=7.27mm
P/N 10168778-**A**XXXX00LF

ComboStak® 0.5mm Vertical **Header**
H3=11.77mm
P/N 10168778-**3**XXXX00LF

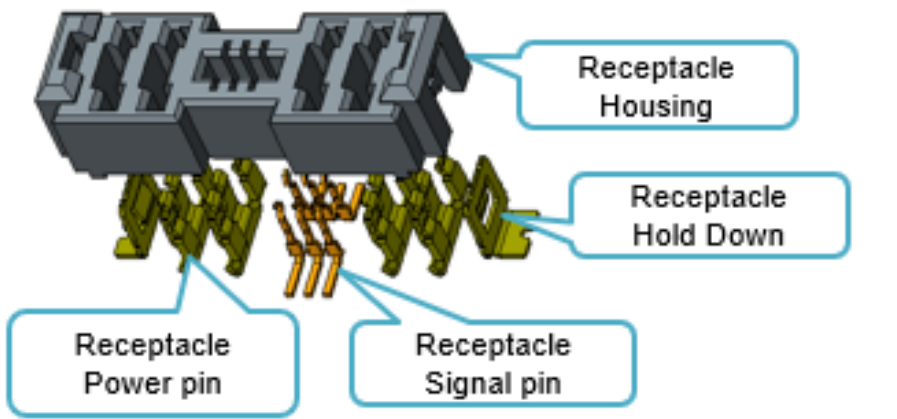
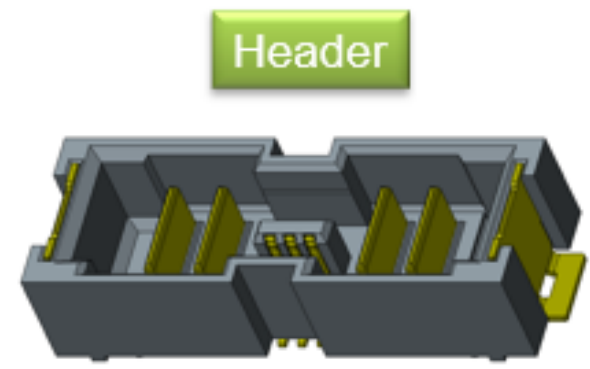


ComboStak® 0.5 mm Vertical **Receptacle**
R3=6.05mm
P/N 10168779-**3**XXX00LF

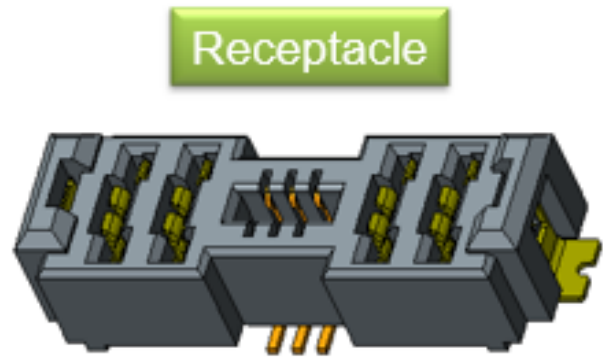
ComboStak® 0.5mm



Header

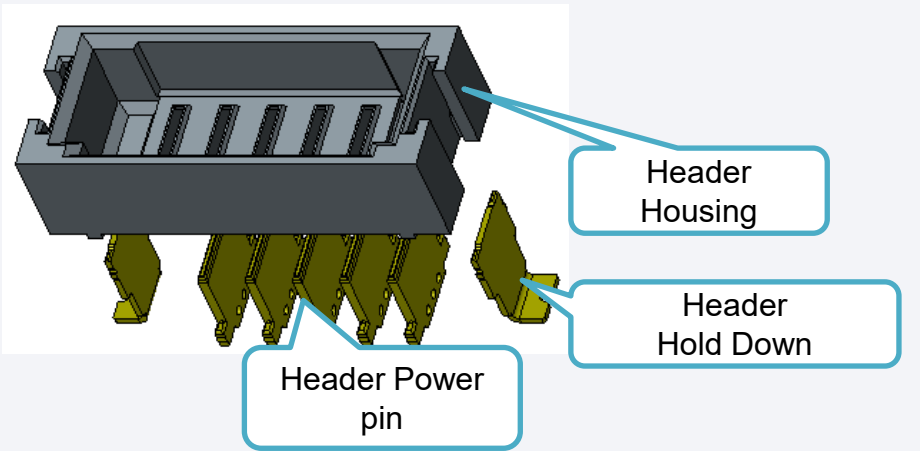


Receptacle

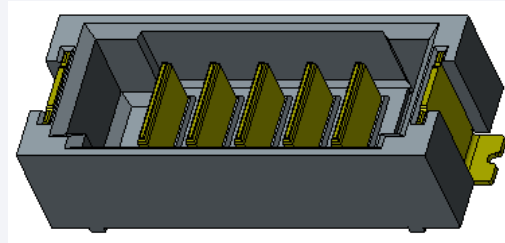


Major parameter	
Base P/N	10168778 & 10168779
Pitch (mm)	Power Pin: 2.0mm
	Signal: 0.50 mm
Current Rating/Contact	Power pin: 25A MAX. @ 1 Pin
	Signal pin: 0.5A, all pin powered
Stack height	5-20mm, Incremental 1mm
Misalignment	Pitch direction +/-0.4mm
	Width direction +/-0.4mm
Wipe length	Power Pin: 1.2mm
	Signal Pin: 0.83mm
# Positions Power pin	Power pin: 2 ~ 10, Incremental 2
	Signal pin: 20-120, Incremental 20

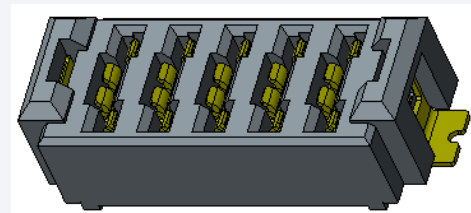
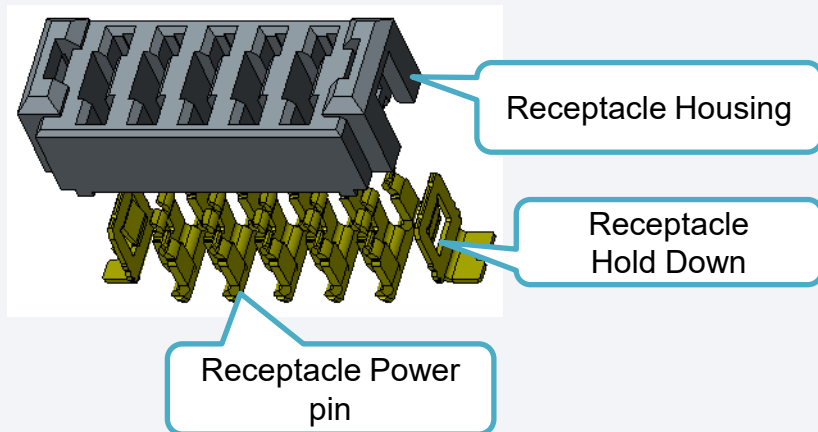
PowerStak®



Header



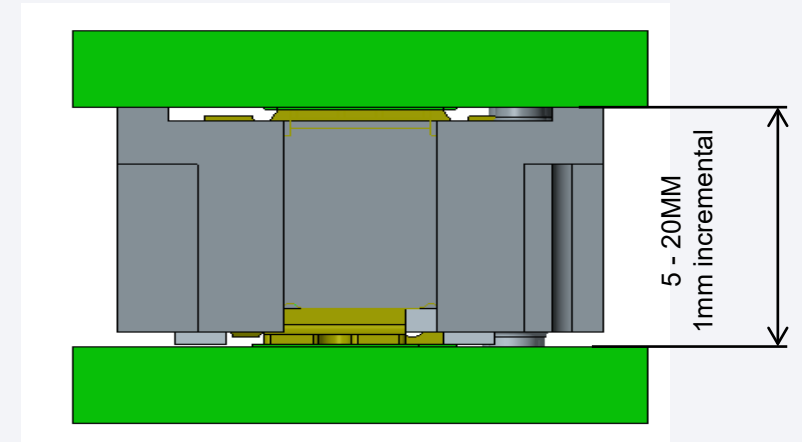
Receptacle



Major parameter	
Base P/N	10159560 & 10159561
Pitch (mm)	Power Pin: 2.0mm
Current Rating/Contact	Power pin: 20A min @ 1 Pin
Stack height	5-20mm, Incremental 1mm
Misalignment	Pitch direction +/-0.9mm
	Width direction +/-0.9mm
Wipe length	Power Pin: 1.5mm
# Positions Power pin	Power pin: 2 ~10, Incremental 1

		10168778				
		HEADER 1	HEADER 1.5	HEADER 2	HEADER 3	HEADER 4
COMBINATION OF MATED HEIGHT						
10168779	REC 1					
	REC 2					
	REC 3					
	REC 4					

Stack Height



Specifications

- Pitch: Power 2.0mm ; Signal 0.50mm
- Positions: Power 2 ~ 10pos ; Signal 20 ~ 120pos
- Termination: SMT
- Configurations: Vertical
- Stack Heights: 5~20mm , start with 10.5, 15mm
- USCAR, UL E66906

Materials

- Header / Receptacle : High temperature thermoplastic LCP, Natural (UL94V-0)
- Terminal: Copper Alloy
- Hold down: Copper Alloy
- Plating: Gold or GXT

Electrical Performances

- Operating Voltage Rating = 30 VDC
- Current Rating:
 - Power Pin: 25A max. per contacts
 - Signal Pin: 0.5A all contacts powered
 - Insulation Resistance: 1000MΩ min.
- Contact Resistance: 50m-ohms max (Initial)
- Speed: Up to PCIe Gen4 16Gb/s, complies Simulation result passed USB type C 20Gbps Spec.

Mechanical Performance

- Durability: 50 cycles
- Insertion Force: Power pin 6.5N max. Signal pin 0.9N max.
- Withdrawal Force: Power pin 0.8N min. Signal pin 0.045N min.
- Point of power pin contact: 4
- Wiping length: 0.83mm

Environmental

- Operating Temperature: -40°C to +125°C
- MFG:EIA 364-65 Class –IIA compatible

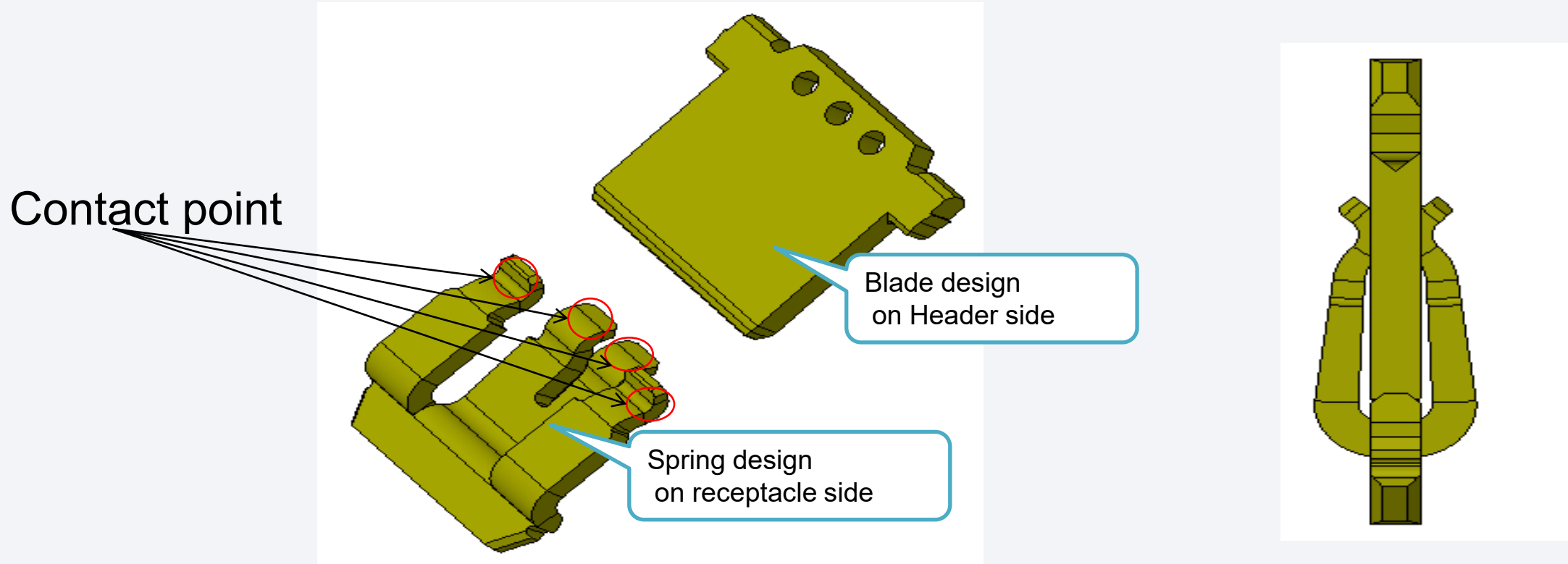
Packaging

- Tape and reel

Features	Benefits
2.0mm pitch for power contacts	High current carrying capacity with miniaturized shape to save space
Double row 0.50 mm pitch for signal system	Signal pin contains all benefits of BergStak® 0.50mm HS
Power distribution and signal control in one connector	Streamline BOM usage to save space and cost
Variable position and stack height	Meets your needs for a wide range of applications
Reliable 4 points power contact system	Provide reliable mating force and excellent contact performance
Scoop proof housing with ± 0.4 mm misalignment tolerance	Supports secure blind mating and automatic assembly with cost effective
Housing with metal hold down	Guarantee stable PCB retention force
Locating pegs available	Enables easy manual assembly
UL94V-0 high temperature LCP material	High flammability rating with operating temperatures up to 125°C
Lead-Free, RoHS and Halogen-free compliant	Meets environmental, health and safety requirements

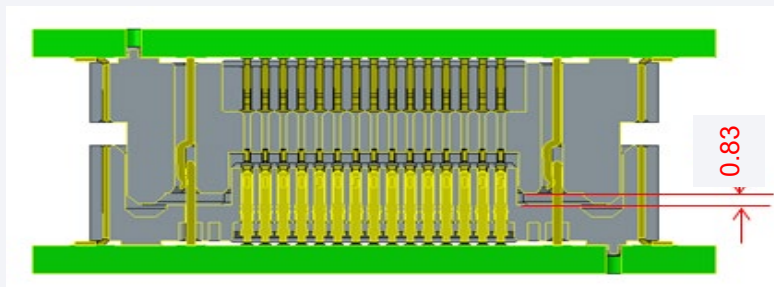
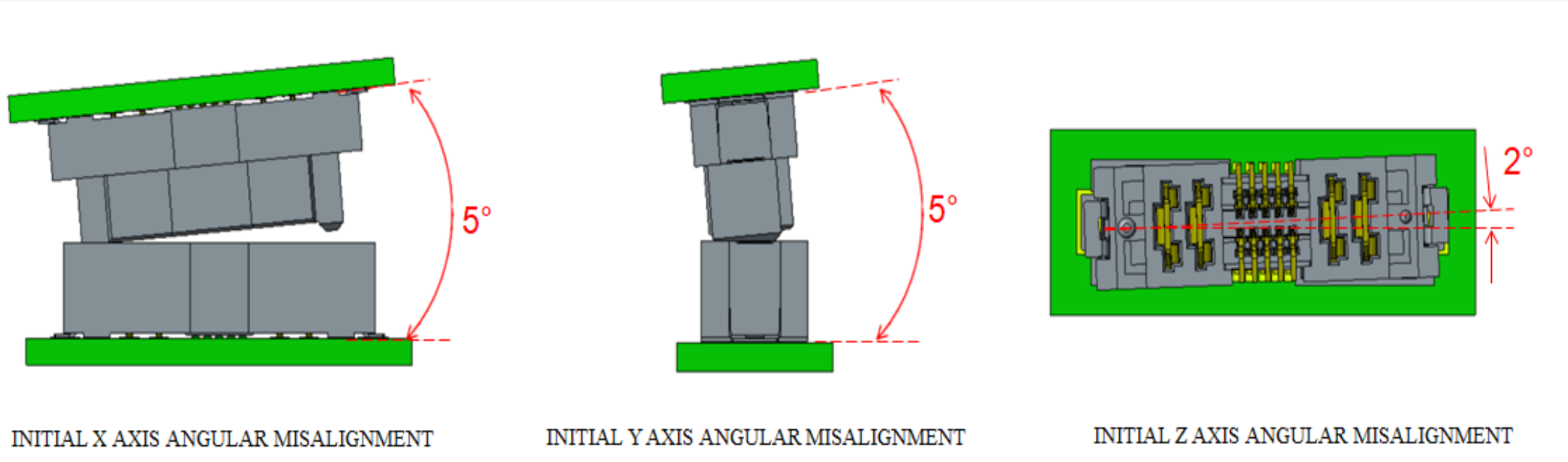
Advanced Features

- reliable contact performance



4 contact points design provide a low contact resistance and **reliable contact performance**

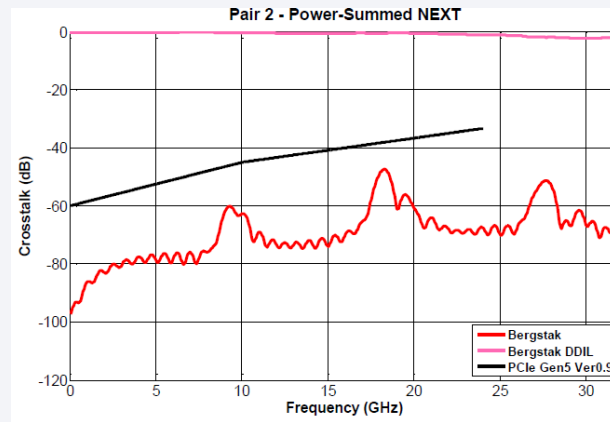
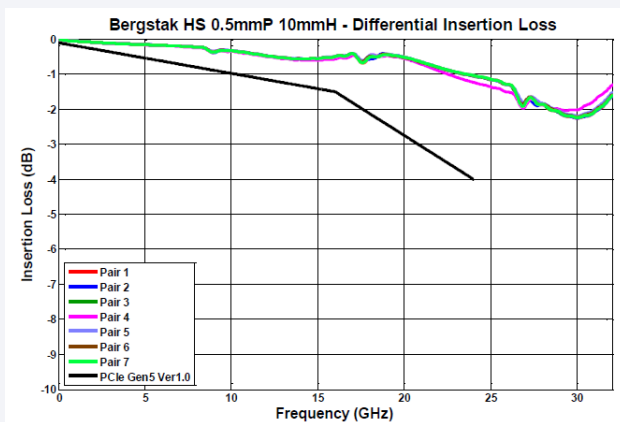
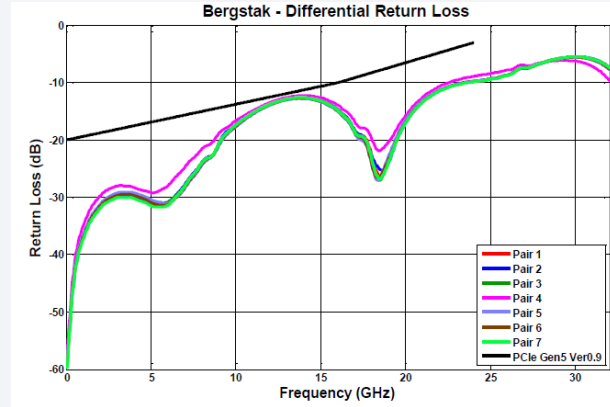
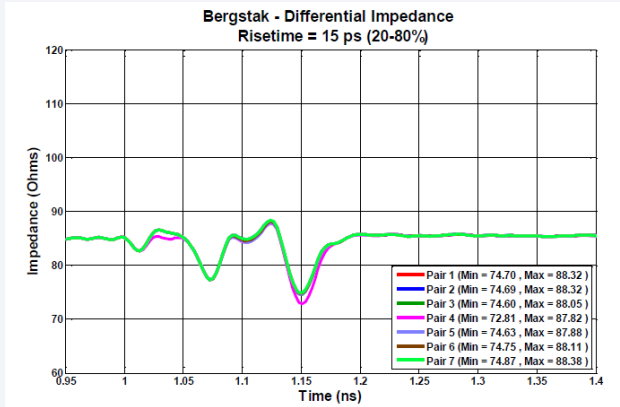
Allowable final angular misalignment



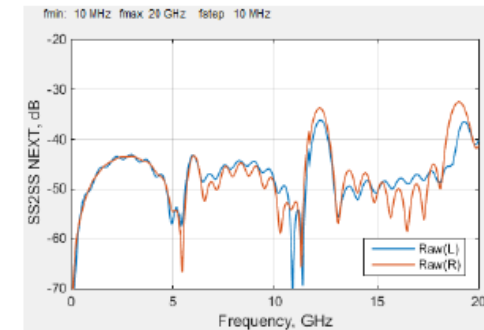
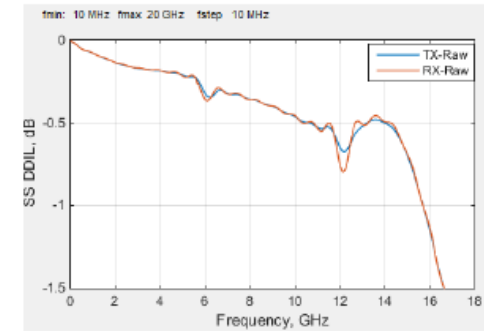
Wipe length : 0.83mm

Advanced Features -HS performance

Support up to **PCIe Gen4 16Gb/s**, complies Simulation result passed **USB type C 20Gbps Spec.**



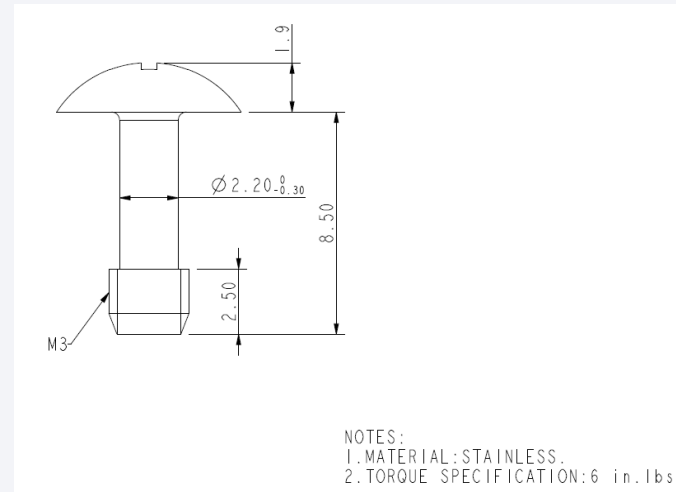
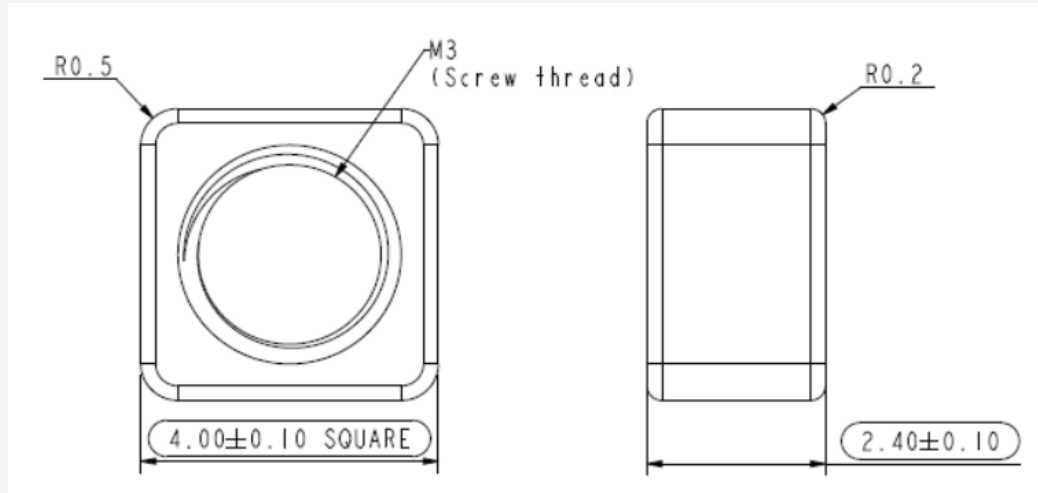
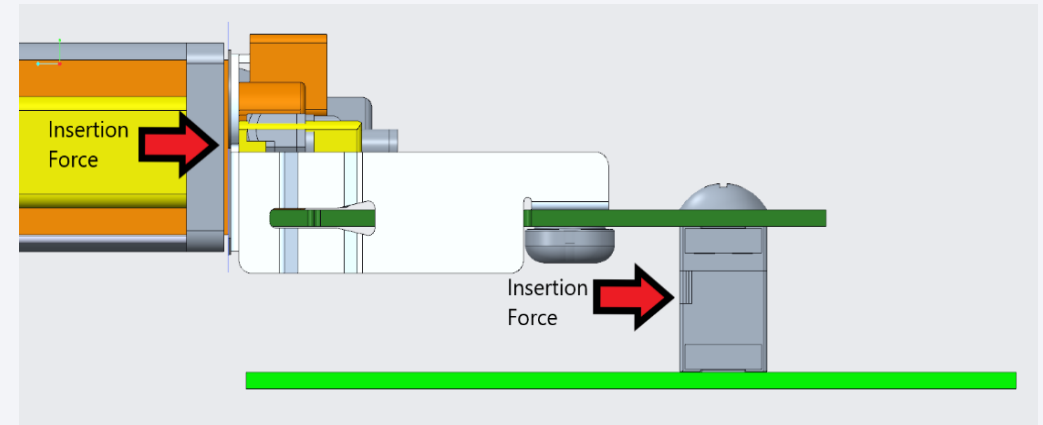
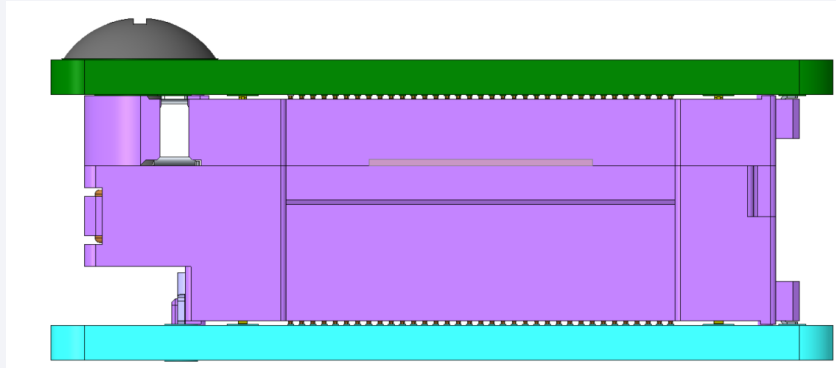
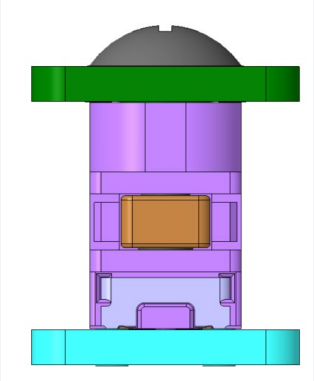
Item	Value	Informative Requirement	Recommendation
1	ILfit@2.5GHz, dB	-0.1 -0.6	Meet
2	ILfit@5.0GHz, dB	-0.2 -0.8	Meet
3	ILfit@10.0GHz, dB	-0.5 -1	Meet
4	IIMR, dB	-51.5 -40	Meet
5	IRL, dB	-21.6 -18	Meet
6	INEXT(*), dB	-46.2 -44	Meet
7	INEXT(**), dB	-45.5 -39	Meet
8	IFEXT(*), dB	-54.8 -44	Meet
9	IFEXT(**), dB	-49 -39	Meet
10	IDDXT (FEXT), dB	-71.4 -50	Meet
11	IDDXT (NEXT), dB	-52 -50	Meet
12	SCD12/SCD21		Meet
13	NEXT (USB2 to SS)		Meet
14	FEXT (USB2 to SS)		Meet



Advanced Features

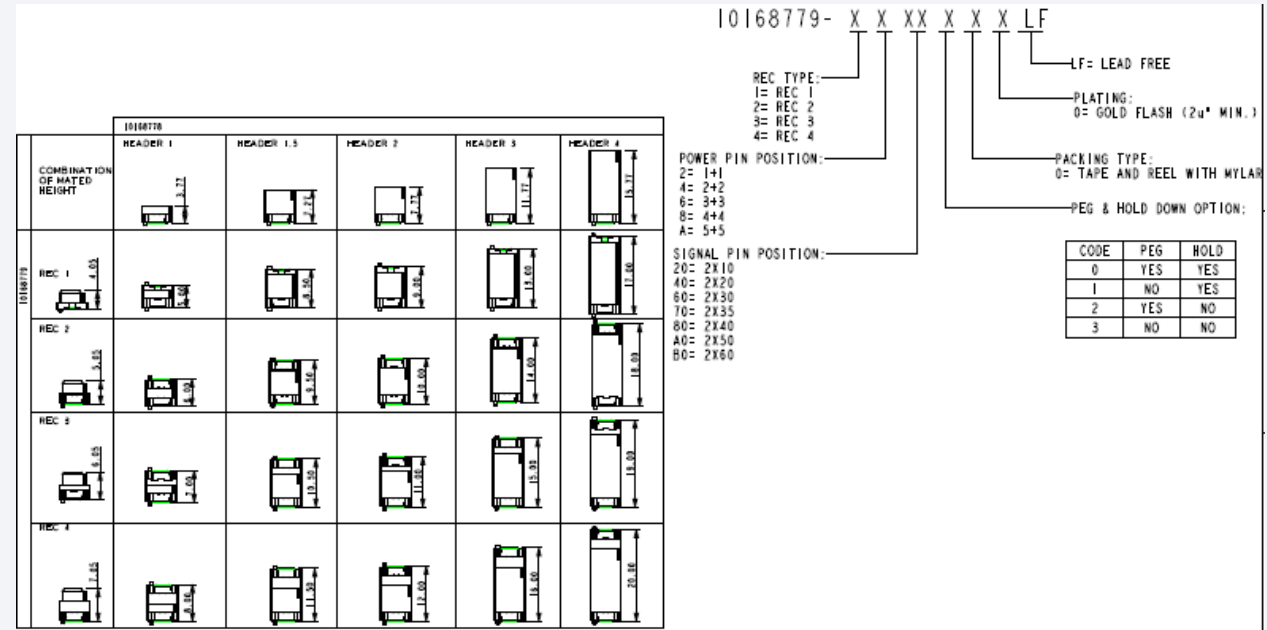
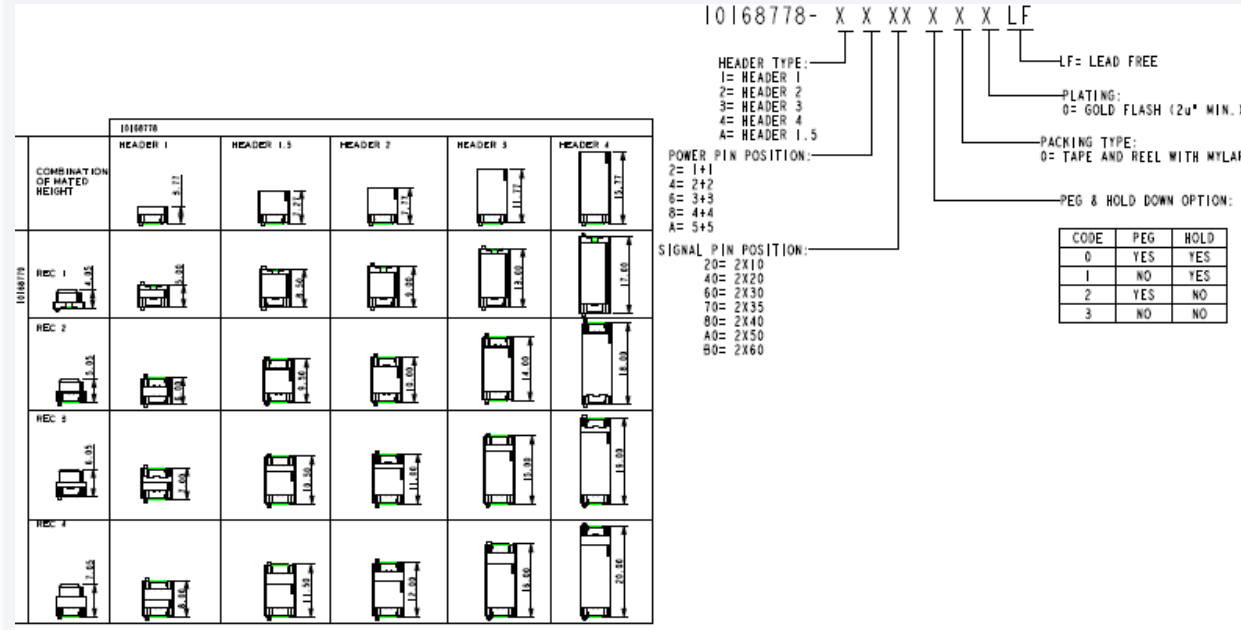
-support on rugged design

With M3 Screw and Nut solution, to meet high insertion force

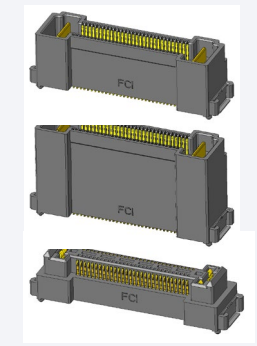


Part Numbers

-Header and receptacle



Description	Product Number
ComboStak® 0.50 mm Vertical Header, 1P+60S+1P, Height=7.27mm	10168778-A260000LF
ComboStak® 0.50 mm Vertical Header, 1P+60S+1P, Height=11.77mm	10168778-3260000LF
ComboStak® 0.50 mm Vertical Receptacle, 1P+60S+1P, Height=6.05mm	10168779-3260000LF



Industrial

- Analytical Instruments
- Robotics
- PLC & Server Driver



Datacenter

- Servers
- Storage



Consumer

- Desktop



Automotive

- Cluster
- Domain control unit



Networking

- mMIMO
- 5G antenna array



Thank You

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