

Amphenol

COMMUNICATIONS SOLUTIONS

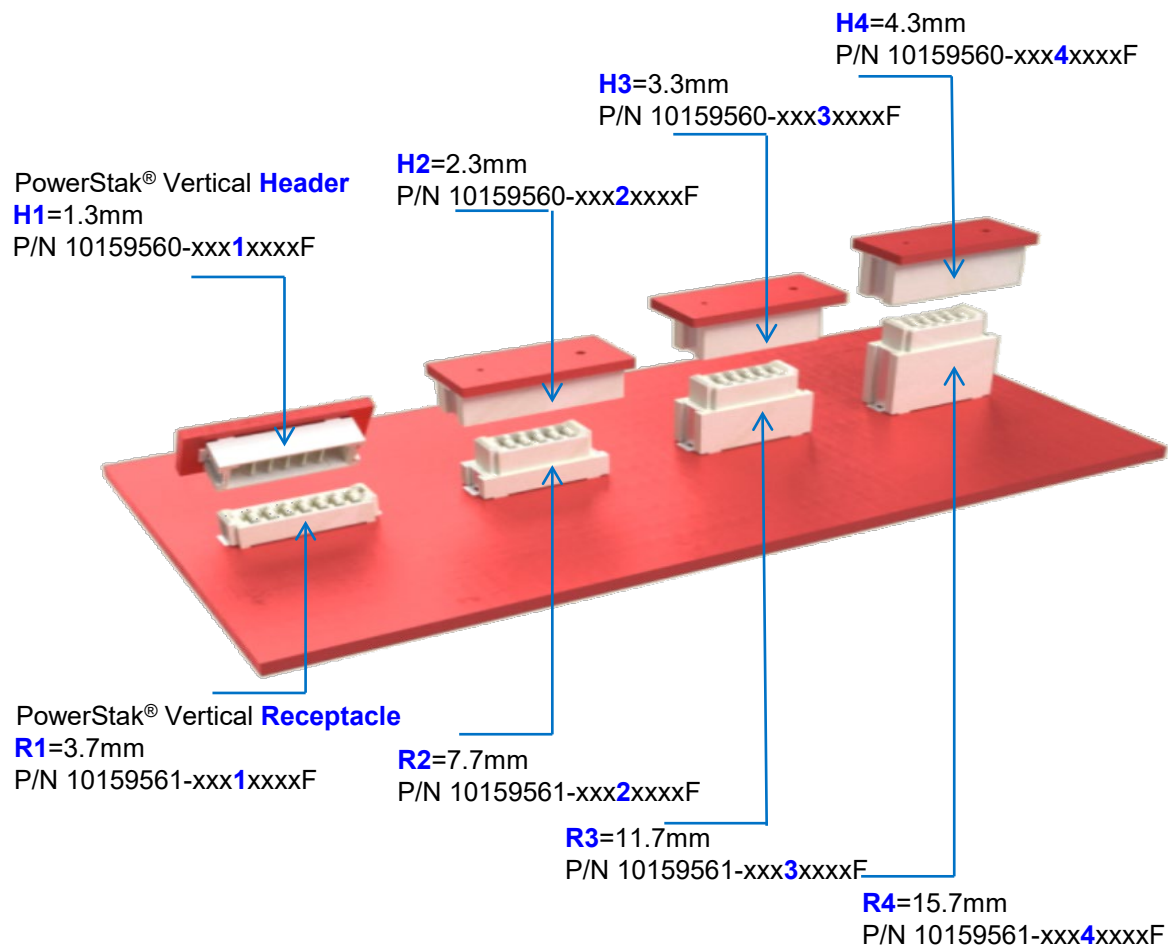
ComboStak® 0.80mm and PowerStak® 2.00mm
Product Presentation

 **FCi Basics**

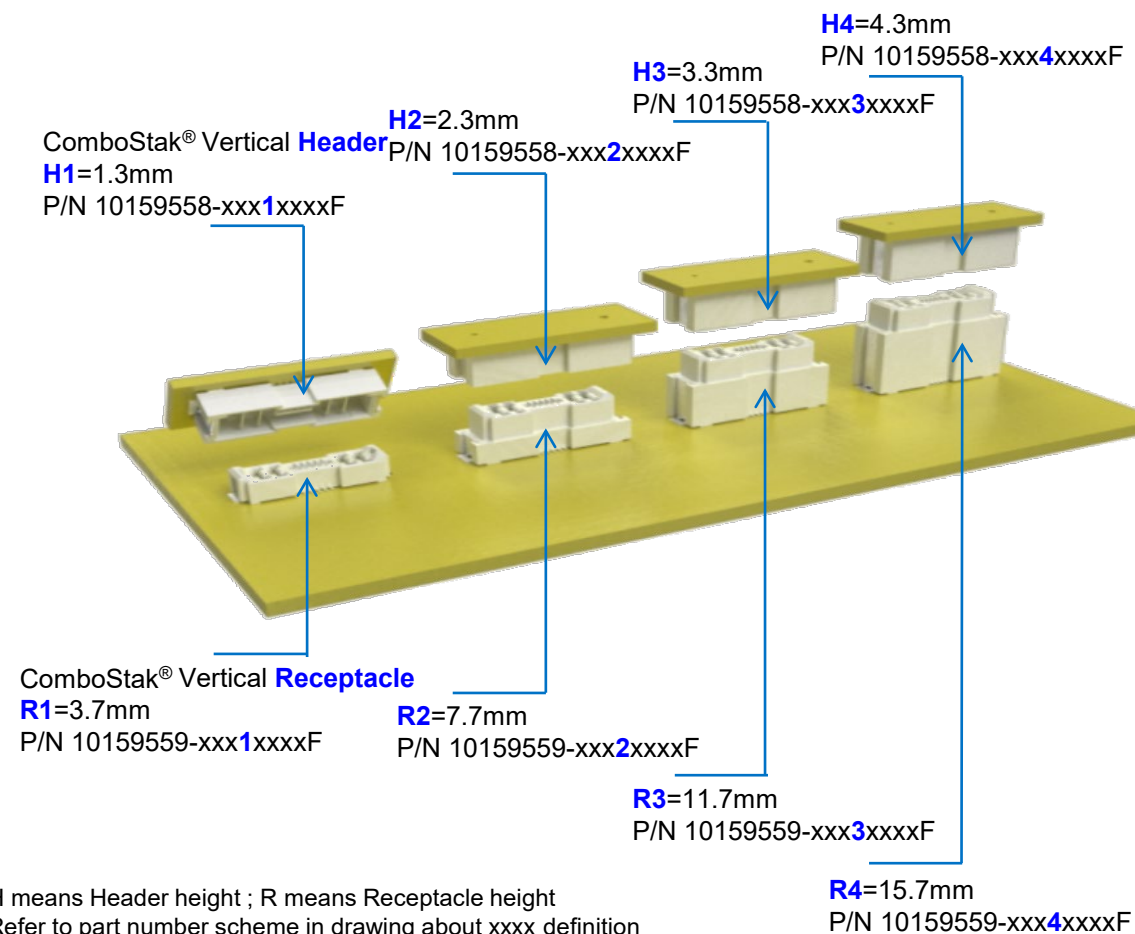
- ComboStak® offers as space saving, reliable combination of power (2.00mm pitch) and signal (0.80mm pitch) in one connector
- ComboStak® is a symmetrical board to board connector with an even number of power contacts at both ends of the connector and signal contacts in between
- ComboStak® is designed for stack heights from 5mm to 20mm (1mm increments), for 6 to 140 signal pins (6, 8, 10, 20, 30, 40, 60, 80, 100, 120, 140) and an even number of 2 up to 10 power pins
- ComboStak® is a double row, mezzanine connector system with surface-mount solder tails
- PowerStak® is the compact, space saving power only version on 2.00mm pitch
- PowerStak® support stack height from 5mm to 20mm (1mm increments) and from 2 to 10pos
- PowerStak® offers a 4 point of contact system to support current ratings up to 20A/pin
- ComboStak® and PowerStak® Connectors are ideal for applications in the Mobile Networks, Datacenter, Industrial & Automotive markets

ComboStak® and PowerStak® Product Overview

PowerStak®

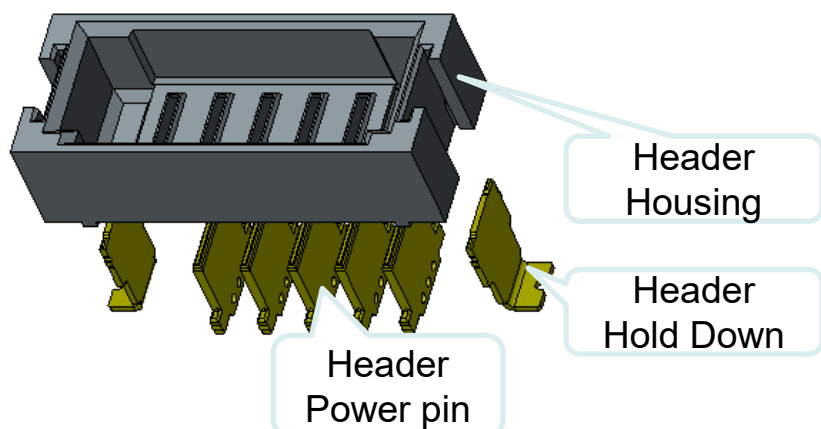


ComboStak®

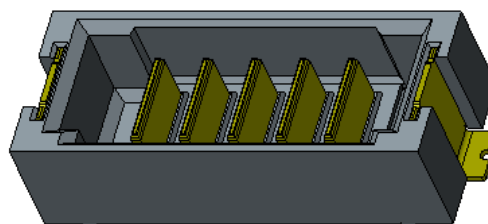


- H means Header height ; R means Receptacle height
- Refer to part number scheme in drawing about xxxx definition

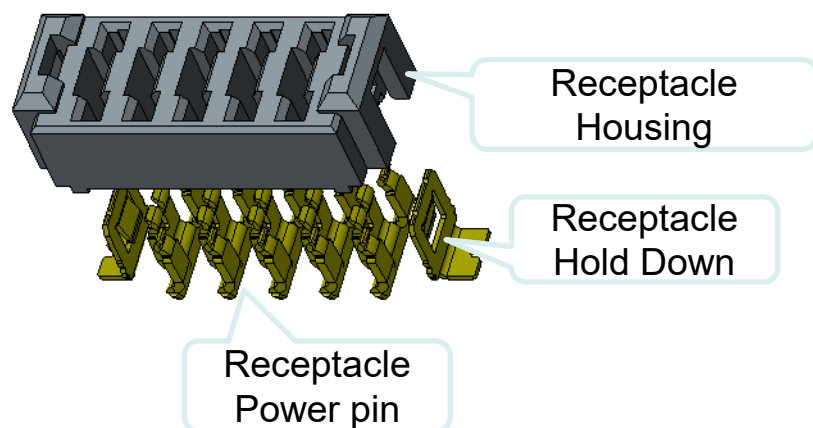
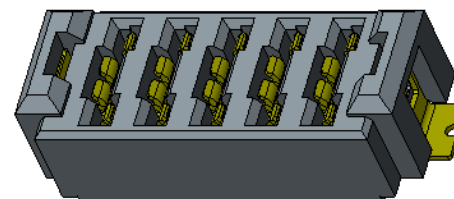
PowerStak®



Header



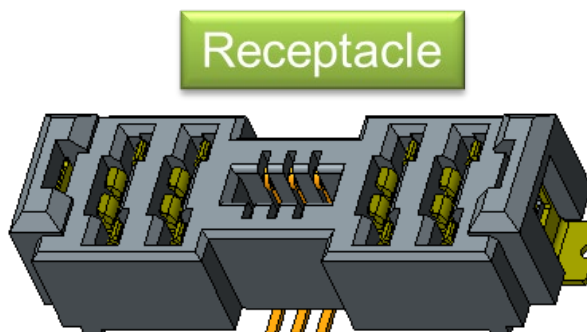
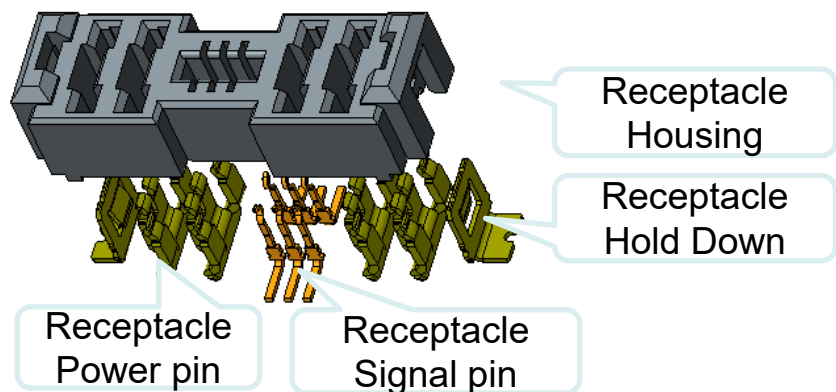
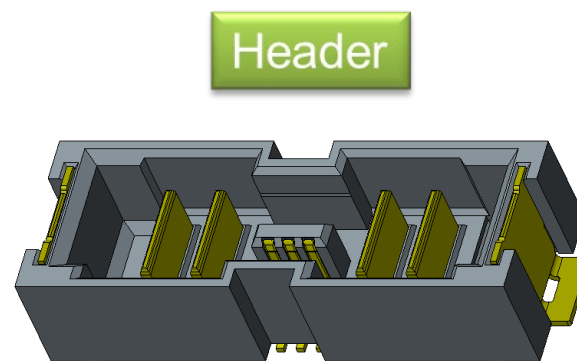
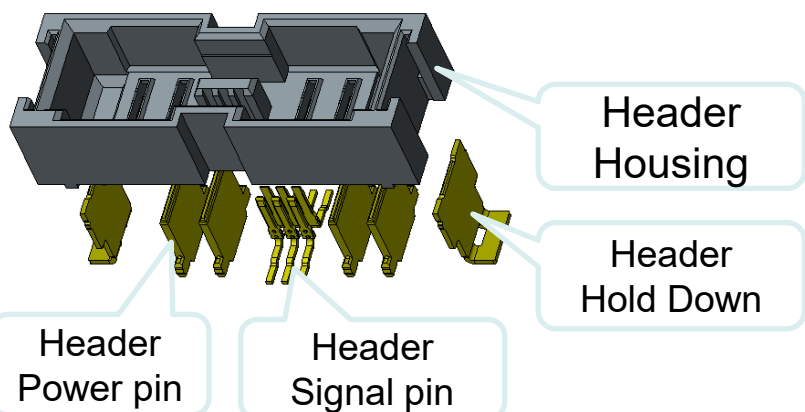
Receptacle



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

ComboStak®

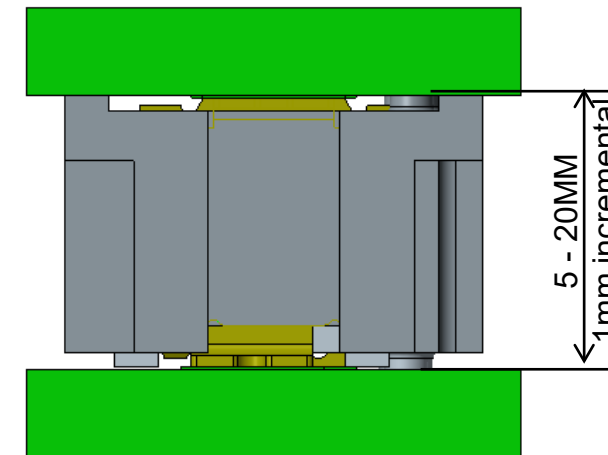


Major parameter	
Base P/N	10159558 & 10159559
Pitch (mm)	Power Pin: 2.0mm
	Signal: 0.8mm
Current Rating/Contact	Power pin: 20A @ 1 Pin
	Signal pin: 0.8A, all pin powered
Stack height	5-20mm, Incremental 1mm
Misalignment	Pitch direction +/-0.9mm
	Width direction +/-0.9mm
Wipe length	Power Pin: 1.5mm
	Signal Pin: 1.2mm
# Positions Power pin	Power pin: 2 ~ 10, Incremental 1
	Signal pin: 6 ~140 (6, 8, 10, 20, 30, 40, 60, 80, 100, 120, 140)

ComboStak® and PowerStak® Product Overview

	FOR HEADER, SEE DWG. NO. 10159558			
COMBINATION OF MATED HEIGHT	HEADER 1 HEIGHT: 1.3	HEADER 2 HEIGHT: 2.3	HEADER 3 HEIGHT: 3.3	HEADER 4 HEIGHT: 4.3
RECEPTACLE 1 HEIGHT: 3.7				
RECEPTACLE 2 HEIGHT: 7.7				
RECEPTACLE 3 HEIGHT: 11.7				
RECEPTACLE 4 HEIGHT: 15.7				

Stack Height



Specifications

- Pitch: 2.0mm
- Positions: Power 2 ~ 10pos
- Termination: SMT
- Configurations: Vertical
- Stack Heights: 5~20mm , start with 6 , 8, 10, 12mm
- 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

- Voltage Rating: 100V DC
- Current Rating: 20A max. per contact
- Insulation Resistance: 1000MΩ min.
- Contact Resistance: 30m-ohms max (Initial)

Mechanical Performance

- Durability: 200 cycles
- Insertion Force: Power pin 6N max.
- Withdrawal Force: Power pin 0.8N min.
- Point of contact: 4
- Wiping length: 1.5mm

Environmental

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

Packaging

- Tape and reel
- Tube

Specifications

- Pitch: Power 2.0mm ; Signal 0.80mm
- Positions: Power 2 ~ 10pos ; Signal 6 ~ 140pos
- Termination: SMT
- Configurations: Vertical
- Stack Heights: 5~20mm, start with 6 , 8, 10, 12mm
- 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

- Voltage Rating: 100V DC
- Current Rating:
 - Power Pin: 20A max. per contacts
 - Signal Pin: 0.8A all contacts powered)
- Insulation Resistance: 1000MΩ min.
- Contact Resistance: 30m-ohms max (Initial)
- Speed: up to 12Gbps

Mechanical Performance

- Durability: 200 cycles
- Insertion Force: Power pin 6N max. ; Signal pin 0.9N max.
- Withdrawal Force: Power pin 0.8N min. Signal pin 0.1N min.
- Point of contact: 4 (power)
- Wiping length: 1.2mm

Environmental

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

Packaging

- Tape and reel
- Tube

Features	Benefits
2.0mm pitch power only system	High current carrying capacity with miniaturized shape to save space
Variable position and stack height	Meets your needs for a wide range of applications
Reliable 4 points contact system	Provide reliable mating force and excellent contact performance
Scoop proof housing with ± 0.9 mm misalignment tolerance	Supports secure blind mating and automatic assembly
Housing with metal hold down	Guarantees 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

Features	Benefits
2.0mm pitch for power contacts	High current carrying capacity with miniaturized shape to save space
Double row 0.8mm pitch for signal system	Signal pin contains all benefits of BergStak® 0.80mm
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 ± 0.9 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

ComboStak® and PowerStak® Part numbers

PART NUMBER SCHEME:

















































































10159561-X X 0 X X X X X F

LEAD FREE



X	POWER POSITION
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	10

X	EMPTY PIN OPTIONAL
0	NONE
2	2#
3	3#
4	4#
5	5#
6	6#
7	7#
8	8#
9	9#

X	FOR HEADER, SEE DWG. NO. 10159560			
COMBINATION OF MATED HEIGHT	HEADER 1	HEADER 2	HEADER 3	HEADER 4
HEIGHT: 1.3				
HEIGHT: 1.3				
HEIGHT: 2.3				
HEIGHT: 2.3				
HEIGHT: 3.3				
HEIGHT: 3.3				
HEIGHT: 4.3				
HEIGHT: 4.3				
RECEPTACLE 1				
HEIGHT: 3.7				
HEIGHT: 3.7				
RECEPTACLE 2				
HEIGHT: 7.7				
HEIGHT: 7.7				
RECEPTACLE 3				
HEIGHT: 11.7				
HEIGHT: 11.7				
RECEPTACLE 4				
HEIGHT: 15.7				
HEIGHT: 15.7				

X	PLATING: CONTACT AREA
1	GOLD 0.05um MIN
2	GOLD OR GXT 0.2um MIN
3	GOLD OR GXT 0.375um MIN

X	SOLDER TAIL PLATING:
I	GOLD FLASH

X	POLARIZATION PEG/ DATE CODE
L	WITH PEG/ WITHOUT DATE CODE
P	WITH PEG/ WITH DATE CODE
M	WITHOUT PEG/ WITHOUT DATE CODE
N	WITHOUT PEG/ WITH DATE CODE

X	PACKAGING
R	T&R WITH MYLAR
T	TUBE WITHOUT MYLAR

PART NUMBER SCHEME:

10159560-X X 0 X X X X X F

LEAD FREE



X	POWER POSITION
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	10

X	EMPTY PIN OPTIONAL
0	NONE
2	2#
3	3#
4	4#
5	5#
6	6#
7	7#
8	8#
9	9#

X	FOR RECEPTACLE, SEE DWG. NO. 10159561			
COMBINATION OF MATED HEIGHT	HEADER 1	HEADER 2	HEADER 3	HEADER 4
HEIGHT: 1.3				
RECEPTACLE 1 HEIGHT: 3.7				
RECEPTACLE 2 HEIGHT: 7.7				
RECEPTACLE 3 HEIGHT: 11.7				
RECEPTACLE 4 HEIGHT: 15.7				

X	PLATING: CONTACT AREA
1	GOLD 0.05um MIN
2	GOLD OR GXT 0.2um MIN
3	GOLD OR GXT 0.375um MIN

X	SOLDER TAIL PLATING:
I	GOLD FLASH

X	POLARIZATION PEG/ DATE CODE
L	WITH PEG/ WITHOUT DATE CODE
P	WITH PEG/ WITH DATE CODE
M	WITHOUT PEG/ WITHOUT DATE CODE
N	WITHOUT PEG/ WITH DATE CODE

X	PACKAGING
R	T&R WITH MYLAR
T	TUBE WITHOUT MYLAR

Description	Product Number
PowerStak® Connector, Vertical Receptacle, 2pos, Height=3.7mm	10159561-200121RLF
PowerStak® Connector, Vertical Header, 2pos, Height=4.3mm	10159560-200421RLF
PowerStak® Connector, Vertical Receptacle, 10pos, Height=7.7mm	10159561-A00221RLF
PowerStak® Connector, Vertical Header, 10pos, Height=2.3mm	10159560-A00221RLF

Remark: More versions will be made available following market demand

ComboStak® and PowerStak® Part numbers

PART NUMBER SCHEME:

















































10159559-X XX X X X X X F

LEAD FREE



X	POWER POSITION
2	1+1
4	2+2
6	3+3
8	4+4
A	5+5

XX	SIGNAL POSITION
06	2X3
08	2X4
10	2X5
20	2X10
30	2X15
40	2X20
**	***
A4	2X70

X	FOR HEADER, SEE DWG. NO. 10159558			
COMBINATION OF MATED HEIGHT	HEADER 1	HEADER 2	HEADER 3	HEADER 4
HEIGHT: 1.3				
HEIGHT: 2.3				
HEIGHT: 3.3				
HEIGHT: 4.3				
RECEPTACLE 1				
HEIGHT: 3.7				
RECEPTACLE 2				
HEIGHT: 7.7				
RECEPTACLE 3				
HEIGHT: 11.7				
RECEPTACLE 4				
HEIGHT: 15.7				

X	PLATING: CONTACT AREA
1	GOLD 0.05um MIN
2	GOLD OR GXT 0.2um MIN
3	GOLD OR GXT 0.375um MIN

X	POLARIZATION PEG/ DATE CODE
L	WITH PEG/ WITHOUT DATE CODE
P	WITH PEG/ WITH DATE CODE
C	WITH PEG/ CUSTOMIZED DATE CODE
M	WITHOUT PEG/ WITHOUT DATE CODE
N	WITHOUT PEG/ WITH DATE CODE

X	SOLDER TAIL PLATING:
	POWER PIN
	SIGNAL PIN
I	GOLD FLASH
	TIN

X	PACKAGING
R	T&R WITH PICK UP FEATURE
T	TUBE WITHOUT PICK UP FEATURE

PICK UP FEATURE	DESCRIPTION
MYLAR	SIGNAL POSITION LESS THAN 40 POS
METAL CAP	SIGNAL POSITION MORE THAN 40 POS

PART NUMBER SCHEME:





























10159558-X XX X X X X X F

LEAD FREE



X	POWER POSITION
2	1+1
4	2+2
6	3+3
8	4+4
A	5+5

XX	SIGNAL POSITION
06	2X3
08	2X4
10	2X5
20	2X10
30	2X15
40	2X20
**	***
A4	2X70

X	FOR RECEPTACLE, SEE DWG. NO. 10159559			
COMBINATION OF MATED HEIGHT	HEADER 1	HEADER 2	HEADER 3	HEADER 4
HEIGHT: 1.3				
HEIGHT: 2.3				
HEIGHT: 3.3				
HEIGHT: 4.3				
HEIGHT: 7.7				
HEIGHT: 11.7				
HEIGHT: 15.7				

X	CONTACT AREA PLATING
1	GOLD 0.05um MIN
2	GOLD OR GXT 0.2um MIN
3	GOLD OR GXT 0.375um MIN

X	POLARIZATION PEG/ DATE CODE
L	WITH PEG/ WITHOUT DATE CODE
P	WITH PEG/ WITH DATE CODE
C	WITH PEG/ CUSTOMIZED DATE CODE
M	WITHOUT PEG/ WITHOUT DATE CODE
N	WITHOUT PEG/ WITH DATE CODE

X	SOLDER TAIL PLATING:
	POWER PIN
	SIGNAL PIN
I	GOLD FLASH
	TIN

X	PACKAGING
R	T&R WITH PICK UP FEATURE
T	TUBE WITHOUT PICK UP FEATURE

PICK UP FEATURE	DESCRIPTION
MYLAR	SIGNAL POSITION LESS THAN 40 POS
METAL CAP	SIGNAL POSITION MORE THAN 40 POS

Description	Product Number
ComboStak® Vertical Receptacle, 2P+10S+2P, Height=7.7mm	10159559-410221RLF
ComboStak® Vertical Header, 2P+10S+2P, Height=4.3mm	10159558-410421RLF
ComboStak® Vertical Receptacle, 5P+30S+5P, Height=7.7mm	10159559-A30221RLF
ComboStak® Vertical header , 5P+30S+5P, Height=2.3mm	10159558-A30221RLF

Remark: More versions will be made available following market demand

Main Market & Applications

Industrial

- Analytical Instruments
- Robotics
- PLC & Server Driver



Automotive

- Cluster
- Domain control unit



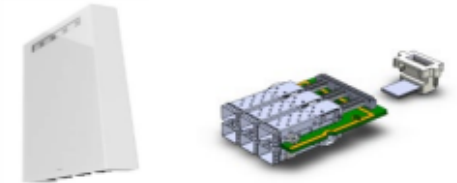
Datacenter

- Servers
- Storage



Networks

- mMIMO
- 5G antenna array
- Baseband



- ComboStak® and PowerStak® Datasheet
- ComboStak® and PowerStak® Product Presentation
- ComboStak® and PowerStak® Product Specification
- ComboStak® and PowerStak® Application Specification
- ComboStak® and PowerStak® Product overview

Thank You

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 **FCi Basics**