FCi Basics

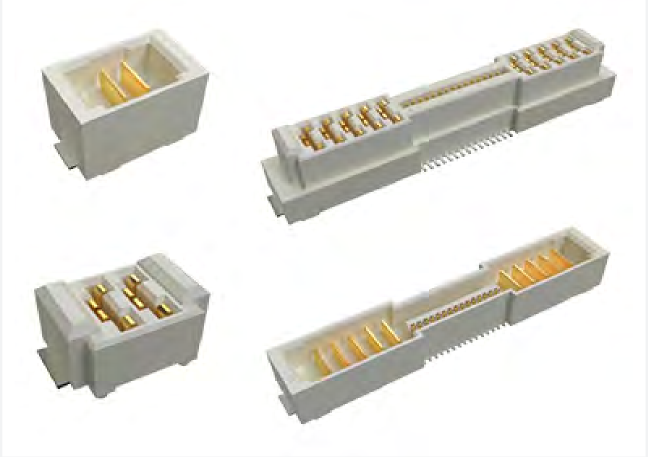
Amphenol

ComboStak® and PowerStak® Board-to-Board Connectors

HYBRID AND MEDIUM POWER SOLUTION

ComboStak® and PowerStak® are compact, hybrid (signal and power) and power board-to-board connectors. ComboStak® combines existing, BergStak® 0.8mm pitch signal pins with 2.00mm pitch power blades. PowerStak® is the power only version. Both ComboStak® and PowerStak® provide high signal and current density with a wide range of stack heights.

- High current carrying capacity with miniaturized shape
- Up to 20A per power blade
- 2 to 10 power blades on 2.0mm pitch
- 6 to 140 signal pins on 0.8mm pitch
- Reliable 4 contact point power contact design
- Signal speed is up to 12Gb/s
- 5mm to 20mm stack heights (1.0mm increments)
- Self-alignment for blind mating
- Meets USCAR-2 V2 Shock and Vibration



TARGET MARKETS

FEATURES	BENEFITS
▪ 2.00mm pitch for power system	▪ High current carrying capacity with miniaturized shape to save space and cost
▪ Power distribution and signal control in one connector	▪ Signal pin continues to match BergStak® 0.80mm
▪ Support stack height from 5mm to 20mm, power position from 2 to 10pos and signal position from 6 to 140pos	▪ Supports a wide range of applications
▪ Scoop proof housing with ±0.9mm misalignment tolerance	▪ Supports secure blind and automatic assembly with cost effective
▪ Housing with metal hold down	▪ Guarantees high PCB retention force
▪ Outstanding 4 points contact design	▪ Offers good contact performance and low mating force
▪ Optional locating pegs	▪ Enables easy manual assembly
▪ High temperature LCP material	▪ Supports operating temperatures to 125°C
▪ Lead-Free, RoHS and Halogen-free compliant	▪ Meets environmental, health and safety requirements

TECHNICAL INFORMATION

MATERIAL

- Housing: LCP UL94-V0
- Power contact: Copper Alloy
- Signal contact: Copper Alloy
- Hold down: Copper Alloy
- Plating:
  - Nickel under plate
  - Contact area gold or GXT®
  - Solder tail Gold or Tin
  - Hold down Tin

ELECTRICAL PERFORMANCE

- Current Rating: 20A max. per power contact, 0.8A per signal contact
- LLCR:
  - INITIAL 30mΩ max. AFTER TEST: 50mΩ max. for signal contact
  - INITIAL 1mΩ max. AFTER TEST: 2mΩ max. for power contact
- Insulation Resistance: 1000MΩ MIN.
- Voltage Rating: 100VDC
- Signal Integrity: Up to 12Gb/s

MECHANICAL PERFORMANCE

- Durability: 200 cycles
- Insertion Force: 6N max. per power contact; 0.9N max. per signal contact
- Withdrawal Force: 0.8N min. per power contact; 0.1N min. per signal contact
- Contact Retention Force: 1N min. per contact
- Shock and Vibration: USCAR-2 V2 compatible

ENVIRONMENTAL

- Operating Temperature Range: -40°C to +125°C
- High Temperature Life: 105°C for 1000 hours
- Humidity: 90-96% relative for 240 hours
- Mixed Flow Gas: EIA 364-65 Class -IIA compatible

SPECIFICATIONS

- Product Specification: GS-12-1675
- Application Specification: GS-20-0696

PACKAGING

- Tape & Reel
- Tube

TARGET MARKETS/APPLICATIONS

Automotive

Networking

Datacom

Industrial & Instrumentation

PART NUMBERS

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

*More versions will be made available following market demand

ComboStak® and PowerStak® Board-to-Board Connectors

POWERSTAK® RECEPTACLE

10159561 – X X 0 X X X X L F

F: LEAD FREE

L	WITH PEG / WITHOUT DATE CODE

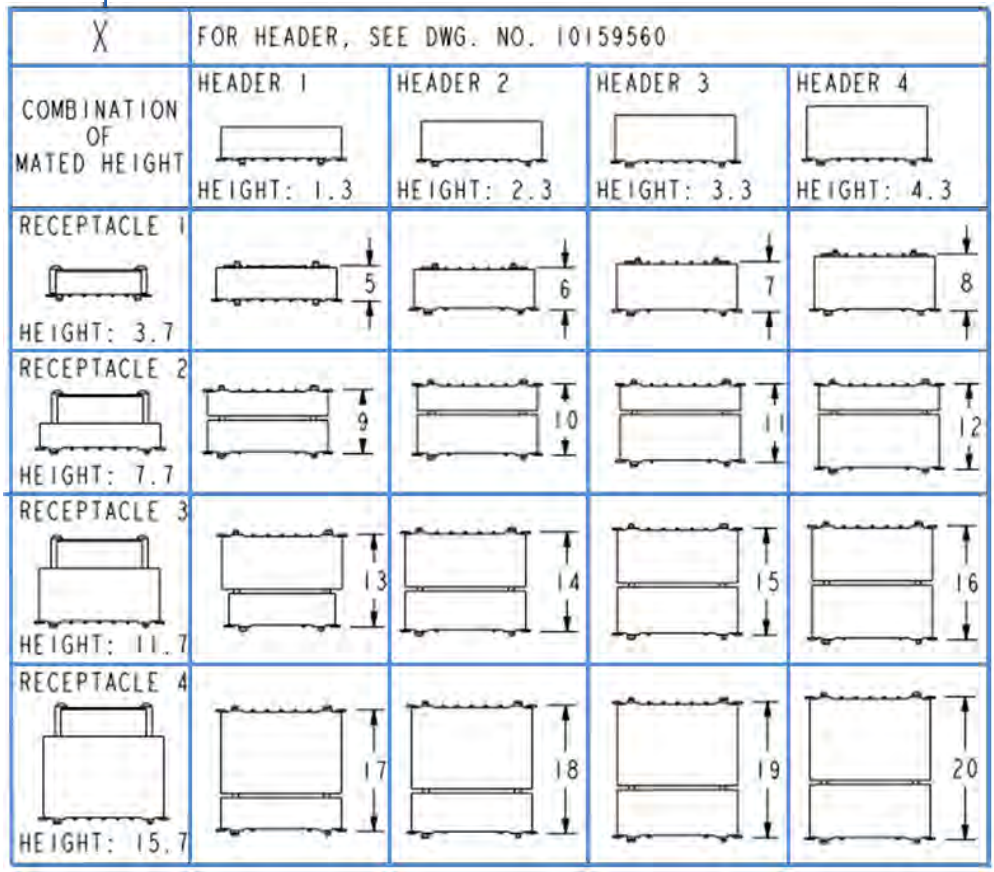
X	POWER POSITION
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	10

X	SOLDER TRAIL PLATING
1	GOLD FLASH

X	PLATING: CONTACT AREA
1	GOLD OR GXT® 0.2µm min.
2	GOLD OR GXT® 0.75µm min.

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

X	POLARIZED 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 HEIGHT: 1.3	HEADER 2 HEIGHT: 2.3	HEADER 3 HEIGHT: 3.3	HEADER 4 HEIGHT: 4.3
RECEPTACLE 1 HEIGHT: 3.7	5	6	7	8
RECEPTACLE 2 HEIGHT: 7.7	9	10	11	12
RECEPTACLE 3 HEIGHT: 11.7	13	14	15	16
RECEPTACLE 4 HEIGHT: 15.7	17	18	19	20

ComboStak® and PowerStak® Board-to-Board Connectors

POWERSTAK® HEADER

10159560 – **X** | **X** | **0** | **X** | **X** | **X** | **X** | **L** | **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	POLARIZED OPTIONAL
0	NONE
2	2#
3	3#
4	4#
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6	6#
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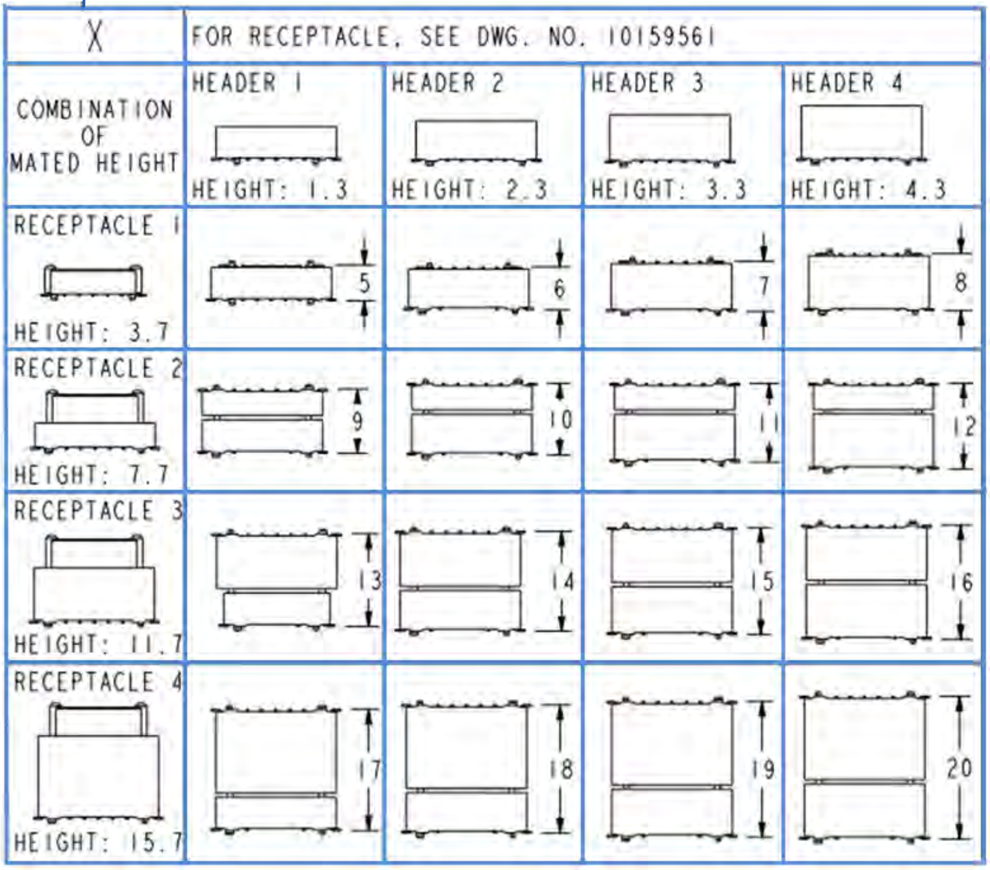

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ComboStak® and PowerStak® Board–to–Board Connectors

COMBOSTAK® RECEPTACLE

10159559 – X XX X X X X L F

F	LEAD FREE
L	WITH PEG / WITHOUT DATE CODE

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

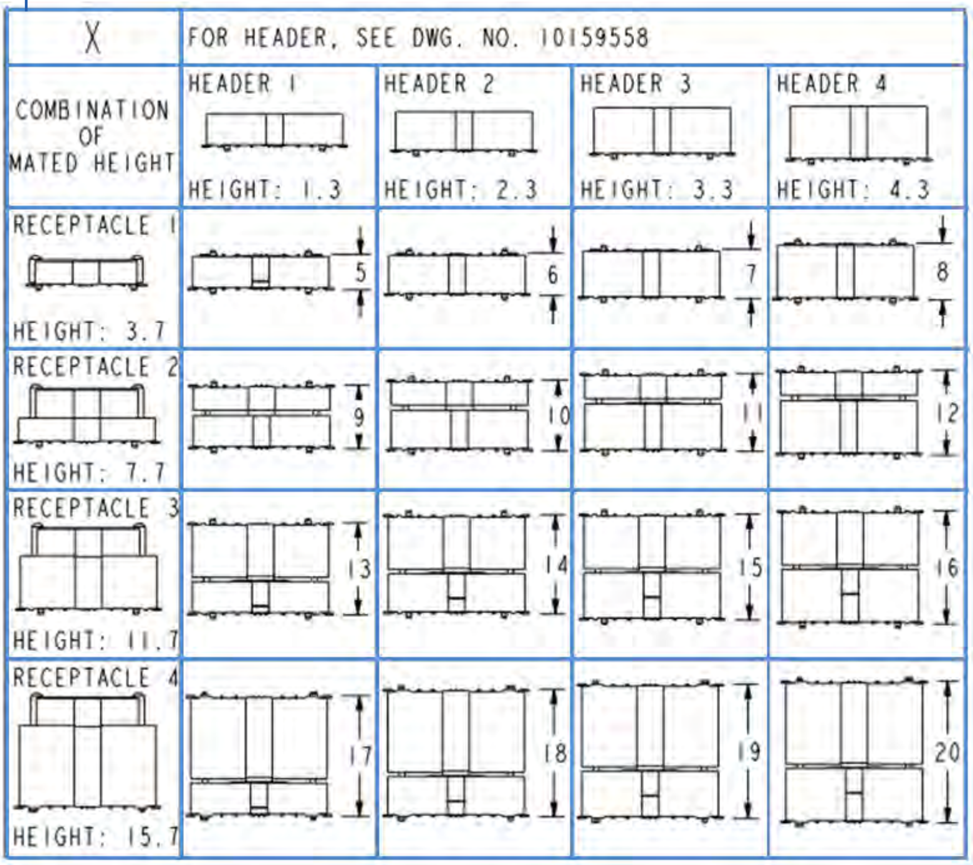
XX	SIGNAL POSITION
06	2X3
08	2X4
10	2X5
20	2X10
30	2X15
40	2X20
**	***
A4	2X70

X	SOLDER TRAIL PLATING	
	POWER PIN	SIGNAL PIN
1	GOLD FLASH	TIN
2	GOLD FLASH	GOLD FLASH

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

X	PLATING: CONTACT AREA
1	GOLD OR GXT® 0.2µm min.
2	GOLD OR GXT® 0.75µm min.

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



COMBOSTAK® HEADER

10159558 – X XX X X X X X F

F: LEAD FREE

X	POWER POSITION (Symmetrical)
2	1+1
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8	4+4
A	5+5

XX	SIGNAL POSITION
06	2X3
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A4	2X70

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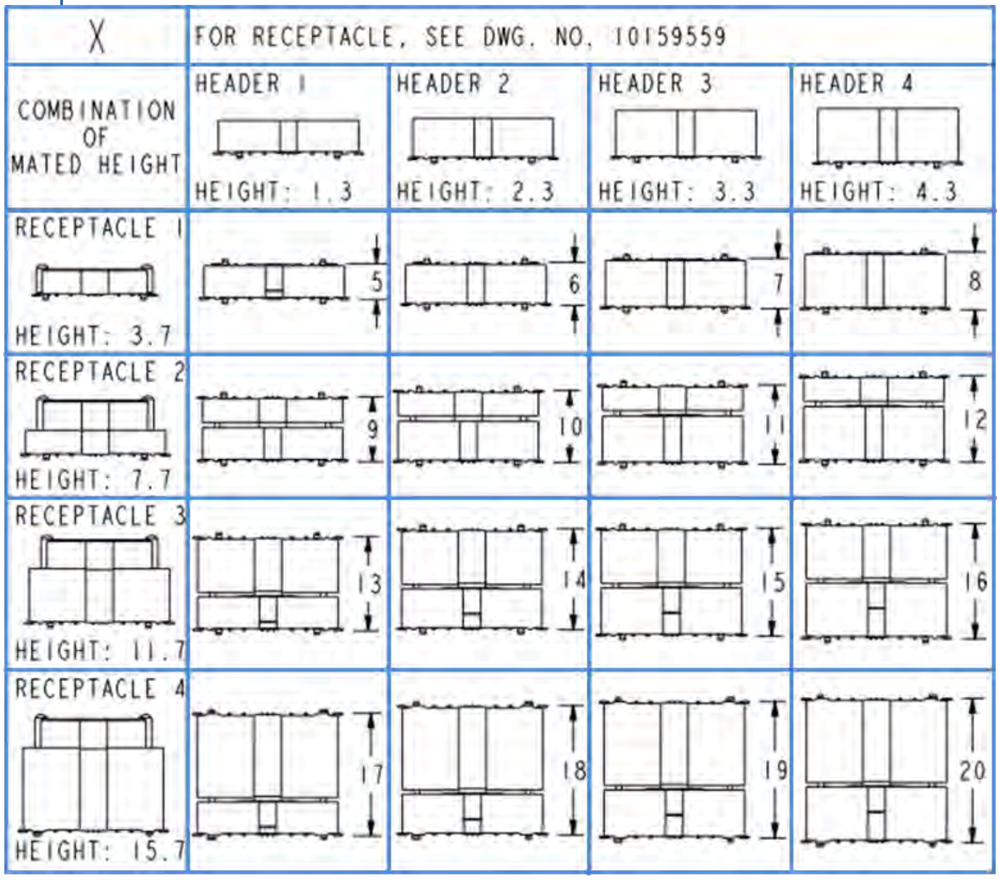

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