

ComboStak® 0.80mm & PowerStak® 2.00mm 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

- 2.00mm pitch for power system
- Power distribution and signal control in one connector
- Support stack height from 5mm to 20mm, power position from 2 to 10pos and signal position from 6 to 140pos
- Scoop proof housing with ± 0.9 mm misalignment tolerance
- Housing with metal hold down
- Outstanding 4 points contact design
- Optional locating pegs
- High temperature LCP material
- Lead-Free, RoHS and Halogen-free compliant

BENEFITS

- High current carrying capacity with miniaturized shape to save space and cost
- Signal pin continues to match BergStak® 0.80mm
- Supports a wide range of applications
- Supports secure blind and automatic assembly with cost effective
- Guarantees high PCB retention force
- Offers good contact performance and low mating force
- Enables easy manual assembly
- Supports operating temperatures to 125°C
- Meets environmental, health and safety requirements

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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
PowerStak®, Vertical Receptacle, 4pos, Height=15.7mm	10180208-400421RPF
PowerStak®, Vertical Header, 4pos, Height=14.3mm	10180207-400E21RPF

New!

30mm Height with Lead-In
Header: 10180207-400E21RPF
Receptacle: 10180208-400421RPF



*More versions will be made available following market demand. Find part number details using the search box on www.amphenol-cs.com

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POWERSTAK® RECEPTACLE

Find part number details using the search box on www.amphenol-cs.com

10159561

-

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

L

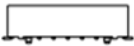
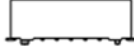
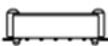
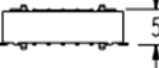
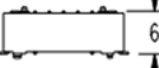
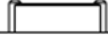
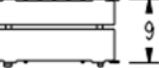
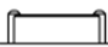
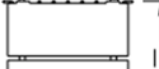
WITH PEG / WITHOUT DATE CODE

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
Q	T&R 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	HEADER 2	HEADER 3	HEADER 4
	 HEIGHT: 1.3	 HEIGHT: 2.3	 HEIGHT: 3.3	 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

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POWERSTAK® HEADER

Find part number details using the search box on www.amphenol-cs.com

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

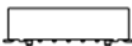
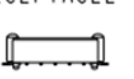
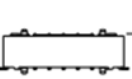
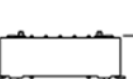
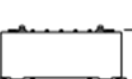
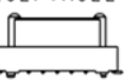
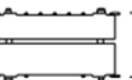
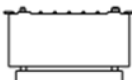
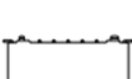
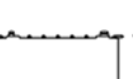
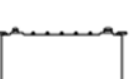
X	SOLDER TRAIL PLATING
1	GOLD FLASH

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
Q	T&R WITHOUT MYLAR

X	WITH PEG / WITHOUT DATE CODE
L	

X	POLARIZED 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	HEIGHT: 2.3	HEIGHT: 3.3	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

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COMBOSTAK® RECEPTACLE

Find part number details using the search box on www.amphenol-cs.com

10159559 — X XX X X X X L 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

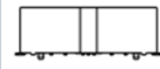
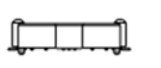
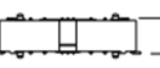
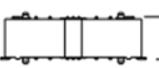
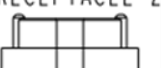
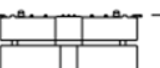
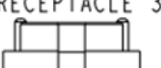
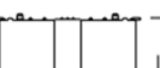
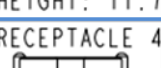
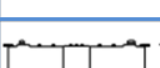
XX	SIGNAL POSITION
06	2X3
08	2X4
10	2X5
20	2X10
30	2X15
40	2X20
**	***
A4	2X70

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

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			

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COMBOSTAK® HEADER

Find part number details using the search box on www.amphenol-cs.com

10159558 — X XX X X X X X F LEAD FREE

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

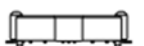
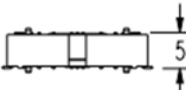
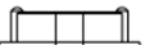
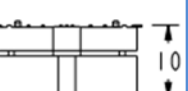
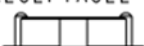
X	SOLDER TRAIL PLATING	
	POWER PIN	SIGNAL PIN
1	GOLD FLASH	TIN
2	GOLD FLASH	GOLD FLASH

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

L WITH PEG / WITHOUT DATE CODE

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

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
RECEPTACLE 1	 HEIGHT: 3.7	 5	 6	 7
RECEPTACLE 2	 HEIGHT: 7.7	 9	 10	 11
RECEPTACLE 3	 HEIGHT: 11.7	 13	 14	 15
RECEPTACLE 4	 HEIGHT: 15.7	 17	 18	 19
				 20

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