



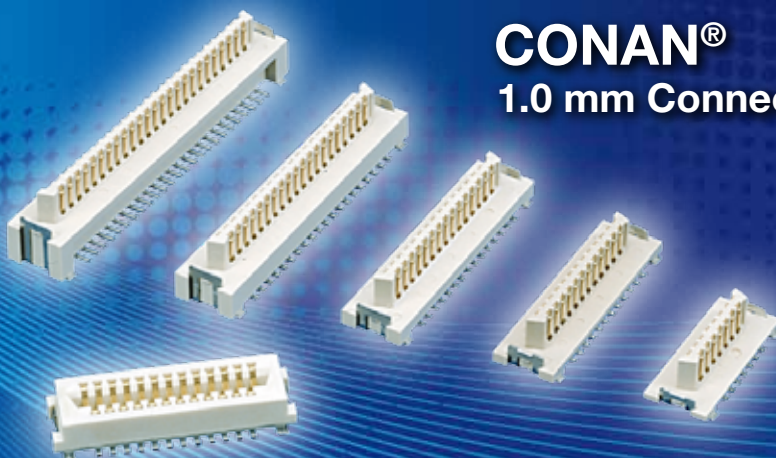
FCI Connectors

Fine Pitch Mezzanine Solutions

www.ttiinc.com



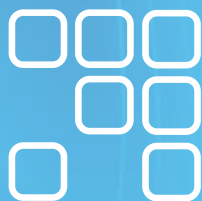
CONAN[®] 1.0 mm Connectors



BERGSTAK[®] 0.8 mm Connectors



MEZZOSTAK[™] 0.5 mm Connectors



MEZZ Select[™]

The Specialist in Electronic Component Distribution

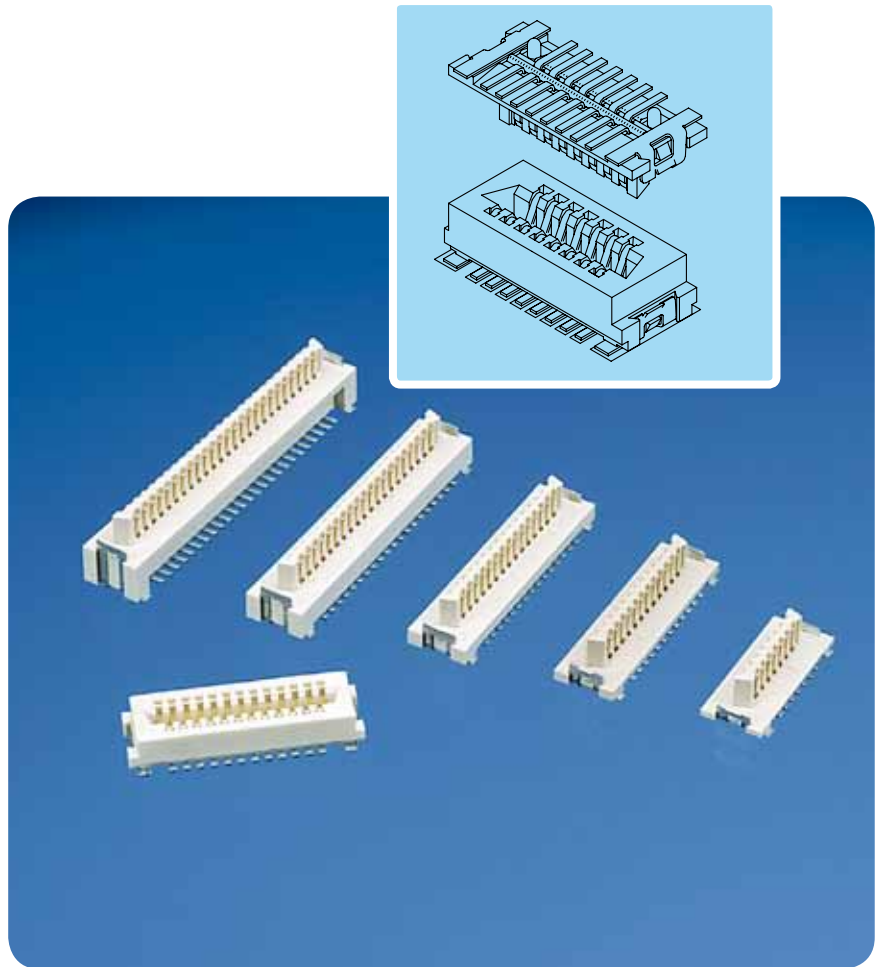
CONAN®

High Density, Low Profile 1.00mm Connector System Enhances Reliability for Portable Electronics

DESCRIPTION

The Conan 1.0mm mezzanine connector system provides a mechanically secure, high density electrical interface between parallel printed circuit boards.

Conan's mechanical features and palladium/nickel/gold plated electrical contacts qualify it for high reliability use in portable and mobile electronic equipment.



FEATURES & BENEFITS

- "Snap" engagement contacts assure secure mating with an audible "click"
- Blade-on-beam contact design allows "peeling" disengagement and prevents contact stubbing
- Connector housings feature "lead-in" angles to assist in mating
- Surface mounted metal hold-downs reinforce connector retention to the printed circuit board
- Mating polarization prevents backward connections
- PCB polarization prevents errors during printed circuit board assembly
- Pick and place caps with tape and reel packaging support automated assembly processes
- Header height options support a range of PCB stack heights: 4.15mm to 7mm
- 9 part sizes: 9 to 69 contacts
- Lead-free RoHS compatible products satisfy environmental regulations

TARGET MARKETS / APPLICATIONS

- Portable and mobile electronic equipment
- Medical and Instrumentation
- Office equipment
- Communications and networking equipment
- Point-of-sale equipment
- Motor Vehicle
- Military electronics

MEZZ Select™

MATERIALS

- Contact base metal
 - Header: Phosphor bronze
 - Receptacle: Copper Alloy, High Spring
- Contact area finish: 0.38um (15uin.) GXT (Palladium-nickel alloy with gold flash) over 1.27um (50uin.) nickel
- Solder area finish: Pure tin over 1.27um (50uin.) nickel
- Housing material: Cream-colored LCP (UL 94V-0)
- Hold-down base metal: Brass
- Hold-down finish: Pure tin over nickel

ELECTRICAL PERFORMANCE

- Insulation resistance: 1000 M Ω min
- Contact resistance: 30 m Ω max
- Withstanding voltage: 500 V ac, rms, 60 Hz
- Current rating: 1.0 amp continuous (per contact, all contacts powered)
- Signal Integrity (differential pairs, connector only)
 - Impedance: 100 Ω +/- 10% @ 50 ps edge (10-90%)
 - Insertion Loss: < 1dB to 5GHz
 - NEXT: $\leq$ 3.5% for a 50 ps edge (10-90%)
 - FEXT: $\leq$ 2.5% for a 50 ps edge (10-90%)

MECHANICAL PERFORMANCE

- Mating force: 125g per contact max
- Unmating force: 45g per contact min
- Retention force (connector to PCB): 44 N (10lbf) min
- Contact wipe: 0.64mm (0.025 in.)
- Durability: 30 mating cycles

SPECIFICATIONS

- GS-12-006

APPROVALS AND CERTIFICATIONS

- UR file: E66906; CSA file: LR46923

PRIMARY CUSTOMER DRAWING

- 91900

PACKAGING

- Anti-static tubes or tape and reel

PART NUMBERS

919 T C - W X Y ZZ LF LEAD FREE

TYPE	T
HEADER WITH NO PEGS	0
HEADER WITH PEGS	1
RECEPTACLE WITH NO PEGS	2
RECEPTACLE WITH PEGS	3

PICK AND PLACE CAP OR TAPE	C
WITHOUT CAP	0
WITH CAP	1

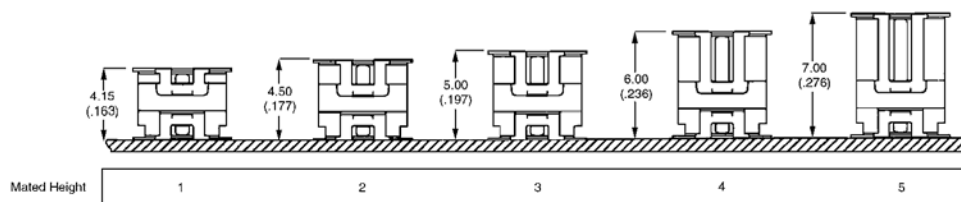
PACKAGING	W
TUBE	2
PRESSURE SEALED TAPE & REEL	3

Y	HEADER HEIGHT	RECEPTACLE HEIGHT	MATED HEIGHT
1	.034 [.86]	.129 [3.28]	.163 [4.15]
2	.048 [1.23]		.177 [4.50]
3	.068 [1.73]	SEE Y=1 FOR ALL RECEPTACLES	.197 [5.00]
4	.107 [2.72]		.236 [6.00]
5	.1465 [3.721]		.276 [7.00]

ZZ	NUMBER OF POSITIONS
09	9
11	11
15	15
21	21
25	25
31	31
41	41
51	51
69	69

X	PLATING
1	15u"/.38u GXT

Recommended packaging combinations:
 For production: Connector with pick and place cap packaged in tape and reel (XXXXX1-3XXXX)
 For proto-typing: Connector without pick and place cap packaged in tubes (XXXX0-2XXXX)



Mated connector max.width: .220" (5.59mm)

BERGSTAK® 0.8MM MEZZANINE CONNECTORS

Extra-ordinary Product Range; Benchmark Performance; Dual-source Champion

DESCRIPTION

Versatile, high density parallel-board-to-board connector system offers twelve PCB stack heights in nine sizes up to two hundred positions.

Stack height flexibility supports evolving designs and emerging mechanical requirements with a common mating interface.

Special housing and blade-on-beam terminal features provide easy PCB assembly, worry-free mating and long-term reliability.



FEATURES & BENEFITS

- 0.8mm double-row contact pitch conserves printed circuit board space
- Vast range of sizes and stack heights support diverse electronic packaging schemes
 - 40 to 200 position sizes in 20 position increments
 - 5mm to 16mm stack heights in 1mm increments
- Choice of gold-based and palladium-based platings provide protection in different environments and applications
- Tapered PCB locator pegs increase the ease and accuracy of hand assembly
- Blade-on-beam contacts allow peeling for safer, easier un-mating
- Tape and Reel packaging supports high speed automated assembly
- PCIe® Gen.2 high speed performance on some stack heights
- Fully inter-matable with similar competitive connectors

PLUS

- Optimized "blade-on-beam" contact mating maximizes connection integrity
 - Early receptacle contact point increases mating wipe and allows early engagement/late disengagement
 - Precision-tapered contacts control mating stress while providing reliable, high normal force
 - Coined contact tips assure smooth, safe wiping action during connector mating
 - Connector polarization, generous lead-in angles and precise contact positioning ensure precise mating alignment and reliability

TARGET MARKETS / APPLICATIONS

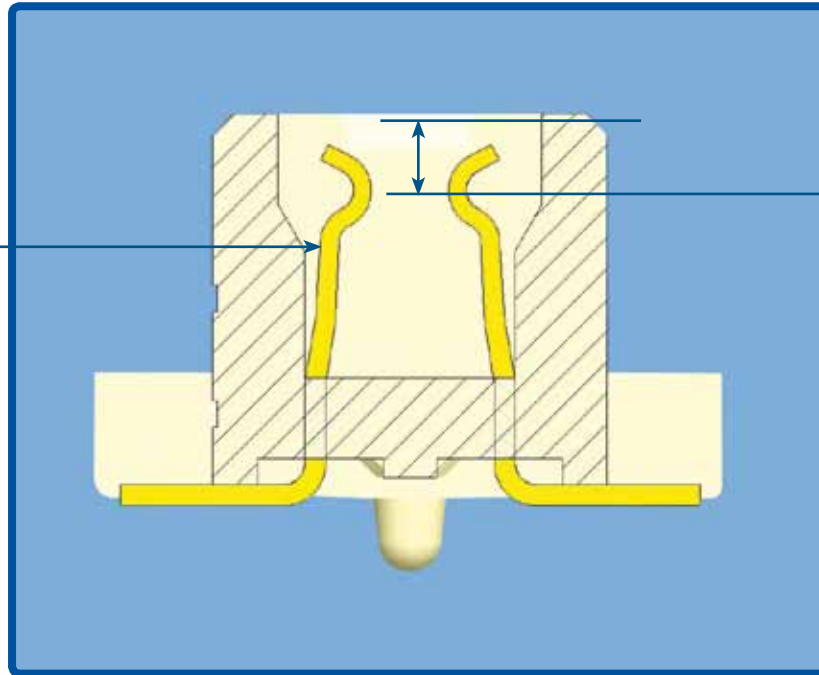
- Routers
- Servers
- Telecom/Datacom equipment
- Office equipment
- IP phones
- Test and Measurement
- Point-of-Sale terminals
- Portable industrial terminals

MEZZ Select™

EXTRA VALUE INSIDE

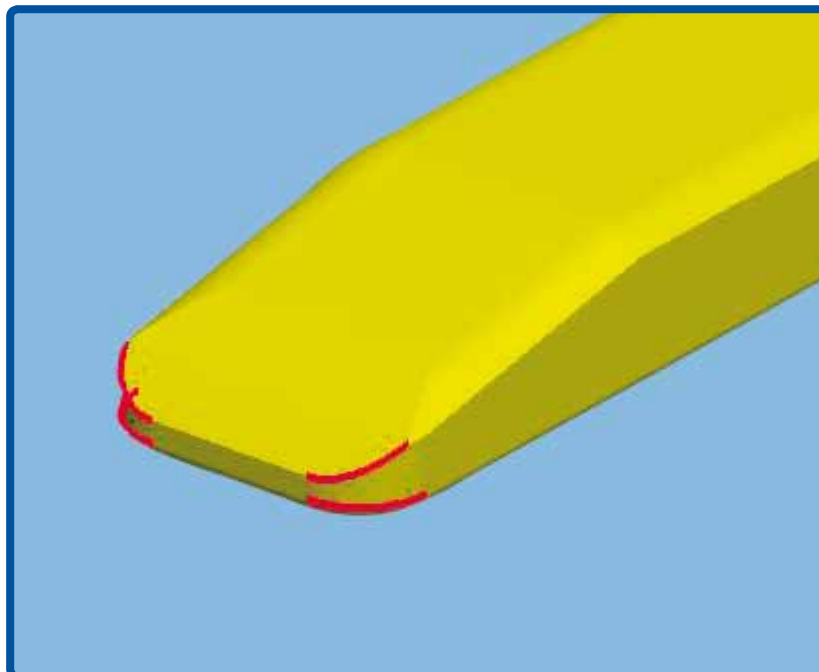
RECEPTACLE

Precision-tapered
contacts control
mating stress while
providing reliable,
high normal force



Early-contact point
allows early
engagement / late
disengagement
and increases
mating wipe

PLUG



Coined contact tips assure smooth, safe wiping action during connector mating

BERGSTAK® 0.8MM MEZZANINE CONNECTORS

Extra-ordinary Product Range; Benchmark Performance; Dual-source Champion

MATERIALS

- Housing
 - Glass filled LCP (UL94 V-0)
- Contact base metal
 - Receptacles: Copper Alloy, High Spring
 - Plugs: Brass
- Contact area finish
 - Gold or Gold flash over palladium-nickel (GXT) over nickel
- Solder area finish
 - Matte pure tin over nickel

MECHANICAL PERFORMANCE

- Durability: 100 cycles
- Mating force: 0.9N (90 gramf) maximum/contact
- Un-mating force: 0.1N (10 gramf) minimum/contact

ENVIRONMENTAL

- Temperature range: -40°C to +85°C
- High temperature life: 105°C +/- 5°C for 1000 hours
- Humidity: 90-95% relative humidity for 96 hours
- Mixed Flowing Gas Class 2a (30 GXT)

SPECIFICATION

- GS-12-547 BergStak 0.8mm Product Specification
- GS-29-010 Test report, Competitive inter-mating

ELECTRICAL PERFORMANCE

- Insulation resistance:
 - Initial: 1000 MΩ minimum
 - After test: 100 MΩ minimum
- Current rating:
 - 0.8 amp/contact
- Contact resistance:
 - Initial: 30 mΩ maximum
 - After test: 50 mΩ maximum
- Voltage rating:
 - 100 V AC
- Signal Integrity
(Differential pairs, connector and SMT pads only)
 - Impedance Range: 81 to 108 ohms @ 50 ps edge (10-90%)
 - Return Loss: < 10 dB up to 5 GHz
 - Insertion Loss: < 1.5 dB up to 5 GHz
 - NEXT: ≤ 4.0% for a 50 ps edge (10-90%)
 - FEXT: ≤ 2.4% for a 50 ps edge (10-90%)
 - S Parameter models available at www.fci.com/bergstak

APPROVALS AND CERTIFICATIONS

- UL certificate, file no. E66906
- CSA, file no. LR46923

PACKAGING

- Tape and reel
- Tubes

The PCIe® mark is a registered trademark of the PCI-SIG Corp

PART NUMBER SELECTOR

XXXXX

Base Part Number

61082=Receptacle
61083=Plug

-

Total Positions

04=40 pos.
06=60 pos.
08=80 pos.
10=100 pos.
12=120 pos.
14=140 pos.
16=160 pos.
18=180 pos.
20=200 pos.

X

Housing Height

X

Plating Code

4=Gold (0.2um) in mating area / matte pure tin on solder tail with Nickel (1.27um min.) underplate overall (lead free)
6=Palladium-Nickel (0.76um min.) with gold flash (0.1um min.) in mating area / matte pure tin on solder tail with Nickel (1.27um min.) underplate overall (Lead free)

X

Peg Option

0=Includes polarization pegs

X

Packaging Option

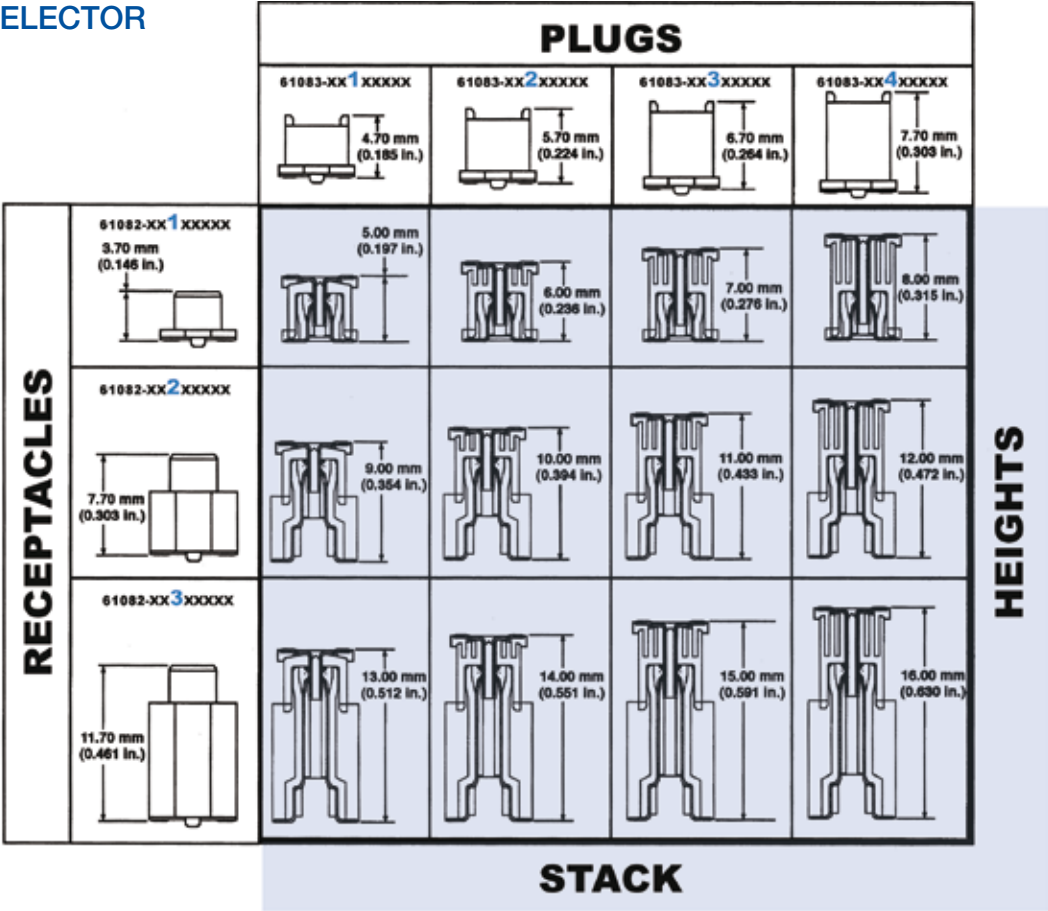
0=Tubes without pickup caps
2=Tape and Reel with pickup caps
9=Tubes with pickup caps

XX

Lead-Free Indicator

LF= Lead-free
RoHS Compatible

HEIGHT SELECTOR



MEZZOSTAK™ 0.5MM MEZZANINE CONNECTORS

Hermaphroditic, “mates-to-itself” design improves business

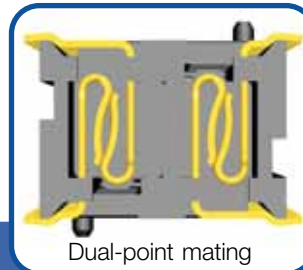
DESCRIPTION

Robust 0.5mm fine pitch mezzanine connector suitable for a wide range of high reliability applications and demanding environments.

Innovative hermaphroditic design provides a precise mating interface with extra housing guidance.

Reduced product mix simplifies customer connector qualification, documentation and maintenance.

Two versions offer a choice between supplemental PCB hold-downs and pegs or short overall length.



FEATURES & BENEFITS

- Hermaphroditic design “mates to itself”
 - Consolidates connector selection and documentation
 - Reduces Component Engineering costs
- Easy, Reliable Mating
 - Guidance “scoops” permit easy mating when mis-aligned
 - Polarization prevents mis-mating
 - Dual-point, long wipe contacts
- High un-mating force insures connection security
- Extreme operating temperature range assures reliable performance between -40 and 125 degrees C.
- Precise 0.08mm maximum SMT lead co-planarity eases attachment of connector leads to PCBs
- Footprint compatible with major competitors.
- High Speeds, including PCIe®G2, supported by signal integrity reports and S-parameter models
- 0.5mm high density contact pitch in two rows
 - 7 Stack heights: 4mm to 7mm (0.5mm increments)
 - 6 Sizes: 20 to 70 positions (10 position increments)

TARGET MARKETS / APPLICATIONS

- Portable and mobile electronic equipment
- Medical and Instrumentation
- Point-of-Sale/Retail equipment
- Hand-held terminals
- Automatic Identification and Data Capture
- Sensors
- Military
- Communications and Networking
- Data and mass-storage
- Motor Vehicle
- Metering and Energy

MEZZ *Select™*

TECHNICAL INFORMATION

MATERIALS

- Housing: LCP, 94V-0, Color: Black
- Contacts: Copper Alloy
- Plating: Performance-based with gold
- All Materials lead-free RoHS compatible per GS-22-

008

ELECTRICAL PERFORMANCE

- Current rating per contact: 0.50 amps (de-rated)
- DWV: 500 volts
- Voltage Rating: 50 volts
- Contact resistance: 30 milliohm maximum
- Signal Integrity
(Differential pairs; 7mm stack height; Connectors with SMT pads and anti-pads/voids underneath)
 - 5+ Gbs capable
 - Impedance: 100 Ohms +/- 10% @ 50 ps edge
 - Insertion Loss: < 1 dB to 5+ GHz
 - NEXT and FEXT: <= 1.0% @ 50 ps edge (10-90%)

ENVIRONMENTAL PERFORMANCE

- Operating Temperature: -40 to +125 deg.C
- Processing Temperature: 260 deg.C peak for 30 seconds

MECHANICAL PERFORMANCE

- Durability: 50 mating cycles in environment
- Mating Force: 42g max per contact pair
- Un-mating force: 25g min per contact pair
- Wipe length: 1.0 mm minimum
- SMT lead co-planarity: 0.08mm maximum

SPECIFICATIONS

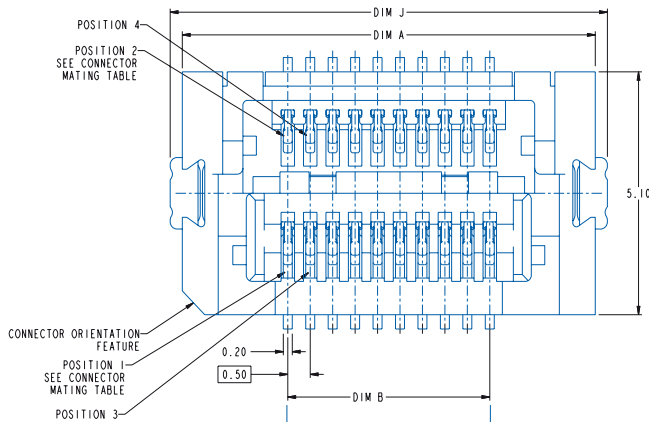
- Product Specification: GS-12-577;
Packaging Specification: GS-14-1320
- Drawing Numbers:
10106813 (Standard); 10106814 (Short Length)
- UL and CSA

PACKAGING

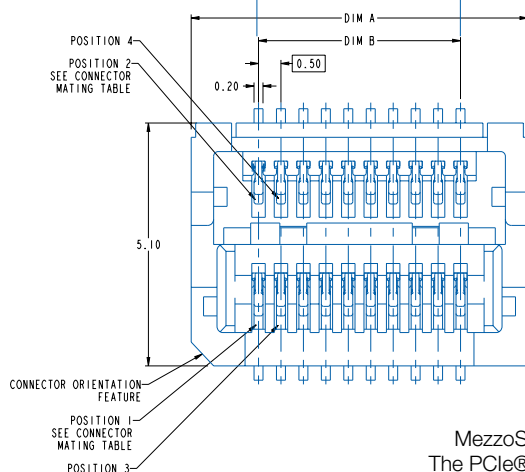
- Tape and reel, pickup cap pre-installed

10106813 Standard length,

with alignment pegs and metal hold-downs



10106814 Short length



BASE PART NUMBER - XX X X X 2 LF

NUMBER OF POSITIONS

- 02 = 20 pos.
- 03 = 30 pos.
- 04 = 40 pos.
- 05 = 50 pos.
- 06 = 60 pos.
- 07 = 70 pos.

PRACTICAL CONNECTOR HEIGHTS

- 1 = 2.0 mm
- 2 = 2.5 mm
- 3 = 3.0 mm
- 4 = 3.5 mm

LEAD FREE INDICATOR

PACKAGING

- 2 = tape and Reel with pick-up cap

HOLD DOWN OPTION

- 1 = hold downs (10106813)
- 0 = none (10106814)

PEG OPTION

- 1 = pegs (10106813)
- 0 = no pegs (10106814)

Add practical connector heights of two mated connectors to determine final PCB stack height

For footprint dimensions and status of product release see customer drawings: www.fciconnect.com/mezzostak

mm/inch	10106813 standard length			10106814 short length	
	dim. J	dim. A	dim. B	dim. A	dim. B
number of positions					
20	9.74 / .383	9.20 / .362	4.50 / .177	7.50 / .295	4.50 / .177
30	12.24 / .482	11.70 / .461	7.00 / .276	10.00 / .394	7.00 / .276
40	14.74 / .580	14.20 / .559	9.50 / .374	12.50 / .492	9.50 / .374
50	17.24 / .679	16.70 / .657	12.00 / .472	15.00 / .591	12.00 / .472
60	19.74 / .777	19.20 / .756	14.50 / .571	17.50 / .689	14.50 / .571
70	22.24 / .876	21.70 / .854	17.00 / .669	20.00 / .787	17.00 / .669

MezzoStak™ is a trademark under registration of FCI
The PCIe® mark is a registered trademark of SCL-SIG Corp

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