



**MEZZ** *Select*<sup>TM</sup>

***MezzoStak<sup>TM</sup> 0.5mm Mezzanine Connectors***

September 2011

# MezzoStak™ .5mm Mezzanine Connectors

*Hermaphroditic “mates-to-itself” design simplifies business*



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.5mm high density contact pitch in two rows

- Stack heights offered: 4mm to 7mm
- Sizes offered: 20 to 70 positions

Two versions address unique customer requirements

- Standard- Includes solder hold-downs for added support and PCB polarization locator pegs to aid PCB assembly
- Short- Omits hold-downs and pegs to save space

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## ■ Key Markets

### ■ I&I

- POS, Retail, Metering
- Automatic Identification and Data Capture (AIDC)
- Medical Diagnostic
- Machine-to-machine
- Renewable Energy Systems

### ■ Data and Communications

- Disk Drive
- when within core range of heights and sizes

### ■ Motor Vehicle

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## ■ Hermaphroditic Design

- Reduced product mix simplifies
  - Connector selection
  - Documentation
  - Component maintenance
- Consolidates part numbers and components
  - Increased relative volumes
  - Reduced costs for FCI and its customers.

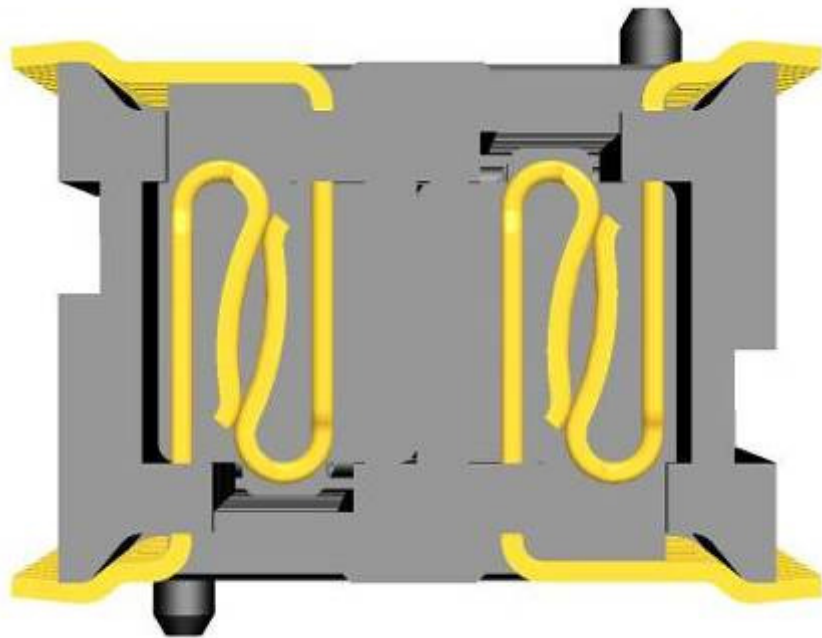
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- Precision contact interface
  - Dual-point, fault tolerance
  - High un-mating force
- Operating temp.: -40 to 125 degrees C satisfies extreme industrial applications
- Controlled SMT lead co-planarity
  - Satisfies stringent assembly requirements
  - Consumes less solder paste

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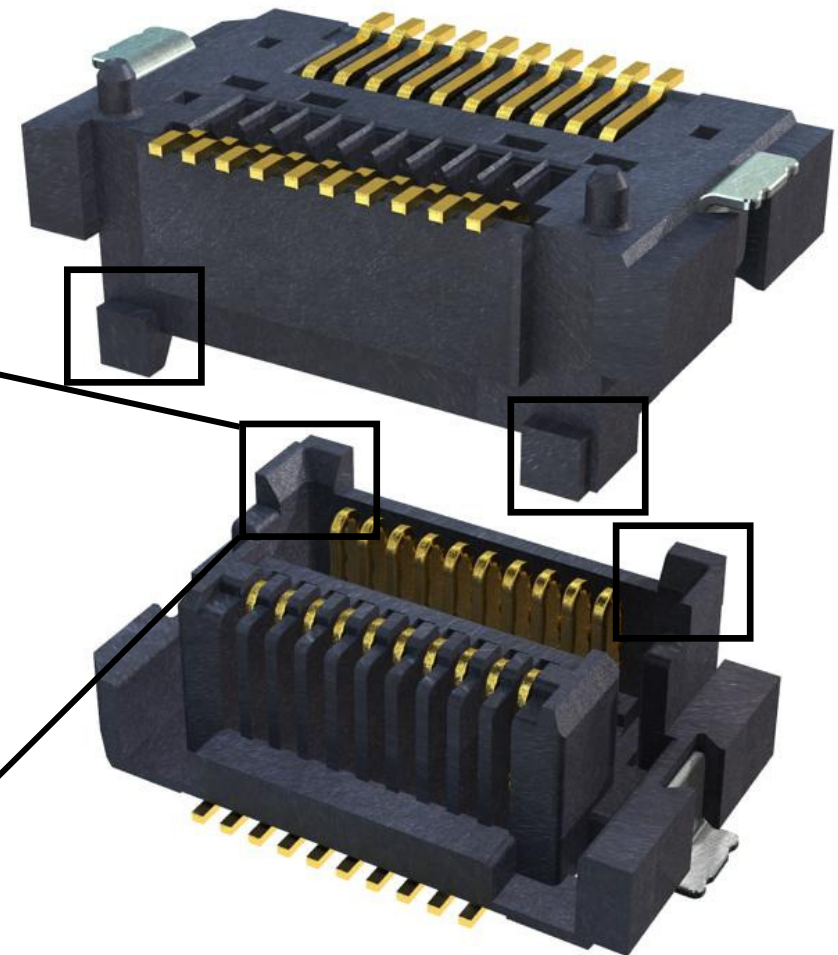
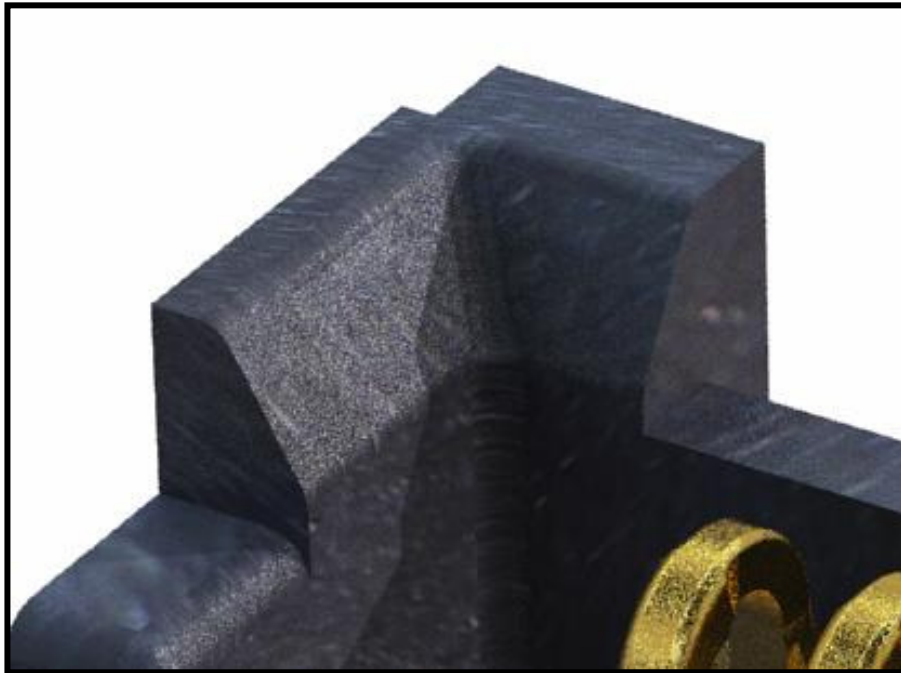
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- Four guidance “scoops” permit easy-mating even when mis-aligned



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- Easier mating than competitors, even with the hermaphroditic design that is part plug / part receptacle
  - Validated by measuring maximum allowable mismatch for good mating
    - X axis
    - Y Axis

Competitive Mating Comparison Report

EL-2011-02-032

[www.fciconnect.com/mezzostak](http://www.fciconnect.com/mezzostak) (under “Useful links” )

# MezzoStak™ .5mm Mezzanine Connectors

*Hermaphroditic “mates-to-itself” design simplifies business*



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- Stub-less contact interface supports PCIeGen2 compatibility
- High speed performance up to 5Gbs

Customer Simulation Report found at:

[www.fciconnect.com/mezzostak](http://www.fciconnect.com/mezzostak) (under “Useful links” )

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## Other Advantages

- 0.5a current rating

## Other Benefits

- Next generation low unit costs
- Footprint compatibility with major competitors to satisfy customer multi-sourcing needs
- Tape and reel packaging and vacuum pickups support automated assembly
- Mate polarization assures proper mating and reduces assembly errors
- PCB polarization prevents mounting errors and PCB rework

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# MezzoStak™ .5mm Mezzanine Connectors



## Stack Height Matrix

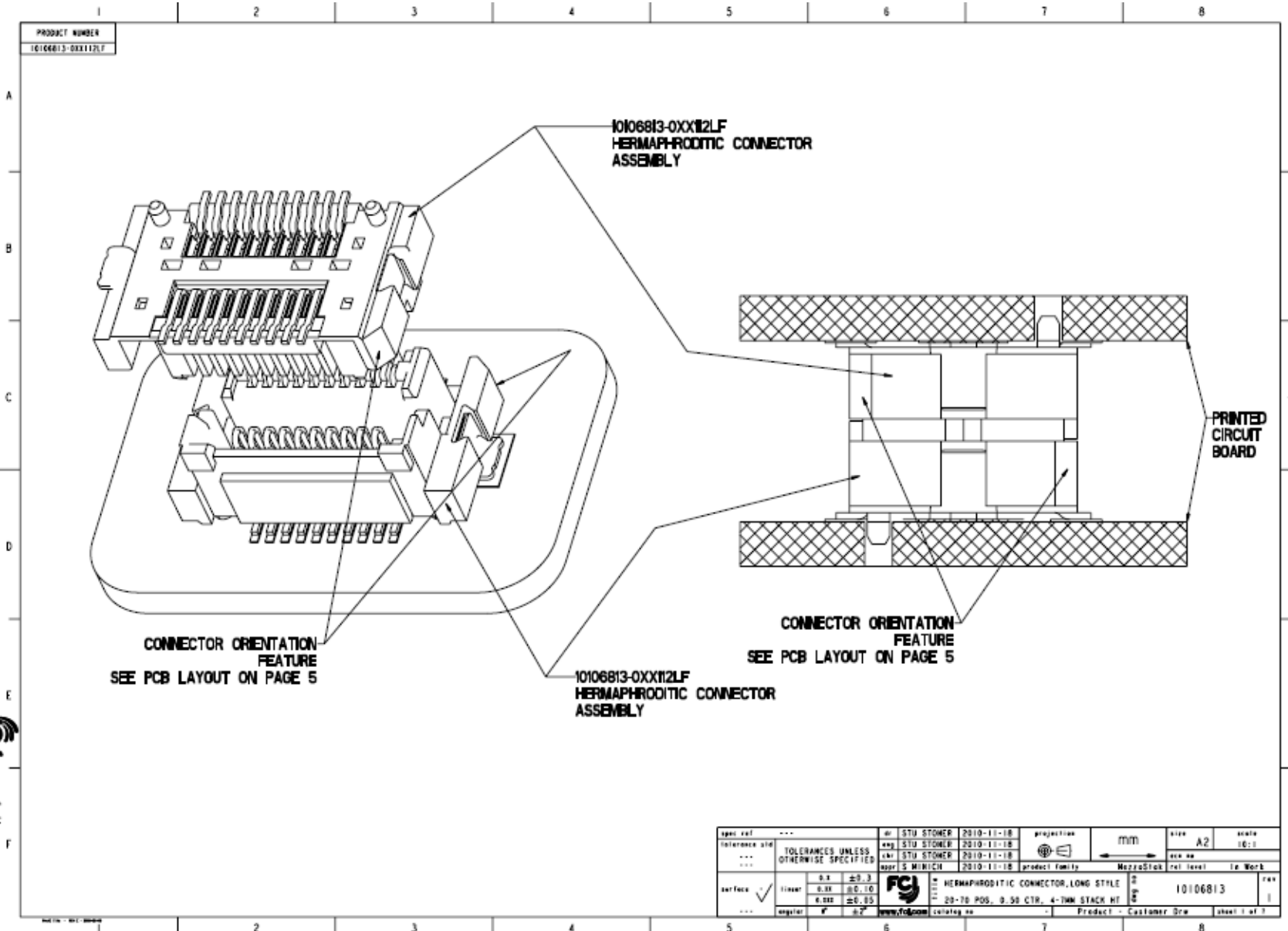
<b>2.0mm, 2.5mm, 3.0mm, 3.5mm Portfolio</b>		
Connector 1 Mating height	<b>Stack Height</b>	Connector 2 Mating height
also 2.0mm	<b>&lt;&lt; 4.0mm &gt;&gt;</b>	also 2.0mm
2.0mm	<b>&lt;&lt; 4.5mm &gt;&gt;</b>	2.5mm
also 2.5mm	<b>&lt;&lt; 5.0mm &gt;&gt;</b>	also 2.5mm
2.0mm		3.0mm
2.0mm	<b>&lt;&lt; 5.5mm &gt;&gt;</b>	3.5mm
2.5mm		3.0mm
also 3.0mm	<b>&lt;&lt; 6.0mm &gt;&gt;</b>	also 3.0mm
2.5mm		3.5mm
3.0mm	<b>&lt;&lt; 6.5mm &gt;&gt;</b>	3.5mm
also 3.5mm	<b>&lt;&lt; 7.0mm &gt;&gt;</b>	also 3.5mm

>>> For status of product release, please consult customer drawings

# Standard Version, Customer Print, Page 1,



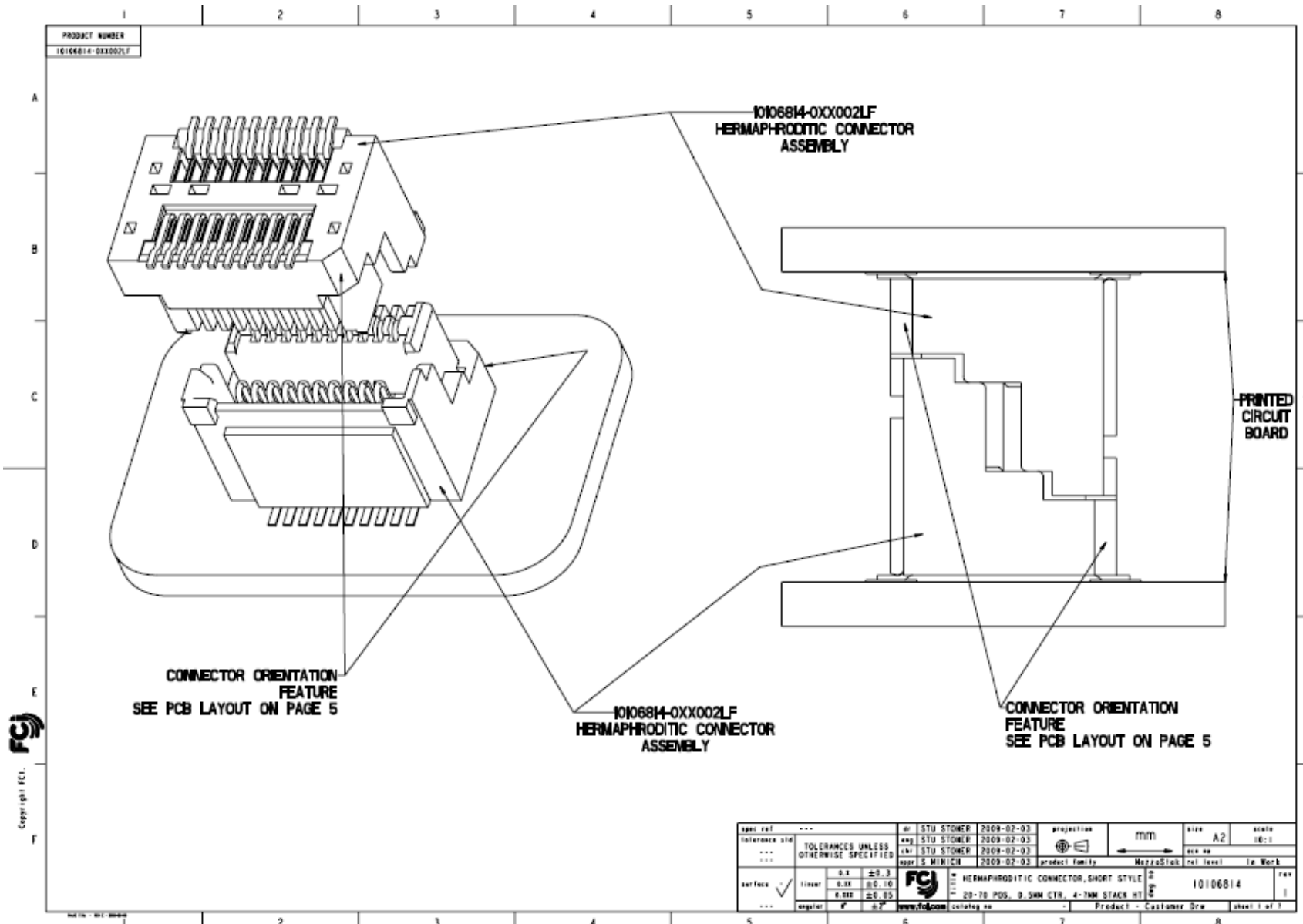
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# Short Version, Customer Print, Page 1,



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spec ref		---	dr	STU STONER	2009-02-03	projection	mm	size	A2	scale	1:1
tolerance std		---	---	STU STONER	2009-02-03		mm	sheet no	10106814	rev	1
---		TOLERANCES UNLESS OTHERWISE SPECIFIED	---	STU STONER	2009-02-03						
---		---	---	app'r	S. MURICH	2009-02-02	product family	MezzoStak	rel level	1:0 Work	
surface	✓	finish	0.3	±0.3		HERMAPHRODITIC CONNECTOR, SHORT STYLE					
	---	---	0.3X	±0.10		20-70 POS, 0.5MM CTR, 4-TMM STACK HT					
---	---	---	0.02	±0.05	www.fci.com		catalog no		Product - Customer Drw	sheet 1 of 1	

# MezzoStak™ .5mm Mezzanine Connectors

Hermaphroditic “mates-to-itself” design simplifies business



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## BOARD TO BOARD CONNECTORS



### 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



## MEZZOSTAK™ 0.5MM MEZZANINE CONNECTORS



### 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

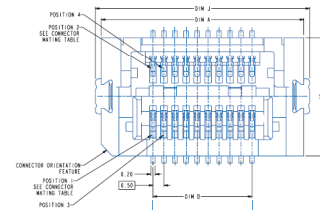
#### SPECIFICATIONS

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

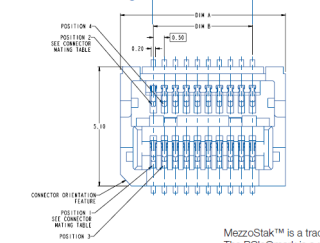
#### PACKAGING

- 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

PCB footprint dimensions available on customer drawing at: [www.fciconnect.com/mezzostak](http://www.fciconnect.com/mezzostak)

mm/inch number of positions	10106813 standard length			10106814 short length	
	dim. J	dim. A	dim. B	dim. A	dim. B
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 PCI-SIG Corp

For more information please contact: [elxcommunications@fci.com](mailto:elxcommunications@fci.com)

[www.fciconnect.com/mezzostak](http://www.fciconnect.com/mezzostak)

ELXMEZZSTAK0311EA4

ELXMEZZSTAK0311ELT or ELXMEZZSTAK0311EA4



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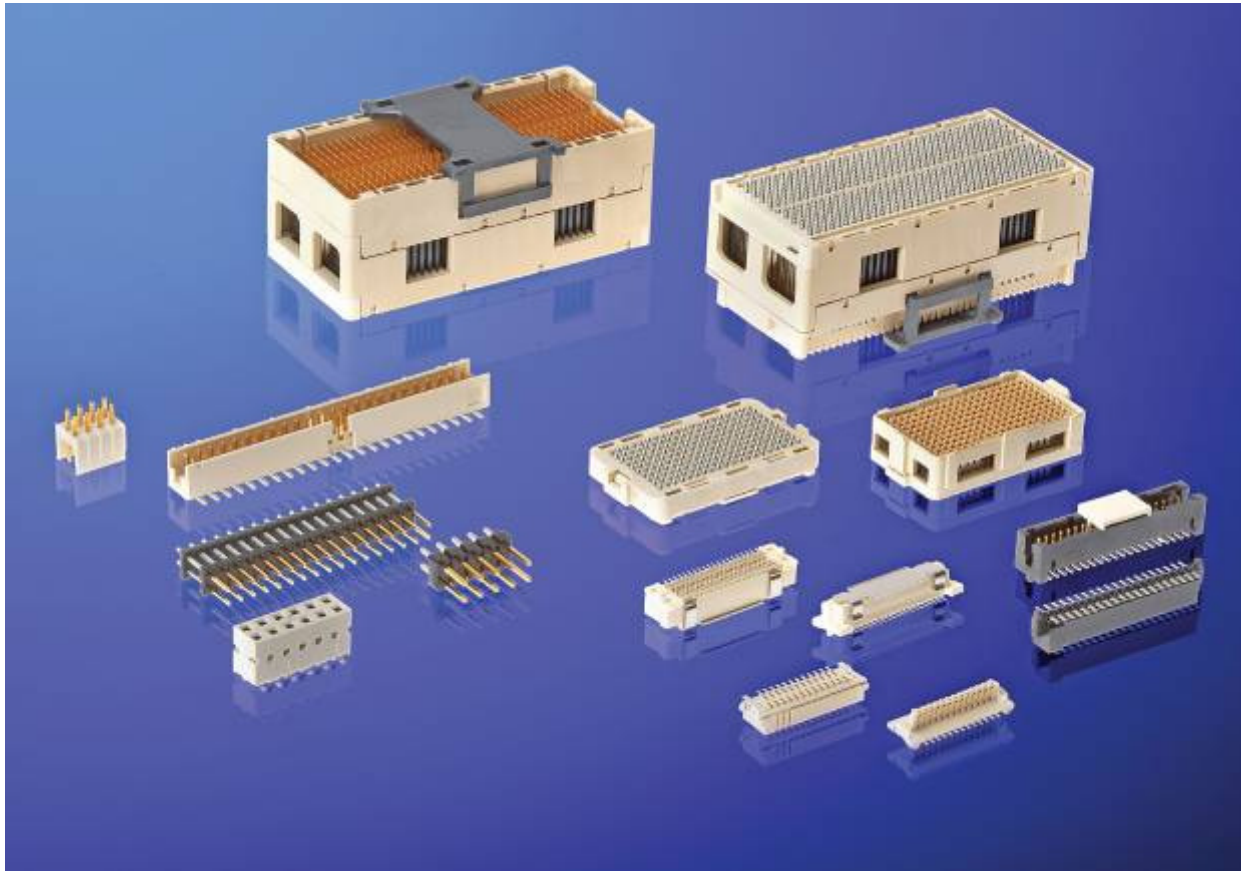
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**MEZ**Select™

# MezzSelect™: The Industry's most practical brand



**MEZ**Select™



- A wide range of mezzanine board-to-board connectors for many segments and applications
  - Standard
  - Fine Pitch
  - High Speed High Density
- An easy to use product selector
  - Web based or Printed
- Global fulfillment excellence

**Technology**

**MEZZ** **Select™**

**Service  
Speed and Integrity**