

SlimStack Board-to-Board Connectors, 0.40mm Pitch Floating, FSB5 Series

203955
203956

0.40mm Pitch FSB5 Receptacle
0.40mm Pitch FSB5 Connector Plug

Category: Board-to-Board (B-to-B) Connectors
Circuits: 20, 30, 40, 50, 60
Application: Car Camera, Radar, LiDAR

DESCRIPTION

SlimStack Board-to-Board Connectors, 0.40mm Pitch Floating, FSB5 Series feature a large floating range for space-saving and design flexibility, making them ideal for a wide range of applications in the automotive, industrial and consumer industries

www.molex.com/link/slimstack.html



SlimStack Board-to-Board Connectors 0.40mm Pitch Floating FSB5 Series

molex[®]

MARKETS AND APPLICATIONS

Automotive

- Car cameras
- Car radars
- Car LiDARs
- Car infotainment

Industrial

- Automation machines
- Transformers

Consumer

- UAV (drones)

Applicable industry standards:

- USCAR

Training presentation
Datasheet
Global Product Manager

[Slimstack B-to-B Connectors, 0.40mm Pitch Floating, FSB5 Series PRES 987651-9871.pdf](#) (English)

Hiroki Ono, MSBU

SlimStack Board-to-Board Connectors, 0.40mm Pitch Floating, FSB5 Series



MARKETS AND APPLICATIONS

For Whom is it intended (current and future customers)?

Applications that require connectors with large floating range and high-speed transmission, such as; vision cameras in automotive applications, industrial and consumer equipment.



UAV (Drone)



Car Camera



Car Radar



Car Infotainment



Automation machine

[Return to Page 1](#)

SlimStack Board-to-Board Connectors, 0.40mm Pitch Floating, FSB5 Series

VITAL PRODUCT INFORMATION

What makes this product different compared to the competition?

The smallest size connectors in floating B-to-B connector market.

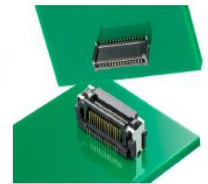
How does this product/solution create value for our customers?

Small width reduces the area footprint of the connector which reduces the size of the application. The large floating range can absorb built-in errors during automatic assembly and facilitate high volume production.

PRODUCT FEATURES AND ADVANTAGES

SlimStack Board-to-Board Connectors, 0.40mm Pitch Floating, FSB5 Series

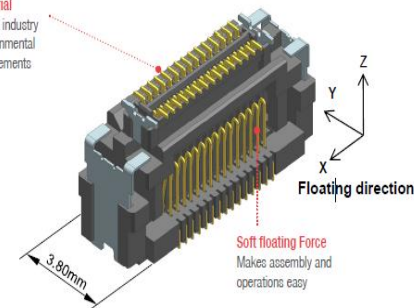
SlimStack Board-to-Board Connectors, 0.40mm Pitch Floating, FSB5 Series feature a large floating range for space-saving and design flexibility, making them ideal for a wide range of applications in the automotive, industrial and consumer industries



Features and Advantages

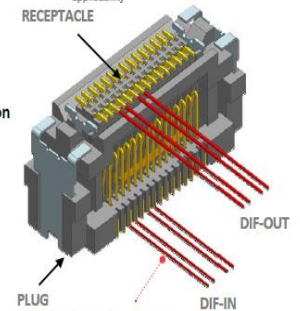
Low-halogen material
Meets industry environmental requirements

$\pm 0.50\text{mm}$ floating range in X-, Y- and Z- axis directions
Facilitates assembly in the event of misalignment or blind joining



Smallest size in the B-to-B floating connectors market
Provides space saving

High Temperature Support up to 125°C
Improved design applicability



High-speed transmission
Supports a high-speed transmission rate of up to 6 Gbps

*Pin assignment: GSSGSSG

987651-9871

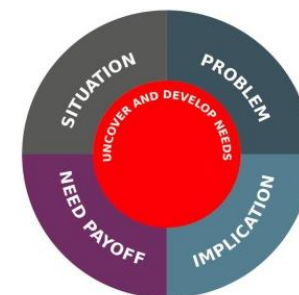
[Return to Page 1](#)

SlimStack Board-to-Board Connectors, 0.40mm Pitch Floating, FSB5 Series



VITAL PRODUCT INFORMATION

Industry Need	Industry Challenge	Industry Solution	Anticipated Results
Automatic Assembly	Automotive, consumer and industrial customers using a manual assembly process can face severe production time and labor increases due to rises in demand.	SlimStack 0.40mm B-to-B Floating Connectors facilitate assembly automation.	For customers, automated assembly can improve responsiveness to market demand, reduce time-to-market, and save overall labor costs.
Lower Cost	High-performance applications require a higher number of boards. Customers use a high-cost rigid FPC to connect the boards.	Floating connections increase the degree of freedom within the design and contribute to cost reductions.	Customers can benefit from both a lower component cost and a high degree of design freedom.
Higher-Temperature Operation	Increasing product densities and performance needs demand high operating temperatures, but most vendors are providing B-to-B connectors with up to only a 105°C operating temperature.	SlimStack 0.40mm B-to-B floating connectors can operate at up to 125°C.	Connectors' ability to withstand higher operating temperatures allow customers to use them for high-performance products, thereby affording customers a competitive advantage.
Improved Assembly	Customers often find it difficult to avoid misalignment between boards and rigid B-to-B connectors.	Floating mating facilitates proper connections in the event of misalignment or blind joining.	Easy assembly with secure mating. Reduced impact of shock and vibration, providing better reliability under challenging environmental conditions.



[Return to Page 1](#)

SlimStack Board-to-Board Connectors, 0.40mm Pitch Floating, FSB5 Series



Situation, Problem, Implication, Need Payoff (SPIN)

The SPIN questions on this page are examples and should be used as a possible starting point for a deeper inquiry that pertains to specific customers and their situations/environments. Please use the techniques from the Molex Value Selling training to develop your own SPIN questions to use when meeting with your prospects and customers.

Need	Situation	Problem	Implication	Need Payoff
Automatic Assembly	Do you employ many people for manual assembly process?	Do labor costs and time-to-market rise sharply when you increase production due to manual assembly process?	Are you unable to meet sudden production requirements due to lack of labor?	How would a connector that is suitable for automated assembly help you increase your production and meet market demands?
Lower Cost	Do your high performance applications require higher number of internal boards?	Do you use a high-cost rigid FPC to connect the boards?	Are you unable to meet the low cost demands of your customers for many applications?	How would a floating B-t-B connection help you increase the degree of freedom of your design and contribute to the cost reduction?
Higher Temperature Operation	Does your product or application request high temperature operation?	Are you unable to push your design limitations due to unavailability B-to-B connectors that can operate above 85°C or 105°C?	Do you find it difficult to source B-to-B connectors that operate above 105°C?	How would your design/application improve if you could use a B-to-B connector that can operate at up to 125°C?
Improved Assembly	Do you need an accurate and simple assembly process?	Do you experience misalignment issues during assembly and/or blind-joining of B-to-B connectors and boards?	What happens if the boards are misaligned during the assembly process?	How would your assembly process benefit from using a B-to-B connector with floating mating feature to ease misalignment worries?

ADDITIONAL SPIN QUESTIONS TO ASK CUSTOMERS

- › Are you looking for floating connectors with large floating range?
- › Are you looking for compact floating connectors?
- › Do you have a need for connectors that can operate above 105°C?



SlimStack Board-to-Board Connectors, 0.40mm Pitch Floating, FSB5 Series

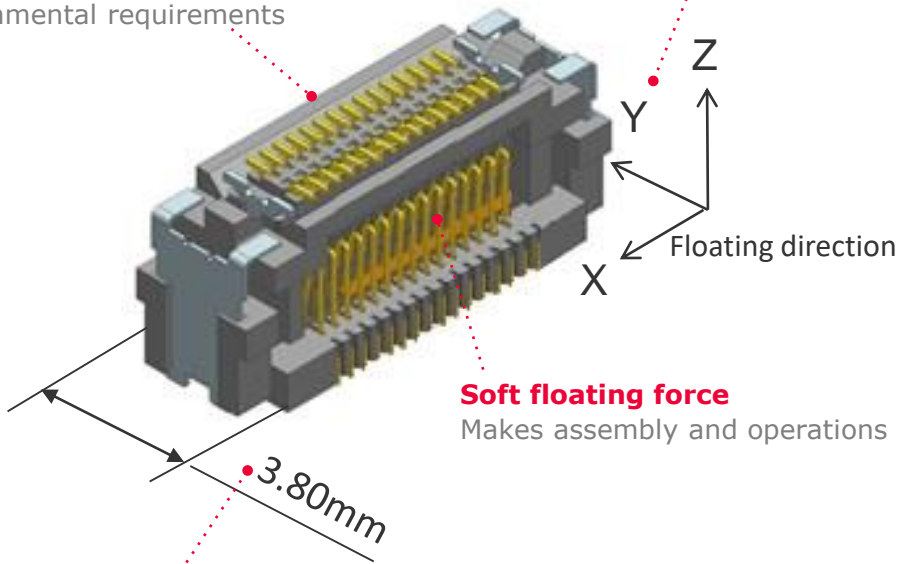


PRODUCT FEATURES AND ADVANTAGES

Low-halogen material
Meets industry environmental requirements

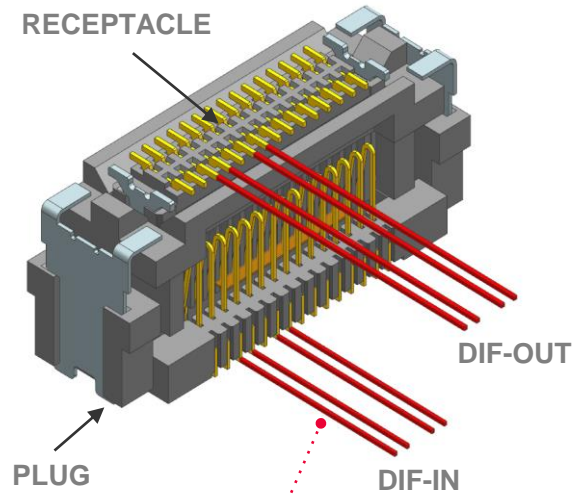
±0.50mm floating range in X-, Y- and Z- axis directions
Facilitates assembly in the event of misalignment or blind joining

High-temperature support up to 125°C
Improved design applicability



Soft floating force
Makes assembly and operations easy

Smallest size in the B-to-B floating connectors market
Provides space saving



High-speed transmission
Supports a high-speed transmission rate of up to 6 Gbps
※Pin assignment: GSSGSSG

SlimStack Board-to-Board Connectors, 0.40mm Pitch Floating, FSB5 Series



*COMPETITIVE PRODUCT AND CROSS-REFERENCE INFORMATION with UNIQUE AND USEFUL MOLEX ADVANTAGES VS. COMPETING PRODUCT

	Product and Technical Differences	
Attribute	Molex FSB5 Series	Competitor
Pitch (mm)	0.40	0.40
Circuit size	20, 30, 40, 50, 60	20, 30, 40, 50
Height (mm)	5.00	3.00 / 4.00 / 5.00
Depth (mm)	3.80	7.00
Durability	30 cycles	unknown
Rated Current (max.)	0.3A per circuit	0.3A per circuit
Rated Voltage (max.)	40V AC/DC	40V AC/DC
Plating	Gold (Au)	Gold (Au)
Floating (mm)	X, Y, Z direction ± 0.50	X, Y direction ± 0.40 Z direction ± 0.30
Operating Temperature	-40 to +125°C	-40 to +125°C

[Return to Page 1](#)

SlimStack Board-to-Board Connectors, 0.40mm Pitch Floating, FSB5 Series



UNIQUE AND USEFUL DIFFERENTIATION VS. SIMILAR MOLEX PRODUCT

Attribute	Product and Technical Differences	
	FSB5 Series	54684 / 501017 Series
Pitch (mm)	0.40	0.40
Circuit size	20, 30, 40, 50, 60	24, 50, 60, 80, 100, 120
Height (mm)	5.00	4.00
Depth (mm)	3.80	5.10
Rated Current (max.)	0.3A per circuit	0.3A per circuit
Rated Voltage (max.)	40V AC/DC	30V AC/DC
Plating	Gold (Au)	Gold (Au)
Floating	Yes	No
Operating Temperature	-40 to +125°C	-25 to +105°C

[Return to Page 1](#)

SlimStack Board-to-Board Connectors, 0.40mm Pitch Floating, FSB5 Series



SPECIFICATIONS

Reference Information

Packaging: Embossed Tape
Designed In: Millimeters
RoHS: Yes
Halogen Free: Low-halogen

Electrical

Voltage (max.): 40V
Current (max.): 0.3A per circuit
Contact Resistance (max.): 80 milliohms
Dielectric Withstanding Voltage: 250V AC
Insulation Resistance (min.): 100 Megaohms

Mechanical

Insertion force: Refer to specifications
Withdrawal force: Refer to specification
Durability (max.): 30 cycles

Physical

Housing:
Receptacle: LCP, UL 94V-0, Black
Plug: LCP, UL 94V-0, Black
Terminal: Copper Alloy
Fitting Nail: Copper Alloy
Plating:
Terminal
Contact Area — Gold (Au)
Solder Tail Area — Gold (Au)
Underplating — Nickel (Ni)
Fitting Nail
Solder Tail Area — Tin (Sn)
Underplating — Nickel (Ni)
Operating Temperature: -40 to +125°C

ESTIMATED LEAD TIME :

ORDERING INFORMATION

Series No.	Product Category	Height (mm)	Minimum Order Quantity (MOQ)	Book Price & Samples Loaded in SAP	
				Pricing (Y or N)	Samples Plant # (click link to order samples)
203955	Receptacle	5.00	Refer to SAP	N	1105
203956	Plug	5.00			

[Return to Page 1](#)