SlimStack™ SMT Stacking

Board-to-Board Connectors

0.40 to 1.00mm (.016 to .039") Pitch

0.90 to 20.00mm (.035 to .787") Height

molex®

INTRODUCTION

SlimStack: The Industry's Broadest Range of Micro SMT Stacking Connectors.

SlimStack offers designers a wide variety of space-saving choices for applications such as cell phones, digital cameras, PDAs and other mobile devices.

The latest additions to our SlimStack family include stack heights as low as 0.90mm (.035") and space-saving J-Lead SMT tails that save up to 35% PCB space. Contact your Molex representative to see how SlimStack can help you save valuable PCB real-estate.

System Overview:

- Pitch sizes: 0.40, 0.50, 0.635 and 1.00mm (.016, .020, .025 and .039")
- Stack Heights: 0.90 to 20.00mm (.035 to .787")
- Circuit Size Range: 7 to 240
- Board Mounting: SMT
- Plating: Gold
- Mating Styles: Vertical and Right Angle
- Related Products:
  *0.50/0.635mm(.020/.025") pitch shielded versions
  *0.80mm (.031") pitch SMT tin-plated versions
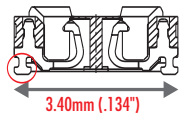 *1.00mm (.039") pitch Mezzanine IEEE 1386

molex® SlimStack™ SMT Board-to-Board Connector Family
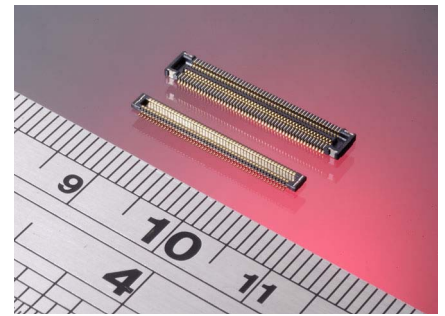
FEATURES AND BENEFITS FOR SLIMSTACK 0.4 AND 0.5MM

Space Savings

0.40mm (.016") Pitch Standard Gull Wing
5.20mm (.205")
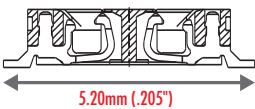
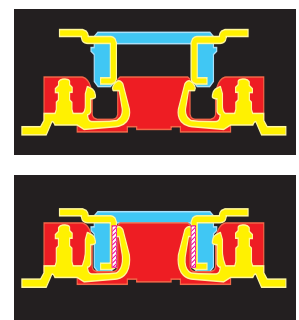0.40mm (.016") Pitch J-Lead Type
3.40mm (.134")

J-Lead type SMT tail is 35% smaller than standard Gull Wing type.

Various Locking Features → **Superior Mechanical Forces**
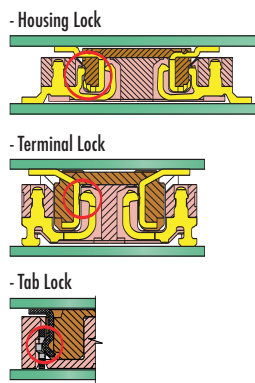
- Housing Lock
- Terminal Lock
- Tab Lock

Friction locks provides added mating retention to withstand shock or vibration.

Force / Circuits Size

— Molex Insertion Force
— Molex Withdrawal Force
— Competitor Insertion Force
— Competitor Withdrawal Force

Friction lock on select circuits provides superior mating/unmating forces.
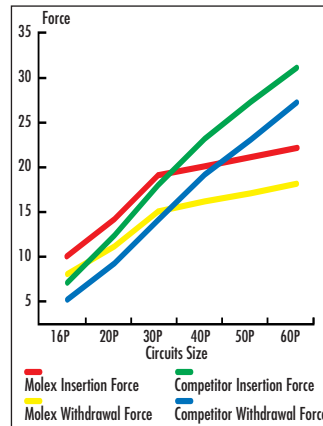
Wipe Length

= Wipe Length
Up to 0.65mm (.026") wipe length

Long wipe length helps provide good electrical reliability.

SLIMSTACK 0.40MM (.016") PITCH SELECTION GUIDE

Key Selection Criteria To Help You Choose The SlimStack 0.40mm (.016") Pitch Connector That Meets Your Needs

Product Description	Series	Mated Height	Space Comparison 50ckt Receptacle Length x Width	Features and Benefits	
Single-Row Ultra Low Profile	500463 - Rec 500464 - Plg	0.95mm (.037")	37.24mm² *	0.95mm (.037") Stack Height Single Row	→ 1. Ultra Low Profile 2. Lower Circuit Sizes 3. For FPC-to-Board only
Dual-Row Ultra Low Profile	500024 - Rec 500027 - Plg	0.95mm (.037")	64.7mm²	0.95mm (.037") Stack Height	→ 1. Ultra Low Profile 2. BTB or FPC-to-Board
Space Saving J-Lead	51338 - Rec 55909 - Plg	1.50mm (.059")	44.54mm²	J-Lead SMT Tail (51338 only)	→ 1. Ultra Small PCB Footprint Width 2. BTB or FPC-to-Board
Standard with Solder Tabs & Mating Guides	54765 - Rec 55604 - Plg	1.50mm (.059")	75.92mm²	Mating Guide	→ 1. Superior Mating Alignment 2. BTB or FPC-to-Board
Standard with Solder Tabs	54518 - Rec 53372 - Plg	1.50mm (.059")	72.8mm²	With Solder Tab	→ 1. Extra PCB Retention 2. BTB or FPC-to-Board
Standard	54796 - Rec 55622 - Plg	1.50mm (.059")	62.0mm²	Robust Proven Design	→ 1. Quality & Performance 2. BTB or FPC-to-Board

* For 22 circuit version

molex® 0.40mm (.016") Pitch SlimStack™ SMT

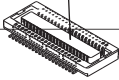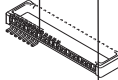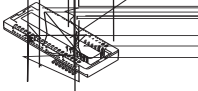| Mated Height	Receptacle		Plug	Circuit Sizes	Color/Width
New 0.90 mm (.035")	501591-XX11 With Solder Tabs and J-Lead Tails		501594-XX11 With Solder Tabs	20, 22, 24, 26, 30, 40, 50, 54, 70	Black/3.40mm
0.95mm (.037")	500463-XX79 Single-Row With Solder Tabs For FPC-to-Board only		500464-XXX8 Single-Row With Solder Tabs For FPC-to-Board only	7, 16, 22	Black/3.60mm
0.95mm (.037")	500024-XX81 (16, 24 circuits) 500024-XX71 (30 to 80 circuits) Dual-Row With Solder Tabs		500027-XX41 Dual-Row With Solder Tabs	16, 20, 24, 30, 34, 40, 50, 60, 64, 70, 80	White/5.00mm
New 1.30mm (.051")	501527-XX30 With Solder Tabs, J-Lead Tails and Metal Vacuum Cover		501531-XX10 With Solder Tabs	30, 34, 40, 50, 80, 90	Black/3.40mm
1.50mm (.059")	51338-XX74 With Solder Tabs and J-Lead Tails		55909-XX74 With Solder Tabs	12, 20, 22, 24, 26, 30, 34, 40, 50, 60, 70, 80, 100	Black/3.40mm
1.50mm (.059")	54796-XXX4		55622-XXX8	32, 40, 50, 60, 80, 90	Black/5.20mm
1.50mm (.059")	54518-XX72 With Solder Tabs		55372-XX78 With Solder Tabs	60, 80, 100	Black/5.20mm
1.50mm (.059")	54765-XX70 With Solder Tabs and Guide Posts 54765-XX77: And Pegs (30, 50, 70, 80 circuits)		55604-XX70 With Solder Tabs and Guide Posts 55604-XX78: And Pegs (30, 50, 54, 70, 80 circuits)	22, 30, 40, 44, 50, 54, 70, 80	Black/5.20mm
New 1.70mm (.067")	501635-XX10 With Solder Tabs and J-Lead Tails		501639-XX10 With Solder Tabs	40, 60	Black/3.40mm
1.80mm (.071")	500913-XXX2 With Solder Tabs		55909-XX74 With Solder Tabs	24, 40, 50, 60, 70, 100	Black/4.20mm
2.50mm (.098")	54876-XX74 With Solder Tabs		55686-XX74 With Solder Tabs	40, 120	Black/5.80mm
3.50mm (.138")	54684-XXX4		55526-XXX8	24, 70, 80, 90, 120	Black/5.10mm
4.00mm (.157")	54477-XXX8 With Pegs		55339-XXX8 With Pegs	60, 80, 120	Black/5.10mm
3.20mm (.126") Right Angle	54552-XXX6		55394-XX70	40, 80	Black/4.25mm
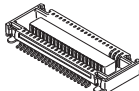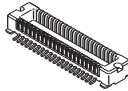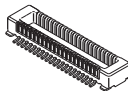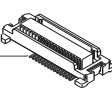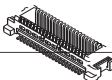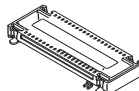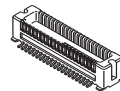
Notes:
* XX = Circuit size
† Plating: Gold
‡ (Red) = With Solder Tabs
  (Blue) = Space Saving J-lead Tails
  (Green) = With PCB Positioning Pegs

molex® 0.50mm (.020") Pitch
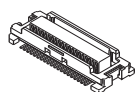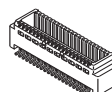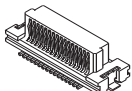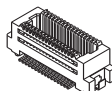SlimStack™ SMT

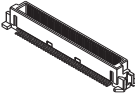| Mated Height	Receptacle	Plug	Circuit Sizes	Color/Width
1.50mm (.059")	54722-XXX4	55560-XXX7 55560-XXX8 (16 circuits)	16, 20, 22, 24, 30, 34, 40, 46, 50, 60, 80	Black/6.00mm
2.00mm (.079")	54729-XXX6	55559-XXX8	16, 24	Black/5.40mm
2.00mm (.079")	54363-XX78 With Solder Tabs	55201-XX78 With Solder Tabs	20, 30, 40, 50, 80, 120, 140	Black/6.00mm
2.00mm (.079")		55650-XX88 With Solder Tabs	30, 40, 50, 60, 70	Black/6.00mm
2.50mm (.098")	54102-XXX4 No Tabs (16, 20, 30, 40, 50, 60, 70 circuits) 54150-XX78 With Solder Tabs (50, 60, 70, 80 circuits)	53885-XXX8 No Tabs (16, 20, 30, 40, 50, 60, 70 circuits) 53949-XX78 With Solder Tabs (50, 60, 70, 80 circuits)	16, 20, 30, 40 50, 60, 70, 80	Black/5.30mm
3.00mm (.118")	52991-XXX8 (20, 30, 40, 70 circuits) 54167-XXX8 (20, 30, 40 circuits)	53748-XXX8	20, 30, 40, 70	White Black (52991) / 5.40mm
3.00mm (.118")	54363-XX78 With Solder Tabs	55299-XX78 With Solder Tabs	20, 30, 40, 100, 120, 140	Black/6.00mm
4.00mm (.157")	52991-XXX8/ 54167-XXX8	53916-0208 (20 circuits) 501920-3001 (30 circuits)	20, 30	Black White (54167) / 5.40mm
5.50mm (.217")	54230-XX78 With Solder Tabs and Pegs	55055-XX78 With Solder Tabs and Pegs	50, 60, 80	White/5.40mm
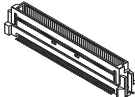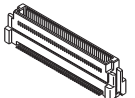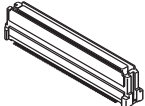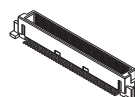
Notes:
 * XX = Circuit size
 † Plating: Gold
 ‡ (Red) = With Solder Tabs
   (Green) = With PCB Positioning Pegs

APPLICATIONS

- Mobile Phone
- PDA
- Digital Video Camera
- Digital Still Camera
- Digital Video Player
- Digital Audio Player
- Voice Recorder
- Notebook PC
- Any Compact Applications

molex® **0.635mm (.025") Pitch SlimStack™ SMT**

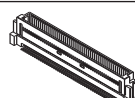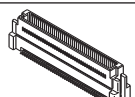| Mated Height	Receptacle	Plug	Circuit Sizes	Color/Width
6.00mm (.236")	52760-XX78/XX79 52885-XX74/XX75 With Solder Tabs	55091-XX74/XX75/XX79 With Solder Tabs	20, 40, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200, 240	White (Rec) Black (Plug) / 6.40mm
7.00mm (.276")		53481-XX68/XX79 53625-XX74/XX75 With Solder Tabs	20, 30, 40, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200, 240	White (Rec) Brown (Plug) / 6.40mm
8.00mm (.315")		53551-XX78/XX79 53647-XX74/XX75 With Solder Tabs	20, 30, 40, 60, 70, 80, 100, 120, 140, 160	White (Rec) Brown (Plug) / 6.40mm
9.00mm (.354")		53552-XX79 53649-XX74/XX75 With Solder Tabs	30, 40, 50, 60, 80, 100, 140, 160	White (Rec) Brown (Plug) / 6.40mm
10.00mm (.394")		53553-XX78/XX79 53627-XX74/XX75 With Solder Tabs	20, 30, 40, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200	White (Rec) Brown (Plug) / 6.40mm
12.00mm (.472")	52837-XX78/XX79 52901-XX74/XX75 With Solder Tabs	55091-XX74/XX75/XX79 With Solder Tabs	20, 40, 50, 60, 70, 80, 90, 120, 140, 160, 180	White (Rec) Black (Plug) / 6.40mm
13.00mm (512")		53481-XX68/XX79 53625-XX74/XX75 With Solder Tabs	20, 30, 40, 50, 60, 70, 80, 90, 120, 140, 160, 180	White (Rec) Brown (Plug) / 6.40mm
14.00mm (.551")		53551-XX78/XX79 53647-XX74/XX75 With Solder Tabs	20, 30, 40, 60, 70, 80, 120, 140, 160	White (Rec) Brown (Plug) / 6.40mm
15.0mm (.591")		53552-XX79 53649-XX74/XX75 With Solder Tabs	30, 40, 50, 60, 80, 140,160	White (Rec) Brown (Plug) / 6.40mm
16.00mm (.630")		53553-XX78/XX79 53627-XX74/XX75 With Solder Tabs	20, 30, 40, 50, 60, 70, 80, 90, 120, 140, 160, 180	White (Rec) Brown (Plug) / 6.40mm

Notes:
  * XX = Circuit size
  † Plating: Gold
  ‡ (Red) = With Solder Tabs
  § For above Packaging; please see below. For further details, please visit molex website.
        -XX74: Embossed Tape Packaging with Vacuum Cover
        -XX75: Tube Packaging with Vacuum Cover
        -XX68/XX78: Embossed Tape Packaging
        -XX79: Tube Packaging

molex® **0.635mm (.025") SlimStack Related Capabilities**

## SlimStack 0.635mm: Up to 3 GHz Performance Across The Board

Molex's 0.635mm (.025") pitch connectors are tested to accommodate frequency rates up to 3 GHz for various high-speed applications. With a broad range of circuit sizes and stack heights, SlimStack offers an economical way to achieve high-speed performance in both 50 and 100 Ohm systems.

These high-speed capabilities apply for all SlimStack 0.635 versions shown on page 5 of this catalog.

For even higher speeds, Molex's Plateau HS Mezz™ system offers up to 10 Gb/s (6.8 GHz). See Molex website for details.

The SlimStack High-Speed Unshielded Advantage:

- 3 GHz performance
- Cross Talk < 7%
- For 50 and 100 Ohm applications
- Economical design
- 6.00 to 16.00mm stack heights
- 20 to 240 circuits
- Superior terminal design/wipe length
- Easy board processing
- H-SPICE and 3d VRML models
- Test data available

Single-Ended Impedance (H=9)
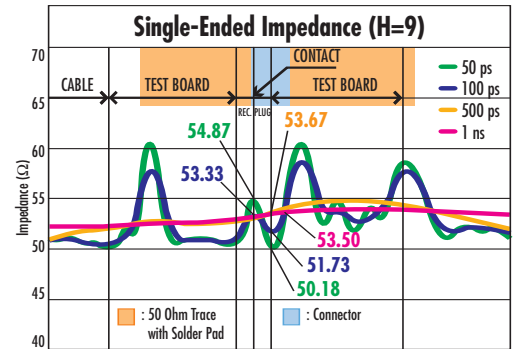
Height	Cross Talk @100ps			Impedance		Insertion Loss		Skew
(mm)	Frequency	Near End	Far End	R_T	Ohms	Frequency	dB	Pico Second
9	1	4.7	6.5	50	54.9	1	0.23	0
	2	4.6	6.4	100	53.3	2	0.13	0
	3	4.5	6.6	500	53.7	3	1.72	0

*Note: Above test results based on single-ended measurements, 1:1 signal/ground layout and 9.00mm (.354") stack height.

SHIELDED SLIMSTACK™ 0.635MM OPTIONS

Molex offers several versions of 0.635mm (.025") Pitch SMT board-to-board connectors with metal shielding for additional EMI/RFI protection. Our fully-shielded version with chamfered lead-ins shown on the right (55952/51411) is available in 110 circuits in 20.00mm (.787") stack heights. This system offers high-speed capabilities up to 4GHz, and is ideal for high frequency applications such as flat-panel displays, video games or servers.

We also offer custom versions with shielding that can be used for applications such as high-density docking.
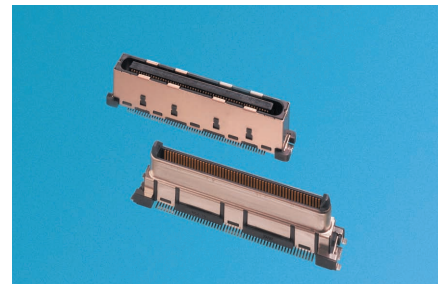
Mated Height	Receptacle		Plug		Circuit Sizes	Voltage/Current
20.00 mm (.787")	55952-1731 With Solder Tabs and Pegs		51411-1711 With Solder Tabs and Pegs		110	50V/0.4A

* Plating: Gold
† (Red) = With Solder Tabs
(Green) = With PCB Positioning Pegs

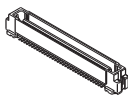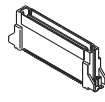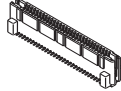## SHIELDED SLIMSTACK™ 0.50MM HIGH DENSITY CONNECTORS

New!

Molex's latest 0.50mm (.020") pitch SlimStack connectors are high-density, high circuit size versions with full shielding. These connectors are finding use in Plasma Display Panels and other applications that require shielding for ESD protection. Features include guide posts to facilitate mating and vacuum pick-up tape.

Mated Height	Receptacle		Plug		Circuit Sizes	Voltage/Current
6.00 mm (.236")	501497-XX10 With Solder Tabs		501493-XX10 With Solder Tabs		200, 240	50V/0.5A

* Plating: Gold
† (Red) = With Solder Tabs

molex® 1.00mm (.039") Pitch SlimStack™ SMT

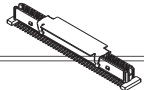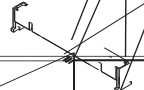| Mated Height	Receptacle		Plug		Circuit Sizes	Voltage/Current
8.00mm (.315")	52584-XX79 With Pegs		53395-XX79 With Pegs		20, 34, 66, 100, 140	100V/0.5A
18.00mm (.709")			53408-XX79 With Pegs		50, 60, 80, 100, 120, 140	100V/0.5A
20.00mm (.787")	52602-XX79 With Pegs				24, 50, 60, 120, 140	100V/0.5A

Notes:
* XX = Circuit size
† Plating: Gold
‡ (Green) = With PCB Positioning Pegs

1.00MM (.039") PITCH MEZZANINE IEEE 1386

Molex's 1mm Mezzanine connectors follow the IEEE 1386 specification, which is a 64-pin mezzanine interface used for PCI Mezzanine Cards (PMCs) typically found in CompactPCI and VME based systems. PMCs have evolved to PCI-X and packet-based transports, enabling mezzanine expansion cards to be faster and handle more information while still backwards-compatible to existing PCI standards (32 or 64 bit). With PCB density increasing every year, 1mm Mezz will continue to support mezzanine solutions to provide customers with extra PCB real estate and increased system functionality.

Molex's 1mm Mezz system offers stack heights from 8-15mm for design flexibility and signal speeds of up to 5Gb/sec. Gold over nickel contact plating ensures long-term reliability, and a leaf-style contact design prevents stubbing when mating. Molex parts are RoHS compliant and come with pick-and-place caps for automated assembly.
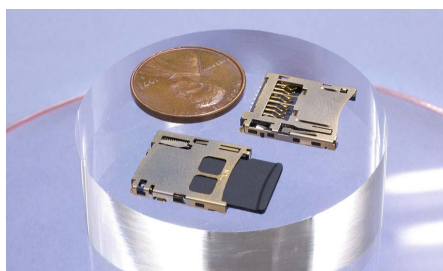
Mezzanine IEEE 1386 (64 circuits)

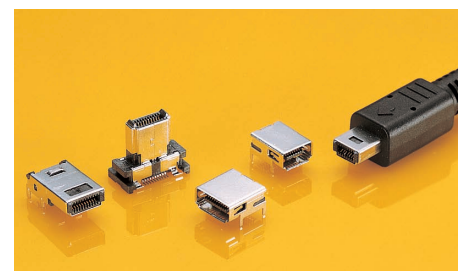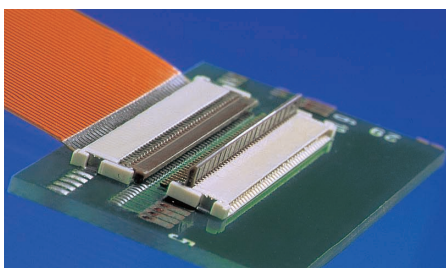| Mated Height	Receptacle 71439	Plug 71436
8.00mm (.315")		
9.00mm (.354")		
10.00mm (.394")		
11.00mm (.433")		
12.00mm (.472")		
13.00mm (.512")		
14.00mm (.551")		
15.00mm (.591")		

OTHER FINE-PITCH MICRO CONNECTORS

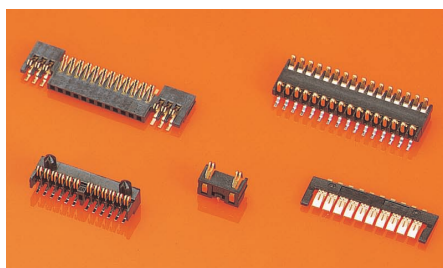0.40mm (.016") Pitch Multi-Coax IDT Connectors

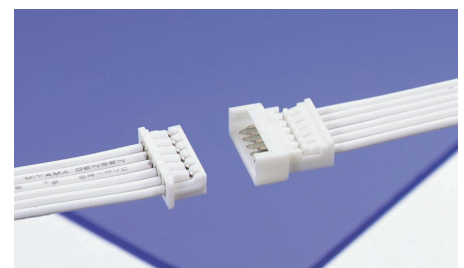Miniature Memory Card Connectors

CradleCon™ 0.50mm (.020") Pitch I/O Connectors

Ultra Low-Profile FFC (0.90mm (.035") Height)

Custom Compression Connectors

1.25mm (.049") Pitch Wire-to-Wire Connectors

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