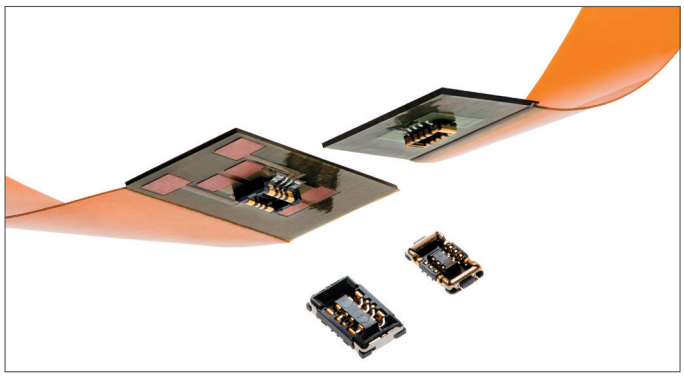
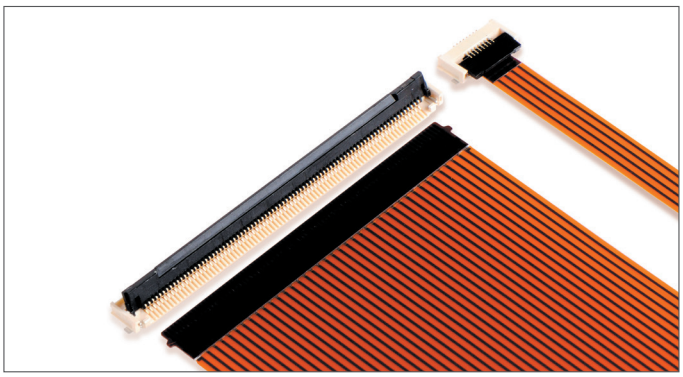
MICROMINIATURE CONNECTORS ›
DESIGN GUIDE

molex®

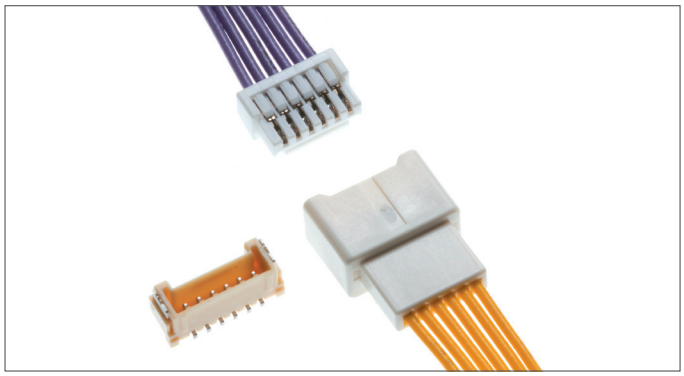
MOLEX MICRO CONNECTORS FAMILY LINEUP



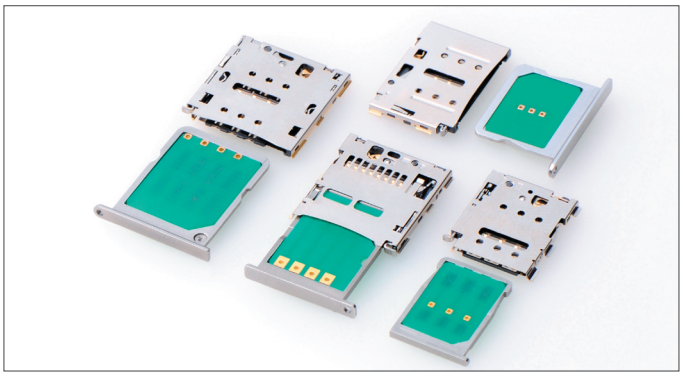
Micro Board-to-Board



Micro FFC/FPC



Micro Wire-to-Board & Wire-to-Wire



Micro Memory Card

GLOBAL DESIGN AND MANUFACTURING CAPABILITIES

Molex has product design and production facilities in each region of the world in order to meet local customer needs. Our global capabilities enable us to provide the latest micro connector design and manufacturing solutions to quickly meet your requirements.

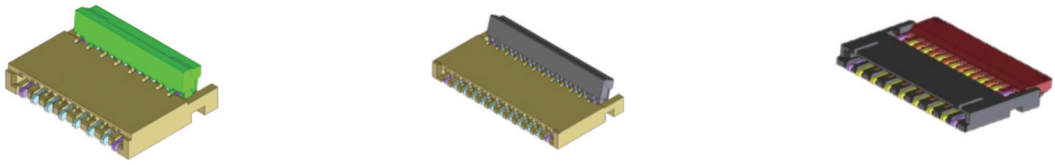
INTRODUCTION

Molex is a pioneer in the development of microminiature connectors. Our micro connectors are finding use today in applications ranging from mobile devices to automotive, medical and more. We are continuing to develop lower profiles, narrower pitch ranges, and higher speed capabilities to meet ever-evolving downsizing and functional needs. Our micro connectors are packed with innovative features to offer secure mating reliability, ease-of-use and design flexibility. Backed by a global network of engineering and manufacturing capabilities, Molex offers local service and a global array of design services for all your microminiature connector needs.

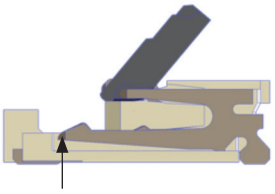
CONTENTS

0.20/0.25/0.30mm Pitch Innovations

Space Savings

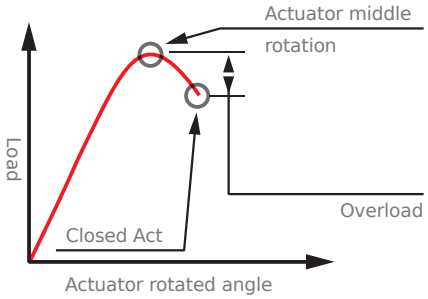


Secure Contact

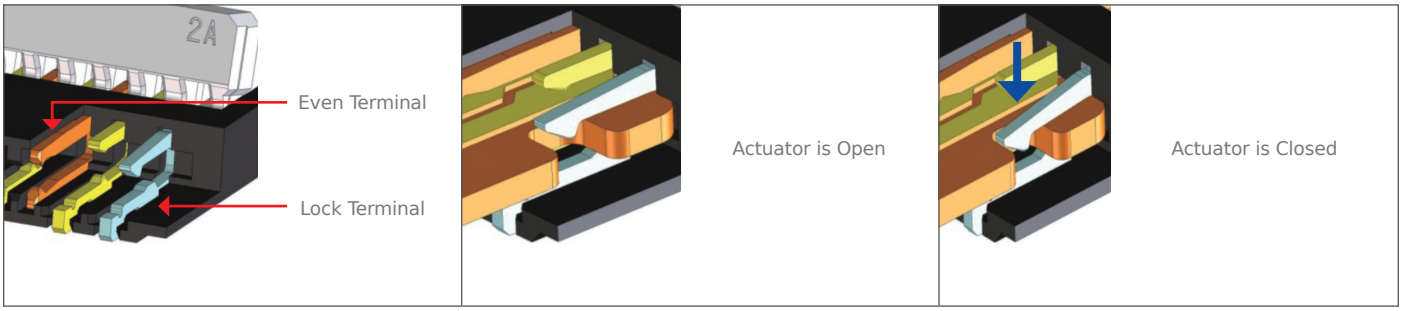


Spring terminals maintain secure electrical contact in high vibration and shock environments

Click Feeling



FPC Locking

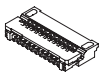
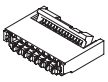
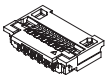
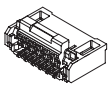
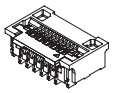
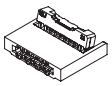
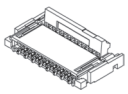
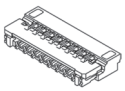
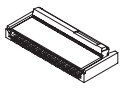
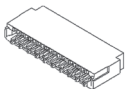
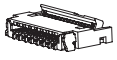
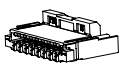
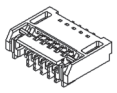


Locking features on both sides provide secure cable retention

Actuator Stability

Actuator features enable it to remain open for more efficient assembly

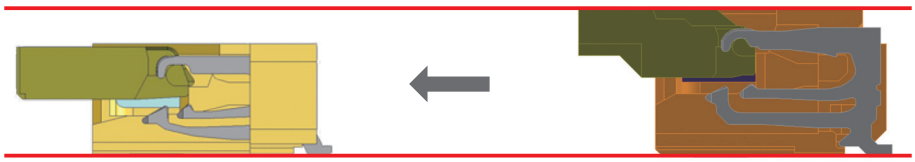
Micro FFC/FPC Connectors (0.20, 0.25 and 0.30mm Pitch)

Pitch (mm)	Image	Mated Height	Width	Series Number	Circuit Sizes	Mounting	Actuator Type	Contact Type	Contact Plating	Current (max.)	Voltage (max.)	FPC Thickness (mm)
0.20		0.60	3.30	505094	12	Right Angle	Easy-On™ BackFlip™	Dual	Gold	0.2A	50V	0.12
		0.90	2.85	503419	67, 71, 81		Easy-On™ Front Flip	Bottom				0.20
		0.95	3.00	504070	39, 51, 61		Easy-On™ BackFlip™	Dual				
0.25		1.00	2.98	502078	13, 17, 21, 25, 33, 37, 39, 51, 53, 61		Easy-On™ Front Flip	Bottom				
		1.20	2.65	503300	21, 29, 31, 37, 41, 43, 53			Top				
		1.65	2.98	503320	25, 37, 41			Bottom		0.3A		
0.30		0.75	3.30	504754	7, 15, 31, 39, 51		Easy-On™ BackFlip™	Dual				
		0.90	3.53	502250	15, 17, 21, 23, 27, 33, 35, 39, 41, 51					0.2A		
		0.95	2.85	503566	9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 31, 33, 35, 37, 39, 41, 43, 45, 51		Easy-On™ Front Flip	Bottom				
			3.80	504740	19, 23, 25, 33, 39, 41, 45, 51, 61		Easy-On™ BackFlip™	Dual		0.3A		
		1.00	2.55	504281	11, 13, 17, 19		Non-ZIF					0.30
		1.15	3.80	502598	15, 17, 23, 25, 27, 29, 33, 39, 45, 51		Easy-On™ BackFlip™			0.2A		0.20
		1.20	4.00	503425	61, 75							
		1.80	3.85	501912	15, 21, 23, 25, 27, 33, 35, 37, 39, 41, 45, 47, 51		Easy-On™ Front Flip	Bottom				

*Note: All dimensions in mm

0.50/1.00mm Pitch Innovations

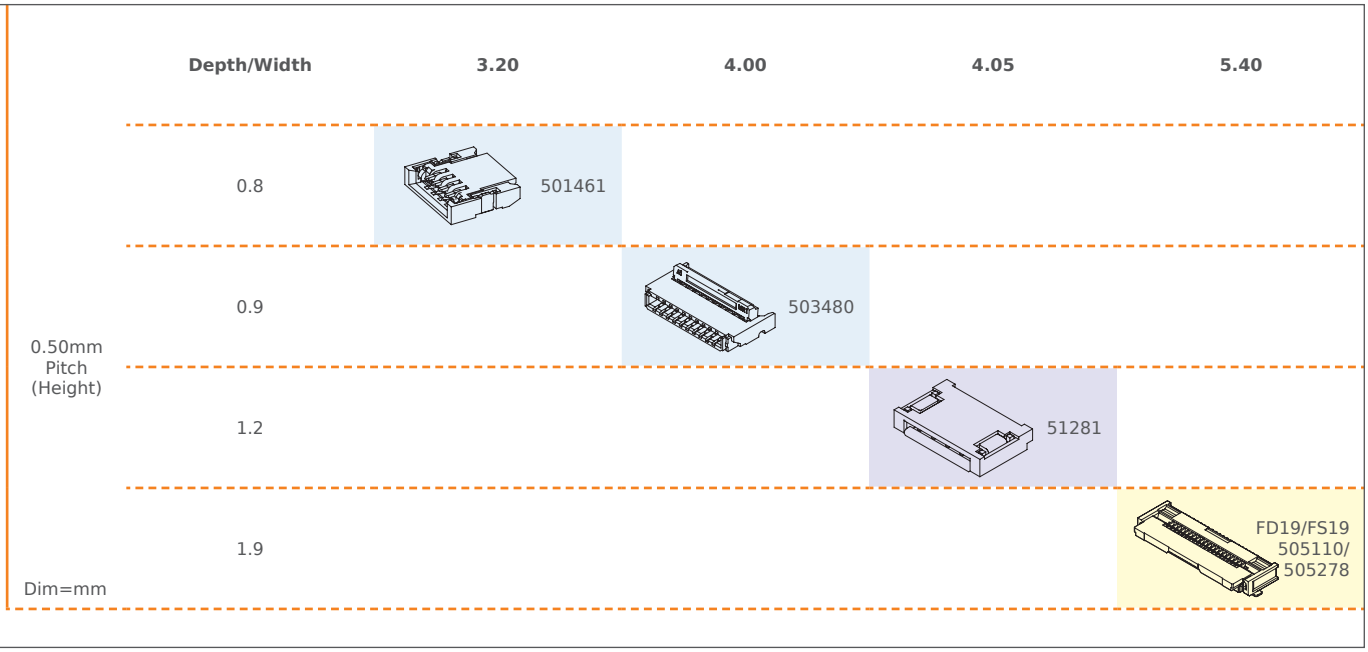
Space Savings



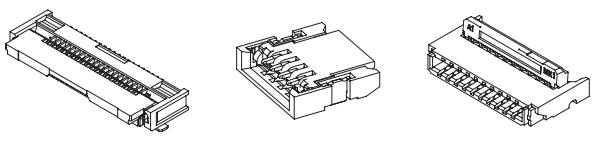
FD19 (505110) 502790

- 24% size reduction for PCB and height space savings

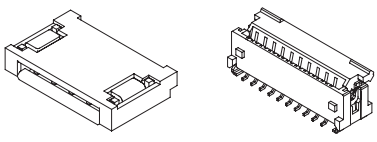
Various Design Options



Wide Selection



505110 501461 503480

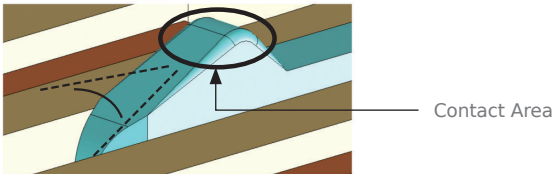


51281 501951

Citcuit Sizes 4-80

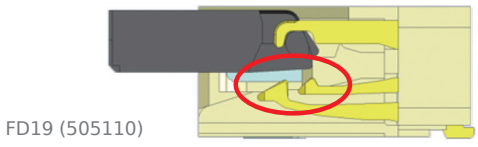
Actuator Types: BackFlip™, Front Flip, Non-ZIF, Slider, Flip

Plating Scratch Prevention



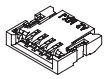
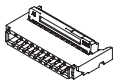
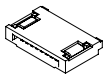
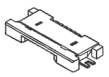
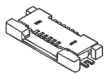
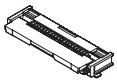
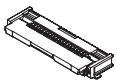
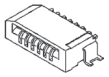
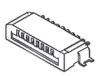
Angled and rounded design guides FPC and prevents scratching from cable leads

Double Bottom Contacts



Double bottom contacts remove dust and debris for improved contact reliability

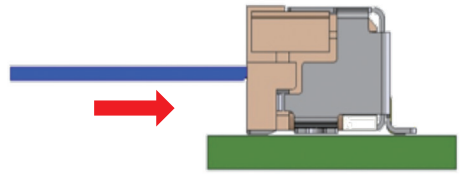
Micro FFC/FPC Connectors (0.50 and 1.00mm Pitch)

Pitch (mm)	Mated Height	Image	Width	Series Number	Circuit Sizes	Mounting	Actuator Type	Contact Type	Contact Plating	Current (max.)	Voltage (max.)	FPC Thickness (mm)
0.50	0.80		3.20	501461	4, 5, 6, 8	Right Angle	Easy-On™ BackFlip™	Bottom	Gold	0.3A	50V	0.12
	1.00		4.00	503480	4, 6, 8, 10, 12, 14, 16, 17, 18, 20, 22, 26, 32			Dual		0.5A		0.30
	1.20		4.05	51281	5 to 12, 14, 16, 18, 20, 22, 24, 26		Non-ZIF					
			3.85	54548	4 to 20, 22, 24, 26		Slider	Bottom				
				54550	4 to 14, 16 to 22, 24, 26			Top				
	1.30		4.30	51296	8, 12, 14, 18, 34, 40, 45, 50, 54, 60		Easy-On™ Front Flip	Bottom				
	1.90		5.30	505110 (FD19)	4 to 80			Double Bottom				
				505278 (FS19)	4 to 28			Bottom				
	2.00		5.20	52437	21 to 30		Slider	Bottom				
			5.00	52745	4, 6 to 20			Top				
				52746	4, 6 to 20			Bottom				
			5.60	54104	30, 32, 33, 34, 35, 36, 38, 40, 45, 46, 50			Top				
				54132	30, 32, 33, 34, 35, 36, 38, 40, 43, 45, 50			Bottom				
	3.90		3.40	52559	6, 9, 10, 12, 14, 15, 16, 20, 21, 24, 26, 27, 28, 30, 32, 36, 40	Vertical		N/A				
	4.05		4.50	501951	20, 22, 24, 30, 32, 40, 45, 59, 60, 70		Flip Type	N/A		0.4A		
1.00	2.70		5.60	52207	3 to 30, 34	Right Angle	Slider	Top	Tin-Bismuth	1.0A	125V	
	3.00		5.40	52271	4 to 30			Bottom		0.5A		
	3.10		6.80	52852	4 to 20, 22 to 30		Non-ZIF			1.0A	50V	
				52793	3 to 30			Top		0.5A		
	5.10		4.50	52808	4 to 30	Vertical		N/A			125V	
	5.75			52610	5 to 26, 28, 30		Slider	N/A		1.0A		

*Note: All dimensions in mm

0.50 - 1.00mm Pitch Innovations

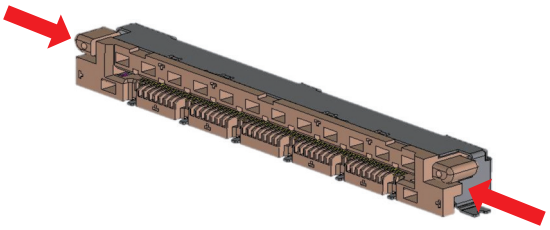
“One-Touch” Type



- One-touch cable insertion eliminates need for actuator and provides strong cable retention (503908)

For LVDS

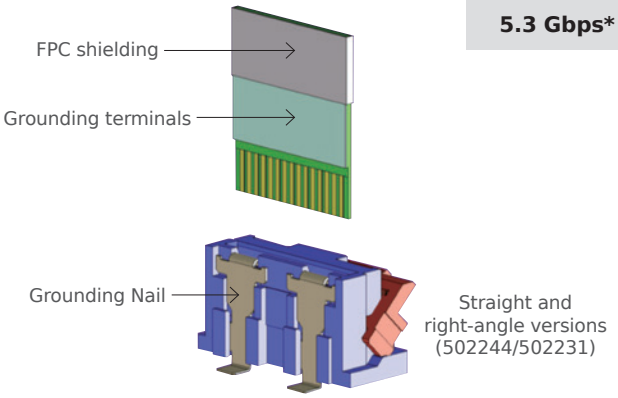
5.4 Gbps



- Side-push-lock release buttons provide space savings, no downward stress on PCB and avoid lock release due to external force on chassis compared to top-button designs (503908)

Standard Type

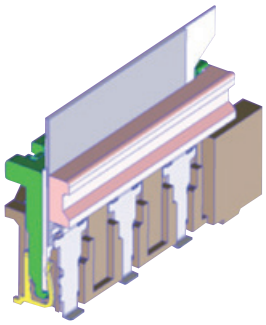
5.3 Gbps*



*Note: Contact Molex for specific speed simulation data

Two-Piece LVDS Type

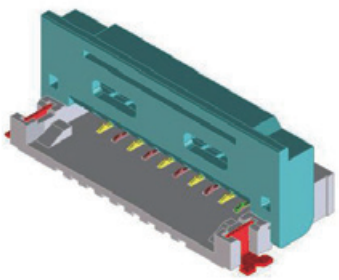
4.5/6.7 Gbps*



- Jacket and cover design provide secure electrical contact and cable hold (501783/501784/501786/501864)

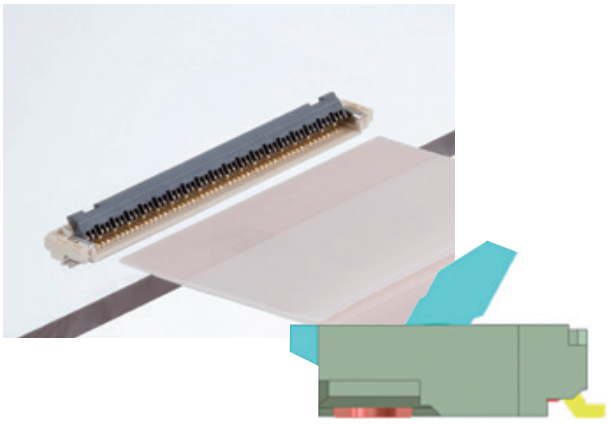
High Voltage Type

125 Volts



- Provides high voltage-carrying capabilities, and lower applied costs than wire-to-board types (49456)

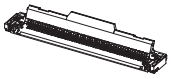
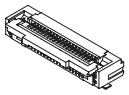
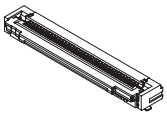
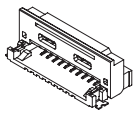
“Slim” Type



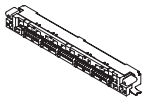
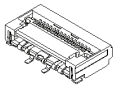
- “Slim” type offers compact size and high circuit sizes (104114)

Micro FFC/FPC Connectors

0.50/1.00mm Pitch

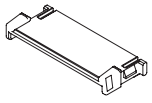
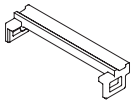
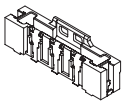
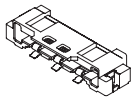
Pitch (mm)	Mated Height	Width	Series Number	Image	Circuit Sizes	Mounting	Actuator Type	Contact Type	Contact Plating	Current (max.)	Voltage (max.)	FPC Thickness (mm)
0.50	1.50	4.40	104114		80	Right Angle	Easy-On™ Front Flip	Bottom	Gold	0.5A	50V	0.30
		5.30	104234		51			Double Bottom				
	2.00	5.00	104184		50, 68			Bottom				
	2.50	5.30	104060		20, 60, 80			Double Bottom				
			502790		30, 40, 50, 60, 64, 80							
1.00	2.80	6.70	49456		12		Easy-On™ BackFlip™	Bottom	Tin	1.0A	125V	

LVDS FFC Connectors: One-Piece Type

Pitch (mm)	Mounting	Series Number	Circuit Sizes	Actuator Type	Contact Type	Speed*	Plating	Current (max.)	Voltage (max.)	FPC Thickness (mm)
0.50	Right Angle	 H=3.75, W=5.85 503908	41, 51	Non-ZIF "One-Touch" With Side Buttons	Bottom	40 Gbps	Gold	0.5A	50V	0.33 (Contact area)
	Right Angle	 H=6.50, W=5.45 502244	15, 24, 33	Easy-On™ Front Flip		Contact Molex		0.4A		0.30 (Contact area); 0.50 (Ground area)
	Vertical	 H=2.33, W=5.60 502231		Easy-On™	N/A					0.30 (Contact area); 0.50 (Ground area)

*Note: Contact Molex for specific speed simulation data

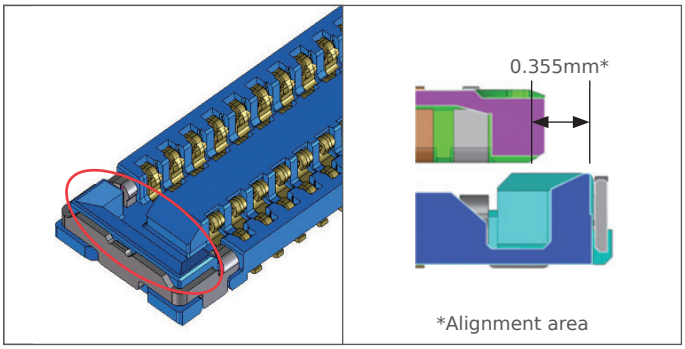
LVDS FFC Connectors: Two-Piece Type

Pitch (mm)	Plug Jacket	Plug Jacket Cover	PCB Receptacle, Vertical	PCB Receptacle, Right Angle	Circuit Sizes	Speed†	Current (max.)	Voltage (max.)	Contact Plating	FPC Thickness (mm)
0.50	 501783	 501784	 H=8.95, W=4.55 501786 Grounding Type	 H=4.85, W=9.50 501864 Grounding Type	30, 50, 80	501786 (20 Gbps) 501864 (10 Gbps)	0.3A	50V	Signal (Gold) Ground (Tin)	0.30 (Contact area); 0.44 (Shield area)

*__Note 1__: Height and width equals mated dimensions in mm. †__Note 2__: The speed is derived from the simulation result on GSSGSSG differential 100Ω signaling for only the connector portion (does not contain any PCB/FPC characteristics). The speed (Gbps) is obtained by simply doubling the usable frequency (GHz), which is defined as the frequency at which the insertion loss exceeds -3dB. Return loss and crosstalk are not taken into account when determining the speed values here. However, they should be considered when judging the connector's overall capabilities.

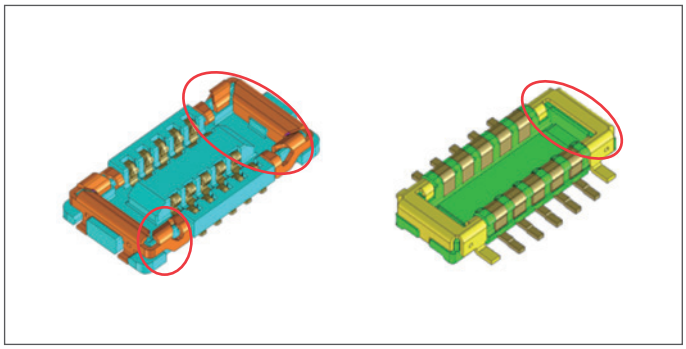
SlimStack™ Family Innovations

Wide Alignment Guide



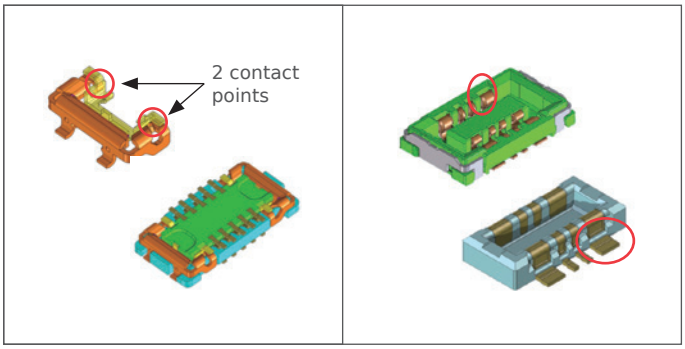
- Easy to mate and find right position
- Good for assembly operator
- More efficient assembly
- (504618/504622)

Robust Protection



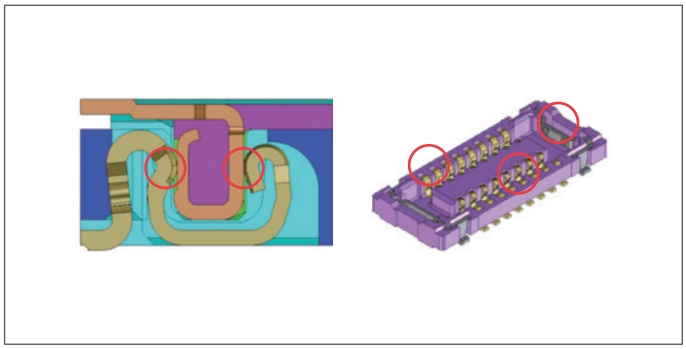
- Armored metal covers prevent housing damage during mating
- SlimStack Armor™ series
- (505066/505070)

Power Supply



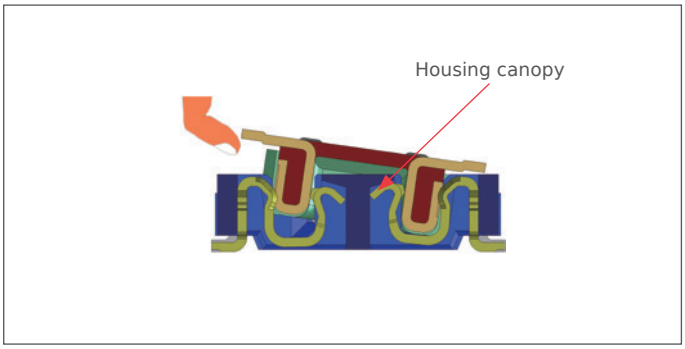
- 3A power (left)
- 6A power (right)
- Left: (505066/505070)
- Right: Hybrid Power (505004/505006)

Electrical Reliability



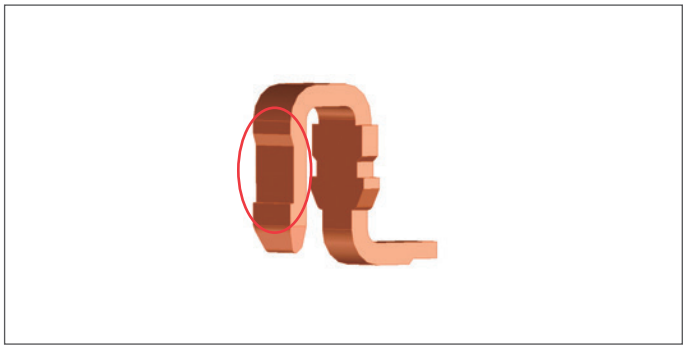
- Dual contact design for secure electrical and mechanical contact (SSB6, left)
- Triple-lock for high-retention force (503548/503552, right)

Anti-Zippering



- Housing canopy provides anti-zippering barrier that prevents contact pull-out from angled mating
- (503772/503776)

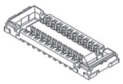
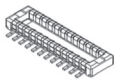
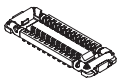
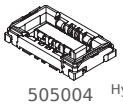
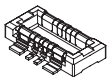
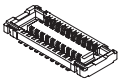
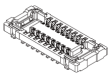
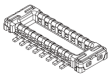
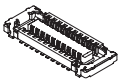
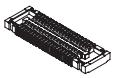
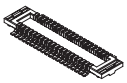
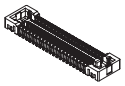
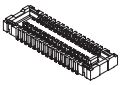
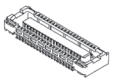
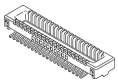
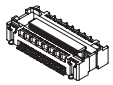
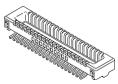
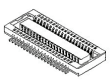
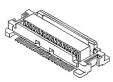
“Click Feeling”



- Contact lock with drop-off gap creates good tactile “click” feeling for mating assurance (503304/503308)

Micro Board-to-Board Connectors

SlimStack™ Family (0.35, 0.40 and 0.50mm Pitch)

Pitch (mm)	Mated Height	Width (mm)	Receptacle	Plug	Circuit Sizes	Speed†	Current (max.)	Voltage (max.)	Key Features
0.35	0.60	2.00	 504618	 504622	10, 20, 24, 30, 34, 40, 50, 64	40 Gbps	0.3A	50V	Low-profile alignment; click feeling
			 505066 Armor Type	 505070	6, 12, 16, 30, 40, 48		0.3A (Signal) 3.0A (Power)	50V	Alignment; protective armor cover; power nails
0.40	0.75 (0.80 max.)	2.50	 505004 Hybrid Power	 505006	8		0.3A (Signal) 6.0A (Power)	50V	Alignment; High Current; 6A/2 pin
	0.70	2.60	 503304	 503308	10, 12, 16, 18, 20, 24, 26, 30, 40, 42, 50, 80		0.3A	50V	Two-point contact; narrow width
			 503548	 503552	6, 10, 12, 14, 16				High-retention; narrow width
	0.80	2.50	 503772	 503776	10, 20, 24, 30, 34, 40, 50, 60				Robust; reliable; easy to operate
	0.90	3.40	 501591	 501594	10, 12, 20, 22, 24, 26, 30, 34, 40, 44, 50, 54, 70	Contact Molex			Space-saving J-Lead SMT tail
	1.00	2.60	 502426	 502430	8, 14, 20, 22, 24, 26, 30, 32, 40, 44, 50, 60, 64, 80	40 Gbps			Narrow width; space-saving J-Lead
			 503489	 503308	30, 44, 50, 60				Two-point contact; narrow width
	1.50	3.40	 51338	 55909	12, 16, 20, 22, 24, 26, 30, 34, 40, 50, 60, 70, 80, 90, 100	40 Gbps			Large circuit-size range; space-saving J-Lead SMT tail
	1.80	4.20	 500913	 55909	20, 30, 40, 50, 60, 70, 90, 100	Contact Molex			Receptacle also mates with 501745
0.50	1.50	6.00	 54722	 55560	16, 20, 22, 24, 30, 36, 40, 50, 60, 80	30 Gbps			Space-saving PCB pattern layout
	4.00	5.40	 52991	 501920	30, 40, 50		0.5A		Two mating receptacles

*__Note 1__: All dimensions in mm. †__Note 2__: The speed is derived from the simulation result on GSSGSSG differential 100Ω signaling for only the connector portion (does not contain any PCB/FPC characteristics). The speed (Gbps) is obtained by simply doubling the usable frequency (GHz), which is defined as the frequency at which the insertion loss exceeds -3dB. Return loss and crosstalk are not taken into account when determining the speed values here. However, they should be considered when judging the connector's overall capabilities.

SlimStack™ Family Innovations (0.635/0.80/1.00mm Pitch)

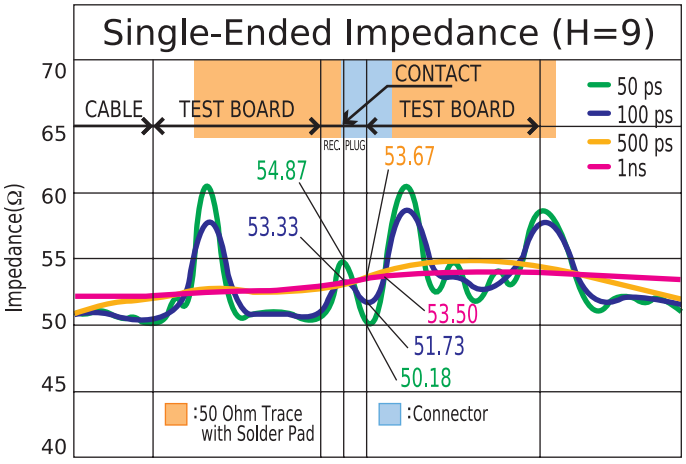
High-Speed Capabilities

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. (Contact Molex for latest test data)

0.635mm Pitch Family

- 3GHz performance
- Cross Talk <7%
- For 50 and 100 Ohm
- Superior wipe length
- Easy board processing
- H-SPICE and 3d VRML models

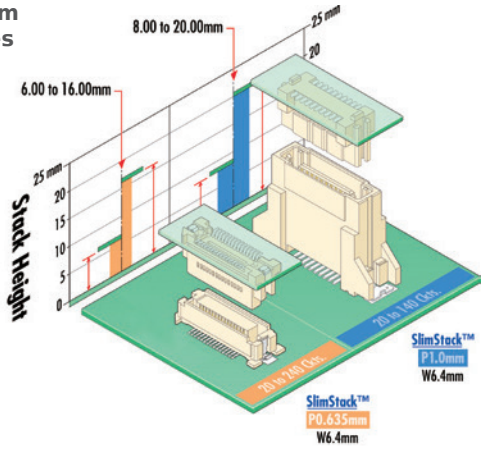


High speed test data available

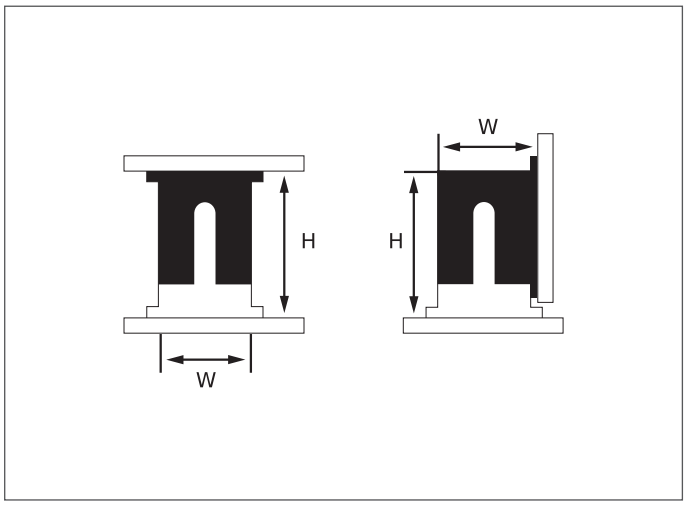
Wide Range of Stack Height and Circuit Sizes

0.635/1.00mm Pitch Families

- 6-20mm stack heights
- 20-240 circuit size options



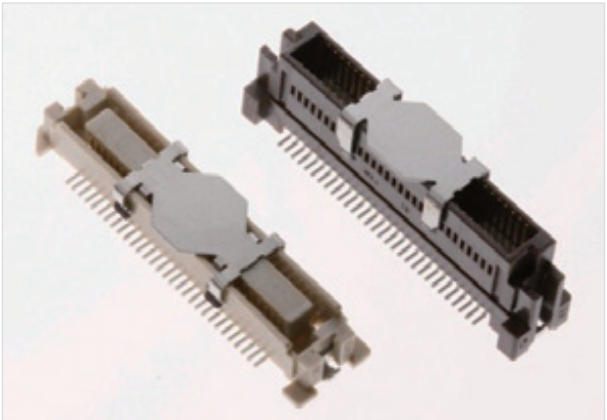
Vertical and Right-Angle Options



0.80mm Pitch Family

- 4.50mm height right-angle option
- Economical tin plating
- 10-40 circuit sizes

Pick-and-Place Features

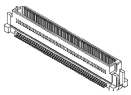
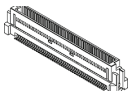
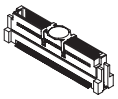
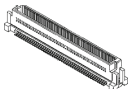
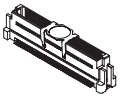
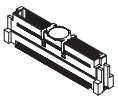
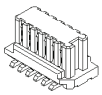


0.635 and 0.80mm Pitch Families

- Optional metal vacuum cap enables easy board placement (0.635mm type)
- Flat surface (0.80mm type)

Micro Board-to-Board Connectors

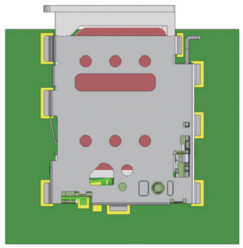
SlimStack™ Family (0.635/0.80 and 1.00mm Pitch)

Pitch (mm)	Receptacle	Plug	Mated Height	Mated Width	Circuit Sizes	Speed†	Current (max.)	Voltage (max.)	Plating	Key Features
0.635	 52885	 55091	6.00	6.20	20, 30, 40, 50, 60,70, 80, 90, 100, 120, 140, 160	20 Gbps	0.5A	100V	Gold	Pick-and-place cap
		 53625	7.00		30, 40, 50, 60,80, 90, 120, 140, 160, 240					
		 53647	8.00		20, 30, 40, 60, 80, 100, 120, 140, 160					
		 53649	9.00		30, 40, 60, 80, 100					
		 53627	10.00		20, 30, 40, 50, 60, 70, 80, 90, 100, 120, 140	10 Gbps				
	52901	 55091	12.00	6.40	20, 30, 40, 50, 60, 70, 80, 90, 100, 120, 140, 160					
		 53625	13.00		30, 40, 50, 60, 80, 90, 120, 140, 160, 240					
		 53647	14.00		20, 30, 40, 60, 80, 100, 120, 140, 160					
		 53649	15.00		30, 40, 60, 80, 100					
		 53627	16.00		20, 30, 40, 50, 60, 70, 80, 90, 100, 120, 140					
0.80	 52465	 53307	4.50	5.10	10, 12, 14, 18, 20, 24, 26, 28, 30, 36, 40	Contact Molex		50V	Tin	Vertical and right angle options
		 53364	6.00		18, 20, 30, 36					
		 53353	7.00		10, 18, 20, 28, 30, 40					
		 53309	5.65		10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 36, 40					
1.00	 52584	 53408	18.00	6.60	50, 60, 80, 100, 120, 140			100V	Gold	High stack heights and circuit sizes
	 52602		20.00							

*__Note 1__: All dimensions in mm. †__Note 2__: The speed is derived from the simulation result on GSSGSSG differential 100Ω signaling for only the connector portion (does not contain any PCB/FPC characteristics). The speed (Gbps) is obtained by simply doubling the usable frequency (GHz), which is defined as the frequency at which the insertion loss exceeds -3dB. Return loss and crosstalk are not taken into account when determining the speed values here. However, they should be considered when judging the connector's overall capabilities.

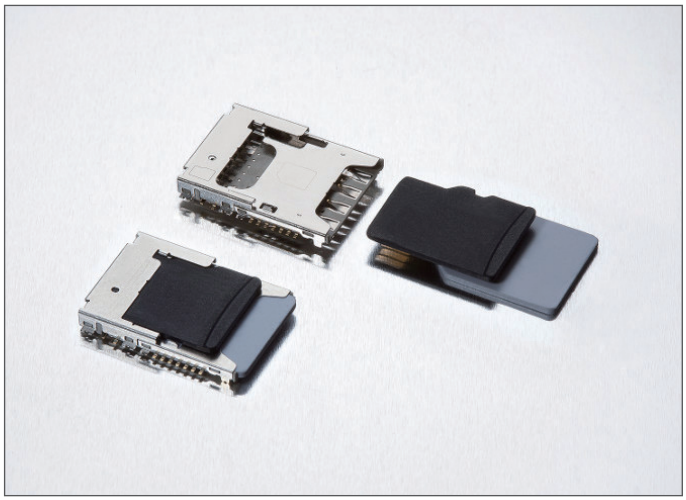
nano-SIM, Combo and micro-SD Memory Card Connector Innovations

nano-SIM Pin-Eject Type With Tray



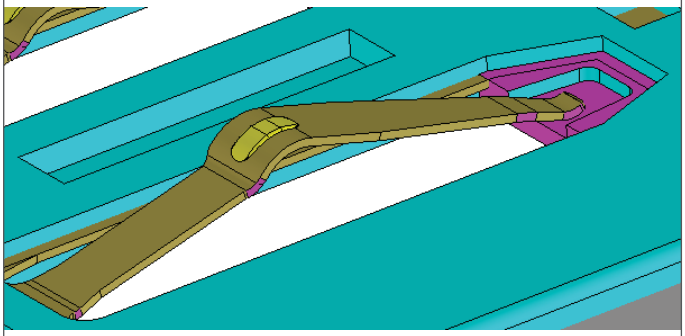
- Includes 8 points of shell-to-PCB retention

Space-Saving Stacked Combo



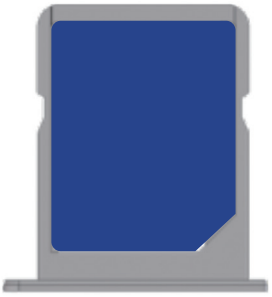
(104168 shown)

Anti-Stubbing



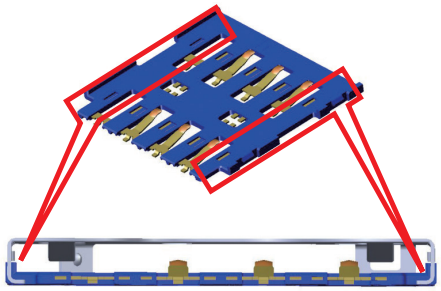
Card insertion direction is the same as the terminals, which provides for smooth mating and prevents terminal buckling. (On many series)

Metal Injection Mold Tray (MIM)



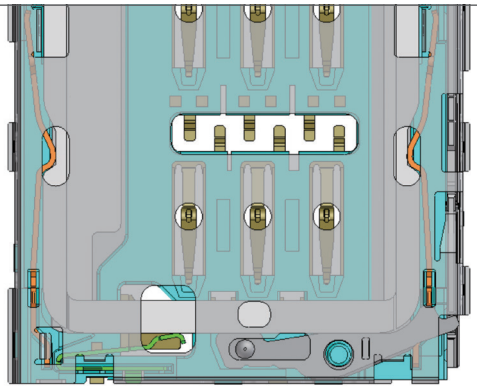
- Metal trays provide secure card retention and match aesthetic design of phone.

Anti-Shorting Feature



- A raised housing wall serves as an anti-short feature (78723 Push-Pull Series)

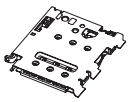
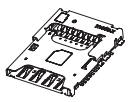
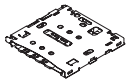
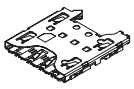
Dual-Hook Spring Design



- Dual-hook spring design provides extra tray retention (505020 shown)

Micro Memory Card Connectors

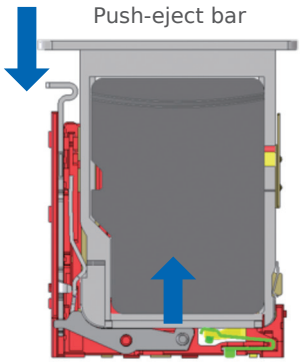
nano-SIM, microSD/micro-SIM Combo and micro-SIM Memory Card Connectors

Card Type	Ejection Style	Order Number	Mounting Style	Height	Width	Depth	Depth With Card	Detect Switch	Circuit Size	Current (max.)	Voltage (max.)	Key Features
nano-SIM	Pin-Eject Type With Tray	 504520-0691	Normal	1.30	13.4	15.1	17.70	Yes	6	0.50	10	Easy pin-eject method and custom tray
microSD/ microSIM Combo	Push-Pull	 104168-1620		2.28	13.00	18.30	19.20	mSD : Yes, mSIM : No	8			Contact crash protection feature; through-hole nail
	Pin-Eject Type With Tray, Single Hook	 505020-0692		1.35	16.55	16.35	18.20	Yes	6			Low Profile; can customize tray
microSIM	Push-Pull	 78723-1001		1.35	12.80	14.42	14.42	No	6			Push-Pull with polarisation features

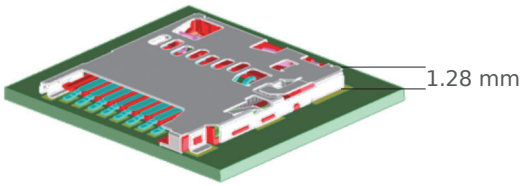
*Note: Height and width equals mated dimensions in mm

microSD Memory Card Connector Innovations

Pin-Eject Type With Tray

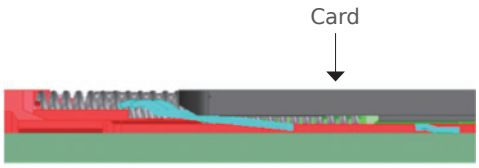


Low-Profiles



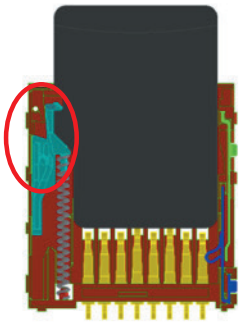
(503398 shown)

Anti-Buckling



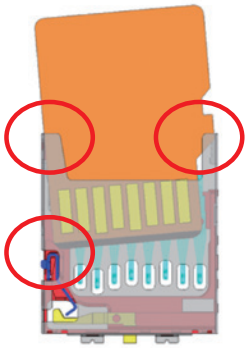
Card insertion direction is the same as the terminals, which provides for smooth mating and prevents terminal buckling. (On many series)

Smooth Card Ejection



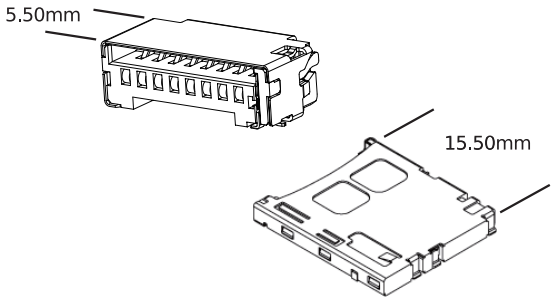
- Features in the housing, cam and shell design provide smooth and controlled card ejection (Various features on all series)

Polarization



- Polarization features on both housing and shell prevent improper mating of the card before it touches the detect switch (Various features on all series)

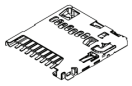
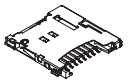
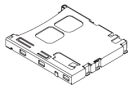
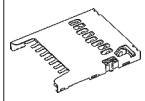
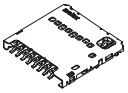
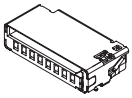
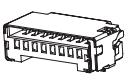
Push-Pull Half-Size Type



- Half-size versions can save up to 65% space in PCB width as shown above

Micro Memory Card Connectors

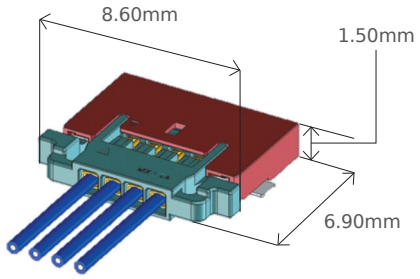
microSD Memory Card Connectors

Card Type	Ejection Style	Order Number	Mounting Style	Height	Width	Depth	Depth With Card	Detect Switch	Circuit Size	Current (max.)	Voltage (max.)	Key Features
microSD	Push-Push	 503398-1892	Normal	1.28	13.10	14.05	16.85	Yes	8	0.50A	10V	Back-side detect switch position
	Pin-Eject Type With Tray	 504528-0892		1.40	15.60	16.35	17.75					Easy pin-eject method and custom tray
	Push-Push	 503182-1852		1.45	14.90	14.95	17.35					Anti-card fly-out
		 502570-0893		1.80	13.80	15.50	17.20					Anti-card fly-out; Anti-card sticking
		 502774-0891	Reverse	1.80	14.30	16.00	18.10					Reverse type
	Push-Pull	 504077-1891	Normal	1.28	11.32	13.00	15.40					Ultra-Low Profile
	Push-Pull	 104031-0811		1.42	11.95	11.40	15.40					With detect switch
	Hinge	 500901-0801		1.93	14.60	14.50	15.00				5V	Hinge type
	Push-Pull (Half size)	 104032-0821		2.85	11.40	4.60	15.30					With detect switch
		 47309-3351		3.35	11.40	5.50	15.30					Push-pull with detect switch

*Note: Height and width equals mated dimensions in mm

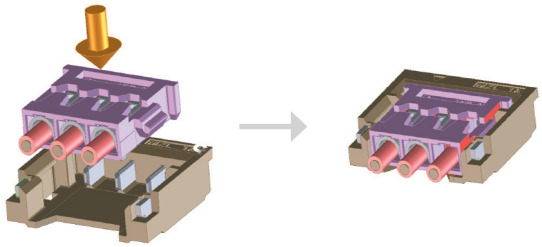
0.40 to 1.25mm Pitch Innovations

Low-Profile With Side Locks



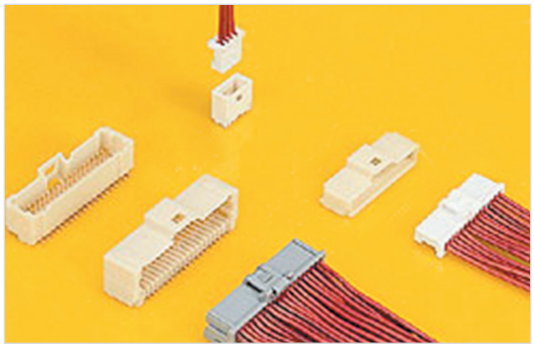
Pico-Lock™ 1.0

Low-Profile Horizontal Mating



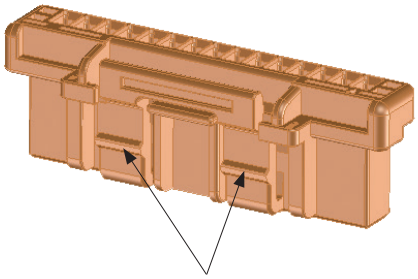
Pico-EZmate™ 1.20

Wide Variation



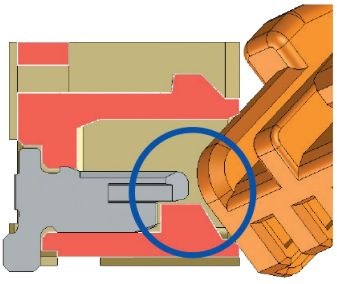
Pico-Clasp™ 1.0

Reliable “Click” Feeling



CLIK-Mate™ 1.25
- Dual inner positive locks provide audible “click”, low insertion force and secure mating retention

Crush-Proof



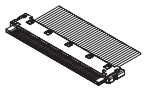
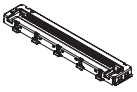
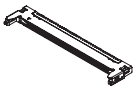
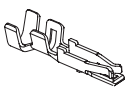
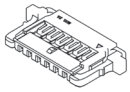
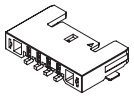
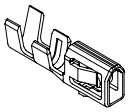
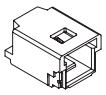
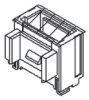
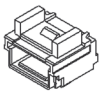
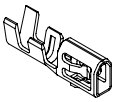
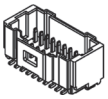
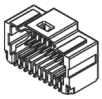
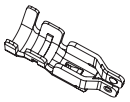
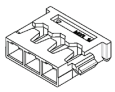
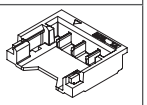
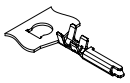
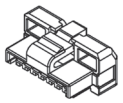
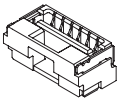
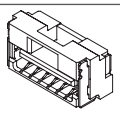
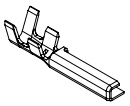
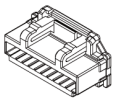
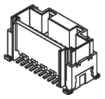
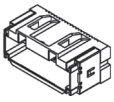
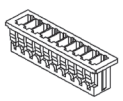
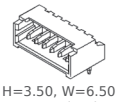
CLIK-Mate™ 1.25
- Crush-proof mating design protects contact pins and terminal from damage during mating

Reinforced Solder Tabs

Duo-Clasp™ 1.25
- Also with gold plating and protective dual inner locks

Micro Wire-to-Board Connectors

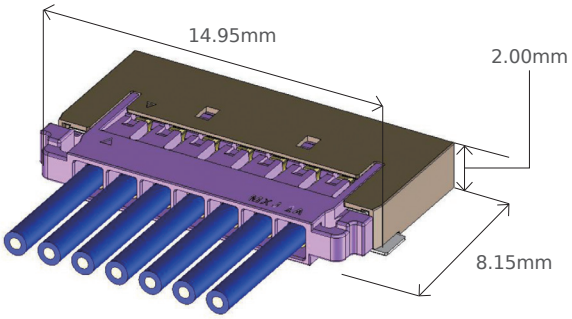
0.40 to 1.25mm Pitch

Pitch (mm)	Family Name	Terminal	Housing	Vertical PCB Header/ Receptacle	Right Angle PCB Header/ Receptacle	Plating	Lock Type	Circuit Sizes	Wire Gauge	Current (max.)	Voltage (max.)	Key Features
0.40	Micro IDT Coaxial	 IDT Housing 501800		 H=1.15, W=5.50 Top Entry, 501083	 H=2.40, W=3.94 Side Entry, 501044	Gold	Friction	30, 40, 50	42 (AWG)	0.2A	30V	Low profile; superior shielding; flexible routing;
1.00	Pico-Lock™ 1.00	 503765	 503764	N/A	 H=1.50, W=6.90 503763		Positive/ Friction	2, 3, 4, 5, 6	28-30 (AWG)	1.5A	150V	Space-saving positive side locks; high current
	Pico-Clasp™ Single Row Inner Lock	 501334	 501330	 H=6.20, W=3.50 (2-5ckts) W=4.47 501331	 H=3.20 (2-5ckts) W=4.70 501568	Tin	Positive (2-5ckts) Inner Positive (6-15ckts)	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	28-32 (AWG)	1.0A	50V	Small pitch; positive lock; wide variety
	Pico-Clasp™ Single Row Outer Lock		 501939	 H=5.90, W=4.50 501940	 H=4.80, W=5.80 501953		Outer Positive	3, 4, 5				
	Pico-Clasp™ Dual Row	 501193	 501189	 H=6.20, W=6.67 501190	 H=8.30, W=6.70 501571	Gold	Inner Positive	20, 30, 40, 50				
1.20	Pico-EZmate™	 78172	 78172	N/A	 H=1.55 (2-5ckts) W=1.65 78171		Friction (Horizotal Mating)	2, 3, 4, 5, 6, 7	28-30 (AWG)	1.5A		Horizontal mating and ultra-low-profile
1.25	CLIK-Mate™	 502381	 502380	 H=7.80, W=5.45 502382	 H=5.55, W=7.65 502386	Tin	Inner Positive	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	26-28 (AWG)	1.0A		Audible "click" mating
	Duo-Clasp™	 501930	 503110	 H=10.95, W=9.00 501931	 H=7.85, W=10.95 502046	Gold		20, 30, 40				Gold plating; dual inner positive locks; reinforced solder tabs
	Pico-Blade™	 50058/50079	 51021	 H=5.70, W=3.70 53398 (SMT)  H=5.20, W=3.20 53047 (T/H)	 H=3.40, W=5.20 53261 (SMT)  H=3.50, W=6.50 53048 (T/H)	Tin	Friction	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	26-30 (AWG)		125V	Ultra-small size; SMT and through-hole options

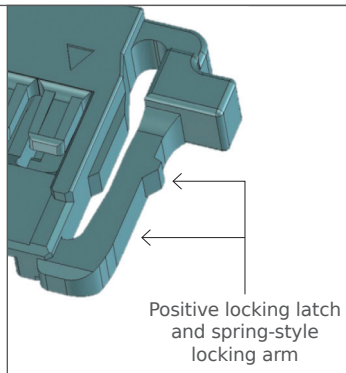
*Note: Height and width equals mated dimensions in mm

1.50mm Pitch Innovations

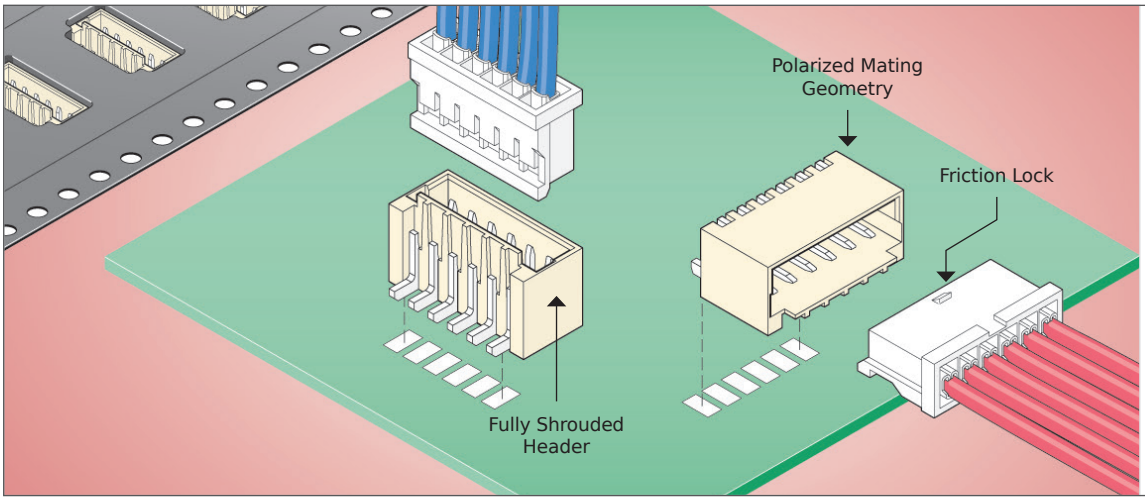
Low-Profile With Side Locks



Pico-Lock™ 1.50



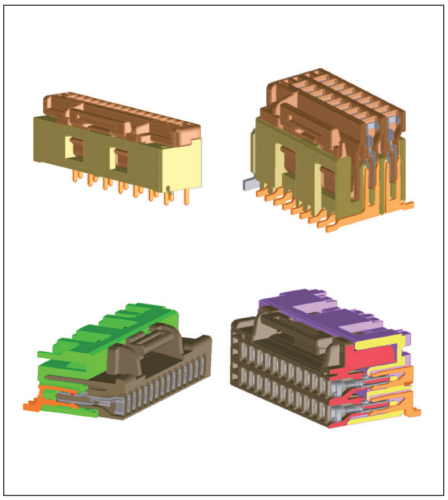
High Voltage Friction-Lock Design



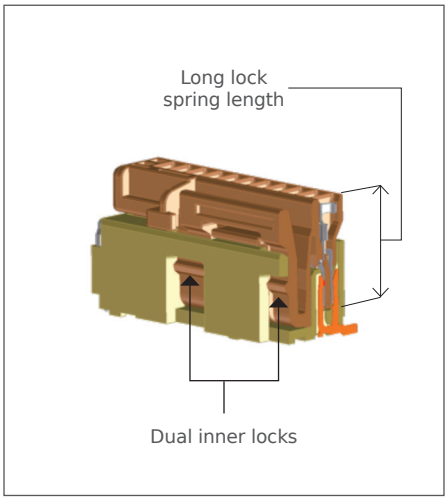
2.5A 350V

Pico-Spox™ 1.50

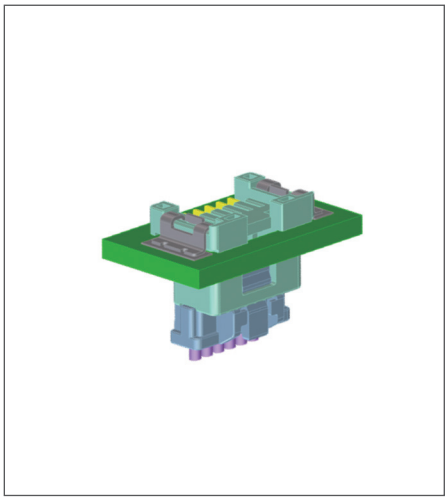
CLIK-Mate™ 1.50: Various Design Options and Mating Protection



Wide Variation
- Single/Dual Rows
- Straight and Right-Angle
- SMT and Through-Hole



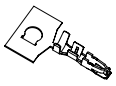
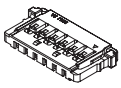
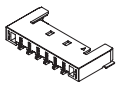
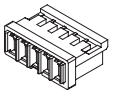
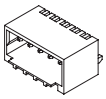
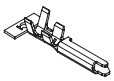
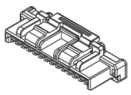
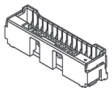
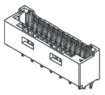
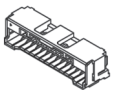
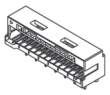
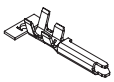
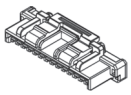
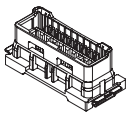
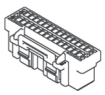
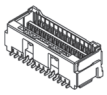
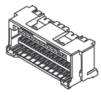
Strong Inner Lock
- Inner lock provides space spacings, latch protection and strong “click” feel



Bottom-Entry Option
- Provides space saving and easier assembly for bottom-entry applications such as LED lighting

Micro Wire-to-Board Connectors

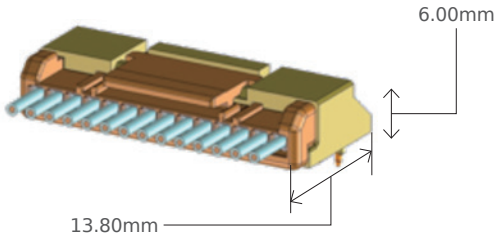
1.50mm Pitch

Pitch (mm)	Family Name	Terminal	Housing	Vertical PCB Header/ Receptacle	Right Angle PCB Header/ Receptacle	Plating	Lock Type	Circuit Sizes	Wire Gauge	Current (max.)	Voltage (max.)	Key Features
1.50	Pico-Lock™	 504052	 504051	N/A	 H=2.00, W=8.15 504050	Gold	Side Positive	4, 6, 7, 8, 10,12	24-28 (AWG)	3.0A (4-7ckts), 2.0A (8-12ckts)	150V	Low profile and high current
	Pico-SPOX™	 87421	 87439	 H=7.40, W=4.45 87437	 H=4.45, W=7.40 87438	Tin	Friction	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	24-30 (AWG)	2.5A	350V	High current and reliable two-point contact
	CLIK-Mate™ Single Row	 502579/ 503429	 502578	 H=9.70, W=6.35 502584 (SMT)  H=10.35, W=6.55 503159 (T/H)	 H=6.40, W=9.65 502585 (SMT)  H=6.95, W=9.65 503175 (T/H)		Inner Positive			2.0A	100V	Low insertion force; secure mating with audible “click”; latch/contact protection
	CLIK-Mate™ Single Row Bottom Entry	 502579/ 503429	 502578	 H=11.30, W=9.50 503395	N/A			3, 4, 6, 7, 8, 10				For through-broard mating applications
	CLIK-Mate™ Dual Row		 503149	 H=11.20, W=9.20 503154	 H=9.20, W=11.20 503148			Vertical 8, 10, 12, 16, 20, 22, 24, 28, 30, 32, 34 Right Angle 10, 12, 16, 20, 24				Low insertion force; secure mating with audible “click”; latch/contact protection

*Note: Height and width equals mated dimensions in mm

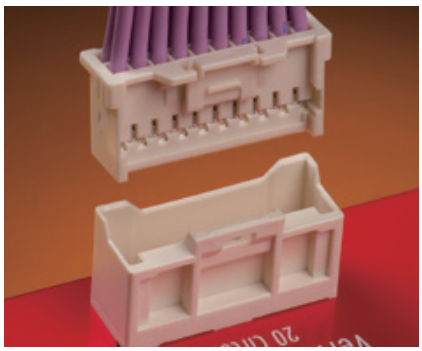
2.00mm Pitch Innovations

Space Savings



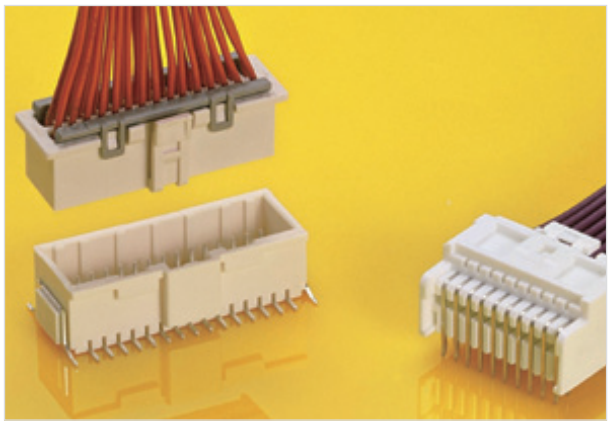
- All families (Micro-Lock™ shown)

Robust Designs



- All families (iGrid™ shown)

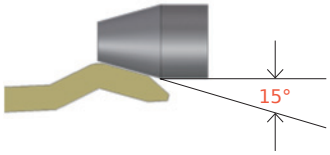
Wide Variation



- Micro-Clasp™ (Single/Dual/Vertical/RA/SMT/Through Hole)

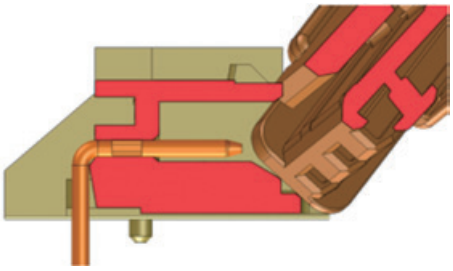
Low-Insertion Force

Bellows Shape Contact Design



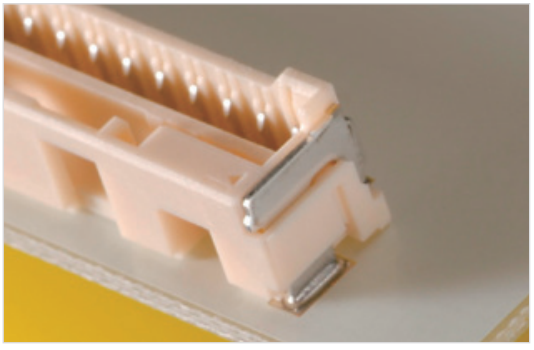
Micro-Lock™
- Below-shaped terminal design provides reduced mating angle for lower insertion force – even with tin plating

Crush-Proof



Micro-Lock™ and CLIK-Mate™
- Crush-proof mating design protects contact pins and terminal from damage during mating

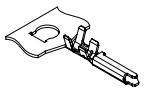
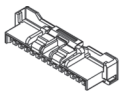
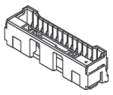
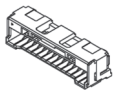
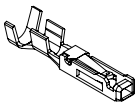
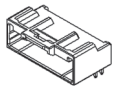
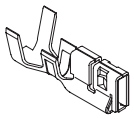
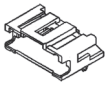
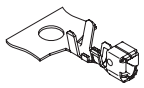
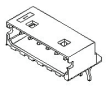
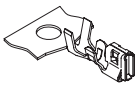
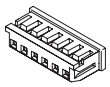
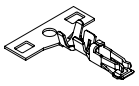
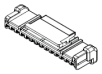
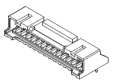
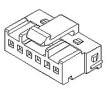
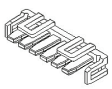
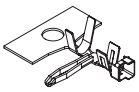
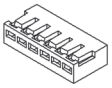
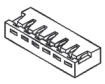
Reinforced Solder Tabs



CLIK-Mate™
- Robust solder tabs provide secure PCB retention and solder joint protection

Micro Wire-to-Board Connectors

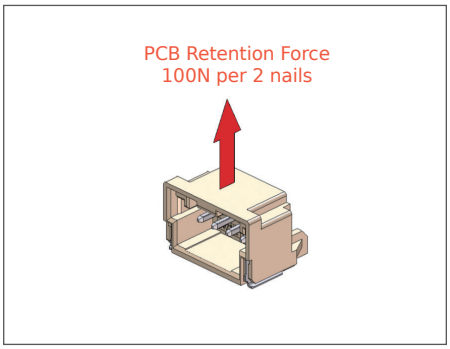
2.00mm Pitch

Pitch (mm)	Family Name	Terminal	Housing	Vertical PCB Header/ Receptacle	Right Angle PCB Header/ Receptacle	Plating	Lock Type	Circuit Sizes	Wire Gauge	Current (max.)	Voltage (max.)	Key Features
2.00	CLIK-Mate™	 503438	 502439	 H=10.90, W=6.85 502443	 H=6.90, W=10.85 502494	Tin	Inner Positive	Vertical 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15 (Right Angle) 4, 6, 8, 12, 13, 14, 15	22-26 (AWG)	3.0A	250V	Audible "Click" mating
	iGrid™	 501647/ 501648	 501646	 H=13.40, W=8.30 501645	 H=8.40, W=15.90 501876			10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40	22-28 (AWG)	2.0A		Robust design withstands vibration
	Micro-Clasp™ Single	 56134	 51382	 H=13.20, W=7.15 55932	 H=7.15, W=15.20 55935			2, 3, 4, 5, 6, 7, 8,9, 10, 11, 12, 13, 14, 15		3.0A		Single and dual; high current; robust design withstands vibration
	Micro-Clasp™ Dual		 51353	 H=13.20, W=11.50 55917	 H=11.70, W=17.95 55959			8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40				
	Micro-Blade™	 50011	 51004	 H=7.80, W=4.40 53014	 H=4.70, W=9.30 53015		Friction	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	24-30 (AWG)	2.0A	125V	Compact size; blade terminals provide good wiping
	Micro-Latch™	 50212	 51065	 H=7.30, W=4.00 53253	 H=4.55, W=9.10 53254							Uses standard terminal; economical design
	Micro-Lock™	 503657	 503658	N/A	 H=6.00 503660		Outer Positive	4, 5, 6, 8, 10, 12, 14, 15	22-26 (AWG)	3.0A	250V	"Crash-proof" pin protection feature; wide variation
	Micro-TPA™	 59370	 51216 (Housing)  51217 (Retainer)	 H=13.45, W=6.25 55755	N/A		Inner Positive	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	22-28 (AWG)	2.5A		Terminal retainer and high-wall headers
2.00/ 2.50	Board-In	 35021	 35023 (2.00 pitch)  35022 (2.50 pitch)	N/A	N/A		Positive	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	22-30 (AWG)		125V	Low profile and easy harness assembly

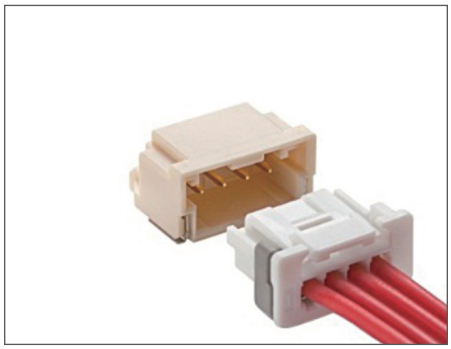
*Note: Height and width equals mated dimensions in mm

Specialty Connector Innovations

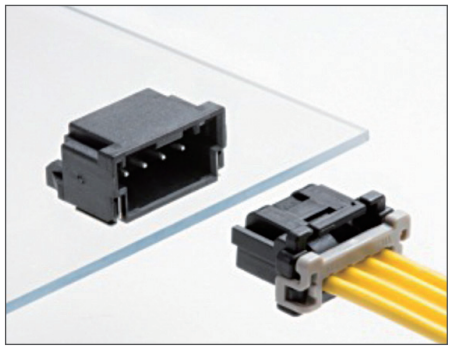
DuraClik™ 2.00mm Pitch Series for High-Vibration Applications



• Exceeds SAE Automotive Vibration test



DuraClik™ ISL with retainer

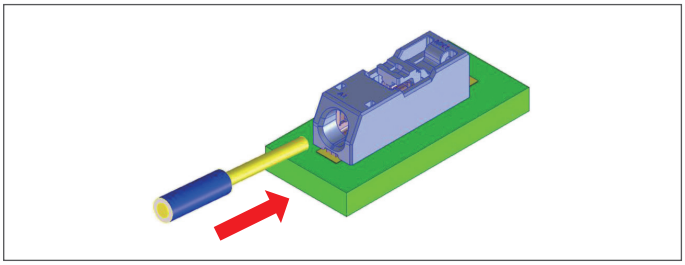


DuraClik™ TPA with retainer

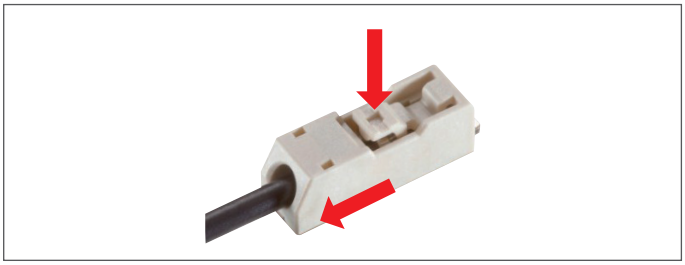
System Comparison

Feature	DuraClik™	DuraClik™ ISL	DuraClik™ TPA
Small Size	✓		
Audible Click	✓	✓	✓
High temperature	105°C	125°C	125°C
Rentention Force	9.8N	50N	20N
Has a retainer		✓	✓
Box-shaped terminal	✓	✓	✓
Lance design	Terminal lance	Terminal lance	Housing lance
Circuit sizes	2-15	2-8	2-15
Plating	Tin/Gold	Tin/Gold	Tin/Gold
Colors	Natural/Black	Natural	Black

Lite-Trap™ Push-Button Connectors

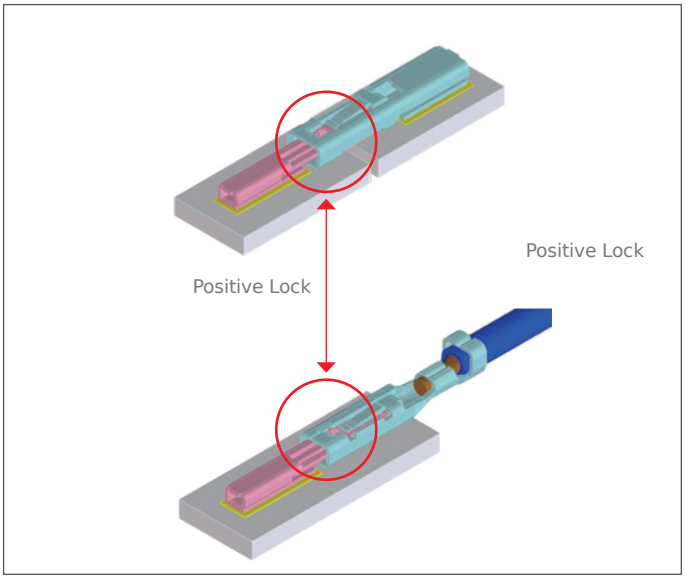


• Easy wire insertion and secure wire retention



• Push-button release enables easy wire removal

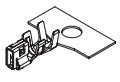
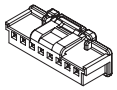
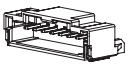
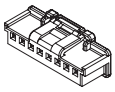
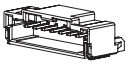
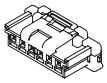
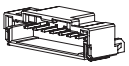
TermiMate™ One-Piece WTB and BTB Connector System



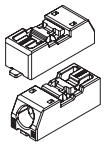
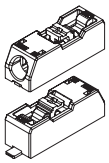
• Space-saving, cost effective and flexible one-piece WTB and BTB design

Micro Wire-to-Board Connectors

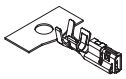
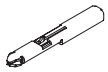
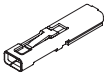
Specialty Connector Innovations

Pitch (mm)	Family Name	Terminal	Housing	Vertical PCB Header	Right Angle PCB Header	Plating	Lock Type	Circuit Sizes	Wire Gauge	Current (max.)	Voltage (max.)	Key Features
2.00	DuraClik™	 560085/ 50212/56161	 502351	 H=9.30, W=9.15 560020	 H=6.40, W=10.70 502352	560085/ 50212 (Tin) 56161 (Gold)	Inner Posi-tive	2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	22-30 (AWG)	3.0A	125V	9.8N Terminal Retention Force -40 to +105°C Operating Temperature
	DuraClik™ ISL	 560124	 560123 (Housing)  560125 (Retainer)	 H=11.10, W=9.15 560020	 H=6.40, W=12.70 502352	Tin/Gold		2, 3, 5, 6, 7, 8, 10	22 (AWG)			50N Terminal Retention Force -40 to +125°C Operating Temperature
	DuraClik™ TPA	 505153	 505151 (Housing)  505152 (Retainer)	 H=11.10, W=9.15 560020	 H=6.40, W=12.50 502352			2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	22-24 (AWG)			20N Terminal Retention Force -40 to +125°C Operating Temperature

Wire Trap-Style Solid/Stranded Wire System (For LED Lighting and Other Applications)

Pitch (mm)	Family Name	Right Angle Connector	Plating	Lock Type	Circuit Sizes	Wire Gauge	Current (max.)	Voltage (max.)	Key Features
3.00	Mini Lite-Trap™	 H=2.65, W=7.90 104238	Tin	Wire-Trap	1, 2	22-26 (AWG)	3.0A	160V	High wire retention force with push-button release
4.00	Lite-Trap™	 H=4.20, W=13.00 104188	Tin	Wire-Trap	1, 2	18-24 (AWG)	9.0A	300V	

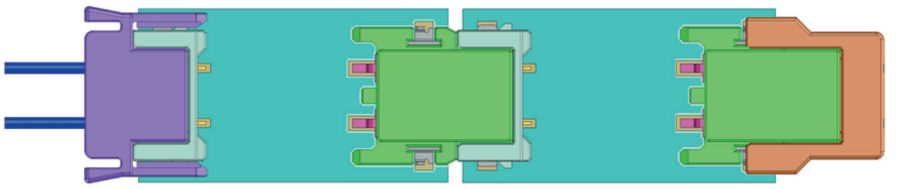
Terminal Type Wire-to-Board and Board-to-Board System (For LED Lighting and Other Applications)

Pitch (mm)	Family Name	Terminal (Receptacle)	PCB Plug	PCB Receptacle	Plating	Lock Type	Circuit Sizes	Wire Gauge	Current (max.)	Voltage (max.)	Key Features
N/A	TermiMate™	 505073	 H=1.20, W=2.00 505071	 H=1.20, W=2.00 505072	Tin	Positive	1	22-26 (AWG)	3.0A	125V	WTB and BTB options; space savings

*Note: Height and width equals mated dimensions in mm

Specialty Connector Innovations

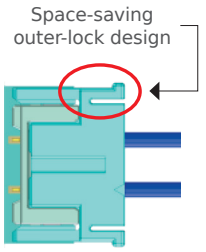
Flexi-Mate™ Low-Profile WTB and BTB System



503473-0200 / 503471-0200 — WTB

503469-0200 / 503471-0200 — BTB

503469-0200 / 503474-0200 — Terminator

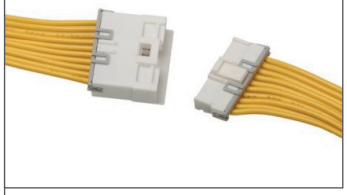


WTB

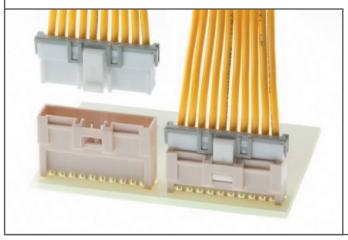
24 AWG Cable Assemblies

- Flexi-Mate standard cable lengths (46 to 600mm) for board-to-board, driver-to-board and wire loop

W-to-B/W-to-W Capabilities



Wire-to-Wire Application

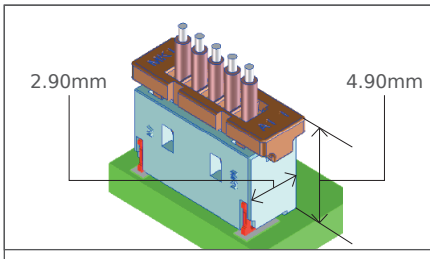


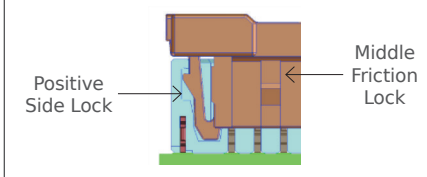
Wire-to-Board application
with standard (right)
and high-wall header (left) option

- Molex's MicroTPA™ system offers wire-to-wire and wire-to-board intermateability

IllumiMate™ Narrow-Width W-to-B System

Specification	IllumiMate 1.00	IllumiMate 1.25
Sub-families	3	5
Circuit sizes (Vertical)	4, 5, 10	3, 5, 6, 10
Circuit sizes (Right Angle)	6, 14	4, 5, 6, 10, 15, 20, 25
Current options	1.0A, 1.5A	1.0A, 1.5A
Voltage options	50V, 60V, 100V,150V	130V, 200V, 300V
Wire Gauge (AWG)	30, 32	26-32

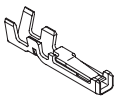
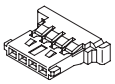
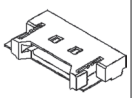
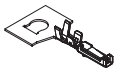
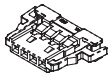
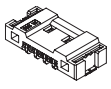




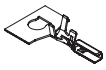
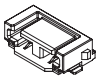
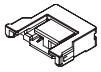
- Wide range of pitch sizes, mating configurations, wire gauge, current and voltage options

Micro Wire-to-Board Connectors

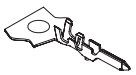
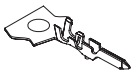
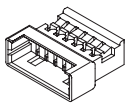
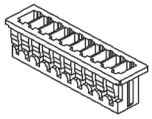
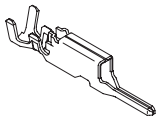
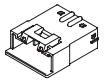
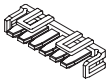
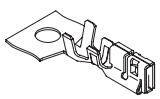
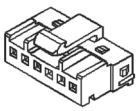
Specialty Connector Innovations

Pitch (mm)	Family Name	Terminal	Housing	Vertical PCB Header	Right Angle PCB Header	Plating	Lock Type	Circuit Sizes	Wire Gauge	Current (max.)	Voltage (max.)	Key Features
1.00	IllumiMate™	 104539	 104128	 H=2.45, W=7.30 104127	N/A	Tin	Inner Positive	4, 15, 10, 14	30-32 (AWG)	1.0, 1.5A	50, 60, 150V	High temperature material and wide variety of low-power voltage options
1.25	PanelMate™	 50753/50641	 51146	N/A	 H=1.90, W=7.30 53780	Gold	Friction	2-20 4	28-32 (AWG)	1.0A	125V	Ultra-low profile
1.25	IllumiMate™	 104505	 104085	N/A	 H=4.90, W=2.90 104086	Tin	Inner Positive	3, 4, 5, 6, 10, 15, 20, 25	26-32 (AWG)	1.0, 1.5A	125, 300V	High temperature material and wide variety of low-power voltage options

Right Angle Wire-to-Board and Board-to-Board Connectors

Pitch (mm)	Family Name	Terminal	Housing	PCB Receptacle	PCB Plug	Terminator Receptacle	Plat-ing	Lock Type	Circuit Sizes	Wire Gauge	Current (max.)	Voltage (max.)	Key Features
3.70	Flexi-Mate™	 503485	 503473	 H=3.00, W=8.40 503471	 H=3.00, W=12.00 503469	 H=3.00, W=13.70 503474	Tin	Friction (BTB); Positive (WTB)	2	26-28 (AWG)	2.0A	500V	WTB and BTB options in a low-profile design

Wire-to-Wire Connectors

Pitch (mm)	Family Name	Plug Terminal	Plug Housing	Receptacle Terminal	Receptacle Housing	Circuit Sizes	Wire Gauge	Current (max.)	Voltage (max.)	Key Features
1.25	PicoBlade™	 50125  50133	 51047	 50079 (AWG 26-28)  50058 (AWG 28-32)	 51021	2 to 10	26-28 (AWG) 28-32 (AWG)	1.0A	125V	Thin design with friction lock
2.00	MicroTPA™	 56086	 51227  51217 (Retainer)	 59370	 51216	2 to 15	22-28 (AWG)	3.0A	250V	WTB and WTW options; terminal retainer and high-wall header for "potting"

*Note: Height and width equals mated dimensions in mm

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