

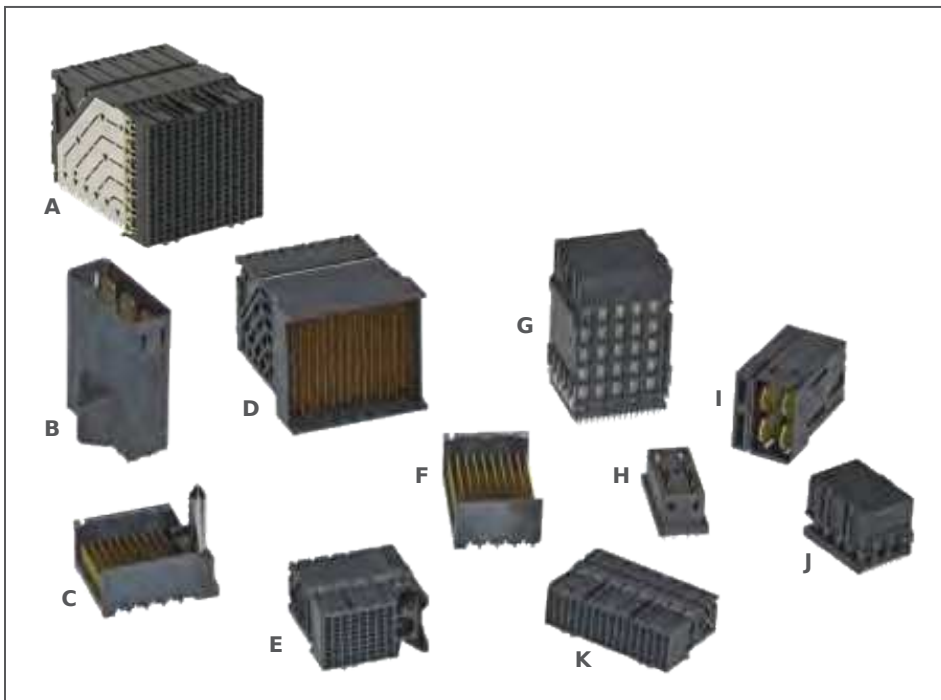


Pushing the density envelope to meet next-generation high-speed application demands, the Impact™ 100 Ohm Backplane Connector System features data rates up to and beyond 25 Gbps, superior signal integrity, electrical performance and modular design

The Impact™ 100 Ohm Backplane Connector System provides data rates up to and beyond 25 Gbps and superior signal density up to 30 pairs per cm (80 differential pairs per inch) when using a 6-pair system. The broad-edge-coupled transmission technology enables low cross-talk noise and high signal bandwidth while minimizing channel-performance variation across every differential pair within the system.

Impact XTR connectors provide OEM's a scalable solution, (managing speed, density and cost; pay-for-performance model), without requiring any footprint or mating backplane connector changes from legacy Impact connectors. Impact power modules are offered in three through six pair sizes in conventional, coplanar and mezzanine configurations with current ratings from 60.0 to 120.0A per module.

Designed for traditional backplane and/or midplane architectures, the Impact 100 Ohm Backplane Connector System meets the growing demand for next generation high-speed applications.



Impact™ 100 Ohm Backplane Connector System (Standard and XTR versions)

- A. 6-Pair Right-Angle XTR Daughtercard Receptacle (Series 171030)
- B. 6-Pair Vertical Power Plug (Series 78442)
- C. 3-Pair Backplane Header (Series 76165)
- D. 6-Pair Right-Angle Male Header (Series 76560)
- E. 3-Pair Daughtercard Receptacle (Series 76410)
- F. 5-Pair Backplane Header (Series 76055)
- G. 5-Pair Mezzanine (Series 76530)
- H. 4-Pair Vertical Power Receptacle (Series 78214)
- I. 4-Pair Power Right-Angle Header (Series 78349)
- J. 3-Pair Vertical Mezzanine (Series 170415)
- K. 2-Pair Right-Angle Daughtercard Receptacle (Series 76460)

Impact™ 100 Ohm Backplane Connector System

XTR Daughtercard

Receptacles

(Right Angle)

171180 3 Pair

171020 4 Pair

171030 6 Pair

Backplane Headers

(Vertical)

76455 2 Pair

76165 3 Pair

76155 4 Pair

76055 5 Pair

76145 6 Pair

Daughtercard Receptacles

(Right-Angle)

76460 2 Pair

76170 3 Pair

76160 4 Pair

76060 5 Pair

76150 6 Pair

Power Headers

78347 3 Pair Right Angle

78399 3 Pair Vertical

78349 4 Pair Right Angle

78351 5 Pair Right Angle

78446 5 Pair Vertical

78353 6 Pair Right Angle

78442 6 Pair Vertical

Coplanar Headers

(Right-Angle Male)

76450 2 Pair

76410 3 Pair

76500 4 Pair

76560 6 Pair

Mezzanine Receptacles

(Vertical)

76530 5 Pair

170415 3 Pair

Power Receptacles

78348 3 Pair Right Angle

78212 3 Pair Vertical

78214 4 Pair Vertical

78350 4 Pair Right Angle

78216 5 Pair Vertical

78352 5 Pair Right Angle

78218 6 Pair Vertical



Features and Benefits

Impact™ 100 Ohm Backplane Connector System

Data rates scalable up to and beyond 25 Gbps

Support future system performance upgrades (standard Impact 100 Ohm connectors achieve up to 25 Gbps; XTR Impact 100 Ohm connectors achieve beyond 25 Gbps)

Broad-edge-coupled, differential-pair system on standard connectors

Superior density, low cross-talk noise, low insertion loss and minimal performance variation across all high-speed channels

Broad-edge-coupled, shield-to-wafer construction on XTR daughtercards

Improves signal integrity (SI) without sacrificing industry-leading density. Lowers cross-talk noise and minimizes performance variation compared to legacy Impact connectors. Supports quad routing for a reduced PCB layer count. Footprint and mate compatible with existing Impact 100 Ohm backplane products. Provides option to upgrade electrical performance when required

Differential-pair density up to 30 pairs per cm (80 pairs per linear inch) when using 6-pair configurations)

High differential pair density supports high bandwidth needs while minimizing board and system real-estate usage

Inline staggered interface

Reduced mating force by 50% over competing products in the market

Bifurcated contact beams on the daughtercard connector

Two points of contact for long-term reliability and built-in ground-signal sequencing

Easy-to-manage 1.90 by 1.35mm grid

Provides PCB routing flexibility and reduces cost

Two compliant-pin attach options (0.39 and 0.46mm)

Provides customers ultimate flexibility to optimize designs for superior mechanical and electrical performance

IEEE 10GBASE-KR and Optical Internetworking Forum (OIF) Stat Eye Compliant channel performance

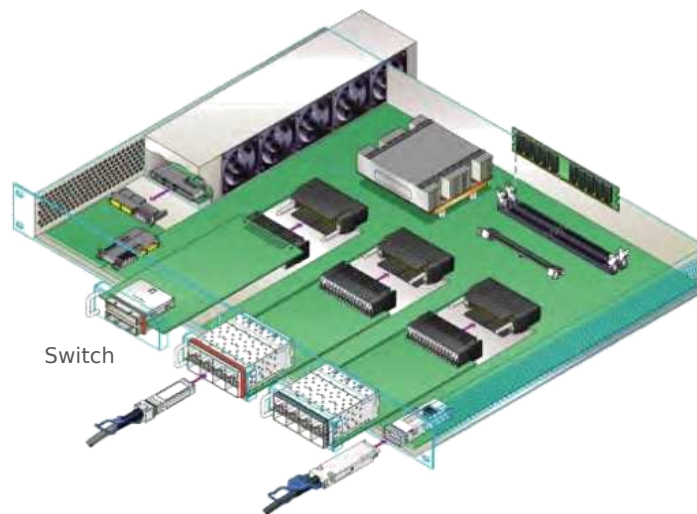
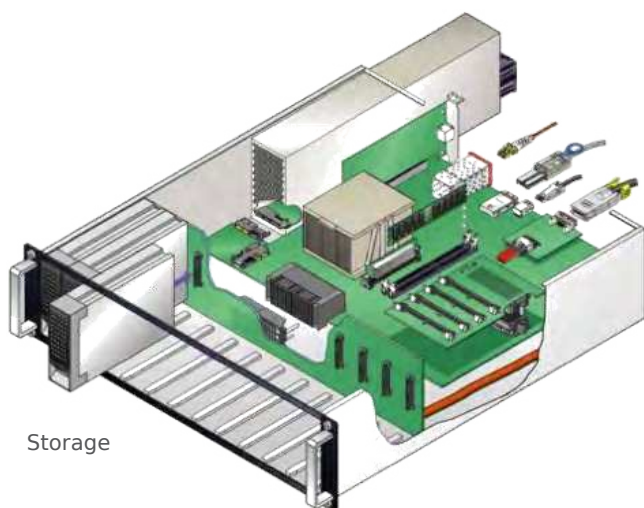
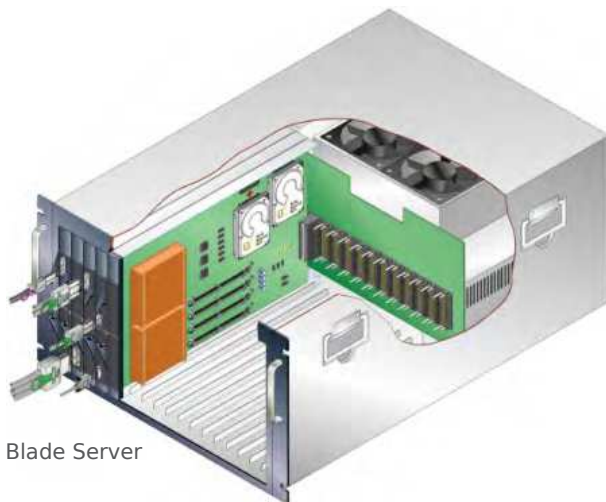
Demonstrates end-to-end channel performance compliance



Applications

Telecommunication
Networking
(hubs, switches, routers)
Data Center Equipment
Storage
Servers
Medical Equipment

Impact™ 100 Ohm Backplane Connector System





Specifications

Reference Information

Packaging: Trays
UL File No.: E28179
Mates with: Numerous options,
reference Ordering Information
Charts
on pages 10 to 13
Designed In: Millimeters
RoHS: Yes
Halogen Free: Yes

Signal

Electrical

Voltage (max.): 30V AC (RMS)/DC
Current (max.): 0.75A
Contact Resistance (max.): mated,
100mA, 20mV
Dielectric Withstanding Voltage:
unmated, 500V AC
Insulation Resistance: 1000 Megohms

Mechanical

Contact Retention to PCB: 3.56N
Insertion Force to PCB:
Backplane: 26.70N
Daughtercard: 17.80N
Mating Force: 35g max.
Unmating Force: 15g min.
Durability: 200 (mating cycles max.)

Physical

Housing: Liquid Crystal Polymer,
UL 94V-0
Contact: High-Performance
Copper (Cu) Alloy
Plating:
Contact Area — 0.76 μ m (30 μ "")
Gold (Au) min.
Solder Tail Area — Tin (Sn)
Underplating — Nickel (Ni)
Operating Temperature: -55 to +85°C

Power

Electrical

Voltage (max.): 250V DC
Current (max.):
3 Pair — 15.0A per blade,
60.0A per module
4 Pair — 20.0A per blade,
80.0A per module
5 Pair — 25.0A per blade,
100.0A per module
6 Pair — 20.0A per blade,
120.0A per module
Contact Resistance:
1.0 milliohms max. per circuit
Dielectric Withstanding Voltage:
Tested to EIA-364-20
Insulation Resistance:
20,000 Megohms min.

Impact™ 100 Ohm Backplane Connector System

Mechanical

Contact Retention to PCB: 3.56N
Insertion Force to PCB:
3 Pair — 1.5 kgf per module
4 Pair — 2.0 kgf per module
5 Pair — 2.5 kgf per module
6 Pair — 3.0 kgf per module
Mating Force: 6.0 kgf max. per pin
Unmating Force:
3 to 5 Pair — 0.20 kgf per module
6 Pair — 0.30 kgf per module
Durability: 200 (mating cycles)

Physical

Housing: Liquid Crystal Polymer,
UL 94V-0
Contact: Copper (Cu) Alloy
Plating:
Contact Area — 0.76 μ m (30 μ "")
Gold (Au) min.
Solder Tail Area — Tin (Sn)
Underplating — Nickel (Ni)
Operating Temperature: -55 to +85°C

Additional Information

Daughtercard Receptacle Signal Modules



Left Guide



Right Guide



Open

Backplane Header Signal Modules



Open



Left Endwall, Right Open



Right Endwall, Left Open



Dual Endwall



Left Guide, Right Open



Left Open, Right Guide



Left Endwall, Right Guide



Left Guide, Right Endwall



Ordering Information

Impact™ 100 Ohm Backplane Connector System

XTR Daughtercard Receptacles

Note: Mates with standard Impact 100 Ohm Header Connectors

Number of Pairs	Guide	Application	XTR Daughtercard Component Type	Columns	Series No.	Molex Sales Drawing*
3	Unguided	Signal	Receptacle	14	171180	SD-171180-0001
4	Unguided			10	171020	SD-171020-0001
				16		
				6		
				8		
	Left			10		SD-171020-0300
	16					
	Right			10		SD-76460-0500
	16					
6	Unguided			14	171030	SD-76460-1001

*Search www.molex.com for a sales drawing by typing the SD number in the Keyword Search, for example: SD-76460-001

Conventional (Right-Angle to Vertical) Headers and Receptacles

Note: Mating header and receptacle information is provided in the same row

Number of Pairs	Guide	Application	Backplane Component Type	Series No.	Molex Sales Drawing*	Daughtercard Component Type	Series No.	Molex Sales Drawing*
2	Unguided	Signal	Header	76455	SD-76455-001	Receptacle	76460	SD-76460-001
	Left				SD-76455-002			SD-76460-002
	Right				SD-76455-003			SD-76460-004
3	Open			76165	SD-76165-001		76170	SD-76170-001
	Left				SD-76165-002			SD-76170-002
	Right				SD-76165-003			SD-76160-004
	-	Power	Receptacle	78212	SD-78212-002	Header	78347	SD-78347-001
4	Unguided	Signal	Header	76155	SD-76155-001	Receptacle	76160	SD-76160-001
	Left				SD-76155-002			SD-76160-002
	Right				SD-76155-003			SD-76160-004
	-	Power	Receptacle	78214	SD-78214-003	Header	78349	SD-78349-001
5	Unguided	Signal	Header	76055	SD-76055-001	Receptacle	76060	SD-76060-001
	Left				SD-76055-002			SD-76060-002
	Right				SD-76055-003			SD-76060-004
	-	Power	Receptacle	78216	SD-78216-002	Header	78351	SD-78351-001
6	Unguided	Signal	Header	76145	SD-76145-001	Receptacle	76150	SD-76150-001
	Left				SD-76145-002			SD-76150-002
	Right				SD-76145-003			SD-76150-004
	-	Power	Receptacle	78218	SD-78218-002	Header	78353	SD-78353-001

Coplanar (Right-Angle to Right-Angle) Headers and Receptacles

Note: Mating header and receptacle information is provided in the same row

Right-angle male headers mate to opposite guide right-angle female headers, for example: right-guide receptacle (Series 76450) mates to left-guide receptacle (Series 76460)

Number of Pairs	Guide (Header Receptacle)	Application	Header Series No.	Molex Sales Drawing*	Receptacle Series No.	Molex Sales Drawing*
2	Unguided	Signal	76450	SD-76450-001	76460	SD-76460-001
	Left Right			SD-76450-002		SD-76460-004
	Right Left			SD-76450-004		SD-76460-002
3	Unguided		76410	SD-76410-001	76170	SD-76170-001
	Left Right			SD-76410-002		SD-76170-004
	Right Left			SD-76410-004		SD-76170-002
	-	Power	78347	SD-78347-001	78348	SD-78348-001
4	Unguided	Signal	76500	SD-76500-001	76160	SD-76160-001
	Left Right			SD-76500-002		SD-76160-004
	Right Left			SD-76500-004		SD-76160-002
	-	Power	78349	SD-78349-001	78350	SD-78350-001
5	Unguided		78351	SD-78351-001	78352	SD-78352-001
6	Unguided	Signal	76560	SD-76560-001	76150	SD-76150-001
	Left Right			SD-76560-002		SD-76150-004
	Right Left			SD-76560-004		SD-76150-002

*Search www.molex.com for a sales drawing by typing the SD number in the Keyword Search, for example: SD-76460-001

Mezzanine Receptacles

Note: Mating header and receptacle information is provided in the same row

Number of Pairs	Stack Height (mm)	Guide	Application	Header Series No.	Molex Sales Drawing	Receptacle Series No.	Molex Sales Drawing				
3	18.00	Unguided	Signal	76165	SD-76165-001	170415	SD-170415-001				
	15.00	-	Power	78399	SD-78399-001	78212	SD-78212-002				
	22.00	Unguided	Signal	76165	SD-76165-001	170415	SD-170415-001				
5	38.00	-	Power	78446	SD-78446-003	78216	SD-78216-002				
	40.00				SD-78446-003		SD-78216-002				
	28.00				SD-78446-003		SD-78216-002				
	28.00	Unguided	Signal	76055	SD-76055-001	76530	SD-78216-001				
	38.00	Unguided			SD-76055-001		SD-76530-001				
		Left			SD-76055-002		SD-76530-002				
		Right			SD-76055-003		SD-76530-004				
	40.00	Unguided			SD-76055-001		SD-76530-001				
		Left			SD-76055-002		SD-76530-002				
		Right			SD-76055-003		SD-76530-004				
	6	39.00			-		Power	78442	SD-78442-001	78218	SD-78218-002

*Search www.molex.com for a sales drawing by typing the SD number in the Keyword Search, for example: SD-76460-001

100 Ohm XTR Daughtercard - Right Angle Receptacle

	Part Number and Description	Column Sizes
	171180-ABCD = 3-Pair	10, 16
	171020-ABCD = 4-Pair	6, 8, 10, 16
	171030-ABCD = 6-Pair	10, 14, 16
A = Module Type	B = Guided Key Position	CD = Module Size (PTH)
1 = Unguided (Lead-Free)	0 = No Keying	36 = 6 Column (PTH = 0.39)
3 = Guide Left (Lead-Free)	1 = A	38 = 8 Column (PTH = 0.39)
5 = Guide Right (Lead-Free)	2 = B	20 = 10 Column (PTH = 0.39)
	3 = C	24 = 14 Column (PTH = 0.39)
	4 = D	26 = 16 Column (PTH = 0.39)
	5 = E	
	6 = F	
	7 = G	
	8 = H	

100 Ohm Daughtercard, Right-Angle Receptacle

	Part Number and Description	Column Sizes
	76460-ABCD = 2 pair "No Key Option"	10, 16
	76170-ABCD = 3 pair	6, 8, 10, 16
	76160-ABCD = 4 pair	6, 8, 10, 16
	76060-ABCD = 5 pair	10, 12, 14, 16
	76150-ABCD = 6 pair	10, 14, 16
A = Module Type	B = Guided Key Position	CD = Module Size
1 = Unguided (Lead-Free)	0 = No Keying	06 = 6 Column (PTH = 0.46)
3 = Guide Left (Lead-Free)	1 = A	36 = 6 Column (PTH = 0.39)
5 = Guide Right (Lead-Free)	2 = B	08 = 8 Column (PTH = 0.46)
	3 = C	38 = 8 Column (PTH = 0.39)
	4 = D	10 = 10 Column (PTH = 0.46)
	5 = E	20 = 10 Column (PTH = 0.39)
	6 = F	12 = 12 Column (PTH = 0.46)
	7 = G	22 = 12 Column (PTH = 0.39)
	8 = H	14 = 14 Column (PTH = 0.46)
		24 = 14 Column (PTH = 0.39)
		16 = 16 Column (PTH = 0.46)
		26 = 16 Column (PTH = 0.39)

Note: Custom header pin layouts using standard pin lengths fall under separate series numbers. Contact Molex for details.

100 Ohm Backplane, Vertical Header

	Part Number and Description		Column Sizes
	76455-ABCD = 2 pair "No Key Option"		10, 16
	76165-ABCD = 3 pair		6, 8, 10, 16
	76155-ABCD = 4 pair		6, 8, 10, 16
	76055-ABCD = 5 pair		10, 12, 14, 16
	76145-ABCD = 6 pair		10, 14, 16
A = Module Type	B = Module Size	C = Unguided Wall Options or Guided Key Position	D = Mating Pin Length
1 = Unguided (Lead-Free)	3 = 6 Column	0 = Open ends or no keying	3 = 4.50mm (PTH = 0.46)
3 = Guide Left, Open Right (Lead-Free)	8 = 8 Column	1 = Left end wall or A	4 = 4.90mm (PTH = 0.46)
5 = Guide Right, Open Left (Lead-Free)	1 = 10 Column	2 = Dual end wall or B	5 = 5.50mm (PTH = 0.46)
7 = Guide Left, End Wall Right (Lead-Free)	2 = 12 Column	3 = Right end wall or C	6 = 4.50mm (PTH = 0.39)
9 = Guide Right, End Wall Left (Lead-Free)	7 = 14 Column	4 = D	7 = 4.90mm (PTH = 0.39)
	6 = 16 Column	5 = E	8 = 5.50mm (PTH = 0.39)
		6 = F	
		7 = G	
		8 = H	

100 Ohm Mezzanine Vertical Receptacle - 3 Pair

	Part Number and Description	Column Sizes
	170415-ABCD	6, 8, 10, 16
A = Module Type	B = Column / PTH	CD = Stack Height
1 = Unguided (Lead-Free)	6 - 6 Column / .39 PTH	18.00 to 18.00mm
	8 - 8 Column / .39 PTH	22.00 to 22.00mm
	1 - 10 Column / .39 PTH	
	9 - 16 Column / .39 PTH	

100 Ohm Mezzanine Vertical Receptacle - 5 Pair

	Part Number and Description		Column Sizes
	76530-ABCD		10, 12, 14, 16
A = Module Type	B = Guided Key Position	C = Stack Height	D = Module Size
1 = Unguided (Lead-Free)	0 = No Keying	2 = 28.00mm	0 = 10 Column .39 PTH
3 = Guide Left (Lead-Free)	1 = A	3 = 38.00mm	2 = 12 Column .39 PTH
5 = Guide Right (Lead-Free)	2 = B	4 = 40.00mm	7 = 14 Column .39 PTH
	3 = C		6 = 16 Column .39 PTH
	4 = D		
	5 = E		
	6 = F		
	7 = G		
	8 = H		

Vertical Power Receptacle

	Part Number and Description	
	78212-A001 = 3-Pair	
	78214-A001 = 4-Pair	
	78216-A001 = 5-Pair	
	78218-A001 = 6-Pair	
A		
1 = Lead-Free		

Right-Angle Power Receptacle with Hold-Down

	Part Number and Description		
	78348-A0CD = 3-Pair		
	78350-A0CD = 4-Pair		
	78352-A0CD = 5-Pair		
	6-Pair Not Toolled		
A = Module Type	C = Power Module 2	D = Power Module 1	
1 = Left Module Location (Lead-Free)	0 = Module not Present	1 = P1 - 6.90mm / P2 - 6.90mm	
2 = Right Module Location (Lead-Free)	1 = P1 - 6.90mm / P2 - 6.90mm	2 = P1 - 5.70mm / P2 - 5.70mm	
	2 = P1 - 5.70mm / P2 - 5.70mm	3 = P1 - 6.90mm / P2 - 5.70mm	
	3 = P1 - 6.90mm / P2 - 5.70mm	4 = P1 - 5.70mm / P2 - 6.90mm	
	4 = P1 - 5.70mm / P2 - 6.90mm		

Right-Angle Power Header with Hold-Down

	Part Number and Description		
	78347-A0CD = 3-Pair		
	78349-A0CD = 4-Pair		
	78351-A0CD = 5-Pair		
	78353-A0CD = 6-Pair		
A = Module Type	C = Power Module 2	D = Power Module 1	
1 = Left Module Location (Lead-Free)	0 = Module not Present	1 = P1 - 6.90mm / P2 - 6.90mm	
2 = Right Module Location (Lead-Free)	1 = P1 - 6.90mm / P2 - 6.90mm	2 = P1 - 5.70mm / P2 - 5.70mm	
	2 = P1 - 5.70mm / P2 - 5.70mm	3 = P1 - 6.90mm / P2 - 5.70mm	
	3 = P1 - 6.90mm / P2 - 5.70mm	4 = P1 - 5.70mm / P2 - 6.90mm	
	4 = P1 - 5.70mm / P2 - 6.90mm		

Vertical Power Plugs

	Part Number and Description		Stack Height
	78399-10CD = 3-Pair		15.00mm
	78446-AB22 = 5-Pair		38.00, 40.00mm
	78692-2222 = 5-Pair		22.00mm
	78442-1022 = 6-Pair		39.00mm
AB		CD	
10 = 40.00mm (Lead-Free)		11 = P 5.70mm	
38 = 38.00mm (Lead-Free)		22 = P 4.00mm	