THE DATASHEET OF

0764605026

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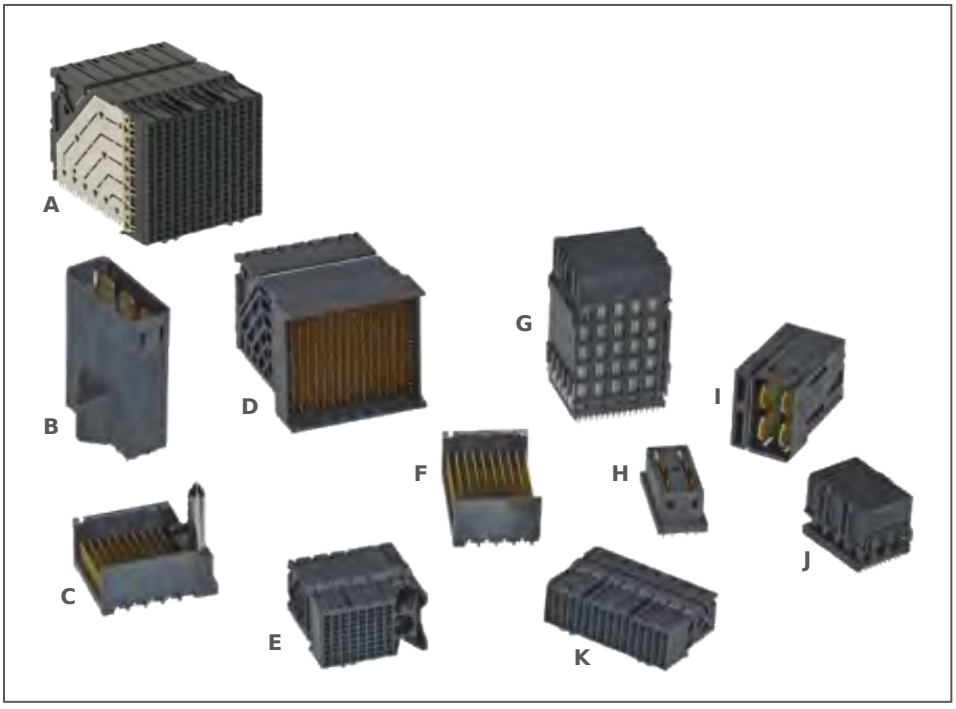
Pushing the density envelope to meet next-generation high-speed application demands, the Impact™ 100 Ohm Backplane Connector System features data rates up to and beyond 25 Gbps, superior signal integrity, electrical performance and modular design

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

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Impact™ 100 Ohm Backplane Connector System

Features and Benefits

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

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Impact™ 100 Ohm Backplane Connector System

Applications

Telecommunication

Networking
(hubs, switches, routers)

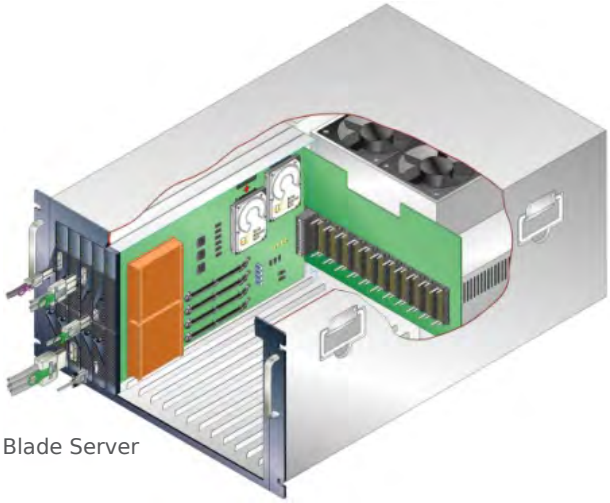
Data Center Equipment

Storage

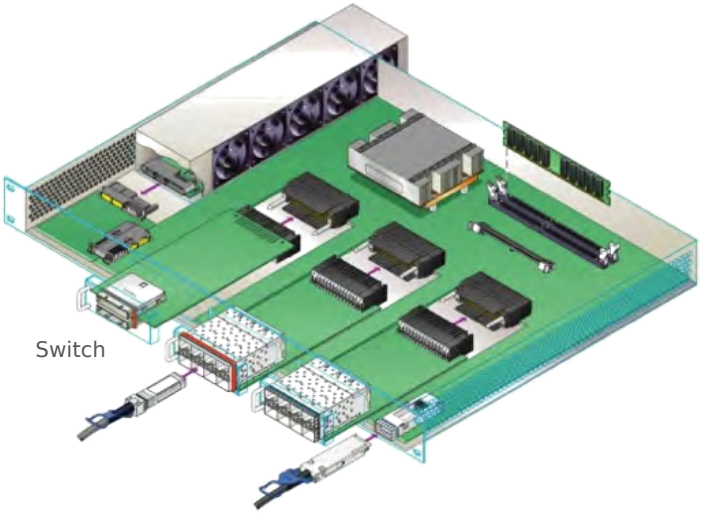
Servers

Medical Equipment

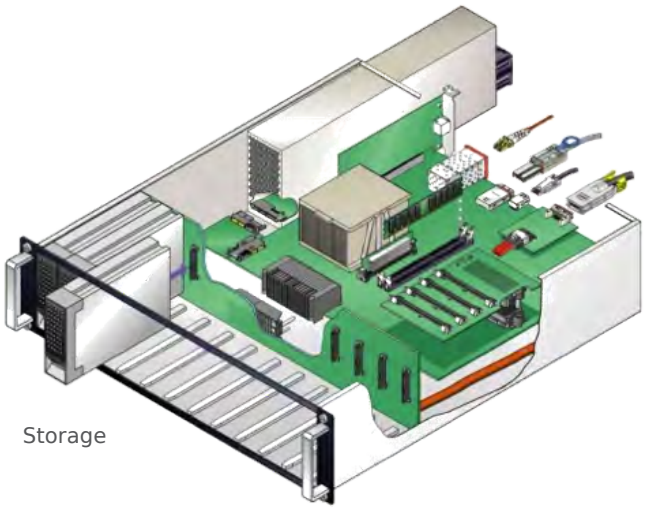
Data Center



Blade Server



Switch



Storage

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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 — 0.76µm (30µ") 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.

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 — 0.76µm (30µ") 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

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Impact™ 100 Ohm Backplane Connector System

Ordering Information

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

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Impact™ 100 Ohm Backplane Connector System

Ordering Information

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		-	Power	78446	SD-78446-003	78216	SD-78216-002
	38.00				SD-78446-003		SD-78216-002
	40.00				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

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Part Number Logic Guide

Impact™ 100 Ohm Backplane Connector System

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.

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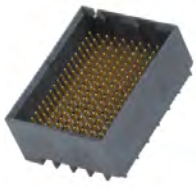
Part Number Logic Guide

Impact™ 100 Ohm Backplane Connector System

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		

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Impact™ 100 Ohm Backplane Connector System

Part Number Logic Guide

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 Tooled		
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

www.molex.com/link/impact.html

Order No. 987650-1651 Rev. 4

Printed in USA/KC/2013.01

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