

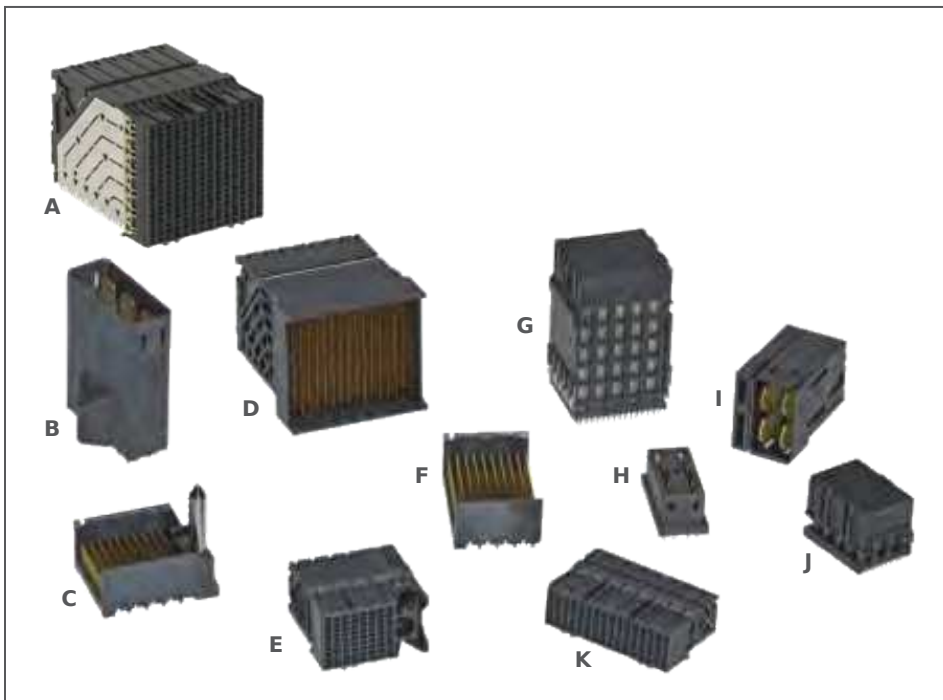


Pushing the density envelope to meet next-generation high-speed application demands, the Impact™ 100 Ohm Backplane Connector System features data rates up to and beyond 25 Gbps, superior signal integrity, electrical performance and modular design

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)

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

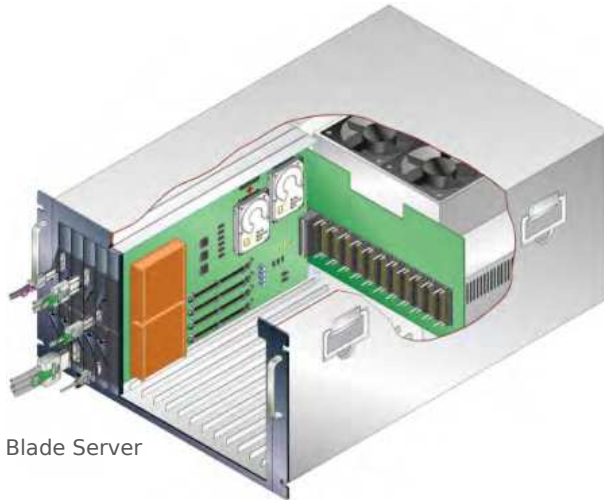
Demonstrates end-to-end channel performance compliance



Applications

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

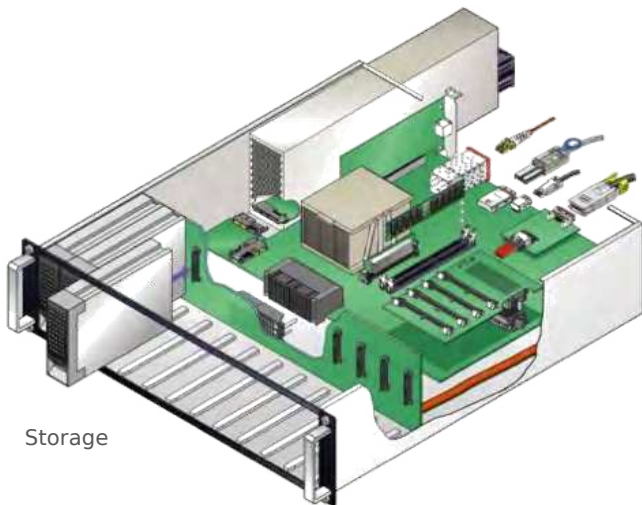
Impact™ 100 Ohm Backplane Connector System



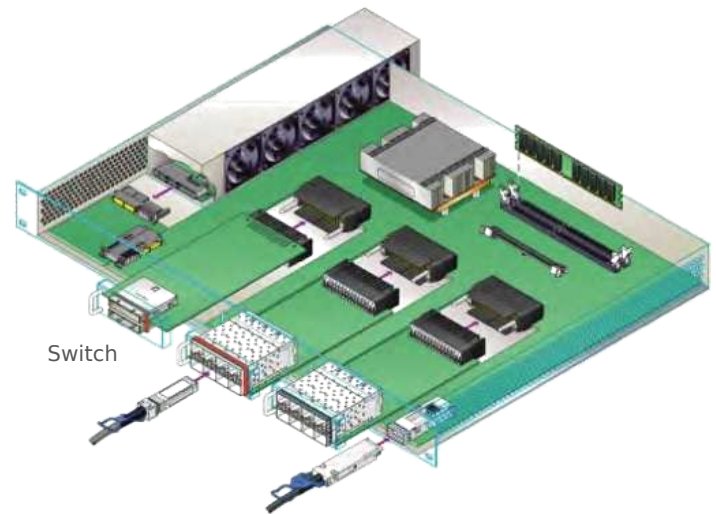
Blade Server



Data Center



Storage



Switch

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.

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 — 0.76µm (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



**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 | | |
| | 10 | | | SD-171020-0300 | | |
| | 16 | | | | | |
| Left | 10 | | | SD-76460-0500 | | |
| Right | 16 | | | | | |
| 6 | Unguided | | | | | 14 |

*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 | Header | | 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 |
| | 38.00 | - | Power | 78446 | SD-78446-003 | 78216 | SD-78216-002 |
| | | | | | SD-78446-003 | | SD-78216-002 |
| | | | | | SD-78446-003 | | SD-78216-002 |
| 5 | 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 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 | |