

HYPERQUBE 6.00MM; HIGH-VOLTAGE, HIGH-CURRENT INTERCONNECT SYSTEM

The HyperQube interconnect system is designed to meet the demands of space-constrained applications, while providing unmatched and reliable performance. As manufactures are challenged with increasing efficiency and providing protection against mis-mating, HyperQube connectors streamline and ensure secure installations with enhanced product features. These connectors also address the requirements of design engineers for electrical safety by offering features for touch proof and finger safe results. Designed to meet rigorous industry standards, they provide safe and reliable power transmission even in demanding environments.

NPI INNOVATION

JUNE 2024

creating connections for life

molex



HYPERQUBE 6.00MM HIGH-VOLTAGE, HIGH- CURRENT INTERCONNECT SYSTEM

The HyperQube High-Voltage, High-Current product family is an innovative, high-performance connector system designed with our proven Coeur socket technology. This technology ensures a large conductive surface area to minimize heat generation and deliver high-current-carrying capacity to meet the demands of space-constrained applications. HyperQube Interconnects meet rigorous industry standards and offer enhanced features for overall efficiency. Realize secure connections, simplified installations and optimized performance with high-power HyperQube connectors.

Key Product Information

Category: Power Connectors

Current: 120.0A

Voltage: 1,000V

**Operating
Temperatures:** -40 to +125°C



[Download Datasheet](#)

Series

220717	6.00mm PCB Receptacle Assembly
220718	6.00mm Plug Housing
220219	Crimp Terminal

VITAL PRODUCT INFORMATION



What makes this product different from the competition?

HyperQube 6.00mm board mount receptacles attach to either printed circuit boards or busbars and deliver 120.0A. The board mount receptacles require only 120.0A and require only a 12.30mm by 15.40mm PCB footprint, yielding an industry-leading power density rating of 63.4A per 1cm² of PCB real estate. The HyperQube connector's side-exit design eliminates cable-bend radius issues, making these connectors ideally suited for low-profile applications.

How does this product/solution create value for our customers?

The HyperQube interconnect system includes board mount receptacles and plug housings in various colors. Matching the cable assembly plugs with same-colored board mount receptacles avoids mis-mating of cable assemblies and leads to shorter assembly time and decreased labor. HyperQube connectors save time, reduce errors and enhance overall efficiency.

What is the Molex advantage?

Molex understands the importance of space optimization and secure mating with robust connections in today's complex designs. Our HyperQube 6.00mm High-Voltage and High-Current Connectors meet rigorous industry standards and provide safe, reliable power through an ultra-small PCB footprint.

PRODUCT OVERVIEW

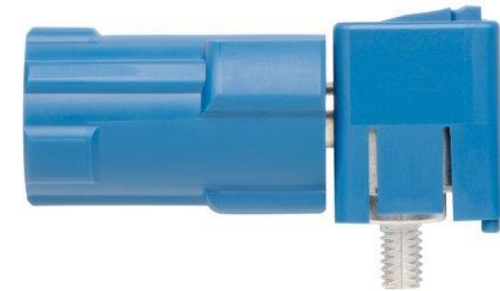
Excellent Space Savings and High Performance

HyperQube PCB receptacles incorporate Molex's COEUR socket that generates minimal heat at the contact interface, allowing for high-current loads. These high-performance connectors also have an ultra-small PCB footprint, making them ideal for space-constrained applications.



Secure and Reliable Connections

The HyperQube interconnect system incorporates a positive-locking mechanism to ensure a secure and robust connection for continuity in critical operations. The mechanically keyed design on the PCB receptacles ensures proper mounting on the PCB, and the distinct color options help prevent mis-mating and simplify identification for streamlined installation during assembly.



Design and Manufacturing Flexibility

The PCB receptacle's external thread design allows quick removal and replacement, if required. When mated, HyperQube connectors are touch proof and finger safe, ensuring the safety of technicians from electrical shock.



MARKETS AND APPLICATIONS



Servers

Data Centers

- Servers
- Switches



Inverters

Energy Storage

- Inverters



Motors

Industrial Automation

- Motors

SOLVING INDUSTRY CHALLENGES

Industry Need	Industry Challenge	Industry Solution	Anticipated Results
Compact design	Design engineers require high-current connectors in small packages to optimize current density. These designers also need low-profile connectors that can be used in small spaces.	The HyperQube PCB receptacles deliver 120.0A while requiring only a 12.30mm by 15.40mm PCB footprint, yielding an industry-leading power density rating of 63.4A per 1cm ² of PCB real estate. The connector's side-exit design eliminates cable-bend radius issues, making these connectors ideally suited for low-profile applications.	Engineers will not have to choose between compactness and performance. HyperQube connectors meet high-current demands in an ultra-small connector package.
Efficiency	Designers want connectors that can be accurately mounted on PCBs or busbars. Also, manufacturing engineers look for connectors that can be easily removed and replaced if damaged so PCBs can be quickly reworked. Cable assemblies that can be easily matched to their appropriate PCB connector to reduce build time are needed as well.	Unique polarizing/locating pegs for each HyperQube PCB receptacle color option ensure they are correctly positioned and properly oriented on the PCB or busbar. Matching the PCB receptacle color with the cable assembly plug color allows operators to mate cable assemblies to their assigned PCB receptacles. The PCB external thread designs allow damaged connectors to be quickly removed and replaced.	Easy mating and unmating will simplify the assembly process, and secure mating assurance will lower the fallout rate. Assembly time and labor will be reduced as well. Overall, manufacturers will reduce waste and improve production efficiency.
Electrical safety	When energized components are exposed, safety is a major concern. Design engineers look for touch-proof/finger-safe connectors to address safety issues.	As a safety feature, the socket, the crimp contact and the cable assembly's stripped wire leads of mated HyperQube connectors are inaccessible, creating a touch-safe condition.	Technicians will be safe from electrical shock when working with these mated connectors.

PRODUCT ADVANTAGES AND FEATURES

Achieves space savings in a compact design

The mated height (19.50mm), mated length (43.70mm) and width (17.70mm) are ideal for space-constrained applications.

Offers time savings with accurate mating

Plug housings and PCB receptacles are available in three colors to guide operators during system integration to ensure proper mating when multiple cable assemblies are used in an application.

Provides high-power density

With a current rating of 120.0A and a PCB footprint of 12.30 by 15.40mm, the HyperQube connector’s power density rating is 63.4A per 1 cm² of PCB real estate.

Delivers robust electrical performance

With Molex Coeur socket technology, there is low contact resistance minimizing heat generation at the contact interface, allowing for high-current loads. The multiple contact beams make it well suited for high-shock and high-vibration applications.

Key Specifications	
Current	120.0A
Voltage	1000V
Industry Standards	UL 94V-0
Operating Temperatures	-40 to +125°C

PRODUCT ADVANTAGES AND FEATURES (CONT'D)

Ensures receptacles are correctly placed and properly oriented on the PCB or busbar, eliminating manufacturing issues

The polarizing pegs' sizes and locations are unique for each PCB receptacle color option. This mechanical-keying scheme ensures PCB receptacles are properly located.

Affords design flexibility

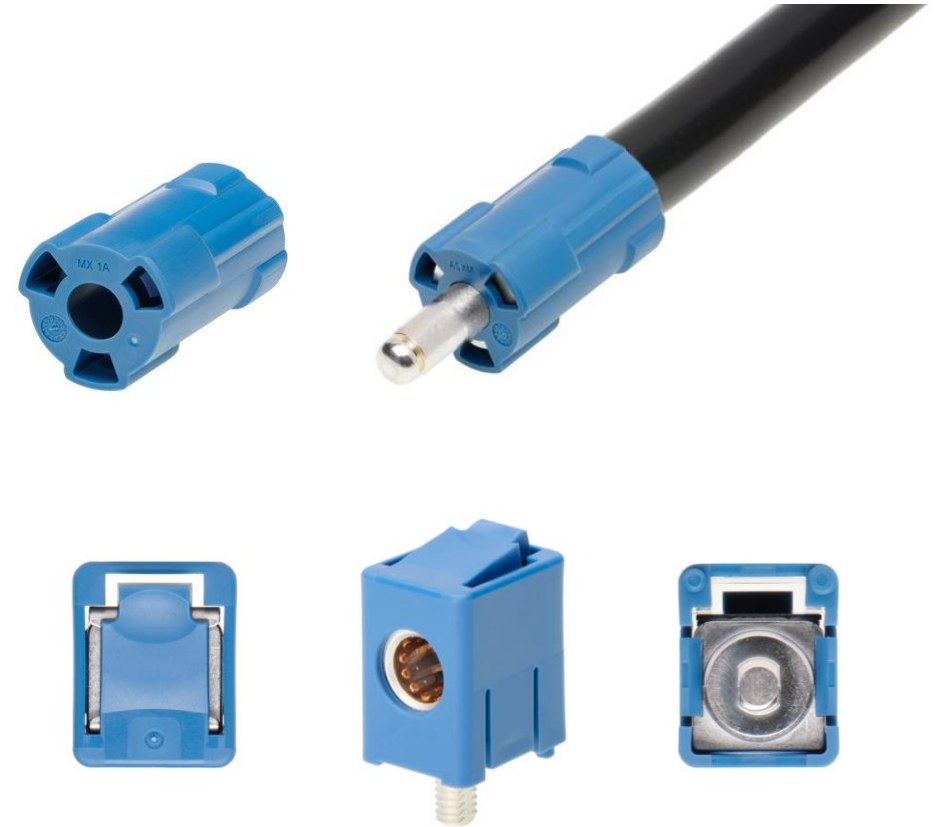
The PCB receptacle's external thread design enables the connectors to be attached to either PCBs or busbars. A wide range of crimp contacts (2, 4 and 6 AWG) are available, meeting current-carrying requirements for applications.

Offers manufacturing flexibility

The PCB receptacle's external thread design enables a PCB or busbar to be easily reworked if the connector is damaged during handling.

Provides safety for workers

As a safety feature, the socket, crimp contact and cable assembly's stripped wire leads of mated HyperQube connectors are covered. The touch-safe mated connectors help technicians avoid electrical shock.



UNIQUE AND USEFUL DIFFERENTIATION VS. SIMILAR MOLEX PRODUCT

	Molex HyperQube Interconnect System		Molex SW1 Connectors	
Series Number	PCB Receptacle	Plug	Pin	Cable Assembly
	220717	220718	218335 and 218371	224355, 224356, 224357, 224411, 224412, 224413, 224414, 224415, 224416
Pitch (mm)	N/A		N/A	
Voltage (V)	1000		1000	
Current (A)	120.0		120.0	
Operating Temperatures	-40 to +125°C		- 40 to +125°C	



SPECIFICATIONS AND SUPPORTING INFORMATION

Reference Information

Packaging:
Male Crimp Pin: Bag
Receptacle Assembly: Trays
Plug Housing: Bag
UL File No.: Pending
CSA File No.: Pending
Use With: PCBs and busbars
Designed In: Millimeters
RoHS: Yes

Electrical

Voltage (max.): 1,000V
Current (max.): 120.0A
Contact Resistance (max.): 0.20 milliohms

Mechanical

Mating Force (max.): 35N
Unmating Force (min.): 4N
Durability: 200 mating cycles

Physical

Plug Housing: PBT, low halogen
Crimp Contact: Copper (Cu) Alloy
Receptacle Housing: PBT, low halogen
Receptacle Components: Aluminum Alloy/Stainless Steel
Plating:
 Socket—Gold (Au)
 Pin—Silver (Ag)
PCB Thickness (max.): 2.00mm
Busbar Thickness (max.): 2.00mm
RoHS Compliant
REACH Compliant
Flammability: UL 94V-0
Operating Temperatures: -40 to +125°C



THANK YOU

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