Overview

Utilizing the efficient high-current design of the PowerBud® contact technology, the MQUAD power connectors carry high power in a small package and features self-aligning contacts enabling blind-mating in hidden engagement applications. Contact terminations can be crimp wire, wired lugs, or bus bar attached.

Key Specifications

- High current capacity - up to 265 A per contact when bus terminated
- Low insertion force
- Low voltage drop
- Low contact resistance
- Low contact wear
- High cycle life
- Available in 2 sizes - 6.4mm & 9.1mm
- Multiple points of contact - low loss
- UL Standard 1977 Compliant
- CSA Standard C22.2 No. 182.3-M1987 Compliant
- RoHS compliant
METHODE POWER SOLUTIONS

MQUAD Power Connector

The PowerBud® Contact System

Methode’s PowerBud® power contacts use an innovative, multiple contact point design that creates lower insertion force, lower temperature rise, lower power loss and higher cycle life than conventional power connectors. This unique design uses two rows of performance-engineered copper-alloy conductors arranged one over the other, which creates highly redundant contact points. This feature lowers both contact resistance and normal contact force. The PowerBud’s insertion force is three to five times lower than equivalently rated electrical connectors. Less metal-on-metal wear during mating and unmating translates to a typical 10,000 cycle life. Additionally, PowerBud’s power connector contact resistance is two to three times lower than equivalently-rated power connectors.

How Does It Work?

The PowerBud uses two rows of conductors arranged one over the other. The material of the beams is a proprietary performance-engineered copper alloy which is substantially better than the more commonly used beryllium copper alloy.

Each copper alloy beam includes a slight indentation in the finger tip to create dual contact points, adding to the massively parallel contact points.

Leading Row Conducting Copper Beams

Second Row Conducting Copper Beams

Mating Pin

Leading Row Conductor

Second Row Conductor

Dual Points of Contact on Each Conductor

Interface Surface
**MQUAD Power Connector**

**Identification:**

<table>
<thead>
<tr>
<th>MQUAD Pin Diameter</th>
<th>Termination Type</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pin Housing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Housing</td>
</tr>
<tr>
<td>6.4 mm</td>
<td>Bus Bar, M5 Thread</td>
<td>6316-06648-01100</td>
</tr>
<tr>
<td></td>
<td>Crimp, 4 AWG</td>
<td>9104-06454-02104</td>
</tr>
<tr>
<td></td>
<td>Crimp, 8 AWG</td>
<td>9104-06454-02104</td>
</tr>
<tr>
<td>9.1 mm</td>
<td>Bus Bar, M6 Thread</td>
<td>6316-07080-01100</td>
</tr>
<tr>
<td></td>
<td>Crimp, 2/0 AWG</td>
<td>9104-06933-02104</td>
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</tbody>
</table>

**Electrical & Mechanical Specifications:**

<table>
<thead>
<tr>
<th>MQUAD Pin Diameter</th>
<th>Termination Type</th>
<th>Operating Current Per Contact @ 30°C T-Rise</th>
<th>Typical Contact Resistance</th>
<th>Voltage Rating</th>
<th>Dielectric Withstand Voltage</th>
<th>Typical Connector Mating Force</th>
<th>Blind Mate Gatherability</th>
<th>Temperature Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4 mm</td>
<td>Bus Bar, M5 Thread</td>
<td>175 A</td>
<td>60 μΩ</td>
<td>600 VAC &amp; 600 VDC</td>
<td>2200 VAC &amp; 2200 VDC</td>
<td>21 N (5 lbs)</td>
<td>2.5 mm</td>
<td>- 40 to 130°C</td>
</tr>
<tr>
<td></td>
<td>Crimp, 4 AWG</td>
<td>100 A</td>
<td>70 μΩ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Crimp, 8 AWG</td>
<td>60 A</td>
<td>70 μΩ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.1 mm</td>
<td>Bus Bar, M6 Thread</td>
<td>265 A</td>
<td>45 μΩ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Crimp, 2/0 AWG</td>
<td>180 A</td>
<td>55 μΩ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Materials & Finishes:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Material</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulators</td>
<td>Polyester (PBT), UL 94 V-0</td>
<td></td>
</tr>
<tr>
<td>Socket Contacts</td>
<td>Copper Alloy and Stainless Steel</td>
<td>Silver over Nickel</td>
</tr>
<tr>
<td>Pin Contacts</td>
<td>Copper Alloy</td>
<td>Silver over Nickel</td>
</tr>
</tbody>
</table>

**Regulatory Specifications:**

SAFETY: UL Standard 1977, CSA Standard C22.2 No. 182.3-M1987
UL file Number E303434
RoHS: IEC Directive 2002/95/EC
### TEST CONDITION:
Normalized graph shows MQuad 6.4mm connector mated pair electrical performance for temperature rise and voltage drop from 50 amps to 300 amps through individual contacts. Current is 175 amps at a temperature rise of 30°C and calculated resistance was 60 μΩ. Contacts have M5 internal threads terminated onto a 25.4mm x 3.2 mm copper bus conductor. Contacts are hooked up in series applying equivalent current through all simultaneously.

### TEST CONDITION:
Normalized graph shows MQuad 6.4mm connector mated pair electrical performance for temperature rise and voltage drop from 50 amps to 160 amps through individual contacts. Current is 100 amps at a temperature rise of 30°C and calculated resistance was 70 μΩ. Contacts have 4 gauge crimp barrels terminated onto PowerFlex 1000, 4 AWG stranded cable. Contacts are hooked up in series applying equivalent current through all simultaneously.

### TEST CONDITION:
Normalized graph shows MQuad 6.4mm connector mated pair electrical performance for temperature rise and voltage drop from 30 amps to 100 amps through individual contacts. Current is 60 amps at a temperature rise of 30°C and calculated resistance was 70 μΩ. Contacts have 8 gauge crimp barrels terminated onto PowerFlex 1000, 8 AWG stranded cable. Contacts are hooked up in series applying equivalent current through all simultaneously.
MQUAD Power Connector

Electrical Performance:

**TEST CONDITION:**
Normalized graph shows MQuad 9.1mm connector mated pair electrical performance for temperature rise and voltage drop from 225 amps to 475 amps through individual contacts. Current is 265 amps at a temperature rise of 30°C and calculated resistance was 45 μΩ. Contacts have M6 internal threads terminated onto a 38.1mm x 4.8 mm copper bus conductor. Contacts are hooked up in series applying equivalent current through all simultaneously.

**TEST CONDITION:**
Normalized graph shows MQuad 9.1mm connector mated pair electrical performance for temperature rise and voltage drop from 100 amps to 300 amps through individual contacts. Current is 180 amps at a temperature rise of 30°C and calculated resistance was 55 μΩ. Contacts have 2/0 gauge crimp barrels terminated onto PowerFlex 1000, 2/0 AWG stranded cable. Contacts are hooked up in series applying equivalent current through all simultaneously.
MQUAD Power Connector

Specifications

6.4 MM

- PIN CONNECTOR -

PN: 6316-06448-01100
SUBASSEMBLY INSULATOR HOUSING INCLUDING RETENTION SPRINGS NO CONTACTS

- PIN CONTACTS -

PN: 9104-06865-02104
6.4 MM PIN DIAMETER M6 THREAD TERMINATION
PN: 9104-06444-02104
6.4 MM PIN DIAMETER 4 AWG CRIMP TERMINATION
PN: 9104-07303-02104
6.4 MM PIN DIAMETER 8 AWG CRIMP TERMINATION

- SOCKET CONNECTOR -

PN: 6315-06448-01100
SUBASSEMBLY INSULATOR HOUSING INCLUDING RETENTION SPRINGS NO CONTACTS

- SOCKET CONTACTS -

PN: 9303-06865-01104
6.4 MM PIN DIAMETER M6 THREAD TERMINATION
PN: 9303-06442-01104
6.4 MM PIN DIAMETER 4 AWG CRIMP TERMINATION
PN: 9303-07304-01104
6.4 MM PIN DIAMETER 8 AWG CRIMP TERMINATION

9.1 MM

- PIN CONNECTOR -

PN: 6316-07068-01100
SUBASSEMBLY INSULATOR HOUSING INCLUDING RETENTION SPRINGS NO CONTACTS

- PIN CONTACTS -

PN: 9104-07215-02104
9.1 MM PIN DIAMETER M6 THREADED TERMINATION
PN: 9104-06933-02104
9.1 MM PIN DIAMETER 2/0 AWG CRIMP TERMINATION

- SOCKET CONNECTOR -

PN: 6315-07068-01100
SUBASSEMBLY INSULATOR HOUSING INCLUDING RETENTION SPRINGS NO CONTACTS

- SOCKET CONTACTS -

PN: 9303-07081-01104
9.1 MM PIN DIAMETER M6 THREADED TERMINATION
PN: 9303-07207-01104
9.1 MM PIN DIAMETER 2/0 AWG CRIMP TERMINATION

Please contact Methode for installation instructions.