MDual Power Connector

Overview

Utilizing the efficient high-current design of the PowerBud® contact technology, the MDual 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 (Pending)
- CSA Standard C22.2 No. 182.3-M1987 Compliant (Pending)
- Halogen Free - RoHS 3 Compliant
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.
MDual Power Connector

6.4 MM
- PIN CONNECTOR -
- PIN CONTACTS -
PN: 8310-07660-01100
SUBASSEMBLY INSULATOR HOUSING
INCLUDING RETENTION SPRINGS
NO CONTACTS
PN: 8104-06655-02104
6.4 MM PIN DIAMETER
M5 THREAD TERMINATION
PN: 8104-06454-02104
6.4 MM PIN DIAMETER
4 AWG CRIMP TERMINATION
PN: 8104-07320-02104
6.4 MM PIN DIAMETER
# AWG CRIMP TERMINATION

- SOCKET CONNECTOR -
- SOCKET CONTACTS -
PN: 8315-07660-01100
SUBASSEMBLY INSULATOR HOUSING
INCLUDING RETENTION SPRINGS
NO CONTACTS
PN: 8033-06656-01104
6.4 MM PIN DIAMETER
M5 THREAD TERMINATION
PN: 8033-06443-01104
6.4 MM PIN DIAMETER
4 AWG CRIMP TERMINATION
PN: 8033-07304-01104
6.4 MM PIN DIAMETER
# AWG CRIMP TERMINATION

9.1 MM
- PIN CONNECTOR -
- PIN CONTACTS -
PN: 8310-07867-01100
SUBASSEMBLY INSULATOR HOUSING
INCLUDING RETENTION SPRINGS
NO CONTACTS
PN: 9104-07215-02104
9.1 MM PIN DIAMETER
M8 THREADED TERMINATION
PN: 9104-06653-02104
9.1 MM PIN DIAMETER
2/0 AWG CRIMP TERMINATION

- SOCKET CONNECTOR -
- SOCKET CONTACTS -
PN: 8315-07864-01100
SUBASSEMBLY INSULATOR HOUSING
INCLUDING RETENTION SPRINGS
NO CONTACTS
PN: 9303-07881-01104
9.1 MM PIN DIAMETER
M6 THREADED TERMINATION
PN: 9303-07207-01104
9.1 MM PIN DIAMETER
2/0 AWG CRIMP TERMINATION
Specifications

Identification

<table>
<thead>
<tr>
<th>MDUAL Pin Diameter</th>
<th>Termination Type</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4 mm</td>
<td>Bus Bar, M5 Thread</td>
<td>6316-07660-01100</td>
</tr>
<tr>
<td></td>
<td>Crimp, 4 AWG</td>
<td>9104-06655-02104</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>6316-07667-01100</td>
</tr>
<tr>
<td></td>
<td>Crimp, 2/0 AWG</td>
<td>9104-07215-02104</td>
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Electrical & Mechanical Specifications

<table>
<thead>
<tr>
<th>MDUAL 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>
</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</td>
<td>2200 VAC</td>
<td>21 N (5 lbs)</td>
<td>2.5 mm</td>
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<tr>
<td></td>
<td>Crimp, 4 AWG</td>
<td>100 A</td>
<td>70 μΩ</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Crimp, 8 AWG</td>
<td>60 A</td>
<td>70 μΩ</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>9.1 mm</td>
<td>Bus Bar, M6 Thread</td>
<td>265 A</td>
<td>45 μΩ</td>
<td>600 VAC &amp; 600 VDC</td>
<td>2200 VAC &amp; 2200 VDC</td>
<td>26 N (6 lbs)</td>
<td>2.5 mm</td>
</tr>
<tr>
<td></td>
<td>Crimp, 2/0 AWG</td>
<td>180 A</td>
<td>55 μΩ</td>
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Materials & Finishes

<table>
<thead>
<tr>
<th>Description</th>
<th>Material</th>
<th>Finish</th>
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</thead>
<tbody>
<tr>
<td>Insulators</td>
<td>Thermoplastic, UL94 V-0</td>
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</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 (Pending)
UL file Number E303434 (Pending)
MDual Power Connector

**TEST CONDITION:**
Normalized graph shows MDual 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 MDual 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 MDual 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.
TEST CONDITION:
Normalized graph shows MDUAL 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 MDUAL 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.