51 Ways Connectors

Micro-D Connector with Removable Crimp Contacts

Rémi ANTOINE
Aerospace Segment Manager
Key Market Focus – Mission Critical Applications

INDUSTRIAL
- LIGHTING
- FACTORY AUTOMATION
- HVAC
- PROCESS AUTOMATION
- SAFETY & SECURITY
- METERING & UTILITY
- ACCESS CONTROL
- INTERIOR DETECTION

AUTOMOTIVE
- BY WIRE FUNCTION
- INTERIOR CONTROLS

MEDICAL
- MINIMALLY INVASIVE SURGERY
- DIABETES CARE
- HEARING AIDS
- DRUG DELIVERY
- MEDICAL MONITORING
- SMART HOME HEALTHCARE

CONSUMER
- WEARABLES
- HEADPHONES
- DRONES
- GAMING
- HIGH END APPLIANCES
- POWER TOOLS

AEROSPACE
- SATELLITE & SPACE CRAFTS
- LAUNCH VEHICLES
- AVIONICS
Market: Satellites, Spacecrafts and Launchers

Products:
D*M
MDM
MTB1
Accessories

Products:
D*MA
MDMA
Contacts
Accessories (Backshells)

Products:
Full range of products
MDMA / MDMB

• Product
  – Micro-D connector with removable crimp contact
  – Replace Micro-D connectors with “Solder Bucket” or “Wire” terminations
  – Designed to accept cables gauges AWG24 to AWG28
  – MDMA → ESA/ESCC certified (Flight Model)
  – MDMB → FR048 specification (Engineering Model)
Where to use MDMA / MDMB connectors?

• Market
  - Space activity for satellites purpose

• Applications
  - Harnesses
Past Supply

- Micro-D Connectors availability

<table>
<thead>
<tr>
<th>Size</th>
<th>MDM</th>
<th>MDMA / MDMB</th>
<th>Contacts Row #</th>
</tr>
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<tbody>
<tr>
<td>9</td>
<td>x</td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>x</td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>21</td>
<td>x</td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>25</td>
<td>x</td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>31</td>
<td>x</td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>37</td>
<td>x</td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>51</td>
<td>x</td>
<td>Not Available</td>
<td>3</td>
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</tbody>
</table>

- MDMA / MDMB Connectors
  - Each contact cavity has retention clip
  - Current retention clip can’t be used with sizes 51. Not compatible with 3 rows design
  - MDMA / MDMB Size 51 was not available
New Proposal

- Dedicated solution has been found to integrate new retention clip within insulator for each cavity and compatible with 3 rows design.
- New Extraction tool to remove contacts.
- MDMA / MDMB Connectors 51 ways compatible with standard Micro-D connectors.
Features

- Connector Dimensions

<table>
<thead>
<tr>
<th>Shell Size</th>
<th>A ±0.25</th>
<th>B ±0.22</th>
<th>C ±0.14</th>
<th>D ±0.15</th>
<th>E ±0.25</th>
<th>F ±0.13</th>
<th>G ±0.13</th>
<th>J ±0.13</th>
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</thead>
<tbody>
<tr>
<td>51P</td>
<td>36.20</td>
<td>8.70</td>
<td>24.83</td>
<td>5.68</td>
<td>26.42</td>
<td>7.65</td>
<td>24.14</td>
<td>30.86</td>
</tr>
<tr>
<td>51S</td>
<td>36.20</td>
<td>8.70</td>
<td>25.15</td>
<td>6.01</td>
<td>26.42</td>
<td>7.65</td>
<td>24.14</td>
<td>30.86</td>
</tr>
</tbody>
</table>
Features

- Attachment Options

Captive Nut (Option E)

Floating Mount (Option Y)

Allowable Float (mm)

<table>
<thead>
<tr>
<th></th>
<th>Lateral</th>
<th>Axial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deployed</td>
<td>0.40</td>
<td>0.40</td>
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</table>
### Electrical and Mechanical Characteristics

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-55 / +125 °C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-65 / +125 °C</td>
</tr>
<tr>
<td>Working Voltage (sea level)</td>
<td>150 Vrms</td>
</tr>
<tr>
<td>Voltage Proof leakage current</td>
<td>600 Vrms / 2mA</td>
</tr>
<tr>
<td>Insulator Resistance</td>
<td>5000 MΩ min.</td>
</tr>
<tr>
<td>Maximum Rated Current AWG24</td>
<td>3.5 A</td>
</tr>
<tr>
<td>Maximum Rated Current AWG25</td>
<td>2.5 A</td>
</tr>
<tr>
<td>Maximum Rated Current AWG26</td>
<td>2.5 A</td>
</tr>
<tr>
<td>Maximum Rated Current AWG28</td>
<td>1.5 A</td>
</tr>
<tr>
<td>Contact Resistance</td>
<td>5 mΩ</td>
</tr>
<tr>
<td>Contact Retention Force</td>
<td>22.25 N max.</td>
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</tbody>
</table>
Benefits

• **Main benefits**
  – Harness length flexibility
  – Not necessary to use shrinkable tube
  – Easy to use
  – **ESA qualified** – Detail Specification 3401/077
  – MIL-83513 compatible
  – Compatible with:
    • 3401/029 MDM Connectors
    • 3401/041 Savers
    • 3401/032 Accessories
    • 3401/087 Backshells
  – Compact format and designed to accept gauges AWG 24 to AWG28
  – **Unique design**
Thank You

• Thanks for your attention
• Thanks ESA/ESTEC and CNES for their support

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