Overview
This Product Specification defines the general use and performance parameters for Amphenol’s MUSBR series of connectors.

Availability: Series A right angle & vertical mount connectors are available now. Mini-B and series Mini-AB with right angle and vertical PCB tails are coming soon. Right angle connectors mounted on a PCB with matching USB, cable headers or terminal blocks are available for all series. Dust covers for enhanced mating area protection are also available.

Usage
These connectors meet Military shock & vibration levels and IP68 per IEC 60529 in mated and unmated conditions. The connector system is designed to provide a standard USB interface for enclosures exposed to harsh environments. Connectors mate with any standard USB 2.0 plug. Achieves data rates up to 480 Mb/s (USB 2.0).

Applications
Intended for use in applications such as:
- Medical equipment
- Microwave transmitters
- GPS, positioning equipment
- Military vehicles, radios, computers
- Test equipment
- Mobile entertainment systems
- Traffic control & monitoring systems
### Connector Electrical Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Series A &amp; B</th>
<th>Series Mini-B &amp; Mini-AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current rating</td>
<td>1.5A per contact</td>
<td>1.0A per contact</td>
</tr>
<tr>
<td>Contact resistance</td>
<td>30 mΩ max</td>
<td>50 mΩ max</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>1000 MΩ min</td>
<td>100 MΩ min</td>
</tr>
<tr>
<td>DWV</td>
<td>500V AC @ sea level</td>
<td>100V AC @ sea level</td>
</tr>
</tbody>
</table>

### Connector Mechanical Characteristics

- **Thermal Shock**: 5 cycles @ -40° to +125° C
- **Physical Shock**: Per EIA364-27 Condition H (11ms 30G)
- **Humidity**: Per EIA364-31 Condition C, method III
- **Vibration**: Per EIA364-28 per Condition V, Letter A
- **Salt spray**: Per EIA364-26, 250 Hrs

### Process Characteristics

- **Recommended soldering process**: Hand or wave soldering peaked at 260°C for 8 seconds max.
- **Recommended Torque for #4-40 or M3 Panel Mount Screws**: 0.45 to 0.65 Nm (4 – 5.75 in-lbs).
- **Recommended Torque for #2-56 or M2.5 Panel Mount Screws**: 0.23 to 0.34 Nm (2 - 3 in-lbs).
- **Solder tails suitable for PCB thickness of 1.52mm (.062”)**
- **Mating Cycles**: 1500 (Series A & B) 5000 (Series Mini-B & Mini-AB)

### Material Requirements

MUSB connector are RoHS compliant.

- Contacts: Phosphor Bronze with 30µ” (0.76µm) min Gold over 50µ” (1.27µm) min Nickel
- Housing: Engineering thermoplastic, UL94V-0 rated, Black. White for series B.
- Shell: Die cast Zinc alloy, Nickel plating

- **Temperature rise**: Meets the requirement of 30° C ΔT
- **Operating temperature**: -40° to +105° C

### Available Documents

- **Drawing Numbers**:
  - P-MUSB-A111-XX  MUSB rugged Series A, Right Angle PCB Tail, Thread, Shell & Dust Cover Options
  - P-MUSB-A511-XX  MUSB rugged Series A, Right Angle, Vertical PCB Mount

Contact factory, authorized Amphenol representative or website [www.amphenolcanada.com](http://www.amphenolcanada.com) for additional configurations

### Quality Test Reports

- QTR9300491  Qualification Test Report
Product Numbering System

**MUSBR**
Rugged USB Receptacle Series, Generation 2

**Receptacle Type Per USN 2.0**
- A – Standard A Series
- B – Mini B Series
- E – Mini AB Series

**Termination Style**
- 1 – Right angle
- 2 – Right angle on PCB with Right Angle Cable Header
- 3 – Right angle on PCB with Right Angle Matching USB Type Connector
- 4 – Right angle on PCB with Terminal Blocks
- 5 – Vertical
- 8 – Right angle on PCB with Vertical Cable Header
- A – Right angle on PCB with Holes for Wiring (Style 3 PCB)
- B – Right Angle on PCB with Vertical Single Row Isolated Header
- E – Right angle on PCB with Vertical Matching USB Type Connector

**Number of Contacts**
- 1 – Standard 4 Contacts per Port for Types A
- 5 – Standard 5 Contacts per Port for Types B & E

**Colour**
- 1 - Black for Types A, B & E

**Shell & Thread Options**
- 3 – Standard Shell, Unified Thread
- 4 – Low Profile Shell for Type A, Unified Thread
- 5 – Rear Flange Shell for Types B & E, Unified Thread
- M – Standard Shell, Metric Thread
- R – Low Profile Shell for Type A, Metric Thread
- T – Rear Flange Shell for Types B & E, Metric Thread

**Dust Cover Options**
- 0 - Standard (no dust cover)
- 1 - With grey color dust cover (supplied bulk packed)
- 5 - With black color dust cover (supplied bulk packed)

**Unique Special Code**
- No Digit – Standard part defined by previous 10 digits
- 1 to 9 - Unique special feature

**Notes**
1) For a Micro AB receptacle with epoxy free design, refer to MUSB series receptacle type K.
2) Termination styles A, B & E are currently available for receptacle type A only.
3) Termination style A uses the PCB from termination style 3.
4) For receptacle type A (Standard A Series), the term standard shell relates to the shell profile. For receptacle types B & E (Mini B & Mini AB), the term standard shell relates to the position of the flange. It is not an indication of connector availability.
5) For receptacle type A (Standard A Series), the unified thread is #4-40UNC and the metric thread is M3x0.5. For receptacle types B & E (Mini B & Mini AB), the unified thread is #2-56UNC and the metric thread is M2.5x0.45.
6) When dust covers are supplied with the connector, they are not installed. They are supplied in bulk inside each package of connectors.
7) Consult with Amphenol for additional termination styles, solder cup contacts, contact tail lengths, mounting styles, non-conductive gaskets or other requirements of interest. See catalogue Accessories page for dust cover option.

Amphenol Canada Corp.
605 Milner Avenue
Toronto, Ontario, Canada, M1B 5X6
+1 416 291 4401
www.amphenolcanada.com

Copyright © Amphenol Corporation 2015 • All rights reserved