Universal Serial Bus (USB) Type-C Connectors and Cable Assemblies

Compact USB Type-C connectors offer significant PCB savings while enabling high-frequency mating in data, consumer and other I/O applications

**Features and Benefits**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support for 5.0A of power in plug and receptacles</td>
<td>Reduces battery-charging time by 64% versus micro-USB 2.0’s current rating of 1.8A</td>
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<tr>
<td>Mid-plate receptacle ‘tongue’ design</td>
<td>Ensures high reliability while preventing damage from connector abuse</td>
</tr>
<tr>
<td>High-temperature Nylon insert-mold receptacle housing</td>
<td>Increases connector strength to reduce potential shorting between mid-plate and terminals</td>
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<tr>
<td>Single-piece metal shell on cable plug</td>
<td>Provides easy identification and differentiation against non Type-C USB cables</td>
</tr>
<tr>
<td>Mylar between plug housing and shell</td>
<td>Prevents potential electrical shorting during mating</td>
</tr>
<tr>
<td>High normal force terminal design on plug</td>
<td>Stabilizes electrical performance while supporting higher current-carrying capacity with reduced temperature-rise</td>
</tr>
<tr>
<td>Availability of cable options meeting USB 2.0 and 3.1 speeds</td>
<td>Suits a variety of users depending on application requirements</td>
</tr>
</tbody>
</table>

**Applications**

- **Data/Computing/Telecommunications/Networking**
  - Data centers
  - Servers and Workstations
  - Personal computers, note and tablet PCs
  - Routers, switches, hubs

- **Consumer**
  - Smartphones
  - Digital cameras and digital video recorders
  - Power banks and mobile chargers
  - Docking stations
  - Adapters and dongles
  - Home entertainment systems
  - Home appliances
  - Gaming devices

- **Automotive**
  - Infotainment systems
  - Cigarette chargers

- **Industrial**
  - Security cameras
  - Drones
  - Office equipment
  - Airplane entertainment systems
  - In-room multi-port electric outlets

**USB Type-C Connectors and Cable Assemblies**

- **Front and rear views of USB Type-C Connector** (Series 105450)
- **Front and rear views of USB Type-C Straddle-mount Cable Plug** (Series 105444)
- **Type C-to-A USB 2.0 Cables (480Mbps)** (68796-0001)
- **Type C-to-C USB 2.0 Cables (480Mbps)** (68796-0002)
- **Type C-to-C USB 3.1 Cables (Gen 1; 5Gbps)** (68796-0003)
- **Type C-to-C USB 3.1 Cables (Gen 2; 10Gbps)** (68796-0004)
- **Type C-to-C USB 2.0 Cables (480Mbps)** (68796-0005)
- **Type C-to-A USB 3.0 Cables (Gen 1; 5Gbps)** (68796-0007)
Universal Serial Bus (USB) Type-C Connectors and Cable Assemblies

Specifications

Connector and Plug

Reference Information

Packaging: Tape and Reel
Mates With: Series 105450 receptacle with
Type-C cables or cable plug
Series 105444 cable plug with
Series 105450 receptacle
Terminal Used: Copper Alloy
Designed In: Millimeters
RoHS: Yes
Halogen Free: Yes
Glow Wire Compliant: No

Electrical
- Voltage (max.): 30V (DC/AC) max.
- Current (max.): 5.0A
- Contact Resistance: 40 (initial) max.; 50 milliohms after test
- Dielectric Withstanding Voltage: 100 VAC
- Insulation Resistance: 100 Megohms min.

Mechanical
- Contact Retention to Housing: Insert-mold
- Matting Force: 5 to 20N
- Unmatting Force: 8 to 20N (1-30 cycles);
  6 to 20N (after 10,000 insertion/extraction cycles)
- Durability (min.): 10,000 cycles

Physical
- Housing: High Temperature Nylon (HTN) (receptacle)
  LCP (plug)
- Contact: Copper Alloy
- Plating:
  - Contact Area — Gold Flash over 0.76µm Palladium/Nickel (Pd/Ni) (receptacle)
  - 0.76µm Gold (plug)
  - Solder Tail Area — 0.05µm Gold (Au) min. (receptacle)
  - 3.05µm Matte Tin (Sn) min. (plug)
- Underplating — 2µm Nickel (Ni) min. overall
- PCB Thickness: 0.60 to 0.70mm (receptacle); 0.80mm (plug)
- Operating Temperature: -30 to +85°C

Cable Assemblies

Reference Information

Packaging: Bag
Mates With: Type-C (series 105450) receptacle or
USB 2.0 Type A receptacle (105057 and 48416)
Designed In: Millimeters
RoHS: Yes
Halogen Free: No
Glow Wire Compliant: No

Electrical
- Voltage (max.): 30 Volts DC max.
- Current (max.): 3.0A
- Contact Resistance (max.): 40 milliohms (initial);
  50 milliohms after test
- Insulation Resistance: 10 Megohms
- Dielectric Withstanding Voltage: 100 VAC

Mechanical
- Matting Force: 5 to 20N
- Unmatting Force: 8 to 20N (1-30 insertion/extraction cycles);
  6 to 20N (after 10,000 insertion/extraction cycles)
- Durability (min.): 10,000 cycles

Physical
- Housing: LCP
- Contact: Copper Alloy
- Plating:
  - Contact Area — 0.76µm Gold min
  - Solder Tail Area — 3.05µm Matte Tin min
- Underplating — 2.03µm Nickel overall
- Operating Temperature: -10 to +50°C

Ordering Information

Connector and Plug

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Component</th>
<th>Circuits</th>
<th>Mounting Style</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>105450-0101</td>
<td>Right Angle Receptacle</td>
<td>24</td>
<td>Top-mount</td>
<td>SMT with 4 Through-hole soldertabs</td>
</tr>
<tr>
<td>105444-0011</td>
<td>Right Angle Cable Plug</td>
<td>22</td>
<td>Straddle-mount</td>
<td>SMT</td>
</tr>
</tbody>
</table>

Cable Assemblies

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Classification</th>
<th>End-to-End Cable Connectors (Cable Length)</th>
<th>Cable Speed</th>
<th>Cable Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>68796-0002</td>
<td>Standard</td>
<td>Type C-to-C USB 2.0 (1.0m)</td>
<td>480 Mbps</td>
<td>Black</td>
</tr>
<tr>
<td>68796-0003</td>
<td>Standard</td>
<td>Type C-to-C USB 3.1 (1.0m)</td>
<td>5 Gbps (Gen 1)</td>
<td>Black</td>
</tr>
<tr>
<td>68798-0004</td>
<td>Legacy</td>
<td>Type C-to-C USB 3.1 (0.8m)</td>
<td>10 Gbps (Gen 2)</td>
<td>Black</td>
</tr>
<tr>
<td>68798-0005</td>
<td>Legacy</td>
<td>Type C-to-A USB 2.0 (1.0m)</td>
<td>480 Mbps</td>
<td>White</td>
</tr>
<tr>
<td>68798-0007</td>
<td>Legacy</td>
<td>Type C-to-A USB 3.0 (1.0m)</td>
<td>5 Gbps (Gen 1)</td>
<td>Black</td>
</tr>
</tbody>
</table>

www.molex.com/link/usbproducts.html