

# USB Type-C Connectors >

The expanded family of compact USB Type-C Connectors supports up to 5.0A current and 40 Gbps speeds, and offers waterproof, robust, reliable connectivity in consumer, industrial, and IoT devices as well as other high-speed I/O applications

## FEATURES AND ADVANTAGES (WATERPROOF USB TYPE-C CONNECTOR)

### Metal shell

Provides strength/robustness to the connector

### LSR (liquid silicon rubber) molded seal ring

- Allows for easy device assembly
- Offers excellent temperature and weather resistance
- keeps sealing banded with the connector

### Supports 5.0A/100W power

Enables fast charging

### Long outer shell

Allows usage in both thin and thick device housings

### IPx8 rating

Provides protection against dust and water ingress

USB 2.0 Type-C Receptacle,  
**16 Circuit** (213083 Series)

USB 3.2 Type-C Receptacle,  
**24 Circuit** (202410 Series)

### One-Row SMT soldering pin design

- Offers compactness
- Enables easy testing with improved yield rate
- Easy supplementary soldering on SMT pins

### IPx5 rating

Provides protection against dust and water ingress

USB Type-C Receptacle,  
**6 Circuit** (217176 Series)

USB Type-C Receptacle,  
**6 Circuit** (217177 Series)

# USB Type-C Connectors >

## FEATURES AND ADVANTAGES (USB4 TYPE-C CONNECTORS)

### Ability to support 5.0A/100W power and up to 40 Gbps data rates

Enables fast charging and high-speed data transfer

### Metal shell with long lead stand-off

Provides robustness with stable PCB connection

### Mid-plate "tongue" design

Helps ensure high reliability while preventing damage from connector mishandling

### Polyester film between plug housing and shell

Protects sufficiently against potential electrical shorting during mating

### Single-piece metal shell on plug

Provides easy identification and differentiation against non-Type-C USB cables

### Short mating length

Provides space savings and design flexibility



USB4 Type-C Receptacle, Top-Mount, **24 Circuit** (105450 Series)

### Vertical, top-mount and mid-mount USB4 type-c receptacles

Offer design flexibility



USB4 Type-C Receptacle, Mid-Mount, **24 Circuit** (105455 Series)

### High-temperature nylon insert-mold receptacle housing

Increases connector strength to reduce potential shorting between mid-plate and terminals

### Flexible height and tooling design

Meets customers' requirements regarding height options with minimized cost and changeover time

### 4-stopper design

Can prevent plug over insertion that may cause separation between shell and/or solder tail

### 4 tabs in the shell and 2 tabs in the middle plate

Deliver robust PCB mount design



USB4 Type-C plug, **24 Circuit** (105444 Series)



USB4 Type-C Receptacle, Vertical, **24 Circuit** (204711 Series)

# USB Type-C Connectors >

## FEATURES AND ADVANTAGES (USB 3.2 TYPE-C CONNECTORS)

**Friction design with spring shell**  
Delivers strong mating force

**Supports 5.0A/100W power and up to 5 Gbps data rates**  
Enables fast charging and high-speed data transfer

**Mid-plate tongue design**  
Helps ensure high reliability while preventing damage from connector mishandling

**Low-profile design**  
Saves space and aligns to PCB center line position

**Metal shell**  
Provides strength/robustness to the connector

**Top-mount and mid-mount USB 3.2 type-c receptacles**  
Offer design flexibility



USB 3.2 Type-C Receptacle, Top-Mount, **24 Circuit** (217183 Series)



USB 3.2 Type-C Receptacle, Mid-Mount, **24 Circuit** (217184 Series)

**Hybrid soldering design**

- Facilitates re-work in case of solder paste fail
- Enables easy testing with improved yield rate
- Eases supplementary soldering on SMT pins

## FEATURES AND ADVANTAGES (USB 2.0 TYPE-C CONNECTORS)

**Supports 5.0A/100W power and up to 480 Mbps data rates**  
Enables fast charging and data transfer

**Friction design with spring shell**  
Delivers strong mating force

**Top-mount, mid-mount and vertical USB 2.0 type-c receptacles in 6, 14 and 16 circuit sizes**  
Offer design flexibility

**Metal shell**  
Provides strength/robustness to the connector



USB 2.0 Type-C Receptacle, Top-Mount, **16 Circuit** (213716 Series)



USB 2.0 Type-C Receptacle, Mid-Mount, **16 Circuit** (216990 Series)



USB 2.0 Type-C Receptacle, Vertical, **16 Circuit** (217182 Series)

**SMT soldering design**

- Offers compactness
- Enables easy testing with improved yield rate
- Eases supplementary soldering on SMT pins

**Compact connector design with 4 tabs**  
Provides space savings and robustness

# USB Type-C Connectors >

## FEATURES AND ADVANTAGES (USB 2.0 TYPE-C CONNECTORS)



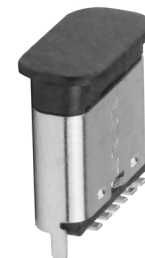
**Compact design**  
Offers space savings

**EMI shield**  
Provides EMC/  
EMI protection



USB Type-C Receptacle,  
Top-Mount, **6 Circuit**  
(217175 Series)

**Long receptacle housing leads**  
Is suitable for different PCB thicknesses  
to provide stable PCB connections



**Low-profile height**  
Offers space savings  
and simple  
solder layout

USB Type-C Receptacle,  
Vertical, **6 Circuit**  
(217178 Series)

### Through-hole soldering design

- Is suitable for both reflow and wave solder processes
- Enables re-work in case of soldering fail
- Enables easy testing with an improved yield rate



USB Type-C Receptacle, Upright,  
**14 Circuit** (216989 Series)

### Low high-center line

Is helpful in aligning  
high-center line  
positions



USB 2.0 Type-C Receptacle, Top-Mount, High-  
Center, **16 Circuit** (217180 Series)

## MARKETS AND APPLICATIONS

### Consumer

Electronic watches  
Smartphones/Wireless chargers  
Power banks  
PCs/Laptops  
Televisions  
Video games  
Graphic cards  
AR/VR devices

### Industrial and Commercial

Identity door-locking systems  
Oscilloscopes  
Projectors  
Point-of-sale registers

### Automotive

Car infotainment  
Navigation equipment

### Aviation

In-flight entertainment systems

### Connected Home

Smart Home Systems

### Medical

Glucometers  
Electronic inhalers



In-Flight Entertainment Systems



Electronic Watches

# USB Type-C Connectors >

## SPECIFICATIONS

### Reference Information

**Packaging:** Tape and reel

**UL File No.:** NA

**CSA File No.:** NA

**Mates With:** 105444

**Terminal Used:** Copper Alloy

**Designed In:** Millimeters

**RoHS:** Yes

**Halogen Free:** Yes

### Mechanical

**Contact Retention to Housing:**

Insert molded type

**Insertion Force to PCB:**

Zero Insertion Force

**Mating Force:** 5 to 20N

**Unmating Force:**

8 to 20N (1 to 30 cycles);

6 to 20N (after 10,000 cycles)

**Durability (min.):** 10,000 cycles

### Electrical

**Voltage (max.):** 30V (DC/AC) max.

**Current (max.):**

3.0A (217175, 217176, 217177, 217178)

5.0A (105450, 105455, 201267, 105444,

204711, 213083, 213716, 216989,

216990, 217179, 217180, 217182,

217183, 217184, ) 6.0A (202410)

**Contact Resistance (max.):**

40 milliohms (initial); 50 milliohms after

test (105450, 105454, 105455, 201267,

105444, 204711, 213083)

40 milliohms (initial); 10 milliohms after

test (202410)

30 milliohms (initial); 10 milliohms

after test (213716)

**Dielectric Withstanding Voltage:**

100V AC (105450, 105454, 105455,

201267, 105444, 20471, 213083,

213716) or 500V AC (202410)

**Insulation Resistance (min.):**

100 Megohms (105450, 105454, 105455,

201267, 105444, 204711, 213083,

213716)

1000 Megohms (initial); 100 Megohms

after environmental test (202410)

### Physical

**Housing:**

**Receptacle:** High-temperature Nylon

(105450, 105455, 201267,

204711, 213083, 213716), PA46

(202410), PA9T (216989, 216990, 217179,

217180, 217183, 217184, 217175,

217178), LCP (217176, 217177, 217182)

**Plug:** LCP

**Contact:** Copper Alloy

**Plating:**

Contact Area —

**Receptacle:** Gold Flash over 0.75micron min.

Palladium/Nickel (Pd/Ni) (105450, 105454,

204711, 105455, 213083, 213716) or

0.75micron min. Gold (Au)

(201267/202410)

**Plug:** 0.76micron min. Gold (Au)

Solder Tail Area —

**Receptacle:** 0.05micron Gold (Au) min.

(105450, 105454, 105455, 201267,

204711, 213083, 213716) or 0.025micron

min. Gold (Au) (202410)

**Plug:** 3.05micron min. Matte Tin (Sn)  
Underplating —

2micron min. Nickel (Ni) overall (105450,

105454, 201267, 202410, 213083,

213716) or 1.5micron min.

Nickel (Ni) overall (105455, 204711)

**PCB Thickness:**

**Receptacle:** 0.60 to 0.80mm (105450,

105454, 105455, 202410, 204711);

0.80 to 1.00mm (213083, 213716);

1.60mm (201267)

**Plug:** 0.80mm

**Operating Temperature:**

-30 to +85°C (105450, 105455, 201267,

105444, 204711, 213716)

-40 to +85°C (202410, 213083, 216989,

216990, 217182, 217179, 217180,

217183, 217184, 217175, 217176,

217177, 217178)

# USB Type-C Connectors >

## ORDERING INFORMATION

Series No.	Product	Design	Product Configuration	USB Standard	Data Rate (bps)	Power	Circuit		
<a href="#">105444</a>	Plug	Standard	Right Angle	USB4	40G	20V/5.0A	24		
<a href="#">105450</a>			Top-mount, SMT	USB4	40G	20V/5.0A	24		
<a href="#">201267</a>			Top-mount, Stand-off 0.35mm	USB4	40G	20V/5.0A	24		
<a href="#">205714</a>			Top-mount, Screw hole	USB4	40G	20V/5.0A	24		
<a href="#">105455</a>			Mid-mount, Single Shell, SMT	USB4	40G	20V/5.0A	24		
<a href="#">204711</a>			Vertical, SMT	USB4	40G	20V/5.0A	24		
<a href="#">217183</a>			Top Mount, Dual Row, Hybrid	USB 3.2 Gen1	5G	20V/5.0A	24		
<a href="#">217184</a>			Mid Mount, SMT	USB 3.2 Gen1	5G	20V/5.0A	24		
<a href="#">213716</a>			Top-mount, Dual Row, DIP	USB 2.0	480M	20V/5.0A	16		
<a href="#">217179</a>			Top Mount, Single Row, SMT	USB 2.0	480M	20V/5.0A	16		
<a href="#">217180</a>			Receptacle	Standard	Top Mount, Single Row, CH=5.9	USB 2.0	480M	20V/5.0A	16
<a href="#">216990</a>					Mid Mount, Single Row	USB 2.0	480M	20V/5.0A	16
<a href="#">217182</a>					Vertical, SMT	USB 2.0	480M	20V/5.0A	16
<a href="#">216989</a>					Upright, Dual Row, DIP	USB 2.0	480M	20V/5.0A	14
<a href="#">217175</a>					Top Mount, SMT	USB Type-C	N/A	20V/3.0A	6
<a href="#">217178</a>					Vertical, SMT	USB Type-C	N/A	20V/3.0A	6
<a href="#">202410</a>					Waterproof	Standard	Mid-mount, SMT, IPx8	USB 3.2 Gen1	5G
<a href="#">213083</a>	Top-mount, Single Row, IPx8	USB 2.0					480M	20V/5.0A	16
<a href="#">217176</a>	Top Mount, SMT, IPx5	USB Type-C					N/A	20V/3.0A	6
<a href="#">217177</a>	Mid Mount, SMT, IPx5	USB Type-C					N/A	20V/3.0A	6

[www.molex.com/link/usbproducts.html](http://www.molex.com/link/usbproducts.html)