

USB Type-C Connectors

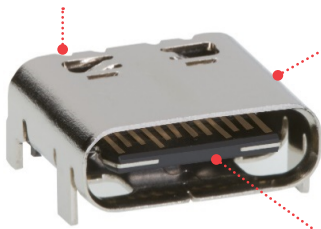


The compact USB Type-C Connectors and Cables expanded family supports USB4 and Thunderbolt 4 up to 40 Gbps speeds and offers robust, reliable connectivity in IoT, wearable devices and other high-speed data I/O applications

Features and Advantages

Supports 5.0A power in plugs and receptacles

Reduces battery-charging time by 64% versus micro-USB 2.0's current rating of 1.8A



USB 4.0 Type-C Receptacle

High-temperature nylon insert-mold receptacle housing

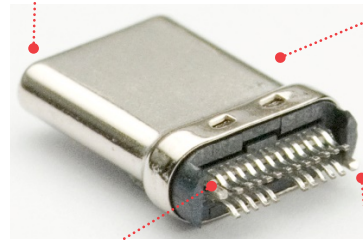
Increases connector strength to reduce potential shorting between mid-plate and terminals

Mid-plate connector "tongue" design in receptacle

Ensures high reliability while preventing damage from connector mishandling

Single-piece metal shell on cable plug

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



USB 4.0 Type-C Plug

High normal force terminal design on plug

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

Short mating length

Provides space-saving and design flexibility

Polyester film between plug housing and shell

Prevents potential electrical shorting during mating

LSR (liquid silicon rubber) molded seal ring

- Easy to assemble to device
- Offers excellent temperature and weather resistance
- Keeps sealing banded with the connector



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

IPx8 rating

Provides protection against dust and water ingress

Long outer shell

Allows usage in both thin and thick device housings



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

Metal shell

Provides strength/robustness to the connector

Friction design with spring shell

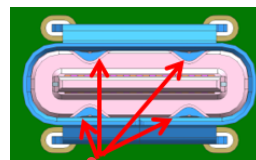
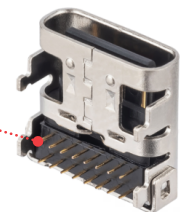
Delivers strong mating force

16 pin design with up to 20V/5.0A power

Enables fast charging and space savings

One-Row SMT soldering pin design

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



4-stopper design

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

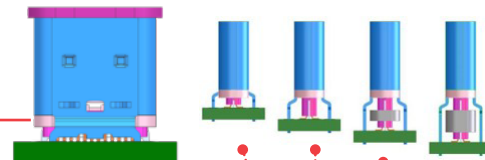
4 tabs in the shell and 2 tabs in the middle plate

Delivers robust PCB mount design

Vertical USB Type-C Receptacle

Flexible height and tooling design

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



USB Type-C Connectors



Applications

Consumer

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

Aviation

In-flight entertainment systems

Medical

Glucometers
Electronic inhalers

Industrial and Commercial

Identity door-locking systems
Oscilloscopes
Air purification systems
Projectors
Point-of-sale registers
ATM

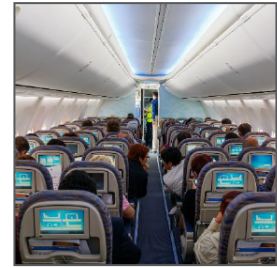
Automotive

Car infotainment
Connected home

Smart Home Systems



Electronic Watches



In-Flight Entertainment Systems

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.):
5.0A (105450, 105454, 105455, 201267,
105444, 204711, 213083, 213716)
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, 105454, 105455, 201267, 204711,
213083, 213716) PA46 (202410)
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, 105454, 105455, 201267,
105444, 204711, 213716)
-40 to 85°C (202410, 213083)

USB Type-C Connectors



Ordering Information

Molex P/N	Product	Design	Product Configuration	Standard	Data Rate (Gbps)	Power	Circuit	Center Height (mm)
1054500101	Receptacle	Standard	SMT, Right Angle, Top Mount	USB4	40	20V/5.0A	24	1.58
2012670005		Standard	SMT, Right Angle, Top Mount	USB4	40	20V/5.0A	24	1.93
2057141001		Standard	SMT, Right Angle, Top Mount	USB4	40	20V/5.0A	24	1.93
2047110001		Standard	SMT, Vertical	USB4	40	20V/5.0A	24	9.05
2137160001		Standard	Top-mount, Dual Row, DIP	USB2	480 Mbps	20V/5.0A	16	3.36
2130830005		Waterproof (IPX8)	Top-mount, Single Row	USB2	480 Mbps	20V/5.0A	16	4.56
1054550101		Standard	SMT, Mid Mount	USB4	40	20V/5.0A	24	0.60
2024100002		Waterproof (IPX8)	SMT, Mid Mount	USB 3.2	5	20V/6.0A	24	0.40

www.molex.com/link/usbproducts.html

Molex is a registered trademark of Molex, LLC in the United States of America and may be registered in other countries; all other trademarks listed herein belong to their respective owners.