



High-Durability Class USB 3.0 connectors and cable assemblies provide robust connectivity to support high-speed computing, consumer and automotive applications

Features and Benefits

Connectors

Meets High-Durability-Class (5000 mating cycles) requirements of USB 3.0 specifications	Sustains robust, reliable connectivity over high frequencies of mating and unmating
Meets all USB 3.0 specifications	Provides data rates up to 10 times faster than USB 2.0 and ensures devices are sufficiently powered when required
High-temperature, halogen-free plastic material used in housing	Withstands IR reflow temperatures of up to 255°C while maintaining solder-mount compatibility in application processes
A variety of PCB-mount designs in upright, vertical and right-angle orientation	Gives greater design flexibility and higher degree of design freedom to customers
Wide range of contact heights (from 0.36 to 6.09mm)	For greater vertical space-savings in low-profile and other applications

Cable Assemblies

Meets High-Durability-Class (5000 mating cycles) requirements of USB 3.0 specifications	Sustains robust, reliable connectivity over high frequencies of mating and unmating
Meets all USB 3.0 specifications	Provides data rates up to 10 times faster than USB 2.0 and ensures devices are sufficiently powered when required
Selection of halogen-free cables	Suit custom needs to meet environmental sustainability requirements



USB 3.0 Connectors and Cable Assemblies

USB 3.0 Connectors and Cable Assemblies

- 48391** Flangeless, Top-Mount (*C/H: 6.09mm)
- 48393** Flangeless, Top-Mount (C/H: 4.00mm)
- 48405** Flange, Top-Mount (C/H: 4.07mm)
- 48406** Flange, Top-Mount Stacked (**H: 15.50mm)
- 48392** Flange, Reverse, Mid-Mount (C/H: 4.06mm)
- 48394** Flangeless, Reverse, Mid-Mount (C/H: 0.36mm)
- 48395** Flangeless, Reverse, Mid-Mount (C/H: 1.00mm)
- 48397** Flangeless, Reverse, Mid-Mount (C/H: 1.75mm)
- 48398** Flangeless, Reverse, Mid-Mount (C/H: 2.04mm)

Standard-A Receptacle, Vertical and Upright, Through-hole

- 48408** Flange, Vertical, (H: 15.00mm)
- 48409** Flange, Vertical Stacked (H: 14.88mm)
- 48404** Flange, Upright (H: 13.85mm)

Cable Assemblies, Halogen-free and non-halogen-free (1.0, 1.5, 2.0m)

- 68789** 'Type A' Male-to-'Type A' Female
'Type A' Male-to-'Type B' Male

*C/H – the abbreviated form for “Contact Height” refers to the distance from soldering plane to mating plane of a mated cable-connector combination
 **H – the abbreviated form for “Height” as used in the chart refers to the distance from top of connector shell (without flange) to PCB.

Specifications – USB 3.0 Connector Family

Reference Information

Packaging:
Refer to Ordering Information Table
Mates With:
USB 3.0 Cable Assemblies
Designed In: Millimeters
RoHS: Yes
Halogen Free: Yes
Glow Wire Compliant: No

Electrical

Voltage (max.): 30V DC/AC
Current:
1.8A max. for VBUS and GND
(Pin 1 and 4 for standard type)
0.25A min. for all other contacts
Low Level Contact Resistance (max.):
30 milliohms for VBUS and
GND contacts:
50 milliohms for all other contacts
Dielectric Withstanding Voltage (min.):
100VAC (RMS)
Insulation Resistance (min.):
100 megohms















Mechanical

Insertion Force (max.): 35N
Extraction Force (min.):
10N (initial); 8N (final)
Durability (min.):
5,000 (High Durability Class)

Physical

Housing:
Nylon 9T, UL94V-0, Blue
(Series 48391, 48392, 48393,
48394, 48395, 48397, 48398)
Nylon 9T, UL94-HB, Blue
(Series 48404, 48405, 48406,
48408, 48409)
Contact: Copper Alloy
Shell: Stainless Steel
Plating:
Contact Area —
Refer to Ordering Information Table
Solder Tail Area —
Matt Tin (Sn) over Nickel (Ni)
Underplating —
Nickel (Ni) overall
Shell: Nickel (Ni) overall
Recommended PCB Thickness: 1.20mm
Operating Temperature: -20 to +85°C

USB 3.0 Connector Family

On-board, Type A Receptacle				Mid-mount, Type A Receptacle		
Top-mount		Reverse-mount	Upright	Vertical	Reverse-mount	
 48391 (C/H*: 6.09mm)	 48405 (C/H: 4.07mm)			 48408 (H: 15.00mm)	 48394 (C/H: 0.36mm)	 48397 (C/H: 1.75mm)
 48393 (C/H: 4.00mm)	 48406 (H: 15.50mm)	 48392 (C/H: 4.06mm)	 48404 (H*: 13.85mm)	 48409 (H: 14.88mm)	 48395 (C/H: 1.00mm)	 48398 (C/H: 2.04mm)

USB 3.0 Connectors in a variety of mounting styles and mating orientations

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**H – the abbreviated form for “Height” as used in the chart refers to the distance from top of connector shell (without flange) to PCB.

Specifications – Cable Assemblies

Reference Information

Packaging: Bag
Mates With: USB 3.0 Connectors
Designed In: Millimeters
RoHS: Yes
Halogen Free: Yes for some parts
Glow Wire Compliant: No

Electrical

Voltage (max.): 30V AC
Current: 1.8A max. for VBUS and
GND Pin, a minimum current of
0.25A for all other contacts
Contact Resistance (max.):
30 milliohms initial for VBUS and
GND contacts; 50 milliohms for all
other contacts
Dielectric Withstanding Voltage
(min.): 100VAC (RMS)
Insulation Resistance (min.):
100 megohms

Mechanical

Insertion Force (max.): 35N
Extraction Force (min.): 10N (initial);
8N (final)
Cable Pull-out Force (min.): 40N
Durability (min.): 5,000
(High Durability Class)

Physical

Overmold:
PE resin (inner molding)
PVC resin (outer molding), black
Operating Temperature: 0 to +50°



USB 3.0 Cable Assemblies – 1.0, 1.5 and 2.0m versions



USB 3.0 'Type A' Male-to-'Type A' Female Cable Assembly, Halogen-free and non-halogen-free versions
(Series 68789)



USB 3.0 'Type A' Male-to-'Type B' Male Cable Assembly, Halogen-free and non-halogen-free versions
(Series 68789)

Attribute	Product and Technical Differences	
	USB 2.0 'Type A' Connectors	USB 3.0 'Type A' Connectors
Data Rates	High-Speed: 480 Mbps	SuperSpeed: 5.0 Gbps (10 times faster than USB 2.0)
Circuits	4	9
Current Rating (V Bus and Ground)	1.5A	1.8A
Housing Color	Black, Gray or Natural	Blue (Pantone 300C)
Mating Depth with Reference to Datum A	8.88 +/-0.20mm	10.15mm (min.)
Durability Cycles	1,500	1,500 (Standard); 5,000 (High Durability Class)
Mating Force	35N Max	
Unmating Force (Initial)	10N Min	10N Min
Unmating Force (Final)		8N Min
Backward Compatibility	USB 1.1	USB 2.0 and 1.1
Product Image		

Applications

Data/Computing

- High-end Computing
- Personal Computers
- Hard/Optical Disk Drives

Consumer/Home Appliance

- Fitness
- Home Appliances
- Home Entertainment
- Home Office
- Home Security

Automotive

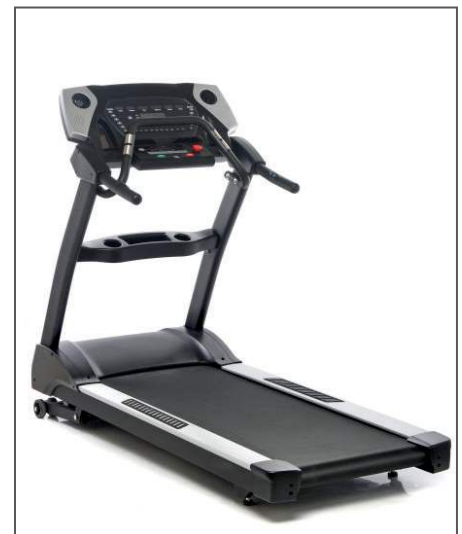
- Comfort, Infotainment and Driver Assist



Car Infotainment and Navigation Systems



Small Office / Home Office (SOHO)



Fitness Equipment

USB 3.0 Connector Family

Material	No. of Ports	Orientation (Connector/Pin position)		Mounting Configuration	Flange	Contact Height* (mm)	Height** (mm)	Contact Plating Thickness	Soldertail Length	Packaging						
48391-0003	1	Right Angle	Standard	On-board	No	6.09	8.95	15u" Gold (Au)	1.50mm (.059")	Tape-on-reel						
48391-0004								Gold-flash								
48392-0003								Reverse			On-board	Yes	4.06	6.92	15u" Gold (Au)	1.10mm (.043")
48392-0004															Gold-flash	
48393-0003								Standard			On-board	No	4.00	6.86	15u" Gold (Au)	1.50mm (.059")
48393-0004															Gold-flash	
48394-0003			Reverse	Mid-mount (aka sink-type)	No	0.36	5.72	15u" Gold (Au)	1.50mm (.059")							
48394-0004								Gold-flash								
48395-0003								1.00			7.40	15u" Gold (Au)	2.10mm (.083")			
48395-0004												Gold-flash				
48397-0003								1.75			6.92	15u" Gold (Au)	1.58mm (.062")			
48397-0004												Gold-flash				
48398-0003		2.04	6.92	15u" Gold (Au)	1.58mm (.062")											
48398-0004		Gold-flash														
48404-0003		2	Upright	On-board	Yes	N.A.	13.85	15u" Gold (Au)	2.40mm (.094")							
48404-0004			Gold-flash													
48405-0003	Right Angle	Standard	4.07					6.93		15u" Gold (Au)	2.80mm (.110")					
48405-0004										Gold-flash						
48406-0003										15.50		15u" Gold (Au)	2.67mm (.105")			
48406-0004												Gold-flash				
48408-0003										1		Vertical	N.A.	15.00	15u" Gold (Au)	3.00mm (.118")
48408-0004															Gold-flash	
48409-0003	2	Reverse	14.88					15u" Gold (Au)		3.00mm (.118")						
48409-0004								Gold-flash								

*Contact Height refers to the distance from soldering plane to mating plane of a mated cable-connector combination

**Height refers to the distance from top of connector shell (without flange) to PCB.

USB 3.0 Cable Assemblies

Part No.	Connector Type	Cable Length (m)	Halogen-free
687890001	'Type A' Male-to-'Type A' Female	1.0	No
687890002	'Type A' Male-to-'Type A' Female	1.5	
687890003	'Type A' Male-to-'Type A' Female	2.0	
687890004	'Type A' Male-to-'Type B' Male	1.0	
687890005	'Type A' Male-to-'Type B' Male	1.5	
687890006	'Type A' Male-to-'Type B' Male	2.0	
687890021	'Type A' Male-to-'Type A' Female	1.0	Yes
687890022	'Type A' Male-to-'Type A' Female	1.5	
687890023	'Type A' Male-to-'Type A' Female	2.0	
687890024	'Type A' Male-to-'Type B' Male	1.0	
687890025	'Type A' Male-to-'Type B' Male	1.5	
687890026	'Type A' Male-to-'Type B' Male	2.0	

www.molex.com/link/usb3.0.html