



**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

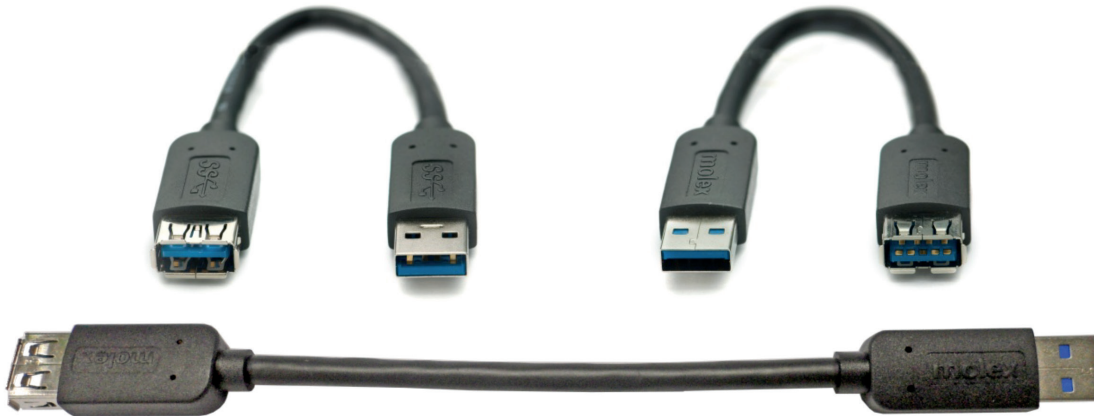
#### Mechanical

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						
<a href="#">48391-0003</a>	1	Right Angle	Standard	On-board	No	6.09	8.95	15u" Gold (Au)	1.50mm (.059")	Tape-on-reel						
<a href="#">48391-0004</a>								Gold-flash								
<a href="#">48392-0003</a>								Reverse			On-board	Yes	4.06	6.92	15u" Gold (Au)	1.10mm (.043")
<a href="#">48392-0004</a>															Gold-flash	
<a href="#">48393-0003</a>								Standard			On-board	No	4.00	6.86	15u" Gold (Au)	1.50mm (.059")
<a href="#">48393-0004</a>															Gold-flash	
<a href="#">48394-0003</a>			Reverse	Mid-mount (aka sink-type)	No	0.36	5.72	15u" Gold (Au)	1.50mm (.059")							
<a href="#">48394-0004</a>								Gold-flash								
<a href="#">48395-0003</a>								1.00			7.40	15u" Gold (Au)	2.10mm (.083")			
<a href="#">48395-0004</a>												Gold-flash				
<a href="#">48397-0003</a>								1.75			6.92	15u" Gold (Au)	1.58mm (.062")			
<a href="#">48397-0004</a>												Gold-flash				
<a href="#">48398-0003</a>		2.04	6.92	15u" Gold (Au)	1.58mm (.062")											
<a href="#">48398-0004</a>		Gold-flash														
<a href="#">48404-0003</a>		Upright	On-board	Yes	N.A.	13.85	15u" Gold (Au)	2.40mm (.094")								
<a href="#">48404-0004</a>							Gold-flash									
<a href="#">48405-0003</a>	Right Angle	Standard	On-board	Yes	4.07	6.93	15u" Gold (Au)	2.80mm (.110")								
<a href="#">48405-0004</a>							Gold-flash									
<a href="#">48406-0003</a>							N.A.		15.50	15u" Gold (Au)	2.67mm (.105")					
<a href="#">48406-0004</a>										Gold-flash						
<a href="#">48408-0003</a>	Vertical	Reverse	On-board	Yes	N.A.	15.00	15u" Gold (Au)	3.00mm (.118")								
<a href="#">48408-0004</a>							Gold-flash									
<a href="#">48409-0003</a>							14.88		15u" Gold (Au)	3.00mm (.118")						
<a href="#">48409-0004</a>									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
<a href="#">687890001</a>	'Type A' Male-to-'Type A' Female	1.0	No
<a href="#">687890002</a>	'Type A' Male-to-'Type A' Female	1.5	
<a href="#">687890003</a>	'Type A' Male-to-'Type A' Female	2.0	
<a href="#">687890004</a>	'Type A' Male-to-'Type B' Male	1.0	
<a href="#">687890005</a>	'Type A' Male-to-'Type B' Male	1.5	
<a href="#">687890006</a>	'Type A' Male-to-'Type B' Male	2.0	
<a href="#">687890021</a>	'Type A' Male-to-'Type A' Female	1.0	Yes
<a href="#">687890022</a>	'Type A' Male-to-'Type A' Female	1.5	
<a href="#">687890023</a>	'Type A' Male-to-'Type A' Female	2.0	
<a href="#">687890024</a>	'Type A' Male-to-'Type B' Male	1.0	
<a href="#">687890025</a>	'Type A' Male-to-'Type B' Male	1.5	
<a href="#">687890026</a>	'Type A' Male-to-'Type B' Male	2.0	

[www.molex.com/link/usb3.0.html](http://www.molex.com/link/usb3.0.html)

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