

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

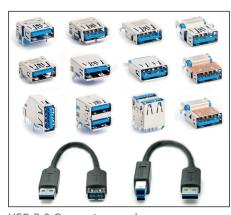
Connectors

	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	For greater vertical space-			

Cable Assemblies

(from 0.36 to 6.09mm)

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



savings in low-profile and other

applications

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

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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 Connectors and Cable Assemblies

USB 3.0 Connector Family

	On-be	Mid-mount, Type A Receptacle				
Top-n	nount	Reverse-mount	Upright	Vertical	Reverse	e-mount
48391 (C/H*: 6.09mm)				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

^{*}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.

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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 Connectors and Cable Assemblies

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)



Unique and Useful Differentiation vs. Similar Molex Product (Remark: Specifications below apply to connectors on cable end)

USB 3.0 Connectors and Cable Assemblies

Attribute	Product and Technical Differences				
Attribute	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)	TON MIII	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

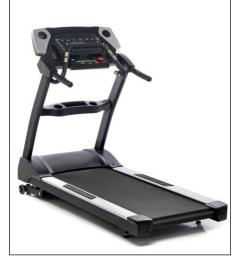
 Comfort, Infotainment and Driver Assist



Car Infotainment and Navigation Systems



Small Office / Home Office (SOHO)



Fitness Equipment



Ordering Information

USB 3.0 Connectors and Cable Assemblies

USB 3.0 Connector Family

Material	No. of Ports	(Conne	ntation ector/Pin ition)	Mounting Configuration	Flange	Contact Height* (mm)	Height** (mm)	Contact Plating Thickness	Soldertail Length	Packaging
48391-0003			Standard		No	6.09	8.95	15u" Gold (Au)	1.50mm	
48391-0004			Stallualu		INO	0.09	0.93	Gold-flash	(.059")	
<u>48392-0003</u>	1		Reverse	On-board	Yes	4.06	6.92	15u" Gold (Au)	1.10mm (.043")	Tape-on-reel
<u>48392-0004</u>								Gold-flash		
<u>48393-0003</u>			Standard		No	4.00	6.86	15u" Gold (Au)		
<u>48393-0004</u>						4.00	0.00	Gold-flash		
48394-0003		Right Angle		Mid-mount (aka sink-type) rse		0.36	5.72	15u" Gold (Au)	1.50mm (.059") 2.10mm (.083")	
<u>48394-0004</u>								Gold-flash		
<u>48395-0003</u>	1					1.00	7.40	15u" Gold (Au)		
<u>48395-0004</u>			Reverse					Gold-flash		
<u>48397-0003</u>						1.75	7.40	15u" Gold (Au)		
<u>48397-0004</u>								Gold-flash		
<u>48398-0003</u>						2.04	2.04 6.92	15u" Gold (Au)	1.58mm (.062")	
<u>48398-0004</u>							0.92	Gold-flash		
<u>48404-0003</u>		Upright				N.A.	N.A. 13.85	15u" Gold (Au)	2.40mm (.094")	
<u>48404-0004</u>		Oprignt						Gold-flash		
<u>48405-0003</u>		Right	Standard	On-board	Yes	4.07	4.07 6.93	15u" Gold (Au)	2.80mm (.110")	
<u>48405-0004</u>								Gold-flash		
<u>48406-0003</u>	2	Angle				N.A.	15.50	15u" Gold (Au)	2.67mm (.105")	
<u>48406-0004</u>							15.50	Gold-flash		
<u>48408-0003</u>	- 1 - 2	Vortical	Reverse				N.A. 15.00	15u" Gold (Au)	3.00mm (.118")	
48408-0004								Gold-flash		
<u>48409-0003</u>		vertical					14.88	15u" Gold (Au)		
48409-0004								Gold-flash		

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

USB 3.0 Cable Assemblies

Part No.	Connector Type	Cable Length (m)	Halogen-free			
<u>68789</u> 0001	'Type A' Male-to-'Type A' Female	1.0				
<u>68789</u> 0002	'Type A' Male-to-'Type A' Female	1.5				
<u>68789</u> 0003	'Type A' Male-to-'Type A' Female	2.0	No			
<u>68789</u> 0004	'Type A' Male-to-'Type B' Male	1.0	INO			
<u>68789</u> 0005	'Type A' Male-to-'Type B' Male	1.5				
<u>68789</u> 0006	'Type A' Male-to-'Type B' Male	2.0				
<u>68789</u> 0021	'Type A' Male-to-'Type A' Female	1.0				
<u>68789</u> 0022	'Type A' Male-to-'Type A' Female	1.5				
<u>68789</u> 0023	'Type A' Male-to-'Type A' Female	2.0	Voc			
<u>68789</u> 0024	'Type A' Male-to-'Type B' Male	1.0	Yes			
<u>68789</u> 0025	'Type A' Male-to-'Type B' Male	1.5				
<u>68789</u> 0026	'Type A' Male-to-'Type B' Male	2.0				

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

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