



With a 50% reduction in connector volume over the Mini-USB connector, the Micro-USB connector features the smallest footprint of all USB interconnects and offers significant reduction in PCB real estate for a host of portable devices. These include mobile phones, MP3 players, digital video and still cameras, PDAs, Global Positioning Systems, photo printers, mouse, keyboards, and flash drives.

The Micro-USB technology was developed by the USB Implementers Forum, Inc. (USB-IF), an independent non-profit group that advances USB technology. It offers advantages of smaller size and better durability compared with the Mini-USB. As mobile devices become thinner and lighter, Micro-USB allows manufacturers to push the limits of this trend towards sleeker design and greater portability. The Micro-USB replaces most of the Mini-USB plugs and receptacles that are currently being used. The specification of the Micro-USB supports the current USB On-The-Go (OTG) supplement and provides total mobile interconnectivity by enabling portable devices to communicate directly with each other without the need for a host computer.

Molex has developed seven series of Micro-USB Type 'B' and Type 'AB' receptacles in a selection of Top-, Bottom- and Mid-Mount versions, and a new series of USB 'A' to Micro-USB 'B' cable assemblies. These connectors include a lead-in feature in the connector housing for blind-mating of receptacle to plug. The connector body has a unique laser-welded metal shield design that reinforces mechanical seam strength while preventing damage to the plug or receptacle due to perpendicular or horizontal (wrenching) stress. Other key features of the product include high durability of over 10,000 insertion cycles; and a passive latching mechanism that provides higher extraction forces without sacrificing the USB's ease-of-use when synchronizing and charging portable devices.

Visit www.molex.com/product/microusb.html for more information on Molex Micro-USB products.

0.65mm (.0256") Pitch Micro-USB Interconnect Solution

**47346, 47491, 47589,
47590, 47642, 47654
105017**

Receptacles

68784
Cable Assemblies



FEATURES	BENEFITS
■ Small footprint	■ Ideal for space-constraint applications
■ Lead-in feature on receptacle housing	■ Facilitates easy blind-mating to cable plugs
■ Simple edge-contact beam geometry of connector shell	■ Facilitates high-speed data transmission
■ Over-mold process used for receptacles	■ Increases component mechanical rigidity and terminal retention
■ 0.3mm thick laser-welded stainless-steel shell of receptacle	■ Provides high mechanical durability and electrical shielding
■ Passive latching window with angular tabs on receptacle shell (meets USB 2.0 specification requirements)	■ Prevents accidental un-mating of plug during connection
■ Rear shield of stainless steel shell in standard-mount parts	■ Provides for EMI protection
■ Pick & place area (3mm diameter) on connector shell	■ Facilitates smooth assembly process
■ Halogen-free receptacles	■ Environment-friendly

SPECIFICATIONS (Receptacles)

Reference Information

Packaging: Embossed Tape on Reel
Use With: Micro-USB "B" or "AB" plug
Designed In: mm

Electrical

Voltage (max.): 100V AC(rms)
Current (max.): 1.0A (Signal); 1.8A (Power)
Contact Resistance (max.): 30 milliohms
Dielectric Withstanding Voltage: 100V AC (rms)
Insulation Resistance
: 1000 Megaohms min.
: 100 Megaohms min. (47589)

Mechanical

Mating Force: 35N max.
Un-mating Force: 8N min.; 10N min. (47589)
Durability (min.): 10,000 cycles
(options available)

Physical

Housing: LCP, Black
Contact: Phosphor Bronze
Shell: Stainless steel (0.3mm thick)
Plating: Contact Area - Gold Flash over Pd/Ni
Solder Tail Area - Gold Flash
Underplating - Nickel
Operating Temperature: -20 to +85°C

SPECIFICATIONS (Cable Assembly)

Reference Information

Designed In: mm

Electrical

Voltage (max.): 30V AC(rms)
Current (max.): 1.0A (Signal); 1.8A (Power)
Cable Impedance: 90 ohms $\pm$ 15%
Propagation Delay (max.): 10ns per cable

Physical

Shielding: Fully-shielded
Overmold Dimensions: 10.8(W) by 6.4(H) by
25.6(L) mm
Operating Temperature: 0 to + 50°C

MARKETS AND APPLICATIONS



0.65mm (.0256") Pitch Micro-USB Interconnect Solution

Regional Markets, Applications and Typical Customers

- **Mobile phones**
- **Portable devices**
 - PDA, GPS, MP3 players
 - Portable digital video players
 - Digital still cameras
 - Digital video cameras
- **Peripherals**
 - Photo printers
 - Mouse, Keyboards
 - Flash drives
- **Accessories**
 - Vehicle battery chargers

Mobile Phone



Portable Devices



Peripherals



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ORDERING INFORMATION

Connectors

Order No.	Plating	Type	Mount Type	Max. Height (mm)	Max. Width (mm)	Max. Depth (mm)	With Mylar
47590-0001	Gold Flash over 0.75micron Palladium/Nickel min.	Type 'AB'	Top-mount	3.35	8.00	5.80	None
47654-0001		Type 'AB'	Mid-mount	2.95	10.45	6.80	None
47589-0001		Type 'AB'	Bottom-mount	3.00	8.20	5.60	None
47491-0001		Type 'B'	Mid-mount	2.95	11.00	9.15	None
47642-0001		Type 'B'	Mid-mount	2.95	10.2	7.25	None
47642-0011		Type 'B'	Mid-mount	2.95	10.2	7.25	Yes
47346-0001		Type 'B'	Bottom-mount	2.95	8.00	5.45	None
105017-0001		Type 'B'	Bottom-mount	3.30	8.00	5.45	None

Cable Assemblies

Order No.	Description	Wire Size	Packaging
68784-0001	USB Shielded I/O Cable Assembly, USB 'A' to Micro-USB 'B', 1.00m (3.28') Length, Black, Lead free	28AWG	Bag
68784-0002	USB Shielded I/O Cable Assembly, USB 'A' to Micro-USB 'B', 1.50m (4.92') Length, Black, Lead free	28AWG	Bag
68784-0003	USB Shielded I/O Cable Assembly, USB 'A' to Micro-USB 'B', 2.00m (6.56') Length, Black, Lead free	28AWG	Bag

For variations in length, color, cable configurations or custom-design Micro-USB cable assemblies, please contact a Molex sales person



www.molex.com/product/microusb.html