

**Paving the way for a new generation of faster Serial ATA products, Molex's line of Low Insertion Force (LIF) Micro SATA Revision 3.0 Specification-compliant interconnects delivers high speed data at 6Gbps with uncompromised quality for 1.8" SSD, mobile computing and consumer applications**

Molex extends its existing family of Micro Serial ATA (Micro SATA) interconnect solutions developed especially for 1.8" SSD, mobile computing and consumer applications. These new series include a Right Angle Device Plug (series 78283) and two Vertical Backplane Receptacles (series 78500 and 78492) and feature a unique dual-shaped peg design for improved seating on a PCB allowing peg-to-peg distance variations.

All Micro SATA connectors from Molex meet the Serial ATA Revision 3.0 Specification released by the Serial ATA International Organization. The Specification features doubled SATA transfer rates of 6Gbps, and paves the way for a new generation of faster SATA products. With a 6Gbps transfer speed and SATA efficient protocols, storage users can now move more high-resolution photos, videos, music and other data between solid state drives, notebook and netbook PCs, set top boxes and game consoles in half the speed they previously required, by SATA Revision 2.6 Specification standards.

Users of these physical Interfaces will experience an immediate improvement in read-write and response speed without any compromise in data quality. The new Specification is also backward compatible with earlier implementations of 1.5 and 3.0Gbps. This means that SATA 6Gbps hosts and drives will operate when connected to 3Gbps or 1.5Gbps drives and hosts, by automatically dropping to the appropriate transfer rates. Maintaining backward compatibility keeps the costs in moving from 3Gbps to 6Gbps at a minimum.

Physical enhancements in this Specification include: a small Low Insertion Force (LIF) connector for more compact 1.8" storage devices; and a connector designed to accommodate 7mm optical disk drives for thinner and lighter notebooks, which Molex's line of Micro SATA interconnects satisfies categorically. Next-generation SSDs are expected to require 6Gbps connectivity to allow networks to take full advantage of the higher throughput levels these devices can achieve.

Keeping the existing Micro SATA connector form factor unchanged enables SATA 6Gbps to be designed into the same cost-conscious hardware architectures while minimizing infrastructure changes and costs. Molex's Micro SATA interconnects are easy to use for both manufacturers and end-users. Designed to facilitate easy configuration and simplify upgrading of devices, Molex's Micro SATA connectors provide the reliability and performance next-generation storage applications require while still maintaining connectivity a low-cost solution. Molex is an active member of the Serial ATA International Organization (SATA-IO).

More product information is available on our website at:  
[www.molex.com/product/microsata.html](http://www.molex.com/product/microsata.html)

## FEATURES AND BENEFITS

- All Molex Micro SATA interconnects meet the requirements of the SATA Revision 3.0 Specification
- Power segment key available in Device Plug (series 78103) prevents insertion of non-Micro SATA power cables
- Device Plugs without flanged tabbed housing versions (series 78283 and 78285) offer more compact housing dimensions for tight-fit applications
- Molex offers a variety of Device Plugs and Receptacles to suit customer applications
- All Molex Micro SATA connectors have standard features that include First-Mate-Last-Break, Guide-posts and pockets, Friction Locks and robust PCB retention features
- Dual-shaped peg design (series 78283, 78285, 78492 and 78500) allows for peg-to-peg distance variations and ensures proper seating of connector on PCB

## Micro Serial ATA (Micro SATA) Connectors

**78103** Micro SATA Plug, with flanged tabbed housing

**78283** Micro SATA Plug, without flanged tabbed housing

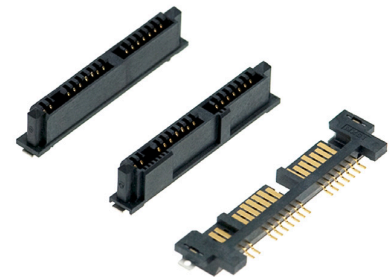
**78285** Micro SATA Plug, without flanged tabbed housing

**78492** Micro SATA Receptacle, Vertical, Rimmed base

**78500** Micro SATA Receptacle, Vertical, Straight base

**78109** Micro SATA Receptacle, Right Angle, Mid Mount

**78320** Micro SATA Receptacle, Right Angle, Top Mount



*New Micro SATA Plug  
(Series 78283) and Receptacles  
(Series 78492 and 78500)*

## MARKETS AND APPLICATIONS

- Mobile Computing
  - Notebook PCs
  - Netbook PCs
- Storage Products
  - Solid State Drives
- Consumer Products
  - Set Top Boxes
  - Game Consoles



Mobile Computing (Netbook and Notebook PC)



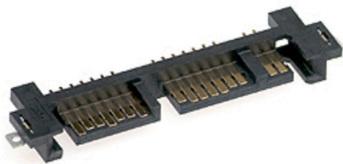
Storage Products (SSD drive)



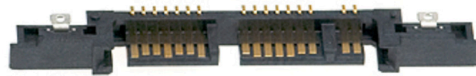
Consumer Products (Set Top Box, Game Console)



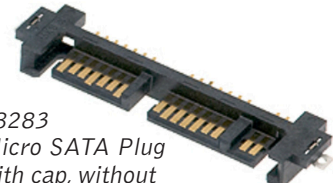
## PRODUCT FAMILY



78285  
Micro SATA Plug with cap, without  
flanged tabbed housing



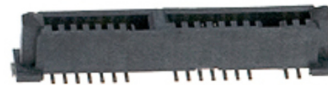
78103  
Micro SATA Plug, with  
flanged tabbed housing



78283  
Micro SATA Plug  
with cap, without  
flanged tabbed housing



78109  
Micro SATA Receptacle, Right Angle,  
Mid-mount



78492  
Micro SATA Receptacle, Vertical,  
Rimmed base



78320  
Micro SATA Receptacle, Right Angle,  
Top-mount



78500  
Micro SATA Receptacle, Vertical,  
Straight base

## SPECIFICATIONS

### Reference Information (Plugs)

Packaging:  
 Tray (78103 and 78285)  
 Embossed Tape on Reel (78283)

UL File No.:  
 TBD (78103)  
 E29174 (Volume 10) (78283)  
 E29179 (Volume 10) (78285)

CSA File No.:  
 TBD (78103)  
 1422869 (LR19980) (78283)  
 1699307 (LR19980) (78285)

Mates With:  
 78109, 78320, 78492, 78500  
 Receptacles

Designed In: mm

RoHS: Yes

Halogen Free: No

Glow Wire Compliant: No

### Electrical

Voltage (max.): 30V

Current (max.):  
 1.5A DC or AC(RMS) at 60Hz

Low Level Contact Resistance (max.):  
 30 milliohms (initial)

Dielectric Withstanding Voltage:  
 500V AC

Insulation Resistance (min.):  
 1000 Megaohms

### Mechanical

Connector Insertion Force (max.):  
 20 N (to Backplane Receptacles)

Connector Removal Force (min.):  
 2.5N (to Backplane Receptacles)

Terminal Retention Force (min.):  
 4.45N (for 78103 Plug)

Solder Tab Retention Force (min.):  
 4.45N (for 78283 and 78285  
 Plugs)

Durability (min.): 500 cycles

### Physical

Housing:  
 LCP, Glass-filled, UL 94V-0, Black

Contact: Copper Alloy

Plating:  
 Contact Area — 0.76 $\mu$ m (30 $\mu$ "")  
 Gold (Au)  
 Solder Tail Area — 0.05 $\mu$ m (2 $\mu$ "")  
 Gold (Au) Flash  
 Underplating —  
 1.27 $\mu$ m (50 $\mu$ "") Nickel

PCB Thickness:  
 0.35mm (.014") (78103)  
 0.68mm (.027") (78283)  
 0.60mm (.024") (78285)

Operating Temperature: 0 to +55°C

## Micro Serial ATA (Micro SATA) Connectors

**78103** Micro SATA Plug, with  
flanged tabbed housing

**78283** Micro SATA Plug,  
without flanged tabbed  
housing

**78285** Micro SATA Plug,  
without flanged tabbed  
housing

## ORDERING INFORMATION

Order No.	Component	Contact Plating	Packaging	Product Attribute
78103-0001	Right Angle, SMT Lead-free Device Plugs	0.76 $\mu$ m (30 $\mu$ "") Gold	Tray	With flange tabbed housing
78285-0001				*Without flange tabbed housing
78283-0001			Embossed Tape on Reel	

## SPECIFICATIONS

### Reference Information (Receptacles)

Packaging: Refer to Ordering Information Table

UL File No.:  
E29179 (78109, 78320)  
TBD (78492, 78500)

CSA File No.:  
LR 19980 (78109)  
1699307 (LR19980) (78320)  
TBD (78492, 78500)

Mates With:  
78103, 78283, 78285 Device Plugs

Designed In: mm

RoHS: Yes

Halogen Free: No

Glow Wire Compliant: No

### Electrical

Voltage (max.): 30V

Current (max.):  
1.5A DC or AC(RMS) at 60Hz

Low Level Contact Resistance (max.):  
30 milliohms (initial)

Dielectric Withstanding Voltage:  
500V AC

Insulation Resistance (min.):  
1000 Megaohms

### Mechanical

Connector Insertion Force (max.): 20 N

Connector Removal Force (min.): 2.5N

Terminal Retention Force (min.):  
4.45N (78109, 78320)  
3.0N (78492)  
3.5N (78500)

Solder Tab Retention Force (min.):  
3.5N (78492, 78500)

Durability (min.): 500 cycles

### Physical

Housing:  
Nylon, Glass-filled, UL 94V-0,  
Black (78109, 78320)  
LCP (78492, 78500)

Contact: Copper Alloy

Plating:  
Contact Area — 0.76 $\mu$ m (30 $\mu$ " )  
Gold (78109, 78320, 78500)  
0.13 $\mu$ m (5 $\mu$ " ) Gold (78492)  
Solder Tail Area —  
2.54 $\mu$ m (100 $\mu$ " ) Tin (Sn)  
Underplating —  
1.27 $\mu$ m (50 $\mu$ " ) Nickel (Ni)

PCB Thickness:  
1.60mm (.063") (78109)  
0.80mm (.031") (78320)  
1.00mm (.024") (78492, 78500)

Operating Temperature:  
-40 to +105°C (78109 and 78320)  
0 to +55°C (78492 and 78500)

## Micro Serial ATA (Micro SATA) Connectors

**78492** Micro SATA  
Receptacle, Vertical,  
Rimmed base

**78500** Micro SATA  
Receptacle, Vertical,  
Straight base

**78109** Micro SATA  
Receptacle, Right Angle,  
Mid Mount

**78320** Micro SATA  
Receptacle, Right Angle,  
Top Mount

## ORDERING INFORMATION

Order No.	Component	Differentiator Features	Circuit Size	Mounting	Packaging	Contact Plating
78320-1001	SMT, Right Angle, Lead-free Receptacles	Refer to part Sales Drawings for product details	14	Top-mount	Tray	0.76 $\mu$ m (30 $\mu$ " ) Gold
78109-1001				Mid-mount		
78109-0001						
78320-0001						
78320-0002						
78500-0001	SMT, Vertical, Lead-free Receptacles	Connector Width / Base 4.15mm (.163") / Straight	16	Top-mount	Embossed Tape on Reel	0.13 $\mu$ m (5 $\mu$ " ) Gold
78492-0001		Connector Width / Base 4.38mm (.172") / Rimmed				