



# 1.27mm (.050") Pitch Micro SATA

## FEATURES AND SPECIFICATIONS

Molex introduces the micro Serial ATA (SATA) interconnect solution for 1.8" form factor drives and backplane applications.

In April 2007, the Serial ATA International Organization (SATA-IO) announced the release of new specs for the SATA interconnect solutions. The new 2.6 revision covers the addition of new features to the specs making SATA available for new applications. One of the new features is the provision for the application of 1.8" SATA form factor drives in both HDD (hard disk drive) and SSD (solid state drive) types. Applications include laptop computers, set top boxes and game consoles.

Molex Micro SATA connectors are compliant to SATA-IO standards with respect to the mating interface. These standards define features such as 7 signal pins, 9 power pins with power segment key, staggered contact lengths for hot plugging, guide posts and pockets for blind-mating, friction locking for cabling and high data-transfer rate of 3.0Gbps. The combo device plug supports internal 5.00mm and 8.00mm slim 1.8" form factor drives while the right angle Micro SATA combo receptacle supports backplane applications.

The connectors contained in this release are ELV and RoHS compliant. They are also lead free process compatible.

Molex is an active member of the SATA-IO. The working group is responsible for developing and specifying Serial ATA interconnect standards.

**78285 / 78103**  
**Combo Plug**

**78320 / 78109**  
**Combo Receptacle**



| Features                                              | Benefits                                                            |
|-------------------------------------------------------|---------------------------------------------------------------------|
| • Staggered contact lengths (First-Mate-Last-Break)   | • Allows sequential mating of pins for hot-plugging of device drive |
| • Guide pocket for plug and guide post for receptacle | • Allows blind-mating                                               |
| • Power segment key                                   | • Prevents insertion of non-micro SATA power cables                 |
| • High temperature thermoplastic housing              | • Provides lead-free process capability                             |
| • Plastic locating peg for plug                       | • Ensures proper locating on PCB                                    |
| • Metal locating pin for receptacle                   | • Ensures proper locating on PCB and extra retention to PCB         |
| • Friction locking                                    | • Ensures secure mating of connectors and cable assemblies          |
| • Solder tab                                          | • Provides extra retention to PCB                                   |

## SPECIFICATIONS : PLUG

### Reference Information

Packaging: Tray

UL File No.: Pending

CSA File No.: Pending

Mates With: Micro SATA Combo Receptacle

Designed In: Millimeters

### Electrical

Voltage: 30V Max

Current: 1.5A

Contact Resistance: 30 milliohms max.

Dielectric Withstanding Voltage: 500V AC

Insulation Resistance: 1000 Megohms min.

### Mechanical

Mating Force: 20N (4.50 lb) max. with backplane receptacle  
45N (10.11 lb) max. with non latching power & signal cable receptacles

Unmating Force: 2.5N (0.56 lb) min. with backplane receptacle  
8N (1.8 lb) min. with non latching power cable receptacle  
10N (2.25 lb) min. with non latching signal cable receptacle

Durability: 50 cycles for internal cable application  
500 cycles for backplane application

### Physical

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

Contact: Copper Alloy

Plating:

Contact Area — 0.76µm min. Gold (Au)

Solder Tail Area — 0.05µm min. Gold (Au)

Underplating — Nickel (Ni)

PCB Thickness: 0.35mm

Operating Temperature: -40°C to +105°C

**SPECIFICATIONS : RECEPTACLE**



**1.27mm (.050") Pitch  
Micro SATA**

**Reference Information**

**Packaging:** Tray  
**UL File No.:** Pending  
**CSA File No.:** Pending  
**Mates With:** Micro SATA Combo Plug  
**Designed In:** Millimeters

**Electrical**

**Voltage:** 30V Max  
**Current:** 1.5A  
**Contact Resistance:** 30 milliohms max.  
**Dielectric Withstanding Voltage:** 500V AC  
**Insulation Resistance:** 1000 Megohms min.

**Mechanical**

**Mating Force:** 20N (4.50 lb) max. **Insertion Force**  
**Unmating Force:** 2.5N (0.56 lb) min. **Removal Force**  
**Durability:** 500 cycles for backplane application.

**78285 / 78103  
Combo Plug**

**Physical**

**Housing:** Nylon (PA) 9T, Glass Filled, UL 94V-0, Black  
**Contact:** Copper Alloy

**78320 / 78109  
Combo Receptacle**

**Plating:**

**Contact Area** — 0.76µm min. Gold (Au)  
**Solder Tail Area** — Tin (Sn)  
**Underplating** — Nickel (Ni)  
**PCB Thickness:** 0.80mm  
**Operating Temperature:** -40°C to +105°C

**MARKETS AND APPLICATIONS**

**Regional Markets, Applications and Typical Customers**

- **Mobile Computing**
  - Notebook PC
  - Sub-notebook PC
- **Emerging Trends**
  - Set Top Box
  - Game Console
  - Solid State Drives



**ORDERING INFORMATION**

| Description                                                               | Order No.  | Drive Type | Mating Z-Height                                      | Drive form factor |
|---------------------------------------------------------------------------|------------|------------|------------------------------------------------------|-------------------|
| 1.27mm (.050") Pitch Micro SATA<br>Device Plug, Surface Mount             | 78103-0001 | HDD        | Datum A to PCB sitting plane, 3.15mm                 | 1.8"              |
|                                                                           | 78285-0001 | SSD        | Datum A to PCB sitting plane, 1.29mm                 |                   |
| 1.27mm (.050") Pitch Micro SATA<br>Right Angle, Receptacle, Surface Mount | 78109-0001 | HDD / SSD  | Datum A to PCB sitting plane, 1.15mm,<br>Mid Mount   |                   |
|                                                                           | 78320-0001 |            | Datum A to PCB sitting surface, 3.80mm,<br>Top Mount |                   |



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