

Molex's compact Micro SAS interconnects deliver the speed and reliability server and storage drive makers need for mission-critical enterprise-storage Serial Attached SCSI (SAS) applications.

The advent of 1.8-inch Hard Disk Drives (HDDs) and Solid State Drives (SSDs) has led to the development of a small form factor interconnect that has the performance headroom to meet requirements of mission-critical enterprise-storage interconnect needs for years to come - the Micro Serial Attached SCSI (Micro SAS) connector. Molex's Micro SAS Connectors are the storage industries' smallest, next-generation high-speed serial I/O solution for 1.8-inch drives that enable fast data rates of up to 6 Gbps while being 100% backward compatible with Molex's series of Micro Serial ATA (Micro SATA) products. These features allow the coexistence of both storage technologies in the same system, which opens the door for Micro SATA scalability. Because the Micro SAS architecture features a proven SCSI command set, advanced command queuing, and advanced verification/error correction, Micro SAS is the compact ideal solution for high-speed, high-bandwidth SAS applications.

Molex's Micro SAS connectors meet the SFF-8486 Specification. This specification defines the physical interface and general performance requirements for Micro SAS connectors designed for use in high-speed serial interconnect applications including, but not limited to, Solid State Disk (SSD) drives.

Molex offers a range of Right Angle Straddle-mount Plugs to meet low profile height requirements. Molex also offers both Right Angle and Vertical SMT version Receptacles to complement its range of Device Plugs. Molex's most recent development is the Dual-stack Through hole Right Angle Receptacle. This product give users double the storage capacity for the same footprint of the single Right Angle equivalent.

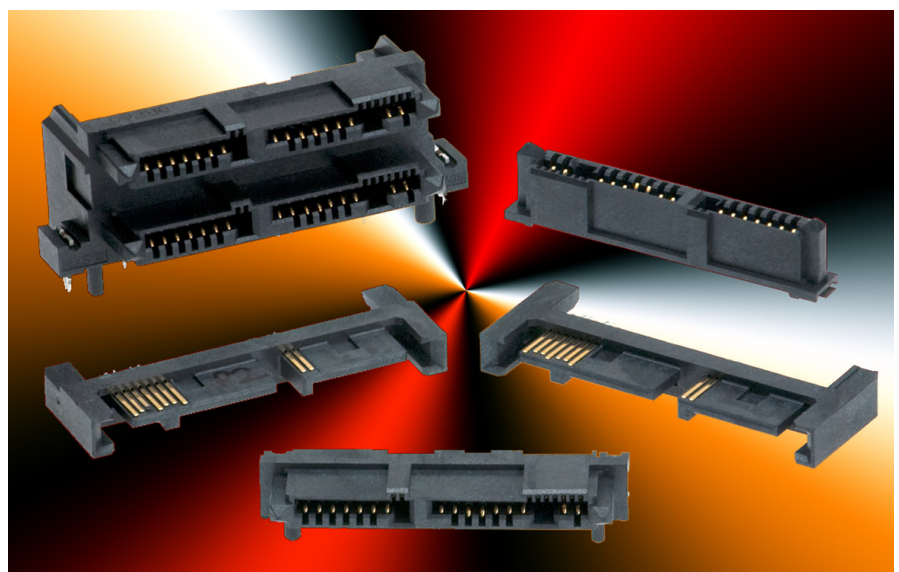
More product information is available on our website at:
www.molex.com/product/microsas.html

Micro Serial Attached SCSI (Micro SAS) Connectors

- 78394** Micro SAS Plug, Right Angle, Straddle Mount
- 78528** Micro SAS Plug, Right Angle, Straddle Mount, with Drive Holder
- 78395** Micro SAS Receptacle, Right Angle, SMT
- 78396** Micro SAS Receptacle, Vertical, SMT
- 78495** Micro SAS Receptacle, Right Angle, Dual Stacked

FEATURES AND BENEFITS

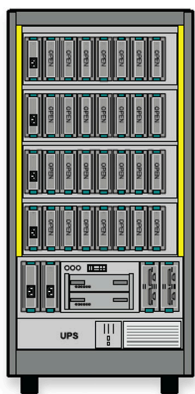
- Micro SAS connectors feature small connector footprint and offer greater PCB real estate saving
- Satisfies SAS 2.0 Specifications that enables fast data rates of up to 6Gbps
- 100% backward compatible with Molex Micro Serial ATA and is intermateable with Micro Serial ATA parts that have a mid-rib in the connector housing
- Application of Micro SAS Plug in 1.8" form factor drives (SSD or HDD)
 - Host receptacle on backplane can accommodate Molex Micro SAS or Micro SATA drives
 - Drive can be built with any Molex Micro SAS or Micro SATA Plugs, and programmable with SAS or SATA firmware
- Crush-ribs on Plugs and dual-shaped pegs on Receptacles provide added PCB retention to Straddle Mounted Plugs and seating of Vertical Receptacle on PCB, respectively
- Drive holder housing feature for series 78528 Plug supports drive casing in soldertail region
- Keying features and guide rails on connectors prevent mis-mating of parts and ensure smooth entry of Plugs to Receptacles



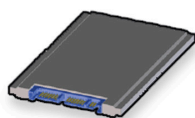
Molex's line of Micro SAS Plugs and Receptacles

APPLICATIONS

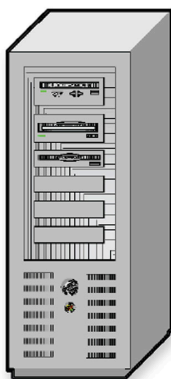
- Storage Drives
 - Solid State Drives (SSD)
 - 1.8" HDD
- Server Storage
 - RAID (Redundant Array of Individual Disks)
 - JBOD ("Just a bunch of disks")
- Adapters
 - HBA (Host Bus Adapters)



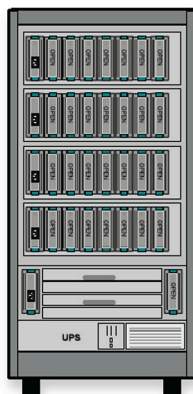
RAID Storage



Solid State Drive



Server Drives



JBOD Storage

Micro Serial Attached SCSI (Micro SAS) Connectors

78394 Micro SAS Plug, Right Angle, Straddle Mount

78528 Micro SAS Plug, Right Angle, Straddle Mount, with Drive Holder

78395 Micro SAS Receptacle, Right Angle, SMT

78396 Micro SAS Receptacle, Vertical, SMT

78495 Micro SAS Receptacle, Right Angle, Dual Stacked

PRODUCT FAMILY



Micro SAS Receptacle, Right Angle, SMT (78395)



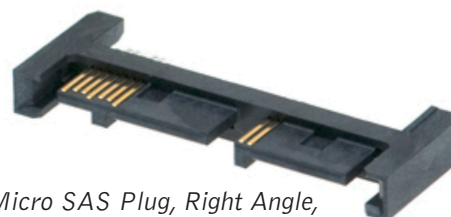
Micro SAS Receptacle, Vertical, SMT (78396)



Micro SAS Receptacle, Right Angle, Dual Stacked (78495)



Micro SAS Plug, Right Angle, Straddle Mount, with Drive Holder (78528)



Micro SAS Plug, Right Angle, Straddle Mount (78394)

Reference Information

Packaging: Tray
 UL File No.: E29179
 CSA File No.: 1699020 (LR19980)
 Mates With: 78395, 78396, 78495 Receptacles
 Designed In: mm
 RoHS: Yes
 Halogen Free: Yes
 Glow Wire Compliant: No

Electrical

Voltage (max.): 30V
 Current (max.): 1.5 Amps DC or AC (RMS) at 60 Hz
 Low Level Contact Resistance (min.): 45 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
 Durability (min.): 500 cycles (Backplane/Blindmate)

Physical

Housing: LCP, Glass-filled, UL 94V-0, Black
 Contact: Copper Alloy
 Plating:
 Contact Area — 0.76µm (30µ") Gold (Au)
 Solder Tail Area — 2.54µm (100µ") Tin (Sn) (78394)
 — 1.91µm (75µ") Tin (Sn) (78528)
 Underplating — 1.27µm (50µ") Nickel
 PCB Thickness: 1.00mm (.039")
 Operating Temperature: 0 to +55°C

Micro Serial Attached SCSI (Micro SAS) Connectors

- 78394** Micro SAS Plug, Right Angle, Straddle Mount
- 78528** Micro SAS Plug, Right Angle, Straddle Mount, with Drive Holder

ORDERING INFORMATION

Order No.	Differentiating Features	Product Attribute
78394-0002	<ul style="list-style-type: none"> • Without special housing feature • Housing planes are flush on both sides 	25 circuit, Right Angle, SMT, Straddle Mount Plugs, Halogen-free, Lead-free
78528-0001	<ul style="list-style-type: none"> • With drive casing holder as housing feature at soldertail area of connector • Housing plane is "stepped" on one side, flush on the other 	

SPECIFICATIONS (RECEPTACLES)

Reference Information

Packaging: Tray (78395, 78495)
Embossed Tape on Reel (78396)

UL File No.
: E29179 (78395, 78396)
: TBA (78495)

CSA File No.
: 1699020 (LR19980)
(78395, 78396)
: TBA (78495)

Mates With: 78394, 78528 Plugs

Designed In: mm

RoHS: Yes

Halogen Free: Yes

Glow Wire Compliant: No

Electrical

Voltage (max.): 30V

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

Low Level Contact Resistance (min.)
: 45 milliohms (initial)
(78395, 78396)
: 60 milliohms (initial) (78495)

Dielectric Withstanding Voltage:
500V AC

Insulation Resistance (min.):
1000 Megaohms

Mechanical

Connector Insertion Force (max.):
20 N (to Device Plugs)

Connector Removal Force (min.):
2.5N (to Device Plugs)

Port 1 Components
Retention Force (min.): 3.50N

Port 2 Components
Retention Force (min.): 2.20N

Durability (min.):
500 cycles (Backplane/Blindmate)

Physical

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

Contact and Retention Tab/Lock:
Copper Alloy

Plating:
Contact Area — 0.76µm (30µ")
Gold (Au)
Solder Tail Area — 2.54µm (100µ")
Tin (Sn)
Underplating — 1.27µm (50µ")
Nickel

PCB Thickness (max.)
: 1.00mm (.039")
(78395-0001, 78396)
: 1.60mm (.063") (78395-0002)
: 1.57mm (.062") (78495-0001)

Operating Temperature: 0 to +55°C

Micro Serial Attached SCSI (Micro SAS) Connectors

78395 Micro SAS
Receptacle,
Right Angle, SMT

78396 Micro SAS
Receptacle,
Vertical, SMT

78495 Micro SAS
Receptacle,
Right Angle,
Dual Stacked

ORDERING INFORMATION

Order No.	Circuit Sizes	PCB Thickness	Product Attribute
78395-0001	25	1.00mm (.039")	Right Angle, SMT, Halogen-free, Lead free
78395-0002		1.60mm (.063")	
78396-0001		1.00mm (.039")	Vertical, SMT, Halogen-free, Lead free
78495-0001	50	1.57mm (.062")	Dual-stacked, Through hole Right Angle, Halogen-free, Lead free