

# Mini-SAS HD

## Next generation SAS storage interface

### DESCRIPTION

The Mini-SAS HD product is the next generation SAS storage interface addressing channel bandwidth requirements of 6 Gb/s to 12 Gb/s meeting or exceeding the respective SAS 2.1 and proposed SAS 3.0 specifications. The Mini-SAS HD product provides greater port density (11mm port-to-port) versus the existing Mini-SAS 2.0 product (19.01mm port-to-port). FCI's Mini-SAS HD product is fully compliant to the SFF-8643 and SFF-8644 industry specifications. Internal and external connector configurations of the Mini-SAS HD product include 1X1 (4x), 1X2 (8x), and 1X4(16x) and enables 4x and 8x internal & external cable assembly solutions which include EEPROM communication. The Mini-SAS HD profile design is PCI Express compatible and can be utilized in PCI Express architecture applications.



### FEATURES & BENEFITS

- IMLA based board connector insures compliance to the SAS 2.1 & proposed 3.0 electrical performance criteria
- Internal and external board connector and cable assemblies provide end-to-end application solutions
- 1X1, 1X2 and 1X4 connector/cage assemblies offer product family design flexibility
- All board connectors and configurations are fully 6G and 12G compliant allowing for use of same part numbers when system speeds increase from 6G to 12G
- Metal cages on the external connector and cables provide 360° EMI shielding and replaces problematic EMC elastomeric gaskets
- Cable assemblies offered in 4x and 8x configurations
- Eye-of-the-needle connector and cage single step termination yields consistent application to the PCB
- The external cable strain relief results in an axial pull force in excess of 20 lbs
- Cable latch design reduces cable insertion force and un-mating issues
- Pull tabs are available in multiple lengths in Pantone 279 color to meet many application needs.
- Positive stop feature on the casting prevents external cable assembly mating over-travel.
- Hybrid external cables (mini-SAS HD to mini-SAS) allow for backwards compatible cabling with legacy system hardware

### TARGET MARKETS / APPLICATIONS

- **DATA**
  - Servers
  - RAID systems
  - Storage racks
- **EXTERNAL STORAGE SYSTEMS**
  - SAS/SATA HBA interfaces
  - Direct-attached storage (DAS)
- **COMMUNICATIONS**
  - Switches

## TECHNICAL INFORMATION

### ■ MATERIALS

- Board Receptacle Contact: Copper alloy
- Board Receptacle Housing: Thermoplastic high temperature UL94V-0
- Board Receptacle Plating: Gold over Nickel
- Plug Paddle Card: Copper/FR4 – Gold over Nickel plating.

### ■ ELECTRICAL PERFORMANCE

- Impedance: 100 +/- 15Ω
- Voltage Rating: 30 Volts AC (RMS)/DC Max
- Current Rating: 0.5 Amps Max

### ■ APPROVALS AND CERTIFICATIONS

- RoHS conforms to EU directive 2002/95/EC
- UL Approval

### ■ PACKAGING

- Board Receptacle: Tray
- Plug/Cable Assembly: Bag

### ■ ENVIRONMENTAL

- Thermal Shock (temperature cycling): conforms to EIA-364-32
- Temperature life (heat aging): conforms to EIA-361-17, 105°C for 500 hours
- Operating temperature range : -40°C to 80°C

### ■ MECHANICAL PERFORMANCE

- Durability: 250 cycles

### ■ SPECIFICATIONS

- Product Spec: GS-12-651
- Application Specification: GS-20-0327



Internal Mini-SAS HD  
Cables



External Mini-SAS HD  
Cables



External Mini-SAS HD  
Connectors



Internal Mini-SAS HD  
Connectors

**PART NUMBERS External and Internal Board Connectors**

| Part Number    | Product Description   | Signal Pairs |
|----------------|---|--------------|
| 10112626-101LF | Mini-SAS HD 1 X 1 External Assembly (6 & 12 Gb/s per channel) | 8 Pairs      |
| 10112627-101LF | Mini-SAS HD 1 X 2 External Assembly (6 & 12 Gb/s per channel) | 16 Pairs     |
| 10112628-101LF | Mini-SAS HD 1 X 4 External Assembly (6 & 12 Gb/s per channel) | 32 Pairs     |
| 10112632-101LF | Mini-SAS HD 1 X 1 Internal Assembly (6 & 12 Gb/s per channel) | 8 Pairs      |
| 10112633-101LF | Mini-SAS HD 1 X 2 Internal Assembly (6 & 12 Gb/s per channel) | 16 Pairs     |
| 10112634-101LF | Mini-SAS HD 1 X 4 Internal Assembly (6 & 12 Gb/s per channel) | 32 Pairs     |

**PART NUMBERS External and Internal Cable Assemblies**

| Part Number | Product Description   | Signal Pairs |
|-------------|---|--------------|
| 10112041    | Mini-SAS HD to mini-SAS HD passive external cable assembly - 4x configuration – SAS 2.1 ( 6Gb/s ) compatible  | 8 pairs      |
| 10117771    | Mini-SAS HD to mini-SAS passive external cable assembly - SAS 2.1 ( 6Gb/s ) compatible - 4x configuration on mini-SAS HD end and universal keying on mini-SAS end | 8 pairs      |
| 10112359    | Mini-SAS HD to mini-SAS HD passive external cable assembly - 8x configuration – SAS 2.1 ( 6Gb/s ) compatible  | 16 pairs     |
| 10117947    | Mini-SAS HD to mini-SAS passive external cable assembly - SAS 2.1 ( 6Gb/s ) compatible - 8x configuration on mini-SAS HD end and universal keying on mini-SAS end | 16 pairs     |
| 10117949    | Mini-SAS HD to mini-SAS HD passive external cable assembly - 4x configuration – proposed SAS 3.0 ( 12Gb/s ) compatible  | 8 pairs      |
| 10117950    | Mini-SAS HD to mini-SAS HD passive external cable assembly - 8x configuration-proposed SAS 3.0 ( 12Gb/s ) compatible  | 16 pairs     |
| 10119217    | Mini-SAS HD to mini-SAS HD passive internal cable assembly - 4x configuration – SAS 2.1 ( 6Gb/s ) compatible  | 8 pairs      |
| 10119312    | Mini-SAS HD to mini-SAS HD passive internal cable assembly - 4x configuration – SAS 3.0 ( 12Gb/s ) compatible   | 8 pairs      |
| 10119577    | Mini-SAS HD to mini-SAS HD passive internal cable assembly - 8x configuration – SAS 2.1 ( 6Gb/s ) compatible  | 16 pairs     |
| 10119576    | Mini-SAS HD to mini-SAS HD passive internal cable assembly - 8x configuration – SAS 3.0 ( 12Gb/s ) compatible   | 16 pairs     |

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