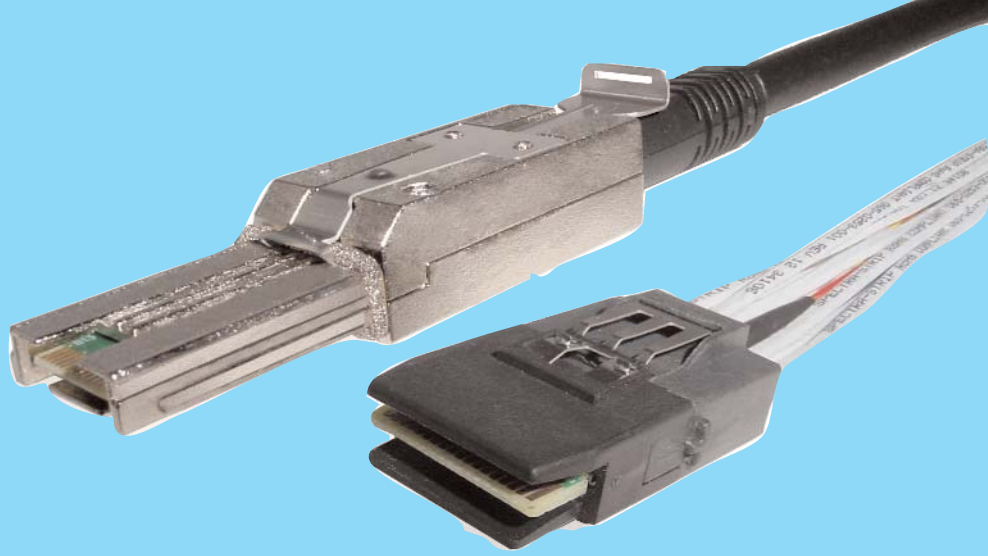


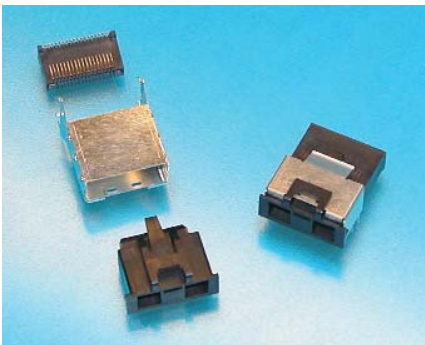


THE DATASHEET OF
1888174-4





EVERCLEAR Mini Multi-Lane High Speed Interconnects & Cable Assemblies



DESCRIPTION

Tyco Electronics' EVERCLEAR product family is the next generation high speed multi-lane interconnect for both internal and external solutions, including both receptacles and cable assemblies. The system is designed to be compliant to SFF-8086, 8087 and 8088 standards.

APPLICATIONS

- High Speed I/O
- Multiple Channels Interconnects
- Switches for Fibre Channel and Infiniband Standards
- Internal and External SAS and SATA

KEY FEATURES

- 26 and 36 position receptacles
- Keying options available
- Tested at data rates beyond 10 Gb/s
- High density 0.8mm contact spacing
- SMT PCB attachment for high speed signaling
- Cable assemblies available equalized and unequalized
- Standard and custom cable assembly lengths
- Robust pull tab latch release

TECHNICAL DOCUMENTS

- Product Specification: 108-2234
- Qualification Test Report: 501-638

INDUSTRY STANDARDS

- SFF-8087: Internal 36 Position Mini SAS
- SFF-8088: Internal 26 Position Mini SAS with Keys

FOR MORE INFORMATION

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Canada: 1-905-470-4425

UK: 44-141-810-8967

Japan: 81-44-844-8013

PRODUCT APPLICATION

Internal Mini-SAS, SATA



Connectors:

| | SMT Receptacle (36 pos) | Solder tail length (shell) | Shell | Combined Assembly |
|-------------|----------------------------|-------------------------------|-------------|----------------------|
| Vertical | 1888020-4 | 2.0 mm (.08 in) | 1888413-4 | 1888174-2 |
| | 1888020-4 | 2.8 mm (.11 in) | 1888413-6 | 1888174-4 |
| | 1888020-4 | 3.5 mm (.14 in) | 1888413-8 | 1888174-6 |
| Right Angle | 1761987-8 | 2.0 mm (.08 in) | 1888021-4 | 1888019-2 |
| | 1761987-8 | 2.8 mm (.11 in) | 1-1888021-2 | 1888019-6 |
| | 1761987-8 | 3.5 mm (.14 in) | 1-1888021-6 | 1888019-8 |

Receptacles and shells can be ordered separately or as a combined assembly for single step processing.

External Mini-SAS, SATA



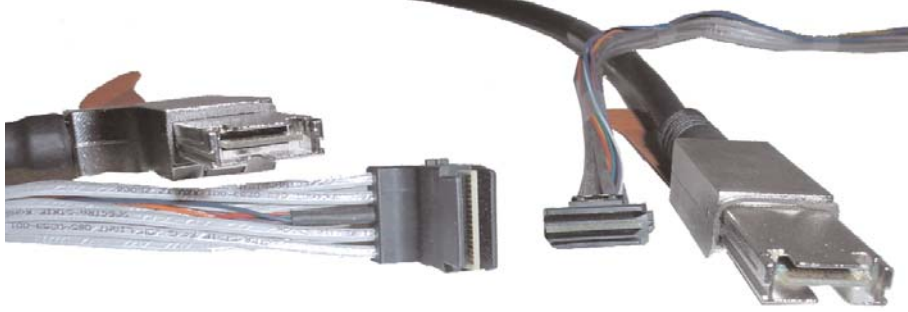
Connectors:

| | 1 Port | 2 Port | 3 Port | 4 Port |
|-----------------------------|-----------|-----------|-----------|-----------|
| Receptacle (26 position) | 1761987-7 | 1761987-7 | 1761987-7 | 1761987-7 |
| Shield (universal key #4) * | 1888321-1 | 1888321-2 | 1888321-3 | 1888321-4 |

* Other key and port configurations available, see Tyco Electronics' drawing 1888321.

PRODUCT APPLICATION

Internal & External Mini SAS Cable Assemblies



| | 0.23 Meter | 0.30 Meter | 0.5 Meter | 1.0 Meter |
|--------------------------------|------------|------------|-----------|-----------|
| Internal Cable Assembly | 1902752-2 | 1902752-3 | 1902752-1 | 1902752-4 |



| Type | P/N | Length | AWG | Equalization |
|---|-----------|------------|-----|--------------|
| Mini SAS to Mini SAS Standard keying (2-4, 4-6) | 1928391-1 | 0.5 meter | 28 | Unequalized |
| | 1928391-2 | 1.0 meter | 28 | Unequalized |
| | 1928391-3 | 2.0 meters | 28 | Equalized |
| | 1928391-4 | 3.0 meters | 28 | Equalized |
| | 1928391-5 | 4.0 meters | 28 | Equalized |
| | 1928391-6 | 5.0 meters | 28 | Equalized |
| | 1928391-7 | 6.0 meters | 24 | Equalized |
| | 1928391-8 | 4.0 meters | 24 | Equalized |
| | 1928391-9 | 5.0 meters | 24 | Equalized |
| Mini SAS to Mini SAS Universal Keying (2-4-6,6-4-2) | 2053534-1 | 0.5 meter | 28 | Unequalized |
| | 2053534-2 | 1.0 meter | 28 | Unequalized |
| | 2053534-3 | 2.0 meters | 28 | Equalized |
| | 2053534-4 | 3.0 meters | 28 | Equalized |
| | 2053534-5 | 4.0 meters | 28 | Equalized |
| | 2053534-6 | 5.0 meters | 28 | Equalized |
| | 2053534-7 | 6.0 meters | 24 | Equalized |
| | 2053534-8 | 4.0 meters | 24 | Equalized |
| | 2053534-9 | 5.0 meters | 24 | Equalized |
| Mini SAS to SAS 4X Universal Key (2-4-6) | 1928392-1 | 0.5 meter | 28 | Unequalized |
| | 1928392-2 | 1.0 meter | 28 | Unequalized |
| | 1928392-3 | 2.0 meters | 28 | Unequalized |
| | 1928392-4 | 3.0 meters | 28 | Equalized |
| | 1928392-5 | 4.0 meters | 28 | Equalized |
| | 1928392-6 | 5.0 meters | 28 | Equalized |
| | 1928392-7 | 6.0 meters | 28 | Equalized |

Other keying options are available.

Cable Assembly Options:

- Custom cable lengths
- Customized Equalization
- Various keying options
- Internal assembly side bands
- Right angle connector assemblies

*Please contact Tyco Electronics for specific requirements or additional information.



ELECTRICAL TESTING

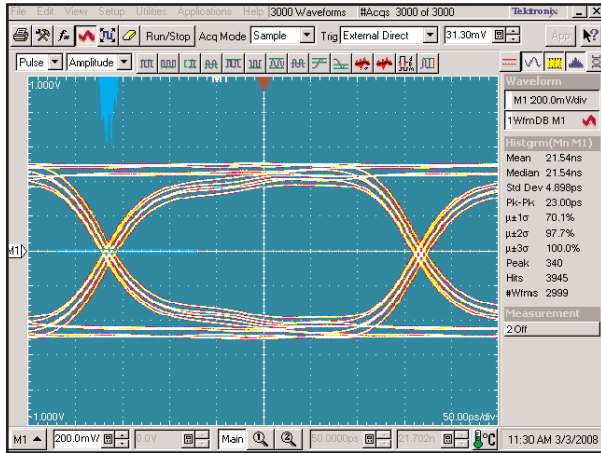
EVERCLEAR External Cable Assembly Test Results Summary

| Cable AWG | Cable Length [M] | Impedance 100+/-10 OHMS | | Intra-Pair Skew 50 PS Max | ISI 60 PS Max | Insertion Loss | Near-End Cross Talk |
|-----------|------------------|-------------------------|-------|---------------------------|---------------|----------------|---------------------|
| | | Min. | Max. | | | | |
| 28 | 0.5 | 90.9 | 105.6 | 3.1 | 19 | See Report | See Report |
| 28 | 1 | 90.9 | 105.6 | 1.8 | 23 | See Chart | See Chart |
| 28 | 2 | 90.9 | 105.4 | 2.6 | 17 | See Report | See Report |
| 28 | 3 | 90.8 | 107.6 | 4.9 | 23 | See Report | See Report |
| 24 | 4 | 91.6 | 104.6 | 2.6 | 14 | See Report | See Report |
| 24 | 5 | 91.8 | 103.6 | 4.3 | 16 | See Chart | See Chart |
| 24 | 6 | 91.7 | 102.8 | 0.6 | 17 | See Report | See Report |

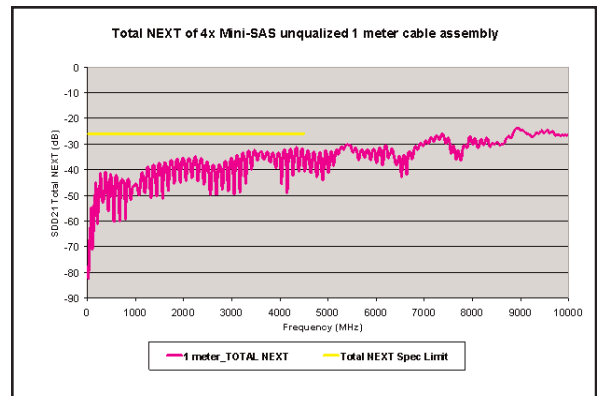
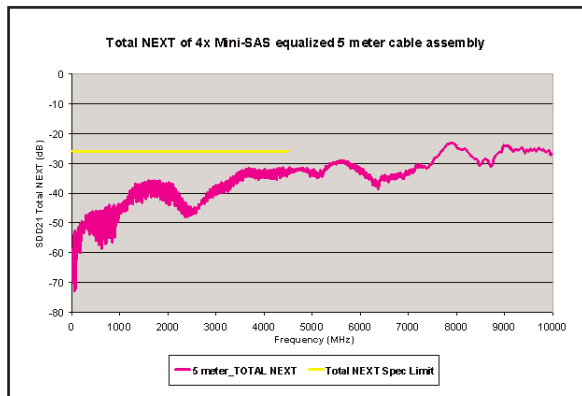
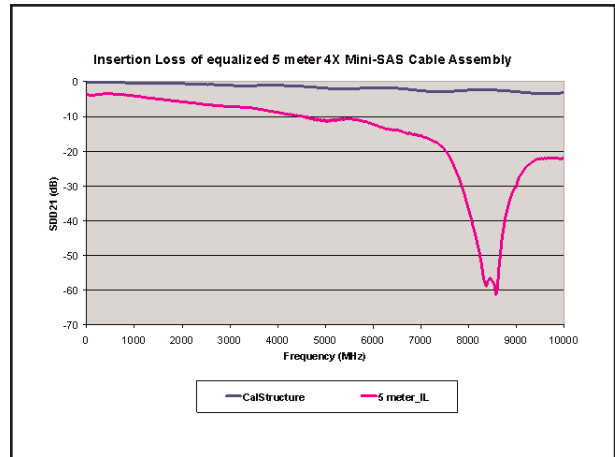
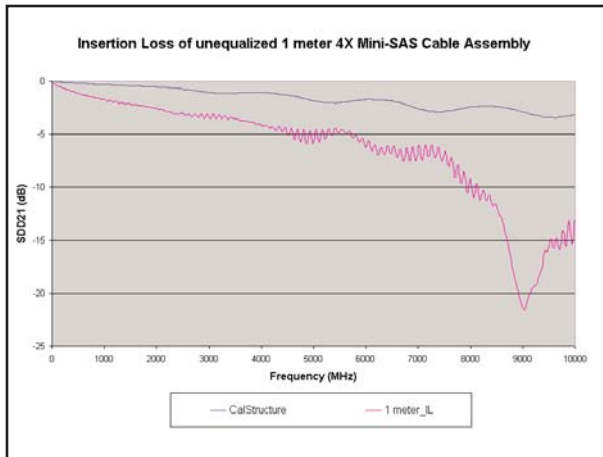
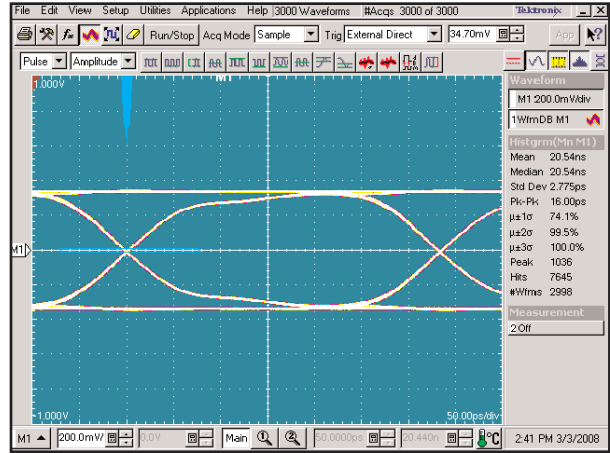
Test Report available from Tyco Electronics upon request.

ISI Through Cable Assembly Measurements

1m Cable Assembly (Unequalized)



5m Cable Assembly (Equalized)



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- Downloadable Technical Data Customer Information Presentation
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