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4. The High Speed Connector Product Family
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   2) SFP+ Single Port Connector and Cage Description
   3) SFP Stacks Connector Description
   4) SFP+ Stacks Connector Description
   5) SFP 28 Connector Description
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   8) QSFP-DD Connector Description
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## Pluggable high speed connector Protocol Guide

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<tr>
<th>Aggregate Data Rate Per Port</th>
<th>I/O Protocol:</th>
<th>Ethernet</th>
<th>Fibre Channel</th>
<th>InfiniBand</th>
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<th>SFP+ 28</th>
<th>QSFP+</th>
<th>QSFP+ 28</th>
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</table>
2. The Applications for High Speed Connector
2. The Applications for High Speed Connector

- Fibre Channel and Gigabit Ethernet
- Networking
- Storage
- Telecommunications
- Hubs, Switches, Routers, Servers, Network Interface Cards (NICs)
2. The Applications for High Speed Connector
MNC’s single port SFP cage have a integrated construction with enhanced transceiver mating tabs available in a press-fit versions (1xN) consist of SMT connectors used with a separate single row cage (press-fit or solder tail)

SFP cages in single port and multi-port designs for added density. Chassis grounds are achieved through EMI springs at the bezel interface and ensure EMI containment.
SFP 1x1 Cage

Features
◆ Compliant with INF-8074i specification.
◆ Full metal shield for grounding and EMI suppression
◆ Single port by integrated piece cages available
◆ Compatible with SFP MSA Compliant Modules

Materials
◆ Cage
  Base Material: Copper Alloy
  Plating: Pre-plating Nickel

Mechanical Characteristics
◆ Cage Press-fit insertion force: 500N
◆ Cage Press-fit extraction force: 80N
◆ Module retention: 180N
◆ Cage kick-out spring force: 11.5N~22N
◆ Insertion/removal cycles, transceiver into cage assembly: 100 cycles

Temperature and Electrical
◆ Temperature Rating
  Operating Temperature: -55°C to +85°C
  Storage Temperature: -55°C to +105°C

Part Number Description
S01-A xx - x 1N16-00

<table>
<thead>
<tr>
<th>Different Special Type</th>
<th>Tail Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>01=Stand</td>
<td>S=Sold Pin</td>
</tr>
<tr>
<td>02=With Heat Sink and Light Pipe</td>
<td>P=Press-fit</td>
</tr>
</tbody>
</table>
4. High Speed Connector Product Family

**SFP 1x4 Cage**

**Features**
- Compliant with INF-8074i specification.
- Full metal shield for grounding and EMI suppression
- Multi port by two piece cages available
- Compatible with SFP MSA Compliant Modules

**Materials**
- Cage
  - Base Material: Copper Alloy
  - Plating: Pre-plating Nickel

**Mechanical Characteristics**
- Cage Press-fit insertion force: 900N
- Cage Press-fit extraction force: 130N
- Module retention: 180N
- Cage kick-out spring force: 11.5N~22N
- Insertion/removal cycles, transceiver into cage assembly : 100 cycles

**Temperature and Electrical**
- Temperature Rating
  - Operating Temperature: -55°C to +85°C
  - Storage Temperature: -55°C to +105°C

**Part Number Description**

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<thead>
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<tr>
<td>01=Stand</td>
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</tr>
<tr>
<td>02=With Heat Sink and Light Pipe</td>
<td>P=Press-fit</td>
</tr>
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</table>

S01-D xx - x 1N16-00
SFP 1x6 Cage

Features
◆ Compliant with INF-8074i specification.
◆ Full metal shield for grounding and EMI suppression
◆ Multi port by two piece cages available
◆ Compatible with SFP MSA Compliant Modules

Materials
◆ Cage
  - Base Material: Copper Alloy
  - Plating: Pre-plating Nickel

Mechanical Characteristics
◆ Cage Press-fit insertion force: 1330N
◆ Cage Press-fit extraction force: 175N
◆ Module retention: 180N
◆ Cage kick-out spring force: 11.5N~22N
◆ Insertion/removal cycles, transceiver into cage assembly: 100 cycles

Temperature and Electrical
◆ Temperature Rating
  - Operating Temperature: -55°C to +85°C
  - Storage Temperature: -55°C to +105°C

Part Number Description
S01-F xx - x 1N16-00

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<tr>
<td>02=With Heat Sink and Light Pipe</td>
<td>P=Press-fit</td>
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</table>
2) SFP+ Single Port Connector And Cage Product Family

MNC’s SFP+ 1xN connector, when combined with the SFP+ cage, provides data transfer speed of up to 10Gbps. The design of the SFP+ connector minimizes impedance discontinuities and reflections at high data rates, and provides a 10 to 20 dB improvement in Near-End Crosstalk.

SFP+ cages are offered with both EMI springs for EMI containment at the panel opening, and come in single port, ganged and stacked port configurations. A conductive EMI plug is available to reduce EMI through an empty (unused) SFP+ cage port.
4. High Speed Connector Product Family

SFP+ 20 Pin SMT Connector

Features
◆ Compliant with SFF-8432 specification.
◆ Supports data rates up to 16 Gb/s - meets requirements
◆ Uses 20 position PT (Pluggable Transceiver) connector
◆ SMT design packaged in tape and reel to ensure easy pick-and-place to the PCB
◆ Backward-compatible with SFP connectors
◆ Compatible with SFP MSA Compliant Modules

Materials
◆ Contact:
  Base Material: Copper Alloy
  Plating: Contact area is gold plating over nickel
◆ Housing: High temperature thermoplastic, UL94 V-0

Mechanical Characteristics
◆ Transceiver insertion force: 40N
◆ Transceiver extraction force: 11.5N
◆ Durability: 250 cycle

Temperature and Electrical
◆ Temperature Rating
  Operating Temperature: -55℃ to +85℃
  Storage Temperature: -55℃ to +105℃
◆ Electrical Characteristics
  Contact Resistance: 35mΩ
  Current: 0.5A
  Dielectric Withstanding Voltage: 300V
  Insulation Resistance: 500MΩ

Part Number Description
S03-A01 - S1Gxx-00

Terminal Plating

<table>
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<th>15.0u“</th>
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<tbody>
<tr>
<td>17</td>
<td>30.0u“</td>
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</table>
4. High Speed Connector Product Family

SFP+ 1x1 Cage with EMI Spring

Features
◆ Compliant with SFF-8432 specification.
◆ Full metal shield for grounding and EMI suppression
◆ Single port by integrated piece cages available
◆ Compatible with SFP MSA Compliant Modules

Materials:
◆ Cage
  Base Material: Copper Alloy
  Plating: Pre-plating Nickel
◆ EMI Spring
  Base Material: Copper Alloy

Mechanical Characteristics:
◆ Cage Press-fit insertion force: 500N
◆ Cage Press-fit extraction force: 80N
◆ Module retention: 180N
◆ Cage kick-out spring force: 11.5N~22N
◆ Insertion/removal cycles, transceiver into cage assembly: 100 cycles

Temperature and Electrical
◆ Temperature Rating
  Operating Temperature: -55°C to +85°C
  Storage Temperature: -55°C to +105°C

Part Number Description
S02-A xx - x 1N16-00

Different Special Type
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<th>01=Stand</th>
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<td>02=With Heat Sink and Light Pipe</td>
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Tail Type
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<th>S=Sold Pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>P=Press-fit</td>
</tr>
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</table>
4. High Speed Connector Product Family

SFP+ 1x4 Cage with EMI Spring

Features
◆ Compliant with SFF-8432 specification.
◆ Full metal shield for grounding and EMI suppression
◆ Multi port by two piece cages available
◆ Compatible with SFP MSA Compliant Modules

Materials:
◆ Cage
  Base Material: Copper Alloy
  Plating: Pre-plating Nickel
◆ EMI Spring
  Base Material: Copper Alloy

Mechanical Characteristics:
◆ Cage Press-fit insertion force: 900N
◆ Cage Press-fit extraction force: 130N
◆ Module retention: 180N
◆ Cage kick-out spring force: 11.5N~22N
◆ Insertion/removal cycles, transceiver into cage assembly: 100 cycles

Temperature and Electrical
◆ Temperature Rating
  Operating Temperature: -55°C to +85°C
  Storage Temperature: -55°C to +105°C

Part Number Description
S02-D xx - x 1N16-00

<table>
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<th>Tail Type</th>
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<td>S=Sold Pin</td>
</tr>
<tr>
<td>02=With Heat Sink and Light Pipe</td>
<td>P=Press-fit</td>
</tr>
</tbody>
</table>
4. High Speed Connector Product Family

SFP+ 1x6 Cage with EMI Spring

Features
◆ Compliant with SFF-8432 specification.
◆ Full metal shield for grounding and EMI suppression
◆ Multi port by two piece cages available
◆ Compatible with SFP MSA Compliant Modules

Materials:
◆ Cage
  Base Material: Copper Alloy
  Plating: Pre-plating Nickel
◆ EMI Spring
  Base Material: Copper Alloy

Mechanical Characteristics:
◆ Cage Press-fit insertion force: 1330N
◆ Cage Press-fit extraction force: 175N
◆ Module retention: 180N
◆ Cage kick-out spring force: 11.5N~22N
◆ Insertion/removal cycles, transceiver into cage assembly: 100 cycles

Temperature and Electrical
◆ Temperature Rating
  Operating Temperature: -55°C to +85°C
  Storage Temperature: -55°C to +105°C

Part Number Description
S02-F xx - x 1N16-00

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<th>Different Special Type</th>
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<td>S=Sold Pin</td>
</tr>
<tr>
<td>02=With Heat Sink and Light Pipe</td>
<td>P=Press-fit</td>
</tr>
</tbody>
</table>
3) SFP Stacked Connector Description

MNC’s stacked SFP combos are rated up to 6 Gbps. The connector accepts multiple transceivers per INF-8074i and combines, transmits, and receives functions in a low cost, compact, and flexible format. The cage have a two-piece construction with enhanced transceiver mating tabs available in a press-fit Version or a solder tail version. Longer and shorter pins are available as custom options. Stacked versions(2xN) consist of a 2-row cage with integrated 2-row connectors.

The connector is integrated into the cage assembly, using press-fit technology for one-step insertion for cage and connector. Two heights are offered for stacked SFP cages, and available in 2x1, 2x2, 2x4, and 2x6 port configurations.
SFP 2x1 Connector Assembly

Features
◆ Compliant with INF-8074i specification.
◆ Full metal shield for grounding and EMI suppression
◆ Incorporates press fit eye-of-the-needle contacts for both mechanical cages and electrical connector
◆ Compatible with SFP MSA Compliant Modules

Mechanical Characteristics:
◆ Transceiver insertion force: 40N
◆ Transceiver extraction force: 11.5N
◆ Cage Press-fit insertion force: 1500N
◆ Cage Press-fit extraction force: 150N
◆ Module retention: 180N
◆ Cage kick-out spring force: 11.5N~22N
◆ Insertion/removal cycles, transceiver into cage assembly: 100 cycles

Electrical Characteristics
◆ Hot Swappable
◆ Contact Resistance: 35mΩ
◆ Current: 0.5A
◆ Voltage: 120V
◆ Dielectric Withstanding Voltage: 300V
◆ Insulation Resistance: 1000MΩ MIN
4. High Speed Connector Product Family

Materials:
◆ Cage
  Base Material: Copper Alloy
  Plating: Pre-plating Nickel
◆ Connector
  Terminal: Copper Alloy
  Plating: Contact area is gold plating over nickel
  Housing: High temperature thermoplastic, UL94 V-0
Molding Housing: High temperature thermoplastic, UL94 V-0
◆ Light Pipe: PC
◆ Kick-out Spring: Stainless Steel

Options:
◆ For 1 Port Light Pipe
  4 Light Pipe
  2 Inner Pipes per
  2 Outer Light Pipes per
  Without Light Pipe

Packaging:
◆ Tray Packaging: Cage and Connector Assembly
◆ Bulk Packaging: Dust Cover

Part Number Description:
S01-Gxx-P1Gxx-00

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<th>Light Pipes per</th>
<th>Connector Plating</th>
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<tr>
<td>04=2 Inner Pipes per</td>
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<td>05=2 Outer Pipes per</td>
<td></td>
</tr>
<tr>
<td>06=Without Light Pipe</td>
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</table>
SFP 2x2 Connector Assembly

Features
◆ Compliant with INF-8074i specification.
◆ Full metal shield for grounding and EMI suppression
◆ Incorporates press fit eye-of-the-needle contacts for both mechanical cages and electrical connector
◆ Compatible with SFP MSA Compliant Modules

Mechanical Characteristics:
◆ Transceiver insertion force: 40N
◆ Transceiver extraction force: 11.5N
◆ Cage Press-fit insertion force: 2000N
◆ Cage Press-fit extraction force: 300N
◆ Module retention: 180N
◆ Cage kick-out spring force: 11.5N~22N
◆ Insertion/removal cycles, transceiver into cage assembly: 100 cycles

Electrical Characteristics
◆ Hot Swappable
◆ Contact Resistance: 35mΩ
◆ Current: 0.5A
◆ Voltage: 120V
◆ Dielectric Withstanding Voltage: 300V
◆ Insulation Resistance: 1000MΩ MIN
Materials:

◆ Cage
  Base Material: Copper Alloy
  Plating: Pre-plating Nickel

◆ Connector
  Terminal: Copper Alloy
  Plating: Contact area is gold plating over nickel
  Housing: High temperature thermoplastic, UL94 V-0
  Molding Housing: High temperature thermoplastic, UL94 V-0

◆ Light Pipe: PC

◆ Kick-out Spring: Stainless Steel

Options:

◆ For 1 Port Light Pipe
  4 Light Pipe
  2 Inner Pipes per
  2 Outer Light Pipes per
  Without Light Pipe

Packaging:

◆ Tray Packaging: Cage and Connector Assembly
◆ Bulk Packaging: Dust Cover

Part Number Description:

S01-Hxx- P1Gxx - 00

<table>
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<th>Connector Plating</th>
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<tr>
<td>04=2 Inner Pipes per</td>
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<tr>
<td>05=2 Outer Pipes per</td>
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</tr>
<tr>
<td>06=Without Light Pipe</td>
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</table>
SFP 2x4 Connector Assembly

Features

◆ Compliant with INF-8074i specification.
◆ Full metal shield for grounding and EMI suppression
◆ Incorporates press fit eye-of-the-needle contacts for both mechanical cages and electrical connector
◆ Compatible with SFP MSA Compliant Modules

Mechanical Characteristics:

◆ Transceiver insertion force: 40N
◆ Transceiver extraction force: 11.5N
◆ Cage Press-fit insertion force: 4445N
◆ Cage Press-fit extraction force: 445N
◆ Module retention: 180N
◆ Cage kick-out spring force: 11.5N~22N
◆ Insertion/removal cycles, transceiver into cage assembly: 100 cycles

Electrical Characteristics

◆ Hot Swappable
◆ Contact Resistance: 35mΩ
◆ Current: 0.5A
◆ Voltage: 120V
◆ Dielectric Withstanding Voltage: 300V
◆ Insulation Resistance: 1000MΩ MIN
4. High Speed Connector Product Family

Materials:
- **Cage**
  - Base Material: Copper Alloy
  - Plating: Pre-plating Nickel
- **Connector**
  - Terminal: Copper Alloy
  - Plating: Contact area is gold plating over nickel
  - Housing: High temperature thermoplastic, UL94 V-0
  - Molding Housing: High temperature thermoplastic, UL94 V-0
- **Light Pipe**: PC
- **Kick-out Spring**: Stainless Steel

Options:
- **For 1 Port Light Pipe**
  - 4 Light Pipe
  - 2 Inner Pipes per
  - 2 Outer Light Pipes per
  - Without Light Pipe

Packaging:
- **Tray Packaging**: Cage and Connector Assembly
- **Bulk Packaging**: Dust Cover

Part Number Description:

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S01-Jxx- P1Gxx - 00
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<table>
<thead>
<tr>
<th>Light Pipes per</th>
<th>Connector Plating</th>
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</thead>
<tbody>
<tr>
<td>01=4 Light Pipe</td>
<td>16=Plating Au 15.0u”</td>
</tr>
<tr>
<td>04=2 Inner Pipes per</td>
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</tr>
<tr>
<td>05=2 Outer Pipes per</td>
<td></td>
</tr>
<tr>
<td>06=Without Light Pipe</td>
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</tbody>
</table>
SFP 2x6 Connector Assembly

Features
- Compliant with INF-8074i specification.
- Full metal shield for grounding and EMI suppression
- Incorporates press fit eye-of-the-needle contacts for both mechanical cages and electrical connector
- Compatible with SFP MSA Compliant Modules

Mechanical Characteristics:
- Transceiver insertion force: 40N
- Transceiver extraction force: 11.5N
- Cage Press-fit insertion force: 6400N
- Cage Press-fit extraction force: 640N
- Module retention: 180N
- Cage kick-out spring force: 11.5N~22N
- Insertion/removal cycles, transceiver into cage assembly: 100 cycles

Electrical Characteristics
- Hot Swappable
- Contact Resistance: 35mΩ
- Current: 0.5A
- Voltage: 120V
- Dielectric Withstanding Voltage: 300V
- Insulation Resistance: 1000MΩ MIN
**Materials:**

- **Cage**
  - Base Material: Copper Alloy
  - Plating: Pre-plating Nickel
- **Connector**
  - Terminal: Copper Alloy
  - Plating: Contact area is gold plating over nickel
  - Housing: High temperature thermoplastic, UL94 V-0
  - Molding Housing: High temperature thermoplastic, UL94 V-0
- **Light Pipe**: PC
- **Kick-out Spring**: Stainless Steel

**Options:**

- For 1 Port Light Pipe
  - 4 Light Pipe
  - 2 Inner Pipes per
  - 2 Outer Light Pipes per
  - Without Light Pipe

**Packaging:**

- Tray Packaging: Cage and Connector Assembly
- Bulk Packaging: Dust Cover

**Part Number Description:**

```
S01-Lxx- P1Gxx - 00
```

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>00=4 Light Pipe</td>
<td>16=Plating Au 15.0u”</td>
</tr>
<tr>
<td>04=2 Inner Pipes per</td>
<td>17=Plating Au 30.0u”</td>
</tr>
<tr>
<td>05=2 Outer Pipes per</td>
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</tr>
<tr>
<td>06=Without Light Pipe</td>
<td></td>
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</tbody>
</table>
4) SFP+ 2xN Connector Assembly Product Family

MNC’s SFP interconnector system consists of a 20-position connector enclosed in a metal cage mounted to a host PCB. MNC’s stacked SFP+ combos are rated up to 16 Gbps. The connector accepts multiple transceivers per SFF-8432 and combines, transmits, and receives functions in a low cost, compact, and flexible format. The cage have a two-piece construction with enhanced transceiver mating tabs available in a press-fit Version or a solder tail version. Longer and shorter pins are available as custom options. Stacked versions (2xN) consist of a 2-row cage with integrated 2-row connector.
4. High Speed Connector Product Family

SFP+  2x1  Connector Assembly

Features
◆ Compliant with SFF-8432 specification.
◆ Full metal shield for grounding and EMI suppression
◆ Incorporates press fit eye-of-the-needle contacts for both mechanical cages and electrical connector
◆ Compatible with SFP MSA Compliant Modules

Mechanical Characteristics:
◆ Transceiver insertion force: 40N
◆ Transceiver extraction force: 11.5N
◆ Cage Press-fit insertion force: 1500N
◆ Cage Press-fit extraction force: 150N
◆ Module retention: 180N
◆ Cage kick-out spring force: 11.5N~22N
◆ Insertion/removal cycles, transceiver into cage assembly : 100 cycles

Electrical Characteristics
◆ Hot Swappable
◆ Contact Resistance: 35mΩ
◆ Current: 0.5A
◆ Voltage: 120V
◆ Dielectric Withstanding Voltage: 300V
◆ Insulation Resistance: 1000MΩ MIN
4. High Speed Connector Product Family

Materials:
◆ Cage
  Base Material: Copper Alloy
  Plating: Pre-plating Nickel
◆ EMI Spring
  Base Material: Copper Alloy
  Plating: Pre-plating Nickel
◆ Connector
  Terminal: Copper Alloy
  Plating: Contact area is gold plating over nickel
  Housing: High temperature thermoplastic, UL94 V-0
  Molding Housing: High temperature thermoplastic, UL94 V-0
◆ Light Pipe: PC
◆ Kick-out Spring: Stainless Steel

Options:
◆ For 1 Port Light Pipe
  4 Light Pipe
  2 Inner Pipes per
  2 Outer Light Pipes per
  Without Light Pipe

Packaging:
◆ Tray Packaging: Cage and Connector Assembly
◆ Bulk Packaging: Dust Cover

Part Number Description:
S03-Gxx- P1Gxx - 00

<table>
<thead>
<tr>
<th>Light Pipes per</th>
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<td>00=4 Light Pipe</td>
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</tr>
<tr>
<td>04=2 Inner Pipes per</td>
<td></td>
</tr>
<tr>
<td>05=2 Outer Pipes per</td>
<td></td>
</tr>
<tr>
<td>06=Without Light Pipe</td>
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<table>
<thead>
<tr>
<th>Connector Plating</th>
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<tbody>
<tr>
<td>16=Plating Au 15.0μ&quot;</td>
</tr>
<tr>
<td>17=Plating Au 30.0μ&quot;</td>
</tr>
</tbody>
</table>
4. High Speed Connector Product Family

SFP+ 2x2 Connector Assembly

Features
◆ Compliant with SFF-8432 specification.
◆ Full metal shield for grounding and EMI suppression
◆ Incorporates press fit eye-of-the-needle contacts for both mechanical cages and electrical connector
◆ Compatible with SFP MSA Compliant Modules

Mechanical Characteristics:
◆ Transceiver insertion force: 40N
◆ Transceiver extraction force: 11.5N
◆ Cage Press-fit insertion force: 2000N
◆ Cage Press-fit extraction force: 300N
◆ Module retention: 180N
◆ Cage kick-out spring force: 11.5N~22N
◆ Insertion/removal cycles, transceiver into cage assembly: 100 cycles

Electrical Characteristics
◆ Hot Swappable
◆ Contact Resistance: 35mΩ
◆ Current: 0.5A
◆ Voltage: 120V
◆ Dielectric Withstanding Voltage: 300V
◆ Insulation Resistance: 1000MΩ MIN
4. High Speed Connector Product Family

**Materials:**
- **Cage**
  - Base Material: Copper Alloy
  - Plating: Pre-plating Nickel
- **EMI Spring**
  - Base Material: Copper Alloy
  - Plating: Pre-plating Nickel
- **Connector**
  - Terminal: Copper Alloy
  - Plating: Contact area is gold plating over nickel
  - Housing: High temperature thermoplastic, UL94 V-0
  - Molding Housing: High temperature thermoplastic, UL94 V-0
- **Light Pipe**: PC
- **Kick-out Spring**: Stainless Steel

**Options:**
- **For 1 Port Light Pipe**
  - 4 Light Pipe
  - 2 Inner Pipes per
  - 2 Outer Light Pipes per
  - Without Light Pipe

**Packaging:**
- **Tray Packaging**: Cage and Connector Assembly
- **Bulk Packaging**: Dust Cover

**Part Number Description:**
- S03-Hxx- P1Gxx - 00

**Light Pipes per**
- 01=4 Light Pipe
- 04=2 Inner Pipes per
- 05=2 Outer Pipes per
- 06=Without Light Pipe

**Connector Plating**
- 16=Plating Au 15.0u”
- 17=Plating Au 30.0u”
4. High Speed Connector Product Family

SFP+ 2x4 Connector Assembly

Features
◆ Compliant with SFF-8432 specification.
◆ Full metal shield for grounding and EMI suppression
◆ Incorporates press fit eye-of-the-needle contacts for both mechanical cages and electrical connector
◆ Compatible with SFP MSA Compliant Modules

Mechanical Characteristics:
◆ Transceiver insertion force: 40N
◆ Transceiver extraction force: 11.5N
◆ Cage Press-fit insertion force: 4445N
◆ Cage Press-fit extraction force: 445N
◆ Module retention: 180N
◆ Cage kick-out spring force: 11.5N ~ 22N
◆ Insertion/removal cycles, transceiver into cage assembly: 100 cycles

Electrical Characteristics
◆ Hot Swappable
◆ Contact Resistance: 35mΩ
◆ Current: 0.5A
◆ Voltage: 120V
◆ Dielectric Withstanding Voltage: 300V
◆ Insulation Resistance: 1000MΩ MIN
4. High Speed Connector Product Family

Materials:
◆ Cage
  Base Material: Copper Alloy
  Plating: Pre-plating Nickel
◆ EMI Spring
  Base Material: Copper Alloy
  Plating: Pre-plating Nickel
◆ Connector
  Terminal : Copper Alloy
  Plating : Contact area is gold plating over nickel
  Housing : High temperature thermoplastic, UL94 V-0
  Molding Housing : High temperature thermoplastic, UL94 V-0
◆ Light Pipe : PC
◆ Kick-out Spring : Stainless Steel

Options:
◆ For 1 Port Light Pipe
  4 Light Pipe
  2 Inner Pipes per
  2 Outer Light Pipes per
  Without Light Pipe

Packaging:
◆ Tray Packaging: Cage and Connector Assembly
◆ Bulk Packaging: Dust Cover

Part Number Description:
S03-Jxx- P1Gxx - 00

<table>
<thead>
<tr>
<th>Light Pipes per</th>
<th>Connector Plating</th>
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</thead>
<tbody>
<tr>
<td>01=4 Light Pipe</td>
<td>16=Plating Au 15.0u”</td>
</tr>
<tr>
<td>04=2 Inner Pipes per</td>
<td>17=Plating Au 30.0u”</td>
</tr>
<tr>
<td>05=2 Outer Pipes per</td>
<td></td>
</tr>
<tr>
<td>06=Without Light Pipe</td>
<td></td>
</tr>
</tbody>
</table>
4. High Speed Connector Product Family

SFP+ 2x6 Connector Assembly

Features
◆ Compliant with SFF-8432 specification.
◆ Full metal shield for grounding and EMI suppression
◆ Incorporates press fit eye-of-the-needle contacts for both mechanical cages and electrical connector
◆ Compatible with SFP MSA Compliant Modules

Mechanical Characteristics:
◆ Transceiver insertion force: 40N
◆ Transceiver extraction force: 11.5N
◆ Cage Press-fit insertion force: 6400N
◆ Cage Press-fit extraction force: 640N
◆ Module retention: 180N
◆ Cage kick-out spring force: 11.5N~22N
◆ Insertion/removal cycles, transceiver into cage assembly: 100 cycles

Electrical Characteristics
◆ Hot Swappable
◆ Contact Resistance: 35mΩ
◆ Current: 0.5A
◆ Voltage: 120V
◆ Dielectric Withstanding Voltage: 300V
◆ Insulation Resistance: 1000MΩ MIN
4. High Speed Connector Product Family

**Materials:**
- **Cage**
  - Base Material: Copper Alloy
  - Plating: Pre-plating Nickel
- **EMI Spring**
  - Base Material: Copper Alloy
  - Plating: Pre-plating Nickel
- **Connector**
  - Terminal: Copper Alloy
  - Plating: Contact area is gold plating over nickel
  - Housing: High temperature thermoplastic, UL94 V-0
  - Molding Housing: High temperature thermoplastic, UL94 V-0
- **Light Pipe**: PC
- **Kick-out Spring**: Stainless Steel

**Options:**
- For 1 Port Light Pipe
  - 4 Light Pipe
  - 2 Inner Pipes per
  - 2 Outer Light Pipes per
  - Without Light Pipe

**Packaging:**
- Tray Packaging: Cage and Connector Assembly
- Bulk Packaging: Dust Cover

**Part Number Description:**

S03-Lxx- P1Gxx - 00

- **Light Pipes per**
  - 00=4 Light Pipe
  - 04=2 Inner Pipes per
  - 05=2 Outer Pipes per
  - 06=Without Light Pipe

- **Connector Plating**
  - 16=Plating Au 15.0u"
  - 17=Plating Au 30.0u"
5) SFP 28 Single Port Connector Product Family

MNC’s SFP 28 single port connector Ideal for applications requiring 25 Gbps data rates for next-generation Ethernet and Fibre Channel applications. The connector can support current 10 Gbps Ethernet and 16 Gbps Fibre Channel applications with additional margin without changing the host board design (for the SMT version)
4. High Speed Connector Product Family

SFP 28 20 Pin SMT Connector

Features

◆ Compliant with SFF-8432 specification.
◆ Supports data rates up to 25 Gb/s - meets requirements
◆ Uses 20 position PT (Pluggable Transceiver) connector
◆ SMT design packaged in tape and reel to ensure easy pick-and-place to the PCB
◆ Backward-compatible with SFP connectors
◆ Compatible with SFP MSA Compliant Modules

Materials

◆ Contact:
  Base Material: Copper Alloy
  Plating: Contact area is gold plating over nickel
◆ Housing: High temperature thermoplastic, UL94 V-0

Mechanical Characteristics

◆ Transceiver insertion force: 40N
◆ Transceiver extraction force: 11.5N
◆ Durability: 250 cycle

Temperature and Electrical

◆ Temperature Rating
  Operating Temperature: -55°C to +85°C
  Storage Temperature: -55°C to +105°C

◆ Electrical Characteristics
  Contact Resistance: 35mΩ
  Current: 0.5A
  Dielectric Withstanding Voltage: 300V
  Insulation Resistance: 500MΩ

Part Number Description

S03-A01 - S1Gxx-00

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<thead>
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<th>Terminal Plating</th>
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<tbody>
<tr>
<td>16=15.0u”</td>
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<tr>
<td>17=30.0u”</td>
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</table>
6) QSFP+ Single Port Connector Product Family

MNC’s QSFP+ interconnect system is comprised of a 38-position, 0.8mm pitch connector built for use in high speed serial applications. Each port offers 4 channels to increase port density which contributes to more board real estate and immense cost savings. The QSFP+ connector supports next-generation 100G+ applications and transmits up to 40 Gbps per-serial-lane making it the fastest connector in the QSFP+ market. It features a stamped and formed contact design providing improved mechanical durability and resonance dampening features for superior performance. The design minimizes crosstalk and transmission line impedance discontinuity across the connector interface at speeds up to 32 Gbps.
4. High Speed Connector Product Family

QSFP+ 38 Pin SMT Connector

Features
◆ Compliant with SFF-8436 specification.
◆ Supports data rates up to 14 Gb/s - meets requirements
◆ Uses 38 position PT (Pluggable Transceiver) connector
◆ SMT design packaged in tape and reel to ensure easy pick-and-place to the PCB

Materials
◆ Contact:
  Base Material: Copper Alloy
  Plating: Contact area is gold plating over nickel
◆ Housing: High temperature thermoplastic, UL94 V-0

Mechanical Characteristics
◆ Transceiver insertion force: 40N
◆ Transceiver extraction force: 11.5N
◆ Durability: 250 cycle

Temperature and Electrical
◆ Temperature Rating
  Operating Temperature: -55°C to +85°C
  Storage Temperature: -55°C to +105°C
◆ Electrical Characteristics
  Contact Resistance: 35mΩ
  Current: 0.5A
  Dielectric Withstanding Voltage: 300V
  Insulation Resistance: 500MΩ

Part Number Description
S05-A01 - S1Gxx-00

Terminal Plating
16=15.0u”
17=30.0u”
4. High Speed Connector Product Family

**QSFP+ 1x1 Cage**

**Features**
- Compliant with SFF-8436 specification.
- Full metal shield for grounding and EMI suppression
- Heat sinks and light pipes available
- Cages offered in single port and ganged configurations

**Materials**
- Cage
  - Base Material: Copper Alloy
  - Plating: Pre-plating Nickel
- EMI Spring
  - Base Material: Copper Alloy
  - Plating: Pre-plating Nickel
- Heat Sink: Aluminum Alloy
- Heat Sink Clip: Stainless Steel

**Temperature and Electrical**
- Temperature Rating
  - Operating Temperature: -55°C to +85°C
  - Storage Temperature: -55°C to +105°C
- Electrical Characteristics
  - Operating Voltage: 3.3V
  - Operating Current: 0.5V

**Mechanical Characteristics**
- Cage Press-fit insertion force: 600N
- Cage Press-fit extraction force: 114N / Single Press-fit extraction force: 8N
- Module Insertion: 40N
- Module Extraction: 30N
- Module retention: 125N
- Cage kick-out spring force: 11.5N~22N
- Insertion/removal cycles, transceiver into cage assembly: 100 cycles

**Part Number Description**
- S06-A xx - P1N16-00

<table>
<thead>
<tr>
<th>Different Special Type</th>
<th>Description</th>
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<td>01=Stand</td>
<td></td>
</tr>
<tr>
<td>02=With Heat Sink and Light Pipe</td>
<td></td>
</tr>
</tbody>
</table>
7) QSFP 28 Single Port Connector Product Family

MNC’s QSFP 28 interconnect system is comprised of a 38-position, 0.8mm pitch connector supporting 100 Gbps Ethernet and InfiniBand Enhanced Data Rate (EDR) applications. The QSFP 28 Interconnector System transmits up to 28 Gbps per-serial-lane data rates and offers thermal protection and TempFlex Cable Assemblies to ensure excellent signal integrity and prevent electromagnetic interference.
4. High Speed Connector Product Family

QSFP 28 38 Pin SMT Connector

Features
◆ Compliant with SFF-8662 specification.
◆ Supports data rates up to 100 Gb/s - meets requirements
◆ Uses 38 position PT (Pluggable Transceiver) connector
◆ SMT design packaged in tape and reel to ensure easy pick-and-place to the PCB

Materials
◆ Contact:
  Base Material: Copper Alloy
  Plating: Contact area is gold plating over nickel
  Tail area is Stannum plating over nickel
  Housing: High temperature thermoplastic, UL94 V-0

Mechanical Characteristics
◆ Transceiver insertion force: 40N
◆ Transceiver extraction force: 30N
◆ Durability: 100 cycle

Temperature and Electrical
◆ Temperature Rating
  Operating Temperature: -55°C to +85°C
  Storage Temperature: -55°C to +105°C
◆ Electrical Characteristics
  Contact Resistance: 35mΩ
  Current: 0.5A
  Dielectric Withstanding Voltage: 300V
  Insulation Resistance: 500MΩ

Part Number Description
S08-A01 - S1Gxx-00

Terminal Plating
16=15.0u”
17=30.0u”
8) QSFP-DD Single Port Connector Product Family

Expands on the QSFP pluggable form factor, a widely adopted four-lane electrical interface 2×1 stacked integrated cage / connector. Cage design optimizations and module case optimizations enable thermal support of at least 12w per module. QSFP-DD electrical interfaces will employ eight lanes that operate up to 25 Gbps NRZ modulation or 50 Gbps PAM4 modulation, providing solutions up to 200 Gbps or 400 Gbps aggregate. QSFP-DD can enable up to 14.4 Tbps aggregate bandwidth in a single switch slot.

QSFP-DD supports up to 400 Gb/s in aggregate over an 8 x 50 Gb/s electrical interface. The cage and connector design provides backwards compatibility to QSFP28 modules which can be inserted into a QSFP-DD port and connected to 4 of the 8 electrical channels.
5. Product Manufacture Capability

Product Production Line

- Connector Automated assembly & Automated testing
- Cage Assembly and Testing Line

Conn Automated Assembly & testing production line
（Integrated SFP/QSFP Connector）

Cage Assembly & testing production line
（Integrated SFP/QSFP Cage）
5. Product Manufacture Capability

• Automated Production Equipment

Plastic Injection Machine

High-speed Punching Machine

Metal shield punch forming machine

Automatic insert out-pin into plastic case

100% Electrical Test Machine
6. Product Quality Assurance Capability

**Reliability Test Instruments (Reliability laboratory)**

- Salt Spray Tester
- High-low Temperature Chamber
- 2.5 Times Measuring Instrument
- Thermal Shock Test Chamber
- X-Ray Analysis meter
- Tension Test Machine
## 7. Product Competition Advantage

### Customer service

<table>
<thead>
<tr>
<th></th>
<th>First time responds</th>
<th>New project cooperative development</th>
<th>Customer return visiting</th>
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<tbody>
<tr>
<td></td>
<td>• Business person .FAE</td>
<td>• Business person .FAE</td>
<td>• Business person</td>
</tr>
<tr>
<td></td>
<td>• Design team. engineering. Quality team</td>
<td>• Design team</td>
<td>• FAE</td>
</tr>
</tbody>
</table>
7. Product Competition Advantage

- Teamwork
- Advancing Design
- Excellent performance

- Make magnetic material by ourselves
- Make plastic case & pin & metal shield
- Continued improved QA system
- Qualification testing

- Automated manufacture equipment
- Product delivery time

- Excellent Design
- Manufacture capability

- High quality

- Low cost

- Make magnetic material by ourselves
- Make plastic case & pin & metal shield
Thanks!