

## MPO to 4x LC Duplex Breakout Cable for BlueOptics® QSFP



### Description

The BlueOptics® SFP5141XUXMK MPO Breakout Cable is a high density, high performance, cost effective cable solution to connect BlueOptics® QSFP Modules with 4x SFP+ Modules.

All BlueOptics® MPO Breakout Cable come with high return loss and low insertion loss.

BlueOptics® high density MPO Breakout Cables can combine up to 144 Cores in only one Cable.

BlueOptics® MPO Cables are available in many different variants to fit your needs:

- Multi Mode or Single Mode
- Up to 144x Cores in one Cable
- MPO or MTP Connector
- LC, SC and ST Connector
- Breakout
- Trunk

### Features

- ✓ 1x MPO Connector with 8 Cores
- ✓ 4x LC Duplex Connector
- ✓ For QSFP Usage
- ✓ PC or APC Polish
- ✓ High Quality Ceramic Zirconia Ferrule
- ✓ Brand-name Fiber
- ✓ Aqua (OM3) / Magenta (OM4) / Yellow (SM)
- ✓ Insertion Loss:  $\leq 0.4\text{dB}$
- ✓ Nissin Kasei MPO Components
- ✓ Highest Connector Quality: Up 1500 mating cycles
- ✓ Interferometer tested
- ✓ Single Packed
- ✓ Test Report

### Applications

- ✓ Data Center
- ✓ Modular Networks
- ✓ Fiber Networks

## Warnings

**Laser Safety:** Even small radiation emitted by laser devices can be dangerous to human eyes and lead to permanent eye injuries. Be sure to avoid eye contact with direct or indirect radiation.

## Warranty

Every BlueOptics® MPO Breakout Cable comes with a 25 year replacement warranty and lifetime support. For a warranty inquiry, please contact your CBO sales representative.

This warranty only covers the first user of the equipment.

## Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by CBO before they become applicable to any particular order or contract. In accordance with the CBO policy of continuous improvement specifications may change without notice.

The publication of information in this data sheet does not imply freedom from patent or other protective rights of CBO or others.

Further details are available from any CBO sales representative.

## Installation

Remove the dust caps of the MPO Connector.

Remove the dust caps of the LC Connectors.

Put the LC connector of your cable into the LC socket of BlueOptics® SFP+ Module until you hear a “click” sound.

Connect the MPO Connector to BlueOptics® QSFP Module.

You can now use your connection.

### If you got problems with the connection:

- Please make sure the connector is clean. If not, use a tissue and anhydrous alcohol to clean it accurate.

## Order Information

| Part No.      | Polish | Color   | Fiber | Length   |
|---------------|--------|---------|-------|----------|
| SFP5141EU1MK  | PC     | Aqua    | OM3   | 1 Meter  |
| SFP5141EU3MK  | PC     | Aqua    | OM3   | 3 Meter  |
| SFP5141EU5MK  | PC     | Aqua    | OM3   | 5 Meter  |
| SFP5141EU10MK | PC     | Aqua    | OM3   | 10 Meter |
| SFP5141EU15MK | PC     | Aqua    | OM3   | 15 Meter |
| SFP5141EU20MK | PC     | Aqua    | OM3   | 20 Meter |
| SFP5141FU1MK  | PC     | Magenta | OM4   | 1 Meter  |
| SFP5141FU3MK  | PC     | Magenta | OM4   | 3 Meter  |
| SFP5141FU5MK  | PC     | Magenta | OM4   | 5 Meter  |
| SFP5141FU10MK | PC     | Magenta | OM4   | 10 Meter |
| SFP5141FU15MK | PC     | Magenta | OM4   | 15 Meter |
| SFP5141FU20MK | PC     | Magenta | OM4   | 20 Meter |
| SFP5141BU1MK  | PC     | Yellow  | G652D | 1 Meter  |
| SFP5141BU3MK  | PC     | Yellow  | G652D | 3 Meter  |
| SFP5141BU5MK  | PC     | Yellow  | G652D | 5 Meter  |
| SFP5141BU10MK | PC     | Yellow  | G652D | 10 Meter |
| SFP5141BU15MK | PC     | Yellow  | G652D | 15 Meter |
| SFP5141BU20MK | PC     | Yellow  | G652D | 20 Meter |
| SFP5141BU1MA  | APC    | Yellow  | G652D | 1 Meter  |
| SFP5141BU3MA  | APC    | Yellow  | G652D | 3 Meter  |
| SFP5141BU5MA  | APC    | Yellow  | G652D | 5 Meter  |
| SFP5141BU10MA | APC    | Yellow  | G652D | 10 Meter |
| SFP5141BU15MA | APC    | Yellow  | G652D | 15 Meter |
| SFP5141BU20MA | APC    | Yellow  | G652D | 20 Meter |

## Regulatory Compliance

| Feature               | Standard                 | Co. |
|-----------------------|--------------------------|-----|
| Smoke Density Purpose | IEC-61034                | ✓   |
| Halogen Acid Content  | IEC-754-1                | ✓   |
| Flame Resistance      | IEC 60332-1, IEC 60332-3 | ✓   |
| Component Recognition | IEC/EN 60950, UL         | ✓   |
| RoHS                  | 2002/95/EC               | ✓   |
| WEEE                  | 2002/96/EG               | ✓   |

### 1. LC/UPC Geometrical Parameter

| Parameter        | Standard                 |         |
|------------------|--------------------------|---------|
|                  | Minimum                  | Maximum |
| Radius(mm)       | 7                        | 25      |
| Apex offset (um) | 0                        | 50      |
| Fiber Height(nm) | -0.02*R3 +1.3R2 -31R+325 | 100     |

### 2. LC/UPC Mechanical Specifications

| Parameter                |              | Standard |
|--------------------------|--------------|----------|
| Maximum Tensile Load (N) |              | 200      |
| Minimum Bend Radius(mm)  |              | 30       |
|                          | Storage      |          |
|                          | Installation |          |
|                          | Operating    |          |

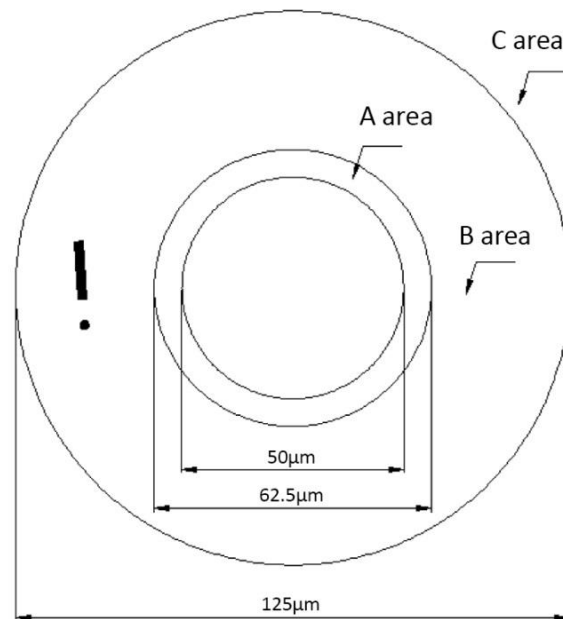
### 3. MPO/PC Geometrical Parameter

| Parameter           | Standard                 |         |
|---------------------|--------------------------|---------|
|                     | Minimum                  | Maximum |
| Insertion Loss (dB) | 0.4                      | 0.7     |
| Apex offset (um)    | 0                        | 50      |
| Fiber Height(nm)    | -0.02*R3 +1.3R2 -31R+325 | 100     |

### 4. Reliability Performance

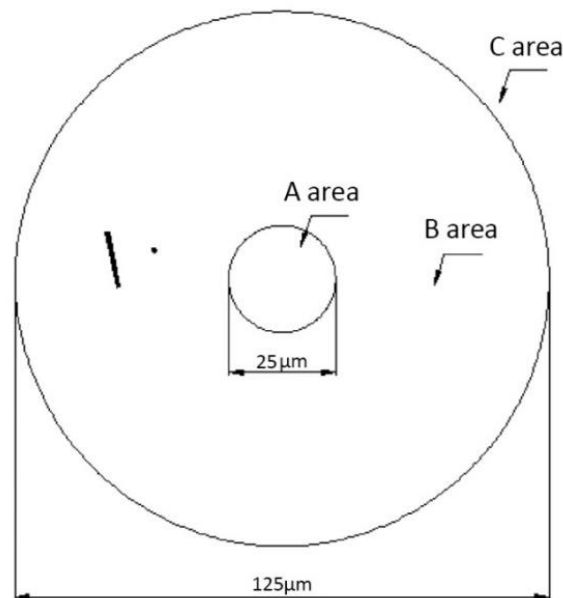
| Item | Content                                             | Standard Clause     | Conclusion |
|------|-----------------------------------------------------|---------------------|------------|
| 1    | New Device Performance                              | GR-326-Core 4.4.1   | OK         |
| 2    | High Temperature Aging                              | GR-326-Core 4.4.2.1 | OK         |
| 3    | Temperature Cycle                                   | GR-326-Core 4.4.2.2 | OK         |
| 4    | Damp-heat Aging                                     | GR-326-Core 4.4.2.3 | OK         |
| 5    | Damp & Hot/ Condensation Cycle                      | GR-326-Core 4.4.2.4 | OK         |
| 6    | Drying (Not test Item)                              | GR-326-Core 4.4.2.5 | N/A        |
| 7    | Temperature Cycle after Condensation                | GR-326-Core 4.4.2.6 | OK         |
| 8    | Vibration                                           | GR-326-Core 4.4.3.1 | OK         |
| 9    | Buckling                                            | GR-326-Core 4.4.3.2 | OK         |
| 10   | Twist                                               | GR-326-Core 4.4.3.3 | OK         |
| 11   | Tensile                                             | GR-326-Core 4.4.3.4 | OK         |
| 12   | Transmission Performance with Loading               | GR-326-Core 4.4.3.5 | OK         |
| 13   | Impact                                              | GR-326-Core 4.4.3.7 | OK         |
| 14   | Durability                                          | GR-326-Core 4.4.3.8 | OK         |
| 15   | Device test after environmental and mechanical test | GR-326-Core 4.4.3.9 | OK         |
| 16   | Salt Spray                                          | GR-326-Core 4.4.4.4 | OK         |
| 17   | 85°C water soak                                     | GR-326-Core 4.4.4.5 | OK         |

## 5. Quality assurance – Multi Mode



| Area A (0~50µm):                                                                                                   | Area B (50~125µm):                                                                                                                                                                                                                                                                                                                                 | Area C (125~250µm):                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- No any scratch, chips / black dot</li> <li>- No cleanable dust</li> </ul> | <ul style="list-style-type: none"> <li>- White slight scratch width <math>\leq 2\mu\text{m}</math>, no limit of length, Acceptable Quantity <math>\leq 3</math></li> <li>- No black scratches</li> <li>- Chips /black dot diameter <math>\leq 2\mu\text{m}</math>, Acceptable Quantity <math>\leq 3</math></li> <li>- No cleanable dust</li> </ul> | <ul style="list-style-type: none"> <li>- White slight scratch width <math>\leq 2\mu\text{m}</math>, no limit of length, Acceptable Quantity <math>\leq 5</math></li> <li>- No black scratch</li> <li>- Chips /black dot diameter <math>\leq 5\mu\text{m}</math>, Acceptable Quantity <math>\leq 5</math></li> <li>- No cleanable dust</li> <li>- No flaw for ceramic ferrule</li> </ul> |

## 6. Quality assurance – Single Mode



| Area A (0~25µm):                                                                                                   | Area B (25~125µm):                                                                                                                                                                                                                                          | Area C (125~250µm):                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- No any scratch, chips / black dot</li> <li>- No cleanable dust</li> </ul> | <ul style="list-style-type: none"> <li>- White slight scratch width = 1µm, no limit of length, Acceptable Quantity=2</li> <li>- No black scratches</li> <li>- Chips /black dot diameter ≤2µm, Acceptable Quantity≤2</li> <li>- No cleanable dust</li> </ul> | <ul style="list-style-type: none"> <li>- White slight scratch width ≤2µm, no limit of length, Acceptable Quantity≤3</li> <li>- No black scratch</li> <li>- Chips /black dot diameter ≤5µm, Acceptable Quantity≤3</li> <li>- No cleanable dust</li> <li>- No flaw for ceramic ferrule</li> </ul> |