

MPO&MTP[®] Breakout Cables Datasheet

MTP[®]/MPO Breakout Cables Applications

MTP[®]/MPO Breakout fiber patch cord is a multi-core branched fiber optic connection solution designed for parallel optical communication and high-speed interconnection. This patch cord divides a main-end MPO connector (8-core or 16-core) into two equivalent MPO branches (such as 2×4-core or 2×8-core), and is widely used in 1:2 beam splitting interconnection of high-speed optical modules such as QSFP+/QSFP28/QSFP-DD/OSFP or high-density wiring between modules and patch panels.

This product adopts high-precision end-face grinding technology, equipped with standard or low insertion loss MTP[®]/MPO connectors, supports single-mode (OS2) and multi-mode (OM3/OM4/OM5) fiber types, and has the advantages of low insertion loss, compact structure and high reliability. Its branch structure is flexible, On-site "plug and play" , which is convenient for modular deployment, link splitting and upgrade expansion in data center and cloud network environments.

Features

- OS2, OM4 fiber modes
- High-precision end face grinding, 0.35 dB low insertion loss connection
- Available in Plenum (OFNP), Riser (OFNR), and LSZH Cable Jacket
- Connector polish type support UPC or APC (8° angle)
- All connector ends are available in Male(Pinned) or Female(Pinless)
- Support 8F/12F/16F/24F to multi-channel branch jumper customization

Standards Compliance

- IEC 61754-7 / IEC 61754-7-1
- TIA/EIA-568.3-D(ANSI/TIA-568.3-D)
- ISO/IEC 11801-1/-5
- RoHS / REACH
- GR-326 / GR-1435

12 Fibers Arrangement Corresponding Table

MTP®/MP01	Connection	MTP®/MP02	MTP®/MP03
1	----->	12	-
2	----->	11	-
3	----->	-	12
4	----->	-	11
5	Not Connected	-	-
6	Not Connected	-	-
7	Not Connected	-	-
8	Not Connected	-	-
9	←-----	-	2
10	←-----	-	1
11	←-----	2	-
12	←-----	1	-

16 Fibers Arrangement Corresponding Table

MTP®/MP01	Connection	MTP®/MP02	MTP®/MP03
1	----->	12	-
2	----->	11	-
3	----->	10	-
4	----->	9	-
5	----->	-	12
6	----->	-	11
7	----->	-	10
8	----->	-	9
9	←-----	-	4
10	←-----	-	3
11	←-----	-	2
12	←-----	-	1
13	←-----	4	-
14	←-----	3	-
15	←-----	2	-
16	←-----	1	-

Optical Properties

Type	Single-mode (APC polish)	Multi-mode (APC polish)	Multi-mode (UPC polish)
Fiber count	8,16	8,16	8,16

Fiber type	G.652.D/G.657.A1	Bend Insensitive	Bend Insensitive
Maximum Insertion Loss	MTP: ≤0.35 dB(standard); ≤0.2 dB(Low Loss) MPO:≤0.35 dB(Low Loss)		
Return Loss	≥60 dB	≥35 dB	≥30 dB
Durability	≥500-1000 times		
Test Wavelength	1310nm / 1550nm	850nm / 1300nm	
Attenuation	≤0.35dB/km; ≤0.21dB/km	≤2.3dB/km; ≤1.0dB/km	
Tensile Strength (Long Term/Short Term)	150/80N		
Cable Diameter	3.0mm		
Breakout Length	0.5m±50mm		
Minimum Bend Radius	OS2: 10.0mm, OM4: 7.5mm		

3D Geometry Performance

Type			Grade A		Grade B	
Item			Min	Max	Min	Max
Radius of Curvature(mm)	X		-10000 < or >2000		-10000 < or >2000	
	Y		-500 < or >50		-500 < or >50	
Angle[°]	X		-0.15	0.15	-0.2	0.2
	Y	APC	7.85	8.15	7.8	8.2
		UPC	-0.15	0.15	-0.2	0.2
Minus Coplanarity(nm)			0	300	0	300
Fiber Height(nm)			1200	3000	1000	3500
Max All Diff(nm)			0	300	0	500
Max Adj Diff(nm)			0	150	0	300
Core Dip(nm)			-100	100	-100	100
Only MM						

Environmental Performance

No.	Item	Testing Conditions	Requirements	
			Before test	After test
1	Thermal Age Test	85°C 168hrs	IL ≤ 0.80 dB, RL ≥ 60 dB(APC)/30dB(UPC)	IL ≤ 0.80 dB, Δ IL ≤ 0.3 dB RL ≥ 60 dB(APC)/30dB(UPC)
2	Thermal Cycle Test	-40°C~75°C	IL ≤ 0.80 dB,	IL ≤ 0.80 dB, Δ IL ≤ 0.3 dB

		21cycles 168hrs	RL \geq 60dB(APC)/30dB(UPC)	RL \geq 60dB(APC)/30dB(UPC)
3	Humidity Age Test	75°C / 95%RH 168hrs	IL \leq 0.80dB, RL \geq 60dB(APC)/30dB(UPC)	IL \leq 0.80dB, Δ IL \leq 0.3dB RL \geq 60dB(APC)/30dB(UPC)
4	Humidity / Condensation Cycling Test	-10°C~65°C, 90-100%RH 21cycles 168hrs	IL \leq 0.80dB, RL \geq 60dB(APC)/30dB(UPC)	IL \leq 0.80dB, Δ IL \leq 0.3dB RL \geq 60dB(APC)/30dB(UPC)

Mechanical Behavior

No.	Item	Testing Conditions	Requirements	
			Before test	After test
1	Vibration Test	1.5mm p-p 10~55Hz 2hrs for each axis	IL \leq 0.80dB, RL \geq 60dB(APC)/30dB(UPC)	IL \leq 0.80dB, Δ IL \leq 0.3dB RL \geq 60dB(APC)/30dB(UPC)
2	Flex Test	0.9kgf for Type I, 0.9kgf for small form 0°, 90°, 0°, -90°, 0°, and repeat for 100 cycles	IL \leq 0.80dB, RL \geq 60dB(APC)/30dB(UPC)	IL \leq 0.80dB, Δ IL \leq 0.3dB RL \geq 60dB(APC)/30dB(UPC)
3	Twist Test	Load 1.33kgf 1 revolution, 9 times	IL \leq 0.80dB, RL \geq 60dB(APC)/30dB(UPC)	IL \leq 0.80dB, Δ IL \leq 0.3dB RL \geq 60dB(APC)/30dB(UPC)
4	Proof test – Side Pull	Load 3.37kgf for 5 sec Load 4.5kgf for 5 sec	IL \leq 0.80dB, RL \geq 60dB(APC)/30dB(UPC)	IL \leq 0.80dB, Δ IL \leq 0.3dB RL \geq 60dB(APC)/30dB(UPC)
5	Proof test – Straight Pull	Load 4.5kgf for 5 sec Load 6.8kgf for 5 sec	IL \leq 0.80dB, RL \geq 60dB(APC)/30dB(UPC)	IL \leq 0.80dB, Δ IL \leq 0.3dB RL \geq 60dB(APC)/30dB(UPC)
6	Transmission with Applied Load Test	Apply load: 4.95lbf @ 0° Apply load: 0.49lbf @ 90°	IL \leq 0.80dB, RL \geq 60dB(APC)/30dB(UPC)	IL \leq 0.80dB, Δ IL \leq 0.3dB RL \geq 60dB(APC)/30dB(UPC)
7	Impact Test	1.5m 10 cycles	IL \leq 0.80dB, RL \geq 60dB(APC)/30dB(UPC)	IL \leq 0.80dB, Δ IL \leq 0.3dB RL \geq 60dB(APC)/30dB(UPC)

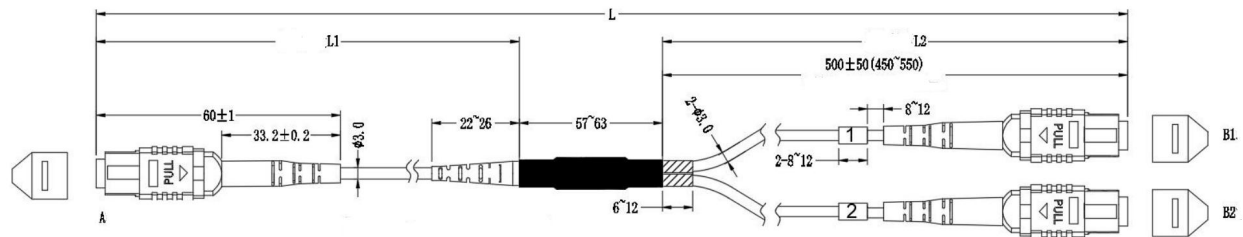
Color Requirements

Color Codes	OS2	OM4
Cable Jackets	Yellow	Magenta
Connectors	Green	Aqua (UPC) Green (APC)

Environmental Characteristics

Environmental Characteristics	Description
Operating Temperature-LSZH	-20°C to 70°C [14 to 158°F]
Operating Temperature-OFNP	0°C to 70°C [32 to 158°F]

Technical Drawing



Cable Length Tolerances

Cable Length	Length Tolerance(Δ L)
L1	$L \leq 10m: +150/0mm$ $L > 10M: +1.5\% * L/0$
L2	0.5m±50mm

Ordering Information

Product number	Description
S2MPOA2x4F	MPO-8 APC (Female) to 2x MPO-4 APC (Female) Single-mode (OS2) Breakout, Type B, LSZH, 3.0mm, 0.35dB Max, Yellow
M4MPOA2x4F	MPO-8 APC (Female) to 2xMPO-4 APC (Female) Multimode (OM4) Breakout, Type B, LSZH, 3.0mm, 0.35dB Max, Magenta
S2MPOA2x8F	MPO-16 APC (Female) to 2xMPO-8 APC (Female) Single-mode (OS2) Breakout, Type B, LSZH, 3.0mm, 0.35dB Max, Yellow
M4MPOA2x8F	MPO-16 APC (Female) to 2xMPO-8 UPC (Female) Multimode (OM4) Breakout, Type B, LSZH, 3.0mm, 0.35dB Max, Magenta
M4MPOAA2x8F	MPO-16 APC (Female) to 2xMPO-8 APC (Female) Multimode (OM4) Breakout, Type B, LSZH, 3.0mm, 0.35dB Max, Magenta

Further Information:

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