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DATASHEET

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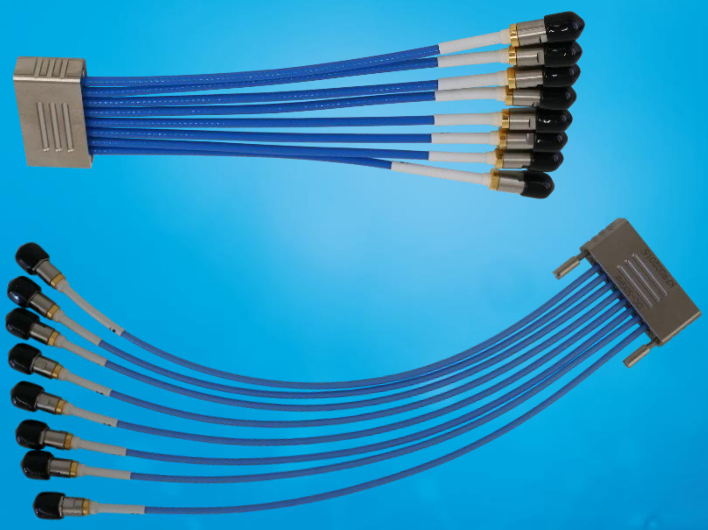


M-SMPM Cables

High Bandwidth M-SMPM cable assemblies for High-Speed IO testing

Connectivity to test Instrumentation and Interconnect fixtures| Type A & Type B

Summary

In high-speed testing, the quality and performance of the RF cable are crucial to achieve accurate and repeatable results. The cable needs to offer minimal attenuation and signal distortion, and it must operate efficiently across the frequency band of interest.

In addition to its portfolio of regular RF cables, MultiLane offers a wide variety of multi-SMPM cable assemblies to provide connectivity to its test instrumentation and interconnect portfolio. The multi-SMPM cable assemblies allow for an enhanced user-experience and more densely integrated measurement setup.

M-SMPM Cables

High Bandwidth cable Assemblies

Introduction

MultiLane offers a selection of high bandwidth M-SMPM cables to complement its portfolio of test instrumentation and interconnects. The M-SMPM cables are equipped with standard connectors, such as M-SMPM type A and type B, and 1.85, 2.4 and 2.92 mm connectors for different bandwidth options, and are available in different lengths.

MultiLane recommends usage of type A with interconnects such as ML4020-MSMPM, QSFP28 HCB. In addition, MultiLane offers a selection of type B M-SMPM cables to complement its 400G ML4079D and 800G ML4079E BERT instruments.

Key Features

General

MultiLane offers both type A and B to provide connectivity to its Interconnects and Instruments. Type B is equipped with a bolted latching mechanism.

The cable assemblies consist of 4 pairs of phase matched cables (8 cables) with maximum intra-pair skew of the phase matched cable pairs of 1 ps. In addition, the cables offer excellent insertion loss and return loss performance for optimum signal integrity when using high port count instruments or test fixtures.

The MultiLane multi-SMPM connector Type A and B guarantee high electrical and mechanical reliability and stability. The user can directly engage the connector for quick application. In addition, type B enables the user to tighten the bolts of the cable with the connector for high stability during long time examination.

Target Applications

- Test instrumentation connection to DUT eval boards
- Connecting interconnects, such as MCB and HCB to test instruments

Figure 1: ML4020 with M-SMPM type A cables

Figure 2: ML4079E with M-SMPM type B cables

Type A

Mechanical

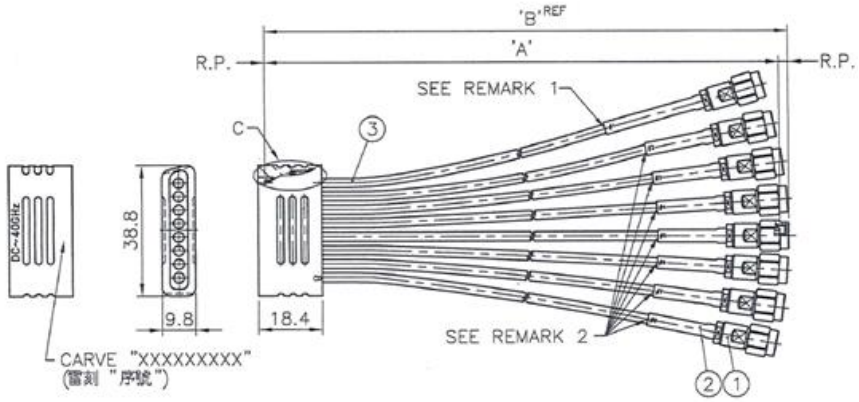


Figure 3: Cable assembly – Type A M-SMPM to K-connector

A: 152.4 or 304.8 mm

Specifications

Electrical		
Parameter	**Frequency Test Condition (at 25°C ± 5°C)**	**Value**
Impedance	DC ~ 40 GHz	50 Ω
Return Loss	DC ~ 40 GHz	-15 dB Max
Insertion Loss	DC ~ 40 GHz	See below
Mechanical/Environment		
Parameter		**Value**
Nominal Outer Diameter of cable		2.75 mm
Min. Bend Radius Static		15 mm
Temperature Range		-40°C ~ 125°C

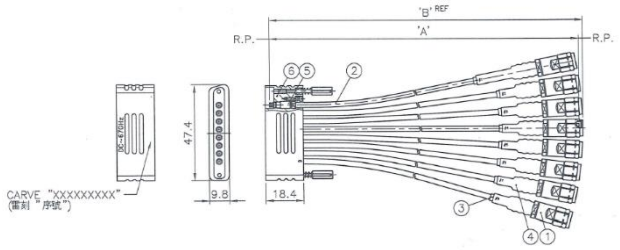
Table 1: Type A specifications

RF Cable	Description	Insertion loss, max DC to 40 GHz	Skew
MLCBMS-K-15-A-M	15 cm, 1x8 MSMPM Type A to 2.92 mm (K) male connector cable	1.4 dB	< 1 ps
MLCBMS-K-15-A-F	15 cm, 1x8 MSMPM Type A to 2.92 mm (K) female connector cable	1.4 dB	< 1 ps
MLCBMS-K-30-A-M	30 cm, 1x8 MSMPM Type A to 2.92 mm (K) male connector cable	2.2 dB	< 1 ps
MLCBMS-K-30-A-F	30 cm, 1x8 MSMPM Type A to 2.92 mm (K) female connector cable	2.2 dB	< 1 ps

Table 2: Type A cables description and specifications

Type B – With Bolt-Down Latching Mechanism

Mechanical



A: 25, 30 or 60 cm options available

Figure 4: Cable assembly – Type B M-SMPM to 2.92/2.4/1.85 mm connector

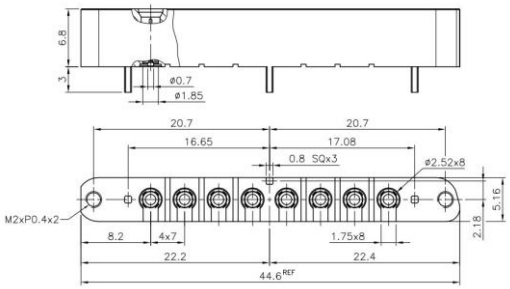
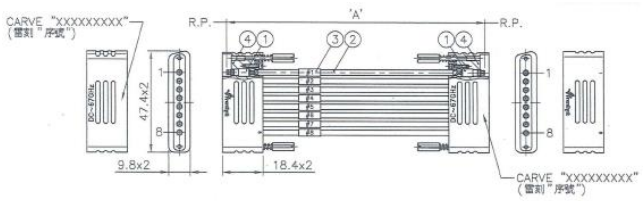


Figure 5: PCB connector drawing



A: 254 mm

Figure 6: M-SMPM to M-SMPM - Loopback

Specifications of the Loopback MLCBMS-67G-25-B-LB

Electrical		
Parameter	**Frequency* Test Condition (at 25˚C ± 5˚C)**	**Value**
Impedance	DC ~ 67 GHz	50 Ω
Return Loss	DC ~ 40 GHz (40 to 67 GHz)	-18 dB (-15 dB) Max
Insertion Loss	DC ~ 67 GHz	See table
Mechanical/Environment		
Parameter	**Value**	
Nominal Outer Diameter of cable	2.54 mm	
Min. Bend Radius Static	10 mm	
Temperature Range	-65˚C ~ 150˚C	

Table 3: Loopback specifications

Specifications

Electrical		
Parameter	**Frequency* Test Condition (at 25°C ± 5°C)**	**Value**
Impedance	DC to 40/50/67 GHz	50 Ω
Return Loss	DC to 40/50/67 GHz	See table
Insertion Loss	DC to 40/50/67 GHz	See table
Mechanical/Environment		
Parameter	**Value**	
Nominal Outer Diameter of cable	2.54 mm	
Min. Bend Radius Static	10 mm	
Temperature Range	-65°C ~ 150°C	

Table 4: Type B specifications

* 40/50/67 GHz for 2.92/2.4/1.85 mm respectively

RF Cable	Description	Insertion loss*, max DC to x GHz	Return Loss*, max
MLCBMS-2.4-25-B-M	8 channel cable, M-SMPM to 2.4 mm male connector, 10 inch length, type B	2.05 dB	-15 dB
MLCBMS-2.4-25-B-F	8 channel cable, M-SMPM to 2.4 mm female connector, 10 inch length, type B	2.05 dB	-15 dB
MLCBMS-2.4-60-B-M	8 channel cable, M-SMPM to 2.4 mm male connector, 24 inch length, type B	3.8 dB	-15 dB
MLCBMS-2.92-30-B-M	8 channel cable, M-SMPM to 2.92 mm male connector, 12 inch length, type B	2.1 dB	-20 dB
MLCBMS-2.92-60-B-M	8 channel cable, M-SMPM to 2.92 mm male connector, 24 inch length, type B	3.45 dB	-20 dB
MLCBMS-1.85-30-B-M	8 channel cable, M-SMPM to 1.85 mm male connector, 12 inch length, type B	2.85 dB	-15 dB
MLCBMS-1.85-30-B-F	8 channel cable, M-SMPM to 1.85 mm female connector, 12 inch length, type B	2.85 dB	-15 dB
MLCBMS-1.85-60-B-M	8 channel cable, M-SMPM to 1.85 mm male connector, 24 inch length, type B	4.65 dB	-15 dB

Table 5: Type B cables descriptions and specifications

* 40/50/67 GHz for 2.92/2.4/1.85 mm respectively

Skew < 1 ps for cable pairs

Ordering Information

Part number*	Description	Recommended use
	Type A	
MLCBMS-K-15-A-M	15 cm, 1x8 MSMPM Type A to 2.92 mm (K) male connector cable	Use with Interconnects
MLCBMS-K-15-A-F	15 cm, 1x8 MSMPM Type A to 2.92 mm (K) female connector cable	Use with Interconnects
MLCBMS-K-30-A-M	30 cm, 1x8 MSMPM Type A to 2.92 mm (K) male connector cable	Use with Interconnects
MLCBMS-K-30-A-F	30 cm, 1x8 MSMPM Type A to 2.92 mm (K) female connector cable	Use with Interconnects
	Type B	
MLCBMS-2.4-25-B-M	8 channel cable, M-SMPM to 2.4 mm male connector, 10 inch length, type B	ML4079E/N, 4x
MLCBMS-2.4-25-B-F	8 channel cable, M-SMPM to 2.4 mm female connector, 10 inch length, type B	ML4079E/N, 4x
MLCBMS-2.4-60-B-M	8 channel cable, M-SMPM to 2.4 mm male connector, 24 inch length, type B	ML4079E/N, temperature testing, 4x
MLCBMS-67G-25-B-LB	M-SMPM to M-SMPM loopback cable, with 67 GHz bandwidth, type B	ML4079E/N, 2x
MLCBMS-2.92-30-B-M	8 channel cable, M-SMPM to 2.92 mm male connector, 12 inch length, type B	ML4079D Option MSM, 4x
MLCBMS-2.92-60-B-M	8 channel cable, M-SMPM to 2.92 mm male connector, 24 inch length, type B	ML4079D Option MSM, 4x
MLCBMS-1.85-30-B-M	8 channel cable, M-SMPM to 1.85 mm male connector, 12 inch length, type B	ML4079E/N, 4x
MLCBMS-1.85-30-B-F	8 channel cable, M-SMPM to 1.85 mm female connector, 12 inch length, type B	ML4079E/N, 4x
MLCBMS-1.85-60-B-M	8 channel cable, M-SMPM to 1.85 mm male connector, 24 inch length, type B	ML4079E/N, temperature testing, 4x

* Other cable lengths available upon request.

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