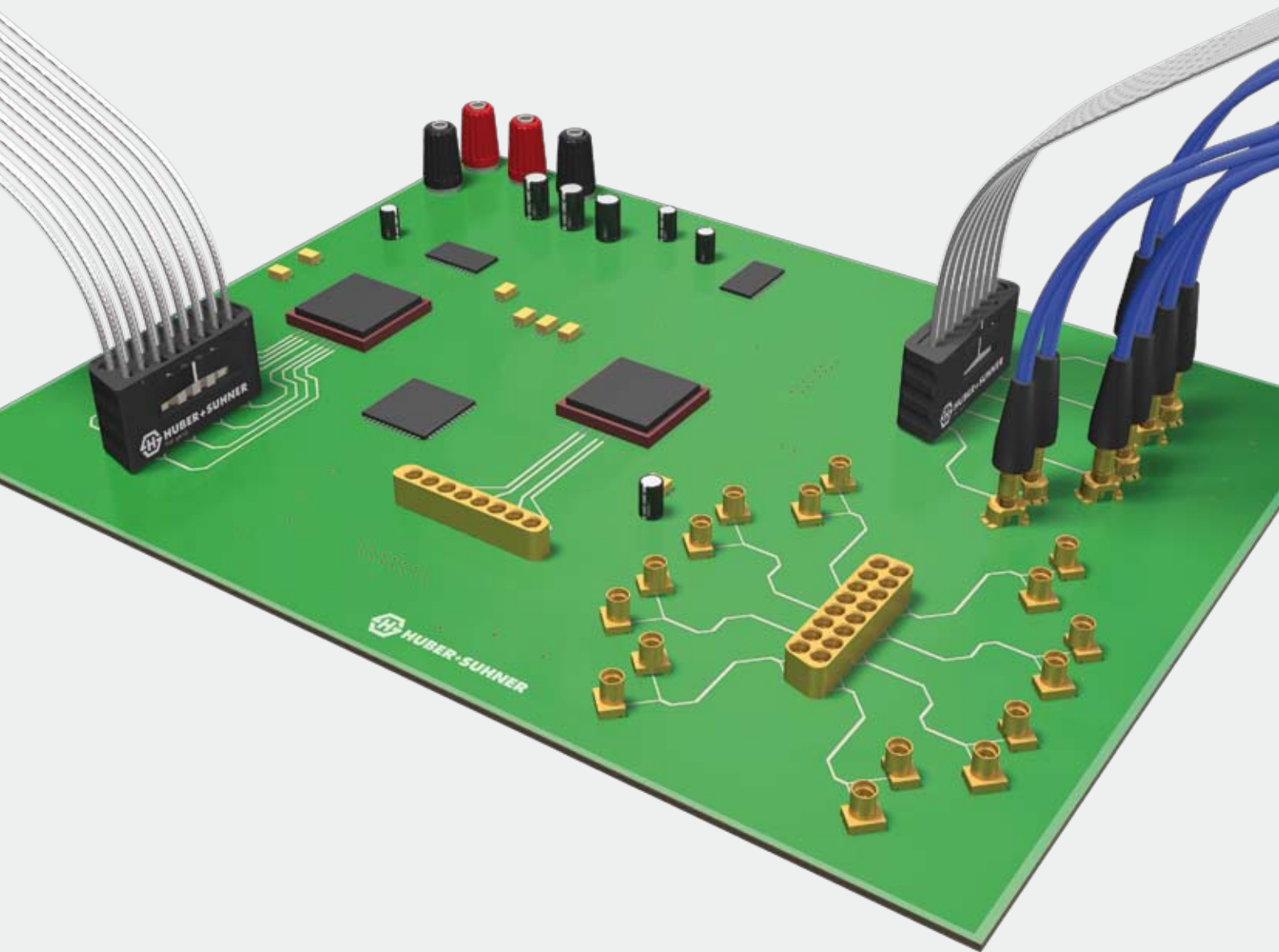


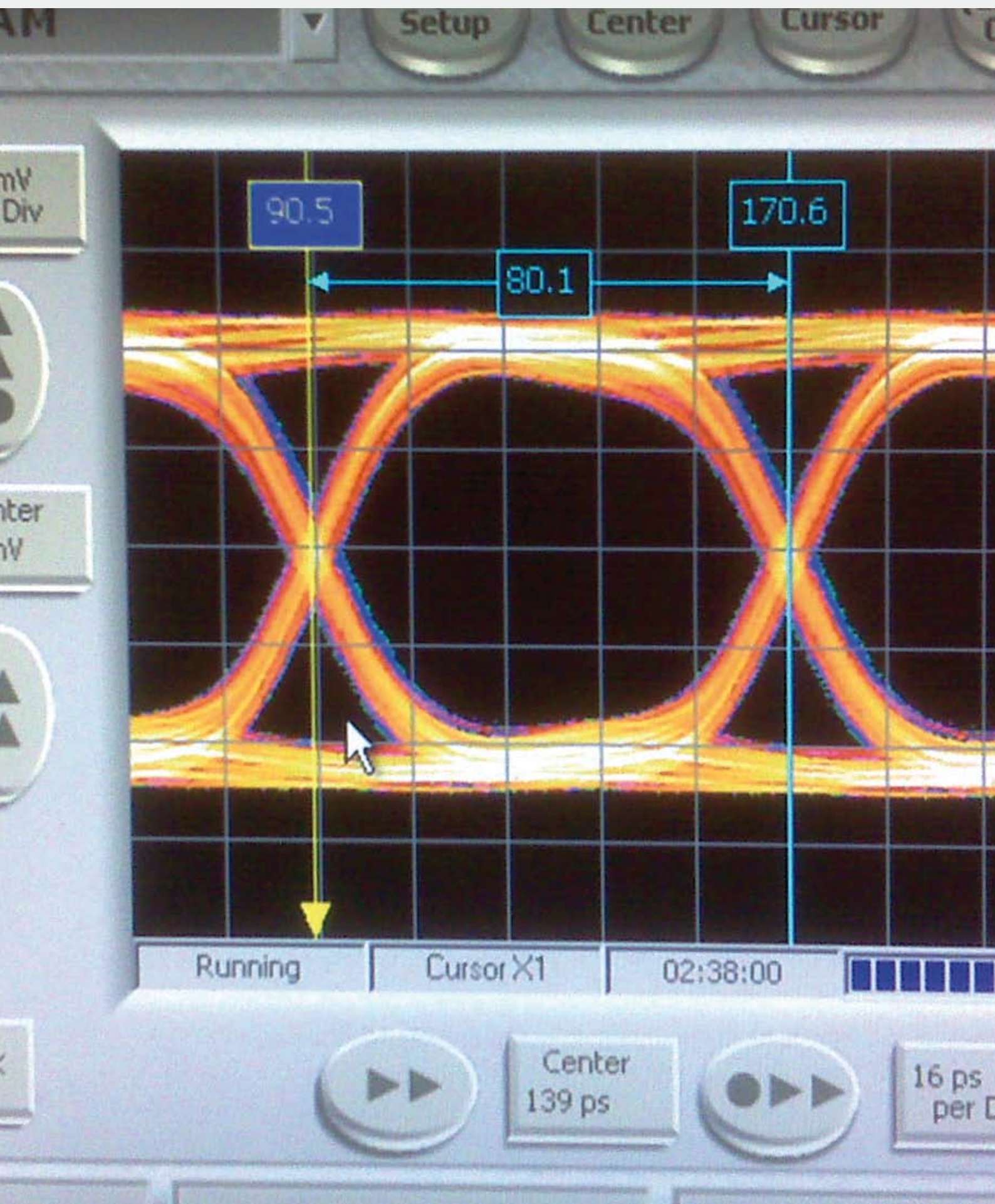
40 Gbps Multicoax Solution

MXP pat. pend.

Edition 2010



Maximise your Signal Integrity



Maximise your signal integrity



Your partner for system solutions

The HUBER+SUHNER Group is a leading global supplier of components and systems for electrical and optical connectivity. We offer technical expertise in radio frequency technology, fiber optics and low frequency under one roof, thus providing a unique basis for continual innovation focused on the needs of our customers all over the world.

The innovative chip test component supplier

HUBER+SUHNER is offering a broad range of high end RF test components and assemblies ideally suited for high speed digital testing. We stand for highest density, lowest loss and true 40 Gbps coaxial-to-PCB transitions. Our product library provides free download of 3D-files, modelling data and footprints.

Future-proof Testing

The ganged multicoax solution MXP offers a true 40 Gbps coaxial-to-PCB transition with a very small form factor. Its reliable mating and ease of use make it especially suited for bench-top test systems as well as interconnect within automated test equipment. A broad range of configurations with highly flexible cable assemblies and compact PCB connectors are available.

CAE library download center

www.hubersuhner.com/mxp



What High Speed Digital Testing demands

Features

- Operating range up to 40 Gbps
- Highest density – lowest loss
- Extensive technical support
- 3D-files, modelling data (Agilent ADS) and footprints
(see www.hubersuhner.com/mxp)

Benefits

- Reliable push-on mating
- Space saving
- Shorter lines between chip and PCB connector
- Easy channel management
- Overall cost savings and service benefits

Overview product range (1x8 and 2x8 ganged systems)

- Straight PCB connectors (SMT)
- Breakout assemblies MXP-to-Suhner-K (2.92 mm)
- Jumper assemblies MXP-to-MXP
- Loop back assemblies
- Custom solutions on request

Repair Service

HUBER+SUHNER is offering a retermination service for the professional replacement of defective channels. Your HUBER+SUHNER representative will guide you if you are in need of a repair and want to benefit from this opportunity.

Technical Data

Typical electrical data	Testing condition	Performance
Operating range / data rate		Up to 40 Gbps
Frequency range		DC up to 40 GHz
Impedance		50 Ω
Return loss	Mated condition Gated measurement: Cable connector/ PCB transition PCB: Rogers RO3003 Cable: HUBER+SUHNER MULTIFLEX 53	≥ 20 dB up to 22.5 GHz
Insertion loss	305 mm (12") assembly	≤ 2 dB up to 22.5 GHz
Cross-talk	At PCB transition	≤ -40 dB

Typical mechanical data	Testing condition	Performance
Mating force (per single channel)		Max. 3.4 N (typical 1.1 N)
Demating force (per single channel)		Max. 3.4 N (typical 1.1 N)
Durability (matings)	MIL-PRF-39012, paragraph 4.7.12	> 500

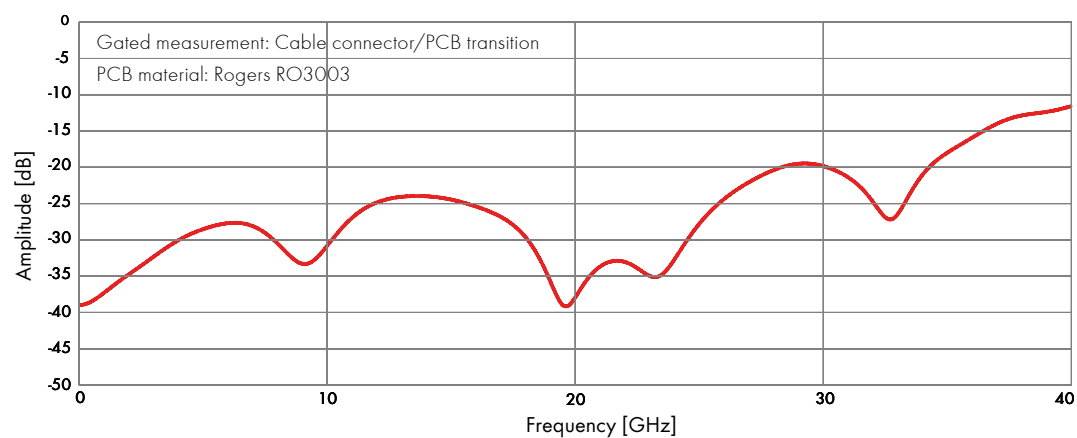
Material data cable connector	Material	Coating
Center contact	Copper beryllium	SUCOPRO gold plating
Outer contact	Brass	SUCOPRO gold plating
Insulator	PTFE	N/A
Body	Aluminium	Black anodised

Material data PCB connector	Material	Coating
Center contact	Copper beryllium	SUCOPRO gold plating
Outer contact	BZ4	SUCOPRO gold plating
Body	Brass	SUCOPRO gold plating
Insulator	PEEK	N/A

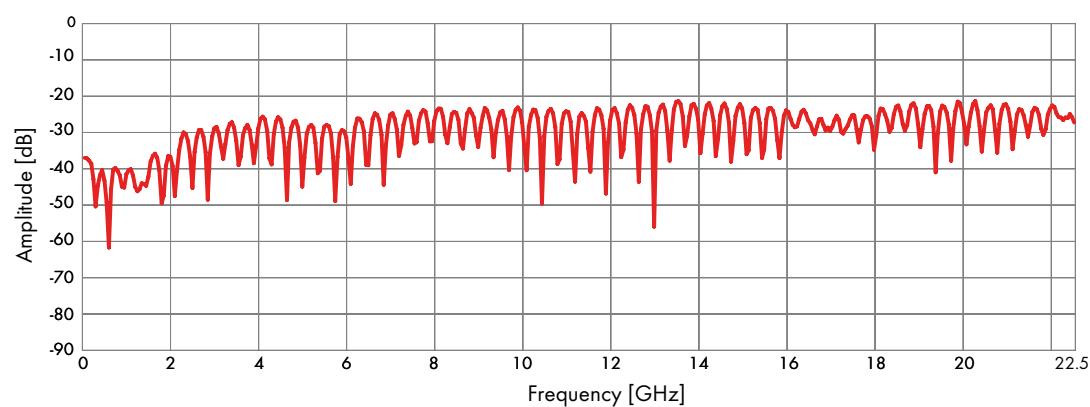
Typical environmental data	Testing condition	Requirements
Temperature range		- 55°C ... + 85°C
Thermal aging (mated condition)	IEC 60068-2-2, Test B	120°C / 260 h
Change of temperature	IEC 60068-2-14, Test Na	Assembly: - 55°C ... + 85°C PCB: - 55°C ... + 85°C
Vibration	IEC 60068-2-6	10 g, amplitude 0.06 inch, frequency range 10 - 500 Hz
Mechanical shock (transport)	MIL-STD-202, Method 213, Condition I	100 g / 6 ms
Damp heat steady state	IEC 60068-2-78, Test Ca	40°C / humidity 93 % / 96 h

Technical Data

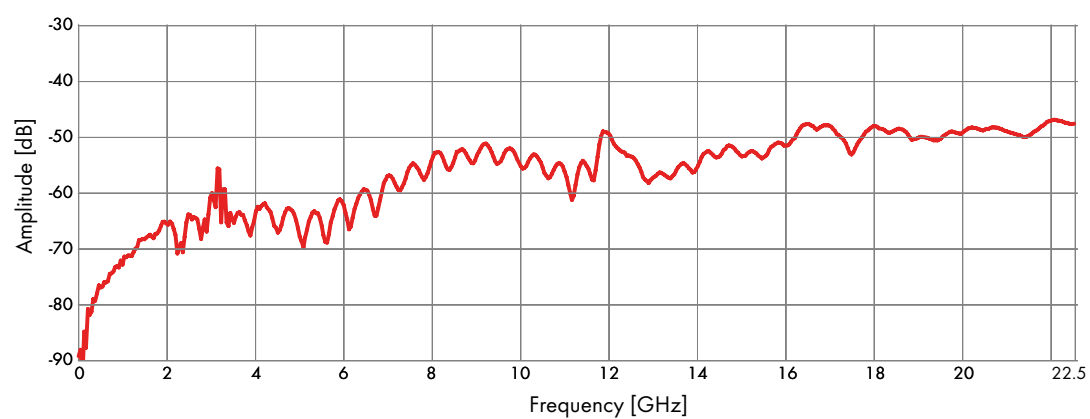
Typical return loss value mated condition



Typical return loss value assembly



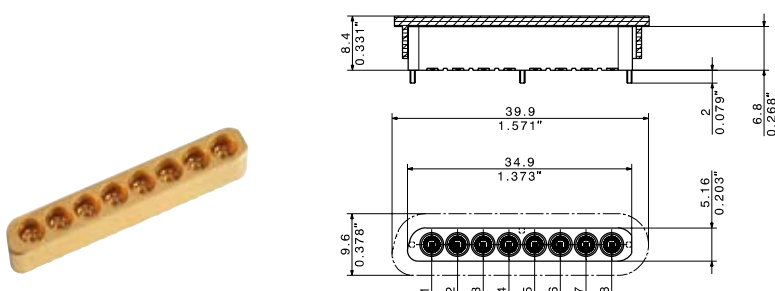
Typical cross-talk at PCB transition



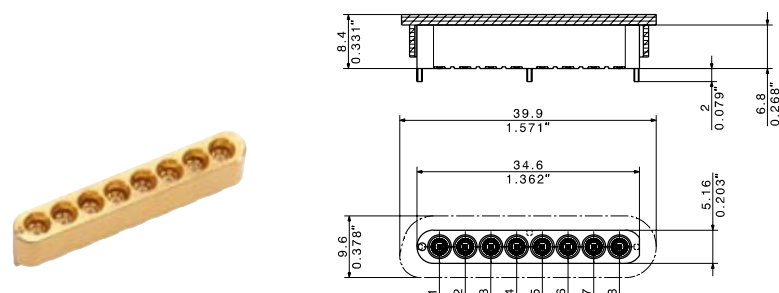
PCB Connectors

- Pitch 4 mm (0.16")
- Via-in-pad capable
- 0.7 mm (0.028") pin size allows easy matching to smallest trace width
- SMD technology - ground pins for better mechanical stability of solder joint

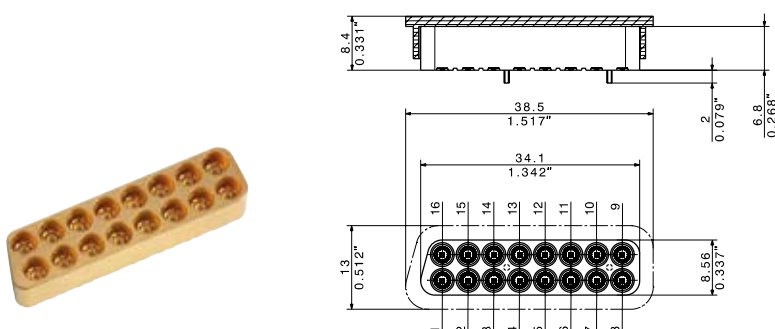
Type 1x8 ganged	Item no.	Packaging	Notes
1x8A_81_MXP-S50-0-1/111_NE	84091435	Tape	Asymmetric design (coded)



Type 1x8 ganged	Item no.	Packaging	Notes
1x8A_81_MXP-S50-0-2/111_NE	84091436	Tape	Symmetric design (non coded)



Type 2x8 ganged	Item no.	Packaging	Notes
2x8A_81_MXP-S50-0-1/111_NE	84072058	Tape	Asymmetric design (coded)

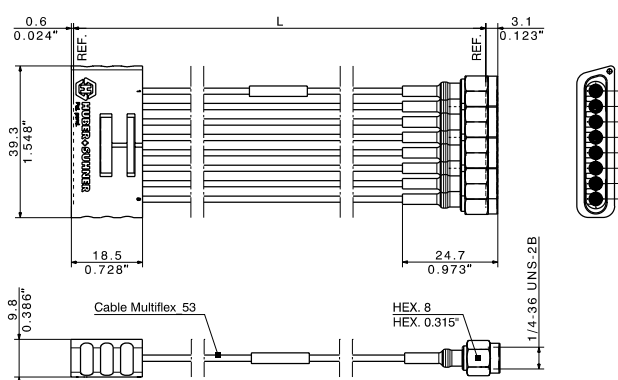


Cable Assemblies

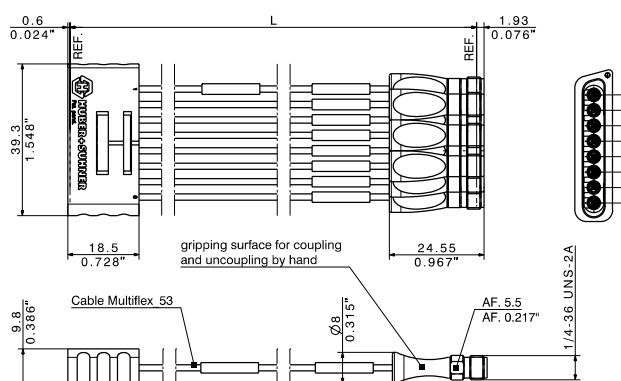
- Broad range of standard breakout assemblies
MXP-to-Suhner-K (2.92 mm) and jumper assemblies
MXP-to-MXP available
- Insertion loss ≤ 2 dB up to 22.5 GHz for a 305 mm (12") assembly
- Customised assemblies on request
- Delivered with thin and high flexible
HUBER+SUHNER MULTIFLEX 53 microwave cable
(see page 16 for technical data)



Type 1x8 ganged	Item no.	Length (L)	Notes
MF53/1x8A_21MXP/11SK/152	84097196	152 mm (6")	Single channels numbered
MF53/1x8A_21MXP/11SK/229	84099600	229 mm (9")	
MF53/1x8A_21MXP/11SK/305	84099607	305 mm (12")	



Type 1x8 ganged	Item no.	Length (L)	Notes
MF53/1x8A_21MXP/21SK_ergo/152	84093980	152 mm (6")	Single channels numbered. With ergo grip on SK side. Please see low loss breakout system with SUCOFLEX 404 test leads on page 15.
MF53/1x8A_21MXP/21SK_ergo/229	84098899	229 mm (9")	
MF53/1x8A_21MXP/21SK_ergo/305	84098900	305 mm (12")	

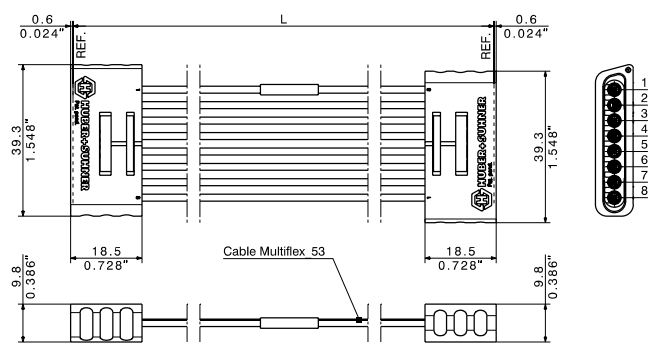


Cable Assemblies

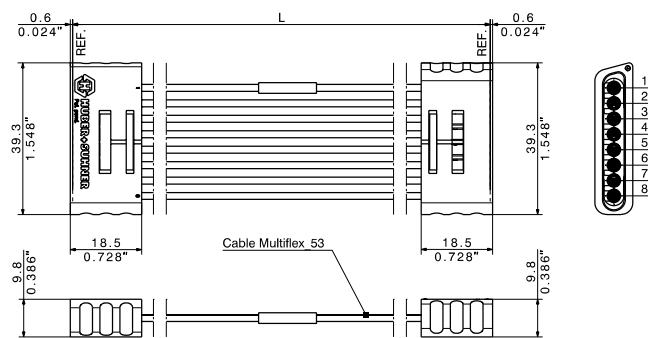
Features see page 9



Type 1x8 ganged	Item no.	Length	Notes
MF53/1x8A_21MXP/21MXP/305	84099960	305 mm (12")	Pin map: 1 to 8
MF53/1x8A_21MXP/21MXP/610	84100060	610 mm (24")	



Type	Item no.	Length	Notes
MF53/1x8A_21MXP/21MXP/305_1	84099634	305 mm (12")	Pin map: 1 to 1
MF53/1x8A_21MXP/21MXP/610_1	84099914	610 mm (24")	



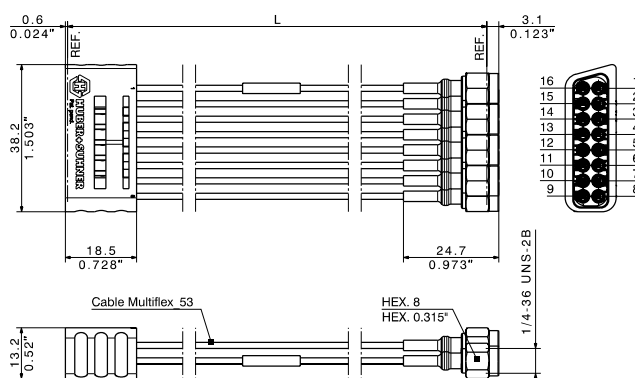
Cable Assemblies

Product range

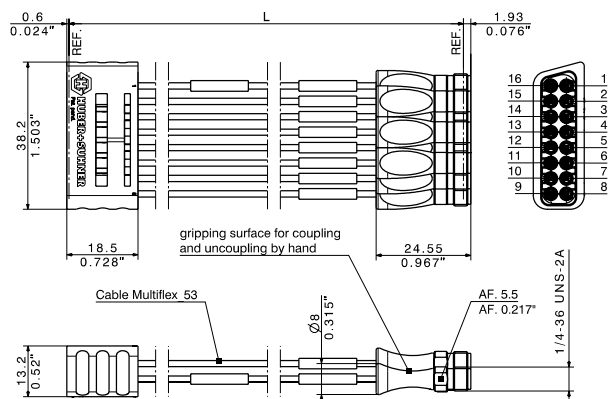
Features see page 9



Type 2x8 ganged	Item no.	Length	Notes
MF53/2x8A_21MXP/11SK/152	84088950	152mm (6")	Single channels numbered
MF53/2x8A_21MXP/11SK/229	84098901	229mm (9")	
MF53/2x8A_21MXP/11SK/305	84088954	305mm (12")	
MF53/2x8A_21MXP/11SK/610	84089090	610mm (24")	



Type 2x8 ganged	Item no.	Length	Notes
MF53/2x8A_21MXP/21SK_ergo/152	84093901	152mm (6")	Single channels numbered. With ergo grip on SK side. Please see low loss breakout system with SUCOFLEX 404 test leads on page 15.
MF53/2x8A_21MXP/21SK_ergo/229	84098908	229mm (9")	
MF53/2x8A_21MXP/21SK_ergo/305	84098902	305mm (12")	

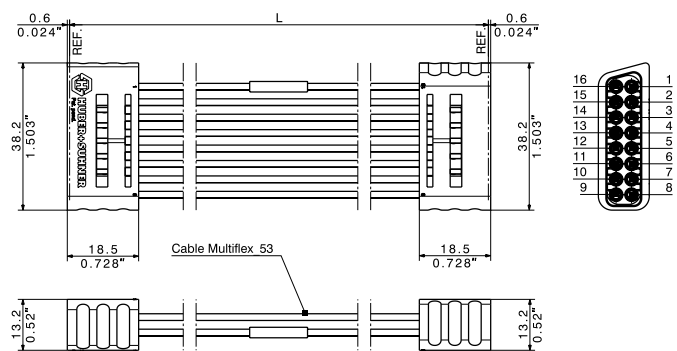


Cable Assemblies

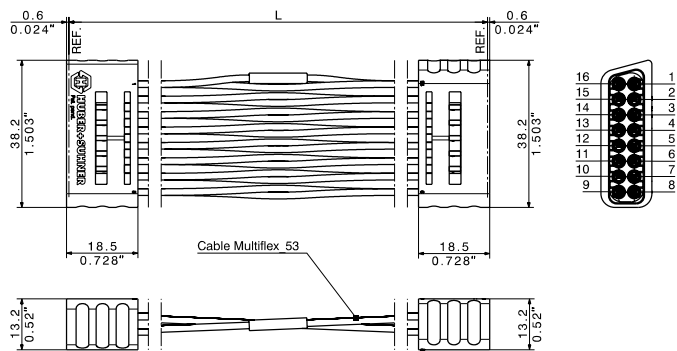
Features see page 9



Type 2x8 ganged	Item no.	Length	Remark
MF53/2x8A_21MXP/21MXP/305	84099955	305 mm (12")	Pin map: 1 to 16
MF53/2x8A_21MXP/21MXP/610	84099957	610 mm (24")	



Type 2x8 ganged	Item no.	Length	Remark
MF53/2x8A_21MXP/21MXP/305_1	84099487	305 mm (12")	Pin map: 1 to 1
MF53/2x8A_21MXP/21MXP/610_1	84099511	610 mm (24")	



Cable Assemblies

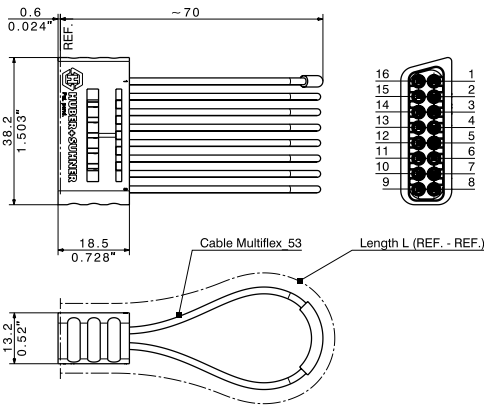
Features see page 9

Product range



Type 2x8 ganged	Item no.	Length	Remark
MF53/2x8A_21MXP/152	84095097	152mm (6")	Loop back configuration

Typical application
Channel bridging



MXP - low loss breakout System with SUCOFLEX 404 Test Leads





Features

- Short MXP breakout assemblies minimises loss while still providing highest flexibility
- SUCOFLEX 404 offers lowest loss interconnectivity to the test equipment (see page 17 for technical data)
- Quick and reliable interconnection thanks to the QuickMate nut (SUCOFLEX 404) and ergonomic grip (MXP)
- No torque wrench required

Benefits

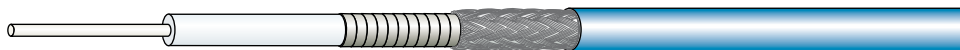
- Highest density - lowest loss
- Fast and reliable mating
- Reduces total cost of testing



MULTIFLEX 53

Description

The high flexible microwave cable



Technical Data			
Construction	Material	Detail	Diameter
Center conductor	Copper, silver plated	Wire	0.31 mm
Dielectric	PTFE		1.00 mm
Outer conductor	Copper, silver plated	Wrapped foil, 100 %	1.23 mm
Outer conductor	Copper, silver plated	Braid, 80 %	1.42 mm
Jacket	FEP		1.73 mm +/- 0.1
Print	HUBER+SUHNER MULTIFLEX 53 (PA no.)		

Electrical Data	
Impedance	50 Ω +/- 2
Max. operating frequency	40 GHz
Capacitance	94 pF/m
Velocity of signal propagation	70 %
Signal delay	4.8 ns/m
Insulation resistance	$\geq 1 \times 10^8$ M Ω m
Min. screening effectiveness	> 90 dB (up to 18 GHz)
Max. operating voltage	0.75 kVrms (at sea level)
Test voltage	1.5 kVrms (50 Hz/1 min)

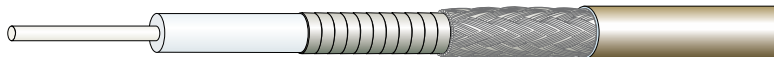
Mechanical Data		
Weight		0.85 kg/100 m
Min. bending radius	Static Dynamic	10 mm 20 mm

Environmental Data	
Temperature range	- 65 °C... + 165 °C
Installation temperature	- 20 °C... + 60 °C
Flammability	IEC 60332-1, UL 1581 § 1080 (VW-1)
2002/95/EC (RoHS)	Compliant

SUCOFLEX 404

Description

The ultra low loss microwave cable
Available assembled only



Technical Data			
Construction	Material	Detail	Diameter
Center conductor	Copper, silver plated	Wire	
Dielectric	PTFE		
Outer conductor	Copper, silver plated	Wrapped foil, 100 %	
Outer conductor	Copper, silver plated	Braid	
Jacket	FEP		5.5 mm

Electrical Data	
Impedance	50 Ω
Max. operating frequency	26.5 GHz
Capacitance	74.6 pF/m
Velocity of signal propagation	89 %
Signal delay	3.73 ns/m
Insulation resistance	$\geq 1 \times 10^8$ M Ω m
Min. screening effectiveness	> 90 dB (up to 18 GHz)
Max. operating voltage	2x kVrms (at sea level)

Mechanical Data		
Weight		7.2 kg/100 m
Min. bending radius	Static Dynamic	25 mm 35 mm

Environmental Data	
Temperature range	- 40 °C... + 125 °C
Flammability	MIL-T-87104 § 4.6.4.8
2002/95/EC (RoHS)	Compliant

Evaluation Kit

Set includes

Assembly

- MXP breakout assembly to Suhner-K (2.92 mm) 305 mm (12 ")
- Cable: HUBER+SUHNER MULTIFLEX 53

PCB

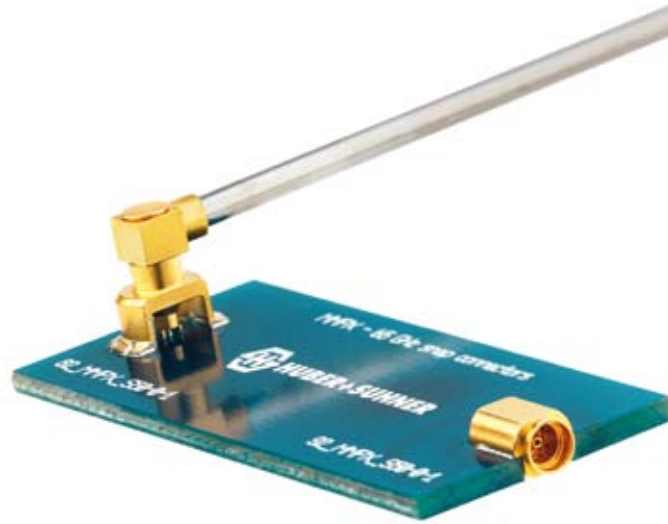
- MXP PCB connector
- Fan-out to MMPX* (adaptors to Suhner-K included)
- OST calibration area
- Material: Rogers RO3003
- Substrate thickness: 0.127 mm (5 mil)
- Dielectric constant ϵ_r : 3
- Stack-up: Microstrip

*) HUBER+SUHNER MMPX - 67 GHz precision snap connectors (patented), see page 19



Related HUBER+SUHNER Products

MMPX snap connectors – the true 40 Gbps/67 GHz coaxial-to-PCB transition



SUCOFLEX 100 – the high performance microwave cable assemblies



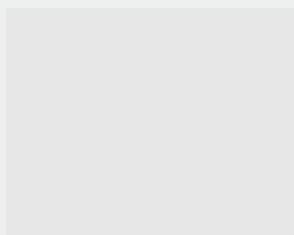
MULTIFLEX 86 – the 40 Gbps/67 GHz flexible alternative to semi-rigid cables



HUBER+SUHNER is certified according to
ISO 9001, ISO 14001, ISO/TS 16949 and IRIS.

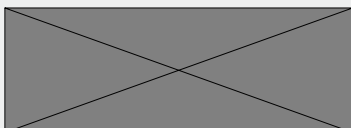
WAIVER

It is exclusively in written agreements that we provide our customers with warrants and representations as to the technical specifications and/or the fitness for any particular purpose. The facts and figures contained herein are carefully compiled to the best of our knowledge, but they are intended for general informational purposes only.



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