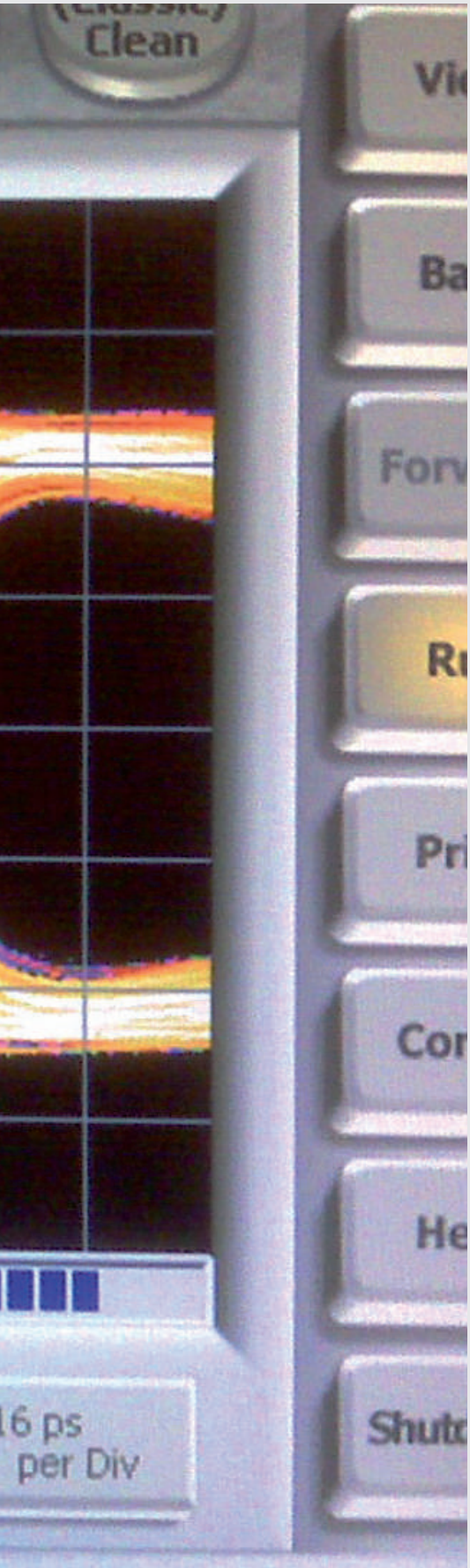


Your partner for system solutions

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/40 GHz coaxial-to-PCB transitions.

HUBER+SUHNER
Excellence in Connectivity Solutions

Future-proof testing

The ganged multicoax solution offers a true 40 Gbps/40 GHz coaxial-to-PCB transition in a very small form factor. With reliable mating and ease of use that make it especially suited to bench-top and system testing, this solution can also be used as an interconnect within automated semiconductor test equipment. A broad range of configurations is available with highly flexible and ultra-stable cable assemblies and compact PCB connectors.

What high speed digital testing demands

Key features

- Operating range of up to 40 Gbps/40 GHz
- Highest density – lowest loss
- Slide-on mounting – no screwing
- Highly flexible and ultra-stable MULTIFLEX cable
- Extensive technical support

Benefits

- Testing at the highest stage
  → The broadband characteristics and the true 40 Gbps/40 GHz coaxial-to-PCB transition allow the design of evaluation boards (test set-ups) for the latest generation of semiconductor standards.
- Space saving
  → Due to the dense interface pitch, the PCB connectors take up less space on boards. This is advantageous, as expensive high-performance board material is essential for good signal integrity at high data rates.
- Shorter transmission lines
  → The compact design of the PCB connector allows it to be positioned directly adjacent to the DUT/chip. This helps to keep the transmission lines on the board short and the losses low.
- Reliable push-on mating
  → Thanks to the revolutionary slide-on interface design, assemblies can be replugged quickly and easily, while guaranteeing stable electrical values even after numerous mating cycles.
- Easy channel handling
  → The highly flexible MULTFLEX cable in combination with a detailed numbering and coding system ensure easy channel handling without any degradation of the signal integrity.

Overview product range (1 x 8 and 2 x 8 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.

MXP40 – 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 53-02	≥ 20 dB up to 22.5 GHz ≥ 12 dB up to 40 GHz
Insertion loss	152 mm (6") assembly	≤ 1.8 dB up to 40 GHz
Cross-talk	at PCB transition	≤ -40 dB up to 35 GHz ≤ -35 dB up to 40 GHz

Typical mechanical data	Testing condition	Requirements
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

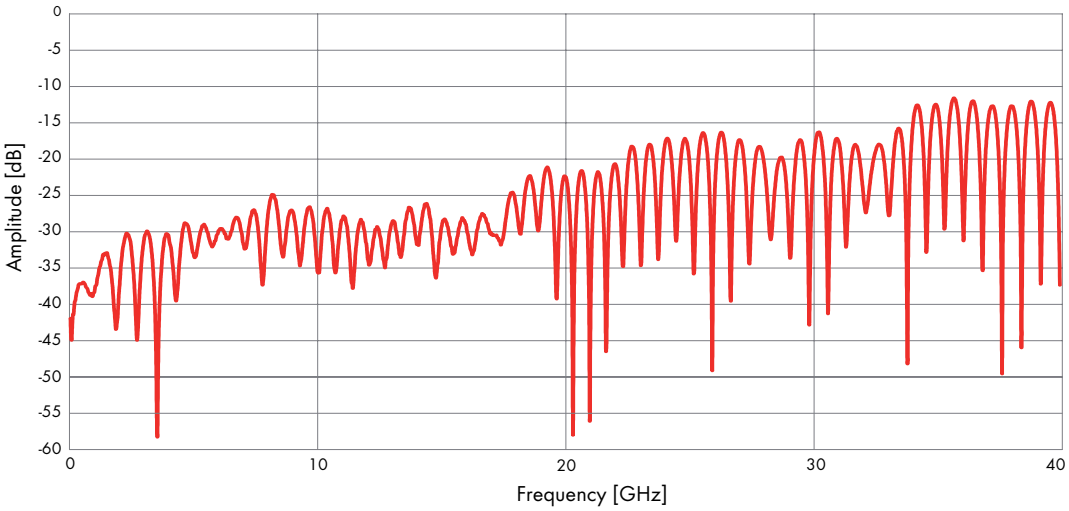
Material data cable connector	Material	Coating
Center contact	copper beryllium	SUCOPRO® gold plating
Outer contact	brass	SUCOPRO® gold plating
Insulator	PTFE	n/a
Body	aluminium	black anodised

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

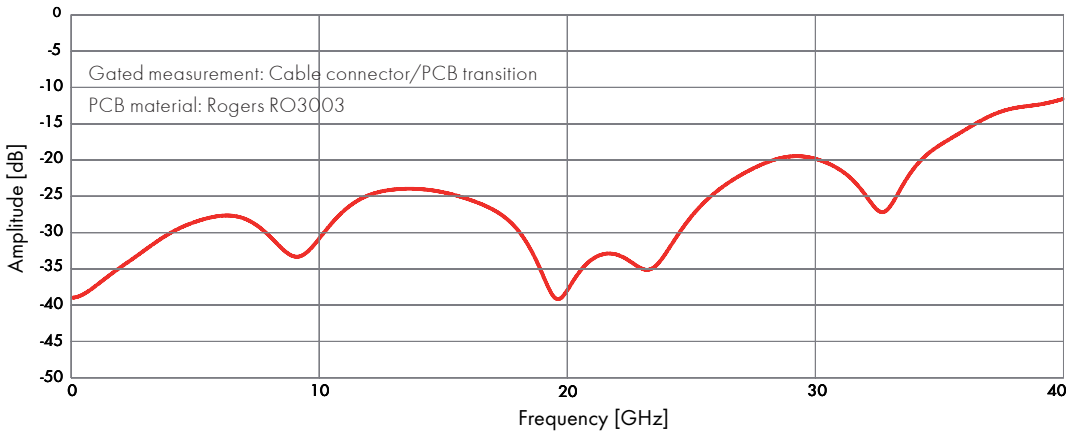
Typical environmental data	Testing condition	Requirements
Temperature range		-55 °C ... +85 °C
Thermal aging (mated condition)	IEC 60068-2-2, test B	120 °C / 260 h
Change of temperature	IEC 60068-2-14, test na	assembly: -55 °C ... +85 °C PCB: -55 °C ... +85 °C
Vibration	IEC 60068-2-6	on request
Mechanical 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

MXP40 – Technical data

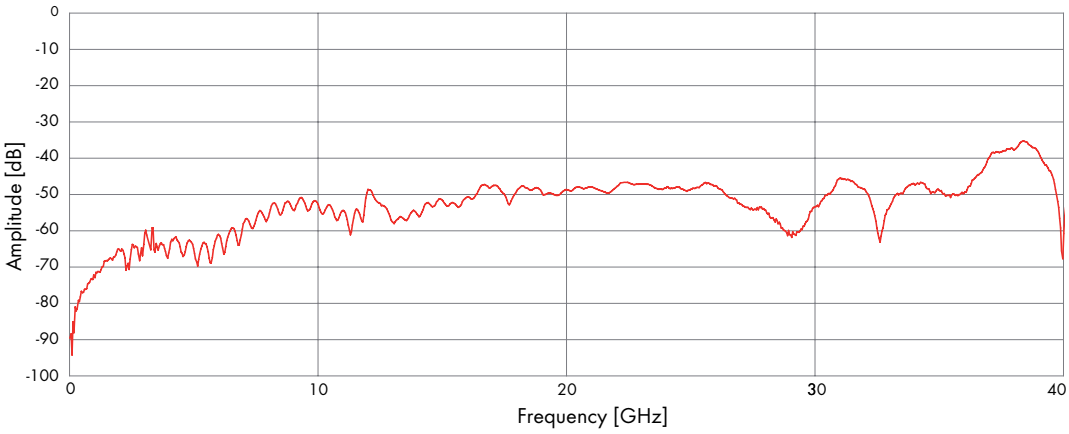
Typical return loss value assembly



Typical return loss value mated condition

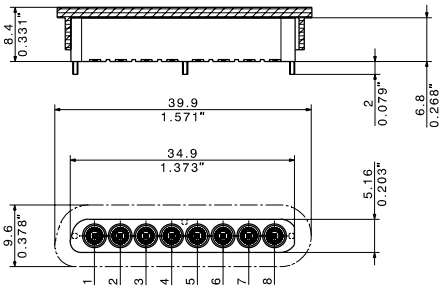


Typical cross-talk at PCB transition

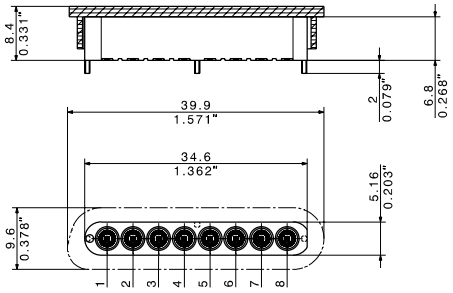


MXP40 – PCB connectors

- 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 1 x 8 ganged	Item no.	Packaging	Notes
1x8A_81_MXP-S50-0-1/111_NE	84091435	tape	asymmetric design (keyed)



Type 1 x 8 ganged	Item no.	Packaging	Notes
1x8A_81_MXP-S50-0-2/111_NE	84091436	tape	symmetric design (non-keyed)

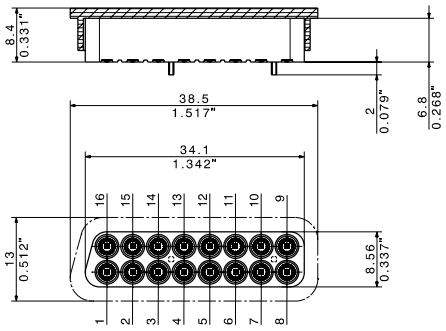


Fig. 1

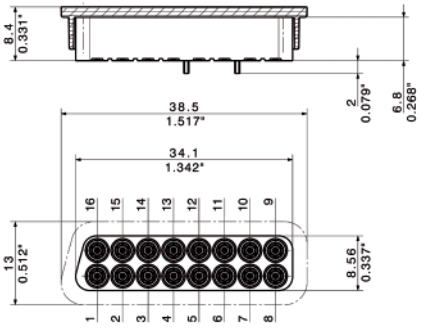
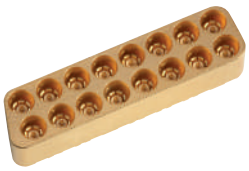


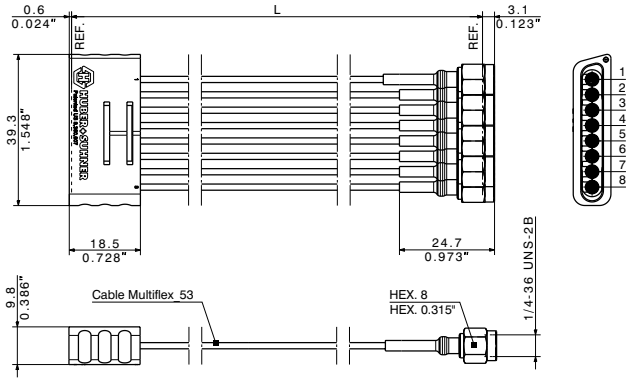
Fig. 2



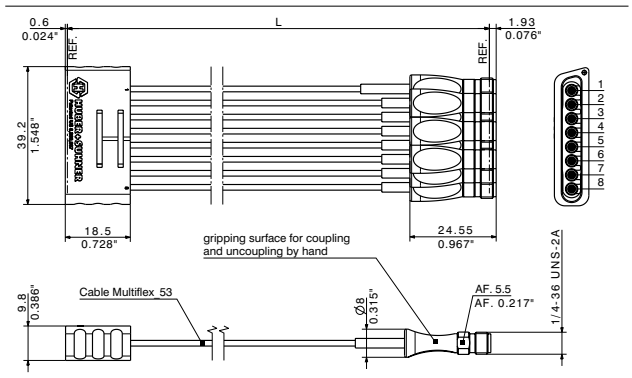
Type 2 x 8 ganged	Item no.	Packaging	Notes	Fig.
2x8A_81_MXP-S50-0-1/111_NE	84072058	tape	asymmetric design (keyed)	1
2x8A_81_MXP-S50-0-3/111_NE	85013397	tape	asymmetric design (keyed) optimised grounding pin layout for differential pair routing	2

MXP40 – Cable assemblies

- Broad range of standard breakout assemblies MXP-to-Suhner-K (2.92 mm) and jumper assemblies MXP-to-MXP available
- Insertion loss ≤ 1.8 dB up to 40 GHz for a 152 mm (6") assembly
- Customised assemblies on request
- Delivered with thin, high flexible and ultra-stable HUBER+SUHNER MULTIFLEX 53-02 microwave cable (see page 18 for technical data)



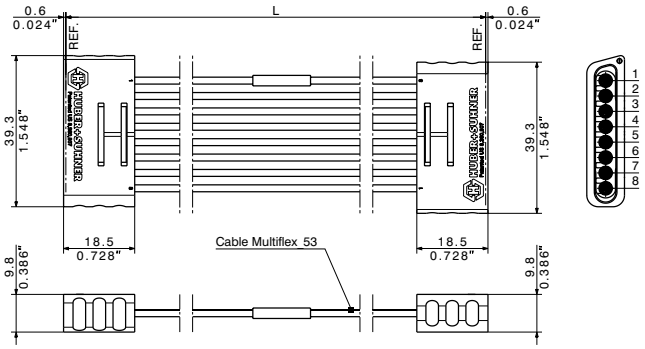
Type 1 x 8 ganged	Item no.	Length (L)	Notes
MF53/1x8A_21MXP/11SK/152	84097196	152 mm (6")	single channels numbered
MF53/1x8A_21MXP/11SK/229	84099600	229 mm (9")	
MF53/1x8A_21MXP/11SK/305	84099607	305 mm (12")	



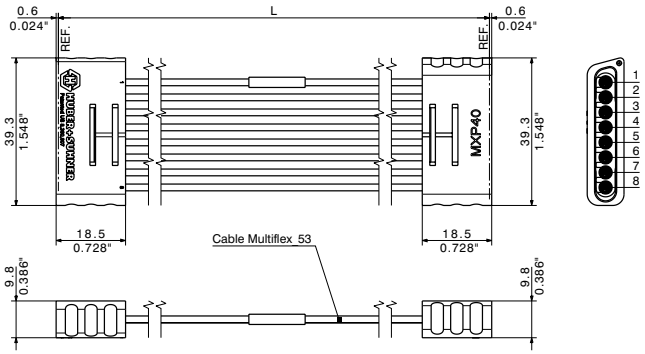
Type 1 x 8 ganged	Item no.	Length (L)	Notes
MF53/1x8A_21MXP/21SK_ergo/152	84093980	152 mm (6")	single channels numbered with ergo grip on SK side please see low loss breakout system with SUCOFLEX test leads on page 15
MF53/1x8A_21MXP/21SK_ergo/229	84098899	229 mm (9")	
MF53/1x8A_21MXP/21SK_ergo/305	84098900	305 mm (12")	

MXP40 – Cable assemblies

- Broad range of standard breakout assemblies MXP-to-Suhner-K (2.92 mm) and jumper assemblies MXP-to-MXP available
- Insertion loss ≤ 1.8 dB up to 40 GHz for a 152 mm (6») assembly
- Customised assemblies on request
- Delivered with thin, high flexible and ultra-stable HUBER+SUHNER MULTIFLEX 53-02 microwave cable (see page 18 for technical data)



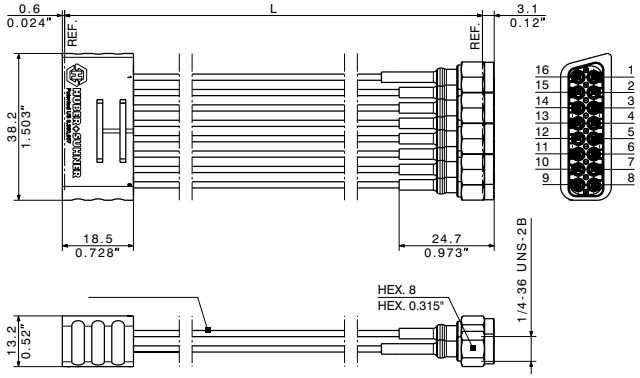
Type 1 x 8 ganged	Item no.	Length	Notes
MF53/1x8A_21MXP/21MXP/152	84129711	152 mm (6")	pin map: 1 to 8
MF53/1x8A_21MXP/21MXP/229	85009276	229 mm (9")	
MF53/1x8A_21MXP/21MXP/305	84099960	305 mm (12")	
MF53/1x8A_21MXP/21MXP/610	84100060	610 mm (24")	



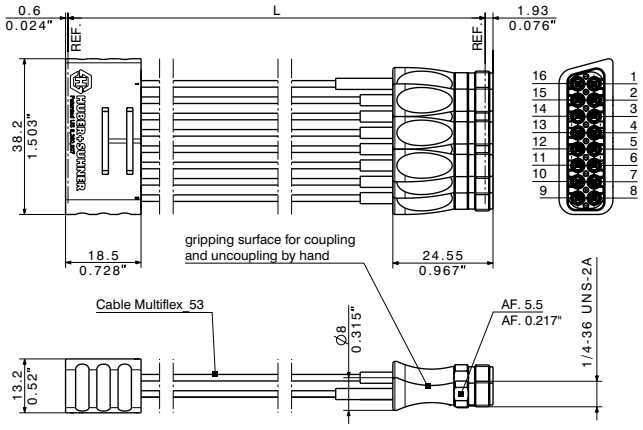
Type 1 x 8 ganged	Item no.	Length	Notes
MF53/1x8A_21MXP/21MXP/152_1	84129722	152 mm (6")	pin map: 1 to 1
MF53/1x8A_21MXP/21MXP/229_1	85009284	229 mm (9")	
MF53/1x8A_21MXP/21MXP/305_1	84099634	305 mm (12")	
MF53/1x8A_21MXP/21MXP/610_1	84099914	610 mm (24")	

MXP40 – Cable assemblies

- Broad range of standard breakout assemblies MXP-to-Suhner-K (2.92 mm) and jumper assemblies MXP-to-MXP available
- Insertion loss ≤ 1.8 dB up to 40 GHz for a 152 mm (6») assembly
- Customised assemblies on request
- Delivered with thin, high flexible and ultra-stable HUBER+SUHNER MULTIFLEX 53-02 microwave cable (see page 18 for technical data)



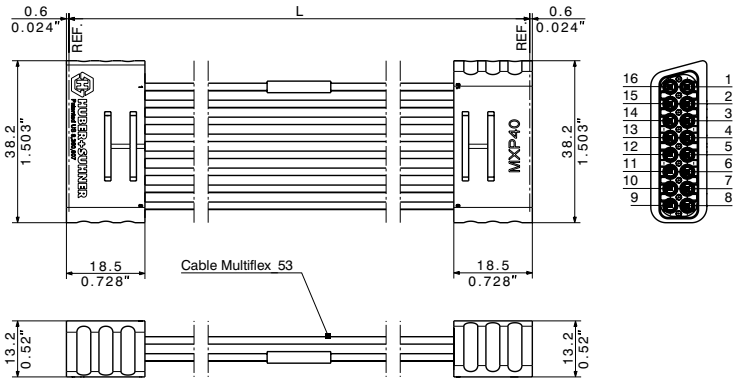
Type 2 x 8 ganged	Item no.	Length	Notes
MF53/2x8A_21MXP/11SK/152	84088950	152 mm (6")	single channels numbered
MF53/2x8A_21MXP/11SK/229	84098901	229 mm (9")	
MF53/2x8A_21MXP/11SK/305	84088954	305 mm (12")	



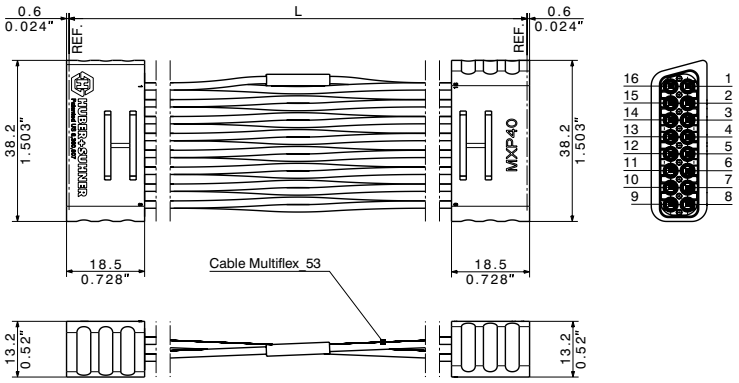
Type 2 x 8 ganged	Item no.	Length	Notes
MF53/2x8A_21MXP/21SK_ergo/152	84093901	152 mm (6")	single channels numbered with ergo grip on SK side please see low loss breakout system with SUCOFLEX test leads on page 15
MF53/2x8A_21MXP/21SK_ergo/229	84098908	229 mm (9")	
MF53/2x8A_21MXP/21SK_ergo/305	84098902	305 mm (12")	

MXP40 – Cable assemblies

- Broad range of standard breakout assemblies MXP-to-Suhner-K (2.92 mm) and jumper assemblies MXP-to-MXP available
- Insertion loss ≤ 1.8 dB up to 40 GHz for a 152 mm (6») assembly
- Customised assemblies on request
- Delivered with thin, high flexible and ultra-stable HUBER+SUHNER MULTIFLEX 53-02 microwave cable (see page 18 for technical data)



Type 2 x 8 ganged	Item no.	Length	Notes
MF53/2x8A_21MXP/21MXP/152	85009288	152 mm (6")	pin map: 1 to 16
MF53/2x8A_21MXP/21MXP/229	85009287	229 mm (9")	
MF53/2x8A_21MXP/21MXP/305	84099955	305 mm (12")	
MF53/2x8A_21MXP/21MXP/610	84099957	610 mm (24")	



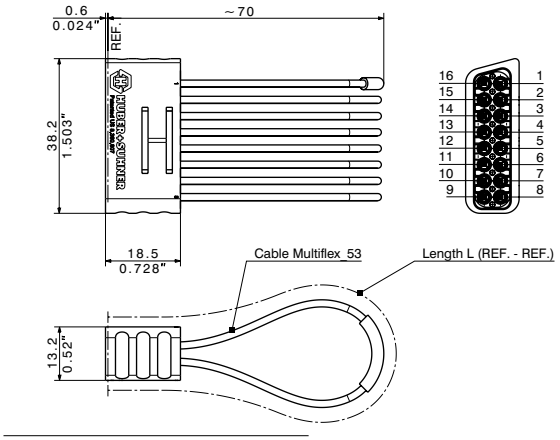
Type 2 x 8 ganged	Item no.	Length	Notes
MF53/2x8A_21MXP/21MXP/152_1	84116942	152 mm (6")	pin map: 1 to 1
MF53/2x8A_21MXP/21MXP/229_1	85009289	229 mm (9")	
MF53/2x8A_21MXP/21MXP/305_1	84099487	305 mm (12")	
MF53/2x8A_21MXP/21MXP/610_1	84099511	610 mm (24")	

MXP40 – Cable assemblies

- Broad range of standard breakout assemblies MXP-to-Suhner-K (2.92 mm) and jumper assemblies MXP-to-MXP available
- Insertion loss ≤ 1.8 dB up to 40 GHz for a 152 mm (6») assembly
- Customised assemblies on request
- Delivered with thin, high flexible and ultra-stable HUBER+SUHNER MULTIFLEX 53-02 microwave cable (see page 18 for technical data)

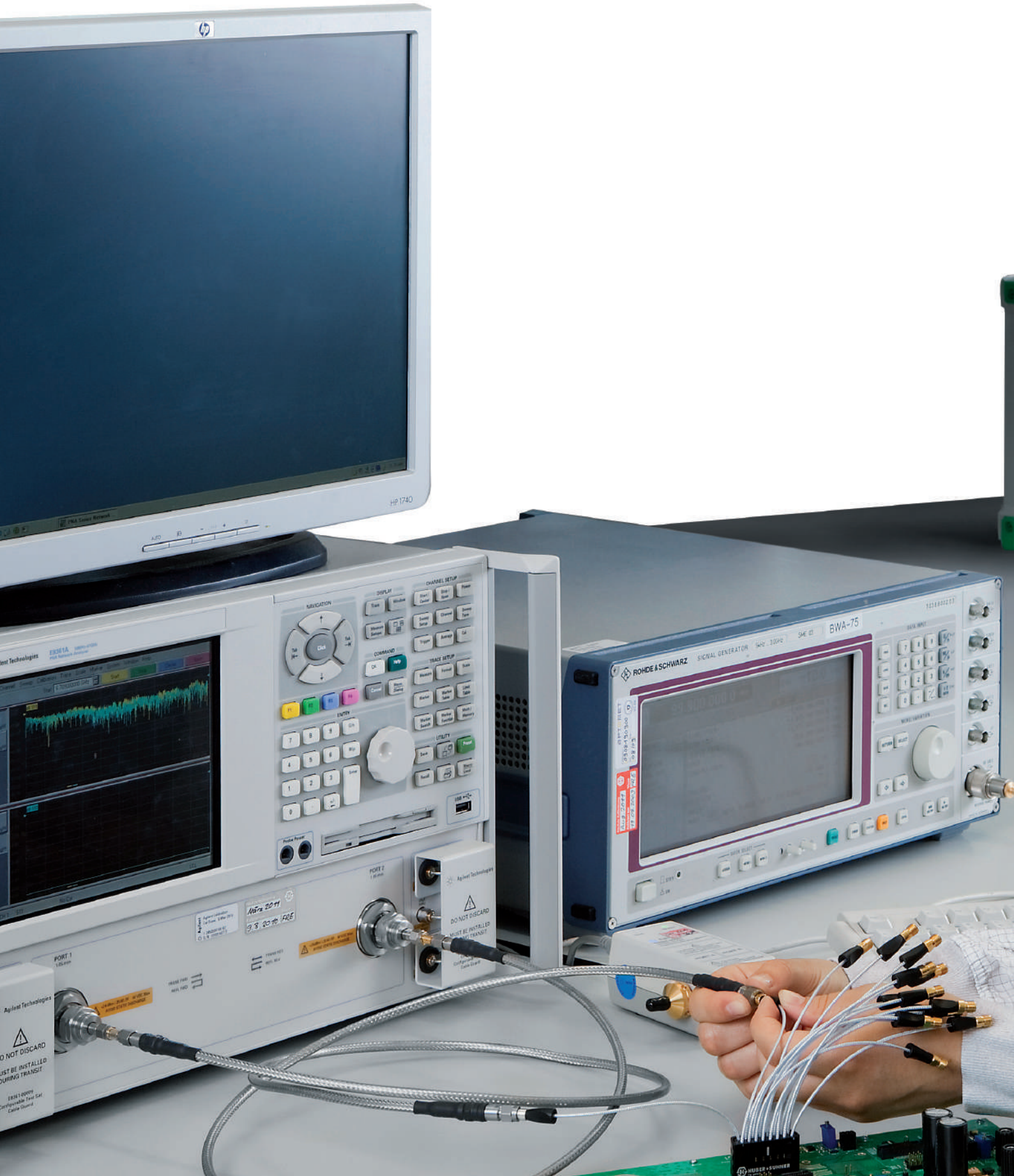
Typical application

- Channel bridging



Type 2 x 8 ganged	Item no.	Length	Notes
MF53/2x8A_21MXP/152	84095097	152 mm (6")	loop back configuration

MXP40 – Low loss breakout system



Key features

- Short MXP40 breakout assemblies minimise loss while still providing highest flexibility
- SUCOFLEX 100/400 offers lowest loss interconnectivity to the test equipment (see page 19 for technical data)
- Quick and reliable interconnection thanks to the quick-mate nut and ergonomic grip (MXP40)
- No torque wrench required

Benefits

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

MXP18

Key features

- Operating range of up to 18 Gbps/18 GHz
- 1 x 8 ganged version
- Breakout to SMA
- Compatible with MXP40

Benefits

- Best value for pricing
  - MXP18 offers outstanding electrical and mechanical performance for its price and keeps the expenses for testing within reasonable bounds
- Future-proof modularity
  - MXP18 assemblies are mechanically fully compatible with the MXP40 system

MXP18 – Technical data

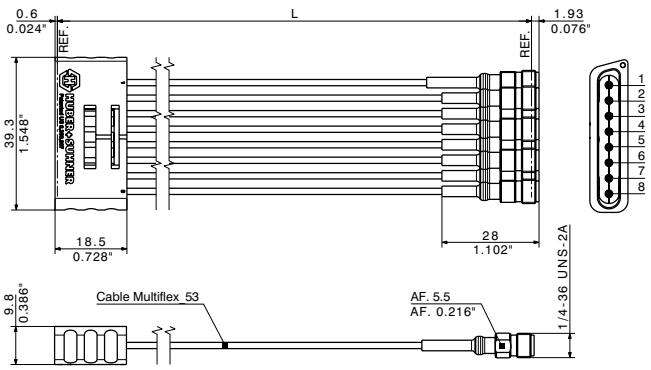
Typical electrical data	Testing condition	Performance
Operating range / data rate		up to 18 Gbps
Frequency range		DC up to 18 GHz
Impedance		50 Ω
Return loss	mated condition gated measurement: cable connector/ PCB transition PCB: Rogers RO3003 cable: HUBER+SUHNER MULTIFLEX 53-02	≥ 20 dB up to 18 GHz
Insertion loss	152 mm (6 inch) assembly	≤ 1.2 dB up to 18 GHz
Cross-talk	at PCB transition	≤ -40 dB at 18 GHz

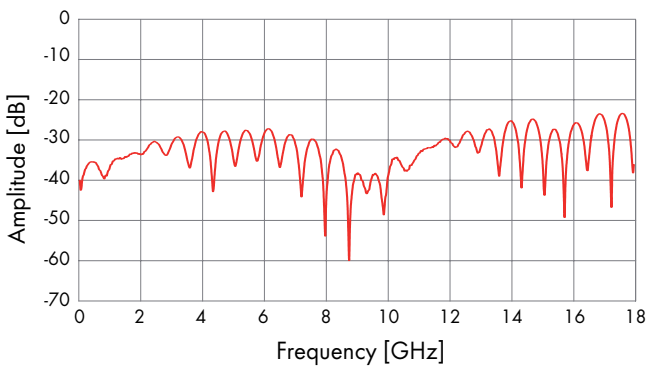
Typical mechanical data	Testing condition	Requirements
Mating force (per single channel)		max. 3.4 N (typical 1.1 N)
Demating force (per single channel)		max. 3.4 N (typical 1.1 N)
Durability (matings)	MIL-PRF-39012, paragraph 4.7.12	> 500

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	green anodised

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	on request
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

Type	Item no.	Length (L)	Notes
MF53/1x8A_21MXP/21SMA/152	85014420	152 mm (6")	





Typical return loss value assembly

MULTIFLEX 53-02

Description

High flexible and ultra-stable microwave cable

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	wrapped foil, 100 %	
Outer conductor	copper, silver plated	braid, 93 %	
Jacket	FEP	RAL 5015 - bl.	1.74 mm +/- 0.05
Print	HUBER+SUHNER MULTIFLEX 53-02 (PA no.)		

Electrical data	
Impedance	50 Ω +/- 2 Ω
Max. operating frequency	40 GHz
Capacitance	95 pF/m
Velocity of signal propagation	70 %
Signal delay	4.8 ns/m
Insulation resistance	≥ 1 x 10^8 MΩm
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)

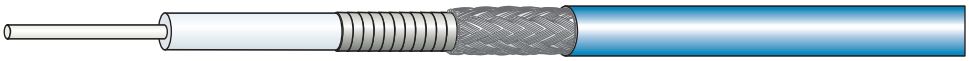
Mechanical data		
Weight		0.85 kg/100 m
Min. bending radius	static dynamic	10 mm 20 mm

Environmental data	
Temperature range	-55 °C... +165 °C
Installation temperature	-20 °C... +60 °C
2002/95/EC (RoHS)	compliant

SUCOFLEX® 102 E

Description

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	TPU	blue	4 mm +/- 0.1

Electrical data	
Impedance	50 Ω +/- 1 Ω
Max. operating frequency	46 GHz
Capacitance	87 pF/m
Velocity of signal propagation	77 %
Signal delay	4.3 ns/m
Insulation resistance	≥ 1 x 10^6 MΩm
Min. screening effectiveness	> 90 dB (up to 18 GHz)
Max. operating voltage	1.4 x kVrms (at sea level)

Mechanical data		
Weight		3.5 kg/100 m
Min. bending radius	static dynamic	12 mm 20 mm

Environmental data	
Temperature range	-40 °C... +85 °C
2002/95/EC (RoHS)	compliant

MXP40 – Evaluation kit

Set includes

Assemblies
- MXP40 breakout assembly to SK [2.92 mm] 152 mm (6")
- Cable: HUBER+SUHNER MULTIFLEX 53-02

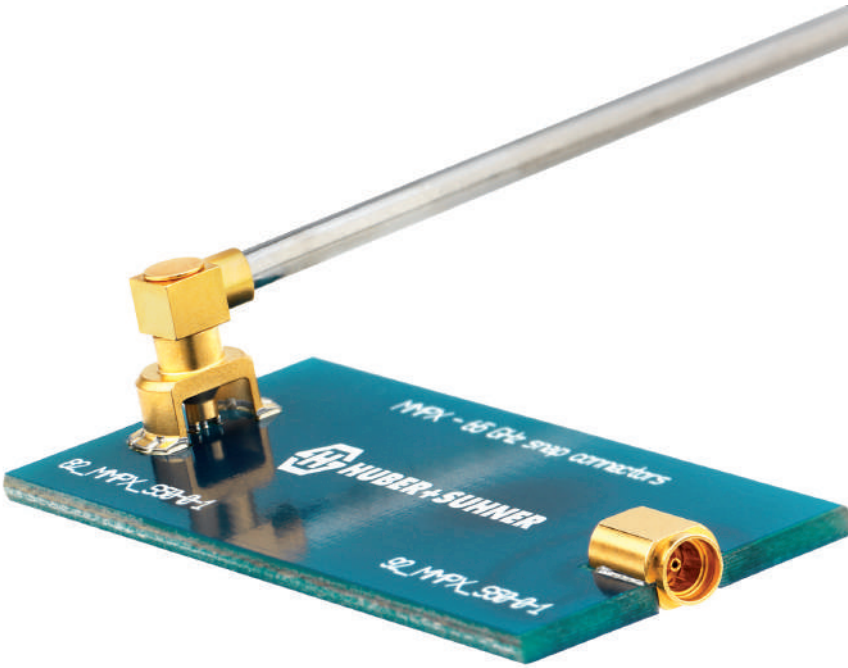
PCB
- MXP40 PCB connector
- Fan-out to MMPX* (adaptors to SK [2.92 mm] included)
- OST calibration area
- Material: Rogers RO3003
- Substrate thickness: 0.127 mm (5 mil)
- Dielectric constant εr: 3
- Stack-up: microstrip

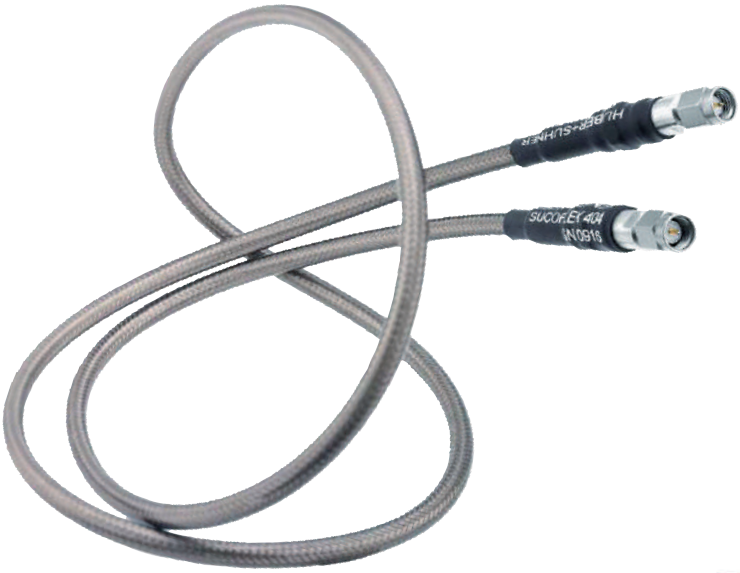
* HUBER+SUHNER MMPX – 67 GHz precision snap connectors (patented) see page 21.

For further information, please contact the HUBER+SUHNER representative in your country.

Related HUBER+SUHNER products

MMPX snap connectors – true 80 Gbps/67 GHz
coaxial-to-PCB transition





SUCOFLEX 400 – ultra low loss microwave assembly

MULTIFLEX 86 – 80 Gbps/67 GHz
flexible alternative to semi-rigid cables