

SUCOFORM – the handformable Alternative to SEMI-RIGID

Product description

SUCOFORM microwave coaxial cables offer distinct mechanical advantages over semi-rigid cables. They are based on the same design as the standard PTFE-insulated semi-rigid cables, but have a tin-soaked copper braid for the outer conductor, giving them outstanding hand-formability. These cables combine the excellent characteristics of semi-rigid cables with those of flexible coaxial cables.

Thanks to their small bending radii, they allow space-saving routing and packaging.



Features and benefits

- Excellent properties: low loss, high screening effectiveness, high operating frequency, high temperature range
- Due to the high phase stability over every production run, SUCOFORM is especially suitable for delay lines
- Good flexibility: easy hand forming without tooling; fits into the smallest systems
- Comprehensive connector range; use of standard semi-rigid connectors
- Quick and easy assembly
- Available in long lengths and various versions

HUBER+SUHNER cable type	Operating frequency (GHz)	Temperature range		Outer dia. (mm)	Nominal atten- uation 18 GHz, 25°C (dB/m)	Bending radii		More information see page
		minimum (°C)	maximum (°C)			static (mm)	repeat. (mm)	
SUCOFORM_47_CU	40	-65	+165	1.20	5.4	3.18	-	44
SUCOFORM_86	40	-65	+165	2.10	3.4	6	20	46
SUCOFORM_141	33	-65	+165	3.58	2.2	8	40	48
SUCOFORM_141_CU	33	-65	+165	3.58	2.2	8	40	50
SUCOFORM_250-01	18	-65	+165	6.35	1.4	30	120	54

SUCOFORM_47_CU / _47_CU_LSFH

Cable design

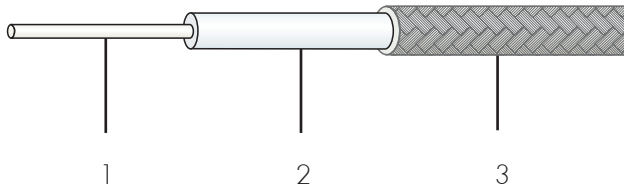


Fig. 1: SUCOFORM_47_CU

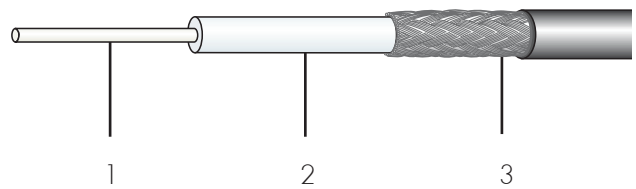


Fig. 2: SUCOFORM_47_CU_LSFH

	Description	Diameter
1. Centre conductor	Solid silver-plated copper wire	0.31 mm
2. Dielectric	Solid PTFE	0.94 mm
3. Outer conductor	Tin soaked copper braid	1.20 mm

Electrical cable data

Impedance	50 Ohm		
Operating frequency	40 GHz		
Capacitance	95 pF/m		
Velocity of propagation	71 %		
Time delay	4.7 ns/m		
Nom. attenuation*	coefficient a	1.117	coefficient b 0.03891
Max. attenuation*	coefficient a	1.2287	coefficient b 0.0438
Max. operating voltage	1.0 kVrms		
Min. screening effectiveness up to 18 GHz	100 dB		

*Attenuation calculation $\alpha_{25} = a \cdot \sqrt{f} \text{ (GHz)} + b \cdot f \text{ (GHz)} \text{ (dB/m)}$

General cable data

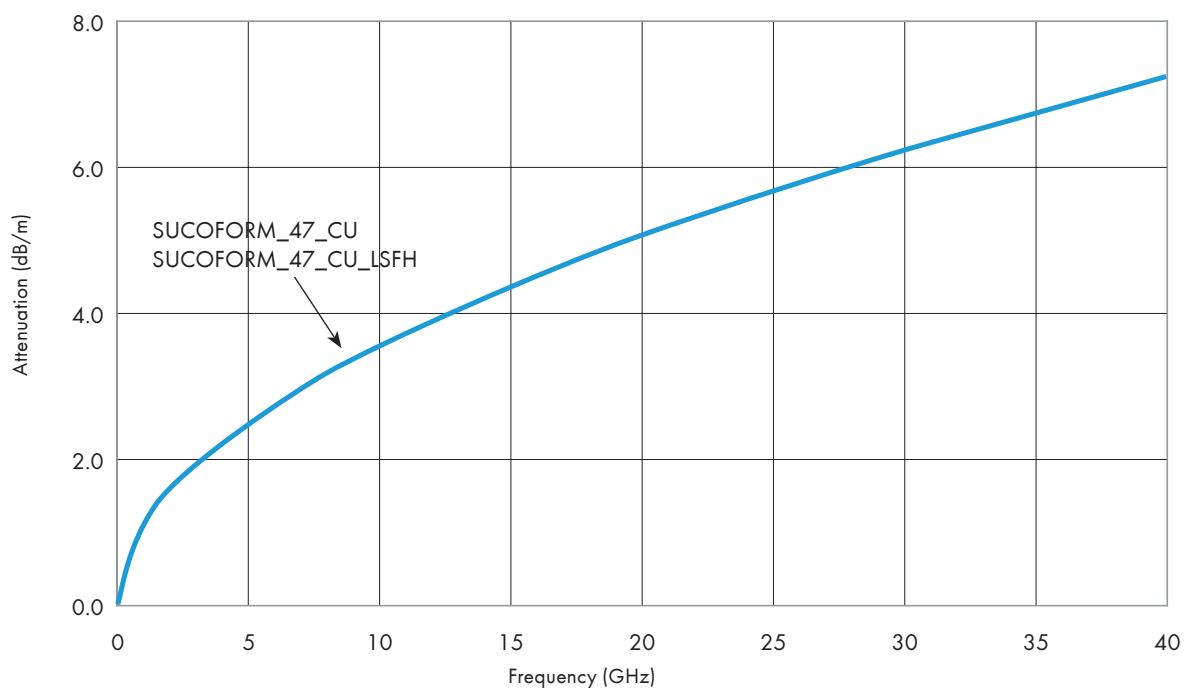
	SUCOFORM_47_CU	SUCOFORM_47_CU_LSFH
Item number	23033515	23035506
Additional jacket	–	LSFH (Low Smoke, Free of Halogen)
Colour	–	black
Diameter	1.20 mm	1.70 mm
Weight	0.6 kg/100 m	0.75 kg/100 m
Temperature range	– 65 ... + 165 °C	– 40 ... + 85 °C
Flammability, passed	–	–
Min. bending radius, static	3.18 mm	3.18 mm
Min. bending radius, repeated	–	–
Suitable connectors, cable group	Y2	Y2
Drawing	see Fig. 1	see Fig. 2

Suitable connectors see cable group Y2 (please refer to page 57)

SUCOFORM_47_CU / _47_CU_LSFH

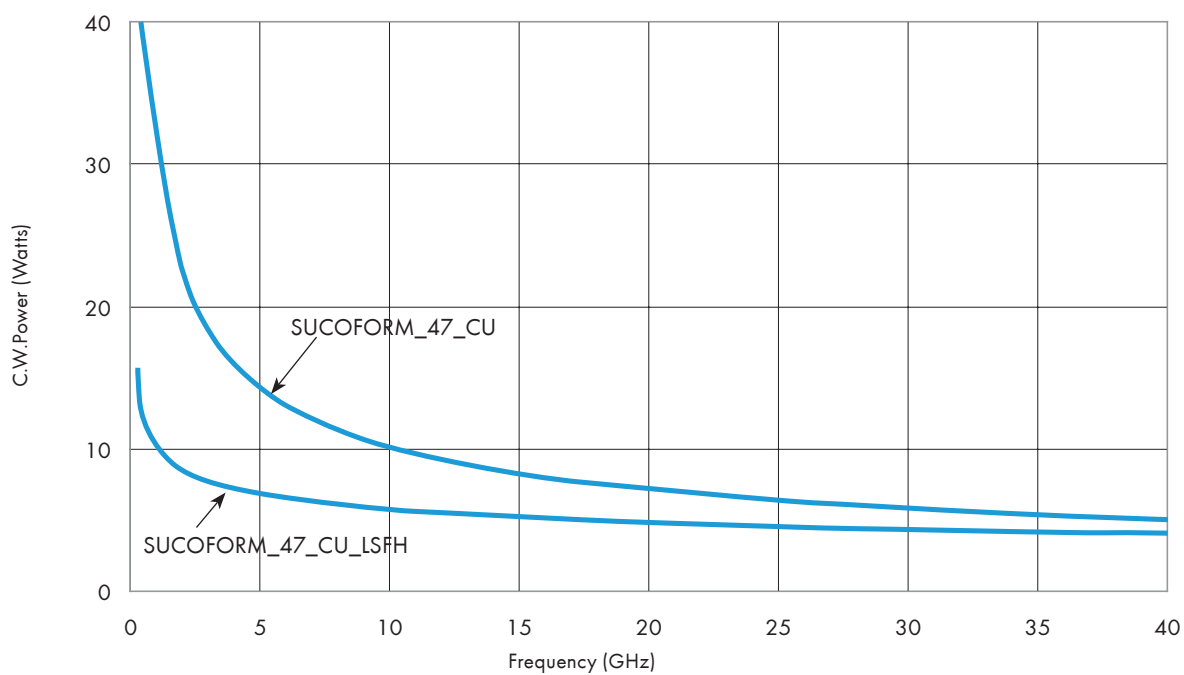
Cable attenuation

Nominal values @ +25 °C ambient temperature



Power handling

Maximum values @ +40 °C ambient temperature and sea level



SUCOFORM_86 / _86_PE / _86_FEP

Cable design

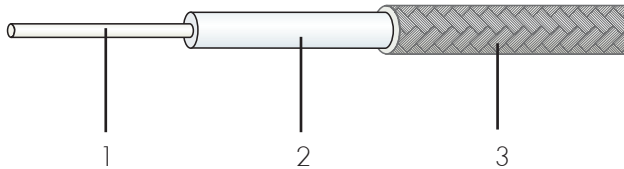


Fig. 1: SUCOFORM_86

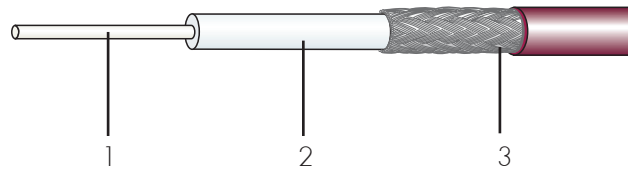


Fig. 2: SUCOFORM_86_PE / _86_FEP

	Description	Diameter
1. Centre conductor	Solid silver-plated copper clad-steel wire	0.53 mm
2. Dielectric	Solid PTFE	1.65 mm
3. Outer conductor	Tin soaked copper braid	2.10 mm

Electrical cable data

Impedance	50 Ohm		
Operating frequency	40 GHz		
Capacitance	95 pF/m		
Velocity of propagation	71 %		
Time delay	4.7 ns/m		
Nom. attenuation*	coefficient a	0.6283	coefficient b 0.0400
Max. attenuation*	coefficient a	0.6912	coefficient b 0.0440
Max. operating voltage	1.5 kVrms		
Min. screening effectiveness up to 18 GHz	100 dB		

*Attenuation calculation $\alpha_{25} = a \cdot \sqrt{f} \text{ (GHz)} + b \cdot f \text{ (GHz)} \text{ (dB/m)}$

General cable data

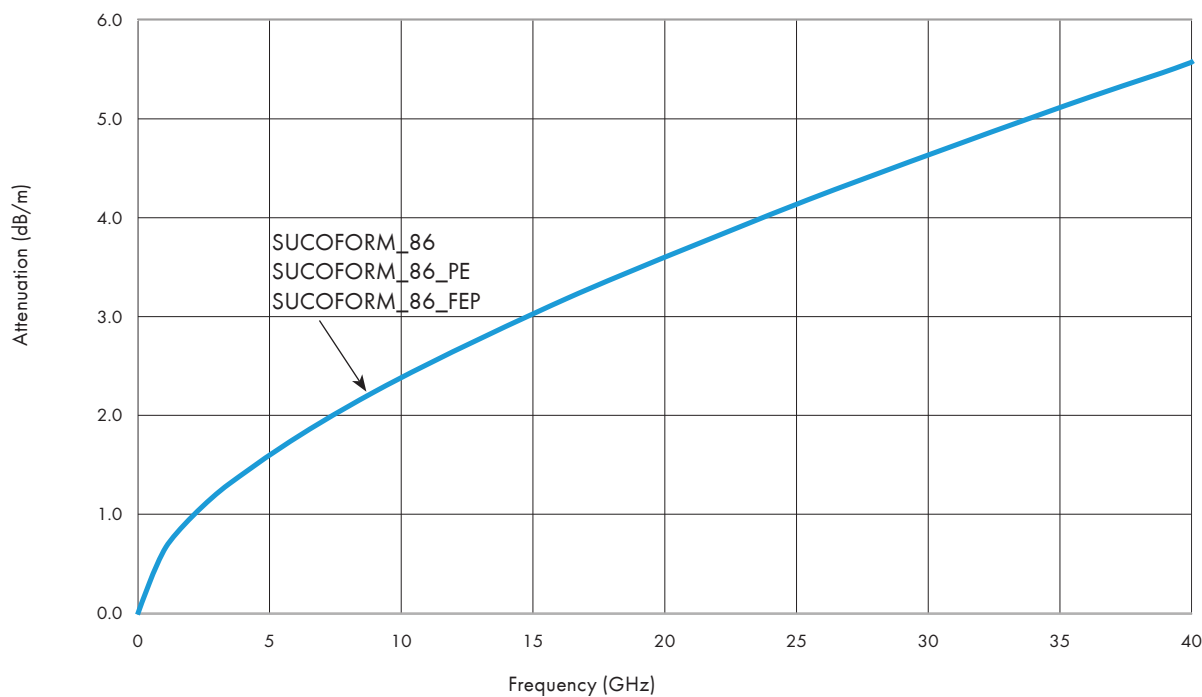
	SUCOFORM_86	SUCOFORM_86_PE	SUCOFORM_86_FEP
Item number	22511613	22511631	22511942
Additional jacket	–	PE	FEP
Colour	–	red	red
Diameter	2.10 mm	3.20 mm	2.50 mm
Weight	1.5 kg/100 m	1.7 kg/100 m	1.8 kg/100 m
Temperature range	– 65 ... + 165 °C	– 40 ... + 85 °C	– 65 ... + 165 °C
Flammability, passed	IEC 60332-1, UL 1581-§1080 (VW-1)	–	IEC 60332-1, UL 1581-§1080 (VW-1)
Min. bending radius, static	6 mm	6 mm	6 mm
Min. bending radius, repeated	20 mm	20 mm	20 mm
Suitable connectors, cable group	Y11	Y11	Y11
Drawing	see Fig. 1	see Fig. 2	see Fig. 2

Suitable connectors see cable group Y11 (please refer to page 57 ff)

SUCOFORM_86 / _86_PE / _86_FEP

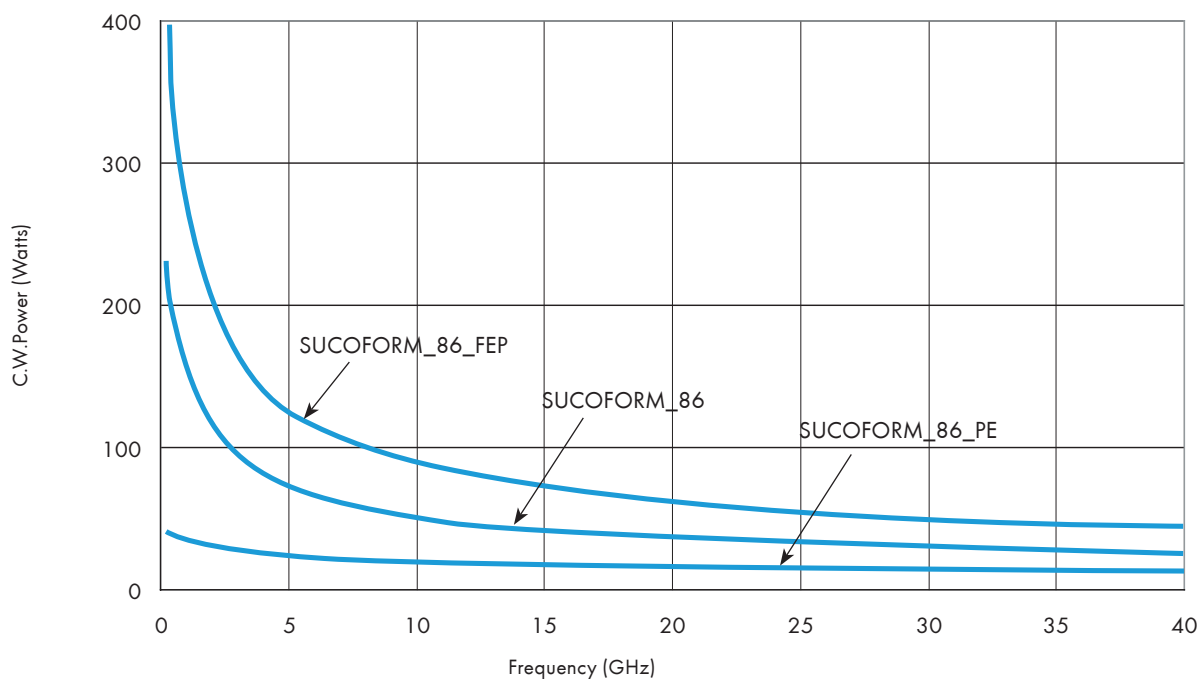
Cable attenuation

Nominal values @ +25 °C ambient temperature



Power handling

Maximum values @ +40 °C ambient temperature and sea level



SUCOFORM_141 / _141_PE / 141_FEP

Cable design

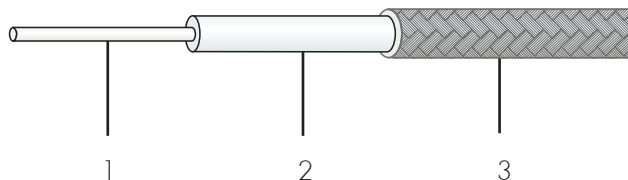


Fig. 1: SUCOFORM_141

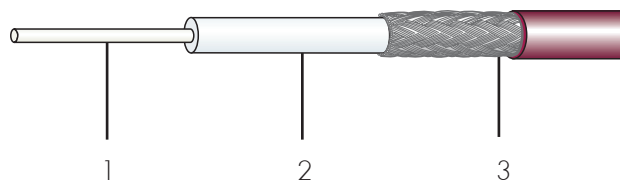


Fig. 2: SUCOFORM_141_PE / _141_FEP

	Description	Diameter
1. Centre conductor	Solid silver-plated copper clad-steel wire	0.95 mm
2. Dielectric	Solid PTFE	2.95 mm
3. Outer conductor	Tin soaked copper braid	3.58 mm

Electrical cable data

Impedance	50 Ohm			
Operating frequency	33 GHz			
Capacitance	92 pF/m			
Velocity of propagation	71 %			
Time delay	4.7 ns/m			
Nom. attenuation*	coefficient a	0.3631	coefficient b	0.0377
Max. attenuation*	coefficient a	0.3995	coefficient b	0.0415
Max. operating voltage	1.9 kVrms			
Min. screening effectiveness up to 18 GHz	100 dB			

*Attenuation calculation $\alpha_{25} = a \cdot \sqrt{f} \text{ (GHz)} + b \cdot f \text{ (GHz)} \text{ (dB/m)}$

General cable data

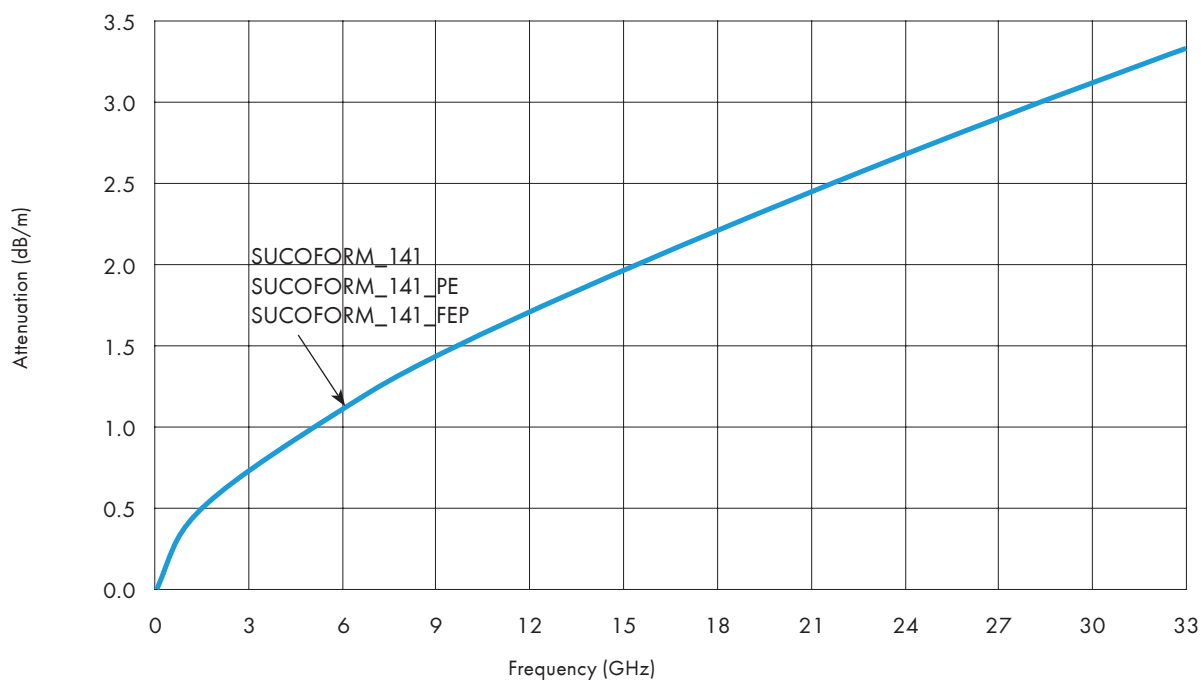
	SUCOFORM_141	SUCOFORM_141_PE	SUCOFORM_141_FEP
Item number	22511925	22511632	22511944
Additional jacket	–	PE	FEP
Colour	–	red	red
Diameter	3.58 mm	4.60 mm	4.10 mm
Weight	3.8 kg/100 m	4.7 kg/100 m	4.7 kg/100 m
Temperature range	– 65 ... + 165 °C	– 40 ... + 85 °C	– 65 ... + 165 °C
Flammability, passed	IEC 60332-1, UL 1581-§1080 (VW-1)	–	IEC 60332-1, UL 1581-§1080 (VW-1)
Min. bending radius, static	8 mm	8 mm	8 mm
Min. bending radius, repeated	40 mm	40 mm	40 mm
Suitable connectors, cable group	Y12	Y12	Y12
Drawing	see Fig. 1	see Fig. 2	see Fig. 2

Suitable connectors see cable group Y12 (please refer to page 59 ff)

SUCOFORM_141 / _141_PE / _141_FEP

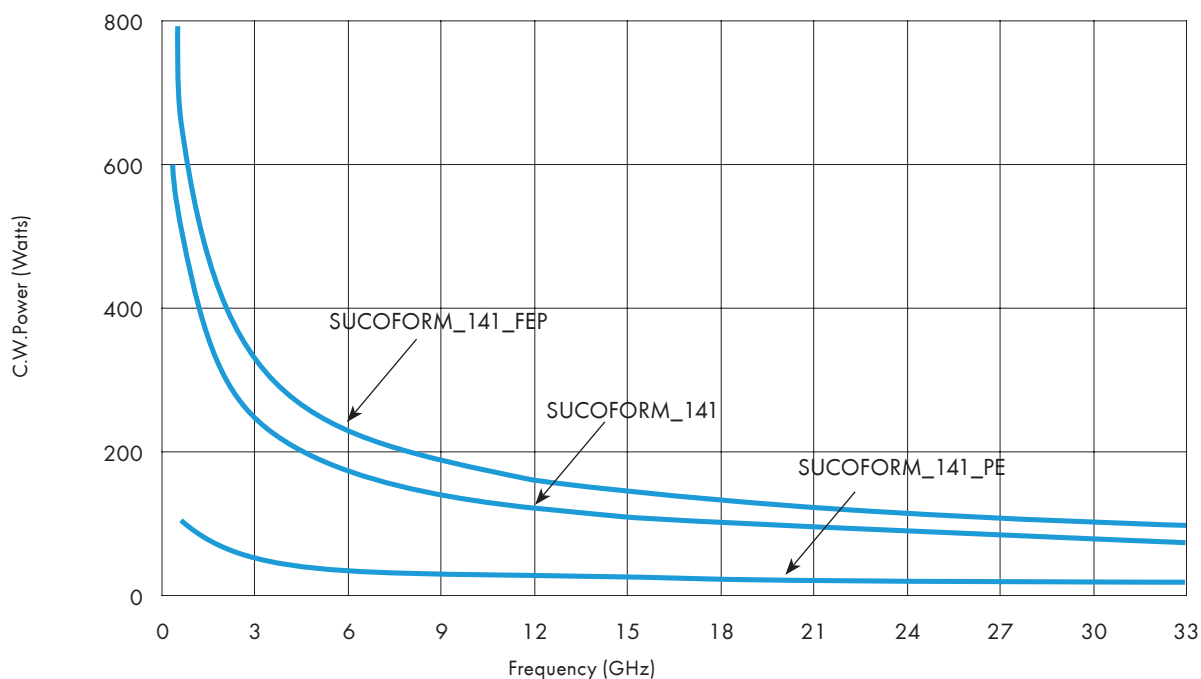
Cable attenuation

Nominal values @ +25 °C ambient temperature



Power Handling

Maximum values @ +40 °C ambient temperature and sea level



SUCOFORM_141_CU / _141_CU_PE

Cable design

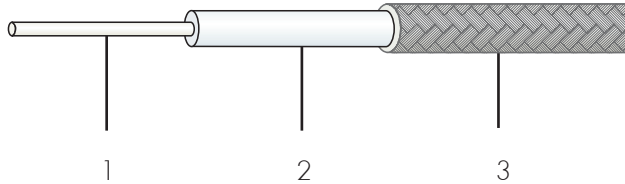


Fig. 1: SUCOFORM_141_CU

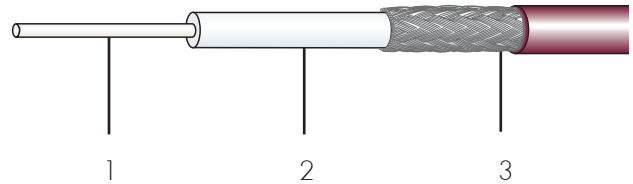


Fig. 2: SUCOFORM_141_CU_PE

	Description	Diameter
1. Centre conductor	Solid silver-plated copper wire	0.95 mm
2. Dielectric	Solid PTFE	2.95 mm
3. Outer conductor	Tin soaked copper braid	3.58 mm

Electrical cable data

Impedance	50 Ohm			
Operating frequency	33 GHz			
Capacitance	92 pF/m			
Velocity of propagation	71 %			
Time delay	4.7 ns/m			
Nom. attenuation*	coefficient a	0.3631	coefficient b	0.0377
Max. attenuation*	coefficient a	0.3995	coefficient b	0.0415
Max. operating voltage	1.9 kVrms			
Min. screening effectiveness up to 18 GHz	100 dB			

*Attenuation calculation $\alpha_{25} = a \cdot \sqrt{f} \text{ (GHz)} + b \cdot f \text{ (GHz)} \text{ (dB/m)}$

General cable data

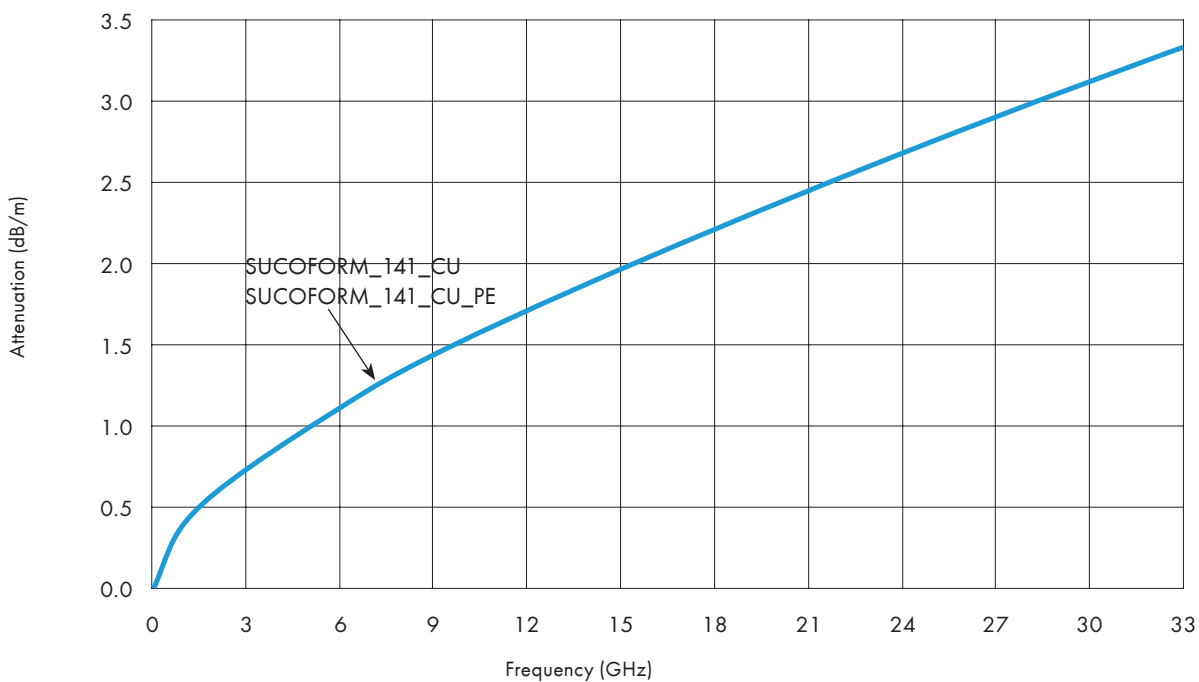
	SUCOFORM_141_CU	SUCOFORM_141_CU_PE
Item number	22511635	22511639
Additional jacket	—	PE
Colour	—	red
Diameter	3.58 mm	4.60 mm
Weight	4.0 kg/100m	4.7 kg/100m
Temperature range	- 65 ... + 165 °C	- 40 ... + 85 °C
Flammability, passed	IEC 60332-1, UL 1581-§1080 (VW-1)	—
Min. bending radius, static	8 mm	8 mm
Min. bending radius, repeated	40 mm	40 mm
Suitable connectors, cable group	Y12	Y12
Drawing	see Fig. 1	see Fig. 2

Suitable connectors see cable group Y12 (please refer to page 59 ff)

SUCOFORM_141_CU / _141_CU_PE

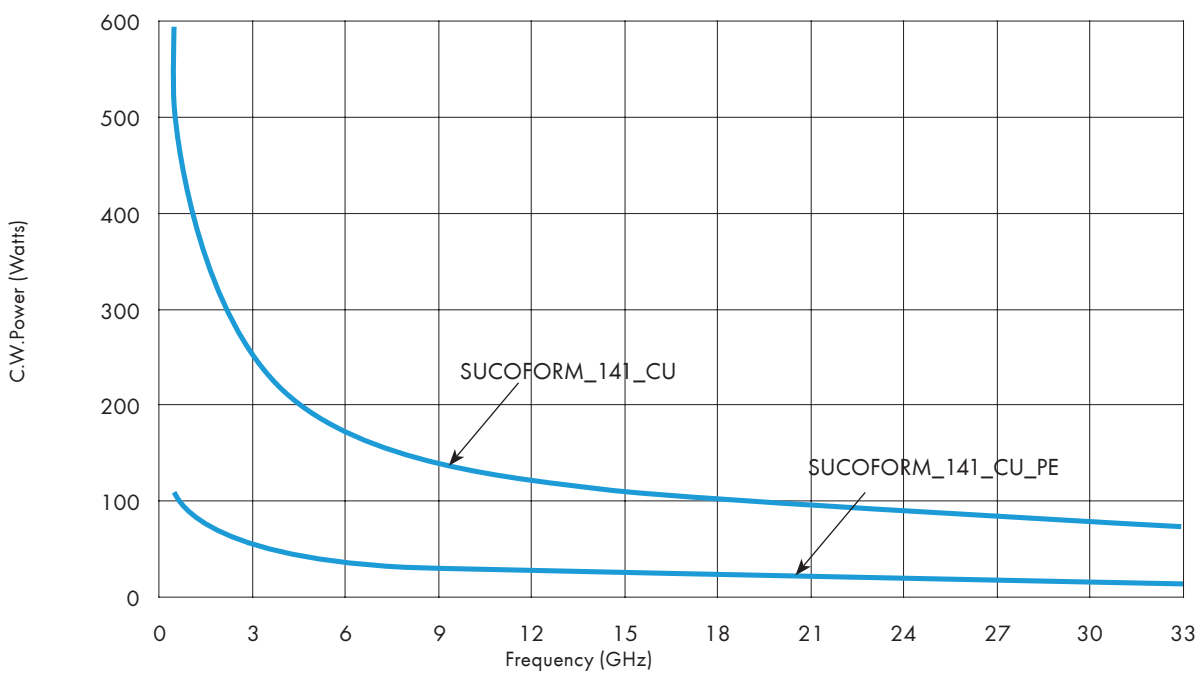
Cable attenuation

Nominal values @ +25 °C ambient temperature



Power Handling

Maximum values @ +40 °C ambient temperature and sea level



SUCOFORM_141_CU_FEP / _141_CU_LSFH-01

Cable design

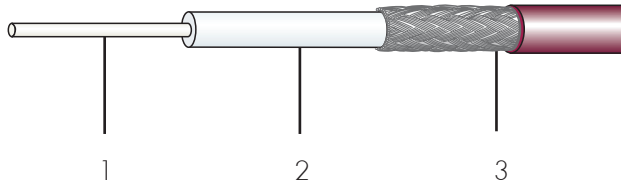


Fig. 2: SUCOFORM_141_CU_FEP

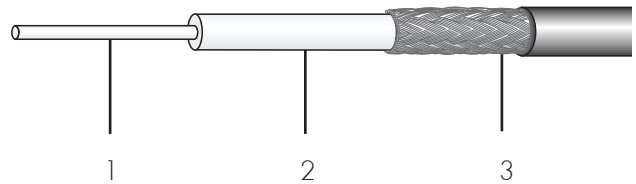


Fig. 2: SUCOFORM_141_CU_LSFH-01

	Description	Diameter
1. Centre conductor	Solid silver-plated copper wire	0.95 mm
2. Dielectric	Solid PTFE	2.95 mm
3. Outer conductor	Tin soaked copper braid	3.58 mm

Electrical cable data

Impedance	50 Ohm			
Operating frequency	33 GHz			
Capacitance	92 pF/m			
Velocity of propagation	71 %			
Time delay	4.7 ns/m			
Nom. attenuation*	coefficient a	0.3631	coefficient b	0.0377
Max. attenuation*	coefficient a	0.3995	coefficient b	0.0415
Max. operating voltage	1.9 kVrms			
Min. screening effectiveness up to 18 GHz	100 dB			

*Attenuation calculation $\alpha_{25} = a \cdot \sqrt{f} \text{ (GHz)} + b \cdot f \text{ (GHz)} \text{ (dB/m)}$

General cable data

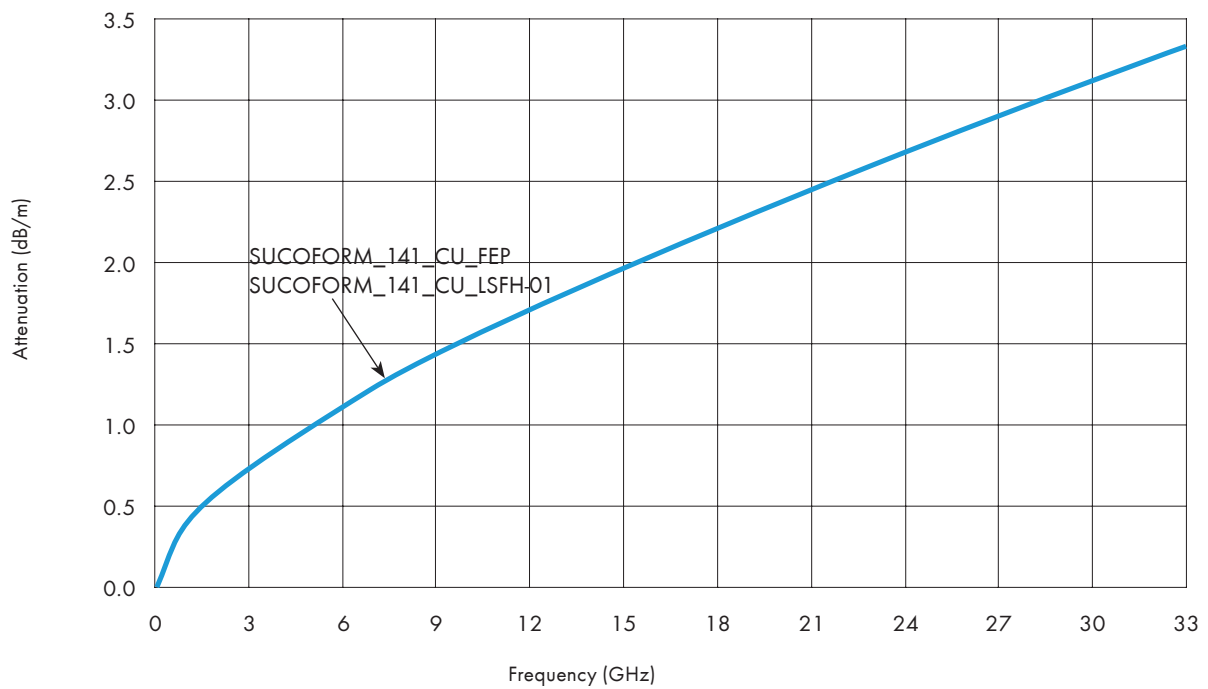
	SUCOFORM_141_CU_FEP	SUCOFORM_141_CU_LSFH-01
Item number	22512256	84003502
Additional jacket	FEP	LSFH (Low Smoke, Free of Halogen)
Colour	red	orange
Diameter	4.10 mm	4.60 mm
Weight	4.7 kg/100m	5.5 kg/100m
Temperature range	- 65 ... + 165 °C	- 40 ... + 85 °C
Flammability, passed	IEC 60332-1, UL 1581-§1080 (VW-1)	IEC 60332-2 UL 1581-§ 1100
Min. bending radius, static	8 mm	8 mm
Min. bending radius, repeated	40 mm	40 mm
Suitable connectors, cable group	Y12	Y12
Drawing	see Fig. 1	see Fig. 2

Suitable connectors see cable group Y12 (please refer to page 59 ff)

SUCOFORM_141_CU_FEP / _141_CU_LSFH-01

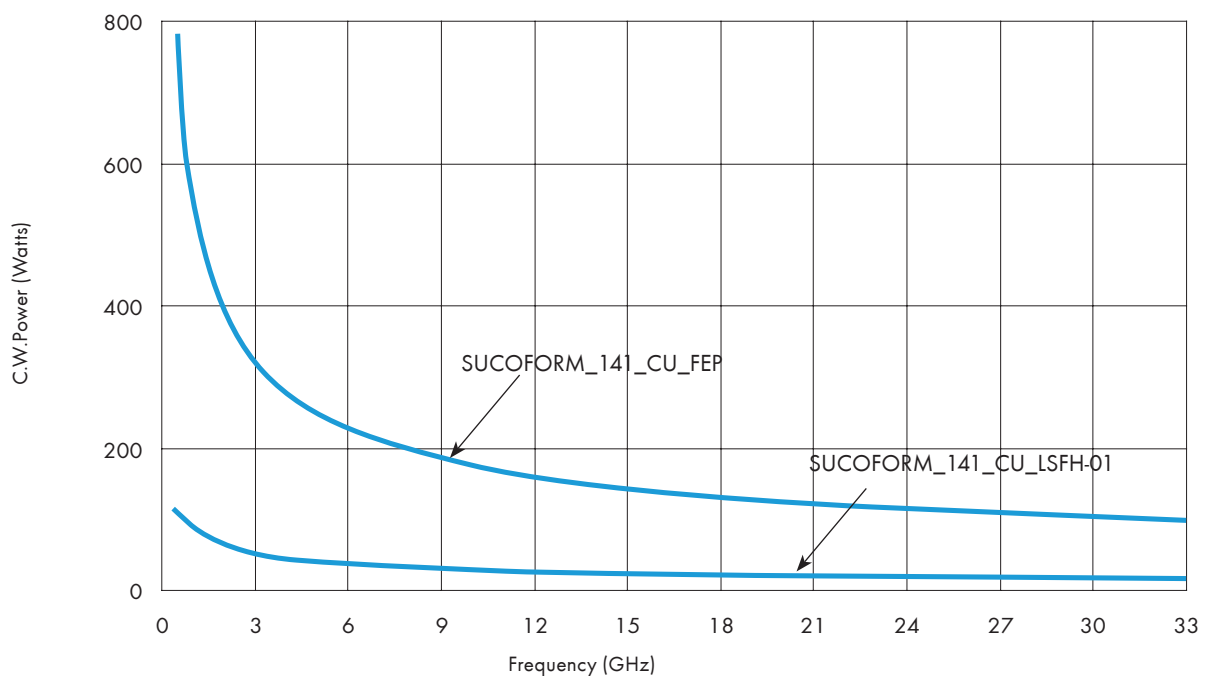
Cable attenuation

Nominal values @ +25 °C ambient temperature



Power Handling

Maximum values @ +40 °C ambient temperature and sea level



SUCOFORM_250-01 / _250-01_FEP

Cable design

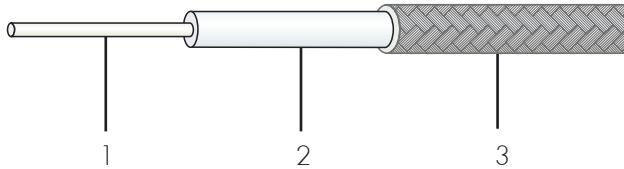


Fig. 1: SUCOFORM_250-01

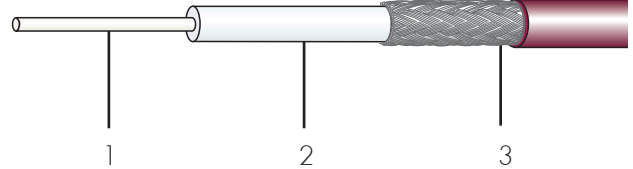


Fig. 2: SUCOFORM_250-01_FEP

	Description	Diameter
1. Centre conductor	Solid silver-plated copper wire	1.67 mm
2. Dielectric	Solid PTFE	5.24 mm
3. Outer conductor	Tin soaked copper braid	6.35 mm

Electrical cable data

Impedance	50 Ohm			
Operating frequency	18 GHz			
Capacitance	95 pF/m			
Velocity of Propagation	71 %			
Time Delay	4.7 ns/m			
Nom. attenuation*	coefficient a	0.2100	coefficient b	0.0310
Max. attenuation*	coefficient a	0.2310	coefficient b	0.0340
Max. operating voltage	3.5 kVrms			
Min. screening effectiveness up to 18 GHz	100 dB			

*Attenuation calculation $\alpha_{25} = a \cdot \sqrt{f} \text{ (GHz)} + b \cdot f \text{ (GHz)} \text{ (dB/m)}$

General cable data

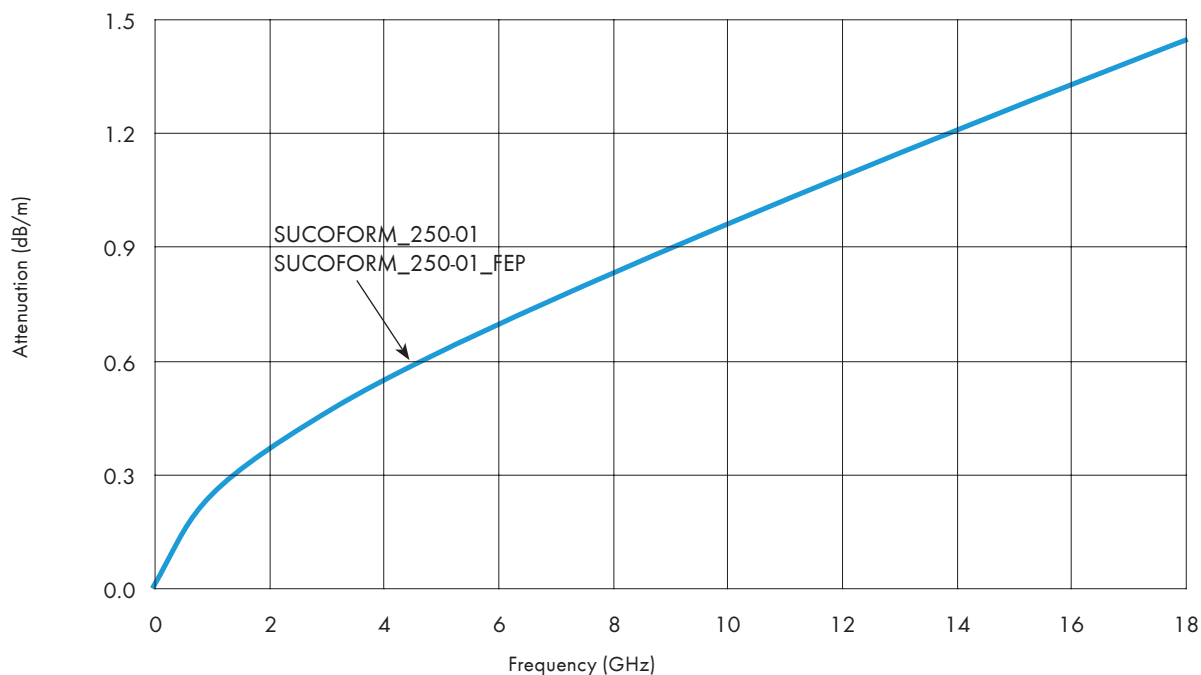
	SUCOFORM_250-01	SUCOFORM_250-01_FEP
Item number	84007938	84007941
Additional jacket	–	FEP
Colour	–	red
Diameter	6.35 mm	6.80 mm
Weight	13 kg/100 m	14 kg/100 m
Temperature range	– 65 ... + 165 °C	– 65 ... + 165 °C
Flammability, passed	IEC 60332-1, UL 1581-§1080 (VW-1)	IEC 60332-1, UL 1581-§1080 (VW-1)
Min. bending radius, static	30 mm	30 mm
Min. bending radius, repeated	120 mm	120 mm
Suitable connectors, cable group	Y7	Y7
Drawing	see Fig. 1	see Fig. 2

Suitable connectors see cable group Y7 (please refer to page 60)

SUCOFORM 250-01 / _250-01_FEP

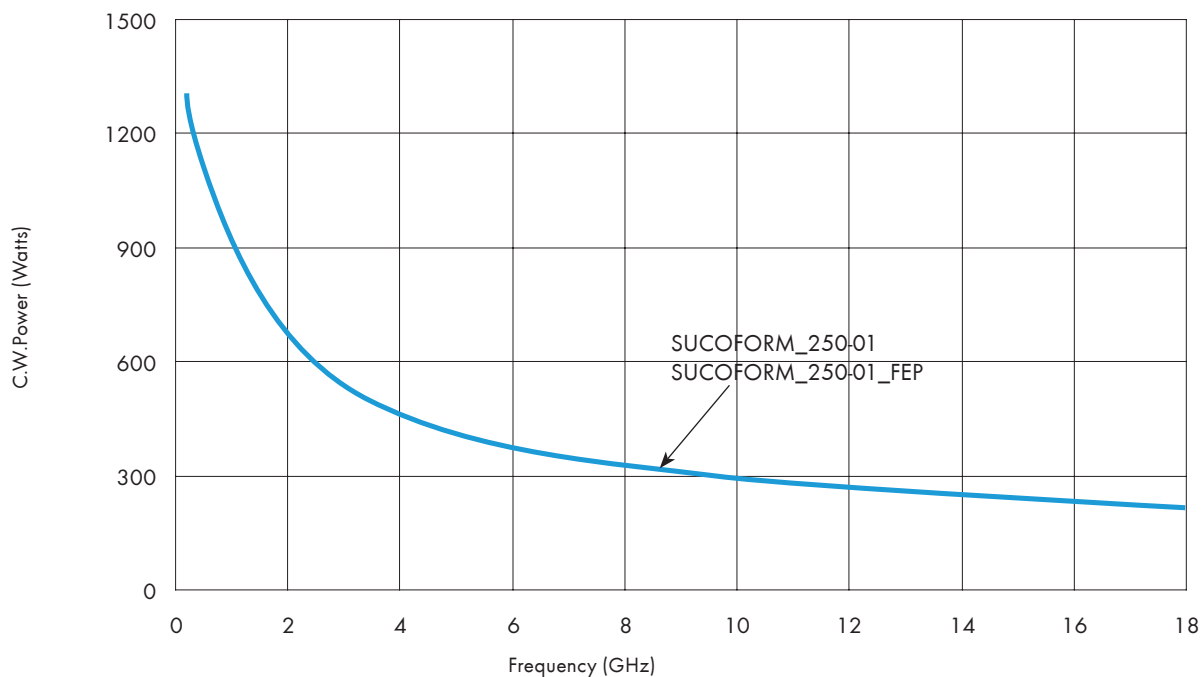
Cable attenuation

Nominal values @ +25 °C ambient temperature



Power handling

Maximum values @ +40 °C ambient temperature and sea level



SUCOFORM

Further available SUCOFORM products

75 Ohm

HUBER+SUHNER cable type	Item no.	Centre conductor	Outer conductor	Jacket material	Outer diameter (mm)	Nom. attenuation dB/m @ 1 GHz
SUCOFORM_86_75	22511720	StCuAg	CuSn	n/a	2.10	0.8
SUCOFORM_86_75_FEP	22511970	StCuAg	CuSn	FEP	2.50	0.8
SUCOFORM_141_75	22511721	StCuAg	CuSn	n/a	3.58	0.5
SUCOFORM_141_75_FEP	22512290	StCuAg	CuSn	FEP	4.10	0.5

Other impedances on request.

CuAg	Silver plated copper	PTFE	Polytetrafluothylene
StCuAG	Silver plated copper clad steel	LSFH	Low Smoke Free of Halogen polyethylene
CuSn	Tin soaked copper braid	FEP	Fluoroethylenepropylene copolymer
PE	Polyethylene		

SUCOFORM

A wide range of standard connectors is available for SUCOFORM microwave cables. In addition, HUBER+SUHNER offers a fast delivery service for RF tested ready-to-use cable assemblies.

Suitable connectors

HUBER+SUHNER cable type	Series, pattern	HUBER+SUHNER connector type	Item no.	Operating frequency (GHz)
SUCOFORM_47_CU Cable group Y2	MCX			
	Straight cable plug	11_MCX-50-1-14/111_NE	23032081	6
	Right angle cable plug	16_MCX-50-1-12/111_NE	23024694	6
	Right angle cable plug	16_MCX-50-1-11/111_NH	23032063	6
	MMCX			
	Straight cable plug	11_MMCX-50-1-3/111_OE	22648893	6
	Right angle cable plug	16_MMCX-50-1-4/111_OH	23003641	6
	Right angle cable plug	16_MMCX-50-1-4/111_OE	22649182	6
	SK			
	Straight cable plug	11_SK-50-1-2/119_NE	84013232	40
	SMA			
	Straight cable plug	11_SMA-50-1-53/119_NH	23013327	18
	Straight cable jack	16_SMA-50-1-97/19_NE	23024708	18
	Straight cable jack	21_SMA-50-1-2/111_NE	22642386	18
SUCOFORM_86 Cable group Y11				
	MCX			
	Straight cable plug	11_MCX-50-2-19/111_NE	23024699	6
	Straight cable plug	11_MCX-50-2-19/111_NH	23032147	6
	Right angle cable plug	16_MCX-50-2-104/111_NH-1	23032067	6
	Right angle cable plug	16_MCX-50-2-104/111_NH	22658277	6
	Straight panel bulkhead cable jack	24_MCX-50-2-3/111_NE	22543580	6
	MMBX			
	Straight cable plug	11_MMBX-50-2-4/111_NH	23033280	12.4
	Right angle cable plug	16_MMBX-50-2-4/111_NH	23033281	12.4
	Straight panel bulkhead cable jack	24_MMBX-50-2-2/111_NH	23037876	12.4

SUCOFORM

Suitable connectors

HUBER+SUHNER cable type	Series, pattern	HUBER+SUHNER connector type	Item no.	Operating frequency (GHz)
SUCOFORM_86 Cable group Y11	MMCX			
	Straight cable plug	11_MMCX-50-2-1/111_OH	22649039	6
	Straight cable plug	11_MMCX-50-2-1/111_OE	22645297	6
	Right angle cable plug	16_MMCX-50-2-1/111_OH	22649044	6
	Right angle cable plug	16_MMCX-50-2-1/111_OE	22645957	6
	Straight cable jack	21_MMCX-50-2-1/111_OE	22645290	6
	Straight panel bulkhead cable jack	24_MMCX-50-2-1/111_OE	22645954	6
	N			
	Straight cable plug	11_N-50-2-15/113_UE	22660315	18
	Right angle cable plug	16_N-50-2-9/13_UH	23013729	11
	Straight cable jack	21_N-50-2-14/133_NE	22642666	18
	Straight panel bulkhead cable jack	24_N-50-2-14/133_NE	22544637	18
	Straight panel cable jack, flange mount	25_N-50-2-14/133_NE	22641303	18
	PC3.5			
	Straight cable plug	11_PC35-50-2-4/199_UE	84009440	33
	Straight cable jack	21_PC35-50-2-4/199_UE	84009419	33
	Straight panel bulkhead cable jack	24_PC35-50-2-2/199_UE	84009405	33
	QMA			
	Straight cable plug	11_QMA-50-2-3/133_NE	23017704	6
	Straight cable plug	11_QMA-50-2-3/133_NH	23017705	6
	Right angle cable plug	16_QMA-50-2-3/133_NE	23017666	6
	Right angle cable plug	16_QMA-50-2-3/133_NH	23017667	6
	Straight panel bulkhead cable jack	24_QMA-50-2-1/111_NE	23017742	6
	Straight panel bulkhead cable jack	24_QMA-50-2-1/111_NH	23017743	6
	SK			
	Straight cable plug	11_SK-50-2-57/119_NE	84013239	40
	SMA			
	Straight cable plug	11_SMA-50-2-29/119_NH	22660366	18
	Straight cable jack	21_SMA-50-2-15/111_NE	22544549	18
	Straight cable jack	21_SMA-50-2-15/111_NH	22652141	18
	Straight panel bulkhead cable jack	24_SMA-50-2-15/111_NE	22544532	18
	Straight panel bulkhead cable jack	24_SMA-50-2-15/111_NH	22645490	18

SUCOFORM

Suitable connectors

HUBER+SUHNER cable type	Series, pattern	HUBER+SUHNER connector type	Item no.	Operating frequency (GHz)
SUCOFORM_86 Cable group Y11	SMB			
	Straight cable plug	11_SMB-50-2-13/111_NE	22543362	4
	Straight cable plug	11_SMB-50-2-13/111_NH	22658765	4
	Right angle cable plug	16_SMB-50-2-23/111_NE	22644079	4
	Straight cable jack	21_SMB-50-2-13/111_NE	22543425	4
	Straight panel bulkhead cable jack	24_SMB-50-2-13/111_NE	22640822	4
	SMC			
	Straight cable plug	11_SMC-50-2-13/111_NE	22543363	10
	Straight cable plug	11_SMC-50-2-13/111_NH	22650675	10
	Right angle cable plug	16_SMC-50-2-25/111_NE	22644126	10
	Right angle cable plug	16_SMC-50-2-25/111_NH	23003713	10
	Straight panel bulkhead cable jack	24_SMC-50-2-13/111_NE	22640297	10
	Straight panel bulkhead cable jack	24_SMC-50-2-13/111_NH	22650209	10
	SMPX			
	Straight cable plug	11_SMPX-50-2-1/111_NE	23021825	40
	Right angle cable plug	16_SMPX-50-2-1/111_NE	23022715	40
	Right angle cable plug	16_SMPX-50-2-2/111_NE	23022716	40
	Straight panel cable jack, flange mount	25_SMPX-50-2-1/111_NE	23025359	40
	TNC			
	Straight cable plug	11_TNC-50-2-20/103_NE	22642519	11
	Straight panel bulkhead cable jack	24_TNC-50-2-31/133_NE	23001721	11
SUCOFORM_141 SUCOFORM_141_CU Cable group Y12				
	N			
	Straight cable plug	11_N-50-3-13/113_NE	22542083	11
	Straight cable plug	11_N-50-3-51/133_NE	22543919	18
	Right angle cable plug	16_N-50-3-15/133_NE	22648832	11
	Straight cable jack	21_N-50-3-11/133_NE	22543921	18
	Straight cable jack	21_N-50-3-51/19_NE	22543922	18
	Straight panel bulkhead cable jack	24_N-50-3-14/133_NE	22542300	18
	Straight panel bulkhead cable jack	24_N-50-3-51/19_NE	22642344	18
	Straight panel cable jack, flange mount	25_N-50-3-9/133_NE	22543952	11
	PC3.5			
	Straight cable plug	11_PC35-50-3-4/199_UE	84009380	33
	Straight cable jack	21_PC35-50-3-3/199_UE	84009382	33
	Straight panel bulkhead cable jack	24_PC35-50-3-2/199_UE	84009383	33

SUCOFORM

Suitable connectors

HUBER+SUHNER cable type	Series, pattern	HUBER+SUHNER connector type	Item no.	Operating frequency (GHz)
SUCOFORM_141 SUCOFORM_141_CU Cable group Y12	QMA			
	Straight cable plug	11_QMA-50-3-3/133_NE	23017695	6
	Straight cable plug	11_QMA-50-3-3/133_NH	23017696	6
	Right angle cable plug	16_QMA-50-3-3/133_NE	23017693	6
	Right angle cable plug	16_QMA-50-3-3/133_NH	23017694	6
	Straight panel bulkhead cable jack	24_QMA-50-3-3/111_NE	23017683	6
	Straight panel bulkhead cable jack	24_QMA-50-3-3/111_NH	23017684	6
	QN			
	Straight cable plug	11_QN-50-3-3/113_NE	23033393	11
	Right angle cable plug	16_QN-50-3-3/13-_NE	23033268	11
	Straight panel bulkhead cable jack	24_QN-50-3-3/13-_NE	23033423	11
	SMA			
	Straight cable plug	11_SMA-50-3-77/119_NH	84005524	18
	Right angle cable plug	16_SMA-50-3-3/111_NE	22640073	18
	Right angle cable plug	16_SMA-50-3-3/111_NH	22646569	18
	Straight panel bulkhead cable jack	24_SMA-50-3-15/111_NE	22641153	18
	Straight panel bulkhead cable jack	24_SMA-50-3-15/111_NH	22645259	18
	TNC			
	Straight cable plug	11_TNC-50-3-29/103_NE	22641997	11
	Straight panel bulkhead cable jack	24_TNC-50-3-30/133_NH	23001723	11
SUCOFORM_250-01 Cable group Y7				
	716			
	Straight cable plug	11_716-50-5-6/003_Y	84008435	7.5
	Straight panel cable jack, flange mount	25_716-50-5-17/000_Y	84008881	7.5
	N			
	Straight cable plug	11_N-50-5-18/103_NH	84008445	11
	Straight cable jack	21_N-50-5-52/193_NE	22641531	18

Connector dimensions and additional information

For connector dimensions and additional information please refer to the corresponding connector type in the HUBER+SUHNER Coaxial Connectors General Catalogue or contact your local HUBER+SUHNER partner.