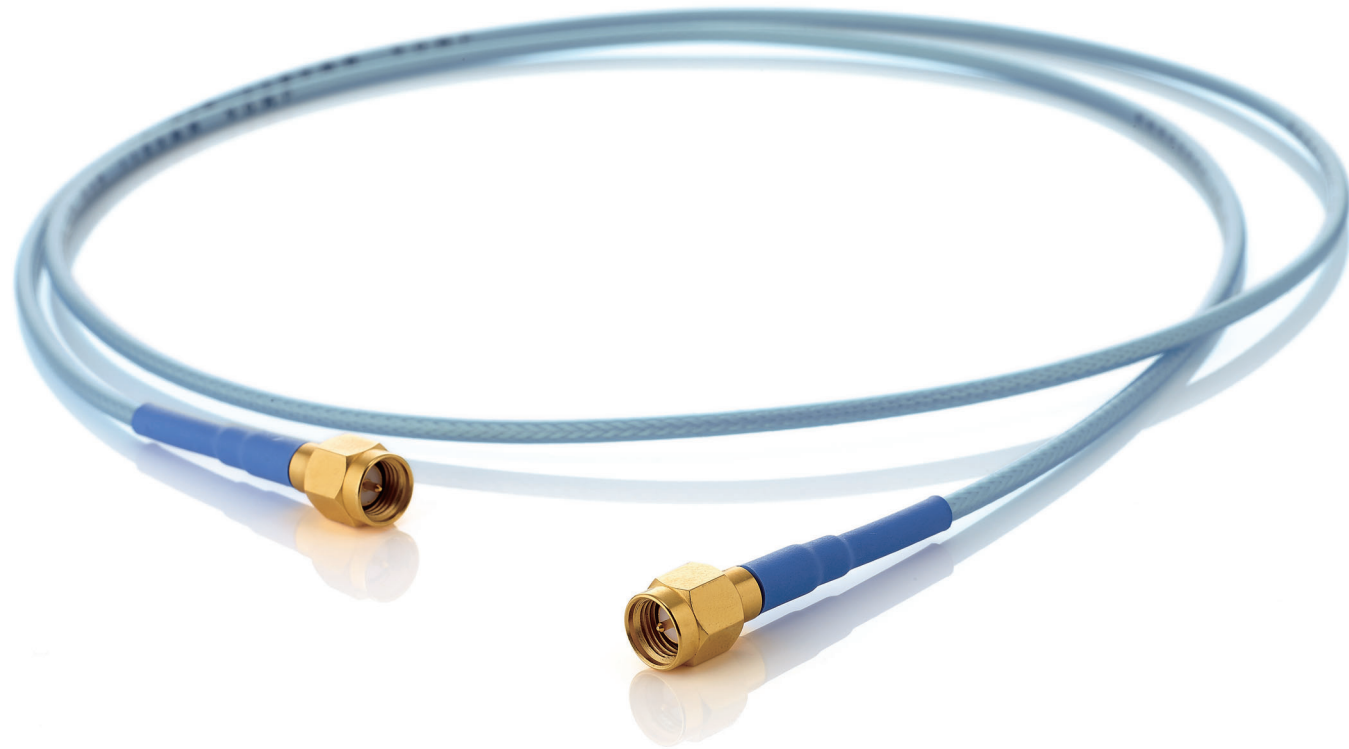
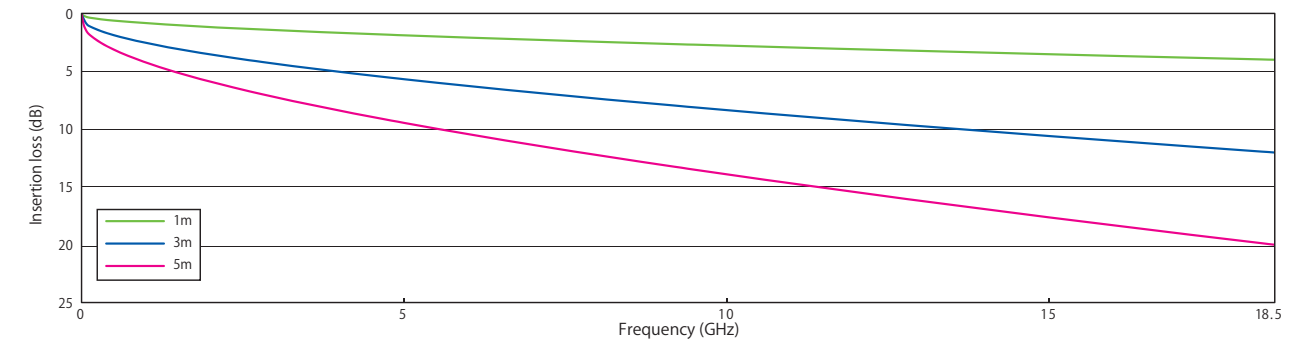


311



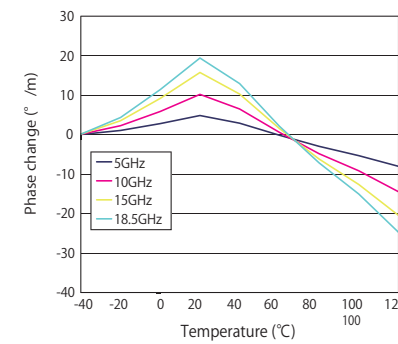
Technical Data

Cable typical insertion loss



● Typical insertion loss $1.55 \times (0.0297 \times f(\text{GHz}) + 0.371 \times \sqrt{f(\text{GHz})} + 0.07) \times L(\text{m})$ ● Maximum insertion loss $1.55 \times (0.0297 \times f(\text{GHz}) + 0.371 \times \sqrt{f(\text{GHz})} + 0.07) \times 1.12 \times L(\text{m})$

Phase change vs. temperature



*The cable was measured in chamber every 20 °C from -40 °C, 1 hour after the temperature changed.

Property

Electrical properties

Maximum operating frequency	18.5 GHz
Characteristic impedance	50±1 Ω
Capacitance (typ.)	86 pF/m
Propagation delay (typ.)	4.25 ns/m
Velocity of Propagation (typ.)	79 %
Higher mode frequency (typ.)	75.0 GHz
VSWR (per connector/ both ends of assy.)	1.182/1.40
Maximum frequency insertion loss (18.5 GHz)	3.4 dB/m

Mechanical properties

Cable outer diameter	2.7 mm
Minimum bending radius (inner side)	10 mm
Maximum tensile strength	29.4 N (3kgf)
Cable mass (typ.)	18.5 g/m
Continuous operating temperature range	-65 ~ +125 °C
Assembly length	100 ~ 10,000 mm

Order form example

Please provide the following information when placing an order.

* See P.67 "Connector combination codes"

Example 1 MWX311

Assembly length : 1000mm
 Connector I : SMA (m) straight
 Connector II : SMA (m) straight

Catalog No.
 MWX311-01000AMSAMS

a b c

Example 2 MWX311

Assembly length : 1500 mm
 Connector I : SMA (f) straight
 Connector II : SMA (m) right angle

Catalog No.
 MWX311-01500AFSAMR

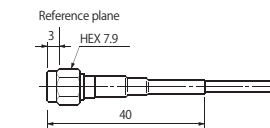
a b c

a: Cable
 b: Assembly length
 c: Connector

Connector

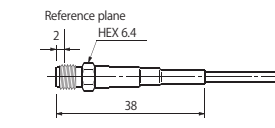
SMA (m) straight (Code: AMS)

Maximum operating frequency: 18.5 GHz z / Mass: 3g



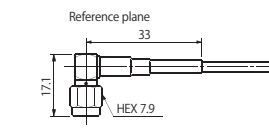
SMA (f) straight (Code: AFS)

Maximum operating frequency: 18.5 GHz z / Mass: 3g



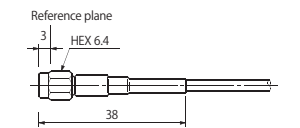
SMA (m) right angle (Code: AMR)

Maximum operating frequency: 10.0 GHz z / Mass: 5g



SSMA (m) straight (Code: SMS)

Maximum operating frequency: 18.5 GHz z / Mass: 3g



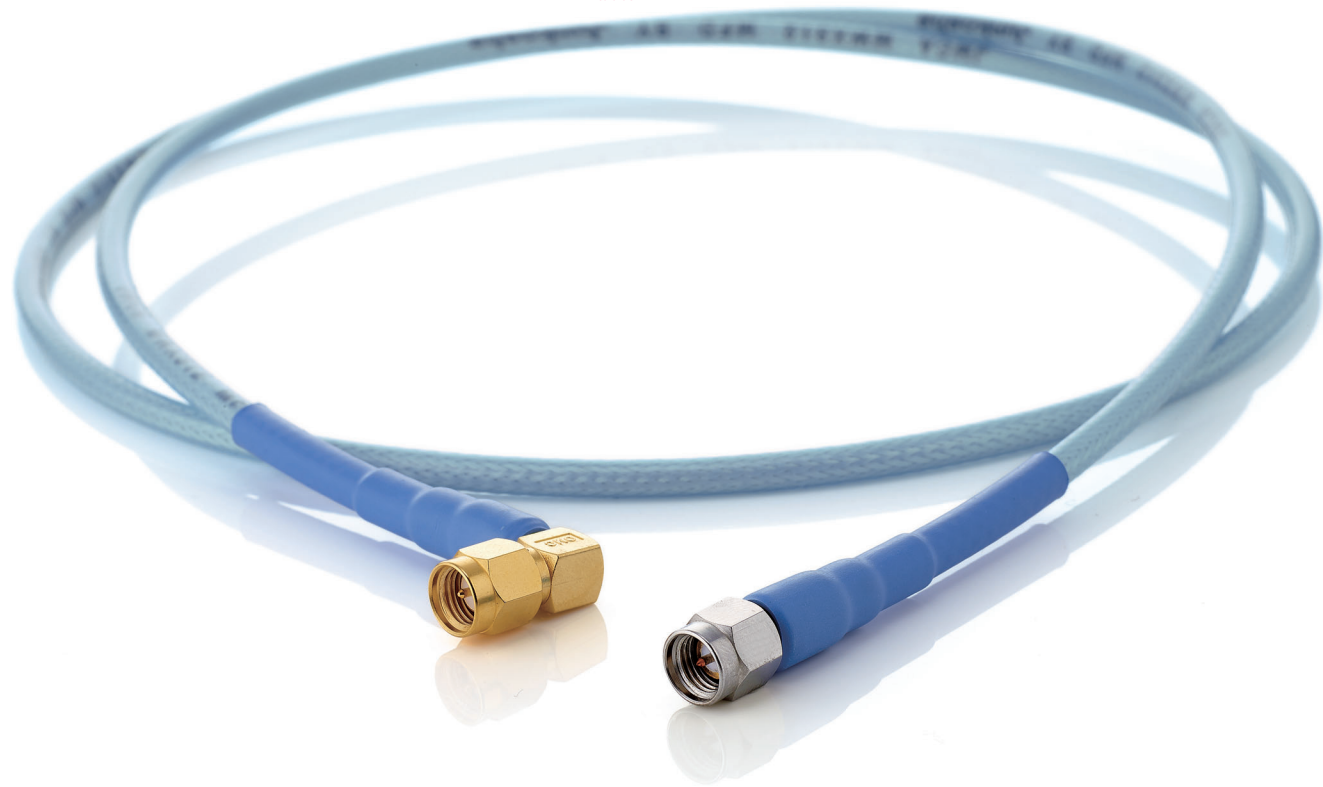
* Please see P.82 about "customer-specified swept and right angle connectors".

We have the capacity to deliver products with matched phases for customers who require this characteristic.

Option

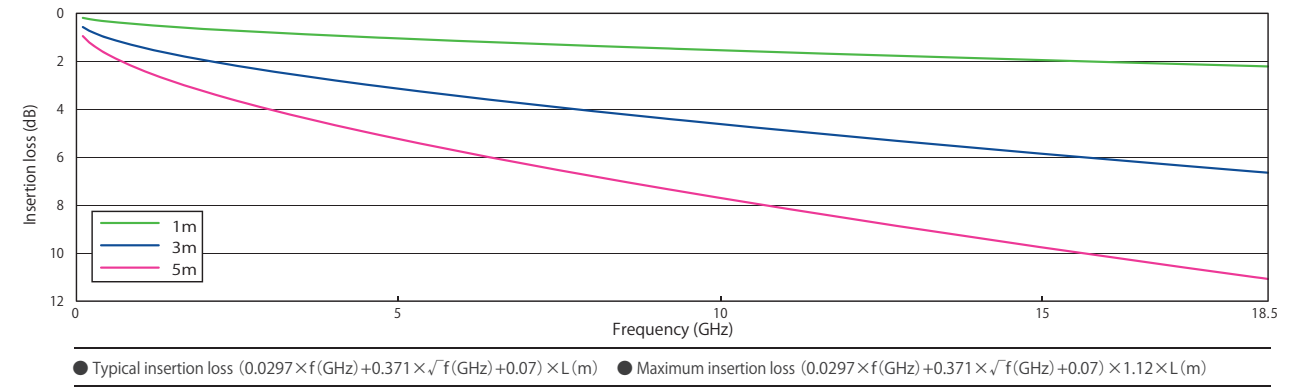
*The above figures are measured values for reference only.

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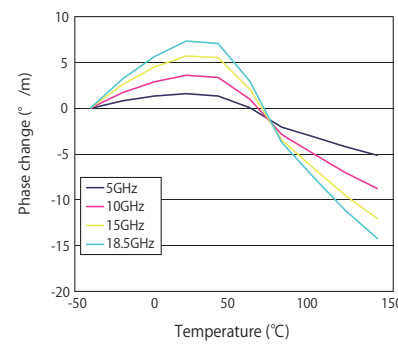


Technical Data

Cable typical insertion loss



MWX312 Phase change vs. temperature



*The cable was measured in chamber every 20 °C from -40 °C, 1 hour after the temperature changed.

Property

Electrical properties

Maximum operating frequency	18.5 GHz
Characteristic impedance	50±1 Ω
Capacitance (typ.)	82 pF/m
Propagation delay (typ.)	4.10 ns/m
Velocity of Propagation (typ.)	81 %
Higher mode frequency (typ.)	44.0 GHz
VSWR (per connector/ both ends of assy.)	1.182/1.40
Maximum frequency insertion loss (18.5 GHz)	2.2 dB/m

Mechanical properties

Cable outer diameter	4.1 mm
Minimum bending radius (inner side)	20 mm
Maximum tensile strength	98 N (10 kgf)
Cable mass (typ.)	42 g/m
Continuous operating temperature range	-65 ~ +125 °C
Assembly length	100 ~ 20,000 mm

Order form example

Please provide the following information when placing an order.

* See P.67 "Connector combination codes"

Example 1 MWX312

Assembly length: 1200 mm
Connector I : SMA (m) straight
Connector II : SMA (m) straight

Catalog No.
MWX312-01200AMSAMS

a b c

Example 2 MWX312

Assembly length: 1000mm
Connector I : SMA (f) straight
Connector II : N (m) straight

Catalog No.
MWX312-01000AFS NMS

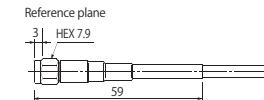
a b c

a: Cable
b: Assembly length
c: Connector

Connector

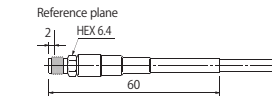
SMA (m) straight (Code: AMS)

Maximum operating frequency: 18.5 GHz z / Mass: 3g



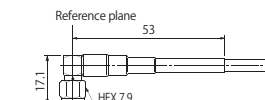
SMA (f) straight (Code: AFS)

Maximum operating frequency: 18.5 GHz z / Mass: 3g



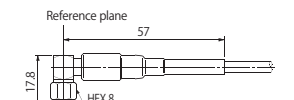
SMA (m) right angle (Code: AMR)

Maximum operating frequency: 10.0 GHz z / Mass: 5g



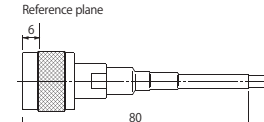
SMA (m) right angle (Code: AMH)

Maximum operating frequency: 18.0 GHz z / Mass: 12g



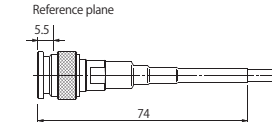
N (m) straight (Code: NMS)

Maximum operating frequency: 18.5 GHz z / Mass: 39g



TNC (m) straight (Code: CMS)

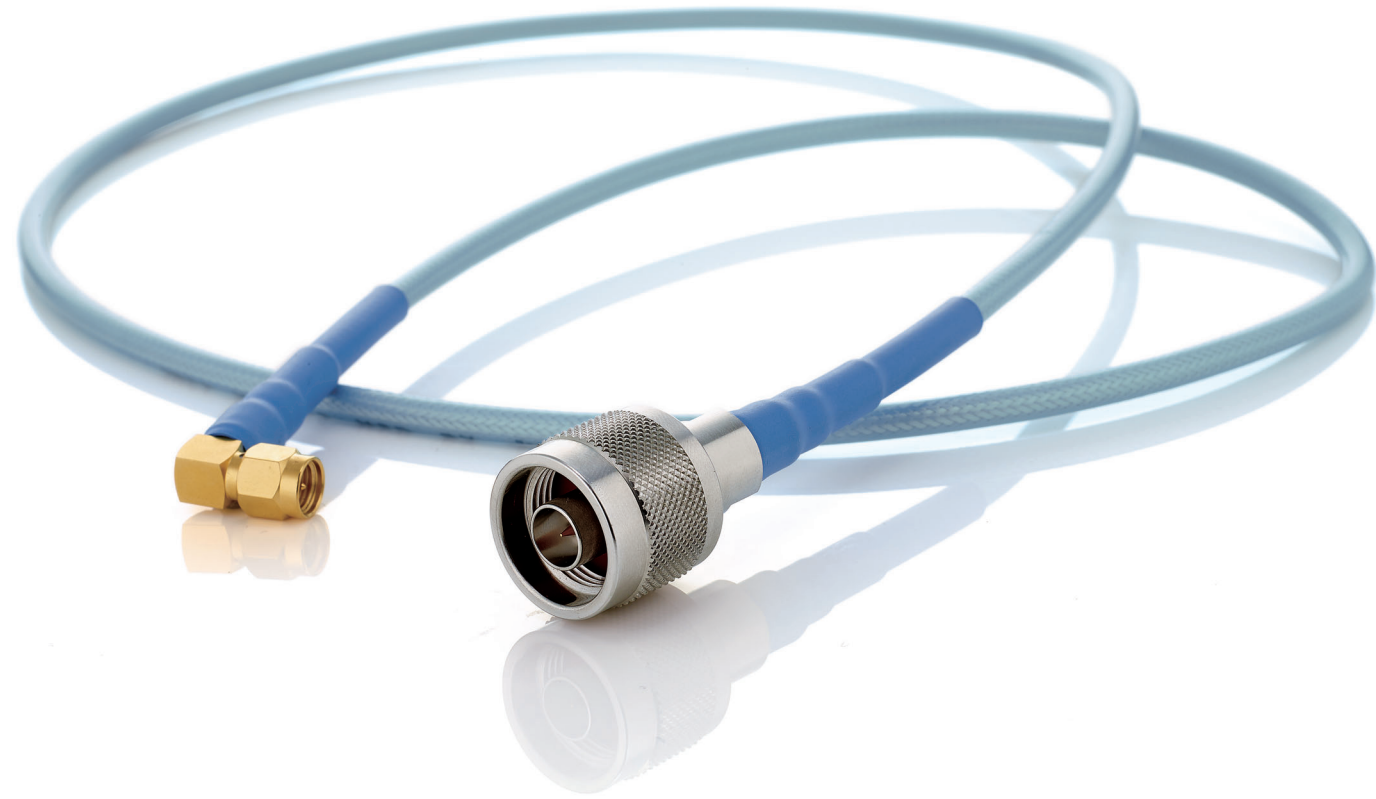
Maximum operating frequency: 15.0 GHz z / Mass: 21g



* Please see P.82 about "customer-specified swept and right angle connectors".

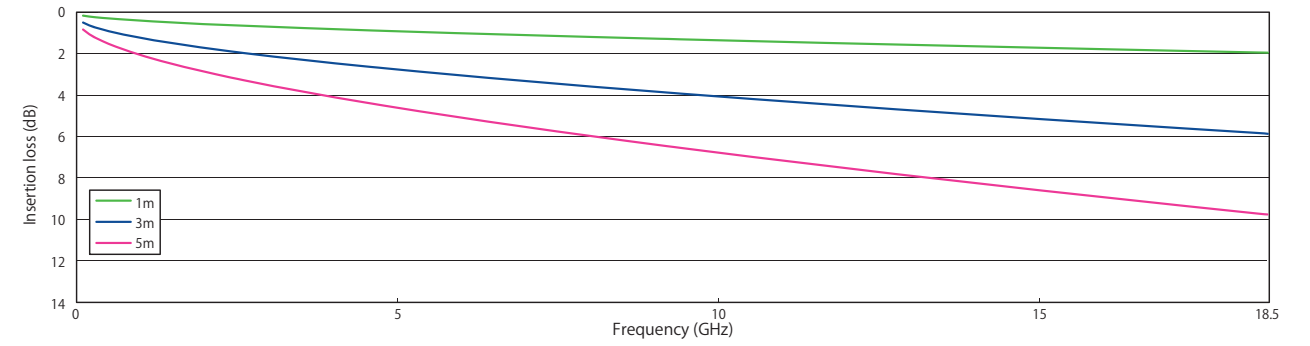
* The above figures are measured values for reference only.

313



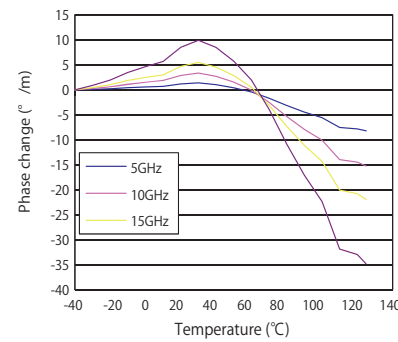
Technical Data

Cable typical insertion loss



● Typical insertion loss $0.88 \times (0.0297 \times f(\text{GHz}) + 0.371 \times \sqrt{f(\text{GHz})} + 0.07) \times L(\text{m})$ ● Maximum insertion loss $0.88 \times (0.0297 \times f(\text{GHz}) + 0.371 \times \sqrt{f(\text{GHz})} + 0.07) \times 1.12 \times L(\text{m})$

Phase change vs. temperature



*The cable was measured in chamber every 20 °C from -40 °C, 1 hour after the temperature changed.

Property

Electrical properties

Maximum operating frequency	18.5 GHz
Characteristic impedance	50±1 Ω
Capacitance (typ.)	80 pF/m
Propagation delay (typ.)	4.05 ns/m
Velocity of Propagation (typ.)	82 %
Higher mode frequency (typ.)	37 GHz
VSWR (per connector/ both ends of assy.)	1.182/1.140
Maximum frequency insertion loss (18.5 GHz)	1.9 dB/m

Mechanical properties

Cable outer diameter	4.7 mm
Minimum bending radius (inner side)	30 mm
Maximum tensile strength	98 N (10 kgf)
Cable mass (typ.)	52 g/m
Continuous operating temperature range	-65 ~ +125 °C
Assembly length	100 ~ 20,000 mm

Example 1

Assembly length: 1000 mm
 Connector I : SMA (m) straight
 Connector II : SMA (m) straight

Catalog No. MWX313-01000AMSAMS
 a b c

Example 2

Assembly length: 1500 mm
 Connector I : SMA (f) straight
 Connector II : SMA (m) right angle

Catalog No. MWX313-01500AFSAMR
 a b c

a: Cable
 b: Assembly length
 c: Connector

Order form example

Please provide the following information when placing an order.

* See P.67 "Connector combination codes"

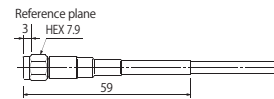
Option

We have the capacity to deliver products with matched phases for customers who require this characteristic.

Connector

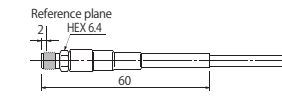
SMA (m) straight (Code: AMS)

Maximum operating frequency: 18.5 GHz z / Mass: 3g



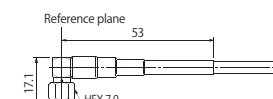
SMA (f) straight (Code: AFS)

Maximum operating frequency: 18.5 GHz z / Mass: 3g



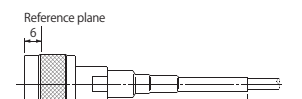
SMA (m) right angle (Code: AMR)

Maximum operating frequency: 10.0 GHz z / Mass: 5g



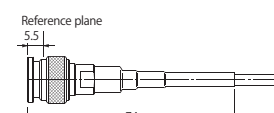
N (m) straight (Code: NMS)

Maximum operating frequency: 18.5 GHz z / Mass: 39g



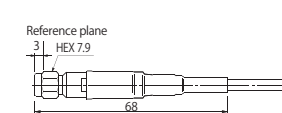
TNC (m) straight (Code: CMS)

Maximum operating frequency: 15.0 GHz z / Mass: 21g



3.5mm (m) straight (Code: DMS)

Maximum operating frequency: 18.5 GHz z / Mass: 13g



* Please see P.82 about "customer-specified swept and right angle connectors".

* The above figures are measured values for reference only.

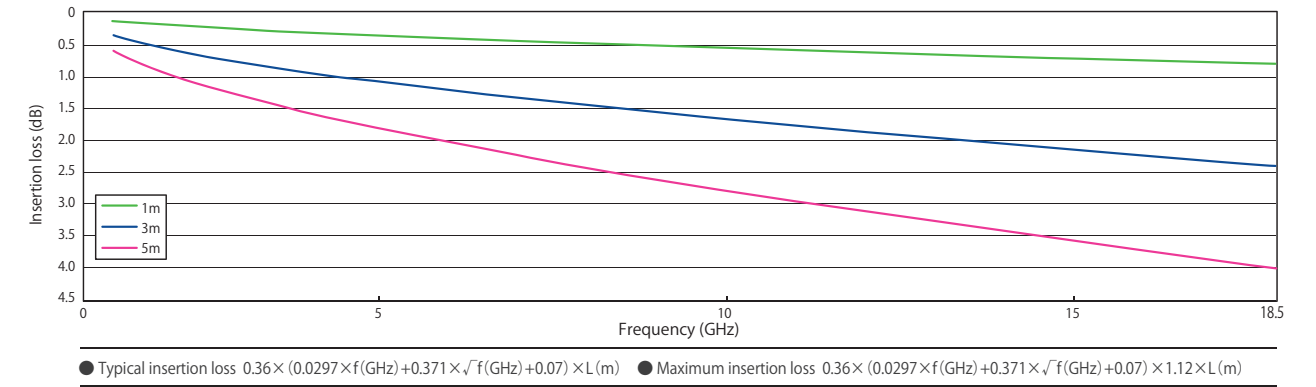
314

- Temperature change
- Frequency 18.5 GHz
- Temperature range -65~+125°C
- Minimum bending radius 40 mm
- RoHS compliant
- Equipment wiring
- Listed in the catalogue manufactured to order
- Custom support

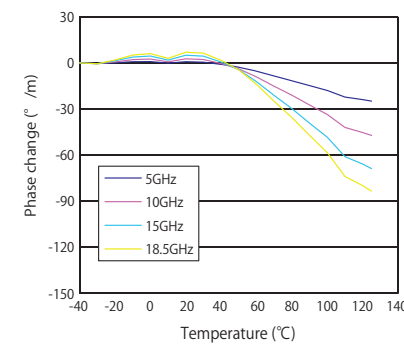


Technical Data

Cable typical insertion loss



MWX314 Phase change vs. temperature



*The cable was measured in chamber every 20 °C from -40 °C, 1 hour after the temperature changed.

Property

Electrical properties

Maximum operating frequency	18.5 GHz
Characteristic impedance	50±1 Ω
Capacitance (typ.)	78 pF/m
Propagation delay (typ.)	3.95 ns/m
Velocity of Propagation (typ.)	84 %
Higher mode frequency (typ.)	19.0 GHz
VSWR (per connector/ both ends of assy.)	1.182/1.40
Maximum frequency insertion loss (18.5 GHz)	0.8 dB/m

Mechanical properties

Cable outer diameter	7.7 mm
Minimum bending radius (inner side)	40 mm
Maximum tensile strength	294 N (30 kgf)
Cable mass (typ.)	125 g/m
Continuous operating temperature range	-65~+125 °C
Assembly length	200~20,000 mm

Order form example

Please provide the following information when placing an order.

* See P.67 "Connector combination codes"

Example 1

Assembly length: 1000 mm
Connector I : SMA (m) straight
Connector II : SMA (m) straight

Catalog No. MWX314-01000AMSAMS
a b c

Example 2

Assembly length: 1500mm
Connector I : N (m) straight
Connector II : N (m) straight

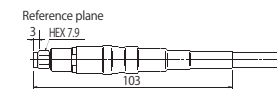
Catalog No. MWX314-01500NMSNMS
a b c

a: Cable
b: Assembly length
c: Connector

Connector

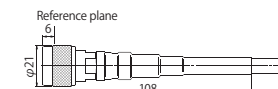
SMA (m) straight (Code: AMS)

Maximum operating frequency: 18.5 GHz z / Mass: 39g



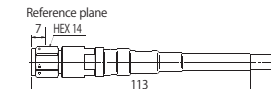
N (m) straight (Code: NMS)

Maximum operating frequency: 18.5 GHz z / Mass: 53g



TNC (m) straight (Code: CMS)

Maximum operating frequency: 18.5 GHz z / Mass: 42g



We have the capacity to deliver products with matched phases for customers who require this characteristic.

Option

*The above figures are measured values for reference only.

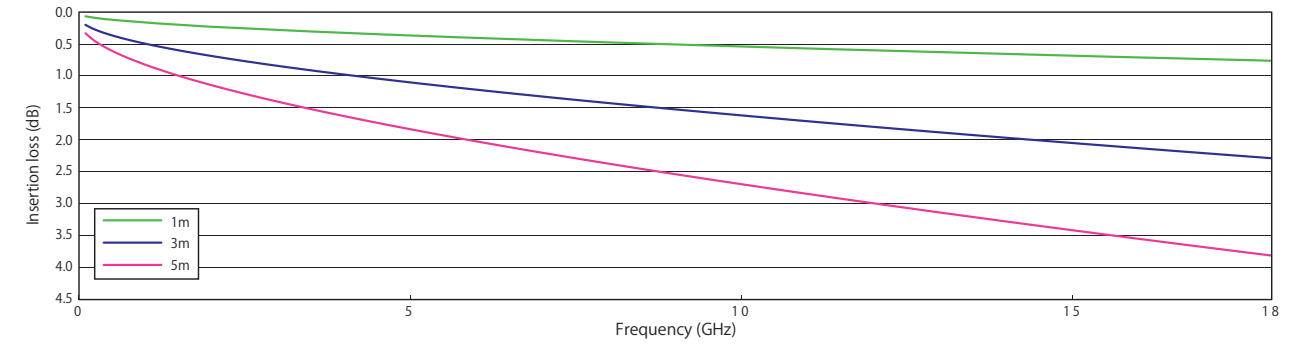
315

- Temperature change
- Frequency 18.0 GHz
- Temperature range -30~+85°C
- Minimum bending radius 30~40 mm
- RoHS compliant
- Equipment wiring
- Lightweight Armored (for fixed wiring)
- Listed in the catalogue, manufactured to order
- Custom support



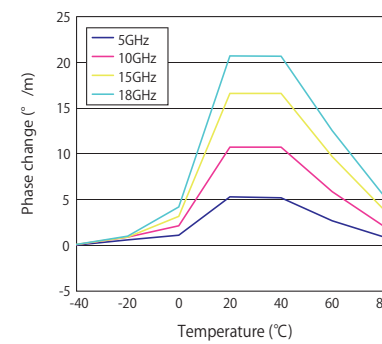
Technical Data

Cable typical insertion loss



● Typical insertion loss $0.35 \times (0.0297 \times f + 0.371 \times \sqrt{f+0.07}) \times L$ (m) ● Maximum insertion loss $0.35 \times (0.0297 \times f + 0.371 \times \sqrt{f+0.07}) \times L$ (m) $\times 1.12$

Phase change vs. temperature



*The cable was measured in chamber every 20 °C from -40 °C, 1 hour after the temperature changed.

Property

Electrical properties

Maximum operating frequency	18.0 GHz
Characteristic impedance	50±1 Ω
Capacitance (typ.)	88 pF/m
Propagation delay (typ.)	4.3 ns/m
Velocity of Propagation (typ.)	77 %
Higher mode frequency (typ.)	18.5 GHz
VSWR (per connector/ both ends of assy.)	1.182/ 1.40
Maximum frequency insertion loss (18.0 GHz)	0.76 dB/m

Mechanical properties

	Standard type	Lightweight Armored type (for fixed wiring)
Cable outer diameter	8.6 mm	17mm
Minimum bending radius (inner side)	30 mm	40 mm
Cable mass (typ.)	155 g/m	313 g/m
Continuous operating temperature range	-30~+85 °C	-30~+85 °C
Armored side pressure	-	196 N/cm
Assembly length	500~5,000 mm	500~5,000 mm

Order form example

Please provide the following information when placing an order.

* See P.67 "Connector combination codes"

Example 1

Assembly length: 1000mm
 Connector I : SMA(m) straight
 Connector II : SMA(m) straight

Catalog No.
 MWX315-01000AMSAMS

a b c

Example 2 Lightweight Armored type

Assembly length: 1000mm
 Connector I : SMA(m) straight
 Connector II : SMA(m) straight

Catalog No.
 MWX315-01000AMSAMS/A

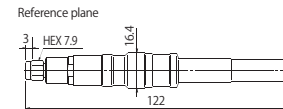
a b c d

- a: Cable
- b: Assembly length
- c: Connector
- d: Armored

Connector

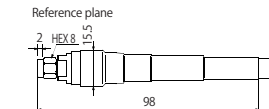
SMA (m) straight (Code: AMS)

Maximum operating frequency: 18.0 GHz / Mass: 46g



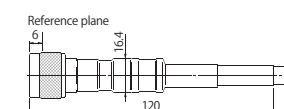
Lightweight type SMA (m) straight (Code: AMS1)

Maximum operating frequency: 18.0 GHz / Mass: 20g



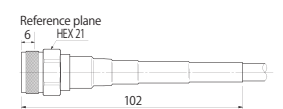
N (m) straight (Code: NMS)

Maximum operating frequency: 18.0 GHz / Mass: 61g



Lightweight type N (m) straight (Code: NMS1)

Maximum operating frequency: 18.0 GHz / Mass: 50g



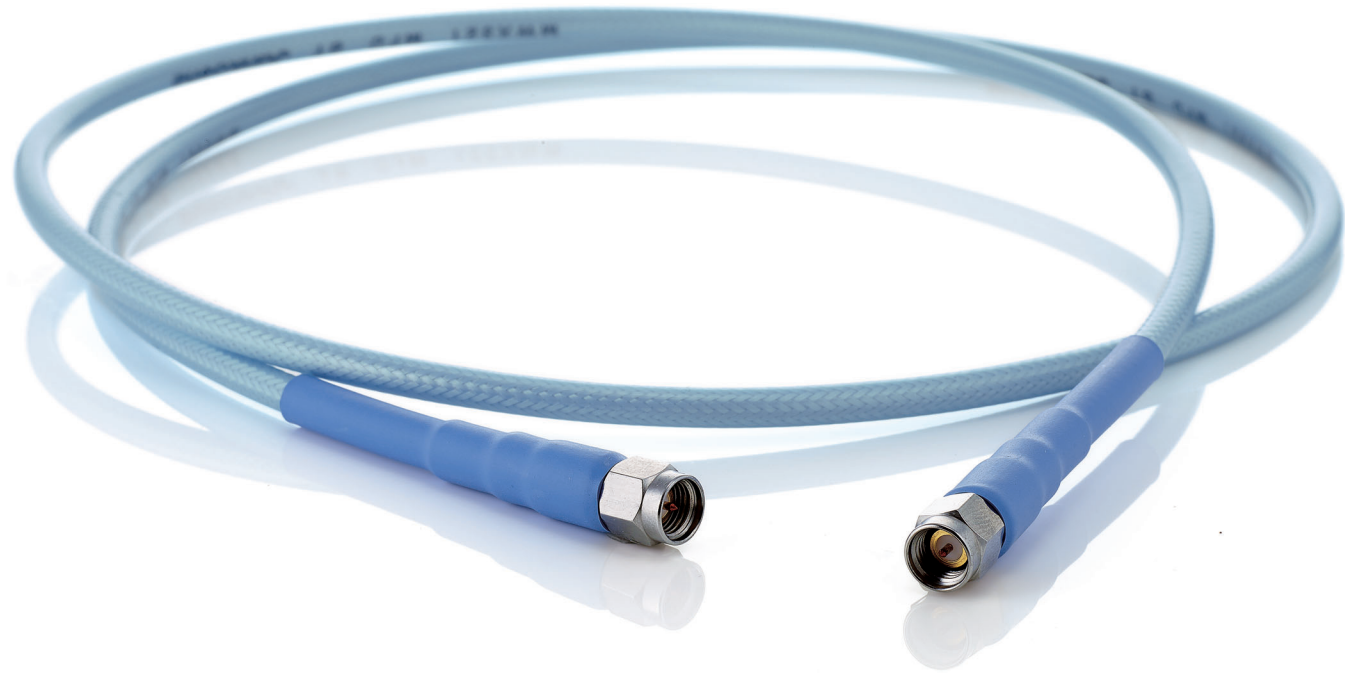
We have the capacity to deliver products with matched phases for customers who require this characteristic.

Option

*The above figures are measured values for reference only.

321

- Temperature change
- Frequency 26.5 GHz
- Temperature range -65~+125°C
- Minimum bending radius 30 mm
- RoHS compliant
- Equipment wiring
- Listed in the catalogue manufactured to order
- Custom support



Property

Electrical properties

Maximum operating frequency	26.5 GHz
Characteristic impedance	50±1 Ω
Capacitance (typ.)	80 pF/m
Propagation delay (typ.)	4.05 ns/m
Velocity of Propagation (typ.)	82 %
Higher mode frequency (typ.)	37.0 GHz
VSWR (per connector/ both ends of assy.)	1.202/1.44
Maximum frequency insertion loss (26.5 GHz)	2.4 dB/m

Mechanical properties

Cable outer diameter	4.7 mm
Minimum bending radius (inner side)	30 mm
Maximum tensile strength	98 N (10 kgf)
Cable mass (typ.)	52 g/m
Continuous operating temperature range	-65~+125 °C
Assembly length	100~20,000 mm

Order form example

Please provide the following information when placing an order.

* See P.67*Connector combination codes*

Example 1

Assembly length: 1100 mm
 Connector I : SMA (m) straight
 Connector II : SMA (m) straight

Catalog No. MWX321-01100AMSAMS
 a b c

Example 2

Assembly length: 1500 mm
 Connector I : SMA (m) straight
 Connector II : 3.5mm (m) straight

Catalog No. MWX321-01500AMSDMS
 a b c

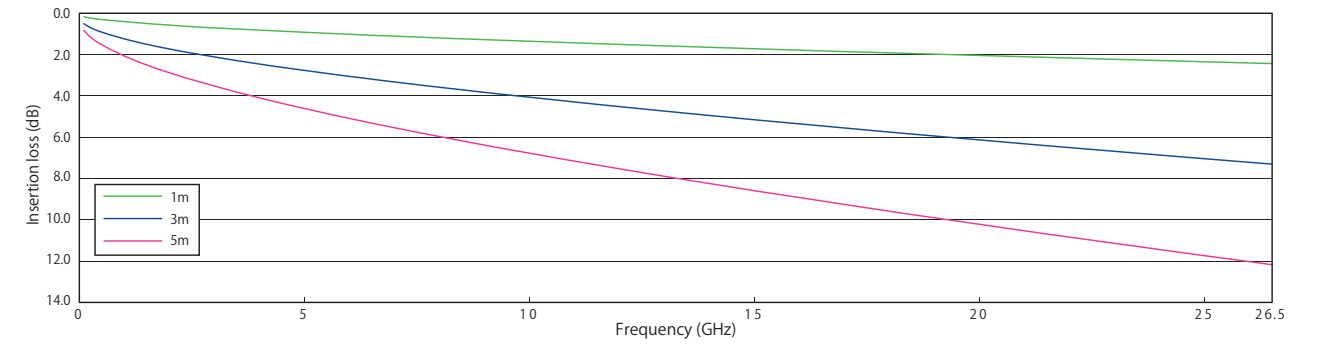
- a: Cable
- b: Assembly length
- c: Connector

We have the capacity to deliver products with matched phases for customers who require this characteristic.

Option

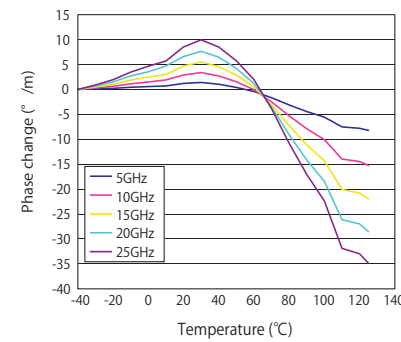
Technical Data

Cable typical insertion loss



● Typical insertion loss $0.88 \times (0.0297 \times f(\text{GHz}) + 0.371 \times \sqrt{f(\text{GHz})} + 0.07) \times L(\text{m})$ ● Maximum insertion loss $0.88 \times (0.0297 \times f(\text{GHz}) + 0.371 \times \sqrt{f(\text{GHz})} + 0.07) \times 1.12 \times L(\text{m})$

Phase change vs. temperature

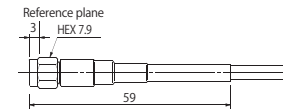


*The cable was measured in chamber every 20 °C from -40 °C, 1 hour after the temperature changed.

Connector

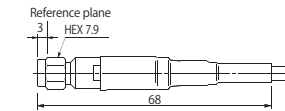
SMA (m) straight (Code: AMS)

Maximum operating frequency: 26.5 GHz z / Mass: 3g



3.5mm (m) straight (Code: DMS)

Maximum operating frequency: 26.5 GHz z / Mass: 13g



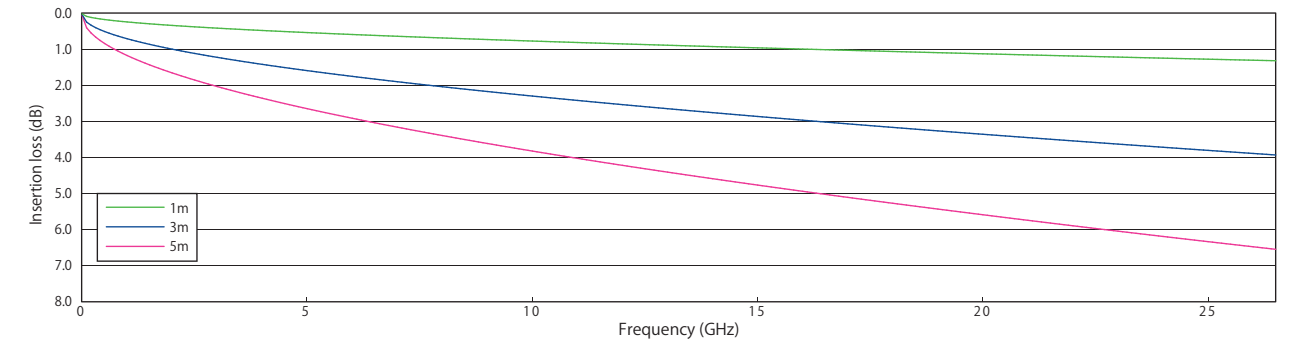
*The above figures are measured values for reference only.

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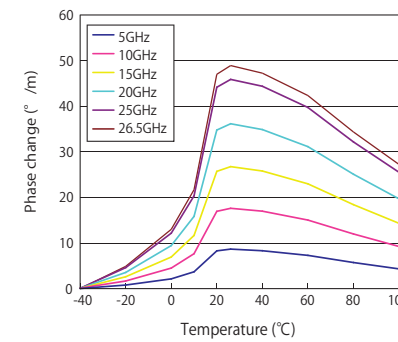
Technical Data

Cable typical insertion loss



● Typical insertion loss $(0.214 \times \sqrt{f(\text{GHz})} + 0.007 \times f(\text{GHz}) + 0.01) \times L(\text{m})$ ● Maximum insertion loss $(0.214 \times \sqrt{f(\text{GHz})} + 0.007 \times f(\text{GHz}) + 0.01) \times 1.12 \times L(\text{m})$

Phase change vs. temperature



*The cable was measured in chamber every 20 °C from -40 °C, 1 hour after the temperature changed.

Property

Electrical properties

Maximum operating frequency	26.5 GHz
Characteristic impedance	50±1 Ω
Capacitance (typ.)	88 pF/m
Propagation delay (typ.)	4.38 ns/m
Velocity of Propagation (typ.)	76 %
Higher mode frequency (typ.)	27.5 GHz
VSWR (per connector/both ends of assy.)	1.153/1.33
Maximum frequency insertion loss (26.5 GHz)	1.3 dB/m

Mechanical properties

	Standard type	Armored type	Lightweight Armored type (for fixed wiring)
Cable outer diameter	5.2 mm	12.5 mm	11.0 mm
Minimum bending radius (inner side)	25 mm	25 mm	25 mm
Maximum tensile strength	98 N (10 kgf)	98 N (10 kgf)	98 N (10kgf)
Cable mass (typ.)	60 g/m	208 g/m	155 g/m
Continuous operating temperature range	-65~+125 °C	-30~+85 °C	-30~+85 °C
Armored side pressure	—	196 N/cm	196 N/cm
Assembly length	200~20,000 mm	700~5,000 mm	500~20,000 mm

Order form example

Please provide the following information when placing an order.

* See P.67 "Connector combination codes"

Example 1

Assembly length: 1000 mm
Connector I : SMA(m) straight
Connector II : N(m) straight

Catalog No.
MWX322-01000AMSMS
a b c

Example 2 Armored type

Assembly length: 1000 mm
Connector I : 3.5mm (f) straight
Connector II : 3.5mm (m) straight

Catalog No.
MWX322-01000DFSDMS/B
a b c d

Example 3 Lightweight Armored type

Assembly length: 1000mm
Connector I : SMA(m) straight
Connector II : SMA(m) straight

Catalog No.
MWX321-01000AMSAMS/A
a b c d

a: Cable c: Connector
b: Assembly length d: Armored

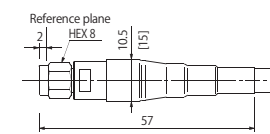
We have the capacity to deliver products with matched phases for customers who require this characteristic.

Option

Connector

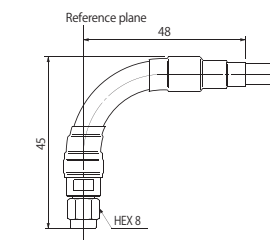
SMA (m) straight (Code: AMS)

Maximum operating frequency: 18.5 GHz z / Mass: 10g



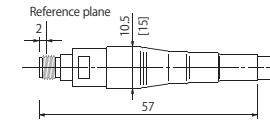
SMA (m) m swept (Code: AMW) (*1) (*2)

Maximum operating frequency: 18.5 GHz z / Mass: 17g



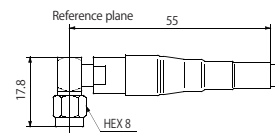
3.5mm (f) straight (Code: DFS)

Maximum operating frequency: 26.5 GHz z / Mass: 10g



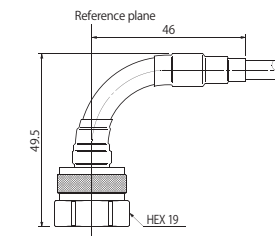
SMA (m) right angle (Code: AMH) (*1) (*2)

Maximum operating frequency: 18.0 GHz z / Mass: 10g



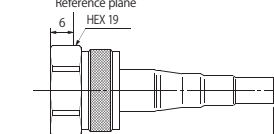
N (m) m swept (Code: NMW) (*1) (*2)

Maximum operating frequency: 18.0 GHz z / Mass: 46g



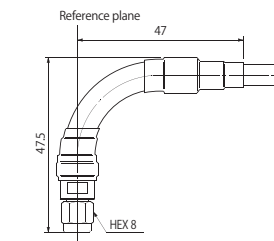
N (m) straight (Code: NMS)

Maximum operating frequency: 18.0 GHz z / Mass: 38g



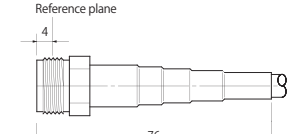
3.5mm (m) m swept (Code: DMW)

Maximum operating frequency: 26.5 GHz z / Mass: 18g



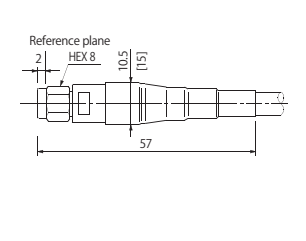
N (f) straight (Code: NFS)

Maximum operating frequency: 18.0 GHz z / Mass: 26g



3.5mm (m) straight (Code: DMS)

Maximum operating frequency: 26.5 GHz z / Mass: 11g

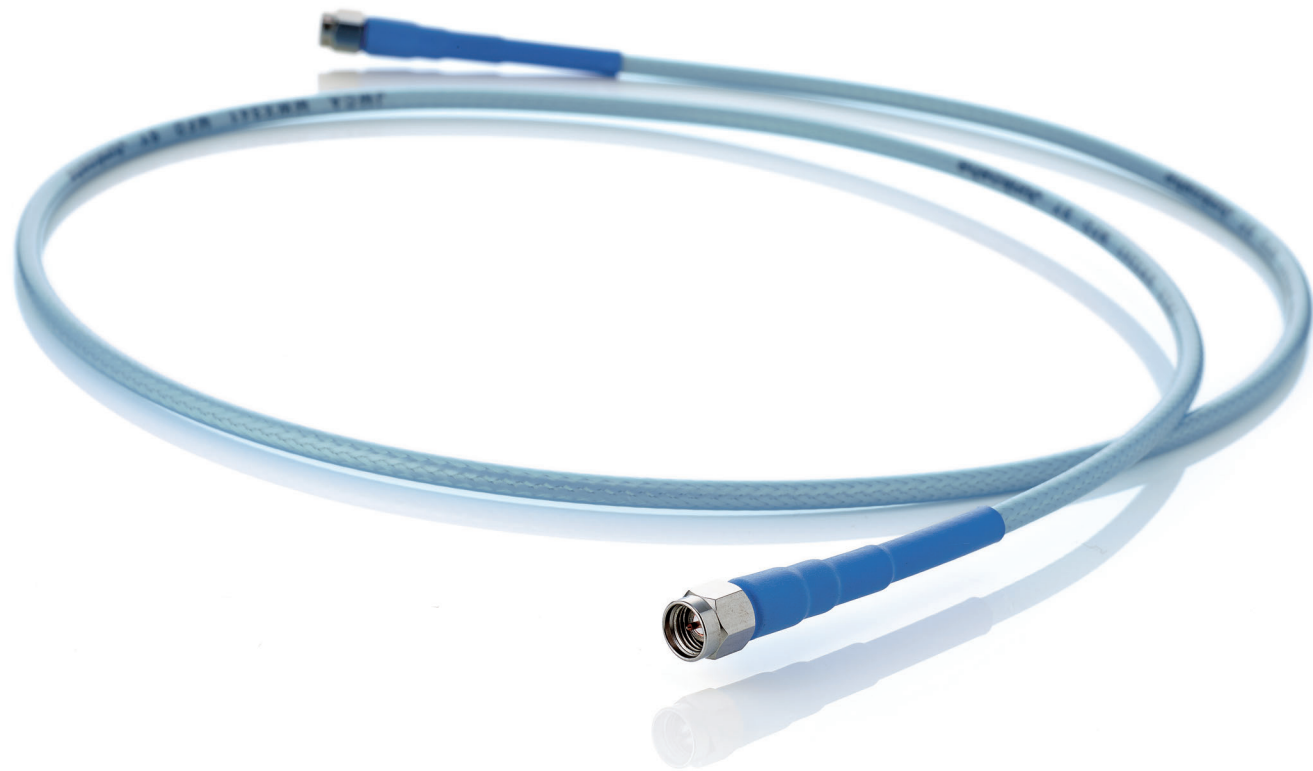


* Please see P.82 about "customer-specified swept and right angle connectors".
• [] : Armored type size.

*The above figures are measured values for reference only.

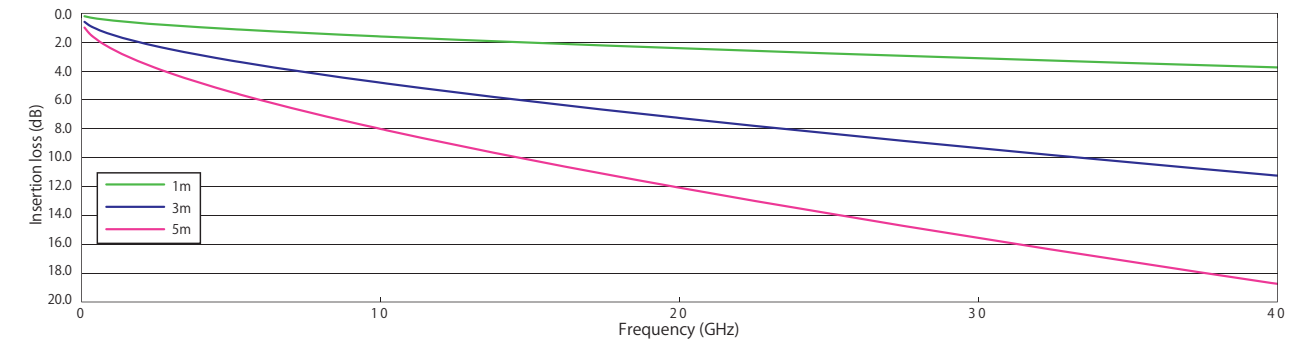
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- Temperature change
- Frequency 40.0 GHz
- Temperature range -65~+125°C
- Minimum bending radius 20 mm
- RoHS compliant
- Equipment wiring
- Listed in the catalogue manufactured to order
- Custom support



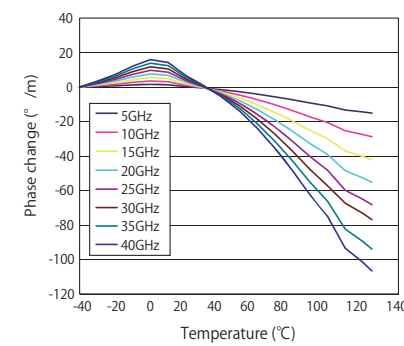
Technical Data

Cable typical insertion loss



● Typical insertion loss $1.04 \times (0.0297 \times f(\text{GHz}) + 0.371 \times \sqrt{f(\text{GHz})} + 0.07) \times L(\text{m})$ ● Maximum insertion loss $1.04 \times (0.0297 \times f(\text{GHz}) + 0.371 \times \sqrt{f(\text{GHz})} + 0.07) \times 1.12 \times L(\text{m})$

Phase change vs. temperature



*The cable was measured in chamber every 20 °C from -40 °C, 1 hour after the temperature changed.

Property

Electrical properties

Maximum operating frequency	40.0 GHz
Characteristic impedance	50±1 Ω
Capacitance (typ.)	80 pF/m
Propagation delay (typ.)	4.05 ns/m
Velocity of Propagation (typ.)	82 %
Higher mode frequency (typ.)	46.0 GHz
VSWR (per connector/ both ends of assy.)	1.197/ 1.44
Maximum frequency insertion loss (40.0 GHz)	3.3 dB/m

Mechanical properties

Cable outer diameter	4.0 mm
Minimum bending radius (inner side)	20 mm
Maximum tensile strength	98 N (10 kgf)
Cable mass (typ.)	40 g/m
Continuous operating temperature range	-65 ~ +125 °C
Assembly length	100 ~ 10,000 mm

Example

Assembly length: 1200 mm
 Connector I : SMA (m) straight
 Connector II : SMA (m) straight

Catalog No. MWX341-01200AMSAMS

a b c

a: Cable
 b: Assembly length
 c: Connector

Order form example

Please provide the following information when placing an order.

* See P.67 "Connector combination codes"

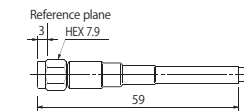
Option

We have the capacity to deliver products with matched phases for customers who require this characteristic.

Connector

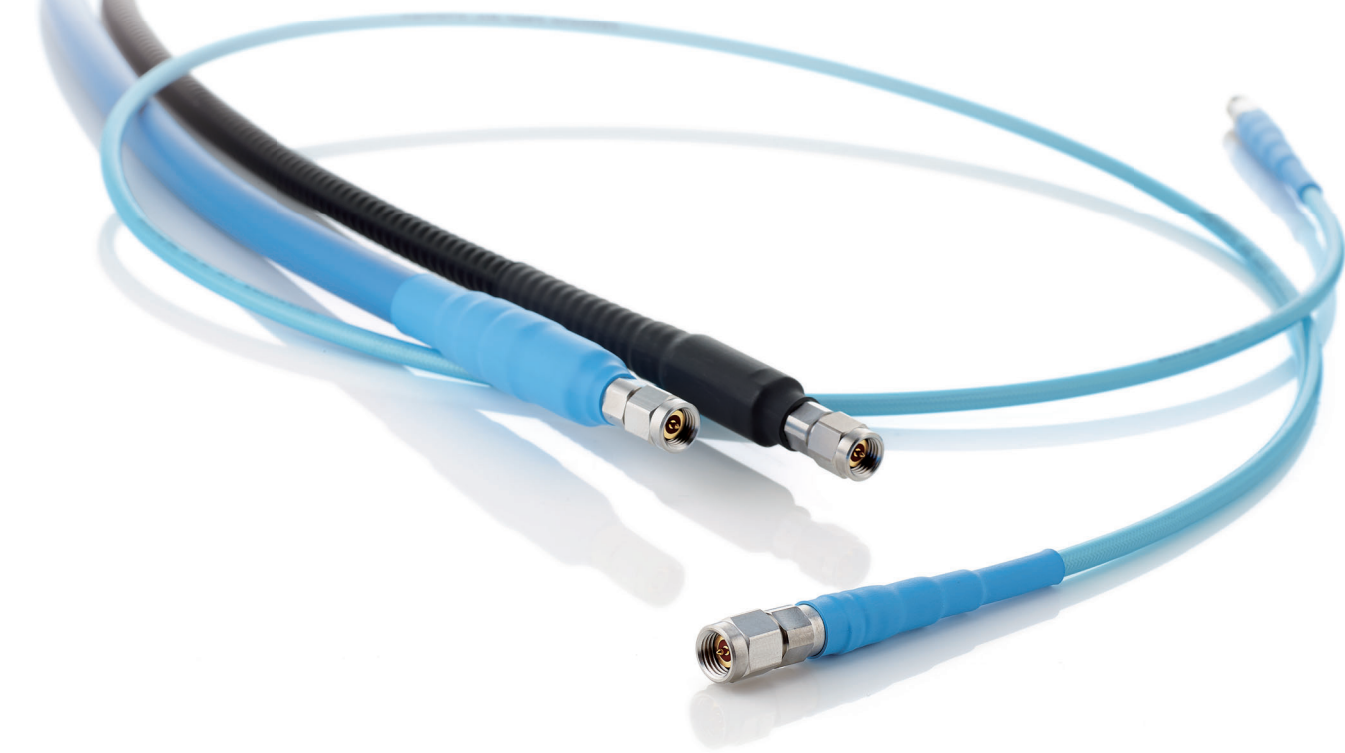
SMA (m) straight (Code: AMS)

Maximum operating frequency: 40.0 GHz z / Mass: 3g



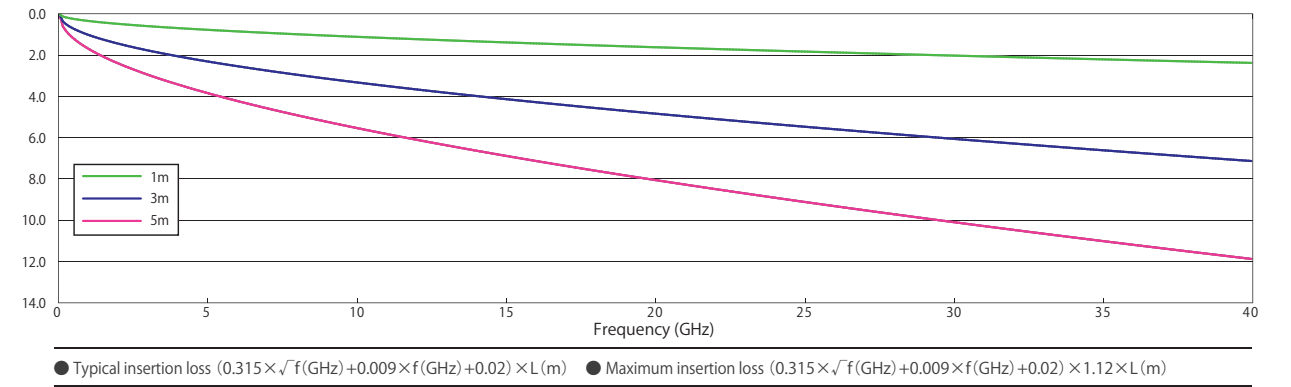
*The above figures are measured values for reference only.

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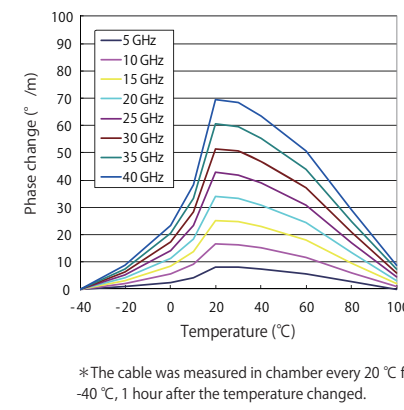


Technical Data

Cable typical insertion loss



MWX342 Phase change vs. temperature



Property

Electrical properties

Maximum operating frequency	40.0 GHz
Characteristic impedance	50±1 Ω
Capacitance (typ.)	87 pF/m
Propagation delay (typ.)	4.35 ns/m
Velocity of Propagation (typ.)	76 %
Higher mode frequency (typ.)	40.5 GHz
VSWR (per connector/both ends of assy.)	1.197/1.43
Maximum frequency insertion loss (40.0 GHz)	2.4 dB/m

Mechanical properties

	Standard type	Armored type	Lightweight Armored type (for fixed wiring)
Cable outer diameter	3.9 mm	9.5 mm	8.0 mm
Minimum bending radius (inner side)	20 mm	20 mm	20 mm
Maximum tensile strength	98 N (10 kgf)	98 N (10 kgf)	98 N (10 kgf)
Cable mass (typ.)	35 g/m	137 g/m	98 g/m
Continuous operating temperature range	-65~+125 °C	-30~+85 °C	-30~+85 °C
Armored side pressure	—	196 N/cm	196 N/cm
Assembly length	200~10,000 mm	700~10,000 mm	500~10,000 mm

Order form example

Please provide the following information when placing an order.

* See P.67*Connector combination codes*

Example 1

Assembly length: 1000 mm
Connector I : 2.92mm (f) straight
Connector II : 2.92mm (m) straight
Catalog No.
MWX342-01000KFSKMS



Example 2

Armored type
Assembly length: 1000mm
Connector I : 2.4mm (f) straight
Connector II : 2.4mm (m) straight
Catalog No.
MWX342-01000LFLSMS/B



Example 3

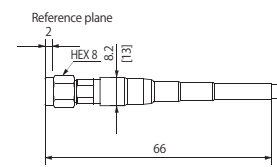
Lightweight Armored type
Assembly length: 1000mm
Connector I : 2.92mm (m) straight
Connector II : 2.92mm (m) straight
Catalog No.
MWX342-01000KMSKMS/A



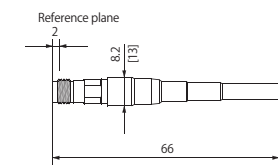
a: Cable c: Connector
b: Assembly length d: Armored

Connector

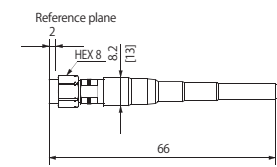
2.92mm (m) straight (Code: KMS)
Maximum operating frequency: 40.0 GHz z / Mass: 6g



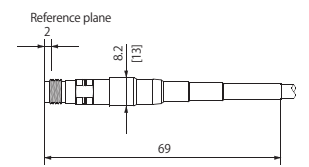
2.92mm (f) straight (Code: KFS)
Maximum operating frequency: 40.0 GHz z / Mass: 5g



2.4mm (m) straight (Code: LMS)
Maximum operating frequency: 40.0 GHz z / Mass: 6g



2.4mm (f) straight (Code: LFS)
Maximum operating frequency: 40.0 GHz z / Mass: 6g



[] : Armored type size.

We have the capacity to deliver products with matched phases for customers who require this characteristic.



*The above figures are measured values for reference only.