



Mini-Circuits

COAXIAL

Flexible Cable

AP110-XXFTW1F1M+

50Ω DC to 110 GHz 1.0 mm-Female to 1.0 mm-Male

KEY FEATURES

- Ultra-Wideband DC to 110 GHz
- High Return Loss, 26.9 dB Typ. Across Full Band
- Extremely Flexible

APPLICATIONS

- Optical Communications
- Test & Measurement
- High-Speed Data Systems
- Instrumentation
- Precision Measurement



Generic photo used for illustration purposes only

HANDLING INSTRUCTIONS

1.0 mm connectors require specific handling and torque values.
See MiniCircuits Application Note AN-71-001 for details.

PRODUCT OVERVIEW

The AP110 series carries on Mini-Circuits' commitment to quality, consistency, performance, and value. This series was designed primarily with the goal of exhibiting extreme flexibility for difficult routing challenges, while maintaining improved attenuation and unparalleled RF stability with excellent VSWR and low insertion loss properties. These DC-110 GHz test cable assemblies are designed for testing requirements where 1.0 mm connectors are utilized in various applications including lab testing, automotive testing, military radar testing, and semiconductor probe testing.

The AP110-XXFTW1F1M+ 1.0 mm-Female to 1.0 mm-Male cable family is ideal for interconnecting coaxial components and subassemblies in a wide range of systems, including test and measurement, instrumentation, and more. Available in 0.5 FT and 1 FT lengths.



ABSOLUTE MAXIMUM RATINGS¹

Electrical Specifications	
Operation Frequency (GHz)	110
Impedance (Ω)	50
Velocity of Propagation (%)	70
Shielding Effectiveness Min. (dB)	90
Voltage Withstand Min. (VDC)	500

1. Permanent damage may occur if any of these limits are exceeded

Mechanical & Environmental Specifications	
Operating Case Temperature ²	-45 °C to +80 °C
Storage Temperature	-45 °C to +80 °C
Bend Radius: Installation (mm) [in]	5 [0.20]
Bend Radius: Repeated (mm) [in]	10 [0.39]
Weight (g)	7.8 + (1.68 x L) + 1.2

2. Temperature extremes are not intended for continuous normal operation.

AP110-XXFTW1F1M+ (Typical @ +25 °C) dB							
Frequency (GHz)	Insertion Loss			Return Loss			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	
AP110-0.5W1F1M+							
DC – 35	-	1.0	3.7	13.5	26.6	-	dB
35 – 75	-	1.7	3.7	13.5	25.3	-	
75 – 110	-	2.8	3.7	13.5	24.3	-	
AP110-1FTW1F1M+							
DC – 35	-	1.7	6.3	14.0	27.2	-	dB
35 – 75	-	3.2	6.3	14.0	25.7	-	
75 – 110	-	4.8	6.3	14.0	25.9	-	

Power (VSWR = 1.0; +25 °C; Sea Level) W											
Frequency (GHz)	2	4	6	8	10	18	26.5	40	50	67	110
Avg. Power (W)	25.8	17.9	14.4	12.3	10.9	7.9	6.3	5.0	4.3	3.6	2.7



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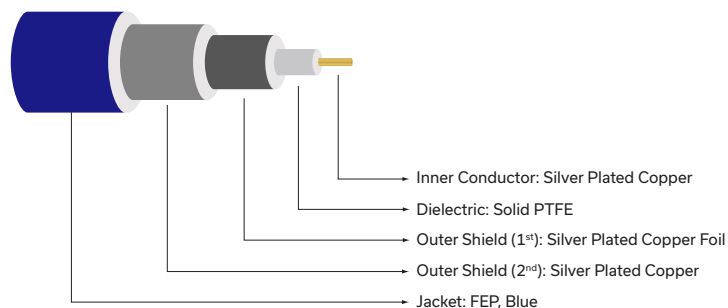
AP110-XXFTW1F1M+

50Ω DC to 110 GHz 1.0 mm-Female to 1.0 mm-Male

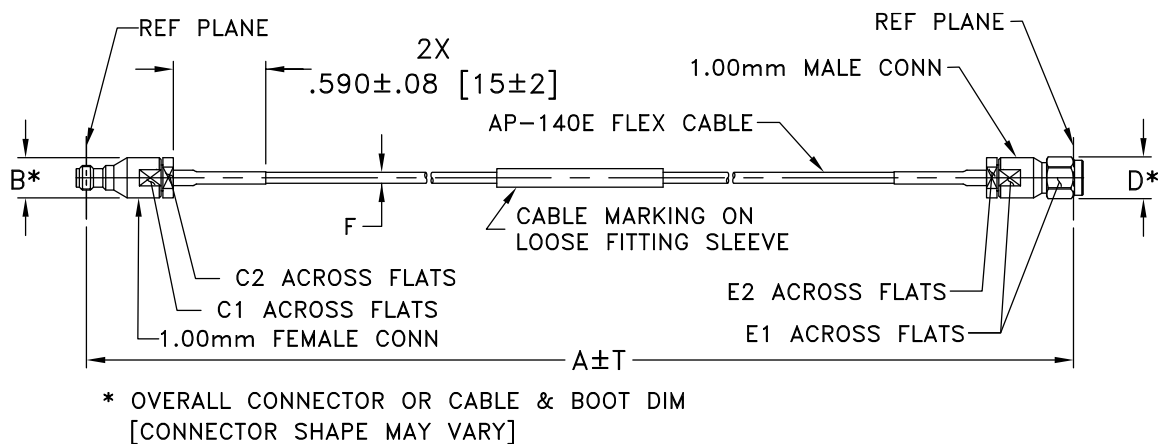
COAXIAL CONNECTIONS

Description	Connector 1	Connector 2
Connector Type	1.0 mm-Female	1.0 mm-Male
Orientation	Straight	Straight

CABLE CONSTRUCTION



CASE STYLE DRAWING



Unless Otherwise Specified dimensions are in inches [mm],
 Tolerances: 2 PL± .03; 3 PL± .015 inches

1. AP-140E Flexible Cable.
2. "A" Represents Length of Cable.

A		B	C1	C2	D	E1	E2	F	T		Weight (g)
Inch	Millimeter								Inch	Millimeter	
6	152.4	.26	.236	.217	.27	0.236	.217	.056	+0.10/-0.10	+2.54/-2.54	9.84
12	304.8	(6.50)	(6.00)	(5.50)	(6.90)	(6.00)	(5.50)	(1.42)	+0.15/-0.15	+3.81/-3.81	10.68

PRODUCT MARKING*: AP110-XXFTW1F1M+

*Marking may contain other features or characters for internal lot control.





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ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

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Performance Data & Graphs	Data
	Graphs
	S-Parameter (S2P Files) Data Set (.zip file)
Case Style	BAV3743
RoHS Status	Compliant
Environmental Ratings	ENV143

NOTES

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/terms/viewterm.html



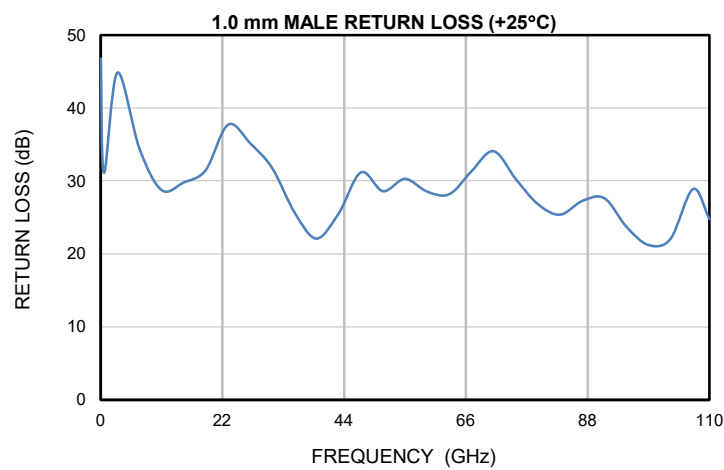
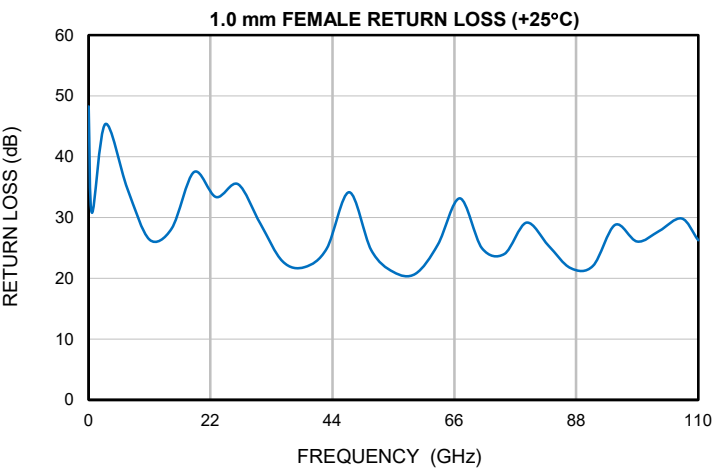
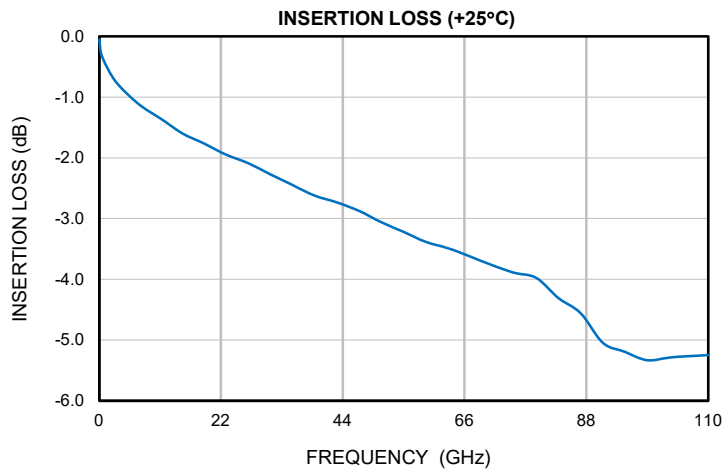
Flexible Cable 1.0 mm Female to 1.0 mm Male

AP110-1FTW1F1M+

Typical Performance Data

FREQ.	INSERTION LOSS	1.0 mm FEMALE RETURN LOSS	1.0 mm MALE RETURN LOSS
(GHz)	(dB)	(dB)	(dB)
0	0.05	48.26	46.79
1	0.35	30.77	31.12
3	0.74	45.36	44.85
7	1.10	34.74	34.42
11	1.35	26.36	28.75
15	1.59	28.17	29.79
19	1.77	37.46	31.48
23	1.95	33.34	37.72
27	2.09	35.46	35.16
31	2.27	28.95	31.74
35	2.45	22.78	25.74
39	2.62	21.83	22.12
43	2.74	24.87	25.53
47	2.88	34.17	31.19
51	3.06	24.65	28.60
55	3.22	21.03	30.28
59	3.38	20.75	28.55
63	3.49	25.50	28.18
67	3.63	33.14	31.37
71	3.77	24.96	34.09
75	3.89	23.97	30.27
79	3.98	29.13	26.82
83	4.31	25.37	25.38
87	4.56	21.66	27.27
91	5.05	22.02	27.64
95	5.20	28.78	23.72
99	5.33	26.02	21.21
103	5.29	27.79	22.09
107	5.26	29.86	28.90
110	5.25	26.24	24.79

Typical Performance Curves





All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-45° to 80°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-45° to 80°C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-45° to 80°C, 100 cycles	MIL-STD-202; Method 107G
Mechanical Flexing	1000 cycles During each cycle, cable flexed from 90° through 0° to -90° and back	----