

# F1A-HMHF-3-P

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FSJ1-50A SureFlex® Jumper with interface types 4.3-10 Male and 4.3-10 Female, 3 ft

- WARNING: DO NOT MATE WITH 4.1-9.5 DIN

## Product Classification

<b>Product Type</b>	SureFlex® Premium, static PIM
<b>Product Brand</b>	HELIAX®   SureFlex®
<b>Product Series</b>	FSJ1-50A

## General Specifications

<b>Body Style, Connector A</b>	Straight
<b>Body Style, Connector B</b>	Straight
<b>Interface, Connector A</b>	4.3-10 Male
<b>Interface, Connector B</b>	4.3-10 Female
<b>Specification Sheet Revision Level</b>	A

## Dimensions

<b>Length</b>	0.914 m   2.999 ft
<b>Nominal Size</b>	1/4 in

## Electrical Specifications

<b>3rd Order IMD</b>	-107 dBm
<b>3rd Order IMD Test Method</b>	Two +43 dBm carriers

## VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
698–960 MHz	1.152	23.02
1700–2200 MHz	1.152	23.02
2200–2700 MHz	1.152	23.02

## Jumper Assembly Sample Label

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## Environmental Specifications

**Immersion Test Method** Meets IEC 60529:2001, IP68 in mated condition

## Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system

## Included Products

- F1HM-S2 – 4.3-10 Male for 1/4 in foam coaxial cable, factory attached
- F1THF-LS – 4.3-10 Female for 1/4 in foam coaxial cable, factory attached
- FSJ1-50A – FSJ1-50A, HELIAX® Superflexible Low Density Foam Coaxial Cable, corrugated copper, 1/4 in, black PE jacket

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4.3-10 Male for 1/4 in foam coaxial cable, factory attached

## Product Classification

<b>Product Type</b>	Wireless and radiating connector
<b>Product Brand</b>	HELIAX®   SureFlex®

## General Specifications

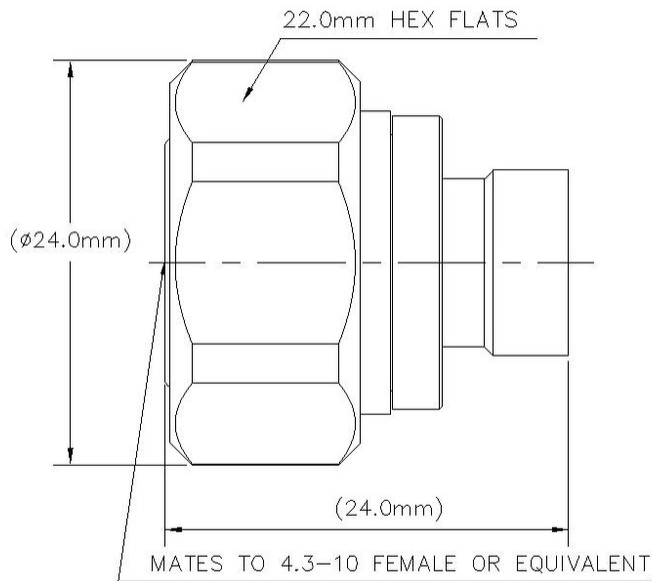
<b>Body Style</b>	Straight
<b>Inner Contact Attachment Method</b>	Solder
<b>Inner Contact Plating</b>	Silver
<b>Interface</b>	4.3-10 Male
<b>Outer Contact Attachment Method</b>	Solder
<b>Outer Contact Plating</b>	Trimetal

## Dimensions

<b>Length</b>	23.88 mm   0.94 in
<b>Diameter</b>	23.88 mm   0.94 in
<b>Nominal Size</b>	1/4 in

## Outline Drawing

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## Electrical Specifications

<b>3rd Order IMD at Frequency</b>	-119 dBm @ 910 MHz
<b>3rd Order IMD Test Method</b>	Two +43 dBm carriers
<b>Insertion Loss Coefficient, typical</b>	0.05
<b>Cable Impedance</b>	50 ohm
<b>Connector Impedance</b>	50 ohm
<b>dc Test Voltage</b>	2300 V
<b>Inner Contact Resistance, maximum</b>	1 mOhm
<b>Insulation Resistance, minimum</b>	5000 MOhm
<b>Operating Frequency Band</b>	0 – 6000 MHz
<b>Outer Contact Resistance, maximum</b>	1 mOhm
<b>Peak Power, maximum</b>	6.4 kW
<b>RF Operating Voltage, maximum (vrms)</b>	565 V

## VSWR/Return Loss

<b>Frequency Band</b>	<b>VSWR</b>	<b>Return Loss (dB)</b>
<b>0-3000 MHz</b>	1.041	33.94

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<b>3000–4000 MHz</b>	1.065	30.04
<b>4000–6000 MHz</b>	1.119	25.01

## Mechanical Specifications

<b>Connector Retention Tensile Force</b>	449.27 N   101 lbf
<b>Connector Retention Torque</b>	1.1 N-m   9.736 in lb
<b>Coupling Nut Proof Torque</b>	8 N-m   70.806 in lb
<b>Coupling Nut Retention Force</b>	449.98 N   101.16 lbf
<b>Interface Durability</b>	100 cycles
<b>Mechanical Shock Test Method</b>	IEC 60068-2-27

## Environmental Specifications

<b>Operating Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Storage Temperature</b>	-65 °C to +125 °C (-85 °F to +257 °F)
<b>Attenuation, Ambient Temperature</b>	20 °C   68 °F
<b>Average Power, Ambient Temperature</b>	40 °C   104 °F
<b>Average Power, Inner Conductor Temperature</b>	100 °C   212 °F
<b>Corrosion Test Method</b>	IEC 60068-2-11
<b>Immersion Depth</b>	1 m
<b>Immersion Test Mating</b>	Mated
<b>Immersion Test Method</b>	IEC 60529:2001, IP68
<b>Moisture Resistance Test Method</b>	IEC 60068-2-3
<b>Thermal Shock Test Method</b>	IEC 60068-2-14
<b>Vibration Test Method</b>	IEC 60068-2-6

## Packaging and Weights

<b>Weight, net</b>	31.21 g   0.069 lb
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## Regulatory Compliance/Certifications

<b>Agency</b>	<b>Classification</b>
CHINA-ROHS	Below maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
REACH-SVHC	Compliant as per SVHC revision on <a href="http://www.commscope.com/ProductCompliance">www.commscope.com/ProductCompliance</a>
ROHS	Compliant

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UK-ROHS

Compliant



## \* Footnotes

**Insertion Loss Coefficient, typical** 0.05√freq (GHz) (not applicable for elliptical waveguide)

**Immersion Depth** Immersion at specified depth for 24 hours

# F1THF-LS

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4.3-10 Female for 1/4 in foam coaxial cable, factory attached

## Product Classification

<b>Product Type</b>	Wireless and radiating connector
<b>Product Brand</b>	HELIAX®   SureFlex®

## General Specifications

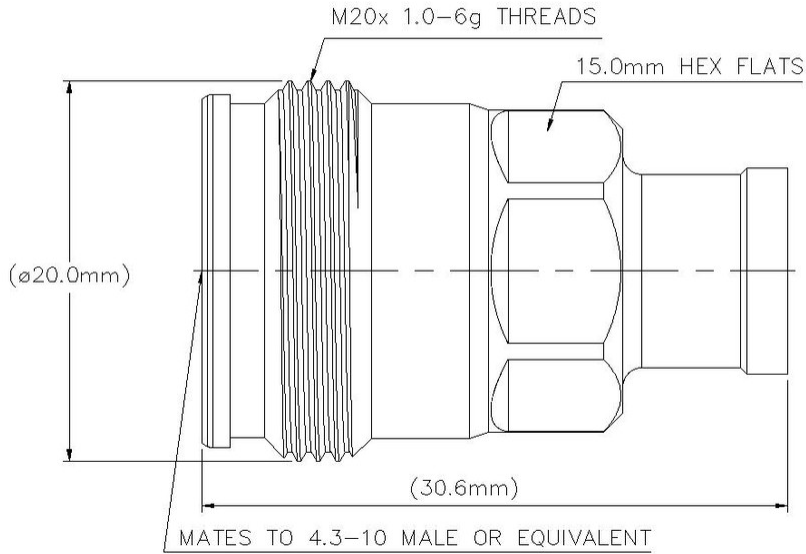
<b>Body Style</b>	Straight
<b>Inner Contact Attachment Method</b>	Solder
<b>Inner Contact Plating</b>	Silver
<b>Interface</b>	4.3-10 Male
<b>Outer Contact Attachment Method</b>	Solder
<b>Outer Contact Plating</b>	Trimetal

## Dimensions

<b>Length</b>	29.97 mm   1.18 in
<b>Diameter</b>	19.81 mm   0.78 in
<b>Nominal Size</b>	1/4 in

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## Outline Drawing



## Electrical Specifications

<b>3rd Order IMD at Frequency</b>	-119 dBm @ 910 MHz
<b>3rd Order IMD Test Method</b>	Two +43 dBm carriers
<b>Insertion Loss Coefficient, typical</b>	0.05
<b>Average Power at Frequency</b>	396.0 W @ 900 MHz
<b>Cable Impedance</b>	50 ohm
<b>Connector Impedance</b>	50 ohm
<b>dc Test Voltage</b>	1600 V
<b>Inner Contact Resistance, maximum</b>	1 mOhm
<b>Insulation Resistance, minimum</b>	5000 MOhm
<b>Operating Frequency Band</b>	0 – 6000 MHz
<b>Outer Contact Resistance, maximum</b>	1 mOhm
<b>Peak Power, maximum</b>	6.4 kW
<b>RF Operating Voltage, maximum (vrms)</b>	565 V

## VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
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<b>0–3000 MHz</b>	1.041	33.94
<b>3000–4000 MHz</b>	1.065	30.04
<b>4000–6000 MHz</b>	1.083	27.99

## Mechanical Specifications

<b>Connector Retention Tensile Force</b>	449.27 N   101 lbf
<b>Connector Retention Torque</b>	1.4 N-m   12.391 in lb
<b>Interface Durability</b>	100 cycles
<b>Mechanical Shock Test Method</b>	IEC 60068-2-27

## Environmental Specifications

<b>Operating Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Storage Temperature</b>	-65 °C to +125 °C (-85 °F to +257 °F)
<b>Attenuation, Ambient Temperature</b>	20 °C   68 °F
<b>Average Power, Ambient Temperature</b>	40 °C   104 °F
<b>Average Power, Inner Conductor Temperature</b>	100 °C   212 °F
<b>Corrosion Test Method</b>	IEC 60068-2-11
<b>Immersion Depth</b>	1 m
<b>Immersion Test Mating</b>	Mated
<b>Immersion Test Method</b>	IEC 60529:2001, IP68
<b>Moisture Resistance Test Method</b>	IEC 60068-2-3
<b>Thermal Shock Test Method</b>	IEC 60068-2-14
<b>Vibration Test Method</b>	IEC 60068-2-6

## Packaging and Weights

<b>Weight, net</b>	26.89 g   0.059 lb
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## Regulatory Compliance/Certifications

<b>Agency</b>	<b>Classification</b>
CHINA-ROHS	Below maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
REACH-SVHC	Compliant as per SVHC revision on <a href="http://www.commscope.com/ProductCompliance">www.commscope.com/ProductCompliance</a>
ROHS	Compliant
UK-ROHS	Compliant/Exempted

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## \* Footnotes

**Insertion Loss Coefficient, typical**  $0.05\sqrt{\text{freq (GHz)}}$  (not applicable for elliptical waveguide)

**Immersion Depth** Immersion at specified depth for 24 hours

# FSJ1-50A

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FSJ1-50A, HELIAX® Superflexible Low Density Foam Coaxial Cable, corrugated copper, 1/4 in, black PE jacket

## Product Classification

<b>Product Type</b>	Coaxial wireless cable
<b>Product Brand</b>	HELIAX®   SureFlex®
<b>Product Series</b>	FSJ1-50A   MLOC

## General Specifications

<b>Product Number</b>	887009902/00   SZ887009902/00
<b>Flexibility</b>	Superflexible
<b>Jacket Color</b>	Black
<b>Performance Note</b>	Attenuation values typical, guaranteed within 5%

## Dimensions

<b>Diameter Over Dielectric</b>	4.826 mm   0.19 in
<b>Diameter Over Jacket</b>	7.366 mm   0.29 in
<b>Inner Conductor OD</b>	1.905 mm   0.075 in
<b>Outer Conductor OD</b>	6.35 mm   0.25 in
<b>Nominal Size</b>	1/4 in

## Electrical Specifications

<b>Cable Impedance</b>	50 ohm $\pm$ 1 ohm
<b>Capacitance</b>	79.4 pF/m   24.201 pF/ft
<b>dc Resistance, Inner Conductor</b>	9.843 ohms/km   3 ohms/kft
<b>dc Resistance, Outer Conductor</b>	7.216 ohms/km   2.199 ohms/kft
<b>dc Test Voltage</b>	1600 V
<b>Inductance</b>	0.2 $\mu$ H/m   0.061 $\mu$ H/ft

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<b>Insulation Resistance</b>	100000 MOhms-km
<b>Jacket Spark Test Voltage (rms)</b>	5000 V
<b>Operating Frequency Band</b>	1 – 18000 MHz
<b>Peak Power</b>	6.4 kW
<b>Velocity</b>	82 %

## VSWR/Return Loss

<b>Frequency Band</b>	<b>VSWR</b>	<b>Return Loss (dB)</b>
<b>680–960 MHz</b>	1.201	20.8
<b>1700–2200 MHz</b>	1.201	20.8
<b>2200–2700 MHz</b>	1.433	15

## Attenuation

<b>Frequency (MHz)</b>	<b>Attenuation (dB/100 m)</b>	<b>Attenuation (dB/100 ft)</b>	<b>Average Power (kW)</b>
<b>1.0</b>	0.577	0.176	6.4
<b>1.5</b>	0.707	0.215	6.4
<b>2.0</b>	0.816	0.249	6.4
<b>10.0</b>	1.833	0.559	3.99
<b>20.0</b>	2.6	0.792	2.81
<b>30.0</b>	3.192	0.973	2.29
<b>50.0</b>	4.136	1.261	1.77
<b>85.0</b>	5.419	1.652	1.35
<b>88.0</b>	5.516	1.681	1.33
<b>100.0</b>	5.889	1.795	1.24
<b>108.0</b>	6.125	1.867	1.19
<b>150.0</b>	7.25	2.21	1.01
<b>174.0</b>	7.825	2.385	0.93
<b>200.0</b>	8.408	2.563	0.87
<b>204.0</b>	8.495	2.589	0.86
<b>300.0</b>	10.373	3.162	0.71
<b>400.0</b>	12.051	3.673	0.61
<b>450.0</b>	12.817	3.906	0.57
<b>460.0</b>	12.965	3.952	0.56
<b>500.0</b>	13.545	4.128	0.54
<b>512.0</b>	13.715	4.18	0.53

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<b>600.0</b>	14.909	4.544	0.49
<b>700.0</b>	16.175	4.93	0.45
<b>800.0</b>	17.362	5.292	0.42
<b>824.0</b>	17.637	5.376	0.41
<b>894.0</b>	18.42	5.614	0.4
<b>960.0</b>	19.134	5.832	0.38
<b>1000.0</b>	19.556	5.96	0.37
<b>1218.0</b>	21.738	6.626	0.34
<b>1250.0</b>	22.044	6.719	0.33
<b>1500.0</b>	24.326	7.414	0.3
<b>1700.0</b>	26.038	7.936	0.28
<b>1794.0</b>	26.813	8.172	0.27
<b>1800.0</b>	26.862	8.187	0.27
<b>2000.0</b>	28.455	8.673	0.26
<b>2100.0</b>	29.227	8.908	0.25
<b>2200.0</b>	29.984	9.139	0.24
<b>2300.0</b>	30.727	9.365	0.24
<b>2500.0</b>	32.174	9.806	0.23
<b>2700.0</b>	33.576	10.233	0.22
<b>3000.0</b>	35.602	10.851	0.21
<b>3400.0</b>	38.183	11.638	0.19
<b>3600.0</b>	39.428	12.017	0.19
<b>3700.0</b>	40.041	12.204	0.18
<b>3800.0</b>	40.647	12.389	0.18
<b>3900.0</b>	41.247	12.571	0.18
<b>4000.0</b>	41.841	12.753	0.17
<b>4100.0</b>	42.429	12.932	0.17
<b>4200.0</b>	43.012	13.11	0.17
<b>4300.0</b>	43.59	13.286	0.17
<b>4400.0</b>	44.163	13.46	0.17
<b>4500.0</b>	44.73	13.633	0.16
<b>4600.0</b>	45.293	13.805	0.16
<b>4700.0</b>	45.852	13.975	0.16
<b>4800.0</b>	46.405	14.144	0.16
<b>4900.0</b>	46.955	14.311	0.16

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5000.0	47.5	14.477	0.15
6000.0	52.747	16.077	0.14
8000.0	62.37	19.01	0.12
8800.0	65.974	20.108	0.11
10000.0	71.173	21.693	0.1
12000.0	79.393	24.198	0.09
14000.0	87.172	26.569	0.08
15800.0	93.872	28.611	0.08
16000.0	94.601	28.833	0.08
18000.0	101.745	31.01	0.07

## Material Specifications

<b>Dielectric Material</b>	Foam PE
<b>Jacket Material</b>	PE
<b>Inner Conductor Material</b>	Copper-clad aluminum wire
<b>Outer Conductor Material</b>	Corrugated copper

## Mechanical Specifications

<b>Minimum Bend Radius, multiple Bends</b>	25.4 mm   1 in
<b>Minimum Bend Radius, single Bend</b>	25.4 mm   1 in
<b>Number of Bends, minimum</b>	15
<b>Number of Bends, typical</b>	20
<b>Tensile Strength</b>	68 kg   149.914 lb
<b>Bending Moment</b>	0.7 N-m   6.196 in lb
<b>Flat Plate Crush Strength</b>	1.8 kg/mm   100.795 lb/in

## Environmental Specifications

<b>Installation temperature</b>	-40 °C to +60 °C (-40 °F to +140 °F)
<b>Operating Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Storage Temperature</b>	-70 °C to +85 °C (-94 °F to +185 °F)
<b>Attenuation, Ambient Temperature</b>	68 °F   20 °C
<b>Average Power, Ambient Temperature</b>	104 °F   40 °C
<b>Average Power, Inner Conductor Temperature</b>	212 °F   100 °C

# FSJ1-50A

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## Packaging and Weights

### Cable weight

0.07 kg/m | 0.047 lb/ft

## Regulatory Compliance/Certifications

### Agency

### Classification

CHINA-ROHS

Below maximum concentration value

ISO 9001:2015

Designed, manufactured and/or distributed under this quality management system

REACH-SVHC

Compliant as per SVHC revision on [www.commscope.com/ProductCompliance](http://www.commscope.com/ProductCompliance)

ROHS

Compliant

UK-ROHS

Compliant

UL/ETL Certification

Compliant

