



SMA Male Right Angle Low PIM Connector Solder Attachment for SPP-250-LLPL, SPF-250, SPO-250, 1/4" Superflexible, PE-1/4SFHC

RF Connectors Technical Data Sheet



TC-250-SM-RA-LP

Times Microwave Systems Connector Specification

Configuration

- SMA Male Connector
- 50 Ohms
- Right Angle Body Geometry
- Connector Interface Types: SPP-250-LLPL, SPF-250, SPO-250, 1/4" Superflexible, PE-1/4SFHC
- Low PIM Design

Features

- Max. Operating Frequency 6 GHz
- Good VSWR of 1.3:1
- PIM levels lower than -160 dBc
- Silver Plated Brass Contact
- 200 µin contact plating

Applications

- General Purpose Test
- Custom Cable Assemblies
- Distributed Antenna Systems (DAS)
- Wireless Communications
- Low PIM Applications

Description

Times Microwave's TC-250-SM-RA-LP SMA male right angle connector offered by Pasternack with solder/solder attachment for Times' SPP-250-LLPL, SPF-250, SPO-250, 1/4" Superflexible and PE-1/4SFHC is part of our full line of RF components available for same-day shipping. Times Microwave's SMA male connector operates up to a maximum frequency of 6 GHz and offers good VSWR of 1.3:1. The Times SMA male connector also has low passive intermodulation of -160 dBc. Its right angle body geometry allows for easier connections in tight spaces.

Times Microwave's SMA male right angle connector TC-250-SM-RA-LP datasheet specifications and drawing with dimensions are shown below in this PDF. Pasternack's broad catalog of RF, microwave and millimeter wave connectors allows designers to configure and customize their signal connections however they like. Whether the need is to provide an I/O for a board design, or simply create a custom cable assembly configuration, Pasternack has the right connector for the job. Pasternack can also expertly build your custom cable assemblies for you and ship same-day.

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		6	GHz
VSWR			1.3:1	
Insertion Loss			0.25	dB
Passive Intermodulation			-160	dBc
Dielectric Withstanding Voltage (AC)			4,000	Vrms
Inner Conductor DC Resistance			3	mOhms
Outer Conductor DC Resistance			2.5	mOhms
Insulation Resistance	10,000			MOhms

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SMA Male Right Angle Low PIM Connector Solder Attachment for SPP-250-LLPL, SPF-250, SPO-250, 1/4" Superflexible, PE-1/4SFHC TC-250-SM-RA-LP](#)



SMA Male Right Angle Low PIM Connector Solder Attachment for SPP-250-LLPL, SPF-250, SPO-250, 1/4" Superflexible, PE-1/4SFHC

RF Connectors Technical Data Sheet



TC-250-SM-RA-LP

Electrical Specification Notes:
 Insertion Loss is $-0.1 \cdot \sqrt{F(\text{GHz})}$

Mechanical Specifications

Size

Length	0.99 in [25.15 mm]
Width/Dia.	0.262 in [6.65 mm]
Height	0.262 in [6.65 mm]
Weight	0.045 lbs [20.41 g]
Mating Cycles	500 Cycles
Mating Torque	0 to 9.73 in-lbs [0.00 to 1.10 Nm]
Cable Retention Force	200 lbs 90.72 kg

Material Specifications

Description	Material	Plating
Contact	Brass	Silver 200 μin
Insulation	PTFE	
Body	Brass	Tri-Metal 100 μin
Coupling Nut	Brass	Tri-Metal 100 μin

Environmental Specifications

Temperature

Operating Range	-40 to +125 deg C
Shock	MIL-STD 202, Method 213, Condition I
Vibration	MIL-STD 202, Method 204, Condition D
Thermal Shock	MIL-STD 202, Method 107, Condition B

Environmental Specification Notes:
 IEC 60068 55/125/21

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SMA Male Right Angle Low PIM Connector Solder Attachment for SPP-250-LLPL, SPF-250, SPO-250, 1/4" Superflexible, PE-1/4SFHC TC-250-SM-RA-LP](#)



SMA Male Right Angle Low PIM Connector Solder Attachment for SPP-250-LLPL, SPF-250, SPO-250, 1/4" Superflexible, PE-1/4SFHC

RF Connectors
Technical Data Sheet

SMA Male Right Angle Low PIM Connector Solder Attachment for SPP-250-LLPL, SPF-250, SPO-250, 1/4" Superflexible, PE-1/4SFHC from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

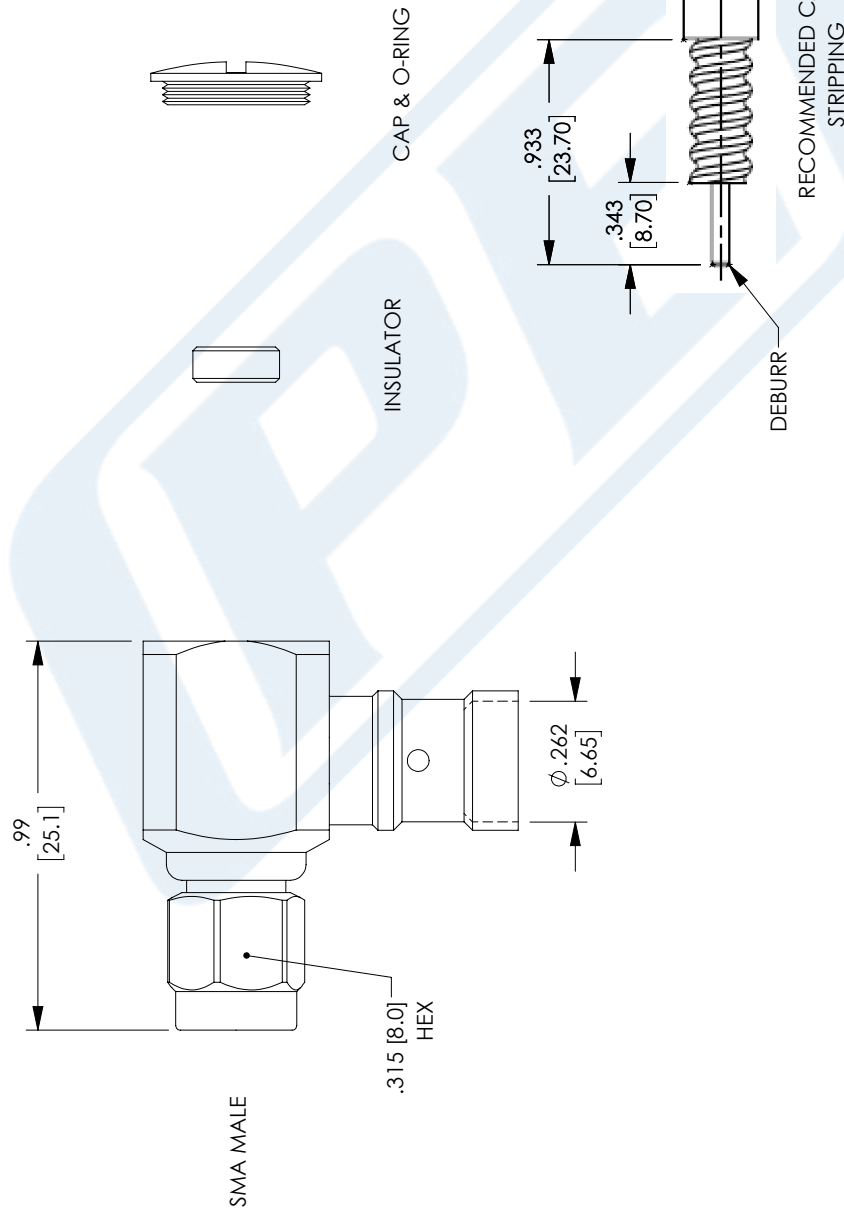
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URL: <https://www.pasternack.com/sma-male-spp-250-llpl-spf-250-connector-tc-250-sm-ra-lp-p.aspx>

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TIMES MICROWAVE SYSTEMS **TC-250-SM-RA-LP CAD Drawing**
 SMA Male Right Angle Low PIM Connector Solder Attachment for SPP-
 250-LLPL, SPF-250, SPO-250, 1/4" Superflexible, PE-1/4SFHC

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	03/11/2021	SELLIS



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 E-mail: sales@pasternack.com

UNLESS OTHERWISE SPECIFIED
 LEADING DIMENSIONS ARE INCHES
 DIMENSIONS IN [] ARE MILLIMETERS

TOLERANCES:

.X = ±.2	[5.08]	FRACTIONS
.XX = ±.02	[.51]	± 1/32
.XXX = ±.005	[.13]	ANGLES ± 1°

CABLE LENGTH (L) TOLERANCES:

L ≤ 12	[305]	= +1 [25] / -0
12 [305] < L ≤ 60	[1524]	= +2 [51] / -0
60 [1524] < L ≤ 120	[3048]	= +4 [102] / -0
120 [3048] < L ≤ 300	[7620]	= +6 [152] / -0
300 [7620] < L		= +5%L / -0

ALL DIMENSIONS SHOWN
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THIRD-ANGLE PROJECTION

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SHEET 1 OF 1
 SCALE N/A

SIZE [CAGE CODE] DRAWN BY [ITEM NO.]
 A 53919 DFRISIELLO TC-250-SM-RA-LP
 REV A



N Male Right Angle Low PIM Connector Solder Attachment for SPO-250, SPF-250, SPP-250-LLPL

RF Connectors Technical Data Sheet



TC-250-NM-RA-LP

Times Microwave Systems Connector Specification

Configuration

- N Male Connector
- 50 Ohms
- Right Angle Body Geometry
- Connector Interface Types: SPO-250, SPF-250, SPP-250-LLPL
- Low PIM Design

Features

- Max. Operating Frequency 6 GHz
- Good VSWR of 1.35:1
- PIM levels lower than -160 dBc
- Silver Plated Brass Contact
- 200 μ m contact plating

Applications

- General Purpose Test
- Custom Cable Assemblies
- Distributed Antenna Systems (DAS)
- Wireless Communications
- Low PIM Applications

Description

Times Microwave's TC-250-NM-RA-LP type N male right angle connector offered by Pasternack with solder/solder attachment for Times' SPO-250, SPF-250 and SPP-250-LLPL is part of our full line of RF components available for same-day shipping. Times Microwave's type N male connector operates up to a maximum frequency of 6 GHz and offers good VSWR of 1.35:1. The Times type N male connector also has low passive intermodulation of -160 dBc. Its right angle body geometry allows for easier connections in tight spaces.

Times Microwave's type N male right angle connector TC-250-NM-RA-LP datasheet specifications and drawing with dimensions are shown below in this PDF. Pasternack's broad catalog of RF, microwave and millimeter wave connectors allows designers to configure and customize their signal connections however they like. Whether the need is to provide an I/O for a board design, or simply create a custom cable assembly configuration, Pasternack has the right connector for the job. Pasternack can also expertly build your custom cable assemblies for you and ship same-day.

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		6	GHz
VSWR			1.35:1	
Insertion Loss			0.25	dB
Passive Intermodulation			-160	dBc
Operating Voltage (DC)			2,500	Vdc
Insulation Resistance	5,000			MOhms

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [N Male Right Angle Low PIM Connector Solder Attachment for SPO-250, SPF-250, SPP-250-LLPL TC-250-NM-RA-LP](#)



N Male Right Angle Low PIM Connector Solder Attachment for SPO-250, SPF-250, SPP-250-LLPL

RF Connectors Technical Data Sheet



TC-250-NM-RA-LP

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 3	3 to 6				GHz
VSWR, Max	1.1:1	1.35:1				

Electrical Specification Notes:
Insertion Loss is 0.1*sqrt(FGHz)

Mechanical Specifications

Size

Length	1.01 in [25.65 mm]
Width/Dia.	0.94 in [23.88 mm]
Height	1.53 in [38.86 mm]
Mating Torque	15.05 in-lbs [1.70 Nm]

Material Specifications

Description	Material	Plating
Contact	Brass	Silver 200 µin
Insulation	PTFE	
Body	Brass	Tri-Metal 80 µin
Coupling Nut	Brass	Tri-Metal 80 µin
Gasket	Silicone	

Environmental Specifications

Temperature

Operating Range	-55 to +125 deg C
Shock	MIL-STD 202G, Method 213, Condition I
Vibration	MIL-STD 202G, Method 204, Condition B
Thermal Shock	MIL-STD 202G, Method 107, Condition B

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [N Male Right Angle Low PIM Connector Solder Attachment for SPO-250, SPF-250, SPP-250-LLPL TC-250-NM-RA-LP](#)



N Male Right Angle Low PIM Connector Solder Attachment for SPO-250, SPF-250, SPP-250-LLPL

RF Connectors Technical Data Sheet



TC-250-NM-RA-LP

N Male Right Angle Low PIM Connector Solder Attachment for SPO-250, SPF-250, SPP-250-LLPL from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

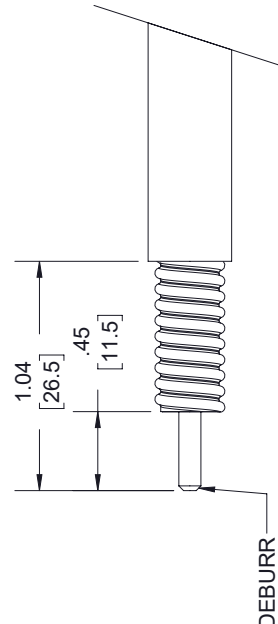
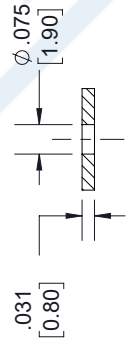
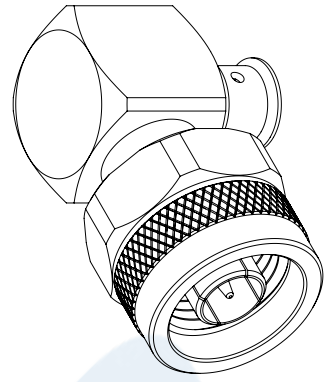
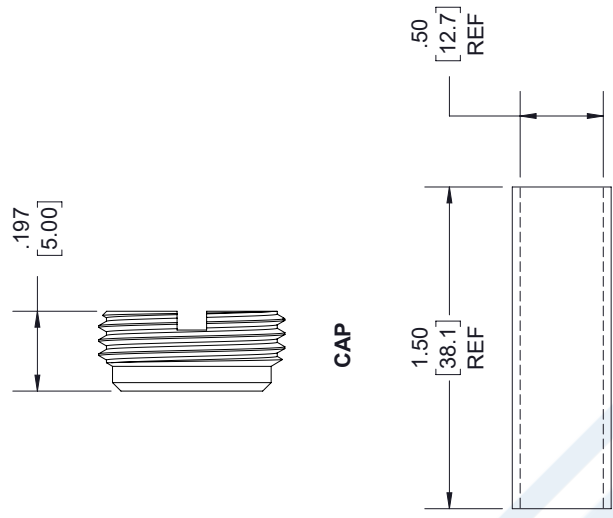
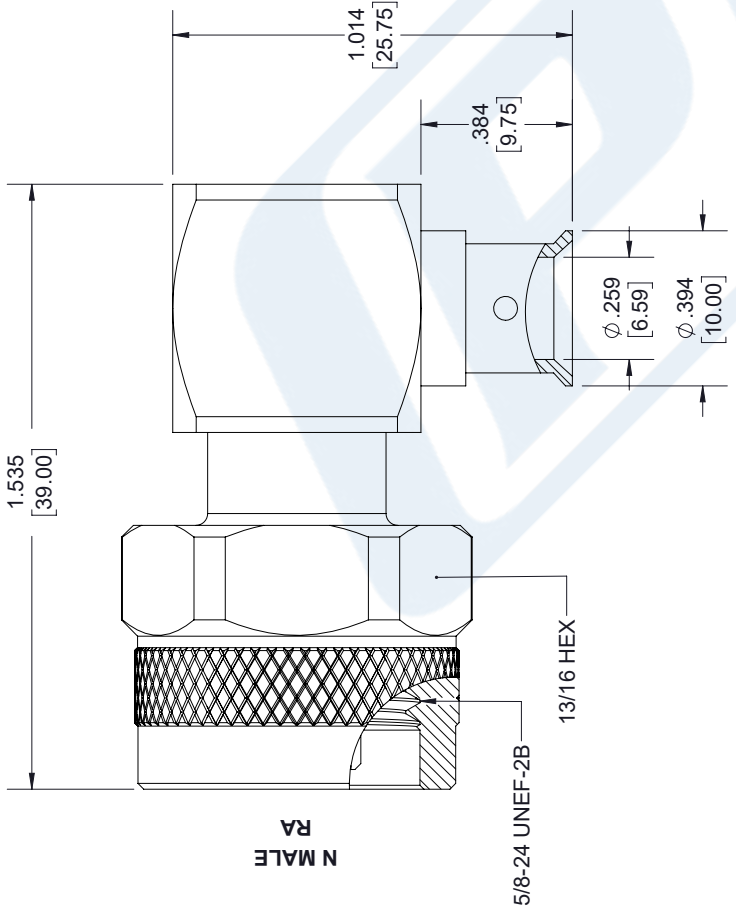
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [N Male Right Angle Low PIM Connector Solder Attachment for SPO-250, SPF-250, SPP-250-LLPL TC-250-NM-RA-LP](https://www.pasternack.com/n-male-spo-250-spf-250-connector-tc-250-nm-ra-lp-p.aspx)

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TIMES MICROWAVE SYSTEMS **TC-250-NM-RA-LP CAD Drawing**
 N Male Right Angle Low PIM Connector Solder Attachment
 for SPO-250, SPF-250, SPP-250-LLPL

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	03/04/19	S.SELLIS



- STRIPPING DIMENSIONS**
- NOTES:**
- CABLE ATTACHMENT:
 - OUTER: SOLDER.
 - INNER: SOLDER.

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS

TOLERANCES:

.X = ±.2 [5.08] FRACTIONS ± 1/32
 .XX = ±.02 [.51] ANGLES ± 1°
 .XXX = ±.005 [.13] CABLE LENGTH (L) TOLERANCES:
 L ≤ 12 [305] = +1 [25] / -0
 12 [305] < L ≤ 60 [1524] = +2 [51] / -0
 60 [1524] < L ≤ 120 [3048] = +4 [102] / -0
 120 [3048] < L ≤ 300 [7620] = +6 [152] / -0
 300 [7620] < L = +5% / -0

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

THIRD-ANGLE PROJECTION

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SHEET 1 OF 1
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ITEM NO. TC-250-NM-RA-LP
 DRAWN BY K.DANG
 SIZE A
 CAGE CODE 53919
 REV A



Low Loss SPF-250 Rated Corrugated Coax Cable with Black FRPE Jacket Superflexible Fire Rated

RF Cables Technical Data Sheet

Times Microwave Systems Coax Cable Specification

Configuration

- Low Loss Corrugated Cable
- 1 Shield(s)

Features

- PIM < -160 dBc
- UL Listed, Type CMR Riser Rated Cable
- Lightweight and Extremely Flexible
- Low Loss Dielectric 83% VoP
- Shielding > 100 dB
- Fire Rated Low Smoke Polyolefin Jacket

Applications

- Distributed Antenna Systems (DAS)
- UL Listed, Type CMR Riser
- Applications
 - Low Smoke Requirements
 - Small Cell
- Outdoor Applications
- Antenna Jumpers

Description

SPF-250 low loss, low PIM Fire Retardant coax cable by Times Microwave is part of our full line of RF components available for same-day shipping. The SPF-250 coaxial cable features a low loss dielectric with an 83% velocity of propagation (VoP), solid copper center conductor and a helically corrugated, copper outer conductor. This cable is UL listed, type CMR (riser) rated coax. These features combine to make the Times Microwave SPF-250 a super flexible, low PIM coax cable that is well suited for use as an antenna jumper cable, Distributed Antenna Systems (DAS), small cell, and other applications where Fire Rated material is required. The durable UV and sunlight resistant black flame retardant, non-halogen, polyethylene jacket makes this cable appropriate for a wide range of indoor or outdoor applications.

Our datasheet specifications and drawing with dimensions for Times Microwave SPF-250 coax cable are shown below in this PDF. Whether the need is to provide a low PIM jumper connection, low PIM feeder cable or simply create a custom cable assembly configuration, Pasternack has the right SPF-250 low PIM cable assembly for the job. See our web site to find the right connector cable combination for your application.

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		5.8	GHz
Impedance		50		Ohms
Velocity of Propagation		83		%
Passive Intermodulation			-160	dBc
Nominal Capacitance		24 [78.74]		pF/ft [pF/m]
Nominal Inductance		0.054 [0.18]		uH/ft [uH/m]

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Low Loss SPF-250 Rated Corrugated Coax Cable with Black FRPE Jacket Superflexible Fire Rated SPF-250](#)



Low Loss SPF-250 Rated Corrugated Coax Cable with Black FRPE Jacket Superflexible Fire Rated

RF Cables Technical Data Sheet

Performance by Frequency Band

Description	F1	F2	F3	F4	F5	Units
Frequency	0.45	1.5	2	2.5	5.8	GHz
Attenuation, Typ	4.1	7.8	9.13	10.33	16.65	dB/100ft
	13.45	25.59	29.95	33.89	54.63	dB/100m
Input Power (CW), Max	1,110	580	500	440	280	Watts

Mechanical Specifications

Diameter	0.303 in [7.7 mm]
Weight	0.057 lbs/ft [0.08 Kg/m]
Min. Bend Radius (Installation)	1.25 in [31.75 mm]
Bending Moment	0.5 lbs-ft [0.68 N-m]

Construction Specifications

Description	Material and Plating	Diameter
Inner Conductor	Copper Clad Aluminum1	0.075 in 1.91 mm
Conductor Type	Solid	
Dielectric	Foam PE	0.177 in 4.5 mm
Outer Conductor	Copper Corrugated	0.252 in 6.4 mm
Jacket	FRPE, Black	0.303 in [7.7 mm]

Environmental Specifications

Temperature	
Operating Range	-40 to +85 deg C

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Low Loss SPF-250 Rated Corrugated Coax Cable with Black FRPE Jacket Superflexible Fire Rated SPF-250](#)



Low Loss SPF-250 Rated Corrugated Coax Cable with Black FRPE Jacket Superflexible Fire Rated

RF Cables Technical Data Sheet

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

Low Loss SPF-250 Rated Corrugated Coax Cable with Black FRPE Jacket Superflexible Fire Rated from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

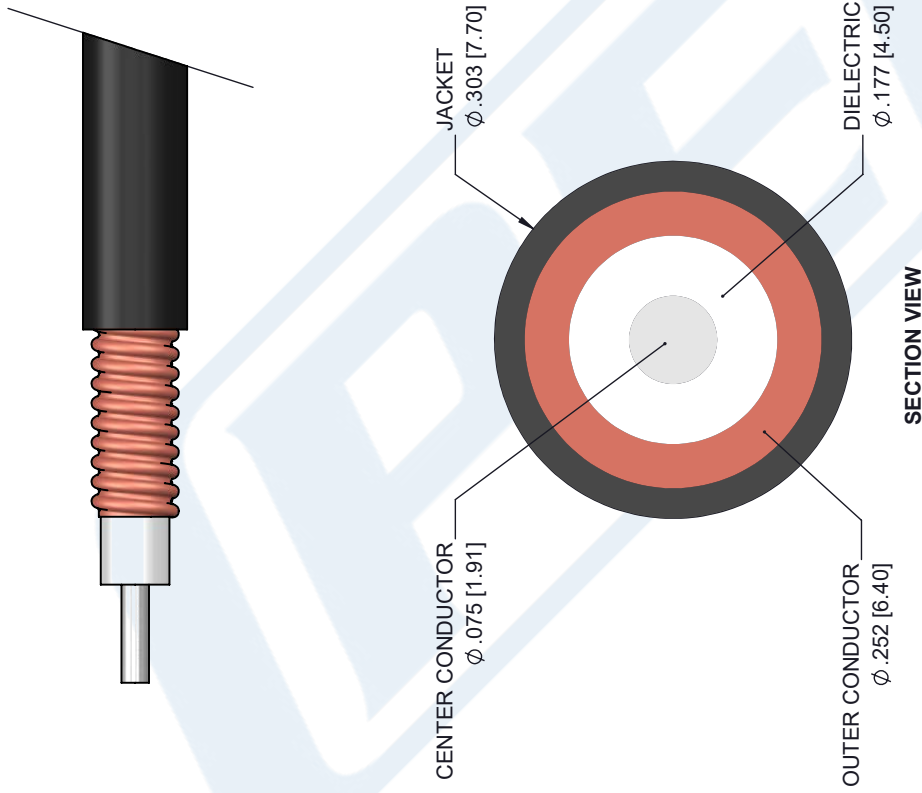
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Low Loss SPF-250 Rated Corrugated Coax Cable with Black FRPE Jacket Superflexible Fire Rated SPF-250](#)

URL: <https://www.pasternack.com/low-loss-corrugated-spf250-frpe-jacket-spf-250-p.aspx>

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TIMES MICROWAVE SYSTEMS **SPF-250 CAD Drawing**
 Low Loss SPF-250 Rated Corrugated Coax Cable with
 Black FRPE Jacket Superflexible Fire Rated

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	03/04/19	S. ELLIS



UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS	
TOLERANCES:	
X±.2 [5.08]	FRACTIONS +1/32
XX±.01 [.25]	
XXX±.005 [0.13]	ANGLES ± 1°
ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.	
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SIZE A	CAGE 53919	DRAWN BY K.DANG	PART NUMBER SPF-250
			REV A

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