



High Power

INTERCONNECT PRODUCTS

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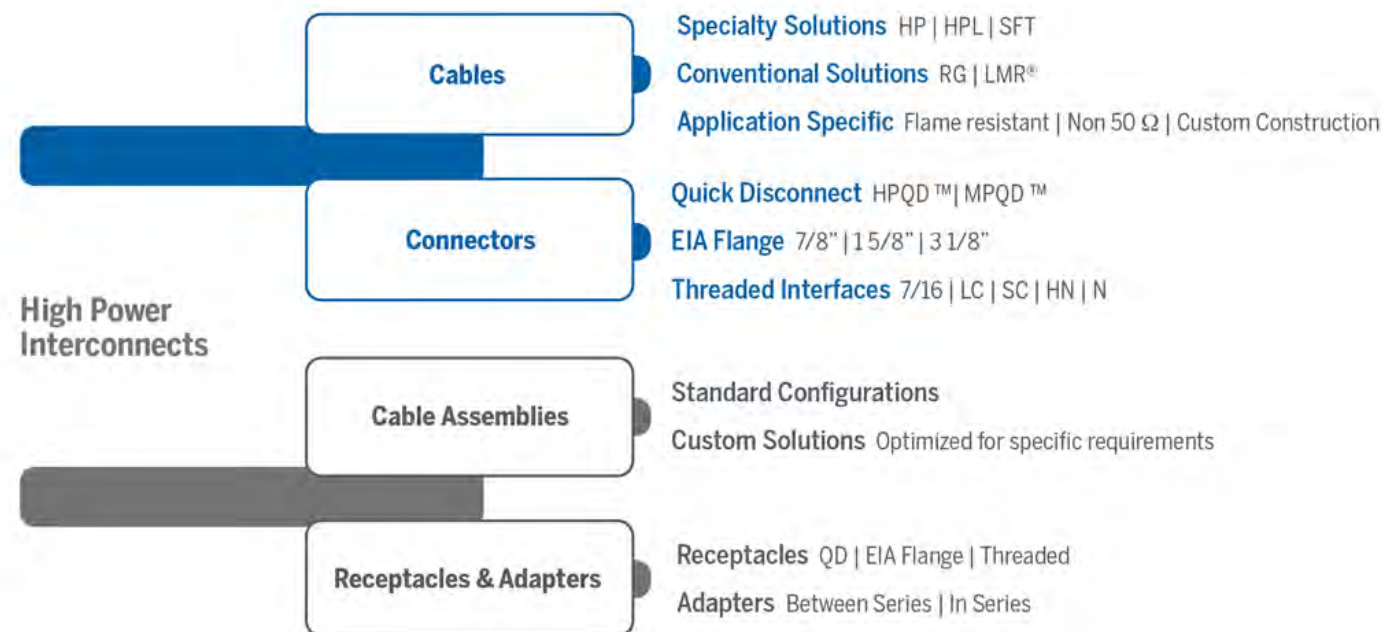
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At **Times Microwave Systems**, we understand the issues high-power RF interconnect solutions must address. We offer a broad portfolio of specialty cables with different loss characteristics and flexibility at a given size and more efficient options to help mitigate these issues. Customized design is crucial, so the

specific cables, connectors, and cable assemblies can be matched for optimal performance in any application and custom fit its needs. Customers can take advantage of our full suite of high-power interconnects – with cable assemblies, connectors, and adapters available to complete your high-power setup.

- ✓ In bulk
- ✓ Assembly
- ✓ Flexible variants



Specialty High Power Cables

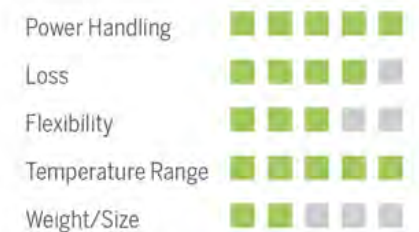
StripFlex®

- The all rounder combining versatility and balanced performance
- High shielding effectiveness; Low loss
- Wide operating frequency range
- High power range from 393 to 900 in size
- Low loss robust construction
- Ideal for applications with wide operating temperature range
- Available with a broad range of compatible connectors



HP Series

- Specialized solutions to meet very high power handling needs
- Ruggedized low loss construction
- Wide operating temperature range
- Range from 393 to 1200 in size
- Low loss construction
- Abrasion resistant Nomex® jacket on HP 218, 900, and 1200
- Available with a broad range of compatible connectors



HPL Series

- More flexible vs. HP series, more cost effective than HP and SFT
- Cost-effective upgrade over conventional RG cables
- Versatile solution for dynamic operating environment
- Range from 393 to 1200 in size
- Higher flexibility with TPV jacket



Standard Cables

RG Series

- Larger RG cables are proven solutions for high energy applications
- ≥ 2 shielding layers for high power or voltage handling
- Variants with PTFE dielectric (e.g. RG-393-NPP-SN) offer improved power handling

Specialty Connectors

HPQD™ and MPQD™ Series

HPQD™ and MPQD™ are connector series from Times Microwave Systems optimized for high power applications

- Quick disconnect interfaces with very high power handling capability
- Excellent RF performance up to 1 GHz
- Intermate able with two common quick disconnect interfaces (SQS and QRM)
- Broad range of availability:
 - Cable assemblies
 - Standalone cable connectors
 - Receptacles
 - Adapters
- Compatible with our specialty high power cables



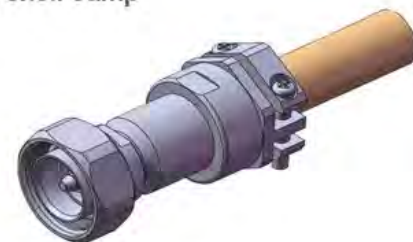
Advantages:

- ✓ **Time Saver** Fast connect / disconnect; tool free installation
- ✓ **Minimize errors** No torque wrench; positive locking mechanism
- ✓ **Clean room friendly** Tool free and threadless interface minimizes debris

High Power Optimization

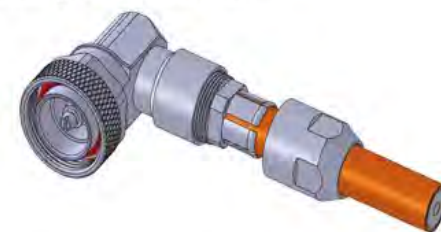
Special features into high power connectors to enhance cable retention and anti torque

Clam Shell Camp



- A traditional approach
- Improve cable retention and anti torque
- Some high frequency performance tradeoffs

Slot Clamp with Lock Nut



- Further enhanced cable retention and anti torque
- More compact and streamlined
- Minimal high frequency performance impact

Cable Assemblies

Cable power handling can be affected by several factors. We approach high power cable assembly requirements with focus on these critical areas:

- RF performance attenuation, VSWR, frequency
- Operating environment altitude, temperature range
- Thermal performance surface temperature
- Connector selection
- Cable material and construction

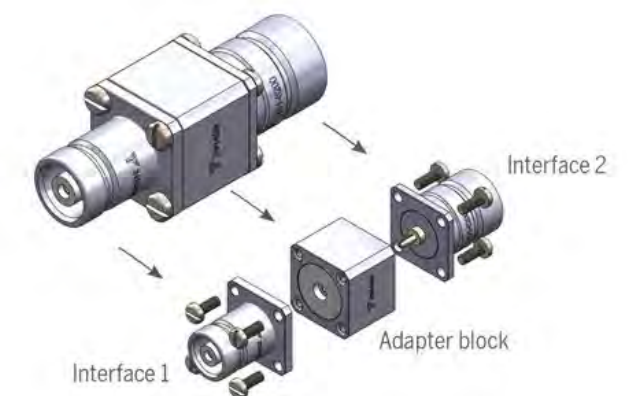


Extensive Process Capabilities

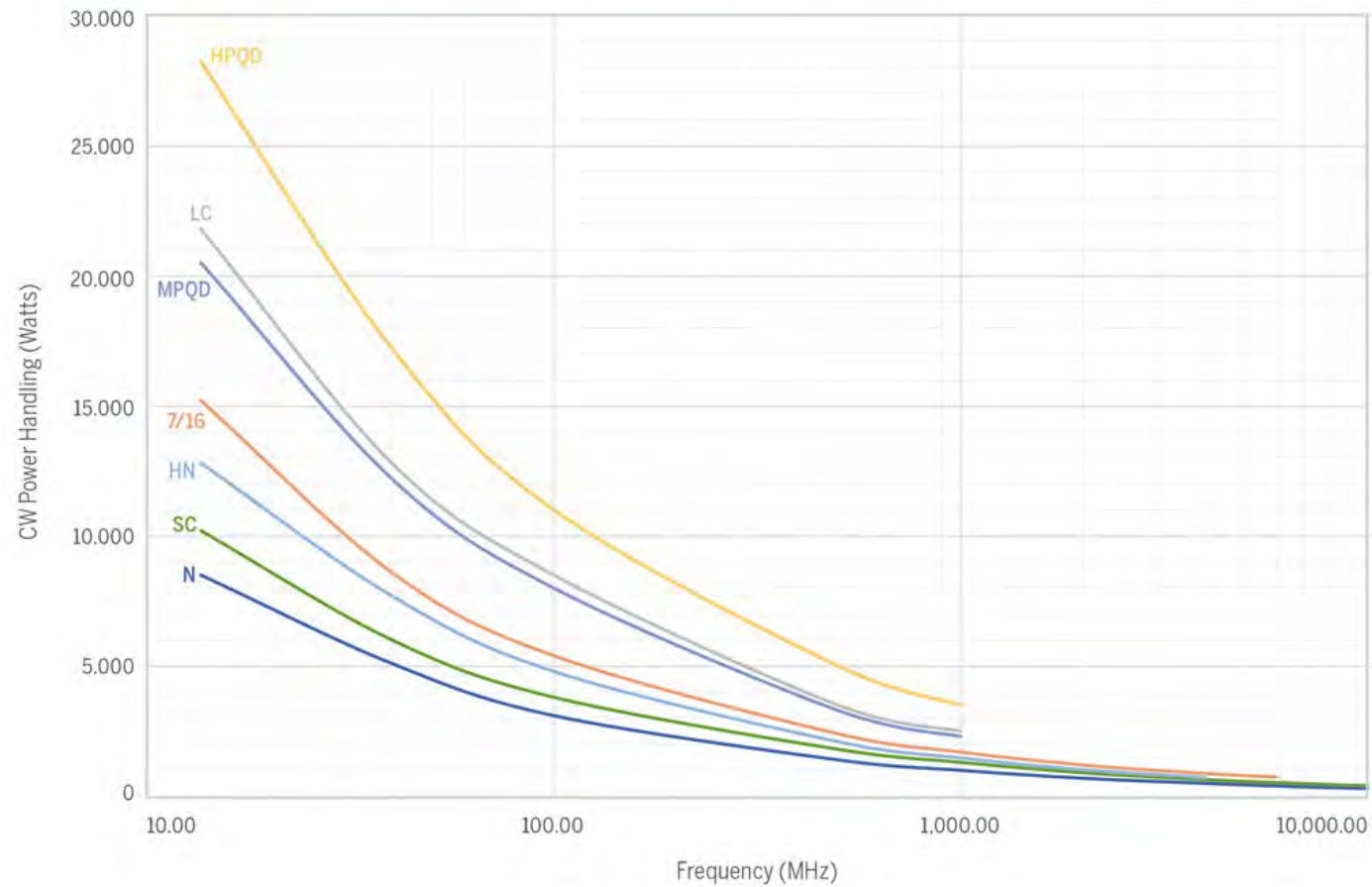


Insta-Change™ Configurable Adapters

- A three-part configurable adapter
- Rapid interface changes without affecting consistency
- Ideal for lab test and production monitoring equipment
- DC – 2.5 GHz; Optimized for high power up to 1 GHz
- Up to 11 kW of power handling
- Support common quick-disconnect and threaded high power interfaces



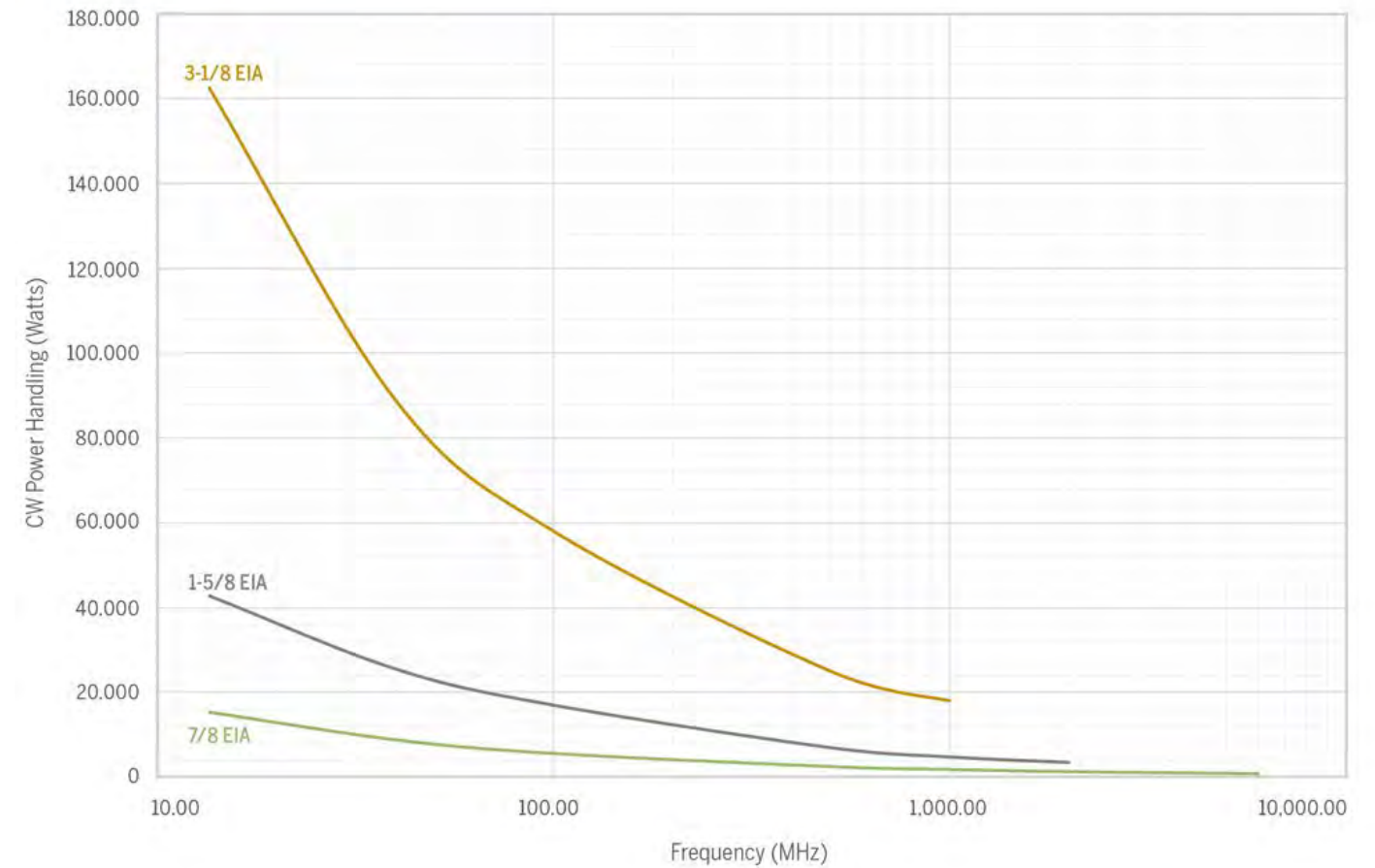
Threaded and Quick-Disconnect Connectors



Frequency (MHz)	N	SC	HN	7/16	LC	HPQD	MPQD
13.56	8,500	10,200	12,800	15,200	21,800	28,200	20,500
40	5,100	6,000	7,700	8,600	12,800	17,200	12,200
100	3,100	3,800	4,800	5,400	8,500	11,000	8,000
500	1,400	1,800	2,100	2,400	3,500	5,000	3,300
1,000	1,000	1,300	1,475	1,700	2,500	3,500	2,300
2,000	695	900	1,025	1,200	-	-	-
4,000	500	635	730	875	-	-	-
6,000	395	520	-	740	-	-	-
8,000	340	450	-	-	-	-	-
10,000	305	400	-	-	-	-	-

1. Typical power handling for connector interface based on continuous wave (CW) input, 40°C temperature, 1:1 VSWR, and sea level.
2. These figures are for reference only. Operating conditions and environmental factors should be taken into consideration with power derating applied accordingly.

EIA Flange Connectors



Frequency (MHz)	7/8 EIA	1-5/8 EIA	3-1/8 EIA
13.56	15,300	42,700	162,300
40	8,800	25,500	88,800
100	5,600	17,000	58,000
500	2,500	7,000	25,000
1,000	1,800	4,800	18,000
2,000	1,300	3,500	-
4,000	1,000	-	-
6,000	840	-	-
8,000	-	-	-
10,000	-	-	-

1. Typical power handling for connector interface based on continuous wave (CW) input, 40°C temperature, 1:1 VSWR, and sea level.
2. These figures are for reference only. Operating conditions and environmental factors should be taken into consideration with power derating applied accordingly.

SFT-393 bridges across two critical areas - supporting high power handling into microwave frequency range. Its durable construction makes it an ideal choice for a wide range of applications in harsh environment.



Specifications

Impedance
50 Ohms

Op Temp
-67 to +392°F
-55 to +200°C

	Units	
Maximum Frequency	GHz	12
Velocity of Propagation	%	76
Dielectric Constant	NA	1.73
Time Delay	nS/f (nS/m)	1.34 (4.39)
Capacitance	pF/ft (pF/m)	26.5 (86.9)
Shielding Effectiveness	dB	-90
Diameter	in (mm)	0.390 (9.91)

Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
f = Frequency (MHz) Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.001359	0.004459
K2	0.000002	0.000007

Cable Construction



Ordering Guide

XXXXXX -XXX XXX- XX.X X
 Cable Code Connector A Connector B Length Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
SFT-393	27.5	5.0	2.00 (50.8)	0.15 (0.22)	AA-8653	SFT393

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
7/16-DIN	Female	Straight	TC-393-716F-BH-CL	3190-6075	716FBH
	Male	Right Angle	TC-214P-716M-RA-CC	3190-6710	716MR
		Straight	TC-214P-716M-CC	3190-6709	716M
C	Male	Right Angle	TC-214P-CM-RA-CC	3190-6771	CMR
		Straight	TC-214P-CM-CC	3190-6770	CM
HN	Male	Right Angle	TC-214P-HNM-RA-CC	3190-6680	HNMR
		Straight	TC-214P-HNM-CC	3190-6679	HNM
HPQD	Male	Straight	TC-214P-HQM-CC	3190-6910	HQM
LC	Male	Right Angle	TC-393-LCM-RA-CL	3190-2561	LCMR
		Straight	TC-393-LCM-CL	3190-2565	LCM
MPQD	Male	Right Angle	TC-393-MQM-RA-CC	3190-6576	MQMR
		Straight	TC-393-MQM-RP-RA-CC	3190-6638	MQMRPR
			TC-393-MQM-CC	3190-6575	MQM
N	Male	Right Angle	TC-393-NM-RA-CL	3190-2754	NMR
		Straight	TC-393-NM-CL	3190-2745	NM
SC	Male	Right Angle	TC-214P-SCM-RA-CC	3190-6870	SCMR
		Straight	TC-214P-SCM-CC	3190-6869	SCM

* Highlighted connectors are recommended and default for new designs.
 ** Connectors with -RP in part number are reverse-polarity.

SFT-500 is a high power cable supporting low-loss operation up to 6 GHz. Its stranded center conductor enables a small bend radius and higher flexibility.



Specifications

Ω Impedance
50 Ohms

Op Temp
-67 to +392°F
-55 to +200°C

	Units	
Maximum Frequency	GHz	6
Velocity of Propagation	%	76
Dielectric Constant	NA	1.73
Time Delay	nS/f (nS/m)	1.34 (4.39)
Capacitance	pF/ft (pF/m)	26.5 (86.9)
Shielding Effectiveness	dB	-90
Diameter	in (mm)	0.490 (12.45)

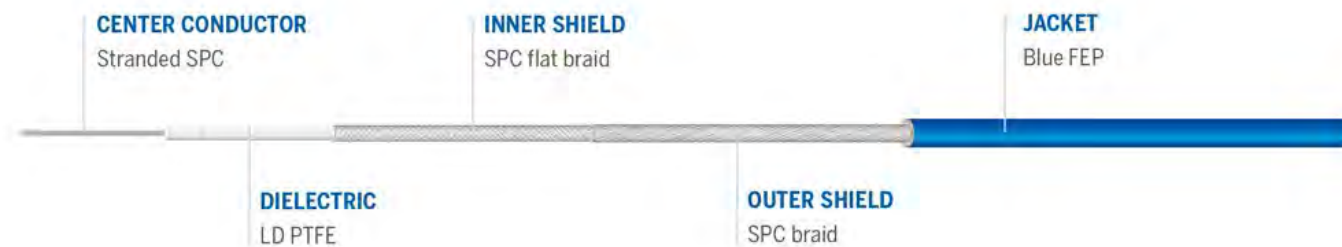
Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
f = Frequency (MHz) Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.001174	0.003852
K2	0.000002	0.000007

Cable Construction



Ordering Guide

XXXXXX **-XXX** **XXX-** **XX.X** **X**
 Cable Code Connector A Connector B Length Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
SFT-500	31.8	7.0	1.50 (38.1)	0.23 (0.34)	AA-11168	SFT500

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
7/16-DIN	Male	Right Angle	TC-500T-716M-RA-CC	3190-6788	716MR
		Straight	TC-500T-716M-CC	3190-6787	716M
HN	Male	Right Angle	TC-500T-HNMC-RA	3190-2731	HNMR
		Straight	TC-500T-HNMC	3190-2732	HNM
HPQD	Male	Right Angle	TC-500T-HQM-RA-CC	3190-6631	HQMR
		Straight	TC-500T-HQM-RP-RA-CC	3190-6632	HQMRPR
MPQD	Male	Right Angle	TC-500T-MQM-RA-CC	3190-6634	MQMR
		Straight	TC-500T-MQM-CC	3190-6635	MQM

** Connectors with -RP in part number are reverse-polarity.

SFT-600 series is the workhorse in our high power product family. It offers the broadest selection of cables and connectors. Options are available to address extreme power handling, high flexibility, or combination of these requirements.



Specifications

Impedance 50 Ohms
Op Temp -67 to +392°F
-55 to +200°C

	Units		
Maximum Frequency	GHz	6	
Velocity of Propagation	%	76	
Dielectric Constant	NA	1.73	
Time Delay	nS/f (nS/m)	4.39 (14.4)	
Capacitance	pF/ft (pF/m)	26.5 (86.9)	
Shielding Effectiveness	dB	-90	
Diameter	600	in (mm)	0.565 (14.35)
	600-BCCAL	in (mm)	0.560 (14.22)
	600-RSC-PUR	in (mm)	0.560 (14.22)

Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
f = Frequency (MHz) Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.000999	0.003852
K2	0.000002	0.000007

Cable Construction

CENTER CONDUCTOR

600 - Stranded SPC
600-BCCAL - Copper clad aluminum
600-RSC-PUR - Rope stranded SPC

INNER SHIELD

SPC flat braid

OUTER SHIELD

600 - TPC braid
600-BCCAL - SPC braid
600-RSC-PUR - SPC braid

DIELECTRIC
LD PTFE

INTERLAYER
600 - Metalized polyimide
600-BCCAL - Metalized polyester
600-RSC-PUR - Metalized polyester

JACKET
600 - FEP Blue
600-BCCAL - FEP (Brown)
600-RSC-PUR - FR polyurethane (Black)

Ordering Guide

XXXXXX -XXX XXX- XX.X X
Cable Code Connector A Connector B Length Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
SFT-600	37.5	8.0	2.75 (69.9)	0.30 (0.45)	AA-9649	SFT600
SFT-600-BCCAL	43.3	7.5	2.50 (63.5)	0.24 (0.36)	AA-8980	SFT600BCCAL
SFT-600-RSC-PUR	19.2	7.5	1.50 (38.1)	0.30 (0.45)	AA-11222	SFT600RSCPUR

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
13/30-DIN	Male	Straight	TC-600T-1330M-CL	3190-6333	1330M
1-5/8" EIA	Female	Right Angle	TC-600T-158EIA-RA-CL	3190-6559	158EIAR
		Straight	EZ-600T-158EIA-CL	3190-2485	158EIA
7/16-DIN	Male	Right Angle	TC-600T-716M-RA-CC	3190-6622	716MR
		Straight	TC-600T-716M-CC	3190-6623	716M
7/8" EIA	Female	Right Angle	TC-600T-78EIA-RA-CL	3190-6013	78EIAR
		Straight	TC-600T-78EIA-CL	3190-3010	78EIA
HN	Male	Right Angle	TC-600T-HNM-RA-CC	3190-6726	HNMR
		Straight	TC-600T-HNM-RA-CL	3190-2560	HNM
HPQD	Female	Straight	TC-600T-HNM-CC	3190-6725	HNMC-CL
		Straight	TC-600T-HNM-CC	3190-2564	HNMC-CL
HPQD	Male	Right Angle	TC-600T-HQF-CC	3190-6669	HQF
		Straight	TC-600T-HQM-RA-CC	3190-6419	HQMR
LC	Male	Right Angle	TC-600T-HQM-CC	3190-6420	HQM
		Straight	TC-600T-LCM-RA-CC	3190-6729	LCMR
MPQD	Female	Straight	TC-600T-LCM-RA-CL	3190-2562	LCM
		Straight	TC-600T-LCM-CC	3190-6728	LCM
MPQD	Male	Straight	TC-600T-LCM-CL	3190-2566	LCM
		Straight	TC-600T-MQF-CC	3190-6670	MQF
MPQD	Male	Right Angle	TC-600T-MQF-CC	3190-6670	MQF
		Straight	TC-600T-MQM-RA-CC	3190-6636	MQMR
N	Male	Straight	TC-600T-MQM-CC	3190-6637	MQM
		Straight	TC-600T-NM-RA-CC	3190-7096	NMR
SC	Male	Straight	TC-600T-NM-CC	3190-7095	NM
		Straight	TC-600T-SCM-RA-CC	3190-6850	SCMR
SC	Male	Straight	TC-600T-SCM-CC	3190-6794	SCM
		Straight	TC-600T-SCM-CC	3190-6794	SCM

* Highlighted connectors are recommended and default for new designs.

SFT-750 series is the latest addition to our specialty high power product family. Incorporating decades of experience and latest techniques, SFT-750 provides unparalleled performance and reliability to meet the most stringent requirements.



Specifications

Ω Impedance
50 Ohms

Op Temp
-67 to +392°F
-55 to +200°C

	Units	
Maximum Frequency	GHz	6
Velocity of Propagation	%	76
Dielectric Constant	NA	1.73
Time Delay	nS/f (nS/m)	1.34 (4.39)
Capacitance	pF/ft (pF/m)	26.5 (86.9)
Shielding Effectiveness	dB	-90
Diameter	in (mm)	0.745 (18.92)

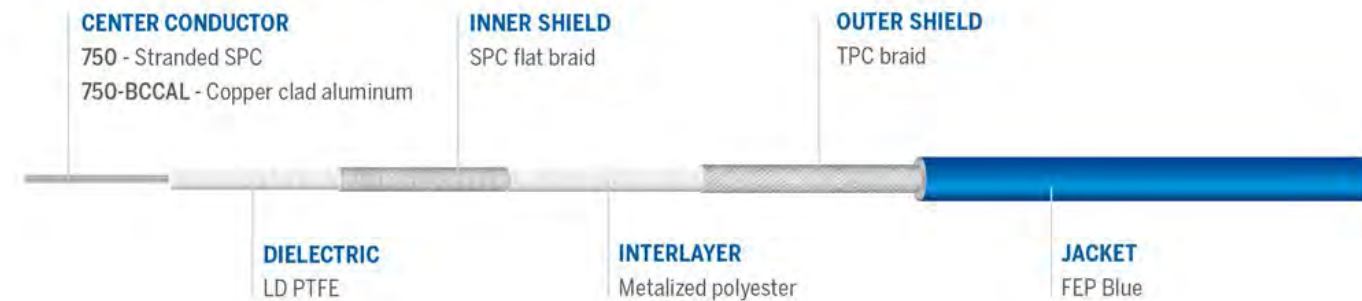
Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
f = Frequency (MHz) Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.000893	0.00293
K2	0.000008	0.000026

Cable Construction



Ordering Guide

XXXXXX - XXX XXX - XX.X X
 Cable Code Connector A Connector B Length Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
SFT-750	84.5	9.0	3.25 (82.6)	0.31 (0.46)	AA-12158	SFT750
SFT-750-BCCAL	81.6	9.0	3.75 (95.3)	0.29 (0.43)	AA-12157	SFT750BCCAL

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
1-5/8" EIA	Female	Right Angle	TC-750T-158EIA-RA-CC	3190-7193	158EIA
		Straight	TC-750T-158EIA-CC	3190-7192	
HPQD	Male	Right Angle	TC-750T-HQM-RA-CC	3190-7190	HQMR
		Straight	TC-750T-HQM-CC	3190-7189	HQM

SFT-900 is the ideal interconnect solution for newer power systems that demands the highest level of performance and reliability.



Specifications

Impedance 50 Ohms
 Op Temp -67 to +392°F -55 to +200°C

	Units	
Maximum Frequency	GHz	6
Velocity of Propagation	%	76
Dielectric Constant	NA	1.73
Time Delay	nS/f (nS/m)	1.34 (4.39)
Capacitance	pF/ft (pF/m)	26.7 (87.6)
Shielding Effectiveness	dB	-90
Diameter	in (mm)	0.490 (12.45)

Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
 $f = \text{Frequency (MHz)}$
 Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.000561	0.001841
K2	0.000002	0.000007

Cable Construction



Ordering Guide

XXXXXX - **XXX** - **XXX** - **XX.X** **X**
 Cable Code Connector A Connector B Length Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
SFT-900	95.0	9.5	4.25 (108)	0.54 (0.8)	AA-9649	SFT900

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
1-5/8" EIA	Female	Right Angle	EZ-900-158EIA-RA-2-SP	3190-6469	158EIAR
		Straight	EZ-900-158EIA-2	3190-6425	158EIA
7/16-DIN	Female	Straight	EZ-900-716FC-2-SP	3190-6512	716F
	Male	Right Angle	EZ-900-716MC-RA-2-SP	3190-6423	716MR
		Straight	EZ-900-716MC-2-SP	3190-6452	716M
7/8" EIA	Female	Right Angle	EZ-900-78EIA-RA-2-SP	3190-6442	78EIAR
		Straight	EZ-900-78EIA-2-SP	3190-6441	78EIA
LC	Male	Right Angle	EZ-900-LCMC-RA-PL-2	3190-6921	LCMR
		Straight	EZ-900-LCMC-PL-2	3190-6940	LCM
N	Female	Straight	EZ-900-NFC-2-SP	3190-6444	NF
	Male		EZ-900-NMC-2-SP	3190-6443	NM

HP-218 combines low loss and high power handling with a ruggedized construction. Its wide operating temperature range makes it an excellent interconnect solution in a variety of applications.



Specifications

Impedance
50 Ohms

Op Temp
-67 to +392°F
-55 to +200°C

	Units	
Maximum Frequency	GHz	3
Velocity of Propagation	%	77
Dielectric Constant	NA	1.73
Time Delay	nS/f (nS/m)	1.32 (4.33)
Capacitance	pF/ft (pF/m)	26.7 (87.6)
Shielding Effectiveness	dB	-90
Diameter	in (mm)	0.785 (19.94)

Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
f = Frequency (MHz) Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.000914	0.002999
K2	0.000002	0.000007

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
1-5/8" EIA	Female	Right Angle	TC-218-158EIA-RA-CL	3190-6415	158EIAR
		Straight	TC-218-158EIA-CL	3190-2473	158EIA
3-1/8" EIA	Female	Straight	TC-218-318EIA-SP	3190-6767	318EIA
7/16-DIN	Male	Right Angle	TC-218-716M-RA-HC	3190-7005	716MR
LC	Male	Straight	TC-218-LCM-CL	3190-2482	LCM

Cable Construction



Ordering Guide

XXXXXX
Cable Code

-XXX
Connector A

XXX-
Connector B

XX.X
Length

X
Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
HP-218	44.0	9.5	8.00 (203.2)	0.38 (0.57)	AA-9290	HP218

HP-600 series is widely adopted as the excellent all-around solution for high power interconnects. The RSC-PUR variant also offers flame-resistant capability.



Specifications

Impedance 50 Ohms
Op Temp -67 to +392°F
-55 to +200°C

	Units	
Maximum Frequency	GHz	3
Velocity of Propagation	%	71
Dielectric Constant	NA	1.98
Time Delay	nS/f (nS/m)	1.43 (4.7)
Capacitance	pF/ft (pF/m)	28.6 (93.8)
Shielding Effectiveness	dB	-90
Diameter	HP-600	0.590 (14.99)
	HP-600-RSC	0.555 (14.10)
	HP-600-RSC-PUR	0.560 (14.22)

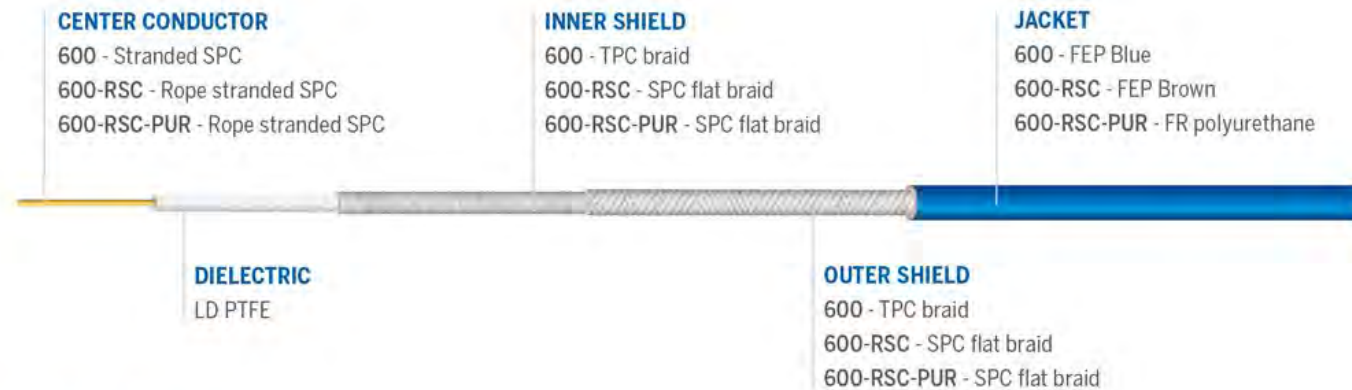
Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
f = Frequency (MHz) Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.00131	0.004298
K2	0.000002	0.000007

Cable Construction



Ordering Guide

XXXXXX -XXX XXX- XX.X X
Cable Code Connector A Connector B Length Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
HP-600	32.0	9.5	2.75 (69.9)	0.33 (0.49)	AA-11441	HP600A
HP-600-RSC	34.6	8.0	2.50 (63.5)	0.26 (0.39)	AA-9193	HP600RSC
HP-600-RSC-PUR	15.6	8.0	2.50 (63.5)	0.29 (0.43)	AA-11223	HP600RSCPUR

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
13/30-DIN	Male	Straight	TC-600T-1330M-CL	3190-6333	1330M
1-5/8" EIA	Female	Right Angle	TC-600T-158EIA-RA-CL	3190-6559	158EIA-R
		Straight	EZ-600T-158EIA-CL	3190-2485	158EIA
7/16-DIN	Male	Right Angle	TC-600T-716M-RA-CC	3190-6622	716MR
		Straight	TC-600T-716M-CC	3190-6623	716M
7/8" EIA	Female	Right Angle	TC-600T-78EIA-RA-CL	3190-6013	78EIA-R
		Straight	TC-600T-78EIA-CL	3190-3010	78EIA
HN	Male	Right Angle	TC-600T-HNM-RA-CC TC-600T-HNM-RA-CL	3190-6726 3190-2560	HNMR
		Straight	TC-600T-HNM-CC TC-600T-HNMC-CL	3190-6725 3190-2564	HNM
HPQD	Female	Straight	TC-600T-HQF-CC	3190-6669	HQF
	Male	Right Angle	TC-600T-HQM-RA-CC	3190-6419	HQMR
		Straight	TC-600T-HQM-CC	3190-6420	HQM
LC	Male	Right Angle	TC-600T-LCM-RA-CC TC-600T-LCM-RA-CL	3190-6729 3190-2562	LCMR
		Straight	TC-600T-LCM-CC	3190-6728	LCM
MPQD	Female	Straight	TC-600T-MQF-CC	3190-2566	LCM
	Male	Right Angle	TC-600T-MQM-RA-CC	3190-6670	MQF
		Straight	TC-600T-MQM-CC	3190-6636	MQMR
N	Male	Right Angle	TC-600T-NM-RA-CL TC-600T-NM-RA-CC	3190-2757 3190-7096	NMR
		Straight	TC-600T-NM-CL TC-600T-NM-CC	3190-2583 3190-7095	NM
SC	Male	Right Angle	TC-600T-SCM-RA-CC	3190-6850	SCMR
		Straight	TC-600T-SCM-CC	3190-6794	SCM

* Highlighted connectors are recommended and default for new designs.

HP-900 is a more flexible and lighter alternative to SFT-900. With a vapor-sealing layer and abrasion-resistant Nomex® jacket, it is ideal for very high power applications in rugged conditions.



Specifications

Impedance 50 Ohms
 Op Temp -67 to +392°F -55 to +200°C

	Units	
Maximum Frequency	GHz	3
Velocity of Propagation	%	76
Dielectric Constant	NA	1.73
Time Delay	nS/f (nS/m)	1.34 (4.39)
Capacitance	pF/ft (pF/m)	26.7 (87.6)
Shielding Effectiveness	dB	-90
Diameter	in (mm)	0.775 (19.69)

Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
 $f = \text{Frequency (MHz)}$ Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.000572	0.001877
K2	0.000002	0.000007

Cable Construction



Ordering Guide

XXXXXX Cable Code
 -XXX Connector A
 XXX- Connector B
 XX.X Length
 X Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
HP-900	54.0	9.5	4.00 (101.6)	0.48 (0.71)	AA-11229	HP900

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
1-5/8" EIA	Female	Right Angle	EZ-900-158EIA-RA-2-SP	3190-6469	158EIAR
		Straight	EZ-900-158EIA-2	3190-6425	158EIA
7/16-DIN	Female	Straight	EZ-900-716FC-2-SP	3190-6512	716F
		Right Angle	EZ-900-716MC-RA-2-SP	3190-6423	716MR
	Male	Straight	EZ-900-716MC-2-SP	3190-6452	716M
		Right Angle	EZ-900-78EIA-RA-2-SP	3190-6442	78EIAR
7/8" EIA	Female	Straight	EZ-900-78EIA-2-SP	3190-6441	78EIA
		Right Angle	EZ-900-LCMC-RA-PL-2	3190-6921	LCMR
LC	Male	Straight	EZ-900-LCMC-PL-2	3190-6940	LCM
		Female	EZ-900-NFC-2-SP	3190-6444	NF
N	Male	Straight	EZ-900-NMC-2-SP	3190-6443	NM

HP-1200 series offers industry-leading power handling capability. With a vapor-sealing layer and abrasion-resistant jacket, it is ideal for extremely high power applications in rugged conditions.



Specifications



	Units	
Maximum Frequency	GHz	3
Velocity of Propagation	%	76
Dielectric Constant	NA	1.73
Time Delay	nS/f (nS/m)	1.34 (4.39)
Capacitance	pF/ft (pF/m)	26.7 (87.6)
Shielding Effectiveness	dB	-90
Diameter	in (mm)	1.020 (25.91)

Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

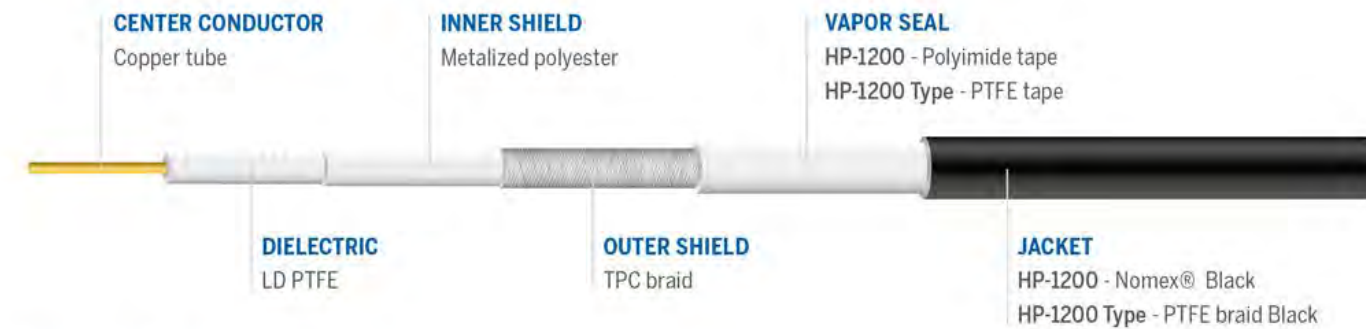
Cable Insertion Loss
f = Frequency (MHz) Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.000419	0.001375
K2	0.000002	0.000007

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
1-5/8" EIA	Female	Straight	EZ-1200-158EIA	3190-2724	158EIA
			TC-HPL1200-158EIAC		
	Threaded 1 5/8" EIA Female	3190-6069	158EIAF		
3-1/8" EIA	Male	Straight	Threaded 1 5/8" EIA Male	3190-6070	158EIAM
	Female	Straight	TC-1200-318EIA-SP	3190-6570	318EIA
LC	Male	Right Angle	TC-HPL1200-LCM-RA-HC	3190-6872	LCMR
		Straight	TC-HPL1200-LCM-HC	3190-6871	LCM

Cable Construction



Ordering Guide

XXXXXX Cable Code
 -XXX Connector A
 XXX- Connector B
 XX.X Length
 X Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
HP-1200	133.6	12.5	6.00 (152.4)	0.70 (1.04)	AA-11167	HP1200
HP-1200 Type	133.6	12.5	8.00 (203.2)	0.74 (1.1)	AA-11419	HP1200Type

HPL product family provides a balanced combination of power handling, flexibility, and cost effectiveness. HPL-218 is an excellent upgrade over the conventional RG-218.



Specifications

Impedance 50 Ohms
 Op Temp -67 to +257°F -55 to +125°C

	Units	
Maximum Frequency	GHz	3
Velocity of Propagation	%	76
Dielectric Constant	NA	1.73
Time Delay	nS/f (nS/m)	1.34 (4.39)
Capacitance	pF/ft (pF/m)	26.8 (87.9)
Shielding Effectiveness	dB	-60
Diameter	in (mm)	0.845 (21.46)

Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
 $f = \text{Frequency (MHz)}$ Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.000853	0.002799
K2	0.000002	0.000007

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
1-5/8" EIA	Female	Right Angle	TC-218-158EIA-RA-CL	3190-6415	158EIA-R
		Straight	TC-218-158EIA-CL	3190-2473	158EIA
3-1/8" EIA	Female	Right Angle	TC-218-318EIA-RA-SP	3190-6581	318EIA-R
		Straight	TC-218-318EIA-SP	3190-6767	318EIA
7/16-DIN	Male	Right Angle	TC-218-716M-RA-HC	3190-7005	716MR
		Straight	TC-HPL218-716M-CL	3190-6194	716M
7/8" EIA	Female	Straight	TC-218-78EIA-CL	3190-6118	78EIA

Cable Construction



Ordering Guide

XXXXXX - **XXX** **XXX-** **XX.X** **X**
 Cable Code Connector A Connector B Length Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
HPL-218	48.2	9.5	9.00 (228.6)	0.64 (0.95)	AA-11459	HPL218

HPL product family provides a balanced combination of power handling, flexibility, and cost effectiveness. HPL-226 is an excellent upgrade over the conventional RG-226.



Specifications

Impedance
50 Ohms

Op Temp
-67 to +257°F
-55 to +125°C

	Units	
Maximum Frequency	GHz	3
Velocity of Propagation	%	71
Dielectric Constant	NA	1.98
Time Delay	nS/f (nS/m)	1.43 (4.7)
Capacitance	pF/ft (pF/m)	28.8 (94.5)
Shielding Effectiveness	dB	-60
Diameter	in (mm)	0.515 (13.08)

Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
f = Frequency (MHz) Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.001577	0.005174
K2	0.000008	0.000026

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
7/16-DIN	Male	Right Angle	TC-226-716M-RA-CL	3190-2625	716MR
		Straight	TC-226-716M-CL	3190-2624	716M
HPQD	Male	Right Angle	TC-226T-HQM-RA-CC	3190-6908	HQMR
			TC-226T-HQM-RP-RA-CC	3190-6909	HQMRPR
LC	Male	Right Angle	TC-226-LCM-RA-CL	3190-2666	LCMR
		Straight	TC-226-LCM-CL	3190-2665	LCM

Cable Construction



Ordering Guide

XXXXXX **-XXX** **XXX-** **XX.X** **X**
 Cable Code Connector A Connector B Length Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
HPL-226	18.1	6.4	5.00 (127)	0.24 (0.36)	AA-11460	HPL226

HPL-393 is a cost-effective alternative to our Stripflex® and HP products. It offers performance upgrade over the conventional RG cables, as well as compatibility with a large selection of optimized high-power connectors.



Specifications

Impedance 50 Ohms
Op Temp -67 to +257°F
-55 to +125°C

	Units	
Maximum Frequency	GHz	3
Velocity of Propagation	%	71
Dielectric Constant	NA	1.98
Time Delay	nS/f (nS/m)	1.43 (4.7)
Capacitance	pF/ft (pF/m)	28.8 (94.5)
Shielding Effectiveness	dB	-60
Diameter	in (mm)	0.430 (10.92)

Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
f = Frequency (MHz) Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.002241	0.007353
K2	0.000008	0.000026

Cable Construction



Ordering Guide

XXXXXX -XXX XXX- XX.X X
Cable Code Connector A Connector B Length Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
HPL-393	13.7	5.0	4.00 (101.6)	0.16 (0.24)	AA-11461	HPL393

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
7/16-DIN	Female	Straight	TC-393-716F-BH-CL	3190-6075	716FBH
	Male	Right Angle	TC-214P-716M-RA-CC	3190-6710	716MR
		Straight	TC-214P-716M-CC	3190-6709	716M
C	Male	Right Angle	TC-214P-CM-RA-CC	3190-6771	CMR
		Straight	TC-214P-CM-CC	3190-6770	CM
HN	Male	Right Angle	TC-214P-HNM-RA-CC	3190-6680	HNMR
		Straight	TC-214P-HNM-CC	3190-6679	HNM
HPQD	Male	Straight	TC-214P-HQM-CC	3190-6910	HQM
LC	Male	Right Angle	TC-393-LCM-RA-CL	3190-2561	LCMR
		Straight	TC-393-LCM-CL	3190-2565	LCM
MPQD	Male	Right Angle	TC-393-MQM-RA-CC	3190-6576	MQMR
		Straight	TC-393-MQM-RP-RA-CC	3190-6638	MQMRPR
		Straight	TC-393-MQM-CC	3190-6575	MQM
N	Male	Right Angle	TC-393-NM-RA-CL	3190-6639	MQMRP
		Straight	TC-393-NM-CL	3190-2754	NMR
SC	Male	Right Angle	TC-214P-SCM-RA-CC	3190-2745	NM
		Straight	TC-214P-SCM-CC	3190-6870	SCMR
			TC-214P-SCM-CC	3190-6869	SCM

* Highlighted connectors are recommended and default for new designs.

** Connectors with -RP in part number are reverse-polarity.

HPL-600 is a cost-effective alternative to our Stripflex® and HP products. It offers performance upgrade over the conventional RG-217, as well as compatibility with a large selection of optimized high-power connectors.



Specifications

Impedance 50 Ohms
Op Temp -67 to +257°F
-55 to +125°C

	Units	
Maximum Frequency	GHz	3
Velocity of Propagation	%	71
Dielectric Constant	NA	1.98
Time Delay	nS/f (nS/m)	1.43 (4.7)
Capacitance	pF/ft (pF/m)	28.9 (94.8)
Shielding Effectiveness	dB	-60
Diameter	in (mm)	0.590 (14.99)

Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
f = Frequency (MHz) Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.001329	0.00436
K2	0.000012	0.000039

Cable Construction



Ordering Guide

XXXXXX -XXX XXX- XX.X X
Cable Code Connector A Connector B Length Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
HPL-600	24.8	8.3	6.00 (152.4)	0.31 (0.46)	AA-11458	HPL600

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
1-5/8" EIA	Female	Right Angle	TC-600T-158EIA-RA-CL	3190-6749	158EIAR
		Straight	EZ-600T-158EIA-CL	3190-2485	158EIA
7/16-DIN	Male	Right Angle	TC-600T-716M-RA-CC	3190-6642	716MR
		Straight	TC-600T-716M-CC	3190-6643	716M
HN	Male	Right Angle	TC-600T-HNM-RA-CC	3190-6741	HNMR
		Straight	TC-600T-HNM-CC	3190-6740	HNM
HPQD	Male	Right Angle	TC-600T-HQM-RA-CC	3190-6657	HQMR
		Straight	TC-600T-HQM-CC	3190-6658	HQM
LC	Male	Right Angle	TC-600T-LCM-RA-CC	3190-6743	LCMR
		Straight	TC-600T-LCM-CC	3190-6742	LCM
N	Male	Right Angle	TC-600T-NM-RA-CL	3190-2757	NMR
		Straight	TC-600T-NM-CL	3190-2583	NM
SC	Male	Right Angle	TC-600T-SCM-RA-CC	3190-6851	SCMR
		Straight	TC-600T-SCM-CC	3190-6795	SCM

HPL-1200 is a cost-effective alternative to our Stripflex® and HP products. It offers performance upgrade over the conventional RG-220, as well as compatibility with a large selection of optimized high-power connectors.



Specifications

Impedance
50 Ohms

Op Temp
-67 to +257°F
-55 to +125°C

	Units	
Maximum Frequency	GHz	3
Velocity of Propagation	%	76
Dielectric Constant	NA	1.73
Time Delay	nS/f (nS/m)	1.34 (4.4)
Capacitance	pF/ft (pF/m)	26.8 (87.9)
Shielding Effectiveness	dB	-60
Diameter	in (mm)	1.200 (30.48)

Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
f = Frequency (MHz) Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.000656	0.002152
K2	0.000002	0.000007

Cable Construction



Ordering Guide

XXXXXX **-XXX** **XXX-** **XX.X** **X**
 Cable Code Connector A Connector B Length Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
HPL-1200	65.3	12.5	12.00 (304.8)	1.19 (1.77)	AA-11475	HPL1200

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
1-5/8" EIA	Female	Straight	EZ-1200-158EIA		158EIA
			TC-HPL1200-158EIA	3190-3028	158EIA
	Male	Straight	Threaded 1 5/8" EIA Male	3190-6070	158EIAM
3-1/8" EIA	Female	Straight	TC-1200-318EIA-SP	3190-6570	318EIA
	Male	Right Angle	TC-HPL1200-LCM-RA-HC	3190-6872	LCMR
		Straight	TC-HPL1200-LCM-HC	3190-6871	LCM

RG-213 and RG-214 cables can be found in high energy physics laboratories, wafer fabs, and military equipment. RG-214 offers a higher level of shielding effectiveness with an extra braid layer. Both cables are available with a wide selection of connectors, including the quick-disconnect HPQD and MPQD.



Specifications

Impedance 50 Ohms
 Op Temp -40 to +185°F / -40 to +85°C

	Units	
Maximum Frequency	GHz	11
Velocity of Propagation	%	69
Dielectric Constant	NA	2.10
Time Delay	nS/f (nS/m)	1.54 (5.05)
Capacitance	pF/ft (pF/m)	30.8 (101.5)
Shielding Effectiveness	dB	-40 / -60
Diameter	in (mm)	RG-213: 0.405 (10.29) RG-214: 0.425 (10.80)

Calculation

$$IL = (K1 \times v(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
 $f = \text{Frequency (MHz)}$
 Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.00183	0.006004
K2	0.000001	0.000003

Cable Construction



Ordering Guide

XXXXXX Cable Code
 -XXX Connector A
 XXX- Connector B
 XX.X Length
 X Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
RG-213	4.4	10.0	2.00 (50.8)	0.11 (0.16)	AA-3408	RG213
RG-214	5.1	10.0	2.00 (50.8)	0.13 (0.19)	AA-3409	RG214

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
7/16-DIN	Female	Straight	TC-393-716F-BH-CL	3190-6075	716FBH
	Male	Right Angle	TC-214P-716M-RA-CC	3190-6710	716MR
		Straight	TC-214P-716M-CC	3190-6709	716M
C	Male	Right Angle	TC-214P-CM-RA-CC	3190-6771	CMR
		Straight	TC-214P-CM-CC	3190-6770	CM
HN	Male	Right Angle	TC-214P-HNM-RA-CC	3190-6680	HNMR
		Straight	TC-214P-HNM-CC	3190-6679	HNM
HPQD	Male	Right Angle	TC-393-HNM-RA-CL	3190-2559	
		Straight	TC-393-HNM-CL	3190-2663	
LC	Male	Right Angle	TC-214P-HQM-CC	3190-6910	HQM
		Straight	TC-393-LCM-RA-CL	3190-2561	LCMR
MPQD	Male	Right Angle	TC-393-LCM-CL	3190-2565	LCM
		Straight	TC-393-MQM-RA-CC	3190-6576	MQMR
N	Male	Right Angle	TC-393-MQM-RP-RA-CC	3190-6638	MQMRPR
		Straight	TC-393-MQM-CC	3190-6575	MQM
SC	Male	Right Angle	TC-393-MQM-RP-CC	3190-6639	MQMRP
		Straight	TC-393-NM-RA-CL	3190-2754	NMR
SC	Male	Right Angle	TC-393-NM-CL	3190-2745	NM
		Straight	TC-214P-SCM-RA-CC	3190-6870	SCMR
			TC-214P-SCM-CC	3190-6869	SCM

* Highlighted connectors are recommended and default for new designs.

** Connectors with -RP in part number are reverse-polarity.

RG-217 can be found in high energy physics laboratories, wafer fabs, and military equipment. It offers higher shielding effectiveness with a double braid construction.



Specifications

Impedance 50 Ohms
 Op Temp -40 to +185°F -40 to +85°C

	Units	
Maximum Frequency	GHz	1
Velocity of Propagation	%	66
Dielectric Constant	NA	2.30
Time Delay	nS/f (nS/m)	1.54 (5.05)
Capacitance	pF/ft (pF/m)	32.2 (105.6)
Shielding Effectiveness	dB	-60
Diameter	in (mm)	0.545 (13.84)

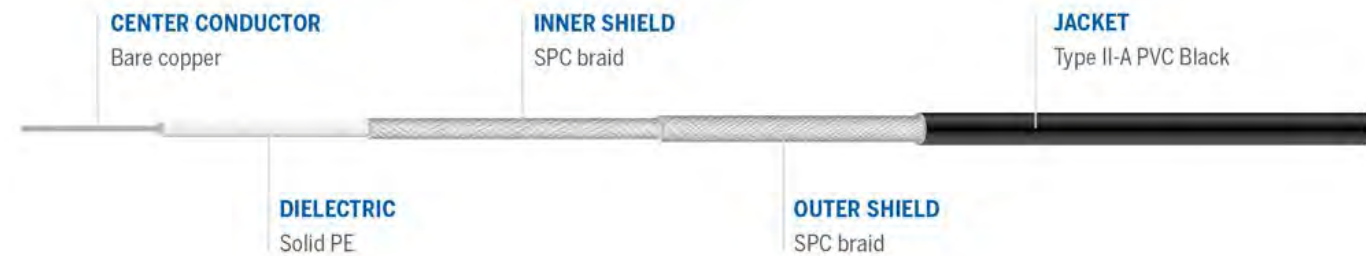
Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
 $f = \text{Frequency (MHz)}$ Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.001622	0.005322
K2	0.000008	0.000026

Cable Construction



Ordering Guide

XXXXXX Cable Code
 -XXX Connector A
 XXX- Connector B
 XX.X Length
 X Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
RG-217	72	12.0	5.50 (139.7)	0.23 (0.34)	AA-3410	RG217

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
7/16-DIN	Male	Right Angle	TC-217-716M-RA-CC	3190-6791	716MR
		Straight	TC-217-716M-CC	3190-6886	716M
HN	Male	Right Angle	TC-217-HNMC-RA	3190-6359	HNMC
			TC-217-HNM-RA-CC	3190-6793	HNMR
		Straight	TC-217-HNMC	3190-6358	HNMC
			TC-217-HNM-CC	3190-6792	HNMC
N	Male	Right Angle	TC-217-NM-RA-CL	3190-6146	NMR
		Straight	TC-217-NMC	3190-6438	NM

* Highlighted connectors are recommended and default for new designs.

RG-393-NPP series is a cost-effective upgrade over conventional RG cables. It is compatible with a large selection of high power connectors, including the quick-disconnect HPQD and MPQD interfaces.



Specifications



	Units	
Maximum Frequency	GHz	2.4
Velocity of Propagation	%	71
Dielectric Constant	NA	1.98
Time Delay	nS/f (nS/m)	1.43 (4.7)
Capacitance	pF/ft (pF/m)	28.8 (94.5)
Shielding Effectiveness	dB	-60
Diameter	in (mm)	0.390 (9.91)

Calculation

$$IL = (K1 \times V(f) + K2 \times f) \times \text{Cable Length}$$

Cable Insertion Loss
f = Frequency (MHz) Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.002111	0.006926
K2	0.000009	0.00003

Cable Construction



Ordering Guide

XXXXXX Cable Code
 -XXX Connector A
 XXX- Connector B
 XX.X Length
 X Units of measure: I = Inches, F = Feet, M = Meters

Cable Options

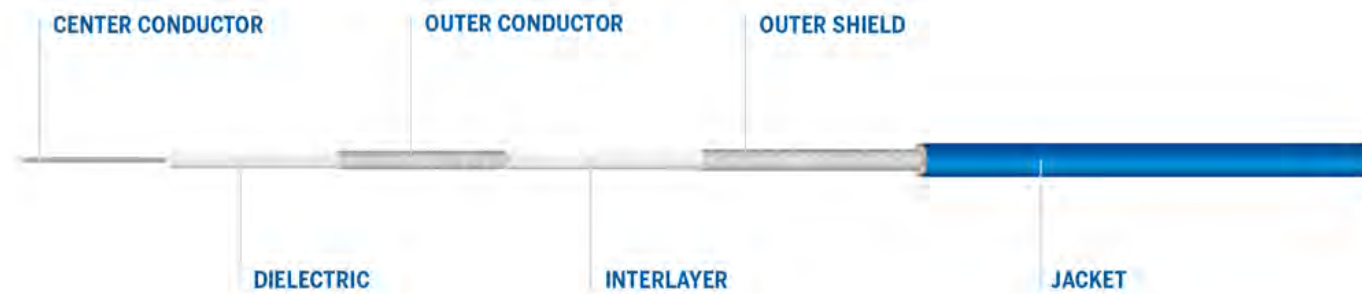
Part-Number	Max. Power @ 13.56 MHz kW	Voltage Withstanding kVDC	Bend Radius in (mm)	Weight lb/ft (kg/m)	Product Drawing	Cable Code
RG-393-NPP	13.3	5.0	2.00 (50.8)	0.18 (0.27)	AA-9926	RG393NPP
RG-393-NPP-SN	12.6	5.0	2.00 (50.8)	0.18 (0.27)	AA-9963	HP393

Connectors Options

	Gender	Description	Part Number	Stock Code	Connector Code
7/16-DIN	Female	Straight	TC-393-716F-BH-CL	3190-6075	716FBH
		Right Angle	TC-214P-716M-RA-CC	3190-6710	716MR
	Male	Straight	TC-393-716M-RA-CL	3190-2693	716M
			TC-214P-716M-CC	3190-6709	716M
C	Male	Right Angle	TC-214P-CM-RA-CC	3190-6771	CMR
		Straight	TC-214P-CM-CC	3190-6770	CM
HN	Male	Right Angle	TC-214P-HNM-RA-CC	3190-6680	HNMR
		Straight	TC-214P-HNM-CC	3190-6679	HNM
HPQD	Male	Right Angle	TC-393-HNM-RA-CL	3190-2663	HNM
		Straight	TC-393-HNM-CL	3190-2663	HNM
LC	Male	Straight	TC-214P-HQM-CC	3190-6910	HQM
		Right Angle	TC-393-LCM-RA-CL	3190-2561	LCMR
MPQD	Male	Straight	TC-393-LCM-CL	3190-2565	LCM
		Right Angle	TC-393-MQM-RA-CC	3190-6576	MQMR
N	Male	Straight	TC-393-MQM-RP-RA-CC	3190-6638	MQMRPR
		Right Angle	TC-393-MQM-CC	3190-6575	MQM
SC	Male	Straight	TC-393-MQM-RP-CC	3190-6639	MQMRP
		Right Angle	TC-393-NM-RA-CL	3190-2754	NMR
SC	Male	Straight	TC-214P-NM-CL	3190-2745	NM
		Right Angle	TC-214P-SCM-RA-CC	3190-6870	SCMR
SC	Male	Straight	TC-214P-SCM-CC	3190-6869	SCM

* Highlighted connectors are recommended and default for new designs.

** Connectors with -RP in part number are reverse-polarity.



CENTER CONDUCTOR

The RF signal travels between the surface of the center and outer conductors. Therefore, the conductor surface must have a high conductivity/ low resistivity material. There are two types of center conductors: solid and stranded.

Solid Center Conductors

Most of our solid center conductors are bare copper (BC) or silver plated material.

For small or heavier cables, the center conductor is often a copper clad steel for increased strength on small cables, or a copper clad aluminum for reduced weight. Since the RF signal travels on the surface of the center conductors, silverplated conductors have greater conductivity and provide a lower loss option.

Stranded Center Conductors

There are pros and cons to choosing a stranded center conductor:

- Pros:**
- Lower bend moment
 - Higher flex life
- Cons:**
- Lower cross-sectional area
 - Higher resistivity

Stranded center conductors offer increased flexibility. However, the lower cross-sectional area

of the copper creates more resistance of the center conductor. There is also a strand factor as the conductor is no longer a perfectly round surface. Instead, stranded center conductors have surface texture, which will increase signal loss.

Most of our stranded conductors are seven strands to reduce the likelihood of variations. There are other options such as 19, 37 and higher strand counts, but these typically have worse RF performance.

DIELECTRIC MATERIAL

There is a variety of dielectric materials including solid Polyethylene (PE), Polyethylene foam (PE Foam), various types of PTFEs, the proprietary TF4[®] dielectric, and melted extrudable PTFEs, which are a FEP/PFA blend. For high-temperature applications, silicon dioxide dielectric is the best choice.

PTFE

There are three options of PTFE dielectric:

- 1. Solid PTFE** – A solid mass with no material voids or pores to provide higher loss properties and lower velocity of propagation.
- 2 Full Density PTFE** – When a solid PTFE goes through a secondary sintering operation it becomes a porous extruded dielectric with

improved velocity propagation and loss tangent compared to solid PTFE.

3. Expanded PTFE – A PTFE film is stretched to open up pores or voids and decrease material density, thereby increasing velocity ranges up to 84%.

OUTER CONDUCTORS, INTERLAYERS AND SHIELDS

Outer conductors can be single or double ground wire braids, flat wire braids with or without an interlayer tape, helical, flat wire spiral, or foil with a round wire braid.

- Single Round Wire Braid
- Double Round Wire Braid
- Flat Wire Braid Outer Conductor, Round Wire Braid
- Flat Wire Braid Outer Conductor, Round Wire Braid, Interlayer
- Flat Wire Helical Outer Conductor, Round Wire Braid
- Flat Wire Spiral Outer Conductor, Round Wire Braid, Interlayer

Each outer conductor and interlayer option has its pros and cons. Helical, spiral and foil options have really good loss compared to a solid tube. They have the lowest relative attenuation.

JACKETS AND ARMORS

Jackets and armors typically have a minimal effect on electric performance. Their primary function is abrasion resistance and crush resistance. However, improper manufacturing processes can result in the armor digging into the cable and causing VSWR issues.

A variety of materials can be used for jackets and armors. For applications where the temperature does not exceed 85°C, PVC, Polyethylene (PE) or Polyurethane (PUR) are good materials for cable jackets. FEP and ETFE materials are melt-extrudable, high-temperature jacket materials often used in mil/aero and space applications. FEP is usually the standard jacket material choice, but ETFE offers a radiation resistance feature that is perfect for space applications.

Abbreviations

- BCCAL** Bare copper clad aluminum
- FEP** Fluorinated ethylene propylene
- LD** Low density
- PE** Polyethylene
- PVC** Polyvinyl chloride
- RSC** Roped stranded center conductor

- SPC** Silver plated copper
- TPC** Tin plated copper
- TPE** Thermoplastic elastomer
- TPV** Thermoplastic vulcanizate
- PTFE** Polytetrafluoroethylene
- PUR** Polyurethane



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