



COAXIAL

Fixed Attenuator

HAT-A-SERIES

Mini-Circuits

50Ω Up to 2W DC to 2000 MHz

THE BIG DEAL

- Wideband coverage, DC to 2000 MHz
- Up to 2 Watt rating
- Rugged unibody construction
- Excellent VSWR
- Excellent flatness

APPLICATIONS

- Signal level adjustment
- Impedance matching



Generic photo used for illustration purposes only

Model No.	HAT-A-SERIES
Case Style	FF747
Connectors	BNC Male-BNC Female

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

PRODUCT OVERVIEW

Mini-Circuits' HAT-A series are fixed attenuators from DC to 2000 MHz frequency range with excellent flatness in attenuation. HAT-A series is available with nominal attenuation of 1 to 30 dB. This attenuator series support testing and measurement application. Precise performance, excellent VSWR and rugged unibody construction makes this model ideal solution for systems requiring precise attenuation across very wide frequency range.

KEY FEATURES

Feature	Advantages
Rugged construction	Excellent durability for a long lifetime of use
Up to 2 Watt rating	Good power handling
Excellent VSWR	Well matched for 50 Ω systems
Flat attenuation	Good performance over the band.





COAXIAL

Fixed Attenuator

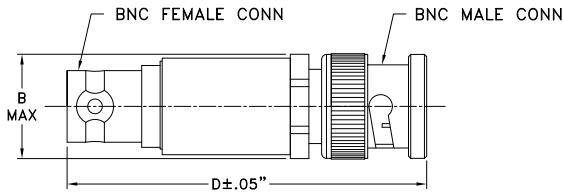
HAT-3A+

MAXIMUM RATINGS

Operating Temperature	-45°C to 100°C
Storage Temperature	-55°C to 100°C

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

OUTLINE DRAWING

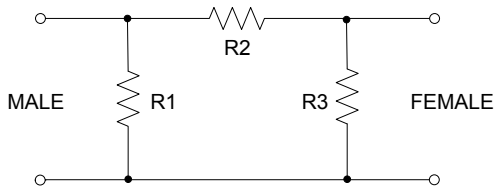


OUTLINE DIMENSIONS (Inch/mm)

B	D	wt
.62	1.94	grams
15.75	49.28	30.0

Note: Please refer to case style drawing for details

ELECTRICAL SCHEMATIC



ELECTRICAL SPECIFICATIONS AT 25°C

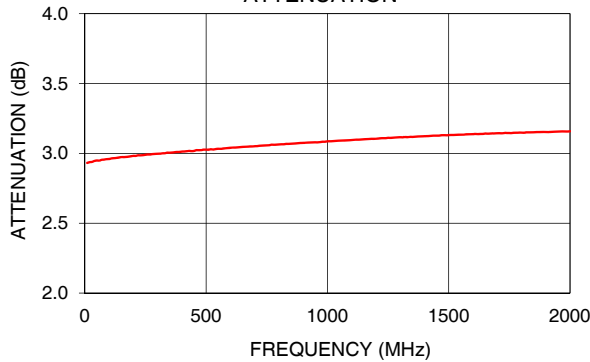
Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC	-	2000	MHz
Attenuation ¹ nominal ³	10	-	3 ± 0.3	-	dB
Attenuation Flatness ²	DC - 500	-	0.10	-	dB
	DC - 1000	-	0.15	-	
	DC - 2000	-	0.20	-	
VSWR	DC - 500	-	1.15	-	:1
	DC - 1000	-	1.20	-	
	DC - 2000	-	1.30	-	
Input Power ⁴		-	-	2.0	W

1. Attenuation varies by 0.3 dB max. over temperature.
2. Flatness = variation over band divided by 2.
3. Nominal attenuation at 10 MHz
4. RF power at 25°C is 2.0W; Derate linearly to 1.0W at 85°C

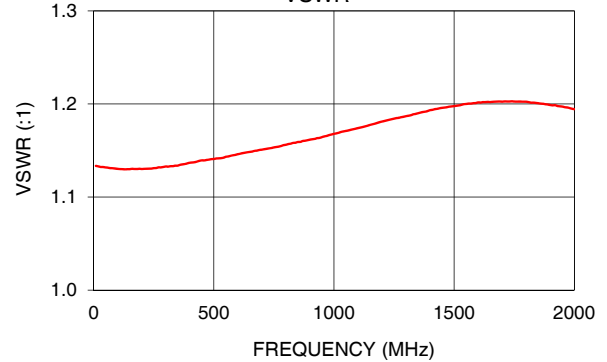
TYPICAL PERFORMANCE DATA

Frequency (MHz)	Attenuation (dB)	VSWR (:1)
10	2.93	1.13
50	2.95	1.13
100	2.96	1.13
250	2.99	1.13
400	3.01	1.14
500	3.03	1.14
600	3.04	1.15
800	3.06	1.16
1000	3.09	1.17
1200	3.10	1.18
1300	3.12	1.19
1500	3.13	1.20
1700	3.14	1.20
1800	3.15	1.20
2000	3.16	1.19

HAT-3A+ ATTENUATION



HAT-3A+ VSWR



NOTES

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HAT-A-SERIES

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- Rugged unibody construction
- Excellent VSWR
- Excellent flatness

APPLICATIONS

- Signal level adjustment
- Impedance matching



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Model No.	HAT-A-SERIES
Case Style	FF747
Connectors	BNC Male-BNC Female

+RoHS Compliant

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PRODUCT OVERVIEW

Mini-Circuits' HAT-A series are fixed attenuators from DC to 2000 MHz frequency range with excellent flatness in attenuation. HAT-A series is available with nominal attenuation of 1 to 30 dB. This attenuator series support testing and measurement application. Precise performance, excellent VSWR and rugged unibody construction makes this model ideal solution for systems requiring precise attenuation across very wide frequency range.

KEY FEATURES

Feature	Advantages
Rugged construction	Excellent durability for a long lifetime of use
Up to 2 Watt rating	Good power handling
Excellent VSWR	Well matched for 50 Ω systems
Flat attenuation	Good performance over the band.



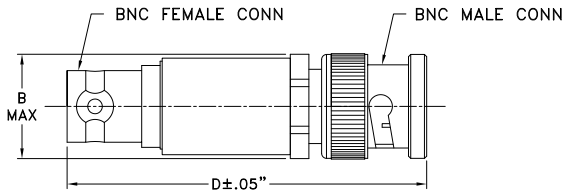


MAXIMUM RATINGS

Operating Temperature	-45°C to 100°C
Storage Temperature	-55°C to 100°C

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

OUTLINE DRAWING

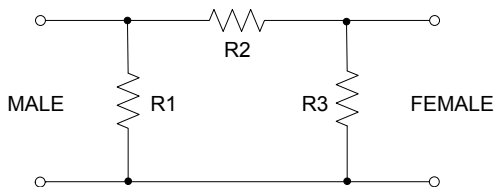


OUTLINE DIMENSIONS (Inch/mm)

B	D	wt
.62	1.94	grams
15.75	49.28	30.0

Note: Please refer to case style drawing for details

ELECTRICAL SCHEMATIC



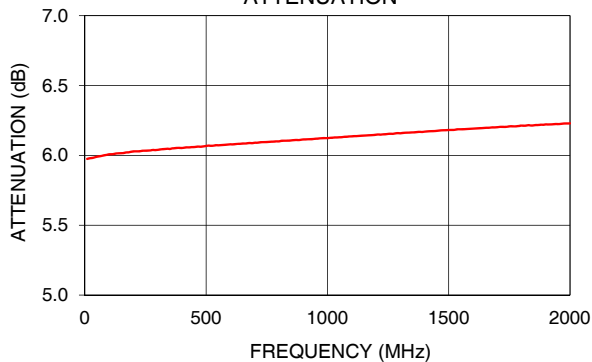
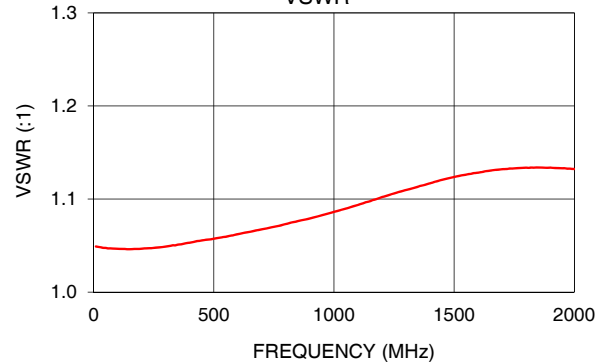
ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC	-	2000	MHz
Attenuation ¹ nominal ³	10	-	6 ± 0.3	-	dB
Attenuation Flatness ²	DC - 500	-	0.10	-	dB
	DC - 1000	-	0.15	-	
	DC - 2000	-	0.20	-	
VSWR	DC - 500	-	1.10	-	:1
	DC - 1000	-	1.15	-	
	DC - 2000	-	1.20	-	
Input Power ⁴		-	-	1.6	W

1. Attenuation varies by 0.3 dB max. over temperature.
2. Flatness = variation over band divided by 2.
3. Nominal attenuation at 10 MHz
4. RF power at 25°C is 1.6W; Derate linearly to 1.0W at 85°C

TYPICAL PERFORMANCE DATA

Frequency (MHz)	Attenuation (dB)	VSWR (:1)
10	5.97	1.05
50	5.99	1.05
100	6.01	1.05
250	6.03	1.05
400	6.05	1.05
500	6.07	1.06
600	6.08	1.06
800	6.10	1.07
1000	6.12	1.09
1200	6.15	1.10
1300	6.16	1.11
1500	6.18	1.12
1700	6.20	1.13
1800	6.21	1.13
2000	6.23	1.13

HAT-6A+
ATTENUATIONHAT-6A+
VSWR

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DC to 2000 MHz

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APPLICATIONS

- Signal level adjustment
- impedance matching



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Model No.	HAT-A-SERIES
Case Style	FF747
Connectors	BNC Male-BNC Female

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PRODUCT OVERVIEW

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KEY FEATURES

Feature	Advantages
Rugged construction	Excellent durability for a long lifetime of use
Up to 2Watt rating	Good power handling
Excellent VSWR	Well matched for 50Ω systems
Flat attenuation	Good performance over the band.

Mini-Circuits



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Fixed Attenuator

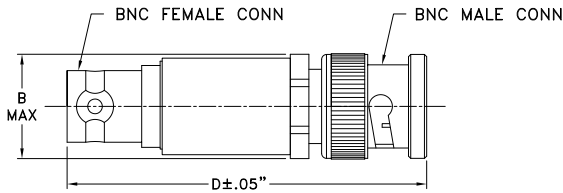
HAT-10A+

MAXIMUM RATINGS

Operating Temperature	-45°C to 100°C
Storage Temperature	-55°C to 100°C

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

OUTLINE DRAWING

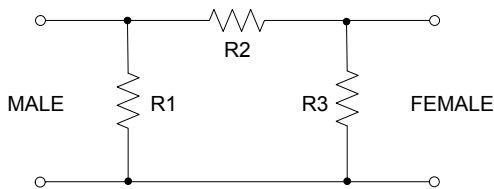


OUTLINE DIMENSIONS (Inch/mm)

B	D	wt
.62	1.94	grams
15.75	49.28	30.0

Note: Please refer to case style drawing for details

ELECTRICAL SCHEMATIC



ELECTRICAL SPECIFICATIONS AT 25°C

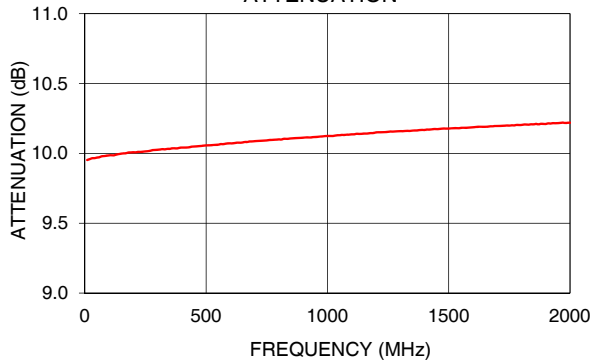
Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC	-	2000	MHz
Attenuation ¹ nominal ³	10	-	10 ± 0.3	-	dB
Attenuation Flatness ²	DC - 500	-	0.20	-	dB
	DC - 1000	-	0.25	-	
	DC - 2000	-	0.30	-	
VSWR	DC - 500	-	1.20	-	:1
	DC - 1000	-	1.20	-	
	DC - 2000	-	1.25	-	
Input Power ⁴		-	-	1.7	W

1. Attenuation varies by 0.3 dB max. over temperature.
2. Flatness = variation over band divided by 2.
3. Nominal attenuation at 10 MHz
4. RF power at 25°C is 1.7W; Derate linearly to 1.0W at 85°C

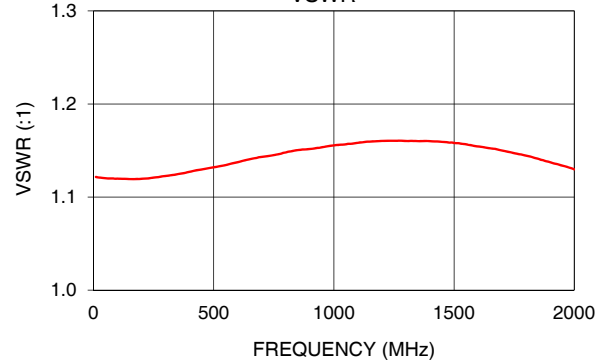
TYPICAL PERFORMANCE DATA

Frequency (MHz)	Attenuation (dB)	VSWR (:1)
10	9.95	1.12
50	9.97	1.12
100	9.99	1.12
250	10.01	1.12
400	10.04	1.13
500	10.06	1.13
600	10.07	1.14
800	10.10	1.15
1000	10.12	1.16
1200	10.15	1.16
1300	10.16	1.16
1500	10.18	1.16
1700	10.20	1.15
1800	10.20	1.14
2000	10.22	1.13

HAT-10A+ ATTENUATION



HAT-10A+ VSWR



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APPLICATIONS

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Model No.	HAT-A-SERIES
Case Style	FF747
Connectors	BNC Male-BNC Female

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PRODUCT OVERVIEW

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KEY FEATURES

Feature	Advantages
Rugged construction	Excellent durability for a long lifetime of use
Up to 2 Watt rating	Good power handling
Excellent VSWR	Well matched for 50 Ω systems
Flat attenuation	Good performance over the band.





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Fixed Attenuator

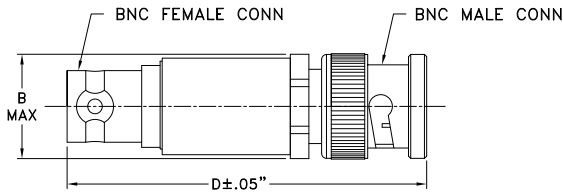
HAT-20A+

MAXIMUM RATINGS

Operating Temperature	-45°C to 100°C
Storage Temperature	-55°C to 100°C

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

OUTLINE DRAWING

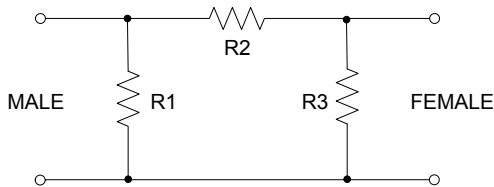


OUTLINE DIMENSIONS (Inch/mm)

B	D	wt
.62	1.94	grams
15.75	49.28	30.0

Note: Please refer to case style drawing for details

ELECTRICAL SCHEMATIC



ELECTRICAL SPECIFICATIONS AT 25°C

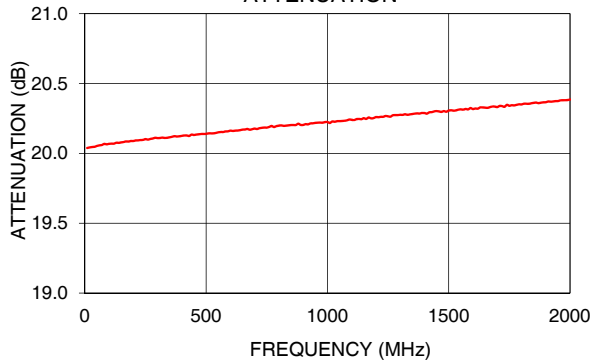
Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC	-	2000	MHz
Attenuation ¹ nominal ³	10	-	20 ± 0.3	-	dB
Attenuation Flatness ²	DC - 500	-	0.15	-	dB
	DC - 1000	-	0.20	-	
	DC - 2000	-	0.30	-	
VSWR	DC - 500	-	1.20	-	:1
	DC - 1000	-	1.30	-	
	DC - 2000	-	1.30	-	
Input Power ⁴		-	-	0.8	W

1. Attenuation varies by 0.3 dB max. over temperature.
2. Flatness = variation over band divided by 2.
3. Nominal attenuation at 10 MHz
4. RF power at 25°C is 0.8W; Derate linearly to 0.6W at 85°C

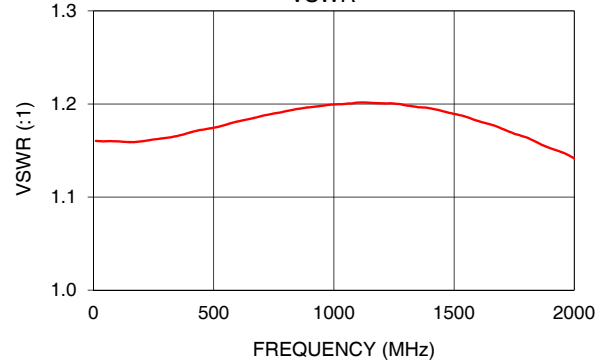
TYPICAL PERFORMANCE DATA

Frequency (MHz)	Attenuation (dB)	VSWR (:1)
10	20.04	1.16
50	20.05	1.16
100	20.07	1.16
250	20.10	1.16
400	20.13	1.17
500	20.14	1.17
600	20.16	1.18
800	20.20	1.19
1000	20.22	1.20
1200	20.26	1.20
1300	20.28	1.20
1500	20.31	1.19
1700	20.33	1.17
1800	20.35	1.16
2000	20.39	1.14

HAT-20A+ ATTENUATION



HAT-20A+ VSWR



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Model No.	HAT-A-SERIES
Case Style	FF747
Connectors	BNC Male-BNC Female

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PRODUCT OVERVIEW

Mini-Circuits' HAT-A series are fixed attenuators from DC to 2000 MHz frequency range with excellent flatness in attenuation. HAT-A series is available with nominal attenuation of 1 to 30 dB. This attenuator series support testing and measurement application. Precise performance, excellent VSWR and rugged unibody construction makes this model ideal solution for systems requiring precise attenuation across very wide frequency range.

KEY FEATURES

Feature	Advantages
Rugged construction	Excellent durability for a long lifetime of use
Up to 2 Watt rating	Good power handling
Excellent VSWR	Well matched for 50Ω systems
Flat attenuation	Good performance over the band.





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Fixed Attenuator

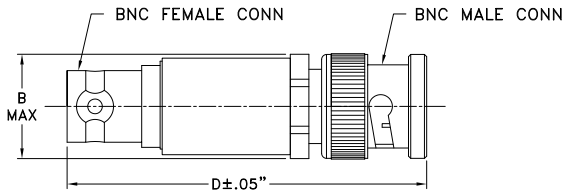
HAT-30A+

MAXIMUM RATINGS

Operating Temperature	-45°C to 100°C
Storage Temperature	-55°C to 100°C

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

OUTLINE DRAWING

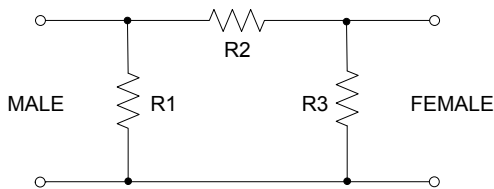


OUTLINE DIMENSIONS (Inch/mm)

B	D	wt
.62	1.94	grams
15.75	49.28	30.0

Note: Please refer to case style drawing for details

ELECTRICAL SCHEMATIC



ELECTRICAL SPECIFICATIONS AT 25°C

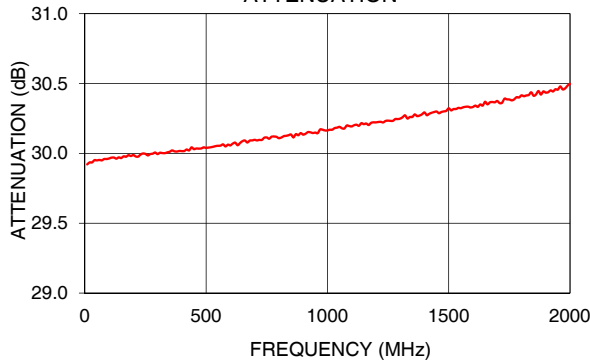
Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC	-	2000	MHz
Attenuation ¹ nominal ³	10	-	30 ± 0.3	-	dB
Attenuation Flatness ²	DC - 500	-	0.20	-	dB
	DC - 1000	-	0.30	-	
	DC - 2000	-	0.60	-	
VSWR	DC - 500	-	1.30	-	:1
	DC - 1000	-	1.30	-	
	DC - 2000	-	1.40	-	
Input Power ⁴		-	-	1.0	W

1. Attenuation varies by 0.3 dB max. over temperature.
2. Flatness = variation over band divided by 2.
3. Nominal attenuation at 10 MHz
4. RF power at 25°C is 1.0W; Derate linearly to 0.8W at 85°C

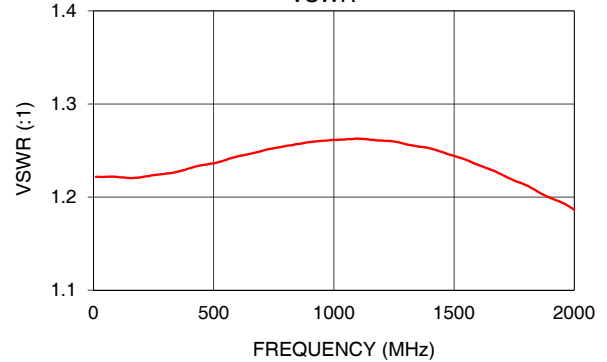
TYPICAL PERFORMANCE DATA

Frequency (MHz)	Attenuation (dB)	VSWR (:1)
10	29.92	1.22
50	29.95	1.22
100	29.96	1.22
250	30.00	1.22
400	30.02	1.23
500	30.04	1.24
600	30.06	1.24
800	30.11	1.25
1000	30.16	1.26
1200	30.22	1.26
1300	30.25	1.26
1500	30.32	1.24
1700	30.38	1.22
1800	30.42	1.21
2000	30.50	1.19

HAT-30A+ ATTENUATION



HAT-30A+ VSWR



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