BROADBAND MICROWAVE AMPLIFIERS

FOR INDUSTRIAL TEST EQUIPMENT AND MILITARY APPLICATIONS

narda
microwave-east

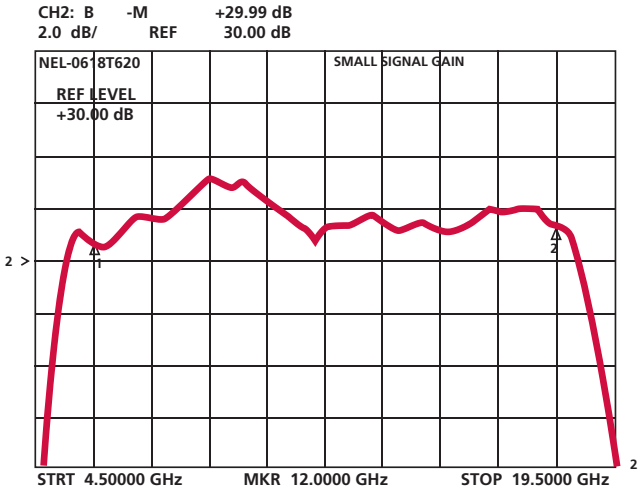
an L3 communications company

Wide Band, Medium Power Amplifier
NEL-0618T620-5MH

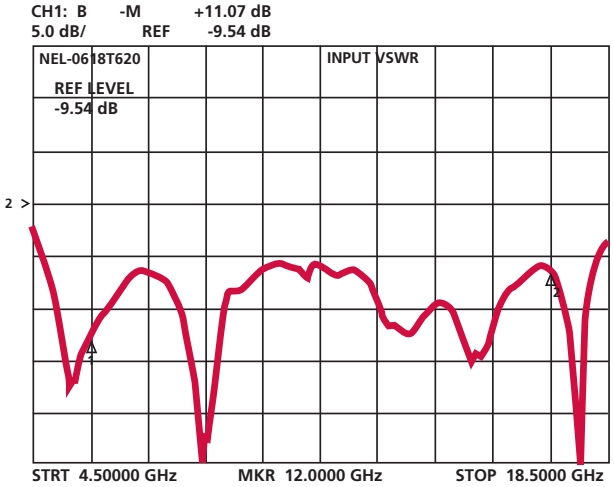
Features:

- P-1 dB; 20 dBm Min.
- Bandwidth: 6 to 18GHz
- VSWR: < 2.0:1 Max.
- Gain: 28 dB Min.
- Gain Flatness: ±2 dB Max.
- Noise Figure: 4 dB Max.
- Single Supply Operation: 12 VDC @ 490 mA Max.
- Hermetically Sealed
- Temperature Compensated
- Package Type: 5MH

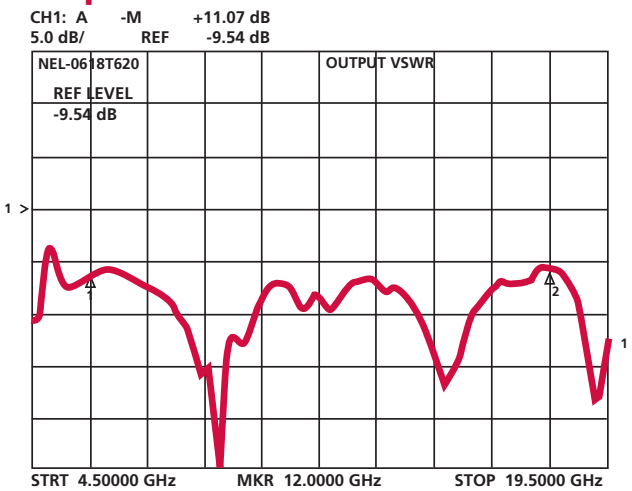
Gain



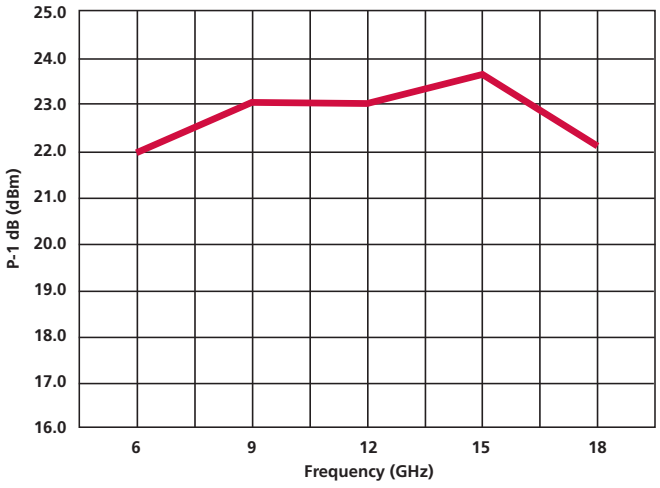
Input VSWR



Output VSWR



Power Output



Introduction

Narda Microwave-East has added a broad range of microwave amplifiers to its offering of standard catalog products. The most popular models are kept in stock for immediate delivery. Other models are typically available within 4 weeks.

Key Features

- Standard Bandwidths
  Octave and multi-octave bands in the .5 to 18 GHz frequency range.
- High Output Power
  Available to +30 dBm
- Low Noise Figure
- Low Cost

General Specification

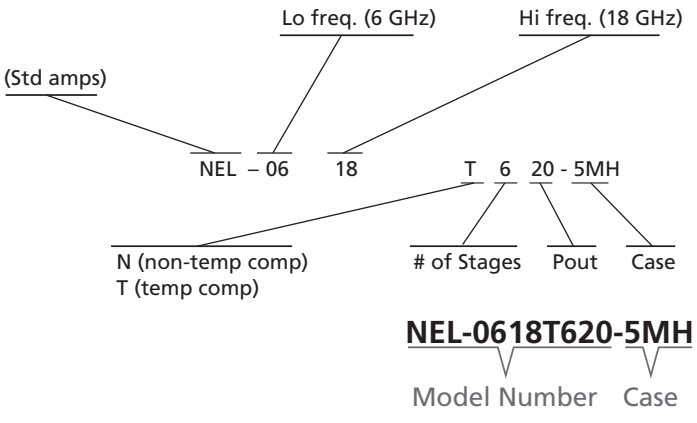
- Designed to meet MIL-STD-883
- Operating Range –54˚C to +85˚C
- Hermetic Laser Seal
- Internal Voltage Regulator
  - +12VDC to +15VDC input voltage
- Maximum RF Input Power
  - +20 dBm (CW) or +30 dBm pulse, 1 µs and 1% duty cycle
    LNA models +17 dBm (CW) or +27 dBm pulse, 1 µs and 1% duty cycle.
- Temperature Compensation
  - "N" in the middle of the model number indicates no temperature compensation.
  - "T" in the middle of the model number indicates temperature compensation.
  - Only "T" units are evaluated over the full temperature range. "N" units are measured at 25˚C.

Model Numbers

By looking at the Narda standard model number you can quickly identify the frequency range, power output, number of gain stages and if the amplifier is with or without temperature compensation.

- NEM (MMIC Power Amplifiers)
- NEL (Low Noise Amplifiers)
- NES (Standard Amplifiers)

The case number option is added to the model number as shown in the illustration on the right. See page 6 for a description of case options.



Narda East Microwave Amplifiers

Part Number	Frequency (GHz) Min.	Frequency (GHz) Max.	Gain (dB) Min.	Gain (dB) Max.	Gain Flatness (+/-) Max.	Noise Figure (dB) Typ.	Noise Figure (dB) Max.	P-1 dB (dBm) Min.	IP3 (dBm) Typ.	Input VSWR (50 Ohms) Max.	Output VSWR (50 Ohms) Max.	Current @ 12V DC (mA) Max.	Case Option
NEL-0102N305	0.5	2.0	28.0	32.0	0.5	1.8	2.0	5.0	15.0	2.0	2.0	150	1MH
NEL-0102N110	0.5	2.0	12.0	16.0	0.8	1.8	2.0	10.0	18.0	2.0	2.0	100	2I, 1MH
NES-0102T312	0.5	2.0	18.0	24.0	1.5	3.2	3.8	12.0	22.0	2.0	2.0	180	4I, 2MH
NES-0102T412	0.5	2.0	29.0	35.0	1.5	3.2	3.8	12.0	22.0	2.0	2.0	250	4I, 3MH
NES-0102N318	0.5	2.0	34.0	39.0	1.0	2.0	2.2	18.0	28.0	2.0	2.0	250	4I, 2MH
NES-0102N430	0.5	2.0	30.0	40.0	2.0		4.0	30.0	40.0	2.2	2.2	900	4I
NES-0112N210	0.5	12.0	20.0	26.0	1.5	5.5	6.5	10.0	20.0	2.0	2.0	270	2I, 1MH
NES-0112N323	0.5	12.0	23.0	28.0	2.0	5.5	6.5	23.0	31.0	2.0	2.0	475	4I
NES-0208N215	2.0	8.0	24.0	29.0	1.5	2.1	2.3	15.0	25.0	2.0	2.0	150	2I, 1MH
NES-0208N315	2.0	8.0	30.0	35.0	1.5	2.1	2.3	15.0	25.0	2.0	2.0	200	4I, 2MH
NES-0208N320	2.0	8.0	32.0	38.0	1.5	2.5	3.0	20.0	30.0	2.0	2.0	300	4I, 2MH
NES-0208N420	2.0	8.0	42.0	48.0	1.5	2.5	3.0	20.0	30.0	2.0	2.0	350	4I, 3MH
NES-0208N220	2.0	8.0	20.0	25.0	1.5	3.5	4.0	20.0	30.0	2.0	2.0	250	2I, 1MH
NES-0208T420	2.0	8.0	28.0	33.0	2.0	4.0	4.5	20.0	30.0	2.0	2.0	350	4I, 3MH
NES-0208N323	2.0	8.0	32.0	38.0	1.5	2.5	3.0	23.0	33.0	2.0	2.0	350	2MH
NES-0208N527	2.0	8.0	32.0	38.0	1.5		4.0	27.0	37.0	2.0	2.0	900	6I
NES-0218N320	2.0	18.0	20.0	26.0	2.0	4.5	5.0	20.0	30.0	2.0	2.2	425	4I
NEM-0218N623	2.0	18.0	30.0	36.0	2.0		5.0	23.0	31.0	2.0	2.2	1000	N-6
NEM-0218N427	2.0	18.0	30.0	36.0	2.0		5.5	27.0	35.0	2.0	2.5	1700 Typ	N-6P
NEM-0218N627	2.0	18.0	34.0	41.0	2.0		5.5	27.0	35.0	2.0	2.5	1800 Typ	N-6P
NEM-0218N630	2.0	18.0	45.0	52.0	2.0	5.0	6.0	29/30 Typ	38.0	2.0	2.5/3.0 Typ	3000	N-6P
NES-0408N318	4.0	8.0	30.0	35.0	1.5	2.3	2.5	18.0	28.0	2.0	2.0	230	4I, 2MH
NES-0411N220	4.0	11.0	19.0	23.0	1.5	4.0	4.5	20.0	30.0	2.0	2.0	200	2I, 1MH
NES-0411N320	4.0	11.0	26.0	30.0	1.5	4.0	4.5	20.0	30.0	2.0	2.0	250	4I, 2MH
NES-0411T320	4.0	11.0	18.0	23.0	2.0	4.5	5.0	20.0	30.0	2.0	2.0	300	4I, 2MH
NES-0411N630	4.0	11.0	39.0	45.0	1.5		7.5	30.0	40.0	2.0	2.0	1250	6I, 4MH

Narda East Microwave Amplifiers

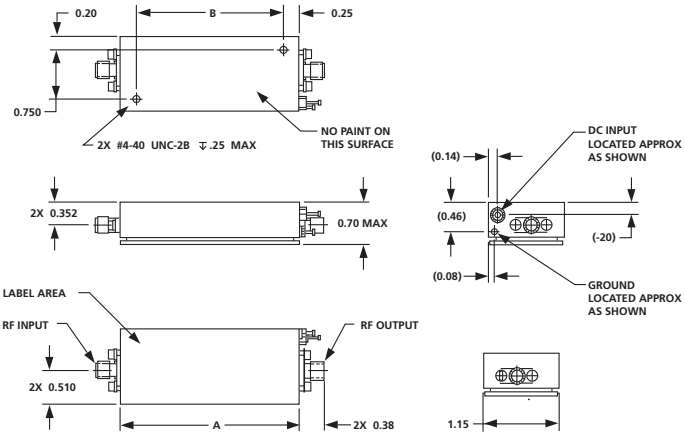
Part Number	Frequency (GHz) Min.	Max.	Gain (dB) Min.	Max.	Gain Flatness (+/-) Max.	Noise Figure (dB) Typ.	Max.	P-1 dB (dBm) Min.	IP3 (dBm) Typ.	Input VSWR (50 Ohms) Max.	Output VSWR (50 Ohms) Max.	Current @ 12V DC (mA) Max.	Case Option
NES-0513N415	5.0	13.0	28.0	32.0	1.5	2.2	2.5	15.0	25.0	2.0	2.0	180	4I, 3MH
NES-0513N215	5.0	13.0	20.0	24.0	1.5	2.2	2.5	15.0	25.0	2.0	2.0	140	2I, 1MH
NES-0513N320	5.0	13.0	27.0	31.0	1.5	3.0	3.5	20.0	30.0	2.0	2.0	290	4I, 2MH
NES-0513N420	5.0	13.0	38.0	48.0	1.5	3.0	3.5	20.0	30.0	2.0	2.0	320	4I, 3MH
NES-0612N210	6.0	12.0	20.0	24.0	1.5	2.2	2.5	10.0	20.0	2.0	2.0	150	2I, 1MH
NES-0612N315	6.0	12.0	29.0	33.0	1.5	2.2	2.5	15.0	25.0	2.0	2.0	175	4I, 2MH
NES-0612N415	6.0	12.0	40.0	46.0	1.5	2.2	2.5	15.0	25.0	2.0	2.0	225	4I, 3MH
NES-0612N520	6.0	12.0	41.0	46.0	1.5	3.5	4.0	20.0	29.0	2.0	2.0	350	6I, 4MH
NES-0612N320	6.0	12.0	25.0	29.0	1.5	3.5	4.0	20.0	29.0	2.0	2.0	250	4I, 2MH
NES-0612N420	6.0	12.0	34.0	38.0	1.5	3.5	4.0	20.0	29.0	2.0	2.0	300	4I, 3MH
NES-0612N630	6.0	12.0	35.0	41.0	2.0		5.5	30.0	38.0	2.0	2.0	1250	6I, 5MH
NEL-0618N410	6.0	18.0	28.0	33.0	1.0	2.3	2.5	10.0	20.0	2.0	2.0	150	4I, 2MH
NES-0618N213	6.0	18.0	16.0	20.0	1.5	2.7	3.0	13.0	23.0	2.0	2.0	140	2I, 2MH
NES-0618N315	6.0	18.0	26.0	30.0	1.5	2.7	3.0	15.0	25.0	2.0	2.0	260	4I, 2MH
NEL-0618N420	6.0	18.0	30.0	34.0	1.5	2.3	2.5	20.0	30.0	2.0	2.0	370	4I, 3MH
NES-0618N520	6.0	18.0	32.0	37.0	1.5	2.7	3.0	20.0	30.0	2.0	2.0	430	6I, 4MH
NEL-0618T620	6.0	18.0	28.0	35.0	2.3	3.5	4.0	20.0	30.0	2.0	2.0	490	6I, 5MH
NES-0618N423	6.0	18.0	22.0	26.0	1.5	6.0	6.5	23.0	33.0	2.0	2.0	510	4I
NES-0618N223	6.0	18.0	10.0	16.0	1.5		7.5	23.0	33.0	2.0	2.0	400	2I
NES-0712N315	7.0	12.4	28.0	32.0	1.5	2.3	2.5	15.0	25.0	2.0	2.0	190	4I, 2MH
NES-0712N320	7.0	12.4	22.0	26.0	1.5	2.5	3.0	20.0	30.0	2.0	2.0	260	4I, 2MH
NES-0910N420	9.0	10.0	30.0		1.0		1.7	20.0	30.0	2.0	2.0	350	4I, 2MH
NES-0910N530	9.0	10.0	30.0	40.0	0.5		3.0	30.0	40.0	2.0	2.0	1200	6I, 4MH
NES-1218N515	12.0	18.0	32.0	37.0	1.5	2.8	3.0	15.0	25.0	2.0	2.0	310	6I, 4MH
NES-1218T718	12.0	18.0	36.0	44.0	1.5	3.7	4.0	18.0	28.0	2.0	2.0	510	8I, 6MH

Mechanical Package Options

I Case

- Nickel plated aluminum housing
- Larger than the MH housing
- Turret ground terminal
- EMI DC filter feedthru pin

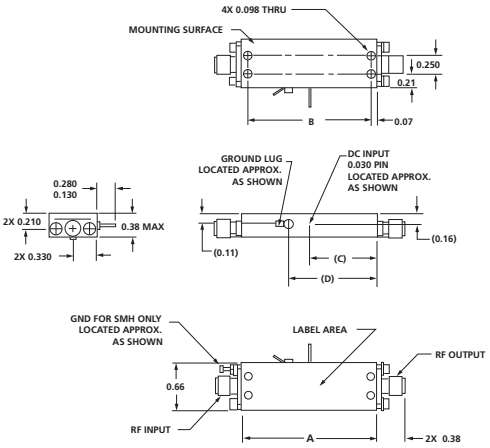
Case	"A" DIM	"B" DIM
2I	1.25	.750
4I	1.75	1.250
6I	2.25	1.750
8I	2.75	2.250
10I	3.25	2.750
12I	3.75	3.250



MH Case

- Low profile housing design
- Connectors can be removed for surface mount applications
- Nickel plated aluminum housing

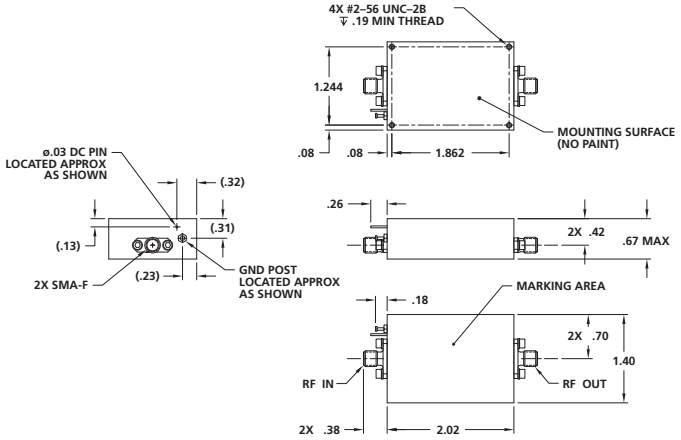
Case	A DIM	B DIM	(C DIM)	(D DIM)
SMH	.87	.728	.43	—
1MH	1.12	.976	.43	.68
2MH	1.36	1.220	.68	.93
3MH	1.80	1.462	.68	.93
4MH	1.85	1.705	.92	1.17
5MH	2.09	1.948	.92	1.17
6MH	2.33	2.190	1.17	1.41
7MH	2.57	2.434	1.41	1.66
8MH	2.82	2.677	1.41	1.66



N-6 Case

Unless otherwise specified

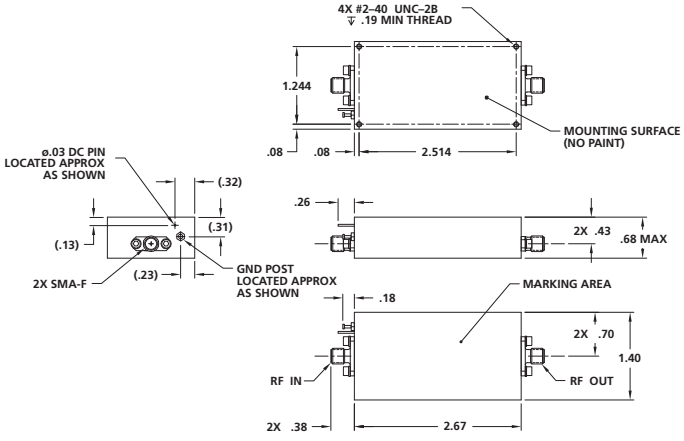
- RF connectors are SMA female
- No paint on connector threads or mounting surface
- Finish per Narda East standard practices



N-6P Case

Unless otherwise specified

- RF connectors are SMA female
- No paint on connector threads or mounting surface
- Finish per Narda East standard practices

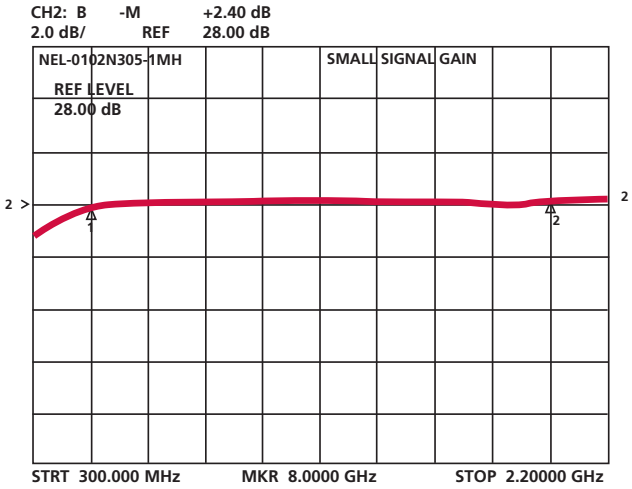


Low Noise, Broadband Amplifier
NEL-0102N305-1MH

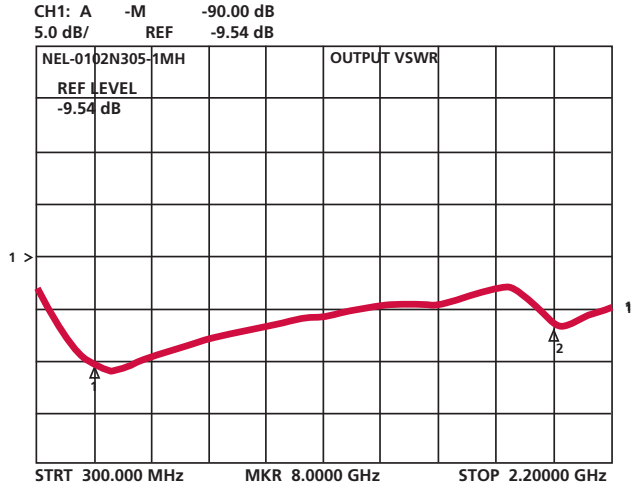
Features:

- P-1 dB; 5 dBm Min.
- Bandwidth: .5 to2GHz
- VSWR: < 2.0:1 Max.
- Gain: 28 dB Min.
- Gain Flatness: ±.5 dB Max.
- Noise Figure: 2 dB Max.
- Single Supply Operation: 12 VDC @ 150 mA Max.
- Hermetically Sealed
- Package Type: 1MH

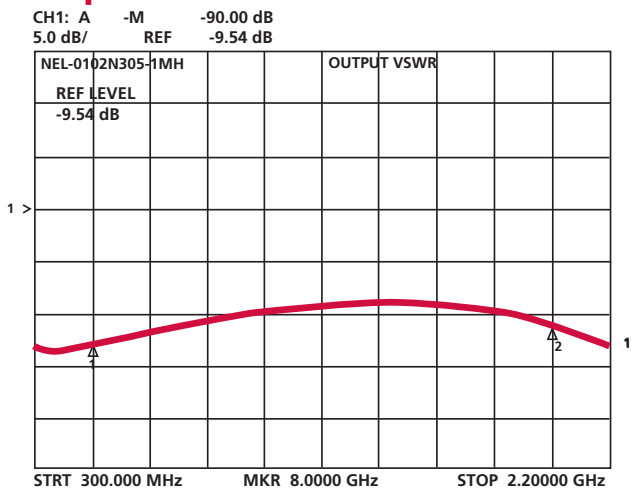
Gain



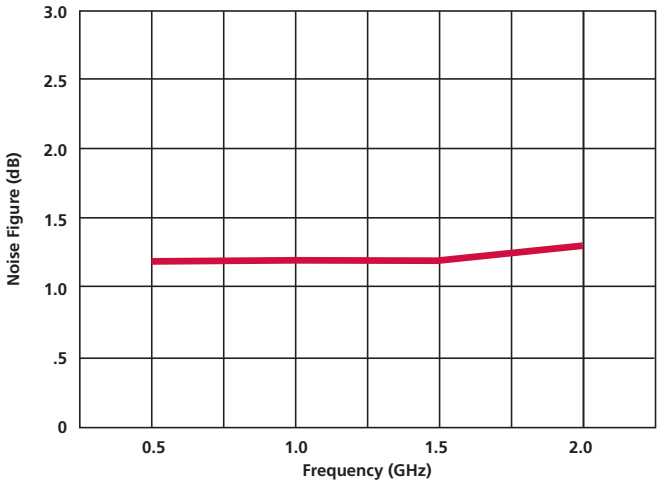
Input VSWR



Output VSWR



Noise Figure



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