

# AmpliTech

"Amplify Your Potential"

## CRYOGENIC LNA AMPLIFIERS

### DESCRIPTION

Due to the increased demand for even lower Noise Figures, AmpliTech introduces its line of cryogenic amplifiers. These amplifiers are designed to operate at extremely low temperatures - as low as the Liquid Helium temperature of 16K (-273C). The lower temperature operation further decreases the already low noise figures that AmpliTech provides.



Efficiency is key for Cryogenic amplifiers so we offer very low DC Power options (as low as +3 VDC), very low current consumption, and a very lightweight, compact housing. These amplifiers are very useful for applications that require the absolute minimum amounts of noise injection - such as Medical Applications, RF Imaging, Research & Development, Space Communications, Accelerators, Radiometry and Telephony. Noise figures as low as 0.07 dB (<5° K) are possible at L band frequencies. These amplifiers have been tested, operated and approved by the National Institute of Standards and Technology.

These amps are extremely stable and highly reliable at these operating temperatures. Custom solutions are always an option. Cooling systems are also available for all our Cryogenic Amplifiers. Cryogenic amplifiers can be supplied with waveguide or SMA connector interfaces.

### FEATURES

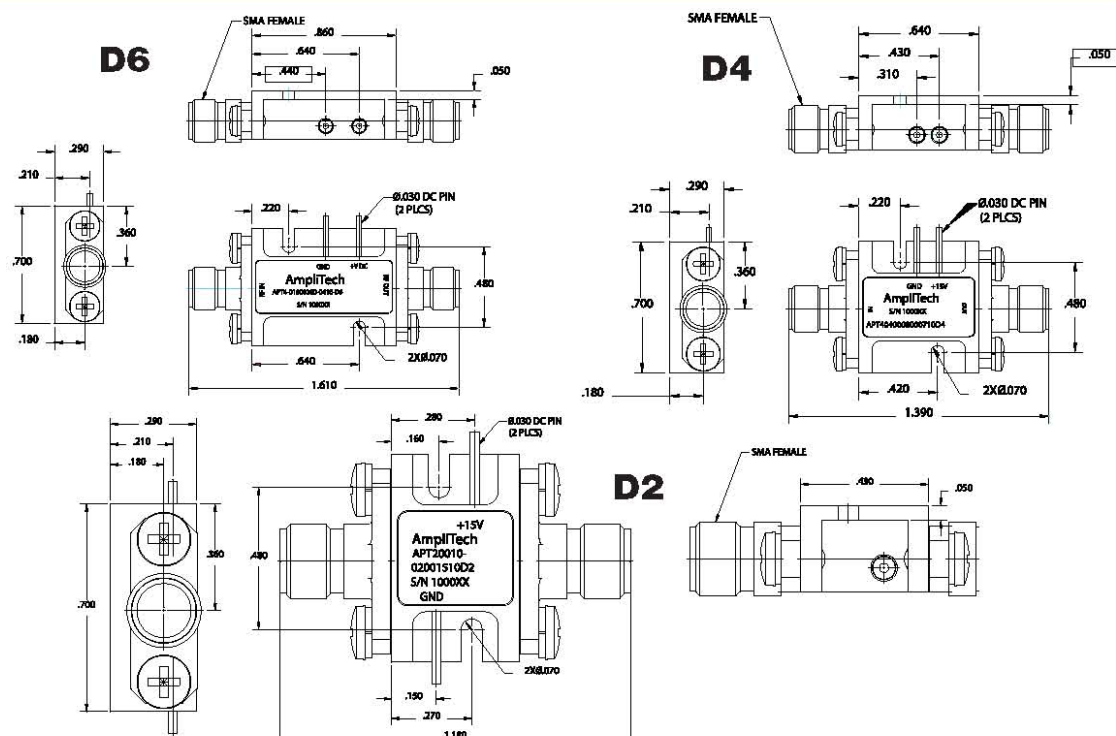
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| <ul style="list-style-type: none"><li>· Unconditionally Stable</li><li>· State-of-the-Art Technology</li><li>· Flexible design for custom solutions</li><li>· Operating temperatures well below 16°K (237° C)</li><li>· Very lightweight, compact package</li></ul> | <ul style="list-style-type: none"><li>· High reliability</li><li>· Multiple connector and waveguide interface options</li><li>· Ultra-Low Current Consumption</li><li>· High Efficiency</li><li>· Industry Leading Ultra-Low Noise Figures</li></ul> |
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### OPTIONS

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| <ul style="list-style-type: none"><li>· Custom designs for all specifications</li><li>· MIL-STD 883 and Space Level screening</li><li>· Hermetic Laser Sealing</li></ul> | <ul style="list-style-type: none"><li>· +3 to +8 VDC power options</li><li>· Special Testing options</li></ul> |
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# CRYOGENIC LNA SPECIFICATIONS

MODEL NUMBER	FREQ.		GAIN		NOISE	VSWR	VSWR	POWER	NOM. DC	AmpliTech OUTLINE DRAWING
	RANGE	GAIN	FLATNESS	FIGURE	INPUT	OUTPUT	@ 1dB C.P.	POWER		
	(GHz)	(dB, Min.)	(dB, Max.)	(dB, Max.)	(Max.)	(Max.)	(dBm, Min.)	(V, mA)		
APTC3-00100200-0900-D4	0.1-2	38	± 1.00	0.90	2.0:1	2.0:1	0	+6, 50	D4	
Specs @ 77K	0.1-2	42	± 1.00	0.20	1.5:1	1.5:1	5	+6, 50		
APTC3-02000600-1000-D4	2-6	25	± 1.00	1.00	2.0:1	2.0:1	0	+6, 50	D4	
Specs @ 77K	2-6	30	± 1.00	0.35	1.5:1	1.5:1	5	+6, 50		
APTC2-02200230-0400-D2	2.2-2.3	26	± 1.00	0.40	2.0:1	2.0:1	0	+6, 55	D2	
Specs @ 77K	2.2-2.3	31	± 1.00	0.15	1.5:1	1.5:1	5	+6, 55		
APTC3-02000600-0900-D4	2-6	29	± 1.00	0.90	2.0:1	2.0:1	0	+6, 60	D4	
Specs @ 77K	2-6	33	± 1.00	0.30	1.5:1	1.5:1	5	+6, 60		
APTC4-04000800-0700-D4	4-8	23	± 1.00	0.70	2.0:1	2.0:1	0	+6, 50	D4	
Specs @ 77K	4-8	28	± 1.00	0.20	1.5:1	1.5:1	5	+6, 50		
APTC3-01000200-0300-D4	1-2	38	± 1.00	0.30	2.0:1	2.0:1	0	+6, 45	D4	
Specs @ 77K	1-2	43	± 1.00	0.10	1.5:1	1.5:1	5	+6, 45		
APTC3-01200160-02505-D4	1.2-1.6	40	± 1.00	0.25	2.0:1	2.0:1	5	+6, 55	D4	
Specs @ 77K	1.2-1.6	45	± 1.00	0.10	1.5:1	1.5:1	10	+6, 55		
APTC4-08001200-0905-D4	8-12	32	± 1.00	0.90	2.0:1	2.0:1	5	+9, 110	D4	
Specs @ 77K	8-12	34	± 1.00	0.35	1.65	1.5:1	10	+9, 110		
APTC4-12001800-1805-D4	12-18	30	± 1.50	1.80	2.0:1	2.0:1	5	+9, 125	D4	
Specs @ 77K	12-18	35	± 1.50	1.30	2.0:1	2.0:1	10	+9, 125		
APTC4-00101800-2510-D4	0.1-18	23	± 2.50	2.50	2.5:1	2.5:1	10	+9, 135	D4	
Specs @ 77K	0.1-18	25	± 2.50	1.90	2.5:1	2.5:1	10	+9, 135		



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# AmpliTech

"Amplify Your Potential"

**NEW**

## 80°K Cryogenically Cooled LNA Assembly



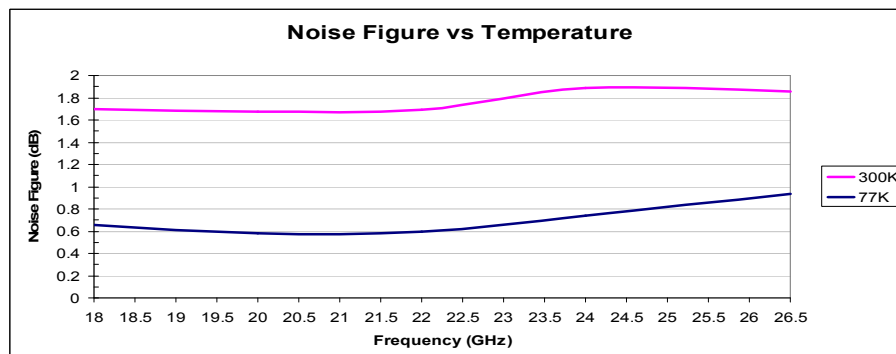
### Features

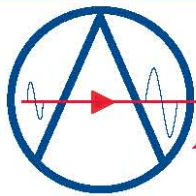
- No *Microphonic Sidebands*, reduces DSP post processing
- Proven Field results-1800 units deployed globally
- Minimal Maintenance requirements allow for deployment in remote locations.
- MTBF is greater than 50,000 hours for each integrated system.
- Cooled LNA/Assembly Located directly at Antenna Feed via 3 meter umbilicus
- Compact Size 12"x12"x9", Self Contained Refrigerator Cooling

### Applications

- **Homeland Security Detection Technologies**
- **Cellular Base Stations**
- **Satellite Downlink Terminals (SATCOM)**
- **Terrestrial Radio Astronomy**
- **Remote Telecom Repeater Depots**

### Typical Noise Figure improvement for a Ka – band LNA





# AmpliTech

*"Amplify Your Potential"*

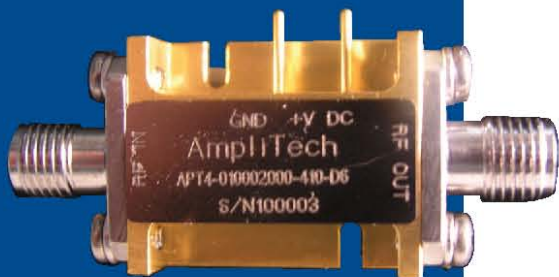
## SPACE QUALIFIED LOW NOISE AMPLIFIERS

### DESCRIPTION

These low noise amplifiers are designed, manufactured, tested, and screened to be extremely reliable and rugged for Space or Flight Applications. We use the highest quality parts and pass them through the most rigorous testing procedures. For further reliability, we utilize hermetically sealed Kovar housings.

Screening options include MIL-STD-883 and MIL-PRF-38534. In addition to the testing and standards that goes into these amps, we also provide complete documentation, Total Quality, Dedicated Project Management, Status Reporting, and the most essential requirement; Excellent Customer Service.

Applications include Space Communications, Satellite applications, Flight Systems, R&D, or just Hi-Rel applications that require high Mean-Time-Between-Failure numbers (as high as 1 Million hours). Custom designs are available including low cost options to meet your budget or level of necessity. On-Time and expedited deliveries make us the number one choice for these types of applications.



### FEATURES

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| <ul style="list-style-type: none"> <li>• MTBF of 1,000,000 Hours</li> <li>• Complete Traceability</li> <li>• Proven Manufacturing Flow for Minimized Failures</li> <li>• Full Qualification Reports</li> <li>• Serialized Data Sheets</li> <li>• Complete Documentation</li> <li>• Excellent Customer Service/Support</li> <li>• Unconditionally Stable</li> <li>• State-of-the-Art Technology</li> <li>• Flexible design for custom solutions</li> </ul> | <ul style="list-style-type: none"> <li>• Very lightweight, compact package</li> <li>• Multiple connector interfaces</li> <li>• Ultra-Low Current Consumption</li> <li>• High Efficiency</li> <li>• High Linearity</li> <li>• High Reliability</li> <li>• High Dynamic Range</li> <li>• Industry Leading Ultra-Low Noise Figures</li> <li>• Extremely Flat Gain Response</li> </ul> |
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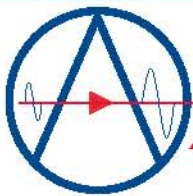
### OPTIONS

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|--|--|---|
| <ul style="list-style-type: none"> <li>• Acceptance Test Procedures</li> <li>• FMECA &amp; WCA Reports</li> <li>• Custom SCD's</li> <li>• PDR, CDR, PMR, and TIM reviews</li> <li>• Weatherproofing</li> </ul> | <ul style="list-style-type: none"> <li>• Complete Custom designs for all specifications</li> <li>• +5 TO +28 VDC power options</li> <li>• Low Cost Space Level Designs</li> <li>• Gain Equalization</li> </ul> | <ul style="list-style-type: none"> <li>• Special Testing options (Burn-In, Bond Pull, Stress, etc.)</li> <li>• High Gain</li> <li>• High Output</li> <li>• Cryogenic Options</li> </ul> |
|--|--|---|



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DS-107



# AmpliTech

*"Amplify Your Potential"*

## LIMITING AMPLIFIERS

### DESCRIPTION

Limiting amplifiers are very useful in applications where you need a constant output level while having a variable input signal. These amplifiers are very useful for the system integrator who needs a steady level output and to protect all subsequent components from saturation or overdrive damage. These amplifiers, along with AmpliTech's ultra low noise characteristics, make a perfect match to produce a clear, consistent, amplified signal.

This amplifier has become a very popular solution in DLVA's, SDLVA's, and IFM systems (2nd harmonic suppression), receivers, and simulators because we provide a clean, low-error response across the entire 2-18 GHz frequency range. The unique construction of these amplifiers yields low phase noise characteristics which is a very important requirement for systems integration.



### FEATURES

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|--|---|
| <ul style="list-style-type: none"><li>• Ultra-Wide Bands (2-18 GHz)</li><li>• Removable SMA Connectors</li><li>• Unconditionally Stable</li><li>• State-of-the-Art Technology</li><li>• Flexible design for custom solutions</li><li>• Very lightweight, compact designs</li><li>• Multiple connector interfaces (SMA, GPO, etc)</li><li>• Low Current Consumption</li><li>• High Reliability (Mil-Std 883)</li><li>• High Dynamic Range</li></ul> | <ul style="list-style-type: none"><li>• Hermetically Sealable</li><li>• Flat Gain Response</li><li>• High Gain (up to 80 dB)</li><li>• Exceptional Two-Tone (Harmonic) Suppression for IFM Applications</li><li>• Low Saturated Harmonic Levels (-20 dBc typ.)</li><li>• Temperature Compensated (-40° to 90°C)</li><li>• Low Phase Noise Characteristics</li></ul> |
|--|---|

# LIMITING AMPLIFIERS

## OPTIONS

Custom designs for all specifications  
 MIL-STD 883 / Space Level screening  
 Hermetic Laser Sealing  
 +5 TO +28 VDC power options  
 Gain Equalization  
 Weatherproofing  
 Extended Operating Temperature Ranges  
 Special Testing options

Temperature Compensation  
 Internal Input Limiter  
 Phase Matching  
 Amplitude Matching  
 Sloped Gains  
 High Gain Options (up to 90 dB)  
 AC or DC Coupling

## LIMITING AMPLIFIER SPECIFICATIONS

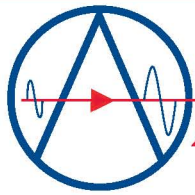
MODEL NUMBER	FREQ. RANGE (GHz)	INPUT RANGE (dBm)	NOISE FIGURE (dB, Max.)	VSWR INPUT (Max.)	VSWR OUTPUT (Max.)	OUTPUT RANGE (dBm)	NOM. DC POWER (+15 V, mA)	AmpliTech OUTLINE DRAWING
APT5-00100200-5011-D6-LM	0.1-2.0	-50 to 0	5.00	2.5 :1	2.5 :1	+11 to +16	250	D6
APT3-00100200-5000-D6-LM	0.1-2.0	-30 to 0	5.00	2.5 :1	2.5 :1	0 to +10	175	D6
APT3-00500100-1515-D6-LM	0.5-1.0	-15 to +10	1.50	2.0 :1	2.0 :1	+15 to +20	100	D4
APT3-01000200-1515-D4-LM	1-2	-15 to +10	1.50	2.0 :1	2.0 :1	+15 to +20	100	D4
APT3-02000400-2515-D4-LM	2-4	-15 to +10	2.50	2.5 :1	2.5 :1	+15 to +20	200	D4
APT3-02000600-3015-D4-LM	2-6	-15 to +10	3.00	2.5 :1	2.5 :1	+15 to +20	200	D4
APT4-02000800-3515-D4-LM	2-8	-15 to +10	3.50	2.5 :1	2.5 :1	+15 to +20	200	D4
APT4-04000800-3515-D4-LM	4-8	-15 to +10	3.50	2.5 :1	2.5 :1	+15 to +20	200	D4
APT4-08001200-4015-D4-LM	8-12	-15 to +10	4.00	2.5 :1	2.5 :1	+15 to +20	225	D4
APT5-08001800-5015-D6-LM	8-18	-15 to +10	5.00	2.5 :1	2.5 :1	+15 to +20	300	D6
APT5-12001800-5015-D6-LM	12-18	-15 to +10	5.00	2.5 :1	2.5 :1	+15 to +20	275	D6
APT55-02001800-D66-LMS	2.0-18.0	-55 to 5	3.00	2.5 :1	2.5 :1	+11 to +16	350	D6+D6
APT55-02001800-5011-D66-LM	2.0-18.0	-50 to 0	5.00	2.5 :1	2.5 :1	+11 to +16	300	D6+D6
APT5-02001800-5000-D6-LM	2.0-18.0	-30 to 0	5.00	2.5 :1	2.5 :1	0 to +10	250	D6

NOTE: Input and output ranges can be modified to suit customer specifications



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DS-105

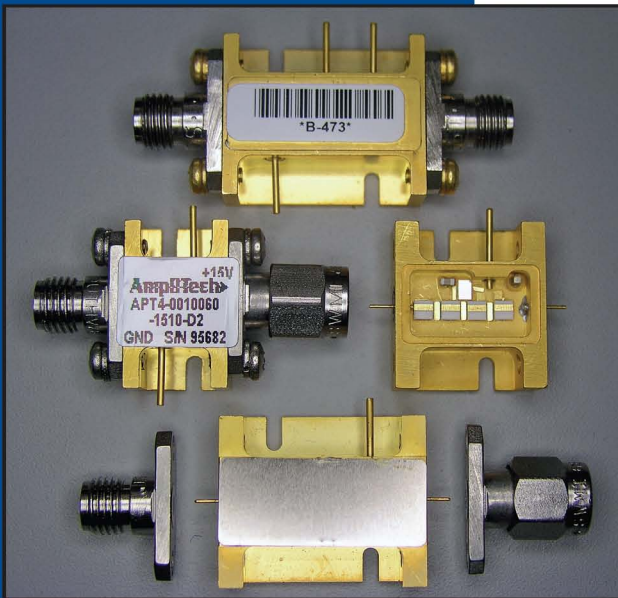


# AmpliTech

*"Amplify Your Potential"*

## LOW NOISE AMPLIFIERS

### DESCRIPTION



AmpliTech's low noise amplifiers have been designed to have the lowest noise figures available in the industry. They are designed and manufactured using proven mature technology and processes that yield the best value and performance. The designs use the latest discrete transistors and MMICs.

Our designs are flexible enough to provide you with customized solutions for any specific application. Applications include telecom, satellite, space, military, and general lab purposes.

AmpliTech is very competitive and will provide you with the best prices and customer service. Our goal is to offer the best quality amplifier available and we show this by offering a standard 3 year warranty on all our amplifiers.

### FEATURES

- Lowest noise temperatures
- Very stable, high gains
- State-of-the-Art Technology
- Flexible design for custom solutions
- Reverse polarity protection
- Operating temperature range of 0°C to +55°C
- Rugged, lightweight package
- Wide dynamic range
- Available for frequencies up to 40 GHz
- High reliability
- Hermetically sealable
- Internal regulator

### OPTIONS

- Custom designs for all specifications
- Input power protection
- Temperature compensation
- Sloped gain options (for equalization gain)
- Designs for cryogenic cooling
- Higher dynamic range
- MIL-STD 883 and Space Level screening
- Multiple connector interfaces

# LOW NOISE AMPLIFIER SPECIFICATIONS

## NARROW BAND

MODEL NUMBER	FREQ. RANGE (GHz)	GAIN (dB, Min.)	GAIN FLATNESS (dB, Max.)	NOISE FIGURE (dB, Max.)	VSWR INPUT (Max.)	VSWR OUTPUT (Max.)	P1dB (dBm, Min.)	NOM. DC POWER (+15V, mA)	AmpliTech OUTLINE DRAWING
APT3-00500060-0510-D4	.5-6	38	± 0.25	0.50	1.5 :1	1.5 :1	10	185	D4
APT3-00700080-0410-D4	.7-8	38	± 0.50	0.40	1.5 :1	1.5 :1	10	90	D4
APT3-00900120-0413-D4	.9-1.2	38	± 0.50	0.40	1.5 :1	1.5 :1	13	150	D4
APT2-00950122-0715-D2	.95-1.22	25	± 0.50	0.70	1.8 :1	1.8 :1	15	90	D4
APT3-00950145-0413-D4	.95-1.45	38	± 0.50	0.40	1.8 :1	1.8 :1	13	150	D4
APT1-00950160-1013-D4	.95-1.6	12	± 1.00	1.00	2.0 :1	2.0 :1	13	80	D4
APT3-00950175-0513-D4	.95-1.75	38	± 0.50	0.50	1.8 :1	1.8 :1	13	150	D4
APT5-09500105-0810-D6	0.95-1.05	44	± 0.50	0.80	2.0 :1	2.0 :1	10	125	D6
APT5-01000110-0810-D6	1.0-1.1	44	± 0.50	0.80	2.0 :1	2.0 :1	10	125	D6
APT3-01200160-02513-D4	1.2-1.6	40	± 0.50	0.25	1.5 :1	1.5 :1	13	125	D4
APT4-01300140-0410-D4	1.3-1.4	28	± 0.50	0.40	1.5 :1	1.5 :1	10	90	D4
APT6-01500160-03513-D6	1.5-1.6	60	± 0.50	0.35	1.5 :1	1.5 :1	13	250	D6
APT1-01500180-02510-D2	1.5-1.8	13	± 0.50	0.25	2.0 :1	2.0 :1	10	125	D2
APT3-01500180-02513-D4	1.5-1.8	40	± 0.50	0.25	1.5 :1	1.5 :1	13	175	D4
APT4-01700240-1010-D4	1.7-2.4	38	± 0.50	1.00	1.8:1	1.8 :1	10	200	D4
APT5-02100270-05510-D6	2.1-2.7	60	± 1.00	0.55	1.5 :1	1.5 :1	10	200	D6
APT4-02200230-0705-D4	2.2-2.3	40	± 0.50	0.70	1.5 :1	1.5 :1	5	175	D4
APT3-02300240-04510-D4	2.3-2.4	32	± 0.50	0.45	1.5 :1	1.5 :1	10	185	D4
APT2-02300270-04510-D2	2.3-2.7	26	± 0.50	0.45	1.5 :1	1.5 :1	10	90	D2
APT3-03000350-0510-D4	3-3.5	29	± 0.50	0.50	1.5 :1	1.5 :1	10	150	D4
APT3-03400420-0510-D4	3.4-4.2	28	± 1.00	0.50	1.8 :1	1.8 :1	10	175	D4
APT4-03600420-0413-D4	3.6-4.2	35	± 0.50	0.40	1.8 :1	1.8 :1	13	135	D4
APT4-04400510-0510-D4	4.4-5.1	36	± 0.50	0.50	1.5 :1	1.5 :1	10	125	D4
APT3-05000700-0610-D4	5-7	24	± 1.00	0.60	1.5 :1	1.5 :1	10	100	D4
APT3-05000700-0910-D4	5-7	25	± 1.00	0.90	1.5 :1	1.5 :1	10	100	D4
APT4-07100840-0810-D4	7.1-8.4	28	± 1.00	0.80	2.0 :1	2.0 :1	10	150	D4
APT4-07100840-0813-D4	7.1-8.4	34	± 0.5	0.80	1.8 :1	1.8 :1	13	200	D4
APT3-07250775-0710-D4	7.25-7.75	23	± 0.75	0.70	1.3 :1	1.5 :1	10	100	D4
APT3-07250775-05510-D4	7.25-7.75	23	± 0.75	0.55	1.3 :1	1.5 :1	10	100	D4
APT5-07700820-0915-D6	7.7-8.2	40	± 1.00	0.90	1.5 :1	1.5 :1	15	175	D6
APT3-07900840-2010-D4	7.9-8.4	28	± 0.50	2.00	2.0 :1	2.0 :1	10	100	D4
APT3-09001000-1010-D4	9.0 - 10.0	32	± 0.75	1.00	1.5 :1	1.5 :1	10	165	D4
APT2-10701120-1405-D4	10.70-11.20	16	± 1.50	1.40	1.5 :1	1.5 :1	5	125	D4
APT3-10701170-1010-D4	10.70-11.70	32	± 1.00	1.00	1.5 :1	1.5 :1	10	200	D4
APT4-10701270-1010-D4	10.70-12.70	40	± 1.50	1.00	1.5 :1	1.5 :1	10	160	D4
APT4-10701270-1010-D6	10.70-12.70	38	± 1.00	1.00	2.0 :1	2.0 :1	10	150	D6
APT4-10701275-1110-D4	10.70-12.75	28	± 1.00	1.10	1.8 :1	1.8 :1	10	175	D4
APT5-10701270-1010-D6	10.70-12.70	45	± 1.00	1.00	2.0 :1	2.0 :1	10	190	D6
APT6-10701270-1010-D6	10.70-12.70	52	± 1.00	1.00	2.0 :1	2.0 :1	10	225	D6
APT3-10951175-0910-D4	10.95-11.75	23	± 0.75	0.90	1.5 :1	1.5 :1	10	200	D4
APT3-11701220-0910-D4	11.7-12.2	23	± 0.75	0.90	1.5 :1	1.5 :1	10	200	D4
APT3-12701320-1010-D4	12.7-13.2	28	± 1.00	1.00	2.0 :1	2.0 :1	10	200	D4
APT4-12701530-1110-D4	12.7-15.3	40	± 1.00	1.10	1.8 :1	1.8 :1	10	200	D4
APT4-15101540-2010-D4	15.1-15.4	30	± 1.00	2.00	2.0 :1	2.0 :1	10	140	D4
APT6-14001450-1410-D6	14-14.5	34	± 0.75	1.40	1.5 :1	1.5 :1	10	225	D6
APT4-17001750-1610-D4	17-17.5	22	± 1.00	1.60	1.5 :1	1.5 :1	10	200	D4
APT8-17701970-2010-D8	17.7-19.7	40	± 1.25	2.10	1.5 :1	1.5 :1	14	225	D2+D2
APT4-20202120-1708-D4	20.2-21.2	22	± 1.75	1.70	1.5 :1	1.5 :1	8	200	D4
APT2-21002200-1910-D2	21.0-22.0	18	± 1.50	1.90	1.5 :1	1.5 :1	10	75	D2
APT4-21002400-2013-D4	21.0-24.0	28	± 1.75	2.00	2.0 :1	2.0 :1	13	200	D4
APT2-22002400-2510-D2	22.0-24.0	18	± 2.00	2.50	2.5 :1	2.5 :1	10	100	D2
APT4-24202530-2210-D4	24.2-25.3	20	± 1.50	2.20	1.8 :1	1.8 :1	10	200	D4
APT2-24002600-2510-D2	24.0-26.0	18	± 2.00	2.50	2.5 :1	2.5 :1	10	100	D2
APT2-23002750-4010-D2	23.0-27.5	16	± 1.75	4.00	2.0 :1	2.0 :1	10	125	D2
APT2-25002800-2510-D2	25.0-28.0	25	± 1.50	2.50	2.5 :1	2.5 :1	10	125	D2



## LOW NOISE AMPLIFIER SPECIFICATIONS (cont.)

### OCTAVE BAND

MODEL NUMBER	FREQ. RANGE (GHz)	GAIN (dB, Min.)	GAIN FLATNESS (dB, Max.)	NOISE FIGURE (dB, Max.)	VSWR INPUT (Max.)	VSWR OUTPUT (Max.)	P1dB (dBm, Min.)	NOM. DC POWER (+15 V, mA)	AmpliTech OUTLINE DRAWING
APT2-00250050-0810-D4	.25-.50	25	± 0.50	0.80	2.0 :1	2.0 :1	10	100	D4
APT3-00250050-0810-D4	.25-.50	38	± 0.50	0.80	2.0 :1	2.0 :1	10	125	D4
APT2-00500100-0610-D6	.5-1.0	25	± 0.50	0.60	2.5 :1	2.0 :1	10	75	D6
APT3-00500100-0610-D4	.5-1.0	38	± 0.50	0.60	2.5 :1	2.0 :1	10	100	D4
APT2-01000200-0510-D4	1-2	24	± 1.00	0.50	2.0 :1	2.0 :1	10	100	D4
APT3-01000200-0510-D4	1-2	38	± 1.00	0.50	2.0 :1	2.0 :1	10	150	D4
APT3-01000200-0310-D4	1-2	38	± 1.00	0.30	2.0 :1	2.0 :1	10	150	D4
APT3-01000200-1010-D6	1-2	38	± 1.00	1.00	2.0 :1	2.0 :1	10	150	D6
APT2-01000200-1010-D2	1-2	22	± 1.00	1.00	2.0 :1	2.0 :1	10	100	D2
APT3-01000200-1310-D4	1-2	32	± 1.00	1.30	2.0 :1	2.0 :1	10	100	D4
APT2-01000200-1410-D2	1-2	24	± 1.00	1.40	2.0 :1	2.0 :1	10	100	D2
APT3-02000400-0610-D4	2-4	32	± 1.00	0.60	2.0 :1	2.0 :1	10	150	D4
APT5-02000400-0610-D6	2-4	46	± 1.50	0.60	2.0 :1	2.0 :1	10	150	D6
APT3-02000400-0510-D4	2-4	32	± 1.00	0.50	2.0 :1	2.0 :1	10	150	D4
APT3-02000400-1410-D4	2-4	32	± 1.00	1.40	2.0 :1	2.0 :1	10	120	D4
APT4-02000400-1014-D4	2-4	38	± 1.50	1.00	2.0 :1	2.0 :1	14	250	D4
APT4-02600520-1010-D4	2.6-5.2	28	± 1.00	1.00	2.0 :1	2.0 :1	10	175	D4
APT3-04000800-0710-D4	4-8	23	± 1.00	0.70	2.0 :1	2.0 :1	10	150	D4
APT4-04000800-0610-D4	4-8	28	± 1.00	0.60	2.0 :1	2.0 :1	10	150	D4
APT4-04000800-0710-D4	4-8	32	± 1.00	0.70	2.0 :1	2.0 :1	10	150	D4
APT4-04000800-1212-D4	4-8	38	± 1.50	1.20	2.0 :1	2.0 :1	12	150	D4
APT5-04000800-0710-D6	4-8	50	± 1.50	0.70	2.0 :1	2.0 :1	10	200	D6
APT2-06001200-1605-D2	6-12	14	± 2.00	1.60	2.0 :1	2.0 :1	5	100	D2
APT3-06001200-1208-D4	6-12	24	± 1.50	1.20	2.0 :1	2.0 :1	8	125	D4
APT3-06001200-1508-D4	6-12	24	± 1.50	1.50	2.0 :1	2.0 :1	8	150	D4
APT4-06001200-1208-D4	6-12	32	± 2.00	1.20	2.0 :1	2.0 :1	10	150	D4
APT4-06001200-1510-D4	6-12	34	± 1.50	1.50	2.0 :1	2.0 :1	10	175	D4
APT4-08001600-1410-D4	8-16	23	± 1.00	1.40	2.0 :1	2.0 :1	10	150	D4
APT4-12002400-2510-D4	12-24	20	± 2.00	2.50	2.0 :1	2.5 :1	10	150	D4

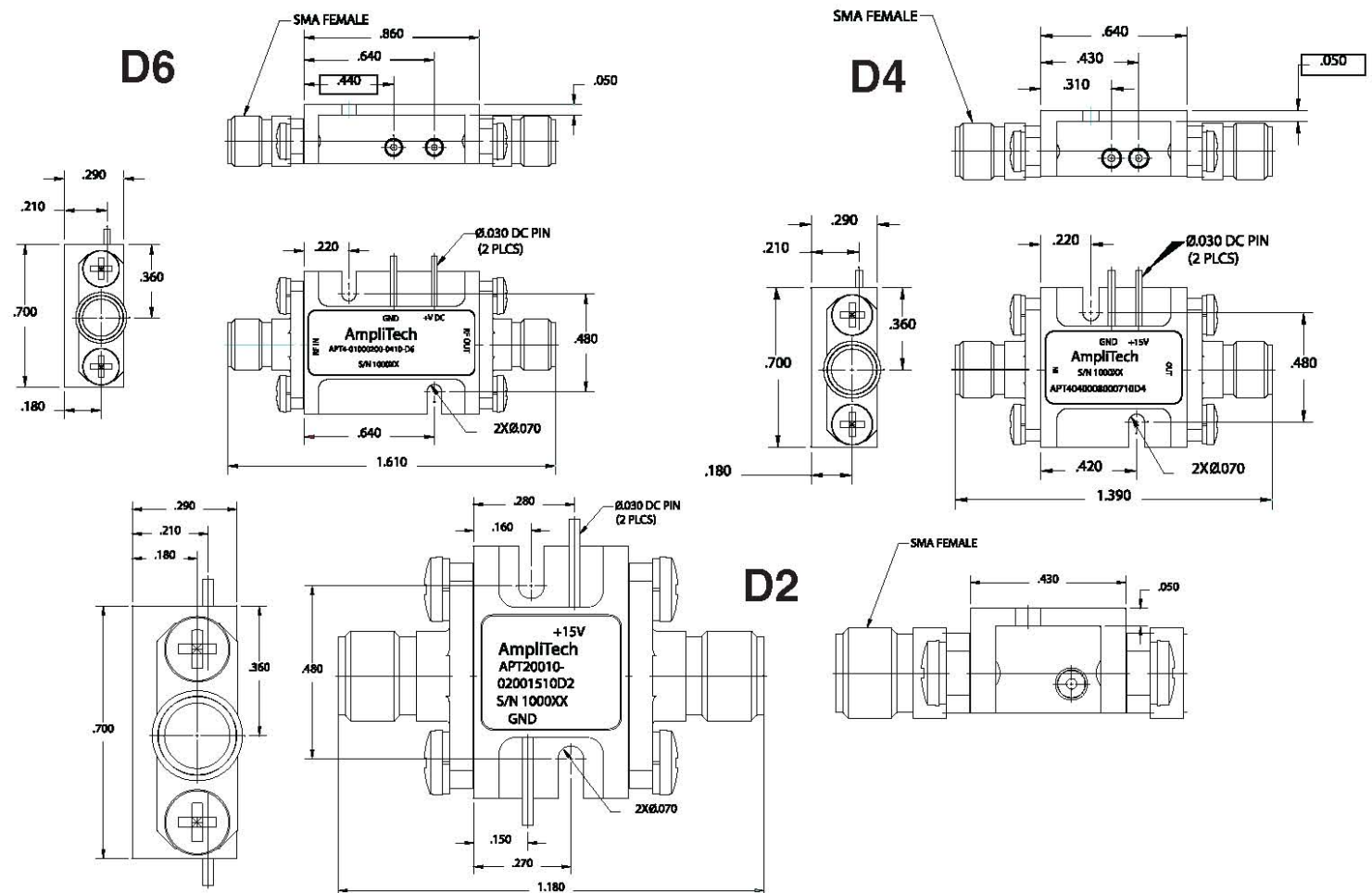
### MULTI-OCTAVE WIDEBAND AMPLIFIERS

MODEL NUMBER	FREQ. RANGE (GHz)	GAIN (dB, Min.)	GAIN FLATNESS (dB, Max.)	NOISE FIGURE (dB, Max.)	VSWR INPUT (Max.)	VSWR OUTPUT (Max.)	P1dB (dBm, Min.)	NOM. DC POWER (+15 V, mA)	AmpliTech OUTLINE DRAWING
APT2-00010100-1210-D4	0.01-1.0	14	± 1.0	1.20	2.3 :1	2.3 :1	10	165	D4
APT4-00010100-2510-D6	0.01-1.0	32	± 1.5	2.50	2.5 :1	2.5 :1	10	200	D6
APT2-00280060-0810-D4	0.28-0.60	25	± 0.75	0.80	2.0 :1	2.0 :1	10	125	D4
APT3-00200600-1310-D4	.2-6	28	± 1.25	1.30	2.0 :1	2.0 :1	10	125	D4
APT4-00200600-1310-D4	.2-6	42	± 1.00	1.30	2.0 :1	2.0 :1	10	200	D4
APT2-00300140-0810-D4	.3-1.4	18	± 1.00	0.80	2.0 :1	2.0 :1	10	70	D4
APT3-00400350-1010-D4	.4-3.5	30	± 1.00	1.00	2.0 :1	2.0 :1	10	110	D4
APT4-00500200-0815-D4	.5-2	38	± 1.00	0.80	2.0 :1	2.0 :1	15	125	D4
APT3-00500600-1010-D4	.5-6	28	± 1.25	1.00	2.0 :1	2.0 :1	10	125	D4
APT3-00501800-2508-D4	.5-18	20	± 2.50	2.50	2.5 :1	2.5 :1	8	150	D4
APT3-00501800-3008-D4	.5-18	20	± 2.50	3.00	2.5 :1	2.5 :1	8	150	D4
APT4-00501800-2410-D4	.5-18	25	± 2.50	2.40	2.5 :1	2.5 :1	10	225	D4
APT4-00501800-3010-D4	.5-18	35	± 2.00	3.00	2.5 :1	2.5 :1	10	250	D4
APT3-01000400-0910-D4	1-4	26	± 1.00	0.90	2.0 :1	2.0 :1	10	125	D4
APT4-01000800-5010-D4	1-8	34	± 1.50	5.00	2.5 :1	2.5 :1	10	225	D4
APT3-01001200-2510-D4	1-12	22	± 2.00	2.50	2.0 :1	2.0 :1	10	125	D4
APT2-02002000-4010-D2	2-20	12	± 1.00	4.00	2.0 :1	2.0 :1	10	100	D2
APT3-02000600-0910-D4	2-6	28	± 1.00	0.90	2.0 :1	2.0 :1	10	125	D4
APT4-02000600-1010-D4	2-6	32	± 1.00	1.00	2.0 :1	2.0 :1	10	150	D4
APT3-02000800-1210-D4	2-8	25	± 1.00	1.20	2.0 :1	2.0 :1	10	125	D4
APT4-02001800-2510-D4	2-18	23	± 2.00	2.50	2.5 :1	2.5 :1	10	150	D4
APT4-02001800-2410-D4	2-18	23	± 2.00	2.40	2.5 :1	2.5 :1	10	130	D4
APT4-02001800-3810-D4	2-18	23	± 2.00	3.80	2.5 :1	2.5 :1	10	120	D4
APT4-06001800-2210-D4	6-18	23	± 1.50	2.20	2.5 :1	2.0 :1	10	150	D4
APT5-06001800-1905-D6	6-18	33	± 2.00	1.90	2.5 :1	2.0 :1	5	200	D6
APT2-08001200-2510-D2	8-12	16	± 1.00	2.50	2.0 :1	2.0 :1	10	150	D2
APT3-08001200-1010-D4	8-12	29	± 1.00	1.00	2.0 :1	2.0 :1	10	125	D4
APT4-08001200-0910-D4	8-12	33	± 1.00	0.90	2.0 :1	2.0 :1	10	165	D4
APT5-08001200-1213-D6	8-12	40	± 1.5	1.20	2.0 :1	2.0 :1	13	200	D6
APT6-08001200-0910-D6	8-12	55	± 1.75	0.90	2.0 :1	2.0 :1	10	250	D6
APT3-08001800-2008-D4	8-18	20	± 1.50	2.00	2.0 :1	2.0 :1	8	125	D4
APT4-08001800-2010-D4	8-18	25	± 2.00	2.00	2.0 :1	2.0 :1	10	150	D4
APT4-08001800-5010-D4	8-18	34	± 1.50	5.00	2.5 :1	2.5 :1	10	250	D4
APT3-12001800-1710-D4	12-18	27	± 1.50	1.70	2.0 :1	2.0 :1	10	135	D4

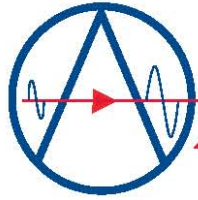
## ULTRA-WIDE BAND AMPLIFIERS

MODEL NUMBER	FREQ. RANGE (GHz)	GAIN (dB, Min.)	GAIN FLATNESS (dB, Max.)	NOISE FIGURE (dB, Max.)	VSWR INPUT (Max.)	VSWR OUTPUT (Max.)	P1dB (dBm, Min.)	NOM. DC POWER (+15 V, mA)	AmpliTech OUTLINE DRAWING
APT3-00100200-1015-D4	.1-2	38	± 1.00	1.00	2.0 :1	2.0 :1	15	175	D4
APT4-00100300-1115-D6	.1-3	30	± 2.00	1.10	2.5 :1	2.5 :1	15	275	D6
APT3-00100300-1010-D4	.1-3	28	± 1.00	1.00	2.2 :1	2.0 :1	10	150	D4
APT3-00100300-1210-D4	.1-3	30	± 1.00	1.20	2.0 :1	2.0 :1	10	100	D4
APT3-00100400-1210-D4	.1-4	30	± 1.00	1.20	2.0 :1	2.0 :1	10	100	D4
APT3-00100600-1510-D4	.1-6	28	± 1.25	1.50	2.0 :1	2.0 :1	10	125	D4
APT3-00100600-1310-D4	.1-6	28	± 1.25	1.30	2.0 :1	2.0 :1	10	125	D4
APT3-00100600-1010-D4	.1-6	28	± 1.25	1.00	2.0 :1	2.0 :1	10	125	D4
APT4-00100600-1310-D6	.1-6	42	± 1.00	1.30	2.0 :1	2.0 :1	10	200	D6
APT3-00100850-4010-D4	.1-8.5	25	± 1.75	4.00	2.5 :1	2.5 :1	10	200	D4
APT4-00100800-1410-D4	.1-8	28	± 1.50	1.40	2.0 :1	2.0 :1	10	175	D4
APT3-00101200-2510-D4	.1-12	22	± 2.25	2.50	2.0 :1	2.0 :1	10	175	D4
APT3-00101800-2510-D4	.1-18	20	± 2.50	2.50	2.5 :1	2.5 :1	10	150	D4
APT4-00101800-2510-D4	.1-18	25	± 2.50	2.50	2.5 :1	2.5 :1	10	175	D4
APT3-00102000-3010-D4	.1-20	19	± 2.50	3.00	2.5 :1	2.5 :1	10	150	D4
APT4-00102000-2710-D4	.1-20	25	± 2.50	2.70	2.5 :1	2.5 :1	10	150	D4
APT3-00102000-2410-D4	.1-20	19	± 2.50	2.40	2.5 :1	2.5 :1	10	200	D4
APT4-00102400-4005-D4	.1-24	16	± 2.00	4.00	2.5 :1	2.5 :1	5	275	D4
APT4-00102650-4008-D4	.1-26.5	18	± 2.50	4.00	2.5 :1	2.5 :1	8	175	D4

NOTE: Noise figures increase below 500 MHz in bands wider than .1-10 GHz.



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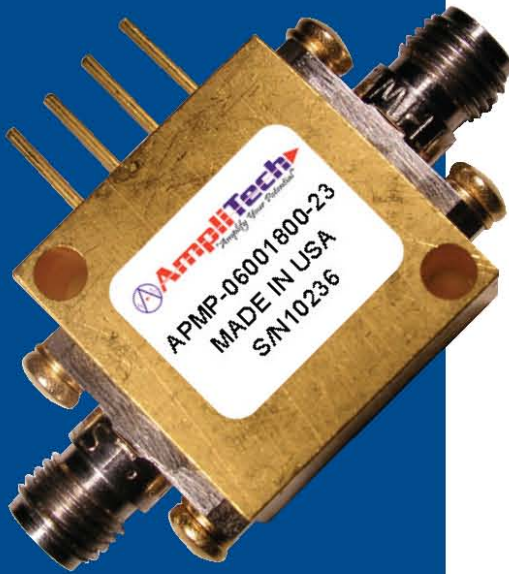


# AmpliTech

*"Amplify Your Potential"*

## Medium Power Amplifiers

### DESCRIPTION



AmpliTech's Medium Power Amplifiers provide higher output power than most standard amplifiers while still maintaining the low noise characteristics associated with AmpliTech. AmpliTech's Medium Power Amplifiers can easily substitute the more expensive and oversized units like SSPA's and TWTA's. These units are made with the latest in GaAs, InP, InGaP, PHEMT, MHEMT, and MMIC designs.

These amplifiers are specifically designed for Military and Commercial purposes including satellite, space, prototyping, cellular, PCS, and other telephony applications.

AmpliTech is very competitive and will provide you with the best prices and customer service. Our goal is to offer the best quality amplifier available and we show this by - offering a standard 3 year warranty on all our amplifiers.

### FEATURES

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>• Low power consumption</li><li>• Very stable, high gains</li><li>• Flexible design for custom solutions</li><li>• Operating temperature range of 0°C to +55°C</li><li>• MIL-STD 883 and Space Level screening</li><li>• Small, rugged, lightweight package</li><li>• High dynamic range</li><li>• Wide operating Bandwidths</li></ul> | <ul style="list-style-type: none"><li>• High reliability</li><li>• Multiple connector interfaces</li><li>• Hermetically sealable</li><li>• Internal regulator</li><li>• Reverse Voltage protection</li><li>• Up to 1 watt output power (for frequencies up to 2GHz)</li><li>• Can be used as a driver amplifier</li></ul> |
|--|---|

### OPTIONS

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>• Higher output power, (up to +25 dBm)</li><li>• Custom designs for all specifications</li></ul> | <ul style="list-style-type: none"><li>• Input power protection</li><li>• Higher dynamic range</li></ul> |
|--|---|

# MEDIUM POWER AMPLIFIER SPECIFICATIONS

MODEL NUMBER	FREQ. RANGE (GHz)	GAIN (dB, Min.)	GAIN FLATNESS (dB, Max.)	NOISE FIGURE (dB, Max.)	RETURN LOSS - IN (Max.)	RETURN LOSS - OUT (Max.)	P1dB (dBm, Min.)	NOM. DC POWER (+15 V, mA)	AmpliTech OUTLINE DRAWING
APTMP1-00010100-1821-D4	.01-1	15	±1.50	1.80*	2.5:1	2.5:1	21	150	D4
APTMP4-00010100-4021-D4	.01-1	15	±1.50	4.00**	2.3:1	2.3:1	20	120	D4
APTMP3-00100050-1015-D6	.1-5	36	±1.00	1.00	2.5:1	2.0:1	15	150	D6
APTMP2-00100100-1823-D2	.1-1	13	±1.00	1.80	2.5:1	2.0:1	23	150	D2
APTMP1-00100100-3523-D2	.1-1	13	±2.00	3.50	2.5:1	2.5:1	23	200	D2
APTMP1-00100200-1121-D4	.1-2	15	±1.50	1.10	2.5:1	2.5:1	21	150	D4
APTMP2-00100200-2020-D4	.1-2	20	±1.50	2.00	2.0:1	2.0:1	20	150	D4
APTMP2-00100200-1121-D4	.1-2	25	±1.50	1.10	2.5:1	2.5:1	21	180	D4
APTMP3-00100200-2523-D4	.1-2	32	±1.50	2.50	2.0:1	2.5:1	23	300	D4
APTMP4-00100200-2527-D6	.1-2	32	±1.50	2.50	2.0:1	2.5:1	27	300	D6
APTMP3-00100300-1520-D4	.1-3	30	±1.50	1.5*	2.2:1	2.2:1	20	220	D4
APTMP4-00100300-2021-D4	.1-3	31	±1.50	2.00	2.0:1	2.0:1	21	250	D4
APTMP2-00100400-3520-D2	.1-4	16	±1.50	3.50	2.2:1	2.2:1	20	200	D2
APTMP4-00100400-2620-D4	.1-4	26	±1.50	2.60	2.0:1	2.0:1	20	250	D4
APTMP4-00100600-2620-D4	.1-6	26	±1.50	2.60	2.0:1	2.0:1	20	250	D4
APTMP2-00101000-5520-D2	.1-10	10	±1.75	5.50	2.2:1	2.2:1	20	200	D2
APTMP3-00101000-4020-D4	.1-10	18	±1.50	4.00	2.0:1	2.0:1	20	250	D4
APTMP2-00101800-5516-D4	.1-18	15	±2.75	5.50	2.5:1	2.5:1	16	200	D4
APTMP3-00101800-4520-D4	.1-18	23	±2.75	4.50	2.5:1	2.5:1	20	300	D4
APTMP5-00101800-3820-D6	.1-18	34	±2.75	3.80	2.5:1	2.5:1	20	250	D6
APTMP3-00501800-7020-D4	.5-18	16	±2.75	7.00	2.5:1	2.5:1	20	350	D4
APTMP4-00501800-6520-D6	.5-18	25	±2.75	6.50	2.5:1	2.5:1	20	350	D6
APTMP5-00501800-3023-D6	.5-18	34	±3.0	3.50	2.5:1	2.5:1	23	475	D6
APTMP6-00501800-3020-D6	.5-18	42	±2.5	3.00	2.5:1	2.5:1	20	450	D6
APTMP4-00501800-5021-D6	.5-18	27	±2.0	5.00	2.0:1	2.0:1	21	375	D6
APTMP3-00502000-5018-D4	.5-20	16	±2.75	5.00	2.5:1	2.5:1	18	350	D4
APTMP6-00102000-3518-D6	.1-20	34	±3.00	3.50	2.5:1	2.5:1	18	350	D6
APTMP2-00950122-0820-D2	.95-1.22	26	±0.5	0.80	1.8:1	1.8:1	20	120	D2
APTMP1-00951600-1015-D4	.95-1.60	10	±1.00	1.00	2.0:1	2.0:1	15	80	D4
APTMP5-01700240-1525-D6	1.7-2.4	38	±0.50	1.50	1.8:1	1.8:1	25	250	D6
APTMP1-01000200-1523-D4	1-2	13	±1.50	1.50	2.5:1	2.5:1	23	175	D4
APTMP2-01000200-2020-D2	1-2	20	±1.50	2.00	2.0:1	2.0:1	20	200	D2
APTMP4-01000400-1523-D4	1-4	33	±1.00	1.50	1.8:1	1.8:1	23	250	D4
APTMP3-01000800-4020-D4	1-8	18	±1.50	4.00	2.0:1	2.2:1	20	225	D4
APTMP3-01001800-3919-D4	1-18	24	±2.50	3.90	2.0:1	2.0:1	19	350	D4
APTMP2-01900210-2427-D4	1.9-2.1	23	±0.75	2.40	2.0:1	2.0:1	27	300	D4
APTMP4-02000300-1321-D4	2-3	45	±1.50	1.30	2.0:1	2.0:1	21	250	D4
APTMP4-02000400-3025-D4	2-4	28	±1.50	3.00	2.0:1	2.0:1	25	250	D4
APTMP4-02000400-2520-D4	2-4	40	±1.00	2.50	2.0:1	2.0:1	20	300	D4
APTMP3-02001800-5020-D4	2-18	15	±2.00	5.00	2.5:1	2.0:1	20	300	D4
APTMP3-02001800-3420-D4	2-18	17	±1.50	3.40	2.0:1	2.0:1	20	325	D4
APTMP4-02001800-4020-D4	2-18	24	±1.50	4.00	2.0:1	2.0:1	20	325	D4
APTMP6-02001800-4020-D6	2-18	40	±2.00	4.00	2.0:1	2.0:1	20	375	D6
APTMP3-02001800-5020-D4	2-18	20	±2.00	5.00	2.5:1	2.5:1	20	325	D4
APTMP3-03400420-1520-D4-GW	3.4-4.2	32-34	±0.75	1.50	2.0:1	2.5:1	20	225	D4
APTMP3-02002000-3620-D4	2-20	18	±2.00	3.60	2.5:1	2.5:1	20	350	D4
APTMP4-04000800-4022-D4	4-8	20	±1.00	4.00	2.0:1	2.0:1	22	250	D4
APTMP6-06001800-5020-D4	6-18	22	±2.00	5.00	2.0:1	2.0:1	20	300	D4
APTMP5-06400710-2015-D6	6.4-7.1	41	±1.00	2.00	1.5:1	1.5:1	15	200	D6
APTMP2-07900840-3020-D2	7.9-8.4	15	±0.50	3.00	2.0:1	2.0:1	20	150	D2
APTMP4-08000850-3020-D4	8.0-8.5	35	±1.00	3.00	2.0:1	2.0:1	20	150	D4
APTMP6-09001000-1117-D6	9-10	42	±1.00	1.10	1.75:1	1.75:1	17	200	D6
APTMP4-08001200-4020-D4	8-12	22	±1.25	4.00	2.0:1	2.0:1	20	250	D4
APTMP5-10701275-5023-D6	10.70-12.75	35	±0.75	5.00	2.0:1	2.0:1	23	400	D6
APTMP6-12001800-4020-D6	12-18	28	±2.00	4.00	2.0:1	2.0:1	20	375	D6
APTMP5-12002000-3522-D6	12-20	35	±2.00	3.50	2.5:1	2.5:1	22	375	D6
APTMP3-17002200-6020-D4	17-22	20	±2.50	6.00	2.0:1	2.5:1	20	150	D4
APTMP22-18002600-2117-D22	18-26	40	±1.50	2.10	2.0:1	2.0:1	17	250	D2+D2
APTMP6-18002600-2220-D6	18-26	40	±2.50	2.20	2.5:1	2.5:1	20	275	D6
APTMP3-17701970-1520-D6	17.7-19.7	38	±1.00	1.50	1.8:1	1.8:1	20	200	D6
APTMP4-17802130-1618-D4	17.8-21.3	20	±2.00	1.60	2.5:1	2.0:1	18	250	D4
APTMP2-21002400-6521-D2	21.0-24.0	13	±2.50	6.50	2.5:1	2.5:1	21	100	D2
APTMP3-21002400-6519-D4	21.0-24.0	20	±2.50	6.50	2.5:1	2.5:1	19	135	D4
APTMP3-21002400-2020-D6	21.0-24.0	38	±1.00	2.00	1.8:1	1.8:1	20	200	D6
APTMP2-22002650-2219-D2	22.0-26.5	25	±1.50	2.20	2.2:1	2.2:1	19	175	D2

\* Noise figure degrades below 200 MHz.

\*\* Noise figure degrades below 45 MHz.

Noise figures increase below 500 MHz in bands wider than .1-10 GHz.



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