APTC3-04000800-1K00-D4-V

Ultra -Low Noise Cryogenic Amplifier

Typical Key Parameters at 23°C

Parameters	Unit	Min	Typical	Max	Notes
Frequency	GHz	4.0	-	8.0	Customizable
Gain	dB	40	42	45	Customizable
Gain Flatness	dB	-	±0.5	-	Customizable
In/Out VSWR	-	-	1.5:1	-	Customizable
P@1dB	dBm	+0	-6	-	Customizable
DC Power@296°K	V@mA	-	+0.7	+0.8	20 mA typ.
DC Power@4K	V@mA	-	+0.7	+0.8	3 mA typ.
NT(6-8 GHz BW)	°K	-	25	-	**@296K**
NT(6-8 GHz BW)	°K	-	1	-	@4K
Outline/Package	**D4 Standard Drop-in (Custom outlines available)**				
Connectors (in/Out)	**SMA-F/SMA-F (GPO and custom options available)**				

Absolute Maximum Ratings*

Parameters	Unit	Min	Max	Notes
Operating Temperature (Case)	K	+4	-	95% humidity, non-condensing
Non-Operating Temperature (Case)	K	-	+300	95% humidity, non-condensing
RF Input Power	dBm	-	-10	CW
Die Junction Temp (Tj)	°C	-	+150	For GaAs devices
Positive Supply Voltage	V	+0.5	+0.9	At +V DC terminal
Negative Voltage	V	N/A	N/A	Reverse Voltage

** Stresses above those listed under "Absolute Maximum Rating" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability. All STANDARD units are packaged in Aluminum housings that are layered with electroless Nickel and then plated with Gold to eliminate contamination of other adjacent electronic components.*

Product Features

- Frequency Range = 4.0 to 8.0 GHz
- Typical Noise Temperature: 1°K at 4K case temp in 6 to 8 GHz BW
- Typical Gain: 42 dB @ 4K
- Typical Gain Flatness: <±0.5 dB
- State-of-the-Art PHEMT Technology
- MIL-883, MIL-45208 construction and reliability
- Single +0.7V Biasing
- Low 2.5 mW DC power dissipation at 4K
- No dual power supply or connector needed
- SMA female connectors
- 0.030" diameter pins for DC and GND
- Custom gain and frequency options available

Product Description

This model APTC3-04000800-1K00-D4-V is an optimized band LNA which is designed for cryogenic applications down to 1°K with an industry low Noise Figure of 25°K at +23°C case temperature across the band. The LNA has a good gain flatness and VSWR across the entire band and up to 8 GHz for use in different applications. An optional super slim version is also available for low profile, stackable solution with miniature 0.9mm threaded connectors for high integrity connections.

Applications

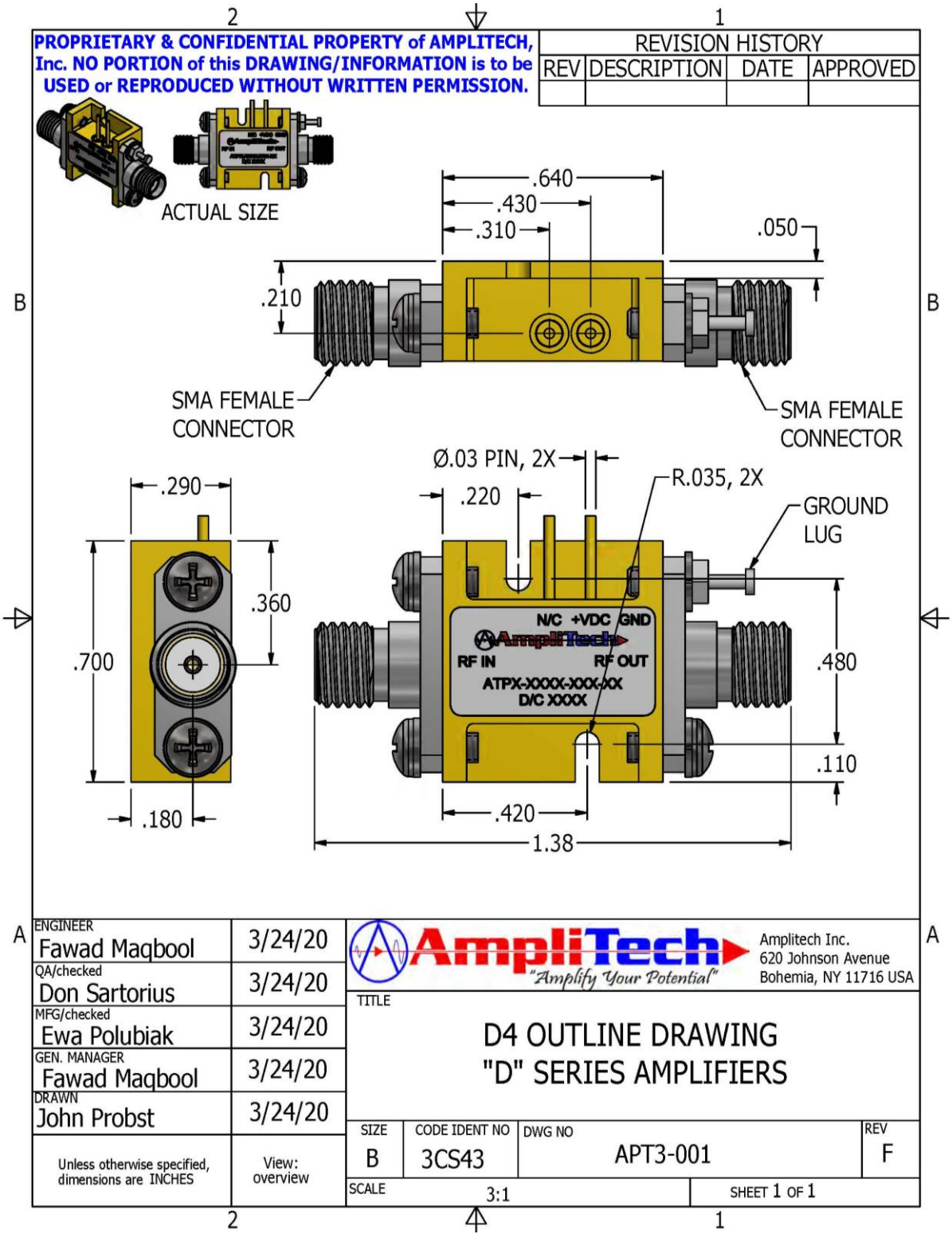
- Radiometers
- Nanophysics (Electron spin resonance)
- Astronomy/Observatory Receivers
- Superconductor Research
- Satellite receivers

Typical Measured Data at 296K and 77K

Data taken with Agilent N5242 PNA-X Vector Network Analyzer

Note: Custom outline options available

Outline Drawing



Note: Custom outline options available