



## FEATURES

- Ultra Low Noise Performance
- Low DC Power Consumption
- Wide Operating Temperature Range: 4 K to +75 °C
- RoHS Compliant
- RF Ports Matched to 50 Ohms

## TYPICAL APPLICATIONS

- Quantum Computing
- Radio Astronomy
- Deep Space Communication
- Satellite Communications
- SIGINT
- Low Temperature Physics

## ELECTRICAL SPECIFICATIONS (@ 4K)<sup>1</sup>

Parameter	Min	Max	Typ	Units
Frequency Range	6.0	9.0	-	GHz
Noise Temperature*	-	5.5	4.3	K
Gain (S21)	See Graph	-	See Graph	dB
Gain Flatness	-	2.0	1.5	± dB
Output Power @ 1dB Compression Point (P1dB)	-5	-	0	dBm
Input VSWR (S11)	-	2.0	1.6	-
Output VSWR (S22)	-	2.0	1.6	-
DC Supply Voltage	+0.08	+0.40	+0.20	VDC
Typical DC Supply Current	6.5	20.0	15.0	mA
Typical DC Power Consumption	0.5	8.0	3.0	mW

<sup>1</sup>DC Specs vary per Gain and P1dB version, see individual datasheet for details

\*Max. & Typ. Apply to 3.0 mW Power Consumption or Higher

### Absolute Maximum Ratings

Parameter	Rating
DC Supply Voltage	$V_D \leq +1.0 \text{ V}$ , $V_G \leq +0.5 \text{ V}$
RF Input Power	+10 dBm
Operating Temperature	4K to +75°C
Non-Operating Temperature	4K to +105°C
RF Port Coupling (In/Out)	DC Coupled / DC Coupled

### Mechanical Specifications

Parameter	Value
Length	0.62 in [15.7 mm]
Width	0.67 in [17.0 mm]
Height	0.30 in [7.6 mm]
Connectors (In/Out)	SMA(F) / SMA(F)
Approx. Weight	9.6 g

The information above is relative to the sale of a COTS product as depicted. For information regarding other features available in this amplifier family, please review page 3 of this document or contact your local representative for specific inquiries.

The material presented in this datasheet was current at the time of publication. Narda-MITEQ's continuing product improvement program makes it necessary to reserve the right to change our mechanical and electrical specifications without notice. If either of these parameters is critical, please contact the factory to verify that the information is current.

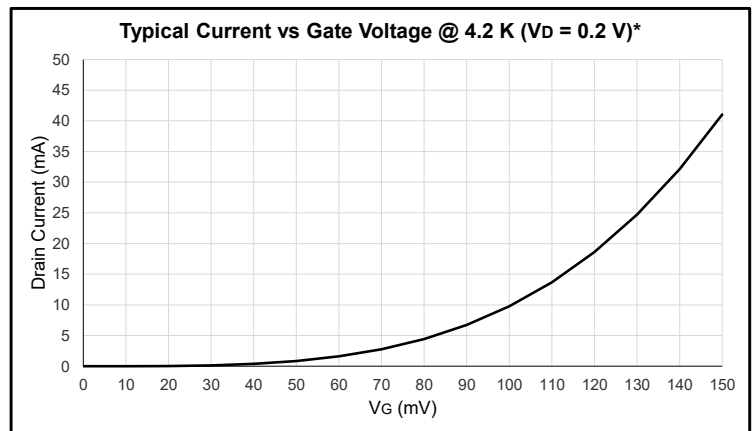
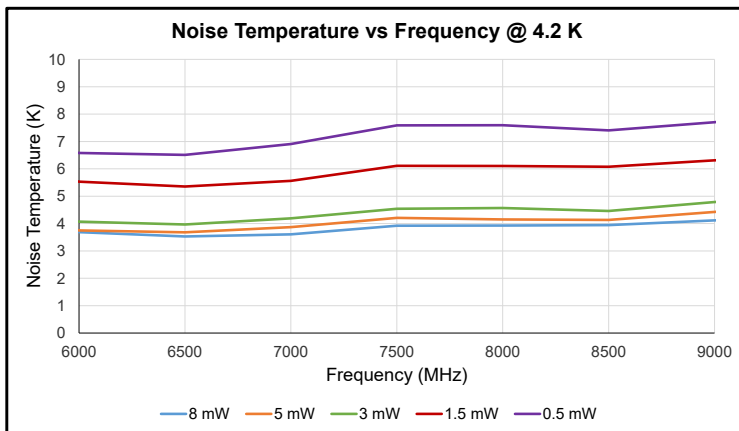
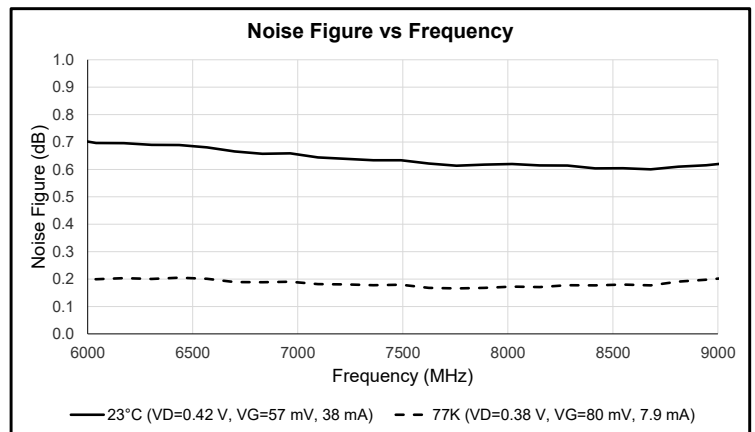
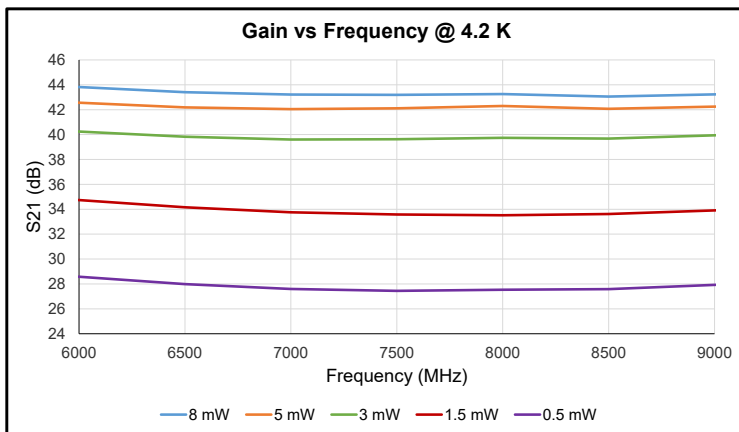
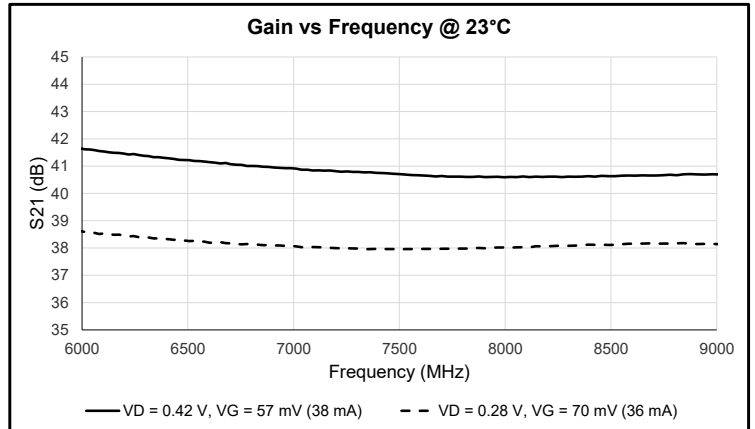
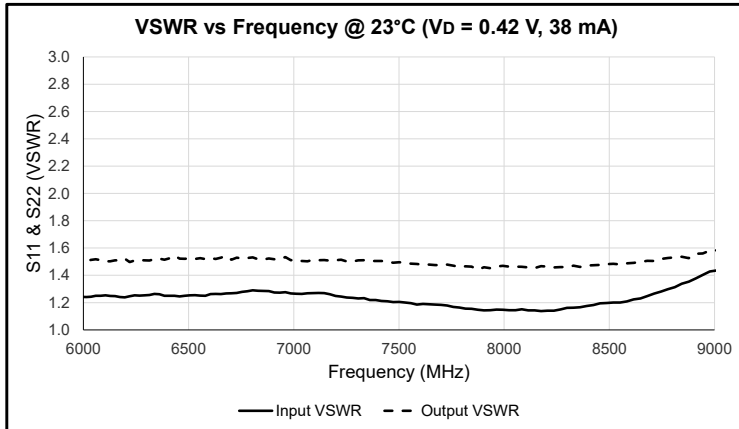
This material consists of Narda-MITEQ general capabilities information and does not contain controlled technical data as defined within the International Traffic in Arms (ITAR) Part 120.10 or Export Administration Regulations (EAR) Part 734.7-11. D-405/05.01.18



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**Typical Performance:**

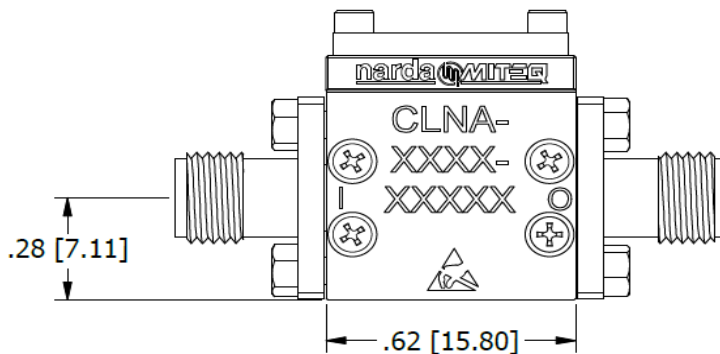
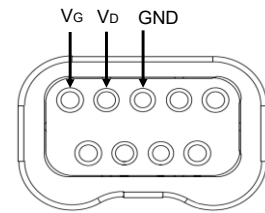
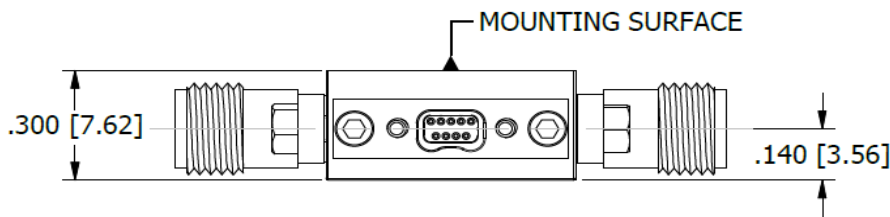
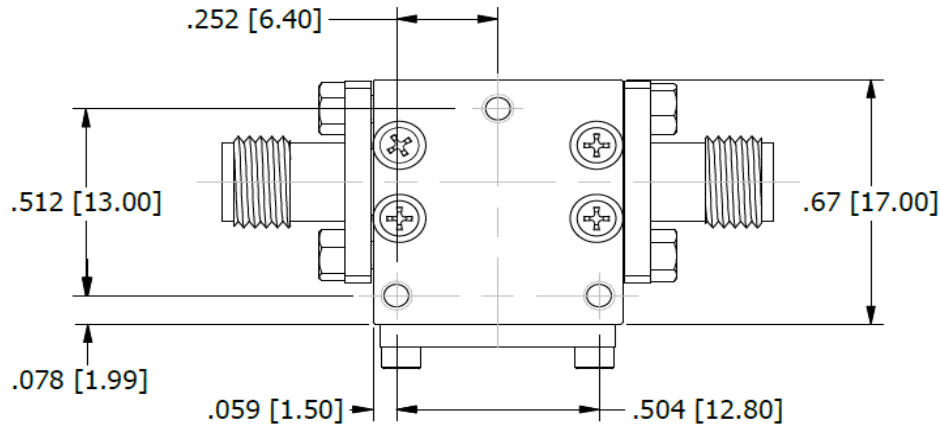


\*I<sub>D</sub> curve may shift higher or lower with respect to V<sub>G</sub> for a particular LNA

Environmental Specifications		
Parameter	Standard	Description
Operational Temperature		4K to +75°C
Storage Temperature		4K to +105°C
Random Vibration	MIL-STD-883K, Method 2026, Cond. 1B	50 - 2000 Hz, 7.3 Grms
Humidity	MIL-STD-202, Method 103B, Cond. B	95% RH Non-Condensing
Altitude	MIL-STD-883K, Method 1001, Cond. B	30,000 ft

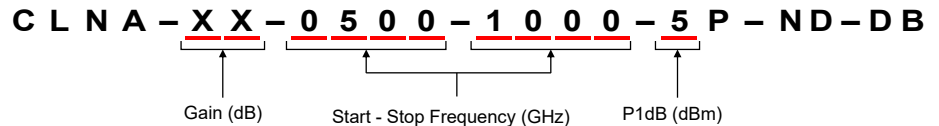
\*This amplifier is designed to meet the above conditions. If ESS testing is required please contact factory.\*

**Outline 229309:**



STEP file may be available upon request

**Ordering Information<sup>2</sup>**



**Available Gains:** 20, 30 or 40 dB Minimum

**Available P1dBs:** -5, 0 or +5 dBm Minimum

**Available Options<sup>3</sup>:** Adds One or More Suffixes

Option	Description	Connector Options (Input / Output)	
-ND	DC Bias Through Nano-D Connector	No Dash	SMA Female / Female
-BTO	DC Bias Through Output	-MF	SMA Male / Female
-DB	Dual Bias Control [No Dash = Single Bias]	-FM	SMA Female / Male
-NM	Non-Magnetic Construction	-MM	SMA Male / Male
-H	Hermetic (not compatible with -NM)	-GP	GPPO (SMPPM) Male / Male
-TXX	Specific Minimum Operating Temperature	-G3	G3PO (SMPS) Male / Male
-S	Combine 3 or More Options		

Typical Current Table	Min P1dB (dBm)			
	-5	0	+5	
Min Gain (dB)	20	10	22	42
	30	15	30	50
	40	20	42	62

<sup>2</sup>Other Gains and P1dBs may be available upon request. However, certain combinations of Gain, P1dB and/or other options may not be compatible

<sup>3</sup>Options -NM, -H, -GP and -G3 may require different package outline than shown herein, contact factory for more details

-TXX option offers customer selection of minimum operating temperature, but must be ≥ 4 Kelvin