

# 2009XUAN

## 2000 Quad-Band Ku-Band PLL LNB (0.9 dB)

**Frequency:** A: 10.70 - 11.20 GHz | 11.20 - 11.70 GHz | 11.70  
- 12.25 GHz | 12.25 - 12.75 GHz

**L.O. Stability:** External Reference

**Output Connector:** N: 50 Ohm



REACH



## KEY SPECIFICATIONS

Band	Ku-Band
Input Frequency Band 1	10.70 - 11.20 GHz
Input Frequency Band 2	11.20 - 11.70 GHz
Input Frequency Band 3	11.70 - 12.25 GHz
Input Frequency Band 4	12.25 - 12.75 GHz
LO Frequency 1	9.75 GHz
LO Frequency 2	10.25 GHz
LO Frequency 3	10.75 GHz
LO Frequency 4	11.30 GHz
LO Stability	Ext Ref
LO Type	PLL
Noise Figure Max	1.0 dB
Noise Figure Typ	0.9 dB
Number Of Onboard Los	Quad-Band
Output Frequency Band 1	950 - 1450 MHz
Output Frequency Band 2	950 - 1450 MHz
Output Frequency Band 3	950 - 1500 MHz
Output Frequency Band 4	950 - 1450 MHz
Tone Frequency	22 kHz $\pm$ 4 kHz

## RF SPECIFICATIONS

Control Signal 1	13V / No Tone
Control Signal 2	13V / 22kHz Tone



## Innovative Communication Solutions

Control Signal 3	18V / No Tone
Control Signal 4	18V / 22kHz Tone
Conversion Gain Max	65 dB
Conversion Gain Min	55 dB
Conversion Gain Typ	60 dB
Gain Flatness (over Full Band)	≤ 6 dB p-p
Input VSWR	2.3 : 1 max.
Output P1db	+ 5 dBm min.
Output VSWR	2.2 : 1 max.
Phase Noise 0.1kHz Offset Max	Depends on External Reference

## ELECTRICAL SPECIFICATIONS

Current Consumption	350 mA max
Power Requirements	+12 to +24V DC

## INTERFACE SPECIFICATIONS

IF Connector	N-Connector
RF Input Connector	WR-75 waveguide grooved

## ENVIRONMENTAL SPECIFICATIONS

Humidity	0 - 95%
IP Rating	IP 66
Temperature Operational	-40°C to +70°C
Temperature Storage	-50 to +80°C

## PHYSICAL SPECIFICATIONS

Product Height	1.70 in
Product Length	4.46 in
Product Weight	0.255 kg
Product Width	1.72 in

## LOGISTICS SPECIFICATIONS

HS Code	Country of Origin	Ex Works	ECCN Number	Unit Package
	Made in Canada	Richmond, BC, Canada	EAR99	135 x 68 x 48 mm   0.335 kg

## HOW TO ORDER



## 2108HSAF

LNB SERIES #	CONNECTOR	F: 75 Ohm N: 50 Ohm
	FREQUENCY	A / B / C / D / E / F / G (Please see next page for frequency bands)
	BAND	S: Single-Band D: Dual-Band T: Triple-Band U: Quad-Band
	REFERENCE	H: Internal Reference X: External Reference
	NOISE FIGURE	7: 0.7 dB 8: 0.8 dB 9: 0.9 dB
	L.O STABILITY	0: External Reference 1: $\pm 10$ kHz 2: $\pm 25$ kHz

## MECHANICAL DIAGRAMS





### FREQUENCY BANDS

Single Band				Dual Band							
Band	RF freq (GHz)	L.O freq (GHz)	Output freq	Band	RF freq (GHz)	L.O freq (GHz)	Output freq	Voltage/Tone			
A	11.7 - 12.20	10.75	950 - 1450 MHz	A	Band 1	10.95 - 11.70	10	950 - 1700 MHz			
B	12.25 - 12.75	11.3	950 - 1450 MHz		Band 2	11.70 - 12.75	10.75	950 - 2000 MHz			
C	10.95 - 11.70	10	950 - 1700 MHz	B	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			
D	10.70-11.80	9.75	950 - 2050 MHz		Band 2	11.70 - 12.75	10.75	950 - 2000 MHz			
Triple Band				C	Band 1	10.95 - 11.70	10	950 - 1700 MHz			
Band	RF freq (GHz)	L.O freq (GHz)	Output freq		Voltage/Tone	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz		
A	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V	D	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz	13 V / 22 kHz		Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	
B	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	18 V	E	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	
	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V		Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	
C	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	13 V / 22 kHz	F	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	
D	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	G	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz	
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz	13 V / 22 kHz		Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	
E	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	18 V	H	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V		Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	
F	Band 2	11.70 - 12.25	10.75	950-1500 MHz	13 V / 22 kHz	I	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	
	Band 3	12.25 - 12.75	11.3	950-1450 MHz	18 V		Band 1	10.70 - 10.95	9.75	950 - 1200 MHz	
G	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V	J	Band 2	10.95 - 11.70	10	950 - 1700 MHz	
	Band 2	11.55 - 12.25	10.6	950 - 1650 MHz	13 V / 22 kHz		Band 3	11.70 - 12.25	10.75	950 - 1500 MHz	
H	Band 3	12.20 - 12.70	11.25	950 - 1450 MHz	18 V	K	Band 4	12.25 - 12.75	11.3	950 - 1450 MHz	
	Band 1	10.70 - 11.80	9.75	950 - 2050 MHz	13 V		Band 1	10.70 - 11.20	9.75	950 - 1450 MHz	
I	Band 2	10.95 - 12.10	10	950 - 2100 MHz	13 V / 22 kHz	L	Band 2	11.20 - 11.70	10.25	950 - 1450 MHz	
	Band 3	11.70 - 12.75	10.75	950 - 2000 MHz	18 V		Band 3	11.70 - 12.20	10.75	950 - 1450 MHz	
J	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	M	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz	
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz		Band 1	10.95 - 11.45	10	950 - 1450 MHz	
K	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	N	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz	
					Band 3		11.70 - 12.20	10.75	950 - 1450 MHz		
				Quad Band							
Band	RF freq (GHz)	L.O freq (GHz)	Output freq	Voltage/Tone	A	Band 1	10.70 - 11.20	9.75	950 - 1450 MHz		
A	Band 1	10.70 - 11.20	9.75	950 - 1450 MHz		13 V	Band 2	11.20 - 11.70	10.25	950 - 1450 MHz	
	Band 2	11.20 - 11.70	10.25	950 - 1450 MHz		13 V / 22 kHz	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz	
	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz		18 V	Band 4	12.25 - 12.75	11.3	950 - 1450 MHz	
B	Band 1	10.70 - 10.95	9.75	950 - 1200 MHz	13 V	B	Band 1	10.70 - 10.95	9.75	950 - 1200 MHz	
	Band 2	10.95 - 11.70	10	950 - 1700 MHz	13 V / 22 kHz		Band 2	10.95 - 11.70	10	950 - 1700 MHz	
	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz	18 V		Band 3	11.70 - 12.25	10.75	950 - 1500 MHz	
C	Band 4	12.25 - 12.75	11.3	950 - 1450 MHz	18 V / 22kHz	C	Band 4	12.25 - 12.75	11.3	950 - 1450 MHz	
	Band 1	10.70 - 12.75	11.3	950 - 1450 MHz	13 V		D	Band 1	10.70 - 11.20	9.75	950 - 1450 MHz
	Band 2	11.20 - 11.70	10.25	950 - 1450 MHz	13 V / 22 kHz			Band 2	11.20 - 11.70	10.25	950 - 1450 MHz
D	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz	18 V	E		Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz	18 V / 22kHz		F	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 1	10.95 - 11.45	10	950 - 1450 MHz	13 V			Band 1	10.95 - 11.45	10	950 - 1450 MHz
E	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz	13 V / 22 kHz	G		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz	18 V		H	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz	18 V / 22kHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz