

# 2108HUF

## 2000 Quad-Band Ku-Band PLL LNB (0.8 dB)

**Frequency:** D: 10.95 - 11.70 GHz | 11.70 - 12.25 GHz |  
12.25 - 12.75 GHz | 10.70 - 11.70 GHz

**L.O. Stability:** +/- 10 kHz

**Output Connector:** F: 75 Ohm



REACH



## KEY SPECIFICATIONS

Band	Ku-Band
Input Frequency Band 1	10.95 - 11.70 GHz
Input Frequency Band 2	11.70 - 12.25 GHz
Input Frequency Band 3	12.25 - 12.75 GHz
Input Frequency Band 4	10.70 - 11.70 GHz
LO Frequency 1	10.00 GHz
LO Frequency 2	10.75 GHz
LO Frequency 3	11.30 GHz
LO Frequency 4	9.75 GHz
LO Stability	±10 kHz
LO Type	PLL
Noise Figure Max	0.9 dB
Noise Figure Typ	0.8 dB
Number Of Onboard Los	Quad-Band
Output Frequency Band 1	950 - 1700 MHz
Output Frequency Band 2	950 - 1500 MHz
Output Frequency Band 3	950 - 1450 MHz
Output Frequency Band 4	950 - 1950 MHz
Tone Frequency	22 kHz ± 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	-65 dBc/Hz

## ELECTRICAL SPECIFICATIONS

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

## INTERFACE SPECIFICATIONS

IF Connector	F-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 - 12.75	10.75	950 - 2000 MHz	
A	Band 1	10.95 - 11.70	10	950 - 1700 MHz	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 - 12.75	10.75	950 - 2000 MHz
	B	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	18 V	Band 1	10.95 - 11.70	10	950 - 1700 MHz
Band 1		10.95 - 11.70	10	950 - 1700 MHz	E	Band 2	12.25 - 12.75	11.3	950 - 1450 MHz	
Band 2		11.70 - 12.25	10.75	950 - 1500 MHz		13 V / 22 kHz	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz
C	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.70 - 12.25	10.75	950 - 2000 MHz	
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	F	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz		13 V / 22 kHz	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz
D	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	18 V	G	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz
	E	Band 2	11.70 - 12.25	10.75	950-1500 MHz	13 V / 22 kHz	H	Band 1	10.95 - 11.70	10
Band 3		12.25 - 12.75	11.3	950-1450 MHz	18 V	Band 2		11.70 - 12.25	10.75	950 - 2000 MHz
F		Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V	I	Band 3	12.20 - 12.75	11.25
	Band 2	11.55 - 12.25	10.6	950 - 1650 MHz	13 V / 22 kHz	Band 1		10.70 - 11.70	9.75	950 - 1950 MHz
	G	Band 3	12.20 - 12.70	11.25	950 - 1450 MHz	18 V	J	Band 2	11.70 - 12.20	10.75
Band 1		10.70 - 11.80	9.75	950 - 2050 MHz	13 V	Band 3		12.25 - 12.75	11.3	950 - 1450 MHz
H		Band 2	10.95 - 12.10	10	950 - 2100 MHz	13 V / 22 kHz	K	Band 1	10.70 - 11.20	9.75
	Band 3	11.70 - 12.75	10.75	950 - 2000 MHz	18 V	Band 2		11.20 - 11.70	10.25	950 - 1450 MHz
	I	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	L	Band 3	11.70 - 12.20	10.75
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
J		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	M	Band 2	11.45 - 11.95	10.5
	K	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V		Band 3	11.70 - 12.20	10.75
		L	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz	Band 1	10.95 - 11.45	10
M	Band 3		12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	N	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
O		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
	P	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
Q		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	R	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
S		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	T	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
U		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
	V	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
W		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	X	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
Y		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Z	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
AA		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
	AB	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
AC		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	AD	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
AE		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	AF	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
AG		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
	AH	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
AI		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	AJ	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
AK		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	AL	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
AM		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
	AN	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
AO		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	AP	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
AQ		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	AR	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
AS		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
	AT	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
AU		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	AV	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
AW		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	AX	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
AY		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
	AZ	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
BA		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	BB	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
BC		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	BD	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
BE		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
	BF	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
BG		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	BH	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
BI		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	BJ	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
BK		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
	BL	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
BM		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	BN	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
BO		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	BP	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
BQ		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
	BR	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
BS		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	BT	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
BU		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	BV	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
BW		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
	BX	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
BY		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	BZ	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
CA		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	CB	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
CC		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
	CD	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
CE		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	CF	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
CG		Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	CH	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
CI		Band 2	11.70 - 12.70							