

# **2209HUBF**

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

**Frequency:** B:  $10.70 - 10.95 \text{ GHz} \mid 10.95 - 11.70 \text{ GHz} \mid$ 

11.70 - 12.25 GHz | 12.25 - 12.75 GHz

L.O. Stability: +/- 25 kHz
Output Connector: F: 75 Ohm







# **KEY SPECIFICATIONS**

Band	Ku-Band
Input Frequency Band 1	10.70 - 10.95 GHz
Input Frequency Band 2	10.95 - 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	10.00 GHz
LO Frequency 3	10.75 GHz
LO Frequency 4	11.30 GHz
LO Stability	±25 kHz
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 - 1200 MHz
Output Frequency Band 2	950 - 1700 MHz
Output Frequency Band 3	950 - 1500 MHz
Output Frequency Band 4	950 - 1450 MHz
Tone Frequency	22 kHz ± 4 kHz

#### **RF SPECIFICATIONS**

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





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)  $\leq$  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 -125 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  $-40^{\circ}\text{C to } +70^{\circ}\text{C}$ Temperature Storage  $-50 \text{ to } +80^{\circ}\text{C}$ 

#### 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

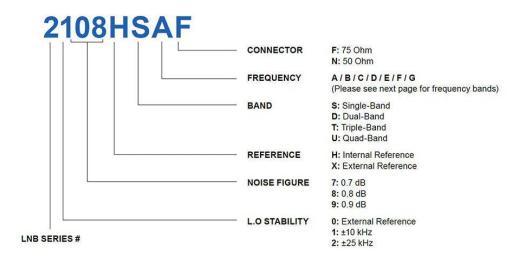
Made in Canada Richmond, BC, Canada EAR99 135 x 68 x 48 mm |

0.335 kg

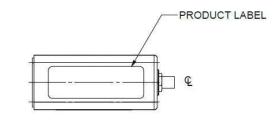
#### **HOW TO ORDER**

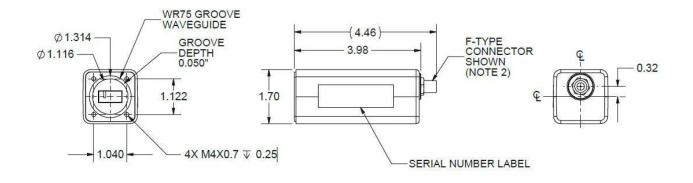






#### **MECHANICAL DIAGRAMS**







#### **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
Α		1.7 - 12.20	10.75		- 1450 MHz		Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V
B C	-	2.25 - 12.75	11.3 10	950 - 1450 MHz 950 - 1700 MHz		A	- Duna 1	10.00		555 1755 III IZ	
D	10.95 - 11.70 10.70-11.80		9.75	950 - 1700 MHz		1	Band 2	11.70 - 12.75	10.75	950 - 2000 MHz	18 V
			Triple Band			Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	
Band	RF	freq (GHz)	L.O freq (GHz)	Output freq	Voltage/Tone	В	Danu I	10.70 - 11.70	5.13	930 - 1930 WITZ	13 Y
	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V		Band 2	11.70 - 12.75	10.75	950 - 2000 MHz	18 V
Α	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz	13 V / 22 kHz	С	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V
	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	18 V		Band 2	12.25 - 12.75	11.3	950 - 1450 MHz	18 V
	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V	D	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V
В	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	13 V / 22 kHz						
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V		Band 2	11.70 - 12.75	10.6	1100 - 2150 MHz	18 V
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V		I		Quad Band		
	Dallu I	10.70 - 11.70	9.75	930 - 1930 WHZ	13 V	Band		freq (GHz)	L.O freq (GHz)	Output freq	Voltage/Tone
С	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz	13 V / 22 kHz	A B	Band 1	10.70 - 11.20	9.75	950 - 1450 MHz	13 V
	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	18 V		Band 2	11.20 - 11.70	10.25	950 - 1450 MHz	13 V / 22 kHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V		Band 3	11.70 - 12.25	10.75	950 - 1500 MHz	18 V
D	Band 2	11.70 - 12.25	10.75	950-1500 MHz	13 V / 22 kHz		Band 4	12.25 - 12.75	11.3	950 - 1450 MHz	18 V / 22kHz
	Band 3	12.25 - 12.75	11.3	950-1450 MHz	18 V		Band 1	10.70 - 10.95	9.75	950 - 1200 MHz	13 V
							Band 2	10.95 - 11.70	10	950 - 1700 MHz	13 V / 22 kHz
	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V		Band 3	11.70 - 12.25	10.75	950 - 1500 MHz	18 V
E	Band 2	11.55 - 12.25	10.6	950 - 1650 MHz	13 V / 22 kHz		Band 4	12.25 - 12.75	11.3	950 - 1450 MHz	18 V / 22kHz
	Band 3	12.20 - 12.70	11.25	950 - 1450 MHz	18 V	c	Band 1	10.70 - 11.20	9.75	950 - 1450 MHz	13 V
	Band 1	10.70 - 11.80	9.75	950 - 2050 MHz	13 V		Band 2	11.20 - 11.70	10.25	950 - 1450 MHz	13 V / 22 kHz
F	Band 2	10.95 - 12.10	10	950 - 2100 MHz	13 V / 22 kHz		Band 3	11.70 - 12.20	10.75	950 - 1450 MHz	18 V
	Band 3	11.70 - 12.75	10.75	950 - 2000 MHz	18 V		Band 4	12.20 - 12.75	11.25	950 - 1500 MHz	18 V / 22kHz
G	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	D	Band 1	10.95 - 11.45	10	950 - 1450 MHz	13 V
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz	13 V / 22 kHz
							Band 3	11.70 - 12.20	10.75	950 - 1450 MHz	18 V
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V		Band 4	12.20 - 12.75	11.25	950 - 1500 MHz	18 V / 22kHz



