

2109HDBN

2000 Dual-Band Ku-Band PLL LNB (0.9 dB)

Frequency: B: 10.70 - 11.70 GHz | 11.70 - 12.75 GHz

L.O. Stability: +/- 10 kHz

Output Connector: N: 50 Ohm



REACH



KEY SPECIFICATIONS

Band	Ku-Band
Input Frequency Band 1	10.70 - 11.70 GHz
Input Frequency Band 2	11.70 - 12.75 GHz
LO Frequency 1	9.75 GHz
LO Frequency 2	10.75 GHz
LO Stability	±10 kHz
LO Type	PLL
Noise Figure Max	1.0 dB
Noise Figure Typ	0.9 dB
Number Of Onboard Los	Dual-Band
Output Frequency Band 1	950 - 1950 MHz
Output Frequency Band 2	950 - 2000 MHz
Tone Frequency	22 kHz ± 4 kHz

RF SPECIFICATIONS

Control Signal 1	13V / No Tone
Control Signal 2	18V / No 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	-125 dBc/Hz
Phase Noise 1kHz Offset Max	-75 dBc/Hz
Phase Noise 10kHz Offset Max	-80 dBc/Hz
Phase Noise 100kHz Offset Max	-93 dBc/Hz

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 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

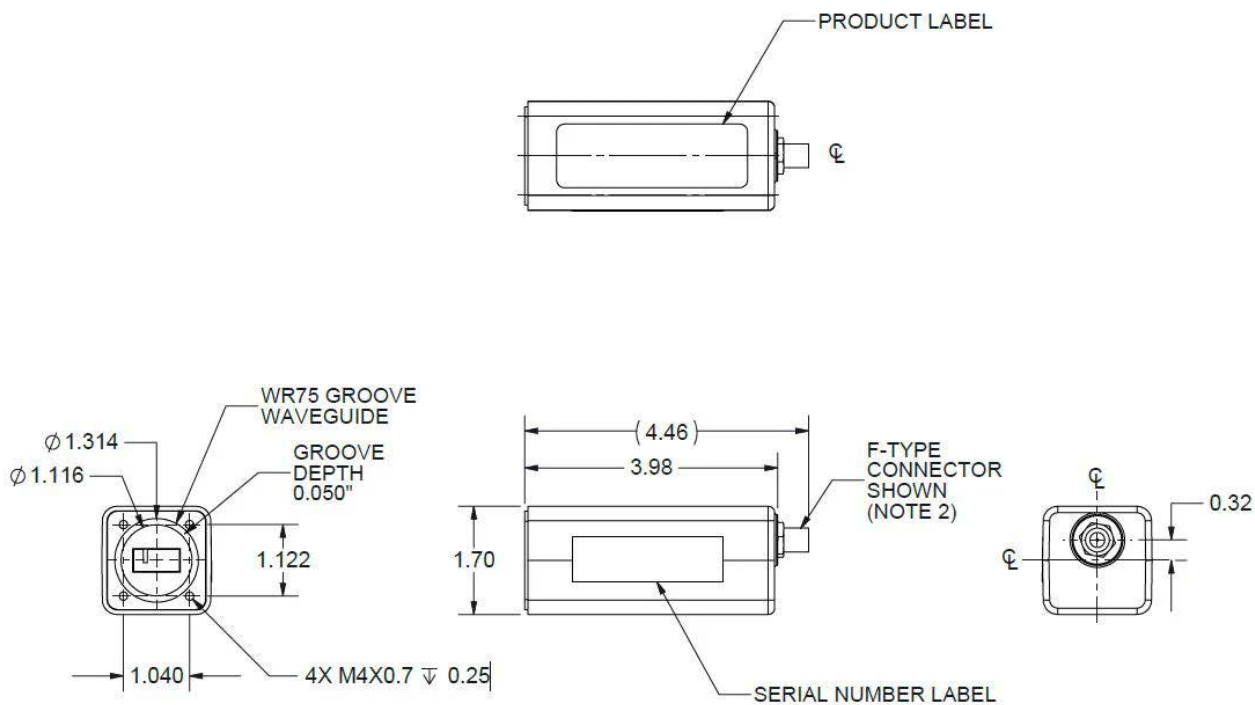
HOW TO ORDER



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: ± 10 kHz 2: ± 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	
				O	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				P	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				Q	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				R	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				S	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				T	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				U	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				V	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				W	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				X	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				Y	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				Z	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AA	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AB	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AC	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AD	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AE	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AF	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AG	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AH	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AI	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AJ	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AK	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AL	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AM	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AN	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AO	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AP	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AQ	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AR	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AS	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AT	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AU	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AV	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AW	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AX	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				AY	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				AZ	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BA	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BB	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BC	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BD	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BE	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BF	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BG	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BH	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BI	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BJ	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BK	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BL	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BM	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BN	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BO	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BP	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BQ	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BR	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BS	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BT	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BU	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BV	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BW	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BX	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				BY	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				BZ	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				CA	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				CB	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				CC	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				CD	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				CE	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		
					Band 1	10.95 - 11.45	10	950 - 1450 MHz		
				CF	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz		
					Band 3	11.70 - 12.20	10.75	950 - 1450 MHz		
				CG	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz		