

2209HTAF

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

Frequency: A: 10.95 - 11.70 GHz | 11.70 - 12.20 GHz |
12.20 - 12.75 GHz

L.O. Stability: +/- 25 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 - 12.20 GHz
Input Frequency Band 3	12.20 - 12.75 GHz
LO Frequency 1	10.00 GHz
LO Frequency 2	10.75 GHz
LO Frequency 3	11.25 GHz
LO Stability	±25 kHz
LO Type	PLL
Noise Figure Max	1.0 dB
Noise Figure Typ	0.9 dB
Number Of Onboard Los	Triple-Band
Output Frequency Band 1	950 - 1700 MHz
Output Frequency Band 2	950 - 1450 MHz
Output Frequency Band 3	950 - 1500 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
Conversion Gain Max	65 dB
Conversion Gain Min	55 dB



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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
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	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: ± 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	13 V	
B	12.25 - 12.75		11.3	950 - 1450 MHz			Band 2	11.70 - 12.75	10.75	950 - 2000 MHz	18 V	
C	10.95 - 11.70		10	950 - 1700 MHz								
D	10.70-11.80		9.75	950 - 2050 MHz								
Triple Band												
Band	RF freq (GHz)		L.O freq (GHz)	Output freq		Voltage/Tone	B	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V
A	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
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz		13 V / 22 kHz		C	Band 1	10.95 - 11.70	10	950 - 1700 MHz
	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
B	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
	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz		13 V / 22 kHz		Band 2	11.70 - 12.75	10.6	1100 - 2150 MHz	18 V
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz		18 V		Quad Band				
C	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
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz		13 V / 22 kHz	A	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
D	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
	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	
E	Band 1	10.95 - 11.70	10	950 - 1700 MHz		13 V	B	Band 2	10.95 - 11.70	10	950 - 1700 MHz	13 V / 22 kHz
	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	18 V
	Band 3	12.20 - 12.70	11.25	950 - 1450 MHz		18 V		Band 4	12.25 - 12.75	11.3	950 - 1450 MHz	18 V / 22kHz
F	Band 1	10.70 - 11.80	9.75	950 - 2050 MHz		13 V	C	Band 1	10.70 - 11.20	9.75	950 - 1450 MHz	13 V
	Band 2	10.95 - 12.10	10	950 - 2100 MHz		13 V / 22 kHz		Band 2	11.20 - 11.70	10.25	950 - 1450 MHz	13 V / 22 kHz
	Band 3	11.70 - 12.75	10.75	950 - 2000 MHz		18 V		Band 3	11.70 - 12.20	10.75	950 - 1450 MHz	18 V
G	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz		13 V		Band 4	12.20 - 12.75	11.25	950 - 1500 MHz	18 V / 22kHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz		13 V / 22 kHz	D	Band 1	10.95 - 11.45	10	950 - 1450 MHz	13 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	13 V / 22 kHz
						Band 3		11.70 - 12.20	10.75	950 - 1450 MHz	18 V	
							Band 4	12.20 - 12.75	11.25	950 - 1500 MHz	18 V / 22kHz	